

# ***Mono Flanged Type***

## ***Long Face to Face***



## Technical Data

### General Product Information

Description	: GVC Mono flanged type bonded vulcanised liner butterfly valve with centric disc
Design Code	: EN 593 - 2004
Size Range	: DN 50 - DN 400 (Larger sizes on request)
Pressure Classes	: DIN PN10, DIN PN 16 and ANSI/ASME 150
Pressure & Temp.	: DIN PN 10 = 10 barg   NBR = -10 to +90°C DIN PN 16 = 16 barg   EPDM = -30 to +130°C ANSI 150 = 19 barg   FPM = -10 to +200°C
Operation	: ISO 5211 top flange for direct mount of; <ul style="list-style-type: none"><li>• Hand lever</li><li>• Gearbox</li><li>• Pneumatic actuator</li><li>• Electric actuator</li><li>• Hydraulic actuator</li></ul>



Mono Flanged Type  
**Series 130**

### Design

Process Connections:	Suitable for mounting between flanges acc. to EN 1092 - PN 10/16, ASME B16.5 - 150
Face to Face	: EN 558 Basic series 16 ISO 5752 Basic series 16
Liner	: Elastomeric bonded liner vulcanized to body Non-collapsible Non-replaceable Bi-directional tight shut-off
Shaft Seal Design	: Primary and secondary shaft seal system within liner
Shaft	: DN 50-DN 300 with 2-pc shaft construction DN > DN 300 with 1-pc shaft construction
Bearings	: Bearings vulcanized to liner

### Valve Testing

Valves have been tested and found acceptable in compliance with the following standards

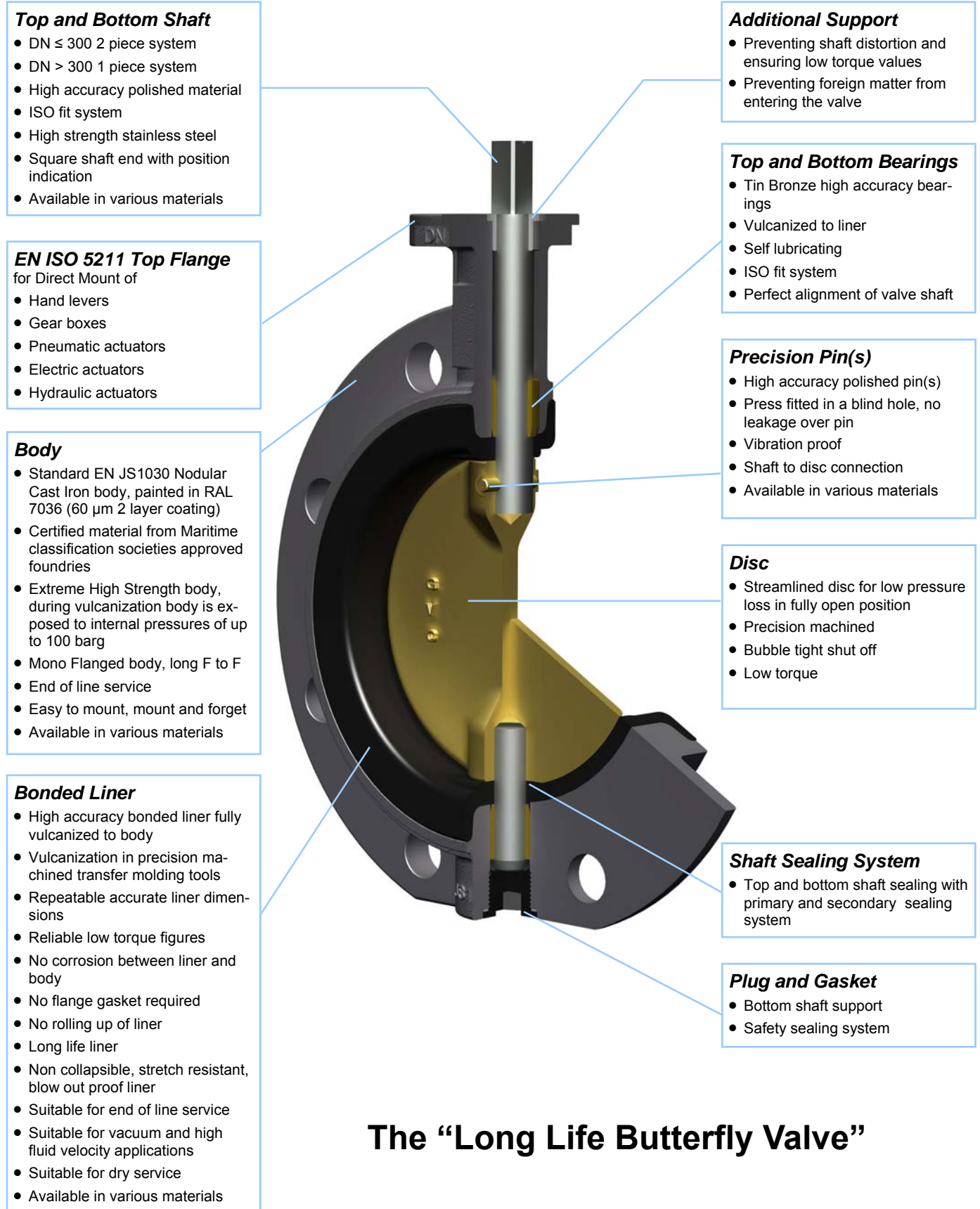
Shell strength	: Test P10 - EN 12266-1 API 598
Shell tightness	: Test P11 - EN 12266-1 API 598
Seat tightness	: Test P12 - EN 12266-1 Rate A API 598
Operability	: Test F20 - EN 12266-2
Anti static design	: Test F21 - EN 12266-2

### Additional information

- Suitable for vacuum applications
- Suitable for end of line service
- On-Off and throttling / regulating applications
- Suitable for high velocity applications up to;
  - 4 m/sec. for liquids
  - 30 m/sec. for gasses
- Marking EN 19 - 2002
- Material and Test certification, EN 10204 - 2.2, 3.1 and 3.2
- Special coating systems available (Off-shore coating etc.)

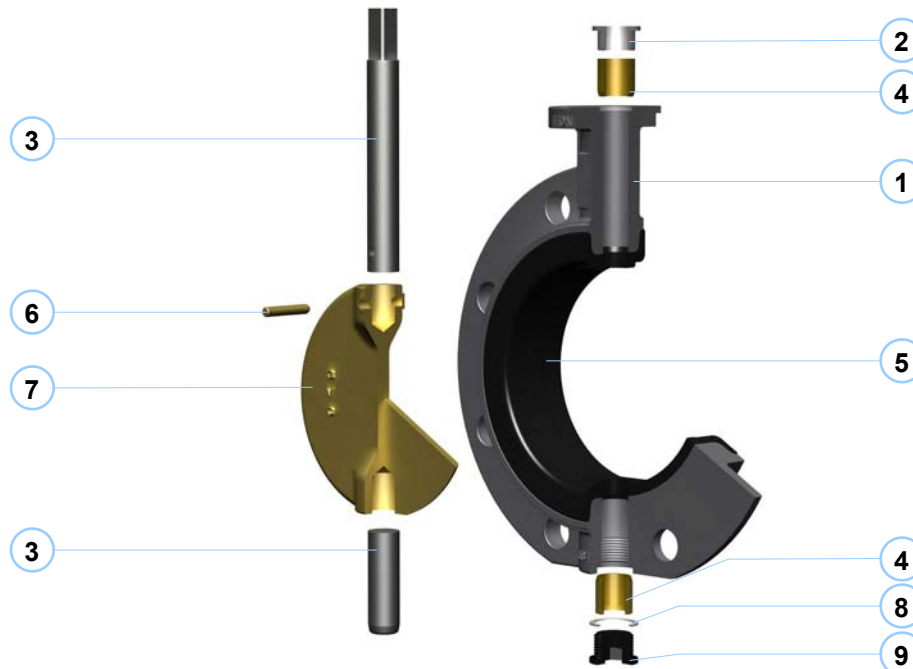


## The Bonded Liner Concept



## The “Long Life Butterfly Valve”

## Materials

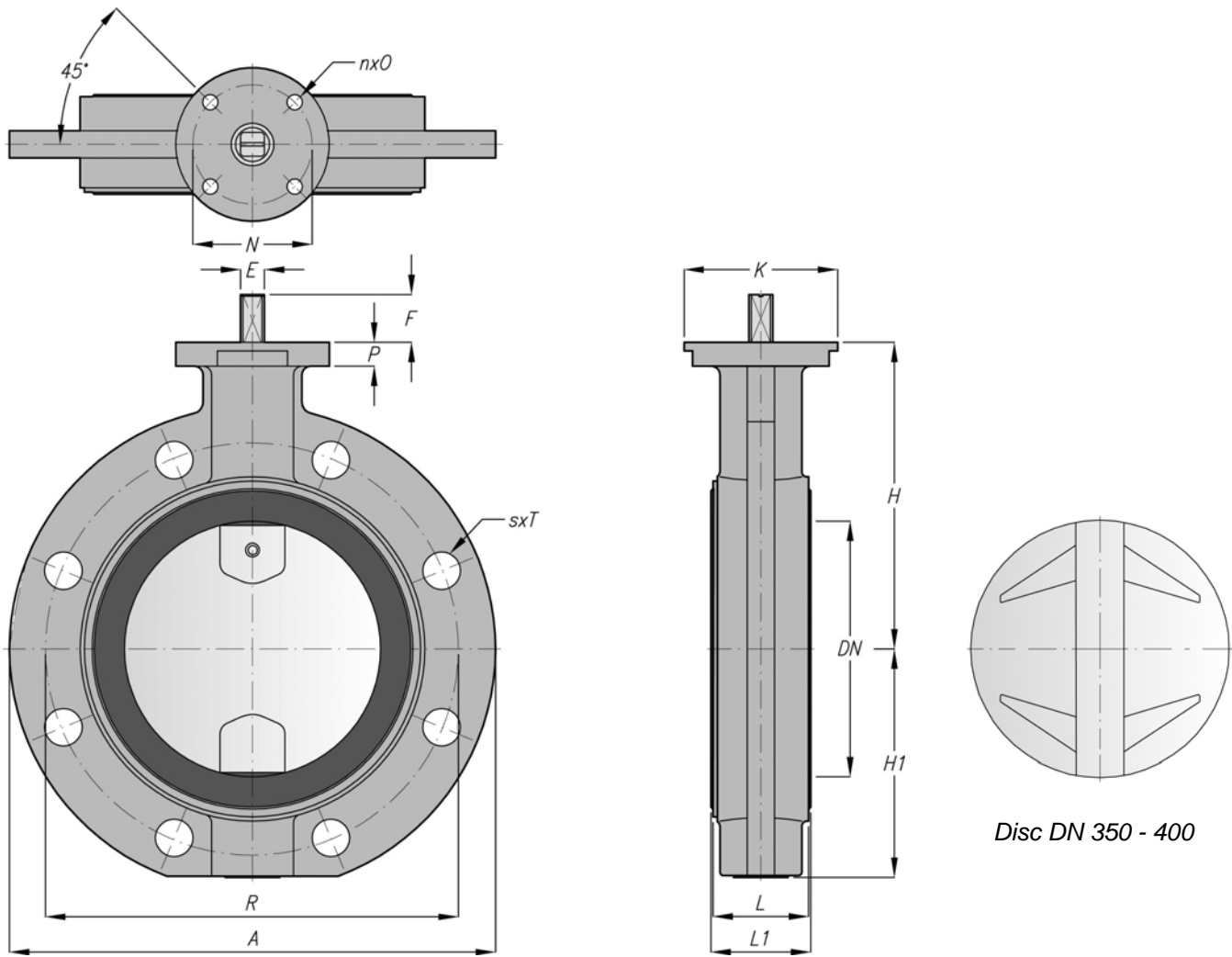


No	Part	Material	Name	Number	Standard	Former	W. Nr.	Note
1	Body	Cast Iron	EN-GJL-250	JL1040	EN 1561	GG-25	0.6025	C
		Nodular Cast Iron	EN-GJS-400-15	JS1030	EN 1563	GGG-40	0.7040	A+B
		Nodular Cast Iron	EN-GJS-400-18-LT	JS1025	EN 1563	GGG-40.3	0.7043	C
		Cast Steel	A216 Grade WCB		ASTM A216		1.0619	C
		Cast Stainless Steel	A743 Grade CF3M		ASTM A743		1.4404	C
		Cast Aluminium Bronze	CuAl10Fe5Ni5-C	CC333G	EN 1982	BS 1400-AB2		C
		Cast Aluminium	EN-AC-AISi12		EN 1706			C
2	Support	Polyamide	PA66					A+B
3	Shaft	Stainless Steel	X39CrMo 17-1		EN 10088	X35CrMo17	1.4122	A+B
		Stainless Steel	X20Cr13		EN 10088		1.4021	C
		Monel K500®	NA 18		BS 3076			C
		Aluminium Bronze	UNS C 63000		ASTM B150		2.0966	C
4	Bearing	Bronze	CuSn7ZnPb	CC493K	EN 1982		2.1090	A+B
5	Liner	Elastomeric	NBR					A
			EPDM					B
			FPM					C
6	Pin	Stainless Steel	X39CrMo 17-1		EN 10088	X35CrMo17	1.4122	C
		Stainless Steel	X2CrNiMo17-12-2		EN 10088		1.4404	B
		Monel K500®	NA 18		BS 3076			C
		Aluminium Bronze	UNS C 63000		ASTM B150		2.0966	A
7	Disc	Nodular Cast Iron (Rilsan)	EN-GJS-400-15	JS1030	EN 1563	GGG-40	0.7040	C
		Aluminium Bronze	CuAl10Fe5Ni5-C	CC333G	EN 1982	BS 1400-AB2		A
		Stainless Steel	A743 Grade CF8M		ASTM A743		1.4408	B
		Duplex	A181 Grade F51		ASTM A181		1.4462	C
		Monel K400®	A494 M35		ASTM A494			C
8	Gasket	Non asbestos						A+B
9	Plug	Polyamide	PA66					A+B

A = Standard stock material combination (for Marine applications)  
B = Standard stock material combination (for General Industry applications)  
C = Upon request

Other materials on request

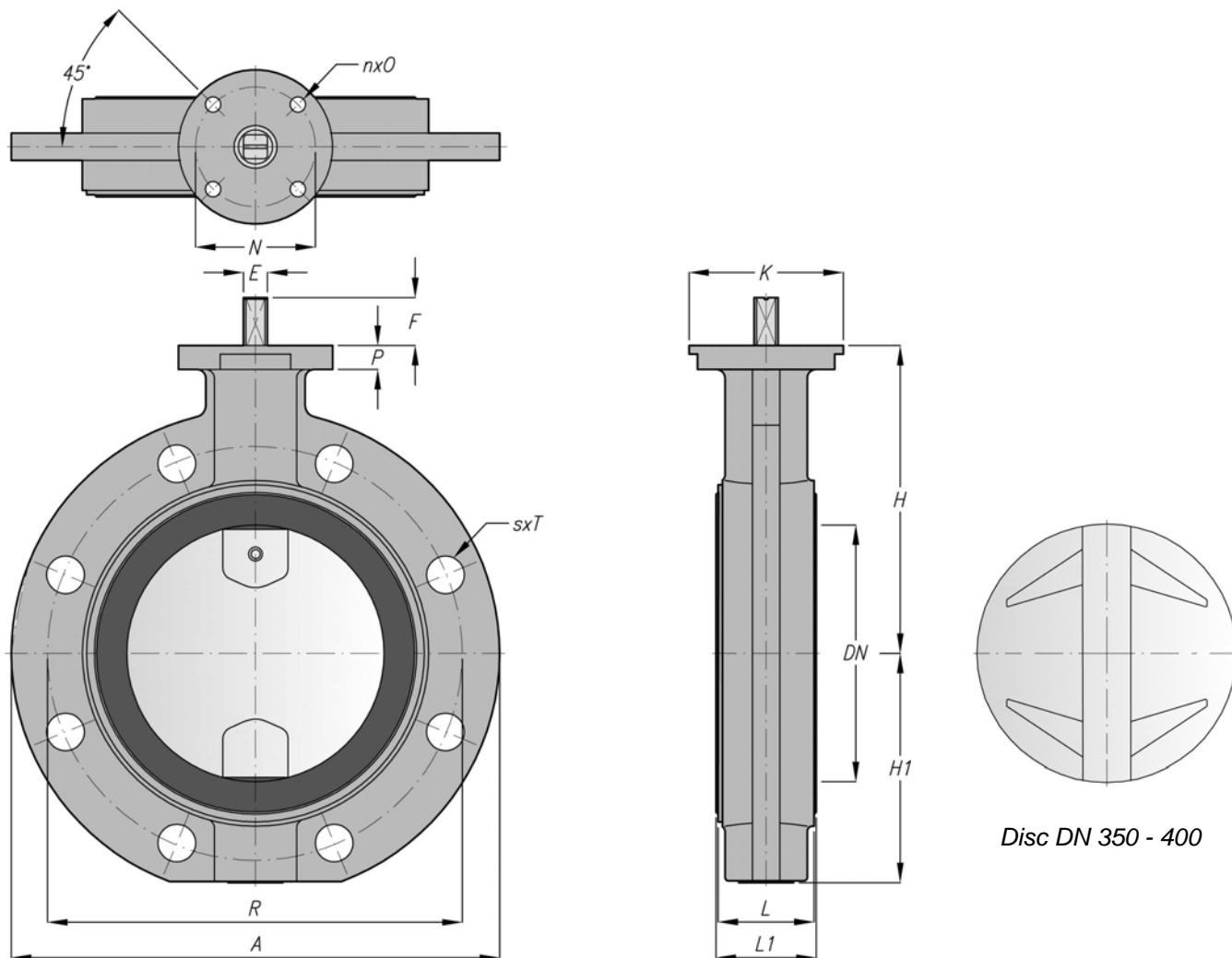
**Dimensions DN 50 - 400 (PN 10)**



Dimensions DN 50 - 400, **DIN PN10** [mm]

DN	øA	□E	F	H	H1	øK	L	L1	N	ISO	nxO	P	R	s x T	Weight
50	165	10	25	118	67	90	43	44.8	70	F07	4 x ø9	12	125	4 x ø18	3.8 Kg
65	185	10	25	126	74	90	46	47.8	70	F07	4 x ø9	12	145	4 x ø18	4.8 Kg
80	200	10	25	133	82	90	64	65.8	70	F07	4 x ø9	14	160	8 x ø18	5.4 Kg
100	228	12	25	147	100	90	64	66.0	70	F07	4 x ø9	14	180	8 x ø18	8.3 Kg
125	254	12	25	160	112	90	70	72.2	70	F07	4 x ø9	14	210	8 x ø18	10.3 Kg
150	285	16	25	180	134	90	76	78.4	70	F07	4 x ø9	14	240	8 x ø22	12.9 Kg
200	340	16	25	204	159	90	89	92.0	70	F07	4 x ø9	14	295	8 x ø22	18.3 Kg
250	405	24	30	245	195	125	114	117.0	102	F10	4 x ø11	15	350	12 x ø22	30.1 Kg
300	460	24	30	270	220	125	114	117.5	102	F10	4 x ø11	15	400	12 x ø22	45.9 Kg
350	533	27	29	315	282	150	127	130.5	125	F12	4 x ø14	20	460	16 x ø22	57.5 Kg
400	585	27	29	350	307	150	140	143.6	125	F12	4 x ø14	20	515	16 x ø26	96.5 Kg

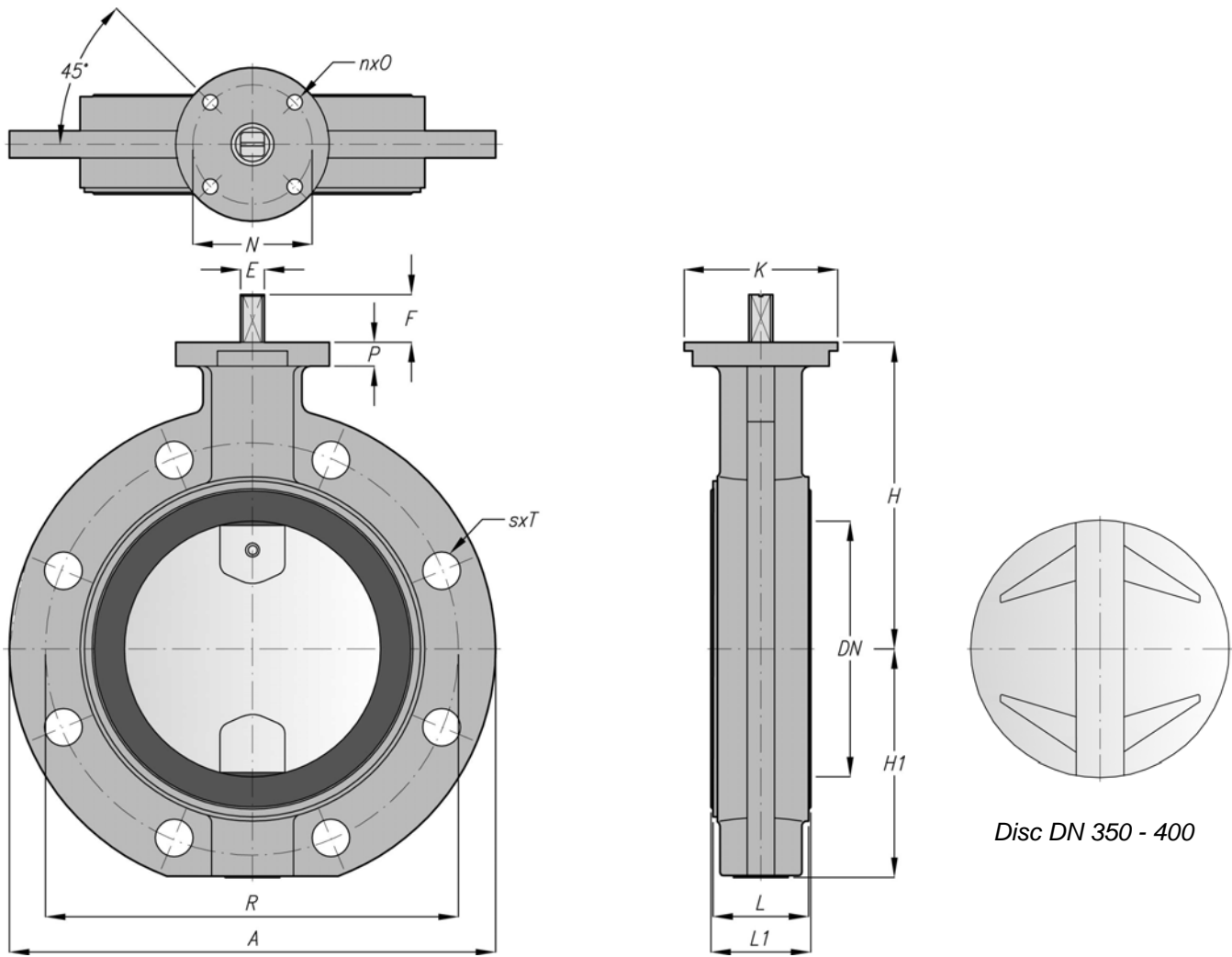
**Dimensions DN 50 - 400 (PN 16)**



Dimensions DN 50 - 400, **DIN PN16** [mm]

DN	øA	□E	F	H	H1	øK	L	L1	N	ISO	nxO	P	R	s x T	Weight
50	165	10	25	118	67	90	43	44.8	70	F07	4 x ø9	12	125	4 x ø18	3.8 Kg
65	185	10	25	126	74	90	46	47.8	70	F07	4 x ø9	12	145	4 x ø18	4.8 Kg
80	200	10	25	133	82	90	64	65.8	70	F07	4 x ø9	14	160	8 x ø18	5.4 Kg
100	228	12	25	147	100	90	64	66.0	70	F07	4 x ø9	14	180	8 x ø18	8.3 Kg
125	254	12	25	160	112	90	70	72.2	70	F07	4 x ø9	14	210	8 x ø18	10.3 Kg
150	285	16	25	180	134	90	76	78.4	70	F07	4 x ø9	14	240	8 x ø22	12.9 Kg
200	340	16	25	204	159	90	89	92.0	70	F07	4 x ø9	14	295	12 x ø22	18.3 Kg
250	405	24	30	245	195	125	114	117.0	102	F10	4 x ø11	15	355	12 x ø26	30.1 Kg
300	460	24	30	270	220	125	114	117.5	102	F10	4 x ø11	15	410	12 x ø26	45.9 Kg
350	533	27	29	315	282	150	127	130.5	125	F12	4 x ø14	20	470	16 x ø26	57.5 Kg
400	585	27	29	350	307	150	140	143.6	125	F12	4 x ø14	20	525	16 x ø30	96.5 Kg

**Dimensions DN 50 - 400 (ANSI 150)**



Disc DN 350 - 400

Dimensions DN 50 - 400, **ANSI 150** [mm]

DN	øA	□E	F	H	H1	øK	L	L1	N	ISO	nxO	P	R	s x T	Weight
50	165	10	25	118	67	90	43	44.8	70	F07	4 x ø9	12	120.6	4 x ø19	3.8 Kg
65	185	10	25	126	74	90	46	47.8	70	F07	4 x ø9	12	139.7	4 x ø19	4.8 Kg
80	200	10	25	133	82	90	64	65.8	70	F07	4 x ø9	14	152.4	4 x ø19	5.4 Kg
100	228	12	25	147	100	90	64	66.0	70	F07	4 x ø9	14	190.5	8 x ø19	8.3 Kg
125	254	12	25	160	112	90	70	72.2	70	F07	4 x ø9	14	215.9	8 x ø22	10.3 Kg
150	285	16	25	180	134	90	76	78.4	70	F07	4 x ø9	14	241.3	8 x ø22	12.9 Kg
200	340	16	25	204	159	90	89	92.0	70	F07	4 x ø9	14	298.4	8 x ø22	18.3 Kg
250	405	24	30	245	195	125	114	117.0	102	F10	4 x ø11	15	361.9	12 x ø25	30.1 Kg
300	460	24	30	270	220	125	114	117.5	102	F10	4 x ø11	15	431.8	12 x ø35	45.9 Kg
350	533	27	29	315	282	150	127	130.5	125	F12	4 x ø14	20	476.2	12 x ø28	57.5 Kg
400	585	27	29	350	307	150	140	143.6	125	F12	4 x ø14	20	539.7	16 x ø28	96.5 Kg

## “Everything You Need to Size”

### Torque Figures

#### Torque

Torque figures as mentioned in the torque table are;

- Initial break away values in Nm (Newton Meters)
- **Excluding** any safety factor
- For valves that are operated at least once per month
- Temperature 0° to 50°C

#### Safety factor (sf)

For sizing and safe operation purposes the specified torque values need to be multiplied with the following minimum safety factors;

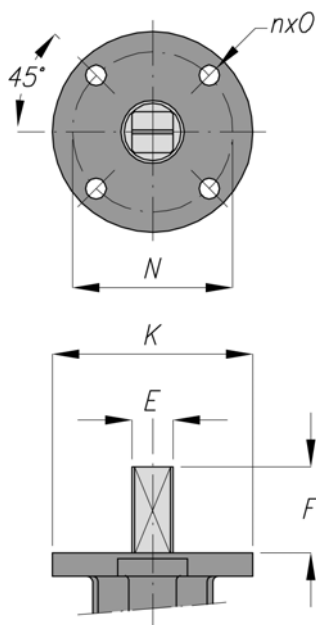
- For liquid and lubricant media **sf = 1.20**
- For powdery (non-lubricant) media **sf = 1.55**
- For dry gasses and high viscous media **sf = 1.45**

#### Service

For assistance in sizing and dimensioning actuators- valve combinations please contact our Engineers. We have wide experience in sizing Pneumatic, Electric and Hydraulic actuators.

DN	PN 10			PN 16			
	$\Delta P$ 2.5 bar	$\Delta P$ 6.0 bar	$\Delta P$ 10 bar	$\Delta P$ 2.5 bar	$\Delta P$ 6.0 bar	$\Delta P$ 10 bar	$\Delta P$ 16 bar
50	--	--	--	6.9	7.6	9.9	13.0
65	--	--	--	9.9	10.7	13.0	14.5
80	--	--	--	13.0	15.2	18.3	22.8
100	--	--	--	21.3	16.0	22.8	28.9
125	--	--	--	29.7	30.4	38.0	53.2
150	--	--	--	45.6	53.2	62.4	83.6
200	--	--	--	91.2	106.4	121.6	144.4
250	144.5	167.5	190.0	228.0	243.5	213.0	281.5
300	205.5	236.0	266.0	319.5	342.0	312.0	395.5
350	236.0	274.0	312.0	365.0	403.0	410.5	593.0
400	350.0	410.5	486.5	532.0	593.0	585.5	851.5

### Sizing Dimensions



DN	E	F	øK	N	ISO	nxO
50	10	25	90	70	F07	4 x ø9
65	10	25	90	70	F07	4 x ø9
80	10	25	90	70	F07	4 x ø9
100	12	25	90	70	F07	4 x ø9
125	12	25	90	70	F07	4 x ø9
150	16	25	90	70	F07	4 x ø9
200	16	28	90	70	F07	4 x ø9
250	24	30	125	102	F10	4 x ø12
300	24	30	125	102	F10	4 x ø12
350	27	29	150	125	F12	4 x ø14
400	27	29	150	125	F12	4 x ø14

## KV Values

Opening Angle Disc								
DN	20°	30°	40°	50°	60°	70°	80°	90°
50	0.88	3.37	13.8	34.6	56.3	87.0	125	170
65	1.46	5.35	22	55	90	138	198	270
80	2.47	10.2	40.4	102	167	256	368	505
100	4.05	16.1	63.4	159	263	406	581	795
125	7.15	29.8	117	293	481	744	1064	1460
150	10.5	41.9	167	418	691	1068	1529	2095
200	21.0	81.8	329	822	1367	2096	3000	4110
250	25.6	101	402	1005	1658	2563	3669	5025
300	34.9	140	559	1394	2302	3558	5092	6975
350	42.4	152	678	1516	2501	3866	5533	7580
400	55.2	201	885	2008	3313	5119	7329	10040

### KV-values

KV values as mentioned in the KV-Value Table are;

- German KV values (m<sup>3</sup>/hour water of 20°C at a ΔP of 1 bar over the valve)
- Maximum allowable flow velocities;
  - 4 m/sec. for liquids
  - 30 m/sec. for gasses
- Cavitation should be avoided

### Calculations

Pressure drop (P1-P2) and/or flow (Q) calculations can be performed using the formula's below.

You can calculate pressure drop and/or flow with a fully opened disc when the valve is used in on-off applications or you can calculate the pressure drop and/or flow in above intermediate disc positions when the valve is used in throttling and regulating applications.

For Liquids:  $KV = Q \cdot \sqrt{\frac{\rho/\rho_0}{P_1 - P_2}}$       For Gasses (Where P1 < 2·P2):  $KV = \frac{Q}{457} \cdot \sqrt{\frac{G \cdot T_i}{(P_1 - P_2) P_1}}$

### Where

- Q = Flow [m<sup>3</sup>/hr]  
ρ = Specific Gravity [Kg/m<sup>3</sup>]  
ρ<sub>0</sub> = Specific Gravity of water under standard conditions (ρ<sub>0</sub> = 1000 kg/m<sup>3</sup> at 288K)  
P<sub>1</sub> = Inlet Pressure [Barg]  
P<sub>2</sub> = Outlet Pressure [Barg]  
G = Relative Specific Gravity in relation to air (G = ρ / ρ<sub>air</sub>) under standard conditions  
T<sub>i</sub> = Inlet Temperature [K]

### Service

For assistance on pressure drop calculations and other belonging matters please contact our Engineers.

## The GVC Bonded Liner Valve Range

*Series 110*



**Wafer**

- DN 40-1000
- DIN PN 10/16/25
- ANSI 150

*Series 140*



**Lug**

- DN 50-1000
- DIN PN 10/16
- ANSI 150

*Series 120*



**Mono Short**

- DN 50-400
- DIN PN 10/16
- ANSI 150

*Series 150*



**Flanged**

- DN 50-1000
- DIN PN 10/16
- ANSI 150

*Series 130*



**Mono Long**

- DN 50-400
- DIN PN 10/16
- ANSI 150



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