

CYLINDRICAL CROSSHEAD PINS FOR HIGH-PRESSURE POLYETHYLENE COMPRESSORS



INTRODUCTION

All current "conventional" compressors are equipped with pins with a cylindrical housing for connecting rod to crosshead connection.

This solution has been adopted for high-pressure polyethylene compressors, where up to now the housing was of the conical type.

This modification provides the following benefits:

- Elimination of loosening which occurs in tapered couplings, thus increasing the reliability and operating safety of the compressor.
- Optimizing and substantially simplifying assembly procedures.
- Potentially increasing performance in terms of maximum thrust and capacity of the compressor.

APPLICABILITY

The modification is applicable to all polyethylene compressors of the PK and PH series.

TECHNICAL DESCRIPTION

Until recently, the connection between the connecting rod and the crosshead in polyethylene compressors as shown in Figure 1 was made through a coupling of conical type "A" which locked the pin with respect to the crosshead through the tightening of disc "B".

- This type of coupling has always required a precise assembly procedure consisting of adjusting the conical surfaces by hand and tightening the nut with a torque wrench with the crosshead mounted in the frame.
- Moreover, it has been observed that this coupling, was sometimes subject to local deformation that over the course of time could result in loosening of the nut.

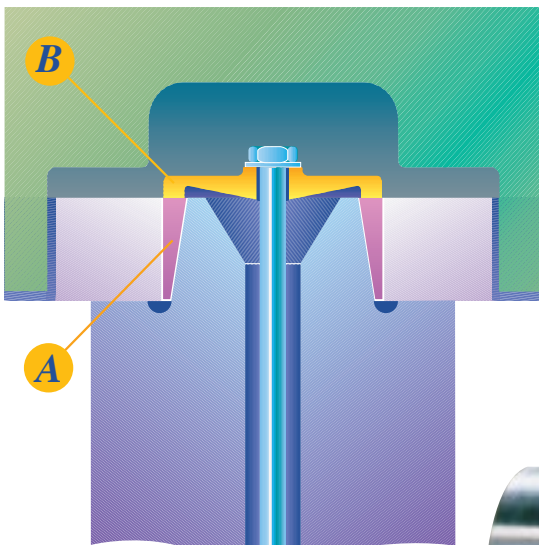
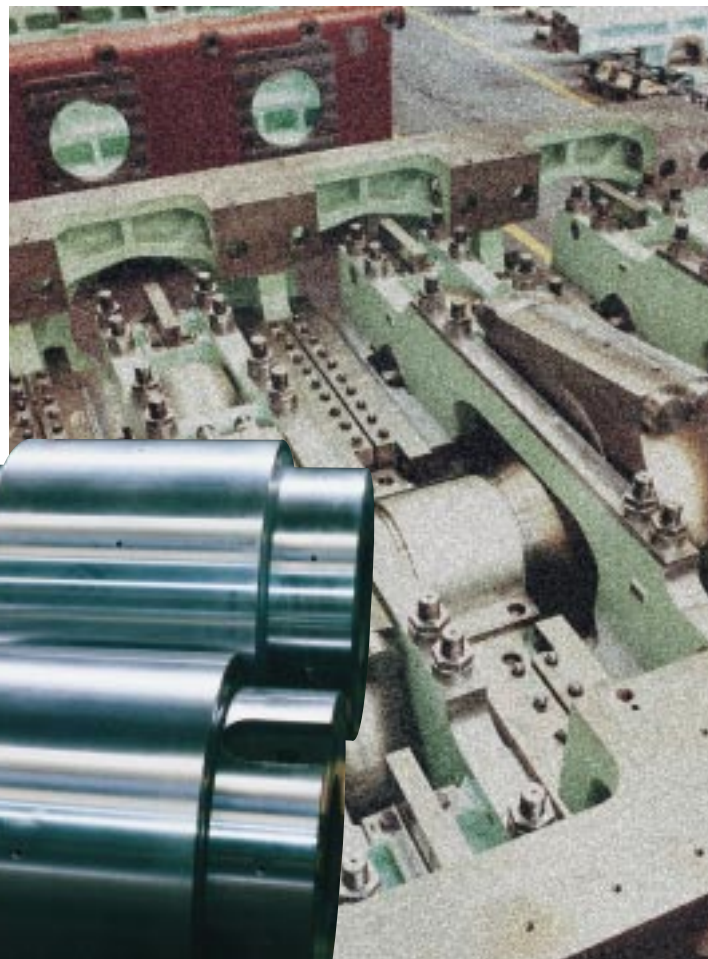


Figure 1



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To resolve these issues a cylindrical coupling was designed which eliminates the need to lock the pin in its seat. With reference to Figure 2, the new connection is based on a housing between cylindrical surfaces with a very small clearance. The pin is attached to the crosshead through a key and is equipped with a series of channels which take a small amount of lube oil from the connecting rod bushing and inject it into the pin housing on the crosshead. This prevents the onset of fretting (in which metal is transferred from the crosshead body to the pin). As a consequence of the limited axial dimensions of the new solution (the washer with tightening nut has been eliminated), it is possible to install new shoes with a larger contact surface (Figure 3).

ADVANTAGES

The advantages of the new cylindrical pin are briefly summarized below:

- All loosening problems eliminated
- Dramatic increase in compressor reliability and operating safety
- Simplification of assembly and maintenance procedures
- Ability to increase thrust and capacity of the compressor

SCOPE OF SUPPLY

The scope of supply consists of:

- Cylindrical pin.
- Locating key.

- Shoes with larger sliding surface.
- Machining of crosshead.
- Assembly instructions.

EXTENT OF MODIFICATION

The modification consists of re-machining the pin housing in the original crossheads and making a groove to house the key. The pin is then installed and the shoes are replaced, if necessary.

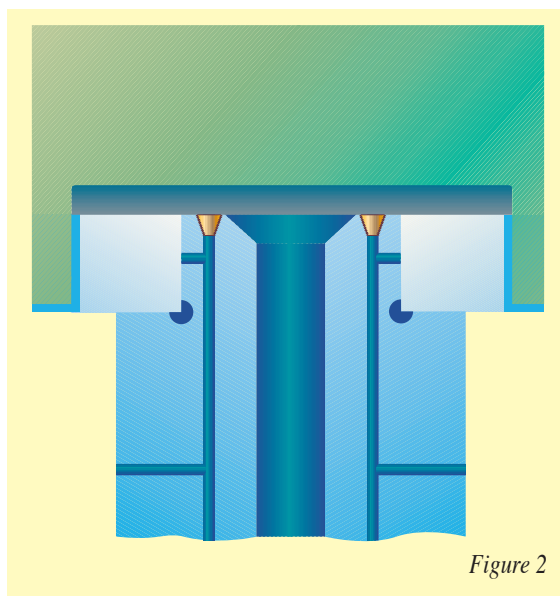


Figure 2

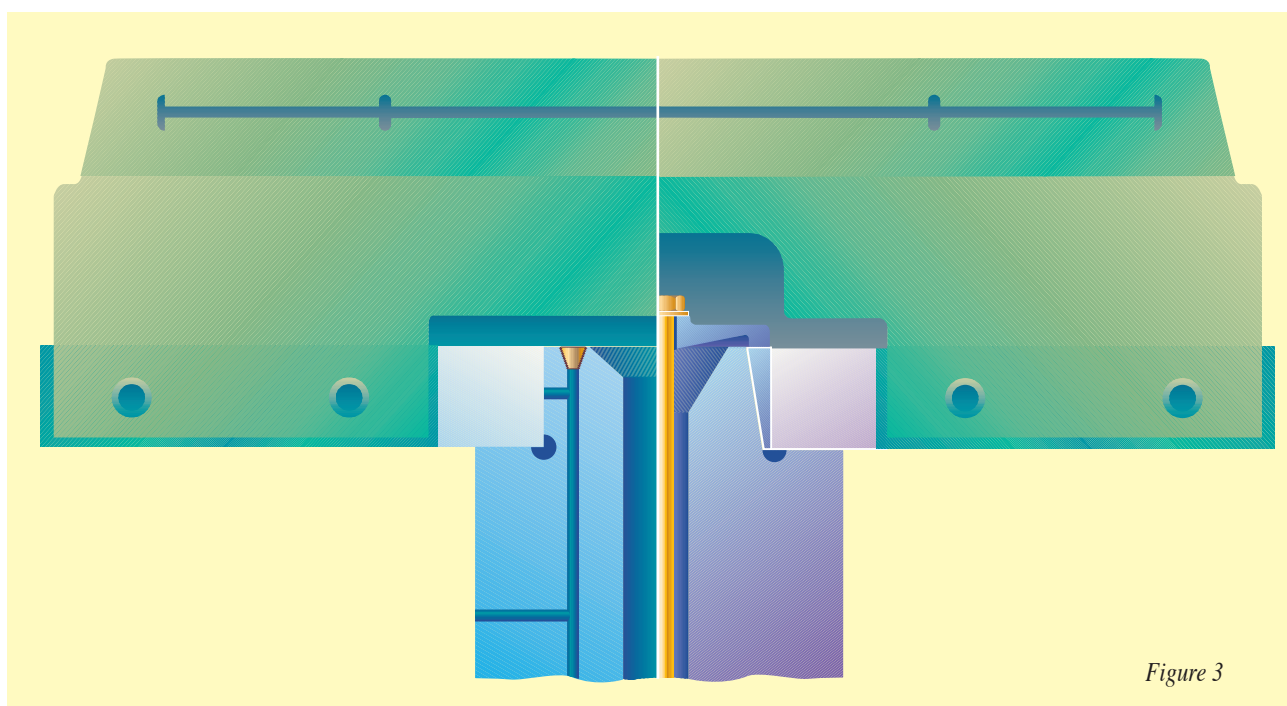


Figure 3

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