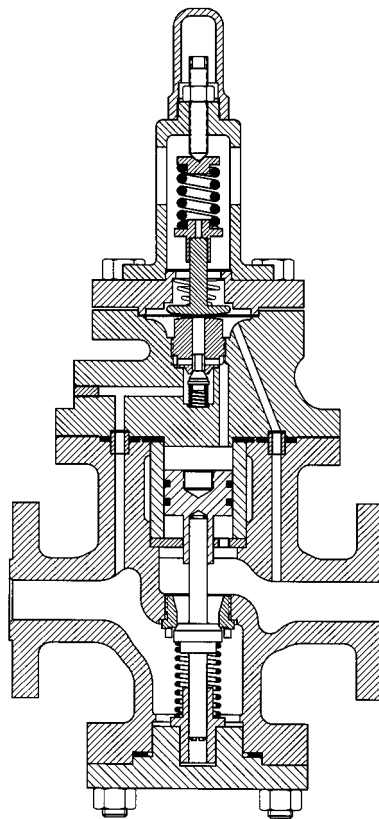


TRAC REGULATOR CO., INC.

STYLE 'R'

STEAM PRESSURE REDUCING VALVE (PILOT OPERATED)

MANUFACTURED TO THE GENERAL REQUIREMENTS
OF
MIL-V-17848C CLASS A, COMPOSITION D



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GENERAL INFORMATION

INTRODUCTION

The TRAC Style 'R' steam pressure reducing valve is an internal pilot and internally ported valve utilized for regulating and reducing high pressure steam to any desired operating pressure within its adjustable range. The Style 'R' valve requires no external source of power to operate the valve or to detect changes in outlet steam pressure.

The Style 'R' valve is intended for installation in low pressure steam systems such as, preheaters, laundry equipment, and galley equipment. The inlet pressure rating of the Style 'R' valve is 150 psig and the outlet set pressure is adjustable from 15 to 135 psig. The valve requires at least a 15 psi pressure difference between steam supply pressure and maximum regulated pressure. It can be adjusted to limit maximum output pressure to any value from 15 psi below supply pressure down to 5 psi gauge pressure.

FEATURES

The TRAC Style 'R' steam pressure reducing valve is a precision regulator comparable to instrument control with full flow for equivalent pipe size. Pilot valve control is regulated by a spring loaded metallic diaphragm. The sensitive diaphragm responds instantly to any flow change and eliminates stuffing boxes and bellows seals. Full travel is achieved within its own thickness to minimize stress on the diaphragm.

The Style 'R' valve can be completely overhauled without removing the valve body from the line. Internal trim is fully replaceable, without the need for secondary machining operations. The hardened 440C stainless steel main valve and stainless steel guide prevents galling or binding of internal parts for smooth operation. The stainless steel seat ring with stellite seat face resists wire drawing. The main valve and cylinder liner are machined from hardened 440C stainless steel for superior corrosion resistance. Internal springs and diaphragm are made of corrosion and heat resistant inconel.

PRINCIPLES OF OPERATION

Back-pressure is always being sensed through an internal port on the outlet side of the Style 'R' steam pressure reducing valve. Outlet steam back-pressure continually pushes against the spring loaded diaphragm that actuates the pilot valve. Whenever downstream pressure rises above the set point, pressure under the diaphragm begins to exceed the force of the pressure adjusting spring above it, and pilot valve closes. The inlet steam supply to the piston chamber is reduced as the pilot valve closes. When the pressure above the main valve piston can no longer hold the main valve open, the piston rises and the main valve return spring forces the main valve to its seat. See Figure 1 for illustration of adjustment and actuating components.

As outlet pressure drops to the set point, the force of the pressure adjusting spring above the diaphragm and the force of the pressure in the diaphragm chamber are in equilibrium. When the outlet pressure drops below the set point, the force of the pressure adjusting spring begins to exceed the pressure in the diaphragm chamber, the diaphragm deflects downward, and the pilot valve opens. The inlet steam supply to the piston chamber increases as the pilot valve opens. When the pressure above the main valve piston overcomes the force applied by the main valve return spring, the main valve opens. The main valve will modulate stroke to any intermediate position between full open and full closed based on this pressure balance principle.

GENERAL INFORMATION

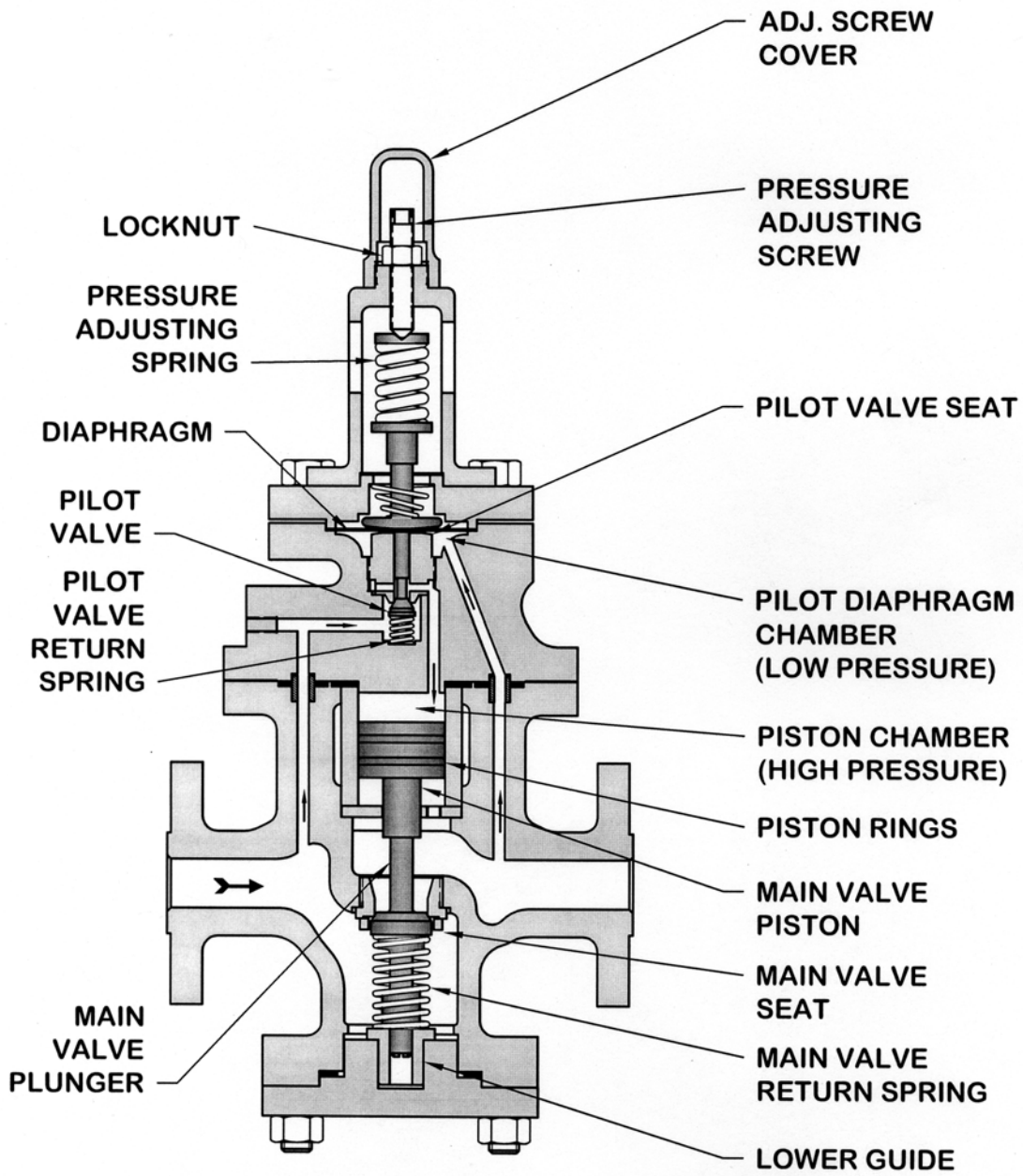


Figure 1 ADJUSTMENT AND ACTUATING COMPONENTS

DETAILED DESCRIPTION

SETTING THE REGULATOR

Style 'R' steam pressure reducing valve can be set to control at any pressure from 15 to 135 psig by changing the load on the pressure adjusting spring. More or less tension of spring will cause the valve to control at a higher or lower pressure.

To increase pressure, remove adjusting screw cover, loosen Locknut, and turn adjustment screw clockwise.

To decrease pressure, remove adjusting screw cover, loosen Locknut, and turn adjustment screw counter-clockwise.

After pressure setting adjustment has been made, always lock adjustment screw to prevent rotation with locknut and replace cover.

INSTALLATION

INSTALLATION OF THE REGULATOR

The regulating valve must be clean and free from packing material and other foreign matter before installing into a clean pipeline. Connect the valve into the pipe line so that the flow is in the direction indicated by the arrow cast on the body. The valve will work equally well in any position, but it is preferable to install the valve with the adjusting spring vertically upward. This will minimize wear on all moving parts. See Figure 2 for illustration of a typical Style 'R' steam pressure reducing valve installation.

INSTALLATION

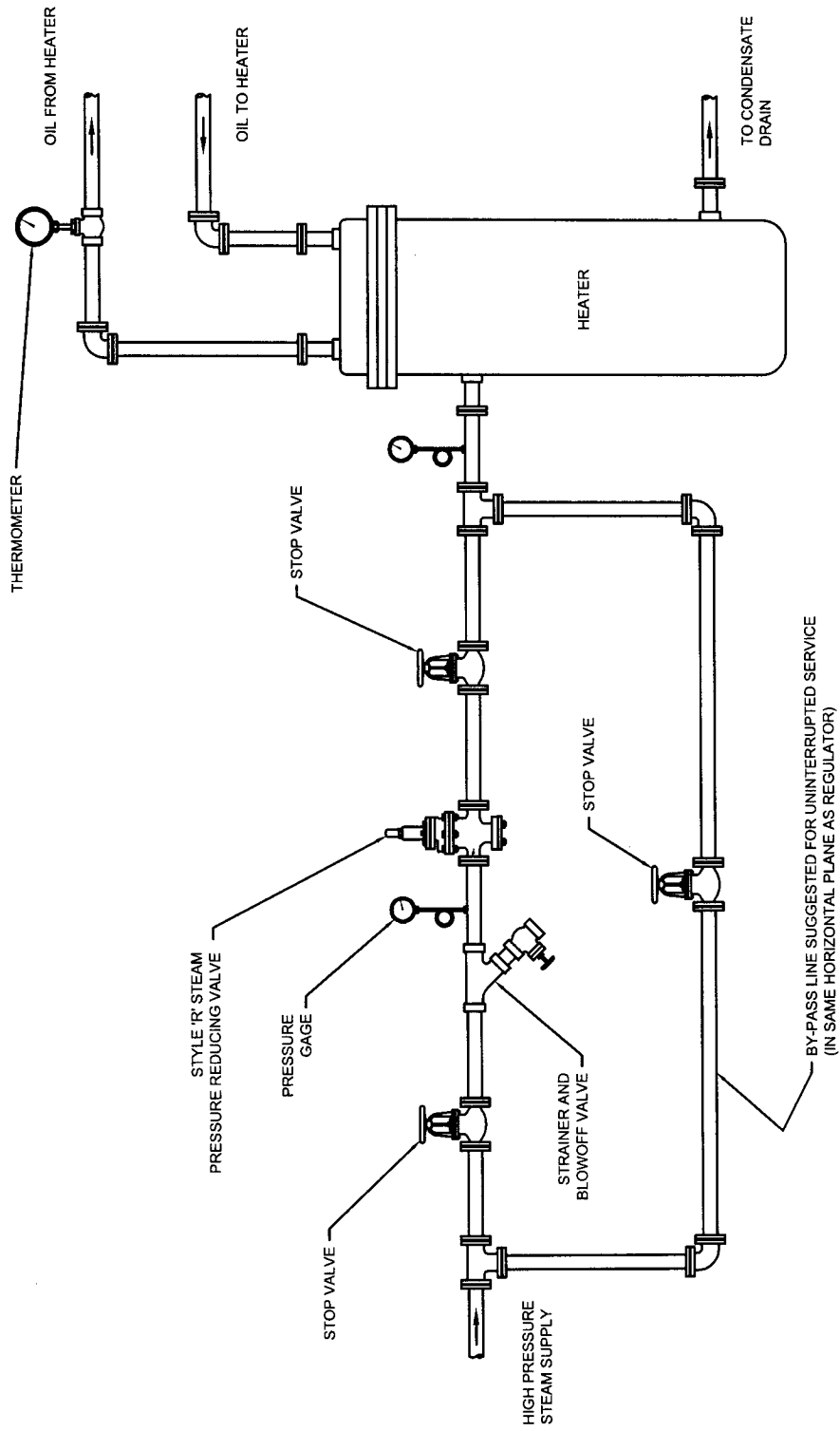


Figure 2 – TYPICAL INSTALLATION

ORDERING INFORMATION

MANDATORY INFORMATION

In order to correctly size a pressure reducing valve for a particular application, the user must have a complete understanding of the conditions at the valve. As a minimum, the user should know the following conditions:

MAXIMUM INLET PRESSURE This is the maximum pressure that the pressure reducing valve will be subjected to under any operating conditions. This value is used to choose the appropriate pressure rating of the valve and to establish the end connection rating.

PRESSURE RATINGS AND AVAILABLE END CONNECTIONS	
RATED PRESSURE (PSIG)	FLANGED END
100 (Bronze)	MIL-F-20042
150 (Steel)	ANSI-B16.5

MINIMUM INLET PRESSURE It is of primary importance to know the minimum inlet pressure at the valve. This value is used in calculating the appropriate size of the pressure reducing valve.

OUTLET SET PRESSURE The outlet set pressure is adjustable from 15 to 135 psig.

PRESSURE DROP ACROSS VALVE A minimum of 15 psig pressure drop across the valve is required to operate the regulating valve. If the actual pressure drop is not known or not given, it is generally assumed to be 20 psig for sizing purposes.

REQUIRED CAPACITY (AT MINIMUM INLET PRESSURE) In most cases inlet pressure varies widely from maximum to minimum inlet pressure values. To correctly size a pressure reducing valve for a particular application, the required flow at minimum inlet pressure must be known.

REFERENCE DATA

NAMEPLATE

For specific information regarding an installed TRAC Style 'R' Steam pressure reducing valve, consult the nameplate (Figure 3) affixed to the bracket of each production valve. For operating characteristics of a valve installed in a particular shipboard system consult the applicable certification data sheet or ship's drawing index. When contacting TRAC Regulator Co., Inc. regarding troubleshooting, repair, or replacement, please have the following nameplate information available: Valve ID Number and Serial Number.

SPEC	<input type="text"/>				DO NOT POLISH		
TYPE	<input type="text"/>	CLASS	<input type="text"/>	SERIES	<input type="text"/>	SIZE	<input type="text"/>
CAPACITY	<input type="text"/>			RANGE	<input type="text"/>		
BODY	<input type="text"/>	TRIM	<input type="text"/>	STYLE	<input type="text"/>		
VALVE ID	<input type="text"/>			SERIAL	<input type="text"/>		
CID	<input type="text"/>			TECH. MAN.	<input type="text"/>		
TRAC REGULATOR CO. INC. MOUNT VERNON, NY USA							

Figure 3 NAMEPLATE

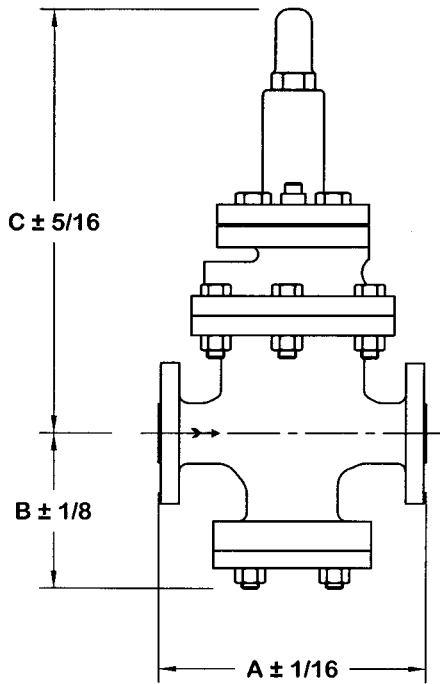
STEAM CAPACITY TABLE

In the following steam capacity table inlet and outlet pressure values are pounds per square inch gauge (PSIG), steam capacity values are pounds per hour (lbs/hr), and valve sizes are US Iron pipe sizes (IPS). Lower outlet pressures than those noted in the "outlet" pressure column do not increase valve capacity.

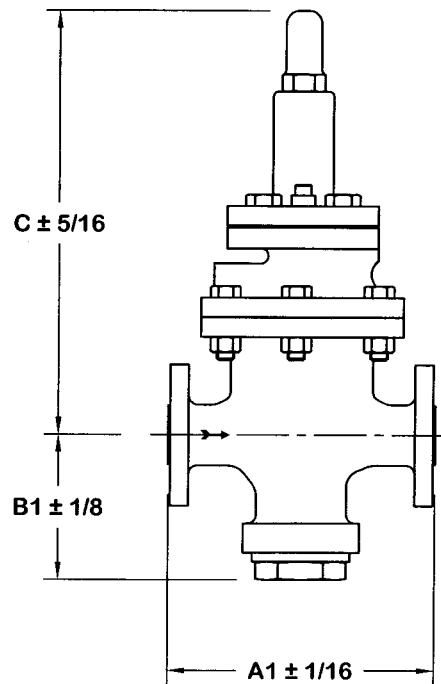
STEAM CAPACITY TABLE							
PRESSURE		VALVE SIZE					
INLET	OUTLET	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
20	5	82	200	245	470	750	1100
25	10	92	252	305	495	820	1230
30	10 15	104 100	280 275	345 340	560 510	850 840	1380 1365
35	15 20	113 105	315 300	375 365	610 600	1030 990	1540 1485
40	20 25	134 130	365 355	450 440	735 720	1210 1185	1800 1770
50	25 30 35	155 150 142	418 412 392	545 510 485	835 820 785	1365 1350 1295	2050 2020 1930
65	30 35 45	165 160 151	474 470 415	585 581 512	945 935 860	1560 1545 1340	2340 2310 2050
75	35 40 50 60	194 190 185 171	530 520 506 468	653 640 620 573	1056 1034 1003 930	1740 1705 1610 1540	2735 2550 2480 2280
100	45 55 65 75 85	242 226 218 183 152	665 626 593 512 414	820 770 730 618 512	1340 1240 1185 1031 827	2200 2060 1950 1650 1370	3280 3070 2930 2480 2040
125	70 80 90 100 110	284 279 260 220 173	775 760 720 630 472	960 940 890 785 585	1560 1520 1440 1260 944	2570 2540 2390 2110 1560	3840 3745 3560 3090 2350
150	80 100 125	390 375 305	724 705 565	1202 1145 932	2150 2070 1618	3010 2800 2320	4920 4815 3830

SPACE ENVELOP DIMENSIONS

The space envelope dimensions provided herein are for reference only and should not be interpreted as the only available valve configurations. Other face to face (flanged) dimensions are available to meet specific fit requirements. Custom configurations including screwed end, union end, reduced trim, and/or a manual override feature may be developed upon request, consult TRAC Regulator Co. for more information.



SPECIFICATION VALVE
STEEL ANSI-B16.5 FLANGE



COMMERCIAL VALVE
BRONZE MIL-F-20042 FLANGE

STANDARD VALVE DIMENSIONS ANSI-B16.5 150# and MIL-F-20042 150#					
VALVE SIZE	'A' DIM ANSI-B16.5	'A1' DIM MIL-F-20042	'B' DIM	'B1' DIM	'C' DIM
1/2"	7-3/4		4-5/16		16-1/8
3/4"	7-3/4	7-3/4	4-5/16	4	16-1/8
1"	7-3/4		4-5/16		16-1/8
1-1/4"	7-7/8	7-7/8	4-1/8	4-1/8	16-3/4
1-1/2"	10-9/16		4-1/2		16-3/4
2"	10-9/16		4-1/4		16-3/4

