

TACMINA

Relief Valve

TRV Series

Operation Manual

Before beginning operation, read this operation manual carefully.

- Thank you for purchasing this TACMINA product. Please read this operation manual carefully in order to ensure that you use appliance safely and correctly.
- Be sure to keep this operation manual in a place where it will be easily available for reference.
- Additional information on this product and manuals in other languages may be found on our website.



CAUTION

- Be careful that slurry, debris, and other foreign matter do not enter the transferring liquids. The relief valve may stop operation.
- Structurally, a dead space exists in ball-type valves. Vaporizable liquids such as hydrogen peroxide water (H_2O_2) and hypochlorous acid soda ($NaClO$) may vaporize within this dead space, leading to an abnormal increase in pressure within the valve. This abnormal increase in pressure causes vaporization, resulting in pressurized gas that may explode if the valve is damaged, which can cause shards to go flying, resulting in an extremely hazardous situation. When handling vaporizable liquids, do not leave the valve closed for long periods of time. If leaving the valve closed for a long period of time, drain all the remaining liquid from the valve.
- When the simple relief valve is activated due to an issue such as a blockage on the discharge-side piping, stop the pump immediately and eliminate the cause of the issue and take measures to prevent recurrence.

www.tacmina.com

Operating Conditions

Capacity: 2,000 mL/min or less * At a viscosity of 50 mPa•s
 Viscosity: 50 mPa•s or less
 Pressure: 1.2 MPa or less
 Temperature: 0 to 50°C

Model Code

TRV — V E — 15 F

(1) (2) (3) (4) (5)

- (1) Series name
TRV: Relief valve
- (2) Valve liquid-end material
V: PVC
- (3) Diaphragm material
E: EPDM
F: Special fluoro-rubber
- (4) Connection size
Flange type
15: JIS10K15A
Hose type
4: $\phi 4 \times \phi 9$
6: $\phi 6 \times \phi 11$
12: $\phi 12 \times \phi 18$
4x9/Z: (Inlet side) $\phi 4 \times \phi 9$ (Outlet side) R3/8 or R1/2
6x11/Z: (Inlet side) $\phi 6 \times \phi 11$ (Outlet side) R3/8 or R1/2
12x18/Z: (Inlet side) $\phi 12 \times \phi 18$ (Outlet side) R3/8 or R1/2
- (5) Joint
H: Hose
F: Flange
X: Special

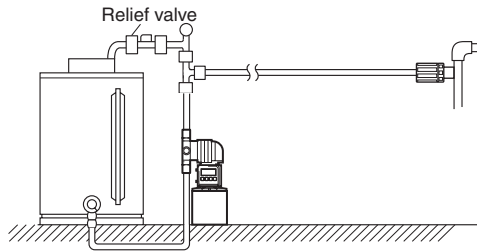
Specifications

Model	Connection	Pressure regulation range (MPa)	Standard setting pressure (MPa)	Material			Weight (kg)
				Valve unit	Diaphragm	O-ring	
TRV-VE-4H	$\phi 4 \times \phi 9$	0.3 to 1.2	0.5	PVC	EPDM	EPDM	0.3
TRV-VE-6H	$\phi 6 \times \phi 11$						
TRV-VE-12H	$\phi 12 \times \phi 18$						
TRV-VE-15F	JIS 10K 15A						
TRV-VE-4x9/Z	(Inlet side) $\phi 4 \times \phi 9$ (Outlet side) R3/8 or R1/2						0.4
TRV-VE-6x11/Z	(Inlet side) $\phi 6 \times \phi 11$ (Outlet side) R3/8 or R1/2						
TRV-VE-12x18/Z	(Inlet side) $\phi 12 \times \phi 18$ (Outlet side) R3/8 or R1/2						
TRV-VF-4H	$\phi 4 \times \phi 9$				Special fluoro-rubber	Special fluoro-rubber	0.3
TRV-VF-6H	$\phi 6 \times \phi 11$						
TRV-VF-12H	$\phi 12 \times \phi 18$						
TRV-VF-15F	JIS 10K 15A						
TRV-VF-4x9/Z	(Inlet side) $\phi 4 \times \phi 9$ (Outlet side) R3/8 or R1/2						0.4
TRV-VF-6x11/Z	(Inlet side) $\phi 6 \times \phi 11$ (Outlet side) R3/8 or R1/2						
TRV-VF-12x18/Z	(Inlet side) $\phi 12 \times \phi 18$ (Outlet side) R3/8 or R1/2						

TACMINA can adjust the valve to a specific setting pressure at the time of shipment if requested by the customer when ordering.

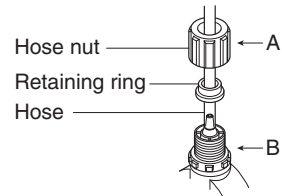
Installation

- (1) Install the relief valve in the direction indicated by the feeding direction arrow label so that liquid flows in that direction.
- (2) Install the relief valve as close to the pump as possible.
- (3) Install a pressure gauge at the pump discharge side.
- (4) Lay the piping on the outlet side of the relief valve so that it returns to the tank.
 - * Avoid laying the piping in locations subject to the oxidizing effects of the air and other adverse influences.
- (5) When installing outdoors, be sure that the valve is not exposed to direct sunlight.

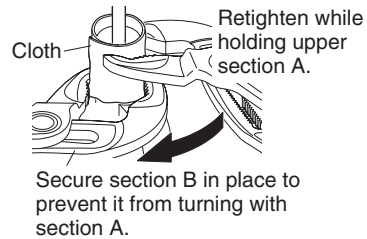


Hose connection

- (1) Insert the hose fully to prevent it from falling out.



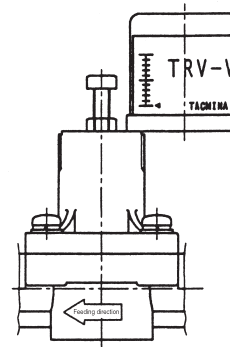
- (2) Fully tighten the hose nut by hand.
- (3) Wrap the nut with a cloth to prevent damage.
- (4) Use two water pump pliers to retighten one more rotation as shown in the figure below.



- * After starting operation, retighten the nut as needed.

Pressure Regulation

- (1) The pressure setting of the relief valve that was set at the time of shipment is written on the nameplate. In some cases, however, the pressure setting may change due to the pumped fluid viscosity or pressure at the outlet side. Therefore, be sure to recheck the pressure setting during the trial run.
- (2) Remove the cap. Loosen the hexagonal nut, and regulate the pressure by turning the hexagonal bolt. Turning the hexagonal bolt clockwise increases the pressure setting; turning it counter-clockwise decreases the setting.
- (3) The purpose of the relief valve is to protect the pump, pipes and other parts from increases in pressure. Therefore, be sure to set the pressure setting at no more than 120% of the normal pump pressure.
- (4) After setting the pressure, properly tighten the hexagonal nut so that the hexagonal bolt is not loose.
- (5) The nameplate is affixed to the cap. A scale is provided on the left end of the nameplate. Use this scale as a guide when regulating the pressure setting.



CAUTION

- Do not assemble the valve with the hexagonal nut removed. Doing so can cause the pressure setting to shift, resulting in abnormal pressure or closed operation. This could lead to damage to the piping, pump, or the relief valve itself.

Disassembly, Cleaning and Replacement of Parts

- (1) The diaphragm can be replaced by loosening the four cross-recessed head machine screws with washers. When cleaning the diaphragm, wash the diaphragm's sealing surface and the passage's sealing section.
- (2) Do not turn the hexagonal bolt for pressure regulation when disassembling, cleaning or replacing parts.

Troubleshooting

Problem	Caus	Remedy
Liquid emerges from the outlet side at a pressure below the target pressure setting.	Debris is clogging the valve.	Disassemble and clean the valve.
	Damage to or faulty diaphragm	Replace the diaphragm.
	The pressure setting was mistakenly set below the target pressure setting.	Readjust the pressure setting.
Pressure increases beyond the target pressure setting.	The pressure setting was mistakenly set higher than the target pressure setting.	Readjust the pressure setting.
	The valves after the relief valve discharge outlet are closed.	Open the valves.
	The piping after the relief valve discharge outlet is closed or clogged with debris.	Clean the piping.

Although the above table shows the possible causes and remedies for typical problems, it is also important to find the exact cause of a problem. For example, if the problem is caused by clogging of debris, and there is a large amount of debris and other foreign matter in the liquid, it may be advisable to install a strainer to solve this issue. Although the troubleshooting information above pertains to relief valve problems only, it is always important to thoroughly investigate the cause of all problems that occur.

Consumables

Part name	Quantity per unit	Recommended replacement interval
Diaphragm	1	4000 hours or 1 year
O-ring	2	

Product designs and specifications are subject to change without notice for product improvement.

TACMINA CORPORATION

Head Office:

2-2-14 Awajimachi, Chuo-ku, Osaka 541-0047 Japan
Tel.+81(0)6-6208-3974 Fax.+81(0)6-6208-3978
URL www.tacmina.com
E-mail trade@tacmina.com

EM-120(5)-

2023/3/1--

Z1167

