Zumbach

SWISS PRIME MEASURING SINCE 1957

PROFILEMASTER®
PMM Series

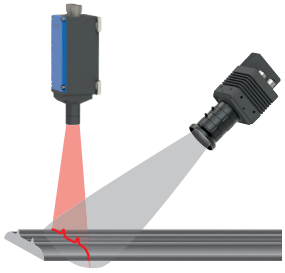
In-Line Profile Measurement Systems for Plastics and Cold Metal Applications

PROBLEM DEFINITION AND SOLUTION

The PROFILEMASTER is a non-contact measuring system for real-time monitoring of continuously manufactured products. It generates a complete log for each production run, while significantly reducing start-up times and scrap. Thanks to its unique concept, accurate and reliable measurements can be guaranteed for virtually any profile shape, regardless of the position and/or twist. An integrated, state-of-the-art software toolbox allows the user to obtain relevant parameters, angles, widths, thicknesses, radii, depths, gaps, diameters or deviations from the nominal value. Profile shapes can be imported directly from DXF files.

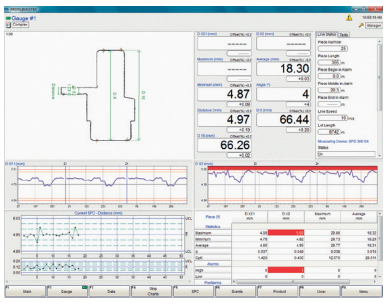
- For all profiles and pipes including steel, metal, plastic, rubber and other materials
- Measures and monitors product geometry continuously
- Displays key dimensions, angles, radii, etc.
- Alerts operator when product is out of tolerance
- Improved process control and CpK
- Scrap reduction → Savings on raw material and post processing costs
- Increased product quality = Higher customer satisfaction
- Seamless integration of the PC-based system with your network

MEASURING PRINCIPLE

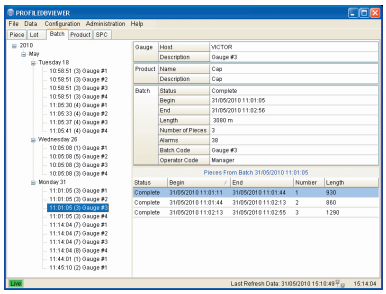


The measuring principle is based on 2D laser triangulation respectively light-sectioning technology. Four or more lasers illuminate the product surface and the associated matrix cameras capture the light contour from an oblique angle. A powerful and fast computer and the PROFILEMASTER software combine the captured segments into an orthogonal profile cross-section.

OPERATION, DISPLAY – LOGGING

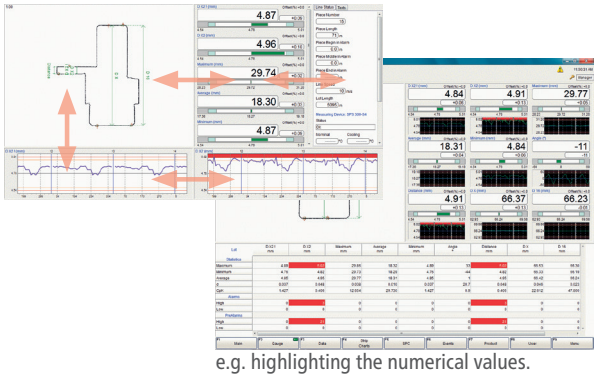


Main Screen
The basic work area shows a summary of the basic data of the measuring process. From here, various windows can be opened with detailed information on statistics, product, SPC etc. The main screen is always visible as the background of the application.

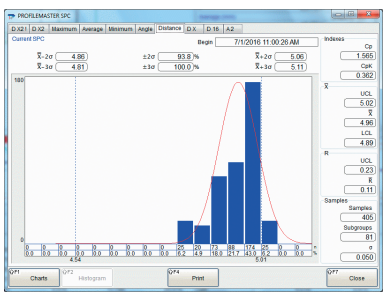


Database
All measurement data is stored and subsequently viewed. Storage criteria and individual texts allow clear identification. The data is displayed as cross-section graphs, strip charts or in numerical form.

Customized Screen Layouts
Depending on the application, the individual zones within a main screen can be customized in order of importance:



e.g. highlighting the numerical values.



Histogram
Display of current SPC data.

TECHNICAL DATA

Model	PMM 30/50/80	PMM 130-4K	PMM 160-6K
Number of cameras	4	4	6
Min. product dimension	2 / 3 / 5 mm (.08 / .12 / .20 in.)	10 mm (.4 in.)	
Max. product dimension Round, diameter Square, width	 32 / 48 / 73 mm (1.26 / 1.89 / 2.87 in.) 23 / 34 / 51 mm (0.9 / 1.34 / 2 in.)	 117 mm (4.60 in.) 83 mm (3.27 in.)	 144 mm (5.67 in.) 102 mm (4.02 in.)
Repeatability * (3 σ)	0.001 mm (.00004 in.)	0.002 mm (.00008 in.)	
Accuracy *	+/- .02 / .02 / .025 mm (.0008 / .0008 / .0009 in.)	+/- .04 mm (.002 in.)	
Measurement rate	up to 150/s	up to 50/s	
Light sources	Visible Laser Diode (VLD), class 3R	Visible Laser Diode (VLD), class 3R	
Display resolution	0.001 mm (.00004 in.)	0.001 mm (.00004 in.)	
Line speed	unlimited	unlimited	
Weight	49 kg (108 lbs.)	46 kg (101.41 lbs.)	
Protection class	IP 65	IP 54	
Fields of application	Cold steel, metal, plastic, rubber	Plastic, rubber	

Data acquisition and processing system	
Operating system	Windows™
Display	High-resolution TFT 19" colour screen
Network interfaces	2 x Ethernet (1x customer / 1x Zumbach)
Communication interfaces	Digital inputs/outputs, relay outputs

Windows™ is a trademark of Microspot Corporation

* All indicated values correspond to the system technical specification, using certified round and rectangle standards in a static position at the center of the measurement field of the unit, under controlled temperature and humidity ambient conditions.

A SYSTEM FOR ANY REQUIREMENT

When designing the PROFILEMASTER system, the aim was to find the most suitable solution in terms of price /performance ratio for the application.

- Due to the modularity of the PROFILEMASTER system this goal could be achieved.
- The combination of 4 to 6 laser/camera modules allows the measurement of virtually all shapes, achieving an optimal measurement result with the smallest possible number of laser/camera modules.

The use of the system is practically unlimited due to the numerous model versions, with different protective housings. Allowing the PROFILEMASTER system to be used in a wide range of applications. The range extends from the laboratory applications over extrusion lines for plastics and rubber profile as well as harsh environments that are typical in the production of steel and metal profiles.

Compact Unit
With 4 or 6 measuring modules for universal use in different industrial applications. The C frame design allows for a speedy and optimal installation.

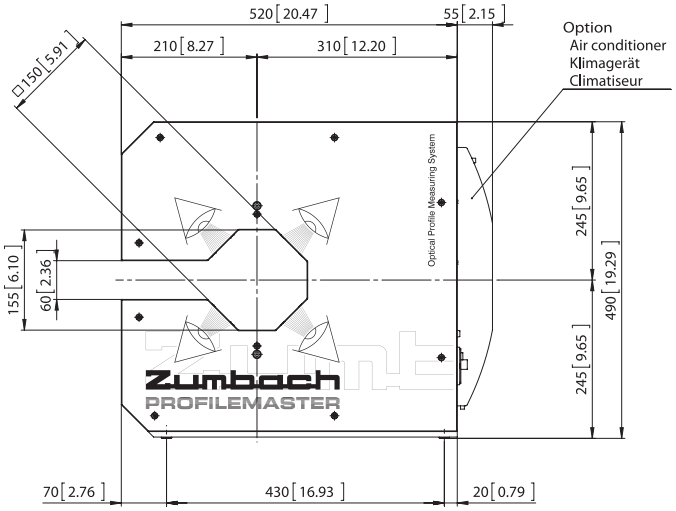
Processor and Display Unit
– Graphical user interface with SPC, data base, remote access, I/O
– Industrial PC, LCD screen, keyboard and mouse

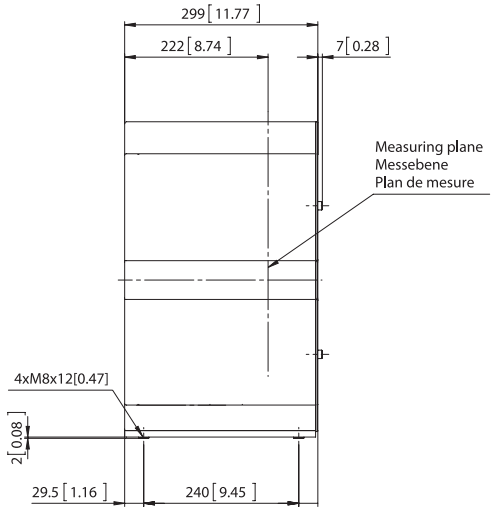
Compact version

or

19"cabinet with reserve space for printer

DIMENSIONS PMM 30/50/80





- Measuring unit with additional product guides and mounting plate

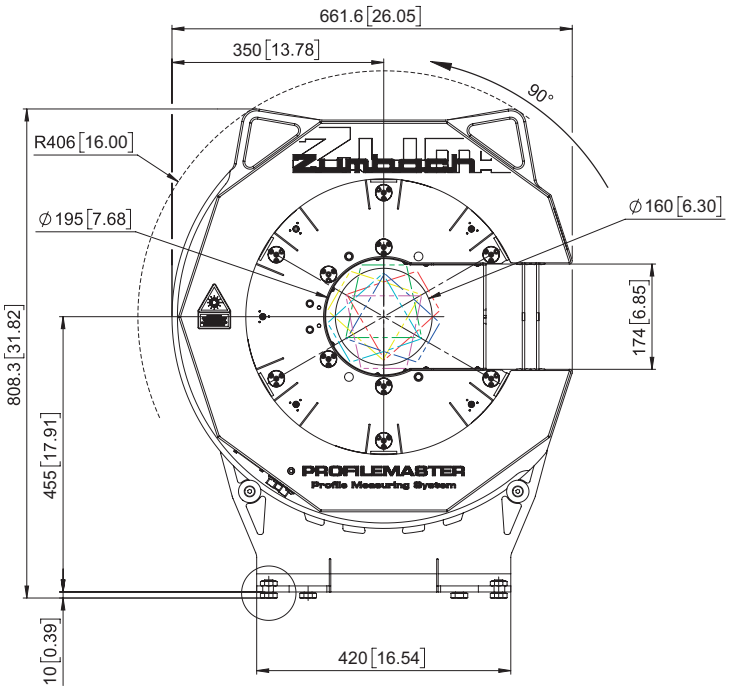
- Measuring unit with antiglare shield

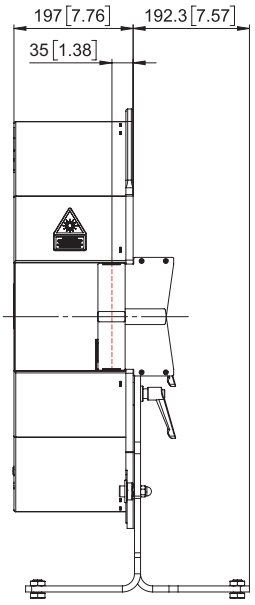
- Floor stand ST 7
  Line heights:
  853...1153 mm
  (33.58...45.39 in.)

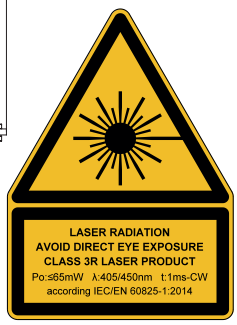
- Measuring unit mounted on an additional, angle-adjustable adjustment device.

- Measuring unit with air purging unit.

DIMENSIONS PMM 160-6K







• Specifications are subject to change without notice

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