

# DIAMOND GASKETS

Diamond gaskets have proven excellent in high temperature engineering, high vacuum engineering, chemical and petrochemical industries as well as in nuclear technology. Diamond gaskets are metallic gaskets. Like all metal gaskets, they require high sealing surface pressures. As it is the "tip" of the diamond that bears pressure first of all, the necessary forces are much lower compared to other metal gaskets.

So that the diamond gasket does not damage the flanges, the gasket should have a lower hardness than the flange material.

In stainless steel flanges the diamond gasket is made of the same material. Gasket and flange have roughly the same hardness.

Diamond gaskets are also used with an inner or outer centring ring.

In order to meet all the requirements of day-to-day use we have extended the sealing ring to three profile widths, so that, in conjunction with the double-layering technique, there are effective sealing widths of 3.2; 4 and 4.85 mm available.

## Gasket profiles

Profile	Cross-section
H5-2 H5-2,5 H5-3	
H5-D2 H5-D2,5 H5-D3	

## Gasket profiles

Profile	Cross-section
B2	
B3	

**Dimensions:** Specified by client

**Materials:** 1.0333, 1.4571, 2.0090, 3.0255

## The H-gasket

A further development of the diamond gasket is the H-gasket. A H-gasket is a fully metal gasket consisting of a chamber ring and two and/or four sealing rings.

The ring, which is H-shaped in cross-section, chambered and load-bearing, should preferably be made from a hard and elastic material.

The end faces of the chamber ring should be sloped by 2° towards the flange surfaces, so that the security of the seal diameter  $d_Q$  is retained even if the flange is tilted. Both sealing rings are pentagonal in cross-section and are made of an easily-deformable, plastic metal. At very high pressures, two or three of the same kind of sealing ring can be arranged concentrically. The surface quality of the flange should be  $R_z < 16 \mu\text{m}$ .

Gasket Profile H 5 has the following special features:

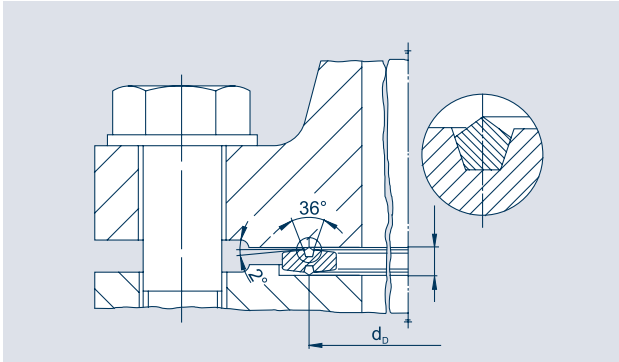
- » Low sealing forces, as the sealing width is only a few millimetres.
- » All deformation takes place during pre-deformation. No relaxation during operation, as the plastic sealing rings are chambered by the H-ring. The irregularities in the flange surface are filled in. There is excellent adaptability which can seal gases off effectively.
- » The cross-sectionally H-shaped ring can be reused. The sealing rings should however be replaced after every use. This is easy to do as the opening angle of the groove is at 36°.
- » The use of the gasket Profile H 5 is recommended everywhere where a defined installation height and/or a metallic contact is required. The combination of the small plastic sealing ring with the H-ring, which has a width of 15 to 40 mm, allows greater forces in the main flow to be conducted through the gasket. Edge pressure is avoided with the slant of 2°.
- » Can also be used in valve engineering, particularly in the area of complicated control fittings and auxiliary equipment.
- » Ideal for interstage pumping in nuclear installations using the double-profile H5-D. Design recommendations available on request.

Important: No sealing agents, such as solid lubricant paste, may be used with metal gaskets such as the H5 gasket.

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If these sealing agents are used they can cause indentations on the flange sealing surfaces, necessitating their repair before they can be reused.

## Installation sketch



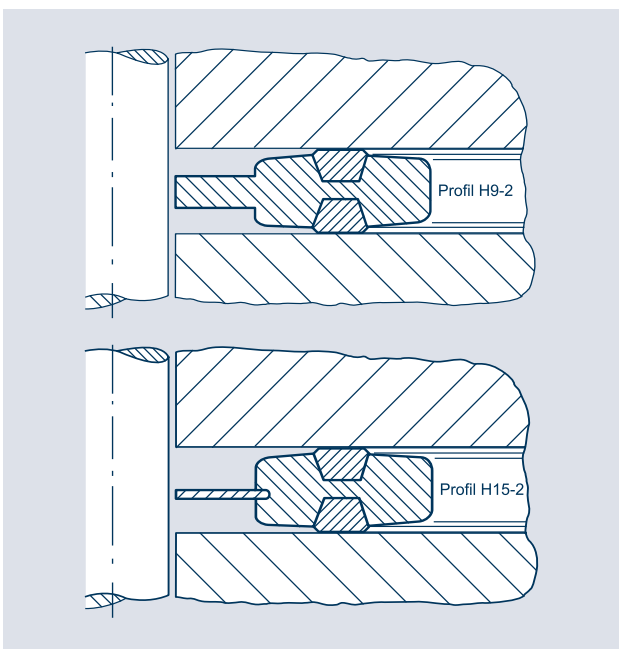
## Materials for the chamfering ring

1.4016, 1.4541, 1.4828, 1.5415, 1.7335, for technical data see "Materials commonly used".

## Materials for the sealing ring

1.0035, 2.0090, 2.3040, 2.4066, 3.0255, fine-grain silver, technical data can be found in "Materials commonly used".

If the gasket is to be installed between two smooth flanges, we recommend Profile H9 with centring ring and/or H15 with loose metal centring ring.

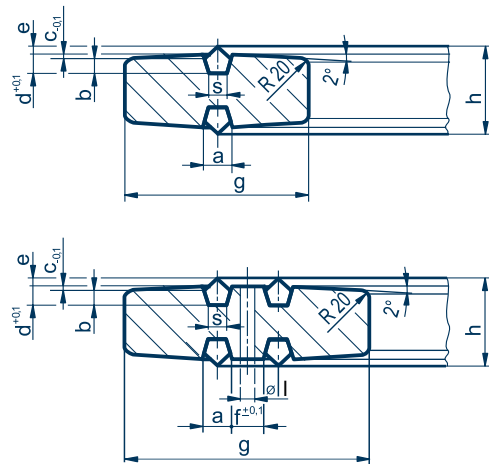


1) Specify material when placing order.

## Works standard 131

Ordering example for a H-gasket, Profile H5-2,  $d_1 = 90$  mm internal diameter,  $d_2 = 120$  mm external diameter, height = 8 mm in accordance with works standard 131, made from ...<sup>1)</sup>:

## Gasket H5-2, 90x120x8, WN131, 1.4541/3.0255



s	a	b	c	d	e~	f	$\phi l^*$
2,0	3,2	1,9	0,4	2,3	0,78	3,0	2,0
2,5	4,0	2,4	0,5	2,9	0,97	3,5	2,5
3,0	4,85	2,85	0,6	3,45	1,16	4,0	3,0

\* minimum of 2 boreholes on the circumference

## Measurement recommendations for the designing engineer:

Profile	Guideline values for height "h"			
	< 200	< 500	> 500	g
H5-2	8	9	10	15
H5-2,5	9	10	11	20
H5-3	10	11	12	25
H5-D2	8	9	10	25
H5-D2,5	9	10	11	30
H5-D3	10	11	12	40