Manual for Mechanical Seals

GLD 24/10 - 45/10

Application:

The mechanical seal is suitable for stirrers with a shaft diameter of 10 mm. All kind of stirrer material can be used with the seal. The connection to the reactor cover is made with a NS joint according DIN 12245.

Materials in contact with the product: PTFE, perfluorelastomere FFKM and borosilicate glass 3.3. The mechanical seal can be used with a wide range of liquids. The product is not suitable for Ex-applications and should not be in contact with hydrofluoric acid.

Mode of Operation:

The stirrer shaft is clamped in a ball bearded chuck. Below the chuck the stirrer shaft is centred with a O-ring, above it is clamped with a conical clamping ring. The sealing system is based on a ring made of a PTFE-carbon compound. If the seal is running dry, some PTFE abrasion can occur and can cause leakage. To avoid this, it is recommended to put small amounts of fat between the borosilicate glass cone and the PTFE sliding ring.

In case abrasion particles occur, they stay in a small recipient under the PTFE ring (to be cleaned from time to time).

Storage:

The mechanical seal can be stored at temperatures from -50 up to 80°C. Humidity: 0 - 100%.
It is important to clean all parts before storing and to protect it against dust.

Starting:

Before starting, check if the borosilicate-cone is not damaged and fits into the socket. Damages and scratches are the cause for leaking. Check, if the mechanical seal is rotating without any problems.

Before inserting the stirrer, loosen the stirrer fastening nut of the mechanical seal by holding the stirrer guide sleeve on the knurled ring. Insert the stirrer shaft carefully from below, be aware that the end of the stirrer shaft has no sharp edges; this can damage or even cut the O-ring. It is recommended to wet the stirrer shaft with some water to allow a better sliding. Push the stirrer to the end position. Fastening is done by holding the knurled ring and tightening the upper fastening nut. This is now to be tightened by hand with force. The fastening nut should never be tightened with a tool (pliers or similar).

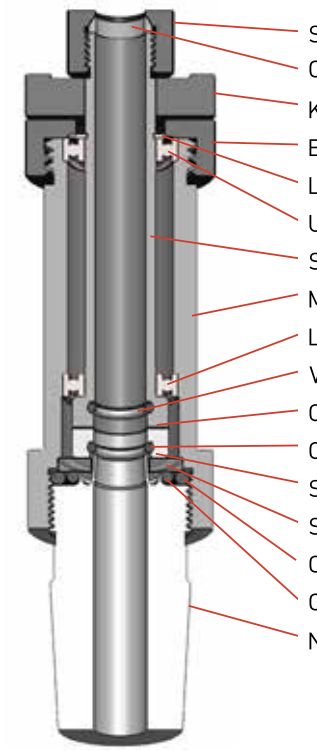
Removing:

To remove the stirrer, first loosen the stirrer fastening nut while holding the knurled disk. Sometimes you must completely loosen and remove the fastening nut, because it is possible that the clamping cone is still stuck in the fastening nut.

Hold the stirrer by hand and remove it carefully. Pull out the NS cone carefully. If the cone sticks into the socket, try to heat the system with a hot air gun.

Structure of the mechanical seal

Structure of the mechanical seal 29/10



1. Stirrer fastening nut
2. Clamping cone
3. Knurled ring
4. Bearing fastening nut
5. Locking ring
6. Upper ball bearing
7. Stirrer guide sleeve
8. Mechanical seal housing
9. Lower ball bearing
10. Viton O-Ring
11. Compression springs (not illustrated)
12. O-Ring FFKM
13. Sealing ring (PFA)
14. Status disc borosilicate glass
15. O-Ring Viton
16. O-Ring Viton
17. NS Cone PTFE

The models for stirrer shafts with Ø 16 mm, the NS glass cone is fixed with a spring and is equipped with a PTFE sleeve.

Assembly

Assembly work may only be carried out by instructed specialist personnel.

For cleaning purposes, it may be necessary to dismantle the NS core from time to time. To do this, hold it upwards and unscrew it to the left (direction of rotation). Caution: If held incorrectly or tilted, small parts may fall out after the NS core has been unscrewed. The NS core is then simply cleaned with compressed air or in the autoclave.

To change the bearing, the mechanical seal must be completely disassembled. To dismantle it, first remove the upper components. After unscrewing the NS core, the inner parts can be pressed out from above.

When reassembling, make sure that assembly starts from the bottom and ends at the top in the reverse order.

Technical data

Vacuum resistance	1 mbar
Pressure resistance	0.5 bar overpressure
Ground joint NS	according to DIN EN 12242
Stirring shaft diameter	9.9 - 10.3 mm
Bearing	Stainless steel ball bearing

Parts in contact with medium:

Sealing ring	FFKM
Seal ring	PFA (optional PEEK)
Status disk	borosilicate glass 3.3
NS core	PTFE (optional PFA)

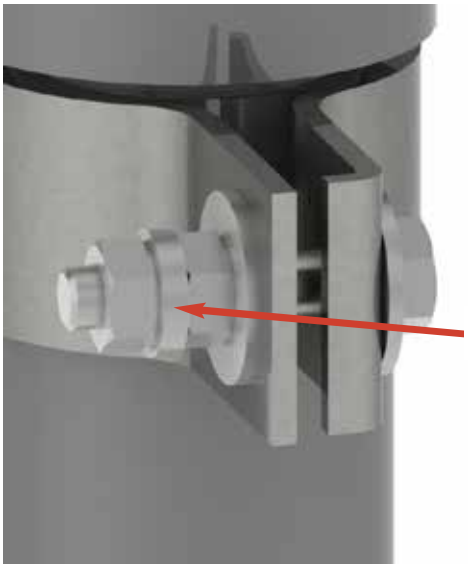
Working in explosion-proof areas

For working in explosion-proof areas, only the models for agitator shafts with Ø 10 mm are available, either with NS 24/29, NS 29/32 or NS 45/40.
These are distinguished from the standard types by the use of electrically conductive materials and the grounding terminal.

! Only optionally electrically conductive materials are used on the product side.

Prerequisites for working in explosion-proof areas

- The mechanical seals mentioned above may only be used in Zone 2 shelters.
- The area around the mechanical seal must also correspond to zone 2.
- The conditions specified for the Atex version must be observed.
- The connection cone must be firmly screwed to the counterpart.
- The ground connection must be screwed to a ground wire.
- No vapors may escape which would change the substance of the POM sheath material.
- A maximum product temperature of 10°C must not be exceeded.



Ground connection M6

Cone srew ensures optimum secutrity

! *The design of the glass parts and the stirrer must also be matched to the system.*
A sleeve that is too weak or an imbalanced stirrer can lead to excessive wear or breakage.

Technical data for ATEX mechanical seals:

Protection	EX II 3 G c/k T150°
Vacuum resistance	1 mbar
Pressure resistance	0,5 bar over pression
Ground joints	NS according to DIN EN 12242
Agitator shafts	9,9 - 10,3 mm
Bearings	ball bearings made of SS

Material of product contact:

O-ring	FFKM
Slide ring	PFA (optional PEEK)
Status disc	boorosilicate glass 3.3
NS-cone	PTFE (optional PFA)

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