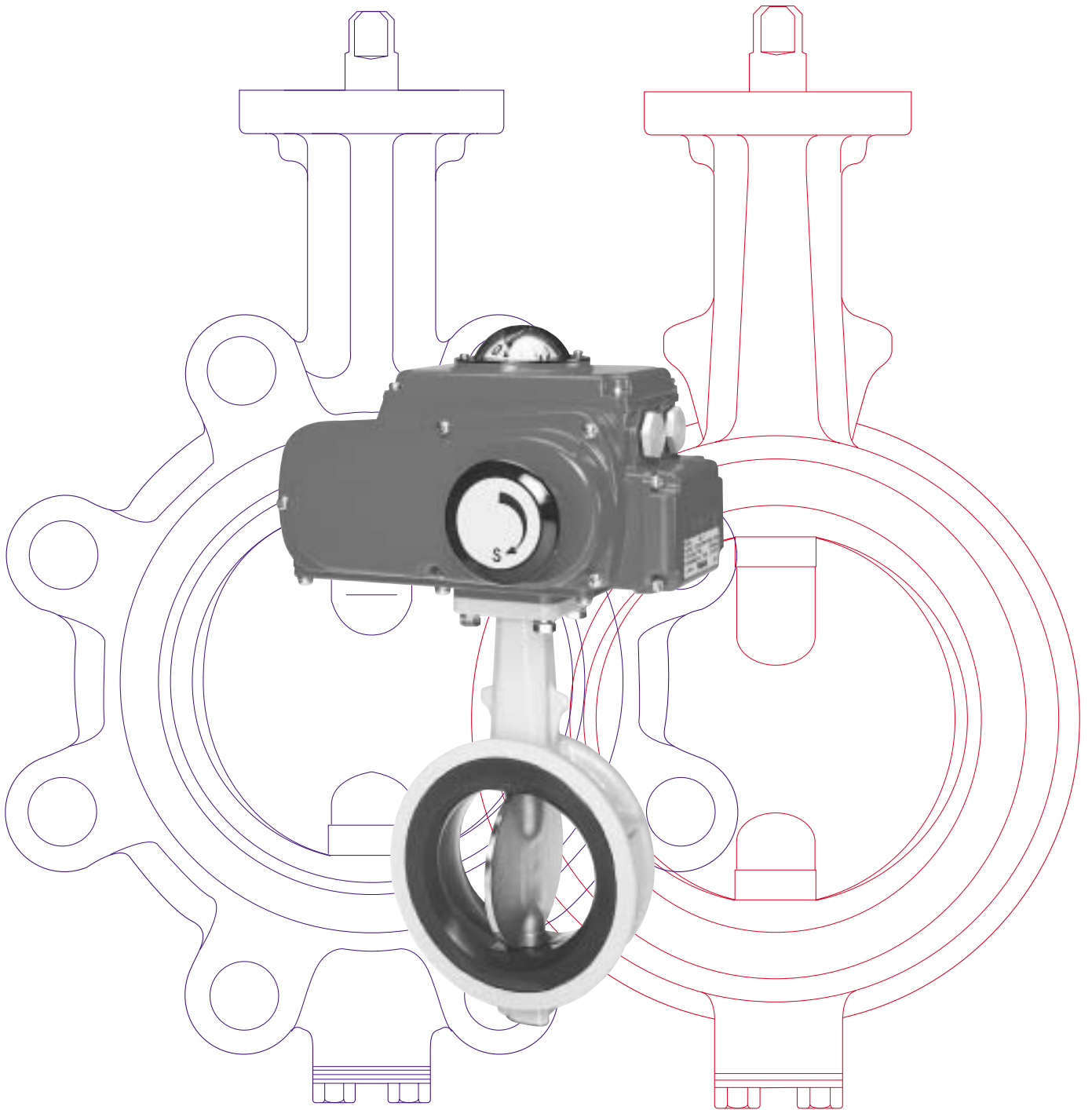


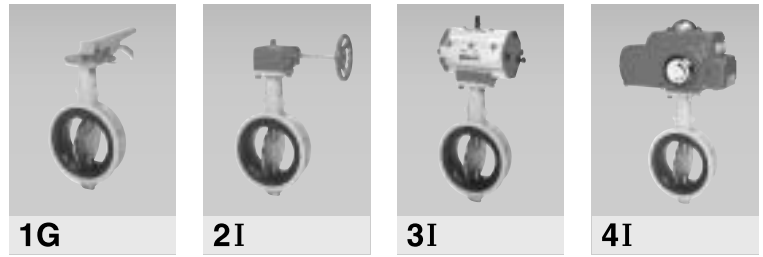
**TOMOE**<sup>®</sup>

Rubber Seated Butterfly Valves

**731P/732P** (Wafer)  
**731Q/732Q** (Lugged)



TOMOE VALVE CO.,LTD.



# 731P/732P (Wafer) 731Q/732Q (Lugged)

An extended model of 731/2X for use in high pressure, high velocity and industrial vacuum applications with vulcanized rubber lining to the body.

Valve nominal size : **50 to 300mm**  
 Max. working pressure : **1.6/2.0MPa (16/20kgf/cm<sup>2</sup>G)**  
 Working temperature range : **(NBR) -10 to 80°C**  
**(EPDM) -20 to 120°C**

## General description

Concentric design with 100% bi-directional tight shut off, low torque, with the maximum working pressure of 1.6MPa to 2.0MPa.

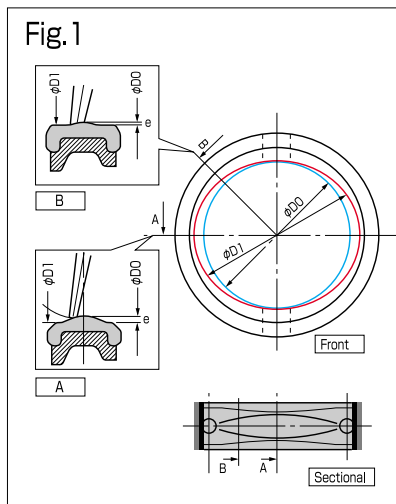
## Features

### Vulcanized rubber lining to the body

The seat is vulcanized to the body ensuring the correct rubber compression and greater strength of rubber seat. This design is much more effective in high velocity and industrial vacuum applications than soft resilient seated valves.

## New Cosine-Curve Seat

The New Cosine-Curve Seat, Patent Pending, allows better performance in reducing the friction, torque and wear than the current design. It is refined as Fig.1, Fig.2, and Fig.3.



### Cubical shape by lowering height- Fig.1

The height of raised part of the seat in the narrow area is lower. It provides strength and sealing performance by preventing the movement of the raised portion of the seat in high pressure application.

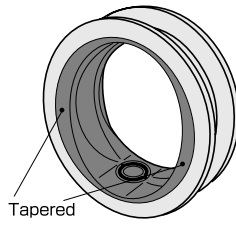
## Standard Specifications

Valve nominal size	1.6MPa (16K) type		2.0MPa (20K) type	
	731P (Wafer)	731Q (Lug)	732P (Wafer)	732Q (Lug)
	50 to 300mm		50 to 300mm	
Applicable flange standard	JIS 10K, 16K, 20K ANSI 125, 150Lb DIN PN 10, 16, 25 BS 4504 NP 10, 16, 25			
Face-to-face dimensions	JIS B 2002 (2032) 46 series / ISO 5752 (20 series) / BS1555			
Max. working pressure	1.6MPa		2.0MPa	
Body shell test (Hydraulic)	2.4MPa		3.0MPa	
Seat leak test	1.76MPa		2.2MPa	
Velocity range	Max.6m/sec			
Vacuum condition	2.0 torr or over			
Working temperature range	NBR :-10°C to 80°C, EPDM:-20°C to 120°C			
Standard materials	Body	Ductile iron (FCD450 / A395), Carbon steel (SCPH2 / WCB)		
	Disc	Stainless steel, SCS14 / CF8M		
	Stem	420J2 S.S, K-MONEL		630 S.S, K-MONEL
	Seat ring	NBR, EPDM		
Actuators	Lock lever	50mm to 200mm		
	Worm gear			
	Pneumatic cylinder	50mm to 300mm		50mm to 300mm
	Motorized			
Coating	50mm to 300mm: Epoxy primer (Munsell N7)			

■ Resin column for condensation free application is available.  
 ■ Disc with pin finish is also available upon request in case of 732P.  
 ■ Lug type is available with ANSI 125/150Lb. For other standard, please consult us.

**Tapered finish-Fig.2**

To make flow characteristic at small valve opening degree closer to linear as possible, the edge of seat is tapered. It will make for a smoother flow and better performance in high velocity working condition.



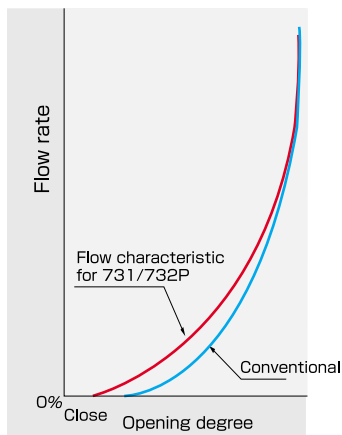
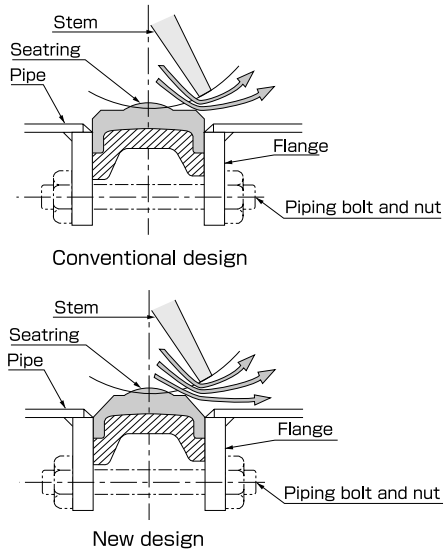
The taper is narrow around the stem area and wide around the wing of the disc area providing consideration for the strength and sealing performance for the rubber seat.

**New streamline shape around stem hole-Fig.3**

Although the spherical disc provides good sealing performance and extended life for our rubber lined valves, it still produces relatively high forces around the stem hole area where a large contact surface exists. In order to produce greater pressure at this point of contact with less friction, we incorporate a labyrinth effect where 6 numbers raised small lines are moulded around the stem hole.

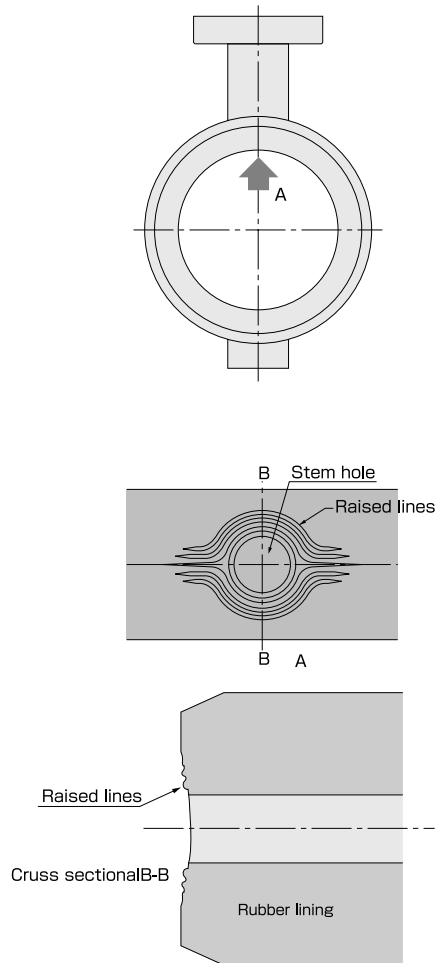


**Fig.2**



Flow characteristic

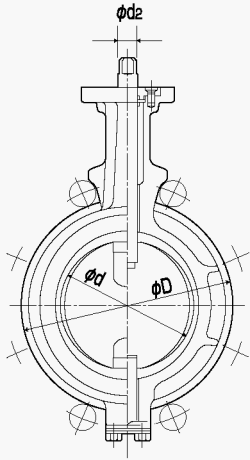
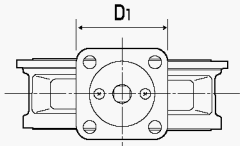
**Fig.3**



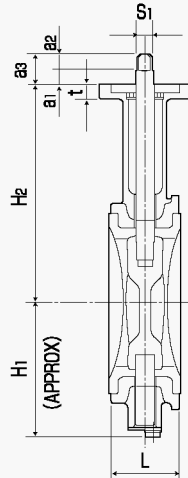
## 731P Wafer type

### Dimension list

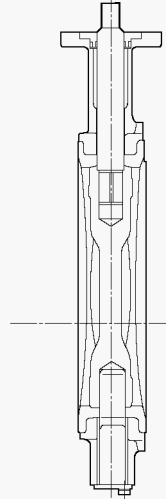
Nominal size		Dimension (mm)																				Approx. weight (kg)		
mm	inch	d	D						L	H <sub>1</sub>	H <sub>2</sub>	d <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	S <sub>1</sub>	D <sub>1</sub>	t	E	C <sub>1</sub>	N		B.H.	
			ANSI 125Lb 150Lb	DIN PN10 BS4504 NP10	DIN PN16 BS4504 NP16	DIN PN25 BS4504 NP25	JIS 10K	JIS 16K JIS 20K																
50	2	54	102	102	102	102	102	102	43	68	138	10		10.5	21.5	8								1.8
65	2½	67	122	122	122	122	122	122	46	79	151	10					70	11	10	70			9	2.2
80	3	82	134.6	138	138	138	132	138	86	156	12	11		11.5	22.5	10								2.8
100	4	103	163	163	163	163	157	163	52	103	167	14												3.6
125	5	129	195	192	192	200	188	200	56	118	191	16												5.8
150	6	152	220.4	218	218	224	218	235	56	135	202	18		16.5	27.5	14								7.8
200	8	198	276.5	273	273	280	267	280	60	177	227	22	10	20	29	18	102	13	24	102			11	11.5
250	10	251	336.8	327	328	340	330	353	68	215	280	28							14					20.3
300	12	300	403	377	383	400	375	403	78	253	312	32	5	30	34	24	125	16	32	125			13	28.9



100mm to 200mm



100mm to 200mm

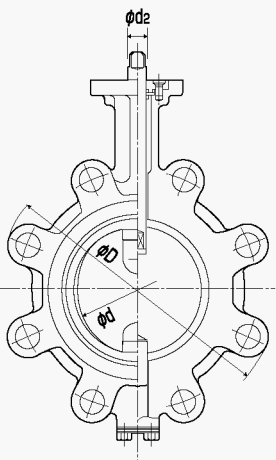
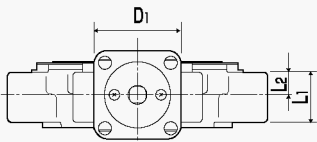


250-300mm

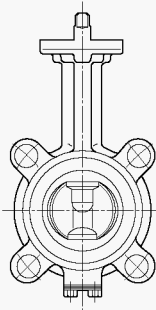
## 731Q Lugged type

### Dimension list (ANSI 125/150Lb)

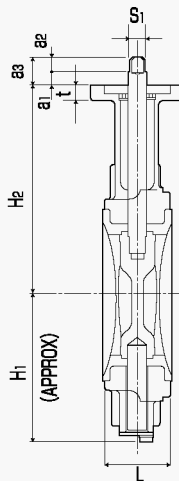
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mm	inch	d	D	L	L <sub>1</sub>	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	d <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	S <sub>1</sub>	D <sub>1</sub>	t	E	C <sub>1</sub>	B.H.			
50	2	54	151	43	33	15	68	138	10		10.5	21.5	8							2.7	
65	2½	67	171	46	36	16	79	151	10											3.6	
80	3	82	180	86	156	12	86	156	12	11		11.5	22.5	10	70	11	10	70	9	4.3	
100	4	103	223	52	39	18	118	167	14											7.1	
125	5	129	260	56	42	19	144	191	16											9.9	
150	6	152	286	56	42	19	165	202	18			16.5	27.5	14						12.7	
200	8	198	333	60	46	21	177	227	22	10	20	29	18	102	13	24	102	11		19.2	
250	10	251	420	68	51	22	216	280	28						14					32	
300	12	300	472	78	61	27	254	312	32	5	30	34	24	125	16	32	125	13		47	



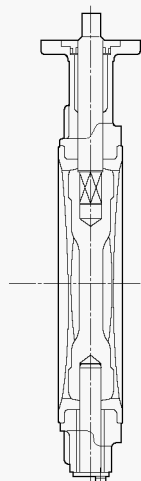
100mm to 200mm



50mm to 80mm

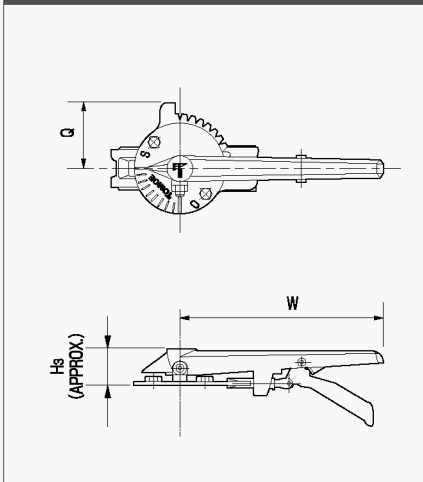


100mm to 200mm



250-300mm

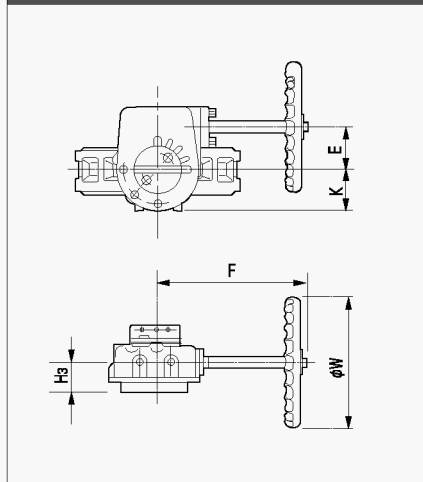
### Lock lever 1G



#### Dimension list

Nominal size		Dimension (mm)			Approx. weight (kg)
mm	inch	H <sub>s</sub>	Q	W	
50	2	39	75	220	1.1
65	2½				1.1
80	3				1.1
100	4				1.1
125	5				1.7
150	6	43	87.5	300	1.7
200	8	42	102.5	350	1.0

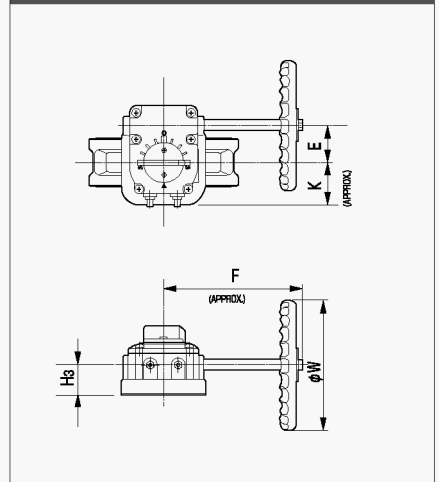
### Worm gear type 2I



#### Dimension list

Nominal size		Dimension (mm)					Approx. weight (kg)
mm	inch	H <sub>s</sub>	E	K	F	φW	
50	2	24	28	35	83	70	0.6
65	2½						0.6
80	3						1.3
100	4						1.3
125	5						1.9
150	6	30	53	51	160	125	1.9
200	8	36	71	65	208	200	4.0
250	10						4.0
300	12						5.2

### Worm gear type 2U

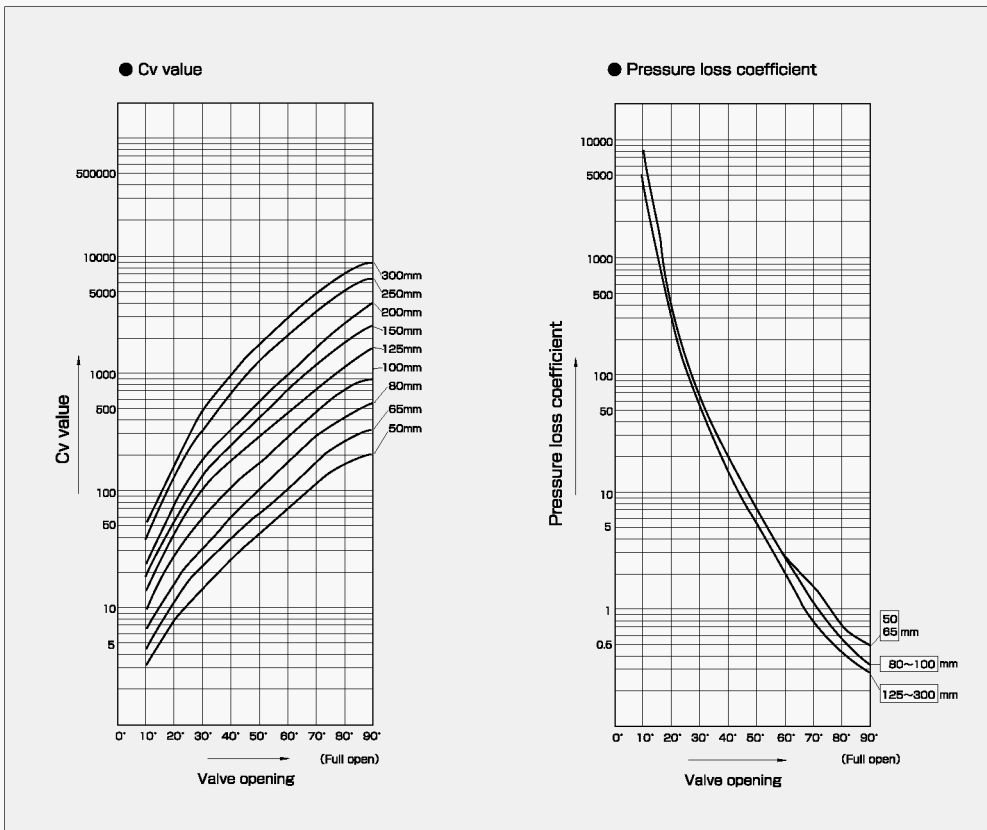


#### Dimension list

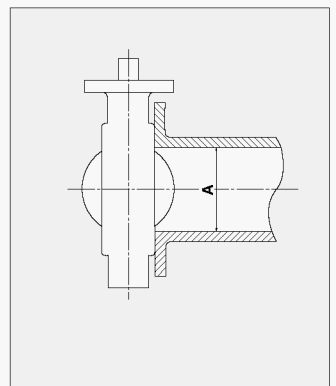
Nominal size		Dimension (mm)					Approx. weight (kg)
mm	inch	H <sub>s</sub>	E	K	F	φW	
50	2	29.5	36	46	160	100	4.1
65	2½						4.8
80	3						4.9
100	4						5.7
125	5						9.6
150	6	34.5	44	53	173.5	160	11.2
200	8	41.5	67	75	198	200	18
250	10						26
300	12						39

### Cv value/pressure loss coefficient

### Minimum internal diameters of piping



Nominal size		Minimum internal diameters of piping A (mm)
mm	inch	
50	2	34
65	2½	51
80	3	70
100	4	91
125	5	118
150	6	144
200	8	194
250	10	246
300	12	294



■ Please consult us in case of 2.0MPa type.

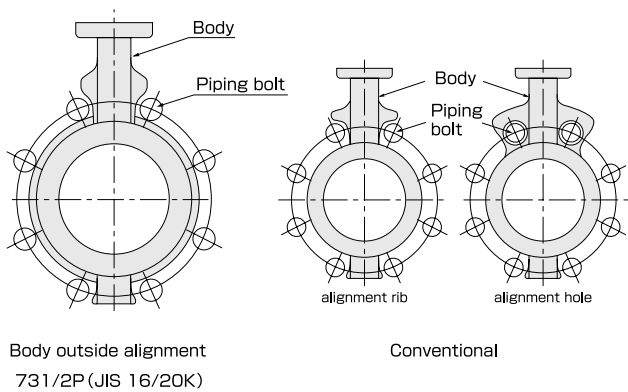
## Dimensional standard

The face to face dimensions satisfy ISO 5752 and BS EN 593:1998. The top flange dimension also meets ISO 5211. The long neck enables insulation up to 50 mm after installation. Various international flange standards can be accepted.

### Easy piping alignment (Fig.4)

In case of JIS 16K, 20K flange standards, easy piping alignments are possible as machining for outside diameter of bodies are made in accordance with dimensions of inner diameter of piping bolt.

Fig.4

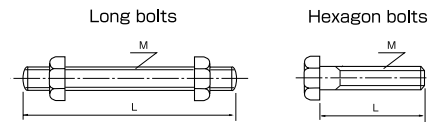


### ■Piping bolt and nut sizes (731P/732P)

Nominal size		JIS 16K, 20K			ANSI 150 Lb		
		Long bolts					
mm	inch	Quantity	M	L	Quantity	M	L
50	2	8	M16	125	4	U 5/8	130
65	2½	8	M16	125	4	U 5/8	135
80	3	8	M20	135	4	U 5/8	145
100	4	8	M20	150	8	U 5/8	150
125	5	8	M22	165	8	U 3/4	165
150	6	12	M22	165	8	U 3/4	165
200	8	12	M22	170	8	U 3/4	180
250	10	12	M24	190	12	U 7/8	195
300	12	16	M24	210	12	U 7/8	210

### ■Piping bolt and nut sizes (731Q/732Q)

Nominal size		ANSI 150 Lb	
mm	inch	Hexagon bolts	
50	2	8-U	5/8x40x30
65	2½	8-U	5/8x40x30
80	3	8-U	5/8x45x38
100	4	16-U	5/8x45x38
125	5	16-U	3/4x50x44
150	6	16-U	3/4x50x44
200	8	16-U	3/4x55x44
250	10	24-U	7/8x60x50
300	12	24-U	7/8x60x50



Note) 30mm or above : 3mm-pitch

- Unify screw (1 inch or above nominal size) : 8 threads/inch.

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