

## RollTrack® Roundness Measuring Machine

FMT Equipment Corporation, Hamden, Connecticut, USA supplies special design, off and on line run-out and roundness measuring machines. FMT was founded 1985 and has made computerized recording and display system for roll measuring applications since 1990. The main markets have been the paper, steel, and aluminum industries, and machine shops servicing them. FMT works with Wolfgang Schönthaler Ingenieurbüro of Waiblingen, Germany who have designed customized, automatic measuring machines since 1973. The main markets have been automotive plants and parts manufacturers for them.

The basics for a run-out and roundness measuring machine arrived from the development of a roundness measurement method for large rolls rotating on their own bearings in a roll grinding machine. Between mechanical designs and mathematical procedures, the run-out can be eliminated from a measurement. And even more importantly, periodic motion from a bearing clearance and other external factors can be measured and eliminated from the roundness measurement.

The new RollTrack® run-out and roundness measuring machine includes a base with a high accuracy spindle and a work table on which a work piece to be measured is mounted. Mechanical centering is included, however, roundness is computed regardless of how much the piece is mounted off center. For measuring roundness of the outside diameter of a work piece there are one or two gauge holders. An optional post is available to hold lever/stylus type gauge(s) to measure the inside diameter of a work piece and/or straightness profile of a work piece vertically.

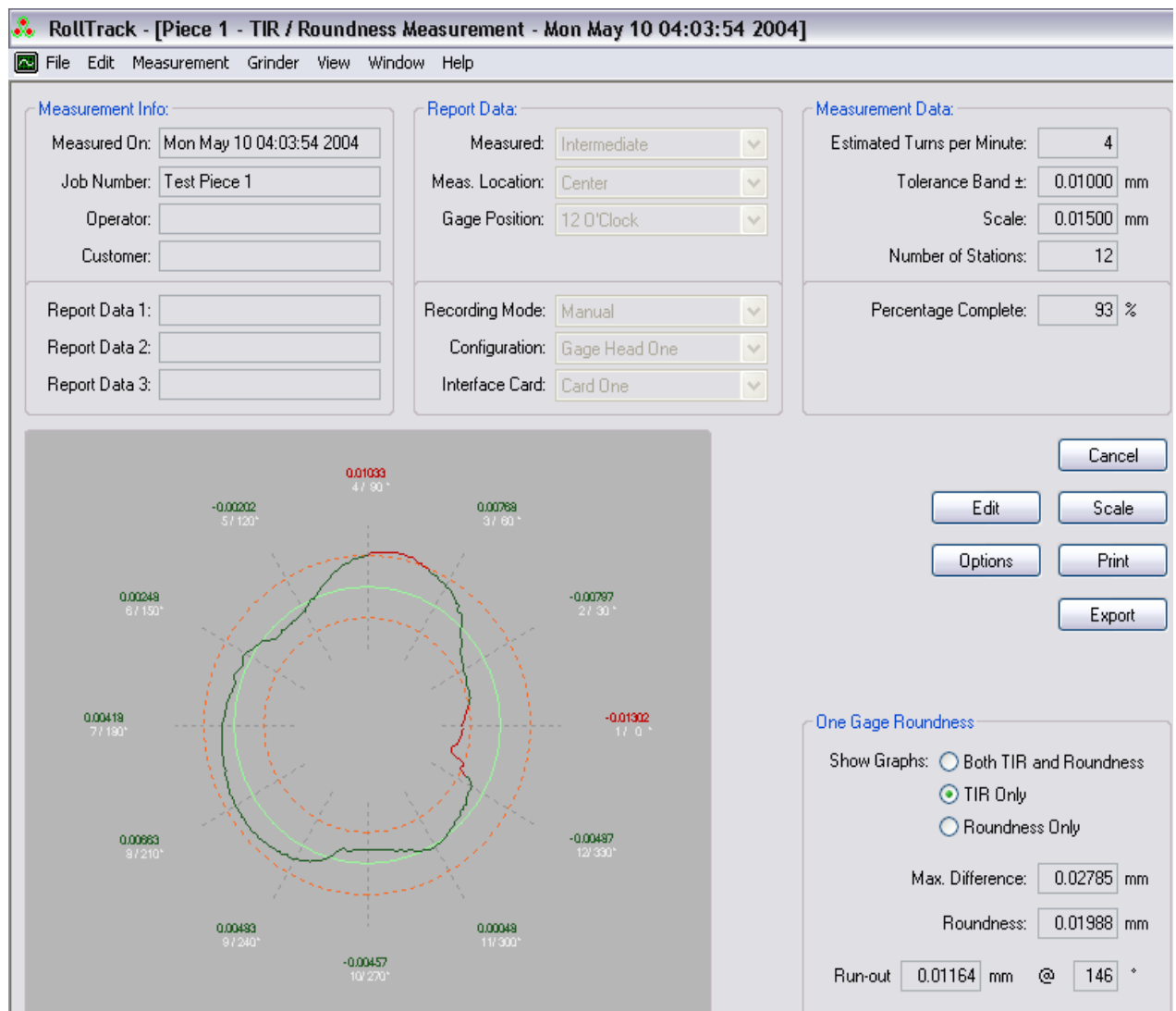
The gauge(s) and angular encoder of a rotating work table assembly are wired to an interface board in a standard PC system for the recording, displaying, analyzing, printing, and storing of measurement reports. The system has the following measuring modes:

- T.I.R. (Total Indicator Reading) - Includes run-out and out-of-roundness
- Run-out and Eccentricity
- Roundness - One Probe with fixed rotation
- Roundness and Motion - Two probes for measuring periodic motion
- Concentricity, Coaxiality - Two probes
- Straight Profile - One or two probes (two probes eliminate external disturbances)
- Reference circle: Least squares center
- Optional graphics software:
  - MCCI (Minimum circumscribed circle center)
  - MICI (Maximum inscribed circle center)
  - Minimum zone center

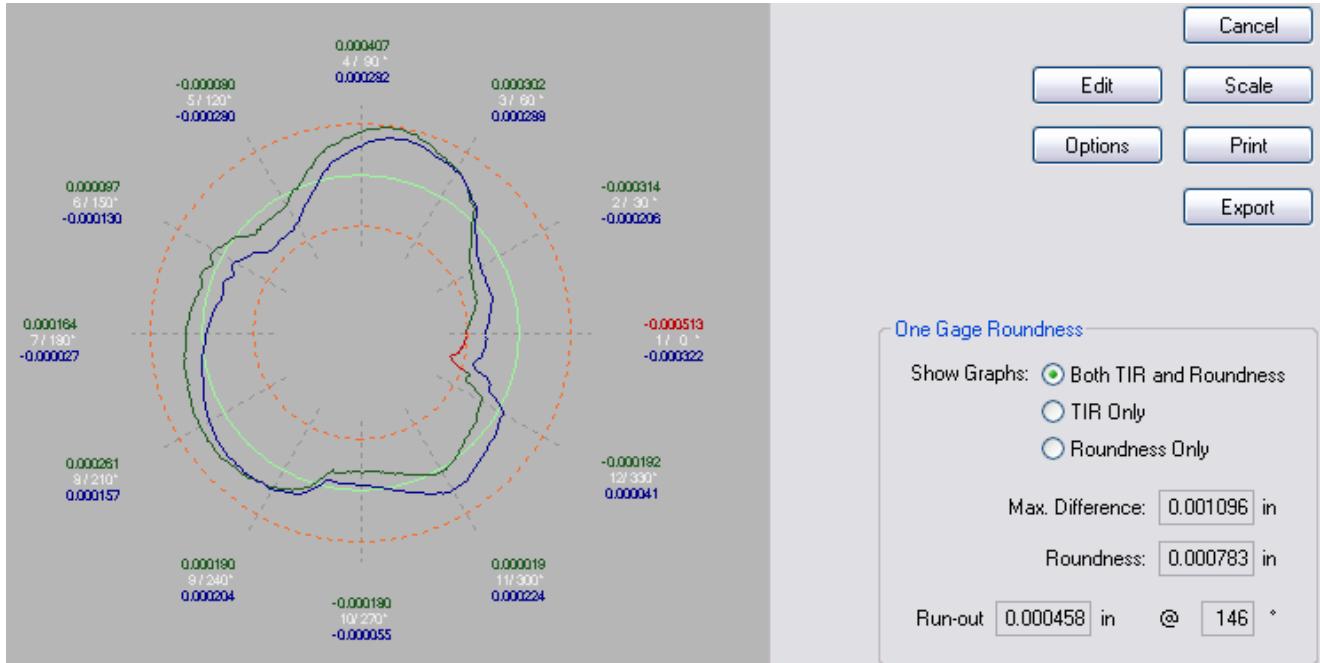


## Some of the features of most elaborate RollTrack® software:

- ▶ Store and edit work piece information by work piece or job numbers.
- ▶ A page for additional data for each work piece or job number.
- ▶ Save, edit, delete work piece and measurement data before and after saving.
- ▶ Change scale, tolerances, and # of stations before or after saving a report.
- ▶ Taper correction of a straight profile.
- ▶ 'Examine graph' for readings and locations between the stations.
- ▶ Centered or non-centered graphs.
- ▶ Low, standard or high resolution.
- ▶ Easy switching between inches/mm.
- ▶ Data fields for customizing report form quickly.
- ▶ Measurement results can be exported as a file.
- ▶ Optional customized software for your application



**Screenshot 1:** Total Indicator Reading Graph (mm).



**Screenshot 2:** Total Indicator Reading and Roundness graphs (inches).

### **General specifications of a basic roundness measuring machine:**

Diameter of worktable: 200 mm (8")  
 Speed of rotation: 0.5, 1.0, 2.0, 3.0 RPM  
 Maximum weight of workpiece: 20 kg (44 lbs)  
 Maximum height of workpiece: 250 mm (10")

Gauges: Digital lever probe for ID and OD measurements, or linear encoder for OD only.  
 Gauge accuracy: 0.1  $\mu\text{m}$ , (0.000004 in).  
 Gauge resolution: > 0.01  $\mu\text{m}$   
 PC display resolution: 0.001 mm, 0.0001 mm, 0.0001", 0.00001", or 0.000001"



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