

# NAV 773Z

## Revolutionary super light weight aluminum diecast body butterfly valve

Butterfly Valves

**TRITEC**

302A/303Q

304A/304Q

302Y/304Y

337Y/336Y

304M (HLV)

507V/508V

846T/847T/847Q

841T/842T

**773Z (NAV-Z)**

700G/704G/705G

731P/732P  
732X/731X

700E/700K

704G/722F/720F

**227P**

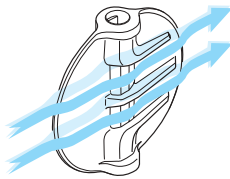
903C/904C

### 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.

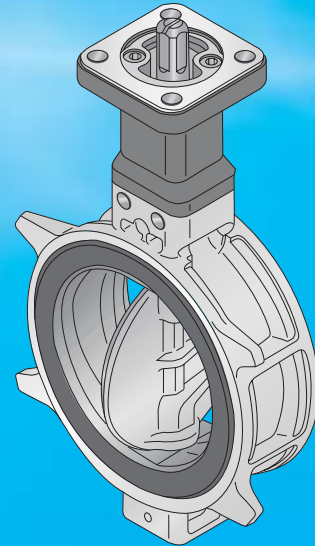
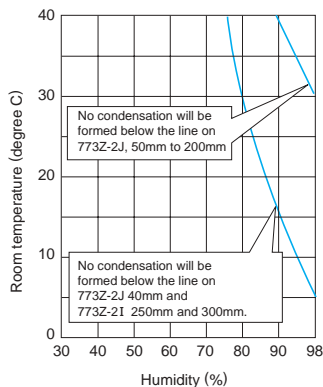
Examples of weight (Kg) with gear operator

	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)

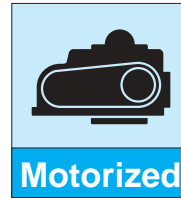
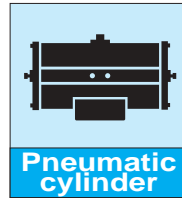
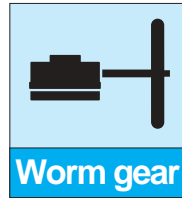
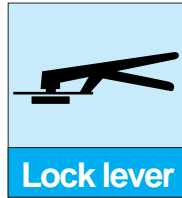
The silicon seat is designed for chlorinated hot water applications for sanitary use in the 778Z.



#### 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, BS4504NP10, DIN 10K, 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	
Allowable temperature range in continuous use	EPDM - 10 to + 100 degrees C, silicon(778Z) - 30 to + 130 degrees C	
Body shell test	1.5MPa *1	
Seat leak test	1.1MPa *2	
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	Stainless steel type 316 PPS (Polyphenylene sulfide lined on stainless steel core) *3
	Stem	Stainless steel type 420J2
	Seat	EPDM, NBR, Silicon *4
	Column	Engineering plastic
Surface treatment	Body	Epoxy-melanin baked 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 1.8MPa piping pressure test at job site is available.

\*2 1.2/1.4MPa test is also available upon request.

\*3 40mm to 200mm types are available.

\*4 Silicon seat is available on 50mm to 200mm types as 778Z

### Butterfly Valves

#### TRITEC

302A/303Q

304A/304Q

302Y/304Y

337Y/336Y

304M (HLV)

507V/508V

846T/847T/847Q

841T/842T

773Z (NAV-Z)

700G/704G/705G

731P/732P  
732X/731X

700E/700K

704G/722F/720F

227P

903C/904C

### 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.

Dew condensation



### NAV-Z Actuator selection chart

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
1J, 1X	Standard	1J-1			1J-2		1X-3				
	Heavy duty	1J-1			1J-2		1X-3				
2J, 2I	Standard	2J-1			2J-2		2J-3		2I-4		
	Heavy duty	2J-1			2J-2		2J-3		2I-4		
3I	Standard	3I-1			3I-2		3I-3		3I-4		
	Heavy duty	3I-1			3I-2		3I-3		3I-4		
3R, 3Q	Standard	3R-1	3R-2		3R-3		3R-4				
	Heavy duty	3Q-1	3Q-2		3Q-3		3Q-4				
4I	ON-OFF	4I-0				4I-1	4I-2		4I-2.5	4I-3	
	Control	4I-0				4I-1	4I-2		4I-2.5	4I-3	

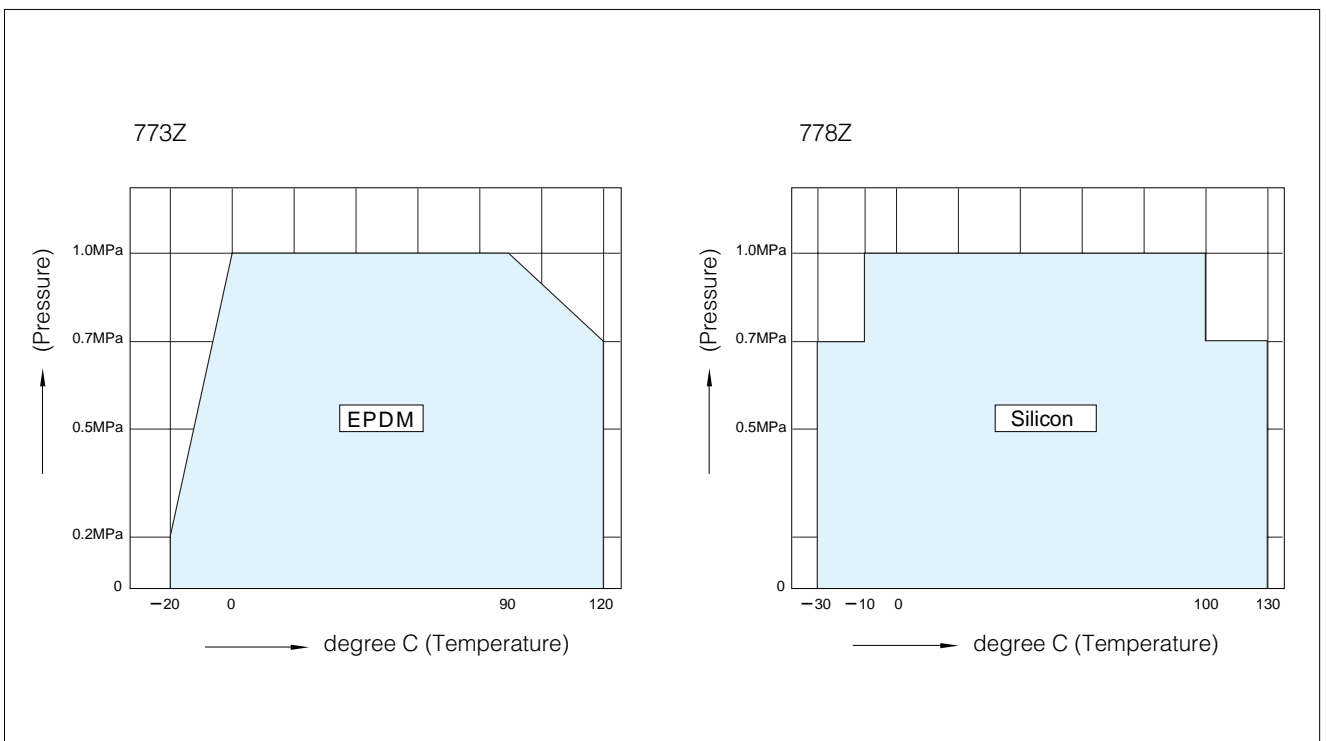
Remark: For the 200mm type with the accessories below, type 4I-2.5 should be selected.

778Z is available on 50 to 200mm types.

- 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 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

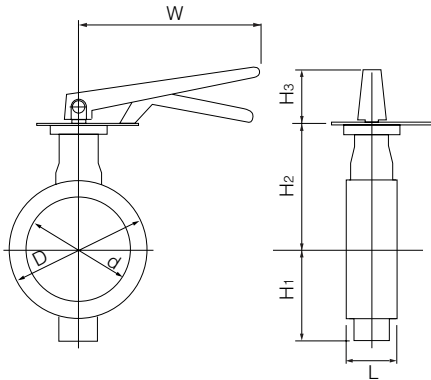


**Lock lever type 773Z-1J (40mm to 125m) / 773Z-1X(150mm)  
778Z-1J (50mm to 125m) / 778Z-1X(150mm)**

Nominal size		Dimension (mm)							Lever type	Approx. weight (kg)
mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	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	2.0
125	5	126	178	56	115	191	69	200	1J-2	2.9
150	6	150	207	56	131	202	71	270	1X-3	4.9

778Z is available on 50 to 200mm types.

**773Z/778Z-1J / 1X**

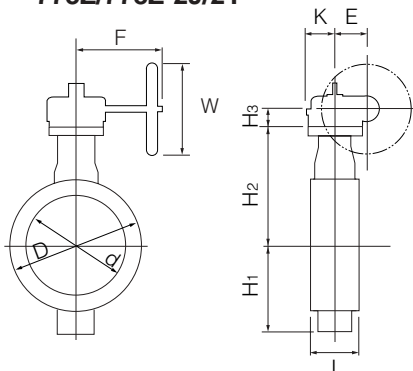


**Worm gear type 773Z-2J (40mm to 200m) / 773Z-2I (250mm, 300mm)  
778Z-2J (50mm to 200m)**

Nominal size		Dimension (mm)										Lever type	Approx. weight (kg)
mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	E	K	F	W		
40	1 1/2	45	80	35	61	132	25	27.5	35	90	70	2J-1	1.2
50	2	52	91	43	66	138	25	27.5	35	90	70	2J-1	1.2
65	2 1/2	65	111	46	72	151	25	27.5	35	90	70	2J-1	1.4
80	3	80	127	46	85	156	25	27.5	35	90	70	2J-1	1.6
100	4	101	147	52	98	167	30	35	37	90	70	2J-2	2.2
125	5	126	178	56	115	191	30	35	37	90	70	2J-2	3.1
150	6	150	207	56	131	202	30	49	51	159	125	2J-3	4.5
200	8	196	253	60	163	227	30	49	51	159	125	2J-3	6.8
250	10	253	322	68	215	280	38.5	71	65	193	200	2I-4	19.0
300	12	302	367	78	253	312	38.5	71	65	193	200	2I-4	26.0

778Z is available on 50 to 200mm types.

**773Z/778Z-2J/2I**



Butterfly Valves

**TRITEC**

**302A/303Q**

**304A/304Q**

**302Y/304Y**

**337Y/336Y**

**304M (HLV)**

**507V/508V**

**846T/847T/847Q**

**841T/842T**

**773Z (NAV-Z)**

**700G/704G/705G**

**731P/732P  
732X/731X**

**700E/700K**

**704G/722F/720F**

**227P**

**903C/904C**

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

Standard

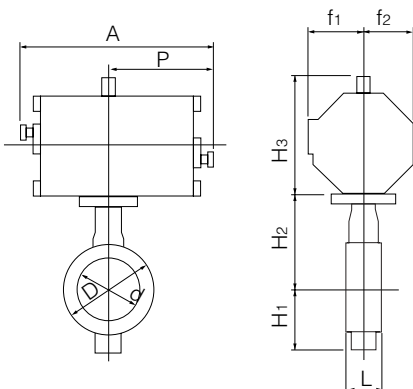
Butterfly Valves	Nominalsize		Dimension (mm)										Cylinder type	Approx. weight (kg)
	mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
<b>TRITEC</b>	40	1 1/2	45	80	35	61	132	142	190	103.5	55	50	3 I-1	3.9
<b>302A/303Q</b>	50	2	52	91	43	66	138	142	190	103.5	55	50	3 I-1	3.9
<b>304A/304Q</b>	65	2 1/2	65	111	46	72	151	142	190	103.5	55	50	3 I-1	4.1
<b>302Y/304Y</b>	80	3	80	127	46	85	156	142	190	103.5	55	50	3 I-1	4.3
<b>337Y/336Y</b>	100	4	101	147	52	98	167	142	190	103.5	55	50	3 I-1	4.8
<b>304M (HLV)</b>	125	5	126	178	56	115	191	178	272	145	74.5	65	3 I-2	7.7
<b>507V/508V</b>	150	6	150	207	56	131	202	178	272	145	74.5	65	3 I-2	8.7
<b>846T/847T/847Q</b>	200	8	196	253	60	163	227	220	342	181	95	93	3 I-3	16.0
<b>841T/842T</b>	250	10	253	322	68	215	280	258	342	181	95	93	3 I-3	26.0
	300	12	302	367	78	253	312	220	462	258	95	93	3 I-4	38.0

Heavy duty

773Z (NAV-Z)	Nominalsize		Dimension (mm)										Cylinder type	Approx. weight (kg)
	mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
<b>700G/704G/705G</b>	40	1 1/2	45	80	35	61	132	142	190	103.5	55	50	3 I-1	3.9
<b>731P/732P 732X/731X</b>	50	2	52	91	43	66	138	142	190	103.5	55	50	3 I-1	3.9
<b>700E/700K</b>	65	2 1/2	65	111	46	72	151	142	190	103.5	55	50	3 I-1	4.1
<b>704G/722F/720F</b>	80	3	80	127	46	85	156	142	190	103.5	55	50	3 I-1	4.3
<b>227P</b>	100	4	101	147	52	98	167	178	272	145	74.5	65	3 I-2	6.8
<b>903C/904C</b>	125	5	126	178	56	115	191	178	272	145	74.5	65	3 I-2	7.7
	150	6	150	207	56	131	202	220	342	181	95	93	3 I-3	13.7
	200	8	196	253	60	163	227	220	342	181	95	93	3 I-3	16.0
	250	10	253	322	68	215	280	220	462	258	95	93	3 I-4	31.0
	300	12	302	367	78	253	312	220	462	258	95	93	3 I-4	38.0

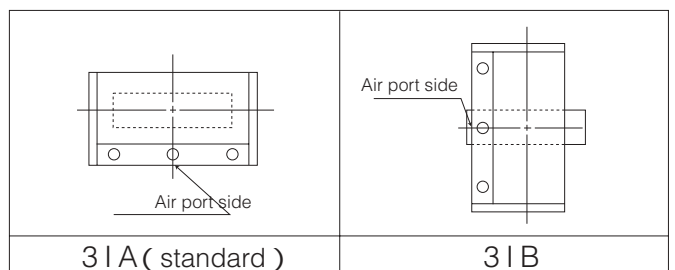
778Z is available on 50 to 200mm types.

773Z/778Z-3 I



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

3I Installation direction



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

### Standard

Nominal size		Dimension (mm)										Cylinder type	Approx. weight (kg)
mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
40	1 1/2	45	80	35	61	132	142	266	162.5 (179.5)	55	50	3R-1/3Q-1	4.9
50	2	52	91	43	66	138	142	266	162.5 (179.5)	55	50	3R-1/3Q-1	4.9
65	2 1/2	65	111	46	72	151	178	407	262 (280)	74.5	65	3R-2/3Q-2	10.1
80	3	80	127	46	85	156	178	407	262 (280)	74.5	65	3R-2/3Q-2	10.3
100	4	101	147	52	98	167	178	407	262 (280)	74.5	65	3R-2/3Q-2	10.8
125	5	126	178	56	115	191	220	462	281 (301)	95	93	3R-3/3Q-3	19.7
150	6	150	207	56	131	202	220	685	427 (481)	95	93	3R-4/3Q-4	31.0
200	8	196	253	60	163	227	220	685	427 (481)	95	93	3R-4/3Q-4	33.0

### Heavy duty

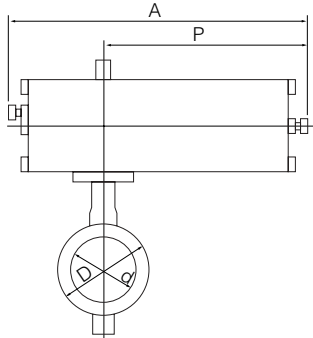
Nominal size		Dimension (mm)										Cylinder type	Approx. weight (kg)
mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	f <sub>1</sub>	f <sub>2</sub>		
40	1 1/2	45	80	35	61	132	142	266	162.5 (179.5)	55	50	3R-1/3Q-1	4.9
50	2	52	91	43	66	138	178	407	262 (280)	74.5	65	3R-2/3Q-2	9.9
65	2 1/2	65	111	46	72	151	178	407	262 (280)	74.5	65	3R-2/3Q-2	10.1
80	3	80	127	46	85	156	178	407	262 (280)	74.5	65	3R-2/3Q-2	10.3
100	4	101	147	52	98	167	220	462	281 (301)	95	93	3R-3/3Q-3	18.8
125	5	126	178	56	115	191	220	462	281 (301)	95	93	3R-3/3Q-3	19.7
150	6	150	207	56	131	202	220	685	427 (481)	95	93	3R-4/3Q-4	31.0
200	8	196	253	60	163	227	220	685	427 (481)	95	93	3R-4/3Q-4	33.0

Remark: Value in brackets indicates 3Q (air to close).

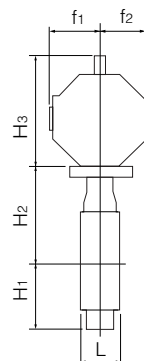
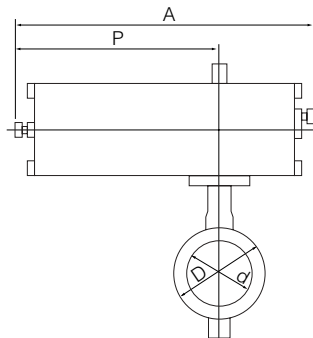
778Z is available on 50 to 200mm types.

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

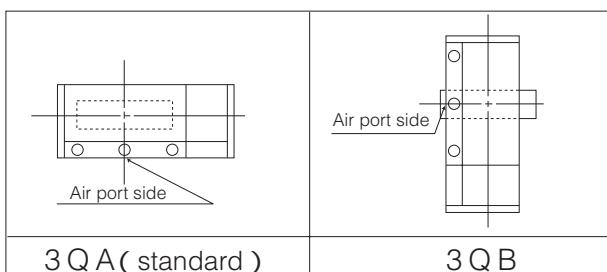
773Z/778Z-3Q



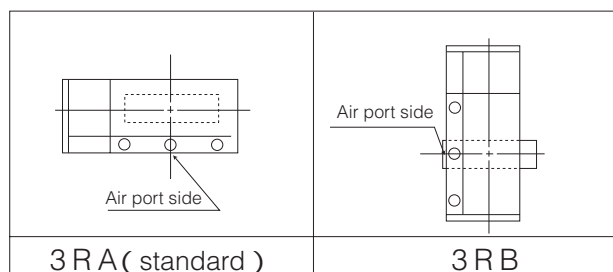
773Z/778Z-3R



### 3Q Installation direction



### 3R Installation direction



Butterfly Valves

<b>TRITEC</b>
<b>302A/303Q</b>
<b>304A/304Q</b>
<b>302Y/304Y</b>
<b>337Y/336Y</b>
<b>304M (HLV)</b>
<b>507V/508V</b>
<b>846T/847T/847Q</b>
<b>841T/842T</b>
<b>773Z (NAV-Z)</b>
<b>700G/704G/705G</b>
<b>731P/732P</b> <b>732X/731X</b>
<b>700E/700K</b>
<b>704G/722F/720F</b>
<b>227P</b>
<b>903C/904C</b>

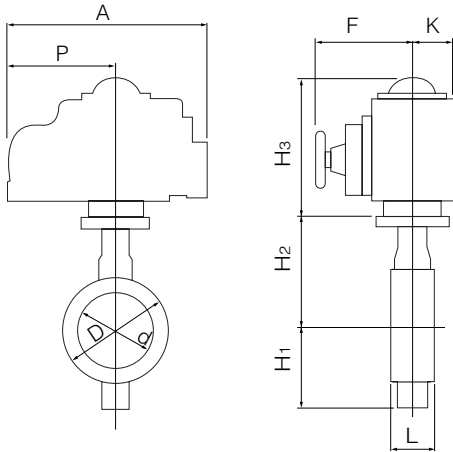
Single phase electric motor type 773Z-4 I ( 40mm to 300mm )  
778Z-4 I ( 50mm to 200mm )

Nominal size	Dimension (mm)											Motor type	Approx. weight (kg)
	mm	inch	d	D	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	P	F		
40	1 1/2	45	80	35	61	132	150	202	100	85	54	4 I-0	5.1
50	2	52	91	43	66	138	150	202	100	85	54	4 I-0	5.1
65	2 1/2	65	111	46	72	151	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	6.0
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	15.0
200	8	196	253	60	163	227	198	310	167	154	85	4 I-2	18.0
							198	310	167	154	85	4 I-2.5	19.0
250	10	253	322	68	215	280	198	310	167	154	85	4 I-2.5	28.0
300	12	302	367	78	253	312	230	388	223	246	136	4 I-3	46.0

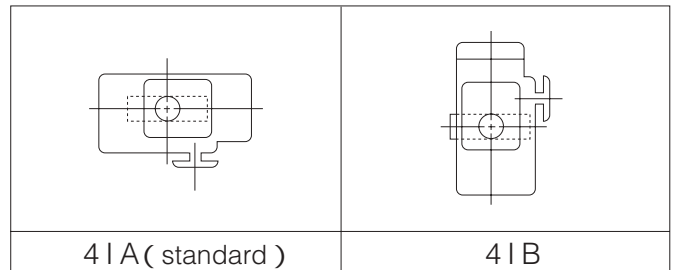
Remark: For the 200mm type with the accessories below, type 4I-2.5 should be selected.  
Micom unit  
Servo unit  
Speed control unit  
Potentiometer

778Z is available on 50 to 200mm types.

773Z/778Z-4 I

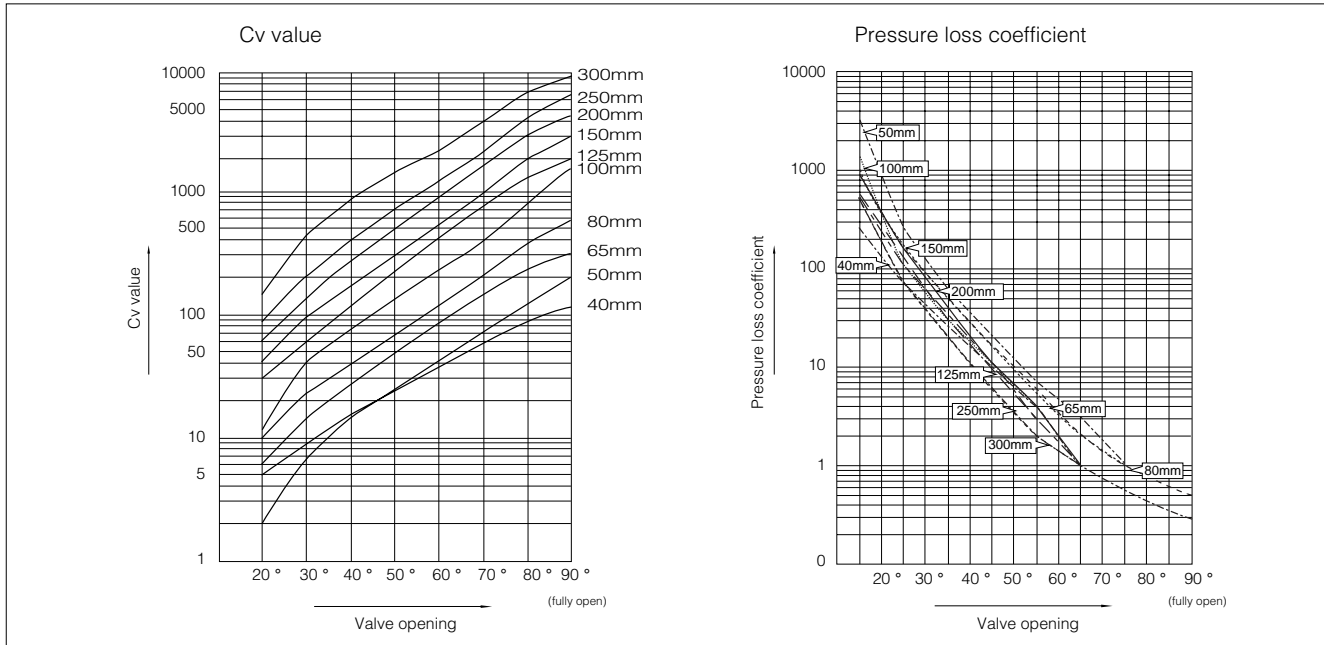


4I Installation direction



- Butterfly Valves
- TRITEC**
- 302A/303Q
- 304A/304Q
- 302Y/304Y
- 337Y/336Y
- 304M (HLV)
- 507V/508V
- 846T/847T/847Q
- 841T/842T
- 773Z (NAV-Z)
- 700G/704G/705G
- 731P/732P  
732X/731X
- 700E/700K
- 704G/722F/720F
- 227P
- 903C/904C

### 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	0.4
65	2 1/2	1051	176	47	14	5	2	1	0.4
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	129	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	1	0.3	0.2
300	12	746	88	25	8	3	1	0.3	0.2

### Butterfly Valves

#### TRITEC

302A/303Q

304A/304Q

302Y/304Y

337Y/336Y

304M (HLV)

507V/508V

846T/847T/847Q

841T/842T

773Z (NAV-Z)

700G/704G/705G

731P/732P  
732X/731X

700E/700K

704G/722F/720F

227P

903C/904C

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							
Butterfly Valves	40	1 1/2		-					25
	50	2							34
<b>TRITEC</b>	65	2 1/2							51
<b>302A/303Q</b>	80	3							70
<b>304A/304Q</b>	100	4							91
	125	5							118
<b>302Y/304Y</b>	150	6							144
<b>337Y/336Y</b>	200	8							194
<b>304M (HLV)</b>	250	10							246
<b>507V/508V</b>	300	12							294

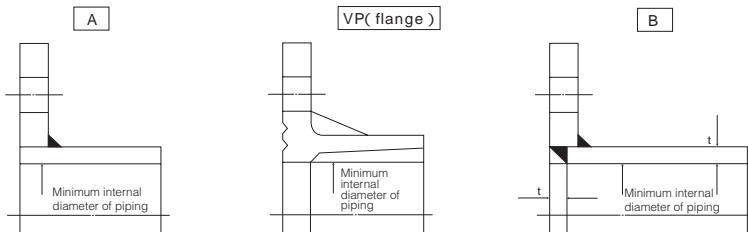
NAV-Z Applicable pipe list in case of **B**

	Nominal size		SGP	Sch20	Sch40	Sch10S	Sch20S
	mm	inch					
<b>773Z (NAV-Z)</b>	40	1 1/2		-			
<b>700G/704G/705G</b>	50	2					
<b>731P/732P 732X/731X</b>	65	2 1/2					
<b>700E/700K</b>	80	3					
<b>704G/722F/720F</b>	100	4					
<b>227P</b>	125	5					
<b>903C/904C</b>	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-M12x 75x30	4-M16x 90x38
50	2	4-M12x 90x30	4-M16x 100x38
65	2 1/2	4-M12x 90x30	4-M16x 105x38
80	3	4-M16x 95x38	8-M16x 105x38
100	4	8-M16x 105x38	8-M16x 110x38
125	5	8-M16x 110x38	8-M20x 125x46
150	6	8-M16x 115x38	8-M20x 130x52
200	8	8-M20x 130x52	12-M20x 130x52
250	10	12-M20x 140x52	12-M22x 150x60
300	12	12-M20x 150x52	16-M22x 160x60

### 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-M12x 95x25	4-M16x 110x25	4-U1/2 x110x32
50	2	4-M12x 105x25	4-M16x 120x30	4-U5/8 x140x38
65	2 1/2	4-M12x 110x25	4-M16x 125x30	4-U5/8 x140x38
80	3	4-M16x 120x30	8-M16x 125x30	4-U5/8 x140x38
100	4	8-M16x 130x30	8-M16x 130x30	8-U5/8 x150x38
125	5	8-M16x 130x30	8-M20x 150x40	8-U3/4 x160x51
150	6	8-M16x 140x35	8-M20x 155x40	8-U3/4 x165x51
200	8	8-M20x 155x40	12-M20x 155x40	8-U3/4 x175x51
250	10	12-M20x 165x40	12-M22x 175x45	12-U7/8 x195x58
300	12	12-M20x 175x40	16-M22x 185x45	12-U7/8 x205x58

Remark 1. Hexagon bolts should be used with hexagon (thin) nuts.  
2. Unify screw (1 inch or above nominal size): 8 threads/inch.

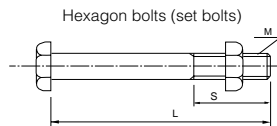
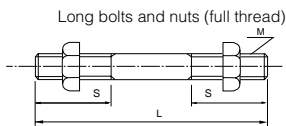
Example

Long bolts : 12 - M22 x 185 x 45

N
M
L
S

Hexagon bolts (set bolts) : 12 - M22 x 60 x 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.

Butterfly Valves

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