

# SKF Grease Test Rig EMCOR

Test rig to assess the corrosion inhibiting properties

LFB 30B, LFB 30C



## General description

In order to maximise bearing running hours, it is very important to prevent rust from occurring on a bearing. As most bearings are subject to humidity, because of outdoor use or temperature differences between day and night, water or condensed humidity may make the bearings rusty. A good-quality grease should protect the bearing from rust in extreme situations. In order to be able to distinguish good rust-protective greases from bad greases and recommend the best-quality grease for its high-quality bearings, many years ago SKF developed the SKF Grease Test Rig EMCOR.

## Purpose of the test

The purpose of the test is to measure the ability of a grease to protect a bearing against corrosion even in the presence of water.

With the SKF Grease Test Rig EMCOR, this is done in a dynamic way, i.e. greases are tested while bearings are running and standing. This means that even the thin oil film left in the contact zone of rollers and raceways whilst the bearings are standing has to be able to protect the bearings against corrosion.

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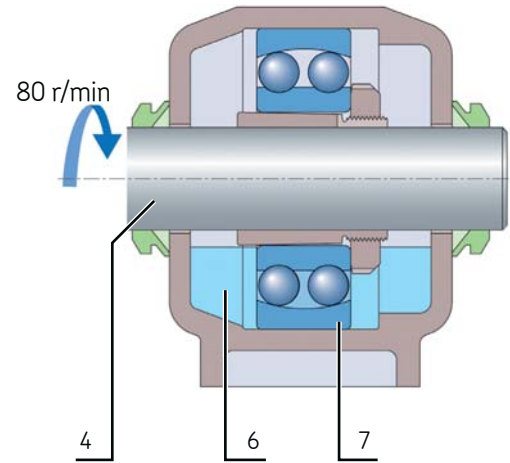
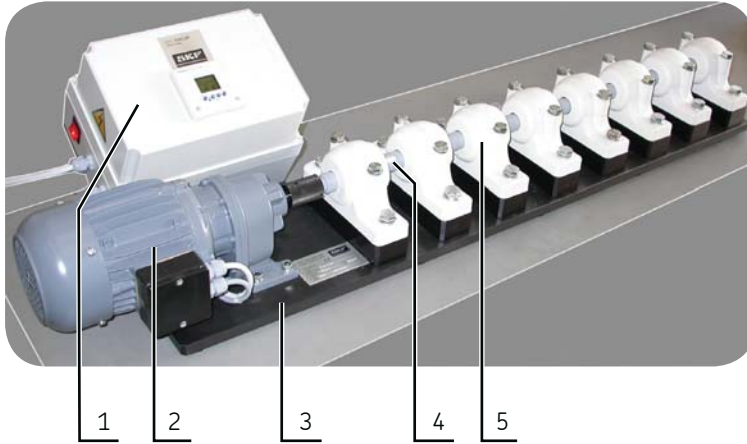
## Test method

Two bearings per test are run in the machine, which is partially immersed in

water, at a speed of approx. 80 r/min in a predetermined sequence of running/stopping for a period of one week.

At the end of the test the raceways of the bearing outer rings are inspected for rust.

## Machine description – standard test



- 1 Control unit with digital clock
- 2 Electric motor
- 3 Base plate

- 4 Shaft with protective nylon coating
- 5 Eight polyamide housings
- 6 Distilled or demineralised water, salt water or synthetic sea water

- 7 Test bearing and teasting grease/oil

The SKF Grease Test Rig EMCOR consists of a ground plate (3) on which eight polyamide housings (5) are mounted.

A shaft protected with a nylon coating (4) carries the test bearings (7) and is driven by an electric motor (2).

A control unit with digital clock (1) controls the running/stopping periods.

## Test procedure

The test bearings are specially-treated 1306K/236725 double row selfaligning ball bearings. The bearings are washed carefully, filled with the appropriate quantity of test grease and fitted on the shaft with the help of a nylon sleeve and nut. The seals are fitted and the specified quantity of water is introduced into the housings. The bearings are placed in the housings and the housings are closed and sealed.

The test is run in the following sequence: 8 h run, 16 h stop, 8 h run, 16 h stop, 8 h run and finally 108 h stop.

Then the bearings are dismantled, taken apart, washed, evaluated and rated. The degree of rust is an indication of the corrosion-inhibiting property of a grease.

This test method is standardised to the international ISO 11007, ASTM D6138 Germany DIN 51802 Great Britain BS 2000 pt 220 (IP 220) Sweden SIS 155130 and France NFT 60-135. The new international standard (published in 1996) contains contemporary, modified and internationally approved procedures to further increase test precision.

## Versatility

The test can be run to test greases as well as oils, and variations can be made with regard to the test medium. Instead of water, brine can be used or the machine can be slightly tilted to test the corrosion-inhibiting properties of a lubricant when water flows through the housings and so washes out the corrosion inhibitors – the so-called SKF EMCOR wash-out test (optional).

## Machine description – wash-out test

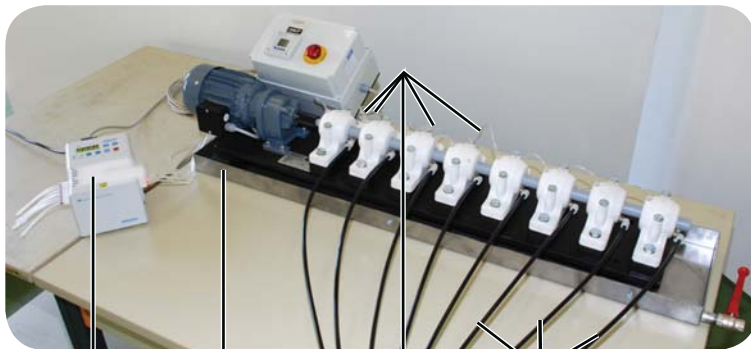
The SKF standard specifies a method for the determination of water washout rust prevention provided by a lubricating grease. This corrosion test is useful guide to the protection provided by a lubricating grease in

the event of a bearing becoming constantly contaminated with water.

The use of flowing water in place of the standard laboratory static test leads to the

failure of greases with water-soluble corrosion inhibitors.

The results are believed to be significant with respect to service performance.

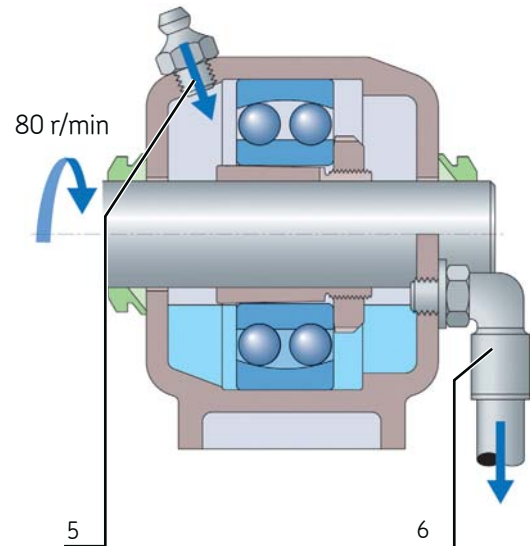


- 1 Peristaltic pump
- 2 Overflow container

- 3 Feeding pipes
- 4 Outlet pipes

The SKF Grease Test Rig EMCOR for the wash-out test is the same device as the standard EMCOR (as described before) with some options such as the peristaltic pump (1) feeding and outlet pipes (3) and (4) and overflowing container (2).

The mechanics is inclined so that an angle from the horizontal of  $1,5^\circ$  is formed and placed in a overflow container (2) to collect test fluid if necessary



- 5 Test fluid inlet
- 6 Test fluid outlet

The peristaltic pump (1) pumps test fluid through the feeding pipes (3) into the plummer blocks. Via the outlet pipes (4), the fluid flows out of the plummer blocks.

## Test procedure

As the SKF Grease Test Rig EMCOR is a dynamic method for checking the rust-inhibiting properties of a lubricant, similar results are obtained in practice. It gives the assurance that good results obtained in the test rig will give the same good results when water or humidity enter the actual bearing arrangement.

## Test cost

The two test bearings 1306K/ 236725 are the only machine parts that have to be renewed for each test. The polyamide parts are rigid and strong and almost never need replacement. The costs for the SKF Grease Test Rig EMCOR are therefore minimal.

## Technical specifications

- Versions
  - Standard test:  
LFB 30B/110 (110 V)  
LFB 30B/230 (230 V)
  - Wash-out test:  
LFB 30C/110 (110 V)  
LFB 30C/230 (230 V)
- Mechanics
  - Spindle speed: 80 r/min
- Dimensions and weights
  - Dimensions (H × W × D): 280 × 1 230 × 380 mm (11.0 × 48.4 × 15.0 in.)
  - Weight: 40 kg (88 lbs)
- Requirements
  - Electrical system: See rating plate
    - 230 V/50, 110/60 Hz

Technical specifications subject to change without notice.

For more information on your specific application, please contact our engineers at QT.

