



Serving the

**Serving the
Oil Industry**

Parveen Industries Private Limited

Composite Catalogue

(Oilfield Equipment)



Management system

Parveen's aim is to develop a trusting relationship with its customers and deliver to them a high quality service. So as to reach more closer to our mission, Parveen will try to:

Deliver high quality, cost effective merchandise to customer, work to high HSE standards, recruit only the best personnel maintain and continually improve management system.

Health, Safety & Environment

It is the company policy to:

- Establish and maintain standards for Health, Safety & Environmental protection within the company which adhere to all applicable laws and meet the standards applicable to oil industry.
- Ensure that all standards are communicated to all company personnel and sub-contractors.
- Ensure that all company personnel understand and fulfil their responsibilities as specified under this policy.
- Encourage all company staffs to develop a keen Health, Safety and Environmental awareness.

Policy

Always to foster "Customers First" & "How To Do It Better"

Policy Review

The board of directors review the company performance, with respect to this policy, to ensure problem areas are properly addressed and to monitor and implement Health, Safety and Environment standards within the company. The above policy is endorsed by Managing Director.

Mission

Parveen's mission is to be the leader in its chosen field of business. Parveen aims to create value for its customers and provide its customers a return on their investment.

Objectives

"Quality" is the basic objective of our company.

Training to staffs

Parveen realized importance of training to its staffs of all levels. In 1988 Parveen sent its first batch of engineers to Teledyne Merla - U.S.A., which was our collaborator, for extensive training in gas lift equipment. Since then, every year Parveen engineers from its all manufacturing facilities are sent for training in various disciplines in India and abroad.



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INTRODUCTION

PARVEEN, a very enterprising organisation and a leader in the design and manufacture of OIL FIELD EQUIPMENT, has earned a name which is synonymous with quality and customer satisfaction. PARVEEN's philosophy of Total Quality Management has kept us in the forefront of oil industry in INDIA.

Total Quality Management

- Quality admits no compromises. For this purpose, PARVEEN exercises strict control on the starting materials which are purchased either from API approved sources or from chosen suppliers who are known for their Quality Management. Though raw materials such as low alloy steels, chrome steels etc. emanate from chosen suppliers and are accompanied by their test certificates, even then PARVEEN does tests after their arrival, on random basis to ensure conformity with API specs. It is only then material is released for manufacture.
- Equipment manufactured by PARVEEN owes its high quality to manufacturing procedures, which are constantly upgraded to suit the precision requirements of the items. Most of the items are manufactured on CNC machines ensuring accuracy and repeatability. At every stage quality inspector inspects before releasing items to next stage. Appropriate steps are taken at every stage of manufacture to ensure exclusion of all possible mistakes. The final product is then pushed thru all the acceptance tests before release for shipping. Third party inspections are also organised to suit the requirements of the customers.





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COMPOSITE PRODUCT INDEX

SR. NO.	INDEX	PAGE
1.	Wellheads, X-mas Trees, Gate Valves, Manifolds	1
2.	Wireline Pressure Control Equipment & Tool String	27
3	Coil Tubing Pressure Control Equipment	74
4.	Sucker Rod Pressure Control Equipment & Tools	80
5.	Treating Irons, Unions, Swivels & Circulating Heads	88
6.	Flanges Studs & Nuts Ring Gaskets Pipe Fittings and Pipes Butterfly Valve, Check valve, Pipeline Valve, Plug Valve, Ball Valve, Mud Valve	126
7.	Tubulars, Drilling & Workover Tools, Cementing Equipment	184
8.	Well Test Equipment	214
9.	Gas Lift Equipment Calibration of Gas Lift Valves	220
10.	Down Hole Flow Control	272
11.	Fishing & Milling Tools	294



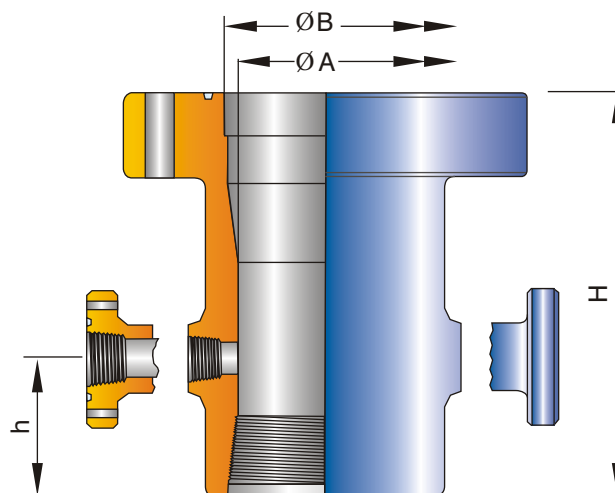
WELLHEADS, X-MAS TREES, GATE VALVES, MANIFOLDS INDEX

SR. NO.	INDEX	PAGE
1	Casing Head	2
2	Casing Head Spool	3
3	Casing & Tubing Hanger	4
4	Tubing Hanger Spool & Coupling	8
5	Bottom Pack-off Cross Over Seal	9
6	Tubing Head	10
7	Tubing Head Spool	11
8	Tools & Service Equipment	12
9	Choke Valve	15
10	Gate Valve	18
11	Typical Single & Dual Completion Wellhead & X-mas Tree Assemblies	23
12	Choke And Kill Manifold	24
13	X-mas Tree Cap	25
14	Single Completion Component	26



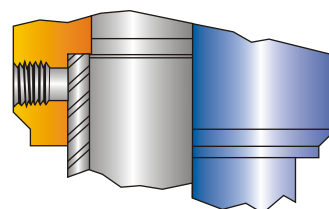
CASING HEAD

PARVEEN's 'PCH' Casing Head e.g. Casing Head Housing (PCHH) and Casing Head Spool (PCHS) accept Automatic Casing Hanger (PCHA), Unitised Casing Hanger (PCHU), S-Slips (PS) & S-Pack off (PSPO) assembly and can be furnished with female thread or slip-on weld lower connection. Standard outlets are 2" LINE PIPE threads or 2" API extended flanged with optional VR THREADS and end connection may be threaded or slip on weld type. Hold down screws to energize the annulus seal can be furnished on request.



Parveen Casing Head Housing (PCHH) Threaded Type

(Caution: Casing Hangers with attached seals which are not held down by hold down screws may be unseated when the annulus pressure multiplied by the annulus area exceeds the pipe load).



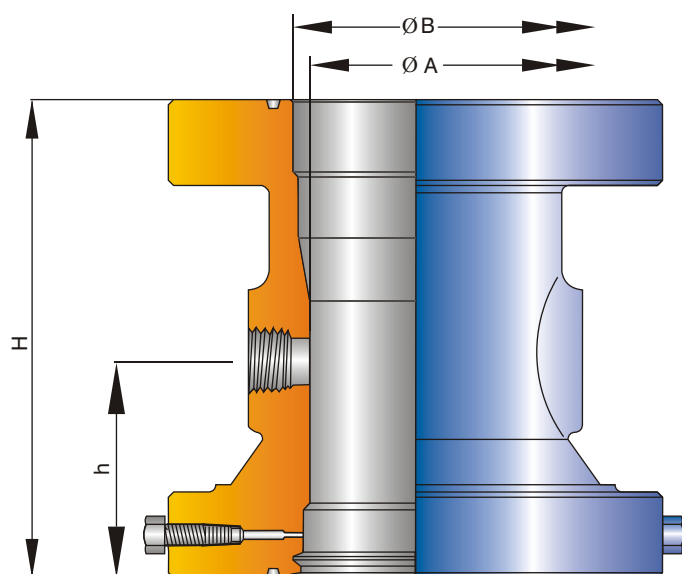
Slip-On Weld Conn

PARVEEN CASING HEAD HOUSING (PCHH) DIMENSIONS						
Rating	Top Flange Size	Casing Size	Total Height (H)	Height Of Side Outlets (h)	Thru Bore (Min A)	Bore Top Flange (B)
2000 PSI *	11	8 5/8	19	6 1/2	8 1/6	10 31/32
	11	9 5/8	19	6 1/2	9 1/8	10 31/32
	11	10 3/4	19	6 1/2	9 15/16	10 31/32
	13 5/8	11 3/4	19	6 1/2	9 15/16	10 31/32
	13 5/8	13 3/8	19	6 1/2	12 1/2	13 19/32
	16 3/4	16	18 1/8	6 1/2	15 3/8	16 11/16
	21 1/4	20	15 11/16	5	18 15/16	20 1/4
3000 PSI *	11	8 5/8	19	6 1/2	8 1/16	10 31/32
	11	9 5/8	19	6 1/2	9 1/8	10 31/32
	11	10 3/4	19	6 1/2	9 15/16	10 31/32
	13 5/8	11 3/4	19	6 1/2	11 3/8	13 19/32
	13 5/8	13 3/8	19	6 1/2	12 1/2	13 19/32
	16 3/4	16	18	6 1/2	15 3/8	16 11/16
	20 3/4	20	15 11/16	6 1/2	18 15/16	20 1/4
5000 PSI *	11	8 5/8	19	6 1/2	8 1/16	10 31/32
	11	9 5/8	19	6 1/2	9 1/8	10 31/32
	11	10 3/4	19	6 1/2	9 15/16	10 31/32
	13 5/8	13 3/8	19	6 1/2	12 1/2	13 19/32

NOTES:

- 1) All dimension are in inches.
- 2) Landing Bases are available with housings.
- 3) * Casing thread connection limits maximum working pressure rating (as per API-6A) to 5000 psi for 4 1/2" - 10 3/4" casing, to 3000 psi for 11 3/4" - 13 3/8" casing & to 2000 psi for 16" - 20" casing.

CASING HEAD SPOOL



Parveen Casing Head Spool (PCHS)

PARVEEN's Casing Head Spool (PCHS) accepts automatic (PCHA) and unitised (PCHU) casing hangers. Standard outlets are 2 1/16", 2000-10000 PSI WP Studded or flanged outlets can also be furnished with threaded 2" Line pipe connection. Studded or flanged outlets have internal threads for valve removal plugs. Bottom of the flange is designed for installation on the bit guides and PARVEEN type PBP -1 & PBP - 2 bottom pack-off, CROSSOVER SEAL (PP Seal over 5000 PSI WP) and is provided with a plastic packing injection port with bleeder outlet and a test port. For high pressure (over 3000 PSI W.P) the type 'PSPO' pack-off is used at the top of the casing hanger to prevent collapse of the casing pipe. Hold down screws can be furnished on request.

PARVEEN CASING HEAD SPOOL (PCHS) DIMENSIONS					
Flange Sizes		Dimensions			
Bottom	Top	Overall Height(H)	Height Of Side Outlets (h)	Minimum Bore (A)	Top Flange Bore (B)
11 X 2000	11 X 2000	20 1/8	10 1/16	8	10 31/32
11 X 2000	11 X 3000	20 5/8	10 1/16	8	10 31/32
11 X 3000	11 X 3000	21	10 1/2	8	10 31/32
11 X 3000	11 X 5000	23 3/4	10 5/8	8	10 31/32
11 X 5000	11 X 5000	25 1/2	12 3/8	8	10 31/32
13 5/8 X 2000	11 X 2000	20 1/4	10 3/16	9 15/16	10 31/32
13 5/8 X 2000	11 X 3000	20 3/4	10 3/16	9 15/16	10 31/32
13 5/8 X 3000	11 X 3000	21 1/2	11	9 15/16	10 31/32
13 5/8 X 3000	11 X 5000	25 1/8	12	9 15/16	10 31/32
13 5/8 X 5000	11 X 10000	25 1/2	12 3/8	9 15/16	10 31/32
16 3/4 X 2000	11 X 2000	21 1/8	11 1/16	9 15/16	10 31/32
16 3/4 X 2000	11 X 3000	22 3/4	10 3/4	9 15/16	10 31/32
16 3/4 X 3000	11 X 3000	24 5/16	12 5/16	9 15/16	10 31/32
16 3/4 X 3000	11 X 5000	26	12 3/8	9 15/16	10 31/32
16 3/4 X 2000	13 5/8 X 2000	21 1/4	11 1/16	12 1/2	13 19/32
16 3/4 X 3000	13 5/8 X 3000	22 7/8	11 15/16	12 1/2	13 19/32
16 3/4 X 3000	13 5/8 X 5000	27 1/16	11 15/16	12 1/2	13 19/32
21 1/4 X 2000	13 5/8 X 2000	22 1/16	11 7/8	12 1/2	13 19/32
21 1/4 X 2000	13 5/8 X 3000	23 3/4	11 3/8	12 1/2	13 19/32

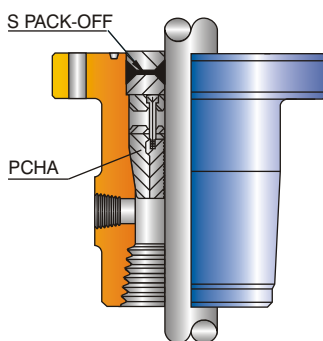
NOTE :

All Dimensions are in Inches.

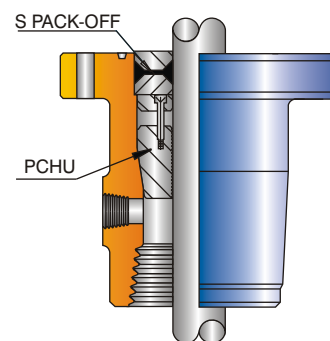
CASING & TUBING HANGER

Automatic Casing Hanger (PCHA) is basically designed for heavy load service and is used for PARVEEN's Casing Head Housing 'PCHH' and Casing Head Spool 'PCHS' described earlier. When the Casing load is applied to the hanger, the top ring connected by the Pack-off and shoulder screw compresses the packing to seal the annulus pressure of the casing. This casing hanger is normally used for pressure ratings upto 3000 PSI. For ratings over 3000 PSI, type 'PSPO' Pack-off is used to prevent collapse of the pipe.

Unitised Casing Hanger (PCHU) can be used both for PARVEEN's Casing Head Housing (PCHH) and Casing Head Spool (PCHS) as described earlier. This Hanger is designed for medium or heavy load service. This hanger is normally latched around the pipe and lowered in casing head body. After the casing is landed, shoulder screws should be evenly tightened to affect a positive annular seal. The hanger may be used upto 3000 PSI WP. For ratings over 3000 PSI, 'PSPO' Pack-off is used to prevent collapse of the pipe.

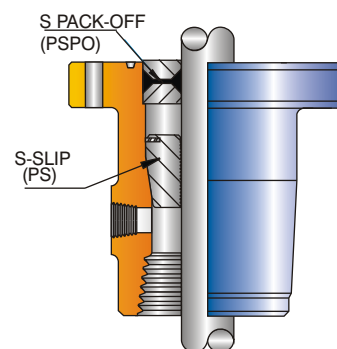


Type PCHA Automatic Casing Hanger with Slip Seal Assy



Type 'PCHU' Unitised Casing Hanger with Slip Seal Assy

Casing Hanger - PARVEEN
Casing Hangers are basically 2 types, i.e. Automatic Casing Hanger (PCHA) and Unitised Casing Hanger (PCHU). S-Slips (PS) and S-Pack off (PSPO) assembly are also shown.



Type S-Slip (PS) Casing Hanger with S-Pack-off (PSPO) and S-Slip

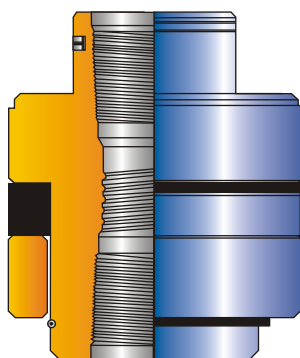
SPECIFICATIONS OF PARVEEN'S CASING HANGER												
Nominal Flange Size	Casing Size											
	4 1/2	5	5 1/2	6 5/8	7	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	13 3/8	16
9	PCHA PCHU	PCHU	PCHA PCHU									
11	PCHA PCHU	PCHA PCHU	PCHA PCHA	PCHA PCHU	PCHA PCHU	PCHA PCHU	PCHA					
13 5/8					PCHA PCHU	PCHA PCHU	PCHA PCHU	PCHA PCHU	PCHA			
16 3/4								PCHU	PCHA PCHU	PCHA	PCHU	
20 3/4 & 21 1/4											PCHA PCHU	

Nominal Flange Size	Casing Size											
	4 1/2	5	5 1/2	6 5/8	7	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	13 3/8	16
9	PS	PS	PS									
11	PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS					
13 5/8			PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS PSPO	PS			
16 3/4								PS PSPO	PS PSPO		PS PSPO	
20 3/4 & 21 1/4									PS PSPO		PS PSPO	PS PSPO

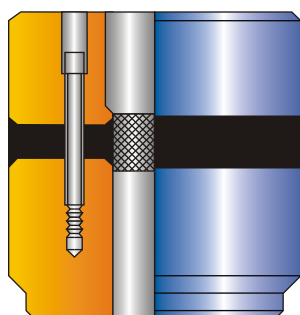
PCHA: PARVEEN's Automatic Casing Hanger, **PS:** PARVEEN's S - Slip,

PCHU: PARVEEN's Unitised Casing Hanger, **PSPO:** PARVEEN's S - Pack-off.

CASING & TUBING HANGER



Type PTHSE
Extended Neck Hanger



Type PTHSW
Wrap Around Hanger

Tubing Hangers - PARVEEN's Tubing Hangers are basically four types. These are Mandrel Type 'PTHSM', Wrap Around Type 'PTHSW', Extended Neck Type 'PTHSE' and Dual Split Type 'PTHDE'. Extended Neck Type with control lines 'PTHSCl', Dual Split Type with control lines 'PTHDCl', mandrel type with metal to metal seals (PTHSM) and Mandrel type equipped with a continuous control line with metal to metal seals such as PHTSM are also supplied.

'PTHSM' type Tubing Hanger is used for the PTHS type of Tubing Head Spool described later. It seals the annulus pressure by compressing the seal with the weight of the tubing and the hold down screws.

Extended Neck Type 'PTHSE' is used for the Tubing Head/Spool described later. This type is like 'PTHSM' type tubing hanger but having an extended neck with a seal ring which seals fluid in the tubing. This type seals the annulus pressure by compressing the seal with the weight of the tubing and the hold down screws.

The 'PTHSW' type is a split type tubing hanger and may be wrapped round the tubing. It seals the annulus pressure by compressing the seal with the hold down screws installed in the top flanges of the spool. This type of hanger is used where tubing must be rotated or moved up and down under pressure. This tubing hanger is used together with a tubing hanger coupling and a tubing hanger spool.

Specifications of PTHSM & PTHSE Type Hangers					
Nominal Flange Size	Tubing Hanger Type	Lift & Suspension Threads			
		2 3/8 Up TBG	2 7/8 Up TBG	3 1/2 Up TBG	4 1/2 Up TBG
7 1/16	PTHSM	X	X	X	X
	PTHSE	X	X	X	X
9	PTHSM	X	X	X	X
	PTHSE	X	X	X	X
11	PTHSM	X	X	X	X
	PTHSE	X	X	X	X

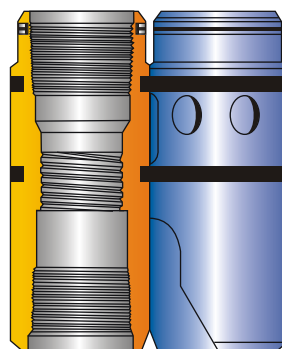
NOTE:

- 1) X-API standard tubing threads.
- 2) These hangers can also be offered with premium threads at request.
- 3) All sizes are in inches.

CASING & TUBING HANGER

Dual split type Tubing Hanger 'PTHDE' is used for Dual Tubing String applications. This utilises plastic packing between the seals for sealing. It is fixed by hold down screws.

Dual split type tubing hangers can also be fitted with hydraulic control lines 1 or 2 called 'PTHDC1' & 'PTHDC2'.



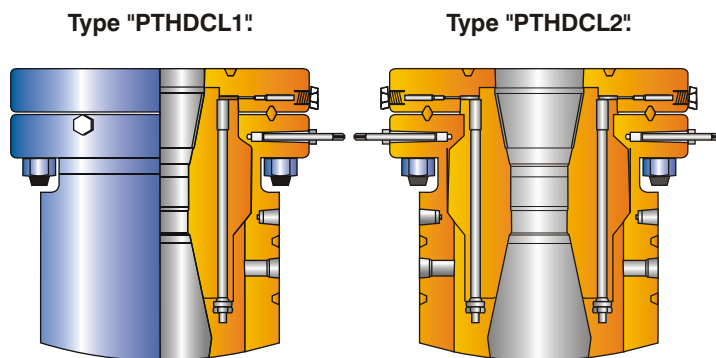
PTHDE Tubing Hanger

Specifications of 'PTHDE' Type Tubing Hangers				
Tubing Pipe	Bore Centre to Bore Centre	Nominal Flange Size	Casing Pipe	
			O.D.	Weight
1.90 x 1.90	2 25/32	7 1/16	5 1/2	17 LBS/FT
2 3/8 x 2 3/8	3 25/32	7 1/16	7	38 LBS/FT
2 7/8 x 2 3/8	3 35/64	7 1/16	7	29 LBS/FT
2 7/8 x 2 3/8	4	9	7 5/8	39 LBS/FT
2 7/8 x 2 7/8	4	9	7 5/8	29.7 LBS/FT
2 7/8 x 2 7/8	4 1/2	9	8 5/8	49 LBS/FT
3 1/2 x 2 7/8	5 3/64	11	9 5/8	53.5 LBS/FT
3 1/2 x 3 1/2	5 3/64	11	9 5/8	53.5 LBS/FT

NOTE: All dimensions are in Inches.

Extended Neck Type Tubing hangers are equipped with a control line (or lines) to control the opening and closing of sub-surface safety valves (SSSV) from the surface. These are called 'PTHSCL1' & 'PTHSCL2'.

The type 'PTHSCL1' is equipped with 1 (1/4") hydraulic control line while 'PTHSCL2' is equipped with 2 hydraulic control lines. Both these types seal the annulus pressure by compressing the seal with the hold down screws installed in the type 'PTHS' Tubing spool top flange.



Extended Neck type Tubing Hangers

Specifications for 'PTHSCL & PTHDCL' Tubing Hangers					
Nominal Flange Size	Tubing Hanger Type	Lift & Suspension Threads			
		2 3/8 Up TBG	2 7/8 Up TBG	3 1/2 Up TBG	4 1/2 Up TBG
7 1/16	PTHSCL	X	X	X	
	PTHDC1	X	X		
9	PTHSCL	X	X	X	X
	PTHDC1	X	X	X	X
11	PTHSCL	X	X	X	X
	PTHDC1	X	X	X	X

NOTE:

- 1) X-API Standard Tubing Threads.
- 2) These hangers can also be offered with premium threads at request.
- 3) All sizes are in inches



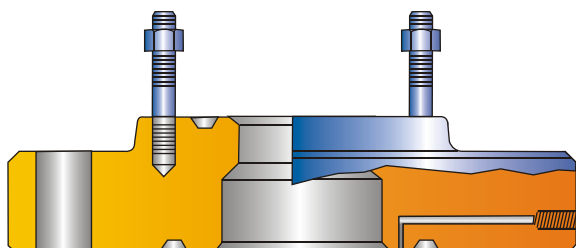
CASING & TUBING HANGER

PARVEEN's Mandrel Type Tubing Hanger with metal to metal seals called 'PTHTSM' are used with PARVEEN's Tubing Spool and are equipped with metal to metal seal for fluids which prohibit the use of elastomer seals. These hangers have metal rings at the top and bottom for sealing. The rated working pressure range is 5000 psi to 15000 psi.

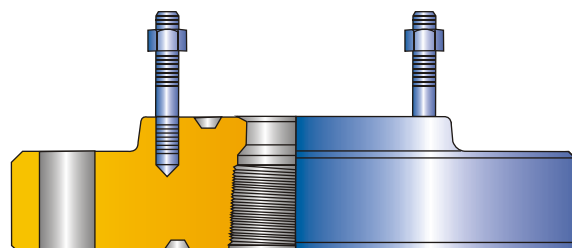
PARVEEN's PTHTSMM hangers fitted with single or dual hydraulic control lines are called PTHTSMM1 & PTHTSMM2. These are equipped with metal to metal seals for fluids prohibiting the use of elastomeric seals. Sealing is affected by metal ring mounted on the top of the hanger and load applied to the bottom of the hanger body.

Tubing Head Adapters

PARVEEN's Tubing Head Adaptors are designed for tubing suspension and can be used with extended neck threaded hanger PTHSE for a max WP of 15000 PSI. These can be provided with a studded up connections and a recessed lower flange with test & bleed ports. Tubing Head Adaptors can also be used with wrap around tubing hanger (PTHSW) for a max. WP of 10000 PSI and are threaded female for tubing suspension. It can be threaded according to the customer specification.



Type PTHSE Tubing Head Adaptor



Type PTHSW Tubing Head Adaptor

Tubing Head Adapters PTHSE Specifications		
Bottom Flange Size	Studded Top Flange	Min. Bore
7 1/16 x 2000	2 1/16 x 2000	2 1/16
	2 1/16 x 5000	2 1/16
	2 9/16 x 2000	2 9/16
	2 9/16 x 5000	2 9/16
	3 1/8 x 2000	3 1/8
	3 1/8 x 3000	3 1/8
7 1/16 x 3000	2 1/16 x 5000	2 1/16
	2 9/16 x 5000	2 9/16
	3 1/8 x 3000	3 1/8
	3 1/8 x 5000	3 1/8
7 1/16 x 5000	2 1/16 x 5000	2 1/16
	2 9/16 x 5000	2 9/16
	3 1/8 x 5000	3 1/8
7 1/16 x 10000	2 9/16 x 10000	2 9/16
	3 1/16 x 10000	3 1/16
7 1/16 x 15000	2 1/16 x 15000	2 1/16
	2 9/16 x 15000	2 9/16

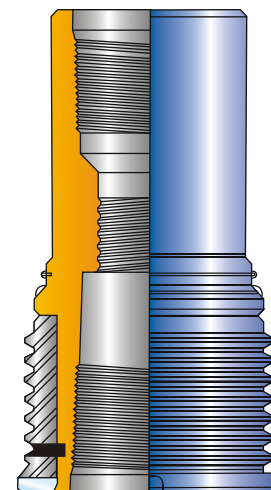
Tubing Head Adapters PTHSW Specifications			
Bottom Flange Size	Studded Top Flange	Thread Size API-Up TBG	Min. Bore.
7 1/16 x 2000	2 1/16 x 2000	2 3/8	2 1/16
	2 1/16 x 5000	2 3/8	2 1/16
	2 9/16 x 2000	2 7/8	2 9/16
	2 9/16 x 5000	2 7/8	2 9/16
	3 1/8 x 2000	3 1/2	3 1/8
	3 1/8 x 3000	3 1/2	3 1/8
7 1/16 x 3000	2 1/16 x 5000	2 3/8	2 1/16
	2 9/16 x 5000	2 7/8	2 9/16
	3 1/8 x 3000	3 1/2	3 1/8
	3 1/8 x 5000	3 1/2	3 1/8
7 1/16 x 5000	2 1/16 x 5000	2 3/8	2 1/16
	2 9/16 x 5000	2 7/8	2 9/16
	3 1/8 x 5000	3 1/2	3 1/8
7 1/16 x 10000	2 9/16 x 10000	2 7/8	2 9/16

NOTE:

- 1) Other sizes available on request.
- 2) All Dimensions are in inches.

TUBING HANGER SPOOL & COUPLING

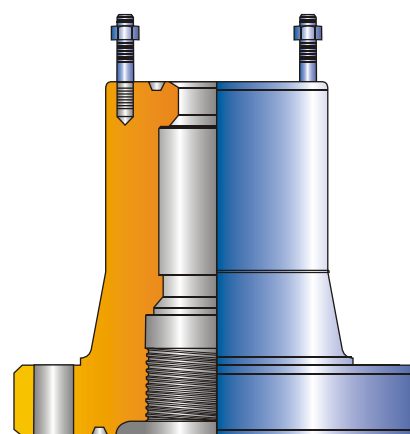
PARVEEN also manufactures **Tubing Hanger Spools** and **Tubing Hanger Couplings**. Tubing Hanger Spool is used in combination with Tubing Hanger coupling, Wrap around tubing hanger (PTHSW) and 'PTHS' type tubing spool. Tubing Hanger Coupling allows installation by screwing the union nut of the tubing hanger coupling without a need to turn the X-mas tree. Coupling is threaded for installing a back pressure valve. Top & Bottom of the coupling can be threaded to suit customer's requirement.



Tubing Hanger Coupling

SPECIFICATIONS OF TUBING HANGER COUPLING			
Size			
4 1/2 x 2 3/8	API	UPSET	TUBING
4 1/2 x 2 7/8	API	UPSET	TUBING
6 5/16 x 3 1/2	API	UPSET	TUBING
6 7/8 x 4 1/2	API	UPSET	TUBING

SPECIFICATIONS OF TUBING HANGER SPOOL		
Bottom Flange x Studded Top Flange	Bore	Bottom Prep
7 1/16 2000 x 2 9/16 2000	2 9/16	4 1/2
7 1/16 3000 x 2 1/16 5000	2 1/16	4 1/2
7 1/16 3000 x 2 9/16 5000	2 9/16	4 1/2
7 1/16 5000 x 2 1/16 5000	2 1/16	4 1/2
7 1/16 5000 x 2 9/16 5000	2 9/16	4 1/2
7 1/16 5000 x 3 1/8 5000	3 1/8	6 5/16
7 1/16 5000 x 4 1/16 5000	4 1/8	6 7/8
9 5000 x 2 1/16 5000	2 1/16	4 1/2
9 5000 x 3 1/8 5000	3 1/8	6 5/16
9 5000 x 4 1/16 5000	4 1/8	6 7/8
11 5000 x 2 9/16 5000	2 9/16	4 1/2
7 1/16 10000 x 2 1/16 10000	2 1/16	4 1/2
7 1/16 10000 x 2 9/16 10000	2 9/16	4 1/2
7 1/16 10000 x 3 1/16 10000	3 1/16	6 5/16
9 10000 x 4 1/16 10000	4 1/16	6 7/8
7 1/16 15000 x 1 13/16 15000	1 13/16	4 1/2
7 1/16 15000 x 2 1/16 15000	2 1/16	4 1/2
7 1/16 15000 x 2 9/16 15000	2 9/16	4 1/2



Tubing Hanger Spool

NOTE :

All dimensions are in inches

BOTTOM PACK-OFF CROSS OVER SEAL

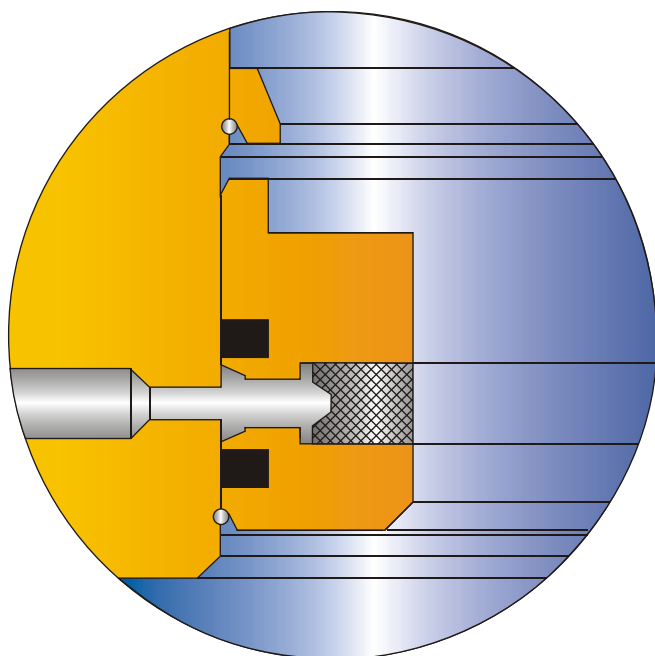
The standard **bottom pack - off** is type '**PBP1**'

The bottom pack - off is installed in the lower flange of the casing head spool and tubing head spool to prevent the lower flange from being exposed to high pressure.

The bottom pack-off type 'PBP1' seals the annulus pressure by injecting packing. The bottom pack - off PBP - 2 is designed to give a positive annular seal with pressure energized oversize O - Rings.

For services at working pressures above 5,000 psi, the 'PP' seal is used.

When the bottom pack - off is used, the casing should be cut 90 mm from the top flange surface of the connecting spool.



Bottom Pack-OFF (PBP-1)

Nominal Flange Size	Casing Pipe										
	4 1/2	5	5 1/2	6 5/8	7	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	13 3/8
9	O	O	O								
11	O	O	O	O	O	*					
13 5/8			O	O	O	O	O	O			
16 3/4								O	O	O	
20 3/4 & 21 1/4								O	O	O	

O Type 'PBP-1', * Type 'PBP-2'

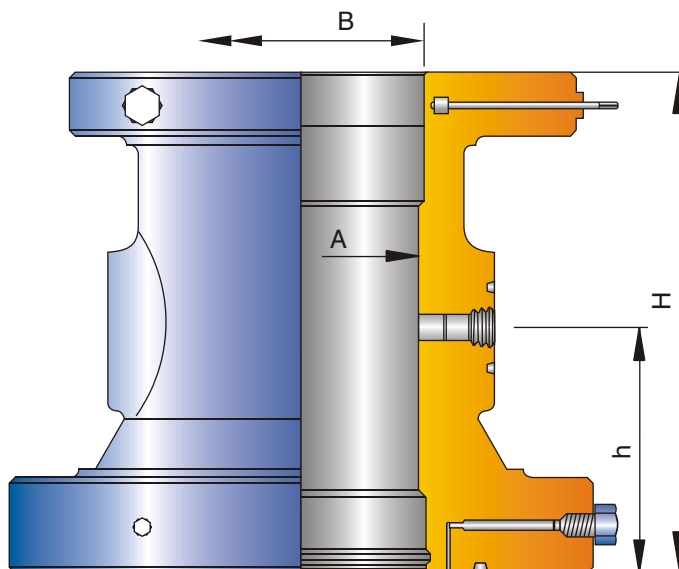
NOTE:

All sizes are in inches

TUBING HEAD

PARVEEN's Tubing Head Spools (PTHS) body have a straight bore with a 45 deg landing shoulder. While the top flange has hold down screws as standard equipment for securing tubing hanger, the bottom flange is designed for installation of PARVEEN's bottom pack - off PBP-1 & PBP - 2 (PP-seal for high pressure over 5000 PSI) and is provided with bit guide, a plastic packing injection port with bleeder outlet and a test port. This can accept Tubing Hangers Mandrel Type 'PTHSM', Wrap around type 'PTHSW' and Extended neck type 'PTHSE'.

Standard outlets are 2 1/16" 2000 -10000 PSI WP studded. Even 2" Line Pipe & Flanged outlets can also be provided. Studded outlets are threaded internally for the valve removal plugs. Top flange is provided with hold down screws to secure tubing hanger.



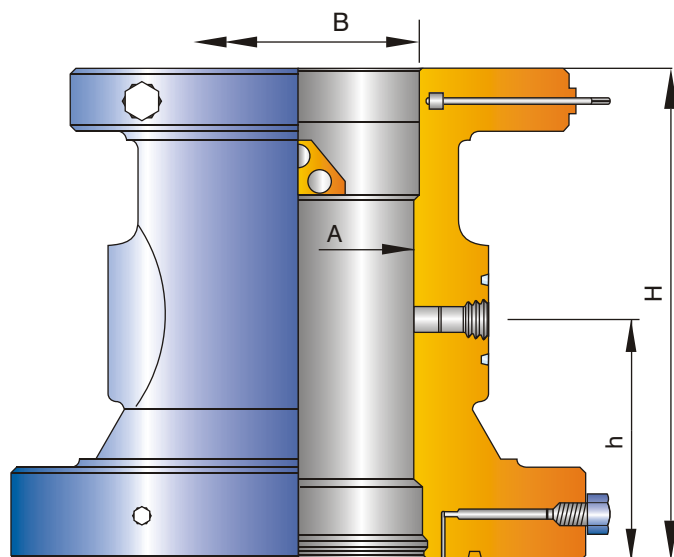
Parveen's Tubing Head Spool (PTHS)

Parveen's Tubing Head Spool (PTHS) Dimension.					
Flange Sizes		Overall Height(H)	Height Of Side Outlets (h)		Top Flange Bore (B)
Bottom	Top				
9 X 2000	7 1/16 X 2000	16	7 15/16	6 1/2	7 1/32
9 X 2000	7 1/16 X 3000	16	7 15/16	6 1/2	7 1/32
9 X 2000	7 1/16 X 3000	16	7 15/16	6 13/16	7 1/32
9 X 3000	7 1/16 X 5000	16	8 1/16	6 13/16	7 1/32
11 X 2000	7 1/16 X 2000	16	8 1/16	6 13/16	7 1/32
11 X 2000	7 1/16 X 3000	16	8 1/16	6 13/16	7 1/32
11 X 3000	7 1/16 X 3000	19 1/2	10 1/2	6 13/16	7 1/32
11 X 3000	7 1/16 X 5000	22 7/8	12 3/8	6 13/16	7 1/32
11 X 5000	7 1/16 X 5000	23 1/2	10 3/4	6 13/16	7 1/32
11 X 2000	9 X 2000	16	8 1/16	8 1/16	8 3/4
11 X 2000	9 X 3000	16	8 1/16	8 1/16	8 3/4
11 X 3000	9 X 3000	19 1/2	10 1/2	8 1/16	8 3/4
11 X 3000	9 X 5000	22 7/8	12 3/8	8 1/16	8 3/4
11 X 5000	9 X 5000	25	12 3/4	8 1/16	8 3/4
11 X 5000	7 1/16 X 10000	25	12 3/4	6 9/16	7 1/32
11 X 5000	9 X 10000	25	12 3/4	8 1/16	8 3/4
11 X 10000	7 1/16 X 10000	26 3/8	12 3/4	6 3/8	7 1/32
11 X 10000	7 1/16 X 15000	27 3/8	12 3/4	6 3/8	7 1/32

NOTE:

All Dimensions are in Inches.

TUBING HEAD SPOOL



Parveen's Tubing Head Spool (PTHD)

PTHD Tubing Head Spools are designed for the popular split hanger suspensions for dual completions. It has welded wedges for hanger alignment and an open - face top flange.

Type 'PTHD' Tubing Spool accepts either the 'PTHDE', 'PTHSCS', 'PTHDCL' tubing hangers. This tubing spool is provided with a wedge to position the hanger. The standard outlets are 2 1/16 2000-10000 PSI WP studded. The outlets are threaded for the valve removal plug to allow for the removal of the valve. The bottom of the flange is designed for installing the type PBP-1 Bottom pack off (PP Seal for high pressure over 5000 PSI WP) and is provided with a plastic packing injection port and a test port. The top of the spool is provided with hold down screws to secure the tubing hanger.

Parveen's Tubing Head Spool (PTHD) Dimensions :-					
Flange Sizes		Overall Height(H)	Height Of Side Outlets (h)	Minimum Bore (A)	Top Flange Bore (B)
Bottom	Top				
11 X 2000	7 1/16 X 2000	20 1/2	10 6 3/8	6 61/64	
11 X 3000	7 1/16 X 3000	20 1/2	10 6 3/8	6 61/64	
11 X 3000	7 1/16 X 5000	22	11 1/2 6 3/8		6 61/64
11 X 5000	7 1/16 X 5000	23 3/4	11 11/16 6 3/8		6 61/64
11 X 5000	7 1/16 X 10000	25	12 3/4 6 3/8		6 61/64
11 X 3000	9 X 3000	22 1/4	11 5/8 6 13/16		8 59/64
11 X 3000	9 X 5000	23 3/8	12 3/4 6 13/16		8 59/64
11 X 5000	9 X 5000	25	12 3/4 6 13/16		8 59/64
11 X 5000	9 X 10000	27 3/8	14 3/8 6 13/16		8 59/64
13 5/8 X 3000	9 X 3000	22 3/4	11 5/8 8 1/16	8 59/64	
13 5/8 X 3000	9 X 5000	23 7/8	12 3/4 8 1/16	8 59/64	
13 5/8 X 5000	9 X 5000	24 7/8	12 3/4 8 1/16	8 59/64	
13 5/8 X 3000	7 1/16 X 3000	22 1/2	10 6 3/8	6 61/64	
13 5/8 X 3000	7 1/16 X 5000	23 5/8	11 1/8 6 3/8	6 61/64	
11 X 10000	7 1/16 X 10000	28 1/2	12 3/4 6 3/8	6 61/64	
11 X 10000	7 1/16 X 15000	29 1/8	13 3/8 6 3/8	6 61/64	
11 X 10000	9 X 10000	30 3/4	15 6 13/16	8 59/64	

NOTE:

All Dimensions are in Inches.

TOOLS & SERVICE EQUIPMENT

Casing Head Body Retrievable Wear Bushing (PRWB)

These retrievable wear bushings (PRWB) protect the inner containers of casing head bodies or spools during drilling operations.

When wear bushings are used, either hold down screws in the top flange of the casing head body or hold down flanges with hold down screws are required.

Retrieving Tool (PRT)

This tool (PRT) is meant for retrieving the wear bushing described above. It is inserted in the slot provided in the wear bushing top surface, rotated and then pulled up with the tools.

BOP Test Plug (PTP)

These plug Testers fit all nominal sizes of casing head bodies and tubing heads and are available with any standard tool joint.

The test plugs are assembled in the drill string and lowered to its seat in the casing head body or tubing head. Pipe rams of the preventors are then closed and hydraulic test pressure is applied below the rams.

Blind rams can be tested in the same manner after removing the drill string.

Back Pressure Valve (PBPV).

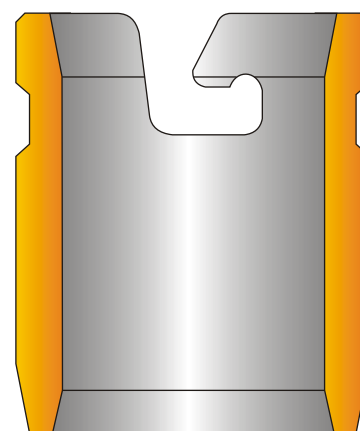
Tubing hanger bushing are furnished with female lift and suspension threads and are machined to accommodate the type (PBPV) back pressure valve as shown in the figure.

With Blowout Preventor equipment attached to the tubing head body, the tubing is run to the desired depth and the bushing, with the type (PBPV) back pressure valve installed, is made-up on the landing joint.

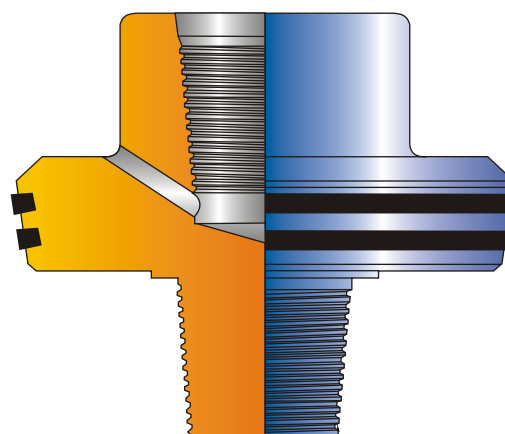
The wrap around hanger is then latched around the tubing below the hanger bushing and lowered thru the BOP to its position in the tubing head body by means of a landing joint.

After making sure that the hanger have fully landed in the head, hold down screws are fully tightened to compress the packing and secure it in place. Thereafter the landing joint & BOP may be removed.

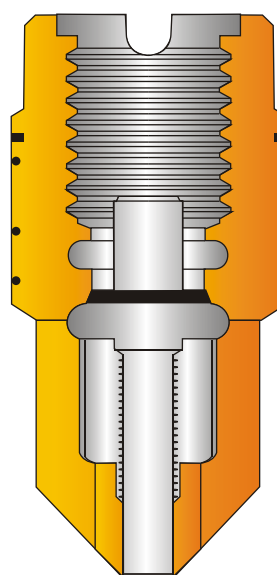
Attach the landing joint and raise the tubing enough to install a spider and slips. With tubing weight on the slips, remove landing joint.



Casing Head Body Retrievable Wear Bushing (PRWB)

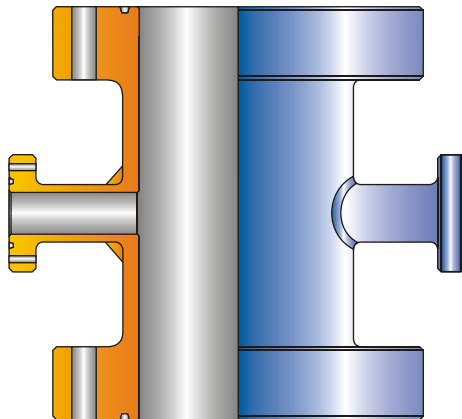


Casing Head Plug Type Tester (PTP)

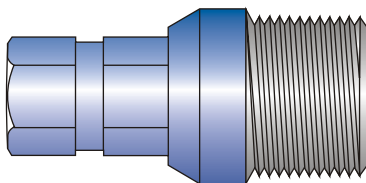


Type (PBPV) Back Pressure Valve

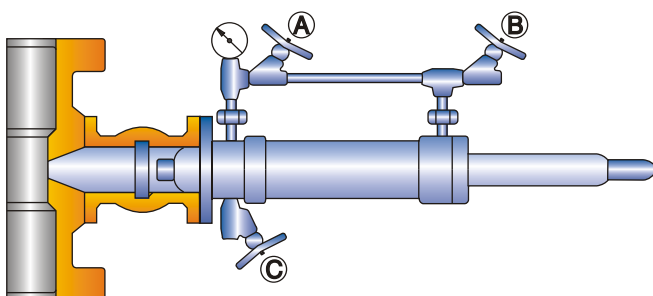
TOOLS & SERVICE EQUIPMENT



Flanged Drilling Spool (PFDS)



Type (PVRP) Plug



Valve Removal Tool (PVRT)

The Hanger Spool with X-Mas Tree Manifold attached is then lowered and sealed on the hanger bushing. The union nut may now be made up by hand and a spanner wrench. The tree cannot now be rotated.

Raise the tree assembly enough to remove the spider and slips. At this point, the well can be displaced and the packer set under complete pressure control.

Final nipple up operations are then completed and the type PBPV back pressure valve is removed from the hanger bushing with a lubricator.

Flanged Drilling Spool (PFDS)

These are designed to allow unrestricted circulation of mud in the well and provide flexibility in arranging flow line openings in blowout preventor hookups. Studded or open faced ends and outlet connections can be provided. Generally hub of the flanged outlet is welded. Height of spool will vary from 24" -36". However spools as per specific need of customers can also be provided.

Valve Removal Plugs (PVRP)

All flanged or studded outlets on PARVEEN's casing heads, casing spools and tubing heads are threaded for valve removal plugs. All plugs have standard API Line Pipe Threads and are small enough to pass thru the valve to be removed. The plug is installed when the valve is to be removed and removed when the valve is to be installed.

Valve Removal Tool (PVRT)

These are generally pressure-balanced manual hydraulic tool designed for safe and reliable operations in the installation and removal of valve removal plugs, in order to install or replace a well-head outlet valve under pressure conditions.

This tool is also designed to accommodate 2 1/16", 2 9/16", 3 1/8" Valve upto 10000 PSI WP. Adapter may be provided for use with 1 13/16", 2 1/16", 2 9/16", 3 1/8" flanged valves and screwed end valves. Various sizes of valve removal plug sockets are also provided for the respective sizes of plugs.

In the figure above, Needle Valve 'A' is located next to pressure gauge on manifold by-pass assembly and needle valve 'B' is connected to 1/2" NPT TEE on far end of manifold bypass assembly. Needle Valve 'C' is a bleeder valve located behind flange packing.



TOOLS & SERVICE EQUIPMENT

Lubricator (PL)

PARVEEN's Lubricators which connect directly to the top of a X-Mas tree above the master valve are available in various sizes and end connections and pressure ratings varying from 5000 to 20000 PSI both for standard and sour service.

Operating a Lubricator is by far the most dangerous aspect of well head service work. Therefore extreme caution has to be exercised while operating this tool.

Measurement of Rod travel is done as follows:

- a. Measure from the tie down piece on the tubing head to the tree cap for a ball weevil hanger.
Or
- b. Measure from the top of the tubing head adaptor bottom flange to the tree cap on a hanger bushing completion.

In each case the window section of lubricator must also be measured. This will ensure that the proper length of the rod will be used. Most lubricator rods are marked in 5 such increments:

a. Needle Valve A

Valve located in manifold by pass assembly closest to adaptor flange.

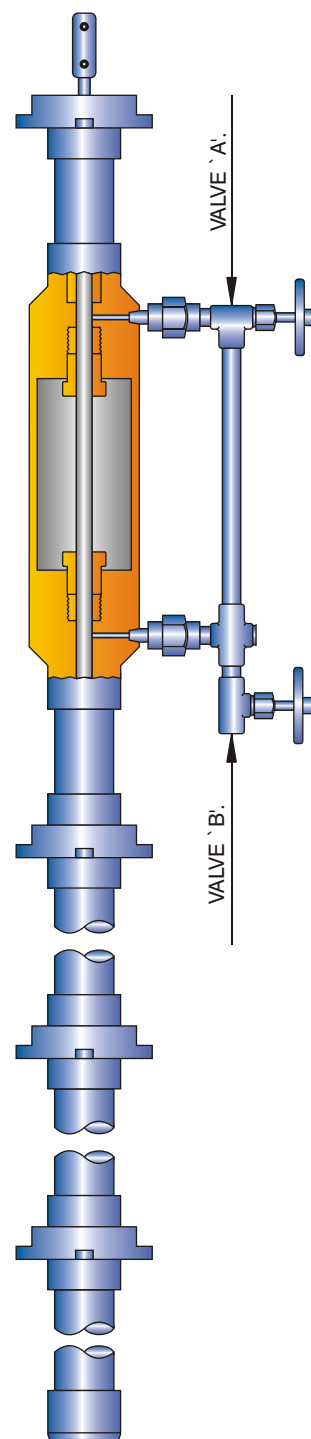
b. Needle Valve B

Valve located on manifold bypass assembly closest to the first UNION connection.

(NOTE: In lubricators upto 5000 PSI, needle valve B is also used as a bleed down valve. Needle valve C is used in 10000, 15000 & 20000 PSI lubricators to equalize pressure throughout the tool and not as bleed down valves.)

c. Needle Valve C

Only valve with a pressure gauge attached. Available in 10000, 15000 & 20000 PSI lubricators.



Lubricator (PL)



CHOKE VALVE

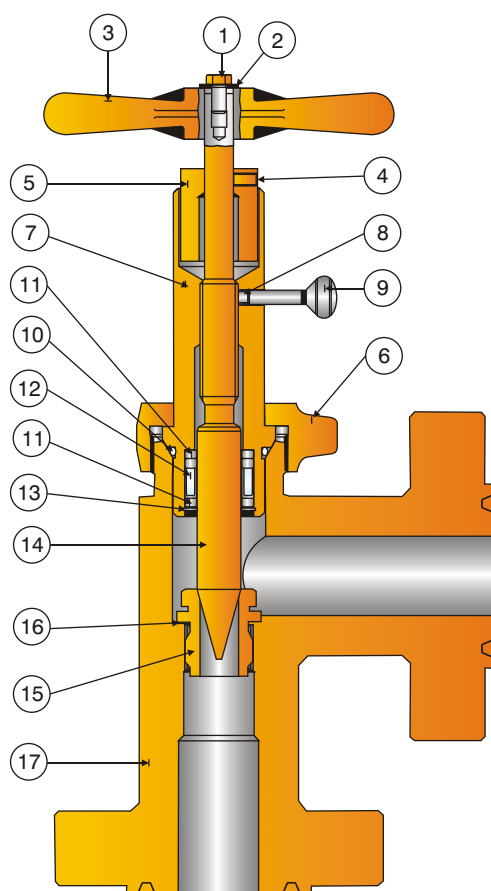
H2 TYPE CHOKE VALVE

PARVEEN manufacture both Positive and Adjustable chokes in pressure rating up to 15,000 psi WP. With different style of end connection.

Adjustable Chokes are meant for variable flow. It has externally controlled indicator showing orifice size in the increment of 1/64th inch. The variation in choke size is achieved by rotating hand wheel to obtain desired flow rate at down stream side

PARVEEN Adjustable Chokes Contain following features:

- Interchangeability of parts to construct a positive, adjustable, or combination choke.
- Bonnet nut has rugged integrally forged lugs for hammering nut loose.
- Built-in safety feature which releases residual pressure in the choke body before the nut is fully removed. The inside of the choke body is vented to atmosphere after the bonnet nut is partially removed.
- Interchangeability of component parts for a particular pressure range. For example, the same blanking plugs and bonnet assemblies are used in nominal 2" 2000 through 10,000 psi WP.
- Stainless steel adjustable choke needle and seat (Tungsten Carbide/ Ceramic lining needle and seat also available for severe service applications)



Adjustable Choke

Different end connections (API / ANSI, flanged / Threaded) are available upon request.

Part List		
ITEM	DESCRIPTION	QTY.
1	HEX BOLT	1
2	WASHER	1
3	HANDLE	1
4	HEX. SOC. SET SOCIETY	1
5	INDICATOR	1
6	BONNET NUT	1
7	BONNET	1
8	NYLON PLUG	1
9	THUMB SCREW	1
10	'O' RING-BONNET	1
11	JUNK RING	2
12	'J' PACKING + BACK-UP RING	1
13	INT. RETAINER RING	1
14	NEEDLE	1
15	SEAT	1
16	GASKET	1
17	BODY	1

Size & WP	Max Orifice Dia
2 1/16 x 2000	25.4 MM
2 9/16 x 2000	50.8 MM
3 1/8 x 2000	50.8 MM
4 1/16 x 2000	76.2 MM
2 1/16 x 3000	25.4 MM
2 9/16 x 3000	50.8 MM
3 1/8 x 3000	50.8 MM
4 1/16 x 3000	76.2 MM
2 1/16 x 5000	25.4 MM
2 9/16 x 5000	50.8 MM
3 1/8 x 5000	50.8 MM
4 1/16 x 5000	76.2 MM
2 1/16 x 10000	25.4 MM
2 9/16 x 10000	50.8 MM
3 1/16 x 10000	50.8 MM
2 1/16 x 15000	25.4 MM
3 1/16 x 15000	50.8 MM

CHOKE VALVE

Positive Chokes & Beans

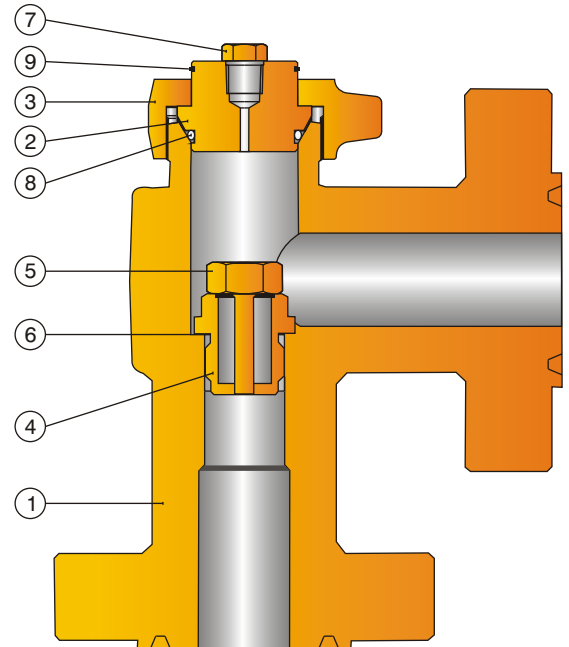
Positive Chokes accommodate fixed orifice dimensions. All PARVEEN Adjustable Chokes can be converted into Positive Chokes by replacing the bonnet assembly with an appropriate blanking plug assembly and choke bean .

CHOKE BEANS :

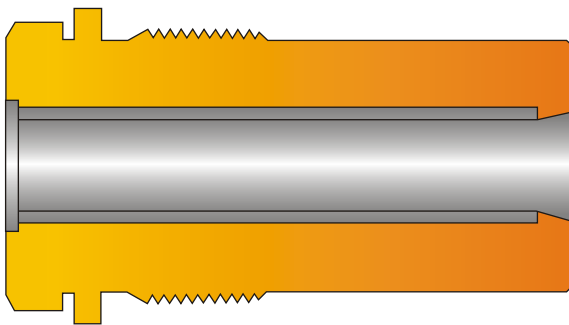
- PARVEEN choke beans are suitably hardened to maintain accuracy level for longer period.
- Tungsten Carbide lined choke Beans are available for high pressure drop and severe application

BEAN WRENCH:

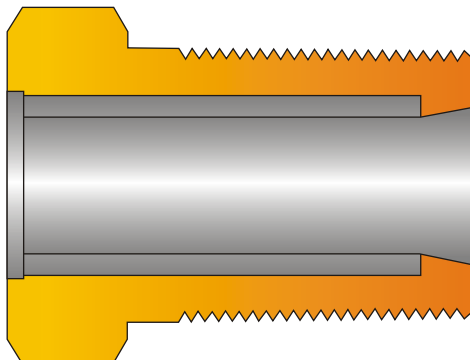
PARVEEN Bean Wrench come with hexagonal socket box for Bean Adapter and Bean separately. The Adjustable choke seat and Bean Adapter are accommodated in same wrench for a particular size .



Positive Choke



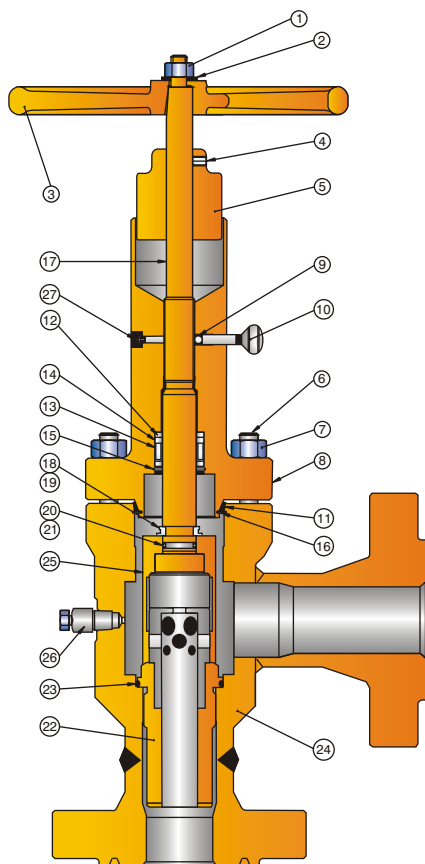
Choke Bean (BJ Type)



Choke Bean (HJ Type)

Part List		
ITEM	DESCRIPTION	QTY.
1	BODY	1
2	BONNET	1
3	BONNET NUT	1
4	BEAN ADAPTER	1
5	CHOKE BEAN	1
6	GASKET	1
7	PLUG (1/2" NPT)	1
8	'O' RING-BONNET	1
9	EXT. RETAINER RING	1

CHOKE VALVE



External Sleeve Control Choke

Size & WP	Max Orifice Dia
2.1/16 x 2000	25.4 mm
2.9/16 x 2000	50.8 mm
3.1/8 x 2000	50.8 mm
4.1/16 x 2000	76.2 mm
2.1/16 x 3000	25.4 mm
2.9/16 x 3000	50.8 mm
3.1/8 x 3000	50.8 mm
4.1/16 x 3000	76.2 mm
2.1/16 x 5000	25.4 mm
2.9/16 x 5000	50.8 mm
3.1/8 x 5000	50.8 mm
4.1/16 x 5000	76.2 mm
2.1/16 x 10000	25.4 mm
2.9/16 x 10000	50.8 mm
3.1/16 x 10000	50.8 mm
2.1/16 x 15000	25.4 mm
3.1/16 x 15000	50.8 mm

PARVEEN External sleeve control choke, (Model-ES)

PARVEEN External sleeve control chokes minimize erosion and improve flow characteristics suitably for erosive service and under high pressure drop, with sand concentration. It applies the principle of “flow Impingement” to dissipate and contain the destructive forces of cavitation, within the heavy duty thick walled cage of tungsten carbide .

Other features :

- Spring loaded pressure energized stem seal.
- Field proven metal bonnet seal .
- Dependable positive shut-off .

Part List		
ITEM	DESCRIPTION	QTY.
1	HEX NUT	1
2	WASHER	1
3	HANDWHEEL	1
4	HEX, SOC. SET SCREW	1
5	INDICATOR	1
6	STUD	8
7	NUT	8
8	BONNET	1
9	NYLON BALL	1
10	THUMB SCREW	1
11	RING-BONNET	1
12	JUNK RING	2
13	SEAL	1
14	BACK - UP RING - SEAL	1
15	INT. RETAINER RING	1
16	RETAINER RING - COIL TYPE	1
17	STEM	1
18	RING (2 HALVES) - STEM	1
19	INT. RETAINER RING	1
20	'O' RING	1
21	BACK-UP RING (SCARF CUT)	1
22	SEAT	1
23	SEAT SEAL	1
24	BODY	1
25	FLOW RING	1
26	BODY VENT FITTING	1
27	GREASE NIPPLE	1
28	RIVET TAG (NOT SHOWN)	4
29	NAME PLATE (NOT SHOWN)	1
30	FLANGE PROTECTOR (NOT SHOWN)	2



GATE VALVE

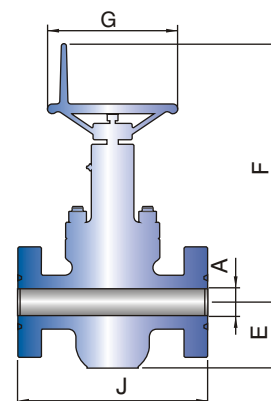
MANUAL GATE VALVE

PARVEEN manufacture Gate valves required for drilling and production operation in Slab and Expanding Gate style.

PARVEEN EXPANDING GATE VALVE MODEL 'M':

EXPANDING STYLE GATE VALVES FOR 2000-5000 PSI. WP. APPLICATION

- Full bore through conduit
- Block and Bleed Mechanism
- Long-life seat
- Positive Seal by expand Mechanism
- In-line maintenance
- Non- Rising and Non- Balanced Stem
- Thrust bearing for the low torque operation



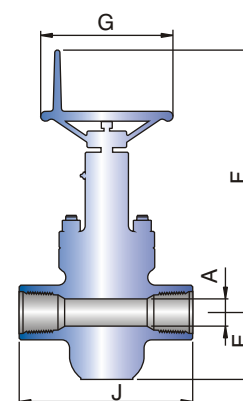
**Flanged Gate Valves
(MODEL - M)**

FLANGED GATE VALVES OVERALL DIMENSIONS (As per API-6A Standard)								
Size	Working Pressure (PSI)	A	E	F	G	J	N	Wt (lbsf)
2 1/16	2000	2 1/16	4 13/16	19 1/4	11	11 5/8	13	91
	3000/5000		5 1/16	19 7/16	13	14 5/8		150
2 9/16	2000	2 9/16	5 5/8	20 3/16	13	13 1/8	15 1/2	125
	3000/5000		5 15/16	20 7/16	16	16 5/8		205
3 1/8	2000	3 1/8	6 15/16	22 1/2	13	14 1/8	20	181
	3000		7 5/16	22 3/4	16	17 1/8		265
	5000		7 5/16	22 3/4	16	18 5/8		296
4 1/16	2000	4 1/16	8 5/8	25 15/16	16	17 1/8	24 1/2	345
	3000		9 1/16	26 3/8	20	20 1/8		515
	5000		9 1/16	26 3/8	20	21 5/8		530

PARVEEN FLANGED GATE VALVE MODEL 'M':

The PARVEEN Flanged end gate valves are of the same standards as threaded end valves. Flanged end will conform to API-6A Spec . For Trims refer Trim Chart .

THREADED GATE VALVES OVERALL DIMENSIONS								
Size	Working Pressure (PSI)	A	E	F	G	J	N	Wt (lbsf)
2 1/16	2000	2 1/16	4 13/16	19 1/4	11	9 5/8	13	71
	3000/5000		5 1/16	19 7/16	13			99
2 9/16	2000	2 9/16	5 5/8	20 3/16	13	10 1/4	15 1/2	92
	3000/5000		5 15/16	20 7/16	16			125
3 1/8	2000	3 1/8	6 15/16	22 1/2	13	11 3/8	20	152
	3000/5000		7 5/16	22 3/4	16			195
4 1/16	2000	4 1/16	8 5/8	25 15/16	16	13	24 1/2	265
	3000/5000		9 1/16	26 3/8	20			379



**Threaded Gate Valves
(MODEL - M)**

NOTE:

Standard Temperature Rating: -20° F to +250° F N = Numbers of Turns open.

All Dimensions are in Inches.



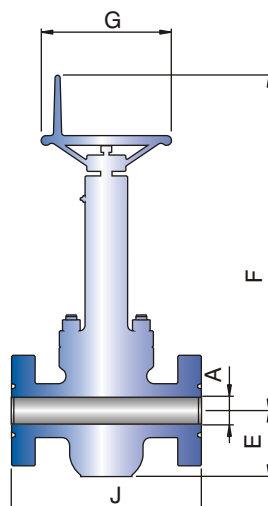
GATE VALVE

Parveen High Temperature Service : (Model T)

Parveen High Temperature gate valve uses parallel expanding gate to obtain perfect shutoff. The sealing is metal - to metal, both on the up and down stream of the valve, and unaffected by vibration and heat. The valve is the standard Model 'E' gate valve, modified with extended bonnet and stem to place the stem packing outside the critical heat zone. Other features and trim chart shall remain same for model E gate valves.

Pressure Derating Table : (As recommended by API 6A)

-20 to 250 F	300 F	650 F	400 F	450 F	500 F	550 F	600 F	650 F
2000	1955	1905	1860	1810	1735	1635	1540	1430
3000	2930	2860	2785	2715	2605	2455	2310	2145
5000	4880	4765	4645	4525	4340	4090	3850	3575



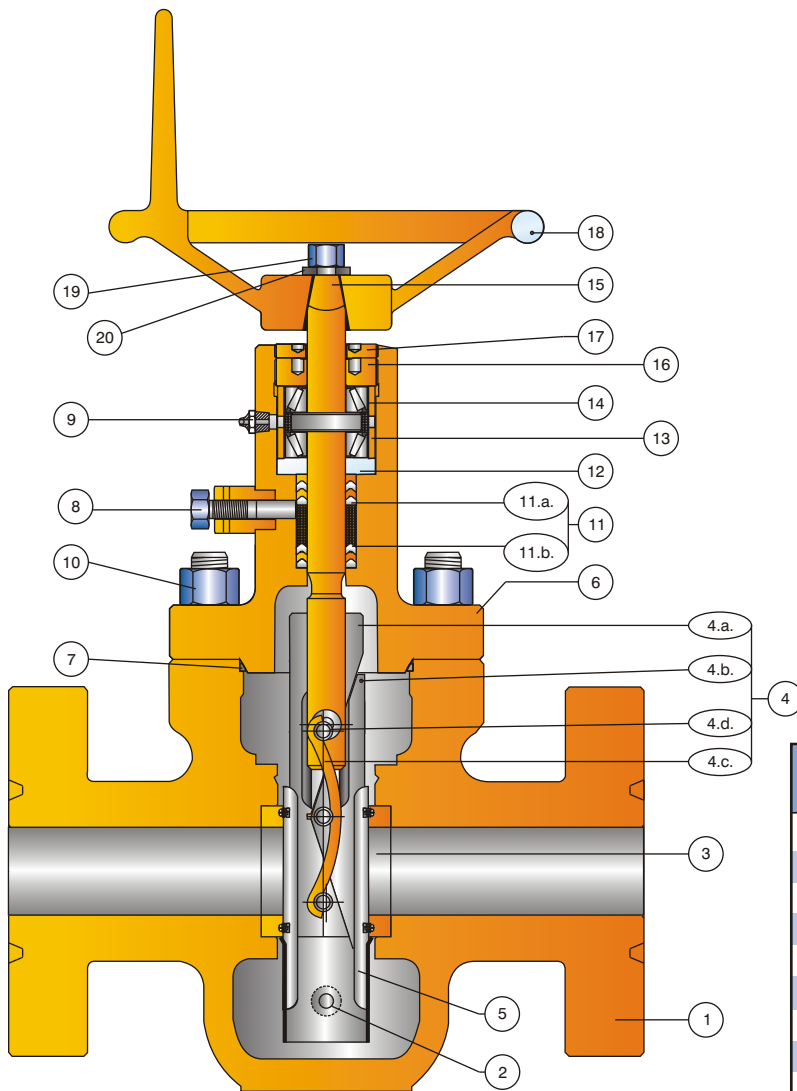
DIMENSIONAL DATA FOR HIGH TEMPERATURE VALVE, UPTO 650 F

Size	Working Pressure	A	E	F	G	J	N	WT IN LBS
2.1/16"	2000	2.1/16	4.13/16	25.1/4"	11	11.5/8	13	96
	3000/5000		5.1/16	25.7/16	13	14.5/8		165
2.9/16	2000	2.9/16	5.5/8	26.3/16	13	13.1/8	15.1/2	130
	3000/5000		5.15/16	26.7/16	16	16.5/8		220
3.1/8	2000	3.1/8	6.15/16	28.1/2	13	14.1/8	20	186
	3000		7.5/16	28.3/4	16	17.1/8		273
	5000		7.5/16	28.3/4	16	18.5/8		311
4.1/16	2000	4.1/8	8.5/8	31.15/16	16	17.1/8	24.1/2	351
	3000		9.1/16	32.3/8	20	20.1/8		523
	5000		9.1/16	32.3/8	20	21.5/8		545

Flange specification conforms to API Standard 6A



GATE VALVE



Flanged Gate Valve (Model - M)

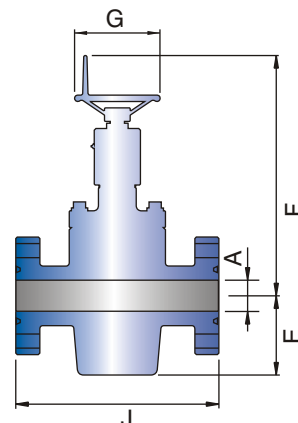
Part List		
ITEM	DESCRIPTION	Qty.
1	BODY	1
2	BODY GREASE FITTING	2
3	SEAT ASSY.	2
3a	SEAT	2
3b	TEFLON/T.FE. RING	2
4	GATE SEGMENT ASSY.	1
4a	GATE	1
4b	SEGMENT	1
4c	SPRING	2
4d	GATE PIN	6
5	GATE GUIDE	2
6	BONNET	1
7	BONNET SEAL RING	1
8	PACKING FITTING	1
9	BONNET GREASE FITTING	1
10	STUD WITH NUT	8
11	PACKING SET	6
11a	HEADER PACKING RING	2
11b	'V' PACKING RING	4
12	PACKING RETAINER BUSHING	1
13	BEARING SPACER SLEEVE	1
14	THRUST BEARING	2
15	STEM	1
16	BEARING RETAINER NUT	1
17	BEARING RETAINER LOCK NUT	1
18	HAND WHEEL	1
19	HAND WHEEL NUT	1
20	WASHER FOR HANDWHEEL NUT	1

GATE VALVE

SLAB STYLE GATE VALVES FOR 2000-10,000 PSI W.P APPLICATION

Main features:

- Full bore through conduit
- Block and Bleed Mechanism
- Floating seat with self relief function
- In-line maintenance
- Metal to Metal sealing
- Metal to Metal stem back seat
- Heavy duty bearing for Low torque and easy operation
- Non-Rising and Non-Balanced Stem
- Forged Body and Bonnet Construction



Slab Flanged Gate Valve (Model - S)

FLANGED GATE VALVE OVERALL DIMENSIONS. (As per API. 6A Standard)

Size	Working Pressure (PSI)	A	E	F	G	J	N	Wt (lbsf)
2 1/16	2000 3000/5000	2 1/16	5 5/8	21 1/8	14	11 5/8 14 5/8	12 1/2	110 182
2 9/16	2000 3000/5000	2 9/16	6 1/2	21 7/8	14	13 1/8 16 5/8	15 1/4	137 255
3 1/8	2000 3000 5000	3 1/8	7 3/8	22 13/16	14 14 18 1/2	14 1/8 17 1/8 18 5/8	18 1/4	193 282 360
4 1/16	2000 3000 5000	4 1/16	9 1/8	24 7/16	16 18 1/2	17 1/8 20 1/8 21 5/8	23 1/2	395 450 545
1 13/16	10,000	1 13/16	5 3/4	21 1/8	14	18 1/4	12 1/2	270
2 1/16	10,000	2 1/16	5 7/8	21 1/8	18 1/2	20 1/2	12 1/2	275
2 9/16	10,000	2 9/16	6 13/16	21 7/8	18 1/2	22 1/4	15 1/4	485
3 1/16	10,000	3 1/16	8 1/16	21 13/16	24	24 3/8	18 1/4	680
4 1/16	10,000	4 1/16	10 1/16	24 11/16	24	26 3/8	23 1/2	1050

NOTE:

Standard Temperature Rating: - 20° F to + 250° F N = Numbers of Turn open.

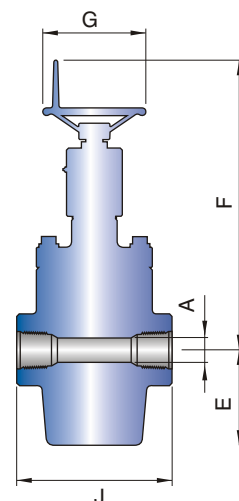
THREADED GATE VALVE OVERALL DIMENSIONS.

Size	Working Pressure (PSI)	A	E	F	G	J	N	Wt (lbsf)
2 1/16	3000/5000	2 1/16	5 5/8	21 1/8	14	9 5/8	12 1/2	130
2 9/16	3000/5000	2 9/16	6 1/2	21 7/8	14	10 1/4	15 1/4	190
3 1/8	3000	3 1/8	7 3/8	22 13/16	14	11 3/8	18 1/4	210

NOTE:

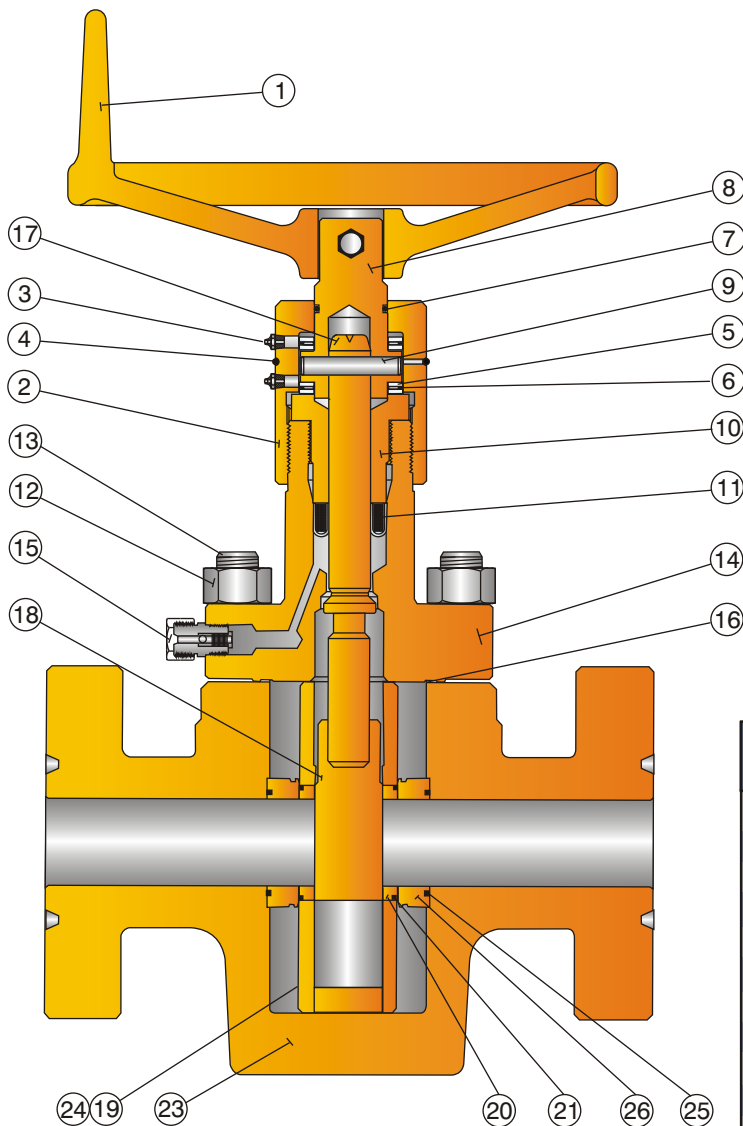
Standard Temperature Rating: - 20° F to + 250° F N = Numbers of Turn open.

All Dimensions are in Inches.



Slab Threaded Gate Valve (Model - S)

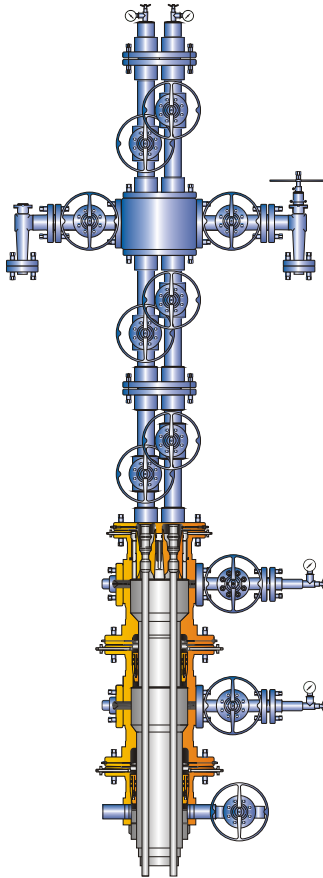
GATE VALVE



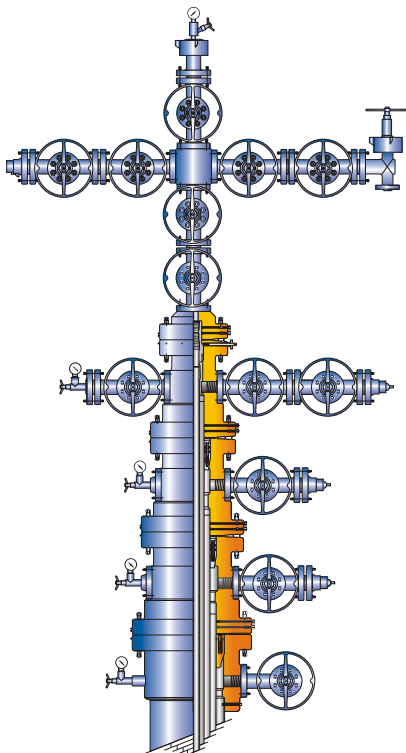
Slab Gate Valve (Model - S)

Part List		
ITEM	DESCRIPTION	Qty.
1	HANDWHEEL ASSEMBLY	1
2	BEARING CAP	1
3	GREASE FITTING	2
4	O-RING	1
5	BEARING RACE	4
6	THRUST BEARING	2
7	O-RING	1
8	STEM ADAPTER	1
9	STEM PIN	1
10	PACKING GLAND	1
11	J' PACKING	1
12	NUT	8
13	STUD	8
14	BONNET	1
15	GREASE FITTING	1
16	GASKET	1
17	STEM	1
18	GATE	1
19	RETAINER PLATE	2
20	SEAT RING	2
21	SEAL RING (SEAT RING)	2
22	PIN (Not shown)	2
23	BODY	1
24	GUIDE	2
25	SEAL RING (BODY BUSHING)	2
26	BODY BUSHING	2
27	NAME PLATE (Not shown)	1

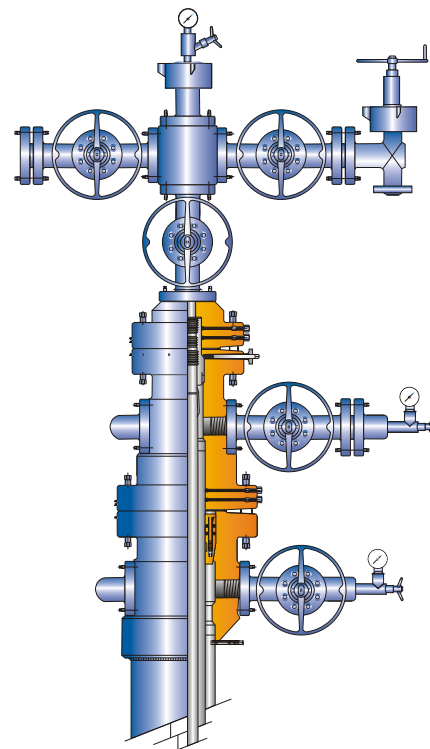
TYPICAL SINGLE & DUAL COMPLETION WELLHEAD & X-MAS TREE ASSEMBLIES



Dual Completion



Single Completion



Single Completion

THREADED CONNECTIONS:

All Integral equipment internal and outlet connection including Casing and Tubing Hanger which have API Threads, conform to API-5B stipulations for concerned tolerances.

CHRISTMAS TREE:

The equipment manufactured by PARVEEN include Tubing Head Adaptors, Valves, Trees, Crosses, Top Connectors and Chokes which can be assembled together and assembly can be used to provide controlled access to the Tubing String bore and control the rate of production.

PARVEEN not only manufactures X-Mas Trees for single and multiple Tubing String installation but also the composite (block) X-Mas Trees for single and multiple Tubing String installations.

Testing of X-Mas Trees is done as per Latest standard of API-6A which covers drift test and Hydrostatic test.

CHOKE AND KILL MANIFOLD

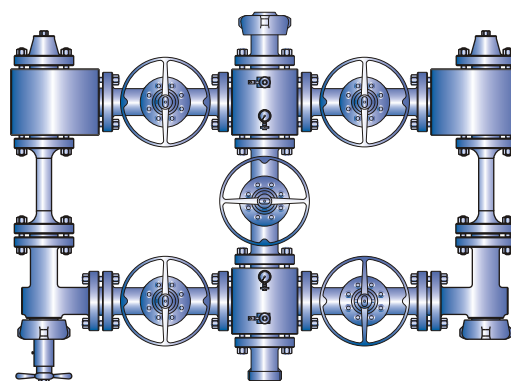
PARVEEN fabricates custom designed choke and kill manifold :

- 1) In oil / gas well drilling operation, drilling fluids (Muds) of designed gravity are used to overcome sub-surface pressure or the influx of formation fluid. On some occasion, kicks are experienced with change of pressure of formation while drilling. This is necessary to build up drilling fluid density to prevent influx of formation fluid. The Choke and Kill Manifold allows the driller to regulate back-pressure on the formation while gradually density of the drilling fluid is built up by circulation with closed B.O.P., till the well is stabilized and drilling is resumed.

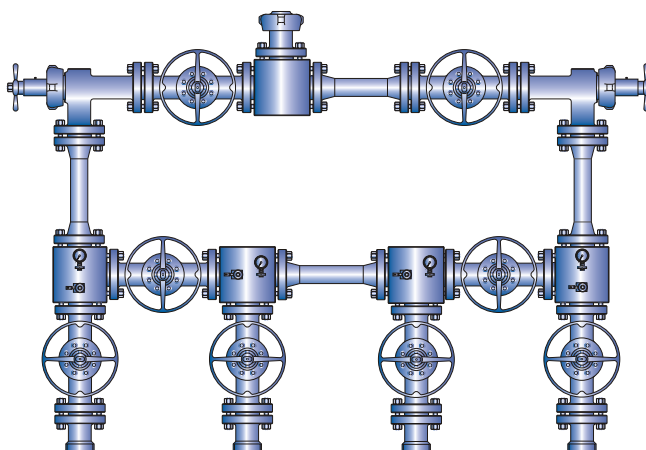
The Choke and Kill Manifold are available up to 10,000 PSI in sizes of 2" to 3" for standard and sour services. Other type of Manifold (stand pipe, cementing etc.) can also be made available.

- 2) For well Testing / Completion / Intervention, Industry uses varies configuration of Manifold, as per requirement of Service / Operating Companies, PARVEEN designs and fabricates custom made manifold in sizes of 2" to 3" up to 10,000 PSI for standard and sour services for following application.

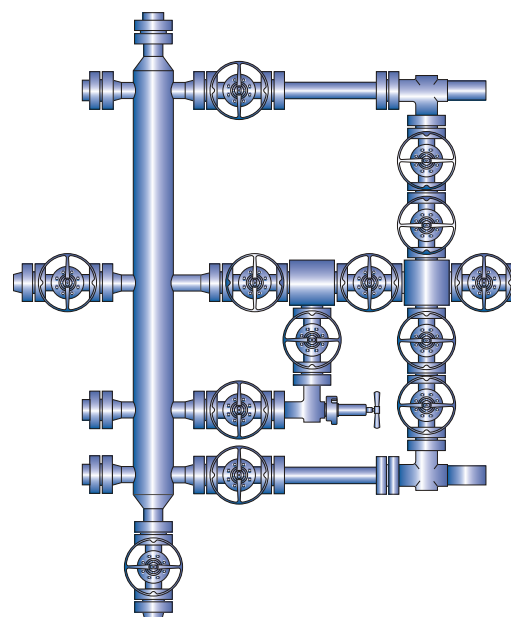
- (a) Choke Manifold For flow back/work over
- (b) Production Manifold for diverting flow through test separator or vent or burner.
- (c) Gas Manifold for Diverting gas through orifice meter or burner.
- (d) Data Recorder for recording flowing pressure and temperature.
- (e) Stimulation / Treatment for Well stimulation/treatment service.



Choke Manifold



Eruption Manifold

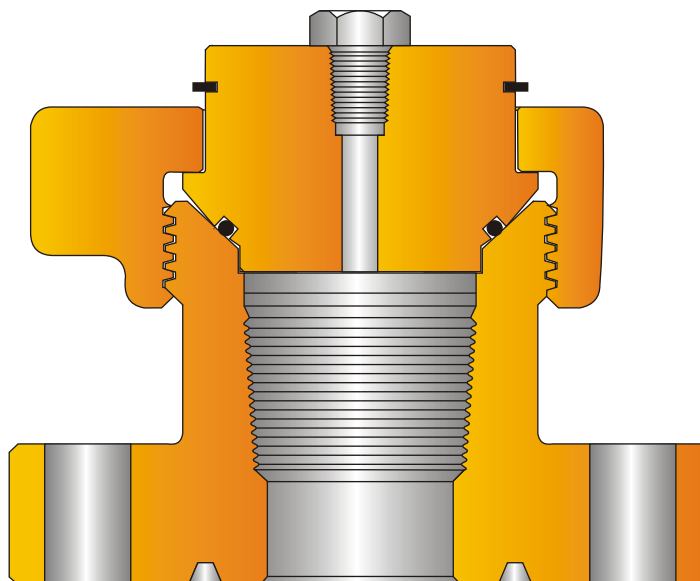


Choke & Kill Manifold



X-MAS TREE CAP

PARVEEN X-Mas Tree cap is a top connector which is used on the top of X-Mas Tree, It's main function is to provide access to the X-Mas Tree bore. It is basically consisting of a Flanged body, Blanking Plug, Hammer Nut as principal parts and Circlip & O-ring as secondary parts. Blanking Plug has a provision to accommodate pressure gauge to ascertain inside pressure of the well. Inside of Flanged body is having API-UP TBG thread as lift thread.



Single Christmas Tree Cap

SPECIFICATIONS			
Nominal Size and WP	Lift Thread	Bore	Height
2 1/16-2000	2 3/8 API UP TBG	2 21/64	7 1/8
2 9/16-2000	2 7/8 API UP TBG	2 53/64	7 1/16
3 1/8-2000	3 1/2 API UP TBG	3 1/8	9 9/16
3 1/8-3000	3 1/2 API UP TBG	3 1/8	9 13/16
2 1/16-5000	2 3/8 API UP TBG	2 21/64	7 3/4
2 9/16-5000	2 7/8 API UP TBG	2 53/64	8 1/16
3 1/8-5000	3 1/2 API UP TBG	3 1/8	10 1/16
4 1/16-5000	4 1/2 API UP TBG	4 13/64	12 1/8
2 1/16-10000	2 3/8 API UP TBG	2 1/16	8
2 9/16-10000	2 7/8 API UP TBG	2 9/16	7 9/16
3 1/16-10000	3 1/2 API UP TBG	3 1/16	10 5/16
4 1/16-10000	4 1/2 API UP TBG	4 1/16	13 1/8

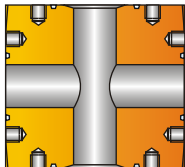
NOTE:

All Dimensions are in inches.

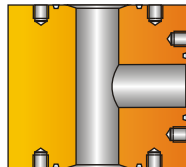


SINGLE COMPLETION COMPONENT

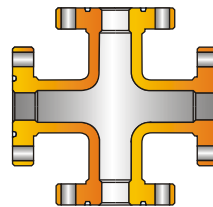
PARVEEN also manufactures different types of Single Completion Components as per API-6A or Customer specification.



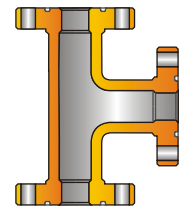
Studded Cross



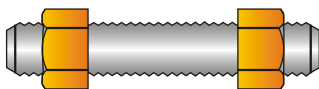
Studded Tee



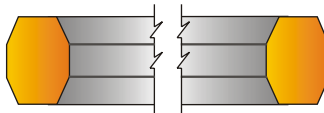
Flanged Cross



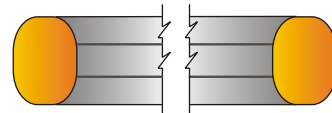
Flanged Tee



Stud With Nuts



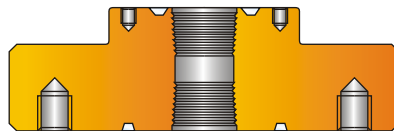
Octagonal Ring Gasket



Oval Ring Gasket



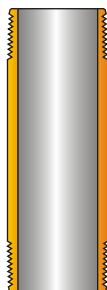
Threaded Flange



Double Studded Adaptor Flange



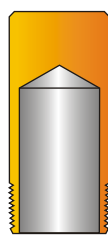
Blind Flange



Threaded Nipple



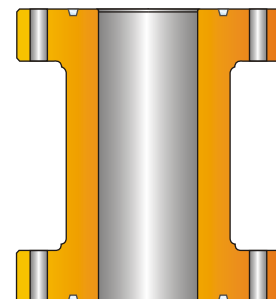
Tapped Bull-Plug



Solid Bull-Plug



Solid Bull-Plug



Spacer Spool

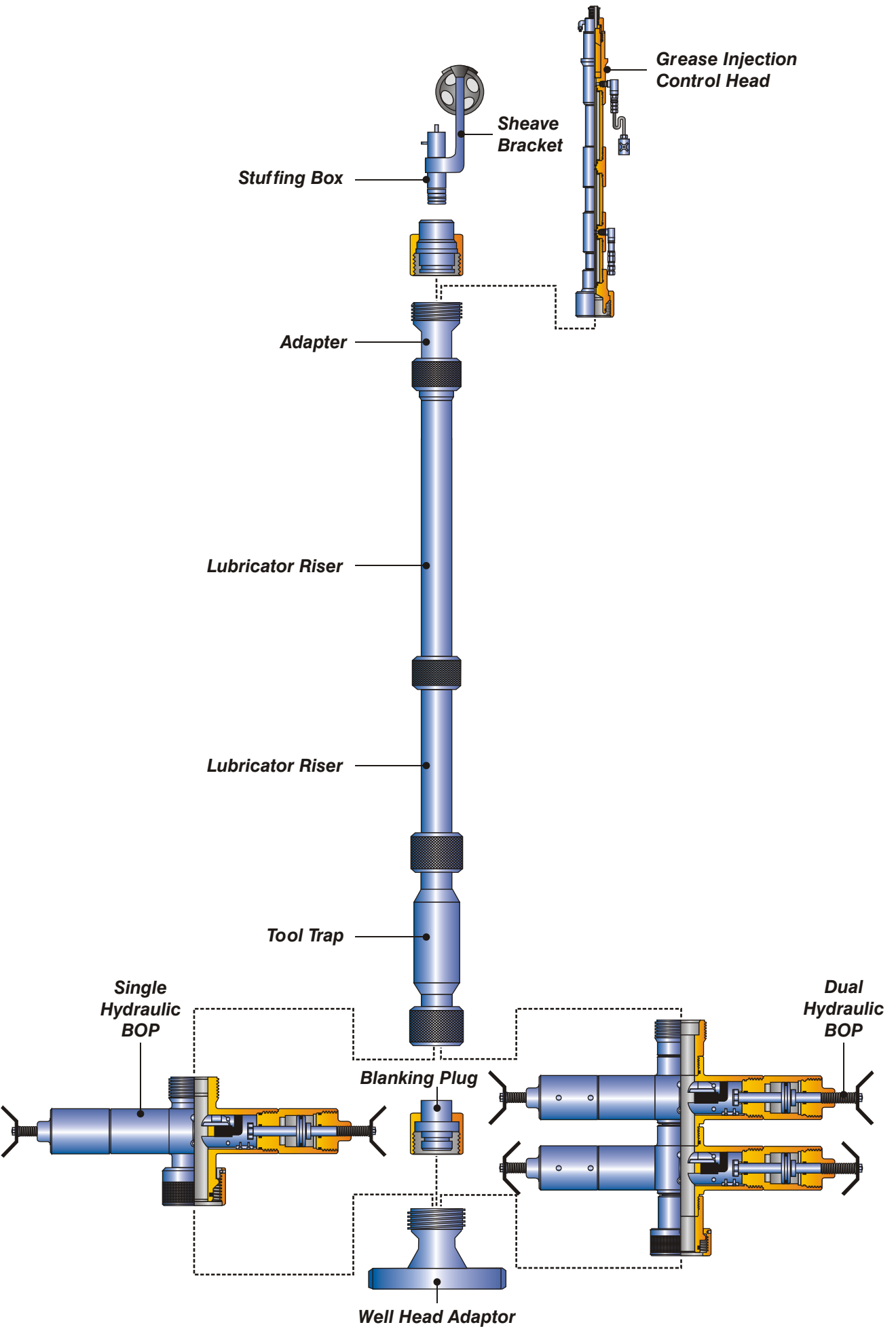
NOTE:

Multiple Completion Components (e.g. Dual Manifold Tee, Dual Adaptor Flange, Dual Completion Flanges, Multiple Completion Sub Seal etc.) can also be provided upon request.



WIRELINE PRESSURE CONTROL EQUIPMENT & TOOL STRING INDEX

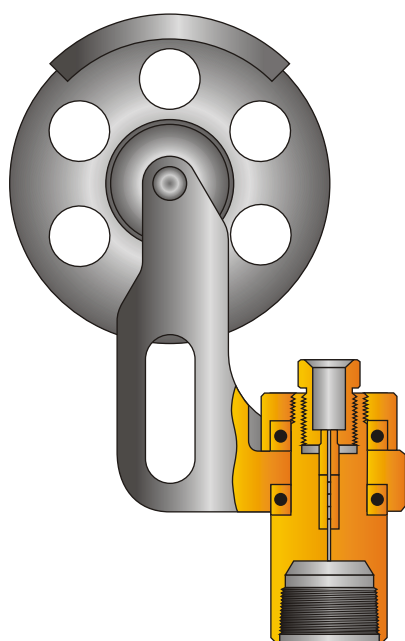
SR. NO.	INDEX	PAGE
1	Measuring Line Stuffing Boxes	29
2	'LW' Line Wiper	30
3	Grease Injection Control Heads	31
4	Lubricator Risers	32
5	Blowout Preventers	33
6	Tool Traps	35
7	Grease / Oil Injection Supply System	36
8	Wellhead Flange Adapters	37
9	Api Adapters	38
10	Quick Union	39
11	Blanking Cap & Plug and Pump In Sub	41
12	Lubricator Accessories	42
13	Wireline Tool String	43
14	Rope Socket	44
15	'S' Wireline Stem (weight Bar) and 'LS' Lead Filled Stem	45
16	'SM' Roller Stem and 'MJ' Spang Link Jars or Mechanical Jars	46
17	'TJ' Wireline Tubular Jar and 'HJ' Hydraulic Jar	47
18	'SRJ' Spring Jar and 'WA' Wireline Accelerator	48
19	'SH' Shock Absorber and 'KJ' Knuckle Joints	49
20	'KJA' Knuckle Jar and 'QC' Quick Lock Couplings	50
21	'TS' Tubing Swage and 'TC' Tubing Gauge / Paraffin Cutter	51
22	'BB' Blind Box and 'TL' Tubing End Locator	52
23	'SB' Sample Bailer	53
24	'HB' Hydrostatic Bailer and 'SAB' Sand Pump Bailer	54
25	'WO' Wireline Overshot and 'ROS' Releasable Overshot	55
26	'WS' Wireline Spear and 'FC' Fluted Centralizer	56
27	'WFM' Wireline Fishing Magnet, 'MT' Magnetic Fishing Tool and 'IB' Impression Block	57
28	Pulling Tools (JD & JU Series)	58
29	'R' Pulling Tool	59
30	'S' Pulling Tool	60
31	'GS' Pulling Tool and 'GU' Shear Up Adapter	61
32	'PX' Running Tool and 'B' Shifting Tool	62
33	Pinning Tool and Releasing Tool	63
34	'WC' Wireline Cutter and Wireline Snipper	64
35	'GD' Go-Devil and 'RGD' Roller Go-Devil	65
36	'TB' Tubing Broach and 'PS' Paraffin Scratchers	66
37	'WW' Wireline Wirefinder and 'WR' Wireline Retriever	67
38	'WG' Wireline Grab and Center Spear	68
39	Bow Spring Centraliser and Anti Blow-Up Tool	69
40	Wireline Swivel Joint and Tubing Gauge Cutter Ring Set	70
41	Sucker Rod Connection	71
42	Quick Lock Connection	72
43	'WCR' Wireline Crossovers	73



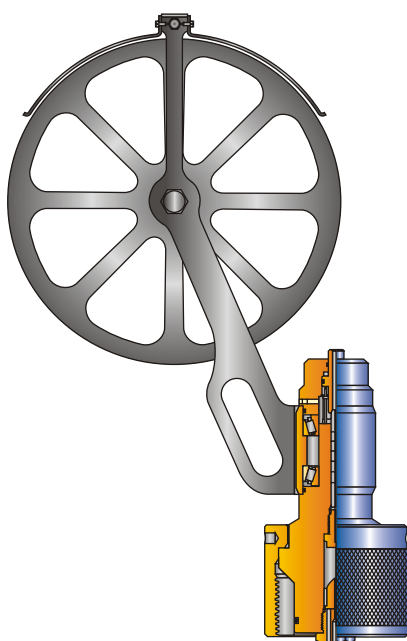


MEASURING LINE STUFFING BOXES

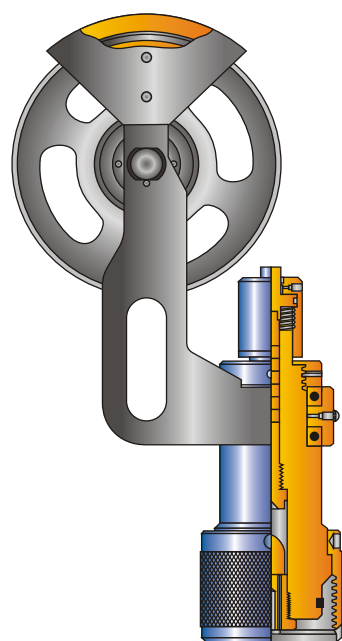
PARVEEN Measuring Line Stuffing Boxes are specifically designed to seal around a stationary or moving solid wireline of all sizes upto 0.125". PARVEEN Stuffing Boxes incorporate a Blow Out Plug to automatically shut-in the well pressure in the event that the line breaks all the tools are stripped off while working under pressure. Available in working pressure rating from 5,000 PSI to 15,000 PSI, standard or H2S Service, with 8" to 16" diameter sheaves. PARVEEN Measuring Line Stuffing Boxes are designed to be operated either manually or hydraulically without modification. Contact factory for details on pump, fittings, hoses and other accessories.



**LIGHT WT.
STUFFING BOX**



**HYDRAULIC
STUFFING BOX**



STUFFING BOX

Engineering Data for Measuring Line Stuffing Boxes

SERVICE	SHEAVE SIZE (IN)	W.P (PSI)	MANUAL PART NO.	HYDRAULIC PART NO.
H2S	8	5,000	12508	12508-H
H2S	10	5,000	12510	12510-H
H2S	16	5,000	12570	12570-H
STD	10	10,000	12111	12111-H
STD	16	10,000	12171	12171-H
H2S	10	15,000	12410	12410-H
HJ2S	16	15,000	12470	12470-H
STD	10	15,000	12411	12411-H
STD	16	15,000	12471	12471-H
STD	10	5,000	12511	12511-H
STD	16	5,000	12571	12571-H
H2S	10	10,000	12110	12110-H
H2S	16	10,000	12170	12170-H

Bottom Conn : To select From Quick Union Identification Chart Page No. 39 & 40

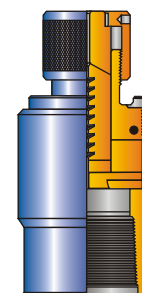


'LW' LINE WIPER

PARVEEN Line Wipers are used to wipe wireline when wireline is removed from well. Line wiper also used to create a seal around braided line.

Manual Casing Wipers

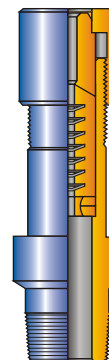
ID	WIPER TYPE	WORKING PRESSURE (PSI)	LINE SIZE	STANDARD BOTTOM CONNECTION
6-1/4	Casing	3,000	7/32-1	7 8 Thread Pin
6-1/2	Casing	3,000	7/32-1	7 8 Thread Box
6-1/2	Casing	3,000	7/32-1	7 Stub Acme Box
2-3/4	Automatic	1,000	3/16-7/8	3-1/2 O.D. LP Pin
3-5/8	Automatic	1,500	3/16-7/8	4-1/2 O.D. LP Pin



**Casing
Line Wiper**

Manual Line Wipers

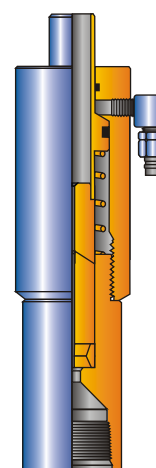
ID	WIPER TYPE	WORKING PRESSURE (PSI)	LINE SIZE	STANDARD BOTTOM CONNECTION
1-9/16	Tubing	5,000	1/8-5/16	2-3/8 EUE Pin
1-3/16	Tubing	5,000	1/8-3/4	2-3/8 EUE Pin
2-5/16	Tubing	5,000	3/16-1	3-1/2 EUE Pin
1-13/16	Solid	2,500	3/16-3/4	2-7/8 EUE Pin
2-5/16	Solid	5,000	3/16-1	2-7/8 EUE Pin
5	Casing	3,000	7/32-1	5-1/2 8 Thread pin
5	Casing	3,000	7/32-1	5-1/2 Stub Acme Box



**MANUAL
LINE WIPER**

Hydraulic Line Wipers

ID	WORKING PRESSURE (PSI)	LINE SIZE	STANDARD BOTTOM CONNECTION
1-3/4	5,000	1/8-1/2	2 LP Box
1-3/4	5,000	1/8-1/2	Union Series
1-1/8	5,000	1/8-1/2	2-3/8 EUE Pin
1-13/16	5,000	1/8-3/4	2-7/8 EUE Pin
2-5/16	5,000	1/8-1	2-7/8 EUE Pin
5	5,000	1/8-1	5-1/2 Box
5	5,000	1/8-1	5-1/2 Stub Acme
6-1/4	3,000	7/32-1	7-8 Thread Pin
6-9/16	3,000	7/32-1	7-8 Thread Pin
6-9/16	3,000	7/32-1	7-8 Thread Pin
6-17/32	5,000	7/32-1	7-8 Thread Pin



**HYDRAULIC
LINE WIPER**

GREASE INJECTION CONTROL HEADS

Grease Injection Control Head (GICH) is required to obtain a seal when using braided line for heavy duty such as swabbing or fishing.

Principle of Operation: Grease is injected at a pressure higher than the well pressure (approximately 20% higher). The grease fills the interstitial grooves between the braided line stands. The most critical component of the grease injection head are the 'flow tubes'. These should be approximately 0.010" ID larger than the measure ODS of the o-line. The seal is achieved by the pressure drop created across the small gap between the line and flow tubes.

A wiper box on top of the grease injection head retains a large percentage of the grease.

Ancillary Equipment

The following equipment are required to operate the grease injection system

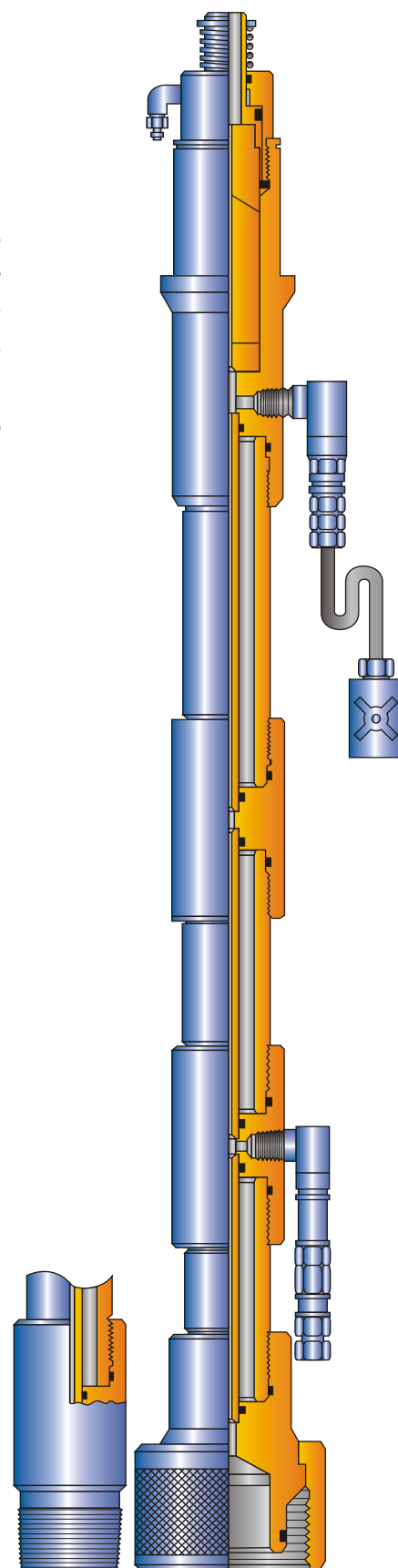
- Compressor (Back-up system essential in high pressure situations)
- Grease reservoir
- Grease Pump
- Connection hoses
- Dual BOP system

Use :

The following factors will effect the volume of grease required :

- Clearance between the flow tubes and line
- Temperature
- Well pressure
- Line Speed
- Line Size
- Grease viscosity.

Engineering Data For Grease / Oil Injection Control Head		
W.P (PSI)	LOWER CONN.	PART NO.
2,000 (Non-STD)	2 EUE PIN	108591
2,000	2 EUE PIN	108591
5,000	2-7/8 EUE PIN	108663
10,000	TO SELECT FROM QUICK UNION IDENTIFICATION CHART PART NO. 39 & 40	108806



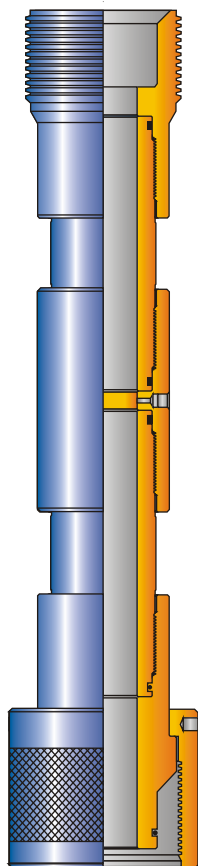
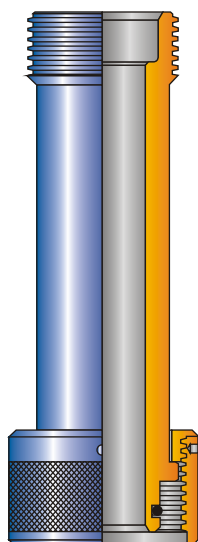
GREASE INJECTOR HEAD



LUBRICATOR RISERS

PARVEEN Lubricator Risers are used to allow the wireline tool string to be raised above the Wellhead Valve prior to and after wireline operations and therefore enable the Wellhead Valve to be opened and closed allowing entry and exit from the well bore.

PARVEEN Lubricator Risers are available in standard lengths from 4 feet through 12 feet, and 2-1/2" through 6.38" bores. Standard end connections include a union box up and union pin and collar (nut) down. Bleed off valves are available in all models upon request. Working pressure ranges for these Risers from 5,000 PSI through 15,000 PSI.



Engineering Data for Lubricator Riser						
SERVICE	I.D. (INCH)	W.P. (PSI)	PART NO.			
			4 FEET	6 FEET	8 FEET	10 FEET
STD	2.50	5,000	042553X1	042555X1	042557X1	042559X1
STS	3.00	5,000	043553X1	043555X1	043557X1	043559X1
STD	2.50	10,000	042152X1	042155X1	042157X1	042159X1
STD	3.00	10,000	043153X1	043155X1	043157X1	043159X1
H2S	2.50	5,000	042553X0	042555X0	042557X0	042559X0
H2S	3.00	5,000	0423553X0	043555X0	043557X0	043559X0
H2S	2.50	10,000	042153X0	042155X0	042157X0	042159X0
H2S	3.00	10,000	043153X0	043155X0	043157X0	043159X0
STD	2.50	15,000	042453X1	042455X1	042457X1	042459X1
H2S	2.50	15,000	042453X0	042455X0	042457X0	042459X0
H2S	3.00	15,000	043453X0	043455X0	043457X0	043459X0
STD	4.00	5,000	044553X1	044555X1	044557X1	044559X1
H2S	4.00	5,000	044553X0	044555X0	044557X0	044559X0
STD	4.00	10,000	044153X1	044153X1	044157X1	044159X1
H2S	4.00	10,000	044153X0	044155X0	044157X0	044159X0
H2S	4.00	15,000	044453X0	044455X0	044457X0	044459X0
STD	5.00	5,000	045553X1	045555X1	045557X1	045559X1
STD	5.00	10,000	045153X1	045155X1	045157X1	045159X1
H2S	5.00	5,000	045553X0	045555X0	045557X0	045559X0
H2S	5.00	10,000	045153X0	045155X0	045157X0	045159X0
STD	6.38	5,000	049553X1	049555X1	049557X1	049559X1
H2S	6.38	5,000	049553X0	049555X0	049557X0	049559X0
H2S	6.38	10,000	049153X0	049155X0	049157X0	049159X0

- Top & Bottom Conn: To select From Quick Union Identification Chart Page No. 39 & 40

LUBRICATOR RISER

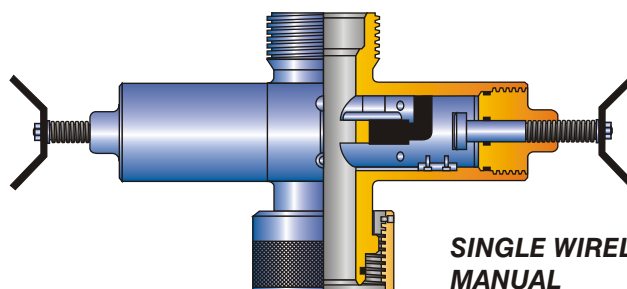


BLOWOUT PREVENTERS

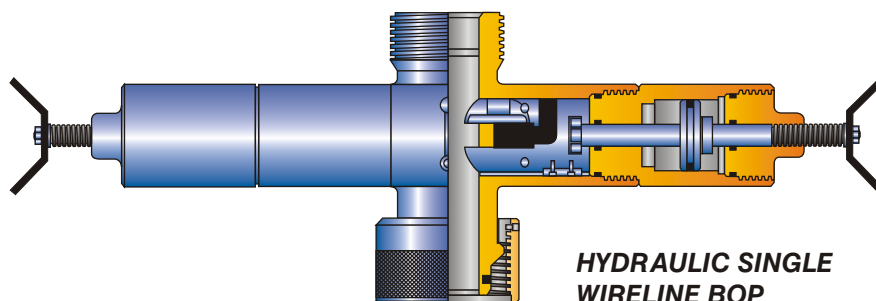
PARVEEN Blowout Preventers are designed to give positive protection against blow outs when operating with wireline in well services work, by providing a positive seal around wireline.

This BOP's are available basically in two types: Hydraulically Operated and Manually Operated, with configurations as desired. An equalizer valve allows the operator to equalize the pressure with lubricator pressure.

PARVEEN Blow Out Preventers are available in sizes ranging from 2-1/2" ID through 6-3/8" ID and 3000 PSI through 15,000 PSI working pressure. Contact factory for details on pump, fittings, hoses and other accessories.



**SINGLE WIRELINE BOP
MANUAL**

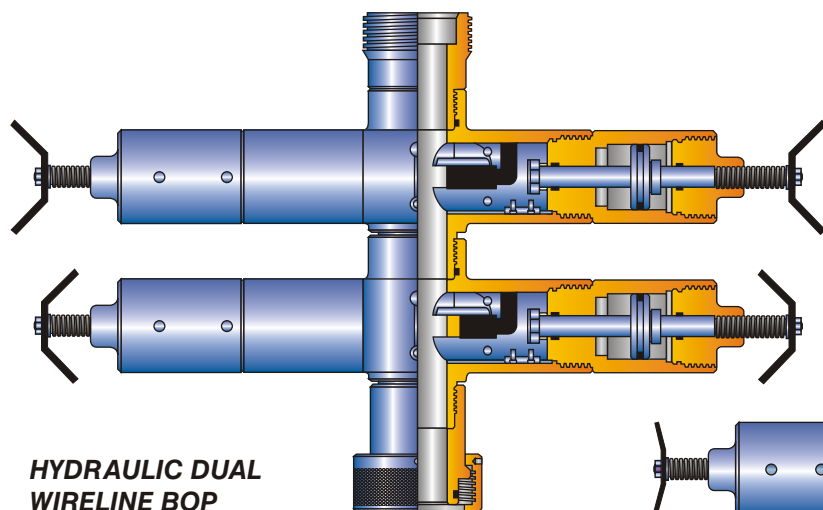


**HYDRAULIC SINGLE
WIRELINE BOP**

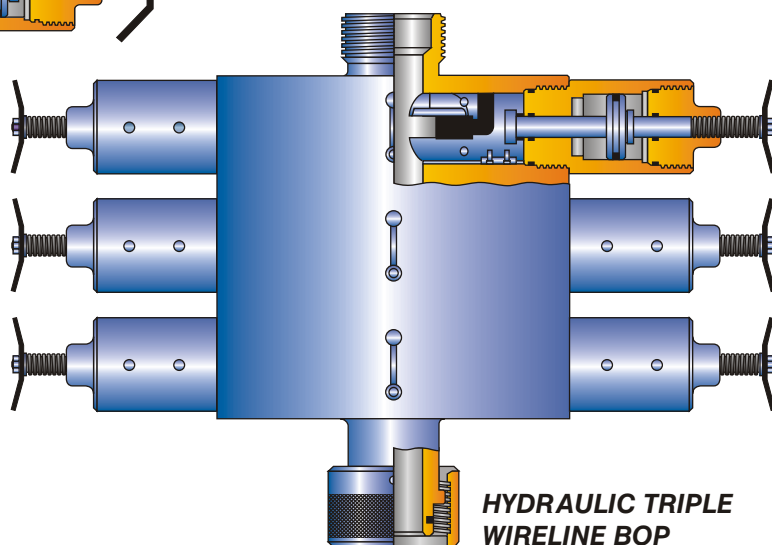
Engineering Data for Manual and Hydraulic Wireline Blowout Preventer

TYPE	I.D. (INCH)	W.P (PSI)	PART NO. (MANUAL)	PART NO. (HYDRAULIC)
SINGLE	2.50	5,000	012563X-00	012563X-H00
SINGLE	2.50	10,000	012100-X00	012100X-H00
SINGLE	2.50	15,000	-----	012410X-H00
TWIN	2.50	5,000	022563X-00	022563X-H00
TWIN	2.50	10,000	022100X-00	022100X-H00
TRIPPLE	2.50	5,000	032563X-00	032563X-H00
TRIPPLE	2.50	10,000	032100X-00	032100X-H00
TRIPPLE	2.50	15,000	032410X-00	032410X-H00
QUAD	2.50	5,000	042563X-00	042563X-H00
QUAD	2.50	10,000	042100X-00	042100X-H00
SINGLE	3.00	5,000	013500X-00	013500X-H00
SINGLE	3.00	10,000	013137X-00	013137X-H00
TWIN	3.00	5,000	023500X-00	023500X-H00
TWIN	3.00	10,000	023137X-00	023137X-H00
TRIPPLE	3.00	5,000	033500X-00	033500X-H00
TRIPPLE	3.00	10,000	033137X-00	033137X-H00
QUAD	3.00	5,000	043500X-00	043500X-H00
QUAD	3.00	10,000	043137X-00	043137X-H00
SINGLE	4.00	5,000	014564X-00	014564X-H00
SINGLE	4.00	10,000	014103X-00	014103X-H00

BLOWOUT PREVENTERS



**HYDRAULIC DUAL
WIRELINE BOP**



**HYDRAULIC TRIPLE
WIRELINE BOP**

Engineering Data for Manual and Hydraulic Wireline Blowout Preventer

TYPE	I.D. (INCH)	W.P (PSI)	PART NO. (MANUAL)	PART NO. (HYDRAULIC)
TWIN	4.00	5,000	024564X-00	024564X-H00
TWIN	4.00	10,000	024103X-00	024103X-H00
TRIPLE	4.00	5,000	034564X-00	034564X-H00
TRIPLE	4.00	10,000	034103X-00	034103X-H00
QUAD	4.00	5,000	044564X-00	044564X-H00
QUAD	4.00	10,000	044103X-00	044103X-H00
SINGLE	5.00	5,000	015565X-00	015565X-H00
SINGLE	5.00	10,000	015111X-00	015111X-H00
TWIN	5.00	5,000	025565X-00	025565X-H00
TWIN	5.00	10,000	025111X-00	025111X-H00
TRIPLE	5.00	5,000	035565X-00	035565X-H00
TRIPLE	5.00	10,000	035111X-00	035111X-H00
QUAD	5.00	5,000	045565X-00	045565X-H00
QUAD	5.00	10,000	045111X-00	045111X-H00
SINGLE	6.38	5,000	700-200-638-2000	700-200-638-1000
TWIN	6.38	5,000	700-300-638-2000	700-300-638-1000
TRIPLE	6.38	5,000	700-200-638-3000	700-200-638-3001
QUAD	6.38	5,000	700-200-638-4000	700-200-638-4001

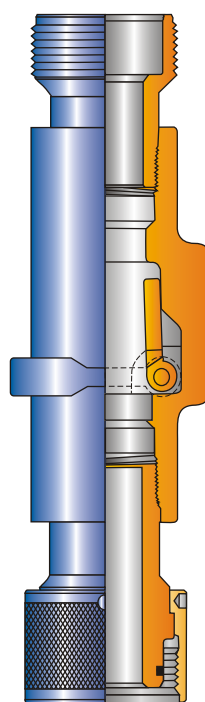
Top & Bottom Conn : To Select From Quick Identification Chart Page No. 39 & 40

TOOL TRAPS

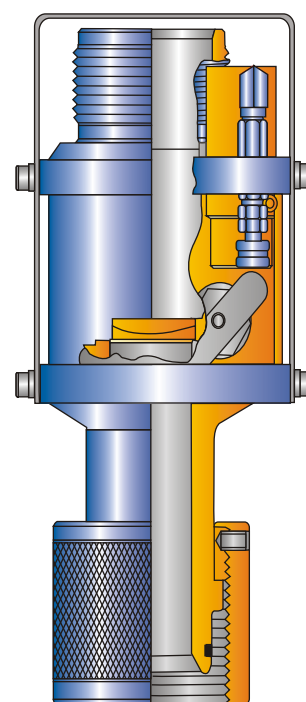
PARVEEN Tool Traps are available in both hydraulically operated and manually operated models. These tool traps are designed to be installed at the bottom of a lubricator or wellhead setup and prevents the loss of a wireline tool in case the Rope Socket accidentally stripped off. Contact factory for details on pump, fittings, hoses and other accessories.

HYDRAULIC TOOL TRAP

Engineering Data for Hydraulic Tool Trap			
SERVICE	I. D. (INCH)	W.P (PSI)	PART NO.
STD	2.50	5,000	06251-H
STD	3.00	5,000	06351-H
H2S	2.50	5,000	06250-H
H2S	3.00	5,000	06350-H
STD	2.50	10,000	601251
STD	3.00	10,000	60448
H2S	2.50	15,000	06240-H
H2S	2.50	10,000	69969
H2S	3.00	10,000	06310-H
STD	4.00	5,000	06451-H
H2S	4.00	5,000	06450-H
H2S	3.00	15,000	06340-H
STD	4.00	10,000	06411-H
H2S	4.00	10,000	06410-H
STD	5.00	5,000	06551-H
STD	5.00	10,000	06511-H
STD	6.38	5,000	06951-H
H2S	5.00	5,000	06550-H
H2S	5.00	10,000	06510-H
H2S	4.00	15,000	06440-H



Manual Tool Trap



Hydraulic Tool Trap

Top & Bottom : To Select From Quick Union Identification Chart Page No. 39 & 40

MANUAL TOOL TRAP

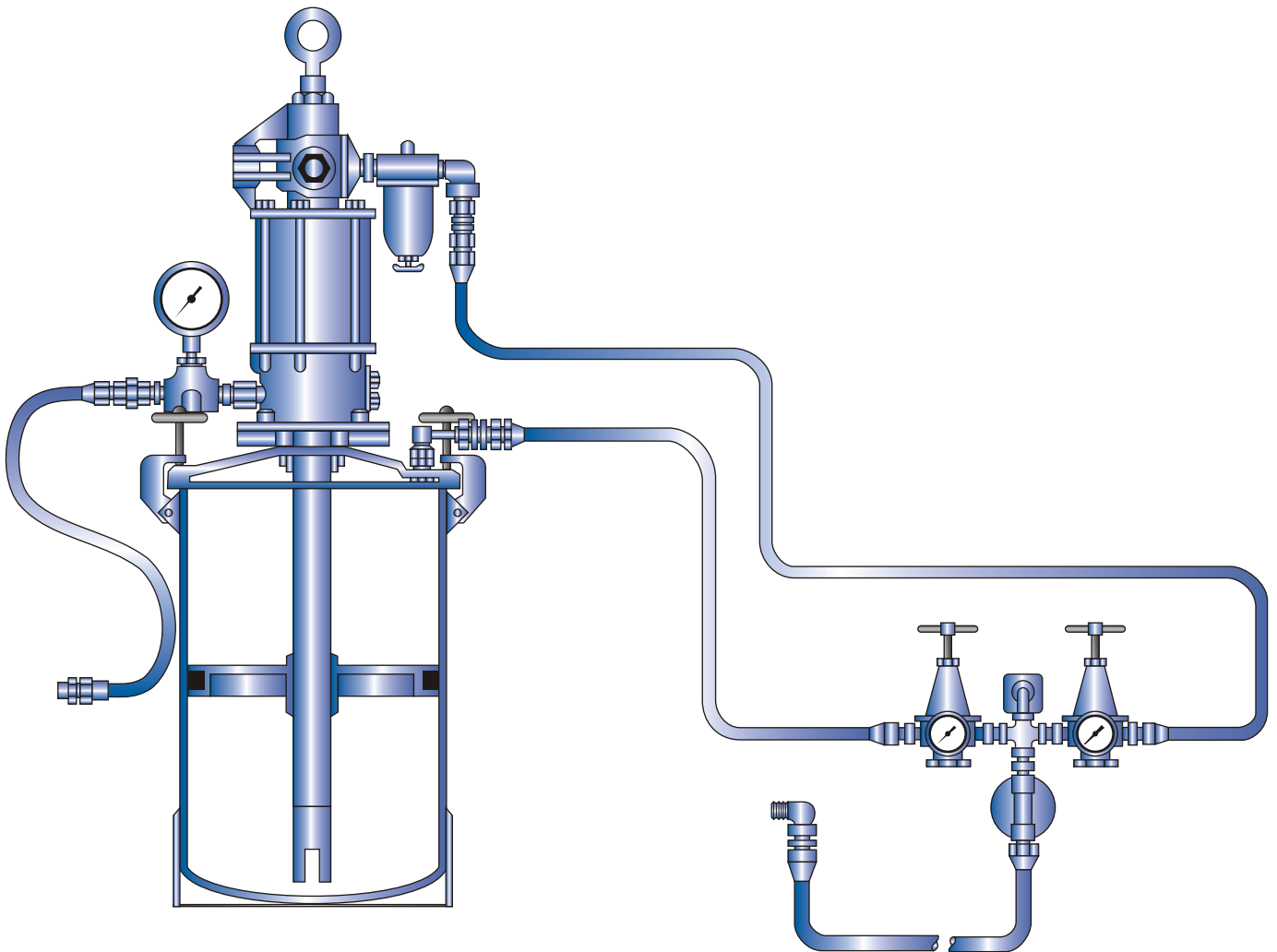
Engineering Data for Manual Tool Trap				
SERVICE	I.D. (INCH)	W.P (PSI)	TOP & BOTTOM CONN.	PART NO.
STD	2.50	5,000	To select from Q.U. Identification chart page no. 39 & 40	6220
STD	3.00	5,000		62460
STD	4.00	5,000		6600
STD	5.00	5,000		61650
STD	6.38	5,000		06951



GREASE / OIL INJECTION SUPPLY SYSTEM

PARVEEN Grease / Oil Injection Supply Systems are used to deliver grease or oil to PARVEEN Grease / Oil Injection Control Head Assemblies, under operating pressures from 2000 PSI to 15,000 PSI with Grease Injection and Grease Return Hoses.

Basic design consists of Grease / Oil / Oil Reservoir, Grease / Oil Pump, Pressure and volume control, pressure gauges and necessary piping, valves, fittings and other components to power and control the unit.



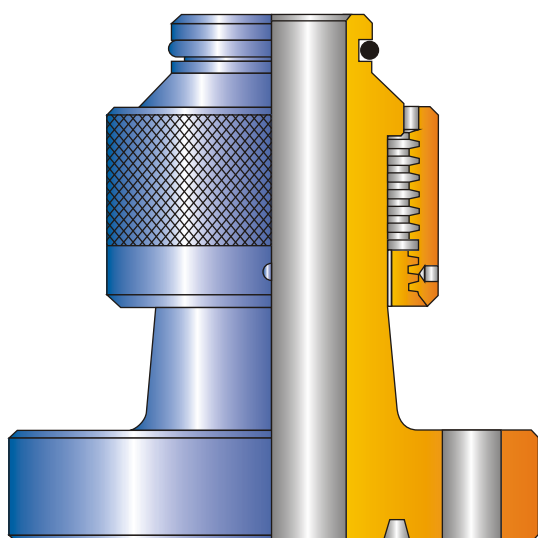
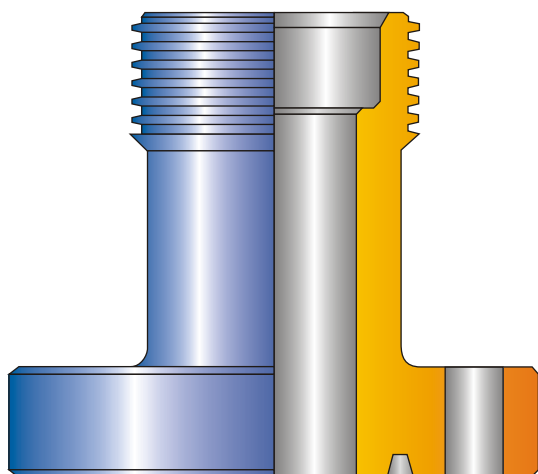
Engineering Data For Supply System		
W.P (PSI)	USE WITH CONTROL PART NO.	PART NO.
2,000	108591	105412
5,000	108591	108909
5,000	108663	109100
10,000	108661	107005
15,000	108806	103442



WELLHEAD FLANGE ADAPTERS

PARVEEN Wellhead Flange Adapters are designed to be used in the upper most position on API Wellheads and therefore enable wireline and other well service operations to be performed through the wellhead into well bore.

PARVEEN Wellhead Adapters are available in various bore sizes and with quick union connections compatible with Bowen and Otis type quick unions. Additionally, flange/Adapters are supplied for standard or H2S Service and working pressure upto 15,000 PSI.



FLANGE ADAPTER

Engineering Data for Wellhead Flange Adapters			
SERVICE	I.D. (INCH)	W.P. (PSI)	PART NO.
H2S	2.06	5,000	5115XX0
STD	2.06	10,000	5111XX1
H2S	2.50	5,000	5125XX0
STD	2.50	10,000	5121XX1
H2S	3.00	5,000	5135XX0
STD	3.00	10,000	5131XX1
H2S	2.56	5,000	51115XX0
STD	2.56	10,000	51111XX1
STD	2.06	15,000	5114XX1
STD	2.50	15,000	5124XX1
H2S	2.06	10,000	5111XX0
H2S	2.50	10,000	5121XX0
H2S	2.56	10,000	51111XX0
H2S	3.00	5,000	5131XX0
H2S	3.06	5,000	51125XX0
H2S	3.12	15,000	51135XX0
H2S	2.06	15,000	5114XX0
H2S	2.50	15,000	5124XX0
H2S	3.00	10,000	5134XX0
H2S	3.06	10,000	51121XX0
H2S	4.00	5,000	5141XX0
STD	2.06	5,000	5115XX1
STD	2.50	5,000	5125XX1
STD	3.00	5,000	5135XX1
STD	3.12	10,000	51135XX1
STD	3.06	5,000	51121XX1
STD	4.00	5,000	5145xx1
STD	4.00	10,000	5141xx1

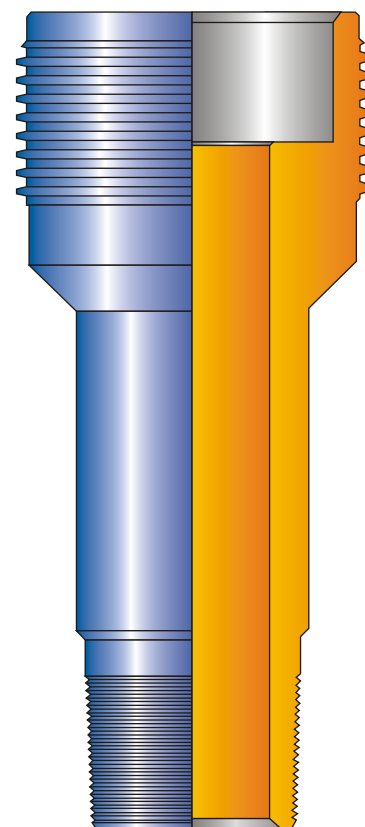
- Quick Union Size: To Select From Quick Union Identification Chart Page No. 39 & 40
- Flange Size & Type: Customer to Specify as per API 6A
- Other Size Available on Request



API ADAPTERS

PARVEEN API Threaded Adapters have an API pin thread down and a quick box connection up. These adapters are used for lower working pressure. Any combination of end connections are available on request.

Engineering Data for Crossover Adapter				
SERVICE	I.D. (INCH)	W.P. (PSI)	BOTTOM CONN.	PART NO.
STD	2.067	5,000	2-11.5 V Line Pipe	134-025011
H2S	2.067	5,000	2-11.5 V Line Pipe	134-025010
STD	1.995	5,000	2-3/8 EU 8 rd	134-015021
H2S	1.995	5,000	2-3/8 EU 8 rd	134-015020
STD	2.441	5,000	2-7/8 EU 8 rd	134-035031
H2S	2.441	5,000	2-7/8 EU 8 rd	134-035030
STD	2.500	5,000	3-1/2 EU 8 rd	134-045041
H2S	2.500	5,000	3-1/2 EU 8 rd	134-045040
STD	2.992	5,000	3-1/2 EU 8 rd	134-055041
H2S	2.992	5,000	3-1/2 EU 8 rd	134-055040
STD	3.476	5,000	4 EU 8 rd	134-065051
H2S	3.476	5,000	4 EU 8 rd	134-065050
H2S	3.958	5,000	4-1/2 EU 8 rd	134-075060
STD	3.598	5,000	4-1/2 EU 8 rd	134-075061
H2S	4.000	5,000	4-1/2-8 rd long casing	134-085070
STD	4.000	5,000	4-1/2-8 rd long casing	134-085071
H2S	4.000	5,000	5-1/2-8 rd long casing	134-085080
STD	4.890	5,000	5-1/2-8 rd long casing	134-105081
STD	5.000	3,000	7-8 rd long casing	134-113091
STD	5.000	5,000	7-5/8-8 rd long casing	134-115101
H2S	4.670	5,000	5-1/2-8 rd long casing	134-095080
H2S	5.000	3,000	7-8 rd long casing	134-113090
H2S	5.000	5,000	7-5/8-8 rd long casing	134-115100
STD	5.000	5,000	9-5/8-8 rd long casing	134-115111
H2S	5.000	5,000	9-5/8-8 rd long casing	134-115110
STD	6.375	5,000	9-5/8-8 rd long casing	134-135111
H2S	6.375	5,000	9-5/8-8 rd long casing	134-135110
STD	6.090	3,000	7-8 rd long casing	134-123091
H2S	6.090	3,000	7-8 rd long casing	134-123090



**TUBING PIN
X THREADED HALF**

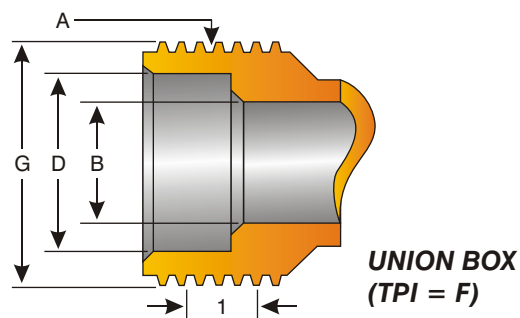
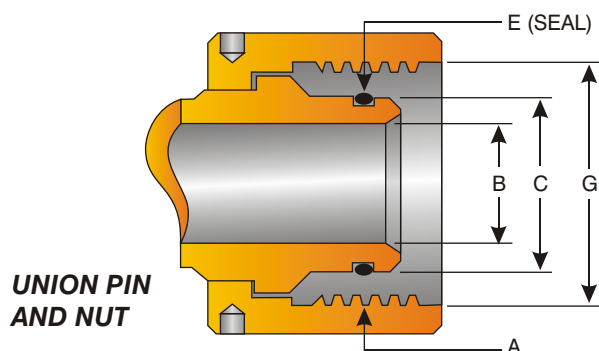
- Top Conn : To Select From Quick Union identification Chart Page No. 39 & 40.



QUICK UNION

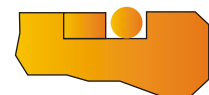
PARVEEN Quick Union Connections are used to assemble lubricators and related equipment and they are designed to be assembled by hand. Otis type and Bowen Type designs are commonly used.

A O-Ring on the pin section forms the seal when made up into the box. The collar has an internal ACME threads to match the external threads on the box. This threads mix-up quickly by hand.



PARVEEN QUICK UNION IDENTIFICATION CHART

PARVEEN (A)	W.R(Psi)	SERV	B	C	D	E	F	G	PART NO.
5.000-4 ACME TYPE O	5000	STD	2.50 3.00	3.494	3.5	50236	4	5.000	440100
5.000-4-ACNE TYPE O	10,000	STD	2.50 3.00	3.494	3.5	50338	4	5.000	440100
5.000-4 ACME TYPE O	15,000	STD	2.50	3.494	3.5	50338*	4	5.000	440101
5.750-4 ACME TYPE O	5,000 10,000	H2S	2.50 3.00	3.994	4.00	50342*	4	5.750	440200
6.250-4 ACME TYPE O	15,000	H2S	2.50	3.994	4.00	50342*	4	6.250	440301
6.500-4 ACME TYPE O	5,000 10,000	STD	4.00	4.744	4.750	50348	4	6.500	440400
7.500-4 ACME TYPE O	15,000	H2S	3.00	5.494	5.500	50354*	4	7.500	440701
8.250-4 ACME TYPE O	5,000 10,000	STD	5.00	6.182	6.188	50435	4	8.250	440800
8.375-A ACME TYPE O	5,000 10,000	H2S	4.00	5.244	5.250	50427	4	8.375	440900
8.750-4 ACME TYPE O	5,000	STD	6.38	7.494	7.500	50441	4	8.750	441100
9.000-4 ACME TYPE O	5,000 10,000	H2S	5.00	6.744	6.750	50438	4	9.000	441200
9.500-4 ACME TYPE O	15,000	H2S	4.00	6.244	6.250	50435*	4	9.500	441601
9.500-4 ACME TYPE O	5,000	H2S	6.38	7.994	8.000	50443	4	9.500	441400
11.500-4 ACME TYPE O	10,000	H2S	6.38	8.244	8.250	50444	4	11.500	441800

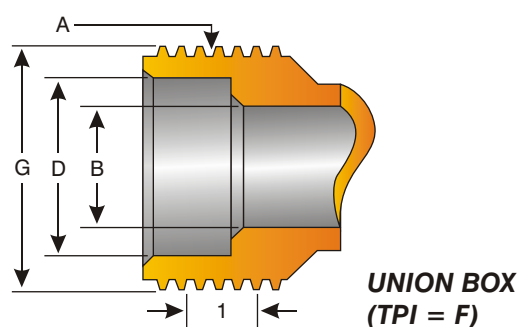
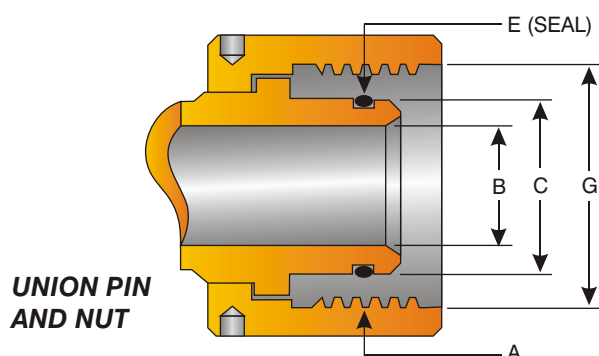


*** SEAL GROOVE
WILL HAVE THIS
CONFIGURATION**

PARVEEN Type O Union Are Interchangeable With Otis Union

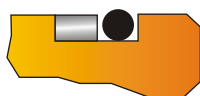


QUICK UNION



PARVEEN QUICK UNION IDENTIFICATION CHART									
PARVEEN (A)	W.P (PSI)	SERV.	B	C	D	E	F	G	PART NO
4.750-4 ACME TYPE B	5,000	STD H2S	2.50 3.00	3.744	3.750	50340	4	4.750	440110
4.750-4 ACME TYPE B	10,000	STD	2.50 3.00	3.744	3.750	50340*	4	4.750	440111
5.500-4 ACME TYPE B (DL)	5,000	STD H2S	3.00	4.369	4.375	50345*	4	5.500	440211
5.500-4 ACME TYPE B (DL)	10,000	STD	3.00	4.369	4.375	50345*	4	5.500	440211
6.312-4 ACME TYPE B	10,000	H2S	2.50 3.00	4.369	4.375	50345**	4	6.312	440311
6.312-4 ACME TYPE B	15,000	STD	2.50	4.369	4.375	50345*	4	6.312	440312
6.312-4 ACME TYPE B	15,000	H2S	2.50	3.744	3.750	50340**	4	6.312	44012
7.000-5 SA TYPE B	5,000	STD H2S	4.00	5.244	5.250	50427	5	7.000	440510
7.093-4 ACME TYPE B	15,000	STD H2S	3.00	4.744	4.750	50348**	4	7.093	440612
8.250-4 ACME TYPE B (DL)	10,000	STD H2S	4.00	5.994	6.000	50358*	4	8.250	440811
8.250-4 ACME TYPE B (DL)	5,000	STD H2S	5.00	6.744	6.750	50438	4	8.250	440710

PARVEEN Type B Union Are Interchangeable With Bowen Unions.



*** SEAL GROOVE
WILL HAVE THIS
CONFIGURATION**

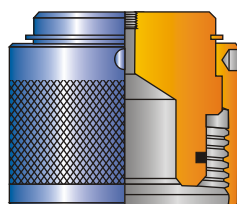


**** SEAL GROOVE
WILL HAVE THIS
CONFIGURATION**

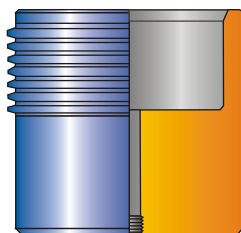


BLANKING CAP & PLUG

PARVEEN Blanking Cap and Blanking Plugs are used for installing gauge and / or Bleed Off Valve. They are available for use on all Quick Unions, and are equipped with NPT ports.



BLANKING PLUG

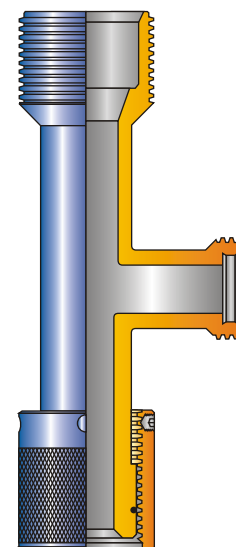


BLANKING CAP

PUMP IN SUB

The Pump-In Sub is placed between wireline BOP and the Wellhead. It is basically used to pump the fluid in well when wireline BOP is closed. Pump-In Sub can also be used for injection of inhibitors and for collecting samples. It has top and bottom with Quick Union Connections and side outlet with Wing Union Connection.

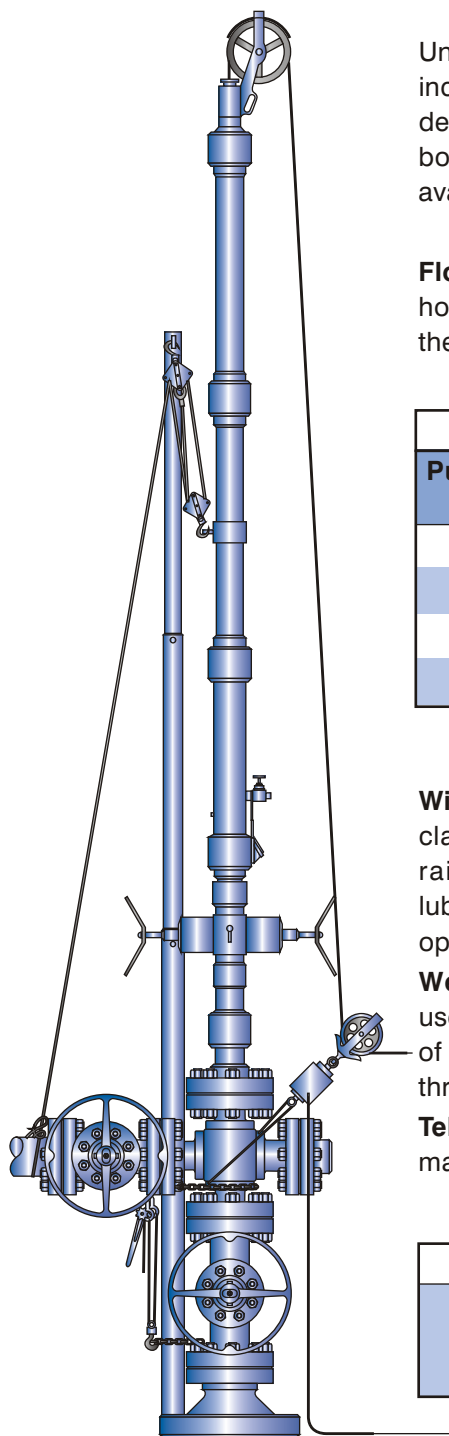
Engineering Data for Pump-In Sub		
ID	W.P (PSI)	SERVICE
2-1/2	5,000	STD
2-1/2	5,000	H2S
2-1/2	10,000	STD.
2-1/2	10,000	H2S
3	10,000	STD
3	10,000	H2S
4	10,000	H2S
5.12	10,000	H2S
6-3/8	10,000	H2S



**PUMP IN SUB
W/WECO
UNION ON SIDE**



LUBRICATOR ACCESSORIES



Union Cross Over Adapters can be utilized to provide transition between otherwise incompatible unions made by same or different manufacturers. These adapters are designed with a Union Box Up and Union Pin & Collar Down and are always rated, both in terms of service and pressure. Any combination of end connections are available upon request.

Floor Block (Hay Pulley) is used to bring the wireline down to a position where it is horizontal from the tree to the wireline rig. It also shifts the point of wireline pull from the top of lubricator to the base of tree and reduces side loading of the lubricator.

Engineering Data for Hay Pulley				
Pulley Dia (IN)	Groove Dia	Type Connection	Safe Working Load (lbs)	Part No.
7	Customer to specify	Swivel Hanger	3,000	330700
10		Swivel Hanger	5,000	331000
12		Swivel Hanger	5,000	331200
14		Swivel Hanger	5,000	331400

Wireline Clamp is used to clamp the wireline while raising or lowering the lubricator or during fishing operations.

Assembly No.	Description
15XXX00	For all sizes of smooth wireline for 3/16-in and 1/4- braided wireline
15XXX10	

Wellhead Connection is used to connect the bottom of the wireline valve to the top tree connections. The top of the connection fits the bottom of valve and the bottom thread of connection is threaded to screw into the particular threads on top of the tree flange connections.

Telescopic Gin Pole is used to rise the lubricator to the top of the wireline valve and maintain this position while breaking off or making up wireline tool string.

Assembly No.	Description
38XXX10	Steel for standard weight lubricators
38XXX00	Aluminium for standard weight lubricators
38XXX20	Steel for standard weight, high-pressure lubricators

Load Binder and Chain are used to bind the gin pole to the tree and to the wireline valve.

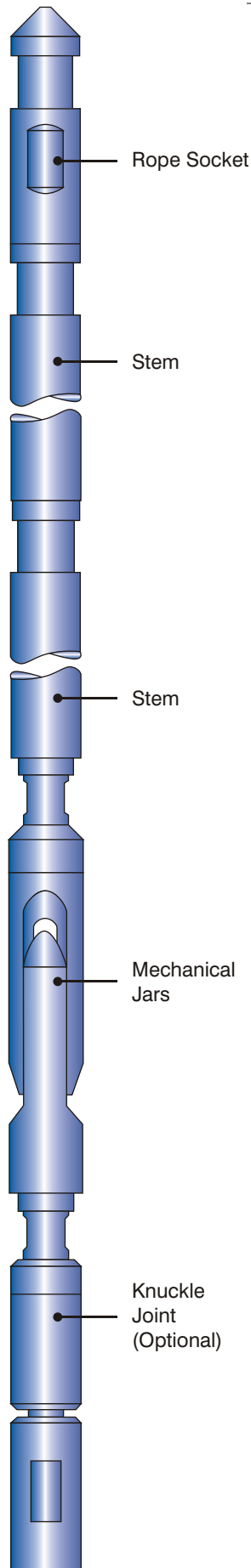
Rope Blocks are used to raise and lower the lubricator.

Lubricator Pick-Up Clamp is used to hook rope block to pick up lubricator.

Pump - In - Subs and Plug Valves are used to pressurize the lubricator during hydrostatic testing or pumping in to the well bore when that become necessary during the course of servicing operations. Models with WP above 5,000 PSI are equipped with specially designed side ports and accept plug valves with integral unions. Plug Valves are available separately and as a component of Pump-in-Subs.

Fitted with a variety of Top and Bottom Connection, - Quick Union connections being most common, - these assemblies are available from 2.50 ID. inch through 6.38" ID. with WP from 3,000 PSI through 15,000 PSI.

WIRELINE TOOL STRING



The Wireline Tool String is necessary for the efficient surface control during the running and pulling operations on slickline of sub surface controlled devices.

An assembly of wireline tools connected to the wireline is used to deliver surface control impacts (jar action) either upwards or downwards to manipulate devices within the well bore.

A standard set of wireline tool string typically consist of :

Wireline Socket (Rope Socket) for attaching the wireline to the tool string.

Wireline Stem (Sinker Bar) for adding weight to sink the tool in the well bore against the well pressure and different gravity fluids encountered.

Wireline Jars (Spang Link Jar) for securing the hammering effect by upward or downward movement.

Wireline Knuckle Joint for obtaining flexibility through the tool string.

Wireline running or pulling tool for running and retrieving devices from the well bore.

All Wireline Tools are available with following:

- Sucker Rod Threads
- UN Threads
- Quick Lock Connection

Customer to choose the type of connection they want to use in wireline tool string.

Sucker rod threads are machined on wireline tools as per API 11B. These are economical cost wise.

UN threads are also machined on wireline tools and are interchangeable with Sucker Rod Threads but are shorter in length. These are also economical cost wise.

Quick Lock Connector as the name suggest is a quick connect and quick disconnect connection, which is used in place of screwed connection. It has many advantages over screwed connection:

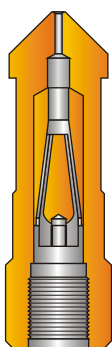
- It is quarter turn connection.
- It is stronger than screwed connection. It has three impact load bearing surfaces in each direction, which make it safer for heavy and prolonged wireline operations.
- It is safer and simpler and can be released with a screwdriver.



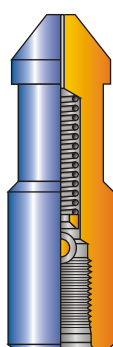
ROPE SOCKET

PARVEEN Rope Sockets are used as a means to connect wireline to the tool string.

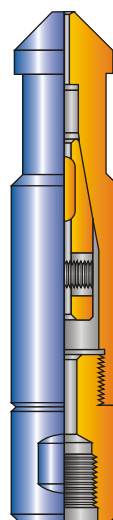
Rope Sockets are available in 4 types as under:



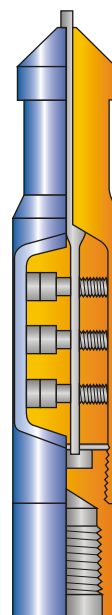
WEDGE TYPE



SPOOL TYPE



SLIP TYPE



CLAMP TYPE

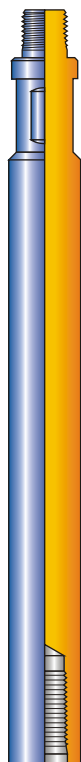
Engineering Data for Rope Socket

SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. BOX (IN. TPI)	WIRE SIZE (IN)	TYPE	PART NO.
1	1.000	0.875	5/8-11 UNC	0.066-0.092	SPOOL	911000-SP
1-1/4	1.250	1.187	15/16-10 UN	0.066-0.092	SPOOL	911211-SP
1-1/2	1.500	1.375	15/16-10 UN	0.066-0.092	SPOOL	911521-SP
2-1/2	2.500	2.312	1-9/16-10 UN	0.092	SPOOL	912546-SP
1-7/8	1.750	1.875	1-1/16-10 UN	0.066-0.092	SPOOL	911932-SP
2-1/8	2.125	1.750	1-1/16-10 UN	0.092	SPOOL	912132 SP
1-1/8	1.125	0.875	5/8-11 UNC	0.066-0.092	WEDGE	911100-W
1-1/2	1.500	1.375	15/16-10 UN	0.092/0.108	WEDGE	911521-W
1-1/2	1.50	1.375	1-1/16-10 UN	0.092/0.108	WEDGE	911522-W
1-7/8	1.875	1.750	15/16-10 UN	0.092/0.108	WEDGE	911931-W
1-7/8	1.875	1.750	1-1/16-10 UN	0.092/0.108	WEDGE	911932-W
2-1/8	2.125	1.750	1-1/16-10 UN	0.092/0.108	WEDGE	912132-W
2-1/2	2.500	2.312	1-9/16-10 UN	0.092/0.108	WEDGE	912546-W
1-1/4	1.250	1.187	15/16-10 UN	0.125	CLAMP	911211-C
1-1/2	1.500	1.375	15/16-10 UN	0.125/0.187	CLAMP	911521-C
1-7/8	1.875	1.750	1-1/16-10 UN	0.187	CLAMP	911932-C
2-1/2	2.500	2.312	1-9/16-10 UN	0.250	CLAMP	912546-C
1-1/2	1.500	1.375	15/16-10 UN	0.187	SLIP	911521-SL
1-7/8	1.875	1.750	1-1/16-10 UN	0.187	SLIP	911936-SL
2-1/8	2.125	1.750	1-1/16-10 UN	0.187	SLIP	912132-SL
2-1/2	2.500	2.312	1-9/16-10 UN	0.187	SLIP	912546-SL

- Other sizes available on request



'S' WIRELINE STEM (WEIGHT BAR)



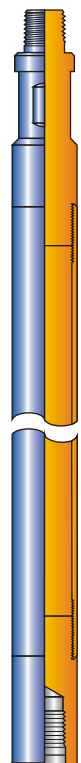
PARVEEN Wireline Stems are used to provide weight to tool string to eliminate friction with elastomers of stuffing box and for smooth running of wireline against well pressure. Wireline stems are available in various Lengths, ODs, Connections.

Engineering Data for Wireline Stem						
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX (IN. TPI)	PART NO		
				2 FT LONG	3 FT. LONG	5 FT LONG
1	1.000	0.875	5/8-11 UNC	16105100	16105200	16105400
1-1/4	1.250	1.187	15/16-10 UN	16125111	1612511	16125411
1-1/2	1.500	1.375	15/16-10 UN	16155121	16155221	16155421
1-7/8	1.875	1.750	1-1/16-10 UN	16195132	16195232	16195432
2-1/8	2.125	1.750	1-1/16-10 UN	16215132	16215232	16215432
2-1/2	2.500	2.312	1-9/16-10 UN	16255145	16255245	16255445

- Other sizes available on request

**WIRELINE STEM
(WEIGHT BAR)**

'LS' LEAD FILLED STEM



PARVEEN Lead Filled Stems are used to provide additional weight to tool string, without change in OD & Length. These are normally used in well bores with high pressure, to eliminate friction with elastomers of stuffing box and for smooth running of wireline against well pressure.

Engineering Data for Wireline Lead Filled Stem						
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX (IN. TPI)	PART NO		
				2 FT LONG	3 FT. LONG	5 FT LONG
1-1/4	1.250	1.187	15/16-10 UN	55125111	55125211	55125411
1-1/2	1.500	1.375	15/16-10 UN	55155121	55155221	55155421
1-7/8	1.875	1.750	15/16-10 UN	55195132	55195132	55195432
2-1/8	2.125	1.750	15/16-10 UN	55215132	55215232	55215432

- Other sizes available on request.

**LEADED
STEMS**

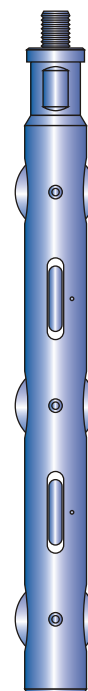


'SM' ROLLER STEM

PARVEEN Roller Stems are used with tool string in deviated wells. Its application is to reduce friction against tubing ID. In assembly of Roller Stems : Teflon / Alloy Steel Rollers (suitable for high temperature / H2S Service), specialty bearings are assembled with body. Roller Stems are available in various Lengths, ODs, Connections and Rollers dia.

Engineering Data for Roller Stem					
SIZE (IN.)	MAX. O. D. (IN.)	F/N O.D. (IN.)	THREAD CONN. PIN X BOX (IN. - TPI.)	NO. OF WHEELS	PART NO.
1-1/2	2.00	1.375	15/16-10 UN	3	52200321
1-7/8	2.50	1.750	1-1/16-10 UN	3	52250332
2-1/2	3.00	2.312	1-9/16-10 UN	3	52300346
1-1/2	2.00	1.375	15/16-10 UN	4	52200421
1-7/8	2.50	1.750	1-1/16-10 UN	4	52250432
2-1/2	3.00	2.312	1-9/16-10 UN	4	52300446

- Other sizes available on request.



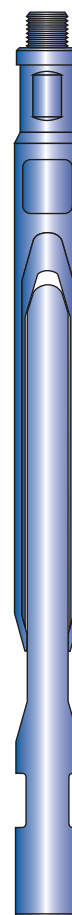
ROLLER STEM

'MJ' SPANG LINK JARS OR MECHANICAL JARS

PARVEEN Spang Link or Mechanical Jars are used in wireline fishing operations with stems. The weight of stems and jars can be used by operator for jarring by pulling and then releasing wireline. These Jars are available in various sizes and strokes. Force = Mass x Acceleration. Stem weight is fixed but speed can be varied. In jar down action, speed is limited due to limited travel and gravity. Jar of action is more effective as speed can be increased by increasing the spooling speed of wireline unit and using long jars.

Engineering Data for Spang Link Jars or Mechanical Jar					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. OD (IN.)	THREAD CONN. PIN X BOX (IN. TPI)	STROKE (IN.)	PART NO.
1	1.000	0.875	5/8-11 UNC	20	11102000
1	1.000	0.875	5/8-11 UNC	24	11102400
1-1/4	1.250	1.187	15/16-10 UN	20	11122011
1-1/4	1.250	1.187	15/16-10 UN	24	11122411
1-1/4	1.250	1.187	15/16-10 UN	30	11123011
1-1/2	1.500	1.375	15/16-10 UN	20	11152021
1-1/2	1.500	1.375	15/16-10 UN	24	11152421
1-7/8	1.875	1.750	1-1/16-10 UN	20	11192032
1-7/8	1.875	1.750	1-1/16-10 UN	24	11182432
1-7/8	1.875	1.750	1-1/16-10 UN	30	11193032
2-1/8	2.125	1,750	1-1/16-10 UN	30	11213032
2-1/2	2.500	2.312	1-9/16-10 UN	24	11252446

- Other sizes available on request.



SPANG LINK JAR

'TJ' WIRELINE TUBULAR JAR

PARVEEN Tubular Jars are used in tool string for effective jarring. Tubular Jars are commonly used to remove obstacles from the tubing ID by jarring. This is an effective tool during fishing of wire as possibility of Tubular Jar getting jammed with wire is minimal.

Engineering Data for Wireline Tubular Jar					
SIZE (IN.)	MAX. O.D. (IN.)	THREAD F/N. OD (IN.)	PIN X BOX (IN. TPI)	STROKE (IN.)	PART NO.
1	1.000	0.875	5/8-11 UNC	18	21101800
1	1.000	9.875	5/8-11 UNC	20	21102000
1-1/8	1.125	0.875	5/8-11 UNC	18	21111800
1-1/4	1.250	1.187	15/16-10 UN	20	21122011
1-1/4	1.250	1.187	15/16-10 UN	24	21122411
1-1/4	1.250	1.187	15/16-10 UN	30	21123011
1-1/2	1.500	1.375	15/16-10 UN	20	21152021
1-1/2	1.500	1.375	15/16-10 UN	24	21152421
1-1/2	1.500	1.375	15/16-10 UN	30	21153021
1-3/4	1.750	1.375	15/16-10 UN	20	21172021
1-3/4	1.750	1.375	15/16-10 UN	30	21173021
1-7/8	1.875	1.750	1-1/16-10 UN	20	21192032
1-7/8	1.875	1.750	1-1/16-10 UN	30	21193032
2-1/8	2.125	1.750	1-1/16-10 UN	20	21212032
2-1/8	2.125	1.750	1-1/16-10 UN	24	21212432
2-1/8	2.125	1.750	1-1/16-10 UN	30	21213032
2-1/2	2.500	2.312	1-9/16-10 UN	24	21252446
2-1/2	2.500	2.312	1-9/16-10 UN	30	21253046

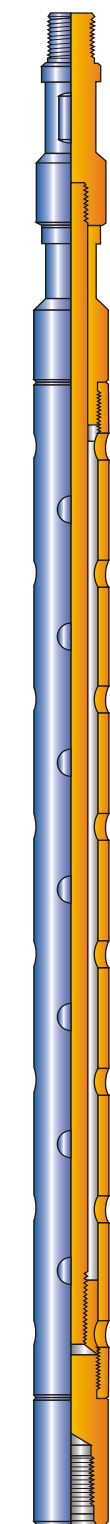
- Other Sizes Available On Request.

'HJ' HYDRAULIC JAR

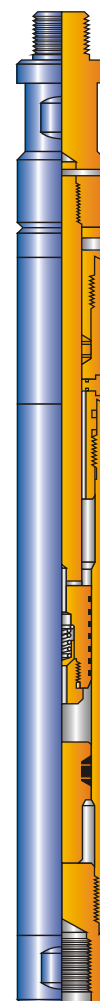
PARVEEN Hydraulic Jars are used for jarring when difficulty is face to obtain good jarring action with Mechanical Jars, particularly due to deviated wells or wells with highly viscous fluids. These jars provide only up stroke and are run between stem and Mechanical Jar.

Engineering Data for Hydraulic Jar					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. OD (IN.)	THREAD PIN X BOX (IN. TPI)	STROKE (IN.)	PART NO.
1-1/8	1.125	0.875	5/8-11 UNC	6.750	081100
1-1/4	1.250	1.187	15/16-10 UN	9.250	081211
1-1/2	1.500	1.375	15/16-10 UN	9.187	081521
1-3/4	1.750	1.375	1-1/16-10 UN	10.00	081722
2-1/8	2.125	1.750	1-3/16-10 UN	11.625	082135

- Other Sizes Available On Request.



TUBULAR JAR



HYDRAULIC JAR

'SPJ' SPRING JAR

PARVEEN Spring Jars are used to provide upward jarring during wireline fishing operations. Spring Jars can be used in place of Hydraulic Jar. These Jars are run between Stem and Mechanical Jar in tool string.

Engineering Data for Spring Jar					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX(IN. TPI)	STROKE (IN.)	PART NO.
1-1/2	1.500	1.375	15/16-10 UN	12	56151221
1-7/8	1.875	1.750	1-1/16-10 UN	12	56181232
2-1/2	2.500	2.312	1-9/16-10 UN	12	56251246

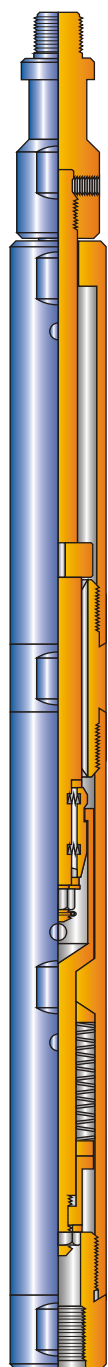
- Other Sizes Available On Request

'WA' WIRELINE ACCELERATOR

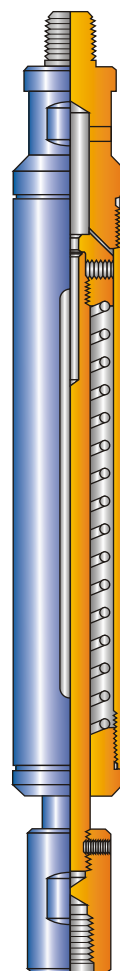
PARVEEN Wireline Accelerator is used to run with Hydraulic Jar to reduce shocks at Rope Socket to avoid pulling of wire out of socket and accelerate movement of stem, to achieve effective jarring. Accelerator facilitate constant pull at the time of opening of Hydraulic Jar.

Engineering Data for Wireline Accelerator					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX(IN. TPI)	LENGTH (IN.)	PART NO.
1-1/2	1.500	1.375	15/16-10 UN	22	53152221
1-7/8	1.875	1.750	1-1/16-10 UN	26	53182632
2-1/8	2.125	1.750	1-1/16-10 UN	38	53213832
2-1/2	2.500	2.312	1-9/16-10 UN	35	53253546
3	3.000	2.312	1-9/16-10 UN	38	53303846

- Other Sizes Available On Request



SPRING JAR



WIRELINE ACCELERATOR

'SH' SHOCK ABSORBER

PARVEEN Wireline Shock Absorber is used to reduce the shocks to sub surface instruments, caused due to jarring, surging etc.

Engineering Data for Wireline Shock Absorber				
SIZE (IN.)	F/N. OD (IN.)	TOP CONNECTION PIN (IN. TPI)	BOTTOM CONNECTION (BOX) (IN. TPI)	PART NO.
1.50	1.375	15/16-10 UN	3/4 - 16 UNF	301521
1.75	1.375	15/16-10 UN	3/4 - 16 UNF	301721
2.00	1.375	15/16-10 UN	3/4 - 16 UNF	302021

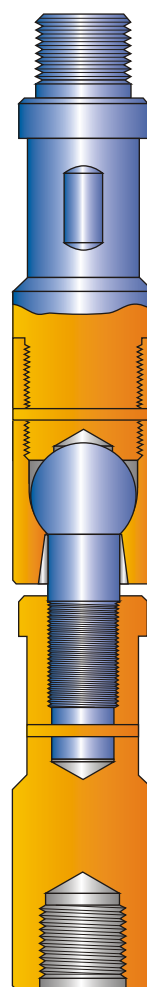
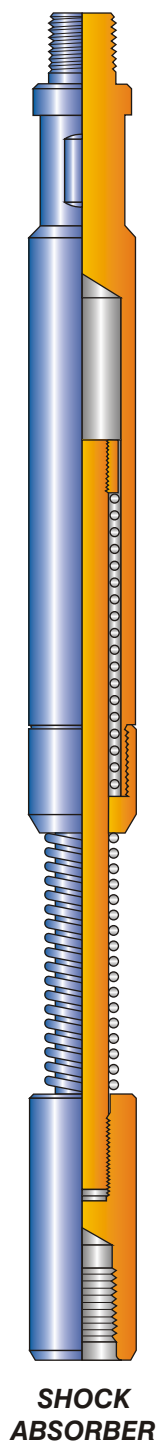
- Other Sizes Available On Request

'KJ' KNUCKLE JOINTS

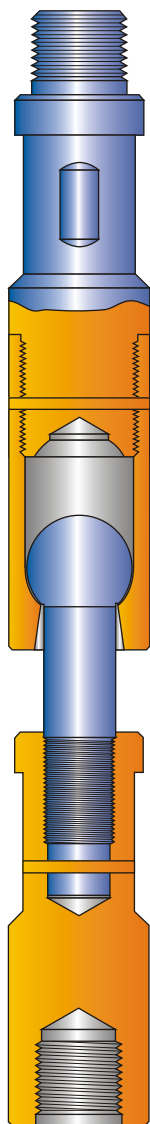
PARVEEN Knuckle Joints are used to add flexibility to the tool string and Knuckle Joints are effective in deviated wells. Whenever Stem and jar are not aligned or not moving freely it is impossible to operate tools. However adding knuckle joint in a string this situation can be avoided. Knuckle Joints are run immediately below Mechanical Jar. For additional flexibility additional Knuckle Joint can be included between Stem and Jar.

Engineering Data for Knuckle Joints				
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX (IN. TPI)	PART NO.
1-1/8	1.125	0.875	5/8-11 UNC	071100
1-1/4	1.250	1.187	15/16-10 UN	071211
1-1/2	1.500	1.375	15/16-10 UN	071521
1-7/8	1.875	1.750	1-1/16-10 UN	071932
2-1/8	2.125	1.750	1-1/16-10 UN	072132
2-1/2	2.500	2.312	1-9/16-10 UN	072546

- Other Sizes Available On Request



'KJA' KNUCKLE JAR



PARVEEN Knuckle Jars are used as a combination of functions of Knuckle Joint & Short Tubular Jars. Knuckle Jars can be utilized to jar with short strokes to free the string. Like in PARVEEN Knuckle Joint, PARVEEN Knuckle Jar too has specially designed double fishing neck.

Engineering Data for Knuckle Jar					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. OD (IN.)	THREAD PIN X BOX (IN. TPI)	STROKE (IN.)	PART NO.
1-1/4	1.250	1.187	15/16-10 UN	2	20120211
1-1/2	1.500	1.375	15/16-10 UN	2	20150221
1-1/2	1.500	1.375	15/16-10 UN	4	20150421
1-7/8	1.875	1.750	1-1/16-10 UN	6	20190632
2-1/8	2.125	1.750	1-1/16-10 UN	6	20210632
2-1/2	2.500	2.312	1-9/16-10 UN	6	20250646

- Other Sizes Available On Request.

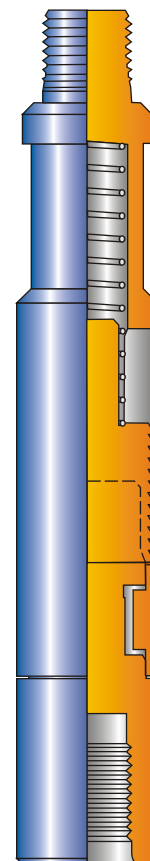
'QC' QUICK LOCK COUPLINGS

PARVEEN Quick Couplings are used as a fast, safe & strong method of tool coupling. Coupling can be made by hand, eliminating requirement of wrenches / spanners etc.

**KNUCKLE
JAR**

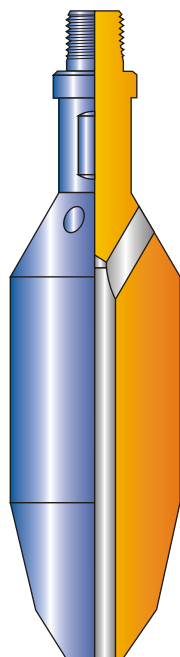
Engineering Data for Quick Lock Coupling				
SIZE (IN.)	MAX. O.D. (IN.)	F/N. O.D. (IN)	THREAD CONN. PIN X BOX (IN. TPI)	PART NO.
1-1/4	1.250	1.187	15/16-10 UN	052511
1-1/2	1.500	1.375	15/16-10 UN	051521
1-7/8	1.875	1.750	1-1/16-10 UN	051932
2-1/2	2.500	2.312	1-9/16-10 UN	052456

- Other Sizes Available On Request.



**QUICK LOCK
COUPLING**

'TS' TUBING SWAGE



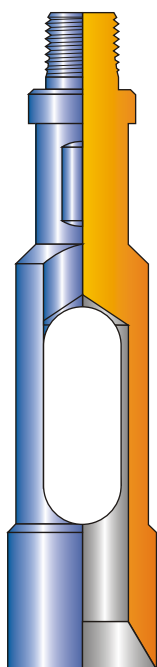
**TUBING
SWAGE**

PARVEEN Tubing Swages are used to remove large obstructions and restore light collapse in the tubing. This allows smooth running of tool string in well bore. The OD of tubing swage should be equal to tubing drift ID. It should be run with up stroke jar to enable operator to take it out of tubing if swage is jammed.

Engineering Data for Tubing Swage				
SIZE (IN)	MAX O.D. (IN)	F/N O.D. (IN)	THREAD CONN. PIN (IN.-TPI)	PART NO
1.1/2	1.521	1.187	15/16-10 UN	101511
2	1.906	1.375	15/16-10 UN	102021
2.1/2	2.344	1.375	15/16-10 UN	102321
3	2.937	1.750	1.1/16-10 UN	103032
4	3.720	1.750	1.1/16-10 UN	103732

- Other Sizes Available On Request.

'TC' TUBING GAUGE / PARAFFIN CUTTER



**TUBING
GAUGE / PARAFFIN
CUTTER**

PARVEEN Gauge / Paraffin Cutters are run in hole before running sub surface equipment. Gauge / Paraffin Cutters are used to check if sub surface equipment can pass freely thru tubing & there are no obstructions and to locate top of nipple. The bottom of Gauge / Paraffin Cutter is suitable to cut paraffin , scale and any other obstacles in tubing.

Selection of size :

Example

Nipple bore = 2.25"

No Go ID = 2.197"

So, Gauge Cutter should be between above two sizes.

Engineering Data for Tubing Gauge / Paraffin Cutters			
O.D. RANGE (IN) *	F/N O.D.(IN)	THREAD CONN. PIN (IN.-TPI)	PART NO
0.905 - 1.575	0.875	5/8 - 11 UNC	831600
1.655 - 2.265	1.375	15/16 - 10 UN	832231
2.323 - 2.520	1.375	15/16 - 10 UN	832521
2.598 - 2.953	1.750	1.1/16 - 10 UN	832932
2.992 - 3.900	2.312	1.1/16 - 10 UN	833942
5.750 - 6.151	2.312	1.9/16 - 10 UN	836146

*Tubing Gauge / Paraffin Cutter are available in MM. increments within the Specified O.D. Ranges. When ordering , specify required O.D. in MM (Inches x 25.4 = MM)

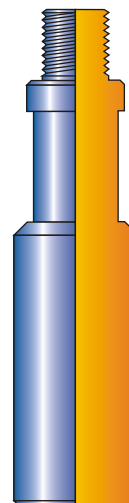


'BB' BLIND BOX

Parveen Blind Boxes are used when heavy downward jarring is required to dislodge a fish or push something down the hole. Bottom surface of Blind Box is flat and hardened to reduce wear and damage.

Engineering Data for Blind Box			
O.D. RANGE (IN) *	F/N O.D. (IN)	THREAD CONN. PIN (IN.-TPI)	PART NO
1.187 - 1.250	1.187	15/16 - 10 UN	221211
1.625 - 1.375	1.375	15/16 - 10 UN	222221
2.625 - 2.750	1.750	1.1/16 - 10 UN	222732
3.500 - 4.625	2.312	1.9/16 - 10 UN	224646
5.250 - 5.750	2.312	1.9/16 - 10 UN	225746

* Blind Boxes are available in MM. Increments Within The Specified O.D. Ranges.
When Ordering, Specify Required O.D. In MM. (Inches x 25.4 = MM)



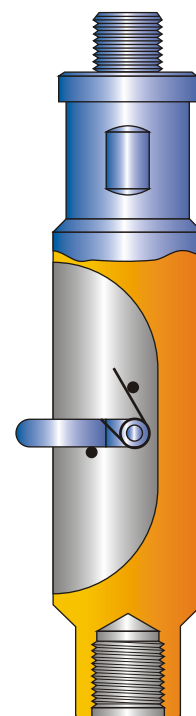
**BLIND
BOX**

'TL' TUBING END LOCATOR

PARVEEN Tubing End Locators are used to locate end of tubing during completions. With its spring loaded finger, it can be run in various sizes of tubing ranging from 2.3/8" till 4.1/2".

Engineering Data for Tubing End Locator					
SIZE (IN)	MAX O.D. (IN) *	F/N O.D. (IN)	TOP CONN. PIN (IN.-TPI)	BOTTOM CONN. PIN (IN. - TPI)	PART NO.
2 - 2.1/2	1.750	1.375	15/16 - 10 UN	1 - 11.1/2 NPT	421721
3	2.500	1.375	15/16 - 10 UN	1 - 11.1/2 NPT	422521
4	3.750	2.312	1.9/16 - 10 UN	1 - 11.1/2 NPT	423746

- * O.D. With Finger Sheared
- Other Sizes available on request.



**TUBING END
LOCATOR**

'SB' SAMPLE BAILER

'SB' SAMPLE BAILER

The PARVEEN Sample Bailer is used to collect samples of debris from the well bore creating obstructions. PARVEEN Sample Bailer are available in two basic designs with ball or flapper shoe. The shoe opens when sample bailer assembly is forced in debris and closes when the sample bailer is forced out.

Engineering data for 'SB' Sample Bailer			
SIZE (IN.)	F/N OD (IN.)	CONNECTING THREAD BOX (IN. TPI)	PART NO.
1.5	1.375	15/16-10 UN	051 - 001
1.75	1.375	15/16-10 UN	051 - 002
2	1.75	1-1/16-10 UN	051 - 003
2.5	2.313	1-1/16-10 UN	051 - 004
3	2.313	1-1/16-10 UN	051 - 005
4	2.313	1-9/16-10 UN	051 - 006

SAND PUMP BAILER

The pump bailer is used to remove the bulk of sand above the wireline tools / equipment. It is a hollow tube with a check valve (ball or flapper) at its lower end, which is usually mule shoe (cut at 45°). It contains a piston and valve attached to a rod which passes through a loose hold (for fluid bypass) at the upper end of the tube. This rod is attached to the tool string.

As the bottom of the bailer rests on the sand, the weight of the tool string pushes the piston to the bottom of the tube. As this piston is picked up, it sucks sand and debris into the bottom of the bailer. This slow 'stroking process' continues until the bailer is full.

HYDROSTATIC BAILER

A hydrostatic bailer consists of a chamber sealed at atmospheric pressure. When the bailer reaches the top of the sand and is jarred down, a shear disk is ruptured and the bottom hole pressure surging into the chamber sucks up the sand. A ball check in the bottom serves to trap the sand in the chamber.

These bailer are used to clean off sand or foreign materials from around a fishing neck very successfully and are not recommended for normal bailing operations. In soft sand , this bailer will bury itself each time it goes off. It usually requires a hard object against which to shear the disc.

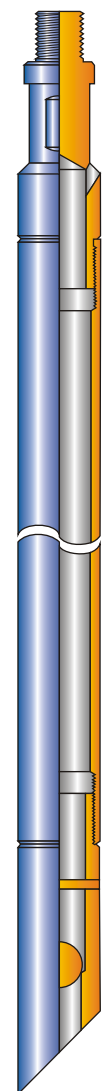
Always use a pump bailer to remove the bulk of sand etc. until pump bailer is resting on the plug or whatever is to be removed. A hydrostatic bailer can then be used to clean around the fishing neck.

Hydrostatic bailer are not recommended for normal bailing operations because :

- Too slow
- A high possibility of sticking in the sand due to suction action when the sealed chamber is opened.

The sand pumps and hydrostatic bailer can be dangerous after pulling them to the surface and when unloading the sand , due to pressure trapped inside the chamber. Caution should be taken when removing the check valve on the bottom to make sure there is no pressure inside. This can be determined usually by how hard the bottom is to unscrew. Once should never completely remove the bottom while the bailer is pressured up. Do not hammer on a bailer to remove sand. These bailer are subject to bottom hole pressure. It is good idea to visually inspect these bailer for wear and wall reduction.

Hydrostatic bailer have pressure relief valves, and some have an automatic pressure relief valve. These become plugged easily and can be dangerous to handle , so observe the above caution when unscrewing the bottom.



**SAMPLE
BAILER**

'HB' HYDROSTATIC BAILER

PARVEEN Hydrostatic Bailer is used to clean off sand or foreign materials from around a fishing neck of tools. Hydrostatic Bailer is used in situation where Pump Type Bailer are not effective.

Engineering Data for Hydrostatic Bailer					
SIZE (IN.)	PART NO.	F/N.O.D. (IN.)	THREAD CONNECTION PIN (IN. - TPI)	GUIDE SHOE O.D.(IN.)*	GUIDE SHOE PART NO.
1.3/8	181411	1.187	15/16 - 10 UN	1.375	181411 - 13
				1.750	181721 - 17
1.3/4	181721	1.375	15/16 - 10 UN	2.156	181721 - 21
				2.687	181721 - 26

* Guide Shoe O.D. is the Max. Bailer Assembly O.D. Unless a specified O.D. is requested. The smallest O.D. Guide Shoe is supplied.

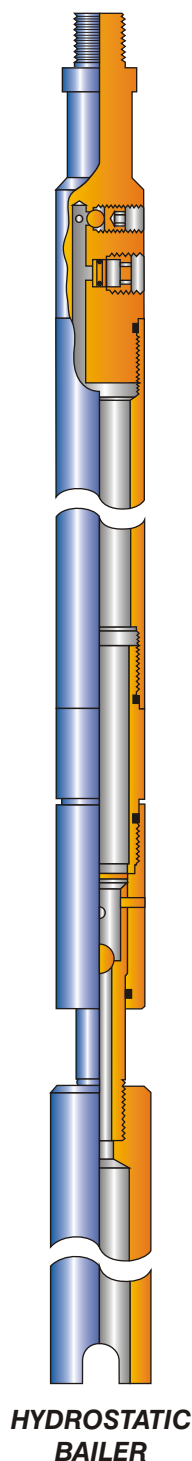
'SAB' SAND PUMP BAILER

PARVEEN Sand Pump Bailer are used when a sand bridge is encountered during operations. The bailer pulls sand into cylinder, to remove sand bridge. Bailer are available in 3 types :

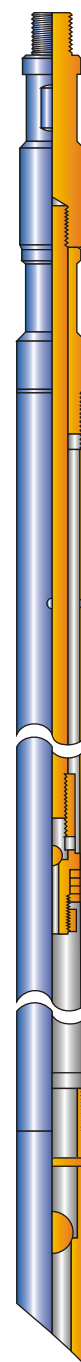
1. W/ Flat Bottom : For easy bailing of sand.
2. W/ Angled Bottom : For bailing hard packed sand
3. W/ Flapper Bottom : For bailing metallic particles which can not pass thru ball & seat

Engineering Data for Sand Pump Bailer					
SIZE (IN.)	PART NO.	F/N.O.D. (IN.)	THREAD CONNECTION PIN (IN. - TPI)	GUIDE SHOE O.D.(IN.)*	GUIDE SHOE PART NO.
1.1/4	581211	1.187	15/16 - 10 UN	1.250	581211-12
				1.437	581211-14
1.5/8	581611	1.187	15/16 - 10 UN	1.850	581611-18
				2.125	581611-21
				2.500	581611-25
				2.687	581611-26
				3.500	581611-35
				3.750	581611-37

*Guide Shoe O.D. is the Max. Bailer Assembly O.D. Unless a specified O.D. is requested. The smallest O.D. Guide Shoe is supplied.



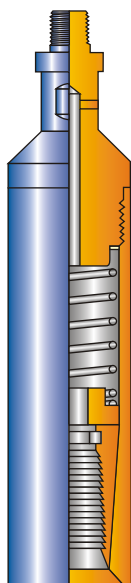
HYDROSTATIC BAILER



SAND PUMP BAILER



‘WO’ WIRELINE OVERSHOT



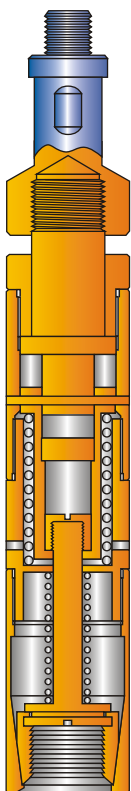
**WIRELINE
OVERSHOT**

PARVEEN Wireline Overshots are used to engage sub-surface tools in various situations as determined by operator. Overshots consist of hardened steel slips with sharpened upward teeth, engage the fish. The tapered ID of skirt and upward pull / jarring set the slips tighter.

Engineering Data for Wireline Overshot						
SIZE (IN.)	PART NO.	MAX O.D. (IN.)	F/N O.D. (IN.)	THREAD CONN PIN (IN. - TPI)	TO CATCH DIAs (IN.)	PART NO.
1.75	351721	1.750	1.375	15/16 - 10 UN	0.50 - 0.75	351721 - 07
					0.75 - 1.00	351721 - 10
					1.00 - 1.25	351721 - 12
2.625	352632	2.625	1.750	1.1/16 - 10 UN	0.50 - 0.75	352632 - 07
					0.75 - 1.00	352632 - 10
					1.00 - 1.25	352632 - 12
					1.25 - 1.50	352632 - 15
					1.50 - 1.75	352632 - 17
					1.75 - 2.00	352632 - 20
3.80	353846	3.800	2.312	1.9/16 - 10 UN	0.50 - 0.95	353846 -09
					0.95 - 1.40	353846 - 14
					1.40 - 1.85	353846 - 18
					1.85 - 2.30	353846 - 23
					2.30 - 2.75	353846 - 27

- Each Assembly is complete with one set of slips. Please specify required size when ordering.
- Other sizes available on request.

‘ROS’ RELEASABLE OVERSHOT



**RELEASABLE
OVERSHOT**

PARVEEN Releasable Overshot is used in Wireline Fishing Operation. Bowen and ‘O’ Banon type Overshot cannot be released once they are latched. However in PARVEEN Releasable Overshots, the slips can be released by downward jarring.

Engineering Data for Releasable Overshot			
O.D. (IN)	F/N. OD (IN)	TOP CONN PIN. (IN TPI)	PART NO.
1.875	1.375	15/16-10 UN	R351921
2.25	1.375	15/16-10 UN	R352221
2.625	1.750	1-1/16-10 UN	R352632

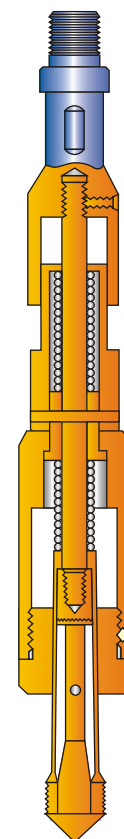


'WS' WIRELINE SPEAR

PARVEEN Wireline Spears are used in general fishing operations when wire is bundled up very badly and two prong wireline grab can not engage it.

Engineering Data for Wireline Spear					
SIZE (IN.)	MAX. O.D (IN.)	F/N O.D. (IN.)	THREAD CONN PIN (IN. - TPI.)	TO CATCH DIAs (IN.)	PART NO.
1.1/2	1.50	1.375	15/16 - 10 UN	0.50 - 0.75	60150721
1.1/2	1.50	1.375	15/16 - 10 UN	0.75 - 1.00	60151021
1.1/2	1.50	1.375	15/16 - 10 UN	1.00 - 1.25	60151221
1.1/2	1.50	1.375	15/16 - 10 UN	1.25 - 1.50	60151521
1.3/4	1.75	1.375	15/16 - 10 UN	1.50 - 1.75	60171721
2.1/4	2.25	1.750	15/16 - 10 UN	1.75 - 2.25	60222231
2.3/4	2.75	1.750	1.1/16 - 10 UN	2.25 - 2.75	60272732
3.1/2	3.50	2.312	1.1/16 - 10 UN	2.75 - 3.50	60353542

- Other sizes available on request

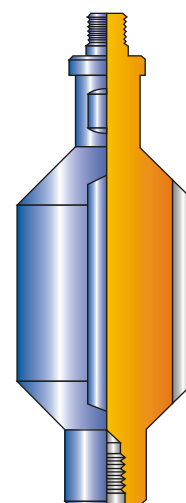


**WIRELINE
SPEAR**

'FC' FLUTED CENTRALIZER

PARVEEN Fluted Centralizers are used in deviated wells to ensure that tool string is at centralized position.

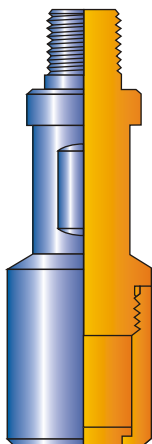
Engineering Data for Fluted Centralizer				
SIZE (IN.)	MAX. O.D. (IN.)	F/N O.D. (IN.)	THREAD CONN. PIN X BOX (IN. - PI.)	PART NO.
1.1/2	1.50	1.187	15/16 - 10 UN	641511
2.1/2	2.50	1.750	1.1/16 - 10 UN	642532
3.1/2	3.50	2.312	1.9/16 - 10 UN	643546
6	6.00	2.312	1.9/16 - 10 UN	646046



**FLUTED
CENTRALIZER**



'WFM' WIRELINE FISHING MAGNET



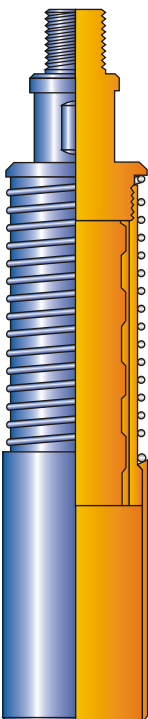
**WIRELINE FISHING
MAGNET**

PARVEEN Fishing Magnets are used to remove small pieces of ferrous metals from top of tools and also to retrieve metallic scales.

Engineering Data for Wireline Fishing Magnet				
SIZE - O.D. (IN.)	F/N O.D. (IN.)	THREAD CONN. PIN (IN. - TPI.)	TO PULL (LBS.)	PART NO.
1.50	1.375	15/16 - 10 UN	11 - 14	991521
1.75	1.375	15/16 - 10 UN	15 - 20	991721
2.25	1.375	15/16 - 10 UN	25 - 50	992221
2.65	1.375	15/16 - 10 UN	50 - 75	992621
3.65	1.750	1.1/16 - 10 UN	150 - 250	993632

- Other sizes available on request.

'MT' MAGNETIC FISHING TOOL



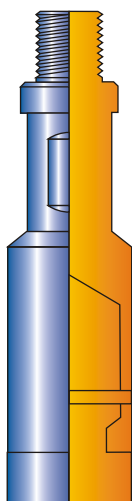
**MAGNETIC FISHING
TOOL**

PARVEEN Magnetic Fishing Tools are used to remove small particles of metals from the top of tools during operations.

Engineering Data for Magnetic Fishing Tool				
SIZE (IN.)	MAX O.D. (IN.)	F/N O.D. (IN.)	THREAD CONN. PIN (IN. - TPI.)	PART NO.
1.1/4	1.23	0.875	5/8 - 11 UNC	131200
1.1/2	1.43	1.187	15/16 - 10 UN	131411
2	1.87	1.375	15/16 - 10 UN	131821
2.1/2	2.18	1.375	15/16 - 10 UN	132221
2.1/2	2.29	1.375	15/16 - 10 UN	132321
3	2.84	2.312	1.1/16 - 10 UN	132842
3.1/2	3.50	2.312	1.1/16 - 10 UN	133542
3.3/4	3.75	2.312	1.1/16 - 10 UN	133742

- Other sizes available on request.

'IB' IMPRESSION BLOCK



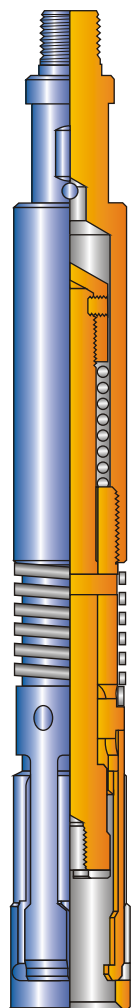
IMPRESSION BLOCK

PARVEEN Impression Blocks are used during fishing operations to check the shape / size of the top of fish and to determine tool appropriate for fishing operation. Lead is filled within body of Impression Block and a pin is fixed thru body of Impression Block and lead to stabilize lead within body.

Engineering Data for Impression Block			
O.D. RANGE (IN.)*	F/N O.D. (IN.)	THREAD CONN. PIN (IN.)	PART NO.
1.000 - 1.230	0.875	5/8 - 11 UNC	921200
1.375 - 1.410	1.187	15/16 - 10 UN	921411
1.750 - 2.250	1.375	15/16 - 10 UN	922221
2.625 - 2.812	1.750	1.1/16 - 10 UN	922832
3.500 - 4.625	2.312	1.9/16 - 10 UN	924646
5.500 - 5.750	2.312	1.9/16 - 10 UN	925746

- Impression Blocks are available in MM. increments within the specified I.D. Ranges, when ordering, specify required O.D. in MM (Inches x 25.4 = MM)

PULLING TOOLS (JD & JU SERIES)



**JD PULLING
TOOL**

JU (Jar - Up) Pulling Tools are used to shear and release tools and are available with C - S Core options.

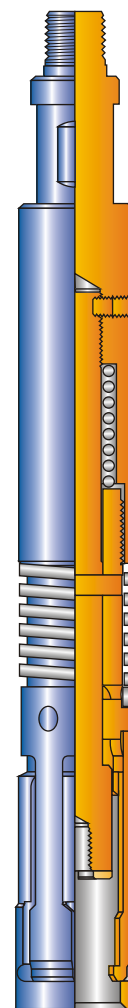
JD (Jar Down) Pulling Tools are also used to shear and release tools and are available with C - S - L Core options.

The cores of JU & JD are same.

JU & JD Pulling Tools are used to engage External Fishing Necks.

Engineering Data for JD & JU Series Pulling Tools								
NORMAL SIZE	TYPE	MAX O.D. (IN.)	PULLS NECK O.D. (IN.)	REACH* (IN.)	CONNECT-ING THREAD (PIN)	PRONG CONNECT-ING THREAD (BOX)	FISHING NECK O.D.(IN.)	ASSEMBLY NUMBER
1.1/4	JDC	1.291	0.875	1.937	15/16 - 10	1/4 - 20	1.187	70151
1.1/4	JDS	1.291	0.875	2.687	15/16 - 10	N/A	1.187	70165
1.1/4	JUC	1.250	0.875	1.937	15/16 - 10	1/4 - 20	1.187	71175
1.3/8	JDC	1.375	1.000	1.875	15/16 - 10	N/A	1.187	70153
1.1/2	JDC	1.422	1.187	1.093	15/16 - 10	1/2 - 13	1.187	70154
1.1/2	JDS	1.422	1.187	1.843	15/16 - 10	1/2 - 13	1.187	70166
1.1/2	JUC	1.422	1.187	1.093	15/16 - 10	1/2 - 13	1.187	71174
1.1/2	JUS	1.422	1.187	1.843	15/16 - 10	1/2 - 13	1.187	71194
1.5/8	JDS	1.625	1.187	1.843	15/16 - 10	1/2 - 13	1.187	70155
2	JDC	1.859	1.375	1.437	15/16 - 10	1/2 - 13	1.375	70156
2	JDS	1.859	1.375	2.250	15/16 - 10	1/2 - 13	1.375	70168
2	JDL	1.859	1.375	2.812	15/16 - 10	1/2 - 13	1.375	70164
2	JUC	1.859	1.375	1.437	15/16 - 10	1/2 - 13	1.375	71176
2	JUS	1.859	1.375	2.125	15/16 - 10	1/2 - 13	1.375 7	1196
2.1/2	JDC	2.250	1.750	1.312	15/16 - 10	1/2 - 13	1.375	70158
2.1/2	JDS	2.250	1.750	2.187	15/16 - 10	1/2 - 13	1.375	70170
2.1/2	JUC	2.250	1.750	1.312 1	5/16 - 10	1/2 - 13	1.375	71178
2.1/2	JUS	2.250	1.750	2.187	15/16 - 10	1/2 - 13	1.375	71198
3	JDC	2.796	2.312	1.437	15/16 - 10	1/2 - 13 and 5/8 - 11	1.750	70160
3	JDC	2.796	2.312	0.687	15/16 - 10	5/8 - 11	1.750	70031
3	JDS	2.812	2.312	2.125	15/16 - 10	5/8 - 11	1.750	70172
3	JDL	2.812	2.312	2.609	15/16 - 10	5/8 - 11	1.750	70173
3	JUC	2.812	2.312	1.437	15/16 - 10	5/8 - 11	1.750	71180
3	JUS	2.812	2.312	2.125	15/16 - 10	5/8 - 11	1.750	71200
4	JDC	3.750	3.125	2.312	1.1/16 - 10	1.1/4 - 12	2.312	70162
4	JUC	3.750	3.125	3.375	1.1/16 - 10	1.1/4 - 12	2.312	71182

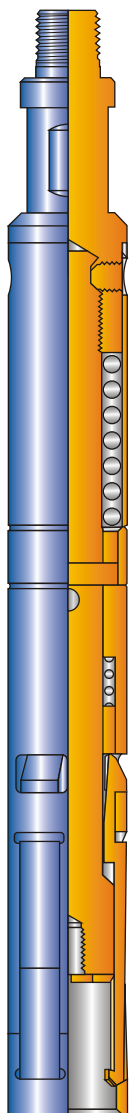
- Reach is the distance from the core to the engaging shoulder of the dogs.
- Other core length / OD's available on request.



**JU PULLING
TOOL**



'R' PULLING TOOL



**R PULLING
TOOL**

R Pulling Tools are used to engage External Fishing Necks and to be released by Jar-Up action. These tools are available in 3 different types:

1. RB : w/Longest Core
2. RS : w/ Medium Core
3. RJ : w/ Short Core

Either of above tools can be changed to other types by changing core. All other parts of above tools are interchangeable .

Engineering Data for 'R' Pulling Tool							
NOMINAL (IN.)	TYPE	O.D. (IN.)	FISHING NECK (IN.)	PULLS NECK O.D. (IN.)	TOP THREAD	REACH (IN.)	ASSEMBLY NO.
1.1/4	RB	1.220	1.000	1.000	5/8 - 11	1.219	127RB10
1.1/4	RS	1.220	1.000	1.000	5/8 - 11	2.125	127RS10
1.1/4	RJ	1.220	1.000	1.000	5/8 - 11	1.844	127RJ4
1.1/2	RB	1.430	1.188	1.188	15/16 - 10	1.265	127RB14
1.1/2	RS	1.430	1.188	1.188	15/16 - 10	1.797	127RS5
1.1/2	RJ	1.430	1.188	1.188	15/16 - 10	2.547	127RJ5
1.1/2	RB	1.484	1.188	1.188	15/16 - 10	1.050	127RB21
1.3/4	RS	1.562	1.188	1.188	15/16 - 10	1.797	127RS14
1.3/4	RJ	1.560	1.188	1.188	15/16 - 10	2.550	127RJ10
2	RB	1.770	1.375	1.375	15/16 - 10	1.219	127RB17
2	RS	1.770	1.375	1.375	15/16 - 10	1.984	127RS6
2	RJ	1.770	1.375	1.375	15/16 - 10	2.547	127RJ1
2.1/2	RB	2.180	1.375	1.750	15/16 - 10	1.203	127RB18
2.1/2	RS	2.180	1.375	1.750	15/16 - 10	1.984	127RS7
2.1/2	RJ	2.180	1.375	1.750	15/16 - 10	2.547	127RJ2
3	RB	2.74	2.312	2.312	1.1/16 - 10	1.297	127RB19
3	RS	2.74	2.312	2.312	1.1/16 - 10	2.190	127RS8
3	RJ	2.74	2.312	2.312	1.1/16 - 10	2.609	127RJ3
3.1/2	RB	3.110	2.312	2.75	1.1/16 - 10	1.350	127RB30
3.1/2	RS	3.110	2.312	2.75	1.1/16 - 10	2.100	127RS16
4	RB	3.670	2.312	3.125	1.1/16 - 10	1.49	127RB20
4	RS	3.718	2.312	3.125	1.1/16 - 10	2.156	127RS9
4	RJ	3.660	2.312	3.125	1.1/16 - 10	2.000	127RJ6

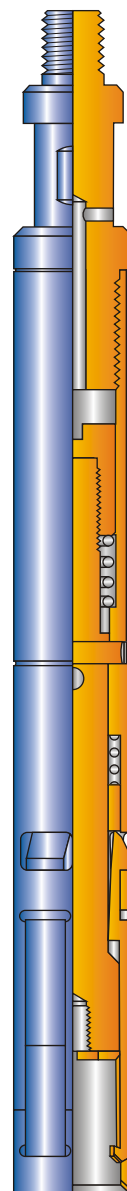


'S' PULLING TOOL

S Pulling Tools are used to retrieve equipment with external fishing necks by Jar-Up action. These tools are also used to run and release equipment by jarring down. Available in 3 different types:

1. SB : W/ Longest Core
2. SS : W/Short Core
3. SM : W/Medium Core

Engineering Data for 'S' Pulling Tool							
NOMINAL (IN.)	TYPE	O.D. (IN.)	FISHING NECK (IN.)	PULLS NECK O.D. (IN.)	TOP THREAD	REACH (IN.)	ASSEMBLY NO.
1.1/4	SB	1.220	1.000	1.000	5/8 - 11	1.280	127SB14
1.66	SM	1.188	0.875	0.875	15/16 - 10	1.680	127SM7
1.3/16	SM	1.190	1.188	0.875	15/16 - 10	1.680	127SM7
1.1/2	SB	1.437	1.188	1.188	15/16 - 10	0.688	127SB3
1.1/2	SB	1.437	1.188	1.188	15/16 - 10	1.297	127SB6
1.1/2	SS	1.437	1.188	1.188	15/16 - 10	1.780	127SS3
1.1/2	SM	1.380	1.375	0.875	15/16 - 10	1.578	127SM3
2	SB	1.766	1.375	1.375	15/16 - 10	1.219	127SB1
2	SM	1.766	1.375	1.375	15/16 - 10	1.640	127SM1
2	SS	1.766	1.375	1.375	15/16 - 10	2.030	127SS1
2.1/2	SB	2.188	1.375	1.75	15/16 - 10	1.281	127SB2
2.1/2	SS	2.188	1.375	1.75	15/16 - 10	2.000	127SS2
3	SB	2.734	2.312	2.312	1.1/16 - 10	1.380	127SB9
3	SB	2.844	2.312	2.312	1.1/16 - 10	1.500	127SB7
3	SS	2.844	2.312	2.312	1.1/16 - 10	2.210	127SS4
3.1/2	SB	3.115	2.312	2.75	1.1/16 - 10	1.690	127SB11
4	SB	3.670	2.312	2.75	1.1/16 - 10	1.500	127SB10

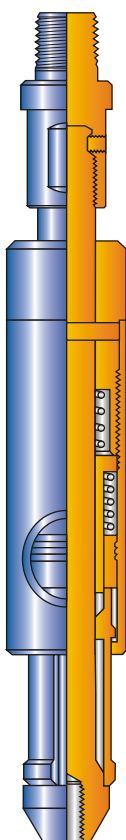


**S PULLING
TOOL**



'GS' PULLING TOOL

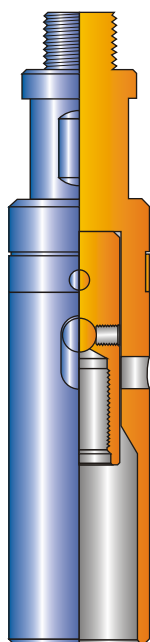
GS Pulling Tools are used to unlock and pull various down hole equipment with Internal Fishing Necks. These tools are designed to shear with Jar Down action. With addition of GU Adapter, complete assembly is changed to GR Shear Up Tool.



**GS PULLING
TOOL**

Engineering Data for 'GS' Pulling Tool							
Nominal (In.)	Prong Thread	Fishing Neck I.D. Guide	Gs Pulling Tool O.D.	Fishing Neck O.D.	Top Thread	Reach	Assembly No.
1.1/4	3/8 - 16	0.880	1.160	1.000	5/8 - 11	1.08	28125 - 00
1.1/2 - 1.3/4	1/2 - 13	1.060	1.470	1.187	15/16 - 10	1.62	28150 - 00
2	1/2 - 13	1.380	1.750	1.375	15/16 - 10	1.62	28200 - 00
2	1/2 - 13	1.380	1.810	1.375	15/16 - 10	1.62	28200 - 01
2.1/2	5/8 - 11	1.810	2.160	1.750	15/16 - 10	1.62	28250 - 00
2.1/2	5/8 - 11	1.810	2.160	1.750	15/16 - 10	1.62	28250 - 01
3	5/8 - 11	2.310	2.72	2.313	1.1/16 - 10	1.62	28300 - 00
3.1/2	1.3/8 - 12	2.620	3.110	2.313	1.1/16 - 10	1.62	28350 - 00
4	2.1/8 - 12	3.120	3.620	2.313	1.1/16 - 10	1.62	28400 - 00
5	2.1/2 - 10	4.000	4.500	3.125	1.1/16 - 10	1.82	28500 - 00
7	3.5/8 - 10	5.250	5.830	3.125	1.1/16 - 10	1.86	28700 - 00
7	3.5/8 - 10	5.250	5.880	3.125	1.1/16 - 10	1.86	28700 - 01

'GU' SHEAR UP ADAPTER



**GU SHEAR
UP ADAPTER**

Engineering Data for Shear Up Adapter				
Size (In.)	Actual O.D. (In.)	F/n. O.D. (In.)	Thread Conn. Pin X Box	Part No.
1-1/2	1.470	1.187	15/16-10 UN	170-150
2	1.812	1.375	15/16-10 UN	170-200
2-1/2	2.250	1.750	15/16-10 UN	170-250
3, 3-1/2, 4	2.718	2.312	1-1/16-10 UN	170-400

'PX' RUNNING TOOL

PARVEEN PX Running Tool is to enable X Lock to run selectively in the profile required.

Engineering Data for PX Running Tool				
ACTUAL O.D.(IN)	TO SUIT NIPPLE BORE (IN)	FISH NECK O.D. (IN)	CONNECTIONS PIN X BOX	PART NO.
1.72	1.875	1.375	15/16-10 UN	174-187
2.171	2.313	1.75	15/16-10 UN	174-231
2.687	2.75	2.313	1-1/16-10 UN	174-275
2.843	2.875	2.313	1-1/16-10 UN	174-288
3.25	3.313	2.313	1-1/16-10 UN	174-331
3.75	3.813	2.313	1-1/16-10 UN	174-381
4.50	4.562	3.125	1-1/16-10 UN	174-456

'B' Shifting Tool

'B' Shifting Tool manufactured by PARVEEN is used to open or close Sliding Side Door.

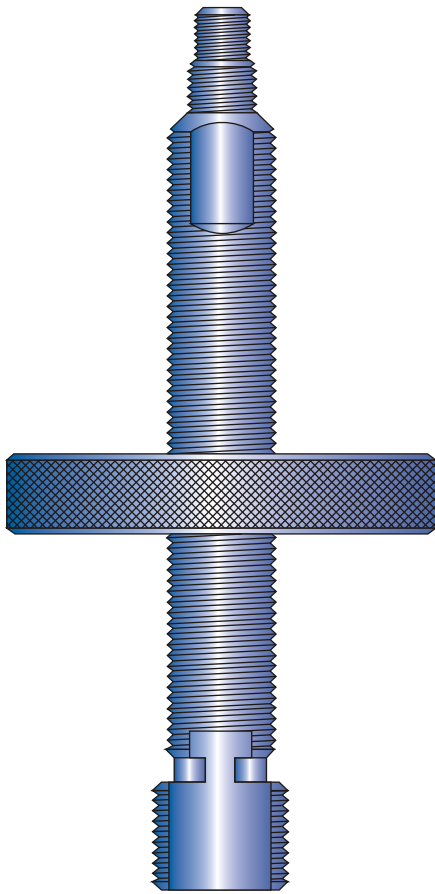
Engineering Data for Shifting Tool				
SSD I.D. (In)	O.D. (Keys Retracted)(In)	Fish Neck O.D. (In)	Connections Pin x Pin	Part No.
1.375	1.35	1.00	5/8-11 UN	175-137
1.500	1.49	1.187	15/16-10 UN	175-150
1.625	1.62	1.187	15/16-10 UN	175-162
1.710	1.69	1.187	15/16-10 UN	175-171
1.781	1.75	1.375	15/16-10 UN	175-178
1.875	1.84	1.375	15/16-10 UN	175-188
2.125	1.97	1.375	15/16-10 UN	175-212
2.188	2.17	1.75	15/16-10 UN	175-218
2.313	2.16	1.75	15/16-10 UN	175-231
2.562	2.53	1.75	15/16-10 UN	175-256
2.750	2.73	2.313	1-1/16-10 UN	175-275
2.813	2.72	2.313	1-1/16-10 UN	175-281
3.125	3.06	1.750	15/16-10 UN	175-312
3.313	3.25	2.313	1-1/16-10 UN	175-3313
3.437	3.38	2.313	1-1/16-10 UN	175-343
3.688	3.66	3.125	1-1/16-10 UN	175-368

**PX
RUNNING
TOOL**

**B
SHIFTING
TOOL**



PINNING TOOL

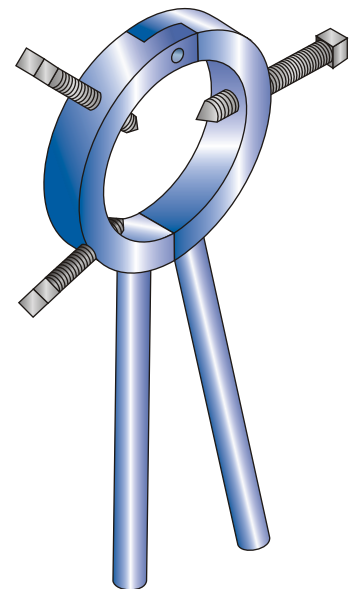


PINNING TOOL

Engineering Data for Pinning Tool	
SIZE (IN)	PART NO.
1-1/2, 1-5/8, 2-1/2	173-400-000
3, 4, R & S	

RELEASING TOOL

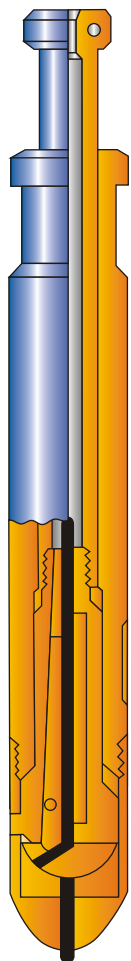
Engineering Data for Releasing Tool	
SIZE (IN)	PART NO.
2, 2-1/2 & 3	172-300
4	172-400



RELEASING TOOL



'WC' WIRELINE CUTTER



PARVEEN Wireline Cutters are used to cut the wire near the rope socket and retrieve to surface with cut end of wire. It can cut all sizes of wires of large dia. by changing its internals appropriately.

Engineering Data for Wireline Cutter		
SIZE - O.D. (IN.)	F/N O.D. (IN.)	PART NO.
1.500	1.375	79152
1.875	1.375	79182
2.000	1.750	79203

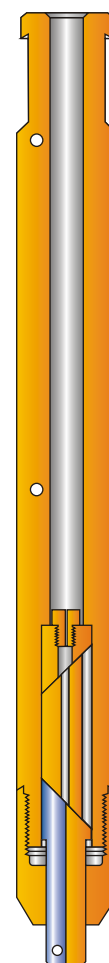
- Specify Wire Size
- Other sizes available on request.

WIRELINE SNIPPER

PARVEEN Wireline Snippers are used to cut / slice the wire when operator finds it necessary to cut the wire when struck in hole.

WIRELINE CUTTER

Engineering Data for Wireline Snipper			
Actual O.D. (In)	Fishing Neck O.D. (In)	Wire Size (In)	Part No.
1.5	1.375	0.092 / 0.108	171-150
1.875	1.75	0.092 / 0.108	171-188
1.875	1.75	0.187 / 0.219	171-189
2.125	1.75	0.092 / 0.108	171-212
2.125	1.75	0.187 / 0.219	171-213
2.5	2.313	0.092 / 0.108	171-250
2.5	2.313	0.187 / 0.219	171-251



WIRELINE SNIPPER



'GD' GO-DEVIL

PARVEEN Go-Devils are used in wireline fishing operations when wireline is required to be cut. Go-Devils look similar to wireline stem and has a longitudinal slot on body with a metallic strip pinned within slot, to prevent wireline from coming out.

Engineering Data for Go-Devil					
SIZE (IN.)	MAX. O.D. (IN.)	F/N O.D. (IN.)	PART NO		
			2 FT. LONG	3 FT. LONG	5 FT. LONG
1.1/2	1.500	1.375	1415512 - A	1415522 - A	1415542 - A
1.7/8	1.875	1.750	1418513 - A	1418523 - A	1418543 - A
2.1/8	2.125	1.750	1421513 - A	1421523 - A	1421543 - A
2.1/2	2.500	2.312	1425514 - A	1425524 - A	1425544 - A

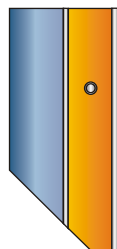
- Specify Wire Size
- Other sizes available on request.

'RGD' ROLLER GO-DEVIL

PARVEEN Roller Go Devil is used mainly in deviated wells to reduce friction when tool string is run in hole. Roller Go Devil is similar to Go Devil with exception of Rollers. Available in various lengths and flat / angled bottom type.

Engineering Data for Roller Go Devil		
OD (IN)	F/N. OD (IN)	LENGTH (FT.)
1.5	1.375	2-3-5
1.875	1.75	2-3-5
2.125	1.75	2-3-5
2.5	2.313	2-3-5

**GO DEVIL
FLAT BOTTOM**



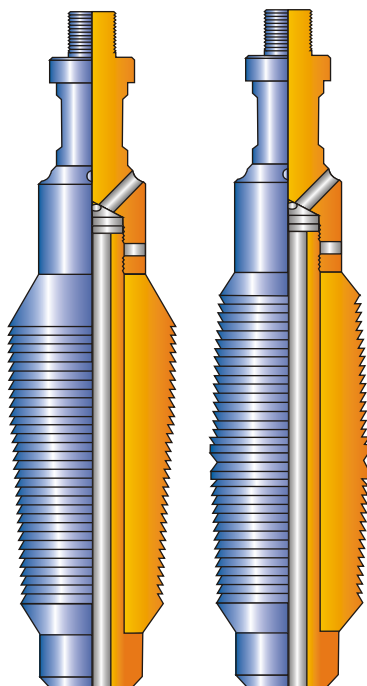
**GO DEVIL
45° ANGLED
BOTTOM**



**ROLLER GO DEVIL/
ROLLER DROP BAR**



'TB' TUBING BROACH



PARVEEN Tubing Broach is used remove buss in the tubing. Tubing Broach is also used to remove scale, rust etc, from tubing I.D.

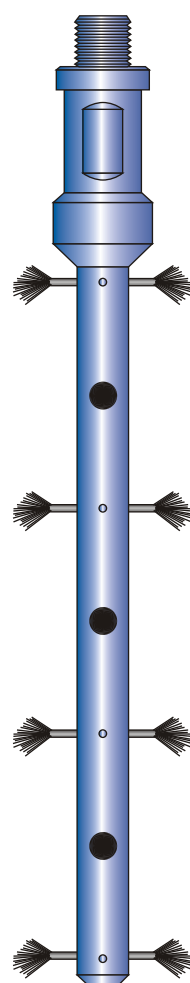
Engineering Data for Tubing Broach		
SIZE (IN)	F/N. O.D.(IN)	TOP CONN. TPI (IN)
1.5	1.375	15/16 - 10 UN
2.00	1.375	15/16 - 10 UN
2.50	1.375	15/16 - 10 UN
3.00	1.750	1-1/16 - 10 UN
4.00	1.750	1-1/16 - 10 UN
5.00	2.313	1-1/16 - 10 UN

'PS' PARAFFIN SCRATCHERS

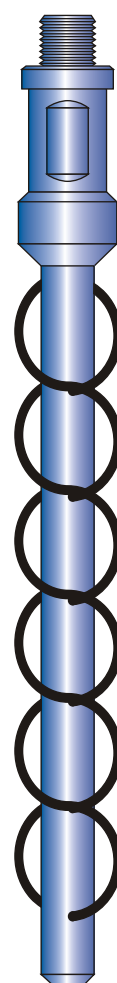
PARVEEN Paraffin Scratchers are used to clean the paraffin deposition on the ID of tubing, Nipple Profile etc.

Engineering Data for Paraffin Scratcher			
SIZE (IN.)	F/N.O.D. (IN.)	THREAD CONN. PIN (IN. - TPI.)	PART NO.
1.1/2 - 2.1/16	1.187	15/16 - 10 UN	1002011
2 - 2.1/2	1.375	15/16 - 10 UN	1001521
2 - 2.1/2	1.750	1.1/16 - 10 UN	1002532
3.1/2	1.750	1.1/16 - 10 UN	1003532

- Other sizes available on request.



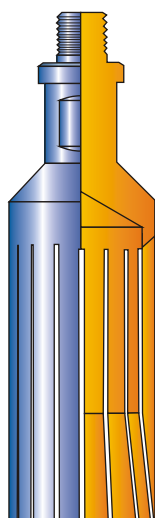
**WIRE
SCRATCHER
(FLARED TYPE)**



**WIRE
SCRATCHER**



‘WW’ WIRELINE WIREFINDER



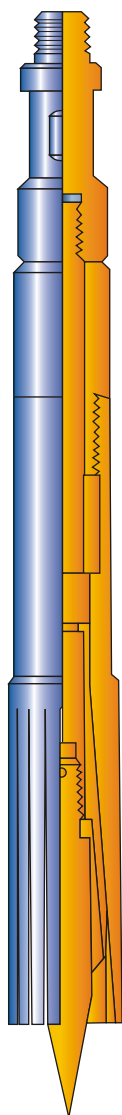
**WIRELINE
WIRE
FINDER**

PARVEEN Wireline Finder is used in wireline fishing operations to locate broken wire in tubing. The fingers of slotted bottom guide pressed against tubing ID and locate the top of wire and direct it inside the finder.

Engineering Data for Wireline Wirefinder			
NOMINAL SIZE (IN.)	F/N. OD (IN.)	THREAD CONN. PIN (IN.-TPI)	PART NO.
1.500	1.187	15/16 - 10 UN	541511
2.000	1.375	15/16 - 10 UN	542021
2.500	1.375	15/16 - 10 UN	542521
3.000	1.750	1-1/16 - 10 UN	543032
4.000	1.750	1-1/16 - 10 UN	544032

- Other Sizes Available On Request, Please Quote Max. O.D. When Ordering.

‘WR’ WIRELINE RETRIEVER



**WIRELINE
RETRIEVER**

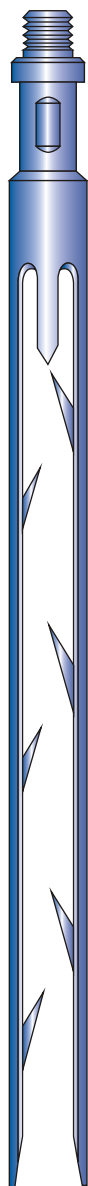
PARVEEN Wire Finder is used during wireline fishing operations to locate top of broken wireline and to bundle it.

Engineering Data for Wireline Retrievers							
TOOL O.D. (IN.)	TO RUN IN TUBING (IN.)	CAN BE ADAPTED RUN IN (IN.)	F/N. O.D. (IN.)	THREAD CONN. PIN (IN. - TPI)	TYPE	GUIDE TYPE	PART NO.
1-1/2	1-1/2	2- 2.1/1	1.375	15/16 - 10 UN	Slip	Slotted	591521-S
1-1/2	1-1/2	2-3/8 - 2-7/8	1.375	15/16 - 10 UN	Slip	Plain	591521-P
1-13/16	2-3/8	2-7/8 - 3-1/2	1.375	15/16 - 10 UN	Slip	Slotted	591821-S

- Specify Guide Type
- Other Sizes Available On Request



'WG' WIRELINE GRAB



**WIRELINE
GRAB**

PARVEEN Wireline Grabs are used in wireline fishing operations to engaged broken wire from the tubing to retrieve to surface.

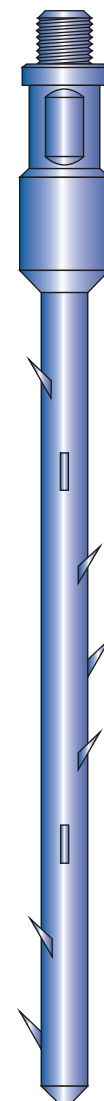
Engineering Data for Wireline Grabs					
SIZE (IN.)	MAX. O.D. (IN.)	F/N. OD (IN.)	THREAD CONN. PIN X BOX (IN. - TPI)	NO. OF	PART NO.
1-1/2	1.437	1.187	15/16 - 10 UN	2	5714211
2-2-1/2	1.843	1.375	15/16 - 10 UN	2	5718221
3	2.718	2.312	1-1/16 - 10 UN	3	5727342
4-5-1/2	2.875	2.312	1-1/16 - 10 UN	3	5728342

- Other Sizes Available On Request.

CENTER SPEAR

PARVEEN Center Spears are used to engage broken wire in hole when in balled condition. It is used in particular when the broken wire, in well bore, is badly balled and can not be engaged by wireline grab.

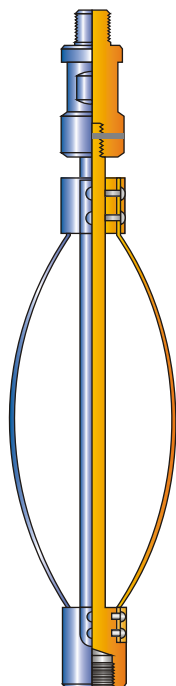
Engineering Data for Center Spear			
SIZE (IN)	F/N. OD (IN)	TOP CONN. PIN. (IN TPI)	PART NO.
1.5	1.375	15/16 - 10 UN	407-1521
1.875	1.750	1-1/16 - 10 UN	407-1932
2.5	2.313	1-9/16 - 10 UN	407-2546



CENTER SPEAR



BOW SPRING CENTRALISER



**BOW SPRING
CENTRALISER**

The PARVEEN Bow Spring Centraliser is designed for use with slickline toolstrings whilst running gauges into the tail pipe assembly.

The PARVEEN Bow Spring Centraliser will keep gauges and toolstrings centralised in tail pipes ranging from 2" through 4" i.d.

O.D. RANGE	O.D.FISHNECK	TOP CONNECTION	PART NO.
2 - 4	1.375	15/16 - 10 UN	177 - 400

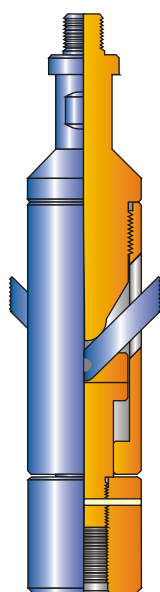
ANTI BLOW-UP TOOL

The PARVEEN Anti Blow Up Tool is a wireline service tool designed to be used as part of the toolstring when downhole instruments are to be deployed in to a multi zone completion well.

The PARVEEN Anti Blow Up Tool will help to prevent a toolstring being blown up the production string if the flow rates between zones should try to push the toolstring upwards.

The PARVEEN Anti Blow Up Tool has been designed so that if the lower part of the toolstring starts to lift, two arms are thrown outward to lock into the tubing wall, stopping any further upward movement. To release the arms, once engaged, you simply pick up on the wireline which lifts the upper body of the tool and closes the arms, releasing the toolstring.

The PARVEEN Anti Blow Up Tool is available to suit all tubing sizes from 2.3/8" through to 5.1/2".



**ANTI BLOW-UP
TOOL**

TUBING SIZE	D.D. DOGS EXPANDED	FISHNECK D.D.	CONNECTIONS	PART NO.
2-3/8	2.010	1.375	15/16 - 10UN	181-238-00
2-7/8	2.441	1.375	15/16 - 10UN	181-288-00
3-1/2	3.068	1.375	15/16 - 10UN	181-350-00
4-1/2	4.090	1.75	1-1/16 - 10UN	181-950-00
5-1/2	4.892	1.75	1-1/16 - 10UN	181-550-00

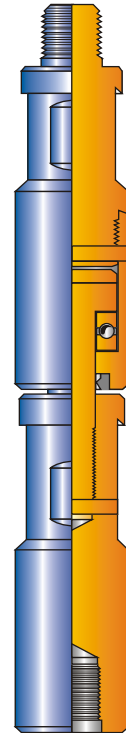


WIRELINE SWIVEL JOINT

The PARVEEN Swivel Joint is a wireline accessory used to minimize the effect of line twist caused by subsurface devices being run. The Swivel Joint has a bearing incorporated into its design and is used to minimize rotation whilst running tubing or casing calliper surveys.

The PARVEEN Swivel joint has a double fishneck feature and standard pin and box threads.

Engineering Data for Swivel Joint			
ACTUAL O.D	FISHNECK O.D.	CONNECTIONS	PART NO.
1.5	1.375	15/16-10 UN	180-150-00
1.875	1.75	1-1/16-10 UN	180-188-00
2.5	2.313	1-9/16-10 UN	180-231-00



**WIRELINE
SWIVEL JOINT**

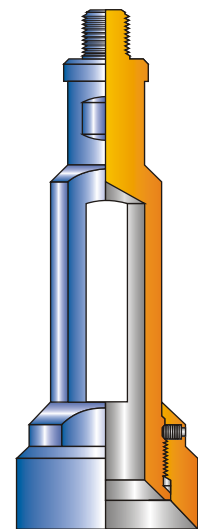
TUBING GAUGE CUTTER RING SET

The PARVEEN Gauge Cutter Ring Set is a wireline service tool designed to operate as a standard Gauge Cutter, but with the added facility of being able to interchange different size Gauge Cutters on a standard carrier.

The PARVEEN Gauge Cutter Ring Set is of primary benefit where an operation requires a number of Gauge Cutters of similar diameter to be run.

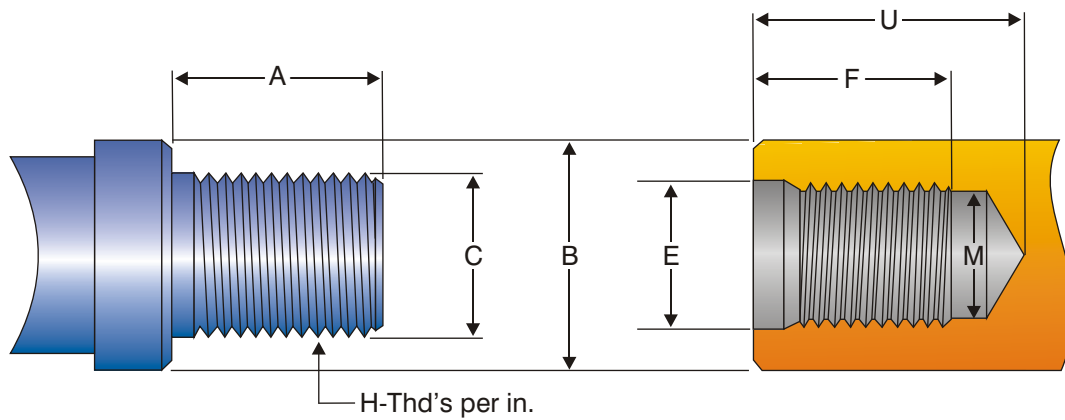
This flexibility means that there is no need to keep a large inventory of different size Gauge Cutters, and a considerable cost saving can be made.

Engineering Data for Cutter Ring			
SIZE RANGE	FISHNECK O.D.	TOP CONNECTIONS	PART NO.
1.0 - 1.5	1.187	15/16 - 10UN	83-150-00
1.5 - 3.0	1.375	15/16 - 10UN	83-300-00
3.0 - 6.0	1.75	1-1/16 - 10UN	83-600-00



**TUBING GAUGE
CUTTER RING SET**

SUCKER ROD CONNECTION



SIZE	A	B	C	E	F	H	M	U
5/8	1.250	1.250	.9362	.995	1.41	10	.830	1.3/4
3/4	1.437	1.500	1.0611	1.080	1.60	10	.955	1.15/16
7/8	1.625	1.625	1.1861	1.205	1.79	10	1.080	2.1/8
1	1.875	2.000	1.3735	1.393	2.07	10	1.267	2.1/2
1.1/8	2.125	2.250	1.5609	1.580	2.31	10	1.455	2.3/4

WRENCH FLATS ON SUCKER ROD

ROD SIZE	DISTANCE ACROSS FLATS	LENGTH OF FLATS
5/8	7/8	1.1/4
3/4	1	1.1/4
7/8	1	1.1/4
1	1.5/16	1.1/2
1.1/8	1.1/2	1.5/8



QUICK LOCK CONNECTION

Quick Lock Connection provides a fast safe and strong method of attaching and releasing tools by hand. The male half is mated with the female half, then rotated through 90 deg. Whereon a spring loaded spade in the female section engages a slot in the male section and locks the assembly in place. It is released by pushing upon the spring and rotating again through 90 deg. It eliminates the chance of items backing off and does away with the need for pipe wrenches.

ADVANTAGES :

- Joint strength of Wireline Tools with Quick Lock Connection is much higher than joint strength of API Sucker Rod Connection.
- There is no need to use wrenches to make or break connection.
- It is safer & faster method of connection.
- There is no possibility of unscrewing downhole.

The Quick Lock Connections are available in following sizes:

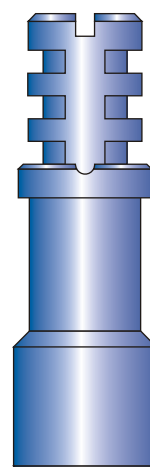
- 1) 1-1/2
- 2) 1-7/8
- 3) 2-1/8

Design Parameters of Sucker Rod Threads & Quick Lock Connection

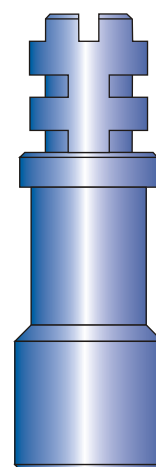
THREAD / QLS YIELD STRENGTH	DESIGN TENSILE * STRENGTH	DESIGN SHEAR * STRENGTH	ULTIMATE TENSILE
15/16 - 10 SRT	47584 lbs.	68475 lbs.	72966 lbs.
1-1/16 - 10 SRT	63910 lbs.	79888 lbs.	96600 lbs.
1-9/16 - 10 SRT	148819 lbs.	195382 lbs.	228200 lbs.
1-1/2 QLS	51128 lbs.	60258 lbs.	77700 lbs.
1-7/8 QLS & 2-1/8 QLS	77605 lbs.	74409 lbs.	119000 lbs.

* Theoretical values for guidance only.

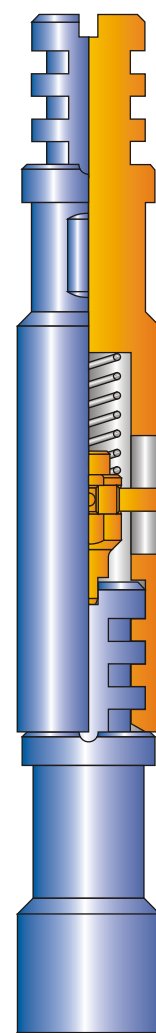
Suitable safety factor to be considered when in use.



**QUICK LOCK
MALE-SUB**



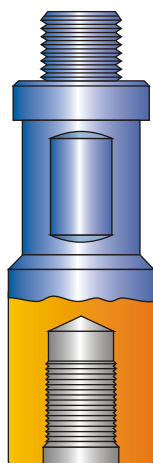
**DOUBLE SHOULDER
QUICK LOCK
MALE-SUB**



**QUICK LOCK
ASSY.**

'WCR' WIRELINE CROSSOVERS

PARVEN Wireline Cross over are used to connect to tool strings equipments having different threads.



**WIRELINE
CROSSOVER**

Engineering Data for Wireline Crossovers				
MAX. O.D. (IN.)	F/N. OD (IN.)	THREAD CONN.		PART NO.
		PIN (IN. - TPI)	BOX (IN. - TPI)	
1.500	1.375	15/16 - 10 UN	15/16 - 10 UN	4115211
1.375	1.375	15/16 - 10 UN	1-1/16 - 10 UN	4113212
2.250	1.375	15/16 - 10 UN	1-9/16 - 10 UN	4122216
2.312	1.375	15/16 - 10 UN	1-9/16 - 10 UN	4123216
1.375	1.375	1-1/16 - 10 UN	15/16 - 10 UN	4113221
1.750	1.750	1-1/16 - 10 UN	15/16 - 10 UN	4117321
2.312	1.750	1-1/16 - 10 UN	15/16 - 10 UN	4123321
2.312	2.312	1-1/16 - 10 UN	1-3/16 - 10 UN	4123425
2.312	2.312	1-1/16 - 10 UN	1-9/16 - 10 UN	4123426
1.750	1.750	1-3/16 - 10 UN	15/16 - 10 UN	4117351
2.312	2.312	1-3/16 - 10 UN	1-9/16 - 10 UN	4123456
2.250	1.750	1-3/8 - 10 UN	1-9/16 - 10 UN	4122076
2.312	2.312	1-9/16 - 10 UN	15/16 - 10 UN	4123461
2.500	2.312	1-9/16 - 10 UN	15/16 - 10 UN	4125461
2.312	2.312	1-9/16 - 10 UN	1-1/16 - 10 UN	4123462
2.312	2.312	1-9/16 - 10 UN	1-3/16 - 10 UN	4123465
2.312	2.312	1-9/16 - 10 UN	1-3/8 - 10 UN	4123467

- Box By Box And Pin By Pin Crossover Available On Request.



COIL TUBING PRESSURE CONTROL EQUIPMENT INDEX

SR. NO.	INDEX	PAGE
1	Coil Tubing Quad Bop	75
2	Combi Bop	76
3	Tandem Side Loading Stripper Packer	77
4	Side Loading Stripper Packer	78
5	Conventional Coil Tubing Stripper Packer	79



COIL TUBING QUAD BOP

FEATURES

This Quad BOP is designed primarily for use with coiled tubing operations. Modifications can be made for use in wireline operations. Contact the factory regarding the necessary modifications for any non-standard uses.

Quad BOP's are available with internal or external hydraulics in bore sizes from 2-9/16" to 6-3/8" and working pressures from 5,000 PSI to 15,000 PSI for standard or sour service. Coil tubing size ranges from 0.75" to 3.50".

Blind Rams: Made of alloy steel, will seal against pressure from below, with nothing between the rams, or on single strand measuring lines.

Shear Rams: Made of alloy steel, are designed to shear steel coiled tubing. They will also shear stranded or slick-line, either individually or in the coiled tubing.

No booster is required to cut coil tubing.

Slip Rams: Made of alloy steel, are designed as two-way grippers, will support a string of tubing or prevent the tubing from stripping out due to well pressure. Slip inserts are available for various tubing diameters.

Pipe Rams: Made of alloy steel, will centralize and seal around the tubing. These rams must be sized to the tubing being used.

Manual Locking Actuators: Each ram actuator is equipped with a manually operated, non rising stem, which is protected from dirt, corrosion and damage. They allow closing the rams in the event of a hydraulic failure; or to lock the rams after they are hydraulically closed. Hydraulics must be re-established and used to reopen the rams.

Ram Position Indicators: Position indicators on each actuator give a positive indication of ram position.

Equalizing Valves: Both the top and bottom ram positions are fitted with equalizing valves to prevent seal damage when opening either the blind or pipe rams with differential pressure. Equalizing valves are integral within the body of the BOP

Materials: Designed and manufactured to applicable API and NACE specifications, this equipment is also optionally available with certification to ISO standards.

OTHER CONFIGURATIONS

PARVEEN also offers other types of coil tubing blowout preventors. Each features a solid body construction and internal equalizing valves and may be ordered in single, double or triple configuration.



COMBI BOP



FEATURES

The '**Combi**' BOP is designed to accept rams that combine the function of two rams. This can be either the combination of **Shear and Seal (blind)** or **Pipe and Slip**.

Combi BOP's are available as Single, double or any multiple configuration. The most obvious benefit is the reduced height and weight of a Combi BOP.

MANUAL LOCKING ACTUATORS

Each ram actuator is equipped with a manually operated, non rising stem, which is protected from dirt, corrosion and damage. They allow closing the rams in the event of a hydraulic failure; or to lock the rams after they are hydraulically closed. Hydraulics must be re-established and used to reopen the rams.

EQUALIZING VALVES

Combi BOP is fitted with equalizing valve to prevent seal damage when opening the Shear Seal or Pipe Slip Rams with differential pressure. Equalizing valves are integral within the body of the BOP.

MATERIALS

Designed and manufactured to applicable API and NACE specifications.



TANDEM SIDE LOADING STRIPPER PACKER

FEATURES

The significant single feature of Parveen Tandem Side Loading Stripper Packer is that the Interlocking Packer, Anti-Extrusion Rings, Energizers and Bushing can be replaced through the open door below the injector. Changing packers is easy through the side door even with the tubing in the well.

After removing packer, anti-extrusion rings, energizers and bushings a full through bore is available for easy access of larger tools.

Additional Features are :

1. Accommodates larger Coiled tubing sizes upto 2.875" diameter and includes a full diameter bore upto 4.06".
2. The union nut can be 'latched up', while stabbing the lower housing into the BOP union.
3. 3 Nos. of Tie Rod arrangement provides significantly greater working space for field replacement of sealing components and bushings.
4. Piston 'Close' and 'Open' ports are NPT and both are located below the door clearance opening.
5. Key components are 17-4 PH, S.S. or Alloy Steel for optimum strength and corrosion resistance and bushings are of Aluminum Bronze.
6. Convenient NPT Gauge / Injection port.
7. Interlocking packer, anti-extrusion rings and energizers are interchangeable with competitors. Various materials are available to suit specific well / service conditions.
8. Glass filled Teflon anti-extrusion rings provides optimum Interlocking Packer support / reliability.
9. Hydraulic control supply ports are 4 Nos. of NPT, which require no special fittings.
10. Unique 'Breach Lock' style Lock Flange provides reliable safety of Door closure yet offers easy field operation. No special tools required.
11. The Piston is situated below the packer element. Having the Piston in this position will decrease the amount of hydraulic pressure required to pack-off around the Coil tubing.

OPERATING PARAMETERS

Assembly Working Pressure	:	10,000 psi
Test Pressure	:	15,000 psi
Operating Temperature Range	:	-20deg. F to +180 deg. F
(with standard seals)		





SIDE LOADING STRIPPER PACKER

FEATURES

The Parveen coiled tubing Side Loading Stripper/Packer is designed for use with injectors built by various manufactures. The significant single feature of the Parveen Side Loading Stripper/Packer is that it offers field replacement of the Interlock Packer, Non- Extrusion Ring, and Bushing(s) below the injector and with tubing in the well.

Additional features of this Stripper/Packer include:

1. The Union Sub and Nut are field interchangeable.
2. The Union Nut can be 'latched up', while stabbing the Union Sub into the BOP Union.
3. Optimum tubing column support with tubing sizes 1.00, 1.25, 1.50, and 1.75 available.
4. Unique 3 - point Tie Rod arrangement provides significantly greater working space within the side Loading door clearance opening for enhanced field replacement of the vital sealing components and bushings.
5. Piston "Close" and "Open" ports are NPT and both are located below the door clearance opening.
6. Key components are 17-4 PH, Stainless Steel or Alloy Steel for optimum strength and corrosion resistance. These items are: Door, Lock Flange, Detent Pin, Energizer Piston, and the Tie Rods.
7. Below the door Energizer Piston arrangement does not move the critical upper tubing bushings. This unique arrangement provides continuous, non-changing tubing column support.
8. Convenient NPT Gauge / Injection Port.
9. Interlock Packer and Non - Extrusion Ring are interchangeable with competitors. Various materials are available to suit specific well /service conditions.
10. Glass - filled Teflon Non - Extrusion Ring provides optimum Interlock Packer support / reliability.
11. Hydraulic control supply ports (4) are NPT and thus require no special fittings.
12. Unique "breach lock" style Lock Flange provides reliable safety of Door closure yet offers easy field operation. *No special tools required!!*

OPERATING PARAMETERS

Assembly Working Pressure	:	10,000 PSI
Test Pressure	:	15,000 PSI
Operating Temperature Range	:	-20 deg F to + 180 deg F
(With standard seals)		

Hydraulic Operating Pressures

Piston Close (Packing - off)	:	5,000 PSI Max
Piston Open (Relaxing Packer)	:	5,000 PSI Max
Door Close	:	3,000 PSI Max
Door Open	:	3,000 PSI Max





CONVENTIONAL COIL TUBING STRIPPER PACKER

PARVEEN Conventional Coil Tubing Stripper / Packer is available to accommodate tubing sizes 3/4" through 2-3/8".

FEATURES / ADVANTAGES OF PARVEEN COIL TUBING STRIPPER / PACKER

- Adjustable mounting flange is suitable for 4-3/4" adjustment within the injector base.
- The union sub and nut are field interchangeable.
- Union nut can be 'latched' in up position for full visibility.
- Unique Split Clamp Cap Retainer assists field replacement of Bushing/Packer Insert.
- Piston 'Close' and 'Open' ports are 1/4" NPT and both located below the Adjustable Mounting Flange.
- Rod Wiper in Lower Bushing Gland keeps well 'trash' from seal.
- Piston Wear Ring to protect Piston Housing.
- Minimal (2-1/8") upward travel of cap-tubing Bushing-Keeper required to disassembled from Packer Housing allowing Split Cap to be located very near Injector Chains for maximum tubing support. (Upto 1-1/2" closer than competitors).
- 1/4" NPT Gage Port provides optional Injector Port.
- Double acting long stroke piston pushes Energizer/Packer Insert 3/16" beyond half length above Packer Housing for ease of change-out.
- Packer Inserts and Energizers are interchangeable with competitors. Various materials are available to suit specific well/service conditions.
- Glass-filled Teflon Non-Extrusion Ring for added support to packer elements.
- Long wearing bronze Upper and Lower Bushings.
- 1/4" NPT hydraulic and well pressure connections. No special fittings required.

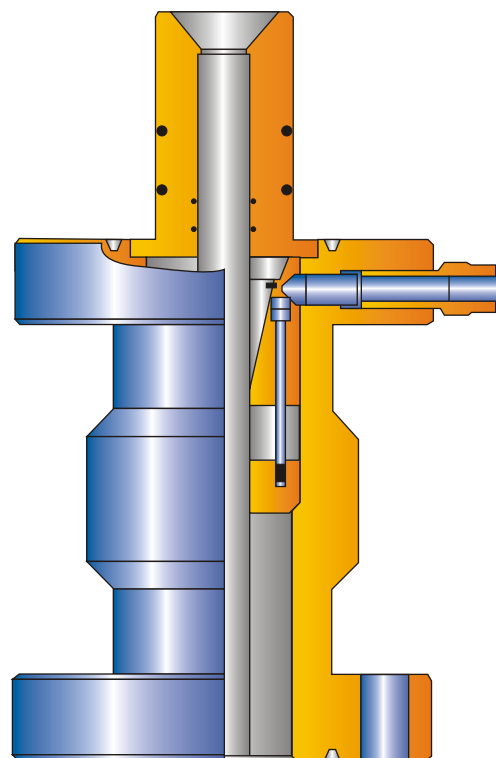




COIL TUBING HANGER

Features

- Designed to support heavy duty coil tubing down hole tool string
- Rugged hanger body for safe working during high well pressures
- Suitable for tubing sizes upto 3 1/2" O.D.
- Flanged side outlet provided at users requirement
- Available in all API 6B & 6BX flanged connections and working pressure
- Provided with wireline entry sub to guide wireline tools into the bore of the tubing. This sub provides secondary annulus seal and prohibits upward movement of the tubing



Coil Tubing Hanger

SIZE	1"	1. 1/4"	1. 1/2"	1. 3/4"
2. 1/16" 5 M	206A-21654065	206B-21654065	206C-21654065	206D-21654065
2. 9/16" 5 M	206A-21614065	206B-21614065	206C-21614065	206D-21614065
2. 9/16" 10 M	206A-29614065	206B-29614065	206C-29614065	206D-29614065
3. 1/16" 10 M	206A-31614065	206B-31614065	206C-31614065	206D-31614065
4. 1/16" 5 M	206A-40654065	206B-40654065	206C-40654065	206D-40654065
4. 1/16" 10 M	206A-40614065	206B-40614065	206C-40614065	206D-40614065



DOUBLE ROLL-ON CONNECTOR

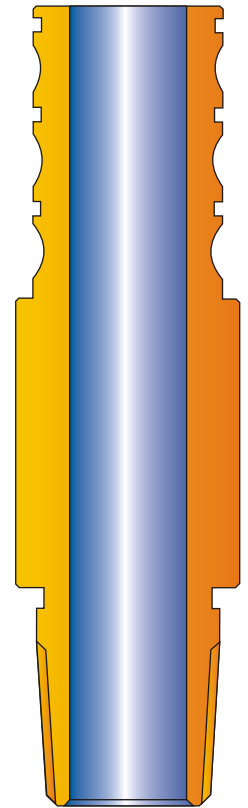
Application

- Connects two sections of Coil Tubing

Features

1. Flush OD allows easy spooling
2. O-ring seals ensure pressure integrity of Coil Tubing
3. Relatively large ID allows flow through the connector and the plugs, darts, or process balls
4. Pulling force is not required for makeup

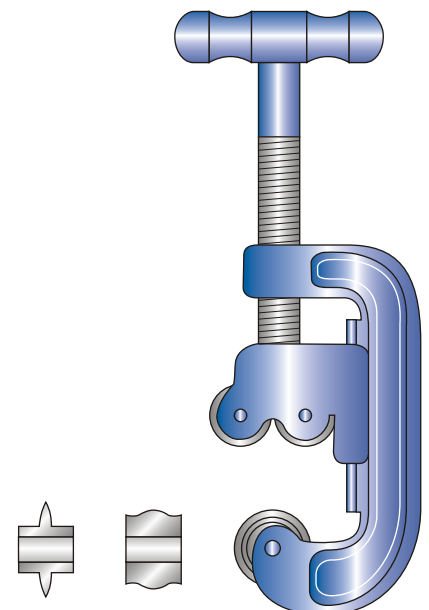
COIL TUBING DIAMETER	MAX. OD / ID / THREADS	MAKE-UP LENGTH	INTERNAL BALL CLEARANCE
1-1/4"	Customer to Specify	1.438"	Customer to Specify
1-1/2"		2.812"	
1-3/4"		2.625"	
2"		2.466"	
2-3/8"		2.875"	



**Roll-On
Connector**

ROLL-ON CONNECTOR CRIMPING TOOL

The Roll-On Connector Crimping Tool ensures easy field installation of the PCE Roll-On Connector to the Coiled Tubing.



**Roll-On
Connector
Crimping Tool**



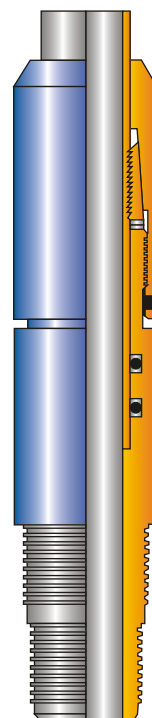
DOUBLE SLIP CONNECTOR

Features

- High-strength construction makes the connector stronger than the CT string
- Rotational lock prevents the connector from spinning on the coiled tubing when using small downhole motors or other low-to mid-torque generating assemblies
- Re-useable connectors offer multiple use
- External make-up principle avoids inside diameter (ID) restriction of the coil tubing, allowing, unrestricted flow and the use of wiper plugs or process balls
- Threads are provided as per users choice

Connector (Standard)

COILED TUBING SIZE (in.)	OD (in.)	ID (in.)
1	1.600	0.875
1 1/4	1.850	1.125
1 1/2	2.188	1.250
1 3/4	2.375	1.531
2	2.688	1.531



Double Slip Connector

SINGLE SLIP CONNECTOR

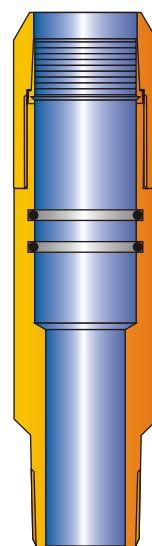
Application

- Parveen Slip type Coil Tubing Connector are used to attach Coil Tubing to the C.T. Tool with the threads
- Parveen Slip Type Coil Tubing Connectors are available to suit all standard sizes of C.T.

Benefits

- With option of internal / external neck
- High tensile strength
- Field replaceable slips

COILED TUBING SIZE (in.)	OD (in.)	ID (in.)
1	1.600	0.875
1 1/4	1.850	1.125
1 1/2	2.188	1.250
1 3/4	2.375	1.531
2	2.688	1.531
2 3/8	3.375	2.000



Single Slip Connector



DOUBLE FLAPPER CHECK VALVE

Applications

- Standard safety device used on CT operations in all oil, gas and water wells
- Sweet and sour service (H₂S)
- Mandatory for most operators and service providers

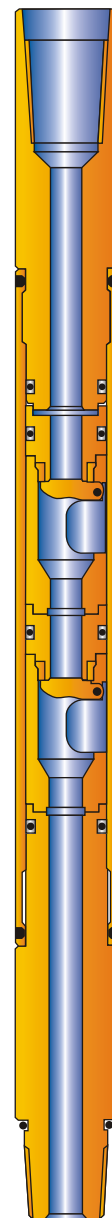
Features

- Allows unobstructed flow of fluids and nitrogen
- Prevents uncontrolled flow of fluids from the wellbore in case of a pipe failure
- Internal passage allows passage of trap balls
- Quickly redressed with field equipment
- Readily available O-ring seals for pressure integrity of CT downhole operations

The double-flapper check valve is the standard check valve used in the standard check valve used in the majority of CT operations. It is mounted close to the top of the CT string, below the connector to provide a well control barrier inside the coiled tubing against the wellbore.

O.D. (in.)	I.D.† (in.)	LENGTH† (in.)
1.500	15/32	17
1.688	22/32	18
2.125	1	19
2.563	10/32	20

† As per customers specifications



**Double Flapper
Check Valve**



STRAIGHT BARS & WEIGHT BARS

Applications

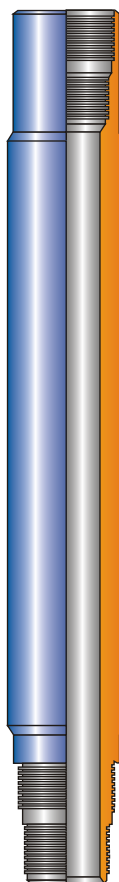
- Cleanout operations
- Nitrogen lifts
- Fishing and retrieval operations
- Sweet and sour service (H₂S)

Features

- Extends short tools strings to provide smoother access through restrictions
- Adds weight between jar and accelerator to optimize performance
- Available in large and small I.D.
- Different lengths and weights available

O.D. (in.)	I.D.† (in.)	LENGTH† (ft.)
1.500	0.688	2, 3, 4
1.688	0.688	2, 3, 4
1.750	0.875	2, 3, 4
2.125	1.250	2, 3, 4
2.568	1.375	2, 3, 4

† Threads as per customers specifications



**Straight Bars
& Weight Bars**

WASH SHOES

Applications

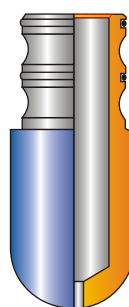
- Standard nozzle sub for all CT pumping and nitrogen lift operations
- Sweet and sour service (H₂S)

Features

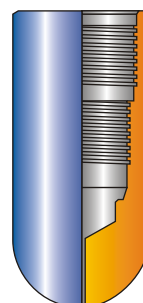
- Available in various sizes and nozzle patterns and diameters to meet operational parameters
- Simple, low-cost fluid jetting tool

DESCRIPTION	SIZE †	LENGTH †	PORTS †
Threaded wash shoe	1 1/4 to 3 3/4 in. O.D.	12"	1/8 to 1/4 in. in 1/32 in steps
Wash shoe with roll-on connection	1 to 2 3/8 in. coiled tubing		15, 30 and 45° up, down or straight down and 90° sideward, 1 to 9 ports.

† Size, Length and Ports are also provided as per customers requirements



**Roll-on Connection
Wash Shoe**



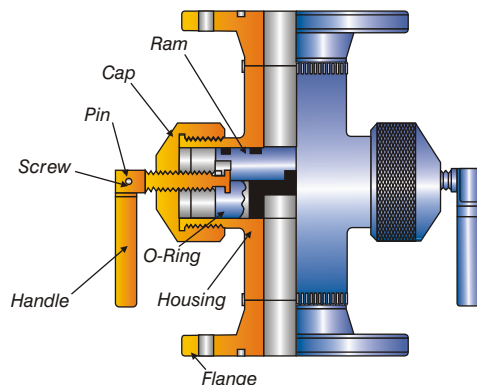
**Threaded
Wash Shoe**



SUCKER ROD PRESSURE CONTROL EQUIPMENT & TOOLS INDEX

SR. NO.	INDEX	PAGE
	Blowout Preventers	81
	Stuffing Box & Rod Clamps	83
	Pumping Tee	84
	Sucker Rod Coupling	85
	Roller Guides	86
	Gas Anchors, Wrenches, Rod Guides, Rod Lubricator	87

BLOWOUT PREVENTERS



Flanged - Both Ends

PARVEEN Blowout Preventers are designed to give positive protection against blowouts when operating with sucker rods in well service work, by providing a positive seal around sucker rod.

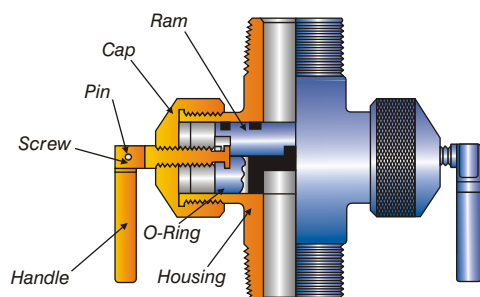
They may be permanently installed between the tubing head and the pumping tee, or between the tee and the stuffing box. The BOP can also be used to pack off a pumping well by sealing on the polished rod or on the sucker rods.

These BOP's are available with a wide selection of ram sizes and in a variety of pressure ratings with the choice of flanged or threaded end connections (thread sizes range from 1.1/2" NU to 7" API casing). Standard manually operated BOP can be modified for hydraulic activation.

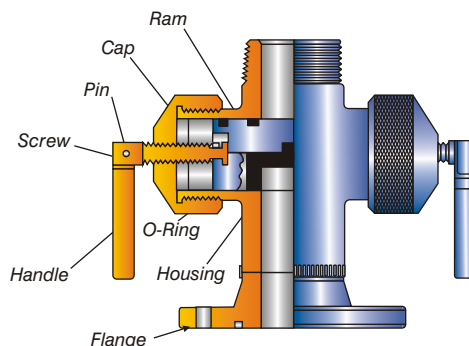
CONNECTIONS	VERTICAL BORE	WORKING PRESSURE
2.3/8"	1.90"	2,000PSI
2.7/8", 3" LP & 2.9/16 FLANGED	2.44"	2,000PSI
2.7/8" EUE	2.44"	5,000PSI
3" LP, 3.1/2" NU & FLANGED	3"	3,000PSI
3.1/2" EUE	2.99"	5,000PSI
4" LP & FLANGED	4"	3,000PSI

* Other sizes available on request.

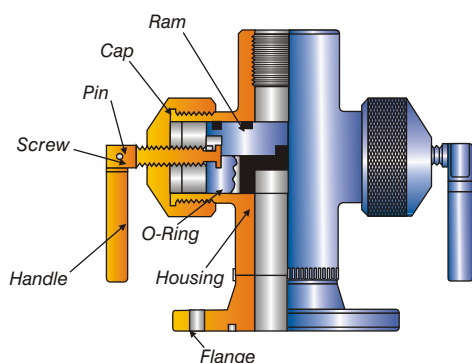
BLOWOUT PREVENTERS



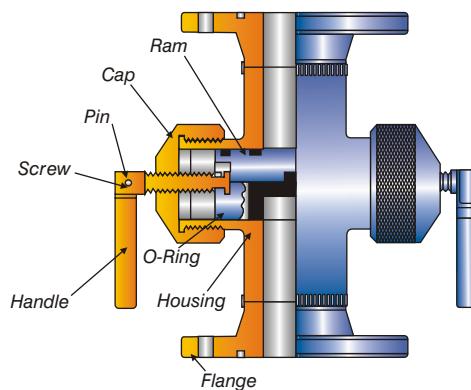
Thread - Both Ends



Flanged - Male Thread



Flanged - Female Thread



Flanged - Both Ends

SPECIFICATIONS

Body Material	Alloy steel
Flange Material	Alloy steel as per API standards.
Ram Material	AISI 4130/4140 Steel with Viton or Nitrile Inserts.
Cap Material	Alloy steel.
Screw Material	AISI 4130/4140 forged steel quenched and tempered.
*O-Ring	Viton or Nitrile Durometer 75 \pm 5
Pressure Rating	2000, 3000, 5000 PSI - working pressure.
Service Application	Nace MR-01 - 75 sour service.
Temperature	- 40° F + 300° F

* Nitrile rubber material is used for low temperature service. Viton rubber material is used for high temperature service. Customer must specify which type.



STUFFING BOX

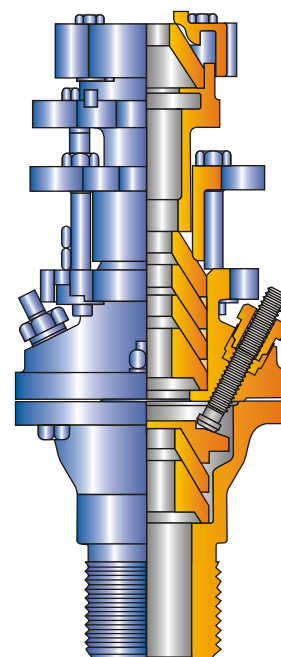
DOUBLE PACKED STUFFING BOXES (DPSB)

Parveen Stuffing boxes are exceptionally rugged and built for safe, efficient performance even under the tough operating conditions. It provides a mean of replacing packing under pressure. It posses a mis-aligning feature that eliminates the need for exact alignment of pumping unit.

Polished Rod size - 1" - 1.3/4"

Tubing Size	Wt. Lbs.
2"	50
2.1/2"	51
3.1/2"	52
4"	56

Bottom Conn. Male



ROD CLAMPS

PARVEEN Rod clamps are designed for fast installation, and made from forged steel for providing greater holding power. The combination of hinge pin and bolt results in superior gripping capability and gives high clamping efficiency.

SPECIFY MODEL OF CLAMP			
Description	Polished Rod Size	Approx. Weight lb.	Approx. Weight kg.
Model A	1" - 1.1/8" - 1.1/4" - 1.1/2"	10	4.54
Model B	1.1/8" - 1.1/4" - 1.1/2"	24	10.89
Model C	1.1/8" - 1.1/4"	9	4.08



SPECIFY MODEL AND POLISHED ROD SIZE PART LIST BOLT, NUT & WASHER			
MODEL	BOLT SIZE	WEIGHT lb PER SET	WEIGHT kg PER SET
Model A	1" x 4.1/2"	1.3/4	.79
Model B (2 Sets Required)	1" x 5"	2	.91
Model C	1" x 3"	1.1/2	.68



* Super-strong heat-treated steel forgings * Fast, simple installation * High clamping efficiency and maximum safety



PUMPING TEE

PARVEEN Pumping Tees are forged, which give better control on material. This versatile selection of high quality flow tees is available in a wide range of API pipe sizes and threads.

Any special combination of sizes 2" through 4", including 2" bleeders can be provided upon request. All tees come optional with a No-Corrode material.

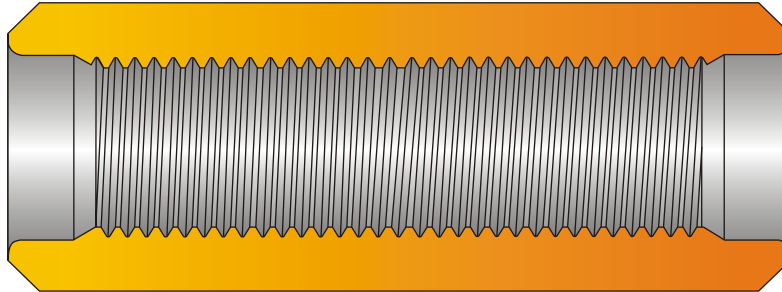
PARVEEN Dual string pumping tees are designed for use on dual string wells having minimum tubing center to center distances. These tees can be screwed onto one string of tubing without touching the other string. 1-1/4" and 1-1/2" sizes are ideal on slim hole well hookups.



HEAVY DUTY "RED" TEES, 3000 PSI WORKING PRESSURE - 6000 PSI TEST						
ITEM NO.	BOTTOM THREAD (PLAIN OR EUE)	TOP THREAD (PLAIN OR EUE)	SIDE OUTLET (L.P)	BLEEDER	HT.	WT. LBS.
PT-7	2"	2"	2"	1"	6"	9
PT-13	2" MALE	2"	2"	1"	7 1/4"	7
PT-8	2"	2 1/2"	2"	1"	7 1/4"	13
PT-17	2"	3"	2"	1"18"	21"	
PT-1	2"	3"	3"	1"	8"	18
PT-18	2 1/2"	2"	2"	1"	7 1/4"	13
PT-11	2 1/2"	2 1/2"	2"	1"	7 1/4"	13
PT-14	2 1/2" MALE	2 1/2"	2"-2 1/2"	1"	8"	10
PT-9	2 1/2"	2 1/2"	2 1/2"	1"	7 1/4"	12
PT-19	2 1/2"	2 1/2"	3"	1"	8"	20
PT-12	2 1/2"	3"	2"	1"	8"	20
PT-10	2 1/2"	3"	2 1/2"	1"	8"	20
PT-16	2 1/2" MALE	3"	2"	1"	8"	10
PT-2	2 1/2"	3"	3"	1"	8"	18
PT-20	3"	2 1/2"	2"	1"	8"	20
PT-21	3"	2 1/2"	2 1/2"	1"	8"	20
PT-22	3"	2 1/2"	3"	1"	8"	20
PT-23	3"	3"	2"	1"	8"	20
PT-3	3"	3"	3"	1"	8"	20
PT-25	3"MALE	3"	2"-3"	1"	9 1/2"	19
PT-4	4"	3"	3"	1"	7 3/4"	22
PT-24	4"	4"	3"	1"	7 3/4"	21
PT-6	4"	4"	4"	1"	7 3/4"	18
PST-15	1 1/2 Plain	1 1/2 Plain"	1 1/2"	1"	6"	5
PST-20	1 1/2" EUE & 2" Plain or EUE	2" Plain or EUE	2"	1"	6"	6
PST-25	2 1/2" Male or Female	2 1/2"	2"	1"	8"	12
LIGHTWEIGHT "YELLOW" TEES 2500 PSI WORKING PRESSURE - 5000 PSI TEST						
YT	2"	2"	2"	1"	5 3/4"	8"
YT	2 1/2"	2 1/2"	2 1/2"	1"	6"	9"



SUCKER ROD COUPLING



Sub Coupling

Sucker Rod Coupling :

PARVEEN offers 'T' and "SM" grades of Sucker Rod Coupling. Both the grades are manufactured with high grade steels (AISI 8630). The threads of both the grades of coupling are coating for anti-galling properties. Dimension, Tolerance and manufacturing inspection of these couplings conform or exceed the requirement of API-11B latest Edition.

Grade SM. CO-HARD Sucker Rod Coupling :

These couplings are made of 8630 alloy steel and offer excellent resistance to H₂S. The Base metal is prepared to a NO.:1 finish per NACE before spany.

Sub Couplings:

PARVEEN Sub Couplings are used to connect different sizes of Sucker Rod or to connect the Polish Rod to Sucker Rod string. All threads are as per API-11B Polish Rods.

These are available in 'T' and "SM" grades and with recessed ends and double box.



ROLLER GUIDES

Parveen Roller guides centralize the rod string and reduce friction during stroking, and also reduce wear on sucker rods and tubing.

Guide Couplings should be installed:

- On the first two or three rods above the bottom hole pump.
- Intermittently throughout the rod string where wear is indicated on rods or tubing.
- Where known hole deviation occurs.
- On the first two or three rods below the stuffing box.

APPLICATIONS AND DIMENSIONS					
APPLICATION (1)	MAXIMUM ROD LOAD	DIMENSIONS (INCH)			WEIGHT
		X	Z	Y	
5 / 8" ROD / 2-3 / 8" TUBING	12,366	1.50	27	1.80	10 lbs.
3 / 4" ROD / 2-3 / 8" TUBING	19,600	1.50	27	1.80	10 lbs.
5 / 8" ROD / 2-7 / 8" TUBING	12,366	1.50	27	2.25	10 lbs. 2 ozs.
3 / 4" ROD / 2-7 / 8" TUBING	19,600	1.50	27	2.25	10 lbs. 8 ozs.
7 / 8" ROD / 2-7 / 8" TUBING	22,400	1.625	27	2.25	11 lbs. 5 ozs.
3 / 4" ROD / 3-1 / 2" TUBING	19,600	1.50	31	2.75	12 lbs. 6 ozs.
7 / 8" ROD / 3-1 / 2" TUBING	22,400	1.625	31	2.75	15 lbs.
1" ROD / 3-1 / 2" TUBING	35,000	2.0	31	2.75	19 lbs.

(1) Temperature Caution

Standard models are for applications in wellbore temperature up to 175° F (fitted with ultra high molecular weight polyethylene wheels). For service in higher temperature, Special metal wheels are used.

MATERIALS OF CONSTRUCTION

Guide/Coupling Body

Standard guide/coupling bodies are machined from cold rolled steel.

Special Metals

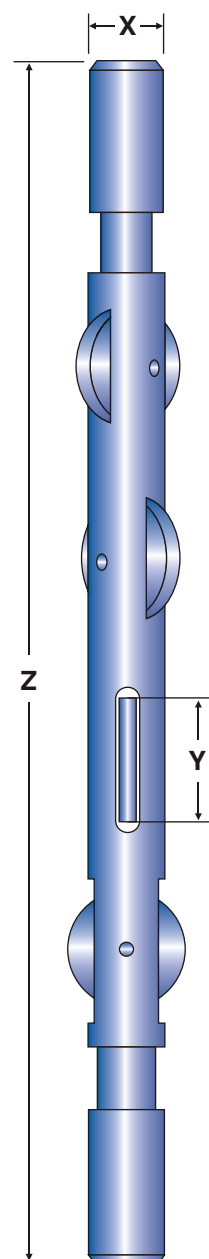
Other metals such as 17-4 PH steel are available on special order to meet some specifications for extra strength and/or corrosion resistance.

Wheels and Roll Pins

Wheels are set on stainless Steel journals and roll pins. Standard wheels, for applications up to 175° F are made of ultra high molecular weight polyethylene.

Replacement Kits

Wheels and roll pins are field replaceable; replacement kits of wheels and roll pins are standard order items.



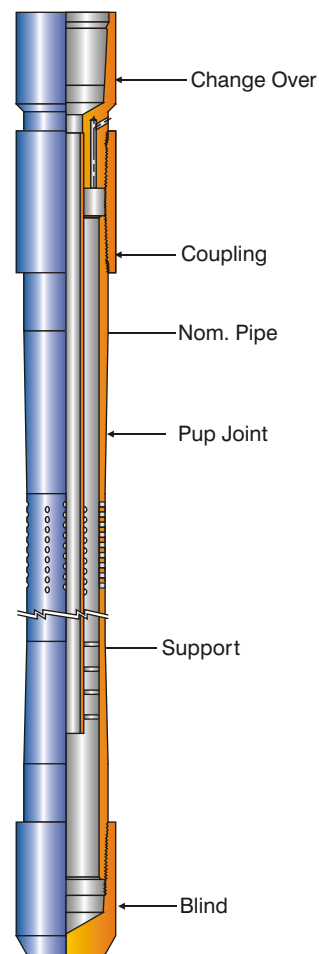


GAS ANCHORS

PARVEEN Crossover gas anchors improve rod pump efficiency and eliminate or reduce fluid pound to extend pump life. Other sizes available upon request.

SIZE	A	B	C	D
2.7/8"	3.1/2"	4"	1" Nom.	2.7/8" EUE
3.1/2"	4.1/2"	4.7/8"	1.1/2" Nom.	3.1/2" EUE

* Other sizes available on request.



Gas Anchor

SUCKER ROD WRENCHES

Rod Buster

The PARVEEN Rod Buster Sucker Rod Wrench is made of high-grade alloy steel, hardened to resist wear. This lightweight (6lb.) rugged tool is excellent for manual makeup and breakout of sucker rod joints. It features a counterbalanced grip to reduce fatigue. The cross-section of the handle is oval, which provides a natural resistance to the wrench spinning when gripped. The head is spring-loaded and a hardened steel bushing is provided between the wrench head and handle.

Spin Wrench

The PARVEEN Wrench is a one-piece tool manufactured from high tensile strength alloy steel. The wrench opening fits the square on sucker rods and is accurately machined to reduce user fatigue.

Rod Guides

PARVEEN advanced rod guide designed to remove paraffin and act as centralizer to minimize wear on both tubing and rod couplings. PARVEEN engineers continually develop new rod guide materials and designs to aid in well site productivity. The combinations of PARVEEN rod guides provide the benefits of wear distribution and paraffin removal.

Rod Lubricator

PARVEEN polished rod lubricator is designed for use on problem wells which either pump-off or flow-off. With a capacity of 1 quart the lubricator features a felt wick that lubricates the polished rod by applying oil on both the up and down strokes.

**TREATING IRONS, UNIONS, SWIVELS & CIRCULATING HEADS INDEX**

SR. NO.	INDEX	PAGE
1	Cementing And Circulating Hoses	89
2	Cementing & Circulating Hoses	91
3	Swivel Joints	94
4	Short Sweep Swivel Joint (Basic Dimensions) Style-20	95
5	Short Sweep Swivel Joint (Basic Dimensions) Style-30	96
6	Short Sweep Swivel Joint (Basic Dimensions) Style-40	97
7	Short Sweep Swivel Joint (Basic Dimensions) Style-50	98
8	Short Sweep Swivel Joint (Basic Dimensions) Style-60	99
9	Short Sweep Swivel Joint (Basic Dimensions) Style-70	100
10	Short Sweep Swivel Joint (Basic Dimensions) Style-80	101
11	Short Sweep Swivel Joint (Basic Dimensions) Style-10	102
12	Long Sweep Swivel Joint (Basic Dimensions) Style-20	103
13	Long Sweep Swivel Joint (Basic Dimensions) Style-30	104
14	Long Sweep Swivel Joint (Basic Dimensions) Style-40	105
15	Long Sweep Swivel Joint (Basic Dimensions) Style-50	106
16	Long Sweep Swivel Joint (Basic Dimensions) Style-60	107
17	Long Sweep Swivel Joint (Basic Dimensions) Style-70	108
18	Long Sweep Swivel Joint (Basic Dimensions) Style-80	109
19	Long Sweep Swivel Joint (Basic Dimensions) Style-10	110
20	Hammer Unions	111
21	Air - Unions	118
22	Treating Irons, Union Connections, Bull Plugs, Cross Over Adaptors & Swages	119
23	Integral / Fabricated Union Connections	120
24	Changeover / Crossover Adaptors	121
25	Circulating Head	122
26	Mud Gun	123
27	Integral / Welded Union End Fittings	124



CEMENTING AND CIRCULATING HOSES

General Description

Introduction

PARVEEN'S Cementing & Circulating Hoses are manufactured in various sizes (from 1" to 4") and in various configurations to meet virtually all needs of Oil Industry. These can handle a wide variety of fluids at cold working pressure up to 20,000 PSI. These hoses are made in steel to meet ASTM/AISI standards, are rugged, fold up easily and quickly for transportation. These are specially heat treated to get the desired hardness to suit various applications. Even sizes beyond 4" can be supplied to meet customer requirement.

Service Applications

These hoses are recommended for service in Low Pressure Lines, High & Extra High pressure Lines, Discharge Lines, Water Lines, Well Testing Lines, Cementing & Circulating Lines, Temporary Flow Lines and Extra Pressure Abrasive Applications.

Swivel Joint Connections

PARVEEN'S hoses features PARVEEN'S Swivel Joints which provide flexibility, maximize flow characteristics and absorb shock vibrations.

Wing Unions

PARVEEN'S wing unions end connections provided in the cementing hoses ensure pressure tight and fast make up and quick break-out without threading, welding or special connections.

Sour Gas Service

PARVEEN'S cementing hoses are available in various sizes and configurations for sour gas service as per NACE standards MR-01-75 and API standard RP-14E up to cold working pressure of 15000 PSI.

Method of Construction

These hoses can be manufactured either threaded or integral or welded constructions or with NPS end connections.

Standard Lengths of Hoses

Following standard lengths are available. These lengths are fully extended lengths of the unfolded hoses:

Threaded Hose - 12 feet

NPS Hose - 12 feet

Welded Hose - 12 feet

Integral Hose - 12 feet

Other lengths can also be provided on request. PARVEEN'S hoses are also available in half section configuration. In this case, stated length will be half of the length of comparable full length section. The loop can be divided into various sections depending upon the number of unions in the loop. The loop is generally in 4 & 2 sections.

Swivel Joint Styles

PARVEEN'S Swivel Joints can be manufactured equivalent to style 10, 20, 30, 40, 50, 60, 70 & 80. Normally the most used style in various applications in style 50 and style 10 but PARVEEN'S can cater for any style to meet customer requirements.

Pressure Ratings

Hoses with following ratings are available as given in table below.

Interchangeability

PARVEEN'S hammer unions or end connections are interchangeable with the unions and connections of all the major manufacturers of these products in the world.



CEMENTING AND CIRCULATING HOSES

CEMENTING & CIRCULATING HOSES SWIVEL JOINTS	COLOUR CODE	SERVICE	CONSTRUCTIONS DETAILS				NOMINAL SIZE (INCHES)						CWP (PSI)	UNION FIGURE
			THREADED	NPS	INTEGRAL	WELDED	1"	1 1/2"	2"	2 1/2"	3"	4"		
SHORT SWEEP SWIVEL JOINT (1", 1 1/2", 2", 2 1/2", 3", 4")	OLIVE GREEN	SOUR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100 PSI TO 6000PSI	FIG-602
	YELLOW/SILVER	STD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100 PSI TO 6000PSI	FIG-602
	BLACK	STD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10000 PSI	FIG-1002
	OLIVE GREEN	SOUR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10000 PSI	FIG-1502
	BROWN	STD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	6000 PSI TO 7500 PSI	FIG-602 OR FIG-1002
LONG SWEEP SWIVEL JOINT (1", 1 1/2", 2", 2 1/2", 3", 4")	OLIVE GREEN	SOUR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	6000 PSI TO 7500 PSI	FIG-602 OR FIG-1002
	BLACK	STD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10000 PSI	FIG-1002 OR FIG-1502
	OLIVE GREEN	SOUR	–	–	✓	✓	✓	✓	✓	✓	✓	✓	15000 PSI	FIG-2202 OR FIG-1502
	RED	STD	–	–	✓	✓	✓	✓	✓	✓	✓	✓	15000 PSI	FIG-1502
	LIGHT BLUE	STD	–	–	✓	–	–	–	✓	–	✓	–	20000 PSI	FIG-2002

CEMENTING & CIRCULATING HOSES

Parveen's typical steel Cementing & Circulating Hoses are shown below with its model numbers. These hoses have either Threaded ends or NPS or Integral or Welded ends.

Model Number indicates:

- Type of Sweep i.e. Long Sweep or Short Sweep (i.e. LS or SS)
- Style of Swivel Joints used (i.e. Style 10, Style 50 or Style 10 & Style 50 both & numbers of swivel joints i.e.1 or 2)
- Numbers of Unions used (i.e. 1, 2 or 4 etc.
- Type of end connection i.e. Threaded (T), NPS (N), Integral (I) or Welded (W)

Example: Model Number PLSCCH-50-2-4U-1 indicates.

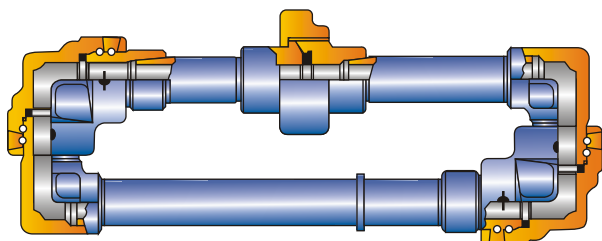
- PLSCCH** : Parveen Long Sweep Cementing & Circulating Hose.
- 50-2** : Style 50 Swivel Joint, 2 Numbers.
- 4U** : 4 Numbers of Union
- I** : Integral Union End Connection

I. THREADED ENDS USING API LINE PIPE THREADS

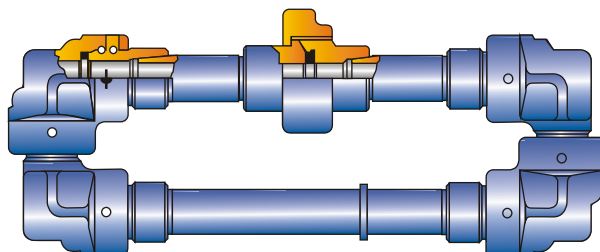
UNION (THREADED)	1 NO.	1 NO.	2 NOS.	2 NOS.	4 NOS.	4 NOS.
S. JOINT (THREADED)	STYLE-50 (2 NOS.)	STYLE-10 (2 NOS.)	STYLE-50 (2 NOS.)	STYLE-10 (2 NOS.)	STYLE-50 (2 NOS.)	STYLE-10 (2 NOS.)
MODEL NUMBER.	PSSCCH-50-2-1U-T	PSSCCH-10-2-1U-T	PSSCCH-50-2-2U-T	PSSCCH-10-2-2U-T	PSSCCH-50-2-4U-T	PSSCCH-10-2-4U-T

CONFIGURATION OF THREADED END MODELS

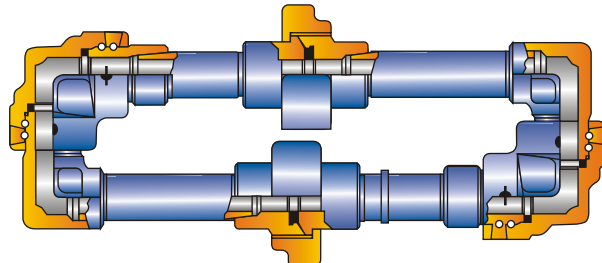
MODEL NUMBER: PSSCCH-50-2-1U-T



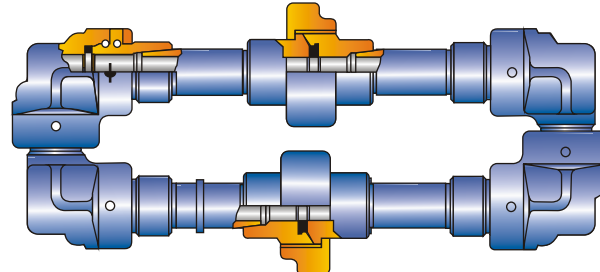
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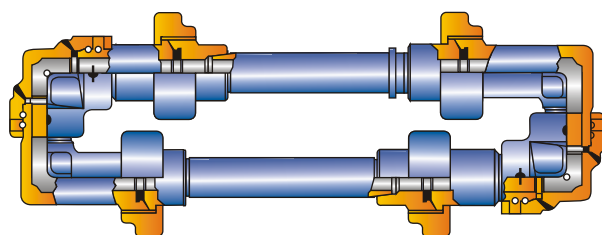
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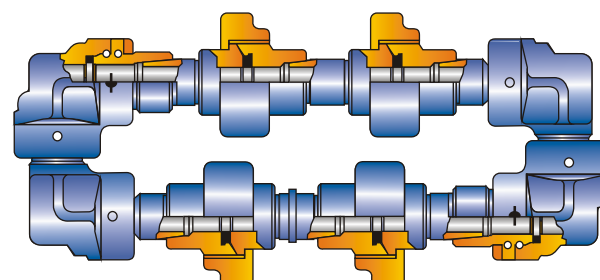
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MODEL NUMBER: PSSCCH-50-2-4U-T



MODEL NUMBER: PSSCCH-10-2-4U-T



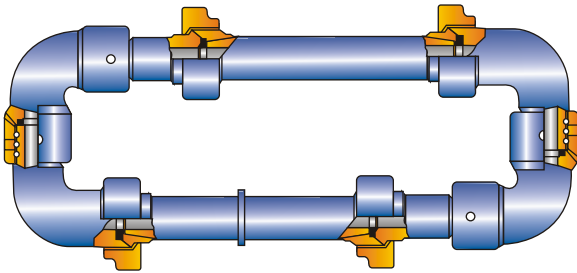
CEMENTING & CIRCULATING HOSES

2. NPS ENDS

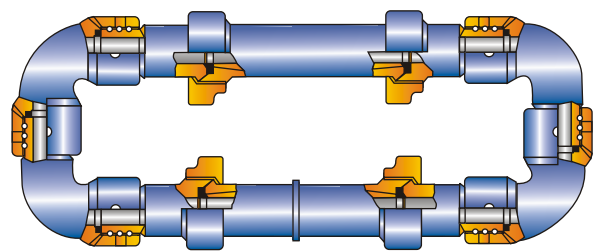
UNION	4 NOS.	4 NOS.	4 NOS.	4 NOS.
SWIVEL JOINT UNION END	STYLE-50 (2 NOS.)	STYLE- 10 (2 NOS.)	STYLE-50 (2 NOS.)	STYLE- 10 (2 NOS.)
MODEL NUMBER.	PLSCCH-50-2-4U-N	PLSCCH-10-2-4U-N	PSSCH-50-2-4U-N	PSSCCH-10-2-4U-N

CONFIGURATION OF NPS END MODELS

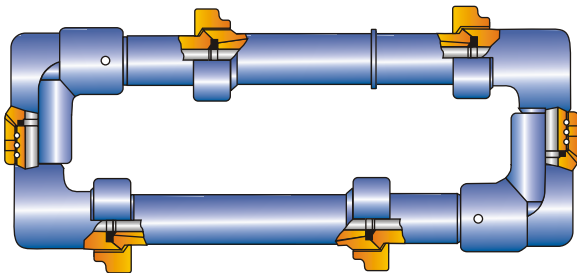
MODEL NUMBER: PLSCCH-50-2-4U-N



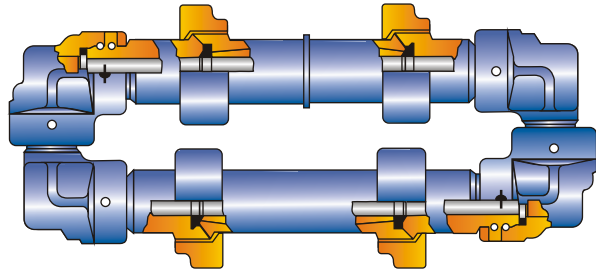
MODEL NUMBER: PLSSCCH-10-2-4U-N



MODEL NUMBER: PSSCCH-50-2-4U-N



MODEL NUMBER: PSSCCH-10-2-4U-N

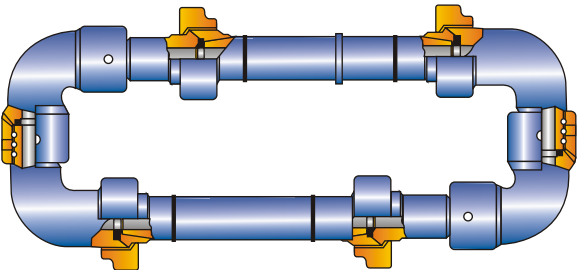


3. WELDED ENDS

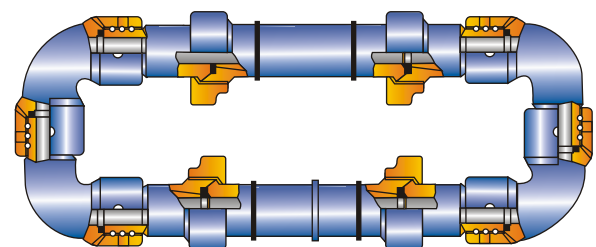
UNION	4 NOS.	4 NOS.	4 NOS.	4 NOS.
SWIVEL JOINT UNION END	STYLE-50 (2 NOS.)	STYLE- 10 (2 NOS.)	STYLE-50 (2 NOS.)	STYLE- 10 (2 NOS.)
MODEL NUMBER.	PLSCCH-50-2-4U-W	PLSCCH-10-2-4U-W	PSSCCH-50-2-4U-W	PSSCCH-10-2-4U-W

CONFIGURATION OF WELDED END MODELS

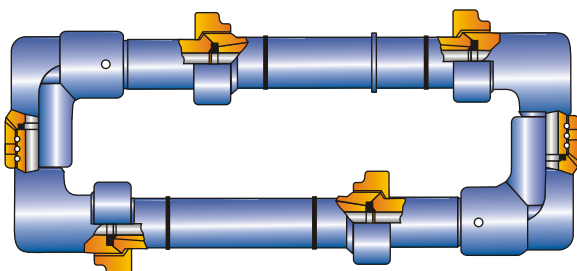
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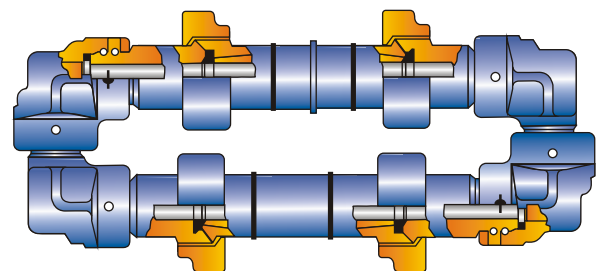
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MODEL NUMBER: PSSCCH-50-2-4U-W



MODEL NUMBER: PSSCCH-10-2-4U-W





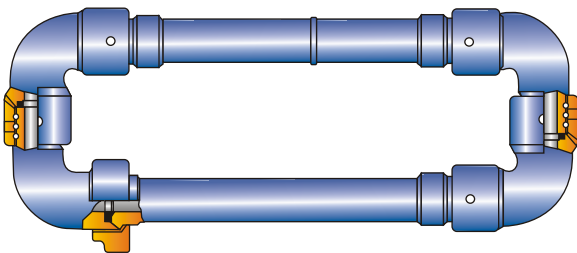
CEMENTING & CIRCULATING HOSES

4. INTEGRAL UNION ENDS

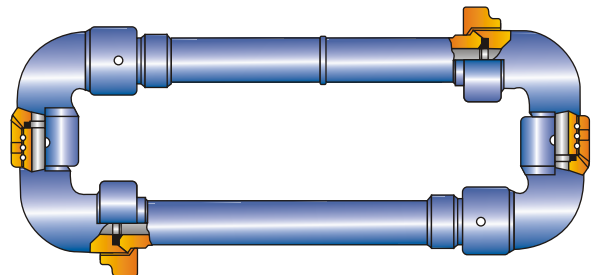
UNION	1 NO.	2 NOS.	2 NOS.	1 NO.	4 NOS.	4 NOS.
SWIVEL JOINT (UNION ENDS)	STYLE-50 (1 NO)	STYLE- 50 (2 NOS.)	STYLE-10 (2 NOS.)	STYLE-10 (2 NOS.)	STYLE-50 (2 NOS.)	STYLE-10 (2 NOS.)
MODEL NUMBER	PLSCCH-50-1-10- 1-1U-I	PLSCCH-50-2-2U-I	PLSCCH-10-2-2U-I	PLSCCH-10-2-1U-I	PLSCCH-50-2-4U-I	PLSCCH-10-2-4U-I

CONFIGURATION OF INTEGRAL UNION END MODELS

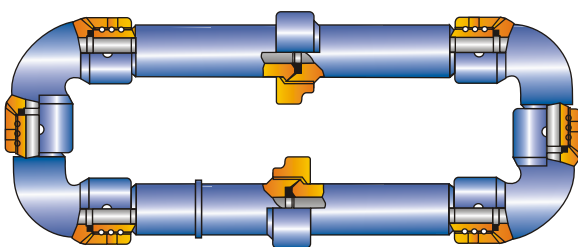
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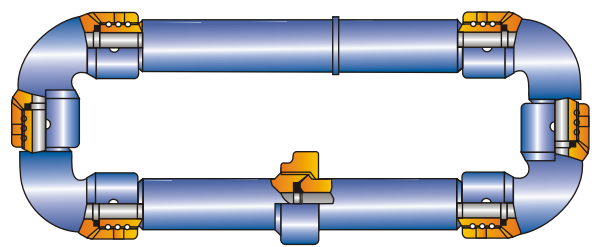
MODEL NUMBER: PLSCCH-50-2-2U-I



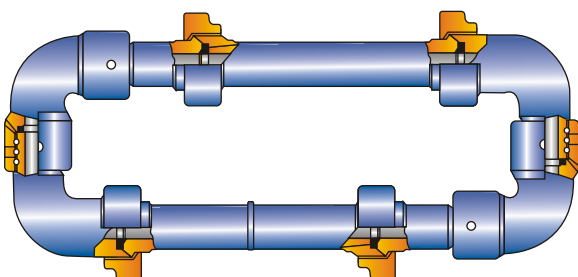
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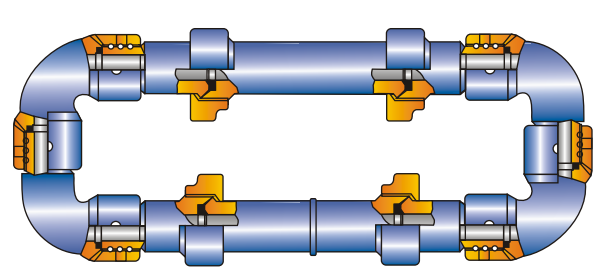
MODEL NUMBER: PLSCCH-10-2-1U-I



MODEL NUMBER: PLSCCH-50-2-4U-I



MODEL NUMBER: PLSCCH-10-2-4U-I





SWIVEL JOINTS

Products Description

Swivel Joints are manufactured both for standard service & sour service. Long sweep swivel joints are designed generally from 6000 PSI CWP to 20,000 PSI CWP, both for standard and sour service and ensure better flow characteristics. Smooth and round bore design keeps pressure drop low and minimizes turbulence.

Long sweep sour service swivel joints are manufactured in accordance with National Association of Corrosion Engineers (NACE) standard, MR-01 - 75 (Latest) and the American Petroleum Institute's (API) standard RP -14 E.

PARVEEN Swivel Joints have following features

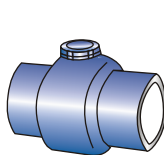
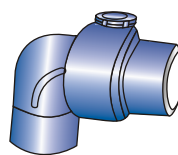
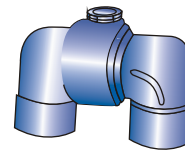
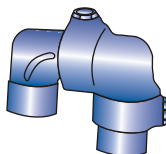
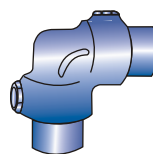
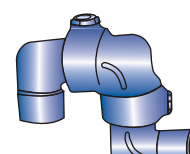
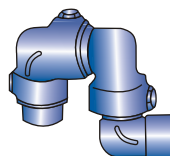
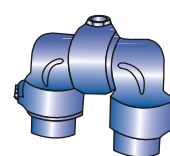
- Swivel Joints are made from carbon steel and low alloy steel and are specially heat treated for controlled hardness.
- All union ends are interchangeable with other manufacturers adhering to Industry Standards. All long sweep swivel joints-Jar- sour service have union ends of corresponding pressure rating.
- Swivel joints for sour service are provided with snap rings to assure high load bearing capacity.
- These swivel joints are provided with dual packing arrangement. Primary seal with stainless steel anti-extrusion ring and an additional 'O' ring between ball races and primary seal is provided which acts as a secondary seal. When leakage occurs, it is diverted through the leak detection port. A leak at this port indicates the necessity of primary seal replacement.
- The grease retainer is self-relieving to prevent pressure accumulation in the ball race chamber if leakage occurs through the secondary packing.

PARVEEN's Swivel Joints bearings assure long and dependable service. These bearings are either dual race or tri race ball bearings and are matched to load capacity and service conditions. All ball races are either carburized and hardened or use snap ring in stainless steel.

Style of Swivel Joints

PARVEEN manufactures all styles of swivel joints to suit various service condition and installations. These are style 10, 20, 30, 40, 50, 60, 70, 80 as described below:

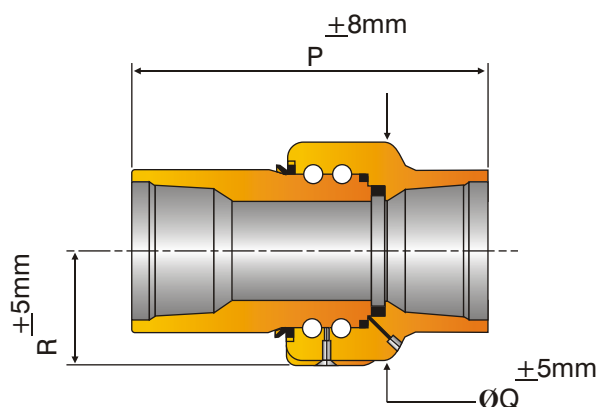
1. **STYLE 10**
Three swivels with two elbows.
2. **STYLE 20**
Single swivel coupling.
3. **STYLE 30**
Single swivel with one elbow
4. **STYLE 40**
Single swivel with two elbows.
5. **STYLE 50**
Two swivels with two elbows
6. **STYLE 60**
Two swivels with one elbow
7. **STYLE 70**
Two swivels with three elbows
8. **STYLE 80**
Three swivels with three elbows.

**STYLE 20****STYLE 30****STYLE 40****STYLE 50****STYLE 60****STYLE 70****STYLE 80****STYLE 10**

Sizes of Swivel Joint

PARVEEN manufactures size 1" to 4" for normal application. PARVEEN can also manufacture higher/lower sizes if required by customer.

SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-20

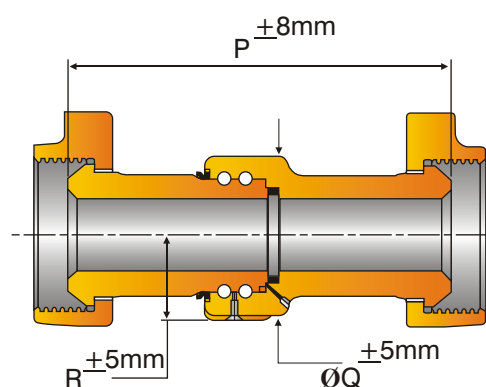


STYLE - 20 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 20T

SIZE	P	P	ØQ	ØQ	R	R	WT.	WT.
(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)	
1"	133	5.24	64	2.52	41	1.61	4.40	2
1 1/2"	140	5.51	75	2.95	46	1.81	5.84	2.65
2"	170	6.69	103	4.06	56	2.20	15.43	7.0
2 1/2"	211	8.31	115	4.53	63	2.48	19.30	8.75
3"	234	9.21	144	5.67	76	3.0	34.06	15.45
4"	246	9.68	175	6.88	91.5	3.60	53.80	24.40

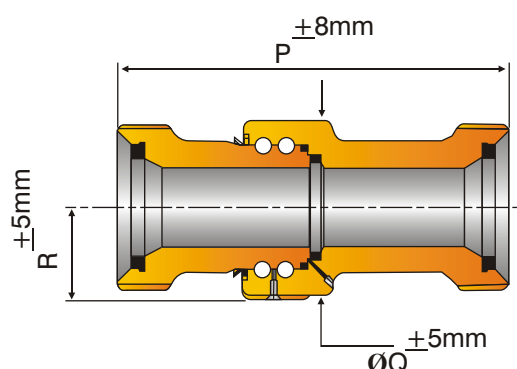


STYLE - 20 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 20MM

SIZE	P	P	ØQ	ØQ	R	R	WT.	WT.
(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)	
1"	165	6.49	64	2.52	41	1.61	9.15	4.15
1 1/2"	190	7.48	75	2.95	46	1.81	17.42	7.90
2"	215	8.46	103	4.06	56	2.20	34.74	15.76
2 1/2"	225	8.85	115	4.53	63	2.48	35.27	16.0
3"	223	9.17	144	5.67	76	3.0	52.68	23.9
4"	268	10.55	175	6.88	91.5	3.60	74.62	33.85

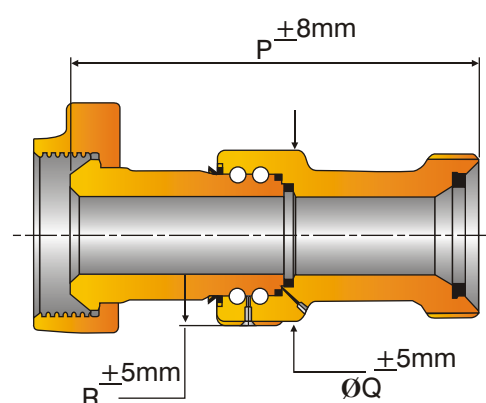


STYLE - 20 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 20FF

SIZE	P	P	ØQ	ØQ	R	R	WT.	WT.
(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)	
1"	165	6.49	64	2.52	41	1.61	8.00	3.60
1 1/2"	190	7.48	75	2.95	46	1.81	9.92	4.50
2"	215	8.46	103	4.06	56	2.20	19.06	8.65
2 1/2"	225	8.85	115	4.53	63	2.48	28.54	12.95
3"	223	9.17	144	5.67	76	3.0	44.10	20.00
4"	268	10.55	175	6.88	91.5	3.60	60.40	27.4



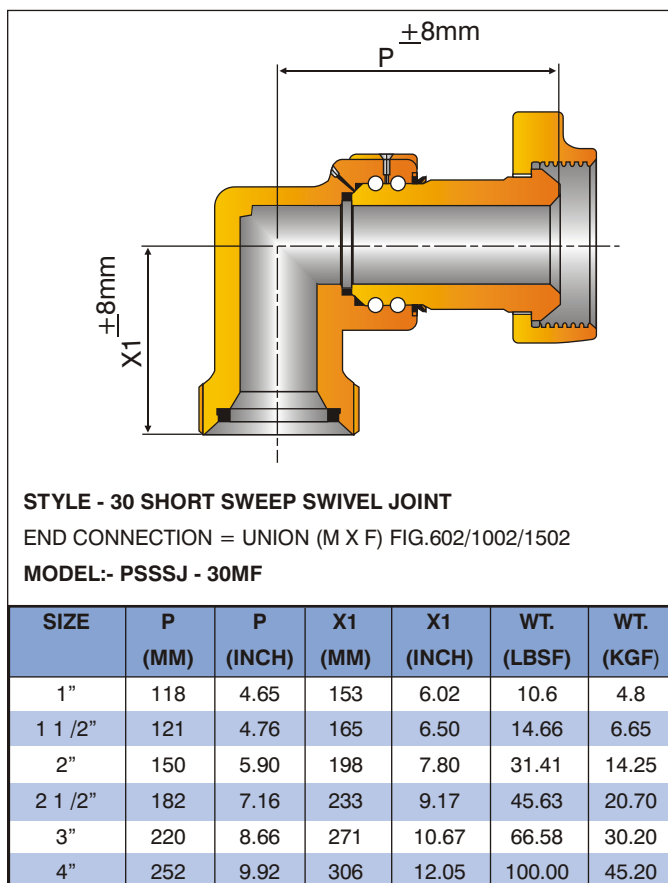
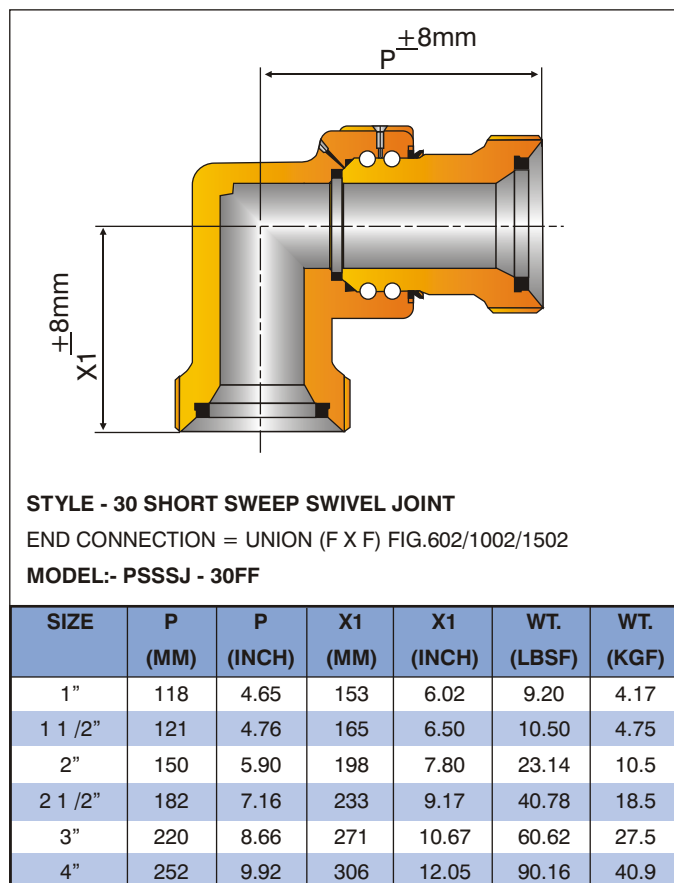
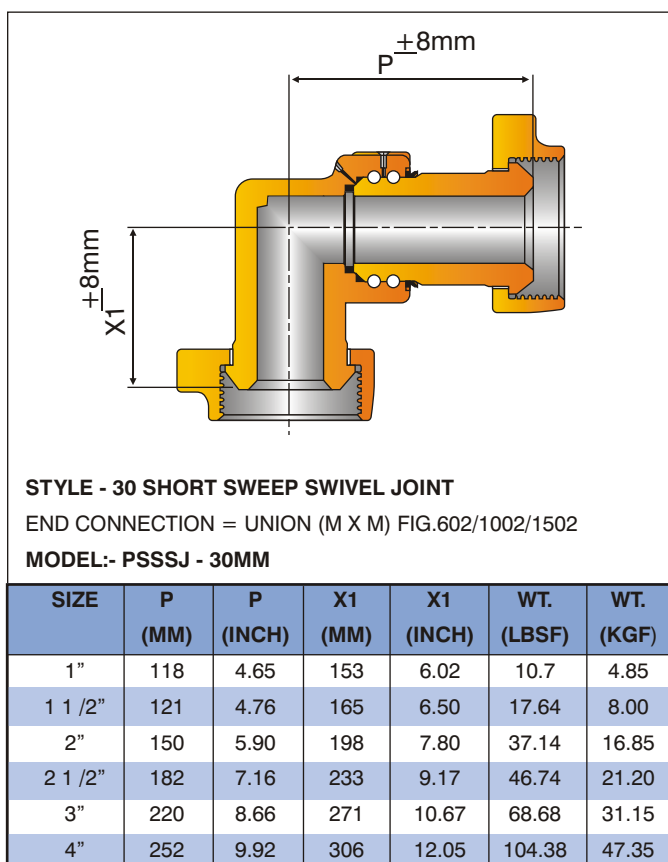
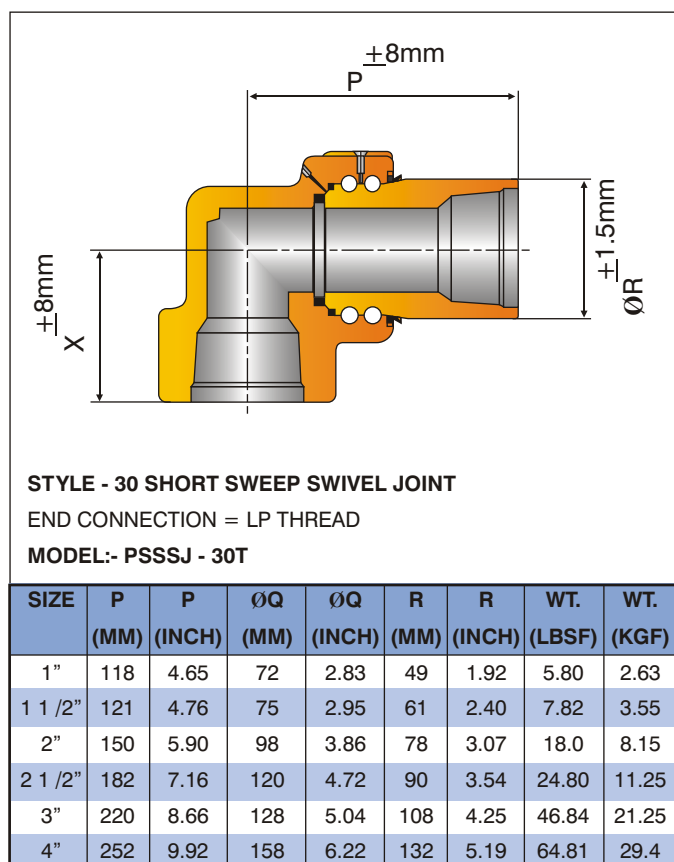
STYLE - 20 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 20MF

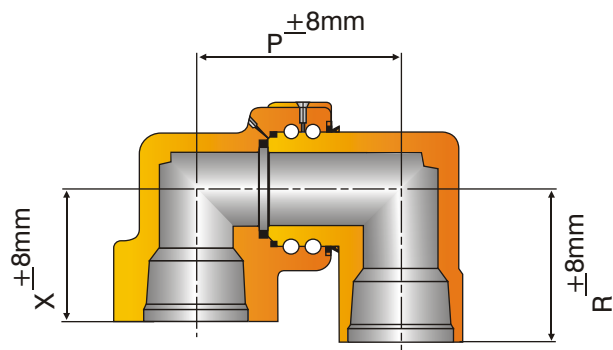
SIZE	P	P	ØQ	ØQ	R	R	WT.	WT.
(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)	
1"	165	6.49	64	2.52	41	1.61	8.64	3.92
1 1/2"	190	7.48	75	2.95	46	1.81	14.10	6.40
2"	215	8.46	103	4.06	56	2.20	27.34	12.40
2 1/2"	225	8.85	115	4.53	63	2.48	33.14	15.15
3"	223	9.17	144	5.67	76	3.0	50.0	22.70
4"	268	10.55	175	6.88	91.5	3.60	70.0	31.70

SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-30





SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-40

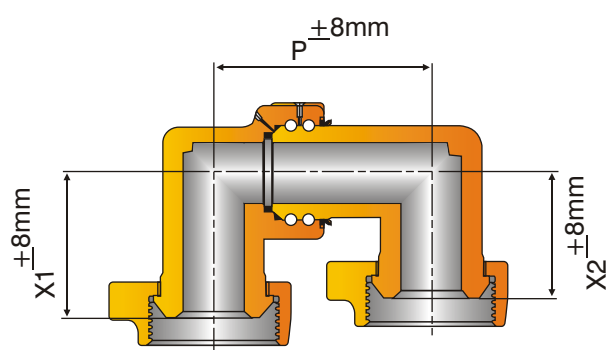


STYLE - 40 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 40T

SIZE	P	P	X	X	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	108	4.25	72	2.83	70	2.75	6.92	3.14
1 1/2"	110	4.33	75	2.95	90	3.54	10.36	4.70
2"	152	5.98	98	3.86	110	4.33	24.25	11.0
2 1/2"	195	7.67	120	4.72	130	5.11	33.62	15.25
3"	202	7.95	128	5.03	110	4.33	52.91	24.0
4"	260	10.23	158	6.22	130	5.11	82.67	37.5

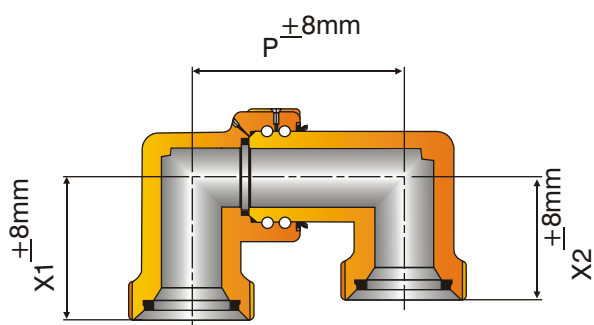


STYLE - 40 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 40MM

SIZE	P	P	X1	X1	X2	X2	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	108	4.25	153	6.02	118	4.65	12.34	5.6
1 1/2"	110	4.33	165	6.50	121	4.75	18.52	8.4
2"	152	5.98	198	7.80	150	5.90	45.0	20.4
2 1/2"	195	7.67	233	9.17	182	7.16	58.00	26.3
3"	202	7.95	271	10.67	220	8.66	79.00	35.8
4"	260	10.23	306	12.05	252	9.92	131.20	59.5

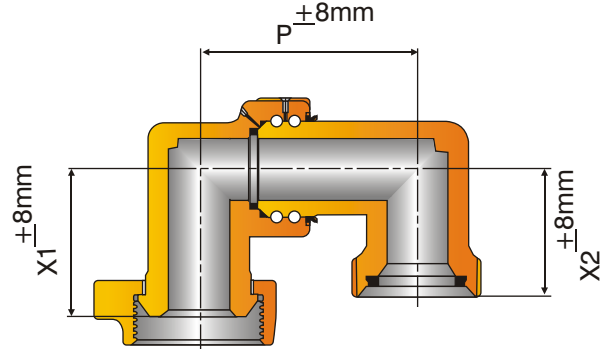


STYLE - 40 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 40FF

SIZE	P	P	X1	X1	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	108	4.25	153	6.02	118	4.65	10.91	4.95
1 1/2"	110	4.33	165	6.50	121	4.75	14.0	6.35
2"	152	5.98	198	7.80	150	5.90	32.0	14.5
2 1/2"	195	7.67	233	9.17	182	7.16	53.0	24.0
3"	202	7.95	271	10.67	220	8.66	78.3	35.5
4"	260	10.23	306	12.05	252	9.92	124.0	56.25



STYLE - 40 SHORT SWEEP SWIVEL JOINT

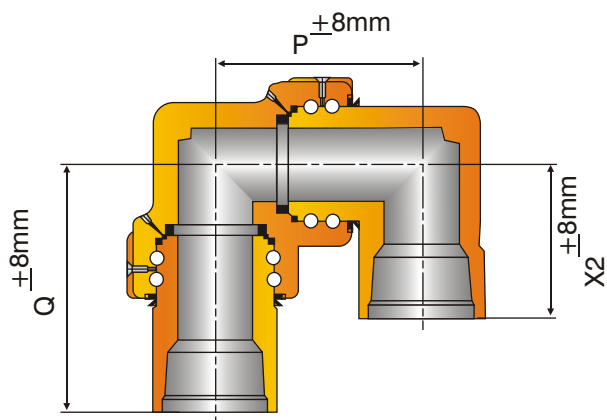
END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 40MF

SIZE	P	P	X1	X1	X2	X2	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	108	4.25	153	6.02	118	4.65	11.7	5.3
1 1/2"	110	4.33	165	6.50	121	4.75	17.2	7.8
2"	152	5.98	198	7.80	150	5.90	37.5	17.0
2 1/2"	195	7.67	233	9.17	182	7.16	54.2	24.6
3"	202	7.95	271	10.67	220	8.66	80.4	36.5
4"	260	10.23	306	12.05	252	9.92	128.7	58.4



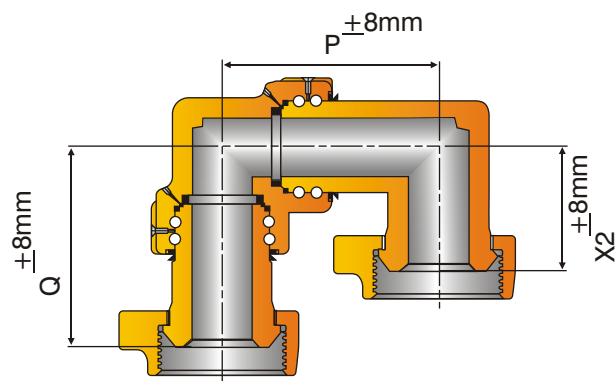
SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-50

**STYLE - 50 SHORT SWEEP SWIVEL JOINT**

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 50T

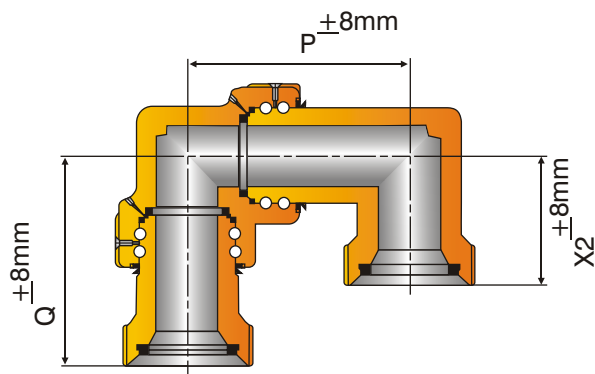
SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	70	2.75	8.60	3.9
1 1/2"	110	4.33	121	4.75	90	3.54	12.90	5.85
2"	152	5.98	150	5.90	110	4.33	29.10	13.2
2 1/2"	195	7.67	182	7.16	130	5.11	39.68	18.0
3"	202	7.95	220	8.66	110	4.33	66.60	30.2
4"	260	10.23	252	9.22	130	5.11	98.0	44.4

**STYLE - 50 SHORT SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 50MM

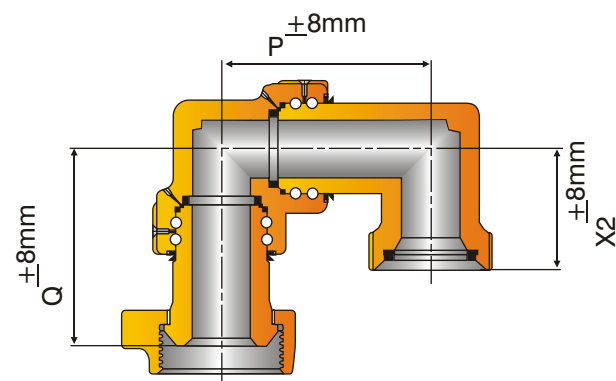
SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	153	6.02	118	4.65	13.80	6.26
1 1/2"	110	4.33	165	6.50	121	4.75	23.46	10.60
2"	152	5.98	198	7.80	150	5.90	51.72	23.46
2 1/2"	195	7.67	233	9.17	182	7.16	60.30	27.35
3"	202	7.95	271	10.67	220	8.66	96.00	43.55
4"	260	10.23	306	12.05	252	9.92	140.65	63.80

**STYLE - 50 SHORT SWEEP SWIVEL JOINT**

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 50FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	153	6.02	118	4.65	12.80	5.8
1 1/2"	110	4.33	165	6.50	121	4.75	18.0	8.15
2"	152	5.98	198	7.80	150	5.90	35.7	16.2
2 1/2"	195	7.67	233	9.17	182	7.16	51.2	23.25
3"	202	7.95	271	10.67	220	8.66	91.7	41.60
4"	260	10.23	306	12.05	252	9.92	128.70	58.38

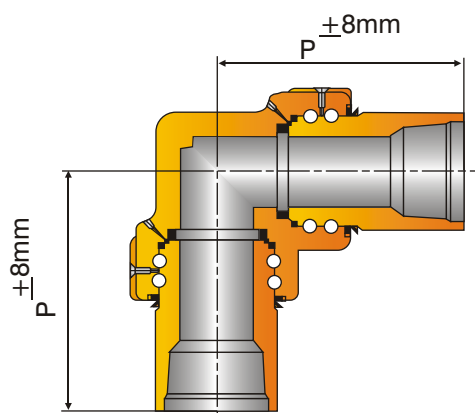
**STYLE - 50 SHORT SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 50MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	153	6.02	118	4.65	13.22	6.0
1 1/2"	110	4.33	165	6.50	121	4.75	22.40	10.0
2"	152	5.98	198	7.80	150	5.90	44.10	20.0
2 1/2"	195	7.67	233	9.17	182	7.16	56.43	25.6
3"	202	7.95	271	10.67	220	8.66	97.44	44.2
4"	260	10.23	306	12.05	252	9.92	138.11	62.65

SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-60

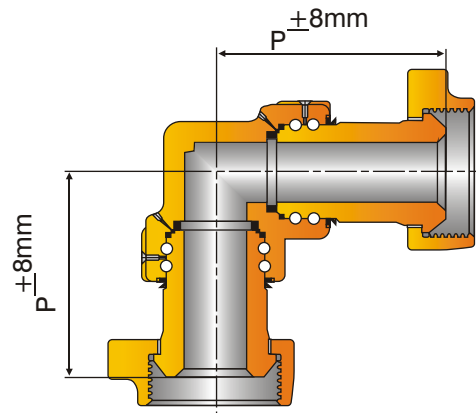


STYLE - 60 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 60T

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	118	4.65	7.45	3.38
1 1/2"	121	4.75	10.36	4.70
2	150	5.90	23.15	10.50
2 1/2"	182	7.16	30.86	14.0
3"	220	8.66	60.6	27.5
4"	252	9.92	80.0	36.3

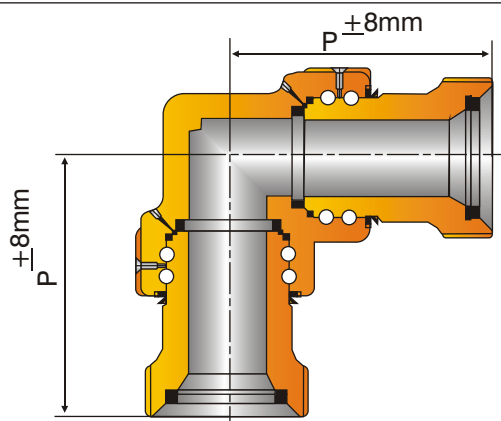


STYLE - 60 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 60MM

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	118	4.65	11.80	5.35
1 1/2"	121	4.75	21.60	9.80
2	150	5.90	42.00	19.0
2 1/2"	182	7.16	48.30	21.9
3"	220	8.66	82.45	37.4
4"	252	9.92	109.34	49.6

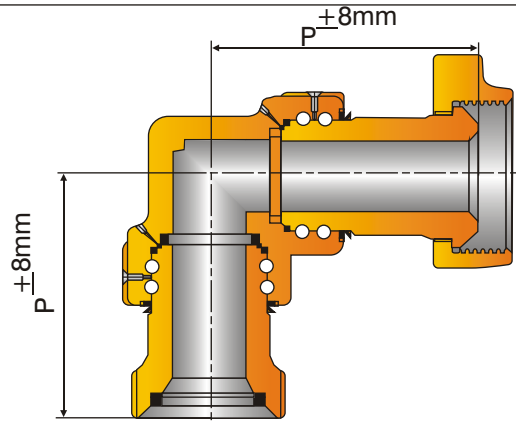


STYLE - 60 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 60FF

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	118	4.65	10.4	4.7
1 1/2"	121	4.75	13.2	6.0
2	150	5.90	25.3	11.5
2 1/2"	182	7.16	39.0	17.5
3"	220	8.66	70.5	32.0
4"	252	9.92	90.4	41.0



STYLE - 60 SHORT SWEEP SWIVEL JOINT

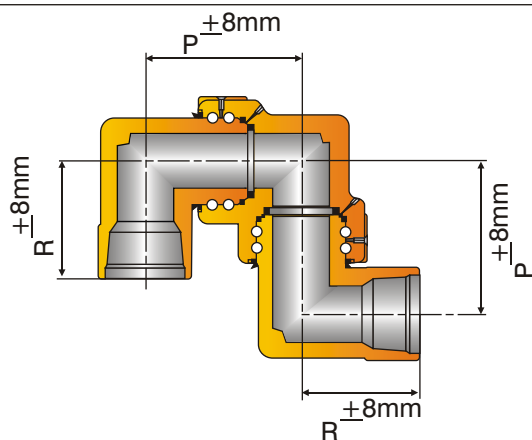
END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 60MF

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	118	4.65	11.0	5.0
1 1/2"	121	4.75	18.0	8.0
2	150	5.90	42.76	19.4
2 1/2"	182	7.16	43.00	19.7
3"	220	8.66	76.5	34.7
4"	252	9.92	100.0	45.3



SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-70

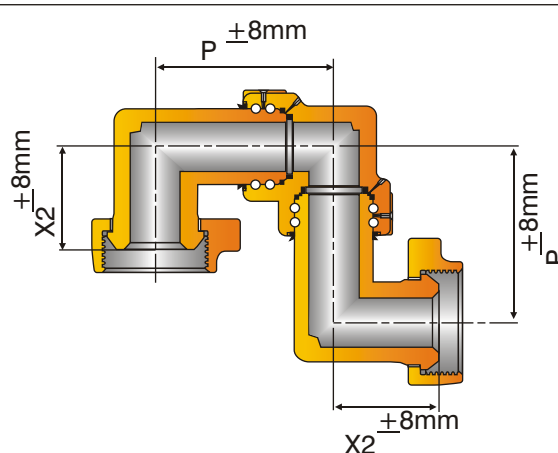


STYLE - 70 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 70T

SIZE	P (MM)	P (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	70	2.75	10.0	4.4
1 1/2"	110	4.33	90	3.54	15.4	7.0
2"	152	5.98	110	4.33	35.0	15.85
2 1/2"	195	7.67	130	5.11	48.5	22.0
3"	202	7.95	110	4.33	73.0	33.0
4"	260	10.23	130	5.11	116.0	52.5

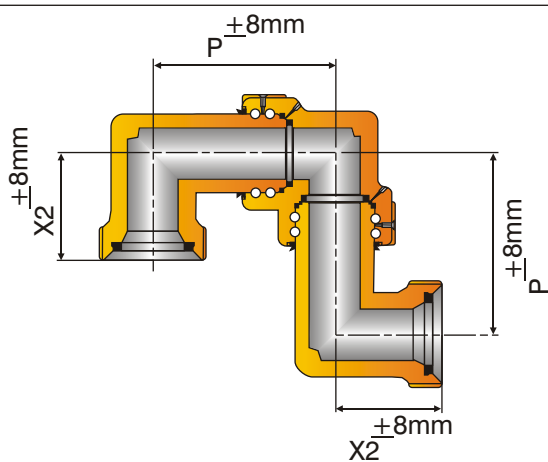


STYLE - 70 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 70MM

SIZE	P (MM)	P (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	14.0	6.3
1 1/2"	110	4.33	121	4.75	20.3	9.2
2"	152	5.98	150	5.90	43.0	19.5
2 1/2"	195	7.67	182	7.16	63.5	28.8
3"	202	7.95	220	8.66	106.0	48.0
4"	260	10.23	252	9.92	158.0	71.7

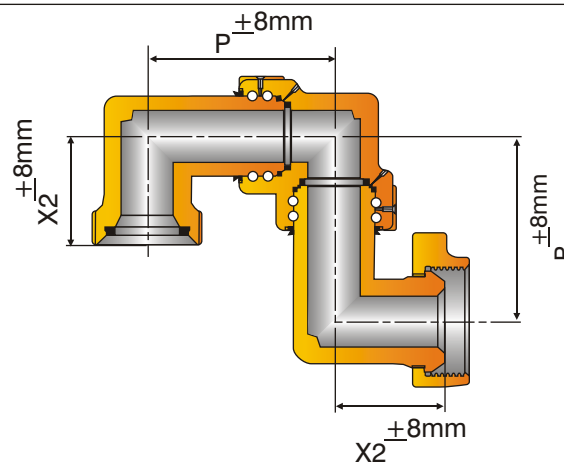


STYLE - 70 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 70FF

SIZE	P (MM)	P (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	6.94	3.15
1 1/2"	110	4.33	121	4.75	21.60	9.80
2"	152	5.98	150	5.90	50.26	22.8
2 1/2"	195	7.67	182	7.16	66.13	30.0
3"	202	7.95	220	8.66	104.7	47.5
4"	260	10.23	252	9.92	160.5	72.8



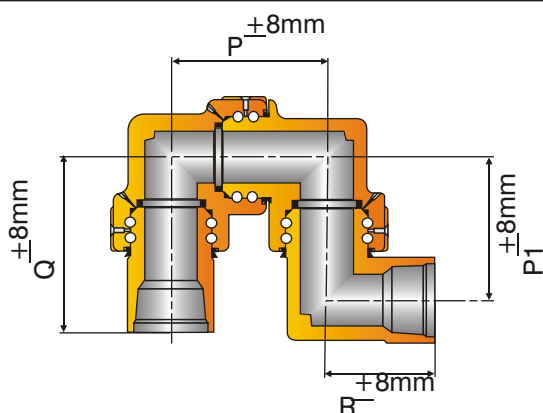
STYLE - 70 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 70MF

SIZE	P (MM)	P (INCH)	X2 (MM)	X2 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	15.0	6.8
1 1/2"	110	4.33	121	4.75	23.0	10.4
2"	152	5.98	150	5.90	58.0	26.2
2 1/2"	195	7.67	182	7.16	71.0	32.2
3"	202	7.95	220	8.66	103.0	46.7
4"	260	10.23	252	9.92	163.0	74.0

SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-80

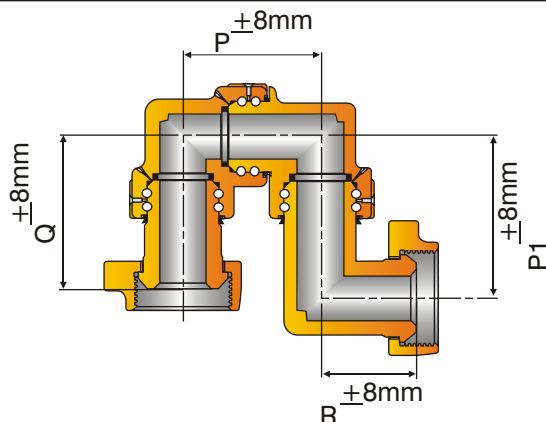


STYLE - 80 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 80T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	P1 (MM)	P1 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	70	2.75	108	4.25	9.0	4.0
1 1/2"	110	4.33	121	4.75	90	3.54	125	4.92	13.2	6.0
2"	152	5.98	150	5.90	110	4.33	167	6.57	29.0	13.0
2 1/2"	195	7.67	182	7.16	130	5.11	239	9.40	40.5	18.0
3"	202	7.95	220	8.66	110	4.33	221	8.70	66.0	30.0
4"	260	10.23	252	9.92	130	5.11	283	11.14	98.0	44.4

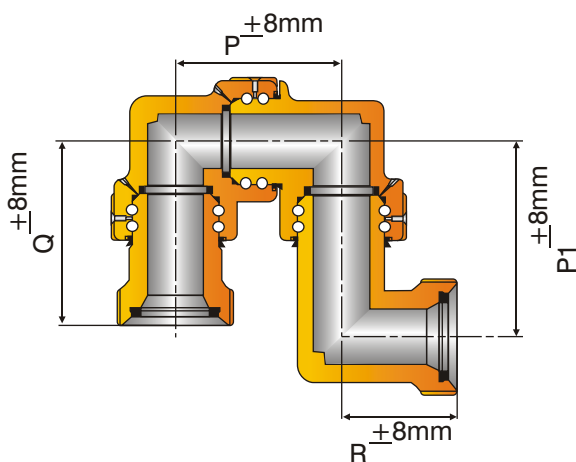


STYLE - 80 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 80MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	P1 (MM)	P1 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	118	4.65	108	4.25	18.0	8.0
1 1/2"	110	4.33	121	4.75	121	4.75	125	4.92	26.4	12.0
2"	152	5.98	150	5.90	150	5.90	167	6.57	60.6	27.5
2 1/2"	195	7.67	182	7.16	182	7.16	239	9.40	79.3	36.0
3"	202	7.95	220	8.66	220	8.66	221	8.70	130.0	59.0
4"	260	10.23	252	9.92	252	9.92	283	11.14	189.0	86.0

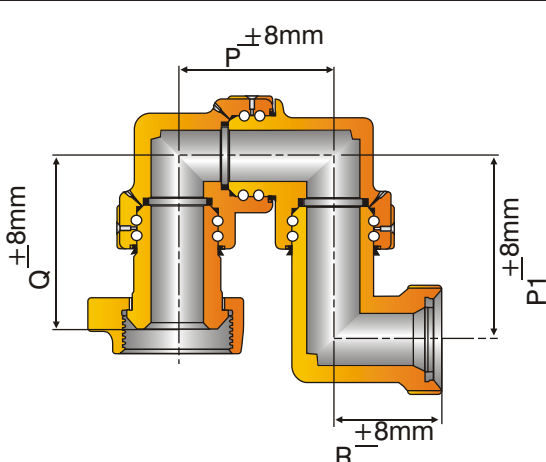


STYLE - 80 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 80FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	P1 (MM)	P1 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	118	4.65	108	4.25	16.3	7.4
1 1/2"	110	4.33	121	4.75	121	4.75	125	4.92	21.1	9.6
2"	152	5.98	150	5.90	150	5.90	167	6.57	45.2	20.5
2 1/2"	195	7.67	182	7.16	182	7.16	239	9.40	70.8	32.1
3"	202	7.95	220	8.66	220	8.66	221	8.70	114.6	52.0
4"	260	10.23	252	9.92	252	9.92	283	11.14	172.0	78.0



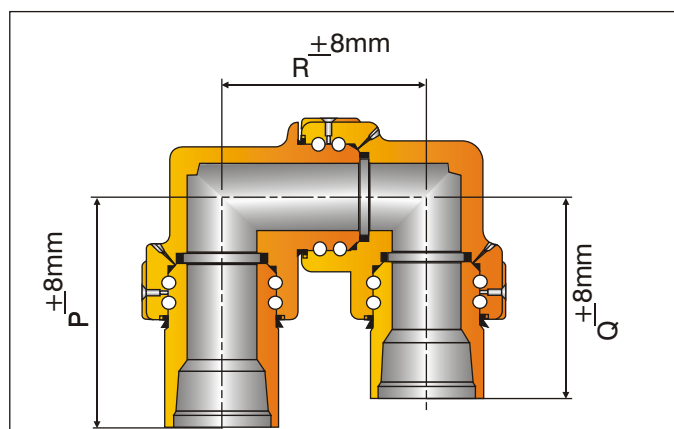
STYLE - 80 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 80MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	P1 (MM)	P1 (INCH)	WT. (LBSF)	WT. (KGF)
1"	108	4.25	118	4.65	118	4.65	108	4.25	17.2	7.8
1 1/2"	110	4.33	121	4.75	121	4.75	125	4.92	25.4	11.5
2"	152	5.98	150	5.90	150	5.90	167	6.57	53.1	24.1
2 1/2"	195	7.67	182	7.16	182	7.16	239	9.40	75.6	34.3
3"	202	7.95	220	8.66	220	8.66	221	8.70	121.2	55.0
4"	260	10.23	252	9.92	252	9.92	283	11.14	169.0	76.5

SHORT SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-10

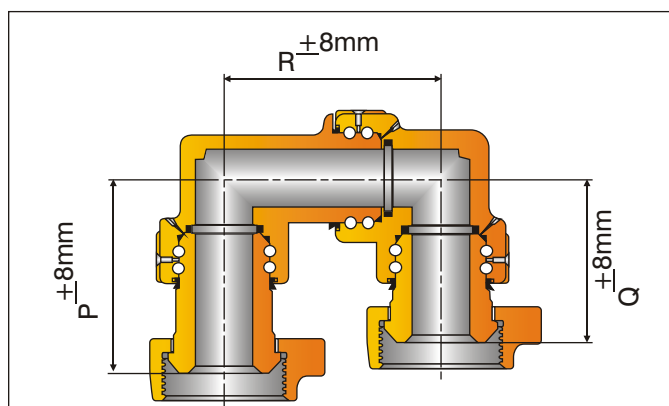


STYLE - 10 SHORT SWEEP SWIVEL JOINT

END CONNECTION = LP THREAD

MODEL:- PSSSJ - 10T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	118	4.65	118	4.65	108	4.25	11.6	5.25
1 1/2"	136	5.35	121	4.75	110	4.33	15.0	6.70
2"	165	6.49	150	5.90	152	5.98	43.0	19.5
2 1/2"	225	8.85	182	7.16	195	7.67	51.0	23.0
3"	240	9.44	220	8.66	202	7.95	86.0	39.0
4"	275	10.82	252	9.92	260	10.23	126.3	57.3

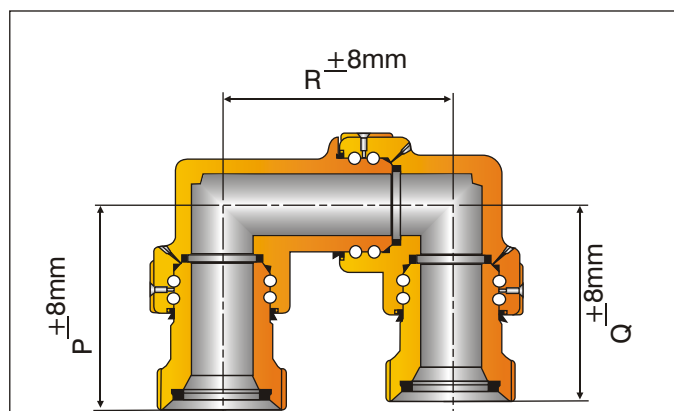


STYLE - 10 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502

MODEL:- PSSSJ - 10MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	153	6.02	118	4.65	108	4.25	16.3	7.4
1 1/2"	165	6.50	121	4.75	110	4.33	27.1	12.3
2"	198	7.80	150	5.90	152	5.98	54.0	24.5
2 1/2"	233	9.17	182	7.16	195	7.67	69.0	31.2
3"	271	10.67	220	8.66	202	7.95	112.0	50.65
4"	306	12.05	252	9.92	260	10.23	161.0	73.0

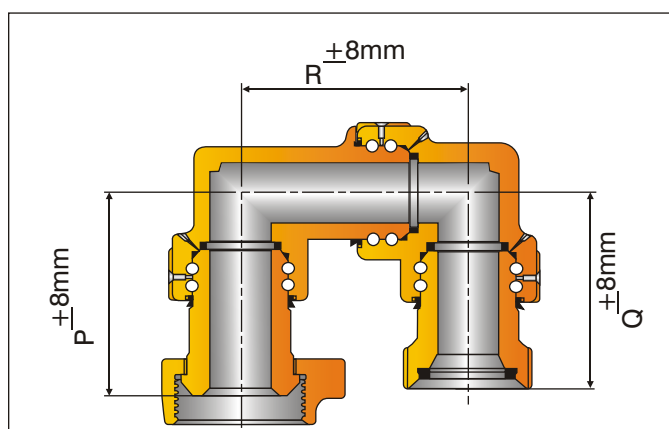


STYLE - 10 SHORT SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502

MODEL:- PSSSJ - 10FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	153	6.02	118	4.65	108	4.25	15.4	7.0
1 1/2"	165	6.50	121	4.75	110	4.33	19.0	8.55
2"	198	7.80	150	5.90	152	5.98	38.1	17.3
2 1/2"	233	9.17	182	7.16	195	7.67	59.0	26.6
3"	271	10.67	220	8.66	202	7.95	100.0	45.3
4"	306	12.05	252	9.92	260	10.23	142.2	64.5



STYLE - 10 SHORT SWEEP SWIVEL JOINT

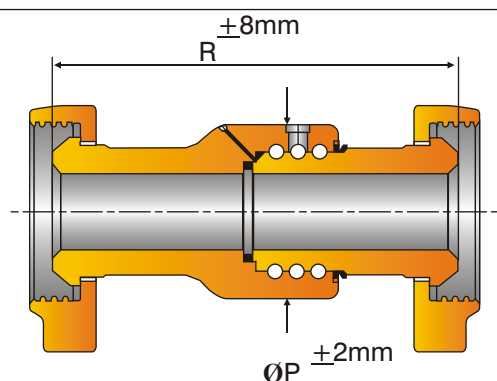
END CONNECTION = UNION (M X F) FIG.602/1002/1502

MODEL:- PSSSJ - 10MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	153	6.02	118	4.65	108	4.25	15.65	7.1
1 1/2"	165	6.50	121	4.75	110	4.33	23.0	10.4
2"	198	7.80	150	5.90	152	5.98	46.3	21.0
2 1/2"	233	9.17	182	7.16	195	7.67	64.0	29.0
3"	271	10.67	220	8.66	202	7.95	106.0	48.0
4"	306	12.05	252	9.92	260	10.23	152.2	69.0



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-20



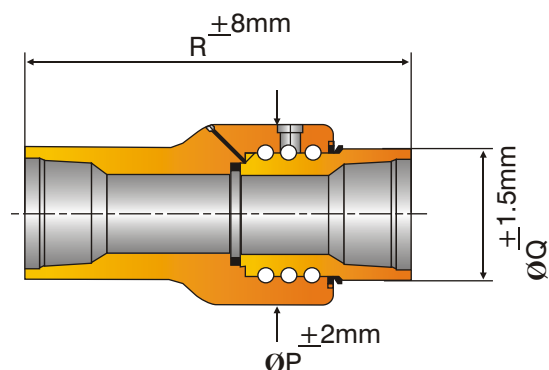
STYLE - 20 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 20MM

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	239	9.40	16.75	7.6
1 1/2"	108	4.25	287	11.30	42.5	19.3
2"	108	4.25	287	11.30	44.5	20.2
3"	148	5.82	320	12.60	77.1	35.0
4"	185	7.28	365	14.37	172.6	78.3

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

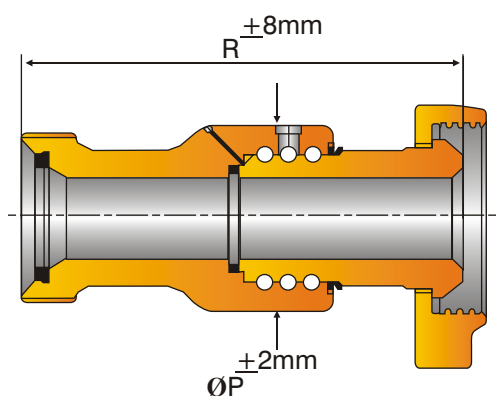


STYLE - 20 LONG SWEEP SWIVEL JOINT

END CONNECTION = THREADED

MODEL:- PLSSJ - 20T

SIZE	ØP (MM)	ØP (INCH)	ØQ (MM)	ØQ (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	48.5	1.91	207	8.15	6.5	2.95
1 1/2"	108	4.25	82.0	3.22	232	9.13	17.6	8.00
2"	108	4.25	82.0	3.22	240	9.45	17.9	8.12
3"	148	5.82	108.0	4.25	280	11.02	40.9	18.55
4"	185	7.28	127.0	5.00	315	12.40	69.0	31.33



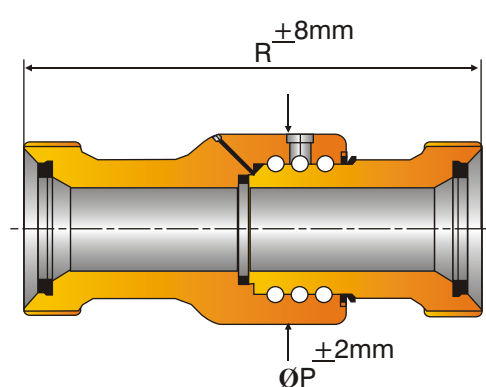
STYLE - 20 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 20MF

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	239	9.40	14.0	6.4
1 1/2"	108	4.25	287	11.30	35.0	16.0
2"	108	4.25	287	11.30	35.3	16.1
3"	148	5.82	320	12.60	66.1	30.0
4"	185	7.28	365	14.37	128.0	58.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



STYLE - 20 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

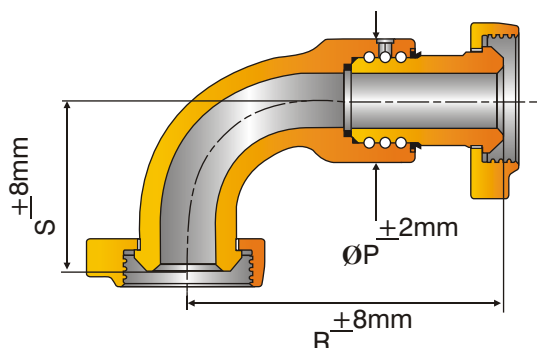
MODEL:- PLSSJ - 20FF

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	239	9.40	10.0	4.5
1 1/2"	108	4.25	287	11.30	23.8	10.8
2"	108	4.25	287	11.30	24.2	11.0
3"	148	5.82	320	12.60	53.0	24.0
4"	185	7.28	365	14.37	84.0	38.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-30



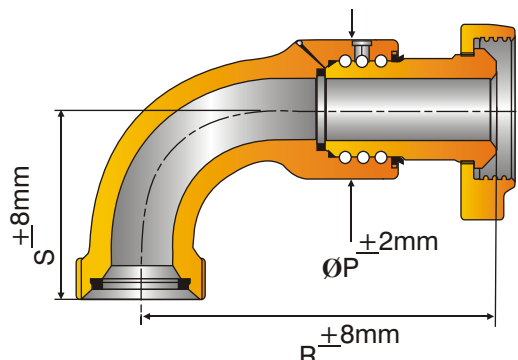
STYLE - 30 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 30MM

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	S (MM)	S (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	214	8.42	115	4.52	18.3	8.3
1 1/2"	108	4.25	259	10.20	151	5.94	51.0	23.0
2"	108	4.25	277	10.90	156	6.14	52.0	23.5
3"	148	5.82	369	14.52	230	9.05	101.4	46.0
4"	185	7.28	452	17.80	310	12.20	227.0	103.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



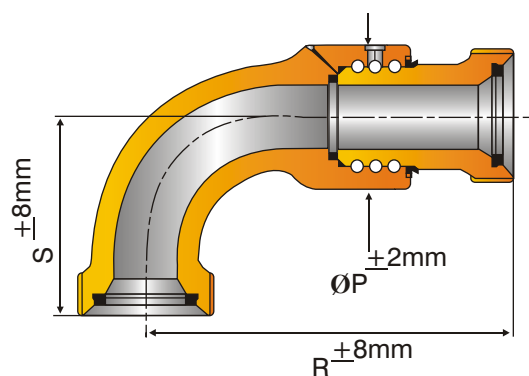
STYLE - 30 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 30MF

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	S (MM)	S (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	214	8.42	111	4.37	15.0	6.7
1 1/2"	108	4.25	259	10.20	128	5.04	41.4	18.8
2"	108	4.25	277	10.90	145	5.70	42.0	19.0
3"	148	5.82	369	14.52	203	8.00	86.0	39.0
4"	185	7.28	452	17.80	247	9.72	181.0	82.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



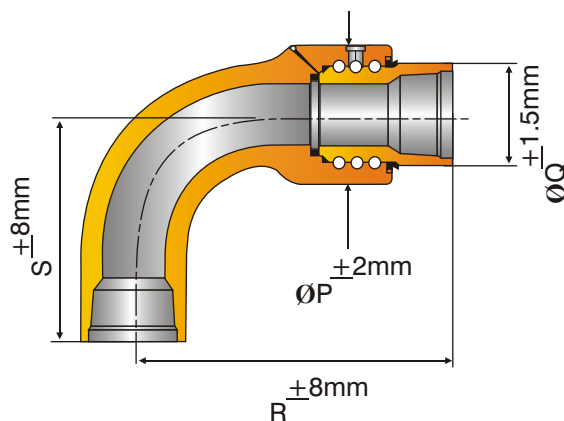
STYLE - 30 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 30FF

SIZE	ØP (MM)	ØP (INCH)	R (MM)	R (INCH)	S (MM)	S (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	214	8.42	111	4.37	10.5	4.75
1 1/2"	108	4.25	259	10.20	128	5.04	30.2	13.7
2"	108	4.25	277	10.90	145	5.70	31.0	14.0
3"	148	5.82	369	14.52	203	8.00	73.0	33.0
4"	185	7.28	452	17.80	247	9.72	137.5	62.4

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



STYLE - 30 LONG SWEEP SWIVEL JOINT

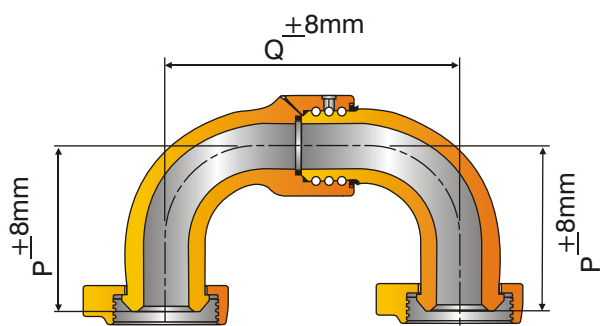
END CONNECTION = THREADED

MODEL:- PLSSJ - 30T

SIZE	ØP (MM)	ØP (INCH)	ØQ (MM)	ØQ (INCH)	R (MM)	R (INCH)	S (MM)	S (INCH)	WT. (LBSF)	WT. (KGF)
1"	65	2.41	48.5	1.91	182	7.16	112	4.41	7.7	3.5
1 1/2"	108	4.25	82.0	3.22	204	8.03	144	5.67	26.4	12.0
2"	108	4.25	82.0	3.22	230	9.05	163	6.42	27.5	12.5
3"	148	5.82	108.0	4.25	328	12.91	239	9.41	66.0	30.0
4"	185	7.28	127.0	5.00	403	15.86	285	11.22	132.2	60.0



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-40



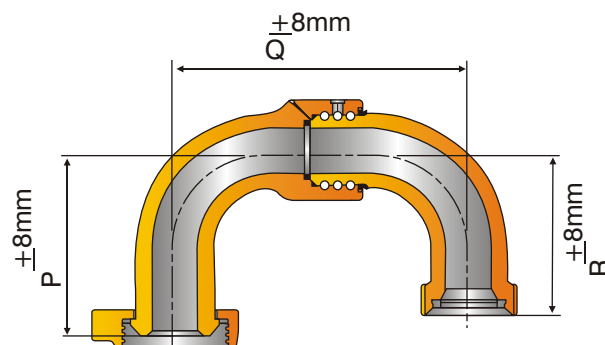
STYLE - 40 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 40MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	115	4.52	188	7.40	19.0	8.4
1 1/2"	151	5.94	239	9.41	57.0	26.0
2"	156	6.14	272	10.70	58.0	26.2
3"	230	9.05	417	16.42	123.0	56.0
4"	310	12.20	539	21.22	273.0	124.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



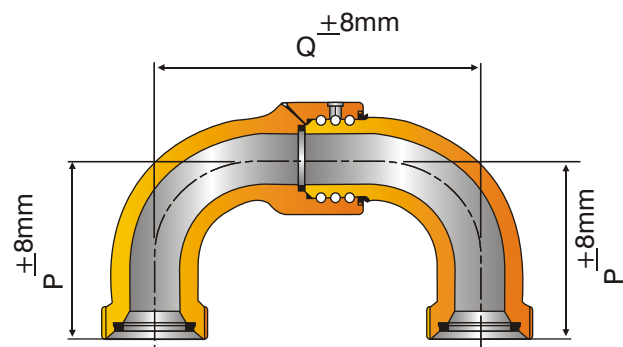
STYLE - 40 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 40MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	115	4.52	188	7.40	111	4.37	15.0	6.8
1 1/2"	151	5.94	239	9.41	128	5.04	46.3	21.0
2"	156	6.14	272	10.70	145	5.70	47.4	21.5
3"	230	9.05	417	16.42	203	8.00	108.0	49.0
4"	310	12.20	539	21.22	247	9.72	229.0	104.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



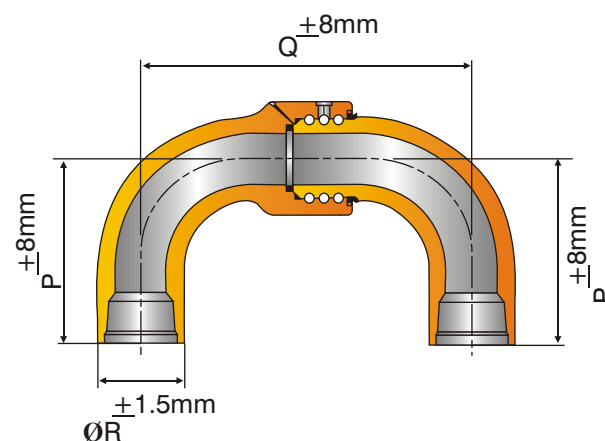
STYLE - 40 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 40FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	111	4.37	188	7.40	11.24	5.1
1 1/2"	128	5.04	239	9.41	37.0	16.7
2"	145	5.70	272	10.70	37.5	17.0
3"	203	8.00	417	16.42	92.5	42.0
4"	247	9.72	539	21.22	183.0	83.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



STYLE - 40 LONG SWEEP SWIVEL JOINT

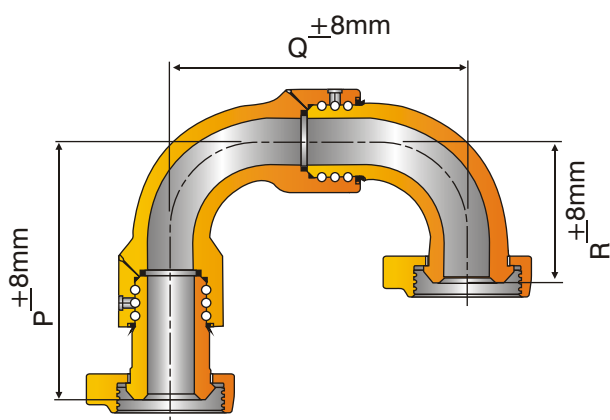
END CONNECTION = THREADED

MODEL:- PLSSJ - 40T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	112	4.41	188	7.40	48.5	1.91	10.0	4.4
1 1/2"	144	5.67	239	9.41	182.0	3.22	37.0	16.7
2"	163	6.42	272	10.70	82.0	3.22	37.5	17.0
3"	239	9.41	417	16.42	108.0	4.25	95.0	43.0
4"	285	11.22	539	21.22	127.0	5.00	196.0	89.0



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-50



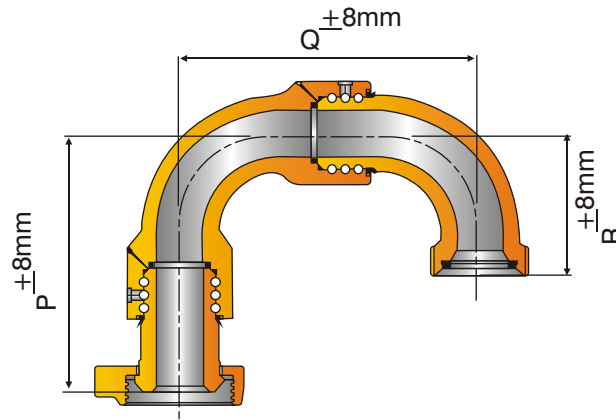
STYLE - 50 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 50MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	115	4.52	24.0	10.88
1 1/2"	259	10.20	239	9.40	151	5.94	70.5	32.0
2"	277	10.90	272	10.70	156	6.14	73.0	33.0
3"	369	14.52	417	16.42	230	9.05	155.4	70.5
4"	452	17.80	539	21.22	310	12.20	335.0	152.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



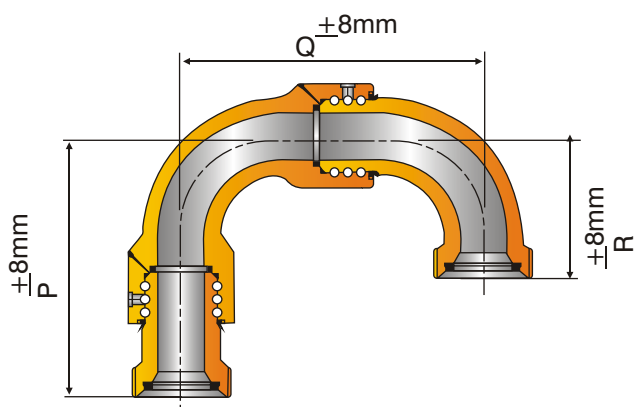
STYLE - 50 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 50MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	111	4.37	19.84	9.00
1 1/2"	259	10.20	239	9.40	128	5.04	59.5	27.0
2"	277	10.90	272	10.70	145	5.70	62.0	28.0
3"	369	14.52	417	16.42	203	8.00	141.0	64.00
4"	452	17.80	539	21.22	247	9.72	291.0	132.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



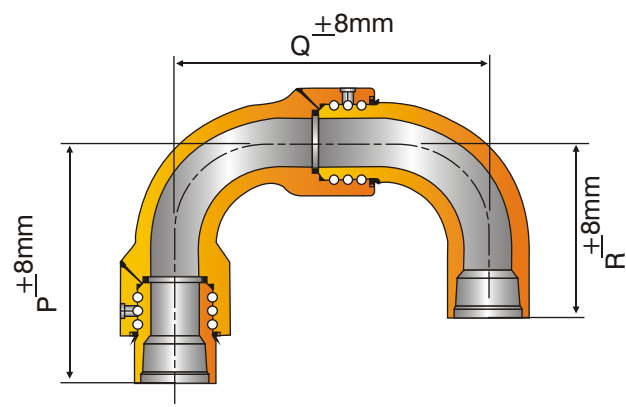
STYLE - 50 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 50FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	111	4.37	16.0	7.1
1 1/2"	259	10.20	239	9.40	128	5.04	48.5	22.0
2"	277	10.90	272	10.70	145	5.70	51.0	23.1
3"	369	14.52	417	16.42	203	8.00	128.0	58.00
4"	452	17.80	539	21.22	247	9.72	247.0	112.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



STYLE - 50 LONG SWEEP SWIVEL JOINT

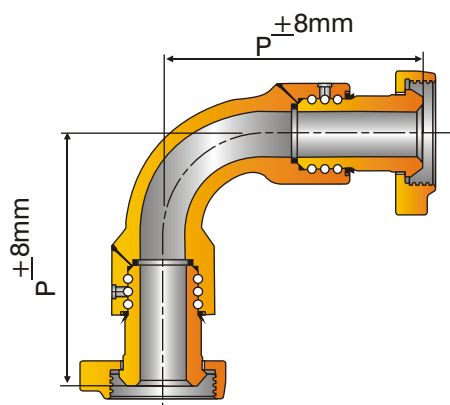
END CONNECTION = THREADED

MODEL:- PLSSJ - 50T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	182	7.16	188	7.40	112	4.41	13.2	6.0
1 1/2"	204	8.03	239	9.40	144	5.67	46.3	21.0
2"	230	9.06	272	10.70	163	6.42	48.5	22.0
3"	328	12.91	417	16.42	239	9.41	121.2	55.0
4"	403	15.86	539	21.22	285	11.22	240.3	109.0



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-60

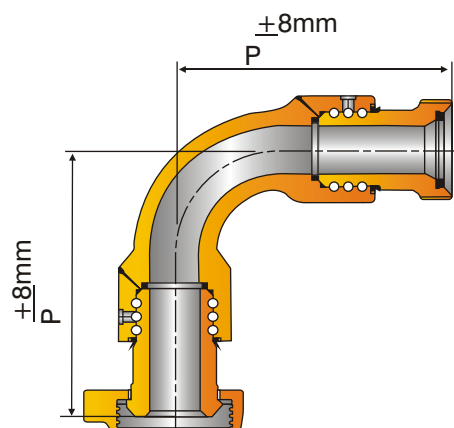
**STYLE - 60 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 60MM

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	23.4	10.6
1 1/2"	259	10.20	64.0	29.0
2"	277	10.90	67.0	30.4
3"	369	14.52	134.0	60.6
4"	452	17.80	288.0	130.6

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

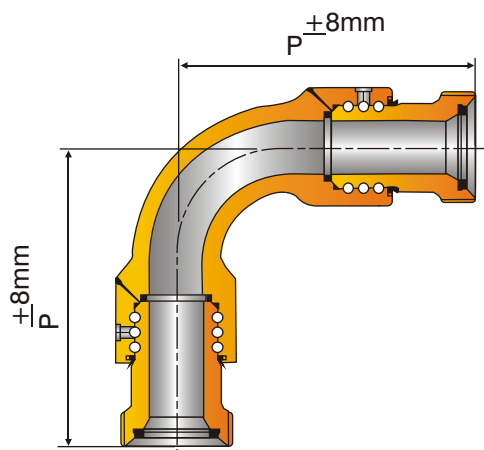
**STYLE - 60 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 60MF

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	20.0	9.0
1 1/2"	259	10.20	51.0	23.20
2"	277	10.90	55.0	25.0
3"	369	14.52	121.2	55.0
4"	452	17.80	245.0	111.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

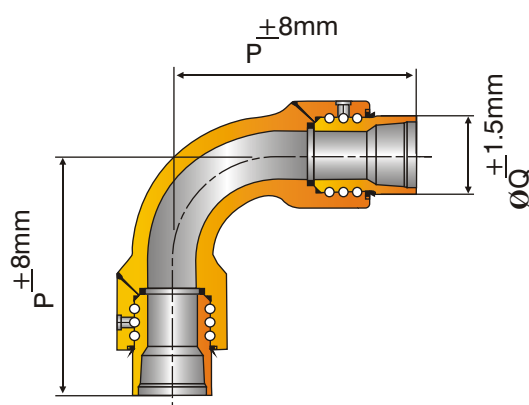
**STYLE - 60 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 60FF

SIZE	P (MM)	P (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	14.7	6.7
1 1/2"	259	10.20	42.0	19.0
2"	277	10.90	44.5	20.2
3"	369	14.52	108.0	49.0
4"	452	17.80	201.0	91.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

**STYLE - 60 LONG SWEEP SWIVEL JOINT**

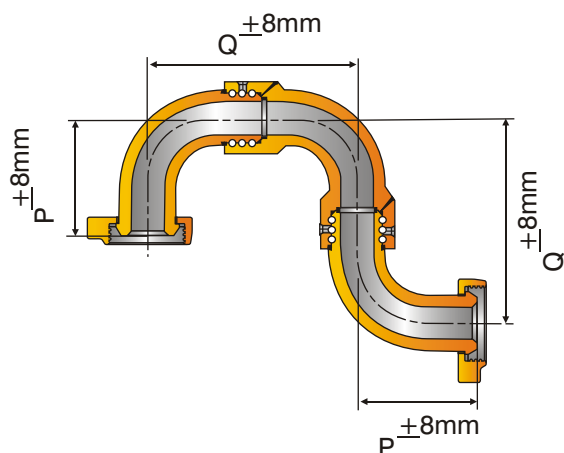
END CONNECTION = THREADED

MODEL:- PLSSJ - 60T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	182	7.16	48.5	1.91	11.0	5.0
1 1/2"	204	8.03	82.0	3.22	35.2	16.0
2"	230	9.05	82.0	3.22	38.00	17.2
3"	328	12.91	108.0	4.25	93.00	42.10
4"	403	15.86	127.0	15.00	178.0	81.0



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-70



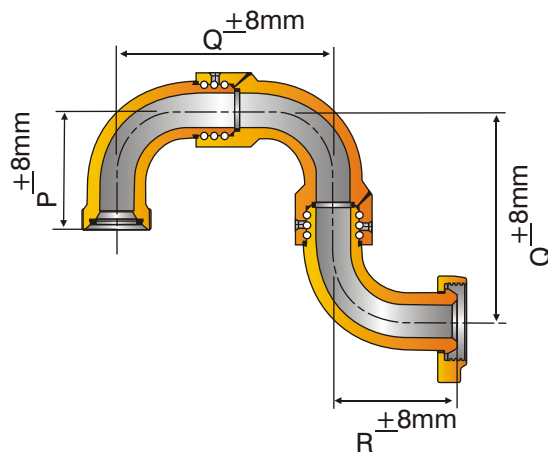
STYLE - 70 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 70MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	115	4.52	188	7.40	24.0	10.8
1 1/2"	151	5.94	239	9.40	75.0	34.0
2"	156	6.14	272	10.70	79.0	36.0
3"	230	9.05	417	16.42	176.0	80.0
4"	310	12.20	539	21.22	384.0	174.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



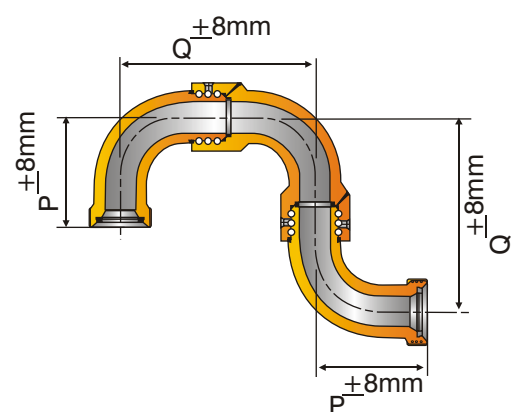
STYLE - 70 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 70MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	R (MM)	R (INCH)	WT. (LBSF)	WT. (KGF)
1"	111	4.37	188	7.40	115	4.52	20.0	9.1
1 1/2"	128	5.04	239	9.40	151	5.94	65.0	29.5
2"	145	5.47	272	10.70	156	6.14	68.0	31.0
3"	203	8.00	417	16.42	230	9.05	163.0	74.0
4"	247	9.72	539	21.22	310	12.20	337.0	153.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



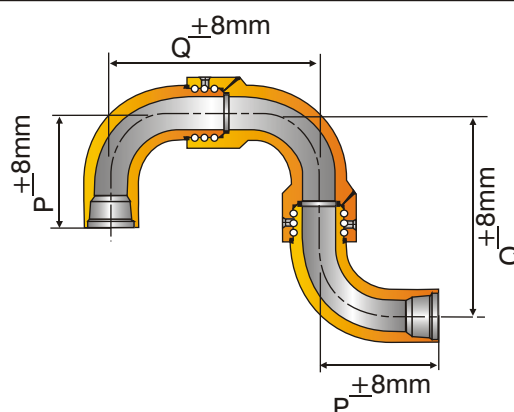
STYLE - 70 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 70FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	111	4.37	188	7.40	17.0	7.5
1 1/2"	128	5.04	239	9.40	55.0	25.0
2"	145	5.47	272	10.70	57.0	26.0
3"	203	8.00	417	16.42	148.0	67.0
4"	247	9.72	539	21.22	293.0	133.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

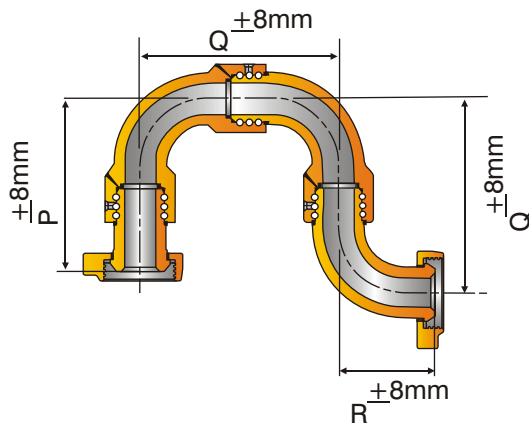


STYLE - 70 LONG SWEEP SWIVEL JOINT

END CONNECTION = THREADED

MODEL:- PLSSJ - 70T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	112	4.41	188	7.40	15.0	7.0
1 1/2"	144	5.67	239	9.40	55.0	25.0
2"	163	6.42	272	10.70	59.0	27.0
3"	239	9.41	417	16.42	150.0	68.0
4"	285	11.22	539	21.22	304.0	138.0

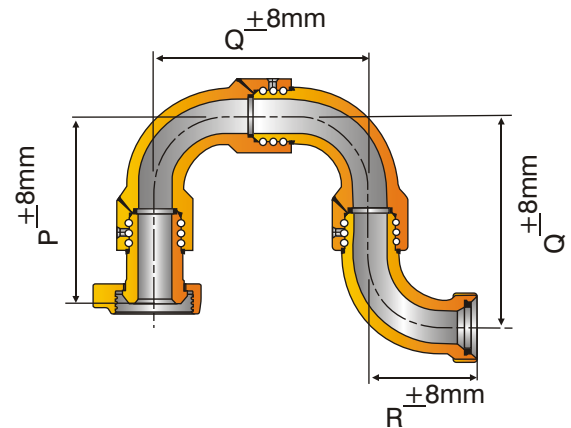
**LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-80****STYLE - 80 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 80MM

SIZE	P	P	Q	Q	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	214	8.42	188	7.40	115	4.52	29.0	13.0
1 1/2"	259	10.19	239	9.40	151	5.94	84.0	38.0
2"	277	10.90	272	10.70	156	6.14	88.0	40.0
3"	369	14.52	417	16.42	230	9.05	196.0	89.0
4"	452	17.80	539	21.22	310	12.20	406.0	184.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

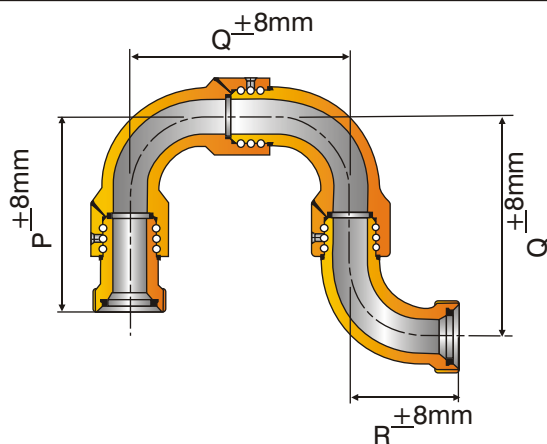
**STYLE - 80 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 80MF

SIZE	P	P	Q	Q	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	214	8.42	188	7.40	111	4.37	25.0	11.4
1 1/2"	259	10.19	239	9.40	128	5.04	79.0	36.0
2"	277	10.90	272	10.70	145	5.47	84.0	38.0
3"	369	14.52	417	16.42	203	8.00	194.0	88.0
4"	452	17.80	539	21.22	247	9.72	400.0	181.4

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

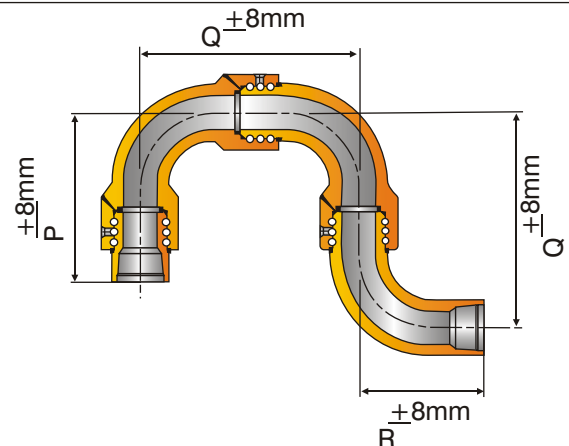
**STYLE - 80 LONG SWEEP SWIVEL JOINT**

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 80FF

SIZE	P	P	Q	Q	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	214	8.42	188	7.40	111	4.37	21.0	9.5
1 1/2"	259	10.19	239	9.40	128	5.04	68.0	31.0
2"	277	10.90	272	10.70	145	5.47	72.0	32.5
3"	369	14.52	417	16.42	203	8.0	181.0	82.0
4"	452	17.80	539	21.22	247	9.72	357.0	162.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY

**STYLE - 80 LONG SWEEP SWIVEL JOINT**

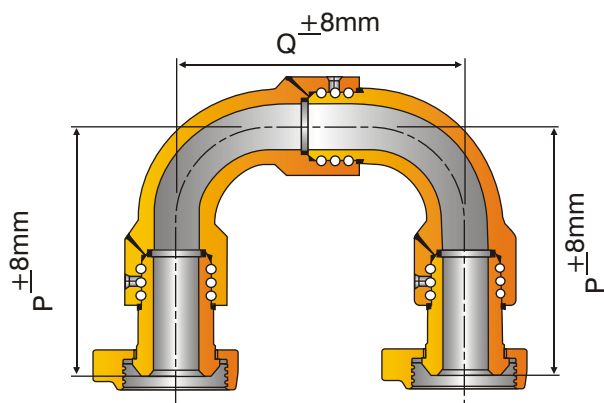
END CONNECTION = THREADED

MODEL:- PLSSJ - 80T

SIZE	P	P	Q	Q	R	R	WT.	WT.
	(MM)	(INCH)	(MM)	(INCH)	(MM)	(INCH)	(LBSF)	(KGF)
1"	182	7.16	188	7.40	112	4.41	18.3	8.3
1 1/2"	204	8.03	239	9.40	144	5.67	65.0	29.5
2"	230	9.06	272	10.70	163	6.42	68.3	31.0
3"	328	12.91	417	16.42	239	9.41	176.4	80.0
4"	403	15.86	539	21.22	285	11.22	351.0	159.1



LONG SWEEP SWIVEL JOINT (BASIC DIMENSIONS) STYLE-10



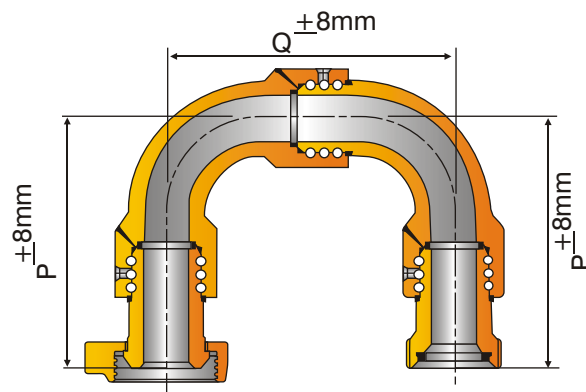
STYLE - 10 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X M) FIG.602/1002/1502*

MODEL:- PLSSJ - 10MM

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	29.0	13.0
1 1/2"	259	10.19	239	9.40	84.0	38.0
2"	277	10.90	272	10.70	88.0	40.0
3"	369	14.52	417	16.42	187.0	85.0
4"	452	17.80	539	21.22	397.0	180.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



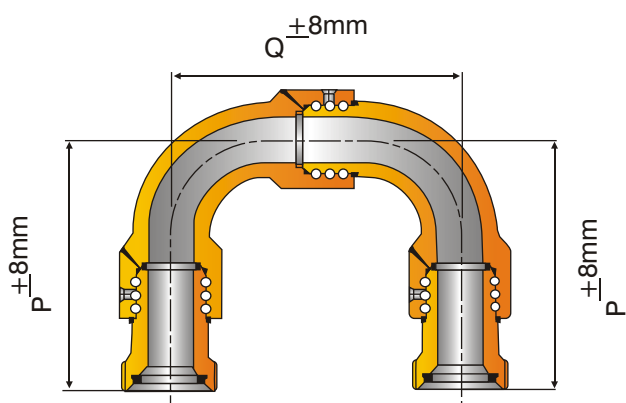
STYLE - 10 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (M X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 10MF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	24.2	11.0
1 1/2"	259	10.19	239	9.40	73.0	33.0
2"	277	10.90	272	10.70	77.0	35.0
3"	369	14.52	417	16.42	175.0	79.5
4"	452	17.80	539	21.22	354.0	160.5

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



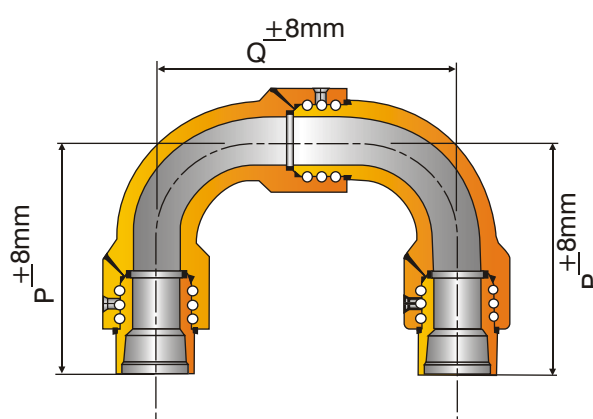
STYLE - 10 LONG SWEEP SWIVEL JOINT

END CONNECTION = UNION (F X F) FIG.602/1002/1502*

MODEL:- PLSSJ - 10FF

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	214	8.42	188	7.40	29.0	13.0
1 1/2"	259	10.19	239	9.40	84.0	38.0
2"	277	10.90	272	10.70	88.0	40.0
3"	369	14.52	417	16.42	189.0	86.0
4"	452	17.80	539	21.22	388.0	176.0

* FOR 2002 /2202 UNION ENDS CONSULT FACTORY



STYLE - 10 LONG SWEEP SWIVEL JOINT

END CONNECTION = THREADED

MODEL:- PLSSJ - 10T

SIZE	P (MM)	P (INCH)	Q (MM)	Q (INCH)	WT. (LBSF)	WT. (KGF)
1"	182	7.16	188	7.40	16.3	7.4
1 1/2"	204	8.03	239	9.40	55.1	25.0
2"	230	9.06	272	10.70	57.3	26.5
3"	328	12.91	417	16.42	148.0	67.0
4"	403	15.86	539	21.22	287.0	130.4



HAMMER UNIONS

General

PARVEEN manufactures Hammer Unions from raw materials in the form of forgings or castings in accordance with service requirements in sizes 1 to 12" with ratings up to 20,000 PSI cold working pressure. Unions for sour gas service are manufactured in accordance with NACE MR-01-75 & API RP-14E.

Interchangeability

PARVEEN'S Hammer Unions are interchangeable with WECO or other manufacturers adhering to the industry standards.

Thread Gauging

Acme thread and line pipe threads are gauged by standard plug & ring gauges.

Sealing Design

The conical and spherical surfaces of the female and male subs respectively form an effective metal-to-metal seal in case of low pressure services.

For medium pressure mostly an 'O' ring is provided in the male sub in addition to the metal to metal seal. For high pressure a lip type seal ring is provided for primary seal in the female sub. The seal protects the secondary metal to metal seal from corrosion and limits fluid flow turbulence. For sour service applications viton seals are provided.

Quality Control

PARVEEN unions are manufactured using modern manufacturing techniques to attain first class workmanship and dimensional control. Correctly chosen raw materials for a particular service together with correct heat-treatment process is used to ensure better service and longer life in extreme conditions.

Notes

1. Line pipe threads in Fig-1002, Fig 1502 for Pipe diameters above 4" are not recommended for sour service application.
2. For Fig-1003, 4" & 5" sizes are rated at 7,500 PSI cold working pressure and 12000 PSI test pressure.
3. Sour gas service unions are painted OLIVE GREEN and stamped "NACE".
4. For other types of threading like casing, tubing or NPS thread seal configuration, consult factory.

HAMMER UNIONS

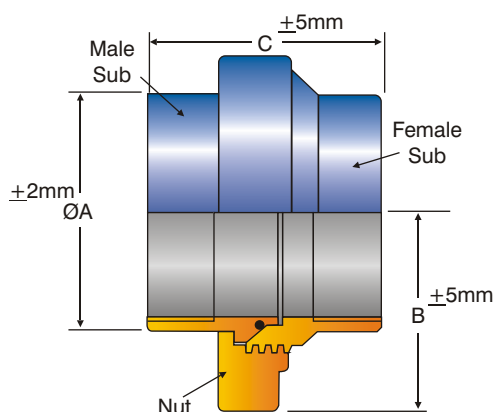
Quick Reference Table

The following table giving figures of unions, end connections and pressure rating is given for quick reference.

Union Fig.	End Connections	Pressure Rating (PSI)			
		Standard Service		Sour Service	
		C.W.P.	T.P.	C.W.P.	T.P.
50	LINE PIPE	500	750	-	-
100	LINE PIPE	1000	1500	-	-
200	LINE PIPE /BUTT WELD	2000	3000	-	-
206	LINE PIPE /BUTT WELD	2000	3000	-	-
207	LINE PIPE /BUTT WELD	2000	3000	-	-
211	LINE PIPE	2000	3000	-	-
400	LINE PIPE /BUTT WELD	2500	3750	2500	3750
400	LINE PIPE /BUTT WELD	4000	6000	4000	6000
600	LINE PIPE /BUTT WELD	6000	9000	-	-
602	LINE PIPE /BUTT WELD /NPTS	6000	9000	6000	9000
1002	LINE PIPE /BUTT WELD /NPTS	10000	15000	7500	12000
1003	LINE PIPE /BUTT WELD	10000	15000	7500	12000
1004	LINE PIPE /BUTT WELD	10000	15000	7500	12000
1502	LINE PIPE /BUTT WELD /NPTS	15000	22500	10000	15000
2002	BUTT WELD	20000	30000	-	-
2202	BUTT WELD	-	-	15000	22500

Fig 50. Orange Nut - Orange Subs

These low pressure and suction union of Fig-50 are made from carbon steel. The nut and O-ring are common in both sizes. Available in 4" or 5" sizes in threaded & socket welded connection. These unions are suitable for 500 PSI wp.



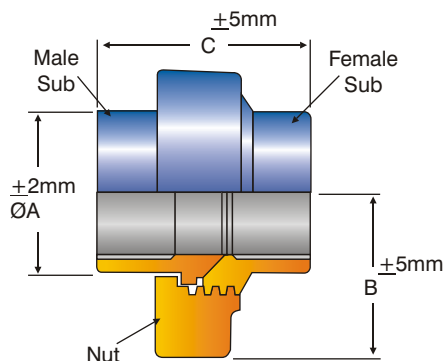
500 PSI CWP (Fig. - 50)

Size (Inch)	A		B		C				ACME (TPI)	Union		Weight	
					Threaded		Socket Welded End			Threaded		Socket Welded End	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm		lbsf	kgf	lbsf	kgf
4"	6.0	152.5	5.07	129.0	6.15	156.21	4.12	104.64	3MOD	28.0	12.7	27.0	12.24
5"	6.0	152.5	5.07	129.0	5.77	146.74	4.12	104.64	3MOD	23.0	10.43	21.5	9.75

HAMMER UNIONS

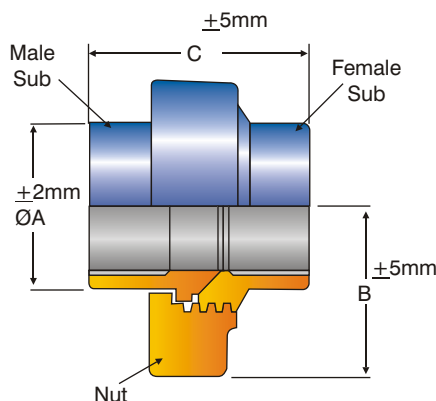
Fig 100. Black nut - Yellow subs

These low pressure unions are ideal for manifold and applications where CWP does not exceed 1000 PSI.



1,000 PSI CWP (Fig. - 100)

SIZE (INCH)	A		B		C		ACME (TPI)	UNION LBSF	WEIGHT KGF
	INCH	MM	INCH	MM	INCH	MM			
1	1.60	40.5	1.95	50	2.57	65	6STD	1.75	0.79
2	2.74	69.5	2.91	74	3.66	93	3MOD	5.73	2.60
2 1/2	3.30	84	3.81	97	4.29	109	3MOD	9.47	4.30
3	4.09	104	4.09	104	4.88	124	3MOD	1.33	6.05
4	5.19	132	5.00	127	5.78	147	3MOD	19.84	9.00
5	6.37	162	5.75	146	6.03	153	4STD	33.00	15.0
6	7.36	187	6.92	176	6.71	170.5	3STD	46.0	20.90
8	9.52	242	8.00	203	7.20	183	3STD	61.72	28.0



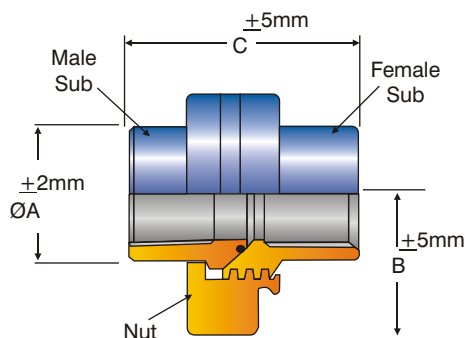
2,000 PSI CWP (Fig. - 200)

Fig 200. Blue Nut - Grey subs

These unions are best suited for medium pressure ranges involving air, water, oil & gas service for cold working pressure upto 2,000 PSI. (For dimensions see fig. 206). Upto 4" no O-ring is used on the male sub. Beyond 4" size, an O-Ring is used on the male sub for sealing.

Fig 206. Blue Nut - Grey subs

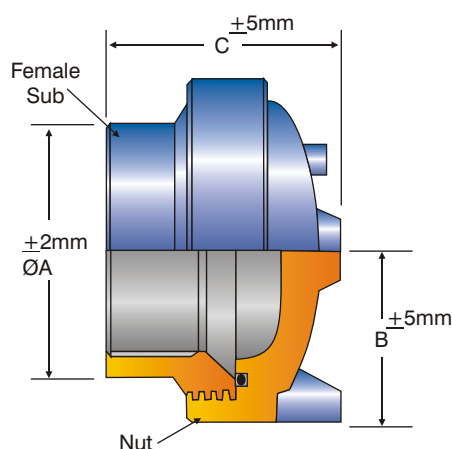
These unions have an additional 'O' ring on the spherical surface of the male sub providing a leak proof seal. All dimensions of fig:- 200 & Fig-206 are identical.



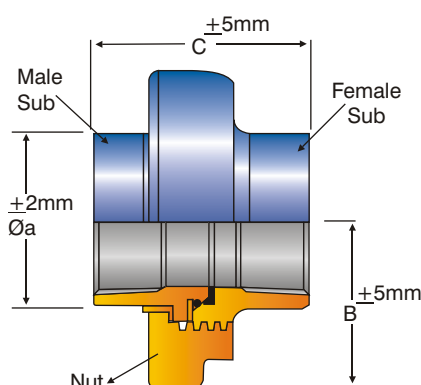
2,000 PSI CWP (Fig. - 206)

SIZE (INCH)	A		B		C		ACME (TPI)	UNION LBSF	WEIGHT KGF
	INCH	MM	INCH	MM	INCH	MM			
1	1.59	40.5	1.96	50	2.55	65	6STD	1.76	0.80
1 1/4"	2.00	51	2.11	53.6	2.79	71	6STD	2.20	1.00
1 1/2"	2.28	58	2.52	64	2.73	69.5	6STD	2.42	1.10
2	2.79	71	2.91	74	3.54	90	4STD	5.00	2.30
2 1/2	3.30	84	3.87	98.5	4.25	108	4STD	9.25	4.20
3	4.17	106	3.89	99	4.52	115	4STD	13.67	6.20
4	5.23	133	4.52	115	4.96	126	3MOD	18.52	8.40
5	6.32	162	5.75	146	6.03	153	4STD	33.0	15.0
6	7.50	190.5	6.06	154	6.65	169	3STD	42.50	19.30
8	9.56	243	7.18	182.5	7.15	181.5	3STD	61.70	28.0
10	11.49	292	9.01	220.7	9.09	231	3STD	90.39	41.00

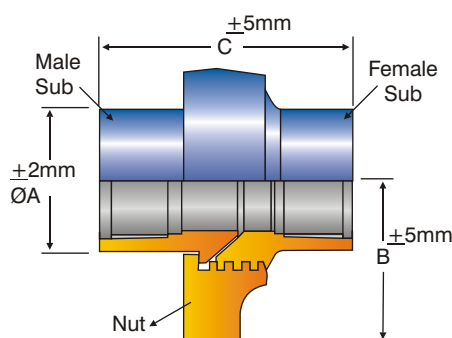
HAMMER UNIONS



2,000 PSI CWP (Fig. - 207)



2,000 PSI CWP (Fig. - 211)



4,000 PSI CWP (Fig. - 400)

Fig 207. Blue Cap - Grey Subs

These banking unions have a resilient 'O' ring in the blanking cap to provide an efficient and leak-proof seal suitable for 2000 PSI CWP.

Size (inch)	A		B		C		ACME (TPI)	Union	
	inch	mm	inch	mm	inch	mm		lbsf	kgf
3	4.09	104	2.91	74	3.74	95	4STD	10.36	4.70
4	5.15	131	3.58	91	4.33	110	3MOD	16.30	7.40
6	7.55	192	5.00	127	5.90	150	3STD	38.13	17.30
8	9.60	245	6.10	155	6.10	220	3STD	70.76	32.10
10	11.53	293	7.16	182	7.16	248	3STD	96.11	43.60

Fig.211. Blue Subs - Grey Nut

These unions protect against electrolytic action. There is no metal - to - metal contact between the subs. A resilient seal ring in the female sub provide additional sealing and protection from corrosion. Suitable for 2000 PSI CWP.

Size (inch)	A		B		C		ACME (TPI)	Union	
	inch	mm	inch	mm	inch	mm		lbsf	kgf
1	1.57	40	2.09	53	2.72	69	6STD	2.20	1.00
1 1/4"	2.20	56	2.43	62	3.00	76	6STD	3.70	1.68
1 1/2"	2.20	56	2.43	62	3.00	76	6STD	3.20	1.45
2	2.84	72.2	3.07	78	3.49	88.8	4STD	6.40	2.90
2 1/2	3.38	86	3.67	93	4.13	105	4STD	9.70	4.40
3	4.09	104	3.96	101	4.45	113	4STD	15.80	7.16
4	5.12	130	4.68	119	4.84	123	3MOD	18.40	8.34
6	7.56	192	7.25	184	7.21	183	3STD	43.50	19.60
8	9.62	244	8.75	222	9.12	232	3STD	65.50	29.50

Fig 400. Black Nut - Red Subs

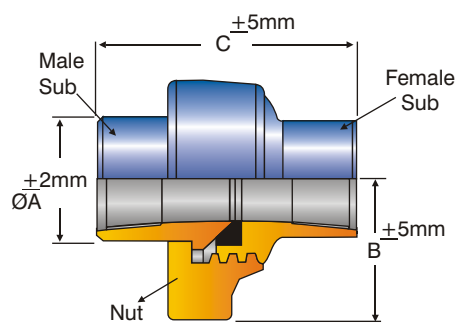
These unions are rigid in design and have all the three parts made of steel forgings. These unions are best suited for manifold and line connections. Unions from 3 inch through 8 inch sizes have O- rings for primary sealing. From 5" to 8" sizes C.W.P. is 2,500 PSI.

Size (inch)	A		B		C		ACME (TPI)	Union	
	inch	mm	inch	mm	inch	mm		lbsf	kgf
1	1.75	44.5	2.28	58.0	3.54	90.0	3STD	3.0	1.35
2	3.06	76.8	3.44	87.5	5.24	133	3STD	11.00	5.00
2 1/2	3.54	90	4.17	106	6.18	157	3STD	16.3	7.40
3	4.19	106.6	4.29	109	6.18	157	3STD	19.40	8.80
4	5.23	133	4.74	120.5	8.25	209.7	3STD	28	12.70
5	6.26	159	5.63	143	10.47	266	3STD	48.5	22.0
5 1/2	6.29	160	5.78	147	10.43	265	3STD	48.0	21.80
6	7.75	197	6.52	165.6	11.02	280	3STD	75.0	34.0
7	7.75	198	6.62	168	11.03	280	3STD	61	27.70
8	9.59	243.5	7.71	196	11.42	290	3STD	94.13	42.70
10	11.75	298.4	9.60	244	11.29	287	3STD	121.2	55.0
12	13.98	355	10.62	270	11.02	280	3STD	158.7	72.0

HAMMER UNIONS

Fig. 600. Silver Subs - Black Nut

These unions have wide range of applications including steam service and line connections. These unions are provided with a bronze seat in the female for the effective sealing and prevention of rust formation. Suitable for 6000 PSI CWP

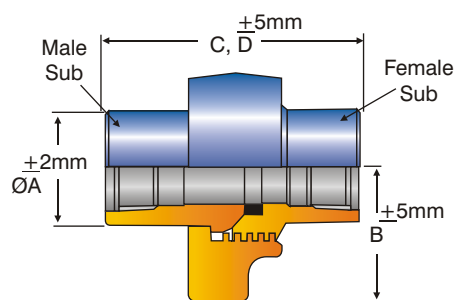


6,000 PSI CWP (FIG - 600)

SIZE (INCH)	A		B		C		ACME (TPI)	UNION WEIGHT	
	INCH	MM	INCH	MM	INCH	MM		LBSF	KGF
1	1.75	44.5	2.26	57.5	3.58	91	6STD	3.52	1.6
1 1/2	2.55	65	3.07	78	4.92	125	4STD	9.26	4.20
2	3.07	78	3.70	94	6.42	163	2STD	15.43	7.00
2 1/2	3.54	90	4.17	106	7.52	191	2STD	20.28	9.20
3	4.25	108	4.54	115.5	8.72	221.5	2STD	27.23	12.40
4	5.27	134	5.19	132	10.04	255	2STD	40.0	18.10

Fig 602. Orange Subs - Black Nut

These unions are recommended for manifold and line connections truck mounting and in mud services. This union has resilient lip-type seal for positive sealing and also protects secondary metal - to metal seal. Suitable for 6000

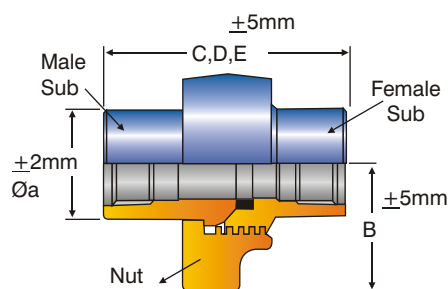


6,000 PSI CWP (FIG - 602)

SIZE	A		B		C		BUTT WELDED END D		ACME (TPI)	UNION WEIGHT	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM		LBSF	KGF
1	1.75	44.5	2.28	58	3.50	89	3.50	89	6STD	3.30	1.5
1 1/4	2.60	66	3.23	82	4.88	124	4.88	124	4STD	11.00	5.0
1 1/2	2.56	65	3.06	77.8	4.88	124	4.88	124	4STD	9.7	4.4
2	3.07	78	3.81	97	5.25	133.5	5.28	133.5	3MOD	12.12	5.5
2 1/2	3.51	89.1	3.75	95.5	6.24	158.5	5.59	142	3MOD	15.87	7.2
3	4.25	108	4.52	115	6.22	158	5.62	143	3MOD	20.94	9.5
4	5.27	134	5.04	128	8.23	209	5.67	144	3MOD	30.86	14.0

Fig 1002. Blue Subs - Red Nut

These unions are designed for high pressure systems like choke and kill lines, cementing , acidizing, testing and truck mounted system. This union has a lip-type seal made of nitrile rubber and subs made of alloy steel, suitable for 10,000 PSI.



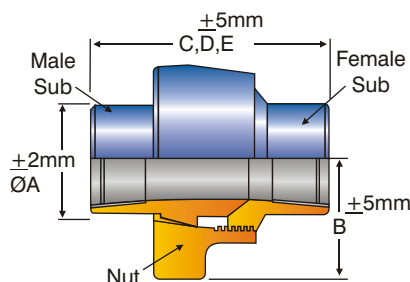
10,000 PSI CWP (FIG - 1002)

SIZE	A		B		C		BUTT WELDED END				ACME (TPI)	UNION WEIGHT	
							D		E				
	INCH	MM	INCH	MM	INCH	MM	SCH-160	INCH	MM	SCH-XXS		LBSF	KGF
1	1.75	44.5	2.28	58	3.50	89	3.50	89	3.50	89	6STD	3.5	1.6
1 1 / 4	2.60	66	2.95	75	4.88	124	4.88	124	4.88	124	4STD	9.7	4.4
1 1 / 2	2.55	65	3.18	81	4.88	124	4.88	124	4.88	124	4STD	9.25	4.2
2	3.07	78	3.81	97	5.25	133.5	5.28	133.5	5.28	133.5	3MOD	12.12	5.5
2 1 / 2	3.46	88	3.78	96	6.18	157	6.18	157	6.18	157	4STD	16.0	7.0
2 1 / 2(EUE)	3.81	97	4.00	100	5.51	140	-	-	-	-	4STD	17.8	8.1
3	4.25	108	4.52	115	6.22	158	5.51	140	5.51	140	4STD	22.26	10.1
4	5.27	134	5.04	128	8.23	209	5.67	144	5.67	144	4STD	33.0	15.0
5	5.55	141	6.10	155	6.22	158	6.22	158	6.22	158	3STD	56.0	25.4
6	6.62	168.3	6.81	173	6.57	167	6.57	167	6.57	167	3STD	79.8	36.2

HAMMER UNIONS

Fig 1003. Green Subs - Black Nut

These unions have a ball seat incorporating a primary 'O' ring seal with a metal secondary seal which assures perfect sealing in misalignment position. Degree of misalignment upto 2" size is 4° and beyond 2" size it is 7 1/2°. This union is ideally suited for use on high pressure lines. Available in 10000 PSI with end threaded or butt-welded for welding.

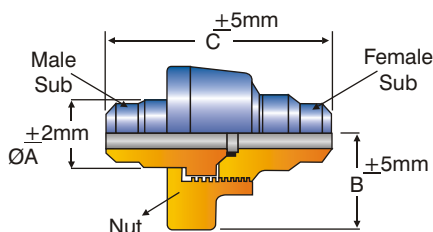


10,000 PSI CWP (FIG - 1003)

Size	A		B		C		Beveled Ends				ACME	Union Weight	
							D		E				
	(Inch)	Inch	mm	Inch	mm	Inch	mm	Sch-160	Inch	mm		Sch-xxs	(TPI)
1	1.77	45	2.36	60	5.0	127	5.0	127	5.0	127	4STD	5.0	2.3
2	3.00	76	3.86	98	4.80	122	4.80	122	4.80	122	4STD	12.6	5.7
3	4.29	109	4.96	126	9.17	233	8.82	224	9.17	233	4STD	44.5	20.0
4	5.43	138	5.74	146	10.94	278	10.78	274	10.98	279	4STD	73.0	32.8
5	5.62	143	6.74	146	-	-	10.78	274	10.98	279	6STD	73.0	32.8

Fig 1004. Red Nut - Grey Subs

These union use lip type seal ring end here faces of male and female sub are perfectly square. These are available in 5" & 6" butt weld sizes.



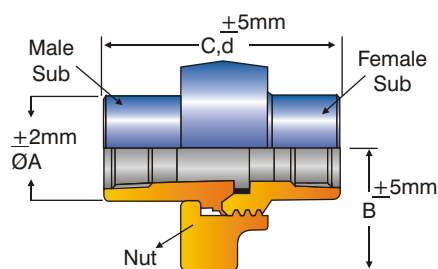
10,000 PSI CWP (FIG - 1004)

Size (Inch)	A		B		C		ACME (TPI)	Union	Weight
	Inch	mm	Inch	mm	BUTT WELDED ENDS			lbsf	kgf
					Inch	mm			
5	6.30	160.0	6.50	165.1	8.15	207.0	-	86	39
6	7.40	189.0	7.2	182.8	9.50	241.3	-	142	64

HAMMER UNIONS

Fig 1502. Blue Nut - Pink Subs

These unions are widely used in cementing, manifold and other services wherein extra high pressures of 15,000 PSI CWP are encountered. These unions are provided with replaceable seal ring.



15,000 PSI CWP (FIG - 1502)

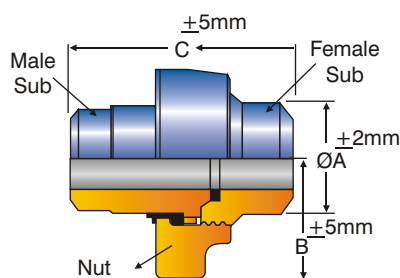
Size (Inch)	A		B		C		D		ACME (TPI)	Union	Weight
	Inch	mm	Inch	mm	Inch	mm	BEVELED ENDS				
							Inch	mm		lbsf	kgf
1	2.18	55.5	2.75	70	4.33	110	4.33	110	3.5STD	8.5	3.8
1.1 / 2	2.96	75.2	3.48	88.5	5.39	137	5.39	137	3.5STD	12.8	5.7
2	3.22	82	3.86	98	7.03	178.5	6.30	160	3STD	20.3	9.2
2.1 / 2	3.74	95.2	3.96	100.6	7.28	185	7.08	180	3STD	23.0	10.3
3	4.45	113	4.53	115	7.67	195	5.28	134	3.5STD	29.5	13.3
4	5.75	146.1	6.00	152.2	8.54	217	10.55	268	3MOD	76.5	34.4
5	6.45	164	6.53	166	-	-	9.0	230	-	96	43
6	7.48	190	7.2	183	-	-	9.8	249	-	148	67

Fig 2002. Green Nut - Grey Subs

These unions are provided with replacement lip-type seal and are recommended for choke and kill lines, cementing, acidizing and testing services for pressure up to 20,000 PSI CWP

Fig 2202. (H2S) - Olive Green

These unions are specially designed for sour gas service in accordance with NACE Std. MR-01-75 and API Std. RP-14E for pressure up to 15000 PSI CWP. Dimensions identical with Fig-2002 above.



20,000 PSI CWP (Fig. - 2002)

15,000 PSI CWP (Fig. - 2202)

Size (Inch)	A		B		C		ACME (TPI)		Union Weight	
	Inch	mm	Inch	mm	Inch	mm	Fig. 2002	Fig. 2202	lbsf	kgf
2	2.5	63.5	3.75	95.2	7.44	189	4	5	22.6	10.1
3	5.38	136.7	6.00	152	10.51	267	4	5	49.0	22.2
4	5.5	139.7	6.00	152	8.65	220	-	-	77.5	35.1
5	6.12	155.4	6.55	166	10.9	277	-	-	112.0	50.8
6	7.75	197.0	7.30	185	13.20	335	-	-	169.0	76.7

NOTE:

1. PARVEEN 2" Fig 2202 is interchangeable with Fig 2" 2052/2252 & 2 1/2" 2052/2252 of other reputed makes.
2. Dimension 'A' will vary depending upon size of weld preparation.

AIR - UNIONS

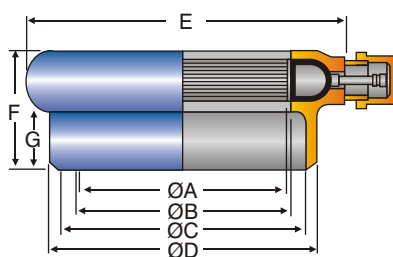
PARVEEN'S AIR-UNIONS are designed for 150 PSI maximum line pressure.

Features

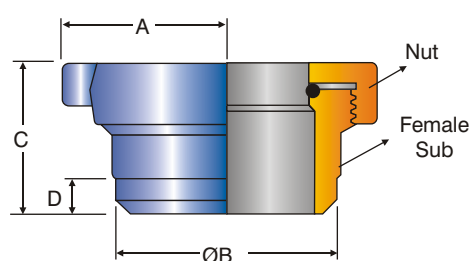
- Air inflates tube to seal around pipe.
- Fast and easy make up without close alignment.
- Allows Pipe expansion or misalignment (12°-15°) without breaking the seal.
- No wrenches, bolts & nuts required.
- Available in 4", 6", 8", 10", 12" 13", 16" sizes.

NOTE: Line pressure = 150 PSI max. Tube pressure = Line pressure + 50 PSI = 150+50=200 PSI (max.)

SIZE(IN)	4"		6"		8"		10"		12"		13"		16"	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
A	4.60	117	6.75	172	8.75	222	10.95	277.5	12.95	329	13.66	347	16.30	414
B	4.60	117	6.93	177	8.93	228	11.14	283	13.12	333	13.78	350	16.41	417
C	5.08	129	8.00	203	10.12	258	12.12	307	13.38	337	15.43	392	17.40	442
D	5.56	141	8.62	223	10.75	279	12.75	324	14.02	358	16.02	407	18.03	458
E	6.62	168	10.5	263	12.25	313	14.50	370	16.50	419	17.24	438	19.84	504
F	3.12	79	4.00	102	4.00	102	4.25	108	4.25	107	4.40	112	4.29	109
G	1.50	38	2.00	51	2.00	51	2.00	51	2.00	51	2.04	52	2.04	52
TOTAL MISALIGNMENT DEGREE	6		14		14		14		14		14		14	
WEIGHT (LBSF)	7.25		17.5		21.75		26.00		30.00		34.5		38.8	
WEIGHT (KGF)	3.3		8.0		10.0		11.8		13.6		15.6		17.6	



Air - Union



Mud Tank Union

PARVEEN Mud Tank Unions

PARVEEN manufactures and supplies unions for mud tanks, mud tank connecting lines and pump suction flanges. These are manufactured for a maximum line pressure of 150 PSI. The nitrile seal provides compressive seal, the cross-section of the seal designed to provide greater sealing surface. The union is designed to take a maximum of 7° misalignment on the pipe. Sizes which are catered for are 6", 8", 10" and 12", 6", 8" and 10" sizes can be socket welded to pipe or butt welded to tubing. 12" size requires butt weld.

	6"		8"		10"		12"	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM
A (CLEARANCE RADIUS)	6.25	159	7.50	191	8.50	216	9.75	248
B (OUTSIDE DIAMETER)	7.88	200	9.88	251	11.88	302	14.00	356
C (END TO FACE)	4.38	111	4.38	111	4.52	115	4.52	115
D (SOCKET WELD DEPTH)	0.38	9.5	0.38	9.5	0.38	9.5	0.38	9.5
WEIGHT (LBSF)	22		31		37		50	
WEIGHT (KGF)	10		14		16.8		22.7	

NOTE:
Material is steel casting.



TREATING IRONS, UNION CONNECTIONS, BULL PLUGS, CROSS OVER ADAPTORS & SWAGES

Treating Irons

PARVEEN'S one piece Treating Iron comprises an integral PARVEEN'S wing union end connection which eliminates welds and threads. Available in length up to 12 feet. Material is of carbon steel and alloy steel and is light weight. This integral treating iron is capable of handling a variety of fluids at cold working pressure of 15000 psi. PARVEEN'S treating irons are also available for sour service upto a CWP of 10,000 psi & in other lengths if required.

Recommended. service

These are suitable for High Pressure Discharge Lines, Temporary Flow Lines, Auxiliary Flow Lines, Well Testing Lines, Water Lines, Choke and Kill Lines and Abrasive Applications.

Salient Benefits

Since there are no welds and threads, PARVEEN'S treating irons provide an uniform bore of greater flow capacity and improved flow characteristics. PARVEEN'S design allows for uniform heat treating of the entire joint for better structural qualities. Nut can be detached for easy disassembly if replacement becomes necessary. For this only a circlip has to be removed.

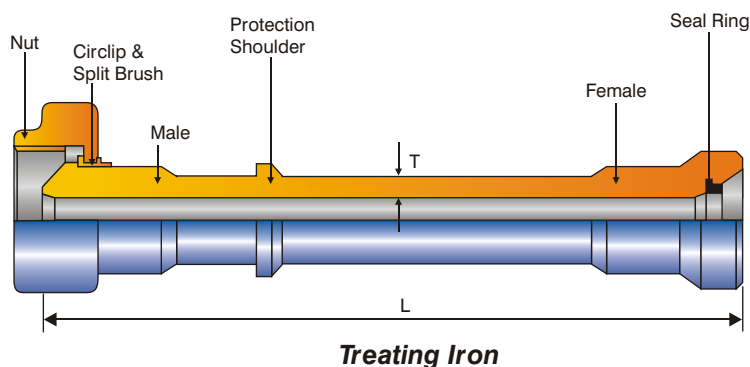
End Connections

End connections can be provided for fig 602, fig 1002 and fig 1502 or any other fig required by the customer.

NOTE: PARVEEN can also provide welded & threaded type treating iron if required by the customer.

DIMENSIONAL REFERENCE CHART												
SIZE (IN)	1"		1- 1/2"		2"		2- 1/2"		3"		4"	
FIGURE	602	1502	602	1502	602	1502	602	1502	602	1502	602	1502
WORKING PRESSURE (PSI)	6000	15000	6000	15000	6000	15000	6000	15000	6000	15000	6000	15000
TEST PRESSURE (PSI)	9000	22500	9000	22500	9000	22500	9000	22500	9000	22500	9000	22500
WALL (T)	MM	6.35	9.09	7.14	10.16	7.14	11.1	7.14	14.02	7.62	15.24	13.49
	INCH	0.250	0.358	0.281	0.400	0.281	0.4360	0.281	0.552	0.300	0.600	0.531
APPROX WT. PIPE:												
LBSF /FT	2.84	3.66	4.86	6.41	6.28	9.03	8.0	11.81	10.25	18.58	22.51	28.65
KGF /M	4.24	5.45	7.25	9.56	9.36	13.44	14.92	20.39	15.27	27.68	33.54	42.65
H UNION:												
LBSF	3.30	8.5	9.70	12.80	12.12	20.30	15.87	23.00	20.94	29.50	30.66	76.50
KGF	1.50	3.80	4.40	5.70	5.50	9.20	7.20	10.30	9.50	13.30	14.00	34.40
LENGTH L (FEET)	2', 3', 4', 5', 6', 7', 8', 9', 10', 12'											

NOTE: Other lengths, Figures , Pressure Rating, Buttweld and integral Connections are also available on customer's request.





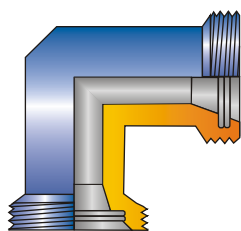
INTEGRAL / FABRICATED UNION CONNECTIONS

PARVEEN manufactures a quality line of high pressure integral/fabricated union connections with unions in various configurations and sizes from 1" to 4" and in pressure ratings up to 20,000 PSI CWP. These items are manufactured from high strength alloy steel forgings and fully heat treated under controlled conditions to assure uniform quality throughout. Available in combinations male by male, male by female to suit virtually any installation. The type of connections that PARVEEN manufactures are:

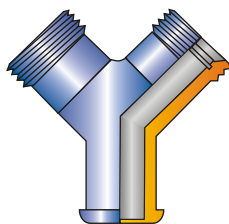
- a. Cross, Elbows, Tees and Wyes.
- b. 45° and 60° Laterals
- c. Crows foot
- d. Goat Head.

Recommended Service.

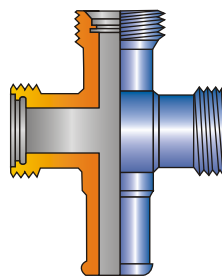
High Pressure Discharge Lines, Auxiliary Flow Lines, Temporary Flow Lines, Cementing and Circulating Lines, Well Testing Lines and other High Pressure applications.



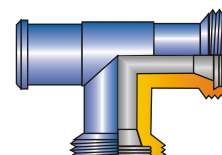
90° Elbow



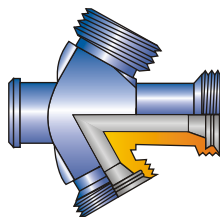
90° Y-Male



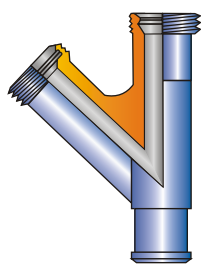
Cross



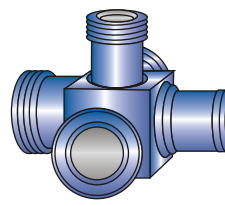
T - Conn



Crowsfoot



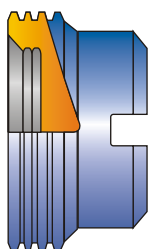
Lateral 45° & 60°



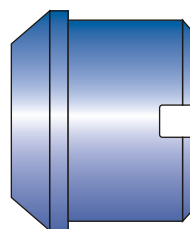
Goat Head

Bull Plugs, Gauge Bull Plugs and Lifting Bull Plugs

PARVEEN's bull plugs are available in sizes 1" to 4" male and female models and with pressure ratings up to 15000 PSI CWP.



Female Plug



Male Plug



CHANGEOVER / CROSSOVER ADAPTORS

PARVEEN's changeover/crossover adaptors are manufactured in different sizes and threads, types Male to Male, Female to Female, Female to Male configurations with sizes varying from 1" to 4" and in pressure ratings from 1 000 PSI to 20000 PSI CWP.

Swages

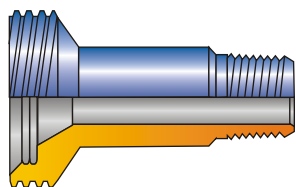
PARVEEN manufactures integral swages with unions male and female to pipe and tubing threads, in different sizes 1" to 4" and thread configurations, in pressure ratings from 6000 PSI to 15000 PSI CWP. These are made to highest quality standards to provide trouble free service to users.

Precautions

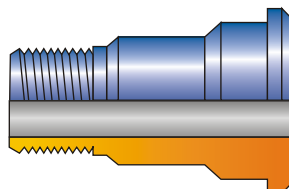
1. Do not expose standard service products to sour gas fluid.
2. Pressure ratings given are for temperatures,; between -20°F to 100°F For services above 100°F consult factory.
3. Excessive hammering force should not be used for tightening hammer unions.
4. For using hammer unions below freezing temperatures, correct safety precautions should be taken.
5. Hammer unions under pressure should not be struck otherwise failure may occur causing personnel injury or death.

Integral Female Adaptor Flanges

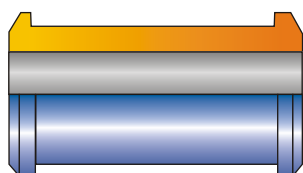
We manufacture these adaptor flanges of various sizes commencing from 1 13/16" onwards and various flanges pressure ratings with integral hammer union ends.



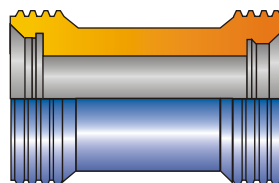
Female To Tubing Thread



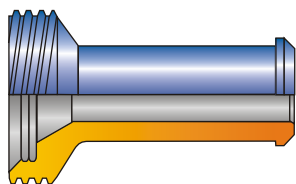
Male To Tubing Thread



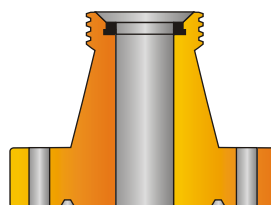
Double Wing (Male)



Double Thread (Female)



**Thread To Wing
(Male To Female)**



**Integral Female
Adaptor Flange**



CIRCULATING HEAD

Description

PARVEEN Circulating Head is basically consisting of

- i. Tee (having swivels at two ends & female line pipe connection at the upper end).
- ii. 45° angle connection with male line pipe thread for Circulating Hose at one end & other end is swivel for 'Tee'.
- iii. Lower adaptor connection having one end is suitable for connecting tubing, Casing, drill pipe ,or tool joints and other end is swivel for 'Tee'.

At 6000 psi test pressure rotating in both Vertical & Horizontal planes is possible through the provision of swivel in 'Tee' and this head is supplied with an opening (female line pipe thread) in the Top through which wire line instruments may be run. It is compact & light in weight and thus an ideal standby tool. Circulating Head with other types of connections and other pressure ratings can also be supplied as per customer request, either with this type design or with any other type design.

Application

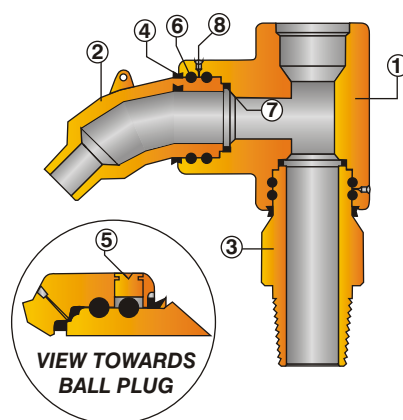
Helps to eliminate stuck drill pipe by making it possible to maintain pressure and circulation in the hole and to rotate drill pipe with the rotary table while conducting wireline coring operations, fishing jobs' or directional testing.

How to Order

When order please specify.

1. Pipe Size
2. Pressure Rating (i.e. working & test pressure).
3. Type of Connection i.e. - Upper Connection in Tee (Male or Female line Pipe Threads)
 - Lower Connection (Pin & Box) for Tubing, Casing, Drill Pipe & Tool Joint
 - Circulating Hose Connections (Male or Female Line Pipe Threads)

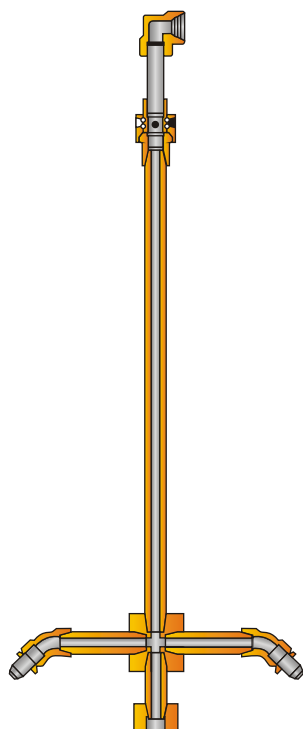
ITEM NO.	DESCRIPTION	QTY.
1.	TEE	1
2.	45 ANGLE ELBOW	1
3.	LOWER ADAPTOR	1
4.	GREASE RETAINER	2
5.	BALL PLUG	4
6.	BALLS	4 SETS
7.	SEAL & METAL SEAL	2
8.	GREASING SCREW	2



MUD GUN

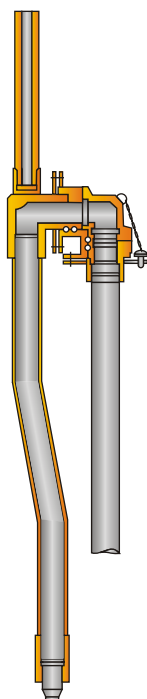
PARVEEN mud mixing guns are simple in design. All turning takes place on double rows of steel balls in flame hardened races. There is nothing to tighten or adjust. Flow is unrestricted and pressure drop is minimum. Parveen mud mixing guns are of 3 types:

1. Spinner/ Pivot Type



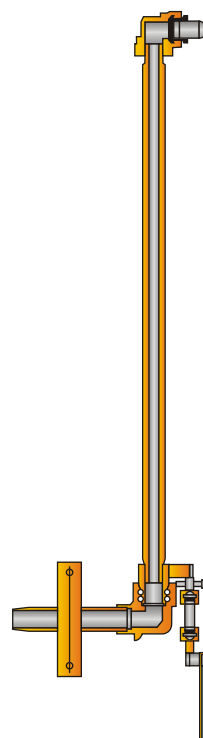
Spinner / Pivot Type

2. Non Spin Type



Non Spin Type

3. Bottom Type.



Bottom Type

Spinner /Pivot Type

The spinner/pivot type mud gun is designed for use in tanks where the utmost in constant agitation is desired. The nozzles are set at an angle and the pressure in the line imparts a spinning motion which is accommodated by a style 20 high pressure swivel joints. Furnished in any desired length as specified in order.

Size : 2", 3", 4" **Pressure :** Upto 5000 PSI

Non Spin Type

The non spin type mud gun is designed for mixing large volume of muds in the top of the tank or pit and also for transferring mud from one tank to another tank.

Non spin mud gun cannot spin because centrifugal force is neutralized by the offset of the barrel of the gun. Perforated flanges and locking pins permit locking of gun in any position.

Size : 2", 3", 4" **Pressure :** Upto 5000 PSI

Bottom Type

The bottom type mud gun is designed for use where large size metal tanks are employed as mud pits.

It is simple in construction, easy to install and easy to operate.

Size : 2", 3", 4" **Pressure :** Upto 5000 PSI

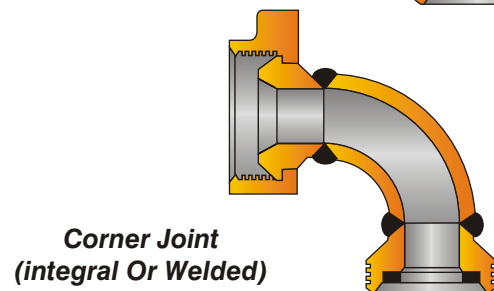
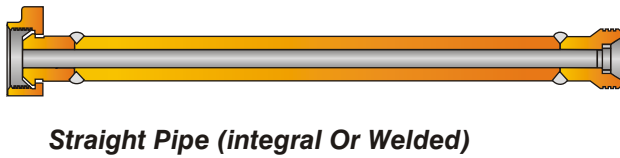
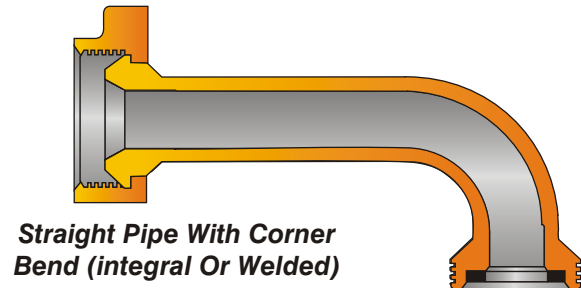
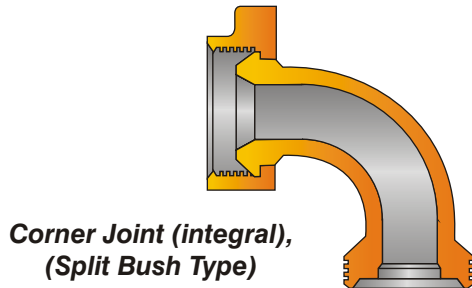
NOTE: 1. Discharge nozzles in all mud guns are equipped with tungsten carbide insert.

2. Other sizes & pressure ratings are also available on request.

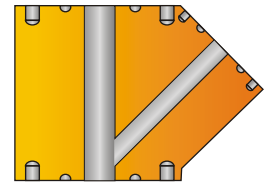
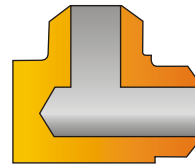
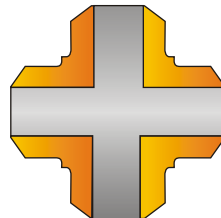
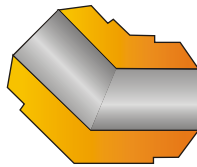
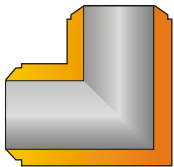


INTEGRAL / WELDED UNION END FITTINGS (FIG. 602, 1002, 1502)

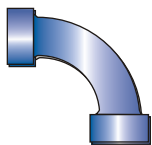
Size: 1" To 6" Upto W.P 15,000 PSI, T.P 22,500 PSI For Standard & Sour Service



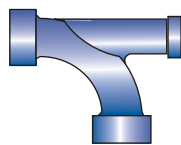
Block Type Fittings (Welded & Studded Flanged Type) (Up To 30,000 PSI Test Pressure In Any Sizes)



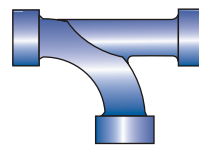
Manifold Fittings (Threaded, Butt Welded & Socket Welded) (Up To 10,000 PSI Test Pressure, Sizes: 2", 3", 4", & 5")



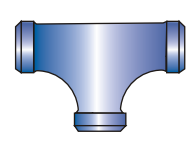
Long Sweep Elbow 90°



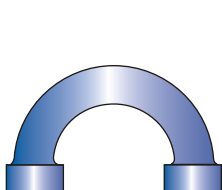
**Long Sweep Elbow
With Two Outlet**



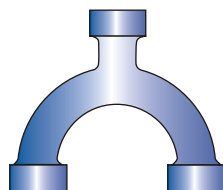
Long Sweep Tee



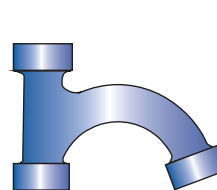
**Long Sweep Full
Flow Tee**



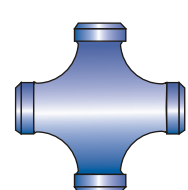
**Standpipe
Gooseneck 180°**



Long Sweep 'Y'



**Standpipe Gooseneck
160°
With Top Outlet**



Full Flow Cross

NOTE: For other sizes, pressures and services, consult factory.



NOTES

[illegible]



FLANGES STUDS & NUTS GASKETS PIPE FITTINGS AND PIPES, VALVES INDEX

SR. NO.	INDEX	PAGE
1	Introduction	127
2	Flanges	128
3	Studs & Nuts	146
4	Metallic Gaskets For Pipe Flanges	150
5	Ring Gaskets	151
6	Flanged Crosses And Tees (as Per Api-6A)	156
7	Flanged Studded Crosses And Tees (as Per Api-6A)	157
8	Butt Welded Fittings (ASME B 16.9)	158
9	Butt Welded Fittings	162
10	Socket - Welding Fitting	167
11	Threaded Fittings	168
12	Threaded Fittings, Plugs & Bushings	169
13	Nipples	170
14	Unions	172
15	Branched Connections	174
16	Seamless Pipe Sizes	175
17	Butterfly Valves and Swing Check Valve	176
18	Check Valves (Dart / Flapper Type)	177
19	Pipeline Valve	179
20	Plug Valves	180
21	Mud Valve	182
22	Ball Valve	183



INTRODUCTION

PARVEEN is an Indian leader for many years in the manufacture of various types of Flanges and Pipe Fittings required by the oilfield, petrochemical and different process industries.

Our name is synonymous with high quality manufacture, precision machining and unparalleled dedication to quality excellence which has kept us in the fore front of oil industry.

Flanges / Boltings / Gaskets / Flanged Fittings

Flanges

PARVEEN manufactures all types of Forged Flanges such as Weldneck, Slip-on, Socket Weld, Threaded, Lapped and Blind as per ANSI B-16.5 & ASA B-16.5 covering sizes from 1/2" to 24", pressure ratings from class 150 to 2500 and temperature rating -20° F to 1500°. Studs, Nuts and Gaskets for these Flanges are also provided.

Flanges to API specifications 6A such as 6B and 6BX (Threaded, Weldneck, Blind, Test, Integral, Adapter & Companion Flanges) for any size & pressure rating from 2000 PSI to 20000 PSI can be catered for. Large dia flanges to API 605 from size NPS 26" to 48" and ratings 150 to 900 are also manufactured and supplied. Slipon and Weld neck Flanges as per BS 3293 of class 150, 300, 400, 600 from size NPS 26" to 48" can also be manufactured. Ring Joint Gaskets and Grooves are provided as per ASME B 16.20, ANSI B 16.5 & API-6A.

Orifice flanges/meter runs as per ANSI B-16.36, API 2530 and AGA-3 specifications with orifice plates can also be provided for any class and size. Flanges to other standards such as BIS, BS, DIN, ISO, JIS, can also be manufactured to meet customer's requirements.

Studs & Nuts

PARVEEN manufactures Studs & Nuts to API 6A & ANSI B 16.5 in various materials and sizes.

Gaskets

PARVEEN manufactures Ring Joint Gaskets in all sizes and materials to ASME B 16. 20 & API6A.

Flanged Fittings

Flanged, Studded Crosses and Tees from sizes 1.13/16" to 4.1/16" and for pressure ratings from 2000 PSI to 20000 PSI are manufactured and supplied.

Pipe Fittings (Butt welded)

PARVEEN manufactures Pipe Fittings Butt-Welded such as Elbows, Returns, Tees, Reducers etc. as per ASME B-16.9. The Butt -Welded Ends are prepared as per ANSI B-16.25.

Forged Socket Welded & Threaded Fittings

Forged, Socket Welded & Threaded Fittings can also be supplied to specifications ASME B-16.11 in pressure ratings of 2000, 3000 & 6000 PSI.

Steel Pipe Fittings, Screwed and Socket Welded Fittings as per BS 3799 for pressure rating of 3000 PSI and 6000 PSI and as per IS:1239, Bends to BS 534 & IS:1239 are also manufactured and supplied.

Seamless Pipes

PARVEEN can also supply Line Pipes as per AP 5L, Seamless Tubings and Casings as per API 5CT and also Pipes as per ASTM standard in Carbon Steel, Alloy Steel and Stainless Steel.

Specially Forged Products

Following forged products can also be supplied in machined / un-machined condition:

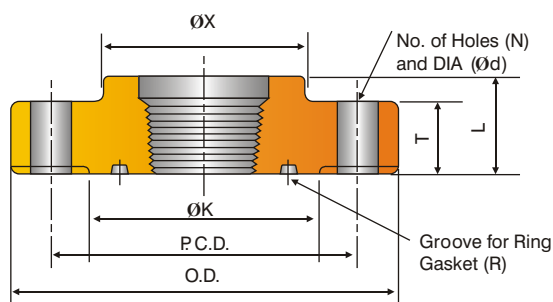
- A. Any closed die forging to single piece weight upto 200 Kg. and open forging to single piece weight upto 2000 Kg.
- B. Forgings for Oilfield Products, Automobile Products, Piping Products, products for Nuclear Applications and Special Engineering Products.

Material

Above items can be supplied in Carbon Steel, Low Alloy Steel, Alloy Steel, Super Alloys as 17-4 PH, MONEL, INCONEL etc., meeting any International Standards e.g. ASTM, API, BIS, JIS, DIN, AISI, ISO, BS & IS etc.

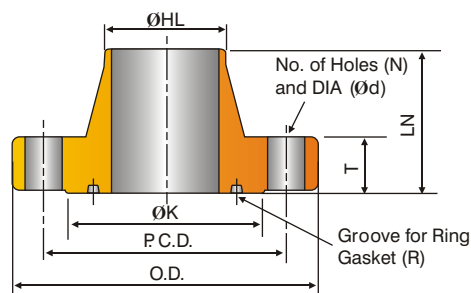


FLANGES



Threaded Flange

(Fig. 1)



Weld Neck Flange

(Fig. 2)

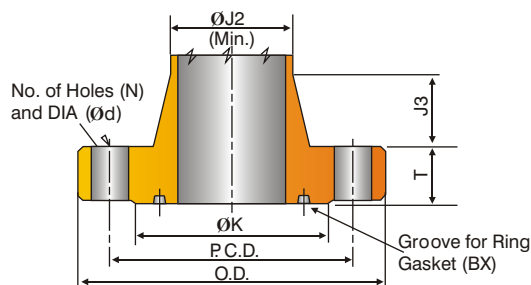
1 THREADED FLANGES & WELD NECK FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(1-1.) PRESSURE RATING:- API 6B-2000 PSI W.P (WITH R OR RX TYPE RING GASKET)											
SIZE	O.D	T	ØK	P.C.D.	N	Ød	L	ØX	LN	ØHL	R/RX
2 1/16	6.50	1.31	4.25	5	8	0.75	1.75	3.31	3.19	2.38	23
2 9/16	7.50	1.44	5	5.88	8	0.88	1.94	3.94	3.44	2.88	26
3 1/8	8.25	1.56	5.75	6.62	8	0.88	2.12	4.62	3.56	3.50	31
4 1/16	10.75	1.81	6.88	8.50	8	1.00	2.44	6.00	4.31	4.50	37
5 1/8	13	2.06	8.25	10.50	8	1.12	2.69	7.44	4.81	5.56	41
7 1/16	14	2.19	9.5	11.50	12	1.12	2.94	8.75	4.94	6.63	45
9	16.5	2.50	11.88	13.75	12	1.25	3.31	10.75	5.56	8.63	49
11	20	2.81	14	17	16	1.38	3.69	13.50	6.31	10.75	53
13 5/8	22	2.94	16.25	19.25	20	1.38	3.94	15.75			57
16 3/4	27	3.31	20	23.75	20	1.62	4.50	19.50			65
21 1/4	32	3.88	25	28.50	24	1.75	5.38	24.00			73
(1-2.) PRESSURE RATING:- API 6B-3000 PSI W.P (WITH R OR RX TYPE RING GASKET)											
SIZE	O.D	T	ØK	P.C.D.	N	Ød	L	ØX	LN	ØHL	R/RX
2 1/16	8.50	1.81	4.88	6.50	8	1.00	2.56	4.12	4.31	2.38	24
2 9/16	9.62	1.94	5.38	7.50	8	1.12	2.81	4.88	4.44	2.88	27
3 1/8	9.50	1.81	6.12	7.50	8	1.00	2.44	5.00	4.31	3.50	31
4 1/16	11.50	2.06	7.12	9.25	8	1.25	3.06	6.25	4.81	4.50	37
5 1/8	13.75	2.31	8.50	11.0	8	1.38	3.44	7.50	5.31	5.56	41
7 1/16	15.00	2.50	9.50	12.50	12	1.25	3.69	9.25	5.81	6.63	45
9	18.50	2.81	12.12	15.50	12	1.50	4.31	11.75	6.69	8.63	49
11	21.50	3.06	14.25	18.50	16	1.50	4.56	14.50	7.56	10.75	53
13 5/8	24.00	3.44	16.50	21.00	20	1.50	4.94	16.50			57
16 3/4	27.75	3.94	20.62	24.25	20	1.75	5.06	20.00			66
21 1/4	33.75	4.75	25.50	29.25	20	2.12	6.75	24.50			74
(1-3.) PRESSURE RATING:- API 6B-5000 PSI W.P (WITH R OR RX TYPE RING GASKET)											
SIZE	O.D	T	ØK	P.C.D.	N	Ød	L	ØX	LN	ØHL	R/RX
2 1/16	8.50	1.81	4.88	6.50	8	1.00	2.56	4.12	4.31	2.38	24
2 9/16	9.62	1.94	5.38	7.50	8	1.12	2.81	4.88	4.44	2.88	27
3 1/8	10.50	2.19	6.62	8.00	8	1.25	3.19	5.25	4.94	3.50	35
4 1/16	12.25	2.44	7.62	9.50	8	1.38	3.88	6.38	5.19	4.50	39
5 1/8	14.75	3.19	9.00	11.50	8	1.62	4.44	7.75	6.44	5.56	44
7 1/16	15.50	3.62	9.75	12.50	12	1.50	5.06	9.00	7.13	6.63	46
9	19	4.06	12.50	15.50	12	1.75	6.06	11.50	8.81	8.63	50
11	23	4.69	14.63	19.00	12	2.00	6.69	14.50	10.44	10.75	54



FLANGES



Integral Flange

(Fig. 3)

2 INTEGRAL FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(2-1.) PRESSURE RATING:- API 6BX-2000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D.	N	Ød	ØJ2	J3	BX
26 3/4	41.00	4.97	31.69	37.50	20	1.88	29.25	7.31	167
30	44.19	5.28	35.75	40.94	32	1.75	32.80	7.75	303
(2-2.) PRESSURE RATING:- API 6BX-3000 PSI W.P (WITH BX TYPE RING GASKET)									
26 3/4	43.38	6.34	32.75	39.38	24	2.12	30.56	7.31	168
30	46.68	6.58	36.31	42.94	32	2.00	34.30	7.75	303
(2-3.) PRESSURE RATING:- API 6BX-5000 PSI W.P (WITH BX TYPE RING GASKET)									
13 5/8	26.50	4.44	18.00	23.25	16	1.75	16.69	4.50	160
16 3/4	30.38	5.13	21.06	26.62	16	2.00	20.75	3.00	162
18 3/4	35.62	6.53	24.69	31.82	20	2.12	23.56	6.00	163
21 1/4	39.00	7.12	27.62	34.88	24	2.12	26.75	6.50	165
(2-4.) PRESSURE RATING:- API 6BX-10000 PSI W.P (WITH BX TYPE RING GASKET)									
1 13/16	7.38	1.66	4.12	5.75	8	0.88	2.56	1.91	151
2 1/16	7.88	1.73	4.38	6.25	8	0.88	2.94	2.03	152
2 9/16	9.12	2.02	5.19	7.25	8	1.00	3.62	2.25	153
3 1/16	10.62	2.30	6.00	8.50	8	1.12	4.34	2.50	154
4 1/16	12.44	2.77	7.28	10.19	8	1.25	5.75	2.88	155
5 1/8	14.06	3.12	8.69	11.81	12	1.25	7.19	3.19	169
7 1/16	18.88	4.06	11.88	15.88	12	1.62	10.00	3.75	156
9	21.75	4.88	14.12	18.75	16	1.62	12.88	3.69	157
11	25.75	5.56	16.88	22.25	16	1.88	15.75	4.06	158
13 5/8	30.25	6.62	20.38	26.50	20	2.00	19.50	4.50	159
16 3/4	34.31	6.62	22.69	30.56	24	2.00	23.66	3.00	162
18 3/4	40.94	8.78	27.44	36.44	24	2.38	26.59	6.12	164
21 1/4	45	9.50	30.75	40.25	24	2.62	30.00	6.50	166
(2-5.) PRESSURE RATING:- API 6BX-15000 PSI W.P (WITH BX TYPE RING GASKET)									
1 13/16	8.19	1.78	4.19	6.31	8	1.00	2.81	1.88	151
2 1/16	8.75	2.00	4.50	6.88	8	1.00	3.25	2.12	152
2 9/16	10.00	2.25	5.25	7.88	8	1.12	3.94	2.25	153
3 1/16	11.31	2.53	6.06	9.06	8	1.25	4.81	2.50	154
4 1/16	14.19	3.09	7.62	11.44	8	1.50	6.25	2.88	155
7 1/16	19.88	4.69	12.00	16.88	16	1.62	10.88	2.62	156
9	25.50	5.75	15.00	21.75	16	2.00	13.75	4.88	157
11	32.00	7.38	17.88	28.00	20	2.12	16.81	9.28	158
13 5/8	34.88	8.06	21.31	30.38	20	2.38	20.81	4.50	159
18 3/4	45.75	10.06	28.44	40.00	20	3.12	28.75	6.12	164

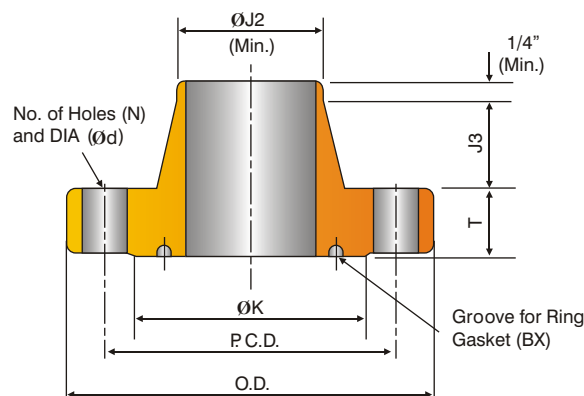


FLANGES

2 INTEGRAL FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(2-6.) PRESSURE RATING:- API 6BX-20000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D.	N	Ød	ØJ2	J3	BX
1 13/16	10.12	2.5	4.62	8.00	8	1.12	4.31	1.94	151
2 1/16	11.31	2.81	5.19	9.06	8	1.25	5.00	2.06	152
2 9/16	12.81	3.12	5.94	10.31	8	1.38	5.69	2.31	153
3 1/16	14.06	3.38	6.75	11.31	8	1.50	6.31	2.50	154
4 1/16	17.56	4.19	8.62	14.06	8	1.88	8.12	2.88	155
7 1/16	25.81	6.50	13.88	21.81	16	2.12	13.31	3.81	156
9	31.69	8.06	17.38	27.00	16	2.62	16.88	4.25	157
11	34.75	8.81	19.88	29.50	16	2.88	20.00	4.06	158
13 5/8	45.75	11.50	24.19	40.00	20	3.12	24.75	5.25	159



Weld Neck Flange
(Fig. 4)

3 WELD NECK FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(3-1.) PRESSURE RATING:- API 6BX-10000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D.	N	Ød	ØJ2	J3	BX
1 13/16	7.38	1.66	4.12	5.75	8	0.88	2.56	1.91	151
2 1/16	7.88	1.73	4.38	6.25	8	0.88	2.94	2.03	152
2 9/16	9.12	2.02	5.19	7.25	8	1.00	3.62	2.25	153
3 1/16	10.62	2.30	6.00	8.50	8	1.12	4.34	2.50	154
4 1/16	12.44	2.77	7.28	10.19	8	1.25	5.75	2.88	155
5 1/8	14.06	3.13	8.69	11.81	12	1.25	7.19	3.19	169
7 1/16	18.88	4.06	11.88	15.88	12	1.62	10.00	3.75	156
9	21.75	4.88	14.12	18.75	16	1.62	12.88	3.69	157
11	25.75	5.56	16.88	22.25	16	1.88	15.75	4.06	158
13 5/8	30.25	6.62	20.38	26.50	20	2.00	19.50	4.50	159
16 3/4	34.31	6.62	22.69	30.56	24	2.00	23.69	3.00	162

(3-2.) PRESSURE RATING:- API 6BX-15000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D.	N	Ød	ØJ2	J3	BX
1 13/16	8.19	1.78	4.19	6.31	8	1.00	2.81	1.88	151
2 1/16	8.75	2.00	4.50	6.88	8	1.00	3.25	2.12	152
2 9/16	10.00	2.25	5.25	7.88	8	1.12	3.94	2.25	153
3 1/16	11.31	2.53	6.06	9.06	8	1.25	4.81	2.50	154
4 1/16	14.19	3.09	7.62	11.44	8	1.50	6.25	2.88	155
7 1/16	19.88	4.69	12.00	16.88	16	1.62	10.88	3.62	156

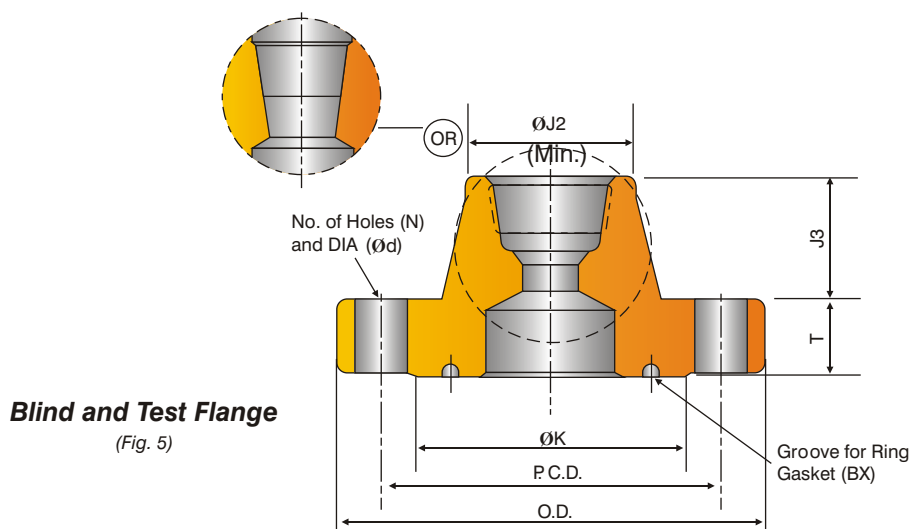


FLANGES

3 WELD NECK FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(3-3.) PRESSURE RATING:- API 6BX-20000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D	N	Ød	ØJ2	J3	BX
1 13/16	10.12	2.5	4.62	8.00	8	1.12	4.31	1.94	151
2 1/16	11.31	2.81	5.19	9.06	8	1.25	5.00	2.06	152
2 9/16	12.81	3.12	5.94	10.31	8	1.38	5.69	2.31	153
3 1/16	14.06	3.38	6.75	11.31	8	1.50	6.31	2.50	154
4 1/16	17.56	4.19	8.62	14.06	8	1.88	8.12	2.88	155
7 1/16	25.81	6.50	13.88	21.81	16	2.12	13.31	3.81	156



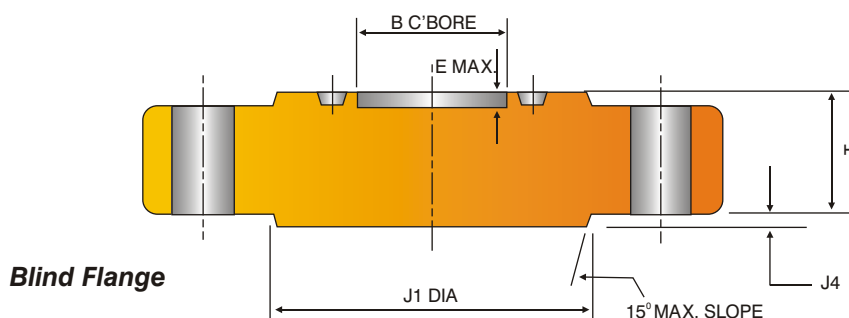
4 BLIND AND TEST FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(4-1.) PRESSURE RATING:- API 6BX-10000 PSI W.P (WITH BX TYPE RING GASKET)									
SIZE	O.D	T	ØK	P.C.D	N	Ød	ØJ2	J3	BX
1 13/16	7.38	1.66	4.12	5.75	8	0.88	2.56	1.91	151
2 1/16	7.88	1.73	4.38	6.25	8	0.88	2.94	2.03	152
2 9/16	9.12	2.02	5.19	7.25	8	1.00	3.62	2.25	153
3 1/16	10.62	2.30	6.00	8.50	8	1.12	4.34	2.50	154
4 1/16	12.44	2.77	7.28	10.19	8	1.25	5.75	2.88	155
(4-2.) PRESSURE RATING:- API 6BX-15000 PSI W.P (WITH BX TYPE RING GASKET)									
1 13/16	8.19	1.78	4.19	6.31	8	1.00	2.81	1.88	151
2 1/16	8.75	2.00	4.50	6.88	8	1.00	3.25	2.12	152
2 9/16	10.00	2.25	5.25	7.88	8	1.12	3.94	2.25	153
3 1/16	11.31	2.53	6.06	9.06	8	1.25	4.81	2.50	154
4 1/16	14.19	3.09	7.62	11.44	8	1.50	6.25	2.88	155
(4-3.) PRESSURE RATING:- API 6BX-20000 PSI W.P (WITH BX TYPE RING GASKET)									
1 13/16	10.12	2.50	4.62	8.00	8	1.12	4.31	1.94	151
2 1/16	11.31	2.81	5.19	9.06	8	1.25	5.00	2.06	152
2 9/16	12.81	3.12	5.94	10.31	8	1.38	5.69	2.31	153
3 1/16	14.06	3.38	6.75	11.31	8	1.50	6.31	2.50	154
4 1/16	17.56	4.19	8.62	14.06	8	1.88	8.12	2.88	155



FLANGES



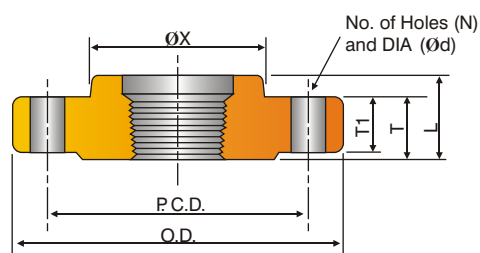
5 BLIND FLANGES. (AS PER API - 6A)

*All dimensions are in inches.

(5-1.) PRESSURE RATING:- API 6BX-2000 PSI W.P (WITH BX TYPE RING GASKET)				
NOMINAL SIZE B	FLANGE THICKNESS T	HUB DIAMETER J1	GROOVE DEPTH E	ADDED HUB THICKNESS, J4
26 3/4	4.97	32.91	0.844	0.38
30	5.28	36.69	0.906	0.69
(5-2.) PRESSURE RATING:- API 6BX-3000 PSI W.P (WITH BX TYPE RING GASKET)				
26 3/4	6.34	34.25	0.844	0.00
30	6.58	38.19	0.906	0.50
(5-3.) PRESSURE RATING:- API 6BX-5000 PSI W.P (WITH BX TYPE RING GASKET)				
13 5/8	4.44	18.94	0.562	0.94
16 3/4	5.12	21.88	0.328	0.69
18 3/4	6.53	26.56	0.719	0.75
21 1/4	7.12	29.88	0.75	0.88
(5-4.) PRESSURE RATING:- API 6BX-10000 PSI W.P (WITH BX TYPE RING GASKET)				
5 1/8	3.12	8.81	0.375	0.25
7 1/16	4.06	11.88	0.438	0.38
9	4.88	14.75	0.500	0.38
11	5.56	17.75	0.562	0.56
13 5/8	6.62	21.75	0.625	0.69
16 3/4	6.62	25.81	0.328	1.19
18 3/4	8.78	29.62	0.719	1.00
21 1/4	9.50	33.38	0.750	1.25
(5-5.) PRESSURE RATING:- API 6BX-15000 PSI W.P (WITH BX TYPE RING GASKET)				
7 1/16	4.69	12.81	0.438	0.31
9	5.75	17.00	0.500	0.56
11	7.38	23.00	0.562	0.5
13 5/8	8.06	23.44	0.625	0.69
18 3/4	10.06	32.00	0.719	1.38
(5-6.) PRESSURE RATING:- API 6BX-20,000 PSI W.P (WITH BX TYPE RING GASKET)				
7 1/16	6.5	15.19	0.438	0.31
9	8.06	18.94	0.500	0.25
11	8.81	22.31	0.562	0.5
13 5/8	11.50	27.31	0.625	0.56

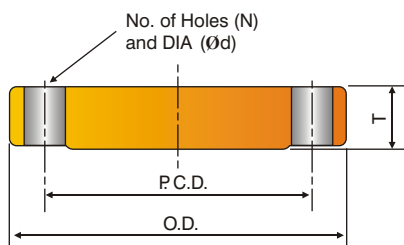


FLANGES



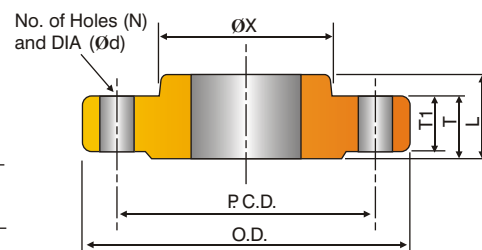
Threaded.

(Fig. 1)



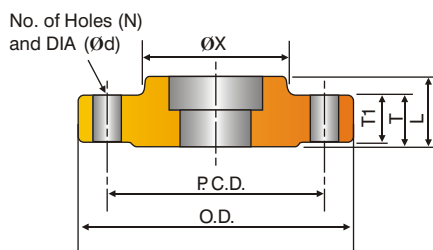
Blind

(Fig. 3)



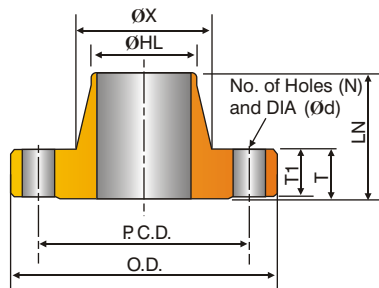
Slip-on-Welding

(Fig. 2)



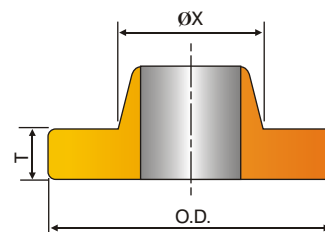
Socket-Welding (1/2 to 3 only)

(Fig. 4)



Weld Neck Flange

(Fig. 5)



Lapped

(Fig. 6)

*All dimensions are in inches.

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, SOCKET WELDING, LAPPED & WELDING NECK)

(6-1.) CLASS 150 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	3.50	0.44	1.19	2.38	4	0.62	0.62	1.88	0.84
3/4	3.88	0.50	1.50	2.75	4	0.62	0.62	2.06	1.05
1	4.25	0.56	1.94	3.12	4	0.62	0.69	2.19	1.32
1 1/4	4.62	0.62	2.31	3.50	4	0.62	0.81	2.25	1.66
1 1/2	5.00	0.69	2.56	3.88	4	0.62	0.88	2.44	1.90
2	6.00	0.75	3.06	4.75	4	0.75	1.00	2.50	2.38
2 1/2	7.00	0.88	3.56	5.50	4	0.75	1.12	2.75	2.88
3	7.50	0.94	4.25	6.00	4	0.75	1.19	2.75	3.50
3 1/2	8.50	0.94	4.81	7.00	8	0.75	1.25	2.81	4.00
4	9.00	0.94	5.31	7.50	8	0.75	1.31	3.00	4.50
5	10.00	0.94	6.44	8.50	8	0.88	1.44	3.50	5.56
6	11.00	1.00	7.56	9.50	8	0.88	1.56	3.50	6.63
8	13.50	1.12	9.69	11.75	8	0.88	1.75	4.00	8.63
10	16.00	1.19	12.00	14.25	12	1.00	1.94	4.00	10.75
12	19.00	1.25	14.38	17.00	12	1.00	2.19	4.50	12.75
14	21.00	1.38	15.75	18.75	12	1.12	2.25	5.00	14.00
16	23.50	1.44	18.00	21.25	16	1.12	2.50	5.00	16.00
18	25.00	1.56	19.88	22.75	16	1.25	2.69	5.50	18.00
20	27.50	1.69	22.00	25.00	20	1.25	2.88	5.69	20.00
24	32.00	1.88	26.12	29.50	20	1.38	3.25	6.00	24.00



FLANGES

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, SOCKET WELDING, LAPPED & WELDING NECK)

*All dimensions are in inches.

(6-2.) CLASS 300 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1 / 2	3.75	0.56	1.50	2.62	4	0.62	0.88	2.06	0.84
3 / 4	4.62	0.62	1.88	3.25	4	0.75	1.00	2.25	1.05
1	4.88	0.69	2.12	3.50	4	0.75	1.06	2.44	1.32
1 1 / 4	5.25	0.75	2.50	3.88	4	0.75	1.06	2.56	1.66
1 1 / 2	6.12	0.81	2.75	4.50	4	0.88	1.19	2.69	1.90
2	6.50	0.88	3.31	5.00	8	0.75	1.31	2.75	2.38
2 1 / 2	7.50	1.00	3.94	5.88	8	0.88	1.50	3.00	2.88
3	8.25	1.12	4.62	6.62	8	0.88	1.69	3.12	3.50
3 1 / 2	9.00	1.19	5.25	7.25	8	0.88	1.75	3.19	4.00
4	10.00	1.25	5.75	7.88	8	0.88	1.88	3.38	4.50
5	11.00	1.38	7.00	9.25	8	0.88	2.00	3.88	5.56
6	12.50	1.44	8.12	10.62	12	0.88	2.06	3.88	6.63
8	15.00	1.62	10.25	13.00	12	1.00	2.44	4.38	8.63
10	17.50	1.88	12.62	15.25	16	1.12	2.62	4.62	10.75
12	20.50	2.00	14.75	17.75	16	1.25	2.88	5.12	12.75
14	23.00	2.12	16.75	20.25	20	1.25	3.00	5.62	14.00
16	25.50	2.25	19.00	22.50	20	1.38	3.25	5.75	16.00
18	28.00	2.38	21.00	24.75	24	1.38	3.50	6.25	18.00
20	30.50	2.50	23.12	27.00	24	1.38	3.75	6.38	20.00
24	36.00	2.75	27.62	32.00	24	1.62	4.19	6.62	24.00



FLANGES

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, LAPPED & WELDING NECK)

*All dimensions are in inches.

(6-3.) CLASS 400 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	3.75	0.56	1.50	2.62	4	0.62	0.88	2.06	0.84
3/4	4.62	0.62	1.88	3.25	4	0.75	1.00	2.25	1.05
1	4.88	0.69	2.12	3.50	4	0.75	1.06	2.44	1.32
1 1/4	5.25	0.81	2.50	3.88	4	0.75	1.12	2.62	1.66
1 1/2	6.12	0.88	2.75	4.50	4	0.88	1.25	2.75	1.90
2	6.50	1.00	3.31	5.00	8	0.75	1.44	2.88	2.38
2 1/2	7.50	1.12	3.94	5.88	8	0.88	1.62	3.12	2.88
3	8.25	1.25	4.62	6.62	8	0.88	1.81	3.25	3.50
3 1/2	9.00	1.38	5.25	7.25	8	1.00	1.94	3.38	4.00
4	10.00	1.38	5.75	7.88	8	1.00	2.00	3.50	4.50
5	11.00	1.50	7.00	9.25	8	1.00	2.12	4.00	5.56
6	12.50	1.62	8.12	10.62	12	1.00	2.25	4.06	6.63
8	15.00	1.88	10.25	13.00	12	1.12	2.69	4.62	8.63
10	17.50	2.12	12.62	15.25	16	1.25	2.88	4.88	10.75
12	20.50	2.25	14.75	17.75	16	1.38	3.12	5.38	12.75
14	23.00	2.38	16.75	20.25	20	1.38	3.31	5.88	14.00
16	25.50	2.50	19.00	22.50	20	1.50	3.69	6.00	16.00
18	28.00	2.62	21.00	24.75	24	1.50	3.88	6.50	18.00
20	30.50	2.75	23.12	27.00	24	1.62	4.00	6.62	20.00
24	36.00	3.00	27.62	32.00	24	1.88	4.50	6.88	24.00



FLANGES

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, SOCKET WELDING, LAPPED & WELDING NECK)

*All dimensions are in inches.

(6-4.) CLASS 600 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	3.75	0.56	1.50	2.62	4	0.62	0.88	2.06	0.84
3/4	4.62	0.62	1.88	3.25	4	0.75	1.00	2.25	1.05
1	4.88	0.69	2.12	3.50	4	0.75	1.06	2.44	1.32
1 1/4	5.25	0.81	2.50	3.88	4	0.75	1.12	2.62	1.66
1 1/2	6.12	0.88	2.75	4.50	4	0.88	1.25	2.75	1.90
2	6.50	1.00	3.31	5.00	8	0.75	1.44	2.88	2.38
2 1/2	7.50	1.12	3.94	5.88	8	0.88	1.62	3.12	2.88
3	8.25	1.25	4.62	6.62	8	0.88	1.81	3.25	3.50
3 1/2	9.00	1.38	5.25	7.25	8	1.00	1.94	3.38	4.00
4	10.75	1.50	6.00	8.50	8	1.00	2.12	4.00	4.50
5	13.00	1.75	7.44	10.50	8	1.12	2.38	4.50	5.56
6	14.00	1.88	8.75	11.50	12	1.12	2.62	4.62	6.63
8	16.50	2.19	10.75	13.75	12	1.25	3.00	5.25	8.63
10	20.00	2.50	13.50	17.00	16	1.38	3.38	6.00	10.75
12	22.00	2.62	15.75	19.25	20	1.38	3.62	6.12	12.75
14	23.75	2.75	17.00	20.75	20	1.50	3.69	6.50	14.00
16	27.00	3.00	19.50	23.75	20	1.62	4.19	7.00	16.00
18	29.25	3.25	21.50	25.75	20	1.75	4.62	7.25	18.00
20	32.00	3.50	24.00	28.50	24	1.75	5.00	7.50	20.00
24	37.00	4.00	28.25	33.00	24	2.00	5.50	8.00	24.00



FLANGES

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, LAPPED & WELDING NECK)

*All dimensions are in inches.

(6-5.) CLASS 900 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	4.75	0.88	1.50	3.25	4	0.88	1.25	2.38	0.84
3/4	5.12	1.00	1.75	3.50	4	0.88	1.38	2.75	1.05
1	5.88	1.12	2.06	4.00	4	1.00	1.62	2.88	1.32
1 1/4	6.25	1.12	2.50	4.38	4	1.00	1.62	2.88	1.66
1 1/2	7.00	1.25	2.75	4.88	4	1.12	1.75	3.25	1.90
2	8.50	1.50	4.12	6.50	8	1.00	2.25	4.00	2.38
2 1/2	9.62	1.62	4.88	7.50	8	1.12	2.50	4.12	2.88
3	9.50	1.50	5.00	7.50	8	1.00	2.12	4.00	3.50
4	11.50	1.75	6.25	9.25	8	1.25	2.75	4.50	4.50
5	13.75	2.00	7.50	11.00	8	1.38	3.12	5.00	5.56
6	15.00	2.19	9.25	12.50	12	1.25	3.38	5.50	6.63
8	18.50	2.50	11.75	15.50	12	1.50	4.00	6.38	8.63
10	21.50	2.75	14.50	18.50	16	1.50	4.25	7.25	10.75
12	24.00	3.12	16.50	21.00	20	1.50	4.62	7.88	12.75
14	25.25	3.38	17.75	22.00	20	1.62	5.12	8.38	14.00
16	27.75	3.50	20.00	24.25	20	1.75	5.25	8.50	16.00
18	31.00	4.00	22.25	27.00	20	2.00	6.00	9.00	18.00
20	33.75	4.25	24.50	29.50	20	2.12	6.25	9.75	20.00
24	41.00	5.50	29.50	35.50	20	2.62	8.00	11.50	24.00



FLANGES

6 FLANGES. (THREADED, SLIP-ON WELDING, BLIND, SOCKET WELDING, LAPPED & WELDING NECK)

*All dimensions are in inches.

(6-6.) CLASS 1500 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	4.75	0.88	1.50	3.25	4	0.88	1.25	2.38	0.84
3/4	5.12	1.00	1.75	3.50	4	0.88	1.38	2.75	1.05
1	5.88	1.12	2.06	4.00	4	1.00	1.62	2.88	1.32
1 1/4	6.25	1.12	2.50	4.38	4	1.00	1.62	2.88	1.66
1 1/2	7.00	1.25	2.75	4.88	4	1.12	1.75	3.25	1.90
2	8.50	1.50	4.12	6.50	8	1.00	2.25	4.00	2.38
2 1/2	9.62	1.62	4.88	7.50	8	1.12	2.50	4.12	2.88
3	10.50	1.88	5.25	8.00	8	1.25	2.88	4.62	3.50
4	12.25	2.12	6.38	9.50	8	1.38	3.56	4.88	4.50
5	14.75	2.88	7.75	11.50	8	1.62	4.12	6.12	5.56
6	15.50	3.25	9.00	12.50	12	1.50	4.69	6.75	6.63
8	19.00	3.62	11.50	15.50	12	1.75	5.62	8.38	8.63
10	23.00	4.25	14.50	19.00	12	2.00	6.25	10.00	10.75
12	26.50	4.88	17.75	22.50	16	2.12	7.12	11.12	12.75
14	29.50	5.25	19.50	25.00	16	2.38	-	11.75	14.00
16	32.50	5.75	21.75	27.75	16	2.62	-	12.25	16.00
18	36.00	6.38	23.50	30.50	16	2.88	-	12.88	18.00
20	38.75	7.00	25.25	32.75	16	3.12	-	14.00	20.00
24	46.00	8.00	30.00	39.00	16	3.62	-	16.00	24.00

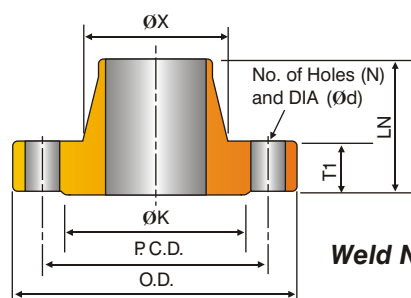
6 FLANGES. (THREADED, BLIND, LAPPED & WELDING NECK)

*All dimensions are in inches.

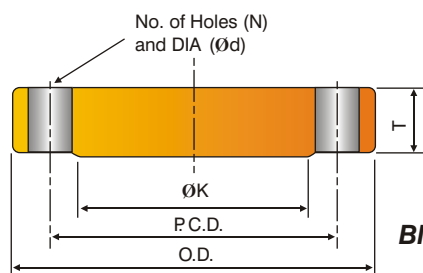
(6-7.) CLASS 2500 FLANGES (AS PER ANSI B16.5)									
SIZE	O.D	T	ØX	P.C.D	N	Ød	L	LN	ØHL
1/2	5.25	1.19	1.69	3.50	4	0.88	1.56	2.88	0.84
3/4	5.50	1.25	2.00	3.75	4	0.88	1.69	3.12	1.05
1	6.25	1.38	2.25	4.25	4	1.00	1.88	3.50	1.32
1 1/4	7.25	1.50	2.88	5.12	4	1.12	2.06	3.75	1.66
1 1/2	8.00	1.75	3.12	5.75	4	1.25	2.38	4.38	1.90
2	9.25	2.00	3.75	6.75	8	1.12	2.75	5.00	2.38
2 1/2	10.50	2.25	4.50	7.75	8	1.25	3.12	5.62	2.88
3	12.00	2.62	5.25	9.00	8	1.38	3.62	6.62	3.50
4	14.00	3.00	6.50	10.75	8	1.62	4.25	7.50	4.50
5	16.50	3.62	8.00	12.75	8	1.88	5.12	9.00	5.56
6	19.00	4.25	9.25	14.50	8	2.12	6.00	10.75	6.63
8	21.75	5.00	12.00	17.25	12	2.12	7.00	12.50	8.63
10	26.50	6.50	14.75	21.25	12	2.62	9.00	16.50	10.75
12	30.00	7.25	17.38	24.38	12	2.88	10.00	18.25	12.75



FLANGES



Weld Neck Flange
(Fig. 1)



Blind Flange
(Fig. 2)

7 FORGED STEEL FLANGES FOR PIPELINE SYSTEM (BLIND & WELDING NECK)

*All dimensions are in inches.

(7-1.) 150 LB. MSS SP-44 FLANGES									
SIZE	O.D	T	T1	ØK	ØX	P.C.D.	N	Ød	LN
12	19	1 1/4	1 1/4	15	14 3/8	17	12	1	4 1/2
14	21	1 3/8	1 3/8	16 1/4	15 3/4	18 3/4	12	1 1/8	5
16	23 1/2	1 7/16	1 7/16	18 1/2	18	21 1/4	16	1 1/8	5
18	25	1 9/16	1 9/16	21	19 7/8	22 3/4	16	1 1/4	5 1/2
20	27 1/2	1 11/16	1 11/16	23	22	25	20	1 1/4	5 11/16
22	29 1/2	1 13/16	1 13/16	25 1/4	24	27 1/4	20	1 3/8	5 7/8
24	32	1 7/8	1 7/8	27 1/4	26 1/8	29 1/2	20	1 3/8	6
26	34 1/4	2 11/16	2 11/16	29 1/2	26 5/8	31 3/4	24	1 3/8	4 3/4
28	36 1/2	2 13/16	2 13/16	31 1/2	28 5/8	34	28	1 3/8	4 15/16
30	38 3/4	2 15/16	2 15/16	33 3/4	30 3/4	36	28	1 3/8	5 3/8
32	41 3/4	3 3/16	3 3/16	36	32 3/4	38 1/2	28	1 5/8	5 11/16
34	43 3/4	3 1/4	3 1/4	38	34 3/4	40 1/2	32	1 5/8	5 7/8
36	46	3 9/16	3 9/16	40 1/4	36 3/4	42 3/4	32	1 5/8	6 3/16
40	50 3/4	2 3/8	3 1/2	40 3/4	43 3/4	47 1/4	36	1 5/8	6 3/4
42	53	2 5/8	3 3/4	47	44 3/4	49 1/2	36	1 5/8	6 15/16
48	59 1/2	2 3/4	4 1/8	53 1/2	50 3/4	56	44	1 5/8	7 1/4
(7-2.) 300 LB. MSS SP-44 FLANGES									
12	20 1/2	2	2	15	14 3/4	17 3/4	16	1 1/4	5 1/8
14	23	2 1/8	2 1/8	16 1/4	16 3/4	20 1/4	20	1 1/4	5 5/8
16	25 1/2	2 1/4	2 1/4	18 1/2	19	22 1/2	20	1 3/8	5 3/4
18	28	2 3/8	2 3/8	21	21	24 3/4	24	1 3/8	6 1/4
20	30 1/2	2 1/2	2 1/2	23	23 1/8	27	24	1 3/8	6 3/8
22	33	2 5/8	2 5/8	25 1/4	25 1/4	29 1/4	24	1 5/8	6 1/2
24	36	2 3/4	2 3/4	27 1/4	27 5/8	32	24	1 5/8	6 5/8
26	38 1/4	3 1/8	3 5/16	29 1/2	28 3/8	34 1/2	28	1 3/4	7 1/4
28	40 3/4	3 3/8	3 9/16	31 1/2	30 1/2	37	28	1 3/4	7 3/4
30	43	3 5/8	3 3/4	33 3/4	32 9/16	39 1/4	28	1 7/8	8 1/4
32	45 1/4	3 7/8	3 15/16	36	34 11/16	41 1/2	28	2	8 3/4
34	47 1/2	4	4 1/8	38	36 7/8	43 1/2	28	2	9 1/8
36	50	4	4 3/8	40 1/4	39	46	32	2 1/8	9 1/2
40	55	4 1/2	6 5/16	45	43 7/16	50 3/4	36	2 1/8	10 1/2
42	57	4 5/8	6 7/16	47	45 7/16	52 3/4	36	2 1/8	10 7/8
48	63 1/2	5	6 15/16	55	52 1/2	59	36	2 3/8	11 3/4



FLANGES

7 FORGED STEEL FLANGES FOR PIPELINE SYSTEM (BLIND & WELDING NECK)

*All dimensions are in inches.

(7-3.) 400 LB. MSS SP-44 FLANGES									
SIZE	O.D.	T	T1	ØK	ØX	P.C.D.	N	Ød	LN
12	20 1/2	2 1/4	2 1/4	15	14 3/4	17 3/4	16	1 3/8	5 3/8
14	23	2 3/8	2 3/8	16 1/4	16 3/4	20 1/4	20	1 3/8	5 7/8
16	25 1/2	2 1/2	2 1/2	18 1/2	19	22 1/2	20	1 1/2	6
18	28	2 5/8	2 5/8	21	21	24 3/4	24	1 1/2	6 1/2
20	30 1/2	2 3/4	2 3/4	23	23 1/8	27	24	1 5/8	6 5/8
22	33	2 7/8	2 7/8	25 1/4	25 1/4	29 1/4	24	1 3/4	6 3/4
24	36	3.00	3.00	27 1/4	27 5/8	32	24	1 7/8	6 7/8
26	38 1/4	3 1/2	3 7/8	29 1/2	28 5/8	34 1/2	28	1 7/8	7 5/8
28	40 3/4	3 3/4	4 1/8	31 1/2	30 13/16	37	28	2	8 1/8
30	43	4	4 3/8	33 3/4	32 15/16	39 1/4	28	2 1/8	8 5/8
32	45 1/4	4 1/4	4 9/16	36	35	41 1/2	28	2 1/8	9 1/8
34	47 1/2	4 3/8	4 13/16	38	37 3/16	43 1/2	28	2 1/8	9 1/2
36	50	4 1/2	5 1/16	40 1/4	39 3/8	46	32	2 1/8	9 7/8
40	55	5	6 5/16	45	44	50 3/4	32	2 3/8	11
42	57	5 1/8	6 7/16	47	45 1/2	52 3/4	32	2 5/8	11 3/8
48	64 1/4	5 7/8	6 15/16	55	52 3/4	59	32	2 7/8	12 3/8

(7-4.) 600 LB. MSS SP-44 FLANGES									
SIZE	O.D.	T	T1	ØK	ØX	P.C.D.	N	Ød	LN
12	22	2 5/8	2 5/8	15	15 3/4	19 1/4	20	1 3/8	6 1/8
14	23 3/4	2 3/4	2 5/8	16 1/4	17	20 3/4	20	1 1/2	6 1/2
16	27	3	3	18 1/2	19 1/2	23 3/4	20	1 5/8	7
18	29 1/4	3 1/4	3 1/4	21	21 1/2	35 3/4	20	1 3/4	7 1/4
20	32	3 1/2	3 1/2	23	24	28 1/2	24	1 3/4	7 1/2
22	34 1/4	3 3/4	3 3/4	25 1/4	26 1/4	30 5/8	24	1 7/8	7 3/4
24	37	4	4	27 1/4	28 1/4	33	24	2	8
26	40	4 1/4	4 15/16	29 1/2	29 7/16	36	28	2	8 3/4
28	42 1/4	4 3/8	5 3/16	31 1/2	31 5/8	38	28	2 1/8	9 1/4
30	44 1/2	4 1/2	5 1/2	33 3/4	33 15/16	40 1/4	28	2 1/8	9 3/4
32	47	4 5/8	5 13/16	36	36 1/8	42 1/2	28	2 3/8	10 1/4
34	49	4 3/4	6 1/16	38	38 5/8	44 1/2	28	2 3/8	10 5/8
36	51 3/4	4 7/8	6 3/8	40 1/4	40 5/8	47	28	2 5/8	11 1/8
40	56 3/4	5 3/8	6 5/16	45	44 1/2	51 3/4	28	2 7/8	12 1/4
42	58 3/4	5 1/2	6 7/16	47	46 1/2	53 3/4	28	2 7/8	12 3/4
48	66	6 1/4	6 15/16	55	52 3/4	60 1/4	28	3 1/8	14 3/8



FLANGES

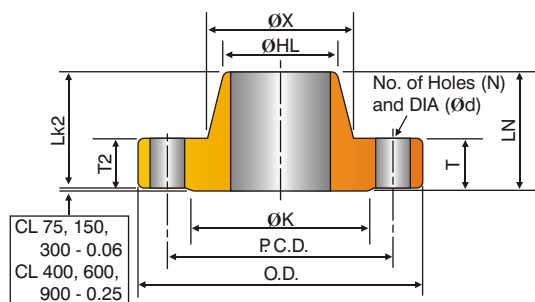
7 FORGED STEEL FLANGES FOR PIPELINE SYSTEM (BLIND & WELDING NECK)

*All dimensions are in inches.

(7-5.) 900 LB. MSS SP-44 FLANGES									
SIZE	OD	T	T1	ØK	ØX	P.C.D.	N	Ød	LN
12	24	3 1/8	3 1/8	15	16 1/2	21	20	1 1/2	7 7/8
14	25 1/4	3 3/8	3 3/8	16 1/4	17 3/4	22	20	1 5/8	8 3/8
16	27 3/4	3 1/2	3 1/2	18 1/2	20	24 1/4	20	1 3/4	8 1/2
18	31	4	4	21	22 1/4	27	20	2	9
20	33 3/4	4 1/4	4 1/4	23	24 1/2	29 1/2	20	2 1/8	9 3/4
24	41	5 1/2	5 1/2	27 1/4	29 1/2	35 1/2	20	2 5/8	11 1/2
26	42 3/4	5 1/2	6 5/16	29 1/2	30 1/2	37 1/2	20	2 7/8	11 1/4
28	46	5 5/8	6 3/4	31 1/2	32 3/4	40 1/4	20	3 1/8	11 3/4
30	48 1/2	5 7/8	7 3/16	33 3/4	35	42 3/4	20	3 1/8	12 1/4
32	51 3/4	6 1/4	7 5/8	36	37 1/4	45 1/2	20	3 3/8	13
34	55	6 1/2	8 1/16	38	39 5/8	48 1/4	20	3 5/8	13 3/4
36	57 1/2	6 3/4	8 7/16	40 1/4	41 7/8	50 3/4	20	3 5/8	14 1/4

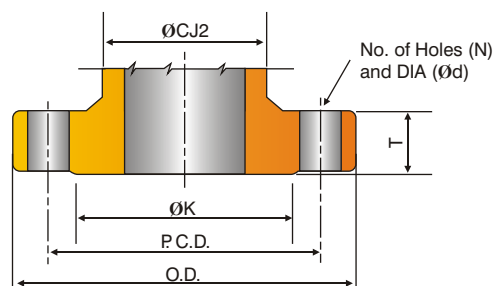


FLANGES



Weld Neck Flange

(Fig. 1)



Integral Flange

(Fig. 2)

8 FORGED STEEL FLANGES (AS PER API-605)

*All dimensions are in inches.

(8-1.) CLASS-75 WELD NECK & INTEGRAL FLANGES									
SIZE	O.D.	T	ØK	ØHL	J2	P.C.D.	N	Ød	LN
26	30.00	1.31	27.75	26.06	26.62	28.50	36	0.75	2.31
28	32.00	1.31	29.75	28.06	28.62	30.50	40	0.75	2.44
30	34.00	1.31	31.75	30.06	30.62	32.50	44	0.75	2.56
32	36.00	1.38	33.75	32.06	32.62	34.50	48	0.75	2.75
34	38.00	1.38	35.75	34.06	34.62	36.50	52	0.75	2.88
36	40.69	1.44	38.00	36.06	36.81	39.06	40	0.88	3.38
38	42.69	1.50	40.00	38.06	38.81	41.06	40	0.88	3.50
40	44.69	1.50	42.00	40.06	40.81	43.06	44	0.88	3.62
42	46.69	1.56	44.00	42.06	42.81	45.06	48	0.88	3.75
44	49.25	1.69	46.25	44.06	44.88	47.38	36	1.00	4.12
46	51.25	1.75	48.25	46.06	46.88	49.38	40	1.00	4.25
48	53.25	1.81	50.25	48.06	48.88	51.38	44	1.00	4.38
50	55.25	1.88	52.25	50.06	50.88	53.38	44	1.00	4.56
52	57.38	1.88	54.25	52.06	53.00	55.50	48	1.00	4.75
54	59.38	1.94	56.25	54.06	55.00	57.50	48	1.00	4.94
56	62.00	2.00	58.50	56.06	57.12	59.88	40	1.12	5.31
58	64.00	2.06	60.50	58.06	59.12	61.88	44	1.12	5.44
60	66.00	2.19	62.50	60.06	61.12	63.88	44	1.12	5.69



FLANGES

8 FORGED STEEL FLANGES (AS PER API-605)

*All dimensions are in inches.

(8-2.) CLASS-150 WELD NECK & INTEGRAL FLANGES									
SIZE	O.D	T	ØK	ØHL	J2	P.C.D.	N	Ød	LN
26	30.94	1.62	28.00	26.06	26.62	29.31	36	0.88	3.50
28	32.94	1.75	30.00	28.06	28.62	31.31	40	0.88	3.75
30	34.94	1.75	32.00	30.06	30.62	33.31	44	0.88	3.94
32	37.06	1.81	34.00	32.06	32.75	35.44	48	0.88	4.25
34	39.56	1.94	36.25	34.06	34.75	37.69	40	1.00	4.34
36	41.62	2.06	38.25	36.06	36.81	39.75	44	1.00	4.62
38	44.25	2.12	40.25	38.12	38.94	42.12	40	1.12	4.88
40	46.25	2.19	42.50	40.12	40.94	44.12	44	1.12	5.06
42	48.25	2.31	44.50	42.12	42.94	46.12	48	1.12	5.25
44	50.25	2.38	46.50	44.12	44.94	48.12	52	1.12	5.38
46	52.81	2.44	48.62	46.12	47.12	50.56	40	1.25	5.69
48	54.81	2.56	50.75	48.12	49.12	52.56	44	1.25	5.88
50	56.81	2.69	52.75	50.12	51.12	54.56	48	1.25	6.06
52	58.81	2.75	54.75	52.12	53.12	56.56	52	1.25	6.19
54	61.00	2.81	56.75	54.12	55.31	58.75	56	1.25	6.38
56	63.00	2.88	58.75	56.12	57.31	60.75	60	1.25	6.56
58	65.94	2.94	60.75	58.12	59.50	63.44	48	1.38	6.88
60	67.94	3.00	63.00	60.12	61.50	65.44	52	1.38	7.06

(8-3.) CLASS-300 WELD NECK & INTEGRAL FLANGES									
SIZE	O.D	T	ØK	ØHL	J2	P.C.D.	N	Ød	LN
26	34.12	3.50	29.00	26.19	27.12	31.62	32	1.38	5.69
28	36.25	3.50	31.00	28.19	29.25	33.75	36	1.38	5.88
30	39.00	3.69	33.25	30.25	31.50	36.25	36	1.50	6.22
32	41.50	4.06	35.50	32.25	33.50	38.50	32	1.62	6.62
34	43.62	4.06	37.50	34.25	35.62	40.62	36	1.62	6.81
36	46.12	4.06	39.75	36.25	37.62	42.88	32	1.75	7.12
38	48.12	4.38	41.75	38.25	39.62	44.88	36	1.75	7.56
40	50.12	4.56	43.88	40.25	41.38	46.88	40	1.75	7.81
42	52.50	4.69	46.00	42.31	43.38	49.00	36	1.88	8.06
44	54.50	5.00	48.00	44.31	45.62	51.00	40	1.88	8.44
46	57.50	5.06	50.00	46.31	47.88	53.75	36	2.00	8.75
48	59.50	5.06	52.25	48.31	49.88	55.75	40	2.00	8.81
50	61.50	5.44	54.25	50.31	51.88	57.75	44	2.00	9.25
52	63.50	5.62	56.25	52.31	53.88	59.75	48	2.00	9.56
54	65.88	5.38	58.25	54.31	56.25	62.12	48	2.00	9.44
56	69.50	6.06	60.50	56.31	58.38	65.00	36	2.38	10.56
58	71.94	6.06	62.75	58.31	60.81	67.44	40	2.38	10.81
60	73.94	5.94	65.00	60.31	62.69	69.44	40	2.38	10.69



FLANGES

8 FORGED STEEL FLANGES (AS PER API-605)

*All dimensions are in inches.

(8-4.) CLASS-400 WELD NECK FLANGES									
SIZE	O.D	T	ØK	ØHL	ØX	P.C.D.	N	Ød	LN2
26	33.50	3.50	28.00	26.00	27.12	30.75	28	1.50	5.88
28	36.00	3.75	30.00	28.00	29.12	33.00	24	1.62	6.25
30	38.25	4.00	32.25	30.00	31.25	35.25	28	1.62	6.69
32	40.75	4.25	34.38	32.00	33.25	37.50	28	1.75	7.06
34	42.75	4.38	36.50	34.00	35.38	39.50	32	1.75	7.38
36	45.50	4.69	38.62	36.00	37.50	42.00	28	1.88	7.88
38	47.50	4.88	40.75	38.00	39.50	44.00	32	1.88	8.12
40	50.00	5.12	43.00	40.00	41.50	46.25	32	2.00	8.50
42	52.00	5.25	45.00	42.00	43.62	48.25	32	2.00	8.81
44	54.50	5.50	47.25	44.00	45.62	50.50	32	2.12	9.19
46	56.75	5.75	49.50	46.00	47.75	52.75	36	2.12	9.62
48	59.50	6.00	51.50	48.00	49.88	55.25	28	2.38	10.12
50	61.75	6.19	53.62	50.00	52.00	57.50	32	2.38	10.56
52	63.75	6.38	55.62	52.00	54.00	59.50	32	2.38	10.88
54	67.00	6.69	57.88	54.00	56.12	62.25	28	2.62	11.38
56	69.00	6.88	60.12	56.00	58.25	64.25	32	2.62	11.75
58	71.00	7.00	62.12	58.00	60.25	66.25	32	2.62	12.06
60	74.25	7.31	64.38	60.00	62.38	69.00	32	2.88	12.56

(8-5.) CLASS-600 WELD NECK FLANGES									
SIZE	O.D	T	ØK	ØHL	ØX	P.C.D.	N	Ød	LN
26	35.00	4.38	28.62	26.00	27.50	31.75	28	1.75	7.12
28	37.50	4.56	30.88	28.00	29.62	34.00	28	1.88	7.50
30	40.25	4.94	33.12	30.00	31.75	36.50	28	2.00	8.06
32	42.75	5.12	35.25	32.00	33.88	38.75	28	2.12	8.50
34	45.75	5.56	37.50	34.00	36.00	41.50	24	2.38	9.19
36	47.75	5.75	39.75	36.00	38.12	43.50	28	2.38	9.56
38	50.00	6.00	41.50	38.00	40.25	45.75	28	2.38	10.00
40	52.00	6.25	43.75	40.00	42.25	47.75	32	2.38	10.38
42	55.25	6.62	46.00	42.00	44.38	50.50	28	2.62	11.00
44	57.25	6.81	48.25	44.00	46.50	52.50	32	2.62	11.38
46	59.50	7.06	50.25	46.00	48.62	54.75	32	2.62	11.81
48	62.75	7.44	52.50	48.00	50.75	57.50	32	2.88	12.44
50	65.75	7.75	54.50	50.00	52.88	60.00	28	3.12	12.94
52	67.75	8.00	56.50	52.00	54.88	62.00	32	3.12	13.25
54	70.00	8.25	58.75	54.00	57.00	64.25	32	3.12	13.75
56	73.00	8.56	60.75	56.00	59.12	66.75	32	3.38	14.25
58	75.00	8.75	63.00	58.00	61.12	68.75	32	3.38	14.56
60	78.50	9.19	65.25	60.00	63.38	71.75	28	3.62	15.31



FLANGES

8 FORGED STEEL FLANGES (AS PER API-605)

*All dimensions are in inches.

(8-6.) CLASS-900 WELD NECK FLANGES									
SIZE	O.D	T	ØK	ØHL	ØX	P.C.D.	N	Ød	LN
26	40.25	5.31	30.00	26.00	29.25	35.50	20	2.62	10.19
28	43.50	5.81	32.25	28.00	31.38	38.25	20	2.88	10.88
30	46.50	6.12	34.50	30.00	33.50	40.75	20	3.12	11.38
32	48.75	6.31	36.50	32.00	35.75	43.00	20	3.12	11.94
34	51.75	6.75	39.00	34.00	37.88	45.50	20	3.38	12.56
36	53.00	6.81	40.50	36.00	40.00	47.25	24	3.12	12.81
38	57.50	7.50	43.25	38.00	42.25	50.75	20	3.62	13.88
40	59.50	7.75	45.75	40.00	44.38	52.75	24	3.62	14.31
42	61.50	8.12	47.75	42.00	46.31	54.75	24	3.62	14.62
44	64.88	8.44	50.00	44.00	48.62	57.62	24	3.88	15.38
46	68.25	8.88	52.50	46.00	50.88	60.50	24	4.12	16.19
48	70.25	9.19	54.50	48.00	52.88	62.50	24	4.12	16.50



STUDS & NUTS

Studs & Nuts (As per 6A & ANSI B16.5)

1.1 Brief Description

PARVEEN manufactures and supplies studs, nuts to meet requirements of all API flanges as per API-6A, as well as flanges as per ANSI B-16.5 and MSS-SP-44 & BS 3293.

Studs & Nuts for API Flanges (Table - 1)

Studs Nuts shall meet the requirements of the applicable ASTM specs unless otherwise noted. Dimension and thread pitch shall be as per ASTM A -193 for studs and ASTM A 194 for nuts. The mechanical properties as specified in the table. API flanges takes precedence from those required by ASTM.

Yield strength shall meet or exceed the minimum shown in the table. Material size limitations specified in ASTM A-320 for Gr L7M may be exceeded if the material requirement are met.

NACE Class - I Studs

- a. UNS No. 05500 in the hot rolled and age hardened condition will have a hardness of HRC 35 or lower and a minimum yield strength of 105000 PSI (725 MPA) for dia's upto 2.5" and of 95000 PSI for Larger sizes.
- b. ASTM a 453 Gr 660 solution treated and age hardened will have a hardness of HRC 35 and lower and a Minimum yield strength of 105,000 PSI for dia's upto 2.5" and of 95000 PSI for larger sizes.

NACE Class. II Studs

- a. ASTM a 193 Gr B7M is provided at a minimum yield strength of 80,000 PSI for the API flanges for NACE MR 01-75 Class II only.
- b. ASTM a 320 Grade L7M is provided at a minimum yield strength of 80000 PSI for the API flanges for NACE MR 01-75 Class II only.

NACE Class. III Studs

- a. ASTM a 193 Gr B7 is provided for non exposed service for the API flanges for NACE MR 01-75 Class III only.
- b. ASTM a 320 Gr L7 is provided for non exposed service for the API flanges for NACE MR 01-75 Class III Only.

NACE Nuts

- a. ASTM a 194 Gr. 2 HM is provided for all API flange sizes and rated working pressure.
- b. For NACE Class I, UNS no. 05500 or ASTM A 453 Gr. 660 nuts can be used with NACE Class I bolting after making provisions to prevent galling.

Studs & Nuts for ANSI B - 16.5 Flanges (Table - 2)

Bolting materials for high strength bolting having allowable stress not less than those for ASTM a 193 Gr. B7 are also listed. These and other materials of comparable strength can be used. Bolting materials for intermediate strength at low strength are also listed in the Table 2. Minimum yield strength for low strength bolting is 30 KSI (207 MPA). Flanged joints using low strength carbon steel bolts will not be used above 400° F (200°C) or below -20° F (-29°C)



STUDS & NUTS

General Note:

- a. Bolting material will not be used beyond temperature limits specified in the governing Code.

Notes:

1. Repair welding of bolting material is prohibited.
2. These bolting materials may be used with all listed materials and gaskets.
3. These bolting materials may be used with all listed materials and gaskets, provided it has been verified that as Sealed Joint can be maintained under rated working pressure and temperature.
4. These bolting materials may be used with all listed materials but are limited to class 150 and class 300 Joints.
5. These materials may be used as bolting with comparable nickel and special alloy parts.
6. This austenitic stainless material has been carbide solution treated but not strain hardened. Use A 194 Nuts of corresponding material.
7. Nut may be machined from the same material or may be of a compatible grade of ASTM A194.
8. Maximum operating temperature is arbitrarily set at 500° F (260° C) because hard temper adversely affects design stress in the creep rupture range.
9. Forging quality not permitted unless the producer last heating or working these parts tests them as required for other permitted conditions in the same specification and certifies their final tensile, yield, and elongation properties to equal or exceed the requirements for one of the other permitted conditions.
10. This ferritic material is intended for low temperature service. Use A 194 Gr 4 or Gr 7 nuts.
11. This austenitic stainless material has been carbide solution treated and strain hardened. Use A 194 nuts of corresponding material.
12. This carbon steel fastener shall not be used above 400° F (200° C) or below -20° F (-29° C). See also note 4. Bolts with drilled or undersized heads shall not be used.
13. Acceptable nuts for use with quenched and tempered Bolts are A 194 Gr 2 and Gr 2H. Mechanical property requirements for studs shall be the same as those for bolts.
14. This special alloy is intended for high temperature service with austenitic stainless steel.



STUDS & NUTS

1.2 BOLTING REQUIREMENT FOR API END FLANGES (Applicable ASTM Specification)

TABLE - 1

REQUIREMENT	MATERIAL CLASS						
	AA, BB OR CC		DD,EE,FF&HH				
	TEMPERATURE CLASSIFICATION		TEMPERATURE CLASSIFICATION				
	P,S,T OR U	K,L,P,S. T OR U	P,S,T OR U	K,L,P,S. T OR U	P,S,T OR U	K,L,P,S. T OR U	S,K,L,P, T OR U
NACE MR 0175 CLASS.	NONE	NONE	III	III	II	II	I
SIZE AND RATED WORKING PRESSURE	ALL	ALL	ALL	ALL	ALL 2000 AND 3000 PSI. 5000 PSI FLGS<13 5/8 10000 PSI FLGS<4 1/16 15000 PSI FLG <2 1/16 ALL 20,000PSI.		ALL
BOLTING							
ASTM SPEC. GRADES AND MATERIALS.	A 193 GR.B7	A 320 GR. L7 OR L43	A 193 GR.B7	A 320 GR. L7 OR L43	A 193 GR B7M	A 320 GR. L7M	A 453 GR 600 K- 500 MONEL
YIELD STRENGTH, KSI, MINIMUM	105(≤2.5IN.) 95(>2.5IN.)	105(≤2.5IN.) 95(>2.5IN.)	105(≤2.5IN.) 95(>2.5IN.)	105(≤2.5IN.) 95(>2.5IN.)	80	80	105(≤2.5IN.) 95(>2.5IN.)
HARDNESS PER NACE MR0175	NO	NO	NO	NO	YES	YES	YES
CHARPY TESTING REQUIRED	NO	YES	NO	YES	NO	YES	NO
NUTS.							
ASTM SPEC AND GRADES HEAVY	A 194 2H,2HM, 4 OR 7	A 194 2H,2HM, 4 OR 7	A 194 2H,2HM, 4 OR 7	A 194 2H,2HM, 4 OR 7	A 194 GR 2HM	A 194 GR 2HM	A 194 GR 2HM
HARDNESS PER NACE Mr0175	NO	NO	NO	NO	YES	YES	YES
CHARPY TESTING REQUIRED.	NO	NO	NO	NO	NO	NO	NO



STUDS & NUTS

1.3 BOLTING SPECIFICATIONS FOR ANSI B 16.5 FLANGE (Applicable ASTM Specifications)

TABLE 2

BOLTING MATERIALS							
HIGH STRENGTH (NOTE NO. 2)		INTERMEDIATE STRENGTH (NOTE NO. 3)		LOW STRENGTH (NOTE NO. 4)		NICKEL & SPECIAL ALLOY (NOTE NO. 5)	
SPEC - GR	NOTES	SPEC - GR	NOTES	SPEC - GR	NOTES	SPEC - GR	NOTES
A 193 - B 7		A 193 - B 5		A 193 - B 8 CL. 1	(6)	B 164	(7) (8) (9)
A 193 - B 16		A 193 - B 6		A 193 - BBC CL. 1	(6)	B 166	(7) (8) (9)
A 320 - L 7	(10)	A 193 - B 6X		A 193 - BBM CL. 1	(6)	B 335 - N 10665	(7)
A 320 - L 7A	(10)	A 193 - B 7M		A 193 - BBT CL. 1	(6)	B 408	(7) (8) (9)
A 320 - L 7B	(10)	A 193 - B 8 CL 2	(11)	A 193 - B 8A	(6)	B 473	(7)
A 320 - L 7C	(10)	A 193 - B 8C CL 2	(11)	A 193 - B 8CA	(6)	B 574 - N 10276	(7)
A 320 - L 73	(10)	A 193 - B 8M CL 2	(11)	A 193 - B 8MA	(6)	-	
A 354 - BC		A 193 - B 8T CL 2	(11)	A 193 - B 8TA	(6)	-	
A 354 - BD		A 320 - B 8 CL 2	(11)	A 307 - B	(12)		
		A 320 - B 8C CL 2	(11)	A 320 - B 8 CL. 1	(6)	-	
A 540 - B 21		A 320 - B 8F CL 2	(11)	A 320 - B 8C CL. 1	(6)	-	
A 540 - B 22		A 320 - B 8M CL 2	(11)	A 320 - B 8M CL. 1	(6)	-	
A 540 - B 23		A 320 - B 8T CL 2	(11)	A 320 - B 8T CL. 1	(6)	-	
A 540 - B 24		A 449	(13)			-	
		A 453 - 651	(14)			-	
		A 453 - 660	(14)			-	



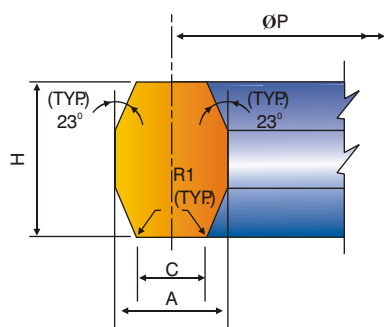
METALLIC GASKETS FOR PIPE FLANGES

Ring Joint Gaskets are either octagonal or oval made to ASME B 16.20 in various sizes. These are identified by numbers R, RX or BX that relate to Flange size, pressure, class, and appropriate standards ASME B 16.20 or API 6A.

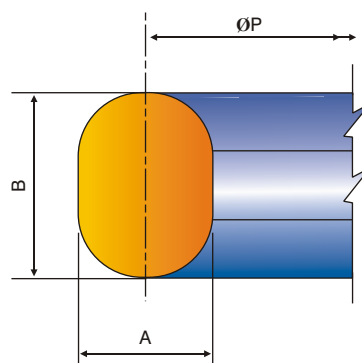
Materials for these gaskets are selected based on suitability for service conditions. It is essential that Ring Joint Gaskets be of a hardness lower than the Flanges. The recommended hardness and their identification is given in table below:

RING GASKET MATERIAL	MAXIMUM HARDNESS		IDENTIFICATION	
	BRINELL	ROCKWELL 'B' SCALE	ASME B16.20	API - 6A
SOFT IRON	90	56	D	D - 4
LOW CARBON STEEL	120	68	S	S - 4
4-6 CHROME 1/2 MOLY	130	72	F5	
TYPE 410	170	86	S 410	
TYPE 304	160	83	S 304	S 304 - 4
TYPE 316	160	83	S 316	S 316 - 4
TYPE 347	160	83	S 347	

These Gaskets are marked with PARVEEN'S Name -API Monogram - Gasket Type and No.-Identification - Date of Mfg..
Dimensions of various types of gaskets are given in the tables that follow:



Octagonal



Oval



RING GASKETS

*All dimensions are in inches. *Tolerance as per ASME B 16.20

TYPE R RING GASKETS (AS PER ASME B16.20)						
RING NO.	ØP	A	B	H	C	R1
R-11	1.344	0.250	0.44	0.38	0.170	0.06
R-12	1.563	0.313	0.56	0.50	0.206	0.06
R-13	1.688	0.313	0.56	0.50	0.206	0.06
R-14	1.750	0.313	0.56	0.50	0.206	0.06
R-15	1.875	0.313	0.56	0.50	0.206	0.06
R-16	2.000	0.313	0.56	0.50	0.206	0.06
R-17	2.250	0.313	0.56	0.50	0.206	0.06
R-18	2.375	0.313	0.56	0.50	0.206	0.06
R-19	2.563	0.313	0.56	0.50	0.206	0.06
R-20	2.688	0.313	0.56	0.50	0.206	0.06
R-21	2.844	0.438	0.69	0.63	0.305	0.06
R-22	3.250	0.313	0.56	0.50	0.206	0.06
R-23	3.250	0.438	0.69	0.63	0.305	0.06
R-24	3.750	0.438	0.69	0.63	0.305	0.06
R-25	4.000	0.313	0.56	0.50	0.206	0.06
R-26	4.000	0.438	0.69	0.63	0.305	0.06
R-27	4.250	0.438	0.75	0.63	0.305	0.06
R-28	4.375	0.500	0.56	0.69	0.341	0.06
R-29	4.500	0.313	0.69	0.50	0.206	0.06
R-30	4.625	0.438	0.69	0.63	0.305	0.06
R-31	4.875	0.438	0.69	0.63	0.305	0.06
R-32	5.000	0.500	0.75	0.69	0.341	0.06
R-33	5.188	0.313	0.56	0.50	0.206	0.06
R-34	5.188	0.438	0.69	0.63	0.305	0.06
R-35	5.375	0.438	0.69	0.63	0.305	0.06
R-36	5.875	0.313	0.56	0.50	0.206	0.06
R-37	5.875	0.438	0.69	0.63	0.305	0.06
R-38	6.188	0.625	0.88	0.81	0.413	0.06
R-39	6.375	0.438	0.69	0.63	0.305	0.06
R-40	6.750	0.313	0.56	0.50	0.206	0.06
R-41	7.125	0.438	0.69	0.63	0.305	0.06
R-42	7.500	0.750	1.00	0.94	0.485	0.06
R-43	7.625	0.313	0.56	0.50	0.206	0.06
R-44	7.625	0.438	0.69	0.63	0.305	0.06
R-45	8.313	0.438	0.69	0.63	0.305	0.06
R-46	8.313	0.500	0.75	0.69	0.341	0.06
R-47	9.000	0.750	1.00	0.94	0.485	0.06
R-48	9.750	0.313	0.56	0.50	0.206	0.06
R-49	10.625	0.438	0.69	0.63	0.305	0.06
R-50	10.625	0.625	0.88	0.81	0.413	0.06
R-51	11.000	0.875	1.13	1.06	0.583	0.06
R-52	12.000	0.313	0.56	0.50	0.206	0.06
R-53	12.750	0.438	0.69	0.63	0.305	0.06
R-54	12.750	0.625	0.88	0.81	0.413	0.06
R-55	13.500	1.125	1.44	1.38	0.780	0.09
R-56	15.000	0.313	0.56	0.50	0.206	0.06
R-57	15.000	0.438	0.69	0.63	0.305	0.06
R-58	15.000	0.875	1.13	1.06	0.583	0.06
R-59	15.625	0.313	0.56	0.50	0.206	0.06
R-60	16.000	1.250	1.56	1.50	0.879	0.09
R-61	16.500	0.438	0.69	0.63	0.305	0.06
R-62	16.500	0.625	0.88	0.81	0.413	0.06
R-63	16.500	1.000	1.31	1.25	0.681	0.09
R-64	17.875	0.313	0.56	0.50	0.205	0.06
R-65	18.500	0.438	0.69	0.63	0.305	0.06
R-66	18.500	0.625	0.88	0.81	0.413	0.06



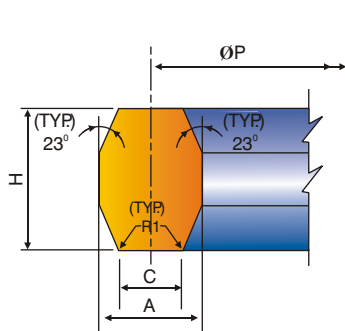
RING GASKETS

*All dimensions are in inches. *Tolerance as per ASME B 16.20

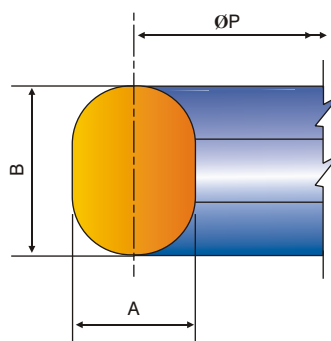
TYPE 'R' RING GASKETS (AS PER ASME B 16.20)						
RING NO.	ØP	A	B	H	C	R1
R-67	18.500	1.125	1.44	1.38	0.780	0.09
R-68	20.375	0.313	0.56	0.50	0.206	0.06
R-69	21.000	0.438	0.69	0.63	0.305	0.06
R-70	21.000	0.750	1.00	0.94	0.485	0.06
R-71	21.000	1.125	1.44	1.38	0.780	0.09
R-72	22.000	0.313	0.56	0.50	0.206	0.06
R-73	23.000	0.500	0.75	0.69	0.341	0.06
R-74	23.000	0.750	1.00	0.94	0.485	0.06
R-75	23.000	1.250	1.56	1.50	0.879	0.09
R-76	26.500	0.313	0.56	0.50	0.206	0.06
R-77	27.250	0.625	0.88	0.81	0.413	0.06
R-78	27.250	1.000	1.31	1.25	0.681	0.09
R-79	27.250	1.375	1.75	1.63	0.977	0.09
R-80	24.250	0.313	N/A	0.50	0.206	0.06
R-81	25.000	0.563	N/A	0.75	0.377	0.06
R-82	2.250	0.438	N/A	0.63	0.305	0.06
R-84	2.500	0.438	N/A	0.63	0.305	0.03
R-85	3.125	0.500	N/A	0.69	0.341	0.06
R-86	3.563	0.625	N/A	0.81	0.413	0.06
R-87	3.938	0.625	N/A	0.81	0.413	0.06
R-88	4.875	0.750	N/A	0.94	0.485	0.06
R-89	4.500	0.750	N/A	0.94	0.485	0.06
R-90	6.125	0.875	N/A	1.06	0.583	0.06
R-91	10.250	1.250	N/A	1.50	0.879	0.09
R-92	9.000	0.438	0.69	0.63	0.305	0.03
R-93	29.500	0.750	N/A	0.94	0.485	0.06
R-94	31.500	0.750	N/A	0.94	0.485	0.06
R-95	33.750	0.750	N/A	0.94	0.485	0.06
R-96	36.000	0.875	N/A	1.06	0.583	0.06
R-97	38.000	0.875	N/A	1.06	0.583	0.06
R-98	40.250	0.875	N/A	1.06	0.583	0.06
R-99	9.250	0.438	N/A	0.63	0.305	0.03
R-100	29.500	1.125	N/A	1.38	0.780	0.09
R-101	31.500	1.250	N/A	1.50	0.879	0.09
R-102	33.750	1.250	N/A	1.50	0.879	0.09
R-103	36.000	1.250	N/A	1.50	0.879	0.09
R-104	38.000	1.375	N/A	1.63	0.977	0.09
R-105	40.250	1.375	N/A	1.63	0.977	0.09



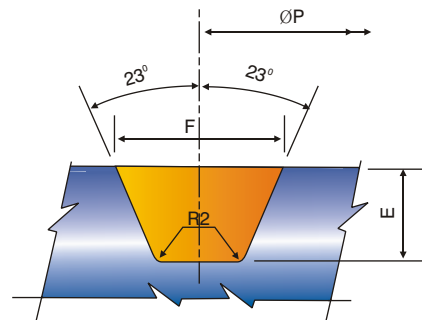
RING GASKETS



Octagonal



Oval



Groove

*All dimensions are in inches.

*Tolerance as per API - 6A.

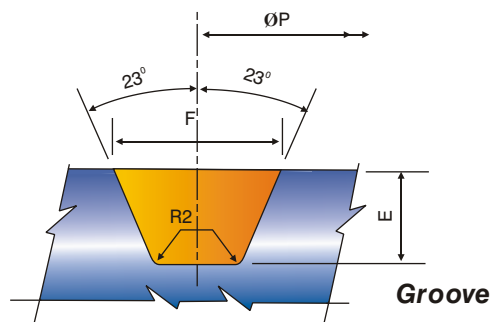
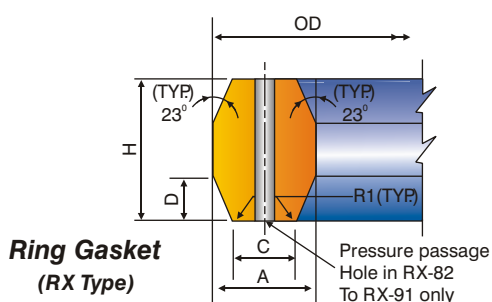
*S = Approx. Distance between made-up Flanges.

2 TYPE R RING GASKETS AND GROOVES (AS PER API 6A)

RING NO.	ØP	A	B	H	C	R1	E	F	R2	S
R-20	2.688	0.313	0.56	0.50	0.206	0.06	0.25	0.344	0.03	0.16
R-23	3.250	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-24	3.750	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-26	4.000	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-27	4.250	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-31	4.875	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-35	5.375	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-37	5.875	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-39	6.375	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-41	7.125	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-44	7.625	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-45	8.313	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-46	8.313	0.500	0.75	0.69	0.341	0.06	0.38	0.531	0.06	0.19
R-47	9.000	0.750	1.00	0.94	0.485	0.06	0.50	0.781	0.06	0.16
R-49	10.625	0.438	0.69	0.63	0.305	0.06	0.31	0.439	0.03	0.19
R-50	10.625	0.625	0.88	0.81	0.413	0.06	0.44	0.656	0.06	0.16
R-53	12.750	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-54	12.750	0.625	0.88	0.81	0.413	0.06	0.44	0.656	0.06	0.16
R-57	15.000	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-63	16.500	1.000	1.31	1.25	0.681	0.09	0.62	1.063	0.09	0.22
R-65	18.500	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-66	18.500	0.625	0.88	0.81	0.413	0.06	0.44	0.656	0.06	0.16
R-69	21.000	0.438	0.69	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-70	21.000	0.750	1.00	0.94	0.485	0.06	0.50	0.781	0.06	0.19
R-73	23.000	0.500	0.75	0.69	0.341	0.06	0.38	0.531	0.06	0.13
R-74	23.000	0.750	1.00	0.94	0.485	0.06	0.50	0.781	0.06	0.19
R-82	2.250	0.438	-	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-84	2.500	0.438	-	0.63	0.305	0.06	0.31	0.469	0.03	0.19
R-85	3.125	0.500	-	0.69	0.341	0.06	0.38	0.531	0.06	0.13
R-86	3.563	0.625	-	0.81	0.413	0.06	0.44	0.656	0.06	0.16
R-87	3.938	0.625	-	0.81	0.413	0.06	0.44	0.656	0.06	0.16
R-88	4.875	0.750	-	0.94	0.485	0.06	0.50	0.781	0.06	0.19
R-89	4.500	0.750	-	0.94	0.485	0.06	0.50	0.781	0.06	0.19
R-90	6.125	0.875	-	1.06	0.583	0.06	0.56	0.906	0.06	0.19
R-91	10.25	1.250	-	1.50	0.879	0.09	0.69	0.313	0.09	0.16
R-99	9.250	0.438	-	0.63	0.305	0.06	0.31	0.469	0.03	0.19



RING GASKETS



*All dimensions are in inches.

*Tolerance as per API - 6A.

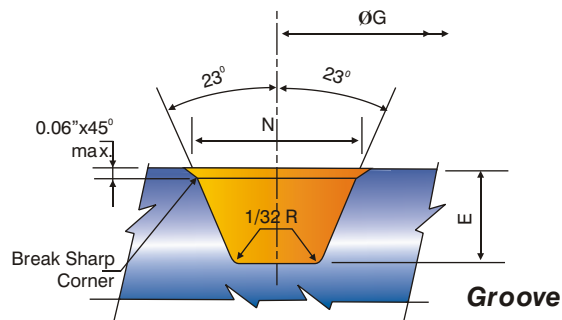
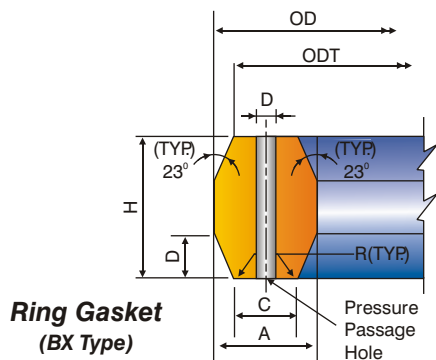
*S = Approx. Distance between made-up Flanges.

3 RX TYPE PRESSURE ENERGIZED RING GASKETS AND GROOVES (AS PER API 6A)

RING NO.	ØP	OD	A	C.	D	H	R1	E	F	R2	S
RX 20	2.688	3.000	0.344	0.182	0.125	0.750	0.06	0.25	0.344	0.03	0.38
RX 23	3.250	3.672	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 24	3.750	4.172	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 25	4.000	4.313	0.344	0.182	0.125	0.750	0.06	0.25	0.344	0.03	-
RX 26	4.000	4.406	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 27	4.250	4.656	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 31	4.875	5.297	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
Rx35	5.375	5.797	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 37	5.875	6.297	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 39	6.375	6.797	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 41	7.125	7.547	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 44	7.625	8.047	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 45	8.313	8.734	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 46	8.313	8.750	0.531	0.263	0.188	1.125	0.06	0.38	0.531	0.06	0.47
RX 47	9.000	9.656	0.781	0.407	0.271	1.625	0.09	0.50	0.781	0.06	0.91
RX 49	10.625	11.047	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 50	10.625	11.156	0.656	0.335	0.208	1.250	0.06	0.44	0.656	0.06	0.47
RX 53	12.750	13.172	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 54	12.750	13.281	0.656	0.335	0.208	1.250	0.06	0.44	0.656	0.06	0.47
RX 57	15.000	15.422	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 63	16.500	17.391	1.063	0.582	0.333	2.000	0.09	0.63	1.063	0.09	0.84
RX 65	18.500	18.922	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 66	18.500	19.031	0.656	0.335	0.208	1.250	0.06	0.44	0.656	0.06	0.47
RX 69	21.000	21.422	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 70	21.000	21.656	0.781	0.407	0.271	1.625	0.09	0.50	0.781	0.06	0.72
RX 73	23.000	23.469	0.531	0.263	0.208	1.250	0.06	0.38	0.531	0.06	0.59
RX 74	23.000	23.656	0.781	0.407	0.271	1.625	0.09	0.50	0.781	0.06	0.72
RX 82	2.250	2.672	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 84	2.500	2.922	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 85	3.125	3.547	0.531	0.263	0.167	1.000	0.06	0.38	0.531	0.06	0.38
RX 86	3.563	4.078	0.594	0.335	0.188	1.125	0.06	0.44	0.656	0.06	0.38
RX 87	3.938	4.453	0.594	0.335	0.188	1.125	0.06	0.44	0.656	0.06	0.38
RX 88	4.875	5.484	0.688	0.407	0.208	1.250	0.06	0.50	0.781	0.06	0.38
RX 89	4.500	5.109	0.719	0.407	0.208	1.250	0.06	0.50	0.781	0.06	0.38
RX 90	6.125	6.875	0.781	0.479	0.292	1.750	0.09	0.56	0.906	0.06	0.72
RX 91	10.25	11.297	1.188	0.780	0.297	1.781	0.09	0.69	1.313	0.09	0.75
RX 99	9.250	9.672	0.469	0.254	0.167	1.000	0.06	0.31	0.469	0.03	0.47
RX 201	1.813	2.026	0.226	0.126	0.057	0.445	0.02	0.16	0.219	0.03	-
RX 205	2.250	2.453	0.219	0.120	0.072	0.437	0.02	0.16	0.219	0.02	-
RX 210	3.500	3.844	0.375	0.213	0.125	0.750	0.03	0.25	0.375	0.03	-
RX 215	5.125	5.547	0.469	0.210	0.167	1.000	0.06	0.31	0.469	0.03	-



RING GASKETS



*All dimensions are in inches.

*Tolerance as per API - 6A.

4 BX TYPE PRESSURE ENERGIZED RING GASKETS AND GROOVES (AS PER API 6A)

RING NO.	NO.SIZE	OD	H	A	ODT	C	D	E	G	N
BX 150	1 11/16	2.842	0.366	0.366	2.790	0.314	0.06	0.22	2.893	0.450
BX 151	1 13/16	3.008	0.379	0.379	2.954	0.325	0.06	0.22	3.062	0.466
BX 152	2 1/16	3.334	0.403	0.403	3.277	0.346	0.06	0.23	3.395	0.498
BX 153	2 9/16	3.974	0.448	0.448	3.910	0.385	0.06	0.27	4.046	0.554
BX 154	3 1/16	4.600	0.488	0.488	4.531	0.419	0.06	0.30	4.685	0.606
BX 155	4 1/16	5.825	0.560	0.560	5.746	0.481	0.06	0.33	5.930	0.698
BX 156	7 1/16	9.367	0.733	0.733	9.263	0.629	0.12	0.44	9.521	0.921
BX 157	9	11.593	0.826	0.826	11.476	0.709	0.12	0.50	11.774	1.039
BX 158	11	13.860	0.911	0.911	13.731	0.782	0.12	0.56	14.064	1.149
BX 159	13	16.800	1.012	1.012	16.657	0.869	0.12	0.62	17.033	1.279
BX 160	13 5/8	15.850	0.938	0.541	15.717	0.408	0.12	0.56	16.063	0.786
BX 161	16 5/8	19.347	1.105	0.638	19.191	0.482	0.12	0.67	19.604	0.930
BX 162	16 5/8	18.720	0.560	0.560	18.641	0.481	0.06	0.33	18.832	0.705
BX 163	18 3/4	21.896	1.185	0.684	21.728	0.516	0.12	0.72	22.185	1.006
BX 164	18 3/4	22.463	1.185	0.968	22.295	0.800	0.12	0.72	22.752	1.290
BX 165	21 1/4	24.595	1.261	0.728	24.417	0.550	0.12	0.75	24.904	1.071
BX 166	21 1/4	25.198	1.261	1.029	25.020	0.851	0.12	0.75	25.507	1.373
BX 167	26 3/4	29.896	1.412	0.516	29.696	0.316	0.06	0.84	30.249	0.902
BX 168	26 3/4	30.128	1.412	0.632	29.928	0.432	0.06	0.84	30.481	1.018
BX 169	5 1/8	6.831	0.624	0.509	6.743	0.421	0.06	0.38	6.955	0.666
BX 170	9	8.584	0.560	0.560	8.505	0.481	0.06	0.33	8.696	0.705
BX 171	11	10.529	0.560	0.560	10.450	0.481	0.06	0.33	10.641	0.705
BX 172	13 5/8	13.113	0.560	0.560	13.034	0.481	0.06	0.33	13.225	0.705
BX 303	30	33.573	1.494	0.668	33.361	0.457	0.06	0.89	33.949	1.078



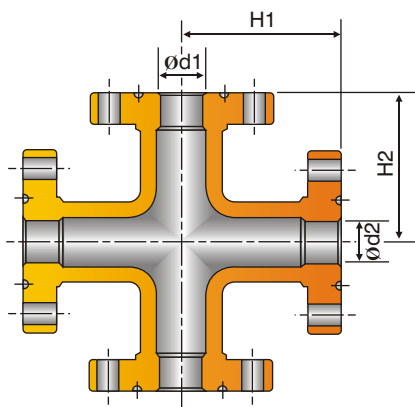
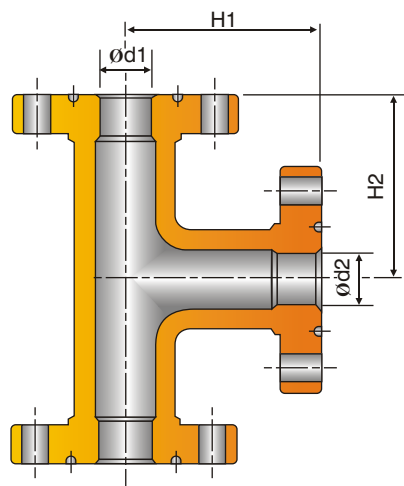
FLANGED CROSSES AND TEES (AS PER API-6A)

*All dimensions are in inches.

(1-1.) PRESSURE RATING:- 2000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	2 1/16	5.81	5.81
2 9/16	2 1/16	5.94	6.31
2 9/16	2 9/16	6.56	6.56
3 1/8	2 1/16	6.06	6.69
3 1/8	2 9/16	6.56	6.81
3 1/8	3 1/8	7.06	7.06
4 1/16	2 1/16	6.31	7.94
4 1/16	2 9/16	6.81	8.06
4 1/16	3 1/8	7.19	8.19
4 1/16	4 1/16	8.56	8.56

(1-2.) PRESSURE RATING:- 3000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
3 1/8	2 1/16	7.31	7.81
3 1/8	2 9/16	7.88	7.94
3 1/8	3 1/8	7.56	7.56
4 1/16	2 1/16	7.56	8.81
4 1/16	2 9/16	8.12	8.94
4 1/16	3 1/8	8.06	8.81
4 1/16	4 1/16	9.06	9.06

(1-3.) PRESSURE RATING:- 5000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	2 1/16	7.31	7.31
2 9/16	2 1/16	7.44	7.88
2 9/16	2 9/16	8.31	8.31
3 1/8	2 1/16	7.69	8.31
3 1/8	2 9/16	8.25	8.44
3 1/8	3 1/8	9.31	9.31
4 1/16	2 1/16	7.94	9.19
4 1/16	2 9/16	8.50	9.31
4 1/16	3 1/8	8.94	9.56
4 1/16	4 1/16	10.81	10.81

**API Flanged Cross****API Flanged Tee**

(1-4.) PRESSURE RATING:- 10000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	1 13/16	6.67	6.84
2 1/16	2 1/16	6.92	6.92
2 9/16	1 13/16	6.95	7.47
2 9/16	2 1/16	7.20	7.55
2 9/16	2 9/16	7.83	7.83
3 1/16	1 13/16	7.23	8.22
3 1/16	2 1/16	7.48	8.30
3 1/16	2 9/16	8.11	8.58
3 1/16	3 1/16	8.86	8.86
4 1/16	1 13/16	7.81	9.25
4 1/16	2 1/16	8.06	9.33
4 1/16	2 9/16	8.69	9.61
4 1/16	3 1/16	9.44	9.89
4 1/16	4 1/16	10.34	10.34

(1-5.) PRESSURE RATING:- 15000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	1 13/16	7.34	7.41
2 1/16	2 1/16	7.62	7.62
2 9/16	1 13/16	7.59	8.03
2 9/16	2 1/16	7.88	8.25
2 9/16	2 9/16	8.50	8.50
3 1/16	1 13/16	7.86	8.69
3 1/16	2 1/16	8.16	8.91
3 1/16	2 9/16	8.78	9.16
3 1/16	3 1/16	9.44	9.44
4 1/16	1 13/16	8.69	10.25
4 1/16	2 1/16	8.97	10.47
4 1/16	2 9/16	9.59	10.72
4 1/16	3 1/16	10.25	11.00
4 1/16	4 1/16	11.69	11.69

(1-6.) PRESSURE RATING:- 20000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
1 1/16	1 1/16	8.94	8.94
2 1/16	1 13/16	9.25	9.53
2 1/16	2 1/16	9.84	9.84
2 9/16	1 13/16	9.56	10.28
2 9/16	2 1/16	10.16	10.59
2 9/16	2 9/16	10.91	10.91
3 1/16	1 13/16	9.94	10.91
3 1/16	2 1/16	10.53	10.22
3 1/16	2 9/16	11.28	11.53
3 1/16	3 1/16	11.91	11.91
4 1/16	1 13/16	11.12	12.66
4 1/16	2 1/16	11.72	12.66
4 1/16	2 9/16	12.47	13.28
4 1/16	3 1/16	13.09	13.66
4 1/16	4 1/16	14.84	14.84



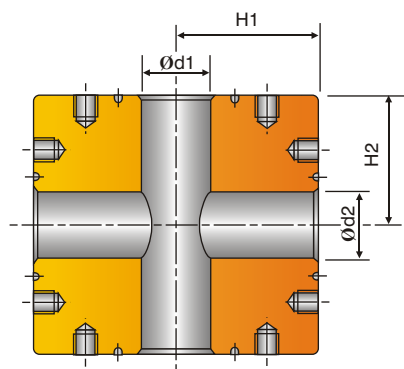
FLANGED STUDDED CROSSES AND TEES (AS PER API-6A)

*All dimensions are in inches.

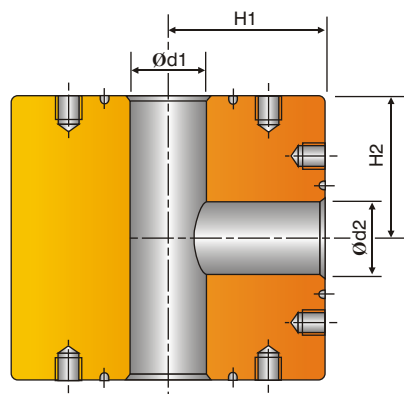
(1-1) PRESSURE RATING:- 2000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	2 1/16	3.50	3.50
2 9/16	2 1/16	3.50	4.00
2 9/16	2 9/16	4.50	4.50
3 1/8	2 1/16	3.50	4.50
3 1/8	2 9/16	4.50	4.50
3 1/8	3 1/8	4.50	4.50
4 1/16	2 1/16	4.50	5.50
4 1/16	2 9/16	4.50	5.50
4 1/16	3 1/8	4.50	5.50
4 1/16	4 1/16	5.50	5.50

(1-2) PRESSURE RATING:- 3000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
3 1/8	2 1/16	4.50	5.00
3 1/8	2 9/16	5.00	5.00
3 1/8	3 1/8	5.00	5.00
4 1/16	2 1/16	4.50	6.12
4 1/16	2 9/16	5.00	6.12
4 1/16	3 1/8	5.00	6.12
4 1/16	4 1/16	6.12	6.12

(1-3) PRESSURE RATING:- 5000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
2 1/16	2 1/16	4.50	4.50
2 9/16	2 1/16	4.50	5.00
2 9/16	2 9/16	5.00	5.00
3 1/8	2 1/16	4.50	5.50
3 1/8	2 9/16	5.50	5.50
3 1/8	3 1/8	5.50	5.50
4 1/16	2 1/16	4.50	6.50
4 1/16	2 9/16	5.00	6.50
4 1/16	3 1/8	5.50	6.50
4 1/16	4 1/16	6.50	6.50



API Studded Tee



API Studded Cross

(1-4) PRESSURE RATING:- 10000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
1 13/16	1 13/16	4.38	4.38
2 1/16	1 13/16	4.38	4.38
2 1/16	2 1/16	4.38	4.38
2 9/16	1 13/16	4.50	5.12
2 9/16	2 1/16	4.50	5.12
2 9/16	2 9/16	5.12	5.12
3 1/16	1 13/16	4.50	5.88
3 1/16	2 1/16	4.50	5.88
3 1/16	2 9/16	5.12	5.88
3 1/16	3 1/16	5.88	5.88
4 1/16	1 13/16	4.50	6.88
4 1/16	2 1/16	4.50	6.88
4 1/16	2 9/16	5.12	6.88
4 1/16	3 1/16	5.88	6.88
4 1/16	4 1/16	6.88	6.88

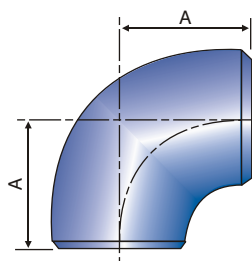
(1-5) PRESSURE RATING:- 15000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
1 13/16	1 13/16	5.00	5.00
2 1/16	1 13/16	5.00	5.00
2 1/16	2 1/16	5.00	5.00
2 9/16	1 13/16	5.50	5.50
2 9/16	2 1/16	5.50	5.50
2 9/16	2 9/16	5.50	5.50
3 1/16	1 13/16	6.31	6.31
3 1/16	2 1/16	6.31	6.31
3 1/16	2 9/16	6.31	6.31
3 1/16	3 1/16	6.31	6.31
4 1/16	1 13/16	7.62	7.62
4 1/16	2 1/16	7.62	7.62
4 1/16	2 9/16	7.62	7.62
4 1/16	3 1/16	7.62	7.62
4 1/16	4 1/16	7.62	7.62

(1-6) PRESSURE RATING:- 20000 PSI			
NOMINAL SIZE & BORE		CENTER TO FACE	
Ød1 (VERTICAL)	Ød2 (OUTLET)	H2 (VERTICAL)	H1 (HORIZONTAL)
1 13/16	1 13/16	6.47	6.47
2 1/16	1 13/16	6.47	6.47
2 1/16	2 1/16	6.47	6.47
2 9/16	1 13/16	7.28	7.28
2 9/16	2 1/16	7.28	7.28
2 9/16	2 9/16	7.28	7.28
3 1/16	1 13/16	7.97	7.97
3 1/16	2 1/16	7.97	7.97
3 1/16	2 9/16	7.97	7.97
3 1/16	3 1/16	7.97	7.97
4 1/16	1 13/16	9.91	9.91
4 1/16	2 1/16	9.91	9.91
4 1/16	2 9/16	9.91	9.91
4 1/16	3 1/16	9.91	9.91
4 1/16	4 1/16	9.91	9.91

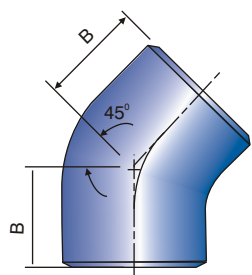


BUTT WELDED FITTINGS (ASME B 16.9)

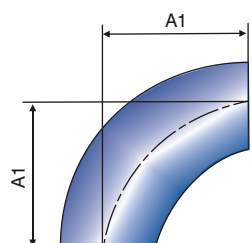
*All dimensions are in inches.



**Straight type
Long Radius
Elbow (90°)**



**Straight type
Long Radius
Elbow (45°)**



**Reducing type
Long Radius
Elbow (90°)**

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		90 DEG. ELBOWS A.	45 DEG. ELBOWS B.
1/2	0.84	1.50	0.62
3/4	1.05	1.50	0.75
1	1.32	1.50	0.88
1 1/4	1.66	1.88	1.00
1 1/2	1.90	2.25	1.12
2	2.38	3.00	1.38
2 1/2	2.88	3.75	1.75
3	3.50	4.50	2.00
3 1/2	4.00	5.25	2.25
4	4.50	6.00	2.50
5	5.56	7.50	3.12
6	6.62	9.00	3.75
8	8.62	12.00	5.00
10	10.75	15.00	6.25
12	12.75	18.00	7.50
14	14.00	21.00	8.75

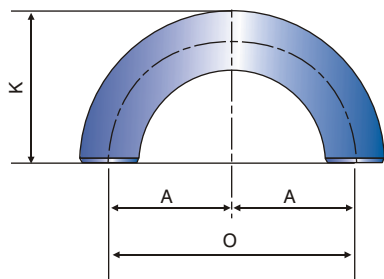
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		90 DEG. ELBOWS A.	45 DEG. ELBOWS B.
16	16.00	24.00	10.00
18	18.00	27.00	11.25
20	20.00	30.00	12.50
22	22.00	33.00	13.50
24	24.00	36.00	15.00
26	26.00	39.00	16.00
28	28.00	42.00	17.25
30	30.00	45.00	18.50
32	32.00	48.00	19.75
34	34.00	51.00	21.00
36	36.00	54.00	22.25
38	38.00	57.00	23.62
40	40.00	60.00	24.88
42	42.00	63.00	26.00
44	44.00	66.00	27.38
46	46.00	69.00	28.62
48	48.00	72.00	29.88

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D		CENTER- TO- END A1.
	LARGE END	SMALL END	
2 x 1 1/2	2.38	1.90	3.00
2 x 1 1/4	2.38	1.66	3.00
2 x 1	2.38	1.32	3.00
2 1/2 x 2	2.88	2.38	3.75
2 1/2 x 1 1/2	2.88	1.90	3.75
2 1/2 x 1 1/4	2.88	1.66	3.75
3 x 2 1/2	3.50	2.88	4.50
3 x 2	3.50	2.38	4.50
3 x 1 1/2	3.50	1.90	4.50
3 1/2 x 3	4.00	3.50	5.25
3 1/2 x 2 1/2	4.00	2.88	5.25
3 1/2 x 2	4.00	2.38	5.25
4 x 3 1/2	4.50	4.00	6.00
4 x 3	4.50	3.50	6.00
4 x 2 1/2	4.50	2.88	6.00
4 x 2	4.50	2.38	6.00
5 x 4	5.56	4.50	7.50
5 x 3 1/2	5.56	4.00	7.50
5 x 3	5.56	3.50	7.50
5 x 2 1/2	5.56	2.88	7.50
6 x 5	6.62	5.56	9.00
6 x 4	6.62	4.50	9.00
6 x 3 1/2	6.62	4.00	9.00
6 x 3	6.62	3.50	9.00
8 x 6	8.62	6.62	12.00
8 x 5	8.62	5.56	12.00
8 x 4	8.62	4.50	12.00

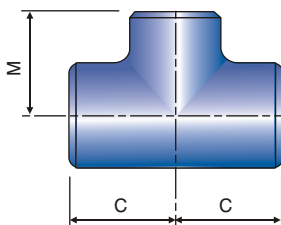
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER- TO- END A1.
	LARGE END	SMALL END	
10 x 8	10.75	8.62	15.00
10 x 6	10.75	6.62	15.00
10 x 5	10.75	5.56	15.00
12 x 10	12.75	10.75	18.00
12 x 8	12.75	8.62	18.00
12 x 6	12.75	6.62	18.00
14 x 12	14.00	12.75	21.00
14 x 10	14.00	10.75	21.00
14 x 8	14.00	8.62	21.00
16 x 14	16.00	14.00	24.00
16 x 12	16.00	12.75	24.00
16 x 10	16.00	10.75	24.00
18 x 16	18.00	16.00	27.00
18 x 14	18.00	14.00	27.00
18 x 12	18.00	12.75	27.00
18 x 10	18.00	10.75	27.00
20 x 18	20.00	18.00	30.00
20 x 16	20.00	16.00	30.00
20 x 14	20.00	14.00	30.00
20 x 12	20.00	12.75	30.00
20 x 10	20.00	10.75	30.00
24 x 22	24.00	22.00	36.00
24 x 20	24.00	20.00	36.00
24 x 18	24.00	18.00	36.00
24 x 16	24.00	16.00	36.00
24 x 14	24.00	14.00	36.00
24 x 12	24.00	12.75	36.00



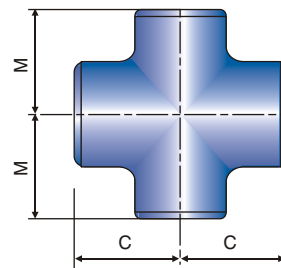
BUTT WELDED FITTINGS (ASME B 16.9)



Long Radius Returns



Straight Tees



Straight Crosses

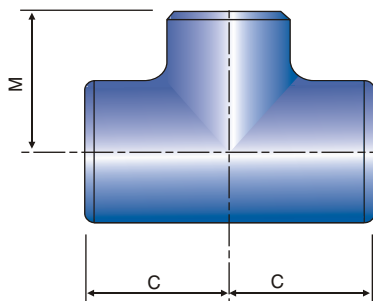
*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTRE -TO- CENTRE O.	BACK -TO- FACE K.
1/2	0.840	3.00	1.875
3/4	1.050	2.25	1.6875
1	1.315	3.00	2.1875
1 1/4	1.660	3.75	2.75
1 1/2	1.900	4.50	3.25
2	2.375	6.00	4.1875
2 1/2	2.875	7.50	5.1875
3	3.500	9.00	6.25
3 1/2	4.000	10.50	7.25
4	4.500	12.00	8.25
5	5.563	15.00	10.3125
6	6.625	18.00	12.3125
8	8.625	24.00	16.3125
10	10.750	30.00	20.375
12	12.750	36.00	24.38
14	14.000	42.00	28.00
16	16.000	48.00	32.00
18	18.000	54.00	36.00
20	20.000	60.00	40.00
22	22.000	66.00	44.00
24	24.000	72.00	48.00

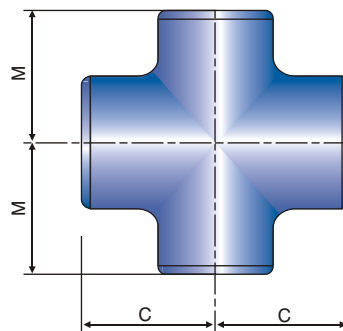
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		RUN C.	OUTLET M.
1/2	0.840	1.00	1.00
3/4	1.050	1.125	1.125
1	1.315	1.50	1.50
1 1/4	1.660	1.875	1.875
1 1/2	1.900	2.25	2.25
2	2.375	2.50	2.50
2 1/2	2.875	3.00	3.00
3	3.50	3.375	3.375
3 1/2	4.00	3.75	3.75
4	4.50	4.125	4.125
5	5.563	4.875	4.875
6	6.625	5.625	5.625
8	8.625	7.00	7.00
10	10.750	8.500	8.50
12	12.750	10.00	10.00
14	14.000	11.00	11.00
16	16.000	12.00	12.00
18	18.000	13.50	13.50
20	20.000	15.00	15.00
22	22.000	16.50	16.50
24	24.000	17.00	17.00
26	26.000	19.50	19.50
28	28.000	20.50	20.50
30	30.000	22.00	22.00
32	32.000	23.50	23.50
34	34.000	25.00	25.00
36	36.000	26.50	26.50
38	38.000	28.00	28.00
40	40.000	29.50	29.50
42	42.000	30.00	28.00
44	44.000	32.00	30.00
46	46.000	33.50	31.50
48	48.000	35.00	33.00



BUTT WELDED FITTINGS (ASME B 16.9)



Reducing Outlet Tees



Reducing Outlet Crosses

Reducing Tees & Crosses

*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN C.	OUTLET M.
1/2 x 1/2 x 1/4	0.840	0.68	1.00	1.00
1/2 x 1/2 x 3/8	0.840	0.54	1.00	1.00
3/4 x 3/4 x 3/8	1.050	0.84	1.12	1.12
3/4 x 3/4 x 1/2	1.010	0.68	1.12	1.12
1 x 1 x 3/4	1.315	1.05	1.50	1.50
1 x 1 x 1/2	1.315	0.84	1.50	1.50
1 1/4 x 1 1/4 x 1	1.66	1.32	1.88	1.88
1 1/4 x 1 1/4 x 3/4	1.66	1.05	1.88	1.88
1 1/4 x 1 1/4 x 1/2	1.66	0.84	1.88	1.88
1 1/2 x 1 1/2 x 1 1/4	1.90	1.66	2.25	2.25
1 1/2 x 1 1/2 x 1	1.90	1.32	2.25	2.25
1 1/2 x 1 1/2 x 3/4	1.90	1.05	2.25	2.25
1 1/2 x 1 1/2 x 1/2	1.90	0.84	2.25	2.25
2 x 2 x 1 1/2	2.375	1.90	2.50	2.38
2 x 2 x 1 1/4	2.375	1.66	2.50	2.25
2 x 2 x 1	2.375	1.32	2.50	2.00
2 x 2 x 3/4	2.375	1.05	2.50	1.75
2 1/2 x 2 1/2 x 2	2.875	2.38	3.00	2.75
2 1/2 x 2 1/2 x 1 1/2	2.875	1.90	3.00	2.62
2 1/2 x 2 1/2 x 1 1/4	2.875	1.66	3.00	2.50
2 1/2 x 2 1/2 x 1	2.875	1.32	3.00	2.25
3 x 3 x 2 1/2	3.50	2.88	3.38	3.25
3 x 3 x 2	3.50	2.38	3.38	3.00
3 x 3 x 1 1/2	3.50	1.90	3.38	2.88
3 x 3 x 1 1/4	3.50	1.66	3.38	2.75
3 1/2 x 3 1/2 x 3	4.00	3.50	3.75	3.62
3 1/2 x 3 1/2 x 2 1/2	4.00	2.88	3.75	3.50
3 1/2 x 3 1/2 x 2	4.00	2.38	3.75	3.25
3 1/2 x 3 1/2 x 1 1/2	4.00	1.90	3.75	3.12
4 x 4 x 3 1/2	4.50	4.00	4.12	4.00
4 x 4 x 3	4.50	3.50	4.12	3.88
4 x 4 x 2 1/2	4.50	2.88	4.12	3.75
4 x 4 x 2	4.50	2.38	4.12	3.50
4 x 4 x 1 1/2	4.50	1.90	4.12	3.38
5 x 5 x 4	5.563	4.50	4.88	4.62
5 x 5 x 3 1/2	5.563	4.00	4.88	4.50
5 x 5 x 3	5.563	3.50	4.88	4.38
5 x 5 x 2 1/2	5.563	2.88	4.88	4.25
5 x 5 x 2	5.563	2.38	4.88	4.12

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN C.	OUTLET M.
6 x 6 x 5	6.625	5.56	5.62	5.38
6 x 6 x 4	6.625	4.50	5.62	5.12
6 x 6 x 3 1/2	6.625	4.00	5.62	5.00
6 x 6 x 3	6.625	3.50	5.62	4.88
6 x 6 x 2 1/2	6.625	2.88	5.62	4.75
8 x 8 x 6	8.625	6.62	7.00	6.62
8 x 8 x 5	8.625	5.56	7.00	6.38
8 x 8 x 4	8.625	4.50	7.00	6.12
8 x 8 x 3 1/2	8.625	4.00	7.00	6.00
10 x 10 x 8	10.75	8.62	8.50	8.00
10 x 10 x 6	10.75	6.62	8.50	7.62
10 x 10 x 5	10.75	5.56	8.50	7.50
10 x 10 x 4	10.75	4.50	8.50	7.25
12 x 12 x 10	12.75	10.75	10.00	9.50
12 x 12 x 8	12.75	8.62	10.00	9.00
12 x 12 x 6	12.75	6.62	10.00	8.62
12 x 12 x 5	12.75	5.56	10.00	8.50
14 x 14 x 12	14.00	12.75	11.00	10.62
14 x 14 x 10	14.00	10.75	11.00	10.12
14 x 14 x 8	14.00	8.62	11.00	9.75
14 x 14 x 6	14.00	6.62	11.00	9.38
16 x 16 x 14	16.00	14.00	12.00	12.00
16 x 16 x 12	16.00	12.75	12.00	11.62
16 x 16 x 10	16.00	10.75	12.00	11.12
16 x 16 x 8	16.00	8.62	12.00	10.75
16 x 16 x 6	16.00	6.62	12.00	10.38
18 x 18 x 16	18.00	16.00	13.50	13.00
18 x 18 x 14	18.00	14.00	13.50	13.00
18 x 18 x 12	18.00	12.75	13.50	12.62
18 x 18 x 10	18.00	10.75	13.50	12.12
18 x 18 x 8	18.00	8.62	13.50	11.75
20 x 20 x 18	20.00	18.00	15.00	14.50
20 x 20 x 16	20.00	16.00	15.00	14.00
20 x 20 x 14	20.00	14.00	15.00	14.00
20 x 20 x 12	20.00	12.75	15.00	13.62
20 x 20 x 10	20.00	10.75	15.00	13.12
20 x 20 x 8	20.00	8.62	15.00	12.75
22 x 22 x 20	22.00	20.00	16.50	16.00
22 x 22 x 18	22.00	18.00	16.50	15.50



BUTT WELDED FITTINGS (ASME B 16.9)

*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
			RUN	OUTLET
	RUN	OUTLET	C.	M.
22 x 22 x 16	22.00	16.00	16.50	15.00
22 x 22 x 14	22.00	14.00	16.50	15.00
22 x 22 x 12	22.00	12.75	16.50	14.625
22 x 22 x 10	22.00	10.75	16.50	14.125
24 x 24 x 22	24.00	22.00	17.00	17.00
24 x 24 x 20	24.00	20.00	17.00	17.00
24 x 24 x 18	24.00	18.00	17.00	16.50
24 x 24 x 16	24.00	16.00	17.00	16.00
24 x 24 x 14	24.00	14.00	17.00	16.00
24 x 24 x 12	24.00	12.75	17.00	15.625
24 x 24 x 10	24.00	10.75	17.00	15.125
26 x 26 x 24	26.00	24.00	19.50	19.00
26 x 26 x 22	26.00	22.00	19.50	18.50
26 x 26 x 20	26.00	20.00	19.50	18.00
26 x 26 x 18	26.00	18.00	19.50	17.50
26 x 26 x 16	26.00	16.00	19.50	17.00
26 x 26 x 14	26.00	14.00	19.50	17.00
26 x 26 x 12	26.00	12.75	19.50	16.625
28 x 28 x 26	28.00	26.00	20.50	20.50
28 x 28 x 24	28.00	24.00	20.50	20.00
28 x 28 x 22	28.00	22.00	20.50	19.50
28 x 28 x 20	28.00	20.00	20.50	19.00
28 x 28 x 18	28.00	18.00	20.50	18.50
28 x 28 x 16	28.00	16.00	20.50	18.00
28 x 28 x 14	28.00	14.00	20.50	18.00
28 x 28 x 12	28.00	12.75	20.50	17.625
30 x 30 x 28	30.00	28.00	22.00	21.50
30 x 30 x 26	30.00	26.00	22.00	21.50
30 x 30 x 24	30.00	24.00	22.00	21.00
30 x 30 x 22	30.00	22.00	22.00	20.50
30 x 30 x 20	30.00	20.00	22.00	20.00
30 x 30 x 18	30.00	18.00	22.00	19.50
30 x 30 x 16	30.00	16.00	22.00	19.00
30 x 30 x 14	30.00	14.00	22.00	19.00
30 x 30 x 12	30.00	12.75	22.00	18.625
30 x 30 x 10	30.00	10.75	22.00	18.125
32 x 32 x 30	32.00	30.00	23.50	23.00
32 x 32 x 28	32.00	28.00	23.50	22.50
32 x 32 x 26	32.00	26.00	23.50	22.50
32 x 32 x 24	32.00	24.00	23.50	22.00
32 x 32 x 22	32.00	22.00	23.50	21.50
32 x 32 x 20	32.00	20.00	23.50	21.00
32 x 32 x 18	32.00	18.00	23.50	20.50
32 x 32 x 16	32.00	16.00	23.50	20.00
32 x 32 x 14	32.00	14.00	23.50	20.00
34 x 34 x 32	34.00	32.00	25.00	24.50
34 x 34 x 30	34.00	30.00	25.00	24.00
34 x 34 x 28	34.00	28.00	25.00	23.50
34 x 34 x 26	34.00	26.00	25.00	23.50

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
			RUN	OUTLET
	RUN	OUTLET	C.	M.
34 x 34 x 24	34.00	24.00	25.00	23.00
34 x 34 x 22	34.00	22.00	25.00	22.50
34 x 34 x 20	34.00	20.00	25.00	22.00
34 x 34 x 18	34.00	18.00	25.00	21.50
34 x 34 x 16	34.00	16.00	25.00	21.00
36 x 36 x 34	36.00	34.00	26.50	26.00
36 x 36 x 32	36.00	32.00	26.50	25.50
36 x 36 x 30	36.00	30.00	26.50	25.00
36 x 36 x 28	36.00	28.00	26.50	24.50
36 x 36 x 26	36.00	26.00	26.50	24.50
36 x 36 x 24	36.00	24.00	26.50	24.00
36 x 36 x 22	36.00	22.00	26.50	23.50
36 x 36 x 20	36.00	20.00	26.50	23.00
36 x 36 x 18	36.00	18.00	26.50	22.50
36 x 36 x 16	36.00	16.00	26.50	22.00
38 x 38 x 36	38.00	36.00	28.00	28.00
38 x 38 x 34	38.00	34.00	28.00	27.50
38 x 38 x 32	38.00	32.00	28.00	27.00
38 x 38 x 30	38.00	30.00	28.00	26.50
38 x 38 x 28	38.00	28.00	28.00	25.50
38 x 38 x 26	38.00	26.00	28.00	25.50
38 x 38 x 24	38.00	24.00	28.00	25.00
38 x 38 x 22	38.00	22.00	28.00	24.50
38 x 38 x 20	38.00	20.00	28.00	24.00
38 x 38 x 18	38.00	18.00	28.00	23.50
40 x 40 x 38	40.00	38.00	29.50	29.50
40 x 40 x 36	40.00	36.00	29.50	29.00
40 x 40 x 34	40.00	34.00	29.50	28.50
40 x 40 x 32	40.00	32.00	29.50	28.00
40 x 40 x 30	40.00	30.00	29.50	27.50
40 x 40 x 28	40.00	28.00	29.50	26.50
40 x 40 x 26	40.00	26.00	29.50	26.50
40 x 40 x 24	40.00	24.00	29.50	26.00
40 x 40 x 22	40.00	22.00	29.50	25.50
40 x 40 x 20	40.00	20.00	29.50	25.00
40 x 40 x 18	40.00	18.00	29.50	24.50
42 x 42 x 40	42.00	40.00	30.00	28.00
42 x 42 x 38	42.00	38.00	30.00	28.00
42 x 42 x 36	42.00	36.00	30.00	28.00
42 x 42 x 34	42.00	34.00	30.00	28.00
42 x 42 x 32	42.00	32.00	30.00	28.00
42 x 42 x 30	42.00	30.00	30.00	28.00
42 x 42 x 28	42.00	28.00	30.00	27.50
42 x 42 x 26	42.00	26.00	30.00	27.50
42 x 42 x 24	42.00	24.00	30.00	26.00
42 x 42 x 22	42.00	22.00	30.00	26.00
42 x 42 x 20	42.00	20.00	30.00	26.00
42 x 42 x 18	42.00	18.00	30.00	25.50
42 x 42 x 16	42.00	16.00	30.00	25.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

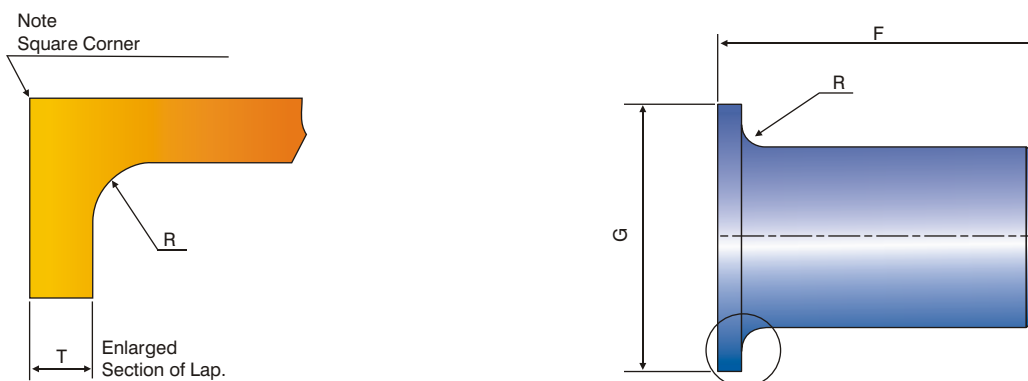
*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER - TO - END	
	RUN	OUTLET	RUN C.	OUTLET M.
44 x 44 x 42	44.00	42.00	32.00	30.00
44 x 44 x 40	44.00	40.00	32.00	29.50
44 x 44 x 38	44.00	38.00	32.00	29.00
44 x 44 x 36	44.00	36.00	32.00	28.50
44 x 44 x 34	44.00	34.00	32.00	28.50
44 x 44 x 32	44.00	32.00	32.00	28.00
44 x 44 x 30	44.00	30.00	32.00	28.00
44 x 44 x 28	44.00	28.00	32.00	27.50
44 x 44 x 26	44.00	26.00	32.00	27.50
44 x 44 x 24	44.00	24.00	32.00	27.50
44 x 44 x 22	44.00	22.00	32.00	27.00
44 x 44 x 20	44.00	20.00	32.00	27.00
46 x 46 x 44	46.00	44.00	33.50	31.50
46 x 46 x 42	46.00	42.00	33.50	31.00
46 x 46 x 40	46.00	40.00	33.50	30.50
46 x 46 x 38	46.00	38.00	33.50	30.00
46 x 46 x 36	46.00	36.00	33.50	30.00
46 x 46 x 34	46.00	34.00	33.50	29.50
46 x 46 x 32	46.00	32.00	33.50	29.50
46 x 46 x 30	46.00	30.00	33.50	29.00
46 x 46 x 28	46.00	28.00	33.50	29.00
46 x 46 x 26	46.00	26.00	33.50	29.00
46 x 46 x 24	46.00	24.00	33.50	28.50
46 x 46 x 22	46.00	22.00	33.50	28.50
48 x 48 x 46	48.00	46.00	35.00	33.00
48 x 48 x 44	48.00	44.00	35.00	33.00
48 x 48 x 42	48.00	42.00	35.00	32.00
48 x 48 x 40	48.00	40.00	35.00	32.00
48 x 48 x 38	48.00	38.00	35.00	32.00
48 x 48x 36	48.00	36.00	35.00	31.00
48 x 48 x 34	48.00	34.00	35.00	31.00
48 x 48 x 32	48.00	32.00	35.00	31.00
48 x 48 x 30	48.00	30.00	35.00	30.00
48 x 48 x 28	48.00	28.00	35.00	30.00
48 x 48 x 26	48.00	26.00	35.00	30.00
48 x 48 x 24	48.00	24.00	35.00	29.00
48 x 48 x 22	48.00	22.00	35.00	29.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)



Lap Joint Stub Ends

*All dimensions are in inches.

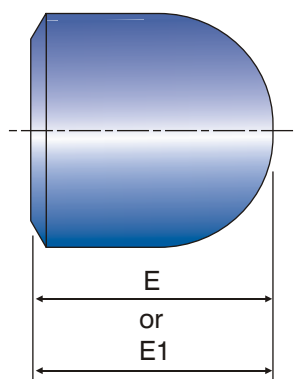
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL - D.	LONG PATTERN LENGTH - F	SHORT PATTERN LENGTH - F	RADIUS OF FILLET-R.	DIAMETER OF LAP-G.	OUTSIDE DIAMETER OF BARREL	
						MAX.	MIN.
1/2	0.840	3.00	2.00	0.125	1.375	0.896	0.809
3/4	1.050	3.00	2.00	0.125	1.6875	1.106	1.019
1	1.315	4.00	2.00	0.125	2.00	1.376	1.284
1 1/4	1.660	4.00	2.00	0.1875	2.50	1.716	1.629
1 1/2	1.900	4.00	2.00	0.25	2.875	1.966	1.869
2	2.375	6.00	2.50	0.3125	3.625	2.456	2.344
2 1/2	2.875	6.00	2.50	0.3125	4.125	2.966	2.844
3	3.50	6.00	2.50	0.375	5.00	3.596	3.469
3 1/2	4.00	6.00	3.00	0.375	5.50	4.096	3.969
4	4.50	6.00	3.00	0.4375	6.1875	4.593	4.469
5	5.563	8.00	3.00	0.4375	7.3125	5.683	5.532
6	6.625	8.00	3.50	0.50	8.50	6.743	6.594
8	8.625	8.00	4.00	0.50	10.625	8.743	8.594
10	10.75	10.00	5.00	0.50	12.75	10.913	10.719
12	12.75	10.00	6.00	0.50	15.00	12.913	12.719
14	14.00	12.00	6.00	0.50	16.25	14.170	13.969
16	16.00	12.00	6.00	0.50	18.50	16.180	15.969
18	18.00	12.00	6.00	0.50	21.00	18.190	17.969
20	20.00	12.00	6.00	0.50	23.00	20.240	19.969
22	22.00	12.00	6.00	0.50	25.25	22.240	21.969
24	24.00	12.00	6.00	0.50	27.25	24.240	23.969



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

*All dimensions are in inches.



Caps

General Notes:

The shape of these Caps shall be ellipsoidal and shall conform to the shape requirements as given in the ASME Boiler & Pressure Vessel Code.

Notes:

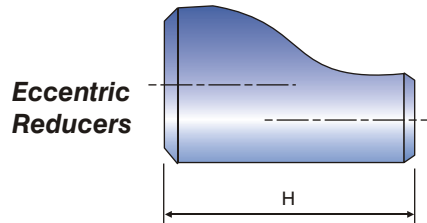
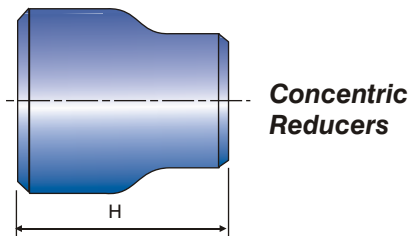
- Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E"
- Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 and smaller. For NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	LENGTH E.	LIMITING WALL THICKNESS FOR LENGTH E.	LENGTH E1.
1/2	0.84	1.00	0.147	1.00
3/4	1.05	1.00	0.154	1.00
1	1.315	1.50	0.179	1.50
1 1/4	1.66	1.50	0.191	1.50
1 1/2	1.90	1.50	0.20	1.50
2	2.375	1.50	0.218	1.75
2 1/2	2.875	1.50	0.276	2.00
3	3.50	2.00	0.30	2.50
3 1/2	4.00	2.50	0.318	3.00
4	4.50	2.50	0.337	3.00
5	5.563	3.00	0.375	3.50
6	6.625	3.50	0.432	4.00
8	8.625	4.00	0.50	5.00
10	10.75	5.00	0.50	6.00
12	12.75	6.00	0.50	7.00
14	14.00	6.50	0.50	7.50
16	16.00	7.00	0.50	8.00
18	18.00	8.00	0.50	9.00
20	20.00	9.00	0.50	10.00
22	22.00	10.00	0.50	10.00
24	24.00	10.50	0.50	12.00
26	26.00	10.50	-	-
28	28.00	10.50	-	-
30	30.00	10.50	-	-
32	32.00	10.50	-	-
34	34.00	10.50	-	-
36	36.00	10.50	-	-
38	38.00	12.00	-	-
40	40.00	12.00	-	-
42	42.00	12.00	-	-
44	44.00	13.50	-	-
46	46.00	13.50	-	-
48	48.00	13.50	-	-



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)



*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO-END H.
	LARGE END	SMALL END	
3/4 x 3/8	1.05	0.675	1.50
3/4 x 1/2	1.05	0.840	1.50
1 x 3/4	1.32	1.05	2.00
1 x 1/2	1.32	0.84	2.00
1 1/4 x 1	1.66	1.315	2.00
1 1/4 x 3/4	1.66	1.05	2.00
1 1/4 x 1/2	1.66	0.840	2.00
1 1/2 x 1 1/4	1.90	1.660	2.50
1 1/2 x 1	1.90	1.315	2.50
1 1/2 x 3/4	1.90	1.05	2.50
1 1/2 x 1/2	1.90	0.84	2.50
2 x 1 1/2	2.38	1.90	3.00
2 x 1 1/4	2.38	1.66	3.00
2 x 1	2.38	1.315	3.00
2 x 3/4	2.38	1.050	3.00
2 1/2 x 2	2.88	2.375	3.50
2 1/2 x 1 1/2	2.88	1.900	3.50
2 1/2 x 1 1/4	2.88	1.660	3.50
2 1/2 x 1	2.88	1.315	3.50
3 x 2 1/2	3.50	2.875	3.50
3 x 2	3.50	2.375	3.50
3 x 1 1/2	3.50	1.90	3.50
3 x 1 1/4	3.50	1.660	3.50
3 1/2 x 3	4.00	3.50	4.00
3 1/2 x 2 1/2	4.00	2.875	4.00
3 1/2 x 2	4.00	2.375	4.00
3 1/2 x 1 1/2	4.00	1.90	4.00
3 1/2 x 1 1/4	4.00	1.66	4.00
4 x 3 1/2	4.50	4.00	4.00
4 x 3	4.50	3.50	4.00
4 x 2 1/2	4.50	2.875	4.00
4 x 2	4.50	2.375	4.00
4 x 1 1/2	4.50	1.90	4.00
5 x 4	5.56	4.50	5.00
5 x 3 1/2	5.56	4.00	5.00
5 x 3	5.56	3.50	5.00
5 x 2 1/2	5.56	2.875	5.00
5 x 2	5.56	2.375	5.00

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO-END H.
	LARGE END	SMALL END	
6 x 5	6.625	5.563	5.50
6 x 4	6.625	4.50	5.50
6 x 3 1/2	6.625	4.00	5.50
6 x 3	6.625	3.50	5.50
6 x 2 1/2	6.625	2.875	5.50
8 x 6	8.625	6.625	6.00
8 x 5	8.625	5.563	6.00
8 x 4	8.625	4.50	6.00
8 x 3 1/2	8.625	4.00	6.00
10 x 8	10.75	8.625	7.00
10 x 6	10.75	6.625	7.00
10 x 5	10.75	5.563	7.00
10 x 4	10.75	4.50	7.00
12 x 10	12.75	10.75	8.00
12 x 8	12.75	8.625	8.00
12 x 6	12.75	6.625	8.00
12 x 5	12.75	5.563	8.00
14 x 12	14.00	12.75	13.00
14 x 10	14.00	10.75	13.00
14 x 8	14.00	8.625	13.00
14 x 6	14.00	6.625	13.00
16 x 14	16.00	14.00	14.00
16 x 12	16.00	12.75	14.00
16 x 10	16.00	10.75	14.00
16 x 8	16.00	8.625	14.00
18 x 16	18.00	16.00	15.00
18 x 14	18.00	14.00	15.00
18 x 12	18.00	12.75	15.00
18 x 10	18.00	10.75	15.00
20 x 18	20.00	18.00	20.00
20 x 16	20.00	16.00	20.00
20 x 14	20.00	14.00	20.00
20 x 12	20.00	12.75	20.00
22 x 20	22.00	20.00	20.00
22 x 18	22.00	18.00	20.00
22 x 16	22.00	16.00	20.00
22 x 14	22.00	14.00	20.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

Concentric & Eccentric Reducers

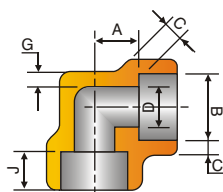
*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO -END H.
	LARGE END	SMALL END	
24 x 22	24.00	22.00	20.00
24 x 20	24.00	20.00	20.00
24 x 18	24.00	18.00	20.00
24 x 16	24.00	16.00	20.00
26 x 24	26.00	24.00	24.00
26 x 22	26.00	22.00	24.00
26 x 20	26.00	20.00	24.00
26 x 18	26.00	18.00	24.00
28 x 26	28.00	26.00	24.00
28 x 24	28.00	24.00	24.00
28 x 20	28.00	20.00	24.00
28 x 18	28.00	18.00	24.00
30 x 28	30.00	28.00	24.00
30 x 26	30.00	26.00	24.00
30 x 24	30.00	24.00	24.00
30 x 20	30.00	20.00	24.00
32 x 30	32.00	30.00	24.00
32 x 28	32.00	28.00	24.00
32 x 26	32.00	26.00	24.00
32 x 24	32.00	24.00	24.00
34 x 32	34.00	32.00	24.00
34 x 30	34.00	30.00	24.00
34 x 26	34.00	26.00	24.00
34 x 24	34.00	24.00	24.00
36 x 34	36.00	34.00	24.00
36 x 32	36.00	32.00	24.00
36 x 30	36.00	30.00	24.00
36 x 26	36.00	26.00	24.00
36 x 24	36.00	24.00	24.00

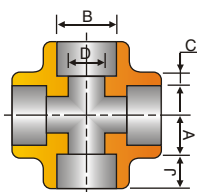
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO -END H.
	LARGE END	SMALL END	
38 x 36	38.00	36.00	24.00
38 x 34	38.00	34.00	24.00
38 x 32	38.00	32.00	24.00
38 x 30	38.00	30.00	24.00
38 x 28	38.00	28.00	24.00
38 x 26	38.00	26.00	24.00
40 x 38	40.00	38.00	24.00
40 x 36	40.00	36.00	24.00
40 x 34	40.00	34.00	24.00
40 x 32	40.00	32.00	24.00
40 x 30	40.00	30.00	24.00
42 x 40	42.00	40.00	24.00
42 x 38	42.00	38.00	24.00
42 x 36	42.00	36.00	24.00
42 x 34	42.00	34.00	24.00
42 x 32	42.00	32.00	24.00
42 x 30	42.00	30.00	24.00
44 x 42	44.00	42.00	24.00
44 x 40	44.00	40.00	24.00
44 x 38	44.00	38.00	24.00
44 x 36	44.00	36.00	24.00
46 x 44	46.00	44.00	28.00
46 x 42	46.00	42.00	28.00
46 x 40	46.00	40.00	28.00
46 x 38	46.00	38.00	28.00
48 x 46	48.00	46.00	28.00
48 x 44	48.00	44.00	28.00
48 x 42	48.00	42.00	28.00
48 x 40	48.00	40.00	28.00



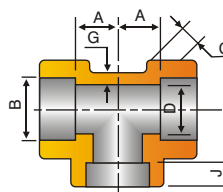
SOCKET - WELDING FITTING



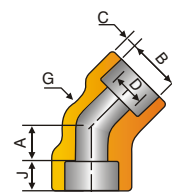
90° Elbow
(Fig. 1)



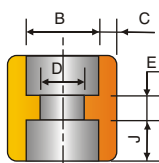
Cross
(Fig. 2)



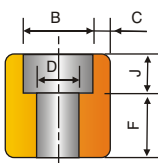
Tee
(Fig. 3)



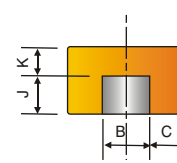
45° Elbow
(Fig. 4)



Coupling
(Fig. 5)



Half Coupling
(Fig. 6)



Cap
(Fig. 7)

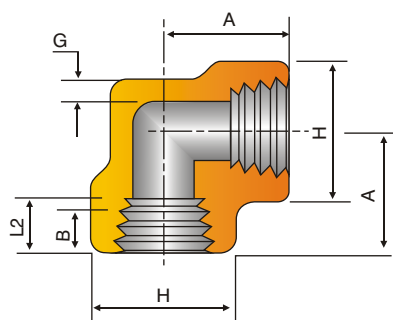
2 SOCKET-WELDING FITTINGS (AS PER ANSI/ASME B16.11)

*All dimensions are in inches.

NOM. PIPE SIZE			1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
B (SOCKET BORE DIA.)			0.430 0.420	0.565 0.555	0.700 0.690	0.865 0.855	1.075 1.065	1.340 1.330	1.685 1.675	1.925 1.915	2.416 2.406	2.921 2.906	3.590 3.535	4.560 4.545
D (BORE DIA.) (CLASS DESIGNATION)	3000		0.299 0.239	0.394 0.334	0.523 0.463	0.652 0.592	0.854 0.794	1.079 1.019	1.410 1.350	1.640 1.580	2.097 2.037	2.529 2.409	3.128 3.008	4.086 3.966
	6000		0.189 0.126	0.280 0.220	0.389 0.329	0.494 0.434	0.642 0.582	0.845 0.785	1.190 1.130	1.368 1.308	1.717 1.657			
	9000					0.282 0.222	0.464 0.404	0.629 0.569	0.926 0.866	1.130 1.070	1.533 1.473			
C (SOCKET WALL THICKNESS) (CLASS DESIGNATION)		Ave.	0.125	0.149	0.158	0.184	0.193	0.224	0.239	0.250	0.273	0.345	0.375	0.421
	3000	Min.	0.125	0.130	0.138	0.161	0.168	0.196	0.208	0.218	0.238	0.302	0.327	0.368
		Ave.	0.156	0.181	0.198	0.235	0.274	0.312	0.312	0.351	0.430			
	6000	Min.	0.135	0.158	0.172	0.204	0.238	0.273	0.273	0.307	0.374			
		Ave.				0.368	0.385	0.448	0.478	0.500	0.545			
	9000	Min.				0.322	0.337	0.392	0.418	0.438	0.477			
G (BODY WALL) (CLASS DESIGNATION)	3000	Min.	0.095	0.119	0.126	0.147	0.154	0.179	0.191	0.200	0.218	0.276	0.300	0.337
	6000	Min.	0.124	0.145	0.158	0.188	0.219	0.250	0.250	0.281	0.344			
	9000	Min.				0.294	0.308	0.358	0.382	0.400	0.436			
J (DEPTH OF SOCKET)			Min.	0.38	0.38	0.38	0.38	0.50	0.50	0.50	0.50	0.62	0.62	0.75
A (CENTER TO BOTTOM OF SOCKET) (90° ELBOWS, TEES & CROSSES) (CLASS DESIGNATION)	3000		0.44	0.44	0.53	0.62	0.75	0.88	1.06	1.25	1.50	1.62	2.25	2.62
	6000		0.44	0.53	0.62	0.75	0.88	1.06	1.25	1.50	1.62			
	9000					1.00	1.12	1.25	1.38	1.50	2.12			
A (CENTER TO BOTTOM OF SOCKET) (45° ELBOWS) (CLASS DESIGNATION)	3000		0.31	0.31	0.31	0.44	0.50	0.56	0.69	0.81	1.00	1.12	1.25	1.26
	6000		0.31	0.31	0.44	0.50	0.56	0.69	0.81	1.00	1.12			
	9000					0.62	0.75	0.81	0.88	1.00	1.12			
E (COUPLING)			0.25	0.25	0.25	0.38	0.38	0.50	0.50	0.50	0.75	0.75	0.75	0.75
F (HALF COUPLING)			0.62	0.62	0.69	0.88	0.94	1.12	1.19	1.25	1.62	1.69	1.75	1.88
TOLERANCE ±	A		0.03	0.03	0.06	0.06	0.06	0.08	0.08	0.08	0.08	0.10	0.10	0.10
	E		0.06	0.06	0.12	0.12	0.12	0.16	0.16	0.16	0.16	0.20	0.20	0.20
	F		0.03	0.30	0.06	0.06	0.06	0.08	0.08	0.08	0.08	0.10	0.10	0.10
K(MIN.) (END WALL THICKNESS) (CLASS DESIGNATION)	3000		0.19	0.19	0.19	0.25	0.25	0.38	0.38	0.44	0.50	0.62	0.75	0.88
	6000		0.25	0.25	0.25	0.31	0.31	0.44	0.44	0.50	0.62	0.75	0.88	1.12
	9000					0.44	0.50	0.56	0.56	0.62	0.75			

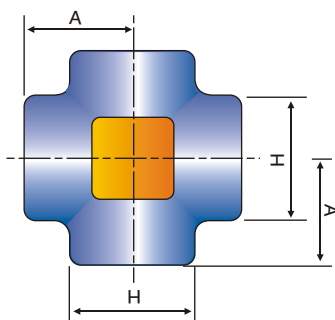


THREADED FITTINGS



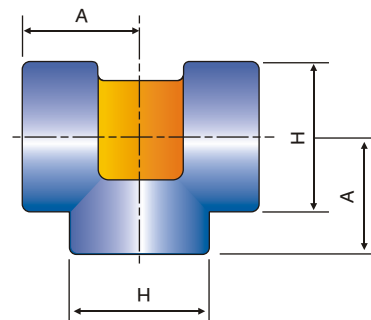
90° Elbow

(Fig. 1)



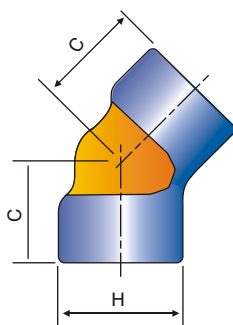
Cross

(Fig. 2)



Tee

(Fig. 3)



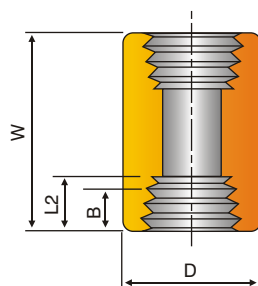
45° Elbow

(Fig. 4)

*All dimensions are in inches.

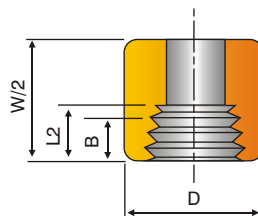
FORGED THREADED FITTINGS (AS PER ANSI/ASME B16.11)													
NOM. PIPE SIZE :-		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
A (CENTER TO END) (ELBOWS, TEES & CROSSES)	2000	0.81	0.81	0.97	1.12	1.31	1.50	1.75	2	2.38	3.00	3.38	4.19
	3000	0.81	0.97	1.12	1.31	1.50	1.75	2.00	2.38	2.50	3.25	3.75	4.50
	6000	0.97	1.12	1.31	1.50	1.75	2.00	2.38	2.50	3.25	3.75	4.19	4.50
C (CENTER TO END) (45° ELBOW)	2000	0.69	0.69	0.75	0.88	1.00	1.12	1.31	1.38	1.69	2.06	2.50	3.12
	3000	0.69	0.75	0.88	1.00	1.12	1.31	1.38	1.69	1.72	2.06	2.50	3.12
	6000	0.75	0.88	1.00	1.12	1.31	1.38	1.69	1.72	2.06	2.50	3.12	3.12
H (O.D. OF BAND)	2000	0.88	0.88	1.00	1.31	1.50	1.81	2.19	2.44	2.97	3.62	4.31	5.75
	3000	0.88	1.00	1.31	1.50	1.81	2.19	2.44	2.97	3.31	4.00	4.75	6.00
	6000	1.00	1.31	1.50	1.81	2.19	2.44	2.97	3.31	4.00	4.75	5.75	6.00
G (MIN. WALL THICKNESS)	2000	0.125	0.125	0.125	0.125	0.125	0.145	0.153	0.158	0.168	0.221	0.236	0.258
	3000	0.125	0.130	0.138	0.161	0.170	0.196	0.208	0.219	0.281	0.301	0.348	0.440
	6000	0.250	0.260	0.275	0.321	0.336	0.391	0.417	0.436	0.476	0.602	0.655	0.735
B (MINIMUM LENGTH OF PERFECT THREAD.)		0.25	0.32	0.36	0.43	0.50	0.58	0.67	0.70	0.75	0.93	1.02	1.09
L2 (EFFECTIVE LENGTH OF EXTERNAL THREAD.)		0.264	0.402	0.408	0.534	0.546	0.683	0.707	0.724	0.757	1.138	1.20	1.30

THREADED FITTINGS, PLUGS & BUSHINGS



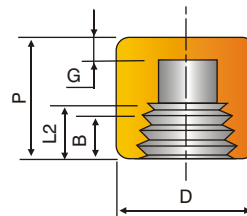
Coupling

(Fig. 1)



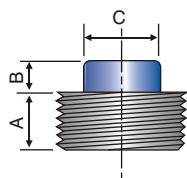
Half Coupling

(Fig. 2)



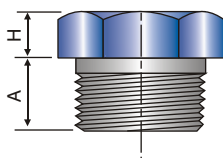
Cap

(Fig. 3)



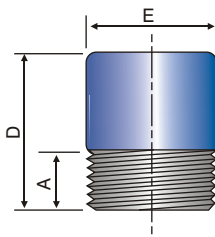
Square Head Plug

(Fig. 4)



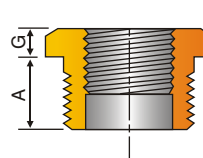
Hex Head Plug

(Fig. 5)



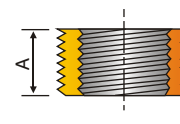
Round Head Plug

(Fig. 6)



Hex Head Bushing

(Fig. 7)



Flush Bushing

(Fig. 8)

4 THREADED FITTINGS (AS PER ANSI/ASME B16.11)

*All dimensions are in inches.

NOM. PIPE SIZE :-		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
W (END TO END) COUPLING	3000												
	6000	1.25	1.38	1.50	1.88	2.00	2.38	2.62	3.12	3.38	3.62	4.25	4.75
P (END TO END) CAPS	3000	0.75	1.00	1.00	1.25	1.44	1.62	1.75	1.75	1.88	2.38	2.56	2.69
	6000		1.06	1.06	1.31	1.50	1.69	1.81	1.88	2.00	2.50	2.69	2.94
D (OUTSIDE DIAMETER)	3000	0.62	0.75	0.88	1.12	1.38	1.75	2.25	2.50	3.00	3.62	4.25	5.50
	6000	0.88	1.00	1.25	1.50	1.75	2.25	2.50	3.00	3.62	4.25	5.00	6.25
G (MIN.) (END WALL THICKNESS)	3000	0.19	0.19	0.19	0.25	0.25	0.38	0.38	0.44	0.50	0.62	0.75	0.88
	6000		0.25	0.25	0.31	0.31	0.44	0.44	0.50	0.62	0.75	0.88	1.12
B (MINIMUM LENGTH OF PERFECT THREAD)		0.25	0.32	0.36	0.43	0.50	0.58	0.67	0.70	0.75	0.93	1.02	1.09
L2 (EFFECTIVE LENGTH OF EXTERNAL THREAD)		0.264	0.402	0.408	0.534	0.546	0.683	0.707	0.724	0.757	1.138	1.20	1.30

5 PLUGS AND BUSHINGS (AS PER ANSI/ASME B16.11)

NOM. PIPE SIZE :-		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
A (LENGTH MINIMUM)		0.38	0.44	0.50	0.56	0.62	0.75	0.81	0.81	0.88	1.06	1.12	1.25
PLUGS (SQUARE HEAD)	B (HEIGHT OF SQ.) (MIN)	0.25	0.25	0.31	0.38	0.44	0.50	0.56	0.62	0.69	0.75	0.81	1.00
	C (WIDTH FLATS) (MIN)	0.28	0.38	0.44	0.56	0.62	0.81	0.94	1.12	1.31	1.50	1.69	2.50
PLUGS (ROUND HEAD)	E (NOMINAL DIA OF HEAD)	0.41	0.53	0.69	0.84	1.06	1.31	1.69	1.91	2.38	2.88	3.50	4.50
	D (LENGTH MIN.)	1.38	1.62	1.62	1.75	1.75	2.00	2.00	2.00	2.50	2.75	2.75	3.00
HEX PLUGS & BUSHINGS	F (WIDTH FLATS, NOT SHOWN)	0.44	0.62	0.69	0.88	1.06	1.38	1.75	2.00	2.50	3.00	3.50	4.62
	G (BUSHING)		0.12	0.16	0.19	0.22	0.25	0.28	0.31	0.34	0.38	0.41	0.50
	H (PLUG)	0.25	0.25	0.31	0.31	0.38	0.38	0.56	0.62	0.69	0.75	0.81	1.00

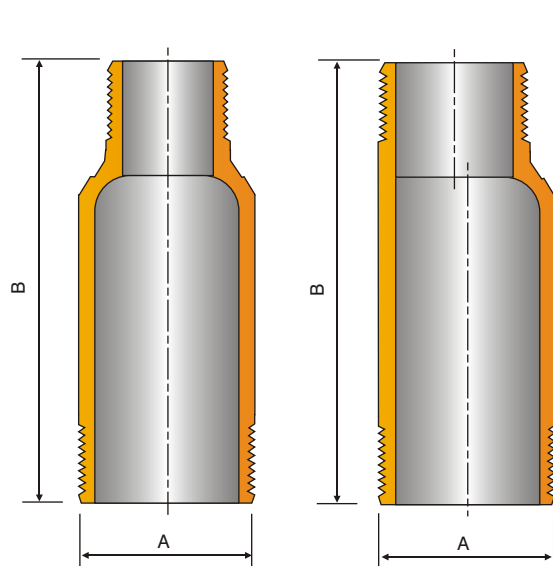
NOTE:

PARVEEN also manufacture and supply the following.

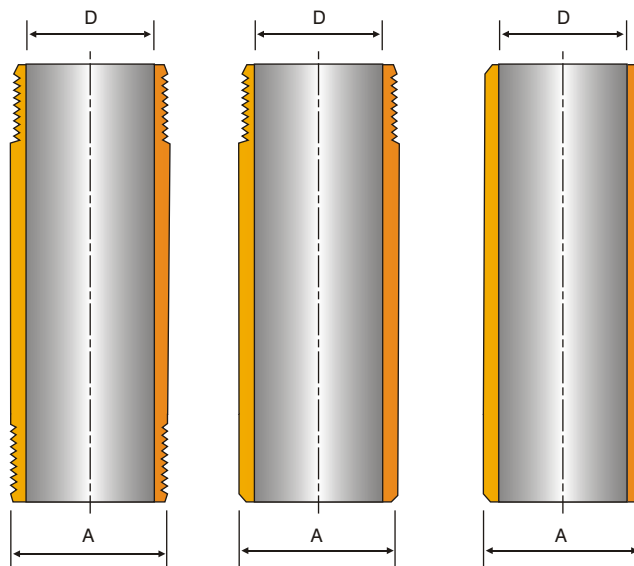
- Steel Pipe Fittings inclusive of Tees and Even Curvature bends to BS-534 for Butt Welding.
- Screwed and Socket Welded Fitting such as Elbow, Cross, Tees, Coupling, Pipe Plugs, Bushing, Nipples etc., as per BS-3799.



NIPPLES



Swaged Nipples
Conform to ASME B 16.11



Barrel Nipples
Conform to ASME B 16.11

Schedule 40

SIZE	DIMENSION	
	A	D
1/8	13/32	.268
1/4	35/64	.362
3/8	43/64	.492
1/2	27/32	.622
3/4	1.1/16	.823
1	1.5/16	1.047
1 1/4	1.11/16	1.382
1 1/2	1.29/32	1.611
2	2.3/8	2.067
2 1/2	2.7/8	2.469
3	3.1/2	3.067
4	4.1/2	4.028

Schedule 80

SIZE	DIMENSION	
	A	D
1/8	13/32	.217
1/4	35/64	.303
3/8	43/64	.422
1/2	27/32	.548
3/4	1.1/16	.741
1	1.5/16	.957
1 1/4	1.11/16	1.280
1 1/2	1.29/32	1.500
2	2.3/8	1.941
2 1/2	2.7/8	2.323
3	3.1/2	2.902
4	4.1/2	3.827

Schedule XXS

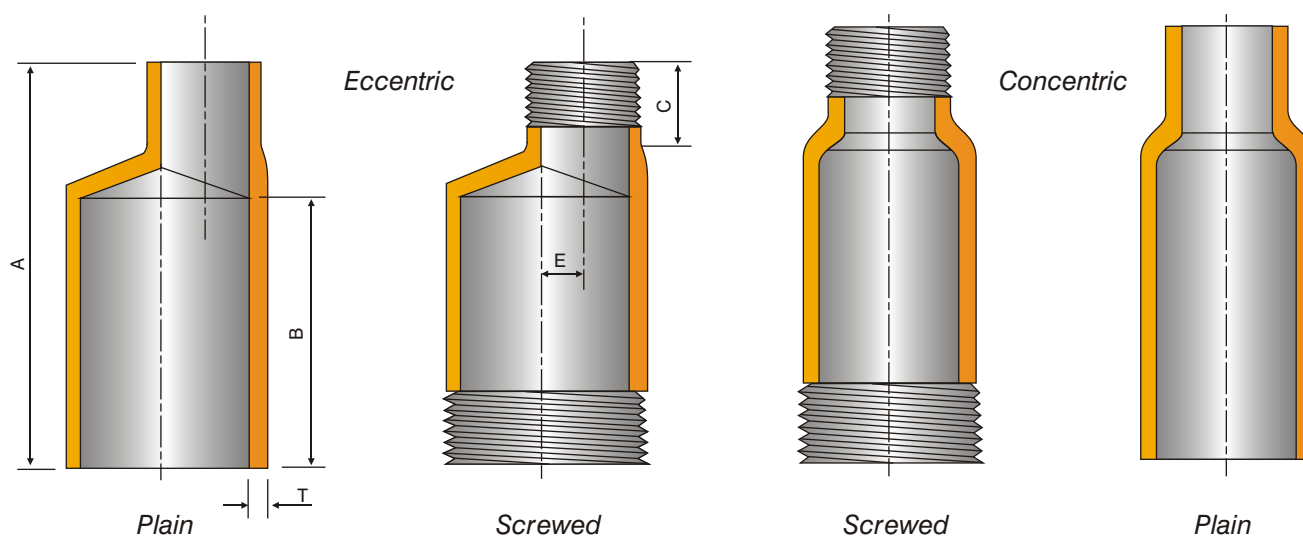
SIZE	DIMENSION	
	A	D
1/8	13/32	
1/4	35/64	
3/8	43/64	
1/2	27/32	.331
3/4	1.1/16	.434
1	1.5/16	.599
1 1/4	1.11/16	.898
1 1/2	1.29/32	1.099
2	2.3/8	1.504
2 1/2	2.7/8	1.772
3	3.1/2	2.999
4	4.1/2	3.154

SIZE	DIMENSION
	B
1/4	2
3/8	2.5
1/2	2.3/4
3/4	3
1	3.1/2
1 1/4	4
1 1/2	4.1/2
2	6
2 1/2	6
3	6
4	6

NOTE:

- A. All dimensions are in inches.
- B. Other sizes and threads as per API, ASME can be provided on request.

NIPPLES



Swaged Nipples Conform to BS 3799

NOMINAL SIZE		PARALLEL STRENGTH			ECCENTRICITY E		THICKNESS T AND t*		
		(min) A	(min) B	(min) C	3000 P.S.I.	6000 P.S.I.	SCREWED/PLAIN 3000 P.S.I.	PLAINS 6000 P.S.I.	SCREWED 6000 P.S.I.
in	mm	mm	mm	mm	mm	mm			
3/8 x 1/4	(10 x 8)	76	48	16	1.6				
1/2 x 3/8	(15 x 10)	89	56	19	1.6				
1/2 x 1/4	(15 x 8)	89	56	19	3.2				
3/4 x 1/2	(20 x 15)	95	57	22	2.4	2.4		Schedule 160	XXS
3/4 x 3/8	(20 x 10)	95	57	22	4.0				
1 x 3/4	(25 x 20)	102	64	22	2.8	2.0			
1 x 1/8	(25 x 15)	102	64	22	5.2	4.4			
1 1/2 x 1	(40 x 25)	114	70	25	6.7	6.4			
1 1/2 x 3/4	(40 x 20)	114	70	25	9.5	8.3			
1 1/2 x 1/2	(40 x 15)	114	70	25	11.9	10.7			
2 x 1 1/2	(50 x 40)	165	108	29	5.6	5.2			
2 x 1	(50 x 25)	165	108	29	12.7	11.5			
2 x 3/4	(50 x 20)	165	108	29	15.5	13.5			
2 x 1/2	(50 x 15)	165	108	29	17.5	15.9			
2 1/2 x 2	(65 x 50)	178	114	32	4.8	3.2			
2 1/2 x 1 1/2	(65 x 40)	178	114	32	10.3	8.3			
3 x 2 1/2	(80 x 65)	203	133	41	7.1	6.7			
3 x 2	(80 x 50)	203	133	41	11.9	9.9			
3 x 1 1/2	(80 x 40)	203	133	41	17.5	15.5			
4 x 3	(100 x 80)	229	140	48	11.9	10.7			
4 x 2 1/2	(100 x 65)	229	140	48	19.1	17.5			
							Schedule 80	Schedule 160	Double extra strong

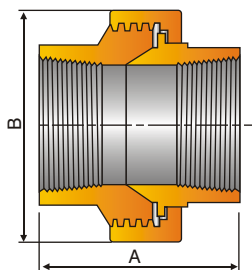
NOTE:

- (*) Thickness and outside diameters of swage nipples shall correspond to those of the appropriate nominal pipe size.
- Other sizes and threads as per API, ASME can be provided on request.

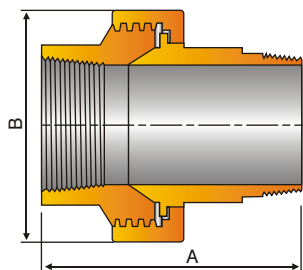


UNIONS

(SCREWED END) CONFORM TO ASME B16.11

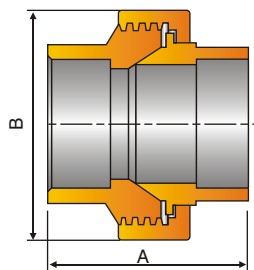


Union Female - Female

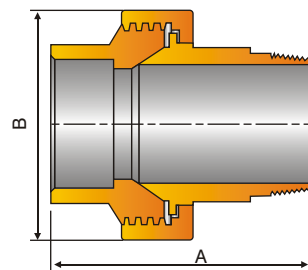


Union Male - Female

(SOCKET WELD END) CONFORM TO ASME B16.11



Union Female - Female



Union Male - Female

Rating 3000 LBS

SIZE	DIMENSION	
	A	B
1/8	1 7/8	1 7/16
1/4	1 7/8	1 7/16
3/8	2 1/32	1 13/16
1/2	2 3/16	1 7/8
3/4	2 5/16	2 3/16
1	2 7/16	2 11/16
1 1/4	2 25/32	3 5/32
1 1/2	3 1/8	3 3/8
2	3 9/16	4 1/8

Rating 3000 LBS

SIZE	DIMENSION	
	A	B
1/8	2 5/16	1 7/16
1/4	2 1/2	1 7/16
3/8	2 21/32	1 13/16
1/2	2 31/32	1 7/8
3/4	3 5/32	2 3/16
1	3 7/16	2 11/16
1 1/4	3 13/16	3 5/32
1 1/2	4 1/8	3 3/8
2	4 5/8	4 1/8

Rating 3000 LBS

SIZE	DIMENSION	
	A	B
1/8	1 7/8	1 7/16
1/4	1 7/8	1 7/16
3/8	2 1/32	1 13/16
1/2	2 3/16	1 7/8
3/4	2 5/16	2 3/16
1	2 7/16	2 11/16
1 1/4	2 5/32	3 5/32
1 1/2	3 1/8	3 3/8
2	3 9/16	4 1/8

Rating 3000 LBS

SIZE	DIMENSION	
	A	B
1/8	2 5/16	1 7/16
1/4	2 1/2	1 7/16
3/8	2 21/32	1 13/16
1/2	2 31/32	1 7/8
3/4	3 5/32	2 3/16
1	3 7/16	2 11/16
1 1/4	3 13/16	3 5/32
1 1/2	3 1/8	3 3/8
2	4 5/8	4 1/8

Rating 6000 LBS

SIZE	DIMENSION	
	A	B
1/8	2 1/32	1 13/16
1/4	2 3/16	1 7/8
3/8	2 5/16	2 3/16
1/2	2 7/16	2 11/16
3/4	2 25/32	3 5/32
1	3 1/8	3 3/8
1 1/4	3 9/16	4 1/8
1 1/2	-	-

Rating 6000 LBS

SIZE	DIMENSION	
	A	B
1/8	2 21/32	1 13/16
1/4	2 31/32	1 7/8
3/8	3 5/32	2 3/16
1/2	3 7/16	2 11/16
3/4	3 13/16	3 5/32
1	4 1/8	3 3/8
1 1/4	4 5/8	4 1/8
1 1/2	-	-

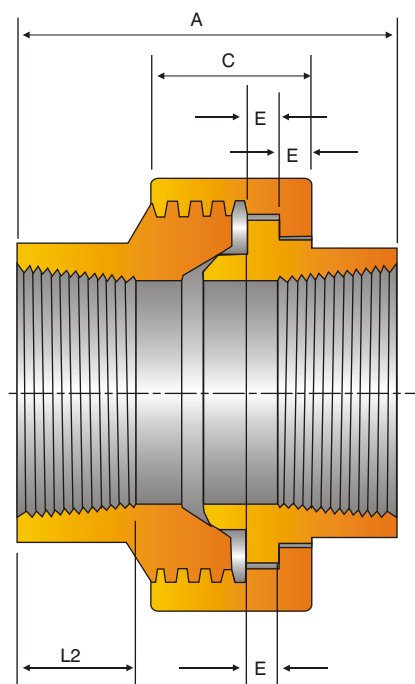
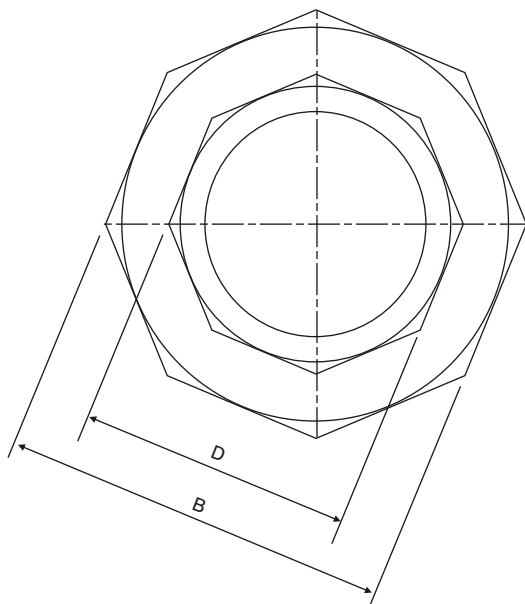
Rating 6000 LBS

SIZE	DIMENSION	
	A	B
1/8	1 7/8	1 7/16
1/4	2 1/32	1 13/16
3/8	2 3/16	1 7/8
1/2	2 5/16	2 3/16
3/4	2 7/16	2 11/16
1	2 5/32	3 5/32
1 1/4	3 1/8	3 3/8
1 1/2	3 9/16	4 1/8

Rating 6000 LBS

SIZE	DIMENSION	
	A	B
1/8	2 1/2	1 7/16
1/4	2 21/32	1 13/16
3/8	2 31/32	1 7/8
1/2	3 5/32	2 3/16
3/4	3 7/16	2 11/16
1	3 13/16	3 5/32
1 1/4	4 1/8	3 3/8
1 1/2	4 1/8	4 1/8

UNIONS



Union Female - Female
(Screwed) Conform to BS 3799

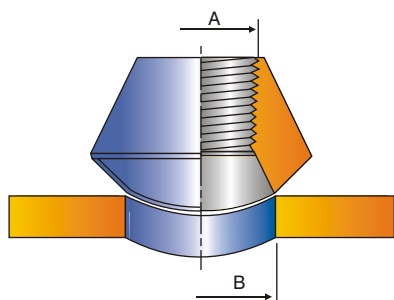
NOMINAL SIZE		3000 P.S.I.					
		END TO END	WIDTH A/F UNION NUT (Min.)	HEIGHT OF UNION NUT (Min.)	WIDTH A/F OF ENDS (Min.)	THICKNESS OF SHOULDER (Min.)	LENGTH OF THREAD (Min.)
		A	B	C	D	E	L2
in	mm	mm	mm	mm	mm	mm	mm
1/8	(6)	40	32	16	17	3.2	6.70
1/4	(8)	43	32	18	19	3.2	10.21
3/8	(10)	48	36	19	22	3.2	10.36
1/2	(15)	51	43	21	30	4.0	13.56
3/4	(20)	57	50	24	36	4.8	13.86
1	(25)	64	60	25	41	4.8	17.34
1 1/4	(32)	70	70	29	50	5.6	17.93
1 1/2	(40)	79	78	30	60	5.6	18.38
2	(50)	89	95	37	70	6.4	19.22
2 1/2	(65)	118	125	48	85	9.6	28.89
3	(80)	121	140	51	100	12.7	30.48

NOTE:

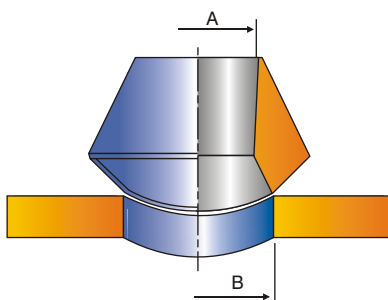
- Other external forms of nut and ends can also be provided upon request.
- Other sizes and threads as per API, ASME can be provided on request.



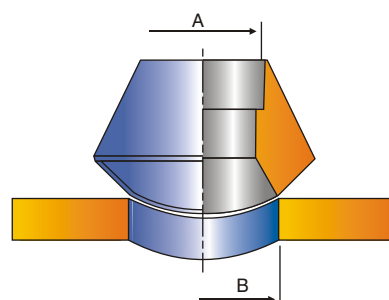
BRANCHED CONNECTIONS



Threadolet
Conform To ASME B 16.11



Weldolet
Conform To ASME B 16.11



Sockolet
Conform To ASME B 16.11

NOMINAL RUN PIPE	OUTLET	DIMENSION	
		A	B
1/8	1/8	13/32	5/8
1/4	1/4	35/64	5/8
3/8	3/8	43/64	3/4
1/2	1/2	27/32	15/16
3/4	3/4	1.1/16	1 3/16
1	1	1.5/16	1 7/16
1 1/4	1 1/4	1.11/16	1 3/4
1 1/2	1 1/2	1.29/32	2
2	2	2.3/8	2 9/16
2 1/2	2 1/2	2.7/8	3
3	3	3.1/2	3 11/16
4	4	4.1/2	4 3/4

NOMINAL RUN PIPE	OUTLET	DIMENSION	
		A	B
1/2	1/2	27/32	15/16
3/4	3/4	1.1/16	1 3/16
1	1	1.5/16	1 7/16
1 1/4	1 1/4	1.11/16	1 3/4
1 1/2	1 1/2	1.29/32	2
2	2	2.3/8	2 3/16
2 1/2	2 1/2	2.7/8	3
3	3	3.1/2	3 11/16
4	4	4.1/2	4 3/4
5	5	5 9/16	5 13/16
6	6	6 5/8	6 11/16
8	8	8 5/8	8 11/16
10	10	10 3/4	10 7/16
12	12	12 23/32	13
14	14	14	14 5/16
16	16	16	16 1/2
18	18	18	18 5/8
20	20	20	20 13/16
24	24	24	25 1/8

NOMINAL RUN PIPE	OUTLET	DIMENSION	
		A	B
1/8	1/8	.420 .430	5/8
1/4	1/4	.555 .565	5/8
3/8	3/8	.690 .700	3/4
1/2	1/2	.855 .865	15/16
3/4	3/4	1.065 1.075	13/16
1	1	1.330 1.340	17/16
1 1/4	1 1/4	1.675 1.685	13/4
1 1/2	1 1/2	1.915 1.925	2
2	2	2.406 2.416	2 9/16
2 1/2	2 1/2	2.906 2.921	3
3	3	3.535 3.550	3 11/16
4	4	4.545 4.560	4 3/4

NOTE:

- A. All dimensions are in inches.
- B. Other sizes and threads as per API, ASME can be provided on request.



SEAMLESS PIPE SIZES

Outside Diameter and Wall Thickness

STANDARD SIZES. (ANSI B36.10 & B36.19)																
NOM. PIPE SIZE	O.D. AT BEVEL	SCH. 5S	SCH. 10S	SCH. 10	SCH. 20	SCH. 30	STD	SCH. 40	WALL THICKNESS			SCH. 100	SCH. 120	SCH. 140	SCH. 160	XXS
									XS	SCH. 60	SCH. 80					
1/8	0.405		0.049				0.068	0.068	0.095		0.095					
1/4	0.540		0.065				0.088	0.088	0.110		0.119					
3/8	0.675		0.065				0.091	0.091	0.126		0.126					
1/2	0.840	0.065	0.083				0.109	0.109	0.147		0.147				0.188	0.294
3/4	1.050	0.065	0.083				0.113	0.113	0.154		0.154				0.219	0.308
1	1.315	0.065	0.109				0.133	0.133	0.179		0.179				0.250	0.358
1 1/4	1.660	0.065	0.109				0.140	0.140	0.191		0.191				0.250	0.382
1 1/2	1.900	0.065	0.109				0.145	0.145	0.200		0.200				0.281	0.400
2	2.375	0.065	0.109				0.154	0.154	0.218		0.218				0.344	0.436
2 1/2	2.875	0.083	0.120				0.203	0.203	0.276		0.276				0.375	0.552
3	3.500	0.083	0.120				0.216	0.216	0.300		0.300				0.438	0.600
3 1/2	4.000	0.083	0.120				0.226	0.226	0.318		0.318					
4	4.500	0.083	0.120				0.237	0.237	0.337		0.337		0.438		0.531	0.674
5	5.563	0.109	0.134				0.258	0.258	0.375		0.375		0.500		0.625	0.750
6	6.625	0.109	0.134				0.280	0.280	0.432		0.432		0.562		0.719	0.864
8	8.625	0.109	0.148		0.250	0.277	0.322	0.322	0.500	0.406	0.500	0.594	0.719	0.812	0.906	0.875
10	10.75	0.134	0.165		0.250	0.307	0.365	0.365	0.500	0.500	0.594	0.719	0.844	1.000	1.125	1.000
12	12.75	0.156	0.180		0.250	0.330	0.375	0.406	0.500	0.562	0.688	0.844	1.000	1.125	1.312	1.000
14	14.00	0.156	0.188	0.250	0.312	0.375	0.375	0.438	0.500	0.594	0.750	0.938	1.094	1.250	1.406	
16	16.00	0.165	0.188	0.250	0.312	0.375	0.375	0.500	0.500	0.656	0.844	1.031	1.219	1.438	1.594	
18	18.00	0.165	0.188	0.250	0.312	0.438	0.375	0.562	0.500	0.750	0.938	1.156	1.375	1.562	1.781	
20	20.00	0.188	0.218	0.250	0.375	0.500	0.375	0.594	0.500	0.812	1.031	1.281	1.500	1.750	1.969	
22	22.00	0.188	0.218	0.250	0.375	0.500	0.375		0.500	0.875	1.125	1.375	1.625	1.875	2.125	
24	24.00	0.218	0.250	0.250	0.500	0.562	0.375	0.688	0.500	0.969	1.219	1.531	1.812	2.062	2.344	
26	26.00			0.312	0.500		0.375		0.500							
28	28.00			0.312	0.500	0.625	0.375		0.500							
30	30.00	0.250	0.312	0.312	0.500	0.625	0.375		0.500							
32	32.00			0.312	0.500	0.625	0.375	0.688	0.500							
34	34.00			0.312	0.500	0.625	0.375	0.688	0.500							
36	36.00			0.312	0.500	0.625	0.375	0.750	0.500							
38	38.00						0.375		0.500							
40	40.00						0.375		0.500							
42	42.00						0.375		0.500							
44	44.00						0.375		0.500							
46	46.00						0.375		0.500							
48	48.00						0.375		0.500							

NOTE:

PARVEEN can supply the above Pipes in Carbon Steel, Alloy Steel & Stainless Steel. Please contact us for your requirements.



BUTTERFLY VALVES

Parveen Butterfly Valve provides dependable throttling service for a wide range of pressure application (up to 200 PSI). It has been used in low pressure or suction side of mud systems, acidizing, fracturing, stimulation services, etc.

GENERAL FEATURES:-

- Top plate integral with body
- Upper stem bushing is wear and corrosion-resistant, absorbs operators side-thrust.
- Resilient butterfly seat is smooth-surfaced Nitrile for easy opening or closing with minimum wear.
- Seal-against-flanges is integral with resilient butterfly seat. Eliminates separate O-Ring.
- All material meet ANSI and ASTM standards.
- Custom made ends can be provided on request.



Item number	Part Description	Valve Size (inches)								
			2"	3"	4"	5"	6"	8"	10"	12"
Assembly	Complete Valve Wafer Type short neck	Part Nos .	BF-2128S	BF-3124S	BF-4106S	BF-5125S	BF-6126S	BF-8230S	BF-10248S	BF-12250S
Assembly	Complete Valve Wafer Type long neck	Part Nos .	BF-2128L	BF-3124L	BF-4106L	BF-5125L	BF-6126L	BF-8230L	BF-10248L	BF-12250L
Assembly	Complete Valve Lug Type	Part Nos .	BF-2275	BF-3276	BF-4277	BF-5282	BF-6278	BF-8279	BF-10280	BF-12281

SWING CHECK VALVE

The Thin body PARVEEN Swing Check Valves are available in 2" to 4" sizes; Welded, Flanged or Threaded end type with all classes. A Counterweight one-piece disc pivots to open position and close position to positively seal off the reverse flow. The special design of the disc allows fullest possible flow passage so as to have the lowest pressure loss than any other valve of its type. Seals are Buna-N, Teflon or metal-to-metal.

SPECIAL FEATURES:-

- Prevents reverse flow
- Has replaceable seal
- Good for gases and liquids
- Smooth opening, quiet operating
- Special trims for abrasive, corrosive services
- No external dashpots or dampeners
- Parts replaceable with valve in line



Parveen Swing Check Valve

Part No. & Weight

Full Port		2"	3"	4"
Flanged End	Part No. Wt. (lbs)	408-201XXX-00 36	408-301XXX00 80	408-401XXX-00 130
Screwed End	Part No. Wt. (lbs)	408-201XXX-02 44	408-301XXX-02 33	408-401XXX-02 74
Weld End	Part No. Wt. (lbs)	408-201XXX-03 44	408-301XXX-03 33	408-401XXX-03 74

NOTE: XXX Stands for Class & Bore Size



HIGH PRESSURE CHECK VALVE (DART TYPE)

PARVEEN CHECK VALVES (DART TYPE) are widely used in well stimulation operation. IT has a spring operated Dart Check which eliminates back flow during operations. PARVEEN manufactures this valve for pressure rating up to 15,000 PSI. Sizes available are 1.1/2", 2" & 3". Periodical maintenance of Valves in service enhances durability.



PARVEEN's dart style check valves are available in 1" through 3" sizes in standard and sour gas services models.

Valve Size	End Connection (Upstream / Downstream)	NSCWP (PSI)*	Weight in kg
1"	1502 Male/ 1502 Female (Reverse Flow)	15,000	27
1"	1502 Female/ 1502 Male (Standard Flow)	15,000	27
1 1/2"	1502 Female/ 1502 Male (Standard Flow)	15,000	28
1 1/2"	1502 Male/ 1502 Female (Reverse Flow)	15,000	28
2"	1502 Female/ 1502 Male (Standard Flow)	15,000	29
2"	1502 Male/ 1502 Female (Reverse Flow)	15,000	29
3"	1502 Female/ 1502 Male (Standard Flow)	15,000	50
3"	1502 Male/ 1502 Female (Reserve Flow)	15,000	50

HIGH PRESSURE CHECK VALVE (FLAPPER TYPE)

Parveen High Pressure Check Valves are recommended for acidizing, fracturing, stimulation application up to 20,000 PSI working pressure. They are made of high strength steel and manufactured to precise requirement.

GENERAL FEATURES:-

- Flapper design incorporates superior nitrile and high corrosion-resistant coatings to give longer operating life in rugged service.
- Available in standard and reverse flow style.

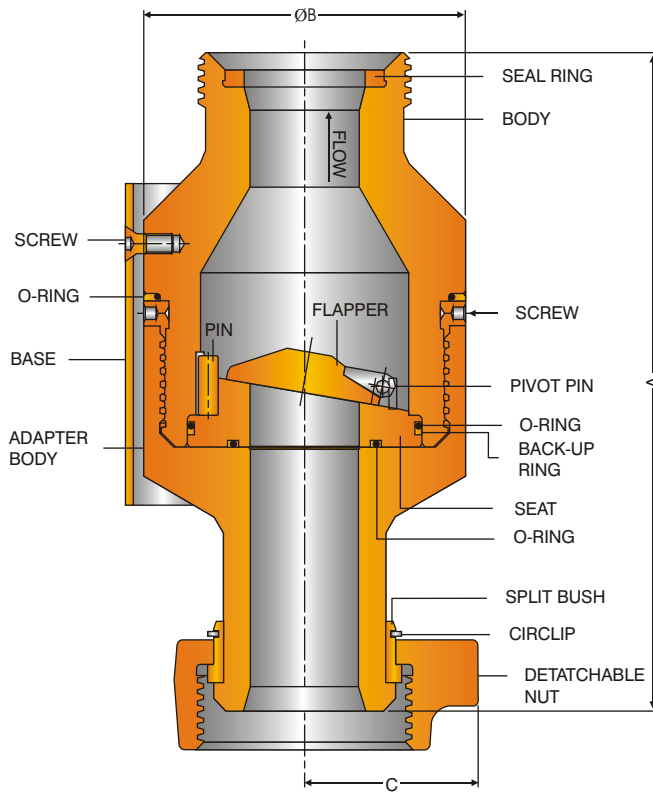


PARVEEN's Flapper style check valves utilize the same design and quality components used for over a decade in the industry.

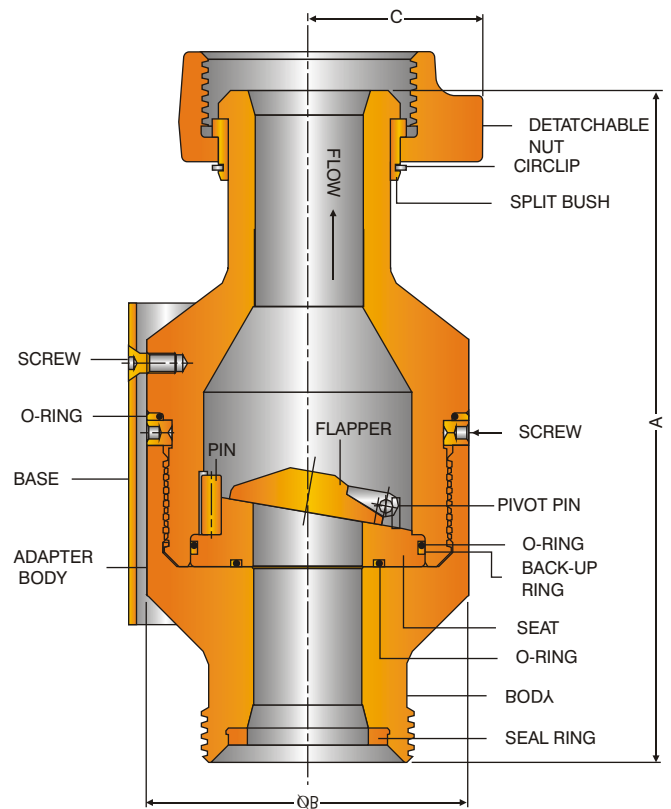
Valve Size	End Connection (Upstream / Downstream)	NSCWP (PSI)*	Weight in kg
2"	2" 1502 Male/ 2" 1502 Female (Reverse Flow)	15,000	28
2"	2" 1502 Female/ 2" 1502 Male (Standard Flow)	15,000	28
2"	2" 2002 Female/ 2" 2002 Male (Standard Flow)	20,000	37
3"	3" 1002 Male/ 3" 1002 Female (Reverse Flow)	10,000	44
3"	3" 1002 Female/ 3" 1002 Male (Standard Flow)	10,000	44
3"	3" 1502 Male/ 3" 1502 Female (Reverse Flow)	15,000	44
3"	3" 1502 Female/ 3" 1502 Male (Standard Flow)	15,000	44
3"	3" 2002 Male/ 3" 2002 Female (Reverse Flow)	20,000	120
4"	4" 602 Female/ 4" 602 Male (Standard Flow)	6000	120
4"	4" 602 Male/ 4" 602 Female (Reverse Flow)	6000	120



CHECK VALVES



Reverse Type



Standard Type

PARVEEN manufactures Flapper Type check valves (Standard & Reverse) in sizes 1" to 4" upto 15000PSI W.P rating.

Features

- Cylindrical look.
- Easy flow identification.
- Simple maintenance.
- Taper Thread in both halves of Check Valve.
- O-Rings are not exposed to flow.
- Set screw for proper positioning of the halves.

NOMINAL SIZE	A (INCH)	ØB (INCH)	C (INCH)	WEIGHT(LBSF)	
				STANDARD	REVERSE
2"	10.1	7.0	3.8	88	88
3"	15.6	8.1	4.4	121	121



PIPELINE GATEVALVE

Parveen Pipe Line Gate Valves are suitably used for Gas, Water, Steam and other chemical duties for prolonged period. The valve has a wedge shaped gate which wedges between the seats to close the valve tightly.

GENERAL FEATURES:

- Stem threads are away from the line fluid and hence easy to lubricate.
- The yoke sleeve and hand wheel assembly is so arranged in the bonnet, that removal of hand wheel from the yoke sleeve would not cause the wedged gate to fall down.
- Designed to API-600 / API-6D standards.
- Back seating features facilitate re-packing of the stuffing box on line with the valve in fully open position
- Swinging eye bolt facilitates easy access to the stuffing box
- Replaceable screwed seat ring.
- Stellite wedge & seat ring can also be offered on special request.

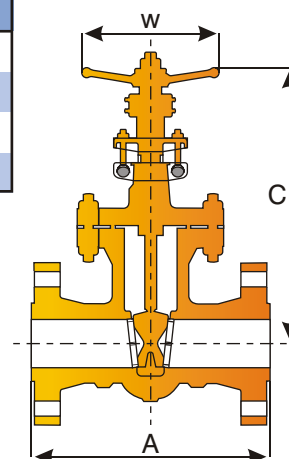


Size	2		2.1/2		3			4			6		
Class	600	900/1500	600	900/1500	600	900	1500	600	900	1500	600	900	1500
A	11.5	14.5	13	16.5	14	15	18.5	17	18	21.5	22	24	27.75
C	18	18	22	23	26	26	26	30	31	31	42	44	49
W	13	13	13	13	13	13	13	13	21	21	21	21	29

SI No.	8			10			12			14		
Class	600	900	1500	600	900	1500	600	900	1500	600	900	1500
A	26	29	32.75	31	33	39	33	38	44.5	35	40.5	49.5
C	49.25	52	54.49	62	64.25	67	64.17	70.75	71.73	71.77	74.88	77
W	21.65	29.53	29.53	29.53	29.53	33.46	29.53	33.46	33.46	33.46	33.46	37.4

SI No.	16			18		20		24	
Class	600	900	1500	600	900	600	900	600	900
A	39	44.5	54.5	43	48	47	52..	55	61
C	79.5	82.52	85.63	85.2	86.89	93.7	98.4	109.69	118.27
W	33.46	37.40	37.40	37.4	37.4	37.4	37.4	37.4	37.4

- NOTE: 1. Other size and classes pertaining to API standard are also available.
2. Face to face distance shown only for Raised face type.
3. All above dimensions shown are in inches.





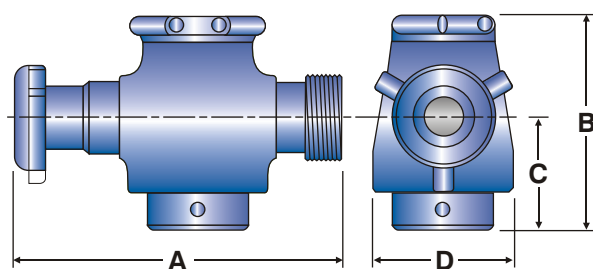
PLUG VALVES

A. Special Design Features

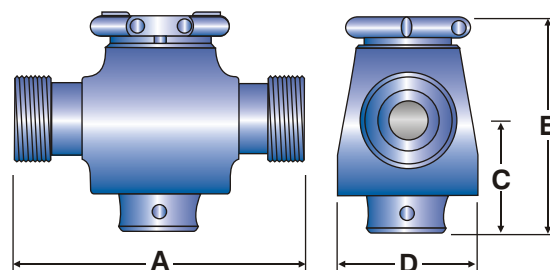
1. PARVEEN valve bodies are made from alloy steel forgings which are designed to variety of end connections to be integrally machined.
2. PARVEEN plug and inserts are designed to resist abrasion and corrosion.
3. PARVEEN valves can be easily adopted for hydraulic or pneumatic actuation. These configurations are designed for integration with complete manifold systems.
4. We manufacture in compliance with API-6A & API-Q1.
5. Our range is up to 15000 PSI WP

B. Operating Principle

1. The plug rotates 90° (1/4 turn) for rapid full open or close operation. This reduces erosion due to throttling action.
2. To ensure a uniform clamping action for the initial pressure seal, the valve body is tapered.
3. To ensure a continuous seal becoming more effective as' differential pressure increases, the plug and inserts "float" downstream with pressure differential caused by the initial seal.
4. Relationship between the seal and the bearing areas is such that the torque required to operate the valve is minimized.
5. To eliminate the need for thrust bearing to reduce friction, the plug is balanced by identical stem seals.



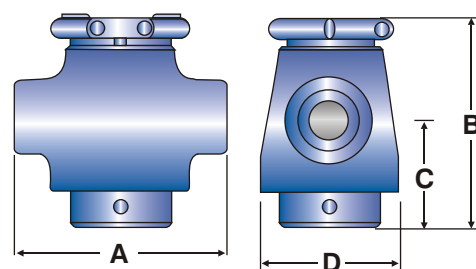
M X F Union End Type



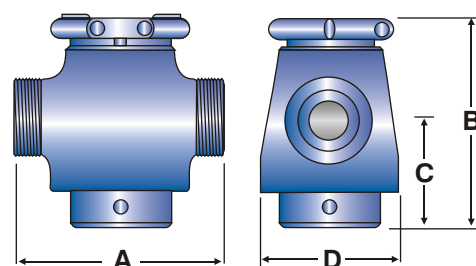
F X F Union End Type

VALVE DESCRIPTION	PART NOS	DIMENSION				W.P PSIG	APPROXI- MATE WEIGHT (lbs)
		A±1	B±1	C±1	D±1		
1" x 2" LP FEMALE	40000500	8.1/2	9.1/4	4.9/16	5.3/8	6000	39
						10000	
1" x 2" LP MALE	40000400	9.0	9.1/4	4.9/16	5.3/8	6000	40
						10000	
1" x 2" 1502 UNION	40000300	10.9/16	9.1/4	4.9/16	5.3/8	6000	60
						10000	
						15000	
2" x 2" LP FEMALE	40000200	8.1/2	10.5/8	5.1/2	5.3/8	6000	61
						10000	
2" x 2" 1502 UNION	40000100	13.7/8	10.5/8	5.1/2	7.1/8	6000	90
						10000	
						15000	
3" x 3" LP FEMALE	40000600	11.1/8	13.0	7.1/8	9.3/8	6000	148
						10000	
3" x 3" 1502 UNION	40000700	17.0	13.0	7.1/8	9.3/8	6000	188
						10000	

- All dimensions are in inches.
- Special plug valve can be provided to suit customer requirements.

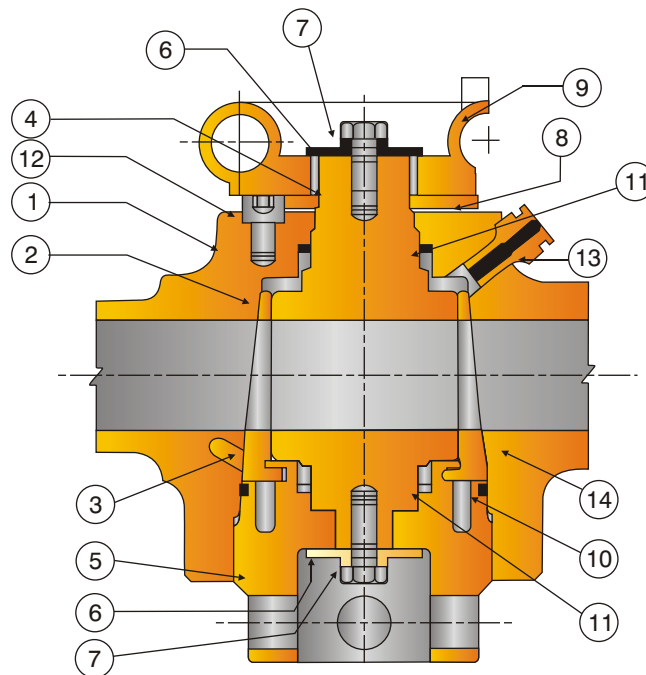
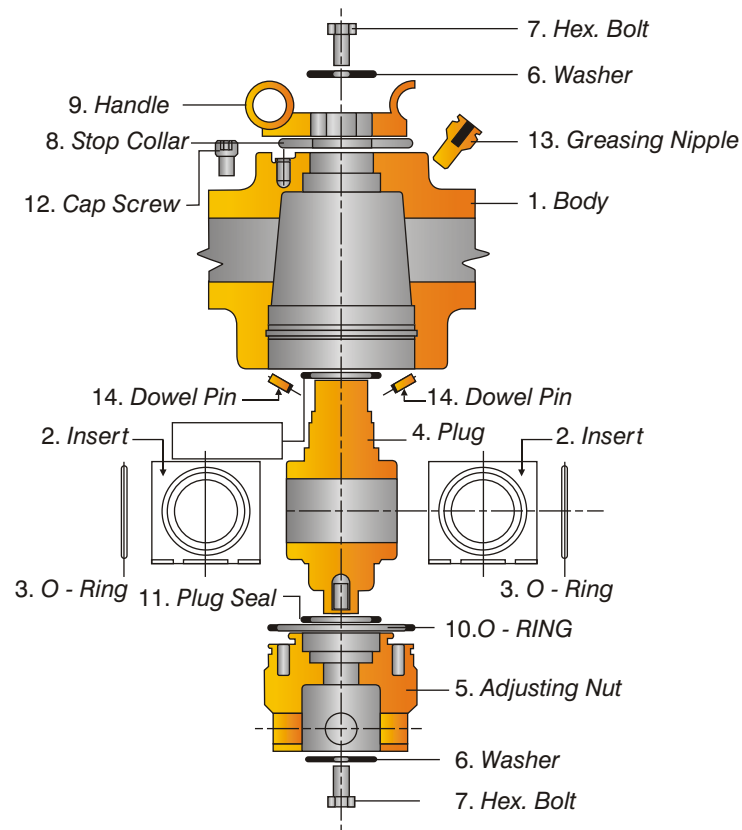


L.P Female Type (threaded)



L.P Male Type (threaded)

PLUG VALVES





MUD VALVE

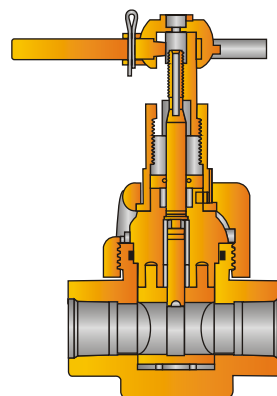
PARVEEN Mud Valves are Forged/Cast exclusively made for mud, cement, fracturing water and steam abrasive applications. All valves are hydrostatic shell and seat tested in accordance with the API 6A /API 6D Specifications. Valves are specially designed for oil-field applications like Well heads, Manifolds, Pipe line, Crude oil and Sour gas line, Well treating chemical, Drilling Chemical, water flood lines, abrasive drilling mud etc.

Model - I

Features

- Designed specifically for abrasive and erosive use.
- Non directional seating and positive sealing between gate and seat.
- Easily replaceable of parts without any use of accessories.
- Can be supplied with flanged end ,hammer union end, threaded & butt weld end.
- Stainless and carbon steel insert with nitrile/viton elastomer in seat.
- Protected raising stem.
- Available from 2" to 4" with all temperature and pressure rating, services as per API - 6A.

Part No. & Weight				
FULL PORT		2"	3"	4"
FLANGED END	PART NO.	412-2065-00	412-3125-00	412-4065-00
	WT (LBS)	70	100	110
SCREWED END	PART NO.	412-4385-02	412-4805-02	412-4795-02
	WT (LBS)	48	53	61
WELD END	PART NO.	412-0025-03	412-0035-03	412-0045-03
	WT (LBS)	48	53	61



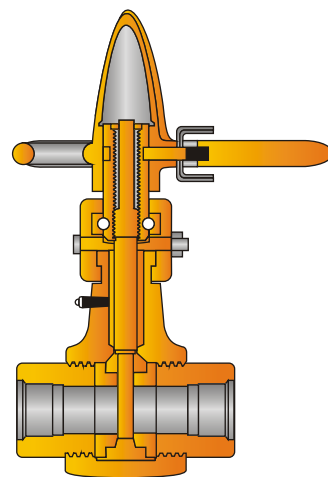
Mud Valve (model - I)

Model - S

Features

- Designed for rigorous Oil-field services.
- Different end connection can be obtained without changing the main body or assembly.
- Through conduit with wear plate both size provide longer services.
- Heavy duty bearing at stem provides easy operation.
- Single gate stem.
- Available with all pressure and temperature class and services as per API-6A.

Part No. & Weight				
FULL PORT		2"	3"	4"
FLANGED END	PART NO.	412-2065-00	413-3125-00	413-4065-00
	WT (LBS)	125	254	384
SCREWED END	PART NO.	413-4385-02	413-4805-02	413-4795-02
	WT (LBS)	85	168	250
WELD END	PART NO.	413-0025-03	413-0035-03	413-0045-03
	WT (LBS)	87	170	252



Mud Valve (model - S)



BALL VALVE

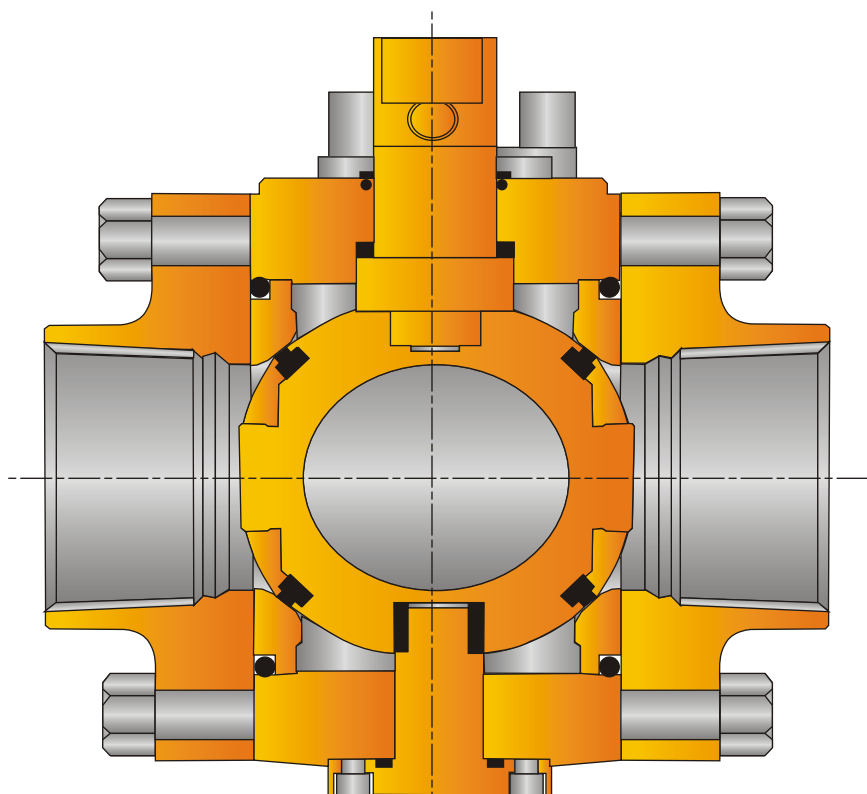
PARVEEN manufactures simple construction full-bore, non lubricated type, three piece, forged concept Ball Valve technology. Soft seat mounted on the ball guarantee that the static spherical seat rings in the body are perfectly tight.

Other special features Include

- The operating torque is low whatever the line pressure due to the limited travel of the spherical flanges inside the body.
- There is no friction of the soft seat on the seal rings during operation and the packing wear is practically nil.
- With the valve open, the seals are protected and relaxed in the body cavity.
- Double sealing upstream and down stream assured in each direction by a single seat.
- The body can be dismantled even in the case of valves welded to the pipeline.

These are available from 2" to 4" sizes; Welded, Flanged or Threaded ends type. Pressure ratings up to 3000 psi W.P for normal or H₂S Service.

Part No. & Weight				
Full Port		2"	3"	4"
Flanged End	Part No.	560-2015x-00	560-3015x-00	560-3015x-00
	Wt (lbs)	104	155	266
Screwed End	Part No.	560-2015x-02	560-3015x-02	560-4015x-03
	Wt (lbs)	44	71	160
Weld End	Part No.	560-2015x-03	560-3015x-03	560-4015x-03
	Wt (lbs)	44	71	160



Ball Valve



TUBULARS, DRILLING & WORKOVER TOOLS, CEMENTING EQUIPMENT INDEX

SR. NO.	INDEX	PAGE
1	Tubulars	185
2	Pup Joints	187
3	Crossover / Connectors	188
4	Drill Stem Subs	189
5	Drill Collars	190
6	Thread Protectors	195
7	Lift Subs & Lift Plugs	196
8	Drill Pipe Pup Joints	197
9	Heavy Wall Drill Pipe	198
10	Kelly Cocks	199
11	Stabilizers	201
12	Inside Blow Out Preventer	203
13	Hole Openers	204
14	Rotary Reamers	206
15	Square Kellys	209
16	Hex Kelly	210
17	Cementing Head	211
18	Circulating Head / Casing Adapter	213



TUBULARS

1. PARVEEN is adequately equipped to supply/thread Casings or Tubings, & Casing or Tubing Pup Joints, Casing or Tubing Connectors and Casing or Tubing Couplings. In addition it is capable of Threading items at Groups 1, 2, 3 & 4 of API spec. 5CT. Items manufactured by PARVEEN meet the Quality Standards as defined in API 5CT assuring quality manufacturing process and full material traceability. PARVEEN is licensed to Monogram these products.

2. PARVEEN is also well equipped to manufacture Line Pipe Couplings. In addition it can thread Line Pipes and its accessories of various sizes. Items meet the quality standards as laid down in API - 5L. PARVEEN is licensed to monogram these products.

CASING / TUBING / LINE PIPES:

PARVEEN can provide threaded Casing, Tubing, Line Pipe as per following tables:

CASING				
DIMENSIONS			THREADS	
OUTSIDE DIAMETER (IN.)	NOMINAL WEIGHT (lb/ft)	TUBE LENGTH API RANGE	API	PROPRIETARY
4.1/2	9.50 to 15.10	1, 2, 3, 4.	Short.	Can be done
5	11.50 to 24.10		Long.	On request
5.1/2	14.00 to 40.50		Buttress.	
6.5/8	20.00 to 32.00		Extreme line.	
7	17.00 to 53.60			
7.5/8	24.00 to 55.30			
7.3/4	46.10			
8.5/8	24.00 to 49.00			
9.5/8	32.30 to 75.60			
10.3/4	32.75 to 85.30			
● 13.3/8 available on request.				

TUBING					
DIMENSIONS				THREADS	
OUTSIDE DIAMETER (IN.)	NOMINAL WEIGHT (lb/ft.)	TUBE LENGTH API RANGE.	TUBE ENDS	API	PROPRIETARY
1.315	1.70 to 1.80	1, 2, 3.	External upset.	Round.	Can be done
1.660	2.30 to 3.07				on request
1.990	2.75 to 3.73		Non - upset		
2.3/8	4.00 to 7.45		Integral		
2.7/8	6.40 to 11.50		joint		
3.1/2	7.70 to 17.00				
4	9.50 to 22.00				
4.1/2	12.60 to 26.10				
● L-80, 13 Cr. Available on request.					



TUBULARS

LINE PIPE							
	DIMENSIONS		SPECIFICATIONS	STEEL ENDS.			TUBE ENDS
NOMINAL DIAMETER (IN.)	OUTSIDE DIAMETER (IN.)	NOMINAL WEIGHT (lb/ft)		API	ASTM	DIN	
1/8	0.405	0.24 to 0.31	API 5L	A25	A	St 37.0	Threaded,
1/4	0.540	0.42 to 0.54	ASTM A53		B	St. 44.0	Beveled,
3/8	0.675	0.57 to 0.74	ASTM A106	A	C	St 52.0	Square Cut.
1/2	0.840	0.85 to 1.71	DIN 1629	B		StE 210.7	
3/4	1.050	1.13 to 2.44	DIN 17172	X42		StE 240.7	
1	1.315	1.68 to 3.66	DIN 2440	X46		StE 290.7	
1.1/4	1.660	2.27 to 5.21	DIN 2441	X52		StE 320.7	
1.1/2	1.900	2.72 to 6.41		X56		StE 360.7	
2	2.3/8	2.03 to 9.03		X60		StE 385.7	
2.1/2	2.7/8	2.47 to 13.69		X65		StE 415.7	
3	3.1/2	3.03 to 18.58		X70			
3.1/2	4	3.47 to 12.50		X80			
4	4.1/2	5.84 to 27.54					
5	5.9/16	10.79 to 38.55					
6	6.5/8	12.92 to 47.06					
8	8.5/8	19.66 to 72.42					
10	10.3/4	34.24 to 104.13					
12	Available On Request.						
14	Available On Request.						

PUP JOINTS

API TUBING PUP JOINTS

PARVEEN offers seamless API Pup Joints, manufactured to API spec. 5CT using prime API Monogrammed Seamless Oil country Tubing. Outside diameters, lengths & grades are available:

- Diameters - 1.05" to 4 1/2"
- Weights - As per API - 5CT.
- Lengths - 2, 3, 4, 6, 8, 10 & 12 ft Standard.
- Grades - H-40, J-55, N-80, L-80, C-90, T-95, P-110.
- Connections - EUE, NUE, INTEGRAL JOINT TUBING, PREMIUM THREADS.

NOTE: Upset end forged / machined can be provided. Even higher lengths can be given to suit customer requirements. Markings follow API 5CT requirement. Premium connections such as VAM, HYDRIL, NKK... are sub-contracted to authorised contractors.

API CASING PUP JOINTS

Any length, grade and weight is available on request.

- Diameters - 4 1/2" to 9 5/8"
- Weights - As Per API-5CT.
- Lengths - 2, 3, 4, 6, 8, 10 & 12 ft Standard.
- Grades - J-55, K55, N-80, L-80, C-90, C-95, T-95, P-110.
- Connections - STC, LTC, BTC & EXTREME LINE, PREMIUM.

NOTE: Premium connections are sub-contracted to authorised contractors.

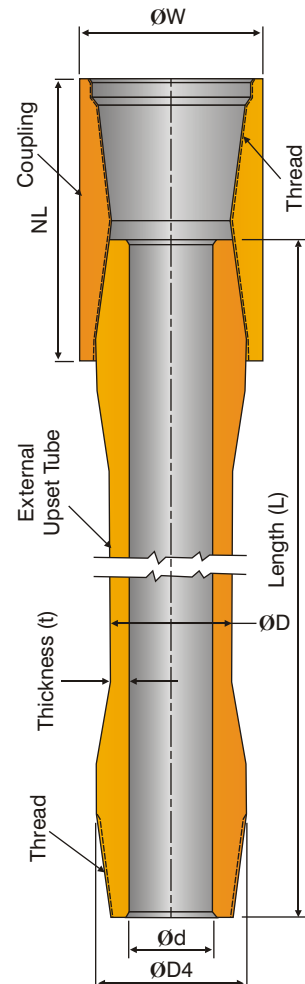
COUPLINGS

Produced from prime API Monogrammed Seamless tubing or casing in API grade. Couplings can be Regular, Special Clearance, Combination, Reducing and Special Bevel Couplings. Couplings are phosphated to avoid galling. Seal Ring and Uni-flow Coupling can also be provided upon request.

TUBING

- Size : Tubing - 1.05" to 4 1/2"
Casing - 4 1/2" to 20"
- Weights : - All weights can be catered for.
- Grade : Tubing - H-40, J-55, N-80, L-80, C-90, T-95, P-110.
Casing - H-40, J-55, N-80, M-65, C-90, C-95, T-95, L-80, P-110, Q-125
- Connections : Tubing - EUE, NUE.
Casing - STC, LTC, BUTTRESS, EXTREME LINE, PREMIUM.

NOTE: Premium connections are sub-contracted to authorised contractors.



Pup Joint Assembly



CROSSOVER / CONNECTORS

Available in a wide range of sizes, weights, lengths and grades with any combination of connections.

- a. Diameters - 1.05" to 20"
- b. Weights - All weights catered for.
- c. Lengths - Any length.
- d. Grades - H-40, J-55, K-55, N-80, M-65, L-80, C-90, C-95, T-95, P-110, Q-125
- e. Connections - Any combination of Standard or Premium connections.

NOTE: Premium connections are sub-contracted to authorised contractors.

THREADING: PARVEEN is a Threader of all items in Group 1, 2, 3 & 4 of API 5CT.

LINE PIPE COUPLINGS

- a. Nom. Size - 1/8" to 12"
- b. Dimensions - Confirm to Dimensions & Tolerances as per API 5L, latest edition.
- c. Threading - Couplings Threads, Gauging Practice and Thread Inspection shall confirm to API 5B.
- d. Weights - Couplings are applicable to either standard weight or extra strong type.
- e. Marking - Couplings manufactured in conformance with API-5L will be marked as per API-5 spec. Custom marking can also be provided on request.
- f. Material - API-5L material.

THREADING: PARVEEN is a Threader of all type of LINE PIPES and accessories as defined in the specs API-5L. It caters for Pipes from 1/8" to 12"

ORDERING INSTRUCTIONS

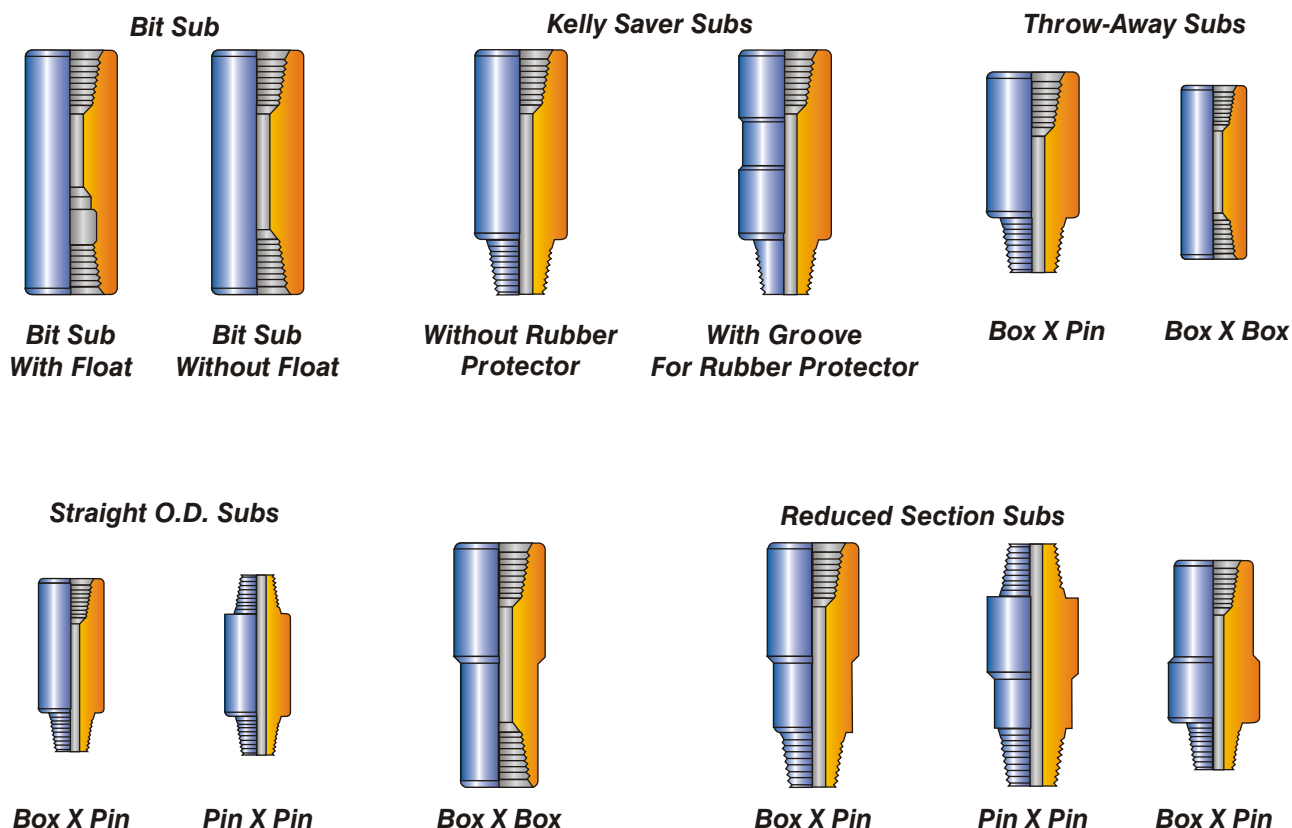
To order Casings, Tubings, Line Pipes, Pup Joints, Coupling's and Crossover's, please specify :

Nominal ID & OD, Lengths, Wall Thickness, PPF, Grade, Connection types, Special requirements etc.

NOTE: Standard product marking follow API 5CT/5L specs. Custom marking can also be provided on request.

DRILL STEM SUBS

PARVEEN manufactures all the Four Types of Subs e.g. Straight O.D. Type 'A' or Reduced Section Type 'B' or Swivel Sub Type 'C' or Lift Sub Type 'D' as per API 7. These would be with box and pin connections or with box or pin connection on both sides. Class of Subs manufactured are (a) Kelly subs (b) Tool Joint Subs (c) Crossovers Subs (d) Drill Collars Subs (e) Bit Subs (f) Swivel Subs (g) Lift Subs. Bit Subs can be bored out for installation of float Valve assembly. A few of the Subs are shown after:



The Mechanical Properties Of All New Steel Drill Stem Subs Shall Conform To The Same Standards As DRILL COLLARS.

O.D. Range	Min. Yield Strength	Min. Tensile Strength	Elongation Min.	Min. Brinell Hardness
3.1/2 THRU 6.7/8	110,000 PSI	140,000 PSI	13%	285
7 THRU 10	100,000 PSI	135,000 PSI	13%	277

Subs manufactured by PARVEEN shall be marked with PARVEEN API-License Number, the inside dia size and style of connection at each end. These marking will be done in a recess, located on O.D of sub, approx. 3" long, 3/4" wide and 3/16" deep. Rotary shoulder connections can be provided for NC 23-31 to NC 70-100, 2.3/8" Reg. to 8.5/8" Reg. and 5 1/2" FH & 6.5/8" FH. Any other Connections e.g. Extra Hole (X.H.), Slim Hole (S.H.) H-90, Hydril etc. can also be provided upon request.



DRILL COLLARS

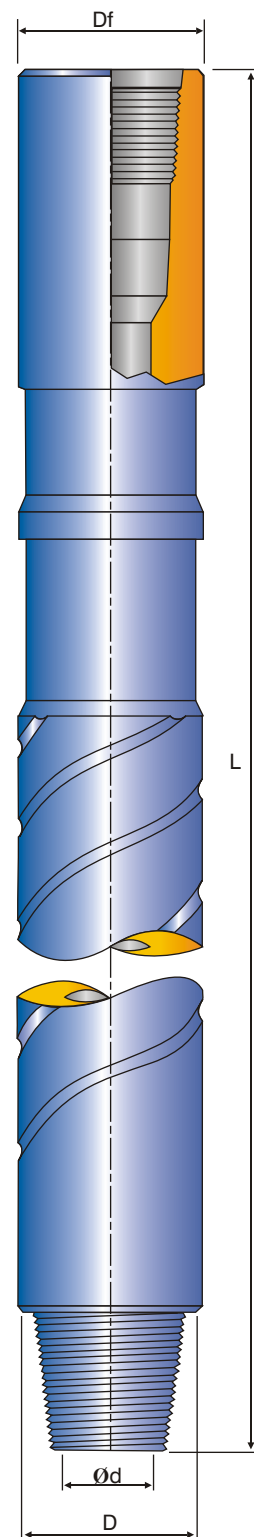
PARVEEN drill collars, are made from ultrasonically tested bars of Chrome Molybdenum Alloy Steel (AISI 4145H modified material) and available in all sizes and connections as per API std 7 & API-RP 7G in Range 2. Drill collar bars are fully heat treated to 285 to 341 BHN and Charpy impact value of 40 ft. Lb.

Physical Properties

Drill Collar O.D. Range (inches)	Yield Strength (min) (psi) (n/mm ²)	Tensile Strength (min) (psi) (n/mm ²)	Elongation (min) With Gage Length 4 Times Diameter	Brinell Hardness (min.)	Min. Charpy Impact Value Ft Lb.
3.1/8 THRU 6.7/8	110000 /758	140000 /965	13%	285	40
7 THRU 10	100000 /689	135000 /931	13%	277	40

Drill Collars can be furnished in sizes and dimensions given in the table below.

Drill Collar Number	Outside Dia D"	Bore +1 /16" -0 d"	Length +6" -0 L'	Bevel Dia +1 /64" -0 D"f	Reference Bending Strength Ratio
NC 23-31	3.1/8	1.1/4	30	3	2.57:1
NC 26-35 (2.3/8 IF)	3.1/2	1.1/2	30	3.17/64	2.42:1
NC 31-41 (2.7/8 IF)	4.1/8	2	30 or 31	3.61/64	2.43:1
NC 35-47	4.3/4	2	30 or 31	4.33/64	2.58:1
NC 38-50 (3.1/2 IF)	5	2.1/4	30 or 31	4.49/64	2.38:1
NC 44-60	6	2.1/4	30 or 31	5.11/16	2.49:1
NC 44-60	6	2.13/16	30 or 31	5.11/16	2.84:1
NC 44-62	6.1/4	2.1/4	30 or 31	5.7/8	2.91:1
NC 46-62 (4 IF)	6.1/4	2.13/16	30 or 31	5.29/32	2.63:1
NC 46-65 (4 IF)	6.1/2	2.1/4	30 or 31	6.3/32	2.76:1
NC 46-65 (4 IF)	6.1/2	2.13/16	30 or 31	6.3/32	3.05:1
NC 46-67 (4 IF)	6.3/4	2.1/4	30 or 31	6.9/32	3.18:1
NC 50-70 (4.1/2 IF)	7	2.1/4	30 or 31	6.31/64	2.54:1
NC 50-70 (4.1/2 IF)	7	2.13/16	30 or 31	6.31/64	2.73:1
NC 50-72 (4.1/2 IF)	7.1/4	2.13/16	30 or 31	6.43/64	3.12:1
NC 56-77	7.3/4	2.13/16	30 or 31	7.19/64	2.70:1
NC 56-80	8	2.13/16	30 or 31	7.31/64	3.02:1
6.5/8 REG.	8.1/4	2.13/16	30 or 31	7.45/64	2.93:1
NC 61-90	9	2.13/16	30 or 31	8.3/8	3.17:1
7.5/8 REG.	9.1/2	3	30 or 31	8.13/16	2.81:1
NC 70-97	9.3/4	3	30 or 31	9.5/32	2.57:1
NC 70-100	10	3	30 or 31	9.11/32	2.81:1
8.5/8 REG.	11	3	30 or 31	10.1/2	2.84:1



DRILL COLLARS

PARVEEN provides three kinds of Drill Collars. These are:

1. Slick. 30 to 31 feet length.
2. Spiral. 30 to 31 feet length.
3. Short Drill Collars upto 20' length.

Following special Drill Collars features are also available on request:

1. API stress relief grooves in pin & box.
2. API bore back box.
3. API slip & elevator recesses.
4. Cold rolled thread roots.
5. Drill collar hard banding.
6. Phosphatising end connections.
7. Thread protectors for box & pin.

A. STRESS RELIEF GROOVES

Stress relief Grooves at pin and box end reduce fatigue failure.

BORE BACK BOX

Bore back box is nothing but gradual reduction of internal dia by gradually increasing material cross sectional area at critical section. This will ultimately reduce drastically stress concentration during Static / Dynamic loading and prevents box connections from failure.

B. COLD ROLLED THREAD ROOTS

The cold working on thread roots of the Drill Collars thru inducing compressive stresses with the help of externally loaded roller will increase life of Drill Collar by protecting against bending stress in fatigue.

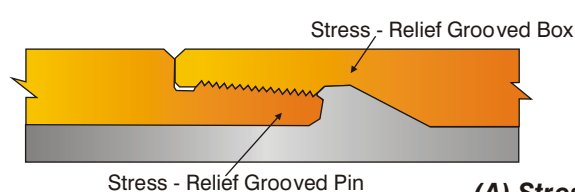
C. DRILL COLLAR HARD BANDING

Hard banding a Drill collar increases the life of Drill Collar while drilling in an abrasive medium. In hard banding, granular tungsten carbide is deposited upto 1/32" (0.8 mm) above Drill Collar O.D. by metal arc, inert gas shielded welding with controlled preheating & post heating.

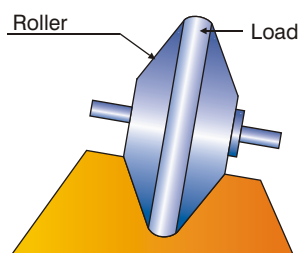
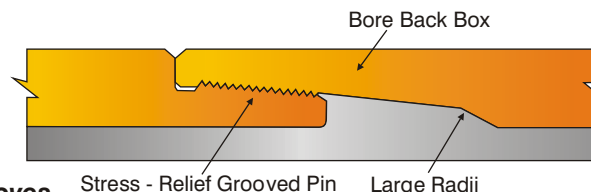
NOTE: Hard Banding at other locations are also catered upon request

SHORT DRILL COLLARS

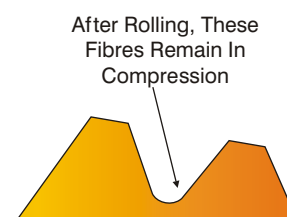
Short Drill Collars are made to suit material, sizes, properties & features as specified above except the length is smaller. Short Drill Collars in various lengths are available in slick or spiral. Standard Short Drill collar lengths are 10, 12, 15.1/2 & 20 ft. long. For Dimensions, please refer to main Drill Collar section.



(A) Stress Relief Grooves & Bore Back Box



(B) Cold Rolled Thread Roots





DRILL COLLARS

a. DRILL COLLAR GROOVE FOR ELEVATOR AND SLIP (AS PER API-7G)

It is possible to add elevator and slip recess to PARVEEN Drill Collar. These recesses allow one to dispense with lift subs and safety clamps and to attain savings in operating time. Recommended Slip & Elevator recess dimensions are given below:

DRILL COLLAR SLIP AND ELEVATOR DIMENSIONS

O.D. Ranges	A	R	C	B	D
4 ~ 4.5/8	7/32	1/8	4°	3/16	3.1/2°
4.3/4 ~ 5.5/8	1/4	1/8	5°	3/16	3.1/2°
5.3/4 ~ 6.5/8	5/16	1/8	6°	1/4	5°
6.3/4 ~ 8.5/8	3/8	3/16	7.1/2°	1/4	5°
8.3/4 & Larger	7/16	1/4	9°	1/4	5°

A- ELEVATOR GROOVE

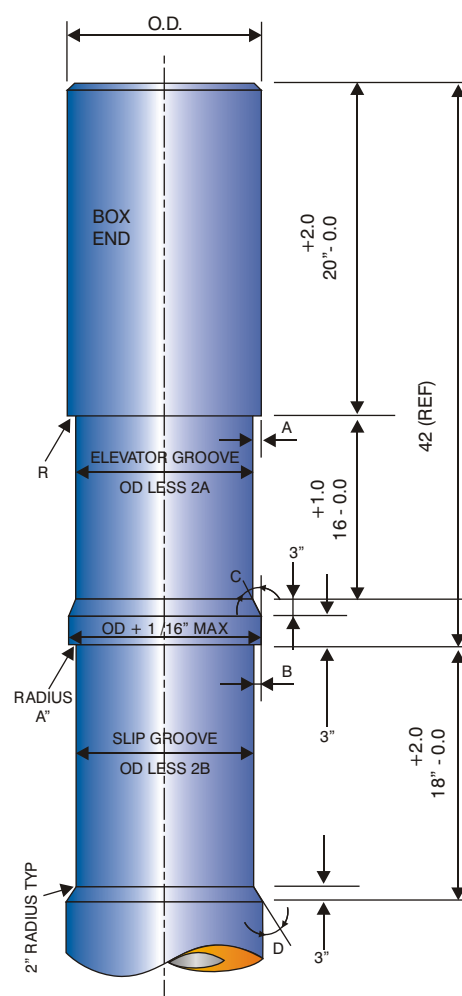
B- SLIP GROOVE

b. SPIRAL DRILL COLLARS

Minimize the potential for differential sticking with PARVEEN's Spiral Drill Collars. They reduce the amount of contact between the drill collar and the wall of hole.

DRILL COLLAR SPIRAL DIMENSIONS

O.D. Ranges	Depth Of Cut	Spirals	Pitch / Direction Rh
4.1/2 ~ 5.1/8	7/32 ^{± 1/32}	3	38 ^{± 1}
5.1/4 ~ 5.3/4	1/4 ^{± 1/32}	3	42 ^{± 1}
5.7/8 ~ 6.3/8	9/32 ^{± 1/6}	3	42 ^{± 1}
6.1/2 ~ 6.7/8	5/16 ^{± 1/6}	3	46 ^{± 1}
7	5/16 ^{± 1/6}	3	64 ^{± 1}
7.1/8 ~ 7.7/8	11/32 ^{± 1/16}	3	64 ^{± 1}
8 ~ 8.7/8	3/8 ^{± 1/16}	3	68 ^{± 1}
9 ~ 9.7/8	13/32 ^{± 3/32}	3	72 ^{± 1}
10 ~ 10.7/8	7/16 ^{± 3/32}	3	76 ^{± 1}
11 ~ 12	15/32 ^{± 3/32}	3	80 ^{± 1}



* All dimensions are in inches U.O.S.

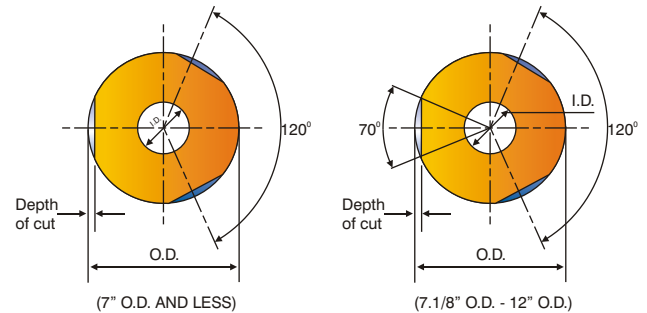


DRILL COLLARS

C. SECTIONAL VIEW OF DRILL COLLAR SPIRAL

When Ordering drill collars, Please specify:

1. Outside Diameter.
2. Inside Diameter.
3. Length.
4. Connection Size & Type:
Stress Relief Groove (SRG) Or without SRG Feature.
Bore Back Box or without.
5. Slip and/or elevator recess.
6. Spiral details.
7. Hard banding.
8. Standard or Heavy duty Thread Protectors.
9. Any Special Features, such as Phosphating etc.



NON MAGNETIC DRILL COLLARS

PARVEEN's Non magnetic drill collars meet the standards for chemical composition used in directional drilling and in addition have.

1. Extremely clean steel.
2. Low permeability, high mechanical properties and superior resistance to corrosion cracking.
3. Display high strength and low permeability throughout the product.

CHEMICAL COMPOSITION

These Non magnetic Drill Collars are of Cr-Mn Type. The Chemical Composition will be such so as to satisfy the following mechanical properties and permeability.

Mechanical Properties				
Size	Yield Strength (0.2%)	Tensile Strength (minimum)	Minimum Elongation Percent	Charpy Impact Value.
3.1/2" THRU 6.7/8"	110,000PSI (758N/MM2)	120,000PSI (827 N/MM2)	18	MIN. 40 FT LB
7" THRU 11"	100,000PSI (689 N/MM2)	110,000 PSI (758 N/MM2)	20	MIN.40 FT LB

DRILL COLLARS

PERMEABILITY

Relative Magnetic permeability shall be less than 1.010 through the entire length and the level of such permeability to be uniform. This level of permeability remains stable despite fluctuation of local plastic deformation and temperature fluctuation during operation.

SIZES

Size conform to API Spec. 7.

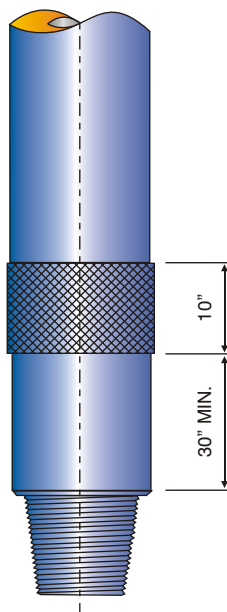
CORROSION RESISTANCE

Austenitic stainless steel drill collars are subject to cracking due to conjoint action of tensile stress and certain specific corrodents. This is called stress corrosion cracking.

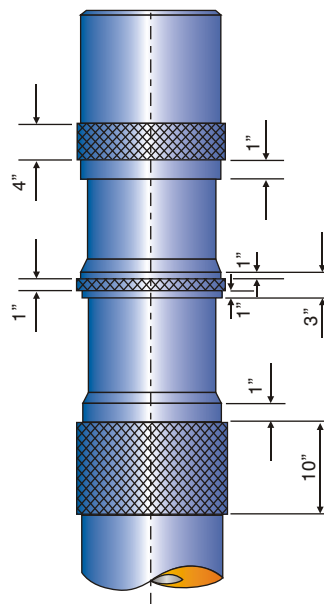
Resistance to Corrosion can be demonstrated by subjecting materials from each Drill Collar to the corrosion test as specified in ASTM A262 practice.

ULTRASONIC TESTING

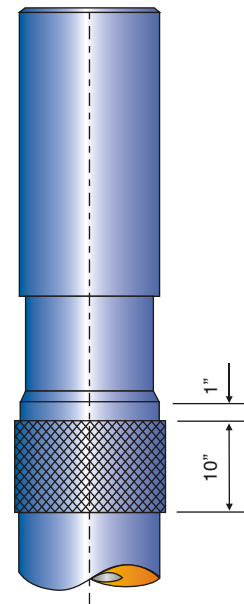
Drill collar bodies are inspected ultrasonically full length over the circumference of the body before boring. Examination Techniques are specified in ASTM E 114 (direct contact method) and ASTM E 214 and / or ASTM E 1001 (immersion method).



Type - A
Pin End



Type - B
Box End With Zip Lift
(Elevator And Slip Recess)



Type - C
(Slip Recess Only)

(c) Drill Collar Hard Banding





THREAD PROTECTORS

A. CAST STEEL THREAD PROTECTORS

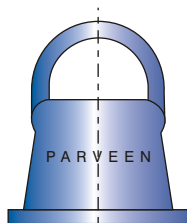
Protectors for pin and box connection are made from steel castings (60000 psi tensile and 30000 psi yield) meeting ASTM spec no. 27 grade 60-30, with heavy duty bails for pick up and laying down drill collars. Threads and shoulders are precision machined.

B. PRESSED STEEL THREAD PROTECTORS

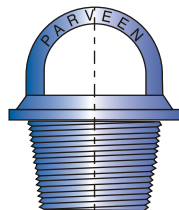
Light duty pressed steel thread protectors for shipping and storing and for drill stem components are also provided by PARVEEN to meet customer's requirements. These can be supplied in all sizes.

C. PLASTIC THREAD PROTECTORS

PARVEEN also manufactures light duty plastic thread protectors. It is light in weight and easy to handle. Cost benefit is one of the key factor which makes its own demand in lieu of conventional cast / pressed steel thread protectors.

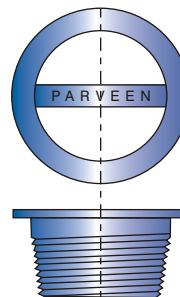


(PIN)

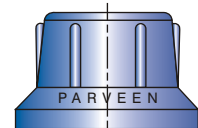


(BOX)

**Cast Steel Thread Protectors With
Lifting Bail**

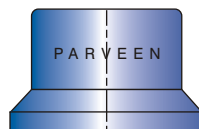


(BOX)

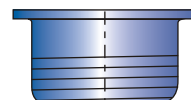


(PIN)

Plastic Thread Protectors



(PIN)



(BOX)

**Pressed Steel Thread Protectors
Without Lifting Bail**



LIFT SUBS & LIFT PLUGS

A) LIFT PLUGS

PARVEEN manufactures lifts plugs to suit various sizes O.D. drill collars. Bottom portion is threaded, the center section is bored to reduce weight. Manufactured from materials & heat treated to drill collar specifications.

B) LIFT SUBS

PARVEEN lifts subs are manufactured from standard heat treated drill collar material specifications as per following sizes & figure.

To order or request quotations on Parveen Lift Plugs, Please Specify:

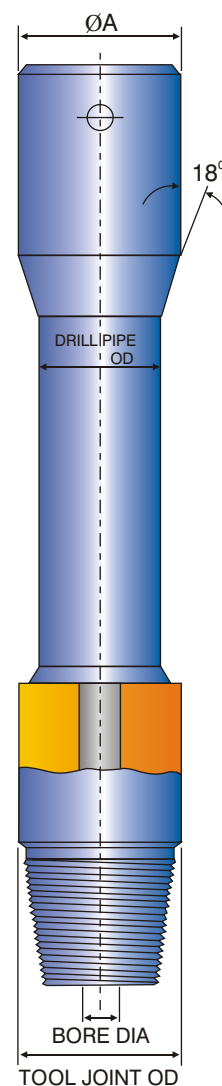
1. Drill Collar O.D.
2. Drill collar connection size and Type.
3. Bore diameter, if required.

To order or request quotations on Parveen Lift Subs, Please Specify:

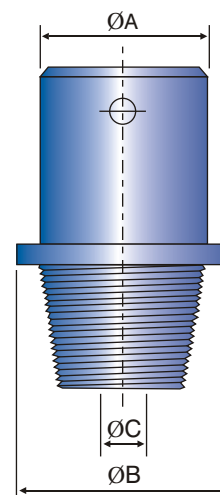
1. Drill Collar O.D
2. Tool Joint O.D.
3. Tapered or square shoulder
4. Drill pipe O.D.
5. Drill collar connection size and Type.
6. Bore diameter, if required.
7. Pressed or cast steel thread protectors.

LIFT PLUG DIMENSIONS			
DRILL COLLAR SIZE (A")	LIFING PLATE DIA (B")	CONN. BORE (C")	APPROX. WEIGHT (lbs)
3.1/2	5.1/2	1.1/2	35
4.1/8	6	2	40
4.3/4	6.1/2	2.1/4	50
5	7	2.1/4	58
6	8	2.1/4	82
6.1/4	8	2.1/4	82
6.1/2	8.1/2	2.1/4	90
6.3/4	8.1/2	2.1/4	90
7	9	2.13/16	100
7.1/4	9	2.13/16	100
8	10	2.13/16	128
8.1/4	10	2.13/16	128
9.1/2	11.1/2	2.13/16	165
9.3/4	11.1/2	2.13/16	165
11	13	2.13/16	245

LIFT SUB DIMENSIONS	
TOOL JOINT O.D (A")	APPROX. WEIGHT (lbs)
3.1/2	40
4.1/8	50
4.3/4	84
5	88
6	150
6.1/4	168
6.1/2	168
6.3/4	168
7	169
7.1/4	169
8	257
8.1/4	257
9.1/2	320
9.3/4	320
11	368



Lift Sub



Lift Plug



DRILL PIPE PUP JOINTS

DRILL PIPE PUP JOINTS

PARVEEN's D.P.P.J. is important drill stem component for special drilling or testing operations. This short drill pipe section is used to locate the top box of the drill string at a specified distance from the rig floor.

PARVEEN's D.P.P.J. is manufactured either from round bar or by machining heavy wall tubing from AISI-4145 H Material.

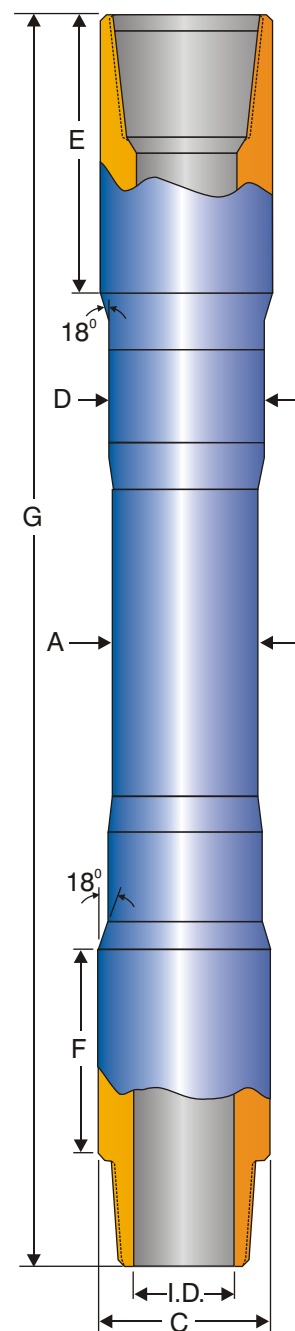
DRILL PIPE NOMI- NAL SIZE A"	I.D."	TOOL JOINT O.D C"	CONN. SIZE & TYPE	ELEVATOR UPSET DIA D"	TONG SPACE		MECHANICAL PROPERTIES				AVAIL- ABLE LENG THS	APPX. WT. (LB)
					LENGTHS		TUBE		TOOL JOINT			
							TENSILE YIELD (LB)	TOR- SIONAL YIELD (FT-LB)	TENSILE YIELD (LB)	TOR- SIONAL YIELD (FT-LB)		
					BOX E"	PIN F"			G'	(LB)		
3.1/2	2.3/8	4.3/4 5	N.C.38 (3 ½ I.F)	3.7/8	9.1/2	7	571,000	35,080	675,000	17580 21600	5	142
											10	226
											15	310
											20	394
3.1/2	2.11/16	4.3/4 5	N.C.38 (3 ½ I.F)	3.7/8	9.1/2	7	434,330	29,030	538,400	16,000	5	131
											10	198
											15	265
											20	332
4	2.13/16	5.1/4 5.1/2	N.C.40 (4 FH.)	4.3/16	10	7	698,900	50,200	652,300	21,550	5	178
											10	286
											15	394
											20	502
4	3.1/4	5.3/4 6	N.C.46 (4 I.F)	4.1/2	10	7	469,800	37,480	826,100	30,450	5	168
											10	241
											15	313
											20	386
4.1/2	3.1/4	6 6.1/4	N.C.46 (4 I.F)	4.11/16	10	7	836,950	68,850	826,100	30,450	5	219
											10	348
											15	477
											20	607
4.1/2	3.1/2	6.1/8 6.1/4 6.3/8	N.C.50 (4.1/2 I.F)	5	10	7	691,150	59,970	1017700	34,860 40,490 40,980	5	240
											10	311
											15	417
											20	524
4.1/2	3.3/4	6.1/8 6.1/4 6.3/8	N.C.50 (4.1/2 I.F)	5	10	7	534,550	48,970	861,100	34,200	5	180
											10	263
											15	345
											20	428
5	3.1/2	6.3/8 6.1/2	N.C.50 (4.1/2 I.F)	5.1/8	10	7	1101,500	98,600	1017700	40,980	5	253
											10	423
											15	593
											20	763
5	3.3/4	6.3/8 6.1/2	N.C.50 (4.1/2 I.F)	5.1/8	10	7	944,950	88,700	861,100	34,200	5	228
											10	374
											15	520
											20	655

Ordering Information:

To order or request quotations on PARVEEN Pup Joints, please specify :-

- Nominal size. / Bore dia. / Tool joint O.D.
- Size and type of connections (Example: 4 1/2" I.F Box up X 4 1/2" I.F pin down, etc.)
- Overall length, shoulder-to-shoulder / 18° taper or square shoulder / Pressed or cast steel thread protectors

Note: Stress relief groove as per API-7 can also be provided upon request.



HEAVY WALL DRILL PIPE

CONSTRUCTION FEATURES (MATERIAL)

It consist of two tool joints and one central part. The steel used in the manufacture of the tool joints is a AISI-4145H mod. high purity steel, fully heat treated to 285-310 Brinell hardness and 40 ft x lb minimum IZOD impact strength. All other physical properties conform with API standard 7 latest revised edition. The central part is made from a solid bar of modified AISI - 1340 steel, fully heat treated. The tool joints are attached by welding.

STRESS RELIEF GROOVES & CONNECTIONS FEATURES

- PARVEEN long stress relief grooves on box ends are standard on 4.1/2" IF, 4" IF & 3.1/2 IF Connections.
- API stress relief grooves on pin ends are standard on 4.1/2" IF, 4" IF & 3.1/2" IF Connections.
- Thread roots are cold worked on all sizes.
- All connections are phosphatized, coated with lubricant and provided with steel protectors.

HARDBANDING

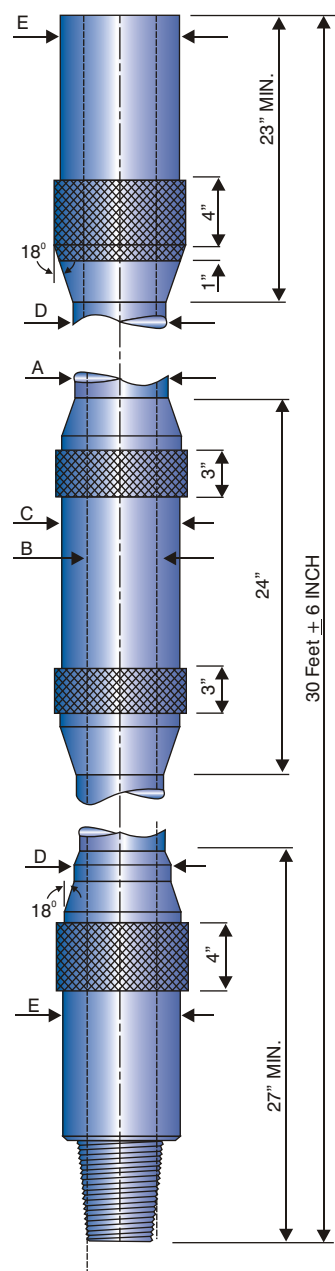
To optimize wear resistance hard banding is standard on pin and box connections and central upset. The heavy duty hard metal is sintered granular tungsten carbide 10/20 mesh or 20/45 mesh (fine particles). The hard banding is deposited by an automatic machine after pre-heating the pipe and is followed by stress relieving. Standard pads

- One 4" wear pad on both pin and box end. Plus one 1" pad on taper section of box;
- Two 3" wear pads on central upsets;

The hardbanding is completely flush on both tool joints and 4/32" oversize on the central upset (fully flush on request).

On inquires and orders please specify:

- Nominal size
- Range
- API stress relief grooves, if needed
- Internal Coating, if needed.



DIMENSIONAL DATA (RANGE II)

NOM. SIZE (A)	TUBE							TOOL JOINT			MECH.		WEIGHT		MAKE UP TORQUE (ft-lb)
	NOM. TUBE DIMENSION			CENTER UPSET	ELEVA- TOR UPSET (D)	MECH. PROPERTIES TUBE		CONN. SIZE & TYPE	O.D.	I.D.	MECH. PROPERTIES		APPROX. WT. INCL. TUBE &		
	I.D.	WALL THIC- KNES	AREA (SQ) (IN)			TENSILE YIELD (ft-lb)	TORSIONAL YIELD (ft-lb)				TENSILE YIELD (lb)	TORSIONAL YIELD (ft_lb)	WT. PER PER (ft)	WT. PER Jt (30-ft)	
3.1/2	2.1/16	0.719	6.280	4	3.5/8	345,000	19,500	NC-38 (3.1/2 I. F)	4. 3/4	2.3/16	748,750	17,500	25.3	760	9,900
4	2.9/16	0.719	7.410	4.1/2	4.1/8	407,500	27,600	NC-40 (4 FH.)	5 .1/4	2.11/16	711,470	23,520	29.7	890	13,250
4.1/2	2.3/4	0.875	9.965	5	4.5/8	548,000	40,700	NC-46 (4 I.F)	6 .1/4	2.7/8	1,024,500	38,700	41.0	1230	21,800
5	3	1,000	12.566	5.1/2	51/8	691,100	56,490	NC-50 (4.1/2 I.F)	6.1/2	3.1/8	1,286,100	51,370	49.3	1,480	29,400



KELLY COCKS

PARVEEN Kelly Cock which comes in two models - Upper and Lower, provides quick dependable closing to protect the swivel, stand pipe, mud pumps and rotary hose against pressure surges and to prevent drilling fluid loss when disconnecting the kelly. Body is made from material to specs AISI-4145 H, heat-treated to 285-341 BHN and as per API Spec. Each Kelly cock is provided with thread protectors and operating wrench.

FEATURES

- Ball type valve design
- Closes complete with quarter turn wrench
- Can be run through standard blowout prevention equipment.
- Improved full opening valve seats in both directions & metal to metal seal design allows seats to seal Independently of each other.
- Extended service life. Seals equally well at both low and high pressure.
- Large bore size provides for full fluid flow without pressure loss.
- Available up to 10000 psi wp with box up x pin down configuration.
- Available with LH or RH thread for use as Upper and Lower Kelly Cock.
- Special body size O.D., I.D., Length can also be provided to meet user's requirements.

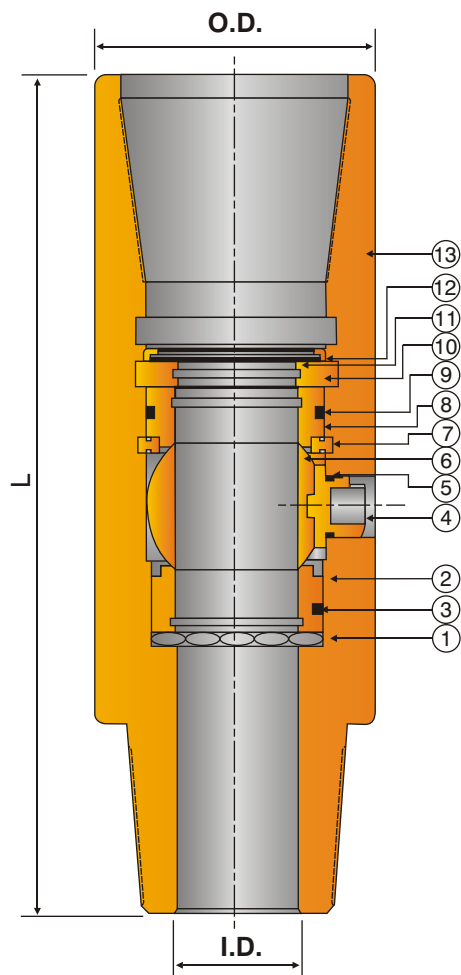
KELLY SIZE (IN/MM)	CONNECTION SPEC. BOX X PIN	MAX BODY O.D. (In/mm)	MINIMUM I.D. (in/mm)	APPROX LENGTH L (in/mm)	APPROX. WEIGHT (lbs/kg)
3.500/89	2.875"IF	4.125"/105	1.750/44	15.750/400	120/54
3.500/89	3.500"IF	4.125"/105	1.750/44	15.750/400	120/54
3.500/89	3.500"IF	4.750"/121	1.750/44	15.750/400	120/54
3.500/89	4.000"FH	5.625"/143	2.250/57	20.00/508	120/54
3.500/89	3.500"IF	5.625"/143	2.250/57	20.00/508	120/54
4.250/108	4.500"XH	6.625"/168	2.812/71	20.00/508	135/61
4.250/108	4.500"IF	6.625"/168	2.812/71	20.00/508	135/61
5.250/133	6.625"RLH	7.750"/197	3.062/78	24.50/622	220/100
5.250/133	5.500"FH	7.750"/197	3.062/78	24.500/622	220/100

KELLY COCKS

P NO.	DESCRIPTION
1	SPRING
2	LOWER SEAT
3	LOWER SEAT O-RING
4	OPERATING STEM
5	STEM O-RING
6	BALL
7	LOWER SPLIT RETAINER RING
8	UPPER SEAT
9	UPPER SEAT O-RING
10	UPPER SPLIT RETAINER RING
11	SOLID RETAINER RING
12	SNAP RING
13	BODY

How to Order, Specify:

1. O.D. & I.D
2. Connection
3. Kelly Cock Upper or Lower
4. Working Pressure.
5. Type of Service.



STABILIZERS

STABILIZERS

PARVEEN's Stabilizers are designed to control hole deviation, prevent differential sticking and minimize dogleg severity and thus provide optimum drill bit's performance.

For ordering stabilizers, **PARVEEN** recommends the following rib outside diameters.

Upto 10" diameter - 1/32" under hole size.

Upto 15" diameter - 1/16" under hole size.

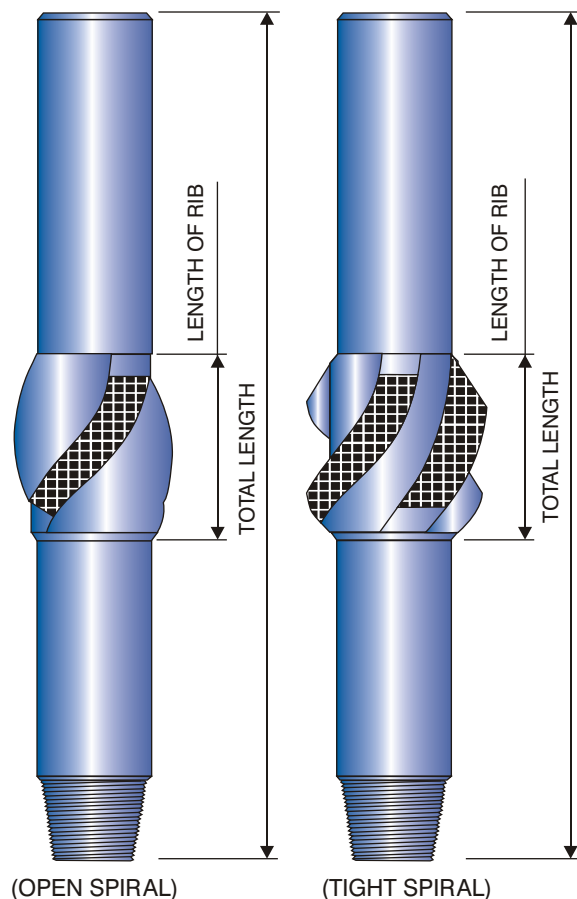
Over 15" diameter - 3/32" under hole size.

Most stabilizers loose their stability effect when diameter loss reaches 1/8" to 3/16". At this stage, the stabilizer is recommended for replacement.

PARVEEN'S INTEGRAL BLADE STABILIZERS

PARVEEN's Integral blades stabilizers are designed with thru hard faced spiral ribs and are available both as string or near bit. Stabilizers in standard design are of right hand spirals. Even configuration for left hand spirals can be provided.

While in open spirals, the three ribs form a wall contact surface of 132 degree & 95 degree (in straight hole drilling), in the tight spirals, the three ribs form a wall contact surface of 360 degree and 260 degree thus ensuring drill string centralization in deviated holes.



INTEGRAL BLADE STABILIZER			FISHING	APPROX	APPROX
STABILIZER	BODY		NECK	LENGTH	TOTAL
O.D.	O.D.	I.D.	LENGTH	OF RIB	LENGTH
4.1/8 - 5.7/8	3.1/8 - 4.3/4	2 - 2.1 /4	-	-	-
6 - 6.3/4	4.1/8 - 4.3/4	2 - 2.1/4	18	13	53
6.1/4 - 7.3/8	4.3/4 - 5	2.1/4 - 2.13/16	18	13	53
7.5/8 - 8.1/2	6 - 6.1/2	2.1/4 - 2.13/16	22	13	57
8.3/4 - 9.7/8	6.1/2 - 7.1/4	2.1 /4 - 2.13/16	22	13	58
10.5/8 - 12.1/4	7.3/4 - 8.1/4	2.13/16 - 3	28	14	65
12 - 15	8 - 9.1/2	2.13/16 - 3.3/4	28	14	67
15.1 /4 - 18.1/2	8 - 11.1/4	2.13/16 - 3.3/4	28	14	71

- All dimensions are in Inches
- Surrounded inserts by a metal bond.
- Fishing neck lengths can be provided to suit customers need.
- Pressed tungsten carbide inserts can also be provided.

STABILIZERS

FEATURES OF INTEGRAL BLADE

1. Ribs are milled directly from the body.
2. High amount of tungsten carbide inserts spread over a large wall contact area, results in longer tool life.
3. Ribs are provided with mirror type finish with a view to minimise torque and to provide guidance to the bit and collar string.
4. Worn ribs of hard faced stabilizers (inserts by a metal bond) are repairable in **PARVEEN's Shop**.

SLEEVE TYPE STABILIZERS

This stabilizer has been designed with a field replaceable sleeve. This sleeve is screwed into a one-piece body and can easily be made up by using rotary tongs.

The fishing neck and sleeve mandrels are available with the same end connection as drill collars.

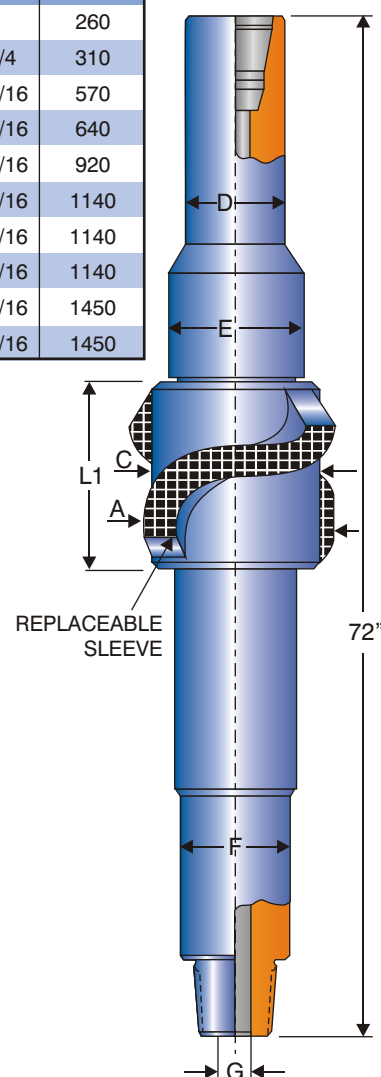
Sleeves are designed with tungsten carbide hard faced surface (Type-A) or with pressed in tungsten carbide buttons (Type-B). Both types are available at customer's request. The worn hard facing can be repaired at **PARVEEN's Shop**.

SLEEVE TYPE STABILIZER									
HOLE SIZE	DRILL COLLAR DIAMETER	SLEEVE			MANDREL				
		LENGTH L1	BODY DIA (C)	APPROX WEIGHT (Lbs)	FISHING NECK (D)	UPSET DIA (E)	SLEEVE END DIA (F)	BORE DIA (G)	APPROX. WEIGHT (lbs)
5.5/8 - 6.3/4	4.1/8 - 4.3/4	14	5.1/8	55	4.1/8 - 4.3/4	5.1/8	4.1/8	2	260
6.1/4 - 7.3/8	4.3/4 - 5	14	5.3/4	45	4.3/4 - 5	5.3/4	4.3/4	2.1/4	310
8.1/4 - 9.7/8	6 - 6.3/4	14	7.1/2	70	6 - 6.3/4	7.1/2	6.1/2	2.13/16	570
8.3/8 - 9.7/8	6.1/2 - 7.1/4	14	7.3/4	95	6.1/2 - 7.1/4	7.3/4	6.1/2	2.13/16	640
9.7/8 - 12.1/4	7.3/4 - 8.1/4	16	9.1/4	145	7.3/4 - 8.1/4	9.1/4	7.3/4	2.13/16	920
14.3/4 - 17.1/2	7.3/4 - 8.1/4	18	9.1/4	370	7.3/4 - 8.1/4	9.1/4	7.3/4	2.13/16	1140
10.5/8 - 12.1/4	8 - 9	16	10	120	8 - 9	9.7/8	8.1/2	2.13/16	1140
14.3/4 - 17.1/2	8 - 9	18	11	350	8 - 9	9.7/8	8.1/2	2.13/16	1140
12.1/4	9 - 10	16	11	95	9 - 10	11	9.5/8	2.13/16	1450
14.3/4 - 17.1/2	9 - 10	18	11	300	9 - 10	11	9.5/8	2.13/16	1450

- Other O.D. stabilizers can be provided on request.
- Box x Box connection can also be provided.

Ordering Instructions:

1. Hole Size.
2. Drill Collar O.D.
3. Size & Type of upper and lower connections.
4. Mandrel Size (D or E).
5. Mandrel Bore (G).
6. Type of Sleeve (A or B).
7. Cast Steel or Pressed steel thread protectors.





INSIDE BLOW OUT PREVENTER

INSIDE BLOW OUT PREVENTER

Parveen non-return type Inside Blow Out Preventor is suitable for use on drill pipe which has spring loaded type valve & seat mechanism to shut off the pressure from drill string. During normal operation it allows downward flow of circulation material coming thru mud pump, stand pipe, rotary swivel & drilling hose but prevent upward flow when circulation stops. When back flow occurs valve closes automatically & stabbing to its position and thus not only protects mud pump, stand pipe, rotary swivel, drilling hose from damage but also prevents blow out.

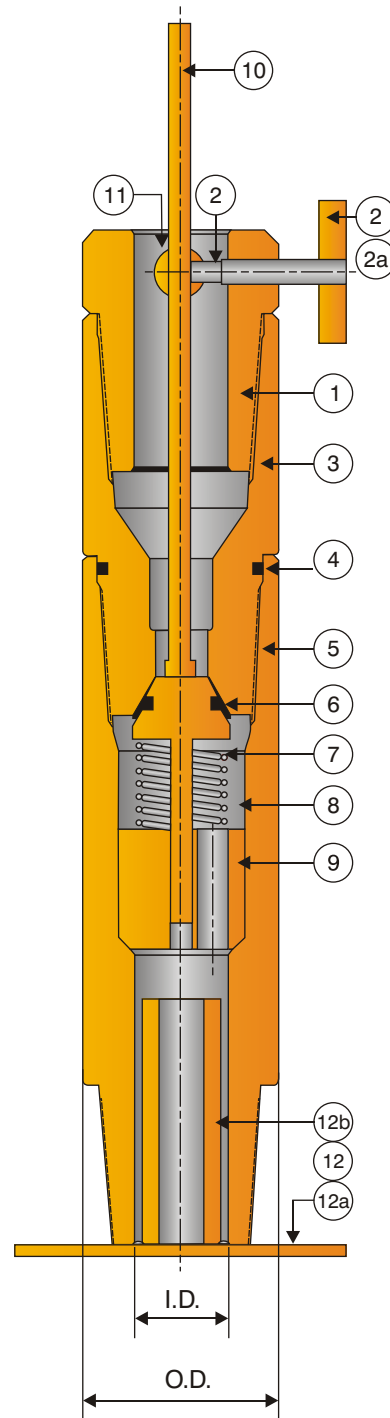
PARVEEN B.O.P also have the mechanism to hold the valve in open condition against the well pressure with the help of hold down bar or release rod and release handle - release pin/stud mechanism. For proper standing of B.O.P base stand can also be provided.

ASSEMBLY NUMBER	CONNECTION SPECIFICATION BOX X PIN	MAXIMUM BODY O.D. in /mm	WORKING PRESSURE psi	APPROX. WEIGHT lbs /kg.
51700600	2.375" IF	4.750"/121	10,000	93 /42
51700500	2.875" IF	4.750"/121	10,000	60 /27
51700000	3.500" IF	4.750"/121	10,000	93 /42
51700400	3.500" IF	5.000"/127	10,000	93 /42
51700300	4.500" IF	6.125"/156	10,000	134 /61
51700200	4.500" IF	6.250"/159	10,000	134 /61
51700100	4.500" IF	6.375"/162	10,000	134 /61
51700700	4.500" IF	6.500"/165	10,000	150 /68
51700800	4.500" IF	6.750"/171	10,000	150 /68
51700900	6.625" REG	7.875"/200	10,000	232 /105

NO.	DESCRIPTION
1	STAB BODY
2	RELEASE HANDLE
2a	HANDLE
2b	STUD
3	SUB
4	"O" RING
5	BODY
6	SEAL RING
7	DART
8	SPRING
9	GUIDE
10	RELEASE ROD
11	HANDLE ROD
12	BASE STAND
12a	BASE PLATE
12b	PIPE

NOTE:

Other sizes and flapper type B.O.P can also be manufactured to cater customer's requirements.



HOLE OPENERS

Parveen Hole Openers are used for expanding the drilled hole. The cutters are manufactured under the severe quality control and state of the art technology developed by Parveen. This will help the drillers to effectively achieve their purposes.

They are used for the following purposes.

1. When drilling of the big hole is not possible because of the rig capacity.
2. When a satisfied penetration rate is not obtained in case of the big hole drilling, it is used after drilling with smaller bit.
3. When the hole direction must be controlled.

Several types of the cutter are made available for various formations to be drilled, such as soft, medium and medium hard formations.

For soft to medium and abrasive hard formations, the cutters with tungsten carbide tips are also available.



Hole Size	Pilot Hole	Standard Fishing Nick O.D	Thread Type	
			Upper	Lower
7-5/8	5-5/8	5-1/2~6	4-1/2 REG	3-1/2 REG
8-1/2	5-5/8	5-1/2~6	4-1/2 REG	3-1/2 REG
10-5/8	7-5/8	8	6-5/8 REG	4-1/2 REG
12-1/4	8-1/2	8	6-5/8 REG	4-1/2 REG
14-3/4	10-5/8	8~9-1/2	6-5/8 REG	6-5/8 REG
17	10-5/8	8~9-1/2	6-5/8 REG	6-5/8 REG
17-1/2	10-5/8	8~9-1/2	6-5/8 REG	6-5/8 REG
20	15	8~9-1/2	6-5/8 or 7-5/8 REG	7-5/8 REG
24	15	8~9-1/2	6-5/8 or 7-5/8 REG	7-5/8 REG
26	15	8~9-1/2	6-5/8 or 7-5/8 REG	7-5/8 REG
36	26	9-1/2~10-1/2	7-5/8 or 8-5/8 REG	8-5/8 REG
42	26	9-1/2~10-1/2	7-5/8 or 8-5/8 REG	8-5/8 REG

Ordering Information

- Parveen can furnish Standard Hole Openers for hole sizes from 5 7/8" through 26".
- Please specify hole size and connection (size, type and location of pin and box). If 6-nozzle, please specify nozzle size and location (pockets and or wings). Bodies with 6 nozzle availability are designated with a "J6" after model type.
- When ordering cutters, please specify type, model number of hole opener body and hole size to be drilled.
- The pilot, rock bit or bull nose, should be ordered separately. If bull nose, specify spiral, plain or side-hill type, and with or without circulation..

Advantages

- Integral bodies for strength.
- Interchangeable cutters allow changing of the cutter assemblies when worn or when new formations are reached.
- Quick-change cutter assemblies (simple pin removal on the rig floor using only hand tools.)
- Regular circulation, or 6 nozzle (3 cutter pocket, 3 wing) circulation for optimizing available hydraulics.
- Snap-ring nozzle retention for easy disassembly. Rock bit or bull-nose pilot equipment available.



Type S:
Tooth type
for soft
formations.



Type M:
Tooth type
for medium
formations.



Type H:
Tooth type for
medium hard
formations



Type S6:
Insert type for
soft to medium
formations



Type H8:
Insert type for
hard abrasive
formations.

CUSTOM HOLE OPENERS



Parveen's Custom Hole Openers are designed to handle big-hole drilling projects, offshore well conductor holes, and other drilling needs where speed and reliability are important.

Advantages:

- Quick-change hole opener cutter assemblies to allow fast, easy changes on the rig floor using hand tools. Simply pull retaining pin, loosen the eccentric lock, remove the main pin, and remove cutter from its saddle. Reverse these procedures for cutter installation.
- Custom Hole Opener cutters and saddles fit all sizes of Custom Hole Openers bodies.
- High-velocity jet circulation for efficient hole cleaning and longer cutter life.

Standard rock bit nozzles can be changed quickly and easily for matching particular pump capacities or hydraulics programs.

Ordering Information:

Parveen can furnish Custom Hole Openers for standard hole sizes from 26" through 42" (Larger or non-standard hole sizes can be manufactured on request.)

Please specify hole size, and length of fishing neck.

When ordering cutters, please specify type of cutter required. All have sealed bearings.



Type S : Tooth type for soft formations.



Type MG : Tooth type for medium to hard formations. Carbide inserts for gage protection.



Type H8 : Insert type for hard formations.



Type H10 : Insert type for extremely hard abrasive formations



Saddles: Saddle design allows for easy installation of cutters.

ROTARY REAMERS

PARVEEN rotary three point reamer consists of the rolling reamer cutters, reamer pin, cross pin, bearing block, cap screws and lock washers.

The design of a main body is simplified, so as to let the driller easily carry out the exchange operations of the reamer cutters and the bearing block.

These are designed basically for maintaining hole size and to provide stability to the drill string. Body is made of AISI 4145 H (M).

PARVEEN rotary reamer body is classified as below depending upon the purpose of use.

1. The connection of string reamer (three point) being with box up and box down.
2. The connection of string reamer (three point) being with box up and pin down.
3. The connection of bottom hole reamer (six point) being with box up or pin up and box down.

PARVEEN rolling reamer cutters are manufactured under the severe quality control and state of art manufacturing technology developed by **PARVEEN**.

Ordering Information:

1. Three or six point reamer.
2. Bottom hole (near bit) or string reamer.
3. Hole size.
4. Drill collar O.D
5. Type of cutter.
6. Size and type of top/bottom connection.

Roller reamer cutters are being made from AISI 8620/EN 36C nickel chromium molybdenum alloy steel and are carburized & hardened to 58 to 62 HRC. The cutter OD's are ground to finished gauge and the bore of cutters are case hardened and honed to exact sizes to ensure long life to the bearing surface. There are three types of cutters.

SOFT FORMATION CUTTER (SFC)

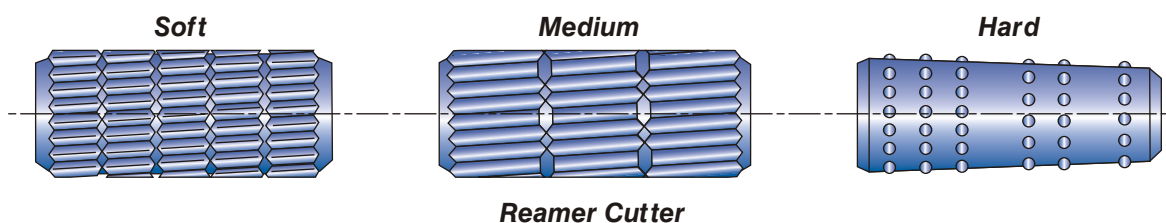
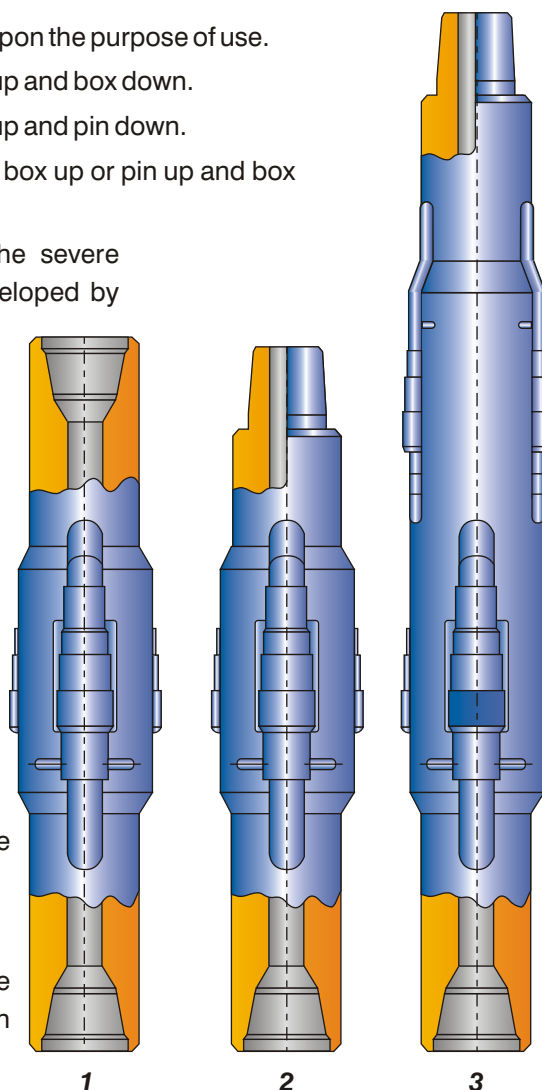
It is hob milled with sharp teeth for soft formation drilling. The leading edge of cutter is hard faced with sintered tungsten carbide.

MEDIUM FORMATION CUTTER (MFC)

It is hob milled with flat teeth for medium formation drilling. The leading edge of cutter is hardfaced with sintered tungsten carbide.

HARD FORMATION CUTTER (HFC)

It has pressed-in tungsten carbide inserts for extremely hard and abrasive formations.

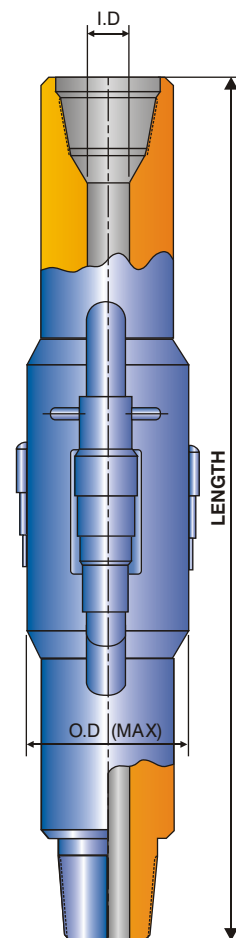


Reamer Cutter



ROTARY REAMERS

DIMENSIONAL DATA FOR 3 POINT/ 6 POINT REAMERS														
HOLE SIZE	CUTTER SIZE	MANDREL BODY DIA(A)	FISHING NECK DIA(C)	BORE DIA (B)	LENGTH OVERALL		BEARING PIN SIZE	BLOCK SIZE	CROSS PIN DIA	CROSS PIN LENGTH	LOCKING BOLT SIZE	ASSLY. WT.(KGS)		
					3Pt.	6Pt.						(APPROX)		
4 1/8	1 3/8	3 3/4	3 1/2	1	50	86	3/4	3/4A	1/4	1 3/4		45	86	
4 5/8	1 1/2	4 1/4	4	1	50	86	7/8	7/8A	1/4	1 3/4		60	115	
4 3/4	1 1/2	4 1/4	4	1	50	86	7/8	7/8B	1/4	1 3/4		60	115	
5 5/8	2	5	4 1/2	1	64	105	1	1A	5/16	2		105	205	
5 7/8	2	5	4 1/2	1	64	105	1	1C	5/16	2		105	205	
6	2	5 1/2	5	1 1/4	64	105	1	1A	5/16	2	1/2x 1/2	120	232	
6 1/8	2	5 1/2	5	1 1/4	64	105	1	1B	5/16	2	1/2x 1/2	120	232	
6 1/4	2	5 1/2	5	1 1/4	64	105	1	1C	5/16	2	1/2x 1/2	120	232	
6 1/2	2	5 1/2	5	1 1/4	64	105	1	1E	5/16	2	1/2x 1/2	120	232	
7 5/8	2 5/8	7	6 1/4	1 5/8	79	121	1 3/8	1 3/8A	1/2	2	1/2x 1/2	215	436	
7 7/8	2 5/8	7	6 1/2	1 5/8	79	121	1 3/8	1 3/8C	1/2	2	1/2x 1/2	215	436	
8 3/8	2 5/8	7 3/4	6 3/4	1 7/8	82	122	1 3/8	1 3/8A	1/2	2 1/2	1/2x 1/2	260	527	
8 1/2	2 3/4	7 3/4	6 3/4	1 7/8	82	122	1 3/8	1 3/8A	1/2	2 1/2	1/2x 1/2	260	527	
8 5/8	2 3/4	7 3/4	6 3/4	1 7/8	82	122	1 3/8	1 3/8B	1/2	2 1/2	1/2x 1/2	260	527	
8 3/4	2 3/4	7 3/4	6 3/4	1 7/8	82	122	1 3/8	1 3/8C	1/2	2 1/2	1/2x 1/2	260	527	
9 1/2	3 1/8	8 3/4	8	2 1/4	86	135	1 3/4	1 3/4A	1/2	3	1/2x 3/4	357	727	
9 5/8	3 1/8	8 3/4	8	2 1/4	86	135	1 3/4	1 3/4B	1/2	3	1/2x 3/4	357	727	
9 7/8	3 1/8	8 3/4	8	2 1/4	86	135	1 3/4	1 3/4D	1/2	3	1/2x 3/4	357	727	
10 5/8	3 1/4	9 1/2	8	2 1/4	86	137	1 3/4	1 3/4A	1/2	3	1/2x 3/4	430	864	
11	3 1/4	9 1/2	8	2 1/4	86	137	1 3/4	1 3/4D	1/2	3	1/2x 3/4	430	864	
12	4	10 1/2	10	2 13/16	104	155	2 1/4	2 1/4C	1/2	3 3/4	3/4x 3/4	495	1013	
12 1/4	4	10 1/2	10	2 13/16	104	155	2 1/4	2 1/4E	1/2	3 3/4	3/4x 3/4	495	1013	
13 3/4	4	11 3/4	10	2 13/16	104	155	2 1/4	2 1/4E	1/2	3 3/4	3/4x 3/4	657	1182	
14 3/4	5 1/2	12 3/4	10	2 13/16	104		2 1/2	2 1/2A	7/8	4 3/4	1x 1	775	1400	
15	5 1/2	12 3/4	10	2 13/16	104		2 1/2	2 1/2C	7/8	4 3/4	1x 1	775	1400	
17 1/2	5 1/2	15	11	3	105	164	2 1/2	2 1/2E	7/8	4 3/4	1x 1	1090	2318	
18 1/2	5 1/2	16 3/8	11	3	105		2 1/2	2 1/2A	7/8	4 3/4	1x 1	1200		
20	5 1/2	16 3/8	11	3	105		2 1/2	2 1/2M	7/8	4 3/4	1x 1	1200		
24	7	22	11	3	115		3	3A	7/8	4 3/4	1x 2 1/2	1773		
26	7	22	11	3	115		3	3C	7/8	4 3/4	1x 2 1/2	1773		



NOTE: Higher size Reamers can also be provided.

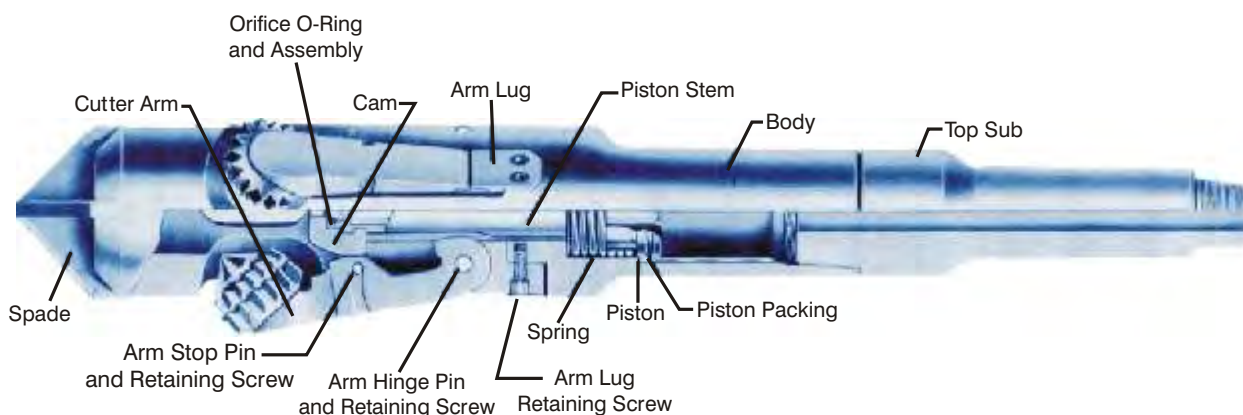
PARVEEN 3 /6 POINT STRING CUTTER REAMERS					
PART NO.	SKETCH	PART NAME	QTY. 3 POINT	QTY. 6 POINT	MATERIAL
1		BODY	1	1	SAE 4145 H(M)
2		REAMER CUTTER	3	6	SAE 4815 H/ AISI 8620 / EN36C
3		REAMER PIN	3	6	SAE 8720 H
4		UPPER BLOCK	3	6	SAE 4815 H
5		LOWER BLOCK	3	6	SAE 4815 H
6		SPRING PIN	3	6	SPRING STEEL
7		HEX. BAR	1	2	S45C
8		BAR FOR PIN REMOVAL	1	2	S45C
9		BAR FOR PIN INSERT	1	2	S45C



ROCK-TYPE UNDER REAMER

Description and Usage

It is the most rugged cone-type under-reamer built. It utilizes the largest cones and the largest bearing available, and can therefore under ream a hole nearly twice its own body diameter. A wide selection of cones allows the choice of the proper arms for every job. A variety of orifice sizes enables the operator to tailor performance to mud volume and conditions at the rig. The tool can be serviced on location, and the cutter arms can be quickly and easily changed on the rig floor. The tool design allows full volume circulation at all times.

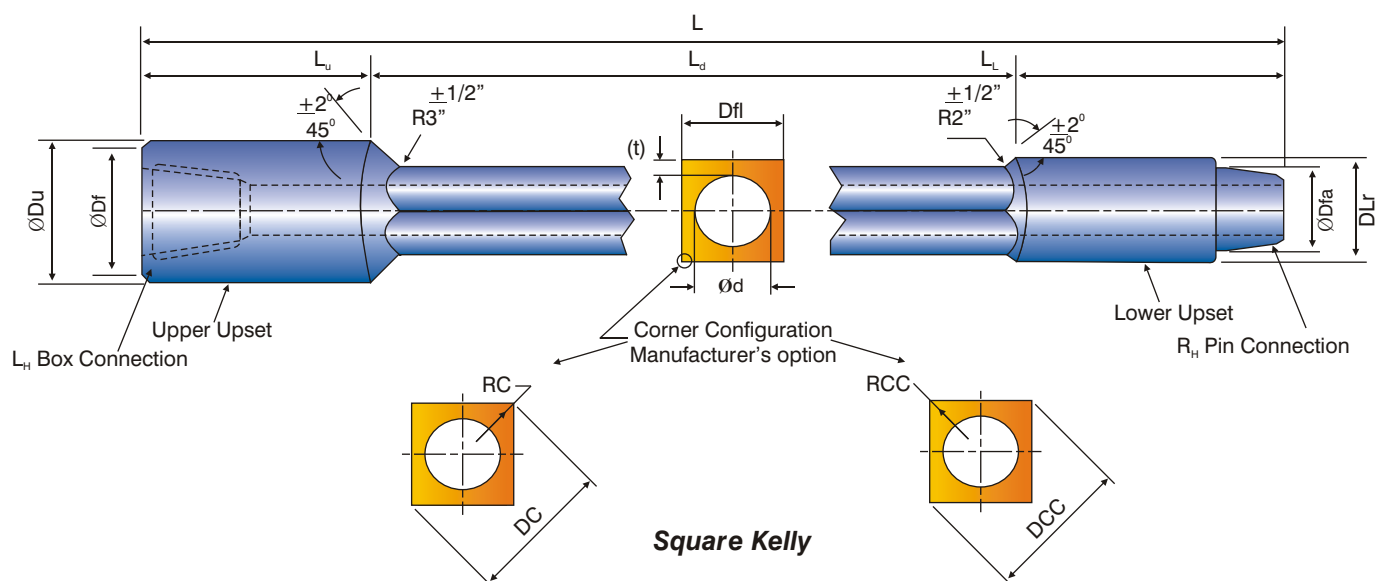


Tool Series	Std. Opening Dia.	Optional Opening Dia.(s)	Body Dia.	Col-lapsed Dia.	Through Casing Dia x Wt. (Lbs./Ft.	Fishing Neck Length	Fishing Neck Dia.	Overall Length	Tool Pin Conn. API Reg.	Weight Lbs. (Approx.)
3600	6	4 3/4-6 1/2	3 5/8	3 3/4	4 1/2 x 15	8	3 3/8	26 1/2	2 3/8	175
4500	6 1/2, 8 1/2	6-9	4 1/2	4 5/8	5 1/2 x 20	18	4 1/2	67	2 7/8	235
5700	11	8-11	5 3/4	5 7/8	7 x 38	18	4 3/4	76 1/2	3 1/2	380
5800	11	8-11	5 7/8	5 7/8	6 5/8 x 20	18	4 3/4	76 1/2	3 1/2	380
6000	12	11-12	6	6 1/8	7 x 26	18	4 3/4	78 1/2	3 1/2	380
6100	12	11-12	6 1/8	6 1/8	7 x 20	18	4 3/4	78 1/2	3 1/2	380
6200	12	11-13	6 1/4	6 1/4	7x17	18	4 3/4	78 1/2	3 1/2	380
7200	14	9-14	7 1/4	7 3/8	8 5/8 x 40	18	5 3/4	86	4 1/2	775
8200†	16	10-16	8 1/4	8 3/8	9 5/8 x 47	18	5 3/4 or 8	89	4 1/2 or 6 5/8	920
9500†	17 1/2	13-18	9 1/2	9 3/4	10 3/4 x 45	18	8	91	6 5/8	1160
11700†	17 1/2	14 3/4 -22	11 3/4	12 1/4	13 3/8 x 68	20	8	91	6 5/8	1670
15000LP†	26	17 1/2-30	14 3/4	14 3/4	16 x 75	20	8 or 9	97	6 5/8 or 7 5/8	2800
22000	32-40	32-40	22	22	24 1/2 x 113	20	9 or 10	124 1/4	7 5/8 or 8 5/8	5900



SQUARE KELLYS

PARVEEN square Kelly's are made from AISI 4145 H modified alloy bar, quenched & tempered along its entire length to deliver dependability & long service life. This gives hardness range of 285-341 BHN & a minimum IZOD impact value of 40 ft-lb, at one inch below the surface at room temperature. Their heavy walls allow little flexibility; joint alignment is held to close tolerances to help eliminate "working" at the joints & minimize joint failure. Length of the top & bottom upsets permits recutting the threads several times for longer life. PARVEEN kelly bars are inspected ultrasonically, over their full length. All Kelly's are precision-bored by trepanning to provide true bores & are drifted to API specifications. Kelly ends & drive sections, internal diameters & connections are machined & controlled to API specification.



NOMINAL SIZE"	OVERALL LENGTH (L)ft	DRIVE SECTION							UPPER BOX CONNECTION				LOWER PIN CONNECTION					APPROX WEIGHT (Kgf)
		LENGTH (LD)ft	ACROSS FLAT (Dff")	ACROSS CORNERS		RADIUS		MINIMUM WALL (t")	SIZE & STYLE	O.D. (Du")	BEVEL DIA		SIZE & STYLE	O.D. (Dlr")	BEVEL DIA			
											(Lu")	(Df")			(Ll")	(Dfa")		
				(Dc")	(Dcc")	(Rc")	(Rcc")											
2.1/2	40	37	2.1/2	3.9/32	3.250	5/16	1.5/8	0.450	6.5/8 Reg	7.3/4	16	7.21/64	NC26 (2.3/8IF)	3.3/8	20	3.17/64	1.1/4	400
3	40	37	3	3.15/16	3.875	3/8	1.15/16	0.450	6.5/8 Reg	7.3/4	16	7.21/64	NC31 (2.7/8IF)	4.1/8	20	3.61/64	1.3/4	485
3.1/2	40	37	3.1/2	4.17/32	4.437	1/2	2.7/32	0.450	6.5/8 Reg	7.3/4	16	7.21/64	NC38 (3.1/2IF)	4.3/4	20	4.37/64	2.1/4	600
4.1/4	40	37	4.1/4	5.9/16	5.500	1/2	2.3/4	0.475	6.5/8 Reg	7.3/4	16	7.21/64	NC 46 (4IF)	6.1/4	20	5.23/32	2.13/16	840
4.1/4	40	37	4.1/4	5.9/16	5.500	1/2	2.3/4	0.475	6.5/8 Reg	7.3/4	16	7.21/64	NC 50 (4.1/2IF)	6.3/8	20	6.1/16	2.13/16	850
5.1/4	40	37	5.1/4	6.29/32	6.750	5/8	3.3/8	0.625	6.5/8 Reg	7.3/4	16	7.21/64	5.1/2 FH	7	20	6.23/32	3.1/4	1260
5.1/4	40	37	5.1/4	6.29/32	6.750	5/8	3.3/8	0.625	6.5/8 Reg	7.3/4	16	7.21/64	NC56	7	20	6.47/64	3.1/4	1690

Order Requirements

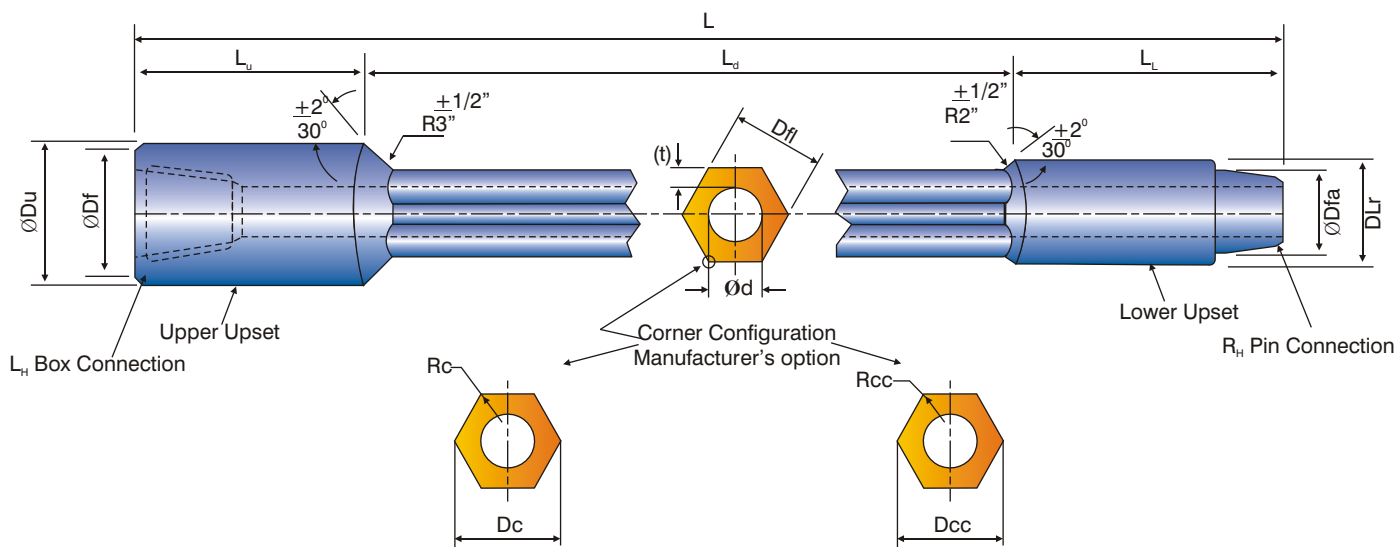
When ordering or requesting quotations on Kelly's, please specify:

- Hexagonal or square kelly.
- Nominal size.
- Length - (L)
- Bore - (d)
- Size & type of top connection.
- Size & type of bottom connection.
- Top upset OD - (Du)
- Bottom upset OD - (DLr)

*Other sizes not shown may be furnished upon request.

HEX KELLY

PARVEEN Hex Kelly's are made from AISI 4145 H modified alloy bar, quenched & tempered along its entire length to deliver dependability & long service life. This gives hardness range of 285-341 BHN & a minimum IZOD impact value of 40 ft-lb, at one inch below the surface at room temperature. Their heavy walls allow little flexibility; joint alignment is held to close tolerances to help eliminate "working" at the joints & minimize joint failure. Length of the top & bottom upsets permits recutting the threads several times for longer life. PARVEEN kelly bars are inspected ultrasonically, over their full length. All Kelly's are precision-bored by trepanning to provide true bores & are drifted to API specifications. Kelly ends & drive sections, internal diameters & connections are machined & controlled to API specification.



Hex Kelly

NOMINAL SIZE"	OVERALL LENGTH (L)ft	DRIVE SECTION							UPPER BOX CONNECTION				LOWER PIN CONNECTION					APPROX WEIGHT (Kg)
		LENGTH (Ld)ft	ACROSS FLAT (Dfl")	ACROSS CORNERS		RADIUS		MINIMUM WALL (t")	SIZE & STYLE	O.D. (Du")	BEVEL DIA		SIZE & STYLE	O.D. (Dlr")	BEVEL DIA			
				(Dc")	(Dcc")	(Rc")	(Rcc")				(Lu")	(Df")			(LL")	(Dfa")		
3	40	37	3	3.3/8	3.375	1/4	1.11/16	0.475	6.5/8 Reg	7.3/4	16	5.19/64 7.21/64	NC26 (2.3/8IF)	3.3/8	20	3.17/64	1.1/2	440
3.1/2	40	37	3.1/2	3.31/32	3.937	1/4	1.31/32	0.525	6.5/8 Reg	7.3/4	16	5.19/64 7.21/64	NC31 (2.7/8IF)	4.1/8	20	3.61/64	1.3/4	575
4.1/4	40	37	4.1/4	4.13/16	4.781	5/16	2.25/64	0.625	6.5/8 Reg	7.3/4	16	5.19/64 7.21/64	NC38 (3.1/2IF)	4.3/4	20	4.37/64	2.1/4	885
5.1/4	40	37	5.1/4	5.31/32	5.900	3/8	2.61/64	0.625	6.5/8 Reg	7.3/4	16	7.21/64	NC 46 (4IF)	6.1/4	20	5.23/32	3	1160
5.1/4	40	37	5.1/4	5.31/32	5.900	3/8	2.61/64	0.625	6.5/8 Reg	7.3/4	16	7.21/64	NC 50 (4.1/2IF)	6.3/8	20	6.1/16	3.1/4	1170
6	40	37	6	6.13/16	6.812	3/8	3.13/32	0.625	6.5/8 Reg	7.3/4	16	721/64	5.1/2 FH	7	20	6.23/32	3.1/2	1380
6	40	37	6	6.13/16	6.812	3/8	3.13/32	0.625	6.5/8 Reg	7.3/4	16	721/64	NC56	7	20	6.47/64	3.1/2	1390

Order Requirements

When ordering or requesting quotations on Kelly's, please specify:

1. Hexagonal or square kelly.
2. Nominal size.
3. Length - (L)
4. Bore - (d)
5. Size & type of top connection.
6. Size & type of bottom connection.
7. Top Upset OD - (Du)
8. Bottom Upset OD - (DLr)

*Other sizes not shown may be furnished upon request.



CEMENTING HEAD

PARVEEN cementing Head is used for cementing the annular space between casing and bore hole during 2nd stage of well construction cycle. The cementing head is employed to connect the pumps of the cementing trucks to the casing string and provides access for insertion of the cementing plugs.

Parveen's Cementing heads are available in sizes 4 1/2" to 20", for working pressure of 2,000 to 10,000 psi. Cementing head sizes & working pressures are inversely related. Generally for smaller sizes more working pressure and for larger sizes less working pressure are the requirements. Cementing heads could be of single plug or double plug types. Caps are "Acme" threaded or quick lock type and fitted with swivel chain assembly. The double plug cementing head has three valve manifold and two plunger assembly. Cementing heads are manufactured from solid forged rounds of alloy steels AISI 4130/4140/ 4145 HEN-19 or equivalent material and are fully heat treated.

CEMENTING OPERATIONS

PARVEEN Cementing Head is suitable to carry out single stage as well as double stage cementing operation. It is provided with the following features:

- Indicates when the top plug passes into the casing.
- Simple in operation and provides easy loading of plugs.
- Having manifold with low-torque plug valve.
- Provides continuous operation.
- The plug container holds one or two plugs, the top plug and the bottom plug. The double plug container has a three in-torque valve manifold and two plunger assembly.
- The length of plug containers are made to accommodate the standard length of plugs.
- The cap is available with ACME thread and with lifting chain for lifting the plug container.
- Adapters are available with all casing threads and buttress threads.
- The standard adapters have a 6 inch Tong space with thread protectors.
- The hammer unions used in manifolds are **PARVEEN**'s make.

CEMENTING MANIFOLDS

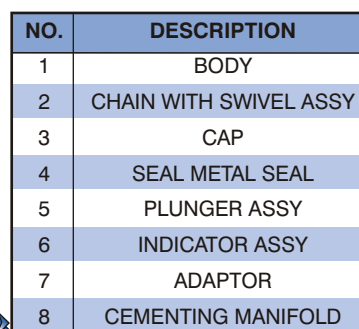
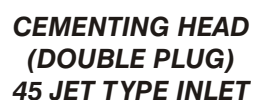
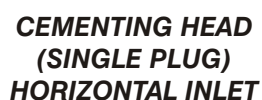
Cementing manifolds are supplied with cementing heads or alone as per customer preference. It is an assembly of unions, plug valves, tee, nipples etc. These can be supplied in any size up to pressure ratings of 10,000psi pressure.

DIMENSIONAL DATA FOR DOUBLE PLUG CEMENTING HEAD

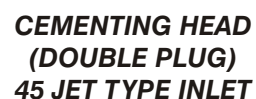
PART NO.	Casing SIZE O. D.	A ± 1/2 CAP O.D.	B ± 1/8 PLUG CENTER I.D.	C ± 3/8 PLUG INSERT O.D.	D ± 1/8 THROAT I.D.	E ± 1/8 NIPPLE I.D.	F ± 6.0 MADE UP LENGTH	G ± 1.5 DISTANCE BETWEEN PLUNGER	H ± 4.0 CLEARANCE ABOVE TOP PLUNGER	I ± 1/2 PLUNGER CLEARANCE	J ± 1/2 PLUNGER CLEARANCE	± 1.5 K	± 1.5 L	± 1.5 M	± 1.5 N
50511900	4.1/2	8.0	4.81	2.50	4.92	3.92	59.00	10.62	19.53	1.56	1.47	11.50	9.0	12.5	14.00
50509700	5.1/2	8.66	5.75	3.25	5.25	4.67	60.12	11.12	20.19	2.50	1.94	11.81	9.29	13.0	14.33
50509900	7	11.0	7.20	4.25	6.70	5.92	60.12	11.12	20.19	2.07	2.66	11.81	9.29	13.0	14.33
50511600	7.5/8	11.5	7.81	4.75	7.25	6.37	60.12	11.62	20.19	2.73	2.97	11.81	9.00	12.5	14.33
50511400	8.5/8	12.5	8.81	5.50	8.25	7.51	60.12	11.62	20.19	3.73	3.47	11.5	9.50	13.50	14.50
50510100	9.5/8	13.80	9.76	6.75	9.20	8.53	63.74	12.60	20.43	4.65	3.94	12.00	10.00	14.48	15.00
50511200	10.3/4	14.5	10.87	8.00	10.31	9.56	63.74	13.62	20.50	5.83	4.50	12.50	10.5	15.5	16.00
50511000	11.3/4	15.5	11.87	7.75	11.31	10.77	64.00	13.62	21.00	6.89	5.00	12.50	10.5	15.5	16.00
50510300	13.3/8	16.92	13.41	10.00	12.88	12.35	69.80	14.25	22.95	8.31	5.77	14.17	10.50	16.14	16.65
50510700	16	19.68	15.90	12.50	15.34	15.00	83.97	20.40	29.40	9.56	7.01	14.97	12.29	22.28	17.97
50510500	18.5/8	23.0	18.62	15.0	18.0	17.25	93.0	21.50	30.20	9.76	8.31	16.50	14.0	23.50	19.50
50510900	20	24.0	20.0	16.5	19.44	18.73	93.0	21.50	30.20	9.76	9.00	16.50	14.0	23.50	19.50

- NOTE:**
1. PARVEEN reserves right to alter the design data if required.
 2. All dimensions are in inches.
 3. For other sizes & for single plug cementing head sizes please contact PARVEEN.
 4. For Nomenclature refer diagram at next page.

CEMENTING HEAD (DOUBLE PLUG) HORIZONTAL INLET



NO.	DESCRIPTION
1	BODY
2	CHAIN WITH SWIVEL ASSY
3	CAP
4	SEAL METAL SEAL
5	PLUNGER ASSY
6	INDICATOR ASSY
7	ADAPTOR
8	CEMENTING MANIFOLD





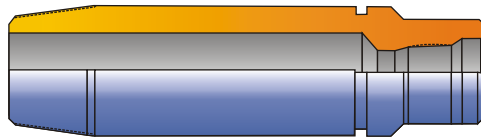
CIRCULATING HEAD / CASING ADAPTER

CIRCULATING HEADS

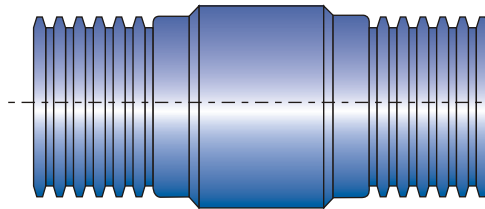
These are available in all sizes with 12" tong length. Generally, sizes less than 7 5/8" are made from solid bars and larger sizes than this are fabricated or can be supplied from solid bars. Generally bottom connection and top connection is drill pipe connection.

ADAPTERS / NIPPLES

Adapters/Nipples are available with all casing threads e.g. round, buttress, XL or special premium threads. Standard adapters have 6" tong space. Short adapters have no tong space but use Torque sleeve to tighten or loosen from casing.



Circulating Head



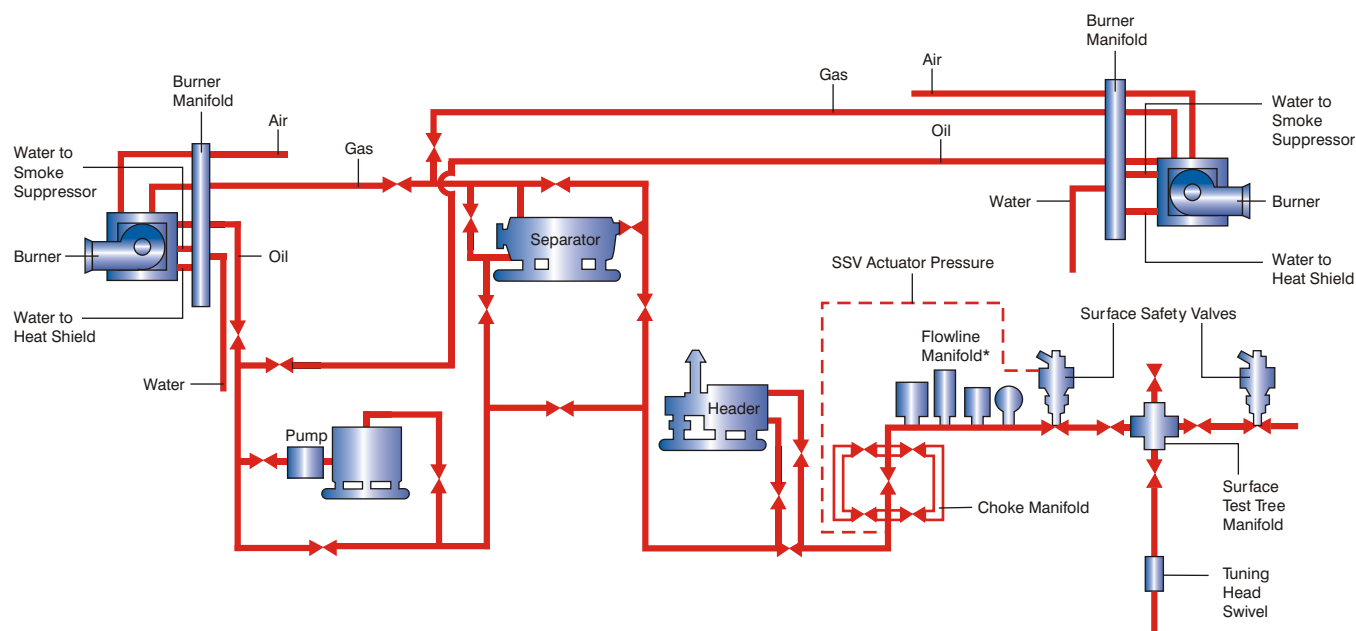
Casing Adapter (Acme Thread)



WELL TEST EQUIPMENT INDEX

SR. NO.	INDEX	PAGE
1	Layout for Testing Gas Condensate or Oil Wells	215
2	Burner	216
3	Gauge Tank / Surge Tank	217
4	Manifolds / Unitized Well Control Head / Data Header	218

LAYOUT FOR TESTING GAS CONDENSATE OR OIL WELLS



OBJECTIVES OF WELL TEST OPERATIONS

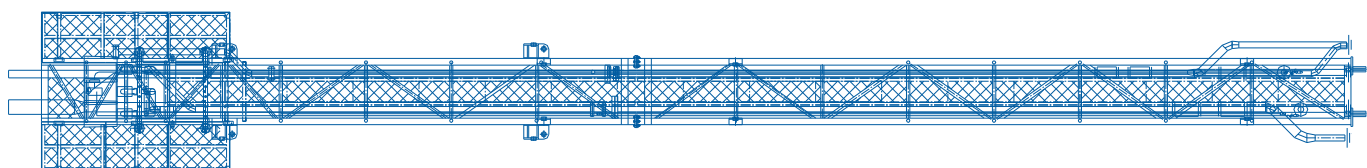
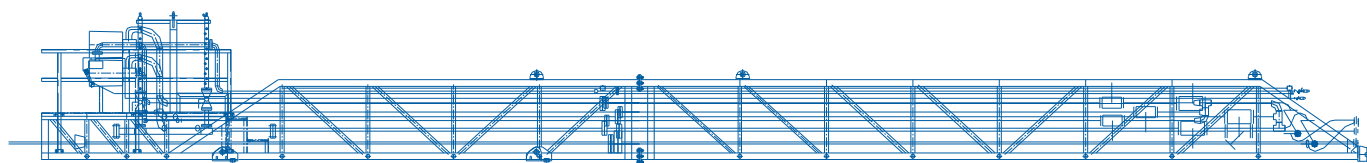
Following important data & samples to be obtained from well test :

- Gas production rate in MMSCF/D.
- Oil or Condensate production rate in barrels per day.
- B&W percentage of crude.
- Gravities of oil , gas & water
- Salinity of water with further compositional analysis if possible.
- Viscosity of condensate or crude.
- Pourpoint of condensate or crude, determined from fresh wellhead samples.
- Rough wellhead composition of produced gas, including H₂S, CO₂, CO&N₂ content.
- Bottom hole pressures, build-ups and draw-downs.
- Bottom hole temperature.
- Accurate recording of surface pressures, temperatures and flow data versus time.
- Separator gas samples, Oil samples , under pressure
- Bottom hole PVT samples.

Above introductory figure shows typical well testing layout for a very complete set of equipment. The equipment requirements and design for successful well testing obviously vary according to the specific requirement of operators.



MODEL ANSHOO BURNER WITH 60'/75'/90' BOOM



Capacity: 12000 BOPD

Features: Designed to dispose off crude oil /diesel, pollution free Pilot ignition system for each burner head.

Consist of Atomizers for multistage automatization.

Specially designed nozzle and high velocity of effluent gives flame narrow shape , resulting in reducing heat radiation.

Flow rates up to 12,000 STBD at any water percentage.

Swivel provided in structure allows a rotation in 30° each side of boom axis.

Total length of boom available :

60' - 75' - 90' in 2 - 3 sections

Booms comprises of :

Oil line 3" SCH 80

Gas line 4' / 5" SCH 80

Air 2" SCH 40

Water line 3" SCH 40

Diesel line 1.50 " SCH 40

Relief Line 4" SCH 40

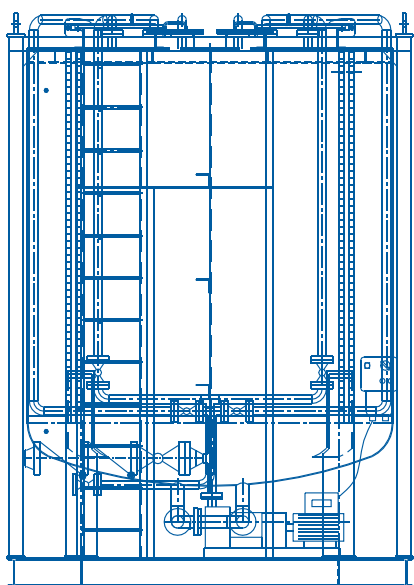
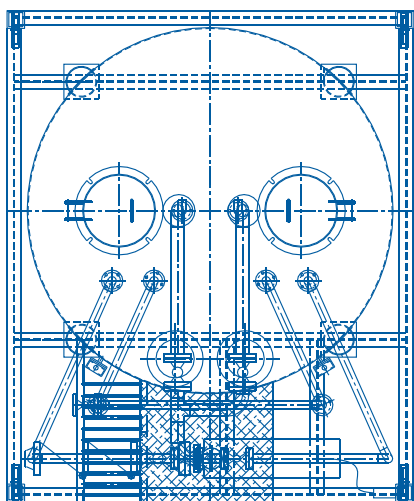
Propane line 1/2" SCH 40

Electric cable

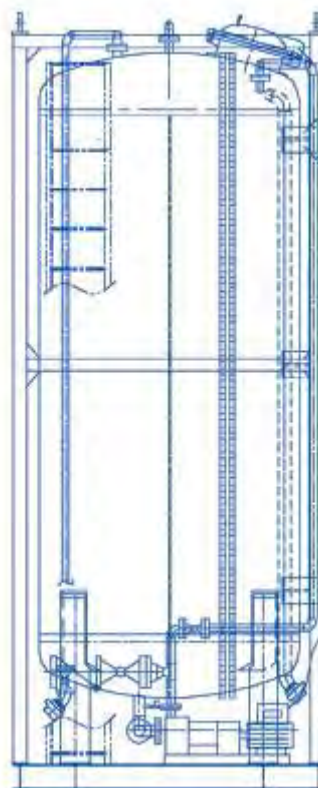
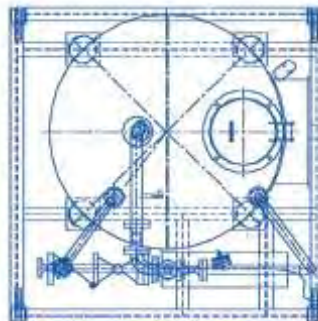
Material of construction :

Suitable for H2S Service as per NACE MR-01-75

GAUGE TANK / SURGE TANK



Gauge Tank



Surge Tank

Capacity : 100 BBL (Twin Compartment)

Features :

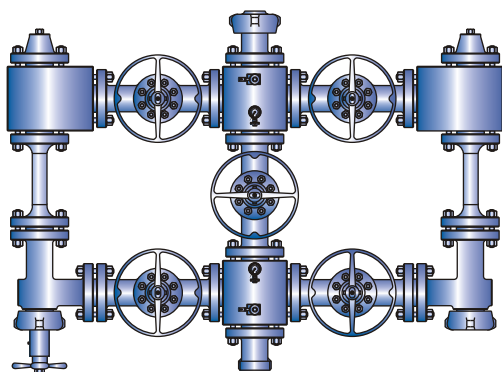
Supplied with Centrifugal pump with electric driven motor (chemical proof) w/ HP Flame proof console.
Complete with piping, flanges, valves , instrumentation & union Connections.

Capacity : 100 BBL (Twin Compartments)

Features :

Design pressure : 150 PSI / W.P : 50 PSI
Magnetic level controllers with High/Low level alarm.
Complete with piping, flanges, valves, instrumentation & union connections With automatic control valve to control pressure in tank up to 50 psi.
Supplied with Centrifugal pump with electric driven motor (chemical proof) w/ HP Flame proof console.

MANIFOLDS / UNITIZED WELL CONTROL HEAD / DATA HEADER



Choke Manifold

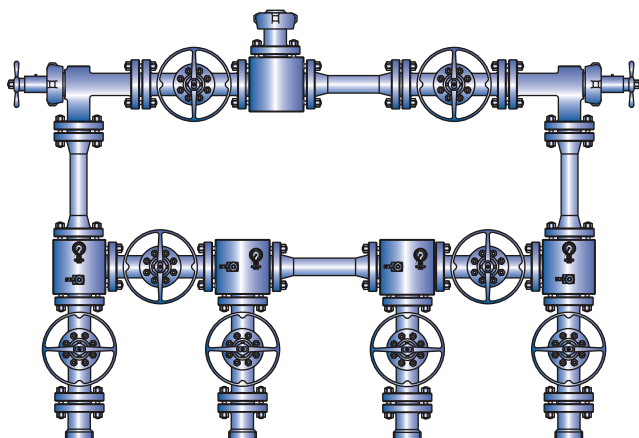
3.1/8" x 5000 PSI CWP - 3.1/16" X 100000 PSI CWP

Construction :

Skid mounted suitable for H₂S Service as per NACE MR-01-75.

Complete with 4-5 Gate Valves / Adjustable & Positive Chokes, 3" Thru bore.

With provision for measuring pressure, temperature & sampling both Upstream & Downstream of chokes.



Eruption Manifold

2.1/16 x 5000 PSI CWP - 3.1/8" X 5000 - 3.1/16" - 10000 PSICWP

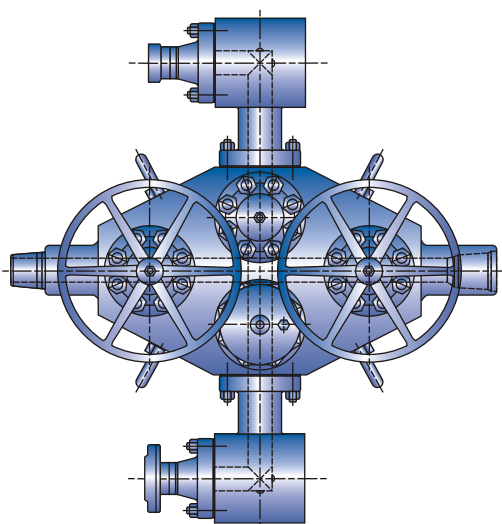
Construction :

Skid mounted suitable for H₂S Service as per NACE MR-01-75.

Complete with 8 Gate Valves / Adjustable & Positive Chokes, 2" / 3" Thru bore.

Orientation of Gate Valves, Chokes as per customer requirement.

With provision for measuring pressure, temperature & sampling both Upstream & Downstream of chokes.



Utilized Well Control Head

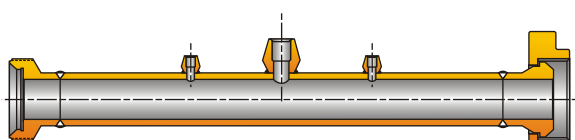
3.1/16" x 10000 PSI CWP

Construction :

Skid mounted - Unitized type.

Suitable for H₂S Service as per NACE MR - 01- 75.

Complete with two side outlets one for connection to Kill line & other for production testing.



Data Header

2" / 3" / 4" 5000 PSI & 10000 PSI WP

3' to 8' Length

Material :

Suitable for H₂S Service as per NACE MR-01-75.

With Union / Gray Lock End Connections.

Supplied with multiple ports Plugged or Flanged at specified intervals and degrees.

Supplied with Thermowell , Pressure Gauges as required by customer.



NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



GAS LIFT EQUIPMENT INDEX

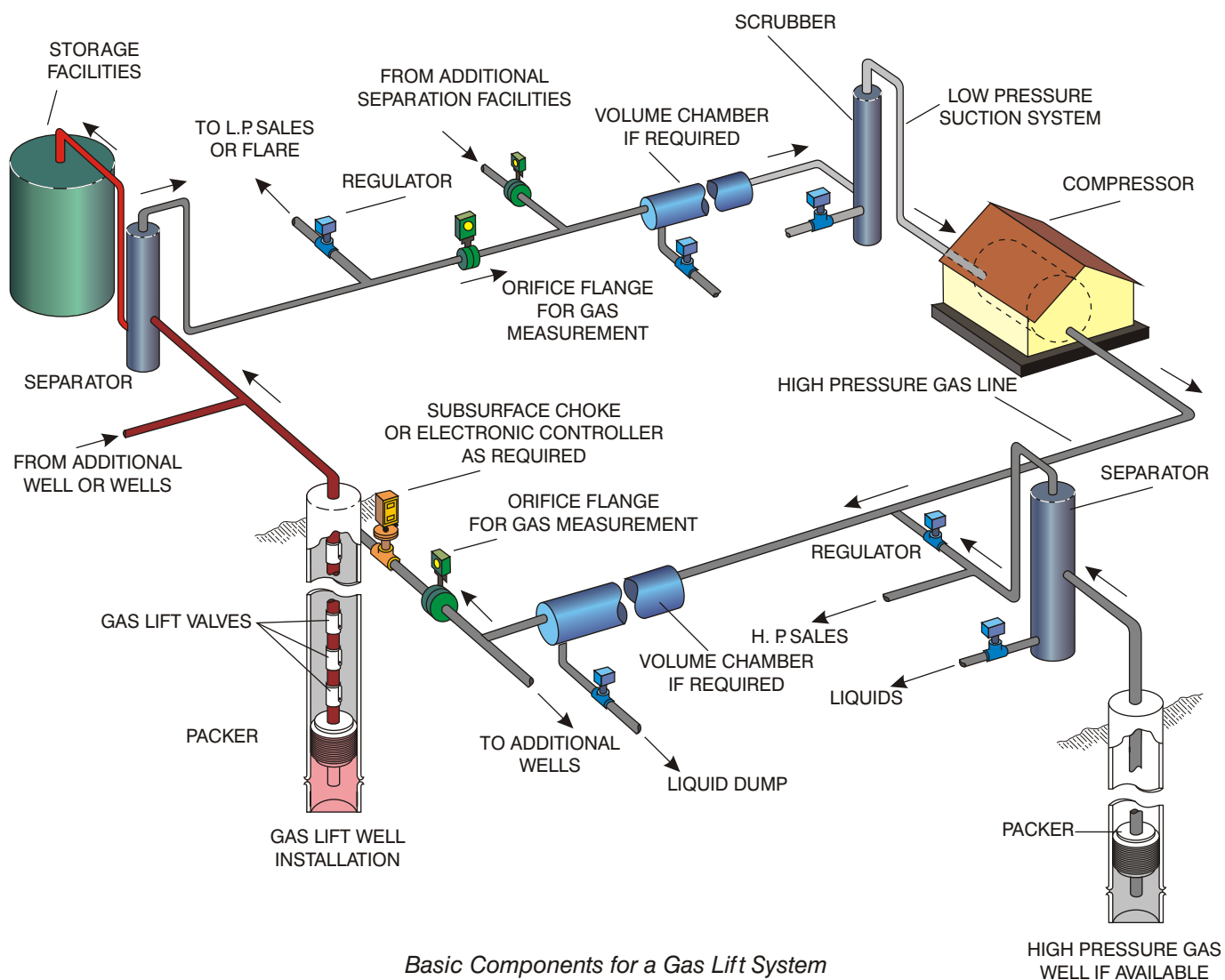
SR. NO.	INDEX	PAGE
1	Completion Systems	221
2	Injection Pressure Operated Gas Lift Valve	225
3	Proportional Response Gas Lift Valves	227
4	Pilot - Operated Gas Lift Valves	228
5	O Series Orifice Valves	229
6	PKO Gas Lift Orifice Valve	230
7	Wireline Retrievable Super Flow Orifice Valve	231
8	Flow Characteristics Of Super Flow Orifice Valve	232
9	PDO-5 Gas Lift Orifice Valve	233
10	Differential Valve	234
11	Dummy And Equalizing Valves	235
12	PDK-1 Wireline Retrievable Dummy Valve	236
13	Retrievable Production - Pressure Operated Gas Lift Valves	237
14	Latches	239
15	Side Pocket Mandrel	241
16	Conventional Mandrels	245
17	High Strength Conventional Mandrels	247
18	Running, Pulling Tools	248
19	HD-TP Positioning Tools	249
20	HD-TP/HD-TMP Positioning Tools	250
21	Surface Flow Controls Motor Valves	251
22	Surface Flow Control FCV Series Flow Control Valves	252
23	Surface Flow Controls WFC Series Waterflood Control Valves	253
24	Surface Flow Control ACV Series Adjustable Choke Valves	254
25	Standing Valves And Seating Nipples	256
26	Time Cycle Controllers With Accessories	257
27	4501 (mechanical) Time Cycle Controllers	258
28	API Tubing Table	259
29	Fluid Weight Conversion Table	260
30	Valve And Seat Specifications	263
31	Gas Rate Through Chokes	264
32	Temperature Correction Chart	266
33	Calibration & Testing of Gas Lift Valves	267
34	Constructional Features of GLV Test Bench	268
35	Apparatus	270
36	Probe Tester	271

COMPLETION SYSTEMS

In order to boost production from wells, which do not flow at all or do not flow at optimum level, artificial system using a variety of methods are used. These methods use Gas Lift, Plunger Lift, Chamber Lift, Rod Pumps, Submersible Pumps and so on. PARVEEN provides a complete line of Equipment and Services for such applications, e.g. Gaslift, Plunger Lift and Chamber Lift.

Which artificial method will be most effective for a particular well can be determined by evaluating several factors such as well's production potential, Gas/Oil ratios, well bore deviation and size as well as corrosion / erosion potential of produced fluids. Other factors include availability of power source such as compressed gas, electricity, surface facility, service availability, space limitation and personnel capabilities.

The diagram below provides the basic components of a Gas lift System. In many fields, a high pressure well provides a readily available energy source. If sufficient gas pressure or volume is not available, a compressor can be utilized to operate a closed system. The Gas is recirculated through a compressor facility. Only minor amount of make up gas is needed to replenish gas lost in separation processing or as fuel for compressor facilities.

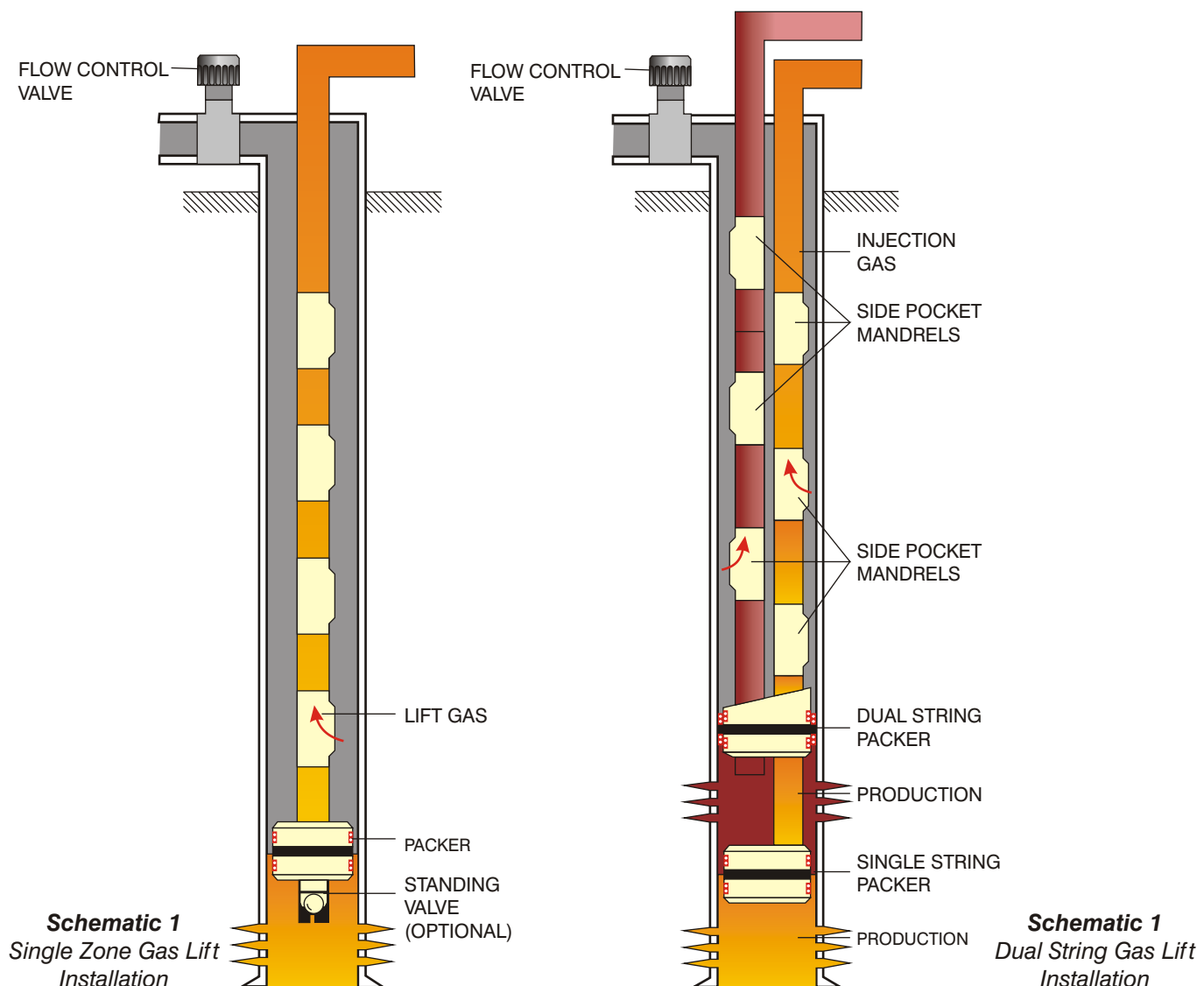


Basic Components for a Gas Lift System

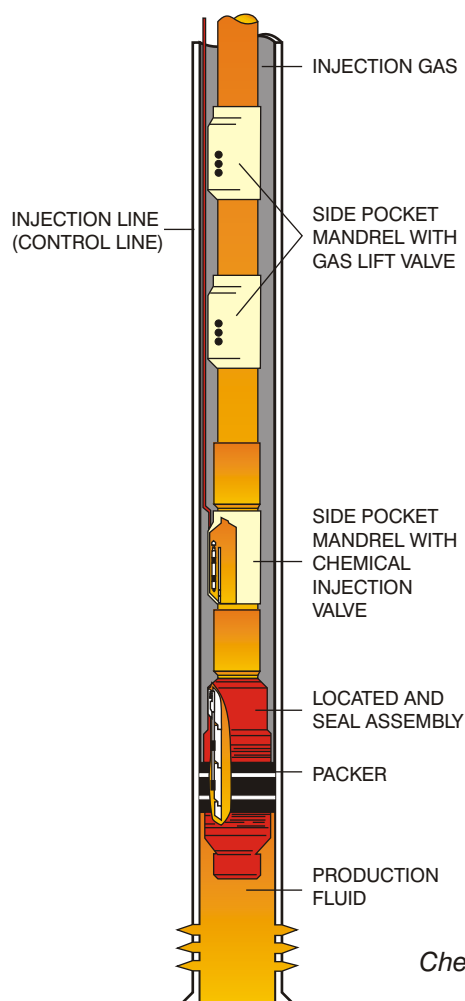
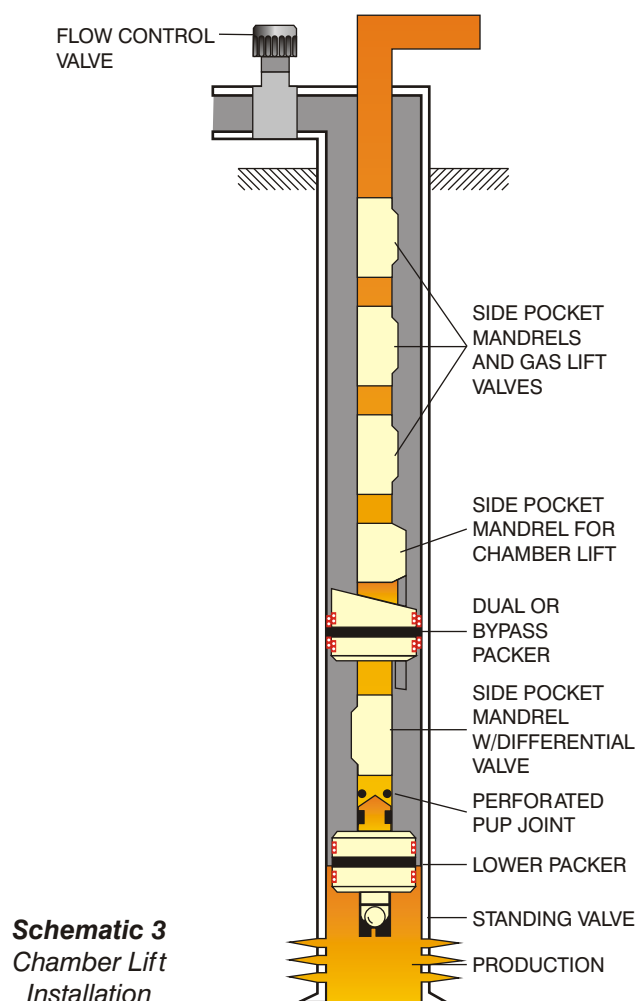
COMPLETION SYSTEMS

Schematic 1- The single string Gas lift completion for intermittent lift applications utilizes a standing valve near bottom of the tubing to prevent Gas pressure surges against the reservoir during cyclic operations. A single zone continuous lift installation would not require a standing valve but otherwise it will be identical. In either application Conventional or Side Pocket Mandrel can be used. Side Pocket Mandrels are designed to provide the facility of removing and replacing Gas Lift Valves without removing the tubing. These service operations are performed either by using wireline, through - flow line (TFL) or coiled tubing methods depending on the completion configuration. Wire line installations are more economical for servicing wells with vertical access, especially remote, offshore or other hard - to - reach locations, since wireline units are light and portable. TFL and coil tubing service methods can provide production maintenance for wells that require tubing loops, such as ocean floor completions, highly deviated wells, extremely deep wells and any well where there is no straight or vertical access for wireline service.

Schematic 2 - This illustrates dual-string installations where Gas Lift Valves lift fluids from two zones using gas from a common annulus. An installation can be designed, with proper well information to produce and carry both zones to depletion. The conditions affecting dual string design are casing size, distance between zones, well bore deviation, continuous or intermittent lift and operator's preference. Gas lift valves should be of proportional response or production pressure operated if the operation has to be trouble free.



COMPLETION SYSTEMS



Schematic 3 - In the chamber lift system, one normally utilizes two packers, a standing valve, a perforated pup above the bottom packer, and a differential vent valve just below the top packer in addition to the Gas Lift Valve necessary to unload and produce the well.

While the bottom injection pressure operated valve is closed, the standing valve is open. Fluid fills both the tubing and annular space (chamber) between the two packers. The differential valve is open, and allow gas in the top of the annular part of the chamber to bleed into the tubing as the chamber fills. When the chamber has filled to the point that the liquid level is near the differential valve, the operating gas lift valve opens. A calculated gas volume enters the top of the chamber, closing the bleed valve and standing valve, forcing accumulated liquids to U-tube from the chamber to the tubing. Liquids are produced as a slug to the surface. As the tubing is cleared, the operating gas lift valve closes, the standing valve and bleed valve open, and liquids again refill the chamber. The cycle then repeats.

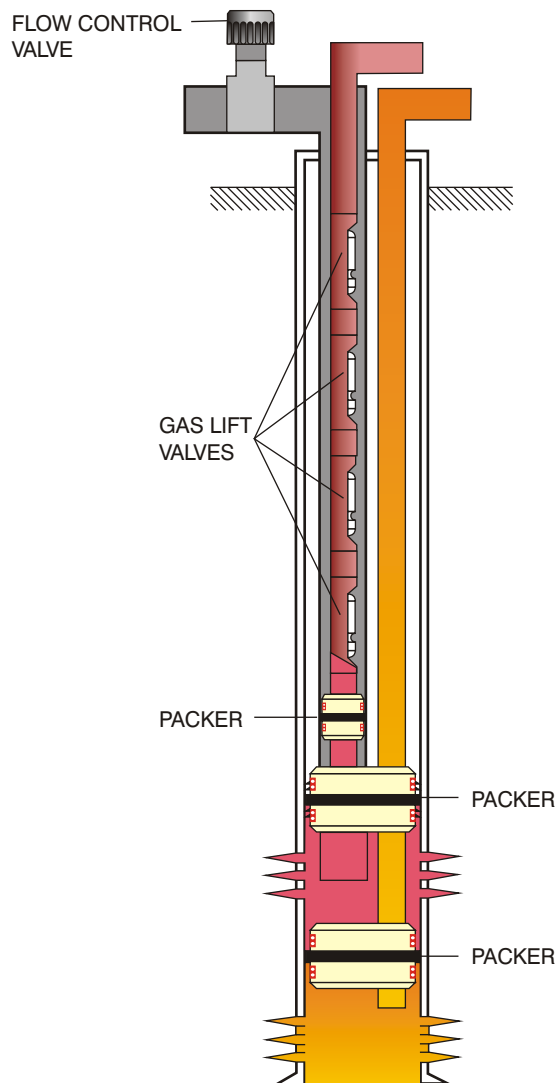
If properly planned, a chamber lift system permits a larger volume of fluid to be produced by intermittent lift from wells with a high productivity index and low-to medium bottom hole pressure.

Schematic 4 - In certain cases, Chemical injection is desirable to be coupled with Gas Lift. Side Pocket Mandrels may be run at pre-determined depths for Gas lift valves to be installed. An additional mandrel with a chemical injection valve and injection line may also be run to desired depth on the same tubing string. Tubing / Casing annulus can be used for gas injection and the injection line for chemical injection.

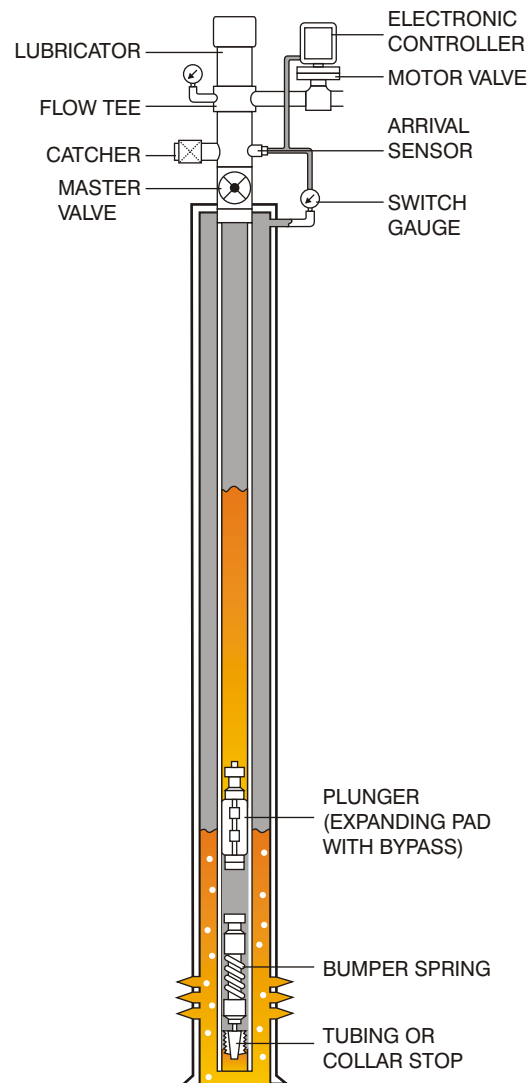
COMPLETION SYSTEMS

Schematic 5 - Macaroni tubing installation work well in either intermittent or continuous Gas Lift System. Essentially the installation is same as a single zone installation except the size of the macaroni string is the limiting factor due to ultra-slim hole conditions. It is an ideal method of artificial lift for slim hole completions.

Schematic 6 - This fig. shows a simple installation without packer application for unloading fluids in a gas well. Plunger lift systems can effectively produce high GOR wells, water producing gas wells, or very low bottom hole pressure oil wells (used with gas lift). Depending upon individual well requirements surface/subsurface equipment varies. Installation may or may not require a packer and/or additional gas.



Schematic 5
Macaroni Installation



Schematic 6
Single Zone Plunger
Lift Installation



INJECTION PRESSURE OPERATED GAS LIFT VALVE

DESCRIPTION

Parveen N Series Valves utilize a nitrogen charged dome and bellow configuration designed for either continuous or intermittent flow applications. They are especially suitable for use as unloading and operating valves in areas where high gas lift pressures are available. Since the charge pressure above the bellows is affected by temperature, it is important that the operating temperatures at the valve be known. These valve are available in both wireline-retrievable and conventional installations.

BENEFITS

Vibration protected, 3-ply monel bellow are designed to withstand hydrostatic pressure up to 5000 psi.

Nitrogen dome charge, acting on the O.D. of the bellow, permits bellows to expand uniformly without stacking, thus prolonging bellow's life.

The multiple port size availability, make this valve series appropriate for a wide range of operating conditions.

Reversible seat available in several different materials.

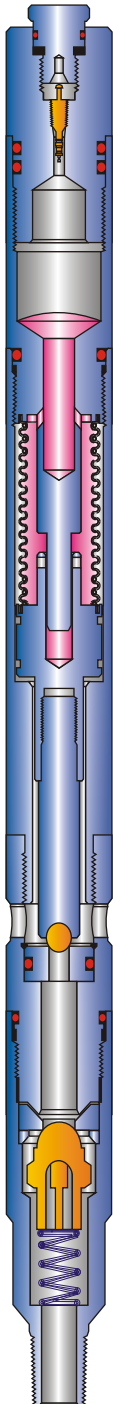
OPERATING PRINCIPLE

The dome nitrogen charge applied to the external area of the bellows provides the downward force, holding the valve on its seat. This dome pressure is preset at the reference temperature and corrected to operating temperature. The opening forces on the valve are the casing pressure acting on the internal area of the bellows (less the area of the seat) and the tubing pressure acting on the seat area. When the combined casing and tubing pressures are sufficient, the valve opens. Once the valve is open, it remains open until the casing pressure is reduced to the predetermined closing pressure. The spread (the difference between opening and closing casing pressure) is controlled by the tubing sensitivity of the valve. The larger the seat port area, the more tubing sensitive the valve is.

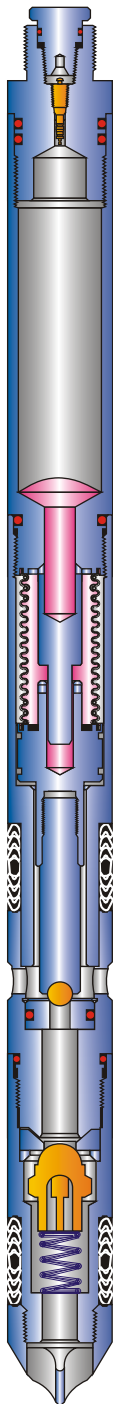
ENGINEERING DATA FOR INJECTION PRESSURE OPERATED VALVES

TYPE	ASSY. NO.	NOMINAL OD (INCH)	PACKING OD (INCH)		PORT SIZE (INCH)		LATCH OR END CONN.	RUNNING TOOL TYPE	PULLING TOOL TYPE	MANDREL TYPE
			UPPER	LOWER	MIN	MAX				
N-90	122-10XX-XXX-XO	1-1/2	–	–	1/8	1/2	1" or 1/2" NPT	–	–	SERIES 15
N-90R	122-10XX-XXX-X1	1-1/2	1-9/16	1-1/2	1/8	1/2	TG, RK, RM, T-2	RTG, TER	PTG, TRP	TP, MM, MMA, MMG
NM-90	122-20XX-XXX-XO	1	–	–	1/8	3/8	1/2" NPT	–	–	SERIES 12
NM-90R	122-20XX-XXX-X1	1	1-1/32	1-1/32	1/8	3/8	BK-2, M	MR	MP	TMP, KBM, KBMG, KBG
PBK-1	122-90XX-XXX-X1	1	1-1/32	1-1/32	1/8	3/8	Integral Bottom	GA-2	MP	TMP, KBM, KBMG, KBG

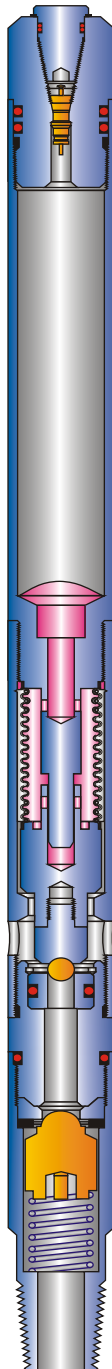
INJECTION PRESSURE OPERATED GAS LIFT VALVE



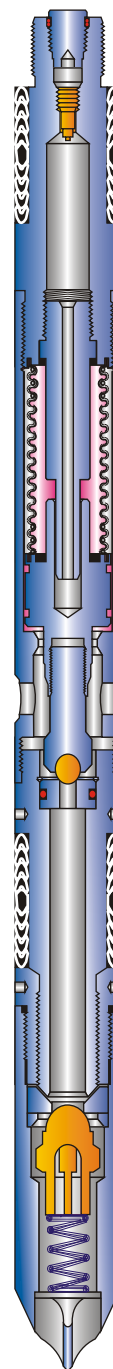
N-90



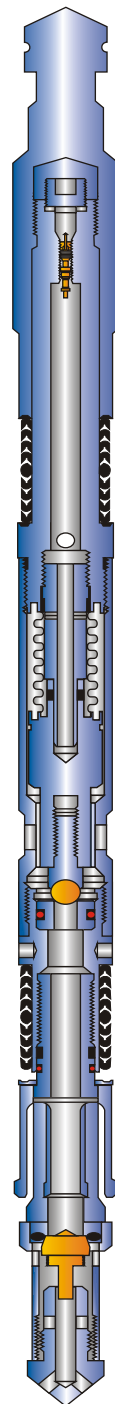
N-90R



NM-90



NM-90R



PBK-1



PROPORTIONAL RESPONSE GAS LIFT VALVES

L SERIES VALVES

PARVEEN L Series Valves are temperature independent, wireline-retrievable, spring-loaded throttling type valves designed for continuous flow gas lift applications. These valves are designed to help adjust the required gas injection rate in response to changes in the tubing pressure at the valve, injecting more gas for a heavy gradient fluid than for a light gradient fluid. This proportional response allows the injection of the optimum volume of gas to maintain the desired fluid lifting capabilities of the installation.

BENEFITS OF DESIGN PRINCIPLE

- Predictable proportional response operating characteristics of this design, permit the optimum volume of gas to pass from the annulus to the tubing in response to fluctuations in production pressure.
- Hydrostatic and vibration protection for the Monel bellows assembly increases valve service life.
- Tungsten carbide ball and seat are designed to minimize erosion and maintain positive closure of the valve.
- Large diameter back check valve is designed with resilient seals to provide protection from intrusion of production fluids into annulus.
- Utilizes full operating gas pressure to the bottom valve.

STANDARD SERIES MODELS

LM-16R : 1-inch diameter wireline-retrievable valve for installation in a TMP Mandrel with BK-2 or M Latch.

L-12R : 1 ½ - inch diameter wireline-retrievable valve for installation in a TP Mandrel with a TG, RK, RM or T2 Latch.

LN SERIES VALVES

PARVEEN LN Series Valves are wireline-retrievable throttling type valves designed for high gas volume and high pressure continuous flow installations. A specialized bellows design allows for very high valve set pressures and improved throttling characteristics. The proportional response capabilities, determined by dynamic flow tests of these valves, enable design engineers to calculate accurately the gas injection volumes to be achieved throughout the anticipated range of operating conditions of the well.

BENEFITS OF DESIGN PRINCIPLE

- Predictable proportional response operating characteristics of this design, permit the optimum volume of gas to pass from the annulus to the tubing in response to fluctuations in production pressure.
- Hydrostatic and vibration protection for the Monel bellows assembly increases valve service life.
- Valve closing pressures can be set to 2500 psi.
- LN- 21R valve can inject maximum gas volumes of over 10 mmcf/d.
- Tungsten carbide ball and seat are designed to minimize erosion and maintain positive closure of the valve.
- Large diameter back check valve is designed with resilient seals to provide protection from intrusion of production fluids into annulus.

STANDARD SERIES MODELS

LN-21R: 1 ½ inch wireline-retrievable, proportional response valve for a TP Mandrel with a TG, RK, RM or T2 Latch.

LNM-31R: 1 inch wireline-retrievable, proportional response valve for a TMP Mandrel with a BK-2 or M Latch.

PILOT - OPERATED GAS LIFT VALVES

DESCRIPTION

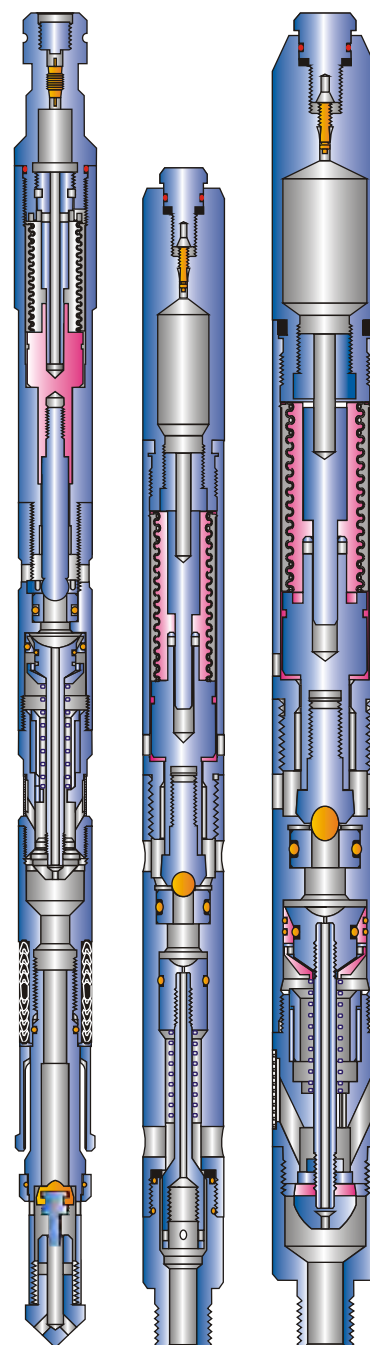
The PARVEEN Conventional Pilot Valve (1" & 1.1/2" O.D.) and Retrievable Pilot Valve (1" O.D.) consists of a pilot section and a power section. This valve utilizes a pilot section to activate a power section. A sealed chamber, including a multiply monel bellow, contains a nitrogen pressure charge over a dampening fluid which provides the closing force necessary to maintain the pilot section in a normally closed position and an inconel spring provides the force necessary to maintain the power section normally in a closed position.

OPERATION

Injection gas first enters the pilot section of the valve and acts on the effective bellows area. When injection gas pressure exceeds the closing force (due to precharged nitrogen gas pressure in the bellows), the bellow compresses, lifting the pilot valve stem off the seat to open the pilot section and thus allows gas to be injected on top of the power piston. The differential between injection gas pressure and production fluid pressure, working on the annulus area between the power piston and port areas overcomes the spring closing force of the power section piston. This differential pressure opens the power section, allows injection gas to flow through the valve, past the reverse flow check valve into the production fluid through production conduit. When pilot section closes due to injection gas pressure drop, the injection gas pressure on top of the power piston bleeds down to production fluid pressure and the spring closes the power section.

APPLICATION

Pilot operated valves are used primarily for intermittent gas lift where large, instantaneous injection gas volumes between opening and closing injection gas pressure are desired. The pilot valve can also be used where intermittent lift is required but injection gas must be controlled by a choke to prevent surface gas system pressure fluctuations.



PPK-1

PBP

PCP

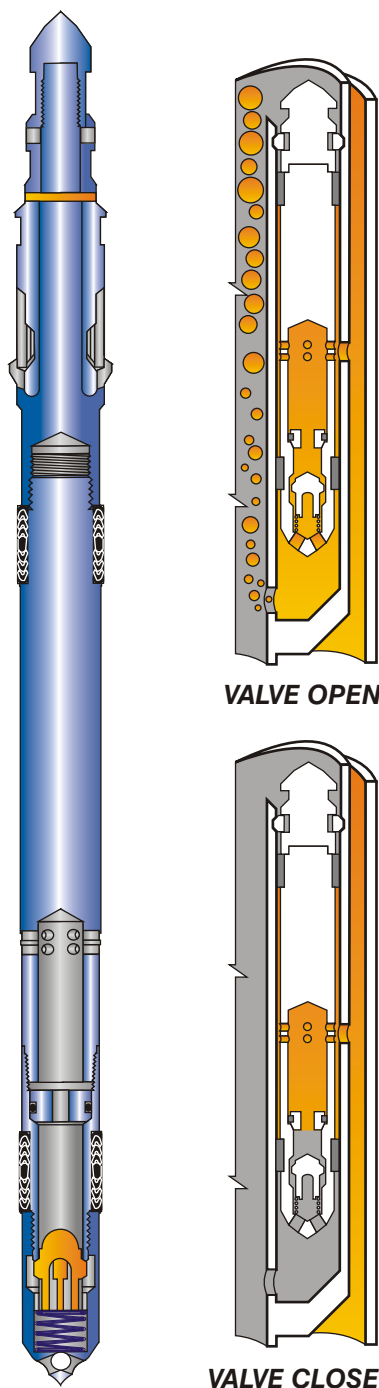
ENGINEERING DATA FOR RETRIEVABLE PILOT OPERATED GAS LIFT VALVE.

Type	Assly Number.	Nominal O.D. (Inch)	Latch	Running Tool		Pulling Tool		Mandrel Series.
				Type	Assly No.	Type	Assly No.	
PPK-1	140-20 -XX-XXX -01	1	Integral Bottom	GA-2	—	MP	11361	TMP, KBM, KBMG, KBG.

ENGINEERING DATA FOR CONVENTIONAL PILOT OPERATED GAS LIFT VALVE.

Type	Assly Number.	Nominal O.D. (Inch)	Connecting Thread
PBP	140-20 XX-XXX -00	1	1/2" - 14 NPT
PCP	140-10 XX-XXX -00	1-1/2	1/2" - 14 NPT

O SERIES ORIFICE VALVES



VALVE OPEN

VALVE CLOSED

PARVEEN O Series valves are designed for circulating operations and provide means for communication between the tubing and the tubing/casing annulus.

BENEFITS OF DESIGN PRINCIPLE

- Cv values for each orifice size are determined with ISA procedures to provide accurate sizing for proper injection rates.
- Efficiency of back check valve provides large flow capacities. Positive sealing feature of back check valve provides protection from intrusion of production fluids into casing annulus.
- Various orifice materials (SS, monel, inconel, tungsten carbide) available to meet application requirements.

OPERATING PRINCIPLE

This valve series design utilizes an orifice (choke) as well as a back check valve for continuous flow operations. Injection fluid or gas enters through the entry ports and through an orifice. Injection pressure moves the back check valve off seat allowing gas or fluids to enter into the tubing. Reverse flow pushes the check valve on seat to prevent flow into the casing.

For injection of fluids or gas from the tubing to the tubing/casing annulus, the design can be modified by replacing the upper packing elements with a spacer. This allows the flow to enter from the top, passing through the valve via the back check and out the bottom of the valve and into the tubing/casing annulus. With this configuration, the valve is installed in a mandrel with a type S pocket which has no ports between the seal bore and vents to the casing/tubing annulus.

Orifice sizes available for this valve design range from 1/8 through 7/16 inch in the 1 inch. size and from 1/8 through 51/64 inch in the 1 1/2 inch size, thus making them suitable for a wide range of operating conditions.

ENGINEERING DATA FOR ORIFICE VALVES

Type	Assy. No.	Normal OD (inch)	Packing OD (inch)		Port Size (inch)		Latch Or End Conn.	Running Tool Type	Pulling Tool Type	Mandrel Type
			Upper	Lower	Min.	Max.				
OM 14R	150-40	1	1-1/32	1-1/32	1/8	7/16	BK-2, M	MR	MP	TMP
OM 20R	150-27	1	1-1/32	1-1/32	1/8	7/16	BK-2, M	MR	MP	TMP
O20R	150-12	1-1/2	1-9/16	1-1/2	1/8	51/64	TG, RK, RM T-2	RTG, TER	PTG, TRP	TP
OSM-14R	150-05	1	1 - 1/32	1 - 1/32	1/8	7/16	BKP	MR	MP	TMP
OS 14R	150-08	1 - 1/2	1-9/16	1-1/2	1/8	51/64	TFA, PKP	RTG, TER	PTG, TRP	TP

PKO GAS LIFT ORIFICE VALVE

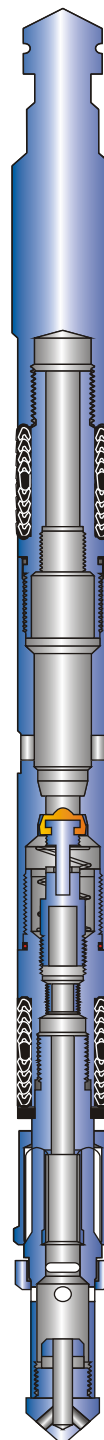
DESCRIPTION

The PARVEEN (Model PKO) retrievable single point injection gas lift orifice valve s are used for continuous tubing flow gaslift installations. It is used to control the flow of gas between the casing annulus and the tubing at valve depth. The valve has a check dart controlled by a spring which does not allow the back flow of gas or well fluids. If the injection gas pressure in casing & tubing annulus at valve depth falls below the fluid tubing pressure, the fluid from tubing will try to flow back through the valve. Reverse flow through the valve is prevented by a check dart in the valve body. The check dart is closed by pressure from the tubing and will not allow passage of fluid until casing pressure is greater or equal than tubing pressure. This valve is available from 1/8" to 3/8" port sizes in 1/16" increments.

The valve can be installed in Parveen TM series Side Pocket Mandrel&have an integral bottom latch which locks the valve in the side pocket mandrel. After locating the valve in the side pocket mandrel, downward jarring is required which causes the collet dogs of the latch to engage the lock in the recess provided at the bottom of the Side Pocket. Upward jarring is required to pull the valve. Upward jarring shears the brass shear pin securing the shear ring to the latch body. During upward pulling of the valve in the side pocket the shoulder on the latch body moves out from behind the collet dogs. The collet fingers are deflected inward and disengage from the locking recess of the mandrel pocket. Then the valve is removed from the well.

Injection gas enters thru the external ports of the orifice valve from annulus between casing & tubing. 2 sets of packing located at the top & bottom of external ports on the valve seals across the ports in side pocket mandrel. The injection gas travels through the choke, past the reverse flow check valve and finally into the production conduit.

ENGINEERING DATA FOR PKO GAS LIFT ORIFICE VALVES.								
Type	Assly Number.	Nominal O.D. (Inch)	Latch	Running Tool		Pulling Tool		Mandrel Series.
				Type	Assly No.	Type	Assly No.	
PKO	130-30 XX-XXX -01	1	Integral Bottom	MR-01	10336-01	MP	11361	TMP, KBM, KBMG, KBG.



**PKO GAS LIFT
ORIFICE VALVE**

WIRELINE RETRIEVABLE SUPER FLOW ORIFICE VALVE

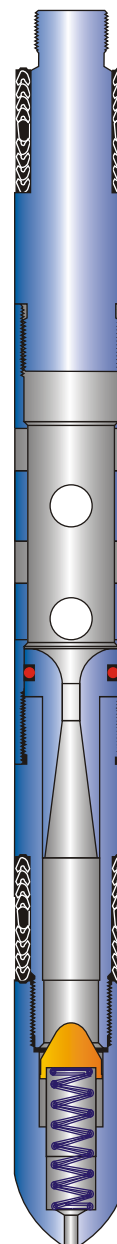
DESCRIPTION

Parveen 1" & 1- 1/2" OD wireline retrievable injection gas lift super flow orifice valves are used for continuous flow application. These are designed for circulating operations and provide a means of flow from casing to annulus through orifice and then into the tubing.

Parveen super flow orifice valve achieve maximum flow with less pressure drop w.r.t conventional orifice valves. The injection rate from new orifice valve is almost constant because the valve operates in maximum flow mode. Therefore the injection volume does not depend upon tubing pressure. In comparison with this feature, the injection volume thru conventional orifice valve is unstable because of the tubing pressure effect.

OPERATION

Super flow orifice valve utilizes an orifice venturi as well as a back check valve for continuous flow operations. Injection fluid enter through the entry ports and then flow through orifice venturi. Injection pressure moves the back check valve off the seat & thus allowing fluids to enter into the tubing. Reverse flow pushes the check valve on seat to prevent flow into the casing.



**RETRIEVABLE SUPER FLOW
ORIFICE VALVE**

ENGINEERING DATA FOR RETRIEVABLE SUPER FLOW ORIFICE VALVE

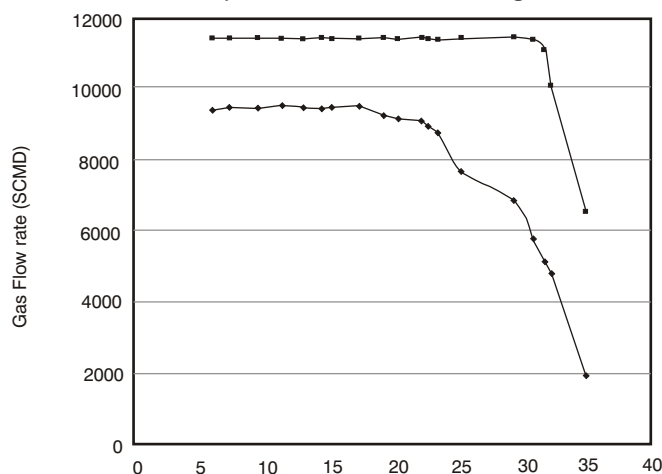
Type	Assy. Number	Nominal O.D. (Inch)	Packing O.D. (Inch)		Port Size (Inch)		Latch or End Conn.	Running Tool Type	Pulling Tool Type	Mandrel Type
			Upper	Lower	Min.	Max.				
NOM 14R	N150-04	1	1-1/32	1-1/32	1/8	5/16	BK-2,M	MR	MP	TMP
NO 20R	N150-12	1-1/2	1-9/16	1-1/2	1/8	51/64	TG,RK,RM	RTG, TER	PTG, TRP	TP

FLOW CHARACTERISTICS OF SUPER FLOW ORIFICE VALVE

Parveen has Successfully developed after conducting extensive in house research Super Flow Orifice Valve which is a one step ahead of Conventional Orifice Valve available in the market. It's performance is dynamically tested by Institute of Oil & Gas Production Technology, ONGCL, Panvel, Mumbai, India.

Flow Performance Curve of NOM - 14R Orifice Valve (Port - 12/64") against different Upstream Pressures i.e. 30 Kg/cm² & 35 Kg/cm² are depicted below and comparison with Conventional Square Edge Orifice Valve are also shown below.

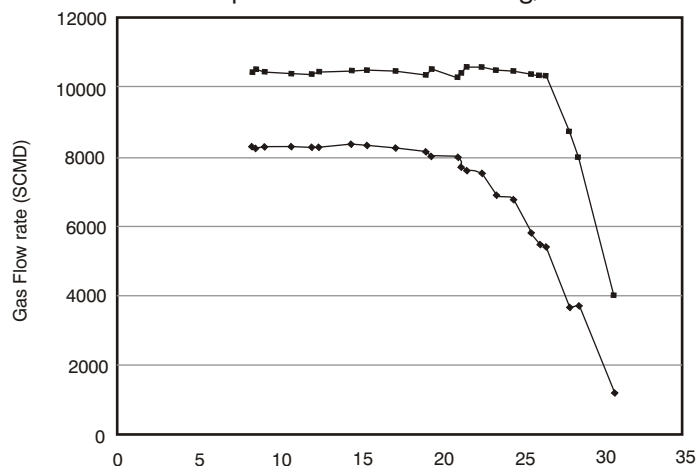
Flow Performance (NOM14-R, Port12/64")
Upstream Pressure - 35 Kg/cm²



ANALYSIS OF RESULTS

- 1) The Critical Flow rate was achieved at approx 0.878-0.879 pressure ratio of Down Stream Pressure to Upstream Pressure i.e. at a pressure differential of 12% compared to almost 50% in case of a Standard Orifice in Conventional Orifice Valve.
- 2) The Actual Critical Flow rates obtained through the testing were approximately 20% higher than the calculated theoretical flow rates.

Flow Performance (NOM14-R, Port12/64")
Upstream Pressure - 30 Kg/cm²





PDO-5 GAS LIFT ORIFICE VALVE

DESCRIPTION

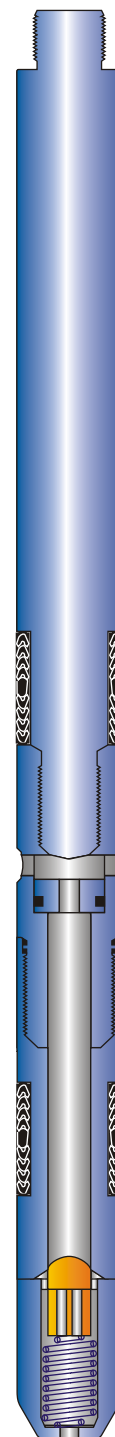
The PARVEEN (Model PDO-5) 1.1/2" O.D. retrievable single point injection gas lift orifice valves are used for continuous tubing flow gas lift installations. It is used to control the flow of gas between the casing/tubing annulus and the tubing at valve depth. The valve has a check dart controlled by a spring which does not allow the backflow of gas or well fluids.

An integral floating choke controls the flow of gas through this valve (which is open normally) into the production conduit. This valve is available from 3/16" to 3/4" port sizes in 1/16" increments.

This valve design utilizes an orifice (choke) as well as a backcheck valve for continuous flow operations. Injection fluid or gas enters through the entry ports and through an orifice. Injection pressure moves the back check valve off seat allowing the gas or fluids to enter into the tubing. Reverse flow pushes the check valve on seat to prevent flow into the casing.

ENGINEERING DATA FOR PDO-5 GAS LIFT ORIFICE VALVE.

Type	Assly Number.	Nominal O.D. (Inch)	Latch	Running Tool		Pulling Tool		Mandrel Series.
				Type	Assly No.	Type	Assly No.	
PDO-05	150-30 XX-XXX -01	1.1/2	R, RA, RK.	RTG TER	16927 11730	PTG TRP	17048 11390	TP, MMA, MMG.



**PDO-5 GAS LIFT
ORIFICE VALVE**

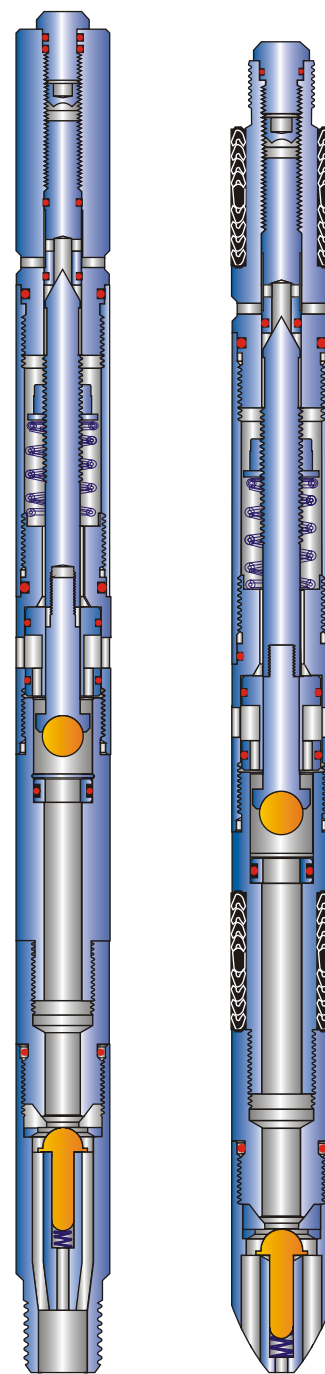
DIFFERENTIAL VALVE

DIFFERENTIAL VALVE

This valve is used as the bleed valve in chamber lift installation for bleeding the tail chamber gas from the chamber, which allows for the formation to refill the chamber. The valve is normally open and closes when differential pressure closes against the calibrated spring.

FUNCTION

When chamber is empty, there is a reduction in chamber pressure. Due to this differential, valve opens which allows the passage of gas from the top of chamber and prevents trapping of gas in top of the chamber. When gas pressure on the top of the liquid in the chamber increases, the spring compresses & valve closes.

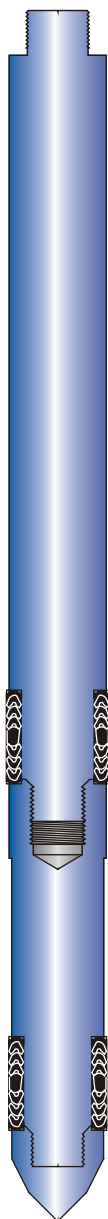


PDV

PDV-R

ENGINEERING DATA FOR DIFFERENTIAL VALVE								
Type	Assy. Number	Nominal O.D. (Inch)	Packing O.D. (Inch)		Latch or End Conn.	Running Tool Type	Pulling Tool Type	Mandrel Type
			Upper	Lower				
PDV	160-1024-320-00	1	1-1/32	1-1/32	-	-	-	Series -12
PDV-R	160-1024-320-01	1	1-1/32	1-1/32	BK-2, M	MR	MP	TMP

DUMMY AND EQUALIZING VALVES



1 1/2 inch Dummy Valve

D Series Valves are installed in side pocket mandrels by wireline to block the mandrel's injection gas ports. Dummies can be run prior to or after completion for testing tubing, packers and other equipment. In new installations, dummies can be retained in the mandrels until gas lift valves are required to maintain production. Then, dummies are pulled and gas lift valves installed by wireline. Also during the life of the well, gas lift valves installed above the fluid level can be replaced with dummies to block off injection gas. They are available in 1 and 1 1/2 inch sizes.

ED Series Equalizing Valves with integral latches are designed to equalize tubing and casing pressure and or to circulate prior to pulling the valve. They are also available in both 1 and 1 1/2 inch sizes.

To equalize pressure, a pulling tool pushes the inner core downward, shearing a pin and allowing circulation or equalization. When the core moves down, the pulling tool collets latch over the fish neck and the valve is pulled in the usual manner. This tool is designed so that both equalizing and pulling operations can be performed in one wireline run. It is also possible to leave the valve in the side pocket mandrel for continued circulation. This is accomplished by shearing down on the inner core with a special tool. The valve may be pulled out at a later date with a standard pulling tool.

STANDARD SERIES MODELS

D-14R: 1 1/2 inch wireline-retrievable dummy valve for TG or T Mandrels with TG, RK, RM and T2 Latches.

DM-14R: 1 inch wireline-retrievable dummy valve for TM Mandrels with BK-2 and M Latches.

DT-14R: 1 1/2 inch wireline-retrievable, high-temperature dummy valve for TG or TP Mandrels with TG, RK, RM and T2 Latches.

DTM-14R: 1 inch wireline-retrievable, high-temperature dummy valve for TMP Mandrels with BK-2 and M Latches.

- **ED-30R:** 1 1/2 inch wireline-retrievable equalizing dummy valve for TG or TP Mandrels with an integral Latch.
- **EDM-30R:** 1 inch wireline-retrievable equalizing dummy valve for TMP Mandrels with an integral BK-2 Latch.
- Both of these valves may be equalized and pulled with one wireline run.

ENGINEERING DATA FOR D & ED SERIES DUMMY VALVES

Type	Assy. No.	Nominal OD (inch)	Packing OD (inch)		Latch Or End Conn.	Running Tool Type	Pulling Tool Type	Mandrel Type
			Upper	Lower				
D 14R	170-03	1-1/2	1-9/16	1-1/2	TG, RK, RM T2	RTG, TER	PTG, TRP	TP
DM 14R	170-01	1	1-1/32	1-1/32	BK-2, M	MR	MP	TMP
DT 14R	170	1-1/2	1-9/16	1-1/2	TG, RK, RM T-2	RTG, M, TER	PTG, TRP	TP
DTM 14R	170-02	1	1-1/32	1-1/32	BK-2, M	MR	MP	TMP
ED 30 R	170-XXX	1-1/2	1-9/16	1-1/2	TGP, RKP, TFA	RTG, TER	PTG, TRP	TP
EDM 30 R	170-08	1	1-1/32	1-1/32	BKP	MR	MP	TMP

PDK-1 WIRELINE RETRIEVABLE DUMMY VALVE

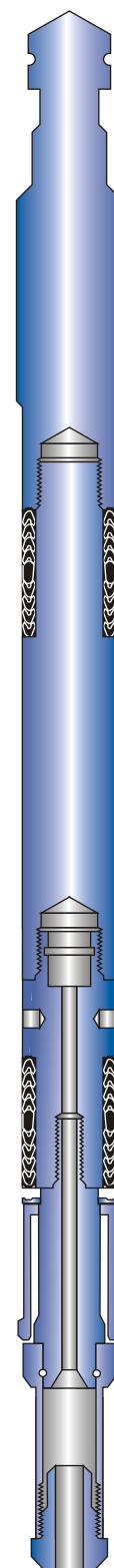
FUNCTION

The PARVEEN wireline Retrievable Dummy Valves (PDK -1) have 2 sets of packing which fit in the seal bore of side pocket mandrel and isolate the casing ports between tubing and casing annulus. In other words the valves are used to prevent communication between the tubing and the casing.

APPLICATION

These Valves are used in side pocket mandrel to provide a positive seal between casing - tubing annulus and to protect the mandrel seal bore until they are retrieved by standard wireline methods. When installed, the PDK-1 Dummy Valves eliminates unintentional placement of the other tools or debris in the mandrel pocket.

ENGINEERING DATA FOR WIRELINE RETRIEVABLE (PDK-1) DUMMY VALVES.								
Type	Assy. Number	Nominal O.D. (Inch)	Packing O.D. (Inch)		Latch or End Conn.	Running Tool Type	Pulling Tool Type	Mandrel Type
			Upper	Lower				
PDK - 1	170-09	1	1-1/32	1-1/32	Integral Bottom	GA - 2	MP	TMP



PDK-1



RETRIEVABLE PRODUCTION - PRESSURE OPERATED GAS LIFT VALVES

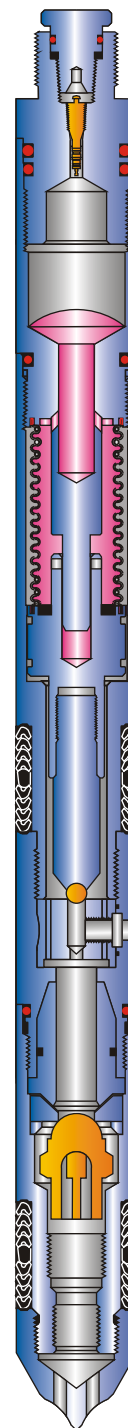
DESCRIPTION

Parveen wireline retrievable production pressure operated GLV's are used for continuous flow gas lift production. A nitrogen charged multiply monel bellow provides the force necessary to maintain valve in a normally closed position. This valve contains integral reverse flow check valve.

Port sizes available are 3/16", 1/4" & 5/16"

OPERATION

Production fluid enters the valve and acts on the effective bellow area. The production pressure necessary to compress the bellow is controlled by precharged nitrogen pressure. When production pressure overcomes the precharged nitrogen pressure in the bellow, the bellow is compressed and lifts the stem tip off the seat. Injection gas flows through the seat, past the reverse flow check valve and into the production conduit.



ENGINEERING DATA FOR RETRIEVABLE PRODUCTION-PRESSURE VALVE .								
Type	Assly Number.	Nominal O.D. (Inch)	Latch	Running Tool		Pulling Tool		Mandrel Series.
				Type	Assly No.	Type	Assly No.	
PR 5	160-40 XX-XXX -01	1.1/2	R, RA, RK.	RTG, TER	16927 11730	PTG, TRP	17048 11390	MM, MMA, MMG.

**PR-5
GAS LIFT VALVE**

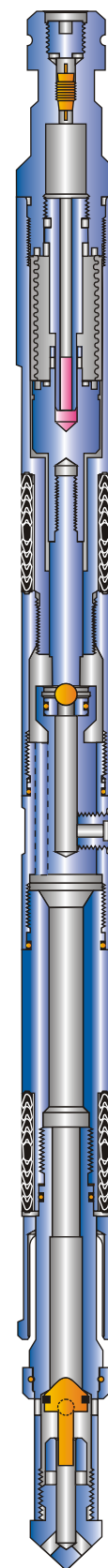
RETRIEVABLE PRODUCTION - PRESSURE OPERATED GAS LIFT VALVES

DESCRIPTION

PARVEEN 1" ODPBK-2 is retrievable, production pressure operated Gas Lift Valves which is used in continuous flow gas lift installations. The PBK-2 valve is bellow actuated with nitrogen gas which normally keep the valve in closed position. This valve is having integral reverse flow check valve crossover seat & floating seat. Port sizes available are 1/8", 3/16" and 1/4". Optional choke is also available with this type of valve which can be easily fitted to the external surface of the valve and can be easily removed. The valve can be installed in Parveen TMP series Side Pocket Mandrel & have an integral bottom latch which locks the valve in the side pocket mandrel. After locating the valve in the side pocket, downward jarring is required which causes the collet dogs of the latch to engage the locking recess provided at the bottom of the side pocket. Upward jarring is required to pull the valve. Upward jarring shear the brass shear pin securing the shear ring to the latch body. During upward pulling of the valve in the side pocket, the shoulder on the latch body moves out from behind the collet dogs. The collet fingers are deflected inward and disengage from the locking recess of the mandrel pocket. Then the valve will be free in the pocket of the mandrel and can be removed.

Production pressure enters through the valve nose and passed upward through cross over seat. The production pressure acts on the effective bellow area. As production pressure overcomes the pre-charged nitrogen pressure in the bellows, the bellow compressed and lifts the stem off the seat. The injection gas then flows through the seat, past the reverse flow check valve and into the production conduit. If the injection gas pressure in the casing & tubing annulus at valve depth falls below the valve set pressure, the valve is closed. Reverse flow through the valve is prevented by a check dart in the valve body.

ENGINEERING DATA FOR RETRIEVABLE PRODUCTION-PRESSURE OPERATED VALVES.								
Type	Assly Number.	Nominal O.D. (Inch)	Latch	Running Tool		Pulling Tool		Mandrel Series.
				Type	Assly No.	Type	Assly No.	
PBK-2	160-40 XX-XXX -01	1	Integral Bottom	MR-01	10336-01	MP	11361	TMP, KBM, KBMG, KBG.



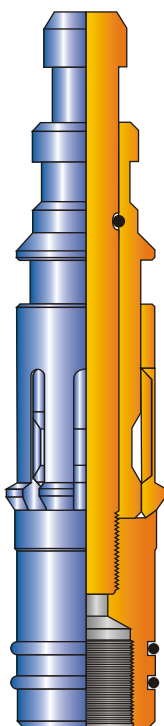
**PBK-2
GAS LIFT VALVE**

LATCHES

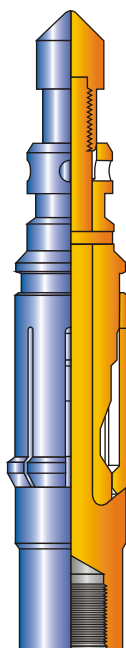
Latches are available in a wide range of designs for use with retrievable gas lift and circulation valves to be installed in side pocket mandrels. These latches are designed to be installed with a minimum of force, a feature very important in deviated wells where forceful downward jarring may be difficult. Side pocket mandrels feature two types of pocket latch profiles: the G-type which has a 180-degree eccentric latch ring profile with the no-go surface located near the lower end of the latch; and the A-type which has a 360 degree latch profile with the no-go surface above the locking mechanism. Latches used in each of these profiles are not interchangeable; however, valves and other flow control devices can be adapted from one profile to the other by selecting the correct latch.

1 ½ inch TG and 1 inch M Latches are designed for installation in G-type pocket mandrels. A set of collet type locking dogs are free to move up and into a recess in the locking mandrel as the latch engages the pocket profile. When an upward pull is exerted on the latch, the full diameter of the locking mandrel moves behind the dogs which locks them in the set position. To retrieve the valve and latch, an upward force is applied, which shears a pin. This action moves the locking the mandrel up, which frees the dogs to retract as the valve and latch are pulled.

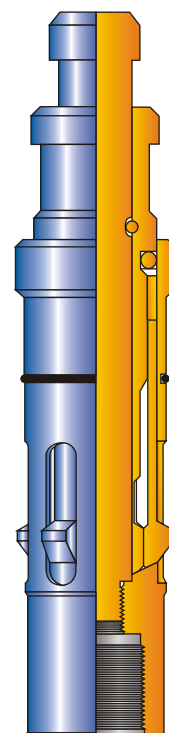
1 ½ inch T2 Latches are designed for installation in A-type pocket mandrels. They utilize a set of collet type locking dogs configured inside a slotted sleeve. As the latch enters the pocket, the dogs move up and into a recess the locking mandrel. After reaching the no-go position, an upward pull causes the dogs to move over the locking mandrel and lock into the pocket recess. To release the locking dogs, an upward force is applied which shears a pin, moving the locking mandrel up. The latch and valve are then free to be retrieved.



**1 1/2 - INCH
TG LATCH**



**1 - INCH
M LATCH**

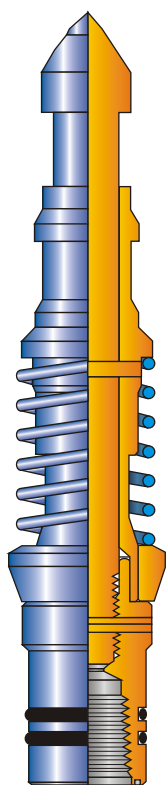


**1 1/2 - INCH
T2 LATCH**

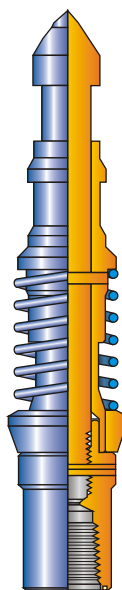
LATCHES

1 1/2 inch RK and 1 inch BK-2 Latches are designed for installation in G-type pocket profile side pocket mandrels. They utilize a locking ring which is held in position by spring force. As the latch enters the side pocket profile, the locking ring moves up and into the recessed area of the latch. When the latch seats, the ring is positioned in the locking recess of the pocket. To retrieve the latch, a pin is sheared by upward force allowing the locking ring mandrel to move up and out of the way. The ring is then freed to disengage from the locking recess as the valve and latch are retrieved.

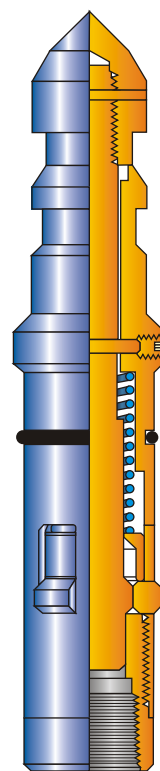
1 1/2 inch RM Latches are designed for installation in A-type pocket profile mandrel. They have a set of spring-loaded locking dogs designed to move up into a recessed area on the latch core when run into the latch profile of the mandrel. The valve is lowered into the pocket until the no-go shoulder is reached. The spring force moves the locking ring downward, forcing the dogs to move over and onto the large O.D. of the inner mandrel, thus locking the valve in place. To release the latch, a pin is sheared by upward force which allows the inner mandrel to move up and out of the way. The locking dogs are then free to return to the recess area as the latch and valve are retrieved.



**1 1/2 INCH
RK LATCH**



**1 1/2 INCH
BK - 2 LATCH**



**1 1/2 INCH
RM LATCH**

ENGINEERING DATA FOR LATCHES

Type	Part No.	Pulling Neck OD (inch)	Running Neck OD (inch)	Max OD (inch)	Side Pocket Accessory OD (inch)	Running Tool	Pulling Type
TG	230-1600-000-01	1.183	0.939	1.795	1.500	RK-1 / RTG	1-5/8 JDS / PTG
RK	230-1200-000-01	1.185	0.936	1.787	1.500	RK-1 / RTG	1-5/8 JDS / PTG
T2	230-0700-000-01	1.375	1.000	1.75	1.500	TER	2" JDC / SM / TRP
RM	230-3000-000-01	1.375	1.000	1.75	1.500	TER	2" JDC / SM / TRP
M	230-0200-000-01	0.875	0.750	1.335	1	MR	1-1/4 JDC / MP
BK-2	230-2400-000-01	0.875	0.750	1.358	1	MR / JK	1-1/4 JDC / MP
WFM	230-0400-000-01	0.875	0.750	1.335	1	MR/JK	1-1/4 JDC / MP



SIDE POCKET MANDREL

Parveen Side Pocket Mandrels allow use of standard wireline tools for installation and retrieval of different types of flow control devices.

MATERIALS :

Generally Low Alloy Steel AISI 4130 is used. For corrosive application, AISI 410 is used. Other materials are used as per customer's requirement.

FORGINGS :

Pockets & tool discriminators are closed die forged and are integral part of the pocket. Swages are forged from seamless mechanical tubing or it can be machined from solid bar stock. Forgings are made by using a precision closed die process. All forged parts are visually and dimensionally inspected by Quality Control before machining.

MACHINING :

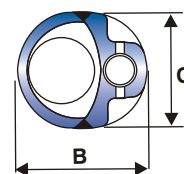
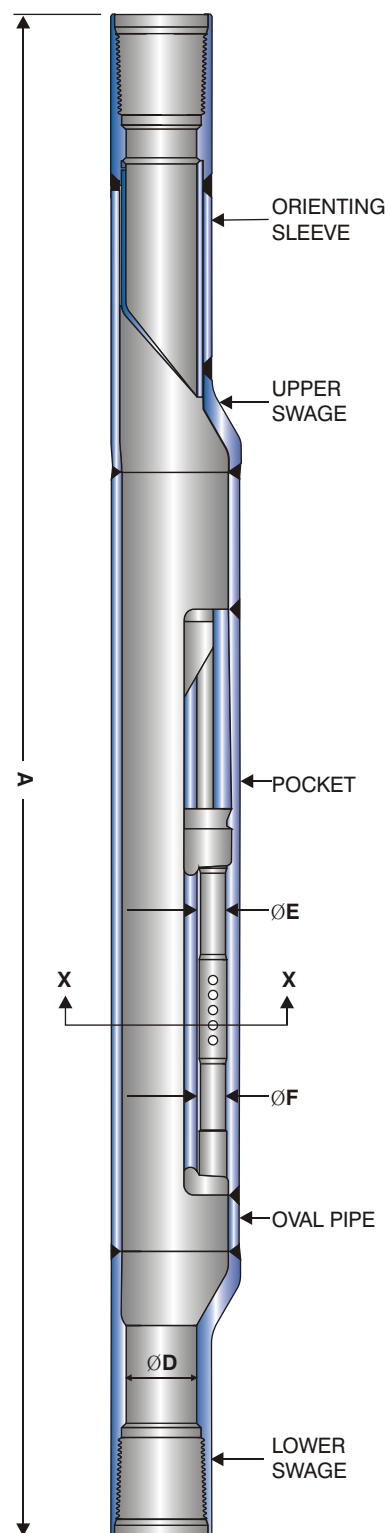
Pockets are machined using deep hole drilling & boring process that provides accurate polished bore diameters, alignment and better surface finish for packing seals. The swages are machined with precision accuracy. Threads are machined as per design specification. All components are dimensionally inspected.

WELDING HEAT TREATMENT :

Welding is done as per ASME Section VIII & IX with the use of proper welding electrodes. Full penetration welds take place when joining the swages and forged pocket are welded to the oval pipe. After welding, all external weld deposits are evenly ground down to match the outside profile. All mandrels are heat treated, Quenched & Tempered to 18-22 HRC, for corrosive service and 24-38 HRC for standard service application.

ASSEMBLED MANDREL :

After heat treatment and threading each mandrel is tested for hardness, internal and external drift and pressure test. Additional testing i.e. dye penetrant, ultrasonic, magnetic particle and radiography can also be provided as per customer requirement.



View- XX
TP Series Mandrel for
1-1/2" OD Valve (Welded Swages)



SIDE POCKET MANDREL

ENGINEERING DATA FOR SIDE POCKET MANDRELS

Tubing Size (Inch)	Valve OD (Inch)	Mandrel		Dimensions (Inch)							Assembly Part No.	
		Type	Shape	Length* A	Major OD B	Minor OD C	I.D ØD	Drift Dia	ØE	ØF	a.) With Welded Swages	b.) With Integral Swages
2-3/8	1.0	TMP	OVAL	83	4.25	2.92	2.00	1.901	1.027	1.027	a.) 238X1-D1901-SXXXX-XXW-X	b.) 238X2-D1901-SXXXX-XXI-X
2-3/8	1.5	TP	OVAL	102	4.75	4.00	2.00	1.901	1.6	1.5	a.) 238X2-D1901-SXXXX-XXW-X	b.) 238X1-D1901-SXXXX-XXI-X
2-7/8	1.0	TMP	OVAL	85	4.75	4.00	2.441	2.347	1.027	1.027	a.) 288X1-D2347-SXXXX-XXW-X	b.) 288X1-D2347-SXXXX-XXI-X
2-7/8	1.5	TP	OVAL	103	5.50	4.59	2.441	2.347	1.6	1.5	a.) 288X2-D2347-SXXXX-XXW-X	b.) 288X2-D2347-SXXXX-XXI-X
3-1/2	1.0	TMP	OVAL	85	5.31	4.12	2.992	2.867	1.027	1.027	a.) 350X1-D2867-SXXXX-XXW-X	b.) 350X1-D2867-SXXXX-XXI-X
3-1/2	1.5	TP	OVAL	104	6.06	5.00	2.992	2.867	1.6	1.5	a.) 350X2-D2867-SXXXX-XXW-X	b.) 350X2-D2867-SXXXX-XXI-X
4.0	1.0	TMP	OVAL	86	5.85	5.00	3.476	3.351	1.027	1.027	a.) 400X1-D3351-SXXXX-XXW-X	b.) 400X1-D3351-SXXXX-XXI-X
4.0	1.5	TP	OVAL	107	6.63	5.55	3.476	3.351	1.6	1.5	a.) 400X2-D3351-SXXXX-XXW-X	b.) 400X2-D3351-SXXXX-XXI-X
4-1/2	1.0	TMP	OVAL	86	6.45	5.50	3.958	3.833	1.027	1.027	a.) 450X1-D3833-SXXXX-XXW-X	b.) 450X1-D3833-SXXXX-XXI-X
4-1/2	1.5	TP	OVAL	107	7.03	5.625	3.958	3.833	1.6	1.5	a.) 450X2-D3833-SXXXX-XXW-X	b.) 450X2-D3833-SXXXX-XXI-X
5.0	1.5	TP	OVAL	116	7.94	6.80	4.408	4.283	1.6	1.5	a.) 500X2-D4283-SXXXX-XXW-X	b.) 500X2-D4283-SXXXX-XXI-X
5-1/2	1.0	TMP	OVAL	87	7.94	6.80	4.778	4.653	1.6	1.5	a.) 550X1-D4653-SXXXX-XXW-X	b.) 550X1-D4653-SXXXX-XXI-X
5-1/2	1.5	TP	OVAL	108	7.44	6.05	4.00	3.833	1.6	1.5	a.) 550X2-D3833-SXXXX-XXW-X	b.) 550X2-D3833-SXXXX-XXI-X
5-1/2	1.5	TP	OVAL	108	7.94	6.80	4.778	4.653	1.6	1.5	a.) 550X2-D4653-SXXXX-XXW-X	b.) 550X2-D4653-SXXXX-XXI-X
7.0	1.0	TMP	ROUND	90	8.25	8.25	6.184 **	6.059	1.027	1.027	a.) 700X1-D6059-SXXXX-XXW-X	b.) 700X1-D6059-SXXXX-XXI-X
7.0	1.5	TP	OVAL	117	9.38	8.38	6.184 **	6.059	1.6	1.5	a.) 700X2-D6059-SXXXX-XXW-X	b.) 700X2-D6059-SXXXX-XXI-X

SIDE POCKET MANDREL

TMP and TP Series Side Pocket Mandrel :

PARVEEN TMP and TP Series Side Pocket Mandrels are consisting of forged pocket with integral tool discriminator, oval pipe, swages and orienting sleeves. Its orienting sleeve allows precise and proper alignment during the insertion of positioning devices / tools into the side pocket. Forged tool discriminator guides the proper diameter side pocket devices/tools into the mandrel pocket and deflects larger tools into the tubing bore to prevent damage to the positioning devices/tools.

In Gas Lift applications, high pressure gas injected into the casing annulus flows through the ports of the pocket in the gas lift valve and into the tubing. The standard pocket is ported between the seal bores to communicate with the casing annulus and the gas is circulated down the annulus through the gas lift valve into the tubing. These mandrels are used for tubing flow applications.

Both TMP and TP series feature multiple porting variations for specific applications i.e. annulus flow, chamber lift, fluid injection water flood installations.

TMP and TPC Series Side Pocket Mandrel :

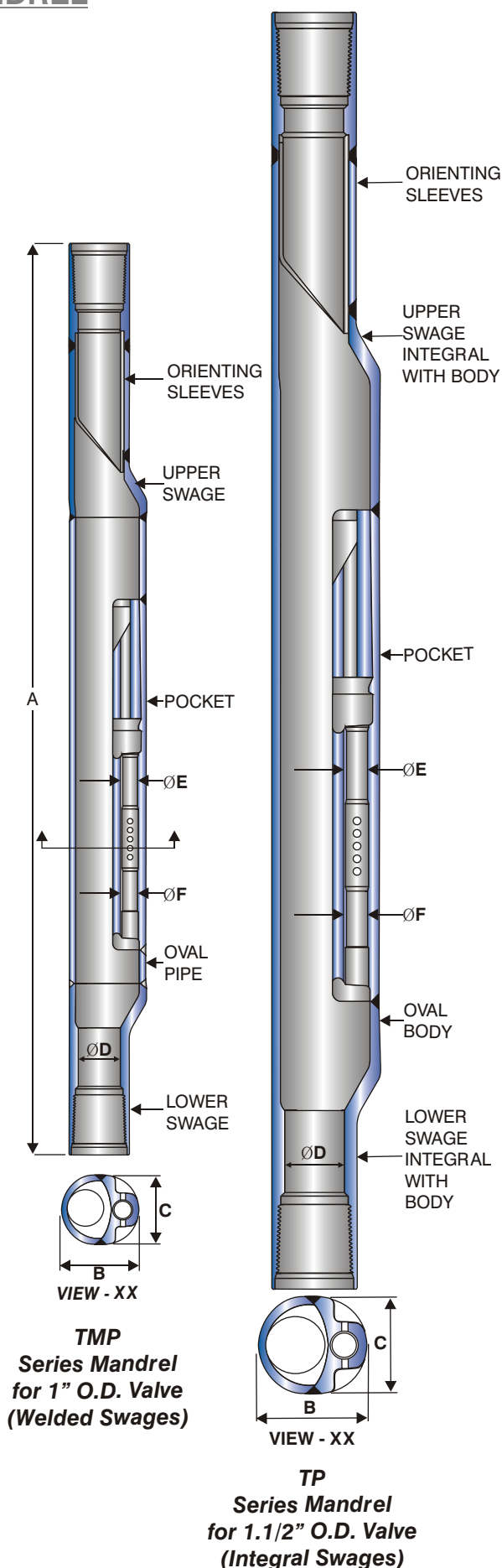
These mandrels are used in annulus flow applications in which a snorkel functions as an exhaust port. Snorkel located at the bottom of the side pocket, extends downward into casing annulus. The holes in the mandrel side pocket directly communicate with the tubing. High pressure gas injected into the tubing flows thru the port between the packing bores into the pocket of the mandrel, then thru the ports into the gas lift valve, downward through the snorkel and then finally into the casing.

TMPE and TPE Series Side Pocket Mandrel :

These mandrels mainly used in chamber lift applications. It has no ports in the side pocket for communication with the tubing. Instead of that, an exhaust port is located at the bottom of the side pocket. This port is extended downward into the casing annulus through a 1/2" pipe connected to the top packer of a chamber lift installation. In gas lift application, high pressure gas is injected into the casing annulus flows through the ports in the side of the mandrel, then through the ports in the gas lift valve and finally downward to the exhaust port.

TMPS and TPS Series Side Pocket Mandrel :

These mandrels are used in single string, multi zone fluid injection water flood installations. The casing exhaust port located at the bottom of the side pocket is used to protect the casing from high velocity turbulence related with water flooding. In water flood operations, water injected into the tubing flows into the mandrel side pocket, thru the water flood flow regulator valve and downward through the exhaust port. A non retrievable check valve can be attached directly to the exhaust port to prevent back flow from the annulus when the water flood regulator valve is removed.





SIDE POCKET MANDREL

PRESSURE RATING FOR SIDE POCKET MANDRELS								
Tubing Size (Inch)	Valve OD (Inch)	Mandrel Type	Weight Lbs - F* (Kg - F)	Volume (Cubic Ft.)	Test Pressure (PSI)*			
					Standard Services		Corrosive Services	
					Internal	External	Internal	External
2-3/8	1.0	TMP	75.0 (34)	0.47	8000	7000	6000	5500
2-3/8	1.5	TP	130 (59)	0.88	7500	6500	6000	5000
2-7/8	1.0	TMP	121.25 (55)	0.73	8000	7000	6000	5500
2-7/8	1.5	TP	180.77 (82)	1.18	7500	6500	6000	5000
3-1/2	1.0	TMP	150.00 (68)	0.84	8000	6500	6000	5000
3-1/2	1.5	TP	209.4 (95)	1.43	8000	6500	7000	5500
4.0	1.0	TMP	205.0 (92)	1.14	8000	6500	7000	5500
4.0	1.5	TP	236.0 (107)	1.78	8000	6500	7000	5500
4-1/2	1.0	TMP	216.0 (98)	1.38	7500	6000	6000	5000
4-1/2	1.5	TP	242.5 (110)	1.92	7500	6000	6000	5000
5.0	1.5	TP	310.8 (141)	2.84	8500	7000	6500	5500
5-1/2	1.0	TMP	262.3 (119)	2.13	7500	6000	6000	5000
5-1/2	1.5	TP	291.0 (132)	2.20	7500	6000	6000	5000
5-1/2	1.5	TP	297.6 (135)	2.64	8500	7000	6500	5500
7.0	1.0	TMP	405.6 (184)	2.8	7000	5500	5000	4500
7.0	1.5	TP	452.0 (205)	4.17	7000	5500	5000	4500

NOTES:

- * Test Pressures given are for mandrels made of AISI-4130 materials heat treated for standard or corrosive environments. Test Pressures may be reduced due to end connection limitations.
- ** Weight and Length may vary depending upon end connection etc.
- *** For 7" TMP & TP Series other drift sizes can also be provided upon request.

CONVENTIONAL MANDRELS

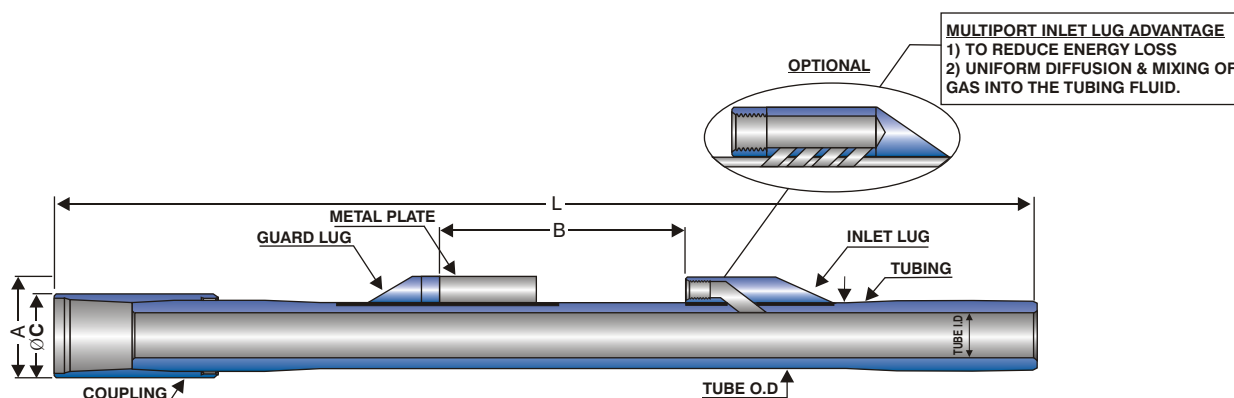
INTRODUCTION

PARVEEN manufactures both standard as well as high strength conventional mandrels. These are designed for single-string installations and generally used in injection pressure operated tubing flow applications.

Mandrels for gas lift valves have two-fold function - first, they provide a convenient fitting on which to install a gas lift valve as an integral part of a tubing string and second, these help pass the gas through the valves in the proper direction. All mandrels are constructed to perform these functions with maximum reliability. After the machining and welding operations are completed, all mandrels are pressure tested and checked for alignment and drift I.D. Internal, external or complete plastic coating is available for protection from corrosion or paraffin accumulation.

CONVENTIONAL MANDREL - SERIES 12 (Model : PCM-12)

Series 12 Mandrels are designed to receive any valve with a ½" NPT inlet lug connection, a maximum OD of 1-1/16", and a maximum length of 17.1/8". Many tubing sizes, thread types and grades are available. Only the more popular grades and sizes are listed below.



SPECIFICATION OF STANDARD CONVENTIONAL MANDREL SERIES 12 (Model : PCM-12)

Nominal Tube Size (inch)	Type Thread	OD of Tube (inch)	Weight (PPF)	ID of Tube (inch)	A Max. (inch)	B (inch)	L (ft.)	Approx Weight (Lbs-f)	Coupling OD ϕ C (inch)	Assembly Part no. Material Grade API-N-80
2-3/8	EUE, 8RD	2-3/8	4.7	1.995	3.920	17-1/8	4	24.5	3.063	4C0-0601-100-00
2-3/8	EUE, 8RD	2-3/8	4.43	1.995	3.825	17-1/8	4	23.5	2.91	4C0-0601-100-01
2-3/8	NUE, 10RD	2-3/8	4.6	1.995	3.840	17-1/8	4	23.8	2.875	4C0-0602-100-00
2-7/8	EUE, 8RD	2-7/8	6.5	2.441	4.490	17-1/8	4	34.0	3.668	4C0-0701-100-00
2-7/8	EUE, 8RD	2-7/8	6.0	2.441	4.330	17-1/8	4	32.0	3.460	4C0-0701-100-01
2-7/8	NUE, 10RD	2-7/8	6.4	2.441	4.400	17-1/8	4	33.9	3.5	4C0-0702-100-00
3-1/2	EUE, 8RD	3-1/2	9.3	2.992	5.125	17-1/8	4	42.0	4.5	4C0-0801-100-00

ORDERING INFORMATION

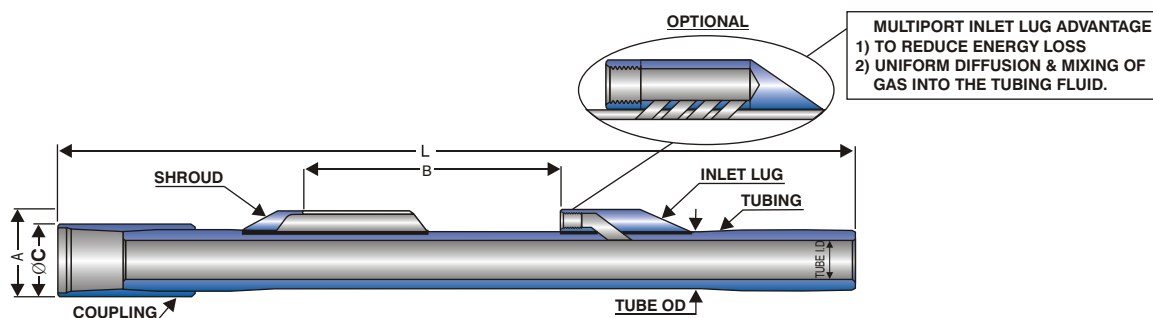
- Determine the type of mandrel required based on the casing and tubing sizes and the type gas lift valve being used to the application.
- Specify tubing size, thread and grade required for the application.
- Valve adapters and/or thread adapters are sometimes required. Please include these when applicable.

CONVENTIONAL MANDRELS

CONVENTIONAL MANDREL - SERIES 12 (MODEL : PCM-12S)

Series 12 Mandrels are designed to receive any valve with a ½" NPT inlet lug connection, a maximum OD of 1-1/16", and a maximum length of 17.1/8". Many tubing sizes, thread types and grades are available. Only the more popular grades and sizes are listed below. These Mandrels use shroud instead of Grand Lug & Metal Plate.

Nominal Tube Size (inch)	Type Thread	OD of Tube (inch)	Weight (PPF)	ID of Tube (inch)	A Max. (inch)	B (inch)	L (ft.)	Approx Weight (Lbs-f)	Coupling OD ϕC (inch)	Assembly Part no. Material Grade API-N-80
2-3/8	EUE, 8RD	2-3/8	5.45	1.995	3.920	17-1/8	4	27.5	3.063	4C0-1601-100-00
2-3/8	EUE, 8RD	2-3/8	5.18	1.995	3.825	17-1/8	4	26.5	2.91	4C0-1601-100-01
2-3/8	NUE, 10RD	2-3/8	5.35	1.995	3.840	17-1/8	4	26.8	2.875	4C0-1602-100-00
2-7/8	EUE, 8RD	2-7/8	7.25	2.441	4.490	17-1/8	4	37.0	3.668	4C0-1701-100-00
2-7/8	EUE, 8RD	2-7/8	6.75	2.441	4.330	17-1/8	4	35.0	3.460	4C0-1701-100-01
2-7/8	NUE, 10RD	2-7/8	7.15	2.441	4.400	17-1/8	4	36.9	3.5	4C0-1702-100-00
3-1/2	EUE, 8RD	3-1/2	10.05	2.992	5.125	17-1/8	4	45.0	4.5	4C0-1801-100-00



CONVENTIONAL MANDRELS - SERIES 15 (MODEL : PCM-15)

Series 15 Conventional MANDRELS are designed to receive any valve with a ½" NPT inlet lug connection, a maximum OD of 1- ½" and a maximum length of 29". Many tubing sizes, thread types, and grades are available. Only the more popular grades and sizes are listed below.

Nominal Tube Size (inch)	Type Thread	OD of Tube (inch)	Weight (PPF)	ID of Tube (inch)	A Max. (inch)	B (inch)	L (ft.)	Approx Weight (Lbs-f)	Coupling OD ϕC (inch)	Assembly Part no. Material Grade API-N-80
2-3/8	EUE, 8RD	2-3/8	4.7	1.995	4.577	29	4	27	3.063	4C2-3601-100-00
2-3/8	EUE, 8RD	2-3/8	4.43	1.995	4.375	29	4	26	2.91	4C2-3601-100-01
2-3/8	NUE, 10RD	2-3/8	4.60	1.995	4.484	29	4	26.4	2.875	4C2-3602-100-00
2-7/8	EUE, 8RD	2-7/8	6.50	2.441	5.130	29	4	36.5	3.668	4C2-3701-100-00
2-7/8	NUE, 10RD	2-7/8	6.40	2.441	5.046	29	4	36.3	3.50	4C2-3702-100-00
3-1/2	EUE, 8RD	3-1/2	9.30	2.992	5.859	29	4	44.5	4.50	4C2-3801-100-00
3-1/2	NUE, 10RD	3-1/2	8.98	2.992	5.734	29	4	43.6	4.25	4C2-3802-100-00

NOTE:

Using 2-3/8" EUE,8RD tubing inside 4-1/2" casing. The mandrel contains a shroud to provide valve protection.

HIGH STRENGTH CONVENTIONAL MANDRELS

PARVEEN has been manufacturing high strength conventional mandrels. Their round exterior design makes them easy to rotate in difficult situations & perform easier washover operations. These mandrels exceed N-80 tubing strength.

PARVEEN'S high strength mandrels have the benefit of:

1. Can with stand pull load of over 60 Metric Tones.
2. Tested hydraulically to 8000 PSI.
3. Tapered lugs to provide easy running.
4. Bore size to match with tubing specifications.

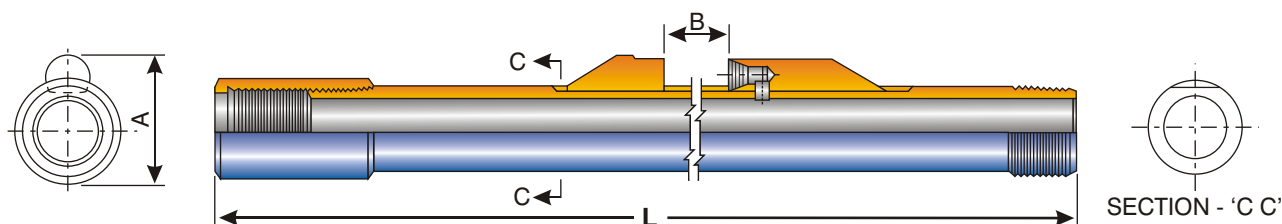
These mandrels come in 2 series.

Series 500: These are designed to receive any valve with ½" NPT inlet lug connection and a maximum OD of 1-1/16".

Series 502: These are designed to receive any valve with ½" NPT & a maximum OD of 1-1/2".

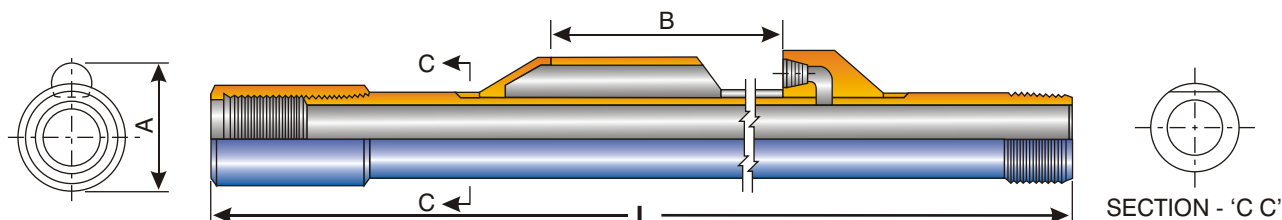
All above series are available in many tubing size, thread size & grades, only the more popular sizes are listed below.

HIGH STRENGTH CONVENTIONAL MANDREL - SERIES 500 (Model: PHSCM-500)



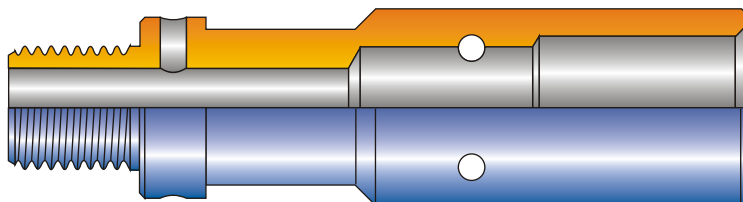
Nominal Tube Size (inch)	Type Thread	OD of Tube (inch)	ID of Tube (inch)	A Max. (inch)	B (inch)	L (ft.)	Approx Weight (lbs.-f)	Coupling OD (inch)	Assembly Part no. Material Grade API N-80
2-3/8	EUE, 8RD	2.594	1.995	3.920	17-1/8	4	33.0	3.063	500-0601-100-00
2-3/8	EUE, 8RD	2.594	1.995	3.825	17-1/8	4	32.0	2.91	500-0601-100-01
2-7/8	EUE, 8RD	3.094	2.441	4.490	17-1/8	4	40.5	3.668	500-0701-100-00
2-7/8	EUE, 8RD	3.094	2.441	4.330	17-1/8	4	38.5	3.460	500-0701-100-01

HIGH STRENGTH CONVENTIONAL MANDREL - SERIES 502 (Model: PHSCM-502)



Nominal Tube Size (inch)	Type Thread	OD of Tube (inch)	ID of Tube (inch)	A Max. (inch)	B (inch)	L (ft.)	Approx Weight (Lbs.-f)	Coupling OD (inch)	Assembly Part no Material Grade API - N80
2-3/8	EUE, 8RD	2.594	1.995	4.577	29	4	35.5	3.063	502-3601-100-00
2-3/8	EUE, 8RD	2.594	1.995	4.375	29	4	34.5	2.91	502-3601-100-03
2-7/8	EUE, 8RD	3.094	2.441	5.130	29	4	43.0	3.668	502-3701-100-00

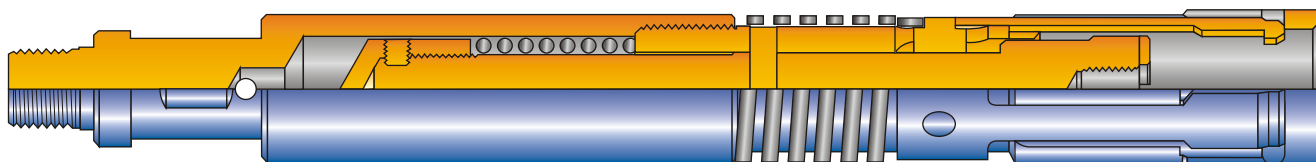
RUNNING, PULLING TOOLS



Running Tools

PARVEEN Manufactures Wireline Running Tools used to install latches and valves, MR, RTG and TER running tools are used to install appropriate latches with valves in side pocket mandrels.

ENGINEERING DATA FOR RUNNING TOOLS					
TYPE	ASSEMBLY NUMBER	MAX OD. (INCH)	FISHING NECK O.D. (INCH)	PIN THREAD	USED TO RUN
MR	10336	1.370	1.370	15/16-10	BK-2, M, WFM LATCH
RTG	16927	1.430	1.188	15/16-10	RK, TG LATCH
TER	11730	1.750	1.372	15/16-10	T-2, RM LATCH

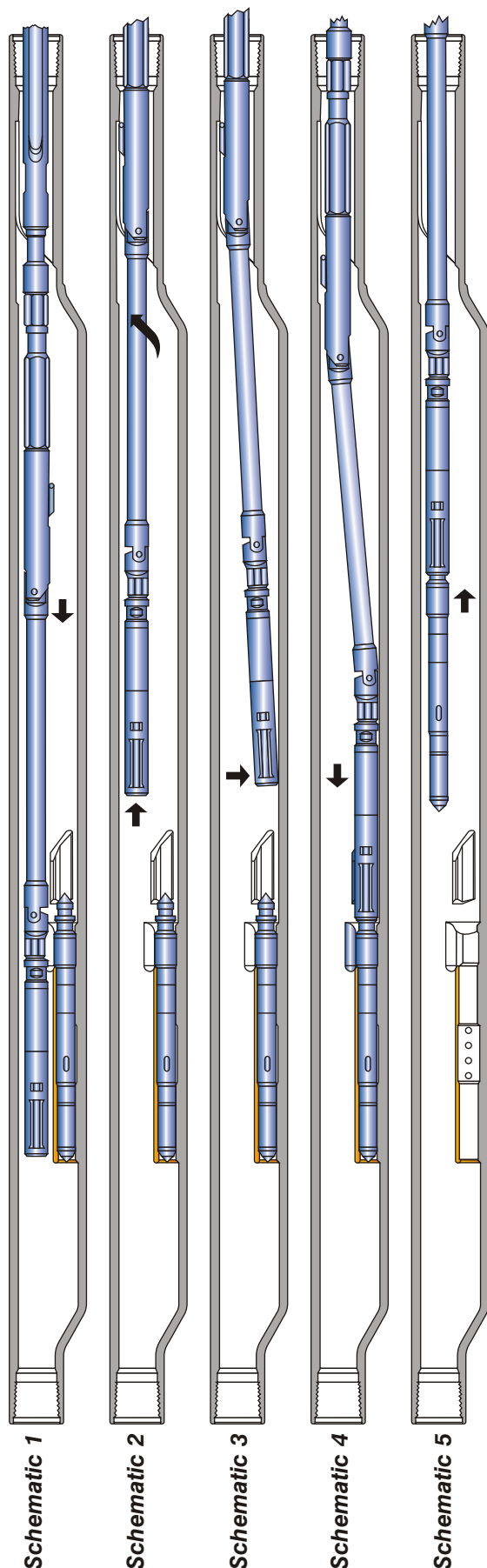


Pulling Tools

MP, PTG, TRP Pulling tools are designed to retrieve 1" and 1-1/2" OD Gas lift valves with latches. It features the collect type dogs with large shear area and it will withstand repeated impacts with long life on the dogs. Jar down will cause the dogs to release from the pulling head of the latch.

ENGINEERING DATA FOR PULLING TOOLS				
TYPE	ASSEMBLY NUMBER	MAX OD. (INCH)	FISHING NECK O.D. (INCH)	PIN THREAD
MR	11361	1.291	1.188	15/16-10 TPI
PTG	17048	1.625	1.188	15/16-10 TPI
TRP	11390	1.859	1.375	15/16-10 TPI

HD TP POSITIONING TOOLS



Wireline Positioning Tools are designed to provide selective location of the mandrel when there are two or more mandrels installed in a well. The tool orients in the proper position, and offsets the valve (or pulling tool) into position over the pocket for setting or retrieving.

BENEFITS OF DESIGN PRINCIPLE

- Spring-loaded trigger key is guided to a stop in the mandrel's positioning sleeve, which provides positive weight increase to the operator.
- There is only one brass shear pin in the assembly which is replaced easily after each wire line run. The pin can be replaced with the tool projecting from the lubricator.
- Large bypass flow area, both internal and external, reduces swabbing effect during setting or pulling operations.
- The tool is locked in the in-line position, which prevents it from accidentally kicking over and dragging on the tubing walls during insertion and withdrawal. The tool is locked in the offset position for positive pocket locating when inserting or retrieving the valve.

OPERATING PRINCIPLE

Schematic 1 - The tool is run below the mandrel. Since the tool is locked in a rigid position, it is designed not to kick over accidentally.

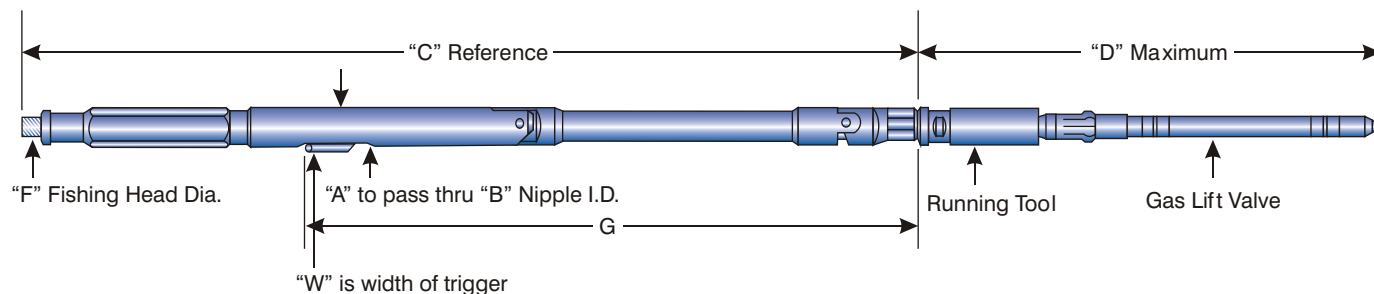
Schematic 2 - The tool is raised until its key engages the sleeve in the mandrel. Continued upward movement rotates the tool until its key enters a slot. When the key reaches the top of the slot, the operator is notified by a weight increase displayed on the weight indicator. The tool is now properly oriented.

Schematic 3 - The pivot arm is designed to swing out and lock in position due to additional pull. This action locates the valve or pulling tool above the pocket or latch on the gas lift valve.

Schematic 4 - The mandrel is designed to guide the valve or pulling tool to accurately land the valve or engage the latch on the valve.

Schematic 5 - A straight, upward pull shears a pin when the key reaches the top of the slot. This action allows the trigger to guide freely out of the slot and through the tubing. When the pivot arm reaches the small upper section of the mandrel, it is designed to snapback and lock into its vertical running position, reducing drag on the tool and valve as it is removed.

HD-TP/HD-TMP POSITIONING TOOLS

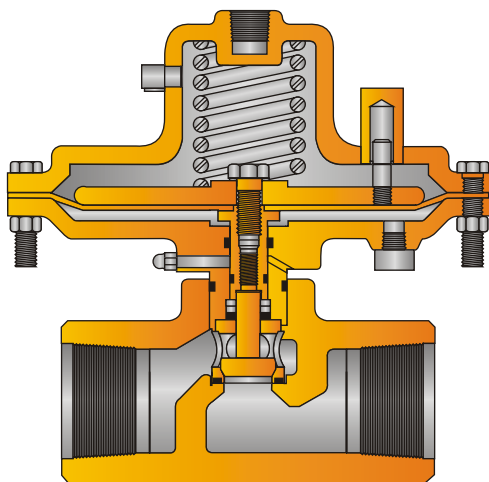


The HD Tools have identical running & pulling procedure as the standard tools.

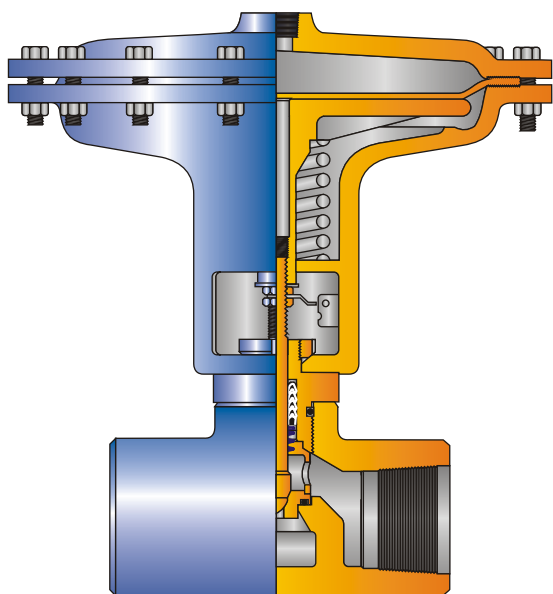
ENGINEERING DATA FOR HD-TP/HD-TMP POSITIONING TOOLS

TOOLS	A	B	G	W	C	F	D	PART NUMBER
2.3/8 HD TMP	1.855	1.875	25.73	.55	38.00	1.375	20.50	375-1000-110-00
2.7/8 HD TMP	2.280	2.313	25.88	.55	38.00	1.375	20.50	375-1000-110-00
3.1/2 HD TMP	2.730	2.750	25.57	.55	39.25	1.375	20.50	375-2000-110-00
4.0 HD TMP	3.292	3.313	25.79	.55	40.44	1.750	20.50	375-3000-110-00
4.1/2 HD TMP	3.725	3.750	26.82	.55	40.44	1.750	20.50	375-4000-110-00
2.3/8 HD TP	1.855	1.875	24.22	.55	48.10	1.375	33.00	375-0100-210-00
2.7/8 HD TP	2.280	2.313	24.47	.55	48.57	1.375	33.00	375-1000-210-00
3.1/2 HD TP	2.730	2.750	24.27	.55	46.00	1.375	33.00	375-2000-210-00
4.0 HD TP	3.290	3.310	24.22	.55	38.96	1.750	33.00	375-3000-210-00
4.1/2 HD TP	3.725	3.750	25.80	.55	41.44	2.312	33.00	375-4000-210-00
5.0 HD TP	4.250	4.280	25.80	.55	47.00	2.312	33.00	375-5000-210-00
5.1/2 HD TP	4.480	4.500	27.70	.55	49.00	2.312	33.00	375-6000-210-00

SURFACE FLOW CONTROLS MOTOR VALVES



MOTOR VALVE - MV 40



MOTOR VALVE - MV 60

PARVEEN offers two basic motor valve designs, the MV-40 and the MV-60. Both models are pneumatically operated valves for use in time cycle controllers, dump valves for oil and gas separators, pressure vessels, and storage tanks; and various wellhead and process control applications.

The MV-40 is an economical motor valve designed for applications where the maximum working pressure does not exceed 3,000 pounds per square inch. The MV-60 is specified for service up to 4,000 pounds per square inch working pressure. Both models are available in 1 in. or 2 in. body size, angle or through configuration with welded, flanged, or threaded ends.

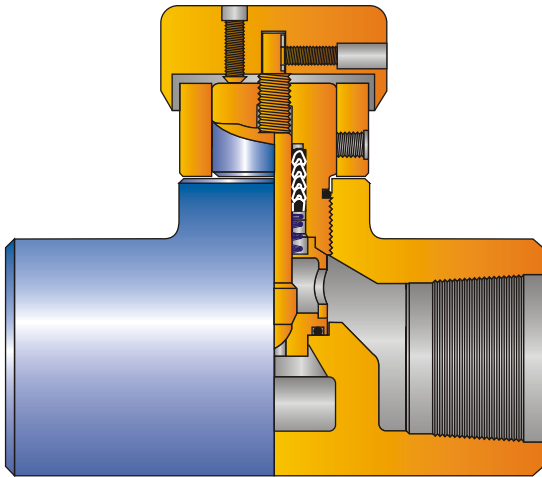
The standard trim material is stainless steel but optional hard chrome or tungsten carbide may be ordered for more severe service. Four sizes of trim are available - 1/4 in., 1/2 in., 3/4 in., or 1 in. Both MV-60 and the MV-40 may be operated as either pressure open or pressure close. The valve, seat and packing may be replaced without removing the body from the line or without disassembling the diaphragm section.

ENGINEERING DATA FOR MV SERIES MOTOR VALVES

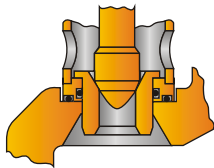
Type	Assembly Number	Maximum Working Pressure	Connecting Thread (in - TPI)		Trim Size (inches)	Area (Sq. inch)	Diaphragm Maximum Working Pressure (psi)
			Inlet	Outlet			
MV-60	610	4,000	2-11.1/2 LP	2-11.1/2 LP	1/4-1	72	60
MV-40	650	3,000	2-11.1/2 LP	2-11.1/2 LP	1/4-1	54	60



SURFACE FLOW CONTROLS FCV SERIES **FLOW CONTROL VALVES**



FCV FLOW CONTROL VALVE

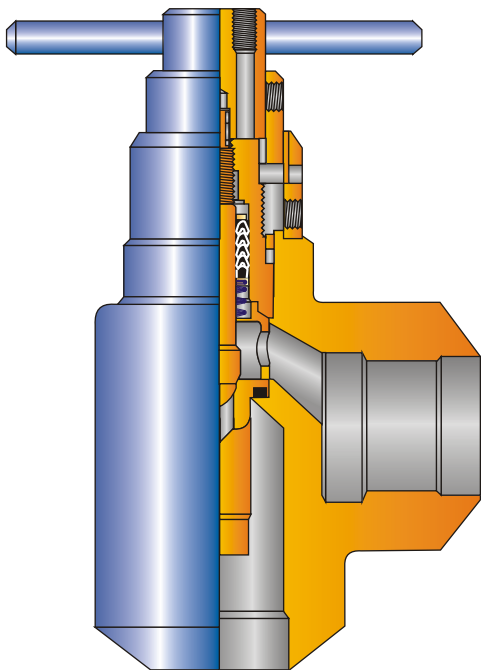


**OPTIONAL REVERSE
FLOW CHECK SEAT**

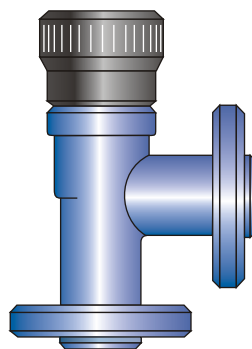
PARVEEN FCV Series Flow Control Valves are manually adjusted valves designed to provide repeatable settings. Available in 1 and 2-inch body sizes and a wide range of bodies and trim configurations, these valves feature an adjustable handwheel calibrated in sixty-fourths of an inch, and Teflon packing for positive seal and minimum maintenance. Threaded connections are rated for 5000 psi, socket weld at 3600 psi and butt weld at 5000 psi. They are designed to operate in any position and to resist the effects of vibration on the selected setting. Their construction allows easy inspection or replacement of internals without removing the valve from the line. Type 316, 410 or duplex - stainless steel bodies, and stainless steel handles and indicator rings are available for corrosive service.

Valve trims and seats are available in 1/8, 1/4, 1/2 or 3/4-inch sizes in stainless steel, hard chrome or tungsten carbide materials.

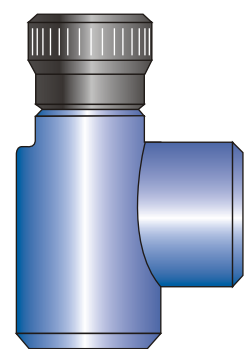
PARVEEN FCVT High Temperature Flow Control Valves are designed for steam injection or other high temperature gas or liquid service. Rated at 3500 psi working pressure at 700°F, these 2 inch angle body valves feature 1/4, 1/2 or 3/4 inch stainless steel, hard chrome or tungsten carbide long throat trim and high temperature packing. The high temperature configuration is also available in an adjustable choke valve model (ACVT -5). This valve series is also available with flanged end connections.



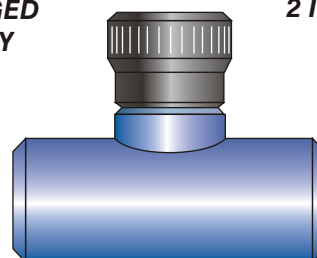
**FCVT HIGH TEMPERATURE
FLOW CONTROL VALVE**



**1 INCH FLANGED
ANGLE BODY**



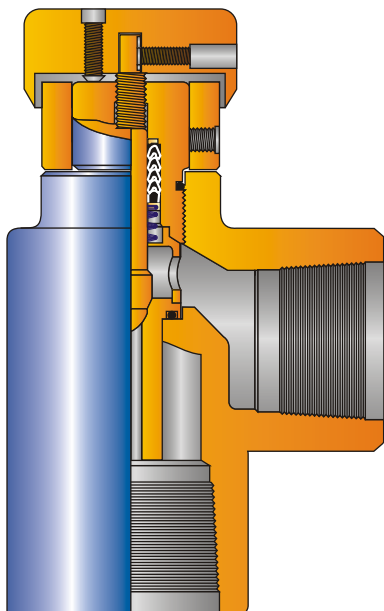
**2 INCH THREADED
ANGLE BODY**



2 INCH THROUGH BODY

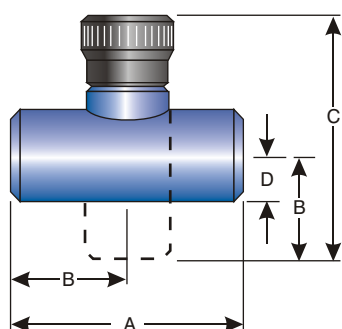
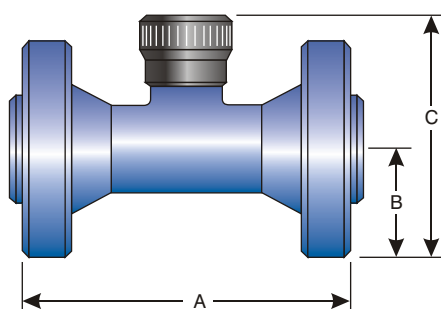
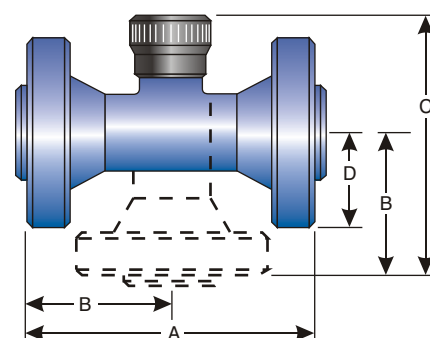


SURFACE FLOW CONTROLS WFC SERIES WATERFLOOD CONTROL VALVES

**WFC WATERFLOOD VALVE**

PARVEEN WFC Waterflood Control Valves are designed specifically for waterflood applications. They are available in either 1 or 2-inch angle body configurations with threaded, butt weld or flanged connections. This design contains a long throat seat to control the turbulence and erosion associated with liquid service. Standard features of this valve include the adjustable hand wheel calibrated in sixty-fourths of an inch and Teflon packing for positive seal and minimum maintenance. An optional feature is the availability of a secondary positive choke bean for high-pressure differentials. This feature is designed for a 60% and 40% pressure drop across the primary and secondary controls respectively.

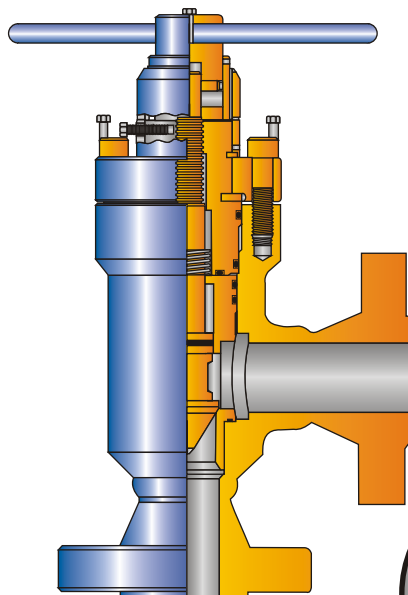
Stainless steel, hard chrome or tungsten carbide trims are available in 1/8, 1/4, 1/2 and 3/4 inch sizes. The long throat seat, stainless steel handle and indicator ring are standard.

**FCV - WFC****FCV - FLANGED****FCV - 2X****DIMENSIONAL DATA FOR FCV, WFC AND FCV-2X**

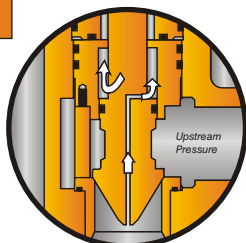
Dimensional Data for FCV, WFC and FCV-2X															
End Connection	Dimensions (Inches)												Approximate Weight in Lbs.		
	A			B			C			D					
Type / Size	1	2	2X	1	2	2X	1	2	2X	1	2	2X	1	2	2X
Screwed	6.30	7.80		2.95	3.90		7.90	8.81		1.06	1.72		10	20	
Butt Weld	5.00	6.75		2.50	3.37		7.45	8.65		1.06	1.72		10	20	
Socket Weld	5.12	6.75		2.56	3.37		7.51	8.65		1.06	1.72		10	20	
Series 150 RF		9.00			4.50			9.78			3.00			32	
Series 300 RF		10.00		5.00				10.28			3.25			32	
Series 600 RF	8.50	11.50	11.50	4.25	5.75	5.75	9.20	11.03	9.65	2.44	3.25	3.25	18	40	34
Series 600 RJ	8.50	11.62	11.62	4.25	5.81	5.81	9.20	11.09	9.71	2.44	3.25	3.25	18	40	34
Series 1500 RF	10.00	14.50		5.00	7.25		9.95	12.53		2.94	4.25		30	70	
Series 1500 RJ	10.00	14.62		5.00	7.31		9.95	12.59		2.94	4.25		30	70	
Series 900 RF	10.00	14.50	14.50	5.00	7.25	7.25	9.95	12.53	11.25	2.94	4.25	4.25	30	70	
Series 900 RJ	10.00	14.62	14.62	5.00	7.31	7.31	9.95	12.59	11.21	2.94	4.25	4.25	30	70	90
API 3000		14.62			7.31			12.59			4.25			70	
API 5000		14.62			7.31			12.59			4.25			70	



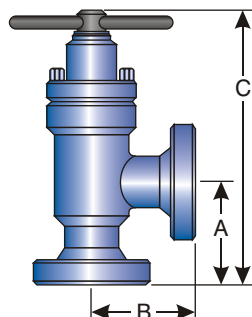
SURFACE FLOW CONTROLS ACV SERIES ADJUSTABLE CHOKE VALVES



**ACV -12 ADJUSTABLE
CHOKE VALVE**



SEMI-BALANCED STEM FEATURE



PARVEEN ACV Adjustable Choke Valves have wide applications in oil, gas and water service. Three body sizes are available to allow proper matching of the choke to the expected flow rate. Maximum working pressure of up to 5000 psi are standard on ACV8 and ACV-12 Valves, with higher pressures available on ACV-5 Valves. Easily read indicator ring calibrated in sixty-fourths of an inch is designed to provide accurate flow control. Bubble tight seal of stem is provided by a spring-loaded Teflon packing design.

Valve and seat replacement without removal of the valve body from the line is accomplished by simply removing the bonnet, which requires no special tools. The seat can then be removed by hand.

All valves in this series may be equipped with either an electric or pneumatic actuator to meet installation requirements.

ACV-12 Series Valves feature a 3-inch maximum port and a semi balanced stem design to reduce the torque required to open the valve when high pressure differentials exist.

ACV-8 Series Valves feature a 2-inch maximum port and offer an optional positive choke seat for high differential pressures.

ACV-5 Series Valves feature an 1 1/4 -inch maximum port size.

All valves in this series are available with API or ANSI flanges or with socket weld, butt weld or threaded connections.

ACV-12 DIMENSIONAL DATA Available with 1 1/2, 2 or 3-inch trim.

Body Style	Maximum Working Pressure (psi)	4-Inch			6-Inch		
		Inches A&B	Inches C	Approx. Wt. in Lbs.	Inches A&B	Inches C	Approx. Wt. in Lbs.
Series 600 RF	1480	8.50	26.69	299	11.00	29.19	371
Series 600 RJ	1480	8.56	26.75	299	11.06	29.25	371
Series 900 RF	2220	9.00	27.19	327	12.00	30.19	445
Series 900 RJ	2220	9.06	27.25	327	12.06	30.25	445
Series 1500 RF	3701	10.75	28.94	363	13.87	32.06	553
Series 1500 RJ	3705	10.81	29.00	363	14.00	32.19	553
Series 2500 RF	5000	13.25	31.44	517	18.00	36.19	981
Series 2500 RJ	5000	13.44	31.63	517	16.25	34.44	981
API 2000	2000	8.56	26.75	299	11.06	29.25	371
API 3000	3000	9.06	27.25	327	11.25	29.44	445
API 5000	5000	10.81	29.00	363	12.63	30.82	553

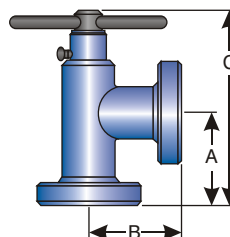
C _v Values Flow Coefficient at Maximum Settings	
Model & Trim Size	C _v Maximum
ACV-5	
3/4 - inch	19.3
1 - inch	28.0
1 1/4 - inch	35.0
ACV-8	
1 - inch	30.8
1 1/2 - inch	61.5
2 - inch	85.8
ACV-12	
2 - inch	124
3 - inch	285



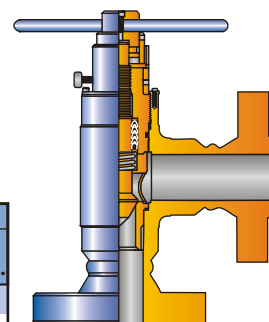
SURFACE FLOW CONTROLS ACV SERIES ADJUSTABLE CHOKE VALVES

ACV-8 DIMENSIONAL DATA

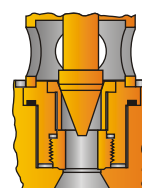
Available with 1, 1 1/2 or 2 - inch trim



Body Style	Maximum Working Pressure (psi)	2 1/2-Inch			3-Inch			4-Inch		
		Inches A&B	Inches C	Approx. Wt. in Lbs.	Inches A&B	Inches C	Approx. Wt. in Lbs.	Inches A&B	Inches C	Approx. Wt. in Lbs.
Threaded	3000	5.00	15.19	60	5.00	15.19	70	5.44	15.63	80
Socket Weld	3600	5.00	15.19	60	5.00	15.19	70	5.44	15.63	80
Butt Weld 160	5000	5.00	15.19	60	5.00	15.19	70	5.44	15.63	80
Series 600 RF	1480	6.5	16.69	88	7.00	17.19	106	8.50	18.69	154
Series 600 RJ	1480	6.56	16.75	88	7.07	17.26	106	8.56	18.75	154
Series 900 RF	2220	8.25	18.44	132	7.50	17.69	128	9.00	19.19	182
Series 900 RJ	2220	8.31	18.50	132	7.57	17.76	128	9.06	19.25	182
Series 1500 RF	3705	8.25	18.44	132	9.25	19.44	166	10.36	20.55	218
Series 1500 RJ	3705	8.31	18.50	132	9.32	19.51	166	10.46	21.65	218
Series 2500 RF	5000	10.00	20.19	164	11.37	21.56	258	13.25	23.44	372
Series 2500 RJ	5000	10.13	20.32	164	11.50	21.69	258	13.40	23.59	372
API 2000	2000	6.56	16.75	88	7.06	17.25	106	8.56	18.75	154
API 3000	3000	8.31	18.50	132	7.57	17.76	128	9.06	19.25	182
API 5000	5000	8.31	18.50	132	9.31	19.50	166	10.81	21.00	218



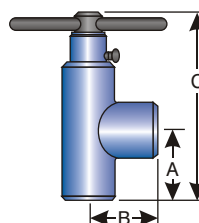
ACV-8 ADJUSTABLE CHOKE VALVE



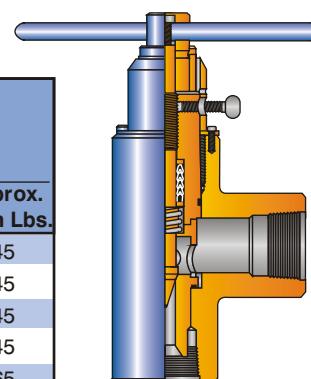
CHOKE SEAT WITH OPTIONAL POSITIVE BEAN

ACV-5 DIMENSIONAL DATA

Available with 3/4, 1 or 1 1/4 - inch trim



Body Style	Maximum Working Pressure (psi)		2 -Inch			2-1/2 Inch			3-Inch		
			Inches A&B	Inches C	Approx. Wt. in Lbs.	Inches A&B	Inches C	Approx. Wt. in Lbs.	Inches A&B	Inches C	Approx. Wt. in Lbs.
	2	2 1/2									
Threaded	5000	3000	5.00	13.44	35	5.00	13.44	40	5.00	13.44	45
Socket Weld	3600		5.00	13.44	35	5.00	13.44	40	5.00	13.44	45
Butt Weld 160	6000		4.50	12.94	35	5.00	13.44	40	5.00	13.44	45
Butt Weld XXH	10000		4.50	12.94	35	5.00	13.44	40	5.00	13.44	45
Series 600 RF	1480		6.38	14.82	55	6.50	14.94	60	7.00	15.44	65
Series 600 RJ	1480		6.44	14.88	55	6.56	15.00	60	7.07	15.51	65
Series 900 RF	2220		7.25	15.68	83	8.25	16.69	88	7.50	15.74	93
Series 900 RJ	2220		7.31	15.75	83	8.31	16.75	88	7.57	16.01	93
Series 1500 RF	3705		7.25	15.69	83	8.25	16.69	88	9.25	17.69	93
Series 1500 RJ	3705		7.31	15.75	83	8.31	16.75	88	9.32	17.76	93
Series 2500 RF	5000		8.75	17.19	119	10.00	18.44	144	11.31	19.75	233
Series 2500 RJ	5000		8.94	17.38	119	10.13	18.57	144	11.50	19.94	233
API 2000	2000		6.44	14.88	55	6.56	15.00	60	7.06	15.50	65
API 3000	3000		7.31	15.75	83	8.31	16.75	88	7.57	16.01	93
API 5000	5000		7.31	15.75	83	8.31	16.75	88	9.31	17.75	93
API 10000	10000		6.92	15.36	119	7.83	16.27	144	8.86	17.30	233



ACV-5 ADJUSTABLE CHOKE VALVE



STANDING VALVES AND SEATING NIPPLES

PARVEEN Standing valves and companion seating nipples are normally used in intermitting or chamber lift wells in the bottom of the tubing or chamber. The seating nipple is an integral part of the tubing string. The standing valve seats on the NO-GO of the seating nipple and seals in the honed bore of the nipple to prevent the fluid from flowing back into well bore when high pressure gas is injected under a slug of fluid. PARVEEN manufactures E-3 type of standing valve, in all popular sizes. A complete line of seating nipples are available to accept the standing valves.

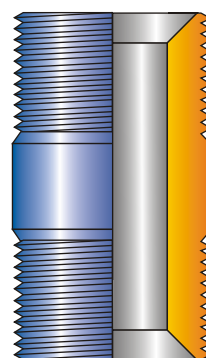
DESCRIPTION & SPECIAL FEATURES OF STANDING VALVE

The E-3 Equalizing Standing Valve has a standard fishing neck and may be equalized and retrieved by wireline. The equalizing feature allows the operator to open ports below the valve and seat without lifting the hydrostatic head. This feature in many cases eliminates the need for an operator to pull a wet string of tubing. This valve may also be used as test plug for testing tubing for pressure leaks above the valve. Carbide balls are available for severe service in sandy wells.

SEATING NIPPLES

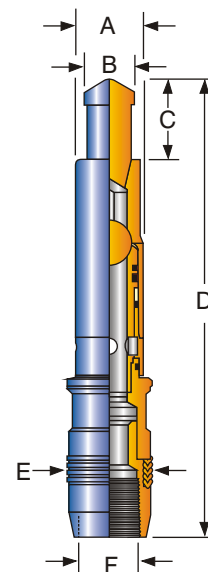
The E Seating Nipples are precision nipples that contain a honed bore to accept and seal the standing valve. They are offered in a wide range of sizes compatible with the tubing string and a large selection of bores for different sizes standing valves.

ENGINEERING DATA FOR TYPE E SEATING NIPPLES						
Size (Inch)	Size (inch)	Threads	Length (W/O Coupling)	Wt/Lbs.	Bore (Inch)	Part no.
2.3/8	2	10 RD NUE	7.1/2	5.1/2	1.781	6972
2.3/8	2	8 RD EUE	7.1/2	5.1/2	1.781	6823
2.3/8	2	10 RD NUE	7.1/2	5.1/4	1.813	4901
2.3/8	2	8 RD EUE	7.1/2	5.1/4	1.813	4902
2.3/8	2	10 RD NUE	7.1/2	7.1/2	1.375	4941
2.3/8	2	8 RD EUE	7.1/2	7.1/2	1.375	4942
2.3/8	2	10 RD NUE	7.1/2	10.1/2	1.188	5174
2.3/8	2	8 RD EUE	7.1/2	10.1/2	1.188	5175
2.7/8	2.1/2	10 RD NUE	7.1/2	7	2.250	4903
2.7/8	2.1/2	8 RD EUE	7.1/2	7	2.250	4904
2.7/8	2.1/2	8 RD EUE	7.1/2	9.1/2	1.813	4906
2.7/8	2.1/2	10 RD NUE	7.1/2	9.1/2	1.813	4907
2.7/8	2.1/2	8 RD EUE	7.1/2	10.1/2	1.188	7858
2.7/8	2.1/2	8RD EUE	7.1/2	10	1.375	8773
2.7/8	2.1/2	8 RD EUE	7.1/2	9.1/2	1.438	8774
3.1/2	3	8 RD EUE	7.1/2	17.1/2	1.781	8824
3.1/2	3	8 RD EUE	7.1/2	14.1/2	2.250	8825
3.1/2	3	8 RD EUE	7.1/2	10.1/2	2.750	8826
3.1/2	3	8 RD EUE	7.1/2	19.1/2	1.375	8769



SEATING NIPPLES
TYPE E

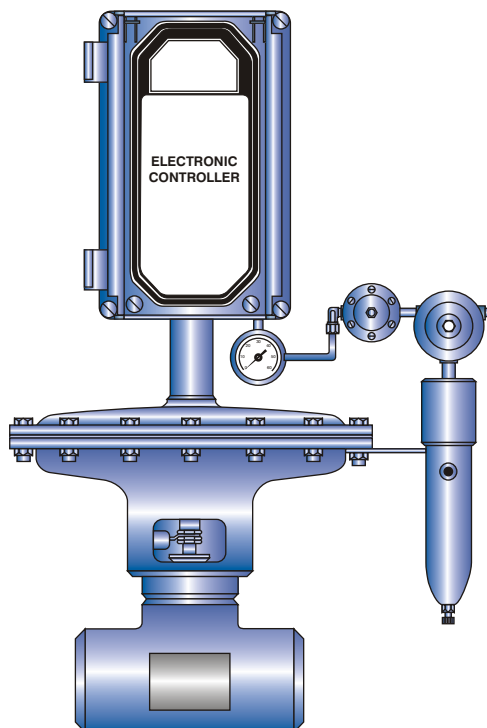
ENGINEERING DATA FOR TYPE E-3 STANDING VALVES										
Size (Nom.) (Inch)	WT/Lbs.	Dimensions (inches)						Bottom Thread (Inch)	Part no.	Remark
		Max. O.D.	Fishing Head Dia.	Fishing Neck Length	Overall Length	Packing Size (inch)	Min. Port Size			
-	-	A	B	C	D	E	F			
2	5.3/4	1.860	1.3/8	3.3/16	14.3/4	1.25/32	1.00	1 NPT	300-3240-000-01	SS BALL
2	5.3/4	1.860	1.3/8	3.3/16	14.3/4	1.13/16	1.00	1 NPT	300-3250-000-01	SS BALL
2 1/2	7.1/4	2.298	1.3/8	3.3/16	14.3/4	2.1/4	1.00	1 NPT	300-4260-000-01	SS BALL
2 1/2	7.1/4	2.298	1.3/8	3.3/16	14.3/4	2.1/4	1.00	1 NPT	300-4261-000-01	TC BALL



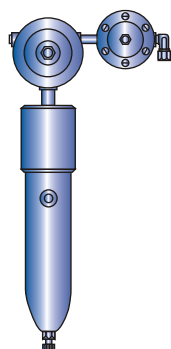
TYPE E-3
STANDING VALVE

TIME CYCLE CONTROLLERS WITH ACCESSORIES

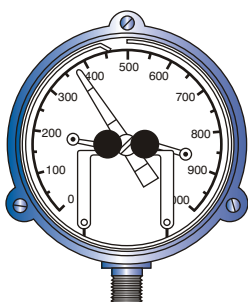
TIME CYCLE ELECTRONIC CONTROLLERS



**ELECTRONIC CONTROLLER
AND MV-60 MOTOR VALVE**



**2 RBF TWO STAGE
REGULATOR AND FILTER DRIP**



SWITCH GAUGE

Mounted directly to the Motor Valve, the Electronic Times Cycle Controller with the Two Stage Regulator and Filter Drip is a compact assembly designed to provide the operator with a reliable method of obtaining optimum control of a plunger lift installation without frequent visual inspection and adjustment of cycle times. The Electronic Time Cycle controller is, having microprocessor based timer that can be programmed to display name, date or whatever you like. The controller maintain On-Time, OFF-Time & Delay Time.

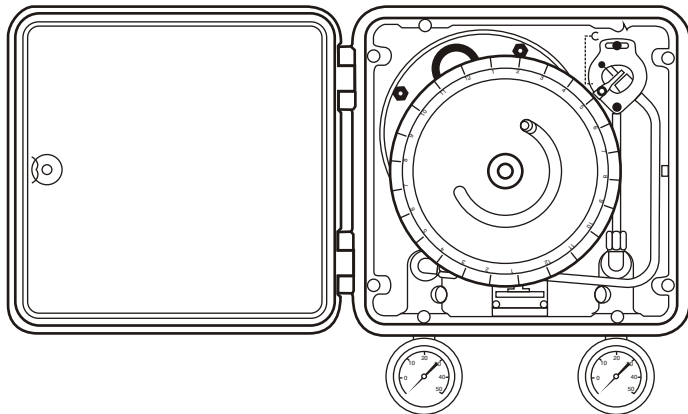
Each timer is easily set by the operator using the dedicated keys & the display on the front panel. Timer timings can be in hours & minutes or as required so as to achieve maximum accuracy for any operating condition.

The electronic controller features a rugged, watertight enclosure with a clear, see-through front cover that allows the operator to monitor the current cycle being timed without exposing the interior to ambient atmospheric conditions. In addition, the internal electronics are conformably coated for protection against moisture laden air or corrosive gases. The coil in the solenoid valve and current limiting components are totally encapsulated to prevent the possibility of electric arcing in the presence of an explosive atmosphere.

2RBF Two Stage Regulator and Filter Drip is composed of two pressure regulators and a filter-drip pot. The primary high-pressure regulator input up to 6000-psi supply gas and provides a 250-psi inlet supply to the secondary low-pressure regulator. The drip pot contains a stack of felt filters, which in conjunction with the sintered metal filter in the high-pressure regulator, provide a dry, clean (particulates less than 4 microns) operating supply to the pilot. The drip pot body features an extension for attachment to the motor valve, which permits a compact, unified installation.

Switch Gauges are conventional pressure gauges with adjustable high and low set points for controlling motor valve operation in response to well pressure. In operation, the indicator moves between the set point contact arms, and when the indicator touches one of the arms, an electric circuit is completed that generates a signal to an electronic timer, which controls the operation of a motor valve. These contact closure signals are used by the timer to override the programmed time cycles and typically represent high and low tubing and casing pressure.

4501 (MECHANICAL) TIME CYCLE CONTROLLERS



A **time cycle Controller** is recommended for any application where it is desired to automatically open and close a valve in accordance with a predetermined time schedule. It is normally used as a time cycle controller on the gas injection line of an intermitting installation or as a controller on the tubing for “stop clocking” service.

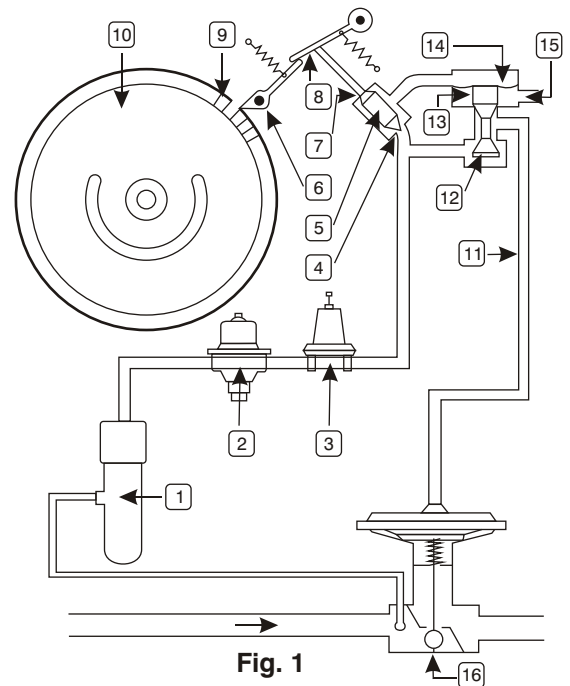


Fig. 1

The T.C.C. consist of a clock with cast aluminum wheel holding timing clips and two 3 way valves. One of the 3 way valves is operated by a trigger while the other is activated by a composition diaphragm. Operating medium is taken from the up stream gas line or from the well casing and diffused through filter (1) The Pressure is then reduced by the high pressure regulator (2) to about 75 PSI and further reduced to 20 PSI by the low pressure regulator (3)

Assume that timing clip (9) is moved out of the path of the trigger, as shown in Figure 1. When the point of the trigger (6) falls into the slot left by the displaced clip, the other end of the trigger exerts a force on the leaf spring (8) This in turn allows the primary 3-way valve (5) to open the supply port (4) and close the exhaust port (7) The supply gas then flows through the primary 3-way valve, loading the diaphragm (14) of the secondary 3-way valve. The force exerted on this diaphragm closes the exhaust valve (13) and opens the supply valve (12) to load the diaphragm of the motor valve (16).

As the timing wheel turns counterclockwise, the timing clips bump the trigger (6) forcing the trigger to relieve it pressure on leaf spring (8). This allows the 3-way valve (5) to close supply port (4) and open exhaust port (7) bleeding pressure off chamber above diaphragm (14) The operating medium then forces supply valve (12) to close, opening exhaust valve (13). Pressure in the main diaphragm will then bleed out exhaust port (15) and valve (16) will close.

ASSEMBLIES

UNIT NO.

- 5931 E** - 4501 Time Cycle Control Pilot with 24-Hour Rotation 7-Day
- 5937 E** - 4501 Time Cycle Control Pilot with Gas Proof 24-Hour Rotation, 7-Day Wind Clock (5932)
- 5938 E** - 4501 Time Cycle Control Pilot with 2-Hour Rotation, 24 Hour wind Clock (5933)
- 5939 E** - 4501 Time Cycle Control Pilot with Gas proof 2-Hour Rotation, 24-Hour Wind Clock (5933)
- 5940 E** - 4501 Time Cycle Control Pilot with 2-Hour Rotation 7-Day's wind Clock (5935)
- 5942 E** - 4501 Time Cycle Control Pilot with 6-Hour Rotation 7-Day's Wind Clock (5936)

- 8321 E** - 4501 Time Cycle Control Pilot with Battery Powered Clock (Specify 12 or 24 Hour Rotation)
- 8320 E** - Battery Powered Clock for Time Cycle Control Pilot (Specify 12 or 24 Hour Rotation)

*** Other rotation & Shaft Style Upon Request**



API TUBING TABLE

Gas Lift Equipment

Tubing Size		Nominal Weight		Grade	Wall Thick-ness in.	Inside Dia in.	Threaded Coupling				Col-lapse Resistance psi	Internal Yield Pres-sure psi	Joint Yield Strength		Capacity Table	
								Coupling Outside Dia.					T & C Non-Upset	T & C Upset	Barreis Per	Lin. Ft. Per
Nom in.	OD in.	T & C Non-Upset Lb/Ft	T & C Upset Lb/Ft				Drift Dia. in.	Non Upset in.	Upset Reg. in.	Upset Spec. in.			Lb.	Lb.	Lin. Ft.	Barrel
3/4	1.050	1.14	1.20	H-40	.113	.824	.730	1.313	1.660		7,200	7,530	6,360	13,300	.0007	1516.13
	1.050	1.14	1.20	J-55	.113	.824	.730	1.313	1.660		9,370	10,360	8,740	18,290	.0007	1516.13
	1.050	1.14	1.20	C-75	.113	.824	.730	1.313	1.660		12,250	14,120	11,920	24,940	.0007	1516.13
	1.050	1.14	1.20	N-80	.113	.824	.730	1.313	1.660		12,970	15,070	12,710	26,610	.0007	1516.13
1	1.315	1.70	1.80	H-40	.113	1.049	.955	1.660	1.900		6,820	7,080	10,960	19,760	.0011	935.49
	1.315	1.70	1.80	J-55	.113	1.049	.955	1.660	1.900		8,860	9,730	15,060	27,160	.0011	935.49
	1.315	1.70	1.80	C-75	.113	1.049	.955	1.660	1.900		11,590	13,270	20,540	37,040	.0011	935.49
	1.315	1.70	1.80	N-80	.113	1.049	.955	1.660	1.900		12,270	14,160	21,910	39,510	.0011	935.49
1 1/4	1.660			H-40	.125	1.410					5,220	5,270			.0019	517.79
	1.660	2.30	2.40	H-40	.140	1.380	1.286	2.054	2.200		5,790	5,900	15,530	26,740	.0018	540.55
	1.660			J-55	.125	1.410					6,790	7,250			.0019	517.79
	1.660	2.30	2.40	J-55	.140	1.380	1.286	2.054	2.200		7,530	8,120	21,360	36,770	.0018	540.55
	1.660	2.30	2.40	C-75	.140	1.380	1.286	2.054	2.200		9,840	11,070	29,120	50,140	.0018	540.55
	1.660	2.30	2.40	N-80	.140	1.380	1.286	2.054	2.200		10,420	11,810	31,060	53,480	.0018	540.55
1 1/2	1.900			H-40	.125	1.650					4,450	4,610			.0026	378.11
	1.900	2.75	2.90	H-40	.145	1.610	1.516	2.200	2.500		5,290	5,340	19,090	31,980	.0025	397.14
	1.900			J-55	.125	1.650					5,790	6,330			.0026	378.11
	1.900	2.75	2.90	J-55	.145	1.610	1.516	2.200	2.500		6,870	7,350	26,250	43,970	.0025	397.14
	1.900	2.75	2.90	C-75	.145	1.610	1.516	2.200	2.500		8,990	10,020	35,800	59,960	.0025	397.14
	1.900	2.75	2.90	N-80	.145	1.610	1.516	2.200	2.500		9,520	10,680	38,180	63,960	.0025	397.14
2 1/16	2.063			H-40	.156	1.751					5,240	5,290			.0030	335.75
	2.063			J-55	.156	1.751					6,820	7,280			.0030	335.75
	2.063			C-75	.156	1.751					8,910	9,920			.0030	335.75
	2.063			N-80	.156	1.751					9,440	10,590			.0030	335.75
2 3/8	2.375	4.00		H-40	.167	2.041	1.947	2.875			4,880	4,920	30,130		.0040	247.12
	2.375	4.60	4.70	H-40	.190	1.995	1.901	2.875	3.063	2.910	5,520	5,600	35,960	52,170	.0039	258.65
	2.375	4.00		J-55	.167	2.041	1.947	2.873			6,340	6,770	41,430		.0040	247.12
	2.375	4.60	4.70	J-55	.190	1.995	1.901	2.875	3.063	2.910	7,180	7,700	49,450	71,730	.0039	258.65
	2.375	4.00		C-75	.167	2.041	1.947	2.875			8,150	9,230	56,500		.0040	247.12
	2.375	4.60	4.70	C-75	.190	1.995	1.901	2.875	3.063	2.910	9,380	10,500	67,430	97,820	.0039	258.65
	2.375	5.80	5.95	C-75	.254	1.867	1.773	2.875	3.063	2.910	12,180	14,040	96,560	126,940	.0034	295.33
	2.375	4.00		N-80	.167	2.041	1.947	2.875			8,660	9,840	60,260		.0040	247.12
	2.375	4.60	4.70	N-80	.190	1.995	1.901	2.875	3.063	2.910	9,940	11,200	71,930	104,340	.0039	258.65
	2.375	5.80	5.95	N-80	.254	1.867	1.773	2.875	3.063	2.910	12,890	14,970	102,990	135,400	.0034	295.33
	2.375	4.60	4.70	P-105	.190	1.995	1.901	2.875	3.063	2.910	13,250	14,700	94,410	136,940	.0039	258.65
	2.375	5.80	5.95	P-105	.254	1.867	1.773	2.875	3.063	2.910	17,190	19,650	135,180	177,710	.0034	295.33
2 7/8	2.875	6.40	6.50	H-40	.217	2.441	2.347	3.500	3.668	3.460	5,230	5,280	52,780	72,480	.0058	172.76
	2.875	6.40	6.50	J-55	.217	2.441	2.347	3.500	3.668	3.460	6,800	7,260	72,580	99,660	.0058	172.76
	2.875	6.40	6.50	C-75	.217	2.441	2.347	3.500	3.668	3.460	8,900	9,910	98,970	135,900	.0058	172.76
	2.875	8.60	8.70	C-75	.308	2.259	2.165	3.500	3.668	3.460	12,200	14,060	149,360	185,290	.0050	201.72
	2.875	6.40	6.50	N-80	.217	2.441	2.347	3.500	3.668	3.460	9,420	10,570	105,570	144,960	.0058	172.76
	2.875	8.60	8.70	N-80	.308	2.259	2.165	3.500	3.668	3.460	12,920	15,000	159,310	198,710	.0050	201.72
	2.875	6.40	6.50	P-105	.217	2.441	2.347	3.500	3.668	3.460	12,560	13,870	138,560	190,260	.0058	172.76
	2.875	8.60	8.70	P-105	.308	2.259	2.165	3.500	3.668	3.460	17,220	19,690	209,100	260,810	.0050	201.72
3 1/2	3.500	7.70		H-40	.216	3.068	2.943	4.250			4,070	4,320	65,070		.0091	109.37
	3.500	9.20	9.30	H-40	.254	2.992	2.867	4.250	4.500	4.180	5,050	5,080	79,540	103,610	.0087	114.99
	3.500	10.20		H-40	.289	2.992	2.797	4.250			5,680	5,780	92,550		.0083	120.57
	3.500	7.70		J-55	.216	3.068	2.943	4.250			5,290	5,940	89,470		.0091	109.37
	3.500	9.20	9.30	J-55	.254	2.992	2.867	4.250	4.500	4.180	6,560	6,980	109,370	142,460	.0087	114.99
	3.500	10.20		J-55	.289	2.992	2.797	4.250			7,390	7,950	127,250		.0083	120.57
	3.500	7.70		C-75	.216	3.068	2.943	4.250			6,690	8,100	122,010		.0091	109.37
	3.500	9.20	9.30	C-75	.254	2.992	2.867	4.250	4.500	4.180	8,530	9,520	149,140	194,260	.0087	114.99
	3.500	10.20		C-75	.289	2.992	2.797	4.250			9,660	10,840	173,530		.0083	120.57
	3.500	12.70	12.95	C-75	.375	2.750	2.625	4.250	4.500	4.180	12,200	14,060	230,990	276,120	.0073	136.12
	3.500	7.70		N-80	.216	3.068	2.943	4.250			7,080	8,640	130,140		.0091	109.37
	3.500	9.20	9.30	N-80	.254	2.992	2.867	4.250	4.500	4.180	9,080	10,160	159,090	207,220	.0087	114.99
	3.500	10.20		N-80	.289	2.992	2.797	4.250			10,230	11,560	185,100		.0083	120.57
	3.500	12.70	12.95	N-80	.375	2.750	2.625	4.250	4.500	4.180	12,920	15,000	246,390	294,530	.0073	136.12
	3.500	9.20	9.30	P-105	.254	2.992	2.867	4.250	4.500	4.180	12,110	13,330	208,800	217,970	.0087	114.99
	3.500	12.70	12.95	P-105	.375	2.750	2.625	4.250	4.500	4.180	17,200	19,690	323,390	386,570	.0073	136.12
4	4.000	9.50		H-40	.226	3.548	3.423	4.750			3,580	3,960	72,00		.0122	81.78
	4.000		11.00	H-40	.262	3.476	3.351		5.000		4,420	4,580		123,070	.0117	85.20
	4.000	9.50		J-55	.226	3.548	3.423	4.750			4,650	5,440	99,010		.0122	81.78
	4.000		11.00	J-55	.262	3.476	3.351		5.000		5,750	6,300		169,220	.0117	85.20
	4.000	9.50		C-75	.226	3.548	3.423	4.750			5,800	7,420	135,010		.0122	81.78
	4.000		11.00	C-75	.262	3.476	3.351		5.000		7,330	8,600		230,750	.0117	85.20
	4.000	9.50		N-80	.226	3.548	3.423	4.750			6,120	7,910	144,010		.0122	81.78
	4.000		11.00	N-80	.262	3.476	3.351		5.000		7,780	9,170		246,140	.0117	85.20
4 1/2	4.500	12.60	12.75	H-40	.271	3.958	3.833	5.200	5.563		3,930	4,220	104,360	144,020	.0152	65.71
	4.500	12.60	12.75	J-55	.271	3.958	3.833	5.200	5.563		5,100	5,800	143,500	198,030	.0152	65.71
	4.5															



FLUID WEIGHT CONVERSION TABLE

Gas Lift Equipment

OIL, WATER AND MUD SPECIFIC GRAVITY - WEIGHT AND PRESSURE TABLE											
Degrees A. P. I.	Specific Gravity	Weight (Density)		Fluid Head		Degrees A. P. I.	Specific Gravity	Weight (Density)		Fluid Head	
		Gallon	Cubic Foot	Height Per Pound	Pressure Per Foot			Gallon	Cubic Foot	Height Per Pound	Pressure Per Foot
		Pounds		Feet	Lbs./Sq. In.			Pounds		Feet	Lbs./Sq. In.
60.	.739	6.16	46.1	3.13	.320		1.20	10.0	74.8	1.93	.519
59.	.743	6.20	46.4	3.11	.322		1.22	10.2	76.3	1.89	.530
58.	.747	6.23	46.6	3.09	.324		1.25	10.4	77.8	1.85	.540
57.	.751	6.26	46.8	3.08	.325		1.27	10.6	79.3	1.81	.551
56.	.755	6.30	47.1	3.06	.327		1.29	10.8	80.8	1.78	.561
55.	.759	6.33	47.4	3.04	.329		1.32	11.0	82.3	1.75	.571
54.	.763	6.36	47.6	3.03	.330		1.34	11.2	83.8	1.72	.582
53.	.767	6.40	47.9	3.01	.332		1.37	11.4	85.3	1.69	.592
52.	.771	6.43	48.1	2.99	.334		1.39	11.6	86.8	1.66	.603
51.	.775	6.46	48.3	2.98	.336		1.41	11.8	88.3	1.63	.631
50.	.780	6.51	48.7	2.96	.338		1.44	12.0	89.8	1.61	.623
49.	.784	6.54	48.9	2.94	.340		1.46	12.2	91.3	1.58	.634
48.	.788	6.57	49.2	2.93	.341		1.49	12.4	92.8	1.55	.644
47.	.793	6.61	49.5	2.92	.343		1.51	12.6	94.3	1.53	.655
46.	.797	6.65	49.8	2.90	.345		1.53	12.8	95.8	1.50	.665
45.	.802	6.69	50.0	2.87	.348		1.56	13.0	97.3	1.48	.675
44.	.806	6.72	50.3	2.87	.349		1.58	13.2	98.7	1.46	.686
43.	.811	6.76	50.6	2.85	.351		1.61	13.4	100.	1.44	.696
42.	.816	6.81	50.9	2.82	.354		1.63	13.6	102.	1.42	.706
41.	.820	6.84	51.2	2.82	.355		1.65	13.8	103.	1.39	.717
40.	.825	6.88	51.5	2.80	.357		1.68	14.0	105.	1.38	.727
39.	.830	6.92	51.8	2.79	.359		1.70	14.2	106.	1.36	.738
38.	.835	6.96	52.1	2.76	.362		1.73	14.4	108.	1.34	.748
37.	.840	7.01	52.4	2.75	.364		1.75	14.6	109.	1.32	.758
36.	.845	7.05	52.7	2.73	.366		1.77	14.8	111.	1.30	.769
35.	.850	7.09	53.0	2.72	.368		1.80	15.0	112.	1.28	.779
34.	.855	7.13	53.3	2.70	.370		1.82	15.2	114.	1.27	.790
33.	.860	7.17	53.6	2.69	.372		1.85	15.4	115.	1.25	.800
32.	.865	7.21	53.9	2.67	.375	Common Cement Slurry	1.87	15.6	117.	1.23	.810
31.	.871	7.26	54.3	2.65	.377		1.89	15.8	118.	1.22	.821
30.	.876	7.31	54.7	2.63	.380		1.92	16.0	120.	1.20	.831
29.	.882	7.36	55.1	2.62	.382		1.94	16.2	121.	1.19	.842
28.	.887	7.40	55.4	2.60	.384		1.97	16.4	123.	1.17	.852
27.	.893	7.45	55.7	2.58	.387		1.99	16.6	124.	1.16	.862
26.	.898	7.49	56.0	2.57	.389		2.01	16.8	126.	1.15	.873
25.	.904	7.54	56.4	2.55	.392		2.04	17.0	127.	1.13	.883
24.	.910	7.59	56.8	2.54	.394		2.06	17.2	129.	1.12	.894
23.	.916	7.64	57.2	2.52	.397		2.09	17.4	130.	1.11	.904
22.	.922	7.69	57.5	2.51	.399		2.11	17.6	132.	1.09	.914
21.	.928	7.74	57.9	2.49	.402		2.13	17.8	133.	1.08	.925
20.	.934	7.79	58.3	2.47	.405		2.16	18.0	135.	1.07	.935
19.	.940	7.84	58.7	2.46	.407		2.18	18.2	136.	1.06	.945
18.	.946	7.89	59.0	2.44	.410		2.21	18.4	138.	1.05	.956
17.	.953	7.95	59.5	2.42	.413		2.23	18.6	139.	1.04	.966
16.	.959	8.00	59.8	2.40	.416		2.25	18.8	141.	1.02	.977
15.	.966	8.06	60.3	2.39	.419		2.28	19.0	142.	1.01	.987
14.	.973	8.11	60.7	2.38	.421		2.30	19.2	144.	1.00	.997
13.	.979	8.16	61.0	2.36	.424		2.33	19.4	155.	.992	1.01
12.	.986	8.22	61.5	2.34	.427		2.35	19.6	147.	.982	1.02
11.	.993	8.28	61.9	2.33	.430		2.37	19.8	148.	.972	1.03
10° A. P. I. or Pure Water }	1.00	8.34	62.4	2.31	.433		2.40	20.0	150.	.962	1.04
	1.01	8.4	62.8	2.29	.436		2.42	20.2	151.	.953	1.05
	1.03	8.6	64.3	2.24	.447		2.45	20.4	153.	.943	1.06
	1.06	8.8	65.8	2.19	.457		2.47	20.6	154.	.935	1.07
	1.08	9.0	67.3	2.14	.468		2.49	20.8	156.	.925	1.08
	1.10	9.2	68.8	2.09	.478		2.52	21.0	157.	.917	1.09
	1.13	9.4	70.3	2.05	.488		2.54	21.2	159.	.908	1.10
Salt Water }	1.15	9.6	71.8	2.00	.499		2.57	21.4	160.	.899	1.11
	1.154	9.625	72.0	2.00	.500		2.59	21.6	162.	.891	1.12
	1.18	9.8	73.3	1.96	.509		2.61	21.8	163.	.883	1.13

GAS TABLE

To find the bottomhole pressure, multiply the surface by the factor corresponding to the Well depth and gravity of the gas

Correction Factors				Correction Factors			
Well Depth	0.6 Gravity	0.7 Gravity	0.8 Gravity	Well Depth	0.6 Gravity	0.7 Gravity	0.8 Gravity
4,500	1.099	1.116	1.132	7,500	1.171	1.195	1.227
5,000	1.110	1.130	1.149	8,000	1.181	1.210	1.241
5,500	1.120	1.141	1.163	8,500	1.190	1.230	1.260
6,000	1.132	1.155	1.181	9,000	1.202	1.240	1.273
6,500	1.143	1.175	1.195	9,500	1.215	1.250	1.285
7,000	1.155	1.184	1.211	10,000	1.225	1.265	1.305



CONVERSION FACTORS APPLYING TO OIL COUNTRY CALCULATIONS

Acre	=	43,560.	Square feet	Horse power	=	.7457	Kilo Watt
Acre	=	4,047.	Square meter	Horse power hour	=	2,547.	British Thermal Unit
Acre foot	=	7,758.	Barrels	Inch	=	2.540	Centimeters
Atmosphere	=	33.94	Feet of water	Inch of mercury	=	1.134	Feet of water
Atmosphere	=	29.92	Inches of mercury	Inch of mercury	=	.4912	Pound per square inch
Atmosphere	=	760.0	Millimeters of mercury	Inch of water 60°F	=	.0361	Pound per square inch
Atmosphere	=	14.70	Pounds per square inch	Kilogram	=	2.2046	Pounds
Bar	=	14.504	Pounds per square inch	Kilogram calorie	=	3.968	British Thermal Units
Barrel	=	5.6146	Cubic feet	Kilogram per sq. centimeter	=	14.223	Pounds per square inch
Barrel	=	42.0	Gallons	Kilometer	=	3,281.	Feet
Barrel of water @ 60°F	=	.1588	Metric ton	Kilometer	=	.2614	Miles
Barrel (360 A. P.I.)	=	.1342	Metric ton	Kilo Pascal (KPa)	=	0.145	Pounds per square inch
Barrel per hour	=	.0936	Cubic feet per minute	Kilo weight	=	1.341	Horse power
Barrel per hour	=	.700	Gallon per minute	Liter	=	.2642	Gallon
Barrel per hour	=	2.695	Cubic inches per second	Liter	=	1.0567	Quarters
Barrel per day	=	.02917	Gallon per minute	Mega Pascal (MPa)	=	145.03	Pound per square inch
British Thermal Unit	=	.2520	Kilogram calorie	Meter	=	3.281	Feet
British Thermal Unit	=	.2928	Watt hour	Meter	=	39.37	Inches
B.T.U. per minute	=	.02356	Horse power	Mile	=	5,280.	Feet
Centimeter	=	.3937	Inch	Mile	=	1.609	Kilometers
Centimeter of mercury	=	.1934	Pound per square inch	Mile per hour	=	1.4667	Feet per second
Cubic centimeter	=	.06102	Cubic inch	Ounce (Avoirdupois)	=	28.3495	Grams
Cubic foot	=	.1781	Barrel	Part per Million	=	.05835	Grain per gallon
Cubic foot	=	7.4805	Gallons (U. S.)	Part per Million	=	8.345	Pounds per million gallon
Cubic foot	=	.02832	Cubic meter	Pascal (Pa)	=	0.000145	Pounds per square inch
Cubic foot	=	.9091	Sacks cement (Set)	Pounds	=	7,000.	Grains
Cubic foot per minute	=	10.686	Barrels per hour	Pounds	=	.4536	Kilogram
Cubic foot per minute	=	28.800	Cubic inches per second	Pound per square inch	=	2.309	Feet of water 60°F
Cubic foot per minute	=	7.481	Gallons per minute	Pound per square inch	=	2.0353	Inches of mercury
Cubic inch	=	16.387	Cubic centimeters	Pound per square inch	=	51.697	Millimeters of mercury
Cubic meter	=	6.2897	Barrels	Pound per square inch	=	.0703	Kilograms per sq. cms.
Cubic meter	=	35.341	Cubic feet	Pound per square inch	=	0.0689	Bar
Cubic meter	=	1.308	Cubic yards	Pound per square inch	=	.006895	Mega Pascal (MPa)
Cubic meter	=	264.20	Gallons (U. S.)	Pound per square inch	=	6.895	Kilo Pascal (KPa)
Cubic meter, normal	=	34.77	Cubic feet, standard	Pound per square inch	=	6895.	Pascal (Pa)
Cubic yard	=	4.8089	Barrels	Pound per million gallons	=	.00700	Grain per gallon
Cubic yard	=	46.656	Cubic inches	Pound per million gallons	=	.11982	Parts per million
Cubic yard	=	.7646	Cubic meter	Quarter (Liquid)	=	.946	Liter
Foot	=	30.48	Centimeters	Sack cement (set)	=	1.1	Cubic feet
Foot	=	.3048	Meter	Square centimeter	=	1.550	Square inch
Foot of water @ 60°F	=	.4331	Pound per square inch	Square foot	=	.929	Square meter
Foot per second	=	.68182	Mile per hour	Square inch	=	6.452	Square centimeters
Foot pound	=	.001286	British Thermal Unit	Square kilometer	=	.3861	Square mile
Foot pound per second	=	.001818	Horse power	Square meter	=	10.67	Square feet
Gallon (U. S.)	=	.02381	Barrel	Square mile	=	2.590	Square kilometers
Gallon (U. S.)	=	.1337	Cubic feet	Temperature Centigrade	=		5/9 (Temperature °F -32)
Gallon (U. S.)	=	231.000	Cubic inches	Temperature Fahrenheit	=		9/5 (Temperature °C) +32
Gallon (U. S.)	=	3.785	Liters	Temp. Absolute (Kelvin)	=		Temperature °C +273
Gallon (U. S.)	=	.8327	Gallon (Imperial)	Temp. Absolute (Rankine)	=		Temperature °F +460
Gallon (U. S.)	=	0.003785	Cubic meters	Ton (Long)	=	2,240.	Pounds
Gallon (Imperial)	=	1.2009	Gallon (U. S.)	Ton (Metric)	=	2,205.	Pounds
Gallon (Imperial)	=	277.274	Cubic inches	Ton (Short or Net)	=	2,000.	Pounds
Gallon per minute	=	1.429	Barrels per hour	Ton (Metric)	=	1.102	Tons (Short on Net)
Gallon per minute	=	.1337	Cubic feet per minute	Ton (Metric)	=	1,000.	Kilograms
Gallon per minute	=	34.286	Barrels per day	Ton (Metric)	=	6.297	Barrels of water @ 60°F
Gram	=	.03527	Ounce	Ton (Metric)	=	7,454.	Barrels (36° A. P.I.)
Horse power	=	42.44	T. U.'s per minute	Ton (Short or Net)	=	.907	Ton (Metric)
Horse power	=	33,000.	Foot-pounds per minute	Watt - Hour	=	3,415.	British Thermal Unit
Horse power	=	550.	Foot pounds per seconds	Yard	=	.9144	Meter
Horse power	=	1.014	Horse power (metric)				

$$\text{Metric P.I. in } \frac{\text{M}^3}{\text{D}} \times .428 = \text{US P.I. in BPD / PSI}$$

$$\text{Metric GLR in } \frac{\text{NM}^3}{\text{D}} \times .5529 = \text{US GLR in scf / bbl}$$



$$\text{TEMPERATURE CORRECTION FACTOR } T_f = \sqrt{\frac{520}{T_v + 460}}$$

TEMP °F	T _f	TEMP °F	T _f	TEMP °F	T _f
60	1.000	130	.939	195	.891
65	.995	135	.935	200	.888
70	.990	140	.931	205	.885
75	.986	145	.927	210	.881
80	.981	150	.923	215	.878
85	.977	155	.920	220	.875
90	.972	160	.916	225	.872
100	.964	165	.912	230	.868
105	.959	170	.909	235	.865
110	.955	175	.905	240	.862
115	.951	180	.902	245	.859
120	.947	185	.898	250	.857
125	.943	190	.894		

USEFUL GAS LIFT VALVE EQUATIONS USING API SYMBOLS

$$\frac{A_p}{A_b} = \frac{P_{iod} - P_{vc}}{P_{iod} - P_{pd}}$$

$$P_{iod} = \frac{P_{vc} - (A_p / A_b) P_{bd}}{1 - (A_p / A_b)}$$

$$P_{p ef} = \frac{A_p}{A_b - A_p} = \frac{A_p / A_b}{1 - (A_p / A_b)}$$

$$P_{pd} = \frac{P_{vc} - P_{iod} (1 - (A_p / A_b))}{A_p / A_b}$$

$$P_{vo} = \frac{P_{vc}}{1 - (A_p / A_b)}$$

$$P_{vc} = P_{iod} - (A_p / A_b) (P_{iod} - P_{pd})$$

Where: A_b = bellows area, in²

A_p = area of seat or port – ball seat contact, in²

P_{iod} = operating gas injection pressure at valve, psig

P_{pd} = operating production pressure at valve, psig

$P_{p ef}$ = production pressure effect factor (formerly S_{pm} or TEF)

P_{vc} = valve closing pressure, psig

P_{vo} = test rack set opening pressure, psig (formerly P_{tro})



VALVE AND SEAT SPECIFICATIONS

LN Series Valve VALVE AND SEAT SPECIFICATIONS

Type	Trim Size	Port Dia. (inches)	* Fe
LN-21R	Small	0.582	0.34
	Medium	0.670	0.46
	Large	0.775	0.60
LNM-31R	Small	0.300	0.27
	Medium	0.360	0.38
	Large	0.410	0.48

* Fe = Dynamic Ap / Ab

N Series Valve VALVE AND SEAT SPECIFICATIONS

Type Valve	Bellows Area In ²	Port Dia. (inches)	Ap/Ab
N-15 & N-15R	77	8/64	.017
		10/64	.020
		12/64	.038
		16/64	.067
		20/64	.103
		24/64	.148
		28/64	.200
		32/64	.261
NM-16 & NM-16 R	.31	8/64	.043
		12/64	.094
		16/64	.166
		20/64	.256
		24/64	.368

RV Series Valves PERFORMANCE DATA AND VALVE SPECIFICATIONS

The maximum flow rate can be calculated using the following formula. Use Cv from the chart for the particular valve and choke size used.

$$Q_{\max} = 1780 C_v \sqrt{\frac{(P_{cf} - P_t) P_t}{G t_v}}$$

Q = MCF / Day

G = Specific Gravity (Air = 1)

T_v = Valve Temperature (460 + °F)

C_v = Coefficient of Flow (Discharge)

P_{cf} = Flowing Casing Pressure of Valve

P_t = Tubing Pressure

No. of 1/8-inch D Orifices	Cv	RVM-16R	
		Area	Equiv. Dia
1	.0102	.0123	.0125
2	.0162	.0245	.0177
3	.0202	.0368	.0217
4	.0222	.0491	.0250

WF Series Valve VALVE AND SEAT SPECIFICATIONS WF-14R

Ball Dia.	Seat Angle	Bellows Area, In ²	Ap/Ab	Bellows Area, In ²	Ap/Ab
16/64	37°		.058		.078
20/64	37°	.31	.090	.23	.122
24/64	38°	Adj. Range	.135	Adj. Range	.183
24/64	45°	0-800	.177	600-1500	.239
32/64	38°	psi	.242	psi	.326
32/64	45°		.316		.426

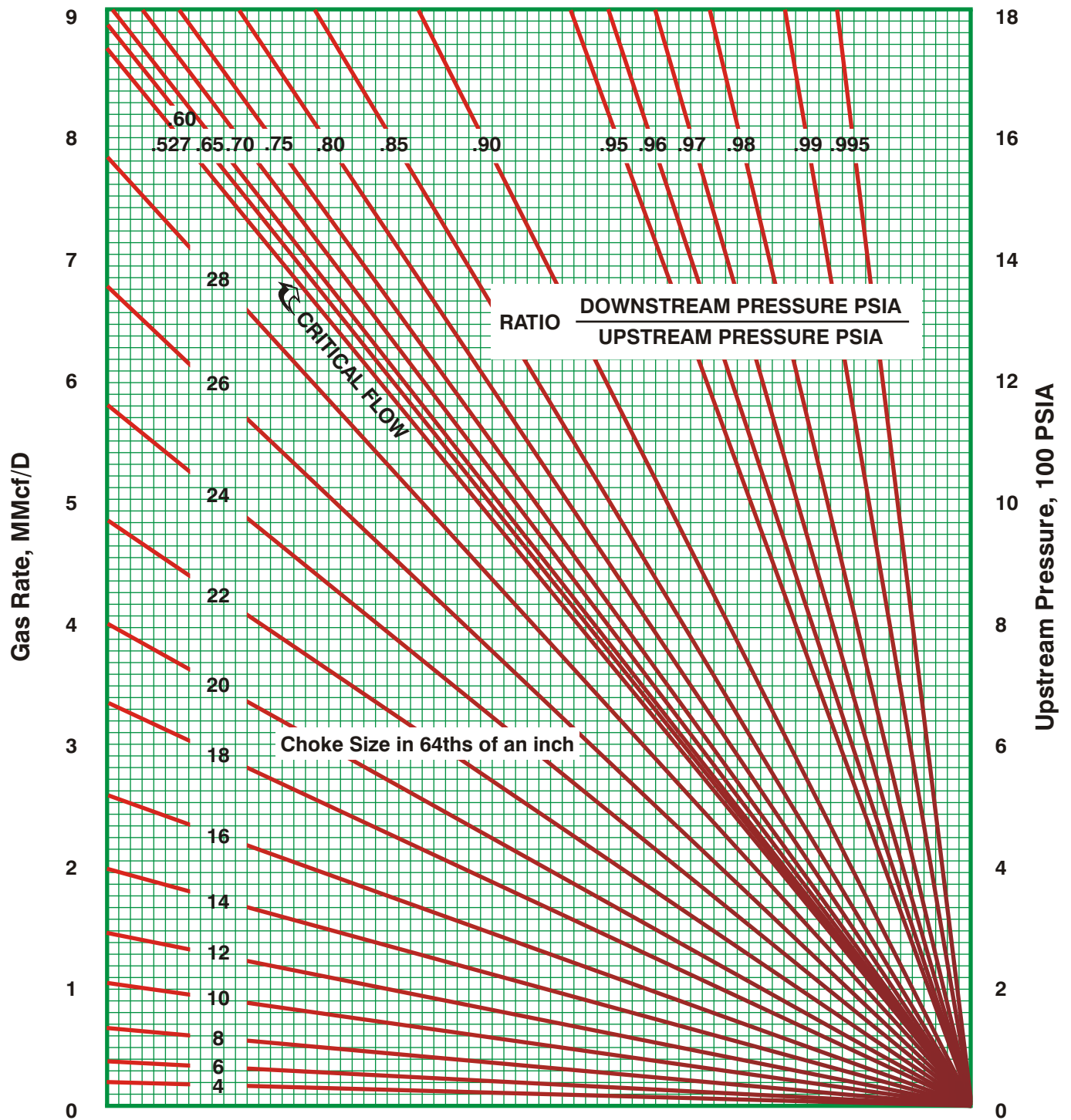
WFM-14R

Ball Dia.	Seat Angle	Bellows Area, In ²	Ap/Ab
16/64	37°		.150
18/64	37°	.12	.183
20/64	37°	Adj. Range	.233
24/64	37°	0-1500 psi	.333



GAS RATE THROUGH CHOKES

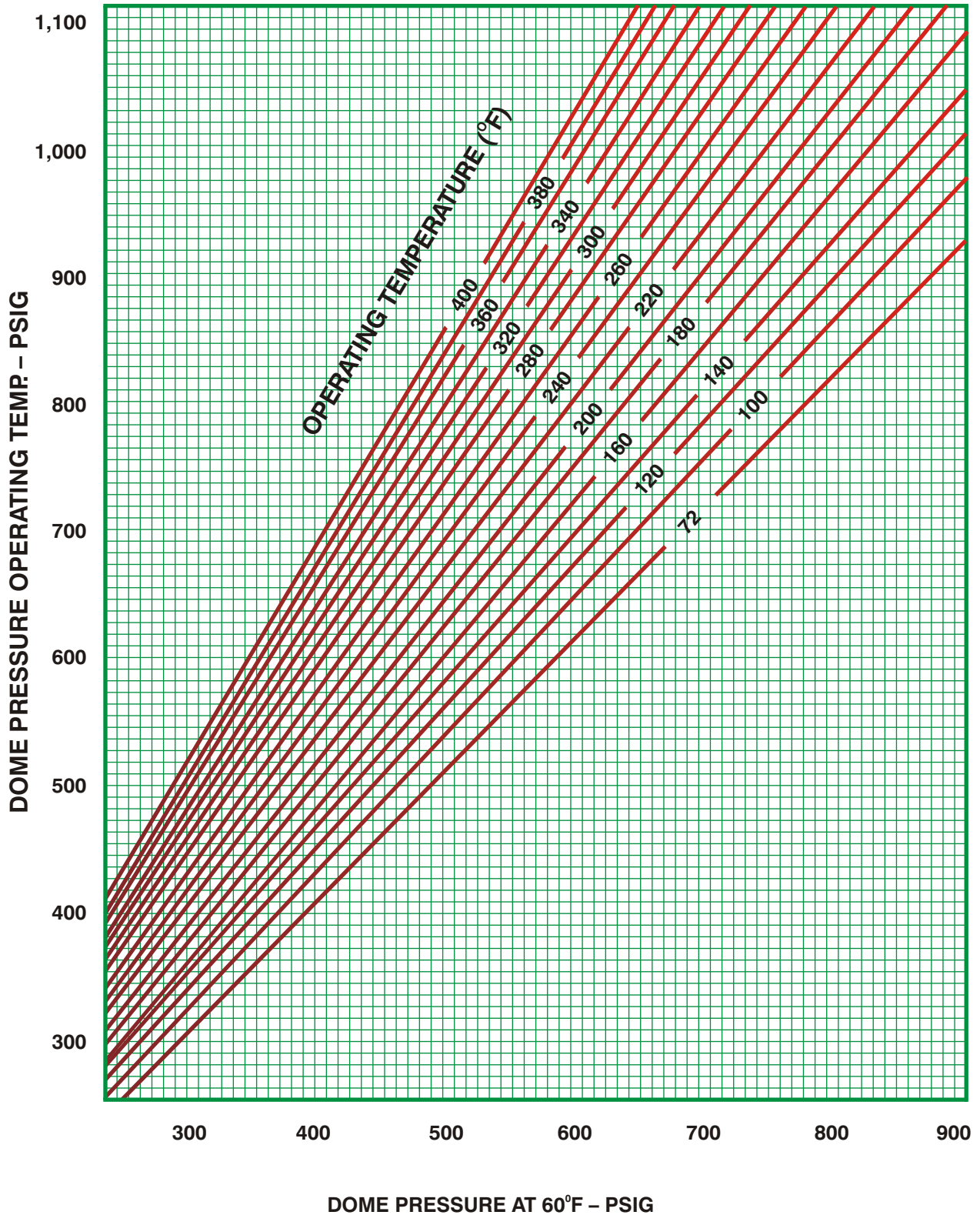
AFTER THORNHILL CRAVER
TEMP 60°F SpG. 6 14.7 PSIA





TEMPERATURE CORRECTION CHART

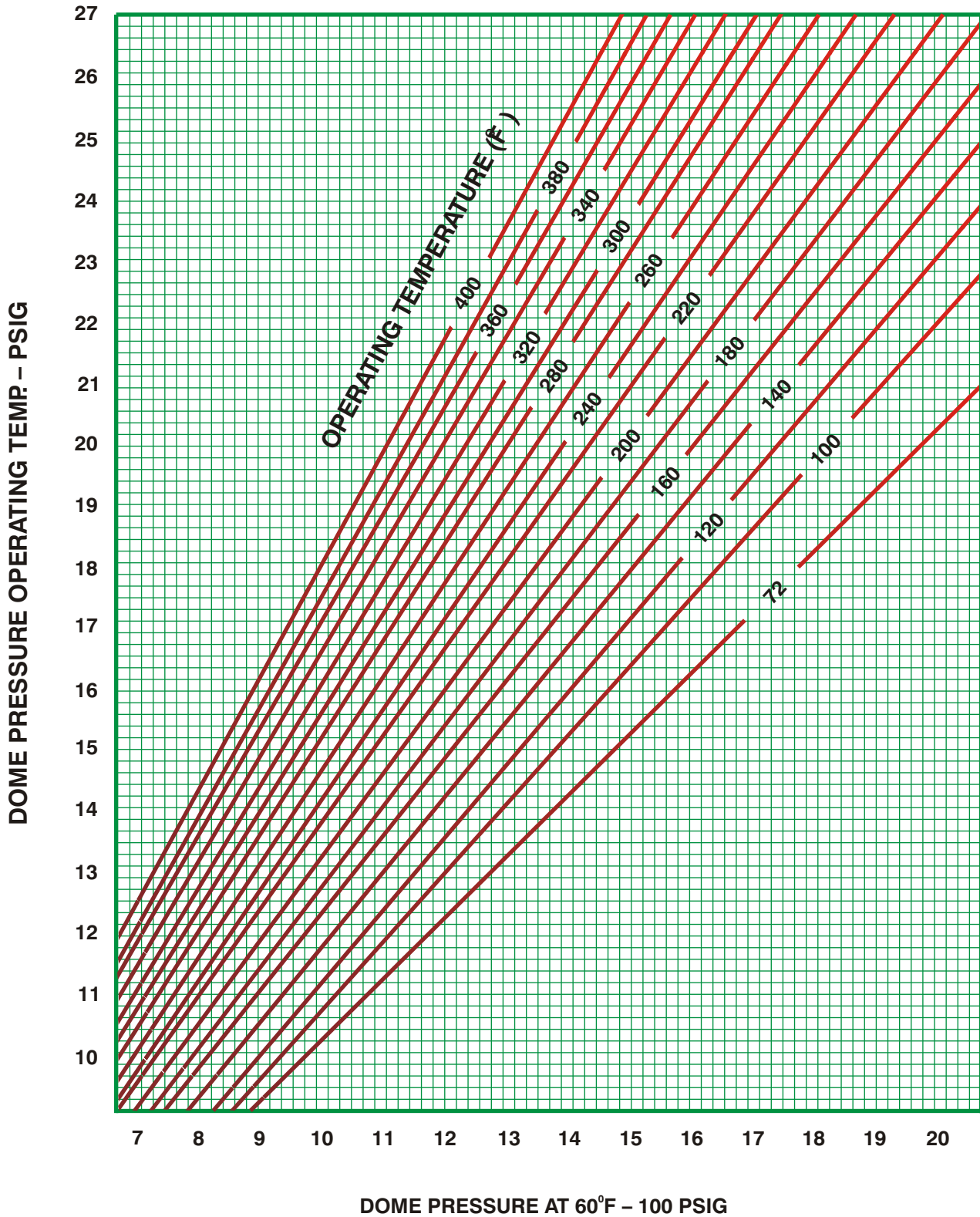
NITROGEN PRESSURE CHARGED
GAS LIFT VALVE
(300 - 900 PSIG)





TEMPERATURE CORRECTION CHART

NITROGEN PRESSURE CHARGED
GAS LIFT VALVE
(700 - 2000 PSIG)



CALIBRATION & TESTING OF GAS LIFT VALVES

Parveen GLV test bench is manufactured from heavy duty stainless steel sheet metal, pressure gauges with all stainless steel fittings and valves. Test bench is designed to meet most of the test / calibration requirements of API spec. 11 V1 for GLV's. This is combination of typical sleeve tester, typical encapsulated stem-seat leakage tester and also built-in pressure chamber (ager). Our GLV test bench provides testing facility for following parameters:

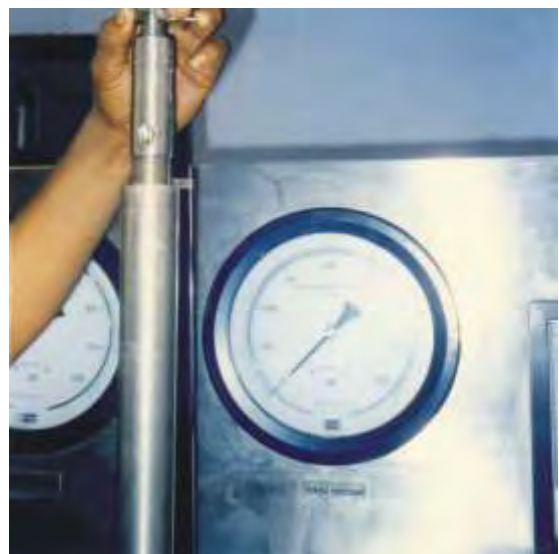
1. **Charging bellows to specific nitrogen pressure**
2. **Valve opening pressure**
3. **Valve closing pressure**
4. **Valve leakage test**
5. **Hydrostatic valve test**

TOOLS/ACCESSORIES WITH TEST BENCH

A) Chamber Valve Removing



B) Pressure Releasing & Charging Tool



DESIGN PARAMETERS

Parveen Test Bench is designed in accordance with following design parameters as per API spec. 11 V1.

Design parameters:

1. **Valve Size:** 1" and 1 1/2" conventional & retrievable nitrogen charged gas lift valves.
2. **System Accuracy:** ± 100 psi for aging chamber ± 5 psi for calibration and charging of gas lift valves.
3. **Maximum Bellow Charge:** 2000psi
4. **Maximum Chamber Hydro test:** 5000 psi
5. **Valve/Bellow Stabilizing /Storing Capacity:** 10 nos (max.)

CONSTRUCTIONAL FEATURES OF GLV TEST BENCH

There are four sections of test bench as follows :

1. **Gauge Section**
2. **Chamber Section**
3. **Control Valves Section and**
4. **Inlet Section**

i) PRESSURE GAUGE SECTION

Used in the test bench as follows:

A) Hydraulic Pressure Gauge: (Range: 0-10,000 psi)

This pressure gauge shows the pressure in hydraulic pressure chamber (ager).

B) Casing Pressure Gauge: (Range: 0-2000 psi)

This pressure gauge shows casing pressure in typical sleeve tester and typical encapsulated tester for stemseat leakage test of gas lift valve.

C) Tubing pressure gauge (Range: 0-2000psi)

To indicate tubing pressure in the glv this pressure gauge is used.



ii) CHAMBER SECTION

As shown in above figure there are three testing devices provided in our GLV test bench

- A) Hydraulic Pressure Chamber (Ager)**
- B) Encapsulated Stem-seat Leakage Tester**
- C) Sleeve Tester**



iii) CONTROL VALVE SECTION

There are nine control valves systematically arranged as shown in above figure having specific functions of each one, used to operate test bench for different testings of GLV.

- 1. Hydraulic Exhaust/Bleed**
- 2. Tubing Pressure Exhaust**
- 3. On/Off For Sleeve, Stem-Seat Leakage**
- 4. Gas Pressure Tubing**
- 5. Leak Test**
- 6. Casing Pressure On**
- 7. For Sleeve Tester**
- 8. Casing Pressure Exhaust**
- 9. Hydraulic Pressure On/Off**



iv) INLET SECTION

In this section there are three inlet provided with $\frac{1}{2}$ " NPT for external connection and also two outlets/exhausts provided.

1. N2 Inlet:

From this inlet we can give nitrogen supply upto 2000 psi for GLV leak test and for valve setting & bellow stabilization.

2. Orifice:

Here $\frac{1}{16}$ " orifice is provided for tubing pressure exhaust.

3. Hydraulic Exhaust:

It is used to exhaust hydraulic pressure in ager.

4) Air Inlet:

Air supply of 100 psi from air hydraulic pump can be applied through this inlet.

5) water inlet:

From this inlet we can supply water for inside pressure pump.



APPARATUS

Pressure Chamber (Ager)

Tills device is a water filled chamber for maximum 5000 psi pressure. The Gas Lift Valves are inserted into the chamber and subjected to a predetermined external pressure for some length of time and number of cycles.

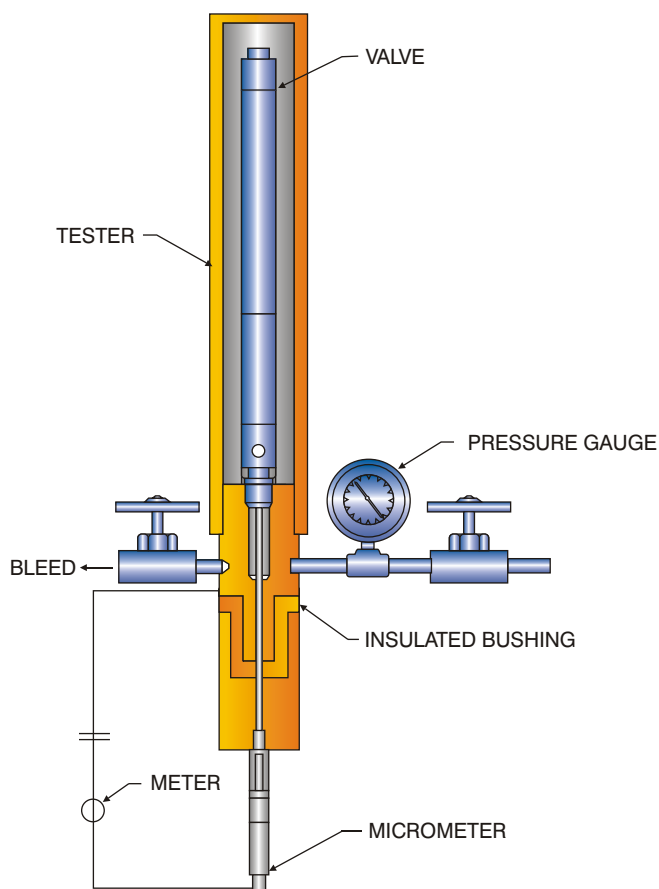
Test Rack

This equipment is used to set the opening or closing pressure of nitrogen charged valves. There are two types in use: Typical sleeve tester (M-010) and typical encapsulated stem and seat leakage tester (M-011), those are arranged in our test bench very conveniently.

Water Bath

This is a water filled container where several gas lift valves are immersed in the water to bring them to a predetermined controlled temperature. Since most gas lift installations design the GLV set pressure at 16°C , the temperature of the water bath is usually controlled at 16°C .

PROBE TESTER



Introduction:

The purpose of the gas lift valve probe tester is to determine the relative "stiffness" of a gas lift valve and to determine the maximum available travel of the stem top. When gas pressure is admitted to the tester, it acts on the full area of the valve bellows to lift the stem off the seat. When this pressure increased, the stem tip lifts further from the seat. By using the valve probe tester, an accurate measure of the stem tip travel per pressure increase can be determined and the results tabulated and plotted.

When the pressure is plotted as the ordinate and the stem tip travel as the abscissa, a relatively straight line will be generated for the majority of the stem tip travel. The slope of this line is an indication of the "stiffness" of the valve. The numerical value of the slope is called the bellows assembly load rate (blr) and is measured in psig/inch [kpa/mm]. In this context, the "bellows assembly" includes the bellows and the system which applies a load to hold the valve stem on the seat. The higher the load rate, the "stiffer" the valve and inversely, the lower the load rate, the "softer" the valve.

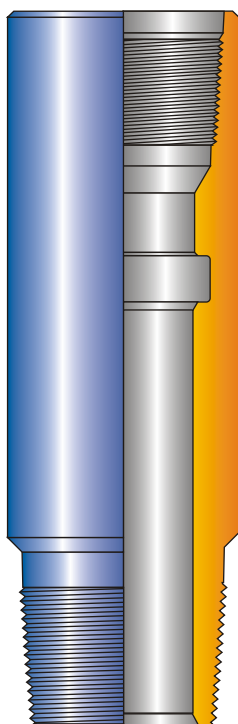
If the above is done with the same valve, except that opening pressure (dome charge or spring setting) is varied, then the effect of dome charge pressure or spring setting on the bellows assembly load rate can be compared for the same type valve when set for different opening pressures. The bellows assembly load rate is a practical value that can be used to compare different types of valves or when evaluating the same valve under different load conditions and when designing the gas lift installation.



DOWN HOLE FLOW CONTROL INDEX

SR. NO.	INDEX	PAGE
1	'F' Nipple	273
2	'R' Nipple	274
3	'L' Sliding Sleeve	275
4	D-2 Shifting Tool	276
5	'G' Bottom Bypass Blanking Plugs	277
6	'FB-2' And 'RB-2' Equalizing Check Valves	279
7	'FGK' Equalizing Check Valve Choke With Ceramic Bean	281
8	'LGE' Separation Sleeve	282
9	'LGK' Equalizing Check Valve Choke With Ceramic Bean	283
10	'LGU' By - Pass Choke	284
11	'B' Downhole Instrument Hangers	285
12	'C-1' Running Tool	288
13	'A' Shank	289
14	'N-1' Shank and 'N-1' Probe	290
15	'A' Prong and 'B' Probe	291
16	'A' Guide	292
17	Expansion Joint	293

PARVEEN MODEL 'F' NIPPLE



'F' NIPPLE

The model 'F' nipple provides a tubing lock profile with honed unrestricted seal bore to locate wireline flow control devices such as velocity safety valves, blanking plugs chokes, equalizing check valves and instrument hangers.

The number & location of model 'F' nipple should be carefully considered in the completion design stage to allow maximum versatility in position of various flow control devices.

'F' Nipple can accept Selective 'S' or Top No-Go 'W' locking devices attached to flow control accessories.

It is manufactured either from low alloy steel or 9 Cr,1 Mo-steel with controlled hardness for H₂S/CO₂ service. It is available upto 15,000 PSI WP

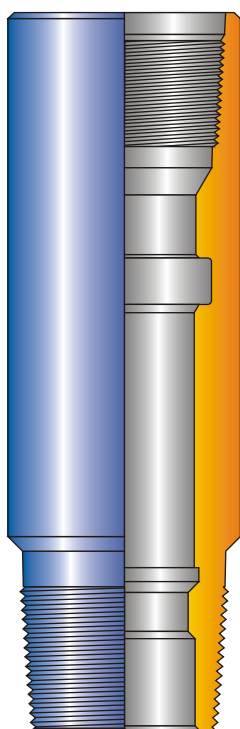
For ordering please specify:

- Nipple model.
- Top & bottom thread connections.
- Packing ID.
- Working pressure & temperature.
- Type of service
- Tubing size, weight & Grade.

'F' NIPPLE SPECIFICATIONS					
Tubing	Nipple			Nipple Type	
OD-Inches	Seal Bore-Inches	Size-Inches	Min. OD-Inches	Selective	Top No-Go
1.900	1.437	1.43	2.109	x	x
	1.500	1.50		x	-
2.1/16	1.562	1.56	2.250	x	x
	1.625	1.62		x	-
2.3/8	1.781	1.78	2.560	x	x
	1.812	1.81		x	x
	1.875	1.87		x	-
2.7/8	2.062	2.06	3.109	x	x
	2.250	2.25		x	x
	2.312	2.31		x	-
3.1/2	2.562	2.56	3.687	x	x
	2.750	2.75		x	x
	2.812	2.81		x	-
4.1/2	3.688	3.68	Coupling OD	x	x
	3.750	3.75		x	x
	3.812	3.81		x	-

- Other seal bore sizes are available in the various tubing sizes as per customer's requirement.
- Equipment will be provided with OD corresponding to coupling OD for the type of the nipple unless specified otherwise.
- Available with Premium thread connections also.

PARVEEN MODEL 'R' NIPPLE



'R' NIPPLE

The model 'R' nipple is a bottom no go style nipple that provides a tubing lock profile with a honed seal bore to locate wireline flow control devices in tubing string.

Blanking plugs, chokes, equalizing check valves and instrument hangers which utilize a 'Z' lock may be landed in this type of nipple profile. The no-go shoulder incorporated into the nipple allows positive locating of all flow control equipments used during wireline operations.

Parveen nipple is manufactured from low alloy steel/9 CR. 1MO steel with controlled hardness (17-22 HRC) for H₂S/CO₂ application. It is available upto 15,000 PSI WP.

For ordering please specify :

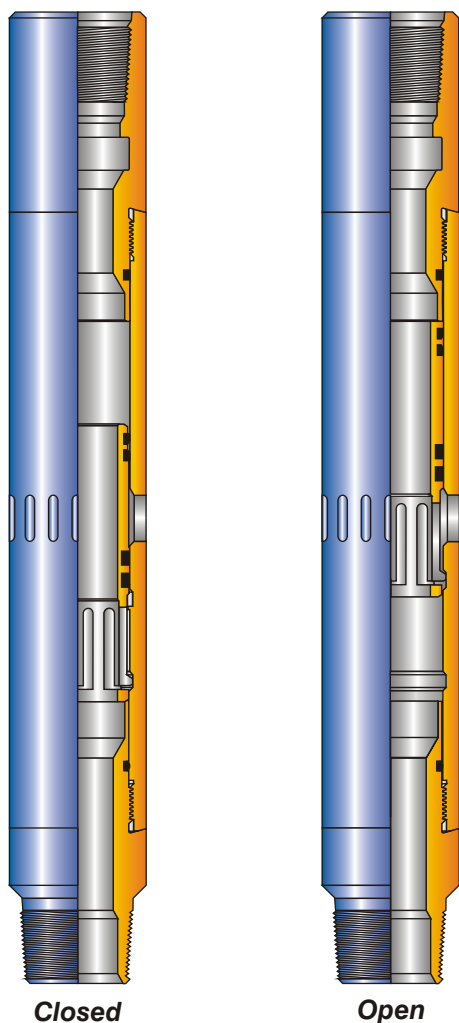
- Nipple model.
- Top & Bottom thread connections.
- Packing ID.
- Working pressure & temperature.
- Type of service.
- Tubing size, weight & Garde.

'R' NIPPLE SPECIFICATIONS				
Tubing	Nipple			
OD-Inches	Seal Bore-Inches	Size-Inches	No-Go ID-Inches	Min. OD Inches
1.900	1.437	1.43	1.385	2.109
	1.500	1.50	1.447	
2.1/16	1.562	1.56	1.510	2.250
	1.625	1.62	1.572	
2.3/8	1.781	1.78	1.728	2.560
	1.812	1.81	1.760	
	1.875	1.87	1.822	
2.7/8	2.062	2.06	1.978	3.109
	2.250	2.25	2.197	
	2.312	2.31	2.260	
3.1/2	2.562	2.56	2.442	3.687
	2.750	2.75	2.697	
	2.812	2.81	2.760	
4.1/2	3.688	3.68	3.625	Coupling OD
	3.750	3.75	3.700	
	3.812	3.81	3.759	

- Other seal bore sizes are available in the various tubing sizes as per costumer's requirement.
- Equipment will be provided With OD corresponding to coupling OD for the type of thread of the nipple unless specified otherwise.
- Available with Premium thread connections also.



PARVEEN MODEL 'L' SLIDING SLEEVE



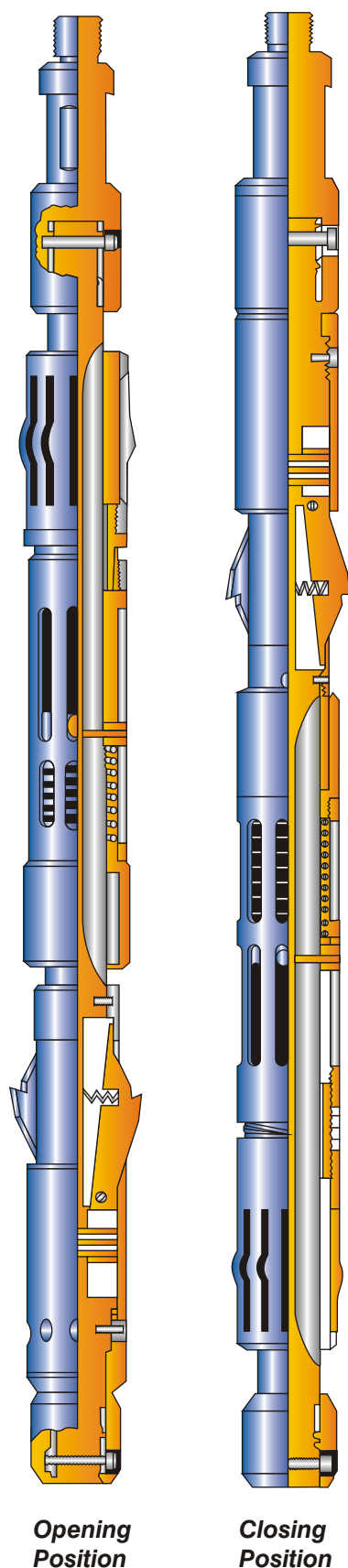
The Parveen Model 'L' sliding sleeve is a downhole tool used to establish communication, when desired, between the tubing and annulus. Selective and /or top No-Go locking devices are available for use with the sleeve. It has seal bores above and below the ports, and a top No-Go shoulder and locking groove.

The 'L' sliding sleeve locates, seals and retains flow control accessories that have either top No-Go or selective locks.

Parveen Model 'L' sliding sleeve is manufactured for standard H₂S and H₂S - CO₂ services.

'L' SLIDING SLEEVE SPECIFICATIONS			
Tubing	Sliding Sleeve		
ID-Inches	Seal Bore Inches	Size-Inches	OD-Inches
1.900	1.437	1.43	2.375
	1.500	1.50	
2.1/16	1.562	1.56	2.500
	1.625	1.62	
2.3/8	1.781	1.78	2.910
	1.812	1.81	
	1.875	1.87	
2.7/8	2.250	2.25	3.410
	2.312	2.31	
3.1/2	2.750	2.75	4.500
	2.812	2.81	
4.1/2	3.688	3.68	5.500
	3.812	3.81	

PARVEEN MODEL D-2 SHIFTING TOOL



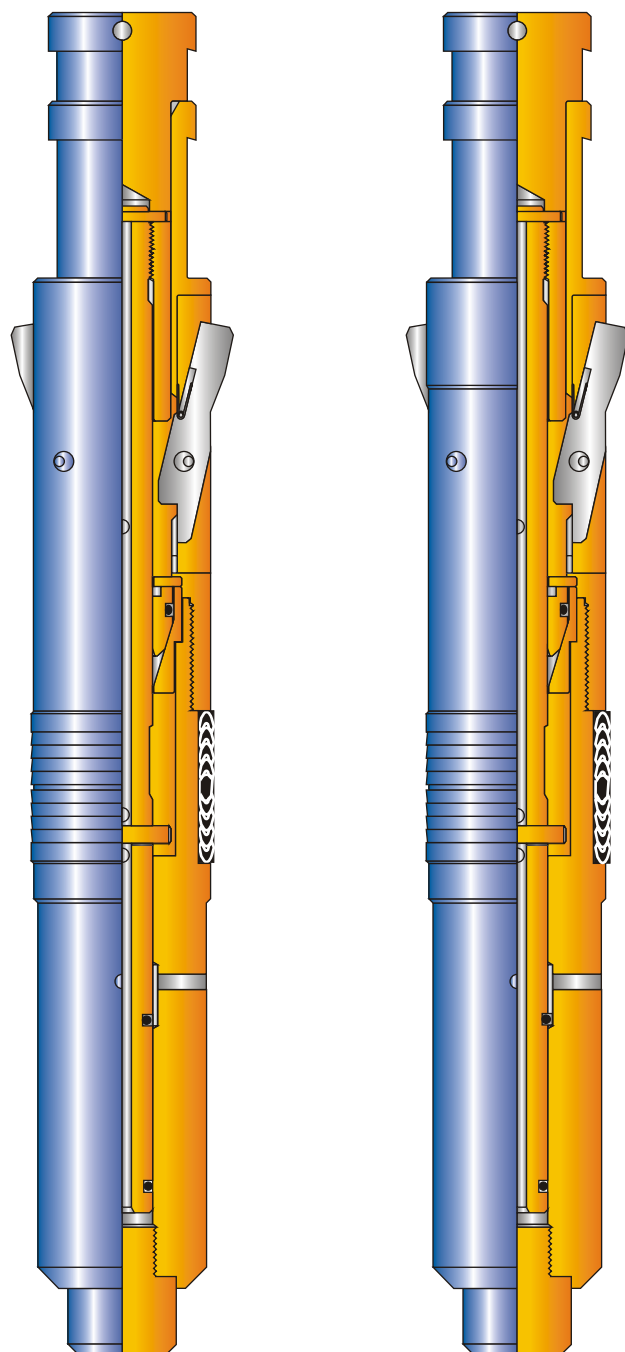
The Parveen Model D-2 shifting tool is used to provide a safe, selective and controlled method of opening and closing Model 'L' sliding sleeve.

Advantages

1. **Automatic Locating Collet-** Flags the operator when a sleeve is reached. It also indicates when the tool passes through a sleeve or nipple.
2. **Proof of Completed Shift-** As soon as a shift-either Open or Close is completed, an attempt to repeat the operation will give a positive indication that the shift was performed.
3. **Safety Feature-** If the sleeve is opened in the presence of a differential pressure in favour of the annulus, the release mechanism is held inoperative by the flow until the pressure is balanced to allow safe removal.
4. **Open and Close Sleeves in one Trip-** Run shifting tools in tandem if required to both open and close sleeves on the same run in well. Run tool with collect up to open sleeves or with collect down (Inverted position) to close sleeves.
5. **Deliberate Release-** Even after the shifting tool is seated in the sleeve, it can be released without shifting the closing sleeve.

'D-2' SHIFTING TOOL SPECIFICATIONS			
'L' Sliding Sleeve Size	Shifting Tool Collet Size	Top Thread Connection	Fishing Neck Size
ID-Inches	OD-Inches	Size-Inches	OD-Inches
1.43	1.468	15/16 - 10	1.188
1.50	1.531		
1.56	1.593		
1.62	1.656		
1.78	1.807	15/16 - 10	1.375
1.81	1.843		
1.87	1.906		
2.25	2.281	15/16 - 10	1.750
2.31	2.343		
2.75	2.781	1.1/16 - 10	2.312
2.81	2.843		
3.68	3.743	1.1/16 - 10	2.312
3.81	3.867		

PARVEEN MODEL 'G' BOTTOM BYPASS BLANKING PLUGS



**MODEL
'RZG'**

**MODEL
'FWG'**

The Parveen Model 'G' Bottom Bypass Blanking Plugs are available in the following models:

'FSG' -

run in all Model

'F' Nipples

'FWG' -

run in Top No-Go Model

'F' Nipples

'RZG' -

run in Bottom No-Go Model

'R' Nipples

These type of plugs are run in the by pass position to allow the passage of well fluid through the assembly, while landing the equipment in a Nipple Profile. A 'C-I' Running Tool is used to run the plug.

Once set in the Nipple Profile this group of plugs can hold pressure from above and below.

The pressure is equalized prior to retrieval by pulling the Equalizing Mandrel.

A standard Pulling Tool and proper Probe for the style of Lock is used to pull the plug assembly.

The Parveen 'G' Bottom Bypass Blanking Plugs are manufactured for Standard, H₂S-CO₂ service.

Applications:

1. Selected zones can be produced or shut in.
2. To pressure test tubing.
3. To isolate tubing for wellhead repair or removal
4. To set hydraulic actuated packers.
5. To snub tubing in or out of the well.

Ordering information:

Please specify nipple model, seal bore size, plug model, working pressure and temperature, Percentage of H₂S and CO₂

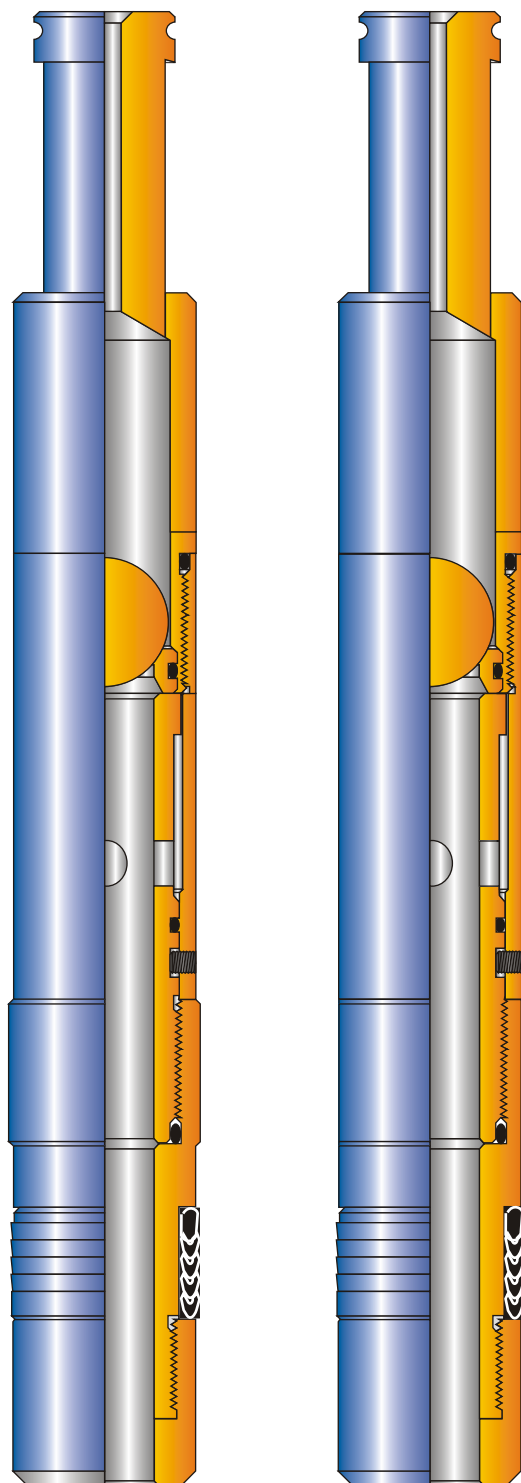


PARVEEN MODEL 'G' BOTTOM BYPASS BLANKING PLUGS

'FWG' BYPASS BLANKING PLUG SPECIFICATIONS										
Tubing Nipple Accessory Availability			To Run	To Pull			FWG Dimension Specifications			
			'C-1'	Equalizing		Plug	Equalizing	Plug Lock Mandrel		Maximum
Tubing Size	Nipple Size	Plug Type	Running Tool	Mandrel		Assembly	Mandrel			
ID Inches	Seal Bore Inches	'FWG' Size	Size Inches	Pulling Tool Type		B Probe	Fishing Neck		Fishing	Plug OD
				OTIS	CAMCO	Size Inches			Neck ID	
1.900	1.437	1.43	1.900	40RB14	JUC15174	1.900				1.490
	1.500	-					1.188	1.188	0.750	-
2.1/16	1.562	1.56	2.1/16	40SB6	JDC15154	2.1/16				1.615
	1.625	-								-
	1.781	1.78		40RB17	JUC15185					1.865
2.3/8	1.812	1.81	2.3/8			2.3/8	1.375	1.375	0.875	1.865
	1.875	-		40SB1	JDC15169					-
	2.062	2.06		40RB18	JUC15189					2.115
2.7/8	2.250	2.25	2.7/8			2.7/8	1.750	1.750	1.188	2.302
	2.312	-		40SB2	JDC15171					-
	2.562	2.56		40RB19	JUC15191					2.625
3.1/2	2.750	2.75	3.1/2			3.1/2	2.313	2.313	1.438	2.802
	2.812	-		40SB9	JDC15181					-
	3.688	3.68		40RB20	JUC15193					3.740
4.1/2	3.750	3.75	4.1/2			4.1/2	3.125	3.125	2.062	3.802
	3.812	-		40SB10	JDC15183					-

'RZG' BYPASS BLANKING PLUG SPECIFICATIONS										
Tubing Nipple Accessory Availability			To Run	To Pull			RZG Dimension Specifications			
			'C-1'	Equalizing		Plug	Equalizing	Plug Lock Mandrel		Maximum
Tubing Size	Nipple Size	Plug Type	Running Tool	Mandrel		Assembly	Mandrel			
ID Inches	Seal Bore Inches	'FWG' Size	Size Inches	Pulling Tool Type		B Probe	Fishing Neck		Fishing	Plug OD
				OTIS	CAMCO	Size Inches			Neck ID	
							OD Inches	OD Inches	ID Inches	OD Inches
1.900	1.437	1.43	1.900	40RB14	JUC15174	1.900				1.472
	1.500	1.50					1.188	1.188	0.750	1.490
2.1/16	1.562	1.56	2.1/16	40SB6	JDC15154	2.1/16				1.552
	1.625	1.62								1.615
	1.781	1.78		40RB17	JUC15185					1.771
2.3/8	1.812	1.81	2.3/8			2.3/8	1.375	1.375	0.875	1.802
	1.875	1.87		40SB1	JDC15169					1.865
	2.062	2.06		40RB18	JUC15189					2.052
2.7/8	2.250	2.25	2.7/8			2.7/8	1.750	1.750	1.188	2.240
	2.312	2.31		40SB2	JDC15171					2.302
	2.562	2.56		40RB19	JUC15191					2.552
3.1/2	2.750	2.75	3.1/2			3.1/2	2.313	2.313	1.438	2.740
	2.812	2.81		40SB9	JDC15181					2.802
	3.688	3.68		40RB20	JUC15193					3.678
4.1/2	3.750	3.75	4.1/2			4.1/2	3.125	3.125	2.062	3.740
	3.812	3.81		40SB10	JDC15183					3.802

PARVEEN MODEL 'FB-2' AND 'RB-2' EQUALIZING CHECK VALVES



**MODEL
'FB-2'**

**MODEL
'RB-2'**

The Parveen Model 'FB-2' and 'RB-2' Equalizing Check Valves are complete equipment units, without any Locking Device. They are utilized in the following Tubing Mounted Equipment:

'FB-2'

**run in all Model 'F' Nipples and all Model
'L' Sliding Sleeves**

'RB-2'

**run in Bottom No-Go
'R' Nipples**

Both models are run into a Nipple Profile and hold pressure from above only. The 'FB-2' model lands on the top of a 'F' Nipple Profile seal bore. The 'RB2' model seats on the Bottom No-Go Shoulder of a 'R' Nipple

A 'C-1' Running Tool is used to run both valve assemblies.

Both models can be equalized prior to retrieval, by shifting open the Equalizing Mandrel Ports. Standard Pulling Tool is utilized for retrieval of these valves.

The Parveen 'FB-2' and RB-2' Equalizing Check Valves are manufactured for Standard, H₂S and H₂S-CO₂ service.

Applications :

1. Can be used as a plug to pressure test tubing.
2. To set hydraulically actuated packer with the check valve positioned below the packer.
3. For gas lift operations.
4. To be used as a standing valve in wells which have downhole electric pumps.

Ordering information :

Please specify nipple model, seal bore size, check valve model, working pressure and temperature, percentage of H₂S and CO₂



PARVEEN MODEL 'FB-2' AND 'RB-2' EQUALIZING CHECK VALVES

'FB-2' EQUALIZING CHECK VALVE SPECIFICATIONS								
Tubing Nipple Accessory Availability			To Run			To Pull		Maximum Check Valve OD
			'C-1'	Jar Down		Pulling Tool type		
Tubing Size	Nipple Size	Check Valve	Running Tool	Pulling Tool				
ID-Inches	Seal Bore Inches	'FB-2' Size	Size Inches	OTIS	CAMCO	OTIS	CAMCO	OD Inches
1.900	1.437	1.43	1.900			40RB14	JUC15174	1.490
	1.500	1.50		40SB6	JDC15154			1.552
2.1/16	1.562	1.56	2.1/16			40SB6	JDC15154	1.615
	1.625	1.62						1.672
	1.781	1.78						1.865
2.3/8	1.812	1.81	2.3/8	40SB1	JDC15169	40RB17	JUC15185	1.865
	1.875	1.87				40SB1	JDC15169	1.905
2.7/8	2.250	2.25	2.7/8	40SB2	JDC15171	40RB18	JUC15189	2.302
	2.312	2.31				40SB2	JDC15179	2.364
3.1/2	2.750	2.75	3.1/2	40SB9	JDC15181	40RB19	JUC15191	2.802
	2.812	2.81				40SB9	JDC15181	2.865
	3.688	3.68						3.740
4.1/2	3.750	3.75	4.1/2	40SB10	JDC15183	40RB20	JUC15193	3.802
	3.812	3.81				40SB10	JDC15183	3.875

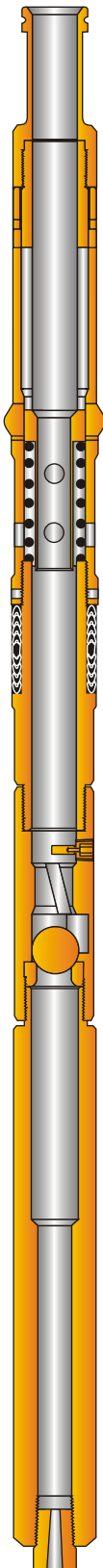
'RB-2' EQUALIZING CHECK VALVE SPECIFICATIONS								
Tubing Nipple Accessory Availability			To Run			To Pull		Maximum Check Valve OD
			'C-1'	Jar Down		Pulling Tool type		
Tubing Size	Nipple Size	Check Valve	Running Tool	Pulling Tool				
ID-Inches	Seal Bore Inches	'RB-2' Size	Size Inches	OTIS	CAMCO	OTIS	CAMCO	OD Inches
1.900	1.437	1.43	1.900			40RB14	JUC15174	1.427
	1.500	1.50		40SB6	JDC15154			1.490
2.1/16	1.562	1.56	2.1/16			40SB6	JDC15154	1.552
	1.625	1.62						1.615
	1.781	1.78						1.771
2.3/8	1.812	1.81	2.3/8	40SB1	JDC15169	40RB17	JUC15185	1.802
	1.875	1.87				40SB1	JDC15169	1.865
2.7/8	2.250	2.25	2.7/8	40SB2	JDC15171	40RB18	JUC15189	2.240
	2.312	2.31				40SB2	JDC15179	2.302
3.1/2	2.750	2.75	3.1/2	40SB9	JDC15181	40RB19	JUC15191	2.740
	2.812	2.81				40SB9	JDC15181	2.802
	3.688	3.68				40RB20	JUC15193	3.678
4.1/2	3.812	3.81	4.1/2	40SB10	JDC15183	40SB10	JDC15183	3.802



PARVEEN MODEL 'FGK' EQUALIZING CHECK VALVE CHOKE WITH CERAMIC BEAN

The model 'FGK' equalizing check valve choke is a top No-Go wireline retrievable tool which controls upward flow and prevents downward flow. It is landed and set in the type 'F' landing Nipple. An integral, erosion resistant, ceramic orifice is sized to control the upward flow as desired, while downward flow is checked with a ball and seat device.

Pressure can be equalized across the valve by breaking the equalizing plug.



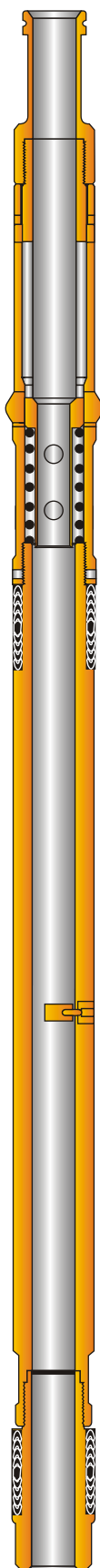
SPECIFICATION GUIDE (Inches & Metric)

Size Inches (mm)	Seal Bore Size	Size	Max O.D. Inches (mm)	To Run		To Equalize		To Pull	
				"C-1" Running Tool	"N-1" Shank	A' Guide	A' Prong	Pulling Tool	"N-1" Probe
2.3/8 (60.33)	1.78 (45.24)	1.78	1.865 (47.37)	2.3/8		2.3/8	1/2	40RB17 40SB1 JUC-TD15185 JDC-TD15169	2.3/8
	1.812 (46.02)	1.81							
	1.875 (47.63)	1.87	1.928 (48.97)						
2.7/8 (73.03)	2.25 (57.15)	2.25	2.302 (58.47)	2.7/8		2.7/8	1/2	40RB18 40SB2 JUC-TD15189 JDC-TD15171	2.7/8
	2.31 (58.72)	2.31	2.365 (66.93)						



PARVEEN MODEL 'LGE' SEPARATION SLEEVE

The model 'LGE' Separation Sleeve is a Top No-Go device which is run on wireline and designed to be landed and set in the type 'L' sliding sleeve. These are equipped with two packing assemblies, that seal off the upper and lower seal bore of sliding sleeve, Therefore isolating the sleeve ports. Production can be maintained by producing the well through the inside diameter of the tool. The separation Sleeve is also designed with an internal equalizing plug to equalize pressure before retrieving.



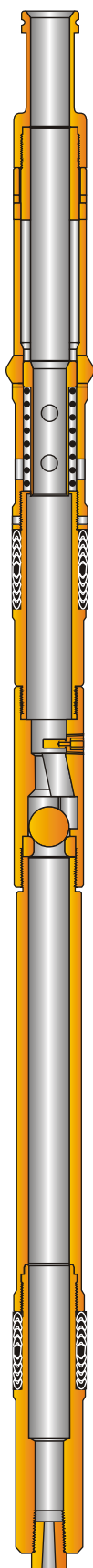
SPECIFICATION GUIDE (Inches & Metric)									
Size Inches (mm)	Seal Bore Size	Size	Max O.D. Inches (mm)	To Run		To Equalize		To Pull	
				"C-1" Running Tool	"N-1" Shank	A' Guide	A' Prong	Pulling Tool	"N-1" Probe
2.3/8 (60.33)	1.78 (45.24)	1.78	1.865 (47.37)	2.3/8		2.3/8	1/2	40RB17 40SB1 JUC-TD15185 JDC-TD15169	2.3/8
	1.812 (46.02)	1.81							
	1.875 (47.63)	1.87	1.928 (48.97)						
2.7/8 (73.03)	2.25 (57.15)	2.25	2.302 (58.47)	2.7/8		2.7/8	1/2	40RB18 40SB2 JUC-TD15189 JDC-TD15171	2.7/8
	2.31 (58.72)	2.31	2.365 (66.93)						



PARVEEN MODEL 'LGK' EQUALIZING CHECK VALVE CHOKE WITH CERAMIC BEAN

The model 'LGK' equalizing check valve choke is a Top No-Go wireline retrievable tool which controls upward flow and prevents downward flow. It is landed and set in the type 'L' sliding sleeve. An integral, erosion resistant, ceramic orifice is sized to control the upward flow as desired, while downward flow is checked with a ball and seat device.

Pressure can be equalized across the valve by breaking the equalizing plug.



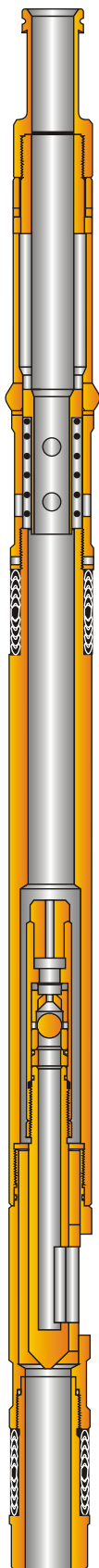
SPECIFICATION GUIDE (Inches & Metric)

Size Inches (mm)	Seal Bore Size	Size	Max O.D. Inches (mm)	To Run		To Equalize		To Pull	
				"C-1" Running Tool	"N-1" Shank	'A' Guide	'A' Prong	Pulling Tool	"N-1" Probe
2.3/8 (60.33)	1.78 (45.24)	1.78	1.865 (47.37)	2.3/8		2.3/8	1/2	40RB17 40SB1 JUC-TD15185 JDC-TD15169	2.3/8
	1.812 (46.02)	1.81							
	1.875 (47.63)	1.87	1.928 (48.97)						
2.7/8 (73.03)	2.25 (57.15)	2.25	2.302 (58.47)	2.7/8		2.7/8	1/2	40RB18 40SB2 JUC-TD15189 JDC-TD15171	2.7/8
	2.31 (58.72)	2.31	2.365 (66.93)						



PARVEEN MODEL 'LGU' BY - PASS CHOKE

The TYPE "LGU" BY-PASS CHOKE is a Top No-Go device which is run on wireline and designed to be landed and set in the Type "L" Sliding Sleeve ideally suited for commingled production. The BY -PASS CHOKE is equipped with a ceramic flow choke which controls the flow of the zone being produced through the Sliding Sleeve. Production from the other zone flows thru the bypass, but is prevented from back flowing through the choke and the Sliding Sleeve by an API ball and seat back check valve.



SPECIFICATION GUIDE (Inches)						
Size Inches	Seal Bore Size	Max O.D. Inches	To Run		To Pull	
			"C-1" Running Tool	"N-1" Shank	*Pulling Tool	"N-1" Probe
2.3/8	1.78	1.865	2.3/8		40RB17 40SB1 JUC-TD15185 JDC-TD15169	2.3/8
	1.812					
	1.875	1.928				
2.7/8	2.25	2.302	2.7/8		40RB18 40SB2 JUC-TD15189 JDC-TD15171	2.7/8
	2.31	2.365				
3.1/2	2.75	2.802	3.1/2		40RB19 40SB9 JUC-TD15191 JDC-TD15181	3.1/2
	2.81	2.865				

PARVEEN MODEL 'B' DOWNHOLE INSTRUMENT HANGERS

The Parveen Model 'B' Downhole instrument Hangers are available in the following models:

'FSB'

run in all Model

'F' Nipples

'FWB' -

run in Top No-Go Model

'F' Nipples

'RZB'

run in Bottom No-Go

'R' Nipples

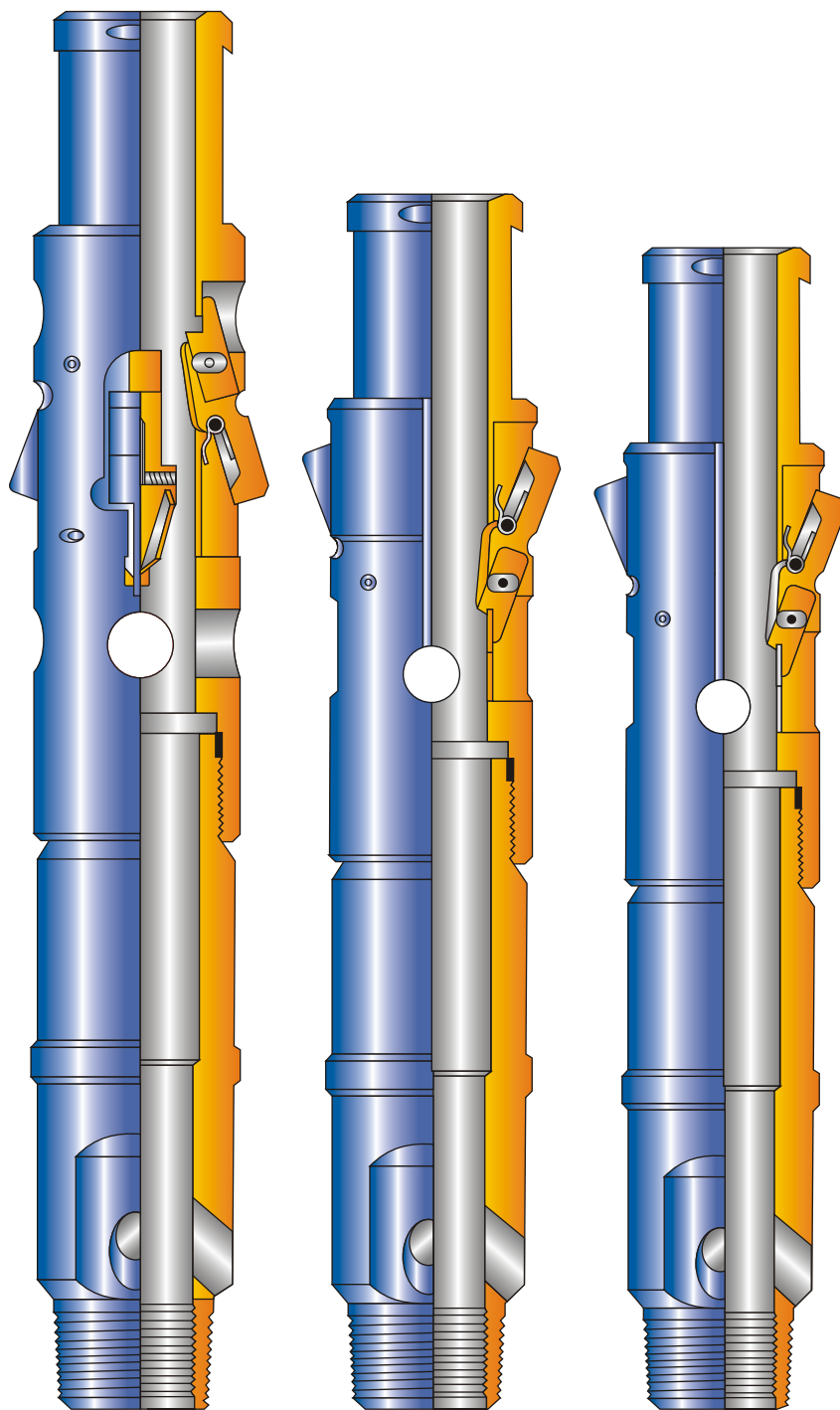
These type of hangers are used to hang instruments such as Pressure and Temperature Gauges in a Nipple Profile. Recorders are held securely 'in place' when recording data during high production rates. Pressure data is easily correlated between runs, as recorders are always landed at the same depth. The hangers permit simultaneous surveys to be done on several zones at the same time.

Standard wireline equipment is used to set and retrieve all three models.

The Parveen Model 'B' Downhole Instrument Hangers are manufactured for Standard H₂S and H₂S-CO₂ service.

Ordering information :

Please specify nipple model, seal bore size, hanger model. percentage of H₂S and CO₂



Model 'FSB'

Model 'FWB'

Model 'RZB'



PARVEEN MODEL 'B' DOWNHOLE INSTRUMENT HANGERS

PARVEEN 'FSB' INSTRUMENT HANGER SPECIFICATIONS									
Tubing Nipple Accessory Availability			To Run		To Pull				Maximum Tool OD
			'C-1' Running Tool		Running Tool Attachment	Pulling Tool Type		'A' Probe	
Tubing Size	Nipple Size	Instrument Hanger	Running Selective	Locating With NoGo-ring	'A' Shank				
OD Inches	Seal Bore Inches	'FSB' Size	Size-Inches	Size-Inches	Size-Inches	OTIS	CAMCO	Size-Inches	OD Inches
1.900	1.437	1.43	1.900	1.468	1.900	40RB14	JUC15174	1.900	1.427
	1.500	1.50		1.520					1.427
2.1/16	1.562	1.56	2.1/16	1.593	2.1/16x4-3/4	40SB6	JDC15154	2.1/16	1.552
	1.625	1.62		1.656		40RB17	JUC15185		1.552
2.3/8	1.781	1.78	2.3/8	1.807	2-3/8x5	40SB1	JDC15169	2.3/8	1.771
	1.812	1.81		1.843					1.802
	1.875	1.87		1.906					1.802
2.7/8	2.062	2.06	2.7/8	2.093	2-7/8x5-5/16	40SB18	JUC15189	2.7/8	2.052
	2.250	2.25		2.281		40SB2	JDC15181		2.240
	2.312	2.31		2.343					2.240
3.1/2	2.562	2.56	3.1/2	2.593	3.1/2x5-5/16	40RB19	JUC15191	3.1/2	2.552
	2.750	2.75		2.781		40SB9	JDC15181		2.740
	2.812	2.81		2.843					2.740
4.1/2	3.688	3.68	4.1/2	3.718	4-1/2x7	40RB20	JUC15193	4.1/2	3.678
	3.750	3.75		3.781		40SB10	JDC15183		3.740
	3.812	3.81		3.835					3.802

PARVEEN 'FWB' INSTRUMENT HANGER SPECIFICATIONS								
Tubing Nipple Accessory Availability			To Run		To Pull			Maximum Tool OD
			'C-1' Running Tool	Running Tool Attachments	Pulling Tool Type		'B' Probe	
Tubing Size	Nipple Size	Instrument Hanger		'A' Shank Dogs Retracted				
OD Inches	Seal Bore Inches	'FWB' Size	Size Inches	Size Inches	OTIS	CAMCO	Size-Inches	OD Inches
1.900	1.437 1.500	1.43 -	1.900	1.900	40RB14	JUC15174	1.900	1.490 -
2.1/16	1.562 1.625	1.56 -	2.1/16	2.1/16x5-7/8	40SB6	JDC15154	2.1/16	1.615 -
2.3/8	1.781 1.812 1.875	1.78 1.81 -	2.3/8	2.3/8x6-1/8	40RB17 40SB1	JUC15185 JDC15169	2.3/8	1.865 1.865 -
2.7/8	2.062 2.250 2.312	2.06 2.25 -	2.7/8	2.7/8x6-3/32	40RB18 40SB2	JUC15189 JDC15171	2.7/8	2.115 2.302 -
3.1/2	2.562 2.750 2.812	2.56 2.75 -	3-1/2	3-1/2x6-11/16	40RB19 40SB9	JUC15191 JDC15181	3.1/2	2.625 2.802 -
4.1/2	3.688 3.750 3.812	3.68 3.75 -	4.1/2	4.1/2x6-1/2	40RB20 40SB10	JUC15193 JDC15183	4.1/2	3.740 3.802 -

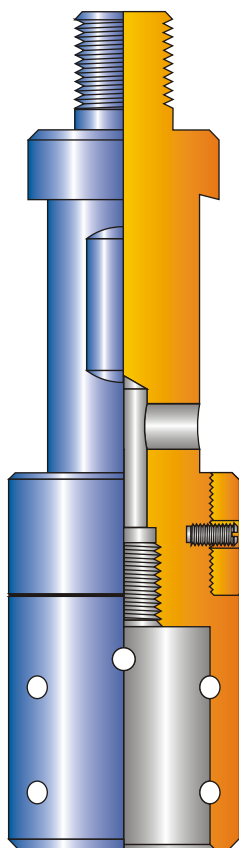


PARVEEN MODEL 'B' DOWNHOLE INSTRUMENT HANGERS

PARVEEN ‘RZB’ INSTRUMENT HANGER SPECIFICATIONS								
Tubing Nipple Accessory Availability			To Run		To Pull			Maximum Tool OD
Tubing Size	Nipple Size	Instrument Hanger	‘C-1’ Running Tool	Running Tool Attachments	Pulling Tool Type		‘B’ Probe	
				‘A’ Shank Dogs Retracted				
OD Inches	Seal Bore Inches	‘RZB’ Size	Size Inches	Size Inches	OTIS	CAMCO	Size-Inches	OD Inches
1.900	1.437	1.43	1.900	1.900	40RB14	JUC15174	1.900	1.427
	1.500	1.50						1.490
2.1/16	1.562	1.56	2.1/16	2.1/16x5-7/8	40SB6	JDC15154	2.1/16	1.552
	1.625	1.62						1.615
2.3/8	1.781	1.78	2.3/8	2.3/8x6-1/8	40RB17	JUC15185	2.3/8	1.771
	1.812	1.81			40SB1	JDC15169		1.802
	1.875	1.87						1.865
2.7/8	2.062	2.06	2.7/8	2.7/8x6-3/32	40RB18	JUC15189	2.7/8	2.052
	2.250	2.25			40SB2	JDC15171		2.240
	2.312	2.31						2.302
3.1/2	2.562	2.56	3-1/2	3-1/2x6-11/16	40RB19	JUC15191	3.1/2	2.552
	2.750	2.75			40SB9	JDC15181		2.740
	2.812	2.81						2.802
4.1/2	3.688	3.68	4.1/2	4.1/2x6-1/2	40RB20	JUC15193	4.1/2	3.678
	3.750	3.75			40SB10	JDC15183		3.740
	3.812	3.81						3.802



PARVEEN MODEL 'C-1' RUNNING TOOL



'C-1' RUNNING TOOL

The model 'C-1' running tool runs PARVEEN flow Control devices that have external fishing neck locks. A thread protector, which is the same O.D. as the tool body, makes selective setting possible. A seal bore locating ring provides Top No go Setting.

The 'C-1' running tool has a female thread box-down connection to accept model 'A' or 'N1' shank.

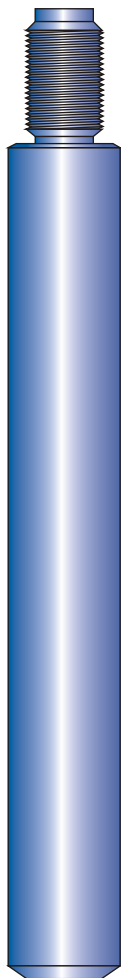
SPECIFICATIONS

Tubing Size	Nipple Seal Bore Size	Accessory Size	Running Tool Size	Locating Ring Size	Top Thread Connection	Fish Neck Size	Shear Pin Diameter
OD-Inches	Seal Bore-Inches	Size-Inches	Size-Inches	OD-Inches	Size-Inches	OD-Inches	OD-Inches
1.900	1.437	1.43	1.900-2 1/16	1.468	15/16-10	1.188	1/8
	1.500	1.50		1.520			
2.1/16	1.562	1.56		1.593			
	1.625	1.62		1.656			
2.3/8	1.781	1.78	2.3/8	1.807	15/16-10	1.375	3/16
	1.812	1.81		1.843			
	1.875	1.87		1.906			
2.7/8	2.062	2.06	2.7/8	2.093	15/16-10	1.750	3/16
	2.250	2.25		2.281			
	2.312	2.31		2.343			
3.1/2	2.562	2.56	3.1/2	2.593	1.1/16-10	2.312	3/16
	2.750	2.75		2.781			
	2.812	2.81		2.843			
4.1/2	3.688	3.68	4.1/2	3.718	1.1/16-10	3.125	3/16
	3.750	3.75		3.802			
	3.812	3.81		3.835			



PARVEEN MODEL 'A' SHANK

The model 'A' shank is used with the 'C-1' running tool to run 'S', 'W', and 'Z' locks (dogs retracted) during running. It can also be used as a prong carrier when prongs are required during running operations.

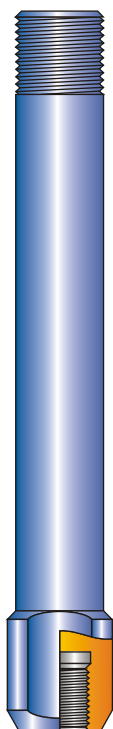


'A' Shank

SPECIFICATIONS				
Shank Size	Accessory Size	Shank Length		
		'S' Locks	'W' & 'Z' Locks	
		Dogs Trailing	Dogs Retracted	Dogs Trailing
OD-Inches	Size-Inches	Size-Inches	Size-Inches	Size-Inches
1.900-2.1/16	1.43	4.3/4	5.7/8	4.00
	1.50			
	1.56			
	1.62			
2.3/8	1.78	5	6.1/8	4.00
	1.81			
	1.87			
2.7/8	2.06	4.11/16	6.3/32	4.00
	2.25			
	2.31			
3.1/2	2.56	5.5/16	6.11/16	4.00
	2.75			
	2.81			
4.1/2	3.68	7	6.1/2	4.75
	3.75			
	3.81			



PARVEEN MODEL 'N-1' SHANK

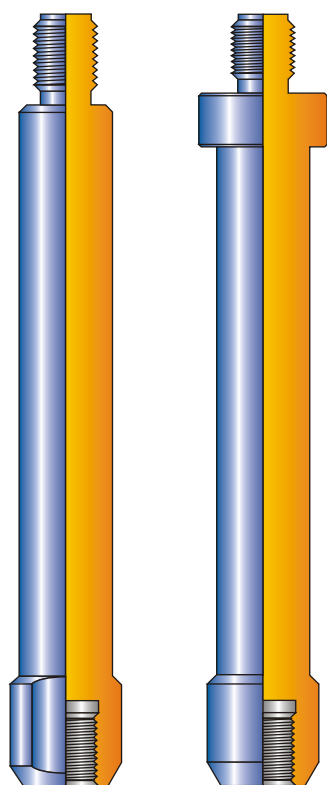


N-1 Shank

The Model 'N-1' shank is used in conjunction with the model 'C-1' running tool to run and land PARVEEN flow control equipment having 'G' or 'R' lock.

SPECIFICATIONS				
Size (inches)	Max O.D. (inches)	Top Conn.	Bottom Conn.	Length (inches)
2.3/8	0.938	3/4-16	1/2-13	10.7/8
2.7/8	1.235	1-14	1/2 -13	10.13/16

PARVEEN MODEL 'N-1' PROBE



2.3/8

2.7/8

The Model 'N-1' probe is used to retrieve 'G' and 'R' locks. It is used with standard pulling tools.

SPECIFICATIONS			
Size (inches)	Max O.D. (inches)	Length (inches)	Top & Bottom Connection
2.3/8	0.938	11-1/2	1/2-13
2.7/8	1.235	11-13/16	1/2-13



PARVEEN MODEL 'A' PRONG



'A' PRONG

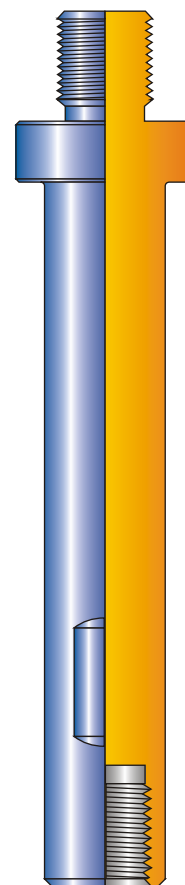
The Model 'A' prong is widely used in running, equalizing and pulling operations of various flow control devices.

SPECIFICATIONS		
Accessory Size	Prong Size Major OD	Top Thread Connection
Size-Inches	Size-Inches	Size-Inches
1.43-1.62	7/16	7/16-14
1.78-2.06	1/2	1/2 -14
2.25-2.56	1/2	1/2 -14
2.75-2.81	5/8	5/8-11
3.68-3.81	5/8	5/8-11

PARVEEN MODEL 'B' PROBE

The Model 'B' probe is used with a standard pulling tool to retrieve 'W' and 'Z' locks.

SPECIFICATIONS				
Lock Size (inches)	Probe Size (inches)	Length (inches)	Top Conn.	Bottom Conn.
1.43-1.62	1.90-2.1/16	6.28	1/2 -13	7/16-14
1.78-1.87	2.3/8	7.09	1/2 -13	1/2 -13
2.25-2.31	2.7/8	7.22	1/2 -13	1/2 -13
2.75-2.81	3.1/2	7.75	5/8-11	5/8-11
3.68-3.81	4.1/2	8.50	1.1/4-12	5/8-11

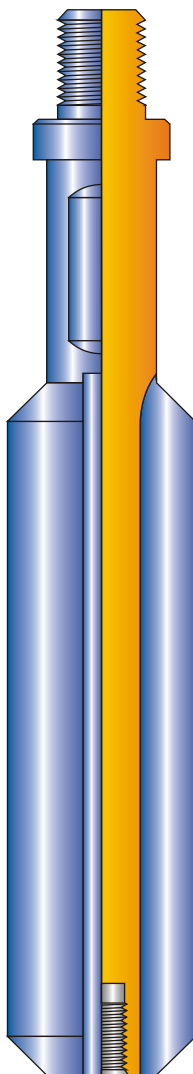


'B' PROBE



PARVEEN MODEL 'A' GUIDE

The Model 'A' Guide is basically a prong carrier. It centers and limit the prong penetration during equalizing operations. The Guide is manufactured with vertical slots to allow fluid bypass when equalizing taking place.

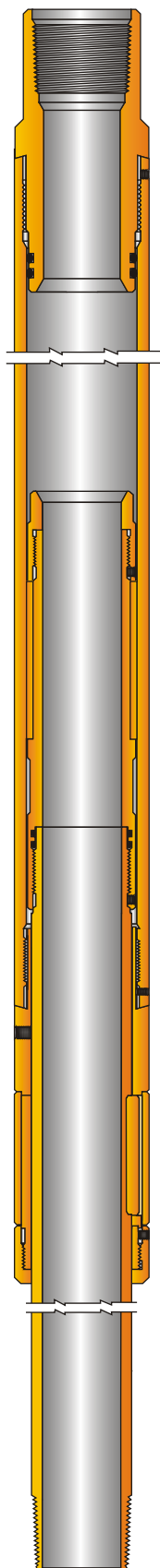


'A' GUIDE

SPECIFICATIONS				
Accessory Size	Guide Size	Fishing neck Size	Top Thread Connection	Maximum Tool OD
Size-Inches	Size-Inches	OD-Inches	Size-Inches	Size-Inches
1.43-1.50	1.900	1.188	15/16-10	1.3/8
1.56-1.62	2.1/16	1.188	15/16-10	1.1/2
1.78-2.06	2.3/8	1.375	15/16-10	1.3/4
2.25-2.56	2.7/8	1.750	15/16-10	2.3/16
2.75-2.81	3.1/2	2.312	1.1/16-10	2.11/16
3.68-3.81	4.1/2	3.125	1.1/16-10	3.9/16



EXPANSION JOINT



PARVEEN Expansion Joint provide alternate methods of compensating for tubing contraction and elongation in producing, injection and disposal wells. Expansion Joint are run as an integral part of the tubing string and offer full tubing drift I.D. compatible with other downhole control equipment. After packers and associated equipment are in place, Expansion Joints may be activated. Depending on the application, Expansion Joints may be selected to be activated by shear pin or with standard wireline tools.

SPECIFICATIONS				
Part No.	2785-000	2785-001	3500-000.	4500-000.
O.D.(inches)	4.25		4.75	6.50
I.D. (inches)	2.441		2.992	3.875
Box x Pin	2.7/8 API. EUE		3.1/2 API. EUE	4.1/2 API EUE
Stroke	10 FT	6FT	10 FT	

EXPANSION JOINT



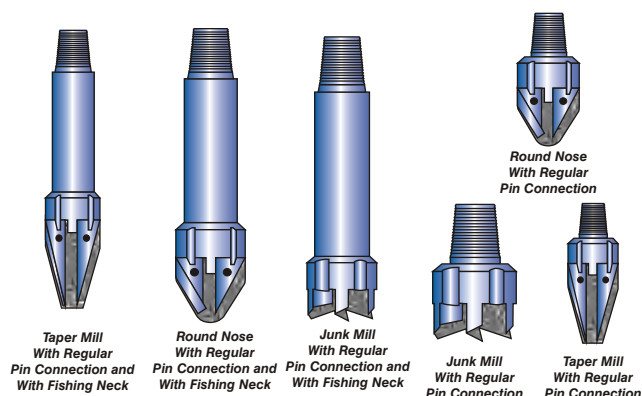
FISHING & MILLING TOOLS INDEX

SR. NO.	INDEX	PAGE
1	Milling Tools	295
2	Junk Milling	297
3	General Guidelines For Effective Milling	299
4	Pilot Milling	301
5	Taper Milling	303
6	Packer Milling Tool	305
7	Washpipe	307
8	Washing Over Shoes	308
9	Casing Scraper	311
10	Junk Subs	312
11	Junk Baskets	313
12	Reverse Circulating Junk Baskets	314
13	Fishing Magnets	315
14	Impression Blocks	317



PARVEEN MILLING TOOLS

In order to achieve optimum milling efficiency, PARVEEN mills are machined from low alloy steel. The high quality steel also permits quick redressing of mill in the field. The hard surfacing materials (sintered tungsten carbide particles) is applied to each mill blade. The provision of circulation ports in PARVEEN mills improves cooling and allows fast removal of cuttings. PARVEEN mills are available in standard sizes and in other sizes desired by customer.



SPECIFICATIONS-PARVEEN MILLING TOOLS

MILL SIZE (O.D.)		3-3/4-4-1/4	4-3/8-4-1/2	4-5/8-4-3/4	4-7/8-5	5-1/8-5-1/4	5-3/8-5-1/2	5-5/8-5-3/4
TOP CONNECTION		2-3/8	2-7/8	2-7/8	2-7/8	3-1/2	3-1/2	3-1/2
PIN		REG.	REG.	REG.	REG.	REG.	REG.	REG.
JUNK MILL	PART NO.	844080-S	844581-S	844781-S	845081-S	845282-S	845582-S	845782-S
	WEIGHT (lbs)	9	15	16	17	20	21	22
ROUND NOSE MILL	PART NO.	238040-S	234581-S	234781-S	235081-S	235281-S	235582-S	235782-S
(60° INCL. ANGLE)	WEIGHT (lbs)	15	25	25	25	32	33	34
TAPER MILL	PART NO.	854080-S	854581-S	854781-S	855081-S	855281-S	855582-S	855782-S
(30° INCL. ANGLE)	WEIGHT (lbs)	20	33	33	33	42	42	42
JUNK MILL WITH	PART NO.	844080	844581	844781	845081	845281	845582	845782
10" LONG F/N	WEIGHT (lbs)	26	43	44	45	50	56	57
ROUND NOSE MILL	PART NO.	238040	234581	234781	235081	235281	235582	235782
WITH 10" LONG F/N	WEIGHT (lbs)	32	53	53	53	67	68	69
TAPER MILL	PART NO.	854080	854581	854781	855081	855281	855582	855782
WITH 10" LONG F/N	WEIGHT (lbs)	37	61	61	61	77	77	77

MILL SIZE (O.D.)		5-7/8-6	6-1/8-6-1/4	6-3/8-6-1/2	6-5/8-6-3/4	6-7/8-7	7-1/8-7-1/4	7-3/8-7-1/2
TOP CONNECTION		3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	4-1/2
PIN		REG.	REG.	REG.	REG.	REG.	REG.	REG.
JUNK MILL	PART NO.	846082-S	846282-S	846582-S	846782-S	847082-S	847282-S	847583-S
	WEIGHT (lbs)	26	26	27	31	32	33	39
ROUND NOSE MILL	PART NO.	236082-S	236282-S	236582-S	236782-S	237082-S	237282-S	237582-S
(60° INCL. ANGLE)	WEIGHT (lbs)	39	38	39	49	50	51	79
TAPER MILL	PART NO.	856082-S	856282-S	856582-S	856782-S	857082-S	857282-S	857582-S
(30° INCL. ANGLE)	WEIGHT (lbs)	52	52	53	65	50	65	108
JUNK MILL WITH	PART NO.	846082	846282	846582	846782	847082	847282	847582
10" LONG F/N	WEIGHT (lbs)	60	61	62	66	67	68	101
ROUND NOSE MILL	PART NO.	236082	236282	236582	236782	237082	237282	237582
WITH 10" LONG F/N	WEIGHT (lbs)	74	73	74	84	85	86	141
TAPER MILL	PART NO.	856082	856282	856582	856782	857082	857282	857582
WITH 10" LONG F/N	WEIGHT (lbs)	87	87	88	100	100	100	170

* All dimensions in inches.



PARVEEN MILLING TOOLS

MILL SIZE (O.D.)		7-5/8-7-3/4	7-7/8-8	8-1/8-8-1/4	8-3/8-8-1/2	8-5/8-8-3/4	8-7/8-9	9-1/8-9-1-4
TOP CONNECTION		4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2
PIN		REG.	REG.	REG.	REG.	REG.	REG.	REG.
JUNK MILL	PART NO.	847783-S	848083-S	848283-S	848583-S	848783-S	849083-S	849283-S
	WEIGHT	40	41	54	55	56	68	70
ROUND NOSE MILL	PART NO.	237783-S	238083-S	238283-S	238583-S	238783-S	239083-S	239283-S
(60° INCL. ANGLE)	WEIGHT	80	81	84	85	86	118	120
TAPER MILL	PART NO.	857783-S	858083-S	858283-S	858583-S	858783-S	859083-S	859283-S
(30° INCL. ANGLE)	WEIGHT	110	112	116	118	120	160	168
JUNK MILL WITH	PART NO.	847783	848083	848283	848583	848783	849083	849283
10" LONG F/N	WEIGHT	102	103	116	117	118	130	132
ROUND NOSE MILL	PART NO.	237783	238083	238283	238583	238783	239083	239283
WITH 10" LONG F/N	WEIGHT	142	143	146	147	148	180	182
TAPER MILL	PART NO.	857783	858083	858283	858583	858783	859083	859283
WITH 10" LONG F/N	WEIGHT	172	174	178	180	182	222	230

MILL SIZE (O.D.)		9-3/8-9-1/2	9-5/8-9-3/4	9-7/8-10	10-1/8-10-1/4	10-3/8-10-1/2	10-5/8-10-3/4	10-7/8-11
TOP CONNECTION		4-1/2	6-5/8	6-5/8	6-5/8	6-5/8	6-5/8	6-5/8
PIN		REG.	REG.	REG.	REG.	REG.	REG.	REG.
JUNK MILL	PART NO.	849583-S	849784-S	840084-S	840284-S	840584-S	840784-S	841084-S
	WEIGHT	72	107	115	121	128	134	139
ROUND NOSE MILL	PART NO.	239583-S	239784-S	230084-S	230284-S	230584-S	230784-S	231084-S
(60° INCL. ANGLE)	WEIGHT	122	175	181	187	218	220	226
TAPER MILL	PART NO.	859583-S	859784-S	850084-S	850284-S	850584-S	850784-S	851084-S
(30° INCL. ANGLE)	WEIGHT	174	233	239	245	290	296	302
JUNK MILL WITH	PART NO.	849583	849784	840084	840284	840584	840784	841084
10" LONG F/N	WEIGHT	134	212	220	226	233	239	244
ROUND NOSE MILL	PART NO.	239583	239784	230084	230284	230584	230784	231084
WITH 10" LONG F/N	WEIGHT	184	280	286	292	323	325	331
TAPER MILL	PART NO.	859583	859784	850084	850284	850584	850784	851084
WITH 10" LONG F/N	WEIGHT	236	338	344	350	395	401	407

MILL SIZE (O.D.)		11-1/8-11-1/4	11-3/8-11-1/2	11-5/8-11-3/4	11-7/8-12	12-1/8-12-1/4	12-3/8-12-1/2
TOP CONNECTION		6-5/8	6-5/8	6-5/8	6-5/8	6-5/8	6-5/8
PIN		REG.	REG.	REG.	REG.	REG.	REG.
JUNK MILL	PART NO.	841284-S	841584-S	841784-S	842084-S	842284-S	842484-S
	WEIGHT	143	149	155	162	168	174
ROUND NOSE MILL	PART NO.	231284-S	231584-S	231784-S	232084-S	232284-S	232484-S
(60° INCL. ANGLE)	WEIGHT	229	235	241	280	284	288
TAPER MILL	PART NO.	851284-S	851584-S	851784-S	852084-S	852284-S	852484-S
(30° INCL. ANGLE)	WEIGHT	306	312	318	370	376	382
JUNK MILL WITH	PART NO.	841284	841584	841784	842084	842284	842484
10" LONG F/N	WEIGHT	248	254	260	267	273	279
ROUND NOSE MILL	PART NO.	231284	231584	231784	232084	232284	232484
WITH 10" LONG F/N	WEIGHT	334	340	386	385	389	393
TAPER MILL	PART NO.	851284	851584	851784	852084	852284	852484
WITH 10" LONG F/N	WEIGHT	411	417	423	475	481	487

HOW TO ORDER :

SPECIFY :

- 1) Name and Part Number of Mill.
- 2) O.D. of Mill.
- 3) Top Connection, if other than Standard.



JUNK MILLING

Junk Milling - Description and Usage

The Junk Mill, dressed with Tungsten Carbide chews its way through the toughest drilling materials. It is often said to be the true workhorse of down hole milling operations.

When drill pipe is cemented inside and out, a Junk Mill is the only tool will do the work. However, if the drill collars or drill pipe are not collapsed and the I.D. is open, a Pilot Mill can sometimes be used to better advantage. Often you can get better results with a Pilot Mill on wash pipe as well.

When casing has been milled with a Pilot Mill to the point where it begins to rotate, it can often be pounded down and milled using a Junk Mill made up on the end of a length of slightly eccentric or bent drill pipe.

Packers, testers, and bridge plugs can usually be milled in a few hours using a Junk Mill.

Use Junk Mills to mill almost anything in the hole, including:

Bailer	Cement	Packers	Subs
Bit Cones	Drill Collars	Reamers (shot length)	Testers
Bits	Drill Pipe	Setting Tools	Washpipe
Calipers	Hangers	Slips	Whipstocks
Casing (collapsed)	Jars	String shots	

General Guidelines For Using a Junk Mill

When milling loose junk, operations can be improved by frequent spudding. This action will pound the junk onto the bottom, positioning it for more effective milling.

Never permit a sliver of junk to lodge next to the mill. Force it down by spudding the mill. A noticeable increase in torque will indicate that junk is alongside the mill.

Picking up the mill and lowering it periodically will decrease the possibility of a deep-wear pattern developing the face of the mill. Instead it forces a new wear pattern to develop, thus evening the wear on the mill face.

When milling cast-iron bridge plugs, the mill O.D. should be approximately 1/8" under the size of the bridge plug - this will prevent "skinning" the casing.

Step by Step Junk Milling Procedures

1. Feel for the bottom, spud the junk, "kick in the pumps"; the same as for normal drilling conditions.
2. Begin rotation at 60-80 RPM.
3. Begin weight at 4,000 lbs.
4. If there is an indication junk may be turning, spud two or three times.
5. After milling one or two feet, pick up the Kelly fifteen to twenty feet off the bottom and reduce pump pressure or shut of pumps (depending on hole conditions). This action will let the loose junk settle to the bottom.
6. Once again feel for the bottom and spud. Begin rotation at 80-100 RPM using normal pump pressure. Begin weight at 4,000-6,000 lbs.
7. Repeat steps 3 and 4 every few feet Procedures from here on will be governed by feel.

NOTE: In hard formation it will take fewer feet of hole to mill up the junk than in softer formation. This difference is due to junk more readily penetrating the softer formation.

Recommendations for Milling Junk

Loose Junk in Open Hole

- Use a junk mill with an O.D. of 1/8" less than hole diameter.
- Use at least 10,000 lbs. of drill collars.
- Run a junk sub directly above the mill. (Please note: junk subs for 4-3/4" and smaller drill collars are not strong enough for repeated spudding.)



JUNK MILLING

- Frequent spudding improves milling efficiency on loose junk. To spud the junk and force it down, proceed as follows:
 - 1) Determine the neutral on zero point. Mark the kelly at the top of the kelly bushing.
 - 2) Pick up the kelly our to six feet (four feet in deeper holes, six feet in shallower holes.)
 - 3) Drop the kelly and catch it (not slow down, but catch it) with the brake about eighteen to twenty inches above the zero mark. (Example: Pick up 10' and drop it 8-1/2'). This action causes the drill string to stretch & spud the junk on bottom with great force while the string is still in a state of tension. This prevents damage to the string which might be expected if the string is in Compression at the moment of impact.
 - 4) Spud the junk three or four times, turning the mill a quarter-turn each time between drops.

Stationary Junk in Open Hole

- Use a Junk mill with a diameter about 1/8" less than the hole diameter.
- Mill with 4,000 to 10,000 lbs. of weight, depending upon the strength of the fish being milled.
- After each three to five feet of junk milled, pick up the mill ten to fifteen feet and ream hole down to the fish.
- After reaming the hole down, always set down on the fish while turning and bring the weight up to milling weight without delay. Never apply weight first and then start rotating.
- Never set down on the fish with a light weight and spin. If you wish to stop milling for any reason, always pick up the mill. Spinning in one spot on the fish can cause the steel to work-harden to such an extent that it will be difficult to restart milling.

Loose and Stationary Junk Inside the Casing

Procedures for running a Junk Mill inside the casing are the same except for the following:

- Run a stabilizer directly above the mill which has the same O.D. as the mill.
- The mill head O.D. should be the same as the drift diameter of the casing.

Wear pads having the same O.D. as the diameter of the mill head are provided on the Junk Mill. These will eliminate possible damage to the casing.

INSTRUCTION FOR APPLYING SINTERED TUNGSTON CARBIDE ROD

APPLICATION:

The bonding temperature of Sintered Tungsten Carbide Rod is 1680 degrees to 1800 degrees Fahrenheit. ***It is important not to overheat.*** Use a full neutral flame during entire application, never allowing the cone of the flame to touch the base metal or the metal being applied. (This is to prevent oxidizing)

Thoroughly clean and brighten base metal. Pre-tin with Special Tinning Alloy, (It is not necessary to pre-tin any of the Mesh Sizes). When pre-tinning is completed, heat the base metal until the applied tinning alloy begins to melt or until the base metal comes to a dull cherry red. Sintered Tungsten Carbide Rod should then be applied, concentrating the carbides as closely as possible to insure the maximum cutting or wearing action, depending upon the size carbides used. It is helpful to the apply the flame to the back side or round portion of the Sintered Tungston Carbide Rod. This keeps the sharp cutting edges from receiving too much heat.

AFTER APPLICATION:

Slow cool material to which Sintered Tungsten Rod Carbide has been applied.

A carbon rod may be used to place the carbides in the desired positions to best utilize their cutting edges.

To re-surface a tool where Sintered Tungsten carbide Rod has been previously applied, it is helpful to used a carbon rod to apply brazing flux to the previously applied metal. This flux cleans out dirt, oil, grease, etc. And gives a better surface for bonding the new Sintered Tungsten Carbide Rod material.



GENERAL GUIDELINES FOR EFFECTIVE MILLING

Good Cutting Return

The following are guidelines for the optimum use of drilling mud to circulate steel cuttings out of the wellbore.

- A minimum annular velocity of 120 feet per minute should be maintained.
- Oil-base mud should be avoided whenever possible.
- Ordinarily, no difficulty is encountered in raising drilling cuttings or the usual cavings (if any) using normal drilling practices. Most difficulties are encountered when a light ring with a small mud pump is used in remedial work. A common remedy in such cases is to add bentonite to the mud so that the effective viscosity becomes sufficient to raise the cuttings or cavings.
- If "bird nesting" occurs around the drill string, pull up the kelly and circulate down until proper cutting return is achieved. During long milling jobs this procedure should be repeated frequently to maintain rate of penetration.
- Always inspect I.D. of subs or auxiliary tools to make sure they are full-bore and have no restrictions. Changes in cross sections can reduce fluid volume and result in poor cutting return.
- Reverse circulation is another way to remove cutting accumulation in the fish. In some cases, junk baskets, bailer, or snatchers are used to remove or catch cuttings.

How to Read Cuttings?

The ideal cuttings is usually 3/32" to 1/4" thick and 2" to 4" long. If cuttings are thin or "hair-like" and penetration rates are low, weight on the tool should be increased.

If fish-scale type cuttings are being returned when pilot milling, the penetration rates should improve by decreasing weight and increasing rotary table speed. This is more common when milling H-40, J-55 and K55 pipe. When milling up N-80 or P-110, finer cutting return can be expected.

Recommendations on Weights and Speeds

Generally the most efficient rates are obtained by running the rotary at 80 to 100 RPM. Milling with washover shoes is an exception; they are usually more efficient when run at 60 to 80 RPM. (As with all milling tools, speed and weight will be dictated by actual conditions.)

Always start rotating about one foot above the fish. Lower onto the fish and vary the weight to improve the penetration. Whenever possible, maintain a constant milling weight. Feed the drum slowly, allowing the drawworks to "creep"; do not drill off.

The wear pattern on the mill is a great indicator of its performance downhole. If the dressed blades show a hook wear pattern, the mill is working efficiently. If a tapered pattern exits, ease off the weight.

Some Factors That Affect Milling Rates

The type and stability of the fish (cemented or not), the weight on the mill, the speed at which it is run, proper carbide dressing of the mill, as well as the weight, stiffness and vibration of the drill collars, are all factors which will affect milling rates. The hardness of the fish or cement will also affect a mill's performance.

When milling cemented casing, penetration rates can be increased by using higher weights and speeds. Unlimited casing should be milled at lower speeds with less weight. When severely corroded casing is encountered, high-speed, light run will prevent tearing or splintering the fish.

Encountering Rubber in the Hole

Rubber always presents problems during milling. When milling rates decrease, cut back or shut off pump pressure. Pull kelly up and spud the mill to help get a bit on the rubber. When necessary, pull the kelly, remove the mill, and clean the fish by running a drill bit in the string.



GENERAL GUIDELINES FOR EFFECTIVE MILLING

Stabilizing the Mill

A mill that moves or wobbles does a poor job. Whenever possible, a stabilizer should be run two collars above the mill. The stabilizer O.D. should not exceed the dressed O.D. of the mill.

What to Do About rough Operation

When bouncing or rough running occurs, decrease speed to 50 RPM or less and weight to 3,000 lbs, or less. After an hour, slowly increase speed and weight. If penetration is good, continue at present speed; if not, increase speed. If rough running recurs, once again decrease and gradually increase.

Tips on Liner Hangers, Centralizers and Scratchers

Most liner hangers mill easily, but some old types have many slips and rotating parts. When these are encountered, pick up the kelly and spud the mill frequently to position the parts for effective milling. When milling centralizers and scratches, use a mill with blades that extend completely over them to ensure best results.

PARVEEN'S Operating Recommendations for Milling

The RPM's required for good milling rates are often determined by feel or the operator's experience. When using small mills up to 8-1/2 inch diameter, operators sometimes run up to 150 RPM, but usually stay around 100 to prevent the drill pipe from whipping around. If run at high RPM, the mill can hang up and stick momentarily, and the drill pipe will twist up until the mill lets go. The string will then violently untwist, often breaking tool joints or twisting off pipe. Thus the RPM, when using small mills, is limited by the string and hole conditions.

Above 8-1/2 inch diameter, mill moving at 100 RPM begin to have very high surface speed. High speed can burn or damage the tungsten carbide.

Tungsten carbide cuts steel best at 250 to 340 surface feet per minute, or 3,000 to 4,000 inches per minute surface speed.

GENERAL OPERATING RECOMMENDATIONS FOR MILLING				
TYPES OF MILL	TABLE SPEED, r.p.m.	WEIGHTS, lbs.	MIN. VIS. OF MUD	REMARKS
JUNK MILL	100	4,000 - 10,000	50	Spud Mill from time to time
PILOT MILL	125	6,000 - 10,000	60	Vary weight to attain best cutting speed
TAPER MILL	50 - 80	2,000 - 4,000	50	Begin with light weight and low speed

CASING CUTTING CHARACTERISTICS				
CASING TYPES	AVG. CUTTING RATES WITH PILOT MILL, ft./hr.	TABLE SPEED, RPM	AVERAGE WEIGHT, lbs.	CUTTING APPEARANCE
P-110	6+	125	8,000	Long String, Sharp
N-80	6+	100	6,000	Long String, Sharp
J-55, K-55	4+	100	6,000	Med Length, Fine
H-40	1+	80	2,000	Scaly, Dull

*NOTE:

If casing is old or excessively corroded, this rate may be higher.



PILOT MILLING

Pilot Mills - Description and Usage

Parveen Pilot Mills dressed with Tungsten carbide are recommended for milling washpipe, safety joints, crossover swage and washover shoes. Liner hangers can be milled efficiently, eliminating inside cuts and running spears or jars. The nose, or pilot, can be dressed to mill out junk which may be encountered.

Use Pilot Mills to mill :

Adapters	Casing	Liners
Washpipe	Drill Pipe	Swaged Casing

General Guidelines for Using Pilot Mills

- In selecting a Pilot Mill, the blade O.D. should be about 1/4" larger than the O.D. of the tool joint or coupling of the fish to the milled. The pilot O.D. should be the same as the drift diameter of the fish.
- The best speed and weight to run a pilot Mill must be determined for each job. Also, conditions may change from one pilot-milling job to the next in the same well. This may require different speeds and weights at different times. In the absence of experience, start with a rotary speed between 80 and 100 RPM and tool weight of 2,000 to 6,000 lbs. Experiment to obtain the best results.
- When milling a liner or casing that has been gun perforated, damaged with a spear, or collapsed, use 60 RPM and 2,000 lbs. of weight or less.
- If, when milling swaged casing, you experience a sudden drop-of in milling rate, the trouble may be caused by a loose ring of steel formed at a joint or weld which is turning with the Pilot Mill. Try spudding the Pilot Mill gently. This should break up the ring and help position it for milling.
- If cutting stops altogether when milling washpipe, casing or liner, and there is no noticeable increase in torque, there is a good chance the fish is turning. If this is the case, pull the mill and attempt to retrieve the fish using a spear.

Considerations When Milling Liner, Hangers and Adapters

On most liner milling jobs, a Pilot Mill is used to first mill the liner hanger or adapter and then the liner. In some cases the liner hanger or adapter is milled using Junk Mill. Then the liner is milled with a Pilot Mill. This latter method is preferred if there is hard cement behind the liner or if the hanger has numerous bowsprings, slips, etc. Select a Pilot Mill with blades that will cut just over the pipe couplings. This will result in a minimum of cement being encountered.

A Pilot Mill is Ideal for Wash Pipe

The Pilot Mill is the most efficient tool for milling stuck washpipe. If drill pipe or drill collars are inside washpipe, however, they must first be milled with a Junk Mill or smaller Pilot Mill.

Milling Drill Pipe and Drill Collars

Drill pipe and drill collars are sometimes milled with Pilot Mills, if the I.D. is open. If the drill pipe is cemented inside the casing, particularly in deviated holes, the pipe is probably lying to one side with its center eccentric to the casing. Most often this makes the job extremely difficult for a Pilot Mill. Under these conditions, we recommend a full gauge Junk Mill. A Pilot Mill will do a reasonable job on drill collars, provided the cuttings can be removed as the milling progresses. If cuttings tend to fall into the I.D. and plug it, then a Junk Mill must be used.

Milling Casing

Casing can be milled with a Pilot Mill in the same manner that washpipe is milled.

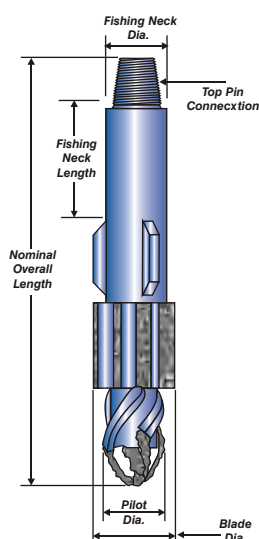
PILOT MILLING

Using the Pilot Mill in Swage Completion

The Pilot Mill is ideally suited to mill out the necked down portion of casing in swaged completion. In this method, necked-down lengths of casing-either J-55, K55 or N-80, corresponding in length to the thickness of the producing zones - are made up with swage to the regular casing collars in the string. The casing is cemented and water shut-off is obtained at all zone intervals. The necked-down portions are then milled on with a Pilot Mill and the resulting sections are opened with an underreamer. This last operation removes cement and wall cake, leaving a clean producing area.

How to Mill a Fish Using a Pilot Mill

1. Lower the mill about five feet above the fish. Set the brake and start rotating. Slowly increase rotation to 125 RPM. Raise and lower the mill three to six feet but do not touch the fish while rotating. This action will tell you the neutral weight of the string and it will permit you to note the normal torque in the string. By the torque in the string when the pilot of the mill enters the fish, you can determine if the pilot has entered properly.
2. Reduce rotation to about 30 RPM and enter the pilot into the fish. Apply 2,000 lbs. of weight. Stop rotating quickly while you note the torque action of the string. A gradual slow-down or spin indicates that the mill has entered the fish with proper alignment.
3. To mill J-55 or K-55 casing, use a weight between 4,000 and 6,000 lbs. and a speed of 125 RPM. N-80 and P-110 casing requires a weight of 8,000 to 10,000 lbs. If the casing is surrounded by hard cement, or if the open hole diameter is the same or less than the blade O.D. of the mill, more weight may be needed to drill cement or the formation, in addition to the fish. When working below the shoe of the casing, ream the hole up and down after every 15 to 20 feet of fish milled to clean out any accumulation of cuttings which may have collected at the shoe. Periodic reaming to ensure cutting removal is also a good practice in holes with drift angles of 45 degrees or higher.
4. Normally, milling should be continued at an even rate without interruption once it has been started. Do not re-weight the string at short intervals or pull the pilot out of the fish.



SPECIFICATIONS - PARVEEN PILOT MILLS						
BLADE DIA.	PIN CONN. API REG.	PILOT DIA.	OVERALL LENGTH	FISHING NECK LENGTH	FISHING NECK DIA.	WEIGHT lbs. (APPROX.)
3-1/4-3-7/8	2-3/8	1-3/4-2-3/4	27	12	3	40
4-4-3/8	2-3/8	1-3/4-2-3/4	27	12	3-1/8	45
4-5-3/8	2-7/8	2- 3-1/4	27	12	3-3/4	120
5-1/2-5-5/8	3-1/2	2-1/2-4-3/4	38	16	4-1/4	240
5-3/4-7-3/8	3-1/2	2-1/2-4-3/4	38	16	4-3/4	255
6-9-7/8	4-1/2	4-3/4-6-3/4	42	18	5-3/4	305
9-7/8-17-1/2	6-5/8	7-3/4-15	45	18	7-3/4	550

NOTE :

Standard API regular Pin. Other Size available on request.



TAPER MILLING

Taper Mills - Description and Usage

Taper mills are generally used to eliminate restrictions or to mill through "pinched", collapsed casing. They are equipped with a tapered or a short blunt nose, which serves as a guide. The type of restriction dictates the type of mill to be used.

PARVEEN Round Nose Taper Mill: Designed for the Toughest Taper Milling Jobs

PARVEEN Round Nose Taper Mill features a blunt-nose design that makes it useful in those taper milling applications where the going is so rough that mills with a longer taper might break. It generates considerably less torque than a conventional taper mill because of its shorter taper section. Because of the low-torque feature, the Mill can be run with more weight, when required, for operations such as milling plate or solid junk in deepening operations.

PARVEEN Taper Mill: Perfect for milling Through Restrictions

PARVEEN Taper Mill was designed for milling through restrictions. The spiral blades and the pointed nose, dressed with Tungsten Carbide make it ideal for reaming out collapsed casing and liners, cleaning up permanent whipstock windows, milling through jagged or split guide shoes and enlarging restrictions through retainers and adapters.

General Guidelines for Using Taper Mills

- Taper milling table speeds are governed by torque encountered. To overcome torque problems, speeds should not exceed 75 RPM
- Never start rotating a taper mill with it resting on the fish. Enter the fish with a rotary speed of 75 RPM or less.
- Use less weight when running a taper mill than a junk mill or pilot mill. After you have entered the fish, increase the tool weight slowly to 1,000 - 2,000 pounds. Watch for any torque increase.

How to Clean Up Whipstock Windows Using a Taper Mill

- 1) Use a Taper Mill of the same diameter as the largest mill used to mill the window (or slightly larger than the bit to be used).
- 2) Run the Taper Mill into the hole to within five feet of the top of the window.
- 3) Start the rotary table and rotate at approximately 40 RPM down the face of the whipstock.
- 4) Keep the weight under 1,000 lbs. Excessive weight May cause the Taper Mill to slip out of the window prematurely.
- 5) Rotate slowly, with light weight, down the full length of the face of the whipstock. Do not attempt to make hole using this tool.
- 6) To clean up all rough edges, repeat the above procedure several times until the mill runs smoothly for the full length of the whipstock.

Procedures for Reaming Out Collapsed Casing

- 1) Determine the approximate diameter using an impression block or bit that will pass through the collapsed interval. Do not use a Taper Mill if the collapsed interval has passed center. (See Paragraph 6 below)
- 2) Use a Taper Mill about 1/4" larger than the minimum I.D. of the collapsed section and mill out the collapsed interval by stages. In other words, if the collapse is great, use several different sizes of mills to bring the I.D. of the pipe to full gauge. This will minimize any tendency to sidetrack.
- 3) A String Taper Mill can be used if there is any danger that sidetracking may occur. The length and diameter of the String Taper Mill will be governed by the casing conditions. If used, the action of this tool is purely reaming.
- 4) Begin milling at a table speed of about 50 RPM.
- 5) The milling weight is governed by the torque encountered. In most cases, milling weights of around 2,000 - 3,000 pounds are used.



TAPER MILLING

- 6) Where the pipe is greatly collapsed, the lower portion of the collapsed interval may act as, a whipstock. The Taper Mill, in this case, may cut through the upper portion of the collapsed interval and be deflected into the formation by the lower section of the damaged casing. Use very light weight with a table speed of about 125 RPM to mill out the collapsed portion and enter the undamaged casing below. Paragraph 3 above suggests another approach if there is an opening large enough to get tubing or "macaroni" lead through.

Use a Taper Mill to Ream Out Guide Shoes

In some cases, the bull plug on the bottom of liners or casing may be jagged or split to such a degree that the string hangs up coming out of the hole. This condition can be remedied, generally, by reaming through the guide shoe with a Taper Mill. Use the procedure recommended for enlarging restrictions through retainers and adapters.

PARVEEN PACKER MILLING TOOL

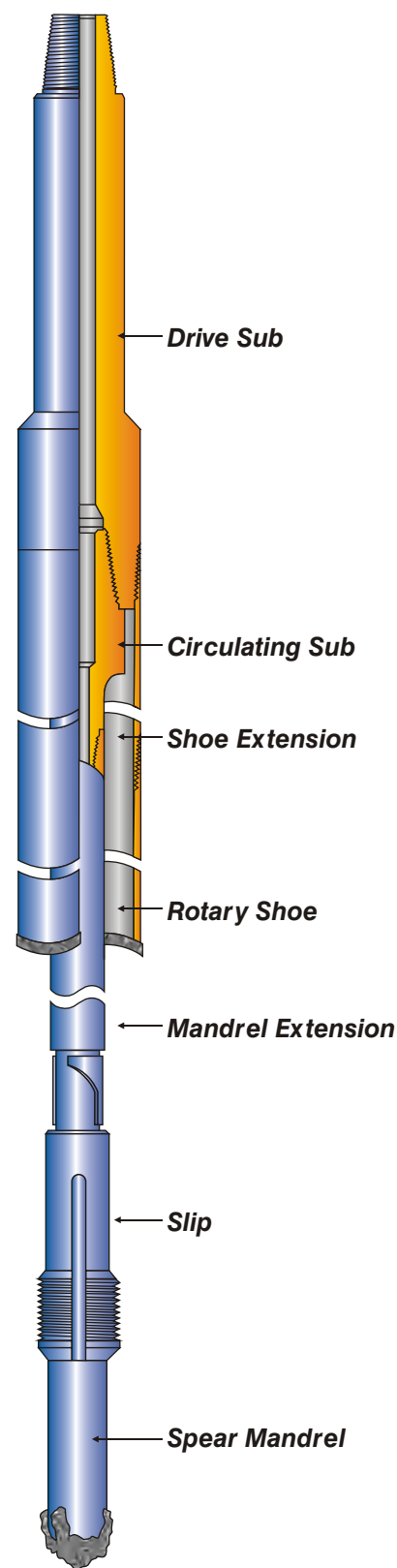
General Description

The PARVEEN PRS Packer Milling Tools (Packer Retriever) is an internally engaging fishing tool designed for the retrieving of production packers. With its accessory components (Stinger, Bushing and Mill Shoe) it passes through the bore of the packer, mills the packer slips loose and pulls the packer after it has been milled over, all in one trip. A Packer Retriever is assembled with the proper size slip to engage the bottom of a specific bore packer, and made up on the lower end of sufficiently long stinger (extension) to permit the Retriever to be lowered completely through the packer during the milling operation. The Bushing is provided with a box connection at its lower end to attach the Stinger, also a pin connection at the lower end for attaching Mill Shoe, and a pin or box connection at its upper end for connection to the run-in or fishing string.

Operation

Make up a complete PARVEEN PRS Packer Milling Tools consisting of Retriever, Stinger, Bushing and Mill Shoe. Make sure that the tool is compatible with Casing and Packer sizes and will permit proper and safe operations of the milling and retrieving operations.

Lower the fishing string until the Mill Shoe contacts the slips of the packer. Milling operations may begin until drill off conditions are established. Generally, light drill loads should be used to start to enable the shoe to cut the thin bevel upper parts of most packers away until full mill shoe face contact is established. Additional weight may be added to establish optimum conditions. Rotary Speeds must be established that are sufficient with a given weight, to burn or abrade the carbide particle matrix away to expose the successive new cutting edges of carbide particles. When this condition is established the Mill Shoe will cut almost any metal with maximum efficiency. Start circulation and right-hand rotation to mill away the slips and seating element of packer. When the packer begins to slide down the hole, stop rotation, raise the fishing string to engage Packer Retriever with packer and then pull the assembly and fish from the hole. The best condition of removal for most makes of full bore production packers is to mill up the upper slips and approx. half of the packing element before retrieval is attempted.





PARVEEN PACKER MILLING TOOL

To Release the Retriever

For any of several reasons, it may be required to release the Retriever from the packer. Release of the Retriever is accomplished by elevating the fishing string until weight is indicated. Lower the fishing string about three to four inches. Rotate the string right hand and slowly elevate the string to withdraw the Retriever from the packer.

Confirm the following:

- 1) That the Retriever is assembled with the correct size slip for the packer to be caught.
- 2) That the Stringer is sufficiently long to permit the Retriever to pass completely through the packer.
- 3) That the Bushing and Mill Shoe are the correct size for the casing specifications.

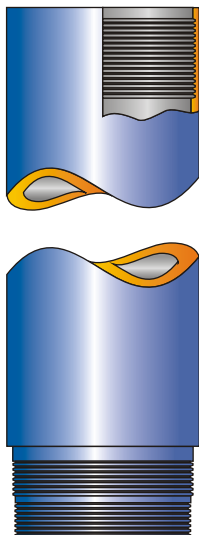
Make up complete assembly to the fishing string. (Scrapers or drift tools should be run prior to running the Milling Tool to depth. The casing in which the packer is to be removed should be washed clean to the packer top and a fluid and pump equipment must be selected that will clean the mill shoe and remove all cuttings from the hole as the packer is mill-up) Lower the Retriever in to the hole on the fishing string and pass it through the packer. The Retriever must clear the packer bore and be in a free position below the packer before milling or rotating of the string. If there are restrictions below the packer such as perforated nipples, landing subs or tail pipe, extensions must be used to position the packer retriever well below these points so that the rotation of the string will not foul the Packer Retriever.

Now, raise the fishing string slowly and carefully until it takes weight. This ensures that the Retriever will engage the packer seat.

Maintenance

To guard against mis-runs and to prolong the life of the PARVEEN PRS Packer Retriever it should be completely disassembled, thoroughly cleaned, lubricated and reassembled before storing. Exterior surfaces may be either painted or lubricated to prevent rust and deterioration.

WASHPIPE



High torque strength flush-joint washpipe develops twice the torque load strength of ordinary joints for continued make and break usage.

2-Step, non-tapered thread profile

- No thread interference to cause galling
- Fast make-up
- Stable, 2-thread flank stabbing

Rugged 90° torque shoulders

- Provided by two square shoulders
- Torque shoulders make-up together and act as a unit
- Develops twice the torque strength of regular connections

Threads designed specifically for washpipe service

- Resistance to handling damage
- Shoulders like a tool joint for the repeated use requirements of washover operations.

CASING CONNECTION FOR WASHPIPE

SIZE O.D. INCHES	WEIGHT lbs/ft.	WALL INCHES	CONNECTION YIELD TOQUE (N-80) ft.-lbs	I.D. NOMINAL INCHES	DRIFT (API) INCHES	SIZE O.D. INCHES	WEIGHT lbs/ft.	WALL INCHES	CONNECTION YIELD TOQUE (N-80) ft.-lbs	I.D. NOMINAL INCHES	DRIFT (API) INCHES
3-1/2	9.2	.254	3,000	2.992	2.867	7-5/8	26.4	.328	20,000	6.969	6.844
3-3/4	9.5	.250	3,000	3.250	3.125	7-5/8	29.7	.375	23,000	6.875	6.750
4	11	.262	3,500	3.476	3.351	7-5/8	33.7	.430	27,000	6.765	6.640
4	11.6	.286	4,000	3.428	3.303	7-5/8	39	.500	32,000	6.625	6.500
4	14	.330	5,000	3.340	3.215	7-5/8	45.3	.595	39,000	6.435	6.310
4	15.7	.380	6,000	3.240	3.115	8	31	.375	24,000	7.250	7.125
4-1/2	13.5	.290	5,000	3.920	3.795	8-1/8	32	.370	24,000	7.385	7.260
4-1/2	15.1	.337	7,000	3.826	3.701	8-1/8	32.5	.375	25,000	7.375	7.250
4-3/4	16	.334	7,000	4.082	3.957	8-1/8	35.5	.420	30,000	7.285	7.160
5	15	.296	7,000	4.408	4.283	8-1/8	39.5	.470	35,000	7.185	7.060
5	18	.362	9,000	4.276	4.151	8-7/16	35.5	.406	30,000	7.625	7.501
5-3/8	19.5	.353	10,000	4.669	4.544	8-5/8	36	.400	30,000	7.825	7.700
5-1/2	17	.304	9,000	4.892	4.767	8-5/8	40	.450	35,000	7.725	7.600
5-1/2	20	.361	11,000	4.778	4.652	8-5/8	44	.500	40,000	7.625	7.500
5-1/2	23	.415	13,000	4.670	4.545	8-5/8	49	.557	55,000	7.511	7.386
5-1/2	26	.476	16,000	4.548	4.423	9	40	.425	35,000	8.348	8.223
5-3/4	18	.312	11,000	5.126	5.001	9-3/16	31	.326	26,000	8.532	8.407
6	20	.324	12,000	5.352	5.227	9-5/16	38	.389	35,000	8.535	8.410
6	23	.380	14,000	5.240	5.115	9-1/2	47	.483	48,000	8.537	8.412
6-1/4	20	.312	12,000	5.626	5.501	9-5/8	40	.395	40,000	8.835	8.679
6-3/8	24	.375	16,000	5.625	5.500	9-5/8	43.5	.435	45,000	8.655	8.599
6-3/8	28	.438	20,000	5.499	5.374	9-5/8	47	.472	50,000	8.681	8.525
6-5/8	24	.352	16,000	5.921	5.796	9-5/8	53.5	.545	60,000	8.535	8.379
6-5/8	28	.417	20,000	5.791	5.666	10-3/4	45.5	.400	50,000	9.950	9.794
6-3/4	35	.520	25,000	5.710	5.585	10-3/4	51	.450	60,000	9.850	9.694
7	26	.362	18,000	6.276	6.151	10-3/4	55.5	.495	65,000	9.760	9.604
7	29	.408	21,000	6.184	6.059	11-3/4	54	.435	65,000	10.880	10.724
7	32	.453	23,000	6.094	5.969	11-3/4	60	.489	80,000	10.772	10.616
7-3/8	29	.375	20,000	6.625	6.500	13-3/8	72	.514	110,000	12.347	12.191
						16	109	.656	188,000	14.688	14.532

NOTE : Connections are interchangeable with FJWP threads.

1. Recommended make-up torque are 25% of the connection yield torque.



WASHING OVER SHOES

Washover Shoes - Description and Usage

Washover shoes mill away formation or tool obstructions such as stabilizer blades, reamer cutters, expanded packers and bit bodies which may be holding the drill string in the hole. By using joints of wash pipe, the Wash over shoe can be slipped over the drill string and lowered to the stuck fish. Designs are available for heavy wall and for thin wall shoes, for working in open hole, or for working inside the casing.

Use Washover Shoes to Free or Washover :

Back Off Tolls	Drill Collars	Keyseat Cutters	Rock Bits	Stabilizers
Drill Pipe	Jars	Packers	Reamers	Subs

Technique for Washing Over

Generally when milling Washover Shoes, light weight and low speeds will reduce the possibility of splitting or flaring the shoe. Start at 50 to 100 RPM and gradually increase to 125 to 150 RPM. Slowly increase weight from 2,000 lbs. to 6,000 lbs. If torque is encountered, reduce speed and weight.

Break off the string 30' to 60' above the pipe. This will allow you to run a minimum number of wash-pipe joints, which is especially important in unstable formation.

Cutting Removal When Washing Over

When running Wash over Shoes, the rate of penetration can be high. This can cause problems with cutting removal. Pay attention to proper mud conditioning. Be sure cuttings are being removed as milled. If you encounter problems getting optimum cutting return, decrease weight on tool and rotary table speed.

Selection of The Right Washover Shoes

Toothed: The toothed type is best suited for cutting formation and cement when a minimum of metal obstructions will be encountered during the washover interval. This tool is highly effective for washing over stuck collars or drill pipe, as well as tubing that might be sanded in place.

V-Notch, Wavy Bottom And Flat Bottom (Perforated) : The perforated shoe is generally manufactured with a flat bottom, V -notch or wavy bottom cutting pattern. This perforation design allows the wall of the shoe to be filled with Tungsten carbide. This results in a self-sharpening action on the I.D., O.D.,

and across the entire face. The perforated dress design eliminates the common problem of the carbide bottom dress wearing off, exposing a ring of steel where the carbide is most needed.

Ordering Washover Shoes

Parveen Washover Shoes give long wear and maximum performance. They are dressed with specially selected Tungsten carbide hard facing, which provides continuous sharp cutting edges for long washover intervals. PARVEEN will apply dressing anywhere on the shoes - bottom, inside, outside; any combination necessary. Depending on the job requirements, wear pads can be provided on the a.D. to protect the casing. When ordering Washover Shoes, be sure to specify Washover Shoe O.D. and I.D. dimensions, wall thickness and connections.

- Due to the high temperature required for proper Tungsten carbide application, it is best to maintain a 3 / 8 " minimum wall thickness in the dressed area of the shoe. This will eliminate the possibility of tearing the steel. The wall thickness is also critical due to the area needed for effective carbide coverage.
- To allow proper circulation and to reduce torque, adequate clearance is necessary on both the I.D. and O.D. of the shoe. It is recommended that the I.D. of the dressed head be at least 1/16" less than wash pipe I.D. The O.D. should be dressed 1/16" larger than the wash pipe O.D. This permits the use of inner and outer gauge cutters on the head of the shoe. This will firm the fish so it will pass into the wash pipe without interference. The outer gauge cutters provide a circulation annulus for cutting removal. Where conditions allow, these clearances should be enlarged, provided the 3/8" minimum wall thickness of the shoe is maintained.

WASHING OVER SHOES

STYLES OF SHOES:

Style - A: Hard facing on I.D. and bottom. It is applied to cut metal of object without any damage to casing. No hard facing on O.D.

Style - B: Hard facing on O.D. and bottom. It is used for washing over a fish & cutting formation within openhole. No hard facing on I.D.

Style - C: Hard facing on O.D., I.D. and bottom applied for washing over & metal cutting.

Style - D: Hard facing on I.D. and bottom its cuts metal on the fish without cutting the casing, where clearance is restricted.

Style - E: Hard facing on O.D. & bottom. It is applied for washing over fish/cutting metal! formation, etc. in openhole where clearance is restricted.

Style - F: Hard facing on- I.D. having taper & on bottom. It is applied for dressing & sizing the upper portion of object within casing.

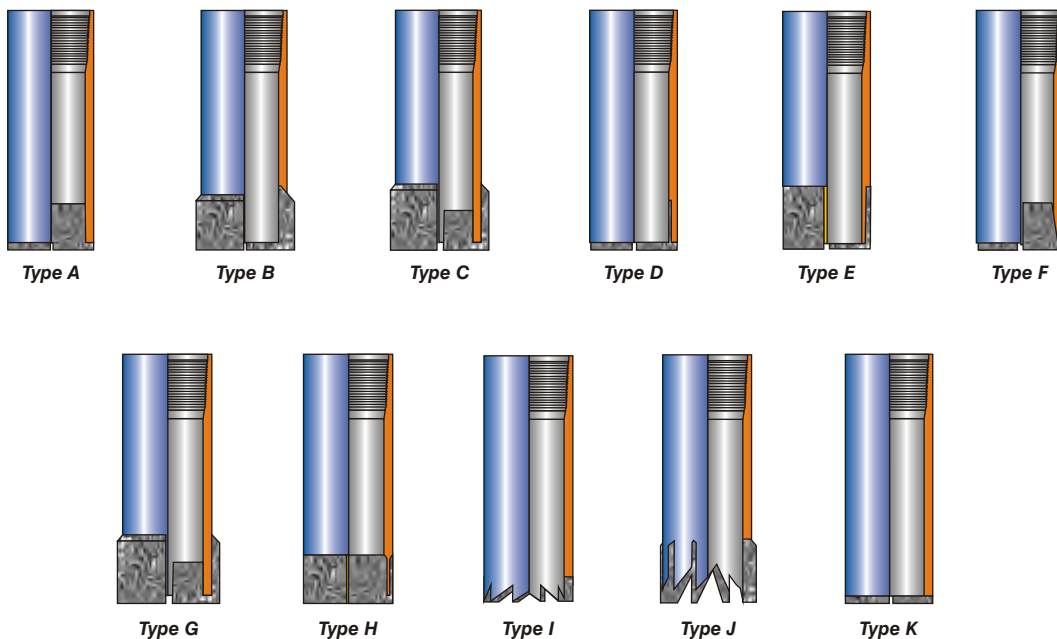
Style - G: Hard facing on I.D., O.D. and bottom. It is applied for washing over fish/ cutting metal/formation etc. in open where clearance is restricted.

Style - H: Hard facing on I.D. & O.D. only. It is applied for washing over & metal cutting in openhole where clearance is restricted.

Style - I: Hard facing on the bottom only. It is applied for washing over & formation cutting. Its milling teeth allow optimum circulation.

Style - J: Hard facing on bottom & O.D. It is applied for washing over and formation cutting. Its milling teeth having side wings allow optimum circulation.

Style - K: Hard facing on bottom face only. It is applied for washing over and bottom face cutting





WASHING OVER SHOES

SPECIFICATION					
NO. OF TEETH	CONNECTIONS	STANDARD O.D. OF BODY	MINIMUM I.D. OF BODY	LENGTH	WEIGHT lbs.
6	4 F.J.	4	3-1/4	16	18
	4-1/2 F.J.	4-1/2	3-3/4	16	20
	4-1/2 E.U. Or E.L.	4-7/8	3-3/4	16	32
	4-3/4 F.J.	4-3/4	4-1/16	16	28
	4-3/4 E.U. Or E.L.	5-1/8	4-1/16	16	34
	5 F.J.	5	4-3/16	16	23
	5 E.U. Or E.L.	5-3/8	4-3/16	16	39
	5-1/2 F.J.	5-1/2	4-5/8	16	30
	5-1/2 E.U. Or E.L.	5-7/8	4-9/16	16	47
	5-3/4 F.J.	5-3/4	5	16	26
	5-3/4 E.U. Or E.L.	6-1/8	5	16	30
	6 F.J.	6	5-3/16	16	28
	6 E.U. OR E.L.	6-3/8	5-3/16	16	48
	6-5/8 F.J.	6-5/8	5-11/16	16	41
	6-5/8 E.U. Or E.L.	7-	5-5/8	16	65
	7 F.J.	7-	5-13/16	16	47
	7 E.U. Or E.L.	7-1/2	5-13/16	16	72
8	7-5/8 F.J.	7-5/8	6-5/8	16	47
	7-5/8 E.U. Or E.L.	8-1/16	6-9/16	16	76
	8-1/8 F.J.	8-1/8	7-1/8	16	50
	8-5/8 F.J.	8-5/8	7-1/2	16	60
	8-5/8 E.U. Or E.L.	9-1/8	7-7/16	16	97
10	9 F.J.	9	7-13/16	16	56
	9 E.U. Or E.L.	9-1/2	7-3/4	16	78
	9-5/8 F.J.	9-5/8	8-1/2	16	68
	9-5/8 E.U. Or E.L.	10-1/8	8-7/16	16	118
	10-3/4 F.J.	10-3/4	9-3/4	16	68
	11-3/4 F.J.	11-3/4	10-3/4	16	160
	16 API	17	15-1/4	16	190
	20 API	21	19-1/8	25	-

PARVEEN CASING SCRAPER

FEATURES

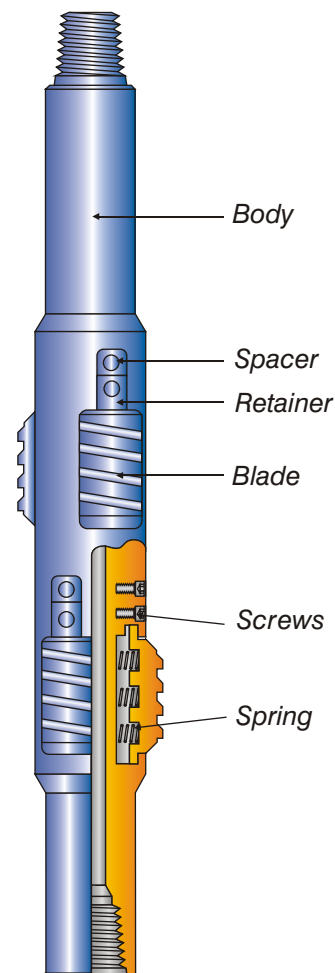
- Made from high quality steel
- Fully heat treated to give max. strength and hardness.
- Can withstand rough use and is rugged to give long life. Scraping edge is designed to be effective in full circumference clean out without rotation.
- Precision machined blades to fit casing profile.
- Available with API Monogram.
- Blades are properly tapered to the tool body to minimize the possibility of the scraper hanging up inside the casing.

FUNCTIONAL PURPOSE

The Casing Scraper is used for removing the stuck mud cement embedded bullets, perforation burrs, rust, mill scale, paraffin and similar unwanted material from the inside wall of the Casing.

OPERATIONAL HIGHLIGHTS

For removal of the Cement Sheath the Scraper should be installed between the Drill Bit and the Drill Collar so that both the drilling out and the sheath removal can be accomplished at the same time. It is a good practice to maintain circulation while these operations are being conducted. For removal of perforation burrs and bullets, the scraper is installed pin up on the first joint of the drill pipe with an old three cone rock bit installed in the box end of the scraper.



SPECIFICATIONS					
CASING		SCRAPER ASSY. PART NUMBER	STD. CONN. A.P.I. REG.	TOOL BASIC	TOOL
O.D.	WT.(T&C)			O.D.	I.D.
4-1/2	9.5-18.8	4045080	2-3/8	3.250	3/4
5	11.5-18	4050080		3.936	
5-1/2	13-23	4055081	2-7/8	4.410	1
7	17-38	4070082		5.375	1-1/2
7-5/8	17-39	4075882	3-1/2	5.500	
9-5/8	32-53	4095883	4-1/2	7.250	2
10-3/4	32.7-55.5	4010784	6-5/8	9.510	2-1/4
13-3/8	48-72	4013384			

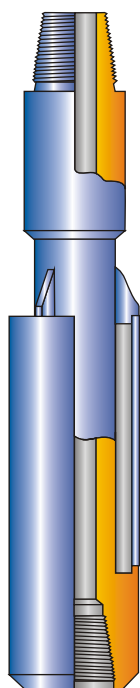
NOTE: Other sizes/ end connections are available upon request.

PARVEEN JUNK SUBS

Junk Subs - Description and Usage

PARVEEN Junk Subs capture and trap junk that is too heavy to circulate. They are designed to be used in the drill collar string just above the rock bit or milling tool. The tool consists of a steel mandrel with an oversized sleeve or "skirt" attached over the mandrel. The "skirt" will trap the large cutting and junk which are too heavy to be circulated out of the hole. The "skirt" is manufactured with bleed holes to allow the mud to drain once it is brought out of the hole. It is recommended that two Junk Subs be run in tandem to decrease the possibility of junk bypassing a single Junk Sub. The Junk Subs do not have welding on its body.

PARVEEN Junk Subs are used directly above the Mill or drilling bit for easy removal of cuttings. In hard milling jobs, two or three junk subs are run one after the other. This increases capacity to remove cuttings & provides additional stabilization to mill. PARVEEN's Junk subs can be run in both open hole & cased hole.



Standard Type Junk Sub

SPECIFICATIONS-PARVEEN JUNK SUBS						
MILL SIZE		4-1/4-4-5/8	4-5/8-4-7/8	5-1/8-5-7/8	6-6-3/8	6-1/2-7-1/2
O.D. OF CUP (IN)		3-11/16	4	4-1/2	5	5-1/2
TOP CONNECTION		2-3/8	2-7/8	3-1/2	3-1/2	3-1/2
PIN		REG.	REG.	REG.	REG.	REG.
10 INCH LONG CUP	PART NO.	8036800	8040810	8045820	8050820	8055820
	WEIGHT	55	63	80	83	97
20 INCH LONG CUP	PART NO.	8136800	8140810	8145820	8150820	8155820
	WEIGHT	65	87	105	120	136
30 INCH LONG CUP	PART NO.	8236800	8240810	8245820	8250820	8355820
	WEIGHT.	80	108	128	156	183

MILL SIZE		7-1/2-8-1/2	8-5/8-9-5/8	9-5/8-11-3/8	11-1/2-13
O.D. OF CUP (IN)		6-5/8	7	8-5/8	9-5/8
TOP CONNECTION		6-5/8	4-1/2	6-5/8	6-5/8
PIN		REG.	REG.	REG.	REG.
10 INCH LONG CUP	PART NO.	8066830	8070830	8086840	8096840
	WEIGHT	160	168	255	285
20 INCH LONG CUP	PART NO.	8166830	8170830	8186840	8186840
	WEIGHT	239	246	342	420
30 INCH LONG CUP	PART NO.	8266830	8270830	8286840	8286840
	WEIGHT.	289	302	430	530

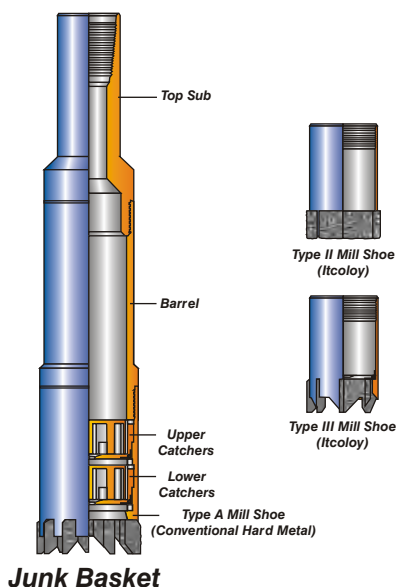
HOW TO ORDER :

SPECIFY :

- 1) Name and Number of Assembly.
- 2) Connection size and Type, if other than Standard.



PARVEEN JUNK BASKETS



PARVEEN Junk Baskets are a junk fishing tool designed to give trouble free operation in rough oil field conditions.

This robust, field dressable tool is used to mill down over odd shaped fish into the formation, making, a core and allowing the fish to enter the barrel.

When the Junk Basket is retracted the fingers break the core and bring with it the fish to the surface.

To remove the fish from the tool, simply break out the shoe and if fingers are damaged, redress with new catcher. Your tool is then ready for re-use.

SPECIFICATIONS-PARVEEN JUNK BASKETS

HOLE SIZE		3-3/4-4-1/8	4-1/4-4-1/2	4-5/8-5	5-1/8-5-1/2	5-5/8-6	6-1/8-6-1/2	6-5/8-7
O.D. BARREL (TOP END)		3-5/8	3-3/4	3-7/8	4-1/4	4-3/4	5-1/4	5-3/4
O.D. SHOE (TOP END)		3-5/8	4-1/16	4-1/2	4-7/8	5-3/8	5-7/8	6-1/4
MAX. DIAMETER OF FISH		2-23/32	2-31/32	3-3/8	3-23/32	4-1/16	4-1/2	4-13/16
COMPLETE	PART NO.	135-362XX	135-375XX	135-387XX	135-425XX	135-475XX	135-525XX	135-575XX
ASSEMBLY	WEIGHT	55	60	65	80	100	110	125

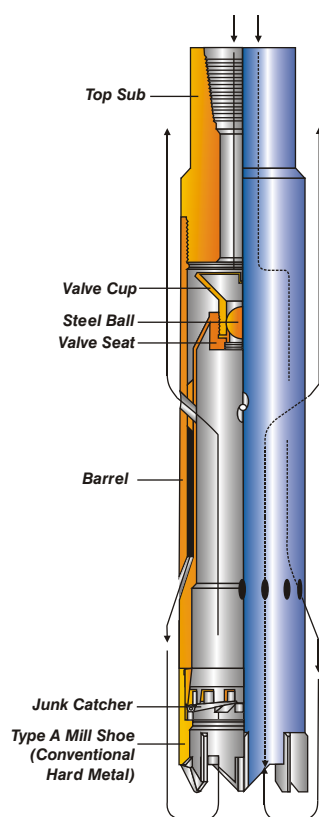
HOLE SIZE		7-1/4-8	8-1/4-9	9-1/4-10-1/8	10-1/4-11-5/8	11-3/4-12-1/2	12-5/8-15	15-20
O.D. BARREL (TOP END)		6-1/2	7-1/2	8-1/2	9-3/8	10-3/8	11-3/8	13-3/4
O.D. SHOE (TOP END)		7-1/8	8-1/8	9-1/8	10-1/8	11-1/4	12-1/4	14-1/4
MAX. DIAMETER OF FISH		5-7/16	6-3/16	7-3/16	8-1/16	9-1/16	10-1/16	12-1/16
COMPLETE	PART NO.	135-650XX	135-750XX	135-850XX	135-938XX	135-103XX	135-113XX	135-137XX
ASSEMBLY	WEIGHT	160	205	255	290	360	450	655

REPLACEMENT PARTS

UPPER CATCHER	PART NO.	135-362-01	135-325-01	135-387-01	135-425-01	135-475-01	135-525-01	135-575-01
LOWER CATCHER	PART NO.	135-362-02	135-325-02	135-387-02	135-425-02	135-475-02	135-525-02	135-575-02
CONVENTIONAL SHOE	PART NO.	135-362-03	135-325-03	135-387-03	135-425-03	135-475-03	135-525-03	135-575-03
TOP SUB	PART NO.	135-362-04	135-325-04	135-387-04	135-425-04	135-475-04	135-525-04	135-575-04
BARREL	PART NO.	135-362-05	135-325-05	135-387-05	135-425-05	135-475-05	135-525-05	135-575-05
TYPE II MILL SHOE	PART NO.	135-362-06	135-325-06	135-387-06	135-425-06	135-475-06	135-525-06	135-575-06
TYPE III MILL SHOE	PART NO.	135-362-07	135-325-07	135-387-07	135-425-07	135-475-07	135-525-07	135-575-07

UPPER CATCHER	PART NO.	135-650-01	135-750-01	135-850-01	135-938-01	135-103-01	135-113-01	135-137-01
LOWER CATCHER	PART NO.	135-650-02	135-750-02	135-850-02	135-938-02	135-103-02	135-113-02	135-137-02
CONVENTIONAL SHOE	PART NO.	135-650-03	135-750-03	135-850-03	135-938-03	135-103-03	135-113-03	135-137-03
TOP SUB	PART NO.	135-650-04	135-750-04	135-850-04	135-938-04	135-103-04	135-113-04	135-137-04
BARREL	PART NO.	135-650-05	135-750-05	135-850-05	135-938-05	135-103-05	135-113-05	135-137-05
TYPE II MILL SHOE	PART NO.	135-650-06	135-750-06	135-850-06	135-938-06	135-103-06	135-113-06	135-137-06
TYPE III MILL SHOE	PART NO.	135-650-07	135-750-07	135-850-07	135-938-07	135-103-07	135-113-07	135-137-07

PARVEEN REVERSE CIRCULATING JUNK BASKETS



PARVEEN's Reverse Circulating Junk Baskets are designed to catch effectively small Junk objects, by utilizing the principal of Reverse Circulation principle. These Junk objects are successfully deflected into the Junk Basket and returned which would otherwise cannot be fished out by other Junk Baskets. This is used to retrieve all types of Junk accumulated at the bottom of the well. The reverse circulation feature ensures complete recovery of Junk. PARVEEN's design ensures drain thru the tool which eliminates the possibilities of pulling a wet string even though inner barrel is plugged by the core.

CONSTRUCTION: This consists of a barrel, a top sub, valve cup, steel ball and a ball seat, junk catcher and Milling Shoe. For ease of handling a Junk Basket, a lifting sub is provided.

Barrel is a two bowl assembly, with the steel ball in place, the circulation fluid goes around the ball thru the inner passage of the barrel, is jetted out and downward thru the lower parts of the barrel, flows in a continuous stream into the barrel, up thru the barrel then goes out of the return part at the upper end of the barrel. With this reverse circulation all the Junk which is collected from the bottom, falls in the Junk Catcher.

USAGE: PARVEEN's Reverse Circulating Junk Basket retrieves all type of Junk such as bearing, broken slips, various hand tools, slivers, bit sizes of wirelines, rock bit cones, debris from twisted off drill strings, milling cuttings and so on.

SPECIFICATIONS-PARVEEN JUNK BASKETS

HOLE SIZE		3-3/4-4	4-1/8-4-1/2	4-5/8-5	5-1/8-5-1/2	5-5/8-6	6-1/8-6-1/2	6-5/8-7-3/8
O.D. (IN)		3-5/8	4	4-1/2	4-7/8	5-1/8	5-3/4	6-1/4
MAX. DIA. OF FISH (IN)		2-11/32	2-17/32	3-1/16	3-9/16	3-3/4	4-13/32	4-3/4
NO. OF TEETH ON MILL		6	6	8	8	8	8	8
COMPLETE ASSEMBLY	PART NO.	8636801	8640801	8645811	8648811	8637821	867821	8647821
	WEIGHT	85	98	108	128	142	185	238

HOLE SIZE		7-1/2-8-1/4	8-3/8-9-1/2	9-5/8-10-5/8	10-3/4-11-5/8	11-3/4-12-1/2	12-5/8-13-5/8	13-3/4-16
O.D. (IN)		7	7-7/8	9-1/8	10-1/8	11	11-7/8	13
MAX. DIA. OF FISH (IN)		5-3/16	6-1/16	7-1/16	7-11/16	8-5/16	8-11/16	9-7/8
NO. OF TEETH ON MILL		8	8	10	10	12	12	14
COMPLETE ASSEMBLY	PART NO.	8670831	8678831	8691841	8601841	8610841	8618841	8630841
	WEIGHT	293	374	441	576	665	797	932

HOW TO ORDER :

SPECIFY :

- 1) Name and Number of Assembly.
- 2) O.D. And type of shoe.
- 3) Top Connection and Type, if other than Standard.

AVAILABLE ACCESSORIES : Finger Shoes, Magnet Inserts.



PARVEEN FISHING MAGNETS

Introduction

This special purpose fishing tool have been developed for retrieving non -drillable magnetic objects dropped into a well bore and which cannot be retrieved by other fishing methods. Magnet fishing technique, possibly the simplest of fishing method, is indispensable accessory for drilling/ workover operations. The magnetic pull can be varied within a limited range in the same size of fishing magnet if the requirement is clearly specified.

Circulation Ports

The minimum circulation hole through any magnet is minimum 100% of the circulation area through the drill string of the same size as the end connection.

Operation

Depending on the service requirement the fishing magnets may be used on drill pipe, tubing or wireline. The adaptors used for running magnet with wireline are sucker rod adaptors and rope socket which are available from PARVEEN.

After magnet is assembled with proper guide, run it in the hole. While using with" wireline, circulation cannot be made. While running on drill pipe, lower the magnet approximately within one foot of the fish. Start circulation. If the tool loose weight while lowering, circulation to be continued (slow reciprocation and circulation is necessary to ensure that the magnet is free from obstruction). Engage rotary, apply couple of turns using 5 to 10 times the weight of the tool (not exceeding 10,000 lbs without rotation and 5,000 lbs with rotation).

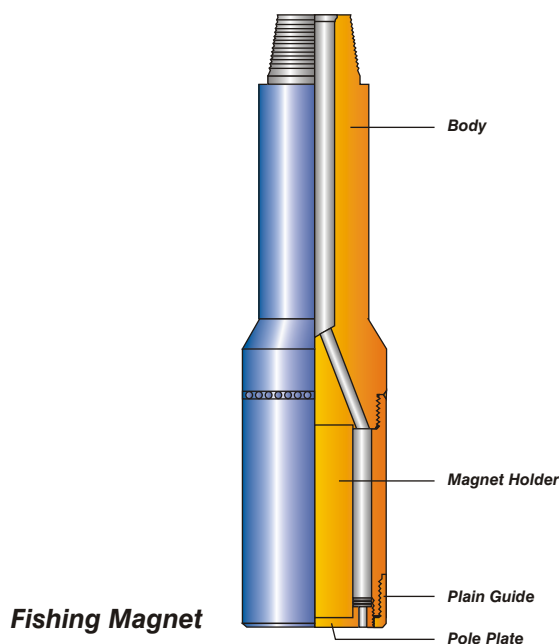
Discontinue circulation and rotation. Lift the tool about 10 feet from bottom. Check the depth and weight. Slowly lower back to bottom. Check depth and weight. If the weight and depths are showing no anomaly turn the rotary 3 to 4 rounds.

Proper use of weight and circulation is the most critical factor in a successful fishing job. An absolute fool proof procedure is still a driller's dream. But experience and judgment is probably the last word in fishing jobs.

1.Flush Guide: As the name signifies, the guide end is flushed with Pole Plate and is used to fish large flat objects.

2.Mill Guide: This type of guide is preferred for fishing small, non-geometrical objects or cleaning the hole from unidentified objects.

3.Lipped Guide: It is special purpose guide to enable the fishing of three or more bit cones lost into the hole. For long objects which are lodged in one part of the hole, this guide is used.





PARVEEN FISHING MAGNETS

HOLE SIZE		4-1/4-4-1/2	4-1/2-5	5-1/8-6-1/2	5-5/8-6	6-1/8-6-1/2	6-1/8-6-1/2	6-5/8-7-1/2
SIZE O.D. (IN)		3-1/2	4	4-1/2	5	5-1/2	5-3/4	6
TOP CONNECTION PIN		2-3/8 REG.	2-3/8 REG.	2-7/8 REG.	2-7/8 REG.	3-1/2 REG.	3-1/2 REG.	3-1/2 REG.
APPROX. PULL IN LBS		150-250	250-350	350-450	450-500	500-600	500-600	600-700
COMPLETE ASSEMBLY	PART NO. WEIGHT	FM 3580-00 28	FM 4080-00 45	FM 4581-00 70	FM 5081-00 80	FM 5582-00 100	FM 5782-00 108	FM 6082-00 120

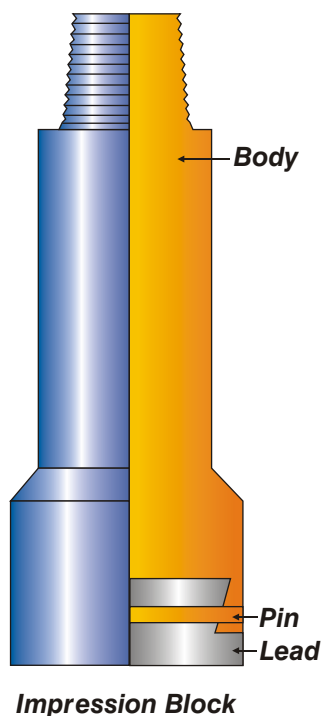
HOLE SIZE		7-5/8-8-1/2	8-5/8-9-3/4	9-7/8-11-7/8	10-1/2-11-7/8	11-3/4-13	12-1/4-14
SIZE O.D. (IN)		7	8	9	10	10-1/2	11-1/2
TOP CONNECTION PIN		4-1/2 REG.	4-1/2 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.
APPROX. PULL IN LBS		800-900	1000-1200	1200-1400	1400-1600	1600-1800	1800-2200
COMPLETE ASSEMBLY	PART NO. WEIGHT	FM 7083-00 170	FM 8083-00 210	FM 9084-00 340	FM 0084-00 400	FM 0184-00 440	FM 0284-00 550

HOW TO ORDER :

SPECIFY :

- 1) Name and Number of Assembly.
- 2) SIZE - O.D.
- 3) Top Connection, if other than Standard.

PARVEEN IMPRESSION BLOCKS



It consists of soft lead insert in the lower end of a steel housing, are used in fishing operations. They are designed to enable the operator to determine the configuration of the top of the fish and to locate its position in the well bore. Its use enables the operator to more precisely assess the fishing conditions and select the proper tool or tools needed to successfully complete the fishing operation.

To use PARVEEN Impression Blocks

Lower tool in the well on the lower end of a fishing string of pipe. After the block contacts the upper end of the fish, the weight of the string is further lowered straight down (never rotate) against the fish which indents into the soft lead lower end of the block. When the fishing string is withdrawn from the well, the impression in the lead will reveal the condition of the fish.

Parveen Impression Blocks are available in two styles:

- **Solid Impression Blocks**

Simple design; solid steel body with pin thread on top and cavity on the bottom to retain the lead; mild steel except for tools with sucker rod threads which will be heat treated.

- **Watercourse Impression Blocks**

Watercourse (circulating hole) through tool and to face of lead impression (available to wash off top of fish to get good impression); heat treated material used on most sizes regardless of thread.

O.D. RANGE (UP TO AND INCLUDING) (IN)		3-7/8-4-1/8	4-1/8-4-1/2	4-1/2-4-3/4	4-3/4-5-1/2	5-1/2-5-3/4	5-3/4-6	6-6-1/2	6-1/2-7
TOP CONNECTION PIN		2-3/8 REG.	2-7/8 REG.	3-1/2 REG.	3-1/2 REG.	3-1/2 REG.	4-1/2 REG.	4-1/2 REG.	4-1/2 REG.
CIRCULATING HOLE SIZE		1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4
COMPLETE ASSEMBLY	PART NO	624180	624581	624782	625582	625782	626083	626583	627083
	WEIGHT	26	28	57	81	83	93	102	120

O.D. RANGE (UP TO AND INCLUDING) (IN)		7-8	8-8-1/2	8-1/2-9-1/4	9-1/4-10	10-11	11-11-1/2	11-1/2-11-3/4	11-3/4-12
TOP CONNECTION PIN		4-1/2 REG.	4-1/2 REG.	4-1/2 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.
CIRCULATING HOLE SIZE		3/4	3/4	3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
COMPLETE ASSEMBLY	PART NO	628083	628583	629283	620184	620184	621584	621784	622084
	WEIGHT	135	144	160	190	250	332	348	350

O.D. RANGE (UP TO AND INCLUDING) (IN)		12-13	13-14	14-15	15-16	16-17
TOP CONNECTION PIN		6-5/8 REG.	6-5/8 REG.	6-5/8 REG.	6-5/8 REG.	7-5/8 REG.
CIRCULATING HOLE SIZE		1-1/2	1-1/2	1-1/2	2	2
COMPLETE ASSEMBLY	PART NO	628084	62X484	62X584	62X684	62X792
	WEIGHT	362	385	430	476	610

HOW TO ORDER :

SPECIFY :

- 1) O.D. of Tool.
- 2) Top Connection, if other than Standard.



NOTES

[illegible]



TERMS & CONDITIONS

DESIGN: PARVEEN reserves the right to make minor changes in design without notice.

CANCELLATION: Orders accepted by PARVEEN are not subject to cancellation by customer except with the consent of PARVEEN and upon terms which will indemnify PARVEEN against loss or damage occasioned by such cancellation.

INSPECTION: Final inspection and acceptance of products must be made at the PARVEEN plant and shall be conclusive except as regards latent defects. Customer's representatives may inspect at the plant during business hours prior to shipment in such manner as will not interfere with operation.

ENGINEERING AND SERVICE: Upon request, PARVEEN may provide engineering and/or technical information about its products and their uses and if feasible may provide personnel to assist purchase in effecting field installation and/or field service, or assistance so provided, whether with or without charges, shall be advisory only, and purchaser agrees to hold PARVEEN harmless from claims for loss from any cause resulting from such advisory or service activity.

WARRANTY: THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS. PARVEEN warrants that all products manufactured by it shall be free of defects in workmanship and material when these products are used within the service and pressure range for which they were manufactured. Such warranty shall be binding upon PARVEEN for a period of one year from and after shipment of such product. If at any time within such period, it is established to the satisfaction of PARVEEN that any product manufactured by PARVEEN was defective at time of shipment, PARVEEN at its option, shall repair or replace such items F.O.B. place of manufacture or other designated shipping point, or refund the purchase price paid. It is understood that the liability of PARVEEN shall be limited to such repair or replacement and that PARVEEN SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY OBJECTS OR FROM ANY CAUSE WHATSOEVER. This warranty does not cover deterioration by corrosion, including stress corrosion or aging of non-metallic parts, or any other cause of failure other than defects in workmanship and material. Any parts or equipment which PARVEEN does not manufacture shall be subject only to the warranties of PARVEEN's vendors. Unless repairs to, alterations of, or work done on said product by the purchaser shall be specifically authorised in writing by PARVEEN, any warranty applicable thereto shall become null and void.

LIABILITY CONSIDERATION: Purchaser will indemnify and hold PARVEEN harmless from all claims including but not limited to subsurface damage and surface damages arising from subsurface damage, including damage to underground mineral pools reservoirs, equipment, deposits, or waste on such deposits, whether owned by purchaser or a third party, resulting from performance of this contract, whether or not due to PARVEEN's negligence.



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