



ABO valve

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HIGH PERFORMANCE BUTTERFLY VALVES

Body design

WAFFER type

LUG type

DOUBLE FLANGED type

Nominal size

DN40 - DN600

Working pressure

16/25/40/50 bar

Flange connection

PN6/PN10/PN16/PN25/

PN40/Class 150/Class 300

Working temperature

-50°C / +200°C (R-PTFE)
+325°C / +500°C
(METAL-METAL)

Tightness

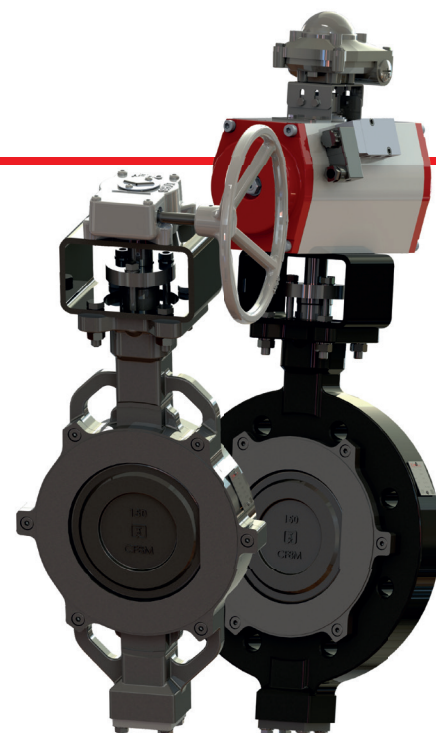
Class A (R-PTFE)/Class C
(METAL-METAL)



SERIES 2E

energy line

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Description

The 2E Series high performance, double offset butterfly valves are engineered for demanding industrial applications requiring high reliability, safety, and minimal maintenance. Designed in wafer or lug body configurations, they provide secure shut-off and operational efficiency across a wide range of process conditions. The eccentric disc design reduces seat wear, ensures low operating torque, and maintains sealing integrity even under rapid thermal or pressure fluctuations. Suitable for handling water, steam, gas, oil derivatives, and other aggressive media, the valves comply with EN, ISO, API, and ATEX standards and are adaptable for manual, pneumatic, or electric actuation.

Working medium

Potable/waste/hot	Oil, oil derivatives	Steam
Industrial/supply water	Pulp	Condensate
Crude oil	Paper stock	Air
Petroleum products	Natural/coke	Bitumen (asphalt)
Fuel	Oven/stack gas	

Standards

Design standard	EN 593 / ASME B16.34 API 609 - option
Leak test	Design RPTFE / Design FIRE SAFE Uni-directional tightness RS option: Bi-directional tightness EN 12266-1, Class A ISO 5208, Class A API 598 ANSI/FCI 70-2, Class VI Design M-M (METAL-METAL) Uni-directional tightness EN 12266-1, Class C ISO 5208, Class C ANSI/FCI 70-2, Class IV
Face-to-face dimension	Wafer „B“ / Lug „T“ EN 558-2, series 20 (series 25 - for DN350) ISO 5752, series 20 (series 25 - for DN350) API 609, category B, Class 150 Double flange „DF“ EN 558-2, series 13 ISO 5752, series 13 API 609, Category B (short pattern), Class 150
ATEX performance	As option
Anti blow-out design	As option
Top flange	EN ISO 5211
Flange connection	Type B, EN 1092-1 (Type D, EN 1092-1 as option) Raised face, ASME B16.5 (Small groove face, ASME B16.5 as option)
Marking	EN 19 EN 593 PED 2014/68/EU API 609 ASME B16.34

Type designation

5 5 90 B 150 03 RS ■ **RS Option**

Option

- 0 - bare shaft
- 3 - manual gearbox with handwheel
- 4 - pneumatic actuator
- 5 - electric actuator

Nominal size (DN)

Design of the body

- B - Wafer
- T - Lug
- F - Double flanged

Disc material

- 0 - stainless steel

Seat material

- 7 - INCONEL
- 8 - FIRE SAFE (R-PTFE + INCONEL)
- 9 - R-PTFE (PTFE reinforced by 25% glass fibre)

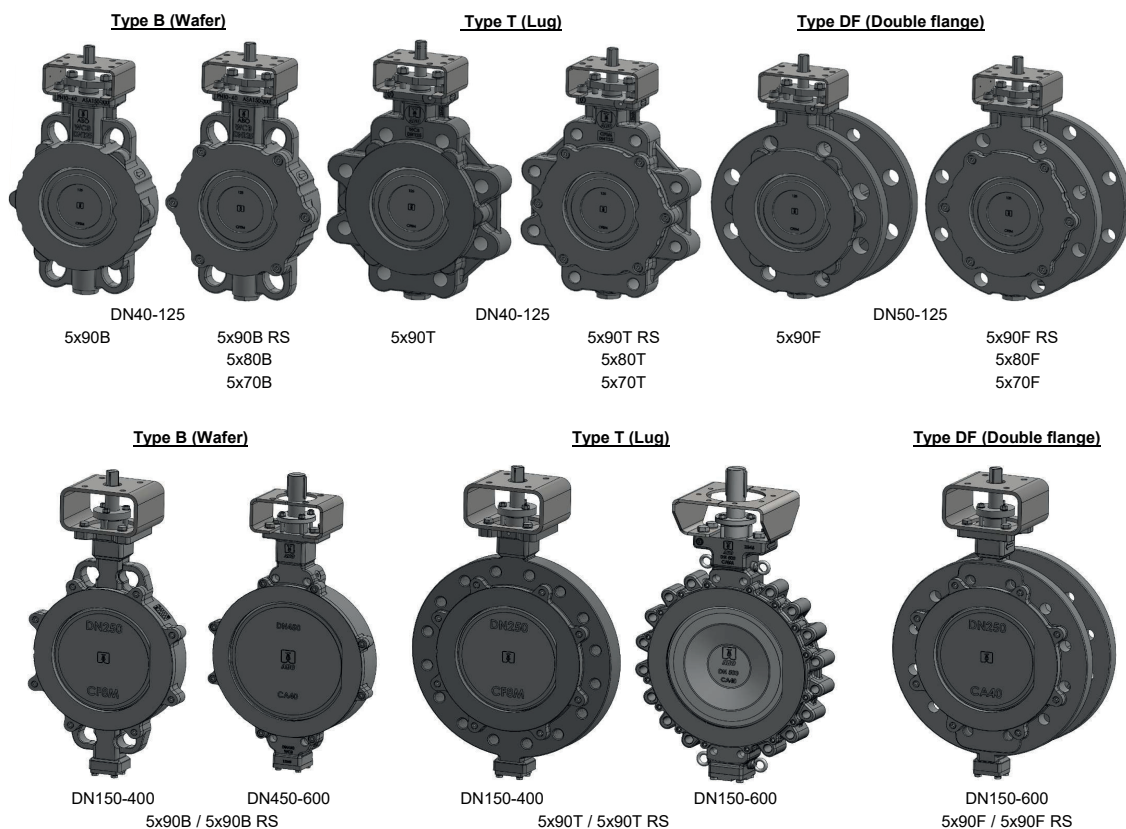
Body material

- 4 - stainless steel
- 5 - carbon steel
- 6 - low-temperature carbon steel

Series designation

- Series 2E

SERIES 2E BUTTERFLY VALVES DESIGN MODELS PTFE / PTFE RS / M-M / FIRE SAFE B / T / DF DN150-600



TORQUES

Operation torques [Nm] vs. working pressure [bar] RPTFE seat (standard line DN50 – DN600)

OPENING TORQUES [Nm]														
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
PS 16 bar	19	35	50	77	110	145	278	567	650	1378	2248	2569	3090	4300
PS 25 bar	22	45	58	79	120	185	366	732	900	1900	3483	3925	5340	6250
PS 40 bar	32	53	62	90	150	242	485							
PS 50 bar	25	60	65	105										

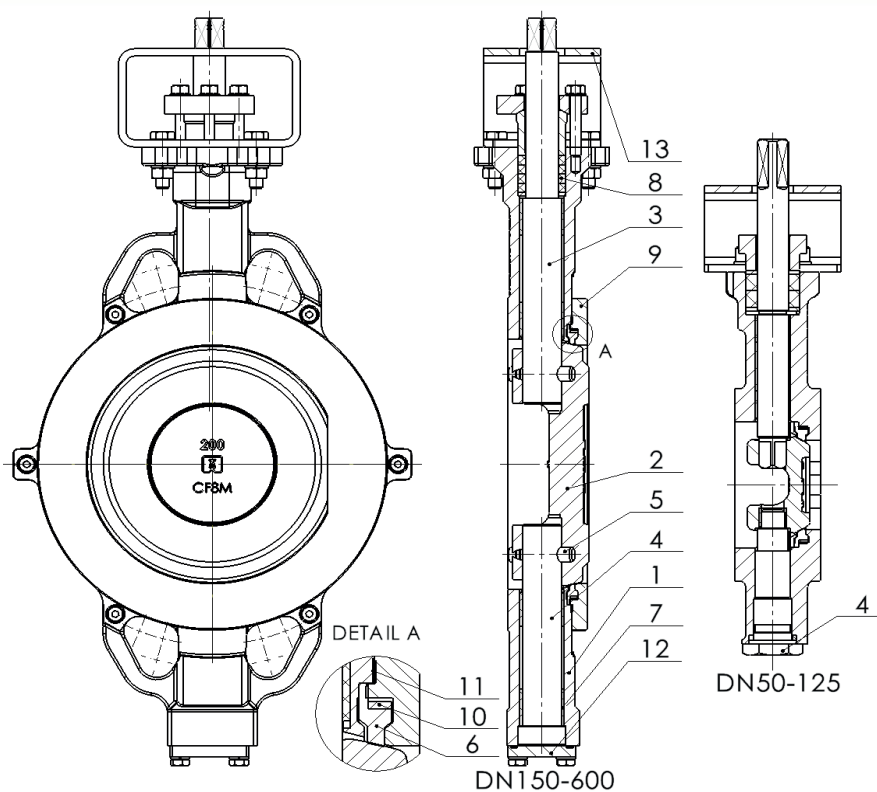
Operating torques are mentioned without safety reserve

Operation torques [Nm] vs. working pressure [bar] Metal – metal/Fire safe

OPENING TORQUES [Nm]					
DN	50	65	80	100	125
NPS	2"	2 1/2"	3"	4"	5"
Pmax 16 bar	50	70	100	150	220
Pmax 25 bar	50	70	100	150	220

Operating torques are mentioned without safety reserve

MATERIAL CONFIGURATION 5x90



For standard option with cast body for DN50-600. Valid for B / T / DF types

Part NO	Item	5590	5490	5690
1	Body	WCB	CF8M	LCC
2	Disc (DN50-125)	CF8M	CF8M	CF8M
	Disc (DN150-600)	CA40		
3	Shaft	1.4021	1.4462	1.4462
4	Pivot (DN50-125)	1.4404	1.4404	1.4404
	Pivot (DN150-600)	1.4021	1.4462	1.4462
5*	Pin	1.4021	1.4462	1.4462
6	Seat	RPTFE	RPTFE	RPTFE
7	Bearing	IGLIDUR X	IGLIDUR X	IGLIDUR X
8	Packing	Graphite	Graphite	Graphite
9**	Ring flange (DN150-600)	1.0425 + Zn	1.4404	1.4404
10	Bandage	1.4404	1.4404	1.4404
11**	Flange seal (DN150-600)	Graphite	Graphite	Graphite
12*	Cover (DN150-600)	1.0425	1.4404	1.4404
13	Bracket	Carbon steel	Carbon steel	Carbon steel

Fastener material is A4 for all material configuration.

* Only DN150-600 valves have a cover (position 12) and pins (position 5);

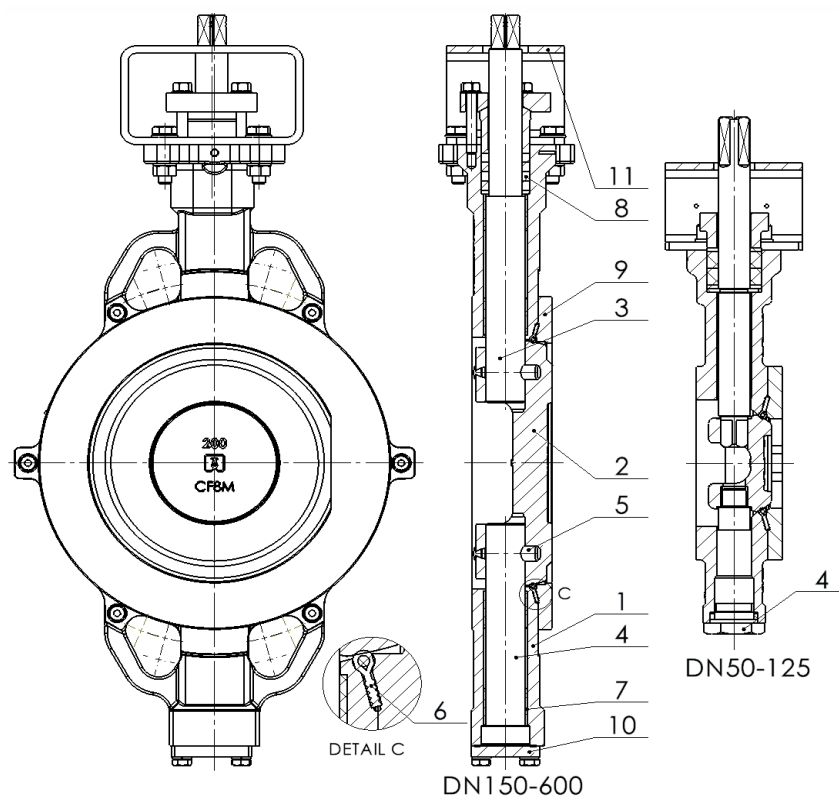
DN50-125 valves have a pivot with thread (position 4), picture DN50-125.

** Only DN150-600 valves have a ring flange (position 9) and flange seal (position 11);

DN50-125 are without ring flange and flange seal, picture DN50-125

Other material performance upon request.

MATERIAL CONFIGURATION 5x90RS



For standard option with cast body for DN50-600. Valid for B / T / DF types

Part NO	Item	5590 RS	5490 RS	5690 RS
1	Body	WCB	CF8M	LCC
2	Disc (DN50-125)	CF8M	CF8M	CF8M
	Disc (DN150-600)	CA40		
3	Shaft	1.4021	1.4462	1.4462
4	Pivot (DN50-125)	1.4404	1.4404	1.4404
	Pivot (DN150-600)	1.4021	1.4462	1.4462
5*	Pin	1.4021	1.4462	1.4462
6	Seat	RPTFE+Silicone	RPTFE+Silicone	RPTFE+Silicone
7	Bearing	IGLIDUR X	IGLIDUR X	IGLIDUR X
8	Packing	Graphite	Graphite	Graphite
9	Ring flange	1.0425 + Zn	1.4404	1.4404
10*	Cover	1.0425	1.4404	1.4404
11	Bracket	Carbon steel	Carbon steel	Carbon steel

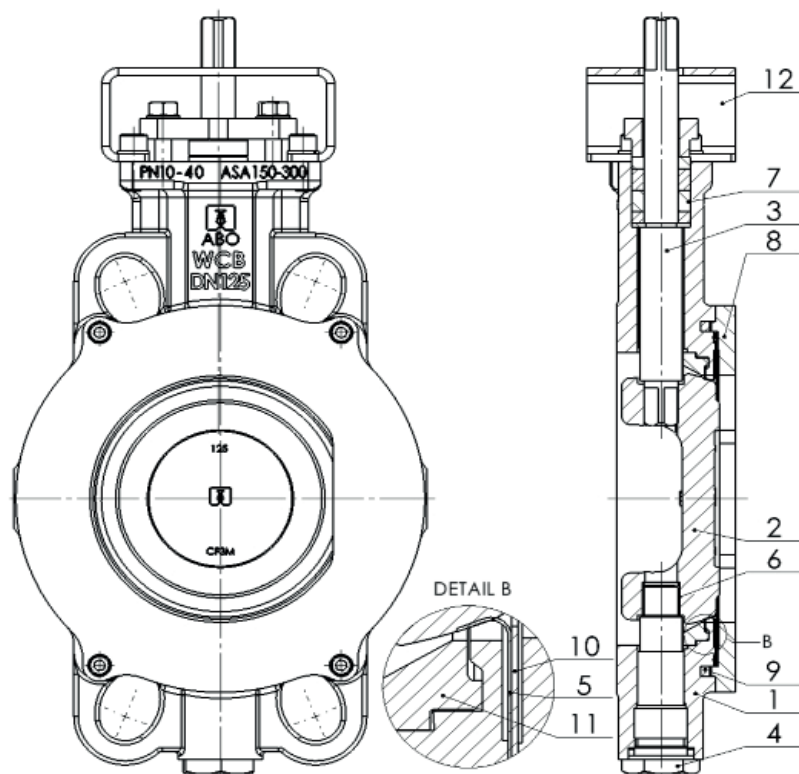
Fastener material is A4 for all material configuration.

* Only DN150-600 valves have a cover (position 10) and pins (position 5);

DN50-125 valves have a pivot with thread (position 4), picture DN50-125.

Other material performance upon request.

MATERIAL CONFIGURATION 5x70

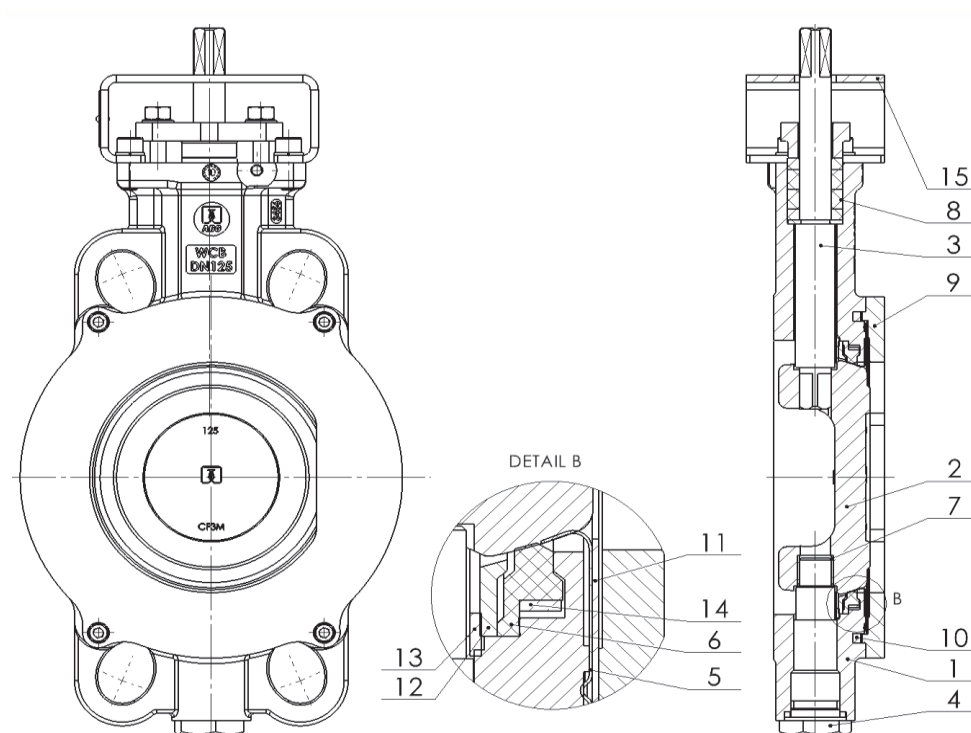


For standard option with cast body for DN50-125. Valid for B / T / DF types

Part NO	Item	5570	5470	5670
1	Body	WCB	CF8M	LCC
2	Disc	CF8M	CF8M	CF8M
3	Shaft	1.4021	1.4462	1.4462
4	Pivot	1.4404	1.4404	1.4404
5	Seat	INCONEL	INCONEL	INCONEL
6	Bearing	1.4404+Ni	1.4404+Ni	1.4404+Ni
7	Packing	Graphite	Graphite	Graphite
8	Ring flange	1.0425 + Zn	1.4404	1.4404
9	Flange seal	Graphite	Graphite	Graphite
10	Distance ring	INCONEL	INCONEL	INCONEL
11	Support ring	1.4404	1.4404	1.4404
12	Bracket	Carbon steel	Carbon steel	Carbon steel

Fastener material is A4 for all material configuration.
 Other material performance upon request.

MATERIAL CONFIGURATION 5x80

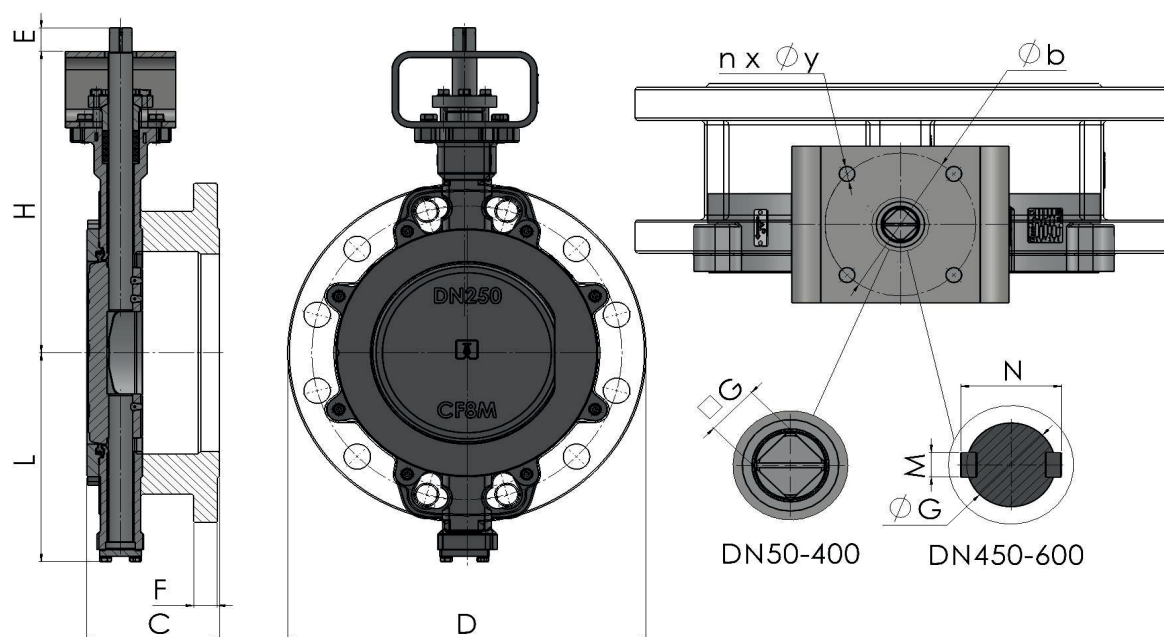


For standard option with cast body for DN50-125. Valid for B / T / DF types

Part NO	Item	5580	5480	5680
1	Body	WCB	CF8M	LCC
2	Disc	CF8M	CF8M	CF8M
3	Shaft	1.4021	1.4462	1.4462
4	Pivot	1.4404	1.4404	1.4404
5	Seat	INCONEL	INCONEL	INCONEL
6	Seat	RPTFE	RPTFE	RPTFE
7	Bearing	1.4404+Ni	1.4404+Ni	1.4404+Ni
8	Packing	Graphite	Graphite	Graphite
9	Ring flange	1.0425 + Zn	1.4404	1.4404
10	Flange seal	Graphite	Graphite	Graphite
11	Distance ring	INCONEL	INCONEL	INCONEL
12	Support ring	1.4404	1.4404	1.4404
13	Retainer ring	1.4401	1.4401	1.4401
14	Bandage	1.4404	1.4404	1.4404
15	Bracket	Carbon steel	Carbon steel	Carbon steel

Fastener material is A4 for all material configuration.
Other material performance upon request.

DIMENSIONS



For standard option with cast body:

DN	H	L	C			F	D			E	G/M/N	ISO 5211 FLANGE	n x øy	øb	DESIGN B [kg]	DESIGN T [kg]	DESIGN DF [kg]
			„B“	„T“	„DF“		„B“	„T“	„DF“								
50	162,5	92,5	44	-	-	114	151	-	25	□14	F07	4x9	70	4	5	-	
65	169,5	100	47	-	-	138	137	-	25	□14	F07	4x9	70	5	8	-	
80	173,5	106	47	114	21	150	195	210	25	□14	F07	4x9	70	6	10	14	
100	205,5	122,5	53	127	21	192	225	240	25	□14	F07	4x9	70	9	12	18	
125	215	137	57	140	23	217	259	280	25	□14	F07	4x9	70	12	15	27	
150	307	214	57	140	25	253	318	298	25	□17	F07/F10	4x9/4x11	70/102	21	32	37	
200	338,5	245,5	61	152	27	307	381	373	31	□22	F10	4x11	102	29	46	58	
250	395	274	69	165	29	352	450	445	31	□22	F12	4x13	125	46	70	88	
300	459,5	312	79	178	30	394	521	508	31	□27	F14	4x17	140	67	104	122	
350	508	354	92**	190	34	448	577	577	45	□27	F16	4x22	165	100	149	174	
400	556	401	103	216	36	542	657	657	58	□36	F16	4x22	165	130	206	230	
450	567	395	114	-	-	566	622	-	80	ø55/16/62,6	F16	4x22	165	160	174	-	
500	625	428	127	229	43	623	707	730	100	ø64/18/72,4	F25	8x18	254	240	280	344	
600	698	491,5	154	154	53	729	821	845	110	ø75/20/84,2	F25	8x18	254	365	410	535	

The weights are approximate, depending on material configuration and connection

**For standard option valve DN350 B and T type is FTF dimension (dimension C) according to series 25, others DN are according to series 20

Others option FTF dimensions upon request

KV VALUES

Size	Valve open angle with Kv								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
DN50	3	8	18	34	50	62	68	70	65
DN65	5	13	33	57	83	108	131	144	140
DN80	9	22	51	84	114	155	206	254	259
DN100	20	48	97	144	197	274	363	435	442
DN125	25	57	110	189	275	394	524	623	633
DN150	30	65	120	208	345	517	696	821	840
DN200	55	112	221	396	641	971	1376	1728	1815
DN250	135	270	477	759	1127	1608	2176	2581	2645
DN300	180	385	675	1065	1593	2302	3184	3842	3962
DN350	220	486	852	1319	1950	2775	3732	4395	4555
DN400	245	560	1062	1649	2490	3627	5040	6110	6416
DN450	260	605	1115	1881	3011	4610	6874	9578	10165
DN500	325	647	1285	2272	3578	5351	7658	9978	10514
DN600	525	1075	2044	3411	5329	7932	11672	15414	16064

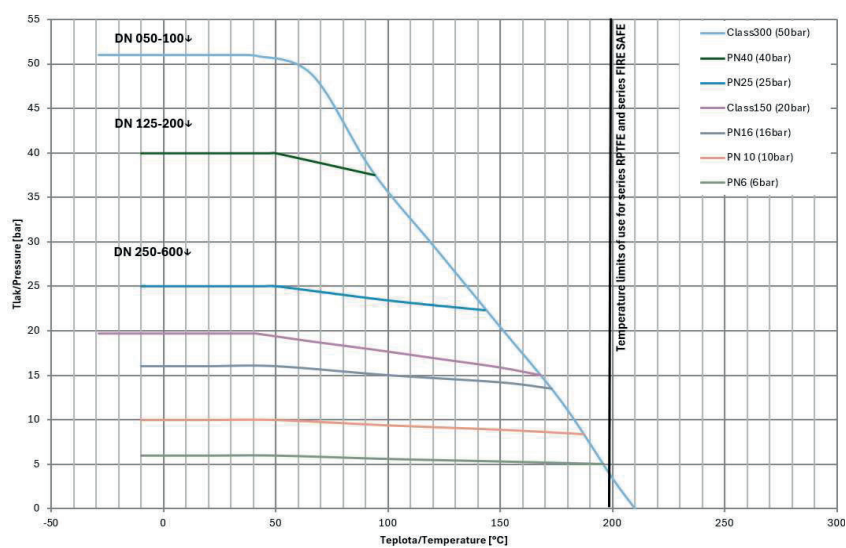
K_v = Water flow in m^3/h , passing through the valve at a pressure drop of 1 bar

C_v = Water flow in US gal/min passing through the valve at a pressure drop of 1 psi

$$K_v = 0,875 \times C_v$$

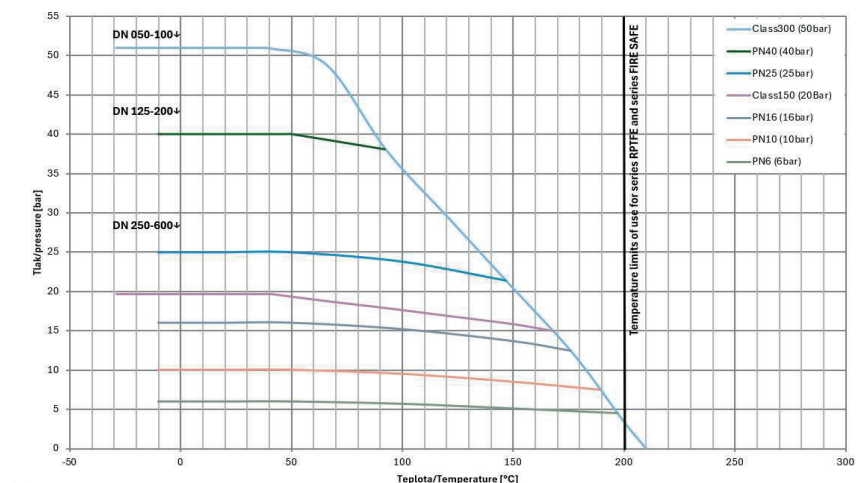
Pressure-temperature diagram

Body: carbon steel 1.0625 (WCB) / RPTFE

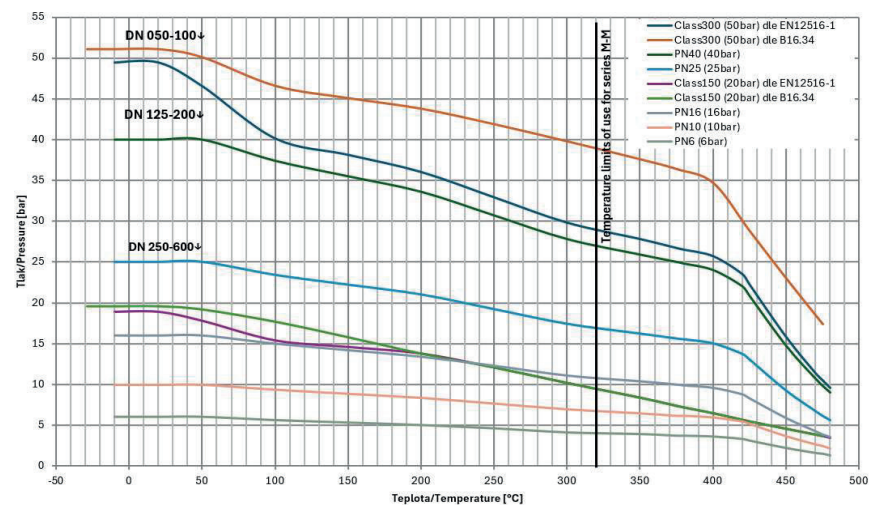


Pressure-temperature diagram

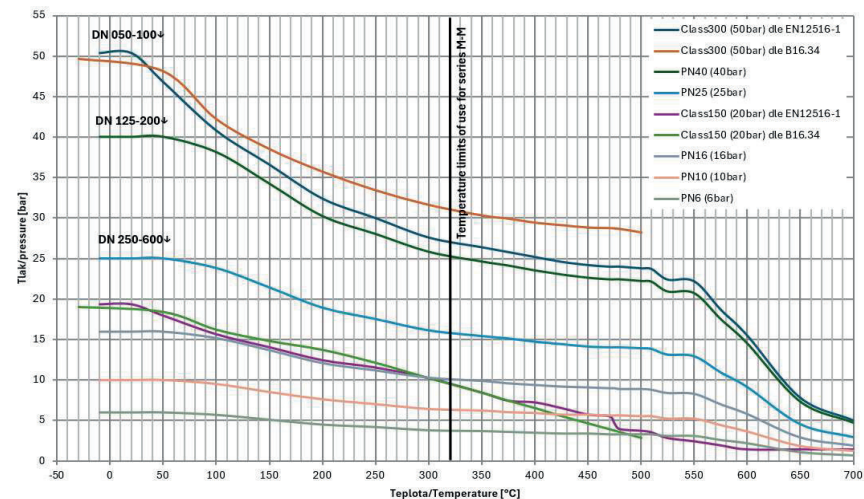
Body: stainless steel 1.4408 (CF8M) / RPTFE



Body: carbon steel 1.0625 (WCB) / INCONEL



Body: stainless steel 1.4408 (CF8M) / INCONEL



FLANGE CONNECTION

B type (wafer)

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
PN6														
PN10														
PN16														
PN25														
PN40														
ANSI150														
ANSI300														
JIS 10K														
JIS 16K														

	for cast bodies, all connections are possible at the same time
	connection available, should be specified in an order
	additional machining required
	only in case of face-to-face in accordance with CLASS300 or Series 25
	not available

T type (Lug type)

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
PN6														
PN10														
PN16														
PN25														
PN40														
ANSI150														
ANSI300														
JIS 10K														
JIS 16K														

	connection available, should be specified in an order
	additional machining required
	only in case of face-to-face in accordance with CLASS300 or Series 25
	not available

DF type (Double flange)

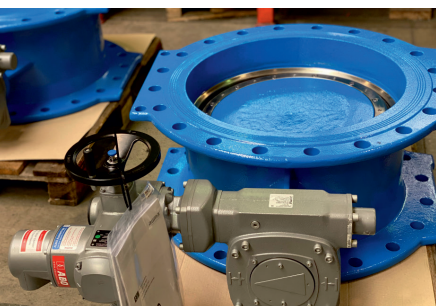
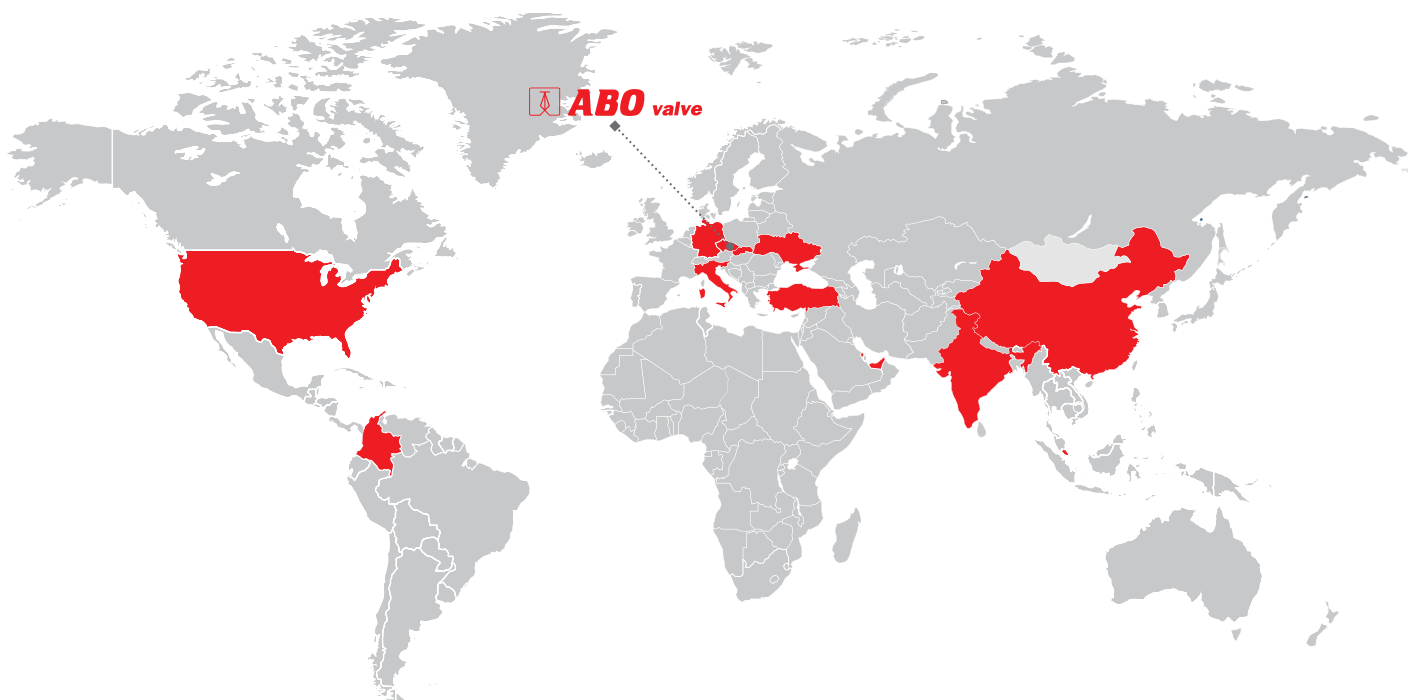
DN	80	100	125	150	200	250	300	350	400	450	500	600
NPS	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
PN6												
PN10												
PN16												
PN25												
PN40												
ANSI150												
ANSI300												
JIS 10K												
JIS 16K												

	connection available, should be specified in an order
	additional machining required
	not available



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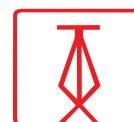
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