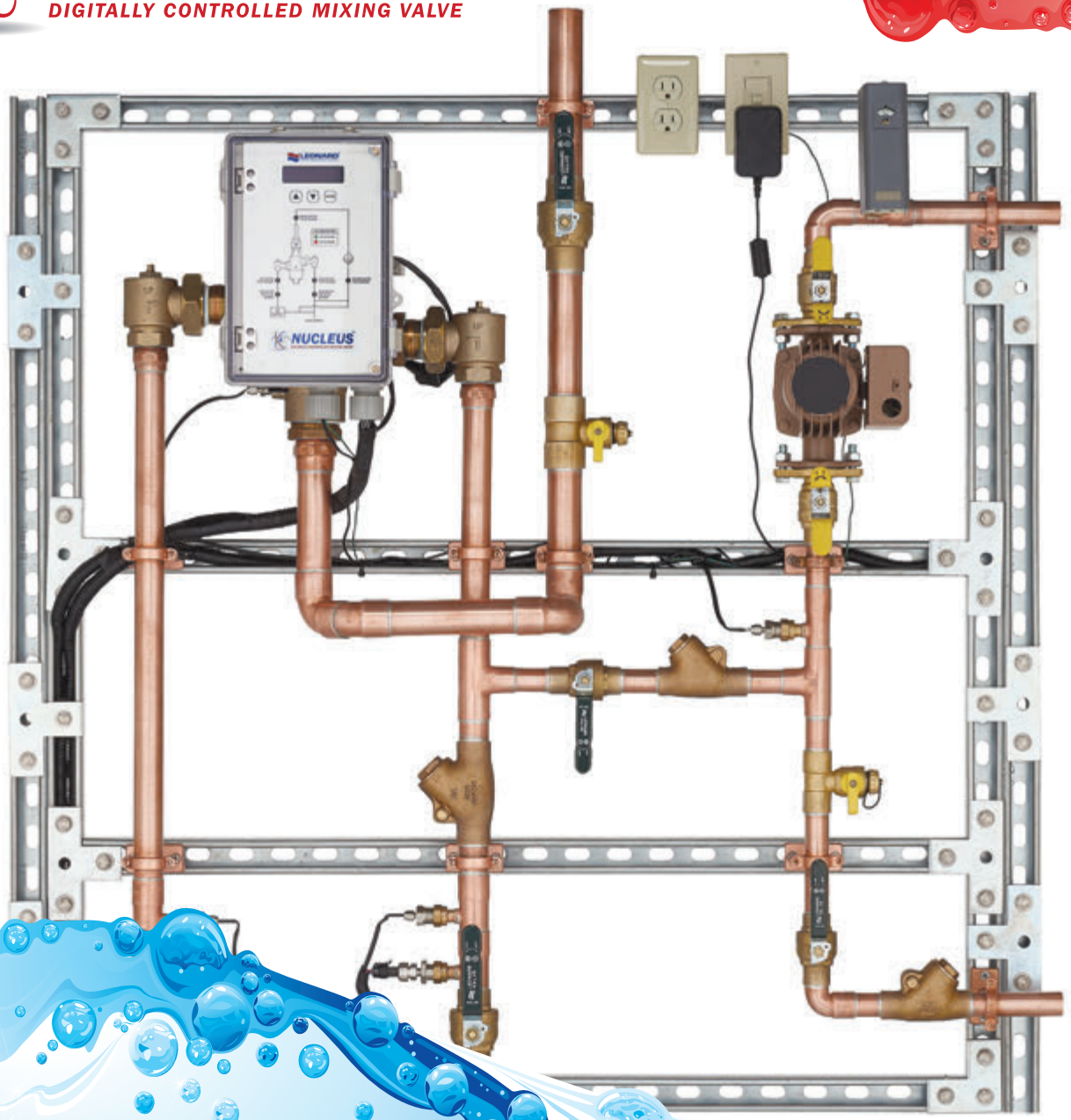
Mixing Safety and Performance

For Over 100 Years

NUCLEUS™

DIGITALLY CONTROLLED MIXING VALVE



LEONARD®

WATER TEMPERATURE CONTROLS

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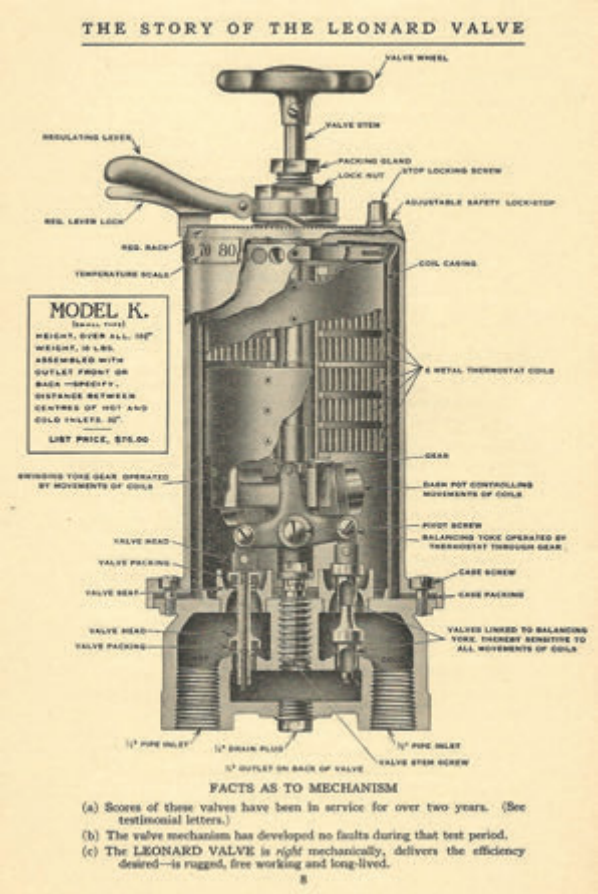
www.leonardvalve.com

About Leonard Valve Company

"Mixing Safety and Performance"

At Leonard Valve Company, our passion is to provide safe hot water for our customers and their applications. Back in 1911, Frederick C. Leonard knew there had to be a better solution for delivering safe hot water after being scalded at the local barber shop while getting a shave. Since delivering his first thermostatic mixing valve over a 100 years ago, we have focused exclusively on designing and manufacturing the highest quality, water temperature control valves in America.



Over the years we have created a number of product innovations to improve the safety and performance of the domestic hot water system. We invented the high low thermostatic mixing valve designed to provide safe, mixed water temperature over the a wide range of flow conditions as buildings designs began their transition to water conservation.

Megatrons, pre-fabricated water temperature control solutions were another Leonard innovation which eliminated incorrect piping and shortened installation time in the field of master mixing valves. We pioneered High Capacity Mixing Valve Designs which allowed large demand buildings to continue to protect their users with accurate mixed water temperature with flow rates up to 678 GPM by manifolding multiple mixing valves together into a common piping assembly.

The Nucleus, our digitally controlled thermostatic mixing valve, is the latest technological innovation from Leonard Valve Company with enhanced water temperature control, improved accuracy and sophisticated communication capabilities of the valves performance to your building management system.

Leonard continues it's tradition of striving to meet the needs of our customers by mixing safety and performance.

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Product Standards for Hot Water Control

The control of hot water temperature & pressure after it leaves its source water heater must be accomplished by additional control devices designed into your domestic hot water system. There are two concerns - scald protection and thermal shock, which impact delivery of hot water to various plumbing fixtures including faucets and showers. The American Society of Sanitary Engineers is the ANSI accredited standards organization in the USA. The Canadian Standards Association is the recognized standards organization in Canada.

These standards are referenced by all of the major plumbing codes in North America and are divided into the following categories:

ASSE 1016-2011 / ASME A112.1016-2011 / CSA B125.16-11

Performance Requirements for Automatic Compensating Valves for Individual Showers & Tub/Shower Combinations.

Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations are intended to control water temperature to wall mounted shower heads, either in individual shower or tub/shower combination fixtures in order to reduce the risk of scalding & thermal shock.

ASSE 1017-2009 / CSA B125.3-12

Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems.

Temperature Actuated mixing valves for hot water distribution systems are used for controlling in-line water temperatures in domestic hot water systems and shall be installed at the hot water source.

ASSE 1069-2005

Performance Requirements for Automatic Temperature Control Mixing Valves.

These devices are intended to control water temperature to individual or multiple fixtures to reduce the risk of scalding and thermal shock. These devices are intended to be installed where the bather has no access to the temperature adjustment means and where no further mixing occurs downstream of the devices.

ASSE 1070-2015 / ASME A112.1070-2015 / CSA B125.70-15

Performance Requirements for Water Temperature Limiting Devices.

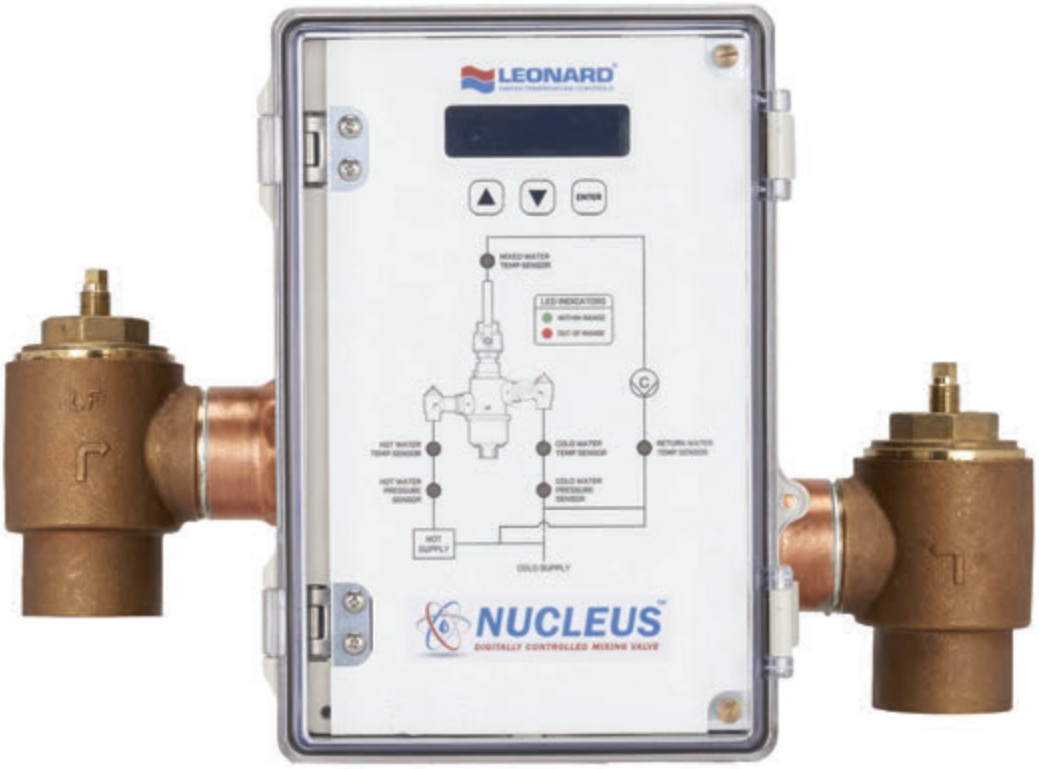
Water Temperature Control Devices shall control and limit the water temperature to fittings or fixtures such as sinks, lavatories or bathtubs and are intended to reduce the risk of scalding.

ASSE 1071-2012 / CSA B125.3-12

Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment.

Temperature Actuated Mixing Valves for Plumbed Emergency Equipment including eyewash, eye/face wash, drench showers and combination units are intended to be installed in systems that comply with ANSI Z358.1-2014.

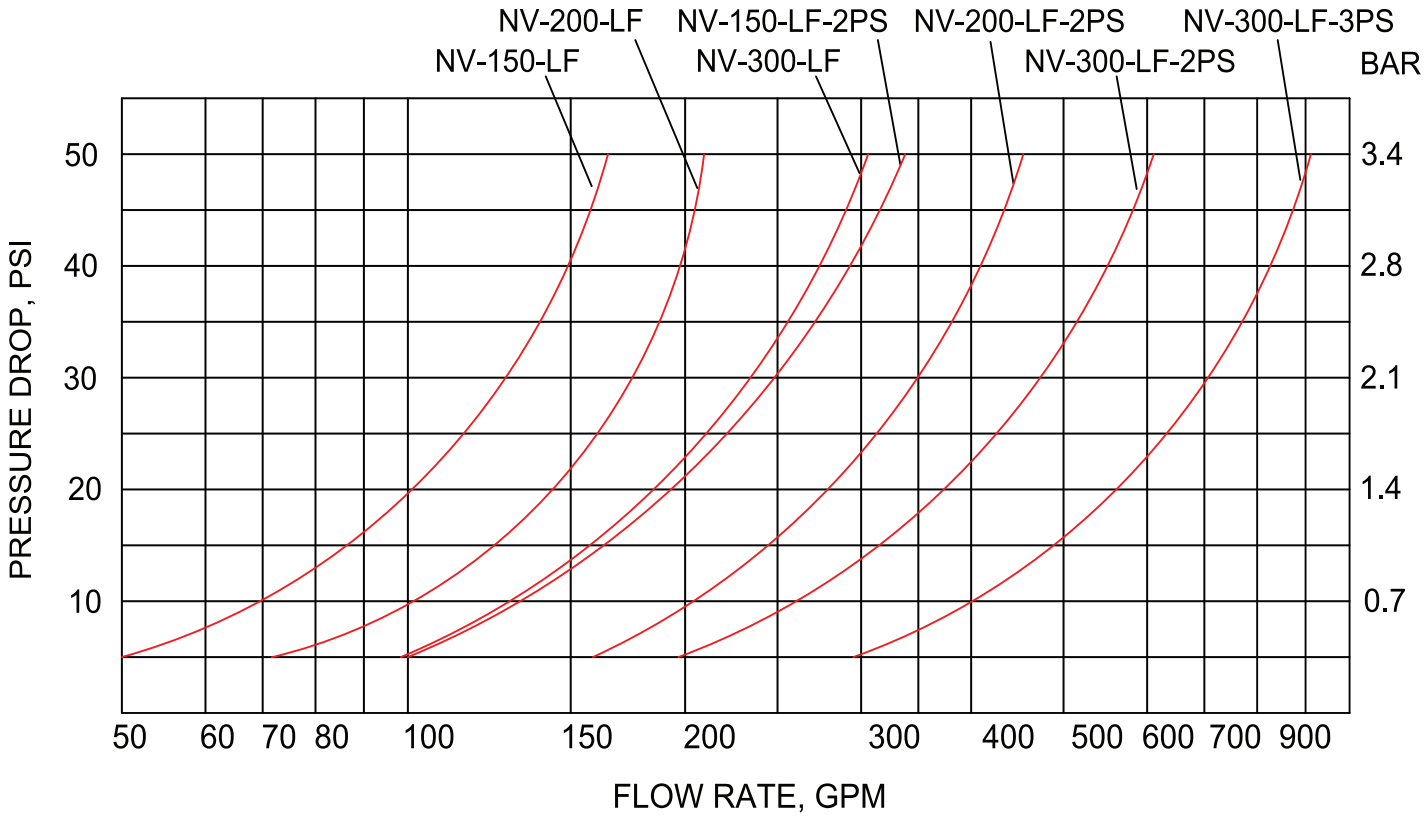
NUCLEUS™
DIGITALLY CONTROLLED MIXING VALVE



Central & Most Important Component of a Hot Water System

The Nucleus Digitally Controlled Mixing Valve from Leonard Valve Company serves as the central monitor & control of a Domestic Hot Water System. The Nucleus Valve's capabilities include:

- +/- 2°F Mixed Water Temperature in accordance with ASSE 1017-2009
- +/- 2°F Mixed Water Temperature during periods of low or no system demand
- 0.25 GPM Minimum Flow with Continuously Operating Recirculation Pump
- Automatic Shutoff of Valve upon Cold or Hot Supply Failure
- System Setup & Commissioning from Nucleus Control Module – no PC or Laptop Required
- LCD Display & Sensor Indicators – Set Point Temperature & Actual Temperature
- BMS Interface – Native Support for Six Different Protocols including BACnet & Modbus
- Ethernet Connection for PC or LAN for Valve Programming or Interrogation
- Web Server to remotely monitor & control Nucleus Mixing Valve
- Data Logger – stores temperatures, pressures & flows
- ASSE 1017, BTL, cUPC, UL, Lead Free Certified



MODEL	IN	OUT	MINIMUM FLOW GPM	PRESSURE DROP 5	10	15	20	25	30	35	40	45	50	PSI
			L/MIN	0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
NV-150-LF	1 1/4" (31.6mm)	1 1/2" (38.1mm)	0.25*	50	72	86	100	115	122	136	140	158	165	GPM
			1.89*	189	273	326	379	435	462	515	530	598	625	L/MIN
NV-200-LF	2" (50.8mm)	2" (50.8mm)	0.25*	80	115	130	147	165	173	189	198	215	226	GPM
			1.89*	303	435	492	556	625	655	715	750	814	856	L/MIN
NV-300-LF	3" (76.2mm)	3" (76.2mm)	0.25*	97	135	163	191	213	235	262	288	296	303	GPM
			1.89*	366	510	616	722	805	888	990	1089	1119	1145	L/MIN
NV-150-LF-2PS	2" (50.8mm)	3" (76.2mm)	0.25*	100	144	177	200	222	244	262	280	305	330	GPM
			1.89*	378	544	669	756	839	922	990	1058	1153	1247	L/MIN
NV-200-LF-2PS	4" (102mm)	4" (102mm)	0.25*	160	230	262	294	320	346	371	396	424	252	GPM
			1.89*	605	896	990	1111	1210	1308	1402	1497	1603	1709	L/MIN
NV-300-LF-2PS	6" (152mm)	6" (152mm)	0.25*	194	270	326	382	432	470	523	576	596	606	GPM
			1.89*	733	1021	1232	1444	1633	1777	1977	2177	2253	2291	L/MIN
NV-300-LF-3PS	6" (152mm)	6" (152mm)	0.25*	291	405	489	573	639	705	785	864	887	909	GPM
			1.89*	1100	1531	1848	2166	2415	2665	2967	3266	3353	3436	L/MIN

VALVE ASSEMBLIES ARE ASSE 1017 CERTIFIED
VALVE ASSEMBLIES ARE cUPC CERTIFIED
ALL VALVE ASSEMBLIES ARE 3RD PARTY CERTIFIED TO BE LEAD FREE
*WHEN INSTALLED NEAR HOT WATER SOURCE AND WITH A PROPERLY SIZED, CONTINUOUSLY OPERATING RECIRCULATION PUMP

MAXIMUM FLOW CAPACITY

Single Point Monitor & Alarm

AU-3000

Digital Monitors

Leonard Valve Company offers customers two digital temperature monitoring systems for use on any thermostatic mixing valve. Our monitoring devices can monitor a single point or up to four points for compliance with ASHRAE 188-2015, OSHPD 3SE_613.5 or other plumbing/health care codes.

Simple to plumb into your system with 1/2" NPT stainless steel compression fittings & reliable RTD Temperature sensors. Communications capabilities for LMS units range from email alerts to full BMS Interface.

Four Point Monitor & Alarm

LMS-188-4P

Optional Remote Display

Optional BMS Communication

The Next Generation of Mixing Valves

Our Next Generation Valves are a TRUE TWO VALVE, HIGH LOW MANIFOLD SYSTEM which provides our customers with unequaled safety by mixing water from a minimum 1 GPM low flow (independent of recirculation pump) up to 226 GPM maximum flow.

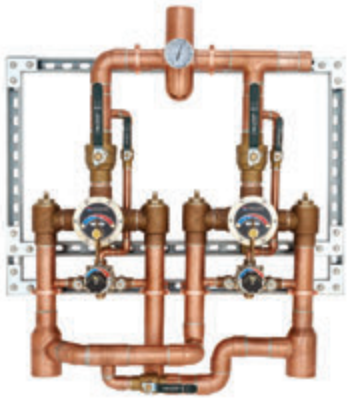
Dura-trol Thermostatic Element

TM-2020B-LF-DT-RF

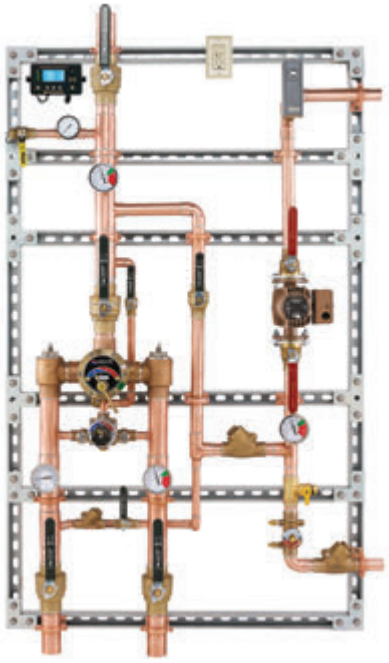
Leonard's Next Generation Master Mixing Valves feature:

- Two Valve Manifold - Unmatched Serviceability
- 1 GPM Minimum Flow regardless of Recirculation Pump
- Dura-trol Bi-Metal Thermostat with a ***10 Year Warranty***
- ASSE 1017 / CSA B125.3 Certified
- Six Standard Sizes - 3/4" to 2" - Capacities up to 226 GPM
- Additional high capacity multiple manifold systems up to 678 gpm
- Dial Thermometer & Ball Valve Shutoff on Outlet
- Eco-Mix Certified Lead Free Construction

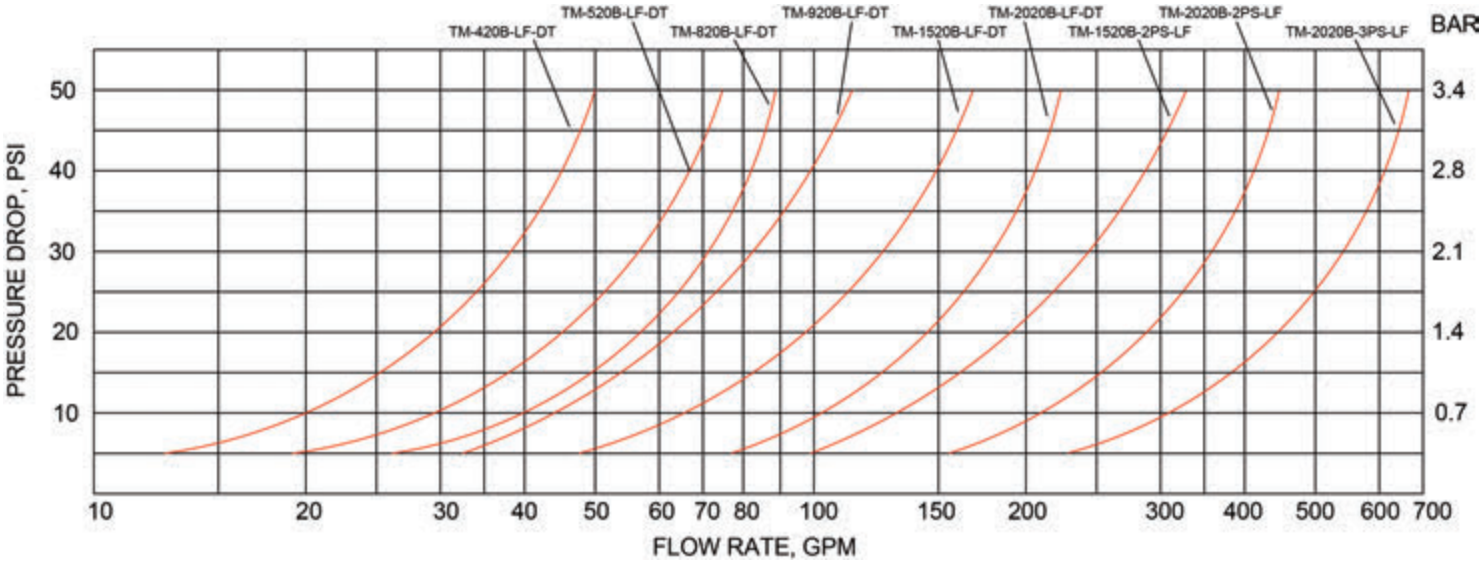
Next Gen Valves with Recirculation Manifold



Next Gen - High Capacity Valve Manifolds



Next Gen - Megatron Control Stations



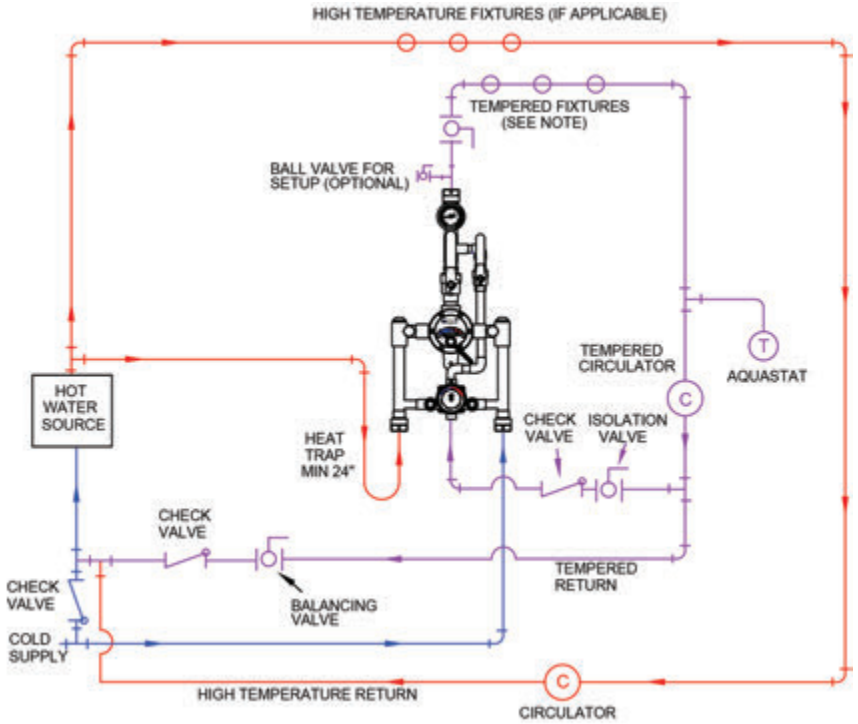
MODEL	IN	OUT	MINIMUM FLOW GPM	PRESSURE DROP 5	10	15	20	25	30	35	40	45	50	PSI
			L/MIN	0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
TM-420B-LF-DT	3/4" (19.1mm)	1" (25.4mm)	1.0	12	18	22	26	30	33	36	39	42	44	GPM
			3.7	45	68	83	98	114	125	136	148	159	167	L/MIN
TM-520B-LF-DT	3/4" (19.1mm)	1" (25.4mm)	1.0	19	29	38	45	51	56	62	68	72	75	GPM
			3.7	72	110	144	170	193	212	235	257	272	284	L/MIN
TM-820B-LF-DT	1" (25.4mm)	1 1/4" (31.6mm)	1.0	26	40	48	58	63	68	74	79	84	89	GPM
			3.7	98	151	182	220	238	257	280	299	318	337	L/MIN
TM-920B-LF-DT	1 1/4" (31.6mm)	1 1/4" (31.6mm)	1.0	33	47	56	63	68	82	85	92	103	115	GPM
			3.7	125	178	212	238	257	310	322	348	390	435	L/MIN
TM-1520B-LF-DT	1 1/4" (31.6mm)	1 1/2" (38.1mm)	1.0	48	65	80	95	112	120	130	140	158	165	GPM
			3.7	182	246	303	360	424	454	492	530	598	625	L/MIN
TM-2020B-LF-DT	2" (50.8mm)	2" (50.8mm)	1.0	78	113	129	145	163	172	188	197	214	226	GPM
			3.7	295	428	488	549	617	651	712	746	810	856	L/MIN
TM-1520B-2PS-LF	2" (50.8mm)	2" (50.8mm)	2.0	96	130	160	190	224	240	260	280	316	330	GPM
			7.6	363	492	606	719	848	908	984	1060	1196	1249	L/MIN
TM-2020B-2PS-LF	3" (76.2mm)	3" (76.2mm)	2.0	156	226	258	290	326	344	376	394	428	452	GPM
			7.6	591	856	977	1098	1234	1302	1423	1491	1620	1711	L/MIN
TM-2020B-3PS-LF	4" (102mm)	4" (102mm)	3.0	234	339	387	435	489	516	564	591	642	678	GPM
			11.4	886	1283	1465	1647	1851	1953	2135	2237	2430	2567	L/MIN

VALVE ASSEMBLIES ARE ASSE 1017 CERTIFIED
VALVE ASSEMBLIES ARE CSA B125.3 CERTIFIED
ALL VALVE ASSEMBLIES ARE 3RD PARTY CERTIFIED
TO BE LEAD FREE

MAXIMUM FLOW CAPACITY

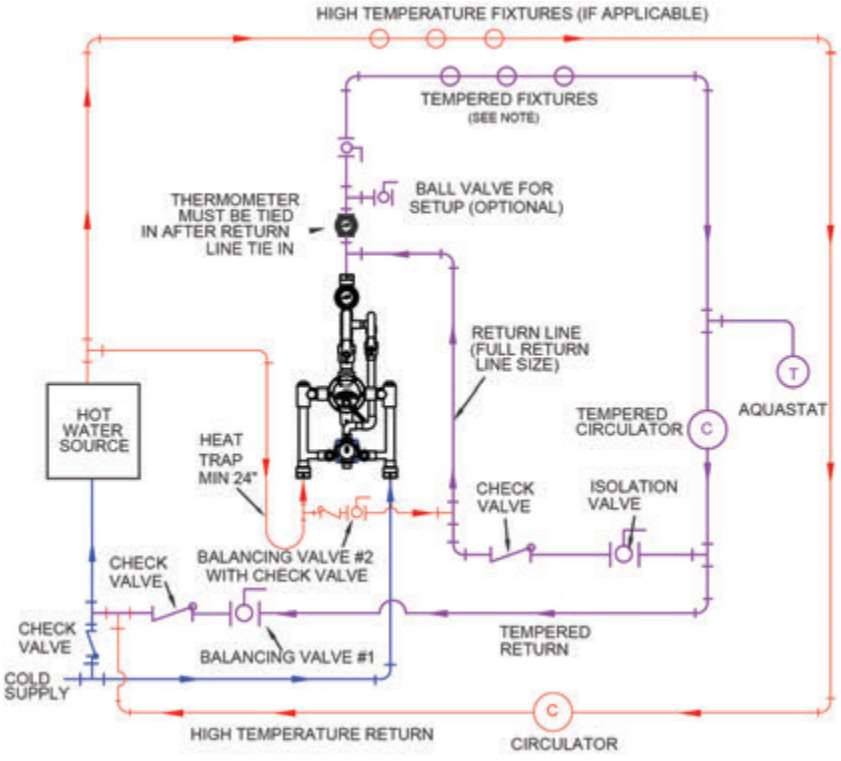
Method #2 – For systems recirculating up to 8 GPM

Note: This piping method is used for moderate flow systems where the circulated flow is eight (8) GPM or less.



Method #5 – For systems recirculating over 8 GPM

Note: This piping method is used for high flow systems where the circulated flow is eight (8) GPM or greater



XL Series High Low Mixing Valves

Our XL Series Valves provide the performance of a High Low Valve in a single valve format which is offered pre-assembled with a ball valve and dial thermometer on the outlet. Our XL Series Valves safely mix hot & cold water using our Para-trol Thermostatic Element. We incorporate two thermostats for improved low flow performance and provide all stainless steel internal parts to resist corrosion.

Para-trol Thermostatic Element

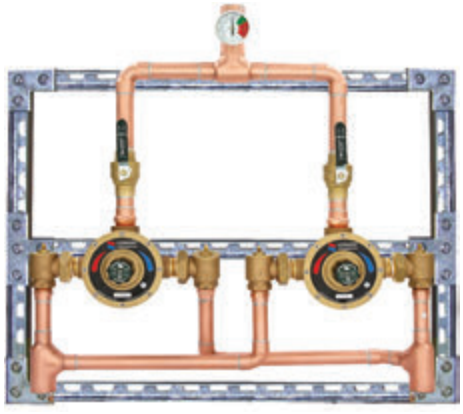
XL-82-LF-BDT-RF

Leonard XL Series Master Mixing Valves feature:

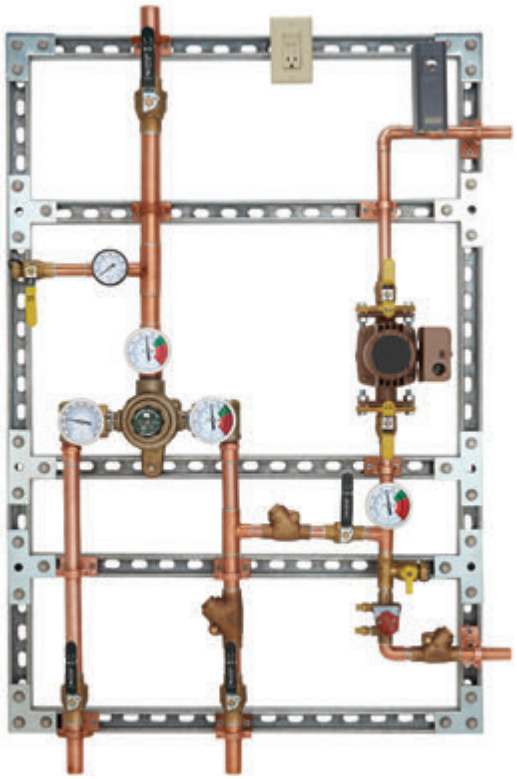
- Single Valve Design - High Low Performance
- Para-trol Wax Thermostatic Element
- Stainless Steel Internal Components
- ASSE 1017 Certified
- Four Sizes - 3/4" - 2" - Capacities up to 208 GPM
- Additional high capacity multiple manifold systems up to 416 gpm
- Dial Thermometer & Ball Valve Shutoff on Outlet
- Eco-Mix Certified Lead Free Construction

XL Series High Low Valves

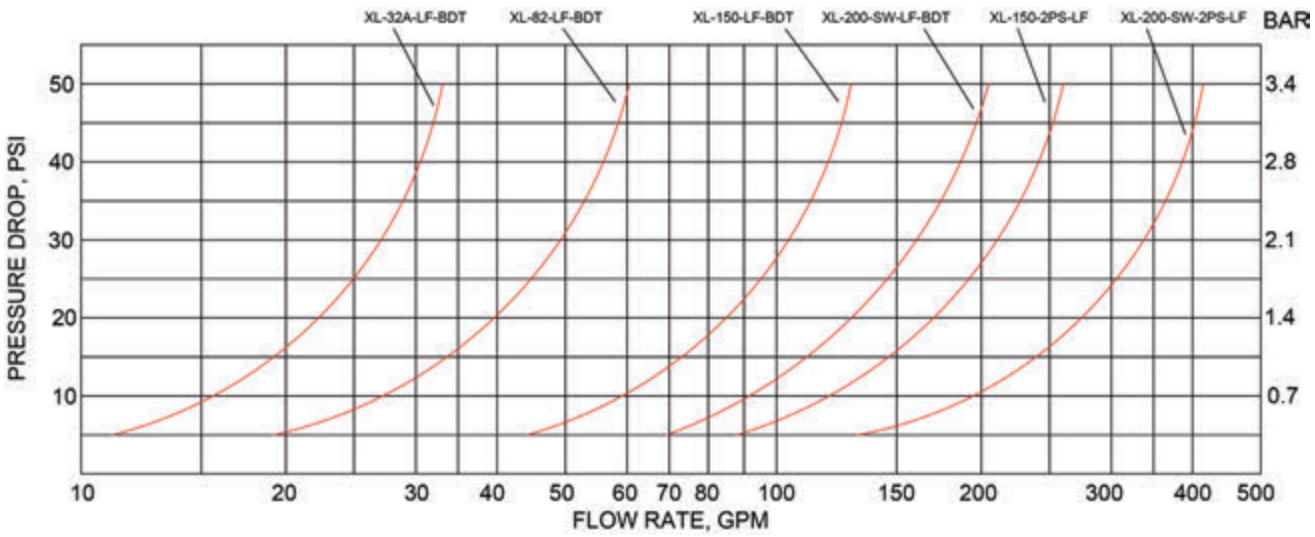
XL Valves w/Recirculation Manifold



XL High Capacity Valve Manifolds



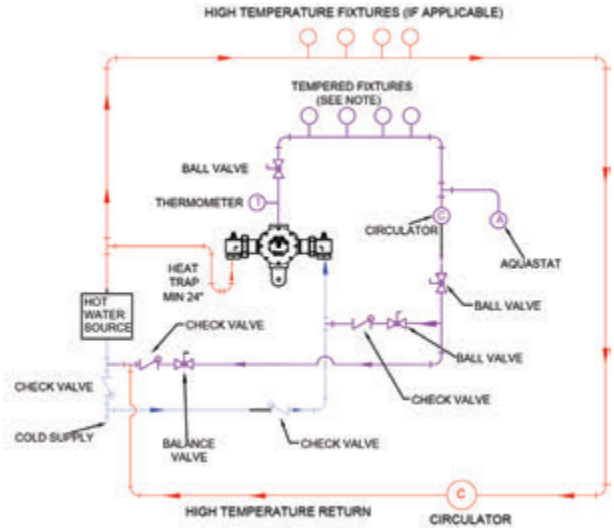
XL Megatron Control Stations



MODEL	IN	OUT	MINIMUM FLOW GPM	PRESSURE DROP 5	10	15	20	25	30	35	40	45	50	PSI
			L/MIN	0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
XL-32A-LF-BDT	3/4" (19.1mm)	3/4" (19.1mm)	1.0	11	16	20	22	24	26	28	30	32	33	GPM
			3.7	42	61	76	83	91	98	106	114	121	125	L/MIN
XL-82-LF-BDT	1" (25.4mm)	1 1/4" (31.6mm)	1.0	19	28	34	39	43	48	51	55	58	61	GPM
			3.7	72	106	129	148	163	182	193	208	219	231	L/MIN
XL-150-LF-BDT	1 1/4" (31.6mm)	1 1/2" (38.1mm)	3.0	44	61	74	86	95	103	110	117	124	130	GPM
			11.4	167	231	280	326	360	390	416	443	469	492	L/MIN
XL-200-SW-LF-BDT	2" (50.8mm)	2" (50.8mm)	5.0	69	96	117	135	148	163	174	188	198	208	GPM
			18.9	216	363	443	511	560	617	659	712	750	787	L/MIN
XL-150-2PS-LF	2" (50.8mm)	2" (50.8mm)	6.0	88	122	148	172	190	206	220	234	248	260	GPM
			22.7	333	462	560	651	719	780	833	886	939	984	L/MIN
XL-200-SW-2PS-LF	3" (76.2mm)	3" (76.2mm)	10.0	138	192	234	270	296	326	348	376	396	416	GPM
			37.9	522	727	886	1022	1120	1234	1302	1423	1499	1575	L/MIN

VALVE ASSEMBLIES ARE ASSE 1017 CERTIFIED
VALVE ASSEMBLIES ARE cUPC CERTIFIED
ALL VALVE ASSEMBLIES ARE 3RD PARTY CERTIFIED TO BE LEAD FREE

MAXIMUM FLOW CAPACITY



LV Series Single Valves

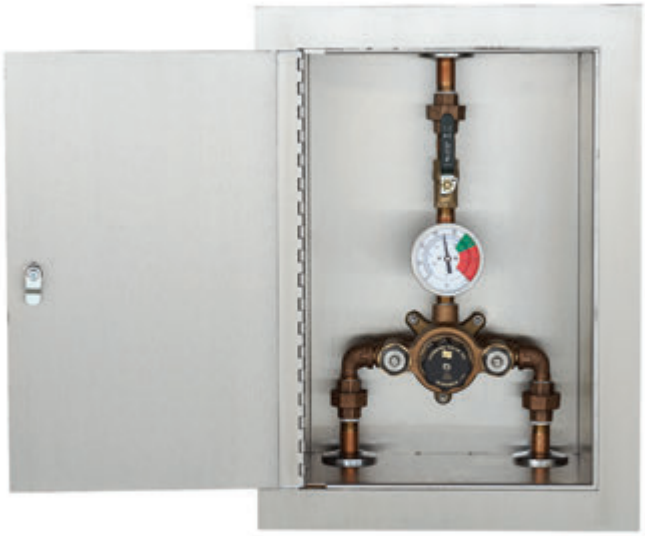
Leonard Valve Company's LV Series is our value master mixing valve line offering customers an economical, single valve in an unassembled format that meets ASSE 1017.

- Single Valve Design
- Para-trol Wax Thermostatic Element
- Stainless Steel Internal Components
- ASSE 1017 Certified
- Seven Sizes - 1/2" - 2" - Capacities up to 216 GPM
- Eco-Mix Certified Lead Free Construction

Para-trol Thermostatic Element

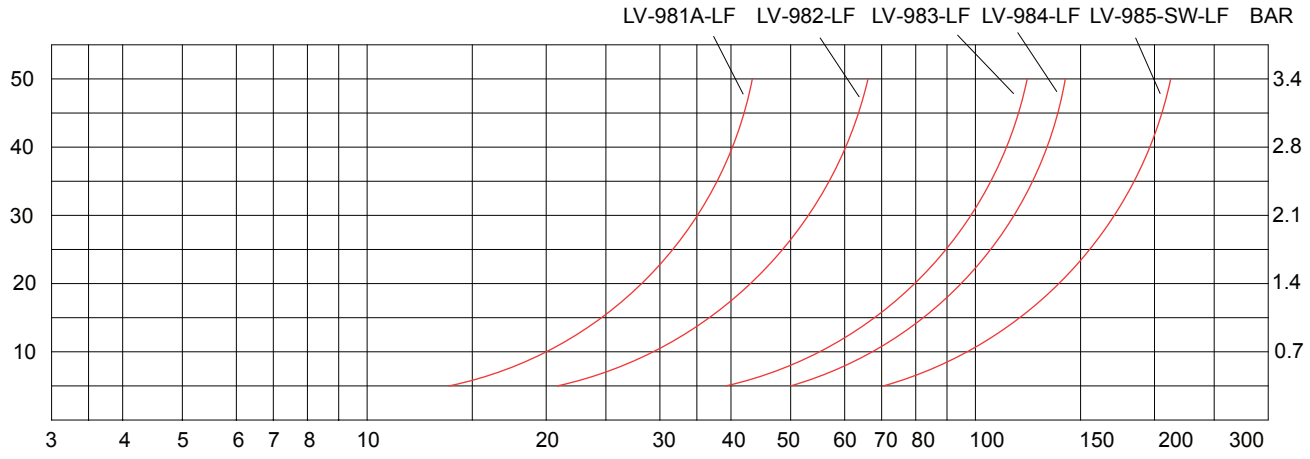
LV Series Valve Assembly
LV-984-LF-BDT-RF

LV Series - Specialty Valves



LV Valves for Health Care
LV-186-20-LF-REC-STSTL

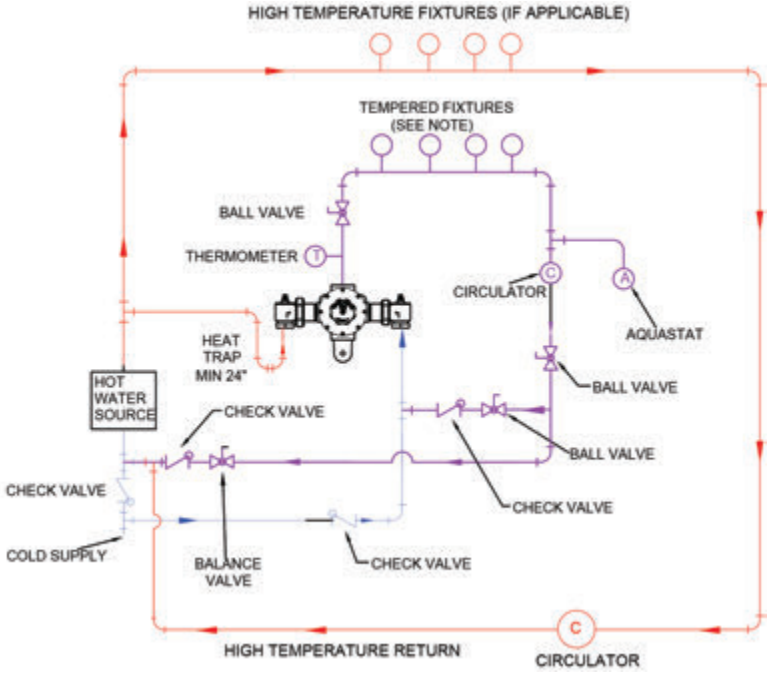
LV Valves for Hydro-Therapy
LV-356-20-LF-W/HA-CP



MODEL	IN	OUT	MINIMUM FLOW GPM	PRESSURE DROP 5	10	15	20	25	30	35	40	45	50	PSI
			L/MIN	0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
LV-981A-LF	3/4"	3/4"	2.5	14	20	24	28	32	35	38	41	43	44	GPM
	(19.1mm)	(19.1mm)	9.5	53	76	91	106	121	132	144	155	163	167	L/MIN
LV-982-LF	1"	1 1/4"	3.0	21	31	37	43	48	53	56	60	63	66	GPM
	(25.4mm)	(31.6mm)	11.4	79	117	170	163	182	201	211	227	238	250	L/MIN
LV-983-LF	1 1/4"	1 1/4"	5.0	39	55	68	79	91	99	109	117	122	126	GPM
	(31.6mm)	(31.6mm)	18.9	148	208	257	299	344	375	413	443	462	477	L/MIN
LV-984-LF	1 1/4"	1 1/2"	6.0	50	69	83	97	108	117	126	134	141	148	GPM
	(31.6mm)	(38.1mm)	22.7	189	261	314	367	409	443	477	507	534	560	L/MIN
LV-985-SW-LF	2"	2"	10.0	71	99	120	139	154	168	181	193	205	216	GPM
	(50.8mm)	(50.8mm)	37.9	269	375	454	526	583	636	685	731	776	818	L/MIN

VALVE ASSEMBLIES ARE ASSE 1017 CERTIFIED
VALVE ASSEMBLIES ARE cUPC CERTIFIED
ALL VALVE ASSEMBLIES ARE 3RD PARTY CERTIFIED TO BE LEAD FREE

MAXIMUM FLOW CAPACITY



Temperature Limiting Devices

Designed to Safely temper Hot Water to public lavatories, sinks, soaking tubs, bidets and beauty sinks, Leonard Valve has a Seventy Series temperature limiting valve for any faucet mixing application. Our Seventy Series Valves feature:

Multiple Valve Designs - Point of Use & Master Control

- Para-trol Wax Thermostatic Element
- Connections: POU = 3/8", 1/2", 3/4"
- High capacity = 1-1/4"
- Min Flow - 0.25 gpm = 170A-LF, 170-LF, 270-LF
    - 0.50 gpm = 370-LF
    - 2.50 gpm = XL-670-LF
- Flow Capacities
    - 13.0 gpm = 370-LF
    - 65.0 gpm = XL-670-LF
- ASSE 1070 Certified
- Eco-Mix Certified Lead Free Construction

High Capacity

XL-670-LF

Point of Use

170A-LF

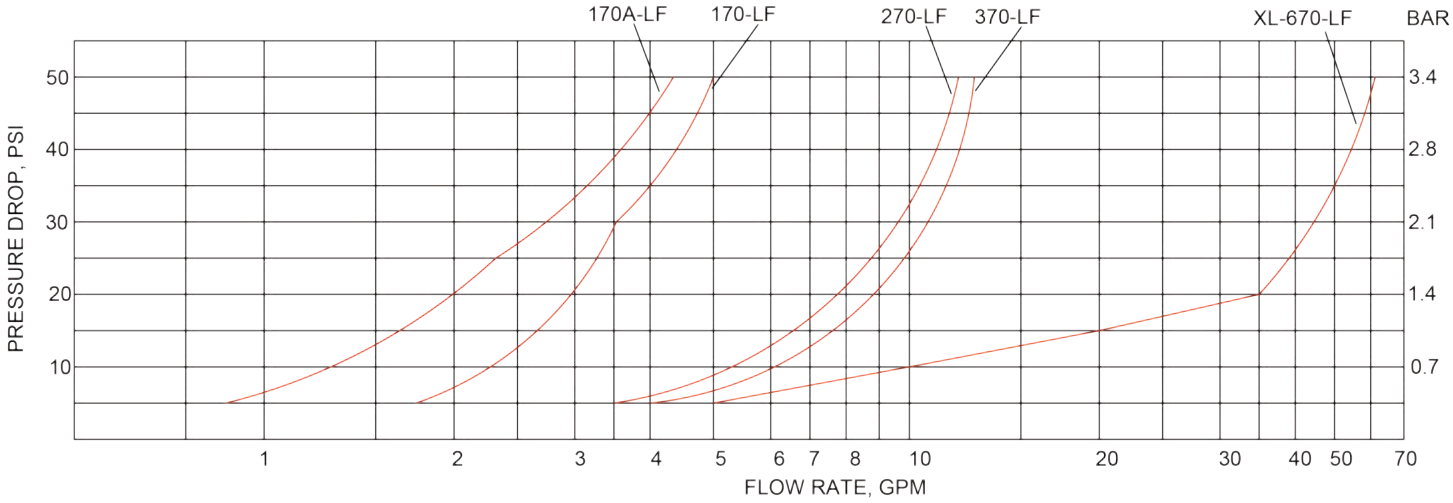
170-LF

270-LF

370-LF

FITTINGS

554-270-LF



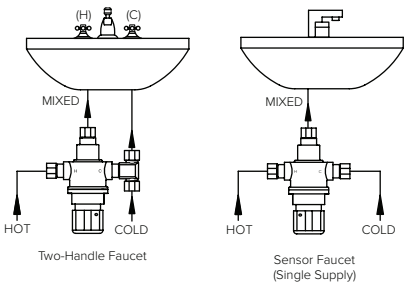
MODEL	IN	OUT	MINIMUM FLOW GPM	PRESSURE DROP 5	10	15	20	25	30	35	40	45	50	PSI
			L/MIN	0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
170A-LF*	3/8"	3/8"	0.25	0.75	1.25	1.60	1.88	2.25	2.63	3.10	3.55	4.0	4.25	GPM
	(9.5mm)	(9.5mm)	0.95	2.8	4.7	6.1	7.1	8.5	10.0	11.7	13.4	15.0	16.1	L/MIN
170-LF*	3/8"	3/8"	0.25	1.7	2.3	2.7	3.0	3.2	3.6	4.0	4.4	4.7	5.0	GPM
	(9.5mm)	(9.5mm)	0.95	6.4	8.7	10.2	11.4	12.1	13.6	15.1	16.5	17.8	18.9	L/MIN
270-LF**	1/2"	1/2"	0.25	3.5	5.5	6.5	7.5	8.5	9.5	10.0	10.5	11.5	12.0	GPM
	(12.7mm)	(12.7mm)	0.95	13.2	20.8	24.6	28.4	32.2	36.0	37.9	39.7	43.5	45.4	L/MIN
370-LF**	3/4"	3/4"	0.5	4.0	6.0	7.0	8.0	9.0	10.0	10.5	11.5	12.5	13.0	GPM
	(19.1mm)	(19.1mm)	1.9	15.1	22.7	26.5	30.3	34.1	37.9	39.7	43.5	47.3	49.2	L/MIN
XL-670-LF*	1"	1 1/4"	2.5	5	10	20	35	39	41	48	55	59	62	GPM
	(25.4mm)	(31.6mm)	9.5	19	38	76	132	148	155	182	208	223	235	L/MIN

* VALVE ASSEMBLY IS ASSE 1070 CERTIFIED
** VALVE ASSEMBLY IS ASSE STANDARDS 1017 & 1070 CERTIFIED
ALL VALVE ASSEMBLY(S) ARE 3RD PARTY CERTIFIED TO BE LEAD FREE

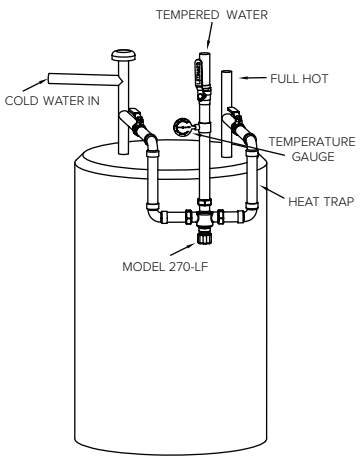
MAXIMUM FLOW CAPACITY

Temperature Limiting Valves

Required Piping – Point of Use Applications



Required Piping – Hot Water Heater Applications



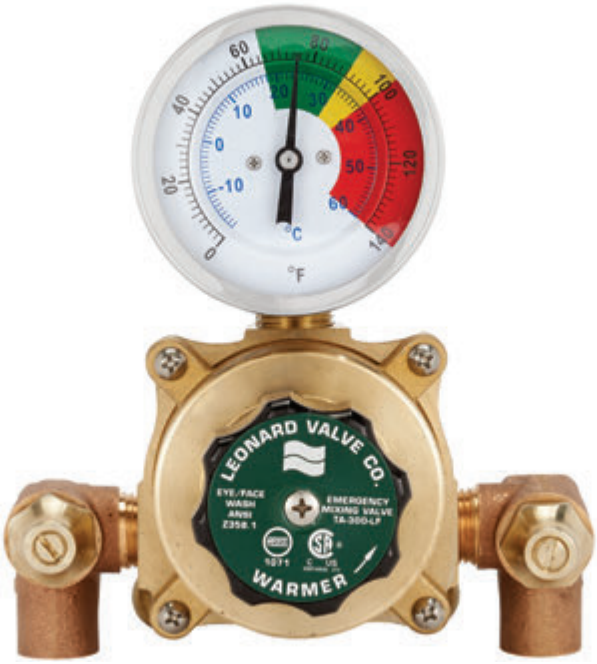
Emergency Mixing Valves

Leonard Emergency Mixing Valves are the Industry Standard for mixing tepid water by providing safe & reliable performance for Emergency Eyewashes & Drench Showers.

Leonard's Emergency Valve Lineup Features:

EMV Port Sleeve

Eyewash Valves



TA-300-LF

- Single & Redundant By-Pass Models
- Dura-trol Bi-Metal Thermostat with a ***10 Year Warranty***
- ASSE 1071 Certified
- Six Models Ranging from 1/2" to 1-1/2" with capacities up to 126 GPM
- Dial Thermometer & Ball Valve Shutoff on Outlet
- Eco-Mix Certified Lead Free Construction
- Meets ANSI/ISEA Z358.1-2014 Tepid Water Requirements

Redundant Bypass

TM-850-LF

Eyewash Drench Shower Valves

TM-600-LF-RF

High Capacity

TM-800-LF

Group Shower Controls

Designed for showers without individual temperature control by the user, Leonard Valve manufactures both individual and master group shower control valves.

Our Individual valves are mounted behind the wall in the chase where the user can't access the valve. We deliver a preset shower temperature to the user in a safe range to protect them from scalding or thermal shock.

We also offer a unique, master control valve for schools, prisons, or psychiatric wards that allows the plumbing designer to pipe a single supply line to all of the showers and recirculate it for just this application. Ease of maintenance and control are the big advantages of this design method.

- Connections:
  - 1/2" =269-LF
  - 3/4" =369-LF
  - 1-1/4" =XL-690-LF High Capacity
- Min Flow:
  - 1.0 gpm = 269-LF & 369-LF
  - 1.0 gpm = XL-690-LF
- Flow Capacities
  - 12.0 gpm = 269-LF & 369-LF
  - 65.0 gpm = XL-690-LF
- Para-trol Wax Thermostatic Element
- ASSE 1069 Certified
- Eco-Mix Certified Lead Free Construction

High Capacity

XL-690-LF

Gang Shower Controls

269-LF

369-LF

Surfashower® Valves

Leonard manufactures the highest quality wall showers in a wide range of configurations to meet any shower room requirement. We offer our exposed assemblies and stainless steel covers in single, two person, and three person configurations.

Our Surfashowers® are available with pressure balanced, thermostatic, or on/off controls and many other options to meet your project's needs.

SS-PAM-200-3ISA-D2L/501P[G]-44

Surfashower® Accessories

501P

H-06

Concealed Shower Valves

Pressure Balanced

PAM-II-ST-LR

4500

6700

Thermostatic

7600

Hose Station Assemblies Complete Units

SS-HA-2

Washdown Hose Stations

Whatever your clean up needs - food & beverage, pharmaceuticals, waste water treatment, or industrial plants - Leonard Valve Company manufactures a washdown hose station to meet your needs.

We offer a number of different valve types - Thermostatic, Pressure Balanced with safety shutoff & manual. We combine them with four different types of mounting - wall, semi-recessed, concealed in a stainless steel enclosure, or pedestal for any facility type application. Compatible with steam or hot water, stainless steel or bronze valves, heavy duty hose with anti-microbial coatings, and a wide variety of nozzles, Leonard has a product to meet your cleanup requirements.

Manual Hose Stations

SW-75-EVBD-CP

Safety Shutoff Hose Stations

3800-VBD-CP

Thermostatic Hose Stations

THS-25-VBD-CP

Hose Station Accessories

N2

25-HDS

HR

N2-A

Tempered Water for Dialysis

Leonard Dialysis Boxes solve the problem of water condensation on supply hoses to portable dialysis equipment by tempering the water to the dialysis unit and thereby eliminating water from condensing on the floor under the hoses. This prevents a water slipping hazard for both patients and staff.

Tempered water also ensures that the supply to the dialysis unit is within the proper temperature range for the pretreatment equipment in the winter months when supply temperatures can drop into the low 40s.

OR-1776A

OR-1776D

Thermostatic Steam Mixing

Leonard manufactures both Thermostatic Steam & Water Mixing Valves and Thermostatic Hot & Cold Water Mixing Valves for your industrial process applications. Our Industrial Mixing Valves are an economical alternative to expensive heat exchange systems by allowing facility operators to use existing plant steam and mix hot water locally at the point of use or process. We fabricate our mixing valves in five sizes from 3/4" through 2" with flow rates up to 85 gpm. All of our industrial mixing valves are fabricated with lead-free bronze castings and rugged, bi-metal thermostatic elements.

NOTICE:
Our TMS Valve Series is designed for industrial process applications only and may pass live steam under certain circumstances.

Steam and Water Mixers

Process Mixers

Facts

Legionella can cause Legionnaires' disease or Pontiac fever, collectively known as legionellosis.

The bacterium was named after an outbreak in 1976, when many people at an American Legion Convention got sick.

About 5,000 cases of Legionnaires' disease are now reported each year in the United States. [1]

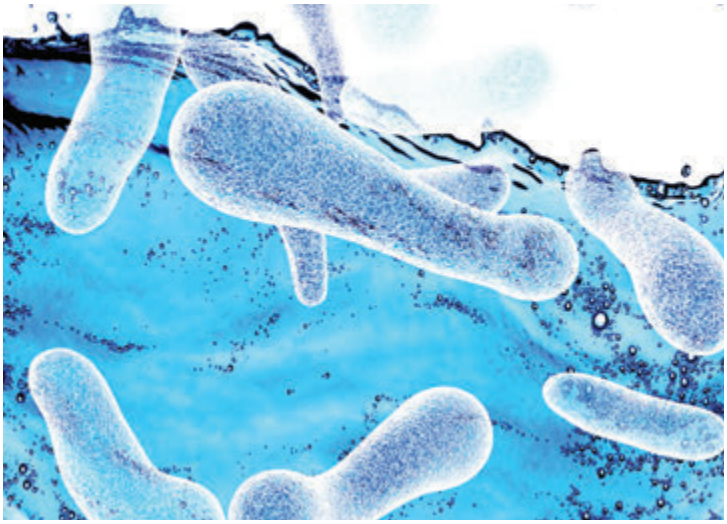
About one out of every 10 people who get sick from Legionnaires' disease will die. [2]

People can get Legionnaires' disease when they breathe in a mist that has been contaminated with it.

Legionnaires' disease is not spread from one person to another except in rare cases. [2]

Legionella is found naturally in fresh water environments but can become a health concern in man-made water systems.

Keeping Legionella out of water systems in buildings is key to preventing infection.



Prevention

The key to preventing Legionnaires' disease is to prevent Legionella colonization (growth) in water systems. Guidelines for reducing the risk of Legionella growth and spread are available for those who maintain and manage building water systems, including systems for potable water (for drinking and showering) from ASHRAE®. ASHRAE® is a not-for-profit organization that develops standards and guidelines for industries that design, manufacture, and maintain building systems.

ASHRAE Standard 188: Legionellosis: Risk management for building water systems (ANSI approved)

ASHRAE Guideline 12-2000: Minimizing the risk of legionellosis associated with building water systems

[These documents are available for purchase from the ASHRAE website - www.ashrae.com]

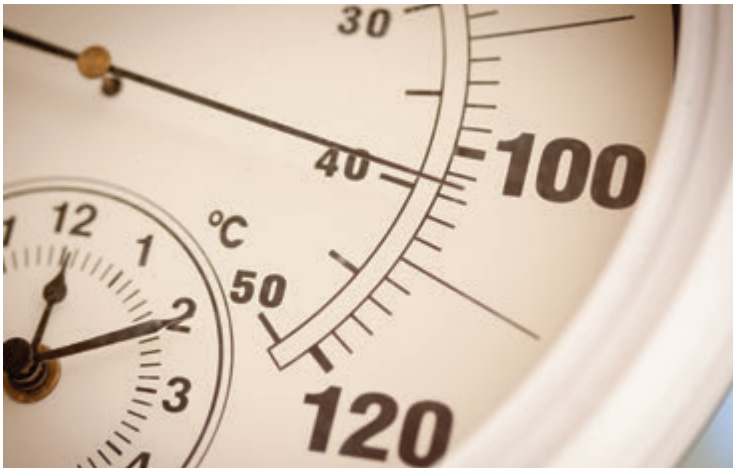
The CDC developed a toolkit to help building owners and managers better understand ASHRAE Standard 188 and how to develop a water management program to reduce the risk of Legionella growing and spreading in their building(s). The first step is determining if your building or certain devices in your building need a water management program. Visit the CDC Website for their toolkit and additional information on Legionella - www.cdc.gov/legionella [3]

[1] Dooling KL, Toews KA, Hicks LA, et al. Active Bacterial Core Surveillance for Legionellosis–United States, 2011–2013. MMWR Morb Mortal Wkly Rep. 2015;64(42):1190–3.
[2] Correia AM, GonCalves J, Gomes, JP, et al. Probable Person-to-Person Transmission of Legionnaires' Disease. N Engl J Med. 2016;374:497–8.
[3] CDC - www.cdc.gov/legionella

Scalding and Thermal Shock

There are two types of hazards from domestic hot water systems: scalding and thermal shock. Scalding is caused by exposure to hot water for a period of time. The result of rapid temperature changes of the shower water temperature is "thermal shock" that can lead to dangerous falls, caused by trying to scramble away from sudden discomfort.

Properly designed domestic hot water systems should include Leonard Valve's thermostatic master mixing valves, temperature limiting devices and shower valves to protect users from scalding & thermal shock.



TEMPERATURE - TIME BURN CHART
FOR AVERAGE ADULT MALES

Temp. in degrees °F	Time for a 1st Degree Burn	Time for 2nd & 3rd Degree Burns
110°F	Normal Shower Temp	
116°F	Pain threshold	
116°F	35 minutes	45 minutes
122°F	1 minute	5 minutes
131°F	N/A	25 seconds
140°F	2 seconds	5 seconds
149°F	1 second	2 seconds
154°F	Instantaneous	1 second

The Engineering and Sciences Division of the US Consumer Product Safety Commission has compiled the above time-temperature burn chart (based on the 1946 studies of Moritz and Henriques under Department of Defense contract). The chart shows the exposure times, under circumstances of full immersion, which will result in superficial, and partial or full-thickness, scald burns at various water temperatures.

NUCLEUS™

DIGITALLY CONTROLLED MIXING VALVE

NV-200-LF WITH INLET
PIPING PROVSIONS

NUCLEUS CONTROL BOX

NUCLEUS CONTROL BOX

NV-150-LF WITH INLET
PIPING PROVISIONS

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