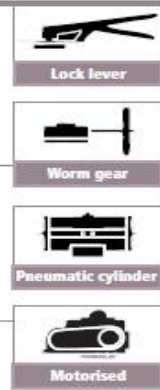
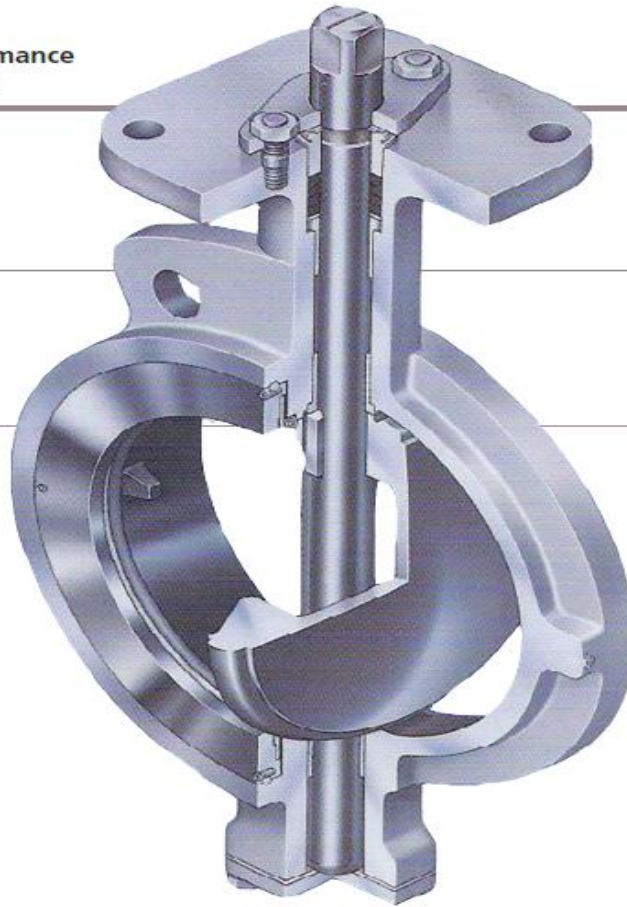


Double offset metal seat high performance butterfly valves to suit API standards

302A

303Q



## Features and benefits

### Fire safe design

Designed as an inherently fire safe metal seated butterfly valve. Certified to Fire Safe Test as per API 607 4th Edition.

### Bi-directional flow

Workable in both directions. The valve can be used at the non-preferred direction subject to pressure rating and the leakage rate.

### Disc with reinforced rib

Discs up to 300mm have a thin cross section but feature a reinforcing rib. As for 350mm to 600mm, the disc rib has a convex figuration. These designs successfully reduce thermal expansion and provide a constant sealing performance against any change in temperature or pressure of the fluid.

### Double offset geometry

The axis of disc rotation is double offset to the seat ring. When the disc rotates, it unseats at a small turning angle by its cam effect. This prevents seat wear and provides reliable sealing performance over long periods.

### Metal Seat

The resilient metal seat ring with coil spring compensates for thermal expansion or contraction of the body or disc. The ball lock method is adopted to facilitate replacement of the seat ring.

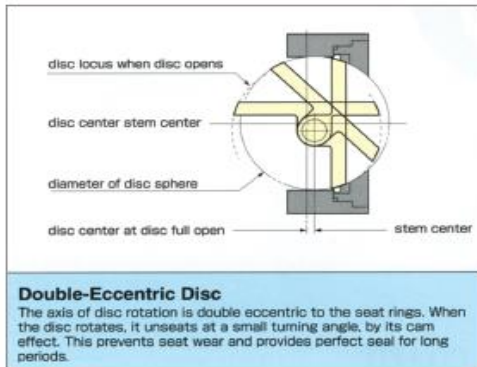
### Improved reliability

By minimising the effect of friction and the special hard facing of the seating, the reliability of this metal seat butterfly valve is dramatically improved. The key connection of the disc and stem will prevent the direct effect of heat transaction from the stem to the disc as well as provide an anti-blow-out facility on the stem.

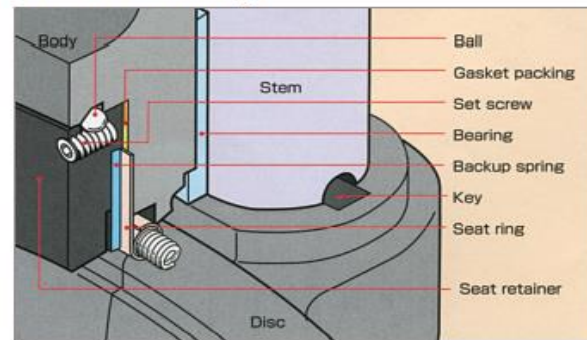
# 302A 303Q

## General Description

Inherent fire safe design with carbon steel or stainless steel body with ASME/ANSI B16.34 Class 150# rating and API 609 pressure temperature rating. Ideal for use in general hydrocarbon, chemical process, low pressure steam and gas applications.



## Fire Safe Seat Design



## Standard Specification

Valve nominal size #1	80, 100, 125, 150, 200, 250, 300mm							350, 400, 450, 500, 600mm						
Applicable flange standard	JIS 10K/16K/20K, ANSI 125/150lb, API/JPI 150lb, BS10 Table F, BS4504, PN 10/16, DIN NP 10/16							JIS 5K/10K/16K/20K, ANSI 125/150lb, API/JPI 150lb, BS 4504 PN 10/16, DIN NP 10/16						
Face-to-face dimensions	API 609 (class 150 lb, categoryBV), JPI-7S-83 (class 150 lb)													
	Nominal size	80	100	125	150	200	250	300	350	400	450	500	600	
	Face-to-face dimensions	48	54	56	57	64	71	81	92	102	114	127	154	
* 125mm is as per JIS B 2002 (series 46) / ISO 5752 (series 20)														
Seat leakage	API 598-7th Edition													
Connection	Wafer type													
Pressure-temperature rating #2	API 609 Class 150lb Category B, ASME/ANSI B16.34 Class 150lb													
Fire safe	API 607 4th Edition													
Max. working pressure #2	2.0MPa													
Working temperature range #3	-29 to 600 degrees C (Ext. bonnet is required at 400 degrees C and over)													
Flow direction	Bi-directional flow (Flow to disc side is recommended). Flow to disc side (2.0MPa). Flow to stem side (1.0MPa).													
Pressure test	Body shell	3.1MPa (API 598 7th Edition) by hydraulic												
	Seat leak	7 bar (API 598 7th Edition) by air												
Actuators	Lock lever (80 to 150mm), Worm gear, Pneumatic cylinder, Motorised													
Standard materials #3	Body	SCPH2/W/CB, SCS 14A/CF8M					SCPH2/W/CB, SCS 13A/CF8, SCS 14A/CF8M							
	Disc	80 to 150mm	200 to 300mm				350 to 600mm							
		SCS 16A/CF3M (hard chrome plating)	SCS 14A/CF8M (hard chrome plating)				SCS 13A/CF8 (hard chrome plating), SCS 14A/CF8M (hard chrome plating)							
	Stem	SUS 420J2, SUS 329J1, SUS 316, SUS 329J4L							SUS 420J2, SUS 304, SUS 630					
	Seat ring	SUS 316L Hard facing treatment												
Coating	Silicon resin coating (Grey N7) for 200 degrees C and lower Heat resistant silver coating for over 200 degrees C. No painting for stainless steel.													
Option	Anti-static device													

#125mm as per JIS B 2002 (Series 46)/ISO 5752 (Series 20)

#1 Please use 302Y or 337Y if using a nominal valve diameter of 50mm and 65mm

#2 Refer to pressure-temperature rating chart

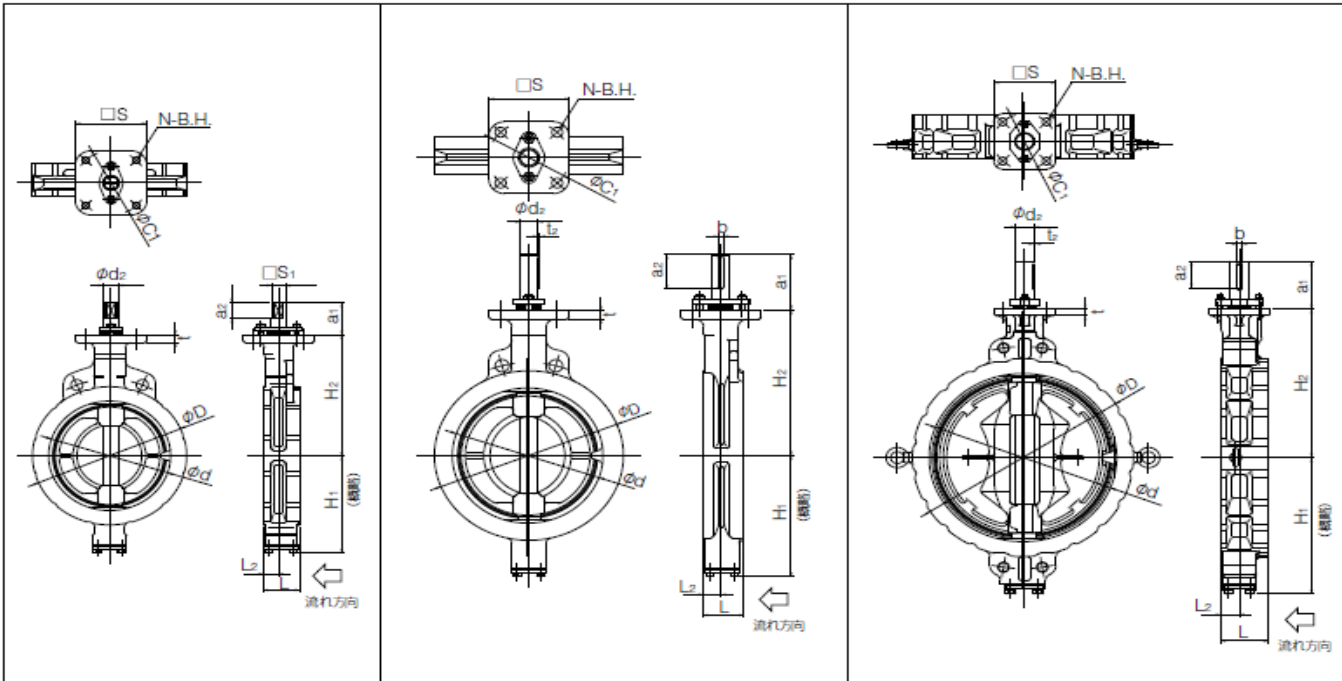
#3 Please contact us regarding special material  
Please contact us at 400 degrees C and over for oxidizing atmosphere.

## Dimension List

### 302A 80mm~200mm

### 302A 250mm~400mm

### 302A 450mm~600mm



### -29 to less than 400 degrees C

Stem shape	Nominal size		Dimension (mm)														Approx. Weight (kg)
	mm	inch	$\phi d$	$\phi 1$	L	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	$\square S_1$	$\phi d_2$	b	t <sub>2</sub>	t	ISO 5211 Top Flange	
01	80	3	89	127	48	22	95	147	52.5	16.5	14	16	-	-	15	F10	5
	100	4	112	156	54	24	110	170	52.5	16.5	14	16	-	-	15	F10	6.2
	125	5	137	185	56	23	139	185	52.5	16.5	16	20	-	-	15	F10	9.3
	150	6	163	216	57	23.5	164	205	55.5	20	18	22	-	-	15	F12	12.5
	200	8	213	269	64	27	190	235	63	30	24	28	-	-	15	F12	19
02	250	10	263	330	71	31	236	283	108	67.3	-	32	10	3	18	F14	33
	300	12	315	381	81	35	246	310	113	72.3	-	35	10	3	18	F14	42
	350	14	350	416	92	39.5	308	340	113	72	-	38	10	3	18	F14	61
	400	16	400	475	102	39	348	372	113	72	-	42	12	3.5	18	F14	88
	450	18	450	534	114	43	366	406	141.5	68	-	45	12	3.5	20	F16	135
	500	20	500	589	127	50	405	442	141.5	79	-	49	14	4	20	F16	173
	600	24	600	693	154	64	461	493	141.5	80	-	59	16	5	20	F16	272

### Top Flange Dimension

ISO 5211 Top Flange	$\square S$	$\phi C_1$	N	B.H.
F10	102	102	4	11
F12	125	125	4	13
F14	140	140	4	19
F16	165	165	4	23

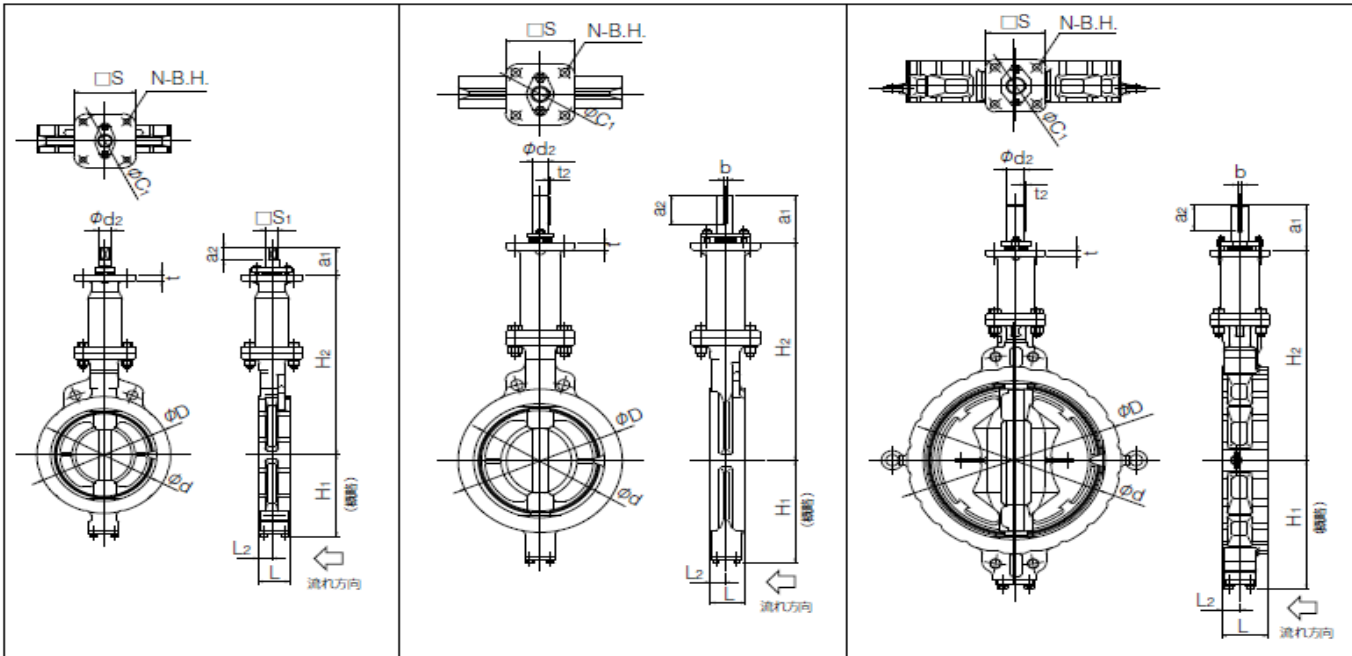
Stem shape	01 : square 02 : round with key
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## 302A Bare Shaft (01: 80mm to 200mm, 02: 250mm to 600mm)

### 302A 80mm~200mm (High-Temperature Extension Bonnets)

### 302A 250mm~400mm (High-Temperature Extension Bonnets)

### 302A 450mm~600mm (High-Temperature Extension Bonnets)



### 400 to less than 600 degrees C (High-Temperature Extension Bonnets)

Stem shape	Nominal size		Dimension (mm)													Approx. Weight (kg)	
	mm	inch	φd	φD	L	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	a <sub>1</sub>	a <sub>2</sub>	□S <sub>1</sub>	φd <sub>2</sub>	b	t <sub>2</sub>	t		ISO 5211 Top Flange
01	80	3	89	127	48	22	95	297	52.5	16.5	14	16	—	—	15	F10	10.3
	100	4	112	156	54	24	110	320	52.5	16.5	14	16	—	—	15	F10	11.5
	125	5	137	185	56	23	139	335	52.5	16.5	16	20	—	—	15	F10	14.7
	150	6	163	216	57	23.5	164	385	55.5	20	18	22	—	—	15	F12	20
	200	8	213	269	64	27	190	415	63	30	24	28	—	—	15	F12	27
02	250	10	263	330	71	31	236	503	108	67.3	—	32	10	3	18	F14	46
	300	12	315	381	81	35	246	530	113	72.3	—	35	10	3	18	F14	55
	350	14	350	416	92	39.5	308	560	113	72	—	38	10	3	18	F14	76
	400	16	400	475	102	39	348	592	113	72	—	42	12	3.5	18	F14	104
	450	18	450	534	114	43	366	626	141.5	68	—	45	12	3.5	20	F16	152
	500	20	500	589	127	50	405	662	141.5	79	—	49	14	4	20	F16	191
600	24	600	693	154	64	461	713	141.5	80	—	59	16	5	20	F16	291	

### Top Flange Dimension

ISO 5211 Top Flange	□S	φC <sub>1</sub>	N	B.H.
F10	102	102	4	11
F12	125	125	4	13
F14	140	140	4	19
F16	165	165	4	23

Stem shape	01 : square 02 : round with key
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**Worm Gear Type 302A-2U(80mm to 150m) / 302A-2S(200mm to 600mm)**

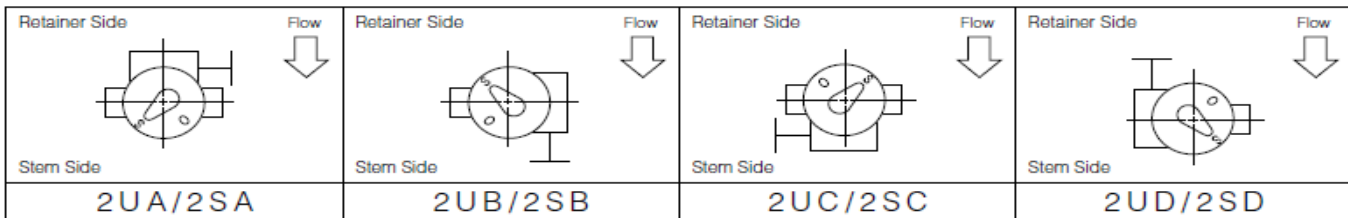
**■ -29 to less than 250 degrees C**

Nominal size		Dimension (mm)												Gear type	Approx. Weight (kg)
mm	inch	$\phi d$	$\phi D$	L	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	Category	H <sub>3</sub>	E	K	F	$\phi W$		
80	3	89	127	48	22	95	147	T <sub>10</sub> ,T <sub>20</sub>	61	44	53	173.5	160	2U-2	7.9
100	4	112	156	54	24	110	170	T <sub>10</sub> ,T <sub>20</sub>	61	44	53	173.5	160	2U-2	9.1
125	5	137	185	56	23	139	185	T <sub>10</sub> ,T <sub>20</sub>	61	44	53	173.5	160	2U-2	12.4
150	6	163	216	57	23.5	164	205	T <sub>10</sub> ,T <sub>20</sub>	77.5	87.5	90	222.5	200	2U-4	29
200	8	213	269	64	27	190	235	T <sub>10</sub> ,T <sub>20</sub>	72	85	126	246	280	DGH-2	33
250	10	263	330	71	31	236	283	T <sub>10</sub> ,T <sub>20</sub>	97	117	164	335	355	DGH-3	62
300	12	315	381	81	35	246	310	T <sub>10</sub> ,T <sub>20</sub>	97	117	164	335	355	DGH-3	72
350	14	350	416	92	39.5	308	340	A,B,C	97	117	164	335	355	DGH-3	99
400	16	400	475	102	39	348	372	A	97	117	164	335	355	DGH-3	124
								B,C	215	140	198	402	450	DGH-4	162
450	18	450	534	114	43	366	406	A,B	127	140	198	402	450	DGH-4	198
								C	127	140	198	432	355	DGH-4+R/G5	200
500	20	500	589	127	50	405	442	A	127	140	198	402	450	DGH-4	236
								B,C	127	140	198	432	355	DGH-4+R/G5	238
600	24	600	693	154	64	461	493	A	127	140	198	432	355	DGH-4+R/G5	338
								B,C	245	185	264	497	355	DGH-4.5+R/G5	413

**■ 250 to less than 400 degrees C**

Nominal size		Dimension (mm)												Gear type	Approx. Weight (kg)
mm	inch	$\phi d$	$\phi D$	L	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	Category	H <sub>3</sub>	E	K	F	$\phi W$		
80	3	89	127	48	22	95	147	T <sub>10</sub> ,T <sub>20</sub>	134.5	44	53	173.5	160	2U-2	10.5
100	4	112	156	54	24	110	170	T <sub>10</sub> ,T <sub>20</sub>	134.5	44	53	173.5	160	2U-2	11.7
125	5	137	185	56	23	139	185	T <sub>10</sub> ,T <sub>20</sub>	134.5	44	53	173.5	160	2U-2	17.2
150	6	163	216	57	23.5	164	205	T <sub>10</sub> ,T <sub>20</sub>	223	87.5	90	222.5	200	2U-4	35
200	8	213	269	64	27	190	235	T <sub>10</sub> ,T <sub>20</sub>	217	85	126	246	280	DGH-2	39
250	10	263	330	71	31	236	283	T <sub>10</sub> ,T <sub>20</sub>	205	117	164	335	355	DGH-3	75
300	12	315	381	81	35	246	310	T <sub>10</sub> ,T <sub>20</sub>	205	117	164	335	355	DGH-3	85
350	14	350	416	92	39.5	308	340	A, B	205	117	164	335	355	DGH-3	108
400	16	400	475	102	39	348	372	A	205	117	164	335	355	DGH-3	134
								B	215	140	198	402	450	DGH-4	162
450	18	450	534	114	43	366	406	A, B	245	140	198	402	450	DGH-4	212
500	20	500	589	127	50	405	442	A	245	140	198	402	450	DGH-4	250
								B	245	140	198	432	355	DGH-4+R/G5	252
600	24	600	693	154	64	461	493	A	245	140	198	432	355	DGH-4+R/G5	351
								B	245	185	264	497	355	DGH-4.5+R/G5	413

**■ 2U/2S Installation Direction**

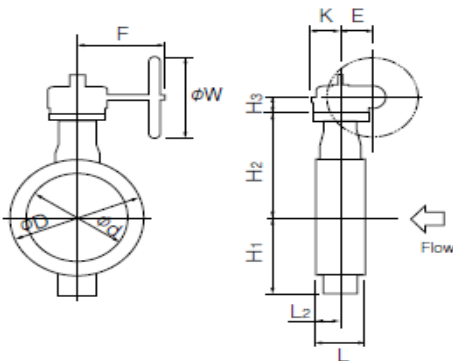


**Worm Gear Type 302A-2U(80mm to 150m) / 302A-2S(200mm to 600mm)**

**400 to 600 degrees C**

Nominal size		Dimension (mm)												Gear type	Approx. Weight (kg)
mm	inch	$\phi d$	$\phi D$	L	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	Category	H <sub>3</sub>	E	K	F	$\phi W$		
80	3	89	127	48	22	95	297	T <sub>10</sub>	134.5	44	53	173.5	160	2U-2	16
100	4	112	156	54	24	110	320	T <sub>10</sub>	134.5	44	53	173.5	160	2U-2	17.2
125	5	137	185	56	23	139	335	T <sub>10</sub>	134.5	44	53	173.5	160	2U-2	22.7
150	6	163	216	57	23.5	164	385	T <sub>10</sub>	223	87.5	90	222.5	200	2U-4	42.5
200	8	213	269	64	27	190	415	T <sub>10</sub>	217	85	126	246	280	DGH-2	47
250	10	263	330	71	31	236	503	T <sub>10</sub>	205	117	164	335	355	DGH-3	88
300	12	315	381	81	35	246	530	T <sub>10</sub>	205	117	164	335	355	DGH-3	98
350	14	350	416	92	39.5	308	560	B	205	117	164	335	355	DGH-3	124
400	16	400	475	102	39	348	592	B	215	140	198	402	450	DGH-4	178
450	18	450	534	114	43	366	626	B	245	140	198	402	450	DGH-4	228
500	20	500	589	127	50	405	662	B	245	140	198	432	355	DGH-4+R/G5	270
600	24	600	693	154	64	461	713	B	245	185	264	497	355	DGH-4.5+R/G5	432

**302A-2U/2S**



**302A-2U/2S Actuator Mounting Finish by Temperature**

Body	Temp.range	Temp.range		Temp.range	Body	Temp.range	Temp.range	
		-29 to less than 250 degrees C	250 to less than 400 degrees C				400 to 600 degrees C	-29 to less than 400 degrees C
80mm to 300mm	SCS14A SCPH2	SCS14A	SCS14A	SCS14A	400mm (DGH-4) 600mm (DGH-4.5+R/G5)	SCS13A SCPH2	SCS13A	SCS13A