



**InnoRenew CoE**



## Mikroskop / Microscope

Leica DCM8, 3D optical surface microscope



Combines multi-spectral imaging and confocal microscopy to image and measure material surfaces, map topography, and analyse surface roughness. Fully digital microscope with objectives from 1.25X to 150X.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
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## **Sistem za jedkanje z ionskim žarkom / Ion beam milling device**

Leica EM TIC 3X Triple Ion Beam Milling System



Creates near-perfect surfaces of materials for microscopy using accelerated argon ions. Capable of cross-cuts (4 mm x 1 mm) and surface milling of 25 mm<sup>2</sup> areas. Includes a cooling stage for heat sensitive materials.

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## **Naprava za obrezovanje vzorcev / Specimen trimming device**

Leica EM TXP target surfacing system



Mechanical surface preparation device for microscopy. Uses grinding, cutting, and polishing fixtures to prepare mirror like surfaces of a variety of materials.

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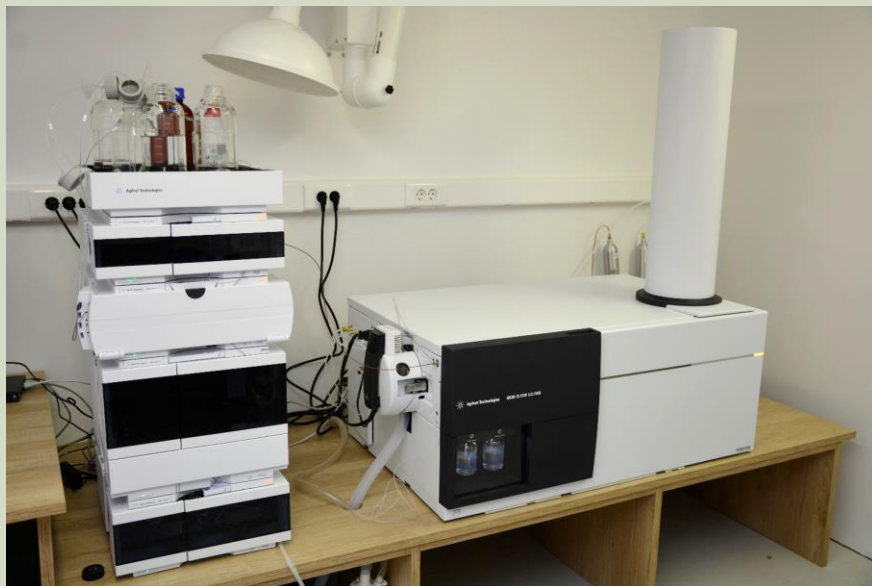


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## Visokozmogljiv tekočinski kromatograf (HPLC)

Agilent 6500 Q-TOF LC/MS accurate mass system



Liquid chromatograph / mass spectrometer with quadrupole time of flight, used for the detection of biochemical and organic compounds in complex samples of environmental and biological origin. The double mass spectrometry detectors (quadrupole and TOF) allow to gain more structural information on your analyte based on the fragmentation pattern.

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## Plinski kromatograf (z masno selektivnim detektorjem opremljen z injicirnimi sistemi za različne načine avtomatskega vnosa vzorca in...)

Agilent 5977B GC/MSD - Gerstel MPS roboticsXL



Used for the measurement of organic compounds in solid, liquid and gas phase samples.

Includes liquid sample, headspace, solid phase micro extraction, thermal desorption, pyrolysis and cooled injection introduction systems, and micro chamber.

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## **Cevna talilna peč / Tube furnace**

Nabertherm RSRC 120-1000/13



Equipped with gas system to incorporate CO<sub>2</sub> and N<sub>2</sub>. Capable of batch and continuous processing with adjustable speed and tilting. Processing temperatures up to 1200C. Three-zone control for heating.

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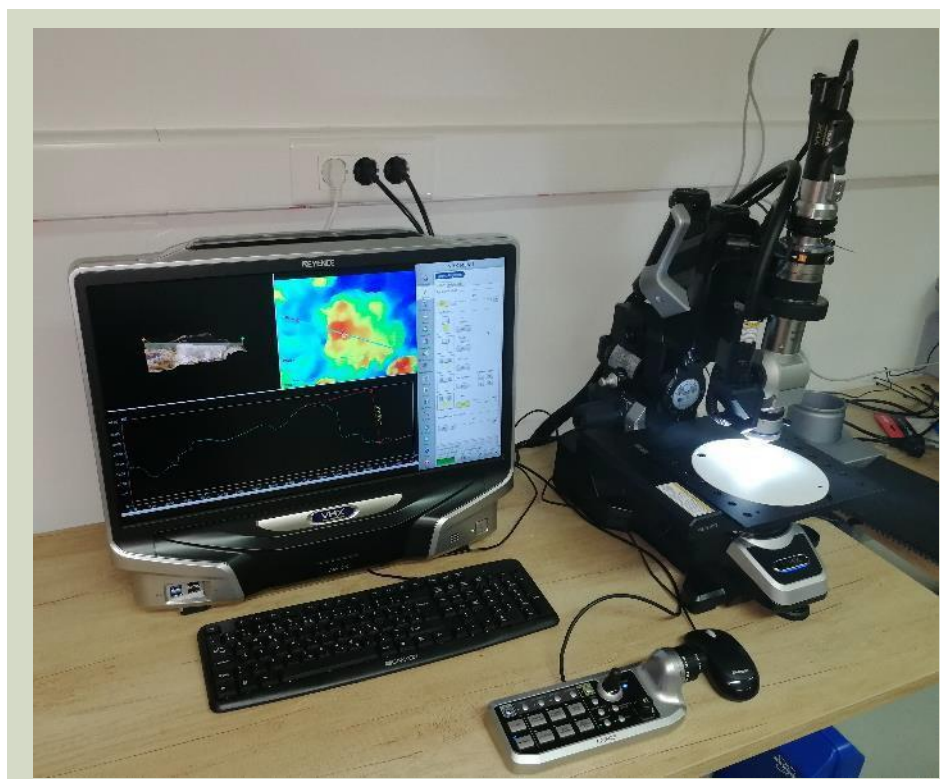


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## 3D digitalni mikroskop / 3D Digital Microscope

Keyence VHX-6000 digital mikroskop



Multifunctional device for macro/microscopic characterization of materials, assuring large depth-of-field, capturing fully focused images at magnification from 0.5x to 5000x, inspecting objects from any angle, capable of advanced 2D and 3D measurements directly on the image.

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## FT-NIR / FT-NIR

### MPA II Bruker Optics Spectrometer



A fast and precise tool for the non-destructive analysis of liquid, solid and semi-solid materials. Equipped with fibre optic, integration sphere and transmission sample compartment for vials, operates in the range 11500-4000cm<sup>-1</sup>. The OPUS software allows data acquisition, processing, and evaluation.

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## **Prenosni NIR spektrometer za analizo na terenu / Portable NIR spectrometer for field analysis**

VIAVI MicroNIR OnSite-W, linear variable filter, IP65/IP67, VIAVI Pro software



Wireless NIR spectrometer designed for rapid, handheld material analysis. The smallest fully-integrated NIR spectrometer based on linear variable filter (LVF) technology. With no moving parts and IP65/IP67 dust/water ingress rating, it is designed for a wide range of material characterization applications. The system includes the VIAVI MicroNIR Pro software suite.

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## **Prenosni NIR spektrometer za analitično analizo procesov / Portable NIR spectrometer for analytical process analysis**

VIAVI MicroNIR PAT-W, quality-by-design, monitoring in PAT app.



A fit-for-purpose NIR analyzer for quality-by-design (QbD) manufacturing. A system for real-time process monitoring in PAT applications. It has no moving components enabling superior instrument stability and performance in harsh process environments (IP67 standards). The system includes the VIAVI MicroNIR Pro software.

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## SCM Si5 Linvincibile

Large format sliding table circular saw



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

**Owner institution:** InnoRenew CoE

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## SCM SC2c

Small format sliding table circular saw



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## **SCM F520 CLASS**

Planner (joiner)



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## SCM S630 CLASS

Thicknesser



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## **SCM S600p**

**Bandsaw**



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## **VOLPATO LBK150**

Edge sander



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## SCM TI 105 NOVA

Spindle-moulder



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## SCM SD 60 RCS (1100mm)

Wide-belt sander



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## **JET 16-32 Plus**

Mini wide-belt sander



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## SCM T124

Wood lathe



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## SCM AS16

Horizontal mortiser



Wood working machine suitable for complex sample preparation and experimentations regarding machinability of materials and process/surface quality

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## HÖCKER POLYTECHNIK Vacumobile VT250

Dust exhaustion system



Vacuum system for aspiration of dust produced during woodworking operations, equipped with frequency inverter, pressure control unit and fire extinguisher

**Owner institution:** InnoRenew CoE

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## **ACword FT400**

Mobile dust exhaustion system



Vacuum system for aspiration of dust produced during woodworking operations

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## **ACword FT302**

Mobile dust exhaustion system



Vacuum system for aspiration of dust produced during woodworking operations

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## **SCM ECO 300S**

Mobile dust exhaustion system



Vacuum system for aspiration of dust produced during woodworking operations

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## **ELMAG Superturn 700/140 - Vario**

Universal turner/router for metal



Metal working machine for turning, milling and drilling operations performed on the metal parts used in prototypes

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## Work benches

Working tables



Three working tables assisting material processing and assembly

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## Sistem pridobivanja podatkov v znanosti o življenju za psihofiziologijo / Life science data acquisition system for psychophysiology

Biopac Systems



Detect and assess psychophysiological responses.

Signals assessed from:

EEG (Wired + Wireless) EDA (Wired + Wireless) ECG (Wired + Wireless) PPG (Wired + Wireless)

HD Blood pressure (Wired)

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## **Sistem za spremljanje aktivnosti / Activity monitoring system**

PAL Technologies ActivPal4 Micro



Monitor and assess human activity over long periods of time with 7 monitors.

Attach to a person for up to 7 days

Detect sitting, lying, standing, stepping, and other activities.

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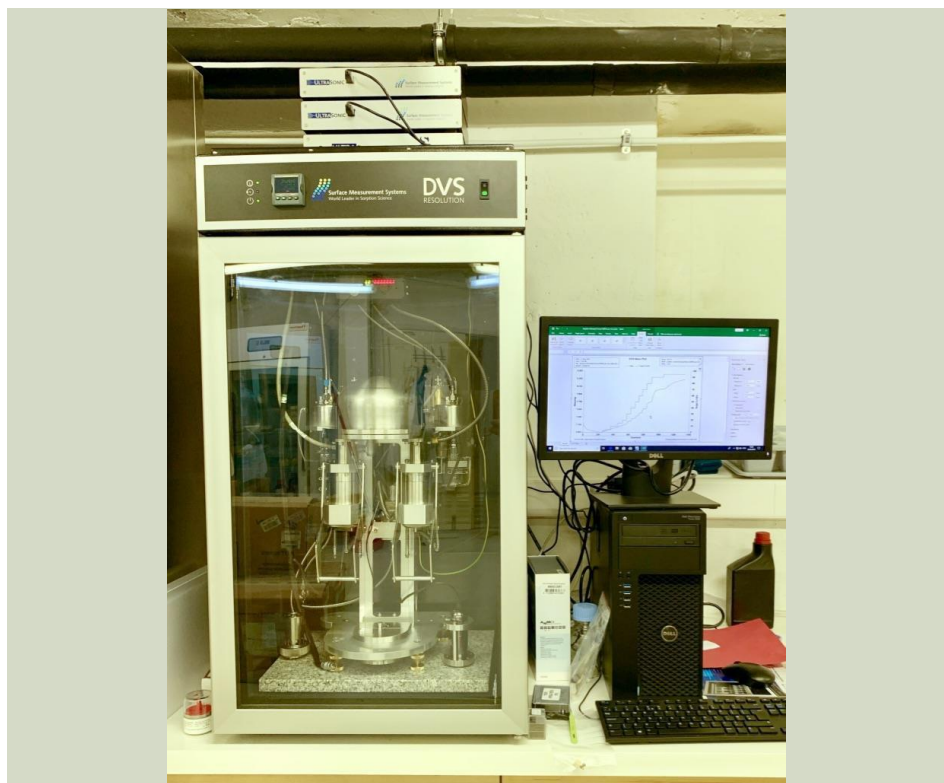
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## Dinamična sorpcija hlapov (DVS) / Dinamic vapor sorption (DVS)

Dynamic Vapour Sorption - Surface Measurement Systems



The DVS is used for measuring the sorption properties of materials.

Temperature stability:  $\pm 0.02$  °C

RH stability:  $\pm 0.1\%$

Mass change resolution:  $0.1\mu\text{g}$

Root mean square noise:  
 $0.3\mu\text{g}$

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## Centrifuga / Centrifuge

Universal 320 R, Hettich



Sample separation /  
preparation.  
Temperature controlled  
Inserts for multiple size sample  
containers

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## Inkubatorski stresalnik / Incubation shaker

IS-OS 20, Phoenix Instruments



Sample preparation/mixing.  
Temperature controlled (+5 – 60 C)  
20mm amplitude

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## Ultrazvočna kopel / Ultrasonic WaterBath

S 30 H Elmasonic - Elma



Used to clean samples or small laboratory equipment

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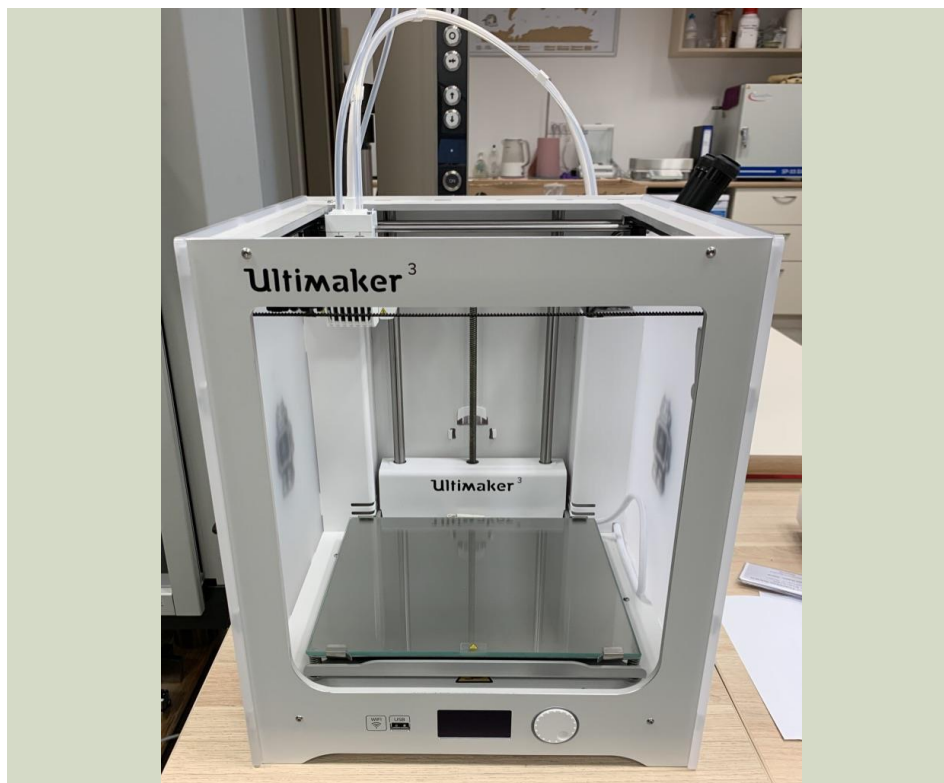
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## 3D Tiskalnik / 3D printer

Ultimaker 3



3D printer for prototyping  
and polymer blend testing.

215 x 215 x 200 mm print size

20 micron layer depth

Nozzle temperature up to 280 C

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## Univerzalni testirni stroj / Universal testing machine

Zwick/Roell UTM Z100TEW



100 kN capacity universal testing machine. Includes fixtures for 3-point and 4-point bending, shear block, tension, and compression tests. Features a programmable environmental chamber for temperature and humidity control during testing; -40C to 200C and 10% to 85% RH

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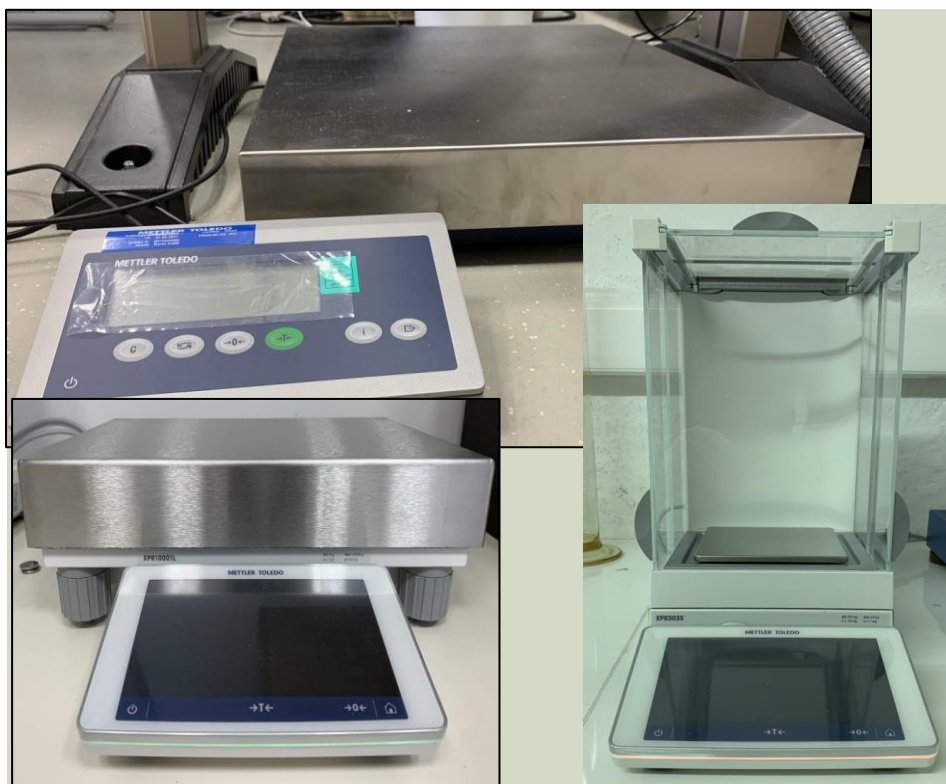


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## Tehtnice / Balances

Mettler Toledo: 300 kg scale, 10 kg scale, 300 g scale



300 kg scale

Capacity to 300 kg, Precision: 0.1 kg

10 kg scale

Capacity to 10 kg, Precision: 0.1 g

300 g scale

Capacity to 300 g, Precision: 0.001 g

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## Minor items

- Refrigerator, Freezer, network switch, fireproof chemical storage cabinets, laptops, monitors, storage servers, multipurpose server

## Software

- NI LabView

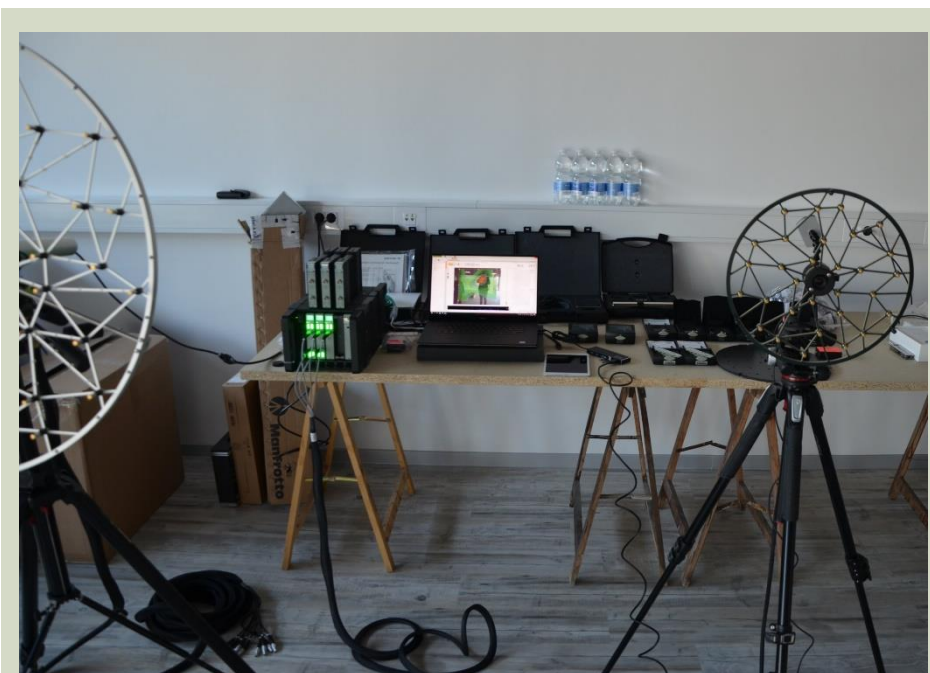


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## **Akustična kamera / Acoustic camera**

Brüel & Kjær BK Connect Acoustic Camera Type 9712; Brüel & Kjær Sliced Wheel Array WA-1558-W



Acoustic camera combines visual information from a video camera with the information about the directionality of sound waves.

The acoustic camera enables sound source localization and sound intensity measurements using acoustic holography and beamforming.

The measurement set is composed of a larger (60 microphones, 70 cm diameter) and smaller (30 microphones, 40 cm diameter) array, a data acquisition system, a personal computer and a tablet.

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## Oprema za meritve strukturnega odziva / Structural response measurement equipment

Brüel & Kjær Piezoelectric CCLD Accelerometer Type 4507; Brüel & Kjær Modal Exciter Type 4825; Brüel & Kjær Modal Sledge Hammer Type 8208; Polytec PDV-100 Portable Digital Vibrometer



The measurement system is based on exciting a rigid structure under study by a sledge hammer or modal shaker and acquiring its dynamic response by 21 piezoelectric accelerometers or a laser vibrometer.

Vibrations are analyzed in time and frequency domain, transfer functions and natural frequencies of the structure are determined, modal and operational modal analysis are performed, modal shapes are visualized.

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## **Oprema za meritve in analizo v arhitekturni in gradbeni akustiki / Building and architectural acoustics measuring and analyzing equipment set**

NTi Audio XL2 Audio and Acoustic Analyzer; NTi Audio DS3 Dodecahedron Speaker; NTi Audio TalkBox; NTi Audio TM3 Tapping Machine



For field measurements of sound pressure level, reverberation time, speech intelligibility, sound insulation and impact noise levels.

The measurement set is composed of a hand held class 1 sound level meter and analyzer, dodecahedron loudspeaker, sound source for speech intelligibility measurements and a tapping machine.

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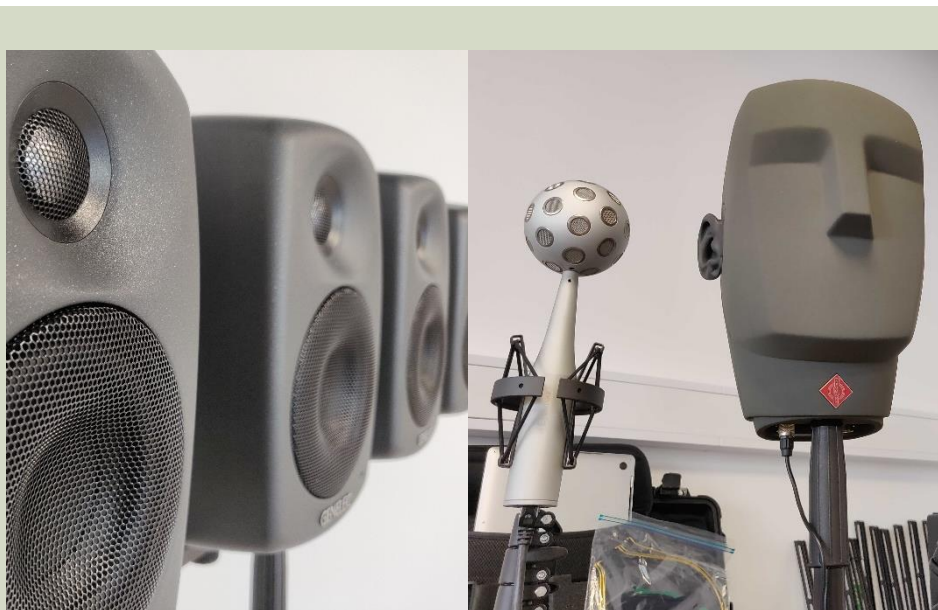


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## **Oprema za meritve in analizo v arhitekturni in gradbeni akustiki / Building and architectural acoustics measuring and analyzing equipment set**

mh acoustics em32 Eigenmike microphone array; Genelec 8020D/7380A 64/96 channel HOA reproduction system; Neuman KU 100 dummy head microphone; DPA 6060 binaural microphones.



For recording and reproducing acoustic environments that used for various types of psychoacoustic experiments.

The equipment includes a 32 channel HOA microphone, a 64/96 channel HOA reproduction system (Genelec 8020D, Genelec 7380A) and an artificial head (Neuman KU100), a set of head mounted binaural microphones (DPA 6060) and 8 over-ear headphones, MADI based computer interfaces cables and stands.

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## **Set za akustično testiranje materialov / Set for acoustic material testing**

Impedance tube - Brüel & Kjær Transmission Loss Tube Kit Type 4206-T



With impedance tube measurements it is possible to determine the acoustic impedance, sound absorption coefficient and transmission loss of circular samples of materials.

Using tubes of different diameters measurements are performed in the 50 Hz to 6 kHz frequency range.

The measurement set includes a loudspeaker with amplifier, tubes of different diameters, four dedicated microphones and a computer acquisition system.

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## Licenses

For room acoustic modeling, measurements and analysis.

Five licenses:

- ACOUSTICS MODULE FOR COMSOL
- ODEON Auditorium
- AFMG EASE STANDARD + AURA MODULE + EARS MODULE
- AFMG SOUNDFLOW PRO
- AFMG EASERA + POLARIS MODULE

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## Termografska kamera / Thermal camera

FLIR T 1020



Thermal camera FLIR T 1020 with a set of three lenses and a high-speed video interface. For monitoring and assessment of buildings, equipment and other experimental work where temperature is relevant:

- Resolution 1024 x 768
- Video up to 240 FPS
- Lenses: 45° , 28° and 12°
- Temperature Range -40° C to 2000° C
- Thermal Sensitivity <20 mK @ 30° C

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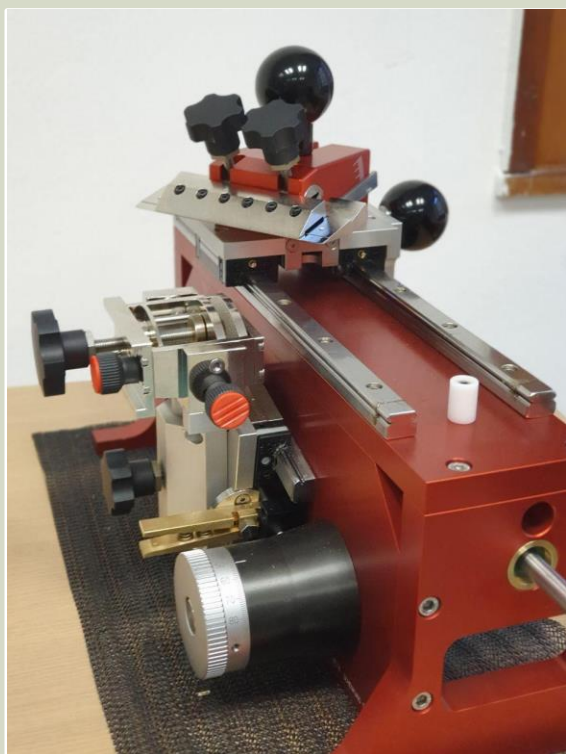


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## Mikrotom linerni / Microtome linear

WSL Serie nr.8078 Schenkung Dapples



Mechanic microtome designed for cutting hard and soft wood species equipped with multiple blades and holding bodies:

- Removal blade holder,
- Three core holder; 2, 5, 10 mm

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



**InnoRenew CoE**



## Planetarni mlin / Planetary mill

Planetary PULVERISETTE 5 ball mill for wet and dry particle grinding



For fine wet and dry grinding for mixing and homogenizing of emulsions and pastes and dry materials using four working stations.

- 100 steel balls (size = 50 mm),
- Capacity up to 4 x 225 ml
- Wireless PC connection for temperature and pressure data.
- Manual speed and time control

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



**InnoRenew CoE**



## Brusilniki / Grinders

### PULVERISETTE 25/19 - Cutting Mill grinders



Grinder is equipped with two grinding stations for continues and batch grinding

- Maximum feed size 120 x 85 mm,
- High-performance Cyclone separator,
- Sample feeder / divider,
- Defined final fineness due to interchangeable sieve cassettes 0.2 – 6 mm
- Manual cutting rotor and sieve cassette replacement

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu

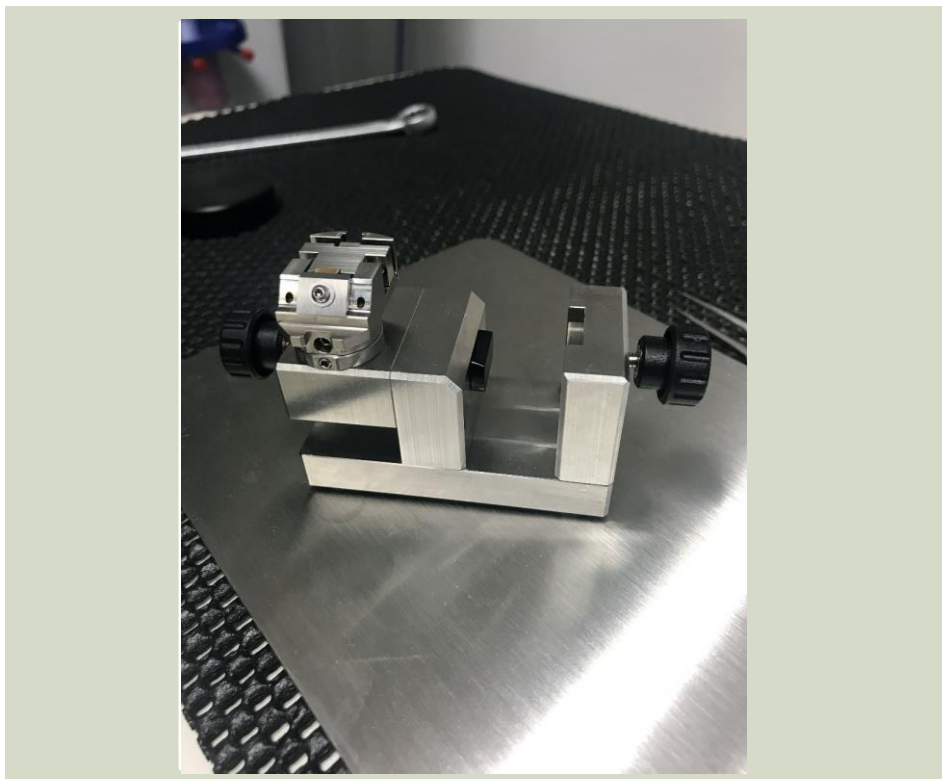


**InnoRenew CoE**



## **Držalo »Cross Sectioning holder kit« / Cross Sectioning Holder Kit**

Holder kit for Leica TIC3X ion beam milling system



- Sample holder with wider angle rotation for solid sample surface preparation

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu





InnoRenew CoE



## LCR Meter / Precision LCR

Bench LCR Meters Model 895



LCR meters capable of measuring inductance, capacitance, and resistance of components and materials at DC

- From 20 Hz to 500 kHz or 1 MHz respectively,
- Flexible AC and DC test signal configuration

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu



**InnoRenew CoE**



## Laserski 3D skener / Laser 3D scanner

Trimble X7 Scanning System (scanner, tripod, tablet, laptop and software)



For 3D scanning of buildings, spaces, infrastructure, excavations etc.:

- Range 0.60 – 80 m
- Scan speed up to 500,000 points/s
- Range noise at 30 m: < 2.5 mm
- 3D point accuracy at 20 m: 3.5 mm
- Scanner unit weight: 5.8 kg
- In-field registration, autocalibration
- Operating temperature: -20° to +40° C
- Resistance class: IP55

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Iztok Šušteršič  
[Iztok.sustersic@innorenew.eu](mailto:Iztok.sustersic@innorenew.eu)



InnoRenew CoE



## Termogravimetrični analizator / Thermogravimetric Analyzer (Proximate)

Thermogravimetric Analyzer LECO TGA801



Moisture, Ash, Volatile Content, And Loss-On-Ignition

- Automated thermogravimetric analysis batch of up to 19 samples
- Determines multiple constituents such as moisture/ash, volatile content.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu



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## Elementarna analiza (CHNS/O) / Ultimate Analyzer (CHNS/O)

FlashSmart™ Elementar Analyzer CHNS/O



Carbon, hydrogen, nitrogen, sulfur and oxygen (CHNS/O) analyses.

- Simple design and usability
- Improved CHNS/O workflow analysis
- Higher sample throughput
- Higher modularity
- Dedicated features
- Autosampling

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu



**InnoRenew CoE**



## Oprema za obdelavo polimerov / Extruder

Continuous compounding with Thermo Scientific™ HAAKE™ Rheomex PTW 16 OS



- Compounding of polymers with additives, reinforcing fibres and fillers.
- Balance weights based feed-dosing of different additives (liquid or solid) along the extruder barrel.
- Specially designed screws with differing geometries.
- Software monitor support.
- Compatibility with take off units: single screw extruder, cooling bath, mixing, haul-off system, pelletizer and more...

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu





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## Stroj za brizganje / polymer processing equipment

Thermo Scientific™ MiniJet Pro Piston Injection Molding System



Inline rapid sample production for material characterization in molds.

- Simple loading of powders and pellets in system cylinder.
- Temperature time and pressure control for and during injection
- Interchangeable molds: specimen geometries offered from standard to unique, customized molds.
- Compatible with HAAKE™ Rheomex PTW 16 for inline filament capture.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



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## Tlačna-impregnacijska posoda / Pressure-Impregnation Vessel

Kambič VP-420 preassure - vacuum impregnation vessel



Pressure impregnation chamber for wood and biomass

- Heating volume up to 99 °C.
- Low vacuum.
- Above pressure up to 10 bar.
- Manually and automatically controlled
- PC software monitoring

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance @innorenew.eu



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## Vzbujevalnik vibracij / Vibration exciter

### APS 400 ELECTRO-SEIS<sup>®</sup> Long Stroke Shaker with Linear Ball Bearings



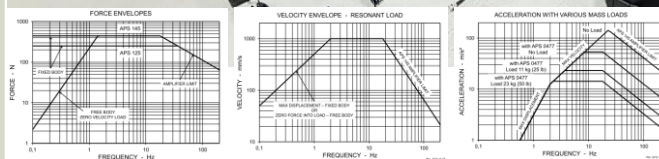
Portable shaker, (with accessories) for dynamic excitation of structures:

- For determining natural mode frequencies, shapes and damping ratios.
- Sine, random or shock excitation.
- Max. force 445 N
- Max. velocity 1 m/s
- Peak stroke 158 mm
- Frequency range  $\leq 200$  Hz

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Iztok Šušteršič  
Iztok.sustersic@innorenew.eu





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## Plasma unit / Plazemska enota

Automatic Diffuse Coplanar Surface Barrier Discharge (DSCBD) plasma unit RPS40



Fully automatic plasma unit capable of being integrated into any manufacturing process. It works for activation and cleaning of wood, glass, plastics, semiconductors, metals and other surfaces.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Anna Sandak

[anna.sandak@innorenew.eu](mailto:anna.sandak@innorenew.eu)



**InnoRenew CoE**



## Kontaktni merilnik kota / Goniometer (tenziometer)

Optical Tensiometer Attention Theta Flex Auto 4, with 3D Topography Module



Designed for reliable and repeatable measurements of wettability and adhesion. Possibility to measure: static and dynamic contact angle, roll-off angle, surface free energy, surface tension, interfacial tension, batch contact angle and roughness corrected contact angle.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Anna Sandak

[anna.sandak@innorenew.eu](mailto:anna.sandak@innorenew.eu)





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## **Standardna klimatska komora / Standard climatic chamber**

**Kambič KK-50 CH**



Climatic chamber with temperature and relative humidity control 50l volume. Climatic chamber operating in the range + 5° C to 180° C, and relative humidity range: 10-98%. Suitable for material temperature & RH resistance and product testing, sample conditioning, accelerated ageing and stress tests.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Anna Sandak

[anna.sandak@innorenew.eu](mailto:anna.sandak@innorenew.eu)



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## **Klimatska komora z nizko temperaturo / Low temperature climatic chamber**

**Kambič KK-1000 CHLT**



Climatic chamber with temperature and relative humidity control 1000l volume. Climatic chamber operating in the range  $-40^{\circ}\text{C}$  to  $180^{\circ}\text{C}$ , and relative humidity range: 10-98%. Suitable for material temperature & RH resistance and product testing, sample conditioning, accelerated ageing and stress tests.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Anna Sandak

[anna.sandak@innorenew.eu](mailto:anna.sandak@innorenew.eu)



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## **Večfunkcijski merilnik okoljskih parametrov grajenega okolja / Multi-function device for measuring environmental variables of the built environment**

Different noise dosimeter measurements from Ahlborn, B&K and Almemo



- Luminance Probe Head FLA 603 LDM2 (luminance measuring head)
- Light Flux Probe Head FLA 603 LSM4 (light flux measurement)
- Digital sensor for temperature, humidity and atmospheric pressure FHAD 46-Cx
- Radiation probe FLA 623 x (probes for various spectral ranges)
- Digital thermo-anemometer omnidirectional FVAD 05-TOKx (air flow measurements)
- Comfort Index Measurement (measuring thermal comfort and air-conditioning)
- Sound level meter B&K 2245 (measuring sound level parameters)
- Personal Noise Dose Meter 4448 (noise exposure measurements)
- Data Logger ALMEMO 2690-8A (connection for sensors)

**Owner institution:** InnoRenew CoE

**Location:** UP FVZ, Polje 42, 6310 Izola

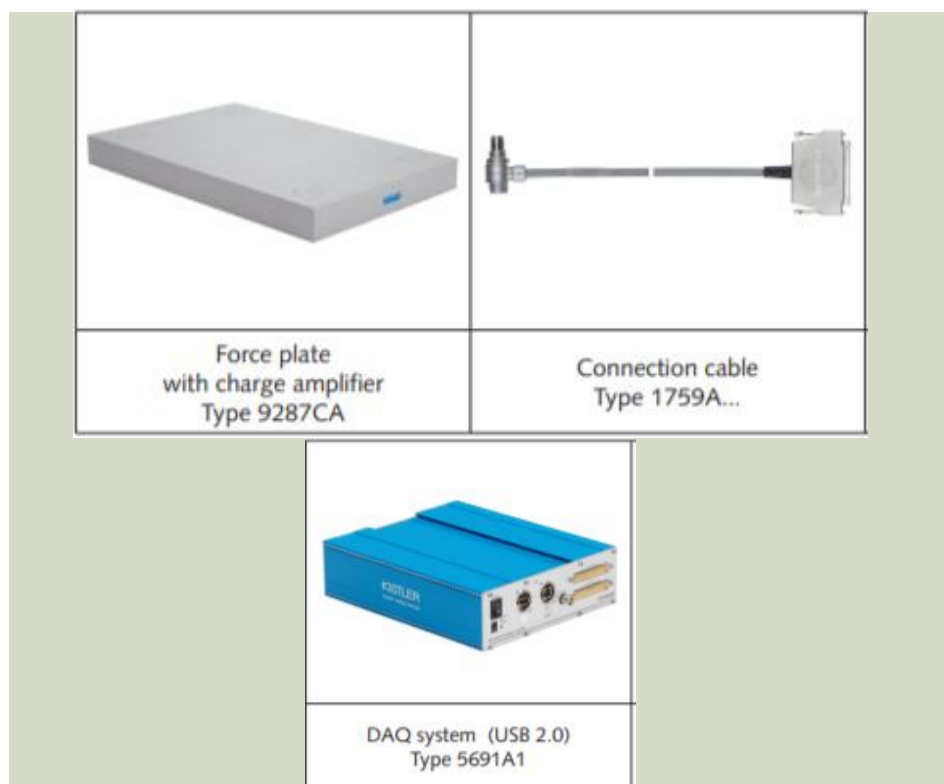
**Responsible:** Nejc Šarabon  
[nejc.sarabon@innorenew.eu](mailto:nejc.sarabon@innorenew.eu)



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## 3D piezoelektrični merilnik sile / 3D piezoelectric force gauge measurement

KISTLER Type 9287C, 2 pcs 900x600 mm plates



Multicomponent force plate with wide range for measuring ground reaction forces, moments and the center of pressure in biomechanics. Its large size, wide measuring range and high rigidity allow it to be employed for a very wide spectrum of measuring tasks and application sectors. Despite the very generous measuring range it offers excellent accuracy and linearity and allows precise measurements of minute forces. The Type 9287CA has an built-in charge amplifier compatible with all of the common motion analysis systems. Technical data:

- Extremely wide measuring range (-10 – 20 kN)
- Overload ( $F_x, F_y = -13/13$  kN,  $F_z = -10/25$  kN)
- High natural frequency ( $f_n(x, y) = 750$  Hz,  $f_n(z) = 520$  Hz)
- Weight (25 kg)
- Threshold  $F_z < 250$  mN
- Linearity ( $< \pm 0,2$  % FSO)
- Hysteresis ( $< 0$ , % FSO)

**Owner institution:** InnoRenew CoE

**Location:** Industrijska cesta 4, 6310 Izola

**Responsible:** Nejc Šarabon  
[nejc.sarabon@innorenew.eu](mailto:nejc.sarabon@innorenew.eu)



**InnoRenew CoE**



## Izometrični bilateralni kolenski dinamometer / Isometric bilateral knee dynamometer



Advanced and user –friendly solution for static joint torque measurements:

- Adjustable and rigid mechanical frame is suitable to measure all groups of people.
- Bi-lateral design allows instant left and right comparison (top.-level electronics, high accuracy)
- Seat adjustment mechanism for 60 mm. Knee angle release mechanism between 0 and 90°
- Adjust the lateral position of the leg pads in a range of 240 mm and longitudinal position of the leg pads in a range of 160 mm.
- Leg lever arms can be moved up and down to reach knee angles between 0 and 90°
- The rear seat can be moved forward and backward for 60 mm in order to adapt the seat to the length of user's legs.
- The leg pads can be moved longitudinally and laterally in order to adjust the seat to the length of the user's legs.

**Owner institution:** InnoRenew CoE

**Location:** Industrijska cesta 4, 6310 Izola

**Responsible:** Nejc Šarabon  
[nejc.sarabon@innorenew.eu](mailto:nejc.sarabon@innorenew.eu)





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## PH meter / PH Meter

Thermo Scientific Orion Versa Star Pro VSTAR83 Benchtop pH Meter with / LogR Module



Thermo Scientific Ph/LogR meter kit

- Glass body pH
- Stainless steel ATC Higher throughput
- Measurement Modes:  
pH with LogR temperature, mV,  
relative mV (RmV) or ORP with  
temperature
- pH resolution: 0.1, 0.01, 0.001
- Temperature resolution: 0.1° C

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu



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## **Enosmerna napetost (DC) (2 kom) / DC Voltage supplies (2 pieces)**

Keithley 2230G Multi-Channel Programmable DC Power Supply



High Power, 3-Channel Programmable Power Supplies. Complete control of the power supplies from a PC; LabView and IVI drivers facilitate instrument control, data logging, and analysis..

- 0.03% basic voltage accuracy and 1 mV resolution setting and measurement
- Output voltage: 0-30V
- Output current: 0-5A
- Supply voltage: 120-240VAC

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu

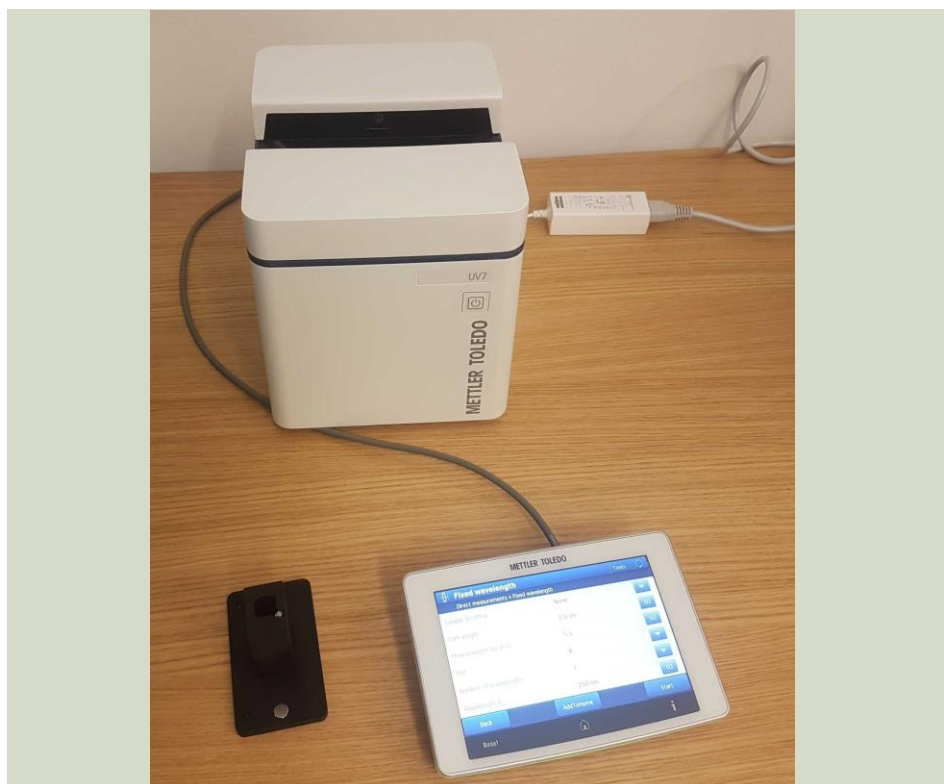


InnoRenew CoE



## UV-VIS spektrofotometer / UV-VIS spectrophotometer

### METTLER TOLEDO Spectrophotometer UV7



Ideal for regulated environments; spectrometer calibration performed according to European and US pharmacopeia. Supports 21 CFR Part 11 and data integrity compliance with LabX Software. Offers advanced automation capabilities.

#### **Excellence Performance**

FastTrack™ technology ensures exceptional optical performance. Automated performance verification is possible with the optional CertiRef™ module.

#### **Simple One Click™ Operation**

The large colour touchscreen features an intuitive One Click™ interface. All users have their own home screen, enabling daily tasks in just One Click.

#### **Measurements within Seconds**

Modern fiber optics are combined with a CCD array detector and Xenon flash lamp, allowing for a full spectrum scan within just 1 second.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Izola

**Responsible:** Anna Sandak  
anna.sandak@innorenew.eu



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## **Sistem kromatografije Flash Prep, vključno s pripravo vzorca / Flash Prep chromatography system including sample preparation**

BUCHI Pure C-850 Flashprep, IKA ULTRA-TURRAX T 18 digital



The Pure chromatography instruments are extremely compact, ensure safety on the highest level and are easy to use for any flash or prep HPLC application. The platform has been designed to protect sample and to get more purification in a very convenient way with using minimal space.

Laboratory disperser:

The Pure instruments enable efficient use of lab space.

Dispersing instrument for volumes from 30 – 1500 ml (H<sub>2</sub>O) with digital speed display.

It offers a wide speed range from 3.000 – 25.000 rpm that enables users to work at high circumferential speeds even with small rotor diameters.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Anna Sandak  
anna.sandak@innorenew.eu





**InnoRenew CoE**



## **Sistem za termogravimetrijo in dinamično kalorimetrijo TGA - DSC / TGA - DSC thermogravimetry and dynamic calorimetry system**

Waters TA Instruments TGA 5500, Waters TA Instruments DSC 25



TGA for determining thermal stability and volatile compound content in a variety of organic/synthetic materials including polymers and lignocellulosics

- Automated sampler for 25 samples
- IR furnace with a temperature range from ambient conditions to 1200 ° C and a heating rate of 500 ° C per minute
- Crucible volume up to 900 µL
- Sample mass ≤ 1 g
- Can be connected with FTIR and/or GCMS

DSC for determining heat flow rates to and from test samples of organic and synthetic materials.

- Analysis of endo/exo-thermic events (e.g., glass transition, melting temp, crystallization, oxidation, etc.)
- Automated sampler for 54 samples
- Temperature range of -180 ° C to 725 ° C

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu





**InnoRenew CoE**



## Oprema za analizo velikosti delcev / Particle size analysis equipment

Horiba Scientific LA-960A2



Analysis of the particle size repartition (D10, D50, D90 and more) for particle size ranging from 10 nm to 5000  $\mu\text{m}$ . Possibility to carry out the measurements with dry and wet modules. The device allows the visualization of the particle dispersion in real time.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Laetitia Marrot  
laetitia.marrot@innorenew.eu



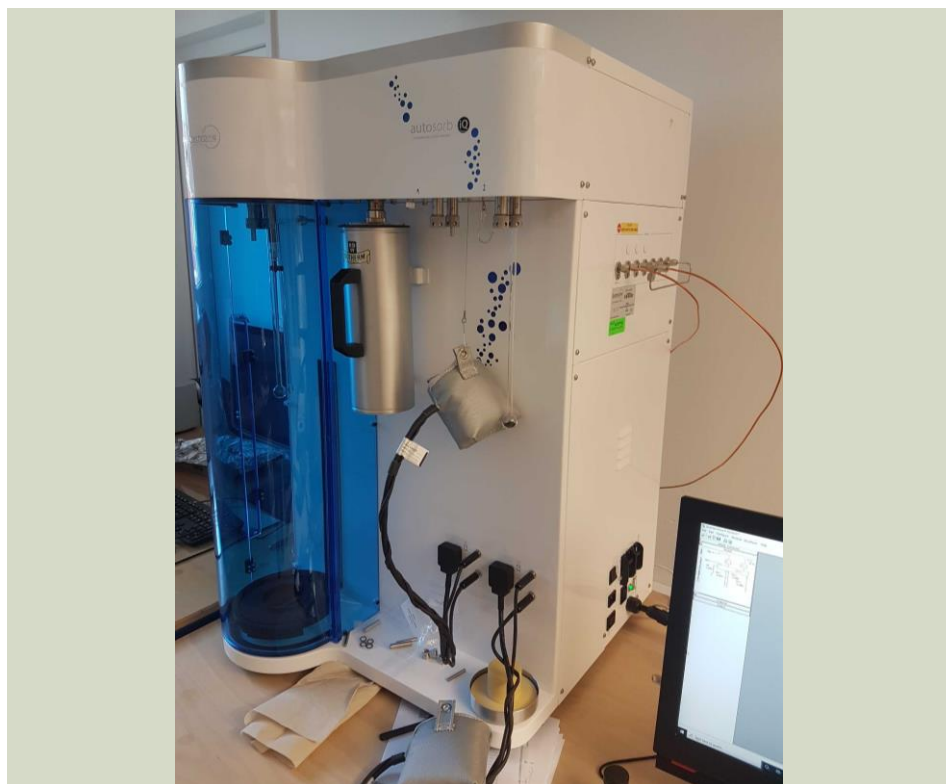
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## **Naprava za analizo površin / Surface area analysis equipment**

Anton Paar Quantachrome Instruments, Autosorb iQ-XR-AG-AG



Determination of the specific surface area, size and distribution of meso- and micro-pores of materials of different shapes in the pore diameter range from 0.5 to 500 nm via the principle of adsorption of gas molecules. The apparatus consists of built-in degassing stations and three separate analysis stations which allow simultaneous analysis of three powder samples.

Compatible with He, N<sub>2</sub>, Ar, Kr, CO<sub>2</sub>, CH<sub>4</sub> and other non-corrosive gas.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Laetitia Marrot  
laetitia.marrot@innorenew.eu



**InnoRenew CoE**



## **Walk in klimatska komora / Walk in climatic chamber**

Kambič KK-25000 CH, KK-8000 CH-1, KK-8000 CH-2



Climatic chamber, three walk in rooms with temperature and relative humidity control, different volume. Climatic chamber operating in the range + 20° C to 40° C, and relative humidity range: 20-90%. Suitable for material temperature & RH resistance and product testing, sample conditioning, accelerated ageing and stress tests.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Miladin Jokić

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**InnoRenew CoE**



## **Sistem za merjenje časovno-prostorskih spremenljivk med gibanjem (hoja, tek, skoki) in biomehansko analizo gibanja / System for movement analysis and functional assessment.**

MicroGate OptoJump Next



Optical measurement system for motion analysis and functional Evaluation OptoJump Next. It acquires relevant spatio-temporal parameters for walking, running or other types of tests and enables continuous monitoring of the subject's condition, detection of movement abnormalities and mechanical inefficiencies.

### **Applications**

- Measurement of different spatio-temporal variables during locomotion
- Testing of general physical preparation
- Testing of postural problems and asymmetries
- Evaluation of gait during walking, running or non-linear movements
- Evaluation of power, strength, agility and speed

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Nejc Šarabon  
nejc.sarabon@innorenew.eu



**InnoRenew CoE**



## Horizontalna stresalna mizica za stresalnik dolgega hoda / Horizontal shaking table for the long-stroke shaker



APS 400 with APS 0452 - Auxiliary Table Kit – Horizontal

Auxiliary Horizontal Table Kit APS 0452, when installed on the basic shaker APS 400, enable the shaker to provide long stroke horizontal excitation to components or model structures mounted on the table.

### Applications

- Determination of natural mode frequencies, shapes, damping ratios, and stress distributions
- Seismic simulation for components or model structures
- Test and calibration for seismic instruments

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Iztok Šušteršič  
Iztok.sustersic@innorenew.eu





**InnoRenew CoE**



## **Meritveno orodje za diagnostiko hrbtenice s programsko opremo / Tool for assesment and diagnostic of spine with software**

**IDIAG M360**



Tool for spine curvature assessment and spinal diagnostics.

During the recording, the device records the vertebrae's distances and positions in the x, y and z planes. This information, combined with known anthropometric data about the vertebral body dimensions, is necessary in order to calculate the relative positions of the sacrum, the vertebral bodies and the angles between them using a complex algorithm.

Identification of abnormalities via substantiated determination of back geometry, stability and mobility.

Diagnostic software is included with the device.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Nejc Šarabon  
nejc.sarabon@innorenew.eu



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## Digitalni senzor ogljikovega dioksida in senzor zračnega tlaka / Digital carbon dioxide sensor and atmospheric pressure sensor

AHLBORN FY0D00C02B05



The sensor probe is used to measure CO<sub>2</sub> concentrations in the ambient air. CO<sub>2</sub> production is a function of the number, size and activity levels of the people present in the room. The sensor is a part of Multi-Function Device for Built Environment equipment set and is used with the AHLBORN ALMEMO 2690-8A datalogger.

### Applications

- Measurement of ambient CO<sub>2</sub> levels
- Measurement of atmospheric pressure

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Nejc Šarabon  
nejc.sarabon@innorenew.eu



**InnoRenew CoE**



## Diagnostični avdiometer / Diagnostic audiometer

AD226



The AD226 is a standalone diagnostic audiometer that can be used to determine human hearing threshold measurements in the frequency range 250-8000 Hz. Various tests can be performed, with the possibility of including masking sounds. Air and bone conduction tests can be performed for each ear and the corresponding audiogram can be obtained. The measurement of the hearing threshold can be performed directly on the device or controlled by a personal computer.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Rok Prislan  
Rok.prislan@innorenew.eu



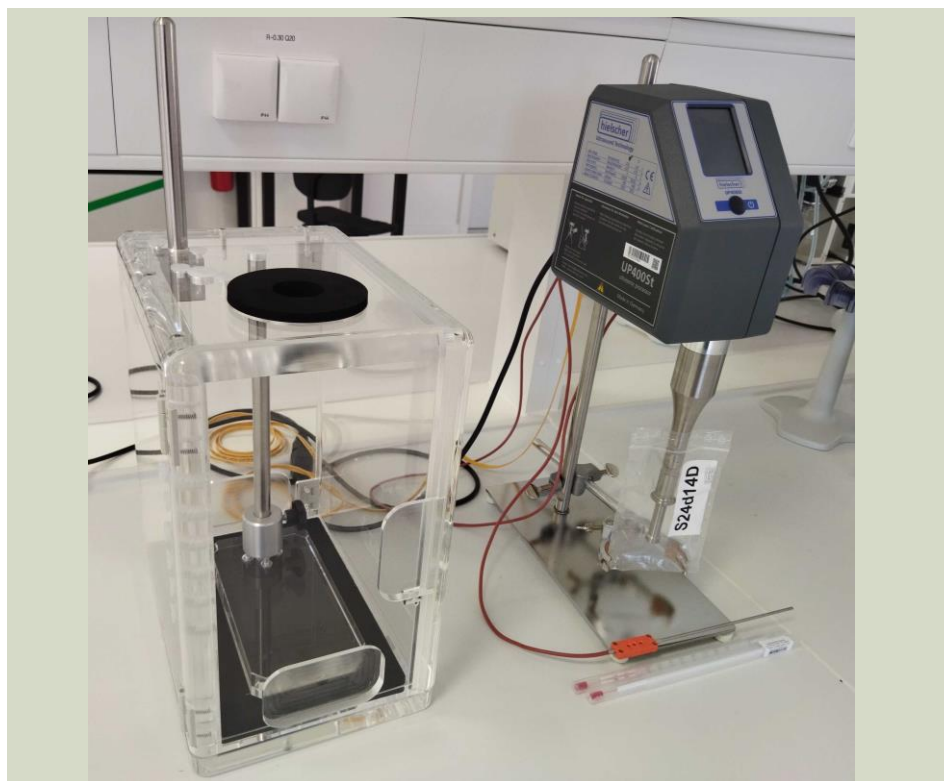
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## Zmogljiv ultrazvok / Powerful Ultrasonicator

Hielscher ultrasonic processor UP400St



Powerful Ultrasonicator used for homogenizing, emulsifying, dispersing, deagglomeration and wet-milling (particle size reduction), cell disruption and disintegration, extraction, degassing and sonochemical processes.

Operating with amplitude 20-100%, and pulse 0-100%  
Equipped with titanium horn Ø18mm, touch screen, with SD-Card, and temperature sensor.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Oihana Gordobil  
oihana.gordobil@innorenew.eu





**InnoRenew CoE**



## Fluorescenčni mikroskop / Fluorescent microscope

EVOS M7000, ThermoFisher Scientific



A high-performance, fully automated, inverted multichannel fluorescent and transmitted light imaging system.

Equipped with the onstage incubation system, suitable for long-term monitoring of cell cultures and time-lapse imaging at high resolution.

A microscope is furnished with various objective, light cubes and various accessories such as vessel holders etc.

Celleste Image Analysis Software allows advanced image processing and analysis, including 2D and 3D deconvolution and 3D visualization and analysis.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Izola

**Responsible:** Anna Sandak  
anna.sandak@innorenew.eu





**InnoRenew CoE**



## **Analizator velikosti delcev in površinskega naboja / Particle size and surface charge analyzer**

**Zetasizer Ultra, Malvern Panalytical**



Zetasizer Advance Series - Ultra (Red Label) for the measurement of size, molecular weight, particle concentration and zeta potential of dispersed particles & molecules.

The system includes max. 10mW HeNe laser (633nm) with high sensitivity APD detector. Size/Molecular Weight by DLS/SLS measured at 173-degrees using Non-Invasive Back Scatter, and 90-degree DLS/SLS measurements also possible.

It includes ZS Xplorer Application Software with its easy-to-use method builder for measurement control and data analysis with advanced data quality assessment and advice system.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Oihana Gordobil  
oihana.gordobil@innorenew.eu



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## Vijačni merilnik izvlečne sile / Screw Withdrawal Force Meter

Fakopp Screw withdrawal resistance meter



The instrument is used to measure the pull-out force of a screw from a piece of wood. It is used to measure early levels of decay, otherwise not noticeable or measurable with techniques like penetration drilling.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Iztok Šušteršič  
Iztok.sustersic@innorenew.eu



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## Resistograf / Resistograph

### IML-RESI PowerDrill



The instrument is used for micro-destructive penetration drilling. A small 3 mm drill can penetrate up to 500 mm into a wood specimen. The drill penetration force and torque is measured while drilling. Based on changes in both resistance values, damaged areas of wood can be identified.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

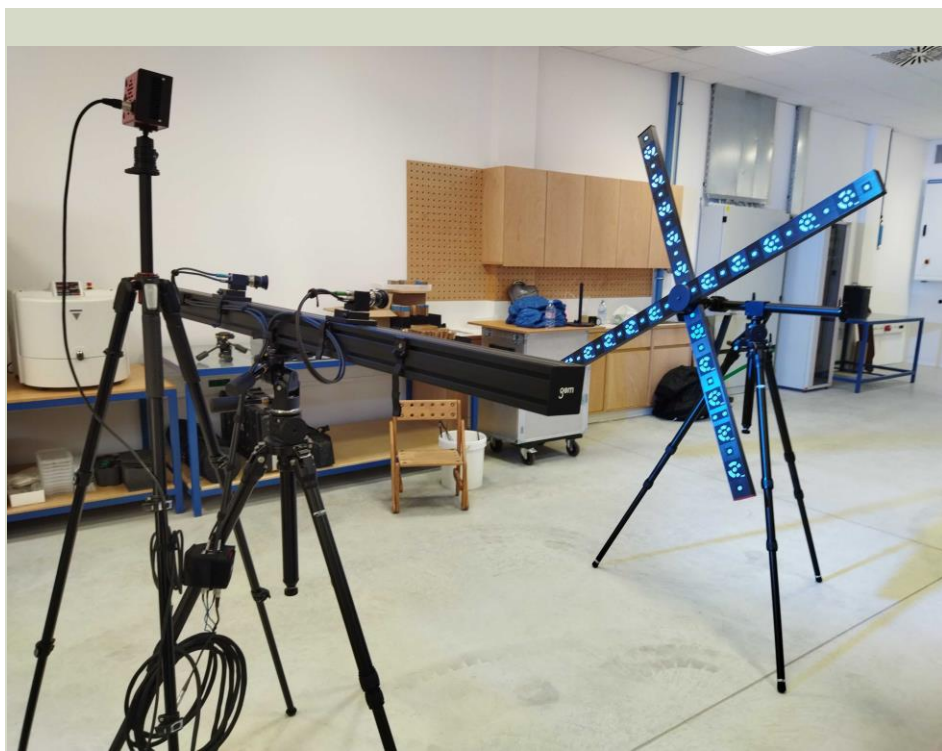
**Responsible:** Iztok Šušteršič  
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## DIC12MP: sistem za optično merjenje 3D pomikov in deformacij na površini / system for optical measurement of 3D displacements and deformations on the surface displacements



### GOM Aramis 12 MP

The instrument is used to measure deformations of random points in 3d space. It can be used to measure discrete point movements or strain fields of surfaces. It consists of 2x 12M pixel cameras Resolution: 4096 x 3000 pixels Frame rate 25 Hz (at 4096 x 3000 pixels) - 165 Hz (at 4096 x 500 pixels). Analog data acquisition with 8 channels. Digital resolution: 16 Bit. Sample rate up to 200,000 values/s

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Izola

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## Viličar / Forklift

HELI CPD18-GB2LI



Technical characteristics:

- load mass: 1800 kg
- triplex telescope high to 6 m
- fork side move
- Li-ion battery

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Miladin Jokić

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## **Odsevalni sistem / Suction system**

**L.F.AIR-CONDITION**



Suction system for chips and dust as a by-product of the processing of wood and composite materials in the mechanical workshop, with automatic flaps and starting of the central collector HOECHER VT250L

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Miladin Jokić

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## Visoko zmogljiv računalniški strežnik / High performance server

Dell PowerEdge



General servers used for various VMs needed for projects, storing data gathered from research, backups etc.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Tine Šukljan

[tine.sukljan@innorenew.eu](mailto:tine.sukljan@innorenew.eu)

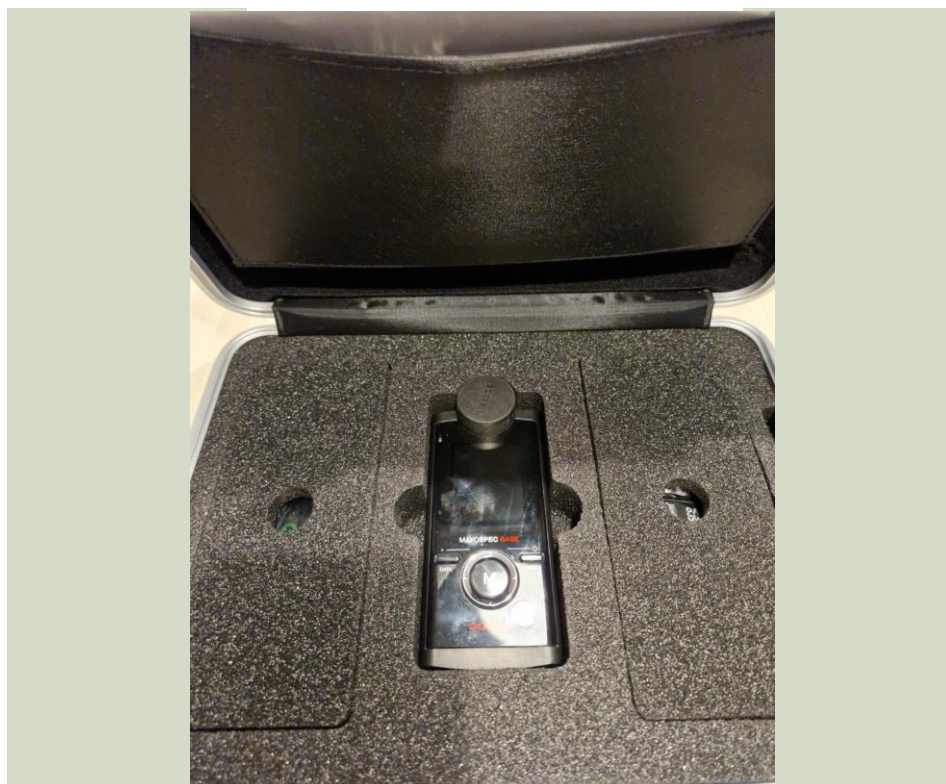


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**Spektrometer za merjenje osvetljenosti, barvne temperature, indeksa barvnega videza, utripanja svetlobe in porazdelitve spektralne moči / Spectrometer for measurement of illuminance, correlated color temperature, color rendering index, flicker and spectral power distribution**

**Gossen Mavospec Base**



Handheld spectrometer for measurement of illuminance, correlated color temperature, color rendering index according to CIE 13.3 and IES TM-30-15, television lighting consistency index, color coordinates in accordance with various CIE standards, flicker, spectral power distribution, peak wavelength, dominant wavelength and photosynthetic photon flux density.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Nejc Šarabon  
nejc.sarabon@innorenew.eu



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## Števec delcev z vgrajeno kamero / Particle counter with built-in camera

Extech VPC300



- Measures up to 6 channels of particle sizes (0.3, 0.5, 1.0, 2.5, 5.0, 10 $\mu$ m)
- Cumulative, differential and concentration count modes
- Air temperature measurement -25 to 60°C; Accuracy:  $\pm 1^\circ\text{C}$
- Relative Humidity measurement; 0 to 100%RH; Accuracy:  $\pm 3\%$ RH (40% to 60%RH)
- Included software for report generation
- NIST-traceable calibration certificate

**Owner institution:** InnoRenew CoE

**Location:** UP FVZ, Polje 42, 6310 Izola

**Responsible:** Nejc Šarabon  
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**InnoRenew CoE**



## Set za nizkošumno analizo zvoka in vibracij / Set for low noise sound and vibration analysis

B&K Type 4955



The set consists of 10 B&K Type 4955 1/2" low noise free field microphones. The extremely low inherent noise level of the capsules (6.5 dBA) enables the investigation of acoustic events at the margin of the hearing threshold. The set is important for measurements performed in the InnoRenew's anechoic chamber, which provides the required low background noise levels.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Rok Prislan  
Rok.prislan@innorenew.eu





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## **Naprava za linearno merjenje upora zračnega toka / Airflow resistance measurement device**

AED AcoustiFlow



The measuring device determines the airflow resistance of porous materials based on the direct static airflow method according to ISO 9053. The specimens tested are disk-shaped and have a diameter of 100 mm. The airflow resistance is important for the optimization and development of new sound absorbing materials.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

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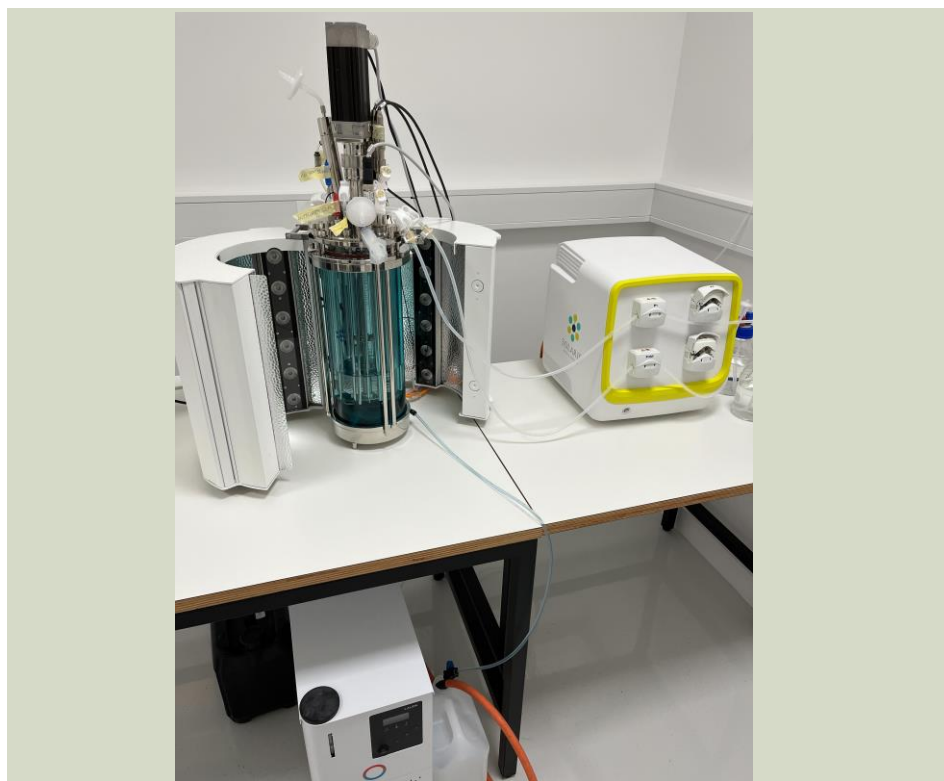


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## **Fermenter - bioreaktor / Fermenter - bioreactor**

Solaris Lab, ELARA ST



A stirred jacketed photobioreactor suitable for phototrophic organisms with fully removable light module allowing using it as a traditional fermenter/bioreactor.

It includes probes for pH,  $dO_2$ , redox, antifoam and level with software control options.

The reactor is suitable for batch, fed-batch and continuous processes.

The LEONARDO 3.0 software provide a high level of automated management of the fermentation/cultivation processes.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

**Responsible:** Anna Sandak  
[anna.sandak@innorenew.eu](mailto:anna.sandak@innorenew.eu)



**InnoRenew CoE**



## **Sistem SEC / SEC system**

Malvern Panalytical, OMNISEC RESOLVE & REVEAL



Gel Permeation Chromatography and Size Exclusion Chromatography system, OMNISEC tetra system includes refractive Index, UV/Vis PDA, light scattering and viscometer detectors, integrated pump, degasser, autosampler with temperature control and column oven for the complete control of sample injection and separation. Triple detection software offers calculation of absolute molecular weight, intrinsic viscosity, Mark-Houwink and numerous other parameters independent of sample retention volume. For the characterization of synthetic and natural polymers and proteins.

**Owner institution:** InnoRenew CoE

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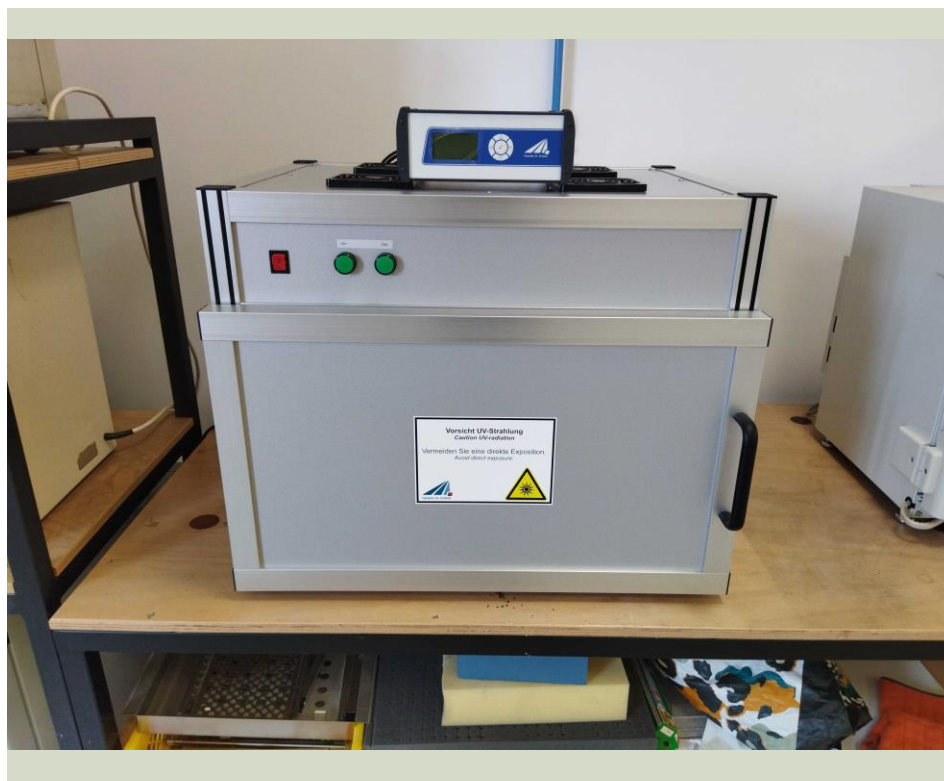


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## Komora za obsevanje / Irradiation chamber

Opsytec, BS-03 UV/VIS



The irradiation chamber for time- or dose-controlled irradiation of samples with UV or visible light. The chamber is fully equipped for spectral ranges UVC, UVB, UVA, or daylight D65. Uses: irradiation of fungi, bacteria and cell cultures, photostability testing of wood, UV and daylight materials testing, UV curing of coatings, sealing, and bonding materials testing, irradiation of composites, artificial weathering and disinfection.

**Owner institution:** InnoRenew CoE

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## Reaktorski sistem / Reactors system

BUCHI, Polyclave, JULABO control system and SCHMIZO glass reactor



Pressure reactor system up to max. 60 bar complete with lift, fast closure action and polycarbonate protective screen. Metal stirrer vessel of 2L with bottom valve and welded heating jacket (up to 250°C). Cover plate with center opening for agitator with integrated motor. Atmospheric reactor system with 2L and 5L jacketed vessels with cover lid with 6 necks. PTFE coated stirrers (Anchor and Propeller), pH and temperature probe.

**Owner institution:** InnoRenew CoE

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## **Dron Mavic Air 2 / Drone Mavic Air 2**

**Dji MAVIC AIR 2 (S)**



The drone has a maximum ascent speed of 4 m/s, descent speed of 3 m/s and horizontal flight speed up to 19 m/s. The maximum flight time (without wind) is 34 minutes, flight distance 18,5 km and service ceiling above sea level is 5000 m. The drone's operating temperature range is from -10° to 40° . It uses GPS as well as GLONASS for positioning. The camera has a 1/2" CMOS sensor. The lens' FOV is 84° , its equivalent focal length is 24 mm. The aperture has f/2.8 and the focus range is from 1 m to ∞. The overall ISO is 100–6400, with maximum photo resolution of 8000 x 6000 pixels (48 MP) and video resolution Ultra HD 3840 × 2160 (4K).

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**InnoRenew CoE**



## Komplet toplotnih kamer / Thermal cameras set

FLIR A70



FLIR A70 is a smart sensor compact thermal camera with IR resolution  $640 \times 480$ , temperature range  $-20^{\circ}\text{C}$  to  $1000^{\circ}\text{C}$  and accuracy of  $2^{\circ}\text{C}$ . In addition, it is equipped with a vision image detector of  $1280 \times 960$  pixels allowing simultaneous acquisition of thermal and colour data at the frame rate up to 30Hz. The available software tools allows automatic datalogging of images that can be used for monitoring, alerting or automatic detection. The primarily application at InnoRenew is to monitor temperature changes on building facades and/or building materials exposed for natural weathering.

**Owner institution:** InnoRenew CoE

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## CNC sistem za napredno proizvodnjo biomaterialov / CNC system for the advanced manufacturing of biomaterials

ABB robots: ABB IRB 6620, IRB 14000 and CRB 15000



Robots for advanced manufacturing research at InnoRenew CoE includes:

1. robot set of ABB IRB 6620 (six axis robot arm with load of 150kg) installed on the 4m long track ABB IRBT 6004 and rotary table ABB MTD 500. The robot is equipped with the 7,5kW electro spindle and tool changer. The main use of this configuration is to allow manufacturing of components and 3D prototyping (extractive manufacturing) including adaptive process control with integrated load cells.
2. ABB IRB 14000 YuMi - two arms robot with total 14 degrees of freedom. The left gripper is equipped with a CCD camera allowing integration of machine vision tasks. The maximum load of each arm is 0,5kg.
3. ABB CRB 15000 GoFa – 5kg load collaborative robot with the latest generation control system and full compatibility with open space working environments, including laboratories.

The associate software allows preparation of the digital twin functionalities, of-line programming of robots as well as simulation of programs in virtual world.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola

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**InnoRenew CoE**



## Mostno dvigalo / Overhead bridge crane

INDENNA – SWF KRANTECHNIK



The crane covers the effective area of the composites' laboratory. It has a lifting capacity of 12.5 tons and a stepless motor drive. The lifting height is 5.8 meters. The commands are wireless.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Iztok Šušteršič  
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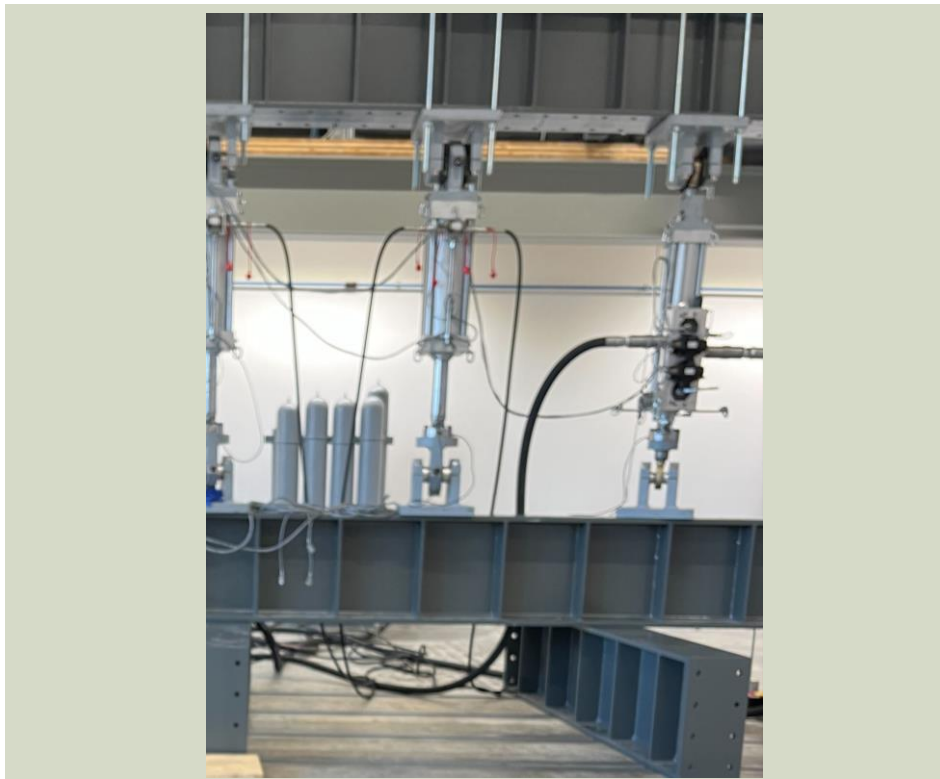


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## Hidravlični sistem testiranja / Hydraulic testing system

Servo Hydraulic Solutions, LLC



The hydraulic testing system is composed by the hydraulic power supply (HPU) with 210 bars of pressure and 100 l/min flow, a bank of accumulators that enable dynamic actuator's speed (bursts) of close to 1 m/s, two static actuators with 500 mm stroke, 600 kN compression and 400 kN tension force, one dynamic actuator with 250 mm dynamic stroke, 250 kN of compression and tension force and up to 30 Hz sinus wave. The actuators are combined with a set of steel beams which can be anchored into the concrete reaction floor (with a built-in rail slot system) and set in various possible combinations that allow testing of walls, plates, beams, connections etc. The tested specimens can be up to 12 m long, 2 m wide and 3.4 m high.

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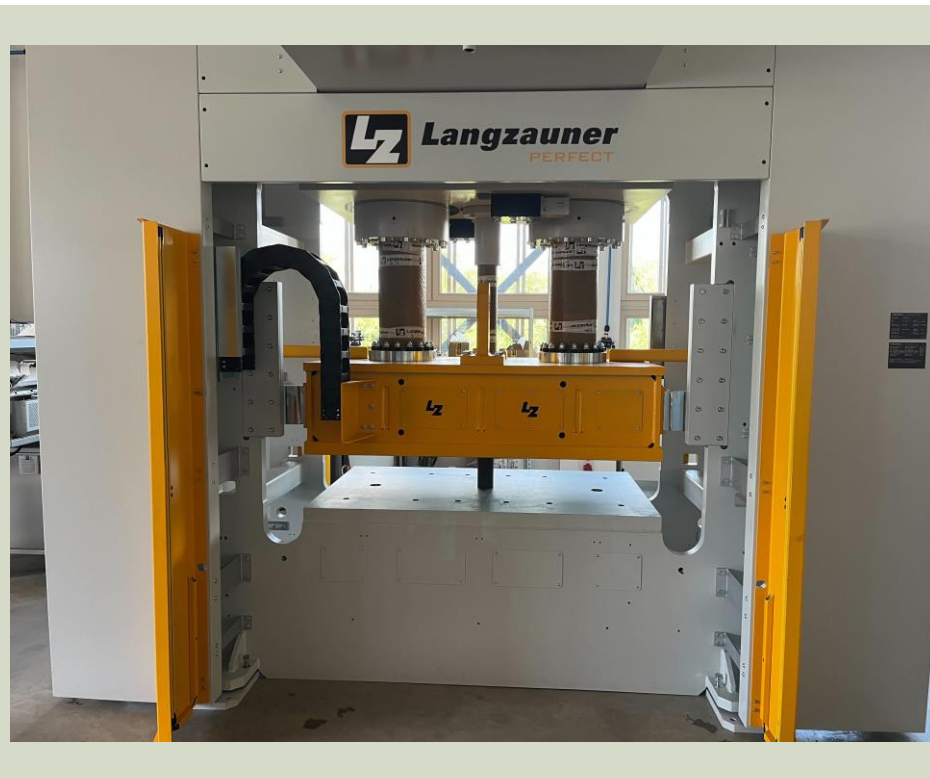


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## Stiskalnica / Press

Langzauner, Type LZT-OK-270-L



The hydraulic press has a pressing area of 1500 x 900 mm and an opening of 400 mm. The maximum pressing force is 2700 kN (guaranteed minimum pressure on maximum specimen size is 2 MPa). The two press platens can be heated up to 250° C. The platens have a combined heating power of 144 kW enabling the heating rate to be 1-15° C/min. The cooling capacity of the press is 1-10° C/min and is achieved in a closed circuit through a condensation cooling tank.

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## Viskozimeter / Viscometer

Anton Paar – ViscoQC 300 - L



Rotational viscometer for measure the viscosity of liquid samples. Capable of low and high viscosity samples from  $\leq 1 \text{ mPa}\cdot\text{s}$  to  $\geq 4 \cdot 10^6 \text{ mPa}\cdot\text{s}$ . Built in heater and temperature probe. Gel time kit to conduct gelling/curing experiments.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



**InnoRenew CoE**



## Posode in kroglice za planetarni mlin / Grinding jars and balls for Planetary Mill



Zirconium jars and balls are available for grinding materials sensitive to small levels of metal contamination present in steel jars and balls. These can be used in the Fritsch Pulverisette 5 planetary mill at InnoRenew.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



**InnoRenew CoE**



## **Brusilna orodja za drobljenje lesa, materiala/ Drobilnik / Shredder**

**Robust – SD-45**



Shredder for biomass. Designed to grind solid wood boards/cutoffs, polymers, agricultural biomass, etc. Grinds to sizes of 10 mm or 50 mm in diameter.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



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## Digestorij z UV / Digester with UV

Kambič - D-700 P



Designed for maintaining a dust free work environment. Positive pressure is maintained within the chamber while in use with incoming air being filtered through a HEPA filter. UV-B cleaning of the interior is featured in this unit.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

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## Stresalna miza/Sejalnik / Sieve shaker

Fritsch - AS450



Used for sieving particulates.  
Maximum load of 10 kg and include  
sieves for 4 mm, 6.3 mm, and 10  
mm. In alignment with ISO 3310-1.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

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matthew.schwarzkopf@innorenew.eu



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## **Parni sterilizator - avtoklav / Steam sterilizer - autoclave**

**Nuve – NC150**



Used for cleaning and sterilizing laboratory glassware and tools. 150 L capacity. Cleaning tray is pulled out via trolley for easy loading/unloading.

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Matthew Schwarzkopf  
matthew.schwarzkopf@innorenew.eu



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## Analitski pripomočki za določevanje teže in vlažnosti / Analytical equipment for mass and moisture

Mettler Toledo – XPR36/M, XPR10001L/M, HX204/M



Analytical balance with a precision of  $\pm 0.0005$  mg and a maximum capacity of 32 g.

10 kg capacity balance with a precision of  $\pm 0.05$ g.

Halogen moisture analyzer used to rapidly determine MC of materials with a precision of  $\pm 0.0005\%$  MC.

**Owner institution:** InnoRenew CoE

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matthew.schwarzkopf@innorenew.eu



**InnoRenew CoE**



## Sistem za zajem podatkov / Data acquisition system

Stock Smart TVOC and HCHO sensor



Stox Smart TVOC Sensor Device  
including ES1 TVOC Sensor, calibration, cable and housing  
for range 0 - 200 ppm, resolution 0,1 ppm  
provides 4-20 mA and RS485 Modbus-RTU output  
including Temperatur and Humidity sensor

Stox Smart HCHO Sensor Device  
including ES1 HCHO Sensor, calibration, cable and housing  
for range 0 - 100 ppm, resolution 0,1 ppm  
provides 4-20 mA and RS485 Modbus-RTU output  
including Temperatur and Humidity sensor

**Owner institution:** InnoRenew CoE

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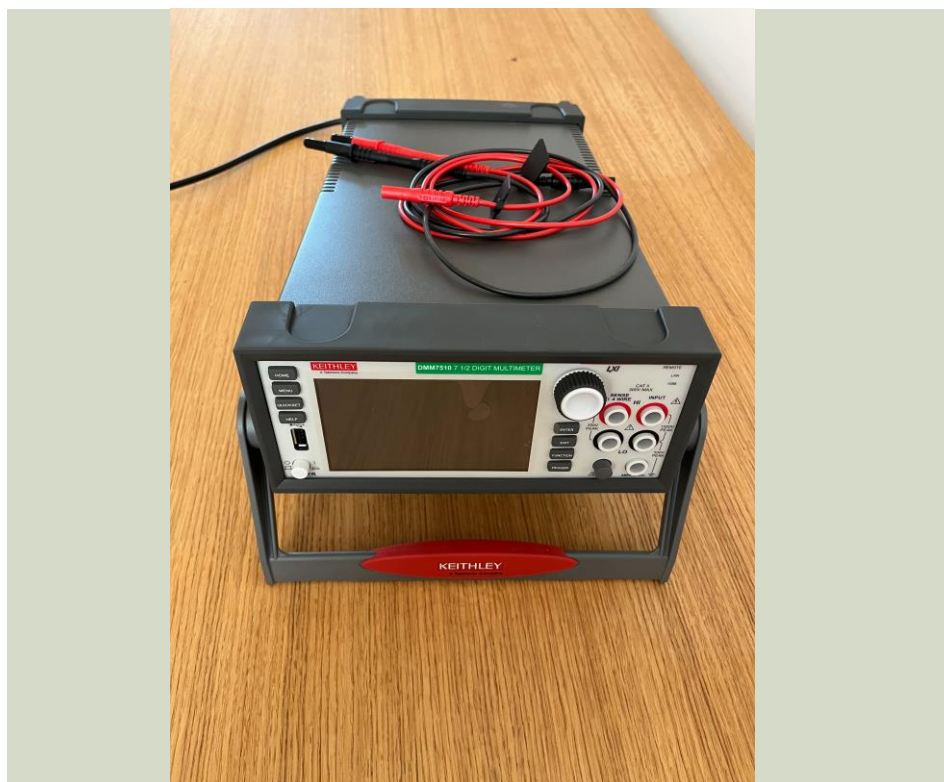
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## Namizni digitalni multimeter / Bench Digital Multimeter

Keithley DMM7510 ½ Digit Multimeter



Is a 7 ½ digit graphical sampling multimeter that expands standard digital multimeter (DMM) functions with high-speed digitizing and a large color graphical touchscreen display.

- Maximum VA: 60VA
- Power supply: 100-240V<sub>RMS</sub> 50-60 Hz

**Owner institution:** InnoRenew CoE

**Location:** Livade 6A, 6310 Izola/Isola

**Responsible:** Dave DeVallance  
devallance@innorenew.eu





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## Sistem za določevanje gostote materialov / Density characterization setup

AccuPyc II 1345 - Pycnometer



Used for determining the true density of materials via gas (e.g., helium) in a non-destructive manner. Fitted with a 100 cm<sup>3</sup> chamber.

**Owner institution:** InnoRenew CoE

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