

## SERIES “RVT” RELIEF VALVES INSTALLATION AND MAINTENANCE INSTRUCTIONS

### I. IMPORTANT – BEFORE INSTALLING

Series RVT relief valves will open when inlet pressure exceeds the set pressure, when properly installed and used within the recommended ranges of pressure, temperature, and chemical compatibility. The ultimate determination of material compatibility is previous successful use in the same application. Call our Technical Support for information about your application.

**CAUTION:** Series RVT is not a pop safety relief valve. It is not intended for air or gas service. It does not regulate pressure downstream of the valve. Connecting the outlet to a suction line may cause air to be drawn into the line. Connecting the outlet to a pressurized line or vessel may cause valve malfunction. Plastic materials will degrade in ultraviolet (UV) light or sunlight. Polypropylene and PVDF often look similar. Do not install in your system if you are not sure.

#### MAXIMUM INLET PRESSURES for WATER\*

BODY MAT'L	COLOR	at 77°F (25°C)	at 104°F (40°C)	at MAX TEMP.
PVC	DARK GRAY	150 PSI 10 Bar	106 PSI 7 Bar	34 PSI @ 140°F 2 Bar @ 60°C
CPVC	LIGHT GRAY	150 PSI 10 Bar	120 PSI 8 Bar	37 PSI @ 180°F 2 Bar @ 80°C
Polypro	TRANSLUC. WHITE	150 PSI 10 Bar	125 PSI 8 Bar	40 PSI @ 180°F 2 Bar @ 80°C
Kynar PVDF	TRANSLUC. WHITE	150 PSI 10 Bar	120 PSI 8 Bar	22 PSI @ 280°F 1 Bar @ 140°C
PTFE	OPAQUE WHITE	150 PSI 10 Bar	140 PSI 9 Bar	10 PSI @ 280°F 69 Kpa @ 140°C

\*or compatible chemical – rating reduced for some applications. Not rated for suction or vacuum. Minimum temperature 40°F (5°C). EPDM seals limited to 250°F (120°C), FKM to 300°F (148°C). See the Product Data Sheet or consult our Technical Support staff for more information.

### II. INSTALLATION INSTRUCTIONS

Install the valve in the proper flow direction as indicated by the flow label. The valve may be set vertically or horizontally.

#### A. THREADED CONNECTION

Apply a suitable thread sealant (for example, PTFE tape) to male tapered threads to assure a “leak-tight” seal. Assemble “hand-tight” followed by a quarter (1/4) turn with a strap wrench. Do not over tighten or use pipe wrenches on plastic pipe and components. **CAUTION:** PTFE tape will “string” as pipe threads are joined. Loose “strings” could lie across the seating surface and prevent the valve from completely closing. To avoid this problem, clean out old tape, and do not apply tape to the first thread.

**CAUTION:** Connect to plastic pipe and fittings only; when using metal pipe, install an intervening plastic fitting. Metal pipe and straight threaded pipe tends to cut, stretch, and distort the plastic bodies, resulting in cracking or leaking over time.

**NON-THREADED CONNECTIONS** – For solvent cementing or heat fusion, follow the instructions supplied with the cement or fusion equipment, or contact your distributor.

**MOUNTING:** These valves are designed to be supported by the piping. The piping must be properly supported, taking into account the weight of the valve, piping, and process liquid.



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### III. OPERATION

#### RELIEF OPERATION

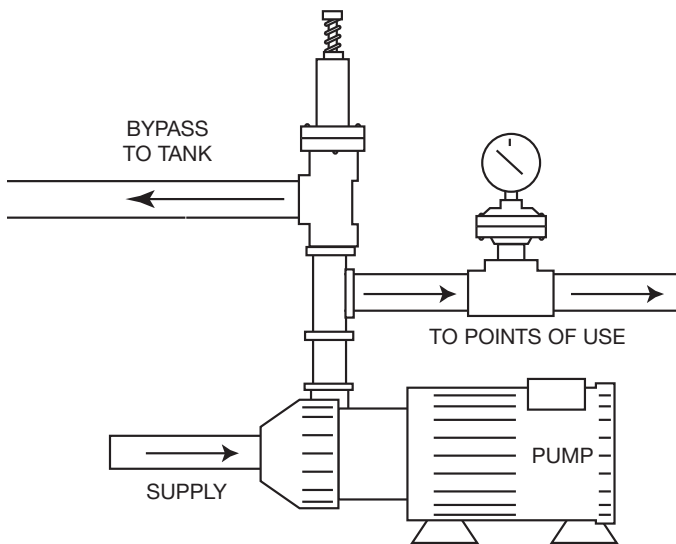
The function of a relief valve is to protect a pressurized pipeline, vessel, or other similar system from excessive pressure. When the inlet pressure exceeds the set point, the valve opens to bleed off the excess pressure.

#### BACK PRESSURE OPERATION

A back pressure valve controls pressure in a line or system by closing when the pressure drops below the set point. Pressure at the outlet can drop, but upstream pressure is maintained.

#### BY-PASS OPERATION

A by-pass valve is set on the outlet of a pump (see figure) to prevent dead-heading and control the pump's outlet pressure. When pressure exceeds the set point, the valve opens to allow the liquid to recycle (by-pass) to the pump inlet.



Typical By-pass Operation

### IV. PRESSURE SETTING INSTRUCTIONS

Series RVT pressure relief valves sense inlet pressure; therefore it may be helpful to install a pressure gauge at the inlet of the valve for setting.

#### Setting for relief or backpressure operation:

1. Install the relief valve in the piping system.
2. Loosen the locking nut on the adjusting screw assembly and turn the adjusting screw all the way in.
3. Increase the inlet pressure to the desired set point.
4. Turn the adjusting screw slowly out until flow is observed.
5. Tighten the locking nut to lock in the setting.

Relief valves may be set off-line using pressurized air. Connect the inlet to a pressurized air supply that is regulated to the desired set pressure. Fill the outlet port with water, or run a line into a container of water, to observe bubbles.

### V. MAINTENANCE

Plast-O-Matic recommends keeping a spare seal kit available for repairs. Seal life will vary in applications due to cycles, temperatures, pressures, chemicals, and concentration. Based on the application, a periodic inspection and maintenance plan should be established. The seal kit part number is "SK" plus the part number less the material suffix. For example, the seal kit for RVT050V-PV is SKRVT050V.



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### SEAL KIT REPLACEMENT

#### REFER TO ILLUSTRATIONS ON PAGE 4.

- Before disassembly, relieve pressure and drain fluid from the valve and piping to be opened. Take proper precautions to protect people and equipment from any residual liquid.
- Disassemble the valve in a clean environment. Prevent any dirt, grit, or fiber from getting onto the sealing surfaces or into the moving parts. Do not scratch or damage plastic parts.
- A non-scratching probe such as an orangewood stick or ball end dental pick (burnisher) should be used to remove and install O-rings, U-cups and seat gaskets.
- Pipe wrenches and vises are not recommended for plastic valves. Strap wrenches can be used in most cases.
- Refer to the valve instruction sheet for installation to piping.

#### DISASSEMBLY

1. Back off the adjusting screw to release pressure.
2. Remove the four screws and the flange ring.
3. Disassemble as shown in figures 3, 2, and 1. Tweezers may be needed to remove the U-cup inside the spring housing.
4. Remove and discard the seal kit items.

#### ASSEMBLY

1. When allowed, lubricate each item in the seal kit lightly with an appropriate lubricant.
2. (for RVT050, skip to step 4) Bend one U-cup into a heart shape and push into the groove inside the spring housing. Use a probe or your finger to hold one lobe in the groove and push the rest of the U-cup in.
3. Assemble the seat retainer assembly as shown in figure 1. Hold the shaft with a rubber sheet or glove, and screw on until tight. Do not overtighten or use any material which may scratch the teflon shaft.
4. Assemble the rest of the parts as shown in figures 2 and 3.
5. Replace the four screws, and nuts if supplied. Torque 5 to 10 inch pounds.



HEART SHAPE

### SPRING REPLACEMENT

MODEL	PIPE SIZE	ADJUST RANGE	SPRINGS
RVT050	1/2"	5 - 25 26 - 55 56 - 100 101 - 125	LC042G-7 LC045G-7 LC055G-7 LC038E-14
RVT075	3/4"	5 - 30 31 - 70 71 - 100 101 - 125	LC055H-10 LC063H-10 LC072H-9 LC080H-9
RVT100	1"	5 - 25 26 - 55 56 - 100 101 - 125	LC072H-9 LC080H-9 LC080H-9 & LC091K-1 LC092H-8 & LC091K-1
RVT125	1 1/4"	5 - 15 16 - 50 51 - 70 71 - 125	LC063H-10 LC105L-8 LC120L-7 LHC156M-6
RVT150	1 1/2"	5 - 25 26 - 59 60 - 100 101 - 125	LC105L-8 LC120L-7 LHC148J-7 LC105J-12 & LC135M-7
RVT200	2"	5 - 40 41 - 100 101 - 125	LHC162N-9 LHC218T-4 LHC162N-9 & LHC218T-4

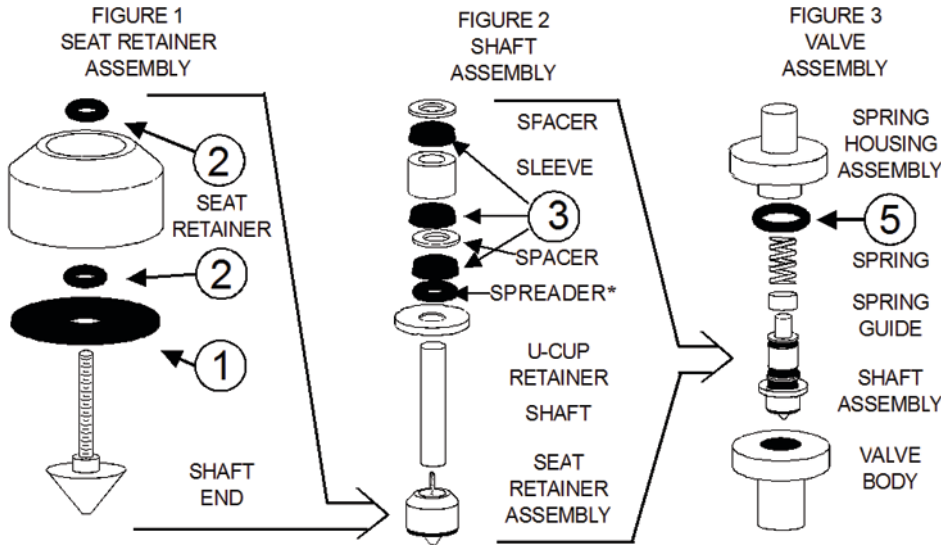
#### NEED HELP?

Call 1-973-256-3000, fax to 1-973-256-4745,  
or e-mail to [info@plastomatic.com](mailto:info@plastomatic.com),  
for Tech Support.  
(Have valve model number ready)

RVT-0222-I-3

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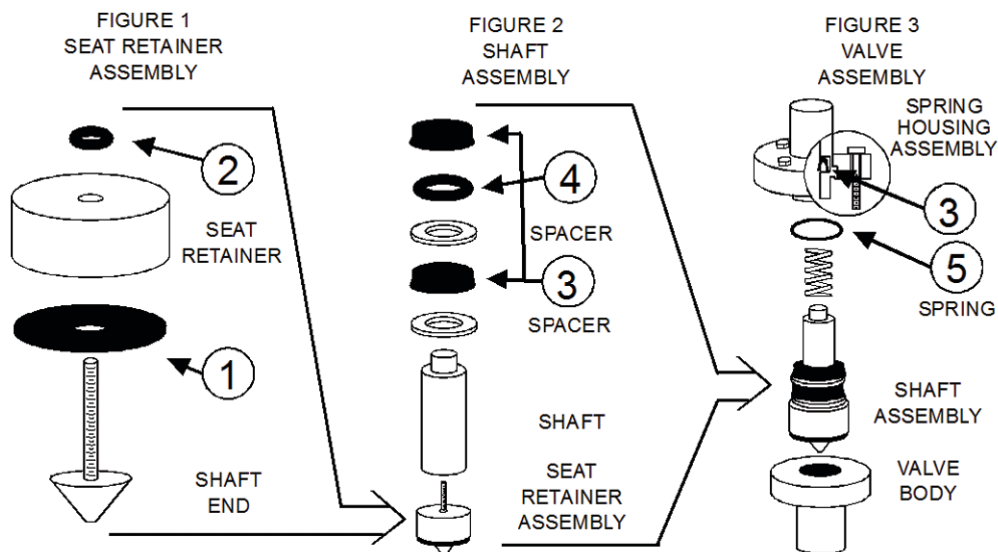
### RVT050 SEAL KIT



Item	Qty.	Description
1	1	SEAT GASKET
2	1 or 2	SEAT RETAINER O-RING
3	3	U-CUP SEAL
4	1	SPREADER SEAL*
5	1	BODY O-RING

\* The "spreader seal" is the o-ring that is nicked or cut to permit expansion.

### RVT075, RVT100, RVT125, RVT150, RVT200 SEAL KIT



\*NOTE: 1" RVT uses two spreader seals.

RVT-0222-I-4