4-Cx

DOUBLE OFFSET BUTTERFLY VALVE

TECHNICAL SALES MANUAL



Cx LINE

Bray®

BRAY.COM

THE HIGH PERFORMANCE COMPANY

CONTENTS

OVERVIEW 3
DESIGN 4
FEATURES & BENEFITS 5
VALVE SELECTION. 6
MATERIALS OF CONSTRUCTION | PARTS LIST 7
MATERIALS OF CONSTRUCTION | PARTS CALLOUT 8
PRESSURE/TEMPERATURE. 9
DIMENSIONS AND WEIGHTS - EN 558 SERIES 20 | PN 10 11
DIMENSIONS AND WEIGHTS - EN 558 SERIES 20 | PN 16 12
DIMENSIONS AND WEIGHTS - EN 558 SERIES 20 | PN 25 13
DIMENSIONS AND WEIGHTS - EN 558 SERIES 20 | PN 40 14
DIMENSIONS AND WEIGHTS - EN 558 SERIES 25 | PN 10 15
DIMENSIONS AND WEIGHTS - EN 558 SERIES 25 | PN 16 16
DIMENSIONS AND WEIGHTS - EN 558 SERIES 25 | PN 25 17
DIMENSIONS AND WEIGHTS - EN 558 SERIES 25 | PN 40 18
SEATING/UNSEATING TORQUES (N m). 19
MAXIMUM ALLOWABLE STEM TORQUES (N m) 20
VALVE SIZING COEFFICIENTS (Kv) 21
FLANGE TO VALVE BOLTING DATA | PN 10 23
FLANGE TO VALVE BOLTING DATA | PN 16. 25
FLANGE TO VALVE BOLTING DATA | PN 25 27
FLANGE TO VALVE BOLTING DATA | PN 40 29

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

HIGH PERFORMANCE BUTTERFLY VALVE

Featuring Bray's patented, award-winning design, this double offset high performance butterfly valve is precision engineered to deliver **quality**, **value**, and **reliability** in the most demanding chemical applications.

MEDIA

- Carbon monoxide
- Carbon dioxide
- Chemicals
- Gasoline
- Hot gases
- Methanol
- Propane
- Sour gas
- Tail gases



SPECIFICATIONS

Size Range[1]	DN 80 to 400	
Temperature Range	Carbon Steel:	-10°C to 260°C
	Stainless Steel:	-29°C to 260°C
Pressure Rating	PN 10, PN 16, PN 25, PN 40	
Body Style	Wafer | Lug	
Tightness Test	EN 12266-1 Rate A	

NOTES
1 Other sizes are available on request.

MATERIAL OPTIONS[1]

Body	Carbon Steel (EN 1.0619)
	Stainless Steel (EN 1.4408)
Disc	Stainless Steel (EN 1.4408)
Stem	Stainless Steel (EN 1.4542)
Seat	RPTFE
	PTFE

NOTES
1 Other materials are available on request.

DESIGN STANDARDS

Valve Design	EN 12569 | EN 593 | NE 167
Material Standard	EN 16668 | AD2000 W0
Food Contact	EC 1935
Marking	EN 19 | DIN EN IEC 61406 | DIN 91406
Top Flange	ISO 5211 | NE 14
Flange Drilling	EN 1092-1
Face-to-Face	EN 558 Series 20, Series 25
Testing Standard	EN 12266-1 & 2
AutoID/ID Link	DIN 91406/IEC 61406

CERTIFICATIONS & APPROVALS

Certifications	CE: PED 2014/68/EU
	SIL 3 capable
Fugitive Emissions	ISO 15848-1
	TA-Luft 2021
Approvals	ATEX 2014/34/EU

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

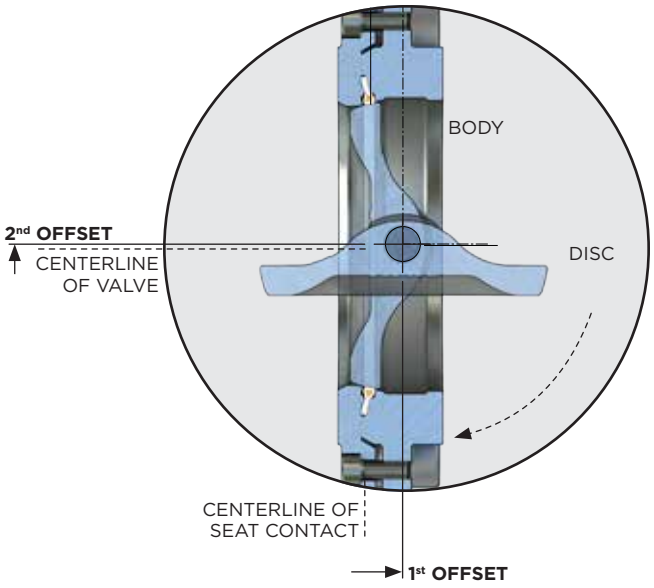
DOUBLE OFFSET DESIGN

The disc motion of the double offset design provides many performance benefits:

DISC OPENING
> Cam-action movement pulls disc away from seat.
> Reduces seat wear.

OPEN POSITION
> Disc does not contact seat.
> Eliminates seat deformation.
> Reduces operating torques.
> Extends service life.

DISC CLOSING
> Linear motion pushes disc onto seat.
> Wiping action prevents undesirable material buildup.



RESILIENT SEAT DESIGN

Bray's unique, patented resilient seat design offers many exclusive advantages:

> Proven zero-leakage shutoff in both directions.
> Interference-fit sealing, even when there is no differential line pressure.
> Pressure-assisted sealing is energized by line media pressure, providing a tighter seal in higher differential pressure services.
> Extended service life with reliable sealing after 1 million cycles.
> Resilient energizer ring is fully encapsulated by the seat and isolated from all line media contact.
> Full-faced retainer secures seat in the correct position, even without mating flange.
> Seat self-adjusts for wear and temperature changes, providing longer service life.
> Simplified seat replacement.

INTERFERENCE-FIT SEALING
Provides bidirectional sealing for low pressure applications.



Disc in Open Position.
Seat non-compressed.

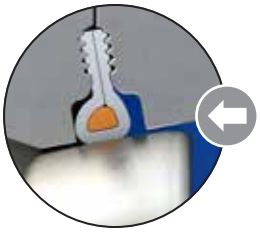


Disc in Closed Position.
No line pressure.

PRESSURE-ASSISTED SEALING
Provides tighter bidirectional sealing in higher pressure applications.



Disc in Closed Position.
Line pressure applied from the **preferred** flow direction.



Disc in Closed Position.
Line pressure applied from the **non-preferred** flow direction.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

1 **TRAVEL STOP:** Integrated into the top flange, allows for an uninterrupted fluid bore optimizing the flow path and reducing potential turbulence. The robust travel stop outperforms pinned designs, as it offers increased shear area to withstand high torque loads.

2 **STEM DESIGN:** High strength, one-piece stem design for safe operation and exceptional service life.

3 **BLOWOUT-PROOF DESIGN:** Stem is retained by the travel stop and bolted top plate design. This design encapsulates all components and does not rely on actuation to ensure operator safety.

4 **STEM PACKING SYSTEM:** Fully-adjustable, live-loaded and field-replaceable stem packing system is certified to international fugitive emission standards.

5 **ENVIRONMENTAL PROTECTION:** O-ring seals in the top plate design prevent any external media from entering the valve stem bore.

6 **SEAT DESIGN:** Provides bidirectional zero-leakage sealing while isolating the energizer from the line media.

7 **PRESSURE ASSISTED SEALING:** Enables optimal bidirectional sealing performance for low and high pressures.

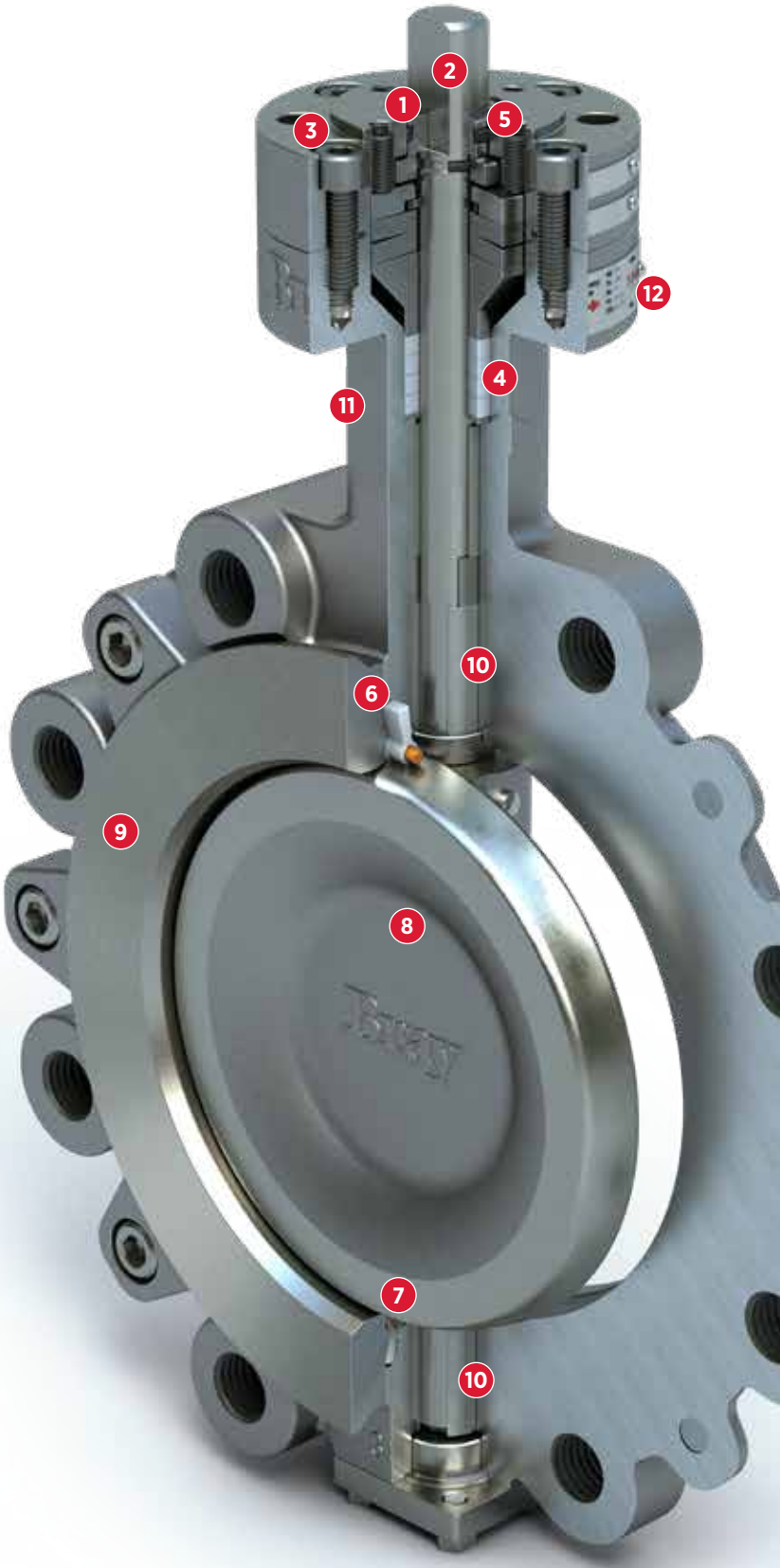
8 **DISC DESIGN:** Engineered to optimize flow rates and seat service life.

9 **FULL-FACED SEAT RETAINER:** Uninterrupted design provides a high integrity sealing surface with mating flanges.

10 **STEM BEARINGS:** Top and bottom bearings securely support the stem, provide excellent corrosion resistance, and minimize deflection from mechanical loading forces.

11 **BODY:** Extended neck allows access for stem packing adjustments and actuator mounting when valve is fully insulated.

12 **DIGITAL TAG:** Each valve is uniquely and easily identifiable by simply scanning the QR Code on the product identification tag in accordance to IEC 61406.



© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

VALVE PART NUMBERING SYSTEM

Select one code from each category to build a complete valve order number.

4X MXXX-110XX XXX

SERIES 4X

Code	Body Style	Pressure Rating
4D	Wafer	PN 10
4E	Lug	PN 10
4F	Wafer	PN 16
4G	Lug	PN 16
4H	Wafer	PN 25
4J	Lug	PN 25
4K	Wafer	PN 40
4L	Lug	PN 40

SIZE MXXX

Code	DN
M080	80
M100	100
M150	150
M200	200
M250	250
M300	300
M350	350
M400	400

BASE 110XX

Code	Description
11017	EN 558 Series 20 Face-to-Face
11018	EN 558 Series 25 Face-to-Face

TRIM[1] XXX

Code	Item	Material[1]
R48	Body	Stainless Steel (EN 1.4408)
	Disc	Stainless Steel (EN 1.4408)
	Stem	Stainless Steel (EN 1.4542)
	Seat	RPTFE
	Packing	PTFE
R49	Body	Stainless Steel (EN 1.4408)
	Disc	Stainless Steel (EN 1.4408)
	Stem	Stainless Steel (EN 1.4542)
	Seat	PTFE
	Packing	PTFE
R50	Body	Carbon Steel (EN 1.0619)
	Disc	Stainless Steel (EN 1.4408)
	Stem	Stainless Steel (EN 1.4542)
	Seat	RPTFE
	Packing	PTFE
R51	Body	Carbon Steel (EN 1.0619)
	Disc	Stainless Steel (EN 1.4408)
	Stem	Stainless Steel (EN 1.4542)
	Seat	PTFE
	Packing	PTFE

NOTES

1 Other materials are available on request. Contact Bray for additional information.

EXAMPLE 1

4L M080-11017 R48

- Body Style: Lug | Pressure Rating: PN 40
- Size: DN 80
- Base: EN 558 Series 20 Face-to-Face
- Trim: R48
  - Body = Stainless Steel (EN 1.4408)
  - Disc = Stainless Steel (EN 1.4408)
  - Stem = Stainless Steel (EN 1.4542)
  - Seat = RPTFE
  - Packing = PTFE

EXAMPLE 2

4G M150-11018 R51

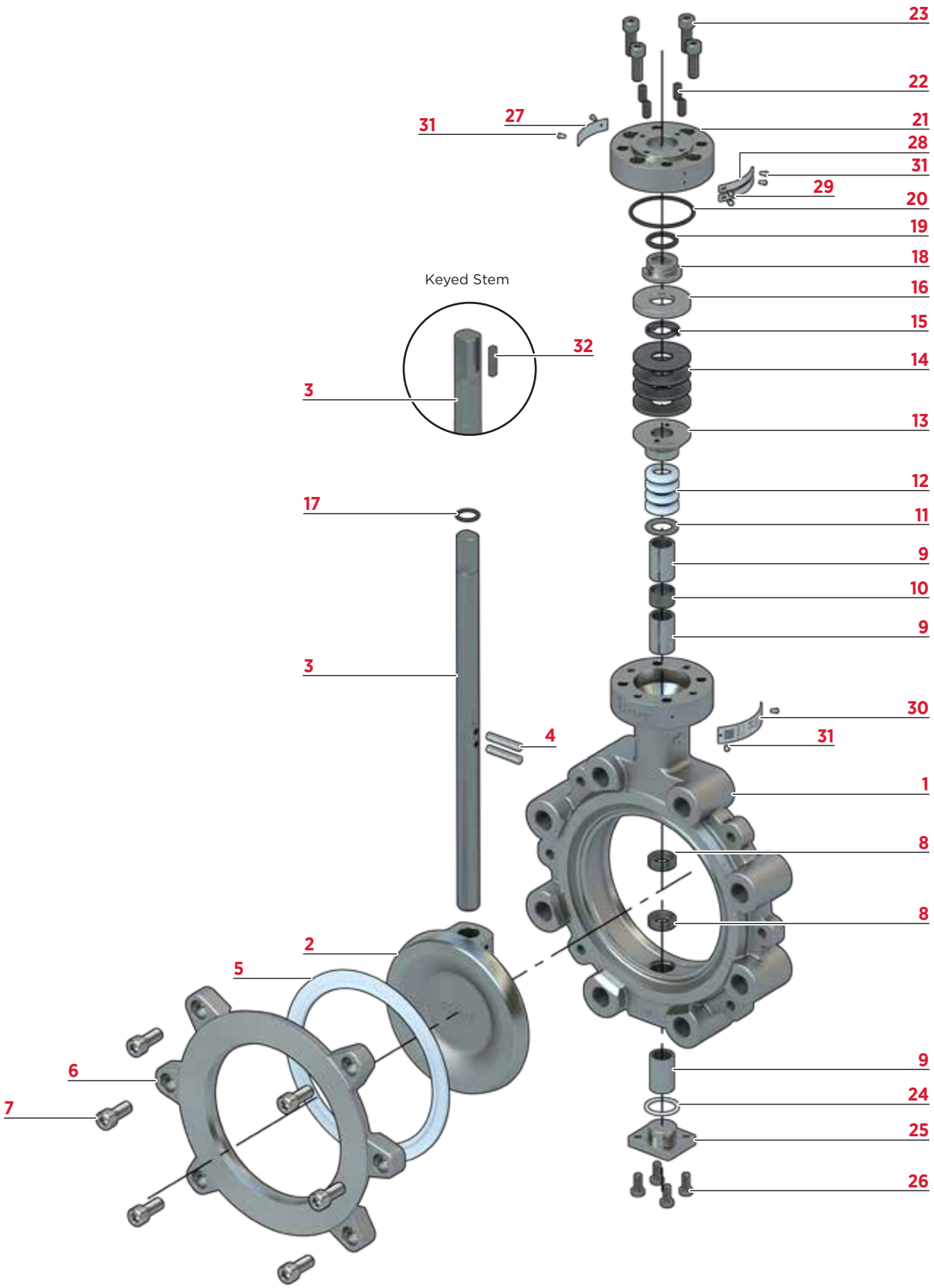
- Body Style: Lug | Pressure Rating: PN 16
- Size: DN 150
- Base: EN 558 Series 25 Face-to-Face
- Trim: R51
  - Body = Carbon Steel (EN 1.0619)
  - Disc = Stainless Steel (EN 1.4408)
  - Stem = Stainless Steel (EN 1.4542)
  - Seat = PTFE
  - Packing = PTFE

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

ITEM	DESCRIPTION	MATERIAL
1	Body	Stainless Steel (EN 1.4408) Carbon Steel (EN 1.0619)
2	Disc	Stainless Steel (EN 1.4408)
3	Stem	Stainless Steel (EN 1.4542)
4	Taper Pin	Stainless Steel (EN 1.4542)
5	Seat	RPTFE PTFE
6	Seat Retainer	Stainless Steel (EN 1.4408) Carbon Steel (EN 1.0619)
7	Cap Screw, Seat Retainer	A4-70
8	Disc Spacer	Stainless Steel
9	Bearing	Stainless Steel
10	Bearing Spacer (Optional)	Stainless Steel
11	Thrust Washer	Stainless Steel
12	Stem Seals	PTFE
13	Gland Ring	Stainless Steel
14	Disc Spring	Stainless Steel
15	Grounding Spring	Stainless Steel
16	Gland Washer	Stainless Steel
17	O-ring, Stem	FKM
18	Travel Stop	Stainless Steel
19	O-ring, Travel Stop	FKM
20	O-ring, Gland Retainer	FKM
21	Gland Retainer	Stainless Steel (EN 1.4408) Carbon Steel (EN 1.0619)
22	Set Screw	A4-70
23	Cap Screw, Gland Retainer	A4-70
24	Gasket, Bottom Plate	PTFE
25	Bottom Plate	Stainless Steel Carbon Steel
26	Bolt, Bottom Plate	A4-70
27	Certification Tag	Stainless Steel
28	Torque Tag	Stainless Steel
29	Customer Tag	Stainless Steel
30	Identification Tag	Stainless Steel
31	Drive Screw	Stainless Steel
32	Key	Stainless Steel

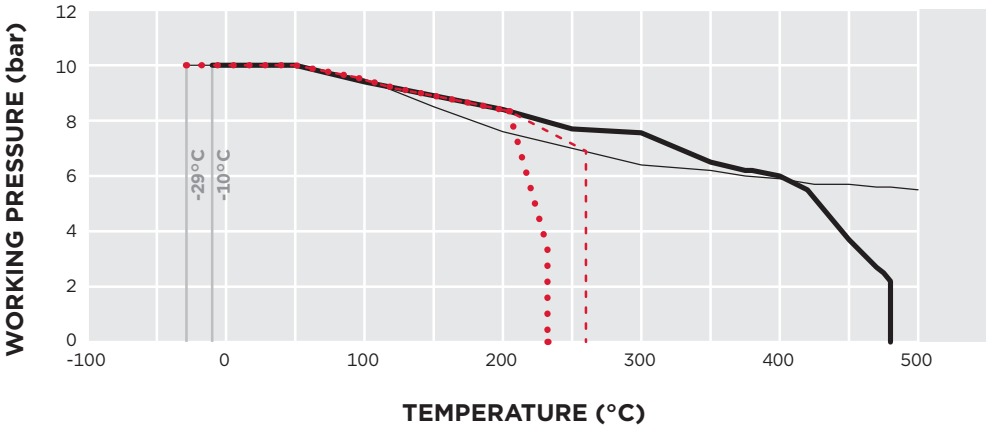
NOTES
> Material specifications provided for reference only, and are subject to change without notice.
> Additional materials available upon request.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM



© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

SERIES 4D, 4E | PN 10



LEGEND (bar/°C)

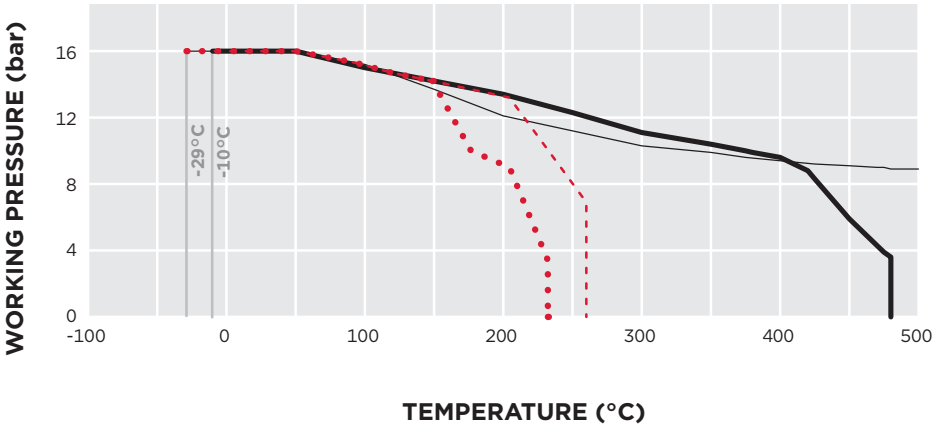
Carbon Steel, 1.0619

Stainless Steel, 1.4408

RPTFE

PTFE

SERIES 4F, 4G | PN 16



LEGEND (bar/°C)

Carbon Steel, 1.0619

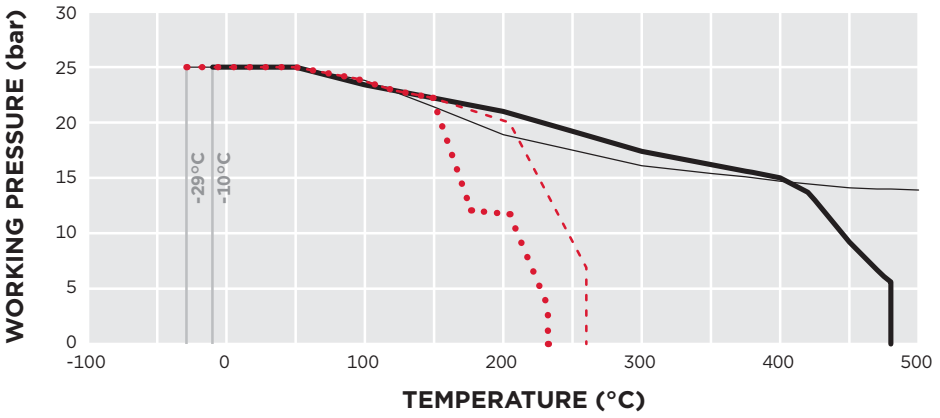
Stainless Steel, 1.4408

RPTFE

PTFE

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

SERIES 4H, 4J | PN 25



LEGEND (bar/°C)

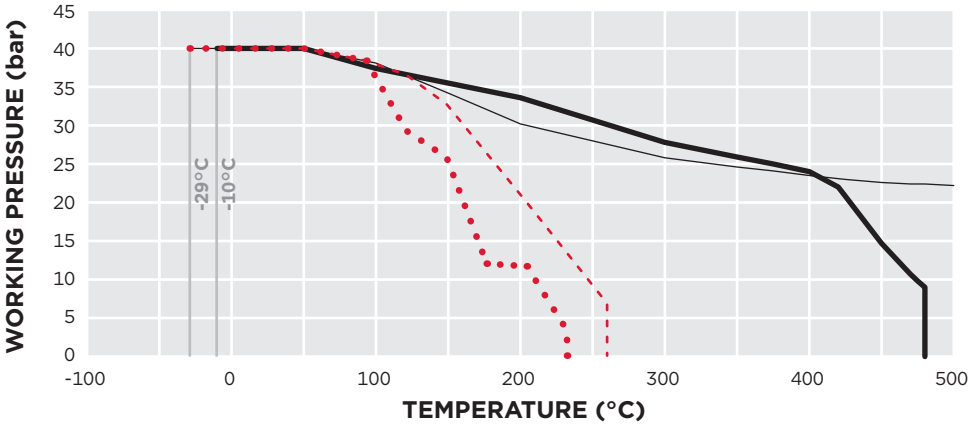
Carbon Steel, 1.0619

Stainless Steel, 1.4408

RPTFE

PTFE

SERIES 4K, 4L | PN 40



LEGEND (bar/°C)

Carbon Steel, 1.0619

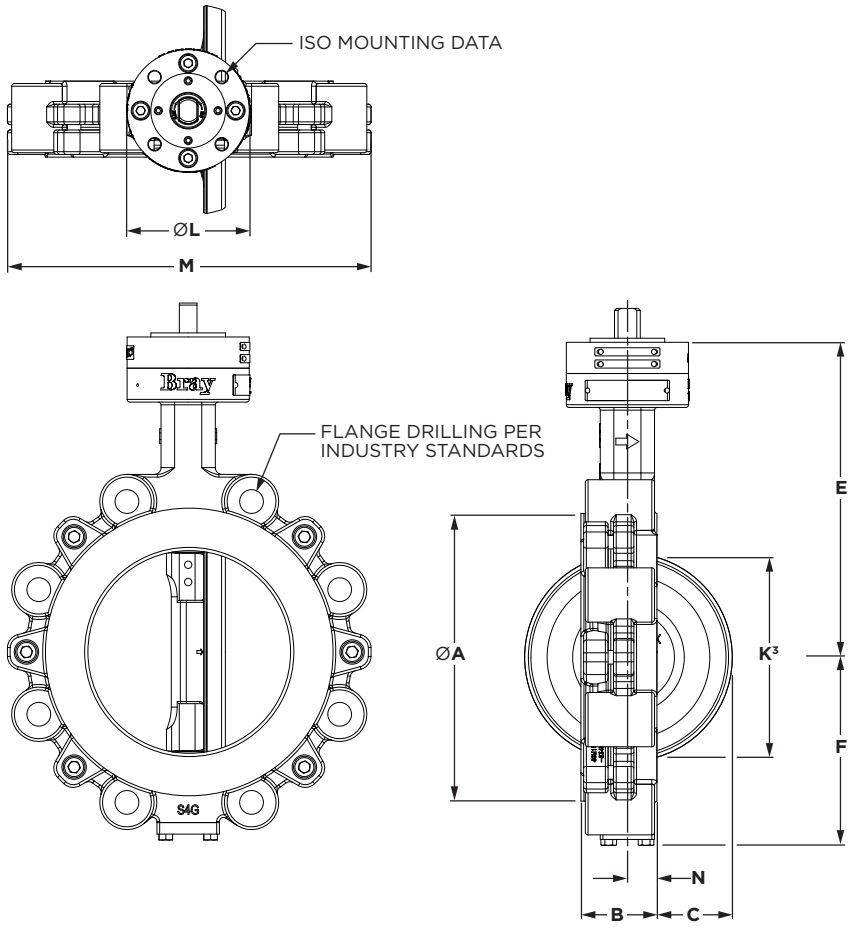
Stainless Steel, 1.4408

RPTFE

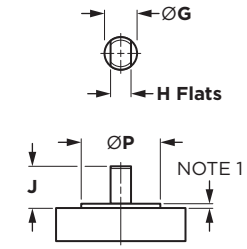
PTFE

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

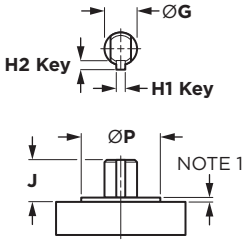
SERIES 4D, 4E | EN 558 SERIES 20 FACE-TO-FACE | PN 10



STEM DETAILS



Stem With Flats



Stem With Keyway

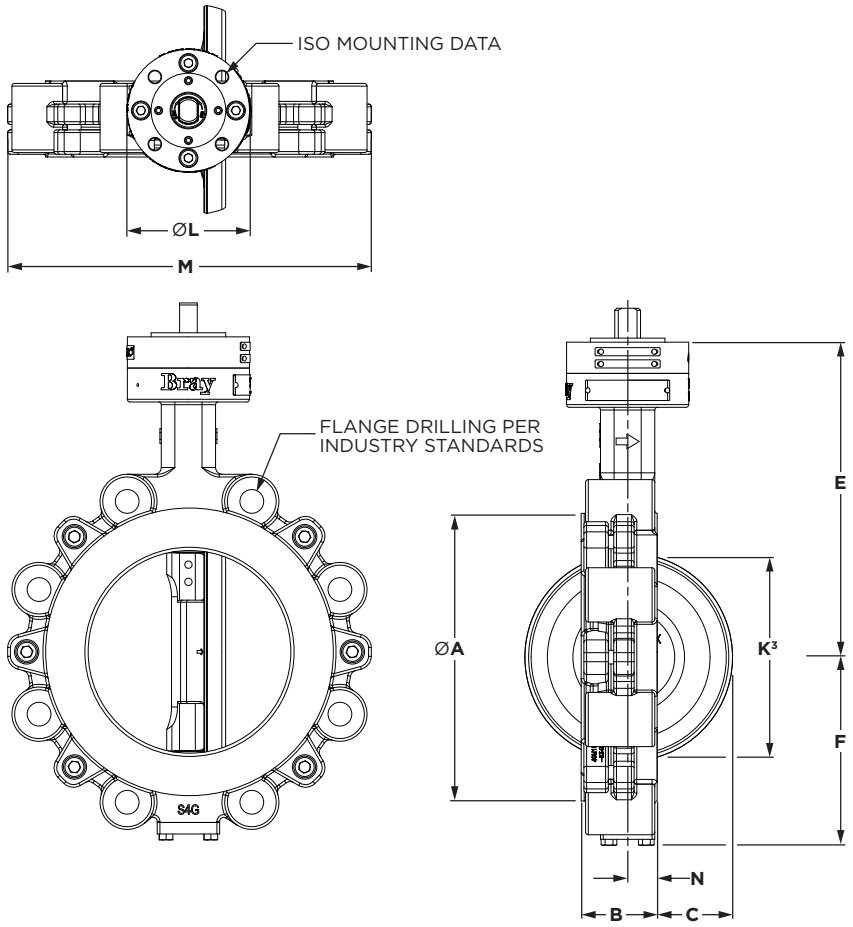
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	46	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	158	52	33	207	109	16	11	-	-	19	98	90	198	17	55	F07	70	4	M8	11
150	212	56	56	232	139	19	13	-	-	25	153	90	268	22	55	F07	70	4	M8	18
200	268	60	80	259	179	22	16	-	-	30	204	150	324	21	85	F12	125	4	M12	28
250	320	68	99	287	216	30	22	-	-	39	253	150	378	28	85	F12	125	4	M12	43
300	370	78	121	346	245	30	22	-	-	39	303	150	426	29	85	F12	125	4	M12	56

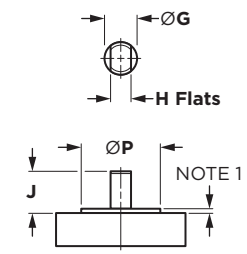
NOTES
1 Dimension = 3mm for all sizes.
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

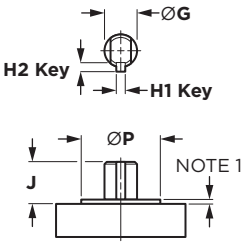
SERIES 4F, 4G | EN 558 SERIES 20 FACE-TO-FACE | PN 16



STEM DETAILS



Stem With Flats



Stem With Keyway

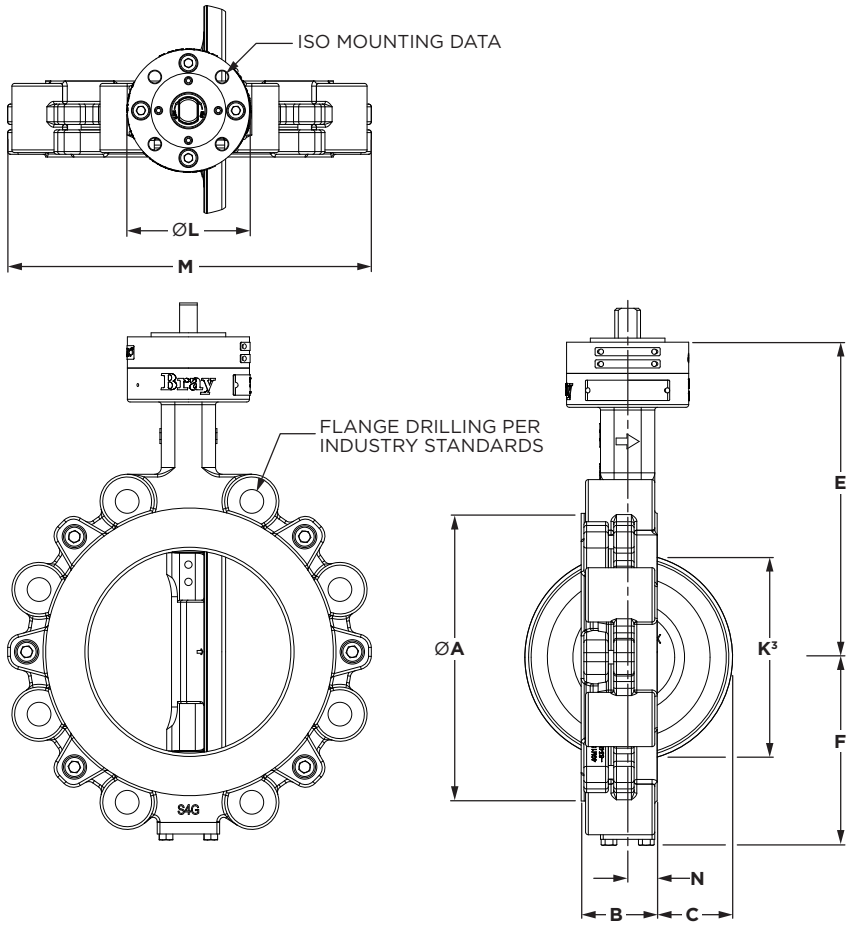
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	46	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	158	52	33	207	109	16	11	-	-	19	98	90	198	17	55	F07	70	4	M8	11
150	212	56	56	232	139	19	13	-	-	25	153	90	268	22	55	F07	70	4	M8	18
200	268	60	80	259	179	22	16	-	-	30	204	150	325	21	85	F12	125	4	M12	30
250	320	68	99	287	216	30	22	-	-	39	253	150	391	28	85	F12	125	4	M12	45
300	378	78	121	346	245	30	22	-	-	39	303	150	444	29	85	F12	125	4	M12	61

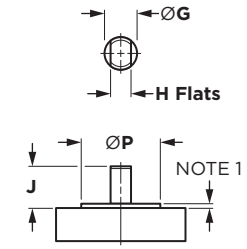
NOTES
1 DN 80-300 is 3mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

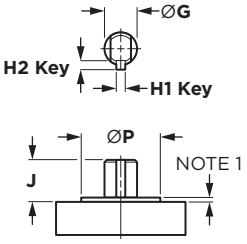
SERIES 4H, 4J | EN 558 SERIES 20 FACE-TO-FACE | PN 25



STEM DETAILS



Stem With Flats



Stem With Keyway

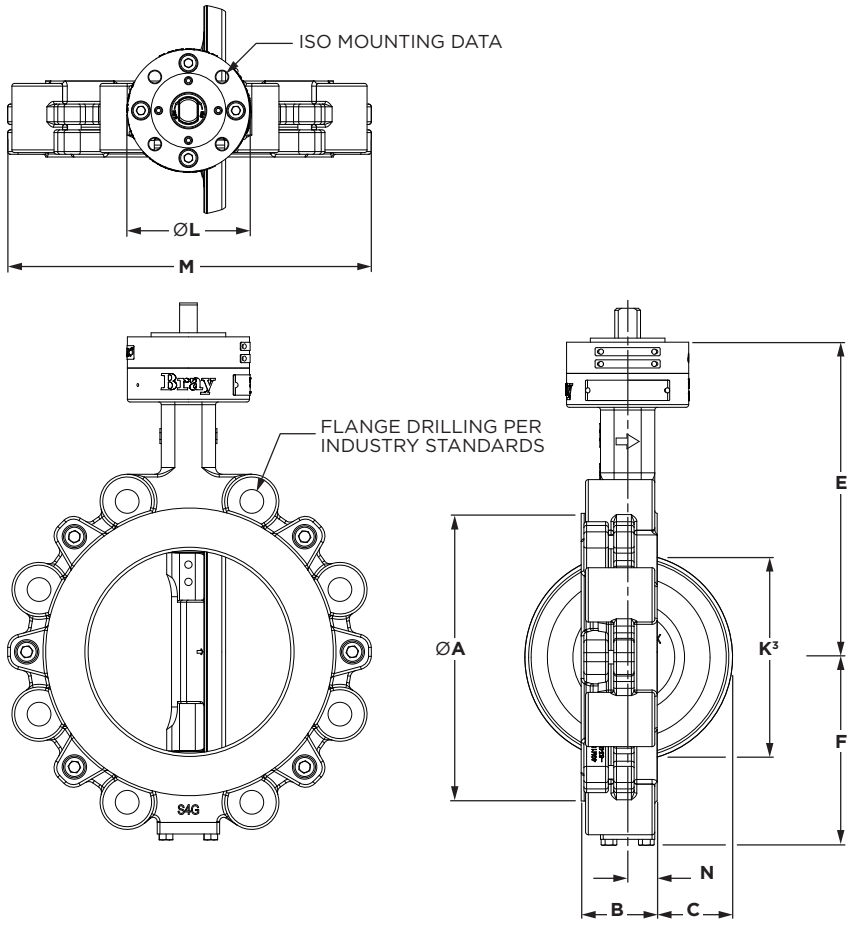
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	46	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	162	52	29	207	109	16	11	-	-	19	95	90	216	21	55	F07	70	4	M8	12
150	218	56	52	232	139	19	13	-	-	25	151	90	279	25	55	F07	70	4	M8	20
200	278	60	76	259	179	22	16	-	-	30	203	150	347	25	85	F12	125	4	M12	33
250	335	68	98	287	216	30	22	-	-	39	253	150	411	28	85	F12	125	4	M12	50
300	395	78	121	346	245	30	22	-	-	39	303	150	476	29	85	F12	125	4	M12	69

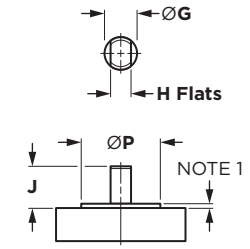
NOTES
1 DN 80-300 is 3mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

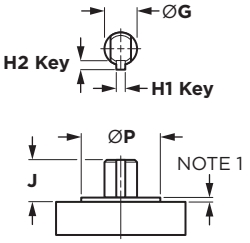
SERIES 4K, 4L | EN 558 SERIES 20 FACE-TO-FACE | PN 40



STEM DETAILS



Stem With Flats



Stem With Keyway

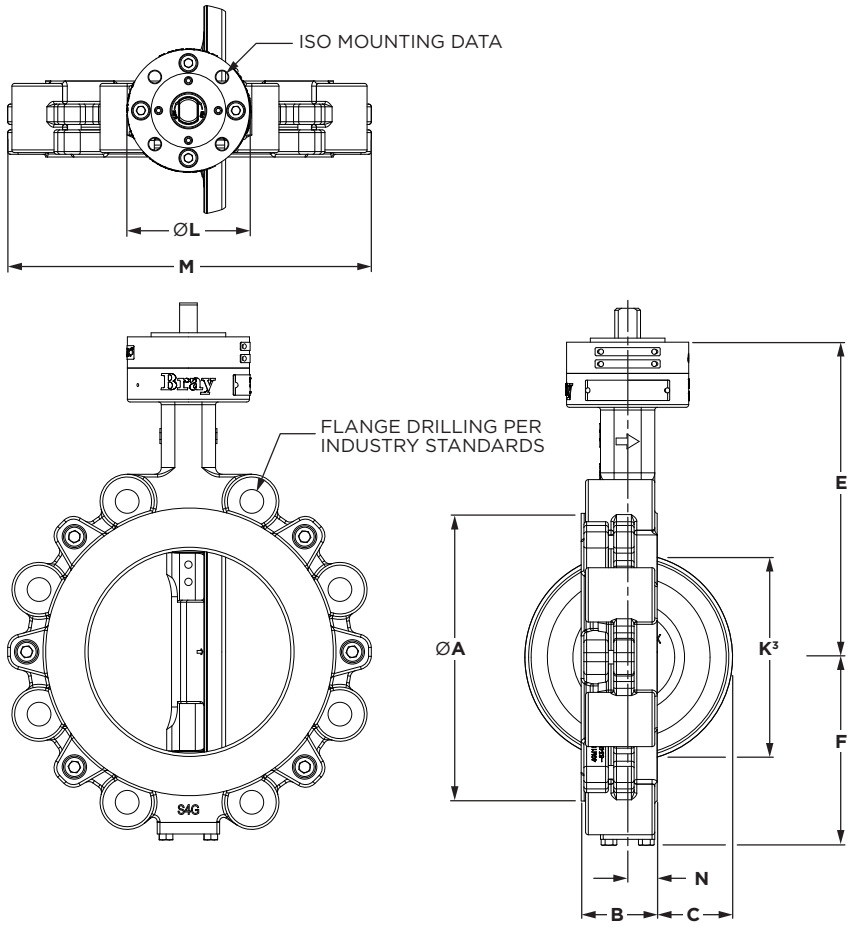
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	46	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	162	52	29	207	109	16	11	-	-	19	95	90	216	21	55	F07	70	4	M8	12
150	218	56	50	226	152	22	16	-	-	30	146	150	279	25	85	F12	125	4	M12	25
200	285	60	71	278	191	30	22	-	-	39	196	150	363	26	85	F12	125	4	M12	41
250	345	68	92	319	239	35	-	10	10	55	244	150	432	29	85	F12	125	4	M12	61
300	410	78	110	354	281	35	-	10	10	80	290	210	501	35	130	F16	165	4	M20	101

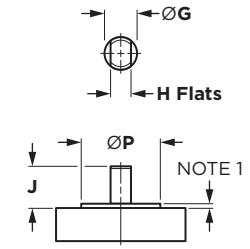
NOTES
1 DN 80-250 is 3mm, DN 300 is 5mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

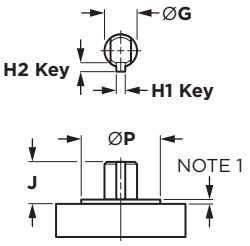
SERIES 4D, 4E | EN 558 SERIES 25 FACE-TO-FACE | PN 10



STEM DETAILS



Stem With Flats



Stem With Keyway

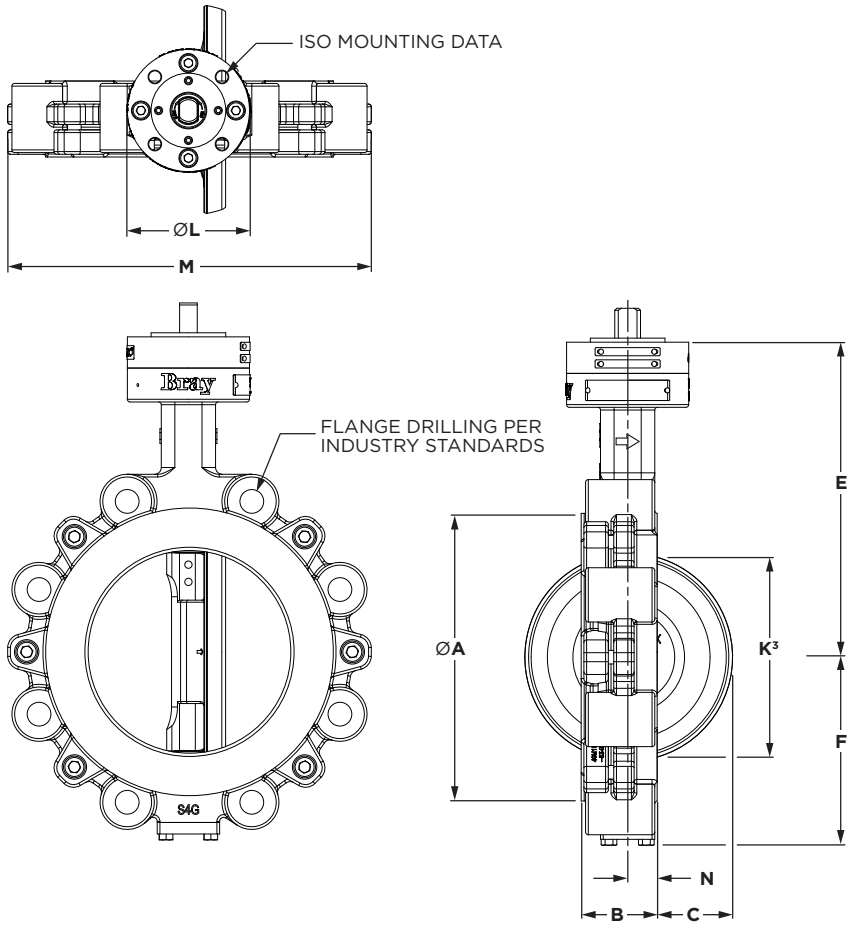
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	49	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	158	56	33	207	109	16	11	-	-	19	98	90	198	17	55	F07	70	4	M8	11
150	212	70	56	232	139	19	13	-	-	25	153	90	268	22	55	F07	70	4	M8	18
200	268	71	80	259	179	22	16	-	-	30	204	150	324	21	85	F12	125	4	M12	28
250	320	76	99	287	216	30	22	-	-	39	253	150	378	28	85	F12	125	4	M12	43
300	370	83	121	346	245	30	22	-	-	39	303	150	426	29	85	F12	125	4	M12	56
350	430	92	131	371	288	35	-	10	10	80	333	210	491	36	130	F16	165	4	M20	96
400	482	102	147	406	328	50	-	12	10	80	378	210	553	43	130	F16	165	4	M20	132

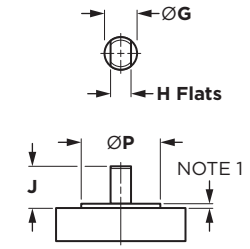
NOTES
1 DN 80-300 is 3mm, DN 350-400 is 5mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

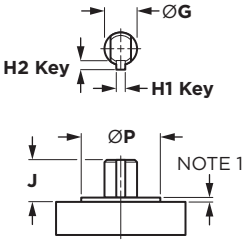
SERIES 4F, 4G | EN 558 SERIES 25 FACE-TO-FACE | PN 16



STEM DETAILS



Stem With Flats



Stem With Keyway

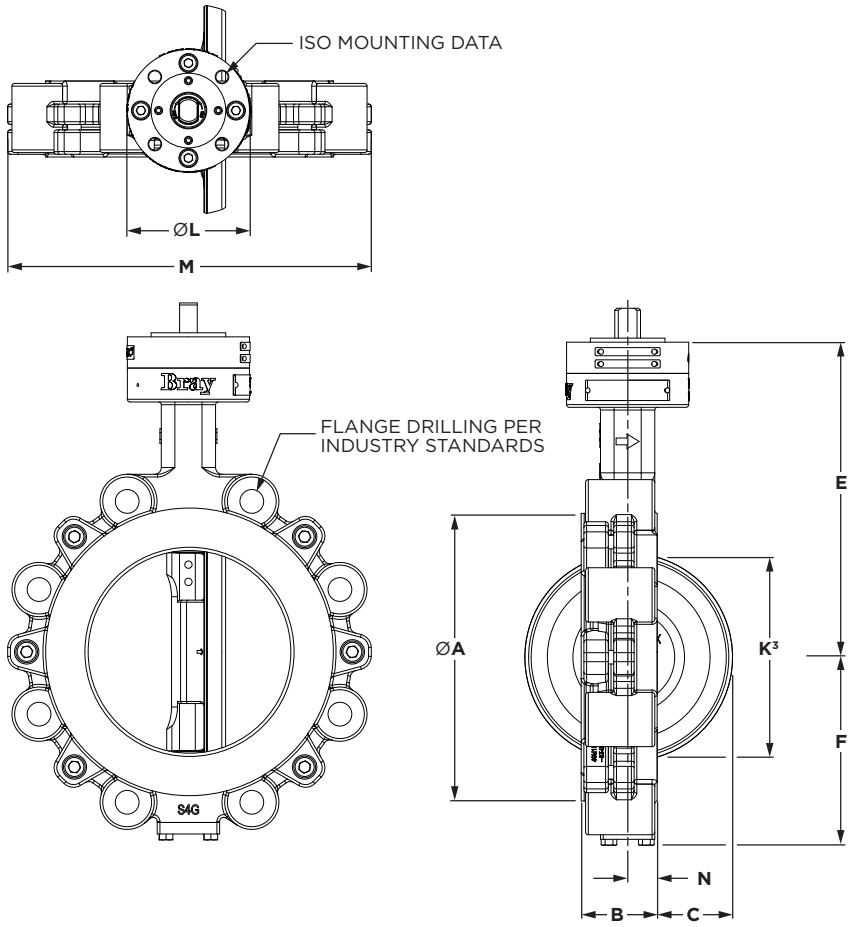
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	49	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	158	56	33	207	109	16	11	-	-	19	98	90	198	17	55	F07	70	4	M8	11
150	212	70	56	232	139	19	13	-	-	25	153	90	268	22	55	F07	70	4	M8	18
200	268	71	80	259	179	22	16	-	-	30	204	150	325	23	85	F12	125	4	M12	30
250	320	76	99	287	216	30	22	-	-	39	253	150	391	28	85	F12	125	4	M12	45
300	378	83	121	346	245	30	22	-	-	39	303	150	444	29	85	F12	125	4	M12	61
350	438	92	130	371	288	35	-	10	10	80	333	210	509	36	130	F16	165	4	M20	102
400	490	102	146	406	328	50	-	12	10	80	378	210	569	43	130	F16	165	4	M20	139

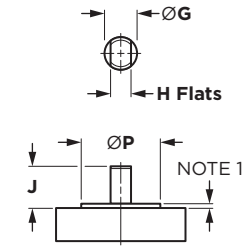
NOTES
1 DN 80-300 is 3mm, DN 350-400 is 5mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

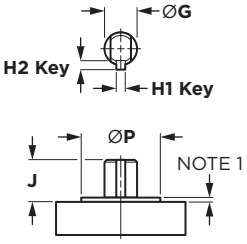
SERIES 4H, 4J | EN 558 SERIES 25 FACE-TO-FACE | PN 25



STEM DETAILS



Stem With Flats



Stem With Keyway

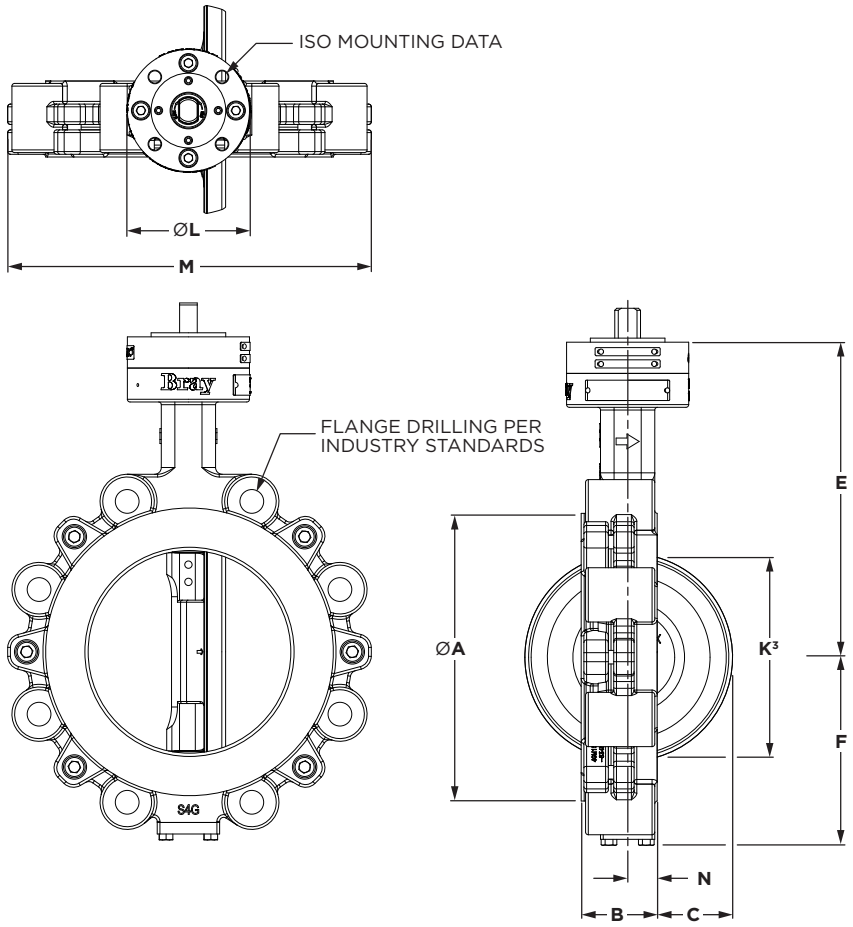
DIMENSIONS (mm)

DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	49	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	162	56	29	207	109	16	11	-	-	19	95	90	216	21	55	F07	70	4	M8	12
150	218	70	52	232	139	19	13	-	-	25	151	90	279	25	55	F07	70	4	M8	20
200	278	71	76	259	179	22	16	-	-	30	203	150	347	25	85	F12	125	4	M12	33
250	335	76	98	287	216	30	22	-	-	39	253	150	411	28	85	F12	125	4	M12	50
300	395	83	121	346	245	30	22	-	-	39	303	150	476	29	85	F12	125	4	M12	69
350	450	92	131	371	306	35	-	10	10	80	333	210	541	36	130	F16	165	4	M20	116
400	505	102	145	438	329	50	-	12	10	80	377	210	605	45	130	F16	165	4	M20	161

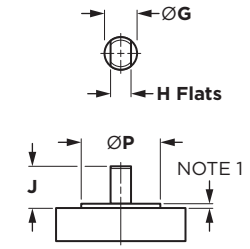
NOTES
1 DN 80-300 is 3mm, DN 350-400 is 5mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

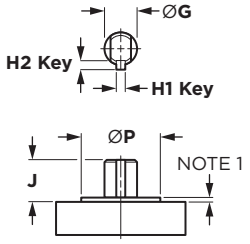
SERIES 4K, 4L | EN 558 SERIES 25 FACE-TO-FACE | PN 40



STEM DETAILS



Stem With Flats



Stem With Keyway

DIMENSIONS (mm)

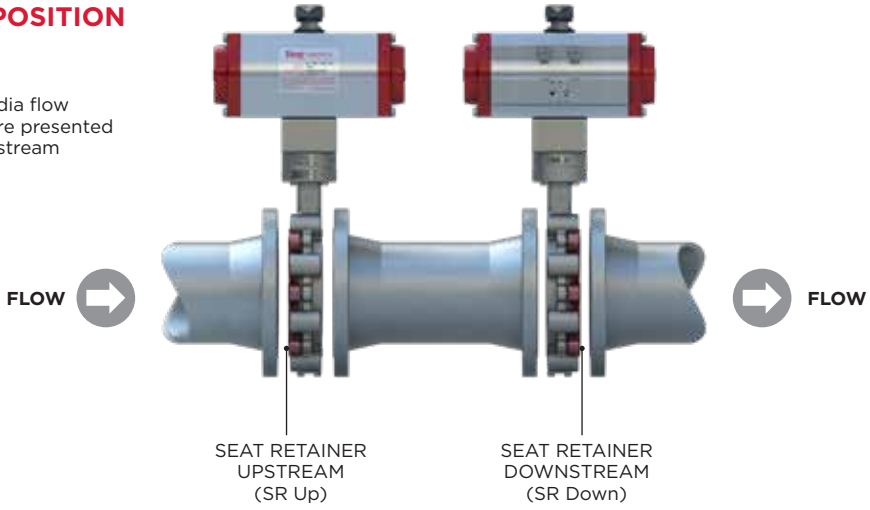
DN[2]	ØA	B	C	E	F	ØG	H	Key		J	K[3]	ØL	M	N	ØP	Top Plate Drilling				Weight[4]
								H1	H2							ISO	Bolt Circle	Hole Qty	Bolt Dia.	Kg
80	138	49	23	194	98	16	11	-	-	19	77	90	180	17	55	F07	70	4	M8	9
100	162	56	29	207	109	16	11	-	-	19	95	90	216	21	55	F07	70	4	M8	12
150	218	70	50	226	152	22	16	-	-	30	146	150	279	25	85	F12	125	4	M12	25
200	285	71	71	278	191	30	22	-	-	39	196	150	363	26	85	F12	125	4	M12	41
250	345	76	92	319	239	35	-	10	10	55	244	150	432	29	85	F12	125	4	M12	61
300	410	83	110	354	281	35	-	10	10	80	290	210	501	35	130	F16	165	4	M20	101
350	465	92	130	390	306	40	-	10	10	80	333	210	566	36	130	F16	165	4	M20	130
400	535	102	147	438	351	50	-	12	10	80	378	210	646	43	130	F16	165	4	M20	186

NOTES
1 DN 80-250 is 3mm, DN 300-400 is 5mm
2 For sizes not shown, contact Bray for more information.
3 K dimension is the absolute minimum pipe internal diameter at valve face.
4 Weights are for carbon steel bodies.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

SEAT RETAINER POSITION

NOTE
> Valve orientation to media flow affects torque. Values are presented for upstream and downstream orientations.



PN 10, 16, 25

RESILIENT SEATED VALVE — TORQUE VALUES (N m)

	Valve Differential Pressure (bar)											
	<3.5 bar		>3.5 to <6 bar		>6 to <10 bar		> 10 to < 16 bar		> 16 to < 20 bar		> 20 to <25 bar	
DN[1]	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down
80	20	21	20	23	21	25	25	32	26	36	33	46
100	30	31	30	33	31	36	35	45	36	52	46	66
150	71	75	73	82	78	92	91	118	95	136	121	172
200	127	135	134	148	145	169	166	210	177	237	226	302
250	224	239	242	269	271	316	316	406	324	463	412	589
300	309	333	342	383	395	463	480	629	514	734	654	934
350	488	524	535	596	610	712	703	914	751	1073	956	1365
400	702	758	767	862	870	1028	1096	1433	1186	1695	1509	2156

PN 40

RESILIENT SEATED VALVE — TORQUE VALUES (N m)

	Valve Differential Pressure (bar)													
	<3.5 bar		>3.5 to <6 bar		>6 to <10 bar		> 10 to < 16 bar		> 16 to < 20 bar		> 20 to <25 bar		>25 to <40	
DN[1]	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down	SR Up	SR Down
80	20	21	20	23	21	25	25	32	26	36	33	46	47	63
100	30	31	30	33	31	36	35	45	36	52	46	66	65	87
150	84	90	88	99	96	113	118	143	134	165	152	191	201	272
200	148	159	160	178	179	209	221	268	251	309	286	360	373	503
250	254	274	278	312	316	373	391	476	444	549	508	638	667	901
300	371	401	413	464	480	565	592	720	671	829	766	964	1008	1361
350	488	524	535	596	610	712	703	914	751	1073	956	1365	1529	2184
400	702	758	767	862	870	1028	1096	1433	1186	1695	1509	2156	2414	3449

NOTE
1 For sizes not shown, contact Bray for more information.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

PN 10, 16, 25, 40

MAXIMUM ALLOWABLE STEM TORQUE VALUES[1] (N m)				
DN	**PN 10**	**PN16**	**PN 25**	**PN40**
80	168	168	168	168
100	168	168	168	168
150	378	378	378	633
200	483	483	483	1247
250	1247	1247	1247	2257
300	1629	1629	1629	2777
350	2777	2777	2777	4237
400	6177	6177	6177	6177

NOTES
1 Based on Stainless Steel material (EN 1.4542).

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

PN 10, 16, 25 VALVE SIZING COEFFICIENT (KV)

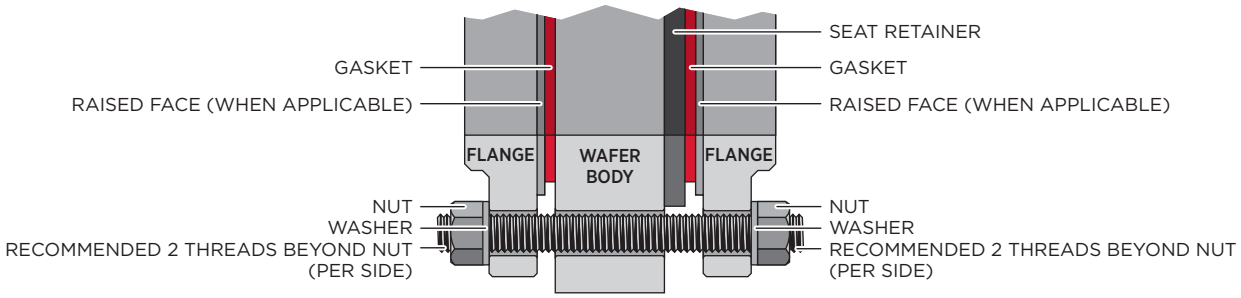
	DISC POSITION (Degrees)								
DN	**90°**	**80°**	**70°**	**60°**	**50°**	**40°**	**30°**	**20°**	**10°**
80	158	152	132	105	74	48	27	12	4
100	320	311	269	213	149	98	54	26	9
150	1152	913	640	435	281	186	119	69	30
200	2388	1902	1356	904	584	389	239	141	55
250	3668	2943	2073	1390	896	597	384	213	85
300	5672	4546	3199	2158	1390	921	597	333	132
350	6525	5203	3668	2474	1612	1066	691	384	149
400	8359	6705	4700	3156	2064	1305	870	495	196

PN 40 VALVE SIZING COEFFICIENT (KV)

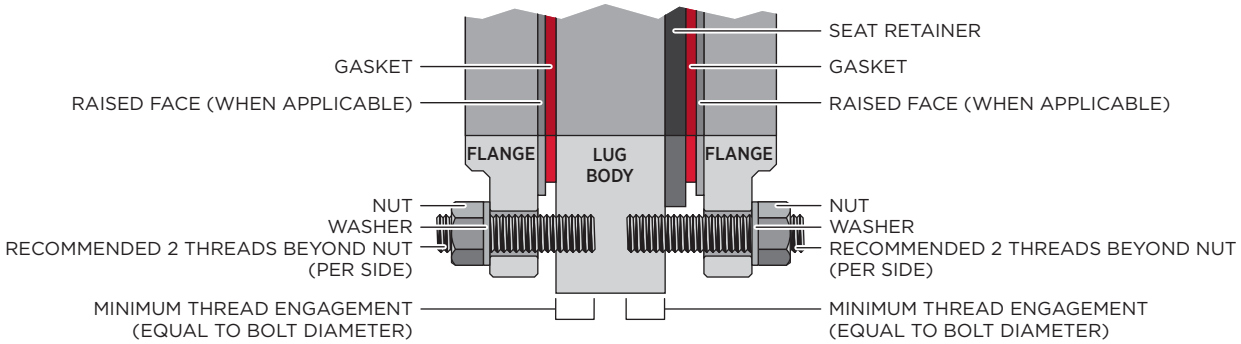
	DISC POSITION (Degrees)								
DN	**90°**	**80°**	**70°**	**60°**	**50°**	**40°**	**30°**	**20°**	**10°**
80	158	152	132	105	74	48	27	12	4
100	320	311	269	213	149	98	54	26	9
150	853	746	606	452	316	205	118	67	22
200	1706	1467	1160	810	537	345	205	103	40
250	2260	1919	1484	1024	665	435	252	128	52
300	3412	2900	2133	1442	938	606	367	188	78
350	6525	5203	3668	2474	1612	1066	691	384	149
400	8359	6705	4700	3156	2064	1305	870	495	196

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

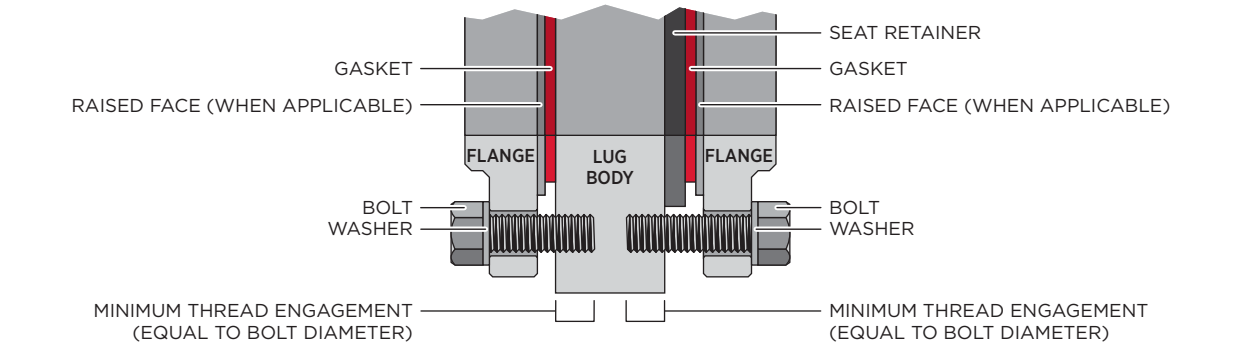
WAFER VALVE WITH THROUGH-STUDS



LUG VALVE WITH STUDS



LUG VALVE WITH HEX HEAD BOLTS



IMPORTANT INFORMATION

- Refer to appropriate Bray dimensional drawings for specific valve drilling information.
- Lug threads may be tapped from both sides, and therefore tap may not be continuous.
- Minimum bolt engagement must be equal to the diameter of the bolt.
- When bolting the valve into the line, use standard bolting torque as recommended by applicable piping standards. Additional force from the flange bolts is not required.

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 20 FACE-TO-FACE | PN 10 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	150	8	16	16
100	M16	150	8	16	16
150	M20	170	8	16	16
200	M20	180	8	16	16
250	M20	190	12	24	24
300	M20	200	12	24	24
350	-	-	-	-	-
400	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 10 | STUD

Valve Size	Fastener Size	Ret Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	80	8	70	8	16	16
100	M16	90	8	70	8	16	16
150	M20	100	8	80	8	16	16
200	M20	100	8	80	8	16	16
250	M20	110	12	90	12	24	24
300	M20	110	12	90	12	24	24
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 10 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	45	8	45	8	16	-
100	M16	45	8	45	8	16	-
150	M20	55	8	50	8	16	-
200	M20	55	8	55	8	16	-
250	M20	55	12	55	12	24	-
300	M20	60	12	60	12	24	-
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 25 FACE-TO-FACE | PN 10 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	150	8	16	16
100	M16	160	8	16	16
150	M20	190	8	16	16
200	M20	190	8	16	16
250	M20	200	12	24	24
300	M20	220	12	24	24
350	M20	220	16	32	32
400	M24	240	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 10 | STUD

Valve Size	Fastener Size	Retainer Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M16	90	8	70	8	16	16
150	M20	110	8	80	8	16	16
200	M20	110	8	80	8	16	16
250	M20	110	12	90	12	24	24
300	M20	120	12	90	12	24	24
350	M20	120	16	100	16	32	32
400	M24	130	16	110	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 10 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	45	8	16	-
100	M16	50	8	45	8	16	-
150	M20	65	8	50	8	16	-
200	M20	70	8	55	8	16	-
250	M20	65	12	55	12	24	-
300	M20	65	12	60	12	24	-
350	M20	80	16	70	16	32	-
400	M24	90	16	70	16	32	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 20 FACE-TO-FACE | PN 16 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	150	8	16	16
100	M16	150	8	16	16
150	M20	170	8	16	16
200	M20	180	12	24	24
250	M24	200	12	24	24
300	M24	220	12	24	24
350	-	-	-	-	-
400	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 16 | STUD

Valve Size	Fastener Size	Ret Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	80	8	70	8	16	16
100	M16	90	8	70	8	16	16
150	M20	100	8	80	8	16	16
200	M20	100	12	80	12	24	24
250	M24	110	12	100	12	24	24
300	M24	120	12	100	12	24	24
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 16 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	45	8	45	8	16	-
100	M16	45	8	45	8	16	-
150	M20	55	8	50	8	16	-
200	M20	55	12	55	12	24	-
250	M24	60	12	60	12	24	-
300	M24	70	12	60	12	24	-
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 25 FACE-TO-FACE | PN 16 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	150	8	16	16
100	M16	160	8	16	16
150	M20	190	8	16	16
200	M20	190	12	24	24
250	M24	220	12	24	24
300	M24	220	12	24	24
350	M24	240	16	32	32
400	M27	260	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 16 | STUD

Valve Size	Fastener Size	Retainer Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M16	90	8	70	8	16	16
150	M20	110	8	80	8	16	16
200	M20	110	12	80	12	24	24
250	M24	120	12	100	12	24	24
300	M24	130	12	100	12	24	24
350	M24	130	16	110	16	32	32
400	M27	140	16	120	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 16 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	45	8	16	-
100	M16	50	8	45	8	16	-
150	M20	65	8	50	8	16	-
200	M20	70	12	55	12	24	-
250	M24	70	12	60	12	24	-
300	M24	80	12	60	12	24	-
350	M24	80	16	80	16	32	-
400	M27	90	16	80	16	32	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 20 FACE-TO-FACE | PN 25 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	160	8	16	16
100	M20	170	8	16	16
150	M24	200	8	16	16
200	M24	200	12	24	24
250	M27	220	12	24	24
300	M27	240	16	32	32
350	-	-	-	-	-
400	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 25 | STUD

Valve Size	Fastener Size	Ret Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M20	90	8	80	8	16	16
150	M24	100	8	100	8	16	16
200	M24	110	12	100	12	24	24
250	M27	120	12	100	12	24	24
300	M27	130	16	110	16	32	32
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 25 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	50	8	16	-
100	M20	55	8	50	8	16	-
150	M24	60	8	60	8	16	-
200	M24	65	12	60	12	24	-
250	M27	70	12	65	12	24	-
300	M27	80	16	70	16	32	-
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 25 FACE-TO-FACE | PN 25 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	160	8	16	16
100	M20	180	8	16	16
150	M24	220	8	16	16
200	M24	220	12	24	24
250	M27	220	12	24	24
300	M27	240	16	32	32
350	M30	260	16	32	32
400	M33	280	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 25 | STUD

Valve Size	Fastener Size	Retainer Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M20	100	8	80	8	16	16
150	M24	120	8	100	8	16	16
200	M24	120	12	100	12	24	24
250	M27	120	12	100	12	24	24
300	M27	130	16	110	16	32	32
350	M30	140	16	120	16	32	32
400	M33	150	16	130	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 25 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	50	8	16	-
100	M20	60	8	50	8	16	-
150	M24	70	8	60	8	16	-
200	M24	70	12	60	12	24	-
250	M27	80	12	65	12	24	-
300	M27	80	16	70	16	32	-
350	M30	90	16	80	16	32	-
400	M33	100	16	80	16	32	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 20 FACE-TO-FACE | PN 40 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	160	8	16	16
100	M20	170	8	16	16
150	M24	200	8	16	16
200	M27	220	12	24	24
250	M30	240	12	24	24
300	M30	260	16	32	32
350	-	-	-	-	-
400	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 40 | STUD

Valve Size	Fastener Size	Ret Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M20	90	8	80	8	16	16
150	M24	100	8	100	8	16	16
200	M27	110	12	100	12	24	24
250	M30	130	12	120	12	24	24
300	M30	140	16	130	16	32	32
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

EN 558 SERIES 20 FACE-TO-FACE | PN 40 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	50	8	16	-
100	M20	55	8	50	8	16	-
150	M24	60	8	60	8	16	-
200	M27	70	12	65	12	24	-
250	M30	80	12	70	12	24	-
300	M30	80	16	80	16	32	-
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN 558 SERIES 25 FACE-TO-FACE | PN 40 | THROUGH-STUD

Valve Size	Fastener Size	Through-Stud Length	Through-Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	Qty	Qty
80	M16	160	8	16	16
100	M20	180	8	16	16
150	M24	220	8	16	16
200	M27	220	12	24	24
250	M30	260	12	24	24
300	M30	260	16	32	32
350	M33	280	16	32	32
400	M36	320	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 40 | STUD

Valve Size	Fastener Size	Retainer Side Stud Length	Retainer Side Stud	Back Side Stud Length	Back Side Stud	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	90	8	70	8	16	16
100	M20	100	8	80	8	16	16
150	M24	120	8	100	8	16	16
200	M27	120	12	100	12	24	24
250	M30	140	12	120	12	24	24
300	M30	140	16	130	16	32	32
350	M33	150	16	130	16	32	32
400	M36	170	16	150	16	32	32

EN 558 SERIES 25 FACE-TO-FACE | PN 40 | BOLT

Valve Size	Fastener Size	Retainer Side Bolt Length	Retainer Side Bolt	Back Side Bolt Length	Back Side Bolt	Washer	Nut
DN	Ø-Thread	mm	Qty	mm	Qty	Qty	Qty
80	M16	50	8	50	8	16	-
100	M20	60	8	50	8	16	-
150	M24	70	8	60	8	16	-
200	M27	80	12	65	12	24	-
250	M30	90	12	70	12	24	-
300	M30	90	16	80	16	32	-
350	M33	100	16	80	16	32	-
400	M36	100	16	100	16	32	-

© 2025 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT **BRAY.COM** TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

GLOBAL HEADQUARTERS

Bray International, Inc.
13333 Westland East Blvd.
Houston, Texas 77041
Tel: +1.281.894.5454

All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide.
Bray® is a registered trademark of Bray International, Inc.

© 2024 BRAY INTERNATIONAL. ALL RIGHTS RESERVED. BRAY.COM

EN_TSM_4Cx_20250917

Bray®

THE HIGH PERFORMANCE COMPANY

BRAY.COM