


# METRA<sup>™</sup> SCAN 3D-R

## THE ROBOT-MOUNTED OPTICAL 3D SCANNER





**Accelerate your industrial inspection processes by bringing quality control as close to the part as possible. For companies wanting to get accurate results fast, Creaform has developed a robot-mounted optical 3D scanner, the MetraSCAN 3D-R™. Part of Creaform's MetraSCAN 3D lineup, this measuring system enables manufacturing companies harness the power of optical measurements and industrial automation directly on their production lines—and make quality control easier and more effective. In combination with industrial robots, the MetraSCAN 3D-R increases the reliability, speed and versatility of on-line inspection and quality control (QC) processes.**

**The 3D scanning device stands as an innovative robotized solution that can be seamlessly integrated into factory automation projects and guarantees optimal measurement accuracy and speed, providing increased productivity and product quality.**

**FAST. ACCURATE. VERSATILE.  
INTRODUCING THE MetraSCAN 3D-R  
SCANNERS**

## APPLICATIONS

### QUALITY CONTROL/INSPECTION

- In-line inspections in mass production, up to a few hundred parts/day
- In-line inspections of parts ranging from 0.3 m to 10 m (1.6 to 30 ft)
- Stamping parts (car body panel, car door, front end, etc.)
- Inspection of large parts
- Body in white (BIW)
- Quality control inspections of supplier parts
- Conformity assessments of 3D models against original parts or production tooling
- Conformity assessments of manufactured parts against originals



# QUALITY CONTROL AND AUTOMATED INSPECTION WITH THE MetraSCAN 3D-R

**ENHANCED SHOP-FLOOR PERFORMANCE:** GENERATE HIGHLY EFFICIENT 3D SCANNING ALLOWING THE COLLECTION OF 3D DATA ON SHINY SURFACES OR FOR OBJECTS WITH STRONG VARIATIONS IN REFLECTIVITY

**AUTOMATIC ALIGNMENT:** INSTANT AND RELIABLE ALIGNMENT PHASE. OPTICAL REFLECTORS ALLOW AUTOMATIC DETECTION OF THE PART ALIGNMENT

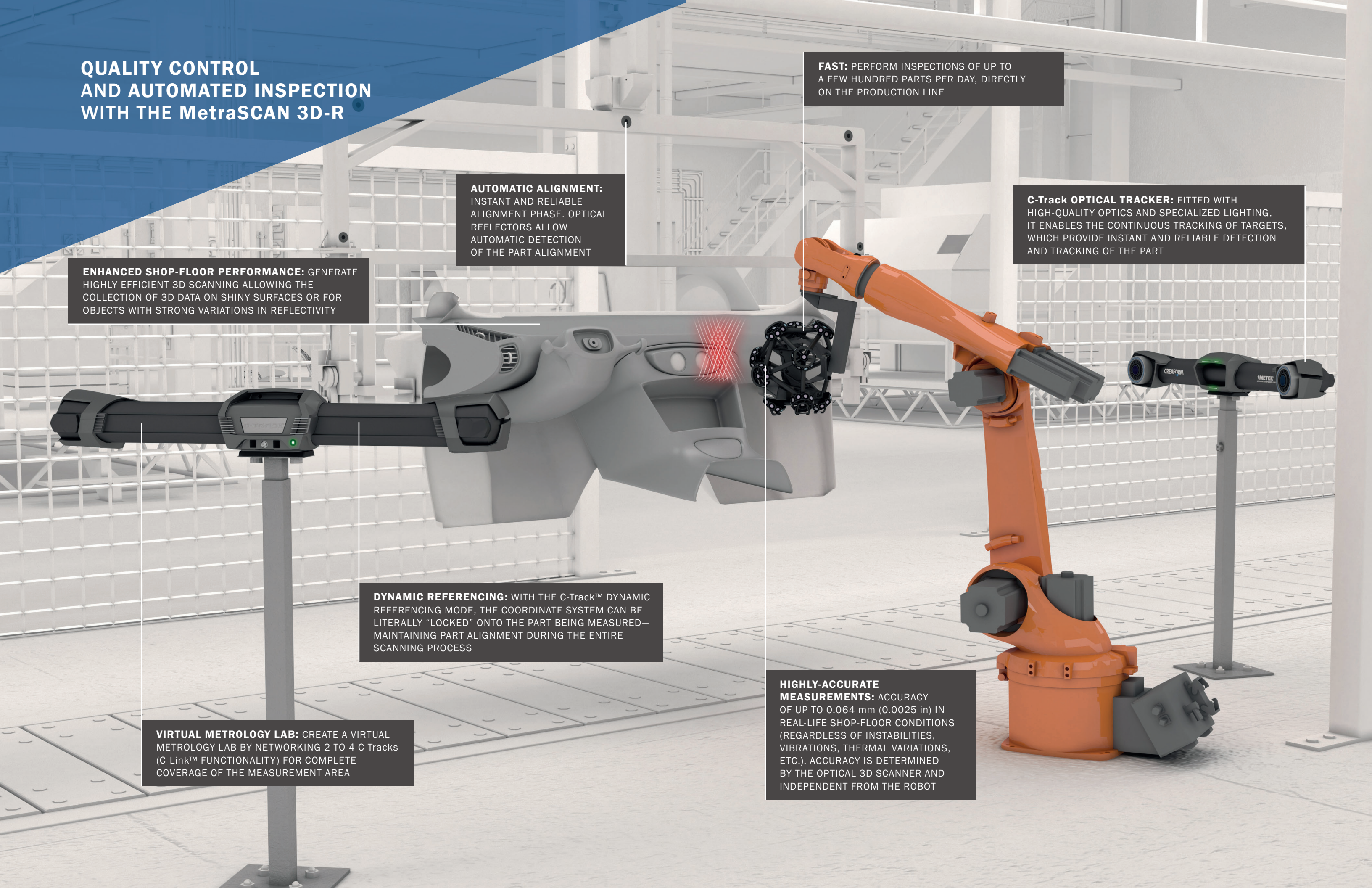
**FAST:** PERFORM INSPECTIONS OF UP TO A FEW HUNDRED PARTS PER DAY, DIRECTLY ON THE PRODUCTION LINE

**C-Track OPTICAL TRACKER:** FITTED WITH HIGH-QUALITY OPTICS AND SPECIALIZED LIGHTING, IT ENABLES THE CONTINUOUS TRACKING OF TARGETS, WHICH PROVIDE INSTANT AND RELIABLE DETECTION AND TRACKING OF THE PART

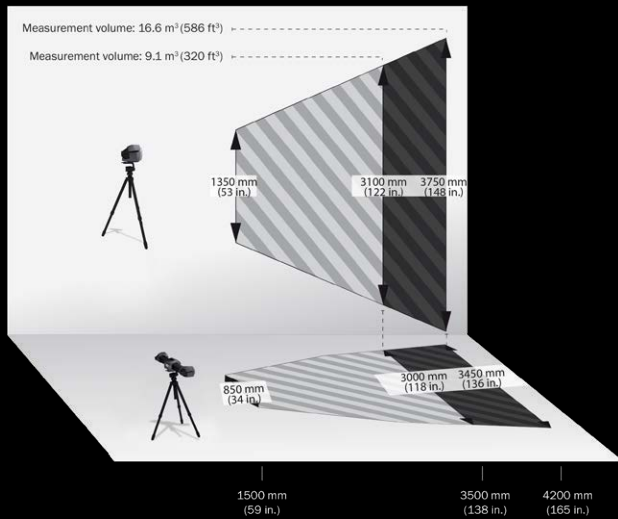
**DYNAMIC REFERENCING:** WITH THE C-Track™ DYNAMIC REFERENCING MODE, THE COORDINATE SYSTEM CAN BE LITERALLY "LOCKED" ONTO THE PART BEING MEASURED—MAINTAINING PART ALIGNMENT DURING THE ENTIRE SCANNING PROCESS

**VIRTUAL METROLOGY LAB:** CREATE A VIRTUAL METROLOGY LAB BY NETWORKING 2 TO 4 C-Tracks (C-Link™ FUNCTIONALITY) FOR COMPLETE COVERAGE OF THE MEASUREMENT AREA

**HIGHLY-ACCURATE MEASUREMENTS:** ACCURACY OF UP TO 0.064 mm (0.0025 in) IN REAL-LIFE SHOP-FLOOR CONDITIONS (REGARDLESS OF INSTABILITIES, VIBRATIONS, THERMAL VARIATIONS, ETC.). ACCURACY IS DETERMINED BY THE OPTICAL 3D SCANNER AND INDEPENDENT FROM THE ROBOT



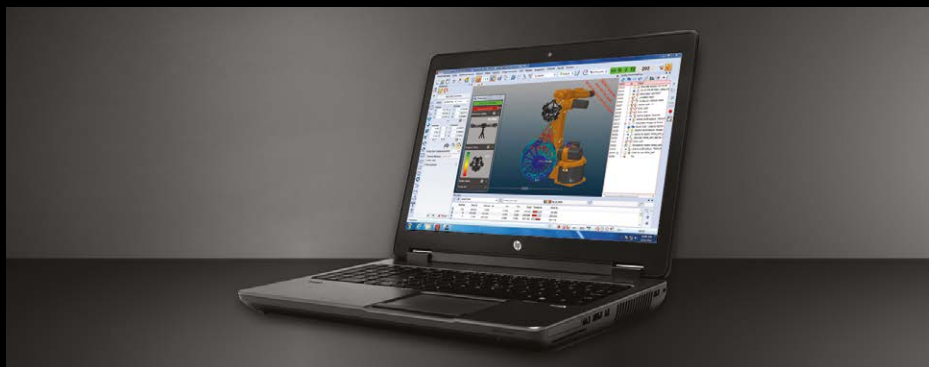
## C-Track OPTICAL TRACKER



## VXelements 3D SOFTWARE PLATFORM AND APPLICATION SUITE

The robot-mounted optical 3D scanners are powered by Creafom's VXelements™ 3D platform and application suite. Thanks to VXelements, the Creafom MetraSCAN 750-R™ 3D scanners generate a surface quality that compares very favourably with other high-end scanning devices on the market. Compatible with leading inspection software, Creafom's shop-floor 3D scanners represent a high-end automated scanning solution.

- Surface optimization algorithm
- Optimized meshing output
- No limitations to the scan resolution: it can be changed at any time before or after the scan
- Recreation of a meshing from raw data previously acquired
- Real-time optimization of the meshing such as hole filling, smart decimation (without definition loss on the meshing), or boundary filters



## CREAFORM CUSTOMER CARE

Creafom is committed to offering first-class customer service so that you can get the most out of your system.

Our multilingual team of product specialists will provide you with assistance to answer your immediate needs. Our fleet of leading-edge calibration tools in our service centers gives you local access to faster maintenance service and repair.

Be sure to subscribe to the Customer Care Program to take advantage of worry-free maintenance and global repair coverage for all of your Creafom hardware and software. Whether you need to access our latest software releases and knowledge base or require a loaner unit while your device is being serviced, we have a plan tailored to your needs. Gain peace of mind knowing your equipment will get even better with time.

## PRODUCT INTEGRATION

On-site integration of high-tech devices, such as MetraSCAN 3D-R scanners into automated on-line inspection processes, requires a particular expertise as well as extensive technical and support resources. For these reasons, Creafom partners with recognized robotic and automation integrators that are experienced with managing large-scale engineering projects. Through these partnerships, Creafom can guarantee that turnkey factory automation projects involving our 3D measurement solutions are carried out efficiently and that the installed solution delivers the results it is expected to.

# TECHNICAL SPECIFICATIONS

		MetraSCAN 750-R™ Elite
<b>ACCURACY<sup>(1)</sup></b>		Up to 0.030 mm (0.0012 in)
<b>VOLUMETRIC ACCURACY<sup>(2)</sup></b>	9.1 m <sup>3</sup> (320 ft <sup>3</sup> ) <sup>(3)</sup>	0.064 mm (0.0025 in)
	16.6 m <sup>3</sup> (586 ft <sup>3</sup> ) <sup>(3)</sup>	0.078 mm (0.0031 in)
<b>VOLUMETRIC ACCURACY WITH MaxSHOT 3D</b>	MaxSHOT Next™	0.044 mm + 0.025 mm/m (0.0017 in + 0.0003 in/ft)
	MaxSHOT Next™ Elite	0.044 mm + 0.015 mm/m (0.0017 in + 0.00018 in/ft)
<b>RESOLUTION</b>		0.050 mm (0.0020 in)
<b>SCANNING AREA</b>		275 x 250 mm (10.8 x 9.8 in)
<b>STAND-OFF DISTANCE</b>		300 mm (11.8 in)
<b>DEPTH OF FIELD</b>		200 mm (7.9 in)
<b>LIGHT SOURCE</b>		7 laser crosses (+ 1 extra line)
<b>LASER CLASS</b>		2M (eye-safe)
<b>MEASUREMENT RATE</b>		480,000 measurements/s
<b>WEIGHT</b>		Scanner: 4.46 kg (9.83 lbs) Scanner + Calibration bar: 5.70 kg (12.57 lbs) C-Track: 5.7 kg (12.5 lbs)
<b>INERTIA LIMIT</b>		J6: 0.221 Kg-m <sup>2</sup> (5.24 lb-ft <sup>2</sup> ) J6: 2.250 Kgf-cm-s <sup>2</sup> (1.95 lbf-in-s <sup>2</sup> )
<b>DIMENSIONS (LxWxH)</b>		289 x 235 x 296 mm (11.4 x 9.3 x 11.7 in)
<b>OPERATING TEMPERATURE RANGE</b>		5–40°C (41–104°F)
<b>OPERATING HUMIDITY RANGE (non-condensing)</b>		10–90%
<b>CERTIFICATIONS</b>		EC Compliance (Electromagnetic Compatibility Directive, Low Voltage Directive, Radio Equipment and Telecommunications Equipment), compatible with rechargeable batteries (when applicable), IP50, WEEE

(1) Typical value for diameter measurement on a calibrated sphere artefact.

(2) Based on the ASME B89.4.22 standard. Performance is assessed with traceable length artefacts by measuring these at different locations and orientations within the working volume of the C-Track (value = maximum deviation). Performance of the MetraSCAN 3D-R is dependent on the working volume in which the measurement is made: 9.1 m<sup>3</sup> (320 ft<sup>3</sup>) or 16.6 m<sup>3</sup> (586 ft<sup>3</sup>).

(3) The volumetric accuracy of the system when using a MaxSHOT 3D™ cannot be superior to the default volumetric accuracy of the chosen system and model.



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