

RUPTURE DISCS

The function of a Rupture Disc is to protect against over-pressure. For safety reasons, excessive over-pressure in any part of the refrigeration system must be avoided. 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 brass 55 series models are suitable for use with HCFC, HFC and CO₂ refrigerant gases. The stainless steel 56 series models are also suitable for ammonia.

In line with the Institute of Refrigeration Guidelines (UK), it is recommended that at least every 2 years all high side bursting discs should be replaced. At least every 5 years all low side bursting discs should be replaced. 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
- CE marked
- High flow capacity
- Compact
- Reverse acting, non-fragmenting disc
- 2 x 1/8 NPT pressure ports
- Helium leak tested
- Pressure settings up to 130 barg available on request
- EN ISO 4126-2 Compliant

Technical Specification

Set pressure range = 10.3 to 31 barg

Set pressure range = 10.3 to 130 barg (5526 series)

Allowable operating temperature = -40°C to +107°C

Materials of Construction

For 55 and 56 series, the main bodies are made from brass and stainless steel respectively.

The foil disc is made from Nickel alloy.



Tolerance Guidelines

As per industry standards, rupture disc rated burst pressures are subject to a performance tolerance.

When specifying a disc, the nominal pressure setting should be quoted as part of the part number (see table below). The rupture disc will be provided with a rated burst pressure stamped on the body, which is the average of all burst tests carried out on the batch of discs. As a result, the rated burst pressure may differ slightly from the nominal setting depending on the manufacturing tolerance for the specific batch of discs. This manufacturing tolerance will never be greater than +/-5% and in the majority of cases is significantly less.

The rated burst pressure is subject to a performance tolerance of +/-5%. Examples of actual burst pressure ranges are shown in the table below for a selection of typical rated pressure settings.

Performance Tolerance Examples	
Rated Burst Pressure (barg)	Burst Pressure Range (barg)
10.3	9.8 - 10.8
14	13.3 - 14.7
16.2	15.4 - 17.0
17.2	16.3 - 18.0
20.7	19.7 - 21.7
24.1	22.9 - 25.3
24.8	23.6 - 26.0
25.9	24.6 - 27.2
27.6	26.2 - 29.0
31	29.5 - 32.6
40	38 - 42