

**AMETEK®**

**MicroPoise®**  
MEASUREMENT SYSTEMS

## Truck and Bus Tire Uniformity Machine

# FD90

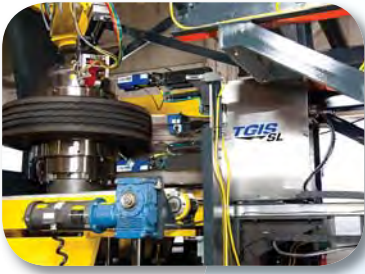


The FD90 Truck and Bus Tire Uniformity Machine is the industry's benchmark for uniformity measurement accuracy, speed and reliability. This ergonomically friendly, technically unique machine is specially designed to assure tire quality testing for all Truck and Bus tires.

Micro-Poise enhances the FD90 by integrating its Tire Geometry Inspection System, TGIS-SLT™, and incorporating a Rim Assist Mechanism for quick and efficient tooling changes.

Unique technology, such as the 8.5" Automatic Adjustable Width Chuck (AAWC), combined with rugged construction makes the FD90 the most complete solution available in the tire manufacturing industry for all Truck and Bus tire uniformity testing requirements.

For performance-driven decision makers, *The World's Tire Industry is turning to Micro-Poise.*



Optional Tire Geometry Inspection System TGIS-SLT™



Tire Centering and Lubing Station



MS Windows® Based TQC-PC™ Computer System

## Features and Benefits

**Patented Technology** such as the Automatic Adjustable Width Chuck (AAWC) automatically adjusts the bead width on the lower tooling to allow for different size bead width tires to be measured by the machine without requiring a tooling change.

- ▶ The AAWC maximizes throughput and minimizes downtime of the FD90 which allows for the maximum amount of tires measured in a single work period.

**Integration** of the Tire Geometry Inspection System with 'Sheet of Light' for Truck (TGIS-SLT™) allows for greater measurability on the FD90.

- ▶ The TGIS-SLT™ uses patented AkroSCAN™ laser sensors to measure for depressions or bulges on the sidewall and the tread on Truck and Bus tires. This measurement assures better ride quality and measurement accuracy.
- ▶ Reduces warranty claims and improves quality fill rates.

## Technical and Machine Performance Specifications

Tire Size/Handling Capability	Metric	U.S Customary
Bead Diameter	406/678 mm	16/25.5 inch
Bead Width	102/457 mm	4/18 inch
Cross Section	127/584 mm	5/23 inch
Maximum Tread Width	508 mm	20 inch
Outside Diameter	711/1524 mm	28/60 inch
Minimum Rolling Radius Load	330 mm	13 inch

Force Measurement Range	Metric	U.S. Customary
Maximum load	5670 kg	12,500 lb
Radial Force Variation Composite Peak-to-Peak	0-454 kg	0-1000 lb
Lateral Force Variation Composite Peak-to-Peak	0-227 kg	0-500 lb
Conicity CON = $(LS_{cw} - LS_{ccw})/2$	±227 kg	±500 lb
Ply Steer PLY = $(LS_{cw} - LS_{ccw})/2$	±227 kg	±500 lb

Cycle Time	
Dual Direction Test	52 seconds
TGIS-SLT	Does not add to cycle time
Marking at Exit Station	Does not add to cycle time

## Features and Benefits continued

**Innovative Technology** such as our Rim Assist Mechanism makes changing tooling quick and efficient.

- ▶ The Rim Assist Mechanism allows for a one person tooling change to be made in minutes. This operation maximizes throughput of the FD90 while minimizing downtime of the machine.

The FD90 offers a wide range of features that keep the operator and bystanders' protected during operation.

- ▶ The FD90 can be stopped at any time using the emergency stop function on the display panel and by various stop cables placed around the machine to prevent accident from a falling tire or malfunctioning machine component. Stop buttons are also placed at different locations around the machine.
- ▶ The FD90 utilizes Integrated relays, photo-eyes, and guarding to ensure overall operator protection.



Rim Assist



Entrance/Exit Lift Gate



FD 90 Spindle Assembly

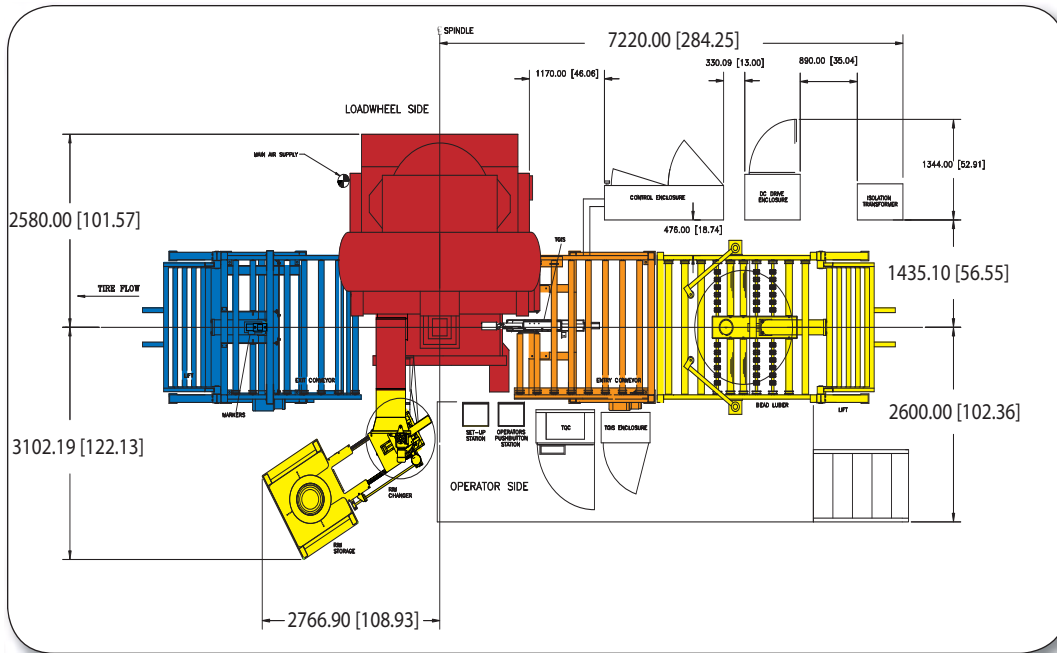
## Technical and Machine Performance Specifications

Runout Measurement Capabilities	Metric	U.S Customary
Maximum Runout	±6.35 mm	±0.250 inch

Machine Repeatability	Range		Repeatability	
	daN	lb	daN	lb
Radial Composite and Harmonic	444	1000	$\bar{\sigma} \leq 1.35$	$\bar{\sigma} \leq 3.04$
Lateral Composite and Harmonic	222	500	$\bar{\sigma} \leq .68$	$\bar{\sigma} \leq 1.53$
Conicity	± 222	± 500	$\bar{\sigma} \leq .68$	$\bar{\sigma} \leq 1.53$
Radial and Lateral Runout Composite and Harmonic	± 6.35	± .250	$\bar{\sigma} \leq .04$ mm	$\bar{\sigma} \leq .0016$ inch

Accuracy of Machine Components	Metric	U.S. Customary
Tire inflation pressure during test	± 1.379 kPa	± 0.2 psi
Tire loading, rolling radius	± 5.08 mm	± 0.20 inch
Loadwheel T.I.R. maximum	0.0013 mm	0.0005 inch
Loadwheel T.I.R., overcoating, maximum	0.0254 mm	0.001 inch
Loadwheel face-parallel to its axis	0.013 mm	0.0005 inch
Loadwheel balance - in two planes, maximum	0.36 mm/kg	0.5 in-oz
Loadwheel to chuck or tire Axis unload parallelism, maximum	0.04 mm/m	0.0005 in-ft
Horizontal centerlines of chuck and loadwheel planes coinciding within	1.27 mm	0.05 inch
Deflection of tire axis, maximum	0.25 mm/m	0.003 in-ft
Tire loading, force	± 1% of Set Points	

## Layout Options



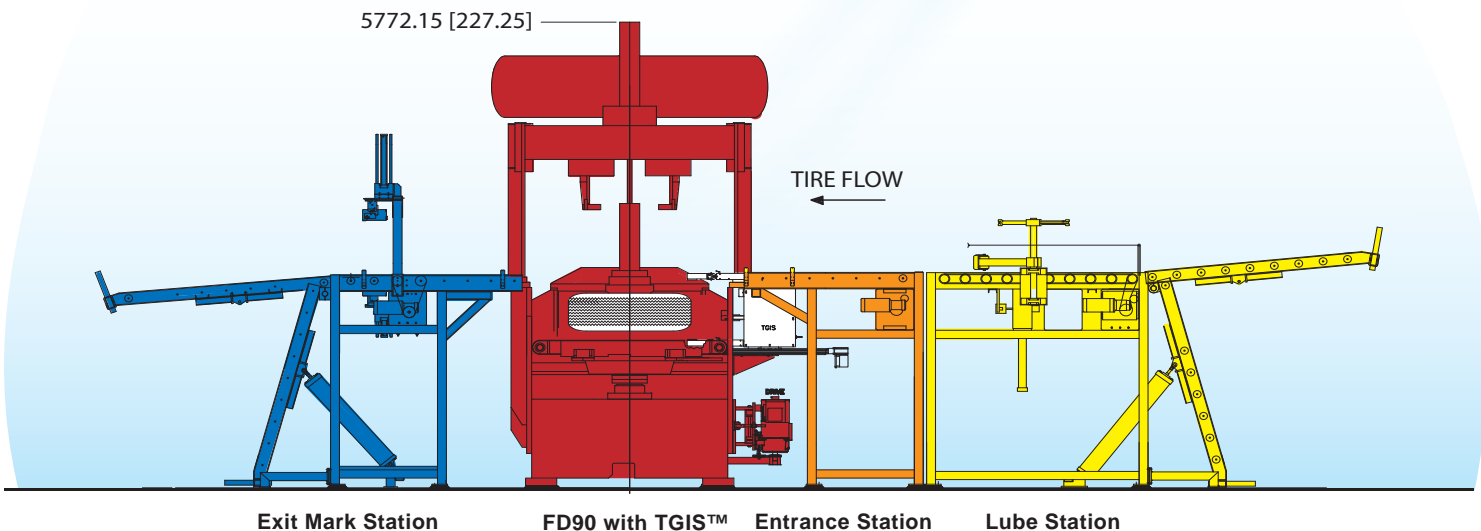
Optional Marking System

Layout shows FD90 with entrance and exit lift gates. This illustration also shows the optional Rim Assist Mechanism in front of the testing station. Also shown is the optional TGIS-SLT™ and exit station markers.

## FD90 System

The FD90 system is shown here with entrance and exit lift conveyors, tire lubrication station, entrance/centering station, the FD90 uniformity machine with TGIS-SLT, and available marking station. These products combine to make the FD90 system the tire industry's most innovative and capable test system for Truck and Bus Radial tires.

With innovation such as the Rim Assist Mechanism added to the FD90 system, production throughput is maximized with operational convenience in mind. Maximizing throughput of quality tires enables production schedules to be met and improves bottom line results.





## Our Vision

Micro-Poise is committed to providing solutions to our customers - economical solutions that enhance product quality and dependability for your customers. Look to Micro-Poise to provide the complete systems, lowest cost options, value-added service, and manufacturing excellence that ultimately gives your customers the best ride performance.



## Key Advantages

- ▶ Your Key Technical Advantages
  - Patented enhancements such as the TGIS-SLT™ and the AAWC make the FD90 versatile.
  - With the AAWC tooling, the machine will automatically adjust to different bead widths and test conditions
  - Tooling change made simple using the Rim Assist Mechanism
  - Modern controls with recipe management and diagnostics
- ▶ Your key Process Advantages
  - Best measurement accuracy for uniformity in the industry
  - Only one operator required
  - Best throughput commercially available
  - Integrated Laser Measurement

Check out the FD90 Features and **Benefits** inside



## Aftermarket Services

Supporting all Micro-Poise Measurement Systems solutions, machinery, and supporting products is our global Aftermarket Services organization. Please contact your local office, listed below, for details.

- ▶ Technical Services for Start-Up, On-Going maintenance, Preventive Maintenance, and Training.
- ▶ Parts and Tooling, Kits and Repairs
- ▶ Machine Modernization and full Refurbish and Rebuild capabilities

## Worldwide Support



For a complete listing of all representatives, please visit our website at [www.micropoise.com](http://www.micropoise.com)



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