

INSTALLATION ADJUSTMENT SERVICE

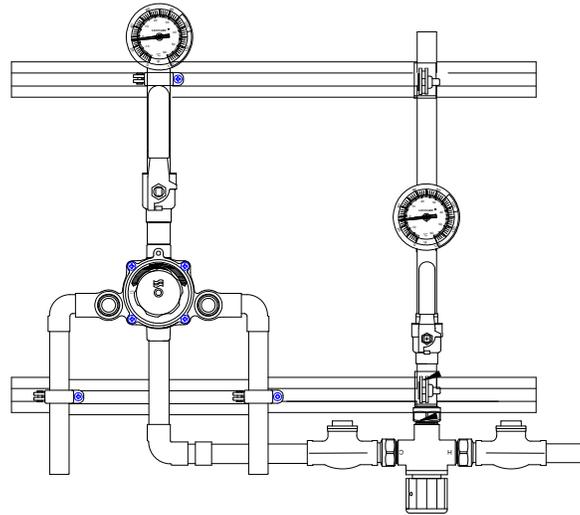
TYPE TM-26-RF-DT-R34, TM-26-LF-RF-DT-R34

IMPORTANT! Provide valve serial number (stamped on cover of valve) when ordering parts!!

Valve manufactured after July 2007 starting with serial # TM26272



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.Ca.gov



INSTALLATION

1. Valve should be installed at a location where it can easily be cleaned, adjusted or repaired.
2. Connect the hot water and cold water as shown above.
3. Valve has integral checkstops, for ease of servicing.
4. A shutoff valve must be installed on the outlet pipe. Type TM valves do not have a built-in shutoff.
5. Use solder or pipe cement sparingly. Supply pipes should be flushed before the valve is connected. Flush outlet pipe and valve as soon as it is connected.

Maximum Operating Pressure 125PSI (860 KPA) for Hot and Cold Water.

CAUTION

All thermostatic water mixing valves have limitations. They will not provide the desired accuracy outside of their flow capacity range. Consult the capacity chart on page 6. Minimum flow must be no less than as shown.

REMEMBER! THIS IS A CONTROL SYSTEM WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS (SEE MAINTENANCE GUIDE AND RECORD MGR-1000).

1360 Elmwood Avenue, Cranston, RI 02910 USA
Phone: 401.461.1200 Fax: 401.941.5310
Email: info@leonardvalve.com
Web Site: <http://www.leonardvalve.com>

ADJUSTMENT AND SERVICE

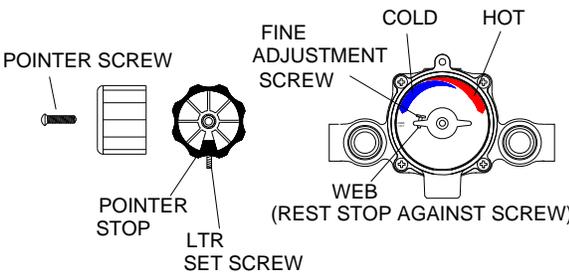
Leonard Type TM Thermostatic Water Mixing Valves are simple in design and may be easily cleaned, adjusted and repaired. If the installation is accessible, servicing may be completed without disconnecting the valve.

NOTE: Thermostatic Water Mixing Valves are REGULATING mechanisms, which must be regularly maintained to provide best performance. Frequency of cleaning depends on quality of local water conditions and usage. (See Maintenance Guide and Record MGR-1000).

WARNING

This mixing valve is equipped with an adjustable high temperature limit stop factory set at approximately 120°F (49°C) with an incoming hot water supply temperature of 150°F (65.5°C). If the hot water supply temperature of the job is greater than 150°F (65.5°C), the valves when turned to full HOT will deliver water in excess of 120°F (49°C) and the limit stops **MUST BE RESET BY THE INSTALLER!**

TO RESET ADJUSTABLE HIGH TEMPERATURE LIMIT STOP:

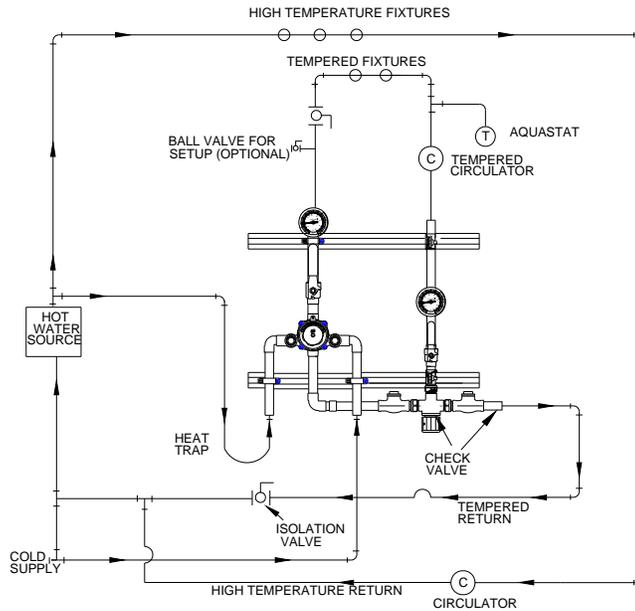
 <ol style="list-style-type: none">1. Loosen LTR Set Screw, remove POINTER SCREW.2. Adjust POINTER to maximum desired temperature.3. Remove POINTER, replace POINTER on spline rod with STOP (which is cast into the underside on the pointer), resting against the BOTTOM side of the WEB on the FINE ADJUSTMENT SCREW.4. If fine adjustment is needed, adjust FINE ADJUSTMENT SCREW on the cover, loosen for hotter or tighten for cooler temperature.5. Replace POINTER and check temperature, if set to desired temperature replace POINTER SCREW, and tighten LTR SET SCREW.6. The new maximum temperature has now been set. Test this temperature by holding a thermometer under the flow of water to be certain it is as desired. <p>* LIMIT STOP MUST BE RESET AND RECHECKED EACH TIME HANDLE IS REMOVED.</p>	<h2>WARNING</h2> <p>WARNING! This Thermostatic Mixing Valve has an adjustable high temperature limit stop which, must be checked. If temperature is too high, the installer MUST RESET this stop immediately. Always check the temperature of the mixed water when the lever handle is turned to full HOT. Excessively hot water is DANGEROUS AND MAY CAUSE SCALDING!</p> <p>The high temperature limit stop is factory set at approximately 120°F (49°C) with an incoming hot water supply temperature of 150°F (65°C). If the incoming hot water on the job is higher than 150°F (65°C), the valve when turned to full hot will deliver water in excess of 120°F (49°C) and the high temperature limit stop MUST BE RESET BY THE INSTALLER.</p>
---	--

Check for significant variations in outlet flow. Thermostatic valves will NOT provide the desired accuracy outside of their flow capacity range. Minimum flows must be no less than shown (see Flow Capacities, page 6).

If installed on a recirculated hot water system, make certain the valve is piped according to Leonard Required Piping Method #2 (see page 4).

REMEMBER! THIS IS A CONTROL DEVICE WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS. (SEE MAINTENANCE GUIDE AND RECORD, MGR-1000).

REQUIRED METHODS OF PIPING TM VALVES (RECIRCULATED HOT WATER SYSTEMS)



METHOD #2

Required when **TEMPERED** water is to be circulated through the entire building, to maintain tempered water at each fixture. The function of the 1/2" by-pass is to allow the recirculated water to pass through the mixing valve during periods of no draw without entering the hot water source to avoid being reheated. The 320ARV valve allows the system to be properly balanced. The by-pass loop helps reduce the buildup of undesirable hot water in the primary system, and **MUST NOT** be omitted. See set-up instructions below.

METHOD #2 SET-UP INSTRUCTIONS

1. Before any attempt is made to adjust this system, be sure the temperature of the hot water at the source is properly set and maintained.
2. Be sure system is piped to correct method.
3. Open enough fixtures to exceed the minimum requirements of the mixing valve installed (see Flow Capacities, page 7). Note: The minimum flow requirements apply only to the mixing valve and not to the flow of the circulator.
4. Turn circulator off, set mixing valve to the desired temperature, (note Warning Tag attached to the pointer of the valve).
5. Shut off all fixtures. Note: At this point, be sure **NO** water is being drawn through any fixture until the temperature in the recirculated line has been set.
6. Open the ball valve fully and start the circulator.
7. Observe the temperature until it stabilizes.
8. Adjust 320 ARV counter clockwise slightly if warmer temperature is desired or clockwise if cooler water is desired. Allow to stabilize. Repeat until the desired recirculated temperature is set.

WARNING: THIS PIPING METHOD WILL NOT PERFORM EFFECTIVELY IF THE VALVE IS OVERSIZED. MINIMUM FLOWS ARE SHOWN ON FLOW CAPACITIES CHART, PAGE 9. FOR ESTIMATING MAXIMUM HOT WATER DEMAND, CONSULT LEONARD CASPAK SIZING PROGRAM.

DO NOT CONFUSE THE MINIMUM FLOW REQUIREMENTS OF THE MIXING VALVE WITH PROPER SIZING OF THE CIRCULATOR.

INSTRUCTIONS FOR DISMANTLING VALVE (DWG. 1)

1. Shut off hot and cold supplies to valve.
2. Remove four Cover Screws M20-2C to release entire thermostatic control assembly.

WHEN RE-ASSEMBLING VALVE, insert Cover Gasket M20-3C in base. Lubricate TM28-6B O'Rings before re-inserting assembly.

After installing new parts, it will may be necessary to reset high temperature limit. See instructions "TO RESET ADJUSTABLE HIGH TEMPERATURE LIMIT STOP" (page 2).

TO REMOVE BRIDGE ASSEMBLY (DWG. 2)

Remove MU-10B Pointer Rod Nut, remove TM28-1-8B Bridge Assembly from pointer rod.

Failure to properly blend the water may be caused by a sticking condition in the TGM-1/28 Port Sleeve Assembly. The Thimble should slide freely on the Port Sleeve.

Clean with a **NON-CORROSIVE CLEANING AGENT AND SOFT CLOTH**. **DO NOT USE ABRASIVES**, then wash parts thoroughly.

To reassemble, replace Bridge Assembly on pointer rod. Driving ball on Thimble **MUST** engage hole in coil bracket. Replace pointer rod nut.

DO NOT apply grease or lubricants to the TGM-1/28 Port Sleeve Assembly.

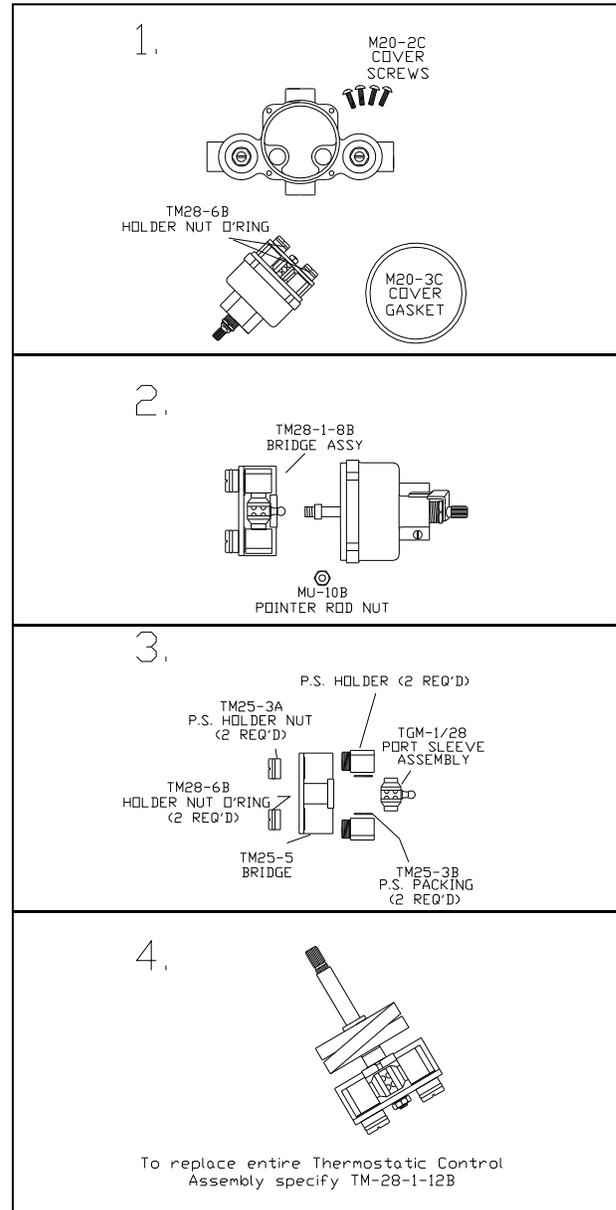
TO DISASSEMBLE BRIDGE ASSEMBLY (DWG. 3)

Remove TM25-3A Holder Nuts using a screwdriver in the slots provided. Clean or replace TGM-1/28 Port Sleeve Assembly following instructions above. When reassembling, check TM-25-3B port sleeve packings and replace if necessary.

TO CLEAN OR REPLACE THERMOSTAT GROUP

Loosen gland nut. Push rod through cover. **BE CAREFUL NOT TO PULL THERMOSTAT COIL OUT OF SHAPE**.

To clean, if a deposit has collected on the thermostat group, brush in a non-corrosive cleaning solution. Rinse in clean water and replace in cover with parts as shown.



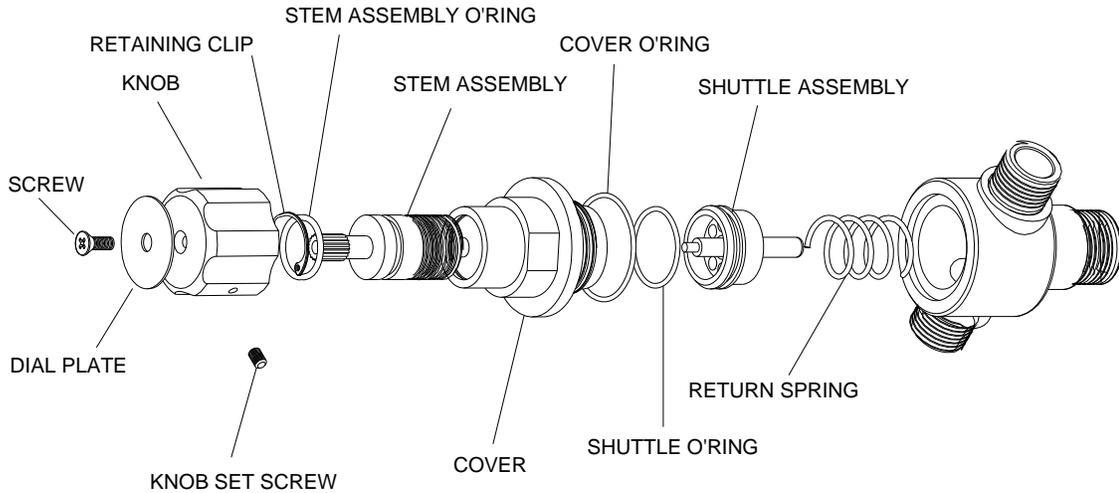
TROUBLESHOOTING INSTRUCTIONS

<p>PACKINGS & GASKETS</p>	<ol style="list-style-type: none"> 1. Leak at pointer rod. 2. Leak between valve cover and base. 	<p>PARTS REQUIRED: KIT#1/26 (PACKINGS & GASKETS)</p>
<p>PORT SLEEVE ASSEMBLY</p>	<ol style="list-style-type: none"> 3. Valve delivers either all hot or all cold water, or will not mix consistently. 	<p>KIT#R/28 (REBUILDING KIT) OR TM-28-1-8B BRIDGE ASSEMBLY</p>
<p>THERMOSTAT GROUP</p>	<ol style="list-style-type: none"> 4. After cleaning or replacing port sleeve assembly, valve will not hold temperature. 	<p>KIT#R/28 (REBUILDING KIT) OR TM28-G2 THERMOSTAT GROUP</p>
<p>CHECKSTOPS</p>	<ol style="list-style-type: none"> 5. Hot water bypass into cold line. 6. Supplies cannot be shut off completely. 7. Leak at checkstop bonnet. 	<p>KIT#4/M20 (CHECKSTOP KIT)</p>

See page 6 for Parts Breakdowns

MODEL 320/370ARV

Check dial plate on knob for model #



DISMANTLING & CLEANING

1. Shut off hot and cold water to the valve as well as the valve outlet port.
2. Loosen lock screw on side of knob with 5/64" allen wrench.
3. Remove the knob screw on top of knob.
4. Remove temperature adjustment knob.
5. Remove valve cover, which includes the stem assembly.
6. The shuttle assembly can now be removed, cleaned and inspected. Be sure to check the condition of the shuttle o-ring and replace if necessary.
7. Lubricate the shuttle o-ring before installing the shuttle assembly.
8. Install the cover assembly including o-ring back onto valve and tighten.
9. Replace knob and knob screw.
10. **Valve temperature must be reset after any repairs or cleaning!!**

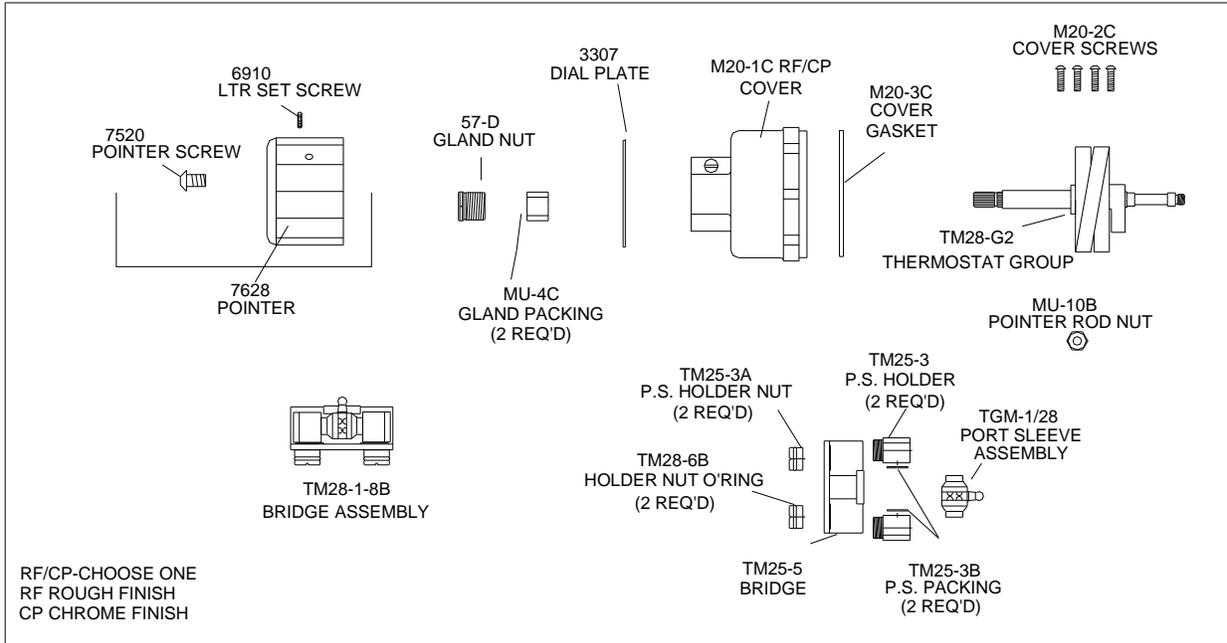
TROUBLESHOOTING

1. Leaking water under knob, order gasket kit, replace stem assembly o-ring. Remove knob screw and knob, remove retaining clip, thread out the stem assembly and replace o-ring. Lubricate o-ring, thread stem into cover, replace retaining ring, knob and screw. **Valve temperature must be reset after any repairs or cleaning!!**
2. Leaking water between cover and body, order gasket kit, replace cover o-ring. Remove knob screw and knob and remove valve cover and replace o-ring. Replace valve cover, knob and knob screw. **Valve temperature must be reset after any repairs or cleaning!!**
3. Valve not controlling temperature even after cleaning, order complete rebuild kit. Remove knob screw and knob and remove valve cover. Replace shuttle assembly and return spring being sure to lubricate shuttle o-ring. Replace valve cover, knob and knob screw. **Valve temperature must be reset after any repairs or cleaning!!**

REPAIR KITS

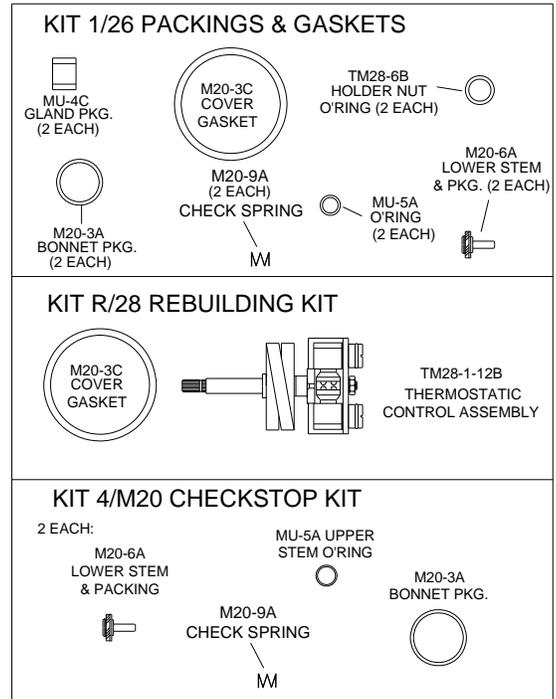
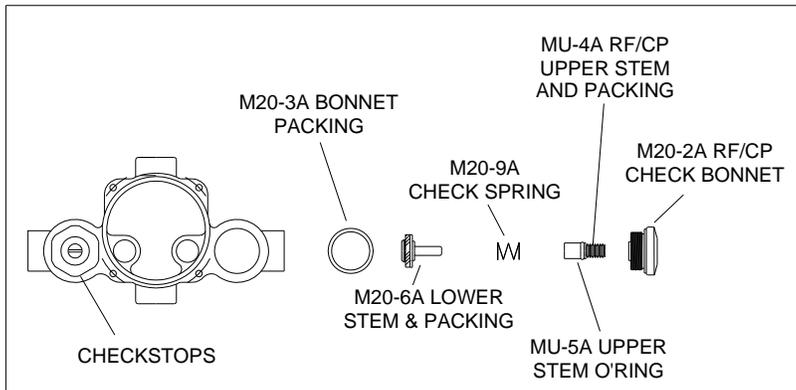
	MODEL 320 ARV	MODEL 370 ARV
Leaking water under knob. Leaking water between valve cover and body.	1/ WX Gasket Kit Shuttle o'ring Stem assembly o'ring Cover o'ring	1/ WX Gasket Kit Shuttle o'ring Stem assembly o'ring Cover o'ring
Valve will not control temperature after cleaning.	R/ WX Complete Rebuild Kit Return spring Shuttle assembly Shuttle o'ring Stem assembly o'ring Cover o'ring	R/ 270/370 Complete Rebuild Kit Return spring Shuttle assembly Shuttle o'ring Stem assembly o'ring Cover o'ring

TM-26 VALVE PARTS



REPAIR KITS

CHECKSTOP PARTS

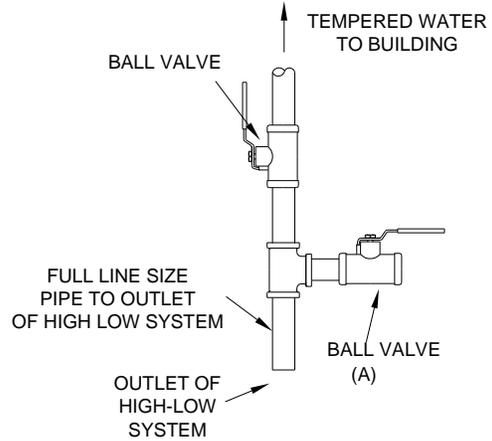


REMEMBER! THIS IS A CONTROL DEVICE WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS (SEE MAINTENANCE GUIDE AND RECORD).

NOTE: AFTER INSTALLING NEW PARTS IT WILL BE NECESSARY TO RESET THE ADJUSTABLE HIGH TEMPERATURE LIMIT STOP ON EACH VALVE (SEE PAGE 2).

**OPTIONAL OUTLET SETUP PIPING
(BY OTHERS)**

The addition of this piping arrangement (extra tee and ball valve) eliminates the need to turn showers on and off throughout the building at setup. The flows required in the setup instructions (page 3) are set by using Ball Valve A. (make sure main outlet ball valve is closed).



CAUTION! ALL THERMOSTATIC WATER MIXING VALVES AND SYSTEMS HAVE LIMITATIONS! THEY WILL NOT PROVIDE THE DESIRED PERFORMANCE OUTSIDE OF THEIR FLOW CAPACITY RANGE! CONSULT THE CAPACITY CHART BELOW AND OBSERVE MINIMUM FLOWS SHOWN.

FLOW CAPACITIES

MODEL	IN	OUT	MINIMUM FLOW (GPM)	SYSTEM PRESSURE DROP										PSI
				5	10	15	20	25	30	35	40	45	50	
			LMIN	.3	.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
TM-26	3/4"	3/4"	1.0	7	10	13	15	17	19	21	23	25	26	GPM
			3.7	26	38	49	57	64	72	80	87	95	98	LMIN
MAXIMUM FLOW CAPACITY														

LIMITED WARRANTY

Leonard Valve Company (hereinafter, "Leonard") warrants the original purchaser that products manufactured by Leonard will be free from defects in material or workmanship under normal conditions of use, when properly installed and maintained in accordance with Leonard's instructions, for a period of one year from the date of shipment. During this period, Leonard will at its option repair or replace any product, or part thereof, which shall be returned, freight prepaid, to the Leonard factory and determined by Leonard to be defective in materials or workmanship. Leonard provides no warranty, express or implied, which extends beyond the description contained herein. LEONARD SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Nonetheless, some jurisdictions may not allow the disclaimer of certain implied warranties, in which case Leonard hereby limits such implied warranties to the duration of the limited warranty period contained herein. Some jurisdictions may not allow limitations on how long an implied warranty lasts, so the foregoing durational limitation may not apply to you. In no event will Leonard be liable for labor or incidental or consequential damages. Any alteration or improper installation or use of this product will void this limited warranty. If any provision of this limited warranty is prohibited by law in the applicable jurisdiction, such provision shall be null and void, but the remainder of this limited warranty shall continue in full force and effect.

1360 Elmwood Avenue, Cranston, RI 02910 USA

Phone: 401.461.1200 Fax: 401.941.5310

Email: info@leonardvalve.com

Web Site: <http://www.leonardvalve.com>