

MR95 Series Industrial Pressure Regulators



PRESSURE REDUCING REGULATORS

Figure 1. Typical MR95 Series Industrial Pressure Regulators

MR95 Series

Specifications

This section lists the specifications for the MR95 Series Regulators. Factory specification such as type, maximum inlet pressure, maximum temperature, maximum outlet pressure, spring range, orifice size and seat material are stamped on the nameplate fastened on the regulator at the factory.

Available Constructions

Type MR95L: Pressure reducing regulator for outlet pressures from 2 to 30 psig / 0.14 to 2.1 bar. 1/4 in. to 1 in. body sizes only.

Type MR95H: Pressure reducing regulator for outlet pressures from 5 to 150 psig / 0.34 to 10.3 bar.

Type MR95HP: Pressure reducing regulator for outlet pressures from 15 to 400 psig / 1.0 to 27.6 bar (soft-seated).

Type MR95HT: High temperature pressure reducing regulator for outlet pressures from 15 to 300 psig / 1.0 to 20.7 bar (metal seat) and up to 650°F / 343°C.

Type MR95LD: Pressure reducing differential regulator for differential set pressures from 2 to 30 psi / 0.14 to 2.1 bar with maximum inlet pressure up to 300 psi / 20.7 bar and maximum outlet pressure up to 125 psi / 8.6 bar. 1/4 in. to 1 in. body sizes only.

Type MR95HD: Pressure reducing differential regulator for differential set pressures from 5 to 150 psi / 0.34 to 10.3 bar with maximum inlet/outlet pressures up to 300 psig / 20.7 bar.

Type MR95HDP: Pressure reducing differential regulator for differential set pressures from 5 to 150 psi / 0.34 to 10.3 bar with maximum inlet/outlet pressures up to 600 psi / 41.4 bar.

Body and Orifice Sizes

1/4 NPT body:

0.284 in. / 7.22 mm orifice

1/2 in. / DN 15 body:

0.416 in. / 10.56 mm orifice

3/4 and 1 in. / DN 20 and 25 bodies:

0.631 in. / 16.02 mm orifice

1-1/2 and 2 in. / DN 40 and 50 bodies

(not available for Types MR95L and MR95LD):

1.142 in. / 29 mm orifice

End Connection Styles

See Tables 1 and 2

Outlet or Differential Pressure Ranges⁽¹⁾

See Table 3

Maximum Cold Working Pressures of Body Size and Material⁽¹⁾

See Table 4

Maximum Temperature Ranges of Diaphragm and Seat Materials⁽¹⁾⁽²⁾⁽³⁾

See Table 5

Maximum Temperature Ranges of Body Materials⁽¹⁾⁽²⁾⁽³⁾

See Table 5

Spring Case Construction

Drilled Untapped Hole:

Standard for Types MR95L, MR95H, MR95HP and MR95HT

1/4 NPT Vent:

Standard for Types MR95LD, MR95HD and MR95HDP

Optional for Types MR95L, MR95H, MR95HP and MR95HT

Pressure Setting Adjustment

Adjusting screw:

Standard for Types MR95L, MR95H, MR95HP and MR95HT only

Handwheel:

Standard for Types MR95LD, MR95HD and MR95HDP

Optional for 1/2 in. / DN 15 body size of Types MR95L, MR95H, MR95HP and MR95HT

Tea handle:

Optional for other body sizes (except 1/2 in. / DN 15) of Types MR95L, MR95H, MR95HP and MR95HT

Pressure Registration

Internal or External

Shutoff Classification Per ANSI/FCI 70-3-2004

Metal Seats: Class IV

Elastomer Seats: Class VI or better

PTFE: Class IV

Flow and Sizing Coefficients

See Table 6

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation for this regulator should not be exceeded.

2. Pressures and/or the body end connection may decrease these maximum temperatures.

3. Special low temperature constructions for process temperatures between -76 to 104°F / 40 to -60°C are available by request. The low temperature construction passed Emerson laboratory testing for lockup and external leakage down to -76°F / -60°C.

- continued -

Specifications (continued)

Relief Sizing Coefficients for MR95 Series Regulators with Reduced Flow Orifices

See Table 7

Trim Materials

See Table 8

Main Valve Construction Materials

See Table 9

Product Dimension

See Figure 3

Typical Regulating Capacities

Air: See Tables 11, 12, 13, 14 and 15

Steam: See Tables 16, 17, 18, 19 and 20

Water: See Tables 21, 22, 23, 24 and 25

Regulating C_v Values

See Tables 26, 27, 28, 29 and 30

Approximate Weights

MR95H Series

1/4 NPT body: 5 lbs / 2.3 kg

1/2 in. / DN 15 body: 10 lbs / 4.5 kg

3/4 and 1 in. / DN 20 and 25 bodies:

22 lbs / 10 kg

1-1/2 and 2 in. / DN 40 and 50 bodies:

55 lbs / 25 kg

MR95L Series

1/4 NPT body: 7 lbs / 3.2 kg

1/2 in. / DN 15 body: 15 lbs / 6.8 kg

3/4 and 1 in. / DN 20 and 25 bodies:

35 lbs / 16 kg

Introduction

The MR95 Series Regulators are compact, large-capacity, direct-operated pressure regulators (see Figure 1). The units are available in 1/4 NPT through 2 in. / DN 50 sizes and are offered in several different end connection configurations. They are designed to handle pressures up to 1000 psig / 68.9 bar and temperatures up to 650°F / 343°C.

These products can help solve the toughest pressure control applications. Typical applications include superheated steam, steam injection, steam tracing, nitrogen purging, boiler feed water, process chemicals, cooling water, test fixtures, wash tanks, sterilizers/autoclaves, fuel lines, pneumatic supply and many others.

Features

- **Handwheels/Tee Handles**—Allow easy pressure setting changes and are standard on Types MR95LD, MR95HD and MR95HDP and optional on the Types MR95L, MR95H, MR95HP and MR95HT regulators.
- **Versatile**—Can be used with all process media including air, steam, gas, water, liquids (oils and process chemicals) and oxygen.
- **Tight Shutoff With Elastomer Seats**—Metal seats available for high temperatures.
- **Direct-Operated**—Design maximizes speed of response.
- **Robust**—Up to 1000 psig / 68.9 bar inlet pressure.
- **$P_1 = P_2$** —Inlet equals outlet rating in Types MR95H, MR95HD and MR95HDP up to 300 psig / 20.7 bar.
- **Rugged Construction**—Proven design, built to last longer for the toughest service conditions. Severe service elastomers and corrosion resistant trims are also available and provide excellent fluid compatibility.
- **Differential Pressure Capability**—Spring-loaded Polytetrafluoroethylene (PTFE) packing and tapped connections permit pressure loading of the Types MR95LD, MR95HD and MR95HDP spring cases.
- **Arctic Temperature Constructions**—for process temperatures as low as -76°F / -60°C.
- **Special Service Capabilities**—Optional materials are available for applications handling sour gases, cryogenics and superheated steam.
- **Large Turndown Ratio**—No need for low C_v trims at low flows.
- **Graphite Gaskets**—For high temperature applications up to 650°F / 343°C (optional).
- **Multiple End Connection Options**—To match your application.
- **Easy Maintenance**—Seating parts are easily accessible by removing the plug on the bottom of the regulator.
- **API 614 Compliant**—Steel or Stainless steel constructions with Stainless steel trim meet API 614 requirements.
- **FDA, USP Class VI and ADI Free EPDM Elastomers**—for use in applications requiring clean regulator solutions (wetted components only)

MR95 Series

Table 1. Types MR95L and MR95LD Regulators Body Constructions

BODY SIZE	BODY CONSTRUCTION	END CONNECTION	BODY MATERIAL				
			Gray Cast Iron	LCC or WCC Steel ⁽¹⁾	CF8M Stainless Steel ⁽¹⁾	CF3M Stainless Steel ⁽¹⁾	Monel [®] or Hastelloy [®] C ⁽¹⁾
1/4 NPT	Without Control Line and Gauge Port	NPT					
1/2 in. / DN 15	Without Control Line and Gauge Port	NPT					
		SWE					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					
	With Control Line but Without Gauge Port	NPT					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					
3/4 in. / DN 20	Without Control Line and Gauge Port	NPT					
		SWE					
		Welded CL150 RF					
		Welded CL300 RF					
	With Control Line but Without Gauge Port	NPT					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					
	With Gauge Port but Without Control Line	NPT					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					
1 in. / DN 25	Without Control Line and Gauge Port	NPT					
		SWE					
		Welded CL150 RF					
		Welded CL300 RF					
	With Control Line but Without Gauge Port	NPT					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					
	With Gauge Port but Without Control Line	NPT					
		Welded CL150 RF					
		Welded CL300 RF					
		Welded PN 16/25/40 RF					

- Shaded areas indicate that the construction is available.
 - Blank areas indicate that you need to contact your local Sales Office for the availability of the constructions.
 1. Meets the chemical and physical requirements of NACE MR0175-2002, NACE MR0103 and NACE MR0175/ISO 15156.

Monel[®] is a mark owned by Special Metals Corporation.
 Hastelloy[®] C is a mark owned by Haynes International, Inc.

Table 2. Types MR95H, MR95HD, MR95HDP, MR95HT and MR95HP Regulators Body Constructions

BODY SIZE	BODY CONSTRUCTION	END CONNECTION	BODY MATERIAL					
			Gray Cast Iron ⁽¹⁾	LCC or WCC Steel ⁽²⁾	CF8M Stainless Steel ⁽²⁾	CF3M Stainless Steel ⁽²⁾	Monel® or Hastelloy® C ⁽²⁾	Aluminum-Bronze
1/4 NPT ⁽³⁾	Without Gauge Port and Control Line	NPT						
1/2 in. / DN 15	Without Control Line and Gauge Port	NPT						
		SWE						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded CL600 RF						
		Welded PN 16/25/40 RF						
		Integral CL150 RF						
		Integral CL300 RF						
		Integral CL600 RF						
		Integral PN 16/25/40 RF						
	With Control Line but Without Gauge Port	NPT						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded CL600 RF						
Welded PN 16/25/60 RF								
3/4 in. / DN 20	Without Gauge Port and Control Line	NPT						
		SWE						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded CL600 RF						
		Welded PN 16/25/40 RF						
	With Control Line but Without Gauge Port	NPT						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded PN 16/25/60 RF						
	With Gauge Port but Without Control Line	NPT						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded PN 16/25/60 RF						
1 in. / DN 25	Without Gauge Port and Control Line	NPT						
		SWE						
		Welded CL150 RF						
		Welded CL300 RF						
		Welded CL600 RF						
		Welded PN 16/25/40 RF						
		Integral CL150 RF						
		Integral CL300 RF						
		Integral CL600 RF						
		Integral PN 16/25/40 RF						

■ - Shaded areas indicate that the construction is available.

□ - Blank areas indicate that you need to contact your local Sales Office for the availability of the constructions.

1. Gray cast iron body material is available for Types MR95H and MR95HD only.

2. Meets the chemical and physical requirements of NACE MR0175-2002, NACE MR0103 and NACE MR0175/ISO 15156.

3. 1/4 NPT is not available for MR95HDP.

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MR95 Series

Table 2. Types MR95H, MR95HD, MR95HDP, MR95HT and MR95HP Regulators Body Constructions (continued)

BODY SIZE	BODY CONSTRUCTION	END CONNECTION	BODY MATERIAL						
			Gray Cast Iron ⁽¹⁾	LCC or WCC Steel ⁽²⁾	CF8M Stainless Steel ⁽²⁾	CF3M Stainless Steel ⁽²⁾	Monel [®] or Hastelloy [®] C ⁽²⁾	Aluminum-Bronze	
1 in. / DN 25	With Control Line but Without Gauge Port	NPT							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded PN 16/25/40 RF							
	With Gauge Port but Without Control Line	NPT							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded PN 16/25/40 RF							
1-1/2 in. / DN 40	Without Gauge Port and Control Line	NPT							
		SWE							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded CL600 RF							
		Welded PN 16/25/40 RF							
	With Control line but Without Gauge Port	NPT							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded PN 16/25/40 RF							
	With Gauge Port but Without Control Line	NPT							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded PN 16/25/40 RF							
	2 in. / DN 50	Without Gauge Port and Control Line	NPT						
			SWE						
Welded CL150 RF									
Welded CL300 RF									
Welded CL600 RF									
Welded PN 16/25/40 RF									
Integral CL150 RF									
Integral CL300 RF									
Integral CL600 RF									
Integral PN 16/25/40 RF									
With Control Line but Without Gauge Port		NPT							
		Welded CL150 RF							
		Welded CL300 RF							
		Welded PN 16/25/40 RF							
With Gauge Port but Without Control Line		NPT							
		Welded CL150 RF							
	Welded CL300 RF								
	Welded PN 16/25/40 RF								

 - Shaded areas indicate that the construction is available.
 - Blank areas indicate that you need to contact your local Sales Office for the availability of the constructions.
 1. Gray cast iron body material is available for Types MR95H and MR95HD only.
 2. Meets the chemical and physical requirements of NACE MR0175-2002, NACE MR0103 and NACE MR0175/ISO 15156.

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 Hastelloy[®] C is a mark owned by Haynes International, Inc.

Table 3. Body Sizes, Pressure Ranges and Spring Information

TYPE	BODY SIZE		OUTLET OR DIFFERENTIAL PRESSURE RANGE ⁽¹⁾		SPRING WIRE DIAMETER		SPRING FREE LENGTH		SPRING MATERIAL ⁽²⁾	SPRING PART NUMBER	SPRING COLOR
	In.	DN	psi/psig	bar	In.	mm	In.	mm			
MR95L and MR95LD	1/4	----	2 to 6	0.14 to 0.41	0.148	3.76	2.00	50.8	Zinc-plated steel	1E392527022	Yellow
			5 to 15	0.34 to 1.0	0.170	4.32	2.00	50.8	Zinc-plated steel	ERAA01888A0	Green
			13 to 30	0.90 to 2.1	0.207	5.26	1.94	49.2	Powder-coated steel	ERAA01889A0	Red
	1/2	15	2 to 6	0.14 to 0.41	0.207	5.26	2.50	63.5	Powder-coated steel ⁽³⁾	ERCA04288A0	Yellow
			5 to 15	0.34 to 1.0	0.234	5.94	2.60	65.9	Powder-coated steel ⁽³⁾	ERAA01910A0	Green
			13 to 30	0.90 to 2.1	0.283	7.19	2.44	62.0	Powder-coated steel ⁽³⁾	ERAA01911A0	Red
	3/4 and 1	20 and 25	2 to 6	0.14 to 0.41	0.306	7.77	4.00	102	Powder-coated steel ⁽³⁾	1E398927022	Yellow
			5 to 15	0.34 to 1.0	0.343	8.71	4.00	102	Powder-coated steel ⁽³⁾	1E399027142	Green
			13 to 30	0.90 to 2.1	0.406	10.31	4.00	102	Powder-coated steel ⁽³⁾	1E399127162	Red
			2 to 6	0.14 to 0.41	0.306	7.77	4.00	102	Powder-coated Stainless steel	1E3989X0052	Yellow
			5 to 15	0.34 to 1.0	0.375	9.53	3.88	98.6	Stainless steel	1K762537022	Unpainted
			13 to 30	0.90 to 2.1	0.437	11.1	4.00	102	Stainless steel	11A8269X012	Unpainted
MR95H, MR95HD and MR95HDP	1/4	----	15 to 30	1.0 to 2.1	0.148	3.76	2.00	50.8	Zinc-plated steel	1E392527022	Yellow
			25 to 75	1.7 to 5.2	0.170	4.32	2.00	50.8	Zinc-plated steel	ERAA01888A0	Green
			70 to 150	4.8 to 10.3	0.207	5.26	1.94	49.2	Powder-coated steel ⁽³⁾	ERAA01889A0	Red
	1/2	15	15 to 30	1.0 to 2.1	0.207	5.26	2.50	63.5	Powder-coated steel ⁽³⁾	ERCA04288A0	Yellow
			25 to 75	1.7 to 5.2	0.234	5.94	2.60	65.9	Powder-coated steel ⁽³⁾	ERAA01910A0	Green
			70 to 150	4.8 to 10.3	0.283	7.19	2.44	62.0	Powder-coated steel ⁽³⁾	ERAA01911A0	Red
	3/4 and 1	20 and 25	15 to 30	1.0 to 2.1	0.306	7.77	4.00	102	Powder-coated steel ⁽³⁾	1E398927022	Yellow
			25 to 75	1.7 to 5.2	0.343	8.71	4.00	102	Powder-coated steel ⁽³⁾	1E399027142	Green
			70 to 150	4.8 to 10.3	0.406	10.31	4.00	102	Powder-coated steel ⁽³⁾	1E399127162	Red
			15 to 30	1.0 to 2.1	0.306	7.77	4.00	102	Powder-coated Stainless steel	1E3989X0052	Yellow
			25 to 75	1.7 to 5.2	0.375	9.53	3.88	98.6	Stainless steel	1K762537022	Unpainted
			70 to 150	4.8 to 10.3	0.437	11.1	4.00	102	Stainless steel	11A8269X012	Unpainted
	1-1/2 and 2	40 and 50	5 to 80	0.34 to 5.5	0.500	12.7	6.50	165	Powder-coated steel	ERCA04290A0	Black with Light Blue Stripe
			60 to 120	4.1 to 8.3	0.562	14.3	6.56	167	Powder-coated steel	ERAA01893A0	Light Gray
			100 to 140	6.9 to 9.7	0.594	15.1	6.56	167	Enamel-coated steel	ERAA01894A0	Yellow
			120 to 150	8.3 to 10.3	0.625	15.9	6.57	167	Powder-coated steel	1P7888X0022	Black
			5 to 60	0.34 to 4.1	0.5	12.7	6.5	165	Inconel [®]	ERAA09035A0	Unpainted
			50 to 120	3.4 to 8.3	0.625	15.9	6.5	165	Inconel [®]	ERAA08881A0	Unpainted
MR95HT	1/4	----	15 to 100	1.0 to 6.9	0.192	4.88	2.00	50.8	Inconel [®]	ERCA04292A0	Unpainted
			80 to 300	5.5 to 20.7	0.281	7.14	2.00	50.8	Inconel [®]	ERCA04291A0	Unpainted
	1/2	15	15 to 100	1.0 to 6.9	0.281	7.14	2.50	63.5	Inconel [®]	ERCA04294A0	Unpainted
			80 to 300	5.5 to 20.7	0.375	9.53	2.60	66.0	Inconel [®]	ERCA04293A0	Unpainted
	3/4 and 1	20 and 25	15 to 100	1.0 to 6.9	0.437	11.1	4.08	104	17-4 PH Stainless steel	ERCA04295A0	Unpainted
			80 to 300	5.5 to 20.7	0.562	14.3	4.08	104	17-4 PH Stainless steel	ERCA04296A0	Unpainted
	1-1/2 and 2	40 and 50	15 to 100	1.0 to 6.9	0.625	15.9	6.70	170	17-4 PH Stainless steel	ERCA04297A0	Unpainted
			60 to 260	4.1 to 17.9	0.812	20.6	6.70	170	17-4 PH Stainless steel	ERCA04298A0	Unpainted
MR95HP	1/4	----	15 to 100	1.0 to 6.9	0.192	4.88	2.00	50.8	Inconel [®]	ERCA04292A0	Unpainted
			80 to 400	5.5 to 27.6	0.281	7.14	2.00	50.8	Inconel [®]	ERCA04291A0	Unpainted
	1/2	15	15 to 100	1.0 to 6.9	0.281	7.14	2.50	63.5	Inconel [®]	ERCA04294A0	Unpainted
			80 to 400	5.5 to 27.6	0.375	9.53	2.60	66.0	Inconel [®]	ERCA04293A0	Unpainted
	3/4 and 1	20 and 25	15 to 100	1.0 to 6.9	0.437	11.1	4.08	104	17-4 PH Stainless steel	ERCA04295A0	Unpainted
			80 to 400	5.5 to 27.6	0.562	14.3	4.08	104	17-4 PH Stainless steel	ERCA04296A0	Unpainted
	1-1/2 and 2	40 and 50	15 to 100	1.0 to 6.9	0.625	15.9	6.70	170	17-4 PH Stainless steel	ERCA04297A0	Unpainted
			60 to 300	4.1 to 20.7	0.812	20.6	6.70	170	17-4 PH Stainless steel	ERCA04298A0	Unpainted

1. For Types MR95LD, MR95HD and MR95HDP regulators, the pressure ranges indicate the differential pressure that can be obtained with the indicated spring. The differential pressure (spring setting) is added to the spring case loading pressure to determine the actual outlet pressure.
 2. Springs meet NACE MR0175-2002, NACE MR0103 and NACE MR0175/ISO 15156 requirements only for applications in which the spring is not exposed to the sour gas.
 3. Available in Inconel[®].

MR95 Series

Table 4. Maximum Cold Working Pressures of Body Only⁽¹⁾⁽²⁾

TYPE	BODY SIZE	SPRING CASE MATERIAL	MAXIMUM INLET PRESSURE		MAXIMUM OUTLET PRESSURE		MAXIMUM SPRING CASE PRESSURE	
			psig	bar	psig	bar	psig	bar
MR95L and MR95LD	All available sizes ⁽³⁾	Gray Cast Iron	250	17.2	50	3.4	50	3.4
		WCC Steel	300	20.7	125	8.6	125	8.6
		LCC Steel	300	20.7	125	8.6	125	8.6
		CF8M Stainless steel	300	20.7	125	8.6	125	8.6
		CF3M Stainless steel	300	20.7	125	8.6	125	8.6
		Monel ⁽⁴⁾	300	20.7	125	8.6	125	8.6
MR95H and MR95HD	All available sizes ⁽³⁾	Hastelloy [®] C ⁽⁴⁾	300	20.7	125	8.6	125	8.6
		Gray Cast Iron	250	17.2	250	17.2	250	17.2
		WCC Steel	300	20.7	300	20.7	300	20.7
		LCC Steel	300	20.7	300	20.7	300	20.7
		CF8M Stainless steel	300	20.7	300	20.7	300	20.7
		CF3M Stainless steel	300	20.7	300	20.7	300	20.7
MR95HDP	All available sizes	Monel ⁽⁴⁾	300	20.7	300	20.7	300	20.7
		Hastelloy [®] C ⁽⁴⁾	300	20.7	300	20.7	300	20.7
		Aluminum-Bronze ⁽⁴⁾	300	20.7	300	20.7	300	20.7
		WCC Steel	600	41.4	600	41.4	600	41.4
		LCC Steel	600	41.4	600	41.4	600	41.4
		CF8M Stainless steel	600	41.4	550	37.9	550	37.9
MR95HP	All available sizes ⁽³⁾	CF3M Stainless steel	600	41.4	550	37.9	550	37.9
		Monel ⁽⁴⁾	600	41.4	550	37.9	550	37.9
		Hastelloy [®] C ⁽⁴⁾	600	41.4	550	37.9	550	37.9
		Aluminum-Bronze ⁽⁴⁾	600	41.4	550	37.9	550	37.9
		WCC Steel	1000	68.9	600	41.4	600	41.4
		LCC Steel	1000	68.9	600	41.4	600	41.4
MR95HT	1/4 NPT and 1/2 to 1 in. / DN 15 to 25	CF8M Stainless steel	1000	68.9	550	37.9	550	37.9
		CF3M Stainless steel	1000	68.9	550	37.9	550	37.9
		Monel ⁽⁴⁾	1000	68.9	550	37.9	550	37.9
		Hastelloy [®] C ⁽⁴⁾	1000	68.9	550	37.9	550	37.9
		Aluminum-Bronze ⁽⁴⁾	1000	68.9	550	37.9	550	37.9
		MR95HT	1-1/2 and 2 in. / DN 40 and 50	WCC Steel	600	41.4	600	41.4
LCC Steel	600			41.4	600	41.4	600	41.4
CF8M Stainless steel	600			41.4	550	37.9	550	37.9
CF3M Stainless steel	600			41.4	550	37.9	550	37.9
Monel ⁽⁴⁾	600			41.4	550	37.9	550	37.9
Hastelloy [®] C ⁽⁴⁾	600			41.4	550	37.9	550	37.9
Aluminum-Bronze ⁽⁴⁾	600			41.4	550	37.9	550	37.9
WCC Steel	600			41.4	450	31.0	450	31.0
LCC Steel	600			41.4	450	31.0	450	31.0
CF8M Stainless steel	600			41.4	450	31.0	450	31.0
CF3M Stainless steel	600	41.4	450	31.0	450	31.0		
Monel [®]	600	41.4	450	31.0	450	31.0		
Hastelloy [®] C	600	41.4	450	31.0	450	31.0		
Aluminum-Bronze	600	41.4	450	31.0	450	31.0		

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.
 2. The pressure limits given are based on the body size and body materials only. Actual pressure limits of the assembled regulator may decrease and vary depending on the temperature, body end connection, diaphragm, seat and/or trim material of the regulator.
 3. See Tables 1 and 2 for all available body sizes.
 4. Not available for 1/4 NPT body size.

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Table 5. MR95 Series Temperature Capabilities⁽¹⁾⁽²⁾⁽⁵⁾

TRIM MATERIAL	SEAT	DIAPHRAGM	O-RING	DIAPHRAGM PROTECTOR	GASKET	TEMPERATURE	
						°F	°C
Nitrile (NBR)	✓		✓			-40 to 180	-40 to 82
Neoprene (CR)		✓				-40 to 180	-40 to 82
Fluorocarbon (FKM) ⁽³⁾	✓	✓	✓			0 to 300, Limited to 200°F for hot water	-18 to 149, Limited to 93°C for hot water
Ethylenepropylene (EPDM)	✓	✓	✓			20 to 275	-7 to 135
Sanitary Ethylenepropylene (EPDM) ⁽⁷⁾	✓	✓	✓			20 to 275	-7 to 135
Perfluoroelastomer (FFKM)	✓		✓			0 to 425	-18 to 218
PTFE	✓			✓		-40 to 400	-40 to 204
Metal	✓	✓				-40 to 650	-40 to 343
Composition ⁽⁶⁾					✓	-40 to 406	-40 to 208
Graphite					✓	-40 to 650	-40 to 343

BODY MATERIAL	TEMPERATURE	
	°F	°C
Gray cast iron	-20 to 406	-29 to 208
WCC Steel ⁽⁴⁾	-20 to 650	-29 to 343
LCC Steel ⁽⁴⁾	-40 to 650	-40 to 343
Stainless ⁽⁴⁾ , Monel [®] or Hastelloy [®] C	-40 to 550	-40 to 288
Aluminum-Bronze	-40 to 500	-40 to 260

1. The pressure/temperature limits in this Bulletin and any applicable standard limitation should not be exceeded.
2. The temperature limits given are based on the body size and body materials only. Actual temperature limits of the assembled regulator may decrease and vary depending on the body end connection, diaphragm, seat and/or trim material of the regulator.
3. Not for use on steam service.
4. Meets API 614 requirements (with Stainless steel trim).
5. Special low temperature constructions for process temperatures between -76 to 104°F / -60 to 40°C are available by request. The low temperature construction passed Emerson laboratory testing for lockup and external leakage down to -76°F / -60°C.
6. Temperature rating can be increased up to 450°F / 232°C but may require increased gasket maintenance.
7. Sanitary EPDM elastomers meet FDA, USP Class VI and ADI Free requirements.

Table 6. Flow and Sizing Coefficients for all MR95 Series Regulators

BODY SIZE		WIDE-OPEN COEFFICIENTS (FOR RELIEF SIZING)			C ₁	K _m	IEC SIZING COEFFICIENTS		
In.	DN	C _v	C _g	C _s			X _T	F _D	F _L
1/4	----	1.1	37	1.85	33.6	0.74	0.715	0.62	0.86
1/2	15	2.9	103	5.15	35.5	0.79	0.797	0.70	0.89
3/4 and 1	20 and 25	6.0	221	11.05	36.8	0.88	0.857	0.68	0.94
1-1/2 and 2	40 and 50	18.1	700	35.00	38.7	0.88	0.945	0.65	0.94

$K_m = F_L^2$

Table 7. Relief Sizing Coefficients for MR95 Series Regulators with Reduced Flow Orifices⁽¹⁾

BODY SIZE		WIDE-OPEN COEFFICIENTS FOR MR95 SERIES REDUCED FLOW OPTION	WIDE-OPEN COEFFICIENTS FOR LEGACY 95 SERIES
In.	DN	C _g	C _g
1/4	----	28	28
1/2	15	70	67
3/4 and 1	20 and 25	156	156
1-1/2 and 2	40 and 50	482	475

1. The reduced flow orifice option offers similar flow capacity as the equivalent 95 Series configuration.

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MR95 Series

Table 8. MR95 Series Trim Materials

TYPE	TRIM NUMBER	SEAT	ORIFICE / VALVE PLUG	VALVE PLUG GUIDE	STEM / STEM GUIDE	VALVE SPRING
MR95L, MR95LD, MR95H, MR95HD and MR95HDP	1	416 Stainless steel	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	2	416 Stainless steel	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	3	316 Stainless steel	316 Stainless steel	316 Stainless steel	316 Stainless steel	302 Stainless steel
	4	Alloy 6 ⁽¹⁾	Alloy 6 ⁽¹⁾	316 Stainless steel	316 Stainless steel	302 Stainless steel
	5	Hastelloy® C	Hastelloy® C	Hastelloy® C	Hastelloy® C	Inconel®
	6	Monel®	Monel®	Monel®	Monel®	Inconel®
	7	Nitrile (NBR)	Brass ⁽²⁾	316 Stainless steel	416 Stainless steel	302 Stainless steel
	8	Nitrile (NBR)	Brass ⁽²⁾	316 Stainless steel	416 Stainless steel	302 Stainless steel
	9	Nitrile (NBR)	316 Stainless steel	316 Stainless steel	316 Stainless steel	302 Stainless steel
	10	Nitrile (NBR)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	11	Nitrile (NBR)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	12	Fluorocarbon (FKM)	Brass ⁽²⁾	316 Stainless steel	416 Stainless steel	302 Stainless steel
	13	Fluorocarbon (FKM)	316 Stainless steel	316 Stainless steel	316 Stainless steel	302 Stainless steel
	14	Fluorocarbon (FKM)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	15	Fluorocarbon (FKM)	Monel®	Monel®	Monel®	Inconel®
	16	Perfluoroelastomer (FFKM)	316 Stainless steel	316 Stainless steel	316 Stainless steel	302 Stainless steel
	17	Polytetrafluoroethylene (PTFE)	Brass ⁽²⁾	316 Stainless steel	416 Stainless steel	302 Stainless steel
	18	Polytetrafluoroethylene (PTFE)	316 Stainless steel	316 Stainless steel	316 Stainless steel	302 Stainless steel
	19	Polytetrafluoroethylene (PTFE)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	20	Ethylenepropylene (EPDM)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
S20	Ethylenepropylene (EPDM) ⁽³⁾	416 Stainless steel	316 Stainless steel	416 Stainless Steel	302 Stainless steel	
MR95HT	22	416 Stainless steel	416 Stainless steel	316 Stainless steel	416 Stainless steel	Inconel®
	23	316 Stainless steel	316 Stainless steel	316 Stainless steel	316 Stainless steel	Inconel®
	24	Alloy 6 ⁽¹⁾	Alloy 6 ⁽¹⁾	316 Stainless steel	316 Stainless steel	Inconel®
MR95HP	10	Nitrile (NBR)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel
	14	Fluorocarbon (FKM)	416 Stainless steel	316 Stainless steel	416 Stainless steel	302 Stainless steel

1. Alloy 6 is not available for 1/4 NPT body.
 2. 1/4 NPT has brass orifice and 316 Stainless steel valve plug.
 3. EPDM meets FDA, USP Class VI and ADI Free requirements.

Table 9. MR95 Series Construction Materials

MAIN VALVE MATERIAL		
Body	Spring Case	Regulator Spring
Gray Cast Iron LCC/WCC Steel CF8M/CF3M Stainless steel Hastelloy® C Monel® Aluminum-Bronze	Gray Cast Iron ⁽¹⁾ LCC/WCC Steel CF8M Stainless steel Hastelloy® C Monel®	Steel (standard) Inconel® 302 Stainless steel 17-4 PH Stainless steel
1. Gray cast iron spring case is not available for Types MR95LD, MR95HD and MR95HDP.		
TRIM MATERIAL		
Elastomer Seat		
Part Name	Standard	Optional
Diaphragm	Neoprene (CR)	302 Stainless steel ⁽¹⁾ , Fluorocarbon (FKM) ⁽²⁾ , Ethylenepropylene (EPDM) ⁽³⁾ , Monel ⁽⁴⁾ , Hastelloy® C ⁽¹⁾ or PTFE protector available with Neoprene (CR) and Fluorocarbon (FKM) ⁽²⁾ diaphragm
Disk	Nitrile (NBR)	Fluorocarbon (FKM), Polytetrafluoroethylene (PTFE), Ethylenepropylene (EPDM) ⁽³⁾ or Perfluoroelastomer (FFKM)
Disk Holder	Brass or 416 Stainless steel	316 Stainless steel, Monel® or Hastelloy® C
Valve Plug Guide	316 Stainless steel	Monel® or Hastelloy® C
Orifice	Brass or 416 Stainless steel	316 Stainless steel, Monel® or Hastelloy® C
Stem Assembly	416 Stainless steel	316 Stainless steel, Monel® or Hastelloy® C
Metal Seat		
Diaphragm	302 Stainless steel ⁽¹⁾	Monel ⁽⁴⁾ , Hastelloy® C ⁽¹⁾ , Fluorocarbon (FKM) ⁽²⁾ , Ethylenepropylene (EPDM) ⁽³⁾ or PTFE protector available with Neoprene (CR) and Fluorocarbon (FKM) ⁽²⁾ diaphragm
Valve Plug	416 Stainless steel	316 Stainless steel, Monel®, Hastelloy® C or Alloy 6
Valve Plug Guide	316 Stainless steel	Monel® or Hastelloy® C
Orifice	416 Stainless steel	316 Stainless steel, Monel®, Hastelloy® C or Alloy 6
Stem Assembly	416 Stainless steel	316 Stainless steel, Monel® or Hastelloy® C
Gasket	Composition	Graphite
1. Two Diaphragms are used for metal diaphragm except Types MR95L and MR95LD 1/4 NPT Body, range 2 to 6 psig / 0.14 to 0.41 bar. 2. Two Diaphragms are used. 3. EPDM meets FDA, USP Class VI and ADI Free requirements.		

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