

Gasket Installation Instructions



ISO 9001

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The global leader in static sealing

■ Before you begin

The successful operation of a gasket depends upon a multiplicity of factors. When deciding on a gasket for a given application, selection of the correct gasket material involves a logical series of consideration. Very basic reasons often lead to leakage in flange assemblies, and in most cases it is not just the gasket but also the human element. Since conditions of use are beyond our control, users must satisfy themselves that products are suitable for the intended processes and uses.

This document provides guidance to maintenance operators, engineers, and fitters to ensure successful gasket installation and assembly of bolted flange connections. However always check plant-approved installation procedures first.

Tools Needed

Specific tools are required for cleaning the flange and tensioning the bolts. Always use standard safety equipment and follow good safety practices. The following tools are required for removal of the old gasket and installation of the new gasket:

- Calibrated torque wrench or hydraulic tensioner
- Brass wire brush
- Personal safety equipment
- Lubricants for the bolts (if specified)
- Other plant-specified equipment

Clean and Examine

Clean and examine the flange surfaces. Make sure all foreign material and debris from the flange surfaces, fasteners (bolts or studs), nuts and washers are removed. Use a brass wire brush in the direction of the grooves to clean the flange surfaces.

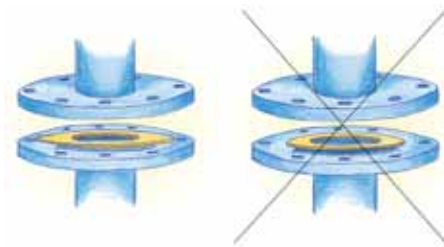


Examine the flange surfaces, fasteners (bolts or studs), nuts and washers to ensure they do not have any serious defects. Replace any components if found to be defective. If in doubt, seek advice.

■ Gasket Dimensions

Ensure the gasket is the correct size.

The inner diameter of the gasket should not be smaller than the inner diameter of the flange.



Do not use a thicker gasket material or "stacked gaskets" to solve a gasket problem without first consulting the manufacturer.

Cut the bolt holes slightly larger than the bolts to simplify the centralization of the gasket.



Storage and Handling

The gasket should be stored horizontally to avoid tensions and warping. Ideal storage conditions are in a clean area (ideally in a plastic bag) at <math><75^{\circ}\text{F}</math>, 50 - 60% humidity, and out of direct light.

All types of gaskets should be handled with care. Carry gaskets carefully, ideally in some form of protective cover.

Protect the surfaces and never bend or write on the gasket.

Gasket Installation Instructions

■ Bolts, Nuts, and Washers

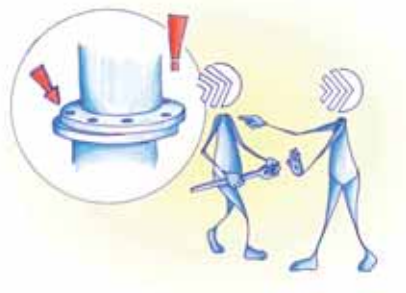
Be sure to install the bolts that are designed for the flange and suitable for the given operating temperatures. Ensure that there is no corrosion on the bolts as this can effect the function of the bolt. Never re-use bolts.

Use a nut which has a specified proof lead 20% greater than the ultimate strength of the fastener. Use standard threads, rather than fine, and use the correct lubricant.

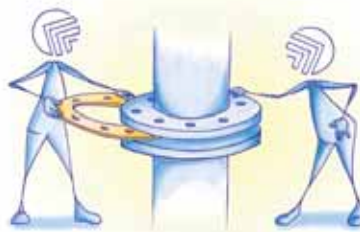
Use the same material for the washers and the nuts. Use washers to bridge slotted or oversized holes, even interface forces between joint components, and/or reduce problems of fatigue by spreading the load placed by the fastener on the joint.

■ Gasket Installation

Align the flange faces and bolt holes and report all irregularities.



Assure the gasket is the specified size and material and ensure that it is free of defects. Carefully insert the gasket between the dry flanges. Make sure the gasket is centered between the flanges. Do not use joint compounds or release agents on the gasket or seating surfaces unless specified by the gasket manufacturer as this can lead to reduced surface friction.



Bring the flanges together ensuring the gasket is not pinched or damaged.

Lubrication of Bolts

Uniformly apply lubricant to the bolt and the nut threads as well as to the face of the nut to reduce friction with tightening.

Do not contaminate the gasket or the flange surfaces with lubricant.

Be sure that the recommended service temperature of the lubricant is within the process service temperature limits.



Bolt Tightening

The required torque value can be calculated with KLINGER[®] expert gasket selection software.

Always use the proper tools such as a calibrated torque wrench. To achieve even compression of the gasket, make 5 passes each in a crisscross pattern to the required torque as follows:

1. Tighten all nuts initially by hand
2. Torque each nut to approximately 30% of the required torque
3. Torque each nut to approximately 60% of the required torque
4. Torque each nut to full torque.
5. Apply at least one final torque to all nuts in a clockwise direction until all torque is uniform.

Large-diameter flanges may require additional tightening passes.



Retightening

CAUTION: If retightening is considered necessary, this should only be done at ambient temperature and atmospheric pressure before or during the first start-up.

Never retighten compressed fiber gaskets after they have been exposed to elevated operating temperatures or extended operating temperatures.



Retorque fasteners exposed to aggressive thermal cycling once the joint is at ambient temperature.

All retorquing should be performed at ambient temperature and atmospheric pressure.

Re-use of Gaskets

For safety reasons, never re-use a gasket.



For assistance with selecting the correct Thermoseal gasket material for your sealing application, contact our Technical Experts at 1-800-990-7325.



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