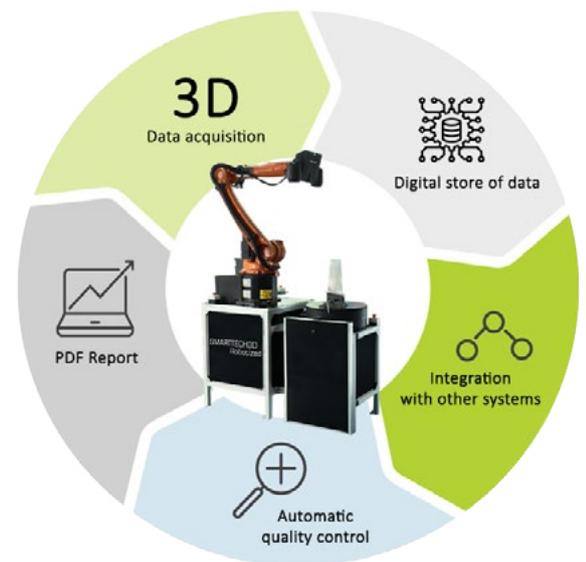# SMARTTECH3D
Robotized

SMARTTECH3D METROLOGY

3D SCANNERS
FOR INDUSTRY
AND QUALITY CONTROL

SMARTTECH3D Robotized is integrated ecosystem for automatization of the quality control and reverse engineering processes. The device incorporates advantages of robotic arm and a high-resolution scanning head with a 20MP detector for full implementation of the designed measurement process. The system will not only enable the user 3D models' creation automatization but also independently prepare an examination report in PDF format and display a map of deviations from the CAD model directly on to the measured object. This functionality is a universal solution for industrial, as well as archaeological and research applications.
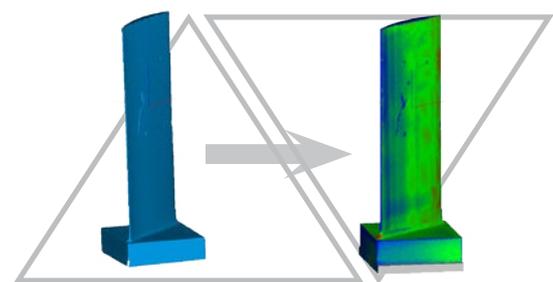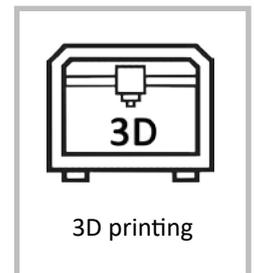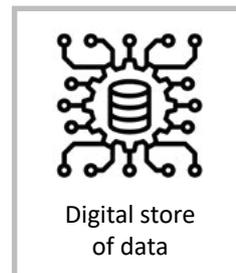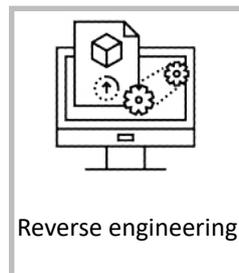
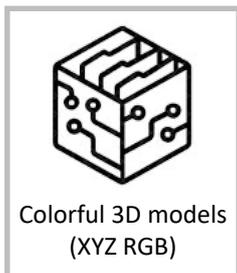According to the basic premise of the 4.0 industry ideology, SMARTTECH3D Robotized enables digitization and optimization of processes in the enterprise and at the same time provides effective tools for communication between different groups of users, such as e.g. engineers, management, or sub-suppliers. Thanks to the elimination of the human factor, the achieved measurements are repeatable and of the highest quality.

SMARTTECH3D
Robotized

SMARTTECH3D Robotized is available in three models with different working volumes. Each of the models is equipped with a light scanning head with a stereoscopic system of 20 MP resolution cameras, a KUKA robotic arm, workstations, rotary stage, and advanced SMARTTECH3dmeasure software with a robotic module.

POSSIBLE APPLICATIONS

Colorful 3D models (XYZ RGB)

Reverse engineering

Quality control

Digital store of data

3D printing

Quality control based on the 3D model

The measuring station is managed by the software SMARTTECH3Dmeasure installed on an efficient workstation. This dedicated software controls the entire measurement process, starting from control of operating system parameters, up to saving finished 3D model or ready quality report in PDF file. Additionally application allows conducting a number of processes, including the transformation of the point cloud to the tadvanced edition of created models and reports. Moreover, the software has an additional automatic quality control module. Its result may be a color point cloud with pass / fail annotations at a specific point and an automatically generated report in PDF format. Easy to use interface enables user to create measurement plans and result edition path depending on the specific needs. Thanks to this the system can be used both for reverse engineering and quality control thus reducing need of puchase of two independent devices and additional costs.

Automatic calibration process

The entire SMARTTECH3D ROBOTIZED system is designed for maximal automatization of all processes and minimizing the risk of human errors. Automation of the calibration process gives the user a guarantee of achieving the measurement accuracy declared by the manufacturer, regardless of the operator's experience, which increases the reliability of the entire system and allows easy integration with the quality systems in the enterprise.
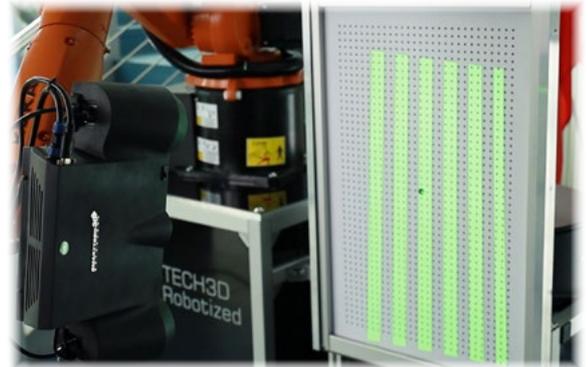

Reverse engineering digitization for the purpose of documentation, virtualizatization and modification of an existing object.

The use of SMARTTECH3D Robotized enables for maintenance-free measurements of elements and implementation of the entire designed postprocessing path of measurement results, allowing significant shortening of the measuring process for large collection of objects, as for documentation, as visualization. Such functionality reduces the labor costs and time consuming training process, necessary for an employee to start working with the system.


Automated quality control, creating PDF reports, and deviation visualization on measured object.

The SMARTTECH3D Robotized system is a perfect control station allowing the creation of freely defined examination reports, comparisons of the measured model with the reference CAD file, or facilitating the determination of the precise location of the deviations present on the object. Thanks to the use of the reverse projection function, the scanning head will mark directly on the measured object, point of maximum errors or for example, a missing hole. This allows for faster corrections on the measured element and simplifies the communication process between subcontractors, or management staff.

The display of the color map of deviation directly on the measured object.
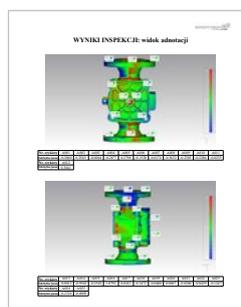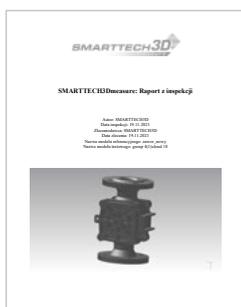
The PDF report from the quality control process.
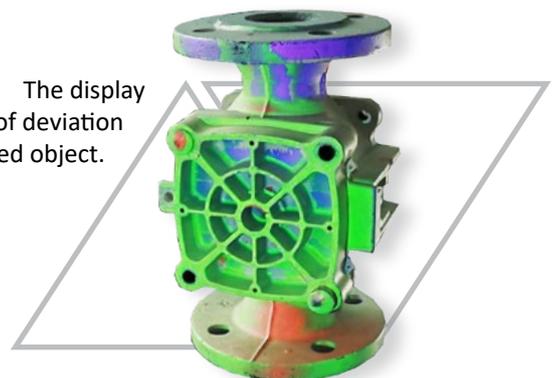
ROBOTIZED STATION FOR 3D MEASUREMENTS

The SMARTTECH3D Robotized system is available in three versions, defined by a predefined measuring volume: S version, with the smallest measuring volume (200mmx300mmx120mm) and an impressive scanning resolution of up to 341pkt / mm2, is an ideal tool for mapping very complex geometries of small and medium-sized objects. The M and L models are characterized by a larger volume, which is leading to a reduction of the time needed to complete measurements or quality control of larger objects.

Technical specification:

	Robotized S	Robotized M	Robotized L
Application	Objects to 250 mm	Objects to 350 mm	Objects more than 350 mm
Measurement volume [mm]	200x300x120	300x400x180	400x600x240
Acurracy [micrometers]	19	28	48
Resolution	20 MP		
Optical system	Stereoscopic - two integrated detectors		
Scanning technology	Green LED light or White LED light when scanning with color texture		
Measuring arm recommended	KUKA KR AGILUS	KUKA KR CYBERTECH	KUKA KR QUANTECH
Measuring arm range [m]	0,7-1	1,6-2,0	2,6-3,9
Rotary stage	ø = 200mm, load capacity 8kg	ø=500mm, load capacity 60kg	ø= 500mm, load capacity 250kg
Integrated workstation	Yes	Yes	Yes
Control software	SMARTTECH3Dmeasure	SMARTTECH3Dmeasure	SMARTTECH3Dmeasure

OUR CLIENTS:

Central Office of Measures

U.S. ARMY

BOEING

NASA

RHENUS LOGISTICS

GE