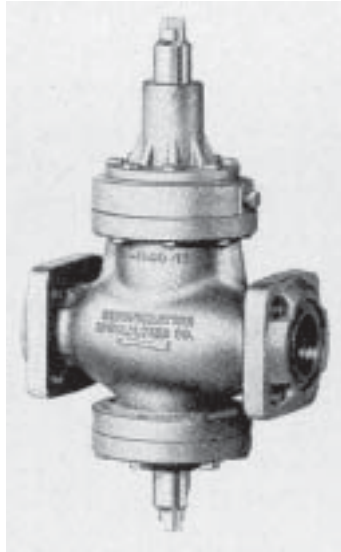


INLET PRESSURE REGULATORS

Type A4A, A4AK, A4AE, A4AR

Port Size 20 - 100 mm (3/4" - 4")



February 2003
Installation Information

Purpose:

Modulate flow of refrigerant gas or liquid to maintain constant upstream (or inlet) pressure as set-for despite load fluctuations. The A4A Inlet Pressure Regulator therefore opens on a rise in the inlet pressure above its set point and closes on a drop in inlet pressure below its set point. The inlet pressure set point is not appreciably affected by variations in the outlet pressure.

Principles of Operation (See Fig. 1)

The inlet pressure enters the space under the diaphragm through passage N. When the force created by the pressure exceeds the force of the range spring, the diaphragm is lifted off the pilot seat allowing pressure to enter on top of the power piston. This causes the power piston to move downward forcing the modulating plug to open and modulate to maintain constant inlet pressure. An increase in inlet pressure lifts the diaphragm further, allowing more pressure on top of the power piston and opening the valve wider. A decrease in inlet pressure causes the diaphragm to move closer to the pilot seat reducing the pressure on the top of the power piston and causing the closing spring to reduce the valve opening. The pressure on top of the power piston is controlled by the flow through the pilot seat and the bleed off through the bleed hole in the power piston and through the clearance between the piston and cylinder. A minimum of 0.14 bar (2 psig) pressure drop across the valve is required to open it fully.

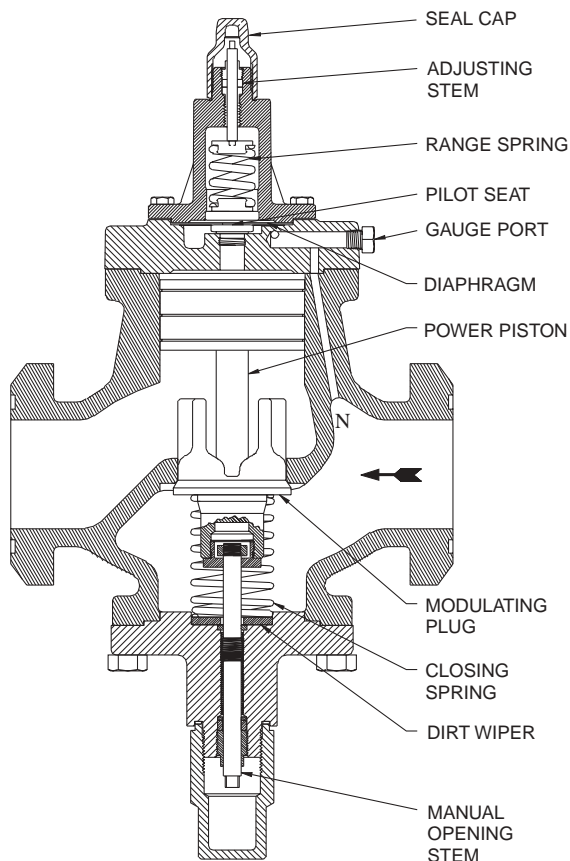


Fig 1

Installation

Refer also to Safety Installation Bulletin RSBCV

All regulators are packed for maximum protection. Unpack carefully. Check the carton to make sure all flanges and other items are unpacked. Save the enclosed instructions for the installer and eventual user.

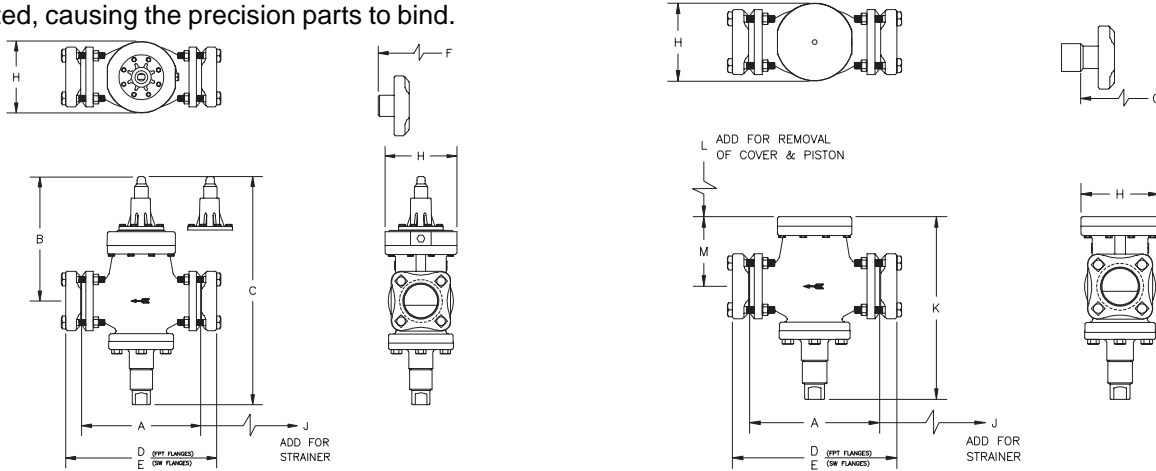
Do not remove the protective coverings from the inlet and outlet of the regulator until the regulator is ready to be installed. Protect the inside of the regulator from moisture, dirt and chips before and during installation. When welded or brazed flange connections are used, all slag, scale and loose particles should be removed from the flange interior before the regulator is installed between the flanges. It is advisable to install a close-coupled companion strainer (RSF) at the inlet of the regulator to help protect it from any foreign material in the system.

The A4A Series of Regulators will give optimum performance if mounted in a horizontal line in a vertical position with the manual opening stem on bottom. Where other positions are desired, the factory should be con-

sulted; please give application and piping details. The regulator must be installed with the arrow on the valve body pointing in the direction of the fluid flow for the regulator to function properly. Backward flow through the regulator is un-controlled and will vary with the valve model and the reverse pressure drop encountered. The regulator is not a check valve.

Tighten the flange bolts and nuts evenly to provide proper seating of the flange gasket and to avoid damage to gaskets or flanges. (See Flange Bolt Torque Table) Avoid using the regulator flange bolts to stretch or align pipe. Even the heavy-duty iron alloy body of an A4A can be distorted, causing the precision parts to bind.

The regulator should be installed in a location where it is easily accessible for adjustment and maintenance. The location should be such that the regulator can not be easily damaged by material handling equipment. When it is necessary to insulate the regulator (and companion strainer), the insulation should be installed to provide access to the regulator (and companion strainer) for adjustment and maintenance. Proper indicating gauges should be installed to be easily visible to the operating engineer for system checking and adjusting purposes.



PIPING AND LAYOUT FOR STANDARD A4A BACK PRESSURE REGULATOR

PORT SIZE	A		B		C		PIPE SIZE	F.P.T. (D)		SOCKET (E) WELD		WELD (F) NECK	
	mm	INCHES	mm	INCHES	mm	INCHES		mm	INCHES	mm	INCHES	mm	INCHES
3/4" & 1"	164	6 2"	244	9.6"	392	15.4"	3/4"	216	8.5"	216	8.5"	254	10.0"
							1"	216	8.5"	216	8.5"	261	10.3"
							1-1/4"	216	8.5"	216	8.5"	261	10.3"
1-1/4"	203	8 0"	248	9.8"	410	16.1"	1-1/4"	256	10.1"	256	10.1"	300	11.8"
							1-1/2"	256	10.1"	256	10.1"	304	12.0"
1-5/8" & 2"	251	9.9"	287	11.3"	464	18.2"	1-1/2"	307	12.1"	307	12.1"	364	14.3"
							2"	307	12.1"	307	12.1"	371	14.6"
2-1/2"	252	9.9"	302	11.9"	483	19.0"	2-1/2"	331	13.0"	331	13.0"	401	15.8"
							3"	389	15.3"	389	15.3"	478	18.8"
3"	311	12.2"	324	12.8"	597	23.5"	4"	450	17.7"	450	17.7"	571	22.5"
4"	359	14.1"	361	14.2"	653	25.7"							

PORT SIZE	SOLDER O.D. TUBE		SOLDER (G) O.D.S.		H		J		K		L		M	
	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES
3/4" & 1"	28.57	1-1/8"	286	11.3"	117	4.6"	98	5.9"	241	9.5"	71	2.8"	97	3.8"
	34.92	1-3/8"	285	11.2"										
	41.27	1-5/8"	299	11.8"										
1-1/4"	34.92	1-3/8"	324	12.8"	117	4.6"	178	7.0"	254	10.0"	76	3.0"	102	4.0"
	41.27	1-5/8"	339	13.3"										
	53.97	2-1/8"	370	14.6"										
1-5/8" & 2"	41.27	1-5/8"	414	16.3"	140	5.5"	251	9.9"	307	12.1"	114	4.5"	140	5.5"
	53.97	2-1/8"	404	15.9"										
	66.67	2-5/8"	429	16.9"										
2-1/2"	66.67	2-5/8"	432	17.0"	159	6.2"	314	12.4"	325	12.8"	130	5.1"	155	6.1"
	79.37	3-1/8"	468	18.4"										
3"	79.37	3-1/8"	496	19.5"	176	7.0"	314	12.4"	432	17.0"	152	6.0"	178	7.0"
	92.07	3-5/8"	542	21.3"										
4"	104.78	4-1/8"	613	24.1"	222	8.9"	363	14.3"	478	18.8"	157	6.2"	183	7.2"