

**tyco**

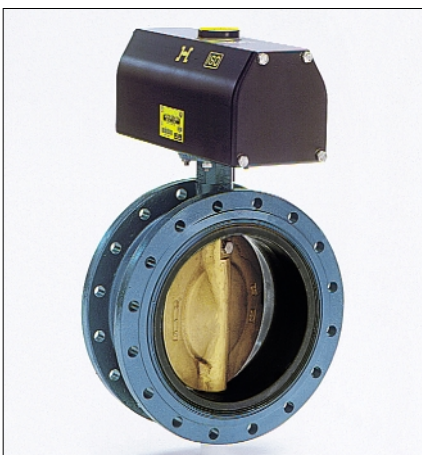
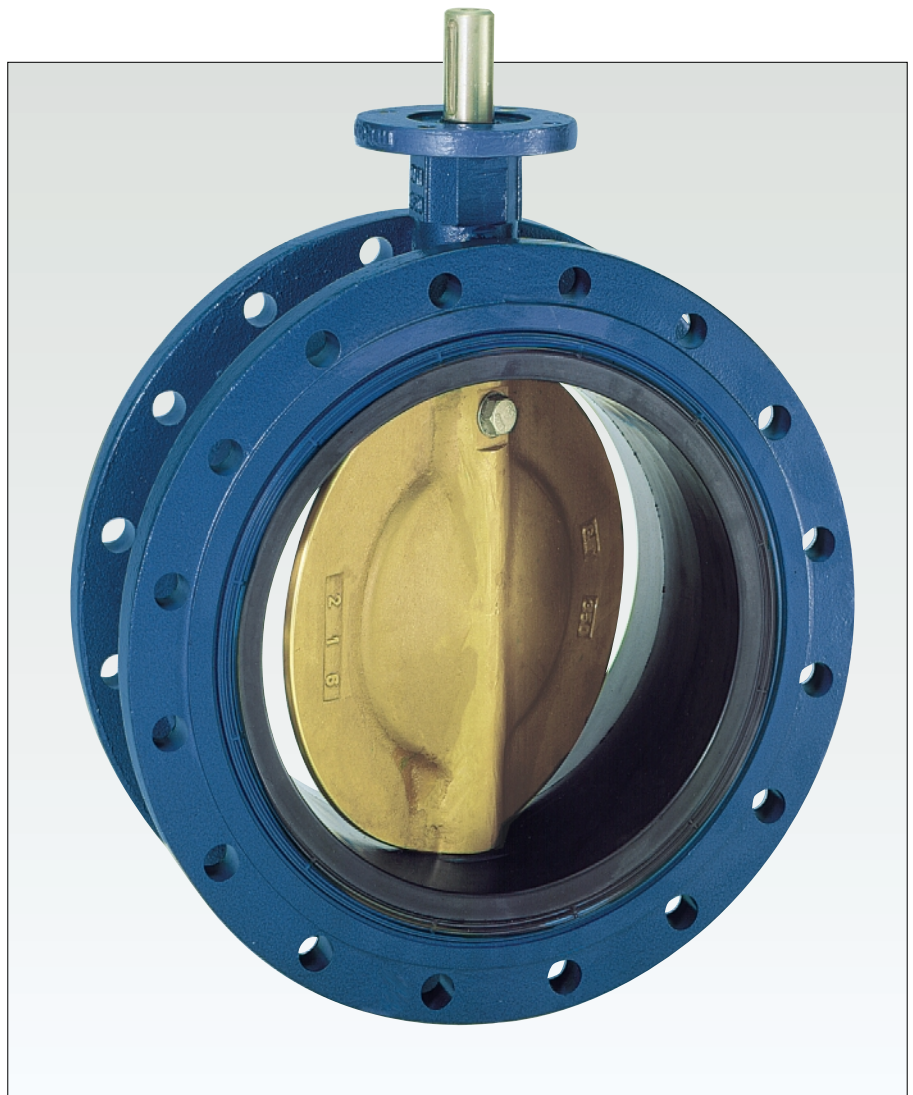
Flow Control

KEYSTONE

The figure 55 is a double flanged valve design for services in the water treatment industry like potable water, water treatment and wastewater applications.

### Features

- The centric disc offers bidirectional service and allows with its symmetric shape high Kv values
- The bonded seat protects the shaft against the medium
- Primary stem sealing by preloaded contact between flatted seat surface and rounded polished disc-hub area exceeds the pressure rating of the valve and prevents leakage through shaft area to atmosphere
- Actuator flange acc. ISO 5211
- Double flanged body design specified acc. ISO 5752/4 series 13 (short), series 14 (long) on request
- The inside body is protected by a bonded rubber liner extending over the flanges
- Rounded, polished disc edge provides concentric sealing
- A secondary sealing is provided by the interference fit between shaft and shafthole in seat at all positions
- Dirtscraper prevents moisture penetrating into the shaft area
- Bubble-tight shut of at full pressure rating
- Excellent performance in media with sedimentation and contamination
- Suitable for severe vacuum applications and up to 16 bar bubble tight shut off



### General application

Waterwork industries where a double flanged valve is required.

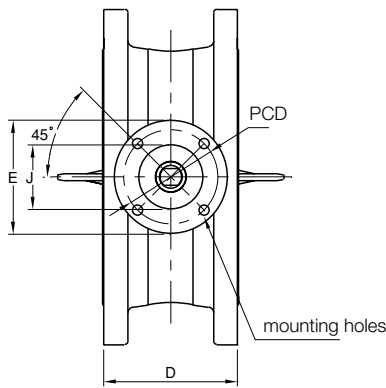
For drinking water applications a certified EPDM compound available.

### Technical data

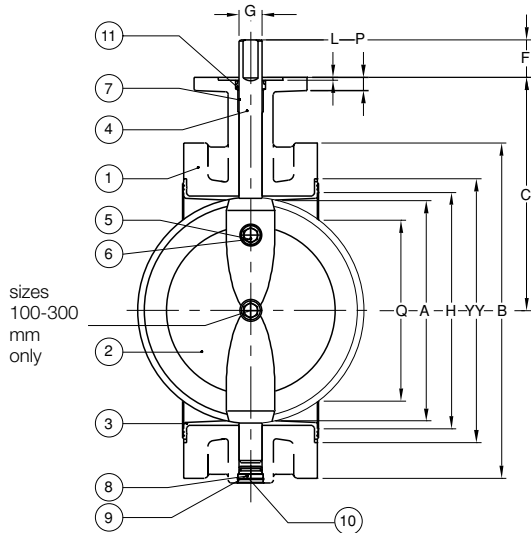
Pressure (bar)	: 16
Temperature (°C)	: -40 + 120
Sizes (mm)	: 100-600
Flange accommodation	: PN 10/16 ANSI 150 ISO, JIS, BS, API

# Butterfly Valve Figure 55

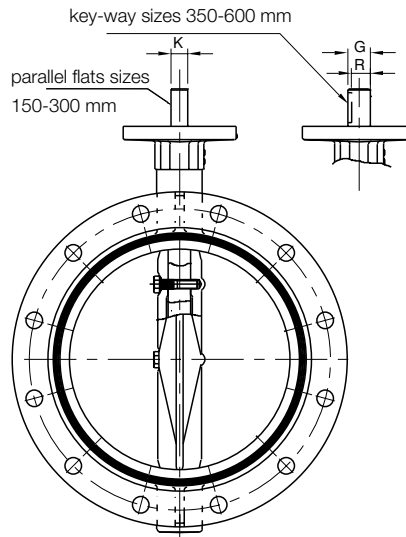
valve data



Part name	Part name
1. Body	7. Bushing
2. Disc	8. Plug
3. Seat	9. O-ring
4. Shaft	10. Circlip
5. Disc-screw	11. Dirtscraper
6. O-ring	



sizes 100-300 mm only



## Valve dimensions in mm

Size	D		Keysize														Mass (kg)						
	A	B	ISO		H	YY	Q	F	G	K	R	height	Type	E	J	L	P	PCD	hole	No of holes	ISO short	ISO long	
100	100	220	180	127	-	116	138	-	30	16	11	-	-	F-07	90	55	4	12	70	9	4	18	-
150	151	285	210	140	210	168	192	61	30	20	14	-	-	F-07	90	55	4	12	70	9	4	24	28
200	196	340	240	152	230	209	245	130	50	25	18	-	-	F-12	150	85	4	18	125	13.5	4	35	41
250	246	405	275	165	250	264	300	189	50	30	22	-	-	F-12	150	85	4	18	125	13.5	4	50	59
300	293	445	310	178	270	314	350	243	50	30	22	-	-	F-12	150	85	4	18	125	13.5	4	65	77
350	325	505	325	190	290	364	400	267	70	35	-	30	10x8	F-12	150	85	4	18	125	13.5	4	90	106
400	380	565	360	216	310	412	450	316	70	40	-	35	12x8	F-16	210	130	6	25	165	22	4	120	138
450	440	615	395	222	330	466	505	377	70	40	-	35	12x8	F-16	210	130	6	25	165	22	4	145	170
500	486	670	430	229	350	517	555	432	70	50	-	44.5	14x9	F-16	210	130	6	25	165	22	4	170	202
600	586	780	500	267	390	617	655	525	70	50	-	44.5	14x9	F-16	210	130	6	25	165	22	4	250	292

## Actuator selection

Actuator type	Figure	Remark
Gear	F455	-
Pneumatic	F79E	-
Gear/pneumatic	F454/79E	Dec clutchable gearunits provides manual override for the Keystone pneumatic actuators
Electric	F778	

## Notes

- ISO long on request.
- Dimension B is according PN10 ISO 7005-2, contact factory for PN16.
- Flange accommodation must be specified when ordering.
- Valve shown is the 300 mm ISO short.
- Flange dimensions and mass will vary with flange accommodations.

## Pressure-Temperature Diagram

Seat material	Disc material	Body material	Size range DN (mm)	Valve function Wafer/End of Line	Temperature in °C											Notes						
					-40	-30	-20	-15	0	50	100	120	130	150	160							
EPDM	all	all	all	W / EOL						16 Bar /	16 Bar										1	
NBR	all	all	all	W / EOL						16 Bar /	16 Bar											2

## Pressure-Temperature Diagram

Note	Trims											
1	101	102	111	112	131	135	261	264	276	288	298	304
2	105	106	115	116	133	137	262	265	274	289	297	305

# Butterfly Valve Figure 55

## valve data

### Note

- Rated Kv = the volume of water in m<sup>3</sup>/hr that will pass through a given valve opening at a pressure drop of 1 bar.

### Notes

- The given maximum allowable torques are applicable for standard type valves.
- In ISO 5211/2 a table is listed representing the maximum torques which can be transmitted through the mounting flange. These values are based upon specific criteria and can be lower than the maximum allowable shaft torques. In this case the criteria can be changed in order to reach the maximum allowable shaft torques.

### Notes

- Dynamic operating torque formula:

$$T_D = F_T \times \Delta P$$

$T_D$  = Dynamic torque (Nm)

$\Delta P$  = Pressure drop across disc at desired disc-opening (bar)

$F_T$  = Dynamic torque factor (see table)

- The above mentioned dynamic torque includes all frictional resistances.
- The dynamic torque is tending to close the disc.

### Notes

- Application I :**  
Water, seawater, lubricating types of hydrocarbons. Temp.: 0-80°C;  
Valve opens at least once a month.
- Application II :**  
All other liquid applications and lubricating gasses.
- Application III :**  
Non lubricating and dry media.
- 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.
- The effect of dynamic torque is not considered in tabulation.
- In sizing operators it is not necessary to include safety-factors.

### K<sub>v</sub> values

disc opening \ size in mm	100	150	200	250	300	350	400	450	500	600
10°	5	15	21	33	49	119	155	196	242	349
20°	25	52	95	155	220	304	397	503	621	894
30°	54	120	220	340	510	637	832	1053	1300	1871
40°	95	220	380	610	860	1142	1492	1888	2331	3357
50°	150	340	590	950	1460	1936	2529	3200	3951	5689
60°	240	550	950	1550	2320	3110	4062	5141	6347	9140
70°	400	950	1550	2580	3780	5010	6544	8288	10224	14723
80°	620	1380	2410	3960	5850	7969	11714	14826	18303	26357
90°	710	1630	2840	4640	6880	10407	13592	17203	21238	30583

### Maximum allowable shaft torques in Nm

shaft mat. \ size in mm	100	150	200	250	300	350	400	450	500	600
Stainless steel	160	320	545	970	970	1760	2012	3472	3858	6587
Carbon steel	180	305	620	1100	1100	1632	2012	3311	3858	6587

### Dynamic torque factors F<sub>T</sub> for metric units

disc opening \ size in mm	100	150	200	250	300	350	400	450	500	600
10°	2.7	6.1	13	28	39	-	-	-	-	-
20°	3.4	8.7	20	40	61	21.4	32	45.6	62.5	108
30°	4.8	13	30	61	95	64.3	96	136.7	187.5	324
40°	6.4	20	47	94	153	124.3	185.6	264.3	362.5	626.4
50°	10	30	71	141	230	235.8	352	501.2	687.5	1188
60°	15	48	112	220	380	415.9	620.8	883.9	1212.5	2095.2
70°	24	76	176	350	610	733.2	1094.4	1558.2	2137.5	3693.6
80°	34	112	260	520	890	1346.3	2009.7	2861.3	3925	6782.4

### Sizing torques in Nm

ΔP in bar \ size in mm	100	150	200	250	300	350	400	450	500	600
<b>Application I</b>										
7	40	88	164	271	387	559	773	1032	1342	2128
10	44	99	188	315	451	660	923	1247	1636	2637
14	49	113	219	374	536	795	1124	1533	2029	3315
16	51	120	235	403	578	862	1225	1676	2225	3654
<b>Application II</b>										
7	45	100	185	303	434	623	856	1138	1472	2315
10	49	111	208	347	498	724	1007	1352	1766	2824
14	54	125	240	406	583	858	1208	1638	2159	3502
16	56	132	255	435	625	926	1308	1781	2355	3841
<b>Application III</b>										
7	50	112	206	336	481	686	939	1243	1602	2502
10	54	122	229	380	545	787	1090	1457	1896	3011
14	59	136	261	439	629	922	1291	1744	2289	3689
16	61	143	276	468	672	989	1391	1887	2485	4028

# Butterfly Valve Figure 55

## material selection/material specification

### Material selection

Body	Disc	Seat	Shaft	Trim no.	Sizes(mm)
Cast Iron	Ductile Iron	EPDM	Carbon Steel	<b>101</b>	100-600
			Stainless Steel	<b>276</b>	100-600
		NBR	Carbon Steel	<b>105</b>	100-600
			Stainless Steel	<b>274</b>	100-600
	Ductile Iron (nickel plated)	EPDM	Carbon Steel	<b>261</b>	100-600
			Stainless Steel	<b>304</b>	100-600
		NBR	Carbon Steel	<b>262</b>	100-600
			Stainless Steel	<b>305</b>	100-600
	NiAlBz	EPDM	Stainless Steel	<b>131</b>	100-600
		NBR	Stainless Steel	<b>133</b>	100-600
	Stainless Steel	EPDM	Stainless Steel	<b>102</b>	100-600
		NBR	Stainless Steel	<b>106</b>	100-600
Ductile Iron	Ductile Iron	EPDM	Carbon Steel	<b>111</b>	100-600
			Stainless Steel	<b>288</b>	100-600
		NBR	Carbon Steel	<b>115</b>	100-600
			Stainless Steel	<b>289</b>	100-600
	Ductile Iron (nickel plated)	EPDM	Carbon Steel	<b>264</b>	100-600
			Stainless Steel	<b>298</b>	100-600
		NBR	Carbon Steel	<b>265</b>	100-600
			Stainless Steel	<b>297</b>	100-600
	NiAlBz	EPDM	Stainless Steel	<b>135</b>	100-600
		NBR	Stainless Steel	<b>137</b>	100-600
	Stainless Steel	EPDM	Stainless Steel	<b>112</b>	100-600
		NBR	Stainless Steel	<b>116</b>	100-600

### Material specification

Part name	Material	DIN designation	DIN mat. no.	Remark
Body	Cast Iron	GG 25	0.6025	
	Ductile Iron	GGG 40	0.7040	
Disc	Ductile Iron	GGG 40	0.7040	
	Ductile Iron/NP	GGG 40/NP	0.7040/NP	NP = nickel plated
	NiAlBz	G-CuAl10Ni	2.0975.01	According BS 1400 AB2
	Stainless Steel	G-X 6 CrNiMo 18 10	1.4408	
	Uranus (B6)	G-X 2 NiCrMoCuN 25 20	1.4536	Casting quality (SEW 410) of 1.4539
Seat	EPDM			Compound number MS 512
	NBR			Compound number MS 511
	EPDM-A			KIWA/KTW approved; Compound number MS 526
Shaft	Stainless Steel	X 5 CrNiMo 17 12 2	1.4401	Sizes 100-300 mm
		X 20 CrNi 17 2	1.4057	Sizes 350-600 mm
	Carbon Steel	C 45	1.0503	
Disc screw	Stainless Steel	X 5 CrNiMo 17 12 2	1.4401	Sizes 100-300 mm
		X 2 CrNiMoN 22 5	1.4462	Sizes 350-600 mm
Disc screw O-ring	NBR			
Bushing	Polyacetal			
Plug	Carbon Steel	C 45	1.0503	
Plug O-ring	NBR			
Circlip	Springsteel			According DIN 472
Dirt scraper	NBR Steel insert			
Key	Steel			According DIN 6885 Sizes 350-600 mm