



## INDUSTRIAL PARK NOVA GRADIŠKA Ltd.

- II Industrijski odvojak 2, 35400 Nova Gradiška, Croatia
- Tel/fax: +385 (0)35 35 99 11 • E-mail: info@ipng.hr • Web: www.ipng.hr

### Machinery and measurement equipment

#### INDUSTRIAL PARK NOVA GRADIŠKA Ltd.



DMG DMU 40 monoBLOCK is a universal CNC (Computer Numerical Control) milling machine, which allows simultaneous control in 3 to 5 axes, which enables production of the most complex parts in a single clamping. This provides a highly efficient and optimal machining of individual parts and serial parts. Mostly produced parts are flat shape (alignment, slots and grooves), profiles, threads, teeth, moulds, tools and all to the turbine rotor.



### CNC universal milling machine DMG DMU 40 monoBLOCK

Numerical controlled (NC) swivel milling head with controlled B-axis and numerical controlled rotary table, the C axis (5 axis)

Control unit - 3D control Heidenhain iTNC 530

#### Technical data:

##### *Work area:*

x / y / z – axis 450 / 400 / 480 mm

##### *Main drive motor spindle:*

- power output (40 / 100% DC) = 15 / 10 kW
- max. spindle speed = 12000 rpm

##### *Tool changer:*

- tool fitting SK 40 (DIN69871)
- number of magazine pockets: 16

##### *Numerical controlled (NC) swivel milling head (B-axis):*

- swivel range 30°/-95° (0° – vertical / -90° horizontal)

##### *Numerical controlled rotary table (C-axis):*

- table Ø 450 mm
- max. load 250 kg
- max. rapid traverse and feed rate 60 m/min

Machine weight: 4500 kg





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DMG DMC 635 V is vertical CNC milling machine for metal processing with control in three axis. Axis of the cutter is perpendicular (vertical), while the work table is horizontal. It is suitable for face milling, groove, pocket and edges milling and profile milling.



## CNC milling machine DMG DMC 635 V

Control unit - SIEMENS 810 D  
ShopMill

### Technical data:

#### *Work area:*

x / y / z – axis 635 / 510 / 460 mm

#### *Work spindle:*

- max. speed = 8000 rpm
- drive power (40 / 100% DC) = 13 / 9 kW

#### *Tool changer:*

- tool fitting DIN69871 SK 40
- max. number of tools: 20

#### *Work table:*

- table area: 790 x 560 mm
- max. load: 600 kg





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DMG CTX 310 eco V3 is a CNC lathe machine for metal processing, with a process called turning. With turning operation we produce rotating surface parts, i.e. cylindrical parts (bearings, shafts, screws, spindle, rings, discs, etc.)



## CNC lathe machine DMG CTX 310 eco V3

Control unit - SIEMENS 810 D  
ShopTurn

### Technical data:

#### *Work area:*

- max. turning diameter 200 mm
- chucks 210 mm
- cross travel (x-axis) 160 mm
- longitudinal travel (z-axis) 450 mm
- max. swing diameter 330 mm

#### *Main spindle:*

- max. rotational speed = 5000 rpm
- power output (40 / 100%DC) = 16,5 / 11kW
- bar capacity 51 mm

#### *Tool changer:*

- number of tool stations: 12
- driven tool stations: 6
- power output (40%DC at 4000 rpm): 8.4kW
- max. rotational speed: 4500 rpm

Machine weight: 3800 kg





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Tesa Micro-Hite 3D DCC is coordinate measuring device used for 3D measuring (x, y, z) of complex body (lengths, angles, shapes, the mutual position of surfaces and holes). It allows complex measurements with a single placing of parts to measuring table, thus avoiding setting errors. Moving the head with a probe is done with electric motors and controlled via joystick.



### 3D coordinate measuring machine TESA 474 MICRO-HITE 3D DCC

- DCC – Direct computer control
- Indexable probe
- Control of made pieces
- Measuring volume (x/y/z): 440x500x410 mm
- Measuring speed: 1732 mm/s
- Max. part weight: 227 kg
- Accuracy: 7.0  $\mu\text{m}$
- Repeatability: 2.0  $\mu\text{m}$
- Uncertainties: 2.5+3.9xL/100  $\mu\text{m}$



With measured coordinates and computer it generates a numerical image of surface that forming the object. Position and number of measuring points on the surface of the measured object depends on the shape and position of the surface and the required measurement accuracy. The minimum number of points is determined by the mathematical rules that define a numerical picture of the surface: for line at least two points, for circle three, for surface three non-collinear points. More accurate shape and position is always obtained with larger number of measuring points.





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Measuring arm FARO GAGE standard is a portable 3D coordinate measuring machine with a working range of 1.2 m and the measuring accuracy of  $\pm 0.01$  mm. It is used for simple measurement and quality control of complex objects and parts. Accessories for fixation allows quick and easy to use on the desk and directly in the field where needed.



### Measuring arm FARO GAGE standard

- Measuring range: 1200 mm (sphere)
- Accuracy according to ISO 10360-2:
  - E =  $10+16L/1000$   $\mu\text{m}$
  - R =  $16$   $\mu\text{m}$
- portable
- temperature and overload sensors
- operating temperature range  $10$   $^{\circ}\text{C}$  do  $40^{\circ}\text{C}$



That way provides quick and easy perform of all measurements directly in the production process, especially on large pieces that cannot be easily measured. It also has its own temperature compensation, which further increases the accuracy. FARO Gage is a complete system with special software which graphical interface is easy to use.



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TESA VISIO 200 is an optical device for non-contact measurement that allows measurement of forms and shapes of small objects and soft materials where mechanical measurement is not possible.



### Optical measuring machine TESA VISIO 200

- Measurement of smaller pieces and parts
- High-precision x-y table
- Colour camera
- Laser pointer
- Linear encoders with resolution to 0.05  $\mu\text{m}$
- Optical zoom: 0.7 – 4.5x
- Measuring volume: 200x100x150 mm
- Max. weight of measuring object: 10 kg
- Lighting with LEDs
- Accuracy of x/y axes: 3.0  $\mu\text{m}+L/60$
- Accuracy of z axis: 5.9  $\mu\text{m}+L/60$  (L u mm)



TESA VISIO 200 has a wide range of applications, such as the automotive industry, medicine, stomatology, watch industry, electronics, printed and pressed metal parts, plastic parts, connectors, springs, gears, equipment and packaging in the pharmaceutical and cosmetic industry, mobile phones and similar.



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ETALON DUROMASTER 200 RB is devices used to test all materials and hard alloys such as steel, tungsten carbide, aluminium, brass and copper alloys, but also plastic materials by means of a special indenter. Safe value storage, SPC capability, RS232 data output to host computer or printer.

Hardness is the resistance of material to penetration of a second, much harder body, so the test is done by leaving the indent print (penetrator - ball made of hard metal, pyramid, diamond cone).

## Hardness measuring device ETALON DURO master 200 RB

Digital hardness measuring: Rockwell + Brinell  
Thickness values:

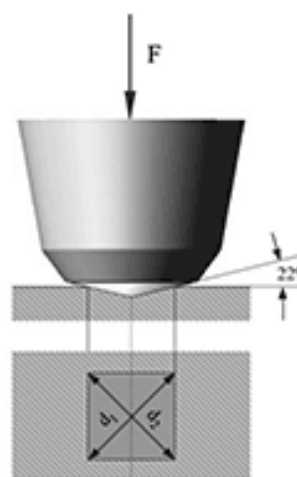
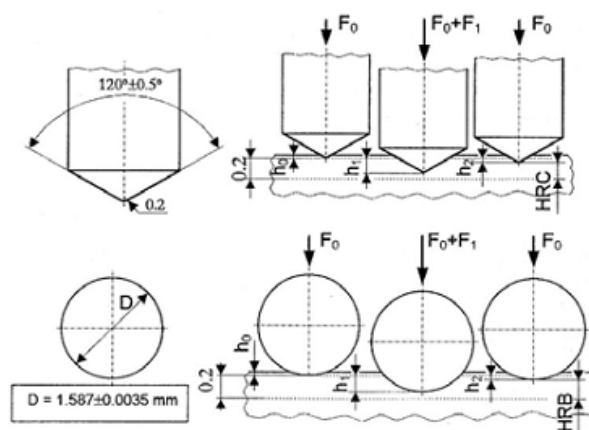
- Hard materials  $\geq 1$  mm,
- Soft materials  $\geq 4$  mm

Resolution: 0.1 HRC

Pre-load: 10 kgf (98.1 N)

Load:

- Rockwell: 60-100-150 kgf
- Brinell: HB/HBT 2.5/62.5-2.5/187.5-5/125







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### Altimeter TESA HITE plus M 400

TESA Hite plus M 400 is a height measuring device with geometric functions for 1D and 2D measurement. It provides all the measurement functions including height, diameter, distance, parallelism, perpendicular, flatness and angle.

Measuring span: 405 mm  
Accuracy: 2.5 +3L  $\mu\text{m}$  (L in m)  
Repeatability: 1  $\mu\text{m}$   
Resolution: 0.0001  
Digital output: RS-232  
Weight: 27 kg



### Surface roughness device TESA RUGOSURF 10 G

RUGOSURF 10G is a portable and versatile roughness gage that can be used in the workshop for incoming inspection or in the laboratory.

Measuring range: x = 16 mm, z = 300 $\mu\text{m}$   
2" colour display  
2 probe positions (0° and 90°)  
Memory capacity: up to 999 measurements  
RS-232 interface  
31 measured parameters  
Software for data analysis and measurement storage





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DMU 65 monoBLOCK is universal CNC (Computer Numerical Control) milling machine which allows simultaneous control in 5 axes, enabling production of most complex parts in a single clamping. This provides a highly efficient and optimal machining of individual parts and the series parts. Mostly the flat shape parts are made (alignment, slots, grooves), profiles, threads, teeth, molds, tools, and to most complex parts such as turbine rotors.



### CNC Universal Milling Machine DMG DMU 65 monoBLOCK

Numerical controlled (NC) swivel milling head with controlled A axis and numerical controlled swivel rotary table - C axis

Control unit - SIEMENS 840D Solutionline, ShopMill

#### Technical data:

##### *Work area:*

x / y / z – axis 650 / 650 / 560 mm

- rapid traverse velocity: 40 m/min

##### *Main drive:*

- power (40 / 100 %) = 19 / 15 kW

- rotational speed = 14000 rpm

##### *Tool changer:*

- tool uptake: SK 40 DIN69871

- tool magazine: 30 pockets

##### *Numerical controlled (NC) swivel milling head (A-axis):*

- swivel range 120°/-120° (0° – vertical / -90° horizontal)

##### *Numerical controlled swivel rotary table (C-axis):*

- table diameter: Ø 650 mm

- max. loading capacity: 600 kg

- max. work piece height: 500 mm

Weight: 9700 kg



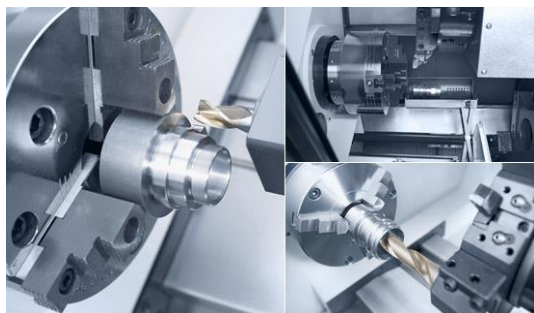


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DMG NEF 400 is a CNC lathe machine for metal processing, with a process called turning. With turning operation, we produce rotating surface parts, i.e. cylindrical parts (bearings, shafts, screws, spindle, rings, discs, etc.)



## CNC turning machine DMG NEF 400

Control unit - SIEMENS 840 D Solutionline, ShopTurn

### Technical data:

#### *Work area:*

- max. turning diameter 350 mm
- max. clamping diameter 350 mm
- cross travel (x-axis) 255 mm
- longitudinal travel (z-axis) 800 mm
- max. swing diameter over bed 385 mm
- rapid traverse: 30 m/min

#### *Main spindle:*

- max. speed = 4500 rpm
- drive output (40 / 100%DC) = 11,5 / 8 kW
- bar capacity (for power chuck): 65 mm

#### *Tool changer:*

- number of tool stations: 12
- driven tool stations: 6

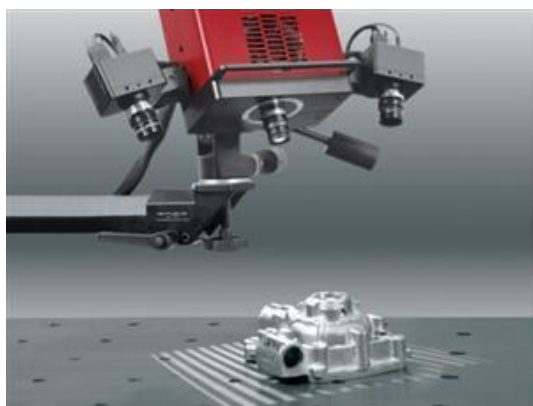
Weight: 3700 kg





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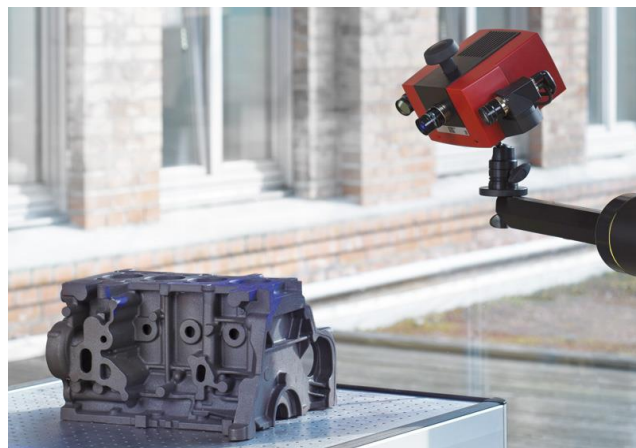


**ATOS** (*Advanced TOpometric Sensor*) Compact Scan 2M is industrial optical high resolution 3D scanner used for three-dimensional components digitizing, such as metal sheet parts, tools and dies, turbine blades, prototypes, injection pressured or cast parts. The result of measurement (scanning) is 3D digital model (geometry of the entire component is digitized in the form of dense point cloud) that can be further processed with software on the computer.



### 3D scanner for measurement and inspection **ATOS Compact Scan 2M**

Compact system for digitizing  
Camera Pixels: 2 x 2,000,000  
Measuring Area: 35x30 – 1000x750 mm<sup>2</sup>  
Working Distance: 450 – 1200 mm  
Software: GOM inspect  
Weight: 3.9 kg



3D digitizing with ATOS 3D scanner is possible on a large range of size and complexity of the measurement object, and as a result it providing:

- high accuracy 3D coordinates
- Comparison of the complete geometry with CAD data
- Analysis of deviation over cross sections
- Complete measurement reports





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ZOLLER »smile« 400 is a manually operated universal tool presetter and measuring machine which measures using automatic image processing and cutter form recognition. It measures and presets tools to two-thousandths of a millimeter – quickly, simply, accurately and guaranteed. Accuracy means closer tolerances on preset tools, longer tool life, improved workpiece quality, less waste, less CNC machine downtime and more profit. It improves productivity by at least 20%. Simple to operate, equipped with all standard measuring functions. The number of operator interventions (handling components or entering data) has reduced to a minimum; only a few function keys are required.



### Tool presetter and measuring machine ZOLLER »smile« 400

- Measuring range Z – 400 mm
- Measuring range X – 200 mm
- Diameter - 600 mm
- CNC controlled X and Z axes
- Autofocus and/or rotary encoder for tool holding fixture spindle
- Vacuum clamping
- Fast & precise thanks to powerful ZOLLER image-processing technology
- Robust
- Process-reliable through intelligent software and the highest safety standards,
- Environmentally friendly



ZOLLER even includes an automatic zero point query function in its »smile« systems. The system makes it impossible to forget to select the correct zero point or to conduct the measurement using an incorrect reference point by mistake. This prevents scrap and, even more expensive, a machine crash.





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HOLZ-HER Machining Center PRO-MASTER 7018 is a modern CNC machine for wood processing. It has powerful spindle of 7.5 kW and enabling 4-field machining with length dimension of 1250 mm in Y-axis and processing height up to 478 mm. The long X travel paths (2,500 mm) enable large-scale works in furniture construction and door processing. In combination with the moving tool changer for 18 tools and/or pick-up changer for 12 tools offer easy solution for furniture construction.



## CNC Machining Center HOLZ-HER PRO-MASTER 7018

- Powerful spindle 7.5 kW
- 4-field machining
- Length dimension - 1250 mm in Y axis
- Workpiece height – z = 478 mm
- Long X travel paths - 2,500 mm
- Speed up to 18,000 rpm
- Boring unit – 14 spindles
- Variable programming using CAMPUS Software



The control equipment includes the CAMPUS package with integrated Cabinet Control software. This package provides all prerequisites for effective machining and convenient operation – such as barcode interface, hand-held control and import capabilities. The Work Center shows the occupancy of the machine table. Tools, drilling heads and routes are automatic optimized over the workpiece as a whole and the operating times are calculated.



- MB: 02094061 • IBAN: HR7823600001101907035 • PDV ID: 58802471410 • SWIFT: ZABAHR2X



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HOLZ-HER Pressure beam saw CUT 6010 is a precise and efficient machine for wood sawing. It has stable machine tables for easy and gentle handling of the panel material – size 1,800 x 600 mm. In addition, it has heavy-duty, pneumatic controlled clamps for safe clamping of the workpieces.

- Precise cutting results
- Excellent reliability
- Maximum user comfort
- Efficient sawing
- Automatic cutting length detection



### CNC Pressure beam saw CUT HOLZ-HER CUT 6010

Cutting length x cutting width:  
3100 x 3100 mm  
Max. saw blade overhang 53 mm  
Engine power 7.5 kW  
Saw blade Ø 300 mm  
Rotation 5200 o/min  
Feed rate of the saw carriage 0–60 m/min  
Reverse speed of the saw carriage 60 m/min



CUTCONTROL 2 – control unit.

The powerful software package of the large HOLZ-HER industrial saws.

- 17" screen
- USB connection
- Graphic user interface for simple allocation
- EASY-PLAN optimization software







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HOLZ-HER edge-banding machine AURIGA 1308 is a high-quality edge-processing machine. It has designed for a workpiece thickness of 60 mm and edge thicknesses of 6 mm. The copy cutter unit extends the range of work and post formed profiles are possible. The AURIGA 1308 convinces in its class with above average productivity and top equipment. Ergonomically positioned and programmatically control, power PC Controller PPC 221 for easy and fast programming and set up.



## Edge banding machine HOLZ-HER AURIGA 1308

Edge thickness: 0.4 – 6 mm  
Panel thickness: 6 – 60 mm  
Feed speed: 10 m/min  
Glue heating: to operating temperature for 3.5 min



### Basic Features:

- Pre-Milling unit
- Cut-off saws
- Edge feeding unit
- Patented HOLZ-HER cartridge glue system
- Pressure unit with dual rollers synchronized with feed speed
- 2 motor end trim unit
- Top and Bottom trimming
- Corner rounding unit
- Scraping unit
- Buffing unit



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### Contour Edge Banding Machine Lange Maschinenbau B580 K

- Workpiece thickness: 8 – 115 mm
- Workpiece width: min. 30 mm
- Workpiece length: min. 200 mm
- Edging thickness: 0.4 – 3.0 mm
- Internal radius: min. 25 mm
- Electrical connection: 230 V / 50 Hz / 1Ph
- Total load: 3.0 kW
- Heat output glue pot: 2.7 kW
- Air connection: 6 bar
- Working height: 875 mm
- Space required: 1000x700x875 mm without turntable
- Net weight: 260 kg

Contour edge banding machine Lange Maschinenbau B 580 K is machine for gluing and processing of edging – such as PVC, ABS, melamine and natural wood veneers by using hot melt glue on straight, round and irregularly shaped workpieces of wood or similar materials with outer and inner used.

Direct glue application to edging material: Bottom infeed of glue granules resulting in spill proof glue pot.



- Quick heating-up time after machine stoppage. Automatic start of application roller after approx. 4-5 min.
- Pressure roller driven by gear motor infinitely adjustable between 0-10 m/min.
- Automatic edging feed-in and automatic cut-off operation for straight workpieces via end switch. For curved workpieces via foot pedal.
- Pneumatic cutt-off unit capacity max. 2x120 mm.



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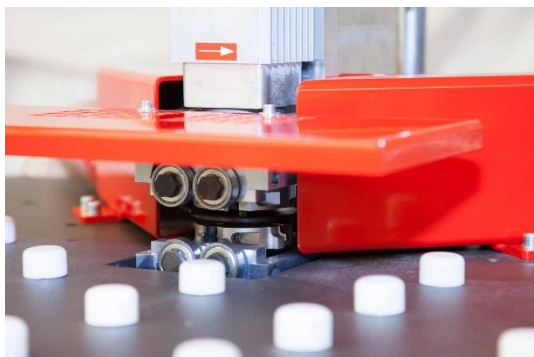


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Edge router Lange Maschinenbau B 600 is router for simultaneous flush trimming of top and bottom overhang of all edging materials, i.e. PVC, ABS, Melamine and natural wood veneers. The two vertically mounted H.F. 0.35 kW router motors with variable speed between 4.000 and 18.000 RPM are equipped with R=3 mm x 4 wing throw-away tip type trimming cutters (standard). Other size radius and chamfer cutters can be supplied. Central Extraction pipe 100 mm Ø, 2 swarf extraction hoods with hose Ø 60 mm.



### Edge router Lange Maschinenbau tip B 600

- Workpiece thickness: 16 - 55 mm (rounding over)
- Workpiece thickness: 12 – 55 mm (chamfering)
- Workpiece width: 30 mm
- Edging thickness: 0,4 – 3,0 mm
- Internal radius: min. 50 mm
- Electrical connection: 230 V / 50 Hz / 1Ph
- Total load: 1,0 kW
- Space required: 1000 x 700 x 900 mm
- Net weight: 250 kg



Machine has digital adjustment of workpiece thickness. This machine is the ideal addition to contour edge banding machine Lange Maschinenbau B 580 K.





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Metrel MI 3108 EurotestPV is a combined photovoltaic tester and electrical installations safety tester. It enables complete testing of electrical installations according to EN 61557 standards and in addition performs all necessary tests required on single-phase photovoltaic (PV) installations. This includes all of the tests as required by EN 62446, but also includes I - U characteristic, Calculation of STC values and power measurements on Inverter's DC and AC sides. To greatly improve user safety the MI 3108 EurotestPV comes with the PV Safety Probe which ensures safe disconnection every time.



### Electrical and Photovoltaic Installations Tester Metrel MI 3108 EurotestPV

#### Photovoltaic installation measurements:

Voltage: 0 – 999 V DC, 0 – 999 V AC  
Current: 0,0 – 300 A DC, 0,0 – 300 A AC  
Power: 0 – 200 kW  
Energy: 0,000 Wh – 1999 kWh  
Irradiation: 0 – 2000 W/m<sup>2</sup>  
Temperature: -10°C do +85°C

#### Electrical installation measurements:

Insulation resistance: U=50, 100, 250 VDC, R: to 199,9 M $\Omega$ , U=500 VDC, R: to 999 M $\Omega$   
Continuity: 200 mA, 0,00  $\Omega$  to 1999  $\Omega$ , 7 mA, 0,00  $\Omega$  to 1999  $\Omega$   
Loop impedance: 0,00  $\Omega$  to 9,99 k $\Omega$   
Line impedance: 0,00  $\Omega$  - 9,99 k $\Omega$  (test without tripping the RCD)  
TRMS voltage: 0 VAC to 550 VAC  
Frequency: 0,00 Hz to 499,9 Hz  
Earth resistance 0,00  $\Omega$  to 9999  $\Omega$



The unit is designed for the demanding working conditions (up to 1000 V, with 15 A DC).





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Metrel MI 2892 PowerMaster is a hand-held three-phase power quality analyzer with a large easy-to-read graphical color display enabling the user to detect harmonics, phasors and waveforms anomalies in the installation simply by connecting the device. The instrument is designed for a long-term recording as well as for troubleshooting power quality problems in three-phase and single-phase power distribution systems. The handy quick set buttons makes the instrument more user friendly and are allowing faster data overview for troubleshooting. Advanced PC SW package PowerView3 enables detailed analysis of recorded data, direct reading from the microSD memory card, and analysis of long-term records and automatic creation of professional test report. Compliance with power quality standard IEC 61000-4-30 Class A.



### Power quality analyser Metrel MI 2892 PowerMaster

Power quality assessment and troubleshooting in low and middle voltage electrical systems, checking power correction equipment performance, long-term analysis, predictive maintenance, verification of electrical system capacity before adding loads.

- Voltage: TRMS, peak, crest factor (4-channel)
- Current: TRMS, peak, crest factor (4-channel)
- Power (active, reactive, apparent), power factor  $\cos \varphi$
- Power measurements fully compliant with IEEE 1459 (active, non-active, fundamental, harmonic, load unbalance)
- Unbalance, flicker measurement
- Harmonic and interharmonic analysis up to 50th harmonics, THD measurement
- Energy (active, reactive, generated, consumed)
- Capturing and recording of power supply events (shutdowns, interruptions, swells, dips), inrush currents monitoring and recording, waveform/inrush displaying, snapshot and recording, transients recording
- Power quality analysis according to EN 50160, temperature measurement...



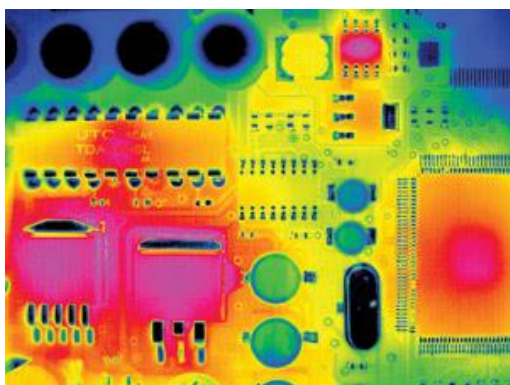


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VarioCAM® high resolution is a modern thermo graphic system for the precise, quick and non-contact measurement of surface temperatures of objects. It has been designed for universal use and can be applied as both a mobile and a stationary system for measuring and saving temperature data. Its compact and robust design and high degree of protection make it especially suitable for industrial applications even under unfavorable external conditions. Its low weight as well as its long battery life provide for its effective use. Thermal images and measured data can be viewed and analyzed directly on the camera screen or transferred to a computer for further processing - wireless or via cable.



### Termographic camera JENOPTIK VarioCam high resolution inspect 780

Spectral range 7.5 - 14  $\mu\text{m}$   
Temperature measuring range -40 - 1200°C,  
optional > 2000 °C  
Image format 640 x 480 pixel, "Resolution  
Enhancement" to 1280 x 960 pixel  
Measurement accuracy  $\pm 1.5$  K (0 - 100 °C),  
otherwise  $\pm 2$  % or  $\pm 2$  K  
Temperature resolution (at 30°C object  
temperature) better than 0.05 K  
Integrated digital color video camera  
1.3 Mpx, video LED  
Display digital 3.5" active color TFT display  
IEEE 1394 Firewire, WLAN, S-Video



Typical applications of the thermo graphic system include:

- Inspection of electrical and mechanical systems and power units
- Optimization of components and units
- Material examinations
- Control of process temperatures
- Quality assurance
- Building inspection