



# “RTP” Thermo Valves

## Models 7128-7138

### FEATURES

- New RTP reinforced composite material offers strength, heat resistance and chemical compatibility.
- Protects pump from premature failure of seals, packings and cups by eliminating heat build-up in closed loop by-pass systems.
- Ultra-lightweight with choice of three port sizes allows convenient and easy installation into the by-pass loop.
- Automatically seats during unloader/regulator pressure spikes to prevent liquid bleed.
- Compatible with systems using either unloader or regulator valves.
- Mount multiple Thermo Valves inline to handle increased system flow.
- Optional By-pass Hose with Thermo Valve for quick, compact installation.

**SELECTION:** The Thermo Valve is a simple device designed to be **installed in the by-pass line** of the regulating device when the by-pass liquid is being recirculated to the inlet of the pump. This Thermo Valve is effective with either a pressure regulator or an unloader.

**INSTALLATION:** When installed in a **Piston Pump** application with the **by-pass routed directly to the inlet line**, the maximum inlet pressure to the pump is **40 PSI**. A pressure reducing valve must be installed **between the Thermo Valve and pump inlet** if inlet pressure is greater than 40 PSI.

### SPECIFICATIONS

	U.S. Measure	Metric Measure
<b>130°F MODEL 7138</b>		
Max. Inlet Pressure .....	125 PSI	(8.8 BAR)
<b>Inlet Port</b> .....	<b>1/4" NPTM</b>	<b>(1/4" NPTM)</b>
Bleed Port .....	1/8" NPTF	(1/8" NPTF)
Weight.....	1.97 oz.	(0.06 kg)
Dimensions.....	3.0 x .87	(76 x 22mm)

<b>145°F MODELS 7135, 7136, 7137</b>		
Max. Inlet Pressure .....	125 PSI	(8.8 BAR)
<b>Inlet Port (7135)</b> .....	<b>1/4" NPTM</b>	<b>(1/4" NPTM)</b>
<b>Inlet Port (7136)</b> .....	<b>3/8" NPTM</b>	<b>(3/8" NPTM)</b>
<b>Inlet Port (7137)</b> .....	<b>1/2" NPTM</b>	<b>(1/2" NPTM)</b>
Bleed Port .....	1/8" NPTF	(1/8" NPTF)
Weight.....	1.97 oz.	(0.06 kg)
Dimensions.....	3.0 x .87	(76 x 22mm)

<b>165°F MODELS 7128, 7129, 7130</b>		
Max. Inlet Pressure .....	125 PSI	(8.8 BAR)
<b>Inlet Port (7128)</b> .....	<b>1/4" NPTM</b>	<b>(1/4" NPTM)</b>
<b>Inlet Port (7129)</b> .....	<b>3/8" NPTM</b>	<b>(3/8" NPTM)</b>
<b>Inlet Port (7130)</b> .....	<b>1/2" NPTM</b>	<b>(1/2" NPTM)</b>
Bleed Port .....	1/8" NPTF	(1/8" NPTF)
Weight.....	1.97 oz.	(0.06 kg)
Dimensions.....	3.0 x .87	(76 x 22mm)

When installed in a **Plunger Pump** application with the **by-pass routed directly to the inlet line or inlet port**, the maximum inlet pressure to the pump is **60-70 PSI**. A pressure reducing valve must be installed **between the Thermo Valve and the pump inlet** if inlet pressure is greater than 60-70 PSI.

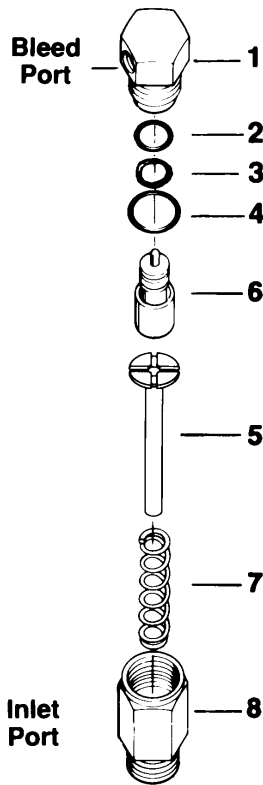
Some regulating devices may have excessive pressure spikes when in by-pass. The maximum inlet pressure to the Thermo Valve is 125 PSI. **DO NOT INSTALL ON HIGH PRESSURE LINE.**

For convenience in installation, By-Pass Hose and Thermo Valve assemblies are available for 1/4", 3/8" and 1/2".

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*“Customer confidence is our greatest asset”*

## EXPLODED VIEW



## PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY.
1	—	RTP	Cap (1/8" FPT-SAE)	1
2	—	NBR	O-Ring, Cap, Internal	1
3	—	D	Washer, Back-up	1
4	—	NBR	O-Ring, Cap, External	1
5	—	NY	Tube, Flow	1
6	—	CU	Pill, Power, 145°F	1
	—	CU	Pill, Power, 130°F	1
	—	CU	Pill, Power, 165°F	1
7	—	S	Spring	1
8	—	RTP	Body (1/4" NPTM)	1
	—	RTP	Body (3/8" NPTM)	1
	—	RTP	Body (1/2" NPTM)	1
—	7090.35		2SF By-pass Hose w/7135 Thermo Valve	1
—	7091.36		4SF By-pass Hose w/7136 Thermo Valve	1
—	7093.37		5FR By-pass Hose w/7137 Thermo Valve	1

Material Codes (Not Part of Part No.): CU=Copper D=Acetal  
NBR=Medium Nitrile (Buna-N) NY=Nylon RTP=Reinforced Composite S=304SS

**OPERATION:** As the system liquid is recirculated during the by-pass cycle, the temperature will increase. Frequent or prolonged by-pass can result in extremely high temperature build-up.

These high temperatures cause premature failure of cups, seals, and packings. Installing the Thermo Valve protects the pump against these excessive temperatures. The power pill in the Thermo Valve detects the temperature rise in the liquid and compresses the spring, opening the bleed port and dumping a portion of the over-heated liquid.

The Thermo Valve is most effective when operating with ambient temperature liquids and moderate GPM. The warmer incoming liquid temperature, the quicker the by-pass liquid will reach its temperature release point, forcing the Thermo Valve to bleed-off.

The higher the system GPM, the more heat generating energy is produced, also forcing the Thermo Valve to bleed-off. For example, a 25 GPM system @ 130°F will activate the Thermo Valve much quicker than a 5 GPM system @ 90°F.

In high flow systems, it may be necessary to install multiple Thermo Valves to best prevent overheating the system.

Because of the unique design of the Thermo Valve it will not bleed liquid during a pressure spike from the regulator or unloader as it completely seats and shuts off the flow.

**THE THERMO VALVE MUST BE INSTALLED WITH A PRESSURIZED PUMP INLET.**

If the system is suction feed a check valve is necessary. Consult CAT PUMPS for assistance, to avoid cavitation in system.

## TROUBLESHOOTING

Problem	Probable Cause	Solution
Leaking at low temperature or non by-pass operation through bleed port	<ul style="list-style-type: none"> <li>Foreign material trapped</li> <li>Damaged O-Ring</li> </ul>	<ul style="list-style-type: none"> <li>Check internal and external O-Rings on cap.</li> <li>Replace if worn or damaged. Check for deep cuts or imperfections on inner lip of cap where O-Ring seats.</li> <li>Check for deep cuts or imperfections on top of power pill which seats up to inner cap O-Ring and replace if damaged.</li> <li>Check for malfunctioning power pill stem. Failure of stem to expand and retract will prevent opening and closing of valve. Replace if worn.</li> </ul>
Leaks between body and cap	<ul style="list-style-type: none"> <li>Damaged O-Ring</li> </ul>	<ul style="list-style-type: none"> <li>Check cap external O-Ring and replace if worn or cut.</li> </ul>

## WARRANTY

### 90 Day Warranty

Refer to complete CAT PUMPS Warranty for further information.

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