November 2014

Type LR125 Pressure Reducing Liquid Regulator

- **Rugged design**
- **Reliable**
- **Thoroughly tested**
- **Internally actuated**
- **Compact**
- **1, 2, 3, 4 in. body sizes**
- **Recommended for water and oil applications**
- **Full SST construction available for harsh environments**
- **API 614 Compliant**

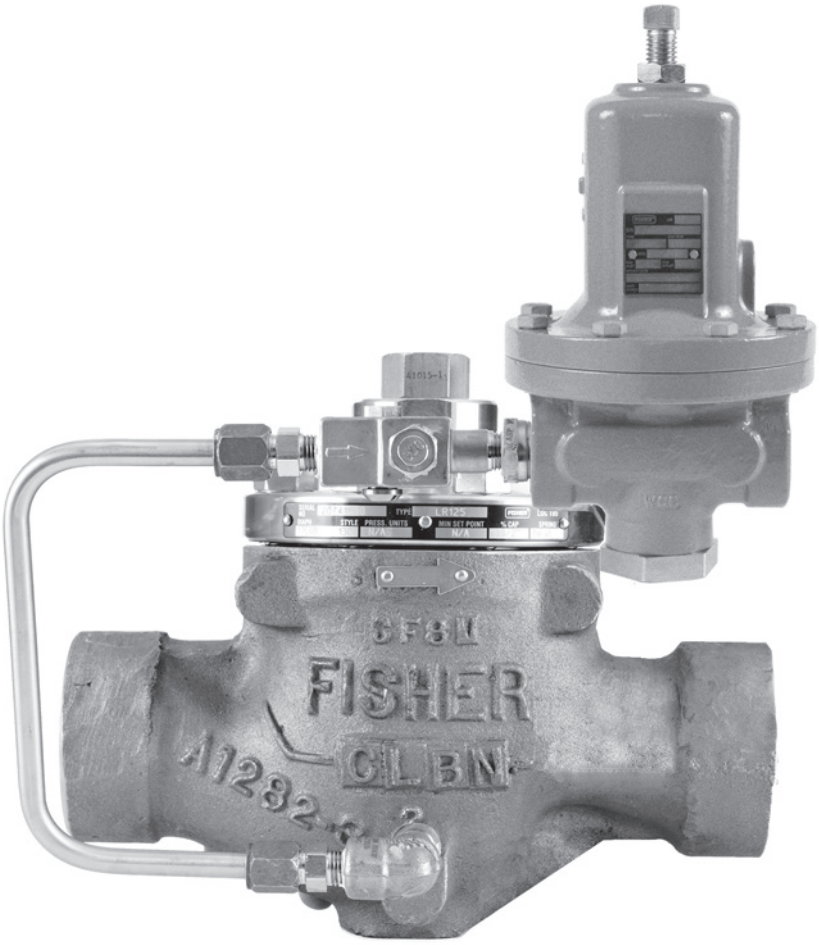

Figure 1. *Type LR125 Pressure Reducing Liquid Regulator*

Introduction

The Type LR125 pilot-operated, pressure reducing regulator is designed for liquid industrial/commercial applications. The Type LR125 provides smooth operation, tight shutoff and long life. Its internally actuated metal plug eliminates disadvantages associated with flexible element style regulators, and the specially engineered flow path deflects debris, protecting the seat from damage and erosion. The Type LR125 is used in conjunction with a Type MR95H pilot and Type 112 restrictor. An internal inlet strainer prevents large particles from entering the main valve, limiting damage to internal parts.

Features and Benefits

1 **Tight Shutoff—**The Type LR125 uses a diaphragm and metal plug, eliminating the disadvantages of flexible element style regulators. When open, the metal plug deflects particles and debris away from the diaphragm. The result is enhanced resistance to particle erosion, which provides excellent shutoff over an extended life. When closed, loading pressure and the main spring push the diaphragm onto the tapered-edged seat on the cage.

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Specifications

The Specifications section lists the specifications for the Type LR125 regulator. Factory specification is stamped on the nameplate fastened on the regulator at the factory.

Main Valve Body Sizes, End Connection Styles and Structural Design Ratings(1)(2)
See Table 1

Maximum Inlet Pressures(1)
Type LR125 Main Valve: See Table 1
Type MR95H Pilot: See Table 2
Type 112 Restrictor: 1500 psig / 103 bar

Maximum Outlet Pressure
Type LR125 Main Valve: See Table 1
Type MR95H Pilot: See Table 2

Outlet (Control) Pressure Ranges
See Table 3

Main Valve Plug Travel
1 in. / DN 25: 0.37 in. / 9.4 mm
2 in. / DN 50: 0.68 in. / 17 mm
3 in. / DN 80: 0.98 in. / 25 mm
4 in. / DN 100: 1.19 in. / 30 mm

Main Valve Minimum Differential Pressures(1)
See Table 5

Temperature Capabilities(1)
See Table 4

Main Valve Flow Direction
Up through the center of the cage and down through the cage slots

Main Valve Internal Inlet Strainer Sizes
1 in. / DN 25: 12 Mesh (0.0661 in. / 1.68 mm)(3)
2, 3 and 4 in. / DN 50, 80 and 100:
10 Mesh (0.0787 in. / 2 mm)(3)

Regulating Capacities
See Table 11

Flow and IEC Sizing Coefficients
Type LR125 Main Valve: See Table 6
Type MR95H Pilot: See Table 7
Type 112 Restrictor: See Table 8

Pressure Registration
External: 1/2 NPT

Spring Case Vent
Type Y602-12

Approximate Weights
See Table 9

Options
- Pre-piped Pilot Supply
- Travel Indicator

Construction Materials
Type LR125 Main Valve
Body: WCC Steel, CF8M or CF3M Stainless Steel
Bonnet: Steel or Stainless Steel
Bonnet Bushing: Steel or Stainless Steel
Cage: Stainless steel
Spring: Stainless steel
Top Plug: Stainless steel
Bottom Plug: Stainless steel
Internal Inlet Strainer: Stainless steel
Diaphragm: Nitrile (NBR) or Fluorocarbon (FKM)
O-rings: Nitrile (NBR) or Fluorocarbon (FKM)
Flanged Locknut: Stainless Steel
Backup Rings: Polytetrafluoroethylene (PTFE)
Upper Spring Seat: Stainless steel
Indicator Protector and Cover: Plastic
Indicator Stem: Stainless steel
Indicator Fitting: Stainless steel
Travel Indicator Plug: Stainless steel
Type MR95H Pilot
Body: WCC Steel or CF8M Stainless Steel
Spring Case: WCC Steel or CF8M Stainless Steel
Orifice: Stainless Steel
Diaphragm: Neoprene (CR) or Fluorocarbon (FKM)
Disk: Nitrile (NBR) or Fluorocarbon (FKM)
Mounting Parts
Pilot Mounting Pipe Nipple: Plated steel or Stainless steel
Pipe Fittings: Plated steel or Stainless steel
Tubing: Stainless Steel
Type 112 Restrictor
Body: 15-5 Stainless Steel
Groove Valve: Stainless steel
Retainer: Stainless steel
Pipe Plug: Stainless steel
O-rings: Nitrile (NBR) or Fluorocarbon (FKM)

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.
2. Ratings and end connections other than ASME standards can usually be provided; contact your local Sales Office.
3. Nominal sieve opening

2 **Debris Protection—**The specially engineered flow path, along with the metal plug, allows flow through the regulator without seat impingement. The addition of an internal inlet strainer prevents large particles from entering the regulator, minimizing damage to internal parts.

3 **High Accuracy—**Multiple control pressure ranges offered by Type MR95H pilot and lower accuracy class inherent to pilot operated pressure regulator design provide the Type LR125 with tight and accurate control.

4 **Long Life—**The robust design of the Type LR125 with its metal plug and specially engineered flow path allows flow through the regulator without seat impingement. The diaphragm design eliminates the possibility of taking a “set”, a common problem with flexible element

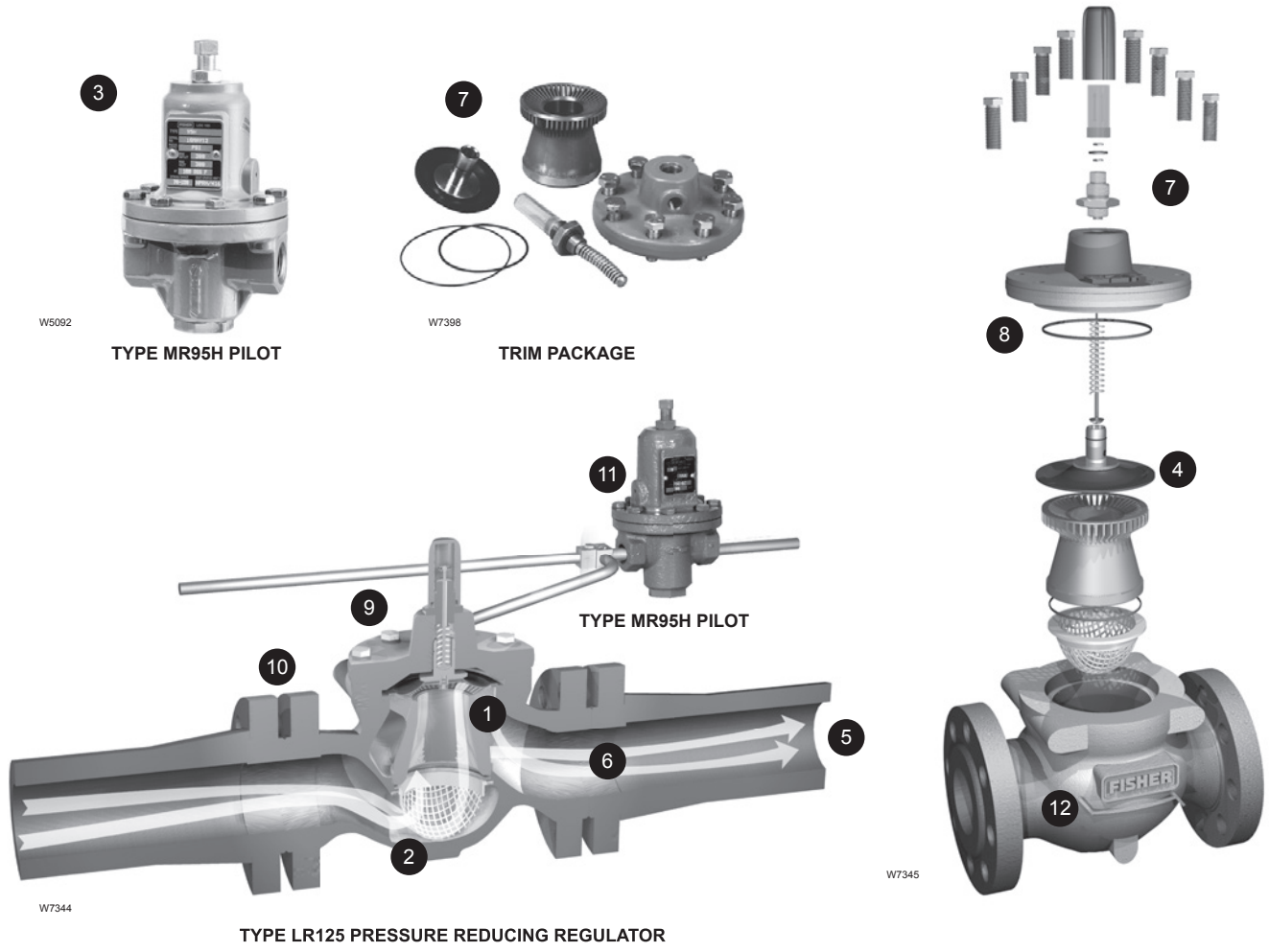

Figure 2. *Type LR125 Features and Benefits*

style regulators. To prevent damage, the diaphragm is fully supported in both the open and closed positions. These features enable the Type LR125 components to work longer with less wear and tear.

5 **Full Usable Capacity—**Fisher® branded regulators are laboratory tested. One hundred percent of the published flow capacity can be used with confidence.

6 **Thorough Laboratory Testing—**Emerson Process Management Regulator Technologies, Inc. (Emerson™) state-of-the-art flow laboratory allows thorough testing of all new designs. Tests are conducted on Fisher branded regulators for performance features such as flow, strength, shutoff and material compatibility.

7 **Easy In-Line Maintenance—**Top-entry design reduces maintenance time. Trim parts can be inspected, cleaned and replaced without removing the body from the pipeline. No special alignment is required when replacing the diaphragm.

8 **O-ring Design—**The Type LR125 uses elastomer O-rings instead of gaskets, reducing maintenance and assembly time.

9 **In-Service Travel Indicator—**The optional travel indicator responds to the precise movement of the diaphragm and plug assembly and shows the actual valve position. The travel indicator makes in-service inspection and troubleshooting easy. Also, it can be used for remote alarming and monitoring stem position.

10 **Versatility—**The Type LR125 uses the E-body, making available the standard construction materials and end connections (ASME and EN) used by other E-body regulators and control valves. Type MR95H can handle inlet pressures up to 300 psig / 20.7 bar and outlet pressures from 15 to 150 psig / 1.0 to 10.3 bar.

11 **Easy-to-Maintain—**The pilot is designed to allow quick and simple in-line trim inspection and parts replacement.

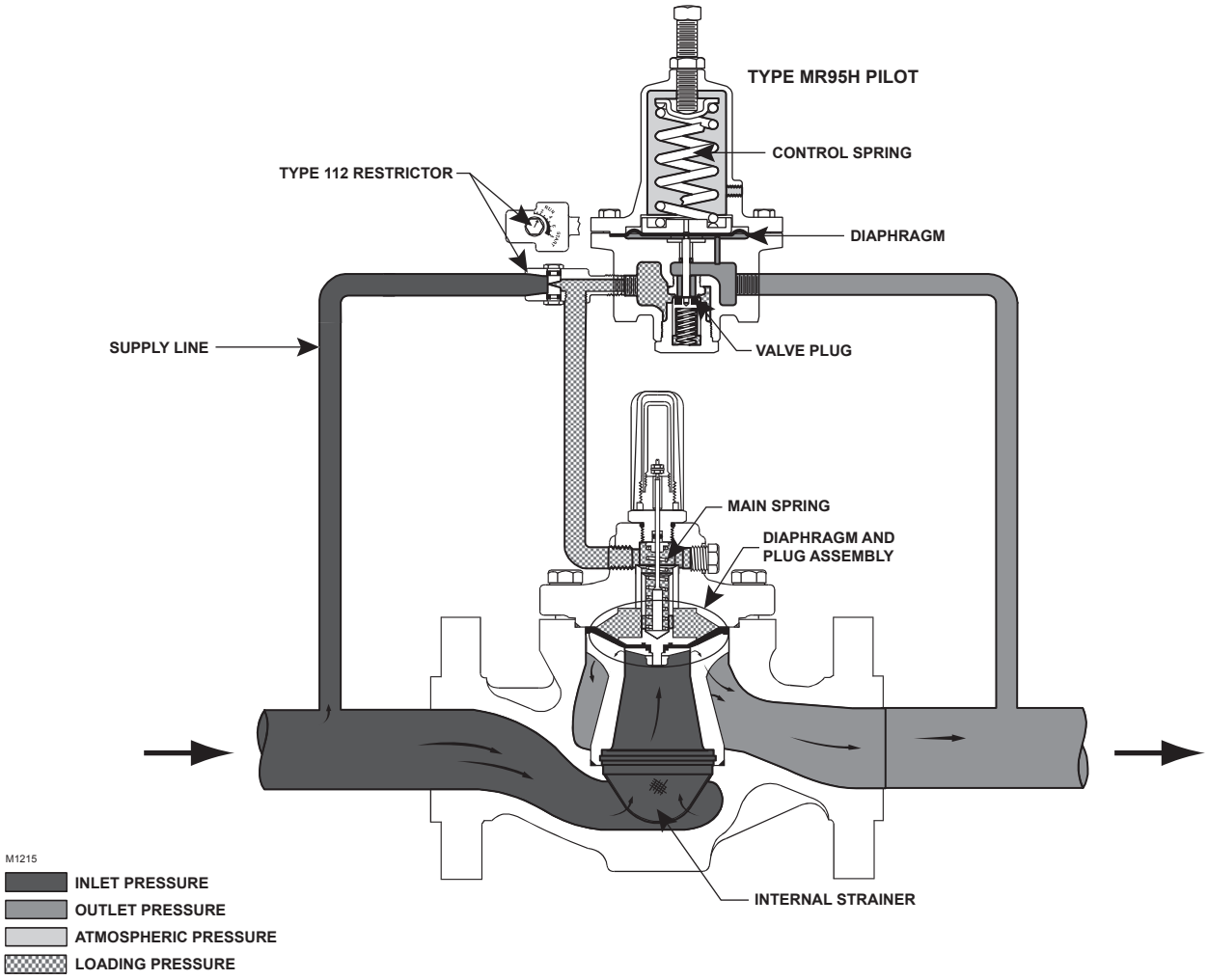

Figure 3. *Type LR125 Operational Schematic*

12 **Powder Paint Coating—**Carbon steel body is powder paint coated providing superior impact, abrasion and corrosion resistance.

Pilot Type Description

Type MR95H—High-pressure pressure reducing pilot for 15 to 150 psig / 1.0 to 10.3 bar outlet pressures. Designed to handle inlet pressures up to 300 psig / 20.7 bar.

Principle of Operation

As long as the outlet (control) pressure is above the outlet pressure setting, the pilot valve plug or disk remains closed (Figure 3). Force from the main spring, in addition to inlet pressure bleeding through the restrictor, provide downward loading pressure to keep the main valve diaphragm and plug assembly tightly shutoff.

When the outlet pressure decreases below the pilot outlet pressure setting, the pilot plug or disk assembly opens. Loading pressure bleeds downstream through the pilot faster than it can be replaced through the supply line. This reduces loading pressure on top of the main valve diaphragm and plug assembly and lets the unbalanced force between inlet and loading pressure overcome the main spring force to open the Type LR125 diaphragm and plug assembly.

As the outlet pressure rises toward the outlet pressure setting, it compresses the pilot diaphragm against the pilot control spring and lets the pilot valve plug or disk close. Loading pressure begins to build up on the Type LR125 diaphragm and plug assembly. The loading pressure, along with force from the main spring, pushes the diaphragm and plug assembly onto the tapered-edge seat, producing tight shutoff.

Table 1. *Type LR125 Main Valve Body Sizes, End Connection Styles, Structural Design Ratings and Maximum Operating Inlet Pressures[1]*

MAIN VALVE BODY SIZE		MAIN VALVE BODY MATERIAL	END CONNECTION STYLE[2]	STRUCTURAL DESIGN RATING[3]		MAXIMUM OPERATING INLET PRESSURE[3]	
In.	DN			psig	bar	psig	bar
1, 2, 3 and 4	25, 50, 80 and 100	WCC Steel	NPT or SWE (1 and 2 in. only)	1500	103	300	20.7
			CL150 RF	290	20.0	290	20.0
			CL300 RF	750	51.7	300	20.7
			CL600 RF	1500	103		
			PN 16/25/40 RF[4]	580	40.0		
		CF8M Stainless steel	NPT (1 and 2 in. only)	1440	99.2	300	20.7
			CL150 RF	275	19.0	275	19.0
			CL300 RF	720	49.6	300	20.7
			CL600 RF	1440	99.2		
			PN 16/25/40 RF[4]	580	40.0		

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.
2. Ratings and end connections for other than ASME standard can usually be provided. Contact your local Sales Office for assistance.
3. Maximum cold working pressure (CWP) per ASME B16.34 or product Bulletin limit, whichever is lowest. Temperature may decrease these maximum pressures.
4. Not available for 4 in. / DN 100 body size.

Table 2. *Type MR95H Pilot Maximum Cold Working Pressure[1][2]*

BODY SIZE	BODY AND SPRING CASE MATERIAL	MAXIMUM INLET PRESSURE	MAXIMUM OUTLET PRESSURE
1/2 NPT	Steel	300 psig / 20.7 bar	300 psig / 20.7 bar
	Stainless steel	300 psig / 20.7 bar	300 psig / 20.7 bar

1. The pressure/temperature limits in this Bulletin, and any applicable standard or code limitation should not be exceeded.
2. Temperature and/or the body end connection may decrease these maximum pressures.

Table 3. *Outlet (Control) Pressure Ranges*

PILOT	OUTLET PRESSURE RANGE		SPRING WIRE DIAMETER		SPRING FREE LENGTH		SPRING PART NUMBER AND COLOR
	psig	bar	In.	mm	In.	mm	
Type MR95H	15 to 30	1.0 to 2.1	0.207	5.26	2.50	63.5	ERCA04288A0 Yellow
	25 to 75	1.7 to 5.2	0.234	5.94	2.60	65.9	ERAA01910A0 Green
	70 to 150	4.8 to 10.3	0.283	7.19	2.44	62.0	ERAA01911A0 Red

Table 4. *Diaphragm Material Selection Information*

	17E68 NITRILE (NBR)	17E97 NITRILE (NBR)	17E88 FLUOROCARBON (FKM)
Liquid Temperature	-20 to 150°F / -29 to 66°C	0 to 150°F / -18 to 66°C	0 to 250°F / -18 to 121°C[1]
General Applications	Best for low pressure differential and cold temperature service applications.	Best for abrasive or erosive service applications.	Best for high temperature applications.
Heavy Particle Erosion	Fair	Excellent	Good

1. Fluorocarbon (FKM) is limited to 200°F / 93°C in hot water.

Installation

The robust design of the Type LR125 allows this regulator to be installed indoors or outdoors. This regulator is designed to withstand the elements. The powder paint coating protects regulator against minor impacts, abrasions and corrosion. When installed outdoors, the Type LR125 does not require protective housing. However, the Type MR95H pilot should be oriented so that the pilot spring case vent is pointed down. Otherwise, make sure the vent is protected so that rain, moisture, insects or any debris will not accumulate inside or block the vent assembly. When installed indoors, install remote venting of the pilot spring case as required by applicable codes and regulations.

Overpressure Protection

Overpressuring any portion of a regulator or associated equipment may cause personal injury, leakage or property damage due to bursting of pressure-containing parts. Provide appropriate pressure relieving or pressure limiting devices to ensure that the limits in the Specifications section are not exceeded. Common methods of external overpressure protection include relief valves, monitoring regulators, shutoff devices and series regulation. Regulator operation within ratings does not prevent the possibility of damage from external sources or from debris in the pipeline. Install additional strainer or filter upstream of the regulator for applications with high levels of debris.

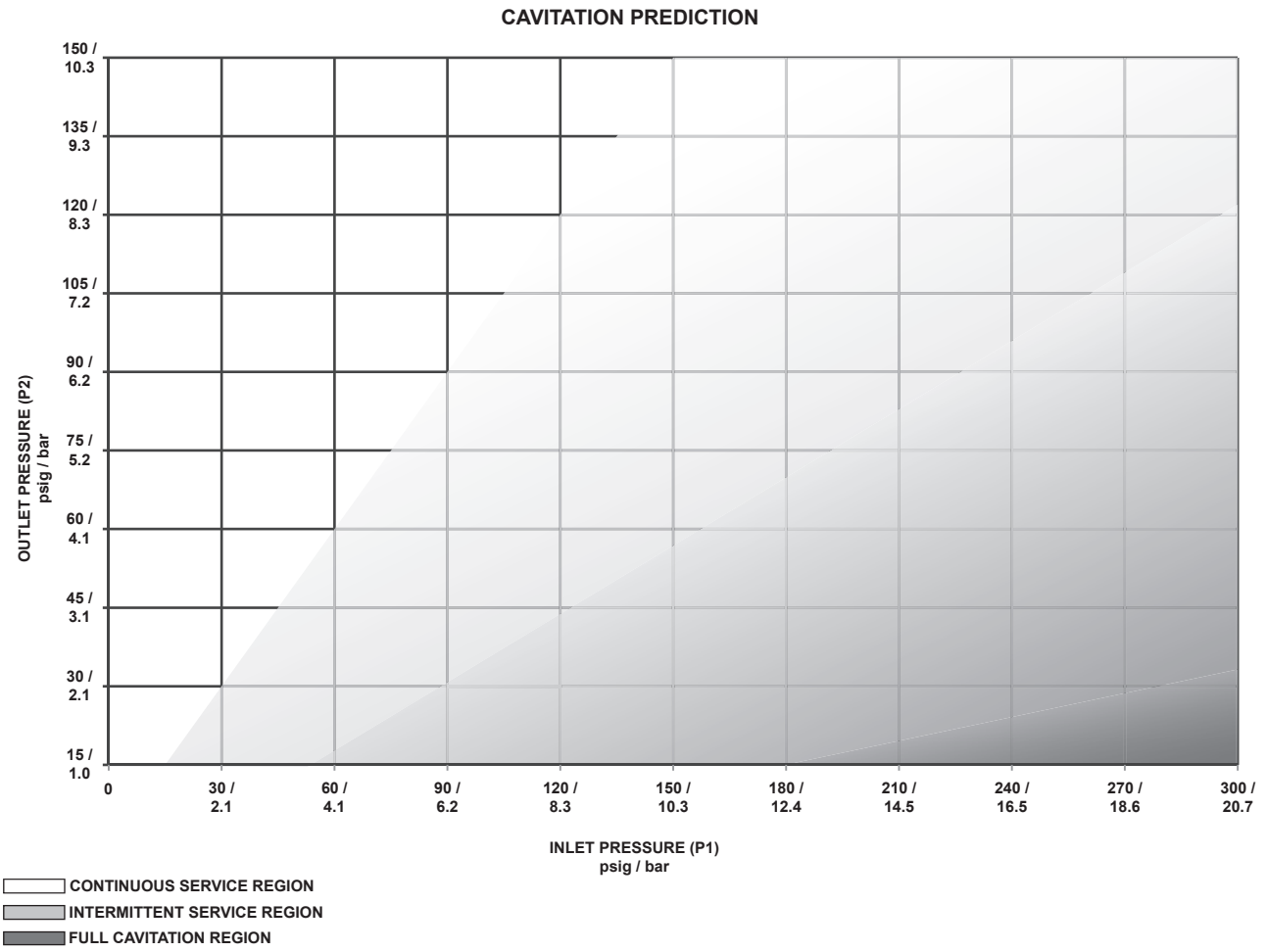

Figure 4. *Cavitation Sizing for Water*

Table 5. *Main Valve Minimum Differential Pressures*[1]

MAIN VALVE BODY SIZE		DIAPHRAGM		MINIMUM DIFFERENTIAL, PERCENT OF CAPACITY			
				For 90% Capacity		For 100% Capacity	
In.	DN	Diaphragm Code	Diaphragm Material	psid	bar d	psid	bar d
1	25	17E68 **(standard)**	Nitrile (NBR), Low Minimum Differential	30	2.1	30	2.1
		17E97	Nitrile (NBR), High Erosion Resistance	35	2.5	35	2.5
		17E88	Fluorocarbon (FKM), High Temperature Capability	30	2.1	30	2.1
2	50	17E68 **(standard)**	Nitrile (NBR), Low Minimum Differential	18	1.2	19	1.3
		17E97	Nitrile (NBR), High Erosion Resistance	24	1.7	24	1.7
		17E88	Fluorocarbon (FKM), High Temperature Capability	18	1.2	19	1.3
3	80	17E68 **(standard)**	Nitrile (NBR), Low Minimum Differential	21	1.5	28	1.9
		17E97	Nitrile (NBR), High Erosion Resistance	23	1.6	23	1.6
		17E88	Fluorocarbon (FKM), High Temperature Capability	21	1.5	28	1.9
4	100	17E68 **(standard)**	Nitrile (NBR), Low Minimum Differential	16	1.1	30	2.1
		17E97	Nitrile (NBR), High Erosion Resistance	16	1.1	34	2.3
		17E88	Fluorocarbon (FKM), High Temperature Capability	16	1.1	30	2.1

1. See Table 1 for structural design ratings and Table 2 for Type MR95H pilot rating.

Table 6. *Flow and Sizing Coefficients for Type LR125 Main Valve at 100% Capacity*

MAIN VALVE BODY SIZE		REGULATING COEFFICIENTS		WIDE-OPEN COEFFICIENTS		K_m	IEC SIZING COEFFICIENTS		
In.	DN	C_V	C_1	C_V	C_1		X_T	F_D	F_L
1	25	14.8	33.4	15.2	33.5	0.88	0.706	0.06	0.94
2	50	50.8	37.2	52.4	37.2	0.92	0.875	0.09	0.96
3	80	91.4	38.8	94.1	38.8	0.94	0.952	0.09	0.97
4	100	147	38.7	151	38.7	0.85	0.947	0.09	0.92

Table 7. *Flow and Sizing Coefficients for Type MR95H Pilot*

BODY SIZE, IN. / DN	WIDE-OPEN COEFFICIENT	C_1	K_m	IEC SIZING COEFFICIENTS		
	C_v			X_T	F_D	F_L
1/2 / 15	2.9	35.5	0.79	0.797	0.70	0.89
$K_m = F_L^2$						

Table 8. *Type 112 Restrictor Flow Coefficients*

RESTRICTOR SETTING	C_v	C_1
Setting 2	0.03	35
Setting 4	0.07	
Setting 6	0.14	
Setting 8	0.17	

Table 9. *Approximate Weights Including Type MR95H Pilot and Restrictor*

BODY SIZE		MAIN VALVE BODY, LBS / kg			
In.	DN	NPT or SWE	CL150 RF	CL300 RF	CL600 RF
1	25	22 / 10	24 / 11	28 / 13	32 / 15
2	50	51 / 23	54 / 24	58 / 26	65 /29
3	80	103 / 47	107 / 49	110 / 50	123 / 56
4	100	139 / 63	145 / 66	159 / 72	192 / 87

Cavitation Sizing

Note

The cavitation sizing graph in Figure 4 applies to water only. For cavitation sizing for other liquids, contact your local Sales Office.

Use Figure 4 to determine cavitation sizing of Type LR125. The Cavitation Prediction Curve depicts P1 and P2 combinations where cavitation is likely to occur. The curve shape was determined through analysis and lab confirmation on water. Determine the desired inlet pressure and outlet pressure of the system and find the intersection of those values on the graph.

No Cavitation Region—Cavitation is not expected in this region. Damage to regulator components and piping is highly unlikely as a result of cavitation.

Note

Emerson™ denies responsibility for damage and voids the warranty if the product is used within the Cavitation Region (see Figure 4).

Cavitation Region—Cavitation may occur. Damage to regulator components and piping is possible. The risk of damage increases as P1 and P2 move down and to the right on the table. Cavitation damage can be avoided by dividing the total pressure drop into stages so that the P1 and P2 combination falls into the “No Cavitation Region” at every stage.

Capacity Information

Note

Flow capacities are laboratory verified; therefore, regulators may be sized for 100% flow published capacities. It is not necessary to reduce published capacities.

The capacity information on the following pages is based on four % droop, 10%, 20%, 30% and 40%. Droop is the negative control deviation or pressure offset below the setpoint of the regulator.

Table 10 shows C_v values at different % droop and selected inlet pressures and outlet pressure settings.

Table 11 shows the liquid regulating capacities of the Type LR125 regulator at selected inlet pressures and outlet pressure settings. Flows are in gallons per minute (GPM) and liters per minute (L/min) of water.

Table 10. *C_V[1] at % Droop (Pressure Offset Below Setpoint)[2]*

SPRING RANGE AND COLOR	OUTLET PRESSURE		INLET		1 IN. / DN 25				2 IN. / DN 50				3 IN. / DN 80				4 IN. / DN 100			
	psig	bar	psig	bar	10%	20%	30%	40%	10%	20%	30%	40%	10%	20%	30%	40%	10%	20%	30%	40%
15 to 30 psig / 1.0 to 2.1 bar Yellow	15	1.0	45	3.1	14.8	14.8	14.8	14.8	39.7	44.2	48.3	50.8	83.0	89.2	91.4	91.4	133.4	143.4	147.0	147.0
			50	3.4	14.8	14.8	14.8	14.8	39.2	44.5	48.4	50.6	83.3	89.6	91.4	91.4	134.0	144.1	147.0	147.0
			60	4.1	14.8	14.8	14.8	14.8	38.3	44.9	48.5	50.0	84.1	90.4	91.4	91.4	135.2	145.4	147.0	147.0
			65	4.4	14.8	14.8	14.8	14.8	37.8	45.2	48.6	49.8	84.5	90.8	91.4	91.3	135.9	146.0	147.0	146.8
	20	1.4	50	3.4	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			60	4.1	14.8	14.8	14.8	14.8	48.5	50.7	50.7	50.4	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			70	4.8	14.8	14.8	14.8	14.8	46.1	50.0	50.5	49.9	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			75	5.1	14.8	14.8	14.8	14.8	44.9	49.7	50.3	49.7	91.2	91.4	91.4	91.4	146.7	147.0	147.0	146.1
	30	2.1	60	4.1	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			75	5.1	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.7	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			90	6.1	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.2	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			100	6.8	14.8	14.8	14.8	14.8	47.6	50.8	50.6	49.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
25 to 75 psig / 1.7 to 5.2 bar Green	25	1.7	55	3.7	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			75	5.1	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.6	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			80	5.4	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.5	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			90	6.1	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.3	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
	50	3.4	80	5.4	14.8	14.8	14.8	14.8	49.0	50.1	49.9	49.7	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			100	6.8	14.8	14.8	14.8	14.8	49.1	50.1	50.0	49.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			125	8.5	14.8	14.8	14.8	14.8	49.2	50.0	50.1	50.1	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			150	10.2	14.8	14.8	14.8	14.8	49.3	50.0	50.2	50.3	91.4	91.4	91.4	90.9	147.0	147.0	147.0	146.2
	75	5.2	110	7.5	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			125	8.5	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			150	10.2	14.8	14.8	14.8	14.8	49.8	49.8	49.5	49.9	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			175	11.9	14.7	14.8	14.8	14.8	45.3	46.5	46.4	47.1	86.1	87.9	88.0	88.7	138.5	141.3	141.6	142.6
			200	13.6	14.2	14.5	14.6	14.5	40.7	43.1	43.3	44.2	80.6	83.4	84.0	84.6	129.6	134.2	135.1	136.0
70 to 150 psig / 4.8 to 10.3 bar Red	70	4.8	100	6.8	14.8	14.8	14.8	14.8	50.5	49.4	49.3	49.9	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			125	8.5	14.8	14.8	14.8	14.8	46.1	46.0	46.6	47.5	87.7	88.6	89.5	91.4	141.1	142.5	144.0	147.0
			150	10.2	14.7	14.8	14.7	14.8	41.6	42.7	43.8	45.0	82.8	84.0	84.9	86.6	133.1	135.0	136.5	139.2
			175	11.9	14.6	14.8	14.8	14.8	44.6	46.0	46.0	46.7	85.2	87.0	87.2	87.9	137.1	139.9	140.2	141.4
			190	12.9	14.5	14.8	14.8	14.8	46.4	47.9	47.3	47.7	86.7	88.8	88.5	88.8	139.4	142.8	142.4	142.8
			200	13.6	14.5	14.8	14.8	14.8	47.7	49.2	48.2	48.4	87.7	90.0	89.5	89.3	141.0	144.7	143.9	143.7
	100	6.9	130	8.8	14.8	14.8	14.8	14.8	50.8	50.0	49.6	49.7	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			150	10.2	14.8	14.8	14.8	14.8	50.1	49.5	49.2	49.3	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			175	11.9	14.8	14.8	14.8	14.8	48.4	48.9	48.7	48.8	90.7	91.4	91.4	91.4	145.9	147.0	147.0	147.0
			200	13.6	14.8	14.8	14.8	14.8	46.7	48.3	48.2	48.4	88.1	90.3	90.4	90.4	141.6	145.2	145.4	145.3
			250	17.0	14.2	14.2	14.2	14.2	43.2	47.1	47.3	47.4	82.8	86.2	86.5	86.5	133.2	138.6	139.1	139.2
			275	18.7	13.9	13.7	13.7	13.7	41.5	46.5	46.8	46.9	80.2	84.1	84.5	84.6	129.0	135.3	135.9	136.1
	125	8.6	155	10.5	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.8	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			175	11.9	14.8	14.8	14.8	14.8	50.8	50.8	50.8	50.6	91.4	91.4	91.4	91.4	147.0	147.0	147.0	147.0
			200	13.6	14.8	14.8	14.8	14.8	45.9	47.5	48.3	48.4	88.4	90.5	91.2	91.2	142.2	145.5	146.6	146.7
			250	17.0	14.8	14.8	14.8	14.8	43.6	46.4	46.9	47.0	85.2	87.7	88.2	88.1	137.0	141.1	141.9	141.8
			275	18.7	14.7	14.6	14.6	14.6	42.5	45.8	46.3	46.3	83.6	86.3	86.7	86.6	134.4	138.9	139.5	139.3
			300	20.4	14.5	14.3	14.3	14.3	41.4	45.3	45.6	45.6	82.0	85.0	85.2	85.1	131.8	136.6	137.1	136.8
	150	10.3	180	12.2	14.8	14.8	14.8	14.8	45.4	47.2	49.0	49.0	89.3	91.3	91.4	91.4	143.5	146.8	147.0	147.0
			200	13.6	14.8	14.8	14.8	14.8	45.0	46.7	48.3	48.3	88.8	90.7	91.4	91.4	142.8	145.9	147.0	147.0
			225	15.3	14.8	14.8	14.8	14.8	44.5	46.2	47.5	47.5	88.2	90.0	90.9	90.9	141.8	144.7	146.3	146.2
			250	17.0	14.8	14.8	14.8	14.8	44.0	45.7	46.6	46.6	87.5	89.3	89.9	89.8	140.8	143.6	144.7	144.4
			275	18.7	14.8	14.8	14.8	14.8	43.5	45.2	45.8	45.7	86.9	88.5	88.9	88.6	139.8	142.4	143.0	142.5
			300	20.4	14.8	14.8	14.8	14.8	43.1	44.7	44.9	44.9	86.3	87.8	87.9	87.4	138.8	141.2	141.4	140.6

1. Type LR125 on liquid service with 1/2 NPT Type MR95H Pilot, 100% Cage Capacity with internal inlet strainer and Type 112 Restrictor Setting of "4".
2. Values published in this table are laboratory tested and are presented based on % droop (negative control deviation only) or pressure offset below setpoint.

Exceeds recommended maximum pressure drop ratio of 0.65.

Table 11. *Capacity[1], Water (GPM / L/min) for 1 and 2 in. / DN 25 and 50 Bodies at % Droop (Pressure Offset Below Setpoint)[2]*

SPRING RANGE AND COLOR	OUTLET PRESSURE		INLET		1 IN. / DN 25								2 IN. / DN 50							
					10%		20%		30%		40%		10%		20%		30%		40%	
	psig	bar	psig	bar	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min
15 to 30 psig / 1.0 to 2.1 bar Yellow	15	1.0	45	3.1	83	314	85	322	87	329	89	336	223	843	254	961	284	1074	305	1154
			50	3.4	89	338	91	345	93	352	95	359	237	897	274	1037	304	1151	324	1226
			60	4.1	101	382	103	388	104	394	106	400	261	989	311	1178	341	1292	357	1353
			65	4.4	106	402	108	408	109	414	111	419	272	1028	329	1245	359	1358	372	1409
	20	1.4	50	3.4	84	317	86	327	89	336	91	345	287	1088	296	1121	305	1154	313	1185
			60	4.1	96	363	98	372	100	380	103	388	314	1190	336	1272	344	1302	349	1323
			70	4.8	107	404	109	412	111	419	113	427	333	1259	368	1392	378	1429	380	1440
			75	5.1	112	423	114	430	116	438	117	445	339	1284	382	1446	393	1487	394	1493
	30	2.1	60	4.1	85	322	89	336	92	350	96	363	292	1105	305	1154	317	1201	329	1246
			75	5.1	103	388	106	400	109	412	112	423	352	1332	363	1373	373	1413	383	1449
			90	6.1	117	445	120	455	123	465	126	475	403	1526	413	1562	422	1597	426	1611
			100	6.8	126	479	129	488	132	498	134	507	407	1541	443	1676	450	1703	451	1707
25 to 75 psig / 1.7 to 5.2 bar Green	25	1.7	55	3.7	84	319	88	331	91	343	94	354	290	1096	301	1138	311	1178	321	1216
			75	5.1	107	406	110	415	112	425	115	434	368	1393	377	1426	385	1458	392	1484
			80	5.4	112	425	115	434	117	443	119	452	385	1458	394	1490	402	1520	407	1541
			90	6.1	122	460	124	469	126	477	128	485	417	1580	425	1609	433	1637	435	1648
	50	3.4	80	5.4	88	331	94	354	99	376	105	396	290	1097	317	1200	335	1267	351	1329
			100	6.8	110	415	115	434	119	452	124	469	364	1378	388	1469	403	1526	417	1579
			125	8.5	132	501	136	517	140	532	144	546	440	1665	461	1746	475	1798	488	1847
			150	10.2	152	574	155	588	159	601	162	613	505	1912	524	1984	538	2037	551	2086
	75	5.2	110	7.5	96	365	105	396	112	425	119	452	331	1254	359	1360	385	1458	410	1550
			125	8.5	112	425	119	452	126	477	132	501	385	1458	410	1550	433	1637	454	1720
			150	10.2	134	509	140	532	146	553	152	574	452	1711	472	1787	489	1851	511	1934
			175	11.9	153	577	159	601	164	620	169	639	469	1776	498	1885	514	1945	537	2031
			200	13.6	164	620	171	647	177	670	180	683	469	1775	510	1932	526	1992	551	2085
70 to 150 psig / 4.8 to 10.3 bar Red	70	4.8	100	6.8	90	341	98	372	106	400	113	427	307	1163	327	1240	352	1334	380	1438
			125	8.5	117	441	123	465	129	488	135	510	363	1373	382	1447	406	1537	432	1637
			150	10.2	137	519	143	541	148	560	154	582	388	1469	414	1567	440	1666	468	1772
			175	11.9	154	585	161	610	166	629	171	646	472	1788	501	1898	516	1953	539	2039
			190	12.9	164	620	171	648	176	665	180	682	523	1981	555	2100	562	2126	580	2196
			200	13.6	170	643	178	672	182	688	186	704	558	2111	591	2236	592	2240	608	2301
	100	6.9	130	8.8	94	354	105	396	115	434	124	469	321	1216	353	1337	384	1454	416	1575
			150	10.2	115	434	124	469	132	501	140	532	388	1469	414	1567	440	1666	468	1772
			175	11.9	136	517	144	546	152	574	159	601	446	1688	476	1804	499	1889	524	1983
			200	13.6	155	588	162	614	169	639	175	663	489	1853	529	2002	550	2081	572	2166
			250	17.0	180	681	185	700	191	723	196	742	547	2071	614	2324	634	2400	653	2472
			275	18.7	189	715	191	724	197	745	202	763	565	2138	649	2458	670	2535	687	2602
	125	8.6	155	10.5	96	365	110	415	122	460	132	501	331	1254	377	1426	417	1580	454	1720
			175	11.9	117	443	128	485	138	524	148	560	402	1520	440	1665	475	1799	506	1917
			200	13.6	138	524	148	560	157	594	165	626	429	1623	475	1798	512	1938	541	2046
			250	17.0	174	657	181	686	189	714	196	741	512	1937	568	2151	598	2265	622	2353
			275	18.7	187	708	193	731	200	757	206	779	542	2053	606	2295	633	2398	655	2479
			300	20.4	198	750	203	767	209	790	214	810	567	2148	640	2424	665	2516	684	2591
	150	10.3	180	12.2	99	376	115	434	128	485	140	532	305	1153	365	1383	424	1607	465	1761
			200	13.6	119	452	132	501	144	546	155	588	363	1374	418	1582	471	1783	507	1919
			225	15.3	140	532	152	574	162	614	172	651	422	1599	474	1793	520	1968	552	2088
			250	17.0	159	601	169	639	178	675	187	709	472	1788	521	1972	561	2125	589	2231
			275	18.7	175	663	184	697	193	730	201	762	515	1950	562	2129	597	2258	622	2354
			300	20.4	190	720	199	752	207	782	214	812	553	2093	599	2267	627	2373	650	2461

1. Type LR125 on liquid service with 1/2 NPT Type MR95H Pilot, 100% Cage Capacity with internal inlet strainer and Type 112 Restrictor Setting of "4".
2. Values published in this table are laboratory tested and are presented based on % droop (negative control deviation only) or pressure offset below setpoint.
Exceeds recommended maximum pressure drop ratio of 0.65.

- continued -

Table 11. *Capacity[1], Water (GPM / L/min) for 3 and 4 in. / DN 80 and 100 Bodies at % Droop (Pressure Offset Below Setpoint)[2] (continued)*

SPRING RANGE AND COLOR	OUTLET PRESSURE		INLET		3 IN. / DN 80								4 IN. / DN 100							
					10%		20%		30%		40%		10%		20%		30%		40%	
	psig	bar	psig	bar	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min
15 to 30 psig / 1.0 to 2.1 bar Yellow	15	1.0	45	3.1	466	1762	512	1939	537	2032	548	2076	749	2835	824	3119	863	3268	882	3339
			50	3.4	503	1906	552	2090	574	2174	585	2215	810	3065	888	3362	924	3497	941	3563
			60	4.1	573	2171	626	2370	643	2434	653	2471	922	3491	1007	3812	1034	3915	1050	3974
			65	4.4	606	2295	661	2502	675	2554	683	2586	975	3690	1063	4024	1085	4108	1099	4159
	20	1.4	50	3.4	517	1957	533	2017	548	2076	563	2133	832	3148	857	3245	882	3339	906	3430
			60	4.1	592	2242	606	2295	620	2347	633	2397	953	3606	975	3691	997	3774	1018	3855
			70	4.8	659	2495	672	2542	684	2589	696	2635	1060	4013	1080	4089	1100	4164	1120	4238
			75	5.1	689	2606	702	2658	714	2702	725	2746	1107	4192	1129	4274	1148	4346	1160	4390
	30	2.1	60	4.1	525	1988	548	2076	571	2161	592	2242	844	3197	882	3339	918	3475	953	3606
			75	5.1	633	2397	653	2471	672	2542	690	2612	1018	3855	1050	3974	1080	4089	1110	4201
			90	6.1	725	2746	743	2811	759	2874	776	2936	1167	4417	1194	4521	1221	4622	1247	4722
			100	6.8	781	2956	797	3016	812	3075	828	3133	1256	4754	1282	4851	1307	4946	1331	5039
25 to 75 psig / 1.7 to 5.2 bar Green	25	1.7	55	3.7	521	1972	541	2047	560	2119	578	2188	838	3172	870	3292	900	3408	930	3519
			75	5.1	662	2507	678	2566	693	2624	708	2680	1065	4032	1090	4127	1115	4220	1139	4310
			80	5.4	693	2624	708	2680	723	2735	737	2789	1115	4220	1139	4310	1162	4399	1185	4486
			90	6.1	751	2843	765	2895	778	2946	792	2996	1208	4572	1230	4656	1252	4738	1273	4819
	50	3.4	80	5.4	541	2047	578	2188	613	2321	646	2447	870	3292	930	3519	986	3733	1039	3935
			100	6.8	678	2566	708	2680	737	2789	765	2895	1090	4127	1139	4310	1185	4486	1230	4656
			125	8.5	818	3095	843	3190	867	3282	891	3372	1315	4977	1355	5130	1395	5279	1433	5424
			150	10.2	937	3545	959	3629	980	3710	996	3770	1506	5702	1542	5836	1576	5967	1602	6063
	75	5.2	110	7.5	596	2256	646	2447	693	2624	737	2789	958	3628	1039	3935	1115	4220	1185	4486
			125	8.5	693	2624	737	2789	778	2946	818	3095	1115	4220	1185	4486	1252	4738	1315	4977
			150	10.2	830	3143	867	3282	903	3416	937	3545	1335	5054	1395	5279	1452	5495	1506	5702
			175	11.9	893	3380	942	3566	974	3688	1011	3827	1436	5437	1515	5736	1567	5931	1626	6155
			200	13.6	927	3511	987	3737	1020	3860	1053	3985	1492	5646	1588	6010	1640	6209	1693	6409
70 to 150 psig / 4.8 to 10.3 bar Red	70	4.8	100	6.8	556	2105	606	2295	653	2471	696	2635	894	3385	975	3691	1050	3974	1120	4238
			125	8.5	691	2614	736	2786	780	2954	833	3152	1111	4205	1184	4481	1255	4750	1339	5070
			150	10.2	772	2923	814	3081	853	3228	900	3405	1242	4701	1309	4956	1372	5192	1447	5477
			175	11.9	902	3414	949	3591	978	3704	1014	3839	1450	5490	1526	5776	1574	5956	1631	6175
			190	12.9	977	3698	1028	3890	1051	3980	1080	4088	1571	5947	1653	6257	1691	6401	1737	6575
			200	13.6	1026	3884	1080	4087	1099	4161	1123	4250	1650	6246	1737	6574	1768	6693	1806	6836
	100	6.9	130	8.8	578	2188	646	2447	708	2680	765	2895	930	3519	1039	3935	1139	4310	1230	4656
			150	10.2	708	2680	765	2895	818	3095	867	3282	1139	4310	1230	4656	1315	4977	1395	5279
			175	11.9	836	3165	891	3372	937	3545	980	3710	1345	5090	1433	5424	1506	5702	1576	5967
			200	13.6	924	3497	989	3743	1031	3901	1069	4047	1486	5624	1590	6019	1658	6275	1719	6509
			250	17.0	1048	3967	1124	4253	1160	4392	1193	4515	1685	6380	1807	6841	1866	7063	1918	7261
			275	18.7	1091	4131	1175	4447	1210	4580	1241	4696	1755	6644	1890	7153	1946	7367	1995	7553
	125	8.6	155	10.5	596	2256	678	2566	751	2843	818	3095	958	3628	1090	4127	1208	4572	1315	4977
			175	11.9	723	2735	792	2996	855	3236	914	3460	1162	4399	1273	4819	1375	5205	1470	5565
			200	13.6	827	3131	905	3425	967	3660	1020	3860	1330	5035	1455	5509	1555	5887	1640	6208
			250	17.0	999	3782	1074	4067	1124	4256	1166	4414	1607	6082	1728	6541	1808	6845	1875	7099
			275	18.7	1065	4033	1142	4323	1188	4495	1225	4636	1714	6487	1837	6953	1910	7230	1970	7457
			300	20.4	1122	4249	1201	4548	1243	4704	1276	4830	1805	6834	1932	7314	1999	7565	2052	7769
	150	10.3	180	12.2	599	2266	707	2677	792	2996	867	3282	963	3645	1137	4306	1273	4819	1395	5279
			200	13.6	716	2709	811	3072	891	3372	959	3629	1151	4357	1305	4940	1433	5424	1542	5836
			225	15.3	836	3166	922	3491	996	3771	1056	3998	1345	5091	1483	5614	1602	6065	1699	6431
			250	17.0	939	3554	1018	3853	1083	4100	1135	4298	1510	5716	1637	6196	1742	6593	1826	6912
			275	18.7	1029	3894	1102	4172	1160	4390	1205	4562	1654	6262	1773	6711	1865	7060	1938	7337
			300	20.4	1109	4198	1178	4459	1228	4648	1267	4797	1783	6751	1895	7172	1975	7476	2038	7715

1. Type LR125 on liquid service with 1/2 NPT Type MR95H Pilot, 100% Cage Capacity with internal inlet strainer and Type 112 Restrictor Setting of "4".
2. Values published in this table are laboratory tested and are presented based on % droop (negative control deviation only) or pressure offset below setpoint.

Exceeds recommended maximum pressure drop ratio of 0.65.

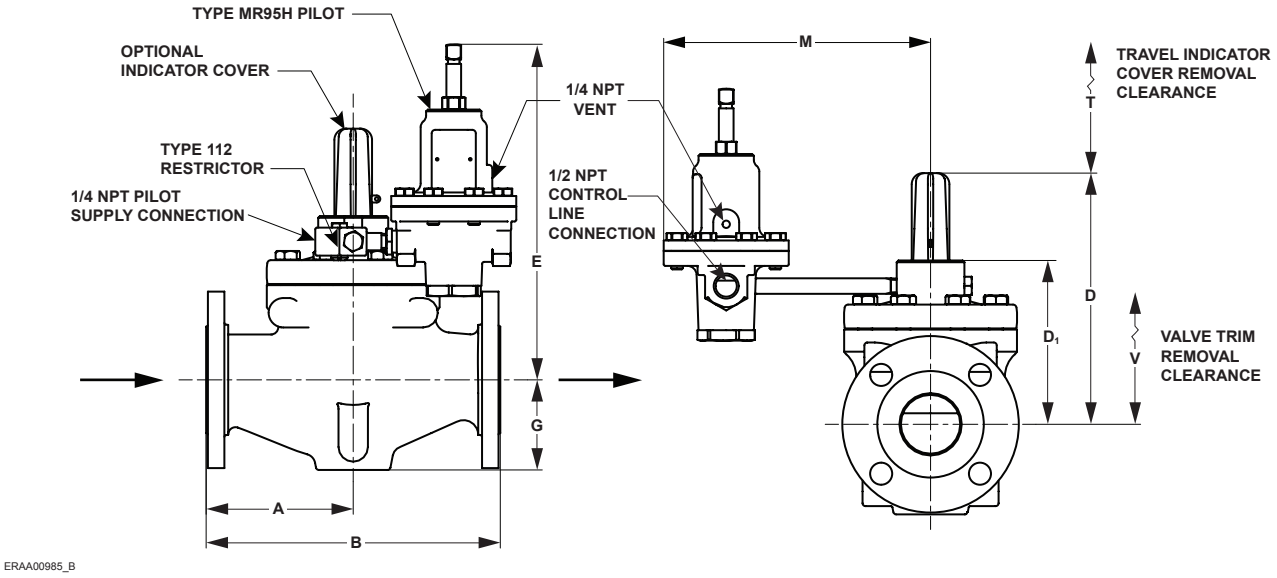

Figure 5. *Type LR125 Dimensions*

Table 12. *Type LR125 Dimensions*

BODY SIZE		DIMENSIONS, IN. / mm													
		A			B			D	D_1	E	G	M		T	V
In.	DN	CL150 RF	CL300 RF	CL600 RF	CL150 RF	CL300 RF	CL600 RF					WCC Steel	CF8M SST		
1	25	3.62 / 91.9	3.88 / 98.6	4.13 / 104.9	7.25 / 184.2	7.75 / 196.9	8.25 / 209.6	7.40 / 189.0	5.40 / 137.0	11.39 / 289.3	2.40 / 60.0	8.10 / 205.8	8.10 / 205.8	2.97 / 75.4	9.40 / 238.8
2	50	5.0 / 127.0	5.3 / 133.4	5.6 / 143.0	10.00 / 254.0	10.50 / 266.7	11.25 / 286.0	9.00 / 229.0	6.89 / 175.0	11.65 / 295.9	3.10 / 79.0	8.18 / 207.8	9.18 / 233.2	2.00 / 51.0	11.00 / 279.4
3	80	5.9 / 149.3	6.3 / 158.8	6.6 / 168.3	11.75 / 298.5	12.50 / 317.5	13.25 / 336.6	13.30 / 338.0	9.33 / 236.9	13.68 / 347.5	3.80 / 97.0	8.66 / 220.0	9.66 / 245.4	3.80 / 97.0	15.00 / 381.0
4	100	6.9 / 176.3	7.3 / 184.2	7.8 / 196.9	13.88 / 352.6	14.50 / 368.3	15.50 / 393.7	14.70 / 373.0	10.47 / 265.9	15.24 / 387.1	5.10 / 130.0	9.52 / 241.8	9.52 / 241.8	3.80 / 97.0	17.00 / 431.8

Ordering Information

Carefully review each specification, then complete the Ordering Guide on this page. If a pilot setpoint is not requested, the regulator will be factory set at the approximate midrange. Please complete the specifications worksheet at the bottom of the ordering guide on page 12.

Ordering Guide

Body Size (Select One)
- ☐ 1 in. / DN 25***
- ☐ 2 in. / DN 50***
- ☐ 3 in. / DN 80***
- ☐ 4 in. / DN 100***

Body Material and End Connection Style (Select One)

WCC Steel Body
- ☐ NPT (Available in 1 and 2 in. bodies only)***
- ☐ SWE (Available in 1 and 2 in. bodies only)***
- ☐ CL150 RF***
- ☐ CL300 RF***
- ☐ CL600 RF***
- ☐ PN 16/25/40 RF* (Not available in 4 in. body) _____ specify rating

CF8M Stainless Steel Body
- ☐ NPT (Available in 1 and 2 in. bodies only)***
- ☐ CL150 RF***
- ☐ CL300 RF***
- ☐ CL600 RF***
- ☐ PN 16/25/40 RF* (Not available in 4 in. body) _____ specify rating

Main Valve Diaphragm Material (Select One)
- ☐ 17E68 Nitrile (NBR) (low minimum differential capability) **(standard)***
- ☐ 17E97 Nitrile (NBR) (high erosion resistant)***
- ☐ 17E88 Fluorocarbon (FKM) (high temperature capability)**

Main Valve O-ring Material (Select One)
- ☐ Nitrile (NBR) **(standard)***
- ☐ Fluorocarbon (FKM)**

Travel Indicator (Select One)
- ☐ No **(standard)***
- ☐ Yes***

Inlet Body Tap (Select One)
- ☐ Inlet body tap only **(standard)***
- ☐ Inlet body tap with pre-piped pilot supply***
- ☐ Inlet/outlet body taps only***
- ☐ Inlet/outlet body taps with pre-piped pilot supply and pilot bleed***

Ordering Guide (continued)

Pilot Diaphragm Material (Select One)
- ☐ Neoprene (CR) **(standard)*****
- ☐ Fluorocarbon (FKM)**

Pilot Valve Plug Material (Select One)
- ☐ Nitrile (NBR) **(standard)*****
- ☐ Fluorocarbon (FKM)***

Type MR95H Pilot Outlet Pressure Range (Select One)
- ☐ 15 to 30 psig / 1.0 to 2.1 bar, Yellow***
- ☐ 25 to 75 psig / 1.7 to 5.2 bar, Green***
- ☐ 70 to 150 psig / 4.8 to 10.3 bar, Red***

Main Valve Replacement Parts Kit (Optional)
- ☐ Yes, send one diaphragm cartridge and O-rings kit to match this order.

Pilot Replacement Parts Kit (Optional)
- ☐ Yes, send one replacement kit to match this order.

Regulators Quick Order Guide	
* * *	Readily Available for Shipment
* *	Allow Additional Time for Shipment
*	Special Order, Constructed from Non-Stocked Parts. Consult your local Sales Office for Availability.
Availability of the product being ordered is determined by the component with the longest shipping time for the requested construction.	

Specification Worksheet

Application:

Specific Use _____

Line Size _____

Fluid Type _____

Specific Gravity _____

Temperature _____

Does the Application Require Overpressure Protection?

☐ Yes ☐ No

Pressure:

Maximum Inlet Pressure _____

Minimum Inlet Pressure _____

Differential Pressure _____

Set Pressure _____

Maximum Flow _____

Accuracy Requirements:

Less Than or Equal To:

☐ 5% ☐ 10% ☐ 20% ☐ 40%

Construction Material Requirements (if known):

_____

_____

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