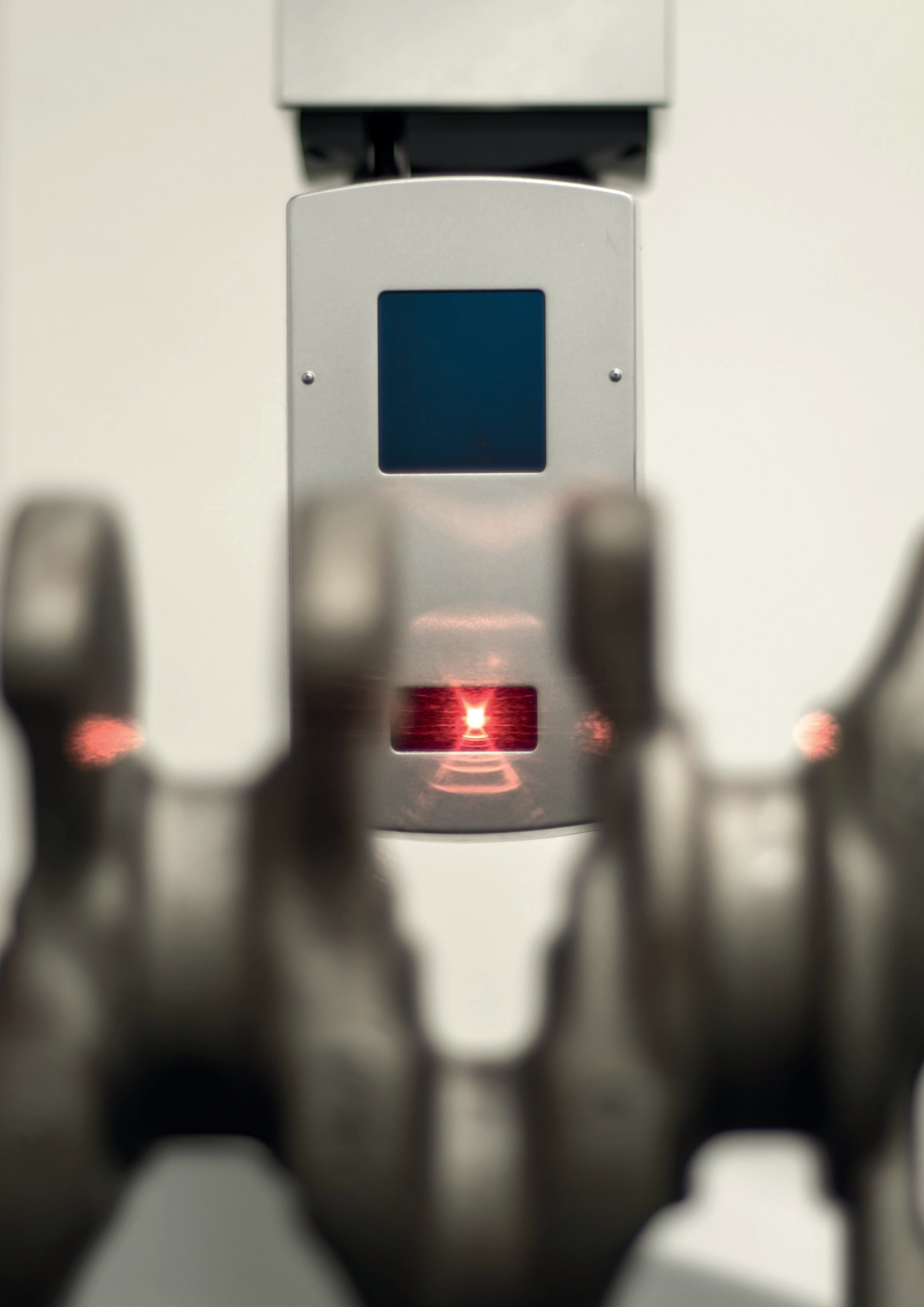
HEXAGON
MANUFACTURING INTELLIGENCE

PRODUCT BROCHURE

HP-L-10.6 | HP-L-20.8

LASER SCANNER FOR COORDINATE MEASURING MACHINES



FAST, PRECISE AND VERSATILE THANKS TO FLYING-DOT TECHNOLOGY

HP-L laser scanners deliver maximum performance for complex surfaces and workpieces made of materials that are difficult to measure. These flexible laser scanners record precisely even at the highest speeds. Among the main applications: Checking the characteristics of thin-walled components, sheet metal parts, measuring freeform surfaces and reverse engineering.

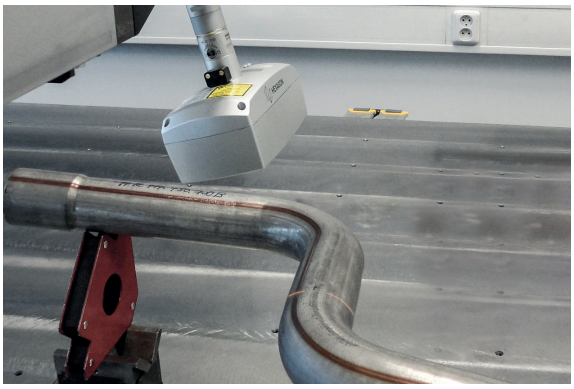
BENEFITS OF THE HP-L LASER SCANNER:

- Gathers high-density point cloud data by automatically adjusting the light intensity
- Offers reliable measurement of complex surfaces, such as parts ranging from very dark colours to extremely shiny finishes
- Supports higher productivity thanks to shorter measuring times

HP-L relies on Flying-Dot Technology, which is superior to conventional line scanners: as the light intensity is automatically adjusted for point by point. This means the laser scanners are less sensitive to ambient light and surface changes, and generate point clouds of the highest density. As well as this, the line width can be varied as needed from 24 mm to 124 mm (HP-L-10.6) and up to 220 mm for HP-L-20.8. The point-to-point distance is varying depending on the chosen line-width.

The sensors are specified to the latest ISO standard 10360-8:2013 for optical laser sensors. Thanks to its TKJ adapter, the HP-L- 10.6T can be used in almost all Hexagon coordinate measuring machines (CMMs) with the greatest precision. The HPL-10.6A can be used on a CMM with an AJ adapter. The HP-L-20.8T is primarily offered on the ROMER Absolute Arm as a portable measuring solution. It can also be used on Hexagon CMMs with an adapter.

APPLICATION-ORIENTED MEASUREMENT SOLUTIONS



CONTACTLESS AND FAST TUBE MEASUREMENTS

The market for tube bending becomes more and more demanding. Tube inspection is not any longer only about comparison of intersection points between straights.

HP-L delivers a high density point cloud and also reveals shape imperfections against the CAD model by scanning the cylindrical surface of the tube. The user is able to analyze tube shape deviations on the cross-sections at any specific location of a tube.

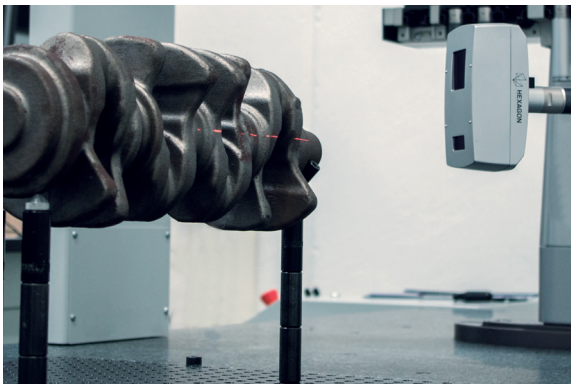
With the HP-L Laser Scanner, the inspection on the Coordinate Measuring Machine can be performed in automatic mode.

MEASUREMENTS OF WELDED STUDS

When measuring with tactile probes, the irregular shape of the welded studs created a bottleneck. To achieve accurate results, the metrologists had to place plastic cylinders on the studs, a manual intervention which took time. Also, after several measurements, the cylinders were worn out and had to be replaced.

Another time-killer: The measuring systems were placed in a measuring room.
The bodies-in-white had to cover a greater distance in comparison to the new in-line concept. The whole procedure could take full three hours. Today, after 20 minutes, the sensors reveal the positions of the more than 170 connecting pins on a Volvo car body.

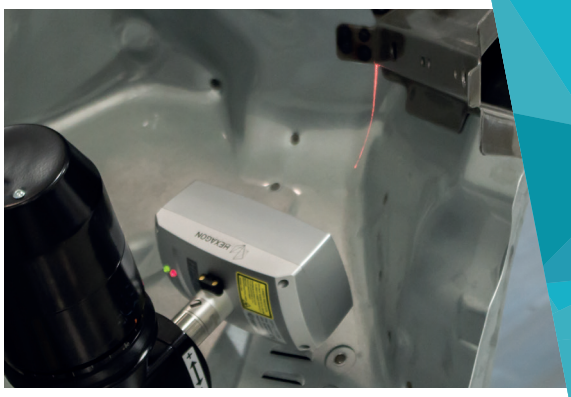
With the in-line system and the HP-L Laser Scanner, the procedure is 9 times quicker.



MEASURMENT OF UNMACHINED CRANKSHAFTS

In the past, unmachined crankshafts have been measured with sometimes more than 500 tactile measurement points. With the contactless solution, the HP-L Laser Scanner captures the shaft with help of a specific part program, resulting in a colored report which arrives at the customer combined with the unmachined crankshaft.

The customer now has a much broader view on the quality of it‘s parts, as he‘s now able to compare results from all over the surface, not just single points. The sime-saving with the HP-L Laser Scanner is more than 40%.



TRIMMED EDGES ON SHEET METAL PARTS

The trimmed edges of most sheet metal parts are analyzed with help of measurements made by touch probes. In a predefined distance, depending on the workpiece, the probe collects points on the edges. For larger parts, this results in an enourmos amount of measurement points.

The HP-L Laser Scanner only captures one single scanning-path over the edge. The points can be extracted afterwards.

In some cases, companies needed to take 300 tactile measurement points, resulting in a process time of 1 hour and 10 minutes. With the HP-L Laser Scanner, this now takes only 15 minutes.

TECHNICAL DATA

		HP-L-10.6T | HP-L-10.6A	HP-L-20.8T
HP-L LASER SCANNER	Laser protection class	2 (IEC 60825-1: 2007)	
	Laser	Visibly red, (690 nm)	
	Standoff and depth (Z)	170 ±30 mm	180 ± 40 mm
	Measuring accuracy ISO 10360-8:2013* (GLOBAL CMM except GLOBAL eXtra)		
	PForm.Sph.D95%:Tr:ODS (MPL) Probe dispersion value	34 µm	36 µm
	PForm.Sph.1x25:Tr:ODS (MPE) Probing form error	22 µm	25 µm
	Lines per second (max.)	53 Hz	100 Hz
	Data rate (max.)	30 000 pts/sec	150 000 pts/sec
	Ambient light of the sensor	40 000 lx	
	Operating temperature	+5 to +45 °C (41 to 113° F)	
	Declared accuracy temperature range	+15 to +32 °C (59 to 90° F)	
	Relative humidity	90% non-condensing	
	Size L x W x H	134x72x60 (98) mm	134x72x60 (87) mm	137x76x85 mm
	Weight	379 g	360 g	410 g
	Power supply	DC 18 to 28 V, 170 to 200 mA, protected against polarity reversal	
	Protection against dust and water	IP64 (IEC 60529) (except for warm-up connection)	
	Storage temperature	-25 to +70 °C (-13 to 158° F)	

* Values are including expanded measurement uncertainty according ISO/TS 17865:2016.
Measured using a manufacturer supplied sphere- and plane artefact, each certified by an independent accredited lab.

VISIBLE AND INVISIBLE LASER RADIATION:
DO NOT LOOK INTO THE BEAM
CLASS 2 LASER PRODUCT
620-690 nm / 1 mW cw
1500-1600 nm / 10 mW max.
applied standard: IEC 60825-1 (2007-03)

Hardware compatibility*

- GANTRY CMMs
- BRIDGE CMMs
- HORIZONTAL ARM CMMs

**For further details, please see individual machine data-sheet*

DOCUMENTED QUALITY WITH ISO CERTIFICATION AND RECALIBRATION

In the production process, the highest priority is the monitoring of quality by the appropriate instruments. HP-L laser scanners offer top performance when measuring complex surfaces and workpieces, even on materials that are difficult to measure. The reliability of the process, however, can only be achieved if the repeatability of the measurement results is constant.

To ensure long-term process monitoring, periodic recalibration or testing to ISO standards (as required) is recommended. Depending on customers needs as well as on the operational conditions of your measuring equipment, Hexagon offers the following service possibilities as the manufacturer:

ISO CERTIFICATION

The sensor will be checked according to ISO 10360-8:2013. This means that it is checked based on measurements on a sphere and on a plane. The results are made available in a certificate.

RECALIBRATION

Involves completing a factory routine that ensures the sensor performs measurements as a brand-new device would.

Please send us the request by fax, email or mail.
We will get in touch with you right away.

Hexagon Manufacturing Intelligence
c/o m&h Inprocess Messtechnik GmbH
Am Langholz 11 | 88289 Waldburg | Germany
Phone: +49 (0)7529 9733-0 | Fax: +49 (0)7529 9733-7
Email: sales.mh@hexagon.com

The processing time is no more than four working days from receipt plus applicable shipping times.

HEXAGON
MANUFACTURING INTELLIGENCE

Hexagon Manufacturing Intelligence helps industrial manufacturers develop the disruptive technologies of today and the life-changing products of tomorrow. As a leading metrology and manufacturing solution specialist, our expertise in sensing, thinking and acting – the collection, analysis and active use of measurement data – gives our customers the confidence to increase production speed and accelerate productivity while enhancing product quality.

Through a network of local service centres, production facilities and commercial operations across five continents, we are shaping smart change in manufacturing to build a world where quality drives productivity. For more information, visit **HexagonMI.com**.

Hexagon Manufacturing Intelligence is part of Hexagon (Nasdaq Stockholm: HEXA B; **hexagon.com**), a leading global provider of information technologies that drive quality and productivity across geospatial and industrial enterprise applications.

- COORDINATE MEASURING MACHINES
- 3D LASER SCANNING
- SENSORS
- PORTABLE MEASURING ARMS
- SERVICES
- LASER TRACKERS & STATIONS
- MULTISENSOR & OPTICAL SYSTEMS
- WHITE LIGHT SCANNERS
- METROLOGY SOFTWARE SOLUTIONS
- CAD / CAM
- STATISTICAL PROCESS CONTROL
- AUTOMATED APPLICATIONS
- MICROMETERS, CALIPERS AND GAUGES