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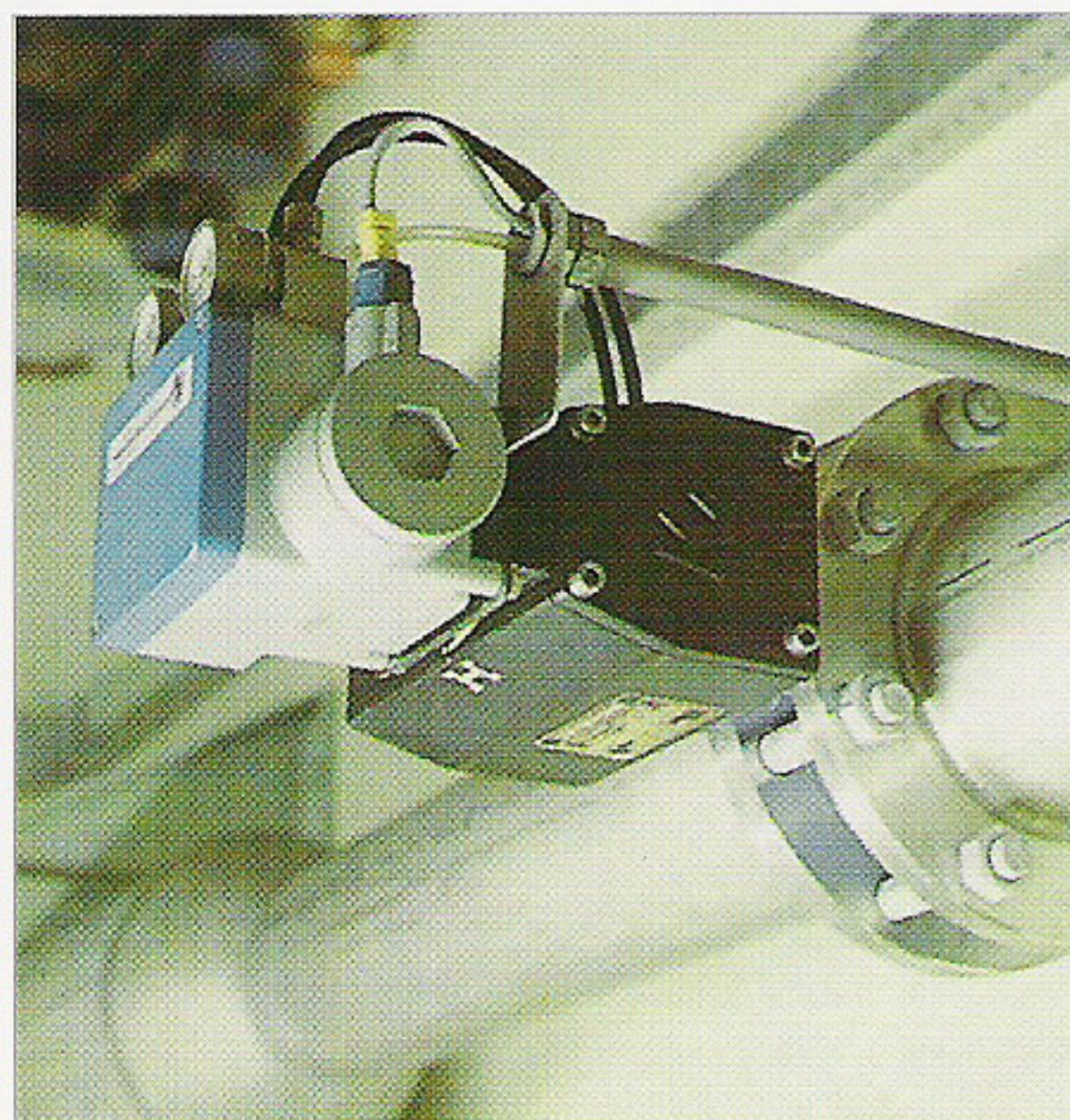
Flow
Control

KEYSTONE

The Figure 1 design with only a few moving parts provide long service life without maintenance.

Features & benefits

- Factory testing of every valve at full rating ensures 100% tight shut-off.
- Actuator flange is standardized for easy operator interchangeability and mount direct to Keystone range of actuators.
- Primary seal is formed by the disc-hub and shaft top, the seat contact exceeds the pressure rating of the valve.
- Secondary shaft seal is suitable for pressure and vacuum is self-adjusting.
- Patented dove - tail seat requires no bonding. Makes seat replacement simple and fast. Extra heavy edge section resists tearing.
- The disc hub edge are rounded and hand polished to provide full concentric seating without seat obstruction to flow, combined with maximum seat life.
- Replacement seat isolates the shaft and body parts from the stream and also serves as the flange gasket.
- Moulded-in 'O'-ring provides positive flange sealing and eliminates the need for gaskets.
- Heavy duty top bushing absorbs side thrust and torque loads.
- Heavy - duty increased diameter through-shaft design for high strength and positive disc control.
- Stainless steel disc screws, allow quick and easy dis-assembly.
- Variations utilising Buna N or EPDM seats and other material combinations available on special request.



Technical Data

Pressure (kg/cm²): 10
Temperature (°C) : (-40)~(+120)
Size (mm) : 25-900
Flange accommodation : JIS/KS 5K/10K
ANSI 150

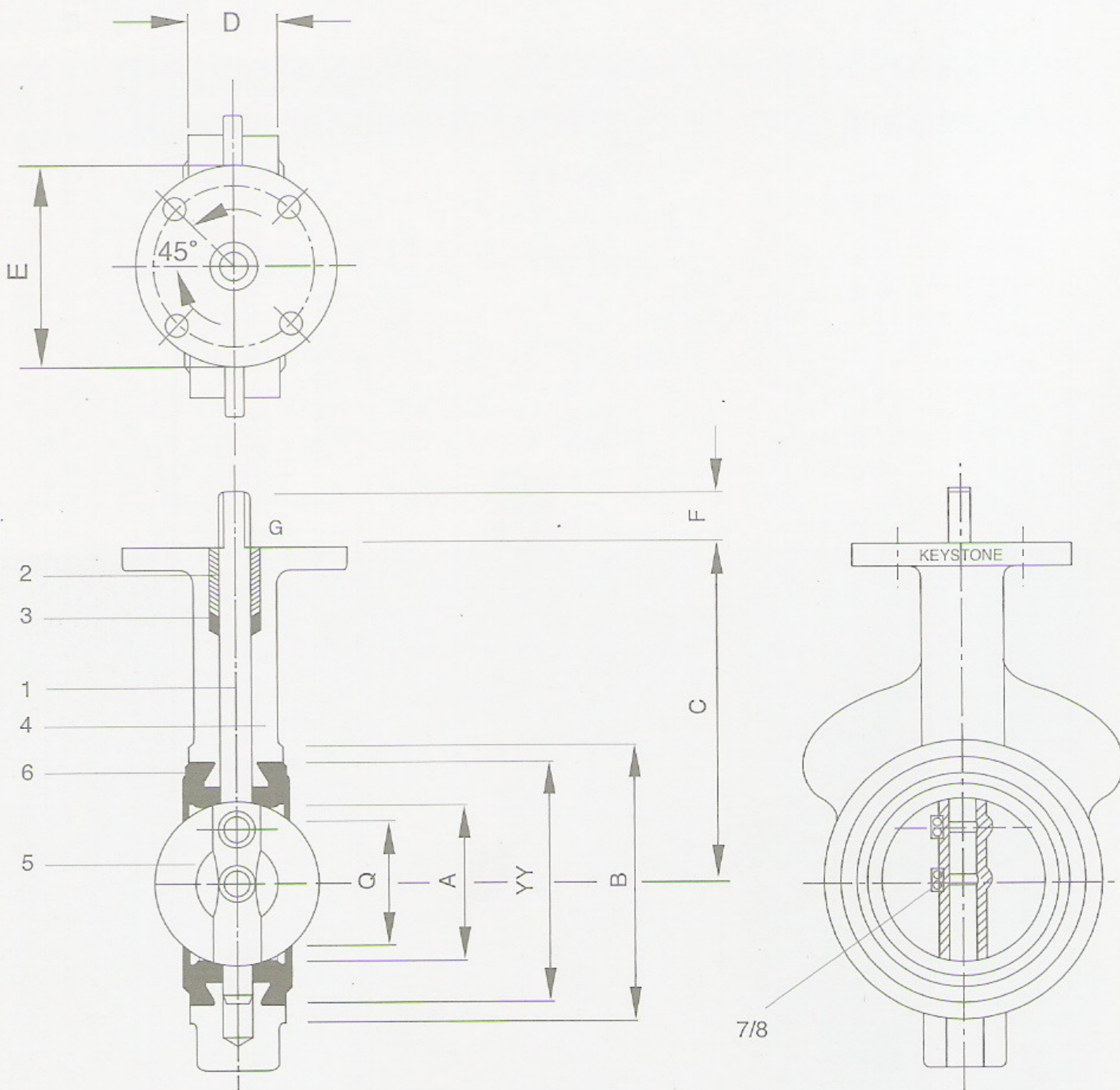
*Other flange accommodation:
Consult factory

General Applications

The Keystone figure 1 butterfly valve is ideal for general purpose applications. The through shaft design is a reliable solution in arduous circumstances in the shipbuilding industry, waterworks, heating and ventilation, powerplants, chemical industry and many other applications

Butterfly Valve Figure 1

50-900mm



Part name

1. Shaft
2. Bushing
3. Shaft seal
4. Body
5. Disc
6. Seat
7. Disc-screws
8. O-rings

Valve dimensions in mm

Size	A	B	C	D	E	F	Q	yy	Mass (kg)
50	51	105	140	41	102	32	33	87	3.0
65	64	118	152	45	102	32	48	98	3.5
80	76	131	159	45	102	25	64	114	4.0
100	102	162	178	51	102	32	91	146	5.5
125	127	188	191	54	102	32	118	168	7.2
150	146	216	203	54	102	32	138	197	9.0
200	197	272	241	64	152	32	189	254	5.0
250	248	330	273	64	152	32	241	305	21.0
300	298	376	311	76	152	51	291	353	33.0
350	337	432	305	76	152	51	330	403	52.0
400	387	486	329	102	152	51	373	464	88.0
450	438	548	368	108	203	57	424	521	101.0
500	489	602	403	127	203	57	473	575	143.0
550	525	639	460	142	203	90	503	617	140.0
600	590	713	495	151	203	57	575	683	230.0
650	617	735	530	170	254	90	594	709	208.0
700	667	795	565	170	254	90	647	759	237.0
750	743	874	584	167	203	102	729	845	277.0
800	771	890	645	190	254	115	749	863	311.0
900	895	1041	705	200	203	108	876	1010	539.0

Actuator selection

Actuator type	Figure	Remark
Handle	F401	Handlever
Gear	F42X	-
Pneumatic	F79U	-
Gear & pneumatic	F453/79U	Dec clutchable gearunit provides manual override for the Keystone pneumatic actuator.
Electric	F777	



Notes

1. Valve size shown is the 100mm; other sizes show different configurations. For information see separate data sheets.
2. "Q" is the disc chordal dimension at face of Valve for disc clearance into pipe fitting or equipment.

Butterfly Valve Figure 1

Valve data

Notes

- Rated Kv=the volume of water in m³/hr that will pass through a given valve opening at a pressure drop of 1 bar

$$Cv=1.156 Kv$$

K _v values																	
Disc opening	Size in mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
	10		1.7	2.6	3.4	5	9	15	21	33	49	65	86	110	130	190	260
20		7	10	14	25	38	52	95	155	220	290	380	490	610	860	1120	1460
30		16	22	33	54	86	120	220	340	510	660	860	1120	1380	1980	2670	3440
40		26	38	57	95	160	220	380	610	860	1200	1550	1980	2490	3440	4820	6200
50		43	60	95	150	240	340	590	950	1460	1890	2410	3100	3960	5500	7570	9460
60		69	95	150	240	390	550	950	1550	2320	2920	3870	4990	6190	8600	11200	15500
70		110	160	240	400	640	950	1550	2580	3780	4820	6360	8260	10300	14600	18900	25800
80		170	250	370	620	950	1380	2410	3960	5850	7740	9460	12900	15500	22400	31000	37800
90		190	280	430	710	1120	1630	2840	4640	6880	8600	11200	15500	18900	25800	34400	44700

Maximum allowable shaft torques in Nm																	
shaft mat.	Size in mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
	Fig.1																
SS		60	60	60	100	180	180	290	640	640	1050	1430	1960	2600	4740	7590	8670

Notes

- Dynamic operating torque formula :

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

T_D = Dynamic torque (Nm)

ΔP = Pressure drop across disc air desired disc-opening (bar)

F_T = Dynamic torque factor (see table)

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

Dynamic torque factors F _T for metric units																	
disc opening	Size in mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
	10		0.5	0.9	1.2	2.7	4.3	6.1	13	28	39	64	82	128	150	285	380
20		0.7	1.0	1.5	3.4	5.9	8.7	20	40	61	97	133	200	250	460	646	951
30		0.8	1.3	2.1	4.8	8.4	13	30	61	95	154	220	320	420	738	1105	1620
40		1.0	1.5	3.0	6.4	12	20	47	94	153	240	360	510	680	1197	1788	2722
50		1.5	2.6	4.3	10	19	30	71	141	230	370	550	790	1060	1853	2837	4297
60		2.1	3.9	6.4	15	29	48	112	220	380	600	880	1270	1720	3050	4674	6921
70		3.1	5.9	10	24	45	76	176	350	610	980	1420	2090	2770	4854	7560	11250
80		4.4	8.5	14	34	65	112	260	520	890	1400	2040	3070	4080	7150	11100	16236

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.

* For reduced disc diameter (undercut disc) with a maximum pressure of 3.5 bar calculate 60% of the mentioned torque.

Sizing torques in Nm																	
ΔP in bar	Size in mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
	Application I																
3,5*		20	25	30	45	62	89	150	230	330	460	610	800	1020	2450	3350	4530
7		21	26	32	48	68	100	180	270	380	560	750	1010	1310	2840	3880	5510
10		23	27	35	52	74	110	200	300	440	650	890	1220	1600	3200	4520	6350
Application II																	
3,5*		27	32	39	59	81	120	200	300	420	590	770	1000	1270	2920	4030	5420
7		28	33	42	62	87	130	220	330	470	680	910	1210	1560	3340	4660	6400
10		29	35	44	66	92	140	240	370	530	770	1050	1420	1850	3700	5200	7240
Application III																	
3,5*		32	38	47	71	97	144	240	360	504	708	924	1200	1524	3504	4836	6504
7		34	40	50	74	104	158	264	396	564	816	1092	1452	1872	4008	5592	7680
10		36	42	53	79	110	168	288	444	636	924	1260	1704	2220	4440	6240	8688

Butterfly Valve Figure 1

Material selection/material specification

Material selection

Part name	Material	ASME Standard	KS Standard
Body	Cast Iron	A 126 Class B	D4301 GC200/GC250
	Ductile Iron	A 536 65-45-12	D4302 GCD400/GCD450
	Cast Carbon Steel	A216 WCB	D4101 SC49
Disc	Stainless steel	A351 CF8M	D4101 SSC14A
	Al-Bronze	B 148-95200	D6015 ALBC1
Stem	304 Stainless Steel	A276 Grade 304	D3706 STS304
	316 Stainless Steel	A276 Grade 316	D3706 STS316
Seat	EPDM Buna-N		
Packing	EPDM		
Bushing	Acetal		

Notes

Other materials or combination of materials are available on request.



Keystone Valve(Korea) Ltd.

Head Office & Plant

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Flow Control

Tyco Valves & Controls