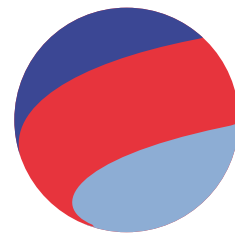




RUPTURE DISC

PRODUCT CATALOGUE



Pesflow
ONE STOP INDUSTRIAL VALVE SOLUTIONS

RUPTURE DISC

INTRODUCTION

Rupture discs are designed as one-time-use pressure relief mechanisms to safeguard tanks, pipes, and other pressurized components from excessive pressure or vacuum. They find application both in standalone and multiple-device relief setups, including serving as backup pressure relief devices. The simplicity and reliability of rupture discs stem from their lack of moving parts, ensuring rapid response compared to other pressure relief options. These devices are particularly effective against sudden pressure surges and are lightweight, enabling the use of high-alloy and corrosion-resistant materials which might be impractical for Pressure Relief Valves (PRVs).



Rupture discs also exhibit sensitivity to temperature changes. The burst pressure of these devices can significantly fluctuate based on their temperature, which might differ from the operating temperature of the fluid. As temperature increases, the burst pressure typically decreases. Rupture discs are versatile, designed for both gas (vapor) and liquid pressure relief scenarios, including those involving high viscosity fluids. When deploying rupture discs for liquid applications, careful consideration is required to ensure the disc design is apt for such service. They are quick to respond to pressure changes, making them applicable for a wide range of pressure relief tasks. These devices are crucial for preventing excessive pressure or vacuum hazards in various processes, safeguarding personnel, the environment, equipment, and the facility. Rupture discs are often used upstream of PRVs to create a sealed system for emission standards compliance, provide corrosion protection to the valve, and minimize valve maintenance requirements.

Perfect Engineering Services emphasizes the importance of rupture pressure in the safety mechanism. When a rupture disc is installed before a PRV, it's essential that both devices are closely connected, sharing the same nominal burst and set pressure values. This close coupling is crucial in liquid service to minimize shock impact on the valve. According to the ASME Code's UG-127, the space between the rupture disc and PRV must have a free vent, pressure gauge, try-cock, or an appropriate indicator to avoid undetected back-pressure buildup, potentially preventing the disc from bursting within its specified tolerance due to corrosion-induced leakage or other issues. Installing a rupture disc on the PRV's outlet can also protect the valve from being exposed to atmospheric or downstream fluids, ensuring that the valve opens at the correct pressure regardless of any accumulating backpressure.

TYPES & GENERAL SPECIFICATIONS OF PRODUCT

There are several classification of Rupture disc but mainly it's classified by:



Use Of Rupture Disc

- ✔ Provide Protection to Personnel, Equipment and Plant.
- ✔ Passive non-mechanical devices. No Moving parts.
- ✔ Bubble-tight "Zero Leakage"
- ✔ Extremely fast opening providing instantaneous relief
- ✔ Available in a wide variety of corrosion resistant materials
- ✔ Protects safety relief valves against corrosion, Plugging and Leakage.

Industries Use Of Rupture Disc

Chemical Plants

Nuclear

Railway

Oil and Gas

Shipping

Aerospace

Synthetics/Rubber

Pulp and Paper

Aviation

Utilities/Power Generation

Food Processing Pharmaceutical

Product General Specifications



Model No: FDI-RD-703 RUPTURE DISC

Available Sizes:

1/2" prime prime to 24" + and different sizes as per customer request.

Material of Construction:

ASTM A216 GR. WCB (CS), SS 304, SS 316, Hastelloy C, PTFE, etc. as per Standards and Customer Request.

Pressure Setting:

as per customer requirements.

Connection Type:

Flanged ANSI B 16.5 #150, #300, #600, Clip on and other as per customer requirements.

Product Sizing:

Design/Vent Sizing are as per:
API 2000 7th Edition, API 520, API 526, API 527

Construction:

Corrosion Resistant Construction
Cast Body/Manufactured Smooth Surface.

Other Types:

Forward Acting, Reverse Acting, Compact, etc.
Contact Sales Team for More Information.

INSTALLATION

SAFETY PRECAUTIONS BEFORE INSTALLATION

Handling and installation of a rupture disc require careful attention due to its precision-engineered nature. Only individuals with expertise in rupture disc systems and proper piping techniques should undertake the installation process.

A pre-chlorination score, factory-applied, is present on the concave side of the rupture disc's dome for identification.

Installation of the rupture disc should be avoided if any damage, such as visible scratches or deformations, is observed on the dome area. A rupture disc is considered damaged if there are noticeable nicks or dents present.

Perfect Engineering Services advises against reinstalling a rupture disc once it has been removed from its holder, as reinstallation might negatively impact its seal integrity and overall functionality.

It is crucial to consult the rupture disc's identification tag to confirm its set pressure, operational temperature, and other relevant operating conditions before installation.

TYPES OF EXPLOSION

- **Bursting of Rupture Discs**
- **Steam Explosions**
- **Explosions from Chemical Reactions during Thermite Activation**

To mitigate risks and prevent damage or injuries from these explosions, the following safety measures are recommended:

- To prevent explosions caused by the bursting of rupture discs, it's advisable to directly connect the relief section to the furnace.
- Conducting thermite reactions should occur in spacious, open areas, ensuring no personnel are within a minimum distance of 100 meters.
- The quantity of the triggering mixture used should be precisely enough to initiate the thermite reaction, avoiding excess.

SETTING UP HOLDERS FOR RUPTURE DISC INSTALLATION

For New Setups:

Ensure the sealing surfaces on both the inlet and outlet sides of the rupture disc holder are cleared of any debris or foreign materials.

For Replacing an Existing Disc:

If utilizing a Burst Disc Indicator (B.D.I.) Alarm System, first disconnect the alarm strip by detaching the B.D.I. connector from the lead wire connector.

Take the holder off the system and lay it on a stable, flat surface.

Begin disassembly by either loosening the pre-assembly screws or by taking off the cap screws located on the outlet side of the holder. For holders that require pre-torquing, remove the flange screws. Then, lift and set aside the outlet part of the holder to access and remove the expired rupture disc.

Thoroughly clean the sealing areas of both the holder inlet and outlet. These areas must be spotless and devoid of rust, corrosion, or any foreign substances to guarantee a secure seal. Cleaning with solvents, steel wool, or fine emery cloth is allowed. Avoid re-machining or using scrapers and abrasive materials.

Examine the sealing surfaces for any nicks, scratches, or pitting. Should any of these imperfections be detected, get in touch with the manufacturer for further instructions on repair.

Clear away any gasket remnants from the previous installation to ensure a clean surface for the new disc.

Assembly Instructions for Rupture Disc and Holder

Before assembly, carefully remove and discard any shipping protectors that come with the rupture disc. Avoid installing a shipping protector within the holder assembly.

Position the holder base on a flat surface, ensuring the alignment pins are facing upwards.

Lay the rupture disc onto the holder, dome side facing downwards, aligning it with the pins.

Carefully place the holder's top part over the rupture disc, aligning it with the pins to avoid any damage to the disc.

Secure the assembly by either tightening the pre-assembly screws or by fitting and tightening the outlet cap screws.

For bolted type holders, join the assembly loosely at first, then incrementally tighten the flange screws by hand. Apply a cross-tightening pattern, gradually increasing the torque in recommended increments until reaching the final torque value. Double-check all screws in sequence at the final torque to ensure proper application. Use alloy steel flange screws provided, as their minimum yield strength of 15 psi is crucial for satisfactory performance.

Preventive Maintenance Guidelines

Conduct risk assessments and schedule annual replacements of the rupture disc to prevent premature failure due to factors like severe pressure/vacuum cycles, corrosion, and temperature fluctuations. The actual service life depends on operating conditions and should be determined through experience.

Failure to periodically replace the rupture disc, especially under harsh conditions, may lead to its premature failure and the unintended release of process media.

To minimize downtime, it's advisable to keep three spare rupture discs in inventory for each active holder, adjusting the quantity based on the operating environment.

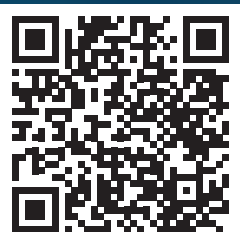
Disposal Recommendations

Return the used discs to us for responsible recycling and disposal. Users may dismantle the product in stages if necessary. Dispose of the materials through a state pollution board-certified recycler, ensuring environmentally safe handling.



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