

FALEX PIN CORROSION TEST**Application**

This method is used to determine the probability of rusting of gear housing assemblies where a lubricant containing potentially corrosive chemicals is used and where moisture is present. The method also indicates the effectiveness of inhibitors which may have been added to the lubricant to prevent rust formation.

Apparatus and Materials Required**Falex Extreme Pressure Tester**

According to EU BJ 1-1 to produce an oil bath temperature of 100 +/- 5 °C by controlled loading.

Falex Pin and Bushings

According to EU BJ 1-1.

Mechanical Convection Oven

Capable of maintaining a temperature of 80 +/- 2 °C.

Bell Jar

Height approx 250 mm, dia approx 170 mm. The ground edge of the bell jar must be coated with stopcock grease to effect a tight seal when placed on the glass plate.

Glass Plate

300 x 300 mm.

Thermometer

Range approx 0 - 150 °C.

Forceps**Gooch Crucible****Naphtha****Petroleum Ether****Toluene or Butyl Cellosolve**

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2001 07 23	Revised	Editorial – no technical change A. Cockman
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Phosphoric Acid

20 % by volume.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Clean standard pin and bushings by brushing in naphtha to remove all traces of rust proofing grease and oil and allow to air dry.
2. Examine and select pins and bushings which have no flaws or surface roughness.
3. Clean pin and bushings using forceps in petroleum ether and dry with clean, soft towel.
4. Pour the oil under test into the Extreme Pressure Test cup and heat to approx 90 °C.
5. Assemble the pin and bushings in the machine with forceps.
6. Load the machine sufficiently to maintain an oil bath temperature of 100 +/- 5 °C and run the test for 25 minutes. The thermometer must be placed in the test cup near the bushings and pin so that the bulb end is completely immersed in the oil.

Note 1: Heat generated by friction between pin and bushings causes a release of the chemical components such as occur in the frictional contact of gears in service.

Note 2: If seizure of the pin or excessive scoring occurs, the test shall be run at lower load. If necessary a source of external heat must be applied to maintain the oil bath temperature.

7. With clean forceps, remove the pin from the machine, place on end at a slight angle in the Gooch crucible, place the crucible on a watch glass and heat in the oven at 80 +/- 2 °C for 30 minutes.
8. Stand the crucible containing the pin on the glass plate in an area free of corrosive fumes.
9. Place a 150 mL beaker of tap water on centre of the glass plate, cover with the bell jar for 24 h at 23 +/- 2 °C. Make sure that an air tight seal is formed between the bell jar and the glass plate, and that no water is splashed onto the pin.