



MANUAL

POWER PACK CYLINDER



HIROTAKA MFG. CO., LTD.

 **The notes for Using**
Be sure to read this before handling

 **CAUTION**

1. Piping

Before installing the piping, blow compressed air to prevent dirt from entering the piping.

2. Air Supply

Using the compression air with dry via filter. Consider the supply air piping and supply air flow rate to ensure sufficient operating speed.

3. Hydraulic Fluid (ISO VG22 Standard mineral hydraulic fluid or VG32)

If the hydraulic fluid has drain or dirt mixed in with it, or if it has deteriorated or discolored, replace it with new hydraulic fluid. Also, use the same old and new hydraulic oil. Recommended to replace once a year.

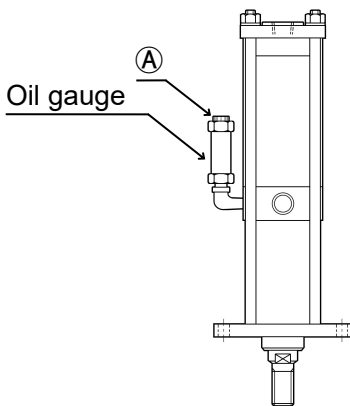
4. Quantity of hydraulic fluid

When the Power Pack cylinder operates, the hydraulic oil level in the oil gauge will fluctuate by approximately several millimeters to 20 mm. Please fill the hydraulic oil up to around the middle of the oil gauge. Please be careful not to overfill. However, since the fluctuation of the hydraulic oil level is particularly large for the PP100-2135 model, an oil level sticker is attached to the side of the oil gauge.

Do not fill the hydraulic oil above this oil level position during the setup described below.

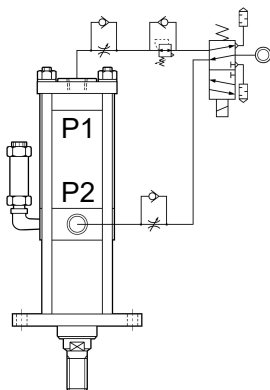
Before using

How to set up and make various adjustments when using the Power Pack Cylinder.



Mount the Power Pack Cylinder on the equipment and complete all air piping. A bottle containing oil is included in the package, so remove the red oil cap at part (A) and fill oil about the middle of the oil gauge. Air bubbles will appear in the oil gauge when the Power Pack Cylinder is operated manually or automatically. Repeat this operation to bleed air until no air bubbles appear. It is about 10 times. Bleeding air will reduce the amount of oil, so add more oil each time. When air bleeding is completed successfully, both stroke and thrust will be fully exerted. Attach the red oil cap.

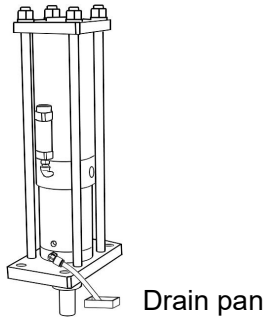
How to adjust cylinder operation



Motion	Adjustment method
Forward speed	Adjust by install a meter-out speed controller in P2 port.
Backward speed	Adjust by install a meter-out speed controller in P1 port.
Forward thrust	Install regulator with backflow function in P1. And adjust regulator.
Speed up	Increase supply air pressure.
	Install quick exhaust valve in P4 or P2. (But the life of seal shortens.)
	Make the air piping thicker and shorter. Also consider the size of the pneumatic equipment.

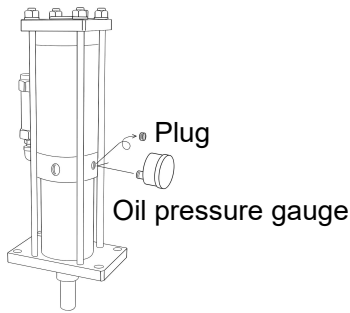
⚠ CAUTION

Type with oil film removal specification for rod (Symbol : B)



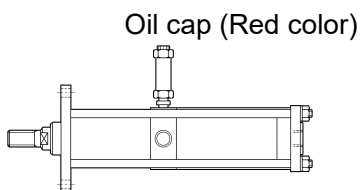
Pipe one-touch fitting to the drain port (Rc1/8) and install a drain pan near the cylinder. It is no pressure. If oil leaks from the piston rod side, it prevents the oil leaking from the rod surface and drains it to the drain port.

Type with oil pressure gauge (Symbol : G)



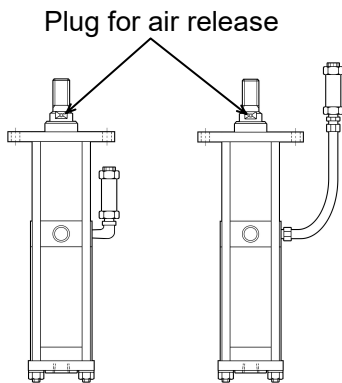
The pressure gauge of a model with pressure gauge is packed separately, and it is shipped. Mount the Power Pack cylinder in the equipment and attach the pressure gauge before oiling. Remove the R1/4 plug next to the "PRESSURE GAUGE" label. Wrap sealing tape around the threads of the pressure gauge and attach it. Oil will not drip if the plug is removed with the pressure gauge port pointing upward, but when the plug is removed with the cylinder upright, a small amount of oil will drip. Remove the plug while receiving oil with a waste cloth, etc., and then attach the pressure gauge. Oiling the oil gauge after installing the pressure gauge. (Refer page 5 "Before using")

Installation direction



The mounting direction for standard use is the piston rod facing downward.

When using the Power Pack Cylinder horizontally, remove the elbow from the oil gauge and attach it directly from the nipple to the cylinder body with the red oil cap facing upward.



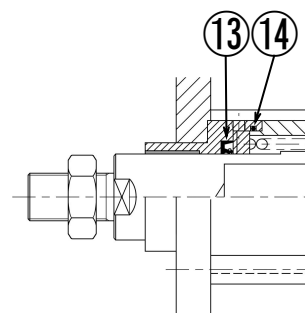
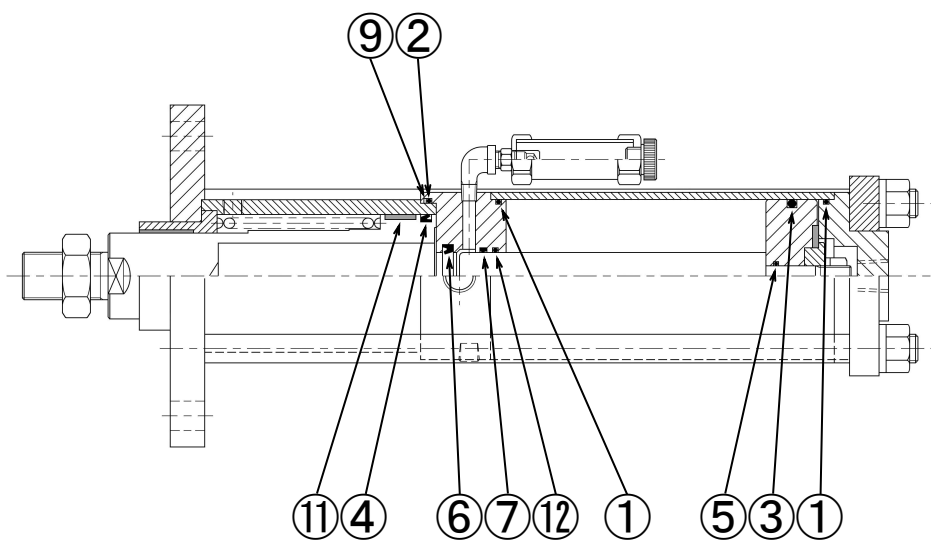
The standard product cannot be used with the rod facing upward. Special products purchased as upward facing specifications come with an air bleed plug attached to the width across flats of the piston rod, so bleed the air. Although it can be used by connecting the oil gauge directly to the cylinder body like the standard, it is easier to bleed air by installing the oil gauge higher than the air bleed plug as shown in the left diagram. There is no pressure inside the piping, so connect it with low hydraulic pressure piping. (Cylinder body connection port: Rc1/8, oil gauge connection nipple: R1/8)

Troubleshooting guide

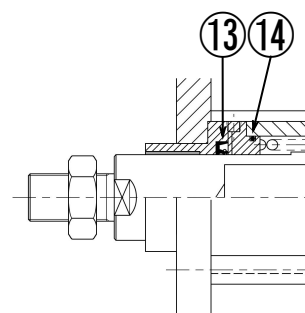
Situation	Cause of issue	Countermeasures
The cylinder does not move at all.	The defective control circuit, no air supply	Check control circuit, air supply
	The malfunctions of pneumatic control equipment	Check the solenoid valve, speed controller, etc
	Power Pack Cylinder is broken	Inquire with us or our distributor
No thrust	Compressed air is not supplied to P1	Check the regulator, solenoid valve
	Oil is not contained, or insufficient	Add oil and adjust to proper level
Unable to maintain thrust	Seal failure due to seal wear	Replace the seal
Oil leakage (Exhaust of SOL)	Seal failure due to seal wear	Replace the seal
Oil leakage (Flange top surface)	Seal failure due to seal wear	Replace the seal
Oil leakage (Red oil cap)	Internal oil has negative pressure	Slow down backward speed
Air leakage	Seal failure due to seal wear	Replace the seal

Packing for PP series

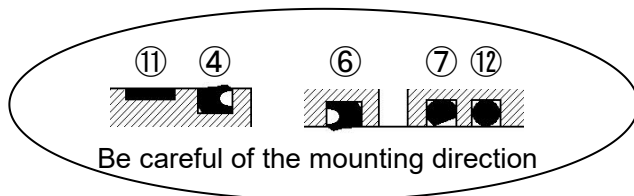
Type with oil film removal specification for rod only (Symbol : B)



PP-50, 80



PP-100



No.	Seal	Model	PP-50		PP-80					PP-100				Q'ty
			0510	1005	1324	1915	2910	2135	2727	3620	5514	7908		
1	O ring		S46	S46	G75	G75	G75	G95	G95	G95	G95	G95	2	
2	O ring		G45	G45	G75	G75	G75	G95	G95	G95	G95	G95	1	
3	O ring		P44	P44	P70	P70	P70	P90	P90	P90	P90	P90	1	
4	Y packing		UHP-40	UHP-40	UHS-50	UHS-50	UHS-50	UHP-80	UHP-80	UHP-80	UHP-80	UHP-80	1	
5	O ring		P6	P6	P15	P15	P15	P15	P15	P15	P15	P15	1	
6	Y packing		ISI 20 28 5	IDI 14 22 5	ISI 30 40 6	ISI 25 33 5	ISI 20 28 5	ISI 40 50 6	ISI 35 45 6	ISI 30 40 6	ISI 25 33 5	ISI 20 28 5	1	
7	Penta seal		PS20	PS14	PS30	PS25	PS20	PS40	PS35	PS30	PS25	PS20	1	
9	Back up		—	—	—	—	—	—	—	—	—	G95	1	
11	Wear ring		SW40	SW40	SW60	SW60	SW60	SW80	SW80	SW80	SW80	SW80	1	
12	O ring		P20	P14	P30	P25	P20	P40	P35	P30	P25	P20	1	
13	Oil seal		TB4-25	TB4-25	TB4-35	TB4-35	TB4-35	TB4-55	TB4-55	TB4-55	TB4-55	TB4-55	1	
14	O ring		G45	G45	G65	G65	G65	S80	S80	S80	S80	S80	1	

Note) No.13 Oil seal and No.14 O ring are sold separately.

How to order : Seal kit for PP-**-**-**



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