

February 2007

Types 95L, 95H, 95HP and 95HT Pressure Regulators

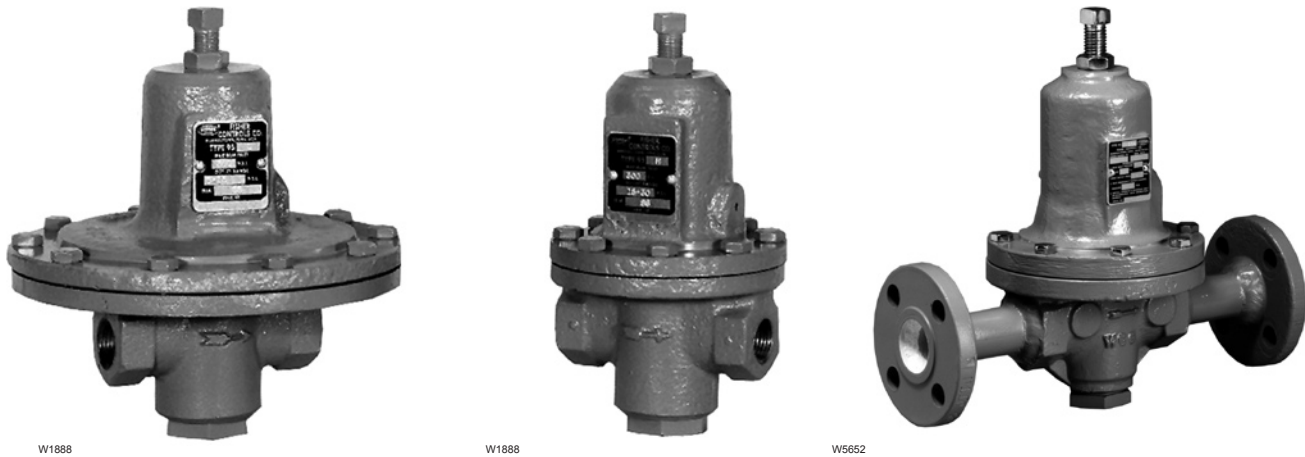


Figure 1. Type 95L threaded NPT Body (Left), Type 95H threaded NPT Body (Middle), and Type 95H Flanged Body (Right) Pressure Regulators



WARNING

Regulators should be installed, operated, and maintained in accordance with federal, state, and local codes, rules and regulations, and Fisher instructions.

If the regulator vents gas or a leak develops in the system, it indicates that service is required. Failure to take the regulator out of service immediately may create a hazardous condition.

Call a service person in case of trouble. Only a qualified person must install or service the regulator.

Introduction

Type 95L and 95H Series self-contained pressure regulators are suitable for pressure control of steam, air, gas, water, oil, and similar fluids requiring constant outlet pressures between 2 and 400 psig (0,1 and 27,6 bar). Typical Type 95L and 95H Series regulators are shown in Figure 1.

Description

Type 95L—Pressure reducing regulator suitable for controlling many gasses and liquids. Iron, steel or stainless steel bodies are available. Reduced pressure range is from 2 to 30 psig (0,1 and 2,1 bar) with three different springs available. Body sizes are available from 1/4 through 1-inch (DN 25) with a variety of end connections. The standard orifice sizes are 1/4, 3/8 and 9/16-inch (6,35, 9,53 and 14,3 mm) diameter, dependent on body sizes.

Type 95H—Basically the same as Type 95L, but permits higher reduced pressure ranges from 15 to 150 psig (1,0 to 10,3 bar) for the 1/4, 1/2, 3/4 and 1-inch (DN 15, 20 and 25) sizes. Also available in 1-1/2 and 2-inch sizes with a 1-1/16-inch (27,0 mm) orifice to give reduced pressure ranges from 5 to 150 psig (0,3 to 10,3 bar).

Type 95HP—Basically the same as Type 95H, but permits even higher reduced pressure ranges from 15 to 400 psig (1,0 to 27,6 bar).

Type 95HT—Basically the same as Type 95H, but permits higher reduced pressures at higher temperatures. Reduced pressure ranges are available from 15 to 300 psig (1,0 to 20,7 bar) and up to 650°F (343°C).



Types 95L, 95H, 95HP and 95HT

Specifications

Available Configurations

Type 95L: Low-pressure regulator for 2 to 30 psig (0,1 to 2,1 bar) outlet pressures

Type 95H: High-pressure regulator for 5 to 150 psig (0,3 to 10,3 bar) outlet pressures

Type 95HP: High-pressure regulator for 15 to 400 psig (1,0 to 27,6 bar) outlet pressures (soft seated)

Type 95HT: 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)

Body and Orifice Sizes

1/4-inch body: 1/4-inch (6,35 mm) orifice

1/2-inch (DN 15) body: 3/8-inch (9,52 mm) orifice

3/4 and 1-inch (DN 20 and 25) bodies:

9/16-inch (14,3 mm) orifice

1-1/2 and 2-inch (DN 40 and 50) bodies:

1-1/16-inch (27,0 mm) orifice

End Connection Style

NPT, ANSI flanged; all sizes are fabricated with slip-on flanges and are 14-inches face-to-face (DIN flanged-356 mm face-to-face), 150 RF, 300 RF, or SWE.

Maximum Cold Working Pressures of Body Size and Material

See Table 2

Reduced Pressure Ranges

See Table 1

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

MATERIAL	TEMPERATURE RANGE
Nitrile	-20° to 180°F (-29° to 82°C)
Neoprene	-40° to 180°F (-40° to 82°C)
Fluoroelastomer ⁽³⁾	0° to 300°F (-18° to 149°C)
Ethylene propylene	-40° to 275°F (-40° to 135°C)
PTFE	-40° to 400°F (-40° to 204°C)
SST	-40° to 650°F (-40° to 343°C)

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

REGULATOR	BODY AND SPRING CASE MATERIALS	TEMPERATURE RANGE
Type 95L Type 95H	Cast Iron Steel Stainless Steel	-40° to 406°F (-40° to 208°C) -20° to 450°F (-29° to 232°C) -40° to 450°F (-40° to 232°C)
Type 95HP	Steel Stainless Steel	-20° to 450°F (-29° to 232°C) -40° to 450°F (-40° to 232°C)
Type 95HT	Steel Stainless Steel	-20° to 650°F (-29° to 343°C) -40° to 550°F (-40° to 288°C)

Pressure Setting Adjustment

Adjusting screw (standard), Handwheel/Tee handle (optional): 1/2-inch (DN 15) body has a handwheel, all other sizes have tee handles.

Pressure Registration

Internal

Shutoff Classification Per ANSI/FCI 70-3

Metal Seats: Class IV

Elastomer Seats: Class VI or better

PTFE: Class V

Approximate Weight

Types 95H, 95HP and 95HT:

1/4-inch body: 4 pounds (1,81 kg)

1/2-inch (DN 15) body: 8 pounds (3,63 kg)

3/4 and 1-inch (DN 20 and 25) bodies:

20 pounds (9,07 kg)

1-1/2 and 2-inch (DN 40 and 50) bodies:

73 pounds (33,1 kg)

Type 95L:

1/4-inch body: 6 pounds (2,72 kg)

1/2-inch (DN 15) body: 12 pounds (5,44 kg)

3/4 and 1-inch (DN 20 and 25) bodies:

32 pounds (14,5 kg)

1. The pressure/temperature limits in this instruction manual, and any applicable standard or code limitation should not be exceeded.

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

3. Fluoroelastomer is limited to 200°F (93°C) hot water.

Principle Of Operation

Pressure in the controlled system (regulator outlet pressures) registers beneath the diaphragm of the regulator and opposes the force provided by the predetermined spring compression. When regulator spring force exceeds diaphragm force exerted by the outlet pressure, the spring will keep the stem pressed down, thereby compressing the valve spring and holding the valve plug away from the orifice to permit additional flow to the downstream system.

As outlet pressure increases to the setting of the regulator spring, the diaphragm is raised, and the valve spring moves the valve plug closer to the orifice to prevent additional buildup of outlet pressure.

Installation

Clean out all pipelines before installation of the regulator and check to be sure the regulator has not been damaged or collected foreign material during shipping.

Types 95L, 95H, 95HP and 95HT

Table 1. Reduced Pressure Ranges

TYPE	BODY SIZE, INCHES (DN)	REDUCED PRESSURE RANGES		SPRING PART NUMBER	COLOR
		Psig	bar		
95L	1/4	2 to 6	0,1 to 0,4	1E392527022	Yellow
		5 to 15	0,3 to 1,0	1E392627012	Green
		13 to 30	0,9 to 2,1	1E392727142	Red
95L	1/2 (15)	2 to 6	0,1 to 0,4	1E395627022	Yellow
		5 to 15	0,3 to 1,0	1D745527142	Green
		13 to 30	0,9 to 2,1	1E395727192	Red
95L	3/4, 1 (20, 25)	2 to 6	0,1 to 0,4	1E398927022	Yellow
		5 to 15	0,3 to 1,0	1E399027142	Green
		13 to 30	0,9 to 2,1	1E399127162	Red
95H	1/4	15 to 30	1,0 to 2,1	1E392527022	Yellow
		25 to 75	1,7 to 5,2	1E392627012	Green
		70 to 150	4,8 to 10,3	1E392727142	Red
	1/2 (15)	15 to 30	1,0 to 2,1	1E395627022	Yellow
25 to 75		1,7 to 5,2	1D745527142	Green	
70 to 150		4,8 to 10,3	1E395727192	Red	
95H	3/4, 1 (20, 25)	15 to 30	1,0 to 2,1	1E398927022	Yellow
		25 to 75	1,7 to 5,1	1E399027142	Green
		70 to 150	4,8 to 10,3	1E399127162	Red
95H	1-1/2, 2 (40, 50)	5 to 80	0,3 to 5,5	1E795327082	Light Blue
		60 to 120	4,1 to 8,3	1E795427082	Light Gray
		100 to 140	6,9 to 9,7	1E793327082	Yellow
		120 to 150	8,3 to 10,3	1P788827082	Black
95HT	1/4	15 to 100	1,0 to 6,9	14B9941X012	None
		80 to 300	5,5 to 20,7	14B9940X012	None
	1/2 (15)	15 to 100	1,0 to 6,9	14B9943X012	None
		80 to 300	5,5 to 20,7	14B9942X012	None
95HT	3/4, 1 (20, 25)	15 to 100	1,0 to 6,9	14B9944X012	None
		80 to 300	5,5 to 20,7	14B9945X012	None
95HT	1-1/2, 2 (40, 50)	15 to 100	1,0 to 6,9	17B1704X012	None
		60 to 260	4,1 to 17,9	17B1705X012	None
95HP	1/4	15 to 100	1,0 to 6,9	14B9941X012	None
		80 to 400	5,5 to 27,6	14B9940X012	None
	1/2 (15)	15 to 100	1,0 to 6,9	14B9943X012	None
		80 to 400	5,5 to 27,6	14B9942X012	None
95HP	3/4, 1 (20, 25)	15 to 100	1,0 to 6,9	14B9944X012	None
		80 to 400	5,5 to 27,6	14B9945X012	None
95HP	1-1/2, 2 (40, 50)	15 to 100	1,0 to 6,9	17B1704X012	None
		60 to 300	4,1 to 20,7	17B1705X012	None

Table 2. Maximum Cold Working Pressures of Body Size and Material⁽¹⁾⁽²⁾

REGULATOR	BODY SIZE	BODY AND SPRING CASE MATERIALS	MAXIMUM INLET PRESSURE, PSIG (bar)	MAXIMUM OUTLET PRESSURE, PSIG (bar)
Type 95L	All Sizes	Cast Iron	250 (17,2)	50 (3,4)
		Steel	300 (20,7)	125 (8,6)
		Stainless Steel	300 (20,7)	125 (8,6)
Type 95H	All Sizes	Cast Iron	250 (17,2)	250 (17,2)
		Steel	300 (20,7)	300 (20,7)
		Stainless Steel	300 (20,7)	300 (20,7)
Type 95HP	All Sizes	Steel	600 (41,4)	600 (41,4)
		Stainless Steel	600 (41,4)	550 (37,9)
Type 95HT	1/4 to 1-inch (DN 25)	Steel	600 (41,4)	600 (41,4)
		Stainless Steel	600 (41,4)	550 (37,9)
	1-1/2, 2-inch (DN 40, 50)	Steel	600 (41,4)	450 (31,0)
		Stainless Steel	600 (41,4)	450 (31,0)

1. The pressure/temperature limits in this instruction manual, 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. Torque Specifications

BODY SIZE	SPRING CASE BOLTS ⁽¹⁾	ORIFICE	PLUG GUIDE
Inches		Foot-pounds	
1/4	6 to 8	8 to 12	42 to 58
1/2	10 to 13	29 to 35	70 to 90
3/4, 1	24 to 30	33 to 42	130 to 160
1-1/2, 2	40 to 50	140 to 170	170 to 200
DN		N•m	
---	8 to 11	11 to 16	57 to 79
15	13 to 18	39 to 47	95 to 122
20, 25	33 to 41	45 to 57	176 to 217
40, 50	54 to 68	190 to 230	230 to 271

1. Reduce spring case bolt torques by 30% when using Ethylenepropylene (EPDM) diaphragms.

Types 95L, 95H, 95HP and 95HT

Apply pipe compound to the male pipe threads and install the regulator in any position desired, but be sure flow through the body is in the direction indicated by the arrow cast on the body.

Note

It is important that the regulator be installed so that the vent hole in the spring case is unobstructed at all times. For outdoor installations, the regulator should be located away from vehicular traffic and positioned so that water, ice, and other foreign materials cannot enter the spring case through the vent. Avoid placing the regulator beneath eaves or downspouts, and be sure it is above the probable snow level.

On 1-1/2 or 2-inch (DN 40 and 50) 95H Series regulators, the spring case vent is tapped so a vent line can be connected to provide venting to a remote location. On 1/4, 1/2, 3/4 and 1-inch (DN 15, 20 and 25) 95H Series body sizes, the tapped vent option is available on request. The exposed end of the vent pipe should be protected with a weather and insect resistant vent assembly.

All vents and remote vent lines should be checked periodically to ensure that they are unobstructed.

Overpressure Protection

As is the case with most regulators, the Type 95L and 95H Series regulators have an outlet pressure rating lower than the inlet pressure rating. The recommended pressure limitations are stamped on the regulator nameplate. Some type of overpressure protection is needed if the actual inlet pressure exceeds the maximum operating outlet pressure rating. Overpressure protection should also be provided if the regulator inlet pressure is greater than the safe working pressure of downstream equipment.

Regulator operation below the maximum pressure limitations does not preclude the possibility of damage from external sources or from debris in the line. The regulator should be inspected for damage after any overpressure condition as stated on the nameplate.

Startup

The regulator is set at the factory for the reduced pressure specified on the order, so no initial adjustment should be required to give the desired results. With proper installation completed and relief valves properly adjusted, slowly open the upstream and downstream shutoff valves.

Adjustment

The factory setting of the regulator can be varied within the pressure range stamped on the nameplate. To change the outlet pressure, loosen the locknut (key 17, Figure 2, 3, or 4) and turn the adjusting screw (key 15, Figure 2, 3, or 4) clockwise to increase outlet pressure, or counterclockwise to decrease it. Monitor the outlet pressure with a test gauge during the adjustment. Tighten the locknut to maintain the desired setting.

All regulator springs can be backed off to provide zero outlet. Recommended outlet pressure ranges available, maximum inlet pressures and temperatures, and color codes of the respective springs are shown in Tables 1 and 2.

Shutdown

Close the upstream shutoff valve. Close downstream shutoff valve. Open bleed valve between the regulator and the downstream shutoff valve. Without changing regulator spring adjustment, all pressure between the upstream and downstream shutoff valves will be released through the bleed valve, since the Type 95L or 95H Series regulator opens in response to the decreased outlet pressure.

Maintenance



WARNING

Before disassembling the regulator, isolate it from the pressure system and release all pressure from the regulator as specified in the Shutdown section.

Due to normal wear that may occur, parts must be periodically inspected and replaced if necessary. The frequency of inspection depends on the severity of service conditions. This section includes instructions for disassembly and replacement of parts. All key numbers refer to Figures 2, 3, and 4.

1. Unscrew the valve plug guide (key 5) from the body (key 1). The valve plug spring (key 10) and the valve plug (key 4) will normally come out of the body along with the valve plug guide. On 1-1/2 or 2-inch (DN 40 and 50) units the stem (key 6, Figure 4) will also come out of the regulator body.
2. Inspect the seating surface of the valve plug, make sure that the elastomer, PTFE or polished metal surface of the valve plug is not damaged. Replace if damage is noted.
3. Inspect the seating edge of the orifice (key 3). If damage is noted, unscrew the orifice from the body and replace it with a new part. Torque per

Types 95L, 95H, 95HP and 95HT

Table 3. If no further maintenance is required, reassemble the regulator in the reverse of the above steps. When installing the valve plug guide (key 5) coat the threads and sealing surface with sealant to ensure an adequate metal-to-metal seal. Reassembly torque per Table 3.

- If diaphragm damage is suspected, or to inspect the diaphragm or other internal parts, loosen the locknut (key 17) and turn the adjusting screw (key 15) to remove all spring compression.

Steps 5 and 6 apply to the Type 95L and sizes 1/4 to 1-inch (DN 25) of the 95H Series. If the unit being disassembled is a 1-1/2 to 2-inch (DN 40 and 50) size Type 95H, HP, or HT proceed to steps 7 and 8.

- Remove the diaphragm case cap screws (key 16) and lift off the spring case (key 2). Remove the upper spring seat (key 9) and regulator spring (key 11). On 1/4 to 1-inch (DN 25) sizes Type 95H units only, remove the lower spring seat (key 8). On Type 95L units, remove the diaphragm head assembly (key 21).
- Remove the diaphragm(s) and examine for damage. Replace if damage is noted. Note that if the diaphragm is metal, two diaphragms should be used.
- Remove the diaphragm-diaphragm head assembly. It can be disassembled for inspection of the diaphragm (key 12) and two small diaphragm gaskets (key 47) or O-ring (key 45). Remove the locknut (key 31) from the pusher post (key 30) and separate the assembly. An O-ring is used to seal around the pusher post if an elastomer diaphragm is used, and the gaskets are used with stainless steel diaphragms.
- Unscrew and remove the stem guide bushing (key 7). An O-ring (key 51) held in place by the packing follower (key 50) can then be examined for damage.
- With diaphragm(s) removed, check to be sure the pressure registration hole (pitot tube, key 20, in 3/4-inch (DN 20) and larger sizes) is completely open and free of all obstructions.
- If the unit has stainless steel diaphragms, replace the large diaphragm gasket (key 19). Install both diaphragms with their raised preformed centers facing toward the spring case.
- Reassemble in the reverse of the above procedures. Lubricate the upper spring seat and the exposed threads of the adjusting screw with Anti-Seize lubricant.

Before tightening cap screw (key 16) be sure to install the adjusting screw, if completely removed, and turn it down so that diaphragm slack is obtained. This allows proper positioning of the diaphragm to permit full travel of the valve plug. Torque

diaphragm cap screws per Table 3. Complete reassembly procedures and turn the adjusting screw to produce the desired outlet pressure. Tighten the locknut to maintain the desired setting.

Parts Ordering

When corresponding with your local Sales Office or Sales Representative about this equipment, always reference the equipment serial number or FS number that can be found on the nameplate.

When ordering replacement parts, reference the key number of each needed part as found in the following parts list. Separate kits containing all recommended spare parts are available.

Parts List

Note

In this parts list, parts marked NACE are intended for corrosion-resistant service as detailed in the National Association of Corrosion Engineers (NACE) standard MR-01-75.

Key	Description	Part Number
	Parts Kit (Included are keys 3, 4, 10, 12, and 19) Types 95H and 95HP For Brass and Neoprene Trim, Trim 2	
	1/4-inch body	R95HX000012
	1/2-inch (DN 15) body	R95HX000022
	3/4 and 1-inch (DN 20 and 25) bodies	R95HX000032
	For 416 Stainless Steel and Neoprene Trim, Trim 3A or 3N	
	1/4-inch body	R95HX000102
	1/2-inch (DN 15) body	R95HX000112
	3/4 and 1-inch (DN 20 and 25) bodies	R95HX000122
	1-1/2 and 2-inch (DN 40 and 50) bodies	R95HX000042
	For All Metal Trim, Trim 1 or 4A	
	1/4-inch body	R95HX000052
	1/2-inch (DN 15) body	R95HX000062
	3/4 and 1-inch (DN 20 and 25) bodies	R95HX000072
	1-1/2 and 2-inch (DN 40 and 50) bodies	R95HX000082
	Extra parts for 1-1/2 and 2-inch (DN 40 and 50) bodies include keys 45, 47, 51 and 52	
	Type 95L	
	For Brass and Neoprene Trim, Trim 2	
	1/4-inch body	R95LX000012
	1/2-inch (DN 15) body	R95LX000022
	3/4 and 1-inch (DN 20 and 25) bodies	R95LX000032
	For 416 Stainless Steel and Neoprene Trim, Trim 3A	
	1/4-inch body	R95LX000102
	1/2-inch (DN 15) body	R95LX000112
	3/4 and 1-inch (DN 20 and 25) bodies	R95LX000122
	For All Metal Trim, Trim 1 or 4A	
	1/4-inch body	R95LX000042
	1/2-inch (DN 15) body	R95LX000052
	3/4 and 1-inch (DN 20 and 25) bodies	R95LX000062
	Type 95HT, All Metal Trim, Trim 4A	
	1/4-inch body	R95HTX00012
	1/2-inch (DN 15) body	R95HTX00022
	3/4 and 1-inch (DN 20 and 25) bodies	R95HTX00032
	1-1/2 and 2-inch (DN 40 and 50) bodies	R95HTX00042

Types 95L, 95H, 95HP and 95HT

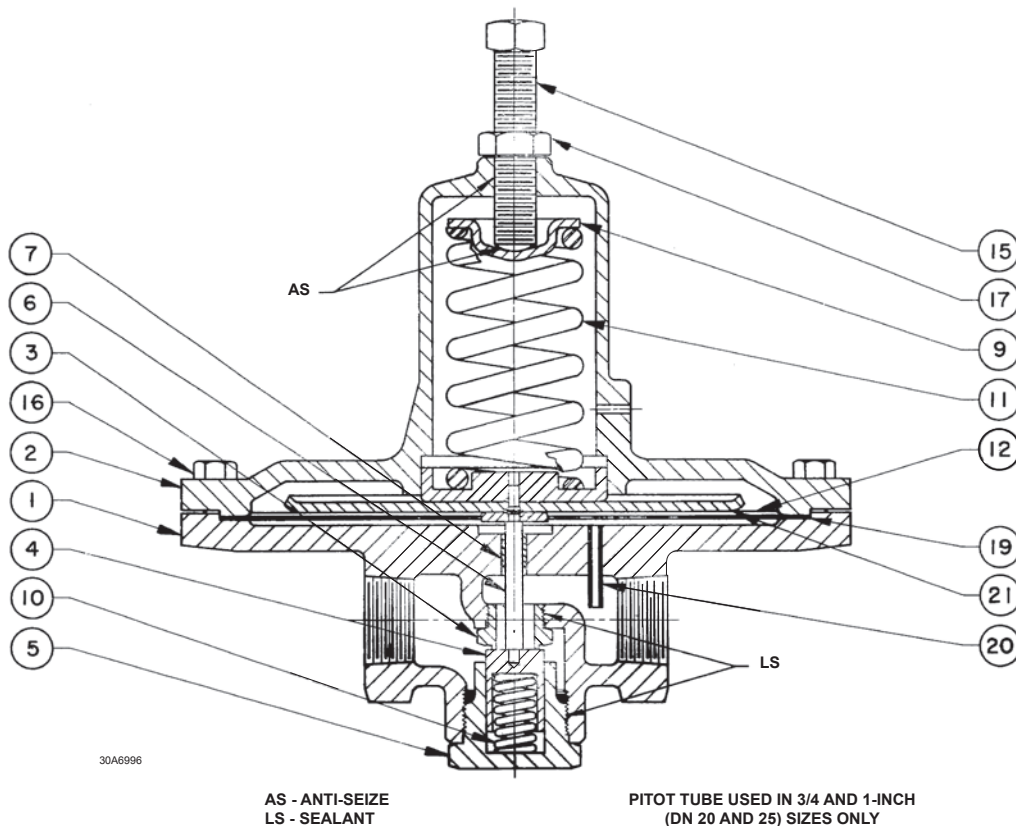


Figure 2. Type 95L, 1/4 to 1-Inch (DN 25) Sizes Stainless Steel Trim

Key	Description	Part Number	Key	Description	Part Number
1	Regulator Body	See Following Table	5	Valve Plug Guide	
2	Spring Case	See Following Table		Brass (Types 95L and 95H only)	
3*	Orifice			1/4-inch body	1E391814012
	Metal Seat (Types 95L, 95H and 95HT)			1/2-inch (DN 15) body	1E395214012
	416 Stainless Steel			3/4 and 1-inch (DN 20 and 25) bodies	1E398214012
	1/4-inch body	1E391646172		1-1/2 and 2-inch (DN 40 and 50) bodies	19B9067X022
	1/2-inch (DN 15) body	1E395046172		416 Stainless Steel	
	3/4 and 1-inch (DN 20 and 25) bodies	1E398046172		1/4-inch body	1E391835132
	1-1/2 and 2-inch (DN 40 and 50) bodies	2P787046172		1/2-inch (DN 15) body	1E395235132
	316 Stainless Steel			3/4 and 1-inch (DN 20 and 25) bodies	1E398235132
	1/4-inch body	1E391635072		1-1/2 and 2-inch (DN 40 and 50) bodies	19B9067X012
	1/2-inch (DN 15) body	1E395035072		316 Stainless Steel, NACE	
	3/4 and 1-inch (DN 20 and 25) bodies	1E398035072		1/4-inch body	1E391835072
	1-1/2 and 2-inch (DN 40 and 50) bodies	2P787035072		1/2-inch (DN 15) body	1E395235072
	Composition Seat (Types 95L, 95H and 95HP)			3/4 and 1-inch (DN 20 and 25) bodies	1E398235072
	Brass (Types 95L and 95H only)			1-1/2 and 2-inch (DN 40 and 50) bodies	19B9067X102
	1/4-inch body	1E393214012	6	Stem Assembly	
	1/2-inch (DN 15) body	1E396214012		Stainless Steel	
	3/4 and 1-inch (20 and 25) bodies	1E399514012		1/4-inch body	1F2113000A2
	1-1/2 and 2-inch (DN 40 and 50) bodies	1P7860X0012		1/2-inch (DN 15) body	1F2114000A2
	416 Stainless Steel			3/4 and 1-inch (DN 20 and 25) bodies	1F2115000A2
	1/4-inch body	1E393235132		316 Stainless Steel, NACE	
	1/2-inch (DN 15) body	1E396235132		1/4-inch body	1F2113000C2
	3/4 and 1-inch (20 and 25) bodies	1E399535132		1/2-inch (DN 15) body	1F2114X0082
	1-1/2 and 2-inch (DN 40 and 50) bodies	1P786035132		3/4 and 1-inch (DN 20 and 25) bodies	1F2115000C2
	316 Stainless Steel, NACE			Stem	
	1/4-inch body	1E393235072		416 Stainless Steel	
	1/2-inch (DN 15) body	1E396235072		1-1/2 and 2-inch (DN 40 and 50) bodies	1P785335232
	3/4 and 1-inch (20 and 25) bodies	1E399535072		316 Stainless Steel, NACE	
	1-1/2 and 2-inch (DN 40 and 50) bodies	1P7860X00A2		1-1/2 and 2-inch (DN 40 and 50) bodies	1P7853X00A2
4*	Valve Plug	See table on page 11			

*Recommended spare parts

Types 95L, 95H, 95HP and 95HT

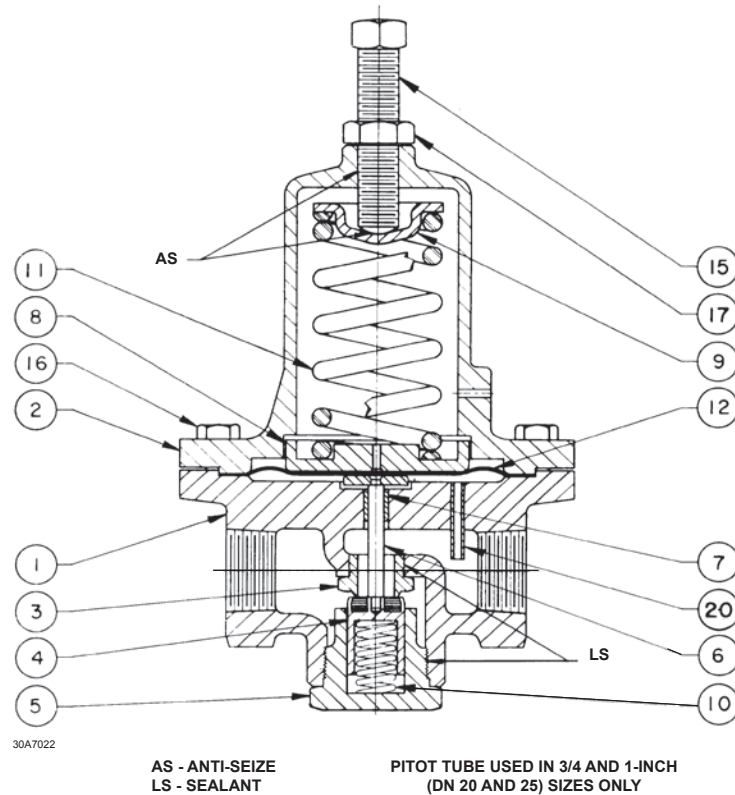


Figure 3. 95H Series, 1/4 to 1-Inch (DN 25) Sizes Composition Trim

Key	Description	Part Number	Key	Description	Part Number
7*	Stem Guide Bushing Stainless Steel 1/4 and 1/2-inch (DN 15) bodies 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	1E392235132 1E398535132 1P785435132	10	Valve Plug Spring Stainless Steel 1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies,	1E392437022 1E395537022 1E398837022 1P785837012
316 Stainless Steel, NACE	1/4 and 1/2-inch (DN 15) bodies 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	1E392235072 1E398535072 1P7854X00A2	NACE, Inconel ⁽¹⁾	1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	19A2862X012 19A2861X012 1P8443X0012 19A7371X012
8	Lower Spring Seat Type 95H only 1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	1E392309012 1E395408012 1E398608012 1P787724152	11	Regulator Spring	See Following Table
Types 95HP and 95HT only	1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	14B9947X012 14B9948X012 14B9952X012 1P787724152	12*	Diaphragm	See Following Table
9	Upper Spring Seat, Steel Types 95L and 95H only 1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (20 and 25) bodies 1-1/2 and 2-inch body (40 and 50) bodies	1B798525062 1D667125072 1E398725072 1P787624092	13	Nameplate, Aluminum	-----
Types 95HP and 95HT only	1/4-inch body 1/2-inch (DN 15) body 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	14B9950X012 14B9951X012 14B9952X012 1P787624092	14	Diaphragm Protector, TFE 1/4-inch body Type 95L Type 95H 1/2-inch (DN 15) body Type 95L Type 95H 3/4 and 1-inch (DN 20 and 25) bodies Type 95L Type 95H	11A5126X012 11A5129X012 11A5127X012 11A5130X012 11A5128X012 11A5131X012
			15	Adjusting Screw, Steel 1/4-inch body 1/2-inch (DN 15) body 1/2-inch (DN 15) body with handwheel 3/4 and 1-inch (DN 20 and 25) bodies 1-1/2 and 2-inch (DN 40 and 50) bodies	1E639928992 1D995448702 1J496428982 1A330828982 1A680128992

1. Trademark of International Nickel Co.
*Recommended spare parts

Types 95L, 95H, 95HP and 95HT

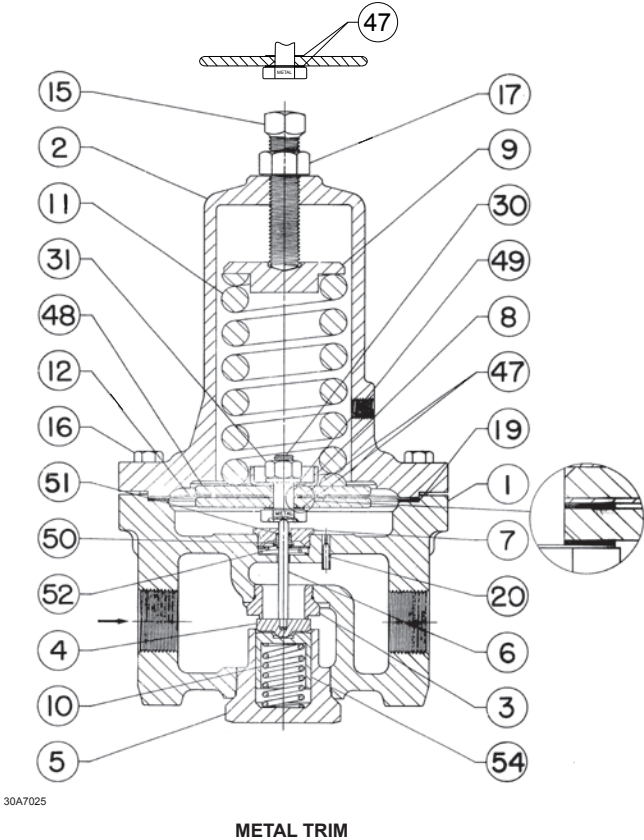
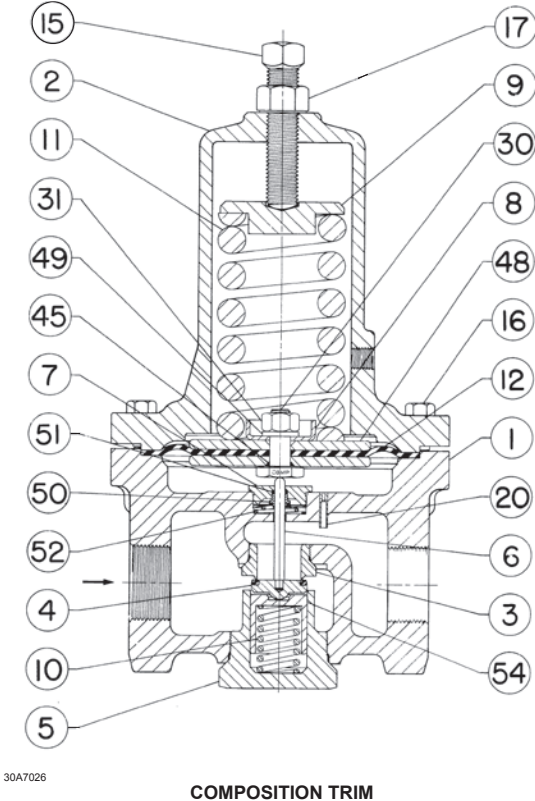


Figure 4. 95H Series, 1-1/2 and 2-Inch (DN 40 and 50) Sizes

Types 95L, 95H, 95HP and 95HT

Key	Description	Part Number	Key	Description	Part Number
16	Cap Screw, Steel		16	Cap Screw, Steel (continued)	
	Type 95L			Types 95HP and 95HT	
	1/4-inch body (10 required)	1A407824052		1/4-inch body (6 required)	1A3917X0082
	1/2-inch (DN 15) body (10 required)	1A381624052		1/2-inch (DN 15) body (8 required)	1A3816X0132
	3/4 and 1-inch (DN 20 and 25) bodies (12 required)	1A336924052		3/4 and 1-inch (DN 20 and 25) bodies (8 required)	1A3418X0212
	Type 95H			1-1/2 and 2-inch (DN 40 and 50) bodies (8 required)	1K5684X0072
	Cast Iron bodies		17	Jam Nut, Steel	
	1/4-inch body (6 required)	1A407824052		1/4-inch body	1A352224122
	1/2-inch (DN 15) body (8 required)	1A381624052		1/2-inch (DN 15) body	1A353724122
	3/4 and 1-inch (DN 20 and 25) bodies (8 required)	1A336924052		3/4 and 1-inch (DN 20 and 25) bodies	1A319224122
	1-1/2 and 2-inch (DN 40 and 50) bodies (8 required)	1K568428982		1-1/2 and 2-inch (DN 40 and 50) bodies	1A368124112
	Steel or Stainless Steel bodies		18	Drive Screw, Stainless Steel (2 required)	1A368228982
	1/4-inch body (6 required)	1A391724052	19*	Diaphragm Gasket, Types 95L and 95H	
	1/2-inch (DN 15) body (8 required)	1A381624052		use composition, Type 95HT uses grafoil	
	3/4 and 1-inch (DN 20 and 25) bodies (8 required)	1A341824052		(Use with metal diaphragm)	
	1-1/2 and 2-inch (DN 40 and 50) bodies (8 required)	1K568428982		1/4-inch body	
				Type 95L	1E394004022
				Type 95H	1E393104022
				Type 95HT	1E3931X0012

*Recommended spare parts

Key 1 Regulator Body Part Numbers

BODY SIZE, INCHES (DN)	BODY MATERIAL								
	Cast Iron	Steel				Stainless Steel			
	NPT	NPT	SWE	CL 150	CL 300	NPT	SWE	CL 150	CL 300
TYPE 95L									
1/4	1E391119012	1J127722012	----	----	----	1J127733092	----	----	----
1/2 (15)	2E394519012	2L908022012	2P518522012	2V5673X0022	20A4569X012	2L908033092	2P5185X0012	2V5673X0012	20A4569X022
3/4 (20)	2E397419012	2E863722012	2K632722012	2V4262X0012	20A3088X012	2E863733092	2K632733092	2V4262X0022	20A3088X032
1 (25)	2E397519012	2E863822012	2H160622012	2V3546X00A2	2U7969X0022	2E863833092	2H1606X00A2	2V3546X0012	2U7969X0092
TYPE 95H									
1/4	1E391019012	1J127322012	----	----	----	1J127333092	----	----	----
1/2 (15)	1E394319012	2L907722012	2N693922012	16A6787X012	12B5376X012	2L907733092	2N6939X0012	16A6787X022	12B5376X022
3/4 (20)	2E397219012	2E408422012	2H852022012	2V9941X0012	20A4013X012	2E408433092	2H8520X00A2	2V9941X0032	20A4013X022
1 (25)	2E397319012	2E408522012	2F485522012	2V3879X00A2	2V3944X0012	2E408533092	2F4855X0012	2V3879X0012	2V3944X0042
1-1/2 (40)	3P784319012	3P784322012	3V388022012	1V4939X0012	2V3881X0012	3P784333092	3V388033092	1V4939X0032	2V3881X0062
2 (50)	3P784219012	3P784222012	3V279622012	2V5703X0012	20A1091X012	3P784233092	3V2796X0012	2V5703X0032	20A1091X022
TYPE 95HP									
1/4	----	1J127322012	----	----	----	1J127333092	----	----	----
1/2 (15)	----	2L907722012	2N693922012	16A6787X012	12B5376X012	2L907733092	2N6939X0012	16A6787X022	12B5376X022
3/4 (20)	----	2E408422012	2H852022012	2V9941X0012	20A4013X012	2E408433092	2H8520X00A2	2V9941X0032	20A4013X022
1 (25)	----	2E408522012	2F485522012	2V3879X00A2	2V3944X0012	2E408533092	2F4855X0012	2V3879X0012	2V3944X0042
1-1/2 (40)	----	3P784322012	3V388022012	1V4939X0012	2V3881X0012	3P784333092	3V388033092	1V4939X0032	2V3881X0062
2 (50)	----	3P784222012	3V279622012	2V5703X0012	20A1091X012	3P784233092	3V2796X0012	2V5703X0032	20A1091X022
TYPE 95HT									
1/4	----	1J127322012	----	----	----	1J127333092	----	----	----
1/2 (15)	----	2L907722012	2N693922012	16A6787X012	12B5376X012	2L907733092	2N6939X0012	16A6787X022	12B5376X022
3/4 (20)	----	2E408422012	2H852022012	2V9941X0012	20A4013X012	2E408433092	2H8520X00A2	2V9941X0032	20A4013X022
1 (25)	----	2E408522012	2F485522012	2V3879X00A2	2V3944X0012	2E408533092	2F4855X0012	2V3879X0012	2V3944X0042
1-1/2 (40)	----	3P784322012	3V388022012	1V4939X0012	2V3881X0012	3P784333092	3V388033092	1V4939X0032	2V3881X0062
2 (50)	----	3P784222012	3V279622012	2V5703X0012	20A1091X012	3P784233092	3V2796X0012	2V5703X0032	20A1091X022

Types 95L, 95H, 95HP and 95HT

Key	Description	Part Number	Key	Description	Part Number
19*	Diaphragm Gasket, Types 95L and 95H use composition, Type 95HT uses grafoil (Use with metal diaphragm) (continued)		23	Handwheel, Zinc (1/2-inch (DN 15) body)	1J496144012
	1/2-inch (DN 15) body		24	Machine Screw, Steel (handwheel construction)	16A5763X012
	Type 95L	1E397004022	25	Lockwasher, Steel (handwheel construction)	1A352332992
	Type 95H	1E396104022		The following parts are for the 1-1/2 and 2-inch (DN 40 and 50) Types 95H, 95HP and 95HT only	
	Type 95HT	1E3961X0012	30	Pusher Post, Stainless Steel	
	3/4 and 1-inch (DN 20 and 25) bodies			Composition seat, 416 Stainless Steel	1P784935132
	Type 95L	1E390404022		Metal seat, 416 Stainless Steel	1P785135132
	Type 95H	1E399304022		316 Stainless Steel	1P7851X0012
	Type 95HT	1E3993X0012		316 Stainless Steel, NACE	1P7849X00A2
	1-1/2 and 2-inch (DN 40 and 50) bodies		31	Locknut, Steel	1P788724122
	Type 95H	1P787904022	45*	O-Ring, Nitrile (Use with neoprene diaphragm)	1C782206992
	Type 95HT	1P7879X0012	47*	Diaphragm Gasket	
20	Pitot Tube			Use with metal diaphragm (2 required)	
	3/4 and 1-inch (DN 20 and 25) bodies			Type 95H, Composition	1P788004022
	Copper	1E399417012		Type 95HT, Grafoil	1P7880X0012
	304 Stainless Steel	1E399438072	48	Diaphragm Head (2 required)	1P788225012
	316 Stainless Steel, NACE	1E399438092		Type 95H, Steel	1P788225012
	1-1/2 and 2-inch (DN 40 and 50) bodies			Types 95HP and 95HT, Stainless Steel	1P788235072
	Copper	1P7856X0032	49	Lockwasher, Steel	1A487828992
	304 Stainless Steel	1P785638072	50	Packing Follower	
	316 Stainless Steel, NACE	1P7856X0012		416 Stainless Steel	1P785535232
21	Diaphragm Head Assembly, Type 95L only			316 Stainless Steel, NACE	1P7855X00A2
	Aluminum and Stainless Steel		51*	O-Ring, TFE	1P785906242
	1/4-inch body	1E3936X0012	52	Spring, Stainless Steel	1P785737012
	1/2-inch (DN 15) body	1E3967X0012	54	Inner Valve Base	
	3/4 and 1-inch (DN 20 and 25) bodies	1E3907X0012		416 Stainless Steel	1U404046172
22	Adjusting Screw Assembly			316 Stainless Steel, NACE	1U4040X00A2
	Steel (for tee-handle construction)		56	NACE Tag	19A6034X012
	1/4-inch body	1F2236000A2	57	Tag Wire	1U7581X0022
	3/4 and 1-inch (DN 20 and 25) bodies	1F2238000A2			
	1-1/2 and 2-inch (DN 40 and 50) bodies	1V4372X0012			

*Recommended spare parts

Key 2 Spring Case Part Numbers

BODY SIZE, INCHES (DN)	VENT STYLE	TYPE 95L			TYPE 95H		
		Cast Iron	Steel	Stainless Steel	Cast Iron	Steel	Stainless Steel
1/4	Drilled	2E391319012	2J127922012	2J1279X0022	2E391219012	2J127522012	2J1275X0012
	Tapped	----	2L442822012	2L4428X0012	2L442919012	2L443022012	2L4430X0012
1/2 (15)	Drilled	3J496319012	3L416122012	3L4161X0022	2J496219012	2L416322012	2L416333092
	Tapped	3L442119012	3L442222012	3L4422X0012	2L441919012	----	2L4420X0012
3/4 or 1 (20 or 25)	Drilled	4E397919012	4E592922012	4E592933092	3E397819012	3E408722012	3E4087X0012
	Tapped	4L461019012	4L460922012	4L4069X0032	3L460819012	3L460722012	3L4607X0022
1-1/2 or 2 (40 or 50)	Drilled	----	----	----	----	----	----
	Tapped	----	----	----	4P784019012	3P790422012	3P7904X0012

Key 2 Spring Case Part Numbers (continued)

BODY SIZE, INCHES (DN)	VENT STYLE	TYPE 95HP		TYPE 95HT	
		Steel	Stainless Steel	Steel	Stainless Steel
1/4	Drilled	2J127522012	2J1275X0012	2J127522012	2J1275X0012
	Tapped	2L443022012	2L4430X0012	2L443022012	2L4430X0012
1/2 (15)	Drilled	2L416322012	2L416333092	2L416322012	2L416333092
	Tapped	----	2L4420X0012	----	2L4420X0012
3/4 or 1 (20 or 25)	Drilled	3E408722012	3E4087X0012	3E408722012	3E4087X0012
	Tapped	3L460722012	3L4607X0022	3L460722012	3L4607X0022
1-1/2 or 2 (40 or 50)	Drilled	----	----	----	----
	Tapped	3P790422012	3P7904X0012	3P790422012	3P7904X0012

Types 95L, 95H, 95HP and 95HT

Key 4 Valve Plug Part Numbers

VALVE PLUG MATERIAL	BODY SIZE, INCHES (DN)			
	1/4	1/2 (15)	3/4 AND 1 (20 AND 25)	1-1/2 AND 2 (40 AND 50)
Metal Seat (Types 95L, 95H and 95HT)				
416 SST 316 SST Monel ⁽¹⁾	1E391746172 1E391735162 ----	1E395146172 1E395135072 1E395146222	1E398146172 1E398135072 1E398146222	1U403746172 1U4037X0012 1U4037X0052
Composition Seat (Types 95L, 95H and 95HP)				
Brass/Neoprene 416 SST/Neoprene 316 SST/Neoprene (NACE) 416 SST/Nitrile Brass/FKM 416 SST/FKM 316 SST/FKM (NACE) Brass/TFE 416 SST/TFE 316 SST/TFE	1E3933000C2 1E3933000E2 1E3933X0012 ----- 1E3933X0082 1E3933X0102 1E3933X0092 1E3933X0032 1E3933000A2 1E3933X0022	1E3963000A2 1E3963000B2 1E3963X0012 ----- 1E3963X0072 1E3963X0092 1E3963X0082 1E3963X0022 1E3963000D2 1E3963X00B2	1E3996000A2 1E3996000B2 1E3996X0012 ----- 1E3996X0072 1E3996X0092 1E3996X0082 1E3996X0022 1E3996000E2 1E3996000D2	1U4039X0052 ----- 1U4039X0082 1U4039000A2 ----- 1U4039X00A2 1U4039X0102 ----- ----- ----- 1U4039X00B2
1. Trademark of International Nickel Company.				

Key 11 Regulator Spring Part Numbers

TYPE	BODY SIZE, INCHES (DN)	OUTLET PRESSURE RANGES		SPRING PART NUMBER	COLOR
		Psig	bar		
95L	1/4	2 to 6	0,1 to 0,4	1E392527022	Yellow
		5 to 15	0,3 to 1,0	1E392627012	Green
		13 to 30	0,9 to 2,1	1E392727142	Red
95L	1/2 (15)	2 to 6	0,1 to 0,4	1E395627022	Yellow
		5 to 15	0,3 to 1,0	1D745527142	Green
		13 to 30	0,9 to 2,1	1E395727192	Red
95L	3/4, 1 (20, 25)	2 to 6	0,1 to 0,4	1E398927022	Yellow
		5 to 15	0,3 to 1,0	1E399027142	Green
		13 to 30	0,9 to 2,1	1E399127162	Red
95H	1/4	15 to 30	1,0 to 2,1	1E392527022	Yellow
		25 to 75	1,7 to 5,2	1E392627012	Green
		70 to 150	4,8 to 10,3	1E392727142	Red
	1/2 (15)	15 to 30	1,0 to 2,1	1E395627022	Yellow
25 to 75		1,7 to 5,2	1D745527142	Green	
70 to 150		4,8 to 10,3	1E395727192	Red	
95H	3/4, 1 (20, 25)	15 to 30	1,0 to 2,1	1E398927022	Yellow
		25 to 75	1,7 to 5,1	1E399027142	Green
		70 to 150	4,8 to 10,3	1E399127162	Red
	1-1/2, 2 (40, 50)	5 to 80	0,3 to 5,5	1E795327082	Light Blue
95HT	1/4	80 to 100	1,0 to 6,9	14B9941X012	None
		80 to 300	5,5 to 20,7	14B9940X012	None
	1/2 (15)	15 to 100	1,0 to 6,9	14B9943X012	None
		80 to 300	5,5 to 20,7	14B9942X012	None
316 SST/Neoprene (NACE)	3/4, 1 (20, 25)	15 to 100	1,0 to 6,9	14B9944X012	None
		80 to 300	5,5 to 20,7	14B9945X012	None
95HP	1/4	15 to 100	1,0 to 6,9	17B1704X012	None
		80 to 400	4,1 to 17,9	17B1705X012	None
	1/2 (15)	15 to 100	1,0 to 6,9	14B9941X012	None
		80 to 400	5,5 to 27,6	14B9940X012	None
316 SST/Neoprene (NACE)	3/4, 1 (20, 25)	15 to 100	1,0 to 6,9	14B9943X012	None
		80 to 400	5,5 to 27,6	14B9942X012	None
1-1/2, 2 (40, 50)	3/4, 1 (20, 25)	15 to 100	1,0 to 6,9	14B9944X012	None
		80 to 400	5,5 to 27,6	14B9945X012	None
95HT	1/4	15 to 100	1,0 to 6,9	17B1704X012	None
		80 to 300	4,1 to 20,7	17B1705X012	None
	1/2 (15)	15 to 100	1,0 to 6,9	14B9941X012	None
		80 to 300	5,5 to 20,7	14B9940X012	None

Types 95L, 95H, 95HP and 95HT

Key 12 Diaphragm Part Numbers

BODY SIZE, INCHES (DN)	DIAPHRAGM MATERIAL			
	302 Stainless Steel (2 Required)	Neoprene	Fluoroelastomer (2 Required)	Monel ⁽¹⁾ (2 Required)
TYPE 95L				
1/4	1E393936012 ⁽²⁾	1E394102112	1E394102402 ⁽³⁾	1E393941012
1/2 (15)	1E396936012	1E397102112	1E397102402	1E396941012
3/4 and 1 (20 and 25)	1E390536012	1E390302112	1E390302332	1E390541012
TYPE 95H				
1/4	1E392836012	1E393502112	1E393502402 ⁽³⁾	1E392841012
1/2 (15)	1E395836012	1E396602112	1E396602402	1E395841012
3/4 and 1 (20 and 25)	1E399236012	1E399902112	1E399902402	1E399241012
1-1/2 and 2 (40 and 50)	1P787836012	1P788102192	11A1347X012	1P7878X00A2
TYPE 95HP				
1/4	----	1E393502112	1E393502402 ⁽³⁾	----
1/2 (15)	----	1E396602112	1E396602402	----
3/4 and 1 (20 and 25)	----	1E399902112	1E399902402	----
1-1/2 and 2 (40 and 50)	----	1P788102192	11A1347X012	----
TYPE 95HT				
1/4	1E392836012	----	----	----
1/2 (15)	1E395836012	----	----	----
3/4 and 1 (20 and 25)	1E399236012	----	----	----
1-1/2 and 2 (40 and 50)	1P787836012	----	----	----

1. Trademark of International Nickel Company.
2. Only one diaphragm required for Type 95L with 2 to 6 psig (0,1 to 0,4 bar) spring range.
3. Only one diaphragm required for 1/4-inch size.

Regulator Division Industrial

USA - Headquarters
McKinney, Texas 75070 USA
Tel: 1-800-558-5853
Outside U.S. 1-469-293-4201

Asia-Pacific
Shanghai, China 201206
Tel: +86 21 2892 9000

Europe
Bologna, Italy 40013
Tel: +39 051 4190611

Regulator Division Natural Gas Technologies

USA - Headquarters
McKinney, Texas 75070
Tel: 1-800-558-5853
Outside U.S. 1-469-293-4201

Asia-Pacific
Singapore, Singapore 128461
Tel: +65 6777 8211

Europe
Bologna, Italy 40013
Tel: +39 051 4190611
Gallardon, France 28320
Tel: +33 (0)2 37 33 47 00

Regulator Division Industrial/High Purity

TESCOM
Elk River, Minnesota 55330 USA
Tel: 1-763-241-3238
Selmsdorf, Germany 23923
Tel: +49 (0) 38823 31 0

For further information visit www.emersonprocess.com/regulators

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners. Fisher is a mark owned by Fisher Controls, Inc., a business of Emerson Process Management.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Process Management does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Process Management product remains solely with the purchaser.