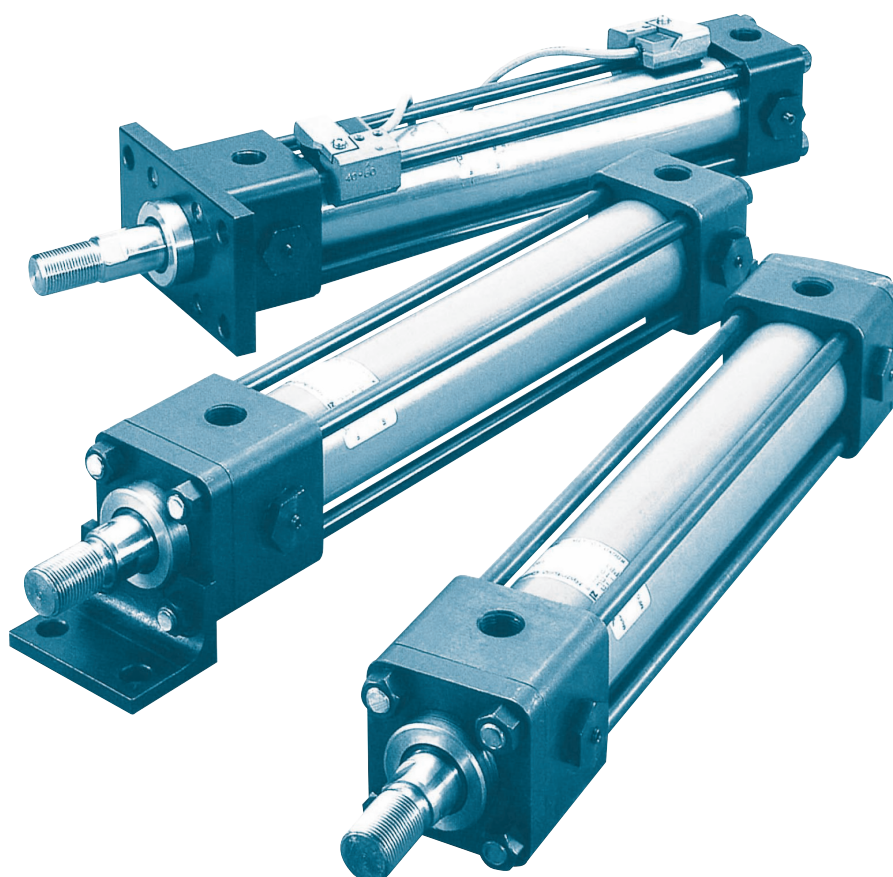


J

HYDRAULIC CYLINDER

- CJT TYPE 35 · 70 · 140 · 210 SERIES HYDRAULIC CYLINDER..... J-4
- CJT SERIES HYDRAULIC CYLINDER WITH PROXIMITY SWITCH J-45
- C6 SERIES COMPACT CYLINDER J-51



Related to the unit and the design number

■ Unit

This catalog to the International System of Units SI, and here the main display unit of the conventional (gravity units) with the { } in the notation.

(For example) the pressure- 21MPa{214kgf/cm²}

This latest international trends as the introduction of SI units are still being carried out in Japan (1986 enacted on or after January 1, revised Japanese Industrial Standards (JIS) for the week to display units in SI units.) And is determined can. Here also according to the catalog of the show was to.

In particular, the main display is shown with { } SI units and conventional units with the conversion factor is as follows. { }

- Pressure 1MPa=10.197162=10.2kgf/cm²
- Kinematic viscosity 1mm²/s=1cSt

■ For a number of design changes

Products designed to improve the numbers are subject to change without notice. However, if you change the design number one place to the bottom of the mounting dimensions and performance specifications is not a change.

Contents

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| ● 70/140 Series Type hydraulic cylinder | ----- | J-14 |
| ● 210 Series Type hydraulic cylinder | ----- | J-37 |
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| C6 series compact cylinder | ----- | J-51 |

“CJT” Series Hydraulic Cylinders with Proximity Switch

“CJT” Series Hydraulic Cylinders with Proximity Switch

Ratings

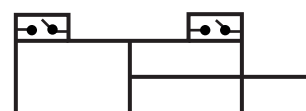
- The detecting position of a cylinder can be set freely and easily by adjusting the position of a sliding proximity switch mounted on the cylinder body.
- Since it is unnecessary to have a position detecting device on the machine the equipment becomes compact as well as the number of process in design and assembly is reduced.
- Lead wire type and connector type are provided for the proximity switch. Select according to purpose of use. For lead wire type, lengths of wire are 1m(standard), 3m and 5m.



Specifications

| Description | CJT35L | CJT70L | CJT140L |
|---------------------------------|------------------|---------------------------|----------------------------|
| Cylinder Bore mm | 40, 50 63, 80 | 32, 40, 50 63, 80, 100 | 32, 40, 50, 63, 80, 100 |
| Range of Ambient Temperature °C | -10~+60 | | |

KS Graphic Symbol



(Note) The basic specification is identical with proximity switch type and standard type refer to page J-4, J-15.
However, the minimum stroke for mounting the proximity switch is as follows.

Minimum stroke for mounting the proximity switch

| Model | Cylinder Bore mm | Other than TC type | | TC type | | | |
|---------------------|------------------|-----------------------------------|----------------|----------------------------|------------------------------|---|------------------------------|
| | | One or two switches ^{*1} | | Standard Trunnion Position | | Special Trunnion Position ^{*2} | |
| | | | | One or two switches | | One switches | |
| | | Lead wire type | Connector type | Lead wire type | Connector type ^{*3} | Lead wire type | Connector type ^{*3} |
| CJT 35L | 40 | 15 | 35 | 90 | 130 | 45 | 65 |
| | 50 | 15 | 35 | 90 | 130 | 45 | 65 |
| | 63 | 15 | 35 | 90 | 130 | 45 | 65 |
| | 80 | 15 | 35 | 95 | 135 | 50 | 70 |
| CJT 70L CJT 140L | 32 | 15 | 35 | 100 | 140 | 45 | 65 |
| | 40 | 15 | 35 | 100 | 140 | 45 | 65 |
| | 50 | 15 | 35 | 110 | 150 | 55 | 75 |
| | 63 | 20 | 40 | 120 | 160 | 40 | 60 |
| | 80 | 20 | 40 | 135 | 160 | 45 | 60 |
| | 100 | 20 | 40 | 145 | 170 | 65 | 80 |

- ★ 1. If two proximity switches are connected to other than TC type, the mounting surface the switches are different.
 ★ 2. If shorter minimum stroke is required trunnion position shall become special (application design).
 ★ 3. For connector type, up to the same stroke as that for lead wire type can be used by turning the cable outlet by 90°.

“CJT” Series Hydraulic Cylinders with Proximity Switch

Model Number Designation

| F- | CJT140L | -LA | 80 | B | 100 | B | -A | B | D | -E | -11 |
|---|---|--|-------------------------------|-------------------------|---|---|--|---|---|---|------------------|
| Spec- ial Seals | Series Number | Type of Mounting | Cylinder Bore mm | Rod type | Stroke mm | Location of Cushioning | Port Direction | Cushioning Valve Position | Air vent Direction | Option | Design Number |
| | 35K Series “CJT” Hydraulic Cylinders with Proximity Switch | SD, LA LB, FA FB, CA CB, TA TC | 40, 50, 63, 80 | S: Special | Indicate necessary stroke by considering maximum stroke allowed | B: Rod end and Head end with Cushioning R: Rod end with Cushioning H: Head end with Cushioning N: Without Cushioning | (Viewed from rod end) A:Up (Standard) B:Right (Standard) C:Down D:Left | B:Right (Standard) A:Up C:Down D:Left | D:Left (Standard) A:Up B:Right C:Down | F:With dust cover (material : nylon terpolin, upper temp. limit 80℃) G:With dust cover (material : neoprene, upper temp. limit 130℃) H:With dust cover (material : silicon glass, upper temp. limit 250℃) K:With Lock Nut L:With piston rod attachment-knuckle M:With piston rod attachment-forkend S※※※ } Type and number of proximity T※※※ } switches*4 | 20 |
| F: Indicate only if fluid with phosphatic ester is used | 70K Series “CJT” Hydraulic Cylinders with Proximity Switch | SD, LA LB, FA FB, FC FD, FE FF, FY CA, CB TA, TC | 32, 40, 50, 63, 80, 100 | B: Series B(Heavy Duty) | | | | N: No cushion- ing valve (Standard) | | E:Long rod end screw F:With dust cover (material : nylon terpoline, upper temp. limit 80℃) G:With dust cover (material : neoprene, upper temp. limit 130℃) H:With dust cover (material : silicon glass, upper temp. limit 250℃) K:With Lock Nut*3 L:With piston rod attachment-knuckle M:With piston rod attachment-forkend N:Double rod type S※※※ } Type and number of proximity T※※※ } switches*4 | 20 |
| | 140K Series “CJT” Hydraulic Cylinders with Proximity Switch | SD, LA LB, FC FD, FE FF, FY CA, CB TA, TC | 32, 40, 50, 63, 80, 100 | C: Series C(Standard) | | | | | | | |

- ★ 1. A port and a cushioning valve cannot be put in the same direction.
(For CJT35 Series, port, cushioning valve and air vent cannot be put in the same direction).
- ★ 2. Optionals can be used in combination. Indicate the symbol for the optional used.
ex : EKL12
For double rod type, E,F,G,H and K are applicable to both sides.
L or M is only attached to one side (Main Rod side).
- ★ 3. If a lock nut(K) is used at the piston rod end use a long screw type(E).
- ★ 4. Indicate by checking the specifications of the proximity switch on right.

* Refer to “Specifications of Proximity Switch” on page J-47 for details.

S12

└ Number of switches

1 : 1 pcs

2 : 2 pcs

3 : 3 pcs

└ Type of proximity switches*

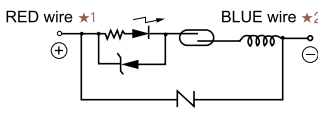
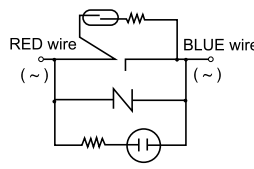
S1.T1 : 1m Lead wire Type (Standard)

S3.T3 : 3m Lead wire Type

S5.T5 : 5m Lead wire Type

“CJT” Series Hydraulic Cylinders with Proximity Switch

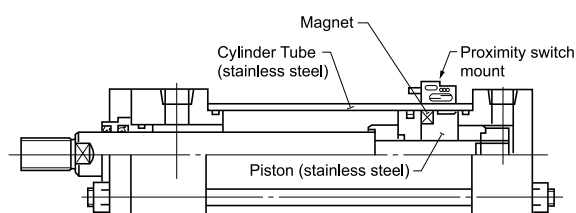
Specifications of Proximity Switch

| Cylinder Bore mm | Contact Switch | |
|-----------------------------------|--|---|
| | S1, S3, S5(Lead wire type) | T1, T3, T5(Lead wire type) |
| Electric Circuit |  |  |
| Usage | For AC/DC relay sequencer | Large-capacity relay |
| Maximum load voltage · current | DC 24V, 5~50mA AC100V, 7~20mA AC200V, 7~10mA | AC100V, 20~200mA AC200V, 10~200mA |
| Internal drop voltage | Less than 2.4V | Less than 2V |
| Lamp | LED (Light ON when a switch is ON) | Neon Lamp (Light ON when a switch is OFF) |
| Leakage current | 0 | Less than 1mA |
| Allowed of wiring length | DC : 100m AC : 10m | AC : 50m |
| Lead wire | Oil-resistant vinyl cab tire cable, 2-core 0.3mm ² (ϕ 0.08×60 piece) | |
| Maximum shock | 300m/s ² (30.6G) | |
| Insulating resistance | More than 20M Ω at DC 500V Megger | |
| Dielectric strength | Normal with application of AC1500V for a minute | |
| Ambient tmeperature | -10~+60℃ | |
| Ambient humidity range | Less than 90% RH | |

- ★ 1. In case of DC power supply, Be careful with the polarity, and the correct wiring please.
(the color of lead or connector of the +, - terminal position)
- ★ 2. When the wiring length is long, use a separate wiring.

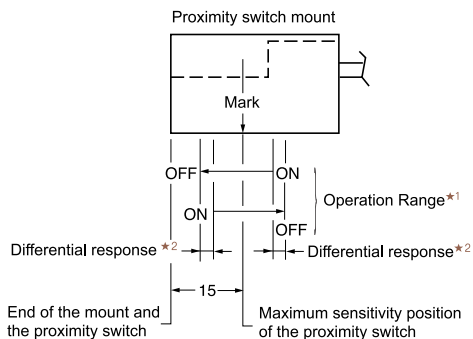
Explanation of Operation

When the piston of a cylinder moves and comes under the proximity switch, magnetic field generated by a magnet assembled into the piston activates the switch and detdets the stroke position of the cylinder.



“CJT” Series Hydraulic Cylinders with Proximity Switch

Operating characteristics of proximity switch



★ 1. Operation Range

When the piston of a cylinder moves and comes under the proximity switch, magnetic field generated by a magnet assembled into the piston activates the switch and detects the stroke position of the cylinder.

★ 2. Differential response

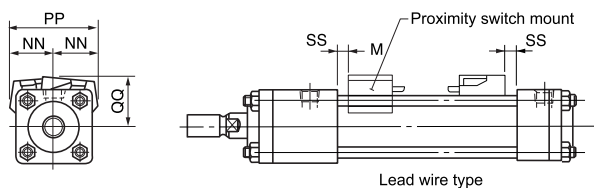
It is the travelling distance of the piston from the position of switch ON caused by such travel to one direction to the position of switch OFF caused by the travel to opposite direction. In this area, the characteristics of the switch is not stable.

| Model | Type of switch | Cylinder Bore | Operating range mm | Differential response mm |
|---------------------|---------------------|---------------|--------------------|--------------------------|
| CJT 35L | Contact Switch (S※) | 40 | 8.5 ~ 11 | 1.5 ~ 3.5 |
| | | 50 | 10.5 ~ 13.5 | |
| | | 63 | 11.5 ~ 13.5 | |
| | | 80 | 12 ~ 14 | 2 ~ 4 |
| CJT 70L CJT 140L | Contact Switch (S※) | 32 | 9 ~ 12 | 1.5~3.5 |
| | | 40 | 12 ~ 14 | |
| | | 50 | 15 ~ 17 | |
| | | 63 | 16 ~ 18 | |
| | | 80 | 17.5 ~ 19.5 | 2~4 |
| | | 100 | 15.5 ~ 20.5 | |

Dimensions

The mounting dimensions of Hydraulic Cylinder with Proximity Switch are the same as those for “CJT” Hydraulic Cylinders. The dimensions and the optimum setting position for detecting the stroke end position for the proximity switch are as follows:

● Lead wire type



| Model | Cylinder Bore | NN | PP | QQ | SS* |
|---------------------|---------------|----|-----|----|-----|
| CJT 35L | 40 | 34 | 68 | 43 | 0 |
| | 50 | 39 | 78 | 47 | 0 |
| | 63 | 44 | 88 | 53 | 1.5 |
| | 80 | 53 | 106 | 61 | 0.5 |
| CJT 70L CJT 140L | 32 | 35 | 70 | 40 | 8 |
| | 40 | 37 | 74 | 45 | 8 |
| | 50 | 47 | 94 | 53 | 8 |
| | 63 | 51 | 102 | 57 | 20 |
| | 80 | 63 | 126 | 76 | 24 |
| | 100 | 73 | 146 | 85 | 22 |

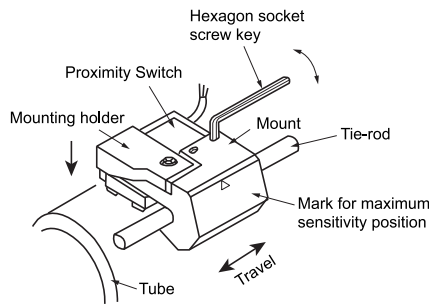
★ SS is the optimum setting position for detecting the stroke end position for the proximity switch.
The most sensitive position of proximity switch is SS+15mm

“CJT” Series Hydraulic Cylinders with Proximity Switch

Care in Operation of Proximity Switch

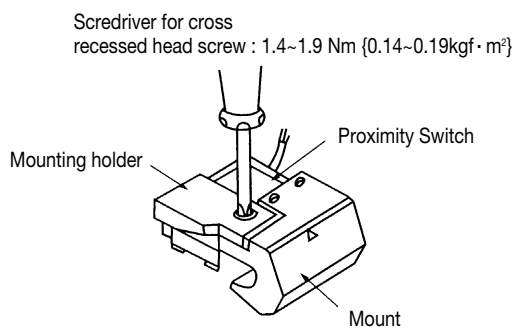
● Adjustment of Proximity Switch Position

Adjust the switch position by loosening two hexagonal socket setscrews 1/2~3/4 turn, So that the switch can be moved to the axial direction. If the switch is fixed after adjustment, tighten two hexagonal socket setscrews while pressing the mounting holder so that the switch is adhered onto the tube. A tightening torque required is 15~19kgf · cm.



● Mounting and Replacing of Proximity Switch

Adjust the switch position by loosening two hexagonal socket setscrews 1/2~3/4 turn, So that the switch can be moved to the axial direction. If the switch is fixed after adjustment, tighten two hexagonal socket setscrews while pressing the mounting holder so that the switch is adhered onto the tube. A tightening torque required is 15~19kgf · cm.



Care in Application

1. Do not use with voltage and current exceeding the “Specifications” (see page J-47)

Moreover, if the voltage and the current are too low, an operation indicator lamp may not light. Use the switch within the range of “ Specifications”.

2.Wiring

- Be sure to turn off the power of an electric circuit on the connecting side before wiring to the proximity switch.
- For wiring a DC switch, connect properly by taking care of polarity (color of lead wire,?? terminal position on connector).

3. Magnetic and electric parts are used in CJT Series Hydraulic Cylinders with Proximity Switch Avoid using in ambient temperature of more than 60℃ because of its temperature characteristics.

4. The proximity switch may malfunction where there is strong magnetic field or high current around it (such as by a spot welder). In this case shield the magnetic field by using magnetizable material like an iron plate.

5. If some Switch-Set Cylinders are used side by side, separate the switch and the other cylinder 30mm or more in order to avoid influence of a magnet assembled into a piston.

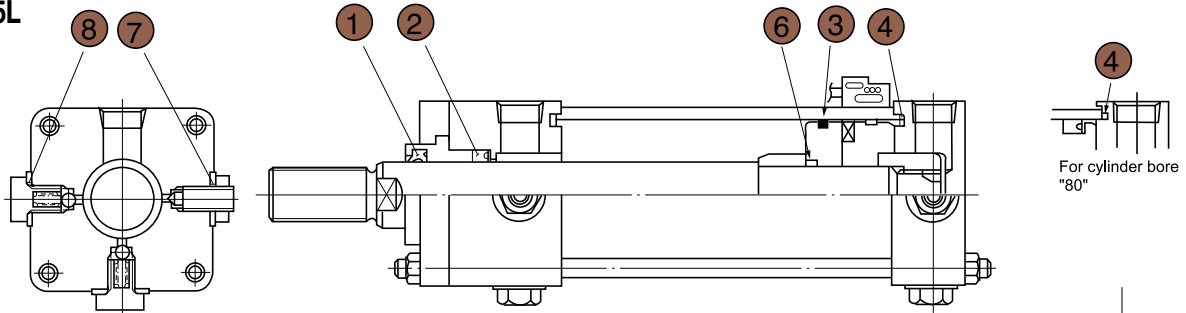
6. Do not use the cylinder where it will be buried in iron chips magnetic powder since the proximity switch may malfunction.

7. Since a magnet is used in the cylinder piston. It is recommended to use a micro separator in the inside the reservoir to remove iron particles.

“CJT” Series Hydraulic Cylinders with Proximity Switch

List of Seals

CJT: 35L

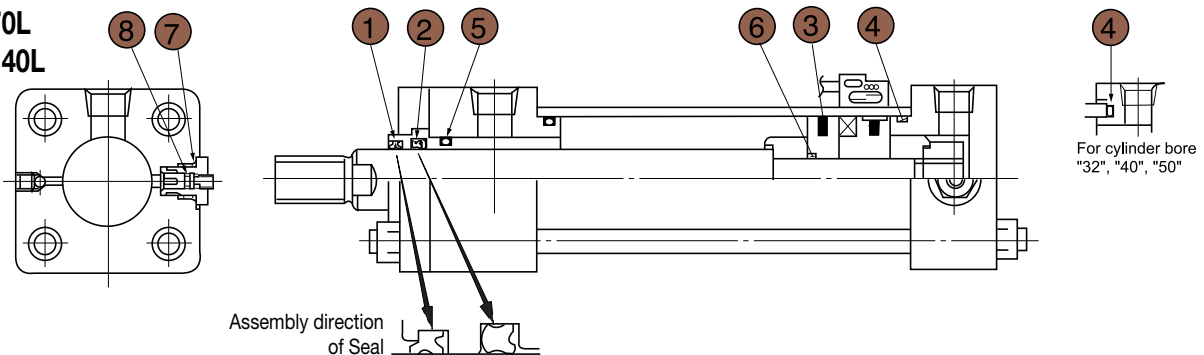


| Cylinder Bore | Item | | ① | ② | ③ | ④ | ⑥ | ⑦ | ⑧ | Tightening torque for the rod Nm(kgf · m) |
|---------------|-------------------|------|-----------|-------------|----------------|---------------|---------------|------------------|-------------|--|
| | Name | Qty. | Dust seal | Rod packing | Piston Packing | Cover Packing | Piston O-Ring | Slide rod O-Ring | Plug O-Ring | |
| | Seal kit number | | 1 | 1 | 1 | 2 | 1 | 2 | 6 | |
| 40 | KS-CJT35L- 40S-10 | | LBH-16 | USH-16 | USH-30 | S-40 | S12 | DT-1- 8 | W- 8 | 7.3{0.74} |
| 50 | KS-CJT35L- 50S-10 | | LBH-22 | USH-22 | USH-40 | S-50 | P18 | DT-1- 8 | W- 8 | 7.3{0.74} |
| 63 | KS-CJT35L- 63S-10 | | LBH-22 | USH-22 | USH-53 | S-63 | P18 | DT-1-10 | W-10 | 18 {1.8} |
| 80 | KS-CJT35L- 80S-10 | | LBH-28 | USH-28 | USH-71 | S-80 | P24 | DT-1-10 | W-10 | 35 {3.6} |

- ★ 1. When ordering seals, refer to the table above and specify a sea kit No.
- ★ 2. Material for the standard packing is nitril rubber.
- ★ 3. The hardness of an Item No. 6 O-ring is Hs70.

- ★ 4. Packing symbol “S” is a special “O-ring”. (Item No.6)

CJT: 70L CJT: 140L



| Cylinder Bore | Type of Rod | Item | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | Tightening torque for the rod Nm(kgf · m) |
|---------------|-------------|-----------------|------|-----------|-------------|----------------|---------------|---------------|---------------|------------------|-------------|--|
| | | Name | Qty. | Dust seal | Rod packing | Piston Packing | Cover Packing | Piston O-Ring | Piston O-Ring | Slide rod O-Ring | Plug O-Ring | |
| | | Seal kit number | | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | |
| 32 | B | KS-CJTL 32B-11 | | LBH- 18 | USH- 18 | USH- 24 | G 30 | P 21 | P12 | P14 | P5 | 18 {1.8} |
| | C | KS-CJTL 32C-11 | | LBH- 14 | USH- 14 | | | | | | | |
| 40 | B | KS-CJTL 40B-11 | | LBH- 22 | USH- 22 | USH- 30 | G 40 | G 25 | P16 | P14 | P5 | 35 {3.6} |
| | C | KS-CJTL 40C-11 | | LBH- 18 | USH- 18 | | | | | | | |
| 50 | B | KS-CJTL 50B-11 | | LBH- 28 | USH- 28 | USH- 40 | G 50 | G 30 | P18 | P14 | P5 | 62 {6.3} |
| | C | KS-CJTL 50C-11 | | LBH- 22 | USH- 22 | | | | | | | |
| 63 | B | KS-CJTL 63B-11 | | LBH- 36 | USH- 36 | USH- 53 | G 55 | G 40 | G25 | P14 | P5 | 100 {10.2} |
| | C | KS-CJTL 63C-11 | | LBH- 28 | USH- 28 | | | | | | | |
| 80 | B | KS-CJTL 80B-11 | | LBH- 45 | USH- 45A | USH- 71 | G 75 | G 50 | P31 | P14 | P5 | 150 {15.3} |
| | C | KS-CJTL 80C-11 | | LBH- 36 | USH- 36 | | | | | | | |
| 100 | B | KS-CJTL100B-11 | | LBH- 56 | USH- 56 | USH- 85 | G 95 | G 60 | P38 | P14 | P5 | 300 {30.6} |
| | C | KS-CJTL100C-11 | | LBH- 45 | USH- 45A | | | | | | | |

- ★ 1. When ordering seals, refer to the table above and specify a sea kit No..
- ★ 2. Material for the standard packing is nitril rubber.
When phosphate ester type fluids are used, viton seals are required.
Add “F” before the seal kit No.

- ★ 3. The hardness of an Item No. 8 O-ring is Hs70.
The hardness of O-rings 5, 6 and 7 is Hs80.