

GAS POWERED SUCTION STOP VALVE

Type CK-5

Port Size 32mm to 150mm (1¼" - 6")

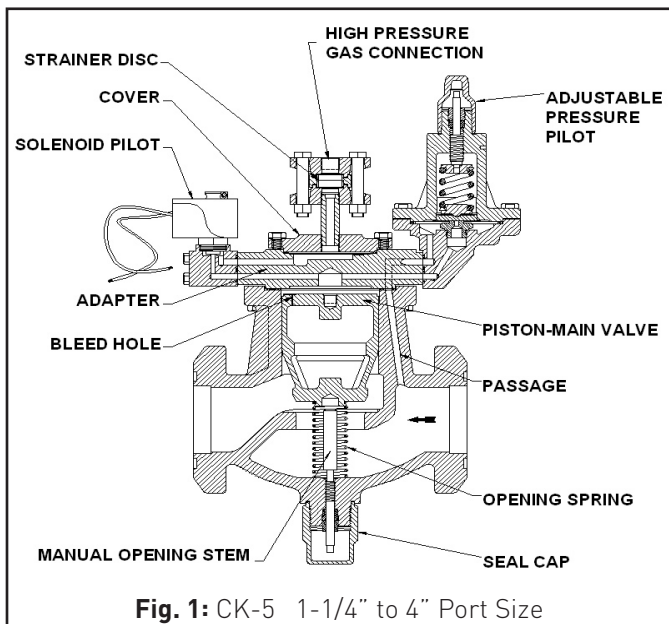
Suitable For: Ammonia, R22, R502,
R134a, R404a and Other Common
Refrigerants

FEATURES


- Normally Open
- Low Pressure Drop
- Manual Opening Stem
- Integrated Pilot Solenoid on 32mm to 100mm (1-1/4" to 4") Sizes
- Use in Vertical or Horizontal Line
- Valve may be mounted on its side
- Design Pressure (MRP): 27.6 bar (400 psig)

DESCRIPTION


These valves are piston-type, gas powered, and normally open. They are heavy duty, semi-steel bodied valves that are built with control precision. The 32mm (1-1/4") port size has a PTFE main seat, the 40mm (1-5/8") port and larger have a metal to metal seat, the 100mm and 125mm (5" and 6") port size versions of this unique suction stop valve utilize a larger capacity, remotely piped pilot operated solenoid, the R/S type S8F (Reference Bulletin 30-91). In addition, the pilot regulator for these two larger sized valves is mounted on top of valve (Fig. 2), with the strainer disc assembly piped into the side of the adapter.



Bulletin 50-23C

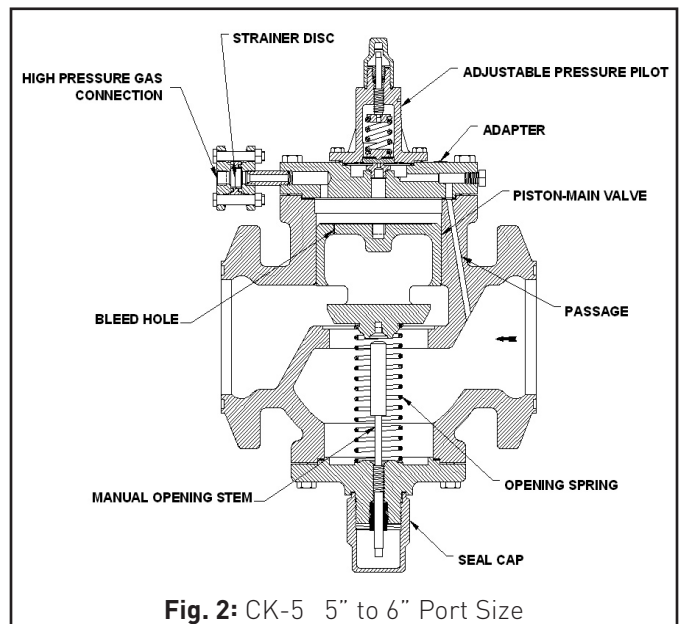


**S6B
Solenoid
Pilot**



**S6A
Solenoid
Pilot**

September 2007
Installation, Service, and Parts Information



All valves contain a manual lift stem. The table below displays the correct solenoid and pressure pilot for each valve size:

| PORT SIZE | | SOLENOID | PRESSURE |
|-----------|-------|----------|----------|
| MM | INCH | PILOT | PILOT |
| 32 | 1-1/4 | S6B | A2D2 |
| 40 | 1-5/8 | S6B | A2D2 |
| 50 | 2 | S6B | A2D2 |
| 65 | 2-1/2 | S6B | A2D |
| 75 | 3 | S6B, S6A | A2D |
| 100 | 4 | S6B, S6A | A2D |
| 125 | 5 | S8F | A2D |
| 150 | 6 | S8F | A2D |

PURPOSE

The purpose of the CK-5 gas-powered suction stop valve is to provide the normal operating features of the R/S CK-2 stop valve. In addition, this unique control valve incorporates a built-in mechanical fail-safe feature which prevents the undesirable effects of an immediate opening of the valve in the event of an electrical power failure while the evaporator is in defrost.

Along with the standard R/S type CK-2 gas-powered suction stop valve, the CK-5 is typically used for low temperature applications in wet return lines on liquid recirculation systems or on the liquid and gas return legs of flooded evaporators. Due to its normally open construction, pressure drop is minimal in suction or wet return applications. In addition, normal gravity circulation is unrestricted on flooded evaporators. For gravity flooded evaporators, both valves should be installed with their flow arrows pointing towards the surge drum.

PRINCIPLES OF OPERATION

For closing of the CK-5 valve, high pressure gas from an external source is admitted through the pilot solenoid valve to the top of the piston. This gas pressure acts on the piston, forcing it down, compressing the opening spring, firmly seating the valve's seat bead. The valve will not close unless pressure above the piston exceeds the downstream pressure by at least 5 psi (0.35 bar). After the termination of the hot gas injection period, any style of suction stop valve must re-open in order for refrigeration to resume. For the CK-5 to open, the valve's pilot solenoid de-energizes, thereby interrupting the pilot stream flow of discharge gas to the top of the valves piston. The main valve will continue to remain closed, however, since residual pressure in the coil is transmitted through passage "N", through the pilot regulator to the top of the piston. **[Note: The pilot regulator should be adjusted to maintain a minimal set point, approximately 10 psi.]** Under a standard defrost sequence for most low

temperature evaporators, a "bleed down" or vent solenoid will energize to slowly equalize pressures between the coil and the suction line. It is imperative to incorporate a "bleed down" solenoid in a defrost group of control valves which includes a CK-5 (See Fig. 10 - 12). Without this gradual equalization period, which generally takes one to two minutes, the CK-5 will stay closed for a prolonged period of time as the coil pressure slowly equalizes in series through the pilot regulator, then through the piston bleed hole. The ability of the CK-5 to stay closed during an interruption of power, while an evaporator is in the process of defrosting, is its single greatest advantage. Where power failures can occur regularly, consideration should be given to this unique valve. By design, a standard CK-2, or a competitive valve with a similar design, would open immediately as residual coil pressure surges through the valve should the power to the pilot solenoid suddenly be interrupted during a defrost. The design of the CK-5 prevents this from occurring and prevents the dangerous consequences to the system under these conditions. In the event the CK-5 pilot solenoid de-energizes due to a power failure while the evaporator is in defrost, the defrost coil pressure (typically at or about 70 psig for ammonia) will continue to be transmitted through passage "N", through the pilot regulator and to the top of the piston. This pilot pressure acts as a "closing" force acting upon the larger effective area of the top of the piston, and will overcome the "opening" force of coil pressure working against the underside of the piston. The valve will therefore remain closed due to the greater closing force until the coil pressure is equalized through the piston bleed hole. The larger the evaporator, and the greater its internal volume, the longer this venting or equalization period will require. By utilizing a bleed down solenoid in the control group during the standard defrost sequence, the CK-5 will return to its open position immediately after the equalizing period which is controlled by the time clock.

ADJUSTMENT

The pilot regulator should be adjusted to maintain a minimum set point of about 10 psi. This represents approximately 1/2 turn clockwise of the adjusting stem starting with the stem turned completely out.

MANUAL LIFT STEM

If it is desired to hold open the CK-5 manually, remove #34 Sealing Cap and turn #27 Seat Lifting Stem inward as far as possible. The valve cannot close now until the #27 Seat Lift Stem is once again turned out.

INSTALLATION

Protect inside of valve from dirt and chips during installation. The CK-5 Suction Stop Valve may be installed on its side or vertically upright in either vertical or horizontal pipe lines. Figure 10 illustrates the installation of the 32mm through 100mm (1-1/4" through 4") port size valves with a S6B solenoid in a horizontal pipe line. Figure 11 illustrates the installation of the 75mm and

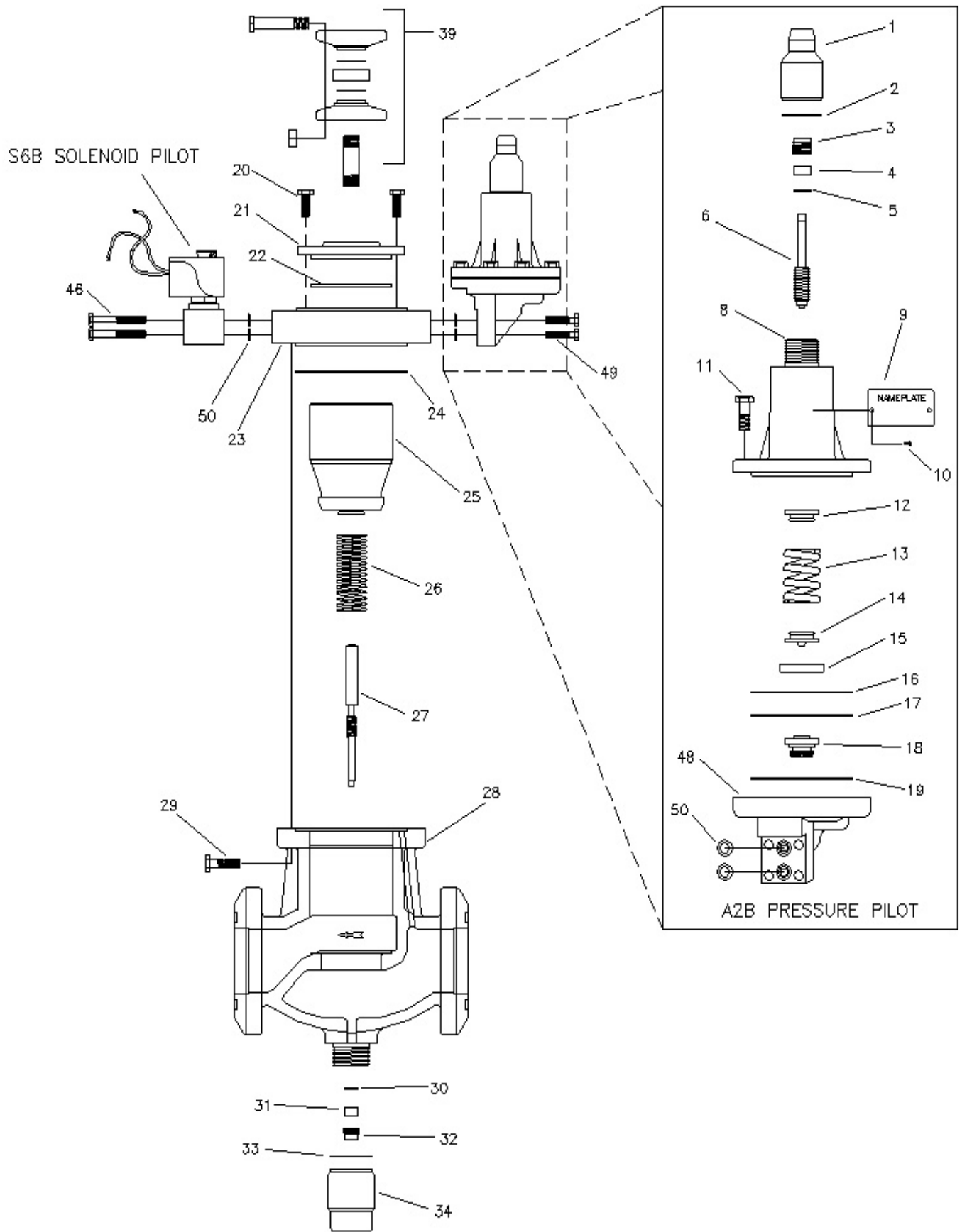


Fig. 3: CK-5 1-1/4" - 4" Port Size Assembly and Parts List

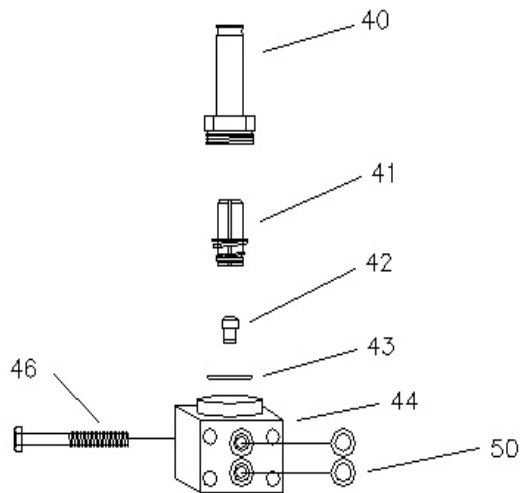


Fig. 4: S6B Solenoid Assembly and Parts List

**S6B SOLENOID PILOT PARTS KITS
(CK-5 1-1/4" - 4" VALVES ONLY)**

| ITEM | DESCRIPTION | QTY | KIT NO. |
|--------|---------------------|-----|---------|
| 40-41 | Plunger | 1 | |
| 42 | Seat, Pilot | 1 | |
| 43 | O-Ring | 1 | |
| 41-42 | Solenoid Repair Kit | | 204707 |
| 44 | Body | 1 | |
| 46 | Bolt (1/4"-20) | 4 | |
| 50 | O-Ring | 2 | |
| 46, 50 | Bolt / O-Ring Kit | | 201574 |

100mm (3" and 4") port size CK-5 stop valves with a S6A solenoid in a vertical pipe line. Figure 12 illustrates the installation of the 125mm and 150mm (5" and 6") port size CK-5 stop valves in a horizontal pipe line. A bypass equalizing solenoid valve, a requirement with any size CK-5, is also shown. The remote discharge gas supply solenoid used with the larger 75mm through 150mm (3" through 6") valves, the R/S type S8F, is a gravity closing valve and must be mounted in a horizontal line with its manual opening stem in a vertical position as shown. Never install the valve with its pilot section directly beneath the main valve. The direct mounted pilot solenoid on the 32mm through 100mm (1-1/4" through 4") port size valves should be maintained above the center line on a horizontal pipe. When used on a suction or wet return line, the arrow on the valve should point in the direction of normal fluid flow. When used on either gas or liquid legs of a flooded evaporator, the arrow on the valve body should point from the evaporator to the surge drum.

ELECTRICAL

The pilot solenoid used on the 32mm through 100mm (1-1/4" through 4") port size CK-5 stop valves, type S6B, is unique to the Refrigerating Specialties line of control

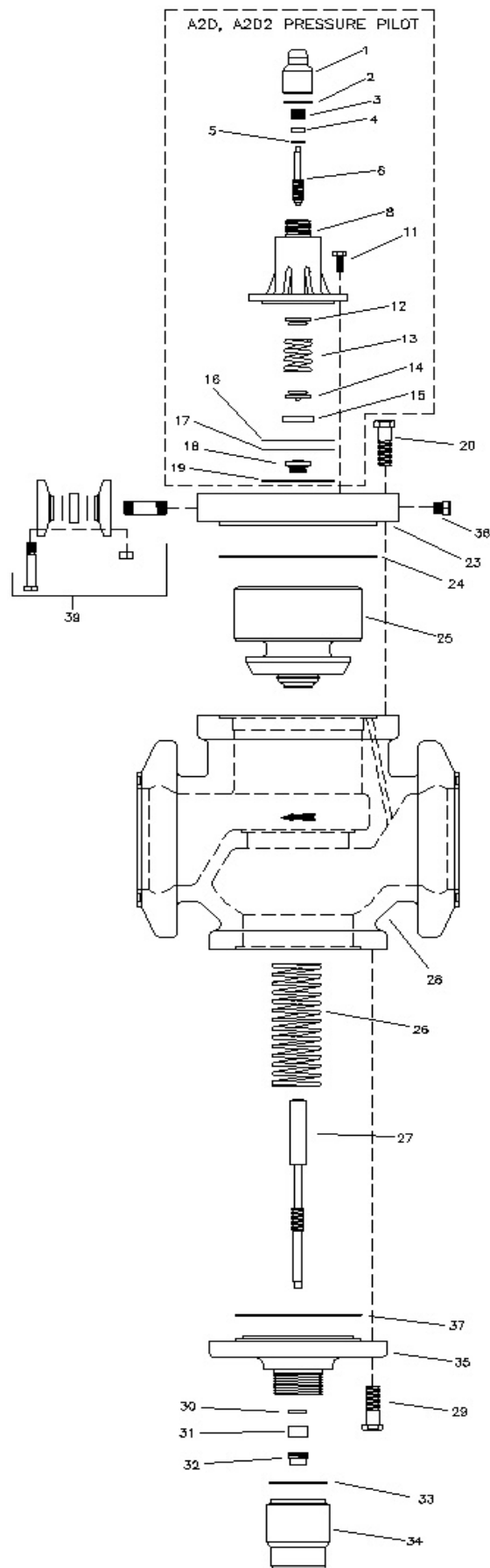


Fig. 5: CK-5 5" - 6" Port Size Assembly and Parts List

A2D2, A2D PRESSURE PILOT PARTS KITS

| ITEM | DESCRIPTION | QTY | 1-1/4" | 1-5/8" | 2" | 2-1/2" | 3" | 4" | 5" | 6" |
|---------------|-----------------------|-----|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | Cap | 1 | | | | | | | | |
| 2 | Gasket | 1 | | | | | | | | |
| 1,2 | Seal Cap Kit | | 202110 | 202110 | 202110 | 202110 | 202110 | 202110 | 202110 | 202110 |
| 3 | Nut, Packing | 1 | | | | | | | | |
| 4 | Packing, Stem | 1 | | | | | | | | |
| 5 | Washer | 1 | | | | | | | | |
| 3-5 | Spring / Stem Kit | | 202100 | 202100 | 202100 | 202100 | 202100 | 202100 | 202100 | 202100 |
| 6 | Stem | 1 | | | | | | | | |
| 8 | Bonnet | 1 | | | | | | | | |
| 9 | Name Plate | 1 | | | | | | | | |
| 10 | Bolt, Name Plate | 1 | | | | | | | | |
| 11 | Screw | * | | | | | | | | |
| 12 | Plate, Spring Lower | 1 | | | | | | | | |
| 13 | Spring | 1 | | | | | | | | |
| 14 | Plate, Spring Lower | 1 | | | | | | | | |
| 15 | Follower, Diaphragm | 1 | | | | | | | | |
| 3-6, 12-15 | Spring / Stem Kit | | 202006 | 202006 | 202006 | 202006 | 202006 | 202006 | 202006 | 202006 |
| 16 | Gasket | 1 | | | | | | | | |
| 1-6, 8, 11-16 | | | 202008 | 202008 | 202008 | 202008 | 202008 | 202008 | 202008 | 202008 |
| 12-14, 16 | Spring Kit, Bonnet | | 202481 | 202481 | 202481 | 202481 | 202481 | 202481 | 202481 | 202481 |
| 17 | Diaphragm | 1 | | | | | | | | |
| 18 | Seat | 1 | | | | | | | | |
| 19 | Gasket | 1 | | | | | | | | |
| 16, 17, 19 | Diaphragm Kit | | 200770 | 200770 | 200770 | 200770 | 200770 | 200770 | 200770 | 200770 |
| 16-19 | Seal Kit, Pilot | | 202000 | 202000 | 202000 | 202001 | 202001 | 202001 | 202001 | 202001 |
| 48 | Body | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 49 | Screw, Pressure Pilot | * | | | | | | | | |
| 50 | O-Ring | 2 | | | | | | | | |
| 49-50 | Bolt / O-Ring Kit | | 201572 | 201572 | 201572 | 201572 | 201572 | 201572 | N/A | N/A |

A2D2, A2D SPARE OR ADDITIONAL PARTS KITS

| ITEM | DESCRIPTION | QTY | KIT NO. |
|------|------------------------|-----|---------|
| 2 | Gasket Pkg / Seal Cap | 12 | 202408 |
| 50 | O-Ring Pkg / Moduplate | 12 | 202424 |
| 4 | Stem Packing, Pkg. | 25 | 202478 |

valves. In addition, the pilot light assembly used with the S6B, the R/S type PLT-5, is unique to the product line. Like the R/S type PLT-2, the PLT-5 is designed to meet NEMA 4 (watertight) requirement for outdoor use. However, unlike other pilot lights available from R/S (types PLT-1 and PLT-2), **the PLT-5 is wired directly to line voltage.** Please refer to R/S product bulletin 60-30 for additional information regarding the PLT-5 pilot light assembly.

The Refrigerating Specialties Division's molded, water resistant, Class "H" solenoid coil is designed for long life and powerful opening force. The standard coil housing meets NEMA 3R and 4 requirements. This sealed construction can withstand direct contact with moisture and ice. By definition, Class "H" coil construction will permit coil temperatures, as measured by resistance method, as high as 356°F (180°C). Final coil temperatures are a function of both liquid and ambient temperatures.

CK-5 GAS POWERED SUCTION STOP VALVE PARTS KIT

| ITEM | DESCRIPTION | QTY | 1-1/4" | 1-5/8" | 2" | 2-1/2" | 3" | 4" | 5" | 6" |
|------------|------------------------|-----|--------|--------|--------|--------|--------|--------|--------|----------------|
| 20 | Screw, Adaptor | * | | | | | | | | |
| 21 | Cover | 1 | | | | | | | | |
| 22 | Gasket | 1 | | | | | | | | |
| 20-22 | Cover Kit | | 204701 | 204701 | 204701 | 204701 | 204701 | 204701 | N/A | N/A |
| 23 | Adapter | 1 | | | | | | | | |
| 24 | Gasket | 1 | | | | | | | | |
| 23-24 | Adapter Kit | | 204702 | 204703 | 204703 | 204704 | 204705 | 204706 | 204753 | 204754 |
| 25 | Piston Plug | 1 | | | | | | | | |
| 24-25 | Piston Plug Kit | | 204750 | 204749 | 204757 | 204756 | 204755 | 204760 | 204759 | 204758 |
| 26 | Spring | 1 | 301528 | 301490 | 301490 | 301494 | 301505 | 301500 | 301511 | 301534 |
| 27 | Stem | 1 | | | | | | | | |
| 28 | Bonnet | 1 | | | | | | | | |
| 29 | Srew, Bottom Cover | * | | | | | | | | |
| 30 | Washer | 1 | | | | | | | | |
| 31 | Packing, Stem | 1 | | | | | | | | |
| 32 | Nut, Packing | 1 | | | | | | | | |
| 27, 31, 32 | Stem Kit | | 201514 | 201133 | 201133 | 201118 | 201216 | 201213 | 202363 | 202364 |
| 30-32 | Packing Kit | | 202100 | 202100 | 202100 | 202100 | 202101 | 202101 | 202101 | 202101 |
| 33 | Gasket | 1 | | | | | | | | |
| 34 | Cap, Seal | 1 | | | | | | | | |
| 33, 34 | Cap Kit | | 202110 | 202110 | 202110 | 202144 | 202111 | 202111 | 202111 | 202111 |
| 35 | Cover | 1 | | | | | | | | |
| 37 | Gasket | 1 | | | | | | | | |
| 35, 37 | Bottom Cover | | N/A | N/A | N/A | N/A | N/A | N/A | 200724 | 200755 |
| 39 | Disc Strainer Assembly | | | | | | | | | See Note Below |

Note: Item #39 is available in various connection sizes and styles; 3/8" FPT will be supplied unless otherwise specified. For a parts break down of the remote S8F pilot solenoid, please see R/S Bulletin 30-91.

The higher fluid temperatures require lower ambient temperatures so the maximum coil temperature is not exceeded. Conversely, low fluid temperatures permit higher ambient temperatures. A solenoid coil should never be energized except when mounted on its corresponding solenoid tube.

The solenoid coil must be connected to an electrical line with volts and Hertz the same as stamped on the coil. The supply circuits must be properly sized to give adequate voltage at the coil leads even when other electrical equipment is operating. The coil is designed to operate with line voltage from 85% to 110% of rated coil voltage. Operating with a coil voltage above or below these limits may result in coil burnout. Also, operating with a coil voltage below the limit will definitely result in lowering the valve's maximum opening pressure differential. Power consumption during normal operation will be 18.2 watts or less.

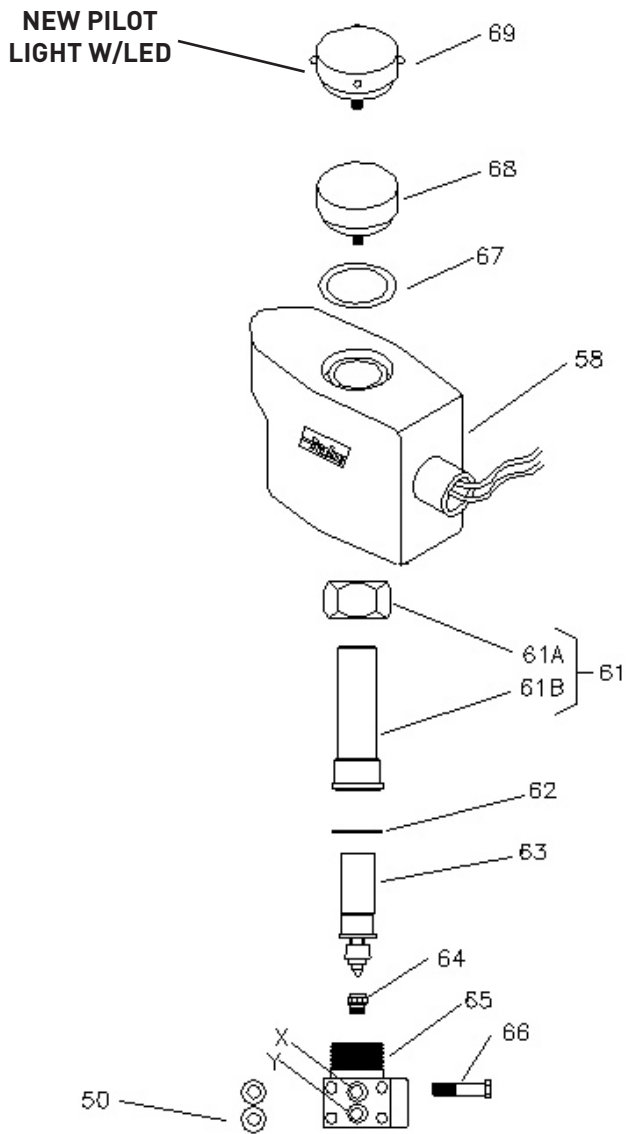


Fig. 6: S6A Solenoid Assembly and Parts List

ENCAPSULATED COIL (ITEMS 58, 67, & 68)

| VOLTAGE (V) | FREQUENCY (Hz) | LEADED | *DIN |
|-------------|----------------|--------|--------|
| 115 | 50 | 205206 | 205224 |
| 230 | 50 | 205207 | 205225 |
| 240 | 50 | 205208 | 205226 |
| 120 | 60 | 205209 | 205227 |
| 240 | 60 | 205210 | 205536 |
| 208 | 60 | 205211 | N/A |
| 24 | 60 | 205212 | 206018 |
| 24 | 50 | 205213 | 205635 |
| 48 | 50 | 205214 | 206755 |
| 24 | DC | 205215 | 205791 |
| 12 | DC | 206766 | N/A |
| 48 | DC | N/A | 205796 |

*DIN: Quick Disconnect (Q.D.) / Quick Connect (Q.C.)

S6A SOLENOID PILOT PARTS KITS (CK-5 3" - 4" VALVES ONLY)

| ITEM | DESCRIPTION | QTY | KIT NO. |
|--------------|--|-----|------------------|
| 58 | Coil Assembly | 1 | C.F. |
| 61A | Nut, Solenoid Tube | 1 | |
| 61B | Solenoid Tube | 1 | |
| 62 | Gasket | 1 | |
| 61A, 61B, 62 | Tube Kit, Solenoid | | 201036 |
| 50 | O-Ring | 2 | |
| 66 | Bolts (1/4" -20) | 4 | |
| 50, 66 | Bolts, O-Ring Kit | | 201574 |
| 62 | Gasket | 1 | |
| 63 | Plunger / Needle Assembly | 1 | |
| 62, 63 | Plunger Kit, Needle Plunger Kit, Needle (DC only) | | 201019 201021 |
| 64 | Seat Assembly | 1 | |
| 62-64 | Plunger Seat Kit | | 2501630 |
| 65 | Body, S6A | 1 | |
| 67 | O-Ring / Gasket | 1 | |
| 68 | Knob | 1 | |
| 67-68 | Knob Kit | | 205237 |

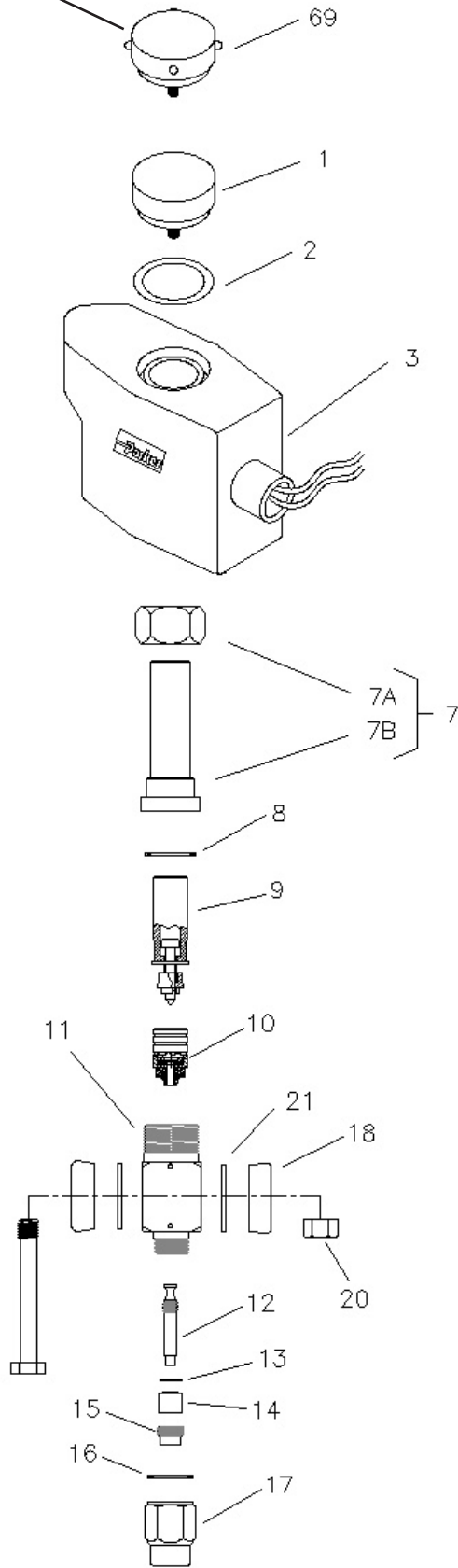
S6A SPARE OR ADDITIONAL PARTS KITS

| ITEM | DESCRIPTION | QTY | KIT NO. |
|--------|--|--------|------------------|
| 50 | O-Ring Package, Moduplate | 12 | 202424 |
| 70 | Bulb | 6 | 205282 |
| 69, 67 | Knob Kit (Green LED) Knob Kit (Red LED) | 1 1 | 208543 208544 |

ENCAPSULATED COIL (ITEMS 58, 67, & 69) W/LED PILOT LIGHT

| VOLTAGE (V) | FREQUENCY (Hz) | LEADED | *DIN | LED COLOR |
|-------------|----------------|--------|--------|-----------|
| 115 | 50 | N/A | 208558 | RED |
| 230 | 50 | 208553 | 208559 | |
| 240 | 50 | N/A | 208560 | |
| 120 | 60 | 208550 | 208561 | |
| 208 | 60 | 208552 | N/A | |
| 240 | 60 | 208551 | 208562 | |
| 115 | 50 | N/A | 208563 | GREEN |
| 230 | 50 | 208557 | 208564 | |
| 240 | 50 | N/A | 208565 | |
| 120 | 60 | 208554 | 208566 | |
| 208 | 60 | 208556 | N/A | |
| 240 | 60 | 208555 | 208567 | |

NEW PILOT LIGHT W/LED



**S8F SOLENOID PILOT PARTS KITS
(CK-5 5" - 6" VALVES ONLY)**

| ITEM | DESCRIPTION | QTY | KIT NO. |
|-----------|--|-----|--|
| 1 | Knob | 1 | |
| 2 | O-Ring / Gasket | 1 | |
| 1,2 | Knob Kit | | 205237 |
| 3 | Coil Assembly | 1 | C.F. |
| 7A | Nut, Solenoid Tube | 1 | |
| 7B | Solenoid Tube | 1 | |
| 8 | Gasket | 1 | |
| 7A-8 | Tube Kit | | 201036 |
| 9 | Plunger / Needle Assembly** | 1 | |
| 10 | Piston Plug Assembly | 1 | |
| 8-10 | Plunger Piston Kit ** | | 202072 |
| 11 | Body, S8F | 1 | |
| 12 | Stem, Manual Opening | 1 | |
| 13 | Washer | 1 | |
| 14 | Packing, Stem | 1 | |
| 15 | Nut, Packing | 1 | |
| 12-15 | Stem Kit, Opening | | 202238 |
| 16 | O-Ring | 1 | |
| 17 | Seal Cap | 1 | |
| 16-17 | Cap Kit | | 202713 |
| 18 | Flange Kit (Specify Flange Style & Connection Size) includes 2 Flanges Only. Sold Separately | 1 | FK-13. Also Specify Size and Style of Connection |
| 19 | Bolt | 2 | |
| 20 | Nut | 2 | |
| 21 | Gasket (H2 if Without Strainer, 3 if With Strainer) | H | |
| 19-21 | Bolt Kit (S8F Without Strainer) | | 201290 |
| 19-21 | Bolt Kit (S8F With Strainer) | | 201287 |
| 8, 16, 21 | Gasket Kit (Includes 2 Flange Gaskets) | | 201632 |
| 7-17, 21 | Complete Valve Gosdy Assembly | | 100997 |

**Not for D.C. Consult factory for correct parts.

S8F SPARE OR ADDITIONAL PARTS KITS

| ITEM | DESCRIPTION | QTY | KIT NO. |
|-------|----------------------|-----|---------|
| 1, 69 | Knob Kit (Green LED) | 1 | 208543 |
| | Knob Kit (Red LED) | 1 | 208544 |

For intullation information for the S8F solenoid valvereferance bulletin 30-91. Bulletins are located on the Refrigerating Specialties Division Parker website (www.parker.com/rs/rsliterature.html).

Fig. 7: S8F Solenoid Assembly and Parts List

| CK-5 Dimensions(In Inches) | | | | | | | | |
|----------------------------|--------|--------|------|--------|------|------|------|------|
| Port Size | 1-1/4" | 1-5/8" | 2" | 2-1/2" | 3" | 4" | 5" | 6" |
| A | 17.6 | 19.7 | 19.7 | 20.2 | 24.9 | 27 | 23.2 | 2.8 |
| B | --- | --- | --- | --- | --- | --- | 8.4 | 7.7 |
| C | 8 | 9.9 | 9.9 | 9.9 | 12.1 | 14.1 | 15 | 20.2 |
| D | 6.3 | 6.9 | 6.9 | 7.1 | 10.7 | 11.5 | 11.7 | 14.2 |
| E | 4.6 | 5.5 | 5.5 | 6.2 | 7 | 8.8 | 9 | 11.6 |
| F | 4.4 | 4.6 | 4.6 | 4.9 | 5.6 | 6.2 | --- | --- |
| G | 5.4 | 5.5 | 5.5 | 5.9 | 6.6 | 7.7 | --- | --- |
| H | 4.8 | 5.3 | 5.3 | 5.2 | 4.8 | 5.5 | --- | --- |

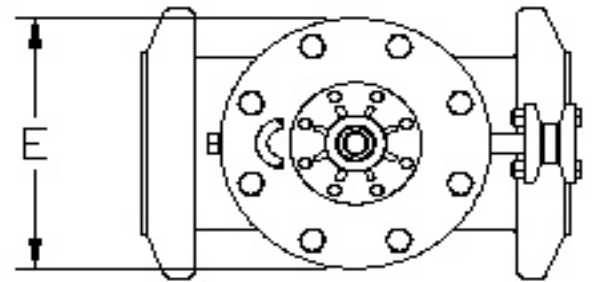
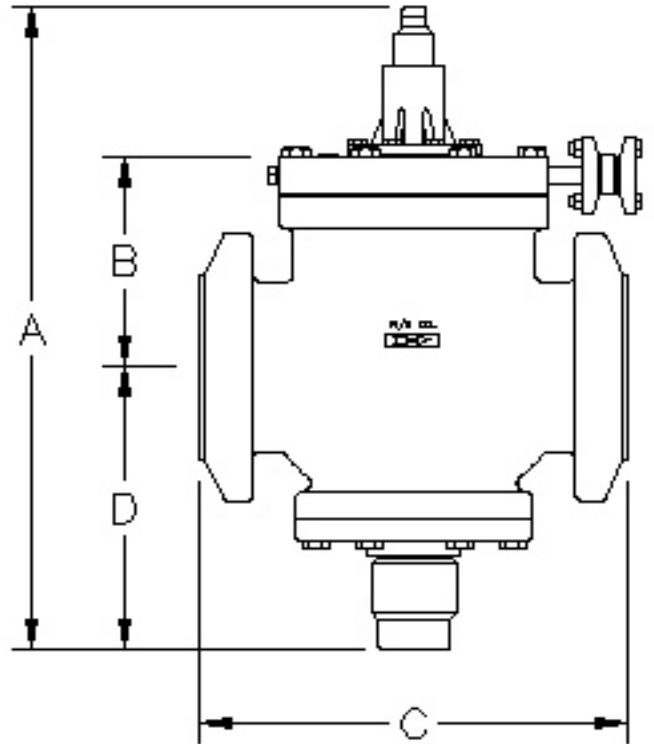
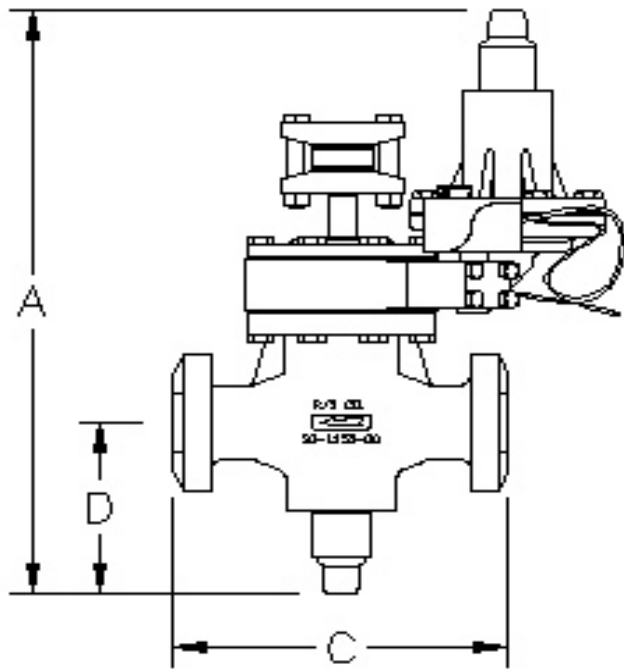


Fig 9: CK-5 5" and 6" Port Size Dimensions

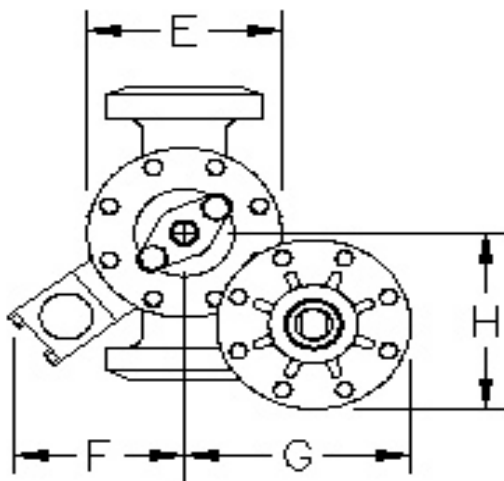


Fig. 8: CK-5 1-1/4" and 4" Port Size Dimensions

| Bolt Torque Table | | |
|--------------------|-----------------|----------------|
| Item | Port Size | Torque(ft lbs) |
| 7/16" Flange bolt | 1/2" | 28 |
| 5/8" Flange bolt | 3/4"-2" | 85 |
| 3/4" Flange bolt | 2-1/2"-3" | 105 |
| 7/8" Flange bolt | 4" | 150 |
| 5/16" Bonnet bolt | 3/4"-4" | 11 |
| 5/16" Adaptor bolt | 3/4"-2" | 11 |
| 5/8" Adaptor bolt | 3"-4" | 75 |
| Bottom Cap | 3/4"-1-1/4" | 150 |
| 1/2" Bot. cap bolt | 1-5/8" - 2-1/2" | 50 |
| 5/8" Bot. Cap Bolt | 3" - 4" | 75 |

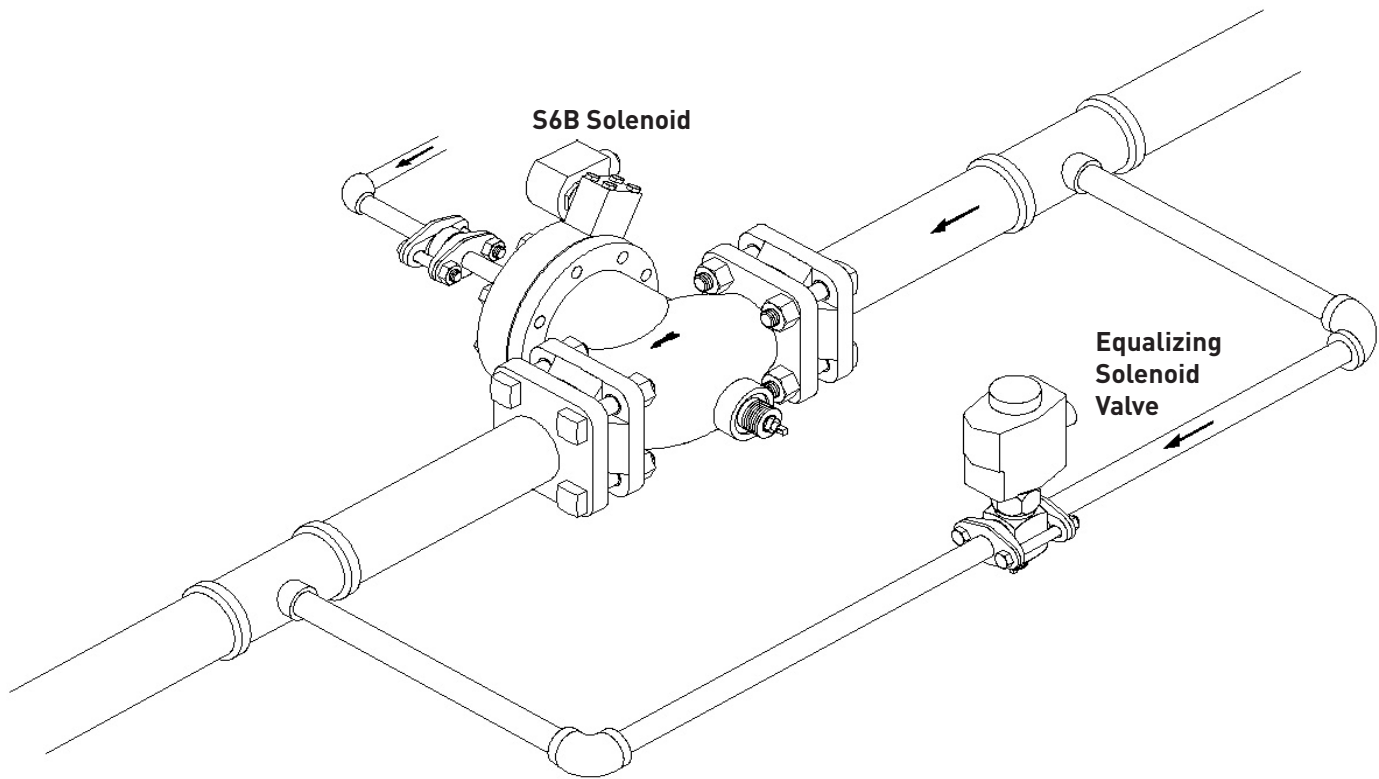


Fig 10: Installation Position (Horizontal) for a CK-5 1-1/4" to 4" Port Size with a S6B Solenoid

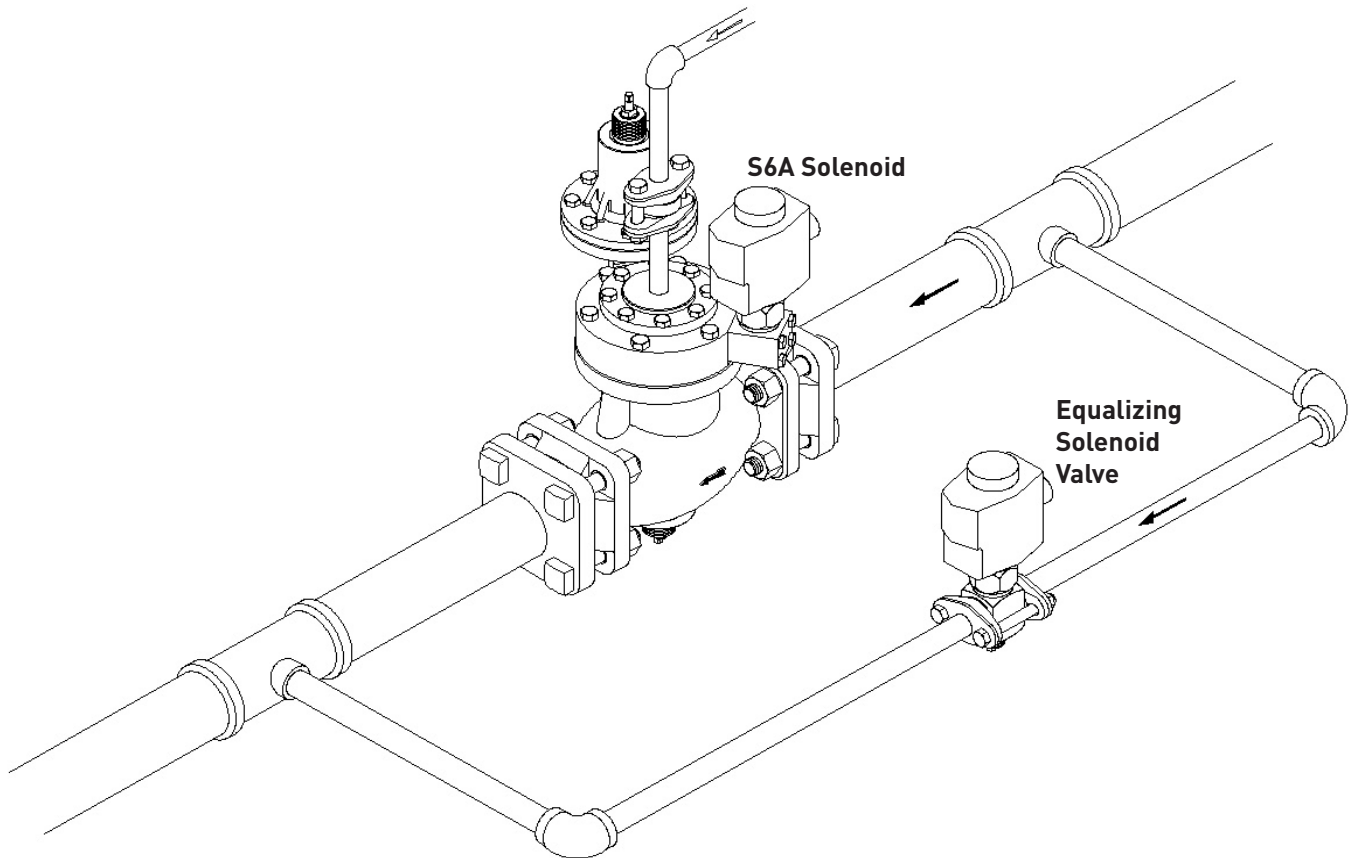


Fig 11: Installation Position (Vertical) for a CK-5 3" to 4" Port Size with a S6A Solenoid

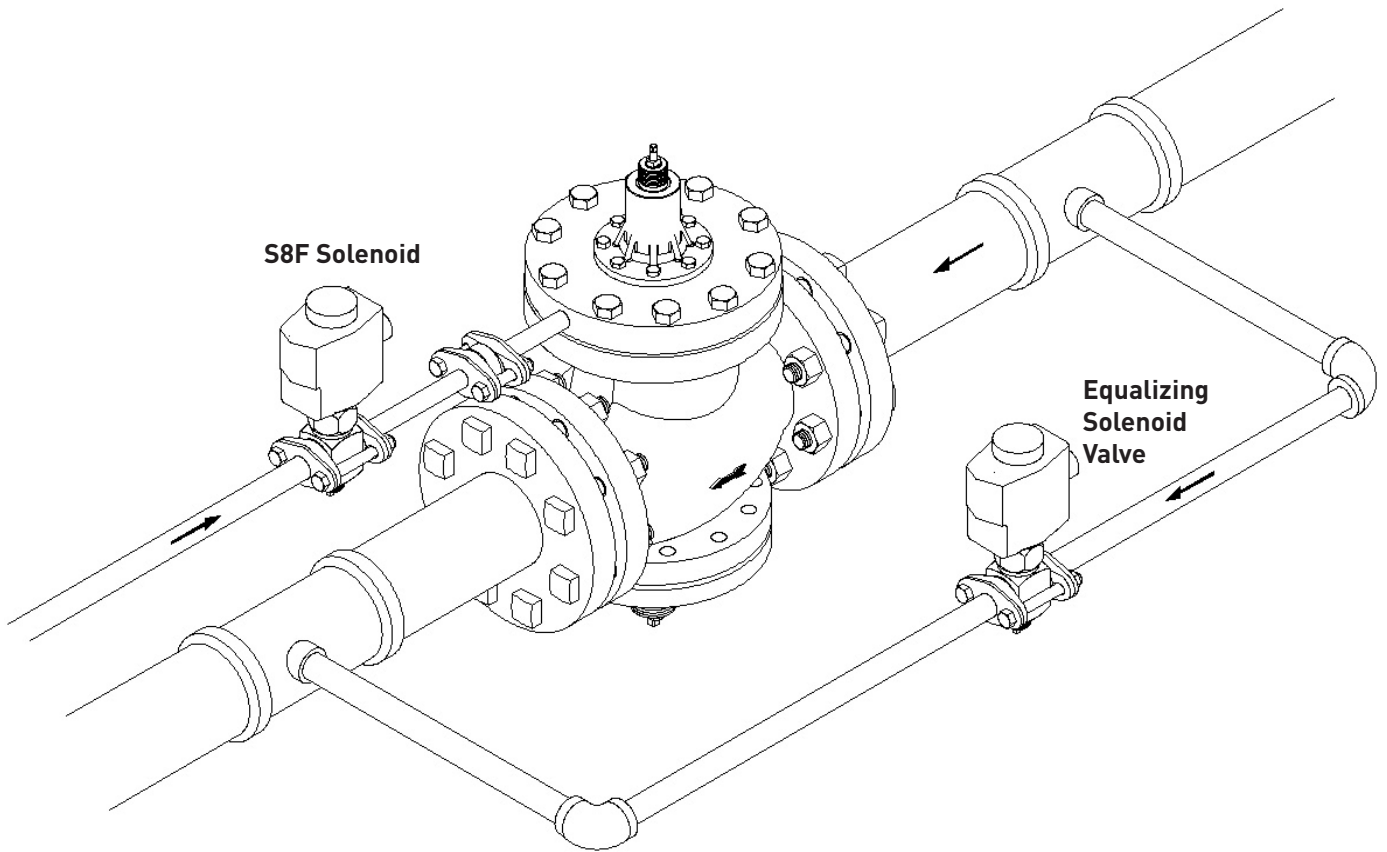


Fig 12: Installation Position (Vertical or Horizontal) for a CK-5 5" to 6" Port Size with a S8F Solenoid

Safe Operation (see also Bulletin RSBCV)

People doing any work on a refrigeration system must be qualified and completely familiar with the system and the Refrigerating Specialties Division valves involved, or all other precautions will be meaningless. This includes reading and understanding pertinent Refrigerating Specialties Division product Bulletins and Safety Bulletin RSBCV prior to installation or servicing work.

Where cold refrigerant liquid lines are used, it is necessary that certain precautions be taken to avoid damage which could result from liquid expansion. Temperature increase in a piping section full of solid liquid will cause high pressure due to the expanding liquid which can possibly rupture a gasket, pipe or valve. All hand valves isolating such sections should be marked, warning against accidental closing, and must not be closed until the liquid is removed. Check valves, or regulators with electric shutoff, nor should hand valves upstream of solenoid valves or downstream of check valves be closed until the liquid has been removed. It is advisable to properly install relief devices in any section where liquid expansion could take place.

Avoid all piping or control arrangements which might produce thermal or pressure shock.

For the protection of people and products, all refrigerant must be removed from the section to be worked on before a valve, strainer, or other device is opened or removed.

Flanges with ODS connections are not suitable for ammonia service.

Warranty

All Refrigerating Specialties Products are warranted against defect in workmanship and material for a period of one year from the date of shipments from the factory. This warranty is in force only when products are properly installed, field assembled, maintained and operated in use and service as specifically stated in Refrigerating Specialties Catalogs or Bulletins for normal refrigeration applications, unless otherwise approved in writing by Refrigerating Specialties Division. Defective products, or parts thereof, returned to the factory with transportation charges prepaid and found to be defective by factory inspection will be replaced or repaired at Refrigerating Specialties' option, free of charge, F.O.B. factory. Warranty does not cover products which have been altered or repaired in the field; damaged in transit, or have suffered accidents, misuse, or abuse. Products disabled by dirt, or other foreign substances will not be considered defective.

THE EXPRESS WARRANTY SET FORTH ABOVE CONSTITUTES THE ONLY WARRANTY APPLICABLE TO REFRIGERATING SPECIALTIES PRODUCTS, AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING AND WARRANTY OR MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. No employee, agent, dealer or other person is authorized to give any warranties on behalf of Refrigerating Specialties, nor to assume, for Refrigerating Specialties, any other liability in connection with any of its products.