HEXAGON

Data sheet

3D Hairpin Inspect

A turnkey solution made for shop floor use

3D Hairpin Inspect is a dedicated solution for the high-speed measurement of electric motor hairpins within the production environment. The system supports the full process, including all steps to set up a hairpin production machine.

It features a multiple-camera system built into a turnkey, single-piece cell that represents the pinnacle of what is possible with non-contact optical 3D scanning in the hairpin production industry. This advanced hardware is combined with a custom software user interface designed to simplify the hairpin inspection process and produce usable results just moments after measurement is completed.

Quick return on investment

- Manual and automated functionality
- More production time for benders
- Fast changeover to new hairpin shapes
- Less material wastage
- Replacement of all bulky physical gauges
- Reduced setup time on hairpin machines to a minimum

Low lifetime costs

- Power saving LEDs
- Standard power supply 100-240V
- No moving parts within the measurement system
- Eco-friendly design minimises environmental impact

Built for production

- Robust construction suitable for shop floor placement
- Simple operation requires only 10 minutes of training for a defined part
- Easy to use via configurable apps in BendingStudio XT software
- No user interaction during measurement



Highest accuracy

- User independent measurement results
- Glass reference surfaces for high accuracy
- Automatic self-monitoting during operation
- No user interaction during measurement
- Each cell passes a DakkS-accredited acceptance test before delivery

Advanced hairpin measurement functions

- Hairpins with cylindrical and rectangular cross-section
- U-PIN, I-PIN and other shapes
- Freeform and LRA parts
- 3D centreline evaluation
- Virtual 3D gauge inspection
- Functional dimensions either for distances or angles
- Software with a visual layout for hairpin applications

Support for machine setup

- Import and export of CAD data
- Setup of new parts within minutes
- Easy reverse engineering of existing tubes
- Quick comparison to nominal
- Dedicated functions to support the iterative process of finding the best master pin shape
- Complete workflow can be managed by a shop floor operator

3D Hairpin Inspect



Specifications

Solution specifications

	3D Hairpin Inspect system with TubeInspect 37 M
Measurement technology	High-resolution camera array
Measurable tube diameter	0.8–125 mm
Measurable diagonal for rectangular tubes	2.0–125 mm
Setup of new hairpin geometry	15 minutes*
Reverse engineering of existing hairpin	5 minutes*
Serial measurement after placement	10 seconds*
Software	Bend-in-bend and freeform possible

* Time achieved on sample hairpin at Hexagon testing centre; individual time requirements might deviate from values shown.

Hardware specifications

	TubeInspect 37 M
Camera array	8 high-resolution digital cameras with GigE technology
Resolution	12 MP
Reference field	Three-dimensional glass reference surface
System dimensions (W x D x H)	1140 x 746 x 1140 mm
Weight	260 kg
Power requirement	100–240 V 50–60 Hz
Max. AC Input	772 VA
Operation AC [1]	215 VA
Power saving mode	130 VA
Operating temperature	5–45°C
Relative humidity	10-90%, not condensing
Marks of conformity	CE, UKCA

[1] Image acquisition, ground LED and screen activated.

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