

HOW TO DESIGN THE RIGHT GASKET

Gaskets are mechanical seals used to fill the gap between two mated components. When designed, constructed, and installed correctly, they prevent process fluids from escaping and contaminants from entering sensitive equipment.

As these sealing materials play a critical role in many fluid handling and processing operations, industry professionals follow strict guidelines dictating how to design, construct, and install them properly.

1 Construction Material

The construction material chosen largely determines how the gasket will perform. As such, it is essential to consider what qualities are expected of the finished gasket and what materials fit these requirements.

When vetting potential material options, some of the properties to keep in mind include:

- Density
- Hardness
- Elasticity

These properties are critical to the sealing performance of the gasket. However, the levels required depend on the system in which the gasket will be installed.

It may be helpful to acquire samples of materials to determine which one best fits a given system. Common materials include:

- Silicone
- Neoprene
- Nitrile



2 Gasket Design

The design of a gasket depends on the system in which it will be installed. Tailoring the gasket to fit snugly between the mated components is essential; otherwise, it will not function as intended.

The design elements to consider include:

- **Shape:** the geometric form of the gasket (from the face)
- **Cross-section:** the geometric form of the gasket (from the profile)
- **Thickness:** the distance between the gasket's faces



3 Application Environment

The operating and environmental conditions to which the gasket will be subjected affect what construction materials and gasket designs are appropriate.

When determining the first two factors, it is critical to keep in mind the following:

- What temperature ranges are expected?
- What operating pressures ranges are expected?
- What chemicals will the gasket be exposed to during operations and maintenance services?

The above list of questions is not all-inclusive. There are many other operating and environmental factors that can affect a gasket's performance.



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