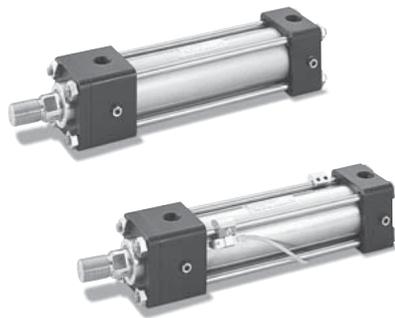


### High-performance cushion built in hydraulic cylinders

- 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 <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 1000mm <sup>+1.4</sup> <sub>0</sub> 1001 to 1600mm <sup>+1.6</sup> <sub>0</sub> 1601 to 2000mm <sup>+1.8</sup> <sub>0</sub>	
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	<ul style="list-style-type: none"> <li>● Rod eye (T-end), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, lock nut</li> <li>● Floating joint (F-end): Only 7 MPa type</li> <li>● Boots : Only general purpose type Standard : Nylon tarpaulin Semi-standard: Chloroprene, Conex</li> </ul>	

### 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

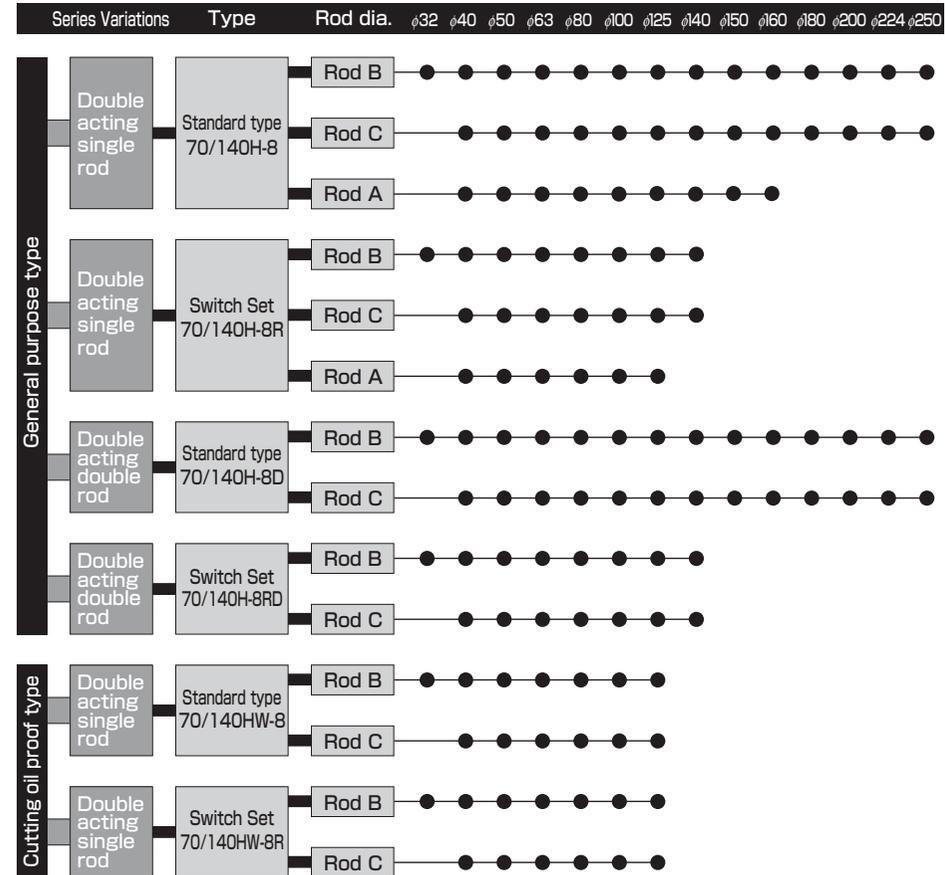
The minimum pressure that a cylinder placed horizontally without a load can work.

#### 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 ⑧, 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



- 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	—

### Cushion Stroke Length Unit: mm

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

- 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.

- 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.

