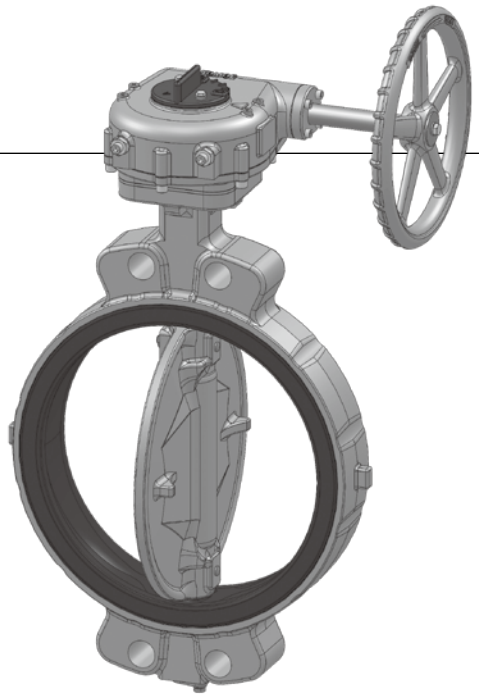
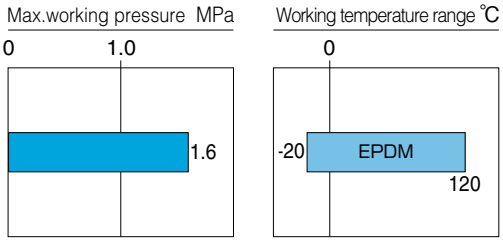
731R



Valve nominal size

350 to 600mm



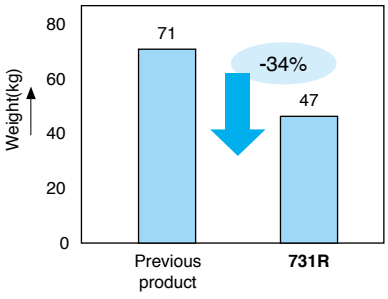
Features and Benefits

Adaptable for Building Services for Super High-rise Buildings and High-pressure Lines for Utilities Facilities.
Concentric Butterfly Valve for High Pressure Service with Excellent Cost Performance.

- New lineup of models from 350 mm to 600 mm (1.6 Mpa)
- In compliance with JIS and ISO face-to-face dimensions
- Globally-patented cosine curve seat ring
- Significantly improved durability thanks to spherical disc
- Self-aligning stem seal through secondary seal ring

Light and compact

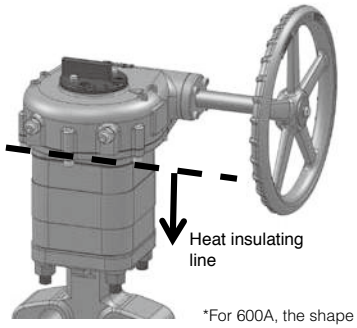
Weight reduced by 34% compared to the previous product*1



*1 In comparison with the previous 350 mm bore-size product Model 731P

Condensation protection measures *Optional

No condensation in the gear at ambient temperature 34°C and humidity 75% with cold water at 5°C.



*For 600A, the shape is different.

Standard Specifications

Valve model		731R
Body type (centering method)		Concentric design, wafer type
Valve nominal size		350mm to 600mm
Face-to-face dimensions		JIS B 2002 46 series / ISO5752 wafer butterfly valve (short)
Flange accommodation		JIS 16K, ASME Class 150
Max. working pressure *3		1.6 MPa
Allowable valve seat leakage standard		Tight shut-off
Pressure application direction (flow direction)		Bi-direction
Test pressure	Body shell test	JIS 16K, ASME Class 150: 2.4 MPa
	Seat leakage	JIS 16K, ASME Class 150: 1.76 MPa Hydraulic
Working temperature range		EPDM: -20 to 120°C (Please consult us when using the product in the temperature range -20°C to 0°C.)
Working temperature in continuous use *2		EPDM: 0 - 70°C
Allowable average pipe flow velocity (limit value)		3 m/s or less (At full valve open, continuous operation)
Standard materials	Body	FCD450
	Disc	SCS13
	Stem	SUS420J2
	Seat ring *1	EPDM
Top flange		In compliance with ISO5211/1
Condensation prevention structure		Optional (Condensation prevention resin column)
Piping gasket		Not necessary
Coating		Epoxy primer (Munsell N7)
Actuator		Worm gear type (Automatic valves are not supported.)

Note) If the following specifications are required, please consult our sales office.
(1) High durability required because the number of opening/closing times exceeds 100,000.
(2) Continuous operation required with a valve opening angle of 30 degrees or less.
(3) Control operation which requires 3% or lower hysteresis accuracy of the valve itself.

*1 If the fluid contains chlorine, the seat ring may deteriorate early due to combined factors including concentration and temperature. For details consult our sales office.

*2 "Working temperature in continuous use" is the temperature range when the valve is operated continuously over one hour. If the valve is operated continuously at a temperature above 70°C and there is no problem, we advise that the valve can be used in that environment.

*3 Negative pressure range is not allowable.

Standard Specifications

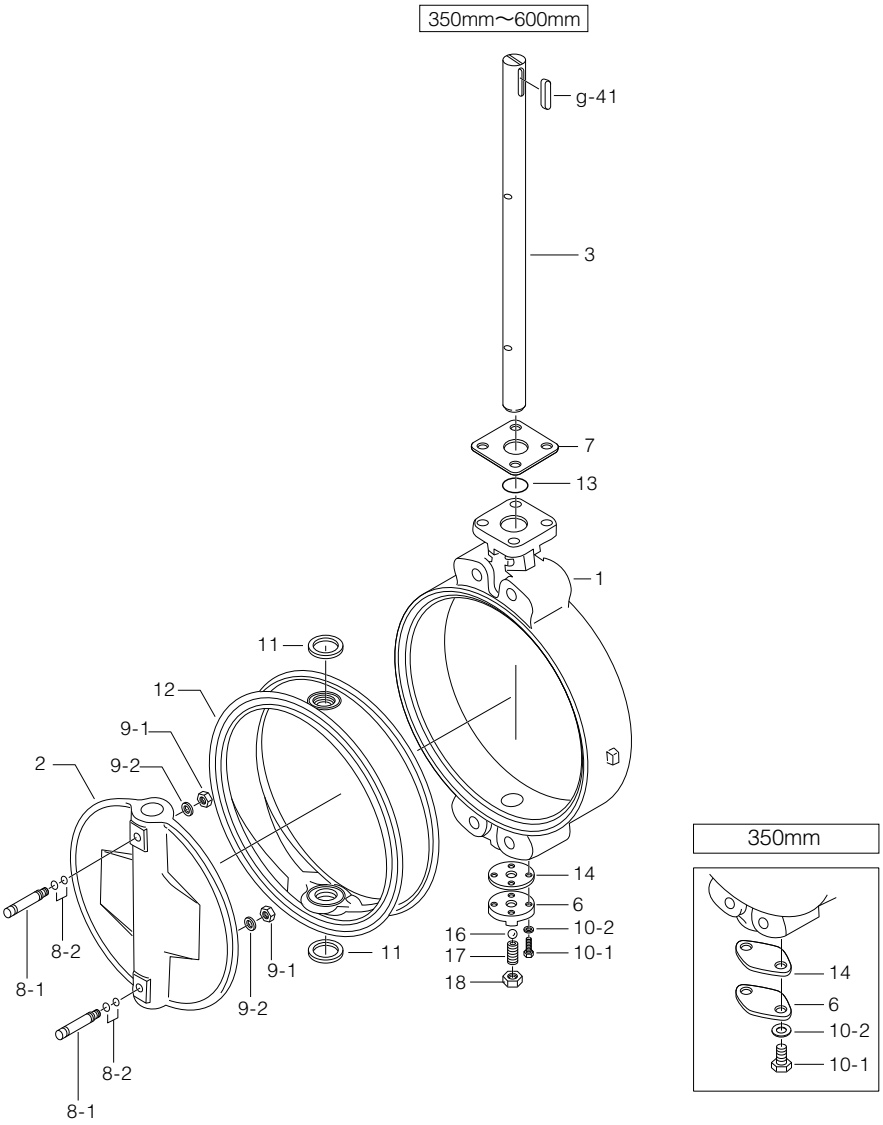
Material Name		EPDM
Temperature range	Allowable (°C)	-20〜120
	Continuous (°C)	0〜70
Max. working pressure(Mpa)		1.6
Color		Black
Features	Corrosion resistance	○
	Heat resistance	○
	Grease resistance	×
	Abrasion resistance	△

Key to symbols ○····· Good - Fit for use
△····· Acceptable for use
×····· Not fit for use

Note 1) If the fluid contains oil, never use EPDM.

Note 2) ○,△ and × in the above features show typical characteristics.
The characteristics depend on fluid and temperature conditions.
Please consult us.

731R Expanded view of components / 731R Parts list



■731R Parts list (350mm – 600mm)

No.	Description	Q'ty	Remarks
★ 1	Body	1	
2	Disc	1	
3	Stem	1	
6	Bottom cover	1	
7	Retainer plate	1	
★ 8-1	Taper bolt	2	
★ 8-2	O-ring	4	
★ 9-1	Hexagon nut	2	
★ 9-2	Spring washer	2	
10-1	Hexagon bolt	2	350mm
		4	400mm to 600mm
10-2	Spring washer	2	350mm
		4	400mm to 600mm
★ 11	Secondary seal ring	2	350mm to 600mm assembled in Body
★ 12	Seat ring	1	Vulcanized to body
★ 13	O-ring	1	
★ 14	Gasket	1	
16	Ball	1	400mm to 600mm
17	Hollow bolt	1	400mm to 600mm
18	Lock nut	1	400mm to 600mm
g41	Key	1	

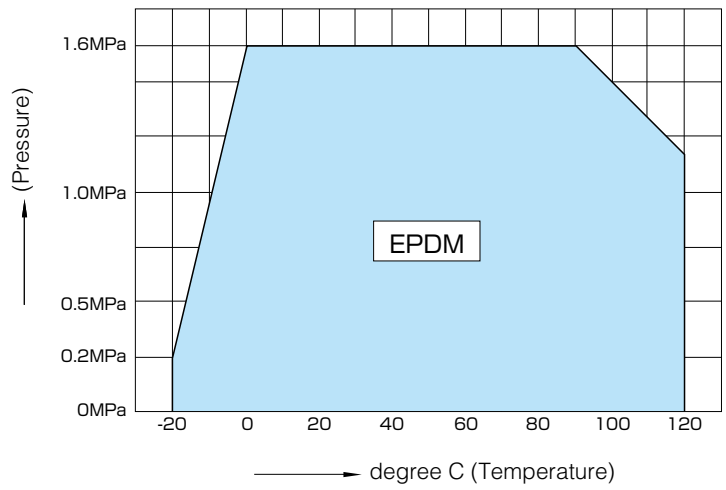
Note) The ★ indicates recommended spare parts. They are supplied as a "Seat ring set".

731R Actuator selection chart

Type	Model	Category	Size (mm / inch)				
			350	400	450	500	600
			14	16	18	20	24
Worm Gear	2U, 2H	Standard	2 U-5	2H *			

* The gear size of 400 and 450 is different from that of 500 and 600.

731R Pressure – temperature rating

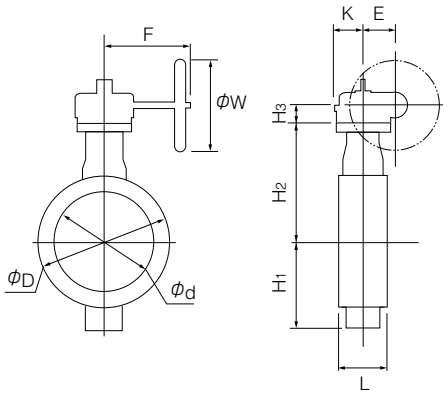


731R

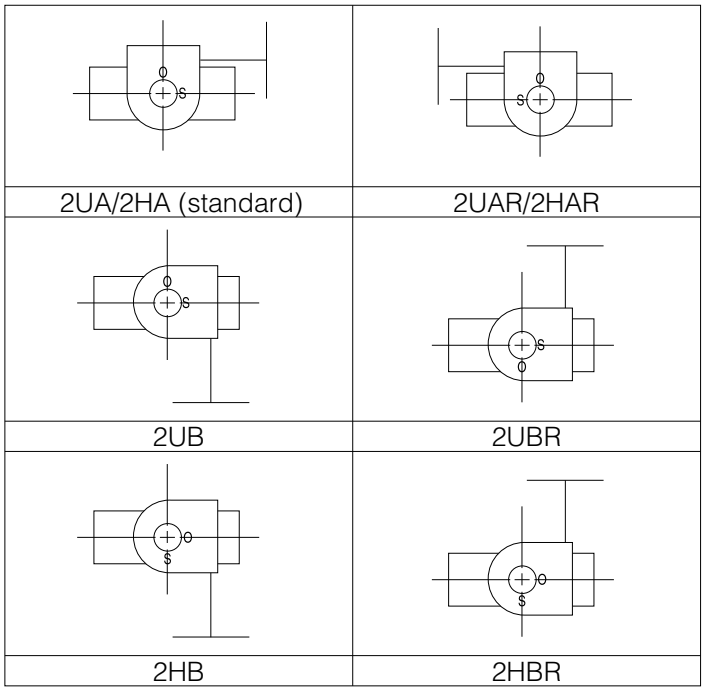
Worm gear type 731R-2U, 2H (350mm to 600mm)

Nominalsize		Dimension (mm)										Gear type	Approx. mass (kg)
mm	inch	ϕd	ϕD	L	H_1	H_2	H_3	E	K	F	W		
350	14	337	410	78	276	348	50	90	105	266	280	2U-5	66
400	16	394	467	102	338	383	48	105	110	311	300	2H	98
450	18	441	525	114	368	413	48	105	110	316	350	2H	124
500	20	492	580	127	403	453	56	53	111	328	400	2H	158
600	24	584	682	154	458	528	56	53	111	328	400	2H	222

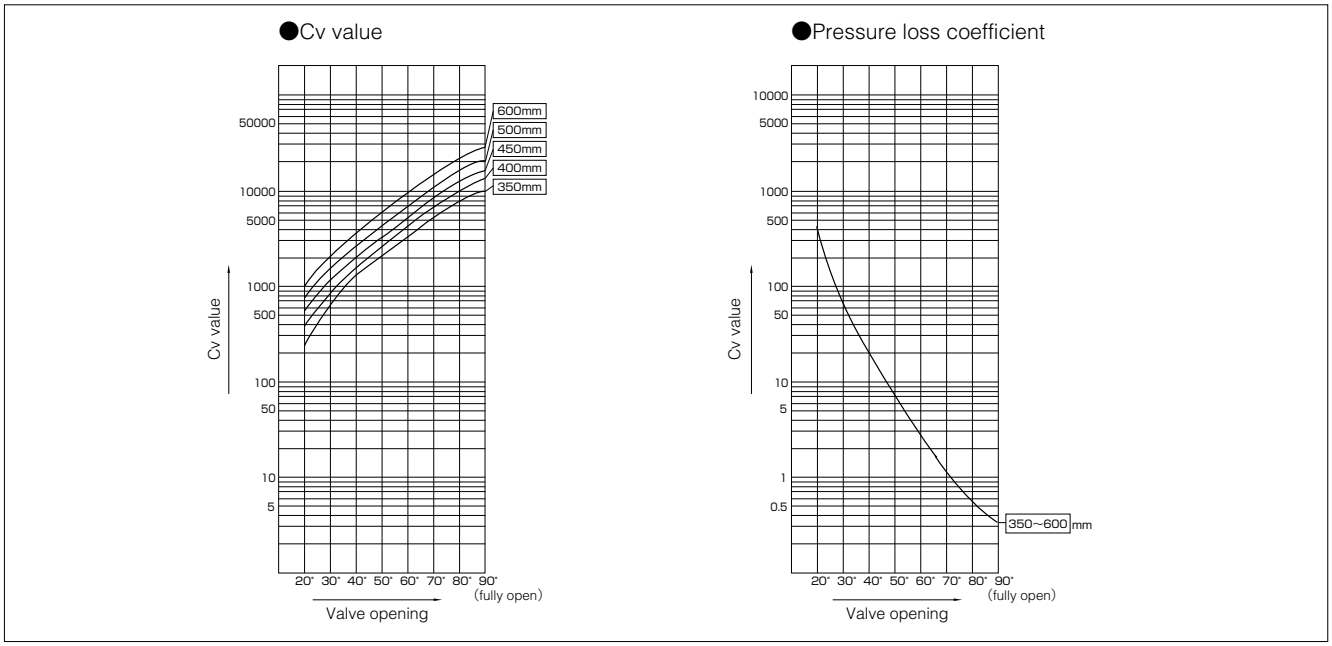
■731R-2U • 2H



■2U/2H Installation direction



731R Cv value/Pressure loss coefficient



731R Cv value

Nominal size		Valve opening							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
350	14	232	662	1350	2030	3294	5167	7832	9620
400	16	468	964	1648	2724	4529	6815	10553	12700
450	18	583	1202	2068	3448	5692	8384	13116	15500
500	20	758	1555	2656	4379	7214	10845	17100	19800
600	24	1037	2141	3681	6129	10106	14911	22827	27300

731R Pressure loss coefficient

Nominal size		Valve opening							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
350	14	531	65	16	7	3	1	0.4	0.3
400	16	227	54	18	7	2	1	0.4	0.3
450	18	239	56	19	7	3	1	0.4	0.3
500	20	218	52	18	7	2	1	0.4	0.3
600	24	247	58	20	7	3	1	1	0.3

731R Flange accommodation

Nominal size		JIS	ASME
mm	inch	16K	Class 150
350	14	D	D
400	16	D	D
450	18	D	D
500	20	D	D
600	24	T	T

D: With flange drilling
T: With flange tapping

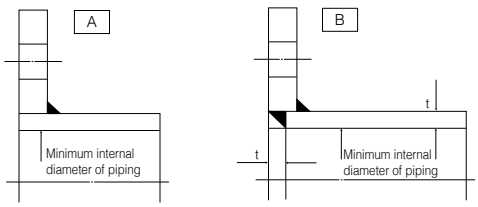
731R Applicable pipe list in case of A

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S	Minimum internal diameter of piping (mm)
mm	inch							
350	14	○	○	○	○	—	—	330
400	16	○	○	○	○	—	—	381
450	18	○	○	○	○	—	—	427
500	20	○	○	○	○	—	—	477
600	24	—	○	○	○	—	—	567

731R Applicable pipe list in case of B

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S
mm	inch						
350	14	○	○	○	○	—	—
400	16	○	○	○	○	—	—
450	18	○	○	○	○	—	—
500	20	○	○	○	○	—	—
600	24	—	○	○	○	—	—

Note 1) ○ = Applicable, - = No standard
Note 2) Butterfly valves are inserted into a pipe that has been fitted with the disc fully open. It is still possible to use a pipe or a flange that is less than the minimum inner pipe diameter, with extra adaptation, such as insertion of a spacer between the valve and the flange. For details, please consult our sales office.



731R Piping bolt and nut sizes

■Hexagon bolts and nuts

Nominal size		JIS 16K	
mm	inch	Hexagon bolt and nuts	Setting bolts
350	14	16-M30(P3)×180	—
400	16	16-M30(P3)×215	—
450	18	20-M30(P3)×230	—
500	20	20-M30(P3)×245	—
600	24	20-M36(P3)×285	8-M36(P3)×85

■Long bolts and nuts

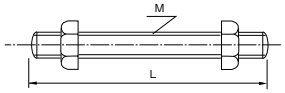
Nominal size		JIS 16K	
mm	inch	Long bolt and nuts	Setting bolts
350	14	16-M30(P3)×225	—
400	16	16-M30(P3)×260	—
450	18	20-M30(P3)×280	—
500	20	20-M30(P3)×295	—
600	24	20-M36(P3)×340	8-M36(P3)×85

Examples

Setting bolts: 12 - M22 × 185 × 45
(N, M, L, S)

Long bolts: (Hexagon bolts) 4 - M30 × 95 × 65
(N, M, L, S)

Long bolts and nuts (full thread)



Setting bolts (Hexagon bolts)