

TIMKEN®

BEARING TEST EQUIPMENT RUNNING TORQUE TESTER



4/01
RT = 2
RT = 1
HW = 6
HW = 2
Range
2500 m
load =
ot# TY
art# R
/N 567
perato

 Timken Super Precision (MPB)

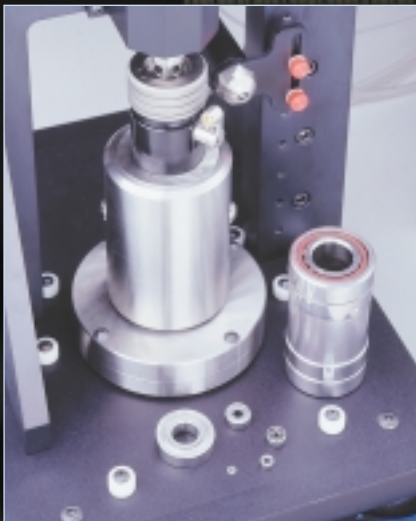
A TIMKEN COMPANY SUBSIDIARY

TESTING OUR PRECISION...

Innovation is the key to continued success in any industry, and Timken Super Precision is dedicated to developing the highest quality products through continued research and development.

Keeping to this commitment Timken Super Precision, a subsidiary of The Timken Company, announces the RT2C-E, a diagnostic tool used to measure the precision of ball bearings and assemblies.

Anyone can claim to build "super precision" products, but at Timken we strive to back up that claim with state-of-the-art diagnostic equipment. These tools allow you to gauge bearing quality and integrity, ensuring that precision specifications are achieved, and maximum efficiency can be gained.



Innovation is the key to continued success...

ensuring maximum performance

1/4/01 @ 12:07 PM
ART = 2420 mgmm
PRT = 15072 mgmm
AHW = 6193 mgmm
MHW = 22500 mgmm
Range = X50
2500 mgmm
25 mgmm

THE RT2C-E RUNNING TORQUE TESTER



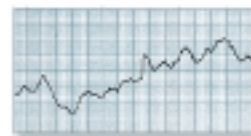
The RT2C-E Running Torque Tester is an update to the original RT2 product, building upon where the original torque tester left off. This new version employs

a more user-friendly graphics interface that is aimed at providing faster, more reliable analysis of torque traces via the on-screen display.

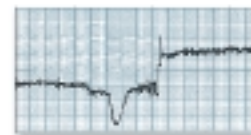
The RT2C-E determines the actual running torque inherent to a rotating system. Through this tester a user can ensure maximum performance of bearings by physically diagnosing problems in existing bearing equipment, or identifying problems prior to use. Problems such as retainer hang-up, ball or race surface problems, contamination, internal geometry and structural defects can be determined on a single bearing or a group of bearings through sampling.

The RT2C-E Running Torque Tester uses a triple-action air bearing assembly that simultaneously suspends, loads and isolates the bearing using only precision streams of air. A variable speed motor rotates the inner ring of the bearing while the outer, attached to the air bearing and coupled to the computer's input, transfers any torque forces to the torque trace. With tooling capable of accepting 26 industry standard miniature and instrument bearing sizes, the RT2C-E accommodates bearings ranging from 1/8" OD to 7/8" OD. Optional tooling is also available to accept larger bearing sizes and bearing assemblies.

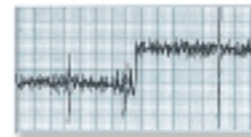
When testing to MIL-STD 206 a low rotational speed of 2 rpm is used and loads of 75 or 400 grams are applied axially to the bearing. The RT2C-E is not limited by the MIL-STD and is capable of applying speeds up to 20 rpm and loads up to 20 pounds.



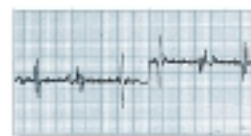
Poor geometry [cross race curvature, ball groove roundness, etc.].



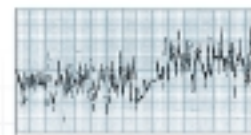
Possible retainer hang-up.



Dirt spikes/contaminated bearing [instantaneous spikes].



A brinell or flat on a raceway [repetitive spikes].

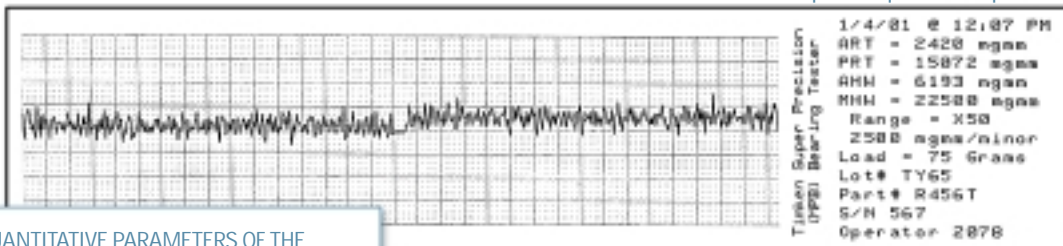


Brinelled or pitted raceway [extremely high hash width] Note: The large hash spikes go negative first.

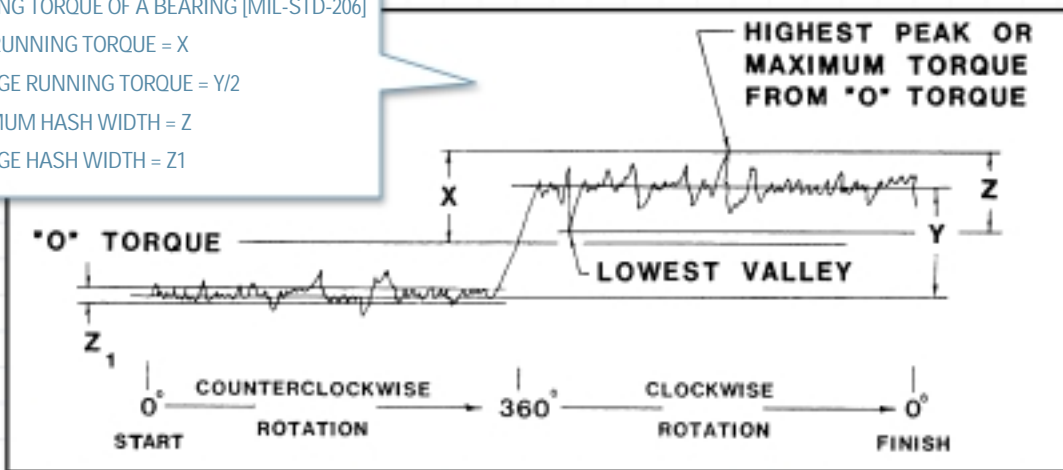


Poor race-to-face parallelism within the bearing or geometry.

A sample Torque Tester printout



THE QUANTITATIVE PARAMETERS OF THE RUNNING TORQUE OF A BEARING [MIL-STD-206]
 PEAK RUNNING TORQUE = X
 AVERAGE RUNNING TORQUE = Y/2
 MAXIMUM HASH WIDTH = Z
 AVERAGE HASH WIDTH = Z1



SPECIFICATIONS

In addition to the triple-action air bearing assembly, the RT2C-E offers users a number of state-of-the-art design features, including:

- Easy to operate PC-based control systems.
- Automatic computation of average running torque, peak running torque, average hash width and maximum hash width.
- Multiple data output choices including; on-screen, full printout, and reprint capabilities.
- Customers can integrate the RT2C-E into their computer network.
- Additional data features including SPC compatible "Data Streaming," JPEG picture documentation and test data archiving as computer files on disks.

The RT2C-E meets or exceeds the guidelines established by MIL-STD-206, the most stringent and comprehensive running torque specifications in the industry.

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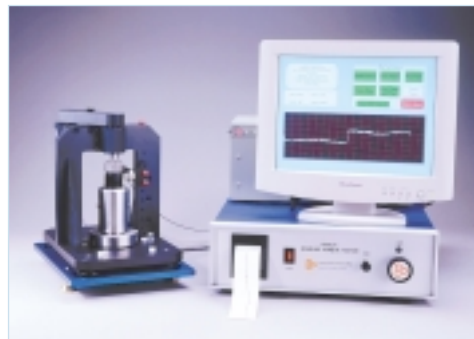
Timken Super Precision (MPB) Europa BV

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- Sensitivity: 50 mgmm per minor chart division-maximum.
- Torque range: 25 mgmm to 110 gmcm.
- Frequency Response: 0 to 8 Hz (Preset).
- Load Range: 50 grams minimum to 20 pounds maximum.
- Rotating Speed: 0.5 rpm to 20 rpm.
- Overall Footprint Dimensions: 30" x 22" (approximate).
- Weight: 90 pounds (approximate).
- Angular Range of Test: Variable distances variable directions.
- Air Requirements: 30PSI, dry air, clean to 5 microns or better.
- Electrical Requirements: 100-125 vac 50-60 Hz or 200-250 vac 50-60 Hz configured at purchase.
- Foundation: Air leveling or granite table recommended. Solid foundation at minimum.
- Environment: (Optimum)
Clean room environment
between 68 F and 76 F.

Factory retrofits are available for older RT2's, RT2C's and RT2C-D's. The retrofit will prove to be more cost effective than purchasing a new RT2C-E.

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