

Installation instructions for **KLINGER®** gaskets

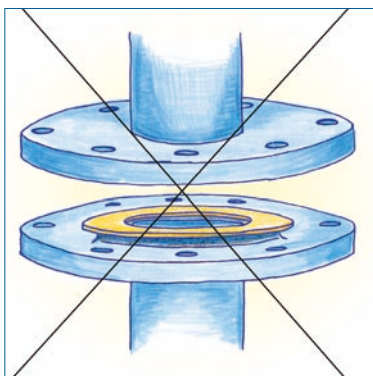
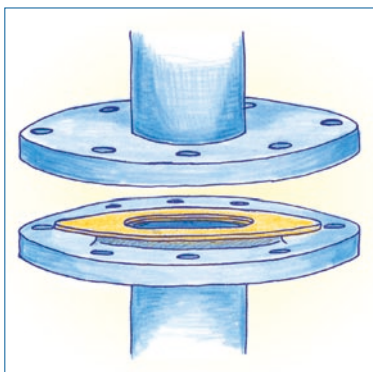
1. Gasket dimensions
2. Storage
3. Handling
4. Bolts/ Nuts/ Washers
5. Gasket installation

Installation instructions for KLINGER® gaskets

1. Gasket dimensions

Correct size

■ The gasket has to have the correct size.



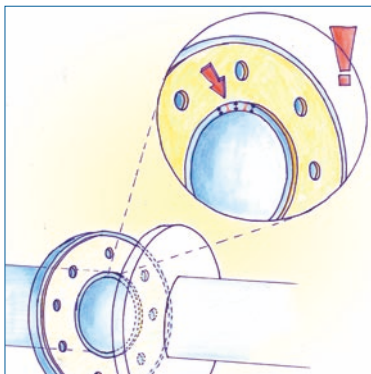
Bolt holes

■ Cut the bolt holes just a bit larger than the bolts to simplify the centralization of the gasket.



Inner diameter

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



2. Storage

Ideal storage conditions

■ The gasket should be stored horizontal to avoid tensions and permanent warpage.

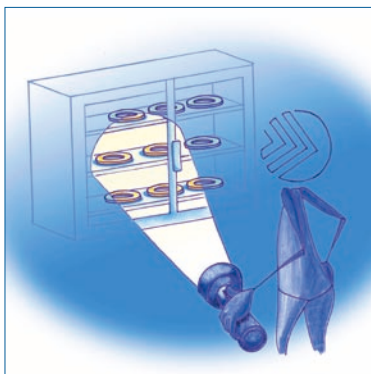
■ Ideal storage conditions are:

■ temperature < 25°C

■ air humidity 50 - 60%

■ Darkened storage room

Store the gasket in a clean condition (ideally in a plastic bag).

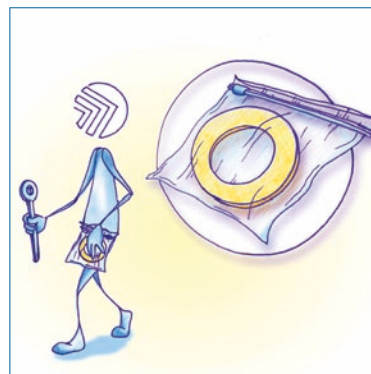


3. Handling

Protect the gasket

■ All types of gaskets (metallic gaskets, PTFE gaskets, fibre reinforced gaskets etc.) should be handled with the same care and attention.

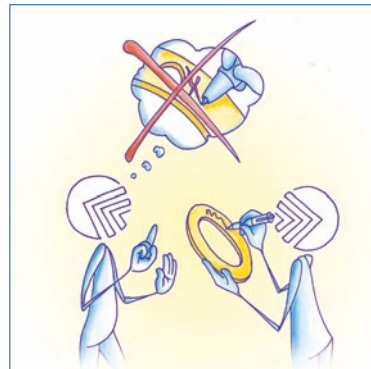
■ Avoid carrying small gaskets in a pocket to protect the gasket from damage.



■ Carry ready cutted gaskets carefully, ideally in some form of protective cover.

Protect the surface

■ Do not bend the gasket and do not damage the surface.



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4. Bolts/Nuts/Washers

Bolt properties

- Pay attention that all bolts which are designed for the flange are installed.
- Check if the used bolts are suitable for the given operating temperatures.
- Tighten the bolts cross-wise with the correct torque (calculation with KLINGER®expert 5.2).
- Ensure that there is no corrosion on the bolts because this can effect the function of the bolt.
- Never Re-use bolts.

Nut properties

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

Washers

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

5. Gasket installation

The tools

- At first make sure that the following tools are available and in good condition:
 - the correct gasket chosen for the specific application
 - a calibrated torque wrench
 - a wire brush
 - lubricants for the bolts.

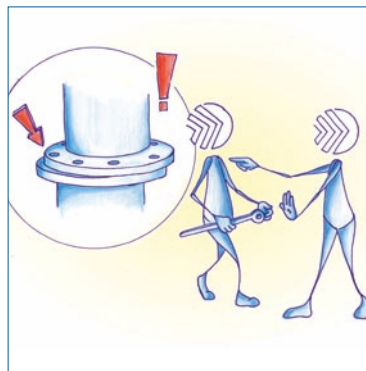
Cleaning of all flange surfaces

- Make sure that the flange surfaces are clean.
- Check the bolts and the flange surface if they are technically ok and free from any serious defects.
- Always brush in the direction of the grooves.
- To avoid damage on the flange surface please use a brass drift.



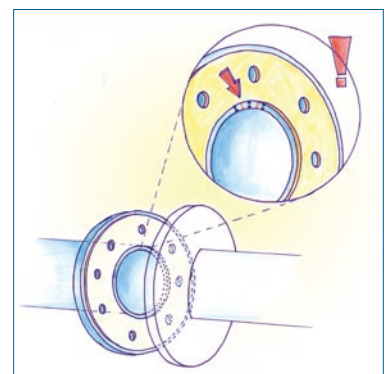
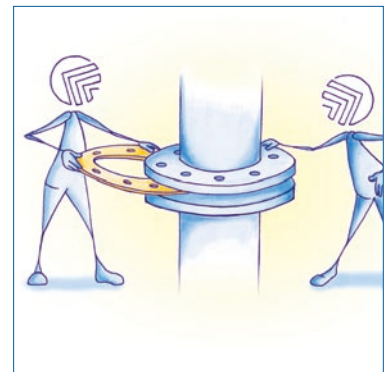
Flange conditions

- Make sure that the flanges are parallel and report all irregularities.



Important for the gasket

- Insert the gasket carefully between the flanges.
- The gasket has to be centralized in the flange.
- Ensure that the gasket is installed in a dry state.
- It is important that the gasket is not pinched or otherwise damaged when bringing the flanges together.



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5. Gasket installation

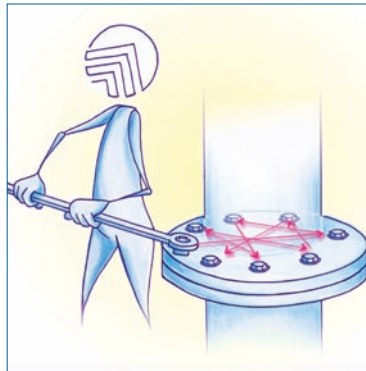
Lubrication of bolts

- Apply lubricant to the bolt and the nut threads as well as to the face of the nut to reduce friction when tightening
- Pay attention that the lubricant does not contaminate the gasket or the flange surfaces.
- The recommended service temperature of the lubricant has to be within the process service temperature limits.



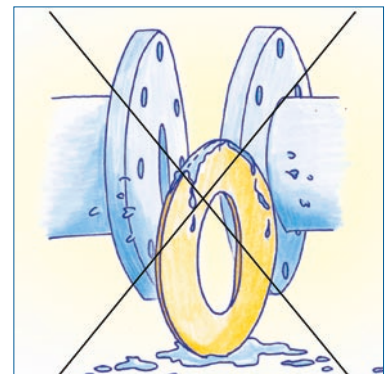
Bolt tightening

- The required torque value can be calculated with KLINGER®expert 5.2.
- Make at least 4 stages to the required torque as follows:
 - finger tighten bolts
 - use 30% of the required torque
 - use 60% of the required torque
 - use the full torque
- Close the torquing with one final pass in a clockwise sequence.



Re-use of gaskets

- For safety reasons never re-use a gasket.
- The cost of a gasket is minimal compared with the costs which will come into being of a down time of the plant.



Re-Tightening

- If retightening is considered necessary, this should only be done at ambient temperatures before or during the first start-up.
- Never retighten compressed fibre gaskets at higher operating temperatures and longer operating times.



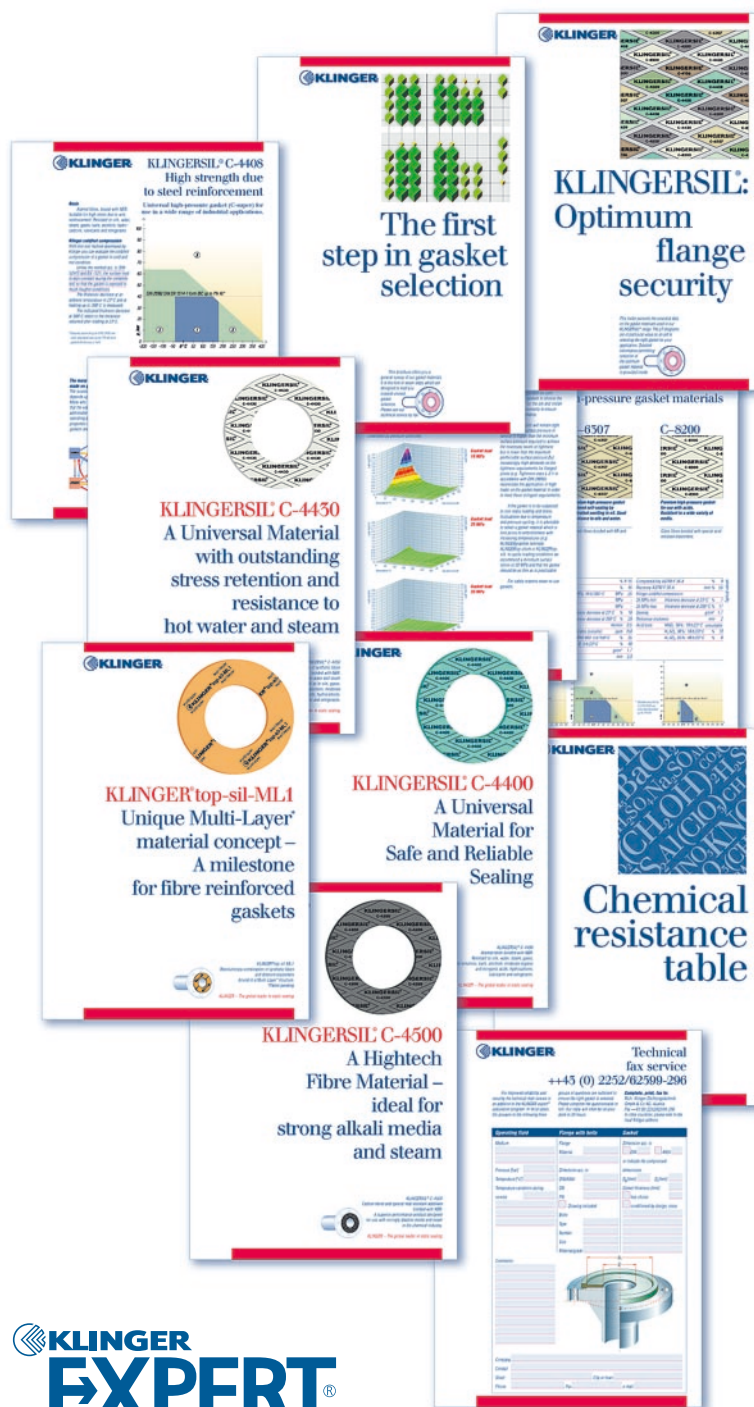


KLINGERexpert® 5.2.1 Powerful Sealing Calculation

The Klingerexpert® 5.2.1 gasket design program is a versatile piece of software to assist users in the selection of non-metallic gasket materials.

KLINGER – The global leader in static sealing

We have devised
a tried and tested method,
to guide you step by step to the right gasket
for your needs.



1. Applications overview:

The gasket characteristics compared with the criteria to be met in typical application.

2. Product documentation:

A separate data sheet is supplied for each gasket in our range.

The pT diagrams are an invaluable aid to selecting the gasket most suitable for a particular application.

3. Data on chemical resistance:

This section indicates the resistance of the individual Klinger gaskets to over 200 chemicals in common use.

4. Technical information by Fax:

Let us have the details of your particular gasket requirements and you will receive a prompt reply, in some cases within 24 hours.

5. Sealing calculations on your PC:

For the experienced specialist we have developed a powerful program which will answer all your questions on gasket construction, design and maintenance. We supply the software with on-line help.

6. Ideally you should run your own tests:

We will supply the materials you need to carry out tests under your own operating conditions.

7. On-sit advice:

With particularly difficult problems we shall be glad to advise you on-site. We can supply products adapted from our existing range or custom-formulated products.


**KLINGER
EXPERT®**

Powerful sealing calculation with
online help on CD-ROM



**Certified according to
DIN EN ISO 9001:2000**

Subject to technical alterations.
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