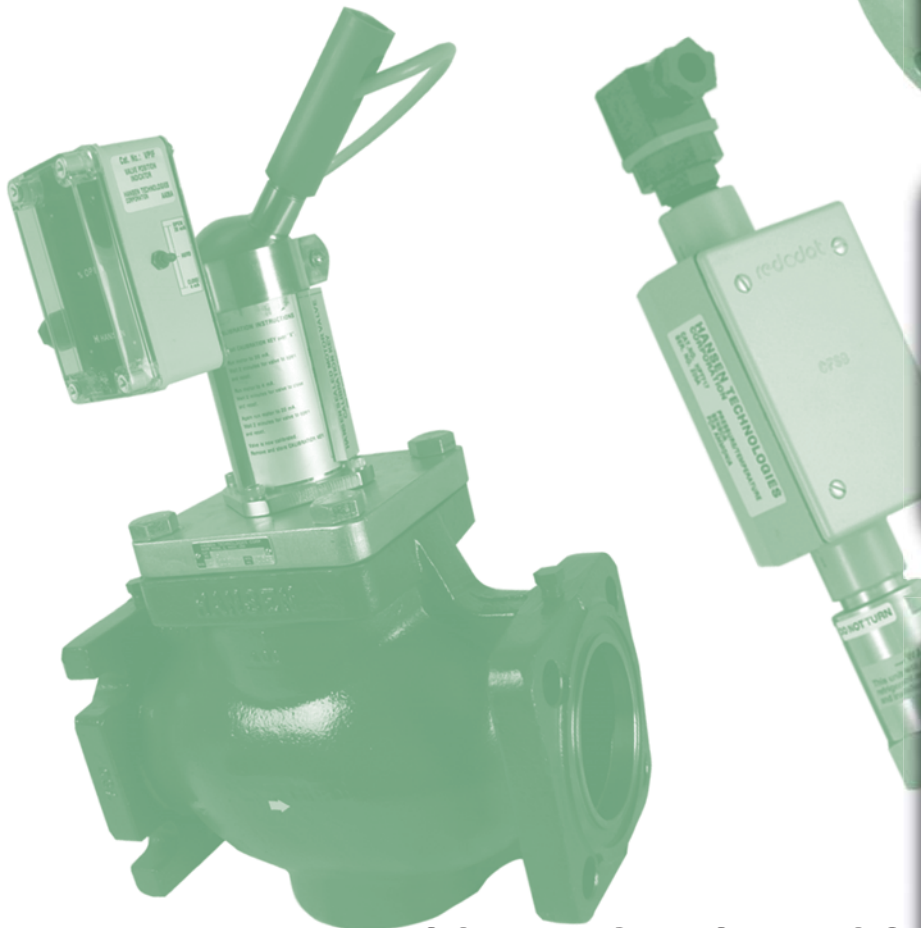
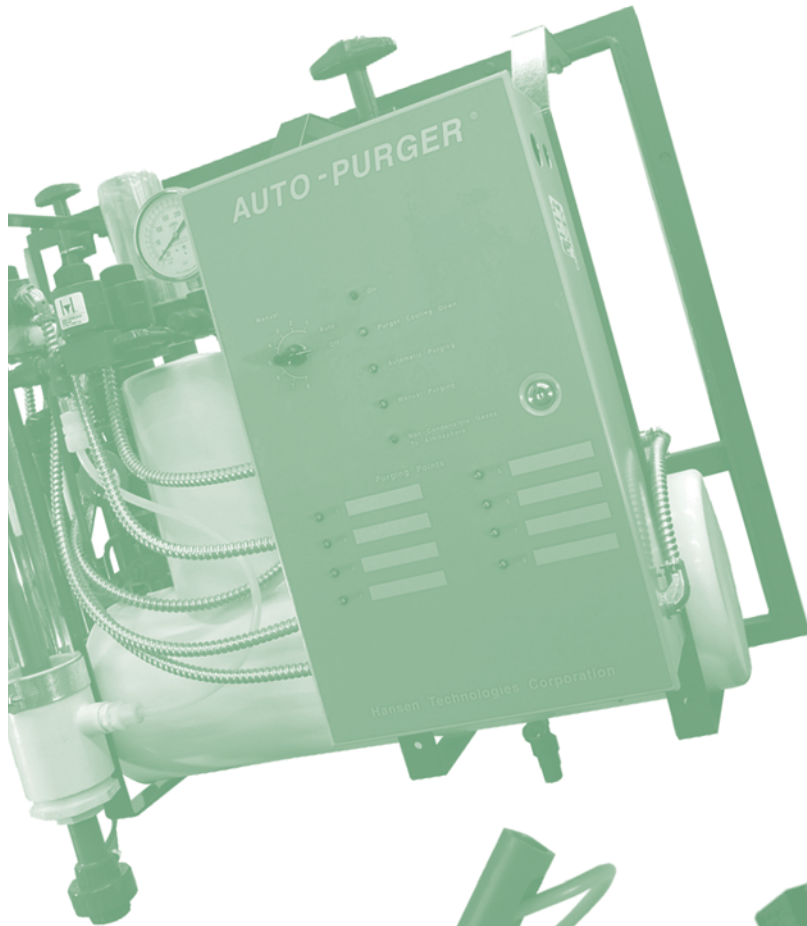
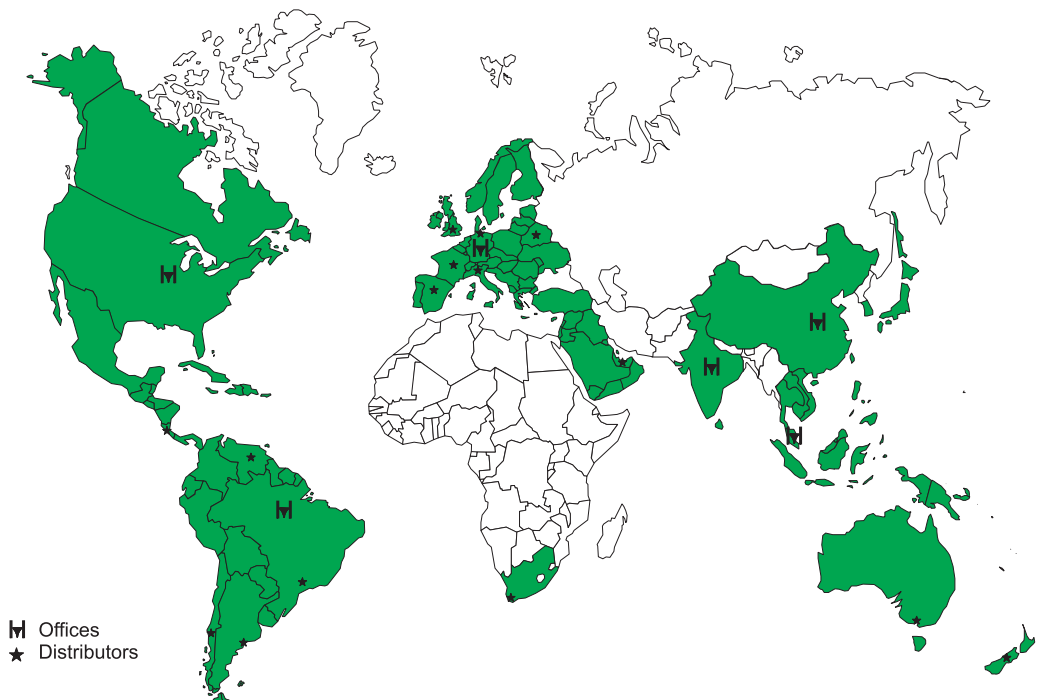


# HANSEN



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CC0906



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## Certifications and Statements of Compliance

Hansen Technologies strives to offer products which meet and exceed current regulations worldwide.

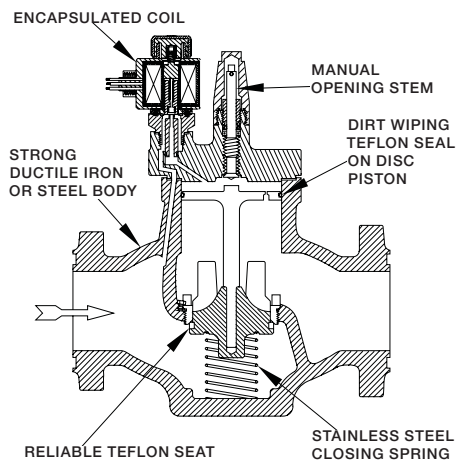
Consult our website, **[www.hantech.com](http://www.hantech.com)** for the most current bulletins, product information and certifications regarding CE Mark for PED, CRN Registrations and other statements of compliance.

# SOLENOID VALVES

Hansen Solenoid Valves are designed and built specifically for industrial refrigeration. These high-quality valves are compact, strong-bodied and reliable. Stainless steel pistons or disc-pistons with Teflon seals are used to overcome the problem of valve sticking due to dirt or lack of oil. Pilot seats are polished stainless steel on Teflon discs and main valve seats and discs align for tight closing. Each valve is tested to ensure reliable operation, safety and tightness.

## Features

- All Valves Are Spring Closing
- All Valves Have Teflon Seats
- Pressure Drop is Low
- One Solenoid Coil Fits All Valves
- Close-Coupled Strainers Are Available
- Non-Asbestos Gaskets
- 300 psi (21 bar) MOPD
- Safe Working Pressure: 400 psig (27 bar)
- Operating Temperature: -60°F to 240°F (-50°C to 116°C)
- Suitable for Ammonia, CO<sub>2</sub>, R22, R134a and Other Approved Refrigerants
- Coils are CE and CSA Approved
- Available Flange Connections: FPT, SW, WN, ODS



HS4A

## Application

These valves can be used in liquid, suction, hot gas, discharge, purge lines, etc, wherever a strong opening, tight closing valve is required. Some typical applications include high pressure or low pressure liquid feed, re-circulating liquid control, defrost hot gas control, suction shut off, purge line and many other applications.

### HS4A

- 3/4" - 4" (20 - 100mm), Ductile Iron Body
- 5" & 6" (125 & 150mm), Steel Body
- Dirt Wiping Disc Piston
- Stainless Steel Springs



### HS7

- 3/4" - 1-1/4" (20 - 32mm), Nodular Iron Body
- Stainless Steel Piston
- Stainless Steel Springs



### HS8A

- Steel Body, Plated
- Compact Design
- Stainless Steel Piston
- Stainless Steel Springs



### HS6

- Steel Body, Plated
- Direct Operated
- Ideal for Pilot Duty



### HS2

- Steel Body, Plated
- Direct Operated
- Compact Design
- Threaded End Connections



To Order: Specify type, port, connection style and size, coil connection style, voltage, and strainer or other options if required. Unless otherwise specified, standard coil with 1/2" fitting will be supplied.

## Valve Selection

APPLICATION			PORT SIZE (mm)											
			5/32" (4)	1/2" (13)	3/4" (20)	1" (25)	1-1/4" (32)	1-1/2" (40)	2" (50)	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)
Liquid Line High Pressure or Recirculation			HS6	HS8	HS7 HS4A	HS7 HS4A	HS7 HS4A	HS4A	HS4A	HS4A	HS4A	HS4A	HS4A	HS4AW
Suction Line	Down to -40°F (-40°C)		–	–	HS7 HS4A	HS7 HS4A	HS7 HS4A	HS4A	HS4A	HS4A	HS4A	HS4A	HS4A	HS4W
	Down to -60°F (-50°C)	Gas-Powered Suction Stop	–	–	–	–	HCK2	HCK2	HCK2	HCK2	HCK2	HCK2	HCK2	HCK2
		Gas-Powered Solenoid	–	–	–	–	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B
Hot Gas or Discharge Line			–	HS8	HS7 HS4A	HS7 HS4A	HS7 HS4A	HS4A	HS4A	HS4A	HS4A	HS4A	HS4W	HS4W
Gravity Drain or Vent Application			–	–	–	–	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B	HS9B

# SOLENOID COILS & PILOT LIGHTS

## Encapsulated Solenoid Coils

Watertight encapsulated coils with no outside frame. Optional compact Beacon Pilot Lights are designed to be used directly with coil for convenience. Coils available with 18" (450mm) wire leads with ½" NPSM fitting for conduit, DIN Plug, or Quick Disconnect Plug.

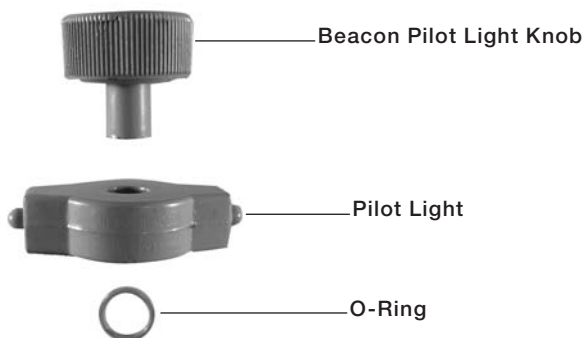
Wire leads are standard for 115V, 208/230V, or 24V; 50/60Hz. Wt. 1 Lb (0.5 kg). Specify Connection.

## Features

- One coil fits all valve sizes
- Low wattage
- Encapsulated, watertight design
- Operates on standard voltages
- Combination 50/60Hz coil
- Interchangeable with European/Danish coils using Coil Adapter Kit p/n 70-1104
- Easily installed, no tools required
- Beacon pilot light optional

## Beacon Pilot Lights

Convenient and easy to install. No extra wiring required. Designed to sit on top of solenoid coil. Fits on all existing solenoid coils - order the Beacon Pilot Light Kit. Kit includes the Pilot Light, O-ring, and specially designed Beacon Pilot Light Knob for operation.



Beacon Pilot Light Kit



Coil Adapter Kit



Plug-in Coil



Standard Coil with 18" Wire Leads



Plug-in Coil with DIN Connector



Plug-in Coil with Quick Disconnect Connector

### STANDARD COIL KIT

*Includes Coil, Knob & O-Ring*

#### With Leads

115V	70-1085
230V	70-1086
24AC	70-1087

#### Plug-in Coil less Socket (also APM Purger)

115V DIN	70-1088
230V DIN	70-1089
24AC DIN	70-109
24DC DIN	70-1091

#### Plug-in Coil with Din Connector Socket

115V DIN	70-1092
230V DIN	70-1093
24AC DIN	70-1094
24DC DIN	70-1095

#### Plug-in Coil with Quick Disconnect Connector Socket

115V DIN QD	70-1096
230V DIN QD	70-1097
24AC DIN QD	70-1098
24DC DIN QD	70-1099

### BEACON PILOT LIGHT KIT

Red	70-1100
Green	70-1102
Amber	70-1101

### COIL ADAPTER KIT FOR EUROPEAN VALVES

Adapter Kit	70-1104
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### AP AUTO-PURGER SOLENOID COILS

#### Replacement Coil for AP Purgers with Junction Box

115V	70-1105
230V	70-1106

#### Replacement Coils for AP Purgers with Conduit Connection (Long leads)

115V	70-0622
230V	70-0621



# PRESSURE REGULATORS




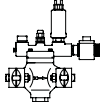

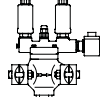




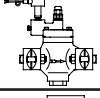
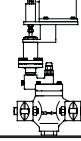
HA4A

## HA4A Modular Regulators (For Ammonia, Halocarbons, CO<sub>2</sub>)

The complete line of modular Pressure Regulators has been designed for simple, reliable operation. These pressure regulators use a series of easily changed, screw-in control modules (pilots) to determine regulating functions. Other features include strong ductile iron or steel bodies, disc-pistons with Teflon seal rings to overcome the problems associated with dirt and dry running systems, reliable Teflon seats, V-port modulation for finer control, stainless steel closing springs, manual-opening stems, and 1/4" NPT gauge port.

Applications include evaporator pressure control, defrost pressure control, receiver pressure control, hot gas bypass regulation, suction pressure control, air or liquid temperature regulation, and internal system pressure relief. Shipped fully assembled and 100% pressure tested.

## Standard and Special Variations

DESCRIPTION	TYPE		FUNCTION	RANGE	TYPICAL APPLICATIONS
Standard Regulator	HA4A		Regulates inlet pressure.	A: 0 to 150 psig (0 to 10 bar) B: 30 to 300 psig (2 to 21 bar) V: 20" to 130 psig (-0.67 to +9 bar)	1. Evaporator pressure control 2. Controlled receiver pressure 3. Compressor discharge pressure
Regulator with Electric Shut-off	HA4AS		Regulates inlet pressure when electrically energized; closed when not energized.	A: 0 to 150 psig (0 to 10 bar) B: 30 to 300 psig (2 to 21 bar) V: 20" to 130 psig (-0.67 to +9 bar)	1. Temperature control 2. Defrost control
Regulator with Electric Wide-Opening	HA4AB		Regulates inlet pressure, electric wide open.	A: 0 to 150 psig (0 to 10 bar) B: 30 to 300 psig (2 to 21 bar) V: 20" to 130 psig (-0.67 to +9 bar)	1. Defrost control 2. Temperature control with wide opening for maximum cooling
Dual Pressure Regulator	HA4AD		Regulates at two different pressure settings.	A: 0 to 150 psig (0 to 10 bar) B: 30 to 300 psig (2 to 21 bar) V: 20" to 130 psig (-0.67 to +9 bar)	1. Defrost control 2. Temperature control 3. Pressure relief
Outlet Pressure Regulator	HA4AO		Regulates outlet pressure.	B: 30 to 300 psig (2 to 21 bar) V: 20" to 130 psig (-0.67 to +9 bar)	1. Hot gas defrost supply 2. Receiver pressure control 3. Artificial compressor loading 4. Compressor suction limitation
Differential Pressure Regulator	HA4AL		For pump relief, oil control or any differential pressure control.	A: 0 to 150 psig (0 to 10 bar) (difference)	1. Liquid pump relief 2. Condenser-receiver pressure 3. Non-atmospheric relief
Reseating Relief Regulator	HA4AK		Provides fixed pressure relief to lower pressure section of system.	A: 0 to 150 psig (0 to 10 bar) B: 30 to 300 psig (2 to 21 bar)	1. Defrost relief section of system 2. High to low side relief
Pneumatically Compensated Regulator	HA4AP		Air pressure or other pressure in bonnet raises inlet pressure setting at 1:1 ratio.	A: 0 to 150 psig (0 to 10 bar)	1. Process cooling 2. Liquid chillers
Electronically Controlled Regulator	HA4AQ		Provides precise temperature control or liquid chiller control. Motor changes regulator pressure setting in accordance with temperature controller.	Control Range: 0 to 87 psig ( 0 to 6 bar)	1. Fruit storage 2. Process cooling 3. Temperature delicate applications 4. Load change compensation
Electric Motor Compensated Regulator	HA4AM			A: 0 to 150 psig (0 to 10 bar) V: 20" to 130 psig (-0.67 to +9 bar)	

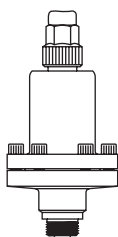
# CONTROL MODULES FOR REGULATORS

Control modules (pilots) enable the main regulator to perform different control functions. Pilots are normally factory installed, but can be retrofitted or interchanged in the field by simply screwing into control module port of the regulator. The nonrising stem can be adjusted by using a 1/4" wrench. Catalog numbers are for the pilot module.

## Inlet Pressure

Opens as inlet pressure rises. Range: A, 0 to 150 psig (0 to 10 bar), Part 75-1097; or B, 30 to 300 psig (2 to 21 bar), Part 75-1098. Also, Range V, 20" to 130 psig (-0.67 to +9 bar), Part 75-1099. Catalog M3.

Compact welded pressure pilot. Range A, 0 to 150 psig (0 to 10 bar), Part 75-1126. Standard only on valve sizes 3/4" to 1 1/4". Catalog M3W.



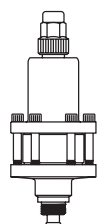
M3



M3W

## Outlet Pressure

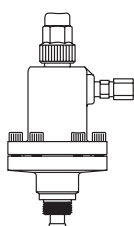
Opens as outlet pressure drops. For hot gas bypass to suction or for controlled supply pressure of defrost hot gas. Also used for compressor suction pressure limiting (crankcase pressure regulator). 1/4" NPT connections for outlet pressure gauge and sensing line (tubing not included). Range B, 30 to 300 psig (2 to 21 bar), Part 75-1101; or Range V, 20" to 130 psig (-0.67 to +9 bar), Part 75-1100. Catalog M3O, specify range.



M3O

## Differential Pressure

Maintains set-for differential between inlet and outlet or other pressure source. For pump relief or any differential control. 1/4" NPT connection for pressure sensing line (tubing not included). Range A, 0 to 150 psi (0 to 10 bar) difference, Part 75-1081, Catalog M3L.

M3L  
M3P

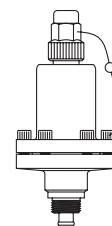
## Pneumatically Compensated

Air or other pressure in the bonnet raises inlet pressure on a 1:1 ratio. 1/4" NPT connection. Range A, 0 to 150 psig (0 to 10 bar), Part 75-1081, Catalog M3P.

## Reseating Relief

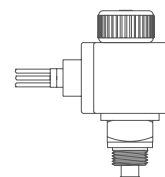
Opens wide when pressure exceeds pressure setting and repeatedly reseats after operation. Defrost relief or high-to-low system relief. Set and tagged. The standard setting for ammonia defrost is 70 psig (4.8 bar). Range A, 0 to 150 psig (0 to 10 bar), Part 75-1103; or Range B, 30 to 300 psig (+2 to 21 bar), Part Number 75-1104. Catalog M3K.

Compact welded pressure pilot. Range A, 0 to 150 psig (0 to 10 bar), Part 75-1127. Standard on valve sizes 3/4" to 1 1/4". Catalog M3KW.

M3K  
M3KW

## Solenoid

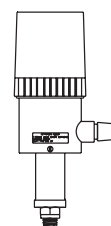
Normally closed. Opens wide when energized. Requires coil. Less coil: Part 70-1052, Catalog MS.



MS

## Electronically Controlled

Mounted electronic actuator changes the pressure set point in conjunction with a controller and temperature sensor for either air or liquid. Very precise. See page 12 for the control package which includes the necessary controller and sensor. Range: J1, 0 to 85 psig (0 to 6 bar), Part 27B1140; or J2, 25 to 115 psig (1.7 to 8 bar), Part 27B1141. Catalog M3Q.



M3Q

## External Connection

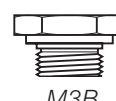
Enables a remote pressure source to be introduced to the control via a pilot line (replaces a pilot). 1/4" NPT with separate 4" (100 mm) long weld nipple, Part 35-1015, Catalog M3E25.



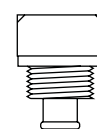
M3E35

## Blanking Plugs

To be used in a control module port when the port is not utilized. Stopping plugs have square head and are marked with "0" (75-1063). Straight through flow plugs have a hex head and are marked with "1" (75-1064). Catalog M3S (stopping) or M3B (straight through).



M3B



M3S

## PRESSURE REGULATORS

To Order: Specify type, port size, flange connection style and size, range, coil connection style, voltage where applicable, combination of variation and special variations desired, and strainer if required. Optional strainers are generous close-coupled, 60 or 100 mesh accessible (233 Micron Rating).

Modular regulator bodies less pilots and less flanges, AR1 (one pilot port) and AR3 (three pilot ports), are also available from 3/4" to 4" (20 to 100mm): includes flange gaskets, bolts and nuts, and a plugged 1/4" outlet pressure access port for connecting outlet or differential control module sensing lines or gauges.

PORT SIZE (mm)	FLANGE CONNECTION STYLES & SIZES			WEIGHT LBS (KG)	
	WN OR SW		ODS	LESS STRAINER	WITH STRAINER
	STD	ALSO			
3/4" (20)†	3/4"	1"	7/8"	26 (12)	35 (16)
1" (25)	1"	1-1/4"	1-1/8"	26 (12)	35 (16)
1-1/4" (32)	1-1/4"	1-1/2" WN	1-3/8"	26 (12)	35 (16)
1-1/2" (40)	1-1/2"	2"	1-5/8"	50 (23)	82 (37)
2" (50)	2"	–	2-1/8"	50 (23)	82 (37)
2-1/2" (65)	2-1/2"	3"	2-5/8"	78 (35)	128 (58)
3" (80)	3"	–	3-1/8"	89 (40)	153 (69)
4" (100)	4"	–	4-1/8"	137 (62)	239 (108)
5" (125)	5" BW‡	–	–	250 (113)	500 (227)
6" (150)	6" BW‡	–	–	270 (122)	540 (245)

† 25% and 50% Reduced Capacity Plugs are available.

‡ Regulators are Type HA4AW with integral butt weld end only.

### Small Pressure Regulators



HA2A

These compact, flanged pressure regulators are ideal for pilot application. Frequently used as small relief devices and as remote pilots for main regulators. Standard flange is 1/2" FPT. Also 3/4" FPT and 1/2", 3/4" SW; WN. 1/4" FPT.

Optional close-coupled inlet strainer available.

To Order: Specify type, range or setting, connection style and size, and strainer if required.

TYPE	FUNCTION	RANGE	WEIGHT LBS (KG)
HA2B	Back Pressure	A: 0 to 150 psig (0 to +10 bar) B: 30 to 300 psig (+2 to +21 bar) C: 100 to 550 psig (6 to 38 bar) D: 30 to 450 psig (0 to 31 bar) V: 20" to 130 psig (–0.67 to +9 bar)	8 (3.6)
HA2A	Back Pressure (high capacity)	A: 0 to 150 psig (0 to +10 bar) B: 30 to 300 psig (+2 to +21 bar) C: 100 to 550 psig (6 to 38 bar) D: 30 to 450 psig (0 to 31 bar)	9 (4.1)
HA2BK	Relief	A: 0 to 150 psig (0 to +10 bar) B: 30 to 300 psig (+2 to +21 bar) C: 100 to 550 psig (6 to 38 bar) D: 30 to 450 psig (0 to 31 bar)	8 (3.6)
HA2BO	Outlet	V: 20" to 130 psig (–0.67 to +9 bar) B: 30 to 300 psig (+2 to +21 bar)	9 (4.1)
HA2BL	Differential	A: 0 to 150 psig (0 to +10 bar)	8 (3.6)
HA2BQ	Electronic*	0 to 87 psig (0 to 6 bar)	7 (3.3)
HA2BP	Pneumatic	A: 0 to 150 psig (0 to +10 bar)	8 (3.6)

## PRESSURE REGULATOR ACCESSORIES

### Gauge Valves



HGV1

These Long Neck® gauge valves feature a plated, forged steel body that provides extra gauge installation space and will easily fit a wrench. The retained stainless steel safety stems are designed to be non-removable to avoid dangerous stem "blow-out". Dual packing design provides a smooth acting, leak free stem seal. Includes seal cap. Connection is 1/4" MPT inlet x 1/4" FPT outlet.

To Order: Specify catalog number. See page 15 for available models.

### Pressure Gauges

Quality bottom mount gauges feature a large 3-1/2" (90mm) diameter face with safe plastic lens, an easy to read scale and a zero recalibration feature. 1/4" MPT connection. For use with Hansen Gauge Valves. Also available: 4" (100mm) liquid filled stainless steel gauges.



GA1

TYPE	RANGE	SCALE
G5M-S	-1 to 12 bar	R404A, R134a, R22
G6M-S	-1 to 25 bar	R404A, R134a, R22
GA1M GA1M-S	-1 to 12 bar	R717
GA2M GA2M-S	-1 to 25 bar	R717
GA1 GA1-S	-30" Hg to 350 psi	R717
GA2 GA2-S	-30" Hg to 170 psi	R717

\* Stainless Steel, Liquid Filled Gauge



# GAS-POWERED VALVES

## Gas-Powered Suction Stop Valves

### Type HCK2, HCK5 (Normally Open)

#### Features

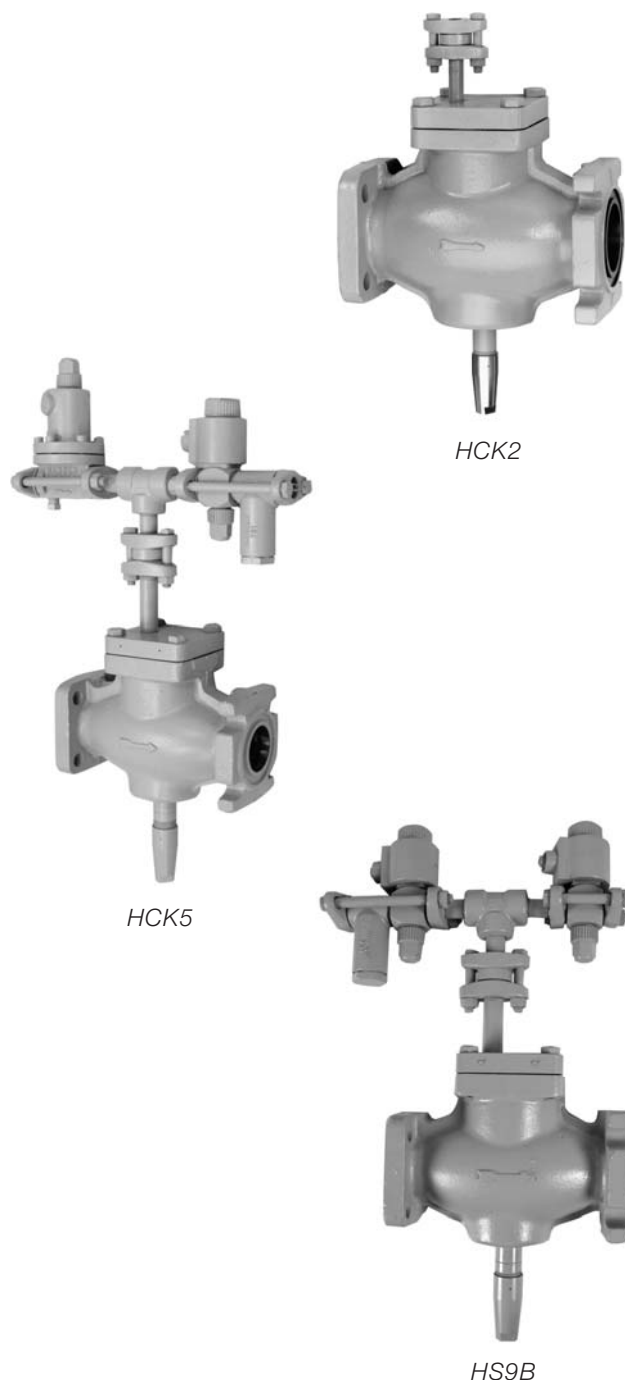
- Ideal for Defrosting
- Low Pressure Drop
- Oversized Ports
- Pressure Closing
- Ductile Iron or Steel Body
- Safe Working pressure: 400 psig (27 bar), 600 psig (40 bar) for CO<sub>2</sub>
- Operating Temperature: -60°F to 240°F (-51°C to 116°C)
- Suitable for Ammonia, R22, R134a, CO<sub>2</sub> and other approved refrigerants

These heavy-duty, flanged, gas-powered suction stop valves are designed to control the flow of refrigerant in large industrial and commercial applications. They remain normally open via a spring and require no pressure drop to operate. Valves are best installed on their side for better conveyance of liquid overfeed or oil and to avoid trapping. A single pilot solenoid valve is required to control a higher pressure refrigerant gas which closes these valves during defrosting.

Valves are ideally suited for low temperature applications to positively close, during defrost, the following: suction lines, liquid overfeed and flooded evaporator gas return lines, as well as gravity liquid and gas lines. Because they are gas-powered to close, these valves operate reliably even under viscous oil conditions.

HCK5 Suction Stop Valves are available having delayed opening in case of power failure. A pressure pilot valve gradually bleeds down evaporator pressure to a safe differential. Pressure and Solenoid Pilots provided in prepped assembly.

To Order: Specify type, port size, if pilot solenoid and strainer is desired, and its voltage and connections.



## Gas-Powered Solenoid Valves

### Type HS9B

Valves are operated by two pilot solenoid valves; one pilot solenoid will open to allow high pressure refrigerant to close the valve while the other pilot solenoid will open to bleed the refrigerant gas to the suction line. No bleed occurs around the sealed piston when open or closed. The capacities are the same for the HCK2. Ideal for closure during defrost or very low temperature suction stop valve.

To Order: Specify type, port size, volts, flange connection style and size.

PORT SIZE INCHES (mm)	FLANGE CONNECTION STYLE & SIZES		
	FPT, SW, WN		ODS
	STD	ALSO	STD
1-1/4" (32)	1-1/4"	1", 3/4"	1-3/8"
1-1/2" (40)	1-1/2"	2"	1-5/8"
2" (50)	2"	1-1/2"	2-1/8"
2-1/2" (65)	2-1/2"	3"	2-5/8"
3" (80)	3"	–	3-1/8"
4" (100)	4"	–	4-1/8"
5" (125)*	5" BW	–	–
6" (150)*	6" BW	–	–

Note: 5" & 6" are integral butt weld end only; Type HS9BW.

## FLANGES & ADAPTER RINGS



Weld Neck Flange  
2-Bolt  
Up to 1-1/4"



Socket Weld Flange  
4-Bolt  
1-1/2" to 4"

Hansen Flanges through 1-1/4" port are the 2-bolt oval flange style, standard. From 1-1/2" to 4", the standard is 4-bolt square. All flanges are male tongue only. ODS solder flange construction is steel bored to accept copper tubing.

### Flange Kits

Flange Kits contain one pair of flanges (of the same size and style) without bolts, nuts or gaskets for a Hansen flanged valve.

### Union Kits

A Union Kit contains one female adapter ring, bolts, nuts and two flange gaskets.

To Order: Specify flange number, flange kit connection style and size. Example: Number 100 Flange Kit with 3/4" FPT. For a union, order Union Kit plus appropriate Flange Kit.

FOR VALVE PORT SIZE	FLANGE NUMBER	FLANGE CONNECTION SIZE (All Flanges are Male Tongue Only)		ADAPTER RINGS		UNION KIT CAT. NO.
		FPT, SW, WN, (DN)	ODS (D/OD)	MALE	FEMALE	
up to 1/2"	050	1/4", 3/8", 1/2", 3/4" (7, 10, 15, 20)	5/8" (16)	MAR050	FAR050	UK050
3/4", 1", 1 1/4"	100	3/4", 1", 1 1/4", 1 1/2" WN (20, 25, 32, 40)	7/8", 1 1/8", 1 3/8" (22, 28, 35)	MAR100	FAR100	UK100
		SW, WN, (DN)	ODS (D/OD)			
1 1/2", 2"	200	1 1/2", 2" (40, 50)	1 5/8", 2 1/8" (42, 54)	MAR200	FAR200	UK200
2 1/2"	250	2 1/2" (65)	2 5/8" (67)	MAR250	FAR250	UK250
3"	300	3" (80)	3 1/8" (79)	MAR300	FAR300	UK300
4"	400	4" (100)	4 1/8" (105)	MAR400	FAR400	UK400

## REFRIGERANT STRAINERS (FILTERS)



ST200

These rugged, refrigerant strainers (filters) are designed to remove foreign materials, like dirt and weld slag, from refrigeration systems. Strainers help prevent damage to valves and other components, reducing costly service and downtime. Strainers are usually close-coupled to solenoid valves, pressure regulators and other flanged valves.

To Order: Specify catalog number and if strainer will be close-coupled to valve or installed as a separate unit; if separate unit, specify flange connection style and size.

### Options for Strainers

**Perforated Metal Strainer Basket:** necessary for protection of compressors in suction side port applications 1 1/2" to 3" (40 to 100mm); contact factory.

**Cloth Bags:** available 1" to 4" (25 to 80mm) for system start-up.

**Filter System:** An extra-fine filter system with double the cleansing capacity of standard strainers is available. Contact factory for details.

CAT NO	FOR VALVE SIZE INCH (MM)	FLANGE STYLE AND SIZES		
		CONNECTIONS AVAILABLE		
		FPT, SW, WN		ODS
		STD	ALSO	STD
ST050	1/2" (13)	1/2"	1/4"	5/8"
ST050D†	5/32" (4)			
ST100	3/4" (20)	3/4"	1", 1-1/4"	7/8"
ST100HD*	1" (25)	1"	3/4", 1-1/4"	1-1/8"
ST100/100**	1-1/4" (32)	1-1/4"	3/4", 1"	1-3/8"
ST200	1-1/2" (40)	1-1/2"	2"	1-5/8"
ST200/100**	2" (50)	2"	1-1/2"	2-1/8"
ST250	2-1/2" (65)	2-1/2"	3"	2-5/8"
ST300	3" (80)	3"	—	3-1/8"
ST400	4" (100)	4"	—	4-1/8"
STW500	5" (125)	5 WN‡	—	—
STW600	6" (150)	6 WN ‡	—	—

‡ Integral butt weld only

† ST050D includes Drain Plug.

\* Includes stainless steel screen with perforated metal backup.

\*\* 100 mesh stainless steel screen.

## REFRIGERANT FLOAT SWITCHES

Hansen refrigerant liquid level float switches (HLL Series) are used to electrically indicate or control a liquid level by opening or closing a SPDT switch. Their simple, reliable design provides long life performance for almost any application.

Refrigerant liquid level float switches are typically installed on a vessel's liquid level column. They can control liquid level by controlling a liquid fill solenoid valve. Often, they are used to provide high level cut-out or alarm. In addition, they can be used to turn off a recirculating liquid pump if a low level occurs. Other applications include control of liquid level via a liquid exit solenoid valve, level indication via a pilot light, and transfer drum operation.

The units have normally open and normally closed 10 amp switch contacts in a transparent, hermetic, removable switch housing. For ease of installation, switch assembly rotates 360°.

Steel tank assembly with combination 3/4" FPT/1" Butt Weld connections. Standard 2" (50 mm) differential prevents most short cycling due to momentary changes in liquid level; other differentials down to 1/2" (13 mm) are available from stock. Optional switch housing heater is available for preventing moisture penetration in humid environments.

To Order: Specify catalog number. Add letter suffix for options, example: HLL E for switch with 4 wire, grounded DIN plug connector. Note: Standard connection 1/2" fitting with three 18" (450 mm) wire leads. For CO2 service consult factory.



HLL



HLL E

TYPE	DESCRIPTION	WEIGHT LBS (KG)
HLL	Side & Bottom Connections	12 (5.4)
HLLS	2 Side & 1 Bottom Connections	13 (5.9)
HLLC	Side & Bottom Connections with Metal Cover	13 (5.9)
HLLSC	2 Side & 1 Bottom Connections with Metal Cover	14 (6.4)
HLLSW	Switch Assembly Replacement Only, Hermetic	2 (0.9)
E	DIN Plug on Any of Above, Add E Suffix. List Extra.	1 (0.5)
COV	Metal Cover Only for All HLL	1 (0.5)
HTR1*	10 Watt 115V Heater for All HLL	1 (0.5)
HTR2*	10 Watt 230V Heater for All HLL	1 (0.5)

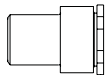
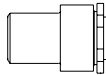
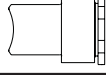

## SEE-LEVEL® LIQUID INDICATORS

Hansen SEE-LEVEL® liquid indicators provide simple indication of true liquid levels in industrial and commercial refrigeration systems. When liquid is present the distinctive reflex lens appears dark; when vapor is present, the lens is light. The long universal housing provides adequate length for ease of welding as well as insulation clearance for low temperature applications. The optional frost shield facilitates clear viewing of liquid level under frosting conditions. Suitable for Ammonia, R22, R134a, CO2 and other approved refrigerants. Typical uses include: refrigerant receivers, level columns, accumulators, intercoolers, suction lines, oil lines, and liquid lines.

Housings meet the material requirements of ASME and PED for direct welding to vessels, receivers, level columns or liquid lines. Each unit marked for material traceability; certifications available on request. Large diameter reflex lens for easy viewing; clear lens also available. Frost shield length is suitable for temperatures down to -60°F (-50°C). Standard housing can be welded (fillet weld) into a 1.94"/2" diameter opening or 1 1/2" socket weld fitting, or butt welded to a 1 1/2" pipe (Schedule 80). The scarfed (saddle milled) housing is available for simplified welding over a 1.5" (38 mm) hole, onto 2 1/2", 3", or 4" pipe, such as for level columns or liquid lines.



H1100-R

CAT NO REFLEX LENS	CAT NO CLEAR LENS	DESCRIPTION	
H1100-R	H1100		Standard SEE-LEVEL®
H1100-RN	H1100-N		With Frost Shield
H1100C-R	H1100C		With Saddle Milled Housing
H1100C-RN	H1100C-N		With Saddle Milled Housing & Frost Shield

To Order: Specify catalog number, and whether material certificate is required.

# CHECK VALVES



HCK4

PORT SIZE (MM)	Cv (Kv)	FLANGE CONNECTION STYLES & SIZES		WEIGHT (KG)
		WN, SW	ODS	
5/8" (16)	5.8 (5)	1/2", 3/4"	5/8"	2 (0.9)
3/4" (20)	8.2 (7)	3/4"	7/8"	5 (2.3)
1" (25)	11.7 (10)	1"	1-1/8"	5 (2.3)
1-1/4" (32)	14 (12)	1-1/4"; 1-1/2" WN	1-3/8"	5 (2.3)
1-1/2" (40)	39 (33)	1-1/2"	1-5/8"	15 (6.4)
2" (50)	50 (43)	2"	2-1/8"	14 (6.8)
2-1/2" (65)	74 (63)	2-1/2"	2-5/8"	27 (11.9)
3" (80)	93 (80)	3"	3-1/8"	24 (12.4)
4" (100)	210 (180)	4"	4-1/8"	35 (15.9)

Note: Close-coupling to outlet of valves requires Male Adapter Ring.



HCK1

PORT SIZE (MM)	FLANGE CONNECTION STYLES & SIZES		WEIGHT (KG)
	WN, SW	ODS	
3/4" (20)	3/4"	7/8"	20 (9.1)
1" (25)	1"	1-1/8"	20 (9.1)
1-1/4" (32)	1-1/4"	1-3/8"	20 (9.1)
1-1/2" (40)	1-1/2"	1-5/8"	44 (20)
2" (50)	2"	2-1/8"	44 (20)
2-1/2" (65)	2-1/2"	2-5/8"	76 (34.5)
3" (80)	3"	3-1/8"	88 (39.9)
4" (100)	4"	4-1/8"	146 (66.2)
5" (125)	5"	–	250 (113)
6" (150)	6"	–	270 (122)

Note: 5" & 6" are integral butt weld end only.

## In-Line Check Valves

### Type HCK4

#### Flanged

Low Pressure Drop

Mounts in Any Position

Stainless Steel Disc

Safe Working Pressure: 400 psig (27 bar)

Operating Temperature: -60°F to +240°F (-50°C to +115°C)

UL Listed

These compact, flanged, in-line (non-return) check valves open wide for flow in arrow direction on body, valves close when pressure reversals occur. Seat discs and springs are stainless steel.

Suitable for Ammonia, R22, R134a, and other approved refrigerants. Typically used in hot gas, discharge and suction lines, and liquid or oil; for side port to screw compressor applications use piston type check valve, Type HCK1.

### HCK4LR Gravity Drain Low Pressure Drop

The HCK4LR series of in-line gravity drain check valves are dependable, compact and rugged. The HCK4LR gravity drain check valves feature a low wide-opening pressure differential suitable for liquid transfer systems and other low pressure drop applications.

To Order: Specify type, flange connection style and size.

## Piston Type Check Valves

### Type HCK1

#### Flanged

High Flow Capacity

Resists Chatter

Gravity Closing

Manual Opening Stem

Minimal Pressure Drop

Bonnet Serviceable

Safe Working Pressure: 400 psig (27 bar)

Operating Temperature: -60°F to +240°F (-50°C to +115°C)

These flanged, heavy duty, piston type check valves control the flow of refrigerant. Valves open wide for flow in arrow direction on valve body and close when flow reversals occur.

The HCK1 is suitable for compressor or pump discharge, hot gas lines and pulsating pressure applications including side port to screw compressors. Suitable for Ammonia, R22, R134a, and other approved refrigerants.



## COMBINATION STOP/CHECK VALVES

### Features

- Avoids separate check valve
- Spring and manual closing
- Reduced pressure drop
- Stainless steel stem
- Single seat: no trapping liquid
- Seal cap is standard, handwheels also available
- Temperature range: -50°F to 240°F (-45°C to +115°C)

These durable, carbon-steel-bodied valves are a combination stop valve and normally-spring-closed check valve. Valves open wide for full flow in the arrow direction on the valve body and promptly reseal when reverse flow occurs. Stainless steel valve stems facilitate positive manual closing while Teflon disc seats assure reliable, long-life seating. Use of these combination valves reduces pressure drop, minimizes space requirements, and simplifies installation.

Stop/check valves can be used instead of separate shut-off valves and check valves in refrigeration liquid-suction, and hot gas lines. They are ideal for liquid pump and compressor discharge applications and eliminate the need for pressure relief valve between the conventional check valve and stop valve. Their design makes them particularly well suited for small package equipment and compact assemblies where space may not be available for two separate valves.

To Order: Specify catalog number.



HSK200C

TYPE		PORT SIZE INCHES (MM)	WEIGHT LBS (KG)
SOCKET WELD	HSCK125C	1¼" (32)	7 (3.2)
	HSCK150C	1½" (40)	8 (3.6)
	HSCK200C	2" (50)	12 (5.4)
BUTT WELD	HSCK250C	2½" (65)	21 (9.5)
	HSCK300C	3" (80)	29 (13)
	HSCK400C	4" (100)	44 (20)
	HSCK500C	5" (125)	65 (29)
	HSCK600C	6" (150)	82 (37)

## LIQUID DRAIN BALL VALVES

### Features

- Spring return to close
- RPTFE seats and stuffing box ring
- All components of lever are stainless steel
- Blow-out-proof stem design
- Adjustable packing gland
- Nitride corrosion protection
- Multifill seats
- Investment cast components
- Operating torque is approximately three times standard valve torque

Spring return ball valves available sizes 1/2" through 1"; valve body available in carbon steel or stainless steel.

To Order: Specify catalog number.



SIZE	CATALOG NUMBER		WEIGHT	
	CARBON STEEL	STAINLESS STEEL	LBS	KG
1/2"	50-2644	50-2647	1.3	0.6
3/4"	50-2645	50-2648	2.0	0.9
1"	50-2646	50-2649	2.3	1.0

# SHUT-OFF VALVES



THREADED



SOCKET WELD



BUTT WELD

## Features

- Leak-free, stainless steel stems
- Reliable Teflon seat discs (no lead)
- Ball bearing seat swivel
- Dirt-resistant taper (conical) seat
- Back-seating design
- Non-asbestos gaskets
- Safe Working Pressure: 400 psig (27 bar)
- Temperature Range: -60°F to 240°F (-50°C to 115°C)
- Extended Neck provides greater insulation clearance
- Suitable for Ammonia, R22, R134a and other Hansen approved refrigerants

Hansen Shut-off Valves are designed specifically for use in industrial ammonia and large commercial halocarbon refrigeration systems. These rugged valves are a strong, reliable component for modern industrial refrigeration applications and are suitable for liquid, suction, hot gas, discharge, recirculating liquid or oil lines.

Screwed Bonnet Threaded Valves feature non-leak stainless steel stems, and ductile iron bodies. Threaded, Socket Weld and Butt Weld Bolted Bonnet Valves feature large bonnet bolts for exceptional strength, non-leak stainless steel stems, and forged steel or low temperature cast steel bodies.

To Order: Specify catalog number. For CO2 service, contact factory. Optional Extended Neck, Zinc Plating, and Stainless Steel Trim are also available.

SIZE	END CONNECTION	CATALOG NUMBER				WEIGHT	
		GLOBE		ANGLE		GLOBE	ANGLE
		HANDWHEEL	SEAL CAP	HANDWHEEL	SEAL CAP	LBS (KG)	
3/8" (10)	Threaded (Screwed Bonnet)	GT038H	GT038C	AT038H	AT038C	3 (1.4)	
1/2" (13)	Threaded (Screwed Bonnet)	GT051H	GT051C	AT051H	AT051C	3 (1.4)	
	Threaded	GTB051H	GTB051C	ATB050H	ATB050C	5 (2.3)	
	Socket Weld	GSB051H	GSB051C	ASB050H	ASB050C	5 (2.3)	
	Butt Weld	GWB051H	GWB051C	AWB050H	AWB050C	5 (2.3)	
3/4" (20)	Threaded (Screwed Bonnet)	GT076H	GT076C	AT076H	AT076C	3 (1.4)	
	Threaded	GTB076H	GTB076C	ATB075H	ATB075C	5 (2.3)	
	Socket Weld	GSB076H	GSB076C	ASB075H	ASB075C	5 (2.3)	
	Butt Weld	GWB076H	GWB076C	AWB075H	AWB075C	5 (2.3)	
1" (25)	Threaded (Screwed Bonnet)	GT100H	GT100C	AT100H	AT100C	5 (2.3)	
	Threaded	GTB101H	GTB101C	ATB100H	ATB100C	6 (2.7)	
	Socket Weld	GSB101H	GSB101C	ASB100H	ASB100C	6 (2.7)	
	Butt Weld	GWB101H	GWB101C	AWB100H	AWB100C	6 (2.7)	
1-1/4" (32)	Threaded (Screwed Bonnet)	GT125H	GT125C	AT125H	AT125C	5 (2.3)	
	Threaded	GTB126H	GTB126C	ATB125H	ATB125C	6 (2.7)	
	Socket Weld	GSB126H	GSB126C	ASB125H	ASB125C	6 (2.7)	
	Butt Weld	GWB126H	GWB126C	AWB125H	AWB125C	6 (2.7)	
1-1/2" (40)	Socket Weld	GS150H	GS150C	AS150H	AS150C	20 (9.0)	15 (6.8)
	Butt Weld	GW150H	GW150C	AW150H	AW150C		
2" (50)	Socket Weld	GS200H	GS200C	AS200H	AS200C	21 (9.5)	16 (7.2)
	Butt Weld	GW200H	GW200C	AW200H	AW200C		
2-1/2" (65)	Socket Weld	GS251H	GS251C	AS251H	AS251C	40 (18)	25 (11)
	Butt Weld	GW251H	GW251C	AW251H	AW251C		
3" (80)	Butt Weld	GW301H	GW301C	AW301H	AW301C	41 (19)	26 (12)
4" (100)	Butt Weld	GW402H	GW402C	AW402H	AW402C	50 (23)	43 (20)
5" (125)	Butt Weld	GW500H	GW500C	AW500H	AW500C	79 (36)	64 (29)
6" (150)	Butt Weld	GW600H	GW600C	AW600H	AW600C	108 (49)	88 (40)
8" (200)	Butt Weld	GW800H	GW800C	AW800H	AW800C	249 (113)	196 (89)
10" (250)	Butt Weld	GW1000H	GW1000C	AW1000H	AW1000C	379 (172)	312 (142)
12" (300)	Butt Weld	GW1200H	GW1200C	AW1200H	AW1200C	703 (320)	583 (265)
14" (350)	Butt Weld	GW1400H	GW1400C	AW1400H	AW1400C	895 (407)	718 (326)
16" (400)	Butt Weld	-	-	AW916H	AW916C	1036 (470)	
18" (450)	Butt Weld	-	-	AW918H	AW918C	1216 (553)	

# HAND EXPANSION VALVES

## Applications

- Liquid feed or circulating liquid overfeed evaporators
- High pressure or intermediate pressure liquid feed to accumulators, intercoolers, or recirculators
- Defrost condensate relief
- Hot gas feed to evaporators
- Equalize evaporator to suction pressure after defrost

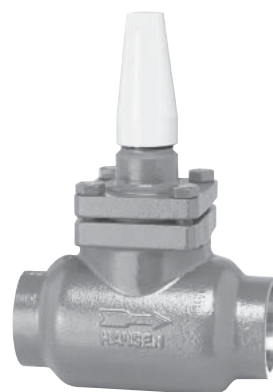
These precision-calibrated, adjustable, slotted plug flow regulating Hand Expansion Valves are ideal for metering or flashing expansion of liquid refrigerants. Featuring slotted plugs for accurate flow regulation along with Teflon seat discs for tight closing. Slotted plugs increase accuracy and are more tolerant of dirt particles than metal-seated tapered-plug expansion valves.

Valve stems are stainless steel and have double seals to eliminate stem leakage. The patented non-leak seal plus packing design permits low torque operation for valve adjustments since the packing nut requires little tightening. Bar handle or yellow seal caps distinguish these regulators from shut-off valves. Suitable for Ammonia or Halocarbons.

To Order: Specify catalog number. For CO<sub>2</sub> service, contact factory. Optional Extended Neck, Zinc Plating, and Stainless Steel Trim are also available.



RSB076H



RS200C

SIZE	END CONNECTIONS	CATALOG NUMBER				WEIGHT	
		GLOBE		ANGLE		GLOBE	ANGLE
		BAR HANDLE	SEAL CAP	BAR HANDLE	SEAL CAP	LBS (KG)	
3/8" (10)	Threaded (Screwed Bonnet)	RT038H	RT038C	VT038H	VT038C	3 (1.4)	
1/2" (13)	Threaded (Screwed Bonnet)	RT051H	RT051C	VT051H	VT051C	3 (1.4)	
	Threaded	RTB051H	RTB051C	VTB050H	VTB050C	5 (2.3)	
	Socket Weld	RSB051H	RSB051C	VSB050H	VSB050C	5 (2.3)	
	Butt Weld	RWB051H	RWB051C	VWB050H	VWB050C	5 (2.3)	
3/4" (20)	Threaded (Screwed Bonnet)	RT076H	RT076C	VT076H	VT076C	3 (1.4)	
	Threaded	RTB076H	RTB076C	VTB075H	VTB075C	5 (2.3)	
	Socket Weld	RSB076H	RSB076C	VSB075H	VSB075C	5 (2.3)	
	Butt Weld	RWB076H	RWB076C	VWB075H	VWB075C	5 (2.3)	
1" (25)	Threaded (Screwed Bonnet)	RT100H	RT100C	VT100H	AT100C	5 (2.3)	
	Threaded	RTB101H	RTB101C	VTB100H	VTB100C	6 (2.7)	
	Socket Weld	RSB101H	RSB101C	VSB100H	VSB100C	6 (2.7)	
	Butt Weld	RWB101H	RWB101C	VWB100H	VWB100C	6 (2.7)	
1-1/4" (32)	Threaded (Screwed Bonnet)	RT125H	RT125C	VT125H	VT125C	5 (2.3)	
	Threaded	RTB126H	RTB126C	VTB125H	VTB125C	6 (2.7)	
	Socket Weld	RSB126H	RSB126C	VSB125H	VSB125C	6 (2.7)	
	Butt Weld	RWB125H	RWB125C	VWB125H	VWB125C	6 (2.7)	
1-1/2" (40)	Socket Weld	RS150H	RS150C	VS150H	VS150C	20 (9.0)	15 (6.8)
	Butt Weld	RW150H	RW150C	VW150H	VW150C		
2" (50)	Socket Weld	RS200H	RS200C	VS200H	VS200C	21 (9.5)	16 (7.2)
	Butt Weld	RW200H	RW200C	VW200H	VW200C		
2-1/2" (65)	Butt Weld	RW251H	RW251C	VW251H	VW251C	40 (18)	25 (11)
3" (80)	Butt Weld	RW301H	RW301C	VW301H	VW301C	41 (19)	26 (12)
4" (100)	Butt Weld	RW402H	RW402C	VW402H	VW402C	50 (23)	43 (20)

## PRESSURE RELIEF VALVES



*Pressure Relief Valve*

Hansen's reliable Pressure Relief Valves are for industrial and large commercial refrigeration systems. Designed to provide relief from excessive pressure in refrigerant containing vessels, they are built in strict conformance with ASME Boiler and Pressure Vessel Code requirements for safety relief devices.

Each valve bears the ASME code symbol of certification (UV). Capacities are rated by the National Board of Boiler and Pressure Vessel Inspectors. These tamper resistant valves are accurately set and sealed by qualified technicians at the factory. All valves feature an installation date tag.



*Three Way Dual Shut-off Valve*



*Rupture Disc Assembly*

CAT. NO.	THREADED CONNECTIONS (NPT)	
	BOTTOM INLET	SIDE OUTLET
H5600A H5600R	1/2" FPT	3/4" FPT
H5601	1/2" FPT	1" FPT
H5602 H5602R H5632R	3/4" FPT	1" FPT
H5613 H5633R	1" FPT	1-1/4" FPT
H5604 H5634R	1-1/4" FPT	1-1/2" FPT

Reduced Capacity Pressure Relief Valves meet discharge line sizing requirements and the pressure drop through the Hansen 3-way dual manifold valve is less than 3% of the pressure setting. (Green date tag and R suffix indicates reduced capacity valve).

Hansen Pressure Relief Valves should be connected to the vapor space of refrigerant vessels, heat exchangers, oil pots, oil stills, pilot receivers, and elsewhere as may be required by various codes.

To Order: Specify catalog number, inlet/outlet connection size and pressure setting. Contact factory for CO2.

### Three Way Dual Shut-off Valves

Used for parallel installation of pressure relief valves in accordance with ANSI/ASHRAE 15-1994 Safety Code for Mechanical Refrigeration (pressure vessels having 10 cubic feet or more of internal gross volume, shall be fitted with dual pressure-relief valves). Considered the only acceptable type of shut-off valve for use with refrigerant relief piping because one valve remains operational, while the other is being replaced; eliminating the need to remove refrigerant from the vessel. Inlet and outlet connections are threaded female NPT all the same size.

CAT. NO.	CONNECTION SIZE
H8021	1/2" FPT
H8022	3/4" FPT
H8024	1" FPT
H8025	1-1/4" FPT

### Rupture Disc Assembly

The Hansen Rupture Disc Assembly is a MPT x MPT relief device used in series with a pressure relief valve to indicate which valve has discharged. Two 1/8" FPT side ports are provided for installation of a pressure gauge or switch to indicate a discharge.

CAT. NO.	CONNECTION SIZE MPT X MPT
RDA1	1/2"
RDA2	3/4"
RDA4	1"
RDA5	1-1/4"



# GAUGE, PURGE, NEEDLE & TRANSDUCER VALVES

## Features

- Seal Cap, Bar Handle or Bare Stem
- Stainless steel stem
- Plated forged steel body
- Non-Removable safety stem
- Non-Leak stem packing design
- Compact size
- Suitable for Ammonia, R22, R134a, CO2 and other Hansen approved refrigerants

## Specifications

- Body: Forged steel, zinc plated
- Stem: Stainless steel, polished, 1/4" square flats
- Stem Packing: Graphite composite plus neoprene O-ring
- Packing Nut: Steel, zinc plated
- Seal Cap: Glass filled polymer
- Seal Cap O-ring: Neoprene
- Bar Handle: Steel, zinc plated
- Safe Working Pressure: 400 psig (27 bar)
- Operating Temperature: -60°F to 240°F (-50°C to +115°C)

Specially designed compact refrigerant gauge, purge,, needle and transducer valves feature tough, forged steel bodies and polished stainless steel stems. Patented leakage free packing. Safety stems designed to be non-removable from the body to avoid dangerous stem "blow out".

Gauge valves are available with bar handles or bare stems for ammonia. Often used to isolate pressure gauges on regulators, these valves may also be used to pumpout, purge and meter refrigerant liquid or gas. The Long Neck® valves provide additional length for insulation and pressure gauge turning clearance.

The transducer valve makes it easy to calibrate or replace the device without pumping down the system.

To Order: Specify catalog number.



H957C



H957H



H7771



HGV1



H9490

DESCRIPTION	SEAL CAP	BAR HANDLE	BARE STEM
	CATALOG NUMBER		
1/4" MPT x FPT, Angle, Long Neck®†	HGV1	HGV1H	HGV2
1/4" MPT x FPT, Angle	H7771	H7771H	H965
1/4" FPT x FPT, Angle	H7772	H7772H	H967
1/4" FPT x FPT, Globe	H957C	H957H	H957
3/8" MPT x FPT, Angle	H7773	H7773H	
3/8" FPT x FPT, Angle	H7774	H7774H	
3/8" FPT x FPT, Globe	H958C	H958H	
1/2" MPT x 3/8" FPT, Angle	H7777		
1/2" MPT x 1/4" FPT, Angle	H7778		
1/4" MPT x FPT x FPT, Transducer Valve	H9490		

## WELD-IN-LINE VALVES



HS4W



HMMVW



HS8W

### Features

Direct weld-in connections

Safe Working Pressure: 400 psig (27 bar)

Temperature Range: -60°F to 240°F (-50°C to 116°C)

Control Valve Sizes: up to 4" (100mm)

Hansen Technologies offers a broad line of products for refrigeration systems utilizing welded connections to eliminate flange gasket leakage. Products include pressure regulators, solenoid valves, sealed motor valves, check valves, check valves and strainers.

Control valves are ideally suited to both ammonia and halocarbon welded refrigeration systems. The valves are of the same high quality as our standard product offering and uses the same replaceable internal parts. The valve body is designed to allow welding into place without disassembly. CO2 service also available.

VALVE TYPES	CAT. NO.
Check Valves & Stop/Check Valves	HCK1W HCK4W
Gas-Powered Suction Stop Valves	HCK2W
Gas-Powered Solenoid Valves	HS9BW
Pressure Regulators	HA4W
Sealed Motor Valves	HMMRW, HMMVW
Solenoid Valves	HS4W HS8W
Strainers	STW Series

To Order: Specify catalog number.

## DIRECT-TO-SITE VALVE ASSEMBLY



### No Assembly Required

Hansen Direct-to-Site Valve Assembly comes to you fully assembled and ready for installation.

Utilizing the most common components for valve train assembly, Hansen will build a valve station to your precise specifications and ship to you, fully assembled and ready to install with two simple welds.

### Ready for Installation

Compact and ready for installation, the DTS Valve Assembly eliminates the labor of building and welding the valve station component by component, saving you time and money.

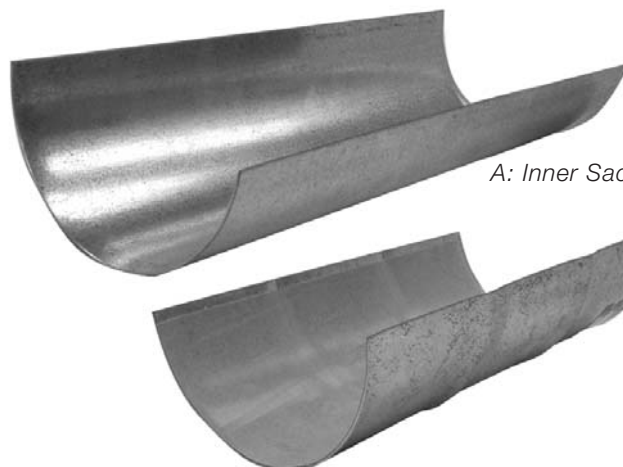
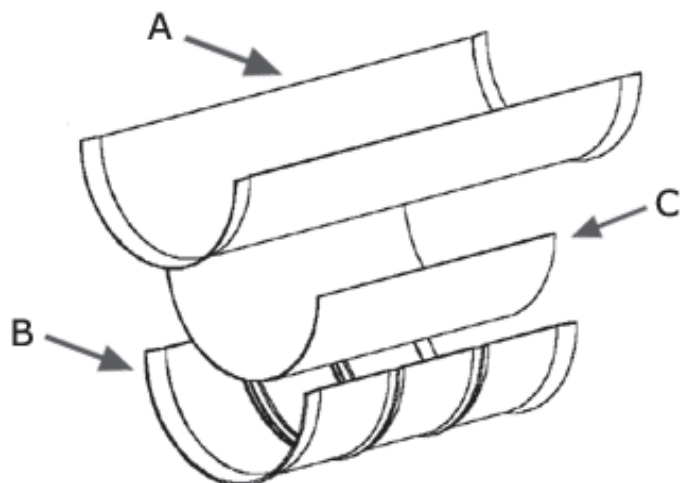
To Order: Contact factory for available components and assembly specifications.

# SLIDING SADDLES

A: Inner saddle adheres to insulation barrier and moves with piping, while sliding on PTFE surface below.

B: Ribbed lower saddle remains stationary on pipe stand, pipe hanger or trapeze hanger.

C: PTFE (polytetrafluoroethylene) layer is laminated to lower saddle providing a low friction surface for upper saddle to slide against.



A: Inner Saddle

B & C: Ribbed Lower Saddle with PTFE Layer

Hansen Sliding Saddles are an economical way to prevent vapor barrier and weather barrier damage caused from pipe movement. Available in a wide range of sizes and easily retro-fitted to existing insulation systems.

To Order: Specify item number. Additional sizes available; contact factory.

CAT. NO.	Size (ID)	METAL THICKNESS	UPPER LENGTH	LOWER LENGTH
SS35	3 1/2"	18 ga	12"	8"
SS40	4"	18 ga	12"	8"
SS45	4 1/2"	18 ga	12"	8"
SS50	5"	18 ga	12"	8"
SS55	5 9/16"	18 ga	12"	8"
SS66	6 5/8"	18 ga	12"	8"
SS76	7 5/8"	18 ga	18"	14"
SS86	8 5/8"	18 ga	18"	14"
SS96	9 5/8"	18 ga	18"	14"
SS10	10 3/4"	16 ga	18"	14"
SS11	11 3/4"	16 ga	24"	14"
SS12	12 3/4"	16 ga	24"	14"
SS14	14"	16 ga	24"	14"
SS15	15"	16 ga	24"	14"
SS16	16"	16 ga	24"	14"
SS17	17"	16 ga	24"	14"
SS18	18"	12 ga	24"	14"
SS19	19"	12 ga	24"	14"
SS20	20"	12 ga	24"	14"
SS21	21"	12 ga	24"	14"
SS22	22"	12 ga	24"	14"
SS23	23"	12 ga	24"	14"
SS24	24"	12 ga	24"	14"

# VARI-LEVEL® ADJUSTABLE CONTROLS



LB3 with MOD420



Level Probe

CONTROL UNIT LESS PROBE		
CAT. NO.	# OF	CONTROL POINTS (TYPICAL)
LB1	1	Operating Level
LB2	2	Operating and Low Level
LB3	3	Operating, Low and High Level
LB5	5	Operating (2), Low Level (2), and High Level

The Vari-Level® consists of a Level Probe for a 3" or 4" pipe Level Column, a Control Unit for ON-OFF of up to five relay-operated level control points: typically, a high alarm/cutout, operating level, and low alarm/cutout (3 points) .

For Ammonia, R22, R134a and other compatible refrigerants. CSA/US Certified and CE Mark standard.

## Control Unit

Control unit Bright digital LED displays percent level in vessel. Each level control point is adjustable for height and operating differential with a built-in Level Simulator. Standard electrical input is 115V, 50/60Hz; 230V, 50/60Hz available. Options: 4-20 mA output module, MOD420, available for computer interface or remote digital readout. Mounts inside control unit.

## Probes

Probe connection 3/4" MPT. Probes available in standard lengths. Custom lengths made to order. Probe length cannot be shortened in field. 50 feet (15 m) of cable included. Longer cable lengths available; contact factory. Extended stainless steel neck also available.

## Level Columns

Level Columns are 3" Schedule 40 pipe. Columns include one level sight glass for re-calibration plus high level float switch connections. Top probe connection on column is a 3/4" FPT; connections to vessel are combination 1" FPT / 1 1/4" butt weld. Top or bottom 3/4" FPT Level Column Cap (Part No. 77-0129) for field level column fabrication using 3" standard pipe: Part No. 77-0129.

To Order: Specify catalog number, refrigerant, active probe length, and voltage. Custom Level Probe and Level Column lengths available; contact factory.

CAT. NO.	PROBE		LEVEL COLUMN
	ACTIVE PROBE LENGTH INCHES (MM)	NOMINAL INSERTION LENGTH INCHES (MM)	CAT. NO.
LP02	20" (510)	25" (635)	LC02
LP03	30" (760)	35" (890)	LC03
LP04	40" (1015)	45" (1140)	LC04
LP06	60" (1525)	65" (1650)	LC06
LP08	80" (2030)	85" (2160)	LC08
LP10	100" (2540)	105" (2670)	LC10
LP12	120" (3050)	125" (3175)	LC12
LP14	144" (3660)	149" (3785)	-
LP16	168" (4270)	173" (4395)	-



## TECHNI-LEVEL® TRANSDUCER PROBES

Level Transducer Probes with 4-20 mA isolated output for refrigerant level control in computer operated plants. Electronics are located on top of probe. 50 feet (15 m) of two wire cable is included. Level Column connection on probe is 3/4" MPT. For Ammonia, R22, R134a and other approved refrigerants. CSA/US Certified.

To Order: Specify catalog number, refrigerant, active probe length, and application. Contact factory for CO2 models (40" to 120" only). Custom Level Probe and Level Column lengths are available. Level Columns may be ordered for use with this product.

Also Available: Built-in LCD Digital Readout, Optional Remote Digital Readout (RDR), and Optional 115VAC/230VAC:24VDC power supply unit (PSU).

LEVEL TRANSDUCER PROBE		
CAT. NO.	ACTIVE PROBE LENGTH	NOMINAL INSERTION LENGTH
	INCHES (MM)	INCHES (MM)
VLT02	20" (510)	25" (635)
VLT03	30" (760)	35" (890)
VLT04	40" (1015)	45" (1140)
VLT06	60" (1525)	65" (1650)
VLT08	80" (2030)	85" (2160)
VLT10	100" (2540)	105" (2670)
VLT12	120" (3050)	125" (3175)
VLT14	144" (3660)	149" (3785)
VLT16	168" (4270)	173" (4395)



*VLT with Digital Readout*

## HPT PRESSURE/TEMPERATURE TRANSDUCER

The HPT Pressure/Temperature Transducer is designed to measure both temperature and pressure within a single connection. Electronics calculate superheat or subcooling for the specified refrigerant with a 4-20mA Output. Standard model is suitable for ammonia. Also suitable for halocarbons and carbon dioxide with the appropriate refrigerant key.

To Order: Specify catalog number and refrigerant.

HPT PRESSURE/TEMPERATURE TRANSDUCER	
CAT. NO.	DESCRIPTION
HPT717	For Ammonia
HPT22	For R22
HPT134	For R134a
HPT404	For R404A
HPT507	For R507A
HPT744	For CO2



*HPT Pressure/Temperature Transducer*

# RECEIVER LEVEL TRANSDUCER PROBES

## Features

- Ideal for Supermarket Refrigeration
- Full length, precise level monitoring
- For vertical or horizontal receivers
- Standard 3/4" NPT connection
- Suitable for R22, R134a and other Hansen approved refrigerants

Receiver Level Transducer Probes are designed to be inserted directly into refrigerant receivers and facilitate the continuous measurement of refrigerant liquid levels. The following results can be tracked: refrigerant loss detection, refrigerant inventory measurements, warnings of excessive refrigerant levels, and insufficient refrigerant quantity.

Factory pre-calibrated and tested with no moving parts to break, jam, or fail. To Order: Specify catalog number; Insertion Length; Refrigerant; and Receiver Diameter. Rotalock connection (1¼"–12") is optional. Custom probe lengths available. 4-20mA Output Signal also available.

FOR HORIZONTAL RECEIVERS	
CATALOG NUMBER	INSERTION LENGTH INCHES (MM)
SHP06	6" (152)
SHP08	8" (203)
SHP12	12" (305)
SHP16	15.3" (388)
SHP20	19.2" (487)
SHP24	23.1" (586)
FOR VERTICAL RECEIVERS	
SVP36	36" (914)
SVP48	48" (1219)
SVP54	54" (1372)

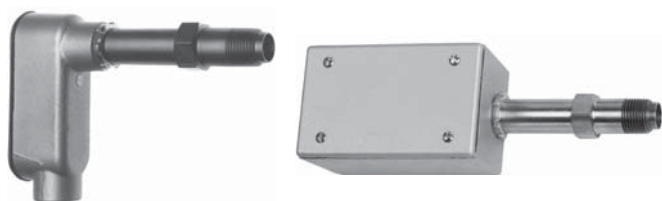


SHP

SVP

SHPR with  
Rotalock Connection

# SINGLE POINT LEVEL CONTROLS



SPS

SPL

Designed to detect the presence of liquid refrigerant at a specific location in receivers/vessels, intercoolers, control pressure receivers, packaged chillers, compressor packages, pump packages, surge drums, and flooded evaporators.

May be used in place of float switches, for high- and low-level alarms in conjunction with plant computers, PLCs, or shut-off solenoid valves.

The relay output from the SPS level switch is suitable for direct connection to solenoids, alarms, and computers. No Moving Parts; Plug-in Electronics. Unaffected by Normal Splash or Oil Coating. Watertight NEMA 3R Sensor Housing. Sensor Connection ½" MPT or Optional 1¼"–12" Rotalock connection.

To Order: Specify catalog number and refrigerant. Standard connection is 1/2" MPT. Rotalock connection (1¼"–12") is optional.

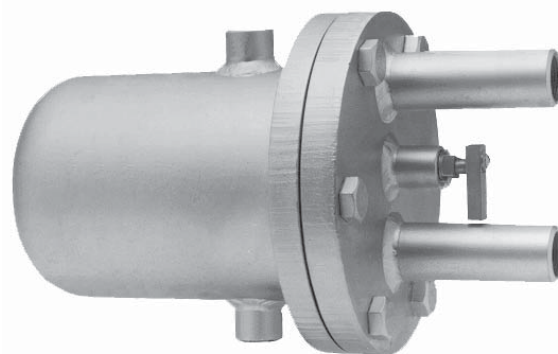
SINGLE POINT LEVEL CONTROLS		
CATALOG NUMBER		DESCRIPTION
AMMONIA	HALOCARBON	
SPLN	SPLF	Sensor 24V, 80mA
SPSN (1)	SPSF (1)	Switch 115V, 10A
SPSN (2)	SPSF(2)	Switch 230V, 5A

# FLOAT DRAIN REGULATORS

## Features

Self-Contained  
Simple, Reliable  
Manual Opening Stem  
Easy Installation  
Self-Cleaning Slide Valve Orifice  
Suitable for Ammonia, R22, R134a and other Hansen approved refrigerants

Ideal for metering high-pressure refrigerant liquid to a lower-pressure vessel without allowing refrigerant gas to pass. Self-contained, require no pilot valve-to-main valve piping. For individual condenser drain to a single evaporator or to a controlled pressure receiver, condensate removal from heat recovery coil, liquid drain from hot gas defrost main, or defrosting evaporator liquid draining. Each valve is supplied with combination 1" weld / 3/4" FPT. Vent/purge and oil drain connections for optional use (1/2" FPT for HT100 size).



HT200N

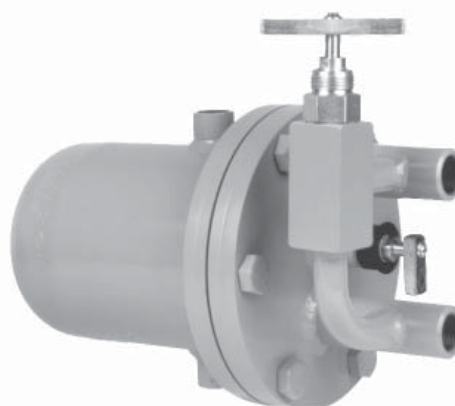
To Order: Specify catalog number, refrigerant, inlet temperature and pressure, outlet temperature and pressure, and flow rate in tons or lbs./minute (kW or kg/s). For other operating conditions and refrigerants, contact factory.

FLOAT DRAIN REGULATORS						
AMMONIA			R22			CONNECTIONS
CAT. NO.	+86°F to +10°F (+30°C to -15°C)	+86°F to +50°F (+30°C to +10°C)	CAT. NO.	+86°F to +10°F (+30°C to -15°C)	+86°F to +50°F (+30°C to +10°C)	
HT100N	20 Tons (70 kW)	28 Tons (98 kW)	HT100F	5.5 Tons (19 kW)	8 Tons (28 kW)	3/4" FPT (20mm) 1" Weld (25mm)
HT200N	125 Tons (439 kW)	130 Tons (457 kW)	HT200F	33 Tons (116 kW)	33 Tons (116 kW)	1½" Weld (40mm)
HT300N	360 Tons (1266 kW)	400 Tons (1407 kW)	HT300F	100 Tons (351 kW)	100 Tons (351 kW)	2" Weld (50mm)

# DEFROST CONDENSATE LIQUID DRAINER

The HD101 Defrost Drainer is designed for liquid condensate drain of an evaporator during hot gas defrost. Liquid drains while preventing most hot gas from flowing to suction line. Process saves energy by eliminating artificial loading of the compressor. This non-electrical float drainer has an adjustable vent valve bypass to "fine tune" individual systems which may experience evaporator defrost gas binding.

TO ORDER: Specify catalog number, refrigerant, and also provide inlet temperature and pressure, outlet temperature and pressure, and flow rate in tons or lbs./minute (kW or kg/s). Note: Limited 100 psid MOPD on HD101.



HD101

## Features

Mechanical/Non-Electrical Float Stops Vapor;  
Drains Liquid  
Adjustable Bypass  
Float Operated Slide Valve  
Built-in Gas Vent  
Completely Self-Contained  
Purge and Oil Drain Connections  
Flanged Cover for Servicing  
Manual Opening Stem

DEFROST CONDENSATE LIQUID DRAINER			
CAT. NO.	CAPACITY		CONNECTIONS
	AMMONIA	R22	
HD101	42 Tons (147 kW)	11 Tons (39 kW)	3/4" FPT (20mm) 1" Weld (25mm)

# AUTO-PURGER®



AUTO-PURGER® AP

The AUTO-PURGER® is a unique energy-saving device designed to lower operating condensing pressure, increase refrigeration capacity, save electrical power, and reduce emissions of refrigerant to atmosphere. These compact, large-capacity purgers remove air and other noncondensibles from refrigeration systems.

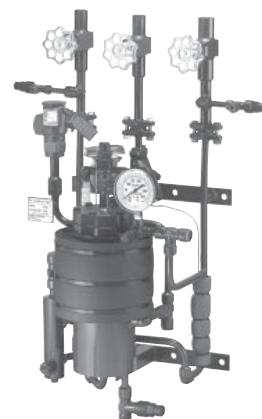
The AUTO-PURGER® operates regularly, not merely when higher head pressures exist and are consequently noticed. Multipoint purging is the only effective way to remove noncondensibles throughout the entire system. AUTO-PURGER® noncondensable gas purgers typically have a 3 to 12 month cost recovery via power savings. Hansen purgers come factory assembled, tested, and complete.

## AUTO-PURGER® AP

The original AUTO-PURGER has a solid-state control and is ideal for larger systems, up to 1500 tons (5275 kW). The AP has at least two to three times the air removal capacity of any competitive purger, and up to ten times other smaller purgers. With models available to purge up to 8, 16, and 24 points, the AP features automatic startup with electronic control. The purge points can be individually adjusted to meet system requirements. The AP includes an automatic water bubbler. An optional NEMA 4 rated enclosure is available. A European option is available that features all-welded construction and conformance to European electrical standards. The AP is CSA certified. Models are available for use with ammonia or halocarbon refrigeration systems.



AUTO-PURGER® APM



MINI AUTO-PURGER® NEAP

## AUTO-PURGER® APM

A compact version of the original AP, the AUTO-PURGER® APM is ideal for medium size systems, up to 200 tons (700kW). Like the AP, the APM features automatic start-up with electronic control. Designed for up to four purge points, an electronic "brain" searches for noncondensable gases in the system and purges at those points where air is present. The APM includes an automatic water bubbler and comes standard with a NEMA 12, 13 control cabinet. For use with ammonia or halocarbon refrigeration systems. CE and CSA certified.

## MINI AUTO-PURGER® NEAP

The non-electric Mini AUTO-PURGER® NEAP is ideal for smaller systems up to 100 tons (350 kW) ammonia. The simple design of the Mini AUTO-PURGER® NEAP features fully automatic startup and is generally used to purge a single point. For use with ammonia refrigeration systems. CE and CSA certified.

To Order: Specify catalog number, refrigerant and voltage. Standard AUTO-PURGER is for Ammonia; available option "F" for R22, R134a and other approved liquids.

AUTO-PURGER MODELS	
CAT. NO.	DESCRIPTION
AP08	AUTO-PURGER Deluxe, 8 Points
AP16	AUTO-PURGER Deluxe, 16 Points
AP24	AUTO-PURGER Deluxe, 24 Points
AP01	AUTO-PURGER Basic, 1 Point
APC	AUTO-PURGER for Computerized Plants
APF	For Halocarbons. Includes Driers. Specify Refrigerant.
APM	APM Model, 4 Points, Ammonia
APMF	APMF Model, 4 Points, Halocarbons
NEAP	Mini AUTO-PURGER, Ammonia
NEAPF	Mini AUTO-PURGER, Halocarbons
HS8ST	1/2" Port Purge Point Solenoid Valve with Strainer 115V 50/60 Hz, 1/2" FPT or SW
NEMA4	Watertight Construction Option
H5600R	Relief Valve, 1/2" x 3/4" 300 psig
DPS	Differential Pressurestat System to Detect Loss of Foul Gas Pressure
VPM	Valve Package for Ammonia
VPMP	Valve Package for Halocarbons



# AUTO-PURGER® PLUS

## Features

- Compact wall mounting saves floor space
- High capacity water separation – up to 7 gallons per day
- High capacity air separation – up to 20 times the capacity of competitor units
- Continuous automatic operation – no attendant required
- Requires less energy to operate – single phase, 115V, 20A circuit
- LCD console displays purger data
- On-board diagnostics

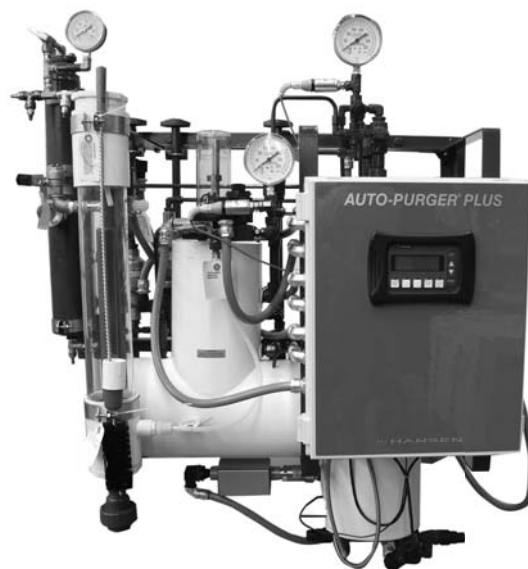
The AUTO-PURGER® PLUS is a totally automatic, electronically controlled non-condensable gas (air) and water purger for reducing the energy costs of operating an ammonia refrigeration system. Shipped preassembled, prewired, insulated, and includes an automatic water bubbler, a relief valve, and an isolation service valve package.

Air and water are detrimental to the operation of ammonia refrigeration systems. Air in the system collects in the condenser and obstructs heat transfer resulting in higher than necessary condensing pressures. Water in ammonia raises the boiling point of the refrigerant requiring lower suction pressures than otherwise necessary to maintain the correct refrigerant liquid temperature. Both of these conditions require excess energy to maintain correct refrigeration capacity and temperature.

The Hansen AUTO-PURGER® PLUS efficiently and automatically helps maintain condensing and suction temperatures at nearly optimum operating conditions. Because both air and water removal functions are incorporated into one compact unit, floor space, maintenance, and energy are minimized.

## Operation

The AUTO-PURGER PLUS collects non-condensable gases (air) from the refrigeration system and releases the air to a water bubbler. The AUTO-PURGER PLUS also collects and releases water from the refrigeration system. The water is first concentrated in the evaporator section of the AUTO-PURGER PLUS using the foul gas from the condenser purge points as part of the normal operation of a non-condensable gas purger. The evaporator is supplied by pumped, water-contaminated, refrigerant liquid from the lowest temperature recirculator vessel. As the refrigerant boils off in the AUTO-PURGER evaporator, the water is left behind. At about 20% water concentration the purger then isolates the mixture of water and ammonia and further concentrates the water with hot gas and electric heat. At approximately 90% water concentration the liquid is automatically drained to a customer supplied container. The AUTO-PURGER PLUS then repeats the cycle of separating air and concentrating water.



AUTO-PURGER® PLUS

AUTO-PURGER PLUS	
CAT. NO.	DESCRIPTION
APP08	AUTO-PURGER PLUS, 8 Purge Points
APP16	AUTO-PURGER PLUS, 16 Purge Points
APP24	AUTO-PURGER PLUS, 24 Purge Points
APPC	For Computerized Plants

All models are suitable for ammonia only. Standard electrical supply is single phase, 20A, 115V, 50/60 Hz. Optional single phase, 10A, 230V, 50/60 Hz is also available.

To Order: Specify catalog number and voltage.

# SMV SEALED MOTOR VALVES



SMV Model HMMV 4" (100mm) Port with VPIF

## Applications

- Liquid Make-up to Accumulator
- Liquid Injection to Compressors
- DX Evaporators
- Temperature or Pressure Control
- Low or High Side Level Control
- Slow Opening and Closing: Suction Stop Valve
- No Pressure Drop: Gravity Drain
- 4-20 mA or Floating Point Control



SMV Model HMMR with 1" (25mm) Port



SMV Model HMXV with 1/2" (13mm) Port

The patented Hansen Sealed Motor Valve is a unique industrial grade motor operated valve which eliminates the most common concern of other motor operated valves - valve stem seal leakage. The hermetic design has eliminated refrigerant leakage through stem seals because the non-electric rotor is enclosed in a stainless steel can which contains the fluid pressure. The electric stator is located outside the stainless steel can, and is isolated from the fluid in the valve. The outer enclosure provides secondary pressure containment further reducing the potential for refrigerant leaks. The Sealed Motor Valve is unaffected by frost or ice buildup. The V-port or throttling plug is precisely controlled and positioned by the powerful motor. Whether controlling level, temperature or pressure, the Sealed Motor Valve is superior to any valve on the market. The 4-20mA signal allows the customer to control the valve utilizing their own PLC or computer. No proprietary interfaces or controllers are necessary. Available in 7/32" through 4" (5mm through 100mm).

The Valve Position Indicator (VPIF), a digital monitoring module added to the Sealed Motor Valve is standard on all models: HMMV, HMMR, HMXV, HMMVC, HMMRC, and HMXVC. The VPIF monitors the valve position during normal operation and is used to recalibrate the valve after service work is performed. The VPIF can be mounted on or near the valve for ease of use and visibility of the display. Retro-fit kits are available to update existing Sealed Motor Valve installations.

The Sealed Motor Valve is also available with an optional Power-Close feature, an integral capacitor storage to close the valve in the event of either 24 VAC power failure or 4-20mA control signal failure. Power-Close motors are installed on HMMVC, HMMRC, HMXVC and HMSVC.

## Model HMMV

Valve series is best suited for computer controlled operations using 4-20mA signals. Ideal for precise temperature and pressure control, hot gas defrost, and other applications where accurate process control is required.

## Model HMMR

Valve series with expansion plug is for high pressure drop applications such as liquid makeup and liquid injection.

## Model HMXV

Precise liquid metering for direct expansion or liquid feed applications. Applications include oil cooling of screw compressors, water chillers, and direct expansion.

## Model HMSV

The full ported valve series is best suited for applications requiring slow open/close operation only.

To Order: Specify valve type (HMMV, HMMR, HMSV, HMXV), nominal port size, flange connection style and size. Add C for Power-Close Model Number.



SMV Model HMMVC with Power-Close Feature

## VPIF VALVE POSITION INDICATOR

The Valve Position Indicator (VPIF) is a digital monitoring module added to the Sealed Motor Valve (SMV) product line. It is standard on all models: HMMV, HMMR, HMXV, HMMVC, HMMRC, and HMXVC. The VPIF monitors the valve position during normal operation and is used to recalibrate the valve after service work is performed.

The large LED display allows for viewing of the valve position (in percent) during normal operation. The VPIF contains an internal independent 4 mA and 20 mA current source, which is switch selectable for recalibration at the valve 0% 4mA (closed) position and 100% 20mA (full open) position. After calibrating the valve, the switch must be returned to the middle position (automatic) and the calibration key removed.

The VPIF can be mounted on or near the valve for ease of use and visibility of the display. Often, valves are mounted high in the air or in obstructive areas where the technician cannot easily reach. The VPIF can be mounted up to 10 feet (3 meters) in any direction from the valve. VPIEC Extension Cables are available where more length is required.

All VPIF units are factory tested and fully assembled to meet Hansen's industry leading standard of quality and workmanship.

Retro-fit kits are available to update existing Sealed Motor Valve installations.

### Features

- Versatile installation options
- Large LED display
- Corrosion resistant enclosure, NEMA 4x
- Simple SMV recalibration
- Local indication of the SMV valve position
- Uses same supply voltage as SMV
- Allows for easy removal of the VPIF from the control loop



*VPIF Valve Position Indicator  
for Sealed Motor Valve*

### VPIF Valve Position Indicator Kits

CATALOG NUMBER	DESCRIPTION
75-1208	Power Head Upgrade Kit includes Power Head, VPIF, VPIF bracket and cables
75-1213	Power-Close Power Head Upgrade Kit includes Power-Close Power Head, VPIF, VPIF bracket and cables
75-1210	VPIF Retro-fit Kit includes VPIF, 2 cables and junction box
75-1211	VPIF Retro-fit Kit includes VPIF, cable and solder quick disconnect cable connector
VPIF	Valve Position Indicator (VPIF) Monitor for SMV Models with 4-20mA (less cables & bracket)
VPIEC	8' Extension Cable

## SMV CONTROLLERS & TOOLS

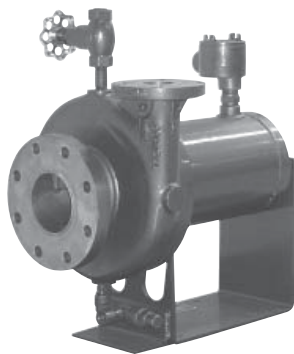
CAT. NO.	DESCRIPTION
PCMT	Temperature controller with temperature sensor for fully modulating temperature control.
PCMTF	Temperature controller with temperature sensor and valve position display for fully modulating temperature control.
PCML	Level controller for fully modulating applications. Level sensor not included.
PCMLF	Level controller with valve position display for fully modulating applications. Level sensor not included.
PCMP	Pressure controller with pressure transducer for fully modulating pressure control.
PCMPF	Pressure controller with pressure transducer and valve position display for fully modulating pressure control.
RDR	Remote digital readout displays valve position.
TR92	115VAC/230VAC:24VAC 92VA transformer for HMMV/HMMR controller power.
PCI	Power control interface for HMSV open/close applications.
MOV	Manual opening valve tool.
75-1185	Calibration key.

Hansen stand-alone controllers are suitable for applications where computer control is either not desired or not available. Controllers have built-in 24v DC power supply for the 4-20mA valve position feedback loop. No external 24V DC power supplies are required.

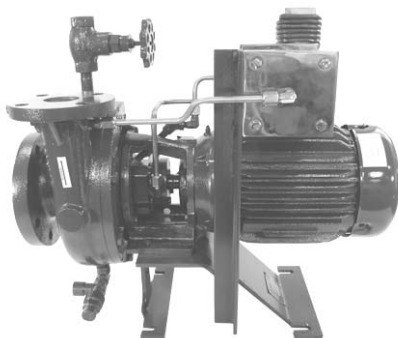
### Features

- Input: 24 VAC, 90VA minimum
- Enclosure: Watertight, NEMA 4x
- Alarm: Normally open
- Alarm Relay: 2 Amps

# REFRIGERANT PUMPS



Hermetic Refrigerant Pump



Open Drive Refrigerant Pump

## Cornell Hermetic Refrigerant Pumps

Hermetic refrigeration pump with base and accessories. Three Phase 460 Volt TELC hermetic motors. 575 Volt and other voltages are available; consult factory. Maximum working pressure is 250 PSIG.

Accessories include: volute vent valve, volute drain valve on 1.5 HT pumps and larger.

Motors are high efficient and inverter capable. Q-Min and Q-Max orifices are strongly recommended to keep pump within operational design parameters.

## Cornell Open Drive Refrigerant Pumps

Standard close coupled refrigerant pump with base and accessories. Three Phase 230/460 or 575 Volt TEFC energy efficient refrigerant duty motor.

Accessories Include: Double mechanical sealing system, oil reservoir for seal barrier fluid, volute vent valve, volute drain valve, low oil level limit switch alarm, 115V seal chamber heater; 230V optional.

OPEN DRIVE REFRIGERANT PUMPS				
MODEL	NOMINAL		TYPE 150 FLAT FACE	
	HP	RPM	SUCTION SIZE	DISCHARGE SIZE
1.5 CB	1	1800	3"	1.5"
	2	1800	3"	1.5"
1.5 CLB	1	1800	3"	1.5"
	2	1800	3"	1.5"
1.5 CBH	3	1800	4"	1.5"
	5	1800	4"	1.5"
	7.5	1800	4"	1.5"
	10	1800	4"	1.5"
2 CB	2	1800	4"	2"
	3	1800	4"	2"
	5	1800	4"	2"
	7.5	1800	4"	2"
2 CBS	2	1800	4"	2"
	3	1800	4"	2"
	5	1800	4"	2"
	7.5	1800	4"	2"
2.5 CBH	7.5	1800	5"	2.5"
	10	1800	5"	2.5"
	15	1800	5"	2.5"
	20	1800	5"	2.5"
3 CB	5	1200	6"	3"
	7.5	1200	6"	3"
	10	1200	6"	3"
	15	1200	6"	3"
	20	1200	6"	3"
	15	1800	6"	3"
	20	1800	6"	3"
	25	1800	6"	3"
	30	1800	6"	3"
	40	1800	6"	3"
4 CB	10	1200	6"	3"
	15	1200	6"	4"
	20	1200	6"	4"
	25	1200	6"	4"
	30	1200	6"	4"

HERMETIC REFRIGERANT PUMPS				
MODEL	NOMINAL		TYPE 150 FLAT FACE	
	HP	RPM	SUCTION SIZE	DISCHARGE SIZE
1.25 HT2	2	3600	1.5"	1.25"
1.25HT3	3	3600	1.5"	1.25"
	5	3600	1.5"	1.25"
1.25 HT5	5	3600	1.5"	1.25"
1.5 HT	5	1800	4"	1.5"
	7.5	1800	4"	1.5"
2 HT	3	1800	4"	2"
	5	1800	4"	2"
2 HTS	3	1800	4"	2"
2.5 HT	10	1800	5"	2.5"
	15	1800	5"	2.5"
3 HT	20	1800	6"	3"
	25	1800	6"	3"
	10	1200	6"	3"
	15	1200	6"	3"

## Pump Guardian Pump Controller

Designed to safeguard refrigerant liquid pumps. Alerts operators of harmful operating conditions. Prevents excess-recycling and unnecessary damage. Provides protection against cavitation, low liquid level, insufficient or loss of pump pressure, and motor-temperature. Nonvolatile electronic memory.



PG1

To Order: Specify catalog number PG1 Pump Guardian and Voltage (115V or 230V; 50/60Hz).



# FROST MASTER® DEFROST CONTROLLER

## Frost Master®

Frost Master® defrost controllers (timers) operate various control valves and fan relays to efficiently remove frost and ice accumulation from evaporator surfaces. There are four easy-to-set defrost steps: PUMPOUT, HOT GAS, EQUALIZE, and FAN DELAY. Defrost time and step duration are always visible. ¼" (6.4 mm) spade terminals for optional sensor defrost Initiation and Termination are provided.

To Order: Specify catalog number. 24-Hour or 7-Day Scheduling. 10 Amp, SPDT Relays. Battery Backup. NEMA 4 Enclosure (Watertight). CSA/NRTL Certified. Wt. 4 Lbs (1.8 kg).

## Frost Master® Plus

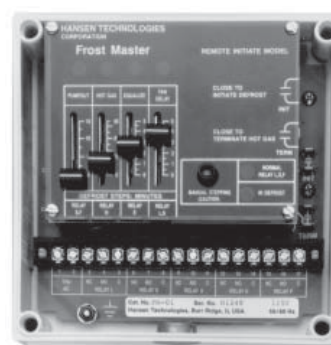
The Frost Master® Plus includes an additional (fifth) defrost step, SOFT GAS, for individually timed small, prior to large, hot gas solenoid valve for evaporator defrosting, plus built-in, adjustable Temperature Terminate with clamp-on "defrosted" sensor.

To Order: Specify catalog number.

CAT. NO.	DESCRIPTION
FM-11	Frost Master with Enclosure; 24 Hour Clock; 115V 50/60Hz
FM-71	Frost Master with Enclosure; 7 Day Clock; 115V 50/60Hz
FM-01	Frost Master with Enclosure; Remote Initiate; 115V 50/60Hz
FM-12	Frost Master with Enclosure; 24 Hour Clock; 230V 50/60Hz
FM-72	Frost Master with Enclosure; 7 Day Clock; 230V 50/60Hz
FM-02	Frost Master with Enclosure; Remote Initiate; 230V 50/60Hz
FMP-11	Frost Master Plus with Enclosure; 24 Hour Clock; 115V 50/60Hz
FMP-71	Frost Master Plus with Enclosure; 7 Day; 115V 50/60Hz
FMP-01	Frost Master Plus with Enclosure; Remote Initiate; 115V 50/60Hz



Frost Master® FM-71



Remote Initiate Model FM-01

# OIL TEMPERATURE VALVES

Range A:	130°F (54°C)
Range B:	Standard 120°F (49°C)
Range D:	140°F (60°C)
Range E:	115°F (46°C)
Range F:	150°F (66°C)
Range G:	170°F (77°C)
Range H:	110°F (43°C)

CAT. NO.	SIZE	RANGE							
		A	B	D	E	F	G	H	
HOTV	1" SW		✓	✓			✓	✓	
	1½" SW	✓	✓	✓	✓	✓	✓	✓	
	2" SW, BW	✓	✓	✓	✓	✓	✓	✓	
	2½" SW, BW	✓	✓	✓			✓		
	3" BW	✓	✓	✓			✓		
HOTW	1½" SW	✓	✓	✓	✓	✓	✓	✓	
	2" SW	✓	✓	✓	✓	✓	✓	✓	



HOTV

Three-way valve used to control the oil temperature of screw compressors or other oil-cooling circuits. Suitable for oils operating with ammonia, halocarbons, and other compatible refrigeration systems.

To Order: Specify catalog number, size, connection style, and temperature setting. For other temperatures, consult factory.

## COMPANY PROFILE

### Leading the Industrial Refrigeration Industry for 25 Years



*Corporate Headquarters in Burr Ridge, Illinois*

Hansen Technologies is a global leader in designing and manufacturing components for large industrial and commercial refrigeration systems. Our success results from high-quality, innovative products, exceptional customer service, and unequaled expertise in the refrigeration industry.

For 25 years, Hansen's knowledgeable staff has continued to develop original and essential products to meet the needs of our valued customers. Hansen Technologies became the true pioneer and idea generator for modern industrial refrigeration non-condensable gas (air) purging equipment with the development of the AUTO-PURGER® AP08 in 1984. The company pioneered continuous level sensing when

Hansen introduced Vari-Level® probes to the refrigeration industry in 1988. Since then, Hansen continuous level controls have become an industry standard. Most recently, Hansen introduced the Sealed Motor Valve which can be controlled by a 4-20mA signal. We are currently expanding into the CO<sub>2</sub> refrigeration market.

More innovative products are on the horizon at Hansen Technologies. Get to know us and learn how our high standards, extensive product line, and capabilities will better assist you with your refrigeration needs.

### Experience Hansen Products & Training

Hansen Technologies offers a comprehensive refrigeration product seminar focusing on Hansen valves and technical equipment. Product Training Seminars are available worldwide; at your location upon request or at our corporate headquarters in Burr Ridge, Illinois. Additionally, Hansen offers a Product Training Series on cd to assist you with servicing and maintaining our products.

### Experience Hansen Service & Support

Hansen Technologies is committed to providing immediate and superior customer service and support. Our experienced staff is available to assist you during business hours at (800) 426-7368. For Emergency Service during non-business hours, please call (866) 4HANSEN. You can also reach us via email at [support@hantech.com](mailto:support@hantech.com).

### More Information on Hansen

For additional information on Hansen Technologies training availability or product updates, please consult our website at [www.hantech.com](http://www.hantech.com). Requests for technical bulletins, product training cds and product sizing and layout software can be sent via email to [info@hantech.com](mailto:info@hantech.com).



# Our Commitment to the Environment



*Hansen Technologies is dedicated to the global responsibility of protecting the environment. The impact of hydrofluorocarbon refrigerants on the environment (HFCs) has directed the industry to seek out safe alternatives for industrial refrigeration systems.*

*Hansen product engineers are committed to researching and developing innovative products that operate in CO<sub>2</sub> and other environmentally friendly refrigeration applications. This is our commitment to the environment and our commitment to you, the customer.*



## Valves for CO<sub>2</sub> Systems

Hansen Technologies offers a broad line of products for CO<sub>2</sub> refrigeration systems. Products include pressure regulators, solenoid valves, strainers, check valves, shutoff valves, float switches, and liquid level controls. Hansen Technologies pressure regulators and solenoid valves are ideally suited for typical CO<sub>2</sub> refrigeration systems. The valves can operate with little or no lubrication typical in CO<sub>2</sub> systems. The Teflon piston rings are self lubricating and will tolerate fine dirt better than long skirted pistons or metal piston rings. Float switches and VLT liquid level transducer are especially designed for CO<sub>2</sub> systems working up to 600 psig. All valves are tested to 600 psig (40 bar) safe working pressure and painted yellow for easy identification. Standard Hansen valves may be used on CO<sub>2</sub> up to 400 psig (27 bar) safe working pressure.

## Specifications

Safe Working Pressure: 600 psig (40 bar)  
Temperature Range: -65°F to 240°F (-50°C to 116°C)  
Maximum Operating Pressure Differential: 500 psid (35 Bar)  
Pressure Regulator Ranges: to 550 psig (38 bar)  
Control Valve Sizes: to 4" (100 mm)  
Shut off Valve Sizes: to 6" (150 mm)  
VLT Liquid Level Transducer: 40" to 120" (1 m to 3 m)

## Standard Products to 400 psig

Pressure Relief Valves  
AUTO-PURGERS®  
Sealed Motor Valves

## Valve Type Models

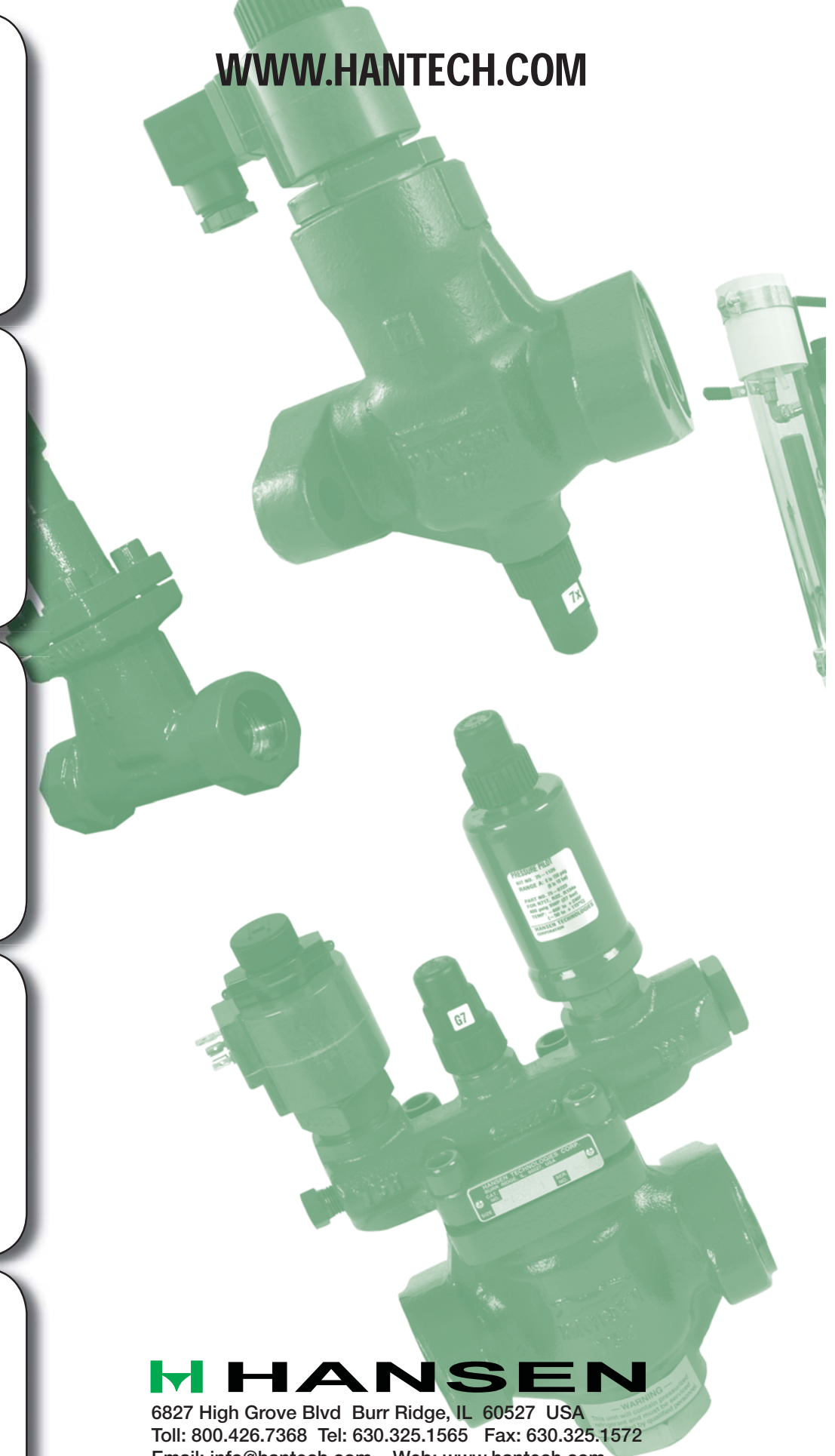
Pressure Regulators: CHA2B, CHA4A  
Solenoid Valves: CHS6, CHS8, CHS4A  
Check Valves & Stop Check Valves: CHCK4, CHCK1  
Suction Stop Valves: CHCK2, CHCK5  
Float Switches: CHLL Type  
Liquid Level Controls: VLT models, 4-20mA, 40" to 120" length  
Strainers: CST Series  
Shut-Off Valves & Hand Expansion Valves: Globe & Angle, Socket Weld & Butt Weld  
Sight Glasses: CH1100 Series, SEE-LEVEL®



Hansen offers an extensive line of components for industrial refrigeration systems including sealed motor valves, control valves, shut-off valves, pressure-relief valves, refrigerant pumps, air purgers, defrost controls and liquid level controls. Hansen is a subsidiary of Roper Industries (NYSE:ROP), a diversified industrial company that produces engineered products for global niche markets. For more information on Hansen products and services, please visit us at [www.hantech.com](http://www.hantech.com).



[WWW.HANTECH.COM](http://WWW.HANTECH.COM)



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