

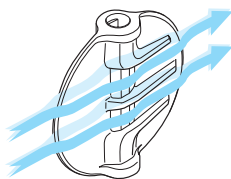
Revolutionary super light weight aluminum diecast body butterfly valve

Features

Larger Flow Rate

Improved seat design (new cosine-curve seat) with rib disc (*except 40mm type) can provide a larger flow rate and larger Cv value than existing models by maintaining mechanical strength of the disc.

*Patent pending



Ultra Super Light Weight

Easy installation due to lighter weight (30% lighter than 702Z on 200mm types) and alignment ribs.

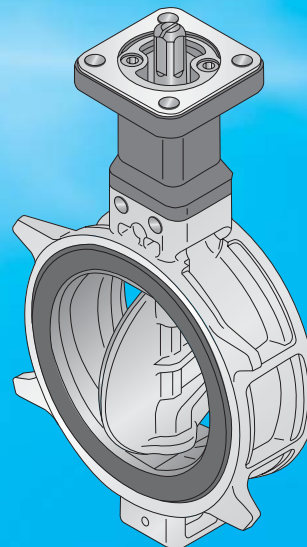
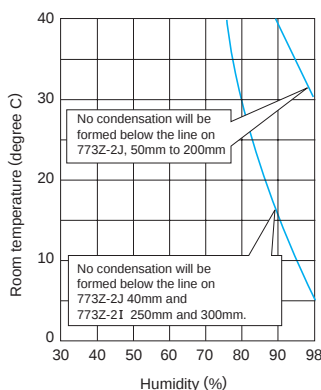
Examples of weight (Kg) with gear operator

	Conventional	702Z-2I	773Z-2J
	(Iron body)	(Aluminum diecast body)	
80mm	4.9	1.8	1.6
100mm	5.7	3.1	2.2
200mm	18.0	9.6	6.7

Remarkable Anti-Condensation Capability

Better anti-condensation capability is achieved by utilizing a high performance engineering plastic column. The high performance engineering plastic has excellent features such as low water absorption, high corrosion resistance, heat resistance, non-flammability as well as shock resistance, which is approximately four times that of hard PVC material.

The graph below shows anti-condensation performance under 5 degrees C cold moisture



Engineering Plastic Housing of Gear operator with stainless steel worm shaft

The high performance engineering plastic housing and stainless steel worm shaft are standardized to prevent corrosion for the 2J type worm gear operator.

Silicon Seat (50mm to 200mm)

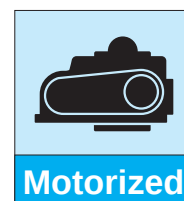
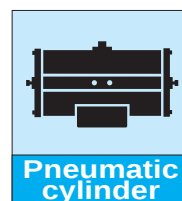
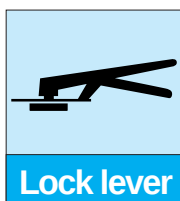
The silicon seat is designed for chlorinated hot water applications for sanitary use in the 778Z.



PPS Disc

The PPS lined disc (poly phenylene sulfide with stainless steel core) is available up to 200mm and is an optimum product for corrosive fluids (subject to the performance of the rubber material). It works under the same concept as plastic butterfly valves whose contact parts with fluid consist of a plastic disc and rubber seat.





Standard specifications

Valve nominal size		40mm to 300mm
Applicable flange standard		JIS5K / 10K ANSI125 / 150Lb, BS 4504 PN10, DIN NP10, BS10E
Design standard		JISB2032
Max.working pressure		1.0MPa
Working temperature range		*EPDM - 20 to + 120 degrees C, silicon(778Z) - 30 to + 130 degrees C
Woking temperature in continuous use ¹		*EPDM - 10 to + 100 degrees C, silicon(778Z) - 30 to + 130 degrees C
Body shell test ²		1.5MPa
Seat leak test ³		1.1MPa
Actuator mounting flange		ISO 5211
Actuators		Lock lever, Worm gear, Vertical gear
		Pneumatic cylinder, Electric motor
Face to face dimensions		ISO 5752/JIS B2032
Standard materials	Body	Aluminum diecast alloy
	Disc	SCS13, SCS14, PPS
		PPS (Polyphenylene sulfide lined on stainless steel core) ⁴
	Stem	Stainless steel type 420J2
	Seat ⁵	*EPDM, NBR, Silicon
Column		Engineering plastic
Surface treatment	Body	Urethane paints with munsell 2.5BG 6/12
Condensation prevention performance		No condensation is formed on gear actuator and its mounting flange under 34 degrees C room temperature with 75% humidity on 5 degrees C chilled water line.

1. "Working temperature in continuous use" stands for the temperature continuously kept exceeding one hour.

2. 1.8MPa piping pressure test at job site is available.

3. 1.2/1.4MPa test is also available upon request.

4. 40mm to 200mm types are available.

5. Silicon seat is available on 50mm to 200mm types as 778Z

* Never use an EPDM rubber seat is ring if the valve being used for oil or for a fluid containing even a slight amount of oil.

■ Dew condensation

General description

This revolutionary aluminum diecast body butterfly valve is an extended model of our best selling 702Z.

The high performance engineering plastic top plate (patent pending) with aluminum diecast body can prevent dew-condensation and allow auto-actuation with the ISO top flange design.



NAV-Z Actuator selection chart

Model	Category	Size (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
1J,1T	Standard	1J-1			1J-2		1T-2				
	Heavy duty										
2 I	Standard	2 I-0			2 I-1		2 I-1.5		2 I-2		2 I-4
	Heavy duty										
3E	Standard	K30			K70		K170		K370		K700
	Heavy duty										
3G,3F 3U,3K	Standard	K70S			K170S		K370S		K700S		TG-12S
	Heavy duty										
4 I	ON-OFF	4 I-00			4 I-0		4 I-1		4 I-2		4 I-2.5
	Control										

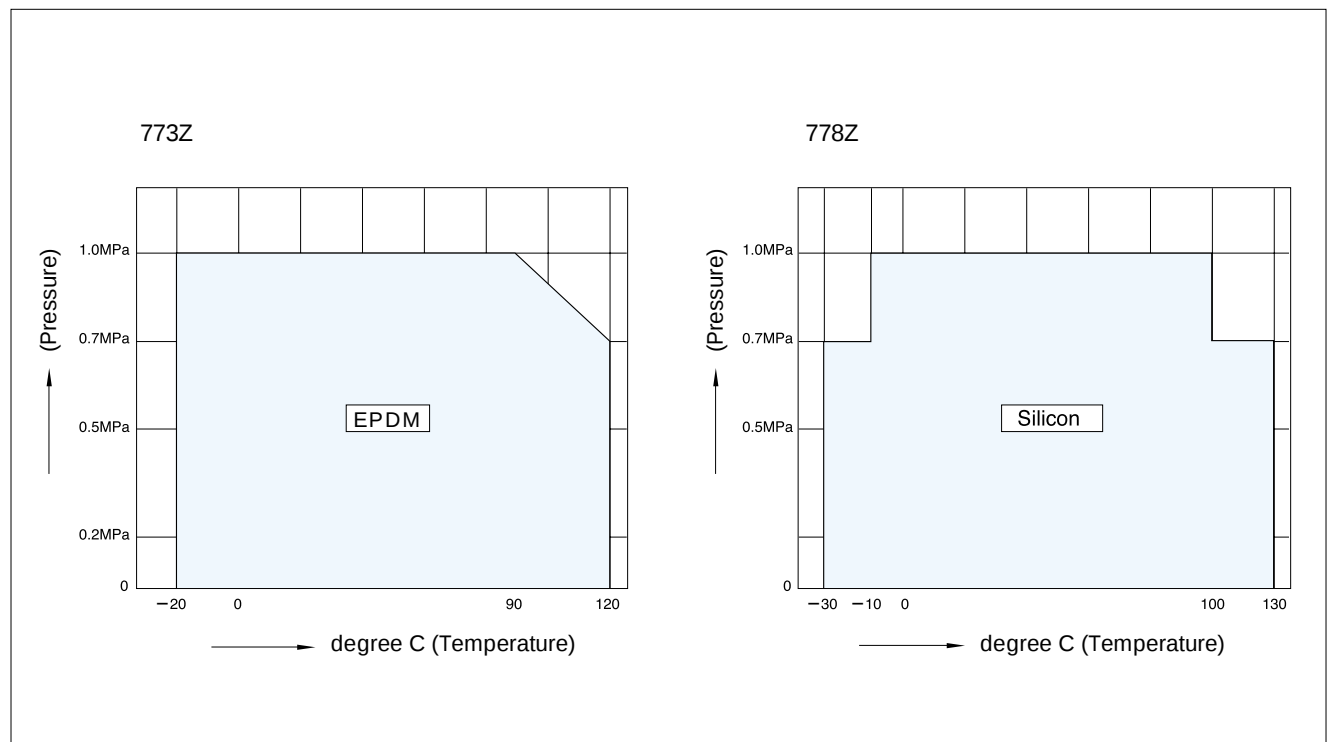
Remark: For the 200mm type with the accessories below, type 4I-2.5 should be selected.

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

778Z is available on 50 to 200mm types.

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

NAV-Z Pressure-temperature rating

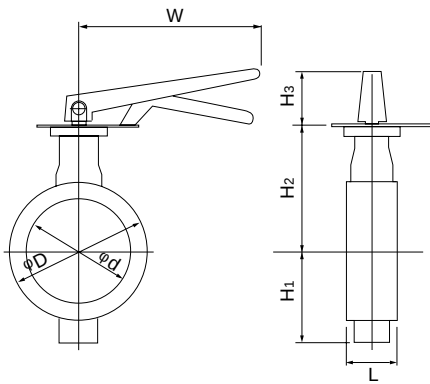


Lock lever type 773Z-1J (40mm to 125mm) / 773Z-1T(150mm)
778Z-1J (50mm to 125mm) / 778Z-1T(150mm)

Nominalsize		Dimension (mm)							Lever type	Approx. Mass (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	W		
40	1 1/2	45	80	35	61	132	54	160	1J-1	1.1
50	2	52	91	43	66	138	56	160	1J-1	1.1
65	2 1/2	65	111	46	72	151	56	160	1J-1	1.3
80	3	80	127	46	85	156	56	160	1J-1	1.5
100	4	101	147	52	98	167	69	200	1J-2	2
125	5	126	178	56	115	191	69	200	1J-2	2.9
150	6	150	207	56	131	202	92	300	1T-2	5

778Z is available on 50 to 200mm types.

■ 773Z/778Z-1J/1T

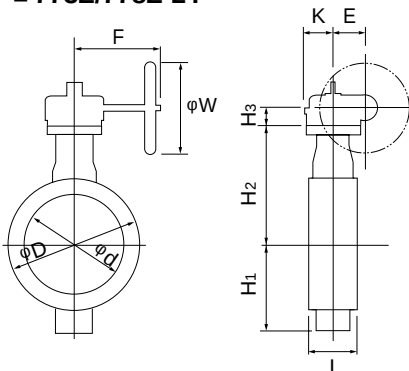


Worm gear type 773Z-2 I (40mm to 300mm)
778Z-2 I (50mm to 200mm)

Nominalsize		Dimension (mm)										Lever type	Approx. Mass (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	E	K	F	ϕW		
40	1 1/2	45	80	35	61	132	24	28	35	83	70	2 I-0	1.3
50	2	52	91	43	66	138	24	28	35	83	70	2 I-0	1.3
65	2 1/2	65	111	46	72	151	24	28	35	83	70	2 I-0	1.5
80	3	80	127	46	85	156	24	28	35	83	70	2 I-0	1.7
100	4	101	147	52	98	167	27	46	48	145	100	2 I-1	3
125	5	126	178	56	115	191	27	46	48	145	100	2 I-1	3.9
150	6	150	207	56	131	202	29	46	51	172	160	2 I-1.5	5.6
200	8	196	253	60	163	227	30	53	51	202.2	160	2 I-2	8.4
250	10	253	322	68	215	280	38.5	71	65	193	200	2 I-4	18
300	12	302	367	78	253	312	38.5	71	65	193	200	2 I-4	23

778Z is available on 50 to 200mm types.

■ 773Z/778Z-2 I



Double-acting pneumatic cylinder type 773Z-3E (40mm to 300mm)
778Z-3E (50mm to 200mm)

■ Standard

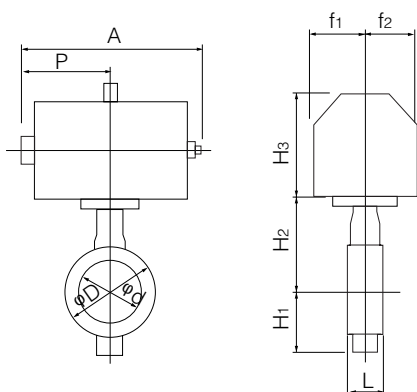
Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	A	P	f ₁	f ₂		
40	1 1/2	45	80	35	61	132	113	218.5	113.5	35	50	K30	2.7
50	2	52	92	43	66	138	113	218.5	113.5	35	50	K30	2.7
65	2 1/2	65	111	46	72	151	113	218.5	113.5	35	50	K30	3
80	3	80	127	46	85	156	113	218.5	113.5	35	50	K30	3.2
100	4	101	147	52	98	167	133	268	138	53	51	K70	5.7
125	5	126	178	56	115	191	133	268	138	53	51	K70	6.6
150	6	150	207	56	131	202	157	332	171	65	58	K170	10.3
200	8	196	253	60	163	227	157	332	171	65	58	K170	12.6
250	10	253	322	68	215	280	184	411	209	83	69	K370	21.3
300	12	302	367	78	253	312	224	520	262	101	85	K700	38.5

■ Heavy duty

Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	A	P	f ₁	f ₂		
40	1 1/2	45	80	35	61	132	113	218.5	113.5	35	50	K30	2.7
50	2	52	92	43	66	138	113	218.5	113.5	35	50	K30	2.7
65	2 1/2	65	111	46	72	151	113	218.5	113.5	35	50	K30	3
80	3	80	127	46	85	156	133	268	138	53	51	K70	5.2
100	4	101	147	52	98	167	133	268	138	53	51	K70	5.7
125	5	126	178	56	115	191	157	332	171	65	58	K170	9.3
150	6	150	207	56	131	202	157	332	171	65	58	K170	10.3
200	8	196	253	60	163	227	184	411	209	83	69	K370	17.6
250	10	253	322	68	215	280	184	411	209	83	69	K370	21.3
300	12	302	367	78	253	312	224	520	262	101	85	K700	38.5

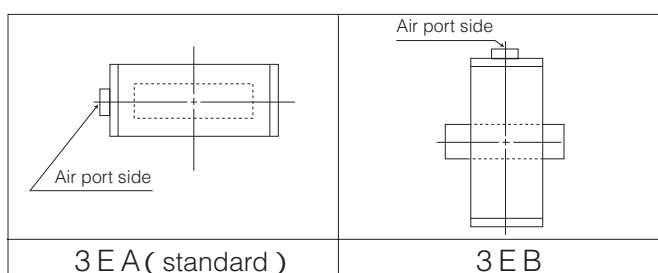
778Z is available on 50 to 200mm types.

■ 773Z/778Z-3E



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

■ 3E Installation direction



Single-acting pneumatic cylinder type 773Z-3G (Air to open: 40mm to 200mm) /773Z-3F (Air to open: 40mm to 200mm)
778Z-3G (Air to open: 50mm to 200mm) /778Z-3F (Air to open: 50mm to 200mm)

■ Standard

Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	φd	φD	L	H ₁	H ₂	H ₃	A	P	f ₁	f ₂		
40	1 1/2	45	80	35	61	132	133	362	178.5	53	51	K70S	5.9
50	2	52	92	43	66	138	133	362	178.5	53	51	K70S	5.9
65	2 1/2	65	111	46	72	151	133	362	178.5	53	51	K70S	6.2
80	3	80	127	46	85	156	157	446	220.5	65	58	K170S	10.2
100	4	101	147	52	98	167	157	446	220.5	65	58	K170S	10.7
125	5	126	178	56	115	191	184	547	271	83	69	K370S	18.5
150	6	150	207	56	131	202	184	547	271	83	69	K370S	19.5
200	8	196	253	60	163	227	224	709	352	101	85	K700S	35.9
250	10	253	322	68	215	280	224	709	352	101	85	K700S	39.6

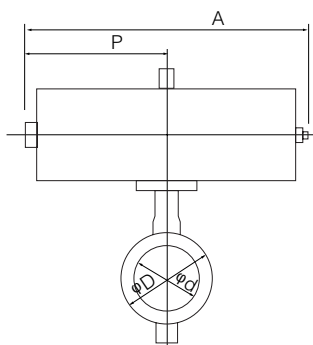
■ Heavy duty

Nominal size		Dimension (mm)										Cylinder type	Approx. Mass (kg)
mm	inch	φd	φD	L	H ₁	H ₂	H ₃	A	P	f ₁	f ₂		
40	1 1/2	45	80	35	61	132	133	362	178.5	53	51	K70S	5.9
50	2	52	92	43	66	138	133	362	178.5	53	51	K70S	5.9
65	2 1/2	65	111	46	72	151	157	446	220.5	65	58	K170S	10
80	3	80	127	46	85	156	157	446	220.5	65	58	K170S	10.2
100	4	101	147	52	98	167	184	547	271	83	69	K370S	17.6
125	5	126	178	56	115	191	184	547	271	83	69	K370S	18.5
150	6	150	207	56	131	202	224	709	352	101	85	K700S	33.6
200	8	196	253	60	163	227	224	709	352	101	85	K700S	35.9

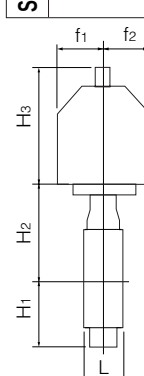
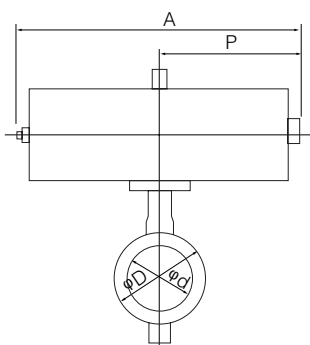
778Z is available on 50 to 200mm types.

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

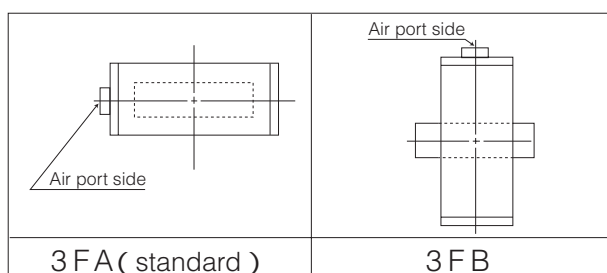
■ 773Z/778Z-3F



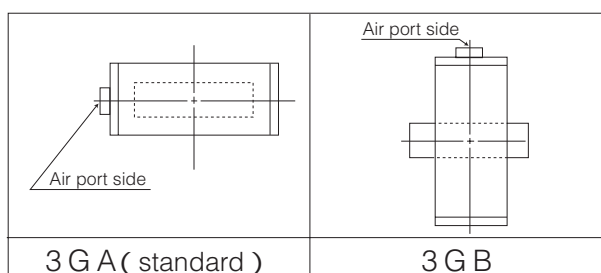
■ 773Z/778Z-3G



■ 3F Installation direction



■ 3G Installation direction



Single phase electric motor type 773Z-4 I(40mm to 300mm)
778Z-4 I(50mm to 200mm)

Nominal size		Dimension (mm)										Motor type	Approx. Mass (kg)
mm	inch	ϕd	ϕD	L	H ₁	H ₂	H ₃	A	P	F	K		
40	1 1/2	45	80	35	61	132	120	161	84	58	45	4 I-00	3.3
							150	202	100	85	54	4 I-0	5
50	2	52	91	43	66	138	120	161	84	58	45	4 I-00	3.4
							150	202	100	85	54	4 I-0	5.1
65	2 1/2	65	111	46	72	151	120	161	84	58	45	4 I-00	3.6
							150	202	100	85	54	4 I-0	5.3
80	3	80	127	46	85	156	150	202	100	85	54	4 I-0	5.5
100	4	101	147	52	98	167	150	202	100	85	54	4 I-0	6
125	5	126	178	56	115	191	165	252	138	126	65	4 I-1	9.1
150	6	150	207	56	131	202	198	310	167	154	85	4 I-2	15
200	8	196	253	60	163	227	198	310	167	154	85	4 I-2	18
							198	310	167	154	85	4 I-2.5	19
250	10	253	322	68	215	280	198	310	167	154	85	4 I-2.5	28
300	12	302	367	78	253	312	230	388	223	246	136	4 I-3	46

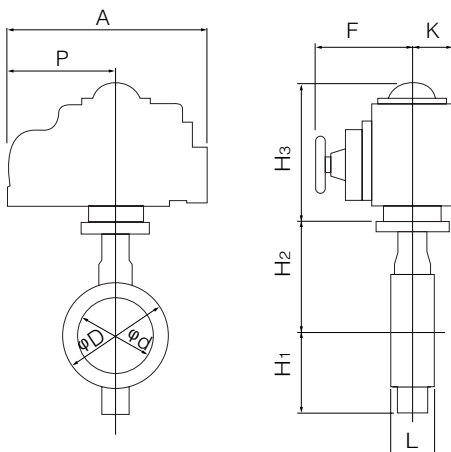
Note 1: For nominal size 40 to 65 mm type (for control), the 4I-0 type should be selected. (The 4I-00 type is only designed for ON-OFF operation.)

Remark: For the 200mm type with the accessories below, type 4I-2.5 should be selected.

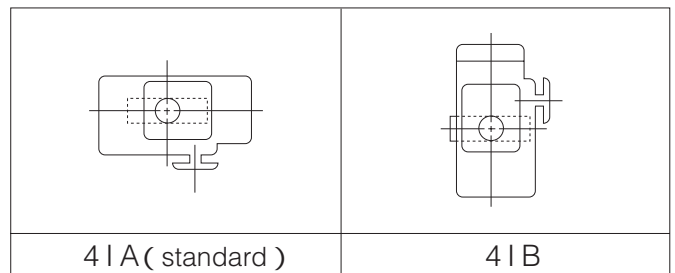
- Microm unit
- Servo unit
- Speed control unit
- Potentiometer

778Z is available on 50 to 200mm types.

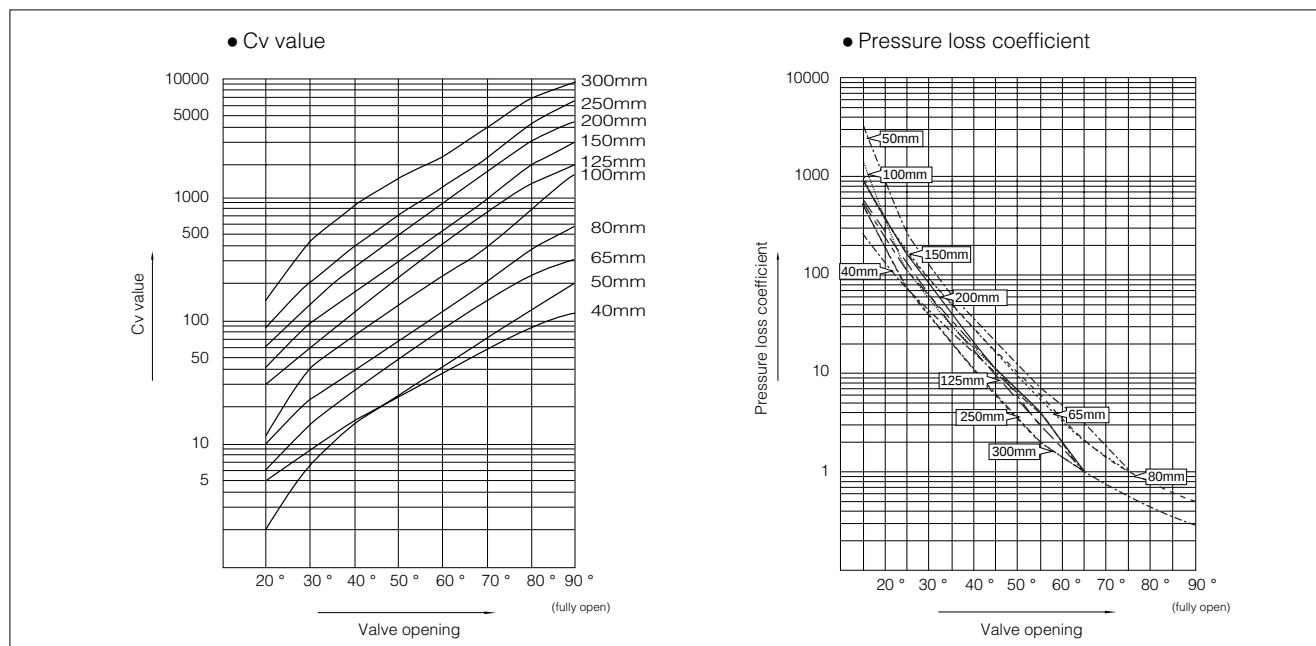
■ 773Z/778Z-4 I



■ 4I Installation direction



NAV-Z Cv value/pressure loss coefficient



NAV-Z 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	2	7	15	25	43	74	125	199
65	2 1/2	6	15	29	52	87	148	251	339
80	3	10	24	40	73	125	217	407	623
100	4	12	44	83	138	242	401	862	1670
125	5	30	64	129	240	433	803	1420	1960
150	6	45	100	178	320	564	1030	2000	2910
200	8	61	145	295	554	943	1630	3050	4420
250	10	82	207	395	727	1360	2360	4300	6660
300	12	152	444	834	1490	2460	4010	6990	9120

NAV-Z 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	3341	250	59	21	7	3	1	0.3
65	2 1/2	1051	176	47	14	5	2	1	0.3
80	3	917	158	54	17	6	2	1	0.2
100	4	1395	111	31	11	4	1	0.3	0.1
125	5	581	128	31	9	3	1	0.3	0.1
150	6	542	109	34	11	3	1	0.3	0.1
200	8	932	163	39	11	4	1	0.4	0.2
250	10	1242	194	53	16	5	2	0.5	0.2
300	12	746	88	25	8	3	1	0.3	0.2

NAV-Z Applicable pipe list in case of **A**

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	○	○	○	○	○	○	294

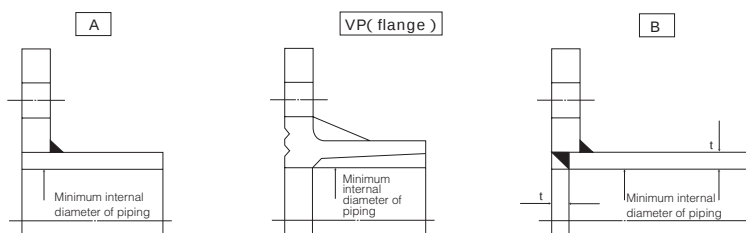
NAV-Z Applicable pipe list in case of **B**

Nominal size		SGP	Sch20	Sch40	Sch10S	Sch20S
mm	inch					
40	1 1/2	○	-	○	○	○
50	2	○	○	○	○	○
65	2 1/2	○	○	○	○	○
80	3	○	○	○	○	○
100	4	○	○	○	○	○
125	5	○	○	○	○	○
150	6	○	○	○	○	○
200	8	○	○	○	○	○
250	10	○	○	○	○	○
300	12	○	○	○	○	○

Remark 1: ○ = Applicable

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.



NAV-Z 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

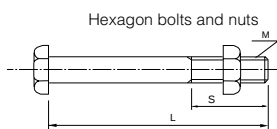
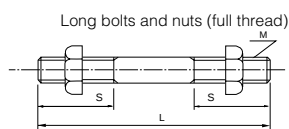
Nominal size		JIS 5K	JIS 10K	ANSI 125Lb/150Lb
mm	inch	Long bolts and nuts	Long bolts and nuts	Long bolts and nuts
40	1 1/2	4-M12× 95×25	4-M16×110×25	4-U1/2×110×32
50	2	4-M12×105×25	4-M16×120×30	4-U5/8×140×38
65	2 1/2	4-M12×110×25	4-M16×125×30	4-U5/8×140×38
80	3	4-M16×120×30	8-M16×125×30	4-U5/8×140×38
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 1. Hexagon bolts should be used with hexagon (thin) nuts.
 2. Unify screw (1 inch or above nominal size): 8 threads/inch.

Example

Long bolts : 12 - M22 × 185 × 45
 N M L S

Hexagon bolts : 12 - M22 × 60 × 50
 N M L S



Remark 1. Hexagon bolts should be used with hexagon (thin) nuts.
 2. The values in parenthesis are the number of bolts when the bolts hole are tapped.
 3. Unify screw (1 inch or above nominal size): 8 threads/inch.