

# R-Series ™

FAST AND ACCURATE  
3D SCANNING SOLUTIONS FOR  
AUTOMATED QUALITY CONTROL



# DETECT QUALITY ISSUES FASTER AND MAKE BETTER DECISIONS

Designed for automated quality control applications, the R-Series™ 3D scanning solutions are perfect for manufacturing companies who want to increase their productivity by measuring more dimensions on more parts without compromising on accuracy. Composed of a robot-mounted optical CMM scanner available for a custom integration or in a turnkey solution, the R-Series can solve productivity issues efficiently and guarantee optimal measurement accuracy, speed, versatility, and simplicity, providing increased product quality.



**ACCURACY OF  
0.025 mm**



**SHORT  
CYCLE TIME**



**HIGH  
RESOLUTION**



**CERTIFIED  
ISO 17025**



**REPEATABLE  
RESULTS**

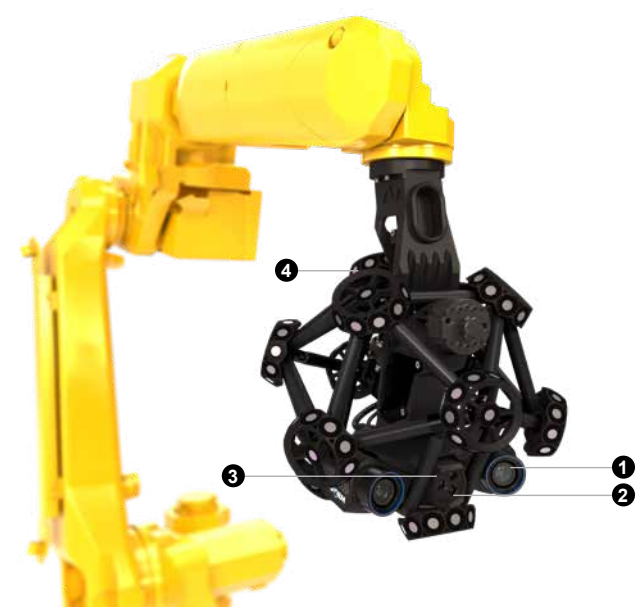


**WORLDWIDE  
SUPPORT**

## MetraSCAN3D-R™

### THE ROBOT-MOUNTED OPTICAL CMM SCANNER FOR AUTOMATED QUALITY CONTROL

The MetraSCAN 3D-R™ stands as a powerful, innovative robot-mounted optical CMM scanner that can be seamlessly integrated into automated quality control processes for at-line inspection in mass production. The cutting-edge technology unique to the MetraSCAN 3D-R enables manufacturing companies to detect quality issues faster and base their corrective actions on better statistical analyses in order to optimize their manufacturing processes and produce parts of better quality.

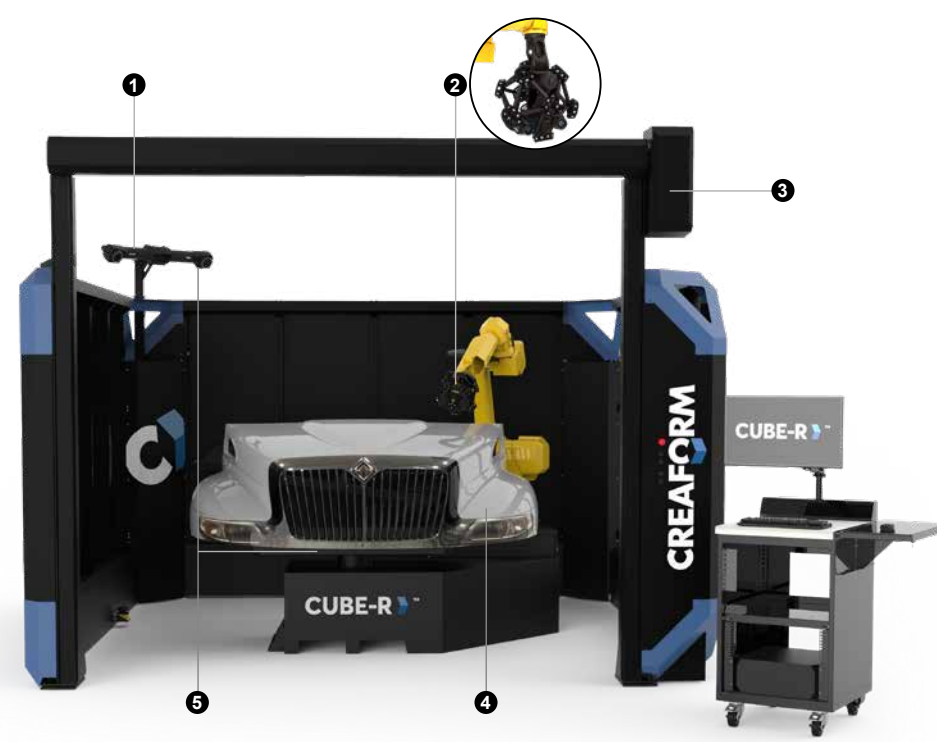


- 1 High-performance optics  
Optimal scan quality and high-resolution capability
- 2 Blue laser technology  
Ideal for shiny and reflective surfaces
- 3 45 laser lines  
Fast scanning - short cycle time
- 4 360° target coverage  
Improved line of sight

## CUBE-R™

### THE COMPLETE TURNKEY SOLUTION FOR AUTOMATED QUALITY CONTROL

The CUBE-R™ leverages the power of the MetraSCAN 3D-R in a high-productivity industrial measuring cell designed to be integrated into factories for at-line inspection. Compared to the CMM, the CUBE-R is much faster, providing a gain in productivity and better efficiency. Delivered as a complete turnkey solution, the CUBE-R is an essential system to a manufacturer's complete industry 4.0 solution. Additionally, the CUBE-R minimizes financial risk by modulating investment in automated quality control when compared to expensive and complex fully in-line automated measurement solution deployment.



- 1 C-Track™ optical tracker  
Enhances data accuracy from automated photogrammetry
- 2 MetraSCAN-R BLACK|Elite  
Highly accurate in any measurement conditions  
Tackles black, multicolor and shiny surfaces
- 3 Minimal footprint  
4.1 x 4.1 m
- 4 Part size range  
Up to 3 m
- 5 Dynamic referencing  
The part and the system can move freely at any time during measurement on the integrated turntable



## SPEED

The MetraSCAN 3D-R features 45 laser lines, enabling the measurements of hundreds of parts per day. Perfect for at-line inspection in mass production, the MetraSCAN 3D-R brings quality control as close to the part as possible. From easy integration to quick and simple installation, the automated quality control process achieves a higher level with the MetraSCAN 3D-R. The time savings at every step of the process is simply impressive!

**High measurement rate**

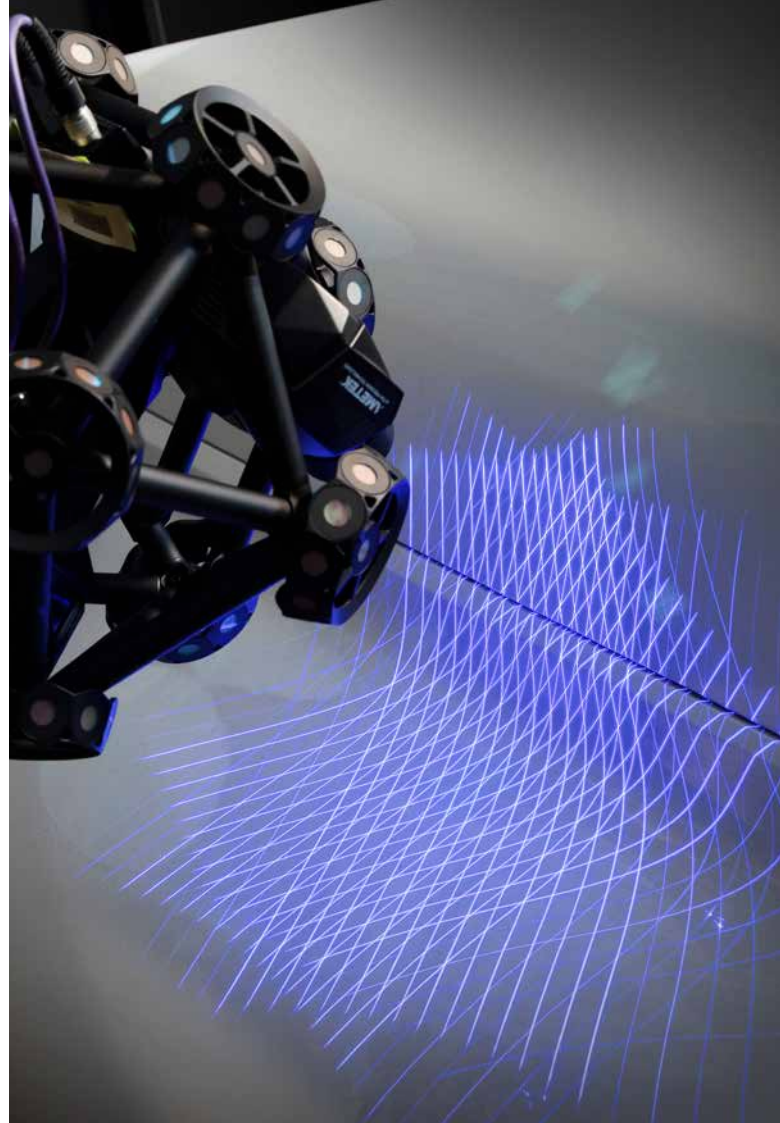
Up to 1,800,000 measurements/second for short cycle time

**High-density scanning area**

45 laser lines

**Fast measurement speed**

on surfaces, trims, and geometric features



## VERSATILITY

Combining the power of optical and blue laser technologies, the MetraSCAN 3D-R has the capability to both generate highly efficient 3D scans on shiny surfaces or on objects with variations in reflectivity and to measure various part sizes and different surface geometries. As the MetraSCAN 3D-R is designed to be mounted onto industrial robots in custom integrations, the CUBE-R leverages its power in a complete turnkey measuring solution. The CUBE-R, which is offered in 16 configurations, and the MetraSCAN 3D-R that can be integrated into a custom measuring cell built according to client's specific needs are the solutions for solving quality and productivity issues.

**Blue laser technology**

Ideal for shiny and reflective surfaces

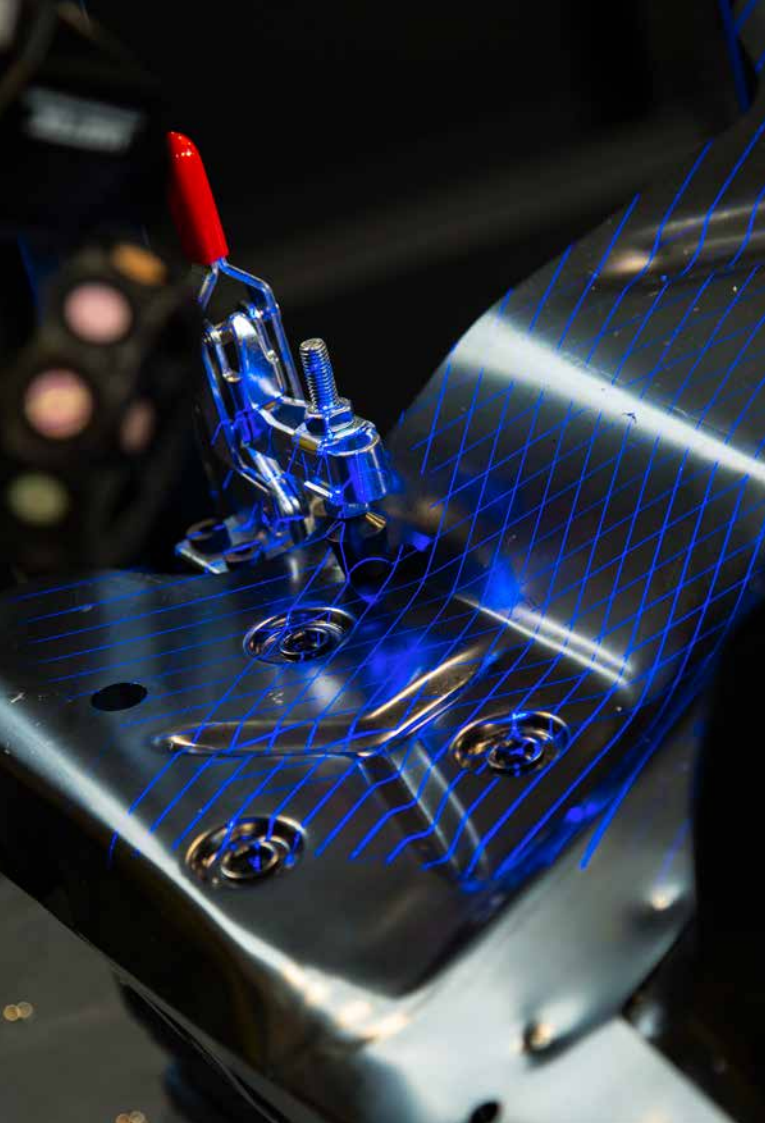
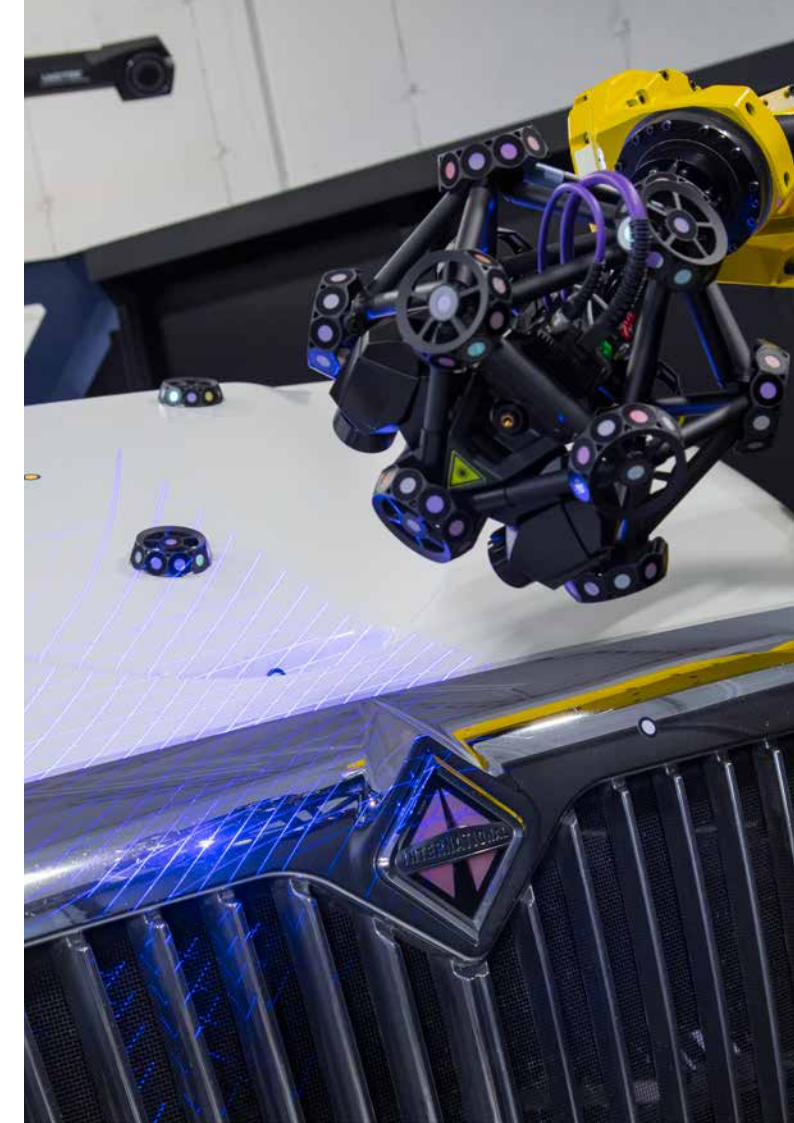
**Large part size range**

Perfect for various part sizes and geometries

**Configurable and customisable portfolio**

16 configurations

**Custom integration possible**



## ACCURACY & RESOLUTION

Due to its metrology-grade accuracy, repeatability, and resolution, the MetraSCAN 3D-R delivers high quality results, whether on surfaces, trims, geometric features. The MetraSCAN 3D-R is free from a rigid measurement setup, making it a 3D scanner engineered for industrial automation in shop floor conditions. Thanks to the C-Track optical tracker that enables dynamic referencing, both the 3D scanner and the part can move during inspection—maintaining part alignment and maximizing accuracy and measurement reliability.

**Shop floor accuracy with dynamic referencing**

0.025 mm in shop floor conditions, regardless of instabilities, vibrations, and thermal variations

**Volumetric accuracy**

0.078 mm

**Reliable acceptance test**

Based on VDI/VDE 2634 part 3 standard in a ISO 17025 accredited laboratory

**High resolution**

0.025 mm

**High repeatability**

on surfaces, trims, geometric features



## OPERATIONAL SIMPLICITY

Due to its operational simplicity, compatibility with metrology software, and off-line programming, the CUBE-R is a CMM that is accessible to all, regardless of the level of expertise or experience. The user interface makes it simple for operators, who are non-expert in robotics or metrology, to measure parts regardless of size, shape, or complexity. Once the measurements are completed, quality control engineers can focus on analyzing and reviewing the results—both high added value tasks.

**Accessibility to shop floor operators**

No expertise in robotics or metrology required

**Software independence**

Compatible with metrology software

**Short and easy deployment**

3-day installation





## VXscan-R™ DIGITAL TWIN ENVIRONMENT SOFTWARE MODULE

VXscan-R™ is a reliable and accurate digital twin environment useful for program preparation, scan parameters adjustment—speed, shutter time, and scan resolution—scan simulation and execution. With VXscan-R's scanning intelligence and dedicated functions, programming robot paths and optimizing the line of sight become easier and faster. Thanks to VXscan-R, automated quality control is now accessible to non-experts—solving programming issues and helping them feel confident when working with robotic systems.

### Accessibility to non-experts

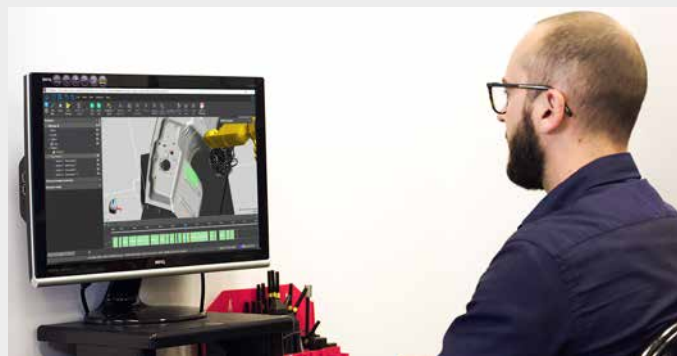
No expertise in 3D scanning nor programming required

### Digital twin

Complete environment for project planning, simulation, and execution

### Security

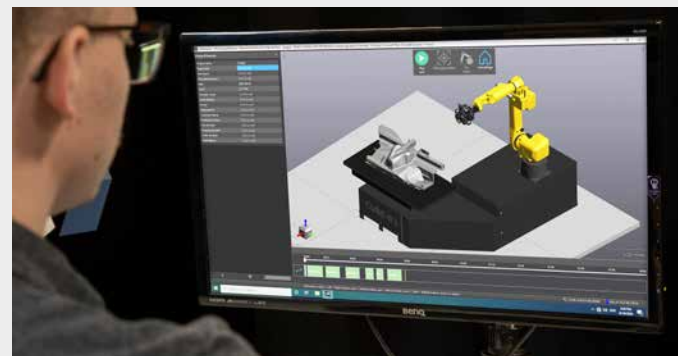
Collision detection and avoidance



### VXscan-R Plan

**Complete module for project preparation, simulation, and validation**

More than just robot programming software, VXscan-R Plan is a complete environment for project preparation. It enables automated quality control professionals to import CAD, configure scanning parameters (speed, shutter time, and scan resolution), create robot paths, simulate scans, and export simulations to metrology software.



### VXscan-R Execute

**User Interface for shop-floor operators**

Designed with simplicity for efficient execution, VXscan-R Execute is the program for work execution. It guides shop-floor operators in the execution of their tasks when measuring parts. Operators can input part parameters, start the measuring program and change parts when the robot has taken back its home position.

## THREE EASY STEPS FOR A PERFECT MATCH

1

### CHOOSE YOUR SECURITY TYPE



CUBE-R – Rolling door



CUBE-R – Light curtain



CUBE-R – Mesh and  
light curtain



CUBE-R – Module

The first choice for configuring the CUBE-R concerns the type of safety enclosure. Four options are offered depending on the level of integration required for the measurement cell: complete turnkey or only the main components—3D scanning solution, turntable, VXscan-R—usually intended for robot integrators. The footprint available can also guide your decision-making since the rolling door option provides minimal footprint. The type of door—rolling door or light curtain—finalizes your choice of security type.

2

### CHOOSE YOUR PAYLOAD

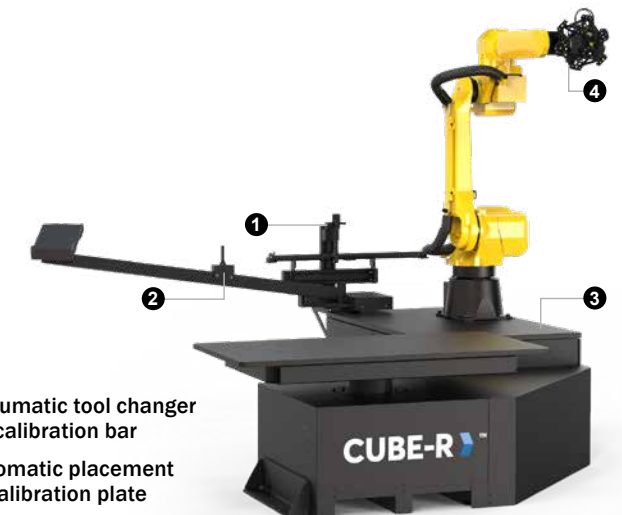
The second choice for configuring the CUBE-R requires to select the maximum payload of the turntable, either 500 kg or 1500 kg.



3

### ADD THE OPTIONAL ASSET PROTECTION

The third and last choice for configuring the CUBE-R involves asset protection. Asset protection combines both hardware and software features. Hardware options include a pneumatic tool changer and a swing arm to load calibration artifacts automatically. Software options include robot logic in the controller to verify that all of the calibration artifacts are stored correctly when the 3D scanning occurs, also using the C-Track as a vision system to verify if the right part is loaded at the right location. The option also comes with accident coverage for the first year.



- 1 Pneumatic tool changer for calibration bar
- 2 Automatic placement of calibration plate
- 3 Automatic detection of calibration artefacts
- 4 Accident coverage

# TECHNICAL SPECIFICATIONS

Innovating technology that provides accuracy, simplicity, versatility as well as real speed to your metrology-grade applications.

## MetraSCAN-R BLACK™|Elite

<b>ACCURACY</b> <sup>(1)</sup>		0.025 mm
<b>VOLUMETRIC ACCURACY</b> <sup>(2)</sup> (based on working volume)	9.1 m <sup>3</sup>	0.064 mm
	16.6 m <sup>3</sup>	0.078 mm
<b>VOLUMETRIC ACCURACY WITH MaxSHOT Next™ Elite</b> <sup>(3)</sup>		0.044 mm + 0.015 mm/m
<b>MEASUREMENT RESOLUTION</b>		0.025 mm
<b>MESH RESOLUTION</b>		0.100 mm
<b>MEASUREMENT RATE</b>		1,800,000 measurements/s
<b>LIGHT SOURCE</b>		45 blue laser lines
<b>LASER CLASS</b>		2M (eye safe)
<b>SCANNING AREA</b>		310 x 350 mm
<b>STAND-OFF DISTANCE</b>		300 mm
<b>DEPTH OF FIELD</b>		250 mm
<b>WEIGHT</b>		Scanner: 2.91 kg Scanner + Calibration bar: 4.26 kg C-Track: 5.7 kg
<b>INERTIA LIMIT</b>		J6: 0.221 Kg-m <sup>2</sup> J6: 2.250 Kgf-cm-s <sup>2</sup>
<b>DIMENSIONS</b> (LxWxH)		Scanner: 289 x 235 x 296 mm C-Track: 1031 x 181 x 148 mm
<b>OPERATING TEMPERATURE RANGE</b>		5–40°C
<b>OPERATING HUMIDITY RANGE</b> (non-condensing)		10–90%
<b>CERTIFICATIONS</b>		EC Compliance (Electromagnetic Compatibility Directive, Low Voltage Directive), compatible with rechargeable batteries (when applicable), IP50, WEEE
<b>PATENTS</b>		FR 2,838,198, EP (FR, UK, DE, IT) 1,492,995, US 7,487,063, CA 2,529,044

## CUBE-R™

<b>DIMENSIONS</b> (LxWxH)	Rolling door	4.1 x 4.1 x 3.1 m
	Light curtain	5.1 x 4.1 x 3.1 m
<b>MAX. PART SIZE</b>	Up to 3 x 1.5 m	
<b>MAX. PART WEIGHT</b>	Up to 1,500 kg	
<b>OPENING WIDTH</b>	3.1 m	

(1) MetraSCAN-R BLACK|Elite (ISO 17025 accredited): Based on VDI/VDE 2634 part 3 standard. Probing error performance is assessed with diameter measurement on traceable sphere artefacts.

(2) MetraSCAN-R BLACK|Elite (ISO 17025 accredited): Based on VDI/VDE 2634 part 3 standard. Sphere-spacing error is assessed with traceable length artefacts by measuring these at different locations and orientations within the working volume.

(3) The volumetric accuracy performance of the system when using a MaxSHOT 3D cannot be superior to the default volumetric accuracy performance for a given model.

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