Control Flow
Wellhead Equipment

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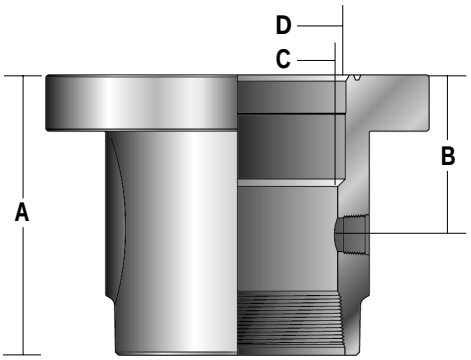
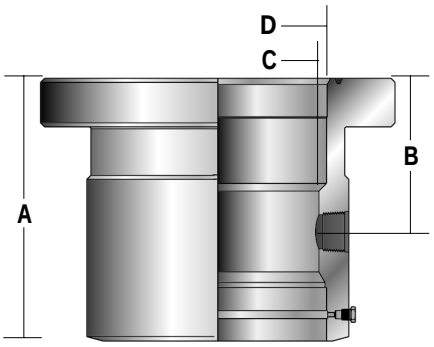
CONTROL FLOW INC.

TYPE CF-2 CASING HEADS

Control Flow CF-2 is a straight-bore casing head that accepts any of two heavy duty interchangeable hangers. Each of these hangers (CF-1 and CF-2) can support weight beyond the joint strength of the pipe itself, with minimum casing deflection. Both can be lowered through blowout preventers. The CF2's straight bore prevents test plugs from wedging when pressure is applied, reduces maintenance costs, avoids damage to sealing area by drill bits, and permits hanging more casing weight. These casing heads are usually furnished with two 2-inch outlets, but larger outlets plus studded or flanged, can be provided if desired. Bottoms of casing heads can be male, female, or slip-on type for welding. Top flanges are available in working pressures up to 10,000 psi. All casing head spools will accept bit guides and secondary seals if desired. When using bowl protector in CF-2 casing heads, we use 2 lock screws in upper flange (CF-2BP) or a hold down flange with lock screws can be furnished.





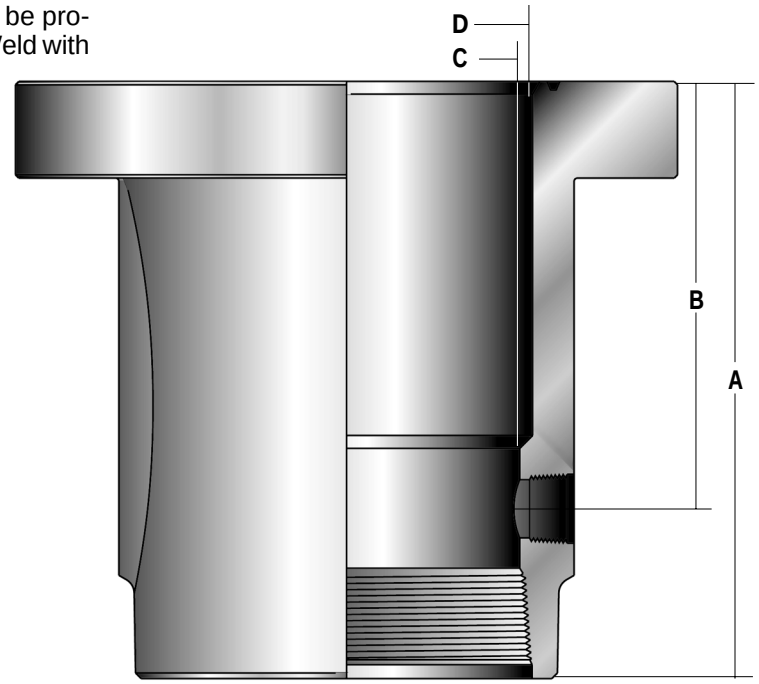
TOP FLANGE Size	TOP FLANGE W.P.	Bottom Threaded	Outlet*		Dimensions A	Dimensions B	Dimensions C	Dimensions D	Approx. Weight
9	2000	7	2" Thrd	in.	15	8 1/16	6 3/8	8 3/4	195 lbs
228.6	138 bar			mm	381	220.7	161.9	222.3	88 kg
9	3000	7	2" Thrd	in.	15	8 1/16	6 3/8	8 3/4	195 lbs
228.6	207 bar			mm	381	220.7	161.9	222.3	88 kg
9	2000	7 5/8	2" Thrd	in.	15	8 1/16	6 3/8	8 3/4	210 lbs
228.6	138 bar			mm	381	220.7	161.9	222.3	95 kg
9	3000	7 5/8	2" Thrd	in.	15 7/8	9 5/16	6 3/8	8 3/4	240 lbs
228.6	207 bar			mm	403.2	236.5	161.9	222.3	109 kg
9	2000	8 5/8	2" Thrd	in.	13 7/8	8 9/16	8	8 3/4	180 lbs
228.6	138 bar			mm	352.4	217.5	203.2	222.3	82 kg
9	3000	8 5/8	2" Thrd	in.	15 7/8	9 5/16	8	8 3/4	240 lbs
228.6	207 bar			mm	403.2	236.5	203.2	222.3	109 kg
9	5000	8 5/8	2" Thrd	in.	15 7/8	9 5/16	8	8 3/4	250 lbs
228.6	345 bar			mm	403.2	236.5	203.2	222.3	113 kg
11	2000	8 5/8	2" Thrd	in.	18 1/4	12 1/4	8	10 7/8	340 lbs
279.4	138 bar			mm	463.6	311.2	203.2	276.2	154 kg
11	3000	8 5/8	2" Thrd	in.	20	12 1/4	8	10 7/8	460 lbs
279.4	207 bar			mm	508	311.2	203.2	276.2	209 kg
11	5000	8 5/8	2" Thrd	in.	20	12 1/4	8	10 7/8	
279.4	345 bar			mm	508	311.2	203.2	276.2	
11	2000	9 5/8	2" Thrd	in.	18 1/4	12 1/4	9	10 7/8	320 lbs
279.4	138 bar			mm	463.6	311.2	228.6	276.2	145 kg
11	3000	9 5/8	2" Thrd	in.	20	12 1/4	9	10 7/8	430 lbs
279.4	207 bar			mm	508	311.2	228.6	276.2	196 kg
11	5000	9 5/8	2" Thrd	in.	20	12 1/4	9	10 7/8	680 lbs
279.4	345 bar			mm	508	311.2	228.6	276.2	308 kg
11	2000	10 3/4	2" Thrd	in.	18 1/4	12 1/4	10	10 7/8	300 lbs
279.4	138 bar			mm	463.6	311.2	254.0	276.2	136 kg
11	3000	10 3/4	2" Thrd	in.	20	12 1/4	10	10 7/8	410 lbs
279.4	207 bar			mm	508	311.2	254.0	276.2	186 kg
11	5000	10 3/4	2" Thrd	in.	20	12 1/4	10	10 7/8	560 lbs
279.4	345 bar			mm	508	311.2	254	276.2	254 kg
13 5/8	2000	11 3/4	2" Thrd	in.	18 1/4	12 1/4	10	10 7/8	
346.1	138 bar			mm	463.6	311.2	254	276.2	
13 5/8	3000	11 3/4	2" Thrd	in.	21	15 1/8	11	13 1/2	
346.1	207 bar			mm	533.4	384.2	279.4	342.9	
13 5/8	2000	11 3/4	2" Thrd	in.	18 1/4	12 1/4	12 1/2	13 1/2	380 lbs
346.1	138 bar			mm	463.6	311.2	317.5	342.9	172 kg
13 5/8	3000	11 3/4	2" Thrd	in.	19	12 3/4	12 1/2	13 1/2	500 lbs
346.1	207 bar			mm	482.6	323.9	317.5	342.9	227kg
13 5/8	5000	10 3/4	2" Thrd	in.	22	12 1/4	12 1/2	13 1/2	
346.1	345 bar			mm	558.8	311.2	317.5	342.9	
16 3/4	2000	16	2" Thrd	in.	18 1/8	10 5/8	15 1/4	16 5/8	980 lbs
425.5	138 bar			mm	460.4	269.9	387.4	422.3	445 kg
16 3/4	3000	16	2" Thrd	in.	18 1/8	10 5/8	15 1/4	16 5/8	995 lbs
425.5	207 bar			mm	460.4	269.9	387.4	422.3	451 kg
16 3/4	5000	16	2" Thrd	in.	18 1/8	10 5/8	15 1/4	16 5/8	
425.5	345 bar			mm	460.4	269.9	387.4	422.3	
21 1/4	2000	20	2" Thrd	in.			19 3/16	20 1/8	
539.8	138 bar			mm			487.4	511.2	
20 3/4	3000	20	2" Thrd	in.	21 3/4	13 5/16			
527.1	207 bar			mm	552.5	338.1			

*Available with Flanged Outlet

TYPE CF-9 AND CF-9L CASING HEADS

CONTROL FLOW INC.

The CF-9 and CF-9L Head can be provided with an internal Slip-On Weld with Inner "Seal" Ring Bottom.



Specifications: CF-9 Casing Heads

TOP FLANGE Size	TOP FLANGE W.P.	Bottom Threaded	Outlet*		Dimensions A	Dimensions B	Dimensions C	Dimensions D	Approx. Weight
11	2000	8 ⅝	2 L.P.	in.	18 ¼	12 ¼	8	10 ⅞	380 lbs
279.4	138 bar			mm	463.6	311.2	203.2	276.2	172 kg
11	3000	8 ⅝	2 L.P.	in.	20	12 ¼	8	10 ⅞	565 lbs
279.4	207 bar			mm	508	311.2	203.2	276.2	256 kg
11	5000	8 ⅝	2 L.P.	in.	20	12 ¼	8	10 ⅞	780 lbs
279.4	345 bar			mm	508	311.2	203.2	276.2	354 kg
11	2000	9 ⅝	2 L.P.	in.	18 ¼	12 ¼	9	10 ⅞	360 lbs
279.4	138 bar			mm	463.6	311.2	228.6	276.2	164 kg
11	3000	9 ⅝	2 L.P.	in.	20	12 ¼	9	10 ⅞	545 lbs
279.4	207 bar			mm	508	311.2	228.6	276.2	247 kg
11	5000	9 ⅝	2 L.P.	in.	20	12 ¼	10	10 ⅞	760 lbs
279.4	345 bar			mm	508	311.2	254.0	276.2	345 kg
11	2000	10 ¾	2 L.P.	in.	18 ¼	12 ¼	10	10 ⅞	355 lbs
279.4	138 bar			mm	463.6	311.2	254.0	276.2	161 kg
11	3000	10 ¾	2 L.P.	in.	20	12 ¼	10	10 ⅞	520 lbs
279.4	207 bar			mm	508	311.2	254	276.2	236 kg
11	5000	10 ¾	2 L.P.	in.	20	12 ¼	10	10 ⅞	745 lbs
279.4	345 bar			mm	508	311.2	254	276.2	338 kg
13 ⅝	2000	11 ¾	2 L.P.	in.	18 ¼	12 ¼	10	10 ⅞	490 lbs
346.1	138 bar			mm	463.6	311.2	254	276.2	222 kg
13 ⅝	3000	11 ¾	2 L.P.	in.	21	15 ⅛	11	13 ½	800 lbs
346.1	207 bar			mm	533.4	384.2	279.4	342.9	363 kg
13 ⅝	2000	13 ⅜	2 L.P.	in.	18 ¼	12 ¼	12 ½	13 ½	455 lbs
346.1	138 bar			mm	463.6	311.2	317.5	342.9	206 kg
13 ⅝	3000	13 ⅜	2 L.P.	in.	19	12 ¾	12 ½	13 ½	765 lbs
346.1	207 bar			mm	482.6	323.9	317.5	342.9	347 kg
13 ⅝	5000	13 ⅜	2 L.P.	in.	22	12 ¼	12 ½	13 ½	1500 lbs
346.1	345 bar			mm	558.8	311.2	317.5	342.9	680 kg
16	3000	16	2 L.P.	in.	17 ¾	11 ¾	15 ⅜	16 ⅝	
				mm	450.9	298.5	390.5	422.3	
20	3000	20	2 L.P.	in.	21¼	14	19 ⁹⁄₁₆	20 ⅛	
				mm	539.8	355.6	487.4	511.2	

*Available with Flanged Outlet

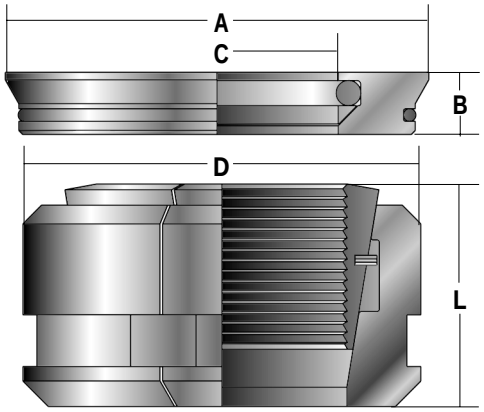
CONTROL FLOW INC.

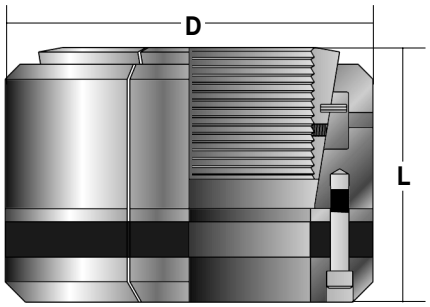
TYPE CF-1, CF-2 & CF-9 CASING HANGERS

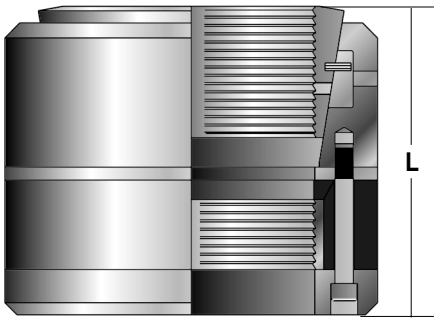
The **CF-2** casing hanger combines packoff, slip bowl, and slips into a single unit. The packoff automatically seals the casing annulus below the slips when casing load is applied, thus allowing annulus packoff before removing blowout preventer and cutting casing.

This wraparound hanger is easy to install. Simple construction and few parts make the **CF-2** easy and economical to repair, and the individual tapered slip bowl reduces casing head repairs.

The **CF-1** casing hanger consists of slips, slip bowl, and a floating seal ring (type H packoff). Slips and slip bowl can easily be wrapped around the casing. The seal ring slips over the casing and into the casing head after casing has been suspended and cut off, providing a positive annulus packoff.







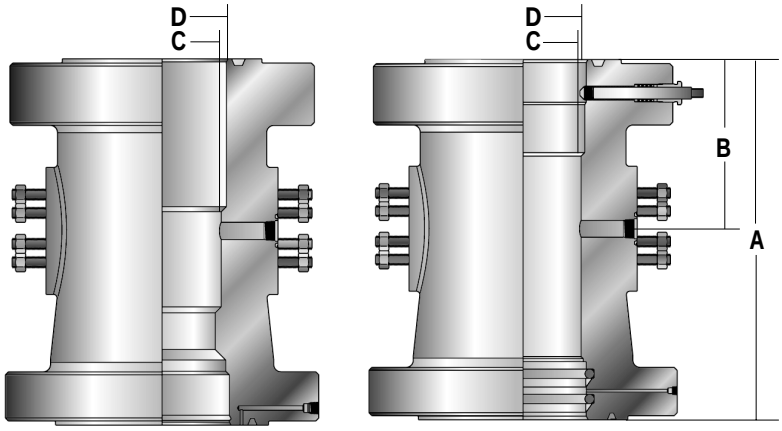
Control Flow Casing Hangers—Dimension Data

D Size in.(mm)	L - Height Max O.D. in.(mm)	L - Height CF-9 in.(mm)	L - Height CF-2 in.(mm)	CF-1 in.(mm)	A in.(mm)	B in.(mm)	C in.(mm)
9" x 4½"(229x114)	8 11/16"(221)	8⅞"(225.4)	8 1/16"(204.8)	5⅛"(130)	9½"(241)	2 3/32"(53)	4⅝"(117)
9" x 5½"(229x140)	8 11/16"(221)	8⅞"(225.4)	8 1/16"(204.8)	5⅛"(130)	9½"(241)	2 3/32"(53)	5⅝"(143)
11" x 4½"(279x114)	10 13/16"(275)	8⅞"(225.4)	8 1/16"(204.8)	4 13/32"(112)	11⅝"(295)	2 1/16"(52)	4 9/16"(116)
11" x 5½"(279x140)	10 13/16"(275)	8⅞"(225.4)	8 1/16"(204.8)	4 7/16"(113)	11⅝"(295)	2 1/16"(52)	5 9/16"(141)
11" x 7"(279x178)	10 13/16"(275)	8⅞"(225.4)	8 1/16"(204.8)	4 7/16"(113)	11⅝"(295)	2 1/16"(52)	7 1/16"(179)
11" x 7⅝"(279x194)	10 13/16"(275)	8⅞"(225.4)	8 1/16"(204.8)	4 13/16"(122)	11⅝"(295)	2 1/16"(52)	7 11/16"(195)
11" x 8⅝"(279x219)	10 13/16"(275)	8⅞"(225.4)	8 1/16"(204.8)	4 13/16"(122)	11⅝"(295)	2 1/16"(52)	7 11/16"(195)
13⅝" x 7⅝"(346x194)	13 7/16"(341)	8⅞"(225.4)	8 1/16"(204.8)	4 3/16"(106)	14"(356)	2 3/32"(53)	7 23/32"(196)
13⅝" x 8⅝"(346x219)	13 7/16"(341)	8⅞"(225.4)	8 1/16"(204.8)	4 3/16"(106)	14"(356)	2 3/32"(53)	8 23/32"(221)
13⅝" x 9⅝"(346x244)	13 7/16"(341)	8⅞"(225.4)	8 1/16"(204.8)	4 3/16"(106)	14"(356)	2 3/32"(53)	9 23/32"(247)
13⅝" x 10¾"(346x273)	13 7/16"(341)	8⅞"(225.4)	8 1/16"(204.8)	4 3/16"(106)	14"(356)	2 3/32"(53)	10⅞"(276)
16¾" x 8⅝"(425x219)	16 9/16"(421)	10⅜"(263.5)	9"(228.6)	5 1/16"(144)	17 5/16"(440)	2⅜"(60)	8 23/32"(221)
16¾" x 9⅝"(425x244)	16 9/16"(421)	10⅜"(263.5)	9"(228.6)	5 1/16"(144)	17 5/16"(440)	2⅜"(60)	9 23/32"(247)
16¾" x 10¾"(425x273)	16 9/16"(421)	10⅜"(263.5)	9"(228.6)	5 1/16"(144)	17 5/16"(440)	2⅜"(60)	10⅞"(276)
16¾" x 11¾"(425x298)	16 9/16"(421)	10⅜"(263.5)	9"(228.6)	5 13/16"(148)	17 5/16"(440)	2⅜"(60)	11⅞"(302)
20¾" x 10¾"(527x273)	20 1/16"(510)	10" (254)	9"(228.6)	5 1/16"(144)	21"(535)	2 11/16"(68)	10⅞"(276)
20¾" x 13⅜"(527x340)	20 1/16"(510)	10" (254)	9"(228.6)	5 1/16"(144)	21"(535)	2 11/16"(68)	13½"(343)
20¾" x 16"(527x406)	20 1/16"(510)	9⅜"(238.1)	9"(228.6)	5 1/16"(144)	21"(535)	2 11/16"(68)	16⅛"(410)

All dimensions in inches(mm)

TYPE CF-2 BG CASING SPOOL

CONTROL FLOW INC.



Type CF-2 BG Casing Spool

TOP FLANGE		BOTTOM FLANGE		Casing			Dimensions				Approx.
Size	W.P.	Size	W.P.	Size	Outlet		A	B	C	D	Weight
11	2000	11	2000	10 ¾	2 L.P.O.	in.	17 ¾	8 ¾	10	10 ⅞	520 lbs
279.4	138 bar	279.4	138 bar			mm	450.9	222.3	254	276.2	236 kg
11	2000	13 ⅝	2000	10 ¾	2 L.P.O.	in.	17 ¾	8 ¾	10	10 ⅞	680 lbs
279.4	138 bar	346.1	138 bar			mm	450.9	222.3	254	276.2	308 kg
11	3000	11	3000	10 ¾	2 L.P.O.	in.	17 ¾	8 ¾	8	10 ⅞	710 lbs
279.4	207 bar	279.4	207 bar			mm	450.9	222.3	203.2	276.2	322 kg
11	3000	11	3000	10 ¾	2-5000	in.	17 ¾	8 ¾	8	10 ⅞	710 lbs
279.4	207 bar	279.4	207 bar			mm	450.9	222.3	203.2	276.2	322 kg
11	3000	13 ⅝	2000	10 ¾	2 L.P.O.	in.	17 ¾	8 ¾	10	10 ⅞	680 lbs
279.4	207 bar	346.1	138 bar			mm	450.9	222.3	254	276.2	308 kg
11	3000	13 ⅝	2000	10 ¾	2-5000	in.	17 ¾	8 ¾	10	10 ⅞	680 lbs
279.4	207 bar	346.1	138 bar			mm	450.9	222.3	254	276.2	308 kg
11	3000	13 ⅝	3000	10 ¾	2 L.P.O.	in.	17 ¾	8 ¾	10	10 ⅞	710 lbs
279.4	207 bar	346.1	207 bar			mm	450.9	222.3	254	276.2	322 kg
11	3000	13 ⅝	3000	10 ¾	2-5000	in.	17 ¾	8 ¾	10	10 ⅞	710 lbs
279.4	207 bar	346.1	207 bar			mm	450.9	222.3	254	276.2	322 kg
11	3000	16 ¾	2000	10 ¾	2 L.P.O.	in.	17 ¼	8 ⅞	10	10 ⅞	846 lbs
279.4	207 bar	425.5	138 bar			mm	438.2	225.4	254	276.2	384 kg
11	3000	16 ¾	2000	10 ¾	2-5000	in.	17 ¼	8 ⅞	10	10 ⅞	846 lbs
279.4	207 bar	425.5	138 bar			mm	438.2	225.4	254	276.2	384 kg
11	3000	16 ¾	3000	10 ¾	2 L.P.O.	in.	17 ⅞	8 ⅞	10	10 ⅞	1080 lbs
279.4	207 bar	425.5	207 bar			mm	454	225.4	254	276.2	490 kg
11	3000	16 ¾	3000	10 ¾	2-5000	in.	17 ⅞	8 ⅞	10	10 ⅞	1080 lbs
279.4	207 bar	425.5	207 bar			mm	454	225.4	254	276.2	490 kg
11	5000	13 ⅝	3000	10 ¾	2 L.P.O.	in.	22	12 ½	10	10 ⅞	1100 lbs
279.4	345 bar	346.1	207 bar			mm	558.8	317.5	254	276.2	499 kg
11	5000	13 ⅝	3000	10 ¾	2-5000	in.	22	12 ½	10	10 ⅞	1100 lbs
279.4	345 bar	346.1	207 bar			mm	558.8	317.5	254	276.2	499 kg
11	5000	13 ⅝	5000	10 ¾	2 L.P.O.	in.	24 ¾	12 ½	10	10 ⅞	1254 lbs
279.4	345 bar	346.1	345 bar			mm		317.5	254	276.2	569 kg
11	5000	13 ⅝	5000	10 ¾	2-5000	in.	24 ¾	12 ½	10	10 ⅞	1254 lbs
279.4	345 bar	346.1	345 bar			mm		317.5	254	276.2	569 kg
11	5000	16 3/4	3000	10 ¾	2 L.P.O.	in.	22 ⅞	12 ½	10	10 ⅞	1254 lbs
279.4	345 bar	425.5	207 bar			mm	581	317.5	254	276.2	569 kg
11	5000	16 ¾	3000	10 ¾	2-5000	in.	22 ⅞	12 ½	10	10 ⅞	1254 lbs
279.4	345 bar	425.5	207 bar			mm	581	317.5	254	276.2	569 kg
11	10000	13 ⅝	5000	9 ⅝	1 13/16-10000	in.	28 15/16	14 1/16	9	10 ⅞	1254 lbs
279.4	690 bar	346.1	345 bar			mm	735	373.1	228.6	276.2	569 kg
13 ⅝	3000	16 ¾	3000	10 ¾	2 L.P.O.	in.	24 ½	13 ½	10	10 ⅞	1452 lbs
346.1	207 bar	425.5	207 bar			mm	622.3	342.9	254	276.2	659 kg
13 ⅝	3000	16 ¾	3000	10 ¾	2-5000	in.	24 ½	13 ½	10	10 ⅞	1452 lbs
346.1	207 bar	425.5	207 bar			mm	622.3	342.9	254	276.2	659 kg
13 ⅝	3000	21 ¼	2000	13 ⅜	2 L.P.O.	in.	26 ¾	14 ⅜	12 ½	13 ½	2063 lbs
346.1	207 bar	539.8	138 bar			mm	679.5	365.1	317.5	342.9	936 kg
13 ⅝	3000	21 ¼	2000	13 ⅜	2-5000	in.	26 ¾	14 ⅜	12 ½	13 ½	2063 lbs
346.1	207 bar	539.8	138 bar			mm	679.5	365.1	317.5	342.9	936 kg
13 ⅝	5000	20 ¾	3000	13 ⅜	2 L.P.O.	in.	24 ½	12 ¼	12 ½	13 ½	2450 lbs
346.1	345 bar	527.1	207 bar			mm	622.3	311.2	317.5	342.9	1111 kg

DOUBLE PACK-OFF FLANGES
The double pack-off flange provides an auxiliary casing seal and a means for pressure testing the casing seal and the primary annulus seal below the flange.

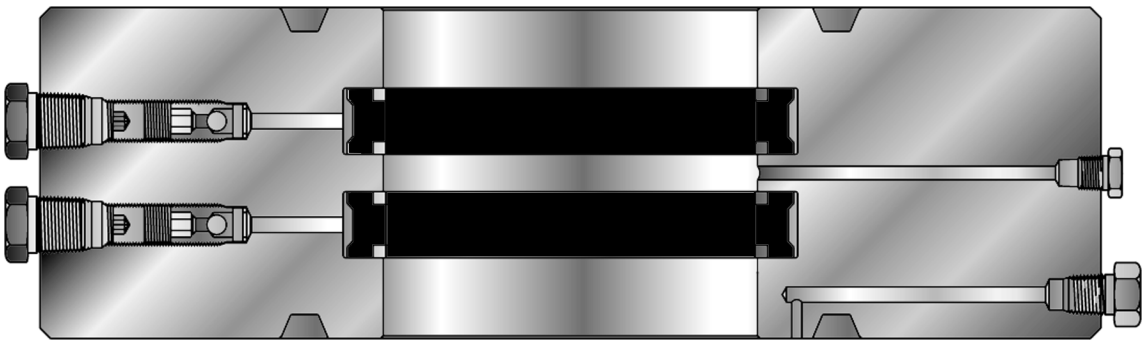
The double pack-off flange also serves as an intermediate crossover flange when a restricted area ring gasket is used in the smaller diameter top groove. When a crossover is used, the top connection can be exposed to a higher pressure than the original rated working pressure.

The double pack-off flange has two molded elastomer P seals which are energized by plastic packing. Pressure applied to the upper test port tests the P seals. Pressure applied to the lower test port tests the gasket and the primary casing seal.

Double Pack-Off Flanges

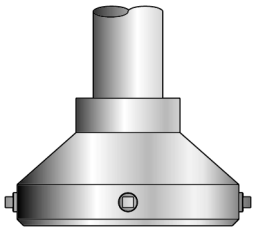
Flange Size and Working Pressure	Casing Size		Height	
21¼" 2000	13⅜"	339.7mm	4⅝"	109.5mm
11" 3000	5½"	139.7mm	4⅛"	103.2mm
11" 3000	7"	177.8mm	4⅛"	103.2mm
11" 3000	7⅝"	193.7mm	4⅛"	103.2mm
13⅝" 3000	7"	177.8mm	4¾"	120.7mm
13⅝" 3000	9⅝"	244.4mm	4¾"	120.7mm
13⅝" 3000 x 11" 5000*	7"	177.8mm	4⅞"	123.8mm
13⅝" 3000 x 11" 5000*	7⅝"	193.7mm	4⅞"	123.8mm
13⅝" 3000 x 11" 5000*	9⅝"	244.4mm	4⅞"	123.8mm
20¾" 3000	13⅜"	339.7mm	4¾"	120.7mm
20¾" 3000 x 13⅝" 5000*	13⅜"	339.7mm	5⅝"	134.9mm
11" 5000	5½"	139.7mm	4¹¹⁄₁₆"	119.1mm
11" 5000	7"	177.8mm	4¹¹⁄₁₆"	119.1mm
11" 5000	7⅝"	193.7mm	4¹¹⁄₁₆"	119.1mm
11" 5000 x 11" 10,000*	5½"	139.7mm	5⅝"	141.3mm
11" 5000 x 11" 10,000*	7"	177.8mm	5⅝"	141.3mm
11" 5000 x 11" 10,000*	7⅝"	193.7mm	5⅝"	141.3mm
11" 5000 x 7¹⁄₁₆" 15,000*	5½"	139.7mm	5"	127.0mm
13⅝" 5000	9⅝"	244.4mm	5½"	139.7mm
13⅝" 5000 x 11" 10,000*	7"	177.8mm	6⅛"	155.6mm
13⅝" 5000 x 11" 10,000*	7⅝"	193.7mm	6⅛"	155.6mm
13⅝" 5000 X 11" 10,000*	9⅝"	244.4mm	6⅛"	155.6mm
11" 10,000	5½"	139.7mm	6³⁄₁₆"	157.2mm
11" 10,000	7"	177.8mm	1³⁄₁₆"	30.2mm
11" 10,000	7⅝"	193.7mm	6³⁄₁₆"	157.2mm
11" 10,000 X 7¹⁄₁₆" 15,000*	5½"	139.7mm	6"	152.4mm

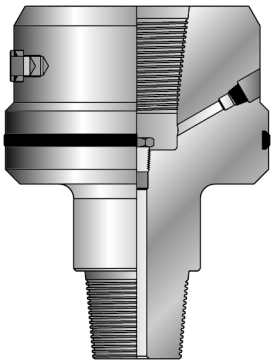
*Double-studded adapter flanges

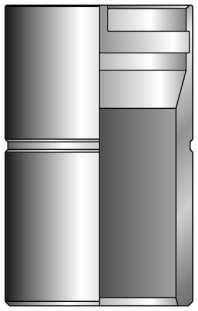


RETRIEVABLE WEAR BUSHINGS

CONTROL FLOW INC.





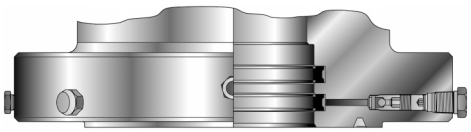


A nominal 10" test plug and bowl protector running tool converted to run and retrieve a 12" nominal bowl protector. When run as a running and retrieving tool, the pin connection must be up.

A nominal 10" test plug converted with a sleeve bushing to test a 12" nominal bowl casing head. Test plug must be run with pin connection down.

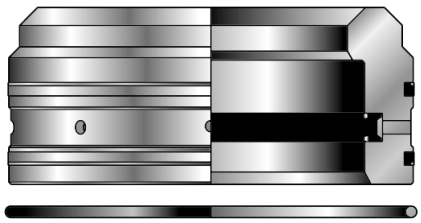
Locking Flange	Combination Testing, Running, and Retrieving Tool			11" Nominal CF Housing or Spool 2000 - 10,000 psi WP	13⅝" Nominal CF Housing or Spool 2000 10,000 psi WP
Flange Size and Working Pressure	Nominal Size and Working Pressure	Type Spool or Housing	Thread Size	Bore Size	Bore Size
7⅛" 5000	7⅛" 2000-5000	CFM, CFC	2⅞" EUE	9.938"	12.500"
11" 2000	7⅛ 2000-5000	CM, CFC	3½" IF	9.875"	12.313"
11" 3000	7⅛" 2000-10,000	CFM, CFC	2⅞" IF	9.688"	12.063"
11" 5000	11" 2000-10,000	CF-2, CF-9	4½" IF	9.563"	11.000"
11" 10,000	13⅝" 2000-10,000	CF-2, CF-9	4½"	9.313"	10.688"
13⅝" 3000	16¾" 2000-10,000	CF-2, CF-9	4½"	8.921"	9.938"
11" 10,000 x 11" 5000	18¾" 2000-3000	CF-2, CF-9	5½" FH	8.875"	9.688"
13⅝" 5000	21¼" 2000-3000	CF-2, CF-9	5½" FH	8.688"	9.313
16¾" 2000x16¾" 2000				8.563"	8.835"
13⅝" 3000 x 13⅝" 3000				8.335"	8.688"
13⅝" 3000 x 11" 5000				7.938"	8.563"
13⅝" 5000 x 13⅝" 5000				7.829"	
21¼" 2000 x 21¼" 2000				7.688"	
20¾" 3000 x 20¾" 3000				7.428"	
21¼" 2000 x 16¾" 2000				6.813"	
21¼" 2000 x 16¾ 3000				6.313"	
				6.093	

SECONDARY SEALS



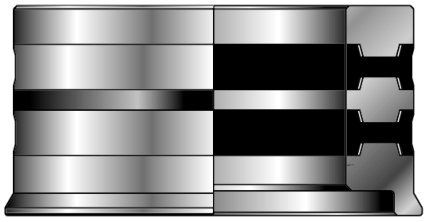
Type CF-P Secondary Seal

Bottom Flange		Casing Range
9"	2000	4"—5½"
11"	2000	4"—7⅝"
13⅝"	2000	4½"—10¾"
16"	2000	8⅝"—13⅜"
21¼"	2000	11¾—16"
9"	3000	4"—5½"
11"	3000	4"—7⅝"
13⅝"	3000	4½"—10¾"
16"	3000	8⅝"—13⅜"
21¼"	3000	11¾"—16"



Type CF-X Bottom Prep.

Bottom Flange		Casing Range
11"	10,000	3½"—7⅝"
13⅝"	10,000	4½"—10¾"
16¾"	10,000	8⅝"—13⅜"
21¼"	10,000	11¾"—16"
11"	15,000	3½"—7⅝"
13⅝"	15,000	4½"—10¾"
16¾"	15,000	8⅝"—13⅜"
21¼"	15,000	11¾"—16"



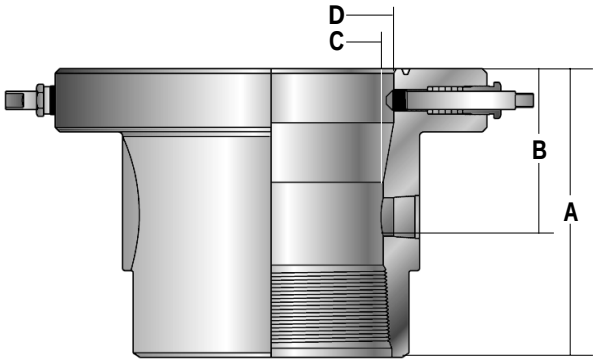
Type CF-R Bushing

Bottom Flange		Casing Range
9"	5000	3½"—5½"
11"	5000	3½"—7⅝"
13⅝"	5000	4½"—9⅝"
16¾"	5000	9⅝"—11¾"
21¼"	5000	11¾"—16"

TUBING HEADS

TYPE CF T-16

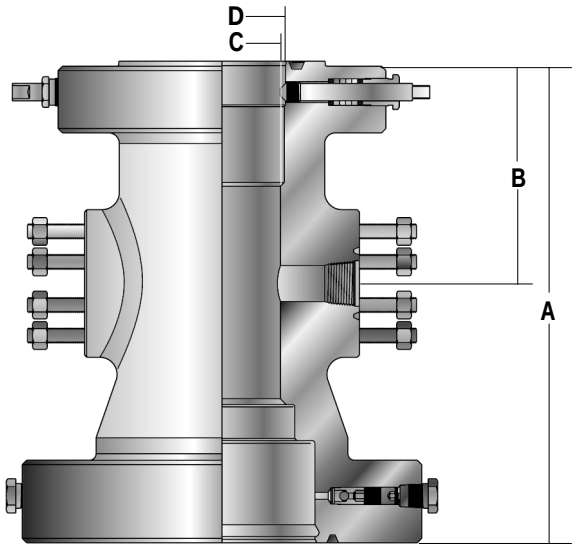
CONTROL FLOW INC.



The Control Flow, Type CF-T-16 Tubing Head is a full-opening, threaded bore head. It's available with API top and bottom flanges, or with threaded or slip-on type bottom for welding. Outlets normally are two , 2 inch screwed or studded flanges, Large outlets or extended flanged outlets are available on request. All studded outlets have VR (Valve removal) threads to accept valve removal plugs. This feature allows you to replace full-opening valves under pressure.

All Control Flow, hangers for CF-T-16 can be installed through full opening Blow-out Preventers.

BOTTOM CONNECTION 8RD		TOP FLANGE			A		B		C		D		WEIGHT	
		in.-psi	METRIC											
in.	mm		mm	Bar	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg
4 ½	114.3	7 1⁄16-2000	179.4	138	12 ¾	323.9	7 ¾	196.9	7	177.8	4	101.6	172	78
5 ½	139.7	7 1⁄16-2000	179.4	138	12 ¾	323.9	7 ¾	196.9	7	177.8	5	127.0	161	73
7	177.8	7 1⁄16-2000	179.4	138	12 ¾	323.9	7 ¾	196.9	7	177.8	6 ⅜	161.9	142	65
4 ½	114.3	7 1⁄16-3000	179.4	207	12 ¾	323.9	7 ¾	196.9	7	177.8	4	101.6	223	101
5 ½	139.7	7 1⁄16-3000	179.4	207	12 ¾	323.9	7 ¾	196.9	7	177.8	5	127.0	212	96
7	177.8	7 1⁄16-3000	179.4	207	12 ¾	323.9	7 ¾	196.9	7	177.8	6 ⅜	161.9	183	83



The Control Flow, Type CF-T-16 Tubing provides lockdown screws sufficient to hold down all styles of Tubing Hangers and provides additional compression on the annulus packing flanged bottom available on CF-T-16.

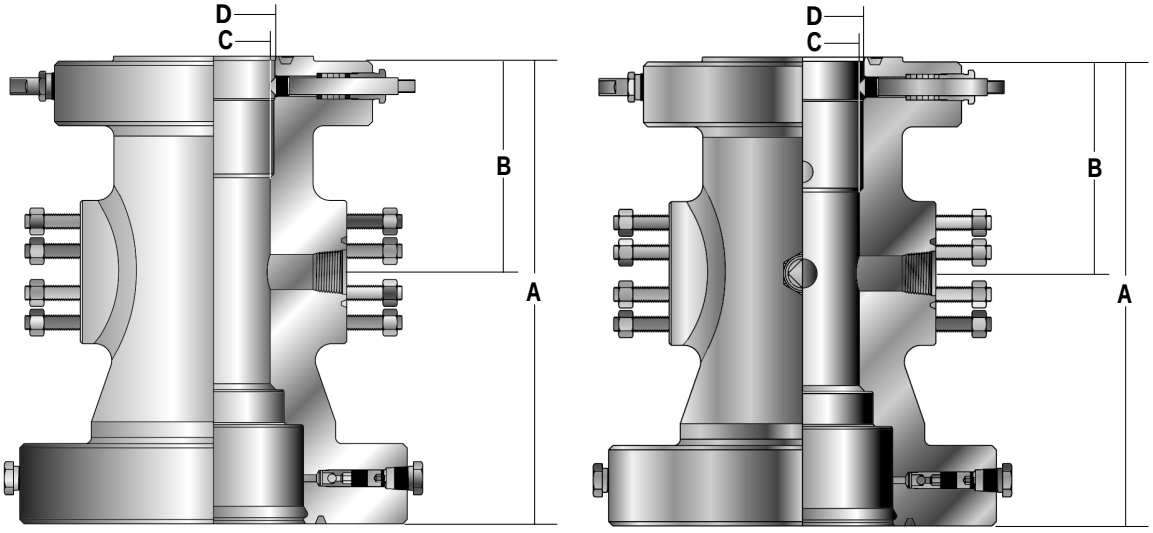
Flanged bottoms available on CF-T-16, CF-00 Secondary Seals, CF-PE, CF-PR and Plain Bottoms. All flanges have test ports with ball checks for testing the secondary and primary seal of the Casing Head below. Standard bottom size for the CF-16 pack -off or CF-16-00 reducer bushing is used. This feature provides additional interchangeability and flexibility, permitting you to change the bit guide or bushing instead of the Tubing Head.

BOTTOM CONNECTION 8RD			TOP FLANGE			A		B		C		D		WEIGHT	
in.-psi	METRIC		in.-psi	METRIC											
	mm	Bar		mm	Bar	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg
9-2000	228.6	138	7 1⁄16-2000	179.4	138	14	355.6	7 ¼	184.2	7	177.8	6 ⅜	161.9	310	140.6
9-2000	228.6	138	7 1⁄16-3000	179.4	207	14 5⁄16	363.5	7 ¼	184.2	7	177.8	6 ⅜	161.9	320	145.1
9-2000	228.6	207	7 1⁄16-3000	179.4	207	15 5⁄16	388.9	7 ¼	184.2	7	177.8	6 ⅜	161.9	395	179.2
9-2000	279.4	138	7 1⁄16-2000	179.4	138	13 ¾	349.3	6 11⁄16	169.9	7	177.8	6 ⅜	161.9	360	163.3
9-2000	279.4	138	7 1⁄16-3000	179.4	207	14 1⁄16	357.2	6 11⁄16	169.9	7	177.8	6 ⅜	161.9	415	188.2
9-2000	279.4	207	7 1⁄16-3000	179.4	207	15 ½	393.7	6 ¾	171.5	7	177.8	6 ⅜	161.9	455	206.4

CONTROL FLOW INC.

TUBING HEADS

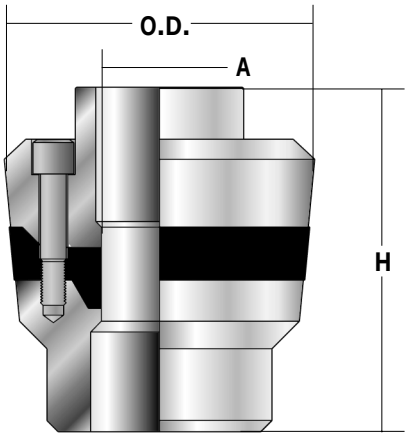
TYPE CFC, CFM and CF-60



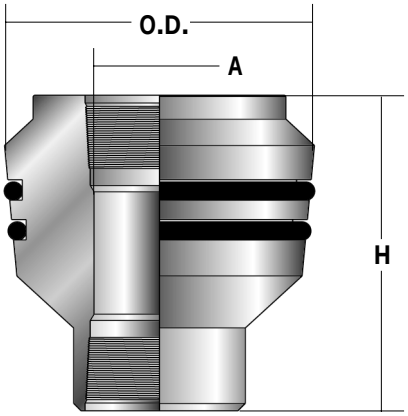
Bottom Flange Size In.	Bottom Flange Working Pressure W.P. (P.S.I.)	Top Flange Size In.	Top Flange Working Pressure W.P. (P.S.I.)	Bottom Preparation	Outlets	Dimensions In.(mm) A	B	C	D	Approximate Weight lb	kg
9"	2000	7⅛"	2000	7" BL	2" L.P.O.	19"(482.6)	10⅝"(269.9)	6¹³⁄₁₆"(173.0)	7"(177.8)	355	160
9"	2000	7⅛"	2000	7" BL	2" 2,000	19"(482.6)	10⅝"(269.9)	6¹³⁄₁₆"(173.0)	7"(177.8)	360	163
9"	2000	7⅛"	3000	7" BL	2" L.P.O.	20"(508)	9½"(241.3)	6⅜"(161.9)	7"(177.8)	400	181
9"	2000	7⅛"	3000	7" BL	2" 5,000	20"(508)	9½"(241.3)	6⅜"(161.9)	7"(177.8)	410	185
9"	3000	7⅛"	3000	7" BL	2" L.P.O.	21¼"(539.8)	10¼"(260.4)	6⅜"(161.9)	7"(177.8)	505	229
9"	3000	7⅛"	3000	7" BL	2" 5,000	21¼"(539.8)	10¼"(260.4)	6⅜"(161.9)	7"(177.8)	510	231
9"	3000	7⅛"	5000	7" BL	2" 5,000	21¼"(539.8)	11¾"(298.5)	6⅜"(161.9)	7"(177.8)	665	302
11"	2000	7⅛"	2000	9" BL	2" L.P.O.	19"(482.6)	10⁹⁄₁₆"(268.3)	6¹³⁄₁₆"(173.0)	7"(177.8)	440	200
11"	2000	7⅛"	2000	9" BL	2" 2,000	19"(482.6)	10⁹⁄₁₆"(268.3)	6¹³⁄₁₆"(173.0)	7"(177.8)	440	200
11"	2000	7⅛"	3000	9" BL	2" L.P.O.	21¾"(552.5)	10"(254.0)	6⅜"(161.9)	7"(177.8)	555	252
11"	2000	7⅛"	3000	9" BL	2" 5,000	21¾"(552.5)	10"(254.0)	6⅜"(161.9)	7"(177.8)	560	306
11"	3000	7⅛"	3000	9" BL	2" L.P.O.	21¾"(552.5)	10"(254.0)	6⅜"(161.9)	7"(177.8)	600	272
11"	3000	7⅛"	3000	9" BL	2" 5,000	21"(533.4)	15⅛"(384.2)	6¹³⁄₁₆"(173.0)	7"(177.8)	600	272
11"	3000	7⅛"	5000	9" BL	2" 5,000	22⁷⁄₁₆"(569.9)	11¾"(298.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	675	306
11"	5000	7⅛"	5000	9" BL	2" 5,000	24½"(622.3)	11⅛"(282.6)	6¹³⁄₁₆"(173.0)	7"(177.8)	880	399
11"	5000	7⅛"	10000	9" BL	1⅛" 10,000	26½"(673.1)	14⅝"(371.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	856	388
11"	10000	7⅛"	10000	9" BL	1⅛" 10,000	26½"(673.1)	12¾"(323.9)	6¾"(171.5)	7"(177.8)	1320	598
11"	10000	7⅛"	15000	9" BL	1⅛" 10,000	26½"(673.1)	12¹³⁄₁₆"(325.4)	6⅜"(161.9)	7"(177.8)	1385	628
11"	3000	9"	3000	9" BL	2" 5,000	22⅜"(568.3)	11¾"(298.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	760	344
11"	3000	9"	5000	9" BL	2" 5,000	23¼"(590.6)	11⅝"(295.3)	8¼"(209.6)	8¾"(222.3)	810	367
11"	5000	9"	10000	9" BL	1⅛" 10,000	24⅜"(619.1)	13¾"(349.3)	8¼"(209.6)	8¾"(222.3)	1249	567
11"	10000	9"	10000	9" BL	1⅛" 10,000	28"(711.2)	14"(355.6)	7"(177.8)	8¾"(222.3)	1708	771
13⅝"	2000	7⅛"	2000	9" BL	2" L.P.O.	20⅞"(530.2)	10"(254.0)	6¹³⁄₁₆"(173.0)	7"(177.8)	490	222
13⅝"	2000	7⅛"	2000	9" BL	2" 2,000	20⅞"(530.2)	10"(254.0)	6¹³⁄₁₆"(173.0)	7"(177.8)	495	225
13⅝"	2000	7⅛"	3000	9" BL	2" L.P.O.	20"(508.0)	9½"(241.3)	6⅜"(161.9)	7"(177.8)	625	284
13⅝"	2000	7⅛"	3000	9" BL	2" 5,000	20"(508.0)	9½"(241.3)	6⅜"(161.9)	7"(177.8)	630	295
13⅝"	3000	7⅛"	3000	9" BL	2" L.P.O.	24½"(622.3)	11½"(292.1)	6¹³⁄₁₆"(173.0)	7"(177.8)	675	306
13⅝"	3000	7⅛"	3000	9" BL	2" 5,000	24½"(622.3)	11¾"(298.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	670	304
13⅝"	3000	7⅛"	5000	9" BL	2" L.P.O.	24½"(622.3)	11¾"(298.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	805	363
13⅝"	3000	7⅛"	5000	9" BL	2" 5,000	24½"(622.3)	11¾"(298.5)	6¹³⁄₁₆"(173.0)	7"(177.8)	810	367
13⅝"	2000	9"	2000	10¾" BL	2" L.P.O.	24¼"(615.9)	10⅜"(263.5)	8¼"(209.6)	8¾"(222.3)	500	227
13⅝"	2000	9"	2000	10¾" BL	2" 2,000	22⅛"(561.9)	10⅜"(263.5)	8¼"(209.6)	8¾"(222.3)	505	229
13⅝"	2000	9"	3000	10¾" BL	2" L.P.O.	20⅛"(511.2)	9⅝"(244.5)	8¼"(209.6)	8¾"(222.3)	650	295
13⅝"	2000	9"	3000	10¾" BL	2" 5,000	20⅛"(511.2)	9⅝"(244.5)	8¼"(209.6)	8¾"(222.3)	655	297
13⅝"	3000	9"	3000	10¾" BL	2" L.P.O.	22¾"(577.9)	10⁹⁄₁₆"(268.3)	8¼"(209.6)	8¾"(222.3)	700	318
13⅝"	3000	9"	3000	10¾" BL	2" 5,000	22¾"(577.9)	10⁹⁄₁₆"(268.3)	8¼"(209.6)	8¾"(222.3)	705	320
13⅝"	3000	9"	5000	10¾" BL	2" L.P.O.	23⅝"(600.1)	11⅝"(295.3)	8¼"(209.6)	8¾"(222.3)	710	322
13⅝"	3000	9"	5000	10¾" BL	2" 5,000	23⅝"(600.1)	11⅝"(295.3)	8¼"(209.6)	8¾"(222.3)	720	325
13⅝"	3000	11"	5000	10¾" BL	2" 5,000	22"(558.8)	12½"(317.5)	10"(254.0)	10⅞"(276.2)	840	380
13⅝"	5000	11"	10000	9⅝" BL	1⅛" 10000	29"(736.6)	14¹¹⁄₁₆"(376.1)	9"(228.6)	10⅞"(276.2)	1750	796
13⅝"	5000	11"	10000	9⅝" OO	1⅛" 10000	29"(736.6)	14¹¹⁄₁₆"(376.1)	9"(228.6)	10⅞"(276.2)	1750	796

SINGLE COMPLETION HANGER

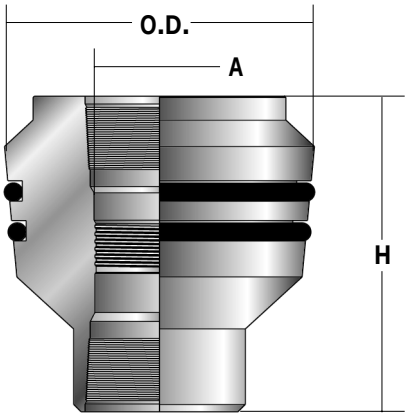
CONTROL FLOW INC.



CF-5 Wrap Around Hanger



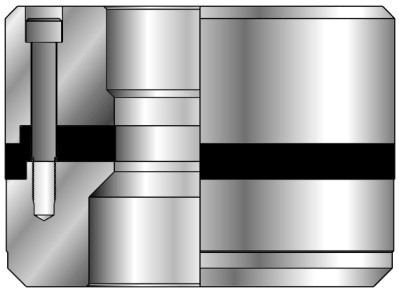
CF-16 Mandrel Suspension



CF-16B Mandrel Suspension Back Pressure Valve

Hanger	Size		UPTBG		O.D.		H		A		Weight	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg
	7 1/16	179.4	1.660	42.2	6 15/16	176.2	6 29/32	175.4	1 13/32	35.7	47	22
	7 1/16	179.4	1.900	48.3	6 15/16	176.2	6 29/32	175.4	1 5/8	41.3	46	21
CF-5	7 1/16	179.4	2 3/8	60.3	6 15/16	176.2	6 29/32	175.4	2 1/8	54.0	43	20
	7 1/16	179.4	2 7/8	73.0	6 15/16	176.2	6 29/32	175.4	2 5/8	66.7	39	18
	7 1/16	179.4	3 1/2	88.9	6 15/16	176.2	6 29/32	175.4	3 1/8	79.4	33	15
	7 1/16	179.4	1.900	48.3	6 15/16	176.2	7 29/32	200.8	1.668	42.4	57	26
CF-16B	7 1/16	179.4	2 3/8	60.3	6 15/16	176.2	7 29/32	200.8	1.933	49.1	55	25
BPV	7 1/16	179.4	2 7/8	73.0	6 15/16	176.2	7 29/32	200.8	2.395	60.8	52	24
	7 1/16	179.4	1.900	48.3	6 15/16	176.2	6 1/4	158.8	2.000	50.8	37	17
CF-3	7 1/16	179.4	2.063*	52.4	6 15/16	176.2	6 1/4	158.8	2 1/8	54.0	35	16
	7 1/16	179.4	2 3/8	60.3	6 15/16	176.2	6 1/4	158.8	2 15/32	62.7	32	15
	7 1/16	179.4	2 7/8	73.0	6 15/16	176.2	6 1/4	158.8	2 31/32	75.4	30	14
	7 1/16	179.4	1.900	48.3	6 15/16	176.2	5 13/16	147.6	—	—	17	8
CF-16	7 1/16	179.4	2.063*	52.4	6 15/16	176.2	5 13/16	147.6	—	—	16	7
Stripper	7 1/16	179.4	2 3/8	60.3	6 15/16	176.2	5 13/16	147.6	—	—	14	6
	7 1/16	179.4	2 7/8	73.0	6 15/16	176.2	5 13/16	147.6	—	—	11	5

Other sizes available upon request
*Integral



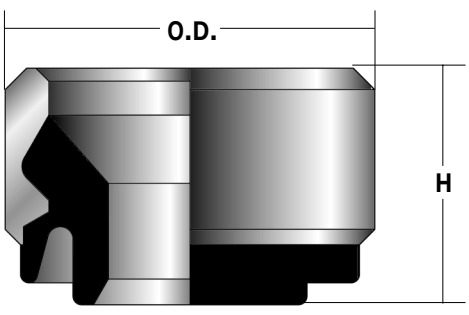
CF TC-1A

The WR-TC-1A is a threaded top and bottom mandrel-type hanger with an annulus seal energized by tubing weight and lockdown screws. The tubing is suspended directly from the hanger. For use in the WR-TC and WR-TCM tubing heads. Internal back pressure valve threads are available upon request.

Size	Approx.. Wgt. Lbs/Kg	
7 1/16" x 2 3/8" O.D. EUE 8RF TBG.	72	33
7 1/16" x 2 7/8" O.D. EUE 8RF TBG.	72	33
7 1/16" x 3 1/2" O.D. EUE 8RF TBG.	72	33
11" x 2 3/8" O.D. EUE 8RF TBG.	72	33
11" x 2 7/8" O.D. EUE 8RF TBG.	72	33

CF-TCD-2C

The CF-TCD-2C is a straight bore hanger which fits the TC tubing head and is easily aligned to suspend dual strings of tubing. This hanger contains two mandrel bushings which are internally threaded to accept the WR back pressure valve. Both mandrels are suspended in a master bushing. The packing element is a sandwich-type packoff, easily lowered through the preventers and energized with the lock-down screws in the tubing head.



CF-16 Stripper

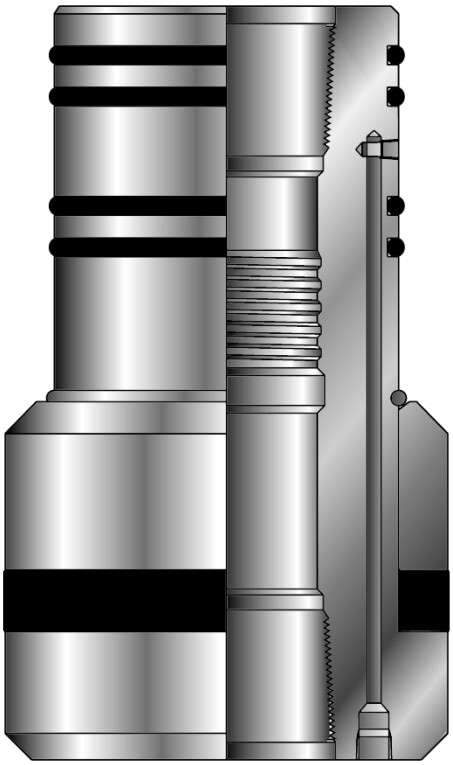
CF-60 Dual Split Hanger

- Simple to install through blow-out preventers.
- Packoff is integral part of hanger segment, eliminates extra procedure to install sandwich-type packoff. Annulus seal is achieved when hangers are installed and seal actuated by lockdown screws.
- Tubing strings can be installed and removed independently, with maximum clearance for subsurface safety valves or gas lift valves.
- Hangers are available with Control Flow, back pressure valve profile and are available with control line preparation for down hole surface controlled subsurface safety valves.

CF-TC-1W

The CF-TC-1W is a split type, wrap-around hanger which can be easily assembled around the tubing and lowered through the preventers. The hanger has a compression type packoff which is actuated by lockscrews. The tubing must be suspended from a tubing head adapter or the CF-BO-2 hanger coupling.

Size	Approx.. Wgt. Lbs/Kg	
7 1/16" x 2 3/8" O.D.	68	31
7 1/16" x 2 7/8" O.D.	60	27
7 1/16" x 3 1/2" O.D.	55	25
11" x 2 3/8" O.D.	142	65
11" x 2 7/8" O.D.	140	64



The CF-1A-EN is a mandrel-type threaded hanger with back pressure valve threads and extended neck seals that provide a positive seal to isolate the flange and the ring gasket from well pressure and fluids. The bowl seal is effected by o-ring or compression type packoff. The CF-1A-EN accepts downhole control lines or injection tubing lines.

TYPE CF-02 TUBING SPOOL, TYPE CF-02 TUBING HANGER

CONTROL FLOW INC.

CF-02 TUBING SPOOL ASSEMBLY
The CF-02 Tubing Spool Assembly is made up of a CF-02 Spool, CF-02 Tubing Hanger, CF-W Hanger, and a CFM or CFC Tubing Spool.

The CF-02 Tubing Hanger and Back Pressure Valve are installed on the last tubing joint and the CF-W Hanger is wrapped around the tubing below the CF-02 Hanger. This assembly is lowered through the blowout preventers until the CF-W lands in the tubing spool. The tubing spool tie-down screws are tightened to energize the CF-W Annulus Seal.

Once the CF-W Hanger is installed and the tie-down screws are tightened, the tubing string can be manipulated above and below the point of suspension, the blowout preventers can be removed, and the Christmas tree can be installed.

The CF-02 Spool or Christmas tree is screwed directly onto the CF-02 Hanger while the hanger and tubing string remain stationary.

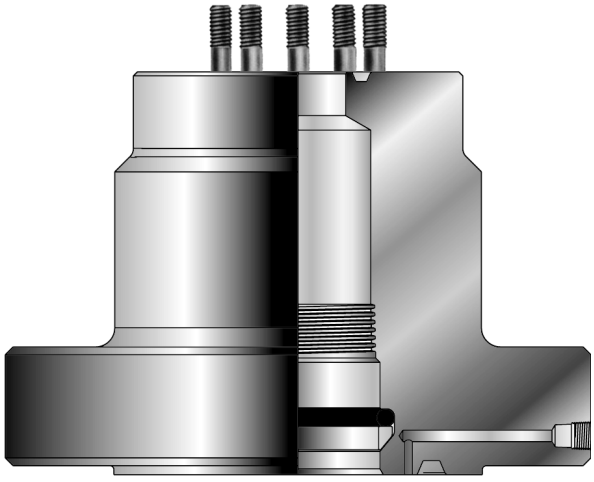
CF-02 Spool Dimensional Data

Size-Flange x Studded	Bore	Bottom Prep.
7⅛" 2000 x 2⁹⁄₁₆" 2000	2⁹⁄₁₆"	4½"
7⅛" 3000 x 2⅛" 5000	2⅛"	4½"
7⅛" 3000 x 2⁹⁄₁₆" 5000	2⁹⁄₁₆"	4½"
7⅛" 5000 x 2⅛" 5000	2⅛"	4½"
7⅛" 5000 x 2⁹⁄₁₆" 5000	2⁹⁄₁₆"	4½"
7⅛" 5000 x 3⅛" 5000	3⅛"	6⁵⁄₁₆"
7⅛" 5000 x 4⅛" x 5000	4⅛"	6⅞"
9" 5000 x 2⅛" 5000	2⅛"	4½"
9" 5000 x 3⅛" 5000	3⅛"	6⁵⁄₁₆"
9" 5000 x 4⅛" 5000	4⅛"	6⅞"
11" 5000 x 2⁹⁄₁₆" 5000	2⁹⁄₁₆"	4½"
7⅛" 10,000 x 2⅛" 10,000	2⅛"	4½"
7⅛" 10,000 x 2⁹⁄₁₆" 10,000	2⁹⁄₁₆"	4½"
7⅛" 10,000 x 3⅛" 10,000	3⅛"	6⁵⁄₁₆"
9" 10,000 x 4⅛" 10,000	4⅛"	6⅞"
7⅛" 15,000 x 1¹³⁄₁₆" 15,000	1¹³⁄₁₆"	4½"
7⅛" 15,000 x 2⅛" 15,000	2⅛"	4½"
7⅛" 15,000 x 2⁹⁄₁₆" 15,000	2⁹⁄₁₆"	4½"

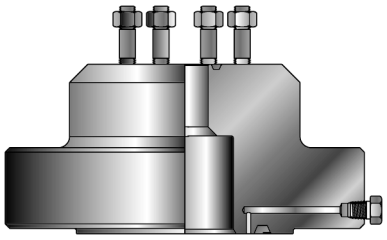
CF-02 Tubing Hanger

*Hanger threaded for H back pressure valve	
Size	4½" x 2⅜" API Upset Tubing
	4½" x 2⅞" API Upset Tubing
	6⁵⁄₁₆" x 3½" API Upset Tubing
	6⅞" x 4½" API Upset Tubing

CF-02 Coupling



Adapter seal flanges fit over Type CF Extended Neck Tubing Hangers to provide a secondary seal and a means of testing the lower connection.

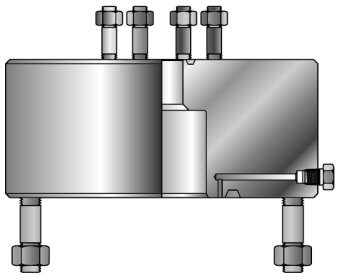


Single-Studded Adapter Seal Flange

Single Studded Adapter Seal Flange Dimensional Data

Bottom Flange	Top Flange	Height	Min. Bore
7⅛"-3000 179.4mm/207Bar	2⅛"-5000 52mm/345Bar	7½" 191mm	2⅛" 52mm
7⅛"-3000 179.4mm/207Bar	2⅞"-5000 52mm/345Bar	7½" 191mm	2⅞" 65mm
7⅛"-3000 179.4mm/207Bar	3⅛"-3000 79mm/207Bar	9" 229Bar	3⅛" 79mm
7⅛"-3000 179.4mm/207Bar	3⅛"-5000 79mm/207Bar	7½" 191mm	3⅛" 79mm
7⅛"-5000 179.4mm/345Bar	2⅛"-5000 52mm/345Bar	8" 203Bar	2⅛" 52mm
7⅛"-5000 179.4mm/345Bar	2⅞"-5000 52mm/345Bar	8" 203Bar	2⅞" 65mm
7⅛"-5000 179.4mm/345Bar	3⅛"-5000 79mm/345Bar	9" 229Bar	3⅛" 79mm
7⅛"-10000 179.4mm/690Bar	2⅛"-10000 52mm/690Bar	10" 254Bar	2⅛" 52mm
7⅛"-10000 179.4mm/690Bar	2⅞"-10000 52mm/690Bar	10" 254Bar	2⅞" 65mm
7⅛"-10000 179.4mm/690Bar	3⅛"-10000 79mm/414Bar	10" 254Bar	3⅛" 77mm

All Dimensions in inches(mm)

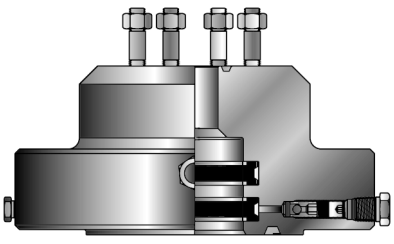


Double-Studded Adapter Seal Flange

Double Studded Adapter Seal Flange Dimensional Data

Bottom Flange	Top Flange	Height	Min. Bore
7⅛"-3000 179.4mm/207Bar	2⅛"-5000 52mm/345Bar	6" 152mm	2⅛" 52mm
7⅛"-3000 179.4mm/207Bar	2⅞"-5000 52mm/345Bar	6" 152mm	2⅞" 65mm
7⅛"-3000 179.4mm/207Bar	3⅛"-5000 79mm/345Bar	6" 152mm	2⅞" 65mm
7⅛"-5000 179.4mm/345Bar	2⅛"-5000 52mm/345Bar	6" 152mm	2⅛" 52mm
7⅛"-5000 179.4mm/345Bar	2⅞"-5000 52mm/345Bar	6" 152mm	2⅞" 65mm
7⅛"-5000 179.4mm/345Bar	3⅛"-5000 79mm/345Bar	6" 152mm	3⅛" 79mm
7⅛"-10000 179.4mm/690Bar	2⅛"-10000 52mm/690Bar	6" 152mm	2⅛" 52mm
7⅛"-10000 179.4mm/690Bar	2⅞"-10000 52mm/690Bar	6" 152mm	2⅞" 65mm
7⅛"-10000 179.4mm/690Bar	3⅛"-10000 79mm/414Bar	6" 152mm	3⅛" 77mm

All Dimensions in inches(mm)



Double-Studded Adapter Seal Flange

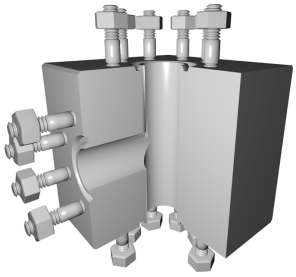
CF-3S Seal Flanges for Slick-Neck Hangers

Size and Working Pressure	Bottom Preparation
7⅛" 10,000 x 1¹³⁄₁₆" 10,000* 179.4mm/690Bar x 46mm/690Bar	5½" Double P Seal 139mm
7⅛" 10,000 x 2⅛" 10,000 179.4mm/690Bar x 52mm/690Bar	5½" Double P Seal 139mm
7⅛" 15,000 x 1¹³⁄₁₆" 15,000 179.4mm/690Bar x 46mm/1035Bar	5½" Double P Seal 139mm
7⅛" 15,000 x 2⅛" 15,000 179.4mm/690Bar x 52mm/1035Bar	5½" Double P Seal 139mm
7⅛" 15,000 x 2⅞" 15,000 179.4mm/690Bar x 65mm/1035Bar	5½" Double P Seal 139mm

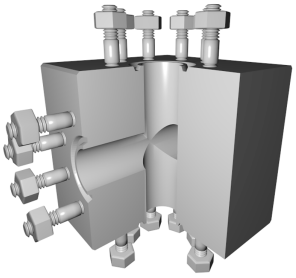
FORGED STEEL, STUDDED TEES AND CROSSES

CONTROL FLOW INC.

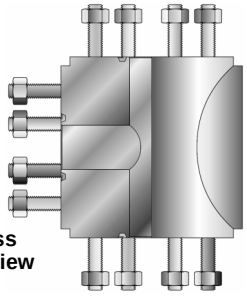
Tee



Cross



Tee and Cross Dimensional View

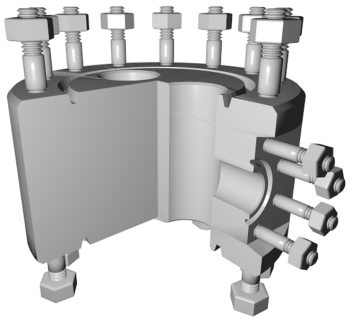


Tee and Cross Part Numbers and Dimensions

Maximum Service Pressure Rating	Nominal Vertical		Nominal Outlet		A Vertical Bore		B Outlet Bore		C Center to Face Vertical Run		D Center to Face Outlet	
2000 PSI	2 1/16"	52	2 1/16"	52	2 1/16"	52	2 1/16"	52	3 1/2"	88	3 1/2"	88
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 1/16"	52	3 1/2"	88	4"	101
	2 9/16"	65	2 9/16"	65	2 9/16"	65	2 9/16"	65	4 1/2"	114	4 1/2"	114
	3 1/8"	79	2 1/16"	52	3 1/8"	79	2 1/16"	52	3 1/2"	88	4 1/2"	114
	3 1/8"	79	2 9/16"	65	3 1/8"	79	2 9/16"	65	4 1/2"	114	4 1/2"	114
	3 1/8"	79	3 1/8"	79	3 1/8"	79	3 1/8"	79	4 1/2"	114	4 1/2"	114
	4 1/16"	103	2 1/16"	52	4 1/16"	103	2 1/16"	52	4 1/2"	114	5 1/2"	139
	4 1/16"	103	2 9/16"	65	4 1/16"	103	2 9/16"	65	4 1/2"	114	5 1/2"	139
	4 1/16"	103	3 1/8"	79	4 1/16"	103	3 1/8"	79	4 1/2"	114	5 1/2"	139
	4 1/16"	103	4 1/16"	103	4 1/16"	103	4 1/16"	103	5 1/2"	139	5 1/2"	139
3000 PSI	2 1/16"	52	2 1/16"	52	2 1/16"	52	2 1/16"	52	4 1/2"	114	4 1/2"	114
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 1/16"	52	4 1/2"	114	4 1/2"	114
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 9/16"	65	5"	127	5"	127
	3 1/8"	79	2 1/16"	52	3 1/8"	79	2 9/16"	65	4 1/2"	114	5"	127
	3 1/8"	79	2 9/16"	65	3 1/8"	79	2 9/16"	65	5"	127	5"	127
	3 1/8"	79	3 1/8"	79	3 1/8"	79	3 1/8"	79	5"	127	5"	127
	4 1/16"	103	2 1/16"	52	4 1/16"	103	2 1/16"	52	4 1/2"	114	6"	152
	4 1/16"	103	2 9/16"	65	4 1/16"	103	2 9/16"	65	5"	127	6"	152
	4 1/16"	103	3 1/8"	79	4 1/16"	103	3 1/8"	79	5"	127	6"	152
	4 1/16"	103	4 1/16"	103	4 1/16"	103	4 1/16"	103	6"	152	6"	152
5000 PSI	2 1/16"	52	2 1/16"	52	2 1/16"	52	2 1/16"	52	4 1/2"	114	4 1/2"	114
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 1/16"	52	4 1/2"	114	5"	127
	2 9/16"	65	2 9/16"	65	2 9/16"	65	2 9/16"	65	5"	127	5"	127
	3 1/8"	79	2 1/16"	52	3 1/8"	79	2 1/16"	52	4 1/2"	114	5 1/2"	139
	3 1/8"	79	2 9/16"	65	3 1/8"	79	2 9/16"	65	5 1/2"	139	5 1/2"	139
	3 1/8"	79	3 1/8"	79	3 1/8"	79	3 1/8"	79	5 1/2"	139	5 1/2"	139
	4 1/16"	103	2 1/16"	52	4 1/16"	103	2 1/16"	52	4 1/2"	114	6 1/2"	165
	4 1/16"	103	2 9/16"	65	4 1/16"	103	2 9/16"	65	5"	127	6 1/2"	165
	4 1/16"	103	3 1/8"	79	4 1/16"	103	3 1/8"	79	5 1/2"	139	6 1/2"	165
	4 1/16"	103	4 1/16"	103	4 1/16"	103	4 1/16"	103	6 1/2"	165	6 1/2"	165
10,000 PSI	1 13/16"	46	1 13/16"	46	1 13/16"	46	1 13/16"	46	4 3/8"	111	4 3/8"	111
	2 1/16"	52	1 13/16"	46	2 1/16"	52	1 13/16"	46	4 3/8"	111	4 3/8"	111
	2 1/16"	52	2 1/16"	52	2 1/16"	52	2 1/16"	52	4 3/8"	111	4 3/8"	111
	2 9/16"	65	1 13/16"	46	2 9/16"	65	1 13/16"	46	4 1/2"	114	5 1/8"	130
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 1/16"	52	4 1/2"	114	5 1/8"	130
	2 1/16"	52	2 9/16"	65	2 9/16"	65	2 9/16"	65	5 1/8"	130	5 1/8"	130
	3 1/16"	77	1 13/16"	46	3 1/16"	77	1 13/16"	46	4 1/2"	114	5 7/8"	149
	3 1/16"	77	2 1/16"	52	3 1/16"	77	2 1/16"	52	4 1/2"	114	5 7/8"	149
	3 1/16"	77	2 9/16"	65	3 1/16"	77	2 9/16"	65	5 1/8"	130	5 7/8"	149
	3 1/16"	77	3 1/16"	77	3 1/16"	77	3 1/16"	77	5 7/8"	149	5 7/8"	149
	4 1/16"	103	1 13/16"	46	4 1/16"	103	1 13/16"	46	6 7/8"	174	6 7/8"	174
	4 1/16"	103	2 1/16"	52	4 1/16"	103	2 1/16"	52	6 7/8"	174	6 7/8"	174
	4 1/16"	103	2 9/16"	65	4 1/16"	103	2 9/16"	65	5 1/8"	130	6 7/8"	174
	4 1/16"	103	3 1/16"	77	4 1/16"	103	3 1/16"	77	5 7/8"	149	6 7/8"	174
	4 1/16"	103	4 1/16"	103	4 1/16"	103	4 1/16"	103	6 7/8"	174	6 7/8"	174
15,000 PSI 6 BX	1 13/16"	46	1 13/16"	46	1 13/16"	46	1 13/16"	46	5"	127	5"	127
	2 1/16"	52	1 13/16"	46	2 1/16"	52	1 13/16"	46	5"	127	5"	127
	2 1/16"	52	2 1/16"	52	2 1/16"	52	2 1/16"	52	5"	127	5"	127
	2 9/16"	65	1 13/16"	46	2 9/16"	65	1 13/16"	46	5 1/2"	139	5 1/2"	139
	2 9/16"	65	2 1/16"	52	2 9/16"	65	2 1/16"	52	5 1/2"	139	5 1/2"	139
	3 1/16"	77	1 13/16"	46	3 1/16"	77	1 13/16"	46	6 5/16"	160	6 5/16"	160
	3 1/16"	77	2 1/16"	52	3 1/16"	77	2 1/16"	52	6 5/16"	160	6 5/16"	160
	3 1/16"	77	2 9/16"	65	3 1/16"	77	2 9/16"	65	6 5/16"	160	6 5/16"	160
	4 1/16"	103	2 1/16"	52	4 1/16"	88	2 1/16"	52	5"	127	7 3/4"	196
	4 1/16"	103	4 1/16"	103	4 1/16"	103	4 1/16"	103	7 3/4"	196	7 3/4"	196

DUAL MANIFOLD CROSSES, DUAL 5-BOLT

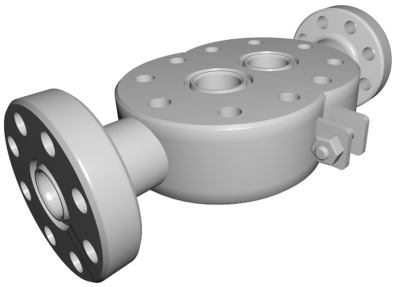
TEES AND DUAL FLANGES



STUDDED DUAL TEE

Dual Manifold Cross Dimensional Data

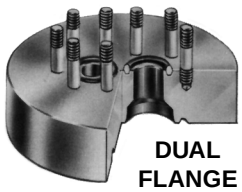
Flange Size	Vertical Bores	Centerline Spacing	Outlets
7 1/16" 3000	1 13/16" x 1 13/16"	2 25/32"	2 1/16"-5000
7 1/16" 3000	2 1/16" x 2 1/16"	3 35/64"	2 1/16"-5000
7 1/16" 5000	1 13/16" x 1 13/16"	2 25/32"	2 1/16"-5000
7 1/16" 5000	2 1/16" x 2 1/16"	3 35/64"	2 1/16"-5000
7 1/16" 5000	2 9/16" x 2 1/16"	3 35/64"	2 1/16"-5000
7 1/16" 10000	1 13/16" x 1 13/16"	2 25/32"	2 1/16"-10000
7 1/16" 10000	2 1/16" x 2 1/16"	3 35/64"	2 1/16"-10000
7 1/16" 10000	2 9/16" x 2 1/16"	3 35/64"	2 1/16"-10000



DUAL SEGMENTED TEE

Dual Five Bolt Tee Dimensional Data

Size	End Connections	Centerline Spacing	Outlets
1 13/16" x 1 13/16"	1 13/16"-5000	2 25/32"	2" L.P.
1 13/16" x 1 13/16"	1 13/16"-5000	2 25/32"	2 1/16"-5000
2 1/16" x 2 1/16"	2 1/16"-5000	3 35/64"	2" L.P.
2 1/16" x 2 1/16"	2 1/16"-5000	3 35/64"	2 1/16"-2000
2 1/16" x 2 1/16"	2 1/16"-5000	3 35/64"	2 1/16"-5000



DUAL FLANGE

Dual Flange Dimensional Data

Flange Size	Vertical Bores	Centerline Spacing	Top Connection
7 1/16"-2000	1 13/16" x 1 13/14"	2 25/32"	1 13/16" - 5 Bolt
7 1/16"-3000	1 13/16" x 1 13/16"	2 25/32"	1 13/16" - 5 Bolt
7 1/16"-5000	1 13/16" x 1 13/16"	2 25/32"	1 13/16" - 5 Bolt
7 1/16"-2000	2 1/16" x 2 1/16"	3 35/64"	2 1/16" - 5 Bolt
7 1/16"-3000	2 1/16" x 2 1/16"	3 35/64"	2 1/16" - 5 Bolt
7 1/16"-5000	2 1/16" x 2 1/16"	3 35/64"	2 1/16" - 5 Bolt
7 1/16"-3000	2 1/16" x 2 1/16"	3 35/64"	2 3/8" EU 8R
7 1/16"-5000	2 1/16" x 2 1/16"	3 35/64"	2 3/8" EU 8R

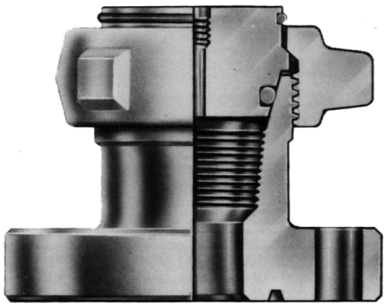
TREE CAP ASSEMBLIES

TYPE C-T AND C-TS HANGER FLANGES

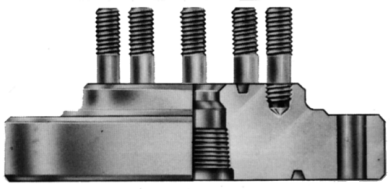
CONTROL FLOW INC.

Tree Cap Assemblies

Size & Working Pressure	API Ring No.	Min. Bore	Lift Thread	Height	MM
2 1/16"-2000	R-23	2 1/16"	2 3/8 EUE 8R	7 1/8"	180
2 9/16"-2000	R-26	2 9/16"	2 7/8 EUE 8R	7 1/8"	180
3 1/8"-2000	R-31	3 1/8"	3 1/2 EUE 8R	9 3/4"	247
3 1/8"-3000	R-31	3 1/8"	3 1/2 EUE 8R	9 3/4"	247
2 1/16"-5000	R-24	2 1/16"	2 3/8 EUE 8R	7 3/4"	196
2 9/16"-5000	R-27	2 9/16"	2 7/8 EUE 8R	8 1/16"	204
3 1/8"-5000	R-35	3 1/8"	3 1/2 EUE 8R	10 1/16"	269
2 1/16"-10000	BX-152	2 1/16"	2 3/8 EUE 8R	8"	203
2 9/16"-10000	BX-153	2 9/16"	2 7/8 EUE 8R	7 9/16"	192
3 1/16"-10000	BX-154	3 1/16"	3 1/2 EUE 8R	13 1/8"	333
2 1/16"-15000	BX-152	2 1/16"	2 3/8 EUE 8R	8 1/8"	206

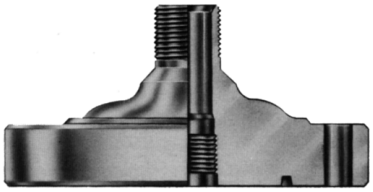


CF-11 Bottom Hole Test Adapters are furnished in various sizes and working pressures to 15,000 PSI. The **CF-11** Adapters are for use in extreme pressure requirements.



C-TS Hanger Flange Dimensional Data

Bottom Flange	Top Flange	Thd Size	Min Bore	Height	MM
7 1/16"-2000	2 1/16"-2000	2 3/8 EUE	2 1/16"	3 1/2"	88
7 1/16"-2000	2 9/16"-2000	2 7/8 EUE	2 9/16"	3 1/2"	88
7 1/16"-3000	2 1/16"-5000	2 3/8 EUE	2 1/16"	3 1/2"	88
7 1/16"-3000	2 9/16"-5000	2 7/8 EUE	2 9/16"	3 1/2"	88
7 1/16"-3000	3 1/8"-3000	3 1/2 EUE	3 1/8"	3 1/2"	88
7 1/16"-5000	2 1/16"-5000	2 3/8 EUE	2 1/16"	4"	101
7 1/16"-5000	2 9/16"-5000	2 7/8 EUE	2 9/16"	4"	101
7 1/16"-5000	3 1/8"-5000	3 1/2 EUE	3 1/8"	4 1/2"	22



C-T Hanger Flange Dimensional Data

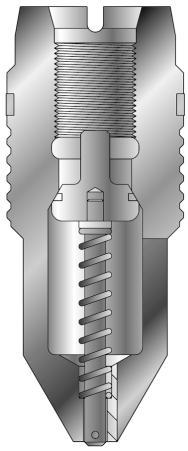
Bottom Flange	Thd Size Male x Female	Min Bore	Height	MM
7 1/16"-2000	2 3/8 EUE	2 1/16"	7"	177
7 1/16"-2000	2 7/8 EUE	2 9/16"	7 1/4"	184
7 1/16"-3000	2 3/8 EUE	2 1/16"	7 1/4"	184
7 1/16"-3000	2 7/8 EUE	2 9/16"	7 1/4"	184
9"-2000	2 3/8 EUE	2 1/16"	7 1/4"	184
9"-2000	2 7/8 EUE	2 9/16"	7 1/4"	184
9"-3000	2 3/8 EUE	2 1/16"	7 1/2"	190
9"-3000	2 7/8 EUE	2 9/16"	7 1/2"	190

C-H BACK PRESSURE VALVES AND PLUGS

The C-H Back Pressure Valve is a one-way check valve used to seal tubing pressure to 20,000 psi while the blowout pre venters are removed and the Christmas trees is installed. It also permits fluid to be circulated down the tubing and prevents back flow.

The C-H Two-way check Valve is installed in the tubing hanger to allow the Christmas tree to be tested to 15,000 psi. The two-way check valve allows pressure to be equalized above and below the seal, ensuring safe removal from the tubing hanger.

The shallow threads on the C-H Back Pressure Valve and C-H Two-way Check valve provide strength, allowing the valves to withstand extremely high pressure without significantly reducing the tubing hanger bore size.



H Back Pressure Valve

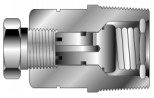
Nominal Size	Max O.D.	Tubing O.D.	Min. Bore BPV Thd.	Min. Tree Bore
1¾"(44.4mm)	1.775	2 1⁄16"(52.4mm)	1.695	1 13⁄16"(46.0mm)
2"(50.8mm)	2.020	2⅜"(60.3mm)	1.940	2 1⁄16"(52.4mm)
2½"(63.5mm)	2.485	2⅞"(73.0mm)	2.405	2 9⁄16"(65.1mm)
3"(76.2mm)	3.030	3½"(88.9mm)	2.950	3⅛"(79.4mm)

VALVE REMOVAL AND CONTROL PLUGS

The control plug is a check valve which allows a pressure gauge to be installed in the housing or spool outlet companion flange.
The check valve contains well pressure when the 1/2" pipe plug is removed.

The control plug is ported to eliminate the passage of well fluid around the threads when the pressure gauge taps the well pressure.
The valve removal plug allows the installation and removal of a valve under pressure by means of a lubricator.

Control Plug



Valve Removal Plug

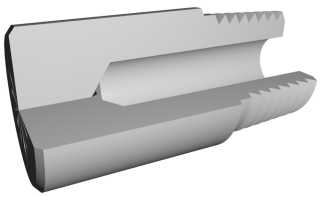
Valve Removal and Control Plugs

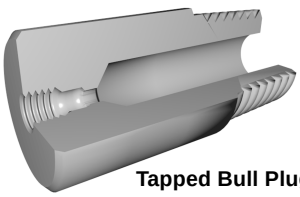
Outlet Size & Working Pressure	Thread Size and Type
1 13⁄16"-10000 & 15000	1¼" L.P.
2 1⁄16"-5000, 10000 & 15000	1½" Plain Tubing
3⅛"-5000	2½" Plain Tubing
3 1⁄16"-10000	2½" Plain Tubing

Bull Plugs

Size	Thd.	O.D.	End
2"(50.8mm)	L.P.	2⅜"(60.3mm)	Plain
2"	L.P.	2⅜"(60.3mm)	Tapped ½
2½"	L.P.	2⅜"(60.3mm)	Plain
2½"	L.P.	2⅞"(73.0mm)	Tapped ½
3"	L.P.	3½"(88.9mm)	Plain
3"	L.P.	3½"(88.9mm)	Tapped ½
2⅜"	EUE	2 19⁄32"(65.9mm)	Tapped ½
2⅞"	EUE	3 3⁄32"(78.6mm)	Tapped ½
3½"	EUE	3¾"(95.3mm)	Tapped ½

Solid Bull Plug

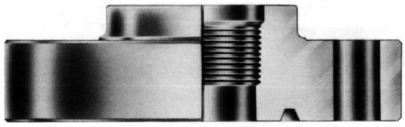




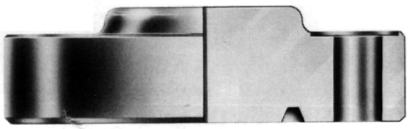
Tapped Bull Plug

COMPANION, BLIND AND WELD NECK FLANGES

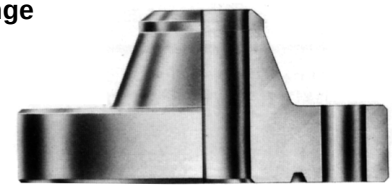
CONTROL FLOW INC.



Companion Flange



Blind Flange

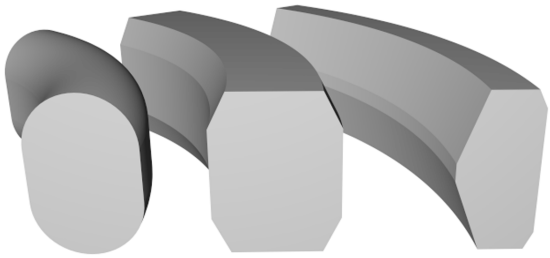


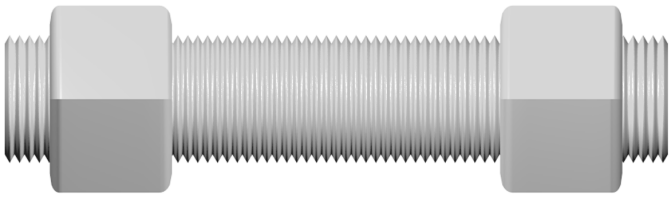
Weld Neck Flange

Flange Part Numbers

Size and Working Pressure (mm/Bar)	Ring Gasket	Companion Flanges		Blind or Tapped Flanges				Weld Neck Flanges	
		Thread Description	Part Number	Plain	Tapped ½"	Tapped Autoclave	Recessed	Prep	Part Number
1 13/16" 10M(46/690)	BX 151	2" LP	212901	212900	212913	—	—	2" XX	212902
1 13/16" 15,000(46/1035)	BX 151	2" LP	214302	214300	—	214305	214318	2" XX	214304
2 1/16" 2000(52/138)	R 23	2" LP	210001	210000	—	—	—	—	—
2 1/16" 5000(52/345)	R 24	2" LP	211901	211900	211932	—	—	2" XX	211904
2 1/16" 10,000(52/690)	BX 152	2" LP	213001	213000	213043	—	—	2" XX	213003
2 1/16" 15,000(52/1035)	BX 152	2" LP	214403	214400	—	214414	—	2" XX	214408
2 9/16" 5,000(65/345)	R 27	2 7/8" EUE	212001	212000	—	—	—	2½" XX	212002
2 9/16" 10,000(65/690)	BX 153	2 7/8" EUE	213106	213100	213119	—	—	3" XX	213113
2 9/16" 15,000(65/1035)	BX 153	2 7/8" EUE	214506	214500	—	214512	—	2½" XXX	214502
3 1/8" 3000(79/207)	R 31	3" LP	211001	211000	—	—	—	3" XX	211002
3 1/8" 5000(79/345)	R 35	3" LP	212102	212100	—	—	—	3" XX	212106
3 1/16" 10,000(77/690)	BX 154	3½" EUE	213202	213200	213225	—	—	4" XX	213207
3 1/16" 15,000(77/1035)	BX 154	3½" EUE	—	214600	—	214652	—	4" XX	214610
4 1/16" 3000(103/207)	R 37	4" LP	211103	211100	211114	—	—	4" XX	211101
4 1/16" 5000(103/345)	R 39	4" LP	212213	212200	212224	212253	—	4" XX	212209
4 1/16" 10,000(103/690)	BX 155	4" XXH	213304	213300	—	—	—	5" XX	213305
4 1/16" 15,000(103/1035)	BX 155	4" XXH	214710	214706	—	—	—	4" XX	214710

Other sizes available.



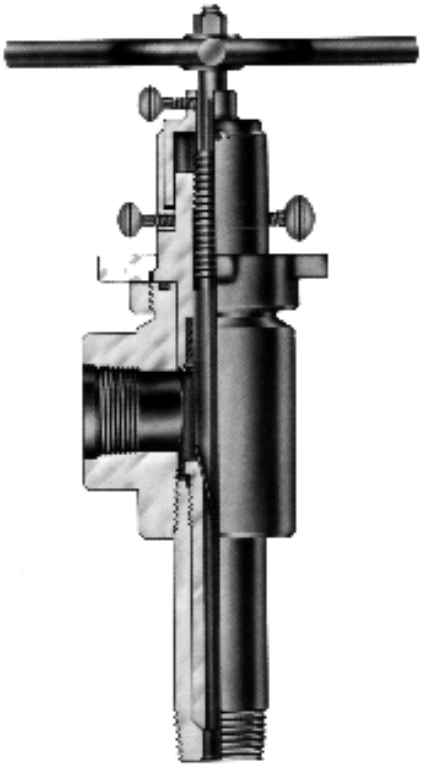


STUD BOLTS, NUTS and RING GASKETS

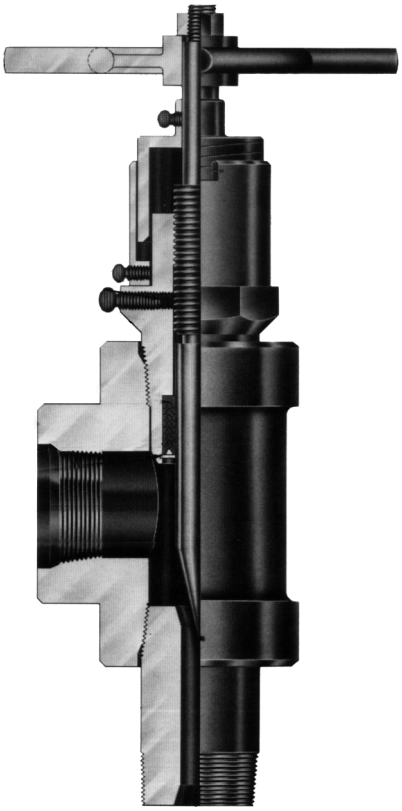
Size and Working Pressure	Stud Diameter and Length	Number of Studs	Gaskets for 6B Flanges	Pressure Energized Gaskets for Type 6B Flanges		Pressure Energized Gaskets for Type 6BX Flanges
			R Number	RX Number	Stand of RX Rings	BX Number
1 1/16" 10,000	3/4" x 5 1/4"	8	-	-	-	150
1 1/16" 15,000	3/4" x 5 1/2"	8	-	-	-	150
1 3/16" 10,000	3/4" x 5 1/4"	8	-	-	-	151
1 3/16" 15,000	7/8" x 5 7/8"	8	-	-	-	151
1 3/16" 20,000	1" x 7 3/4"	8	-	-	-	151
2 1/16" 2000	5/8" x 4 3/4"	8	23	23	15/32"	-
2 1/16" 5000	7/8" x 6 1/4"	8	24	24	15/32"	-
2 1/16" 10,000	3/4" x 5 1/2"	8	-	-	-	152
2 1/16" 15,000	7/8" x 6 1/4"	8	-	-	-	152
2 1/16" 20,000	1 1/8" x 8 1/2"	8	-	-	-	152
2 9/16" 2000	3/4" x 5 1/4"	8	26	26	15/32"	-
2 9/16" 5000	1" x 7"	8	27	27	15/32"	-
2 9/16" 10,000	7/8" x 6 1/4"	8	-	-	-	153
2 9/16" 15,000	1" x 7"	8	-	-	-	153
2 9/16" 20,000	1 1/4" x 9 1/2"	8	-	-	-	153
3 1/8" 2000	3/4" x 5 1/2"	8	31	31	15/32"	-
3 1/8" 3000	7/8" x 6 1/4"	8	31	31	15/32"	-
3 1/8" 5000	1 1/8" x 7 3/4"	8	35	35	15/32"	-
3 1/8" 10,000	1" x 7 1/4"	8	-	-	-	154
3 1/16" 15,000	1 1/8" x 8"	8	-	-	-	154
3 1/16" 20,000	1 3/8" x 10 1/4"	8	-	-	-	154
4 1/16" 2000	7/8" x 6 1/4"	8	37	37	15/32"	-
4 1/16" 3000	1 1/8" x 7 1/2"	8	37	37	15/32"	-
4 1/16" 5000	1 1/4" x 8 1/2"	8	39	39	15/32"	-
4 1/16" 10,000	1 1/8" x 8 3/8"	8	-	-	-	156
4 1/16" 15,000	1 3/8" x 9 3/4"	8	-	-	-	155
4 1/16" 20,000	1 3/4" x 12 5/8"	8	-	-	-	155
7 1/16" 2000	1" x 7 1/2"	12	45	45	15/32"	-
7 1/16" 3000	1 1/8" x 8 1/2"	12	45	45	15/32"	-

Size and Working Pressure	Stud Diameter and Length	Number of Studs	Gaskets for 6B Flanges	Pressure Energized Gaskets for Type 6B Flanges		Pressure Energized Gaskets for Type 6BX Flanges
			R Number	RX Number	Stand of RX Rings	BX Number
7 1/16" 5000	1 3/8" x 11 1/4"	12	46	46	15/32"	-
7 1/16" 10,000	1 1/2" x 11 3/4"	12	-	-	-	156
7 1/16" 15,000	1 1/2" x 13"	16	-	-	-	156
7 1/16" 20,000	2" x 18"	16	-	-	-	156
9" 2000	1 1/8" x 8 1/2"	12	49	49	15/32"	-
9" 3000	1 3/8" x 9 1/2"	12	49	49	15/32"	-
9" 5000	1 5/8" x 12 1/2"	12	50	50	15/32"	-
9" 10,000	1 1/2" x 13 1/4"	16	-	-	-	157
9" 15,000	1 7/8" x 16 1/4"	16	-	-	-	157
11" 2000	1 1/4" x 9 1/4"	16	53	53	15/32"	-
11" 3000	1 3/8 x 10"	16	53	53	15/32"	-
11" 5000	1 7/8" x 14 1/2"	12	54	54	15/32"	-
11" 10,000	1 3/4" x 15 3/8"	16	-	-	-	158
11" 15,000	2" x 19 3/4"	20	-	-	-	158
13 5/8" 2000	1 1/4" x 9 1/2"	20	57	57	15/32"	-
13 5/8" 3000	1 3/8" x 10 3/4"	20	57	57	15/32"	-
13 5/8" 5000	1 5/8" x 12 3/4"	16	-	-	-	160
13 5/8" 10,000	1 7/8" x 17 3/4"	20	-	-	-	159
13 5/8" 15,000	2 1/4" x 21"	20	-	-	-	159
16 3/4" 2000	1 1/2" x 10 3/4"	20	65	65	15/32"	-
16 3/4" 3000	1 5/8" x 12 1/4"	20	66	66	15/32"	-
16 3/4" 5000*	1 3/4" x 14 5/8"	16	-	-	-	161
16 3/4" 5000	1 7/8" x 14 3/4"	16	-	-	-	162
16 3/4" 10,000	1 7/8" x 17 3/4"	24	-	-	-	162
18 3/4" 5000	2" x 18"	20	-	-	-	163
18 3/4" 10,000	2 1/4" x 22 7/8"	24	-	-	-	164
21 1/4" 2000	1 5/8" x 12 1/4"	24	73	73	19/32"	-
20 3/4" 3000	2" x 15 1/4"	20	74	74	23/32"	-

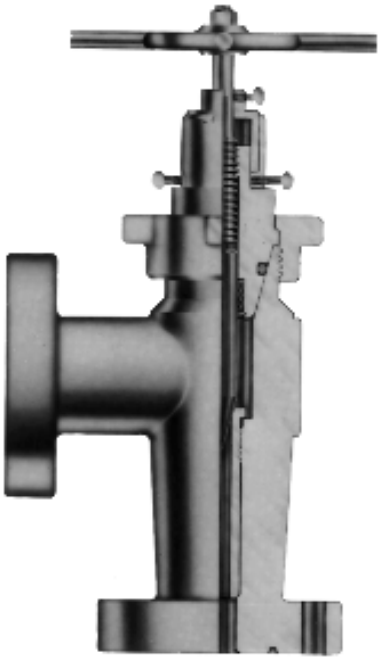
*Obsolete Apl 5000 psi WP 7500 Test. **For black studs and nuts, drop the second dash number (-10).



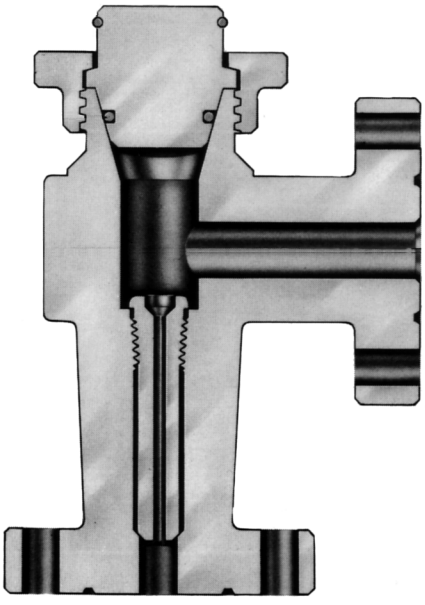
AB Adjustable Choke
3000/5000/psi WP



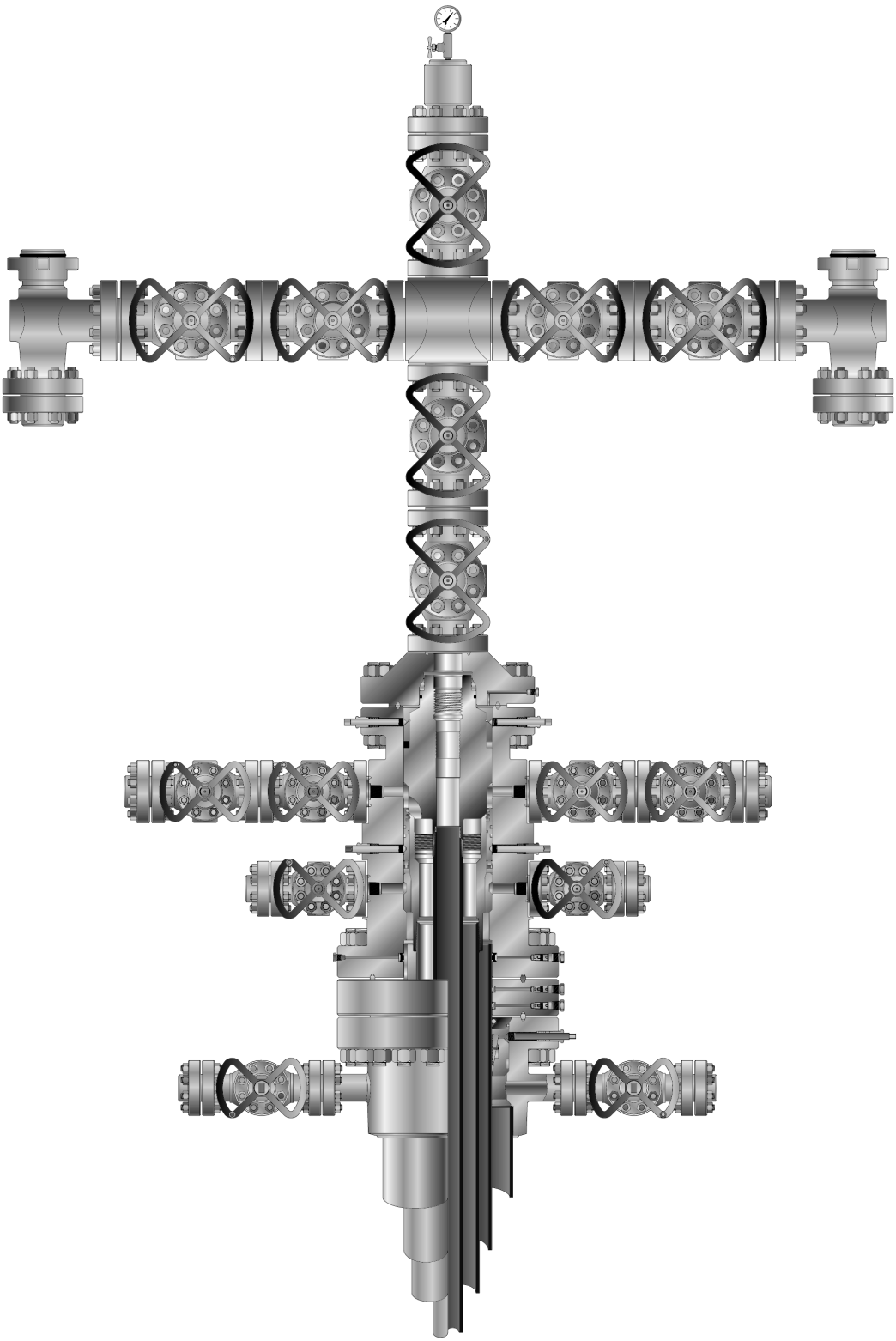
2000 psi WP



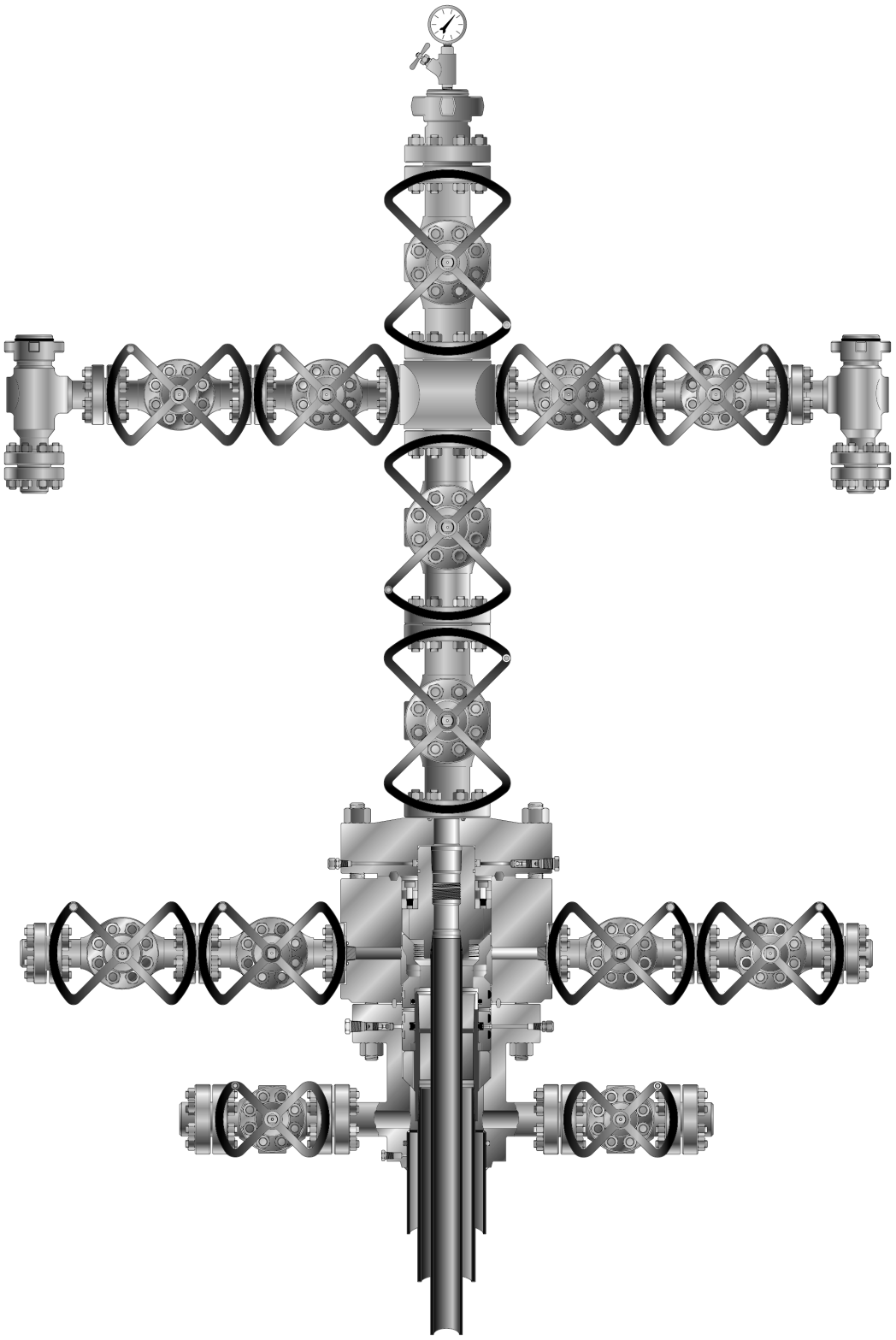
AB-F Adjustable Choke
5000/10000/15000 psi WP



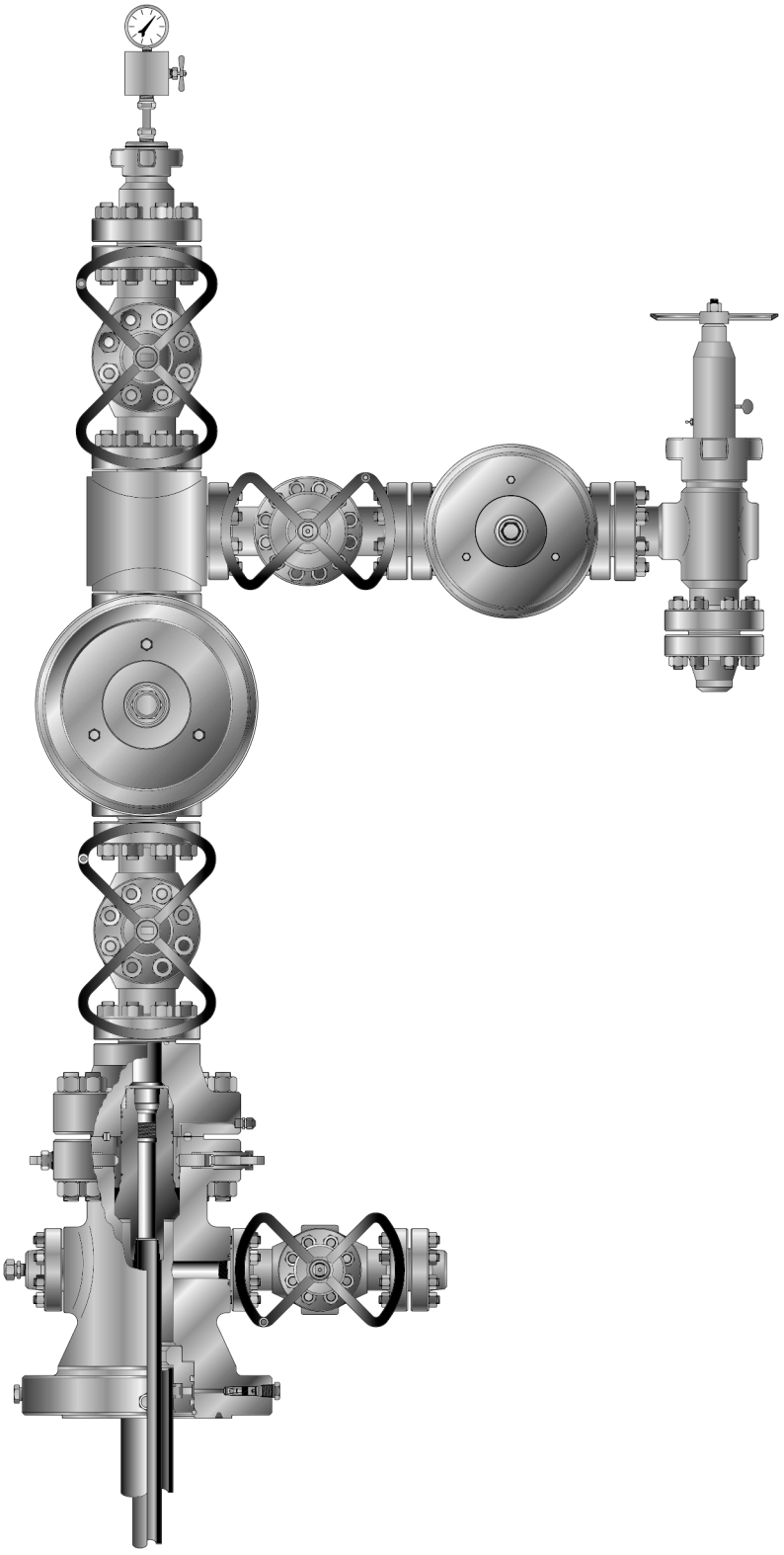
RB Positive Choke
5000/10000 psi WP



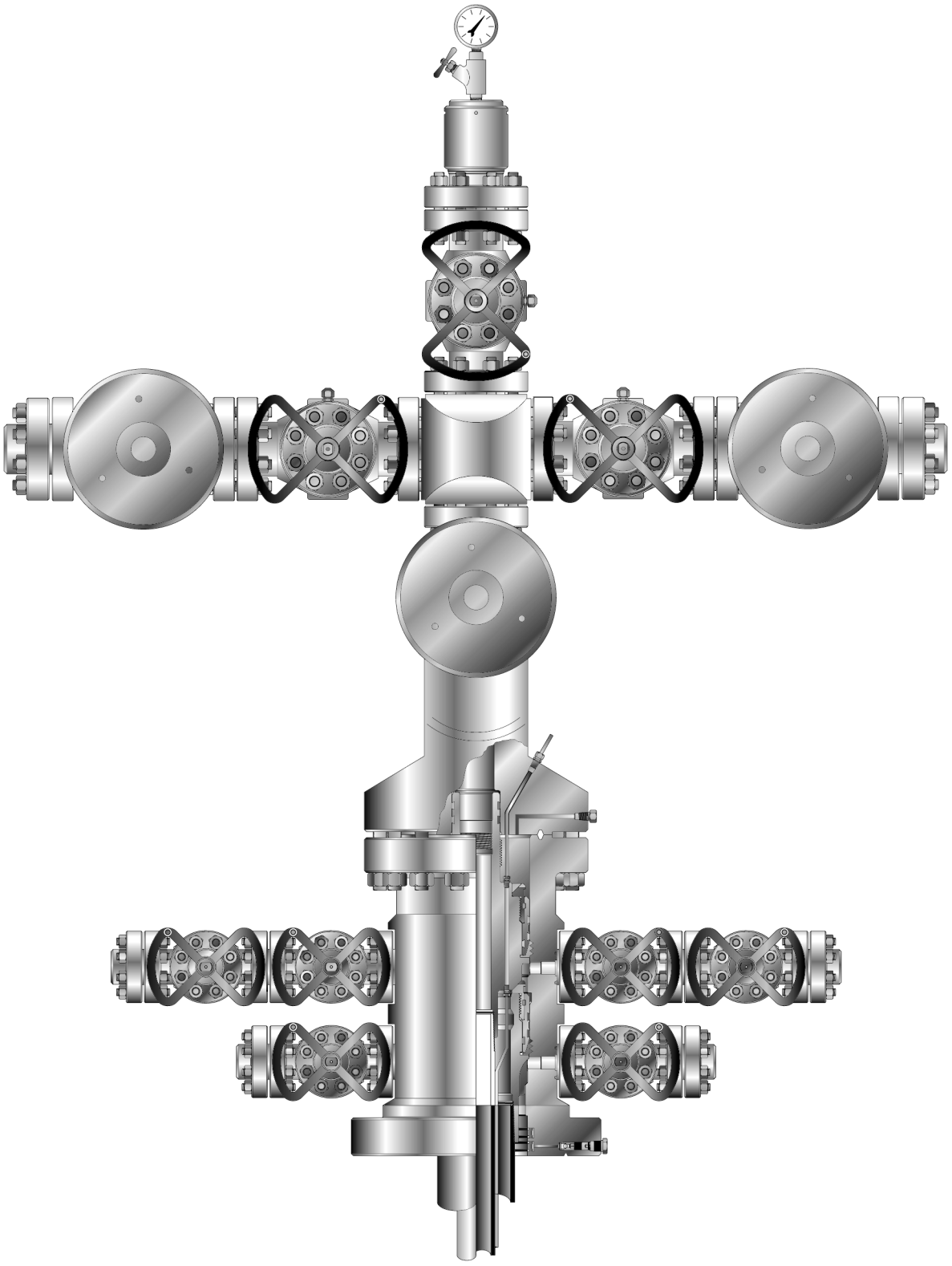
Unitized Wellhead — Metal-to-Metal Seal Tubing Hangar



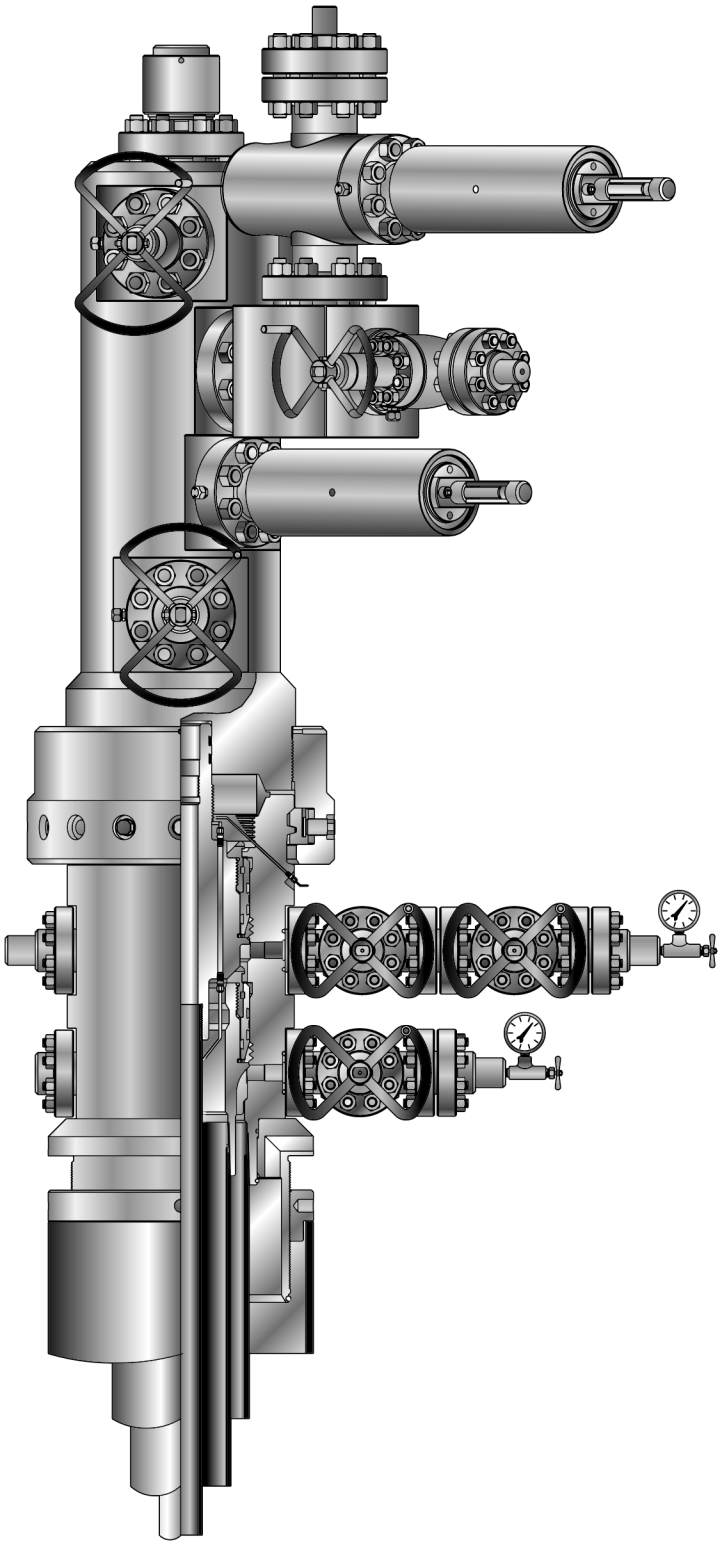
Unitized Wellhead for Tubingless Completion



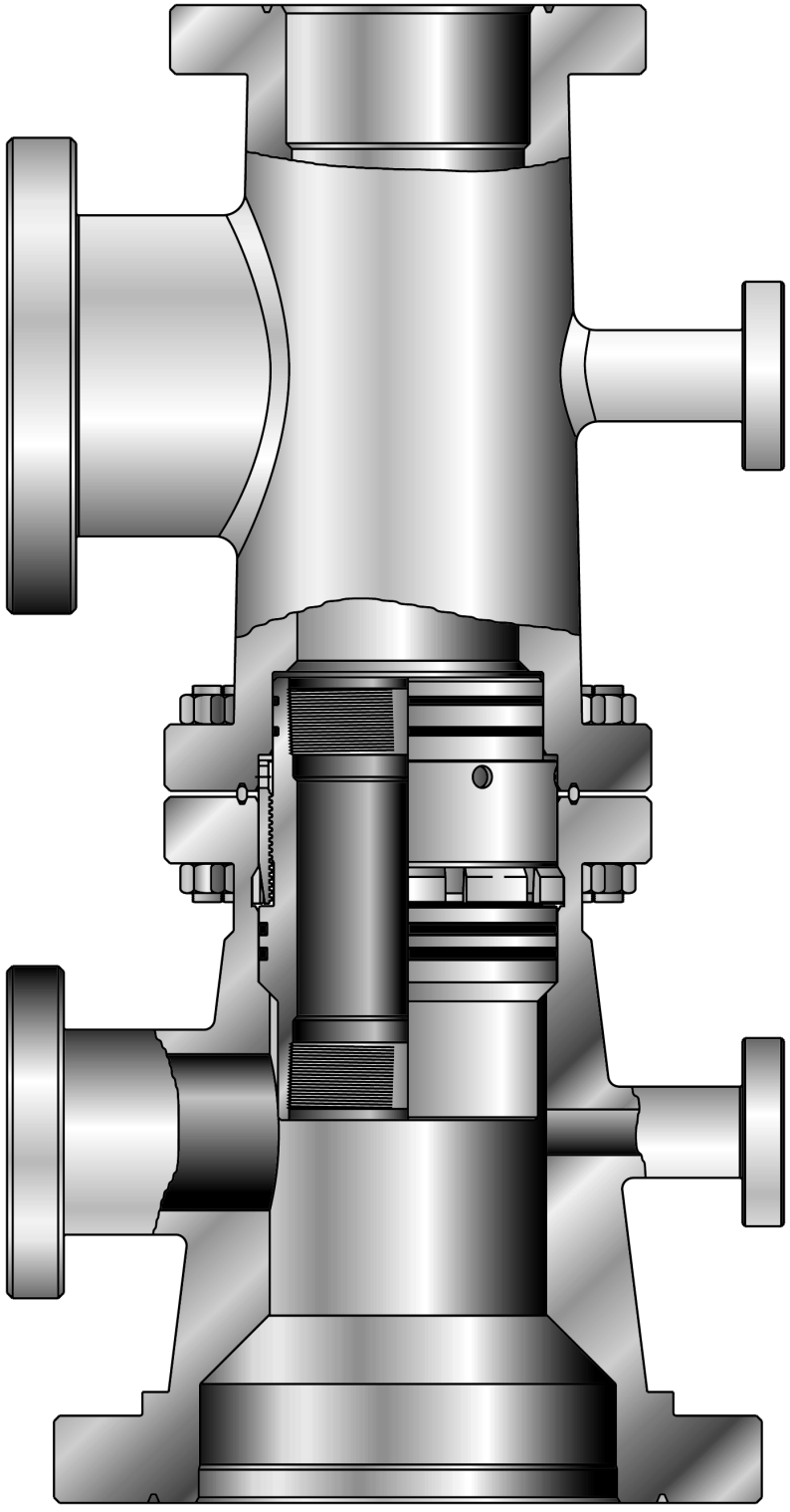
Wellhead with Metal-to-Metal Seal



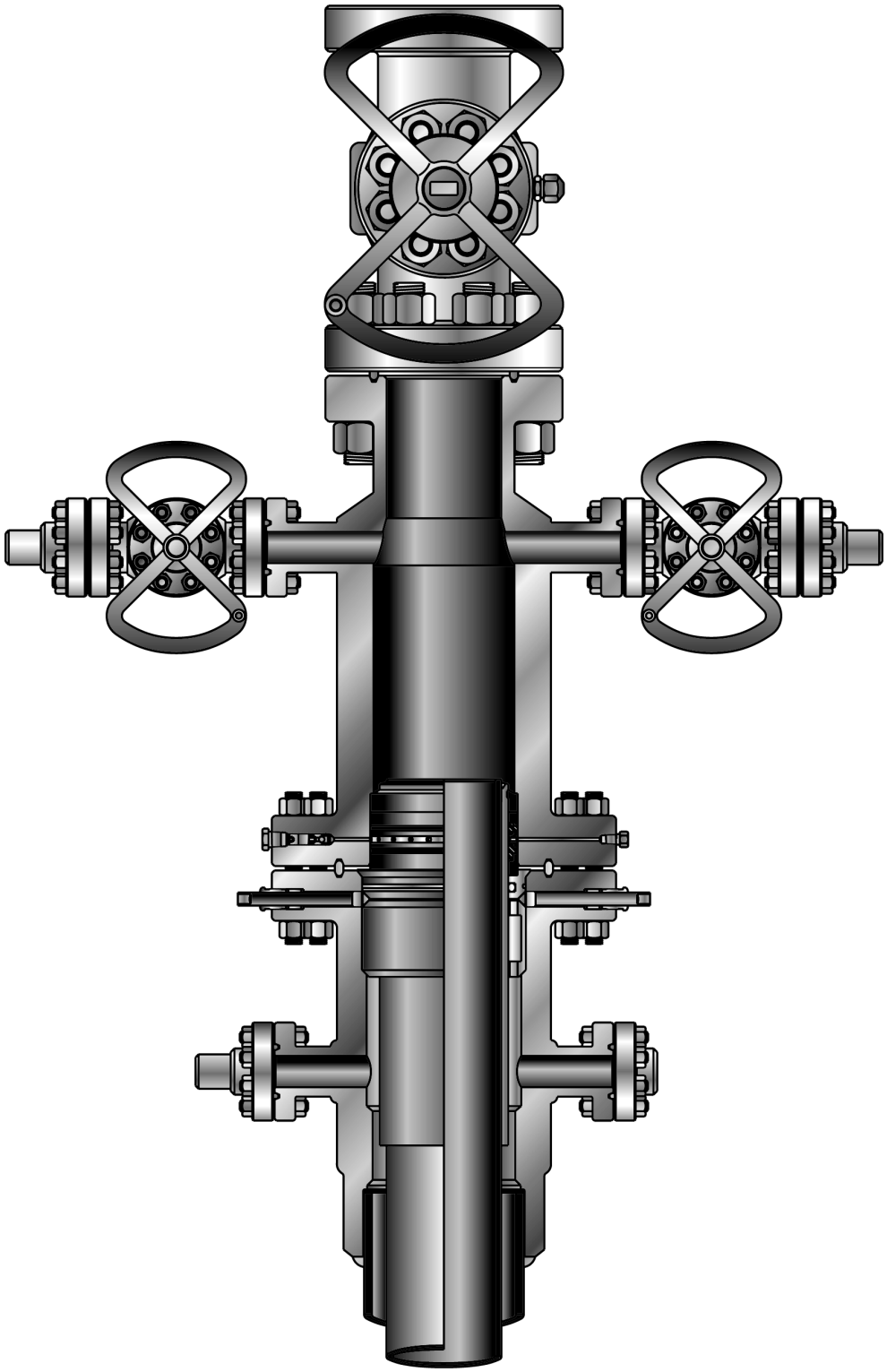
Unitized Wellhead - Tree with Pneumatic Actuator



Unitized Wellhead with "Insta-Lock" Connector



Storage Tree



Geothermal

TERMS & CONDITIONS

CONTROL FLOW INC.

1. General: No orders shall be considered as accepted by CONTROL FLOW INC., AND FLOCON PRODUCTS, INC. until approved at our office in Houston, Texas. These terms and conditions apply to all sales made by us. Any purchase order received by CONTROL FLOW INC., AND FLOCON PRODUCTS, INC. shall be construed as a written acceptance of all of our terms and conditions of sale. Unless specifically accepted in writing, no other terms and conditions shall apply. Additional information, specifications, and recommendations may be obtained by writing us at our Houston office.

2. Terms of Payment: Our domestic terms are net 30 days after shipment or offer to ship if delayed by customer's request. Export terms require a confirmed irrevocable letter of credit opened through a prime U.S. Bank, unless otherwise specified. Boxing, cartage, freight, insurance, handling, labor, rental and similar expenses are net cash upon receipt of invoice.

3. Guarantee: We warrant all products of our manufacture to be free from defects and against failure due to workmanship or materials for a period of one year but no longer from date of invoice: provided, however, that our liability under said warranty shall be and the same hereby is expressly limited to repairing or furnishing for replacement, free of charge, FOB our factory, any part of any such product that proves to be defective in workmanship or material under normal use and operation, and provided further than written notice of such defect or failure is given to us within thirty days from the occurrence thereof and such part is returned to us at our factory, carrying charges prepaid, within the said one year period of warranty; provided, further that with respect to any parts not wholly of our manufacture this warranty is limited in extent to the warranty, if any, which we may have received with respect thereto from the manufacturers of any such parts and to the actual extent that we are able to enforce it.

Except as above set forth, there shall be no other warranty of fitness or merchantability or other warranty or liability whether expressed orally or in writing, or implied in fact or imposed by statute, and in no event shall we or our agents or employees be liable for injury or damage to any person or property whatsoever or for any special, indirect, secondary, or consequential damage of any nature however arising.

4. Delivery: We endeavor to ship all materials within the time promised by us, but do not guarantee to do so. No claims for damages or delays due to failure to deliver will be allowed unless a written agreement between both parties specifically allows for claims against later delivery. All agreements are subject to delays caused by strikes, lockouts, accidents, fire or other casualty, acts of God, war, insurrection, the elements, shortage of raw materials and labor, governmental orders, or restrictions and any circumstances beyond our control. Our responsibility ceases upon delivery to any common carrier. We do not insure shipments beyond the point of delivery to a carrier unless previously instructed by purchase order. All materials for export are packed to the best of our ability so that they will not be damaged, rust or deteriorate in transit but we do not guarantee against such damage.

5. Insurance: We will place insurance as nearly as possible in accordance with the written instructions of our customers, but we assume no liability for the placing of such insurance or as to the ultimate recovery in case of breakage, damage or loss.

6. Consular Invoices: No consular fees for legalizing invoices, stamping bills of lading, or other documents required by the laws of any country or destination are included in quotations or selling prices unless specified. If instructed in writing, we will take out consular documents and make declarations as Agent of the purchaser, but assume no responsibility for any fines or other charges imposed due to errors or incorrect declarations.

7 Change of design: We expressly reserve the right to change or modify the design and construction of any product, in due course of our manufacturing procedure, without incurring any obligation or liability to furnish or install such changes, modifications or improvements on products previously or subsequently sold.

8. Prices: Prices are subject to change without notice. Our minimum charge per invoice is $50.00 U.S. Cost of export boxing and preparation is based on 3% of total list price or minimum charge at current market price.

9 Quotations: Requests for quotations should be sent to CONTROL FLOW INC.., AND FLOCON PRODUCTS, INC., P.O. Box 40788, Houston, Texas 77420, U.S.A. All quotations and sales are ex-works, point of manufacture unless stated otherwise. Unless otherwise agreed in writing, quotations are valid for 30 days from date of quotation. Unless otherwise agreed in writing, loading, lighterage, wharfage, freight, landing charges, dues, duties or any other charges are not included in quotations or indicated by any price list. All taxes are required by law on a sale will be added to the net sales price. All prices and discounts, now in effect, or hereafter issued, are subject to change without notice.

10. Cancellations: When an order has been accepted by CONTROL FLOW INC., AND FLOCON PRODUCTS, INC., it may not be cancelled without our written permission. Cancellation terms will include compensation, as necessary, to us for expenses incurred after such an order has been accepted. Orders for products or parts of special design size or materials are not subject to cancellations after we have accepted order. Orders cancelled due to United States Department of Commerce not granting an export license are subject to cancellation charge.

11. Returns: Written permission must be obtained before returning material to us for credit. When written permission is acquired, shipment must be returned to location as specified via prepaid freight. Material will be subject to our inspection before credit can be issued. A restocking charge will be made on all orders returned for credit, or costs that may be necessary to return material to salable condition. No material will be accepted for credit one year from date of purchase. Products of special design or equipment altered to fit customer's specifications will not be accepted for credit.

12. Compliance with Statues & Regulations: CONTROL FLOW INC., AND FLOCON PRODUCTS, INC. warrants and certifies that in performing this order it will comply with all applicable statutes, rules, regulations and orders of the United States and of any state or political subdivision thereof including laws and regulations pertaining to labor, wages, hours, equal opportunity (Executive Order 11246) and other conditions of employment, applicable price ceilings, if any, and that the articles delivered hereunder shall be produced in compliance with the Fair Labor Standards Act.

Control Flow
World Headquarters

Houston, Texas
9201 Fairbanks N. Houston Rd.
Houston, Texas 77064
Mailing Address:
P.O. Box 40788
Houston, Texas 77240

DNV
ISO 9001 REGISTERED FIRM

DNV
ISO 9001 CERTIFICATED FIRM

6A-0101
16A-0024
16C-0012
17D-0012

Control Flow Headquarters

CONTROL FLOW, INC.

Headquarters & International Offices

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Toll-free 1-800-231-9922
E-Mail sales@controlflow.com
Website www.controlflow.com

Control Flow, Inc. Sales, Rental & Repair
125 N. Sunnylane (73160)
P. O. Box 6978, Moore, Oklahoma 73153
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