ProPack DICHTUNGEN UND PACKUNGEN AG

YOUR COMPETENT PARTNER
WORLDWIDE IN
SEALING TECHNOLOGY



NEWSLETTER 03-24



S 43 K Hochdruck Extra

ePTFE-Graphite Fiber with special Para-Aramid corners and Paraffin Run-In Lubricant

- Recommended surface hardness HRC 60, suggested use on ceramic plungers
- Highest pressure resistance, practically no gap extrusion, can be used as bullring
- Safe and universal packing for abrasive media
- Precompressed rings are recommended for applications in plunger pumps

QUESTIONS & ANSWERS ABOUT GLAND PACKING

QUESTION: WHAT IF NOT ALL PACKING RINGS FIT IN THE STUFFING BOX?

This is a common failure to install more rings of packing then the stuffing box can accommodate. In this case neglecting the last ring is better than having a ring protrude to the outside of the stuffing box. This of course needs a gland follower reaching enough inside the stuffing box to compress the installed rings. The gland follower should have it least 3 mm / 1/8" guidance inside the stuffing box. The reason for failure is that the compression will not get properly distributed throughout the stack of packing rings when part of the uppermost ring is clearly visible outside the stuffing box.

QUESTION: WHAT HAPPENS WHEN PACKING IS DRY RUNNING?

Dry running would describe when a packing is not running on a fluid film, which is separating the packing from the shaft surface. This is comparable with a sleeve bearing which aims for hydrodynamic friction status. If there is contact between the packing and shaft surface, then it is not enough pressure in the fluid film or/and the grooves are too deep on the shaft surface. The resulting damage depends on the level of shaft surface speed expressed in m/s or fpm, the compression on the packing which is necessary to seal a product pressure and the heat conductivity of the packing material itself. There are further effects, for example alignment of the shaft. Once the packing suffers from overheating through dry running it will get brittle on the running surface the inner diameter of the packing ring. These crumbles may be washed out by excessive resulting leakage and if the remainder of the packing is still flexible readjustment can take place usually with a less good sealing result. If things get worse the packing turns to get rock hard. The key factors are surface speed, heat conductivity and compression. For example, top entry mixer applications are all dry running and still sealed successfully with packing, because pressure and rpm are low.

QUESTION: WHAT IS THE PURPOSE OF INJECTABLE PACKING?

Often customers get excited when they hear for the first time about injectable packing. Actually, this kind of packing is a long time around and it has its place and limits. The advantage of this compound of loose packing fibers with a high grease content is that it can mold into a grooved surface. A braided packing can do that only to a certain extent. If the grooves are too deep the braid will be destroyed, where an injectable packing compound can bed in nicely. Another advantage is if a hinged shaft, which is not concentric in a stuffing box, needs to be sealed. There is no braided packing in the world which has a thin X Section on one side and a thicker on the opposite side. Also, if a stuffing box is hard to access for retightening of the gland follower, for example belt driven hydro pulper, the reload injection can be done via a pipe, which is connected to the stuffing box inlet bore and to the injection gun. Besides injectable packing does not score shafts at all, the key argument is one material seals all stuffing box dimensions. This is only partially true as you need machined end rings to keep the compound in place. These end rings also limit the application to low pressures preferable 1 bar/14psi only. Probably the key factor when you consider using injectable packing is the cost of a mandatory suitable high pressure injection gun, which is a couple of thousand €/$. Compressing injectable packing via a gland follower is a no go. It is highly recommended to change the compound when it is still soft as it is exceedingly difficult to get a hardened compound out of the stuffing box.

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REGISTER AT MUNICH HRB 170 799 . VAT.IDENT.NO.: DE 129 441 454