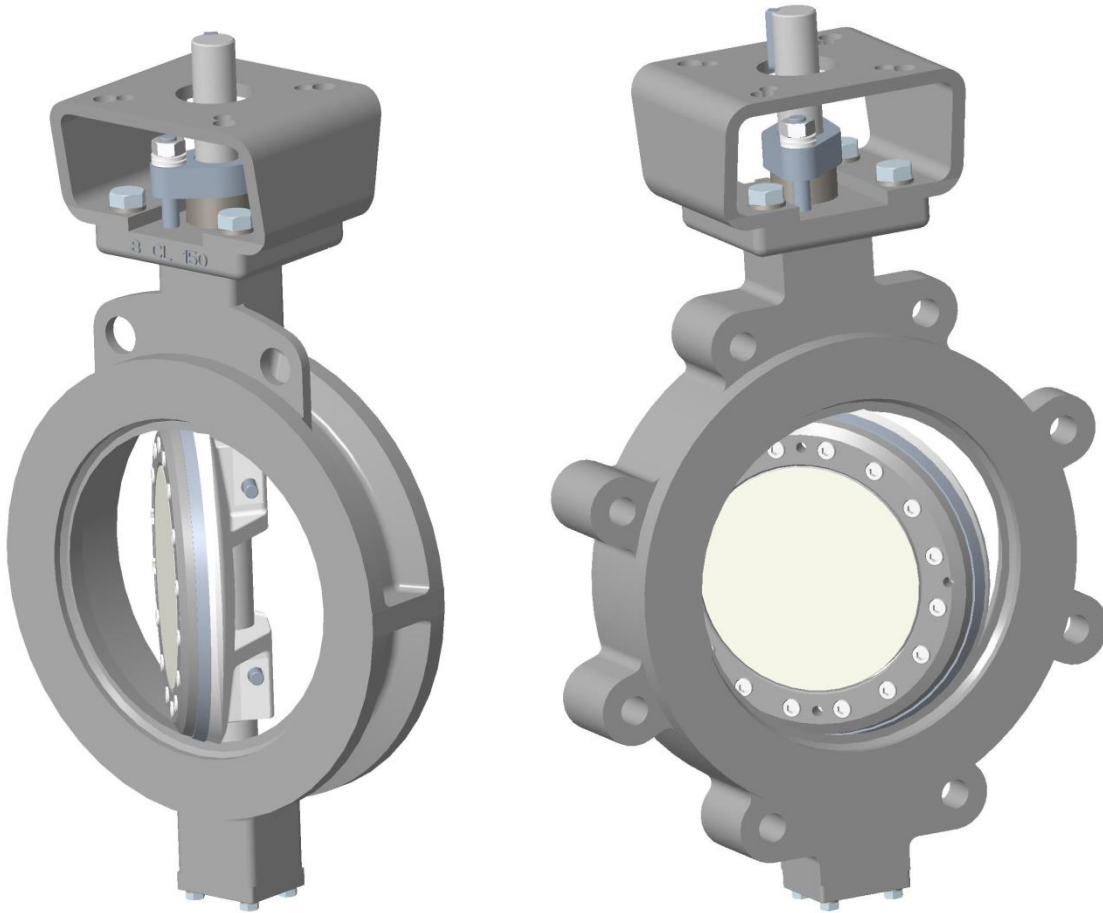
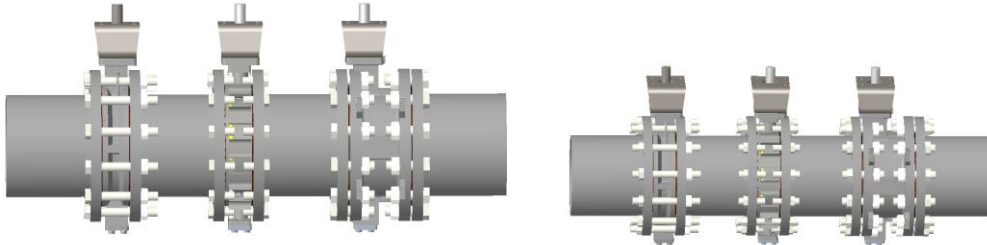


End Flange Bolting – Triple Offset Valves



End Flange Bolting with Hex Head Screws and Studs



- Remove end caps / Flange protectors from valves and ensure that the serrations on sealing faces are clean and not damaged.
- The fastener length is not same for both sides in all cases and vary for the retainer side and stem side, refer the recommended length in the table.
- Tapped holes near the stem axis may have blind holes, appropriate fastener length shall be used as recommended in the table.
- Fasteners shall be lubricated for ease of installation.
- Align the bolt holes of the valve with the bolt holes of the end flange.
- Place the gasket between the flanges and hand tighten the fasteners.
- The fasteners shall be torqued in 3 sets, 50%, 75% and 100 % of the recommended tightening torque in the sequence as shown using the torque wrench.

Considerations

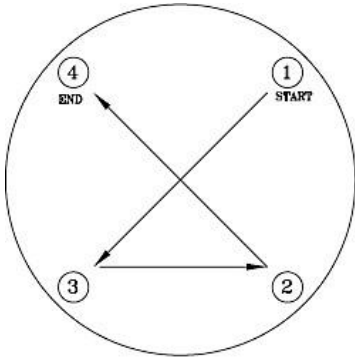
The flange drilling and dimensions as per ASME B16.5 & ASME B16.47

Spiral wound gaskets dimensions as per ASME B16.20

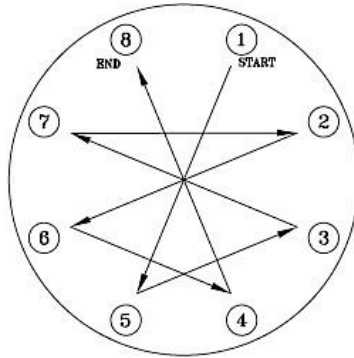
Nut thickness (If applicable) as per ASME B18.2.2 (Heavy Hex)

Lengths rounded off to 1/4"

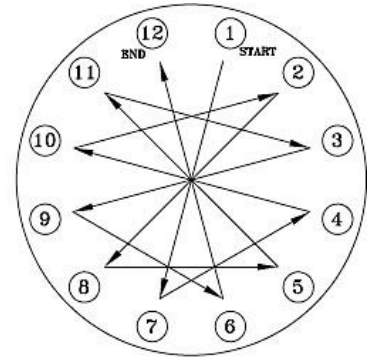
Fasteners tightening sequence:



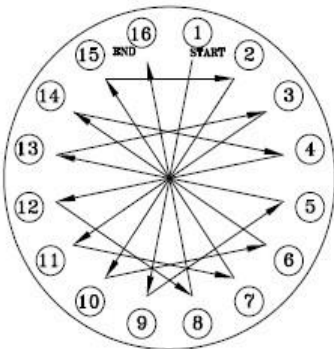
NO. OF BOLTS = 4
1-3-2-4



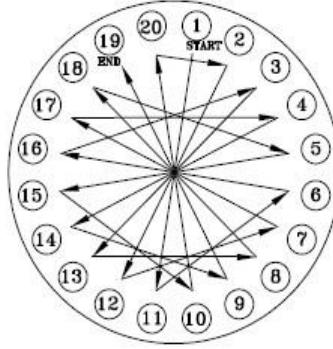
NO. OF BOLTS = 8
1-5-3-7 → 2-6-4-8



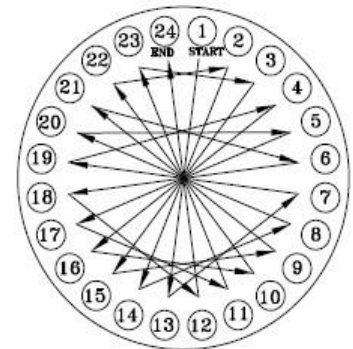
NO. OF BOLTS = 12
1-7-4-10 → 2-8-5-11 → 3-9-6-12



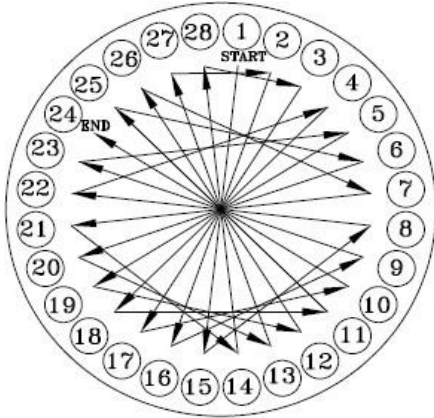
NO. OF BOLTS = 16
1-9-5-13 → 3-11-7-15 → 2-10-6-14 → 4-12-8-16



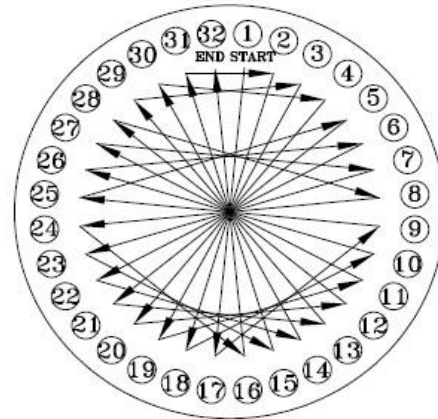
NO. OF BOLTS = 20
1-11-6-16 → 3-13-8-18 → 5-15-10-20 → 2-12-7-17
→ 4-14-9-19



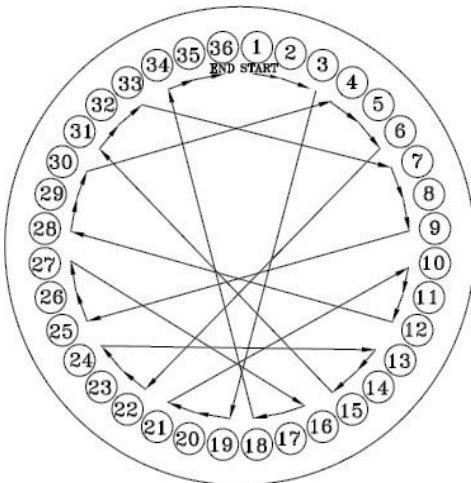
NO. OF BOLTS = 24
1-13-7-19 → 4-16-10-22 → 2-14-8-20 → 5-17-11-23
→ 3-15-9-21 → 6-18-12-24



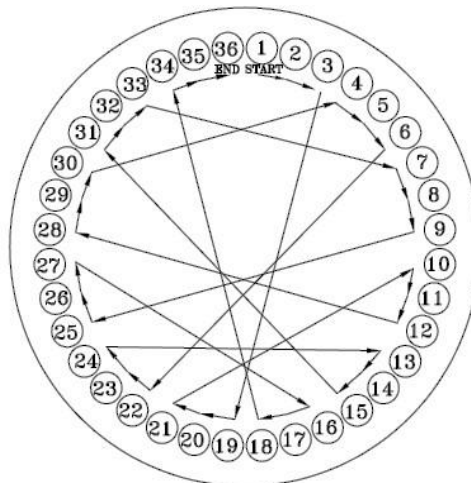
NO.OF BOLTS = 28
1-15-8-22 — 4-18-11-25 — 6-20-13-27 — 2-16-9-23
— 5-19-12-26 — 7-21-14-28 — 3-17-10-24



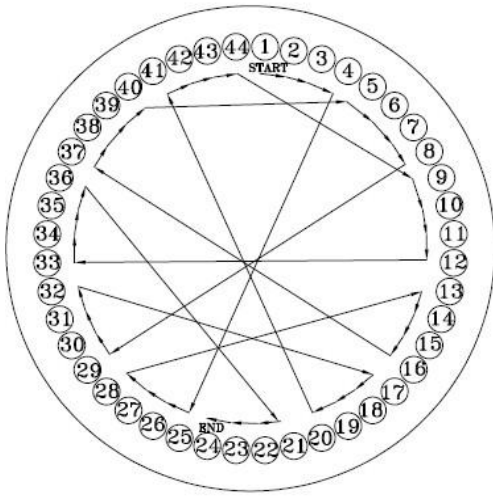
NO.OF BOLTS = 32
1-17-9-25 — 5-21-13-29 — 3-19-11-27 — 7-23-15-31
— 2-18-10-26 — 6-22-14-30 — 4-20-12-28 — 8-24-16-32



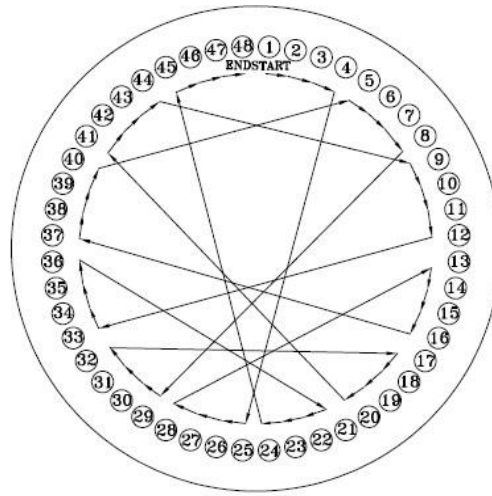
NO.OF BOLTS = 36
1-2-3 — 19-20-21 — 10-11-12 — 28-29-30 — 4-5-6 — 22-23-24
— 13-14-15 — 31-32-33 — 7-8-9 — 25-26-27 — 16-17-18
— 34-35-36



NO.OF BOLTS = 40
1-2-3-4 — 21-22-23-24 — 13-14-15-16 — 33-34-35-36
— 5-6-7-8 — 25-26-27-28 — 17-18-19-20 — 37-38-39-40
— 9-10-11-12 — 29-30-31-32



NO. OF BOLTS = 44
 1-2-3-4— 25-26-27-28— 13-14-15-16— 37-38-39-40
 — 5-6-7-8— 29-30-31-32— 17-18-19-20— 41-42-43-44
 — 9-10-11-12— 33-34-35-36— 21-22-23-24



NO. OF BOLTS = 48
 1-2-3-4— 25-26-27-28— 13-14-15-16— 37-38-39-40
 — 5-6-7-8— 29-30-31-32— 17-18-19-20— 41-42-43-44
 — 9-10-11-12— 33-34-35-36— 21-22-23-24— 45-46-47-48

Recommended tightening torque

Fastener Size	Tightening Torque, Nm	Tightening Torque, lbf.in
5 / 8 – 11 UNC	170-190	1504 -1681
3 / 4 – 10 UNC	252-280	2230-2478
7 / 8 – 9 UNC	342-380	3026-3363
1 – 8 UN	460-508	4071-4496
1 - 1 / 8 – 8 UN	594-660	5257-5841
1 - 1 / 4 – 8 UN	756-840	6691-7434
1 - 1 / 2 – 8 UN	1125-1250	9957-11063







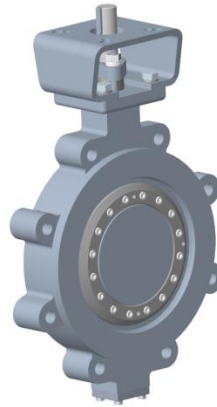
Series 4A – Triple offset - Wafer - Class 150 (with Hex Head Screws)

Valve Size		Thread	Ends	Through Screws			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Hex Nut
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Size - Qty
				Inch	mm		Inch	mm		N/A	mm		
3	80	5/8" – 11 UNC	B16.5	5.27	134	4	N/A	N/A	N/A	N/A	N/A	N/A	4
4	100	5/8" – 11 UNC	B16.5	5.39	137	8	N/A	N/A	N/A	N/A	N/A	N/A	8
5	125	3/4" – 10 UNC	B16.5	5.62	143	8	N/A	N/A	N/A	N/A	N/A	N/A	8
6	150	3/4" – 10 UNC	B16.5	5.74	146	8	N/A	N/A	N/A	N/A	N/A	N/A	8
8	200	3/4" – 10 UNC	B16.5	6.25	159	8	N/A	N/A	N/A	N/A	N/A	N/A	8
10	250	7/8" – 9 UNC	B16.5	6.76	172	12	N/A	N/A	N/A	N/A	N/A	N/A	12
12	300	7/8" – 9 UNC	B16.5	7.32	186	12	N/A	N/A	N/A	N/A	N/A	N/A	12
14	350	1" – 8 UNC	B16.5	8.13	207	12	N/A	N/A	N/A	N/A	N/A	N/A	12
16	400	1" – 8 UNC	B16.5	8.67	220	16	N/A	N/A	N/A	N/A	N/A	N/A	16
18	450	1 1/8" – 8 UN	B16.5	9.61	244	12	3.31	84	4	2.76	70	4	12
20	500	1 1/8" – 8 UN	B16.5	10.24	260	16	2.96	75	4	2.96	75	4	16
24	600	1 1/4" – 8 UN	B16.5	11.89	302	16	3.39	86	4	3.23	82	4	16
28	700	1 1/4" – 8 UN	B16.47 Ser.A	14.31	364	24	4.05	103	4	3.93	100	4	24
30	750	1 1/4" – 8 UN	B16.47 Ser.A	15.45	392	24	5.44	138	4	4.10	104	4	24
30	750	3/4" – 10 UNC	B16.47 Ser.B	12.56	319	36	3.94	100	8	2.6	66	8	36
32	800	1 1/2" – 8 UN	B16.47 Ser.A	16.22	412	24	4.11	105	4	4.11	105	4	24
32	800	3/4" – 10 UNC	B16.47 Ser.B	12.72	323	40	2.48	63	8	2.48	63	8	40







Series 4A – Triple offset - Wafer - Class 150 (with Studs)

Valve Size		Thread	Ends	Through Studs			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
													
Inch	DN			Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Size-Qty
				Inch	mm		Inch	mm		N/A	mm		
3	80	5/8" – 11 UNC	B16.5	6.29	160	4	N/A	N/A	N/A	N/A	N/A	N/A	8
4	100	5/8" – 11 UNC	B16.5	6.41	163	8	N/A	N/A	N/A	N/A	N/A	N/A	16
5	125	3/4" – 10 UNC	B16.5	6.76	172	8	N/A	N/A	N/A	N/A	N/A	N/A	16
6	150	3/4" – 10 UNC	B16.5	6.88	175	8	N/A	N/A	N/A	N/A	N/A	N/A	16
8	200	3/4" – 10 UNC	B16.5	7.39	188	8	N/A	N/A	N/A	N/A	N/A	N/A	16
10	250	7/8" – 9 UNC	B16.5	8.02	204	12	N/A	N/A	N/A	N/A	N/A	N/A	24
12	300	7/8" – 9 UNC	B16.5	8.58	218	12	N/A	N/A	N/A	N/A	N/A	N/A	24
14	350	1" – 8 UNC	B16.5	9.55	243	12	N/A	N/A	N/A	N/A	N/A	N/A	24
16	400	1" – 8 UNC	B16.5	10.09	256	16	N/A	N/A	N/A	N/A	N/A	N/A	32
18	450	1 1/8" – 8 UN	B16.5	11.15	283	12	4.93	125	4	4.37	111	4	32
20	500	1 1/8" – 8 UN	B16.5	11.78	299	16	4.57	116	4	4.57	116	4	40
24	600	1 1/4" – 8 UN	B16.5	13.54	344	16	5.12	130	4	4.96	126	4	40
28	700	1 1/4" – 8 UN	B16.47 Ser.A	15.97	406	24	5.78	147	4	5.66	144	4	56
30	750	1 1/4" – 8 UN	B16.47 Ser.A	17.10	434	24	7.17	182	4	5.83	148	4	56
30	750	3/4" – 10 UNC	B16.47 Ser.B	13.70	348	36	5.16	131	8	3.82	97	8	88
32	800	1 1/2" – 8 UN	B16.47 Ser.A	18.15	461	24	6.12	156	4	6.12	156	4	56
32	800	3/4" – 10 UNC	B16.47 Ser.B	13.86	352	40	3.70	94	8	3.70	94	8	96



Series 4B – Triple offset - Lugged - Class 150 (with Hex Head Screws)

Valve Size		Thread	Ends	Retainer Side 			Stem Side 			Retainer Side (Blind tap at Top (Neck) and Bottom) 			Stem Side (Blind tap at Top (Neck) and Bottom) 		
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm	
3	80	5/8" – 11 UNC	B16.5	2.14	54	4	1.91	48	4	N/A	N/A	N/A	N/A	N/A	N/A
4	100	5/8" – 11 UNC	B16.5	2.04	52	8	1.81	46	8	N/A	N/A	N/A	N/A	N/A	N/A
5	125	3/4" – 10 UNC	B16.5	2.10	53	8	2.10	53	8	N/A	N/A	N/A	N/A	N/A	N/A
6	150	3/4" – 10 UNC	B16.5	2.16	55	8	2.16	55	8	N/A	N/A	N/A	N/A	N/A	N/A
8	200	3/4" – 10 UNC	B16.5	2.59	66	8	2.12	54	8	N/A	N/A	N/A	N/A	N/A	N/A
10	250	7/8" – 9 UNC	B16.5	2.77	70	12	2.50	63	12	N/A	N/A	N/A	N/A	N/A	N/A
12	300	7/8" – 9 UNC	B16.5	3.07	78	12	2.75	70	12	N/A	N/A	N/A	N/A	N/A	N/A
14	350	1" – 8 UNC	B16.5	3.41	87	12	2.91	74	12	N/A	N/A	N/A	N/A	N/A	N/A
16	400	1" – 8 UNC	B16.5	3.43	87	16	3.43	87	16	N/A	N/A	N/A	N/A	N/A	N/A
18	450	1 1/8" – 8 UN	B16.5	3.90	99	12	3.90	99	12	3.39	86	4	2.72	69	4
20	500	1 1/8" – 8 UN	B16.5	4.22	107	16	4.22	107	16	2.96	75	4	2.96	75	4
24	600	1 1/4" – 8 UN	B16.5	4.96	126	16	4.92	125	16	3.19	81	4	3.03	77	4
28	700	1 1/4" – 8 UN	B16.47 Ser.A	6	153	24	6	153	24	4	101	4	4	101	4
30	750	1 1/4" – 8 UN	B16.47 Ser.A	6.43	163	24	6.43	163	24	4.8	122	4	4.25	108	4
36	900	1 1/2" – 8 UN	B16.47 Ser.A	7.79	198	28	7.79	198	28	4.72	120	4	4.72	120	4
42	1050	1 1/2" – 8 UN	B16.47 Ser.A	8.51	216	32	8.51	216	32	5.72	145	4	5.20	132	4
48	1200	1 1/2" – 8 UN	B16.47 Ser.A	9.70	246	36	9.70	246	36	6.20	157	8	5.65	143	8








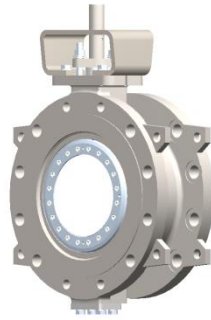
Series 4B – Triple offset - Lugged - Class 150 (with Stud)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm		
3	80	5/8" – 11 UNC	B16.5	3.17	80	4	2.93	74	4	N/A	N/A	N/A	N/A	N/A	N/A	8
4	100	5/8" – 11 UNC	B16.5	3.07	78	8	2.83	72	8	N/A	N/A	N/A	N/A	N/A	N/A	16
5	125	3/4" – 10 UNC	B16.5	3.24	82	8	3.24	82	8	N/A	N/A	N/A	N/A	N/A	N/A	16
6	150	3/4" – 10 UNC	B16.5	3.30	84	8	3.30	84	8	N/A	N/A	N/A	N/A	N/A	N/A	16
8	200	3/4" – 10 UNC	B16.5	3.74	95	8	3.26	83	8	N/A	N/A	N/A	N/A	N/A	N/A	16
10	250	7/8" – 9 UNC	B16.5	4.03	102	12	3.76	95	12	N/A	N/A	N/A	N/A	N/A	N/A	24
12	300	7/8" – 9 UNC	B16.5	4.33	110	12	4.01	102	12	N/A	N/A	N/A	N/A	N/A	N/A	24
14	350	1" – 8 UNC	B16.5	4.83	123	12	4.33	110	12	N/A	N/A	N/A	N/A	N/A	N/A	24
16	400	1" – 8 UNC	B16.5	4.85	123	16	4.85	123	16	N/A	N/A	N/A	N/A	N/A	N/A	32
18	450	1 1/8" – 8 UN	B16.5	5.44	138	12	5.44	138	12	5.00	127	4	4.33	110	4	32
20	500	1 1/8" – 8 UN	B16.5	5.75	146	16	5.75	146	16	4.57	116	4	4.57	116	4	40
24	600	1 1/4" – 8 UN	B16.5	6.61	168	16	6.57	167	16	4.92	125	4	4.76	121	4	40
28	700	1 1/4" – 8 UN	B16.47 Ser.A	7.66	195	24	7.66	195	24	5.67	144	4	5.67	144	4	56
30	750	1 1/4" – 8 UN	B16.47 Ser.A	8.08	205	24	8.08	205	24	6.70	170	4	6.11	155	4	56
36	900	1 1/2" – 8 UN	B16.47 Ser.A	9.72	247	28	9.72	247	28	6.73	171	4	6.73	171	4	64
42	1050	1 1/2" – 8 UN	B16.47 Ser.A	10.44	265	32	10.44	265	32	7.72	196	4	7.72	183	4	72
48	1200	1 1/2" – 8 UN	B16.47 Ser.A	11.63	295	36	11.63	295	36	8.20	208	8	8.20	194	8	88



Series 4C – Triple offset – Double Flanged - Class 150 (with Hex Head Screws)

Valve Size		Thread	Ends	Retainer Side 			Stem Side 			Retainer Side (Blind tap at Top (Neck) and Bottom) 			Stem Side (Blind tap at Top (Neck) and Bottom) 			Heavy Hex Nut 
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm		
3	80	5/8" – 11 UNC	B16.5	3.11	78.9	4	3.11	78.9	4	N/A	N/A	N/A	N/A	N/A	N/A	8
4	100	5/8" – 11 UNC	B16.5	3.13	79.4	4	3.13	79.4	4	1.57	39.9	4	1.57	39.9	4	8
6	150	3/4" – 10 UNC	B16.5	3.36	85.3	8	3.36	85.3	8	N/A	N/A	N/A	N/A	N/A	N/A	16
8	200	3/4" – 10 UNC	B16.5	3.60	91.4	8	3.60	91.4	8	N/A	N/A	N/A	N/A	N/A	N/A	16
10	250	7/8" – 9 UNC	B16.5	3.84	97.5	8	3.84	97.5	8	1.96	49.9	4	1.96	49.9	4	16
12	300	7/8" – 9 UNC	B16.5	3.98	101.2	8	3.98	101.2	8	2.04	51.7	4	2.04	51.7	4	16
14	350	1" – 8 UNC	B16.5	4.38	111.3	8	4.38	111.3	8	2.55	64.8	4	2.55	64.8	4	16
16	400	1" – 8 UNC	B16.5	4.55	115.6	12	4.55	115.6	12	2.62	66.6	4	2.62	66.6	4	24
18	450	1 1/8" – 8 UN	B16.5	4.87	123.6	12	4.87	123.6	12	2.52	64.1	4	2.52	64.1	4	24
20	500	1 1/8" – 8 UN	B16.5	5.14	130.6	16	5.14	130.6	16	2.96	75.1	4	2.96	75.1	4	32
24	600	1 1/4" – 8 UN	B16.5	5.61	142.6	16	5.61	142.6	16	2.93	74.5	4	2.93	74.5	4	32
28	700	1 1/4" – 8 UN	B16.47 Ser.A	7.51	190.8	24	7.51	190.8	24	3.93	99.8	4	3.93	99.8	4	48
30	750	1 1/4" – 8 UN	B16.47 Ser.A	7.76	197.2	24	7.76	197.2	24	4.40	111.7	4	4.40	111.7	4	48
32	800	1 1/2" – 8 UN	B16.47 Ser.A	8.52	216.5	24	8.52	216.5	24	4.57	116	4	4.57	116	4	48
48	1200	1 1/2" – 8 UN	B16.47 Ser.A	10.67	270.9	32	10.67	270.9	32	5.59	141.9	12	5.59	141.9	12	64



Series 4C – Triple offset – Double Flanged - Class 150 (with Studs)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Inch	mm	Qty	Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Size- Qty
		Inch	mm				Inch	mm		Inch	mm		Inch	mm		
3	80	5/8" – 11 UNC	B16.5	4.13	104.9	4	4.13	104.9	4	N/A	N/A	N/A	N/A	N/A	N/A	16
4	100	5/8" – 11 UNC	B16.5	4.15	105.4	4	4.15	105.4	4	2.67	67.9	4	2.67	67.9	4	24
6	150	3/4" – 10 UNC	B16.5	4.50	114.3	8	4.50	114.3	8	N/A	N/A	N/A	N/A	N/A	N/A	32
8	200	3/4" – 10 UNC	B16.5	4.74	120.4	8	4.74	120.4	8	N/A	N/A	N/A	N/A	N/A	N/A	32
10	250	7/8" – 9 UNC	B16.5	5.10	129.5	8	5.10	129.5	8	3.30	83.9	4	3.30	83.9	4	40
12	300	7/8" – 9 UNC	B16.5	5.24	133.2	8	5.24	133.2	8	3.37	85.7	4	3.37	85.7	4	40
14	350	1" – 8 UNC	B16.5	5.80	147.3	8	5.80	147.3	8	4.05	102.8	4	4.05	102.8	4	40
16	400	1" – 8 UNC	B16.5	5.97	151.6	12	5.97	151.6	12	4.12	104.6	4	4.12	104.6	4	56
18	450	1 1/8" – 8 UN	B16.5	6.40	162.6	12	6.40	162.6	12	4.14	105.1	4	4.14	105.1	4	56
20	500	1 1/8" – 8 UN	B16.5	6.68	169.6	16	6.68	169.6	16	4.57	116.1	4	4.57	116.1	4	72
24	600	1 1/4" – 8 UN	B16.5	7.27	184.6	16	7.27	184.6	16	4.67	118.5	4	4.67	118.5	4	72
28	700	1 1/4" – 8 UN	B16.47 Ser.A	9.17	232.8	24	9.17	232.8	24	5.66	143.8	4	5.66	143.8	4	104
30	750	1 1/4" – 8 UN	B16.47 Ser.A	9.42	239.2	24	9.42	239.2	24	6.13	155.7	4	6.13	155.7	4	104
32	800	1 1/2" – 8 UN	B16.47 Ser.A	10.45	265.5	24	10.45	265.5	24	6.57	167	4	6.57	167	4	104
48	1200	1 1/2" – 8 UN	B16.47 Ser.A	12.59	319.9	32	12.59	319.9	32	7.59	192.9	12	7.59	192.9	12	152



Series 4D – Triple offset - Wafer - Class 300 (with Hex Head Screws)

Valve Size		Thread	Ends	Through Screws			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Hex Nut
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Size-Qty
				Inch	mm		Inch	mm		N/A	mm		
3	80	3/4" – 10 UNC	B16.5	5.74	146	8	N/A	N/A	N/A	N/A	N/A	N/A	8
4	100	3/4" – 10 UNC	B16.5	6.12	155	8	N/A	N/A	N/A	N/A	N/A	N/A	8
5	125	3/4" – 10 UNC	B16.5	6.56	167	8	N/A	N/A	N/A	N/A	N/A	N/A	8
6	150	3/4" – 10 UNC	B16.5	6.82	173	12	N/A	N/A	N/A	N/A	N/A	N/A	12
8	200	7/8" – 9 UNC	B16.5	7.72	196	12	N/A	N/A	N/A	N/A	N/A	N/A	12
10	250	1" – 8 UNC	B16.5	8.78	223	12	2.68	68	4	2.68	68	4	12
12	300	1 1/8" – 8 UN	B16.5	9.51	242	12	3.12	79	4	2.96	75	4	12
14	350	1 1/8" – 8 UN	B16.5	10.73	273	16	3.02	77	4	3.02	77	4	16
16	400	1 1/4" – 8 UN	B16.5	11.82	300	16	3.21	82	4	3.21	82	4	16
18	450	1 1/4" – 8 UN	B16.5	12.73	323	20	3.43	87	4	3.43	87	4	20
20	500	1 1/4" – 8 UN	B16.5	13.39	340	20	3.54	90	4	3.54	90	4	20
24	600	1 1/2" – 8 UN	B16.5	14.98	381	20	4.05	103	4	4.05	103	4	20







Series 4D – Triple offset - Wafer - Class 300 (with Studs)

Valve Size		Thread	Ends	Through Screws			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Qty
				Inch	mm		Inch	mm		N/A	mm		
3	80	3/4" – 10 UNC	B16.5	6.88	175	8	N/A	N/A	N/A	N/A	N/A	N/A	16
4	100	3/4" – 10 UNC	B16.5	7.26	184	8	N/A	N/A	N/A	N/A	N/A	N/A	16
5	125	3/4" – 10 UNC	B16.5	7.70	196	8	N/A	N/A	N/A	N/A	N/A	N/A	16
6	150	3/4" – 10 UNC	B16.5	7.96	202	12	N/A	N/A	N/A	N/A	N/A	N/A	24
8	200	7/8" – 9 UNC	B16.5	8.98	228	12	N/A	N/A	N/A	N/A	N/A	N/A	24
10	250	1" – 8 UNC	B16.5	10.20	259	12	4.17	106	4	4.17	106	4	32
12	300	1 1/8" – 8 UN	B16.5	11.05	281	12	4.74	120	4	4.58	116	4	32
14	350	1 1/8" – 8 UN	B16.5	12.27	312	16	4.64	118	4	4.64	118	4	40
16	400	1 1/4" – 8 UN	B16.5	13.47	342	16	4.94	126	4	4.94	126	4	40
18	450	1 1/4" – 8 UN	B16.5	14.39	365	20	5.17	131	4	5.17	131	4	48
20	500	1 1/4" – 8 UN	B16.5	15.04	382	20	5.28	134	4	5.28	134	4	48
24	600	1 1/2" – 8 UN	B16.5	16.87	429	20	6.02	153	4	6.02	153	4	48



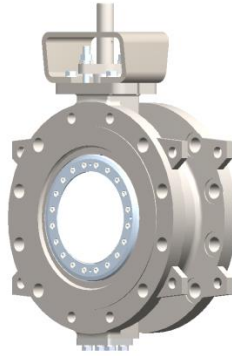
Series 4E –Triple offset - Lugged - Class 300 (with Hex Head Screws)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)		
															
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm	
3	80	3/4" – 10 UNC	B16.5	2.28	58	8	2.16	55	8	N/A	N/A	N/A	N/A	N/A	N/A
4	100	3/4" – 10 UNC	B16.5	2.47	63	8	2.23	57	8	N/A	N/A	N/A	N/A	N/A	N/A
6	150	3/4" – 10 UNC	B16.5	2.79	71	12	2.45	62	12	N/A	N/A	N/A	N/A	N/A	N/A
8	200	7/8" – 9 UNC	B16.5	3.02	77	12	2.74	70	12	N/A	N/A	N/A	N/A	N/A	N/A
10	250	1" – 8 UNC	B16.5	3.60	92	12	3.60	92	12	2.68	68	4	2.68	68	4
12	300	1 1/8" – 8 UN	B16.5	3.75	95	12	3.59	91	12	3.12	79	4	2.96	75	4
14	350	1 1/8" – 8 UN	B16.5	4.62	117	16	4.62	117	16	3.02	77	4	3.02	77	4
16	400	1 1/4" – 8 UN	B16.5	5.10	130	16	5.10	130	16	3.21	82	4	3.21	82	4
18	450	1 1/4" – 8 UN	B16.5	5.46	139	20	5.46	139	20	3.43	87	4	3.43	87	4
20	500	1 1/4" – 8 UN	B16.5	5.79	147	20	5.79	147	20	3.54	90	4	3.74	90	4
24	600	1 1/2" – 8 UN	B16.5	6.39	162	20	6.39	162	20	4.05	103	4	4.05	103	4



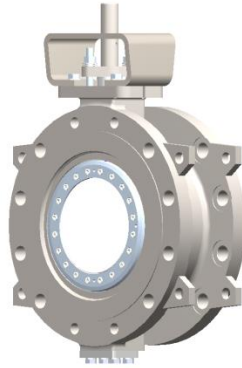
Series 4E – Triple offset - Lugged - Class 300 (with Stud)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Size-Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm		
3	80	3/4" – 10 UNC	B16.5	3.42	87	8	3.30	84	8	N/A	N/A	N/A	N/A	N/A	N/A	16
4	100	3/4" – 10 UNC	B16.5	3.61	92	8	3.37	86	8	N/A	N/A	N/A	N/A	N/A	N/A	16
6	150	3/4" – 10 UNC	B16.5	3.93	100	12	3.59	91	12	N/A	N/A	N/A	N/A	N/A	N/A	24
8	200	7/8" – 9 UNC	B16.5	4.28	109	12	4.00	102	12	N/A	N/A	N/A	N/A	N/A	N/A	24
10	250	1" – 8 UNC	B16.5	5.02	128	12	5.02	128	12	4.17	106	4	4.17	106	4	32
12	300	1 1/8" – 8 UN	B16.5	5.29	134	12	5.13	130	12	4.74	120	4	4.58	116	4	32
14	350	1 1/8" – 8 UN	B16.5	6.15	156	16	6.15	156	16	4.64	118	4	4.64	118	4	40
16	400	1 1/4" – 8 UN	B16.5	6.76	172	16	6.76	172	16	4.94	126	4	4.94	126	4	40
18	450	1 1/4" – 8 UN	B16.5	7.11	181	20	7.11	181	20	5.17	131	4	5.17	131	4	48
20	500	1 1/4" – 8 UN	B16.5	7.44	189	20	7.44	189	20	5.28	134	4	5.28	134	4	48
24	600	1 1/2" – 8 UN	B16.5	8.28	210	20	8.28	210	20	6.02	153	4	6.02	153	4	48



Series 4F – Triple offset – Double Flanged - Class 300 (with Hex Head Screws)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Hex Head Screw Length		Qty	Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm		
3	80	3/4" – 10 UNC	B16.5	3.60	91.4	4	3.60	91.4	4	1.81	45.9	4	1.81	45.9	4	8
4	100	3/4" – 10 UNC	B16.5	3.85	97.9	4	3.85	97.9	4	1.96	49.7	4	1.96	49.7	4	8
6	150	3/4" – 10 UNC	B16.5	4.24	107.8	8	4.24	107.6	8	2.15	54.6	4	2.15	54.6	4	16
8	200	7/8" – 9 UNC	B16.5	4.72	119.8	8	4.72	119.8	8	2.60	66.1	4	2.60	66.1	4	16
10	250	1" – 8 UNC	B16.5	5.46	138.6	12	5.46	138.6	12	2.85	72.5	4	2.85	72.5	4	24
12	300	1 1/8" – 8 UN	B16.5	5.75	146.1	12	5.75	146.1	12	2.98	75.8	4	2.98	75.8	4	24
14	350	1 1/8" – 8 UN	B16.5	6.02	152.8	16	6.02	152.8	16	3.50	88.8	4	3.50	88.8	4	32
16	400	1 1/4" – 8 UN	B16.5	6.46	164.1	16	6.46	164.1	16	3.63	92.1	4	3.63	92.1	4	32
18	450	1 1/4" – 8 UN	B16.5	6.62	168.2	20	6.62	168.2	20	3.43	87.2	4	3.43	87.2	4	40
20	500	1 1/4" – 8 UN	B16.5	6.75	171.5	20	6.75	171.5	20	3.56	90.5	4	3.56	90.5	4	40
24	600	1 1/2" – 8 UN	B16.5	7.67	194.8	20	7.67	194.8	20	4.01	101.8	4	4.01	101.8	4	40



Series 4F – Triple offset – Double Flanged - Class 300 (with Studs)

Valve Size		Thread	Ends	Retainer Side			Stem Side			Retainer Side (Blind tap at Top (Neck) and Bottom)			Stem Side (Blind tap at Top (Neck) and Bottom)			Heavy Hex Nut
Inch	DN			Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Stud Length		Qty	Qty
				Inch	mm		Inch	mm		Inch	mm		Inch	mm		
3	80	3/4" – 10 UNC	B16.5	4.74	120.4	4	4.74	120.4	4	3.03	76.9	4	3.03	76.9	4	24
4	100	3/4" – 10 UNC	B16.5	5.00	126.9	4	5.00	126.9	4	3.18	80.7	4	3.18	80.7	4	24
6	150	3/4" – 10 UNC	B16.5	5.39	136.8	8	5.39	136.8	8	3.37	85.6	4	3.37	85.6	4	40
8	200	7/8" – 9 UNC	B16.5	5.98	151.8	8	5.98	151.8	8	3.94	100.1	4	3.94	100.1	4	40
10	250	1" – 8 UNC	B16.5	6.87	174.6	12	6.87	174.6	12	4.35	110.5	4	4.35	110.5	4	56
12	300	1 1/8" – 8 UN	B16.5	7.29	185.1	12	7.29	185.1	12	4.60	116.8	4	4.60	116.8	4	56
14	350	1 1/8" – 8 UN	B16.5	7.55	191.8	16	7.55	191.8	16	5.11	129.8	4	5.11	129.8	4	72
16	400	1 1/4" – 8 UN	B16.5	8.11	206.1	16	8.11	206.1	16	5.36	136.1	4	5.36	136.1	4	72
18	450	1 1/4" – 8 UN	B16.5	8.28	210.2	20	8.28	210.2	20	5.17	131.2	4	5.17	131.2	4	88
20	500	1 1/4" – 8 UN	B16.5	8.41	213.5	20	8.41	213.5	20	5.30	134.5	4	5.30	134.5	4	88
24	600	1 1/2" – 8 UN	B16.5	9.56	242.8	20	9.56	242.8	20	5.98	151.8	4	5.98	151.8	4	88