

What to Consider When Upgrading or Changing Pre-Specified Gaskets

An important first step in the process is asking the question “Why do I need or want to change my gaskets?”

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Users at some point in their gasketing careers will have to consider alternative gaskets (styles and/or manufacturers) to replace those currently approved and installed at their facilities.

Before they can evaluate the gaskets, they must ask, “Why do I need or want to change my gaskets?” The answers will vary depending on the person, department, facility and corporate environment:

- The application has changed, and the existing gaskets no longer work or are not working as well.
- The department or company is looking to save on its short-term or long-term gasket spend.
- The service from the gasket supplier has changed, and a new supplier is being considered to better fit the service and support needs.
- The application remains the same, but gaskets seem to have started to fail sooner than the historical average.
- Someone is looking for longer service life to improve the return on investment (ROI).
- Environmental regulations impose new or different requirements.

One individual’s specific “why” may be different from another’s within the same company, even if they have access to the same information. But only once the “why” has been established can the “what” to change be considered.

One of the first places to start is to cross-reference existing gasket specifications for equivalency with the replacement candidates. Compare published typical physical properties information from the manufacturers. Sometimes this comparison can be confusing, because manufacturers do not always publish all of the detailed information that may be needed for analysis. A quick cross-reference can be done by comparing the American Society for Testing and Materials (ASTM) F104 line callout numbers associated with each material (see Figure 1).

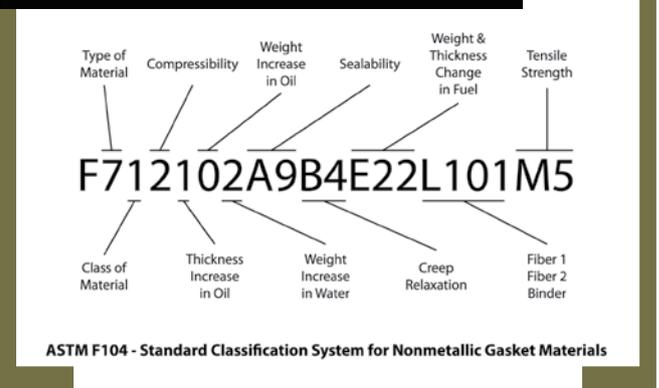
Most manufacturers publish for each of their products a complete F104 callout number that uses a specified format for easy comparison of data.

Additional gasket parameters, such as gasket factors, may exhibit enough difference to require changes to installation procedures. Perhaps a flange stress design restriction in the

past has limited the type of gasket to be used due to allowable load. Because products are made on different equipment using different recipes, installation parameters can vary enough to require more or less minimum loading in order to establish a leak-free seal. Changing the gasket may make sense, but additional training might be required to ensure that new installations are safe.

Next, determine if any application changes have occurred within the system. Perhaps some new equipment was installed that has boosted line pressure or insulating jackets have cooled or increased the media temperature. These changes often are not amended to the master process flow chart and are left as a subset of the original file, making them

Figure 1. An example of an ASTM F104 callout number (Courtesy of FSA)



easy to overlook. Changes in pressure or temperature can affect gasket performance requirements while still fitting into existing pipe and flange design parameters.

A new gasket, though similar on a technical level, may look or feel different than the gasket currently being used. These differences can make some stakeholders uncomfortable. Training may be required to educate people on the changes, including why they are necessary and what to expect with the new product.

To upgrade gaskets, the full operating parameters of the application or system with original design data should be compared to the current or new design data. The Fluid Sealing Association (FSA) has developed a Gasketed Joint Questionnaire for standard and non-standard flanges as a starting point for collecting information. Without complete and accurate data, making a change could increase the risk of an accident.

Fully assess the parameter(s) necessitating the upgrade: improved service life, temperature/pressure changes, a process fluid change, or a change to operating conditions. The next step is to narrow down new available material options.

Review the potential gaskets by their published data to ensure they meet the current or new design requirements. It is recommended to review the pressure-temperature graphs for operating safe zones if either of these conditions has changed over time. Published data only breaches the surface of the physical and performance data available. Work with applications engineers from the manufacturers of the material on the short list to be able to determine more definitively the suitability of the product to the application conditions.

Inevitably, someone will need or want to change from one gasket type/style to another. Determining why the change is needed is necessary to properly make the selection of new materials. Once the individual is satisfied with the reason for making the change, then it is important to determine what to change.

The analytical criteria previously provided are meant to be a starting point for a simple cross-reference or a complete upgrade. As always, it is recommended to consult the gasket supplier or manufacturer.

Without the “why,” the “what” may not matter. ■

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