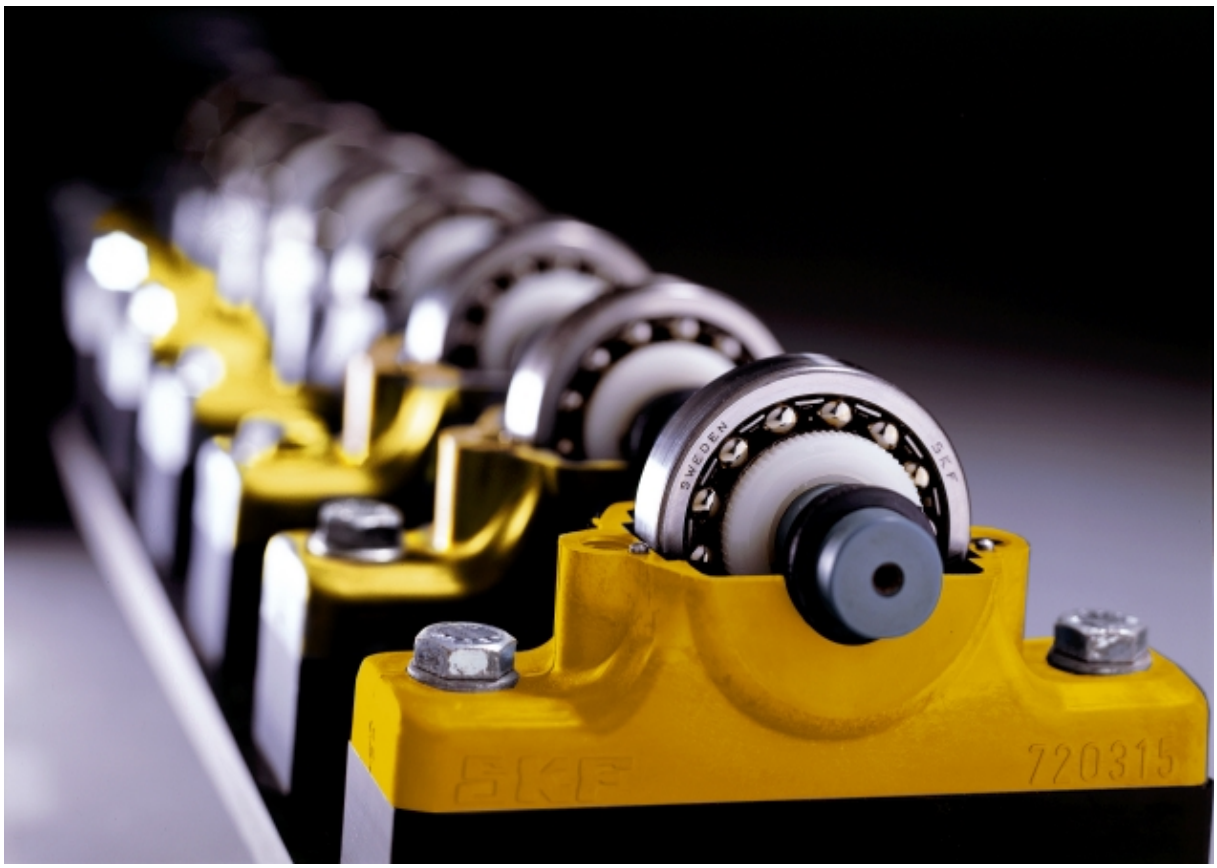
TMG/EMCOR

Grease Testing Machine



General Description

In order to maximize the number of bearing running hours, the prevention of rust on a bearing is most important. As most bearings are subject to humidity, because of outdoor use or of temperature differences during 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 separate 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 TMG/EMCOR Grease Testing Machine.

Purpose of the Test

The purpose of the test is to measure the ability of a grease to protect a bearing against corrosion even at presence of water. With the SKF TMG/EMCOR Grease Testing Machine this is done in a 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.

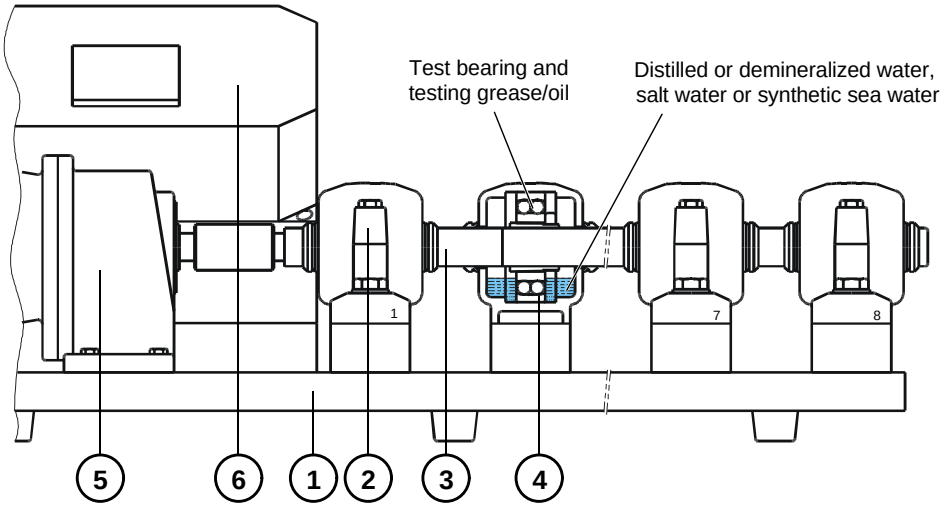
SKF Österreich AG

Quality Technology Centre

SKF Österreich AG
Quality Technology Centre
Seitenstettner Str. 15
A - 4400 Steyr, Austria
Homepage

Phone +43 (72 52) 797-571
Fax +43 (72 52) 797-574
e-mail qtc@skf.at
Hotline +43 664 43 36 135
qtc.skf.com

Machine Description



The SKF TMG/EMCOR Grease Testing Machine consists of a ground plate **1** on which eight polyamid housings **2** are mounted. A with a nylon coating protected shaft **3** carries the test bearings **4** and is driven by an electric motor **5** . An electronic clock **6** controls the running/stopping periods.

Test Method

Two bearings per test are run in the machine partially immersed in water at a speed of ca. 80 rpm 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.

Test Procedure

The test bearings are special treated 1306K/236725 double row self-aligning 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, the housings are closed and sealed.

The test is run in 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 dismounted, taken apart, washed, evaluated and rated. The degree of rust is an indication of the corrosion inhibiting property of a grease.

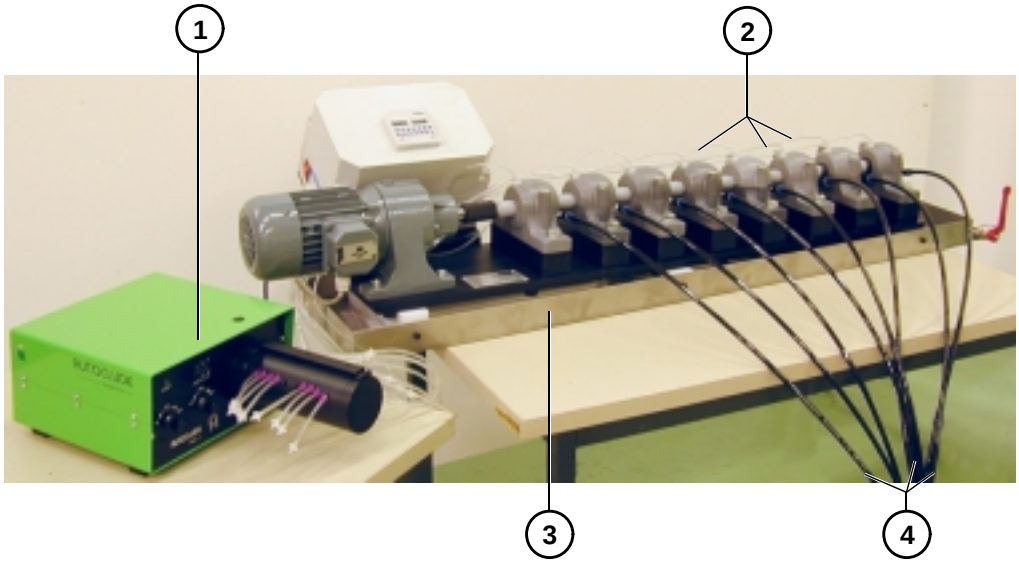
This test method is standardized in
International ISO 11007
Germany DIN 51802
Great Britain BS 2000 pt 220 (IP 220)
Sweden SIS 155130 and
France NFT 60-135.
The new international standard (to be published 1996) contains recently, modified and internationally approved procedures to further increase test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

Versatility

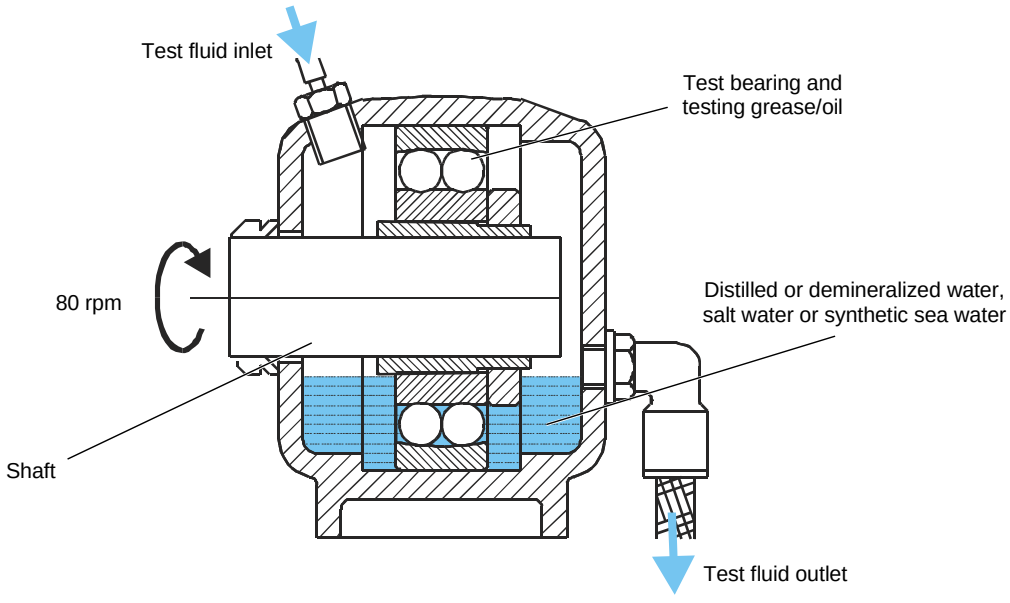
The test can be run to test greases as well as oils, and variations can be made with regard to the test medium. Instead of water brine can be used or the machine can be slightly tilted to test the corrosion inhibiting properties of a lubricant when water flows through the housings and so washing out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

Option - Wash-out Test

The SKF standard specifies a method for determination of water wash out rust prevention provided by a lubricating grease. This corrosion test is useful guide to the protection given by a lubricating grease in the event that bearing becomes 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 significant with respect to service performance.



The SKF TMG/EMCOR for the washout test is the same device as the standard EMCOR (as described before) with some options like the peristaltic pump **1** feeding and outlet pipes **2** and **4** and overflowing container **3** . The mechanics is inclined so that an angle from the horizontal of 1.5° is formed and placed in a overflowing container **3** to collect test fluide if necessary. The peristaltic pump **1** pumps test fluide through the feeding pipes **2** into the plummer blocks. Via the outlet pipes **4** , the fluide flows out of the plummer blocks.



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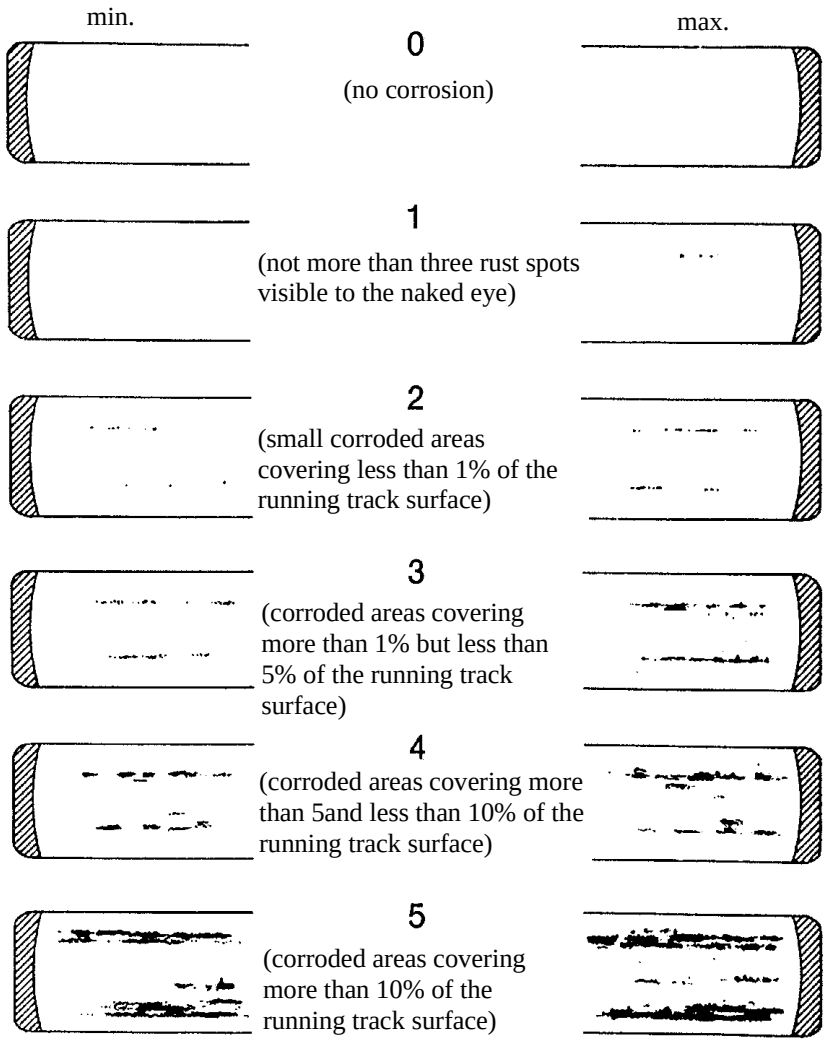
Test Results

No special equipment is needed to evaluate the results of the test. The test results are very repeatable. The following scale is used for rating:



Applicability to Service Conditions

As the SKF TMG/EMCOR Grease Testing Machine is a dynamic method to check upon 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 enters 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 polyamid parts are rigid and strong and hardly ever need replacement. The cost for the SKF TMG/EMCOR Grease Testing Machine therefore are minimal.

Other Test Machines

Over the years SKF has developed a number of grease testing machines like:

- the SKF TMG/ROF Grease Testing Machine to test the lubricating ability of greases at high temperatures and high speeds
- the SKF TMG/V2F Grease Testing Machine to test the mechanical stability of a grease
- the SKF TMG/R2F Grease Testing Machine for mechanical-dynamic behaviour of greases
- the SKF BEQUIET+ Grease Noise Testing Machine to assess the noise characteristics of a grease.

All test methods are linked very closely to practice.

Technical Data

Mechanics	
Dimensions (* depending on type of electrical motor used)	length 1230 mm* width 380 mm height 280 mm*
Weight	40 kg
Electric	
Connections	230 V/50 Hz; 115 V/60 Hz) available on request

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

QTC, the "Quality Technology Centre" in Steyr, develops, manufactures and markets systems, which are used to ensure the quality in these special fields:

- Roundness and Form Analysis
- Noise and Vibration Control
- Optical Inspection
- Nondestructive Material Testing
- Dimensional Measurement
- Washing
- Laser Marking
- Grease Testing
- Demagnetization
- Cleanliness
- Assembly
- Packaging

QTC supplies the latest technology and highly innovative equipment to customers worldwide and is also the Competence Centre for measuring and quality-related equipment for the SKF Group on a global scale.

QTC, Quality Technology Centre, is located in Steyr - Austria.
You are always welcome to visit us.
The best way to reach us is a flight to Linz via Vienna, Frankfurt or Zurich.

We will, of course, arrange the pick up at the airport.