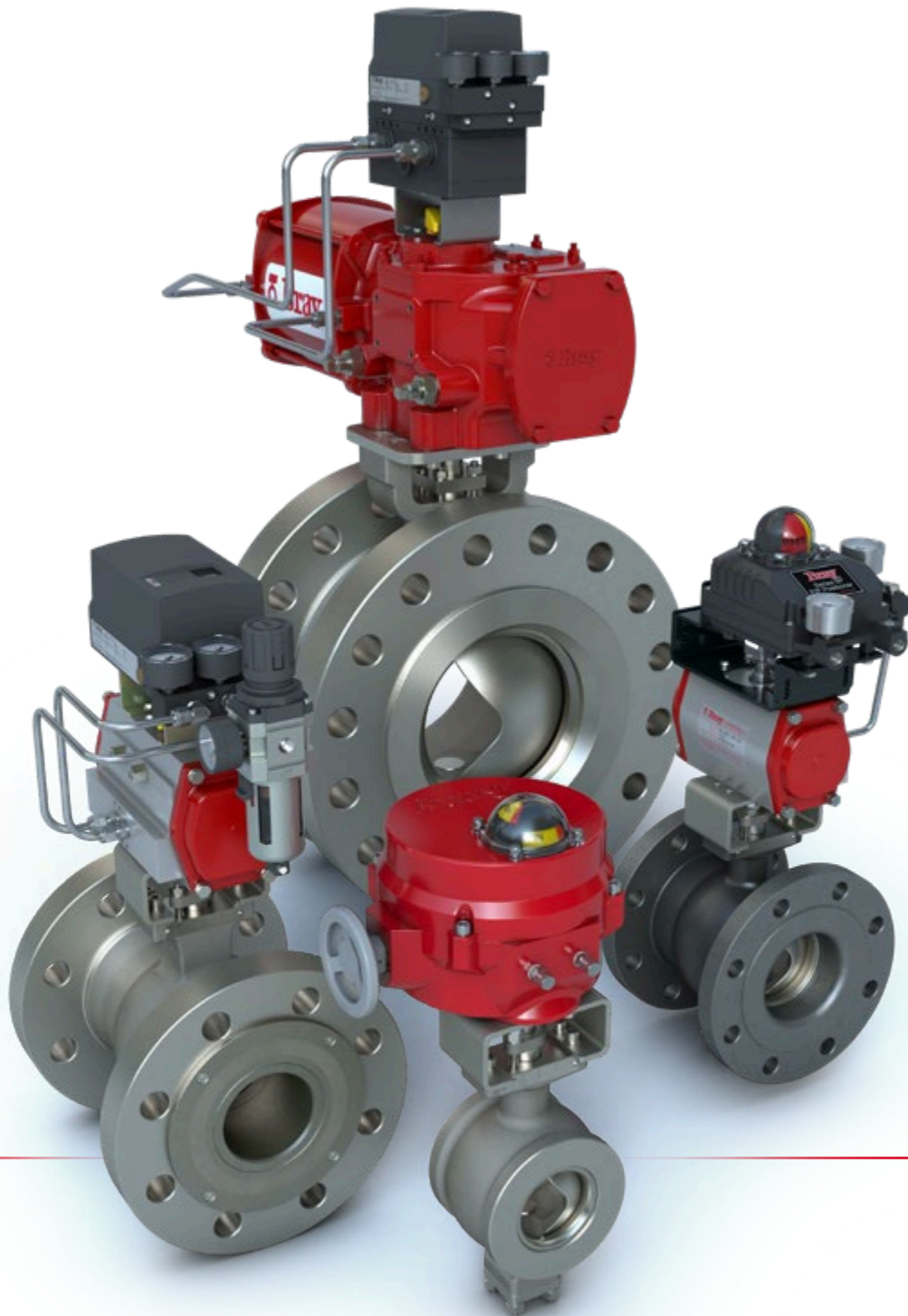

SERIES 19/19L

SEGMENTED BALL VALVE



Bray[®]

BRAY.COM

THE HIGH PERFORMANCE COMPANY

SOLVING YOUR FLOW CONTROL CHALLENGES

SUPERIOR CONTROL

Bray segmented ball valves are designed for modulating control and on-off services in gas, liquid, and slurry applications. The Bray Series 19 and Series 19L segmented ball valves deliver exceptional performance with the precision, features, and options for superior control in a wide variety of industries and applications.

INDUSTRIES

- > Chemical
- > Food & Beverage
- > HVAC
- > Mining
- > Oil & Gas
- > Power
- > Pulp & Paper
- > Refining
- > Sugar & Ethanol Production

APPLICATIONS

- > Liquid, Gas & Steam Services
- > Pressure/Temperature/Level Control
- > Slurry & Abrasive Services

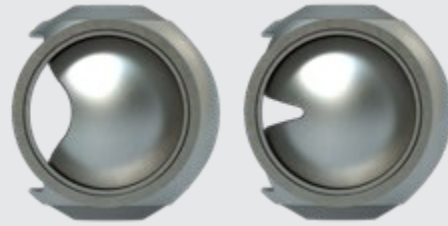


VERSATILE 3-IN-1 VALVE PERFORMANCE

Bray segmented ball valves combine the preferred characteristics of a knife gate valve, a globe valve, and a ball valve to provide versatility and performance in a single package.

CUSTOMIZABLE CONTROL

Trailing edge of segment offers customizable V-profile for precise control, comparable to **globe valve** performance.



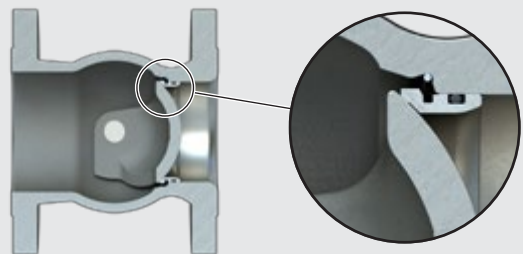
UNINTERRUPTED FLOW

Split-stem design offers an uninterrupted flow path, comparable to **ball valve** performance.



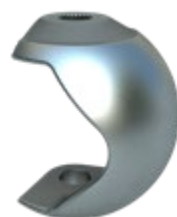
VISCOUS MEDIA HANDLING

Sharp leading edge of segment is designed to cut through viscous media, comparable to **knife gate valve** performance.



CUSTOM CHARACTERIZATION

With 300:1 rangeability, three standard port options, and **available customized characterization**, the S19 segmented ball valve can be designed for optimal flow performance.



Standard Profile



60 Degree Profile



30 Degree Profile

SPECIFICATIONS

Size Range	NPS 1 to 16 DN 25 to 400
Pressure Ratings	ASME Class 150, 300, 600 PN 10, 16, 25, 40
Temperature Range	-50°F to 500°F -46°C to 260°C
Body Style	1-piece
End Connections	Flanged Flangeless ¹
Port	Standard, 60°, 30° Custom on request
Flow Characteristics	Equal Percentage
Rangeability	300:1

NOTES

¹Available only on S19 model.

DESIGN STANDARDS

Valve Design	ASME B16.34
Leakage Classification	Resilient Seat^{1,2}: Class VI per ANSI/FCI 70-2 IEC 60534-4 Metal Seat: Class IV per ANSI/FCI 70-2 IEC 60534-4
Face-to-Face	Flanged ISA 75.08.02 ASME B16.10 Flangeless ¹ Bray Internal Standard
Flange Drilling	ASME B16.5 EN 1092-1
Top Flange	ISO 5211

NOTES

¹ Available only on S19 model.

² Recommended only for clean liquid or gas applications.

MATERIAL OPTIONS¹

Body	ASTM A216 WCB ASTM A351 CF3M (316L Stainless Steel) ASTM A351 CF8M (316 Stainless Steel) ASTM A351 CG8M (317 Stainless Steel) ASTM A352 LCB ASTM A352 LCC Hard coating options for internal bore
Segmented Ball	ASTM A351 CF8M A351 CF8M with hard chrome plating A351 CF8M with specialized hard coating options

Seat	Tek-Fil [®] A351 CF8M with Stellite [®] 6 A351 CF8M with Chrome Carbide Solid Tungsten Carbide
Stem	17-4 PH Stainless Steel ASTM A479 Gr. XM-19 (Nitronic 50 [®]) Stainless Steel ASTM A479 Gr. SMO 254 Stainless Steel ASTM A479 UNS 32760 Super Duplex
Packing	PTFE Graphite

NOTES

¹ Other materials available on request. Contact Bray for more information.

CERTIFICATIONS & APPROVALS¹

Certifications	ATEX CRN PED TSG TR CU UA.TR.089
Fugitive Emissions	ISO 15848

NOTES

¹ A complete listing of certifications and approvals can be found at BRAY.COM

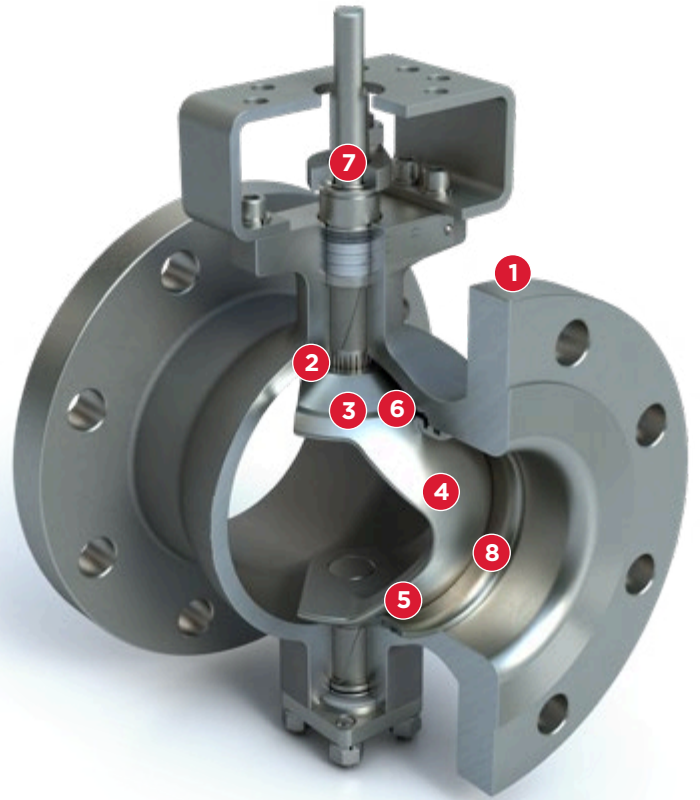
FEATURES AND BENEFITS

STANDARD SERVICE | SERIES 19

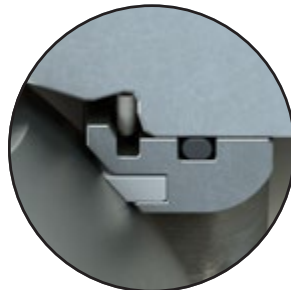
The perfect control valve solution for slurries containing suspended solids or fibers, viscous fluids, pulp, paper, chemical, wastewater sludge, and other challenging service conditions.

DESIGN FEATURES

- 1 ONE-PIECE BODY:** Provides a rigid, robust shell capable of withstanding pipe loading, and eliminates potential leak paths.
- 2 SPLINED STEM TO SEGMENT CONNECTION:** Provides efficient torque transmission and precise control, with low hysteresis and reduced deadband.
- 3 SELF-CENTERING BALL SEGMENT:** Perfectly oriented, specially designed shaft pin facilitates self-alignment of the ball segment, while simplifying assembly and disassembly during routine maintenance.
- 4 COATINGS:** High-performance coatings on internal components ensure long life and corrosion resistance.
- 5 ENERGIZED SEAT:** Seat spring provides constant force on the seat to seal against the segment at low differential pressures. At higher differential pressures, optimized sealing diameters ensure lower seat torques.
- 6 PROTECTED SEALING AREA:** Seats are designed to direct media flow away from the sealing area.
- 7 BLOWOUT PROOF STEM:** Retaining ring fits between machined stem groove and gland retainer step.
- 8 EASY MAINTENANCE:** The seat is replaceable without removing the segment and shaft.



INTERCHANGEABLE SEAT DESIGN



RESILIENT SEAT

General Purpose
Moderate Temperatures
Light Solids



METAL SEAT

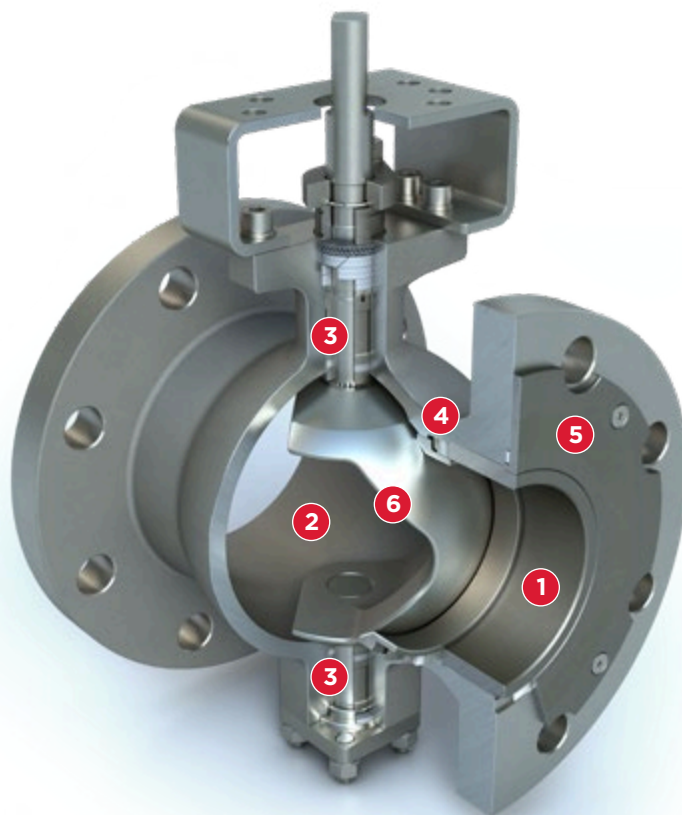
Industrial Processes
Moderate Temperatures
Moderate Solids

SEVERE SERVICE | SERIES 19L

Severe erosion demands more from your control valve. In addition to the benefits of the standard service valve, the S19L offers advanced material selections and multiple trim options to provide an application-specific solution for your unique needs.

DESIGN FEATURES

- 1 EROSION RESISTANT DOWNSTREAM LINERS/SEATS:** Reverse flow direction prevents body wall erosion due to high velocities at low openings.
- 2 SEVERE SERVICE COATINGS:** Customized ultra-hard coatings provide application-specific corrosion and erosion resistance for valve internals.
- 3 BEARINGSEALS:** Protects metal bearings from ingress of media.
- 4 PRESSURE BALANCED SEAT DESIGN:** Seats capable of sealing under full differential pressures with low torques and smooth operation.
- 5 EASY MAINTENANCE:** Flanged retainer provides easy external access for seat and liner replacement. Seat is replaceable without removing the segment and shaft.
- 6 TRIM OPTIONS:** Multiple options available for optimized performance in various levels of erosive services. (See table below.)



TRIM	Downstream Erosion (Normal)	Downstream Erosion (Severe)	Segment Erosion (Severe)
Level I	□	—	—
Level II	□	□	—
Level III	□	□	□

PRESSURE BALANCED SEAT DESIGN



SEVERE SERVICE METAL SEAT

Industrial Processes
Moderate Temperatures
Severe Abrasives

OPTIMIZED CONTROL VALVE & AUTOMATION SOLUTIONS



CONTROL VALVE CENTER OF EXCELLENCE

Extensive research & development is a key component in Bray's formula for providing optimized flow control solutions. Ongoing activities at our Control Valve Center of Excellence include:

- > Controls, automation, and actuation research
- > Advanced coatings research
- > Electronics research & IIOT
- > Metallurgy
- > Hydraulics
- > 3D Printing

UNDERSTANDING CUSTOMER CHALLENGES

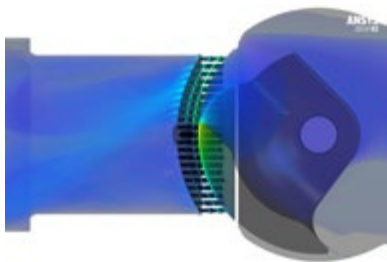
To fully understand the unique challenges facing our customers, Bray's group of experienced application engineers use established technology and tools, such as:

- > Advanced flow analysis with ANSYS
- > Finite Element Analysis (FEA)
- > IEC-based noise calculations
- > Robust control valve sizing software

PROVIDING OPTIMIZED SOLUTIONS

Based on customer processes, our research and analysis lead to the development of optimized control valve solutions, which may include:

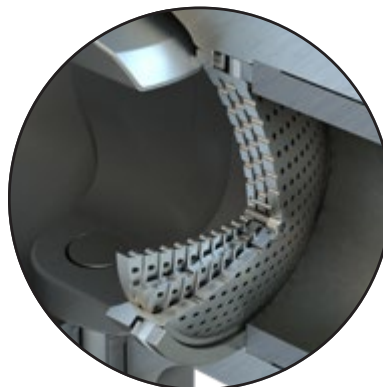
- > Customized flow characteristics
- > Noise reduction & cavitation control
- > Advanced material and proprietary coating selections
- > Advanced diagnostics for continuous monitoring



Analysis of customized flow



Engineered design of customized flow



Detail of customized flow

ON-DEMAND ENGINEERING CAPABILITIES

When further customization is required, Bray deploys its rapid response control valve engineering team to work with you — to ensure we always provide the best engineered solution for the technical demands of your process.

ACTUATORS FOR RELIABLE OPERATION

SCOTCH YOKE PNEUMATIC ACTUATOR | SERIES 98

- > Robust Quad ring seal ensures reliable sealing as high as 1 million cycles
- > High strength slider block provides excellent load carrying ability
- > Self-lubricated bearings ensure maximum torque transfer from actuator to control valve
- > High quality alloy steel spring designed for high cycle life and rapid cycling



RACK & PINION PNEUMATIC ACTUATOR | SERIES 92/93

- > Multiple bore options with star, double-d and key to direct fit various control valves types
- > Direct mount capability minimizes hysteresis and stem backlash
- > Accurate controllability through low friction bearings and precise drive train machining



ELECTRIC ACTUATOR | SERIES 70

- > Heavy duty motor and high strength gears designed to handle constant control valve repositioning requests
- > Precise machining of drive train allows high resolution and minimal dead time
- > High-efficiency gearing allows for accurate, repeatable positioning of the control valves
- > High position accuracy up of NXT controls up to 1%



CONTROLS FOR PRECISE FLOW MANAGEMENT

PNEUMATIC POSITIONER | SERIES 6P



- > Built tough to handle high vibration/shock applications without compromising controllability
- > Low bleed air design provides excellent dynamic and accurate response
- > Quick setup thru simple calibration
- > Split range control capability option

SMART POSITIONER | SERIES 6A



- > Zero bleed positioner allowing precise controllability up to 1%
- > Control valve diagnostics provided as standard
- > Monitor response time, overshoot, dead band, change in directions, friction, cycle count
- > Run control valve performance tests based to identify changes in control valve performance over time

PRESSURE / TEMPERATURE (psi / °F)

PRESSURE/TEMPERATURE | BODY

PRESSURE RATING (psi) AT SPECIFIED TEMPERATURE (°F)						
Pressure Class	150		300		600	
Material	WCB	CF8M	WCB	CF8M	WCB	CF8M
Temperature °F						
-20 to 100	284	275	741	719	1480	1440
125	278	266	726	697	1453	1395
215	256	234	675	612	1351	1224
305	229	214	654	558	1308	1116
395	200	198	635	517	1270	1034
485	175	175	607	484	1216	968
575	147	147	577	458	1154	916
620	134	134	561	448	1122	896
665	121	121	545	439	1089	880
710	107	107	527	433	1054	867
755	94	94	503	426	1006	854
800	79	79	417	422	833	845

MAXIMUM SHUTOFF DIFFERENTIAL PRESSURES | BASED ON VALVE INTERNALS

PRESSURE RATING (psi) AT SPECIFIED TEMPERATURE (°F)						
Pressure Class	150 & 300				600	
Size (NPS)	1 to 3	4 & 6	8 & 10	12 & 16	1 to 16	
Material	CF8M	CF8M	CF8M	CF8M	CF8M	4A
Temperature °F						
-20 to 100	725	594	493	406	725	1450
125	697	572	474	390	697	1450
215	612	501	416	342	612	1450
305	558	457	379	312	558	1332
395	517	424	352	289	517	1237
485	484	397	329	271	484	1173
575	458	375	311	256	458	1126
620	448	367	304	250	448	1106
665	439	360	298	246	439	1092
710	433	355	294	242	433	1083
755	426	349	289	238	426	1063
800	422	346	287	236	422	—

TEMPERATURE RANGE | SEAT O-RING MATERIALS

Seat O-ring Material	Temperature Range (°F)
Viton A (FKM)	-15 °F to 400 °F
Aflas (FEPM)	15 °F to 450 °F
Kalrez (FFKM)	15 °F to 500 °F
Graphite/Metallic Seals	-50 °F to 800 °F

NOTES

1 Do not exceed the PN or ASME pressure/temperature rating of the valve or mating flanges.

PRESSURE/TEMPERATURE | BODY

PRESSURE RATING (bar) AT SPECIFIED TEMPERATURE (°C)						
Pressure Class	150		300		600	
Material	WCB	CF8M	WCB	CF8M	WCB	CF8M
Temperature °C						
-29 to 38	19.6	19.0	51.1	49.6	102.1	99.3
50	19.2	18.4	50.1	48.1	100.2	96.2
100	17.7	16.2	46.6	42.2	93.2	84.4
150	15.8	14.8	45.1	38.5	90.2	77.0
200	13.8	13.7	43.8	35.7	87.6	71.3
250	12.1	12.1	41.9	33.4	83.9	66.8
300	10.2	10.2	39.8	31.6	79.6	63.2
325	9.3	9.3	38.7	30.9	77.4	61.8
350	8.4	8.4	37.6	30.3	75.1	60.7
375	7.4	7.4	36.4	29.9	72.7	59.8
400	6.5	6.5	34.7	29.4	69.4	58.9
425	5.5	5.5	28.8	29.1	57.5	58.3

MAXIMUM SHUTOFF DIFFERENTIAL PRESSURES | BASED ON VALVE INTERNALS

PRESSURE RATING (bar) AT SPECIFIED TEMPERATURE (°C)						
Pressure Class	150 & 300				600	
Size (DN)	25 to 80	100 & 150	200 & 250	300 & 400	25 to 400	
Material	CF8M	CF8M	CF8M	CF8M	CF8M	4A
Temperature °C						
-29 to 38	50.0	41.0	34.0	28.0	50.0	100
50	48.1	39.44	32.70	26.93	48.1	100.0
100	42.2	34.60	28.69	23.63	42.2	100.0
150	38.5	31.57	26.18	21.56	38.5	91.9
200	35.7	29.27	24.27	19.99	35.7	85.3
250	33.4	27.38	22.71	18.70	33.4	80.9
300	31.6	25.91	21.48	17.69	31.6	77.7
325	30.9	25.33	21.01	17.30	30.9	76.3
350	30.3	24.84	20.60	16.96	30.3	75.3
375	29.9	24.51	20.33	16.74	29.9	74.7
400	29.4	24.10	19.99	16.46	29.4	73.3
425	29.1	23.86	19.78	16.29	29.1	—

TEMPERATURE RANGE | SEAT O-RING MATERIALS

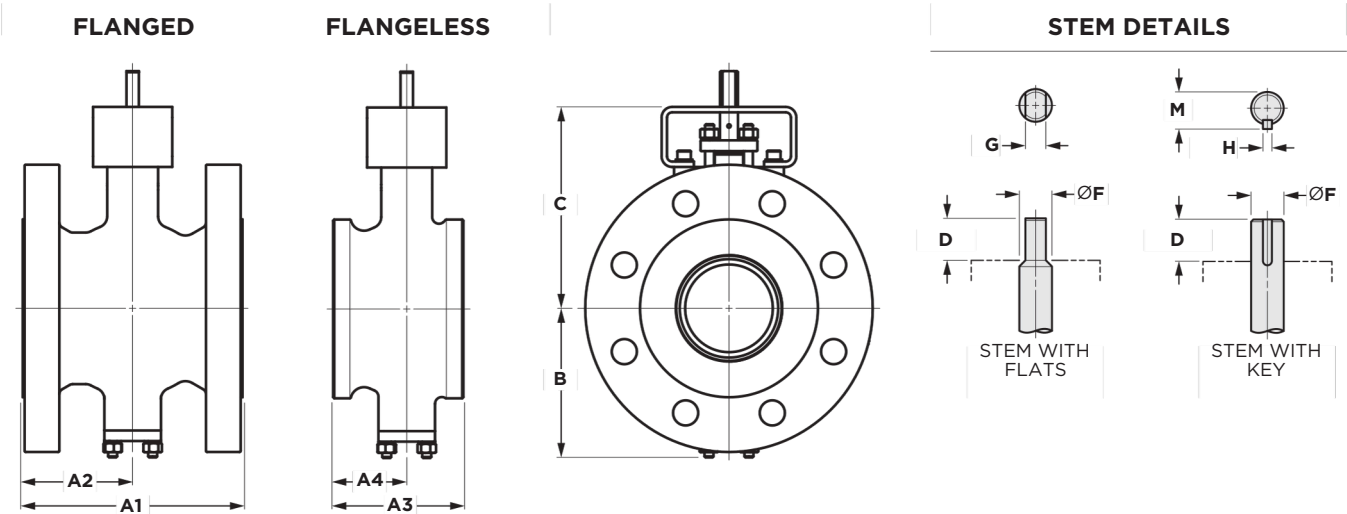
Seat O-ring Material	Temperature Range (°C)
Viton A (FKM)	-26 °C to 205 °C
Aflas (FEPM)	-10 °C to 232 °C
Kalrez (FFKM)	-10 °C to 260 °C
Graphite/Metallic Seals	-46 °C to 425 °C

NOTES

1 Do not exceed the PN or ASME pressure/temperature rating of the valve or mating flanges.

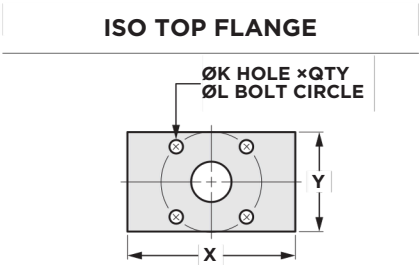
DIMENSIONS (inches) AND WEIGHTS (lbs)

SERIES 19 | CLASS 150/300

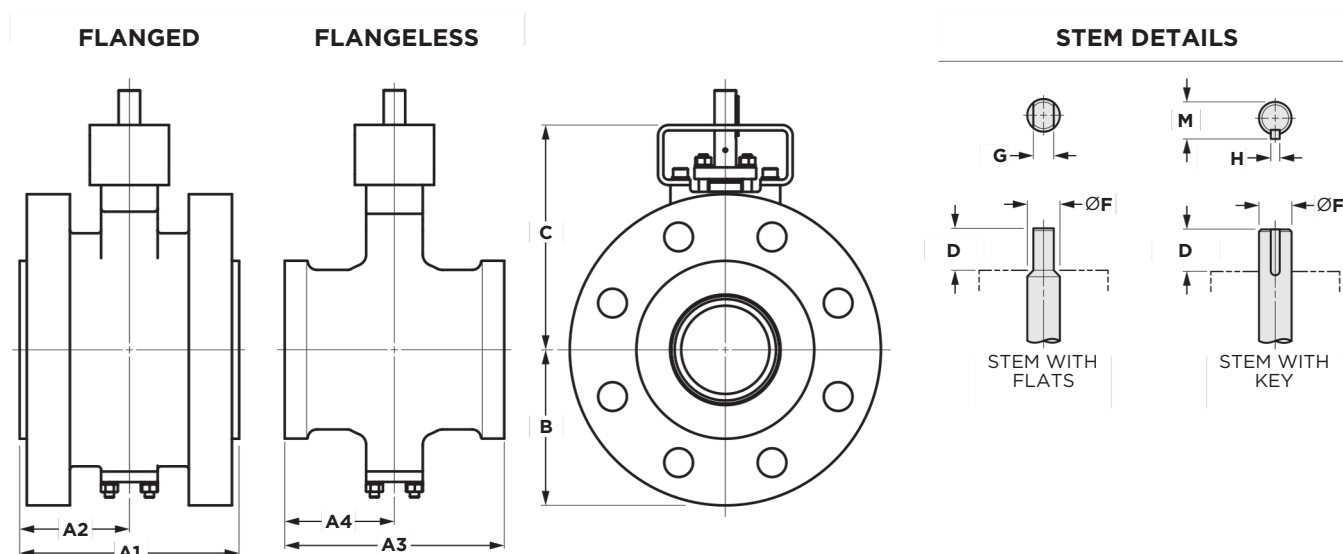


DIMENSIONS in inches WEIGHTS in lbs															
SIZE	FLANGED				FLANGELESS			COMMON		STEM		FLAT	KEY		
NPS	A1	A2	Wgt 150	Wgt 300	A3	A4	Wgt 150 300	B	C	D	ØF	G	H	M	
1	4.02	2.01	9.48	11.9	1.97	0.98	5.5	3.03	4.91	1.00	0.39	0.31	—	—	
1½	4.49	2.24	12.79	17.0	2.36	1.38	6.8	3.31	5.20	1.00	0.39	0.31	—	—	
2	4.88	2.44	17.86	21.2	2.95	1.69	10.4	3.90	5.91	1.26	0.55	0.39	—	—	
3	6.50	3.25	31.75	41.2	3.94	2.17	16.1	4.76	6.85	1.26	0.63	0.43	—	—	
4	7.64	3.82	45.19	63.9	4.53	2.56	22.9	5.24	7.01	1.26	0.63	0.43	—	—	
6	9.02	4.51	85.98	126.3	6.30	3.74	57.3	7.60	9.67	1.24	0.87	0.63	—	—	
8	9.57	4.78	130.95	190.9	7.87	4.78	100.8	8.39	10.39	2.01	1.13	0.87	—	—	
10	11.69	5.85	191.14	284.4	9.45	5.83	176.4	10.08	12.01	2.01	1.18	0.87	—	—	
12	13.31	7.20	302.03	434.3	—	—	—	11.50	13.35	2.01	1.18	0.87	—	—	
16	15.75	8.78	793.66	1031.8	—	—	—	15.89	22.09	2.42	2.50	—	0.47 × 0.47	2.13	

DIMENSIONS in inches					
SIZE	ISO TOP FLANGE				
NPS	X	Y	ØK ×QTY	ØL	ISO
1	4.37	2.01	.281 ×4	1.97	F05
1½	4.37	2.01	.281 ×4	1.97	F05
2	4.37	2.52	.375 ×4	2.76	F07
3	4.37	2.52	.375 ×4	2.76	F07
4	4.37	2.52	.375 ×4	2.76	F07
6	5.59	4.49	.375 ×4 .531 ×4	2.75 4.92	F07 F12
8	6.10	4.49	.531 ×4	4.92	F12
10	6.10	4.49	.531 ×4	4.92	F12
12	6.89	6.50	.531 ×4	4.92	F12
16	11.81	6.69	.813 ×4	6.50	F16

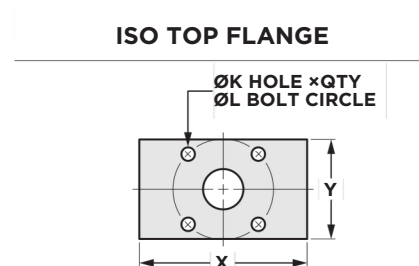


SERIES 19 | CLASS 600



DIMENSIONS in inches WEIGHTS in lbs													
SIZE	FLANGED			FLANGELESS			COMMON		STEM		FLAT	KEY	
NPS	A1	A2	Wgt 600	A3	A4	Wgt 600	B	C	D	ØF	G	H	M
1	4.02	2.01	12.8	4.02	2.01	7.3	3.13	5.50	1.00	0.39	0.31	—	—
1½	4.49	2.24	20.7	4.49	2.24	9.4	3.26	6.11	1.00	0.39	0.31	—	—
2	4.88	2.44	26.9	4.88	2.44	13.1	3.98	6.41	1.14	0.55	0.39	—	—
3	6.50	3.25	53.1	6.50	3.25	28.0	5.20	6.95	1.26	0.75	0.51 ¹	.188 × .188	0.83
4	7.64	3.82	96.8	7.64	3.82	40.1	5.14	7.82	1.26	0.75	0.51 ¹	.188 × .188	0.83
6	9.02	4.51	192.9	9.02	4.51	86.0	7.97	9.94	1.73	1.00 ²	0.86 ¹	.250 × .250	1.11
8	9.57	4.78	305.6	9.57	4.78	140.0	9.03	11.05	2.00	1.18	0.86 ¹	.250 × .250	1.28
10	11.69	5.85	498.7	11.69	5.85	349.2	10.08	12.31	2.00	1.38	—	.393 × .393	1.54
12	13.31	6.65	649.0	—	—	—	12.03	14.43	2.50	1.75	—	.393 × .393	1.91
16	15.75	8.78	1329.0	—	—	—	16.16	20.40	3.99	2.50	—	.625 × .625	2.76

DIMENSIONS in inches					
SIZE	ISO TOP FLANGE				
NPS	X	Y	ØK × QTY	ØL	ISO
1	4.37	2.01	.281 × 4	1.97	F05
1½	4.37	2.01	.281 × 4	1.97	F05
2	4.6	2.76	.375 × 4	2.76	F07
3	9	2.76	.375 × 4	2.76	F07
4	4.6	2.76	.375 × 4	2.76	F07
6	9	4.4	.375 × 4	2.76	F07
	4.6	9	.531 × 4	4.92	F12
8	6.10	4.49	.531 × 4	4.92	F12
10	6.10	6.50	.531 × 4	4.92	F12
	3.76		.813 × 4	6.50	F16
12	6.10	4.49	.531 × 4	4.92	F12
16	15.39	11.75	.670 × 8	10.00	F25



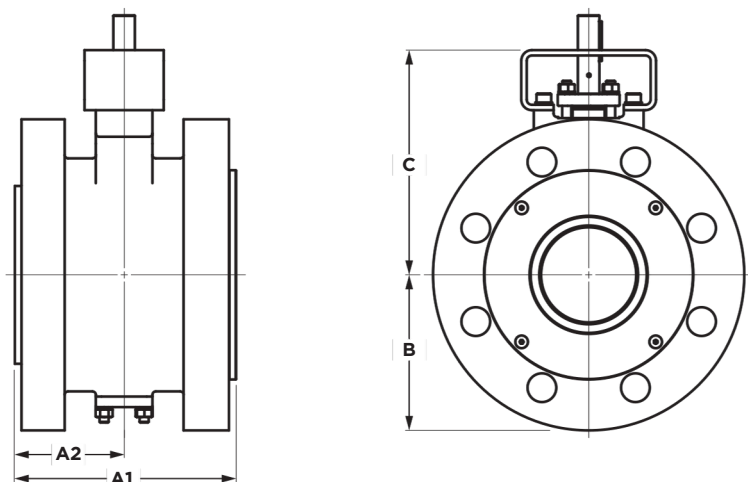
NOTES

- 1 Optional "Double D" drive dimension across flats.
 2 Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

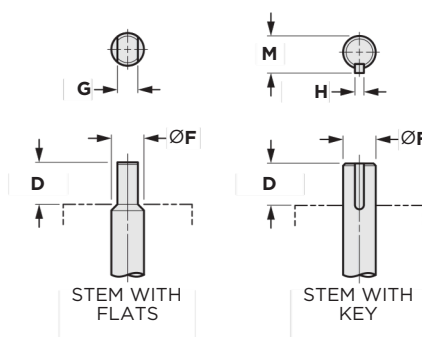
DIMENSIONS (inches) AND WEIGHTS (lbs)

SERIES 19L | CLASS 150/300

FLANGED



STEM DETAILS

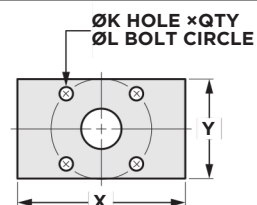


DIMENSIONS in inches WEIGHTS in lbs													
SIZE	CLASS 150			CLASS 300			COMMON		STEM		FLAT	KEY	
NPS	A1	A2	Wgt 150	A1	A2	Wgt 300	B	C	D	ØF	G	H	M
1	4.02	2.01	9.9	4.07	2.07	12.1	2.95	4.93	1.00	0.39	0.31	—	—
1½	4.49	2.24	13.1	4.55	2.30	18.6	3.15	5.20	1.00	0.39	0.31	—	—
2	4.88	2.44	19.8	4.94	2.51	23.1	3.86	5.91	1.14	0.55	0.39	—	—
3	6.50	3.25	35.9	6.56	3.33	44.7	4.72	6.74	1.14	0.75	0.51 ¹	.188 × .188	0.83
4	7.64	3.82	50.5	7.70	3.89	70.5	5.14	7.01	1.21	0.75	0.51 ¹	.188 × .188	0.83
6	9.02	4.51	97.0	9.07	4.57	137.5	7.36	9.65	1.77	1.00 ²	0.86 ¹	.250 × .250	1.11
8	9.57	4.78	146.3	9.63	4.88	207.4	8.39	11.05	2.01	1.18	0.86 ¹	.250 × .250	1.28
10	11.69	5.85	206.7	11.75	5.91	304.4	10.04	12.01	2.01	1.38	—	.393 × .393	1.54
12	13.31	7.28	335.9	13.37	7.28	466.2	11.42	13.34	2.50	1.75	—	.393 × .393	1.91
16	15.75	8.78	775.8	15.75	8.78	1006.8	15.98	22.09	4.02	2.50	—	.625 × .625	2.76

DIMENSIONS in inches

SIZE	ISO TOP FLANGE				
NPS	X	Y	ØK × QTY	ØL	ISO
1	4.37	2.01	.281 × 4	1.97	F05
1½	4.37	2.01	.281 × 4	1.97	F05
2	4.6	2.76	.375 × 4	2.76	F07
3	9	2.76	.375 × 4	2.76	F07
4	4.6	2.76	.375 × 4	2.76	F07
6	9	4.49	.375 × 4	2.76	F07
	4.6		.531 × 4	4.92	F12
8	6.10	4.49	.531 × 4	4.92	F12
10	6.10	6.50	.531 × 4	4.92	F12
12	6.10	4.49	.531 × 4	4.92	F12
16	15.39	11.75	.813 × 4	6.50	F16

ISO TOP FLANGE



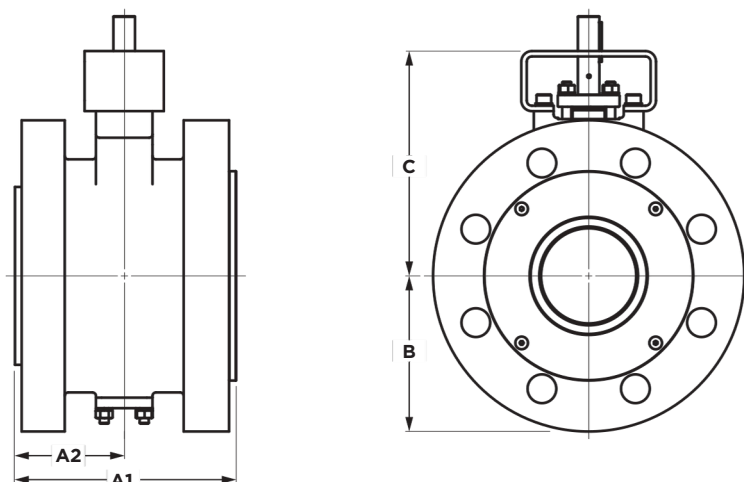
NOTES

1 Optional "Double D" drive dimension across flats.

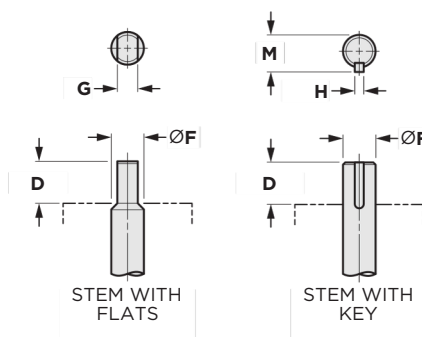
2 Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

SERIES 19L | CLASS 600

FLANGED



STEM DETAILS

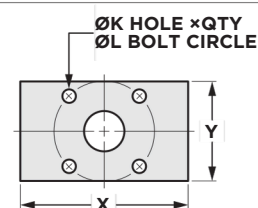


DIMENSIONS in inches WEIGHTS in lbs													
SIZE	ISA			ASME B16.10 SHORT			COMMON		STEM		FLAT	KEY	
NPS	A1	A2	Wgt 600	A1	A2	Wgt 600	B	C	D	ØF	G	H	M
1	4.02	2.01	13.7	6.50	3.25	15.2	3.13	5.50	1.00	0.39	0.31	—	—
1½	4.49	2.24	21.8	7.48	3.74	24.2	3.26	6.11	1.00	0.39	0.31	—	—
2	4.88	2.44	28.4	8.50	4.25	32.4	3.98	6.41	1.14	0.55	0.39	—	—
3	6.50	3.25	55.5	11.10	5.55	64.8	4.80	6.93	1.15	0.75	0.51 ¹	.188 × .188	0.83
4	7.64	3.82	100.5	12.01	6.00	113.5	5.14	7.82	1.21	0.75	0.51 ¹	.188 × .188	0.83
6	9.02	4.51	198.8	15.87	7.93	248.2	7.97	9.94	1.75	1.00 ²	0.86 ¹	.250 × .250	1.11
8	9.57	4.78	314.3	16.50	8.25	383.9	9.03	11.05	2.00	1.18	0.86 ¹	.250 × .250	1.28
10	11.69	5.85	509.1	17.99	9.00	621.3	10.08	12.31	2.00	1.38	—	.393 × .393	1.54
12	13.31	6.65	660.1	19.76	9.88	815.7	12.03	14.43	2.50	1.75	—	.393 × .393	1.91
16	15.75	8.78	1329.0	24.02	12.01	1584.7	16.16	20.40	3.99	2.50	—	.625 × .625	2.76

DIMENSIONS in inches

SIZE	ISO TOP FLANGE				
NPS	X	Y	ØK × QTY	ØL	ISO
1	4.37	2.01	.281 × 4	1.97	F05
1½	4.37	2.01	.281 × 4	1.97	F05
2	4.69	2.76	.375 × 4	2.76	F07
3	4.69	2.76	.375 × 4	2.76	F07
4	4.69	2.76	.375 × 4	2.76	F07
6	5.12	4.4	.375 × 4	2.76	F07
		9	.531 × 4	4.92	F12
8	6.10	4.49	.531 × 4	4.92	F12
10	7.76	6.50	.531 × 4	6.50	F12
			.813 × 4		F16
12	6.10	4.49	.531 × 4	4.92	F12
16	15.39	11.75	.670 × 8	10.00	F25

ISO TOP FLANGE

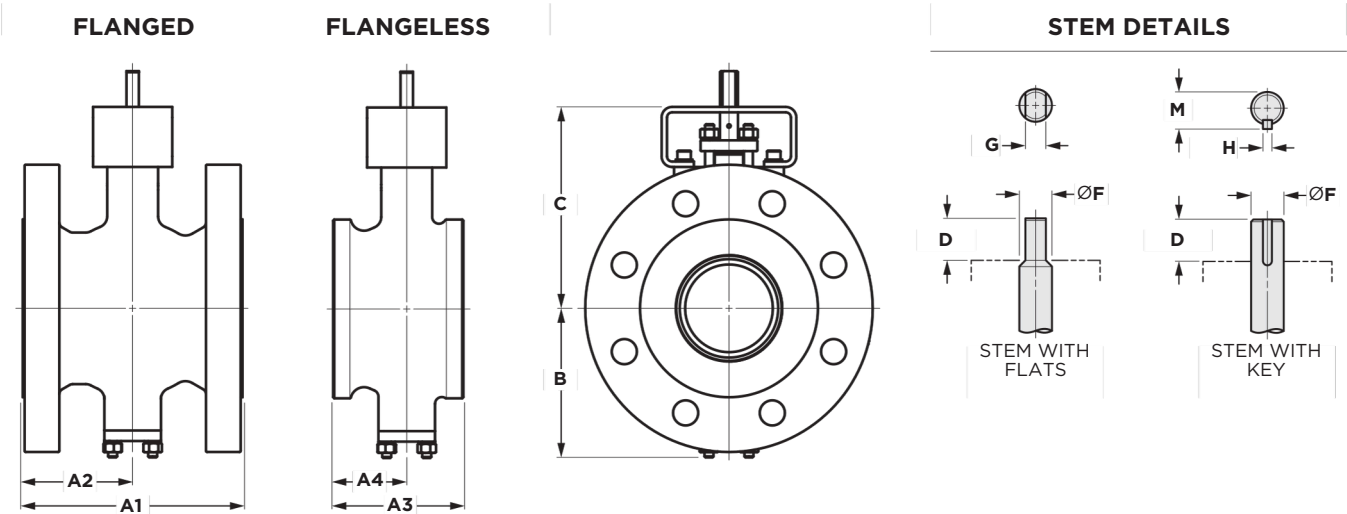


NOTES

- Optional "Double D" drive dimension across flats.
- Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

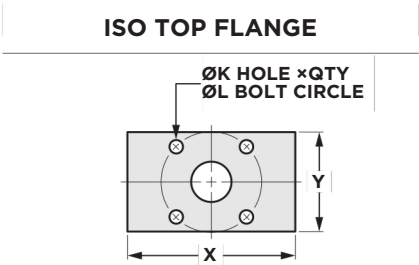
DIMENSIONS (mm) AND WEIGHTS (kg)

SERIES 19 | CLASS 150/300

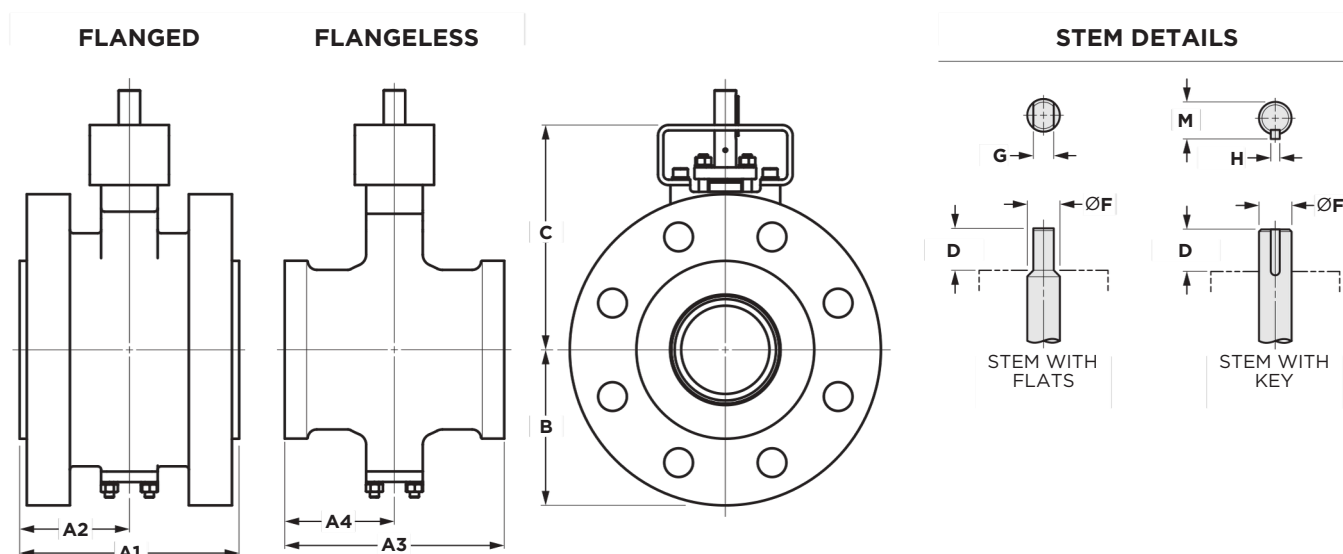


DIMENSIONS in mm WEIGHTS in kg															
SIZE	FLANGED				FLANGELESS			COMMON		STEM		FLAT	KEY		
DN	A1	A2	Wgt 150	Wgt 300	A3	A4	Wgt 150 300	B	C	D	ØF	G	H	M	
25	102	51	4.3	5.4	50	25	2.5	77	124.6	25.4	10	8	—	—	
40	114	57	5.8	7.7	60	35	3.1	84	132.1	25.4	10	8	—	—	
50	124	62	8.1	9.6	75	43	4.7	99	150.1	31.9	14	10	—	—	
80	165	82.5	14.4	18.7	100	55	7.3	121	174.1	31.9	16	11	—	—	
100	194	97	20.5	29	115	65	10.4	133	178.1	31.9	16	11	—	—	
150	229	114.5	39	57.3	160	95	26	193	245.5	31.5	22	16	—	—	
200	243	121.5	59.4	86.6	200	121.5	45.7	213	264	51	28.6	22	—	—	
250	297	148.5	86.7	129	240	148	80	256	305	51	30	22	—	—	
300	338	183	137	197	—	—	—	292	339	51	30	22	—	—	
400	400	223	360	468	—	—	—	403.5	561	61.5	64	—	12 × 12	54.1	

DIMENSIONS in mm					
SIZE	ISO TOP FLANGE				
DN	X	Y	ØK ×QTY	ØL	ISO
25	111	51	7.1 ×4	50	F05
40	111	51	7.1 ×4	50	F05
50	111	64	9.5 ×4	70	F07
80	111	64	9.5 ×4	70	F07
100	111	64	9.5 ×4	70	F07
150	142	114	9.5 ×4 13.5 ×4	70 125	F07 F12
200	155	114	13.5 ×4	125	F12
250	155	114	13.5 ×4	125	F12
300	175	165	13.5 ×4	125	F12
400	300	170	20.6 ×4	165	F16

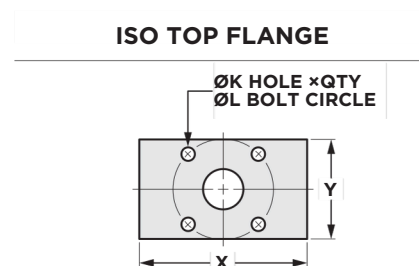


SERIES 19 | CLASS 600



DIMENSIONS in mm WEIGHTS in kg													
SIZE	FLANGED			FLANGELESS			COMMON		STEM		FLAT	KEY	
DN	A1	A2	Wgt 600	A3	A4	Wgt 600	B	C	D	ØF	G	H	M
25	102	51	6	102	51	3	80	140	25	10	8.00	—	—
40	114	57	9	114	57	4	83	155	25	10	8.00	—	—
50	124	62	12	124	62	6	101	163	29	14	10.00	—	—
80	165	82.5	24	165	82.5	13	132	177	32	19	13 ¹	4.75 × 4.75	21.1
100	194	97	44	194	97	18	131	199	32	19	13 ¹	4.75 × 4.75	21.1
150	229	114.5	88	229	114.5	39	203	252	44	25.4 ²	22 ¹	6.35 × 6.35	28.2
200	243	121.5	139	243	121.5	64	229	281	51	30	22 ¹	6.35 × 6.35	32.6
250	297	148.5	226	297	148.5	158	256	313	51	35	—	10 × 10	39.0
300	338	169	294	—	—	—	306	366	64	44	—	10 × 10	48.6
400	400	223	603	—	—	—	411	518	101	64	—	15.88 × 15.88	70.2

DIMENSIONS in mm					
SIZE	ISO TOP FLANGE				
DN	X	Y	ØK × QTY	ØL	ISO
25	111	51	7.1 × 4	50	F05
40	111	51	7.1 × 4	50	F05
50	119	70	9.5 × 4	70	F07
80	119	70	9.5 × 4	70	F07
100	119	70	9.5 × 4	70	F07
150	130	114	9.5 × 4 13.5 × 4	70 125	F07 F12
200	155	114	13.5 × 4	125	F12
250	197	165	13.5 × 4 20.7 × 4	125 165	F12 F16
300	155	114	13.5 × 4	125	F12
400	391	298.5	15.5 × 8	254	F25



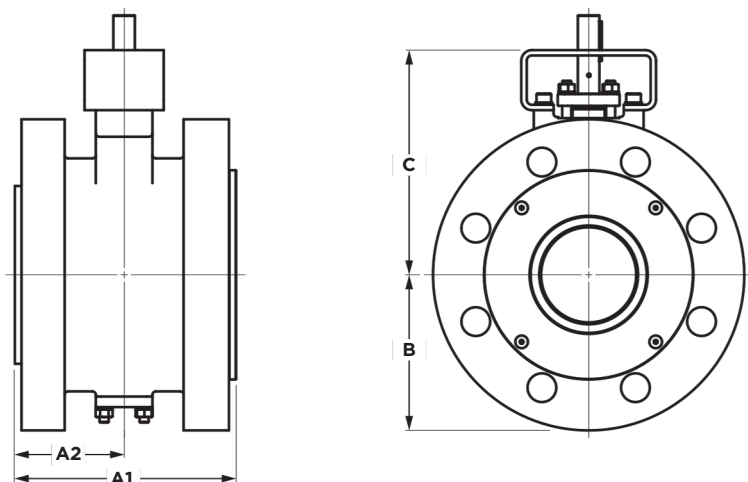
NOTES

- 1 Optional "Double D" drive dimension across flats.
- 2 Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

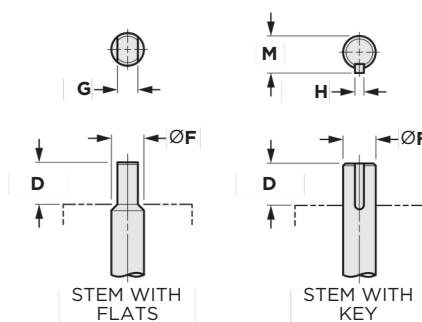
DIMENSIONS (mm) AND WEIGHTS (kg)

SERIES 19L | CLASS 150/300

FLANGED



STEM DETAILS



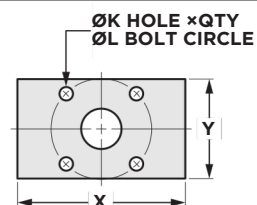
DIMENSIONS in mm | WEIGHTS in kg

SIZE	CLASS 150			CLASS 300			COMMON		STEM		FLAT	KEY	
DN	A1	A2	Wgt 150	A1	A2	Wgt 300	B	C	D	ØF	G	H	M
25	102.0	51.0	5	103.5	52.5	6	75	125	25	10	8.00	—	—
40	114.0	57.0	6	115.5	58.5	8	80	132	25	10	8.00	—	—
50	124.0	62.0	9	125.5	63.7	10	98	150	29	14	10.00	—	—
80	165.0	82.5	16	166.5	84.5	20	120	171	29	19	13 ¹	4.75 × 4.75	21.1
100	194.0	97.0	23	195.5	98.9	32	131	178	31	19	13 ¹	4.75 × 4.75	21.1
150	229.0	114.5	44	230.5	116.0	62	187	245	45	25.4 ²	22 ¹	6.35 × 6.35	28.2
200	243.0	121.5	66	244.5	124.0	94	213	281	51	30	22 ¹	6.35 × 6.35	32.6
250	297.0	148.5	94	298.5	150.0	138	255	305	51	35	—	10 × 10	39.0
300	338.0	185.0	152	339.5	185.0	212	290	339	64	44	—	10 × 10	48.6
400	400.0	223.0	352	400	223	457	406	561	102	64	—	15.88 × 15.88	70.2

DIMENSIONS in mm

SIZE	ISO TOP FLANGE				
DN	X	Y	ØK × QTY	ØL	ISO
25	111	51	7.1 × 4	50	F05
40	111	51	7.1 × 4	50	F05
50	119	70	9.5 × 4	70	F07
80	119	70	9.5 × 4	70	F07
100	119	70	9.5 × 4	70	F07
150	130	114	9.5 × 4 13.5 × 4	70 125	F07 F12
200	155	114	13.5 × 4	125	F12
250	197	165	13.5 × 4	125	F12
300	155	114	13.5 × 4	125	F12
400	391	298.5	20.7 × 4	165	F16

ISO TOP FLANGE



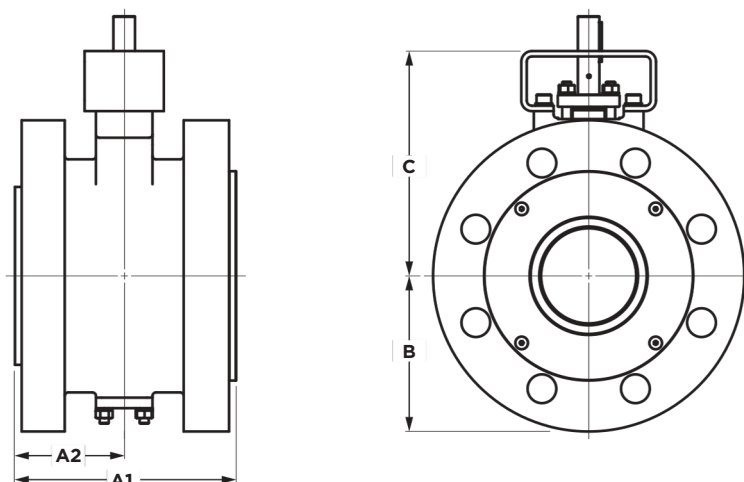
NOTES

1 Optional "Double D" drive dimension across flats.

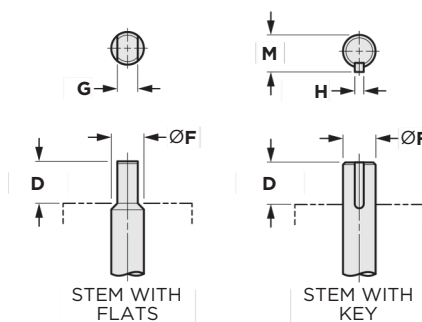
2 Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

SERIES 19L | CLASS 600

FLANGED



STEM DETAILS



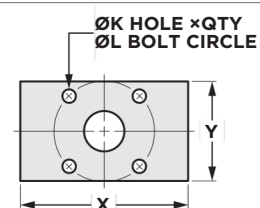
DIMENSIONS in mm | WEIGHTS in kg

SIZE	ISA			ASME B16.10 SHORT			COMMON		STEM		FLAT	KEY	
DN	A1	A2	Wgt 600	A1	A2	Wgt 600	B	C	D	ØF	G	H	M
25	102	51	6	165	82.5	7	80	140	25	10	8.00	—	—
40	114	57	10	190	95.0	11	83	155	25	10	8.00	—	—
50	124	62	13	216	108.0	15	101	163	29	14	10.00	—	—
80	165	82.5	25	282	141.0	29	122	176	29	19	13 ¹	4.75 × 4.75	21.1
100	194	97	46	305	152.5	52	131	199	31	19	13 ¹	4.75 × 4.75	21.1
150	229	114.5	90	403	201.5	113	203	252	45	25.4 ²	22 ¹	6.35 × 6.35	28.2
200	243	121.5	143	419	209.5	174	229	281	51	30	22 ¹	6.35 × 6.35	32.6
250	297	148.5	231	457	228.5	282	256	313	51	35	—	10 × 10	39.0
300	338	169	300	502	251.0	370	306	366	64	44	—	10 × 10	48.6
400	400	223	603	610	305.0	719	411	518	101	64	—	15.88 × 15.88	70.2

DIMENSIONS in mm

SIZE	ISO TOP FLANGE				
DN	X	Y	ØK × QTY	ØL	ISO
25	111	51	7.1 × 4	50	F05
40	111	51	7.1 × 4	50	F05
50	119	70	9.5 × 4	70	F07
80	119	70	9.5 × 4	70	F07
100	119	70	9.5 × 4	70	F07
150	130	114	9.5 × 4 13.5 × 4	70 125	F07 F12
200	155	114	13.5 × 4	125	F12
250	197	165	13.5 × 4 20.7 × 4	165	F12 F16
300	155	114	13.5 × 4	125	F12
400	391	298.5	15.5 × 8	254	F25

ISO TOP FLANGE



NOTES

1 Optional "Double D" drive dimension across flats.

2 Optional "Double D" diameter is 1.125 inch (28.5mm), only for size NPS 6 (DN150).

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