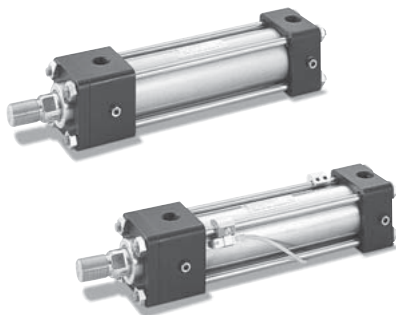


High-performance cushion built in hydraulic cylinders

- Double acting hydraulic cylinders for 7/14 MPa with bore from 32 mm to 250 mm.
- High-performance cushion reduces a shock at stroke-end.
- Newly designed cushion valve allows easy cushion adjustment.
- The drop prevention mechanism and looseness preventive lock nut have been adopted as safety measures for the cushion valve.
- Wide variety of new-type small sensors for better maintainability.



Standard Specifications

Type	General purpose type, cutting oil proof type	
Nominal pressure	7 MPa	14 MPa
Maximum allowable pressure	Cap side : 9 MPa Rod side : (A) 15 MPa (B) 13.5 MPa (C) 11 MPa	Cap side : 18 MPa Rod side : (A) 18 MPa (B) 18 MPa (C) 14 MPa
Proof test pressure	10.5 MPa	21 MPa
Minimum operating pressure	Cap side : 0.3 MPa or less Rod side : (A) 0.6 MPa or less (B) 0.45 MPa or less (C) 0.4 MPa or less	
Working speed range	φ32 to φ63 : 8 to 400mm/s φ80 to φ125 : 8 to 300mm/s φ140 to φ250 : 8 to 200mm/s	
Working temperature range (ambient temperature)	Standard type — 10 to +80°C(Notes) Switch Set AX type — 10 to +70°C WR/WS type — 10 to +60°C (No freezing)	
Structure of cushioning	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 100mm ^{+0.8} ₀ 101 to 250mm ^{+1.0} ₀ 251 to 630mm ^{+1.25} ₀ 631 to 1000mm ^{+1.4} ₀ 1001 to 1600mm ^{+1.6} ₀ 1601 to 2000mm ^{+1.8} ₀	
Tube material	Standard type ● Carbon steel for machine structural use Switch Set ● Stainless steel	
Mounting style	SD-LA-LB-LC-FA-FB-FC-FD-FK-FE-FY-FZ-CA-CB-CS-TA-TC	SD-LA-LC-FC-FD-FE-FK-FY-FZ-CA-CB-CS-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 7 MPa type ● Boots : Only general purpose type 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).
- The FE style in the mounting style column can be used only for the rod A.
- For the internal structure, refer to the sectional drawings at the end of this catalog.
- Conex, material of the boots, is the registered trademark of Teijin Limited.
- The mounting style LB cylinders with rod A have bores of up to 125 mm.

Product Lineup

Unit: mm

Series Variations	Type	Rod dia.	φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
General purpose type	Double acting single rod	Standard type 70/140H-8	Rod B	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod C	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod A	●	●	●	●	●	●	●	●	●	●	●	●	●
	Double acting single rod	Switch Set 70/140H-8R	Rod B	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod C	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod A	●	●	●	●	●	●	●	●	●	●	●	●	●
Cutting oil proof type	Double acting double rod	Standard type 70/140H-8D	Rod B	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod C	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod A	●	●	●	●	●	●	●	●	●	●	●	●	●
	Double acting double rod	Switch Set 70/140H-8RD	Rod B	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod C	●	●	●	●	●	●	●	●	●	●	●	●	●
			Rod A	●	●	●	●	●	●	●	●	●	●	●	●	●

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

Standard Stroke Range Unit: mm

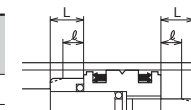
Bore	Standard type	Switch Set
φ32 to φ50	1200	1200
φ63·φ80	1600	1600
φ100 to φ140	2000	2000
φ150 to φ250	2000	—

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

Cushion Stroke Length Unit: mm

Bore	Cushion ring length L	Cushion ring parallel part length ℓ
φ32	R side	25
	H side	23
φ40 to φ63	25	7
φ80 to φ125	25	8
φ140 to φ160	30	12
φ180 to φ224	40	20
φ250	45	25

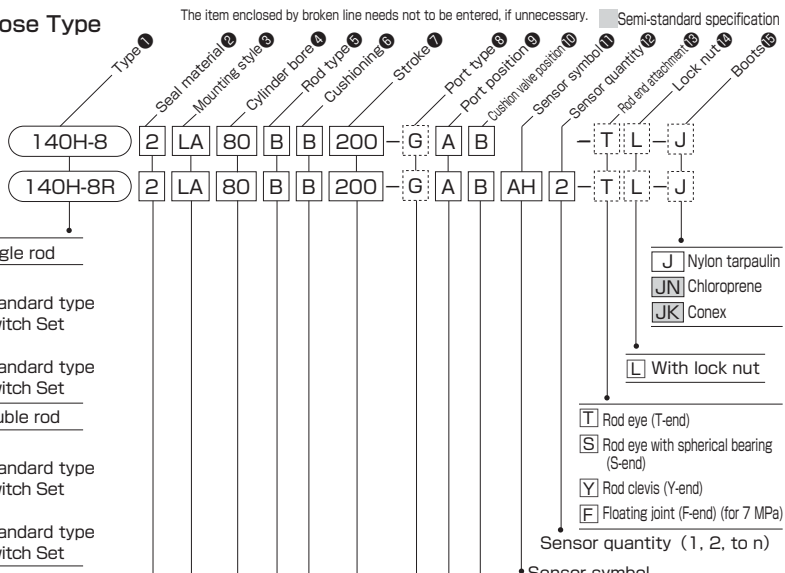
- The cushion stroke lengths in case of cylinders used up to the stroke end.
- In the case that a cylinder is not used up to the stroke end, and it is stopped 5 mm or more before the stroke end, the cushioning effect will be weakened. In such a case, consult us.



How to order

General Purpose Type

- Standard type
- Switch Set



- 1 Nitrile rubber (φ32 to φ250)
- 2 Urethane rubber (φ32 to φ160)
- 3 Fluorocarbon (φ32 to φ250)
- 6 HNBR (φ32 to φ160)
- 8 Slipper seal (φ32 to φ100)

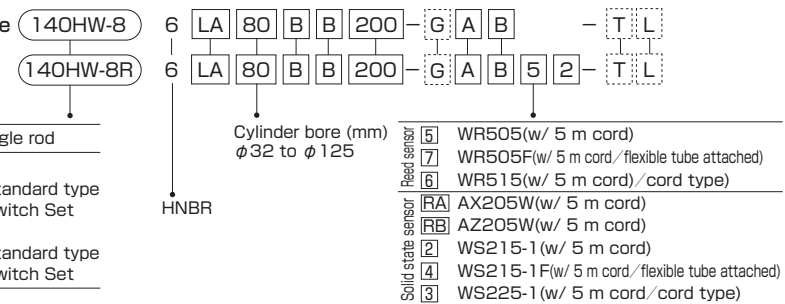
Notes) The material of Slipper seal is nitrile rubber except for the piston. Switch Set Cylinders are not provided with Slipper seals.

Rod A
Standard type : φ40 to φ160
Switch Set : φ40 to φ125
Rod B/C
Standard type : φ32 to φ250
Switch Set : φ32 to φ140

Note) The available minimum dia. of the rod C is φ40.

Cutting Oil Proof Type

- Standard type
- Switch Set



Double acting single rod
For 7 MPa
70HW-8 : Standard type
70HW-8R : Switch Set
For 14 MPa
140HW-8 : Standard type
140HW-8R : Switch Set

Notes) For the details of types other than the above, refer to the specifications of the general purpose type. These types of cylinders with boots are not available.

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 mm², 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			5m	
	AH AX111CE	AC:5 to 120V	AC:5 to 20mA					1.5m	
	AJ AX115CE				None	None		5m	
	AE AX125CE	DC: 30 V or less AC: 120 V or less	DC: 40 mA or less AD: 20 mA or less			LED (Lights in red when sensing)	4-pin connector type, Rear wiring	0.5m	
	AK AX11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided			0.5m	
	AL AX11BCE	DC:5 to 30V	5 to 40mA	1.5W				0.5m	
	AP AZ101CE				None	LED (Lights in red when sensing)	0.3 mm², 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			5m	
	AS AZ111CE	AC:5 to 120V	AC:5 to 20mA					1.5m	
	AT AZ115CE				None	None		5m	
	AN AZ125CE	DC: 30 V or less AC: 120 V or less	DC: 40 mA or less AD: 20 mA or less			LED (Lights in red when sensing)	4-pin connector type, Upper wiring	0.5m	
	AU AZ11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided			0.5m	
	AW AZ11BCE	DC:5 to 30V	5 to 40mA	1.5W				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 mm², 2-core, outer dia. φ 4 mm Rear wiring	5m	
	7 WR505F	AC:5 to 120V	AC:3 to 20mA					5m	
Solid state sensor	6 WR515					LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. φ 4 mm Upper wiring	5m	Small relay, programmable controller
	AM AX135CE	AC/DC: 90 to 240V	5 to 300mA	B contact output	Provided	Neon lamp (Lights when not sensing)	0.3 mm², 2-core, outer dia. φ 4 mm Upper wiring	5m	
	AY AZ135CE						0.5 mm², 2-core, outer dia. φ 6 mm, Rear wiring	5m	
	S SR405	AC:80 to 220V	2 to 300mA	30VA	Provided			5m	
	BE AX201CE-1					LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. φ 4 mm Rear wiring	1.5m	
	BF AX205CE-1							5m	
	CE AX211CE-1					LED (2-LED type in red/green)	4-pin connector type, Rear wiring	0.5m	
	CF AX215CE-1							5m	
	CH AX21CCE-1					LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. φ 4 mm Upper wiring	1.5m	
	CJ AX21DCE-1					LED (2-LED type in red/green)	4-pin connector type, Rear wiring	1m	
Cutting oil proof type	BM AZ201CE-1							5m	Small relay, programmable controller
	BN AZ205CE-1							5m	
	CM AZ211CE-1							5m	
	CN AZ215CE-1							5m	
Solid state sensor	RA AX205WCE					LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. φ 4 mm, Rear wiring	5m	Small relay, programmable controller
	RB AZ205WCE						0.3 mm², 2-core, outer dia. φ 4 mm, Upper wiring	5m	
	RE AX215WCE					LED (2-LED type in red/green)	0.3 mm², 2-core, outer dia. φ 4 mm, Rear wiring	5m	
	RF AZ215WCE						0.3 mm², 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 mm², 2-core, outer dia. φ 4 mm, Rear wiring	5m	Small relay, programmable controller
	4 WS215-1F							5m	
	3 WS225-1							5m	
	CT AX211CE-1							5m	
Solid state sensor	CU AX215CE-1							5m	Small relay, programmable controller
	CV AX21BCE-1					LED (2-LED type in red/green)	4-pin connector type, Rear wiring	0.5m	
	CW AZ211CE-1							5m	
	CX AZ215CE-1							5m	
	CY AZ21BCE-1							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.

5 WR505 The sensor and straight box connector (F-SB) are

2 WS215-1 combined (the flexible tube (F-0.5: 4.8 m) is required).

7 WR505F The flexible tube (F-0.5: 4.8 m) is attached to the

4 WS215-1F sensor and straight box connector (F-SB).

Mounting style

SD style (basic style)

LA style (side lugs)

LB style (end angles)

(for 7MPa)

LC style (end angles with rib)

FA style (rod rectangular flange)

(for 7 MPa) (for rod B/C)

FB style (cap rectangular flange)

(for 7 MPa)

FY style (rod rectangular flange)

FE style (for rod A)

FZ style (cap rectangular flange)

FC style (rod square flange)

(for rod B/C)

FD style (cap square flange)

FK style (intermediate flange)

CA style (cap eye)

Cap eye mounting according to former JIS

CS style (cap eye with spherical bearing)

CB style (cap clevis)

Cap clevis mounting according to former JIS

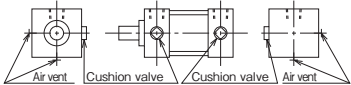
TA style (rod trunnion)

TC style (intermediate trunnion)

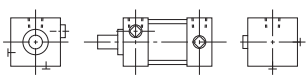
(Note) The mounting styles for 7 MPa cannot be used at a pressure exceeding 7 MPa as a rule. For the usage, consult us.

Cushion valve and air vent positions depending on cylinder bore (for rod A only)

Bore $\phi 40, \phi 50, \phi 100, \phi 140, \phi 150$



Bore $\phi 63, \phi 80, \phi 125, \phi 160$



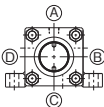
Standard Stroke Range

Bore	Standard type	Switch Set
$\phi 32$ to $\phi 50$	1200	1200
$\phi 63 \cdot \phi 80$	1600	1600
$\phi 100$ to $\phi 140$	2000	2000
$\phi 150$ to $\phi 250$	2000	—

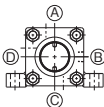
- The above strokes indicate the maximum available strokes for the standard type. For the rod buckling, check with the buckling chart in the selection materials. Contact us for longer strokes.
- If a cylinder with a bore of 63 to 160 mm should be used with a stroke exceeding the above values (up to 3000), select one from 140L-1 Series. However, the series differs from H-8 Series in external dimensions.

Port, cushion and air vent positions for LA style

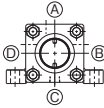
Port position ①



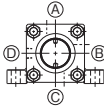
Port position ②



Port position ③



Port position ④



Adaptability of Fluid to Seal Material

Seal material	Adaptable fluid				
	Petroleum-based fluid	Water-glycol fluid	Phosphate ester fluid	Water in oil fluid	Oil in water 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	○	×	○

○: Applicable ×: Inapplicable
For the working temperature range of seal materials, refer to the selection materials at the beginning of this catalog.

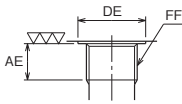
★ Port G (ISO 1179-1) or NPT (order made)

For a port G thread type cylinder, make an order in accordance with the following procedure.
(Example) 70H-8 2LA50BB100-G A B

G: Port G thread type N: NPT thread type

Port position

Cushion valve position



Thread Dimension Table

Unit: mm

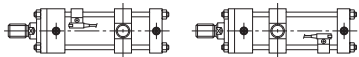
Bore	G thread			NPT thread
	AE	DE	FF	
$\phi 32$	12	$\phi 25.5$	G3/8	NPT3/8
$\phi 40$	12	$\phi 25.5$	G3/8	NPT3/8
$\phi 50$	14	$\phi 30$	G1/2	NPT1/2
$\phi 63$	14	$\phi 30$	G1/2	NPT1/2
$\phi 80$	16	$\phi 36.9$	G3/4	NPT3/4
$\phi 100$	16	$\phi 36.9$	G3/4	NPT3/4
$\phi 125$	18	$\phi 46.1$	G1	NPT1
$\phi 140$	18	$\phi 46.1$	G1	NPT1
$\phi 150$	18	$\phi 46.1$	G1	NPT1
$\phi 160$	18	$\phi 46.1$	G1	NPT1

Sensor Mountable Minimum Stroke

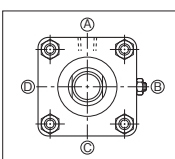
Unit: mm

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
$\phi 32$		20	45 (35)	25	45 (35)	50	70 (60)	75 (65)	110	155 (135)	165 (145)	155 (135)	165 (145)
$\phi 40$		20	45 (35)	25	45 (35)	50	70 (60)	75 (65)	115	155 (135)	165 (145)	155 (135)	165 (145)
$\phi 50$		20	40 (30)	45 (35)	25	40 (30)	45 (35)	50	70 (60)	75 (65)	115	155 (135)	165 (145)
$\phi 63$		20	40 (30)	25	40 (30)	60	85 (75)	125	170 (150)	175 (155)	170 (150)	175 (155)	175 (155)
$\phi 80$		20	40 (30)	25	40 (30)	60	85 (75)	130	170 (150)	175 (155)	170 (150)	175 (155)	175 (155)
$\phi 100$		20	35 (25)	40 (30)	25	35 (25)	40 (30)	65	85 (75)	95 (85)	135	175 (150)	190 (170)
$\phi 125$		20	35 (25)	40 (25)	25	35 (25)	40 (25)	70	90 (80)	95 (85)	150	185 (160)	195 (170)
$\phi 140$		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 WR615 or WS225.



★ Standard specifications



- With cushions on both ends
 - Port position ①, cushion valve position ②
- (Notes) There are check valves on two sides out of the four outer sides of cap and rod cover except the port and cushion sides. The check valve is concurrently used with air vent.

★ Semi-standard range

- With boots
 - Magnetic proximity sensors, WR and WS types
 - (Note) The WR and WS types are the standard types for the cutting oil proof models.
 - 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 "Change of Rod End Shape" page.

★ Change of port and cushion valve positions

The standard port position is ①, and the standard cushion valve position is ②. When modifying the positions, enter the symbol shown in the dimensional drawings.

Example) 70H-8R 2SD80BB100-**B** **C** AH2

Port position (A, B, C, D)

Cushion valve position (A, B, C, D, O)

- For the TA style, the standard port position and cushion valve position are ① and ③ on the rod side and ① and ② 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.

Weight Table/General purpose type and cutting oil proof type

Unit: kg

Bore (mm)	Rod type	Basic weight (SD style)		Additional weight per mm of stroke		Mounting accessory weight															
		Standard type Switch Set	Double rod type	Standard type Switch Set	Double rod type	LA	LB	LC	FA	FB	FC	FD	FK	FE	FY	FZ	CA	CS	CB	TA	TC
φ32	B	3.3	4.1	0.006	0.008	0.3	0.3	0.48	0.1	0.6	0.6	0.9	1.1	—	0.2	0.7	0.4	—	0.5	0.1	0.5
	A	3.8	—	0.013	—	—	—	—	—	—	—	—	—	0.9	—	—	—	—	—	—	—
φ40	B	3.5	4.4	0.011	0.014	0.5	0.5	0.63	0.2	0.7	0.7	1.1	1.2	—	0.3	0.8	0.5	0.6	0.6	0.1	0.6
	C	3.4	4.3	0.010	0.012	—	—	—	—	—	—	—	—	1.5	—	—	—	—	—	—	—
φ50	A	5.5	—	0.017	—	—	—	—	—	—	—	—	—	2.3	—	1.1	1.6	1.0	1.1	1.2	0.4
	B	5.0	6.4	0.014	0.019	0.9	0.7	0.88	0.7	1.2	1.5	2.0	2.2	—	—	—	—	—	—	—	—
φ63	C	4.9	6.2	0.012	0.014	—	—	—	—	—	—	—	—	2.3	—	—	—	—	—	—	—
	A	9.1	—	0.024	—	—	—	—	—	—	—	—	—	2.3	—	—	—	—	—	—	—
φ80	B	7.9	10.2	0.019	0.027	1.0	1.2	1.5	1.0	1.8	2.2	3.0	3.6	—	1.6	2.4	2.0	1.9	2.6	0.6	1.2
	C	7.6	9.8	0.017	0.022	—	—	—	—	—	—	—	—	2.3	—	—	—	—	—	—	—
φ100	A	18.0	—	0.039	—	—	—	—	—	—	—	—	—	3.9	—	—	—	—	—	—	—
	B	16.2	20.3	0.032	0.045	1.8	2.0	2.5	1.1	3.0	2.8	4.7	4.7	—	2.1	4.0	3.0	3.6	3.6	0.6	2.1
φ125	C	15.5	19.4	0.027	0.035	—	—	—	—	—	—	—	—	3.9	—	—	—	—	—	—	—
	A	29.6	—	0.060	—	—	—	—	—	—	—	—	—	6.6	—	—	—	—	—	—	—
φ140	B	26.0	32.7	0.048	0.067	2.1	2.9	3.63	1.8	4.8	4.6	7.4	8.9	—	3.9	6.9	5.5	6.7	6.7	1.0	3.8
	C	24.9	31.1	0.042	0.055	—	—	—	—	—	—	—	—	11.4	—	—	—	—	—	—	—
φ150	A	49.2	—	0.096	—	—	—	—	—	—	—	—	—	14.9	—	—	—	—	—	—	—
	B	42.9	53.6	0.077	0.107	3.2	5.5	6.88	2.9	8.4	8.0	13.0	12.6	—	6.2	12.1	9.9	12.8	12.1	2.1	6.2
φ160	C	42.5	52.7	0.065	0.084	—	—	—	—	—	—	—	—	14.9	—	—	—	—	—	—	—
	A	67.5	—	0.122	—	—	—	—	—	—	—	—	—	17.9	—	—	—	—	—	—	—
φ180	B	59.6	73.9	0.100	0.140	3.8	7.7	9.63	3.2	11.1	9.2	17.1	20.4	—	8.2	16.1	16.7	—	21.0	4.1	11.1
	C	56.0	69.6	0.085	0.111	—	—	—	—	—	—	—	—	17.9	—	—	—	—	—	—	—
φ200	A	77.9	—	0.148	—	—	—	—	—	—	—	—	—	21.5	—	—	—	—	—	—	—
	B	69.6	86.5	0.118	0.162	4.8	9.6	12.0	4.9	13.7	16.6	22.4	22.9	—	10.7	19.5	18.2	—	26.8	4.6	10.9
φ224	C	67.9	83.6	0.101	0.127	—	—	—	—	—	—	—	—	21.5	—	—	—	—	—	—	—
	A	93.0	—	0.148	—	—	—	—	—	—	—	—	—	21.5	—	—	—	—	—	—	—
φ250	B	84.3	114.6	0.121	0.171	5.4	10.0	13.0	5.3	16.5	19.0	25.2	31.2	—	11.3	22.5	22.9	—	28.4	5.2	14.8
	C	79.9	99.1	0.102	0.132	—	—	—	—	—	—	—	—	21.5	—	—	—	—	—	—	—
φ280	B	115.1	149.9	0.179	0.212	7.9	13.8	24.4	7.7	22.7	25.0	33.6	—	—	17.5	32.5	33.8	—	42.9	18.6	19.4
	C	108.5	140.1	0.157	0.168	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ315	B	155.2	201.4	0.220	0.264	11.4	21.0	36.3	10.6	31.6	28.8	48.7	—	—	22.6	43.6	51.4	—	65.4	24.3	27.2
	C	147.3	189.0	0.192	0.209	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ355	B	203.8	268.7	0.268	0.331	12.7	32.0	57.0	11.6	41.5	33.2	63.1	—	—	30.6	60.5	65.6	—	82.7	36.5	36.5
	C	190.9	247.7	0.234	0.262	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ400	B	283.7	374.5	0.333	0.411	18.3	46.7	77.6	17.5	55.1	48.2	88.3	—	—	42.5	80.1	74.5	—	91.6	27.0	43.3
	C	264.1	344.1	0.290	0.324	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sensor Additional Weight

Unit: kg

Sensor Bore mm	AX/AX205W type			SR type	WR/WS type
	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 5 m	
φ32 to φ50	0.05	0.13	0.04	0.22	0.5
φ63	0.07	0.14	0.06	0.22	
φ80 · φ100	0.07	0.15	0.06	0.22	
φ125	0.09	0.16	0.07	0.22	
φ140	0.09	0.16	0.08	—	

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 140H-8R, bore φ80, rod B, cylinder stroke 200 mm, 2 pcs of AX215 (cord length 5 m), LA style

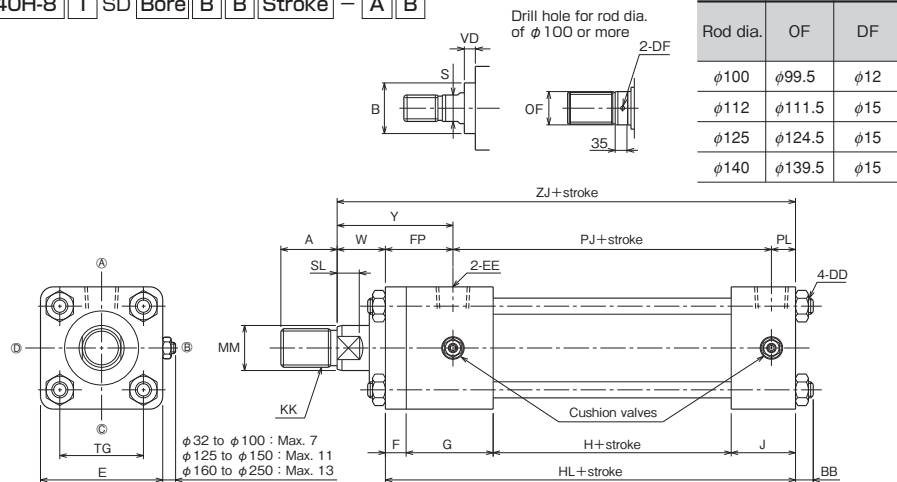
Unit: kg

Bore (mm)	Rod type	Rod end attachment weight					
		Rod eye (T-end)	Rod eye (S-end)	Rod clevis (Y-end) w/ pin	Floating joint (F-end)	Lock nut	Separate flange joint (M-end)
φ32	B	0.5	—	0.7	0.39	0.02	0.3
	A	—	—	—	—	0.05	0.6
φ40	B	0.5	0.7	0.7	0.75	0.03	0.4
	C	—	0.7	—	0.39	0.02	—
φ50	A	—	—	—	—	0.11	0.8
	B	1.0	1.1	1.2	1.41	0.05	0.6
φ63	C	—	1.2	—	0.75	0.03	—
	A	—	—	—	—	0.24	1.4
φ80	B	2.7	2.1	3.9	2.68	0.11	0.8
	C	—	2.3	—	1.41	0.05	—
φ100	A	—	—	—	—	0.52	3.0
	B	2.2	3.2	3.7	—	0.24	1.4
φ125	C	—	3.6	—	2.68	0.11	—
	A	—	—	—	—	1.10	5.3
φ140	B	4.2	6.7	7.7	—	0.52	3.0
	C	—	7.3	—	—	0.24	—
φ150	A	—	—	—	—	1.93	10.6
	B	8.0	12.4	14.6	—	1.10	5.3
φ160	C	—	13.7	—	—	0.52	—
	A	—	—	—	—	2.90	—
φ180	B	19.0	—	28.8	—	1.44	7.0
	C	—	—	—	—	0.77	—
φ200	A	—	—	—	—	3.24	—
	B	18.9	—	28.3	—	1.65	9.3
φ224	C	—	—	—	—	0.94	—
	A	—	—	—	—	3.24	—
φ250	B	22.7	—	34.2	—	1.93	10.6
	C	—	—	—	—	1.10	—
φ280	B	37.6	—	53.7	—	2.90	—
	C	—	—	—	—	1.44	—
φ315	B	53.9	—	87.4	—	3.24	—
	C	—	—	—	—	1.93	—
φ355	B	77.2	—	128.3	—	5.97	—
	C	—	—	—	—	2.90	—
φ400	B	74.4	—	123.9	—	7.77	—
	C	—	—	—	—	3.24	—

SD

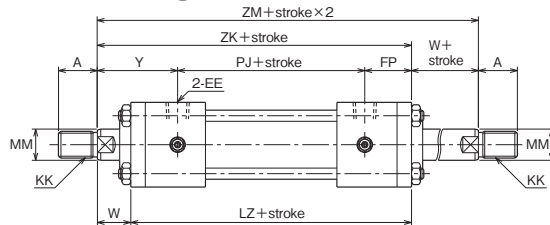
70H-8	1	SD	Bore	B	B	Stroke	—	A	B
140H-8	1	SD	Bore	B	B	Stroke	—	A	B

CAD/DATA
70-140H-8/TH8 Bore A. C is available.



- When using the SD style, be sure to see "4. Mounting" in "Precautions for use" at the beginning of this catalog.
- For the thread length (dimension A) in case of using the lock nut, refer to "Accessories."
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

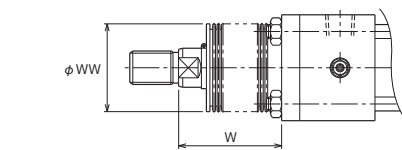
Double rod type (φ32 to φ250/rod B or C) for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 Bore K



Dimension W Rod B/C			
Nylon tarpaulin Chloroprene			
φ32	1/3	stroke+X	
φ40-φ50	1/3.5	stroke+X	
φ63 to φ100	1/4	stroke+X	
φ125 to φ200	1/5	stroke+X	
φ224 to φ250	1/6	stroke+X	
Conex			
φ32	1/2	stroke+X	
φ40-φ50	1/2.5	stroke+X	
φ63 to φ100	1/3	stroke+X	
φ125 to φ140	1/3.5	stroke+X	
φ150 to φ200	1/4	stroke+X	
φ224-φ250	1/4.5	stroke+X	

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A Nylon tarpaulin Chloroprene		
φ40	1/3.5	stroke+X
φ50 to φ80	1/4	stroke+X
φ100 to φ160	1/5	stroke+X
Conex		
φ40	1/2.5	stroke+X
φ50 to φ80	1/3	stroke+X
φ100	1/3.5	stroke+X
φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	—	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	—	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	—	16
φ180	140	φ125	M95×2	φ100	—	—	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	—	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	—	10	140	φ125	M95×2	φ100	—	—	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	—	10	150	φ140	M100×2	φ112	—	—	10	—	—	—	—	—	—	—

Symbol Bore	BB	DD	E	EE	F	FP	G	H	HL	J	LZ	PJ	PL	TG	W		Y		ZJ		ZK	ZM
															B·C	A	B·C	A	B·C	A		
φ32	11	M10×1.25	□58	Rc3/8	11	38	50	44	141	36	166	90	13	□38	30	—	68	—	171	—	196	226
φ40	11	M10×1.25	□65	Rc3/8	11	38	50	44	141	36	166	90	13	□45	30	35	68	73	171	176	196	226
φ50	11	M10×1.25	□76	Rc1/2	13	42	54	48	155	40	182	98	15	□52	30	41	72	83	185	196	212	242
φ63	13	M12×1.5	□90	Rc1/2	15	46	56	52	163	40	194	102	15	□63	35	48	81	94	198	211	229	264
φ80	16	M16×1.5	□110	Rc3/4	18	56	66	54	184	46	222	110	18	□80	35	51	91	107	219	235	257	292
φ100	18	M18×1.5	□135	Rc3/4	20	58	66	60	192	46	232	116	18	□102	40	57	98	115	232	249	272	312
φ125	21	M22×1.5	□165	Rc1	24	67	76	64	220	56	264	130	23	□122	45	57	112	124	265	277	309	354
φ140	22	M24×1.5	□185	Rc1	26	69	76	72	230	56	276	138	23	□138	50	57	119	126	280	287	326	376
φ150	25	M27×1.5	□196	Rc1	28	71	76	80	240	56	288	146	23	□148	50	57	121	128	290	297	338	388
φ160	25	M27×1.5	□210	Rc1	31	74	81	80	253	61	304	156	23	□160	55	57	129	131	308	310	359	414
φ180	27	M30×1.5	□235	Rc1 1/4	33	75	85	86	275	71	322	172	28	□182	55	—	130	—	330	—	377	432
φ200	29	M33×1.5	□262	Rc1 1/2	37	85	95	90	301	79	354	184	32	□200	55	—	140	—	356	—	409	464
φ224	34	M39×1.5	□292	Rc1 1/2	41	89	95	90	305	79	362	184	32	□225	60	—	149	—	365	—	422	482
φ250	37	M42×1.5	□325	Rc2	46	106	115	90	346	95	412	200	40	□250	65	—	171	—	411	—	477	542

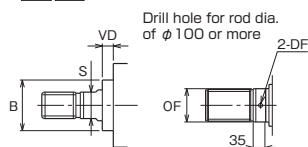
- The tolerance of B is h8, and that of MM is f8.

With Boots

Symbol		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

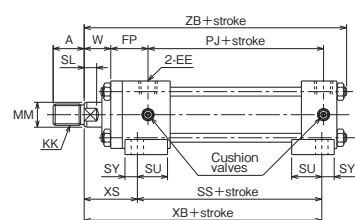
LA

70H-8	1	LA	Bore	B	B	Stroke	–	A	B
140H-8	1	LA	Bore	B	B	Stroke	–	A	B

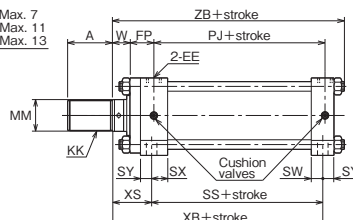
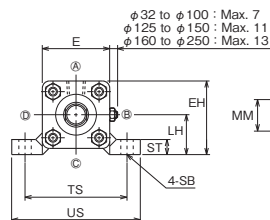


Rod dia.	OF	DF
ϕ100	ϕ99.5	ϕ12
ϕ112	ϕ111.5	ϕ15
ϕ125	ϕ124.5	ϕ15
ϕ140	ϕ139.5	ϕ15

- Bore $\phi 32$ to $\phi 160$

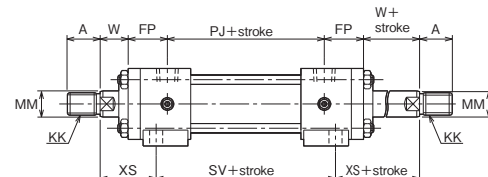


- Bore ϕ 180 to ϕ 250



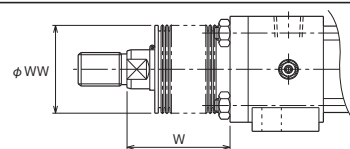
- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us.
(Order made)

Double rod type ($\phi 32$ to $\phi 250$ /rod B or C)
for loading on both sides



- The Switch Set ($\phi 32$ to $\phi 140$) is also within the standard stroke range.

With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A			
Nylon tarpaulin	φ40	1/3.5	stroke+X
Chloroprene	φ50 to φ80	1/4	stroke+X
	φ100 to φ160	1/5	stroke+X
Conex	φ40	1/2.5	stroke+X
	φ50 to φ80	1/3	stroke+X
	φ100	1/3.5	stroke+X
	φ125 to φ160	1/4	stroke+X

Dimension W		Rod B/C	
Nylon taraulpin Chloroprene	ø32	1/3	stroke+X
	ø40-ø50	1/3,5	stroke+X
	ø63 to ø100	1/4	stroke+X
	ø125 to ø200	1/5	stroke+X
	ø224 to ø250	1/6	stroke+X
Conex	ø32	1/2	stroke+X
	ø40-ø50	1/2,5	stroke+X
	ø63 to ø100	1/3	stroke+X
	ø125-ø140	1/3,5	stroke+X
	ø150 to ø200	1/4	stroke+X
	ø224-ø250	1/4,5	stroke+X

- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	10
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	10
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	15
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	25
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	10
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	10
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10	—	—	—	—	—	—	—

Bore	Symbol	E	EE	EH	FP	LH	PJ	SB	SS	ST	SU	SV	SW	SX	SY	TS	US	W		XB		XS		ZB	
																		B·C	A	B·C	A	B·C	A	B·C	A
φ32		58	Rc3/8	64	38	35±0.15	90	φ11	98	12	31	112	—	—	13	88	109	30	—	155	—	57	—	182	—
φ40		65	Rc3/8	70	38	37.5±0.15	90	φ11	98	14	31	112	—	—	13	95	118	30	35	155	160	57	62	182	188
φ50		76	Rc1/2	83	42	45±0.15	98	φ14	108	17	34	122	—	—	14	115	145	30	41	168	179	60	71	196	208
φ63		90	Rc1/2	95	46	50±0.15	102	φ18	106	19	32	122	—	—	18	132	165	35	48	177	190	71	84	211	224
φ80		110	Rc3/4	115	56	60±0.25	110	φ18	124	25	42	144	—	—	18	155	190	35	51	198	214	74	90	235	250
φ100		135	Rc3/4	138.5	58	71±0.25	116	φ22	122	27	38	142	—	—	22	190	230	40	57	207	224	85	102	250	266
φ125		165	Rc1	167.5	67	85±0.25	130	φ26	136	32	41	156	—	—	25	224	272	45	57	235	247	99	111	286	299
φ140		185	Rc1	187.5	69	95±0.25	138	φ26	144	35	41	164	—	—	25	250	300	50	57	250	257	106	113	302	309
φ150		196	Rc1	204	71	106±0.25	146	φ30	146	37	38	166	—	—	28	270	320	50	57	257	264	111	118	315	322
φ160		210	Rc1	217	74	112±0.25	156	φ33	150	42	40	170	—	—	31	285	345	55	57	272	274	122	124	333	336
φ180		235	Rc1 1/4	242.5	75	125±0.25	172	φ33	172	47	—	186	36	50	35	315	375	55	—	295	—	123	—	357	—
φ200		262	Rc1 1/2	271	85	140±0.25	184	φ36	186	52	—	202	40	56	39	355	425	55	—	317	—	131	—	385	—
φ224		292	Rc1 1/2	296	89	150±0.25	184	φ42	186	52	—	202	40	56	39	395	475	60	—	326	—	140	—	399	—
φ250		325	Rc2	332.5	106	170±0.25	200	φ45	206	57	—	226	48	68	47	425	515	65	—	364	—	158	—	448	—

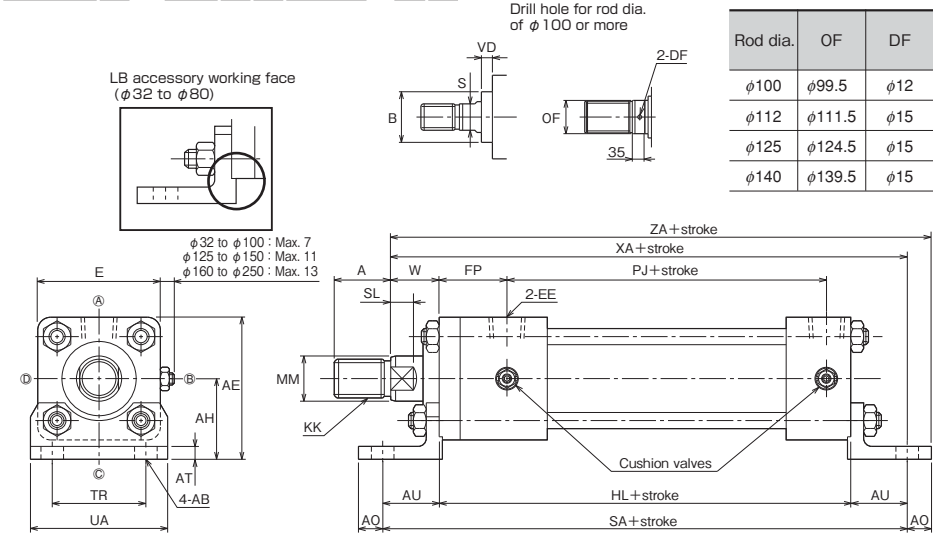
- The tolerance of B is h8, and that of MM is f8.

With Boots

Symbol Bore		$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$	$\phi 140$	$\phi 150$	$\phi 160$	$\phi 180$	$\phi 200$	$\phi 224$	$\phi 250$
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

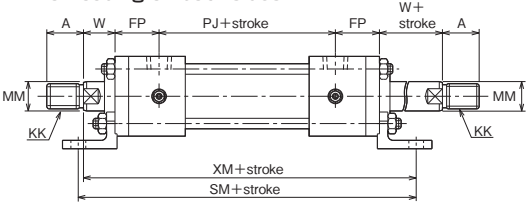
LB for 7MPa

70H-8 1 LB Bore B B Stroke - A B



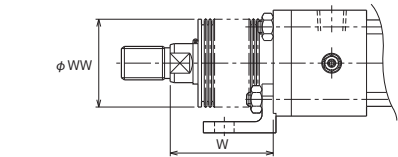
- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots



Dimension W	Rod B/C
Nylon tarpaulin	Chloroprene
φ32	1/3 stroke+X
φ40-φ50	1/3.5 stroke+X
φ63 to φ100	1/4 stroke+X
φ125 to φ200	1/5 stroke+X
φ224 to φ250	1/6 stroke+X
Conex	φ32 1/2 stroke+X
	φ40-φ50 1/2.5 stroke+X
	φ63 to φ100 1/3 stroke+X
	φ125-φ140 1/3.5 stroke+X
	φ150 to φ200 1/4 stroke+X
	φ224-φ250 1/4.5 stroke+X

If the calculated value has a fractional part, round it up.

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		Conex
		200°C

- Notes)
- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
 - Conex is the registered trademark of Teijin Limited.
 - The boots have been mounted at our factory prior to delivery.
 - The boots are not available for the rod A in LB mounting.

70-140H-8/TH8 Bore K

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	—	—	—	—	—	—	—
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	—	—	—	—	—	—	—
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	—	—	—	—	—	—	—
φ180	140	φ125	M95×2	φ100	—	—	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	—	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	—	10	140	φ125	M95×2	φ100	—	—	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	—	10	150	φ140	M100×2	φ112	—	—	10	—	—	—	—	—	—	—

Symbol Bore	AB	AE	AH	AO	AT	AU	E	EE	FP	HL	PJ	SA	SM	TR	UA	W		XA		XM	ZA	
																B·C	A	B·C	A		B·C	A
φ32	φ11	69	40±0.15	13	8	32	58	Rc3/8	38	141	90	205	230	40	62	30	—	203	—	228	216	—
φ40	φ11	75.5	43±0.15	13	8	32	65	Rc3/8	38	141	90	205	230	46	69	30	35	203	208	228	216	221
φ50	φ14	88	50±0.15	15	8	35	76	Rc1/2	42	155	98	225	252	58	85	30	41	220	231	247	235	246
φ63	φ18	105	60±0.15	18	10	42	90	Rc1/2	46	163	102	247	278	65	98	35	48	240	253	271	258	271
φ80	φ18	127	72±0.25	20	12	50	110	Rc3/4	56	184	110	284	322	87	118	35	51	269	285	307	289	305
φ100	φ22	152.5	85±0.25	23	12	55	135	Rc3/4	58	192	116	302	342	109	150	40	57	287	304	327	310	327
φ125	φ26	187.5	105±0.25	29	15	66	165	Rc1	67	220	130	352	396	130	175	45	57	331	343	375	360	372
φ140	φ26	207.5	115±0.25	30	18	70	185	Rc1	69	230	138	370	416	145	195	50	—	350	—	396	380	—
φ150	φ30	221	123±0.25	30	18	75	196	Rc1	71	240	146	390	438	155	210	50	—	365	—	413	395	—
φ160	φ33	237	132±0.25	35	18	75	210	Rc1	74	253	156	403	454	170	225	55	—	383	—	434	418	—
φ180	φ33	265.5	148±0.25	40	20	85	235	Rc1 1/4	75	275	172	445	492	185	243	55	—	415	—	462	455	—
φ200	φ36	296	165±0.25	40	25	98	262	Rc1 1/2	85	301	184	497	550	206	272	55	—	454	—	507	494	—
φ224	φ42	331	185±0.25	45	30	115	292	Rc1 1/2	89	305	184	535	592	230	310	60	—	480	—	537	525	—
φ250	φ45	370.5	208±0.25	50	35	130	325	Rc2	106	346	200	606	672	250	335	65	—	541	—	607	591	—

The tolerance of B is h8, and that of MM is f8.

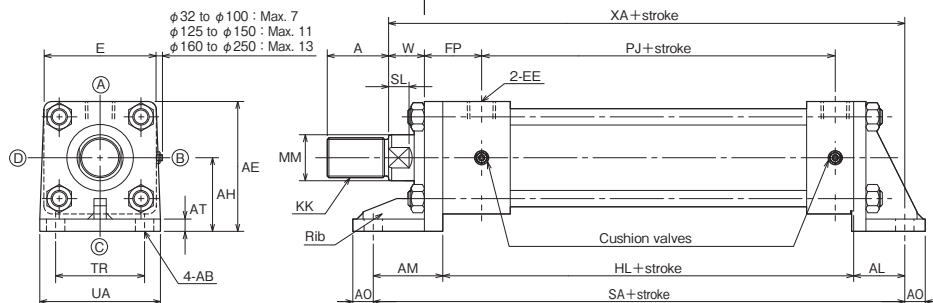
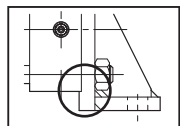
With Boots

Symbol		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
Bore	WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	200
	XX	Rod C	—	50	50	63	71	80	100	125	125	125	140	160	180
X	XX	Rod B	45	45	45	55	55	55	65	65	65	65	65	80	80
	XX	Rod C	—	45	45	55	55	55	65	65	65	65	65	80	80

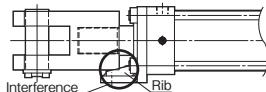
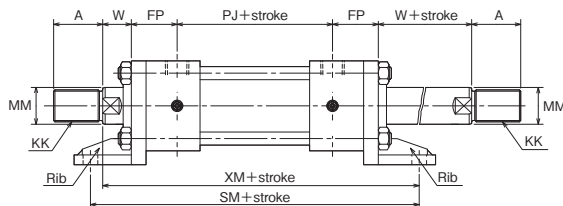


LC

70H-8	1	LC	Bore	B	B	Stroke	—	A	B
140H-8	1	LC	Bore	B	B	Stroke	—	A	B

LC accessory working face ($\phi 32$ to $\phi 80$)

- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- Cylinders with a bore of 63 mm or less are not provided with ribs.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)
- Note) If the rod clevis (Y-end) is mounted as shown in the following drawing, it may interfere with the rib of the LC accessory. In such a case, consult us.

Double rod type ($\phi 32$ to $\phi 250$ /rod B or C)
for loading on both sides

- The Switch Set ($\phi 32$ to $\phi 140$) is also within the standard stroke range.

With Boots

70-140H-8/TH8 Bore K

Dimension W	Material	Stroke
Rod B/C		
Nylon tarpaulin	$\phi 32$ to $\phi 50$	1/3 stroke + X
Chloroprene	$\phi 63$ to $\phi 100$	1/4 stroke + X
	$\phi 125$ to $\phi 200$	1/5 stroke + X
	$\phi 224$ to $\phi 250$	1/6 stroke + X
Conex	$\phi 32$ to $\phi 50$	1/2 stroke + X
	$\phi 63$ to $\phi 100$	1/2.5 stroke + X
	$\phi 125$ to $\phi 140$	1/3 stroke + X
	$\phi 150$ to $\phi 200$	1/4 stroke + X
	$\phi 224$ to $\phi 250$	1/4.5 stroke + X

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Dimensional Table

Symbol Bore	Rod B							Rod C						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
$\phi 32$	25	$\phi 34$	M16×1.5	$\phi 18$	14	10	10	—	—	—	—	—	—	—
$\phi 40$	30	$\phi 40$	M20×1.5	$\phi 22.4$	19	11	10	25	$\phi 36$	M16×1.5	$\phi 18$	14	10	10
$\phi 50$	35	$\phi 46$	M24×1.5	$\phi 28$	24	14	10	30	$\phi 40$	M20×1.5	$\phi 22.4$	19	11	10
$\phi 63$	45	$\phi 55$	M30×1.5	$\phi 35.5$	30	16	10	35	$\phi 46$	M24×1.5	$\phi 28$	24	14	10
$\phi 80$	60	$\phi 65$	M39×1.5	$\phi 45$	41	20	10	45	$\phi 55$	M30×1.5	$\phi 35.5$	30	16	9
$\phi 100$	75	$\phi 80$	M48×1.5	$\phi 56$	50	23	10	60	$\phi 65$	M39×1.5	$\phi 45$	41	20	10
$\phi 125$	95	$\phi 95$	M64×2	$\phi 71$	65	27	10	75	$\phi 80$	M48×1.5	$\phi 56$	50	23	10
$\phi 140$	110	$\phi 105$	M72×2	$\phi 80$	75	31	10	80	$\phi 85$	M56×2	$\phi 63$	55	24	10
$\phi 150$	115	$\phi 110$	M76×2	$\phi 85$	80	33	10	85	$\phi 90$	M60×2	$\phi 67$	60	30	10
$\phi 160$	120	$\phi 115$	M80×2	$\phi 90$	85	33	10	95	$\phi 95$	M64×2	$\phi 71$	65	27	10
$\phi 180$	140	$\phi 125$	M95×2	$\phi 100$	—	—	10	110	$\phi 105$	M72×2	$\phi 80$	75	31	10
$\phi 200$	150	$\phi 140$	M100×2	$\phi 112$	—	—	10	120	$\phi 115$	M80×2	$\phi 90$	85	33	10
$\phi 224$	180	$\phi 150$	M120×2	$\phi 125$	—	—	10	140	$\phi 125$	M95×2	$\phi 100$	—	—	10
$\phi 250$	195	$\phi 170$	M130×2	$\phi 140$	—	—	10	150	$\phi 140$	M100×2	$\phi 112$	—	—	10

Symbol Bore	AB	AE	AH	AL	AM	AO	AT	E	EE	FP	HL	PJ	SA	TR	UA	W	XA	XM	SM
$\phi 32$	$\phi 11$	69	40±0.15	32	43	13	8	58	Rc3/8	38	130	90	205	40	62	30	203	228	230
$\phi 40$	$\phi 11$	75.5	43±0.15	32	43	13	8	65	Rc3/8	38	130	90	205	46	69	30	203	228	230
$\phi 50$	$\phi 14$	88	50±0.15	35	48	15	8	76	Rc1/2	42	142	98	225	58	85	30	220	247	252
$\phi 63$	$\phi 18$	105	60±0.15	42	57	18	10	90	Rc1/2	46	148	102	247	65	98	35	240	271	278
$\phi 80$	$\phi 18$	127	72±0.25	50	68	20	12	110	Rc3/4	56	166	110	284	87	118	35	269	307	322
$\phi 100$	$\phi 22$	152.5	85±0.25	55	75	23	12	135	Rc3/4	58	172	116	302	109	150	40	287	327	342
$\phi 125$	$\phi 26$	187.5	105±0.25	66	90	29	15	165	Rc1	67	196	130	352	130	175	45	331	375	396
$\phi 140$	$\phi 26$	207.5	115±0.25	70	96	30	18	185	Rc1	69	204	138	370	145	195	50	350	396	416
$\phi 150$	$\phi 30$	221	123±0.25	75	103	30	18	196	Rc1	71	212	146	390	155	210	50	365	413	438
$\phi 160$	$\phi 33$	237	132±0.25	75	106	35	18	210	Rc1	74	222	156	403	170	225	55	383	434	454
$\phi 180$	$\phi 33$	265.5	148±0.25	85	118	40	20	235	Rc1 1/4	75	242	172	445	185	243	55	415	462	492
$\phi 200$	$\phi 36$	296	165±0.25	98	135	40	25	262	Rc1 1/2	85	264	184	497	206	272	55	454	507	550
$\phi 224$	$\phi 42$	331	185±0.25	115	156	45	30	292	Rc1 1/2	89	264	184	535	230	310	60	480	537	592
$\phi 250$	$\phi 45$	370.5	208±0.25	130	176	50	35	325	Rc2	106	300	200	606	250	335	65	541	607	672

- The tolerance of B is h8, and that of MM is f8.

With Boots

Symbol		$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$	$\phi 140$	$\phi 150$	$\phi 160$	$\phi 180$	$\phi 200$	$\phi 224$	$\phi 250$
Bore	WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	200
	WW	Rod C	—	50	50	63	71	80	100	125	125	125	140	160	180
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80

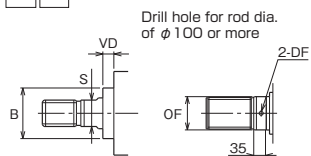
CAD/DATA

70-140H-8/TH8 [Bore] B is available.

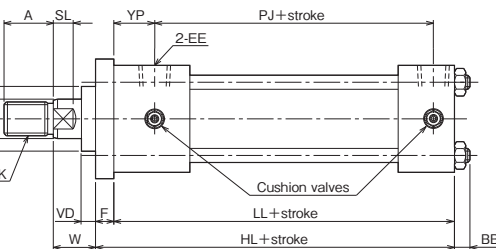
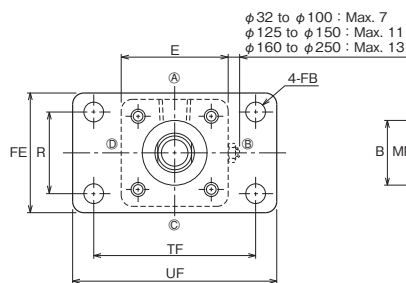


FA for 7MPa

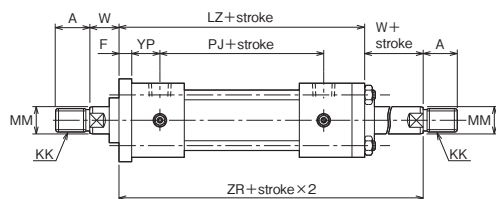
70H-8 [1] FA [Bore] B [Stroke] - [A] B



Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15



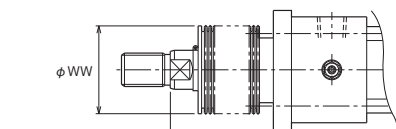
- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

Double rod type (φ32 to φ250/rod B or C)
for loading on both sides

- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 [Bore] K



Dimension W Rod B/C			
Nylon tarpaulin	φ32	1/3	stroke+X
Chloroprene	φ40-φ50	1/3.5	stroke+X
	φ63 to φ100	1/4	stroke+X
	φ125 to φ200	1/5	stroke+X
	φ224 to φ250	1/6	stroke+X
Conex	φ32	1/2	stroke+X
	φ40-φ50	1/2.5	stroke+X
	φ63 to φ100	1/3	stroke+X
	φ125-φ140	1/3.5	stroke+X
	φ150 to φ200	1/4	stroke+X
	φ224-φ250	1/4.5	stroke+X

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Bore	Rod B							Rod C						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10

Symbol Bore	BB	E	EE	F	FB	FE	HL	LL	LZ	PJ	R	TF	UF	W	YP	ZR
φ32	11	□58	Rc3/8	11	φ11	62	141	130	166	90	40	88	109	30	27	196
φ40	11	□65	Rc3/8	11	φ11	69	141	130	166	90	46	95	118	30	27	196
φ50	11	□76	Rc1/2	13	φ14	85	155	142	182	98	58	115	145	30	29	212
φ63	13	□90	Rc1/2	15	φ18	98	163	148	194	102	65	132	165	35	31	229
φ80	16	□110	Rc3/4	18	φ18	118	184	166	222	110	87	155	190	35	38	257
φ100	18	□135	Rc3/4	20	φ22	150	192	172	232	116	109	190	230	40	38	272
φ125	21	□165	Rc1	24	φ26	175	220	196	264	130	130	224	272	45	43	309
φ140	22	□185	Rc1	26	φ26	195	230	204	276	138	145	250	300	50	43	326
φ150	25	□196	Rc1	28	φ30	210	240	212	288	146	155	270	320	50	43	338
φ160	25	□210	Rc1	31	φ33	225	253	222	304	156	170	285	345	55	43	359
φ180	27	□235	Rc1 1/4	33	φ33	243	275	242	322	172	185	315	375	55	42	377
φ200	29	□262	Rc1 1/2	37	φ36	272	301	264	354	184	206	355	425	55	48	409
φ224	34	□292	Rc1 1/2	41	φ42	310	305	264	362	184	230	395	475	60	48	422
φ250	37	□325	Rc2	46	φ45	335	346	300	412	200	250	425	515	65	60	477

- The tolerance of B is h8, and that of MM is f8.

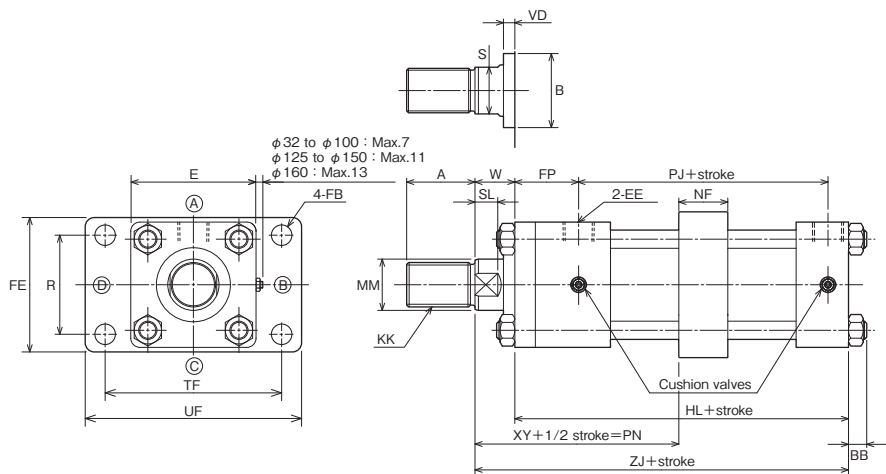
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	45	55	55	55	65	65	65	65	65	65	80	80



FK

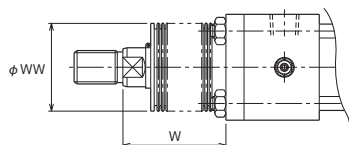
70H-8	1	FK	Bore	B	B	Stroke	—	A	B
140H-8	1	FK	Bore	B	B	Stroke	—	A	B



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" and "Minimum dimension PN of Switch Set Cylinders" are the same.

With Boots

70-140H-8/TH8 Bore K



Dimension W
Rod B/C

Nylon tarpaulin
Chloroprene

Conex

φ32	1/3	stroke+X
φ40 · φ50	1/3.5	stroke+X
φ63 to φ100	1/4	stroke+X
φ125 to φ160	1/5	stroke+X
φ32	1/2	stroke+X
φ40 · φ50	1/2.5	stroke+X
φ63 to φ100	1/3	stroke+X
φ125 · φ140	1/3.5	stroke+X
φ150 to φ160	1/4	stroke+X

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80℃	130℃	200℃

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- If the calculated value has a fractional part, round it up.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin

Chloroprene

Conex

φ40	1/3.5	stroke+X
φ50 to φ80	1/4	stroke+X
φ100 to φ160	1/5	stroke+X
φ40	1/2.5	stroke+X
φ50 to φ80	1/3	stroke+X
φ100	1/3.5	stroke+X
φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16

Symbol Bore	BB	E	EE	FB	FE	FP	HL	NF	PJ	Min. PN		R	TF	UF	W		XY		ZJ	
										B.C	A				B.C	A	B.C	A	B.C	A
φ32	11	□58	Rc3/8	φ11	62	38	141	28	90	91	—	40	88	109	30	—	99	—	171	—
φ40	11	□65	Rc3/8	φ11	69	38	141	28	90	91	96	46	95	118	30	35	99	104	171	176
φ50	11	□76	Rc1/2	φ14	85	42	155	33	98	97	108	58	115	145	30	41	104.5	115.5	185	196
φ63	13	□90	Rc1/2	φ18	98	46	163	43	102	106	119	65	132	165	35	48	110.5	123.5	198	211
φ80	16	□110	Rc3/4	φ18	118	56	184	43	110	119	135	87	155	190	35	51	124.5	140.5	219	235
φ100	18	□135	Rc3/4	φ22	150	58	192	53	116	126	143	109	190	230	40	57	129.5	146.5	232	249
φ125	21	□165	Rc1	φ26	175	67	220	58	130	145	157	130	224	272	45	57	148	160	265	277
φ140	22	□185	Rc1	φ26	195	69	230	78	138	152	159	145	250	300	50	57	149	156	280	287
φ150	25	□196	Rc1	φ30	210	71	240	78	146	154	161	155	270	320	50	57	155	162	290	297
φ160	25	□210	Rc1	φ33	225	74	253	88	156	167	169	170	285	345	55	57	163	165	308	310

- The tolerance of B is h8, and that of MM is f8.

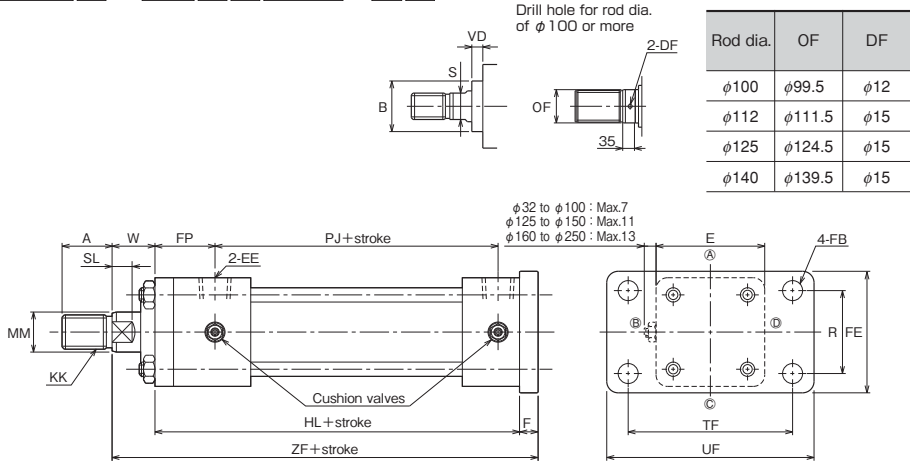
With Boots

Symbol		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160
Bore	Rod B	40	50	63	71	80	100	125	125	140	140
	Rod C	—	50	50	63	71	80	100	125	125	125
	Rod A	—	63	71	80	100	125	140	160	160	180
X	Rod B	45	45	45	55	55	55	65	65	65	65
	Rod C	—	45	45	55	55	55	65	65	65	65
	Rod A	—	45	55	55	55	65	65	65	65	65

FB for 7MPa

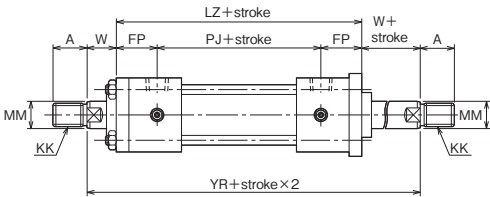
70H-8 1 FB Bore B B Stroke - A B

CAD/DATA 70-140H-8/TH8 Bore B is available.



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

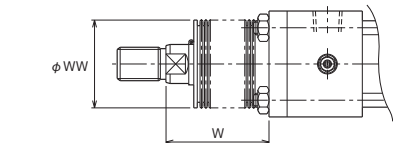
Double rod type (φ32 to φ250/rod B or C) for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 Bore K



Dimension W			
Rod B/C			
Nylon tarpaulin Chloroprene	φ32	1/3	stroke+X
	φ40-φ50	1/3.5	stroke+X
	φ63 to φ100	1/4	stroke+X
	φ125 to φ200	1/5	stroke+X
	φ224 to φ250	1/6	stroke+X
Conex	φ32	1/2	stroke+X
	φ40-φ50	1/2.5	stroke+X
	φ63 to φ100	1/3	stroke+X
	φ125-φ140	1/3.5	stroke+X
	φ150 to φ200	1/4	stroke+X
	φ224-φ250	1/4.5	stroke+X

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Notes)
- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
 - Conex is the registered trademark of Teijin Limited.
 - If the calculated value has a fractional part, round it up.
 - The boots have been mounted at our factory prior to delivery.

Rod A		
Nylon tarpaulin Chloroprene	φ40	1/3.5 stroke+X
	φ50 to φ80	1/4 stroke+X
	φ100 to φ160	1/5 stroke+X
Conex	φ40	1/2.5 stroke+X
	φ50 to φ80	1/3 stroke+X
	φ100	1/3.5 stroke+X
	φ125 to φ160	1/4 stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10	—	—	—	—	—	—	—

Symbol Bore	E	EE	F	FB	FE	FP	HL	LZ	PJ	R	TF	UF	W		YR	ZF	
													B · C	A		B · C	A
φ32	□58	Rc3/8	11	φ11	62	38	141	166	90	40	88	109	30	—	226	182	—
φ40	□65	Rc3/8	11	φ11	69	38	141	166	90	46	95	118	30	35	226	182	187
φ50	□76	Rc1/2	13	φ14	85	42	155	182	98	58	115	145	30	41	242	198	209
φ63	□90	Rc1/2	15	φ18	98	46	163	194	102	65	132	165	35	48	264	213	226
φ80	□110	Rc3/4	18	φ18	118	56	184	222	110	87	155	190	35	51	292	237	253
φ100	□135	Rc3/4	20	φ22	150	58	192	232	116	109	190	230	40	57	312	252	269
φ125	□165	Rc1	24	φ26	175	67	220	264	130	130	224	272	45	57	354	289	301
φ140	□185	Rc1	26	φ26	195	69	230	276	138	145	250	300	50	57	376	306	313
φ150	□196	Rc1	28	φ30	210	71	240	288	146	155	270	320	50	57	388	318	325
φ160	□210	Rc1	31	φ33	225	74	253	304	156	170	285	345	55	57	414	339	341
φ180	□235	Rc1 1/4	33	φ33	243	75	275	322	172	185	315	375	55	—	432	363	—
φ200	□262	Rc1 1/2	37	φ36	272	85	301	354	184	206	355	425	55	—	464	393	—
φ224	□292	Rc1 1/2	41	φ42	310	89	305	362	184	230	395	475	60	—	482	406	—
φ250	□325	Rc2	46	φ45	335	106	346	412	200	250	425	515	65	—	542	457	—

- The tolerance of B is h8, and that of MM is f8.

With Boots

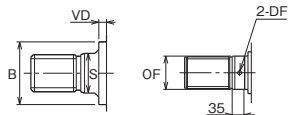
Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

FE for rod A

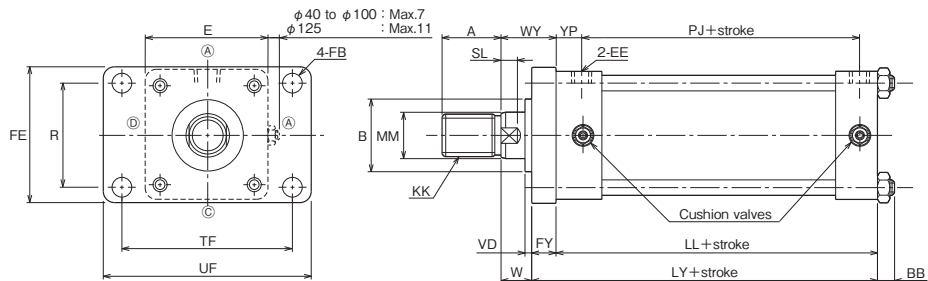
70H-8	1	FE	Bore	A	B	Stroke	-	A	B
140H-8	1	FE	Bore	A	B	Stroke	-	A	B

CAD/DATA
70-140H-8/TH8 Bore C is available.

Drill hole for rod dia.
of ϕ 100 or more



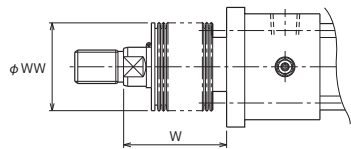
Rod dia.	OF	DF
ϕ 100	ϕ 99.5	ϕ 12
ϕ 112	ϕ 111.5	ϕ 15



- For dimensions not shown in these figures, refer to the SD style (basic style).

With Boots

70-140H-8/TH8 Bore K



Dimension W
Rod A

Nylon tarpaulin	ϕ 40	1/3.5 stroke+X
Chloroprene	ϕ 50 to ϕ 80	1/4 stroke+X
	ϕ 100 to ϕ 160	1/5 stroke+X
Conex	ϕ 40	1/2.5 stroke+X
	ϕ 50 to ϕ 80	1/3 stroke+X
	ϕ 100	1/3.5 stroke+X
	ϕ 125 to ϕ 160	1/4 stroke+X

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- If the calculated value has a fractional part, round it up.
- The boots have been mounted at our factory prior to delivery.

Dimensional Table

Symbol Bore	Rod A							BB	E	EE	FB	FE	FY	LL	LY	PJ	R	TF	UF	W	WY	YP
	A	B	KK	MM	S	SL	VD															
ϕ 40	35	ϕ 43	M24 $\times$ 1.5	ϕ 28	24	14	10	11	$\square$ 65	Rc3/8	ϕ 11	69	18	130	148	90	46	95	118	35	53	27
ϕ 50	45	ϕ 50	M30 $\times$ 1.5	ϕ 35.5	30	16	10	11	$\square$ 76	Rc1/2	ϕ 14	85	20	142	162	98	58	115	145	41	61	29
ϕ 63	60	ϕ 65	M39 $\times$ 1.5	ϕ 45	41	20	10	13	$\square$ 90	Rc1/2	ϕ 18	98	24	148	172	102	65	132	165	48	72	31
ϕ 80	75	ϕ 80	M48 $\times$ 1.5	ϕ 56	50	23	8	16	$\square$ 110	Rc3/4	ϕ 18	118	30	166	196	110	87	155	190	51	81	38
ϕ 100	95	ϕ 95	M64 $\times$ 2	ϕ 71	65	27	11	18	$\square$ 135	Rc3/4	ϕ 22	150	32	172	204	116	109	190	230	57	89	38
ϕ 125	120	ϕ 115	M80 $\times$ 2	ϕ 90	85	33	10	21	$\square$ 165	Rc1	ϕ 26	175	41	196	237	130	130	224	272	57	98	43
ϕ 140	140	ϕ 125	M95 $\times$ 2	ϕ 100	-	Drill hole	13	22	$\square$ 185	Rc1	ϕ 26	195	43	204	247	138	145	250	300	57	100	43
ϕ 150	140	ϕ 125	M95 $\times$ 2	ϕ 100	-	Drill hole	13	25	$\square$ 196	Rc1	ϕ 30	210	43	212	255	146	155	270	320	57	100	43
ϕ 160	150	ϕ 140	M100 $\times$ 2	ϕ 112	-	Drill hole	15	25	$\square$ 210	Rc1	ϕ 33	225	46	222	268	156	170	285	345	57	103	43

- The tolerance of B is h8, and that of MM is f8.

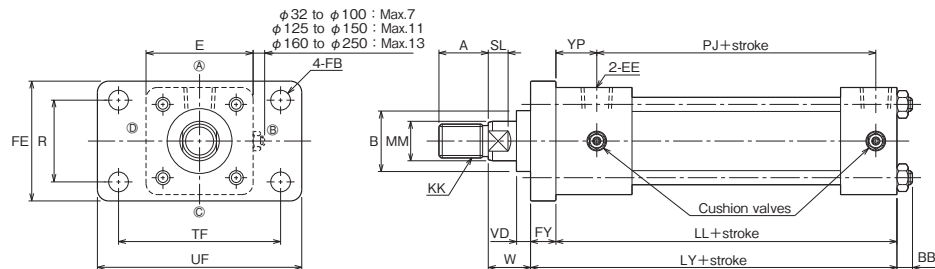
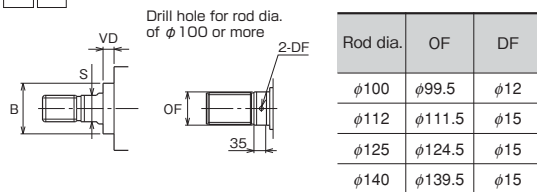
With Boots

Symbol		ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 140	ϕ 150	ϕ 160
Bore	WW	Rod A	63	71	80	100	125	140	160	180
	X	Rod A	45	55	55	55	65	65	65	65

CAD/DATA
70-140H-8/TH8 B is available. 

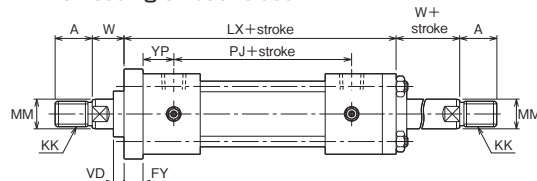
FY

70H-8	1	FY	Bore	B	B	Stroke	—	A	B
140H-8	1	FY	Bore	B	B	Stroke	—	A	B



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

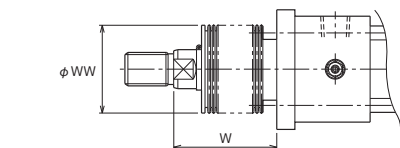
Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 K 



Dimension W	Material	Stroke
Rod B/C	Nylon tarpaulin	1/3 stroke+X
	Chloroprene	1/3.5 stroke+X
		1/4 stroke+X
		1/5 stroke+X
		1/6 stroke+X
Conex		1/2 stroke+X
		1/2.5 stroke+X
		1/3 stroke+X
		1/3.5 stroke+X
		1/4 stroke+X
		1/4.5 stroke+X

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		200°C

- Notes)
- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
 - Conex is the registered trademark of Teijin Limited.
 - If the calculated value has a fractional part, round it up.
 - The boots have been mounted at our factory prior to delivery.

Dimensional Table

Symbol Bore	Rod B							Rod C						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	10
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10

Symbol Bore	BB	E	EE	FB	FE	FY	LL	LX	LY	PJ	R	TF	UF	W	YP
φ32	11	□58	Rc3/8	φ11	62	13	130	168	143	90	40	88	109	30	27
φ40	11	□65	Rc3/8	φ11	69	13	130	168	143	90	46	95	118	30	27
φ50	11	□76	Rc1/2	φ14	85	18	142	187	160	98	58	115	145	30	29
φ63	13	□90	Rc1/2	φ18	98	20	148	199	168	102	65	132	165	35	31
φ80	16	□110	Rc3/4	φ18	118	24	166	228	190	110	87	155	190	35	38
φ100	18	□135	Rc3/4	φ22	150	28	172	240	200	116	109	190	230	40	38
φ125	21	□165	Rc1	φ26	175	33	196	273	229	130	130	224	272	45	43
φ140	22	□185	Rc1	φ26	195	37	204	287	241	138	145	250	300	50	43
φ150	25	□196	Rc1	φ30	210	39	212	299	251	146	155	270	320	50	43
φ160	25	□210	Rc1	φ33	225	41	222	314	263	156	170	285	345	55	43
φ180	27	□235	Rc1 1/4	φ33	243	46	242	335	288	172	185	315	375	55	42
φ200	29	□262	Rc1 1/2	φ36	272	51	264	368	315	184	206	355	425	55	48
φ224	34	□292	Rc1 1/2	φ42	310	58	264	379	322	184	230	395	475	60	48
φ250	37	□325	Rc2	φ45	335	65	300	431	365	200	250	425	515	65	60

- The tolerance of B is h8, and that of MM is f8.

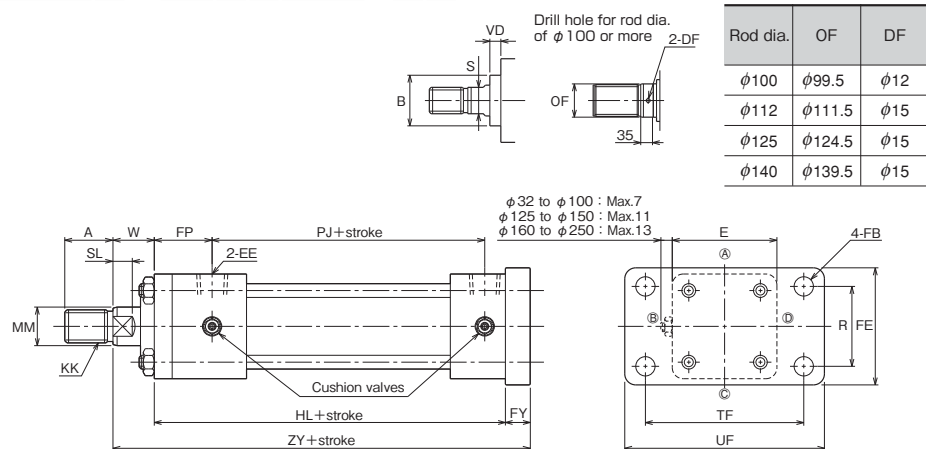
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80

FZ

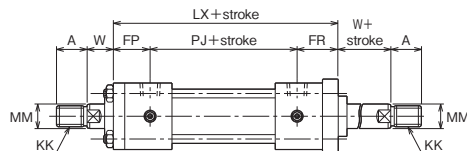
70H-8	1	FZ	Bore	B	B	Stroke	-	A	B
140H-8	1	FZ	Bore	B	B	Stroke	-	A	B

CAD/DATA
70-140H-8/TH8 Bore B. C is available.



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

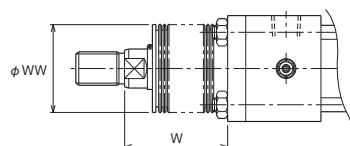
Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 Bore K



Dimension W
Rod B/C

Nylon tarpaulin	φ32	1/3	stroke+X
Chloroprene	φ40-φ50	1/3.5	stroke+X
	φ63 to φ100	1/4	stroke+X
	φ125 to φ200	1/5	stroke+X
	φ224 to φ250	1/6	stroke+X
Conex	φ32	1/2	stroke+X
	φ40-φ50	1/2.5	stroke+X
	φ63 to φ100	1/3	stroke+X
	φ125-φ140	1/3.5	stroke+X
	φ150 to φ200	1/4	stroke+X
	φ224-φ250	1/4.5	stroke+X

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

(Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin	φ40	1/3.5	stroke+X
Chloroprene	φ50 to φ80	1/4	stroke+X
	φ100 to φ160	1/5	stroke+X
Conex	φ40	1/2.5	stroke+X
	φ50 to φ80	1/3	stroke+X
	φ100	1/3.5	stroke+X
	φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	—	—
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	—	—
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	—	—
φ180	140	φ125	M95×2	φ100	—	—	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	—	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	—	10	140	φ125	M95×2	φ100	—	—	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	—	10	150	φ140	M100×2	φ112	—	—	10	—	—	—	—	—	—	—

Symbol Bore	E	EE	FB	FE	FP	FR	FY	HL	LX	PJ	R	TF	UF	W		ZY	
														B·C	A	B·C	A
φ32	□58	Rc3/8	φ11	62	38	40	13	141	168	90	40	88	109	30	—	184	—
φ40	□65	Rc3/8	φ11	69	38	40	13	141	168	90	46	95	118	30	35	184	189
φ50	□76	Rc1/2	φ14	85	42	47	18	155	187	98	58	115	145	30	41	203	214
φ63	□90	Rc1/2	φ18	98	46	51	20	163	199	102	65	132	165	35	48	218	231
φ80	□110	Rc3/4	φ18	118	56	62	24	184	228	110	87	155	190	35	51	243	259
φ100	□135	Rc3/4	φ22	150	58	66	28	192	240	116	109	190	230	40	57	260	277
φ125	□165	Rc1	φ26	175	67	76	33	220	273	130	130	224	272	45	57	298	310
φ140	□185	Rc1	φ26	195	69	80	37	230	287	138	145	250	300	50	57	317	324
φ150	□196	Rc1	φ30	210	71	82	39	240	299	146	155	270	320	50	57	329	336
φ160	□210	Rc1	φ33	225	74	84	41	253	314	156	170	285	345	55	57	349	351
φ180	□235	Rc1 1/4	φ33	243	75	88	46	275	335	172	185	315	375	55	—	376	—
φ200	□262	Rc1 1/2	φ36	272	85	99	51	301	368	184	206	355	425	55	—	407	—
φ224	□292	Rc1 1/2	φ42	310	89	106	58	305	379	184	230	395	475	60	—	423	—
φ250	□325	Rc2	φ45	335	106	125	65	346	431	200	250	425	515	65	—	476	—

- The tolerance of B is h8, and that of MM is f8.

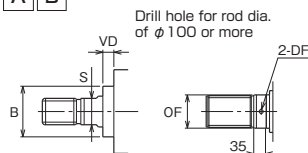
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
		Rod B	40	50	63	71	80	100	125	125	140	140	160	180	200
WW	Rod C	—	50	50	63	71	80	140	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

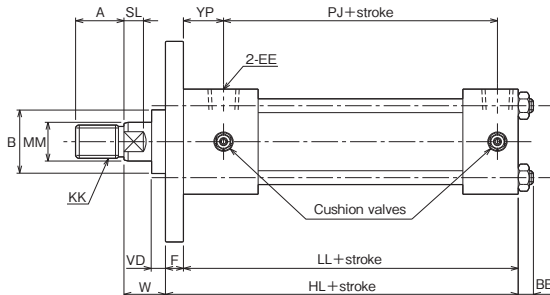
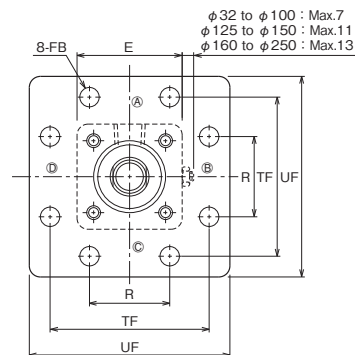
CAD/DATA
70-140H-8/TH8 B is available.

FC

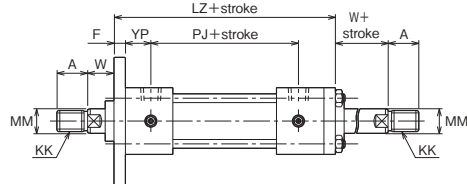
70H-8	1	FC	Bore	B	B	Stroke	—	A	B
140H-8	1	FC	Bore	B	B	Stroke	—	A	B



Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15



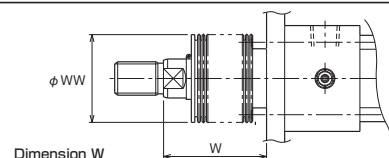
Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 K



Dimension W	Rod B/C	Stroke
Nylon tarpaulin	φ32	1/3 stroke+X
Chloroprene	φ40-φ50	1/3.5 stroke+X
	φ63 to φ100	1/4 stroke+X
	φ125 to φ200	1/5 stroke+X
	φ224 to φ250	1/6 stroke+X
Conex	φ32	1/2 stroke+X
	φ40-φ50	1/2.5 stroke+X
	φ63 to φ100	1/3 stroke+X
	φ125-φ140	1/3.5 stroke+X
	φ150 to φ200	1/4 stroke+X
	φ224-φ250	1/4.5 stroke+X

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		Conex

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- If the calculated value has a fractional part, round it up.
- The boots have been mounted at our factory prior to delivery.

Dimensional Table

Symbol Bore	Rod B							Rod C						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10

Symbol Bore	BB	E	EE	F	FB	HL	LL	LZ	PJ	R	TF	UF	W	YP
φ32	11	□58	Rc3/8	11	φ11	141	130	166	90	40	88	109	30	27
φ40	11	□65	Rc3/8	11	φ11	141	130	166	90	46	95	118	30	27
φ50	11	□76	Rc1/2	13	φ14	155	142	182	98	58	115	145	30	29
φ63	13	□90	Rc1/2	15	φ18	163	148	194	102	65	132	165	35	31
φ80	16	□110	Rc3/4	18	φ18	184	166	222	110	87	155	190	35	38
φ100	18	□135	Rc3/4	20	φ22	192	172	232	116	109	190	230	40	38
φ125	21	□165	Rc1	24	φ26	220	196	264	130	130	224	272	45	43
φ140	22	□185	Rc1	26	φ26	230	204	276	138	145	250	300	50	43
φ150	25	□196	Rc1	28	φ30	240	212	288	146	155	270	320	50	43
φ160	25	□210	Rc1	31	φ33	253	222	304	156	170	285	345	55	43
φ180	27	□235	Rc1 1/4	33	φ33	275	242	322	172	185	315	375	55	42
φ200	29	□262	Rc1 1/2	37	φ36	301	264	354	184	206	355	425	55	48
φ224	34	□292	Rc1 1/2	41	φ42	305	264	362	184	230	395	475	60	48
φ250	37	□325	Rc2	46	φ45	346	300	412	200	250	425	515	65	60

- The tolerance of B is h8, and that of MM is f8.

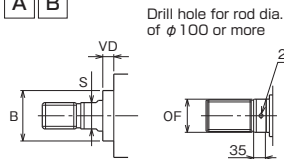
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
		40	50	63	71	80	100	125	125	140	140	160	180	180	200
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	140	160	180	180
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80

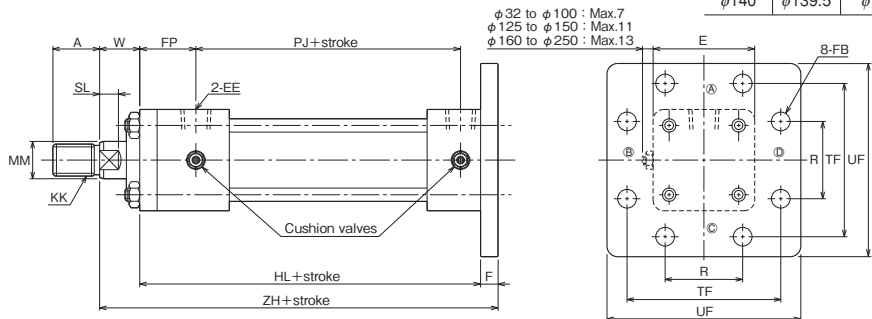
CAD/DATA
70-140H-8/TH8 [Bore] B is available.

FD

70H-8	1	FD	Bore	B	B	Stroke	-	A	B
140H-8	1	FD	Bore	B	B	Stroke	-	A	B

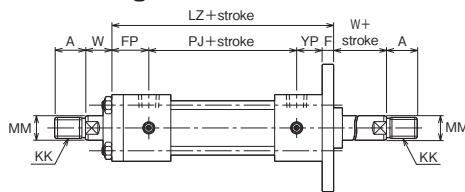


Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

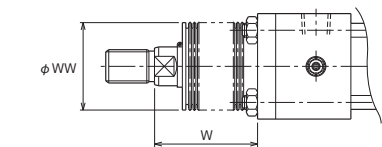
Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 [Bore] K



Dimension W
Rod B/C

Nylon tarpaulin	φ32	1/3	stroke+X
Chloroprene	φ40·φ50	1/3.5	stroke+X
	φ63 to φ100	1/4	stroke+X
	φ125 to φ200	1/5	stroke+X
	φ224 to φ250	1/6	stroke+X
Conex	φ32	1/2	stroke+X
	φ40·φ50	1/2.5	stroke+X
	φ63 to φ100	1/3	stroke+X
	φ125·φ140	1/3.5	stroke+X
	φ150 to φ200	1/4	stroke+X
	φ224·φ250	1/4.5	stroke+X

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- If the calculated value has a fractional part, round it up.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin	φ40	1/3.5	stroke+X
Chloroprene	φ50 to φ80	1/4	stroke+X
	φ100 to φ160	1/5	stroke+X
Conex	φ40	1/2.5	stroke+X
	φ50 to φ80	1/3	stroke+X
	φ100	1/3.5	stroke+X
	φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100			17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100			15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112			16
φ180	140	φ125	M95×2	φ100	—	—	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	—	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	—	10	140	φ125	M95×2	φ100	—	—	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	—	10	150	φ140	M100×2	φ112	—	—	10	—	—	—	—	—	—	—

Symbol Bore	E	EE	F	FB	FP	HL	LZ	PJ	R	TF	UF	W		YP	ZH	
												B · C	A		B · C	A
φ32	□58	Rc3/8	11	φ11	38	141	166	90	40	88	109	30	—	27	182	—
φ40	□65	Rc3/8	11	φ11	38	141	166	90	46	95	118	30	35	27	182	187
φ50	□76	Rc1/2	13	φ14	42	155	182	98	58	115	145	30	41	29	198	209
φ63	□90	Rc1/2	15	φ18	46	163	194	102	65	132	165	35	48	31	213	226
φ80	□110	Rc3/4	18	φ18	56	184	222	110	87	155	190	35	51	38	237	253
φ100	□135	Rc3/4	20	φ22	58	192	232	116	109	190	230	40	57	38	252	269
φ125	□165	Rc1	24	φ26	67	220	264	130	130	224	272	45	57	43	289	301
φ140	□185	Rc1	26	φ26	69	230	276	138	145	250	300	50	57	43	306	313
φ150	□196	Rc1	28	φ30	71	240	288	146	155	270	320	50	57	43	318	325
φ160	□210	Rc1	31	φ33	74	253	304	156	170	285	345	55	57	43	339	341
φ180	□235	Rc1 1/4	33	φ33	75	275	322	172	185	315	375	55	—	42	363	—
φ200	□262	Rc1 1/2	37	φ36	85	301	354	184	206	355	425	55	—	48	393	—
φ224	□292	Rc1 1/2	41	φ42	89	305	362	184	230	395	475	60	—	48	406	—
φ250	□325	Rc2	46	φ45	106	346	412	200	250	425	515	65	—	60	457	—

- The tolerance of B is h8, and that of MM is f8.

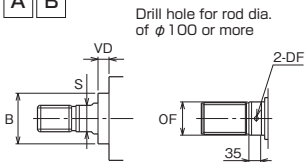
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
	WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	200
X	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
X	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—
	Rod B	—	—	—	—	—	—	—	—	—	—	—	—	—	—

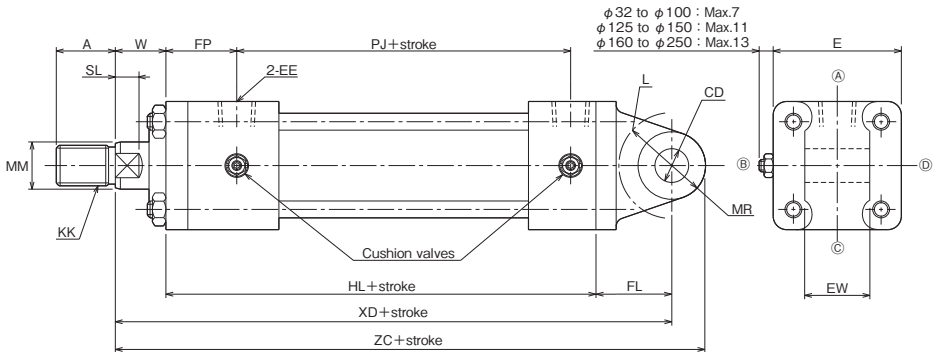
CA

70H-8	1	CA	Bore	B	B	Stroke	—	A	B
140H-8	1	CA	Bore	B	B	Stroke	—	A	B

70-140H-8/TH8 Bore A. C ? is available. CAD/DATA



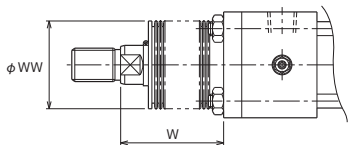
Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- For the cylinders with a bore of 180 mm or more, the CA accessory is provided with a gray cast iron bush.
- The CA accessory for cylinders with a bore of 180 mm or more is made of rolled steel for general structure (welding type) and provided with a gray cast iron bush.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

With Boots

70-140H-8/TH8 Bore K ?



Dimension W
Rod B/C

Nylon tarpaulin
Chloroprene

φ32	1/3	stroke+X
φ40-φ50	1/3.5	stroke+X
φ63 to φ100	1/4	stroke+X
φ125 to φ200	1/5	stroke+X
φ224 to φ250	1/6	stroke+X

Conex

φ32	1/2	stroke+X
φ40-φ50	1/2.5	stroke+X
φ63 to φ100	1/3	stroke+X
φ125-φ140	1/3.5	stroke+X
φ150 to φ200	1/4	stroke+X
φ224-φ250	1/4.5	stroke+X

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin
Chloroprene

φ40	1/3.5	stroke+X
φ50 to φ80	1/4	stroke+X
φ100 to φ160	1/5	stroke+X

Conex

φ40	1/2.5	stroke+X
φ50 to φ80	1/3	stroke+X
φ100	1/3.5	stroke+X
φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10	—	—	—	—	—	—	—

Symbol Bore	CD	E	EE	EW	FL	FP	HL	L	MR	PJ	W		XD		ZC	
											B·C	A	B·C	A	B·C	A
φ32	φ16H9	□58	Rc3/8	25 ^{-0.1} _{-0.4}	38	38	141	R20	R16	90	30	—	209	—	225	—
φ40	φ16H9	□65	Rc3/8	25 ^{-0.1} _{-0.4}	38	38	141	R20	R16	90	30	35	209	214	225	230
φ50	φ20H9	□76	Rc1/2	31.5 ^{-0.1} _{-0.4}	45	42	155	R25	R20	98	30	41	230	241	250	261
φ63	φ31.5H9	□90	Rc1/2	40 ^{-0.1} _{-0.4}	63	46	163	R46	R31.5	102	35	48	261	274	292.5	305.5
φ80	φ31.5H9	□110	Rc3/4	40 ^{-0.1} _{-0.4}	72	56	184	R52	R31.5	110	35	51	291	307	322.5	338.5
φ100	φ40H9	□135	Rc3/4	50 ^{-0.1} _{-0.4}	84	58	192	R62	R40	116	40	57	316	333	356	373
φ125	φ50H9	□165	Rc1	63 ^{-0.1} _{-0.4}	100	67	220	R73	R50	130	45	57	365	377	415	427
φ140	φ63H9	□185	Rc1	80 ^{-0.1} _{-0.6}	120	69	230	R91	R63	138	50	57	400	407	463	470
φ150	φ63H9	□196	Rc1	80 ^{-0.1} _{-0.6}	122	71	240	R91	R63	146	50	57	412	419	475	482
φ160	φ71H9	□210	Rc1	80 ^{-0.1} _{-0.6}	137	74	253	R103	R71	156	55	57	445	447	516	518
φ180	φ80H9	□235	Rc1 1/4	100 ^{-0.1} _{-0.6}	150	75	275	R100	R80	172	55	—	480	—	560	—
φ200	φ90H9	□262	Rc1 1/2	125 ^{-0.1} _{-0.6}	170	85	301	R115	R90	184	55	—	526	—	616	—
φ224	φ100H9	□292	Rc1 1/2	125 ^{-0.1} _{-0.6}	185	89	305	R125	R100	184	60	—	550	—	650	—
φ250	φ100H9	□325	Rc2	125 ^{-0.1} _{-0.6}	185	106	346	R125	R100	200	65	—	596	—	696	—

- The tolerance of B is h8, and that of MM is f8.

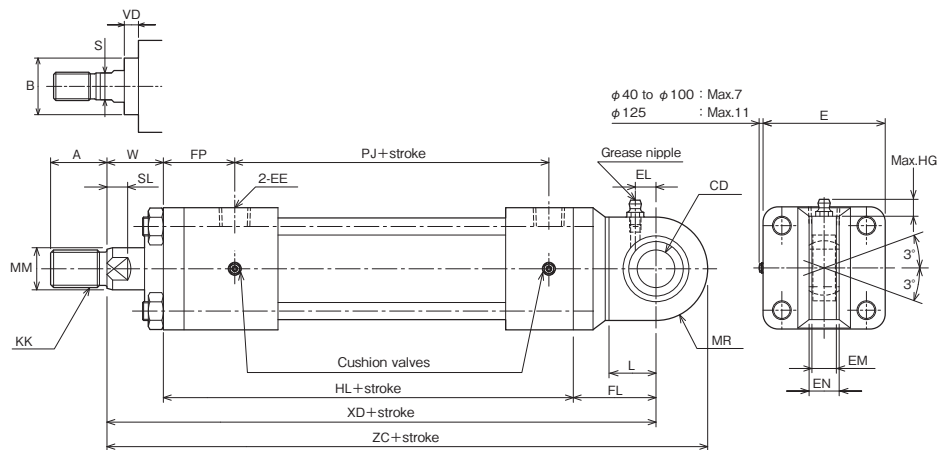
With Boots

Symbol		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
Bore	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—



CS

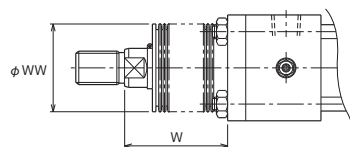
70H-8	1	CS	Bore	B	B	Stroke	-	A	B
140H-8	1	CS	Bore	B	B	Stroke	-	A	B



- The spherical bearings are not filled with grease. Lubricate appropriately through the grease nipple.
- The bearing inner diameter and mounting width conform to JIS B8367-2 MP5 type regulation. (Same standard with 160H-1 Series)
- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.

With Boots

70-140H-8/TH8 Bore K



Dimension W
Rod B/C

Nylon tarpaulin	φ40·φ50	1/3.5 stroke+X
Chloroprene	φ63 to φ100	1/4 stroke+X
	φ125	1/5 stroke+X
Conex	φ40·φ50	1/2.5 stroke+X
	φ63 to φ100	1/3 stroke+X
	φ125	1/3.5 stroke+X

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80℃	130℃	200℃

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin	φ40	1/3.5 stroke+X
Chloroprene	φ50 to φ80	1/4 stroke+X
	φ100·φ125	1/5 stroke+X
Conex	φ40	1/2.5 stroke+X
	φ50 to φ80	1/3 stroke+X
	φ100	1/3.5 stroke+X
	φ125	1/4 stroke+X

- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17

Symbol Bore	CD	E	EE	EN	EM	FL	FP	HL	L	MR	PJ	W		XD		ZC		Grease nipple		
												B.C	A	B.C	A	B.C	A	Type	EL	HG
φ40	φ20 ^{-0.012}	65	Rc3/8	16 ^{-0.12}	13	44	38	141	25	R27.5	90	30	35	215	220	242.5	247.5	JIS A type MT6×1	11	11
φ50	φ25 ^{-0.012}	76	Rc1/2	20 ^{-0.12}	17	53	42	155	31	R32.5	98	30	41	238	249	270.5	281.5	JIS A type MT6×1	14	11
φ63	φ30 ^{-0.012}	90	Rc1/2	22 ^{-0.12}	19	64	46	163	38	R40	102	35	48	262	275	302	315	JIS A type Rc1/8	15	15
φ80	φ40 ^{-0.012}	110	Rc3/4	28 ^{-0.12}	23	81	56	184	48	R50	110	35	51	300	316	350	366	JIS A type Rc1/8	20	15
φ100	φ50 ^{-0.012}	135	Rc3/4	35 ^{-0.12}	30	96	58	192	58	R60	116	40	57	328	345	388	405	JIS A type Rc1/8	24	15
φ125	φ60 ^{-0.015}	165	Rc1	44 ^{-0.15}	38	117	67	220	72	R75	130	45	57	382	394	457	469	JIS A type Rc1/8	28	15

- The tolerance of B is h8, and that of MM is f8.

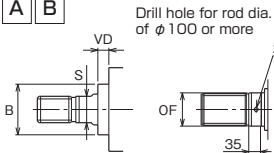
With Boots

Symbol Bore		φ40	φ50	φ63	φ80	φ100	φ125
WW	Rod B	50	63	71	80	100	125
	Rod C	50	50	63	71	80	100
	Rod A	63	71	80	100	125	140
X	Rod B	45	45	55	55	55	65
	Rod C	45	45	55	55	55	65
	Rod A	45	55	55	55	65	65

CB

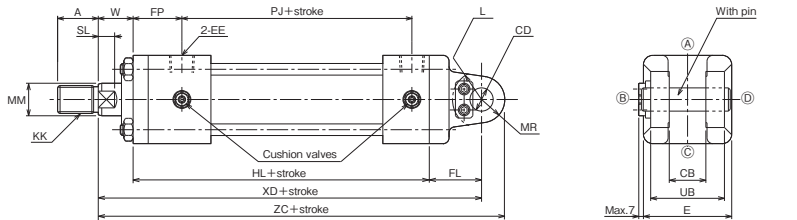
70H-8	1	CB	Bore	B	B	Stroke	—	A	B
140H-8	1	CB	Bore	B	B	Stroke	—	A	B

CAD/DATA 70-140H-8/TH8 □Bore □A. C is available. □?

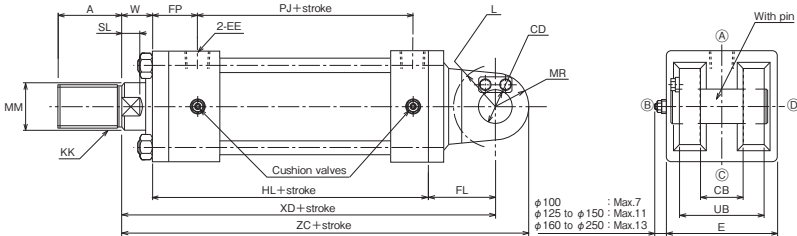


Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15

• Bore φ32 to φ80



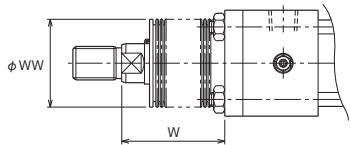
• Bore φ100 to φ250



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- Material of CB accessory for cylinders with bores from 32 to 160 mm: Nodular graphite cast iron
- Material of CB accessory for cylinders with a bore of 180 mm or more: Rolled steel for general structure
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

With Boots

70-140H-8/TH8 □Bore □K □?



Dimension W
Rod B/C

Nylon tarpaulin
Chloroprene

Conex

• If the calculated value has a fractional part, round it up.

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin
Chloroprene

Conex

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	—	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	—	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	—	16
φ180	140	φ125	M95×2	φ100	—	—	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	—	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	—	10	140	φ125	M95×2	φ100	—	—	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	—	10	150	φ140	M100×2	φ112	—	—	10	—	—	—	—	—	—	—

Symbol Bore	CB	CD	E	EE	FL	FP	HL	L	MR	PJ	UB	W		XD		ZC	
												B·C	A	B·C	A	B·C	A
φ32	25 ^{+0.4} _{-0.1}	φ16 ^{H9} ₁₈	□58	Rc3/8	38	38	141	R20	R16	90	50	30	—	209	—	225	—
φ40	25 ^{+0.4} _{-0.1}	φ16 ^{H9} ₁₈	□65	Rc3/8	38	38	141	R20	R16	90	50	30	35	209	214	225	230
φ50	31.5 ^{+0.4} _{-0.1}	φ20 ^{H9} ₁₈	□76	Rc1/2	45	42	155	R25	R20	98	63.5	30	41	230	241	250	261
φ63	40 ^{+0.4} _{-0.1}	φ31.5 ^{H9} ₁₈	□90	Rc1/2	63	46	163	R40	R31.5	102	80	35	48	261	274	292.5	305.5
φ80	40 ^{+0.4} _{-0.1}	φ31.5 ^{H9} ₁₈	□110	Rc3/4	72	56	184	R40	R31.5	110	80	35	51	291	307	322.5	338.5
φ100	50 ^{+0.4} _{-0.1}	φ40 ^{H9} ₁₈	□135	Rc3/4	84	58	192	R50	R40	116	98	40	57	316	333	356	373
φ125	63 ^{+0.4} _{-0.1}	φ50 ^{H9} ₁₈	□165	Rc1	100	67	220	R62	R50	130	126	45	57	365	377	415	427
φ140	80 ^{+0.4} _{-0.1}	φ63 ^{H9} ₁₈	□185	Rc1	120	69	230	R79	R63	138	160	50	57	400	407	463	470
φ150	80 ^{+0.6} _{-0.1}	φ63 ^{H9} ₁₈	□196	Rc1	122	71	240	R82	R63	146	160	50	57	412	419	475	482
φ160	80 ^{+0.6} _{-0.1}	φ71 ^{H9} ₁₈	□210	Rc1	137	74	253	R89	R71	156	160	55	57	445	447	516	518
φ180	100 ^{+0.6} _{-0.1}	φ80 ^{H9} ₁₈	□235	Rc1 1/4	150	75	275	R100	R80	172	200	55	—	480	—	560	—
φ200	125 ^{+0.6} _{-0.1}	φ90 ^{H9} ₁₈	□262	Rc1 1/2	170	85	301	R115	R90	184	251	55	—	526	—	616	—
φ224	125 ^{+0.6} _{-0.1}	φ100 ^{H9} ₁₈	□292	Rc1 1/2	185	89	305	R125	R100	184	251	60	—	550	—	650	—
φ250	125 ^{+0.6} _{-0.1}	φ100 ^{H9} ₁₈	□325	Rc2	185	106	346	R125	R100	200	251	65	—	596	—	696	—

• The tolerance of B is h8, and that of MM is f8.

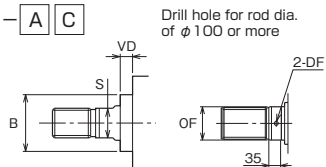
With Boots

Symbol Bore	Rod B	φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
		40	50	63	71	80	100	125	125	140	140	160	180	180	200
WW	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
X	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—
	Rod B	—	45	55	55	55	65	65	65	65	65	—	—	—	—

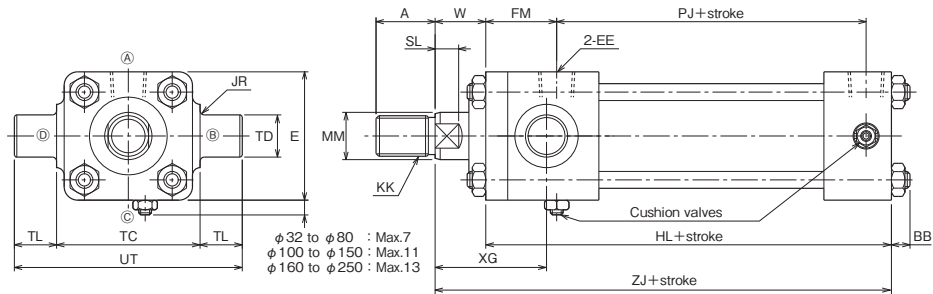


TA

70H-8	1	TA	Bore	B	B	Stroke	-	A	C
140H-8	1	TA	Bore	B	B	Stroke	-	A	C

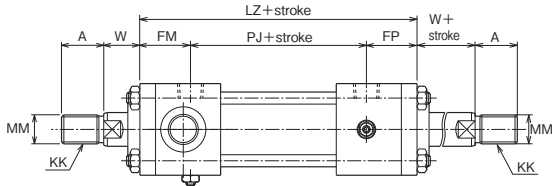


Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15



- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set." All the contents other than "Sensor mounting dimensions" are the same.
- The cushion valve and air vent of the TA style are positioned on © for structural reasons (rod cover side).
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

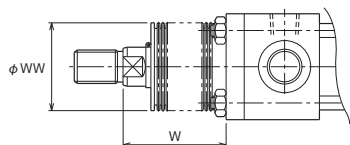
Double rod type (rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

With Boots

70-140H-8/TH8 Bore K



Dimension W
Rod B/C

Nylon tarpaulin
Chloroprene

φ32	1/3	stroke+X
φ40-φ50	1/3.5	stroke+X
φ63 to φ100	1/4	stroke+X
φ125 to φ200	1/5	stroke+X
φ224 to φ250	1/6	stroke+X

Conex

φ32	1/2	stroke+X
φ40-φ50	1/2.5	stroke+X
φ63 to φ100	1/3	stroke+X
φ125-φ140	1/3.5	stroke+X
φ150 to φ200	1/4	stroke+X
φ224-φ250	1/4.5	stroke+X

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin
Chloroprene

φ40	1/3.5	stroke+X
φ50 to φ80	1/4	stroke+X
φ100 to φ160	1/5	stroke+X

Conex

φ40	1/2.5	stroke+X
φ50 to φ80	1/3	stroke+X
φ100	1/3.5	stroke+X
φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	Drill hole	10	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	Drill hole	10	—	—	—	—	—	—	—

Symbol Bore	BB	E	EE	FM	FP	HL	JR	LZ	PJ	TC	TD	TL	UT	W		XG		ZJ	
														B·C	A	B·C	A	B·C	A
φ32	11	□58	Rc3/8	38	38	141	R2	166	90	58 ⁰ _{-0.3}	φ20e9	20	98	30	—	62	—	171	—
φ40	11	□65	Rc3/8	38	38	141	R2	166	90	69 ⁰ _{-0.3}	φ20e9	20	109	30	35	62	67	171	176
φ50	11	□76	Rc1/2	42	42	155	R2.5	182	98	85 ⁰ _{-0.35}	φ25e9	25	135	30	41	66	77	185	196
φ63	13	□90	Rc1/2	46	46	163	R2.5	194	102	98 ⁰ _{-0.35}	φ31.5e9	31.5	161	35	48	74	87	198	211
φ80	16	□110	Rc3/4	56	56	184	R2.5	222	110	118 ⁰ _{-0.35}	φ31.5e9	31.5	181	35	51	82	98	219	235
φ100	18	□135	Rc3/4	58	58	192	R3	232	116	145 ⁰ _{-0.4}	φ40e9	40	225	40	57	89	106	232	249
φ125	21	□165	Rc1	67	67	220	R3	264	130	175 ⁰ _{-0.4}	φ50e9	50	275	45	57	103	115	265	277
φ140	22	□185	Rc1	69	69	230	R4	276	138	195 ⁰ _{-0.46}	φ63e9	63	321	50	57	112	119	280	287
φ150	25	□196	Rc1	71	71	240	R4	288	146	206 ⁰ _{-0.46}	φ63e9	63	332	50	57	112	119	290	297
φ160	25	□210	Rc1	74	74	253	R4	304	156	218 ⁰ _{-0.46}	φ71e9	71	360	55	57	126	128	308	310
φ180	27	□235	Rc1 1/4	106	75	306	R4	353	172	243 ⁰ _{-0.46}	φ80e9	80	403	55	—	136	—	361	—
φ200	29	□262	Rc1 1/2	116	85	332	R5	385	184	272 ⁰ _{-0.52}	φ90e9	90	452	55	—	145	—	387	—
φ224	34	□292	Rc1 1/2	129	89	345	R5	402	184	300 ⁰ _{-0.52}	φ100e9	100	500	60	—	160	—	405	—
φ250	37	□325	Rc2	126	106	366	R5	432	200	335 ⁰ _{-0.57}	φ100e9	100	535	65	—	170	—	431	—

- The tolerance of B is h8, and that of MM is f8.

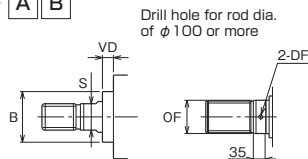
With Boots

Symbol		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
Bore	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

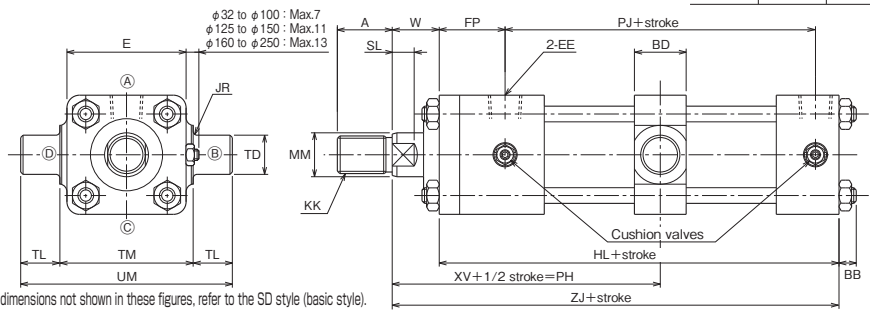


TC

70H-8	1	TC	Bore	B	B	Stroke	-	A	B
140H-8	1	TC	Bore	B	B	Stroke	-	A	B



Rod dia.	OF	DF
φ100	φ99.5	φ12
φ112	φ111.5	φ15
φ125	φ124.5	φ15
φ140	φ139.5	φ15

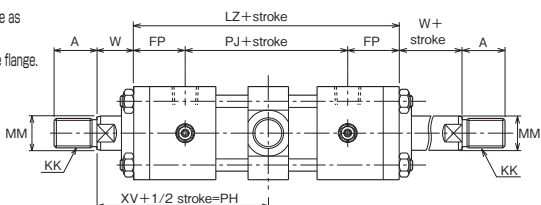


- For dimensions not shown in these figures, refer to the SD style (basic style).
- For the mounting of sensors, refer to the dimensional drawings of "Switch Set" All the contents other than "Sensor mounting dimensions" and "Minimum dimension PH of Switch Set Cylinders" are the same.
- To change the position of TC accessory, specify dimension PH.
- For the cylinders with bores from 140 to 250 mm, the minimum strokes are as shown in the following table.
- If the port size exceeds 1 inch, it is recommended to order G thread or pipe flange. In such a case, contact us. (Order made)

Minimum Available Strokes

Bore	Min. stroke	Bore	Min. stroke
φ140	6	φ200	18
φ150	0	φ224	27
φ160	8	φ250	27
φ180	12		

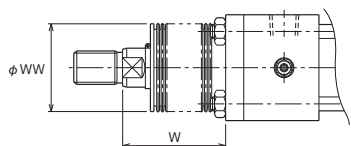
Double rod type (φ32 to φ250/rod B or C)
for loading on both sides



- The Switch Set (φ32 to φ140) is also within the standard stroke range.

70-140H-8/TH8 Bore K

With Boots



Dimension W
Rod B/C

Nylon tarpaulin	φ32	1/3	stroke+X
Chloroprene	φ40-φ50	1/3.5	stroke+X
	φ63 to φ100	1/4	stroke+X
	φ125 to φ200	1/4	stroke+X
	φ224 to φ250	1/6	stroke+X
Conex	φ32	1/2	stroke+X
	φ40-φ50	1/2.5	stroke+X
	φ63 to φ100	1/3	stroke+X
	φ125-φ140	1/3.5	stroke+X
	φ150 to φ200	1/4	stroke+X
	φ224-φ250	1/4.5	stroke+X

- If the calculated value has a fractional part, round it up.

	Standard	Semi-standard
Material	Nylon tarpaulin	Chloroprene
Heat proof	80°C	130°C
		200°C

Notes)

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- Conex is the registered trademark of Teijin Limited.
- The boots have been mounted at our factory prior to delivery.

Rod A

Nylon tarpaulin	φ40	1/3.5	stroke+X
Chloroprene	φ50 to φ80	1/4	stroke+X
	φ100 to φ160	1/5	stroke+X
Conex	φ40	1/2.5	stroke+X
	φ50 to φ80	1/3	stroke+X
	φ100	1/3.5	stroke+X
	φ125 to φ160	1/4	stroke+X

Dimensional Table

Symbol Bore	Rod B							Rod C							Rod A						
	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD	A	B	KK	MM	S	SL	VD
φ32	25	φ34	M16×1.5	φ18	14	10	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
φ40	30	φ40	M20×1.5	φ22.4	19	11	10	25	φ36	M16×1.5	φ18	14	10	10	35	φ43	M24×1.5	φ28	24	14	17
φ50	35	φ46	M24×1.5	φ28	24	14	10	30	φ40	M20×1.5	φ22.4	19	11	10	45	φ50	M30×1.5	φ35.5	30	16	17
φ63	45	φ55	M30×1.5	φ35.5	30	16	10	35	φ46	M24×1.5	φ28	24	14	10	60	φ65	M39×1.5	φ45	41	20	19
φ80	60	φ65	M39×1.5	φ45	41	20	10	45	φ55	M30×1.5	φ35.5	30	16	9	75	φ80	M48×1.5	φ56	50	23	20
φ100	75	φ80	M48×1.5	φ56	50	23	10	60	φ65	M39×1.5	φ45	41	20	10	95	φ95	M64×2	φ71	65	27	23
φ125	95	φ95	M64×2	φ71	65	27	10	75	φ80	M48×1.5	φ56	50	23	10	120	φ115	M80×2	φ90	85	33	17
φ140	110	φ105	M72×2	φ80	75	31	10	80	φ85	M56×2	φ63	55	24	10	140	φ125	M95×2	φ100	—	Drill hole	17
φ150	115	φ110	M76×2	φ85	80	33	10	85	φ90	M60×2	φ67	60	30	10	140	φ125	M95×2	φ100	—	Drill hole	15
φ160	120	φ115	M80×2	φ90	85	33	10	95	φ95	M64×2	φ71	65	27	10	150	φ140	M100×2	φ112	—	Drill hole	16
φ180	140	φ125	M95×2	φ100	—	Drill hole	10	110	φ105	M72×2	φ80	75	31	10	—	—	—	—	—	—	—
φ200	150	φ140	M100×2	φ112	—	Drill hole	10	120	φ115	M80×2	φ90	85	33	10	—	—	—	—	—	—	—
φ224	180	φ150	M120×2	φ125	—	Drill hole	10	140	φ125	M95×2	φ100	—	10	—	—	—	—	—	—	—	—
φ250	195	φ170	M130×2	φ140	—	Drill hole	10	150	φ140	M100×2	φ112	—	10	—	—	—	—	—	—	—	—

Symbol Bore	BB	BD	E	EE	FP	HL	JR	LZ	Min. PH		PJ	TD	TL	TM	UM	W		XV		ZJ	
									B·C	A						B·C	A	B·C	A		
φ32	11	28	□58	Rc3/8	38	141	R2	166	105	—	90	φ20e9	20	58 ⁰ _{-0.3}	98	30	—	113	—	171	—
φ40	11	28	□65	Rc3/8	38	141	R2	166	105	110	90	φ20e9	20	69 ⁰ _{-0.3}	109	30	35	113	118	171	176
φ50	11	33	□76	Rc1/2	42	155	R2.5	182	113.5	124.5	98	φ25e9	25	85 ⁰ _{-0.35}	135	30	41	121	132	185	196
φ63	13	43	□90	Rc1/2	46	163	R2.5	194	127.5	140.5	102	φ31.5e9	31.5	98 ⁰ _{-0.35}	161	35	48	132	145	198	211
φ80	16	43	□110	Rc3/4	56	184	R2.5	222	140.5	156.5	110	φ31.5e9	31.5	118 ⁰ _{-0.35}	181	35	51	146	162	219	235
φ100	18	53	□135	Rc3/4	58	192	R3	232	152.5	169.5	116	φ40e9	40	145 ⁰ _{-0.40}	225	40	57	156	173	232	249
φ125	21	58	□165	Rc1	67	220	R3	264	174	186	130	φ50e9	50	175 ⁰ _{-0.40}	275	45	57	177	189	265	277
φ140	22	78	□185	Rc1	69	230	R4	276	191	198	138	φ63e9	63	195 ⁰ _{-0.46}	321	50	57	188	195	280	287
φ150	25	78	□196	Rc1	71	240	R4	288	193	200	146	φ63e9	63	206 ⁰ _{-0.46}	332	50	57	194	201	290	297
φ160	25	88	□210	Rc1	74	253	R4	304	211	213	156	φ71e9	71	218 ⁰ _{-0.46}	360	55	57	207	209	308	310
φ180	27	98	□235	Rc1 ^{1/4}	75	275	R4	322	225	—	172	φ80e9	80	243 ⁰ _{-0.46}	403	55	—	216	—	330	—
φ200	29	108	□262	Rc1 ^{1/2}	85	301	R5	354	244	—	184	φ90e9	90	272 ⁰ _{-0.52}	452	55	—	232	—	356	—
φ224	34	117	□292	Rc1 ^{1/2}	89	305	R5	362	257.5	—	184	φ100e9	100	300 ⁰ _{-0.52}	500	60	—	241	—	365	—
φ250	37	117	□325	Rc2	106	346	R5	412	287.5	—	200	φ100e9	100	335 ⁰ _{-0.57}	535	65	—	271	—	411	—

- The tolerance of B is h8, and that of MM is f8.

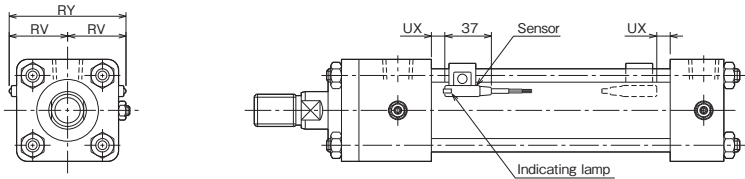
With Boots

Symbol Bore		φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140	φ150	φ160	φ180	φ200	φ224	φ250
WW	Rod B	40	50	63	71	80	100	125	125	140	140	160	180	180	200
	Rod C	—	50	50	63	71	80	100	125	125	125	125	140	160	180
	Rod A	—	63	71	80	100	125	140	160	160	180	—	—	—	—
X	Rod B	45	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod C	—	45	45	55	55	55	65	65	65	65	65	65	80	80
	Rod A	—	45	55	55	55	65	65	65	65	65	—	—	—	—

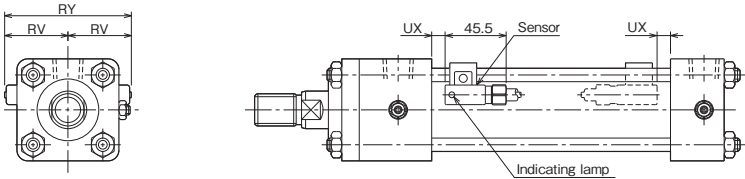
Switch Set

70H-8R	2	SD	Bore	B	B	200	-	A	B	Sensor symbol	Sensor quantity
140H-8R	2	SD	Bore	B	B	200	-	A	B	Sensor symbol	Sensor quantity

AX type (Reed sensor), AX type (Solid state sensor)

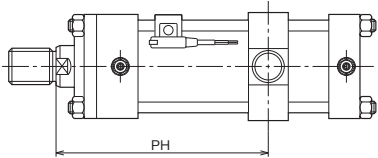


WR type (Reed sensor), WS type (Solid state sensor/2-wire, 2-LED type) (Cutting oil proof type)

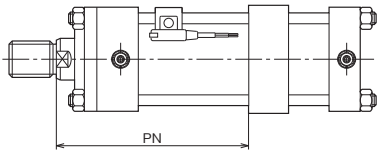


Minimum dimensions PH and PN of Switch Set Cylinders 70/140H-8R

• TC style



• FK style



• The minimum dimensions PH and PN of a Switch Set Cylinder are the dimensions obtained when the sensor is mounted on the rod side and the trunnion is moved toward the rod side as far as possible.

When boots are provided, dimension W changes. Specify dimension PH or PN.

Dimensional Table

Symbol Bore	RV			RY			UX				Min. dimension PH				Min. dimension PN			
	AX type AX205W	SR type	WR/WS type	AX type AX205W	SR type	WR/WS type	AX type AX205W	SR type	WR type	WS type	AX type AX205W	SR type	WR type	WS type	AX type AX205W	SR type	WR type	WS type
φ32	36	40	39	72	80	78	13	6	9	12	171	181	190	193	157	167	176	179
φ40	40	46	43	80	92	86	14	6	9	13	171	181	190	193	157	167	176	179
φ50	43	50	47	86	100	94	15	7	9	14	178.5	193.5	198.5	203.5	162	177	182	187
φ63	50	56	53	100	112	106	17	10	13	16	196.5	211.5	216.5	218.5	175	190	195	197
φ80	60	64	63	120	128	126	19	11	13	17	211.5	226.5	229.5	233.5	190	205	208	212
φ100	70	74	72	140	148	144	21	13	14	21	224.5	239.5	242.5	249.5	198	213	216	223
φ125	83	89	85	166	178	170	23	17	19	23	250	265	269	273	221	236	240	244
φ140	91	—	—	182	—	—	26	—	—	—	280	—	—	—	241	—	—	—

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

Bore mm	Reed sensor						Solid state sensor					
	AX1 * *		SR type		WR type		AX2 * *		AX2 * *W		WS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
φ32	4 to 14	2 or less	7 to 10	3 or less	4 to 9	2 or less	3 to 8	1 or less	9 to 12	2 or less	9 to 12	2 or less
φ40			7 to 12		6 to 12				11 to 17		11 to 17	
φ50												
φ63												
φ80												
φ100	11 to 18	10 to 16	10 to 17	4 to 10	17 to 21	17 to 21						
φ125	5 to 15	9 to 15	5 to 12									
φ140	11 to 20	—	—				—	—				

70/140H-8

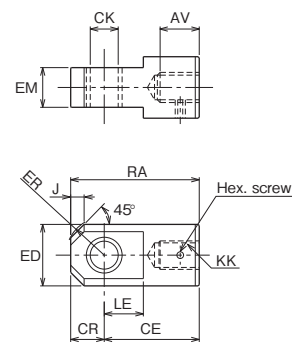
7/14 MPa Double Acting Hydraulic Cylinder Double Acting Single Rod/Double Rod Unit: mm

CAD/DATA
70-140H-8/TH8  K is available. 

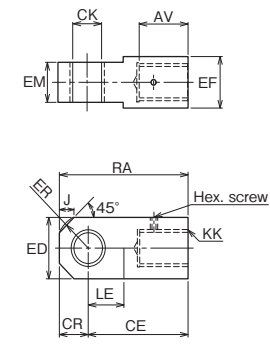
Rod End Attachment

Rod eye (T-end)

φ32 to φ160

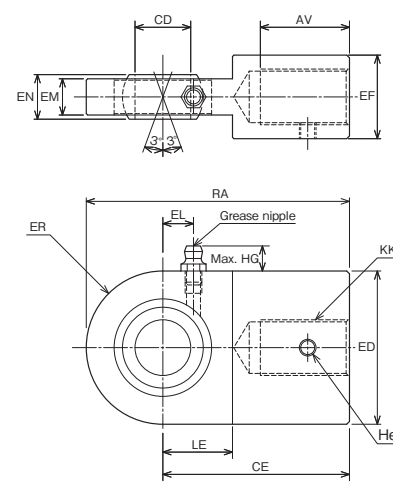


φ180 to φ250

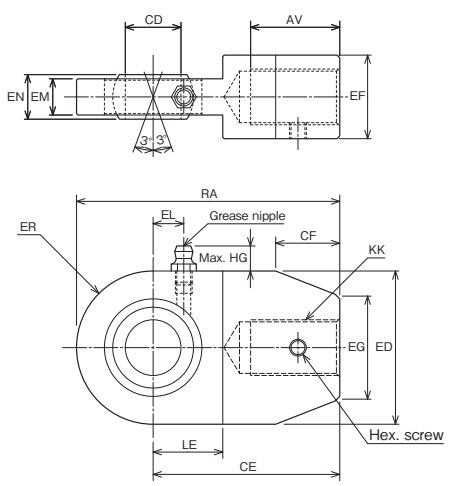


Rod eye with spherical bearing (S-end)

φ40 to φ63



φ80 to φ125



- Notes)
- The spherical bearings are not filled with grease. Lubricate appropriately through the grease nipple.
 - The bearing inner diameter and mounting width conform to JIS B8369.

7/14 MPa Double Acting Hydraulic Cylinder Double Acting Single Rod/Double Rod Unit: mm

70/140H-8

Dimensional Table/Rod eye (T-end)

Symbol Bore	Part number		AV		CE	CK	CR	ED	EF	EM	ER	J	KK		LE	RA
	Rod B	Rod C	Rod B	Rod C									Rod B	Rod C		
φ32	RTH-16-H	—	27	—	60	φ16H10	20	φ39	—	25 ^{-0.1} _{-0.4}	R23	8	M16×1.5	—	23	80
φ40	RTH-20-H	RTH-16-H	32	27	60	φ16H10	20	φ39	—	25 ^{-0.1} _{-0.4}	R23	8	M20×1.5	M16×1.5	23	80
φ50	RTH-24-H	RTH-20-1-H	37	32	70	φ20H10	25	φ49	—	31.5 ^{-0.1} _{-0.4}	R29	10	M24×1.5	M20×1.5	28	95
φ63	RTH-30-H	RTH-24-1-H	47	37	115	φ31.5H10	35	φ62	—	40 ^{-0.1} _{-0.4}	R39	15	M30×1.5	M24×1.5	43	150
φ80	RTH-39-H	RTH-30-H	62	47	115	φ31.5H10	35	φ62	—	40 ^{-0.1} _{-0.4}	R39	15	M39×1.5	M30×1.5	43	150
φ100	RTH-48-H	RTH-39-1-H	77	62	145	φ40H10	40	φ79	—	50 ^{-0.1} _{-0.4}	R45	20	M48×1.5	M39×1.5	55	185
φ125	RTH-64-H	RTH-48-1-H	97	77	180	φ50H10	50	φ100	—	63 ^{-0.1} _{-0.6}	R54	30	M64×2	M48×1.5	65	230
φ140	RTH-72-H	RTH-56-H	112	82	225	φ63H10	65	φ130	—	80 ^{-0.1} _{-0.6}	R74	30	M72×2	M56×2	85	290
φ150	RTH-76-H	RTH-60-H	117	87	225	φ63H10	65	φ130	—	80 ^{-0.1} _{-0.6}	R74	30	M76×2	M60×2	85	290
φ160	RTH-80-H	RTH-64-1-H	122	97	240	φ71H10	70	φ140	—	80 ^{-0.1} _{-0.6}	R77	40	M80×2	M64×2	90	310
φ180	RTH-95-H	RTH-72-1-H	142	112	280	φ80H10	80	160	130	100 ^{-0.1} _{-0.6}	R90	40	M95×2	M72×2	100	360
φ200	RTH-100-H	RTH-80-1-H	152	122	310	φ90H10	90	180	140	125 ^{-0.1} _{-0.6}	R99	50	M100×2	M80×2	120	400
φ224	RTH-120-H	RTH-95-1-H	182	142	370	φ100H10	100	200	170	125 ^{-0.1} _{-0.6}	R112	50	M120×2	M95×2	130	470
φ250	RTH-130-H	RTH-100-1-H	197	152	370	φ100H10	100	200	180	125 ^{-0.1} _{-0.6}	R112	50	M130×2	M100×2	130	470

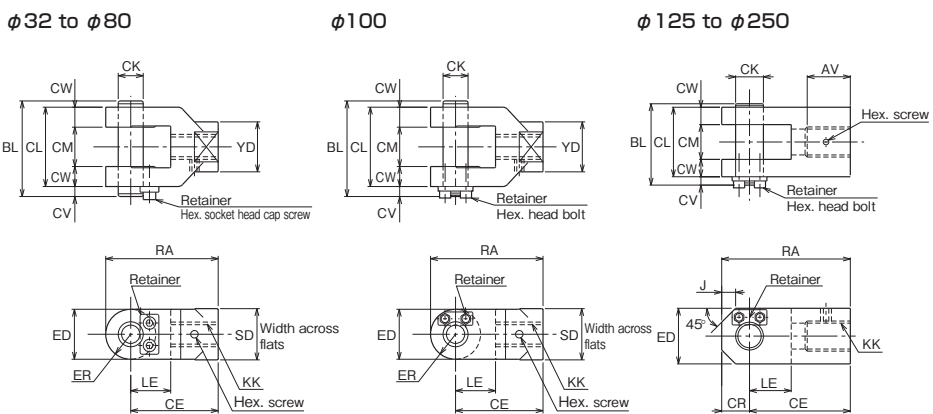
Dimensional Table/Rod eye with spherical bearing (S-end)

Symbol Bore	Part number		AV		CD	CE	CF	ED	EF	EG	EM	EN	ER	KK		LE	RA
	Rod B	Rod C	Rod B	Rod C										Rod B	Rod C		
φ40	RSH-20	RSH-16	32	27	φ20 ⁰ _{-0.012}	67	—	55	30	—	13	16 ⁰ _{-0.12}	R27.5	M20×1.5	M16×1.5	25	94.5
φ50	RSH-24	RSH-20-1	37	32	φ25 ⁰ _{-0.012}	78	—	65	35	—	17	20 ⁰ _{-0.12}	R32.5	M24×1.5	M20×1.5	31	110.5
φ63	RSH-30	RSH-24-1	47	37	φ30 ⁰ _{-0.012}	98	—	80	45	—	19	22 ⁰ _{-0.12}	R40	M30×1.5	M24×1.5	38	138
φ80	RSH-39	RSH-30-1	62	47	φ40 ⁰ _{-0.012}	125	60	100	55	69	23	28 ⁰ _{-0.12}	R50	M39×1.5	M30×1.5	48	175
φ100	RSH-48	RSH-39-1	77	62	φ50 ⁰ _{-0.012}	152	50	120	70	93	30	35 ⁰ _{-0.12}	R60	M48×1.5	M39×1.5	58	212
φ125	RSH-64	RSH-48-1	97	77	φ60 ⁰ _{-0.015}	187	72	150	90	105	38	44 ⁰ _{-0.15}	R75	M64×2	M48×1.5	72	262

Dimensional Table/Grease nipple

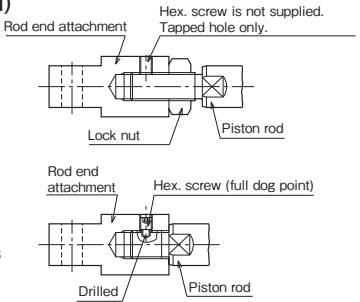
Symbol Bore	Rod B			Rod C		
	Grease nipple type	EL	HG	Grease nipple type	EL	HG
φ40	JIS A type MT6×1	11	11	JIS A type MT6×1	11	11
φ50	JIS A type MT6×1	14	11	JIS A type MT6×1	14	11
φ63	JIS A type Rc1/8	15	15	JIS A type Rc1/8	15	15
φ80	JIS A type Rc1/8	20	15	JIS A type Rc1/8	20	15
φ100	JIS A type Rc1/8	24	15	JIS A type Rc1/8	24	15
φ125	JIS A type Rc1/8	28	15	JIS A type Rc1/8	28	15

Rod clevis (Y-end) with pin



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

- ① When the lock nut and rod end attachment are additionally ordered
The rod end attachment and lock nut are temporarily assembled to the piston rod for delivery. Since the lock nut is not tightened, tighten it after adjusting the position of the rod end attachment.
No hex. screw is supplied.
- ② When only the rod end attachment is additionally ordered (without lock nut)
The rod end attachment is tightened to the piston rod, and a drill hole is made on the piston rod for delivery. If the drill hole is unnecessary, give us such instructions.



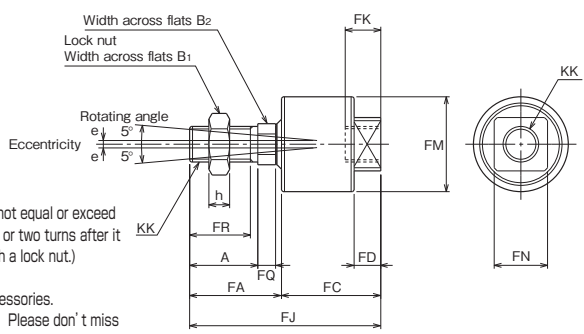
Floating joint (F-end)

Note: 70H-8 Series only

Applicable series

- 70H-8
- 70H-8R
- 70H-8D
- 70H-8RD

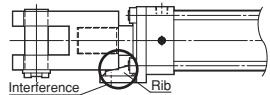
- Notes)
- The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
 - DO NOT use together with CA, CS, CB, TA, and TC accessories.
 - The lock nut is indispensable in using the floating joint. Please don't miss to order the lock nut with the floating joint.
 - Make an order for the cylinder rod end lock nut at the same time.



Dimensional Table/Rod clevis (Y-end) with pin

Symbol	Part number		AV		BL	CE	CK	CL	CM	CR	CV	CW	ED	ER	J	KK		LE	RA	SD	YD
	Rod B	Rod C	Rod B	Rod C												Rod B	Rod C				
φ32	RYH-16-H	—	—	—	62	60	φ16 ^{H10/18}	50	25 ^{+0.4/+0.1}	—	7	12.5	32	R16	—	M16×1.5	—	27	76	32	32
φ40	RYH-20-H	RYH-16-H	—	—	62	60	φ16 ^{H10/18}	50	25 ^{+0.4/+0.1}	—	7	12.5	32	R16	—	M20×1.5	M16×1.5	27	76	32	32
φ50	RYH-24-H	RYH-20-1-H	—	—	76.5	70	φ20 ^{H10/18}	63.5	31.5 ^{+0.4/+0.1}	—	8	16	40	R20	—	M24×1.5	M20×1.5	32	90	41	40
φ63	RYH-30-H	RYH-24-1-H	—	—	93	115	φ31.5 ^{H10/18}	80	40 ^{+0.4/+0.1}	—	8	20	60	R30	—	M30×1.5	M24×1.5	50	145	60	60
φ80	RYH-39-H	RYH-30-H	—	—	93	115	φ31.5 ^{H10/18}	80	40 ^{+0.4/+0.1}	—	8	20	60	R30	—	M39×1.5	M30×1.5	50	145	60	60
φ100	RYH-48-H	RYH-39-1-H	—	—	117	145	φ40 ^{H10/18}	100	50 ^{+0.4/+0.1}	—	12	25	80	R40	—	M48×1.5	M39×1.5	60	185	80	80
φ125	RYH-64-H	RYH-48-1-H	97	77	143	180	φ50 ^{H10/18}	126	63 ^{+0.6/+0.1}	50	12	31.5	100	R54	30	M64×2	M48×1.5	70	230	—	—
φ140	RYH-72-H	RYH-56-H	112	82	183	225	φ63 ^{H10/18}	160	80 ^{+0.6/+0.1}	65	18	40	120	R72	30	M72×2	M56×2	90	290	—	—
φ150	RYH-76-H	RYH-60-H	117	87	183	225	φ63 ^{H10/18}	160	80 ^{+0.6/+0.1}	65	18	40	120	R72	30	M76×2	M60×2	90	290	—	—
φ160	RYH-80-H	RYH-64-1-H	122	97	183	240	φ71 ^{H10/18}	160	80 ^{+0.6/+0.1}	70	18	40	140	R77	40	M80×2	M64×2	100	310	—	—
φ180	RYH-95-H	RYH-72-1-H	142	112	210	280	φ80 ^{H10/18}	180	100 ^{+0.6/+0.1}	80	24	40	160	R90	40	M95×2	M72×2	110	360	—	—
φ200	RYH-100-H	RYH-80-1-H	152	122	260	310	φ90 ^{H10/18}	230	125 ^{+0.6/+0.1}	90	24	52.5	180	R99	50	M100×2	M80×2	130	400	—	—
φ224	RYH-120-H	RYH-95-1-H	182	142	280	370	φ100 ^{H10/18}	250	125 ^{+0.6/+0.1}	100	24	62.5	200	R112	50	M120×2	M95×2	140	470	—	—
φ250	RYH-130-H	RYH-100-1-H	197	152	280	370	φ100 ^{H10/18}	250	125 ^{+0.6/+0.1}	100	24	62.5	200	R112	50	M130×2	M100×2	140	470	—	—

Note) When the rod clevis (Y-end) is mounted to the LC style with the pin vertically, it may interfere with the rib. In such a case, consult us.

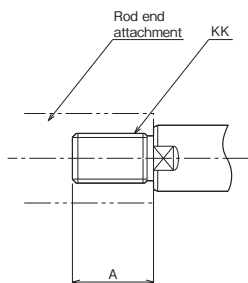


Dimensional Table/Floating joint (F-end)

Applicable bore		Part number	A	B1	B2	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	h	KK
Rod B	Rod C																
φ32	φ40	RFH-16	32	22	17	1.5	43	46	13	89	16	φ40	24	8	28	10	M16×1.5
φ40	φ50	RFH-20	40	27	22	2	53	57	15	110	22	φ50	30	9	35	12	M20×1.5
φ50	φ63	RFH-24	46	32	24	2.5	62	67	18	129	24	φ64	36	12	41	14	M24×1.5
φ63	φ80	RFH-30	58	41	32	2.5	78	83	21	161	30	φ76	46	14	52	17	M30×1.5

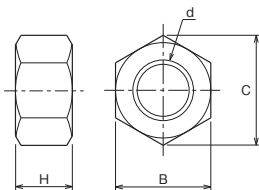


When rod end attachment is required (rod dia. A type)

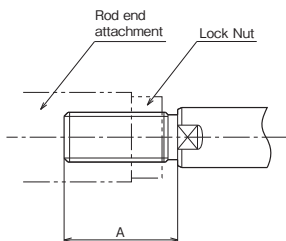


- It is recommended to change the thread diameter KK to the thread diameter of rod B (e.g. M30×1.5 → M24×1.5 in case of a 50-mm bore cylinder) and fit the rod end attachment for the rod B. In this case, specify dimensions A and KK.

Lock Nut



The standard fitting length of the rod end attachment and piston rod is about 80% of the thread diameter. If the fitting length is insufficient due to the use of the lock nut, it is necessary to increase the thread length (dimension A) as shown below.



Dimensional Table

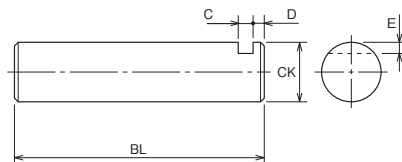
Symbol Bore	Dimension of rod A threaded portion		Dimension of rod B threaded portion		Rod end attachment for dimension of rod B threaded portion		
	A	KK	A	KK	Rod eye	Rod clevis	Floating joint
φ40	35	M24×1.5	30	M20×1.5	RTH-20-H	RYH-20-H	RFH-20
φ50	45	M30×1.5	35	M24×1.5	RTH-24-H	RYH-24-H	RFH-24
φ63	60	M39×1.5	45	M30×1.5	RTH-30-H	RYH-30-H	RFH-30
φ80	75	M48×1.5	60	M39×1.5	RTH-39-H	RYH-39-H	—
φ100	95	M64×2	75	M48×1.5	RTH-48-H	RYH-48-H	—
φ125	120	M80×2	95	M64×2	RTH-64-H	RYH-64-H	—
φ140	140	M95×2	110	M72×2	RTH-72-H	RYH-72-H	—
φ150	140	M95×2	115	M76×2	RTH-76-H	RYH-76-H	—
φ160	150	M100×2	120	M80×2	RTH-80-H	RYH-80-H	—

Dimensional Table/Lock nut

Symbol Bore	Rod B					Rod C					Rod A				
	Part number	B	C	d	H	Part number	B	C	d	H	Part number	B	C	d	H
φ32	LNH-16F-H	22	25.4	M16×1.5	10	—	—	—	—	—	—	—	—	—	—
φ40	LNH-20F-H	27	31.2	M20×1.5	12	LNH-16F-H	22	25.4	M16×1.5	10	LNH-24F-H	32	37.0	M24×1.5	14
φ50	LNH-24F-H	32	37.0	M24×1.5	14	LNH-20F-H	27	31.2	M20×1.5	12	LNH-30F-H	41	47.3	M30×1.5	17
φ63	LNH-30F-H	41	47.3	M30×1.5	17	LNH-24F-H	32	37.0	M24×1.5	14	LNH-39F-H	55	63.5	M39×1.5	20
φ80	LNH-39F-H	55	63.5	M39×1.5	20	LNH-30F-H	41	47.3	M30×1.5	17	LNH-48F-H	70	80.8	M48×1.5	26
φ100	LNH-48F-H	70	80.8	M48×1.5	26	LNH-39F-H	55	63.5	M39×1.5	20	LNH-64F-H	90	104	M64×2	35
φ125	LNH-64F-H	90	104	M64×2	35	LNH-48F-H	70	80.8	M48×1.5	26	LNH-80F-H	110	127	M80×2	43
φ140	LNH-72F-H	100	115	M72×2	38	LNH-56F-H	80	92.4	M56×2	30	LNH-95F-H	130	150	M95×2	47
φ150	LNH-76F-H	105	121	M76×2	40	LNH-60F-H	85	98.1	M60×2	33	LNH-95F-H	130	150	M95×2	47
φ160	LNH-80F-H	110	127	M80×2	43	LNH-64F-H	90	104	M64×2	35	LNH-100F-H	135	156	M100×2	50
φ180	LNH-95F-H	130	150	M95×2	47	LNH-72F-H	100	115	M72×2	38	—	—	—	—	—
φ200	LNH-100F-H	135	156	M100×2	50	LNH-80F-H	110	127	M80×2	43	—	—	—	—	—
φ224	LNH-120F-H	165	191	M120×2	60	LNH-95F-H	130	150	M95×2	47	—	—	—	—	—
φ250	LNH-130F-H	180	208	M130×2	65	LNH-100F-H	135	156	M100×2	50	—	—	—	—	—

Symbol Bore	Dimension A		
	Rod A	Rod B	Rod C
φ32	—	40	—
φ40	50	45	40
φ50	60	50	45
φ63	80	60	50
φ80	95	80	60
φ100	125	95	80
φ125	155	125	95
φ140	180	140	105
φ150	180	150	120
φ160	190	155	125
φ180	—	180	140
φ200	—	190	155
φ224	—	230	180
φ250	—	250	190

Parallel Pin

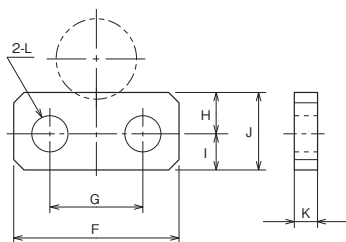


Dimensional Table/Parallel pin

Symbol Bore	BL	C	CK	D	E
φ32	62	4	φ16	3	3
φ40	62	4	φ16	3	3
φ50	76.5	5	φ20	3	3
φ63	93	5	φ31.5	3	4.75
φ80	93	5	φ31.5	3	4.75
φ100	117	7	φ40	5	5
φ125	143	7	φ50	5	5
φ140	183	10	φ63	8	8
φ150	183	10	φ63	8	8
φ160	183	10	φ71	8	8

● The tolerance of CK is f8.

Retainer



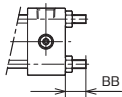
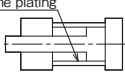
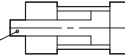
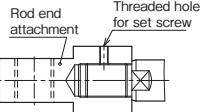
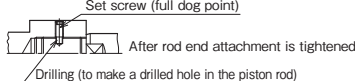
Dimensional Table/Retainer

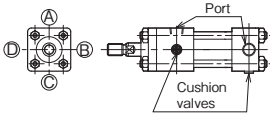
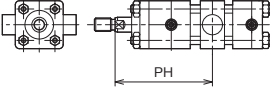
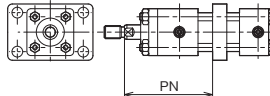
Symbol Bore	F	G	H	I	J	K	L	Retainer mounting bolt size
φ32	25	14	7	7	14	3	φ6.5	M6
φ40	25	14	7	7	14	3	φ6.5	M6
φ50	32	18	7.5	7.5	15	4.5	φ7	M6
φ63	32	18	7.5	7.5	15	4.5	φ7	M6
φ80	32	18	7.5	7.5	15	4.5	φ7	M6
φ100	50	30	10	10	20	6	φ10	M8
φ125	65	40	12	10	22	6	φ12	M10
φ140	75	48	17	13	30	9	φ14	M12
φ150	75	48	17	13	30	9	φ14	M12
φ160	75	48	17	13	30	9	φ14	M12

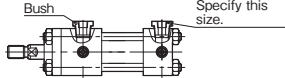
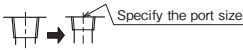
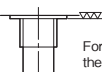
★ The semi-standard ordering system

The following contents can be easily specified using the semi-standard symbols and specification symbols (position/dimension/material symbols).

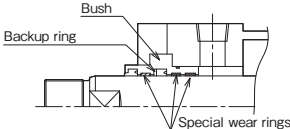
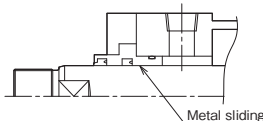
How to order **Series** **Model number** — × **① Semi-standard symbol** **② Position** **③ Dimension** **④ Material** **Position/Dimension/Material symbols**

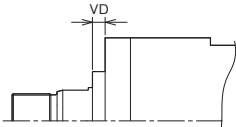
Order contents	Semi- ① standard symbol	Position		Dimension		Material	
		②Symbol	Description	③Symbol	Description	④Symbol	Description
■ Tie rods extension 	STD	TD-RS	Rod side	BB- 	 is a desired dimension BB of up to 70 mm.	—	—
		TD-HS	Cap side				
		TD-BS	Both sides				
Notes) 1) Tolerance of dimension BB is about 2 mm due to elongation by tightening. When precise dimension BB is required, specify the value. 2) For the LB or LC style, only upper two tie rods (on the side opposite to the accessory side) can be extended. For flange or clevis type, four tie rods on the side without the accessory can be extended.	Example	To specify SD style with dimension BB of 50 mm on both sides 70H-8R 2SD80BB100-ABAH2-X STD TD-BS, BB-50					
■ Hard chrome plated on the inside of cylinder tube (standard type only) 	STB	—	—	BG-0.02	Plating thickness 0.02 mm	—	—
	Example	To plate the tube inner surface 0.02 mm in thickness 70H-8 2LB80BB100-AB-X STB BG-0.02					
■ Stainless steel piston rod (φ40 to φ100) 	SPR	—	—	—	—	PR-10	Material: SUS304 Plating thickness 0.02mm
	Example	To specify piston rod made of SUS304 with plating thickness of 0.02 mm 70H-8R 2LB80BB100-ABAH2-X SPR PR-10					
■ Rod end attachments (T, Y, S) with a set screw and a copper piece (φ32 to φ160) 	MDC	—	—	—	—	—	—
	Example	No need to specify the material/dimension/position symbol. Example 1) When it is required to deliver the cylinder with a set screw and a copper piece attached to the Y-end (to be finally tightened by the customer) without a drill hole. 70H-8R 2CB80BB100-ABAH2-T-X MDC [CAUTION] The cylinder will be delivered with the rod end attachment temporarily mounted on the rod. After making the final adjustment, firmly tighten the rod end attachment, fit the copper piece into the set screw hole, and tighten the set screw. ★ Adhesive has been applied to the set screw for prevention of loosening. However, the effect of the adhesive varies depending on the conditions of use, etc. Confirm the effect by yourself. (Reference) Standard cylinders (without specifying the symbol 'MDC') will be delivered in the following state. 					

Order contents	① Semi-standard symbol	Position		Dimension		Material	
		② Symbol	Description	② Symbol	Description	② Symbol	Description
■ Change of port and cushion valve positions on the cap side 	PPC	PC- 	 indicates the port and cushion valve positions on the cap side.	—	—	—	—
		Example To change the port and cushion valve positions from the cap side to the rod side (AB on rod side, BC on cap side) 70H-8 2LA80BB100-AB-X PPC PC-BC					
■ Water-glycol working fluid Notes) 1) Iron tubing (standard type) is plated with hard chrome and tested with water-glycol fluid. 2) Stainless steel tubing (Switch Set) is not plated in conformity with the standard and tested with water-glycol fluid.	FWF	—	—	—	—	WF-WG	WF-WG: Water-glycol fluid
		Example 70H-8 6LB80BB100-AB-X FWF WF-WG					
■ Intermediate trunnion location change (dimension PH) 	MTC	—	—	TCPH- 	 is a new dimension.	—	—
		Example To change dimension PH to 360 mm 70H-8R 2TC63BB500-AB-X MTC TCPH-360					
■ Intermediate flange location change (dimension PN) 	MFK	—	—	FKPN- 	 is a new dimension.	—	—
		Example To change dimension PH to 1100 mm 140H-8 2FK80BB1800-AB-X MFK FKPN-1100					

Order contents	① Semi-standard symbol	Position		Dimension		Material							
		② Symbol	Description	③ Symbol	Description	④ Symbol	Description						
■Additional port of bushing 	PBS	—	—	RC-1.00	Rc1/8	—	—						
				RC-2.00	Rc1/4								
				RC-3.00	Rc3/8								
				RC-4.00	Rc1/2								
				RC-6.00	Rc3/4								
				RC-8.00	Rc1								
				RC-10.00	Rc1 1/4								
				RC-12.00	Rc1 1/2								
Notes 1) Select a reduced port size after mounting a bushing. 2) For reduction by more than two steps by using a bushing, consult us.	Example	To reduce the port size to Rc1/2 by mounting a bushing to 140H-8 CA style 80-mm bore cylinder (standard port size Rc3/4) 140H-8 2CA80BB300-AB-X PBS RC-4.00											
■Reduction of Rc thread port size (φ32 to φ160) ★Specify the size to reduce the port size without using a bushing.  Inapplicable to: ● All types of rod A ● Rod B or C with LA style	① Semi-standard symbol	Specify the size only		Port size selectable for cylinder bore (○: Standard port size)									
		③ Symbol	Description	32	40	50	63	80	100	125	140	150	160
		RC-1.00	Rc1/8	○	○	×	×	×	×	×	×	×	×
		RC-2.00	Rc1/4	○	○	○	○	×	×	×	×	×	×
		RC-3.00	Rc3/8	○	○	○	○	○	×	×	×	×	
		RC-4.00	Rc1/2	×	×	○	○	○	○	○	○	○	
		RC-6.00	Rc3/4	×	×	×	×	○	○	○	○	○	
		RC-8.00	Rc1	×	×	×	×	×	○	○	○	○	
		RC-10.00	Rc1 1/4	×	×	×	×	×	×	×	×	×	
		Note	To reduce the cover port directly to Rc3/8 without mounting a bushing to 63-mm bore cylinder (standard port size Rc1/2) 70H-8R 2CA80BB100-ABAH2-X PRT RC-3.00										
■Reduction of NPT thread port size (φ32 to φ160) Note) Select a standard port size and a reduced port size.  Inapplicable to: ● All types of rod A ● Rod B or C with LA style	① Semi-standard symbol	Specify the size only		Port size selectable for cylinder bore (○: Standard port size)									
		③ Symbol	Description	32	40	50	63	80	100	125	140	150	160
		N-1.00	NPT1/8	○	○	×	×	×	×	×	×	×	
		N-2.00	NPT1/4	○	○	○	○	×	×	×	×	×	
		N-3.00	NPT3/8	○	○	○	○	○	×	×	×	×	
		N-4.00	NPT1/2	×	×	○	○	○	○	○	○		
		N-6.00	NPT3/4	×	×	×	×	○	○	○	○		
		N-8.00	NPT1	×	×	×	×	×	○	○	○		
		N-10.00	NPT1 1/4	×	×	×	×	×	×	×	×		
		Cap side	To order the standard port size (○), see the following.										
Note	To reduce the cover port directly to Rc3/8 without mounting a bushing to 63-mm bore cylinder (standard port size Rc1/2) 70H-8R 2CA80BB100-ABAH2-X PRT RC-3.00												
■G thread type/NPT thread type (φ32 to φ160) (only standard port size)  For the G thread port size, refer to the dimensional table in the model specification field.	The thread type can be specified by the cylinder model number without using the semi-standard symbol and specification symbols. Example) 70H-8 2LA50BB100- G A B -TL G: Port G thread type N: NPT thread type Port position Cushion valve position												

How to order [Series] [Model number] — × [Semi-standard symbol] [Position/Dimension/Material symbols]

Order contents	Semi- ① standard symbol	Position		Dimension		Material	
		②Symbol	Description	③Symbol	Description	④Symbol	Description
■Reinforced bearing type (for resistance to lateral load) Type for improving the load resistance of the bearing block by using abrasion-resistant special wear rings for high load in the gland bush sliding part. Since the dimensions and appearance are the same as those of the standard type, the cylinder can be mounted in the same manner. 	MBH	—	—	—	—	—	—
	Example	Add 'MBH' to the end of the symbol for ordering (specification symbols are unnecessary). 140H-8R 2CB140BB1200-ABAH2 MBH (Reference) The standard gland has metal sliding surfaces as shown below. 					

■Outline drawing 	Rods A and B have the same dimensions as the standard type. For rod C, see the following dimensional table. Dimensional Table <table><tr><th>Rod type</th><th colspan="2">Rod C</th></tr><tr><th>Dimension symbol</th><th colspan="2">VD</th></tr><tr><th>Mounting style</th><td>SD・LA・LB・LC・FA・FB・FC・FD・FK・FZ・CA・CB・CS・TA・TC</td><td>FY</td></tr><tr><th>Bore</th><th>MBH</th><th>MBH</th></tr><tr><td>φ40</td><td>10</td><td>10</td></tr><tr><td>φ50</td><td>9</td><td>6</td></tr><tr><td>φ63</td><td>10</td><td>10</td></tr><tr><td>φ80</td><td>9</td><td>8</td></tr><tr><td>φ100</td><td>10</td><td>8</td></tr><tr><td>φ125</td><td>10</td><td>9</td></tr><tr><td>φ140</td><td>10</td><td>10</td></tr><tr><td>φ150</td><td>10</td><td>10</td></tr><tr><td>φ160</td><td>10</td><td>9</td></tr></table>	Rod type	Rod C		Dimension symbol	VD		Mounting style	SD・LA・LB・LC・FA・FB・FC・FD・FK・FZ・CA・CB・CS・TA・TC	FY	Bore	MBH	MBH	φ40	10	10	φ50	9	6	φ63	10	10	φ80	9	8	φ100	10	8	φ125	10	9	φ140	10	10	φ150	10	10	φ160	10	9
Rod type	Rod C																																							
Dimension symbol	VD																																							
Mounting style	SD・LA・LB・LC・FA・FB・FC・FD・FK・FZ・CA・CB・CS・TA・TC	FY																																						
Bore	MBH	MBH																																						
φ40	10	10																																						
φ50	9	6																																						
φ63	10	10																																						
φ80	9	8																																						
φ100	10	8																																						
φ125	10	9																																						
φ140	10	10																																						
φ150	10	10																																						
φ160	10	9																																						

Change of Rod End Shape

■ You can specify the shape and dimension of the rod end as shown below using the semi-standard symbols and dimension symbols.
(No need to specify the dimension symbol if you order a cylinder with the basic dimension. Specify only the semi-standard symbol.)

How to order Series Model number - × Semi-standard symbol Dimension symbol (Specify only when the dimension differs from the basic dimension.)
└ KM and KP need to be specified as a pair.

Example 1) A53

● Bore: 63 mm, rod C, rod end shape: A53, A=50, W=50, screw: M22×1.5, 2 surfaces chamfered, position of width across flats L=10
70H-8 2FA63CB200-AB-X A53 A-50, KM-22, KP-1.5, L-10, W-50

Example 2) A54

● Bore: 63 mm, rod C, rod end shape: A54, with basic dimensions

Note) In case of A54, if KM and KP are changed, dimension A1 is changed as shown below.

KP (pitch)	Dimension A1
1.75 or less	4
2	5
2.5 or more	KP (pitch)×2

Rod C Special Rod End Shapes

A00

Table of Basic Dimensions (Standard dimensions)

Bore	A	KM	KP	*MM	*R	*S	W
φ40	25	M16	1.5	φ18	1	14	30
φ50	30	M20	1.5	φ22.4	1	19	30
φ63	35	M24	1.5	φ28	1	24	35
φ80	45	M30	1.5	φ35.5	1.6	30	35
φ100	60	M39	1.5	φ45	1.6	41	40
φ125	75	M48	1.5	φ56	1.6	50	45
φ140	80	M56	2	φ63	2	55	50
φ150	85	M60	2	φ67	2	60	50
φ160	95	M64	2	φ71	2	65	55
φ180	110	M72	2	φ80	2	75	55
φ200	120	M80	2	φ90	2	85	55
φ224	140	M95	2	φ100	2	Drill hole	60
φ250	150	M100	2	φ112	2	Drill hole	65

● The *-marked dimensions are fixed.
● If it is necessary to change the fixed dimensions, consult us.

A51

Table of Basic Dimensions

Bore	*MM	W
φ40	φ18	30
φ50	φ22.4	30
φ63	φ28	35
φ80	φ35.5	35
φ100	φ45	40
φ125	φ56	45
φ140	φ63	50
φ150	φ67	50
φ160	φ71	55
φ180	φ80	55
φ200	φ90	55
φ224	φ100	60
φ250	φ112	65

Rod C

A53

Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*R	*S	W
φ40	25	2	M16	1.5	0	φ18	1	14	30
φ50	30	2	M20	1.5	0	φ22.4	1	19	30
φ63	35	2	M24	1.5	0	φ28	1	24	35
φ80	45	2	M30	1.5	0	φ35.5	1.6	30	35
φ100	60	2	M39	1.5	0	φ45	1.6	41	40
φ125	75	2	M48	1.5	0	φ56	1.6	50	45
φ140	80	2	M56	2	0	φ63	2	55	50
φ150	85	2	M60	2	0	φ67	2	60	50
φ160	95	2	M64	2	0	φ71	2	65	55

Use this shape to move the width across flats S of 'A00'.

A54

Table of Basic Dimensions

Bore	A	*A1	DN	KM	KP	L	*MM	*S	W
φ40	25	4	2	M16	1.5	0	φ18	14	30
φ50	30	4	2	M20	1.5	0	φ22.4	19	30
φ63	35	4	2	M24	1.5	0	φ28	24	35
φ80	45	4	2	M30	1.5	0	φ35.5	30	35
φ100	60	4	2	M39	1.5	0	φ45	41	40
φ125	75	4	2	M48	1.5	0	φ56	50	45
φ140	80	5	2	M56	2	0	φ63	55	50
φ150	85	5	2	M60	2	0	φ67	60	50
φ160	95	5	2	M64	2	0	φ71	65	55
φ180	110	5	2	M72	2	0	φ80	75	55
φ200	120	5	2	M80	2	0	φ90	85	55
φ224	140	5	Drill hole	M95	2	Drill hole	φ100	Drill hole	60
φ250	150	5	Drill hole	M100	2	Drill hole	φ112	Drill hole	65

A81

Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*S	W
φ40	15	2	M12	1.75	0	φ18	14	30
φ50	20	2	M16	2	0	φ22.4	19	30
φ63	24	2	M20	2.5	0	φ28	24	35
φ80	33	2	M27	3	0	φ35.5	30	35
φ100	36	2	M30	3.5	0	φ45	41	40
φ125	45	2	M39	4	0	φ56	50	45
φ140	54	2	M45	2	0	φ63	55	50
φ150	54	2	M45	2	0	φ67	60	50
φ160	58	2	M48	2	0	φ71	65	55

This shape applies only to 7 MPa type.
For the 14 MPa type, consult us.

Note) The number of chamfered surfaces DN is 2 (standard) or 4 only.

● The *-marked dimensions are fixed.
● If it is necessary to change the fixed dimensions, consult us.

Rod B Special Rod End Shapes

A00

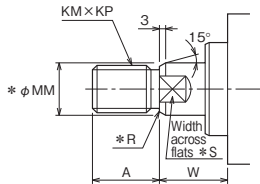


Table of Basic Dimensions (Standard dimensions)

Bore	A	KM	KP	*MM	*R	*S	W
φ32	25	M16	1.5	φ18	1	14	30
φ40	30	M20	1.5	φ22.4	1	19	30
φ50	35	M24	1.5	φ28	1	24	30
φ63	45	M30	1.5	φ35.5	1.6	30	35
φ80	60	M39	1.5	φ45	1.6	41	35
φ100	75	M48	1.5	φ56	1.6	50	40
φ125	95	M64	2	φ71	2	65	45
φ140	110	M72	2	φ80	2	75	50
φ150	115	M76	2	φ85	2	80	50
φ160	120	M80	2	φ90	2	85	55
φ180	140	M95	2	φ100	2		55
φ200	150	M100	2	φ112	2	Drill hole	55
φ224	180	M120	2	φ125	2		60
φ250	195	M130	2	φ140	2		65

Note) The number of chamfered surfaces DN is 2 (standard) or 4 only.

A51

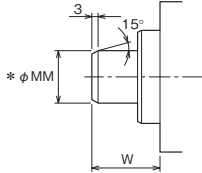


Table of Basic Dimensions

Bore	*MM	W
φ32	φ18	30
φ40	φ22.4	30
φ50	φ28	30
φ63	φ35.5	35
φ80	φ45	35
φ100	φ56	40
φ125	φ71	45
φ140	φ80	50
φ150	φ85	50
φ160	φ90	55
φ180	φ100	55
φ200	φ112	55
φ224	φ125	60
φ250	φ140	65

A53

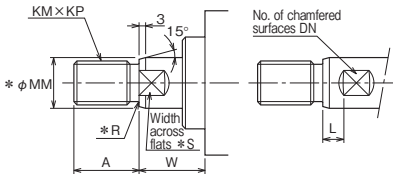


Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*R	*S	W
φ32	25	2	M16	1.5	0	φ18	1	14	30
φ40	30	2	M20	1.5	0	φ22.4	1	19	30
φ50	35	2	M24	1.5	0	φ28	1	24	30
φ63	45	2	M30	1.5	0	φ35.5	1.6	30	35
φ80	60	2	M39	1.5	0	φ45	1.6	41	35
φ100	75	2	M48	1.5	0	φ56	1.6	50	40
φ125	95	2	M64	2	0	φ71	2	65	45
φ140	110	2	M72	2	0	φ80	2	75	50
φ150	115	2	M76	2	0	φ85	2	80	50
φ160	120	2	M80	2	0	φ90	2	85	55

Use this shape to move the width across flats S of 'A00'.

- The *-marked dimensions are fixed.
- If it is necessary to change the fixed dimensions, consult us.

Rod B

A54

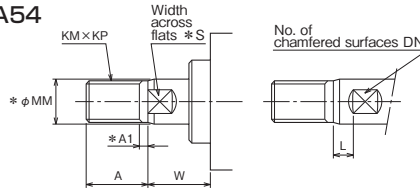


Table of Basic Dimensions

Bore	A	*A1	DN	KM	KP	L	*MM	*S	W
φ32	25	4	2	M16	1.5	0	φ18	14	30
φ40	30	4	2	M20	1.5	0	φ22.4	19	30
φ50	35	4	2	M24	1.5	0	φ28	24	30
φ63	45	4	2	M30	1.5	0	φ35.5	30	35
φ80	60	4	2	M39	1.5	0	φ45	41	35
φ100	75	4	2	M48	1.5	0	φ56	50	40
φ125	95	5	2	M64	2	0	φ71	65	45
φ140	110	5	2	M72	2	0	φ80	75	50
φ150	115	5	2	M76	2	0	φ85	80	50
φ160	120	5	2	M80	2	0	φ90	85	55
φ180	140	5		M95	2		φ100		55
φ200	150	5	Drill hole	M100	2	Drill hole	φ112	Drill hole	55
φ224	180	5		M120	2		φ125	Drill hole	60
φ250	195	5		M130	2		φ140		65

Note) The number of chamfered surfaces DN is 2 (standard) or 4 only.

A81

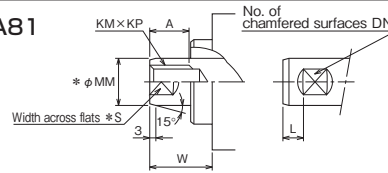


Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*S	W
φ32	15	2	M12	1.75	0	φ18	14	30
φ40	20	2	M16	2	0	φ22.4	19	30
φ50	24	2	M20	2.5	0	φ28	24	30
φ63	33	2	M27	3	0	φ35.5	30	35
φ80	36	2	M30	3.5	0	φ45	41	35
φ100	45	2	M39	4	0	φ56	50	40
φ125	58	2	M48	2	0	φ71	65	45
φ140		2			0	φ80	75	50
φ150		2			0	φ85	80	50
φ160		2			0	φ90	85	55

For the cylinders with bores from 140 to 160 mm, basic dimensions have not been determined. When ordering them, specify the dimensions in the blank fields.

- The *-marked dimensions are fixed.
- If it is necessary to change the fixed dimensions, consult us.

A55

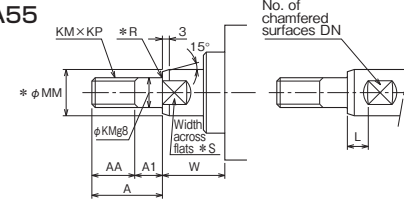


Table of Basic Dimensions

Bore	A	AA	A1	DN	KM	KP	L	*MM	*R	*S	W
φ50	44	30	14	2	M20	1.5	0	φ28	1.6	24	30
φ63	49	35	14	2	M24	1.5	0	φ35.5	2	30	35
φ80	59	45	14	2	M30	1.5	0	φ45	2	41	35
φ100	74	60	14	2	M39	1.5	0	φ56	2	50	40
φ125	89	75	14	2	M48	1.5	0	φ71	2.5	65	45
φ140	100	80	20	2	M56	2	0	φ80	2.5	75	50
φ150	105	85	20	2	M60	2	0	φ85	2.5	80	50
φ160	115	95	20	2	M64	2	0	φ90	2.5	85	55

For the cylinders with bores of 32 and 40 mm, basic dimensions have not been determined. Consult us when you request for them.
When changing dimension A1, change it to 10 or more.
Specify dimensions AA and A1 at the same time.

A82

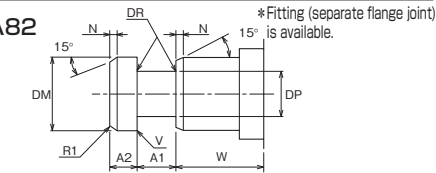


Table of Basic Dimensions

Bore	*A1 ^{+0.5 +0.3}	*A2 ^{-0.2 -0.3}	*DM	*DP ^{-0.2 -0.3}	*DR	*MM	*N	*V	W
φ32	12.5	12.5	φ18	φ13	1.0	φ18	3	C0.2	30
φ40	12.5	12.5	φ22.4	φ16	1.5	φ22.4	3	C0.2	30
φ50	12.5	12.5	φ28	φ21	1.5	φ28	3	C0.2	30
φ63	15	15	φ35.5	φ26	2.0	φ35.5	3	C0.2	35
φ80	15	15	φ45	φ31	2.0	φ45	3	C0.2	35
φ100	20	20	φ56	φ38	3.0	φ56	3	C0.2	40
φ125	25	25	φ71	φ49	3.5	φ71	3	R1	45
φ140	25	25	φ80	φ56	4.0	φ80	3	R1	50
φ150	30	30	φ85	φ58	5.0	φ85	6	R1	50
φ160	30	30	φ90	φ60	5.0	φ90	6	R1	55

MM is the rod diameter.

Rod A Special Rod End Shapes

A00

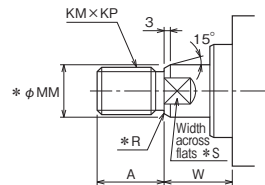


Table of Basic Dimensions (Standard dimensions)

Bore	A	KM	KP	*MM	*R	*S	W
φ40	35	M24	1.5	φ28	1	24	35
φ50	45	M30	1.5	φ35.5	1.6	30	41
φ63	60	M39	1.5	φ45	1.6	41	48
φ80	75	M48	1.5	φ56	1.6	50	51
φ100	95	M64	2	φ71	2	65	57
φ125	120	M80	2	φ90	2	85	57
φ140	140	M95	2	φ100	2	Drill hole	57
φ150	140	M95	2	φ100	2	Drill hole	57
φ160	150	M100	2	φ112	2	Drill hole	57

A51

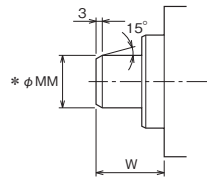


Table of Basic Dimensions

Bore	*MM	W
φ40	φ28	35
φ50	φ35.5	41
φ63	φ45	48
φ80	φ56	51
φ100	φ71	57
φ125	φ90	57
φ140	φ100	57
φ150	φ100	57
φ160	φ112	57

A53

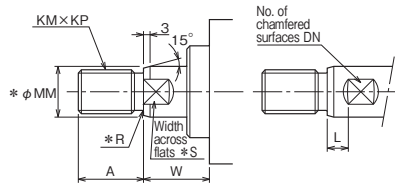


Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*R	*S	W
φ40	35	2	M24	1.5	0	φ28	1	24	35
φ50	45	2	M30	1.5	0	φ35.5	1.6	30	41
φ63	60	2	M39	1.5	0	φ45	1.6	41	48
φ80	75	2	M48	1.5	0	φ56	1.6	50	51
φ100	95	2	M64	2	0	φ71	2	65	57
φ125	120	2	M80	2	0	φ90	2	85	57

Use this shape to move the width across flats S of 'A00'.

- The *-marked dimensions are fixed.
- If it is necessary to change the fixed dimensions, consult us.

A54

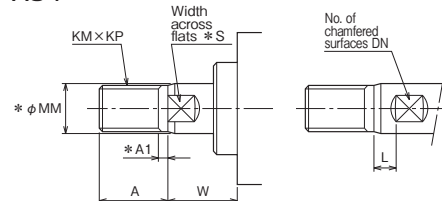


Table of Basic Dimensions

Bore	A	*A1	DN	KM	KP	L	*MM	*S	W
φ40	35	4	2	M24	1.5	0	φ28	24	35
φ50	45	4	2	M30	1.5	0	φ35.5	30	41
φ63	60	4	2	M39	1.5	0	φ45	41	48
φ80	75	4	2	M48	1.5	0	φ56	50	51
φ100	95	5	2	M64	2	0	φ71	65	57
φ125	120	5	2	M80	2	0	φ90	85	57
φ140	140	5	Drill hole	M95	2	Drill hole	φ100	Drill hole	57
φ150	140	5	↑	M95	2	↑	φ100	Drill hole	57
φ160	150	5	↑	M100	2	↑	φ112	Drill hole	57

Rod A

A55

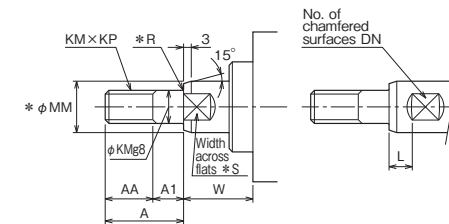


Table of Basic Dimensions

Bore	A	AA	A1	DN	KM	KP	L	*MM	*R	*S	W
φ40	44	30	14	2	M20	1.5	0	φ28	1.6	24	35
φ50	49	35	14	2	M24	1.5	0	φ35.5	2	30	41
φ63	59	45	14	2	M30	1.5	0	φ45	2	41	48
φ80	74	60	14	2	M39	1.5	0	φ56	2	50	51
φ100	89	75	14	2	M48	1.5	0	φ71	2.5	65	57
φ125	115	95	20	2	M64	2	0	φ90	2.5	85	57

When changing dimension A1, change it to 10 or more.
Specify dimensions AA and A1 at the same time.

A81

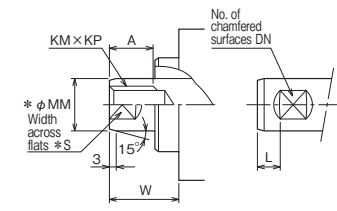


Table of Basic Dimensions

Bore	A	DN	KM	KP	L	*MM	*S	W
φ40	24	2	M20	2.5	0	φ28	24	35
φ50	33	2	M27	3	0	φ35.5	30	41
φ63	36	2	M30	3.5	0	φ45	41	48
φ80	45	2	M39	4	0	φ56	50	51
φ100	58	2	M48	2	0	φ71	65	57

Note) ● The number of chamfered surfaces DN is 2 (standard) or 4 only.

A82

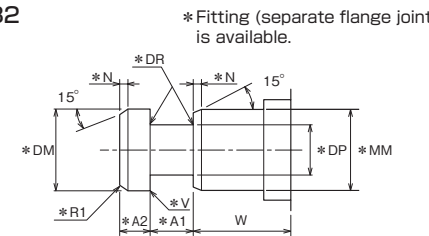


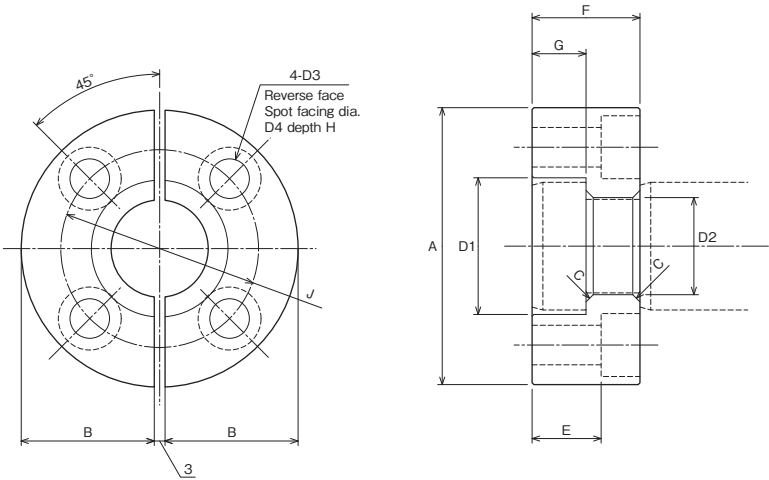
Table of Basic Dimensions

Bore	*A1	*A2	*DM	*DP	*DR	*MM	*N	*V	W
φ40	12.5	12.5	φ28	φ21	1.5	φ28	3	C0.2	35
φ50	15	15	φ35.5	φ26	2.0	φ35.5	3	C0.2	41
φ63	15	15	φ45	φ31	2.0	φ45	3	C0.2	48
φ80	20	20	φ56	φ38	3.0	φ56	3	C0.2	51
φ100	25	25	φ71	φ49	3.5	φ71	3	R1	57
φ125	30	30	φ90	φ60	5.0	φ90	6	R1	57

MM is the rod diameter.

- The *-marked dimensions are fixed.
- If it is necessary to change the fixed dimensions, consult us.

Separate Flange Joint (M-end): Only for piston rod end shape A82



● Additional order for this item is needed. Specify as RMH- * * .

Dimensional Table/Rod B

Symbol Bore	Part number	A	B	C	D1	D2	D3	D4	E	F	G	H	J	X
φ32	RMH-18	φ49	23	1	φ19	φ13.5	φ6.6	φ11	18.5	25	12.5	6.5	φ34	—
φ40	RMH-22	φ57	27	1.5	φ23	φ16.5	φ9	φ14	16.4	25	12.5	8.6	φ40	—
φ50	RMH-28	φ71	34	1.5	φ29	φ21.5	φ11	φ17.5	14.2	25	12.5	10.8	φ50	—
φ63	RMH-36	φ77	37	2	φ38	φ27	φ11	φ17.5	19.2	30	15	10.8	φ55	—
φ80	RMH-45	φ100	48.5	2	φ48	φ33	φ14	φ20	17	30	15	13	φ76	16
φ100	RMH-56	φ124	60.5	3	φ60	φ41	φ18	φ26	22.5	40	20	17.5	φ92	7
φ125	RMH-70	φ150	73.5	3.5	φ74	φ53	φ22	φ32	28.5	50	25	21.5	φ112	14
φ140	RMH-80	φ174	85.5	4	φ84	φ60	φ26	φ39	24.5	50	25	25.5	φ129	40
φ150	RMH-85	φ180	88.5	5	φ90	φ62	φ26	φ39	34.5	60	30	25.5	φ135	26
φ160	RMH-90	φ193	95	5	φ95	φ64	φ30	φ43	31	60	30	29	φ144	9

Note) In the case of LC mounting and rod B, add dimension X as the lower limit to dimension W of the cylinder body.

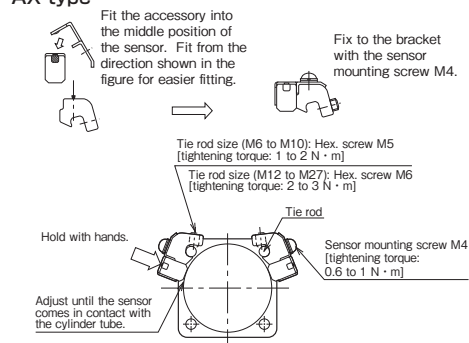
Dimensional Table/Rod A

Symbol Bore	Part number	A	B	C	D1	D2	D3	D4	E	F	G	H	J	X
φ40	RMH-28	φ71	34	1.5	φ29	φ21.5	φ11	φ17.5	14.2	25	12.5	10.8	φ50	15
φ50	RMH-36	φ77	37	2	φ38	φ27	φ11	φ17.5	19.2	30	15	10.8	φ55	—
φ63	RMH-45	φ100	48.5	2	φ48	φ33	φ14	φ20	17	30	15	13	φ76	17
φ80	RMH-56	φ124	60.5	3	φ60	φ41	φ18	φ26	22.5	40	20	17.5	φ92	24
φ100	RMH-70	φ150	73.5	3.5	φ74	φ53	φ22	φ32	28.5	50	25	21.5	φ112	26
φ125	RMH-90	φ193	95	5	φ95	φ64	φ30	φ43	31	60	30	29	φ144	43

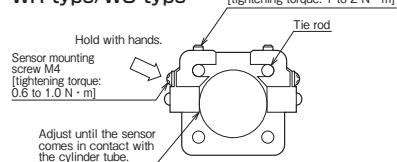
Note) In the case of LB mounting and rod A, add dimension Y as the lower limit to dimension W of the cylinder body.

Setting method of sensor detection position

AX type



WR type/WS type



Notes on assembly

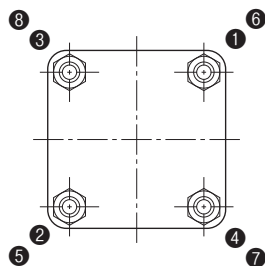
Tightening of tie rods

- DO NOT tighten only one tie rod at a time, but tighten them gradually in the order shown in the right diagram. Uneven tightening of the tie rods can cause operation failure or stick-slip.

1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position (for the 2-LED type, the position where the green lamp lights up) 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.

Note) Inappropriate tightening torque may cause the off-center of the sensor position.

3. The indicating lamp lights up when the sensor is set to the ON position.
(The lamp of SR405 goes out when sensor is turns on.)
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).



Specified Tie Rod Tightening Torque Table

Bore (mm)		φ32	φ40	φ50	φ63	φ80	φ100	φ125
Tie rod screw		M10×1.25	M10×1.25	M10×1.25	M12×1.5	M16×1.5	M18×1.5	M22×1.5
Tightening torque (N・m)	70H-8	20	41	41	35	87	130	240
	140H-8				70	170	250	460

Bore (mm)		φ140	φ150	φ160	φ180	φ200	φ224	φ250
Tie rod screw		M24×1.5	M27×1.5	M27×1.5	M30×1.5	M33×1.5	M39×1.5	M42×1.5
Tightening torque (N・m)	70H-8	310	450	450	630	830	1400	1800
	140H-8	610	880	880	1100	1400	2400	3000

Precautions for use

Since a cylinder with the rod A has a smaller pressure receiving area on the rod side, and the pressure in the cylinder can easily increase, take sufficient care to prevent the pressure from exceeding the maximum allowable pressure.

<Example>

Find the pressure on the rod side when the cylinder is moved forward (lowered) under the following conditions.

Cylinder: 140H-8, φ80, rod A
Load: W=1000 kg (≅ 10000 N)
Set pressure: P_H=8 MPa
Installation direction: Rod facing downward
Speed control: Meter-out
The operating speed is low, and the load rate is 100%.

<Answer>

The pressure P_R generated on the rod side is the sum of the pressure P₁ generated to balance with the load W and the pressure P₂ boosted up by the supply from the cap side.

- Pressure P₁ generated to balance with the load

$$P_1 = \frac{W}{A_R} = \frac{10000(\text{N})}{2564(\text{mm}^2)} = 3.9(\text{MPa})$$

- Pressure P₂ boosted up by the supply from the cap side
Where, P_{2A}=P_HA_H

$$P_2 = \frac{P_H A_H}{A_R} = \frac{8(\text{MPa}) \times 5027(\text{mm}^2)}{2564(\text{mm}^2)} = 15.7(\text{MPa})$$

- The pressure P_R generated on the rod side

$$P_R = P_1 + P_2 = 3.9 + 15.7 = 19.6(\text{MPa})$$

∴ The pressure exceeds the maximum allowable pressure on the rod side for the 140H-8 rod A type cylinder, 18 MPa, shown in the standard specifications, and, therefore, the cylinder is unusable. Recalculate after changing the conditions.

