

RELIEF VALVES



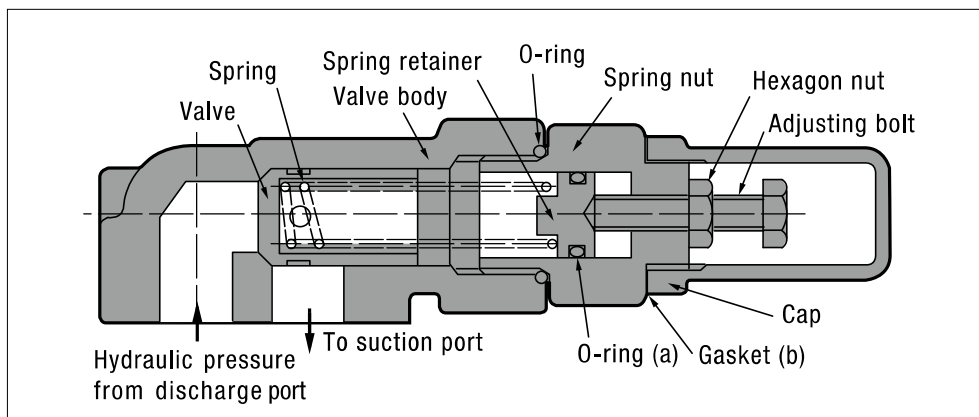
Model Numbering System (For General Lubricant Oil)

TOP- ① ② Relief valve setting pressure* * The relief valve pressure is set at cracking pressure.

Model
2VB (36ℓ/min)/
2VD (36ℓ/min)/
3VB (117ℓ/min)/
4VBP (340ℓ/min)
(Max.flow rate)

Attachment
Non: Directly attached on Trochoid pump.
D: Attached on valve stand (for pipe attachments)
Note: Valve stand (D) is not available for TOP-2VD.

Internal Structure



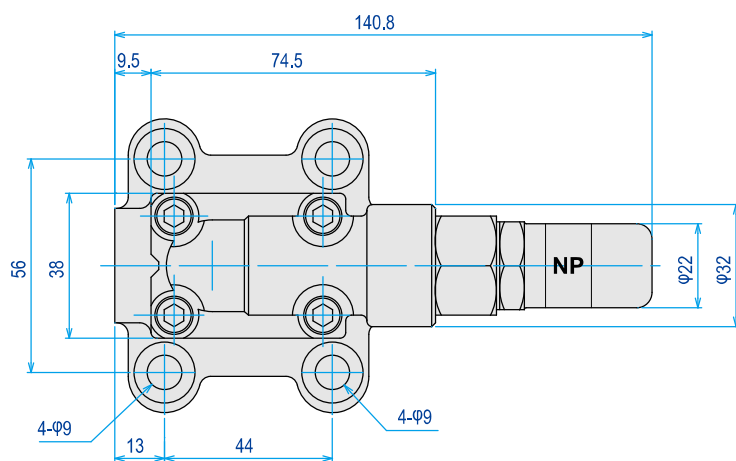
Note: O-ring (a) is not included if you select 2VB, 2VBD, 2VD, 3VB, 3VBD with spring No.1, only gasket (b) is included.
Refer to the dimensions on pp116-117.

Adjusting Pressure Range of Relief Valve

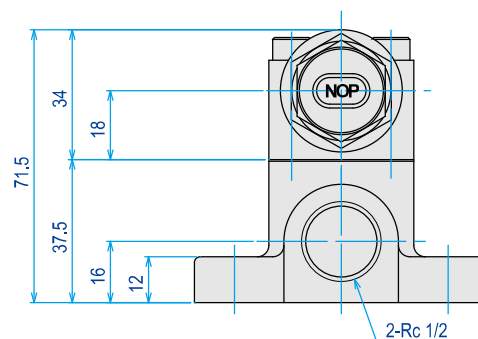
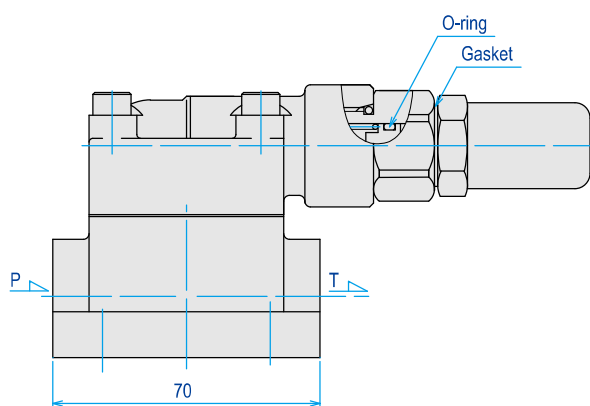
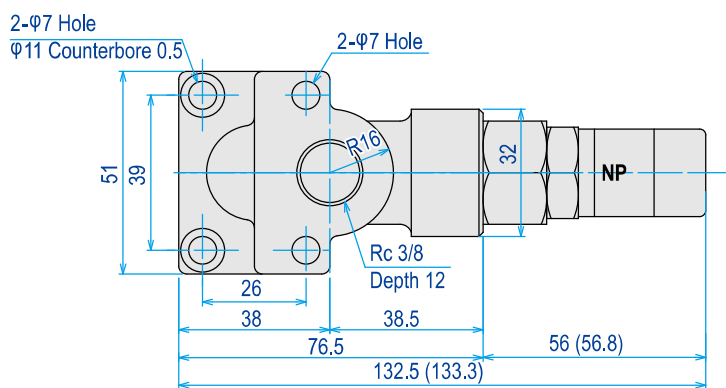
Spring No.	Adjusting pressure range (Cracking pressure) MPa		
	2VB	3VB	4VBP
1L	0.08~0.25	0.08~0.25	0.15~0.25
2L	0.26~0.50	0.26~0.55	0.26~0.49
3L	0.51~1.19	0.56~1.30	0.50~0.80
4L	1.20~2.50	1.31~1.70	0.81~2.00
5L	—	1.71~2.49	—
6L	—	2.50~3.00	—

Note: Cracking pressure: Pressure at which a valve starts to operate

■ Dimensions (Typical) for RELIEF VALVES

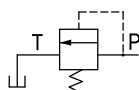
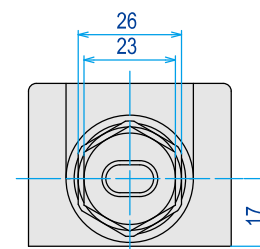
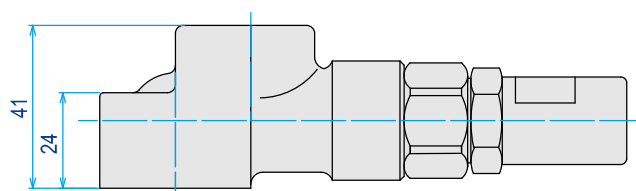
Model : TOP-2VBD


Spring No.	Pressure range (MPa)	Seal & Gasket
No.1L	0.08~0.25	Gasket (b) O-ring (a) P10
No.2L	0.26~0.50	
No.3L	0.51~1.19	
No.4L	1.20~2.50	


Model : TOP-2VD


The values in () show the dimensions for spring No.1

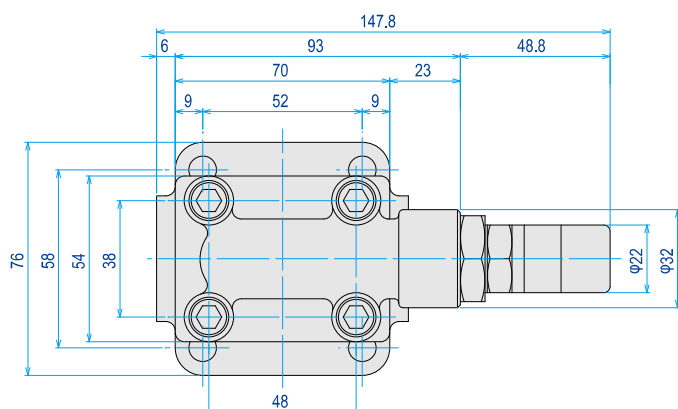
Spring No.	Pressure range (MPa)
No.1L	0.08~0.25
No.2L	0.26~0.50
No.3L	0.51~1.19
No.4L	1.20~2.50



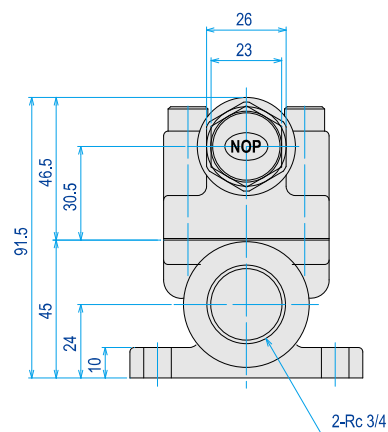
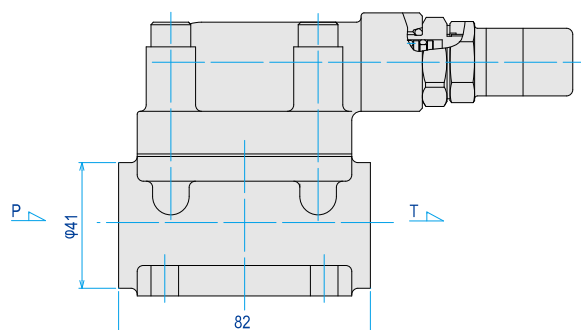
Any disassembly or alteration of the product will void the warranty.

■ Dimensions (Typical) for RELIEF VALVES

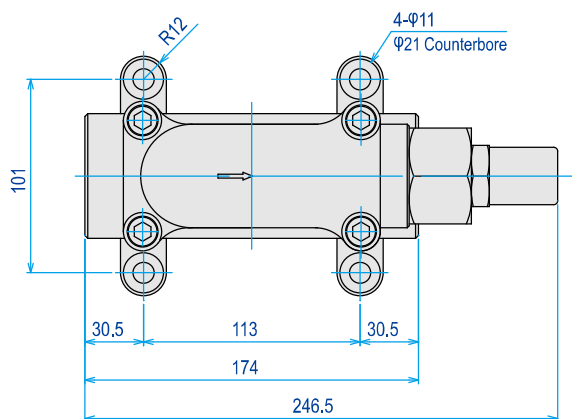
Model : TOP-3VBD



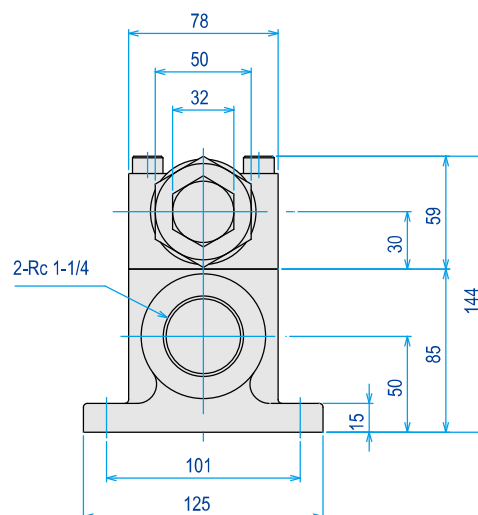
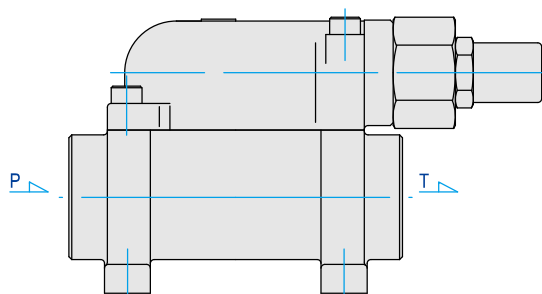
Spring No.	Pressure range (MPa)	Seal & Gasket
No.1L	0.08~0.25	Gasket (b)
No.2L	0.26~0.55	O-ring (a) P10
No.3L	0.56~1.30	
No.4L	1.31~1.70	
No.5L	1.71~2.49	
No.6L	2.50~3.00	



Model : TOP-4VBPD



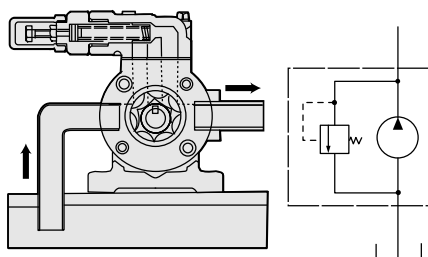
Spring No.	Pressure range (MPa)
No.1L	0.15~0.25
No.2L	0.26~0.49
No.3L	0.50~0.80
No.4L	0.81~2.00



How to install a Trochoid pump relief valve properly in a pump system

Internal return (as a safety valve)

VB Type

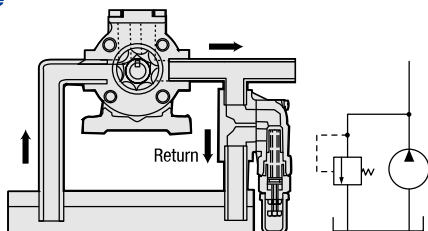


The valve is used as a safety valve to lower pressure instantly during oil transfer, which is attached to the pump directly.

If the valve is being activated constantly and/or the discharge port is being closed completely for a long time in the system, air bubbles, large noise and oil temperature increase might occur. In such a case, we recommend external return type as shown below.

External return (as a safety valve/pressure control valve)

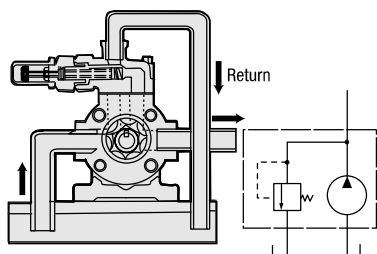
VBD Type



The valve is used as a pressure control valve for hydraulic oil or circulation oil lubricating system, which is installed with a sub plate.

The VB type valve with a sub plate is installed in a bypass circuit of the system. It is the most suitable for the system bypassing the full flow for a long time and/or using the valve constantly as the pressure control valve.

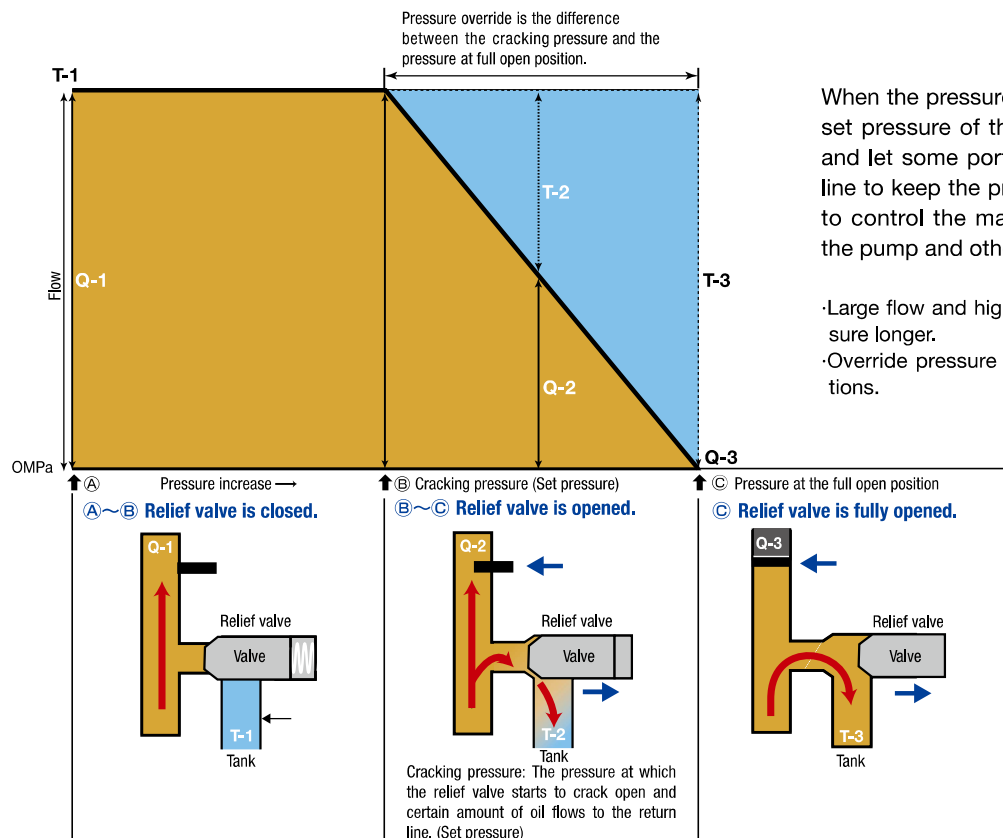
2VD Type



This is the same as the system above except for using a valve attached to Trochoid Pump 2HB directly.

- Be sure to attach a plate to block the suction line when 2VD type is installed.
- Be sure to connect the return line to the oil tank.

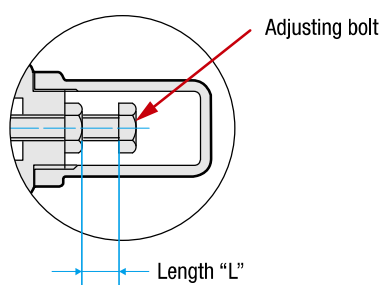
Operational description



How to adjust the pressure

1. Remove the cap.
2. Loosen the hexagon nut.
3. To increase the set pressure, turn the adjusting bolt to the right.
To lower the set pressure, turn the adjusting bolt to the left.
4. Tighten the hexagon nut to fix.
5. Reinstall the removed cap.

Note: If selecting the model with spring No.1, be careful not to damage the gasket when tightening the cap with the tightening torque of 13N·m.



*Set pressure: The pressure at which the relief valve starts to crack open (Cracking pressure) Refer to ③ in the operation chart described on the previous page.

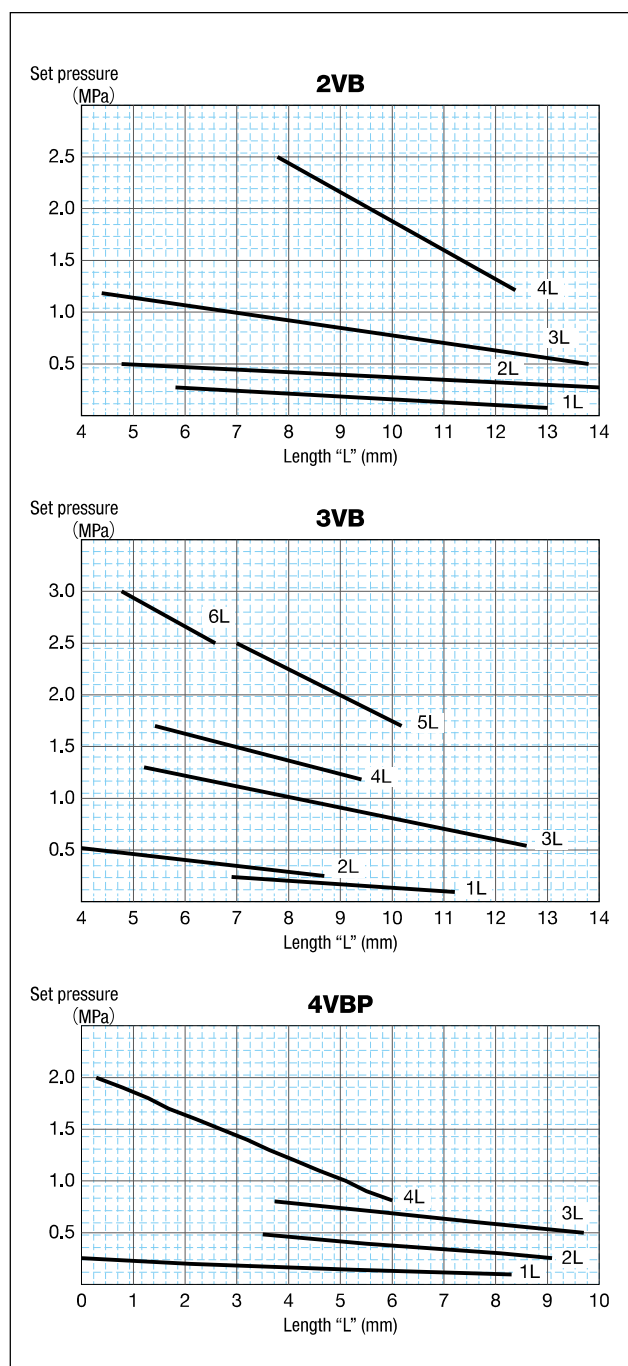
Instructions for selecting a relief valve

1. Check the allowable maximum pressure of the motor and pump.
2. Check whether the devices in the system require protection.

Note: Trochoid pump is a positive-displacement pump, which requires a relief valve to prevent unusual pressure rise.

Length of an adjusting bolt and set pressure*

You can get a rough idea of the set pressure by referring to the length of adjusting bolt on the table below.



The tables above only show the typical values of the set pressure.