

MARPOSS

M110 *Optoflex*

OPTOELECTRONIC FLEXIBLE MEASURING MACHINE FOR CHECKING SHAFTS

VERSATILE

Thanks to its rugged design, the M110 Optoflex™ is perfect for measuring parts in the shop floor environment. It can be integrated into a production line for inter-operational or final inspection of parts and can be used as an audit station or for post-process inspection after the machine tool.

FLEXIBLE

A characteristic of the M110 Optoflex is the very high level of flexibility. The use of shadow cast optoelectronic technology allows for the inspection of a great variety of shafts while performing many different types of measurements, without the necessity of retooling and without part contact.

RELIABLE

The M110 Optoflex is designed and built using the most advanced engineering methods, making it an extremely reliable and accurate instrument.



Part loading

Part loading on the M110 Optoflex is external to the measuring area ensuring better protection of the measuring station against the risk of mechanical damage and a greater immunity to dirt.

Measuring station

The measuring station is composed of a robust steel supporting bar design. To it are fixed a slide and the optoelectronic measuring head. The measuring group is moved along the slide by means of an electric motor and its position is continuously checked by an optical scale.

The optical head has the unique characteristic of a single light measurement plane. This allows for optimization of the measurement cycle and reduction of cycle time.

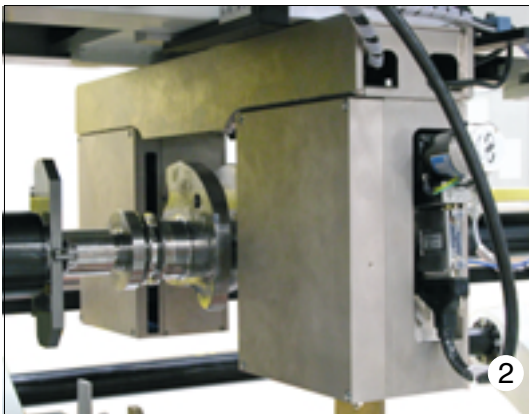
The following types of measurements can be performed:

- diameters (static or dynamic) of main bearings, pin bearings, flanges and their taper and roundness;
- distances and widths;
- check of grooves (minimum groove diameter, radius, width, position);
- radial TIR with respect to a mechanical or electrical axis;
- stroke;
- index.

By using a contact LVDT probe (optional), it is possible to perform an axial TIR check with respect to a mechanical or electrical axis. The measurement of parts does require that they are in a clean and dry condition.

Calibration

A universal reference master is located in the machine. A self-zeroing cycle is valid for the complete measuring range, regardless of the dimensions and shape of the parts to be measured.



1 - Part loading

2 - Measuring head with single light blade

3 - Axial TIR check by using a contact probe

4 - Calibration

Human Machine Interface

The machine is supplied with a Marposs E9066™ industrial PC, running Marposs Quick SPC™ software. This system displays the measurement results and allows programming of the machine control system.

Powerful measurement software allows precise analysis and definition of part profile and of the parameters to be measured.

To develop a measurement program, the operator needs only to select the required parameters on the part drawing present on the E9066 screen. Subsequently, the part program is automatically created and optimized by the measurement software.

The software also provides for the possibility of feed-back to one or more machine tools, assuring constant control of the production process.

Statistical Process Control

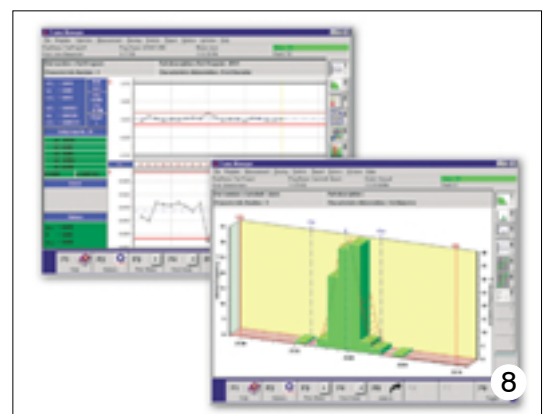
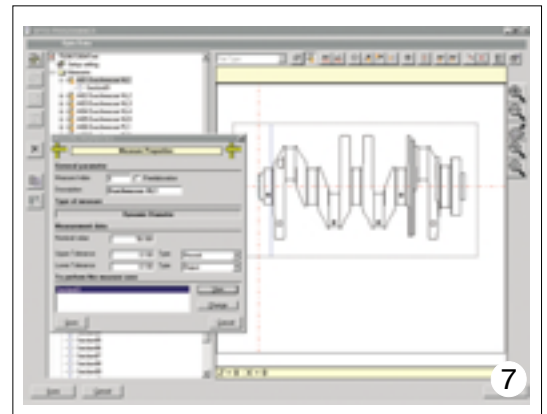
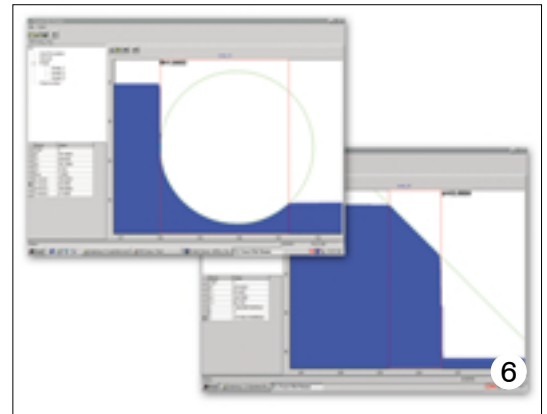
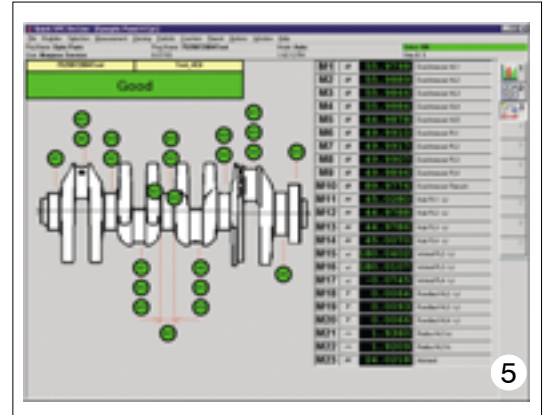
Quick SPC utilizes an embedded Q-DAS® statistical package for on-line variable data analysis (control chart, machine and process capability). Quick SPC has certified qs-STAT® compliant data storage.

Measuring System Analysis

Accuracy, Repeatability, Reproducibility, Linearity, and Stability studies are included and Data Evaluation can be run through the Marposs Measuring System Analysis (MSA) software module. Analysis can be seamlessly run through Q-DAS® MSA software package as well (optional).

Network

Quick SPC software allows seamless integration to virtually any network client and data base architecture, including Industrial networks (Profibus, Interbus-s, etc.).

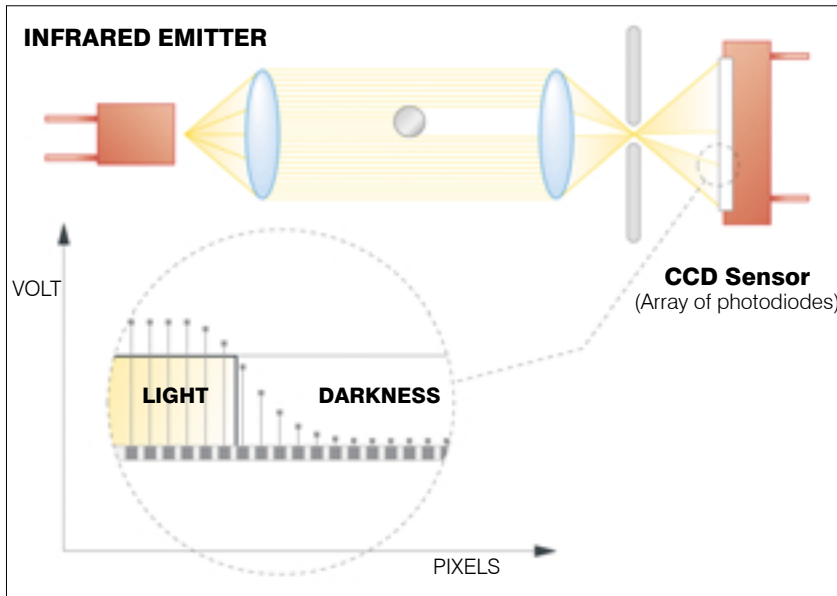


5 - Synoptic panel on screen

6 - Part profile analysis

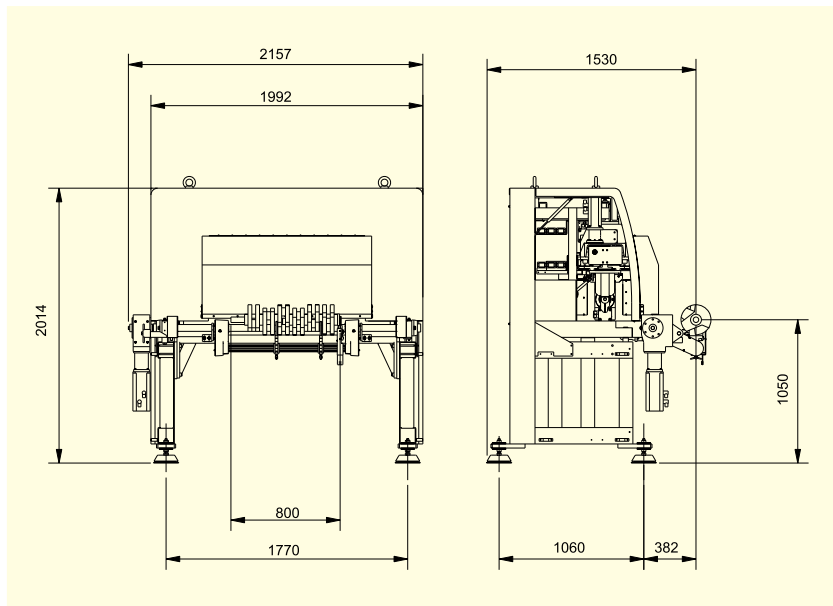
7 - Programmation

8 - Statistic



Measuring principle ("shadow cast")

The operating principle consists of projecting the shadow of the edges of the part to be measured onto a linear array of photodiodes (CCD) by means of a precisely aligned light beam. The darkness-to-light and light-to-darkness transitions are located on the CCD sensor with subpixel resolution and correlated with the dimensional value of the dark area.



Machine dimensions

		Note
Length	1.530 mm (60.24")	With loading arms
Width	2.157 mm (84.92")	For shafts up to 800 mm (31.5") long
Height	2.014 mm (79.29")	With loading height of 1.050 mm (41.34")
Weight	~2.300 kg (~5,070 lb)	Electrical cabinet excluded

Shaft dimensions

	Maximum
Length	800 mm (31.5")
External diameter	200 mm (7.87")
Overall dimension	240 mm (9.45")
Weight	80 kg (176 lb)

Measuring uncertainty

	U95 ⁽¹⁾
Dynamic diameter	2 μm
Static diameter	3 μm
Distance	(6 + L [mm]) / 200 μm

(1) - Defined using Marposs specifications on ground master in reference conditions



MARPOSS
www.marposs.com

For a full list of address locations, please consult the Marposs official website

D6M11004G0 - Edition 07/2003 - Specifications are subject to modifications
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Marposs has an integrated system to manage the Company quality, the environment and safety, attested by ISO 9001, ISO 14001 and OHSAS 18001 certifications. Marposs has further been qualified EAQF 94 and has obtained the Q1-Award.

