tyco
Flow Control

Neotecha

A PTFE lined solution according ISO 5752/5 short (EN 558-1/T5) with various corrosion resistant disc materials to satisfy demanding customer requirements.

Features

- The most important feature of the Neotecha butterfly valve is the stem seal. The pressure to keep the two sealing surfaces together is provided by an upper and lower set of belleville springs resulting in a superior stem seal.
- The elastomer backing of the PTFE liner assures a positive contact and tight seating of the disc.
- The liner provides a positive flange sealing.
- A one piece thin disc stem lined with 3 mm moulded PFA providing high K_V values.
- The liner and disc are the only two valve parts in contact with the medium.
- Primary shaft sealing by preloaded contact between disc and liner hub.
- Secondary shaft seal by oversizing the shaft diameter in relation to the shaft hole in the liner.
- The liner and disc are moulded and machined to close tolerances to provide:
  - low torque
  - less stress and deformation during opening and closing
  - elimination of tearing and bunching
  - an integrated part of the primary and secondary sealing in the shaft area.
- Vacuum tests with helium have been performed successfully with pressures less than 20 Pa absolute (0,2 mbarA).
- Wafer and lugged split body design.

- Integral body locating holes to ease installation and to ensure perfect centering of the valve between flanges.
- Integral actuator flange and stem dimensions acc. ISO 5211.

Technical data

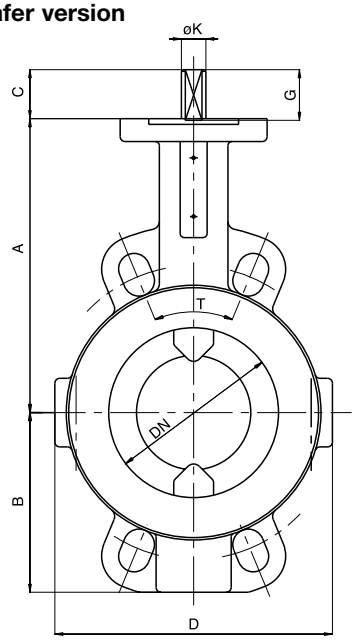
Pressure (bar)	: 10
Temperature (°C)	: -40 + 200
Sizes (mm)	: 40-600
Flange accommodation	: DIN PN 10/16 ANSI 150, JIS 10K

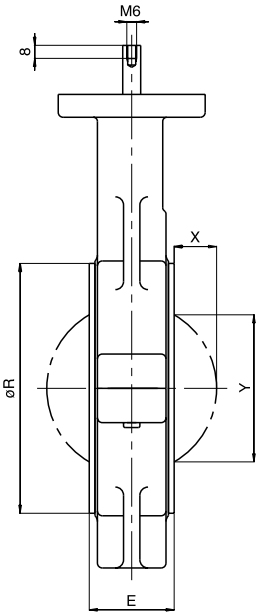
Droptight shut-off in both directions up to 10 bar, in accordance with DIN 3230 part 3, BN leakage rate 1.

General application

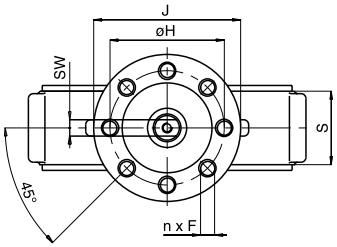
For services where common elastomers are unsuitable, Neotecha offers an improved design NeoSeal, oriented to chemical, pharmaceutical, cosmetic and food industries.
The accurate machining of all valve components, and the combination of safety precautions in the shaft area provide a drop-tight seat sealing and a positive gastight shut-off through the shaft area to atmosphere.

Wafer version

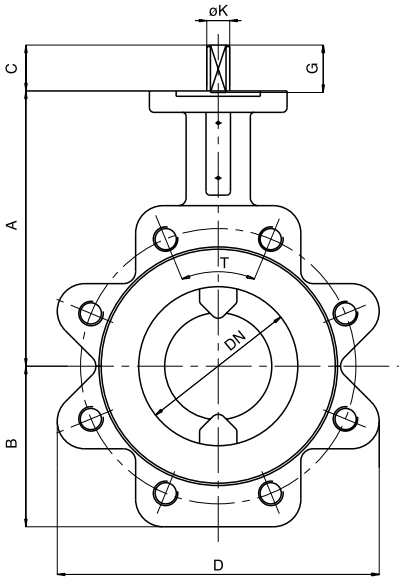


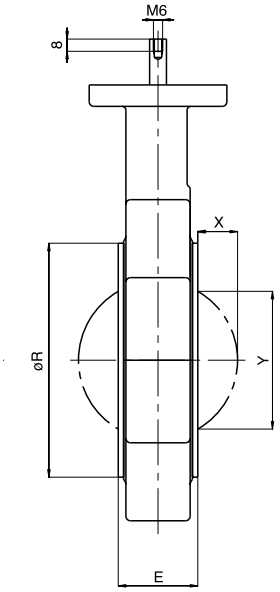


DN 40 - 100

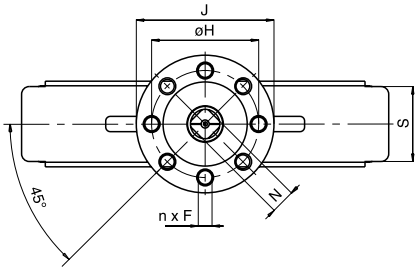


Lugged version





DN 125 - 300

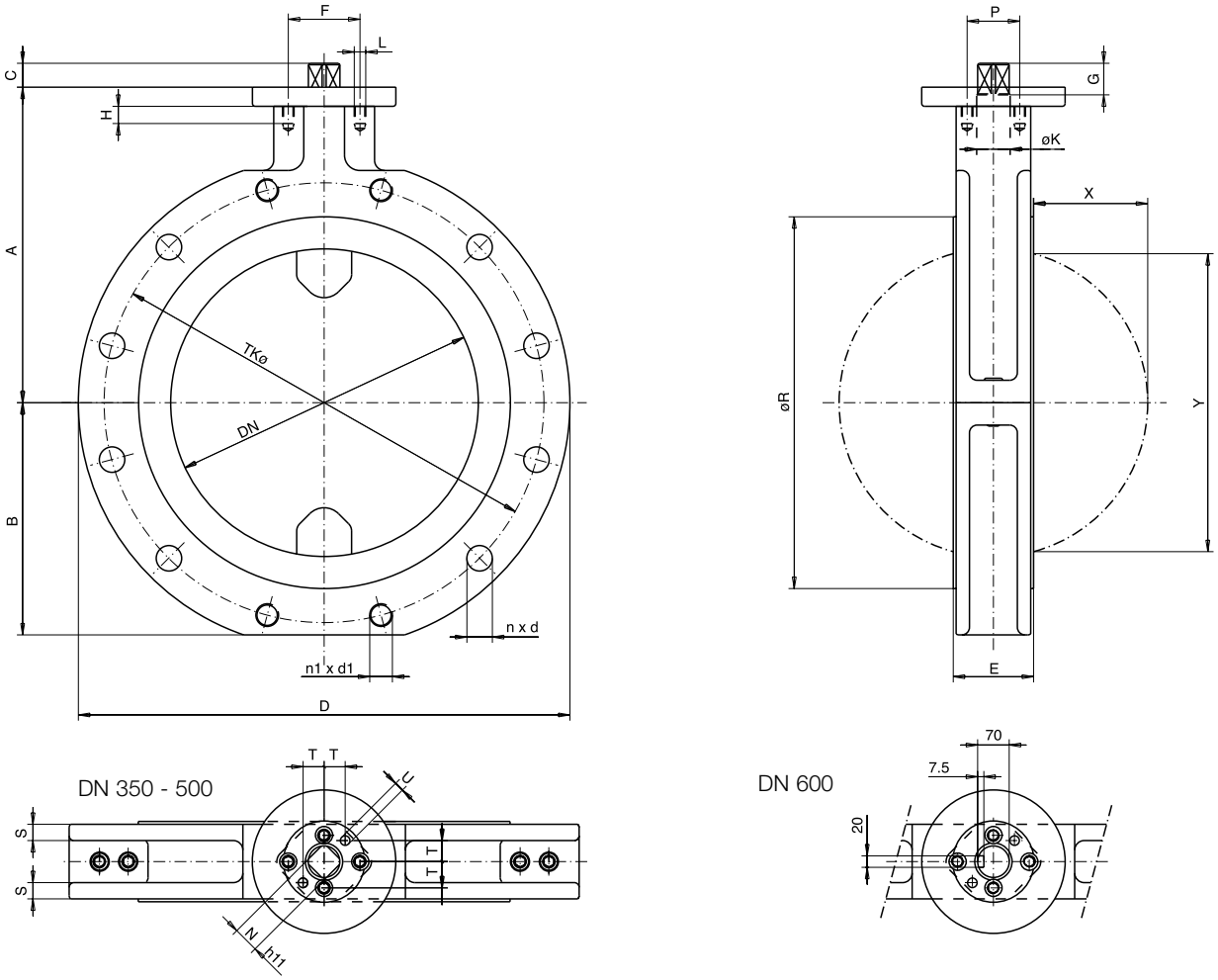


Valve dimensions in mm wafer and lugged

Size		Overall Dimensions																		Weight (kg)	
			wafer	lugged		wafer	lugged							wafer						wafer	lugged
mm	Type	A	B	B	C	D	D	E	n x F	G	øH	øJ	øK	øR	S	X	Y	N	SW		
40	F05	110	55	50	26	108	145	33	8 x 7	27	50	65	15	80	31	3,5	23		⬡ 10	1,9	2,4
50	F05	135	65	65	26	130	160	43	8 x 7	27	50	65	15	95	38	5	31		⬡ 10	2,8	3,4
65	F07	150	85	85	27	144	176	46	8 x 9	28	70	90	15	120	41	11,5	52		⬡ 10	4,7	4,2
80	F07	160	93.5	93.5	29	155	188	46	8 x 9	30	70	90	15	132	41	18,5	69		⬡ 10	4,7	6,1
100	F07	180	113	105	29	180	210	52	8 x 9	30	70	90	15	153	45	26,5	91		⬡ 10	5,7	7,9
125	F07	195	130	125	46	211	234	56	8 x 9	47	70	90	18	183	50	35,5	114	⧄ 14/14		8,7	10,6
150	F07	210	140	140	46	240	269	56	8 x 9	47	70	90	20	209	50	48,5	143	⧄ 16/16		11,6	13,5
200	F12	240	175	170	65	310	360	60	8 x 13	66	125	90	28	259	56	71,5	196	⧄ 19/19		21,0	23,3
250	F12	275	205	205	65	350	435	68	8 x 13	66	125	150	32	309	64	91,5	243	⧄ 22/22		31,5	32,1
300	F12	310	250	250	65	420	500	78	8 x 13	66	125	150	35	364	74	111,5	293	⧄ 27/27		45,0	49,9

Notes

Slotted locating holes for wafer type allowing following flange accommodation:
DIN PN 10/16, ANSI 150, JIS 10 K
For lugged version, single drilling patterns according: DIN PN10/16, ANSI 150, JIS 10 K



Valve dimensions in mm double flanged

Size		Overall Dimensions																	DIN PN10				Weight
mm	Type*	A	B	C	D	E	F	G	H	L	N	P	øR	X	Y	S	T	U	Depth u	TKø	nxd	n1xd1	kg
350	F12	330	255	25	534	78	75	32	20	12	⍁ 27/27	-	412	126,0	321	17	22	10	36	460	12x22	4xM20	60
400	F14	372	290	33	597	102	105	35	20	12	⍁ 32/32	70	475	149,0	387	19	32	12	42	515	12x26	4xM24	88
450	F14	392	310	33	635	114	105	35	20	12	⍁ 32/32	70	525	162,0	423	21	32	12	42	565	16x26	4xM24	110
500	F14	440	350	35	700	127	120	50	20	12	⍁ 36/36	90	578	186,5	484	23	31	12	60	620	16x26	4xM24	145
600	F16	508	420	92	813	154	150	80	30	16	-	120	680	218,0	570	30	35	16	52	725	16x30	4xM27	245

Technical data

Temperature (°C) : -40 + 200

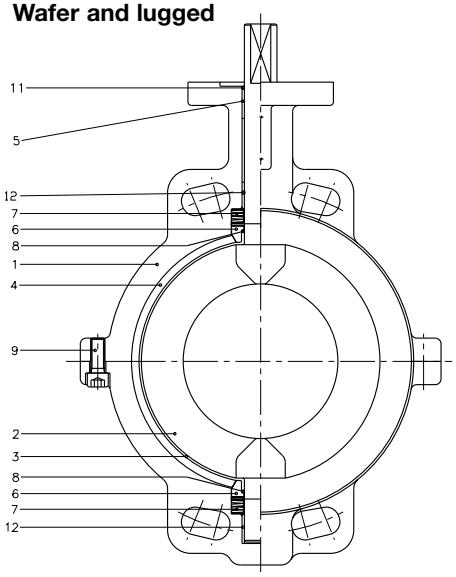
Size (mm)	40-600
10 bar	140°C
6 bar	185°C
4 bar	200°C

Flange accommodation:
- DIN PN10/16
- ANSI 150
- JIS 10 K

Notes

* Required ISO flange to mount standard gear operator. For alternative top flange sizes and drilling, contact factory.

Wafer and lugged



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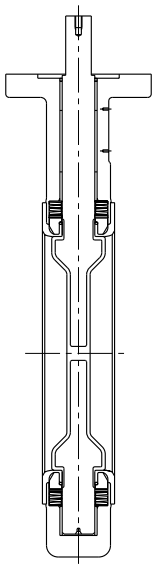
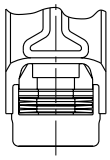
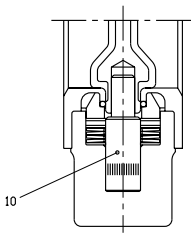




DN 40 - 50

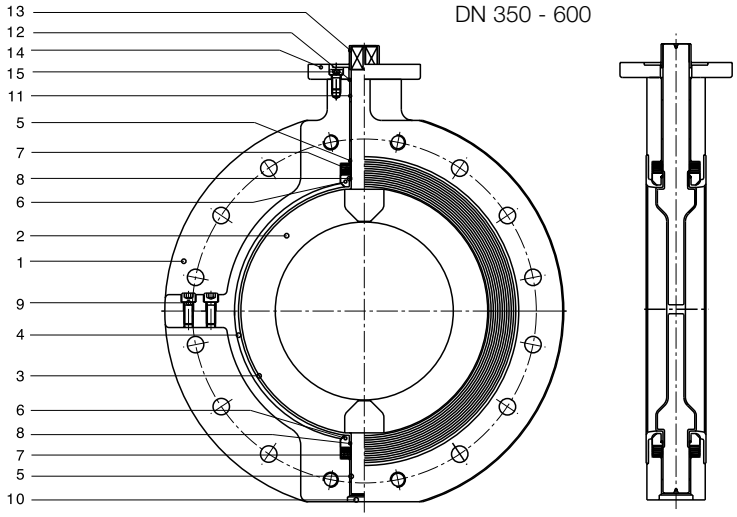


DN 65 - 150

Parts list

Pos.	Part	Material
1	Two piece body	Ductile iron polyester coated
2	One piece disc stem	PFA encapsulated stainless steel
3	Liner	Virgin PTFE
4	Elastomer back-up	Silicon or FPM
5	Bearing	Iglidur X (Thermoplast)
6	Pusher	Stainless steel
7	Belleville washer	Spring steel
8	O-Ring	FPM
9	Int. Hex screw	Stainless steel
10	Pivot pin	Stainless steel
11	O-Ring	FPM
12	Bearing	DU (Steel/PTFE)

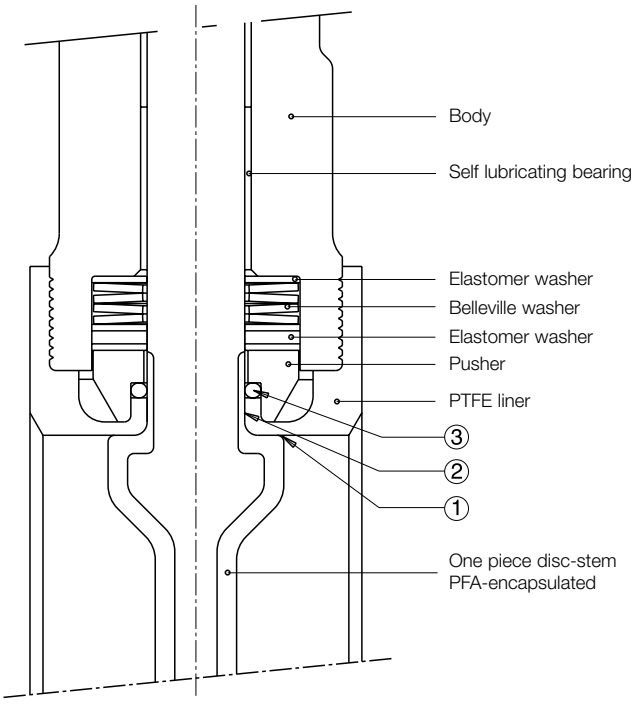
Double flanged



DN 350 - 600

Parts list

Pos.	Part	Material
1	Two piece body	Ductile iron polyester coated
2	One piece disc stem	PFA encapsulated stainless steel
3	Liner	Virgin PTFE
4	Elastomer back-up	Silicon or FPM
5	Bearing	DU (Steel/PTFE conductive)
6	Pusher	Stainless steel
7	Belleville washer	Spring steel
8	O-Ring	FPM
9	Int. hex screw	Stainless steel A2-70
10	Plug	Steel zinc plated
11	Bearing	Iglidur X (Thermoplast)
12	O-Ring	FPM
13	Adapter	St 37
14	Mounting flange	Ck 45
15	Int. hex screw	Stainless steel A2-70
16	Spring pin	A2 (1.4310)
17	Key	Stainless steel



Cross section of stem seal

Notes

① Primary seal: spring loaded mechanical seal
② Secondary seal: radial lip seal
③ Third seal: FPM

K_V values

size in mm / disc opening	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
25°	1	3	5	7	12	21	56	101	172	250	302	452	521	789	974
30°	2	4	8	13	25	41	84	151	258	378	561	756	968	1221	1633
35°	4	8	16	24	45	73	134	240	352	537	750	1054	1398	1789	2496
40°	7	13	29	33	60	97	181	323	478	746	1037	1397	1786	2256	3217
45°	10	18	41	50	90	146	245	435	609	1007	1423	1852	2495	3104	4201
50°	14	27	61	69	125	203	296	525	836	1264	1814	2291	3127	3948	5413
55°	18	36	80	95	170	276	395	700	1103	1585	2314	3312	4231	5210	7036
60°	23	48	107	125	225	364	503	891	1353	2035	2938	3959	5060	6396	8764
65°	29	63	141	164	295	477	610	1080	1727	2810	3756	5124	6214	8498	12047
70°	37	78	175	222	400	647	803	1422	2131	3320	4621	6229	7962	10053	13795
75°	43	91	203	292	525	848	1130	2000	2821	4874	6024	8670	11054	13521	18406
80°	47	97	217	347	625	1009	1482	2622	3485	5416	7559	10186	13032	16449	22683
85°	50	102	228	381	685	1106	1723	3050	3846	6067	8221	11023	14023	17531	25301
90°	53	105	235	411	741	1196	1973	3492	4170	6102	8693	11647	14893	18807	25777

Note

1. Rated K_V = the volume of water in m^3/hr that will pass through a given valve opening at a pressure drop of 1 bar.

Maximum allowable shaft torques in Nm

size in mm / shaft mat.	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
1.4542	75	75	160	160	160	294	362	831	1280	1280	1147	1698	1698	4025	5560

Dynamic torque factors F_T for metric units

size in mm / disc opening	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
10°	-	-	-	-	-	-	-	1,7	0,4	8,1					
15°	-	0,1	0,1	0,3	0,5	1,0	1,7	4,0	7,8	13,5	8,6	12,8	18,2	25,0	43,2
20°	-	0,1	0,2	0,5	0,9	1,8	3,0	7,2	14,1	24,3	21,4	32,0	45,6	62,5	108,0
25°	0,1	0,2	0,4	0,7	1,4	2,7	4,7	11,2	21,9	37,8	42,9	64,0	91,1	125,0	216,0
30°	0,1	0,3	0,6	1,1	2,1	4,1	7,1	16,8	32,8	56,7	64,3	96,0	136,7	187,5	324,0
35°	0,2	0,4	0,8	1,5	3,0	5,9	10,1	24,0	46,9	81,0	94,3	140,8	200,5	275,0	475,2
40°	0,2	0,5	1,1	2,1	4,1	8,0	13,8	32,8	64,1	110,7	124,3	185,6	264,3	362,5	626,4
45°	0,4	0,7	1,5	2,8	5,4	10,5	18,2	43,2	84,4	145,8	171,5	256,0	364,5	500,0	864,0
50°	0,5	0,9	1,9	3,6	7,0	13,7	23,6	56,0	109,4	189,0	235,8	352,0	501,2	687,5	1188,0
55°	0,6	1,1	2,5	4,6	9,0	17,6	30,4	72,0	140,6	243,0	321,6	480,0	683,4	937,5	1620,0
60°	0,7	1,5	3,3	6,1	12,0	23,4	40,5	96,0	187,5	324,0	415,9	620,8	883,9	1212,5	2095,2
65°	0,9	1,9	4,1	7,7	15,0	29,3	50,6	120,0	234,4	405,0	544,5	812,8	1157,3	1857,5	2743,2
70°	1,3	2,5	5,5	10,2	20,0	39,1	67,5	160,0	312,5	540,0	733,2	1094,4	1558,2	2317,5	3693,6
75°	1,7	3,4	7,4	13,8	27,0	52,7	91,1	216,0	421,9	729,0	1050,4	1568,0	2232,6	3062,5	5292,0
80°	1,9	3,9	8,5	15,9	31,0	60,5	104,6	248,0	484,4	837,0	1346,3	2009,6	2861,3	3925,0	6782,4
85°	1,3	2,5	5,5	10,2	20,0	39,1	67,5	160,0	312,5	540,0	913,2	1363,2	1941,0	2662,5	4600,8
90°	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

1. Dynamic operating torque formula: $\mathbf{T_D} = \mathbf{F_T} \times \Delta\mathbf{P}$
   $\mathbf{T_D}$ = Dynamic torque (Nm)
   $\Delta\mathbf{P}$ = Pressure drop across disc at desired disc-opening (bar)
   $\mathbf{F_T}$ = Dynamic torque factor (see table)
2. The above mentioned dynamic torque includes all frictional resistances.
3. The dynamic torque is tending to close the disc.

Sizing torques in Nm (at 10 bar pressure differential)

size in mm / disc/liner	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
PFA/PTFE	18	20	25	45	60	85	140	190	320	420	500	550	620	680	950
SS/PTFE	25	30	40	50	75	110	160	220	320	420	540	600	680	750	1050

Note

1. The charted maximum sizing operating torque is the sum of all friction and resistance for opening and closing of the disc against the indicated pressure differential.
2. The effect of dynamic torque is not considered in tabulation.
3. In sizing operators it is not necessary to include safety-factors.

Valve material selection

Body	Disc	Shaft	Seat	Seat backing	Trim no.	Sizes	Remarks
Ductile Iron	PFA	Stainless Steel	PTFE	Silicon	**N01**	40-600	
	PFA	Stainless Steel	PTFE	FPM	**N02**	40-600	
	Conductive PFA	Stainless Steel	Conductive PTFE	Silicon	**N04**	40-600	
	Conductive PFA	Stainless Steel	Conductive PTFE	FPM	**N05**	40-600	
	Stainless Steel	Stainless Steel	PTFE	Silicon	**N07**	40-600	
	Stainless Steel	Stainless Steel	PTFE	FPM	**N08**	40-600	
	Stainless Steel	Stainless Steel	Conductive PTFE	Silicon	**N10**	40-600	
	Stainless Steel	Stainless Steel	Conductive PTFE	FPM	**N11**	40-600	
	Titanium	Titanium	PTFE	Silicon	**N1E**	40-300	contact factory
	Titanium	Titanium	PTFE	FPM	**N1F**	40-300	contact factory

Order example

Type	Size	Body	Standard
NSA = NeoSeal	40-300	W/L	DIN/ANSI/JIS
NSA = NeoSeal	350-600	F	DIN/ANSI/JIS

Standard	Body	Operation	Size
10 = DIN PN10	W = Wafer	B = Bare shaft	40-300
A1 = ANSI 150	L = Lugged	L = Lever	40-300
J0 = JIS 10K	F = Double flanged	G = Gear	350-600

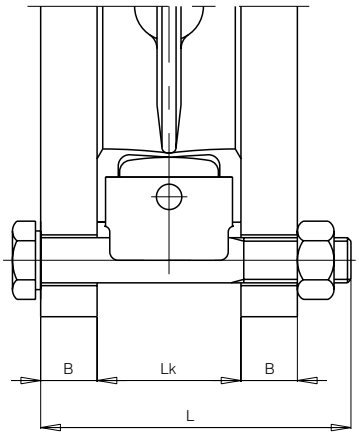
Example of order NeoSeal

Type	Size (mm)	Trim	Body	Standard	Operation	Variant
NSA	150	N01	W	A1	B	00

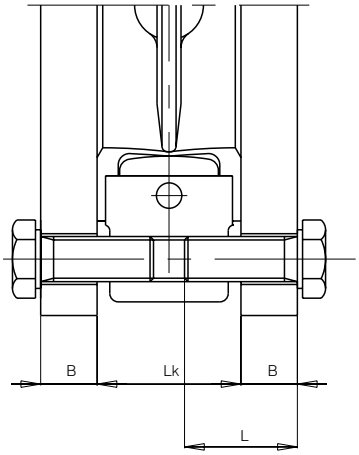
Note: For definitive variant, please contact your local sales office.

Valve material list

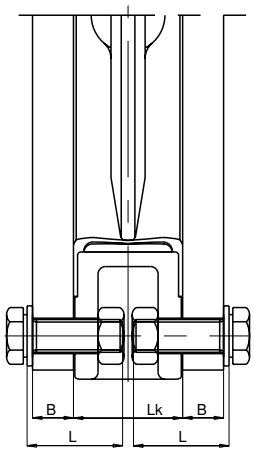
Part name	Material	DIN designation	DIN mat. no.	Remarks	
Body	Ductile iron	EN-GJS 400-18U-LT-Z (GGG40.3) ASTM A395	0.7043	Heat treated coating: 2-components polyester powder, RAL 9002	
Disc	PFA covered Stainless Steel	X 5 CrNiMoNb 17 4	1.4542	40-300	FDA 21CFR177.1550
		GX 5 CrNiMoNb 19-11	1.4581	40-300	
	PFA covered	St 52-3	1.0575	350-600	FDA 21CFR177.1550
	Stainless Steel	X 2 CrNiMo 17 13 2	1.4404	350-600	
Shaft	Stainless Steel	X 5 CrNiMoNb 17 4	1.4542	40-300	
	Stainless Steel	X 20 CrNi 17 2	1.4057	350-600	for PFA disc
	Stainless Steel	X 2 CrNiMo 17 13 2	1.4404	350-600	for stainless disc
Seat	PTFE Conductive PTFE				FDA 21CFR177.1550
Body screws	Stainless Steel	X 5 CrNI 18 10	1.4301	A2-70	
Top spring	Spring Steel	50 CrV 4	1.8159	DIN 17222	
	Spring Steel	50 CrV 4	1.8159	DIN 17222	
O-rings	FPM				
Seat backing	Silicon FPM				
Top bearing	Iglidur X (Thermoplast)				
Bottom bearing	Steel/ PTFE conductive				



Wafer		PN 10 DIN 2632			PN 16 DIN 2633		
Valve size	**Face to face length**	**Flange thickness**	**No. of boltholes**	**Boltsize**	**Flange thickness**	**No. of boltholes**	**Boltsize**
mm	**Lk**	**B**		**L**	**B**		**L**
40	35	16	4	M16x80	16	4	M16x80
50	43	18	4	M16x100	18	4	M16x100
65	46	18	4	M16x100	18	4	M16x100
80	46	20	8	M16x100	20	8	M16x100
100	51	20	8	M16x110	20	8	M16x110
125	56	22	8	M16x120	22	8	M16x120
150	56	22	8	M20x120	22	8	M20x120
200	62	24	12	M20x130	24	12	M20x130
250	70	26	12	M20x140	26	12	M24x140
300	80	26	12	M20x150	28	12	M24x150



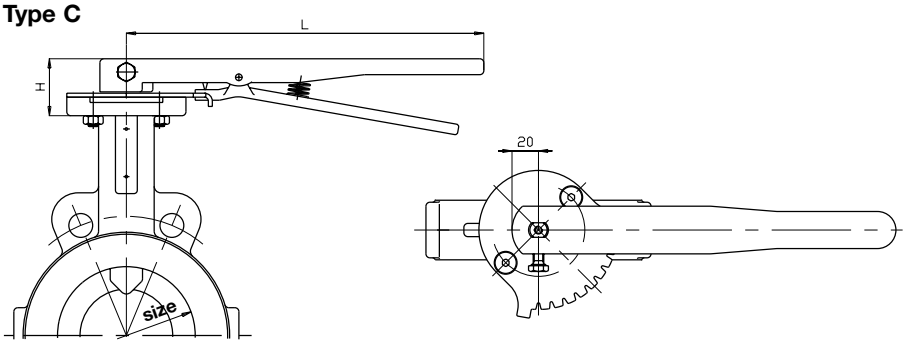
Lugged		PN 10 DIN 2632			PN 16 DIN 2633		
Valve size	**Face to face length**	**Flange thickness**	**No. of boltholes**	**Boltsize**	**Flange thickness**	**No. of boltholes**	**Boltsize**
mm	**Lk**	**B**		**L**	**B**		**L**
40	35	16	4	M16x30	16	4	M16x30
50	43	18	4	M16x35	18	4	M16x35
65	46	18	4	M16x35	18	4	M16x35
80	46	20	8	M16x35	20	8	M16x35
100	51	20	8	M16x40	20	8	M16x40
125	56	22	8	M16x45	22	8	M16x45
150	56	22	8	M20x45	22	8	M20x45
200	62	24	8	M20x50	24	12	M20x50
250	70	26	12	M20x55	26	12	M24x55
300	80	26	12	M20x60	28	12	M24x60



Double flange		PN 10 DIN 2632			PN 16 DIN 2633		
Valve size	**Face to face length**	**Flange thickness**	**No. of boltholes**	**Boltsize**	**Flange thickness**	**No. of boltholes**	**Boltsize**
mm	**Lk**	**B**		**L**	**B**		**L**
350	80	26	16	M20x50	30	16	M24x70
400	104	26	16	M24x65	32	16	M27x75
450	114	26	20	M24x65	34	20	M27x80
500	127	28	20	M24x65	34	20	M30x85
600	157	28	20	M27x80			

Recommended bolt torques for installation			
Valve size	**Torque**	**Valve size**	**Torque**
mm	**Nm**	**mm**	**Nm**
40	20	200	95
50	35	250	100
65	45	300	115
80	50	350	140
100	55	400	170
125	65	450	190
150	70	500	220
		600	280

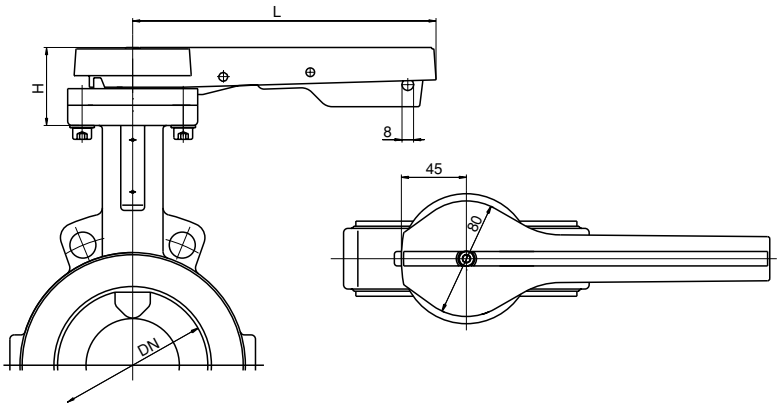
Type C



Dimensions

Handle lever Type C			Handle lever Type Z		
Size	**L**	**H**	**Size**	**L**	**H**
40	267	46	40	210	51
50	267	46	50	210	51
65	267	46	65	210	54
80	267	46	80	210	54
100	267	46	100	210	54
125	356	49			
150	356	54			

Type Z



Handle lever material list

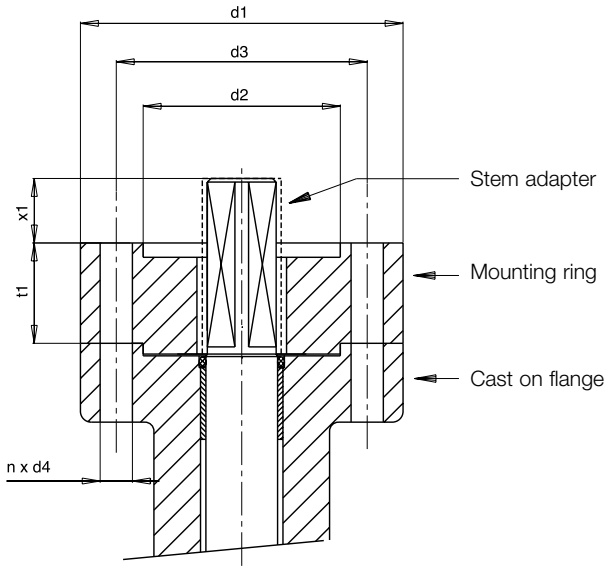
Part name	Material	DIN designation	DIN mat.no	Remarks
Type C				
Handle bar	Ductile iron	EN-GJS-400-15 (GGG 40)	0.7040	
Handle lever	Ductile iron	EN-GJS-400-15 (GGG 40)	0.7040	
Spring	Stainless Steel	X 5 CrNiMo 17 12 2	1.4401	
Groove pin	Stainless Steel	X 10 CrNiS 18 9	1.4305	
Throttling plate	Stainless Steel	X 5 CrNI 18 10	1.4301	
Handle screw	Stainless Steel	X 5 CrNI 18 10	1.4301	
Screw	Stainless Steel	X 5 CrNI 18 10	1.4301	
Type Z				
Handle bar	Technopolymer			
Nut	Stainless Steel	X 5 CrNiMo 17 13 3	1.4436	
Spring	Stainless Steel	X 12 CrNi 17 7	1.4310	
Short handle	Stainless Steel	X 5 CrNi 18 8	1.4301	
Plate	Investment cast	G-X 6 CrNi 18 6	1.4308	
Screw	Stainless Steel	DIN 912		Zn - plated
Spring pin	Stainless Steel	X 5 CrNi 18 8	1.4301	

ISO-dimensions

ISO-No.	d1	d2	d3	n * d4
F05	65	35	50	8 x 7
F07	90	55	70	8 x 9
F10	125	70	102	8 x 11
F12	150	85	125	8 x 13
F14	175	100	140	8 x 17
F16	210	130	165	8 x 22
F25	300	200	254	8 x 17

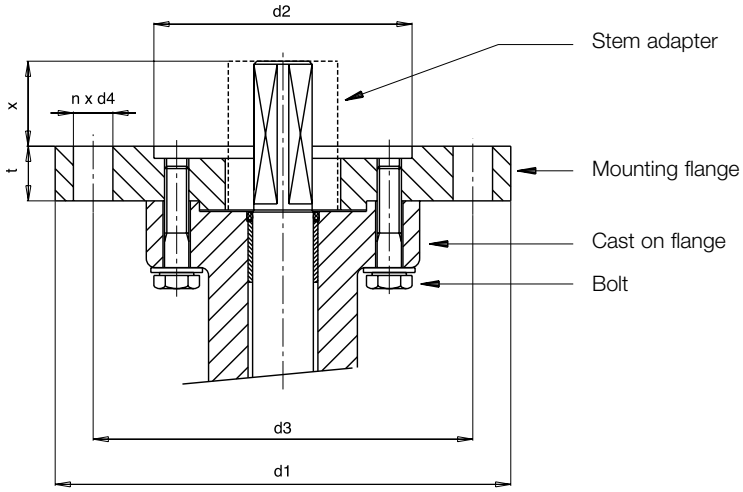
Mounting ring

Required when an ISO actuator to DIN 3337 with the same flange size is to be mounted.
Not required for an actuator or gear with a hollow shaft and the same flange size.



Mounting flange

Three oversized mounting flanges per size valve are available to direct mount a larger ISO actuator to DIN 3337 complete with all hardware.



Notes:

1. Mounted on flanges, must be ordered separately
2. All oversized flanges and adapters are subject to a surchage.

Oversized flanges for direct mounting

Valve size	Cast on flange	x_1	t_1	Stem Adapter	Oversize flange[2] #1	x	t	Stem Adapter	Oversize flange[2] #2	x	t	Stem Adapter	Oversize flange[2] #3	x	t	Stem Adapter
DN 040	F05	14	16	14/14	F07	17	16	17/17	F10	19	18	22/22	F12	21	20	27/27
DN 050	F05	14	16	14/14	F07	17	16	17/17	F10	19	18	22/22	F12	21	20	27/27
DN 065	F07	16	18	17/17	F10	20	18	22/22	F12	22	20	27/27	F14	30	14	36/36
DN 080	F07	18	18	17/17	F10	22	18	22/22	F12	24	20	27/27	F14	32	14	36/36
DN 100	F07	18	18	17/17	F10	22	18	22/22	F12	24	20	27/27	F14	32	14	36/36
DN 125	F07	18	28	17/17	F10	22	24	22/22	F12	20	26	27/27	F14	28	18	36/36
DN 150	F07	18	28	17/17	F10	22	24	27/27	F12	20	26	36/36	F14	28	18	46/46
DN 200	F12	28	37	27/27	F14	36	29	36/36	F16	36	29	46/46	F25	36	29	55/55
DN 250	F12	28	37	27/27	F14	36	29	36/36	F16	36	29	46/46	F25	36	29	55/55
DN 300	F12	28	37	27/27	F14	36	29	36/36	F16	36	29	46/46	F25	36	29	55/55
DN 350	F12 [1]	25	20	27/27	F14	28	17	36/36	F16	27	18	46/46				
DN 400	F14 [1]	33	22	36/36	F16	32	23	46/46	F25	30	25	55/55				
DN 450	F14 [1]	33	22	36/36	F16	32	23	46/46	F25	30	25	55/55				
DN 500	F14 [1]	35	40	36/36	F16	43	32	46/46								
DN 600	F16 [1]	92	28	46/46												