

RANGE OF SERVICES

CoLT Prüf und Test GmbH



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LABORATORY

Mechanical testing

Static material testing machine Z005 (2.5 kN)

Fields of Application

Drum Peel (EN 2243-3, ASTM D 1781, ...)
 G1C (AITM 1-0053, EN 6033)
 Floating Roller Peel (Bell Peel) (EN 2243-2)
 180° angle peel adhesion (ASTM D 3330)
 Tensile tests (ISO 527, ...)
 Only room temperature



Machine data / technical parameters

Manufacturer	Zwick
Type	Z005
Load range	5 to 2500 N
Software	testXpert III

Static material testing machine Z010 (10 kN)

Fields of Application

ILSS (EN 2563, ASTM D 2344,
 ISO 14130, ...)
 3-PB (EN 2562, ISO 14125, ...)
 G2C (EN 6034)



Machine data / technical parameters

Manufacturer	Zwick
Type	Z010
Load range	5 to 10000 N
Software	testXpert III

Static material testing machine Z100 (100 kN) with temperature chamber

Fields of Application

SLS, DLS, SSLS (EN 2243-1, AITM 1-0019, ASTM D 1002, ...)
 4-PB-SW and 4-PB laminate (ASTM C 393, ...)
 3-PB-laminate (ISO 14125, ...)
 Compressive tube shear (EN 2667-2)



Machine data / technical parameters

Manufacturer	Zwick
Type	Z100
Load range	100 to 100000 N
Software	testXpert III

Static material testing machine Z250 (250 kN) with temperature chamber

Fields of Application

Tensile tests (ISO 527, EN 2561, ...)
 Compression tests (ASTM D 695, ASTM C 365, EN 2850, ...)
 Compression tests
 Bearing tests (ASTM D 5961, ...)
 Fastener Pull Through (ASTM D 7332, ...)



Machine data / technical parameters

Manufacturer	Zwick
Type	Z250
Load range	250 to 250000 N
Software	testXpert III

Adhesion tester

Fields of Application

AT-Adhesion Test (Porta Pull) for sandwich materials (ISO 4624)



Machine data / technical parameters

Manufacturer	DeFelsko
Type	PosiTest Model AT-A
Load range	250 to 250000 N
Software	0-20MPa 20mm Dolly; 0-70MPa 10mm

Thermal tests / Thermal-mechanical tests

Dynamic mechanical analysis (DMA)

Fields of Application

Determination of glass transition
Temperature
AITM 1-0003
EN 6032
ASTM D 7028



Machine data / technical parameters

Manufacturer	TA Instruments
Type	Q800
Temperature range	-90°C to 450°C
Frequency range	0,01 to 200 Hz
Max. load	18 N
Software	Thermal Advantage

Differential scanning calorimetry (DSC)

Fields of Application

Extent of cure
 Receiving inspection
 AIM 3-0002 and AIM 3-0008
 ISO 11357
 EN 6041 and EN 6064



Machine data / technical parameters

Manufacturer	TA Instruments
Type	Q100
Temperature range	-90°C to 450°C
Software	Thermal Advantage

Heraeus muffle furnace

Fields of Application

Incineration of various polymers
 Determination of fiber volume fraction by
 ignition loss



Image source: Thermo SCIENTIFIC folder

Machine data / technical parameters

Manufacturer	Heraeus Holding GmbH
Type	M 104
Temperature range	25°C to 850°C

Flammability tests

Flammability chamber

Fields of Application

Vertical Bunsen burner Test acc. to Aircraft Materials Fire Handbook DOT/FAA/AR-00/12, Chapter 1



Machine data / technical parameters

Manufacturer	MarlinEngineering Inc.
Type	ME1000-3
Temperature range	<1200 °C

Heat release chamber

Fields of Application

Planned induction: Q1/2025

Determination of the amount of heat generated through the controlled combustion of materials.

AITM 2-0006
DOT/FAA/AR-00/12, Chapter 4

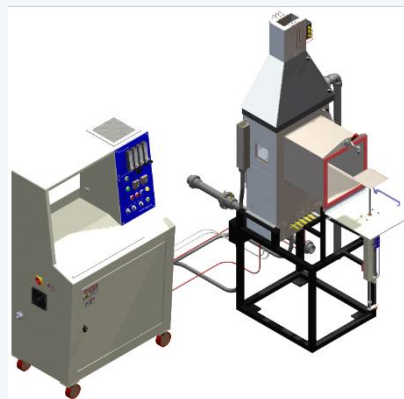


Image source: www.marlinengineer.com

Machine data / technical parameters

Manufacturer	MarlinEngineering, Inc
Type	ME1200

LABORATORY

Smoke density chamber + toxicity kit

Fields of Application

Planned induction: Q1/2025

Determination of density and chemical analysis of smoke generated through the controlled combustion of materials.

AITM 2-0007 (Smoke Density)
AITM 3-0005 (Smoke Toxicity)
DOT/FAA/AR-00/12, Chapter 5

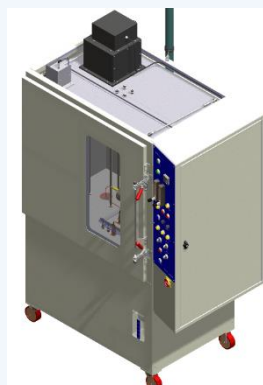


Image source: www.marlinengineer.com

Machine data / technical parameters

Manufacturer	MarlinEngineering, Inc
Type	ME1100

Analytical tests

Chemical lab

Capabilities

Safe handling of different chemicals (incl. harmful and poisonous)
Solvent extractions
Acid digestion of matrix materials
Sample preparation for HPLC



Details

Floor area	65 sqm
Climate controlled	Yes
Staff count	6

Microscopy

Fields of Application

Micro / macro cuts (AITM 4-0005, ...)
 Porosity evaluations (AITM 4-0003, ...)
 Qualitative and quantitative Layer analysis
 Resin accumulations
 Fibre course
 FOD



Machine data / technical parameters

Manufacturer	ZEISS
Type	Axio Imager M1m
Zooming	x25, x50, x100, x200, x500, x1000
Software	AxioVision

Automatic hardness tester

Fields of Application

Induction: October 2024

Hardness testing according to: Micro-Vickers, Vickers, Knoop, Brinell



Image source: www.innovatest-europe.com

Machine data / technical parameters

Manufacturer	INNOVATEST Deutschland GmbH
Type	FALCON 600G2
Load range	10gf - 62.5kgf (31 load levels)
Features	18 Megapixel, 4K camera, magnification lenses, automatic XY-table

Scanning electron microscope incl. EDS detector

Fields of Application

Quality analysis, quality control
 Damage analysis, materialography
 Visual inspection of electronic components,
 integrated circuitry, MEMS and solar cells
 Inspection of metal corrosion



Machine data / technical parameters

Manufacturer	ZEISS, Oxford Instruments
Type	EVO 40, INCA x-sight

Fourier transform infrared spectroscopy (FTIR)

Fields of Application

Material characterization (qualitative)
 Analysis of contamination
 purity analysis
 Incoming inspections (e.g. silicone)



Machine data / technical parameters

Manufacturer	Perkin Elmer
Type	Spectrum 100
Additional equipment	ATR Measuring device
Software	Perkin Elmer Spectrum

High performance liquid chromatography (HPLC)

Fields of Application

Substances separation
 Qualitative / quantitative substance analysis
 Resin analysis, purity analysis
 Analysis of the molecular weight distribution of polymers



Machine data / technical parameters

Manufacturer	Perkin Elmer
Type	Series 200 Q
Software	TotalChrome

Sample preparation

Automatic grinding and polishing system Struers Tegramin-30

Fields of Application

Grinding
 Polishing
 Up to 6 samples at the same time (∅ 40 mm)



Machine data / technical parameters

Manufacturer	Struers
Type	Tegramin-30
Additional Equipment	Variable speed of disc and sample holder Defined pressing force Automatic water cooling or Dosing of polishing suspensions

Taber rotary abrasion tester

Fields of Application

Grinding
 Polishing
 Up to 6 samples at the same time (∅ 40 mm)



Image source: www.taberindustries.com

Machine data / technical parameters

Manufacturer	Taber Industries
Type	Taber rotary abraser 352S/1700
Standard covered	ASTM D 7255

Precision cutting device Struers Secotom 50

Fields of Application

Wet cutting of CFK, GRP, AFK and Al
 Small parts (including DSC, FVC, Tubeshear ...)



Machine data / technical parameters

Manufacturer	Struers
Type	Secotom 50
Cutting length	0-190 mm (adjustable in 0.1mm increments)
Max. Separation width	40 mm (adjustable in 0.02mm increments)
Max. Separation height	40 mm (adjustable in 0.02mm increments)

Laboratory press LZT-UK-15L

Fields of Application

Programmable memory Hardening /
pressing of CFK, GFK, AFK full laminates
and sandwich components
Pressing on of tabs for tension &
compression samples



Machine data / technical parameters

Manufacturer	Langzauner GmbH
Type	LZT-UK-15L
Pressing Area (L x B)	500 x 500 mm
Compressing Forces	5 kN to 150 kN
Temperature range	<200 °C

Resin flow press LZT-OK-0,7-L

Fields of Application

Manual hardening / pressing of CFK, GFK,
AFK samples, to determine the resin flow
of prepregs



Machine data / technical parameters

Manufacturer	Langzauner GmbH
Type	LZT-OK-0,7-L
Pressing Area (L x B)	150 x 150mm
Compressing Forces	6 bar
Temperature range	<200 °C

LABORATORY

Sample preparation workshop

Capabilities

Prepreg cutting and kitting
Sample plate layup
Sandwich bonding
Coupon cutting (wet/dry), grinding,
machining
Hole drilling, countersinking
Tab bonding
Geometrical and visual examination of
coupons



Details

Floor area	120 sqm
Climate controlled	Yes
Staff count	6

STRUCTURAL TESTING

Environmental simulation and component conditioning

Climatic Chamber with adjustable humidity and temperature #1 & #2

Fields of Application

Environmental simulation
(temperature and humidity)
Artificial aging of components and
components



Machine data / technical parameters

Manufacturer	WEISS
Type	WK3-1500/70
Temperature range	-72°C to +180°C
Relative humidity range	10% to 98%
Volume of the test cabinet	1.5 m ³
Dimensions of the test chamber (H x W x D)	950 x 1100 x 1475 mm
Temperature change speed	Cooling rate: 2.3 K/ Min
Software	Heating rate: 3.5 K/ Min, SIM Tech

Climatic Chamber with adjustable humidity and temperature #3

Fields of Application

Environmental simulation
(temperature and humidity)
Artificial aging of components and
components
Temperature variation Tests



Machine data / technical parameters

Manufacturer	WEISS
Type	WKS 3-340/70/5
Temperature range	-75°C to +180°C
Relative humidity range	10% to 98%
Volume of the test cabinet	0,33 m ³
Dimensions of the test chamber (H x W x D)	750 x 580 x 765 mm
Temperature change speed	Cooling rate: 6,7 K/ Min
Software	Heating rate: 6,8 K/ Min, SIM Tech

Life cycle tests and functionality tests

„Life-cycle“ test with electric cylinder / motor

Fields of Application

Life-cycle Testing
Cycle Testing



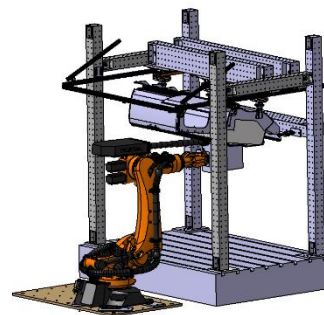
Machine data / technical parameters

Manufacturer	Hainzl
Number of cylinder / motor	5 / 1
Traversing speed	0,05 to 0,64 m/sec
Applicable Forces	350 to 2500 N Cylinder, 21 Nm Motor
Stroke	100 mm to 800 mm
Software	Beckhoff

„Life-cycle“ test with robot

Fields of Application

Life-cycle Testing
Cycle Testing



Machine data / technical parameters

Manufacturer	KUKA
Type	KR120
Max. handling Load	120 kg
Number of controlled axis	6
Max. Rang	2496 mm
Position repeat accuracy (ISO 9283)	± 0.06 mm
Working space volumen	41 m ³

STRUCTURAL TESTING

Uniaxial mechanical tests

Universal Test Jig (UTJ)

Fields of Application

Static Structural Tests
Fatigue Tests / „Damage-tolerance“ Test
Residual Strength Tests



Machine data / technical parameters

Manufacturer	MPS
Max Load	50 kN
Max. Stroke	700 mm
Test Volume (H x W x D)	700 x 1000 x 1000 mm

Structural Test Jig (STJ)

Fields of Application

Static Structural Tests
Fatigue Tests / „Damage-tolerance“ Test
Residual Strength Tests



Machine data / technical parameters

Manufacturer	MPS
Max Load	50 kN
Max. Stroke	940 mm
Test Volume (H x W x D)	900 x 1500 x 1500 mm

Multi-axial mechanical tests (components / subsystems)

Flexible test setup equipment for specific test setup configuration

Fields of Application

Static Structural Tests
 Fatigue Tests / „Damage-tolerance“ Test
 Residual Strength Tests

Examples

Full-scale Tests A350 Wingtip-Winglet (Static)
 Subcomp. Tests A350 WT-WL 2nd Joint (Static & Fatigue)
 Full Scale Tests C919 Winglet Wingtip (Static)
 A320 OHSC (Static)
 Full-scale EMBREAR E2 Spoiler Test (Static + Fatigue)
 Full-Scale C919 Toilet Test
 ...



Machine data / technical parameters

Modular components to test frame	MOCO-KIT 65 kN MOCO-KIT 250 kN 250 kN machine bed 3x2 m
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Hydraulic cylinders	
Forces	12 to 500 kN
Strokes	250 to 1750 mm
Central hydraulic supply	3x Pumps (max. 250 bar) 120-360 L/min per pump

Load cells	
1D Load Cell	20 N bis 500 kN
3D Load Cell	20 kN
6D Load Cell	20 kN / 500 Nm

Testing Fields #1, #2, #3	
Max. Load	#1 65 kN/m ² (Rail system) #2 250 kN/m ² (Rail system) #3 250 kN/m ² (Point system)
Dimension	#1 11 x 12 m, #2 10 x 14 m, #3 17 x 14 m
Connection	#1 HBC-C-E M12, #2 M42, #3 M42

Impact tests

Mobile impacting device (Gasgun)

Fields of Application

Impact Simulation with Mobile Gas Gun
Test campaign for BVID & VID Calibration



Machine data / technical parameters

Manufacturer	ID - Hüttental
Type	SN 012
Max. Impact Energy	140 J
Accuracy	+/- 2,5%
Projectile Dimensions	D = 16 to 25 mm (customization possible)
Software	Mephisto Scope

Setup and installation of measurement-, control equipment

Data acquisition and control equipment

Fields of Application

Data Acquisition System
Control System
Sensor Instrumentation (Strain Gages)



Machine data / technical parameters

Manufacturer	IMC
Type	Cronos Compact / Flex und Spartan
Measurement channels	>2500 channels
Software	imc Studio & imc FAMOS

STRUCTURAL TESTING

Zeiss ARAMIS 3D (GOM Pontos 4/12M) – optical measurement system

Fields of Application

Dynamic 3D- Deformation measurement and analysis
Detection remaining Deformations, Buckling

Full Field and Selective Measurement



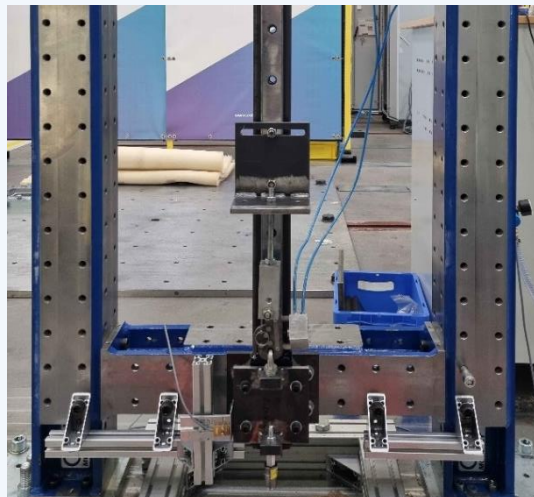
Machine data / technical parameters

Manufacturer	GOM
Type	PONTOS 4/12M
Resolution	4 Megapixel (2358 x 1728 Pixel) 168Hz max resolution Up to 670Hz with reduced resolution
Software	Pontos Live V8 und Pontos V6.3

Drop / impact tower

Fields of Application

Impact Simulation with drop-weight. Flexible arrangement of impact spot e.g. specimen.
In-House development.



Machine data / technical parameters

Impact energy	up to 500J
Impact height	2m
Impact weights	6kg up to 26kg
Impact plate size	up to 750mm x 750mm
Output	Load level Energy level Acceleration

Project management of test campaigns & test conception

- ✦ Development of test concepts / test campaigns
- ✦ Project supervision and coordination
- ✦ Creation of test plans / test reports
- ✦ Execution of development, qualification, and certification tests
- ✦ Evaluation and analysis of measured data
- ✦ Technical, scientific structural consulting in development
- ✦ Overall project planning and test management

MEASURING DEPARTMENT

Tactile measurement technology

WENZEL LHF 306025 – tactile measurement system (1x)

Fields of Application

Measurement and analysis of big measuring objects.

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	WENZEL
Type	LHF 306025
Measuring range	X=3000 mm Y=6000 mm Z=2500 mm
Sensor-Head	PH10M; TP20
Length measurement uncertainty	MPEE = 9,0 µm + (L/200mm) µm
Allowed workpiece weight	Limited to 5000 kg because of overhead crane
Software	METROMECH QUARTIS, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.). Detection of geometric elements and freeform surfaces with should-be analysis.



WENZEL LHF 306020 – tactile measurement system (1x)

Fields of Application

Measurement and analysis of big measuring objects.

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	WENZEL
Type	LHF 306020
Measuring range	X=3000 mm Y=6000 mm Z=2500 mm
Sensor-Head	PH10M; TP200
Length measurement uncertainty	MPEE = 5,5 µm + (L/200mm) µm
Allowed workpiece weight	Limited to 5000 kg because of overhead crane
Software	METROMECH QUARTIS, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.). Detection of geometric elements and freeform surfaces with should-be analysis.



WENZEL LH 1210 – tactile measurement system (1x)

Fields of Application

Measurement and analysis of medium component size

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	WENZEL
Type	LH 1210
Measuring range	X=1200 mm Y=2000 mm Z=1000 mm
Sensor-Head	PH10M Q; TP200
Length measurement uncertainty	MPEE = 2,3 µm + (L/250mm) µm
Allowed workpiece weight	Limited to 1000 kg because of overhead crane
Software	METROMECH QUARTIS, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.). Detection of geometric elements and freeform surfaces with should-be analysis.



WENZEL LH 1512 – tactile measurement system (1x)

Fields of Application

Measurement and analysis of medium component size

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	WENZEL
Type	LH 1512
Measuring range	X=1500 mm Y=3000 mm Z=1200 mm
Sensor-Head	PH10M Q; TP20 & SP25 scanning
Length measurement uncertainty	MPEE = 2,6 µm + (L/250mm) µm
Allowed workpiece weight	Limited to 5000 kg because of overhead crane
Software	METROMECH QUARTIS, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.). Detection of geometric elements and freeform surfaces with should-be analysis.



DEA 07.10.07 – tactile measurement system (1x)

Fields of Application

Measurement and analysis of medium component size

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	HEXAGON
Type	07.10.07 Scanning
Measuring range	X=700 mm Y=1000 mm Z=700 mm
Sensor-Head	Tesastar SM80 with LSP-X1S & Probe Ch.
Length measurement uncertainty	MPEE = 1,5 µm + 3,3 (L/1000mm) µm
Allowed workpiece weight	Limited to 700kg

Software	PC DMIS Cad ++, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.). Detection of geometric elements and freeform surfaces with should-be analysis.
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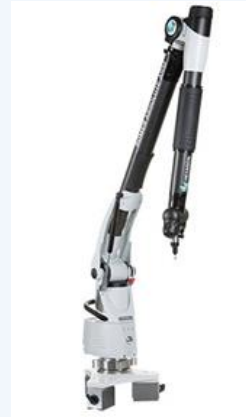
ROMER ABSOLUTE ARM 7725 (2,5m), portable tactile measurement sys. (2x)

Fields of Application

Measurement and analysis of medium component size.

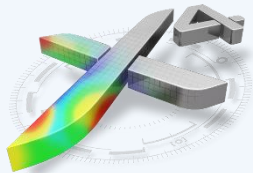
Hand-held measurements.

Accurate portable measuring arm for high-end measurement applications.



Machine data / technical parameters

Manufacturer	HEXAGON/ ROMER
Type	7725 6-axis
Measuring range	2500 mm
Volumetric accuracy	± 0.026 mm / 0.0010 in
Single point repeatability	0.017 mm / 0.0007 in
Connection	Standard over power connection 230V or Wi-Fi and USB
Software	METROLOG X4: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be analysis. Analysis in graphical or tabular form.



LEICA AT 901-LR T-Probe (160m/30m), portable tactile measurement sys. (3x)

Fields of Application

Measurement and analysis of large component size

Hand-held measurements.

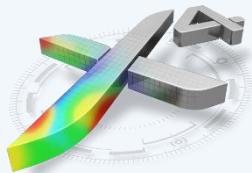
Accurate portable measuring Lasertracker for high-end measurement applications

6 Degrees of Freedom (6DOF)
ADMIFM with small beam diameter
6DOF Dynamic Lock-On
Probe self-identification
Stylus self-identification



Machine data / technical parameters

<p>Manufacturer</p> <p>Type</p> <p>Measuring range/Typical Volume (Ø)</p> <p>Measuring with Reflector</p> <p>Volumetric Accuracy Uxyz, Full Range</p> <p>Volumetric Accuracy Uxyz, in 2.5 x 5 x 10 m volume (8.2 x 16.4 x 32.8 ft)</p> <p>Measuring with T-Probe</p> <p>Measurement volume</p> <p>Measurement uncertainty of 3D Point (MPE)</p> <p>Software</p>	<p>LEICA Geosystems/ HEXAGON</p> <p>AT 901 LR; T-PROBE</p> <p>160 m (525 ft, Reflector), 30 m (98 ft, T-Probe)</p> <p>Full Range Definition: 360° horizontally, ± 45° vertically, ± 15 µm + 6 µm/m (±0.0006" + 0.00007"/ft)</p> <p>± 10 µm + 5 µm/m (±0.0004" + 0.00006"/ft)</p> <p>30 m (98 ft)</p> <p>U3d = 100 µm if under 7 m (0.004" if under 23 ft)</p> <p>U3d = 30 µm + 10 µm/m if greater than 7 m (0.0012" + 0.00012"/ft if greater than 23 ft)</p> <p>METROLOG X4: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be Analysis. Analysis in graphical or tabular form.</p>
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LEICA AT 960-LR T-Probe (160m/30m), portable tactile measurement sys. (1x)

Fields of Application

Measurement and analysis of large component size

Hand-held measurements.

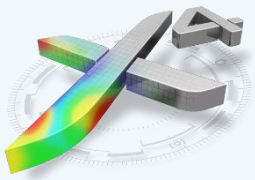
Accurate portable measuring Lasertracker for high-end measurement applications

6 Degrees of Freedom (6DOF)
ADMIFM with small beam diameter
6DOF Dynamic Lock-On
Probe self-identification
Stylus self-identification



Machine data / technical parameters

<p>Manufacturer</p> <p>Type</p> <p>Measuring range/Typical Volume (Ø)</p> <p>Measuring with Reflector</p> <p>Volumetric Accuracy Uxyz, Full Range</p> <p>Volumetric Accuracy Uxyz, in 2.5 x 5 x 10 m volume (8.2 x 16.4 x 32.8 ft)</p> <p>Measuring with T-Probe</p> <p>Measurement volume</p> <p>Measurement uncertainty of 3D Point (MPE)</p> <p>Software</p>	<p>LEICA Geosystems/ HEXAGON</p> <p>AT 960 LR; T-PROBE</p> <p>160 m (525 ft, Reflector), 30 m (98 ft, T-Probe)</p> <p>Full Range Definition: 360° horizontally, ± 45° vertically, ± 15 µm + 6 µm/m (±0.0006" + 0.00007"/ft)</p> <p>± 10 µm + 5 µm/m (±0.0004" + 0.00006"/ft)</p> <p>30 m (98 ft)</p> <p>U3d = 100 µm if under 7 m (0.004" if under 23 ft)</p> <p>U3d = 30 µm + 10 µm/m if greater than 7 m (0.0012" + 0.00012"/ft if greater than 23 ft)</p> <p>METROLOG X4: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data.</p> <p>Detection of geometric elements and freeform surfaces with should-be Analysis.</p> <p>Analysis in graphical or tabular form.</p>
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Tactile and optical measurement technology

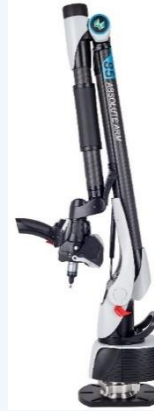
Absolute Arm 8725, portable tactile&optical measurement sys.

Fields of Application

Measurement and analysis of medium component size

Hand-held measurements

Accurate portable measuring arm for high-end measurement applications



Machine data / technical parameters

Manufacturer	HEXAGON
Type	8725 7-axis, AS1-Kit
Measuring range	2980 mm
Volumetric Accuracy probing	± 0.023 mm / 0.009 in
Volumetric Accuracy scanning AS1	± 0.043 mm / 0.0016 in
Connection	Standard over power connection 230V or Wi-Fi and USB
Software	POLYWORKS: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be analysis. Analysis in graphical or tabular form. Data acquisition for reverse engineering.



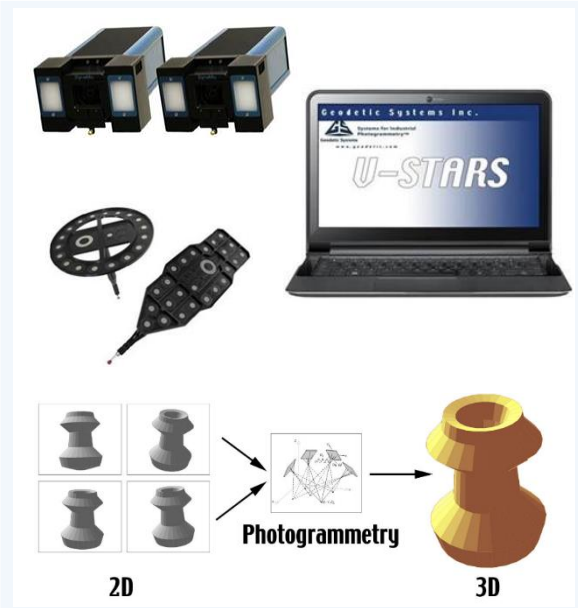
V-STARS D12 system (up to 20m), portable tactile&optical measurement sys.

Fields of Application

Measurement and analysis of medium component size.

Hand-held measurements.

The V-STARS/D system from Geodetic Services, Inc. (GSI) is a high accurate, optical, 3-D coordinate measurement system that is especially well-suited for fast, accurate, dynamic 3D measurement of rapidly moving or deforming objects. The system's highresolution "DynaMo" (Dynamic Motion) cameras are designed for reliable, high-accurate operations even in the most difficult environments and conditions.



Machine data / technical parameters

Type	GEODETIC
Measuring range	V-STARS/D D12
Volumetric Accuracy probing/optical	online up to 20 meters at full speed 10µm + 10µm/m (1:80,000@4m, 0.05mm@4m or 0.0020"@160")
Resolution	12 million pixels
Software	POLYWORKS: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be Analysis. Analysis in graphical or tabular form. Data acquisition for reverse engineering.



Zeiss GOM 3D (GOM ATOS III TRIPLE Scan) – optical measurement system

Fields of Application

Measurement and analysis of small, medium and large component size

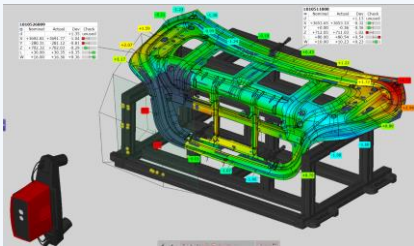
Hand-held measurements on a tripod with rotation table

Accurate portable measuring for high-end measurement applications



Machine data / technical parameters

Manufacturer	ZEISS GOM
Type	ATOS III TRIPLE Scan
Resolution	8 Megapixel (3296 x 2472 Pixel)
Measuring volumes	170x130mm; 320x200mm; 700x530mm
Measuring range	150 x 150 - 1500 x 1500mm ³
Software	ZEISS GOM INSPECT Pro Line: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be Analysis. Analysis in graphical or tabular form. Data acquisition for reverse engineering.



Zeiss GOM 3D (GOM TRITOP) – optical measurement system

Fields of Application

Measurement and analysis of medium and large component size

Hand-held measurements

Accurate portable measuring for high-end measurement applications



Machine data / technical parameters

Manufacturer	ZEISS GOM
Type	TRITOP Photogrammetry
Camera Resolution	21 Megapixel
Scalebar volumes	1000mm; 2000mm
Measuring range	0.1 x 0.1 - >> 10 x 10m ³
Certifikation	VDI 2634/1
Calibration	self-calibrating
Software	ZEISS GOM Tritop Pro Line: Measuring acc. to drawing against, Import and process CAD data (IGES, STEP, CATIA, Siemens NX etc.) or measuring without CAD-Data. Detection of geometric elements and freeform surfaces with should-be Analysis. Analysis in graphical or tabular form. Data acquisition for reverse engineering.



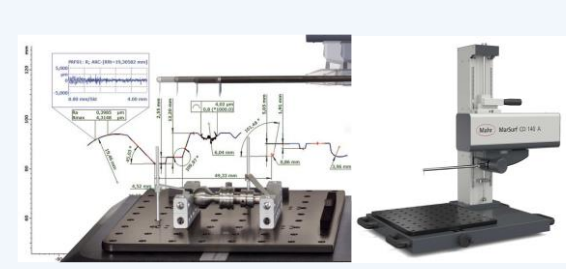
MarSurf CD 140 AG 11 - contour measuring station (1x)

Fields of Application

Measurement and analysis of contours "top and bottom"

CNC controlled series measurements

Creation of measurement statistics based on the measurement data



Machine data / technical parameters

Manufacturer	Mahr
Type	MarSurf CD 140 AG 11
Measuring range	X=140 mm Z=350 mm
Positioning speed (in X)	0,1 - 200 mm/s
Scanning distance (in X) End	0,1 - 140 mm
Measuring speed	0,1 - 10 mm/s
Resolution	19 nm
Attachment	Flexible mounting plate with 50 mm hole pattern

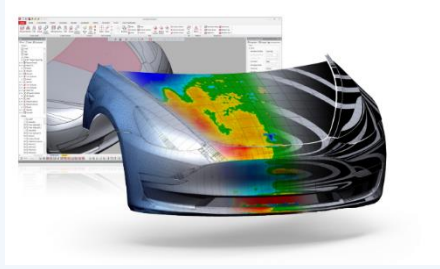


Software	MarWin EasyContour Detection of geometric elements and contours.
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Geomagic Design X - reverse engineering software

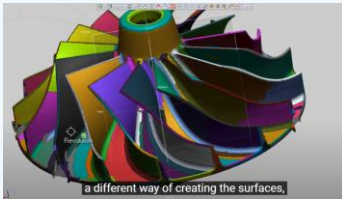
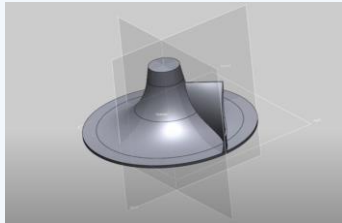
Fields of Application

Geomagic® Design X™ creates CAD models from 3D scans faster, more accurately and more reliably than any other reverse engineering software. The software combines parametric, history-based CAD modeling with efficient 3D scan data processing.



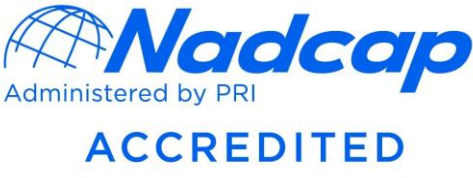
Software data / technical parameters

<p>Manufacturer</p> <p>Type</p> <p>What Can You Do with Geomagic Design X?</p>	<p>OQTON</p> <p>Geomagic Design X</p> <p>Converting 3D scan data into high-quality, feature-based CAD models.</p>
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- Scan virtually anything and create producible designs.
- + Rebuild CAD data for broken tools and molds.
 - + Recreate lost CAD data for parts and molds.
 - + Design custom products.
 - + Convert physical parts into CAD for new product designs.
- + Make existing parts fit with new parts.

APPROVALS AND ACCREDITATIONS



The current status of approvals can be viewed at www.colt-lab.com



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