NEOTECHA PFA LINED BALL VALVES NTB - NTC

These PFA lined ball valves are used in a wide variety of applications in many industries

GENERAL APPLICATION

The valves are ideally suited for corrosive applications, requiring reliable performance, tight shutoff, constant torque and no maintenance. The valves successfully handle a multitude of corrosive applications in industries such as chemical, petro-chemical, pharmaceutical, pulp and paper, foundries and mining like sulphuric acid, etc. This unique design, together with the self adjusting stem seal (U.S. Patent 4.696.323) are two of the reasons behind the excellent performance and broad industry acceptance of this valve.

TECHNICAL DATA

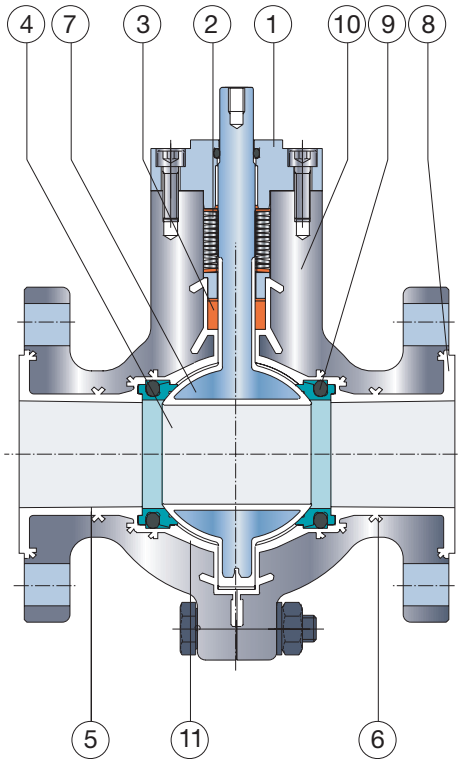
Size range:	DN 15 - 150 (½" - 6")
Temperature (°C):	-40 up to +210
Pressure range:	vacuum 0.1 mbar to 16 bar (see diagram)
Flange connections:	DIN PN 16, ANSI 150, JIS B 2212 10 K
Face to face:	DIN EN 558, row 1 ANSI B 16.10

FEATURES

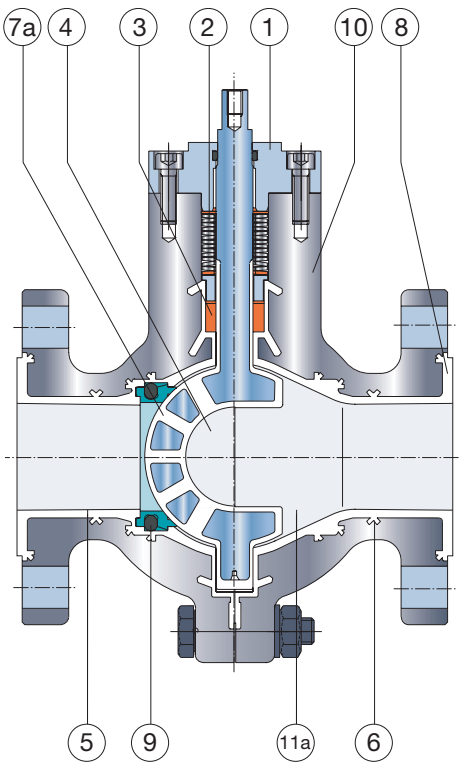
- PFA lining offers highest corrosion resistance
- Bubble tight shut-off: precision machined ball and seats guarantees an absolute leak-free valve.
- Full bore offers high K_v-value equal to the pipe
- One-piece ball/stem: no possibility of damaging PFA-lining on ball by the stem, no hysteresis, ideal for flow control applications.
- Specific anti blow-out shaft design, which can not be affected by the media, according API 609.
- Static electricity: any build-up of static electricity is eliminated since the ball/stem and the housing are of the same potential.
- Constant torque: the unique two-piece body construction together with the spring loaded seats guarantee a constant torque even after months of operation. TA-Luft VDI 2440 approved.
- The self adjusting packing is maintenance free and provides a leak free stem seal.
- The handlever features a positive locked position in the open and closed position for type NTB, and 6 intermediate positions for type NTC.
- The body has a thermally applied polyester powder coating (RAL 9002) which offers excellent protection against external corrosion and rust.
- Direct mounting according to ISO 5211.

FEATURES

TYPE NTB



TYPE NTC



1. Every valve has a mounting flange according to ISO 5211 which simplifies the mounting of any actuator built to this standard.
2. A set of Belleville disc springs exert uniform loading on the packing, resulting in a maintenance free operation.
3. Flexible and corrosion resistant virgin PTFE packing ensures a leak-free stem seal (TA-Luft VDI 2440 approved).
4. Full bore design resulting in high K_V-value, especially required when high viscosity liquids have to be controlled.
5. The PFA lining is 3 mm thick and is spark tested at 30 000 Volts. This ensures a homogeneous PFA lining, void of any pinholes, giving protection against diffusion and corrosion.
6. The liner is locked to the casting by means of machined dovetails in the casting, permitting the valve to be used on high vacuum and elevated temperature without the danger of a liner collapse.
7. The one-piece trunnion mounted ball/stem ensures uniform support of the ball. The energized seats keep in constant contact with the ball under all operating conditions. Wear and tear on the seats is reduced, resulting in an increased operating life.

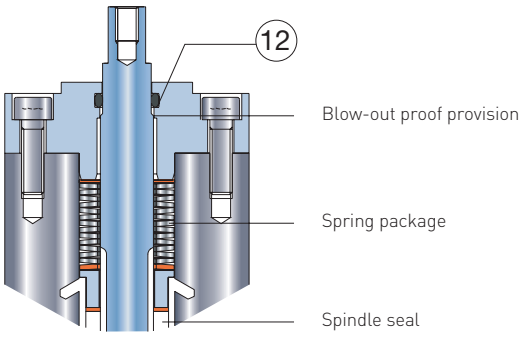
7a. The C-ball* reduces flow distortion and provides excellent regulating characteristics. The C-ball design is also, an ideal control valve for highly corrosive and sterile conditions.

8. Available in DIN and ANSI face to face dimensions, which allow an easy replacement of plug and diaphragm valves.
9. Locked in energized seats ensure both up stream and down stream bubble tight sealing, constant operating torque, and extended service life versus a floating ball seat design which depends on differential pressure for sealing.
10. Rugged symmetrical body halves made from ductile iron (GGG 40.3), coated on the outside with polyester powder coating which offers excellent corrosion protection.
11. The split body design allows the dead space between the ball stem and housing to be kept to an absolute minimum. The C-ball version is dead space free.

11a. The C-ball valve is dead space free and is ideally suited for tight shut off and control of hazardous, solidifying or high purity products where it is imperative that no product is entrapped in the ball and surrounding cavity.

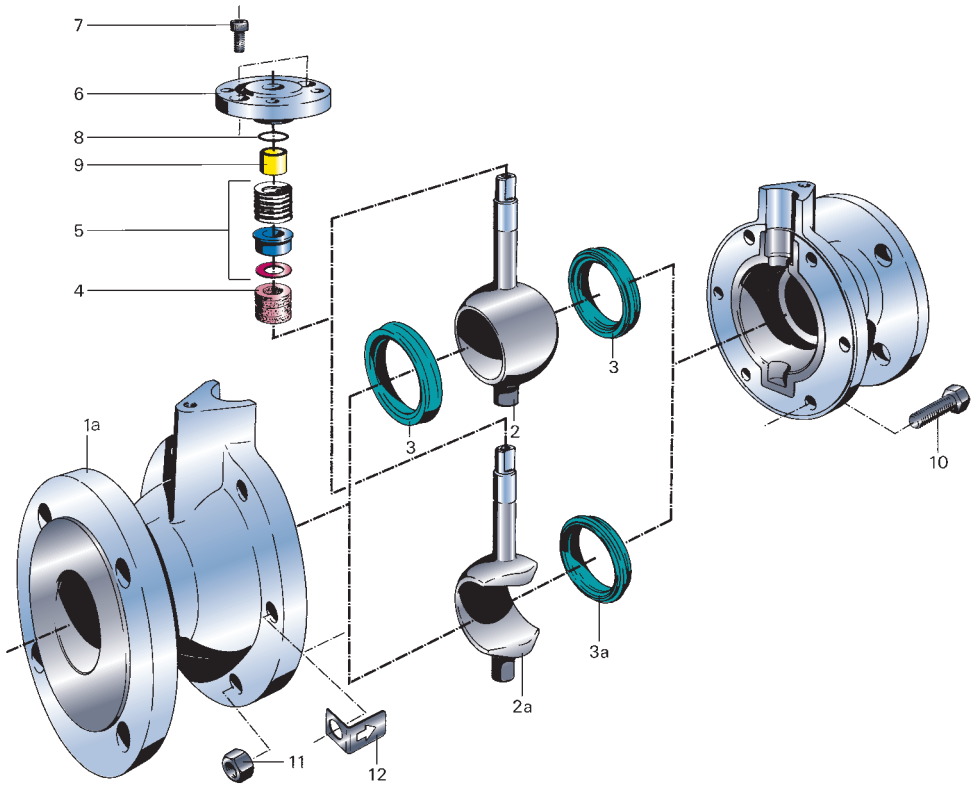
12. Full proof anti blow-out shaft design, located in the dry area of the valve and therefore unaffected by the media.

* C-Ball® is a registered trademark



NEOTECHA PFA LINED BALL VALVES NTB - NTC

CONSTRUCTIONS, ASSEMBLY & MATERIALS



BALL VALVE TYPE NTB

Pos.	Description	Material
1a	Body halves	PFA lined ductile iron ASTM A395
2	Ball-stem	PFA encapsulated alloy steel
3	Ball seat with O-ring	PTFE with PFA encapsulated FKM O-ring
4	Stem seal	PTFE
5	Spring package	Spring steel
6**	Mounting flange	Stainless steel
7	Internal hex bolt	DIN 912, 8.8 galv.
8	O-ring	FKM
9	Bearing	Iglidur*
10	Hex bolt	DIN 931, 8.8 galv.
11	Nut	DIN 934, galv.

NOTES

* Iglidur = registered trademark of Igus GmbH

** Mounting flange according ISO 5211

C-BALL VALVE

Pos.	Description	Material
1a	Body halves	PFA lined ductile iron ASTM A395
2a	C-ball-stem	PFA encapsulated alloy steel
3a	Ball seat with O-ring	TFM with PFA encapsulated FKM O-ring
4	Stem seal	PTFE
5	Spring package	Spring steel
6**	Mounting flange	Stainless steel
7	Internal hex bolt	DIN 912, 8.8 galv.
8	O-ring	FKM
9	Bearing	Iglidur*
10	Hex bolt	DIN 931, 8.8 galv.
11	Nut	DIN 934, galv.
12	Flow arrow	Stainless steel (304)

NEOTECHA PFA LINED BALL VALVES NTB - NTC

TECHNICAL DATA

OPERATING TORQUES AND K_v-VALUES

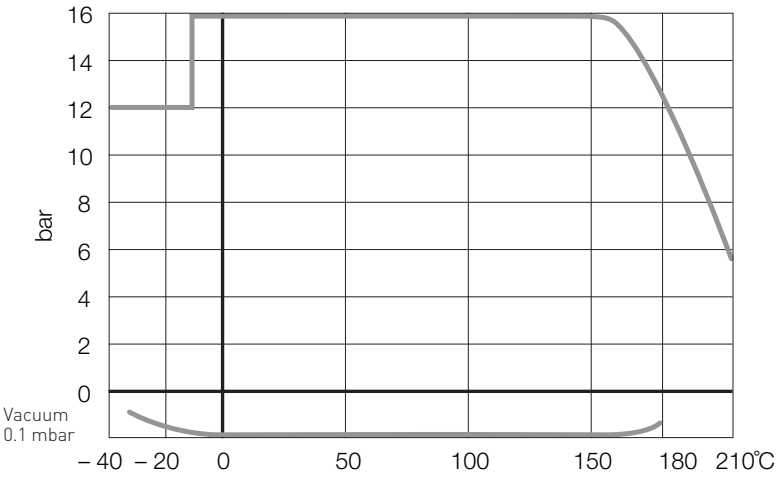
Size		Torque*		K_v	C_v
mm	inch	Nm	inlb	m^3/h	USGPM
15	½	20	177	12	14
20	¾	20	177	18	21
25	1	30	266	37	43
40	1½	50	443	96	111
50	2	70	620	170	196
65	2½	145	1283	380	439
80	3	145	1283	490	566
100	4	190	1681	780	901
150	6	350	3096	1900	2196

* Torque applicable for full pressure range

TECHNICAL DATA

Size (mm):	15 - 150
Temperature (°C):	-40 up to +210
Pressure range:	vacuum 0.1 mbar to 16 bar (see diagram)
Flange connections:	DIN PN 16, ANSI 150, JIS B 2212 10 K
Face to face:	DIN EN 558-1, row 1 ANSI B 16.10

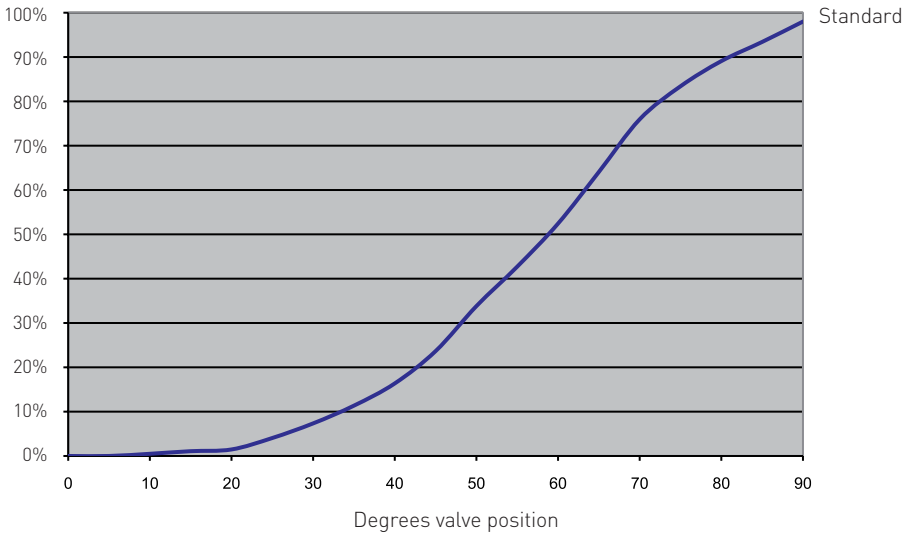
PRESSURE-TEMPERATURE DIAGRAM



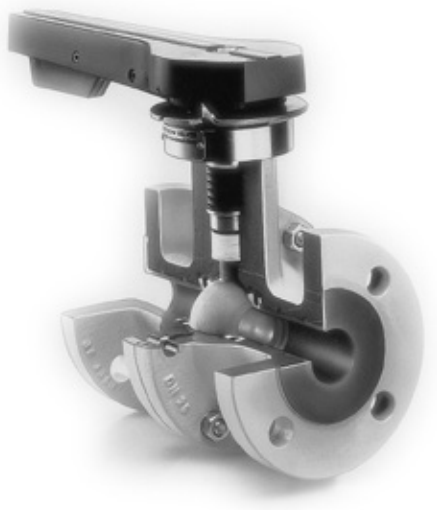
HEAVY DUTY SERVICE

Neotecha also offers the NTB-NB2 prepared for chlorine (Cl_2), HCl, HF and oxygen service. The specially prepared NB2 version includes TFM as seat material, stringent cleaning before assembly, special inert grease and packed in sealed bags to avoid contamination during transport or handling.

NTB DN 80 WITH STANDARD SEAT



Example of inherent flow characteristic for a NTB DN 80



NEOTECHA PFA LINED BALL VALVES NTB - NTC

TECHNICAL DATA

OPERATING TORQUES AND K_V-VALUES

Size		Torque*		K_V	C_V
mm	inch	Nm	in/lbs	m^3/h	USGPM
15	½	10	89	11	13
20	¾	10	89	16	18
25	1	15	133	34	39
40	1½	25	222	90	104
50	2	35	310	160	185
65	2½	75	664	360	416
80	3	75	664	450	520
100	4	110	973	710	821
150	6	200	1770	1800	2081

* Torque values applicable for standard seats only. For NTC with "V port seats" use the torque values indicated for the NTB

TECHNICAL DATA

Size (mm):	15 - 150
Temperature (°C):	-40 up to +210
Pressure range:	vacuum 0.1 mbar to 16 bar (see diagram)
Flange connections:	DIN PN 16, ANSI 150, JIS B 2212 10 K
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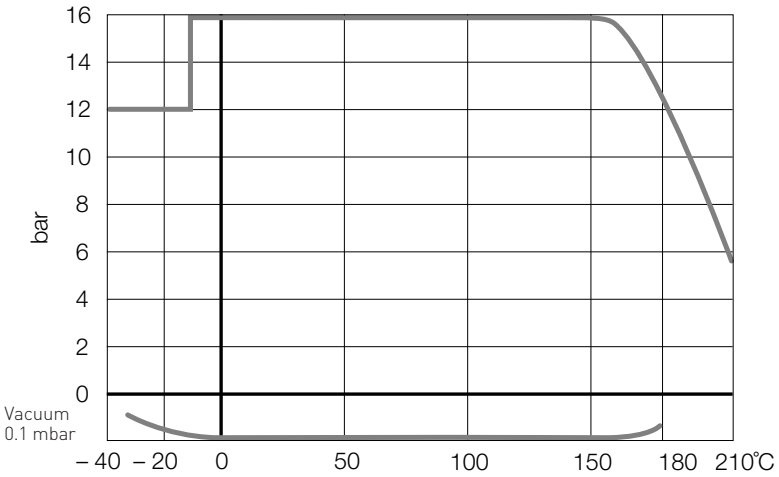
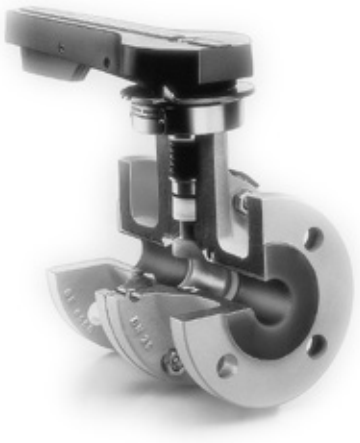
PRESSURE-TEMPERATURE DIAGRAM

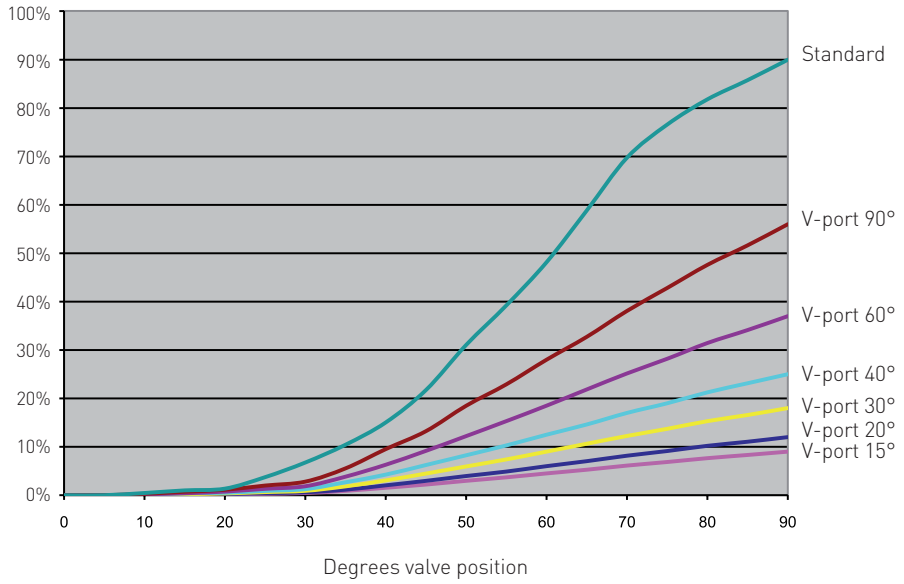


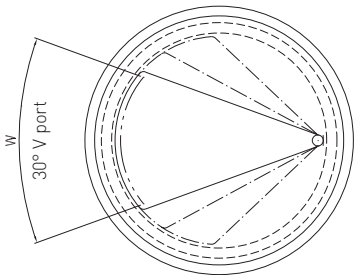
HEAVY DUTY SERVICE

Neotecha also offers the NTC-NB2 version. These valves are especially prepared for chlorine (Cl_2), HCl, HF and oxygen service. The specially prepared NB2 version includes TFM as seat material, stringent cleaning before assembly, special inert grease and packed in sealed bags to avoid contamination during transport or handling.



NTC DN 80 WITH V-PORT





Example of inherent flow characteristics for a NTC DN 80.
V-port seats transform the standard equal percentage characteristics into a linear characteristics.

C_v VALUES FOR V-PORT CONTROL SEAT

		Valve opening angle																		
Size	**V-port**	**0°**	**5°**	**10°**	**15°**	**20°**	**25°**	**30°**	**35°**	**40°**	**45°**	**50°**	**55°**	**60°**	**65°**	**70°**	**75°**	**80°**	**85°**	**90°**
DN15	15°	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,5	0,6	0,7	0,8	0,9	1,1	1,2	1,3	1,4
	20°	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,5	0,6	0,8	0,9	1,1	1,3	1,4	1,6	1,7	1,9
	30°	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,3	0,5	0,7	0,9	1,1	1,4	1,6	1,9	2,1	2,4	2,6	2,8
	40°	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,4	0,6	0,9	1,2	1,5	1,9	2,2	2,5	2,8	3,1	3,4	3,7
	60°	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,6	1,0	1,4	1,9	2,4	2,8	3,3	3,9	4,3	4,8	5,2	5,7
	90°	0,0	0,0	0,0	0,1	0,2	0,3	0,4	0,8	1,4	2,0	2,8	3,6	4,2	5,0	5,7	6,4	7,2	7,8	8,4
DN 20	15°	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,4	0,5	0,6	0,8	0,9	1,0	1,1	1,3	1,4	1,5
	20°	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,4	0,5	0,7	0,9	1,0	1,2	1,4	1,6	1,8	1,9	2,1
	30°	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,5	0,8	1,0	1,3	1,6	1,8	2,1	2,4	2,7	2,9	3,1
	40°	0,0	0,0	0,0	0,1	0,1	0,1	0,2	0,4	0,7	1,0	1,3	1,7	2,0	2,4	2,8	3,1	3,4	3,7	4,0
	60°	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,6	1,0	1,5	2,0	2,5	3,1	3,6	4,2	4,7	5,2	5,7	6,1
	90°	0,0	0,0	0,1	0,1	0,2	0,3	0,5	0,9	1,6	2,3	3,1	3,8	4,6	5,4	6,3	7,1	7,9	8,5	9,2
DN 25	15°	0,0	0,0	0,0	0,1	0,1	0,1	0,2	0,4	0,7	1,0	1,4	1,7	2,1	2,4	2,8	3,2	3,5	3,8	4,2
	20°	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,6	1,0	1,4	1,9	2,3	2,8	3,3	3,9	4,3	4,8	5,3	5,7
	30°	0,0	0,0	0,0	0,1	0,2	0,3	0,4	0,9	1,4	2,0	2,8	3,5	4,2	4,9	5,7	6,4	7,2	7,8	8,4
	40°	0,0	0,0	0,1	0,2	0,2	0,4	0,6	1,2	2,0	2,8	3,8	4,8	5,8	6,8	7,9	8,8	9,8	10,7	11,6
	60°	0,0	0,0	0,1	0,3	0,4	0,6	0,9	1,7	3,0	4,2	5,7	7,0	8,7	10,1	11,8	13,1	14,7	15,9	17,3
	90°	0,0	0,0	0,1	0,3	0,5	1,0	1,3	2,8	4,3	6,4	8,4	10,5	12,7	15,0	17,3	19,5	22	24	25
DN 40	15°	0,0	0,0	0,1	0,1	0,2	0,4	0,6	1,2	2,0	2,9	3,8	4,7	5,8	6,8	7,9	8,8	9,8	10,7	11,6
	20°	0,0	0,0	0,1	0,2	0,3	0,5	0,8	1,5	2,8	3,9	5,3	6,7	8,1	9,5	11,0	12,3	13,8	14,9	16,2
	30°	0,0	0,0	0,1	0,2	0,5	0,9	1,2	2,6	4,1	5,9	8,0	9,9	12,1	14,2	16,5	18,6	20,6	22	24
	40°	0,0	0,0	0,2	0,4	0,7	1,1	1,6	3,4	5,5	8,0	10,7	13,5	16,2	19,0	22	25	28	30	32
	60°	0,0	0,0	0,2	0,6	1,0	1,7	2,4	4,3	8,3	12,3	16,0	20,4	24	29	33	37	41	45	49
	90°	0,0	0,0	0,4	0,9	1,5	2,6	3,6	7,6	12,4	17,9	24	31	36	43	50	55	62	68	73
DN 50	15°	0,0	0,0	0,1	0,2	0,4	0,6	0,9	2,0	3,1	4,4	6,1	7,4	9,2	10,8	12,6	14,1	15,7	17,1	18,5
	20°	0,0	0,0	0,1	0,3	0,5	0,8	1,3	2,6	4,3	6,3	8,4	10,4	12,7	14,9	17,3	19,4	22	24	25
	30°	0,0	0,0	0,2	0,5	0,8	1,2	1,9	3,9	6,5	9,4	12,6	15,7	19,1	22	26	29	32	36	38
	40°	0,0	0,0	0,3	0,7	1,0	1,5	2,5	5,2	8,6	12,7	16,8	20,8	25	30	35	39	43	47	51
	60°	0,0	0,0	0,4	0,8	1,5	2,3	3,8	8,0	13,0	18,6	25	31	38	44	52	58	65	70	76
	90°	0,0	0,0	0,6	1,6	2,3	3,6	5,7	11,4	19,5	28	38	47	57	67	78	87	97	106	114
DN 65	15°	0,0	0,0	0,2	0,4	0,8	1,2	2,0	4,3	6,9	9,7	13,4	16,6	20,2	24	28	31	34	38	40
	20°	0,0	0,0	0,3	0,6	1,2	1,8	2,9	6,0	9,8	14,2	19,1	24	29	34	39	44	49	53	58
	30°	0,0	0,0	0,4	1,2	1,7	2,6	4,3	8,6	14,7	21	29	35	43	51	59	66	74	80	87
	40°	0,0	0,0	0,6	1,0	2,3	4,0	5,8	12,0	19,7	29	38	48	58	67	79	88	98	107	116
	60°	0,0	0,0	0,9	2,3	3,5	6,0	8,7	18,0	29	43	57	71	87	101	118	132	147	160	173
	90°	0,0	0,0	1,3	3,5	5,1	9,2	12,7	28	43	63	84	105	127	149	173	194	216	236	254
DN 80	15°	0,0	0,0	0,3	0,6	1,0	1,6	2,6	5,2	8,8	12,7	17,2	21	26	30	35	40	44	48	52
	20°	0,0	0,0	0,4	0,9	1,4	2,4	3,5	6,6	11,8	17,1	23	28	35	41	47	53	59	64	69
	30°	0,0	0,0	0,5	1,1	2,1	3,7	5,2	10,5	17,7	26	34	43	52	61	71	79	88	96	104
	40°	0,0	0,0	0,7	2,2	2,9	5,1	7,2	15,4	25	36	48	59	72	84	98	110	123	134	145
	60°	0,0	0,0	1,1	2,3	4,3	7,6	10,7	22	36	53	71	88	107	126	145	163	182	197	214
	90°	0,0	0,0	1,6	4,1	6,5	11,5	16,2	32	55	76	107	132	162	189	220	248	275	298	324
DN 100	15°	0,0	0,0	0,4	0,9	1,6	2,6	4,0	8,2	13,8	19,7	27	33	40	47	55	62	69	75	81
	20°	0,0	0,0	0,6	1,3	2,3	4,0	5,8	11,7	19,7	28	38	47	58	68	79	88	98	107	116
	30°	0,0	0,0	0,8	2,1	3,4	5,1	8,4	16,6	28	40	55	69	84	99	114	127	142	155	168
	40°	0,0	0,0	1,1	3,4	4,5	8,5	11,3	22	38	56	74	92	113	131	153	170	192	208	225
	60°	0,0	0,0	1,7	4,6	6,7	12,0	16,8	36	57	84	111	140	168	197	228	253	285	310	335
	90°	0,0	0,0	2,5	8,0	10,2	18,0	25	50	86	119	168	207	254	297	346	386	432	471	509
DN 150	15°	0,0	0,0	1,0	2,4	4,2	6,6	10,4	20,9	35	50	69	85	104	121	141	158	177	192	208
	20°	0,0	0,0	1,4	4,0	5,8	8,8	14,5	30	49	71	95	117	145	168	197	219	246	267	289
	30°	0,0	0,0	2,1	5,0	8,6	14,0	21	42	73	105	141	174	214	249	291	325	364	394	428
	40°	0,0	0,0	2,9	5,0	11,6	18,0	29	58	98	135	191	237	289	335	393	444	491	533	578
	60°	0,0	0,0	4,3	8,0	17,1	29	43	87	145	203	282	352	428	500	582	653	727	793	855
	90°	0,0	0,0	6,4	16,0	26	42	64	134	218	317	423	532	642	758	873	980	1091	1189	1283

C_v VALUES FOR EQUAL PERCENTAGE CONTROL SEAT

	Valve opening angle																		
Size	**0°**	**5°**	**10°**	**15°**	**20°**	**25°**	**30°**	**35°**	**40°**	**45°**	**50°**	**55°**	**60°**	**65°**	**70°**	**75°**	**80°**	**85°**	**90°**
DN 15	0,0	0,0	0,0	0,1	0,1	0,3	0,3	0,5	0,5	0,8	1,1	1,4	1,7	2,0	2,5	3,6	4,2	5,6	5,9
DN 20	0,0	0,0	0,0	0,1	0,2	0,3	0,4	0,5	0,6	0,9	1,2	1,5	1,9	2,2	2,7	3,9	4,7	6,1	6,5
DN 25	0,0	0,2	0,4	0,6	0,7	1,0	1,1	1,3	1,6	2,1	3,4	4,1	5,2	6,6	9,4	12,6	14,9	16,7	18,5
DN 40	0,0	0,1	0,2	0,3	0,4	1,1	1,4	1,9	2,3	3,5	4,7	6,6	8,0	10,2	12,9	15,7	19,1	25	30
DN 50	0,0	0,0	0,3	0,4	0,5	1,0	2,0	2,9	3,1	4,0	5,5	7,0	9,4	12,0	16,0	21	29	34	36
DN 65	0,0	0,0	0,2	0,7	2,7	6,2	10,4	15,0	20,1	26	34	43	54	68	89	120	151	180	190
DN 80	0,0	2,5	5,5	12,0	22	35	45	52	61	73	85	97	117	129	170	202	233	262	293
DN 100	0,0	2,5	7,0	18,0	32	49	55	67	79	95	111	124	150	168	220	262	304	340	381
DN 150	0,0	7,6	48	71	98	123	151	189	222	282	355	514	651	747	853	969	1060	1104	1153

C_v VALUES FOR LINEAR CONTROL SEAT

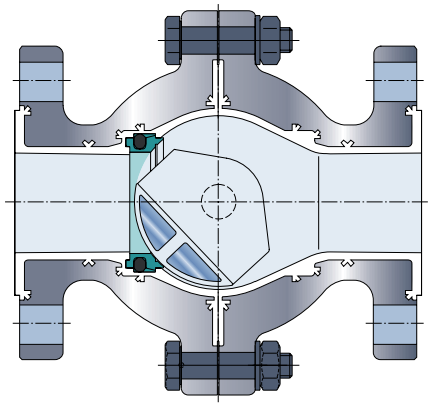
	Slot	Valve opening angle																	
Size	**(mm)**	**0°**	**5°**	**10°**	**15°**	**20°**	**25°**	**30°**	**35°**	**40°**	**45°**	**50°**	**55°**	**60°**	**65°**	**70°**	**75°**	**80°**	**85°**	**90°**
DN 15	1,6	0,0	0,0	0,0	0,0	0,1	0,1	0,2	0,3	0,3	0,4	0,4	0,5	0,6	0,6	0,7	0,7	0,8	0,9	0,9
	3	0,0	0,0	0,0	0,2	0,3	0,6	0,8	1,1	1,3	1,5	1,8	2,0	2,2	2,5	2,7	2,9	3,2	3,4	3,6
DN 20	1,6	0,0	0,0	0,0	0,0	0,1	0,2	0,2	0,3	0,4	0,5	0,5	0,6	0,7	0,8	0,8	0,9	1,0	1,1	1,1
	3	0,0	0,0	0,0	0,2	0,4	0,7	0,9	1,3	1,5	1,8	2,1	2,5	2,7	3,1	3,4	3,6	4,0	4,2	4,4
DN 25	1,6	0,0	0,0	0,0	0,1	0,2	0,3	0,4	0,6	0,7	0,9	1,0	1,2	1,3	1,4	1,5	1,7	1,8	2,0	2,1
	3	0,0	0,0	0,0	0,2	0,5	0,9	1,2	1,6	2,0	2,3	2,7	3,1	3,5	3,9	4,3	4,5	5,1	5,3	5,6
DN 40	1,6	0,0	0,0	0,1	0,2	0,3	0,5	0,7	0,9	1,2	1,4	1,6	1,8	2,0	2,2	2,4	2,7	2,9	3,1	3,3
	3	0,0	0,0	0,0	0,4	0,8	1,4	1,9	2,6	3,1	3,8	4,4	5,0	5,6	6,3	6,9	7,3	8,2	8,6	9,1
DN 50	1,6	0,0	0,0	0,1	0,2	0,4	0,6	0,9	1,1	1,4	1,7	2,0	2,3	2,5	2,8	3,0	3,3	3,6	3,9	4,1
	3	0,0	0,0	0,0	0,5	0,9	1,7	2,4	3,3	4,0	4,7	5,5	6,3	7,1	7,9	8,7	9,2	10,2	10,8	11,4

SPECIAL CUSTOMIZED CONTROL SEATS

Please contact factory

The C-ball lined valve is dead spot free and is ideally suited for shut-off and control of corrosive, poisonous, crystallizing or high purity products where it is imperative that no product is entrapped in the ball and surrounding cavity.
The C-ball valve is based on a full port design resulting in high K_V values, which are especially required when high viscosity liquids have to be controlled or for those applications which require a large rangeability.

The advantage of the C-ball is a reduced flow distortion and excellent control characteristic. The wide range of available seat control styles have been designed based on our experience in corrosive flow control applications for many years. Most common control seats are the various V-port designs as well as the equal percentage of linear. These V-port seats are available with a V-port opening of 15, 20, 30, 40, 60 and 90°. For the most demanding flow control applications, Neotecha is able to calculate customized control seats.



Main benefits NTC as control valve

- Full trunnion mounted ball stem design utilized enhance control accuracy by eliminating a point of undesired hysteresis and it eliminates torque transmission through the PFA lining common to two piece designs.
- Full port design resulting in a large rangeability.
- Dead spot and cavity free design.
- Smooth flow path due to C-ball design.
- High cycle spindle seal construction.
- Fully trunnion mounted design eliminates radial shaft movement resulting in extreme low emissions (spindle seal is TA-Luft and VDI 2440 approved).
- Standard TFM seat resulting in low friction and low wear seat design.
- Wide range of control seats able to suit wide range of flow control characteristics.
- Integrated ISO 5211 topplate to allow direct actuator mounting resulting in a compact package.
- Pentair is able to supply complete flow control packages including flow calculation, control valves, actuators and positioners, all from one source.

NEOTECHA PFA LINED BALL VALVES NTB - NTC

TECHNICAL DATA

SELECTION GUIDE

Example:	NTB	050	NB1	F	16	L	00

Type

NTB standard ball stem

NTC C-ball stem

Size (mm)

015-150

Trim

* See material trim table

Body style

F Flanged

Flange pattern / face to face

A1 ANSI 150 (face to face in accordance to ANSI B16.10 class 150)

16 PN 16 (face to face in accordance to DIN EN 558-1, row 1)

J0 JIS 10K

Operation/Connection

L Lever operated

G Gear operated

1 With mounting flange F04

2 With mounting flange F05

3 With mounting flange F07

4 With mounting flange F10

5 With mounting flange F12

6 With mounting flange F14

7 With mounting flange F16

B Bare shaft

Variant

00 Standard

15 15 degrees V port seat

20 20 degrees V port seat

30 30 degrees V port seat

40 40 degrees V port seat

60 60 degrees V port seat

90 90 degrees V port seat

MATERIAL TRIM TABLE NTB & NTC

Trim number	Body	Ball	Shaft	Seat	O-ring backing	Sizes	Remarks
NB1	PFA encapsulated	PFA encapsulated	PFA encapsulated	PTFE glass 15%	FPM/PFA encapsulated	DN 15-150	NTC valve standard with TFM seat
NB2	PFA encapsulated	PFA encapsulated	PFA encapsulated	TFM	FPM/PFA encapsulated	DN 15-150	Especially cleaned and treated for HCl & Cl_2
NB4	Conductive PFA encapsulated	Conductive PFA encapsulated	Conductive PFA encapsulated	TFM Conductive	FPM/PFA encapsulated	DN 15-150	
NB5	Conductive PFA encapsulated	Conductive PFA encapsulated	Conductive PFA encapsulated	TFM Conductive	FPM/PFA encapsulated	DN 15-150	Especially cleaned and treated for HCl & Cl_2

NEOTECHA PFA LINED BALL VALVES NTB - NTC

LEVER & GEAR OPERATOR

FLANGE DRILLED DIN PN 16, FACE TO FACE DIN EN 558, ROW 1

Size mm	B	H	L	D	D1	T_k	nxd	b	Weight kg
15	130	110	210	95	95	65	4x14	12	3,6
20	150	110	210	105	95	75	4x14	14	3,9
25	160	135	210	115	120	85	4x14	14	6,2
40	200	150	210	150	156	110	4x18	16	11,0
50	230	155	210	165	165	125	4x18	18	13,5
65	290	190	300	185	230	145	4x18	18	24,3
80	310	190	300	200	230	160	8x18	20	25,0
100	350	205	300	220	265	180	8x18	22	35,0
150	480*	270	-	279	365	241	8x22	26	98,0

* With spool piece

FLANGE DRILLED ANSI B 16.5 CLASS 150, FACE TO FACE ANSI B 16.10 CLASS 150

Size inch	B	H	L	D	D1	T_k	nxd	b	Weight kg
½	108	110	210	89	95	60,3	4x16	11	3,4
¾	117	110	210	98	95	70,0	4x16	13	3,6
1	127	135	210	108	120	79,5	4x16	14	5,7
1½	165	150	210	127	156	98,5	4x16	18	9,6
2	178	155	210	152	165	120,5	4x19	18	12,2
2½	290*	190	300	185	230	145,0	4x19	18	24,3
3	203	190	300	190	230	152,5	4x19	24	23,8
4	229	205	300	229	265	190,5	8x19	24	33,8
6	267	270	-	279	365	241,0	8x22	26	79,0

* Face to face to DIN EN 558, row 1

FLANGE DRILLED JIS B 2212 10K, FACE TO FACE DIN EN 558, ROW 1

Size mm	B	H	L	D	T_k	nxd	b	Weight kg
3,6	15	130	110	210	95	70	4x15	12
3,9	20	150	110	210	100	75	4x15	14
6,2	25	160	135	210	118	90	4x19	14
11,0	40	200	150	210	140	105	4x19	16
13,5	50	230	155	210	155	120	4x19	18
24,3	65	290	190	300	175	140	4x19	18
25,0	80	310	190	300	185	150	8x19	20
100	350	205	300	210	175	8x19	22	35,0
150	480*	270	-	279	240	8x23	26	98,0

* With spool piece

GEAR OPERATOR

Size mm	Size inch	H	Weight kg
15	½	118	7,1
20	¾	118	7,3
25	1	140	9,6
40	1½	153	14,4
50	2	158	16,9
65	2½	206	31,6
80	3	206	32,3
100	4	222	42,3
150	6	285	122,2

GEAR OPERATOR DIMENSIONS

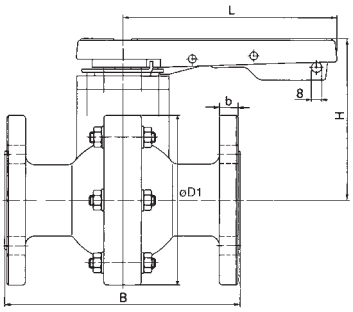
Size	Gear	ISO	A	B	Ø D	E	F	G
DN 15-50 (½-2)	*	F07	150	194	200	71	46	28
DN 65-150 (2½-6)	**	F10	140	213	250	85	70	35

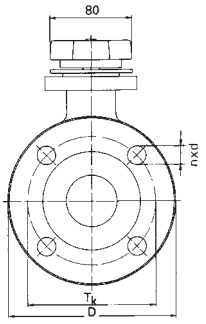
* Type 1

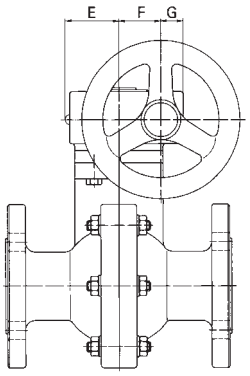
** Type 2

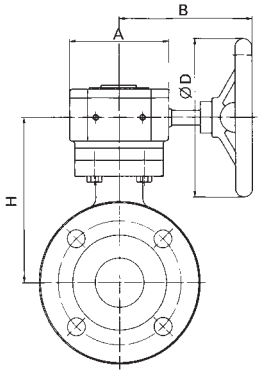
HANDLEVER

Type ZE: lockable in end position (DN 15-80)
Type Z for C-ball valve: lockable in 6 intermediate positions.



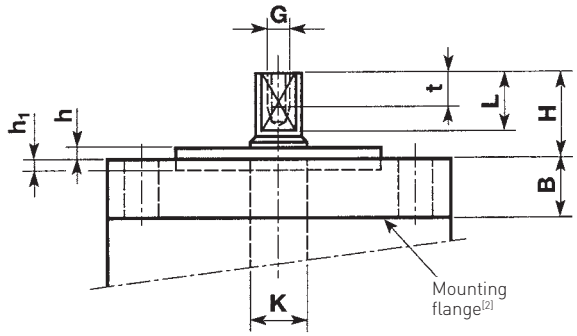






NEOTECHA PFA LINED BALL VALVE NTB - NTC

ISO 5211 FLANGE & STEM ADAPTER DIMS

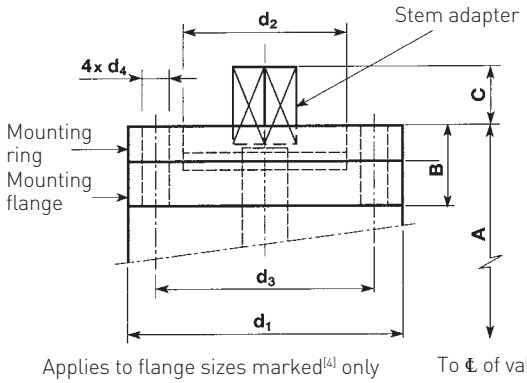


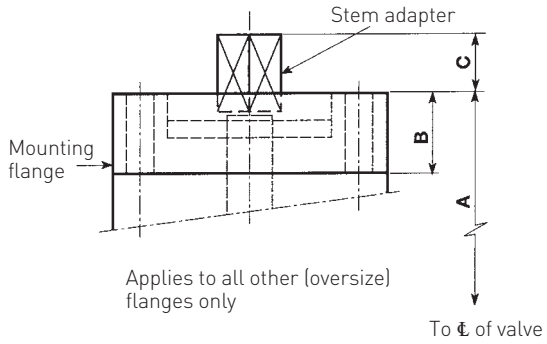
WITH BARE SHAFT (Code B)

Size mm	Double 'D'	Diag. Sq.	Stem Dia. K	G	H	h/h_1	L	t	B
15 - 20	7	-	11	M5	22	2	15	8	18
25 - 40	10	-	12.8	M6	22	3	15	9	19
50	10	-	14	M6	22	3	15	9	19
65 - 80	-	14	18	-	33.5	3	25	-	19
100	-	16	20	-	33.5	3	25	-	19
150	-	22	28	M8	23.5	13[1]	35	20	30.5

NOTES

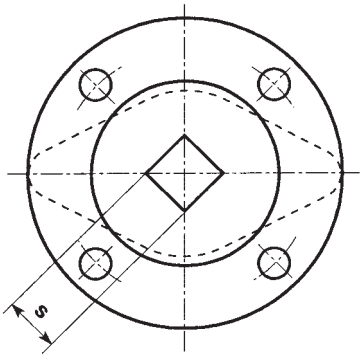
1. All mounting flanges for a valve size DN 150 have a recess (h_1).
2. The mounting flange is an integral part of the valve.





WITH MOUNTING FLANGE FOR ACTUATORS BUILT TO ISO 5211/DIN 3337 (Code 1 - 7)

Size mm	ISO Flange	A	B	C	d_1	d_2	d_3	d_4	s[3]
15 - 20	F04[4]	95	30	11.5	54	30	42	5.4	11 x 11
15 - 20	F05	93	27.5	12.5	65	35	50	7	14 x 14
15 - 20	F07	93	27.5	15.5	90	55	70	9	17 x 17
25	F05[4]	115	27.5	15.5	65	35	50	7	14 x 14
25	F07	115	27.5	18.5	90	55	70	9	17 x 17
25	F10	115	27.5	22.5	125	70	102	11	22 x 22
40	F05[4]	128	27.5	15.5	65	35	50	7	14 x 14
40	F07	128	27.5	18.5	90	55	70	9	17 x 17
40	F10	128	27.5	22.5	125	70	102	11	22 x 22
50	F07[4]	133	27.5	18.5	90	55	70	9	17 x 17
50	F10	133	27.5	22.5	125	70	102	11	22 x 22
50	F12	132	26.5	27.5	150	85	125	13	27 x 27
65 - 80	F07[4]	171	31	18.5	90	55	70	9	17 x 17
65 - 80	F10	168	27.5	22	125	70	102	11	22 x 22
65 - 80	F12	165	24.5	25	150	85	125	13	27 x 27
65 - 80	F14	165	24.5	30	175	100	140	17	36 x 36
100	F07[4]	187	31	18.5	90	55	70	9	17 x 17
100	F10	184	27.5	22	125	70	102	11	22 x 22
100	F12	181	24.5	25	150	85	125	13	27 x 27
100	F14	181	24.5	30	175	100	140	17	36 x 36
150	F10	246.5	30.5	23.5	125	70	102	11	22 x 22
150	F12	243	27	27	150	85	125	13	27 x 27
150	F14	238	22	32	175	100	140	17	36 x 36
150	F16	238	22	40	210	130	165	22	46 x 46



NOTES

- Flange and stem dimensions are in millimeters.
3. Diagonal square to ISO 5211.
4. Flange dimensions for standard ball valves.
- Removal, alteration or modification will disturb 'live-loaded' stem seal design and void warranty. Consult your Neotecha technical representative.

NEOTECHA PFA LINED BALL VALVES NTB - NTC

QUESTIONNAIRE FOR CONTROL VALVE SIZING

Flow calculations can be made with the following sizing formulas for liquid and gas.
Neotecha is able to supply a detailed flow control calculation sheet based on the actual process data and the required system characteristic.

Liquid:

$$K_V = Q \sqrt{\frac{RHO}{(P_1 - P_2) \times 1000}}$$

K_v	valve capacity coefficient
Q	flow [m^3/h]
RHO	density [kg/m^3]
P_1	inlet pressure [bar a]
P_2	outlet pressure [bar a]

Gas:

$$K_V = \frac{Q_N}{514} \sqrt{\frac{RHO_N \times T}{\Delta p \times P_2}}$$

K_v	valve capacity coefficient
Q_N	flow [Norm m^3/h]
RHO_N	density [kg/Norm m^3]
P_1	inlet pressure [bar a]
P_2	outlet pressure [bar a]
ΔP	Delta P (P_1 - P_2)
T	temperature in °Kelvin

For factory sizing please indicate the following data's:

Liquid:

Flow	Q min.	[m^3/h]
	Q norm.	[m^3/h]
	Q max.	[m^3/h]
P_1 inlet pressure absolute	P_1 at min. flow	[bar a]
	P_1 at norm. flow	[bar a]
	P_1 at max. flow	[bar a]
P_2 outlet pressure absolute	P_2 at min. flow	[bar a]
	P_2 at norm. flow	[bar a]
	P_2 at max. flow	[bar a]
Vapor pressure absolute	pv	[bar a]
Critical pressure absolute	pc	[bar a]
Density	RHO	[kg/m^3]
Line size	DN	[mm]
Preferred valve size	DN	[mm]

Gas:

Flow	W min.	[kg/h]
	W norm.	[kg/h]
	W max.	[kg/h]
P_1 inlet pressure absolute	P_1 at min. flow	[bar a]
	P_1 at norm. flow	[bar a]
	P_1 at max. flow	[bar a]
P_2 outlet pressure absolute	P_2 at min. flow	[bar a]
	P_2 at norm. flow	[bar a]
	P_2 at max. flow	[bar a]
Temperature upstream	T_1	[Kelvin]
Norm density	RHO_N	[kg/nm^3]
Density	RHO	[kg/m^3]
Ratio of spec. Heat	Kappa	[ ]
Line size	DN	[mm]
Preferred valve size	DN	[mm]

The units mentioned are preferred units. If you have different units please precise them.

With equal percentage & V-port seats, the best control characteristics are between a opening angle of 20° to 60°.
The control of minimum to maximum flow should be chosen in this opening range.