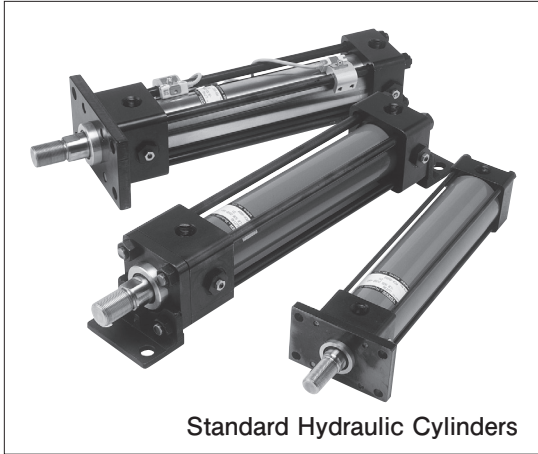


J

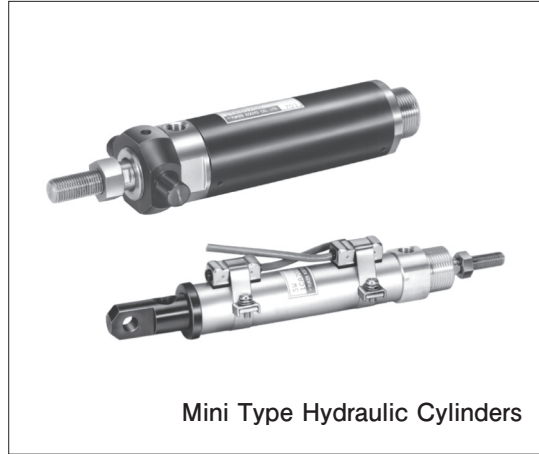
ACTUATORS

■ Standard Hydraulic Cylinders..... Page J-3

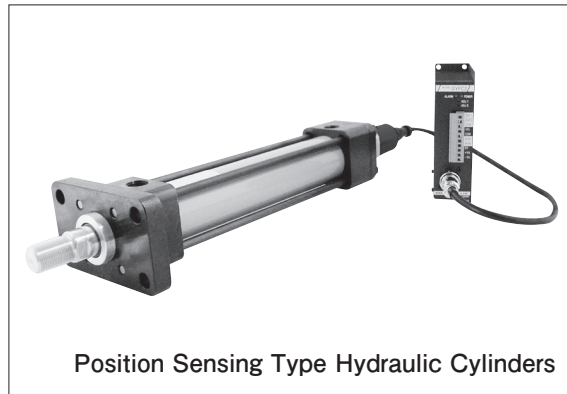




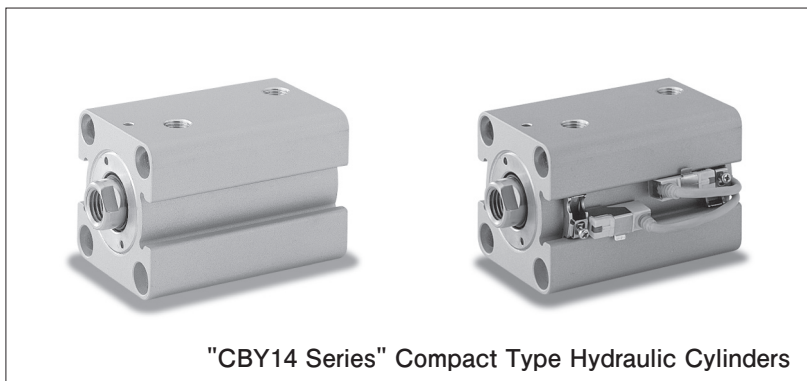
Standard Hydraulic Cylinders



Mini Type Hydraulic Cylinders

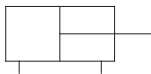
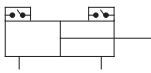
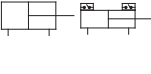



Position Sensing Type Hydraulic Cylinders



"CBY14 Series" Compact Type Hydraulic Cylinders

Hydraulic Cylinders

Cylinder Type	Graphic Symbols	Nominal Pressure MPa	Cylinder Bore mm	Page
Standard Type		3.5	32, 40, 50, 63, 80, 100, 125, 160	J-8
		7 14	32, 40, 50, 63, 80, 100, 125, 140, 150, 160 180, 200, 220, 250	J-19
		21	40, 50, 63, 80, 100, 125, 140, 160	J-54
Compact Type 21 MPa Series		21	40, 50, 63, 80, 100, 125, 140, 160	J-41
Switch Set Type		3.5	32, 40, 50, 63, 80, 100	J-68
7, 14		32, 40, 50, 63, 80, 100, 125		
21		40, 50, 63, 80		
Switch Set Compact Type 21 MPa Series		21	40, 50, 63, 80	
CBY14 Series Compact Type		14	32, 40, 50, 63, 80, 100	J-79
Mini Type		3.5, 7	20, 25, 30	J-88
Position Sensing Type		7, 14	50, 63, 80, 100, 125, 140, 150, 160, 180	J-89

Instructions

Hydraulic Fluids

Type of Hydraulic Fluids

The following Hydraulic Fluids can be used.
The specifications remain the same regardless of which oil is used.

Compatibility of Hydraulic fluid and Packing material

Packing Material	Hydraulic fluids				
	Petroleum Base Oils	Water-glycols	Phosphate esters	W/O Emulsion	O/W Emulsion
Nitrile Rubber	○	○	×	○	○
Fluoro Rubber (F-)	○	×	○	○	○
Hydrogenated Nitrile Rubber (6-)	○	◎	×	◎	◎

Note 1. The mark ◎ and ○ are allowed, × is not allowed.
Note 2. The mark ◎ is the recommended packing for anti-wear type.

Viscosity and Oil Temperature

Use hydraulic fluid within both viscosities of 20 to 400 mm²/s and temperatures of -10 to +60°C.

Control of Contamination

Since foreign matter in the hydraulic fluid interferes with the normal operation of the cylinder, always keep the hydraulic fluid clean (contamination level: within NAS 1638-12 class) and use a filter for pipelines of 25 μm or less.

Place of Installation

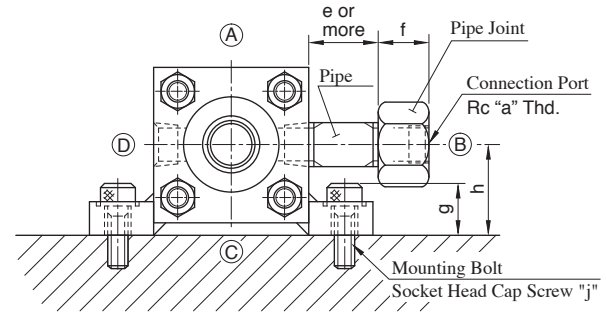
- Use indoors.
- For use in the following environments, please consult us separately.
 - Sand, dust, soil, chips, welding spatter, etc.
 - Rainwater, water, seawater, oil, chemicals, etc.
 - Direct sunlight, humidity, etc.
 - High and low temperature, freezing, etc.
 - High Magnetic Fields
 - Vibration

Installation

Mounting Type	Installation method		
	Push	Pull	Push and Pull
FA FC FE FY			Select one of the installation methods shown on the left based on either push or pull output, whichever is greater. If maximum output is required for both push and pull, please consult us separately.
FB FD FF			
LA LB			
CA CB	Avoid horizontal installation if the stroke is 1000 mm or more.		

Foot Mounting Side Lugs (LA Type) Piping Precautions

For LA type cylinders with bore diameters from 32 to 100, if the port is used with the direction of ② or ③, the piping joint may interfere with the cylinder installation bolts, making piping impossible. When using this type, follow the illustration below.



CJT 35

Cylinder Bore	a	e	f	g	h	j
32	1/4	20	30	16	27	M 8
40	3/8	25	30	18	31	M10
50	3/8	25	30	22	37	M10
63	3/8	26	30	22	38	M10
80	1/2	28	40	25	47	M12
100	1/2	34	40	34	57	M16

CJT 70/140

Cylinder Bore	a	e	f	g	h	j
32	3/8	26	30	24	35	M10
40	3/8	27	30	24	37.5	M10
50	1/2	33	40	29	45	M12
63	1/2	36	40	35	50	M16
80	3/4	40	42	41	60	M16
100	3/4	46	42	47	71	M20

CJT 210C

Cylinder Bore	a	e	f	g	h	j
40	3/8	29	30	25	41	M10
50	1/2	33	40	32	51	M12
63	1/2	38	40	41	56	M16
80	3/4	38	42	46	70	M16
100	3/4	48	42	55	80	M20

CJT 210

Cylinder Bore	a	e	f	g	h	j
40	3/8	28.5	30	29	47	M10
50	1/2	32.5	40	36	61	M12
63	1/2	41	40	51	69	M16
80	3/4	48.5	42	61	85	M20
100	3/4	62.5	42	74	95	M24

When using a bite type joint, refer to the above figure and select a long type.

Air Bleeding

Feed low-pressure oil into the cylinder (to the extent that the cylinder moves at a low speed of 10 mm/s), loosen the air vent valve one or two turns counterclockwise to bleed air. Repeat the procedure until all the air is removed.

⚠ WARNING

Do not loosen the air vent valve more than the specified lift during the air bleed operation.

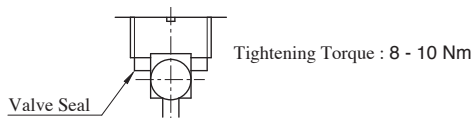
Doing so may result in a serious accident due to valve parts ejecting or oil spewing out.

⚠ WARNING

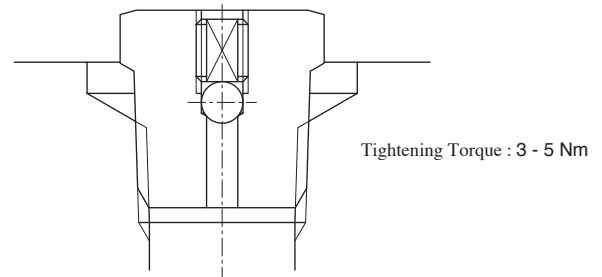
Cylinders should be completely purged of air at low pressure. Failure to do so may result in injury due to unexpected movement of the cylinder.

After venting, tighten the air vent valve to the specified torque and confirm that there are no oil leaks.

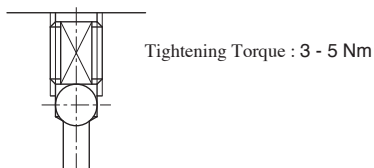
● CJT 35 : Cylinder Bore 32 to 160



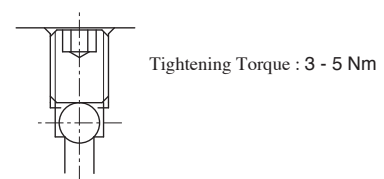
● CJT 70/140 : Cylinder Bore 125 or more



● CJT 70/140 : Cylinder Bore 32 to 100



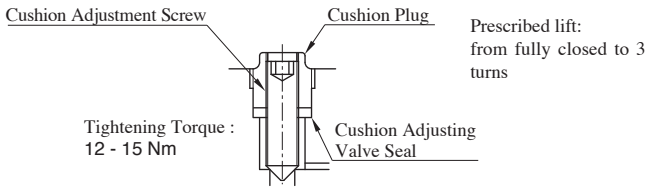
● CJT 210C/210



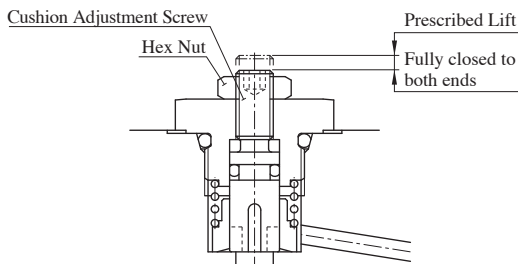
Cushion Adjusting Valve

The cushion adjusting valve is not adjusted at the time of shipment, so be sure to adjust it.

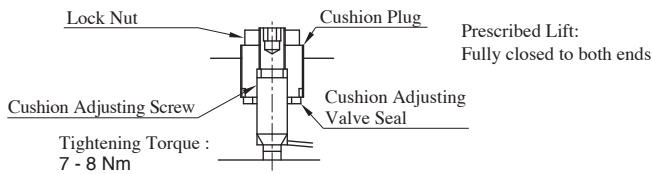
CJT 35



CJT 70/140



CJT 210C/210



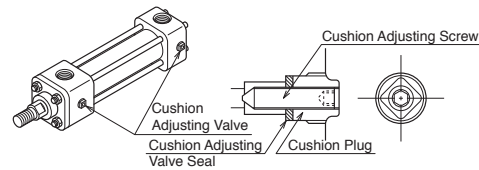
WARNING 1

Do not loosen the Cushion Adjusting Valve more than the specified lift for cushion adjustment work. Doing so may cause valve parts to pop out or oil to spray out, which could result in a serious accident.

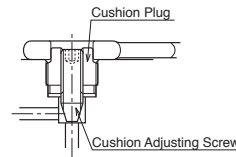
WARNING 2

When adjusting the cushion, start with a low speed (50 mm/s or less) and gradually increase the speed. If the speed is increased from the beginning, abnormal surge pressure may be generated, resulting in a serious accident due to damage to the cylinder or machine.

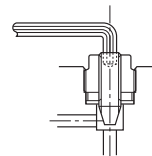
CJT 35 Cushion Adjusting Valve Adjustment Method



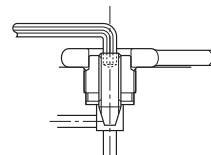
① Loosen the cushion plug 1/4 turn with a wrench or similar tool.



② Turn only the cushion adjusting screw with a hexagonal bar wrench.
 Clockwise ⇒ Slowing down the cushioning process
 Counterclockwise ⇒ Speeds up the cushioning process



③ After adjustment the cushion adjusting screw, fix the cushion adjusting screw with a hexagonal bar wrench to prevent it from moving and tighten the cushion plug.
 (Tightening torque: 12 to 15 Nm)



CJT 70/140/210C/210 Cushion Adjusting Valve Adjustment Method

- (1) Cushion adjustment should be made by turning the hex nut or lock nut counterclockwise approximately 1/4 turn and then adjusting the cushion to the movement of the machine. Turning the cushion adjusting screw clockwise will slow down the cushioning process. Turning it counterclockwise speeds up the cushioning process.
- (2) After adjustment, be sure to tighten the hexagonal nut or lock nut.

Cushion

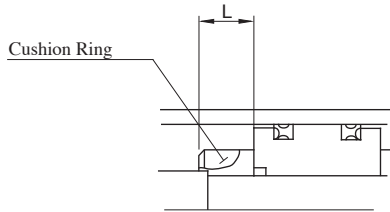
The cushion ring has a special orifice finish that provides a smooth cushioning effect.

Note, however, that the cushioning effect will weaken if the cushioning ring is not used at the end of the stroke and is stopped more than *mm before the end of the stroke.

In such cases, a cushion ring with a parallel part (ℓ -dimension) long is also available.

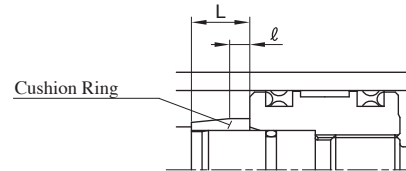
Series Number	*
CJT 35/70/140	3
CJT 210C/210	5

CJT 35



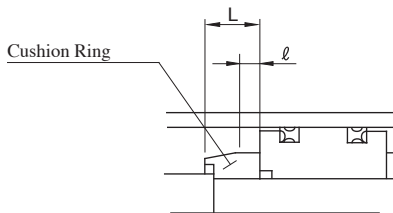
Cylinder Bore mm	Cushion Ring Length L mm
32 - 63	16
80 - 125	20
160	23

CJT 210C/210



Cylinder Bore mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
40	26	10
50, 63	28	10
80, 100	30	12
125 - 160	33	15

CJT 70/140



Cylinder Bore mm	Cushion Ring Length L mm	Cushion Ring Parallel Part Length ℓ mm
32, 40	23	13
50, 63	25	13
80 - 220	30	13
250	35	8

Definition of Terms

The definitions of pressure terms used in this catalog are as follows

- **Nominal Pressure**.....This is the maximum value of the set pressure in a hydraulic circuit using a cylinder. When fixed displacement pump is used as the hydraulic pressure source, this refers to the pressure setting of the pressure control valve (relief valve or pressure reducing valve), and when a variable displacement pump is used, this refers to the full cutoff pressure.
- **Maximum Allowable Pressure**.....The maximum pressure at which a temporary pressure increase, including surge pressure, can be used for strength.
- **Proof Test Pressure**.....The pressure test pressure that must be withstood without causing a loss of performance when returned to nominal pressure.

Maintenance and storage precautions

Seals may need to be replaced when the product is used after prolonged storage.