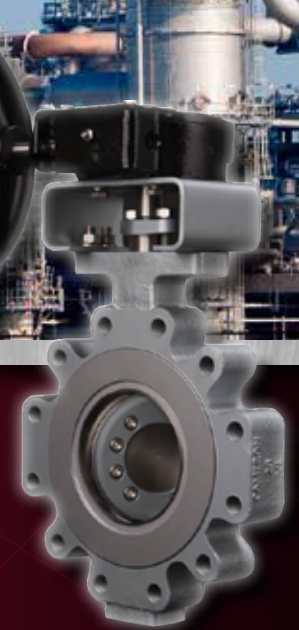


WKM Triple Offset Valves

Quality, bi-directional valves for critical applications in the most demanding markets worldwide

TECHNOLOGY



The Difference

Manufacturing

Cameron's WKM® triple offset valve (TOV) includes the manufacturing excellence and commitment to quality that comes with all of Cameron's products. Combined with arduous qualification and testing processes that simulate valve life cycle, the WKM TOV sets a new benchmark for performance.

Organizational Support

Our commitment to global support and strategic networks brings the WKM TOV to markets where it's needed, when it's needed – fully designed, tested, qualified, and backed by Cameron. The WKM TOV meets the demanding requirements for bi-directional shutoff, delivery, and quality.

Cameron

Our expanding network of strategic partners helps distribute high-quality, daily service valves into critical applications. With millions of valves manufactured by Cameron and delivered around the world, our portfolio is proudly led by flagship brands such as WKM, DEMCO®, NEWCO®, and NUTRON® valves as part of the Cameron family.

- Strong global distribution network
 - Industry leader in valve technology and innovation
 - Broadest portfolio of 6D valves in the industry
 - In-house engineering and manufacturing
 - Commitment to health, safety, and the environment
-

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WKM TRIPLE OFFSET VALVES

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WKM Triple Offset Valves

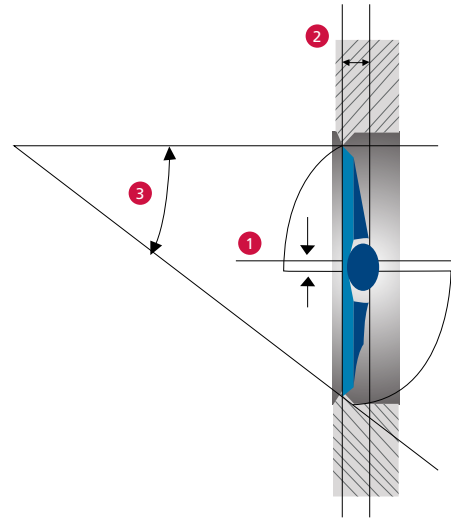
The WKM TOV completes Cameron's reliable, performance-proven, quarter-turn butterfly valve portfolio. The true triple offset geometry of this valve allows for bubble-tight sealing to create a fully bi-directional zero-leakage* shut-off valve.

Backed by our world-class engineering, manufacturing, and sourcing expertise, the WKM TOV provides a trusted solution ideal for critical applications. Rely on Cameron's dedication to high-quality standards, competitive manufacturing processes, and world-class support for total valve life cycle support.

FEATURES AND BENEFITS

- True triple offset geometry
- Fully bi-directional zero-leakage* shutoff
- Field replaceable metal seat
- Life cycle tested as a bubble-tight bi-directional valve
- Standard bearing seals
- Self-centering disc
- Available in a wide range of configurations: lug, short (ISO), and long pattern
- Carbon and stainless steel standard; other materials on request

TRIPLE OFFSET GEOMETRY



- 1 The first offset provides full 360-degree uninterrupted sealing.
- 2 The second offset provides eccentric rotation of the disc that swings the seal ring completely off the seat upon opening.
- 3 The third offset moves the centerline of the cone rotation laterally from the centerline of the disc rotation, allowing for the cone to seal without rubbing.



*Per API 598

MAJOR MARKETS



Power and Steam (600# and below)

- District heating
- Bitumen



Petrochemicals (refining and chemicals)

- Coking
- Reformers – cracking
- Tank switching
- Ethylene
- Butadiene
- Isocyanates – plastics



Tank and Terminal

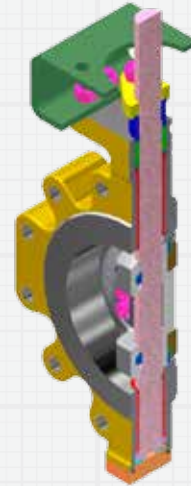
- Switching
- Long pattern for gate valve replacement
- Storage of all types of hydrocarbons and chemicals



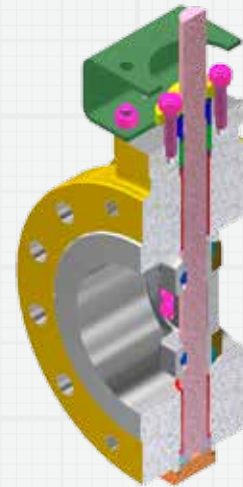
Upstream Production

- Process equipment
- Separation – molecular sieve
- Switching
- Floating production platforms
- Manifolds
- Slurry – oil sands
- Secondary recovery

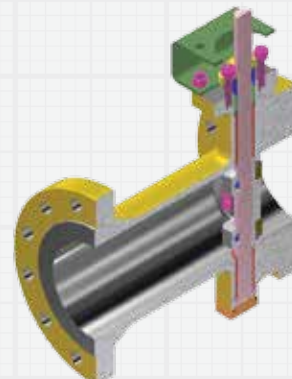
FLANGE CONNECTIONS



LUG PATTERN
PER API 609



SHORT PATTERN
PER ISO 5752/API 609



LONG PATTERN
PER ANSI B16.10/API 609

APPLICATIONS



Oil and Gas

- Isolation of reservoirs and storage
- Steam piping and condensate
- Cooling water systems
- Desalinization
- Desulfurization systems

Compliance and Specifications

API STD 609
CE/PED certified
ASME B16.34
API STD 598
ISO-5752 flange dimension
ASME B16.47 for Series B mating pipe flange dimensions for valve sizes 26" and larger, Classes 150 and 300
ANSI B16.10
MSS-SP-55
API STD 607, latest edition for fire testing
Fugitive-emissions testing*

*Pending

Pulp and Paper

- Boiler isolation equipment
- Liqueurs: green, white, and black
- Whitewash
- Cooling water, boiler feeding, steam, and co-generation systems

Offshore Platforms

LNG Storage

Transportation District Heating

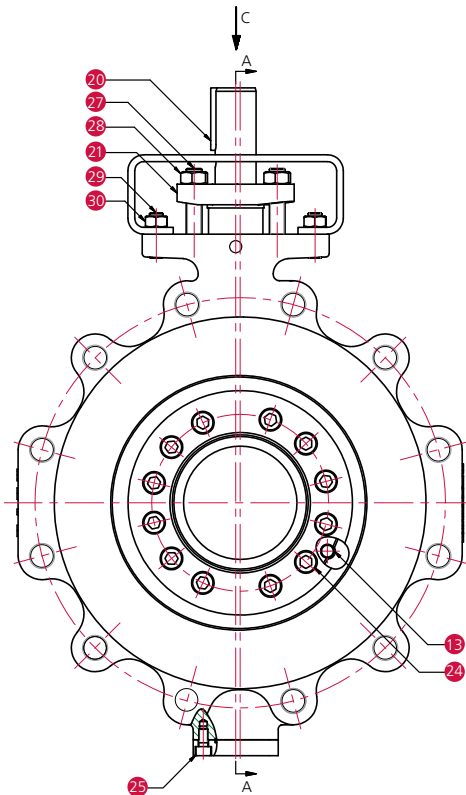
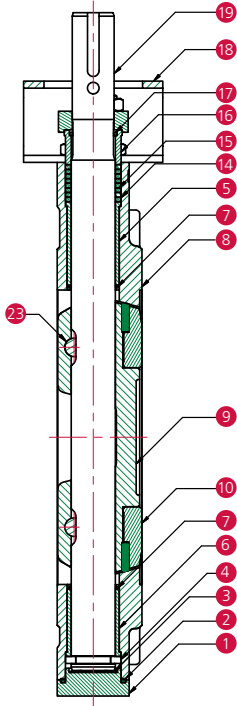
Media

- Steam (saturated and superheated)
- Geothermal steam
- Hydrocarbons
- Hydrogen
- Oxygen
- Cryogenic fluids
- Hot gases
- Sulfur (tail gas)
- Chemical solvents
- Chlorinated solvents
- Flare gas

Part List 3" to 24"

ASME CLASS 150 AND 300

Lug, Short, and Long Pattern



Item	Name	Material	ASTM Spec.	Note
1	Bottom Cap	Carbon Steel	A105	
2	SW Gasket*	SS316 + Graphite		
3	Thrust Washer	17 – 4 pH		
4	Split Ring	Stainless Steel		
5	Solid Bearing Top	Stainless Steel		
6	Solid Bearing Bottom	Stainless Steel	A479 316	
7	Bearing Seal	Graphite		
8	Body	Carbon Steel	A216 WCB	+STL
9	Disc	Carbon Steel	A216 WCB	
10	Retainer	Carbon Steel	A516 Gr. 70	
11 Δ	Seal Ring*	Duplex + Graphite	ASTM A182	
12 Δ	Seal Ring Gasket – Graphite*	SS316 + Graphite		
13	Seal Locating Pin	17 – 4 pH H1150D	A564 630	H1150D
14	Packing Washer	Stainless Steel	A182 F316	
15	Packing*	Graphite		
16	Packing Bushing	Stainless Steel	A182 F316	
17	Blowout Ring	17 – 4 pH H1150D	A564 630	H1150D
18	Mounting Bracket	Carbon Steel	A1020	
19	Shaft	17 – 4 pH H1150D	A564 630	
20	Key	Steel	AISI 1045	
21	Packing Retainer	Carbon Steel	A216 WCB	
22 Δ	Center Key	Stainless Steel	A351 CF8M	
23	Wedge Pin	17 – 4 pH H1150D	A564 630	H1150D
24	SHCS	Carbon Steel	A193 B7M	
25	SHCS	Carbon Steel	A193 B7M	
26 Δ	SHCS	Carbon Steel	A193 B7M	
27	Stud	Carbon Steel	A193 B7M	
28	Hex Nut	Carbon Steel	A194 7M	
29	Stud	Carbon Steel	A193 B7M	
30	Hex Nut	Carbon Steel	S194 7M	
31 Δ	Nameplate	Stainless Steel		
32 Δ	Dowel Pin	Carbon Steel	A105	

Notes:

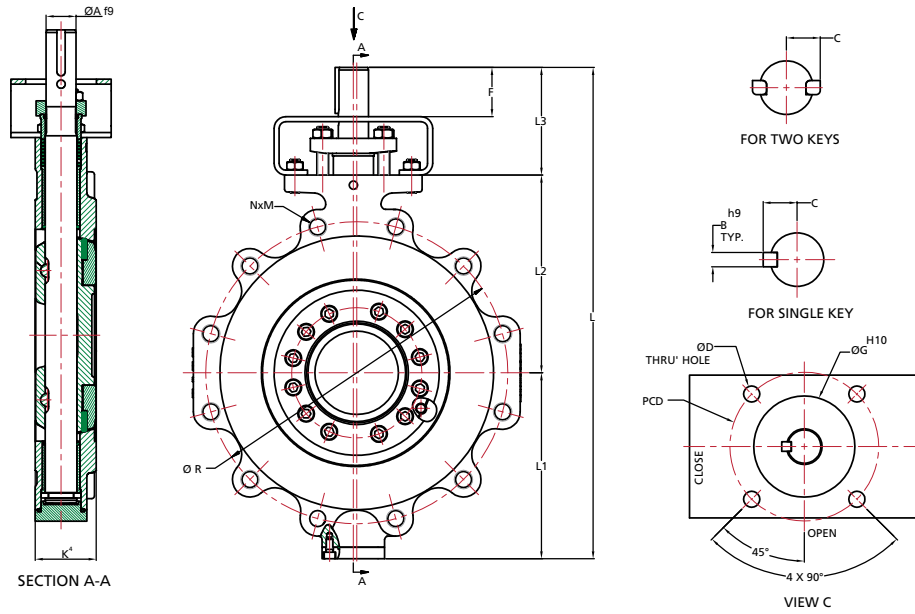
Δ Part not shown

* Recommended spare parts

1. Basic design – application requirements of API 609B and ASME B16.34
2. Pressure test – API 598
3. End flanged – ASME B16.5
4. Face-to-face dimensions and tolerances – API 609B
5. Fire test – API 607
6. Materials meet the requirements of NACE MR-01-03 and MR-01-75

Lug Pattern Dimensions 3" to 24" per API 609

ASME CLASS 150 AND 300

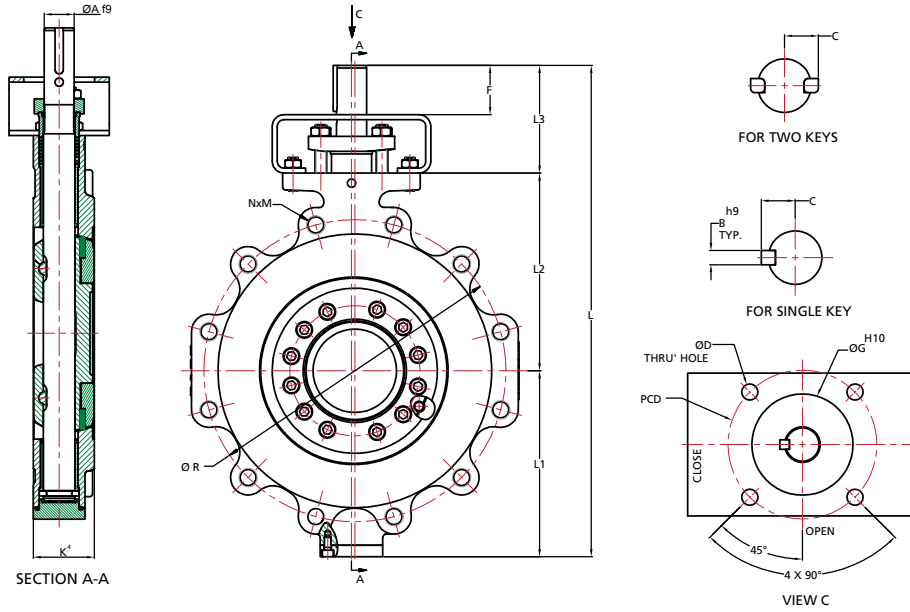


Size (in.)	Class	$\varnothing A f9$	$B h9$	0.000 C -0.006	No. of Keys	Flange Type	$\varnothing G H10$	PCD	$\varnothing D$	K	L	L1	L2	L3	F	$\varnothing R$	N x M
3	150	0.827	0.236	0.512	1	F07	0.2.165	0.2.756	0.0.394	1.88	12.677	4.272	3.937	4.469	1.713	0.6.00	4 x 0.625-11 UNC
3	300	0.827	0.236	0.512	1	F07	0.2.165	0.2.756	0.0.394	1.88	13.819	4.665	4.724	4.429	1.673	0.6.62	8 x 0.750-10 UNC
4	150	0.827	0.236	0.512	1	F07	0.2.165	0.2.756	0.0.394	2.12	14.646	5.020	5.157	4.469	1.713	0.7.50	8 x 0.625-11 UNC
4	300	0.827	0.236	0.512	1	F07	0.2.165	0.2.756	0.0.394	2.12	15.630	5.571	5.512	4.547	1.791	0.7.88	12 x 0.875-9 UNC
6	150	0.984	0.315	0.610	1	F10	0.2.756	0.4.016	0.0.472	2.25	17.087	5.866	6.299	4.921	2.165	0.9.50	8 x 0.750-10 UNC
6	300	0.1.181	0.315	0.748	1	F12	0.3.346	0.4.921	0.0.551	2.31	20.118	7.087	8.071	4.961	2.205	0.10.62	12 x 0.750-10 UNC
8	150	0.1.260	0.315	0.748	1	F12	0.3.346	0.4.921	0.0.551	2.50	19.764	7.087	7.756	4.921	2.165	0.11.75	8 x 0.750-10 UNC
8	300	0.1.496	0.394	0.906	2	F14	0.3.937	0.5.512	0.0.709	2.88	22.382	8.209	8.661	5.512	2.756	0.13.00	12 x 0.875-9 UNC
10	150	0.1.417	0.394	0.866	1	F12	0.3.346	0.4.921	0.0.551	2.81	23.189	8.780	9.331	5.079	2.323	0.14.25	12 x 0.875-9 UNC
10	300	0.1.575	0.472	0.965	2	F16	0.5.118	0.6.496	0.0.866	3.25	26.142	9.685	10.236	6.220	2.677	0.15.25	16 x 1.000-8 UNC
12	150	0.1.654	0.472	1.004	1	F14	0.3.937	0.5.512	0.0.709	3.19	27.008	9.921	10.787	6.299	2.756	0.17.00	12 x 0.875-9 UNC
12	300	0.1.811	0.551	1.102	2	F16	0.5.118	0.6.496	0.0.866	3.62	30.315	11.102	11.811	7.402	2.677	0.17.75	14 x 1.125-8 UNC
14	150	0.1.772	0.551	1.102	2	F16	0.5.118	0.6.496	0.0.866	3.62	32.441	11.260	13.000	8.189	3.465	0.18.75	12 x 1.000-8 UNC
14	300	0.2.165	0.630	1.319	2	F25	0.7.874	0.10.000	0.0.708	4.62	35.905	12.600	13.780	9.526	4.606	0.20.25	20 x 1.125-8 UNC
16	150	0.1.969	0.630	1.220	2	F16	0.5.118	0.6.496	0.0.866	4.00	35.275	12.520	14.370	8.386	3.661	0.21.25	16 x 1.000-8 UNC
16	300	0.2.559	0.709	1.555	2	F30	0.9.055	0.11.732	0.0.866	5.25	40.472	13.937	15.354	11.181	5.670	0.22.50	20 x 1.250-8 UNC
18	150	0.2.283	0.709	1.417	2	F25	0.7.874	0.10.000	0.0.708	4.50	38.464	13.780	15.551	9.134	4.213	0.22.75	16 x 1.125-8 UNC
18	300	0.2.756	0.787	1.732	2	F30	0.9.055	0.11.732	0.0.866	5.88	43.937	15.157	17.126	11.654	6.142	0.24.75	24 x 1.250-8 UNC
20	150	0.2.677	0.709	1.614	2	F25	0.7.874	0.10.000	0.0.708	5.00	41.653	15.118	16.930	9.606	4.686	0.25.00	20 x 1.125-8 UNC
20	300	0.3.071	0.866	1.890	2	F35	0.10.236	0.14.016	0.1.260	6.25	48.740	17.047	18.701	12.992	6.300	0.27.00	24 x 1.250-8 UNC
24	150	0.3.071	0.866	1.890	2	F30	0.9.055	0.11.732	0.0.866	6.06	48.405	17.500	19.291	11.614	6.102	0.29.50	16 x 1.250-8 UNC
24	300	0.3.622	0.866	2.165	2	F35	0.10.236	0.14.016	0.1.260	7.12	55.708	19.370	21.457	14.882	8.189	0.32.00	24 x 1.500-8 UNC

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

Lug Pattern Dimensions 3" to 24" per API 609

ASME CLASS 150 AND 300

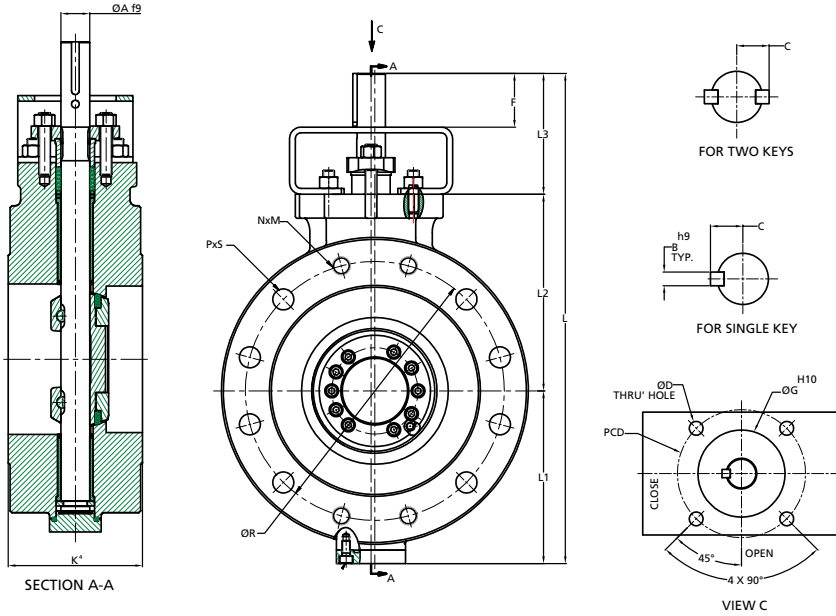


Size (mm)	Class	Ø A f9	B h9	0.000 C -0.015	No. of Keys	Flange Type	Ø G H10	PCD	Ø D	K	L	L1	L2	L3	F	Ø R	N x M
80	150	Ø 21	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	48	322.0	108.5	100	113.5	43.5	Ø 152.4	4 x 0.625-11 UNC
80	300	Ø 21	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	48	351.0	118.5	120	112.5	42.5	Ø 168.3	8 x 0.750-10 UNC
100	150	Ø 21	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	54	372.0	127.5	131	113.5	43.5	Ø 190.5	8 x 0.625-11 UNC
100	300	Ø 21	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	54	397.0	141.5	140	115.5	45.5	Ø 200.0	8 x 0.750-10 UNC
150	150	Ø 25	8	15.50	1	F10	Ø 70	Ø 102	Ø 12	57	434.0	149.0	160	125.0	55.0	Ø 241.3	8 x 0.750-10 UNC
150	300	Ø 30	8	19.00	1	F12	Ø 85	Ø 125	Ø 14	59	511.0	180.0	205	126.0	56.0	Ø 270.0	12 x 0.750-10 UNC
200	150	Ø 32	8	19.00	1	F12	Ø 85	Ø 125	Ø 14	64	502.0	180.0	197	125.0	55.0	Ø 298.5	8 x 0.750-10 UNC
200	300	Ø 38	10	23.00	2	F14	Ø 100	Ø 140	Ø 18	73	568.5	208.5	220	140.0	70.0	Ø 330.0	12 x 0.875-9 UNC
250	150	Ø 36	10	22.00	1	F12	Ø 85	Ø 125	Ø 14	71	589.0	223.0	237	129.0	59.0	Ø 362.0	12 x 0.875-9 UNC
250	300	Ø 40	12	24.50	2	F16	Ø 130	Ø 165	Ø 22	83	664.0	246.0	260	158.0	68.0	Ø 387.4	16 x 1.000-8 UNC
300	150	Ø 42	12	25.50	1	F14	Ø 100	Ø 140	Ø 18	81	686.0	252.0	274	160.0	70.0	Ø 431.8	12 x 0.875-9 UNC
300	300	Ø 46	14	28.00	2	F16	Ø 130	Ø 165	Ø 22	92	770.0	282.0	300	188.0	68.0	Ø 450.8	14 x 1.125-8 UNC
350	150	Ø 45	14	28.00	2	F16	Ø 130	Ø 165	Ø 22	92	824.0	286.0	330	208.0	88.0	Ø 476.3	12 x 1.000-8 UNC
350	300	Ø 55	16	33.50	2	F25	Ø 200	Ø 254	Ø 18	117	912.0	320.0	350	242.0	117.0	Ø 514.4	20 x 1.125-8 UNC
400	150	Ø 50	16	31.00	2	F16	Ø 130	Ø 165	Ø 22	102	896.0	318.0	365	213.0	93.0	Ø 540.0	16 x 1.000-8 UNC
400	300	Ø 65	18	39.50	2	F30	Ø 230	Ø 298	Ø 22	133	1028.0	354.0	390	284.0	144.0	Ø 571.5	20 x 1.250-8 UNC
450	150	Ø 58	18	36.00	2	F25	Ø 200	Ø 254	Ø 18	114	977.0	350.0	395	232.0	107.0	Ø 577.9	16 x 1.125-8 UNC
450	300	Ø 70	20	44.00	2	F30	Ø 230	Ø 298	Ø 22	149	1116.0	385.0	435	296.0	156.0	Ø 628.6	24 x 1.250-8 UNC
500	150	Ø 68	18	41.00	2	F25	Ø 200	Ø 254	Ø 18	127	1058.0	384.0	430	244.0	119.0	Ø 635.0	20 x 1.125-8 UNC
500	300	Ø 78	22	48.00	2	F35	Ø 260	Ø 356	Ø 32	159	1238.0	433.0	475	330.0	160.0	Ø 685.8	24 x 1.250-8 UNC
600	150	Ø 78	22	48.00	2	F30	Ø 230	Ø 298	Ø 22	154	1229.5	444.5	490	295.0	155.0	Ø 749.3	16 x 1.250-8 UNC
600	300	Ø 92	22	55.00	2	F35	Ø 260	Ø 260	Ø 32	181	1415.0	492.0	545	378.0	208.0	Ø 812.8	24 x 1.500-8 UNC

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

Short Pattern Dimensions 3" to 24" per ISO 5752/API 609

ASME CLASS 150 AND 300

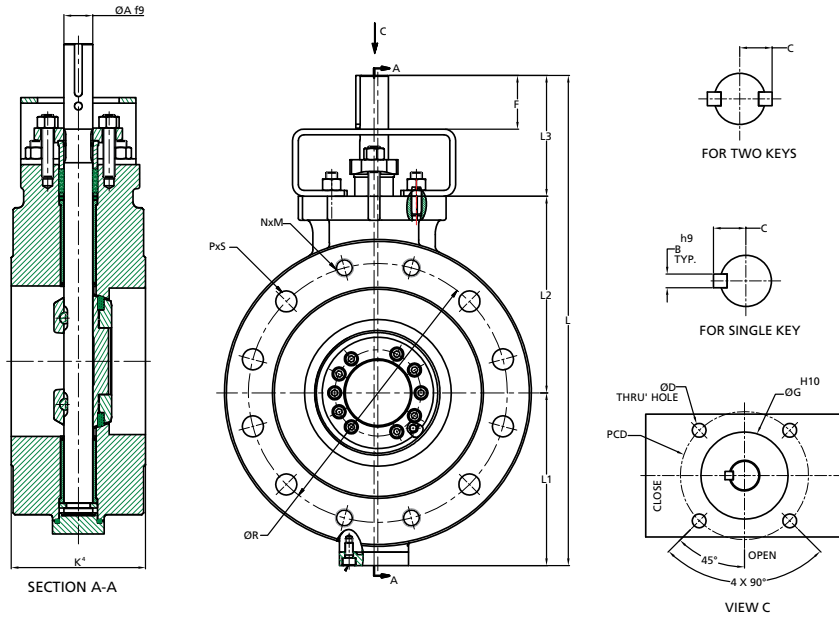


Size (in.)	Class	$\text{Ø} A \text{ f9}$	$B \text{ h9}$	0.000 C -0.006	No. of Keys	Flange Type	$\text{Ø} G \text{ H10}$	PCD	$\text{Ø} D$	K	L	L1	L2	L3	F	$\text{Ø} R$	N x M	P x Ø S
3	150	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	4.50	12.677	4.272	3.937	4.469	1.713	Ø 6.00	-	4 x Ø 0.750 THRU
3	300	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	4.50	13.819	4.665	4.724	4.429	1.673	Ø 6.62	4 x 0.750-10 UNC	4 x Ø 0.875 THRU
4	150	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	5.00	14.646	5.020	5.157	4.469	1.713	Ø 7.50	4 x 0.625-11 UNC	4 x Ø 0.750 THRU
4	300	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	5.00	15.630	5.571	5.512	4.547	1.791	Ø 7.88	4 x 0.750-10 UNC	4 x Ø 0.875 THRU
6	150	Ø 0.984	0.315	0.610	1	F10	Ø 2.756	Ø 4.016	Ø 0.472	5.50	17.087	5.866	6.299	4.921	2.165	Ø 9.50	4 x 0.750-10 UNC	4 x Ø 0.875 THRU
6	300	Ø 1.181	0.315	0.748	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	5.50	20.118	7.087	8.071	4.961	2.205	Ø 10.62	4 x 0.750-10 UNC	8 x Ø 0.875 THRU
8	150	Ø 1.260	0.315	0.748	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	6.00	19.764	7.087	7.756	4.921	2.165	Ø 11.75	4 x 0.750-10 UNC	4 x Ø 0.875 THRU
8	300	Ø 1.496	0.394	0.906	2	F14	Ø 3.937	Ø 5.512	Ø 0.709	6.00	22.382	8.209	8.661	5.512	2.756	Ø 13.00	4 x 0.875-9 UNC	8 x Ø 1.000 THRU
10	150	Ø 1.417	0.394	0.866	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	6.50	23.189	8.780	9.331	5.079	2.323	Ø 14.25	4 x 0.875-9 UNC	8 x Ø 1.000 THRU
10	300	Ø 1.575	0.472	0.965	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	6.50	26.142	9.685	10.236	6.220	2.677	Ø 15.25	4 x 1.000-8 UNC	12 x Ø 1.125 THRU
12	150	Ø 1.654	0.472	1.004	1	F14	Ø 3.937	Ø 5.512	Ø 0.709	7.00	27.008	9.921	10.787	6.299	2.756	Ø 17.00	4 x 0.875-9 UNC	8 x Ø 1.000 THRU
12	300	Ø 1.811	0.551	1.102	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	7.00	30.315	11.102	11.811	7.402	2.677	Ø 17.75	4 x 1.125-8 UNC	12 x Ø 1.250 THRU
14	150	Ø 1.772	0.551	1.102	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	7.50	32.441	11.260	13.000	8.189	3.465	Ø 18.75	4 x 1.000-8 UNC	8 x Ø 1.125 THRU
14	300	Ø 2.165	0.630	1.319	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	7.50	35.905	12.600	13.780	9.526	4.606	Ø 20.25	4 x 1.125-8 UNC	16 x Ø 1.250 THRU
16	150	Ø 1.969	0.630	1.220	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	8.50	35.275	12.520	14.370	8.386	3.661	Ø 21.25	4 x 1.000-8 UNC	12 x Ø 1.125 THRU
16	300	Ø 2.559	0.709	1.555	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	8.50	40.472	13.937	15.354	11.181	5.670	Ø 22.50	4 x 1.250-8 UNC	16 x Ø 1.375 THRU
18	150	Ø 2.283	0.709	1.417	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	8.75	38.464	13.780	15.551	9.134	4.213	Ø 22.75	4 x 1.125-8 UNC	12 x Ø 1.250 THRU
18	300	Ø 2.756	0.787	1.732	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	8.75	43.937	15.157	17.126	11.654	6.142	Ø 24.75	4 x 1.250-8 UNC	20 x Ø 1.375 THRU
20	150	Ø 2.677	0.709	1.614	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	9.00	41.653	15.118	16.930	9.606	4.686	Ø 25.00	4 x 1.125-8 UNC	16 x Ø 1.250 THRU
20	300	Ø 3.071	0.866	1.890	2	F35	Ø 10.236	Ø 14.016	Ø 1.260	9.00	48.740	17.047	18.701	12.992	6.300	Ø 27.00	4 x 1.250-8 UNC	20 x Ø 1.375 THRU
24	150	Ø 3.071	0.866	1.890	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	10.50	48.405	17.500	19.291	11.614	6.102	Ø 29.50	4 x 1.250-8 UNC	16 x Ø 1.375 THRU
24	300	Ø 3.622	0.866	2.165	2	F35	Ø 10.236	Ø 14.016	Ø 1.260	10.50	55.708	19.370	21.457	14.882	8.189	Ø 32.00	4 x 1.500-8 UNC	20 x Ø 1.625 THRU

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

Short Pattern Dimensions 3" to 24" per ISO 5752/API 609

ASME CLASS 150 AND 300

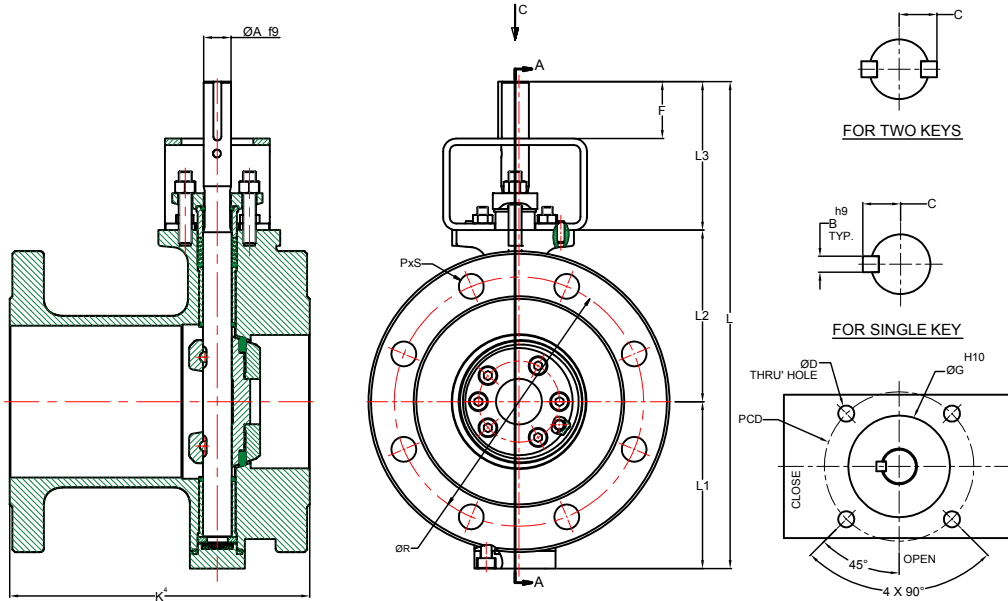


Size (mm)	Class	Ø A f9	B h9	0.000 C -0.015	No. of Keys	Flange Type	Ø G H10	PCD	Ø D	K	L	L1	L2	L3	F	Ø R	N x M	P x Ø S
80	150	Ø 21.00	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	114	322.0	108.5	100	113.5	43.5	Ø 152.4	—	4 x Ø 19.0 THRU
80	300	Ø 21.00	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	114	351.0	118.5	120	112.5	42.5	Ø 168.3	4 x 0.750-10 UNC	4 x Ø 22.0 THRU
100	150	Ø 21.00	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	127	372.0	127.5	131	113.5	43.5	Ø 190.5	4 x 0.625-11 UNC	4 x Ø 19.0 THRU
100	300	Ø 21.00	6	13.00	1	F07	Ø 55	Ø 70	Ø 10	127	397.0	141.5	140	115.5	45.5	Ø 200.0	4 x 0.750-10 UNC	4 x Ø 22.0 THRU
150	150	Ø 25.00	8	15.50	1	F10	Ø 70	Ø 102	Ø 12	140	434.0	149.0	160	125.0	55.0	Ø 241.3	4 x 0.750-10 UNC	4 x Ø 22.0 THRU
150	300	Ø 30.00	8	19.00	1	F12	Ø 85	Ø 125	Ø 14	140	511.0	180.0	205	126.0	56.0	Ø 269.9	4 x 0.750-10 UNC	8 x Ø 22.0 THRU
200	150	Ø 32.00	8	19.00	1	F12	Ø 85	Ø 125	Ø 14	152	502.0	180.0	197	125.0	55.0	Ø 298.5	4 x 0.750-10 UNC	4 x Ø 22.0 THRU
200	300	Ø 38.00	10	23.00	2	F14	Ø 100	Ø 140	Ø 18	152	568.5	208.5	220	140.0	70.0	Ø 330.2	4 x 0.875-9 UNC	8 x Ø 25.0 THRU
250	150	Ø 36.00	10	22.00	1	F12	Ø 85	Ø 125	Ø 14	165	589.0	223.0	237	129.0	59.0	Ø 362.0	4 x 0.875-9 UNC	8 x Ø 25.0 THRU
250	300	Ø 40.00	12	24.50	2	F16	Ø 130	Ø 165	Ø 22	165	664.0	246.0	260	158.0	68.0	Ø 387.4	4 x 1.000-8 UNC	12 x Ø 29.0 THRU
300	150	Ø 42.00	12	25.50	1	F14	Ø 100	Ø 140	Ø 18	178	686.0	252.0	274	160.0	70.0	Ø 431.8	4 x 0.875-9 UNC	8 x Ø 25.0 THRU
300	300	Ø 46.00	14	28.00	2	F16	Ø 130	Ø 165	Ø 22	178	770.0	282.0	300	188.0	68.0	Ø 450.8	4 x 1.125-8 UNC	12 x Ø 32.0 THRU
350	150	Ø 45.00	14	28.00	2	F16	Ø 130	Ø 165	Ø 22	190	824.0	286.0	330	208.0	88.0	Ø 476.3	4 x 1.000-8 UNC	8 x Ø 29.0 THRU
350	300	Ø 55.00	16	33.50	2	F25	Ø 200	Ø 254	Ø 18	190	912.0	320.0	350	242.0	117.0	Ø 514.4	4 x 1.125-8 UNC	16 x Ø 32.0 THRU
400	150	Ø 50.00	16	31.00	2	F16	Ø 130	Ø 165	Ø 22	216	896.0	318.0	365	213.0	93.0	Ø 539.8	4 x 1.000-8 UNC	12 x Ø 29.0 THRU
400	300	Ø 65.00	18	39.50	2	F30	Ø 230	Ø 298	Ø 22	216	1028.0	354.0	390	284.0	144.0	Ø 571.5	4 x 1.250-8 UNC	16 x Ø 35.0 THRU
450	150	Ø 58.00	18	36.00	2	F25	Ø 200	Ø 254	Ø 18	222	977.0	350.0	395	232.0	107.0	Ø 577.9	4 x 1.125-8 UNC	12 x Ø 32.0 THRU
450	300	Ø 70.00	20	44.00	2	F30	Ø 230	Ø 298	Ø 22	222	1116.0	385.0	435	296.0	156.0	Ø 628.6	4 x 1.250-8 UNC	20 x Ø 35.0 THRU
500	150	Ø 68.00	18	41.00	2	F25	Ø 200	Ø 254	Ø 18	229	1058.0	384.0	430	244.0	119.0	Ø 635.0	4 x 1.125-8 UNC	16 x Ø 32.0 THRU
500	300	Ø 78.00	22	48.00	2	F35	Ø 260	Ø 356	Ø 32	229	1238.0	433.0	475	330.0	160.0	Ø 685.8	4 x 1.250-8 UNC	20 x Ø 35.0 THRU
600	150	Ø 78.00	22	48.00	2	F30	Ø 230	Ø 298	Ø 22	267	1229.5	444.5	490	295.0	155.0	Ø 749.3	4 x 1.250-8 UNC	16 x Ø 35.0 THRU
600	300	Ø 92.00	22	55.00	2	F35	Ø 260	Ø 356	Ø 32	267	1415.0	492.0	545	378.0	208.0	Ø 812.8	4 x 1.500-8 UNC	20 x Ø 41.5 THRU

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

Long Pattern Dimensions 3" to 24" per ANSI B16.10/API 609

ASME CLASS 150 AND 300

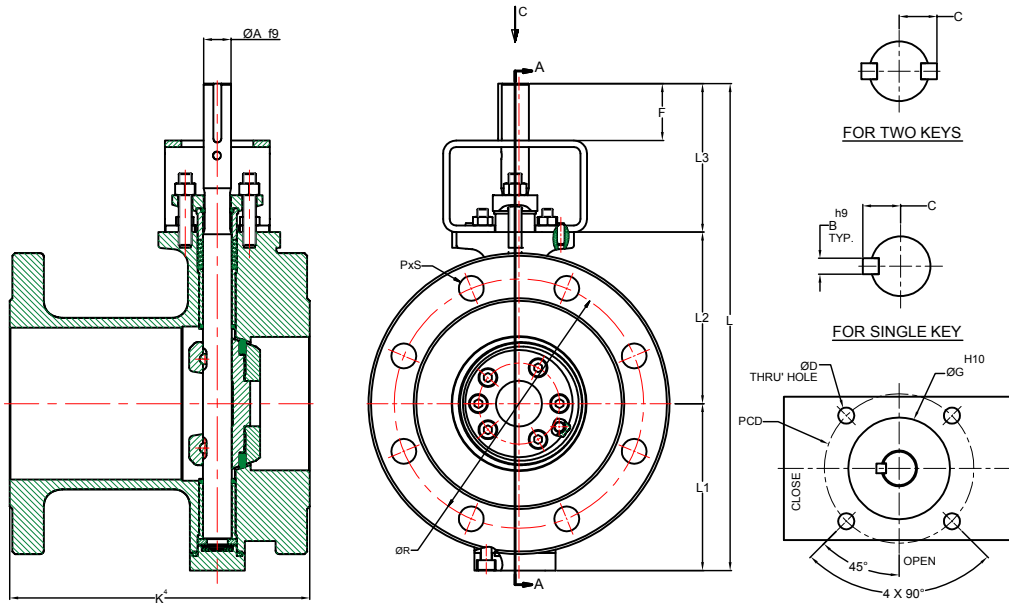


Size (in.)	Class	$\text{Ø} A f_9$	$B h_9$	0.000 C -0.006	No. of Keys	Flange Type	$\text{Ø} G H_{10}$	PCD	$\text{Ø} D$	K	L	L1	L2	L3	F	$\text{Ø} R$	$P \times S$
3	150	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	8.00	12.677	4.272	3.937	4.469	1.713	Ø 6.00	4 x Ø 0.750 THRU
3	300	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	11.12	13.819	4.665	4.724	4.429	1.673	Ø 6.62	8 x Ø 0.875 THRU
4	150	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	9.00	14.646	5.020	5.157	4.469	1.713	Ø 7.50	8 x Ø 0.750 THRU
4	300	Ø 0.827	0.236	0.512	1	F07	Ø 2.165	Ø 2.756	Ø 0.394	12.00	15.630	5.571	5.512	4.547	1.791	Ø 7.88	8 x Ø 0.875 THRU
6	150	Ø 0.984	0.315	0.610	1	F10	Ø 2.756	Ø 4.016	Ø 0.472	10.50	17.087	5.866	6.299	4.921	2.165	Ø 9.50	8 x Ø 0.875 THRU
6	300	Ø 1.181	0.315	0.748	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	15.88	20.118	7.087	8.071	4.961	2.205	Ø 10.62	12 x Ø 0.875 THRU
8	150	Ø 1.260	0.315	0.748	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	11.50	19.764	7.087	7.756	4.921	2.165	Ø 11.75	8 x Ø 0.875 THRU
8	300	Ø 1.496	0.394	0.906	2	F14	Ø 3.937	Ø 5.512	Ø 0.709	16.50	22.382	8.209	8.661	5.512	2.756	Ø 13.00	12 x Ø 1.000 THRU
10	150	Ø 1.417	0.394	0.866	1	F12	Ø 3.346	Ø 4.921	Ø 0.551	13.00	23.189	8.780	9.331	5.079	2.323	Ø 14.25	12 x Ø 1.000 THRU
10	300	Ø 1.575	0.472	0.965	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	18.00	26.142	9.685	10.236	6.220	2.677	Ø 15.25	16 x Ø 1.125 THRU
12	150	Ø 1.654	0.472	1.004	1	F14	Ø 3.937	Ø 5.512	Ø 0.709	14.00	27.008	9.921	10.787	6.299	2.756	Ø 17.00	12 x Ø 1.000 THRU
12	300	Ø 1.811	0.551	1.102	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	19.75	30.315	11.102	11.811	7.402	2.677	Ø 17.75	16 x Ø 1.250 THRU
14	150	Ø 1.772	0.551	1.102	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	15.00	32.441	11.260	13.000	8.189	3.465	Ø 18.75	12 x Ø 1.125 THRU
14	300	Ø 2.165	0.630	1.319	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	30.00	35.905	12.600	13.780	9.526	4.606	Ø 20.25	20 x Ø 1.250 THRU
16	150	Ø 1.969	0.630	1.220	2	F16	Ø 5.118	Ø 6.496	Ø 0.866	16.00	35.275	12.520	14.370	8.386	3.661	Ø 21.25	16 x Ø 1.125 THRU
16	300	Ø 2.559	0.709	1.555	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	33.00	40.472	13.937	15.354	11.181	5.670	Ø 22.50	20 x Ø 1.375 THRU
18	150	Ø 2.283	0.709	1.417	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	17.00	38.464	13.780	15.551	9.134	4.213	Ø 22.75	16 x Ø 1.250 THRU
18	300	Ø 2.756	0.787	1.732	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	36.00	43.937	15.157	17.126	11.654	6.142	Ø 24.75	24 x Ø 1.375 THRU
20	150	Ø 2.677	0.709	1.614	2	F25	Ø 7.874	Ø 10.000	Ø 0.709	18.00	41.653	15.118	16.930	9.606	4.686	Ø 25.00	20 x Ø 1.250 THRU
20	300	Ø 3.071	0.866	1.890	2	F35	Ø 10.236	Ø 14.016	Ø 1.260	39.00	48.740	17.047	18.701	12.992	6.300	Ø 27.00	24 x Ø 1.375 THRU
24	150	Ø 3.071	0.866	1.890	2	F30	Ø 9.055	Ø 11.732	Ø 0.866	20.00	48.405	17.500	19.291	11.614	6.102	Ø 29.50	20 x Ø 1.375 THRU
24	300	Ø 3.622	0.866	2.165	2	F35	Ø 10.236	Ø 14.016	Ø 1.260	45.00	55.708	19.370	21.457	14.882	8.189	Ø 32.00	24 x Ø 1.625 THRU

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

Long Pattern Dimensions 3" to 24" per ANSI B16.10/API 609

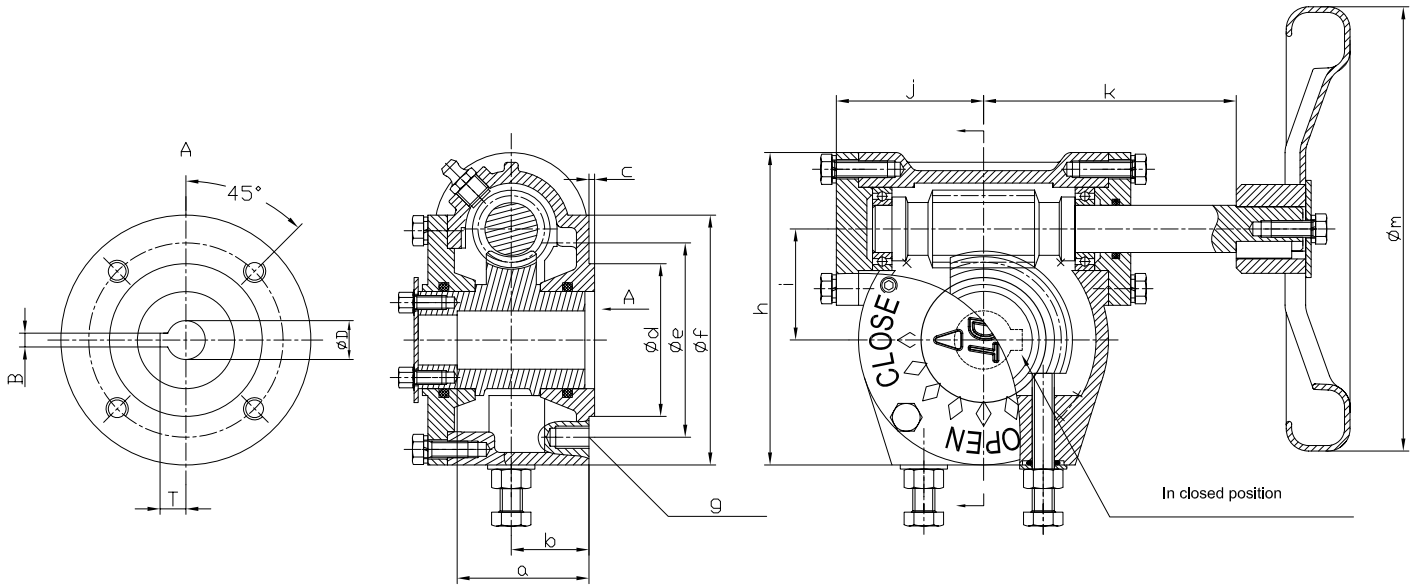
ASME CLASS 150 AND 300



Size (mm)	Class	$\varnothing A f9$	B h9	0.000 C -0.015	No. of Keys	Flange Type	$\varnothing G H10$	PCD	$\varnothing D$	K	L	L1	L2	L3	F	$\varnothing R$	P x $\varnothing S$
80	150	$\varnothing 21.00$	6	13.00	1	F07	$\varnothing 55$	$\varnothing 70$	$\varnothing 10$	203	322.0	108.5	100	113.5	43.5	$\varnothing 152.4$	4 x $\varnothing 19.0$ THRU
80	300	$\varnothing 21.00$	6	13.00	1	F07	$\varnothing 55$	$\varnothing 70$	$\varnothing 10$	282	351.0	118.5	120	112.5	42.5	$\varnothing 168.3$	8 x $\varnothing 22.0$ THRU
100	150	$\varnothing 21.00$	6	13.00	1	F07	$\varnothing 55$	$\varnothing 70$	$\varnothing 10$	229	372.0	127.5	131	113.5	43.5	$\varnothing 190.5$	8 x $\varnothing 19.0$ THRU
100	300	$\varnothing 21.00$	6	13.00	1	F07	$\varnothing 55$	$\varnothing 70$	$\varnothing 10$	305	397.0	141.5	140	115.5	45.5	$\varnothing 200.0$	8 x $\varnothing 22.0$ THRU
150	150	$\varnothing 25.00$	8	15.50	1	F10	$\varnothing 70$	$\varnothing 102$	$\varnothing 12$	267	434.0	149.0	160	125.0	55.0	$\varnothing 241.3$	8 x $\varnothing 22.0$ THRU
150	300	$\varnothing 30.00$	8	19.00	1	F12	$\varnothing 85$	$\varnothing 125$	$\varnothing 14$	403	511.0	180.0	205	126.0	56.0	$\varnothing 269.9$	12 x $\varnothing 22.0$ THRU
200	150	$\varnothing 32.00$	8	19.00	1	F12	$\varnothing 85$	$\varnothing 125$	$\varnothing 14$	292	502.0	180.0	197	125.0	55.0	$\varnothing 298.5$	8 x $\varnothing 22.0$ THRU
200	300	$\varnothing 38.00$	10	23.00	2	F14	$\varnothing 100$	$\varnothing 140$	$\varnothing 18$	418	568.5	208.5	220	140.0	70.0	$\varnothing 330.2$	12 x $\varnothing 25.0$ THRU
250	150	$\varnothing 36.00$	10	22.00	1	F12	$\varnothing 85$	$\varnothing 125$	$\varnothing 14$	330	589.0	223.0	237	129.0	59.0	$\varnothing 362.0$	12 x $\varnothing 25.0$ THRU
250	300	$\varnothing 40.00$	12	24.50	2	F16	$\varnothing 130$	$\varnothing 165$	$\varnothing 22$	457	664.0	246.0	260	158.0	68.0	$\varnothing 387.4$	16 x $\varnothing 29.0$ THRU
300	150	$\varnothing 42.00$	12	25.50	1	F14	$\varnothing 100$	$\varnothing 140$	$\varnothing 18$	356	686.0	252.0	274	160.0	70.0	$\varnothing 431.8$	12 x $\varnothing 25.0$ THRU
300	300	$\varnothing 46.00$	14	28.00	2	F16	$\varnothing 130$	$\varnothing 165$	$\varnothing 22$	502	770.0	282.0	300	188.0	68.0	$\varnothing 450.8$	16 x $\varnothing 32.0$ THRU
350	150	$\varnothing 45.00$	14	28.00	2	F16	$\varnothing 130$	$\varnothing 165$	$\varnothing 22$	381	824.0	286.0	330	208.0	88.0	$\varnothing 476.3$	12 x $\varnothing 29.0$ THRU
350	300	$\varnothing 55.00$	16	33.50	2	F25	$\varnothing 200$	$\varnothing 254$	$\varnothing 18$	762	912.0	320.0	350	242.0	117.0	$\varnothing 514.4$	20 x $\varnothing 32.0$ THRU
400	150	$\varnothing 50.00$	16	31.00	2	F16	$\varnothing 130$	$\varnothing 165$	$\varnothing 22$	406	896.0	318.0	365	213.0	93.0	$\varnothing 539.8$	16 x $\varnothing 29.0$ THRU
400	300	$\varnothing 65.00$	18	39.50	2	F30	$\varnothing 230$	$\varnothing 298$	$\varnothing 22$	838	1028.0	354.0	390	284.0	144.0	$\varnothing 571.5$	20 x $\varnothing 35.0$ THRU
450	150	$\varnothing 58.00$	18	36.00	2	F25	$\varnothing 200$	$\varnothing 254$	$\varnothing 18$	432	977.0	350.0	395	232.0	107.0	$\varnothing 577.9$	16 x $\varnothing 32.0$ THRU
450	300	$\varnothing 70.00$	20	42.00	2	F30	$\varnothing 230$	$\varnothing 298$	$\varnothing 22$	914	1116.0	385.0	435	296.0	156.0	$\varnothing 628.6$	24 x $\varnothing 35.0$ THRU
500	150	$\varnothing 68.00$	18	41.00	2	F25	$\varnothing 200$	$\varnothing 254$	$\varnothing 18$	457	1058.0	384.0	430	244.0	119.0	$\varnothing 635.0$	20 x $\varnothing 32.0$ THRU
500	300	$\varnothing 78.00$	22	48.00	2	F35	$\varnothing 260$	$\varnothing 356$	$\varnothing 32$	991	1238.0	433.0	475	330.0	160.0	$\varnothing 685.8$	24 x $\varnothing 35.0$ THRU
600	150	$\varnothing 78.00$	22	48.00	2	F30	$\varnothing 230$	$\varnothing 298$	$\varnothing 22$	508	1229.5	444.5	490	295.0	155.0	$\varnothing 749.3$	20 x $\varnothing 35.0$ THRU
600	300	$\varnothing 92.00$	22	55.00	2	F35	$\varnothing 260$	$\varnothing 356$	$\varnothing 32$	1143	1415.0	492.0	545	378.0	208.0	$\varnothing 812.8$	24 x $\varnothing 41.5$ THRU

All dimensions are in mm unless otherwise specified.
Face-to-face dimensions and tolerances per API 609B.

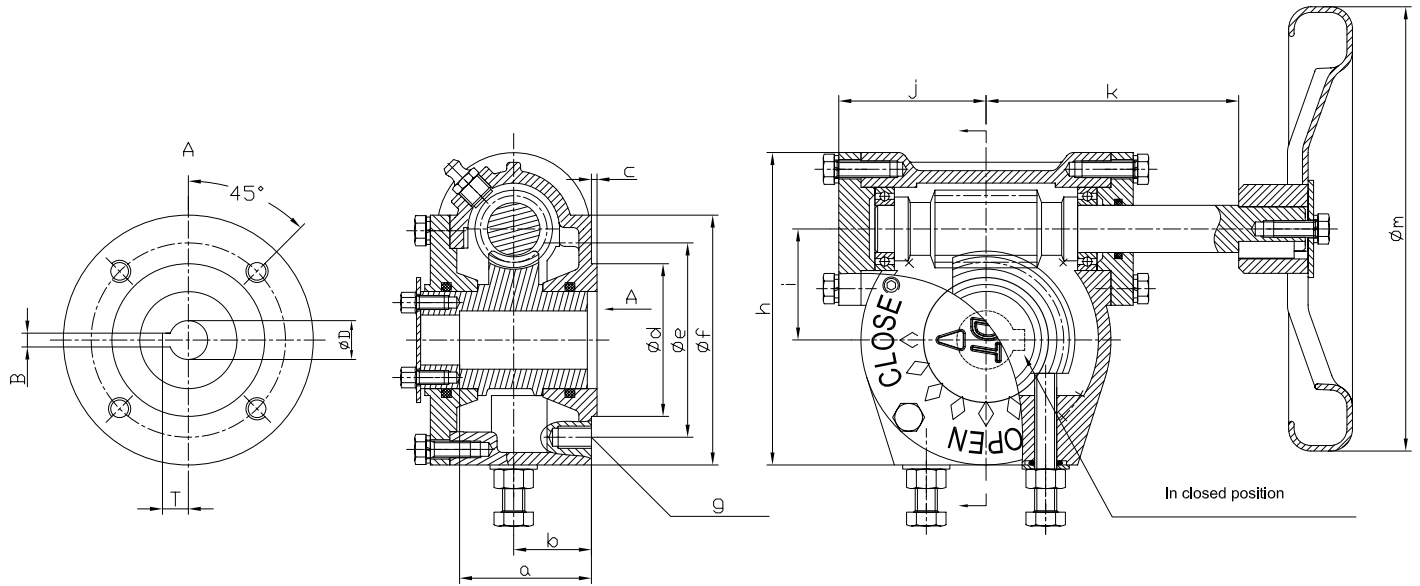
Gear Operator Dimensions



Gear Dimensions

Valve Size in. (mm)	ASME Class	Model	d in. (mm)	e in. (mm)	c in. (mm)	g in. (mm)	B in. (mm)	T in. (mm)	D in. (mm)
3 (80)	150	GB-BF	2.17 (55)	2.76 (70)	0.08 (2)	4-M8*12	0.24 (6)	0.52 (13.3)	0.83 (21)
3 (80)	300		2.17 (55)	2.76 (70)	0.08 (2)	4-M8*13	0.24 (6)	0.52 (13.3)	0.83 (21)
4 (100)	150		2.17 (55)	2.76 (70)	0.08 (2)	4-M8*14	0.24 (6)	0.52 (13.3)	0.83 (21)
4 (100)	300	GB-00	2.17 (55)	2.76 (70)	0.08 (2)	4-M8*12	0.24 (6)	0.52 (13.3)	0.83 (21)
6 (150)	150		2.76 (70)	4.02 (102)	0.08 (2)	4-M10*15	0.32 (8)	0.62 (15.8)	0.98 (25)
6 (150)	300	GB-01	3.35 (85)	4.92 (125)	0.08 (2)	4-M12*18	0.32 (8)	0.76 (19.3)	1.18 (30)
8 (200)	150	GB-0	3.35 (85)	4.92 (125)	0.08 (2)	4-M12*18	0.32 (8)	0.76 (19.3)	1.26 (32)
8 (200)	300	GB-02	3.94 (100)	5.51 (140)	0.08 (2)	4-M16*24	0.39 (10)	0.92 (23.3)	1.50 (30)
10 (250)	150	GB-01	3.35 (85)	4.92 (125)	0.08 (2)	4-M12*18	0.39 (10)	0.88 (22.3)	1.42 (36)
10 (250)	300	GB-03-1S	5.12 (130)	6.50 (165)	0.08 (2)	4-M20*25	0.47 (12)	0.98 (24.8)	1.58 (40)
12 (300)	150	GB-02	3.94 (100)	5.51 (140)	0.08 (2)	4-M16*24	0.47 (12)	1.02 (25.8)	1.65 (42)
12 (300)	300	GB-04-1S	5.12 (130)	6.50 (135)	0.08 (2)	4-M20*25	0.55 (14)	1.11 (28.3)	1.81 (46)
14 (350)	150	GB-02-1S	5.12 (130)	6.50 (165)	0.08 (2)	4-M20*25	0.55 (14)	1.11 (28.3)	1.77 (45)
14 (350)	300	B38	7.78 (200)	10 (254)	0.16 (4)	8-M16*24	0.63 (16)	1.33 (33.8)	2.17 (55)
16 (400)	150	GB-03-1S	5.12 (130)	6.50 (165)	0.08 (2)	4-M20*25	0.63 (16)	1.23 (31.3)	1.97 (50)
16 (400)	300	B48	9.06 (230)	11.73 (298)	0.16 (4)	8-M20*30	0.71 (18)	1.57 (39.9)	2.56 (65)
18 (450)	150	GB-04-1S	7.87 (200)	10.00 (254)	0.12 (3)	8-M16*24	0.71 (18)	1.43 (36.4)	2.28 (58)
18 (450)	300	B48	9.06 (230)	11.73 (298)	0.16 (4)	8-M20*30	0.79 (3)	1.75 (44.4)	2.76 (70)
20 (500)	150	B38	7.78 (200)	10.00 (254)	0.16 (4)	8-M16*24	0.71 (18)	1.63 (41.4)	2.68 (68)
20 (500)	300	B48	10.24 (260)	14.02 (356)	0.16 (4)	8-M30*38	0.87 (22)	1.91 (48.4)	3.07 (78)
24 (600)	150	B48	9.06 (230)	11.73 (298)	0.16 (4)	8-M20*30	0.87 (22)	1.91 (48.4)	3.07 (78)
24 (600)	300	B58	10.24 (260)	14.02 (356)	0.16 (4)	8-M30*38	0.87 (22)	2.18 (55.4)	3.62 (92)

Gear Operator Dimensions



Gear Dimensions									
Valve Size in. (mm)	ASME Class	a in. (mm)	b in. (mm)	f in. (mm)	h in. (mm)	i in. (mm)	j in. (mm)	k in. (mm)	m in. (mm)
3 (80)	150	1.81 (46)	1.10 (28)	3.54 (90)	4.45 (113)	1.58 (40)	2.09 (53)	3.58 (91)	6 (152)
3 (80)	300	1.81 (46)	1.10 (28)	3.54 (90)	4.45 (113)	1.58 (40)	2.09 (53)	3.58 (91)	8 (203)
4 (100)	150	1.81 (46)	1.10 (28)	3.54 (90)	4.45 (113)	1.58 (40)	2.09 (53)	3.58 (91)	6 (152)
4 (100)	300	2.87 (73)	1.30 (33)	4.92 (125)	5.91 (150)	2.17 (55)	2.80 (71)	4.06 (103)	12 (305)
6 (150)	150	2.87 (73)	1.30 (33)	4.92 (125)	5.91 (150)	2.17 (55)	2.80 (71)	4.06 (103)	10 (254)
6 (150)	300	3.82 (97)	1.89 (48)	6.89 (175)	7.99 (203)	2.95 (75)	3.66 (93)	5.71 (145)	20 (508)
8 (200)	150	3.70 (94)	1.89 (48)	5.91 (150)	7.13 (181)	2.60 (66)	3.27 (83)	5.28 (134)	16 (406)
8 (200)	300	4.49 (114)	2.52 (64)	8.27 (210)	9.65 (245)	3.62 (92)	4.45 (113)	7.64 (194)	34 (864)
10 (250)	150	3.82 (97)	1.89 (48)	6.89 (175)	7.99 (203)	2.95 (75)	3.66 (93)	5.71 (145)	24 (610)
10 (250)	300	4.50 (115)	2.28 (58)	9.84 (250)	12.80 (325)	4.37 (111)	4.92 (125)	8.54 (217)	22 (559)
12 (300)	150	4.49 (114)	2.52 (64)	8.27 (210)	9.65 (245)	3.62 (92)	4.45 (113)	7.64 (194)	28 (711)
12 (300)	300	5.04 (128)	2.48 (63)	11.81 (300)	15.08 (383)	5.67 (144)	6.22 (158)	9.69 (246)	34 (864)
14 (350)	150	4.49 (114)	2.52 (64)	8.27 (210)	11.26 (286)	3.62 (92)	4.45 (113)	8.07 (205)	24 (610)
14 (350)	300	5.91 (150)	3.03 (77)	13.78 (350)	16.69 (424)	5.98 (152)	6.26 (159)	10.71 (272)	30 (762)
16 (400)	150	4.50 (115)	2.28 (58)	9.84 (250)	12.80 (325)	4.37 (111)	4.92 (125)	8.54 (217)	26 (660)
16 (400)	300	6.69 (170)	3.43 (87)	16.34 (415)	21.42 (544)	9.09 (231)	8.39 (213)	14.84 (377)	24 (610)
18 (450)	150	5.04 (128)	2.48 (63)	11.81 (300)	15.08 (383)	5.67 (144)	6.22 (158)	9.69 (246)	34 (864)
18 (450)	300	6.69 (170)	3.43 (87)	16.34 (415)	21.42 (544)	9.09 (231)	8.39 (213)	14.84 (377)	32 (813)
20 (500)	150	5.91 (150)	3.03 (77)	13.78 (350)	16.69 (424)	5.98 (152)	6.26 (159)	10.71 (272)	26 (660)
20 (500)	300	6.69 (170)	3.43 (87)	16.34 (415)	21.42 (544)	9.09 (231)	8.39 (213)	14.84 (377)	40 (1016)
24 (600)	150	6.69 (170)	3.43 (87)	16.34 (415)	21.42 (544)	9.09 (231)	8.39 (213)	14.84 (377)	22 (559)
24 (600)	300	8.07 (205)	3.98 (101)	18.70 (475)	26.18 (665)	10.63 (270)	10.98 (279)	17.52 (445)	36 (914)

PRESSURE/TEMPERATURE RATING IN PSIG (ANSI B16.34)*

Temperature		ANSI 150		ANSI 300		ANSI 600	
Fahrenheit	Celsius	Carbon Steel	Stainless Steel**	Carbon Steel	Stainless Steel**	Carbon Steel	Stainless Steel**
-20 to 100	-29 to 38	285	275	740	720	1480	1440
200	93	260	240	675	620	1350	1240
300	149	230	215	655	560	1315	1120
400	204	200	195	635	515	1270	1030
500	260	170	170	600	480	1200	955
600	316	140	140	550	450	1095	905
650	343	125	125	535	445	1075	890
700	371	110	110	535	430	1065	865
750	399	95	95	505	425	1010	845
800*	427	80	80	410	415	825	830
850	454	65	65	270	405	535	810
900	482	50	50	170	395	345	790
950	510	35	35	105	385	205	775
1000	538	20	20(A)	50	365	105	725
1100	593	-	20(a)	-	305	-	610
1150	621	-	20(a)	-	235	-	472
1200	649	-	20(a)	-	185	-	370
1250	677	-	20(a)	-	145	-	295
1300	704	-	20(a)	-	115	-	235
1350	732	-	20(a)	-	95	-	190
1400	760	-	20(a)	-	75	-	150
1450	788	-	20(a)	-	60	-	115
1500	816	-	15(a)	-	40	-	85

* WCB permissible, but not recommended for prolonged use above 800° F (427° C).

** Above 800° F (427° C) stainless steel body valves, stem material to be determined.

(A) Low-temperature gas test per API 598 for services below -20° F (-29° C) (316SS and PTFE seals).

(a) Flanged-end valve ratings terminate at 1000° F (538° C) for ANSI 150 Class.

C_v vs. Disc Angle

The flow coefficient, or C_v value, is used to describe the inherent flow capacity of a valve. This C_v value is defined as the number of US gallons of water/min at standard conditions (60° F and 14.7 PSIA) that will flow through a valve at a constant 1.0-psi pressure drop. The capacity of the valve with other fluids at various flowing conditions can be calculated using this basic C_v value. The following tables indicate the C_v values at various disc angles of opening.

ASME 150 Class – Valve Sizing Coefficient (C _v)									
Disc Position (Degrees)									
Valve Size (in.)	90°	80°	70°	60°	50°	40°	30°	20°	10°
3	103	101	83	66	50	34	21	9	4
4	301	295	241	193	144	99	60	27	12
6	673	660	539	431	323	222	135	61	27
8	1549	1518	1239	991	743	511	310	139	62
10	2224	2180	1779	1423	1068	734	445	200	89
12	3312	3246	2650	2120	1590	1093	662	298	132
14	5745	5630	4596	3677	2758	1896	1149	517	230
16	8093	7931	6474	5179	3884	2671	1619	728	324
18	11,597	11,365	9278	7422	5567	3827	2319	1044	464
20	14,682	14,388	11,745	9396	7047	4845	2936	1321	587
24	20,739	20,324	16,591	13,273	9955	6844	4148	1866	830

ASME 300 Class – Valve Sizing Coefficient (C _v)									
Disc Position (Degrees)									
Valve Size (in.)	90°	80°	70°	60°	50°	40°	30°	20°	10°
3	104	102	83	66	50	34	21	9	4
4	301	295	241	193	144	99	60	27	12
6	618	605	497	395	299	205	123	54	22
8	1406	1378	1125	900	675	464	281	127	56
10	2092	2051	1674	1339	1004	690	418	188	84
12	3117	3055	2494	1995	1496	1029	623	281	125
14	5006	4906	4005	3204	2403	1652	1001	451	200
16	7523	7372	6018	4815	3611	2482	1505	677	301
18	10,368	10,160	8294	6635	4976	3421	2074	933	415
20	13,340	13,073	10,672	8538	6403	4402	2668	1201	534
24	19,520	19,130	15,616	12,493	9370	6442	3904	1757	781

WEIGHTS

Weight – lb (kg) – Valve Only – Bare Stem + Bracket						
Size in. (mm)	Lug Pattern		ISO Short Pattern		Long Pattern	
	ASME Class		ASME Class		ASME Class	
	150	300	150	300	150	300
3 (80)	20 (9)	27 (11)	34 (16)	46 (21)	37 (17)	53 (24)
4 (100)	30 (14)	34 (16)	47 (22)	67 (31)	51 (23)	80 (36)
6 (150)	48 (22)	67 (30)	79 (36)	123 (56)	82 (37)	153 (70)
8 (200)	78 (36)	112 (51)	124 (56)	182 (83)	131 (60)	223 (101)
10 (250)	127 (58)	184 (84)	184 (84)	281 (128)	198 (90)	350 (159)
12 (300)	199 (91)	270 (123)	270 (123)	392 (178)	294 (133)	497 (226)
14 (350)	271 (123)	482 (219)	373 (169)	591 (269)	392 (178)	813 (369)
16 (400)	367 (167)	690 (313)	477 (217)	816 (370)	528 (240)	1116 (506)
18 (450)	522 (237)	870 (395)	646 (293)	1020 (463)	680 (309)	1402 (636)
20 (500)	699 (317)	1127 (512)	819 (372)	1310 (595)	892 (405)	1871 (849)
24 (600)	1060 (481)	1670 (758)	1211 (550)	1906 (865)	1317 (598)	2781 (1262)

TORQUES

Valve Operating Torques (N·m)						Valve Operating Torques (in.-lb)				
ASME 150 Class (285 psi)						ASME 150 Class (285 psi)				
Valve Size in. (mm)	Preferred Direction		Non-Preferred Direction		MAST*	Preferred Direction		Non-Preferred Direction		MAST*
	Seating	Unseating	Seating	Unseating		Seating	Unseating	Seating	Unseating	
3 (80)	29	64	71	19	612	252	568	631	170	5420
4 (100)	76	171	190	51	612	673	1513	1682	454	5420
6 (150)	143	321	356	96	879	1262	2839	3155	852	7783
8 (200)	237	533	592	160	1813	2097	4718	5243	1416	16,045
10 (250)	345	775	862	233	3541	3050	6863	7626	2059	31,337
12 (300)	648	1458	1620	437	5285	5735	12904	14338	3871	46,778
14 (350)	1051	2366	2628	710	5285	9305	20937	23263	6281	46,778
16 (400)	1463	3292	3657	987	8038	12948	29133	32370	8740	71,143
18 (450)	1996	4492	4991	1348	13,003	17670	39756	44174	11927	115,091
20 (500)	2520	5671	6301	1701	20,649	22308	50193	55770	15058	182,760
24 (600)	3839	8637	9597	2591	32,125	33977	76448	84942	22934	284,333
ASME 300 Class (740 psi)						ASME 300 Class (740 psi)				
Valve Size in. (mm)	Preferred Direction		Non-Preferred Direction		MAST*	Preferred Direction		Non-Preferred Direction		MAST*
	Seating	Unseating	Seating	Unseating		Seating	Unseating	Seating	Unseating	
3 (80)	86	192	214	58	612	757	1703	1892	511	5420
4 (100)	162	363	404	109	612	1429	3216	3573	965	5420
6 (150)	301	678	753	203	1451	2665	5997	6664	1799	12,846
8 (200)	567	1276	1418	383	3853	5018	11291	12546	3387	34,101
10 (250)	1024	2304	2560	691	4531	9063	20392	22658	6118	40,106
12 (300)	1440	3240	3600	972	6566	12745	28676	31863	8603	58,112
14 (350)	2918	6565	7294	1969	11,612	25824	58104	64560	17431	102,771
16 (400)	4097	9218	10243	2765	17,837	36262	81589	90654	24477	157,875
18 (450)	5627	12,660	14067	3798	23,742	49800	112049	124499	33615	210,131
20 (500)	7023	15,803	17559	4741	32,125	62163	139866	155407	41960	284,333
24 (600)	11066	24,899	27666	7470	52,526	97946	220379	244866	66114	464,894

* Maximum allowable stem torque

HOW TO ORDER

Figure Number

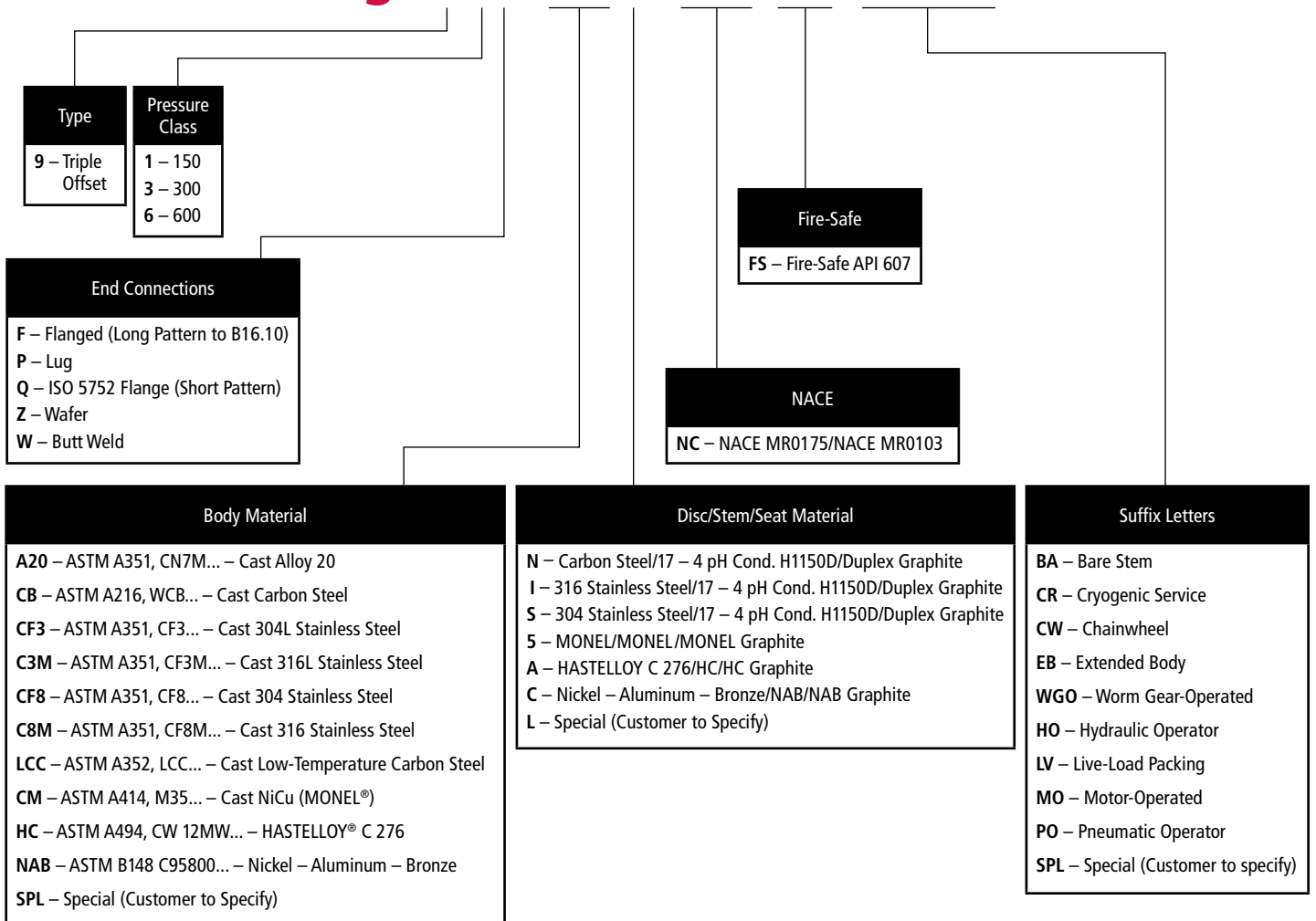
The figure number shown below identifies specific valve configuration details of WKM triple offset valves such as valve type, pressure class, end connections, body/bonnet and trim materials, and special features.

Please specify end connections, body materials, and trims not listed below.

When placing an order, refer to the respective product section of the catalog for size availability. A detailed description must be included with any special orders.



Fig. 91F-CBN-NC-FS-WGO



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To learn more about WKM Triple Offset Valves:

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HSE Policy Statement

At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.