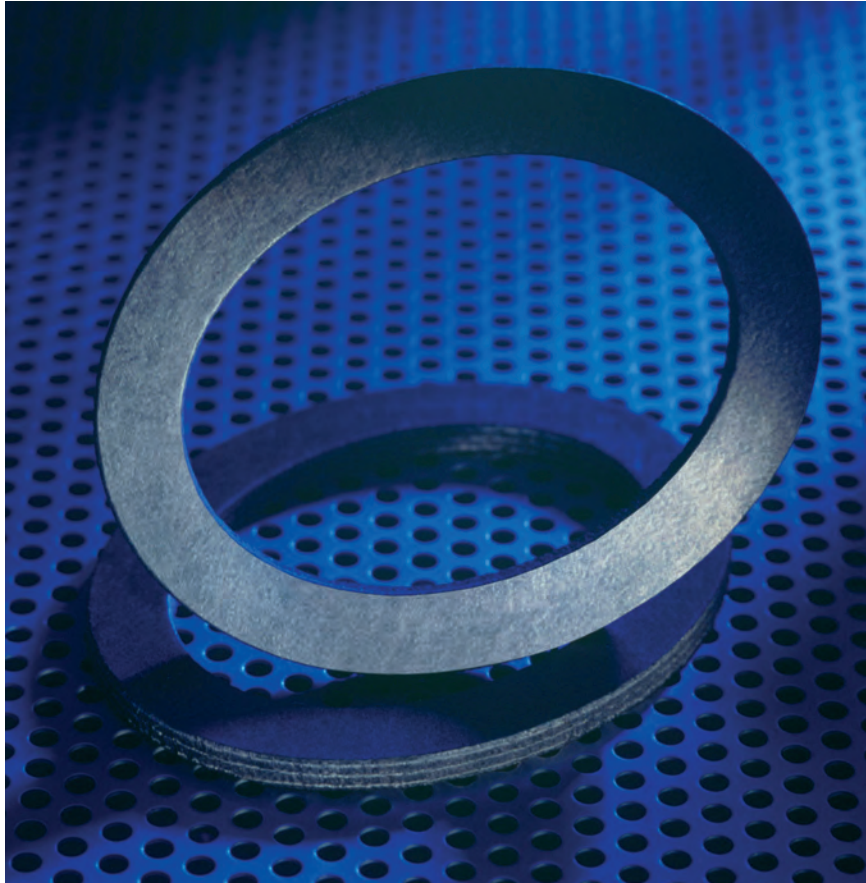


# KLINGER® Manhole Gasket

Oval Gaskets for Closing Devices according to TRD 401



**Applicable for temperatures up to approx. 450°C and pressure up to 60 bar – 100% resistant against steam**

In an inert atmosphere (no admission of oxygen) even suitable for higher temperatures.

#### No curing

No curing elastomeres, no additional filler, no fibres sensitive to hydrolysis.

#### Surfaces – No adhesion

The surface finish of the gasket is such that the surface has an extremely low adhesion. The gasket rings easily can be removed and the sealing faces are easy to clean. On request a special anti stick coating (A/S) is possible.

#### User and producer of boiler and plants waited over years for this gasket!

Finally there is a gasket meeting the special and difficult demands of handholes and manholes.

#### Typ KP-600/C-3 and Typ PSM-300/C-2

Ready-to-fit oval manhole gasket made of graphite with tanged stainless steel foil reinforcements of ISI 316 SS.

#### Basis

Expanded and precompressed pure graphite with high adaptability to the flange faces, reinforced by 2 or 3 tanged metal foils made of stainless steel AISI 316 SS.

#### Properties

- » No additional thickness loss under load and temperature
- » Excellent adaptability to the sealing surfaces
- » Outstanding micro-sealing
- » Very good applicable for steam and hot water at high temperatures
- » Chemically resistant against many media
- » Unlimited stability
- » Applicable for all hand-head and manhole closing devices according to TRD 40

#### Tests and Certifications

TRD 401 requirements  
TÜV approved – class d  
Admissible Pressure 40 bar  
Admissible Temperature 250°C  
Bauteilekennzeichen-Nr.  
TÜV.D.01-010.d

Typical values	Type	KP-600/C3	PSM-300/C2
Compressibility ASTM F 36 A	%	28 - 42	38 - 45
Recovery ASTM F 36 A	%	13 - 19	10 - 15
Residual stress according to DIN 52913	MPa	min. 48	min. 48
$\sigma$ BO at 300°C / DIN 28090	MPa	80	80
Density of the graphite layer	g/cm <sup>3</sup>	1,0	1,0
Purity of the graphite	%	98	98
Tanged metal reinforcement	number	3	2
Thickness of the gasket	mm	6	3

# KLINGER® Manhole Gasket

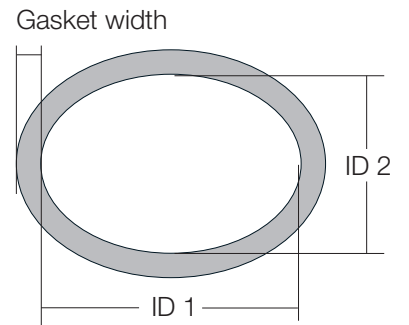
Standard sizes Typ KP-600/C-3

Inner diameter		width
ID 1	ID 2	
450	350	25
425	320	45
425	320	22
425	320	25
420	320	25
415	320	25
415	315	25
415	315	20
410	315	25
410	315	20
410	310	25
406	306	30
405	310	28
405	305	25
400	300	25
400	300	22
400	300	17
395	305	25
390	295	25
390	290	30
390	290	25
380	280	20
375	275	25
360	250	25
320	220	25
320	220	20
315	215	25
315	215	20
310	210	25
310	210	20
305	230	27
300	240	20
300	230	20
300	200	25
300	200	20
300	200	18
290	235	18
290	210	20
290	200	15
250	190	20
250	180	25
250	175	25
250	170	20
245	200	20
240	200	20

Inner diameter		width
ID 1	ID 2	
240	170	20
210	140	15
200	150	20
200	150	18
200	150	15
200	145	18
200	140	20
190	140	18
185	130	20
180	140	25
180	130	25
180	120	24
175	125	20
170	140	15
170	120	18
165	115	18
165	115	15
162	112	15
160	120	15
160	110	15
160	105	20
150	120	18
150	110	13
150	100	15
150	90	18
145	100	15
140	95	15
135	85	12
130	110	15
130	100	15
130	95	15
126	90	15
120	100	10
120	90	15
120	85	12
120	80	16
120	80	15
120	80	12
115	90	12
113	85	15
110	90	11
110	85	10
110	80	18
110	70	15
108	85	11

Inner diameter		width
ID 1	ID 2	
95	70	15

Size in mm



## Shapes

Ready-to-fit gasket ring according to our size table.

## Standard thickness

KP-600/C-3 = 6 mm

Other dimensions and gaskets Type PSM-300/C-2 on request.

# KLINGER® Manhole Gasket

Mounting/installation instructions Type KP-600/C-3 and PSM-300/C-2

## Mounting and installation instructions acc. to TRD 401

The metallic closing devices have to be made according to TRD 401 appendix 1. The closure must not jam. The gasket must correctly rest on the sealing face.

The sealing surfaces have to be parallel clean and dry. Raw, radial running surface defects (e.g. grooves caused by corrosion, mechanical damages or erosions) are not tolerable.

The gaskets have to be placed centrally. The lid has to have a clearance in both directions of about 1-2 mm.

The gasket must be in proper condition and checked about its applicability for the service.

The installation has to be performed dry without the addition of any grease- or oil containing agents.

The tolerances of flatness and parallelity of the mechanical sealing areas mentioned in the TRD 401 (1 mm for manhole and 0,5 mm for hand- and head-hole closing devices) should not totally be used for safety reasons. The required minimum surface load of the gasket could eventually not be reached by this reason.

## Torque

Gaskets of the type KLINGER® KP-600/C-3 and KLINGER® PSM-300/C-2 are always to be tightened with the maximum torque for the metal closing devices given by the producer.

With this torque the minimum required gasket load at parallel sealing surfaces will be reached.

Big deviations of the parallelity can cause a undercut of the minimum required gasket load and should be avoided.

The nuts have to be tightened evenly with the torque given by the producer of the closing device.

The screws should be lubricated. We propose the use of a lubricant for the screws to adjust the friction factor of the thread from 0,10 to 0,14.

## Guidelines for the torque of screws of the quality 5.6 are

M 16	100 Nm
M 20	200 Nm
M 24	350 Nm
M 30	650 Nm

After each opening of the lid a new gasket has to be used. Due to safety reasons we advise not to use gaskets several times.

During start-up of a vessel the nuts have to be retorqued constantly during increasing the pressure. After reaching the service conditions the nuts have to be checked and retorqued should the occasion arise.

Gaskets of the type KLINGER® PSM-300/C-2 and KLINGER® KP-600/C-3 can be stored for unlimited time.

The gaskets must be stored under dry conditions at room temperature. Under no circumstances the gasket should be mounted in a moist or wet condition.

## Function and durability

The performance and life of KLINGER gaskets depend in large measure on proper storage and fitting, factors beyond the manufacturer's control. We can, however, vouch for the excellent quality of the products.

With this in mind, please also observe our installation instructions and the application parameter.

Certified according to  
DIN EN ISO 9001:2015

Subject to technical  
alterations.  
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