



Setting and measuring optically in the entry-level segment

UNISET-C



DIRECT, INTUITIVE MEASURING AND SETTING

UNISET-C

Optical setting fixture with straightforward handling and intuitive software

One thing was in particular focus during the development of the new UNISET-C setting fixture from MAPAL: simple handling for optical setting and measurement in the entry-level segment. The UNISET-C has a compact design, the tool to be measured is easily accessible. The measuring arm, with optical measuring camera and additional light source with dimmer, can be moved intuitively both horizontally and vertically to the required position using a handle.

A sensor controller integrated into the handle activates the laser in the measuring arm when touched. The laser simplifies quick movement

to the desired tool position, as the current camera position is always visible as a red light dot. Fixed tools, in particular, solid carbide or PCD tools, can be quickly and easily measured and set using the UNISET-C. The maximum tool diameter is 400 mm, the maximum tool length can be selected as either 400 or 700 mm.

The UNISET software already in use on other MAPAL setting fixtures has been adapted to the UNISET-C with user-friendly measuring functions. A greatly simplified operator mode with pre-defined setting programs for certain tool types makes the work easier, even for only occasional users of the fixture. Integrated

control geometries permit fully automatic measurements within a few seconds. To retrieve or log tool data more quickly, tool code chips can be used as an option. The UNISET software can be expanded or modified on customer request.



SOFTWARE FEATURES

- User-friendly, customisable UNISET software
- Straightforward, intuitive cutting edge configuration (radius, angle, maxima)
- Optional tool identification software with tool code chip
- Straightforward setting of the measuring range
- User-friendly programming for individual program runs

FEATURES

- Precise setting and measuring optically in the entry-level segment for electronic setting fixtures
- Measuring arm with measuring camera for additional light and transmitted light measurement
- Handle with sensor control
- Tools can be set up to diameter 400 mm and length 400 or 700 mm; caliper gauge principle: 100 mm
- Additional light source with dimmer for optimal inspection work

ADVANTAGES

- Quick, easy handling due to freely moving measuring arm and comprehensive, intuitive software
- Usual high MAPAL quality
- Compact, space-saving design with high level of accessibility
- Laser light on the measuring arm eases movement to the measuring position



Technical features



1 Vertical guide tower

The vertical guide tower can be moved horizontally on a highly precise linear roller guide. A vertical guide is integrated into the guide tower; the measuring arm is positioned for height using this guide.

1.1 Fine adjusting wheel

The measuring arm can be moved precisely in the vertical using the rotating fine adjusting wheel.

2 Touch monitor

The MAPAL UNISET software modified for the UNISET-C makes menu-based measuring and setting including a database function possible. Operation is very easy by means of optional touchscreen operation on the 19" TFT flat screen monitor. If Internet access is allowed, remote maintenance or the installation of updates is possible.

3 Measuring arm

The measuring arm has an optical measuring camera and an additional light source with dimmer. The measuring arm can be moved quickly and straightforwardly both horizontally and vertically to the required position using a handle. A red laser light is activated on the actuation of the handle; this light helps with alignment on the measuring position.

4 Controls

The controls contain buttons, with which the additional light can be dimmed, the spindle clamped, closed or engaged (indexed). The measuring arm can be moved precisely in the horizontal using the rotating fine adjusting wheel.

5 Precision spindle SK50

The precision spindle with roller bearings for SK50 shanks is equipped with a pneumatic clamping mechanism.

6 Base

The optional base can be moved and contains the PC for the camera and software and also permits working while seated. There is enough stability to be able to set tools without vibration.



Optical measurement

A five-cutting edge solid carbide end milling cutter is to be checked for the stipulated values for cutting edge length and diameter after delivery from the re-grinding service.



Detail view of a solid carbide end milling cutter with projected laser spot for rough alignment of the measuring position.



1 After the milling cutter has been clamped in the tool spindle on the UNISET-C, the measuring arm is moved roughly to the cutting edge. This task can be undertaken very quickly with the aid of the laser. The cutting edge on the milling cutter is then positioned at the cross hair on the monitor with the aid of the fine adjusting wheel.



2 To measure the length and width of the cutting edge, the buttons "X" and "Z" are selected on the monitor. After actuation, the measurement is undertaken immediately and automatically and the measurement results are displayed on the monitor.



3 To measure all cutting edges, the value "5" is entered as the number of cutting edges and the measuring sequence initialised by pressing the start button. After the first measurement, the spindle is turned together with the tool to the next cutting edge. Once the cutting edge is at the cross hair on the monitor, the measurement is started. The next cutting edge is then moved to and measured. All cutting edges are measured in sequence using this method. Then the measurement results logged can be viewed and printed out for assessment.



Overview of the electronic setting fixtures

Selection aid based on product characteristics

Example tools and parts		
Features machined: <ul style="list-style-type: none"> - Boring - Drilling from the solid - Milling 		<ul style="list-style-type: none"> - Measuring fixed tools (solid carbide/PCD tools)
Features machined: <ul style="list-style-type: none"> - Cylinder bore - Roughing and semi-machining - Face milling/finishing - Boring 		<ul style="list-style-type: none"> - Measuring fixed tools (solid carbide/PCD tools) - Small to large face milling cutters - Turning tools
Features machined: <ul style="list-style-type: none"> - Camshaft bearing bore - Crankshaft bearing bore - Cylinder bore 		<ul style="list-style-type: none"> - Slender and long guided tools
Features machined: <ul style="list-style-type: none"> - Compressor housing rotor bore - Cylinder bore - Face milling/finishing 		<ul style="list-style-type: none"> - Guided tools - Multi-stage fine boring tools - Small to medium-sized face milling cutters - Cylinder drilling tool
Features machined: <ul style="list-style-type: none"> - Gearbox housing transducer bore - Face milling/finishing 		<ul style="list-style-type: none"> - Heavy guided tools - Large multi-step fine boring tools - Small to medium-sized face milling cutters

THE RIGHT SETTING
FIXTURE FOR

	Possible applications	Setting fixture	Properties
	Manufacturing in general >	UNISET-C 	
	Manufacturing in general >	UNISET-P 	
	Series production manufacture for engine and gearbox >	UNISET-H 	
	Series production manufacture for engine and gearbox >	UNISET-V standard 	
	Series production manufacture for engine and gearbox >	UNISET-V vision 	



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