GFO® FIBER

INSTALLATION OF PUMP PACKINGS USING 100% GFO® FIBER

What is GFO® Fiber?

GFO® fiber is a unique, patented nonasbestos yarn which has been created by W. L. Gore & Associates, Inc., specifically for use in the braiding of compression packing for all high-speed rotating equipment. The result is a clean, braided packing with a combination of high-performance characteristics not found in any other packing on the market today.

Installing 100% GFO® fiber packing in pumps is much easier than conventional packing. There are, however, several important tips that will help you get longer, trouble-free service from 100% GFO® fiber packing.

1) ***BE SURE PACKING IS PROPER SIZE.*** Oversize will cause packing to burn out, and undersize will leak excessively.

2) ***NEVER ROLL OR "HAMMER" 100% GFO® FIBER PACKING.*** This damages the fiber and can cause premature failure.

3) ***ALWAYS TIGHTEN GFO® FIBER SLOWLY.*** Overtightening can cause overheating.

4) ***ALWAYS USE HIGH-QUALITY BRAID.*** Three or four track interbraid construction is best.

Following these instructions will allow you to get the maximum service life from 100% GFO® fiber packing.

The importance of installing packing correctly cannot be overemphasized. Many packing failures are due to incorrect installation of the packing. The following steps have been devised to ensure effective installation of packings on pumps:

1) ***REMOVE ALL THE OLD PACKING FROM THE STUFFING BOX.*** Clean box and shaft thoroughly and examine shaft or sleeve for wear or scoring. Replace shaft or sleeve if wear is excessive.

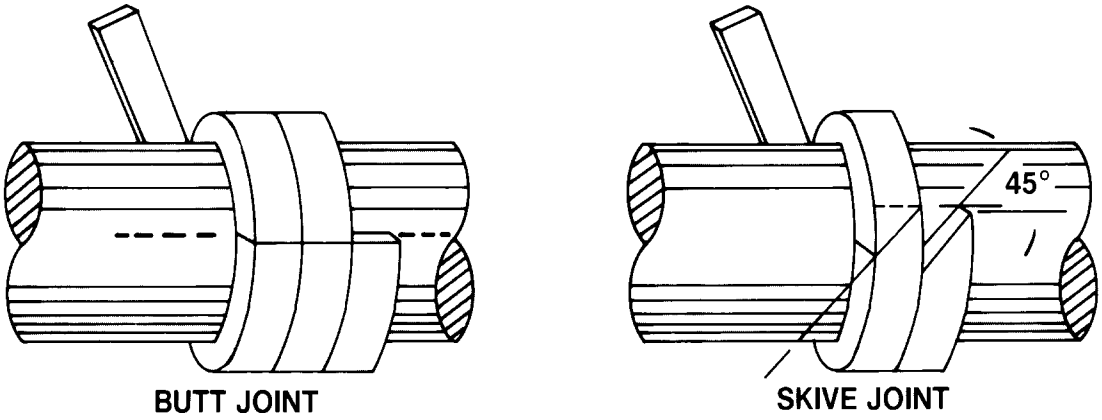
2) ***USE THE CORRECT CROSS-SECTION OF PACKING OR DIE-FORMED RINGS.*** To determine the correct packing size, measure the diameter of the shaft (inside the stuffing box area if possible) and then measure the diameter of the stuffing box (to give the OD of the ring). Subtract the ID measurement from the OD measurement and divide by two. The result is the required size. CUT -- DON'T WIND.

3) ***WHEN USING COIL OR SPIRAL PACKING, ALWAYS CUT THE PACKING INTO SEPARATE RINGS.*** Never wind a coil of packing into a stuffing box. Rings can be cut with butt (square) or skive (or diagonal) joints, depending on the method used for cutting. The

following illustration shows these methods of preparing bulk packaging. The best way to cut packing rings is to cut them on a mandrel with the same diameter as the shaft in the stuffing box area. If there is no shaft wear, rings can be cut on the shaft outside the stuffing box.

Hold the packing tightly on the mandrel, but do not stretch excessively. Cut the ring and insert it into the stuffing box, making certain it fits the packing space properly. Each additional ring should be cut in the same manner.

IMPORTANT:
ALWAYS CUT EACH RING ON A MANDREL IN ORDER TO GET THE PROPER JOINT ANGLE.



It is necessary that the rings be cut to the correct size. Otherwise, service life is reduced. This is where die-cut rings are of great advantage, as they give you the exact size for the ID of the shaft and the OD of the stuffing box. There is no waste due to incorrectly cut rings.

4) ***INSTALL ONE RING AT A TIME.*** Make sure it is clean and has not picked up any dirt in handling.

Seat rings firmly. Joints of successive rings should be staggered and kept at least 90 degrees apart. Each individual ring should be firmly seated with a tamping tool. When enough rings have been individually seated so that the nose of the gland will reach them, individual tamping should be supplemented by the gland.

5) ***AFTER THE LAST RING IS INSTALLED,*** take up bolts finger tight. Do not jam the packing into place by excessive gland loading. Start pump and take up bolts until leakage is decreased to a tolerable minimum. Make sure gland bolts are taken up evenly. ***STOPPING LEAKAGE ENTIRELY AT THIS POINT WILL CAUSE THE PACKING TO BURN UP.***

6) ***WHEN STARTING UP A NEWLY-PACKED PUMP, ALLOW PACKING TO LEAK FREELY.*** Excessive leakage during the first hour of operation will result in a better packing job over a longer period of time. Take up gradually on the glad as the packing seats, until leakage is reduced to a tolerable level, preferably 8-10 drops per minute, per inch of shaft diameter.

NEVER TRY TO STOP LEAKAGE ENTIRELY, UNLESS PACKING MANUFACTURER INDICATES THAT IT IS SAFE TO DO SO.

7) ***WHEN SPECIFIED BY THE PUMP MANUFACTURER, PROVIDE MEANS OF LUBRICATING THE SHAFT AND PACKING THROUGH THE LANTERN RING BY SUPPLYING WATER, OIL, CREASE, OR LIQUID HANDLED IN THE PUMP.*** Fittings for this purpose are standard on many pumps. Flush pressure should be minimum 15 psi above stuffing box pressure.

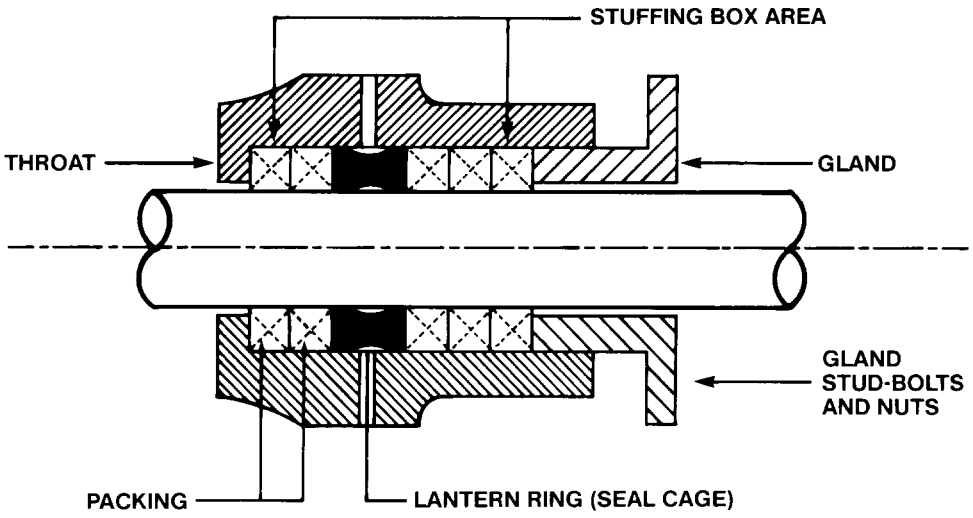


FIGURE 1 **TYPICAL STUFFING BOX ARRANGEMENTS AND DESCRIPTION OF PARTS**

8) IF THE STUFFING BOX HAS A LNATERN RING (SEE ILLUSTRATION ABOVE), make sure that the lantern ring, as installed, is slightly behind the fluid inlet so that it will move under the inlet as follower pressure is applied.

9) REPLACE PACKING WHEN LEAKAGE CANNOT BE CONTROLLED BY FURTHER TAKE-UP ON THE FOLLOWER GLAND. DO NOT ADD MORE PACKING RINGS.

Portions of the above information were taken from the Fluid Sealing Association's Compression Packings Handbook 1990.