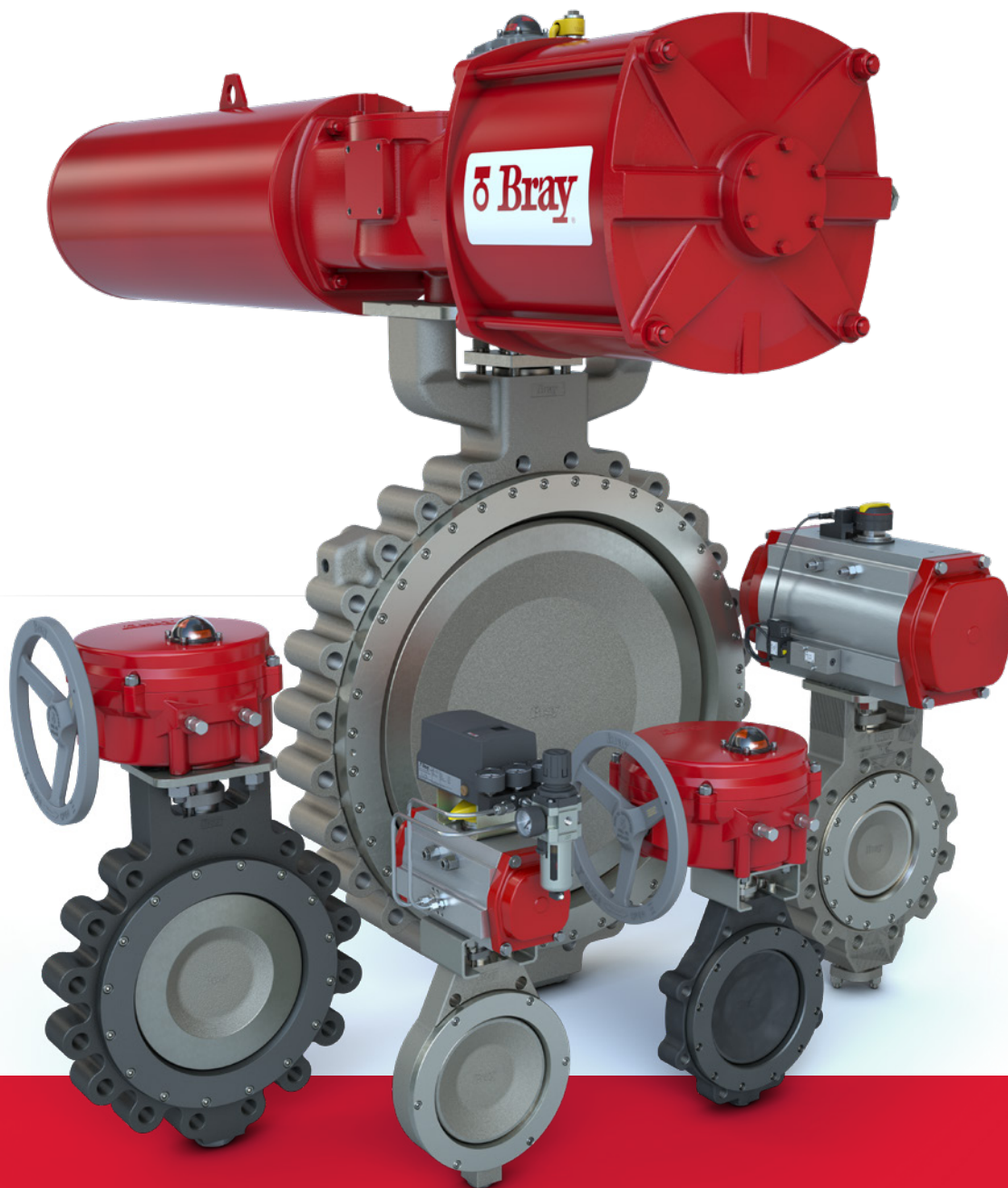

McCANNALOK SERIES 40-45

HIGH PERFORMANCE BUTTERFLY VALVES

TECHNICAL SALES GUIDE (PN10 to PN100)



 **Bray**[®]

BRAY.COM

THE HIGH PERFORMANCE COMPANY



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 applications.

- > Designed for high pressure, high temperature, and critical service applications.
- > Energized resilient seat design provides bidirectional zero-leakage shutoff throughout full pressure range.
- > Dead-end service, with bidirectional sealing.
- > Available firesafe design.
- > Low fugitive emissions.
- > Metal seated control valve available.
- > Easy field maintenance.
- > Low torque requirements allow smaller actuators than comparably rated valves.
- > Direct mounting of Bray actuators and controls provides a strong mechanical connection and allows economical automation.

DOUBLE OFFSET STEM AND DISC DESIGN

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

DISC OPENING

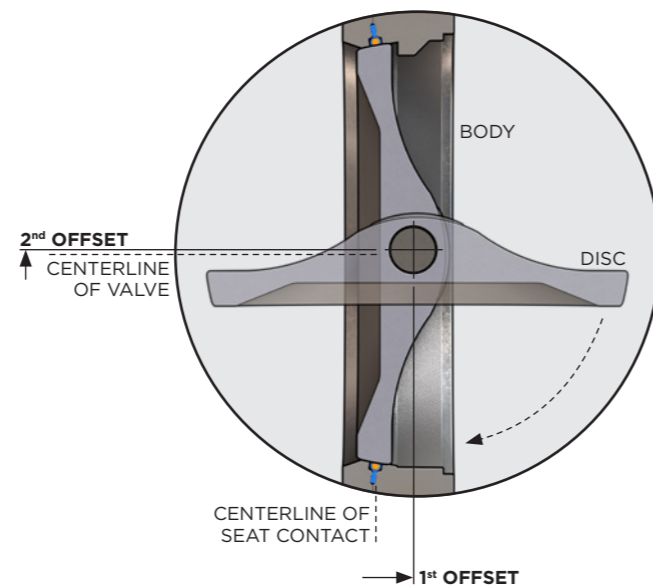
- > Cam-action movement pulls disc away from seat.
- > Reduces seat wear.

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.



INDUSTRIES

- > Chemical
- > Data Centers
- > Electric Power Generation
- > Heating, Ventilation & Air Conditioning (HVAC)
- > Metal Processing
- > Mining
- > Oilfield
- > Petrochemical
- > Petroleum
- > Shipbuilding
- > Water & Wastewater Treatment

APPLICATIONS

- > Caustic
- > Chilled Water
- > Dry Chlorine (Gas or Liquid)
- > Oxygen
- > Seawater
- > Sour Gas (NACE)
- > Steam
- > Vacuum

MEDIA

- > Acids
- > Alkalis
- > Corrosive Chemicals
- > Gases
- > Water

SPECIFICATIONS

Size Range	DN 50 to 1500
Body Style	Wafer Lug Double Flanged
Temperature Range*	Resilient Seated -52 to 260 °C
	Firesafe -52 to 260 °C
	Metal Seated up to 482 °C

Pressure Ratings	PN 10 16 25 40 63 100
Leakage Rate	Resilient Seated EN12266-1: Rate A
	Metal Seated FCI 70-2: Class IV

NOTES
> *Depending on material selection.

MATERIAL OPTIONS

Body Materials	Carbon Steel
	Stainless Steel
	Nickel Aluminium Bronze
	Hastelloy® C
	Titanium
Disc Materials	Stainless Steel
	Nickel Aluminium Bronze
	Monel®

Stem Materials	Stainless Steel
	Monel® K500
Seat Materials	RPTFE with Resilient Energizer
	PTFE with Resilient Energizer
	UHMWPE with Resilient Energizer
	TFM with Low Temperature Resilient Energizer
	(Firesafe) Inconel® & RPTFE with Resilient Energizer

NOTE
> Other materials are available on request. Contact Bray for more information.

DESIGN STANDARDS

Valve Design	EN 593
	EN 12516
	ASME B16.34
	MSS SP 68
	ASME VIII
	API 609 Category B
	ISO 5211
Top Flange	ISO 5211
Flange Drilling¹	EN 1092-1
	ASME B16.5
	ASME B16.47

Seat Tightness Test	EN 12266
	ISO 5208
	API 598
	MSS SP 61
	EN 558
Face-to-Face	ISO 5752
	ASME B16.10
	API 609 Category B

NOTE
1 Additional flange drilling options available.

CERTIFICATIONS & APPROVALS

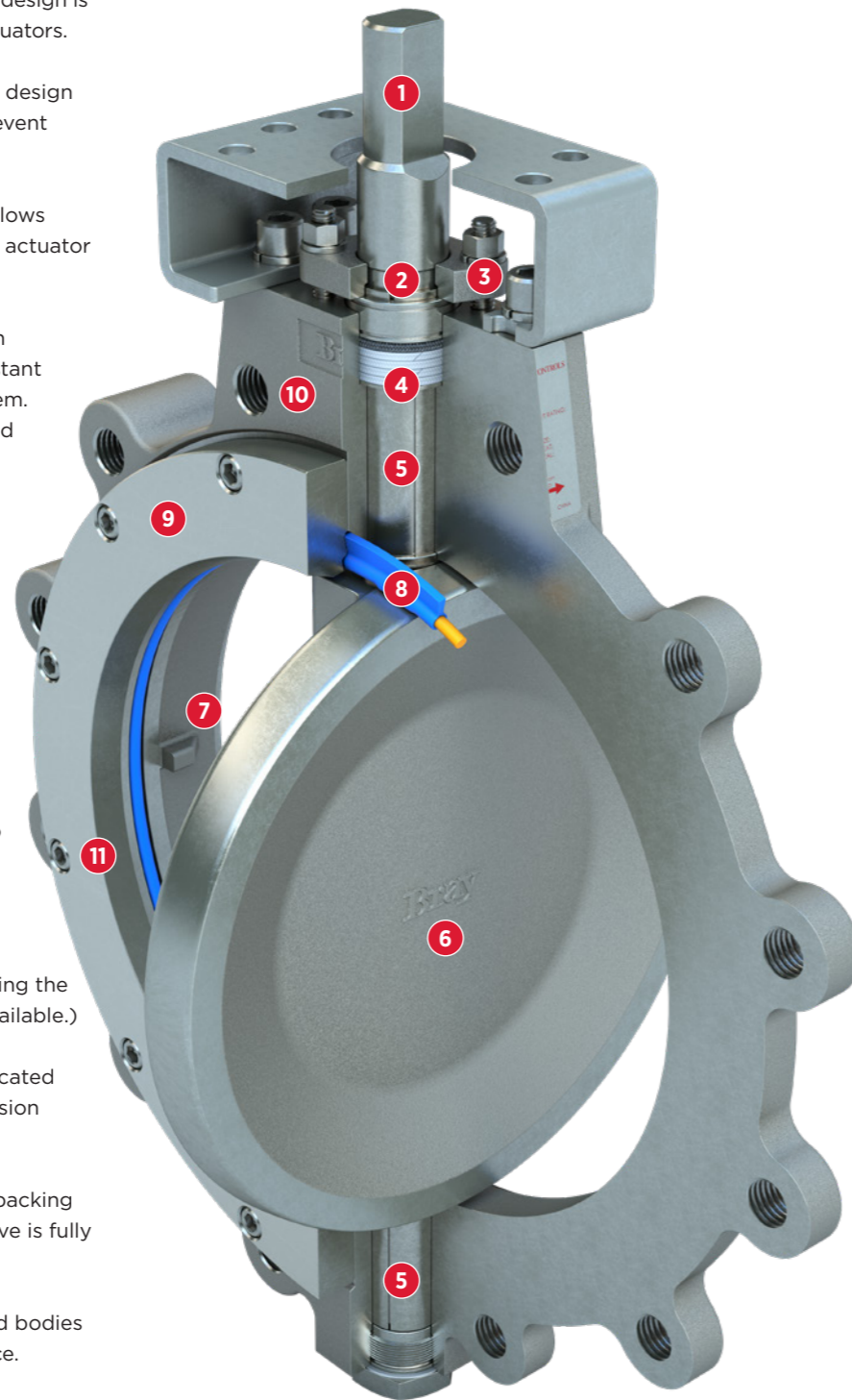
Certifications	CE: PED 2014/68/EU
	ANSI/NSF 61
	SIL
Fire Test	API 607
	ISO 10497
Fugitive Emissions	ISO 15848-1
	TA-Luft VDI 2440
	API 641

Approvals	EC 1935/2004
	ATEX 2014/34/EU
	ABS Type
	Bureau Veritas Type
	DNV
	China Classification Society (CCS) Type

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

DESIGN FEATURES

- 1 **STEM DESIGN:** High-strength, one-piece stem design is standardized for interchangeability of Bray actuators.
- 2 **BLOWOUT-PROOF STEM:** The stem retention design does not rely on actuation components to prevent stem blowout.
- 3 **ADJUSTABLE STEM PACKING:** Easy access allows simple quarter-turn field adjustments without actuator removal.
- 4 **STEM SEAL SYSTEM:** PTFE packing rings with carbon fiber anti-extrusion ring provides constant compression for a positive seal around the stem. Options are available for high-temperature and firesafe applications.
- 5 **STEM BEARINGS:** Top and bottom bearings securely support the stem, provide excellent corrosion resistance, and minimize deflection from high temperatures and mechanical loading forces.
- 6 **DISC:** The disc is engineered to maximize flow and minimize resistance for optimal Kv values.
- 7 **INTERNAL OVER-TRAVEL STOP:** Designed to minimize possible seat damage — extending the service life of the seat.
- 8 **BIDIRECTIONAL RESILIENT SEAT:** Provides bidirectional zero-leakage sealing while isolating the energizer from line media. (Firesafe option available.)
- 9 **FULL-FACED SEAT RETAINER:** Cap screws located outside sealing area are protected from corrosion while allowing simple seat replacement.
- 10 **BODY:** Extended neck allows access to stem packing adjustments and actuator mounting when valve is fully insulated.
- 11 **DEAD-END SERVICE:** Lug and double-flanged bodies are full rated for bidirectional dead-end service.



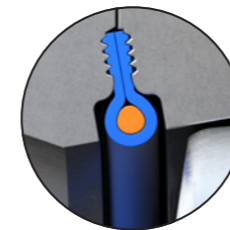
Series 41 Lug Style

RESILIENT SEATED

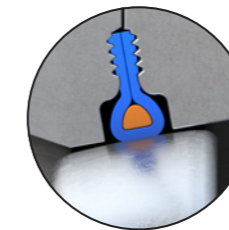
Bray's unique, patented resilient seat design offers many exclusive advantages:

- > 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.
- > 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.

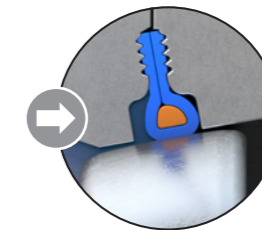
INTERFERENCE-FIT SEALING
Provides bidirectional sealing for low pressure applications.



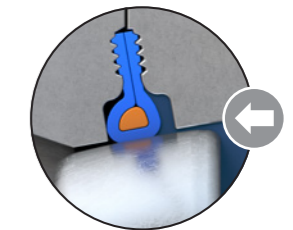
Seat Non-Compressed.
Disc approaches.



Disc in Closed Position.
No line pressure.



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

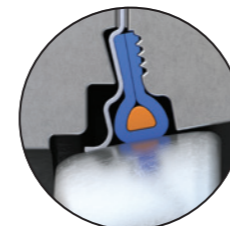


Disc in Closed Position.
Line pressure applied from non-preferred flow direction.

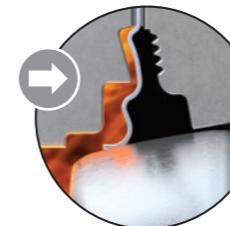
FIRESAFE SEAT DESIGN

The available firesafe seat design adds an Inconel® metal seat to the bidirectional resilient seat assembly. With the valve closed, the firesafe seat assembly contacts the disc with both the resilient seat and metal seat. During and after a fire, when the resilient material has been partially or completely destroyed, the metal seat provides a bidirectional seal by remaining in contact with the disc.

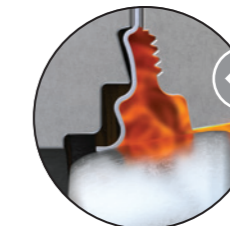
Disc in Closed Position



No line pressure.
(Pre-fire event condition.)



Line pressure applied from preferred flow direction.
(During or after fire event.)



Line pressure applied from non-preferred flow direction.
(During or after fire event.)



Disc in Closed Position.
No line pressure.

FIRE TEST STANDARDS — API 607 | ISO 10497

Bray's proven firesafe valve design meets or exceeds the latest international fire test standards — in lab tests and in field applications.

METAL SEAT DESIGN

Inconel® metal seat provides FCI 70-2 Class IV leakage in both the preferred and non-preferred directions. The seat and nitride hardened disc have a large difference in hardness, which eliminates the risk of the sealing elements galling each other and damaging the valve.

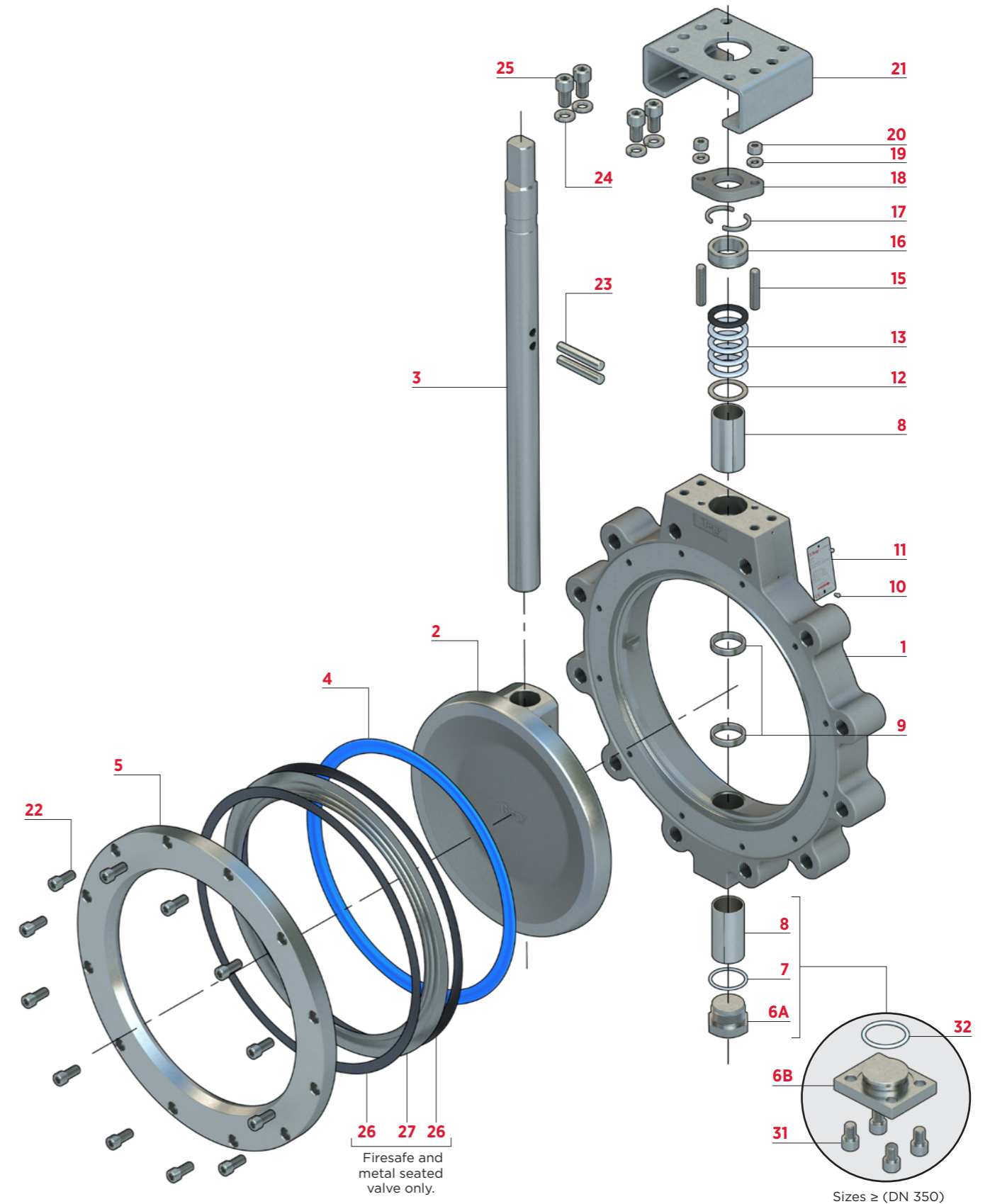
MATERIAL SPECIFICATIONS AND PARTS LIST

ITEM	DESCRIPTION	MATERIAL	
		Resilient Seated	Optional
1	Body	Carbon Steel EN 1.0619, ASTM A216 GR WCB Stainless Steel EN 1.4408, ASTM A351 GR CF8M	Nickel Aluminium Bronze, ASTM B-148 C95800
2	Disc	Stainless Steel EN 1.4408, ASTM A351 GR CF8M	Nickel Aluminium Bronze, ASTM B-148 C95800 Electroless Nickel Plating ³ Nitride Hardened Stainless Steel ³
3	Stem	17-4 PH Stainless Steel, ASTM A564-Type 630	Monel® K500 316 Stainless Steel, ASTM 276 Type 316/A240-316 ¹ Inconel® 718
4	Seat Assembly	RPTFE ² with Resilient Energizer	PTFE with Resilient Energizer TFM with Low Temperature Resilient Energizer Inconel® 718 & RPTFE ² with Resilient Energizer ³
5	Seat Retainer	Carbon Steel EN 1.0619, ASTM A216 GR WCB Stainless Steel EN 1.4401, ASTM A351 GR CF8M	Nickel Aluminium Bronze, ASTM B-148 C95800
6A	Locating Plug	Carbon Steel, Phosphate Coated	316 Stainless Steel, ASTM 276 Type 316/A240-316
6B	Bottom Plate	Carbon Steel, Phosphate Coated	316 Stainless Steel, ASTM 276 Type 316/A240-316
7	Gasket	PTFE	Flexible Graphite ³
8	Bearing	316 Stainless Steel w/TFE & Glass Fabric Liner	Nitride Hardened Stainless Steel ³
9	Disc Spacers	316 Stainless Steel, ASTM 276 Type 316	—
10	Drive Screw	18-8 Stainless Steel	—
11	ID Tag	18-8 Stainless Steel	—
12	Thrust Washer	316 Stainless Steel, ASTM 276 Type 316	—
13	Stem Seal Set	PTFE rings + 1 Carbon Fiber Ring	Flexible Graphite Rings ³
14	Ground Washer	—	316 Stainless Steel (not shown)
15	Stud	316 Stainless Steel, ASTM A193-B8M	—
16	Gland Ring	316 Stainless Steel, ASTM 276 Type 316	—
17	Retaining Ring	18-8 Stainless Steel	—
18	Gland Retainer	Carbon Steel, ASTM A216 GR WCB	316 Stainless Steel, ASTM A 351 CFAM
19	Lock Washers	18-8 Stainless Steel	—
20	Hex Nut	18-8 Stainless Steel	—
21	Mounting Bracket	Carbon Steel, Phosphate Coated	18-8 Stainless Steel
22	Cap Screws	18-8 Stainless Steel	Alloy Steel
23	Taper Pins	17-4 PH Stainless Steel, ASTM A564-Type 630	Monel® K500
24	Lock Washers	18-8 Stainless Steel	Alloy Steel
25	Cap Screws	18-8 Stainless Steel	Alloy Steel
26	Gasket ³	—	Flexible Graphite ³
27	Metal Seat ³	—	Inconel® 718, ASTM B670 ³
31	Cap Screws	18-8 Stainless Steel	Alloy Steel
32	Gasket	PTFE	—

NOTES

- > Material specifications provided for reference only, and are subject to change without notice.
- > Additional materials available upon request.
- 1 May require pressure rating to be reduced. Contact Bray for more information.
- 2 RTFE is supplied by Bray as RPTFE (reinforced polytetrafluoroethylene.)
- 3 Firesafe and metal seated valve only.

PARTS CALLOUT



Firesafe and metal seated valve only.

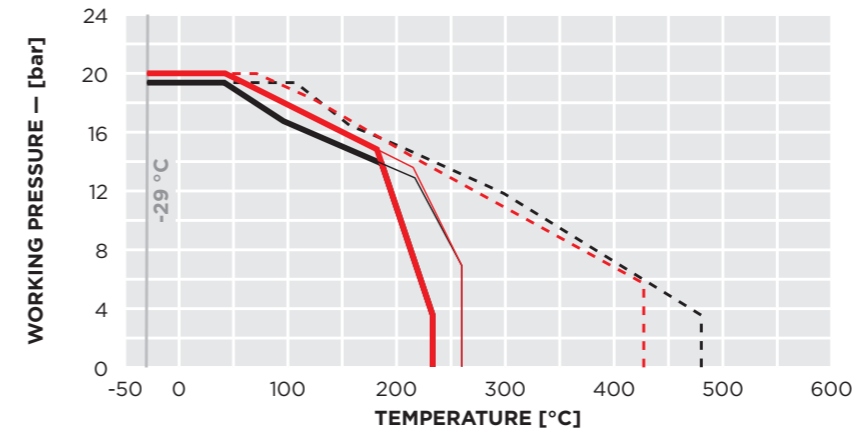
Sizes ≥ (DN 350)

PN10 | PN16 — SERIES 40/41/4A



VALVE SIZES (DN)				
Model	Body Style	Resilient Seated	Firesafe	Metal Seated
40	Wafer	50 to 1500	65 to 1200	65 to 750
41	Lug	50 to 1500	65 to 1200	65 to 750
4A	Double Flanged	50 to 1200	65 to 1200	65 to 750

PN10 | PN16 — SERIES 40/41/4A
RESILIENT SEATED / FIRE SAFE / METAL SEATED



NOTE
> Refer to Bray Technical Manual TM-1023 for additional Pressure/Temperature information for other materials.

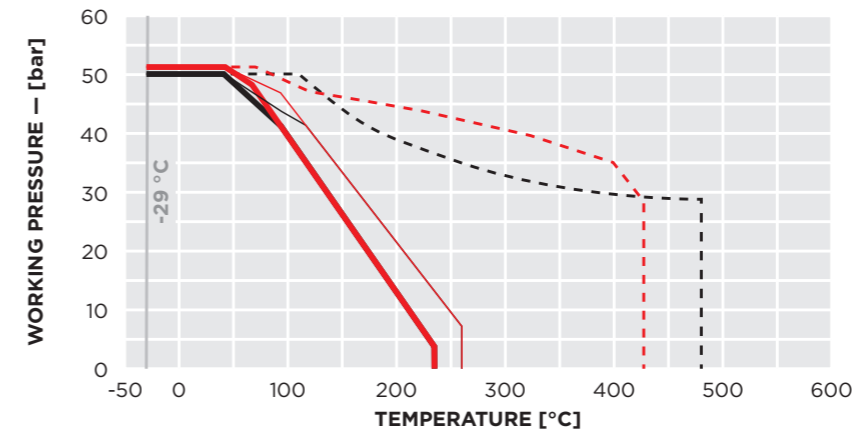
LEGEND	
—	Carbon Steel Body / RPTFE Seat
—	Stainless Steel Body / RPTFE Seat
—	Carbon Steel Body / PTFE Seat
—	Stainless Steel Body / PTFE Seat
- - -	Carbon Steel Body / Inconel® Seat
- - -	Stainless Steel Body / Inconel® Seat

PN25 | PN40 — SERIES 42/43/4B



VALVE SIZES (DN)				
Model	Body Style	Resilient Seated	Firesafe	Metal Seated
42	Wafer	50 to 900	65 to 900	65 to 750
43	Lug	50 to 1200	65 to 900	65 to 750
4B	Double Flanged	80 to 1050	65 to 900	65 to 750

PN25 | PN40 — SERIES 42/43/4B
RESILIENT SEATED / FIRE SAFE / METAL SEATED



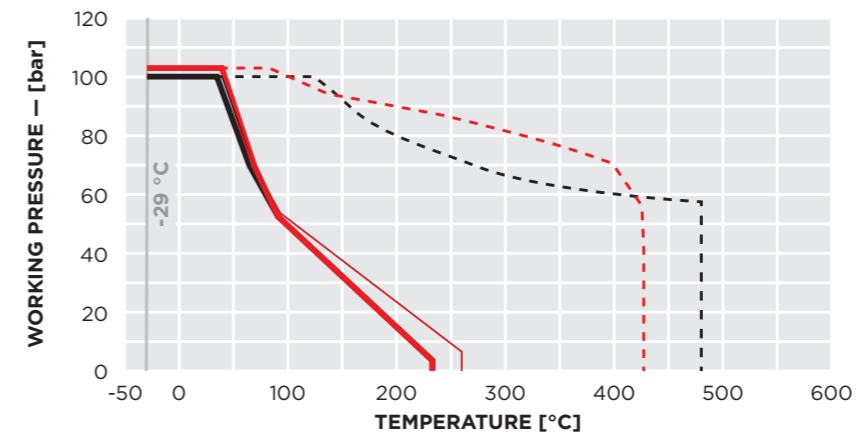
LEGEND	
—	Carbon Steel Body / RPTFE Seat
—	Stainless Steel Body / RPTFE Seat
—	Carbon Steel Body / PTFE Seat
—	Stainless Steel Body / PTFE Seat
- - -	Carbon Steel Body / Inconel® Seat
- - -	Stainless Steel Body / Inconel® Seat

PN63 | PN100 — SERIES 44/45



VALVE SIZES (DN)				
Model	Body Style	Resilient Seated	Firesafe	Metal Seated
44	Wafer	80 to 600	80 to 600	150 to 300
45	Lug	80 to 900	80 to 900	150 to 300

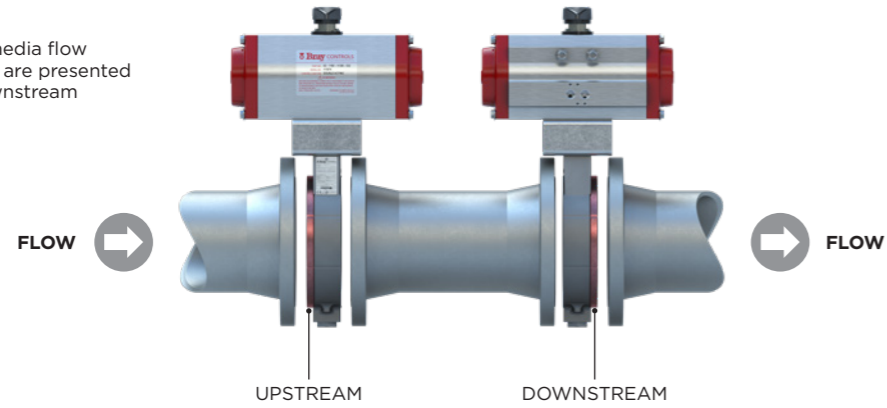
PN63 | PN100 — SERIES 44/45
RESILIENT SEATED / FIRE SAFE / METAL SEATED



LEGEND	
—	Carbon Steel Body / RPTFE Seat
—	Stainless Steel Body / RPTFE Seat
—	Carbon Steel Body / PTFE Seat
—	Stainless Steel Body / PTFE Seat
- - -	Carbon Steel Body / Inconel® Seat
- - -	Stainless Steel Body / Inconel® Seat

SEAT RETAINER POSITION

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



PN10 | PN16 – SERIES 40/41/4A

RESILIENT SEATED VALVE – TORQUE VALUES (Nm)								
DN	Valve Differential Pressure (bar)							
	≤6 bar		>6 to ≤10 bar		>10 to ≤16 bar		>16 to ≤20 bar	
	Seat Retainer		Seat Retainer		Seat Retainer		Seat Retainer	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
50	17	19	19	24	22	29	23	32
65	19	23	21	27	24	32	24	34
80	21	25	24	29	25	34	26	36
100	31	36	34	42	36	47	36	52
125	62	73	72	90	80	106	83	118
150	78	92	87	108	93	124	95	137
200	145	169	158	192	169	220	178	240
250	271	316	298	373	319	425	327	468
300	395	463	452	565	497	667	518	743
350	610	712	669	836	723	960	758	1,087
400	870	1,028	1,021	1,277	1,141	1,525	1,195	1,715
450	1,345	1,582	1,537	1,921	1,695	2,260	1,753	2,514
500	1,729	2,034	1,932	2,407	2,090	2,791	2,155	3,088
600	2,785	3,277	3,127	3,909	3,390	4,531	3,517	5,035
700	3,938	4,632	4,248	5,310	5,005	6,689	5,079	7,264
750	4,514	5,310	4,854	6,067	5,740	7,649	6,003	8,588
800	5,084	5,988	5,514	6,892	6,508	8,677	6,726	9,622
900	6,101	7,231	7,321	9,152	8,304	11,073	8,804	12,613
1000	7,005	8,248	8,316	10,395	9,321	12,428	9,688	13,886
1050	8,022	9,378	9,491	11,863	10,762	14,349	11,543	16,395
1200	11,073	12,993	13,739	17,174	16,100	21,467	17,371	24,874
1400	15,366	18,078	19,162	23,953	22,371	29,941	24,155	34,581

NOTE
 > For sizes not shown, contact Bray for more information.
 > All values are subject to change without notice.

PN10 | PN16 – SERIES 40/41/4A

FIRESAFE VALVE – TORQUE VALUES (Nm)								
DN	Valve Differential Pressure (Bar)							
	≤6 bar		>6 to ≤10 bar		>10 to ≤16 bar		>16 to ≤20 bar	
	Seat Retainer		Seat Retainer		Seat Retainer		Seat Retainer	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
65	76	79	77	85	79	91	80	95
80	84	86	85	90	87	97	88	102
100	95	95	98	105	100	117	103	125
125	157	158	163	174	168	194	181	210
150	183	180	187	197	202	221	215	239
200	282	283	294	304	307	341	324	364
250	410	410	436	456	471	531	500	581
300	679	676	697	740	741	851	784	923
350	1,311	1,302	1,355	1,436	1,469	1,704	1,543	1,934
400	1,609	1,554	1,690	1,767	1,811	2,097	1,853	2,325
450	1,866	1,793	1,989	2,064	2,099	2,441	2,183	2,740
500	2,218	2,123	2,328	2,409	2,619	3,028	3,273	4,105
600	3,038	2,926	3,459	3,593	4,093	4,742	5,731	7,182
700	3,744	3,643	4,505	4,756	5,530	6,553	8,659	11,639
750	4,340	4,230	5,473	5,764	6,946	8,141	11,123	14,811
800	5,163	5,067	6,597	6,971	8,257	9,700	13,412	17,880
900	6,382	6,635	8,578	9,660	10,944	13,780	18,548	25,897
1000	7,419	7,645	10,017	11,210	12,831	16,148	26,721	33,290
1050	8,126	8,396	11,101	12,447	14,302	18,024	29,972	37,545
1200	10,915	11,411	15,493	17,476	20,483	25,760	42,447	54,039

METAL SEATED VALVE – TORQUE VALUES (Nm)								
DN	Valve Differential Pressure (Bar)							
	≤6 bar		>6 to ≤10 bar		>10 to ≤16 bar		>16 to ≤20 bar	
	Seat Retainer		Seat Retainer		Seat Retainer		Seat Retainer	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
65	69	71	70	76	71	82	72	86
80	76	78	77	81	78	87	79	92
100	85	86	88	95	90	105	93	112
125	141	142	147	156	152	175	163	189
150	164	162	168	178	182	199	194	215
200	254	255	264	274	277	307	292	328
250	369	369	393	410	424	478	450	523
300	611	609	628	666	667	766	706	831
350	1,180	1,172	1,219	1,293	1,322	1,533	1,389	1,741
400	1,448	1,399	1,521	1,590	1,630	1,887	1,667	2,093
450	1,679	1,614	1,790	1,858	1,889	2,197	1,964	2,466
500	1,996	1,911	2,095	2,168	2,357	2,725	2,946	3,695
600	2,734	2,634	3,113	3,234	3,684	4,268	5,158	6,464
700	3,370	3,278	4,055	4,280	4,977	5,898	7,793	10,475
750	3,906	3,807	4,926	5,188	6,251	7,327	10,010	13,330

NOTE
 > For sizes not shown, contact Bray for more information.
 > All values are subject to change without notice.

PN25 | PN40 — SERIES 42/43/4B

RESILIENT SEATED VALVE — TORQUE VALUES (Nm)								
DN	Valve Differential Pressure (bar)							
	≤10 bar		>10 to ≤16 bar		>16 to ≤25 bar		>25 to ≤40 bar	
	Seat Retainer		Seat Retainer		Seat Retainer		Seat Retainer	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
50	17	20	30	36	40	51	50	59
65	19	22	32	36	41	50	52	69
80	21	25	34	36	43	48	53	68
100	30	36	45	48	58	64	76	97
125	62	72	107	119	147	174	195	258
150	65	111	134	150	170	202	217	289
200	177	206	243	277	307	370	368	500
250	313	367	422	490	526	650	690	952
300	475	556	618	724	765	960	1,007	1,405
350	819	960	1,066	1,236	1,317	1,627	1,543	2,108
400	1,332	1,558	1,654	1,867	2,004	2,386	2,613	3,532
450	1,716	2,008	2,131	2,449	2,571	3,126	3,139	4,269
500	2,284	2,676	2,831	2,170	3,403	4,228	4,159	5,743
600	3,620	4,241	4,459	5,193	5,399	6,690	6,246	9,043
750	7,613	8,930	9,838	11,770	11,974	15,346	13,668	20,230
900	11,332	13,285	13,993	16,558	16,729	21,127	17,795	27,641
1000	12,924	15,170	16,623	19,098	19,962	26,108	24,136	37,507
1200	14,248	16,710	20,875	24,333	29,155	36,984	32,088	54,293

FIRESAFE VALVE — TORQUE VALUES (Nm)								
DN	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
65	77	81	87	92	96	106	98	117
80	85	90	95	100	103	113	106	126
100	96	101	120	124	140	151	150	176
125	160	169	227	238	288	315	317	151
150	225	236	280	291	332	360	368	436
200	337	353	400	413	470	506	511	601
250	776	819	963	1,021	1,130	1,260	1,255	1,516
300	1,175	1,234	1,359	1,447	1,557	1,740	1,719	2,082
350	2,033	2,135	2,295	2,433	2,266	2,497	2,334	2,786
400	2,993	3,140	3,575	3,732	3,767	4,081	4,037	4,775
450	3,975	4,110	4,639	4,754	4,695	4,945	4,879	5,546
500	5,323	5,455	6,266	6,305	6,375	6,567	6,747	7,427
600	8,298	8,466	9,747	9,566	9,715	9,888	10,122	10,998
750	10,246	10,828	12,493	13,431	13,409	14,578	15,457	17,993
900	16,321	17,253	20,083	21,430	21,716	23,522	25,465	29,401

METAL SEATED VALVE — TORQUE VALUES (Nm)								
DN	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
65	69	73	78	83	86	96	88	106
80	76	81	86	90	93	101	96	113
100	86	91	108	112	126	136	135	159
125	144	152	205	214	259	283	285	136
150	203	212	252	262	299	324	331	393
200	304	318	360	371	423	455	459	541
250	699	737	866	919	1,017	1,134	1,129	1,365
300	1,058	1,110	1,223	1,302	1,402	1,566	1,547	1,874
350	1,830	1,921	2,065	2,190	2,040	2,247	2,100	2,508
400	2,694	2,826	3,217	3,358	3,390	3,673	3,633	4,297
500	3,578	3,699	4,175	4,279	4,225	4,450	4,391	4,991
600	4,791	4,910	5,639	5,674	5,737	5,910	6,072	6,684
750	7,468	7,620	8,772	8,609	8,743	8,899	9,110	9,898

NOTE
 > For sizes not shown, contact Bray for more information. All values are subject to change without notice.

PN63 | PN100 — SERIES 44/45

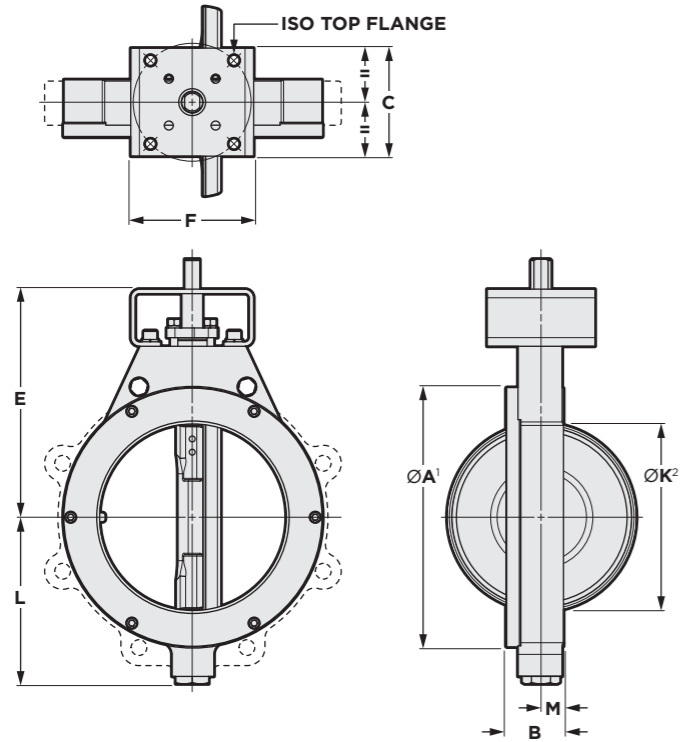
RESILIENT SEATED VALVE — TORQUE VALUES (Nm)								
DN	Valve Differential Pressure (bar)							
	≤25 bar		>25 to ≤40 bar		>40 to ≤63 bar		>63 to ≤100 bar	
	Seat Retainer		Seat Retainer		Seat Retainer		Seat Retainer	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
80	49	68	79	97	99	127	112	162
100	108	137	143	178	171	219	213	301
150	201	267	286	355	366	472	458	645
200	479	640	643	797	805	1028	1095	1557
250	958	1235	1070	1328	1426	1844	1876	2670
300	1402	1796	1241	1538	2037	2642	2336	3324
350	1703	2181	2136	2655	2573	3346	3339	4774
400	2211	2826	3150	3921	3496	4584	5052	7209
450	2771	3645	3798	4718	4936	6388	7144	10184
500	3766	4864	5024	6249	6589	8640	9638	13723
600	5527	7142	7853	9799	9472	12377	13564	19387
900	14099	17713	19214	24047	35593	47220	44363	63583

FIRESAFE VALVE — TORQUE VALUES (Nm)								
DN	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
80	141	164	185	188	207	224	202	226
100	183	211	227	252	265	313	297	412
150	345	408	473	566	630	833	653	905
200	583	742	826	962	898	1299	1204	1840
250	1199	1269	1729	1933	2181	2582	2467	2935
300	2058	1832	2571	2836	3296	3830	3790	4397
350	2877	2661	3384	3536	4223	4807	4907	5550
400	3927	3956	5069	5333	6668	7330	7877	10715
450	5679	5720	7133	7823	9467	10872	8998	12792
500	7586	7463	9647	10295	12927	14397	12402	17030
600	11937	10211	13103	14040	17506	19588	20603	23123
900	22318	27516	38458	38880	52719	55308	64102	66353

METAL SEATED VALVE — TORQUE VALUES (Nm)								
DN	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
150	310	367	426	509	567	749	588	815
200	525	668	744	865	808	1169	1084	1656
250	1079	1142	1556	1740	1963	2324	2220	2641
300	1852	1648	2314	2552	2966	3447	3411	3957

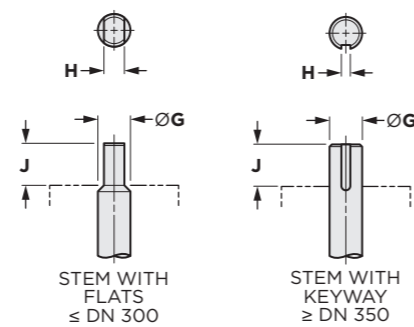
NOTE
 > For sizes not shown, contact Bray for more information.
 > All values are subject to change without notice.

PN10 | PN16 – SERIES 40 WAFER/41 LUG



- NOTES**
- > For flange drillings, refer to the SRD-BC_S40_EU-EN file.
 - > Weights are for cast steel bodies, except when noted.
 - 1 Dimension A is diameter of raised face flange.
 - 2 Dimension K is absolute minimum pipe ID at valve face (without gasket).
 - 3 Flame cut body weights. Flame cut steel and stainless steel bodies vary. Consult Bray factory.

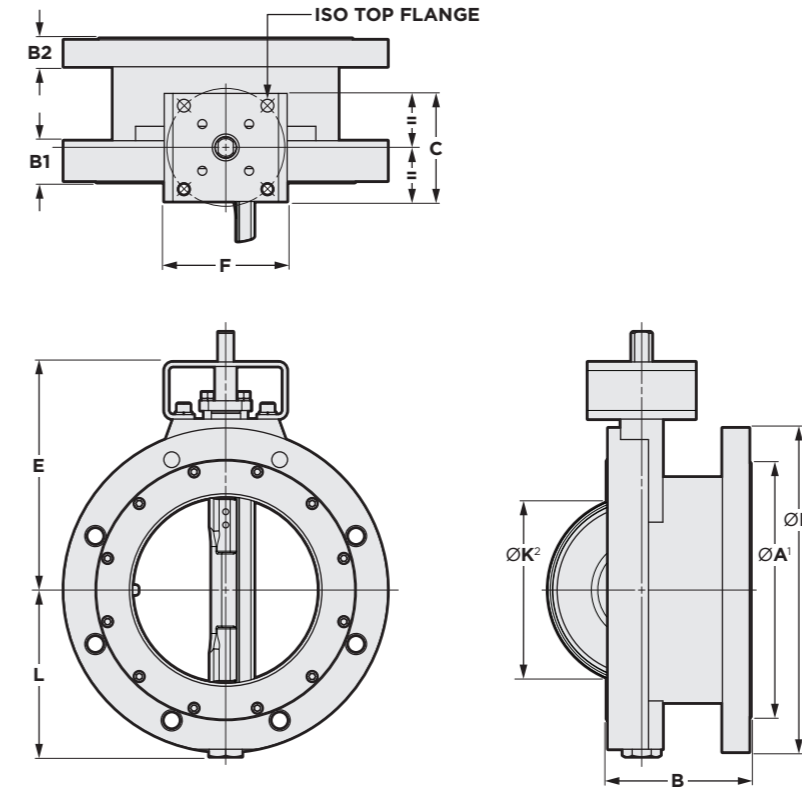
STEM DETAILS



DN	DIMENSIONS (mm)											WEIGHT (kg)				
	ØA'	B	C	E	F	ØG	H	J	ØK²	L	M	ISO Top Flange			Wafer	Lug
												Bolt Circle	Hole Qty	Hole Ø		
50	102	44	64	152	111	14	10	32	38	92	19	70	4	10	5	5
65	121	48	64	162	111	16	11	32	58	97	19	70	4	10	6	8
80	133	48	64	168	111	16	11	32	73	104	19	70	4	10	7	9
100	171	52	64	191	111	16	11	32	94	120	19	70	4	10	9	13
125	191	57	114	191	130	19	13	32	122	129	24	125	4	14	12	14
150	219	57	114	203	130	19	13	32	149	142	24	125	4	14	15	16
200	273	61	114	241	130	22	16	32	198	176	24	125	4	14	21	32
250	332	70	114	273	155	30	22	51	248	217	27	125	4	14	36	43
300	394	78	114	311	155	30	22	51	302	259	29	125	4	14	56	62
350	445	95	165	368	197	35	10 x 10	51	328	304	36	125	4	14	94	103
400	503	104	165	298	264	50	12 x 10	64	373	333	42	165	4	21	142	156
450	544	117	165	508	264	50	12 x 10	64	422	365	47	165	4	21	187	200
500	601	128	165	578	264	64	16 x 16	102	470	395	52	165	4	21	242	274
600	711	152	298	635	391	76	19 x 19	102	572	467	62	254	8	17	372	422
700	823	165	298	679	391	76	19 x 19	102	672	522	71	254	8	17	508	590
750	876	191	343	730	495	89	22 x 16	133	710	543	79	298	8	21	668	715
800	956	191	343	762	495	89	22 x 16	133	767	568	82	298	8	21	745 ³	923 ³
900	1033	210	343	838	495	89	22 x 16	133	864	642	92	298	8	21	886	1179
1000	1124	241	343	940	495	114	25 x 19	133	953	692	111	298	8	21	1191 ³	1594 ³
1050	1206	241	343	965	495	114	25 x 19	133	1003	746	111	298	8	21	1459 ³	1729
1200	1372	254	406	1070	610	127	32 x 22	152	1168	841	114	356	8	32	2079 ³	2322 ³
1400	1686	273	406	1156	610	152	38 x 25	165	1332	906	121	356	8	32	2346 ³	3002

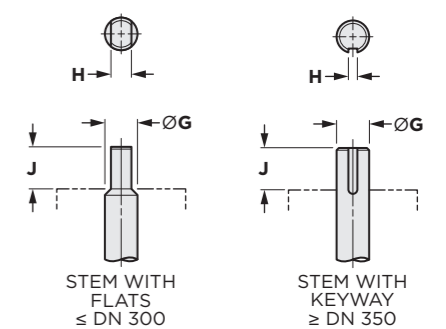
- NOTE**
- > For sizes not shown, contact Bray for more information.
 - > All values are subject to change without notice.

PN10 | PN16 – SERIES 4A DOUBLE FLANGED



- NOTES**
- > For flange drillings, refer to the SRD-BC_S40_EU-EN file.
 - > Additional flange drilling options available.
 - > Weights are for cast steel bodies, except when noted.
 - 1 Dimension A is diameter of raised face flange.
 - 2 Dimension K is absolute minimum pipe ID at valve face (without gasket).

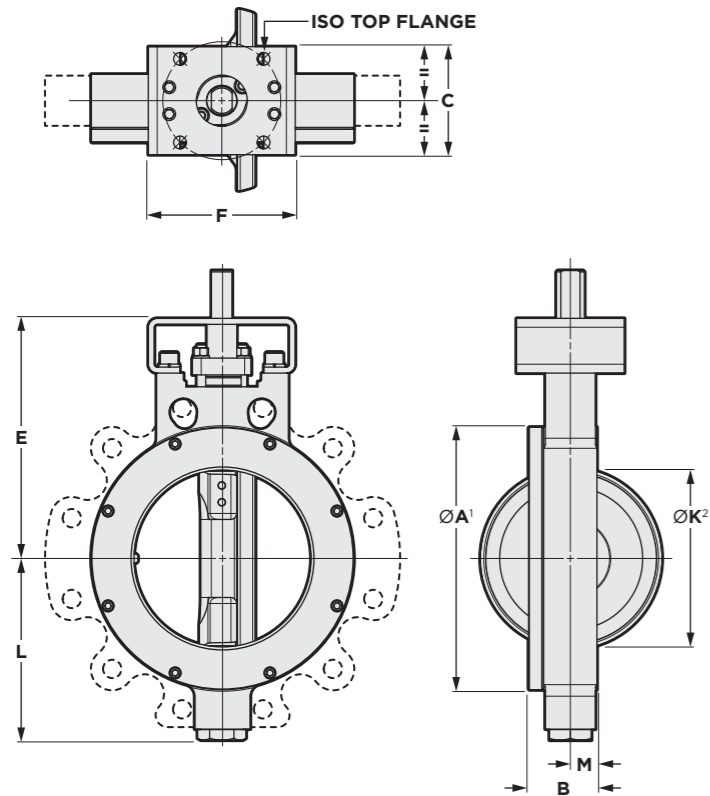
STEM DETAILS



DN	DIMENSIONS (mm)											WEIGHT (kg)						
	ØA'	B	B1	B2	C	ØD	E	F	ØG	H	J	ØK²	L	ISO Top Flange			Wafer	Lug
														Bolt Circle	Hole Qty	Hole Ø		
80	133	114	36	27	64	191	168	111	16	11	32	73	104	70	4	10		13
100	171	127	37	27	64	229	191	111	16	11	32	94	120	70	4	10		19
125	191	140	36	25	114	254	191	130	19	11	32	122	129	70	4	10		24
150	219	140	38	27	114	279	203	130	19	13	32	149	141	70	4	10		28
200	273	152	46	30	114	343	241	130	22	16	32	198	176	125	4	14		45
250	332	165	46	34	114	406	273	155	30	22	51	248	217	125	4	14		78
300	394	178	54	36	114	483	311	155	30	22	51	298	259	125	4	14		104
350	445	191	58	39	165	533	368	197	35	10 x 10	51	328	304	125	4	14		156
400	503	216	57	41	165	597	451	264	50	12 x 10	64	373	329	165	4	21		250
450	544	222	63	44	165	635	508	264	50	12 x 10	64	422	359	165	4	21		320
500	601	229	69	44	165	715	578	264	63,5	16 x 16	102	470	388	165	4	21		440
600	710	268	76	49	298	838	635	391	76	19 x 19	102	559	467	254	8	17		535
700	813	292	101	73	298	927	679	391	76	19 x 19	102	664	522	254	8	17		762
750	876	318	110	78	343	984	730	495	89	22 x 16	133	705	542	298	8	21		574
800	914	318	125	84	343	1060	762	495	89	22 x 16	133	756	568	298	8	21		1092
900	1022	330	141	94	343	1168	838	495	89	22 x 16	133	851	642	298	8	21		1388
1050	1219	410	148	100	343	1354	965	495	114	25 x 19	133	1003	746	298	8	21		2270

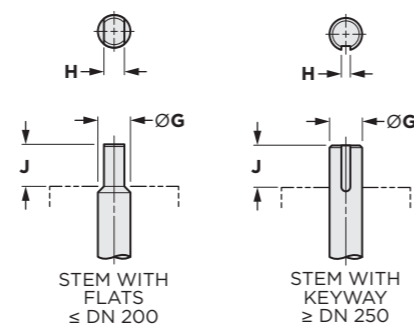
- NOTE**
- > For sizes not shown, contact Bray for more information.
 - > All values are subject to change without notice.

PN25 | PN40 — SERIES 42 WAFER/43 LUG



- NOTES**
- > For flange drillings, refer to the SRD-BC_S40_EU-EN file.
 - > Weights are for cast steel bodies, except when noted.
 - 1 Dimension A is diameter of raised face flange.
 - 2 Dimension K is absolute minimum pipe ID at valve face (without gasket).

STEM DETAILS

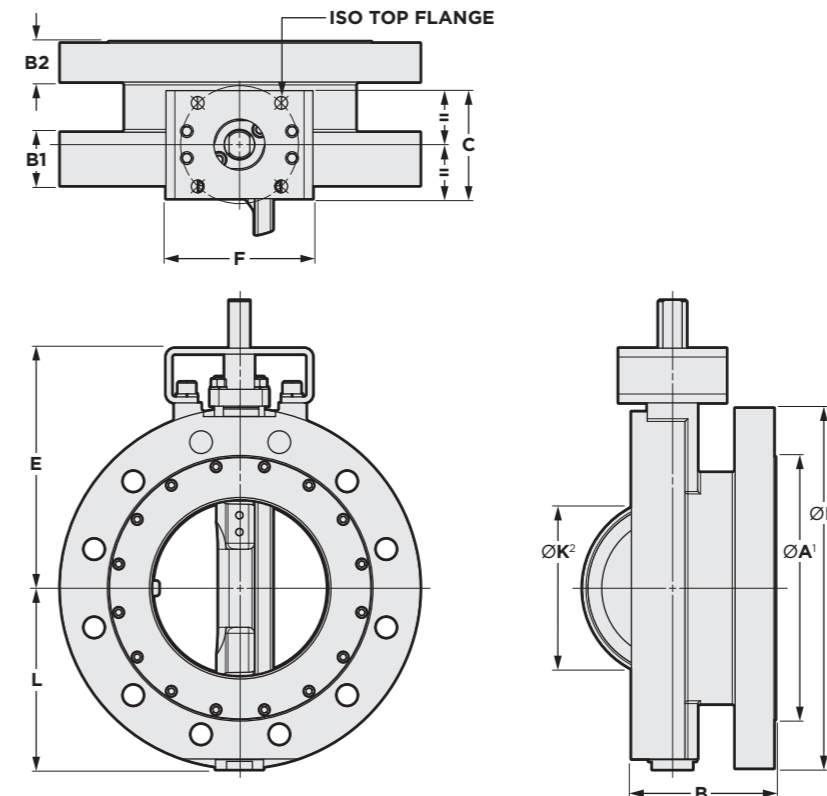


DN	DIMENSIONS (mm)											WEIGHT (kg)				
	$\varnothing A^1$	B	C	E	F	$\varnothing G$	H	J	$\varnothing K^2$	L	M	ISO Top Flange				
	Bolt Hole Circle			Qty			Hole \varnothing			Wafer	Lug					
50	102	44	64	152	111	14	10	32	38	92	19	70	4	10	4	5
65	121	48	64	162	111	16	11	32	58	97	19	70	4	10	5	6
80	133	48	64	168	111	16	11	32	73	104	19	70	4	10	6	7
100	171	52	64	191	111	16	11	32	94	120	19	70	4	10	9	10
125	210	57	114	203	130	19	13	32	122	130	24	125	4	14	15	17
150	226	61	114	222	130	22	16	32	146	159	25	125	4	14	18	23
200	278	72	114	254	155	30	22	51	192	192	28	125	4	14	31	38
250	337	83	114	289	155	35	10 x 10	51	240	238	33	125	4	14	52	62
300	395	92	165	343	197	35	10 x 10	51	287	277	36	125	4	14	78	95
350	439	118	165	464	264	50	12 x 10	64	292	318	54	165	4	21	151	202
400	495	136	165	533	264	64	16 x 16	102	365	360	64	165	4	21	206	241
450	543	152	298	533	391	64	16 x 16	102	387	392	67	254	8	17	276	342
500	604	161	298	565	391	76	19 x 19	102	419	427	74	254	8	17	355	436
600	730	181	343	667	495	89	22 x 16	133	530	503	86	298	8	21	581	705
900	1068	271	406	921	610	127	32 x 22	152	851	689	133	356	8	28	1453	1811
1050	1159	292	475	1029	660	152	38 x 25	165	1003	743	130	406	8	32	2003	2129
1200	1322	318	559	1137	737	178	44 x 38	191	1162	842	140	483	12	38	3175	—

NOTE

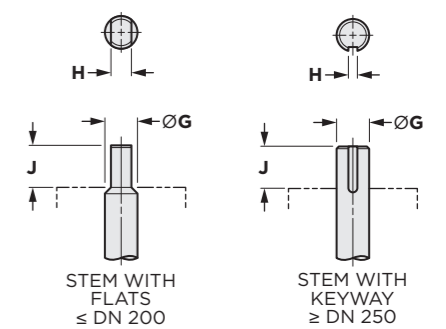
- > For sizes not shown, contact Bray for more information.
- > All values are subject to change without notice.

PN25 | PN40 — SERIES 4B DOUBLE FLANGED



- NOTES**
- > For flange drillings, refer to the SRD-BC_S40_EU-EN file.
 - > Weights are for cast steel bodies, except when noted.
 - 1 Dimension A is diameter of raised face flange.
 - 2 Dimension K is absolute minimum pipe ID at valve face (without gasket).

STEM DETAILS

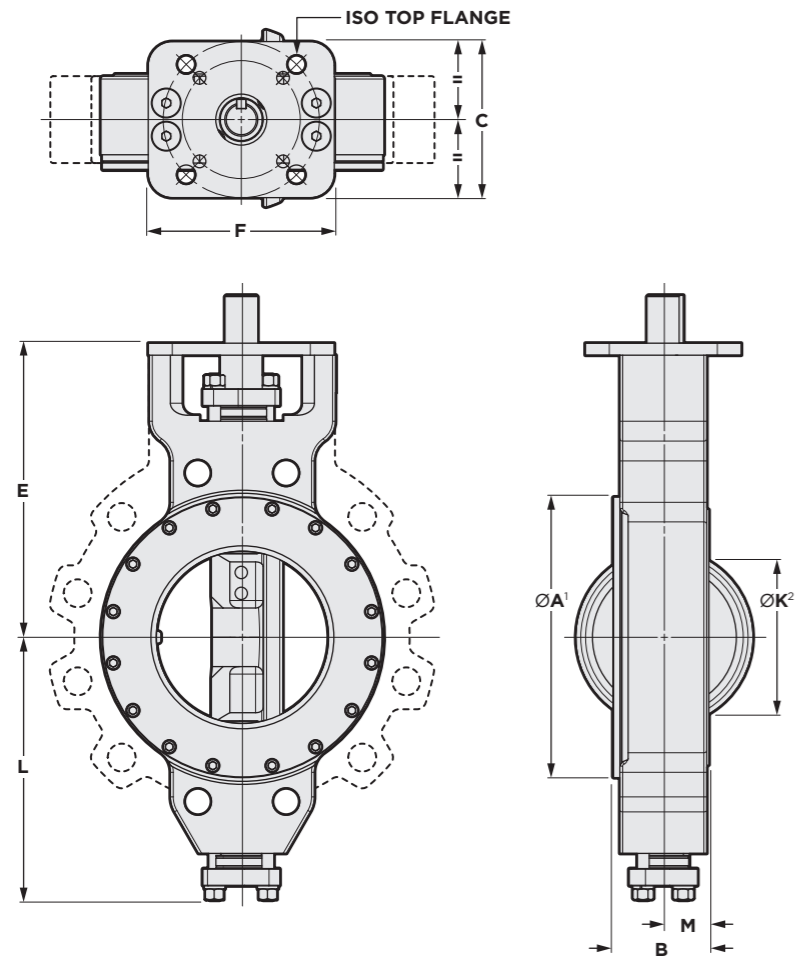


DN	DIMENSIONS (mm)													WEIGHT (kg)			
	$\varnothing A^1$	B	B1	B2	C	$\varnothing D$	E	F	$\varnothing G$	H	J	$\varnothing K^2$	L	ISO Top Flange			
	Bolt Hole Circle			Qty			Hole \varnothing			Wafer	Lug						
80	133	114	39	28	64	210	168	111	16	11	32	52	104	70	4	10	18
100	171	127	44	32	64	254	191	111	16	11	32	72	120	70	4	10	28
150	226	140	49	37	114	318	222	130	22	16	32	127	159	125	4	14	39
200	278	152	55	41	114	394	254	155	30	22	51	170	192	125	4	14	78
250	337	165	65	48	114	445	289	155	35	10 x 10	51	217	238	125	4	14	95
300	395	178	70	51	165	521	343	197	35	10 x 10	51	264	277	125	4	14	182
350	438	191	75	54	165	584	464	264	50	12 x 10	64	268	318	165	4	21	278
400	495	216	80	57	165	648	533	264	64	16 x 16	102	344	353	165	4	21	350
450	543	222	92	60	298	711	533	391	64	16 x 16	102	351	392	254	8	17	474
500	604	229	91	64	298	775	565	391	76	19 x 19	102	394	427	254	8	17	585
600	692	267	102	71	343	914	667	495	89	22 x 16	133	518	503	298	8	21	912
900	1023	330	156	107	406	1270	921	610	127	32 x 22	152	851	689	356	8	32	2103
1050	1159	410	180	122	475	1289	1029	660	152	38 x 25	165	1003	743	406	8	32	2483

NOTE

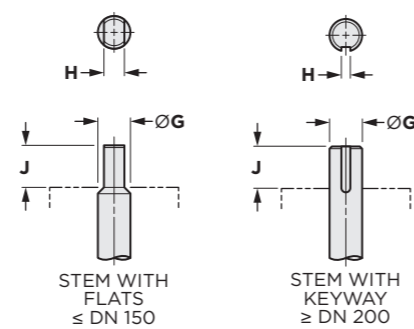
- > For sizes not shown, contact Bray for more information.
- > All values are subject to change without notice.

PN63 | PN100 – SERIES 44 WAFER/45 LUG



- NOTES**
- > For flange drillings, refer to the SRD-BC_S40_EU-EN file.
 - > Weights are for cast steel bodies, except when noted.
 - 1 Dimension A is diameter of raised face flange.
 - 2 Dimension K is absolute minimum pipe ID at valve face (without gasket).
 - 3 Flame cut body weights. Flame cut steel and stainless steel bodies vary. Consult Bray factory.

STEM DETAILS



DN	DIMENSIONS (mm)											WEIGHT (kg)		
	ØA ¹	B	C	E	F	ØG	H	J	ØK ²	L	M	ISO Top Flange Bolt Hole Circle Qty Ø	Wafer	Lug
80	147	56	114	178	130	19	13	30	70	145	23	70 4 10	11 ³	13 ³
100	178	64	114	216	130	22	16	30	90	179	29	125 4 14	18 ³	22 ³
150	248	81	114	248	155	30	22	51	137	218	35	125 4 14	36 ³	48 ³
200	300	102	165	311	197	35	10 x 10	51	175	274	48	165 4 21	68 ³	92 ³
250	358	117	165	432	264	50	12 x 10	64	216	371	50	165 4 21	127 ³	167 ³
300	418	140	165	464	264	50	12 x 10	64	257	399	64	165 4 21	185 ³	250 ³
350	458	155	298	502	391	64	16 x 16	102	276	444	74	254 8 17	226 ³	319 ³
400	518	178	298	552	391	76	19 x 19	102	321	493	87	254 8 17	309 ³	452 ³
450	589	197	343	603	495	89	22 x 16	133	371	535	91	298 8 21	450 ³	595 ³
500	639	216	343	654	495	102	25 x 19	133	416	590	99	298 8 21	617 ³	839 ³
600	741	232	406	787	610	127	32 x 22	152	505	708	100	356 8 32	882 ³	1185 ³
900	1022	355	559	1131	851	178	44 x 32	171	851	984	147	483 12 38	2392 ³	3218 ³

NOTE

- > For sizes not shown, contact Bray for more information.
- > All values are subject to change without notice.

RESILIENT SEATED / FIRESAFE / METAL SEATED

DN	PN10 PN16 – SERIES 40/41/4A – Kv VALUES									
	DISC POSITION (Degrees)									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	74	65	55	43	31	21	12	7	5	
65	136	116	85	67	43	26	14	7	3	
80	158	152	132	105	74	48	27	12	4	
100	320	311	269	213	149	98	54	26	9	
125	674	576	427	307	203	125	67	35	14	
150	1,152	913	640	435	281	186	119	69	30	
200	2,388	1,902	1,356	904	584	389	239	141	55	
250	3,668	2,943	2,073	1,390	896	597	384	213	85	
300	5,672	4,546	3,199	2,158	1,390	921	597	333	132	
350	6,525	5,203	3,668	2,474	1,612	1,066	691	384	149	
400	8,359	6,705	4,700	3,156	2,064	1,305	870	495	196	
450	8,957	7,762	5,937	4,350	3,003	1,894	1,007	427	145	
500	11,516	9,980	7,506	5,545	3,839	2,405	1,305	546	171	
600	17,060	14,586	10,918	8,163	5,664	3,310	1,877	785	205	
700	23,884	20,387	15,525	11,516	7,933	4,862	2,644	1,109	247	
750	27,296	23,287	17,828	13,222	9,127	5,715	3,071	1,288	273	
800	29,002	24,822	19,022	14,075	9,724	6,099	3,284	1,373	290	
900	41,371	35,058	27,040	19,790	13,989	8,701	4,632	1,928	409	
1000	52,886	47,086	37,532	28,405	20,301	12,966	7,336	3,003	572	
1050	55,445	49,474	39,323	29,855	21,325	13,648	7,677	3,156	597	
1200	77,623	69,008	54,336	37,191	24,822	17,060	9,383	3,924	785	
1400	136,480	119,420	89,565	63,975	42,650	26,443	14,501	5,971	1,194	

DN	PN25 PN40 – SERIES 42/43/4B – Kv VALUES									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	74	65	55	43	31	21	12	7	5	
65	136	116	85	67	43	26	14	7	3	
80	158	152	132	105	74	48	27	12	4	
100	320	311	269	213	149	98	54	26	9	
125	674	576	427	307	203	125	67	35	14	
150	853	746	606	452	316	205	118	67	22	
200	1,706	1,467	1,160	810	537	345	205	103	40	
250	2,260	1,919	1,484	1,024	665	435	252	128	52	
300	3,412	2,900	2,133	1,442	938	606	367	188	78	
350	3,497	2,986	2,218	1,510	1,024	708	418	205	85	
400	6,653	5,579	3,881	2,533	1,570	989	623	358	154	
450	8,104	6,824	5,263	3,864	2,653	1,680	921	375	80	
500	9,383	8,163	6,227	4,606	3,173	1,987	1,066	452	94	
600	15,354	12,880	9,724	7,310	5,050	3,156	1,706	708	154	
750	24,737	20,813	16,122	11,686	7,251	5,118	2,755	1,134	247	
900	38,385	32,499	24,908	17,913	12,624	7,762	3,975	1,476	324	
1050	51,180	46,062	35,826	25,590	16,207	11,089	6,398	2,218	384	
1200	70,799	63,122	49,474	34,973	22,178	14,501	8,530	3,753	682	

DN	PN63 PN100 – SERIES 44/45 – Kv VALUES									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
80	141	135	115	88	57	39	10	7	3	
100	256	230	179	128	81	60	38	26	4	
150	735	662	519	368	234	173	112	61	13	
200	1,280	1,152	896	640	409	294	178	67	17	
250	1,877	1,680	1,314	938	597	427	256	119	34	
300	2,644	2,380	1,851	1,322	853	580	341	162	47	
350	3,327	2,815	2,047	1,339	938	623	358	171	60	
400	4,265	3,583	2,474	1,621	1,024	682	427	213	81	
450	5,118	4,265	3,327	2,388	1,621	1,024	563	247	111	
500	6,824	5,886	4,521	3,327	2,303	1,450	810	341	122	
600	9,383	7,933	5,971	4,436	3,071	1,919	1,024	427	154	
750	12,795	11,089	8,530	7,165	4,350	2,388	1,407	512	171	
900	Consult factory									

NOTES

- > Kv varies with the valve size, angle of opening and the manufacturer's valve style.
- > Kv value is the volume of water in cubic meters/hour (m³/hr) that will flow through a given restriction or valve opening with a pressure drop of one (1) bar at room temperature.
- > All values are subject to change without notice.

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