MONOLITH GEO 3D

MONOLITH GEO 3D is the first Polish diagnostic wheel balancer. In addition to the basic wheel balancing function, the device features an innovative system for measuring runout and tread depth of the balanced wheel. The tread depth and radial run-out of the tire are measured using an additional camera and laser marker.



Technical Data

Rim diameter range:	10" - 30"
Rim width range:	2" - 15"
Maximum wheel weight	80 kg
Balancing accuracy	1 g
Imbalance position indicator accuracy	0.45°
Measuring speed	140 obr/min
Power of the drive engine	80 W
Electric supply	230V / 50 Hz
Pneumatic power supply	8 - 10 bar
Dimensions	980/1250/1990
Weight	120 kg

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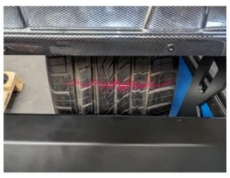
MONOLITH GEO 3D configuration:

- Camera for measuring radial run-out of the tire and tread depth
- Camera for measuring wheel parameters
- Automatic protection hood
- LOT-System (axis for weight positions " at 12 o'clock")
- Pneumatic quick clamp
- Pneumatic brake at unbalance position
- Calibration
- Voice synthesizer
- Laser adjuster
- Alu programmes
- Automatic positioning lock
- Contactless wheel parameters measurement
- Optimization
- USG rim width measurement
- Programme 3P - "hidden weight"
- Touchscreen LED monitor
- Print to file
- Operator's memory
- Automatic diameter, width and offset measurement
- Unbalance recalculating

Distinctive features:

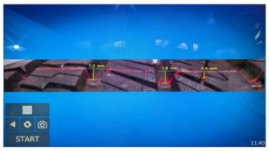
The clamping mechanism is operated using a convenient foot pedal.





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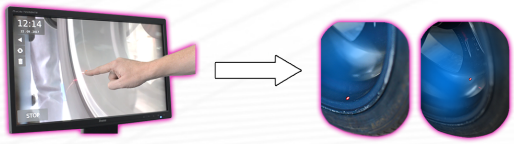
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The measurement results are displayed in a clear menu that helps the user verify the tire.

The balancer is equipped with a patented system of automatic wheel parameters input based on real camera image. The laser pointer defines more precisely the correction point and shows the exact position for adhesive weights application.



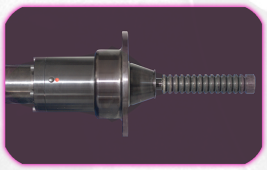




MONOLITH series is an ultra-modern balancing machine with even more accurate indication of the correction place. The laser beam sets axis "at 12 o'clock" eliminating the risk of mistakes in placing clip-on weights.

Modern pneumatic quick-clamp significantly shortens the wheel mounting time and eliminates the risk of eccentric wheel mounting. Clamp mechanism is controlled by ergonomic pedal.





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(12) **United States Patent**
Roguski et al.

(10) **Patent No.: US 10,281,355 B2**
(45) **Date of Patent: May 7, 2019**

(54) **METHOD AND SYSTEM FOR THE OPTICAL DETERMINATION OF CORRECTION PLANES IN ROTATING ELEMENTS**

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(73) Assignee: **UNIT S.C. WIESLAW ROGUSKI, JAN TWOREK**, Warsaw (PL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 279 days.

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(65) **Prior Publication Data**

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(51) **Int. Cl.**
G01M 1/28 (2006.01)
G01M 1/16 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***G01M 1/16*** (2013.01); ***G01M 1/225*** (2013.01); ***G01M 1/28*** (2013.01); ***G01M 1/081*** (2013.01); *H04N 7/181* (2013.01)

(58) **Field of Classification Search**
CPC G01M 1/16
(Continued)

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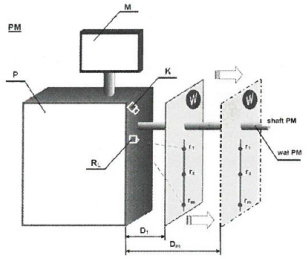
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(57) **ABSTRACT**

The subject matter of the present invention relates to a system for the optical determination of correction planes in rotating elements, used in the process of balancing, in particular in diagnostic devices equipped with a system which has at least one video camera (K), at least one line projector (RL), a monitor screen (M) and a computer (P) which controls individual component elements of the system, wherein the video camera (K) cooperates with the line projector (RL) while projecting a view of the rotating element (EW) on the monitor screen (M) together with an image of a line (L) projected by means of the line projector (RL).

The subject matter of the present invention also relates a method for determining correction planes which consists in that an area of measurement space is defined on the basis of a virtual rotating element (EW) before placing a rotating element (EW) on the shaft of a diagnostic device (PM) onto which line (L) is projected by means of line projector (RL), and subsequently a view of the rotating element (EW) is transmitted by means of the video camera (K) to the monitor screen (M) together with an image of the projected line (L), and thus the run of the line is obtained which maps a change in the value of the radius r_n from the axis of the shaft of the diagnostic device (PM) and the value of distance D_n of the rotating element (EW) from the diagnostic device (PM) in the defined area of measurement space.

6 Claims, 6 Drawing Sheets



Director of the United States Patent and Trademark Office

The device was awarded a gold medal at the TTM 2024 trade fair in Poznań.

Available Colors



Basic Colors



Custom Colors

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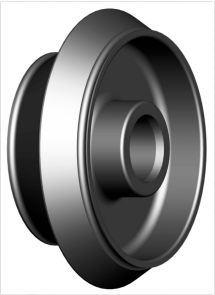
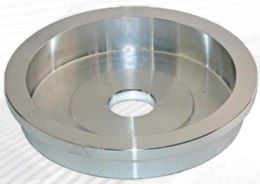
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Additional Equipment

Index	Description	Photo
DO-5P	Flange plate 5-bolts	
06.04.017.40	Cone 110-125 mm Ø40	
04.04.008.40	Cone 125-145 mm Ø40	
06.04.009.40	Cone 145-165 mm Ø40	

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Index	Description	Photo
150400043	Cone 122-174 mm Ø40	
190400018	Distance spacer for shaft Ø40	
PPK-1	Wheel lift PPK-1 for wheel balancer	
T-CĘG-001	Wheel Balancing Weight Plier& Hammer Tool	

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Index	Description	Photo
WT-2065-1	Wheel Weight Scraper Tool	

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