Redi Controls, Inc.

Installation Operation & Maintenance Manual

File Literature No. 1028-04

RuptureSeal™

Model

RS-2

Rupture Disk
Backup
Relief Valve.....

Patent Numbers 5,577,389 & 5,644,930

.....for Low Pressure Centrifugal Chillers

R-11 R-113 R-123

Manufactured in accordance with
ASHRAE Guideline 3-1990 Sec. 4.6
Flow Tested per ASME Standards

Revised Technically as of April 15, 1996
This Copy was Printed as of February 4, 2005

Table of Contents

GENERAL INFORMATION

YOU ARE URGED TO READ THIS MANUAL COMPLETELY BEFORE INSTALLING THIS VALVE

Upon Receiving Your Unit

Inspect the unit for possible damage caused during shipping. **Contact** Equipment Servicing **before attempting to use a damaged unit.** (317) 865-4130.

Warnings and Cautions

NOTE: *Warnings and Cautions appear in highlighted boxes as illustrated below at appropriate points throughout this manual. Give special attention to these items.*

Warnings: are provided to alert you to potential hazards that could result in serious personal injury and damage to your equipment. Warnings may appear in this manual or on the equipment. Heed all Warnings.

Cautions: are designed to alert you to situations that may result in damage to your equipment.

Personal safety and the proper operation of your equipment require strict observance of these precautions.

THIS VALVE SHOULD BE INSTALLED ONLY BY QUALIFIED PERSONNEL

Warning: Certain servicing procedures may expose you to harmful materials and dangerous conditions. To minimize the possibility of injury, follow safety procedures and instructions described in this manual, on product labels and in material safety data sheets provided.

NOTE: *The manufacturer has a continuous equipment improvement policy and reserves the right to change specifications and design of its products without notice.*

Specifications

Flow capacity: 940 SCFM
Set pressure: 15 psig
Reseals "bubble tight" within 3 psi of set pressure
Refrigerant compatibility: R-11 R-113 & R-123
Weight: 17 pounds
Dimensions (approximate): Length 13 inches; height 13 inches; width 6 inches
Inlet - 2-inch male NPT pipe threads
Outlet - 2-inch female NPT pipe threads
Integral support Boss - 3/4-inch pipe
O-Ring seat - seals bubble tight
VALVE CONSTRUCTED OF STAINLESS STEEL
Tell-tale pressure gauge 30"Hg -0- 30 psig
Double check pressure equalizing valve (included)
Every valve 100% tested for pressure setting and leakage
O-Rings serviceable without disturbing pressure relief calibration
Carbon fragment collection trap with specially formulated non-toxic, non-corrosive tack compound
Direct spring acting
Pivoted spring action corrects mis-alignment and compensates for spring side thrust
Calibration is factory sealed to prevent inadvertent tampering or dis-assembly
High capacity full nozzle design
Instantaneous "pop open" action
BACK PRESSURE COMPENSATED

General Overview

The **RuptureSeal**™ rupture disk backup relief valve, with its exclusive carbon fragment collection trap, is designed specifically for installation in series with existing carbon type fragmenting rupture disks used on low pressure (15 psi or below) centrifugal chillers.

The primary function of the **RuptureSeal**™ is to minimize refrigerant loss to the atmosphere in the event of a burst rupture disk. The **RuptureSeal**™ accomplishes this vital function by automatically closing off the vent path, thus re-sealing the chiller once pressure returns to normal. In the event of a burst rupture disk, the **RuptureSeal**™ also serves as the interim primary relief.

NOTE: *The* **RuptureSeal™** *model number designates the size of carbon fragmenting rupture disk it is designed to be used with (i.e., the "RS-2" is designed to be used with a two (2") inch carbon fragmenting rupture disk designed for centrifugal chillers)..**The RS-2 has a flow capacity of 940 SCFM, however (per ASHRAE guidelines), this capacity must be de-rated 10% when installed in series with a rupture disk. When fitting the RS-2 to a chiller, the installer must determine if the de-rated flow capacity is adequate for that chiller.*** **INCLUDED FOR YOUR CONVENIENCE AS Appendix "A" IS A TABLE OF VARIOUS VESSEL DIMENSIONS COVERED BY THE MODEL RS-2 RuptureSeal™ AFTER 10% DE-RATING** *based on computations using the formula provided by the Guideline BSR/ASHRAE 15-1992R. Appendix "B" of this manual contains the excerpt from the Guideline BSR/ASHRAE* 15-1992R which *can be used to determine the minimum flow capacity requirement for a pressure-relief device as applied to a low pressure centrifugal chiller.*

Installation Kit

Kit includes:

One (1) Pre-assembled RS-2 **RuptureSeal™**
which includes:
3 O-rings (1), (2) & (3)
Eight (8) 1/4" Stainless Steel Cap Screws (4)
One (1) Collection Trap Chamber Cover (5)
One (1) Carbon Fragment Collection Trap Canister Insert
with Special Tack Compound (6)
One (1) Tee Connection (14) with plug
One (1) Tell-Tale Pressure Gauge 30" Hg - 0-30 psig (21)
One (1) Double Check Pressure Equalizing valve (22) with Filter/Vent (34)
One (1) Installation Operation & Maintenance Manual

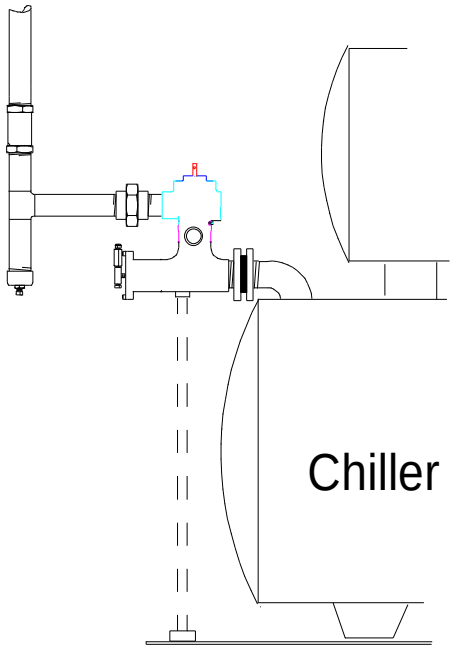
NOTE:
See Figure 3 on Page 9 for location of parts on assembled unit.

Warning: Removal of the wired screws and lead seal (16) from the valve body (7) will destroy the pressure relief calibration and void the warranty! If service to the valve assembly effecting calibration is required, it must be returned to manufacturer for service.

Field Provided Items

Items to be supplied by installer:
(see Figure 2 on page 8)

Pipe & Flexible Metal Connection (33)
Pipe Fittings
Drip leg (31) with Drain Port (38)
¼" line (37) to connect Valve Body water drain hole (24) to Drip Leg (31)
A two inch (2") Female NPT Pipe Union (12)
(see Figure 2 on page 8)
Materials for providing supplemental support of valve (3/4" iron pipe)



Typical Installation

INSTALLATION

Installation of the **RuptureSeal**™ should be performed only by qualified personnel. The following installation instructions should be thoroughly read and understood before attempting installation.

Minor alterations to the existing rupture disk vent piping are necessary to install the **RuptureSeal**™ valve. The installer should determine in advance what tools and materials will be needed.

Warning: Whenever possible, the RS-2 should be connected directly to the chiller's outer rupture disk flange to assure that, if there is a rupture, ALL of the carbon fragments of the disk will be projected straight into the RuptureSeal™ carbon fragment collection trap. If this is not possible, see Appendix "C" for further information.

Also, if there is a restriction or constriction in the vent pipe after the RuptureSeal™ valve, or if a number of chiller reliefs are vented into one inappropriately sized pipe, the overall flow rate of the system may be negatively affected. Each installation must have such factors taken into consideration. (For reference, see ASHRAE Guidelines relating to piping after a rupture device.)

Warning: DO NOT install an RS-2 RuptureSeal™ on a 3" rupture disk. Likewise, DO NOT install an RS-3 RuptureSeal™ on a 2" rupture disk. The rated flow capacities of the RuptureSeal™ relief valve are accurate only when the appropriate Model is used on an appropriate sized rupture disk. MISMATCHING MAY CAUSE THE VALVE NOT TO OPEN, HENCE FLOW CAPACITY MAY BE (0) ZERO.

Installation Steps 1 thru 7 - (*see below*)

Warning: DO NOT attempt to install a damaged valve!

NOTE: ***IT IS NOT NECESSARY TO REMOVE THE CHILLER'S RUPTURE DISK TO INSTALL THE RuptureSeal™.*** *The valve's 2" carbon fragment collection trap inlet (13) (see Figure 3 on page 9 for location) should be screwed directly into the chiller's outer rupture disk flange (see Figure 1 on Page 8). If this is not possible, see Appendix "C" for other installation possibilities. If the installer wants to avoid putting stress on the rupture disk assembly, a straight, 2 inch ID flexible coupling can be used between the rupture disk flange and the* ***RuptureSeal™.***

INSTALLATION (continued)

1. Determine the best mounting arrangement for the **RuptureSeal**™ in relation to the chiller's existing rupture disk, vent piping, and the recommended supplemental support. The best arrangement is one that places the **RuptureSeal**™ as close as possible to the rupture disk. The valve body (7) can be rotated to orient the "outlet to vent pipe" (8) in any horizontal direction by loosening the three (3) valve body locking screws (9) (for illustration, see the first row of Appendix "C" on page 16). Once in position, be sure to re-tighten the three (3) valve body locking screws (9).

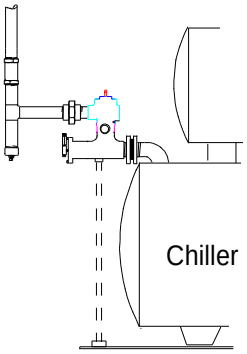


Figure 1.
Typical Installation
(See Appendix "C" for other installations)

2 The **RuptureSeal**™ "valve" should be mounted in the vertical position with the carbon fragment collection trap chamber (10) in the horizontal position (see **Figure 1** - ***Typical Installation***). The RS-2 can be mounted in other positions (*except upside down*), however, the valve is calibrated for the vertical position and it should be mounted in a position other than vertical only if absolutely necessary. **READ WARNING BELOW**.

Warning: YOU MUST READ Appendix "C" if mounting in positions other than as illustrated in Figure 1.

Warning: Regardless of RS-2's position, the Double Check Pressure Equalizing Valve (22) MUST be mounted vertically with the filter/vent (34) pointing up (é). Any position other than with the filter/vent end pointing up will create a serious safety hazard.

3. Determine how much of the existing rupture disk vent piping will have to be removed to accommodate the **RuptureSeal**™. Cut out and remove this section of piping.

4. It is recommended that you utilize a flexible metal connection (33) to make the installation easier. You must use a 2" NPT union (12) for future servicing.

5. The installer shall determine the best way to plumb the exhaust vent line using the hook-up to vent pipe illustration in Figure 2 as a guide.

6. Apply thread sealant compound to threads on the valve's 2" carbon fragment collection trap inlet (13) and install (see **Caution** below.) This should be screwed DIRECTLY into the existing rupture disk flange whenever possible. In no event should the valve be installed with an extension pipe more than 14 inches from the rupture disk. (See Appendix "C" on Page 17 for illustrations if extension must be used.**) IF AN EXTENSION PIPE IS USED, IT MUST BE STRAIGHT (NO 45º or 90º ELBOWS)** and have a 2" inside diameter. **[If the valve is not vertical after tightening into the rupture disk flange, it may be necessary to install a 2" pipe union between the valve and the outer rupture disk flange.]**

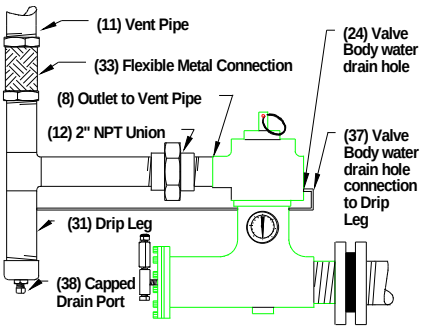


Figure 2.
Hook-up to Vent Pipe

Caution: Be sure there is a gasket between the carbon rupture disk and the outer flange. If there is not, one must be installed.

INSTALLATION (continued)

7. Determine best method for connecting drip leg (31) to the "outlet to the vent pipe" (8) (see figure 2 on page 8). Again, the "outlet to vent pipe" (8) can be adjusted to point in any horizontal direction by loosening the 3 valve body locking screws (9) and turning the valve body (7) (see first row of Appendix "C" on page 16 for illustration). Run a ¼" line (37) from the Valve Body water drain hole (24) to the Drip Leg (31). (Don't forget to re-tighten the 3 valve body locking screws (9).)

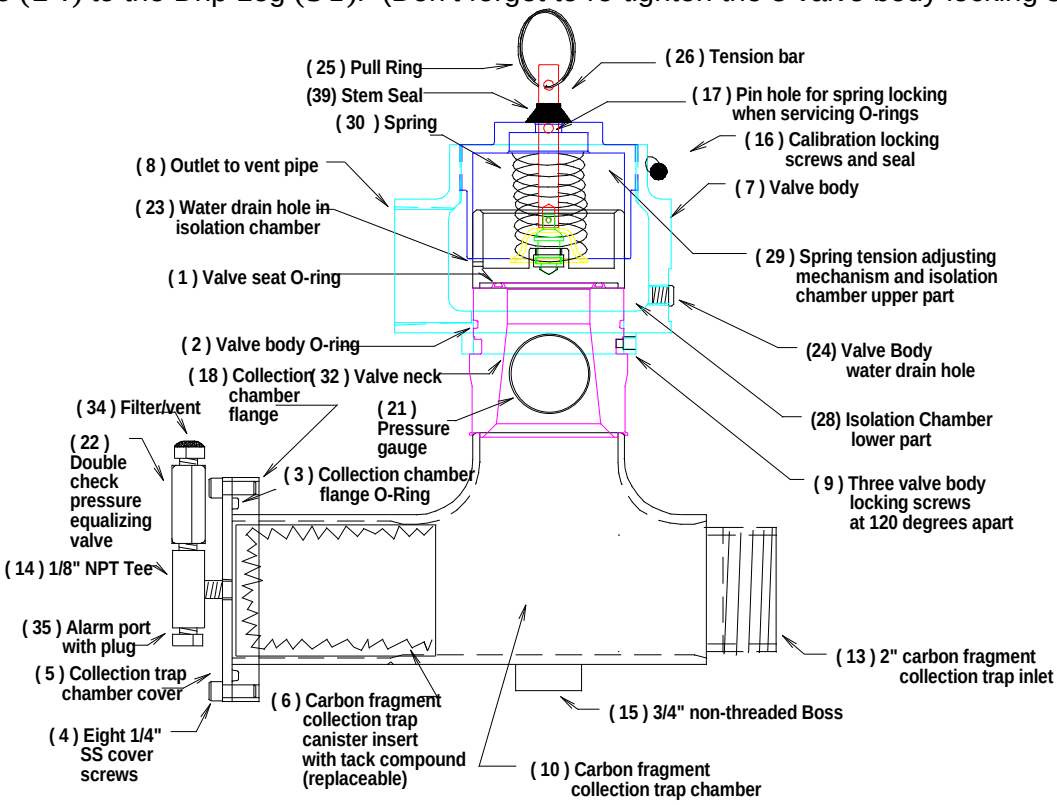


Figure 3 - ***Cutaway View***

Pressure Gauge and Auxiliary Alarm

The pressure gauge (21) between the rupture disk and the seating mechanism of the valve is used to let the operator know if a rupture disk has burst or is seeping. A pressure or vacuum reading other than "0" psig indicates a problem with the rupture disk. The double check pressure equalizing valve (22) is provided to prevent a pressure build-up between the **RuptureSeal**™ valve and the rupture disk, usually resulting from a seeping rupture disk. This special double check pressure equalizing valve allows low pressure build-up to bleed-off, but re-seals itself at high pressures or vacuum***. IF AN ALARM IS DESIRED*** to supplement the pressure gauge (***IT IS HIGHLY RECOMMENDED***) to signal when the rupture disk has ruptured, it can be installed in the plugged alarm port (35) of Tee (14). The ALARM should be set to activate between 4 and 10 psig. Contact equipment servicing for information on the optional **Redi Controls Alarm**™.

Supplemental Mounting Support

It is recommended that a supplemental mounting support be provided for the **RuptureSeal**™ valve to relieve any stress it may put on the rupture disk assembly (see Figure 1 on page 8). A support mounting coupling (15) has been provided for this purpose. The coupling will accommodate 3/4" non-threaded pipe. The installer shall determine the best way to provide the supplemental support.

INSTALLATION (continued)

Double Check Pressure Equalizing Valve

The double check pressure equalizing valve (22) is provided to prevent a pressure build-up between the **RuptureSeal**™ valve and the rupture disk, usually resulting from a seeping rupture disk. This special double check pressure equalizing valve allows low pressure build-up to bleed-off, but re-seals itself at high pressures or vacuum*.*

Warning: DO NOT obstruct relief of Double Check Pressure Equalizing Valve (22)**.**

Chillers Utilizing R-123 (*special piping instructions*)

Warning: When installing the RuptureSeal™ on a chiller utilizing R-123, it is advised that you pipe the output of the Double Check Pressure Equalizing Valve (22) **[after removal of the filter/vent** (34)**] into the line running from the Valve Body water drain hole** (24) **to the Drip Leg** (31)**. If there's a rupture, this will prevent seepage of R-123 into the equipment room. (See illustration at bottom right corner of Appendix "C" on page 17.)**

Leak Testing Procedure

Caution: DO NOT use this procedure if chiller is at a pressure lower than 15" Hg. Otherwise, accidental bursting of the rupture disk could occur by imploding the rupture disk into the chiller!

1. Remove pipe plug (or alarm, if the optional **Redi Controls Alarm**™ is used) from alarm port (35) of Tee (14).

2. Utilizing a 1/8" NPT x 1/4" Flair half union, connect a refrigeration manifold set (low side hose) to the alarm port (35) of Tee (14).

3. Carefully raise the pressure level to **NO MORE THAN 5 PSI MAXIMUM,** and test for leaks using standard leak testing procedures.

Warning: During testing, to maintain pressure at such a low psi, you may have to remove the filter/vent (34) **and hold your finger over the outlet of the Double Check Pressure Equalizing Valve. DO NOT use a plug in outlet of the Double Check Pressure Equalizing Valve. If the plug were not removed, it would create a serious safety hazard.**

4. At conclusion of Leak test procedure, release pressure and remove hose at fitting from Tee (14). Re-install the alarm or plug in the alarm port (35) of Tee (14) and secure tightly. **DO NOT** reinstall pipe plug or alarm in any position other than the alarm port (35) of Tee (14).

MAINTENANCE

Following a Rupture

Perform “Annual” maintenance procedures (steps 1 thru 16 - see below) and replace the Carbon Fragment Collection Trap Canister Insert (6) with a fresh one.

Annual

Warning: Removal of the wired screws and lead seal from the valve body will destroy the pressure relief calibration and void the warranty. DO NOT TAMPER WITH SEAL DURING SERVICING! If service to the valve assembly effecting calibration is required, it must be returned to manufacturer for service. ANNUAL SERVICING DOES NOT AFFECT CALIBRATION.

1. **BEFORE SERVICING THE VALVE**, utilize pull ring (25) to pull up and insert a pin in the spring tension bar (26) in the 2nd hole (17). This will protect the seating O-Ring (1) from damage and keep the valve body (7) from popping up during servicing.

2. After pinning the spring tension bar (26) per previous step, break vent pipe union (12) (see Figure 2 on page 8).

3. Next, loosen the three (3) valve body locking screws (9), then lift the valve body (7) from the valve neck (32) .

4. Inspect the valve seat O-Ring (1) and the valve body O-Ring (2). If there are signs of wear or excessive compression set, replace the O-Rings. Lightly oil the valve seat O-Ring to facilitate installation into the dove-tail O-Ring grove.

   O-Ring type & sizes are: Valve seat O-Ring (1) is a **Parker - #2-133-V747-75**
   Valve body O-Ring (2) is a **Parker - #2-145-N674-70**

5. Inspect the water drain hole (24) in the valve body (7) to make sure it can drain properly.

6. Lightly oil the valve body O-Ring and return the valve body (7) down over the valve neck (32) .

7. Make sure the three (3) valve body locking screws (9) are screwed completely in against the valve neck (32), thereby locking the valve body in the correct position. (The screws must be screwed in until they are slightly below being flush and must be secured tightly.)

8. Re-connect the 2” NPT union (12). Check drip leg (31) for proper drainage.

9. Lift the pull ring (25), remove pin and gently allow the valve to reseal.

10. Using an alternating pattern, remove the eight (8) ¼” stainless steel cap screws (4) from the carbon fragment collection trap chamber cover (5).

MAINTENANCE (continued)

11. Remove the collection trap canister (6) from the trap chamber (10) and inspect the tack compound. The compound should be soft and very tacky to the touch. If not, or if there is any doubt about the quality of the tack compound, replace with a new canister with fresh compound. (Contact equipment servicing for Kit "**RS-2 TACK KIT**" for the 2 inch rupture disk valve.)

NOTE*: It is recommended that the carbon fragment collection trap canister insert with tack compound (6) be replaced at least every third year of service, regardless of its apparent condition.*

12. Clean and inspect the collection trap chamber cover (5)**.** Be sure the O-Ring (3) groove in the collection chamber flange (18) is clean. Replace O-Ring (3) if necessary.

O-Ring (3) type & size is **Parker - #2-235-V747-75**

13. Reinstall the collection trap chamber cover (5) using the eight (8) ¼" stainless steel cap screws (4). In an alternating pattern, tighten screws until cover is drawn down tightly against collection chamber flange (18).

Warning: Be sure the Double Check Pressure Equalizing Valve is pointing straight up toward the sky é and is unobstructed (regardless of the RS-2 valve's position). The Double Check Pressure Equalizing Valve only functions correctly in the vertical position. The double check pressure equalizing valve (22) **is provided to prevent a pressure build-up between the RuptureSeal™ valve and the rupture disk, usually resulting from a seeping rupture disk. This special double check pressure equalizing valve allows low pressure build-up to bleed-off, but re-seals itself at high pressures or vacuum**.

14. Inspect the filter/vent (34) located on top of double check pressure equalizing valve (22). Be sure it is clean and unobstructed.

Warning: DO NOT obstruct the Filter/vent (34) **outlet on the Double Check Pressure Equalizing Valve** (22)**.**

15. Inspect the tell-tale pressure gauge (21) and verify for proper operation.

16. Finally, test for leaks (see page 10 for leak testing procedure).

Servicing and Replacing O-Rings

See procedures for annual maintenance starting on page 11.

Caution: The RuptureSeal™ valve is a precision instrument constructed of stainless steel to avoid corrosion. DO NOT substitute any parts that are not stainless steel.

Appendix "A"

RuptureSeal™ Model RS-2 (940 SCFM)

for

R-11 R-113 R-123

Purpose of Table

This table will assist the installer in determining the maximum size of chiller vessel (evaporator) with a two inch (2") carbon rupture disk that can be fitted with the Model RS-2 **RuptureSeal**™ valve. **(NOTE: PURSUANT TO ASHRAE GUIDELINES, WHEN A PRESSURE RELIEF DEVICE IS INSTALLED IN SERIES WITH A RUPTURE DISK, THE FLOW CAPACITY OF THAT DEVICE MUST BE DE-RATED BY 10%.)** Thus, after installation in series with a two inch (2") carbon rupture disk, the flow capacity rating of the Model RS-2 **RuptureSeal**™ valve must be assumed to be **846 SCFM**.)

How to use Table

Obtain the **diameter** and **length** of the chiller vessel (evaporator).

Refer to the table below and locate the **"Diameter"** measurement that equals the diameter of the chiller vessel (evaporator). The measurement to the immediate right of the evaporator's diameter indicates the **"Maximum Length"** of the chiller vessel (evaporator) that the Model RS-2 **RuptureSeal**™ valve can be installed on after 10% flow capacity de-rating.

NOTE: TABLE REFLECTS 10% DE-RATING OF VALVE'S ACTUAL RATED FLOW CAPACITY.

Evaporator Diameter FEET & INCHES	Maximum Evaporator Length	Evaporator Diameter FEET & INCHES	Maximum Evaporator Length	Vessel Diameter FEET & INCHES	Maximum Evaporator Length
2' 6" or less	25' 5"	3' 4"	19' 0"	4' 2"	15' 3"
2' 7"	24' 7"	3' 5"	18' 7"	4' 3"	14' 11"
2' 8"	23' 10"	3' 6"	18' 2"	4' 4"	14' 8"
2' 9"	23' 1"	3' 7"	17' 9"	4' 5"	14' 5"
2' 10"	22' 5"	3' 8"	17' 4"	4' 6"	14' 1"
2' 11"	21' 10"	3' 9"	16' 11"	4' 7"	13' 10"
3' 0"	21' 2"	3' 10"	16' 7"	4' 8"	13' 7"
3' 1"	20' 7"	3' 11"	16' 3"	4' 9"	13' 4"
3' 2"	20' 1"	4' 0"	15' 10"	4' 10"	13' 1"
3' 3"	19' 6"	4' 1"	15' 7"	4' 11"	12' 11"
				5' 0"	12' 8"

NOTE: Calculations are based on BSR/ASHRAE Standard 15-1992R - Section 9.7.5

Warning: The above calculations are NOT APPLICABLE if combustible materials are used within twenty (20') feet of the chiller vessel (see BSR/ASHRAE 15-1992R).

Appendix "B"

Excerpt from Guideline BSR/ASHRAE 15-1992R

9.7.5 The minimum required discharge capacity of the pressure-relief device or fusible plug for each pressure vessel shall be determined by the following:

$$C = f\,DL$$

WHERE:

C = minimum required discharge capacity of the relief device in **POUNDS OF AIR PER MINUTE (KG/S),*** (*emphasis and asterisk added*)

D = outside diameter of vessel in feet (m),

L = length of vessel in feet (m),

f = factor dependent upon type of refrigerant.

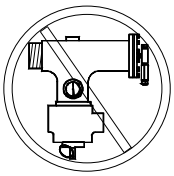
***Note:* When combustible materials are used within 20 feet (6.1 m) of a pressure vessel, multiply the value of *f* by 2.5.**

REFRIGERANT	VALUE OF *f*
When used on the lowside of a limited-charge cascade system:	
R-170, R-744, R-1150	1.0 (0.082)
R-13, R-13B1, R-503	2.0 (0.163)
R-14	2.5 (0.203)
Other applications:	
R-717	0.5 (0.041)
R-11, R-40, R-113, R-123, R-142b, R-152a, R-290, R-600, R-600a, R-611, R-764	1.0 (0.082)
R-12, R-22, R-114, R-134a, R-C318, R-500, R-1270	1.6 (0.163)
R-115, R-502	2.5 (0.203)

When one pressure-relief device or fusible plug is used to protect more than one pressure vessel, the required capacity shall be the sum of the capacities required for each pressure vessel.

***Note: To convert from* pounds of air per minute *to* SCFM*, multiply by* 13.3.**

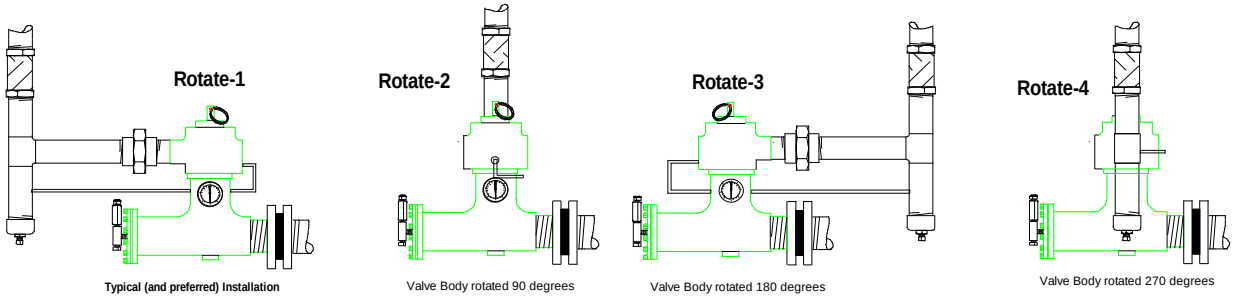
Appendix “C”



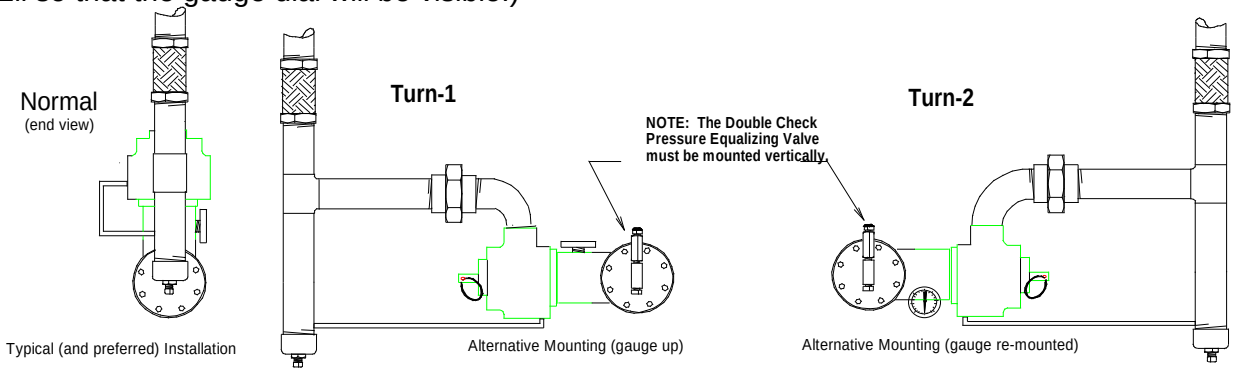
ONLY IF ABSOLUTELY NECESSARY, the RS-2 can be mounted in positions other than the preferred “Typical Installation” position illustrated in Figure 1 on page 8 (***but not upside down***). See the following illustrations for other possible mounting positions.

NOTE: *If the RS-2* ***RuptureSeal***™ *valve is mounted in positions other than vertical, its opening pressure will be lower than the factory setting of 15 psi (the valve is calibrated by the manufacturer for vertical mounting). This will not negatively effect the valve’s flow capacity. The valve’s opening and re-sealing point will be slightly lower than its normal set point, however the intended purpose and overall functioning of the* ***RuptureSeal***™ *will not be significantly effected.*

Mounting variations from rotating the valve body (7) **only**. The drawing below at the far left (Rotate-1) illustrates the typical valve mounting. The next drawing (Rotate -2) illustrates a mounting where the valve body has been rotated 90º clockwise. Rotate-3 illustrates a mounting where the valve body has been rotated 180º clockwise. Rotate-4 illustrates a mounting when the valve body has been rotated 270º clockwise.



Turning the carbon fragment collection trap chamber (10) **and rotating the valve body** (7). The drawing below on the left (“Normal”) again illustrates (from a different view) the typical (and recommended) valve mounting. The center drawing, (Turn-1) illustrates where the carbon fragment collection trap chamber has been turned 90º to the left, and the valve body has been rotated clockwise 270º. The drawing on the right, (Turn-2) illustrates the carbon fragment collection trap chamber turned 90º to the right, and the valve body rotated 90º clockwise. (If the RS-2 is mounted as in the Turn-2 position, it will be necessary to re-mount the Tell-tale pressure gauge using a 1/8” NPT 90 Ell so that the gauge dial will be visible.)



Warning: Regardless of mounting position of the RS-2, the Double Check Pressure Equalizing Valve (22) **MUST be mounted in a vertical position with the filter/vent** (34) **pointing up (é). Any position other than with the filter/vent end pointing up will create a serious safety hazard. (Mounting the double check pressure equalizing valve** (22) **vertically may require additional fittings.)**

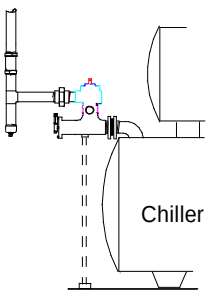
Appendix “C” (continued)

Variations in RS-2 valve mountings to a chiller’s rupture disk.

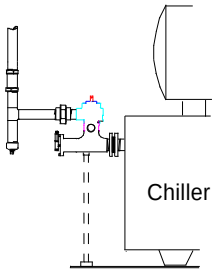
The **RuptureSeal**™ is designed to be installed directly into the outer flange of the chiller’s rupture disk, **WITHOUT THE USE OF A 45º or 90º ELBOW TURN BETWEEN THE RUPTURE DISK AND THE RuptureSeal™,** or any piping extensions. It is highly recommended that the **RuptureSeal**™ be mounted in one of the “Preferred” ways illustrated below.

However, if you have a situation where the **RuptureSeal**™ cannot be mounted in one of the “Preferred” arrangements illustrated below, then you can use a straight extension pipe between the rupture disk and the **RuptureSeal**™, of **UP TO A MAXIMUM OF FOURTEEN INCHES (14”) IN LENGTH** (see sample illustrations below).

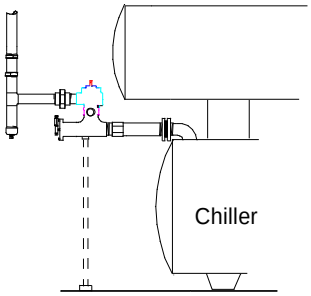
If a typical installation or an installation with a straight pipe extension is not possible, you may have to modify the chiller by putting a 45º or 90º elbow **BEFORE THE RUPTURE DISK**. The **RuptureSeal**™ valve can then be mounted to the outer rupture disk flange to assure that, if there is a rupture, all of the carbon fragments of the disk will be projected straight into the **RuptureSeal**™ carbon fragment collection trap.



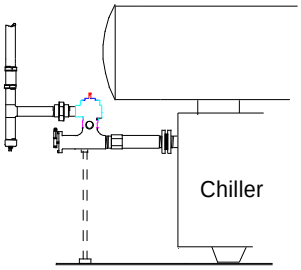
Preferred Installation - 1



Preferred Installation - 2

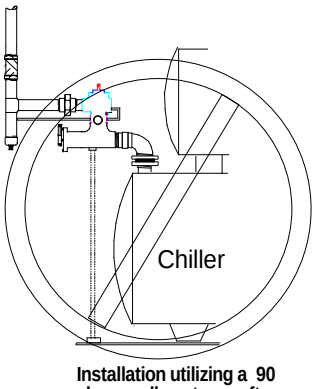


Alternate - 1 (with 14" pipe extension)

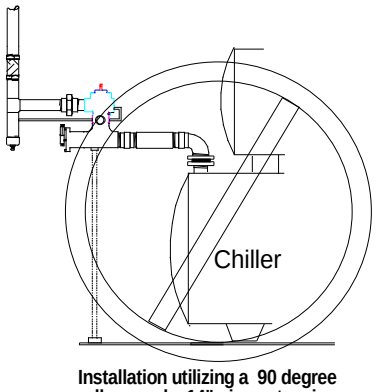


Alternate - 2 (with 14" pipe extension)

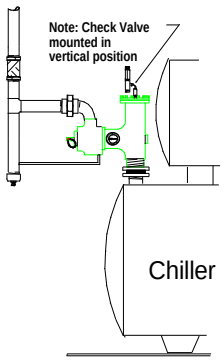
Caution: DO NOT ATTEMPT TO MOUNT THE RuptureSeal™ UTILIZING A 45º or 90º ELBOW TURN AFTER THE RUPUTRE DISK, OR UTILIZING BOTH A 45º or 90º ELBOW TURN AND A PIPE EXTENSION BETWEEN THE CHILLER’S RUPTURE DISK AND THE RuptureSeal™. In the event of a rupture, this could inhibit the normal functioning of the carbon fragment collection trap and thereby cause the valve not to work properly. (See illustrations of the two types of prohibited installations on the left below.



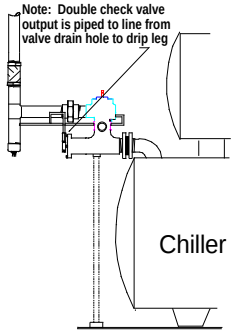
Installation utilizing a 90 degree elbow turan after the chiller's rupture disk (NOT AUTHORIZED)



Installation utilizing a 90 degree elbow and a 14" pipe extension after the chiller's rupture disk (NOT AUTHORIZED)



Alternate - 3



Typical Installation on chillers using R-123

Parts List for RS-2

Name of Part	Part Number
1. RS-2 TACK Kit	RS-2 TACK
2. 30” Hg - 0 - 30 psi GAUGE	RS-G1
3. Double Check Pressure Equalizing Valve	RS-DCV1
O-Ring type & sizes:	
Valve seat O-Ring	**Parker - #2-133-V747-75**
Valve body O-Ring	**Parker - #2-145-N674-70**
Collection chamber flange O-Ring	**Parker - #2-235-V747-75**

All other parts of the valve are internal and cannot be replaced in the field. If any internal part needs to be replaced, the **RuptureSeal**™ must be returned to Equipment Servicing for repairs.

Redi Controls, Inc.

Equipment Warranty

Subject to the terms below, **REDI CONTROLS** will, within one year after date of purchase, repair any **REDI CONTROLS'** product being used by the original purchaser, which is defective due to faulty materials or workmanship. **REDI CONTROLS** has the right to repair or replace a defective part or replace the entire product.

To file a Warranty claim on any system or component, return the defective unit to the address below, or other location as REDI CONTROLS directs, freight prepaid.

This Warranty <u>does not</u> apply to or cover:

- Damages beyond **REDI CONTROLS'** control.
- Malfunctions that result from failure to properly install, operate or maintain a product in accordance with instructions provided by **REDI CONTROLS**.
- Failures of equipment due to abuse, accident or negligence.
- Damages from, or part failures due to equipment not being installed per **REDI CONTROLS'** instructions, per applicable codes or ordinances, or in accordance with good trade practices.
- Labor or other charges incurred in removing or reinstalling any **REDI CONTROLS** product or part.
- Damages resulting from use of a **REDI CONTROLS** product for any purpose other than for which it was designed and manufactured.
- Any implied warranty of merchantability or fitness for any particular purpose, occurring after the Warranty Period.
- Loss of use, loss of time, inconvenience, rental for substitute products, loss of business, loss of income, or any other consequential damages resulting from use or failure of any **REDI CONTROLS** product.

Send inquiries to: **REDI CONTROLS** at 755 E. Main Street, Greenwood, Indiana, 46143

REDI CONTROLS, INC.

(317) 865-4130