

## Type 98L and Type 98H Back Pressure and Relief Valves



August 1993

Form 1570



### WARNING

**Fisher relief valves must be installed, operated and maintained in accordance with federal, state, and local codes, rules and regulations, and Fisher instructions.**

**If the spring case develops a leak or if the outlet continually vents gas, service to the unit may be required. Failure to correct trouble could result in a hazardous condition. Only a qualified person must install or service the unit.**

### Introduction

Type 98L and Type 98H (see figure 1) are self-operated, spring-loaded back pressure or relief valves. Typical applications include use in wash tanks, small heaters, fuel and oil lines, air supply systems, test fixtures, and sterilizers. Relief pressure ranges are 2 to 38 psig (0.14 to 2.6 bar), in four ranges, for the Type 98L and 15 to 200 psig (1.03 to 13.8 bar), in eight ranges, for the Type 98H. Type 98L body sizes are 1/4, 1/2, 3/4 and 1-inch. Type 98H body sizes are 1/4, 1/2, 3/4, 1, 1-1/2 and 2-inch.

### Specifications

Specifications for the Type 98L and 98H backpressure and relief valves are given in table 1.



WB155

**TYPE 98H**



WB156

**TYPE 98L**

*Figure 1. Type 98L & 98H Back Pressure and Relief Valves*

Table 1. Specifications

Available Constructions

**Type 98L:** Self-operated with standard adjusting screw. Relief pressure ranges are 2 to 38 psig (0.14 to 2.6 bar).

**Type 98H:** Self-operated with standard adjusting screw. Relief pressure ranges are 15 to 200 psig (1.03 to 13.8 bar).

End Connection Style

NPT screwed, socket weld, or ANSI flanged-14 inches face to face (DIN flanged-356mm face to face)

Body Sizes

■ 1/4, ■ 1/2, ■ 3/4, ■ 1, ■ 1-1/2, ■ 2

Maximum Inlet Pressures, Psig<sup>(1,5)</sup> (Set Pressure Plus Buildup)

TYPE NUMBER	STEEL (WCB) OR STAINLESS STEEL BODY/ ALL TRIMS TO 150°F <sup>(2)</sup> (66°C)	CAST IRON BODY		
		All Trims to 150°F <sup>(3)</sup> (66°C)	Metal Trims <sup>(4)</sup>	
			To 315°F (66°C)	To 406°F (208°C)
98L	125 (52)	60 (16)	60 (16)	60 (16)
98H	300 (149)	300 (149)	300 (149)	250 (121)

Relief Pressure Ranges

See table 2

Allowable Temperature Ranges<sup>(5)</sup>

**Nitrile Parts:** -20 to 200°F (-29 to 93°C)  
**Neoprene Parts:** -40 to 150°F (-40 to 66°C)  
**Fluoroelastomer Parts:** 0 to 300°F (-18 to 149°C)  
**Metal Diaphragm and Seat**  
*Cast Iron Body and Spring Case:*  
-40 to 406°F (-40 to 208°C)  
*Steel Body and Spring Case:*  
-20 to 450°F (-29 to 232°C)  
*Stainless Steel Body and Spring Case:*  
-40 to 450°F (-40 to 232°C)

Approximate Weight, lb (kg)

**Type 98H**  
*1/4-inch Body:* 7 (3.18)  
*1/2-inch Body:* 7 (3.18)  
*3/4-inch Body:* 16 (7.26)  
*1-inch Body:* 16 (7.26)  
*1-1/2-inch Body:* 55 (25)  
*2-inch Body:* 55 (25)  
**Type 98L**  
*1/4-inch Body:* 6 (2.80)  
*1/2-inch Body:* 13 (5.90)  
*3/4-inch Body:* 30 (13.6)  
*1-inch Body:* 30 (13.6)

1. Relief pressure setting plus maximum allowable buildup over setting.

2. Or fluoroelastomer trims to 300°F (149°C) or metal trims to 450°F (232°C).

3. Or fluoroelastomer trims to 300°F (149°C).

4. Interpolate for intermediate pressure ratings.

5. The pressure/temperature limits in this bulletin and any applicable standard limitation should not be exceeded.

1. Relief pressure setting plus maximum allowable buildup over setting.  
 2. Or fluoroelastomer trims to 300°F (149°C) or metal trims to 450°F (232°C).  
 3. Or fluoroelastomer trims to 300°F (149°C).

4. Interpolate for intermediate pressure ratings.  
 5. The pressure/temperature limits in this bulletin and any applicable standard limitation should not be exceeded.

Table 2. Relief Pressure Ranges

BODY SIZE, INCHES	98L RANGE		98H RANGE		COLOR  CODE	PART NUMBER
	Psi	Bar	Psi	Bar		
1/4	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E392527022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1E392627012
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1E392727142
	29 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L346127142
1/2	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E395627022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1D745527142
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1D395727192
	29 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L380027142
3/4 & 1	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E398927022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1E399027142
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1D399127162
	29 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L380127232
1-1/2 & 2	---	---	5 to 35	0.3 to 2.4	Dark Gray	1E792327092
	---	---	20 to 65	1.4 to 4.5	Light Blue	1E795327082
	---	---	50 to 100	3.4 to 6.9	Light Gray	1E795427082
	---	---	80 to 170	5.6 to 11.7	Black	1P788827082

1. All springs may be backed off to 0 psig (bar). However, highest capacities and best performances are obtained by using these springs in their recommended ranges. Psi (bar) rather than psig (bar) are used for differential relief constructions.

## Installation

Unbox and inspect the valve. Remove pipe scale and other foreign material from the connecting pipeline. Apply a suitable pipe compound to the male threads. The relief valve can be installed in any position as long as the flow is in the direction indicated by the arrow cast on the body.

Maximum operating temperatures for the Type 98L and 98H relief valves are as follows:

Elastomer diaphragm or seat: 150°F (66°C)

Metal diaphragm and seat: 406°F (208°C) with cast iron body and spring case or 450°F (232°C) with steel or stainless steel body and spring case

## Vents



### WARNING

**If the process fluid is hazardous, install remote vent lines to carry fluid to a safe area.**

If remote venting is necessary, an optional tapped vent in the spring case is available. Install remote vent lines in the spring case and outlet openings. The vent lines must have the largest practical diameter and be as short as possible with a minimum number of bends or elbows.

## Overpressure



### WARNING

**Overpressuring any portion of this equipment may result in equipment damage, leaks in the relief valve, or personal injury due to bursting of pressure-containing parts. The system should be inspected after any overpressure condition.**

Relief or back pressure ranges are from 2 to 200 psig (0.14 to 13.8 bar). The individual spring range of your relief valve is stamped on the nameplate.

Maximum inlet pressures depend upon body materials and temperatures. See table 1 for the maximum inlet pressure of the valve. The valve should be inspected for damage after any overpressure condition.

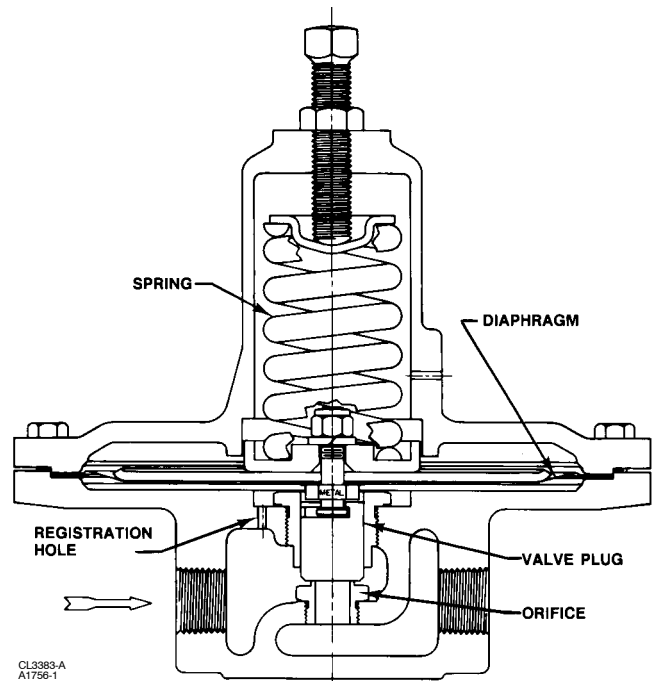


Figure 2. Type 98L Relief Valve Operational Schematic

## Adjustment

Each unit is factory set for the pressure specified on your order. The allowable spring range is stamped on the nameplate. If a pressure setting beyond the indicated range is required, substitute the appropriate spring. Be sure to label the valve to indicate the new pressure range.

Always use a pressure gauge to monitor pressure when making adjustments.

Loosen the locknut (key 17). To increase the setting, turn the adjusting screw (key 15) clockwise. Turn the adjusting screw counterclockwise to decrease the setting. Tighten the locknut.

## Principle Of Operation

Relief or back pressure valves respond to changes in upstream pressure. Pressure changes register under the diaphragm (see figure 2) through a registration hole in the valve body. When the pressure increases beyond the spring setting, the diaphragm pressure overcomes the spring compression. This causes the valve plug to move away from the orifice. The flow line through the valve is open and excess pressure is vented. When upstream pressure drops back to normal, the valve resumes its closed position.

## Maintenance



### WARNING

**To avoid personal injury and equipment damage, isolate the valve from all pressure. Cautiously release pressure from the valve before attempting disassembly.**

Due to normal wear and damage that may occur from external sources, relief valve parts such as the O-rings, gaskets, diaphragm, orifice, and valve plug should be inspected periodically and replaced as necessary. The frequency of inspection and replacement depends upon the severity of service conditions or the requirements of state and federal laws.

Instructions are given below for disassembly of the Type 98L and 98H back pressure relief valves. These valves do not have to be removed from the pipeline to inspect internal parts. Suitable lubricants are indicated on the assembly drawings. Apply the lubricants as the relief valve is being reassembled. Refer to figures 3 and 4 while servicing the relief valve.

1. Relieve the spring tension by loosening the locknut (key 17) and turning the adjusting screw (key 15) counterclockwise. Remove the cap screws (key 16). Lift off the spring case (key 2), spring (key 11), and upper spring seat (key 9).

2. Lift out the diaphragm unit which includes the pusher post (key 6), lower spring seat (key 8), diaphragm head (key 25, Type 98L), diaphragm (key 12), washer (key 7), and valve plug (key 4). (There will be two diaphragms if the diaphragm material is metal or fluoroelastomer.)

3. Check the orifice (key 3). If it needs replacing or repairing, unscrew the valve plug guide (key 5) and then the orifice. The valve plug can be removed by sliding it off of the pusher post.

#### Note

**If damage to elastomer or metal seating surfaces is severe, replace the orifice and valve plug O-ring with new parts. However, by following the lapping procedure below, it is possible to repair metal seating surfaces if they are only slightly worn or scratched.**

4. Lapping procedure:

a. Place a small amount of 500-grit silicon carbide or aluminum oxide lapping compound on a flat surface such as a piece of heavy plate glass.

Table 3. Torque Specifications

Body Size, Inches	Spring Case Ft-Lbs	Orifice Ft-Lbs
1/4	4.5 - 5.0	8 - 12
1/2	10 - 13	29 - 35
3/4 - 1	24 - 30	33 - 42
1-1/2 - 2	40 - 50	140 - 170

b. Take the valve plug or orifice and move it in a figure 8 motion on the lapping compound. Do not allow the part to tip or rock since this would round the corners.

c. Repeat step b for each part, using an 800-grit or 1000-grit silicon carbide or aluminum oxide lapping compound.

d. Wash away all traces of the lapping compound. To help prevent scratching the seating surfaces, a light coat of oil may be applied before returning the valve plug and orifice to the body. See table 3 for torque specifications.

5. Return the orifice and valve plug guide to the body.

6. To replace the valve plug O-ring (key 22), remove the screw (key 24) and O-ring retainer (key 21) from the plug. Remove and replace the O-ring.

7. Separate the remainder of the diaphragm unit parts. Take the locknut (key 26) off of the pusher post. Slide off the washer (key 23), lower spring seat, diaphragm head (Type 98L), diaphragm, washer (key 7), and gasket (key 10).

8. Slip the plug onto the pusher post.

#### Note

**If a metal diaphragm is to be replaced by a elastomer diaphragm or a elastomer diaphragm by a metal diaphragm, a new pusher post is required. Each diaphragm material requires a different length pusher post.**

9. Replace the diaphragm gasket (key 19) if necessary.

10. Slip gasket, washer, diaphragm, diaphragm head, lower spring seat, and washer back onto the pusher post. Screw on the locknut and return the unit to the body.

11. Set the spring in the lower spring seat and place the upper spring seat on the spring.

12. Put the spring case over the spring and onto the body. Tighten the cap screws finger tight only.

13. To ensure proper slack in the diaphragm, apply some spring compression by turning the adjusting screw clockwise. Finish tightening the cap screws.

## Parts Ordering

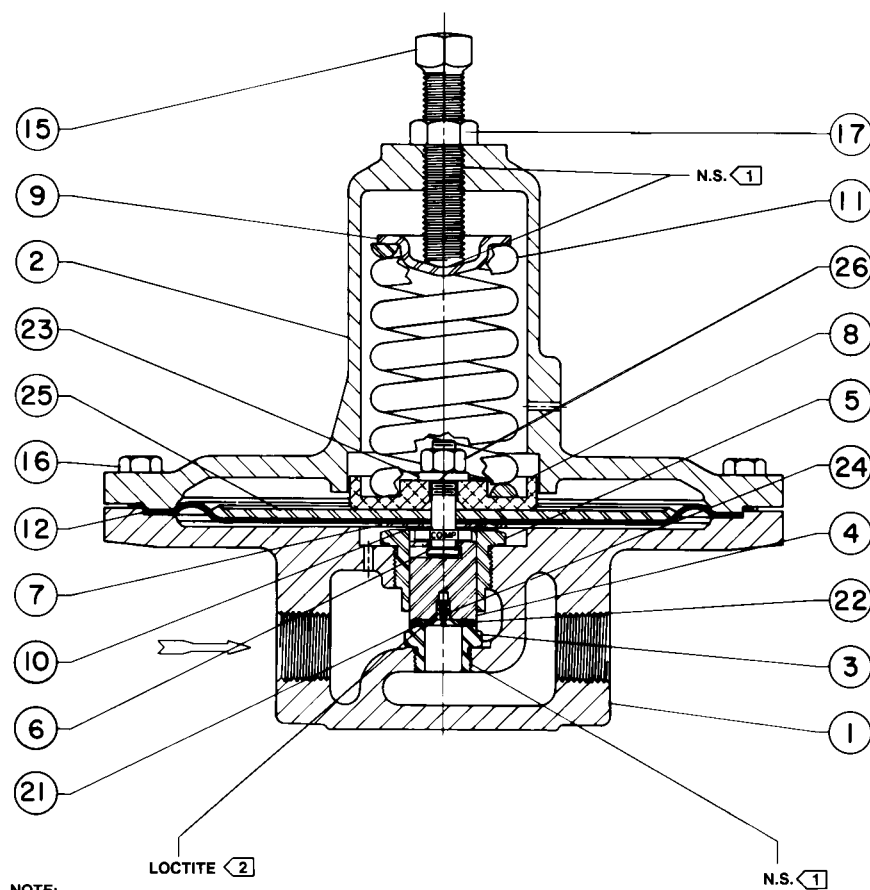
When corresponding with your Fisher sales office or sales representative about this equipment, be sure to include the type number and other information stamped on the nameplate.

When ordering replacement parts, reference the key number of each needed part and specify the eleven-character part number as found in the following parts list.

## Parts List

Key	Description	Part Number
<b>Note</b>		
<b>In this parts list, parts marked NACE are intended for corrosion-resistant service as detailed in the National Association of Corrosion Engineers (NACE) standard MR0175-92.</b>		
Parts kit (included are keys 3, 4, 10, 12, 19, 21, 22 and 24). Also included for 98H only is key 14.		
Elastomer Trim		
	1/4-inch body	R98H X000012
	1/2-inch body	R98H X000022
	3/4 and 1-inch body	R98H X000032
	1-1/2 and 2-inch body	
	Type 98H only	R98H X000072
Metal Trim		
	1/4-inch body	R98H X000042
	1/2-inch body	R98H X000052
	3/4 and 1-inch body	R98H X000062
	1-1/2 and 2-inch body	
	Type 98H only	R98H X000082
1	Body	See following table
2	Spring Case	
	Type 98H	
	Cast iron	
	1/4-inch body	2E3912 19012
	1/2-inch body	2J4962 19012
	3/4 and 1-inch bodies	3E3978 19012
	1-1/2 and 2-inch bodies	4P7840 19012
	Steel	
	1/4-inch body	2J1275 22012
	1/2-inch body	2L4163 22012
	3/4 and 1-inch bodies	3E4087 22012
	1-1/2 and 2-inch bodies	3P7904 22012

Key	Description	Part Number
2	Spring Case (Continued)	
	Type 98L	
	Cast iron	
	1/4-inch body	2E3913 19012
	1/2-inch body	3J4963 19012
	3/4 and 1-inch bodies	4E3979 19012
	Steel	
	1/4-inch body	2J1279 22012
	1/2-inch body	3L4161 22012
	3/4 and 1-inch bodies	4E5929 22012
3*	Orifice	See following table
4*	Valve Plug	See following table
5	Valve Plug Guide	
	416 stainless steel	
	1/4-inch body	1L3458 35132
	1/2-inch bodies	1L3416 35132
	3/4 and 1-inch bodies	1L3429 35132
	1-1/2 and 2-inch bodies	1P7885 35132
	316 stainless steel	
	1/4-inch body (NACE)	1L3458 35072
	1/2-inch body (NACE)	1L3416 35072
	3/4 and 1-inch bodies (NACE)	1L3429 35072
	1-1/2 and 2-inch bodies (NACE)	
	Type 98H only	1P7885 35072
6	Pusher Post	See following table
7	Washer (elastomer diaphragm only)	
	416 stainless steel trim	
	1/4-inch body	1L3447 36012
	1/2-inch body	1L3398 36012
	3/4 and 1-inch bodies	1L3428 36012
	316 stainless steel trim	
	1/4-inch body, std	1L3447 36142
	(NACE)	1L3447 X0012
	1/2-inch body, std	1L3398 35072
	(NACE)	1L3398 40032
	3/4 and 1-inch bodies, std	1L3428 36142
	(NACE)	1L3428 X0022
8	Lower Spring Seat	
	1/4-inch body, aluminum	1L3446 09012
	1/2-inch body, aluminum	1L3397 08012
	3/4 and 1-inch bodies, aluminum	1L3427 08012
	1-1/2 and 2-inch bodies	
	Type 98H only, steel zinc plated	1P7877 24152
9	Upper Spring Seat, steel pl	
	1/4-inch body	1B7985 25062
	1/2-inch body	1D6671 25072
	3/4 and 1-inch bodies	1E3987 25072
	1-1/2 and 2-inch bodies	
	Type 98H only	1P7876 24092
10*	Gasket, composition	
	(2 req d for metal diaphragm)	
	1/4-inch body	1L3448 04022
	1/2-inch body	1L3411 04022
	3/4 and 1-inch bodies	1L3434 04022
	1-1/2 and 2-inch bodies (metal diaphragm only) (2 req d)	
	Type 98H only	1P7880 04022
11	Relief Valve Spring	See following table
12*	Diaphragm	See following table
13	Nameplate, aluminum	
	(not shown)	11A5494 X0A2
14*	O-Ring, Type 98H only	
	1-1/2 and 2-inch bodies, elastomer seat only	
	Nitrile	1C7822 06992
	Fluoroelastomer	1K7561 06382
	Fluoroelastomer (NACE)	1K7561 35072



NOTE:  
PARTS NOT SHOWN 13, 18, & 20  
1 NEVER-SEEZ MARK OWNED BY COMPOUND CORP.  
2 LOCTITE GRADE "A" MARK OWNED BY LOCTITE CORP.

30A7028  
A1757-1

Figure 3. Type 98L Relief Valve Assembly Drawing

Key	Description	Part Number	Key	Description	Part Number
15	Adjusting Screw, steel pl		17	Jam Nut, steel zinc plated	
	1/4-inch body	1E6399 28992		1/4-inch body	1A3522 24122
	Standard			1/2-inch body	1A3537 24122
	1/2-inch body	1D9954 48702		3/4 and 1-inch bodies	1A3192 24122
	Standard	1J4964 28982		1-1/2 and 2-inch bodies	
	For handwheel			Type 98H only	1A3681 24112
	3/4 and 1-inch bodies		18	Drive Screw (not shown)	
	Standard	1A3308 28982		Stainless steel (2 req d)	1A3682 28982
	1-1/2 and 2-inch bodies		19*	Diaphragm Gasket, elastomer	
	Standard, Type 98H only	1A6801 28992		Use w/302 stainless steel diaphragm	
16	Cap Screw, steel pl			Type 98H	
	Type 98L			1/4-inch body	1E3931 04022
	1/4-inch body (10 req d)	1A4078 24052		1/2-inch body	1E3961 04022
	1/2-inch body (10 req d)	1A3816 24052		3/4 and 1-inch bodies	1E3993 04022
	3/4 and 1-inch bodies (12 req d)	1A3369 24052		1-1/2 and 2-inch bodies	1P7879 04022
	Type 98H			Type 98L	
	1/4-inch body (6 req d)	1A3917 24052		1/4-inch body	1E3940 04022
	1/2-inch body (8 req d)	1A3526 24052		1/2-inch body	1E3970 04022
	3/4 and 1-inch bodies (8 req d)	1A3418 24052		3/4 and 1-inch bodies	1E3904 04022
	1-1/2 and 2-inch bodies (8 req d)	1K5684 28982			

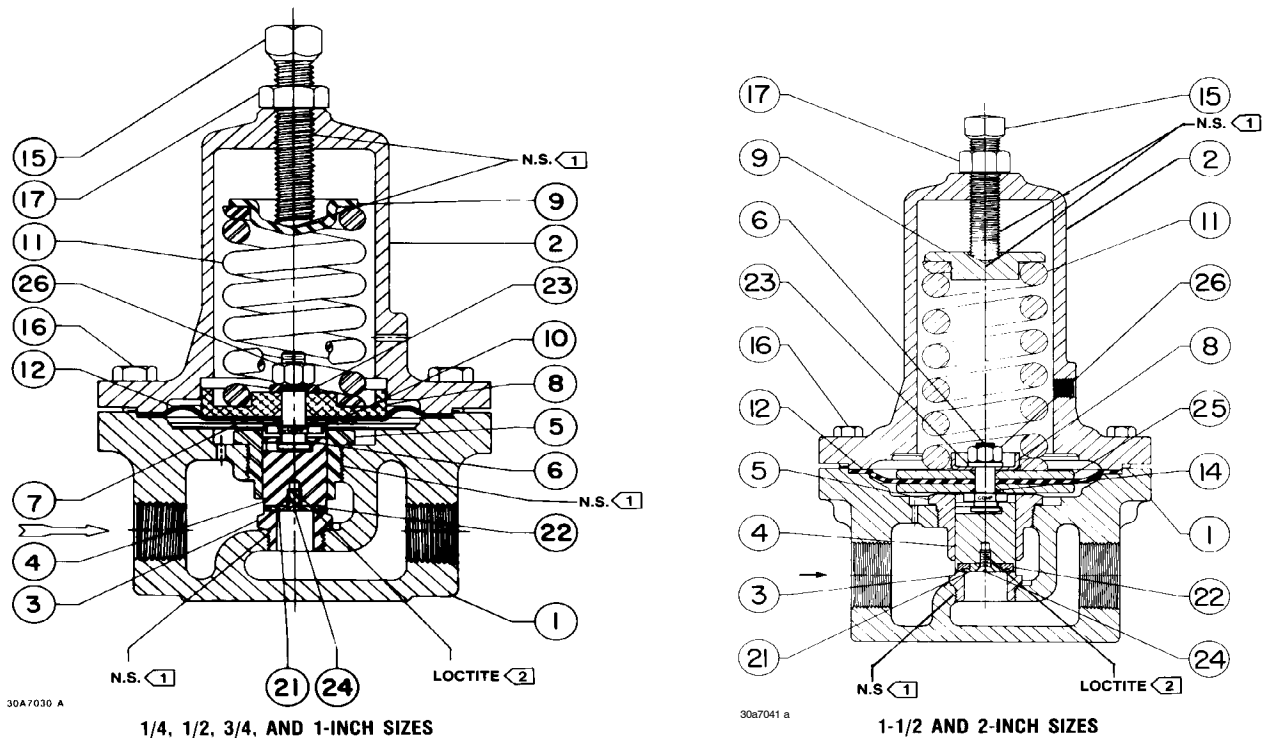


Figure 4. Type 98H Relief Valve Assembly Drawing

Key	Description	Part Number	Key	Description	Part Number
21	O-Ring Retainer (elastomer seat only)		22	L-Ring, Type 98H only	
	1/4-inch body			Elastomer seat only	
	416 stainless steel	1L3460 35132		1-1/2 and 2-inch bodies	
	316 stainless steel (NACE)	1L3460 35072		Nitrile	1P7874 03202
	1/2-inch body			Fluoroelastomer	1P7874 06382
	416 stainless steel	1L3415 35232	23	Lockwasher, steel	
	316 stainless steel (NACE)	1L3415 35072		1/4 and 1/2-inch bodies	1C2256 28982
	3/4 and 1-inch bodies			3/4 and 1-inch bodies	1H6243 28992
	416 stainless steel	1L3430 35132		1-1/2 and 2-inch bodies, Type 98H only	1A4878 28992
	316 stainless steel (NACE)	1L3430 35072	24	Machine Screw, stainless steel	
	1-1/2 and 2-inch bodies, Type 98H only			Elastomer seat only	
	416 stainless steel	1P7875 35132		1/4-inch body (NACE)	1L3462 38992
	316 stainless steel (NACE)	1P7875 35072		1/2-inch body (NACE)	1L3444 38992
22*	O-Ring (elastomer seat only)			3/4 and 1-inch bodies (NACE)	1L3435 38992
	1/4-inch body			1-1/2 and 2-inch bodies (NACE)	
	Nitrile	1C8538 06992		Type 98H only	1P7886 38992
	Fluoroelastomer	1C8538 X0052			
	1/2-inch body				
	Nitrile	1D2888 06992			
	Fluoroelastomer	1N5301 06382			
	3/4 and 1-inch bodies				
	Nitrile	1C7821 06992			
	Fluoroelastomer	1N1632 06382			

## Types 98L and 98H



Key	Description	Part Number	Key	Description	Part Number
25	Diaphragm Head		28	Handwheel, zinc	
	Type 98L, steel zinc plated			1/2-inch body only	1J4961 44012
	1/4-inch body	1L3455 25072	29	Machine Screw, steel pl	
	1/2-inch body	1L3396 25072		1/2-inch body	
	3/4 and 1-inch bodies	1L3421 25072		With handwheel only	1A8517 28982
	Type 98H, steel		30	Lockwasher, steel	
	1-1/2 and 2-inch bodies (2 req d)			1/2-inch body	
	Standard	1P7882 25012		With handwheel only	1A3523 32992
	(NACE)	1P7882 35072	51	NACE Tag, not shown	19A6034 X012
26	Locknut, steel zinc plated		52	Tag Wire, not shown (NACE)	1U7581 X0022
	1/4 and 1/2-inch bodies	1L8723 24122			
	3/4 and 1-inch bodies	1L8722 24122			
	1-1/2 and 2-inch bodies, Type 98H only	1P7887 24122			

### Key 1 Regulator Body, NPT

BODY SIZE, INCHES	TYPE 98H				98L			
	NACE	For Other Than Sour Gas Corrosion Resistance Applications			NACE	For Other Than Sour Gas Corrosion Resistance Applications		
		Cast Iron	Steel	316 SST		Cast Iron	Steel	316 SST
1/4	1L3721X0052	1L346419012	1L372122012	1L372133092	1L3723X0022	1L346519012	1L372322012	1L372333092
1/2	2L3687X0022	2L339519012	2L368722012	2L368733092	2L3689X0032	2L339219012	2L368922012	2L368933092
3/4	2L3734X0062	2L342519012	2L373422012	2L373433092	2L3182X0022	2L341919012	2L318222012	2L318233092
1	2L3735X0032	2L342619012	2L373522012	2L1373533092	2L3183X0042	2L342019012	2L318322012	2L318333092
1-1/2	3P7868X0022	3P786819012	3P786822012	3P786833092	---	---	---	---
2	3P7867X0042	3P786719012	3P786722012	3P786733092	---	---	---	---

### Key 1 Regulator Body, ANSI Class 150 & 300 Flanges

BODY SIZE, INCHES	TYPE 98H BODY MATERIAL				TYPE 98L BODY MATERIAL			
	Steel		Stainless Steel		Steel		Stainless Steel	
	ANSI Class				ANSI Class			
	150	300	150	300	150	300	150	300
1/2	1V5178X0012	---	1V5178X0022	---	---	---	---	---
3/4	---	---	---	---	2V4264X0022	---	---	---
1	2V3805X0012	2U8048X0012	2V3805X00B2	2U8048X0022	2V3641X0022	2U8047X0012	2V3641X0012	---
1-1/2	21B0804X012	1V4541X0012	21B0804X0022	1V4541X0022	---	---	---	---
2	10A0192X012	10A4986X012	10A0192X022	1V4541X0022	---	---	---	---

### Key 1 Regulator Body, Socket Weld

BODY SIZE, INCHES	TYPE 98H BODY MATERIAL		TYPE 98L BODY MATERIAL	
	Steel	Stainless Steel	Steel	Stainless Steel
1/2	2L9673X0022	2L9673X0012	---	---
3/4	---	---	2N4463X0012	---
1	2N414422012	2N4144X0012	2N445222012	2N4452X0012
1-1/2	3V4542X0012	3V4542X0022	---	---
2	30A0191X012	30A0191X032	---	---



## Key 3 Orifice

BODY SIZE, INCHES	METAL TO METAL SEAT		ELASTOMER SEAT		
			NACE	For Other Than Sour Gas Corrosion Resistance Applications	
	416 SST	316 SST		416 SST	316 SST
1/4	1E391646172	1E391635072	1L345935072	1L345935132	1L345935072
1/2	1E395046172	1E395035072	1L341735072	1L341735132	1L341735072
3/4, 1	1E398046172	1E398035072	1L343135072	1L343135132	1L343135072
Type 98H only 1-1/2, 2	2P787046172	2P787035072	1P787135072	1P787135132	1P787135072

## Key 4\* Valve Plug

BODY SIZE, INCHES	METAL TO METAL SEAT		ELASTOMER SEAT		
			NACE	For Other Than Sour Gas Corrosion Resistance Applications	
	416 SST	316 SST		416 SST	316 SST
1/4	1L345246172	1L345235072	1L345135072	1L345135132	1L345135072
1/2	1L344146172	1L344135162	1L344335072	1L344335132	1L344335072
3/4, 1	1L343746172	1L343735162	1L343635072	1L343635132	1L343635072
Type 98H only 1-1/2, 2	1P787246172	1P787235072	1P787335072	1P787346172	1P787335072

## Key 6 Pusher Post

BODY SIZE, INCHES	METAL TO METAL SEAT		ELASTOMER SEAT		
			NACE	For Other Than Sour Gas Corrosion Resistance Applications	
	416 SST	316 SST		416 SST	316 SST
1/4	1L345735132	1L345735072	1L345635072	1L345635132	1L345635072
1/2	1E344535132	1L344535072	1L344235072	1L344235132	1L344235072
3/4, 1	1L343935132	1L343935072	1L343835072	1L343835132	1L343835072
Type 98H only 1-1/2, 2	1P788335132	1P788335072	1P788435072	1P788435132	1P788435072

## Types 98L and 98H



### Key 11 Relief Valve Spring

BODY SIZE, INCHES	98L RANGE		98H RANGE		COLOR CODE	PART NUMBER
	Psi	Bar	Psi	Bar		
1/4	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E392527022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1E392627012
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1E392727142
	20 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L346127142
1/2	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E395627022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1D745527142
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1D395727192
	20 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L380027142
3/4 & 1	2 to 17	0.1 to 1.2	15 to 35	1.0 to 2.4	Yellow	1E398927022
	6 to 14	0.4 to 1.0	25 to 75	1.7 to 5.2	Green	1E399027142
	12 to 25	0.8 to 1.7	70 to 140	4.8 to 9.7	Red	1D399127162
	20 to 38	1.4 to 2.6	130 to 200	9.0 to 13.8	Blue	1L380127232
1-1/2 & 2	---	---	5 to 35	0.3 to 2.4	Dark Gray	1E792327092
	---	---	20 to 65	1.4 to 4.5	Light Blue	1E795327082
	---	---	50 to 100	3.4 to 6.9	Light Gray	1E795427082
	---	---	80 to 170	5.6 to 11.7	Black	1P788827082

### Key 12\* Diaphragm

TYPE NUMBER	BODY SIZE, INCHES	DIAPHRAGM MATERIAL		
		Neoprene	Fluoroelastomer (2 req d)	302 SST (2 req d)
98L	1/4	1L345302112	1L345302402	1L345436012
	1/2	1L341302112	1L341302402	1L341436012
	3/4, 1	1L342302112	1L342302402	1L342236012
98H	1/4	1L344902112	1L344902402	1L345036012
	1/2	1L341202112	1L341202402	1L339936012
	3/4, 1	1L343302112	1L3433X0032	1L343236012
	1-1/2, 2	1P788102192	11A1347X012	1P787836012

\*Recommended spare part.

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