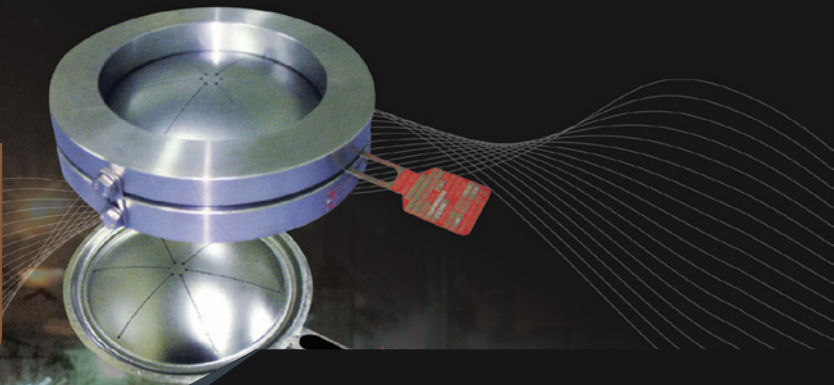


# Rupture Disc



## → General of Rupture Disc

### Situations that demand a Rupture Disc

- In case there is any concern that there can be an abrupt rise in pressure that cannot be endured by a spring type safety valve.
- In case there is any concern that fixtures generated by the operation state may damage the operation function of other safety materials owing to excessive pressure.
- In case the leakage of oil reserved in a tank from a safety device is not permitted during an operation.
- In case there is a need to have a protective device in preparation for a container and pipe that reserves or produces oil of a strong corrosive nature.
- In case of handling or reserving materials that are likely to undergo a synthetic reaction.
- In case there is a possibility that an excessively high or low temperature in the operational environment might inhibit the operation of a safety valve.

### Features of a Rupture Disc

- Special material and structure (wide array for the selection of materials)
- Accurate rupture pressure
- Instantaneous release of maximum capacity
- There is almost no limitation in the manufactured size and it can range from large to small
- There is a wide environment scope for use (strong corrosive nature, high temperature, low temperature, liquid, gas, steam, dust, powder, polymer, etc.)

### Strengths of a Rupture Disc

#### Complete tight seal

The biggest difference that distinguishes a rupture disc from a safety valve is whether the internal fluid is a complete tight seal.

#### Extension of safety valve life

A rupture disc takes the role of a solid metal blocking film between a safety valve and a pressure system of process; therefore, it protects the safety valve from corrosion.

#### Possible to conduct a field test on a safety valve

When using a rupture disc that is separated from a safety valve, it is possible to conduct a field test on the safety valve.

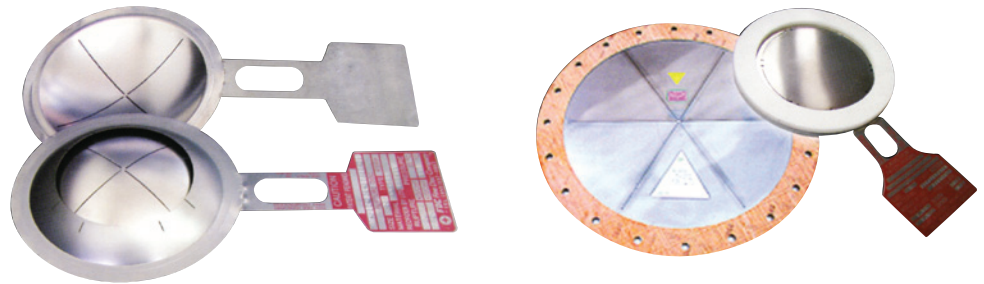
#### Extension of major overhaul period

Since the inside of valve and the rear part of the rupture disc are not exposed to pollution or corrosion, they remain clean.

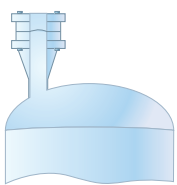
#### Cost reduction

Compared with highly priced safety valve, it is possible to reduce material costs with a rupture disc as rupture discs are inexpensive.

Rupture Disc

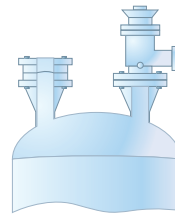


→ Applying Rupture Disc



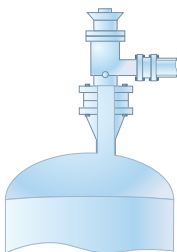
**Using as a single safety device (Primary case)**

According to the ASME Code, the rupture pressure should, when Rupture disc is used in single as a safety device, be set the lesser value for the MAWP of pressure vessel, and it must be able to prevent the pressure elevation more the 10% for the MAWP of pressure vessel or 3 psi.



**Using two or more safety device (Secondary case)**

According to the ASME Code, when multiple safety devices are used, it should be set the lesser value for the MAWP of pressure vessel for the only one device, and the set pressure for other devices shall not be surpassed the 105% of MAWP except FIRE CASE. In addition, it shall have the capacity for preventing the pressure elevation more than 16% for the MAWP of pressure vessel or 4 psi.

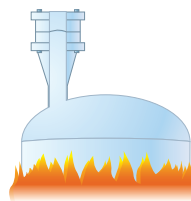


**Combining safety valve (Combination)**

Only if it is sufficiently guaranteed the outlet massflow of rupture disc, it can be installed between safety valve and process, or in the outlet of safety valve. This is for protecting safety valve from corrosion, and also preventing the leakage through valve.

When it is installed in inlet, it is recognized in the 90% of the practical outlet capacity (the practical capacity when it is passed the test under the same condition).

Combination with safety valve should not interfere with the function of it in rupturing or Rupture disc, and equipped with the sufficient space between safety valve and Rupture disc and monitoring device for pressure (pressure gauge, Excess Flow v/v, pressure switch, etc.



**Using as a safety device against exterior fire (Fire case)**

When it may have occurred the hazardous factors caused by a fire or unexpected exterior heat, it must be equipped the additional depressurizing device for protecting from excess pressure. In this case, it should have sufficient outlet capacity not to increase the pressure over than 21% of MAWP. Set pressure should not exceed the 120% of MAWP.

When compressed liquefied gas is stored in room temperature, which has no permanent connection part for providing, the depressurizing device must prevent the elevation of pressure over than 20% of MAWP.