Vibrac®

PRECISION TEST SYSTEMS

Low Speed, High Resolution

Bearing Test Systems

Vibrac 3100
Bearing Inspector

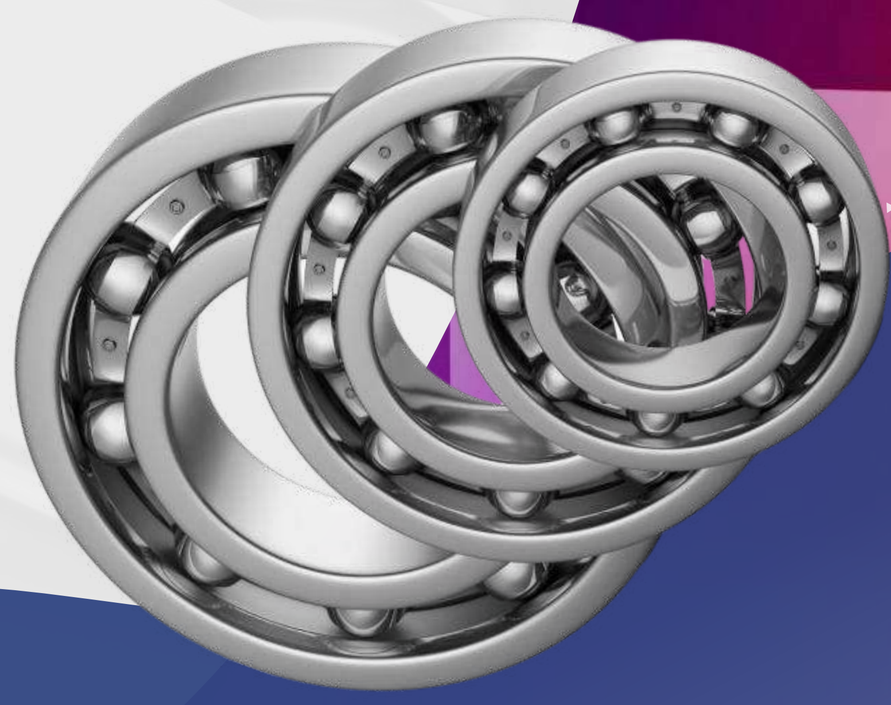
sales@vibrac.com

+1 (603) 882-6777

See more about this product!

www.vibrac.com

Manufactured and Engineered in the USA



Vibrac 3100 Bearing Inspector

Non-Destructive Testing

The Vibrac 3100 Series Bearing Inspector has been developed in partnership with world leading companies and organizations in the space, aerospace and defense industries specifically **to measure the torque characteristics of anti-friction and precision bearing assemblies at low speed and high resolution.**

Testing Capabilities

Both starting torque and running torque can be measured using the same system, the same tooling and in the same test cycle. Tests are run in a manner compliant with US MIL STD 206B. From this testing, a variety of bearing problems can be identified, such as:

- Bearing Contamination
- Retainer Hang-Up
- Brinelled or Pitted Raceways
- Poor Geometry
- Structural Defects
- Reporting Options
- MIL STD 206B Compliant

Customized reports that show only the required information for a particular customer or a specific application can be **easily generated, viewed on the screen and outputted** to a conventional printer or strip chart printer.

System Description

This advanced Windows OS system and bearing test head makes performing tests as easy as 1, 2, 3.

The 3100 Bearing Inspector System **consists of a state-of-the-art computer and a Standard or High Load, Bearing Test Head.** The test head contains a Vibrac Torque Transducer, an Magnetic high-resolution encoder and a Variable Speed Drive. **This design enables the system to rotate the bearing at a constant speed (0.5 to 2 rpm)** while measuring both torque and position *Note: 100 rpm run-in option available (unmeasured)*
Included with the system are a:

- Customized Computer
- Monitor and Keyboard
- Specialized Controls
- Precision Milled Tooling

When performing a test and processing the results, **user-friendly menus enable the operator to rapidly become proficient with the operation of this high-precision system.**

Features and Schematics

System:

- Granite Anti-vibration Table (required)
- Ultra high-res. and low inertia transducers
- Adjustable Vertical Positioning
- Light or High Load Gauge

Physical Description:

- Dimensions: 24" D x 36" W x 58" H (61cm x 91cm x 147cm)
- Speed: 0.5 to 2.0 rpm standard (high speed run-in optional)
- Direction: Bi-Directional
- Weight: Instrument + table 400 lbs (210kg) total

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Operating Specifications

- Input Power: 120-240v AC 50/60 Hz
- Operating Power: 24v DC
- Temperature Environment: 60 to 90° F (15-32° C)

Positive Overload Protection

Due to the relative sensitivity of the Bearing Inspector's transducer, **positive overload protection is provided.**

Drive Motor

The system is supplied with a variable speed synchronous drive with a **Speed Range of 0.5 to 2.0 RPM.**
Note: 100 rpm run-in option available (unmeasured)

Software Features

The Bearing Inspector Computer System is a **customized product from a major commercial supplier** and will meet the following minimum specifications:

- Advanced Windows OS Platform
- 101A Keyboard & Optical Mouse
- Intel Celeron Quad Core Processor
- IP 65 / NEMA 4
- High Resolution Touch Screen (10")
- 128 GB Hard Drive (min.) SSD

Magnetic Encoder

- Encoder Line Count: 36,000
- Accuracy: +/- 0.01 degrees

TQ Size	Range (oz-in)	Accuracy % Full Scale
0.05	0.0 - 0.05	+/- 0.5
0.10	0.0 - 0.10	+/- 0.5
0.20	0.0 - 0.20	+/- 0.5
0.50	0.0 - 0.50	+/- 0.25
1.0	0.0 - 1.0	+/- 0.25
5.0	0.0 - 5.0	+/- 0.25
10.0	0.0 - 10.0	+/- 0.25

***Note:** Consult factory for other torque values*

Calibration and Tooling

Tooling for Metric Series Bearings

Instrument series **bearings are normally tested with a dead weight load** that is provided by the weight of the outer race tooling. Instrument bearings **less than 9.5mm OD are tested with a 75 gram load.** Instrument bearings **greater than 9.5mm OD are tested with a 400 gram load.**

Bearings requiring a high axial load can be tested using the Vibrac High Load Bearing Inspectors (3200 Series). This gauge applies the axial load by using an engineered weight hanging system. The weight is lever mounted under the table and applies friction-less load to the bearing inner race tool while the outer race is driven.

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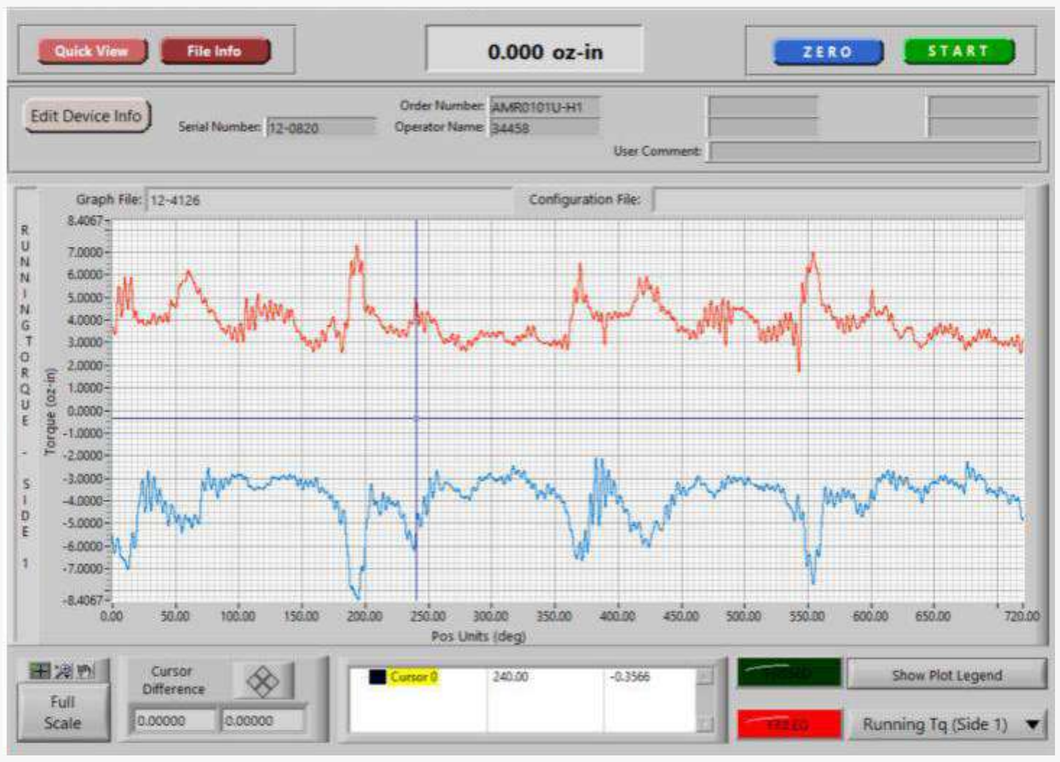
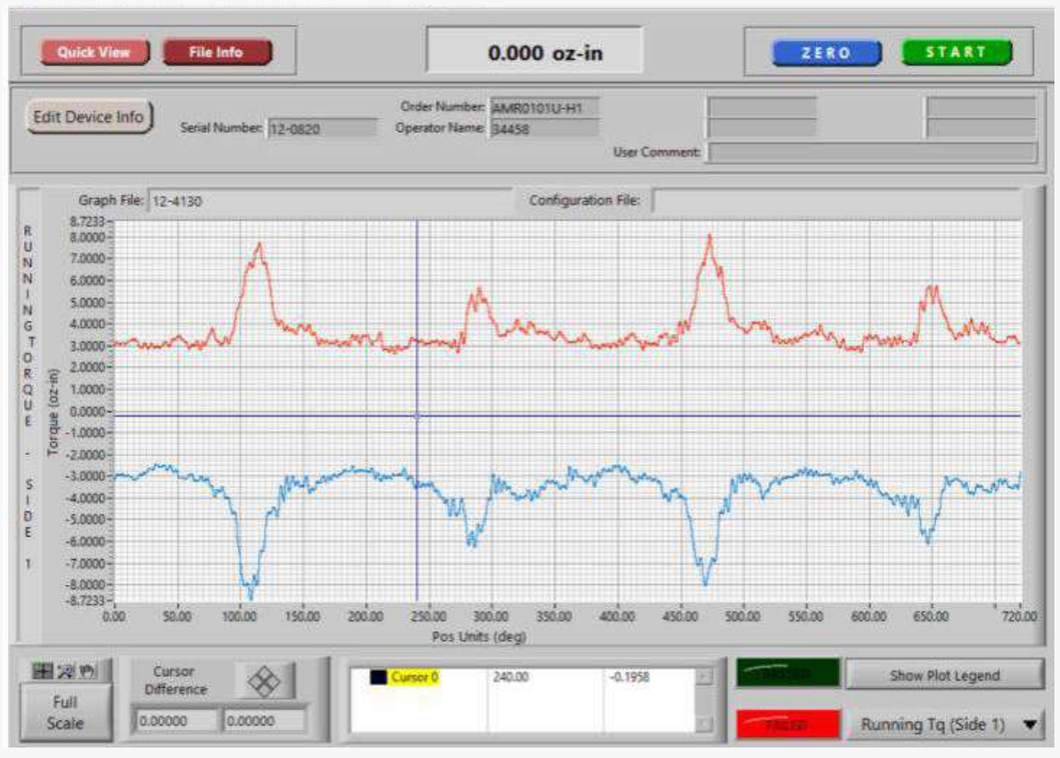
Non-Destructive Testing

Torque Graphs, Data & Results

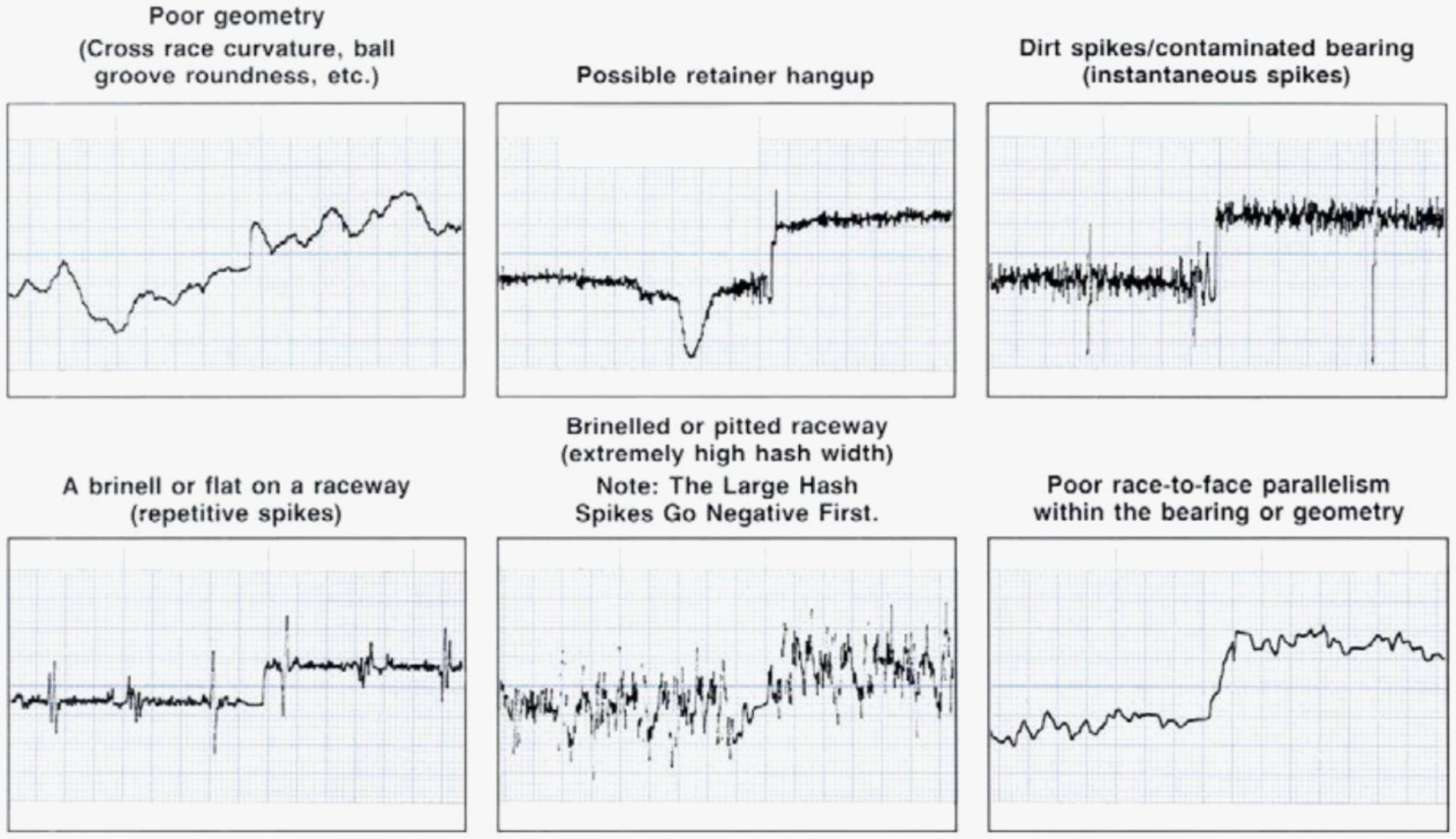
CW & CCW Directional Friction Testing (Overlay)



Contamination Indication



Brinelled Raceway Indication



Results Readout

```
------------------------------------------------------------------------
Vibrac BRG-3100 Test Report          Date/Time: 7/2/2024  12:23 PM
------------------------------------------------------------------------
Test Filename: 530 01-03.vib
      Tq Transducer: 0.10 oz-in

STARTING TORQUE TEST REPORT (CW/CCW - Side 1)

                Parameter Test Result:       PASSED
                                Peak:              0.00732      oz-in
                  AVG Starting Torque:             0.00576      oz-in
```

```
                                          CW              CCW
 Detail Test Results
    Test    1:       0.00464 oz-in      0.00561 oz-in
    Test    2:       0.00580 oz-in      0.00568 oz-in
    Test    3:       0.00479 oz-in      0.00635 oz-in
    Test    4:       0.00549 oz-in      0.00685 oz-in
    Test    5:       0.00512 oz-in      0.00732 oz-in


RUNNING TORQUE TEST REPORT (CW/CCW - Side 1)    Value

                Parameter Test Result:       PASSED
                                Speed:              2.0      RPM
                  Peak Running Torque:          0.01337      oz-in
               Average Running Torque:          0.00286      oz-in
                       AVG Hash Width:          0.01897      oz-in
                       Max Hash Width:          0.01897      oz-in
```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