

10K Aluminum Butterfly Valve

700Z

Valve nominal size

40 to 300mm

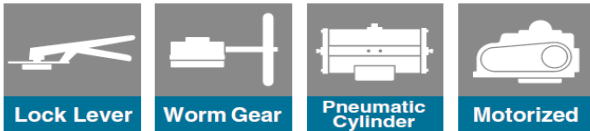
Max. working pressure MPa

0	1.0
SCS14, SCS13	1.0
PPS	0.7

Working temperature range °C

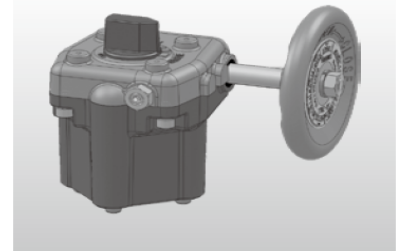
0		120
-20	EPDM	
-10	NBR	80

JIS JIS B 2032 Compliant
 (This product conforms to General Specifications for Machinery and Equipment of the Ministry of Land, Infrastructure, Transport and Tourism.)



Evolution of Long Sellers
Sealing performance and Durability Improved!

- Gears and lever have been integrated with valve body to achieve both functionality and downsizing.
- Resin-aluminum hybrid gearbox improves the strength and durability of valves with anti-condensation performance added.
- High anti-condensation performance of the Z series has been inherited. (Gear valves)
- New lightweight valve disc with optimized seal shape improves the sealing performance and operability of valves.
- Modified rubber seat structure stabilizes the sealing performance of valve seat.
- Strong bearings have been adopted to significantly improve the durability of valve opening/closing. (Automatic valves)
- Special valve body has been developed for automatic valves to improve their strength and durability.



***Note : These valves are different in face-to-face dimensions from the first 700Z (Coating color: Light blue; Munsell 10BG-6/4) developed in 1980 and discontinued in August 2003.**

Standard Specifications

Body type (Connection)	Concentric rubber seated butterfly valve, flangeless (wafer) type	
Valve nominal size	40, 50, 65, 80, 100, 125, 150, 200, 250, 300mm	
Flange accommodation	JIS5K/10K, ASME125/150Lb, DIN NP10, BS4504 PN10, GB/T 9113.1 1MPa	
Face-to-face dimensions	JIS B 2002 ¹⁹⁸⁷ Series 46 (ISO 5752 table5/BS5155/API609)	
Max. working pressure	(Valve disc material) SCS14, SCS13: 1.0 MPa / PPS: 0.7 MPa	
Allowable seat leakage rate	JIS B 2003 ²⁰¹³ Rate A (Tight shut-off)	
Flow direction	Bi-direction	
Test	Body shell test	1.5 MPa (Hydraulic pressure)
Pressure	Seat leak test	1.1 MPa (Pneumatic pressure)
Working temperature range	EPDM: -20 ~ 120°C (Option: NBR: -10 ~ 80°C)	
Allowable temperature in continuous use ^{*1}	EPDM: -10 ~ 100°C (Option: NBR: -0 ~ 60°C)	
Standard materials	Body	Aluminum die cast alloy ADC12
	Disc ^{*2}	SCS13 (A351 CF8), SCS14 (A351 CF8M), PPS (40~200mm)
	Stem ^{*2}	SUS420J2 (AISI420)
	Seat ring	EPDM ^{*3,4} (Option: NBR)
Top flange	Lever/Gear type: Valve integrated type, Cylinder/ Electric motor type: In accordance with ISO 5211	
Actuator ^{*5}	Manual, pneumatic, electric	
Pipe flow velocity (limit value)	Up to 3 m/s (Valve fully-open, continuous operation, ambient temp. and fresh water)	
Coating	Urethane coating (Munsell 2.5BG 6/12)	
Condensation property	No condensation in the upper part of gears at ambient temperature 30°C and humidity 80% with cold water at 5°C ^{*6}	

※1 Fluid temperature range for more than one hour of continuous use. It is required that the fluid does not freeze.

※2 Materials shown in (): equivalent materials in ASTM/AISI standard.

※3 If the fluid contains even a slight amount of oil, never use an EPDM rubber seat ring. If the fluid contains chlorine, the seat ring may deteriorate early due to combined factors including density and temperature. For details consult our sales office.

※4 In the pipe lines where chemicals containing calcium are supplied, it is recommended to use an EPDM rubber seat ring to protect pipes.

※5 The actuator of the product cannot be replaced.

※6 These values are based on data obtained in a laboratory and may vary if the temperature and humidity distributions in the field are not uniform. Even in an environment having these values, condensation can occur if ambient or water temperature changes suddenly.

700Z Actuator Selection Chart

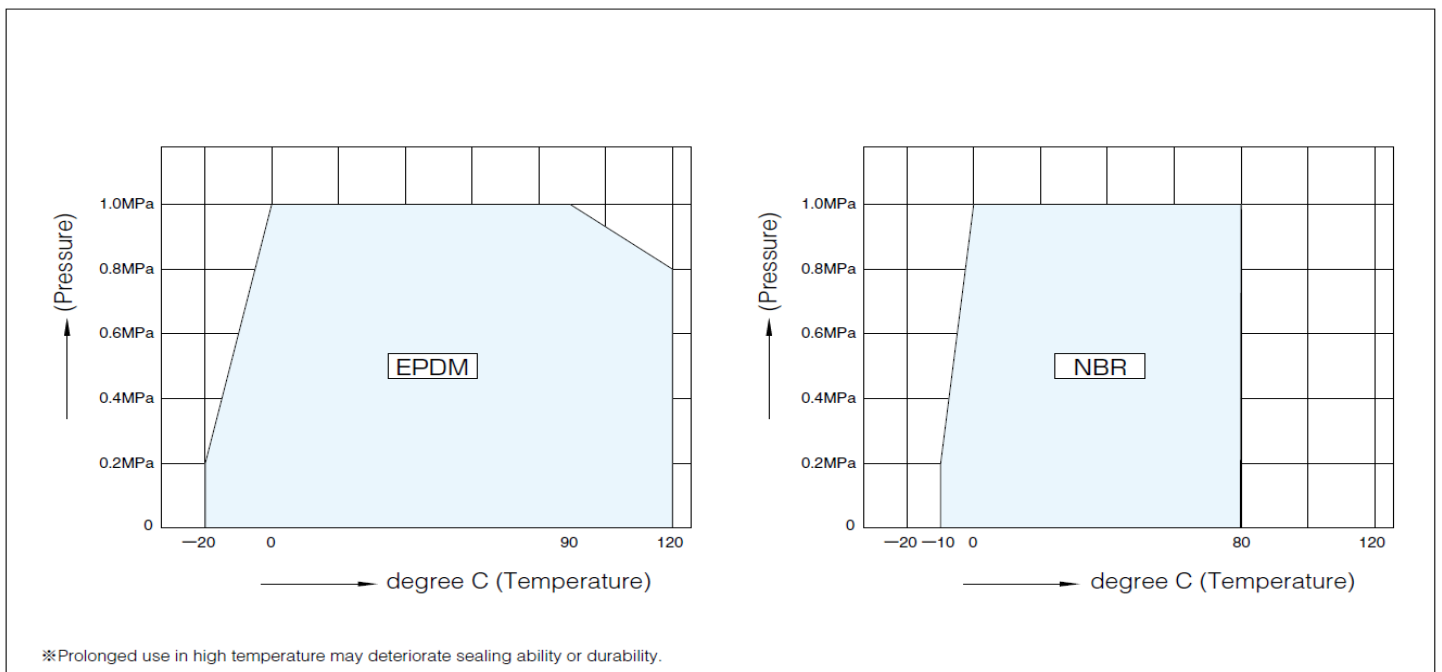
Type	Model	Category	Size ($\frac{mm}{inch}$)									
			40	50	65	80	100	125	150	200	250	300
			1 1/2	2	2 1/2	3	4	5	6	8	10	12
Lock lever	1J,1T	Standard	1J-1			1J-2	1T-2					
		Heavy duty	1J-1			1J-2	1T-2					
Worm gear	2F	Standard	2F-G0Z		2F-G00		2F-G01		2F-G02		2F-G03	
		Heavy duty	2F-G0Z		2F-G00		2F-G01		2F-G02		2F-G03	
Double-action pneumatic	7E	Standard	T35		T85		T200		T380		T750	
		Heavy duty	T35		T85		T200		T380		T750	
Single-action pneumatic	7G,7F 3K,3U	Standard	T85S		T200S		T380S		T750S		TG-12S	
		Heavy duty	T85S		T200S		T380S		T750S		TG-12S	
Single-action pneumatic	4I	ON-OFF	4I-00		4I-0		4I-1	4I-2	4I-2.5		4I-3	
		Control	4I-00		4I-0		4I-1	4I-2	4I-2.5		4I-3	

Note) In case of the single-phase motorized actuator 4I that has the following optional equipment, "Control" specification is applied.

- Micom unit
- Servo unit
- Speed control unit
- Potentiometer

Selection criteria	Standard	Select when none of the following heavy duty items apply.
	Heavy duty	Select when any of the following items apply. ① Gas, powder or high viscosity slurry (crude oil, etc.) ② Control specification (with positioner) ③ Emergency open valve or pipe dead end valve

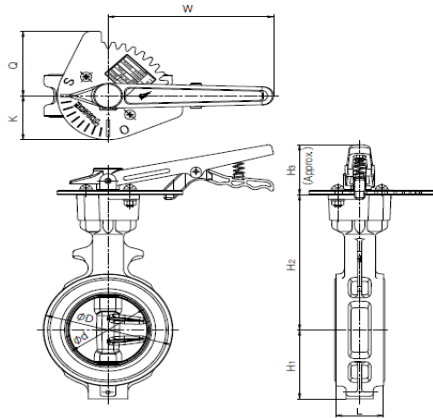
700Z Pressure-Temperature Rating



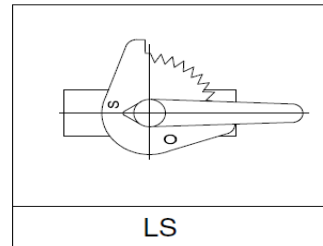
Lock Lever Type 700Z-1J(40mm to 125m) 、1T(150m)

Nominalsize		Dimension (mm)									Approx. Weight (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	Q	K	W	
40	1 1/2	45	80	35	47	144	56	72	49	160	0.8
50	2	56	91	43	57	150	56	72	49	160	0.9
65	2 1/2	69	111	46	64	163	56	72	49	160	1.1
80	3	84	125	46	77	151	56	72	49	160	1.4
100	4	104	147	52	94	162	70	72	49	200	1.9
125	5	130	180	56	108	190	70	72	49	200	3.0
150	6	153.5	210	56	125	201	96	88	63	300	5.0

■700Z-1J



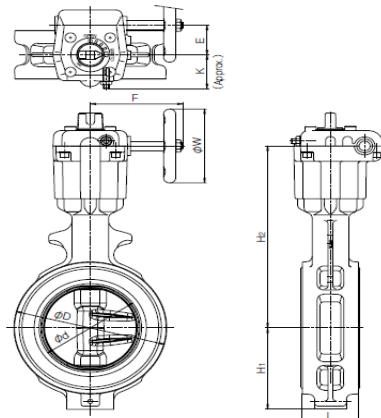
■1J Installation direction



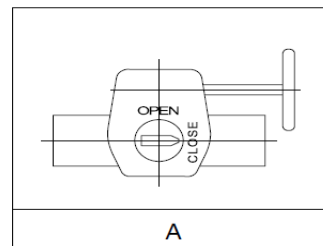
Worm Gear Type 700Z-2F(40mm to 300mm)

Nominalsize		Dimension (mm)									Approx. Weight (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	E	K	F	ϕW	
40	1 1/2	45	80	35	47	160	22.5	26	72	70	0.8
50	2	56	91	43	57	166	22.5	26	72	70	1.0
65	2 1/2	69	111	46	64	179	22.5	26	72	70	1.2
80	3	84	125	46	77	172	28	31	76	70	1.7
100	4	104	147	52	94	183	28	31	76	70	2.2
125	5	130	180	56	108	211	46	42	133	100	3.8
150	6	153.5	210	56	125	222	46	42	133	100	4.7
200	8	199	255	60	167	257	53	40	162	125	7.2
250	10	253	322	68	186	316	71	54	206	200	13
300	12	302	375	78	216	348	71	54	206	200	18

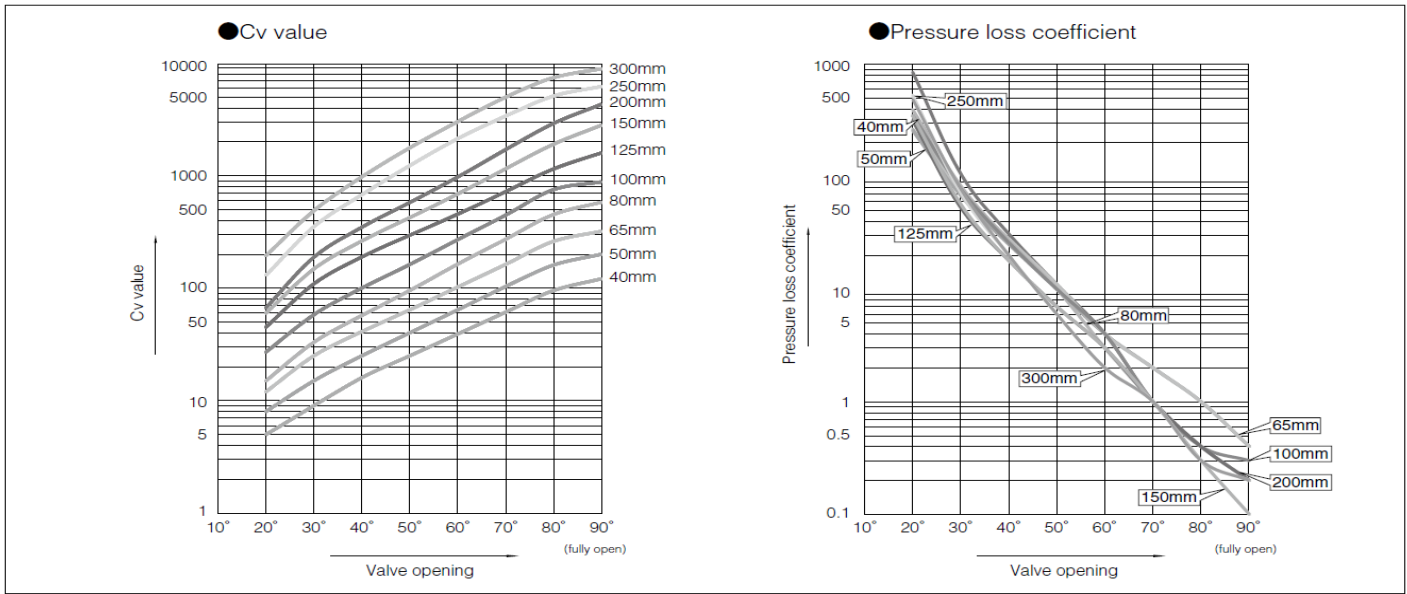
■700Z-2F



■2F Installation direction



700Z Cv value / pressure loss coefficient



700Z Cv value

Nominal size		Valve opening							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
40	1 1/2	5	9	16	25	39	61	95	121
50	2	8	15	25	40	64	103	160	200
65	2 1/2	12	25	41	64	102	162	260	320
80	3	15	33	57	95	163	271	450	580
100	4	27	58	100	162	269	444	749	880
125	5	45	109	189	295	453	719	1144	1590
150	6	60	148	262	423	685	1147	1897	2800
200	8	67	188	347	576	969	1698	2902	4300
250	10	130	351	675	1225	2125	3375	5091	6200
300	12	194	487	972	1764	3011	4966	7412	8900

700Z Pressure loss coefficient

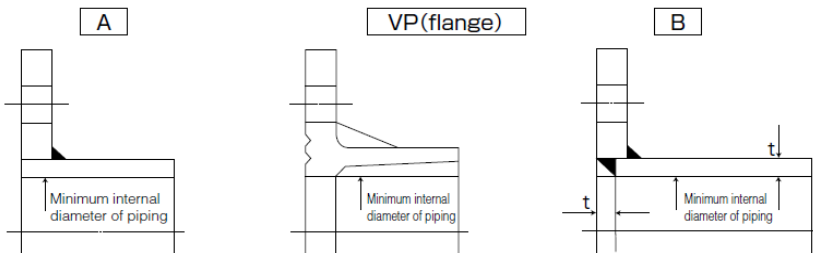
Nominal size		Valve opening							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
40	1 1/2	264	72	26	10	4	2	1	0.4
50	2	257	68	25	10	4	2	1	0.4
65	2 1/2	310	75	28	11	4	2	1	0.4
80	3	394	83	27	10	3	1	0.4	0.2
100	4	350	78	26	10	4	1	0.4	0.3
125	5	316	53	18	7	3	1	0.4	0.2
150	6	348	57	18	7	3	1	0.3	0.1
200	8	849	106	31	11	4	1	0.4	0.2
250	10	528	72	20	6	2	1	0.3	0.2
300	12	488	78	20	6	2	1	0.3	0.2

700Z Applicable pipe list in case of A, B

Nominal size		SGP	Sch20	Sch40	VP (TS flange)	Sch10S	Sch20S	Minimum internal diameter of piping (mm)
mm	inch							
40	1 1/2	○	—	○	○	○	○	25
50	2	○	○	○	○	○	○	34
65	2 1/2	○	○	○	○	○	○	51
80	3	○	○	○	○	○	○	70
100	4	○	○	○	○	○	○	91
125	5	○	○	○	○	○	○	118
150	6	○	○	○	○	○	○	144
200	8	○	○	○	○	○	○	194
250	10	○	○	○	○	○	○	246
300	12	○	○	○	○	○	○	295

Remark 1: The symbols above mean the following.
 ○: Piping possible —: Not standardized

Remark 2: Butterfly valves are inserted into a pipe that was fitted with the disc when fully open.
 In cases where you are using a pipe or flange that is less than the minimum inner pipe diameter, use is still possible if means are taken such as inserting a spacer between the valve and flange. For details, please consult us.



700Z Piping bolt and nut sizes

■ Hexagon bolt & nut

Nominal size		JIS 5K	JIS 10K
mm	inch	Hexagon bolts and nuts	Hexagon bolts and nuts
40	1 1/2	4-M12× 75×30	4-M16× 90×38
50	2	4-M12× 90×30	4-M16×100×38
65	2 1/2	4-M12× 90×30	4-M16×105×38
80	3	4-M16× 95×38	8-M16×105×38
100	4	8-M16×105×38	8-M16×110×38
125	5	8-M16×110×38	8-M20×125×46
150	6	8-M16×115×38	8-M20×130×52
200	8	8-M20×130×52	12-M20×130×52
250	10	12-M20×140×52	12-M22×150×60
300	12	12-M20×150×52	16-M22×160×60

■ Long bolt & nut

Nominal size		JIS 5K	JIS 10K	ANSI 125Lb/150Lb
mm	inch	Long bolts and nuts	Long bolts and nuts	Long bolts and nuts
40	1 1/2	4-M12× 95×25	4-M16×110×25	4-U1/2 ×110×32
50	2	4-M12×105×25	4-M16×120×30	4-U5/8 ×140×38
65	2 1/2	4-M12×110×25	4-M16×125×30	4-U5/8 ×140×38
80	3	4-M16×120×30	8-M16×125×30	4-U5/8 ×140×38
100	4	8-M16×130×30	8-M16×130×30	8-U5/8 ×150×38
125	5	8-M16×130×30	8-M20×150×40	8-U3/4 ×160×51
150	6	8-M16×140×35	8-M20×155×40	8-U3/4 ×165×51
200	8	8-M20×155×40	12-M20×155×40	8-U3/4 ×175×51
250	10	12-M20×165×40	12-M22×175×45	12-U7/8 ×195×58
300	12	12-M20×175×40	16-M22×185×45	12-U7/8 ×205×58

Remark: Please use a hexagon nut with 80% threading. (For ANSI, use heavy nut.)

Example

Long bolts : 12 - M22 × 185 × 45 Hexagon bolts : 12 - M22 × 60 × 50

N
M
L
S
N
M
L
S

