ProPack DICHTUNGEN UND PACKUNGEN AG

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SEALING TECHNOLOGY



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Valve stem packing set - TA 400-2

Pre-compressed hybrid packing set with skive cut made of expanded graphite, special impregnation and reinforcement to protect against extrusion.

Characteristics

Packingset made by combining two expanded Graphite grades and designs. Both are reinforced with a inconel matrix in order to avoid blow out and extrusion. The combination enhances the sealability. The set was tested and approved by Yarmouth Research, Maine in USA.

The tighteness class is CH with a max. leakage rate of <4,5E-3mbar.l/s. The endurance class is CO1 with 2 thermal cycles and 205 mechanical cycles. Number of Packing adjustments (SSA) 1.
Test pressure: 20°C @ 51,1bar and 400°C @ 34,7bar. Test fluid Helium.
Performance Class ISO FE CH-CO1-SSA1-t400C-ANSI Class 300 - ISO 15848-1.

The Packingset is therefore recommended as a high grade sealing system.

QUESTIONS & ANSWERS ABOUT GLAND PACKING

QUESTION: WHY IS TRAPEZOIDAL PACKING SHAPE ONLY OFFERED FROM 10MM AND ABOVE?

The advantages of a 4 track, tightly bound, trapezoidal braid are widely known. By filling the 4 tracks in a different and graduated manner, the larger packing volume is placed in the wide side of the trapezoid, i.e. the outer diameter of the packing ring. This is installed against the stuffing box bore and the extra mass creates a better seal against external leakage.

At the same time, the packing volume towards the shaft is gradually reduced. This prevents burning of the packing on the shaft and the cooling leakage can be more easily controlled and its effect improved. Smaller packing cross-sections must be braided on smaller machines with 3 tracks for 6-8 mm or only in 2 tracks for 3-5 mm. Due to the limited number of feed points on these machines, these braids cannot be produced in a uniform trapezoidal shape. This does not result in a disadvantage in the applications, because smaller packing cross-sections are usually only used in valves for which pre-compressed rings are preferred anyway.

QUESTION: CAN LIFE LOADING ALSO BE USED IN ROTATING APPLICATIONS?

This may be possible with very low product pressure and low surface speeds of the shaft, e.g., in a slow-running agitator. The packing operating in this case must be very soft and very thermally conductive. A dynamically used packing needs a lubricating film on which it slides, and which specifically dissipates the frictional heat generated between packing and shaft by leakage.

This can be achieved by the product or/and an injected barrier fluid. In the case of pure dry running, e.g., with top entry mixer shafts, the possibility of dynamic life loading is further restricted. Utilizing a spring stack, the compression is permanently applied and will be automatically readjusted in the event of abrasion or consolidation of the packing. For the packing in this operation, it feels comparable to a vehicle being driven with the handbrake on. To keep the compression caused by dynamic life loading low, the number of spring-loaded bolts and also the bolt diameter may have to be reduced. In principle, this should be evaluated individually for each application.

QUESTION: WHAT IS THE ADVANTAGE OF LIFE LOADING IN CARTRIDGE FORM?

The effect of life loading is mainly generated by Belleville washer springs. If these spring washers are simply mounted as a stack directly, and without centering on the gland bolts, the individual washers can shift radially in different ways. This leads to uneven load distribution. In addition, dirt around the valve environment can get between the exposed spring washers and block them.
Another factor is that the spring washers can hang up in the threads of the bolts, resulting in loss of compression. These stacks must be adjusted with a torque wrench. This makes the actual applied compression dependent on the thread condition, the way the threads are lubricated and the operation of the torque wrench. The achieved gland load can therefore vary greatly as a result. If, on the other hand, the washers are mounted in a cartridge, the washers run on a precise surface and are centered on the inner and outer diameters. This also protects them from environmental influences. Adjusting the cartridge is simple and is done by closing the gap between the cartridge components. A closed gap indicates that the ideal compression is achieved. Likewise, a re-appearing gap would indicate when compression is reduced, long before leakage occurs.

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