

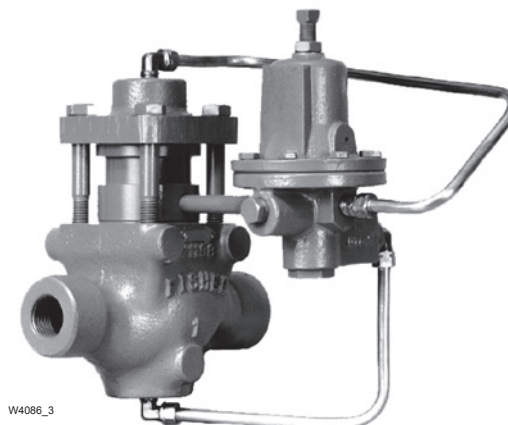
Type 92S Pilot-Operated Steam Regulator

Introduction

The Type 92S steam regulator is piston actuated for high cycle steam service which includes a Type 6492L, 6492H, or 6492HT pilot (see Figure 1). These pilots have bellows sealed stems to eliminate stem guide friction. The valve and pilot use lapped seating surfaces that have been proven to minimize seat leakage.

Features

- **Good Shutoff for Low Downstream Build-up—**Type 92S main valve and Types 6492H, 6492L, and 6492HT pilots are machine-lapped seating surfaces that have been time-proven to minimize seat leakage when the downstream demand is zero and the regulator is shutoff.
- **Resistance to Piping Stresses—**Steel constructions are available to help resist the piping stresses commonly encountered in steam applications.
- **Ease of Installation—**Compact construction reduces installation space requirements. Supply of pressure to the pilot is supplied from the inlet side of the main valve through factory piped tubing; with a standard pilot, this means no separate pilot supply pressure is required.
- **Increased Sensitivity to Downstream Pressure Changes—**Friction-reducing bellows seal on the pilot stem and large pilot diaphragm areas yield good sensitivity.
- **Ease of Pilot Maintenance—**Pilot valve plug and seat can be removed for inspection of maintenance without disassembling piping connections and without removing the diaphragm. Pilot inlet screen (Figure 2) is easily removed with the seating parts for inspection and cleaning. Diaphragm can be removed without disturbing the seating parts.
- **Noise Reduction Capability Without Decrease in Capacity—**A noise attenuation trim is available for use with NPS 2 / DN 50 and larger main valve sizes to provide an economical yet



1 NPT STEEL
MAIN VALVE WITH TYPE 6492H OR 6492HT PILOT



NPS 3 / DN 80 FLANGED CAST IRON
MAIN VALVE WITH TYPE 6492L PILOT

Figure 1. Type 92S Pilot-Operated Steam Regulator

full-flow means for the reduction of noise from high velocity steam flow. Further noise reduction of the system can be achieved by the use of a heavier piping schedule and/or thermal insulation of the attached piping.

Specifications

Main Valve Body Sizes and End Connection Styles

BODY SIZES	END CONNECTION STYLES AND RATINGS	
	Cast Iron Body	Steel or Stainless Steel Body
1, 1-1/2, and 2	NPT	NPT or PN 16/25/40
NPS 1, 1-1/2, 2, 2-1/2, 3, and 4 / DN 25, 40, 50, 65, 80, and 100	CL125 FF or CL250 RF	CL150 RF, CL300 RF, CL600 RF, or PN 16/25/40
NPS 6 x 4 / DN 150 x 100 ⁽²⁾	Not available	CL300 RF, CL600 RF, or PN 16/25-40/64/100

Maximum Inlet and Pilot Supply Pressure⁽¹⁾

Cast Iron Main Valve and Pilot: 250 psig / 17.2 bar or body rating limit, whichever is lower
Steel Main Valve and Pilot: 300 psig / 20.7 bar or body rating limit, whichever is lower

Minimum and Maximum Differential Pressures⁽¹⁾

BODY SIZES, NPS / DN	MINIMUM DIFFERENTIAL PRESSURE	MAXIMUM DIFFERENTIAL PRESSURE
1, 1-1/2, and 2 / 25, 40, and 50	15 psi / 1.0 bar	200 psi / 13.8 bar or body rating limit, whichever is lower
2-1/2, 3, 4, and 6 x 4 / 65, 80, 100, and 150 x 100 ⁽²⁾	20 psi / 1.4 bar	175 psi / 12.1 bar or body rating limit, whichever is lower

Outlet (Control) Pressure Ranges

See Table 1

Maximum Outlet Pressures⁽¹⁾

See Table 2

Maximum Allowable Loading Pressure for Pilot with Tapped Spring Case

Combination of pilot control spring setting and spring case loading pressure cannot exceed 150 psig / 10.3 bar for Type 6492H pilot or 25 psig / 1.7 bar for Type 6492L pilot and 250 psig / 17.2 bar for Type 6492HT

Droop

See Table 5 and Figure 8

Typical Regulating Capacities

See Table 5 and Capacity Information section

Main Valve Orifice Sizes and Flow Coefficients

See Table 3

Noise Information

See Table 6 and Noise Abatement Information section

Construction Materials

Main Valve

Body and Body Flange: Cast iron (NPS 1 through 4 / DN 25 through 100 sizes only), steel or CF8M Stainless steel (all sizes)
Valve Plug: Heat-treated 17-4PH stainless steel
Cage: Cast iron or Stainless steel
Spiral Wound Gasket: 316L stainless steel and graphite
Spring, Lower Stem, Retaining Ring, Bolting, and Cylinder Spacer: Steel or plated steel
Body and Cylinder Gaskets: Copper
Pistons, Seat Ring, and Cylinders: Heat-treated 416 Stainless steel
Piston Ring(s): Polytetrafluoroethylene (PTFE)
Piston Ring Retainer(s): 302 Stainless steel
Noise Attenuation Trim (If Used): Stainless steel
Stem Seal: PTFE/glass

Pilot

Body and Spring Case: Cast iron, Steel, and Stainless steel
Seat Ring and Stem: Heat-treated 416 Stainless steel
Bellows and Bellows Retainer: Brass
Plug, Plug Guide, Plug Spring, Diaphragms, Bleed Restriction, and Inlet Screen: Stainless steel
Diaphragm Gasket: Encapsulated fiber asbestos
Control Spring, Upper Spring Seat, Adjusting Screw, Bolting, Pipe Plug, Reducing Bushing, and (If Used) Diaphragm Plate: Steel
Fittings: Brass
Tubing: Copper
Pipe Nipple: Steel

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitations, must not be exceeded.
2. The two-number designation indicates line size by trim size.

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Specifications (continued)

Maximum Temperature Capabilities⁽¹⁾

Cast Iron Main Valve and Pilot: 406°F / 208°C

Steel Main Valve and Pilot: 500°F / 260°C

High Temperature Optional Steel and Stainless
steel Main Valve and Pilot: 650°F / 343°C

Downstream Control Line Connection

NPS 1, 1-1/2, and 2 / DN 25, 40, and 50

Main Valve Sizes: 1/4 NPT in main valve
cylinder spacer

NPS 2-1/2, 3, 4, and 6 x 4 / DN 65, 80, 100, and

150 x 100⁽²⁾ Main Valve Sizes: 1/4 NPT
in pilot body

Pilot Spring Case Vent

Standard: 1/8-inch / 3.18 mm drilled hole

Optional: 1/4 NPT tapping for pressure loading or
on-off service

Pressure Registration

External through downstream control line

Approximate Weights

BODY SIZE		END CONNECTION STYLE	APPROXIMATE WEIGHTS	
NPS	DN		Pounds	kg
1	25	NPT or flanged NPT or flanged	32	15
1-1/2	40		44	20
2	50	NPT Flanged	55 67	25 30
2-1/2	65	Flanged Flanged Flanged	90	41
3	80		115	52
4	100		165	75
6 x 4 ⁽²⁾	150 x 100 ⁽²⁾	Flanged	CL300	335
			CL600	435
			152	197

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitations, must not be exceeded.

2. The two-number designation indicates line size by trim size.

Table 1. Outlet (Control) Pressure Ranges

PILOT TYPE	OUTLET PRESSURE RANGES		PART NUMBER	COLOR CODE	SPRING WIRE DIAMETER		SPRING FREE LENGTH	
	psig	bar			Inches	mm	Inches	mm
6492L	2 to 6	0.14 to 0.41	1E395627022	Yellow	0.207	5.26	2.50	63.5
	5 to 15	0.35 to 1.0	1D7455T0012	Green	0.234	5.94	2.62	66.6
	13 to 25	0.90 to 1.7	1E395727192	Red	0.283	7.19	2.44	62.0
6492H	10 to 30	0.69 to 2.1	1E395627022	Yellow	0.207	5.26	2.50	63.5
	25 to 75	1.7 to 5.2	1D7455T0012	Green	0.234	5.94	2.62	66.6
	70 to 150	4.8 to 10.3	1E395727192	Red	0.283	7.19	2.44	62.0
6492HT	15 to 100	1.0 to 6.9	14B9943X012	Unpainted	0.282	7.16	2.50	63.5
	80 to 250	5.5 to 17.2	14B9942X012		0.375	9.53	2.50	63.5

Table 2. Maximum Inlet and Outlet Pressures

CONSTRUCTION	MAXIMUM ALLOWABLE INLET PRESSURE				MAXIMUM OPERATING OUTLET PRESSURE		MAXIMUM EMERGENCY OUTLET PRESSURE	
	Cast Iron		Steel and Stainless Steel				Cast Iron Main Valve and Pilot Body	Steel or Stainless Steel Main Valve and Pilot Body
	psig	bar	psig	bar	psig	bar		
With Type 6492HT pilot	- - - -		300	20.7	250	17.2	- - - -	300 psig / 20.7 bar or main valve body rating limit, whichever is lower
With Type 6492H pilot	250	17.2			150	10.3	250 psig / 17.2 bar or main valve body rating limit, whichever is lower	300 psig / 20.7 bar or main valve body rating limit, whichever is lower
With Type 6492L pilot					25	1.7	100 psig / 6.9 bar	100 psig / 6.9 bar

Table 3. Flow and Sizing Coefficients⁽¹⁾

BODY SIZE		ORIFICE SIZE		REGULATING C _s	WIDE-OPEN C _s FOR RELIEF SIZING	C ₁	K _m	IEC SIZE COEFFICIENTS		
NPS	DN	Inches	mm					X _T	F _D	F _L
1	25	7/8	22	16	17.5	34	0.62	0.73	0.51	0.79
1-1/2	40	1-1/8	29	30	33				0.47	
2	50	1-29/64	37	48	52				0.48	
2-1/2	65	1-5/8	41	74	78		0.71	0.73	0.48	0.84
3	80	2-1/16	52	100	110				0.47	
4	100	2-3/8	60	140	145				0.46	
6 x 4	150 x 100	2-3/8	60	150	155				0.46	

1. $C_v = C_s \times 20 \div C_1$

- **Lapped Seats for Tight Shutoff**—The valve and pilot use lapped seating surfaces that have been proven to minimize seat leakage.
- **Application Flexibility**—Pilot with optional tapped spring case is available for use either with an air loading regulator for remote adjustment of outlet pressure setting or, when all compression is removed from the pilot control spring, with a solenoid or switching valve for on-off service.

Principle of Operation

Pilot supply pressure is piped from the main valve inlet (Figure 2) to the pilot inlet connection. Downstream pressure registers on the main valve pistons through the downstream control line and then on the pilot diaphragm.

When increased downstream demand lowers the downstream pressure to a value below the setting of the pilot control spring, this forces the pilot valve plug to open increasing the loading pressure on the main valve pistons. At the same time, the increased demand lowers the downstream pressure on the main valve piston(s). This opens the main valve plug, increasing flow to the downstream system to satisfy the increased demand and to restore downstream pressure to the setting of the pilot control spring.

Decreased downstream demand increases the downstream pressure registered on the pilot diaphragm. The increased pressure overcomes the force of the pilot control spring and allows the pilot valve plug spring to close the valve plug. As the pilot valve plug closes, excess loading pressure bleeds to the downstream system through the pilot bleed restriction. At the same time, decreased downstream demand increases the downstream pressure registered on the main valve piston(s). This allows

the main valve spring to close the main valve plug, reducing flow to the downstream system in response to the decreased demand.

With a pilot for pressure-loaded service (Figure 7), the operation is the same as for a standard pilot except that the pilot control spring force on the pilot valve plug is aided by pneumatic pressure from the loading device. With a pilot for on-off service, the only force acting on top of the pilot diaphragm is pneumatic pressure provided by the solenoid or switching valve.

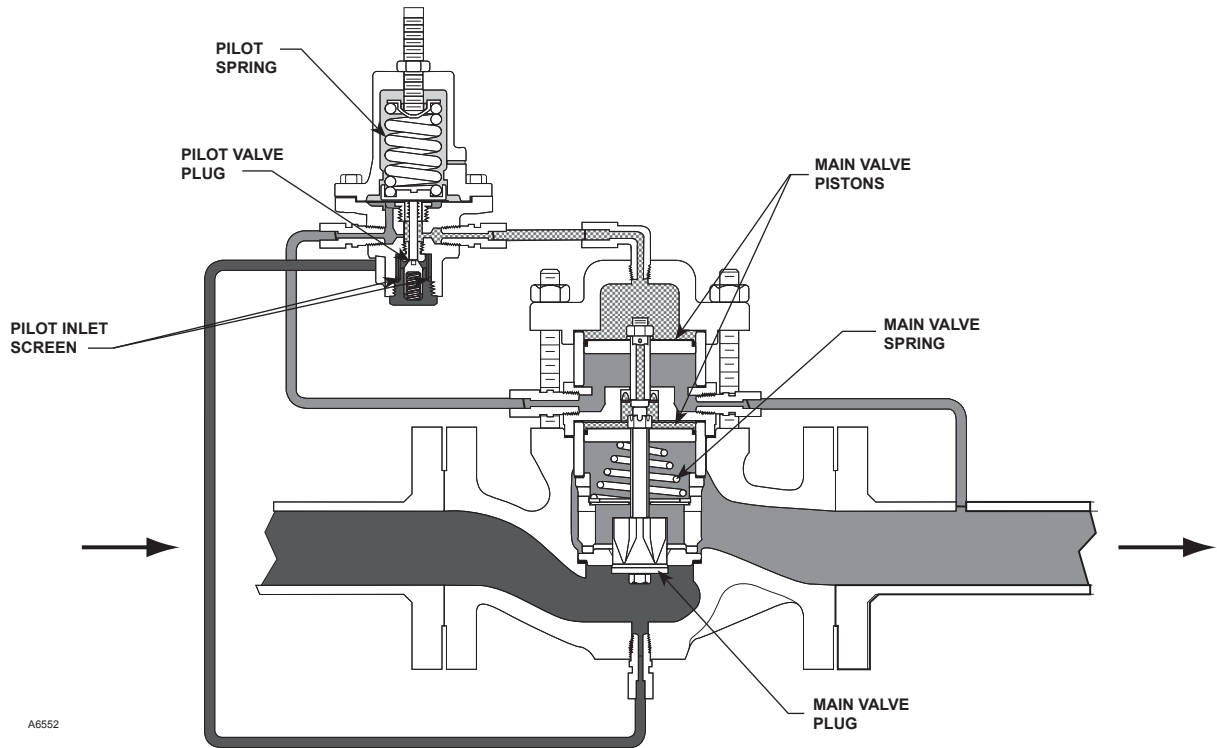
Installation

The Type 92S regulator should be installed and used in accordance with governmental codes and regulations. Although this regulator minimizes leakage under shutoff conditions, downstream overpressure protection must be provided by the user. The pressure and temperature limitations in the Specifications section must be observed and the downstream equipment protected.

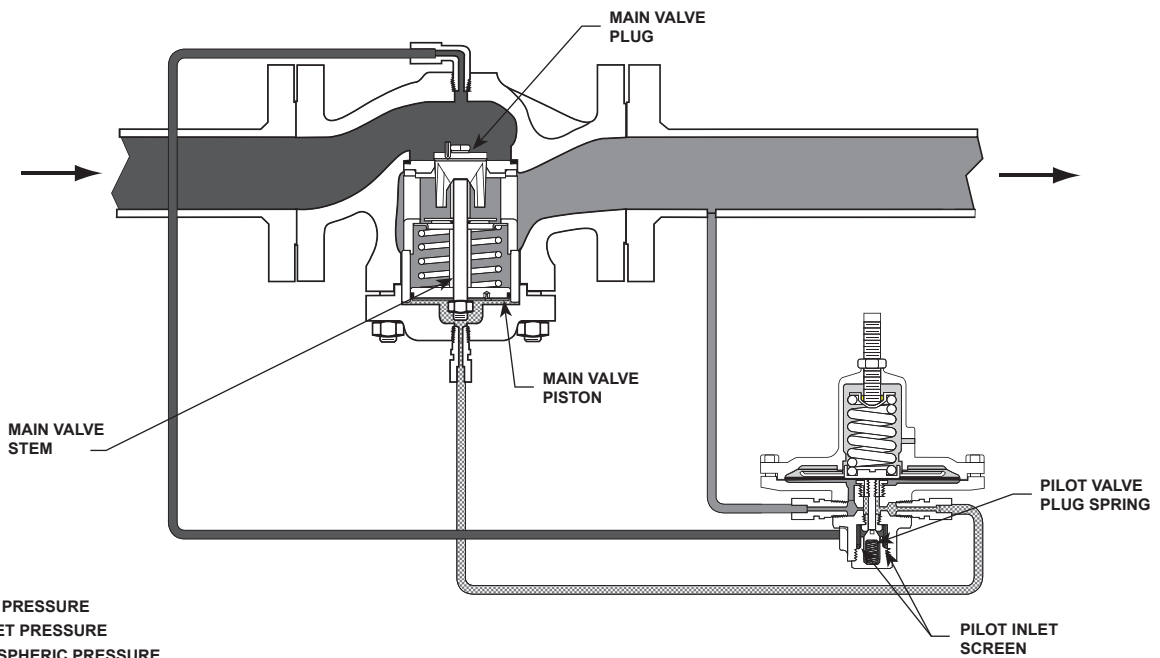
A Type 92S regulator may be installed in any orientation, but should not be installed in a tall vertical pipeline where condensate could collect and create a pressure head affecting regulator performance. To obtain maximum flow capacities in some instances, outlet piping will have to be swaged up above the given body size.

A downstream control line is required but is not furnished with the Type 92S regulator. Additionally, an adjustable loading pressure regulator and loading pressure piping are required for pressure-loading pilot regulators, while an on-off or solenoid valve is required for on-off pilot regulators.

Dimensions are shown in Figure 9.

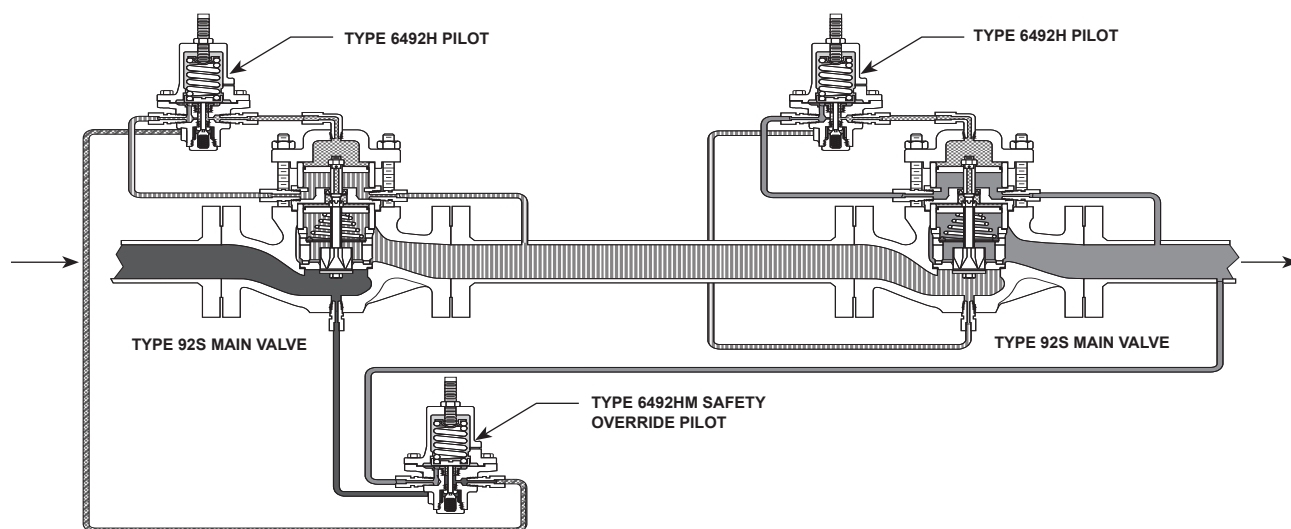


NPS 1, 1-1/2, OR 2 / DN 25, 40, OR 50
MAIN VALVE BODY AND TYPE 6492H OR 6492HT PILOT



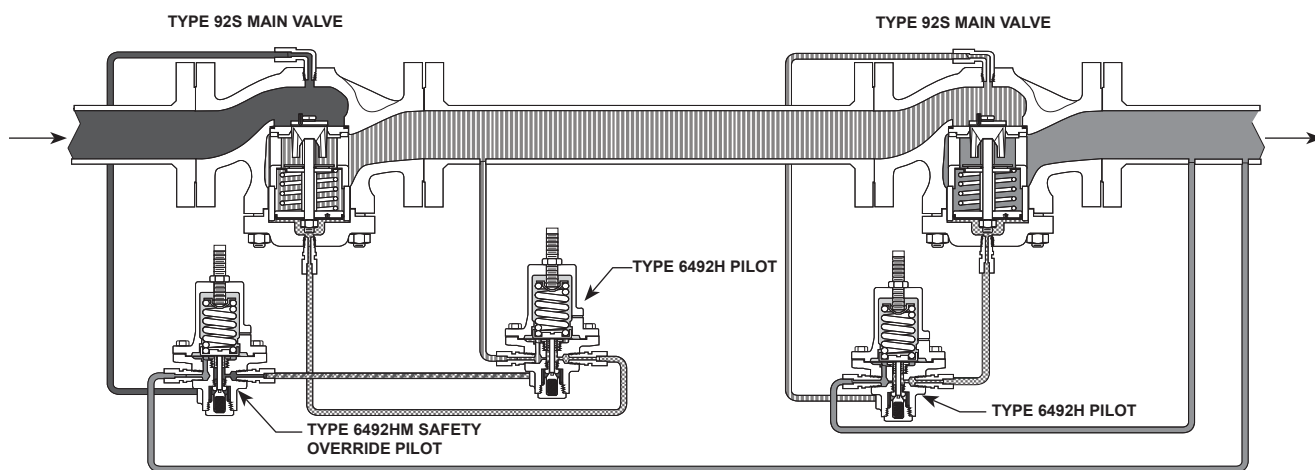
NPS 2-1/2, 3, 4, OR 6 x 4 / DN 65, 80, 100, OR 150 x 100
MAIN VALVE BODY AND TYPE 6492L PILOT

Figure 2. Type 92S Pressure Reducing Regulator Operational Schematics



E0402

Figure 3. NPS 1, 1-1/2, and 2 / DN 25, 40, and 50 Type 92S Pilot-Operated Pressure Reducing Regulator with Safety Override Pilot Operational Schematic



E0403

- INLET PRESSURE
- OUTLET PRESSURE
- ATMOSPHERIC PRESSURE
- LOADING PRESSURE
- INTERMEDIATE PRESSURE

Figure 4. NPS 2-1/2, 3, and 4 / DN 65, 80, and 100 Type 92S Pilot-Operated Pressure Reducing Valve with Safety Override Pilot Operational Schematic

Table 4. Safety Pilot Outlet (Control) Pressure Ranges

TYPE	SPRING RANGE		SPRING COLOR	PART NUMBER	MINIMUM PRESSURE AT WHICH MONITORING PILOT CAN BE SET
	psig	bar			
6492HM	10 to 30	0.69 to 2.1	Yellow	1E395627022	5 psig / 0.35 bar over normal distribution pressure
	25 to 75	1.7 to 5.2	Green	1D7455T0012	
	70 to 150	4.8 to 10.3	Black	1E395727192	
6492HTM	15 to 100	1.0 to 6.9	Unpainted	14B9943X012	
	80 to 250	5.5 to 17.2		14B9942X012	

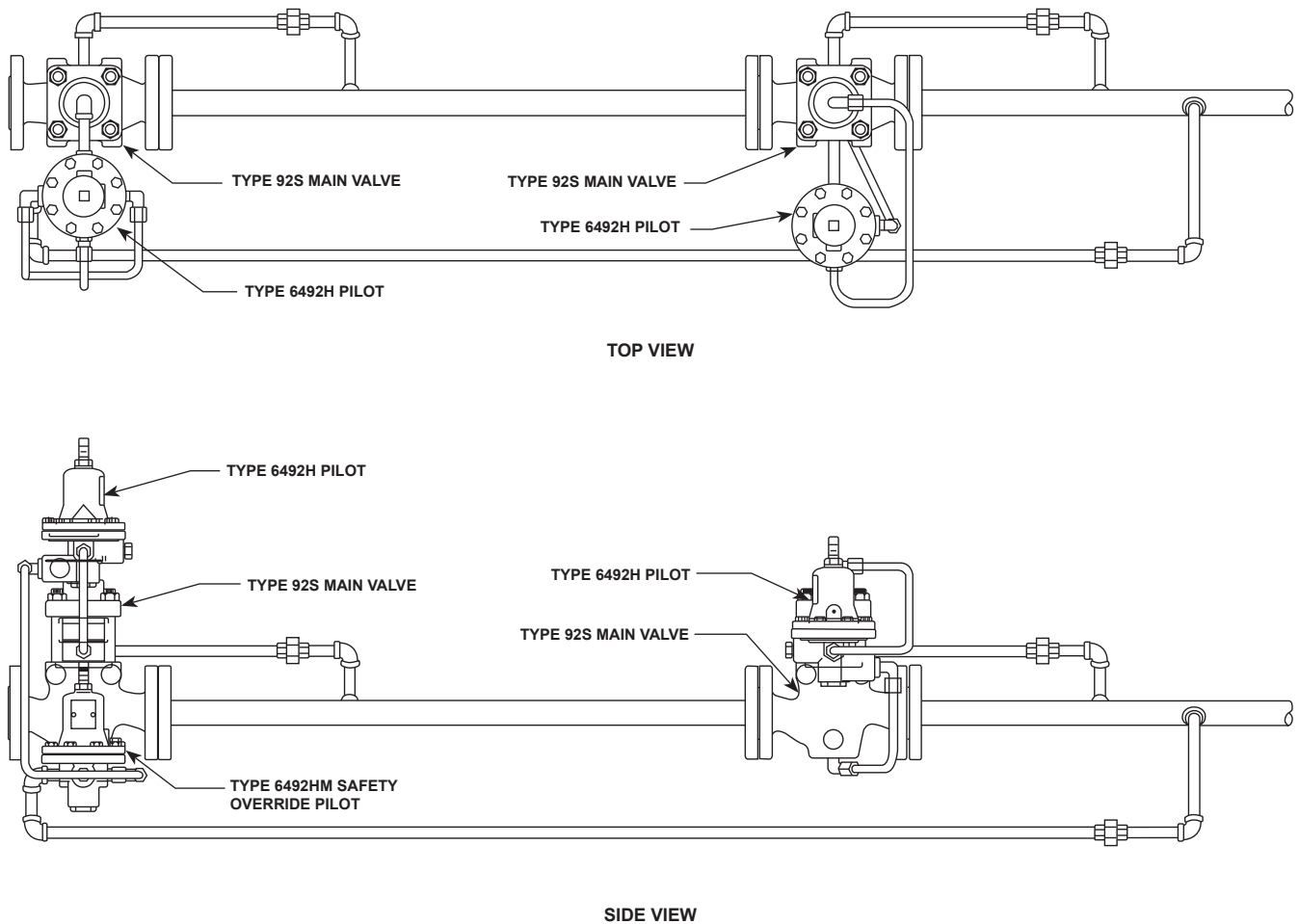


Figure 5. NPS 1, 1-1/2, and 2 / DN 25, 40, and 50 Piping Schematics

Type 92S Pilot-Operated Pressure Reducing Regulator with Safety Override Pilot

A Type 6492HM or 6492HTM safety override pilot is available for the Type 92S. The Type 6492H pilot is used in a series installation with the Type 6492HM or 6492HTM safety override pilot installed on the upstream regulator. The Type 6492HM or 6492HTM safety override pilot senses pressure downstream of the second valve, and prevents pressure from rising above safe operating pressure in the event the downstream valve fails. This system is approved by ASME B31.1-1989, 122.14.2.A, and can replace an ASME safety valve when vent piping is not practical and Type 92S Pilot-Operated, Pressure Reducing Regulator with Safety Override Pilot upstream steam pressure does not exceed 400 psig / 27.6 bar. Local codes and standards may require approval by an appropriate authority prior to installation.

Operation

Once placed in operation, the upstream Type 6492H pilot senses the intermediate pressure between both valves, and the Type 6492HM or 6492HTM pilot senses downstream pressure of the second valve. As demand for flow increases, intermediate pressure will fall causing the Type 6492H pilot to open. As the Type 6492H pilot valve opens, loading pressure to the main valve increases, opening the main valve.

The Type 6492HM or 6492HTM safety override pilot remains open because its setpoint is above the setpoint of the downstream valve. In the unlikely event that the downstream valve fails open, downstream pressure will rise above the downstream valve's setpoint. This pressure is sensed by the Type 6492HM or 6492HTM safety override pilot. As downstream pressure increases the safety override pilot closes, reducing loading pressure to the main valve, which positions the main valve to maintain downstream pressure as specified per ASME Boiler and Pressure Vessel Code, Section VIII.

In the event that the upstream valve fails, the downstream regulator will prevent downstream pressure from rising above safe operating levels. It is recommended to install some type of warning system, such as a sentinel relief valve, to warn the operator that a valve has failed in the system. This will prevent prolonged operation with one valve, which could cause valve trim wear and noise associated with operation at high differential pressures.

When operating in most steam systems, valve setpoints should be in strict accordance to ASME Boiler and Pressure Vessel Code, Section VIII. The Type 6492HM or 6492HTM safety override pilot should be set at 10 psig / 0.69 bar or 10% above maximum downstream operating pressure of the second valve, whichever pressure is greater. For example, most HVAC systems operate at 15 psig / 1.0 bar, so the safety override pilot should be set no higher than 25 psig / 1.7 bar.

Capacity Information

Table 5 gives typical regulating capacities in pounds per hour / kg/h of saturated steam. Capacities for regulators with noise attenuation trim are the same as for regulators without noise attenuation trim. Figure 8 shows a typical performance curve.

To determine regulating capacities at pressure settings not given in Table 5 or to determine wide-open capacities for relief sizing at any inlet pressure, use the following procedure 1 or 2 as appropriate.

1. If the steam is saturated and the pressure drop across the regulator is critical (absolute outlet pressure is equal to approximately one-half or less than one-half of the absolute inlet pressure), use the equation:

$$Q = (P_{1abs}) (C_s)$$

where,

- Q = Flow capacity in pounds of saturated steam per hour
- P_{1abs} = Absolute inlet pressure in psia ($P_{1gauge} + 14.7$)
- C_s = Regulating or wide-open steam sizing coefficient (see Table 3)
2. If the steam is superheated or if the pressure drop across the regulator is lower than critical (absolute outlet pressure is greater than approximately one-half the absolute inlet pressure), use the valve sizing slide rule or the sizing nomographs in Catalog 10.

Noise Abatement Information

A noise attenuation trim is available for use with NPS 2 / DN 50 and larger Type 92S steam regulators to provide an economical means for the reduction of noise from high-velocity steam flow. Capacities for a regulator equipped with a noise attenuation trim are the same as for a regulator without noise attenuation trim and are given in Table 5.

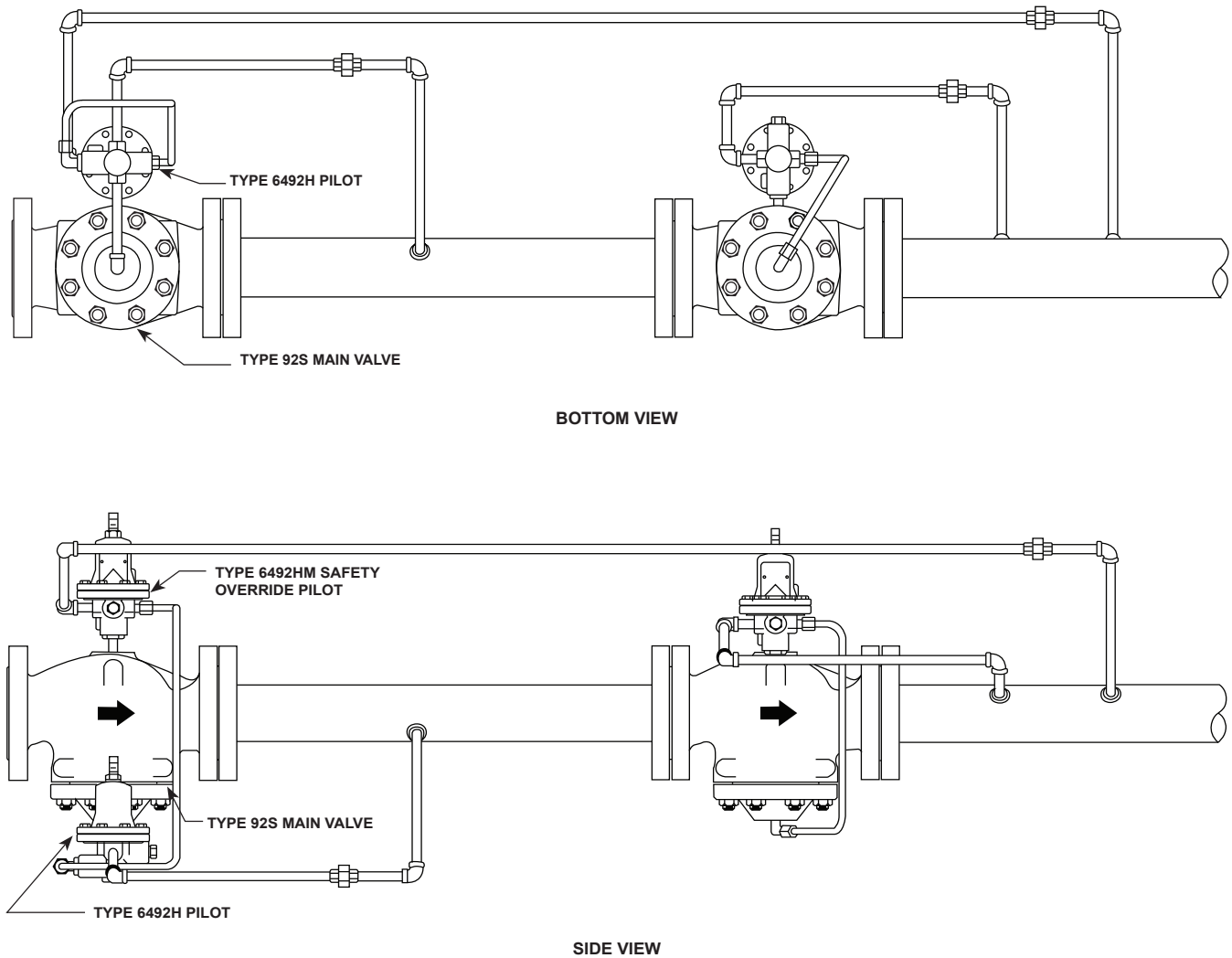


Figure 6. NPS 2-1/2, 3, and 4 / DN 65, 80, and 100 Piping Schematics

Noise level values for a regulator equipped either with or without a noise attenuation trim are presented in Table 6. These noise levels are determined at a point 39-inches / 991 mm downstream of the regulator outlet and 39-inches / 991 mm from the piping surface.

For example, consider full-capacity flow of steam through a NPS 2 / DN 50 Type 92S steam regulator connected with uninsulated 2-inch / 51 mm Schedule 40 downstream piping (see Table 6). For an inlet pressure of 250 psig / 17.2 bar and an outlet pressure of 100 psig / 6.9 bar, P/P_{1abs} is 0.6. Under the specified service conditions, the noise level for steam

flow through a Type 92S steam regulator without a noise attenuation trim will be 98 decibels, while the same regulator equipped with a noise attenuation trim will have a noise level reduced to 92 decibels.

Noise levels for steam flow through a Type 92S steam regulator can be reduced further with the use of either a heavier schedule of pipe or thermal insulation of the downstream piping. By using thermal insulation, as much as 15 decibels of noise can be additionally reduced from the system. Consult the insulation manufacturer's specifications for the attenuating capability and application procedures of the specific insulation required by your system.

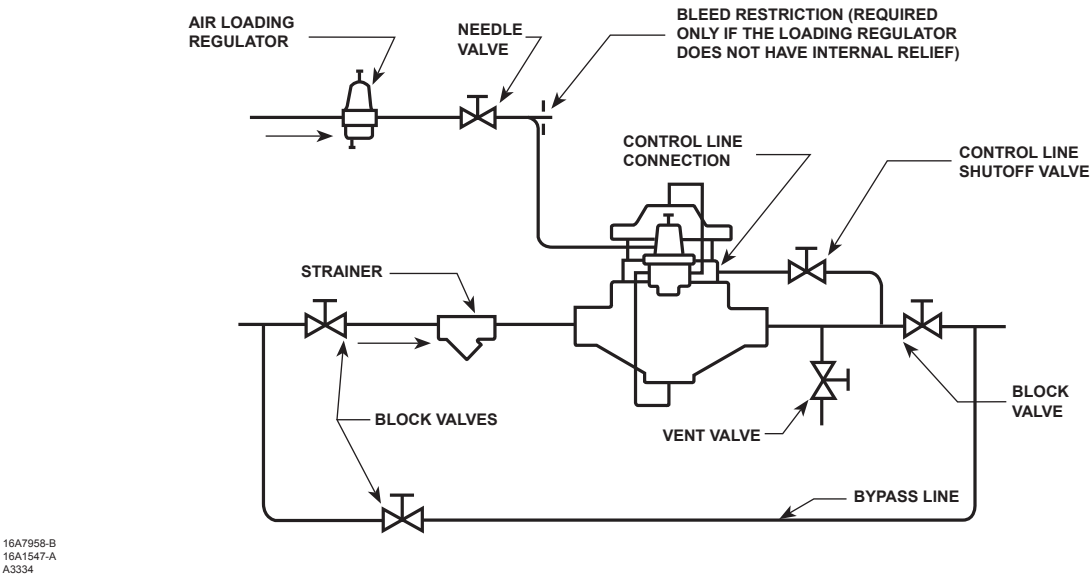


Figure 7. Typical Pressure-Loaded Pilot Installation

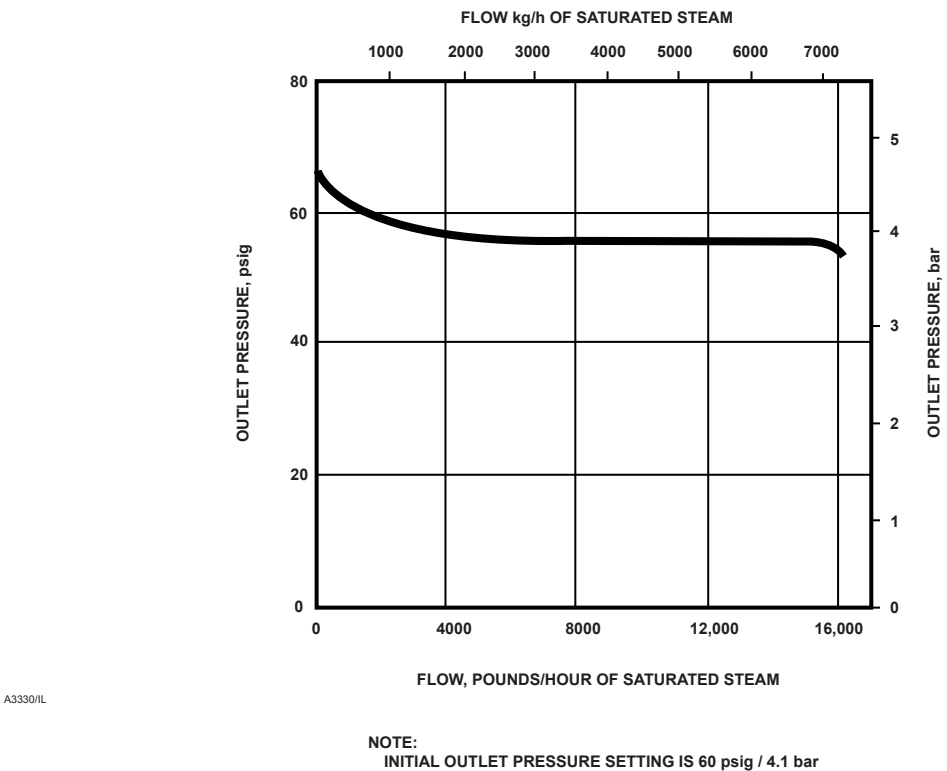


Figure 8. Typical Performance Curve for NPS 2-1/2 / DN 65 Type 92S Pressure Reducing Regulator with Type 6492H Pilot

Table 5. Flow Capacities in Pounds per Hour / kg/h of Saturated Steam

OUTLET PRESSURE SETTING ⁽¹⁾		PILOT TYPE NUMBER	INLET PRESSURE		MAIN VALVE BODY SIZE, NPS / DN																DROOP
					1 / 25		1-1/2 / 40		2 / 50		2-1/2 / 65		3 / 80		4 / 100		6 x 4 / 150 x 100				
psig	bar		psig	bar	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h			
5	0.35	6492L	25	1.7	575	261	950	431	1,750	794	1,000	454	1,225	556	2510	1,139	2,600	1,179	1 psi / 0.07 bar		
			30	2.1	700	318	1,150	522	1,880	853	1,500	680	2,200	998	4000	1,814	4,100	1,860			
			50	3.5	950	431	1,800	816	2,950	1,338	4,180	1,896	6,550	2,971	8500	3,856	8,600	3,901			
			75	5.2	1,350	612	2,375	1,077	4,100	1,860	6,000	2,722	8,400	3,810	12,600	5,715	12,900	5,851			
			100	6.9	1,725	782	3,050	1,383	5,600	2,540	8,500	3,856	10,300	4,672	14,300	6,486	15,100	6,849			
			150	10.3	1,800	816	4,050	1,837	6,150	2,790	11,900	5,398	16,900	7,666	23,000	10,433	23,600	10,705			
			30	2.1	700	318	1,200	544	2,050	930	3,050	1,383	4,300	1,950	5800	2,631	5,800	2,631			
			50	3.5	1,040	472	1,800	816	3,100	1,406	4,700	2,132	6,250	2,835	8920	4,046	9,200	4,173			
10	0.69	6492H or 6492L	75	5.2	1,440	653	2,600	1,179	4,400	1,996	6,000	2,722	9,000	4,082	11,000	4,990	11,500	5,216			
			100	6.9	1,800	816	3,300	1,497	5,600	2,540	8,600	3,901	10,700	4,854	16,300	7,394	17,100	7,757			
			150	10.3	2,350	1066	4,500	2,041	8,000	3,629	12,000	5,443	17,000	7,711	19,600	8,891	20,200	9,163			
			200	13.8	2,150	975	5,100	2,313	9,200	4,173											
			35	2.4	710	322	1,300	590	2,100	953	2,300	1,043	3,200	1,452	4600	2,087	4,600	2,087			
			50	3.5	1,040	472	1,800	816	2,950	1,338	4,550	2,064	6,200	2,812	7700	3,493	8,100	3,674			
			75	5.2	1,440	653	2,650	1,202	4,300	1,950	6,300	2,858	8,900	4,037	11,900	5,398	12,200	5,534			
			100	6.9	1,820	826	3,400	1,542	5,450	2,472	8,100	3,674	11,800	5,352	16,100	7,303	16,800	7,620			
15	1.0	6492L, 6492H, or 6492HT	150	10.3	2,600	1179	4,800	2,177	7,800	3,538	12,100	5,489	16,900	7,666	23,100	10,478	23,800	10,796			
			200	13.8	3,400	1542	6,200	2,812	10,200	4,627											
			50	3.5	1,040	472	1,800	816	2,950	1,338	4,590	2,082	6,250	2,835	7,570	3,434	7,700	3,493			
			75	5.2	1,440	653	2,700	1,225	4,300	1,950	6,450	2,926	9,100	4,128	11,000	4,990	11,800	5,352			
20	1.4	6492L, 6492H, or 6492HT	100	6.9	1,820	826	3,450	1,565	5,450	2,472	8,650	3,924	11,900	5,398	16,200	7,348	16,900	7,666			
			150	10.3	2,650	1202	4,900	2,223	7,950	3,606	12,300	5,579	17,150	7,779	23,500	10,660	24,100	10,932			
			200	13.8	3,450	1565	6,400	2,903	10,300	4,672											
			50	3.5	900	408	1,650	748	2,700	1,225	4,040	1,833	5,350	2,427	7770	3,524	8,100	3,674			
30	2.1	6492H, 6492HT	75	5.2	1,440	653	2,700	1,225	4,300	1,950	6,580	2,985	8,800	3,992	12,000	5,443	12,500	5,670	10% of outlet pressure setting		
			100	6.9	1,820	826	3,450	1,565	5,450	2,472	8,400	3,810	11,800	5,352	19,000	8,618	19,600	8,891			
			150	10.3	2,650	1202	4,900	2,223	7,950	3,606	12,000	5,443	17,000	7,711	23,100	10,478	23,800	10,796			
			200	13.8	3,450	1565	6,500	2,948	10,000	4,536	15,700	7,122	22,100	10,025	30,100	13,653	30,600	13,880			
40	2.8	6492H, 6492HT	60	4.1	1,100	499	1,750	794	3,300	1,497	4,500	2,041	6,400	2,903	8800	3,992	9,000	4,082			
			75	5.2	1,440	653	2,500	1,134	4,300	1,950	6,300	2,858	8,350	3,788	11,300	5,126	11,900	5,398			
			100	6.9	1,820	826	3,450	1,565	5,450	2,472	8,500	3,856	11,400	5,171	15,300	6,940	16,100	7,303			
			150	10.3	2,650	1202	4,900	2,223	7,950	3,606	12,600	5,715	17,000	7,711	23,000	10,433	24,000	10,886			
			200	13.8	3,450	1565	6,500	2,948	10,300	4,672	16,700	7,575	22,650	10,274	30,600	13,880	31,400	14,243			
			75	5.2	1,250	567	2,250	1,021	3,750	1,701	4,950	2,245	7,950	3,606	10,800	4,899	11,500	5,216			
			100	6.9	1,820	826	3,200	1,452	5,450	2,472	8,400	3,810	11,800	5,352	16,100	7,303	17,000	7,711			
			150	10.3	2,650	1202	4,900	2,223	7,950	3,606	12,200	5,534	17,000	7,711	23,100	10,478	24,000	10,886			
50	3.5	6492H, 6492HT	200	13.8	3,450	1565	6,500	2,948	10,300	4,672	15,695	7,119	22,100	10,025	30,100	13,653	31,000	14,062			
			250	17.2	4,300	1950	8,000	3,629	12,900	5,851											
			80	5.5	1,365	619	2,300	1,043	4,080	1,851	5,500	2,495	7,700	3,493	10,500	4763	11,000	4,990			
			100	6.9	1,780	807	3,100	1,406	5,300	2,404	7,880	3,574	10,600	4,808	14,200	6,441	15,000	6,804			
60	4.1	6492H, 6492HT	150	10.3	2,650	1202	4,900	2,223	7,950	3,606	12,300	5,579	16,750	7,598	22,700	10,297	23,000	10,433			
			200	13.8	3,450	1565	6,500	2,948	10,300	4,672	16,400	7,439	22,450	10,183	30,200	13,699	31,000	14,062			
			250	17.2	4,300	1950	8,000	3,629	12,900	5,851											
			100	6.9	1,450	658	2,600	1,179	4,350	1,973	6,270	2,844	9,250	4,196	11,900	5,398	12,300	5,579			
80	5.5	6492H, 6492HT	150	10.3	2,600	1179	4,650	2,109	7,800	3,538	11,700	5,307	15,850	7,190	21,400	9,707	22,000	9,979			
			200	13.8	3,450	1565	6,500	2,948	10,300	4,672	15,600	7,076	21,750	9,866	29,600	13,427	30,200	13,699			
			250	17.2	4,300	1950	8,000	3,629	12,900	5,851	19,300	8,754	27,750	12,587	38,000	17,237	39,000	17,690			
			125	8.6	1,900	862	3,300	1,497	5,700	2,586	8,470	3,842	11,400	5,171	14,400	6,532	15,200	6,895			
100	6.9	6492H, 6492HT	150	10.3	2,490	1129	4,350	1,973	7,450	3,379	11,000	4,990	14,900	6,759	19,900	9,027	20,500	9,299			
			200	13.8	3,450	1565	6,250	2,835	10,300	4,672	15,700	7,122	21,350	9,684	28,700	13,018	29,100	13,200			
			250	17.2	4,300	1950	8,000	3,629	12,900	5,851	20,100	9,117	26,800	12,156	35,700	16,194	36,500	16,556			
			300	20.7	5,050	2291	9,400	4,264	15,100	6,849											
1. Standard pilot or combination of setting plus loading pressure or optional pilot.																					
<div></div> - shaded areas show where maximum differential pressure is exceeded.																					

1. Standard pilot or combination of setting plus loading pressure or optional pilot.

- shaded areas show where maximum differential pressure is exceeded.

- continued -

Table 5. Flow Capacities in Pounds per Hour / kg/h of Saturated Steam (continued)

OUTLET PRESSURE SETTING ⁽¹⁾		PILOT TYPE NUMBER	INLET PRESSURE		MAIN VALVE BODY SIZE, NPS / DN																DROOP
					1 / 25		1-1/2 / 40		2 / 50		2-1/2 / 65		3 / 80		4 / 100		6 x 4 / 150 x 100				
psig	bar		psig	bar	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h	lbs/h	kg/h			
125	8.6	6492H, 6492HT	140	9.7	1,600	726	3,100	1,406	4,800	2,177										10% of outlet pressure setting	
			150	10.3	1,900	862	3,650	1,656	5,700	2,586	9,200	4173	13,100	5,942	16,400	7,439	16,900	7,666			
			200	13.8	3,150	1,429	5,750	2,608	9,450	4,287	14,600	6623	19,950	9,049	27,000	12,247	28,000	12,701			
			250	17.2	4,300	1,950	8,000	3,629	12,900	5,851	19,500	8845	27,000	12,247	37,500	17,010	38,300	17,373			
			300	20.7	5,050	2,291	9,400	4,264	15,100	6,849	23,800	10,796	32,500	14,742	44,300	20,094	45,100	20,457			
150	10.3	6492H, 6492HT	175	12.1	2,450	1,111	4,000	1,814	7,300	3,311	10,000	4536	14,000	6,350	19,100	8,664	20,100	9,117			
			200	13.8	3,050	1,383	5,250	2,381	9,100	4,128	13,400	6078	18,200	8,256	30,800	13,971	31,000	14,062			
			250	17.2	4,150	1,882	7,400	3,357	12,400	5,625	18,600	8437	25,750	11,680	34,100	15,468	35,200	15,967			
			300	20.7	5,050	2,291	9,400	4,264	15,100	6,849	23,400	10,614	31,900	14,470	42,900	19,459	43,300	19,641			

1. Standard pilot or combination of setting plus loading pressure or optional pilot.

- shaded areas indicate where minimum differential pressure is not attained.

Table 6. Noise Level Data in Decibels with Schedule 40 Downstream Piping and No Insulation⁽¹⁾

P ₁		$\frac{\Delta P}{P_{1abs}}$	PERCENTAGE OF MAXIMUM REGULATOR FLOW RATE	NOISE LEVEL, dBA							
				NPS 2 / DN 50 Main Valve Body with 2-inch / 51 mm Downstream Piping		NPS 2-1/2 / DN 65 Main Valve Body with 4-inch / 102 mm Downstream Piping		NPS 3 / DN 80 Main Valve Body with 4-inch / 102 mm Downstream Piping		NPS 4 / DN 100 Main Valve Body with 8-inch / 203 mm Downstream Piping	
				Without Attenuator	With Attenuator	Without Attenuator	With Attenuator	Without Attenuator	With Attenuator	Without Attenuator	With Attenuator
50	3.5	0.2	100 30	73 62	72 61	66 59	64 56	72 63	68 60	78 71	76 68
		0.3	100 30	79 68	77 66	72 61	68 57	78 65	72 61	83 73	78 70
		0.4	100 30	82 71	79 68	76 65	69 61	80 69	74 65	86 76	81 73
		0.5	100 30	84 73	80 69	78 67	72 63	82 73	76 67	88 79	83 75
		0.6	100 30	87 76	80 70	81 70	75 65	82 74	79 68	90 80	84 76
		0.7	100 30	88 78	82 71	84 73	79 69	88 80	83 71	92 83	87 79
100	6.9	0.2	100 30	78 67	77 66	71 64	69 61	77 68	73 65	83 76	81 73
		0.3	100 30	84 73	82 71	77 66	73 62	83 70	77 66	88 78	83 75
		0.4	100 30	86 76	84 72	81 70	74 66	85 74	79 70	91 80	86 78
		0.5	100 30	89 78	85 74	83 72	77 68	87 78	81 72	93 84	88 80
		0.6	100 30	92 81	86 75	86 75	80 70	87 79	84 73	95 85	89 81
		0.7	100 30	82 93	75 86	78 89	74 84	85 93	76 88	88 97	84 92

1. Overall noise levels determined at a point 39-inches / 991 mm downstream of the regulator outlet and 39-inches / 991 mm from piping surface.

- continued -

Table 6. Noise Level Data in Decibels with Schedule 40 Downstream Piping and No Insulation⁽¹⁾(continued)

P ₁		$\frac{\Delta P}{P_{1abs}}$	PERCENTAGE OF MAXIMUM REGULATOR FLOW RATE	NOISE LEVEL, dBA							
				NPS 2 / DN 50 Main Valve Body with 2-inch / 51 mm Downstream Piping		NPS 2-1/2 / DN 65 Main Valve Body with 4-inch / 102 mm Downstream Piping		NPS 3 / DN 80 Main Valve Body with 4-inch / 102 mm Downstream Piping		NPS 4 / DN 100 Main Valve Body with 8-inch / 203 mm Downstream Piping	
psig	bar			Without Attenuator	With Attenuator	Without Attenuator	With Attenuator	Without Attenuator	With Attenuator	Without Attenuator	With Attenuator
250	17.2	0.2	100 30	84 73	81 71	78 71	76 68	84 75	80 72	90 83	88 80
		0.3	100 30	90 80	85 77	84 73	80 69	90 77	84 73	95 85	90 82
		0.4	100 30	93 82	88 78	88 77	81 73	92 81	86 77	98 88	93 85
		0.5	100 30	95 85	91 80	90 79	84 75	94 85	88 79	100 91	95 87
		0.6	100 30	98 88	92 82	93 82	87 77	94 86	91 80	102 92	96 88
		0.7	100 30	101 89	94 83	96 85	91 81	100 92	95 83	104 95	99 91
1. Overall noise levels determined at a point 39-inches / 991 mm downstream of the regulator outlet and 39-inches / 991 mm from piping surface.											

Ordering Information

When ordering, specify:

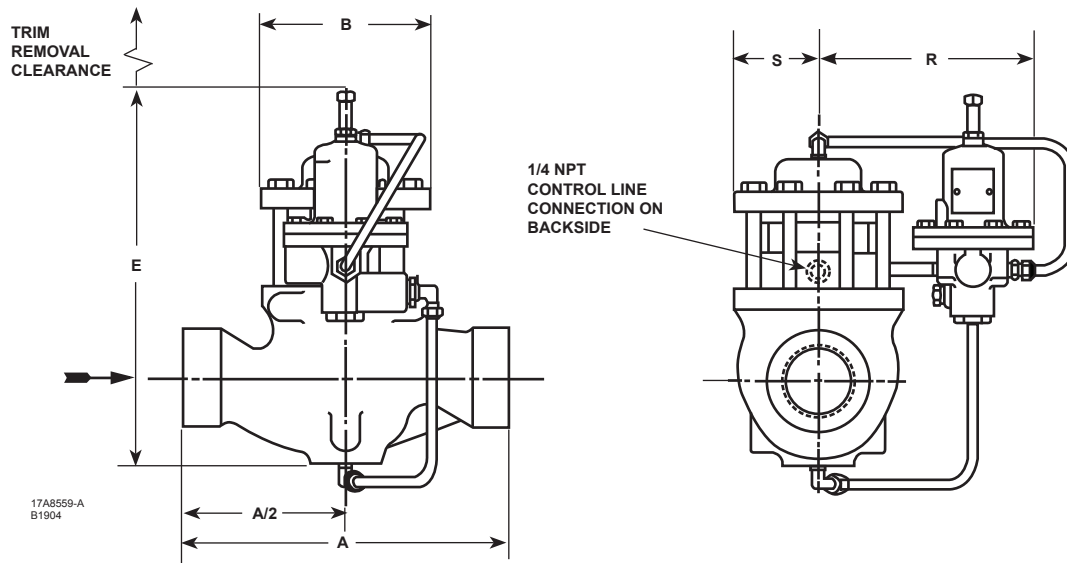
Application

- Range of temperatures
- Range of inlet pressures (maximum, normal, minimum)
- Outlet pressure setting
- Range of flow rates (maximum, normal, minimum, controlled)
- Body size

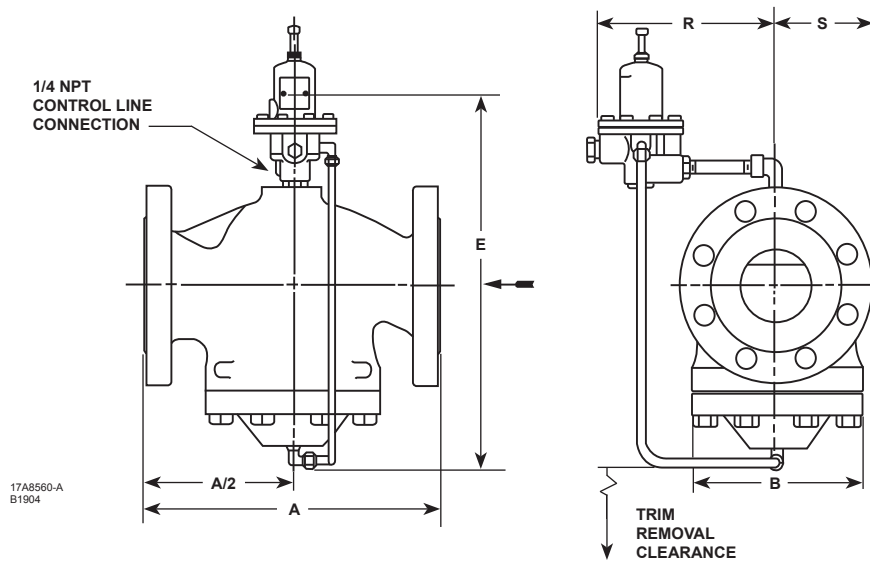
Construction

Refer to the Specifications section on page 2. Review the descriptions to the right of each specification, and specify the desired choice wherever there is a selection to be made. If not otherwise specified, the pilot control spring is factory-set at the approximate mid-range.

Be sure to specify the type of regulator desired (standard pilot or pilot with optional tapped spring case). Refer to separate bulletins for information on loading regulators for use with pressure loaded pilots.



NPS 1, 1-1/2, OR 2 / DN 25, 40, OR 50 MAIN VALVE BODY



NPS 2-1/2, 3, 4, OR 6 x 4 / DN 65, 80, 100, OR 150 x 100 MAIN VALVE BODY

Figure 9. Dimensions

Table 7. Dimensions

MAIN VALVE BODY SIZE		DIMENSIONS, INCHES / mm																			
		A								B		E (Maximum)		R				S		Trim Removal Clearance	
		NPT		CL125 FF or CL150 RF Flanged		CL250 RF or CL300 RF Flanged		CL600 RF Flanged						Types 6492H and 6492HT Pilot		Type 6492L Pilot					
NPS	DN	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
1	25	8.25	210	7.25	184	7.75	197	8.25	210	3.88	99	11.69	297	8.50	216	9.88	251	1.94	49		
1/2	40	9.88	251	8.75	222	9.25	235	9.88	251	5.38	137	12.19	310	8.81	224	10.19	259	2.69	68	2.75	70
2	50	11.25	286	10.00	252	10.50	267	11.25	286	5.88	149	13.00	330	9.06	230	10.44	265	2.94	75		
2-1/2	65	----	----	10.88	276	11.50	292	12.25	311	6.56	167	17.19	437	8.75	222	10.12	257	3.28	83	3.12	79
3	80	----	----	11.75	298	12.50	318	13.25	337	7.38	187	18.25	464	8.75	222	10.12	257	3.69	94	3.12	79
4	100	----	----	13.88	353	14.50	368	15.50	394	8.62	219	20.44	519	10.38	264	11.75	298	4.31	109	5.00	127
6 x 4	150 x 100	----	----	----	----	18.62	473	20.00	508	8.62	219	22.06	560	11.50	292	12.88	327	4.31	109	7.00	178

Ordering Guide

Body Size (Select One)

- ☐ NPS 1 / DN 25**
☐ NPS 1-1/2 / DN 40**
☐ NPS 2 / DN 50***
☐ NPS 2-1/2 / DN 65*
☐ NPS 3 / DN 80**
☐ NPS 4 / DN 100**
☐ NPS 6 x 4 / DN 150 x 100
 (WCC, Steel, or Stainless steel with CL300 RF and CL600 RF only)*

Body and Body Flange Material and End Connection Style (Select One)

Cast Iron

- ☐ NPT***
☐ CL125 FF**
☐ CL250 RF**

WCC Steel

- ☐ NPT***
☐ CL150 RF**
☐ CL300 RF**
☐ CL600 RF**
☐ PN 16/25/40**

CF8M Stainless Steel

- ☐ NPT**
☐ CL150 RF*
☐ CL300 RF*
☐ CL600 RF*
☐ PN 16/25/40*

Tubing and Fittings (Select One)

- ☐ Copper tubing with brass fittings***
☐ Stainless steel tubing and fittings**

Pilot Bellows (Select One)

- ☐ Brass (standard)***
☐ 321 Stainless steel**

Outlet Pressure Range (Select One)

Type 6492L Pilot

- ☐ 2 to 6 psig / 0.14 to 0.41 bar, Yellow***
☐ 5 to 15 psig / 0.35 to 1.0 bar, Green***
☐ 13 to 25 psig / 0.90 to 1.7 bar, Red***

Type 6492H Pilot

- ☐ 10 to 30 psig / 0.69 to 2.1 bar, Yellow***
☐ 25 to 75 psig / 1.7 to 5.2 bar, Green***
☐ 70 to 150 psig / 4.8 to 10.3 bar, Red***

Type 6492HT Pilot

- ☐ 15 to 100 psig / 1.0 to 6.9 bar, Unpainted***
☐ 80 to 250 psig / 5.5 to 17.2 bar, Unpainted***

Noise Attenuation Trim (Optional)

- ☐ Yes**

Replacement Pilot (Optional)

- ☐ Yes, send one replacement pilot to match this order.

Main Valve Replacement Parts Kit (Optional)

- ☐ Yes, send one main valve replacement parts kit to match this order.

Pilot Replacement Parts Kit (Optional)

- ☐ Yes, send one pilot replacement parts kit to match this order.

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

Steam Specification Worksheet

Application:

Tag Number: _____

Valve Type: ☐ Direct-Operated ☐ Pilot-Operated
☐ Pressure Loaded ☐ Differential

Body Material: ☐ Steel ☐ Iron ☐ Stainless Steel

Inlet/Outlet End Connection Style:

- ☐ CL150 RF Flange ☐ NPT
☐ CL300 RF Flange ☐ CL250 RF Flange
☐ PN 16/25/40 ☐ CL600 RF Flange

Inlet/Outlet Pipe Size: _____ Inches / mm

Steam Conditions:

Inlet Pressure (psig/bar)

Inlet Temperature (°F/°C)

Outlet Pressure (psig/bar)

Flow (pounds/h or kg/hr)

Maximum	Normal	Minimum

Performance Required:

- Accuracy Requirements: ☐ ≤10% ☐ ≤20%
☐ ≤30% ☐ ≤40%

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For further information visit www.fisherregulators.com

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