March 2015

Fisher® MR95 and MR98 Series Regulators Transition Management Guide

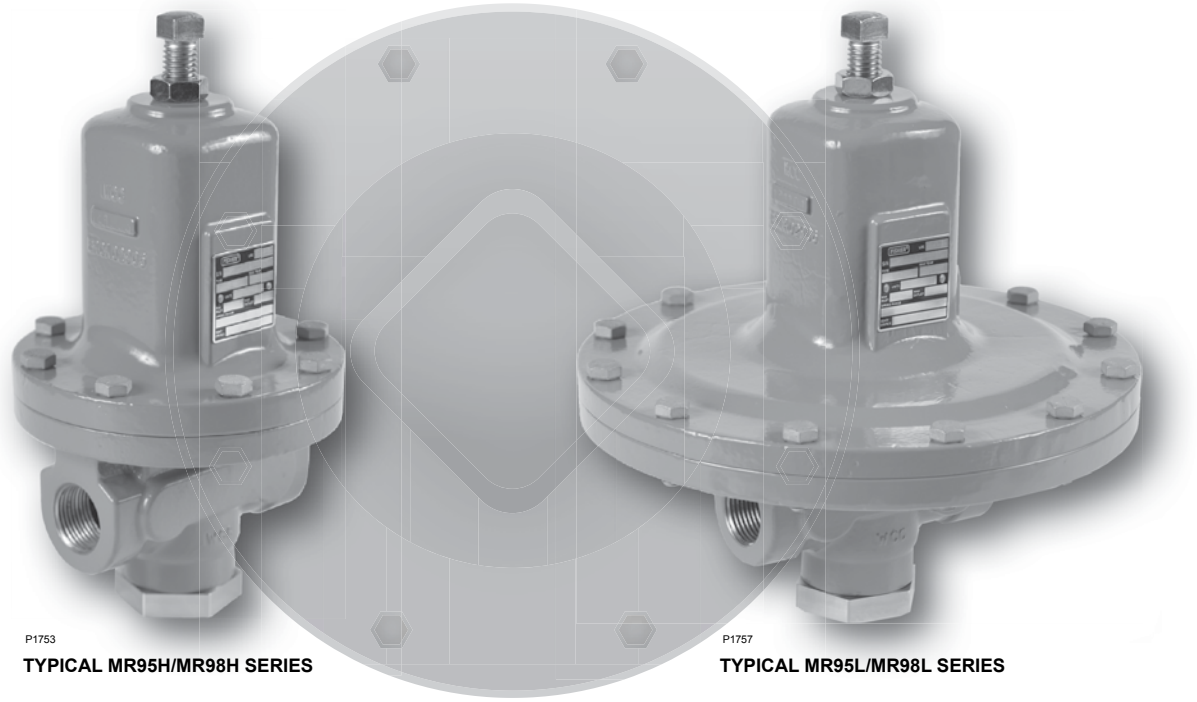

Figure 1. *Typical MR95/MR98 Series Regulator*

Background

The Fisher 95 Series pressure reducing regulators and Fisher 98 Series backpressure regulators, relief and differential relief valves have proven to be reliable, effective solutions in a wide variety of applications. Like the 95/98 Series, the MR95/MR98 Series operates with steam, air, liquids and process gases within a large range of temperatures and pressures. The introduction of the Fisher MR95 and MR98 Series builds on this history of success with improvements in performance and range of application. The MR95 Series features higher inlet pressures, while both the MR95 and MR98 Series offer increased flow capacity, more material options and extra features. These and other enhancements result in a product that is a marked improvement over its predecessors.

Table 1. *New and Legacy Products Description*

NEW PRODUCT	DESCRIPTION	LEGACY PRODUCT
MR95 Series	Pressure Reducing / Differential Pressure Regulators	95 Series
MR98 Series	Backpressure Regulators / Relief and Differential Relief Valves	98 Series

Purpose

The purpose of this document is to ease the transition for the user from the 95/98 Series to the new MR95/MR98 Series. This transition can be most easily understood through the following categories:

1. **Fit** – Is the installation of this product different?
2. **Form** – Are there any physical changes?
3. **Function** – How is the product different in its operation and performance?

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Table 2. *New and Legacy Products Configuration Description*

NEW PRODUCT TYPE	DESCRIPTION	LEGACY PRODUCT TYPE
MR95 Series: Pressure Reducing Regulator		
MR95L	Direct-operated low pressure regulator for 2 to 30 psig / 0.14 to 2.1 bar outlet pressures	95L
MR95H	Direct-operated high pressure regulator for 5 to 150 psig / 0.34 to 10.3 bar outlet pressures	95H
MR95LD	Pressure-loaded low pressure differential regulator for 2 to 30 psi / 0.14 to 2.1 bar differential pressures	95LD
MR95HD	Pressure-loaded high pressure differential regulator for 5 to 150 psi / 0.34 to 10.3 bar differential pressures	95HD
MR95HP	Direct-operated high pressure regulator for 15 to 400 psig / 1.0 to 27.6 bar outlet pressures (soft-seated)	95HP
MR95HT	Pressure-operated high pressure/high temperature regulator for 15 to 300 psig / 1.0 to 20.7 bar outlet pressures (metal seat) and up to 650°F / 343°C	95HT
MR98 Series: Backpressure Regulator/Relief Valve		
MR98L	Direct-operated low pressure backpressure regulator/relief valve with 2 to 38 psig / 0.14 to 2.6 bar set pressure range	98L
MR98H	Direct-operated high pressure backpressure regulator/relief valve with 5 to 200 psig / 0.34 to 13.8 bar set pressure range	98H
MR98LD	Pressure-loaded low pressure differential pressure relief valve with 2 to 38 psi / 0.14 to 2.6 bar set pressure range	98LD
MR98HD	Pressure-loaded high pressure differential pressure relief valve with 5 to 200 psi / 0.34 to 13.8 bar set pressure range	98HD
MR98HH	Direct-operated high pressure backpressure regulator/relief valve with 150 to 375 psig / 10.3 to 25.9 bar set pressure range	98HH
MR98HHD	Pressure-operated high pressure backpressure regulator/relief valve with 150 to 375 psi / 10.3 to 25.9 bar differential set pressure range	98HHD

Table 3. *Physical Design Comparison*

CATEGORY	MR95 SERIES	95 SERIES
Body Size	1/4, 1/2, 3/4, 1, 1-1/2 and 2 in. / DN 15, 20, 25, 40 and 50	1/4, 1/2, 3/4, 1, 1-1/2 ,and 2 in. / DN 15, 20, 25, 40 and 50
End Connection	NPT, SWE, CL150 RF, CL300 RF, **CL600 RF*** and PN 16/25/40 RF	NPT, SWE, CL150 RF, CL300 RF and PN 16/25/40 RF
Face-to-Face Dimension (Flanged Bodies)	14 in. / 356 mm	14 in. / 356 mm
Pressure Registration	Internal or **External***	Internal
Vent Connection	1/4 NPT or Drilled Untapped Hole	1/4 NPT or Drilled Untapped Hole
CATEGORY	**MR98 SERIES**	**98 SERIES**
Body Size	1/4, 1/2, 3/4, 1, 1-1/2 and 2 in. / DN 15, 20, 25, 40 and 50	1/4, 1/2, 3/4, 1, 1-1/2 and 2 in. / DN 15, 20, 25, 40 and 50
End Connection	NPT, SWE, CL150 RF, CL300 RF and PN 16/25/40 RF	NPT, SWE, CL150 RF, CL300 RF and PN 16/25/40 RF
Face-to-Face Dimension (Flanged Bodies)	14 in. / 356 mm	14 in. / 356 mm
Pressure Registration	Internal or **External***	Internal
Vent Connection	1/4 NPT or Drilled Untapped Hole	1/4 NPT or Drilled Untapped Hole
*New product offer		

The following is a discussion covering each of these three elements.

Fit

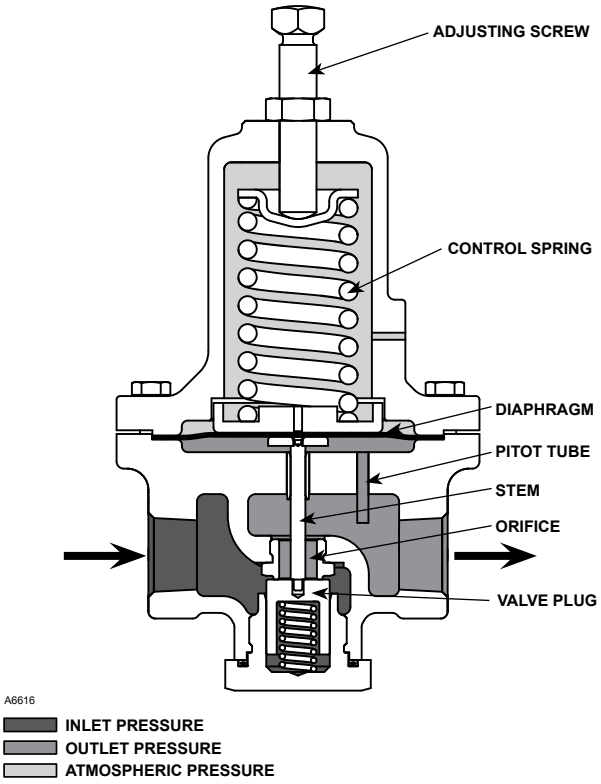
See Table 3. The new and legacy products have the same body sizes and end connections, with the addition of the CL600 RF end connection option for the MR95 Series. Face-to-face dimensions of flanged connections are the same. As a new feature, external pressure sensing is introduced for the MR95/MR98 Series products with the addition of a control line connection tap.

Form

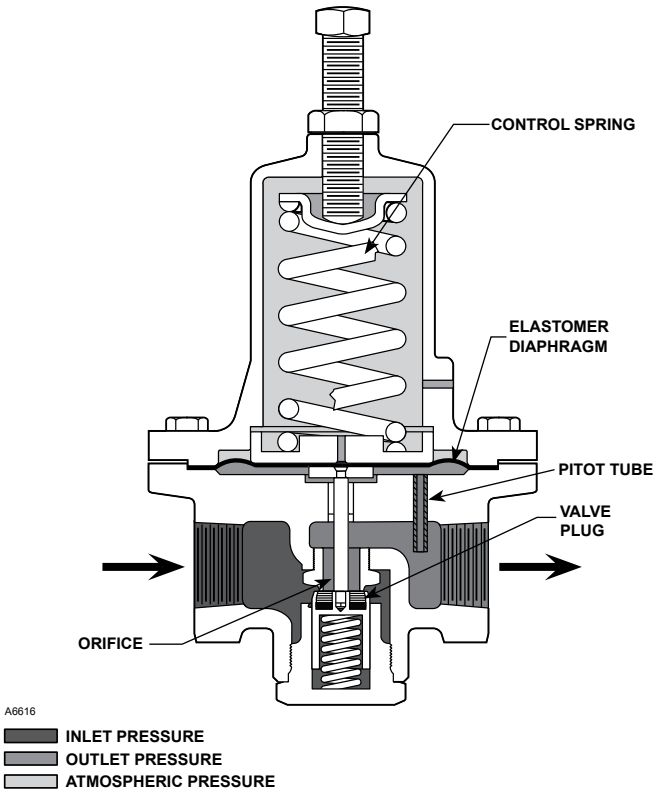
See Tables 4 and 5. The new MR95/MR98 Series offers the same configuration options as the legacy series. New body and trim materials are available, including more standard diaphragm material options. A redesigned spring barrel introduces the unique diamond shape, distinguishing the Fisher® brand. While the diaphragms and some springs remain common between the new and legacy series, other parts are not interchangeable. See Table 9 for the list of interchangeable parts. The MR95/MR98 Series offers optional gauges on the inlet and outlet lines to allow for easy monitoring of regulator function.

Function

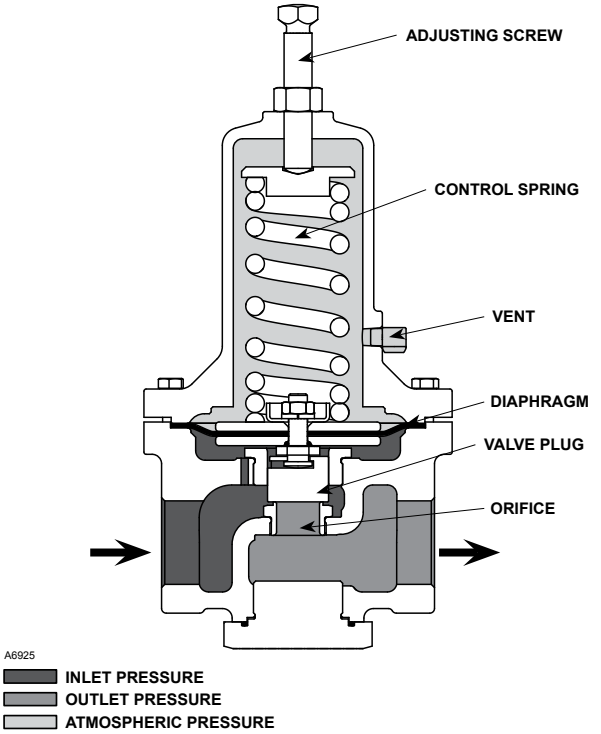
See Tables 4, 5 and 8. The MR95/MR98 Series features improvements that allow them to function effectively in a larger range of applications. These improvements include an option for steam applications, which includes 302 Stainless steel diaphragms and graphite gaskets, a redesigned bottom plug to reduce the chance of leakage and a more robust diaphragm clamping design. Options for inlet and outlet gauges and external pressure registration are available. These optional features combine with increased flow capacities to deliver greater utility. The orifice sizes of the new product are slightly larger than the legacy product resulting in an increase in flow capacity. The new external pressure registration option for the MR95/MR98 Series allows for more stable regulation.



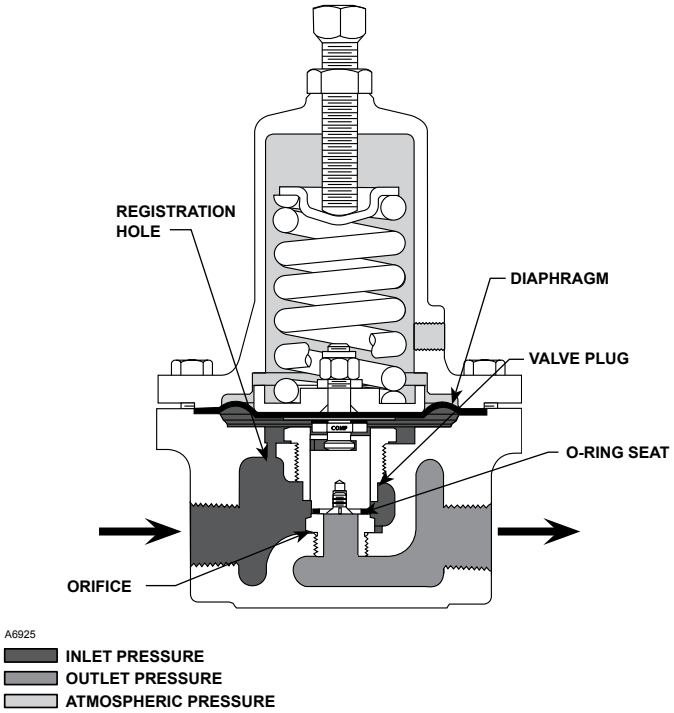
TYPICAL TYPE MR95H WITH METAL SEAT AND INTERNAL PRESSURE REGISTRATION



TYPICAL TYPE 95H WITH ELASTOMERIC SEAT AND INTERNAL PRESSURE REGISTRATION



TYPICAL TYPE MR98H WITH METAL SEAT AND INTERNAL PRESSURE REGISTRATION



TYPICAL TYPE 98H WITH ELASTOMERIC SEAT AND INTERNAL PRESSURE REGISTRATION

Figure 2. *Typical MR95/MR98 and 95/98 Series Operational Schematics*

***Table 4**. Detailed Comparison of MR95 Series (New Product) and 95 Series (Legacy Product) Pressure Reducing Regulators*

CATEGORY	MR95 SERIES (NEW PRODUCT)			95 SERIES (LEGACY PRODUCT)	
End Connection Style	NPT SWE CL150 RF CL300 RF PN 16/25/40 RF			NPT SWE CL150 RF CL300 RF PN 16/25/40 RF	
	CL600 RF			- - - -	
Body Material	Gray cast iron, WCC Steel, CF8M Stainless steel, Monel® and Hastelloy® C			Gray cast iron, WCC/WCB Steel, CF8M Stainless steel, Monel® and Hastelloy® C	
	Aluminum-Bronze, LCC Steel and CF3M Stainless steel			- - - -	
Body and Orifice Size	Body Size	Orifice Size		Orifice Size	
	1/4 in.	0.284 in.	7.2 mm	0.25 in.	6.4 mm
	1/2 in.	0.416 in.	11 mm	0.375 in.	9.5 mm
	3/4 and 1 in.	0.631 in.	16 mm	0.5625 in.	14 mm
	1-1/2 and 2 in.	1.142 in.	29 mm	1.0625 in.	27 mm
Control Pressure Range	2 to 6 psig / 0.14 to 0.41 bar 5 to 15 psig / 0.34 to 1.0 bar 5 to 80 psig / 0.34 to 5.5 bar 13 to 30 psig / 0.90 to 2.1 bar 15 to 30 psig / 1.0 to 2.1 bar 15 to 100 psig / 1.0 to 6.9 bar 25 to 75 psig / 1.7 to 5.2 bar 60 to 120 psig / 4.1 to 8.3 bar 60 to 260 psig / 4.1 to 17.9 bar 60 to 300 psig / 4.1 to 20.7 bar 70 to 150 psig / 4.8 to 10.3 bar 80 to 300 psig / 5.5 to 20.7 bar 80 to 400 psig / 5.5 to 27.6 bar 100 to 140 psig / 6.9 to 9.7 bar 120 to 150 psig / 8.3 to 10.3 bar			2 to 6 psig / 0.14 to 0.41 bar 5 to 15 psig / 0.34 to 1.0 bar 5 to 80 psig / 0.34 to 5.5 bar 13 to 30 psig / 0.90 to 2.1 bar 15 to 30 psig / 1.0 to 2.1 bar 15 to 100 psig / 1.0 to 6.9 bar 25 to 75 psig / 1.7 to 5.2 bar 60 to 120 psig / 4.1 to 8.3 bar 60 to 260 psig / 4.1 to 17.9 bar 60 to 300 psig / 4.1 to 20.7 bar 70 to 150 psig / 4.8 to 10.3 bar 80 to 300 psig / 5.5 to 20.7 bar 80 to 400 psig / 5.5 to 27.6 bar 100 to 140 psig / 6.9 to 9.7 bar 120 to 150 psig / 8.3 to 10.3 bar	
Temperature Range	-40 to 650°F / -40 to 343°C			-40 to 650°F / -40 to 343°C	
Diaphragm Material	Neoprene (CR), 302 Stainless steel, Fluorocarbon (FKM), Ethylenepropylene (EPDM), Monel® and Hastelloy® C			Neoprene (CR), 302 Stainless steel, Fluorocarbon (FKM), Ethylenepropylene (EPDM), Monel® and Hastelloy® C	
	Polytetrafluoroethylene (PTFE) diaphragm protector available			- - - -	
Disk/Seat Material	**Elastomer Seat:** Nitrile (NBR), Fluorocarbon (FKM) and PTFE **Metal Seat:** 416 Stainless steel, 316 Stainless steel, Monel® and Hastelloy® C			**Elastomer Seat:** Nitrile (NBR), Fluorocarbon (FKM) and PTFE **Metal Seat:** 416 Stainless steel, 316 Stainless steel, Monel® and Hastelloy® C	
	Elastomer Seat: Ethylenepropylene (EPDM) and Perfluoroelastomer (FFKM) **Metal Seat:** Alloy 6			**Elastomer Seat:** Neoprene (CR) - - - - - - - -	
NACE Construction	Available (NACE MR0175-2002 and MR0103)			Available (NACE MR0175-2002 and MR0103)	
Approximate Weight	Body Size	**MR95L Series**		**95L Series**	
		1/4 in.	7 lbs	3.2 kg	6 lbs	2.7 kg
		1/2 in.	15 lbs	6.8 kg	12 lbs	5.4 kg
		3/4 and 1 in.	35 lbs	16 kg	32 lbs	15 kg
		MR95H Series			**95H Series**	
		1/4 in.	5 lbs	2.3 kg	4 lbs	1.8 kg
		1/2 in.	10 lbs	4.5 kg	8 lbs	3.6 kg
		3/4 and 1 in.	22 lbs	10 kg	20 lbs	9.1 kg
		1-1/2 and 2 in.	55 lbs	25 kg	73 lbs	33 kg
Maximum Published Flow Capacity	510,000 SCFH / 13,668 Nm^3/h			280,000 SCFH / 7504 Nm^3/h	
Dimension	See Figures 3 and 4 and Table 6			See Figures 3 and 4 and Table 6	
Adjusting Screw	Square Head Adjustment, Stainless steel Square Head Adjustment, Sealed Square Head Adjustment, Handwheel Adjustment and Tee-handle			Standard Adjusting Screw, Handwheel and Tee-handle	
Note: Shaded cells indicate differences between the new and legacy product.					

Monel® is a registered trademark of Special Metals Corporation.
Hastelloy® C is a registered trademark of Haynes International, Inc.

***Table 5**. Detailed Comparison of MR98 Series (New Product) and 98 Series (Legacy Product) Backpressure Regulators, Relief and Differential Relief Valves*

CATEGORY	MR98 SERIES (NEW PRODUCT)			98 SERIES (LEGACY PRODUCT)	
End Connection Style	NPT SWE CL150 RF CL300 RF PN 16/25/40 RF			NPT SWE CL150 RF CL300 RF PN 16/25/40 RF	
Body Material	Gray cast iron, WCC Steel, CF8M Stainless steel, Monel® and Hastelloy® C			Gray cast iron, WCC Steel, CF8M Stainless steel, Monel® and Hastelloy® C	
	LCC Steel, CF3M Stainless steel and Aluminum-bronze			- - - -	
Body and Orifice Size	Body Size	Orifice Size		Orifice Size	
	1/4 in.	0.284 in.	7.2 mm	0.25 in.	6.4 mm
	1/2 in.	0.416 in.	11 mm	0.375 in.	9.5 mm
	3/4 and 1 in.	0.631 in.	16 mm	0.5625 in.	14 mm
	1-1/2 and 2 in.	1.142 in.	29 mm	1.0625 in.	27 mm
Control Pressure Range	2 to 7 psig / 0.14 to 0.48 bar 5 to 35 psig / 0.34 to 2.4 bar 6 to 14 psig / 0.41 to 0.97 bar 12 to 25 psig / 0.83 to 1.7 bar 15 to 35 psig / 1.0 to 2.4 bar 20 to 38 psig / 1.4 to 2.6 bar 20 to 65 psig / 1.4 to 4.5 bar 25 to 75 psig / 1.7 to 5.2 bar 50 to 100 psig / 3.4 to 6.9 bar 70 to 140 psig / 4.8 to 9.7 bar 130 to 200 psig / 9.0 to 13.8 bar 150 to 375 psig / 10.3 to 25.9 bar			2 to 7 psig / 0.14 to 0.48 bar 5 to 35 psig / 0.34 to 2.4 bar 6 to 14 psig / 0.41 to 0.97 bar 12 to 25 psig / 0.83 to 1.7 bar 15 to 35 psig / 1.0 to 2.4 bar 20 to 38 psig / 1.4 to 2.6 bar 20 to 65 psig / 1.4 to 4.5 bar 25 to 75 psig / 1.7 to 5.2 bar 50 to 100 psig / 3.4 to 6.9 bar 70 to 140 psig / 4.8 to 9.7 bar 130 to 200 psig / 9.0 to 13.8 bar 150 to 375 psig / 10.3 to 25.9 bar	
	75 to 170 psig / 5.2 to 11.7 bar			80 to 170 psig / 5.5 to 11.7 bar	
Temperature Range	-40 to 450°F / -40 to 232°C			-40 to 450°F / -40 to 232°C	
Diaphragm Material	Neoprene (CR), 302 Stainless steel, Fluorocarbon (FKM), Ethylenepropylene (EPDM), Monel® and Hastelloy® C			Neoprene (CR), 302 Stainless steel, Fluorocarbon (FKM), Ethylenepropylene (EPDM), Monel® and Hastelloy® C	
	PTFE diaphragm protector available			- - - -	
Disk/Seat Material	**Elastomer Seat:** Nitrile (NBR) and Fluorocarbon (FKM) **Metal Seat:** 416 Stainless steel, 316 Stainless steel, Monel® and Hastelloy® C			**Elastomer Seat:** Nitrile (NBR) and Fluorocarbon (FKM) **Metal Seat:** 416 Stainless steel, 316 Stainless steel, Monel® and Hastelloy® C	
	Elastomer Seat: Ethylenepropylene (EPDM) and Perfluroelastomer (FFKM) **Metal Seat:** Alloy 6			- - - -	
NACE Construction	Available (NACE MR0175-2002 and MR0103)			Available (NACE MR0175-2002 and MR0103)	
Approximate Weight	Body Size	**MR98L Series**		**98L Series**	
		1/4 in.	7 lbs	3.2 kg	6 lbs	2.7 kg
		1/2 in.	15 lbs	6.8 kg	12 lbs	5.4 kg
		3/4 and 1 in.	35 lbs	16 kg	32 lbs	14.5 kg
		MR98H Series			**98H Series**	
		1/4 in.	5 lbs	2.3 kg	4 lbs	1.8 kg
		1/2 in.	10 lbs	4.5 kg	8 lbs	3.6 kg
		3/4 and 1 in.	22 lbs	10 kg	20 lbs	9.1 kg
		1-1/2 and 2 in.	55 lbs	25 kg	73 lbs	33 kg
Maximum Published Flow Capacity	206,000 SCFH / 5521 Nm^3/h			157,000 SCFH / 4208 Nm^3/h	
Dimension	See Figures 3 and 5 and Table 7			See Figures 3 and 5 and Table 7	
Adjusting Screw	Square Head Adjustment, Stainless steel Square Head Adjustment, Sealed Square Head Adjustment, Handwheel Adjustment and Tee-handle			Standard Adjusting Screw and Handwheel	

Note: Shaded cells indicate differences between the new and legacy product.

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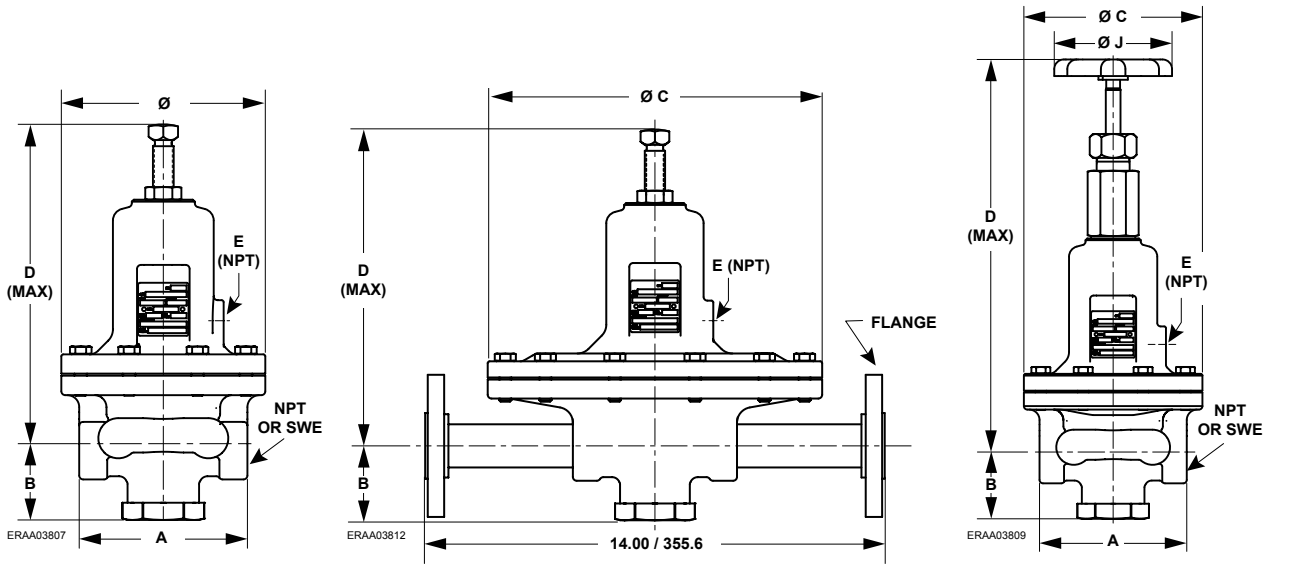
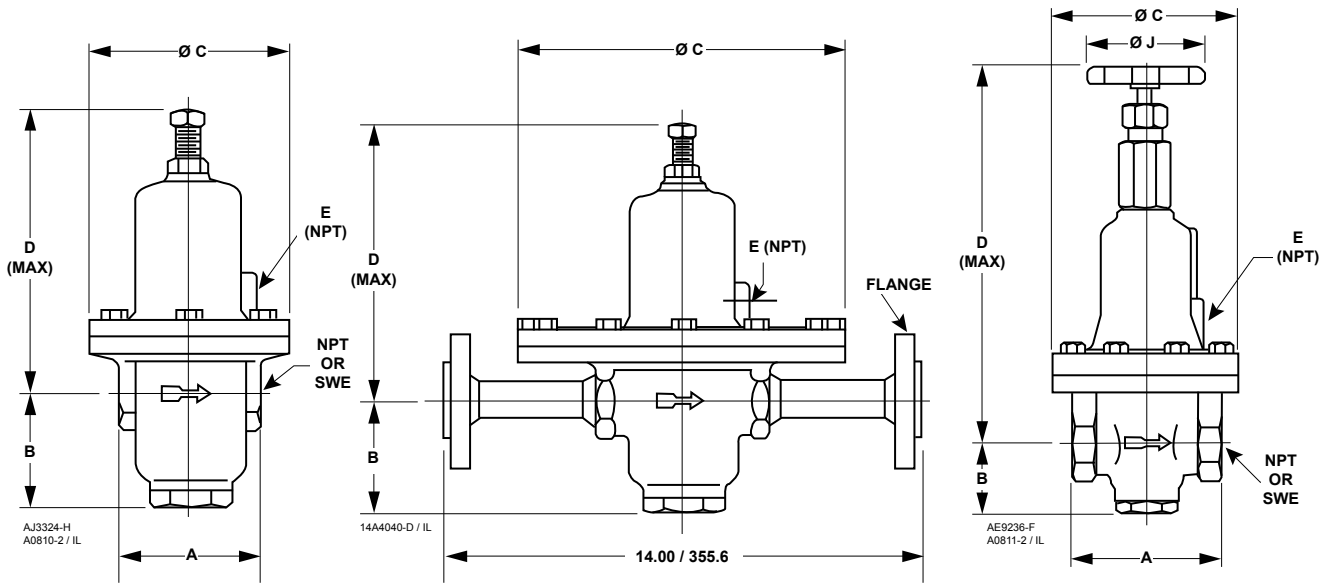


TYPE MR95H/MR98H (DIMENSIONS ALSO APPLY TO TYPES MR95L/MR98L, MR95HT, MR95HP AND MR98HH)

TYPE MR95L/MR98L FLANGED BODIES AVAILABLE IN 1/2 TO 2-IN. / DN 15 TO 50 SIZES (DIMENSIONS ALSO APPLY TO TYPES MR95L/MR98L, MR95HT AND MR95HP)

TYPE MR95HD/MR98HD (DIMENSIONS ALSO APPLY TO TYPES MR95LD/MR98LD AND MR98HHD)

Figure 3. *Typical MR95 and MR98 Series Dimensions*



TYPE 95H/98H REGULATOR (DIMENSIONS ALSO APPLY TO TYPES 95L/98L, 95HT, 95HP AND 98HH)

TYPE 95L/98L FLANGED BODIES AVAILABLE IN NPS 1/2 THROUGH 2 / DN 15 THROUGH 50 BODY SIZES

TYPE 95HD/98HD REGULATOR (DIMENSIONS ALSO APPLY TO TYPES 95LD/98LD AND 98HHD)

IN. / mm

Figure 4. *Typical 95 and 98 Series Dimensions*

Table 6. *Typical MR95 and 95 Series Dimensions (see Figures 3 and 4)*

SERIES	BODY SIZE, IN. / DN	DIMENSION, IN. / mm										
		A		B	C		D (Max)				E	J
							TYPE					
		Gray Cast Iron	Steel and Stainless Steel		MR95L SERIES	MR95H SERIES	MR95L	MR95LD	MR95H, MR95HT and MR95HP	MR95HD		
MR95	1/4 NPT	2.8 / 70	2.8 / 70	2.0 / 52	5.1 / 129	3.2 / 81	6.2 / 157	10.5 / 266	6.4 / 162	10.4 / 264	1/4 NPT	4.0 / 102
	1/2 / 15	3.9 / 99	4.0 / 102	1.9 / 47	7.0 / 178	4.3 / 108	7.8 / 199	11.6 / 295	8.3 / 211	11.5 / 293	1/4 NPT	4.0 / 102; 3.5 / 88.9[1]
	3/4 / 20	4.9 / 124	5.0 / 127	2.3 / 58	10.2 / 259	6.1 / 154	9.9 / 250	13.9 / 353	10.2 / 259	13.8 / 349	1/4 NPT	4.0 / 102
	1 / 25	4.9 / 124	5.0 / 127	2.3 / 58	10.2 / 259	6.1 / 154	9.9 / 250	13.9 / 353	10.2 / 259	13.8 / 349	1/4 NPT	4.0 / 102
	1-1/2 / 40	7.3 / 184	7.4 / 187	3.1 / 78	- - - -	8.2 / 208	- - - -	- - - -	14.8 / 375	18.6 / 473	1/4 NPT	8.0 / 203
	2 / 50	7.3 / 184	7.4 / 187	3.1 / 78	- - - -	8.2 / 208	- - - -	- - - -	14.8 / 375	18.6 / 473	1/4 NPT	8.0 / 203
SERIES	**BODY SIZE, IN. / DN**	**DIMENSION, IN. / mm**										
		A		**B**	**C**		**D (Max)**				**E**	**J**
							TYPE					
		Gray Cast Iron	**Steel and Stainless Steel**		**95L SERIES**	**95H SERIES**	**95L**	**95LD**	**95H, 95HT and 95HP**	**95HD**		
95	1/4 NPT	2.3 / 57	2.8 / 70	1.8 / 46	5.1 / 129	3.2 / 81	4.6 / 117	7.9 / 202	4.5 / 114	7.9 / 200	1/8 NPT	2.8 / 70
	1/2 / 15	3.9 / 99	4.0 / 102	1.8 / 46	7.0 / 178	4.3 / 108	6.1 / 155	10.1 / 257	6.0 / 152	10.0 / 254	1/4 NPT	4.0 / 102
	3/4 / 20	4.9 / 124	5.0 / 127	2.3 / 57	10.2 / 259	6.1 / 154	9.1 / 232	15.3 / 389	9.1 / 232	15.1 / 384	1/4 NPT	4.0 / 102
	1 / 25	4.9 / 124	5.0 / 127	2.3 / 57	10.2 / 259	6.1 / 154	9.1 / 232	15.3 / 389	9.1 / 232	15.1 / 384	1/4 NPT	4.0 / 102
	1-1/2 / 40	7.3 / 184	7.4 / 187	2.8 / 71	- - - -	8.2 / 208	- - - -	- - - -	14.7 / 373	18.3 / 465	1/4 NPT	6.8 / 171
	2 / 50	7.3 / 184	7.4 / 187	2.8 / 71	- - - -	8.2 / 208	- - - -	- - - -	14.7 / 373	18.3 / 465	1/4 NPT	6.8 / 171

1. 1/2 in. / DN 15 Flanged Body.
Note: Shaded cells indicate differences between the new and legacy product.

Table 7. *Typical MR98 and 98 Series Dimensions (see Figures 3 and 4)*

SERIES	BODY SIZE, IN. / DN	DIMENSION, IN. / mm												
		A		B	C		D (Max)						E	J
							TYPE							
		Gray Cast Iron	Steel and Stainless Steel		MR98L SERIES	MR98H SERIES	MR98L	MR98LD	MR98H	MR98HH	MR98HD	MR98HHD		
MR98	1/4 NPT	2.8 / 70	2.8 / 70	2.0 / 52	5.1 / 129	3.2 / 81	6.2 / 157	10.5 / 66	6.4 / 162	8.6 / 219	10.4 / 64	13.7 / 349	1/4 NPT	4.0 / 102
	1/2 / 15	3.9 / 99	4.0 / 102	1.9 / 47	7.0 / 178	4.3 / 108	7.8 / 199	11.6 / 295	8.3 / 211	10.8 / 275	11.5 / 293	15.1 / 383	1/4 NPT	4.0 / 102; 3.5 / 88.9[1]
	3/4 / 20	4.9 / 124	5.0 / 127	2.3 / 58	10.2 / 259	6.1 / 154	9.9 / 250	13.9 / 353	10.2 / 259	12.1 / 307	13.8 / 349	17.4 / 441	1/4 NPT	4.0 / 102
	1 / 25	4.9 / 124	5.0 / 127	2.3 / 58	10.2 / 259	6.1 / 154	9.9 / 250	13.9 / 353	10.2 / 259	12.1 / 307	13.8 / 349	17.4 / 441	1/4 NPT	4.0 / 102
	1-1/2 / 40	7.3 / 184	7.4 / 187	3.1 / 78	- - - -	8.2 / 208	- - - -	- - - -	14.8 / 375	- - - -	18.6 / 473	- - - -	1/4 NPT	8.0 / 203[2]; 8.76 / 223[3]
	2 / 50	7.3 / 184	7.4 / 187	3.1 / 78	- - - -	8.2 / 208	- - - -	- - - -	14.8 / 375	- - - -	18.6 / 473	- - - -	1/4 NPT	8.0 / 203[2]; 8.76 / 223[3]
SERIES	**BODY SIZE, IN. / DN**	**DIMENSION, IN. / mm**												
		A		**B**	**C**		**D (Max)**						**E**	**J**
							TYPE							
					98L SERIES	**98H SERIES**	**98L**	**98LD**	**98H**	**98HH**	**98HD**			
98	1/4 NPT	3.2 / 81		1.0 / 25	5.1 / 128	3.2 / 81	5.5 / 140	8.4 / 213	5.5 / 140	7.8 / 197	8.3 / 211		1/8 NPT	2.8 / 70
	1/2 / 15	4.3 / 108		0.9 / 22	7.0 / 178	4.3 / 108	7.3 / 184	10.6 / 270	7.2 / 183	10.0 / 254	10.5 / 267		1/4 NPT	4.0 / 102
	3/4 / 20	5.0 / 127		1.3 / 32	10.2 / 259	6.1 / 154	9.8 / 249	12.5 / 317	9.7 / 246	12.4 / 314	12.3 / 313		1/4 NPT	4.0 / 102
	1 / 25	5.0 / 127		1.3 / 32	10.2 / 259	6.1 / 154	9.8 / 249	12.5 / 317	9.7 / 246	12.4 / 314	12.3 / 313		1/4 NPT	4.0 / 102
	1-1/2 / 40	6.6 / 168		1.9 / 48	- - - -	8.2 / 208	- - - -	- - - -	14.1 / 359	- - - -	18.1 / 459		1/4 NPT	6.8 / 171
	2 / 50	6.6 / 168		1.9 / 48	- - - -	8.2 / 208	- - - -	- - - -	14.1 / 359	- - - -	18.1 / 459		1/4 NPT	6.8 / 171

1. 1/2 in. / DN 15 Flanged Body.
2. Type MR98HD
3. Type MR98HHD
Note: Shaded cells indicate differences between the new and legacy product.

Table 8. *Pressure and Temperature Specifications*

CATEGORY	MR95 SERIES	95 SERIES
Maximum Inlet Pressure	**1000 psig / 68.9 bar***	600 psig / 41.4 bar
Maximum Outlet Pressure	600 psig / 41.4 bar	600 psig / 41.4 bar
Control Pressure Range	2 to 400 psig / 0.14 to 27.6 bar	2 to 400 psig / 0.14 to 27.6 bar
Temperature Range	-40 to 650ºF / -40 to 343ºC	-40 to 650ºF / -40 to 343ºC
Sample Flow Capacity Comparison(1)	26,000 SCFH / 687 Nm^3/h	24,000 SCFH / 643 Nm^3/h
Shutoff Classification per ANSI/FCI 70-3-2004:	**Metal Seats:** Class IV **PTFE:** Class IV **Elastomer Seats:** Class VI or better	**Metal Seats:** Class IV **PTFE:** Class IV **Elastomer Seats:** Class VI or better

* Improved feature.
1. Air at 30 psig / 2.1 bar outlet pressure, 100 psig / 6.9 bar inlet pressure, 10% droop. Higher capacities are available; see separate Bulletin for complete capacity information.

CATEGORY	MR98 SERIES	98 SERIES
Maximum Inlet Pressure	400 psig / 27.6 bar	400 psig / 27.6 bar
Control Pressure Range	2 to 375 psig / 0.14 to 25.9 bar	2 to 375 psig / 0.14 to 25.9 bar
Temperature Range	-40 to 450ºF / -40 to 232ºC	-40 to 450ºF / -40 to 232ºC
Sample Flow Capacity Comparison(1)	35,000 SCFH / 950 Nm^3/h	17,000 SCFH / 456 Nm^3/h
Shutoff Classification per ANSI/FCI 70-3-2004:	**Metal Seats:** Class IV **PTFE:** Class IV **Elastomer Seats:** Class VI or better	**Metal Seats:** Class IV **PTFE:** Class IV **Elastomer Seats:** Class VI

1. Air at 35 psig / 2.4 bar relief setting, 10 psig / 0.69 bar pressure buildup over relief setting. Higher capacities are available; see separate Bulletin for complete capacity information.

Table 9. *Interchangeable Parts*

PARTS LIST	COMMON BETWEEN MR95/MR98 VS.95/98 SERIES?
Body	No
Spring Case	No
Orifice	No
Spring	Yes(1)
Lower Spring Seat	Yes
Upper Spring Seat	Yes(1)
Diaphragm Head	Yes(1)
Diaphragm Protector	Yes
Handwheel	Yes(1)
Pusher Post	Yes(1)(2)
O-ring	No
Stuff Box Gasket	Yes(3)
Sealing Washer	Yes

1. Applicable only to certain body sizes/spring ranges. See separate Instruction Manual for complete list.
2. Applicable for MR98/98 Series only.
3. Applicable for MR95/95 Series only.

Conclusion

The introduction of the MR95/MR98 Series marks the improvement of pressure reducing, backpressure regulator and relief valve technology established by the 95/98 Series, while maintaining their standard of quality and durability. The increased flow and pressure capabilities, combined with new material options, make the MR95/MR98 Series more versatile than their predecessors, while still allowing easy in-line maintenance. Please refer to the respective product bulletins and instruction manuals for complete features.

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The distinctive diamond shape cast into every spring case uniquely identifies the regulator as part of the Fisher® brand and assures you of the highest-quality engineering, durability, performance, and support.

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