

Addition of new cylinders with stroke adjuster on retraction side to 70/140H-8 Series

- 32 to 160 mm bore hydraulic cylinders for 7/14 MPa with stroke adjuster on retraction side.
- Fine adjustments can be made to stroke by changing the depth of screwing of the stroke adjusting rod.
- The drop prevention mechanism has been adopted as a safety measure for the adjusting rod.
- Two kinds of stroke adjustment allowance, 5 mm and 10 mm, are available.
- After adjustment, the cushion stroke is identical to or more than that of the standard 70/140H-8 cylinders.
- The sensors, rod end attachments and boots are the same as those of 70/140H-8.



Standard Specifications

Type	General purpose type	
	7 MPa	14 MPa
Nominal pressure	7 MPa	14 MPa
Maximum allowable pressure	Cap side : 9 MPa Rod side : (B) 13.5 MPa (C) 11 MPa	Cap side : 18 MPa Rod side : (B) 18 MPa (C) 14 MPa
	Proof test pressure	10.5 MPa
Minimum operating pressure	Cap side : 0.3 MPa or less Rod side : (B) 0.45 MPa or less (C) 0.4 MPa or less	
	Working speed range	$\phi 32$ to $\phi 63$: 8 to 400mm/s $\phi 80$ to $\phi 125$: 8 to 300mm/s $\phi 140$ to $\phi 160$: 8 to 200mm/s
Working temperature range (ambient temperature)	Standard type -10 to +80°C	
	Switch Set AX type -10 to +70°C	
Structure of cushioning	WR/WS type -10 to +60°C (No freezing)	
	Metal fitting system	
Adaptable fluid	Petroleum-based fluid	
	(When using another fluid, refer to the table of fluid adaptability.)	
Tolerance for thread	JIS 6g/6H	
Tolerance of stroke	0 to 100 mm $^{+0.8}_0$ 101 to 250 mm $^{+1.0}_0$ 251 to 630 mm $^{+1.25}_0$	
	631 to 1000 mm $^{+1.4}_0$ 1001 to 1600 mm $^{+1.6}_0$ 1601 to 2000 mm $^{+1.8}_0$	
Mounting style	SD · LA · LB · FA · FC ·	SD · LA · FC ·
	FK · FY · TA · TC	FK · TA · TC
Accessories	• Rod eye (T-end), rod eye with spherical bearing (S-end)	
	• Rod clevis (Y-end) with pin, lock nut	
	• Floating joint (F-end): Only for 7-MPa type	
• Boots: Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex		

Terminologies

Nominal pressure
Pressure given to a cylinder for convenience of naming. It is not always the same as the working pressure (rated pressure) that guarantees performance under the specified conditions.

Maximum allowable pressure
The maximum allowable pressure generated in a cylinder (surge pressure, etc.)

Proof test pressure
Test pressure against which a cylinder can withstand without unreliable performance at the return to nominal pressure.

Minimum operating pressure
The minimum pressure that a cylinder placed horizontally without a load can work.

- Notes**
- The hydraulic pressure generated in a cylinder due to the inertia of load must be lower than the maximum allowable pressure.
 - The working temperature range depends on the seal material. For details, refer to the selection materials at the beginning of this catalog.
 - The standard type cylinders can be used up to the working temperature range shown in the selection materials by using seal material ⑥, HNBR.
 - In case that the lock nut is attached to the piston rod end thread part, increase the thread length (dimension A).
 - Conex, material of the boots, is the registered trademark of Teijin Limited.

Product Lineup

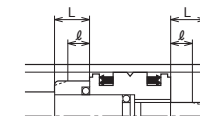
Unit: mm

Series Variations	Type	Rod dia.	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$	$\phi 140$	$\phi 150$	$\phi 160$
General purpose type	Double acting single rod	Standard type 70/140H-8A2	Rod B	●	●	●	●	●	●	●	●	●
			Rod C	●	●	●	●	●	●	●	●	●
	Switch Set 70/140H-8A2	Rod B	●	●	●	●	●	●	●	●	●	●
		Rod C	●	●	●	●	●	●	●	●	●	●

- Notes**
- When using a sensor, use a Switch Set Cylinder.
 - No sensor can be mounted onto the standard type cylinder.

Cushion Stroke on Rod Side

Bore	Cushion ring length L	Cushion ring parallel part length l
$\phi 32$	25	7
$\phi 40$ to $\phi 63$	25	7
$\phi 80$ to $\phi 125$	25	8
$\phi 140$ to $\phi 160$	30	12

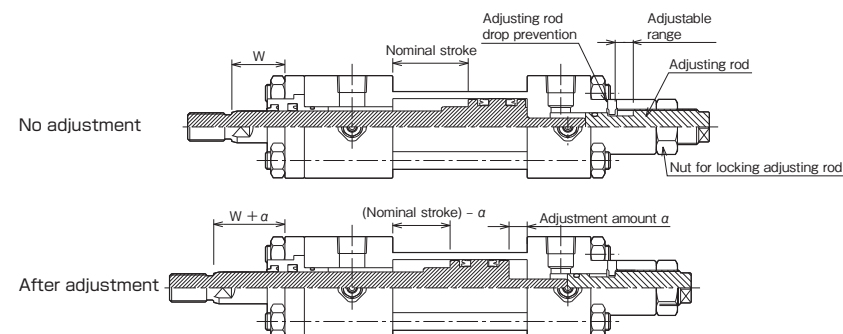


Cushion Stroke on Cap Side

Bore	Adjustment allowance of 5 mm		Adjustment allowance of 10 mm	
	Cushion ring length L	Cushion ring parallel part length l	Cushion ring length L	Cushion ring parallel part length l
$\phi 32$	28	12	33	17
$\phi 40$ to $\phi 63$	30	12	35	17
$\phi 80$ to $\phi 125$	30	13	35	18
$\phi 140$ to $\phi 160$	35	17	40	22

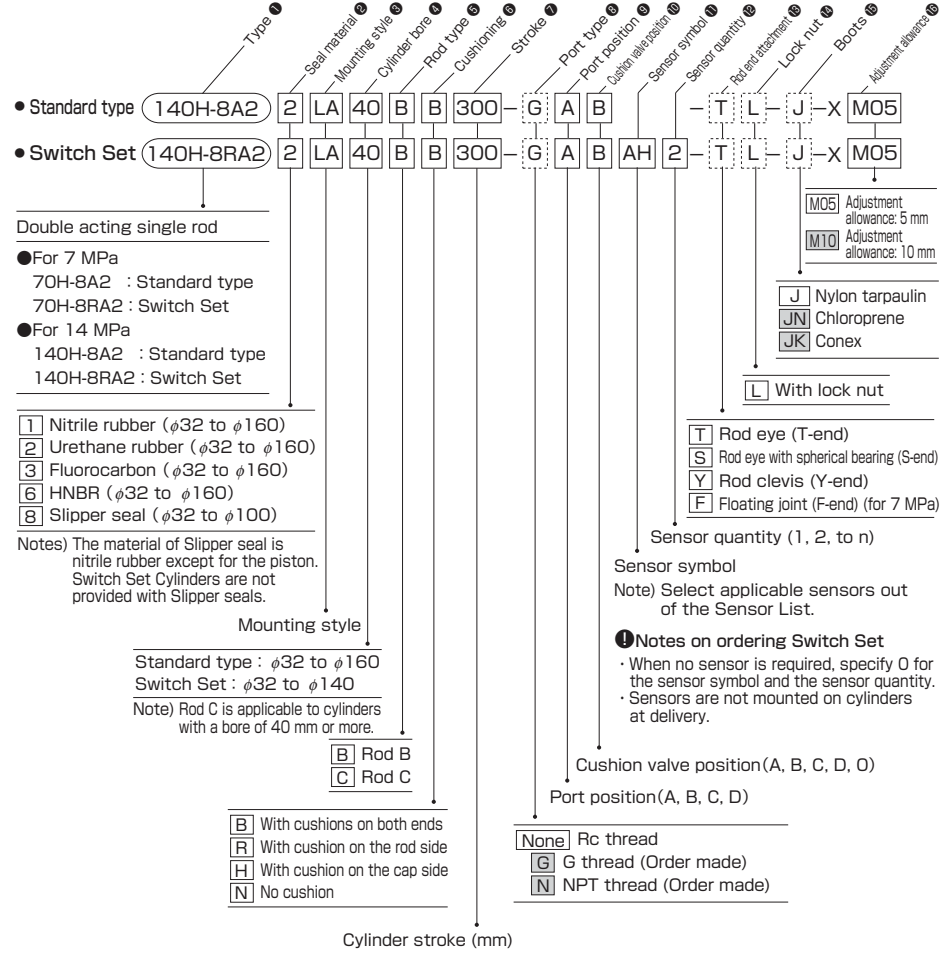
Note) These cushion strokes on the cap side are obtained when the stroke adjustment amount is 0 mm. The cushion strokes will be reduced by the actual stroke adjustment allowance.

Image of Adjustment Structure

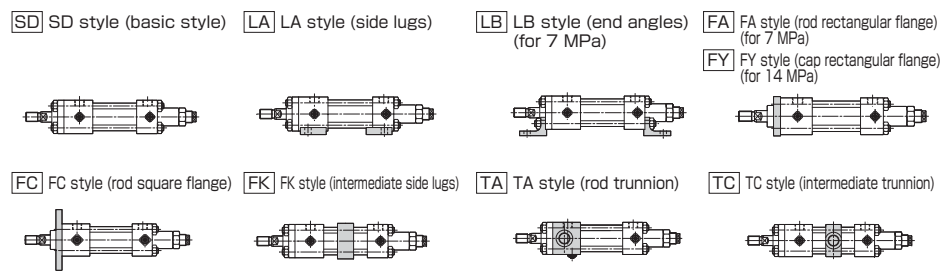


How to order

General Purpose Type



Mounting style

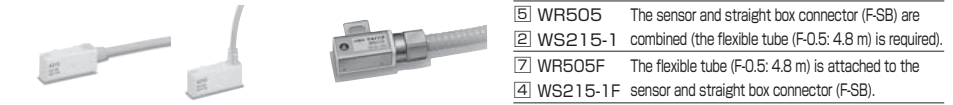


Sensor List

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load
Reed sensor	AF AX101CE				None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	1.5m	Small relay, programmable controller
	AG AX105CE	DC:5 to 30V	DC:5 to 40mA	DC:1.5W AC:2VA	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	AH AX111CE	AC:5 to 120V	AC:5 to 20mA			LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	1.5m	
	AJ AX115CE					LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	AE AX125CE	DC:30 V or less AC:120 V or less	DC:40 mA or less AC:20 mA or less		None	None		5m	
	AK AX11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, Rear wiring	0.5m	
	AL AX11BCE	DC:5 to 30V	5 to 40mA	1.5W		LED (Lights in red when sensing)	4-pin connector type, Rear wiring	0.5m	
	AP AZ101CE				None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1.5m	
	AR AZ105CE	DC:5 to 30V	DC:5 to 40mA	DC:1.5W AC:2VA	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m	
	AS AZ111CE	AC:5 to 120V	AC:5 to 20mA			LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1.5m	
	AT AZ115CE					LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m	
	AN AZ125CE	DC:30 V or less AC:120 V or less	DC:40 mA or less AC:20 mA or less		None	None		5m	
Solid state sensor	AU AZ11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, Upper wiring	0.5m	Small relay, programmable controller
	AW AZ11BCE	DC:5 to 30V	5 to 40mA	1.5W		LED (Lights in red when sensing)	4-pin connector type, Upper wiring	0.5m	
	5 WR505	DC:5 to 50V	DC:3 to 40mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	7 WR505F	AC:5 to 120V	AC:3 to 20mA			LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	6 WR515					LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	AM AX135CE	AC/DC:90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m	
	AY AZ135CE					LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m	
	S SR405	AC:80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights when not sensing)	0.5 mm ² , 2-core, outer dia. ϕ 6 mm, Rear wiring	5m	
	BE AX201CE-1					LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	1.5m	
	BF AX205CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	CE AX211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	1.5m	
	CF AX215CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
CH AX21CCE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	0.5m		
CJ AX21DCE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1m		
BM AZ201CE-1					LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1.5m		
BN AZ205CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m		
CM AZ211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1.5m		
CN AZ215CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m		
Cutting oil proof type	RA AX205WCE		5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm, Rear wiring	5m	Small relay, programmable controller
	RB AZ205WCE	DC:10 to 30V	5 to 20mA			LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm, Upper wiring	5m	
	RE AX215WCE					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm, Rear wiring	5m	
	RF AZ215WCE					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm, Upper wiring	5m	
Solid state sensor	2 WS215-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	Small relay, programmable controller
	4 WS215-1F	DC:10 to 30V	6 to 20mA	—	Provided	LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	3 WS225-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
Solid state sensor (conforming to CE)	CT AX211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	1.5m	Small relay, programmable controller
	CU AX215CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Rear wiring	5m	
	CV AX21BCE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (2-LED type in red/green)	4-pin connector type, Rear wiring	0.5m	
	CW AZ211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	1.5m	
	CX AZ215CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. ϕ 4 mm Upper wiring	5m	
	CY AZ21BCE-1					LED (2-LED type in red/green)	4-pin connector type, Upper wiring	0.5m	
						LED (2-LED type in red/green)	4-pin connector type, Upper wiring	0.5m	

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
 ● The output logic of AX and AZ135CE is B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
 ● For the details of sensors, be sure to read the sensor specifications at the end of this catalog.
 ● WR and WS type sensors are cutting oil proof. (Bores from 32 mm to 125 mm)
 ● Sensor SR405 can be mounted only to cylinders with bores from 32 mm to 125 mm.
 ● We recommend AND Unit (AU series) for multiple sensors connected in series.
 For details, refer to AND Unit at the end of this catalog.

- Standard type
 - AX type (Rear wiring)
 - AZ type (Upper wiring)
- Cutting oil proof type
 - WR/WS type sensor
- When ordering the cutting oil proof type sensors, WR and WS types, please be carefully the following notification.

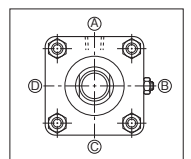


Standard Stroke Range

Bore	Standard type	Switch Set
φ32 to φ50	1200	1200
φ63 · φ80	1600	1600
φ100 to φ140	2000	2000
φ150 · φ160	2000	—

• The above strokes indicate the maximum available strokes for the standard type. For the rod buckling, check with the buckling chart in the selection materials. Contact us for longer strokes.

★ Standard specifications



- With cushions on both ends
- Port position A, cushion valve position ①

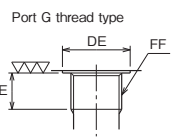
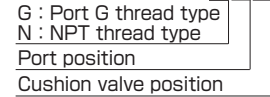
★ Semi-standard range

- With boots
- Magnetic proximity sensors, WR and WS types
- Change in TC accessory position (dimensional symbol: PH)
- Change in dimension PN of the FK style
- Plated cylinder tube (hard chrome plating thickness: 0.02 mm)
- Change in piston rod end (dimensional symbol: W, A, KK) Refer to the pages of 70/140H-8 Series.

★ Port G thread type (conforming to ISO1179-1) and NPT thread type (Order made)

For a port G thread type cylinder, make an order in accordance with the following procedure.

(Example)
70H-8A2 2LA50BB100-G A B-XM05



Adaptability of Fluid to Seal Material

Seal material	Adaptable fluid				
	Petroleum-based fluid	Water-glycol fluid	Phosphate ester fluid	Water in oil fluid	Water in oil fluid
① Nitrile rubber	○	○	×	○	○
② Urethane rubber	◎	×	×	△	△
③ Fluorocarbon	○	×	○	○	○
⑥ HNBR	○	◎	×	◎	◎

Notes) 1. ◎○: Applicable ×: Inapplicable Consult us before using the △-marked items.
2. The ◎-marked items are recommended seal materials in case of giving the first priority to abrasion resistance.

Cutting Oil Proof Type: Adaptability of cutting oil to seal material

Seal material	Nonaqueous cutting oil		Aqueous cutting oil
	Type 1	Type 2	
⑥ HNBR	○	×	○

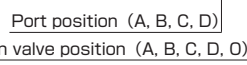
Note) ○: Applicable ×: Inapplicable

For the working temperature range of seal materials, refer to the selection materials at the beginning of this catalog.

★ Change of port and cushion valve positions

The standard port position is A, and the standard cushion valve position is ①. When modifying the positions, enter the symbol shown in the dimensional drawings.

Example)
70H-8A2 2SD80BB100-B C AH2-XM05



- For the TA style, the standard port position and cushion valve position are A and C on the rod side and A and ① on the cap side.
- In case that the cushion is not equipped, the cushion valve position is "O".

★ Delivery of rod end attachment (T-end or Y-end)

A delivery method for a cylinder provided with a lock nut and a rod end attachment differs from that for a cylinder provided with a rod end attachment only (without a lock nut). For details, refer to the dimensional drawings of rod end attachments for 70/140H-8 Series.

Thread Dimension Table

Bore	G thread			NPT thread
	AE	DE	FF	
φ32	12	φ25.5	G3/8	NPT3/8
φ40	12	φ25.5	G3/8	NPT3/8
φ50	14	φ30	G1/2	NPT1/2
φ63	14	φ30	G1/2	NPT1/2
φ80	16	φ36.9	G3/4	NPT3/4
φ100	16	φ36.9	G3/4	NPT3/4
φ125	18	φ46.1	G1	NPT1
φ140	18	φ46.1	G1	NPT1
φ150	18	φ46.1	G1	NPT1
φ160	18	φ46.1	G1	NPT1

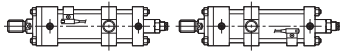
Sensor Mountable Minimum Stroke

Unit: mm

Bore mm	Mounting style	Styles other than TC						TC style					
		With one sensor			With two sensors			With one sensor			With two sensors		
		AX type	WR type	WS type	AX type	WR type	WS type	AX type	WR type	WS type	AX type	WR type	WS type
φ32	20	45 (35)	25	45 (35)	50	70 (60) / 75 (65)	110	155 (135) / 165 (145)					
φ40	20	45 (35)	25	45 (35)	50	70 (60) / 75 (65)	115	155 (135) / 165 (145)					
φ50	20	40 (30) / 45 (35)	25	40 (30) / 45 (35)	50	70 (60) / 75 (65)	115	155 (135) / 165 (145)					
φ63	20	40 (30)	25	40 (30)	60	85 (75)	125	170 (150) / 175 (155)					
φ80	20	40 (30)	25	40 (30)	60	85 (75)	130	170 (150) / 175 (155)					
φ100	20	35 (25) / 40 (30)	25	35 (25) / 40 (30)	65	85 (75) / 95 (85)	135	175 (150) / 190 (170)					
φ125	20	35 (25) / 40 (25)	25	35 (25) / 40 (25)	70	90 (80) / 95 (85)	150	185 (160) / 195 (170)					
φ140	20	—	25	—	95	—	175	—					

Notes)

- For the TC style with one sensor, the cylinder strokes when the TC accessory is positioned at the place other than the center (as shown in the right figures) are shown in the table.
- For the minimum dimension PH of TC style for mounting sensor, refer to the dimensional drawings of TC style.
- The parenthesized values in the WR and WS type columns are the minimum strokes in case of WR515 or WS225.



Weight Table

Unit: kg

Bore (mm)	Rod dia.	Basic weight (SD style)	Additional weight per mm of stroke	Mounting accessory weight								Rod end attachment weight					Sensor additional weight
				LA	LB	FA	FC	FK	FY	TA	TC	Rod eye (T-end)	Rod eye (S-end)	Rod clevis (Y-end)	Floating joint (F-end)	Lock nut	
φ32	B	3.5	0.006	0.3	0.3	0.1	0.6	1.1	0.2	0.1	0.5	0.5	—	0.7	—	0.02	AX type
φ40	B	3.8	0.011	0.5	0.5	0.2	0.7	1.2	0.3	0.1	0.6	0.5	0.7	0.7	0.39	0.03	(Cord length 1.5 m)
	C	3.7	0.010										0.7	0.7	0.75	0.02	φ32 to φ50 : 0.05
φ50	B	5.4	0.014	0.9	0.7	0.7	1.5	2.2	1.1	0.4	1.0	1.0	1.1	1.2	0.39	0.05	φ63 to φ100 : 0.07
	C	5.3	0.012										1.2	1.2	1.41	0.03	φ125-φ140 : 0.09
φ63	B	8.6	0.019	1.0	1.2	1.0	2.2	3.6	1.6	0.6	1.2	2.7	2.1	3.9	0.75	0.11	(Cord length 5 m)
	C	8.3	0.017										2.3	2.68	0.05	φ32 to φ50 : 0.13	
φ80	B	17.1	0.032	1.8	2.0	1.1	2.8	4.7	2.1	0.6	2.1	2.2	3.2	3.7	1.41	0.24	φ63:0.14
	C	16.4	0.027										3.6	2.68	0.11	φ80-φ100:0.15	
φ100	B	30.3	0.048	2.1	2.9	1.8	4.6	8.9	3.9	1.0	3.8	4.2	6.7	7.7	—	0.52	φ125-φ140:0.16
	C	29.2	0.042										7.3	7.7	—	0.24	(Connector type)
φ125	B	50.2	0.077	3.2	5.5	2.9	8.0	12.6	6.2	2.1	6.2	8.0	12.4	—	1.10	—	φ32 to φ50 : 0.04
	C	49.8	0.065										13.7	14.6	—	0.52	φ63 to φ100 : 0.07
φ140	B	69.6	0.100	3.8	7.7	3.2	9.2	20.4	8.2	4.1	11.1	19.0	—	—	1.44	—	φ125 : 0.07
	C	66.0	0.085										—	—	0.77	—	φ140 : 0.08
φ150	B	81.2	0.118	4.8	9.6	4.9	16.6	22.9	10.7	4.6	10.9	18.9	—	—	1.65	—	SR type
	C	79.5	0.101										—	—	0.94	—	φ32 to φ140 : 0.22
φ160	B	99.0	0.121	5.4	10.0	5.3	19.0	31.2	11.3	5.2	14.8	22.7	—	—	1.93	—	WR/WS type
	C	94.6	0.102										—	—	1.10	—	φ32 to φ140 : 0.5

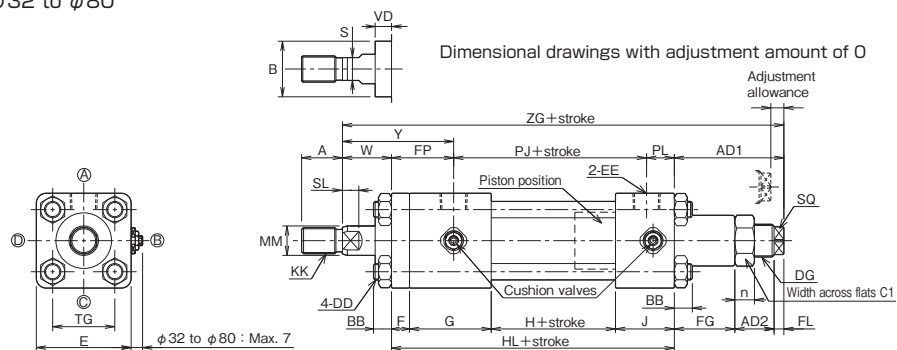
Calculation formula) Cylinder weight (kg) = basic weight + (cylinder stroke (mm) × additional weight per mm of stroke) + (sensor additional weight × sensor quantity) + mounting accessory weight + rod end attachment weight

Calculation example) 70H-8A2, bore φ50, rod B, cylinder stroke 200 mm, 2 pcs of AX215, LA style
5.4 + (200 × 0.014) + (0.13 × 2) + 0.9 = 9.36kg

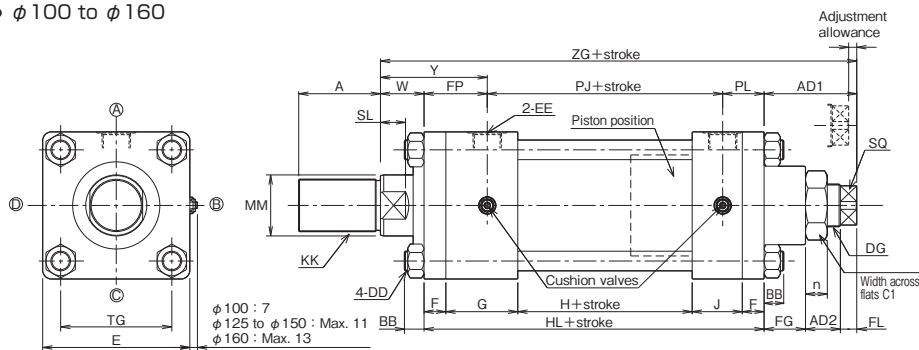
SD

70H-8A2	1	SD	Bore	B	B	Stroke	-	A	B	-	X	M05
140H-8A2	1	SD	Bore	B	B	Stroke	-	A	B	-	X	M05

- φ32 to φ80



- φ100 to φ160



- For the dimensions of the sensors, refer to the catalog of 70/140H-8 Series.

Dimensional Table

Bore	Rod B							Rod C							BB	DD	E	EE	F
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD					
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	11	M10×1.25	□58	Rc3/8	11
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	11	M10×1.25	□65	Rc3/8	11
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	11	M10×1.25	□76	Rc1/2	13
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	13	M12×1.5	□90	Rc1/2	15
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	16	M16×1.5	□110	Rc3/4	18
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	18	M18×1.5	□135	Rc3/4	20
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	21	M22×1.5	□165	Rc1	24
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	22	M24×1.5	□185	Rc1	26
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	25	M27×1.5	□196	Rc1	28
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	25	M27×1.5	□210	Rc1	31

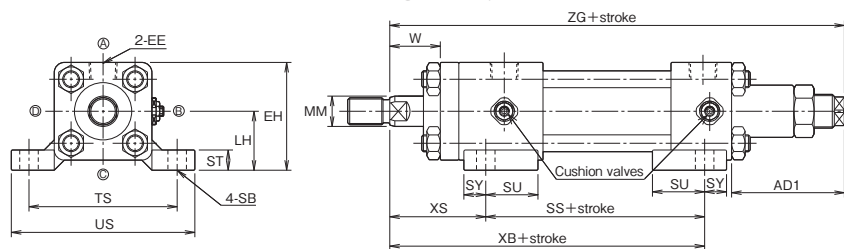
Bore	FP	G	H	HL	J	PJ	PL	TG	W	Y	Adjustment allowance 5 mm			Adjustment allowance 10 mm			C1	DG	FG	FL	n	SQ
											AD1	AD2	ZG	AD1	AD2	ZG						
φ32	38	50	44	141	36	86	17	□38	30	68	62	19	233	67	24	238	27	M20×1.5	37	6	12	□13
φ40	38	50	44	141	36	88	15	□45	30	68	64	19	235	69	24	240	27	M20×1.5	39	6	12	□13
φ50	42	54	48	155	40	93	20	□52	30	72	60	19	245	65	24	250	27	M20×1.5	35	6	12	□13
φ63	46	56	52	163	40	102	15	□63	35	81	77	21	275	82	26	280	32	M24×1.5	50	6	14	□17
φ80	56	66	54	184	46	110	18	□80	35	91	81	24	300	86	29	305	41	M30×1.5	51	6	17	□22
φ100	58	66	60	212	46	116	38	□102	40	98	80	27	332	85	32	337	55	M39×1.5	38	15	20	□30
φ125	67	76	64	244	56	130	47	□122	45	112	81	33	370	86	38	375	70	M48×1.5	33	15	26	□36
φ140	69	76	72	256	56	138	49	□138	50	119	87	37	393	92	42	398	80	M56×2	35	15	30	□41
φ150	71	76	80	268	56	146	51	□148	50	121	93	40	411	98	45	416	85	M60×2	38	15	33	□46
φ160	74	81	80	284	61	156	54	□160	55	129	96	42	435	101	47	440	90	M64×2	39	15	35	□50

LA

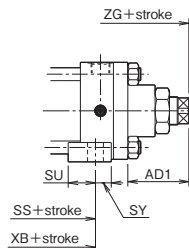
70H-8A2	1	LA	Bore	B	B	Stroke	-	A	B	-	X	M05
140H-8A2	1	LA	Bore	B	B	Stroke	-	A	B	-	X	M05

• φ32 to φ80

Dimensional drawings with adjustment amount of 0



• φ100 to φ160

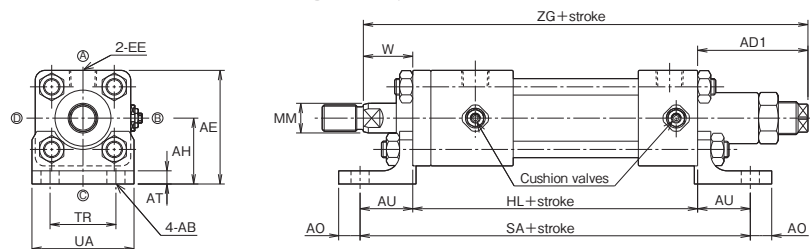


LB For 7MPa

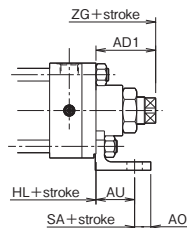
70H-8A2	1	LB	Bore	B	B	Stroke	-	A	B	-	X	M05
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• φ32 to φ80

Dimensional drawings with adjustment amount of 0



• φ100 to φ160



- For dimensions not shown in these figures, refer to the SD style.
- For the dimensions of the sensors, refer to the catalog of 70/140H-8 Series.

Dimensional Table/LA

Bore	MM		EE	EH	LH	SB	SS	ST	SU	SY	TS	US	W	XB	XS	Adjustment allowance 5 mm		Adjustment allowance 10 mm	
	Rod B	Rod C														AD1	ZG	AD1	ZG
φ32	φ18	—	Rc3/8	64	35±0.15	φ11	98	12	31	13	88	109	30	155	57	62	233	67	238
φ40	φ22.4	φ18	Rc3/8	70	37.5±0.15	φ11	98	14	31	13	95	118	30	155	57	64	235	69	240
φ50	φ28	φ22.4	Rc1/2	83	45±0.15	φ14	108	17	34	14	115	145	30	168	60	60	245	65	250
φ63	φ35.5	φ28	Rc1/2	95	50±0.15	φ18	106	19	32	18	132	165	35	177	71	77	275	82	280
φ80	φ45	φ35.5	Rc3/4	115	60±0.25	φ18	124	25	42	18	155	190	35	198	74	81	300	86	305
φ100	φ56	φ45	Rc3/4	138.5	71±0.25	φ22	122	27	38	22	190	230	40	207	85	80	332	85	337
φ125	φ71	φ56	Rc1	167.5	85±0.25	φ26	136	32	41	25	224	272	45	235	99	81	370	86	375
φ140	φ80	φ63	Rc1	187.5	95±0.25	φ26	144	35	41	25	250	300	50	250	106	87	393	92	398
φ150	φ85	φ67	Rc1	204	106±0.25	φ30	146	37	38	28	270	320	50	257	111	93	411	98	416
φ160	φ90	φ71	Rc1	217	112±0.25	φ33	150	42	40	31	285	345	55	272	122	96	435	101	440

Dimensional Table/LB

Bore	MM		AB	AE	AH	AO	AT	AU	EE	HL	SA	TR	UA	W	Adjustment allowance 5 mm		Adjustment allowance 10 mm	
	Rod B	Rod C													AD1	ZG	AD1	ZG
φ32	φ18	—	φ11	69	40±0.15	13	8	32	Rc3/8	141	205	40	62	30	62	233	67	238
φ40	φ22.4	φ18	φ11	75.5	43±0.15	13	8	32	Rc3/8	141	205	46	69	30	64	235	69	240
φ50	φ28	φ22.4	φ14	88	50±0.15	15	8	35	Rc1/2	155	225	58	85	30	60	245	65	250
φ63	φ35.5	φ28	φ18	105	60±0.15	18	10	42	Rc1/2	163	247	65	98	35	77	275	82	280
φ80	φ45	φ35.5	φ18	127	72±0.25	20	12	50	Rc3/4	184	284	87	118	35	81	300	86	305
φ100	φ56	φ45	φ22	152.5	85±0.25	23	12	55	Rc3/4	212	322	109	150	40	80	332	85	337
φ125	φ71	φ56	φ26	187.5	105±0.25	29	15	66	Rc1	244	376	130	175	45	81	370	86	375
φ140	φ80	φ63	φ26	207.5	115±0.25	30	18	70	Rc1	256	396	145	195	50	87	393	92	398
φ150	φ85	φ67	φ30	221	123±0.25	30	18	75	Rc1	268	418	155	210	50	93	411	98	416
φ160	φ90	φ71	φ33	237	132±0.25	35	18	75	Rc1	284	434	170	225	55	96	435	101	440

FA For 7 MPa

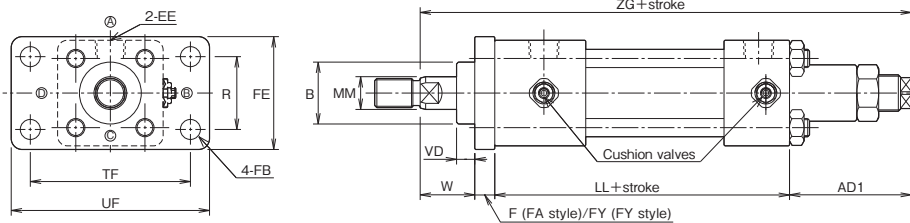
70H-8A2 | 1 | FA | Bore | B | B | Stroke - | A | B | - X | M05

FY For 14 MPa

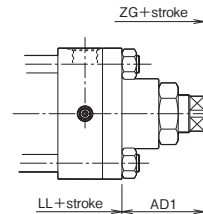
140H-8A2 | 1 | FY | Bore | B | B | Stroke - | A | B | - X | M05

- $\phi 32$ to $\phi 80$

Dimensional drawings with adjustment amount of O



- $\phi 100$ to $\phi 160$



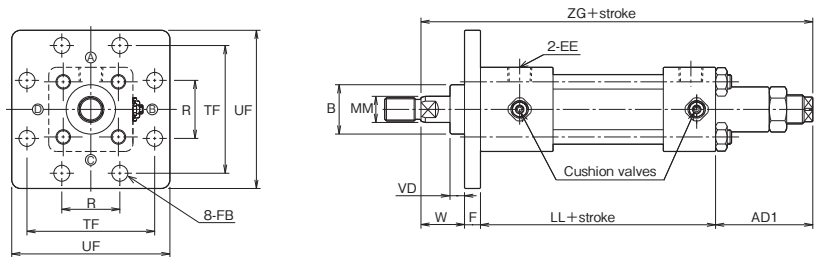
FC

70H-8A2 | 1 | FC | Bore | B | B | Stroke - | A | B | - X | M05

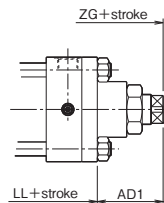
140H-8A2 | 1 | FC | Bore | B | B | Stroke - | A | B | - X | M05

- $\phi 32$ to $\phi 80$

Dimensional drawings with adjustment amount of O



- $\phi 100$ to $\phi 160$



- For dimensions not shown in these figures, refer to the SD style.
- For the dimensions of the sensors, refer to the catalog of 70/140H-8 Series.

Dimensional Table/FA, FY

Bore	MM		B		EE	F	FY	FB	FE	LL	R	TF	UF	VD		W	Adjustment allowance 5 mm				Adjustment allowance 10 mm			
	Rod B	Rod C	Rod B	Rod C										Rod B	Rod C		AD1	ZG	AD1	ZG	AD1	ZG	AD1	ZG
	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)										
$\phi 32$	$\phi 18$	—	$\phi 34$	—	Rc3/8	11	13	$\phi 11$	62	130	40	88	109	10	—	30	62	62	233	235	67	67	238	240
$\phi 40$	$\phi 22.4$	$\phi 18$	$\phi 40$	$\phi 36$	Rc3/8	11	13	$\phi 11$	69	130	46	95	118	10	10	30	64	64	235	237	69	69	240	242
$\phi 50$	$\phi 28$	$\phi 22.4$	$\phi 46$	$\phi 40$	Rc1/2	13	18	$\phi 14$	85	142	58	115	145	10	10	30	60	60	245	250	65	65	250	255
$\phi 63$	$\phi 35.5$	$\phi 28$	$\phi 55$	$\phi 46$	Rc1/2	15	20	$\phi 18$	98	148	65	132	165	10	10	35	77	77	275	280	82	82	280	285
$\phi 80$	$\phi 45$	$\phi 35.5$	$\phi 65$	$\phi 55$	Rc3/4	18	24	$\phi 18$	118	166	87	155	190	10	9	35	81	81	300	306	86	86	305	311
$\phi 100$	$\phi 56$	$\phi 45$	$\phi 80$	$\phi 65$	Rc3/4	20	28	$\phi 22$	150	192	109	190	230	10	10	40	80	80	332	340	85	85	337	345
$\phi 125$	$\phi 71$	$\phi 56$	$\phi 95$	$\phi 80$	Rc1	24	33	$\phi 26$	175	220	130	224	272	10	10	45	81	81	370	379	86	86	375	384
$\phi 140$	$\phi 80$	$\phi 63$	$\phi 105$	$\phi 85$	Rc1	26	37	$\phi 26$	195	230	145	250	300	10	10	50	87	87	393	404	92	92	398	409
$\phi 150$	$\phi 85$	$\phi 67$	$\phi 110$	$\phi 90$	Rc1	28	39	$\phi 30$	210	240	155	270	320	10	10	50	93	93	411	422	98	98	416	427
$\phi 160$	$\phi 90$	$\phi 71$	$\phi 115$	$\phi 95$	Rc1	31	41	$\phi 33$	225	253	170	285	345	10	10	55	96	96	435	445	101	101	440	450

Dimensional Table/FC

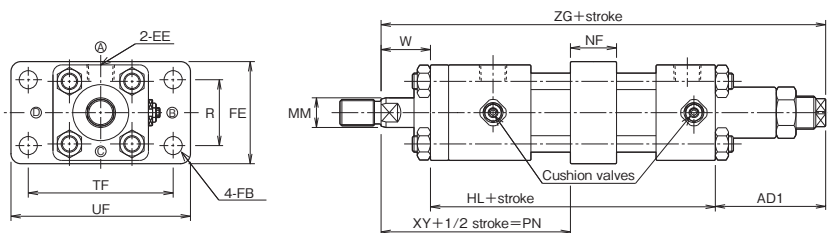
Bore	MM		B		EE	F	FB	LL	R	TF	UF	VD		W	Adjustment allowance 5 mm				Adjustment allowance 10 mm			
	Rod B	Rod C	Rod B	Rod C								Rod B	Rod C		AD1	ZG	AD1	ZG	AD1	ZG	AD1	ZG
	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)	(FA)	(FY)										
$\phi 32$	$\phi 18$	—	$\phi 34$	—	Rc3/8	11	$\phi 11$	130	40	88	109	10	—	30	62	62	233	235	67	67	238	240
$\phi 40$	$\phi 22.4$	$\phi 18$	$\phi 40$	$\phi 36$	Rc3/8	11	$\phi 11$	130	46	95	118	10	10	30	64	64	235	237	69	69	240	242
$\phi 50$	$\phi 28$	$\phi 22.4$	$\phi 46$	$\phi 40$	Rc1/2	13	$\phi 14$	142	58	115	145	10	10	30	60	60	245	250	65	65	250	255
$\phi 63$	$\phi 35.5$	$\phi 28$	$\phi 55$	$\phi 46$	Rc1/2	15	$\phi 18$	148	65	132	165	10	10	35	77	77	275	280	82	82	280	285
$\phi 80$	$\phi 45$	$\phi 35.5$	$\phi 65$	$\phi 55$	Rc3/4	18	$\phi 18$	166	87	155	190	10	9	35	81	81	300	306	86	86	305	311
$\phi 100$	$\phi 56$	$\phi 45$	$\phi 80$	$\phi 65$	Rc3/4	20	$\phi 22$	192	109	190	230	10	10	40	80	80	332	340	85	85	337	345
$\phi 125$	$\phi 71$	$\phi 56$	$\phi 95$	$\phi 80$	Rc1	24	$\phi 26$	220	130	224	272	10	10	45	81	81	370	379	86	86	375	384
$\phi 140$	$\phi 80$	$\phi 63$	$\phi 105$	$\phi 85$	Rc1	26	$\phi 26$	230	145	250	300	10	10	50	87	87	393	404	92	92	398	409
$\phi 150$	$\phi 85$	$\phi 67$	$\phi 110$	$\phi 90$	Rc1	28	$\phi 30$	240	155	270	320	10	10	50	93	93	411	422	98	98	416	427
$\phi 160$	$\phi 90$	$\phi 71$	$\phi 115$	$\phi 95$	Rc1	31	$\phi 33$	253	170	285	345	10	10	55	96	96	435	445	101	101	440	450

FK

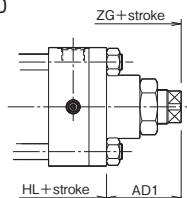
70H-8A2	1	FK	Bore	B	B	Stroke	-	A	B	-	X	M05
140H-8A2	1	FK	Bore	B	B	Stroke	-	A	B	-	X	M05

- $\phi 32$ to $\phi 80$

Dimensional drawings with adjustment amount of 0



- $\phi 100$ to $\phi 160$

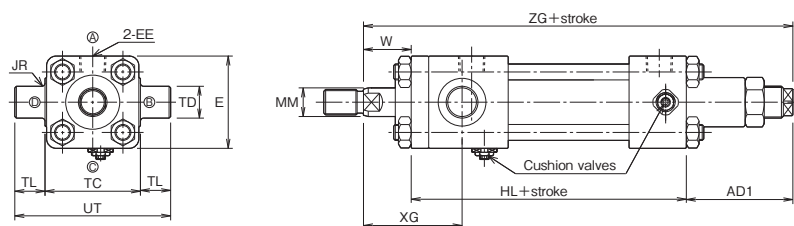


TA

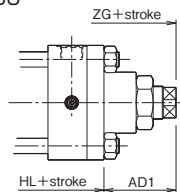
70H-8A2	1	TA	Bore	B	B	Stroke	-	A	B	-	X	M05
140H-8A2	1	TA	Bore	B	B	Stroke	-	A	B	-	X	M05

- $\phi 32$ to $\phi 80$

Dimensional drawings with adjustment amount of 0



- $\phi 100$ to $\phi 160$



- For dimensions not shown in these figures, refer to the SD style.
- For the dimensions of the sensors, refer to the catalog of 70/140H-8 Series.

Dimensional Table/FK

Bore	MM		EE	FB	FE	HL	NF	Min. PN	R	TF	UF	W	XY	Adjustment allowance 5 mm		Adjustment allowance 10 mm	
	Rod B	Rod C												AD1	ZG	AD1	ZG
$\phi 32$	$\phi 18$	—	Rc3/8	$\phi 11$	62	141	28	91	40	88	109	30	99	62	233	67	238
$\phi 40$	$\phi 22.4$	$\phi 18$	Rc3/8	$\phi 11$	69	141	28	91	46	95	118	30	99	64	235	69	240
$\phi 50$	$\phi 28$	$\phi 22.4$	Rc1/2	$\phi 14$	85	155	33	97	58	115	145	30	104.5	60	245	65	250
$\phi 63$	$\phi 35.5$	$\phi 28$	Rc1/2	$\phi 18$	98	163	43	106	65	132	165	35	110.5	77	275	82	280
$\phi 80$	$\phi 45$	$\phi 35.5$	Rc3/4	$\phi 18$	118	184	43	119	87	155	190	35	124.5	81	300	86	305
$\phi 100$	$\phi 56$	$\phi 45$	Rc3/4	$\phi 22$	150	212	53	126	109	190	230	40	129.5	80	332	85	337
$\phi 125$	$\phi 71$	$\phi 56$	Rc1	$\phi 26$	175	244	58	145	130	224	272	45	148	81	370	86	375
$\phi 140$	$\phi 80$	$\phi 63$	Rc1	$\phi 26$	195	256	78	152	145	250	300	50	149	87	393	92	398
$\phi 150$	$\phi 85$	$\phi 67$	Rc1	$\phi 30$	210	268	78	154	155	270	320	50	155	93	411	98	416
$\phi 160$	$\phi 90$	$\phi 71$	Rc1	$\phi 33$	225	284	88	167	170	285	345	55	163	96	435	101	440

Dimensional Table/TA

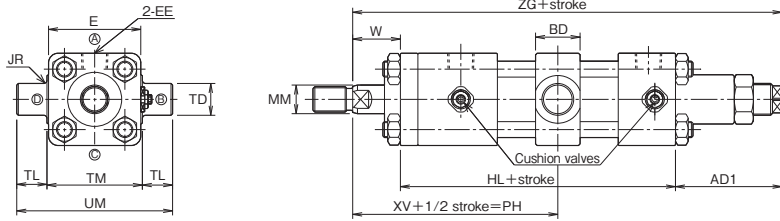
Bore	MM		E	EE	HL	JR	TC	TD	TL	UT	W	XG	Adjustment allowance 5 mm		Adjustment allowance 10 mm	
	Rod B	Rod C											AD1	ZG	AD1	ZG
$\phi 32$	$\phi 18$	—	□58	Rc3/8	141	R2	58 (-0.30 to 0)	$\phi 20e9$	20	98	30	62	62	233	67	238
$\phi 40$	$\phi 22.4$	$\phi 18$	□65	Rc3/8	141	R2	69 (-0.30 to 0)	$\phi 20e9$	20	109	30	62	64	235	69	240
$\phi 50$	$\phi 28$	$\phi 22.4$	□76	Rc1/2	155	R2.5	85 (-0.35 to 0)	$\phi 25e9$	25	135	30	66	60	245	65	250
$\phi 63$	$\phi 35.5$	$\phi 28$	□90	Rc1/2	163	R2.5	98 (-0.35 to 0)	$\phi 31.5e9$	31.5	161	35	74	77	275	82	280
$\phi 80$	$\phi 45$	$\phi 35.5$	□110	Rc3/4	184	R2.5	118 (-0.35 to 0)	$\phi 31.5e9$	31.5	181	35	82	81	300	86	305
$\phi 100$	$\phi 56$	$\phi 45$	□135	Rc3/4	212	R3	145 (-0.40 to 0)	$\phi 40e9$	40	225	40	89	80	332	85	337
$\phi 125$	$\phi 71$	$\phi 56$	□165	Rc1	244	R3	175 (-0.40 to 0)	$\phi 50e9$	50	275	45	103	81	370	86	375
$\phi 140$	$\phi 80$	$\phi 63$	□185	Rc1	256	R4	195 (-0.46 to 0)	$\phi 63e9$	63	321	50	112	87	393	92	398
$\phi 150$	$\phi 85$	$\phi 67$	□196	Rc1	268	R4	206 (-0.46 to 0)	$\phi 63e9$	63	332	50	112	93	411	98	416
$\phi 160$	$\phi 90$	$\phi 71$	□210	Rc1	284	R4	218 (-0.46 to 0)	$\phi 71e9$	71	360	55	126	96	435	101	440

TC

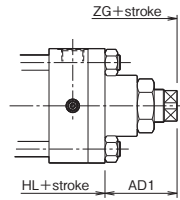
70H-8A2	1	TC	Bore	B	B	Stroke	-	A	B	-X	M05
140H-8A2	1	TC	Bore	B	B	Stroke	-	A	B	-X	M05

- $\phi 32$ to $\phi 80$

Dimensional drawings with adjustment amount of 0



- $\phi 100$ to $\phi 160$



- For dimensions not shown in these figures, refer to the SD type.
- For the dimensions of the sensors, refer to the catalog of 70/140H-8 Series.

Dimensional Table/TC

Bore	MM		BD	E	EE	HL	JR	Min. PH	TD	TL	TM	UM	W	XV	Adjustment allowance 5 mm		Adjustment allowance 10 mm	
	Rod B	Rod C													AD1	ZG	AD1	ZG
$\phi 32$	$\phi 18$	—	28	58	Rc3/8	141	R2	105	$\phi 20e9$	20	58 (-0.30 to 0)	98	30	113	62	233	67	238
$\phi 40$	$\phi 22.4$	$\phi 18$	28	65	Rc3/8	141	R2	105	$\phi 20e9$	20	69 (-0.30 to 0)	109	30	113	64	235	69	240
$\phi 50$	$\phi 28$	$\phi 22.4$	33	76	Rc1/2	155	R2.5	113.5	$\phi 25e9$	25	85 (-0.35 to 0)	135	30	121	60	245	65	250
$\phi 63$	$\phi 35.5$	$\phi 28$	43	90	Rc1/2	163	R2.5	127.5	$\phi 31.5e9$	31.5	98 (-0.35 to 0)	161	35	132	77	275	82	280
$\phi 80$	$\phi 45$	$\phi 35.5$	43	110	Rc3/4	184	R2.5	140.5	$\phi 31.5e9$	31.5	118 (-0.35 to 0)	181	35	146	81	300	86	305
$\phi 100$	$\phi 56$	$\phi 45$	53	135	Rc3/4	212	R3	152.5	$\phi 40e9$	40	145 (-0.40 to 0)	225	40	156	80	332	85	337
$\phi 125$	$\phi 71$	$\phi 56$	58	165	Rc1	244	R3	174	$\phi 50e9$	50	175 (-0.40 to 0)	275	45	177	81	370	86	375
$\phi 140$	$\phi 80$	$\phi 63$	78	185	Rc1	256	R4	191	$\phi 63e9$	63	195 (-0.46 to 0)	321	50	188	87	393	92	398
$\phi 150$	$\phi 85$	$\phi 67$	78	196	Rc1	268	R4	193	$\phi 63e9$	63	206 (-0.46 to 0)	332	50	194	93	411	98	416
$\phi 160$	$\phi 90$	$\phi 71$	88	210	Rc1	284	R4	211	$\phi 71e9$	71	218 (-0.46 to 0)	360	55	207	96	435	101	440