

The largest bore size (280 to 400mm) in general cylinders. The piston and rod seal used on U seals that has durable specification.

- Conforming to ISO Standards

(The 320 mm bore cylinders conform to ISO Standards. The cylinders with other bores are manufactured in accordance with similar standards.)



Cylinder Specifications

Type		Standard type	
Cylinder bore (mm)		φ 280 · φ 320 · φ 360 · φ 400	
Working fluid		Air	
Lubrication		Necessary [JIS K2213 Class 1 (additive-free turbine oil ISO VG32) or its equivalent]	
Working pressure range		0.1 to 1 MPa	
Proof test pressure		1.6 MPa	
Note 1) Working speed range		50 to 500 mm/s	
Working temperature range		−10 to +70°C (No freezing)	
Structure of cushioning		With cushions on both ends	
Cushion stroke (cushion ring length)		φ 280 · φ 320 : 25mm φ 360 · φ 400 : 30mm	
Tolerance for thread		JIS 6g/6H	
Tolerance of stroke		0 to 100mm <sup>+0.8</sup> <sub>0</sub> 101 to 250mm <sup>+1.0</sup> <sub>0</sub> 251 to 630mm <sup>+1.25</sup> <sub>0</sub> 631 to 1,000mm <sup>+1.4</sup> <sub>0</sub> 1,001 to 1,600mm <sup>+1.6</sup> <sub>0</sub> 1,601 to 2,000mm <sup>+1.8</sup> <sub>0</sub>	
Mounting style		LB · FA · FB · CA · TC	
Accessories	Note 2) Boots	Standard: Nylon tarpaulin    Semi-standard: Chloroprene, Conex	
	Rod end attachments	Rod eye (T-end), rod clevis (Y-end) with pin	
	Others	Lock nut	

Note 1) If the speed is less than this lower limit, chattering or jerking may be caused. If the speed exceeds this upper limit, the seals may wear earlier.  
Note 2) Conex is the registered trademark of Teijin Limited.

Standard Stroke Range

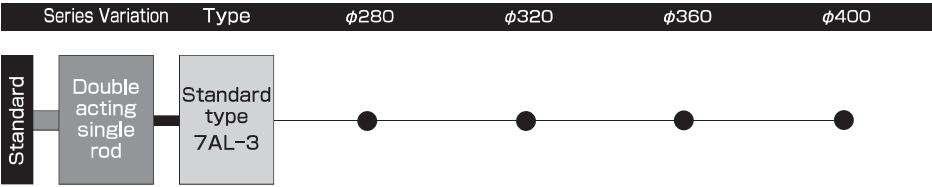
Unit: mm

Bore	φ 280	φ 320	φ 360	φ 400
Stroke limit	2000	2000	2000	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.

Product Lineup

Unit: mm



Weight Table

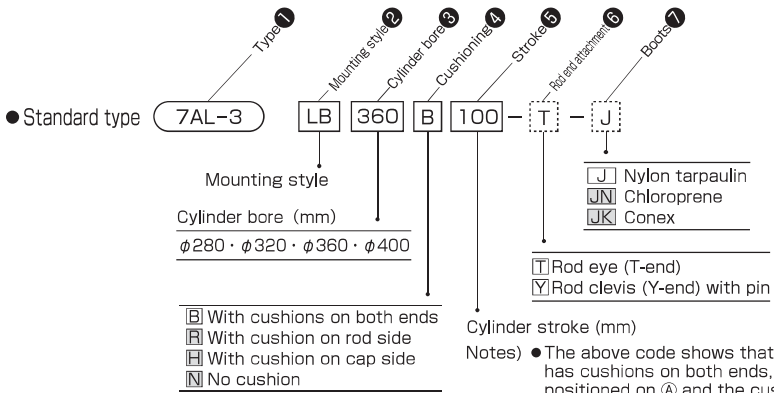
Unit: kg

Bore (mm)	Basic weight	Additional weight per mm of stroke	Mounting accessory weight				Rod end attachment weight	
			LB	FA·FB	CA	TC	Rod eye (T-end)	Rod clevis (Y-end) with pin
φ280	115.6	0.104	23.4	4.9	5.0	18.6	7.0	9.0
φ320	148.6	0.127	29.0	5.9	5.0	23.6	7.0	9.0
φ360	217.1	0.152	53.2	9.0	8.8	35.5	12.0	17.0
φ400	266.6	0.161	62.0	10.2	8.8	43.5	12.0	17.0

Calculation formula    Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm))  
+mounting accessory weight+rod end attachment weight  
Calculation example    7AL-2, bore φ360, cylinder stroke 300 mm, CA  
217.1+(0.152×300)+8.8=271.5kg

● How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification

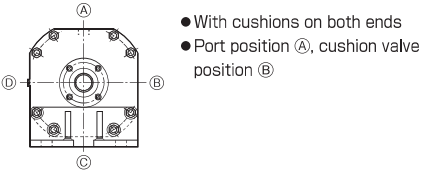


Notes) ● The above code shows that the cylinder has cushions on both ends, the port is positioned on ① and the cushion valve is positioned on ②. In case that the cushion is not equipped (N), the cushion valve position is "①".

● Pressure vessels with a cylinder inner volume of 0.04 m³ or more at the actual gauge pressure are subject to the standard for class 2 pressure vessels.

● Conex is the registered trademark of Teijin Limited.

★ Standard specifications



- With cushions on both ends
- Port position ①, cushion valve position ②

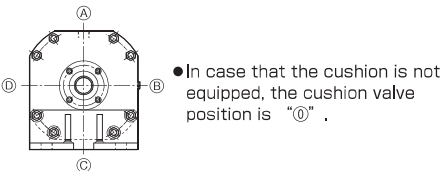
★ Change of port and cushion valve positions

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 drawing.

Example) 7AL-3 LB360B500- B D -J

Port position (A, B, C, D)

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

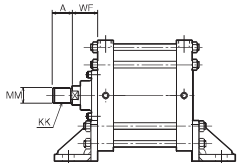


- In case that the cushion is not equipped, the cushion valve position is "①".

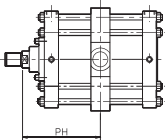
(The symbols of the port and cushion valve positions are written in the clockwise direction as viewed from the rod side.)

★ Semi-standard range

- Change of piston rod end (dimensional symbol: WF, A, KK)
- When the lock nut is provided, dimension A is increased. (See the accessories.)



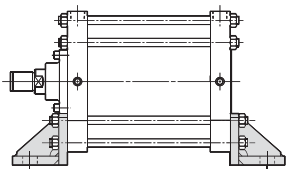
- Change of TC accessory position (dimensional symbol: PH)



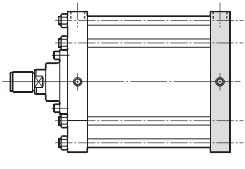
- With boots

Mounting Style

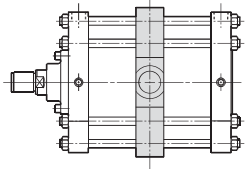
LB End angle



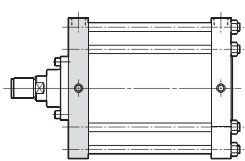
FB Cap flange



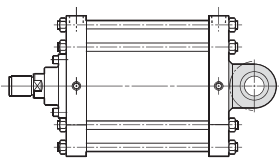
TC Intermediate trunnion



FA Rod flange

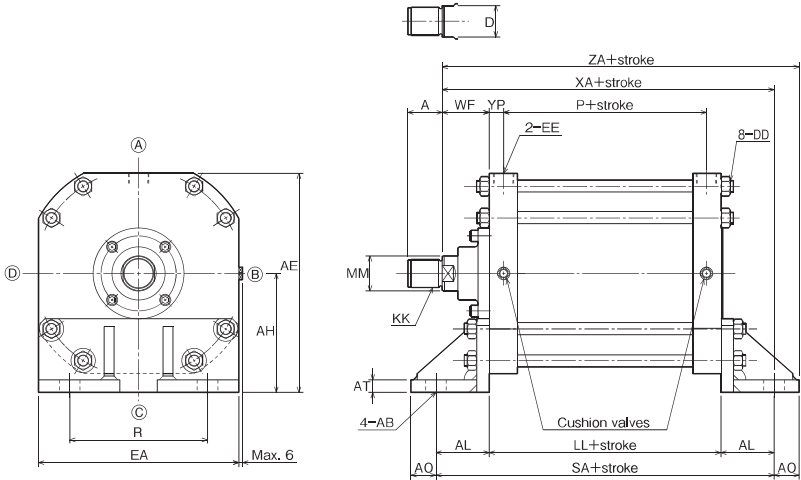


CA Cap eye

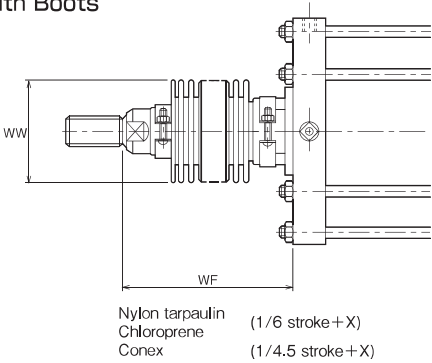


LB

7AL-3 LB Bore B Stroke



With Boots



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

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

Dimensional Table

Symbol	A	AB	AE	AH	AL	AO	AT	D	DD	EA
Bore										
φ 280	55	φ 33	350	190	85	40	20	50	M18 × 1.5	320
φ 320	55	φ 33	390	210	85	40	20	50	M20 × 1.5	360
φ 360	60	φ 39	440	240	100	45	30	65	M22 × 1.5	400
φ 400	60	φ 39	480	260	100	45	30	65	M24 × 1.5	440

Symbol	EE	KK	LL	MM	P	R	SA	WF	XA	YP	ZA
Bore											
φ 280	Rc1	M48 × 2	170	φ 56	124	220	340	75	330	23	370
φ 320	Rc1	M48 × 2	170	φ 56	124	260	340	75	330	23	370
φ 360	Rc1 1/4	M56 × 2	200	φ 71	146	300	400	85	385	27	430
φ 400	Rc1 1/4	M56 × 2	200	φ 71	146	340	400	85	385	27	430

With Boots

Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180