

HANTEMP Controls

Bulletin A4116b

“A4” Stainless Steel Pressure Regulators

Made in
U.S.A

i iar
International Institute of
Ammonia Refrigeration



DESCRIPTION

HANTEMP Controls has created a flexible range of pressure regulator configurations for industrial refrigeration applications. The regulators are built for precise modulation. Featuring **stainless steel** construction to resist corrosion typical for steel and iron valves, the A4t Pressure Regulators will withstand the high pressure and corrosive conditions in today's indoor & outdoor industrial refrigeration systems using NH₃, CO₂, and fluorinated gases. The regulators functionally replace similar Hansen, R/S, and Danfoss models.

MATERIAL SPECIFICATIONS

Body: Stainless Steel (no toxic zinc plating)

Pilot Modules: Stainless Steel

Piston Seal: Teflon Cantilever

Main Seat: Teflon Proprietary (V-Port)

Sizes: 3/4", 1, 1 1/4" (coming: 1 1/2", 2, 2 1/2")

Safe Operating Temperature:

-70°F to 120°F (-57°C to 48°C)

Safe Working Pressure: 800 psig (55 bar)

A4t Controls as Regulators, Modules, or RR Stations

- Stainless Steel Bodies & Pilots
- Moderate Weight
- Flexible Pilot Modules
- Simple Repair/Remove Stations
- Interchanges with flanged Hansen & R/S models (A4, A4S, A4D, etc.)

FEATURES

Functions: Back (Evaporator) Pressure, Shut-Off, Dual Pressure, Wide-Opening, Temperature, Differential Pressure, Outlet Pressure, & Others

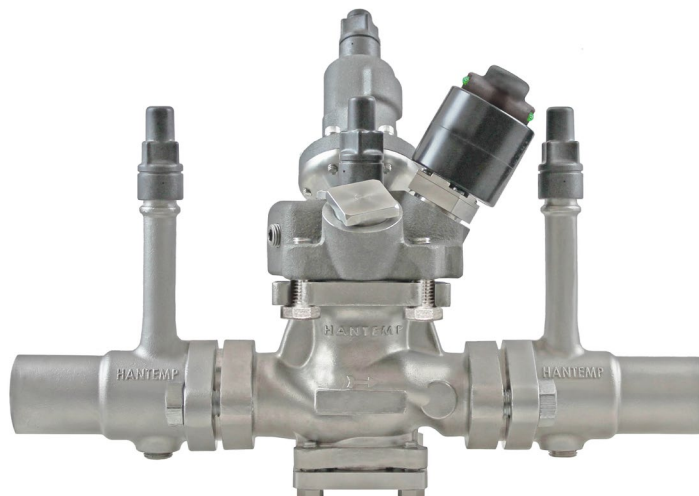
Options: Strainer Module, Internal Check Valve, Isolation Ball Valves or Expansion (for RR Station)

Connections: Weld Inline SS Socket or Butt Weld; Flanged Body; ODS Copper

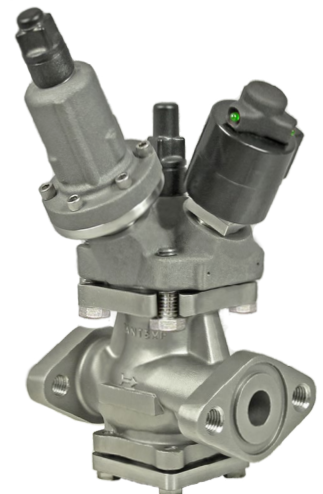
Fluids: NH₃, CO₂, Flourinated Gases, Air, Others



*A4SWt
Module
(weld in-line)*



RR Flexible Station (Platform)



*A4Bt
Regulator
(flanged)*

NEW & IMPROVED A4 FAMILY SOURCE

Stainless Steel bodies provide reliable, stronger, lighter, non-rusting ammonia control valves from an experienced U.S. manufacturer. The line of **Stainless Steel** Pressure Regulators comprise individual valves, combo-modules, and RR Repairable OR Removable Total Stations for new projects or improvements.

SIZES

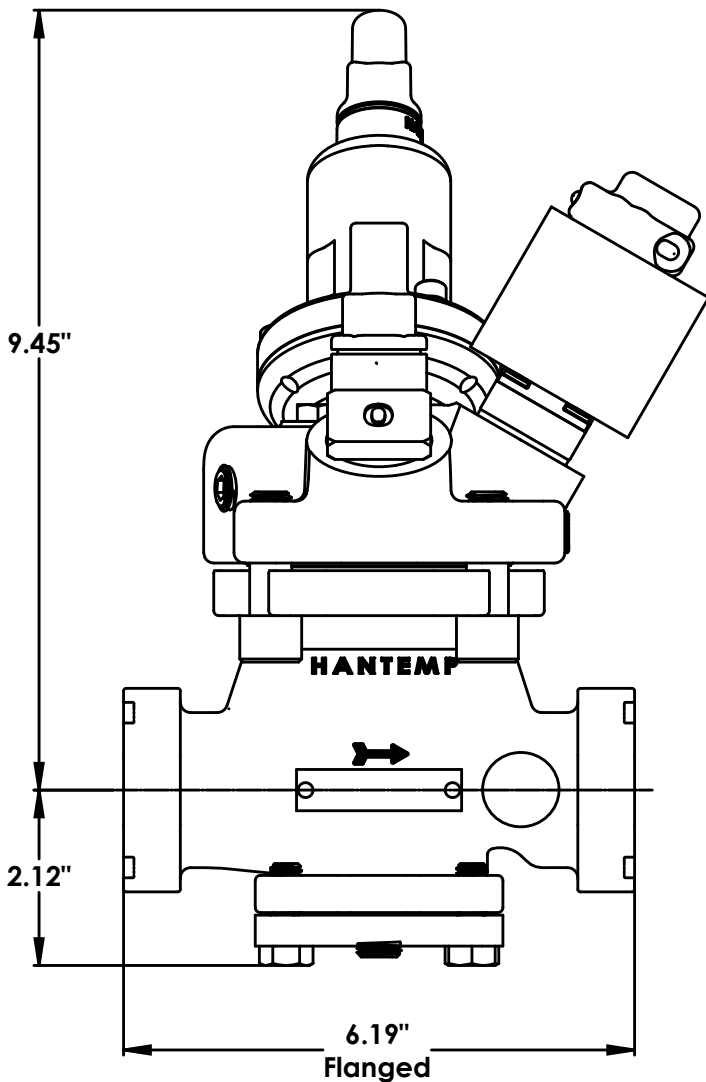
The A4t **Stainless Steel** Pressure Regulators are available in sizes $\frac{3}{4}$ ", 1", and $1\frac{1}{4}$ ". As HANTEMP Controls continues to expand its manufacturing capacity, sizes $1\frac{1}{2}$ ", 2", and $2\frac{1}{2}$ " will be available for future shipment. Contact factory for more information.

FLANGED OR WELD IN-LINE CONSTRUCTION

INDIVIDUAL MODEL A4St

(flanged connections)

interchanges with R/S & Hansen models



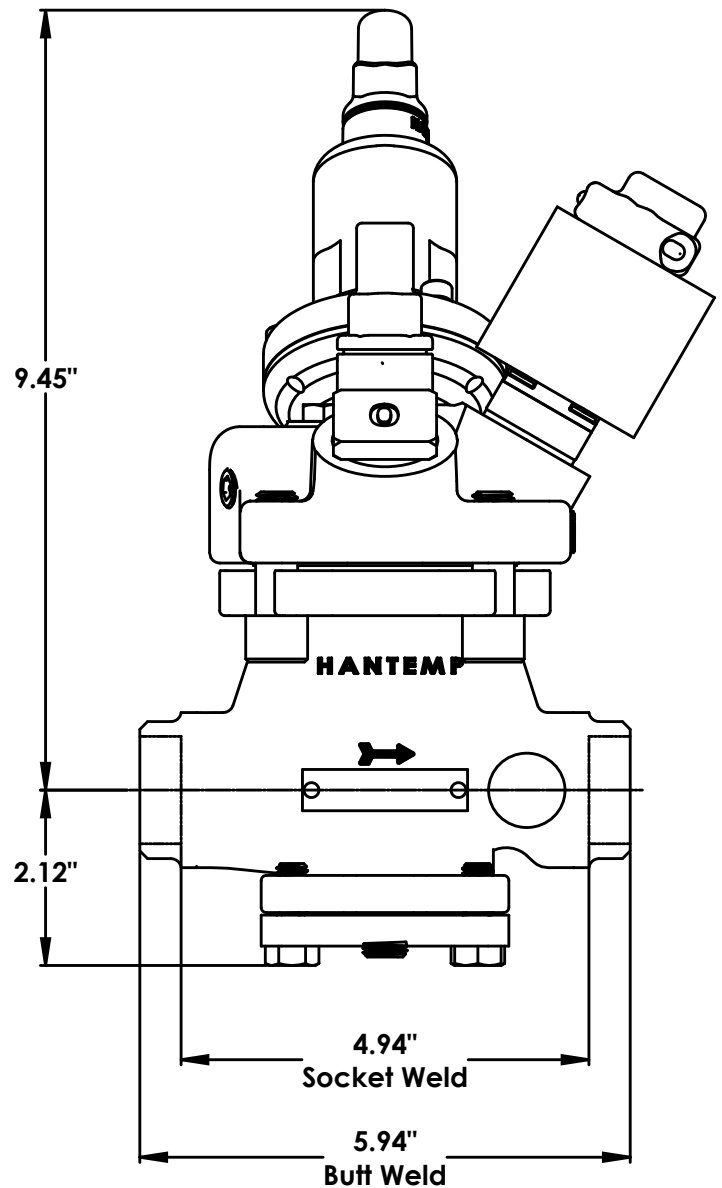
Same dimension as R/S and Hansen models

Port Sizes: $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ "

Flanged: $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ "

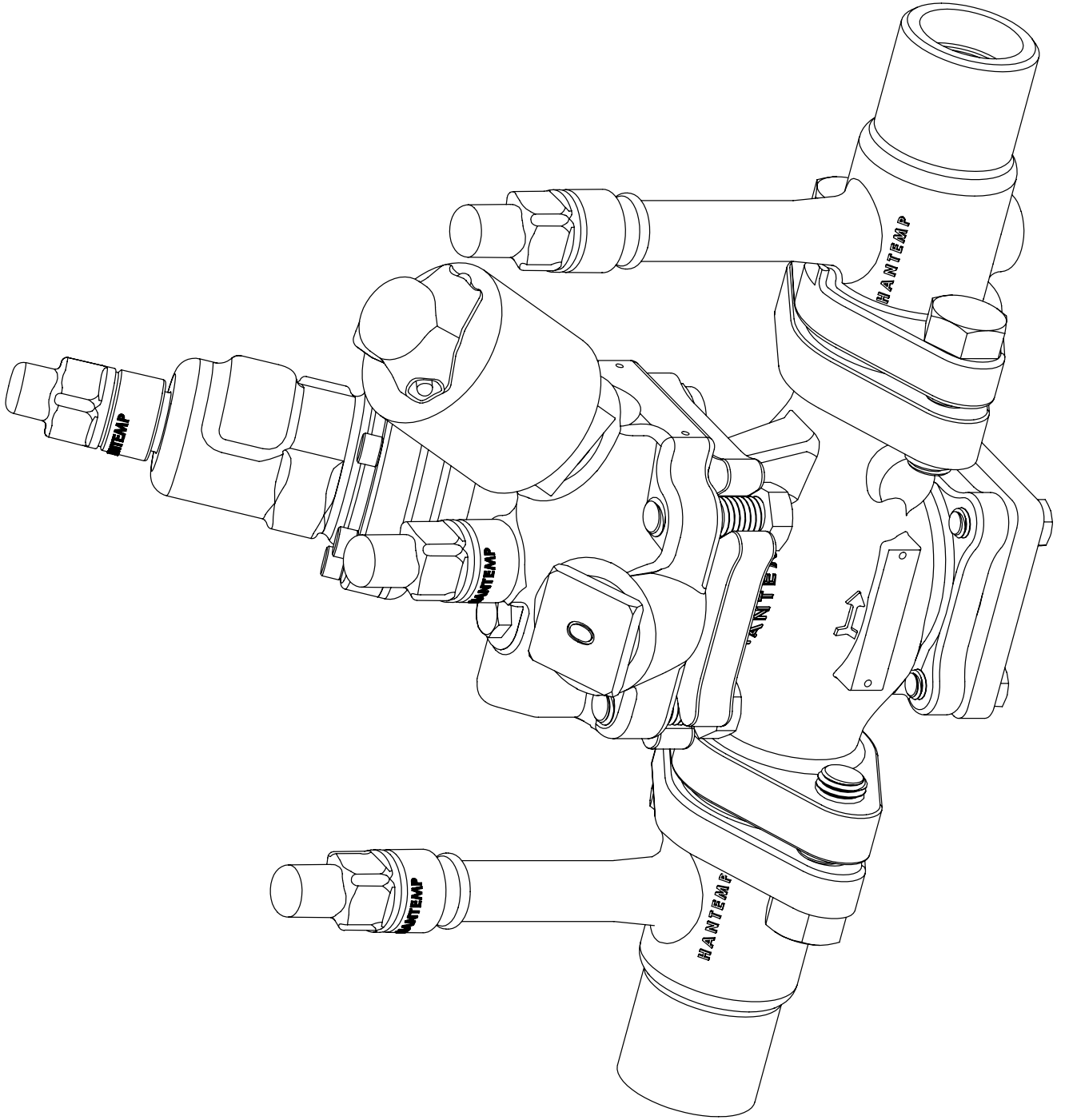
COMBINATION MODULE A4SWt

(welding connections)



Port Sizes: $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ "
Connections: $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ " SW
 $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ " BW

RR FLEXIBLE STATION REPAIRABLE OR REMOVABLE
Stainless Steel
(A4SRrt 1" SW shown)



AVAILABLE CONFIGURATIONS (Stainless Steel)

A4At - Flanged Regulators or A4AWt - Weld Inline Regulators *(pictured)*

The standard pressure regulator from HANTEMP Controls, the cornerstone of all other configurations of the pressure regulator, modulates the flow of refrigerant to maintain a constant inlet pressure. Evaporator pressure, condensing pressure, vessel pressure, or pressure in other portions of the system are monitored, and the valve opens when inlet pressure increases. All A4t variations are available as flanged or weld inline.

*Optional SGV
Gauge Valve*



A4AWt Regulator - Weld Inline

A4St - Regulators with Electric Shut-Off

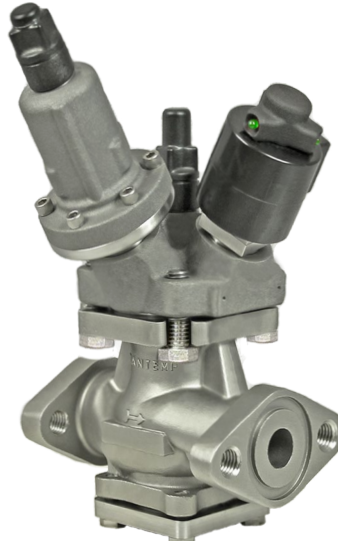
This pressure regulator with electric shut-off functionality, is suited for application when flow through the regulator must be stopped. It regulates defrost and temperature control at an established pressure when energized, and remains tightly closed when de-energized regardless of inlet pressure levels.



A4St Regulator With Electric Shut-Off - Flanged

A4Bt - Regulators with Electric Wide Opening

This configuration of the pressure regulator has a wide opening for conditions requiring maximum cooling. Controlling the defrost of evaporators and system temperature, the A4Bt functions as an inlet pressure regulator at an established pressure point when de-energized. When the valve is energized, the regulator re-opens.



A4Bt Regulator With Electric Wide Opening - Flanged

AVAILABLE CONFIGURATIONS (Stainless Steel)

A4Dt - Dual Pressure Regulators

The A4Dt configuration is capable of regulating two different pressure levels in the system. When the valve is energized, it is used to regulate evaporator pressure at the lower of the two established pressure points. Defrost, temperature, and pressure relief are controlled at the higher pressure point when the valve is de-energized. The pressure set-points need to be configured and adjusted accordingly via the valve's pressure pilots.



A4Dt Dual Pressure Regulator - Flanged

A4Lt - Differential Pressure Regulators

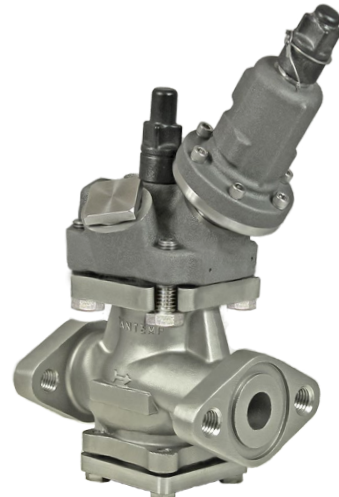
This configuration is commonly used for liquid pump relief, defrosting or heat recovery discharge pressure boosting, and condenser-receiver pressure difference control applications. The A4Lt regulates the set-for pressure difference between inlet and outlet pressure in the system. This configuration can be supplied for electric shut-off or electric wide opening applications.



A4Lt Differential Pressure Regulator - Weld Inline

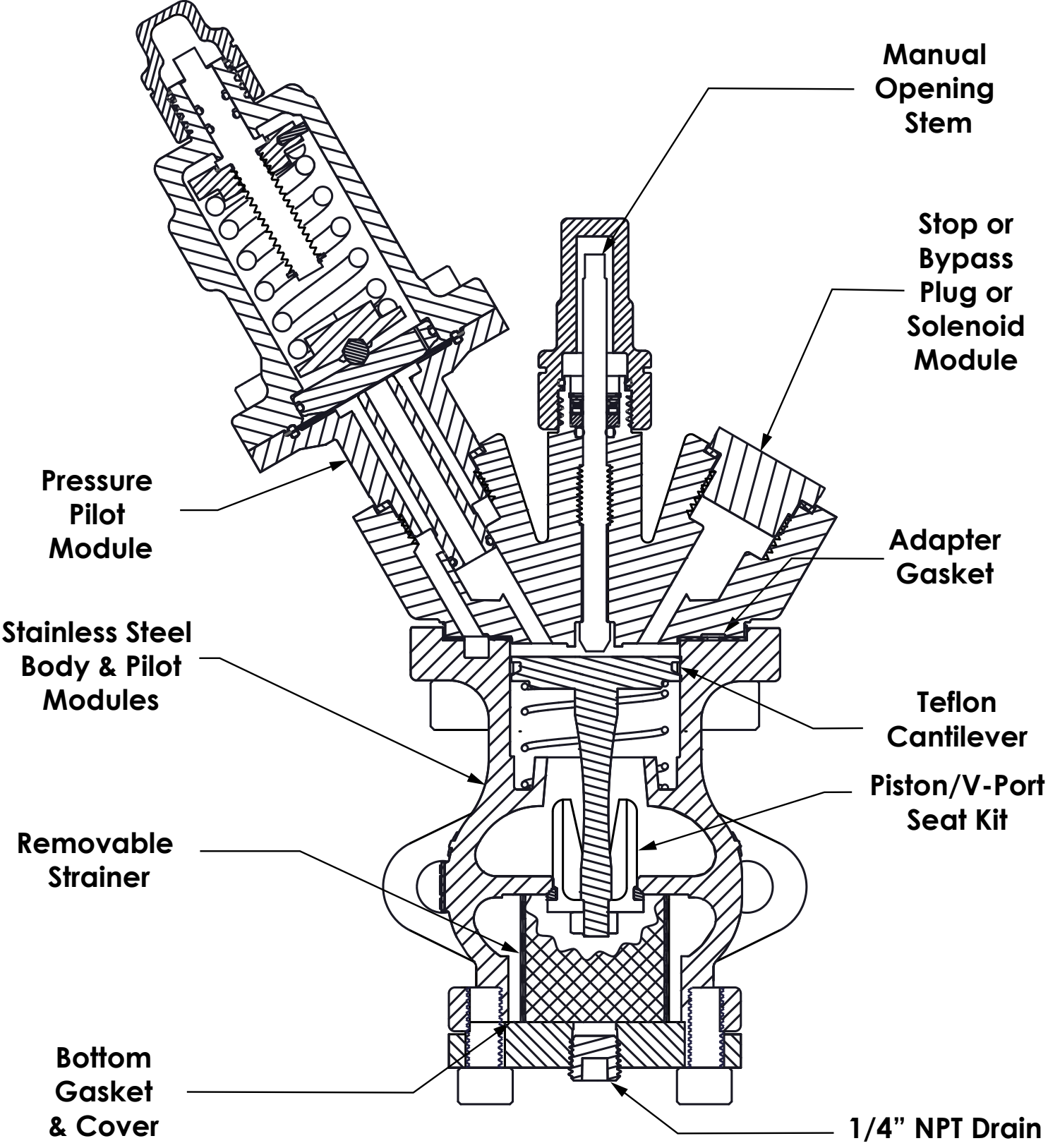
A4Kt - Reseating Relief Regulators

The A4Kt configuration will continuously reseat after operation. Often used for defrost and high-to-low side relief applications, this regulator operates based on an established pressure point. When system upstream pressure rises above the set point, the valve opens. Factory set and sealed.



A4Kt Reseating Relief Regulator - Flanged

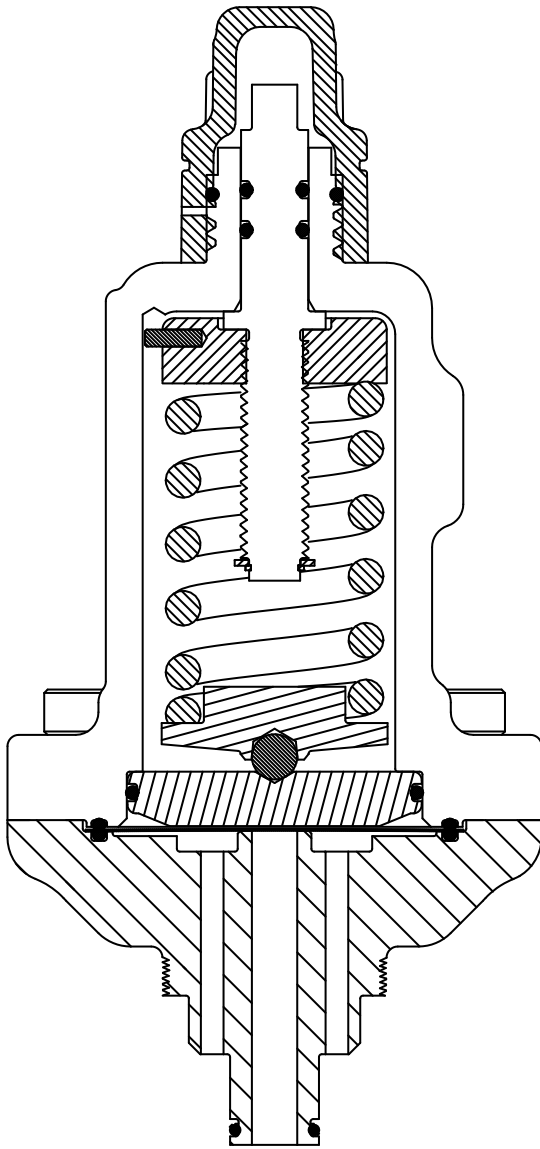
**TYPICAL A4t MODULAR PRESSURE REGULATOR - CROSS SECTION
 FLANGED AND WELD INLINE CONFIGURATIONS
 (Stainless Steel)**



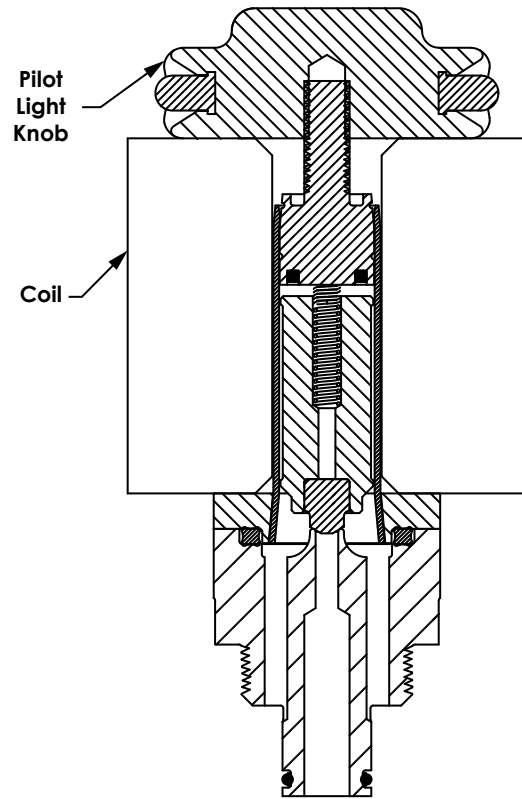
PARTS LIST

A4t STAINLESS STEEL REGULATOR MODULES $\frac{3}{4}$ " , 1" , 1 $\frac{1}{4}$ "

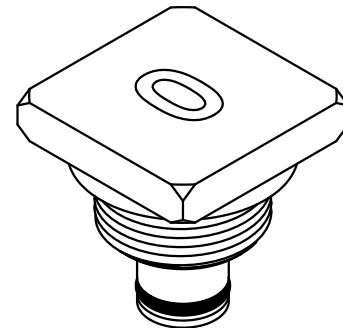
PRESSURE PILOT MODULE



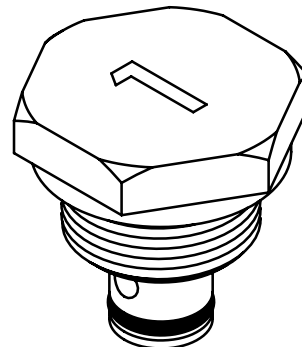
SOLENOID PILOT MODULE



STOP PLUG



BYPASS PLUG



Internal Parts A4t Pressure Regulators	
Part Number	Description
28-0180	Pressure Pilot Module with seals
28-0181	Solenoid Pilot Module with seals
28-0245	$\frac{3}{4}$ " Piston/V-Port Kit Module with seals
28-0246	1" Piston/V-Port Kit Module with seals
28-0247	1 $\frac{1}{4}$ " Piston/V-Port Kit Module with seals
28-0019	Stop Plug with seals
28-0214	Bypass Plug with seals

A4 Series Suction Vapor Capacities (tons)

Port Size (mm)	Cv (Kv)	Pressure Drop Across Valve	R717				
			Evaporating Temperature				
			-40°F (-40°C)	-20°F (-29°C)	0°F (-17.8°C)	+20°F (-6.7°C)	+40°F (+4.4°C)
¾" (20)	6.4 (5.5)	2	4.7	6.4	7.4	9.5	12
		5	6.7	9.7	8.7	15	16
		10	---	13	15	20	26
1" (25)	11.7 (10)	2	8.5	12	13	17	22
		5	12	18	16	27	34
		10	---	23	28	37	47
1¼" (32)	16.4 (14)	2	12	16	19	24	31
		5	17	25	22	38	48
		10	---	32	39	52	66

A4At/A4Kt Defrost Relief Capacities (tons) - Ammonia (R717)

Port Size (mm)	Capacity
¾" (20)	17 to 24
1" (25)	24 to 45
1¼" (32)	45 to 60

INSTALLATION

Do not remove the protective packaging until ready for installation to avoid jobsite dirt. The A4 Regulators are available for welding directly in-line or flanged installations. Valves should be installed with the directional flow arrow matching the direction of refrigerant flow. Prior to & during welding process, keep dirt from entering the regulator.

SIZING

A4 Regulator size is generally chosen based on line size with a review of catalog capacity rating. The A4 Regulators are currently available in ¾" - 1¼" pipe connections and 1⅛", 1⅜", and 2⅛" ODS copper connections. Butt Weld Connections will be supplied for Schedule 40 wall thickness unless Schedule 10 is specified at the time of order. Valve sizing assistance is available via contact with the factory. Companion flanges must be ordered separately if needed.

SAFETY WARNING

The regulators should only be installed, maintained and serviced only by experienced refrigeration professionals. This includes reading and understanding pertinent product safety bulletins and installation instructions. Before servicing a regulator, it should be isolated from the system and all refrigerant evacuated from the piping.

WARRANTY

All HANTEMP Controls products, except electric motors and electric items, are warranted against defects in workmanship and materials for a period of one (1) year from date of shipment from the factory. This warranty period is applicable only when products are properly installed and operated in use and service as stated in HANTEMP Controls product bulletins unless approved in writing by HANTEMP Controls.

HANTEMP Controls

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HANTEMP Controls reserves the right to alter product specifications, materials, and pricing without notice.