

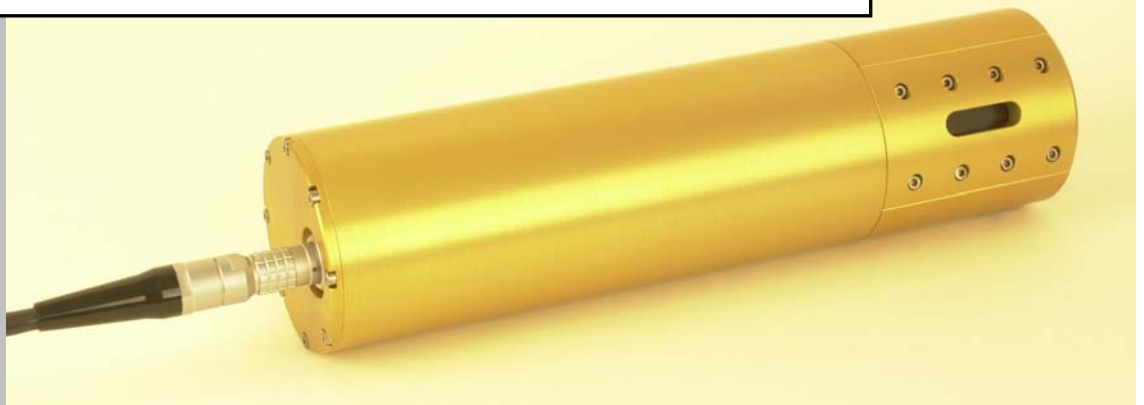
**Metrology specialists**

**Advanced Non-Contact Measurement Products**



**New Product**

**OMC Laser Profiler 15/50**



*Technology  
for internal  
inspection*

Robust  
High-speed  
Accurate  
Non-contact

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**Advanced Non-Contact Measurement Products**



## Overview

The OMC laser profiler has been created in response to demand from a wide range of clients. The tool has been tested in steel, plastic, clay and cast iron pipes, concrete cavities, epoxy coated structures and ductings. Clients include those from the military, water, waste and offshore industries.

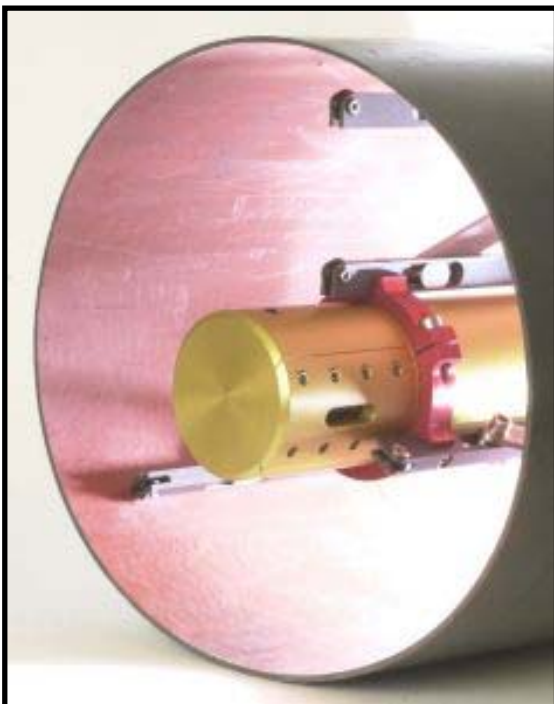
The profiler measures internal shapes from 140 to 480 mm diameter. A profile is created using a laser triangulation probe that is rotated through 360 degrees. The angle of the probe is recorded by an optical encoder. Up to 1000 measurements can be recorded per second. A typical profile will usually consist of 2000 measurements and takes about three seconds to collect. Variations in surface colour are taken into account automatically, allowing the profiler to measure objects from black to white. An internal inclinometer for vertical profiles ensures that all profiles can be referred to vertical regardless of the rotation of the device.



## Applications

The system has been proven in use in both the offshore oil and water/waste industries in an extensive research and development phase. The profiler is robustly built to operate in industrial environments, for example:

- Oil and gas pipe measurement
- Plastic pipe deformation
- Manufacturing quality assurance
- Water and waste asset management
- Nuclear industry pipe condition assessment
- Process industry ducting and pipe-work checking



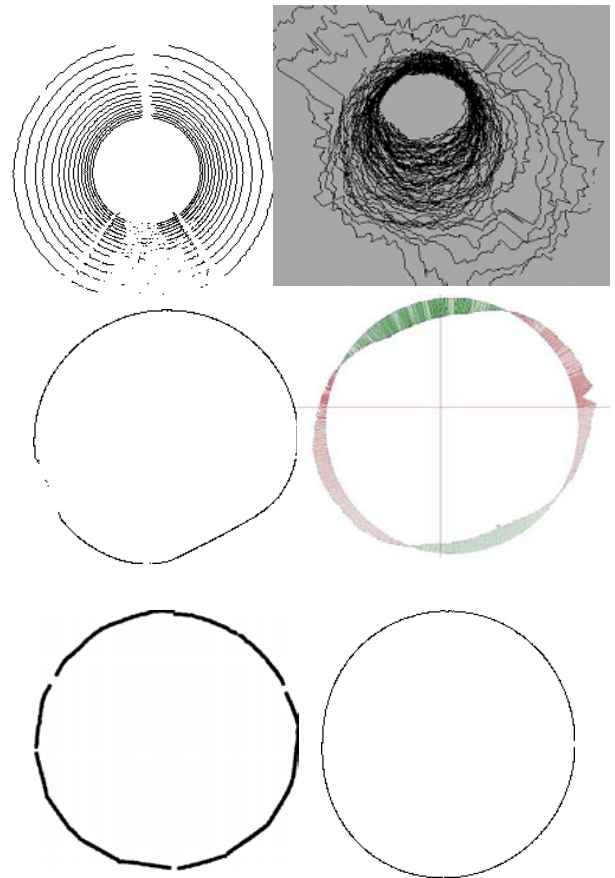
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## Profiles

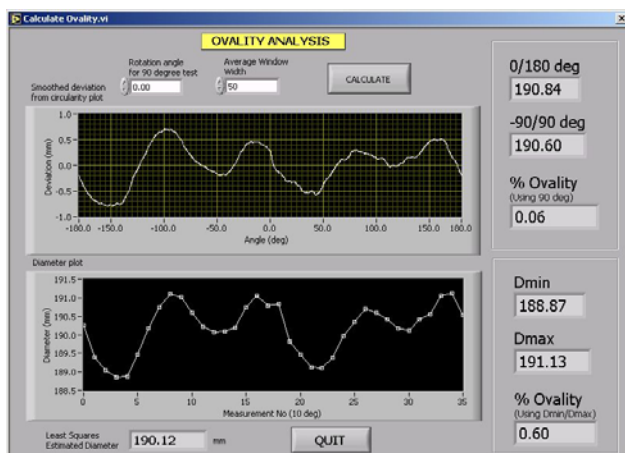
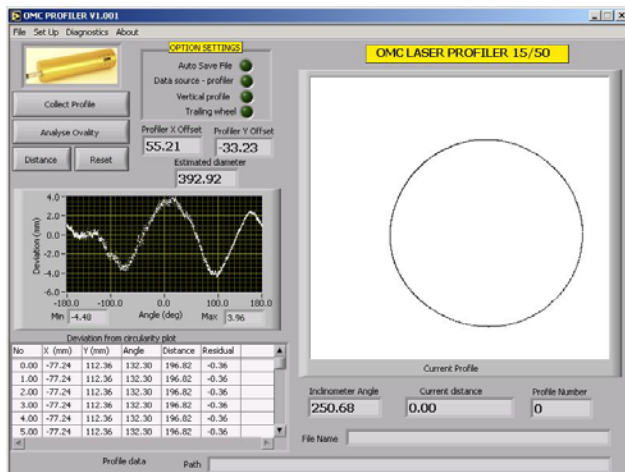
A profile of a pipe or similar structure can identify characteristics such as ovality, cracks, dents, cavitation or a manufacturing defect. In comparative mode, the information can indicate the extent of deformation over a period of time or the thickness of coatings (e.g. epoxy) in 'before and after' measurements. The system can also be used to create inventories (like measurements of pipe sizes for relining) and to survey internal structures for replacement and modification. Plastic pipes can be surveyed to assess whether the pipe has been bent at too great an angle, which may lead to problems in the future. The profiler has many uses in the measurement of other shapes such as rectangular ducting or moulds and in quality control of key features in manufactured components.



## Software

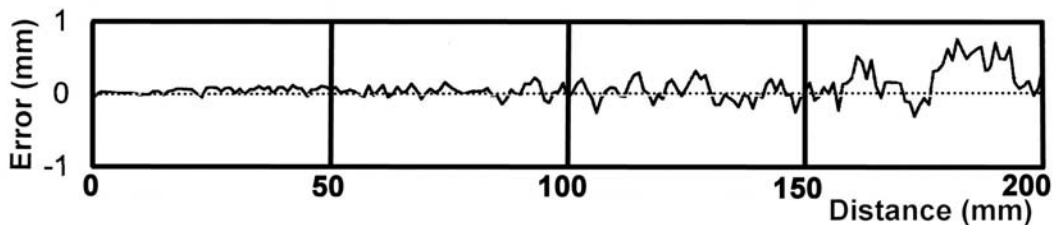
The profiler comes with either Microsoft Windows™ software or with an optional Software Development Kit for National Instruments "Labview" that allows the user to integrate the system into their own applications. The basic software allows the user to perform least squares circle fits and computes ovality measures where appropriate. The resulting information is automatically stored to disk in a sequential manner, allowing rapid inspection of pipes or other structures.

The user interface provides: automatic incremental file save, circle fit and deviation plot, and spreadsheet access to profiler information.



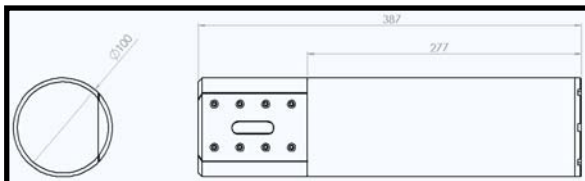
## Technical Data

Size	100 mm dia x 387 mm long
Range	Max dia. 128–528 mm, Typ dia. 140–480 mm
Resolution	0.1 mm
Distance accuracy	Between 0.1 and 0.8 mm, see error plot below
Angular accuracy	0.1 degrees
Inclinometer resolution	0.1 degrees
Communications	2 x RS232
Cable length	Max 20 metres
Interface	PCMCIA card to portable PC
Power	24 Volts DC or 110-240 V AC or internal 24 V 1.7 Ah NiCad battery (optional)
Current	Less than 1 Amp
Software	Windows 2000
Safety	Class II visible Laser of < 1 mW output
Weight	6 Kg



Error plot for a typical sensor measuring to a white ceramic target

## Construction



- Anodized aluminium
- Lemo connectors
- Highly durable design suitable for general use.

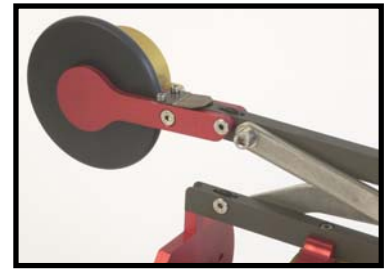
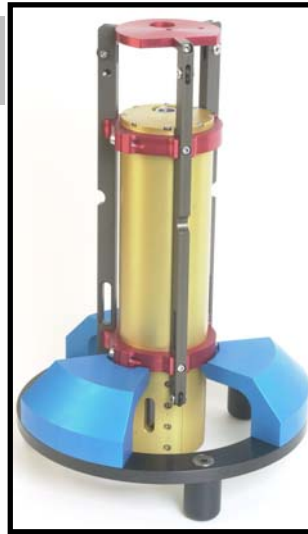
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## Additional Options

- Adjustable diameter skids with integrated wheels
- Industrial computer
- Daily check artefact
- Battery power supply pack
- Motorized tractor unit
- Pushrods
- Longitudinal distance sensor
- Labview Software Development Kit



## Optical Metrology Centre

OMC is a UK based business that specialises in non-contact measurement products and services. The company was formed in 2001 following three years of successful operation within City University, London. The company has gained a reputation for providing novel and innovative solutions to a wide range of industries throughout the world. OMC is headed by Dr. Tim Clarke who is well known in the field of non-contact metrology. He has been the winner of a number of industry prizes, and has published many papers in this field.



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