



TRIOPTICS

TRIOPTICS GMBH · OPTISCHE INSTRUMENTE

ImageMaster® PRO 9

MTF Testing with Outstanding
Speed and Performance



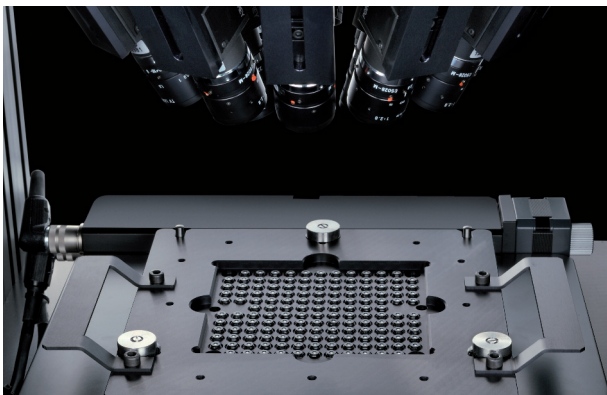
ImageMaster®

R&D Line
Universal Line
Production Line

Image Master® PRO 9

Outstanding Speed and Performance

As a result of various improvements the ImageMaster® PRO 9 enables customers to dramatically increase their yield. It is the fastest and most accurate MTF measurement system on the market for qualifying mobile phone lenses and other miniature objectives. Besides the new software architecture and functions, the more precise mechanical components lead to best performance in accuracy, reliability and measurement speed. Faster MTF algorithms reduce the test cycle time so that an outstanding throughput is achieved.



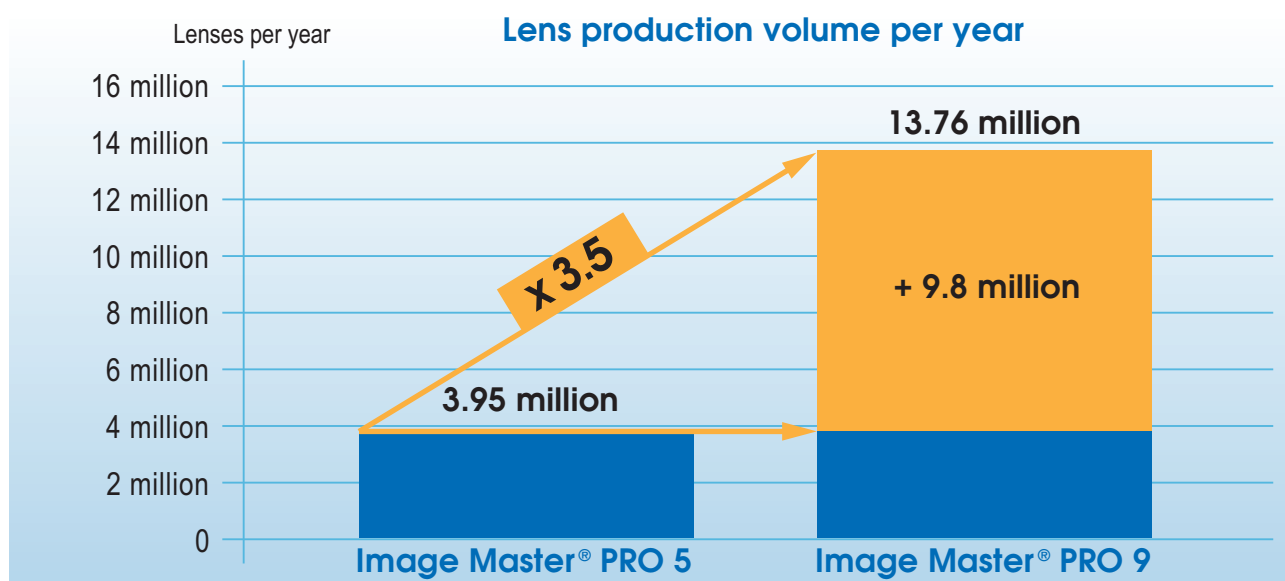
Measurement chamber with up to 25 cameras

The ImageMaster® PRO 9 is 3.5 times faster than the ImageMaster® PRO 5 and can measure up to 9.8 million lenses more per year compared to its predecessor as shown in the diagram below.

The exceptional innovations make this MTF production tester ready for future needs and upcoming high resolution megapixel lenses.

Advantages of the new ImageMaster® PRO 9 at a glance:

- Reduced measurement time leads to significantly higher throughput: Less than 1.5 seconds per sample
- Excellent accuracy: 2% MTF off-axis for yield improvement
- Outstanding quality of components
- Higher yield by automatic sample tilt correction by software
- Vibration isolated measurement chamber
- Improved reticles for high resolution lenses
- Up to 49 measurement points in 25 field positions (cameras)



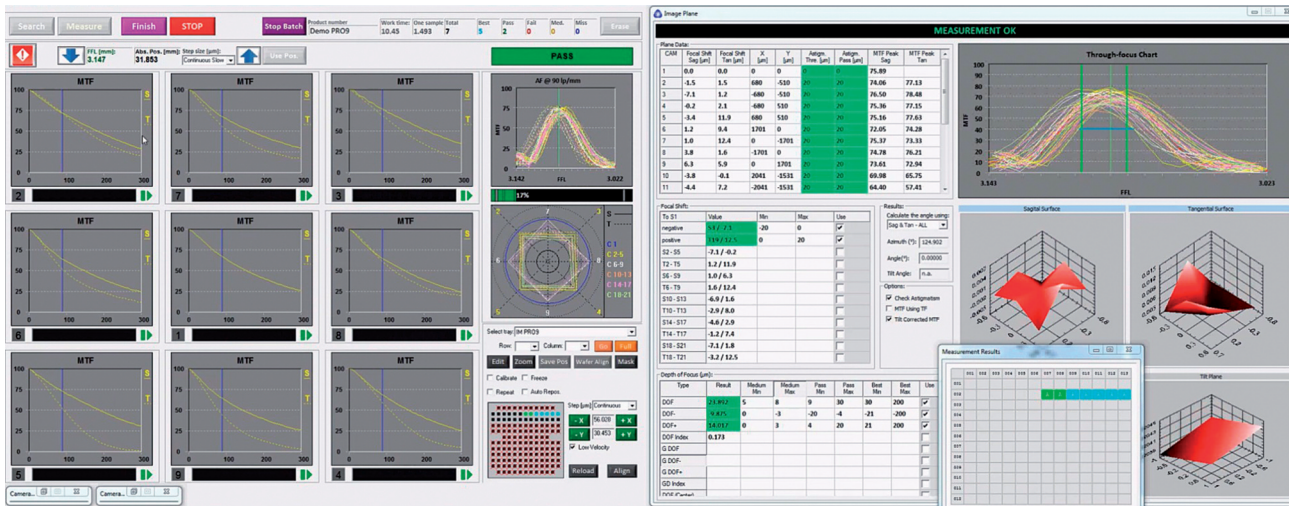
Productivity comparison ImageMaster® PRO 5 and ImageMaster® PRO 9

ImageMaster® PRO 9

Software

The recognized ImageMaster® PRO software has been further improved. It convinces with increased speed, advanced performance

and clearly displayed test results. The optimized MTF algorithms are the result of the continuous improvement and long experience of TRIOPTICS in the field of MTF measurement.



Enhanced ImageMaster® PRO Software

Technical Specification

	ImageMaster® PRO 5	ImageMaster® PRO 9
Optical set up	Infinity-finite conjugates	Infinity-finite conjugates
Max. spatial frequency	400 lp/mm	600 lp/mm
Accuracy MTF on-axis	2 % MTF (up to 300 lp/mm)	1 % MTF (up to 350 lp/mm)
Accuracy MTF off-axis	3 % MTF	2 % MTF
Accuracy EFL (Effective Focal Length)	5 µm	5 µm
Accuracy FFL (Flange Focal Length)	8 µm	8 µm
Measurement time display on axis	2.7 sec/sample	1.5 sec/sample
Measurement time display all axis	5.4 sec/sample	1.5 sec/sample
Throughput of samples (Units per hour)*	600 UPH	2290 UPH
Measurement points	25 (13 field positions / cameras)	49 (25 field positions / cameras)
Dimensions (height x width x depth)	1350 mm x 1330 mm x 660 mm	1350 mm x 1330 mm x 805 mm
Weight	180 kg	180 kg
Sample holder / trays	3 point kinematic mount tray	3 point kinematic mount tray with certified reference flatness
Sample quality classes	3 quality classes	4 quality classes
Clean room class FS 209 / ISO 14644-1	100 / ISO 5	100 / ISO 5

* 10 seconds for changing trays, 1 tray includes 148 samples



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