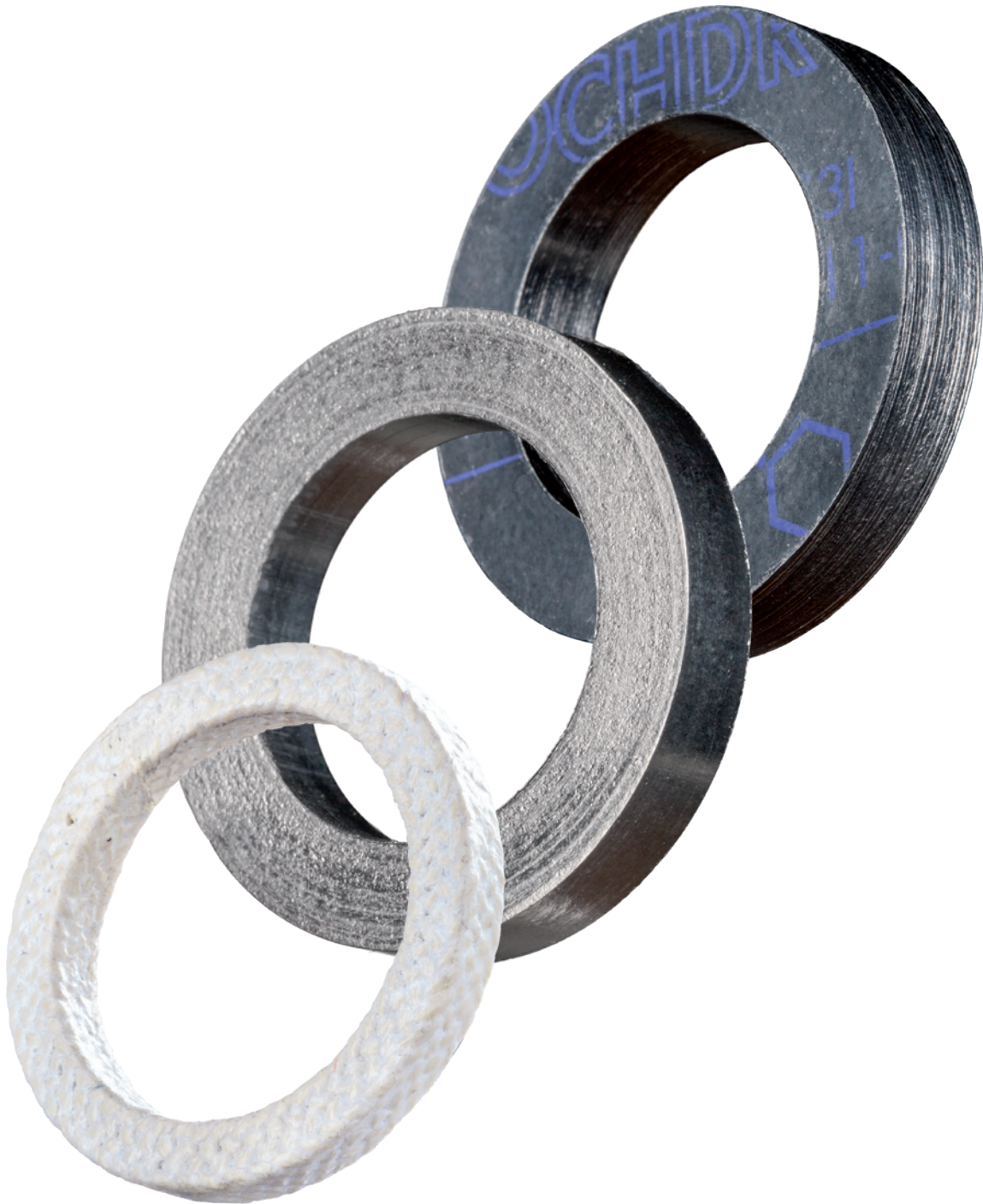
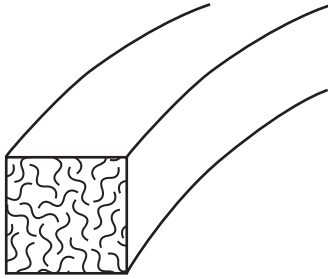


# Stuffing Box Packings Spindle Sealing Systems

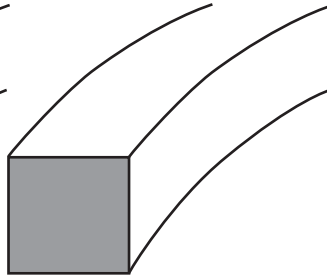


High safety and economy

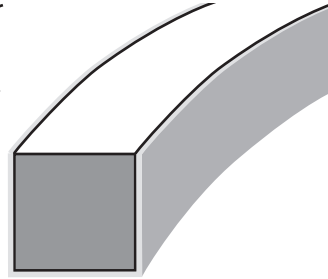
# Stuffing box packings



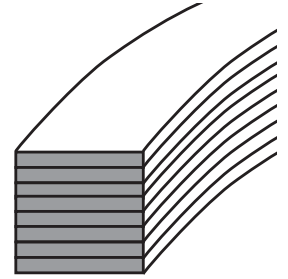
MMD-GP-C-MR



MMD-GP-MR



MMD-GP-MR-TFJ



MMD-GP-BOP

The design of the packing cords as yard ware allows a very flexible handling even for repairs, depending on different spindle diameters. The cross-sections are usually square, but can also be rectangular. Prepressed graphite rings are either in continuous or split design. The split design allows rings to be added without completely dismantling the stuffing box gland. If burst protection rings are used, it is recommended to split them diagonally slotted, so that they optically differ from the packing rings and cannot be confused.

As variants for stuffing box packings there are cords type MMD-GP-C (without illustration) as yard ware, but also compression molded rings type MMD-GP-C-MR, usually with diagonal slits. The packing is cut to the appropriate length and prepressed in a mould. The most common variant are molded rings type MMD-GP-MR made of graphite or PTFE-graphite compounds. For friction reduction and reduction of diffusion, the graphite packing ring can be provided with a PTFE jacket type MMD-GP-MR-TFJ. In order to safely prevent blowing out, compression molded graphite rings with burst protection rings (blow-out preventers) type MMD-GP-BOP made of laminated graphite flat gaskets are chambered with metallic smooth foil inserts.

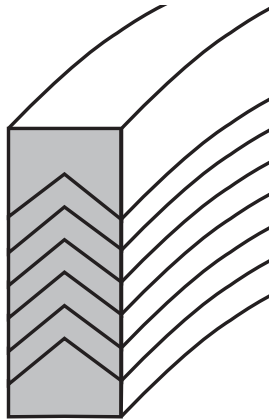
To reduce friction, the packing and burst protection rings can also be inserted alternately. The optimum quantity is three rings, more than five rings should not be used, if possible. In old fittings with often very high stuffing boxes it is recommended to use a lantern ring to replace the numerous stuffing boxes. For leakage detection, stuffing box packings above and below the lantern ring/ leakage detection ring can also be used.

## Materials

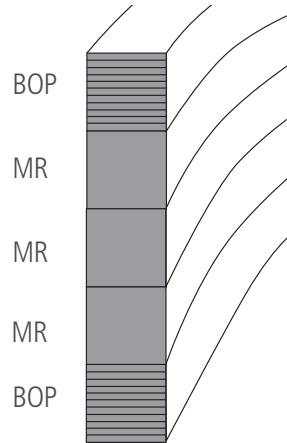
Various materials are used for packings and cords. Their material properties determine the application limits. The most common type are packings made of one material, with or without additional impregnation or lubricants.

Positive properties can be created by combining different packing yarns. Packings with cross braiding, supporting edges made of a stronger yarn, often aramid, chambers the PTFE or PTFE graphite fibers and improves the properties in oscillating movement. This makes them particularly suitable for piston pumps. A material combination of aramid and PTFE graphite, PTFE and PTFE graphite fibers or PTFE and aramid fibers as a hybrid braid, improves the properties in rotating movement and is therefore suitable especially for pumps with a high number of revolutions.

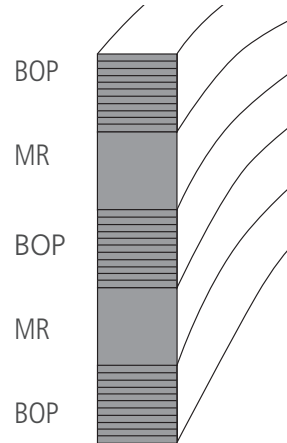
## Spindle sealing systems



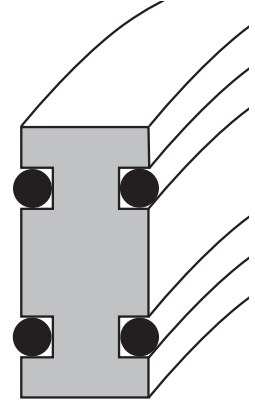
MMD-GSS-CHS



MMD-GSS-PC



MMD-GSS-PCM



MMD-GSS

It is easier to use spindle sealing systems (Gland-Sealing-Systems). The chevron sealings type MMDGSS-CHS are produced from PTFE, PTFE-graphite compounds or other materials. The pressure and support rings can also be made of metallic materials such as stainless steel or bronze. Systems made of laminated packing rings MMD-GP-MR or MMD-GP-MR-TFJ with burst protection rings MMD-GP-BOP are used in addition to the frequently applied systems. The versions with burst protection rings MMD-GSS-PC only generate higher friction forces than the mixed ring type MMD-GSS-PCM. Relatively low packing systems can be realized by laminating the burst protection rings only at half height on a packing ring. It is recommended not to use these systems in split design.

Increasingly, stuffing box packings are replaced by systems like the MMD-GSS type. Their advantage is the low leakage rate, the disadvantage is the maximum operating temperature which is reduced by the O-ring materials. The carriers can be made of elastomers (PEAK, PP etc.) or metallic materials.

## Packing rings - Designs



### Packing cords/stuffing boxes

We manufacture any desired package from:

- natural fibers
- aramid fibers
- PTFE-based fibers
- PTFE Fibers
- graphite fibers
- specialty fibers

### MMD-GP-C

#### Temperature resistance

Depending on material and design

#### Durability

Depending on material and design

#### Properties

- To optimize the packing cords for the respective application, these can be soaked with special preparations on customer request.

#### Technical properties

- Depending on material and design properties



### Packing ring

Wrapped from flexible graphite foil and pressed into shape  
(also divided)

#### Temperature resistance

-250°C to + 550°C

#### Durability

Against almost all media of organic chemistry  
Against almost all inorganic media

### MMD-GP-MR

#### Properties

- Maximum protection against oxidation
- High process reliability
- Long service life
- Good sealing of gases, liquids, fire-safe
- Harmless to health
- Resistant to aging
- Non-brittleness
- No electrostatic charge
- Long-term stable temperature change behavior

#### Technical properties

- Maximum pressure: 300 bar
- Maximum speed:
  - rotating: 5 m/s
  - oscillating: 2 m/s
- Purity 99,85%
- density 1.4-1.7 - tolerance  $\pm 0.05$
- complies with TA Luft

## Packing rings - Designs



### Packing ring

Wrapped from flexible graphite foil and pressed into shape – U-sleeve made of sintered PTFE

### Temperature resistance

-200°C to + 280°C

### Durability

Against almost all media of organic chemistry  
Against almost all inorganic media

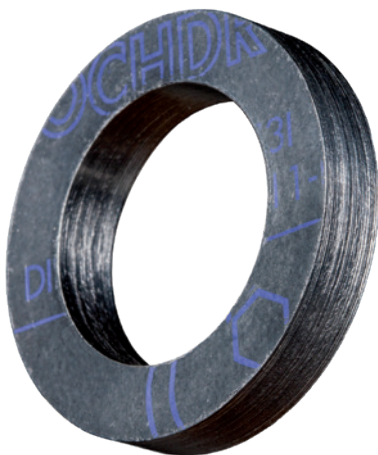
## MMD-GP-MR-TFJ

### Properties

- PTFE-shell: low friction and diffusion
- Maximum protection against oxidation
- High process reliability
- Long service life
- Good sealing of gases, liquids, fire-safe
- Harmless to health
- Resistant to aging
- Non-brittleness
- No electrostatic charge
- Long-term stable temperature change behavior

### Technical properties

- Maximum pressure: 300 bar
- Maximum speed:
  - rotating: 5 m/s
  - oscillating: 2 m/s
- Purity 99,85%
- density 1.4-1.7 - tolerance  $\pm 0.05$
- complies with TA Luft



### Layered packing ring

Wrapped from flexible graphite foil and pressed into shape (also divided)

### Temperature resistance

-250°C to + 550°C

### Durability

Against almost all media of organic chemistry  
Against almost all inorganic media

## MMD-GP-BOP

### Properties

- Maximum protection against oxidation
- High process reliability
- Long service life
- Good sealing of gases, liquids, fire-safe
- Harmless to health
- Resistant to aging
- Non-brittleness
- No electrostatic charge
- Long-term stable temperature change behavior

### Technical properties

- Maximum pressure: 1500 bar
- Maximum speed:
  - rotating: 0,2 m/s
  - oscillating: 2 m/s
- Purity 99,85%
- density min. 1.6 to 1.8 g/cm<sup>3</sup>
- Deviation of the preset density  $\pm 0.05$  g/cm<sup>3</sup>
- complies with TA Luft

# MMD-GP-MR | MMD-GP-BOP | MMD-GP-MR-TFJ

Dimensions mm						Type		
Inner-Ø	Tolerances	Outer-Ø	Tolerances	Height	Tolerances	MMD-GP-MR	MMD-GP-BOP	MMD-GP-MR-TFJ
10	+0.02/+0.1	20	-0.02/-0.1	5	-0.1/+0.3	X	X	X
12	+0.02/+0.1	20	-0.02/-0.1	4	-0.1/+0.3	X	X	X
12	+0.02/+0.1	22	-0.02/-0.1	5	-0.1/+0.3	X	X	X
12	+0.02/+0.1	24	-0.02/-0.1	6	-0.1/+0.3	X	X	X
14	+0.02/+0.1	22	-0.02/-0.1	4	-0.1/+0.3	X	X	X
14	+0.02/+0.1	22	-0.02/-0.1	5	-0.1/+0.3	X	X	X
14	+0.02/+0.1	24	-0.02/-0.1	5	-0.1/+0.3	X	X	X
14	+0.02/+0.1	26	-0.02/-0.1	6	-0.1/+0.3	X	X	X
15	+0.02/+0.1	25	-0.02/-0.1	5	-0.1/+0.3	X	X	X
15	+0.02/+0.1	25	-0.02/-0.1	6	-0.1/+0.3	X	X	X
16	+0.02/+0.1	24	-0.02/-0.1	4	-0.1/+0.3	X	X	X
16	+0.02/+0.1	24	-0.02/-0.1	6	-0.1/+0.3	X	X	X
16	+0.02/+0.1	25	-0.02/-0.1	4.5	-0.1/+0.3	X	X	X
16	+0.02/+0.1	26	-0.02/-0.1	5	-0.1/+0.3	X	X	X
16	+0.02/+0.1	28	-0.02/-0.1	6	-0.1/+0.3	X	X	X
16	+0.02/+0.1	32	-0.02/-0.1	5	-0.1/+0.3	X	X	X
16.5	+0.02/+0.1	28.5	-0.02/-0.1	6	-0.1/+0.3	X	X	X
18	+0.02/+0.1	30	-0.02/-0.1	6	-0.1/+0.3	X	X	X
18	+0.02/+0.1	32	-0.02/-0.1	7	-0.1/+0.3	X	X	X
20	+0.02/+0.1	30	-0.02/-0.1	5	-0.1/+0.3	X	X	X
20	+0.02/+0.1	32	-0.02/-0.1	6	-0.1/+0.3	X	X	X
20	+0.02/+0.1	33	-0.02/-0.1	6.5	-0.1/+0.3	X	X	X
22	+0.02/+0.1	34	-0.02/-0.1	6	-0.1/+0.3	X	X	X
24	+0.02/+0.1	36	-0.02/-0.1	6	-0.1/+0.3	X	X	X
24	+0.02/+0.1	38	-0.02/-0.1	7	-0.1/+0.3	X	X	X
24	+0.02/+0.1	40	-0.02/-0.1	8	-0.1/+0.3	X	X	X
24	+0.02/+0.1	44	-0.02/-0.1	10	-0.1/+0.3	X	X	X
25	+0.02/+0.1	37	-0.02/-0.1	6	-0.1/+0.3	X	X	X
25	+0.02/+0.1	41	-0.02/-0.1	8	-0.1/+0.3	X	X	X
26	+0.02/+0.1	38	-0.02/-0.1	6	-0.1/+0.3	X	X	X
26	+0.02/+0.1	39	-0.02/-0.1	6.5	-0.1/+0.3	X	X	X
26	+0.02/+0.1	42	-0.02/-0.1	8	-0.1/+0.3	X	X	X
26	+0.02/+0.1	46	-0.02/-0.1	10	-0.1/+0.3	X	X	X
27	+0.02/+0.1	40	-0.02/-0.1	6.5	-0.1/+0.3	X	X	X
28	+0.02/+0.1	40	-0.02/-0.1	6	-0.1/+0.3	X	X	X
28	+0.02/+0.1	44	-0.02/-0.1	8	-0.1/+0.3	X	X	X
28	+0.02/+0.1	46	-0.02/-0.1	9	-0.1/+0.3	X	X	X
30	+0.02/+0.1	44	-0.02/-0.1	7	-0.1/+0.3	X	X	X
30	+0.02/+0.1	45	-0.02/-0.1	7.5	-0.1/+0.3	X	X	X
30	+0.02/+0.1	46	-0.02/-0.1	8	-0.1/+0.3	X	X	X
30	+0.02/+0.1	50	-0.02/-0.1	10	-0.1/+0.3	X	X	X

Other sizes and designs on request.

# MMD-GP-MR | MMD-GP-BOP | MMD-GP-MR-TFJ

Dimensions mm						Type		
Inner-Ø	Tolerances	Outer-Ø	Tolerances	Height	Tolerances	MMD-GP-MR	MMD-GP-BOP	MMD-GP-MR-TFJ
32	+0.02/+0.15	48	-0.02/-0.15	8	-0.1/+0.3	X	X	X
32	+0.02/+0.15	50	-0.02/-0.15	9	-0.1/+0.3	X	X	X
32	+0.02/+0.15	52	-0.02/-0.15	10	-0.1/+0.3	X	X	X
36	+0.02/+0.15	48	-0.02/-0.15	6	-0.1/+0.3	X	X	X
36	+0.02/+0.15	52	-0.02/-0.15	8	-0.1/+0.3	X	X	X
36	+0.02/+0.15	56	-0.02/-0.15	10	-0.1/+0.3	X	X	X
40	+0.02/+0.15	56	-0.02/-0.15	8	-0.1/+0.3	X	X	X
40	+0.02/+0.15	58	-0.02/-0.15	9	-0.1/+0.3	X	X	X
40	+0.02/+0.15	60	-0.02/-0.15	10	-0.1/+0.3	X	X	X
44	+0.02/+0.15	64	-0.02/-0.15	10	-0.1/+0.3	X	X	X
45	+0.02/+0.15	61	-0.02/-0.15	8	-0.1/+0.3	X	X	X
45	+0.02/+0.15	65	-0.02/-0.15	10	-0.1/+0.3	X	X	X
48	+0.02/+0.15	68	-0.02/-0.15	10	-0.1/+0.3	X	X	X
48	+0.02/+0.15	72	-0.02/-0.15	12	-0.1/+0.3	X	X	X
50	+0.02/+0.15	66	-0.02/-0.15	8	-0.1/+0.3	X	X	X
50	+0.02/+0.15	70	-0.02/-0.15	10	-0.1/+0.3	X	X	X
50	+0.02/+0.15	74	-0.02/-0.15	12	-0.1/+0.3	X	X	X
52	+0.02/+0.15	72	-0.02/-0.15	10	-0.1/+0.3	X	X	X
52	+0.02/+0.15	77	-0.02/-0.15	12	-0.1/+0.3	X	X	X
54	+0.02/+0.15	74	-0.02/-0.15	10	-0.1/+0.3	X	X	X
55	+0.02/+0.15	75	-0.02/-0.15	10	-0.1/+0.3	X	X	X
55	+0.02/+0.15	80	-0.02/-0.15	12.5	-0.1/+0.3	X	X	X
55	+0.02/+0.15	81	-0.02/-0.15	13	-0.1/+0.3	X	X	X
60	+0.02/+0.15	80	-0.02/-0.15	10	-0.1/+0.3	X	X	X
65	+0.02/+0.15	78	-0.02/-0.15	7	-0.1/+0.3	X	X	X
65	+0.02/+0.15	85	-0.02/-0.15	10	-0.1/+0.3	X	X	X
65	+0.02/+0.15	93	-0.02/-0.15	14	-0.1/+0.3	X	X	X
70	+0.02/+0.15	90	-0.02/-0.15	10	-0.1/+0.3	X	X	X
70	+0.02/+0.15	94	-0.02/-0.15	12	-0.1/+0.3	X	X	X
70	+0.02/+0.15	95	-0.02/-0.15	12	-0.1/+0.3	X	X	X
80	+0.02/+0.15	100	-0.02/-0.15	10	-0.1/+0.3	X	X	X
80	+0.02/+0.15	112	-0.02/-0.15	16	-0.1/+0.3	X	X	X
90	+0.02/+0.15	118	-0.02/-0.15	14	-0.1/+0.3	X	X	X

Other sizes and designs on request.



## Satisfied customers are our incentive!

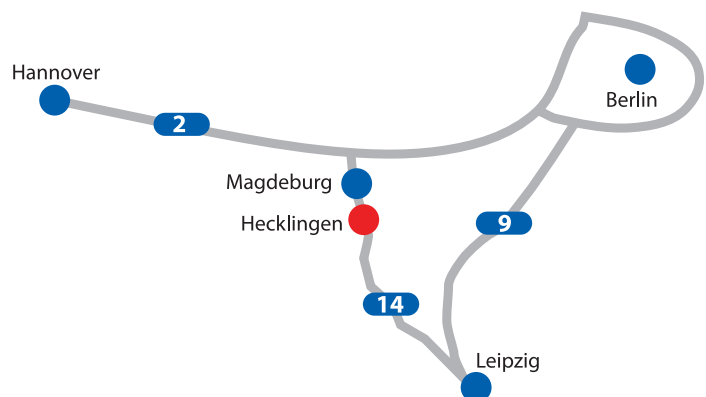
We achieve this, because we are committed to the needs of our consumers, we listen to them and produce exactly the metal gaskets that exactly meet their requirements for pressure, temperature and medium resistance.

## Your advantages

- most modern production technologies
- every gasket tested and certified
- technical consulting and training
- all orders shipped within 24 hours
- fast assembly due to high fitting accuracy
- All gaskets are guaranteed Made in Germany!

## Use our ...

- experience
- technologies
- designs and calculations
- trainings
- cooperation partners



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