ProPack DICHTUNGEN UND PACKUNGEN AG

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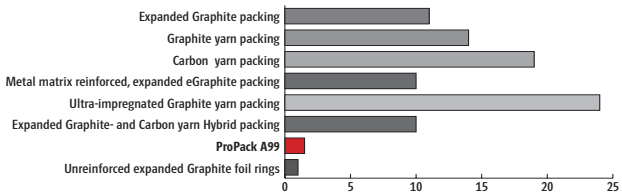
# NEWSLETTER 02-23


## A 99 Spezialgraph

Braided from flexible expanded graphite yarn with high temperature resistant Inconel® mesh reinforcement

- Universal plantwide use as standard packing in valves
- Extrusion-protected by 10 myh Inconel matrix per braided filament
- Contains highly effective passive corrosion inhibitor
- Elastic, good resilience, coefficient of thermal expansion similar to steel
- High temperature and high pressure resistant
- Easy to cut, easy to install and remove
- Rings must be compressed approx. 20-25% during assembly, pre-compressed rings are recommended
- Suitable as bull rings for other packing styles

Weight loss in % after exposure to temperature of 600 °C in a stuffing box




This packing type utilizes the positive properties of eGraphite - the constant flexibility and resilience. The tendency to extrusion, is compensated by the Inconel® mesh reinforcement. The main advantage is the low volume loss when exposed to temperature, which is comparable to the values of rings pressed from graphite foil but with much easier handling. A99 rings with bevel cut are easily installed and the Inconel matrix allows the ring to be disassembled in one piece. The result is a valve packing that is easily adjustable when necessary and is extrusion and blowout resistant even at high pressures.

## QUESTIONS & ANSWERS ABOUT GLAND PACKING

### QUESTION: WHY ARE THE MAXIMUM PRESSURE RATINGS DIFFERENT FOR PUMP AND VALVE APPLICATIONS?

To generate sufficient radial sealing force, the higher the pressure to be sealed, the higher the packing must be compressed. The stuffing box housing of a pump is designed with larger gap widths than that of a valve. Limits of the gap width for pumps and agitators are 5% of the packing width. For a valve only 2%. A packing can be compressed higher with smaller gap width without extruding.
The stem in an armature has no significant movement, is practically static. In contrast, a high-speed shaft generates frictional heat. The more you compress a packing, the more frictional heat it will generate. The limited thermal conductivity of a pump packing therefore imposes limits not only on the risk of extrusion, but also on the pressure load in a rotating application.

### QUESTION: WHICH CUTTING ANGLE FOR GLAND PACKING IS BETTER?

This depends primarily on the application. Packing for rotating shafts should have a butt cut. This is made radially perpendicular to the shaft. The difference between the outer and inner circumferential lengths of the ring results in a skew of approximately 75° at both ends of the packing, when it is stretched out.
High pressure units such as valves or plunger pumps require a 45° skive cut at both ends. When the ends overlap, they practically seal themselves. As a result, the packing has no leakage path in the cut.
The reason for both types of cut is that in rotating applications, leakage is needed for cooling anyway, so there is no need for a seal in the bevel cut. On the other hand, with the butt cut, one likes to build in a slight excess length in order to compensate for thermal shrinkage and to enable a tight contact pressure on the housing. It would not be possible to use this excess length with a bevel cut because the ends would slide over each other during assembly.

### QUESTION: HOW IMPORTANT IS THE DIMENSION OF A PACKING? IS THERE A DIFFERENCE BETWEEN INCH AND METRIC PACKING?

Some dimensions are almost identical as an example 8mm and 5/16"(7.94mm). On the other hand, 12mm is not 1/2"(12.7mm) packing or vice versa.
Hammering an oversized packing flat, or even rolling it out, usually ends up returning the packing to its original cross-sectional dimension and volume once it is installed. This will cause the packing to run hot and shrink in length. This shortens the packing life and increases leakage.
Installing packing that is too small, e.g. 3/4"(19.05mm) packing into a 20mm X Section stuffing box will be surprisingly easy. However, if you have placed the packing around the shaft and cut it to size, then you try to press it for the missing 1mm (0.04") to the stuffing box housing, the cut will gape and increased outside leakage will occur. It is best to use the correct dimension and, to be sure, use pre-compressed rings which fit the Individual stuffing box dimension.





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