breuckmann
precision in 3D

naviSCAN 3D

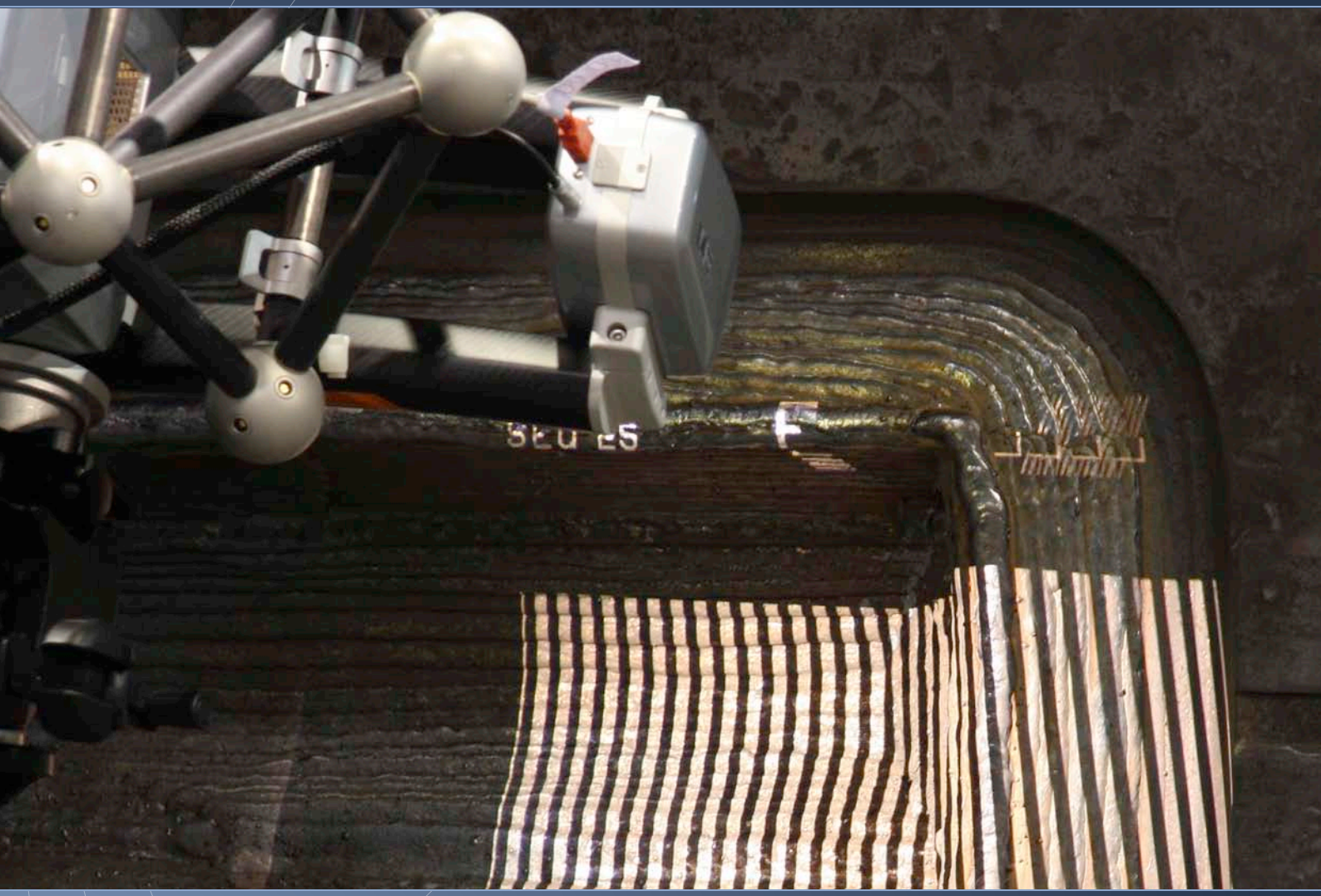
Scanning and Probing without Limits

INNOVATIVE SCANNING FOR MORE THAN TWO DECADES

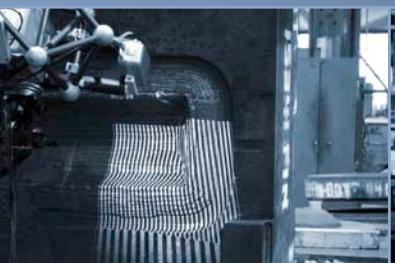
fast - accurate - reliable

These are the identifying words for the today´s production development and optimization, quality assurance and inspection, reverse engineering and rapid prototyping. To comply with these requirements, optical metrologies have been developed and adapted to digitize and measure even smallest 3D structures with HighDefinition.

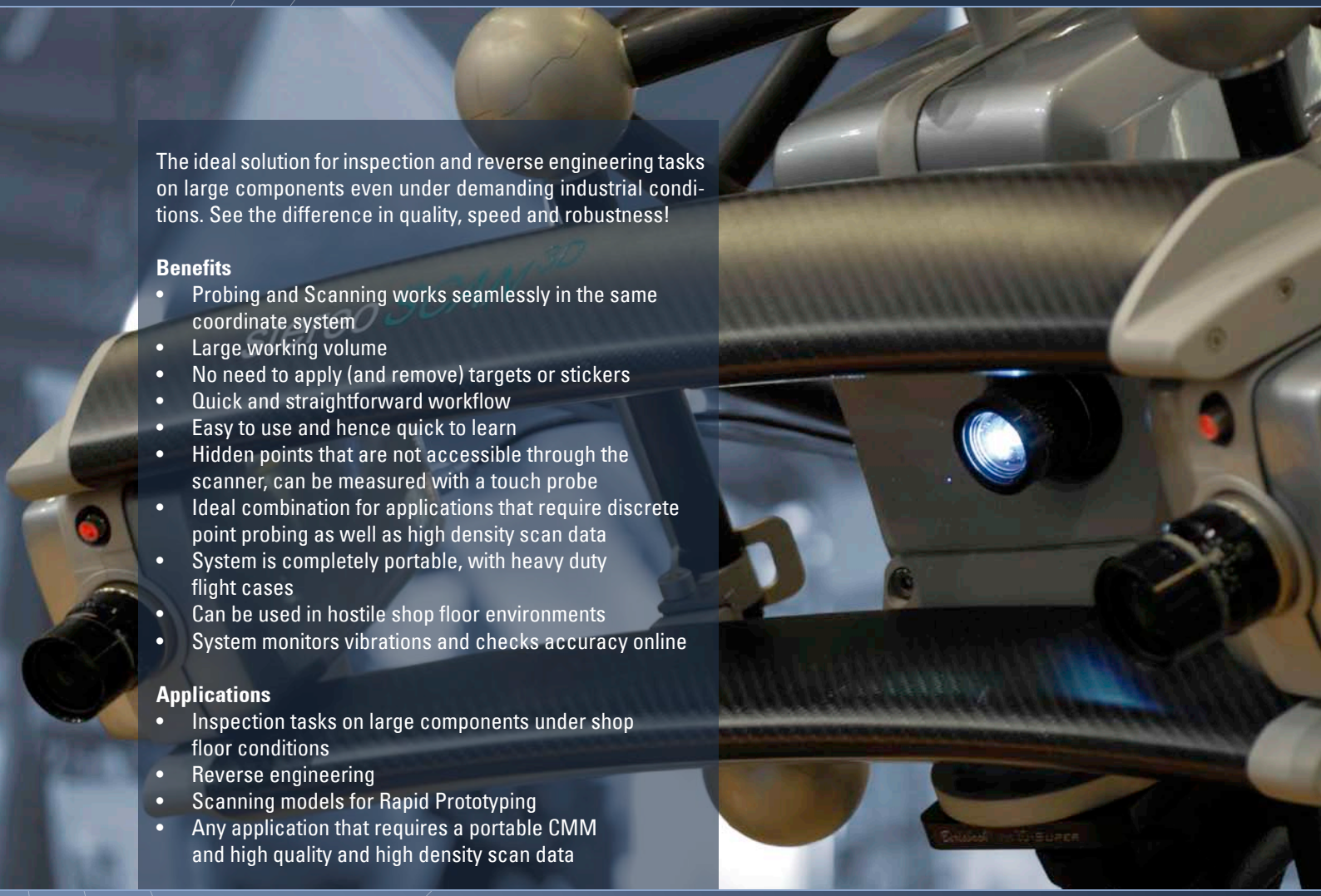
For more than two decades Breuckmann and Metronor both have been an innovative outriders and leader in system development and product manufacturing. With our diversified product spectrum we cover a wide range of technical applications such as reverse engineering, inspection, rapid prototyping, design, surface inspection and many others. The unique configuration of the **stereo***SCAN*^{3D} system enables maximum performance with regard to flexibility and precision. The latest development is now our **navi***SCAN*^{3D}.



The combination of a **Metronor DUO** portable CMM and a Breuckmann **stereo***SCAN*^{3D} white-light scanning system offers unknown flexibility and accuracy to users of portable measurement equipment. Probing and scanning has never been so easy and allows sophisticated measuring and inspection tasks on the shop floor.




While the **Metronor DUO** system sets up a large working volume, the **stereo*SCAN*^{3D}** precisely and quickly scans areas up to one square meter per shot. Stitching several shots works seamlessly and without any user interaction through the navigation target that's mounted to the back of the scanner. This navigation target allows complete freedom for any movement and position of the scanner. During the scan sequence the system even monitors and notices any movement of scanner or part, thereby assuring precise measurement and scans.



The ideal solution for inspection and reverse engineering tasks on large components even under demanding industrial conditions. See the difference in quality, speed and robustness!

Benefits

- Probing and Scanning works seamlessly in the same coordinate system
- Large working volume
- No need to apply (and remove) targets or stickers
- Quick and straightforward workflow
- Easy to use and hence quick to learn
- Hidden points that are not accessible through the scanner, can be measured with a touch probe
- Ideal combination for applications that require discrete point probing as well as high density scan data
- System is completely portable, with heavy duty flight cases
- Can be used in hostile shop floor environments
- System monitors vibrations and checks accuracy online

Applications

- Inspection tasks on large components under shop floor conditions
- Reverse engineering
- Scanning models for Rapid Prototyping
- Any application that requires a portable CMM and high quality and high density scan data

Wyman Gordon in Worcester, MA, USA is a major supplier of forgings to both military and commercial aerospace manufacturers. They are using the system for first-article as well as reverse engineering /shape verification of old tooling. There are several challenges to obtain highly accurate data in a hostile forging shop: this includes large components (up to 27 ft, 9 m long) and hot dies.

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THE MEASURING SYSTEM FOR HIGHEST DEMANDS

Technical Specifications

Hard and Software

Host computer	Intel® Core™ 2 Quad Prozessor , ≥ 2,4 GHz, ≥ 8 GB RAM, ≥ 200 GB HD, Open-GL- Graphic adapter, DVD writer
Image data interface	IEEE 1394 (FireWire®)
Operating system	Windows XP Professional Edition (optional x64 Bit Edition)
Measurement software	OPTOCAT *for Windows*, (optional OPTOCAT 2008 64 Bit Edition) 3D-Alignment supports all important navigation strategies 3D-PostProcessing to generate polygonal meshes
Data interface	ASCII, BRE, STL*, PLY*, VRML*

* detailed specification on request

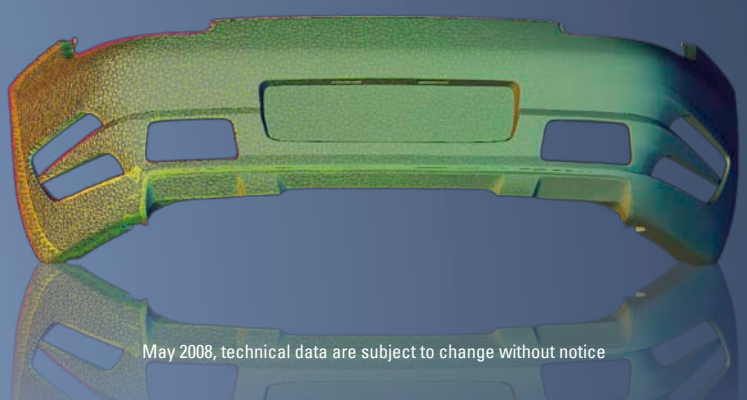
Scanner stereoSCAN 3D HPP

Principle of operation	Miniaturized Projection Technique
Light source	200 W discharge lamp (**H**igh **P**ower **P**rojector)
Sensor weight	8 kg (17,64 lbs)
Imaging	2 high resolution digital cameras
Digitization	2448 x 2048 pixels per camera
Operating distance	880 mm (31,5“)
Resolution limit (Z)	2 µm (dependent from measurement areas)
Acquisition time	< 1 s

Navigator Metronor DUO

Range	Distance from sensors	1.5 - 10 m (5 - 33’) std., 1.5 - 30 m (5 - 100’) opt.
Accuracy	3-D length accuracy @ 6 m (26’)	+/- 0.030 mm (0.0012”)*
Sensor unit (2 incl.)	Type	CCD-based digital camera
	Optical settings	Fixed aperture and focus, factory optimized
	Field of View	38° x 32°
	Effective resolution	640,000 x 512,000
	Unit net weight	0.80 kg (2 lbs)
Probing unit	Type	Wireless Handheld, with quick-change styli
	Material	Carbon fibre w/embedded active targets
	Styli	User configurable set of 5 w/ titanium extensions/angles
	Styli type	Ruby spheres (incl.), scribe tip (incl.), edge styli (opt.)
	Hidden point capability	600 mm (24”)
	Unit net weight	0.52 kg (1.2 lbs)

*Accuracy at given distance from camera, evaluated by measuring a 1 m scale bar positioned in side, depth and height orientations, 1σ.



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