

# RUPTURE DISCS

The function of a Rupture Disc is to protect against accidental over-pressure of a pressure vessel due to system malfunction or fire. A Rupture Disc is generally used in combination with a Henry Technologies' Pressure Relief Valve.

## Applications

A Rupture Disc protects against any leakage or weeping of refrigerant through a relief valve. A rupture disc can also be used in combination with a pressure gauge and/or pressure switch to detect if a relief valve has discharged.

Henry Technologies' Rupture Discs are designed to operate with gases and should not be used to prevent liquid over-pressure.

The 55 Series brass Rupture Discs are suitable for use with HCFC and HFC refrigerants and their associated oils, as well as other industrial fluids non-corrosive to brass, silver and nickel.

The 56 Series stainless steel Rupture Discs are suitable for use with Ammonia, HCFC and HFC refrigerants and their associated oils, as well as other industrial fluids non-corrosive to steel, silver and nickel.

It is recommended that all high side Rupture Discs should be replaced at least every 2 years. All low side discs should be replaced at least every 5 years. These intervals may have to be reduced if other regulations apply.

## How it works

A foil disc is clamped in a holder. The disc is designed to burst at a pre-determined pressure - the set pressure. A reverse acting disc is used. This means that the disc is domed against the direction of the fluid pressure and designed to buckle due to compression forces, prior to bursting. Advantages of a reverse acting disc include being less sensitive to temperature, high operating pressures and improved fatigue life. Each disc is manufactured with a precision score mark. This score mark in combination with the buckling action causes the disc to burst. At burst, the disc is designed to hinge resulting in a large available flow area. The disc is designed to be non-fragmenting after rupturing.

## Main Features

- Proven safe design
- High flow capacity
- Compact
- Reverse acting, non-fragmenting disc
- 2X 1/8 NPT gauge ports
- Helium leak tested
- Non-standard pressure settings available on request

## Technical Specifications

Set pressure range (Brass) = 150 to 675 PSI (10.3 Bar to 46.5 Bar)

Set pressure range (Steel) = 150 to 450 PSI (10.3 Bar to 31.0 Bar)

Allowable operating temperature = -40°F to +225°F (-40°C to +107°C)

Henry Technologies' Rupture Discs are CE marked in accordance with PED. Additionally, all Rupture Discs are tested, certified and "UD" stamped to ASME Section VIII Div I.

## Materials of Construction

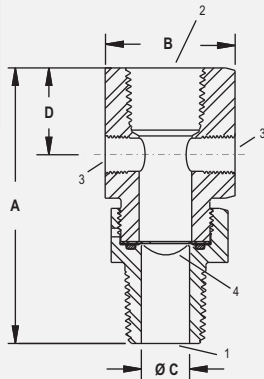
For 55 and 56 series, the main bodies are made from brass and stainless steel respectively. For both series, the foil disc is made from either silver or nickel depending on pressure setting.

## Installation - Notes

1. Connect the Rupture Disc either directly to the pressure vessel or to a three-way valve above the liquid refrigerant level in the vapor space.
2. The Rupture Disc is comprised of a two-piece body design. To avoid damage during assembly or removal, the product Installation Instructions must be followed.
3. The pipework must not impose loads on the rupture disc. Loads can occur due to misalignment, thermal expansion, discharge gas thrust, etc.



- ❶ Inlet
- ❷ Outlet
- ❸ Gauge port, 1/8 NPT
- ❹ Rupture disc



| Part No     | Type            | NPT (inch) |        | Dimensions (inch) |           |       |      | STD Rupture Disc setting at 72°F (PSI) | Capacity lbs. Air/min | Weight (lbs) |
|-------------|-----------------|------------|--------|-------------------|-----------|-------|------|--|-----------------------|--------------|
|             |                 | Inlet      | Outlet | A                 | B         | ØC    | D    |  |                       |              |
| 5525-235-CE | Brass           | 3/8        | 3/8    | 2.94              | 1-1/4 Hex | 0.375 | 0.79 | 235                                    | 25.5                  | 0.69         |
| 5525-300-CE |                 |            |        |                   |           |       |      | 300                                    | 32.2                  |              |
| 5525-350-CE |                 |            |        |                   |           |       |      | 350                                    | 37.3                  |              |
| 5525-400-CE |                 |            |        |                   |           |       |      | 400                                    | 42.5                  |              |
| 5525-450-CE |                 |            |        |                   |           |       |      | 450                                    | 47.6                  |              |
| 5525-600-CE |                 |            |        |                   |           |       |      | 600                                    | 63.0                  |              |
| 5525-650-CE |                 |            |        |                   |           |       |      | 650                                    | 68.1                  |              |
| 5526-235-CE | Brass           | 1/2        | 1/2    | 2.62              | 1-1/4 Hex | 0.500 | 0.79 | 235                                    | 45.3                  | 0.68         |
| 5526-300-CE |                 |            |        |                   |           |       |      | 300                                    | 57.2                  |              |
| 5526-350-CE |                 |            |        |                   |           |       |      | 350                                    | 66.3                  |              |
| 5526-400-CE |                 |            |        |                   |           |       |      | 400                                    | 75.5                  |              |
| 5526-450-CE |                 |            |        |                   |           |       |      | 450                                    | 84.6                  |              |
| 5526-600-CE |                 |            |        |                   |           |       |      | 600                                    | 110.8                 |              |
| 5526-650-CE |                 |            |        |                   |           |       |      | 650                                    | 119.8                 |              |
| 5626-150-CE | Stainless Steel | 1/2        | 1/2    | 2.96              | Ø1.13     | 0.500 | 0.92 | 150                                    | 29.8                  | 0.62         |
| 5626-250-CE |                 |            |        |                   |           |       |      | 250                                    | 52.1                  |              |
| 5626-300-CE |                 |            |        |                   |           |       |      | 300                                    | 57.2                  |              |
| 5627-150-CE | Stainless Steel | 3/4        | 3/4    | 3.29              | Ø1.50     | 0.750 | 0.92 | 150                                    | 35.8                  | 1.44         |
| 5627-250-CE |                 |            |        |                   |           |       |      | 250                                    | 57.7                  |              |
| 5627-300-CE |                 |            |        |                   |           |       |      | 300                                    | 68.7                  |              |
| 5628-150-CE | Stainless Steel | 1          | 1      | 3.73              | Ø1.72     | 1.000 | 1.27 | 150                                    | 67.1                  | 1.36         |
| 5628-250-CE |                 |            |        |                   |           |       |      | 250                                    | 108.2                 |              |
| 5628-300-CE |                 |            |        |                   |           |       |      | 300                                    | 128.7                 |              |
| 5629-150-CE | Stainless Steel | 1-1/4      | 1-1/4  | 3.84              | Ø1.98     | 1.312 | 1.27 | 150                                    | 91.4                  | 1.56         |
| 5629-250-CE |                 |            |        |                   |           |       |      | 250                                    | 147.2                 |              |
| 5629-300-CE |                 |            |        |                   |           |       |      | 300                                    | 175.2                 |              |

#### Selection Guidelines

- The Rupture Disc pressure setting should be the same as the Henry Technologies' Pressure Relief Valve setting.
- The stamped capacity of a spring loaded Pressure Relief Valve when installed with a Rupture Disc between the inlet of the valve and the vessel shall be multiplied by a factor 0.90 of the rated relieving capacity of the Pressure Relief Valve alone.
- The stamped burst pressure is subject to a manufacturing tolerance of +/- 5%. This tolerance should be taken into account when specifying a Rupture Disc setting (refer to table).
- It is recommended that the maximum operating pressure of the system is no more than 70% of the stamped burst pressure, in order to minimize the risk of premature fatigue failure of the disc. If operating pressures exceed 90% of the stamped burst pressure, the Rupture Disc should be replaced immediately.
- The design fatigue strength of each Rupture Disc is 100,000 pressure cycles. Fatigue life will be reduced by excessive pressures or temperatures, corrosion, damage, etc.

#### Rupture Disc manufacturing tolerance

| Pressure setting (PSI) | Pressure range (PSI) |
|------------------------|----------------------|
| 150                    | 143 - 158            |
| 200                    | 190 - 210            |
| 235                    | 223 - 247            |
| 250                    | 238 - 263            |
| 300                    | 285 - 315            |
| 350                    | 333 - 368            |
| 360                    | 342 - 378            |
| 400                    | 380 - 420            |
| 450                    | 428 - 473            |
| 600                    | 570 - 630            |
| 650                    | 618 - 683            |