

# Important application parameters/ quality control

Due to the high demands on the safety of gasketed joints and the current requirements with respect to utmost tightness, choice and fitting of the right gasket with the proper expertise is a must.

Accordingly a number of requirements have to be met by the gasket materials and the complete flange joint to obtain a reliable sealing connection.

## **Adjustment to the unevenness of the sealing surface**

This depends on the compressibility of the gasket and the surface condition of the sealing surface and surface load.

## **Resistance to the fluid to be sealed**

When selecting the gasket, care should be taken to ensure that the sealing material is resistant to the fluid under service conditions.

In general, properly loaded gaskets show better resistance than underloaded gaskets.

## **Strength of the sealing connection**

The mechanical behaviour of the gasket is determined by the complete joint system.

Increasingly high requirements on the tightness of flange joint (e.g. tightness class LO.01) require the application of high surface loads on the gasket as the internal pressure is increased.

Under such operating conditions, the selected flange joint must be assessed for its suitability to these loads in order that mechanical overload is avoided.

A tight gasket joint requires a defined surface load.

The service life of the gasket also depends on the fact the gasket stress must always be higher than the minimum surface load required to prevent leaks.

Higher-loaded, but not overloaded, gaskets have a longer life than underloaded ones.

Special gasket materials for water/steam applications which display no embrittlement at temperature (e.g. KLINGERgraphite laminate, KLINGERtop chem, etc.) must be used if it cannot be guaranteed that the fitted gasket will only be subjected to static stresses, or if stress fluctuations can be assumed in discontinuous operation.

In the case of gaskets used in discontinuous water/steam circuits, we recommend a min. surface load in service of approx. 30 MPa.

In such applications, the gasket should be as thin as technically possible and practical.

## **Tightness**

Tightness depends on the surface load applied at fitting and in operation.

A gasket which is selected and fitted according to these instructions will have a long service life. For safety reasons, re-use of gaskets is not advisable.

## **Max. permissible surface load**

The max. permissible surface load of a gasket material is a function of pressure, temperature and gasket thickness and must not be surpassed.

The gasketed joint remains tight as long as the surface load present in service is higher than the required min. surface load and the max. permissible surface load  $\sigma_{B0}$  of the gasket is not surpassed.

The gasket characteristics required for Klinger gaskets are determined through special leak tests in an extensive series of measurements and form the basis for the KLINGER-expert® gasket selection program and the specifications in the product data sheets.

## **Required gasket thickness**

No general rule exists to determine the required gasket thickness. In most cases, 2 mm thickness will do.

Thinner gaskets allow higher surface loads.

## **Low-temperature range applications**

Klinger gaskets are also suitable for very low temperatures. A prerequisite for a tight connection is that the required surface load is maintained over the complete temperature range. Fluid resistance is guaranteed to  $-196^{\circ}\text{C}$ . In the low-temperature range, the material must not be exposed to additional loads.

## **Quality control**

Everybody in the Klinger organisation has been charged with defined quality functions within a total quality concept to achieve the objectives of the Klinger quality policy. These objectives and fundamental functions as well as the responsible departments are defined in the quality manual and include the following subjects:

- Innovative quality planning, initial samples, prototypes
- Supplier quality control
- Process inspection, release procedures, process control
- Inspection, measuring and test equipment, documentation, quality system controls