tyco
Flow Control

Neotecha

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

Features

- PFA lining offers highest corrosion resistance
- Bubble tight shut-off: precision machining of ball and seats guarantees an absolute leak-free valve.
- Full bore offers high K_V-value equal to the pipe
- Metallic mating body halves: unaffected performance (torque and tightness) due to axial and lateral forces caused by piping installation.
- One-piece ball-stem: no possibility of damaging PFA-lining on ball by the stem; possibility of blow-out is eliminated.
- Static electricity: any build-up of static electricity on the ball is eliminated since the ball stem and the housing are of 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.
- The self adjusting packing needs no maintenance and guarantees 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 is polyester coated (RAL 9002) which offers excellent protection against external corrosion and rust.

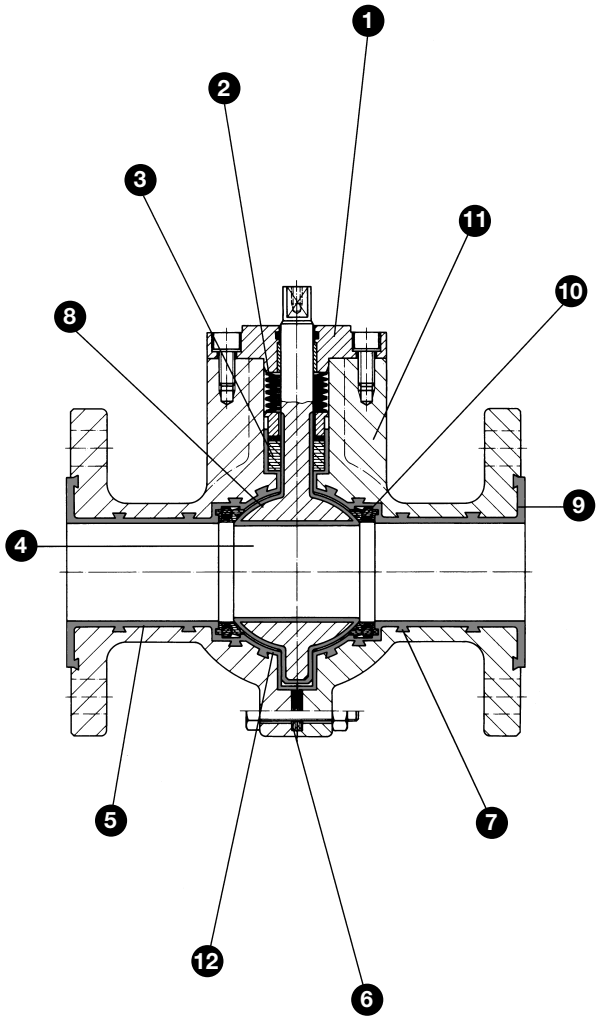
Technical data

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, 300 JIS B 2212 10 K
Face to face	: DIN 3202/T1/F1 ANSI B 16.10

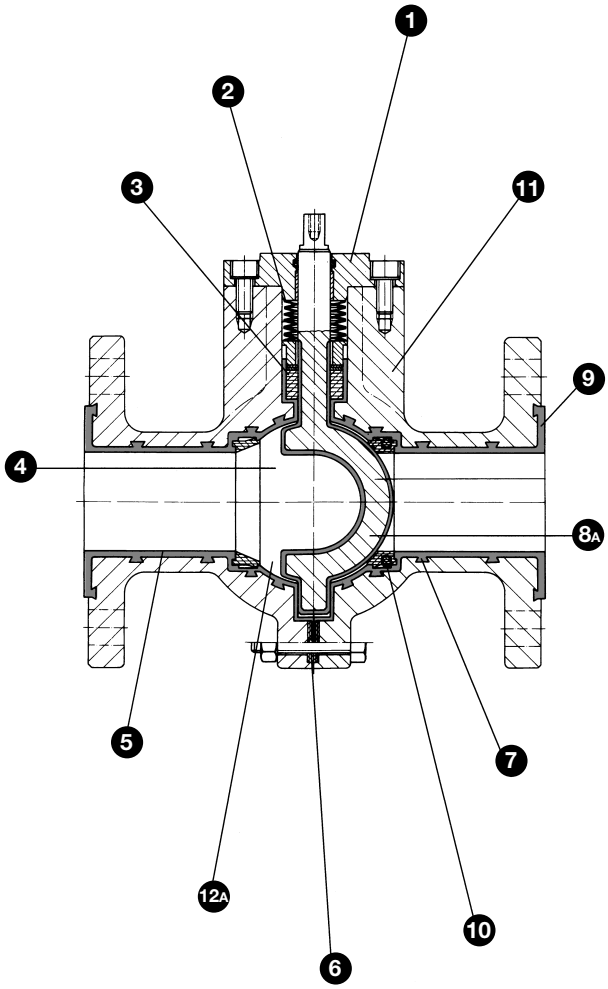
General application

The Neotecha ball valves are ideally suited for fluid flow applications, requiring assured performance, tight shutoff, constant torque and no maintenance. The valves are handling successfully a multitude of corrosive applications in industries, such as chemical, pharmaceutical, pulp and paper, foundries and water treatment. 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.

Type NTB



Type NTC

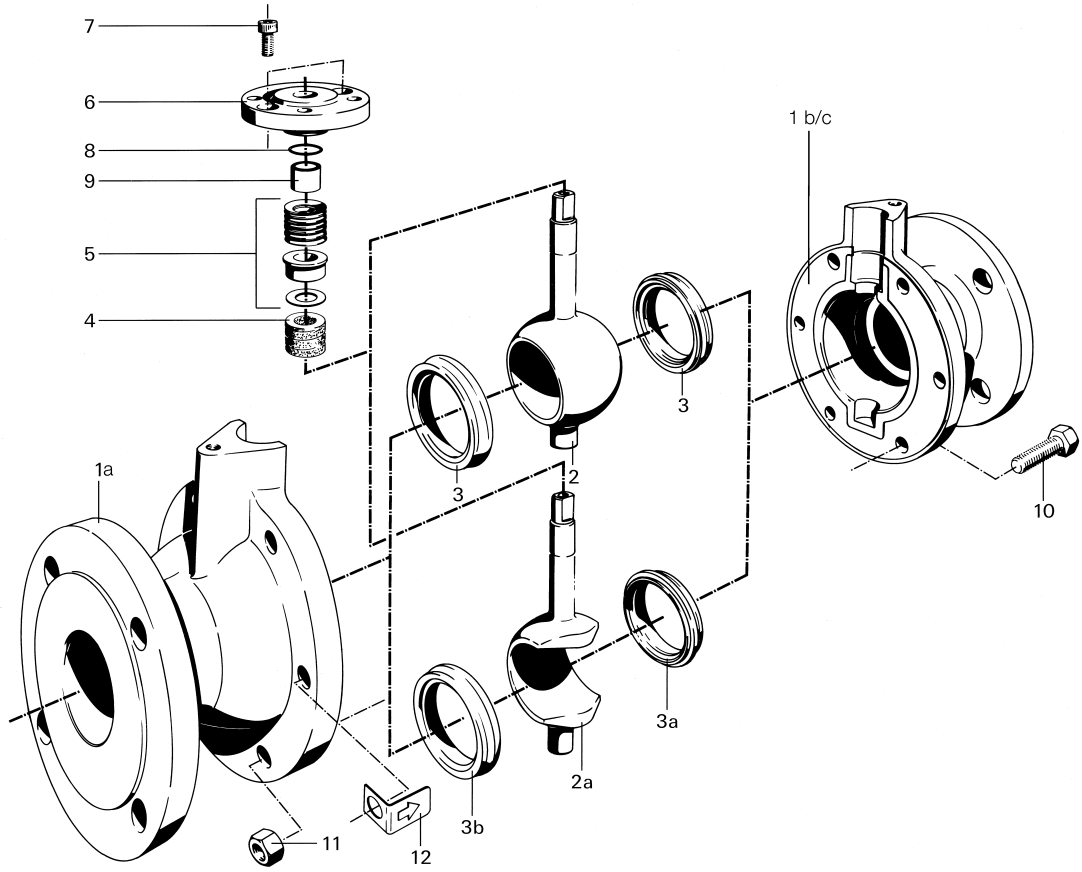


1. Every valve has a mounting flange according to ISO 5211 which simplifies the mounting of any actuator built to this standard.
2. A set of belleville disc springs exert uniform loading on the packing resulting in a maintenance free operation.
3. Flexible and corrosion resistant virgin PTFE packing ensures a leak-free stem seal.
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 with 30 000 Volts. This ensures a homogenious PFA lining, void of any pinholes, giving protection against corrosion and diffusion.
6. A unique sealing arrangement permits the metallic mating of the two body halves and is unaffected by the forces being applied through the pipeline
7. 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 temperature without the danger of a liner collapse.
8. The ball stem with lower trunnion is moulded in one piece ensuring uniform support of the ball, keeping the pressure on the seat constant under all operating conditions. Wear and tear on the seats is reduced resulting in an increased operating life. The C-ball reduces flow distortion and provides excellent regulating characteristic. An ideal regulating valve for highly corrosive and sterile products.

8a. C-ball stem with trunnion end all moulded in one piece ensures uniform support of the ball, keeping the pressure on the seat constant under all pressure conditions, reducing wear and tear on the seat which results in an increased operating life.

9. Available in DIN and ANSI face to face dimensions which allow an easy replacement of plug- and diaphragm valves.
10. Energized ball seats are responsible for a constant operating torque over the entire service life of the valve and result in a bubble-tight seal.
11. Rugged symmetrical body halves made from ductile iron (GGG 40.3), coated on the outside with polyester, offer excellent corrosion protection.
12. The split body design allows the dead spot between ball stem and housing to be kept to an absolute minimum. The C-ball version is dead-spot free.

12a. The C-ball valve is dead spot free and is ideally suited to shut-off and control poisonous, solidifying or high purity products where it is imperative that no product is entrapped in the ball and the surrounding cavity.



Ball valve type NTB

Pos.	Description	Material
1a	Body halves	PFA lined ductile iron ASTM A395
1b/c	Body gasket back-up and spacer	Silicone
2	Ball-stem	PFA encapsulated alloy steel
3	Ball seat with O-ring	PTFE with PFA encapsulated fluor elastomer 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	Fluor elastomer
9	Bearing	Iglidur[1)]
10	Hex bolt	DIN 931, 8.8 galv.
11	Nut	DIN 934, galv.

Notes

1) 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
1b/c	Body gasket back-up and spacer	Viton
2a	C-ball-stem	PFA encapsulated alloy steel
3a	Ball seat with O-ring	PTFE with PFA encapsulated fluor elastomer O-ring
3b	Wedge ring	PTFE
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	Fluor elastomer
9	Bearing	Iglidur[1)]
10	Hex bolt	DIN 931, 8.8 galv.
11	Nut	DIN 934, galv.
12	Flow arrow	Stainless steel (304)

Operating torques and Kv-values

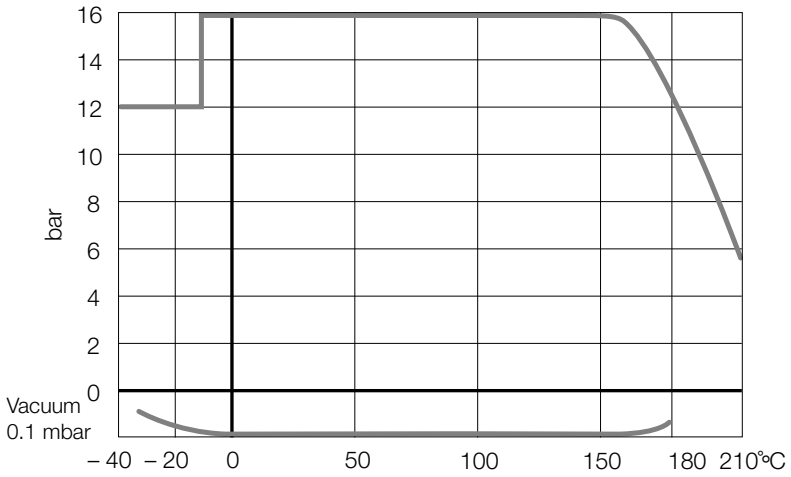
Size		Torque[1]		kvs
mm	inch	Nm	inlb	m³/h
15	1/2	20	177	12
20	3/4	20	177	18
25	1	30	266	37
40	1 1/2	50	443	96
50	2	70	620	170
65	2 1/2	145	1283	380
80	3	145	1283	490
100	4	190	1681	780
150	6	350	3096	1900

[1] max torque at 16 bar

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, 300 JIS B 2212 10 K
Face to face	:	DIN 3202/T1/F1 ANSI B 16.10

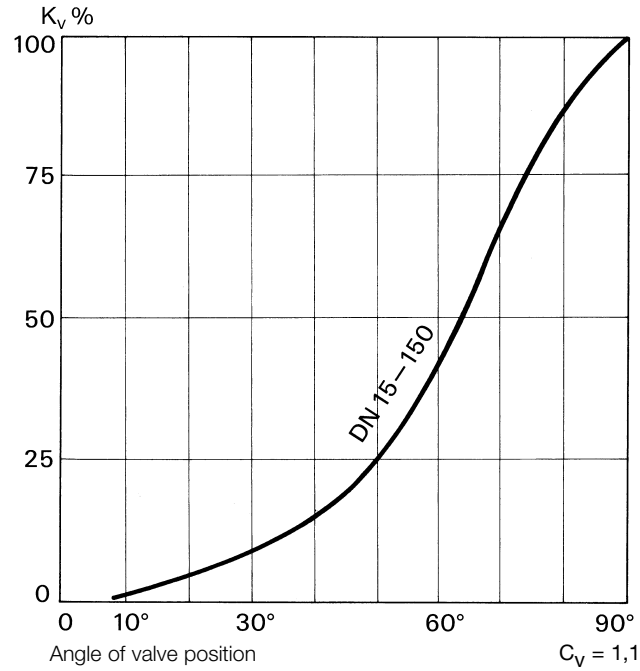
Pressure-temperature diagram



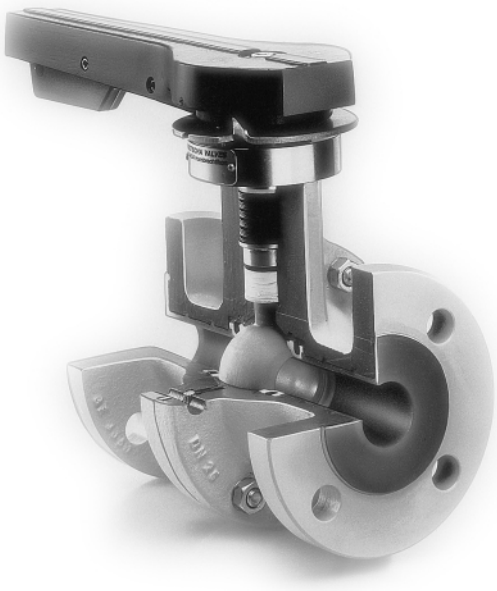
Heavy duty service

Neotecha also offers the NTB-C1 prepared for chlorine (CL2), HCL and HF service.
The specially prepared C1-versions are sealed in a plastic bag.

Kv versus valve position diagram



$C_V = 1{,}17 \bullet K_V$ (in USG/min)



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Face to face	: DIN 3202/T1/F1 ANSI B 16.10

Operating torques and Kv-values

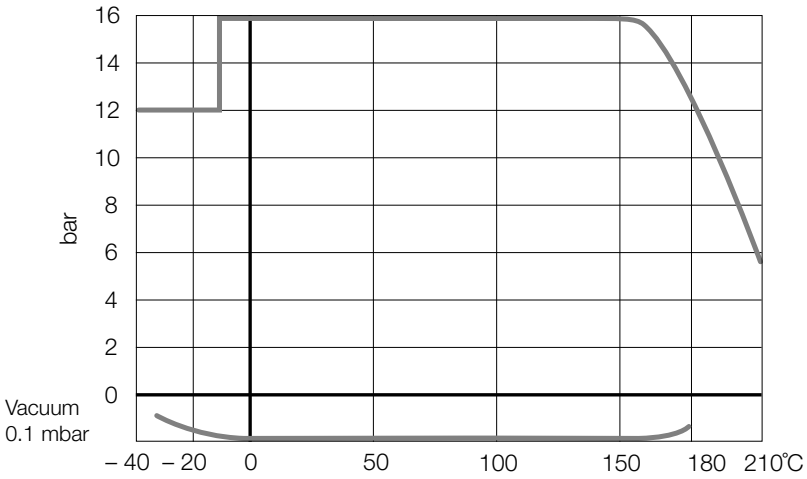
Size		Torque[1]		kvs
mm	inch	Nm	in/lbs	m³/h
15	1/2	10	89	11
20	3/4	10	89	16
25	1	15	133	34
40	1 1/2	25	222	90
50	2	35	310	160
65	2 1/2	75	664	360
80	3	75	664	450
100	4	110	973	710
150	6	110	973	710

[1] max torque at 16 bar

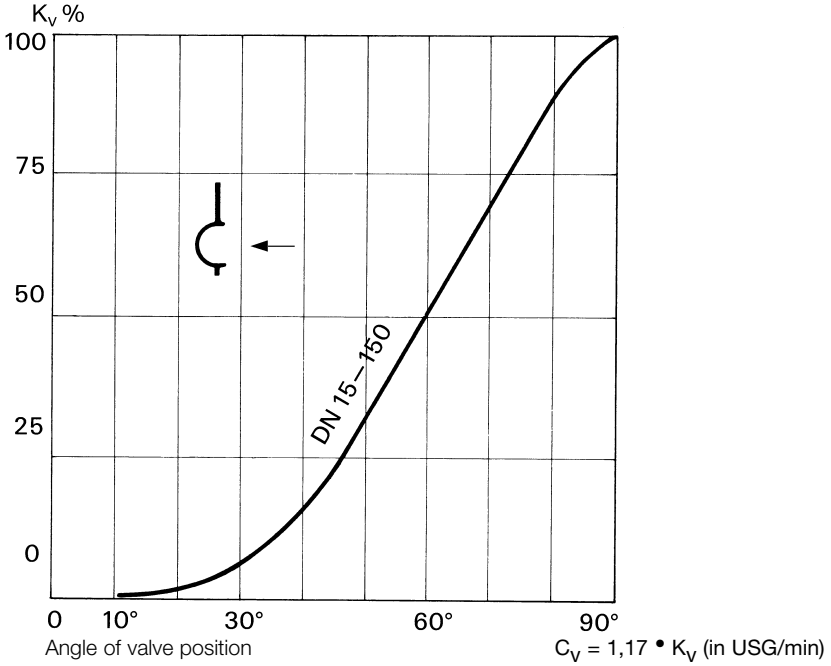
Heavy duty service

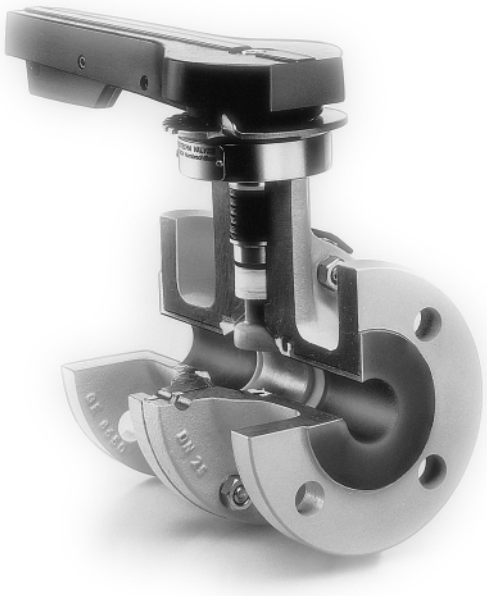
Neotecha also offers the NTC-C1 version. These valves are especially prepared for chlorine (CL2), HCL and HF service.
The specially prepared C1-versions are sealed in a plastic bag.

Pressure-temperature diagram



K_V versus valve position diagram





Seats with reduced K_V-values are available on request.

Flange drilled DIN PN 16, face to face DIN 3202/T1/F1

Size mm	B	H	L	D	T_k	nxd	b	weight kg
15	130	110	210	95	65	4x14	12	3,6
20	150	110	210	105	75	4x14	14	3,9
25	160	135	210	115	85	4x14	14	6,2
40	200	150	210	150	110	4x18	16	11,0
50	230	155	210	165	125	4x18	18	13,5
65	290	190	300	185	145	4x18	18	24,3
80	310	190	300	200	160	8x18	20	25,0
100	350	205	300	220	180	8x18	22	35,0
150	480*	270	–	279	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	T_k	nxd	b	weight kg
1/2	108	110	210	89	60,3	4x16	11	3,4
3/4	117	110	210	98	70,0	4x16	13	3,6
1	127	135	210	108	79,5	4x16	14	5,7
1 1/2	165	150	210	127	98,5	4x16	18	9,6
2	178	155	210	152	120,5	4x19	18	12,2
2 1/2	290•	190	300	185	145,0	4x19	18	24,3
3	203	190	300	190	152,5	4x19	24	23,8
4	229	205	300	229	190,5	8x19	24	33,8
6	267	270	–	279	241,0	8x22	26	79,0

• Face to face to DIN 3202/T1/F1

Flange drilled ANSI B 16.5 class 300, face to face ANSI B 16.10 class 150

Size inch	B	H	L	D	T_k	nxd	b	weight kg
1	127	135	210	124,0	88,9	4x19	17	6,6
1 1/2	165	150	210	155,5	114,3	4x22	20	11,8
2	178	155	210	165,0	127,0	8x19	22	13,8
3	203	190	300	209,5	168,3	8x22	28	26,4

Flange drilled JIS B 2212 10K, face to face DIN 3202/T1/F1

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

* with spool piece

Gear operator

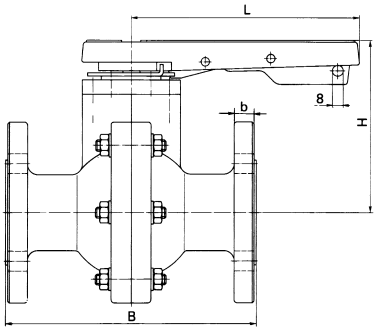
Size			Weight
mm	inch	H	kg
15	1/2	118	7,1
20	3/4	118	7,3
25	1	140	9,6
40	1 1/2	153	14,4
50	2	158	16,9
65	2 1/2	206	31,6
80	3	206	32,3
100	4	222	42,3
150	6	285	122,2

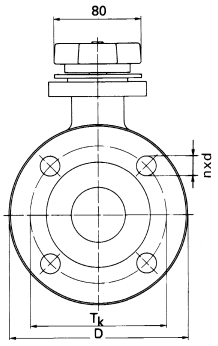
Gear operator dimensions

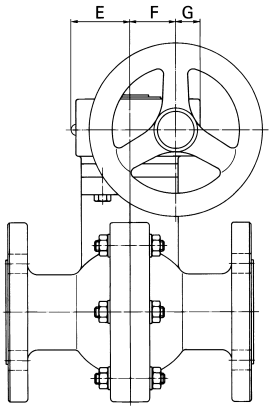
Size	Gear	ISO	A	B	Ø D	E	F	G
DN 15-50 (1/2-2)	Type 1	F07	150	194	200	71	46	28
DN 65-150 (2 1/2-6)	Type 2	F10	140	213	250	85	70	35

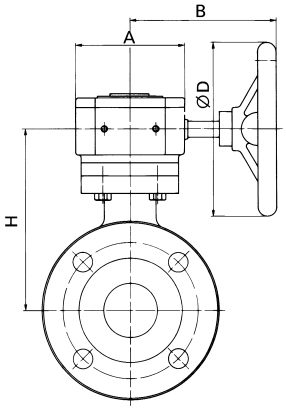
Handlever

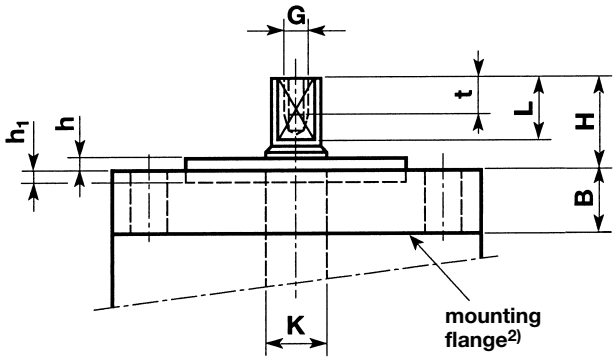
Type ZE: lockable in end positions
Type Z for C-ball valve: lockable in 6 intermediate positions.









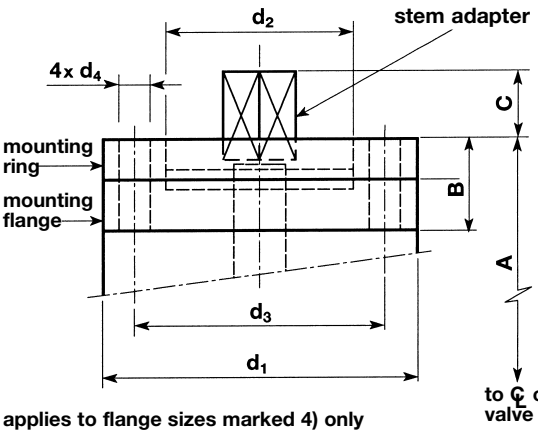


Notes

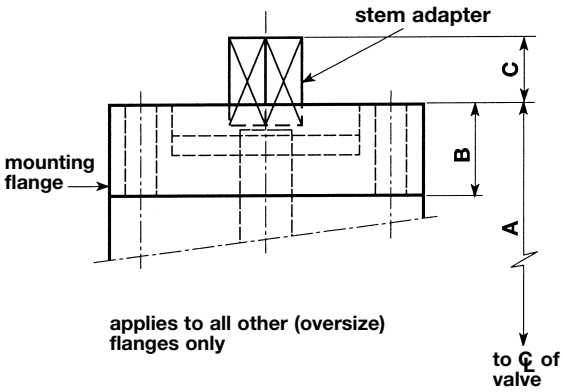
1) All mounting flanges for a valve size DN 150 have a recess (h1).
2) The mounting flange is an integral part of the valve.

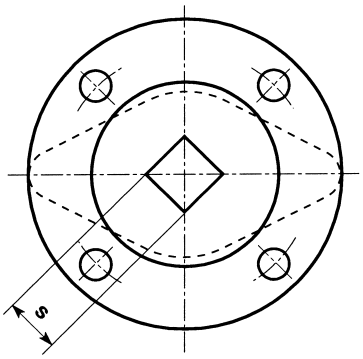
With bare shaft (Code 0)

Size mm	Double "D"	Diag. Sq.	Stem Dia. K	G	H	h/h_1	L	t	B
15 - 20	7	-	12	M5	22	2	15	8	18
25 - 40	10	-	14	M6	22	3	15	9	19
50	10	-	16	M6	22	3	15	9	19
65 - 80	-	16	20	-	33.5	3	25	-	19
100	-	16	24	-	33.5	3	25	-	19
150	-	22	32	M8	32	13[1)]	35	20	30



applies to flange sizes marked 4) only





With mounting flange for actuators built to ISO 5211/DIN 3337 (Code F..)

Size mm	ISO Flange	A	B	C	d1	d2	d3	d4	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 DIN 3337.
4) Flange dimensions for standard ball valves.

Size	Type of Valve	Flange Pattern	Operator or Mounting Flange

Type of valve

Description	Code	Size
Standard ball valve for all acid applications	**NTB**	**15 - 150** ($^1/_2$ – 6)
Standard ball valve specially recommended for hydrochloric acid (HCL), chlorine gas (CL2) and media where hydrofluoric acid is present	**NTB C1**	**15 – 150** ($^1/_2$ – 6)
Standard C-ball valve for all acid applications, specially recommended for regulating applications	**NTC**	**15 – 150** ($^1/_2$ – 6)
Standard C-ball valve specially recommended for regulating applications for hydrochloric acid (HCL), liquid chlorine (CL2) and media where hydrofluoric acid is present	**NTC C1**	**15 – 150** ($^1/_2$ – 6)

Flange pattern/face to face

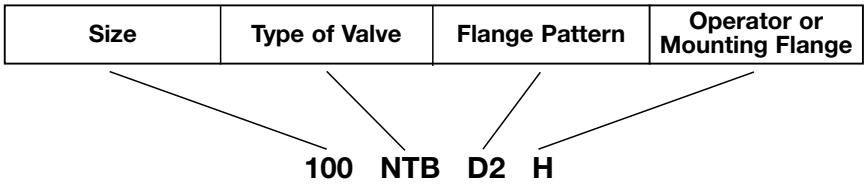
Description	Code	Size
DIN PN 16 DIN 3202/T1/F1	**D2**	**15 - 150** ($^1/_2$ – 6)
ANSI B16.5 class 150 ANSI B16.10 class 150	**A1**	**15 – 150** ($^1/_2$ – 6)
ANSI B16.5 class 300 ANSI B16.10 class 150	**A3**	**25, 40, 50 + 80** (1 – 3)
JIS 10 K DIN 3202/T1/F1	**J0**	**15 – 150** ($^1/_2$ – 6)

Operator or mounting flange

Description	Code	Size
Handlever type Z or ZE	**H**	**15 - 100** ($^1/_2$ – 4)
Gear operator	**G**	**15 – 150** ($^1/_2$ – 6)
Bare shaft	**0**	**15 – 150** ($^1/_2$ – 6)
Specify mounting flange size which will include stem adapter for direct mounting of actuator	**F..**	**15 – 150** ($^1/_2$ – 6)

Examples

The code for a standard ball valve, type NTB, size DN 100, DIN PN 16 flanges, with lever operator is as follows:



The code for a standard ball valve, type NTB, size 4", ANSI 150 flanges with actuator mounting flange kit size F10 is as follows: