

METRA[™] SCAN 3D R-SERIES

THE ROBOT-MOUNTED
OPTICAL CMM 3D SCANNERS
FOR AUTOMATED INSPECTION





Part of Creaform's MetraSCAN 3D™ line-up, the **robot-mounted MetraSCAN-R™ optical 3D CMM scanners** are fast and accurate devices designed for **3D automated inspection of parts** on the production line. In combination with industrial robots, the MetraSCAN-R series increases the reliability, speed and versatility of on-line inspection and quality control (QC) processes.

The MetraSCAN-R series stands as an **innovative robotized solution** that can be integrated into factory automation projects and guarantees optimal measurement accuracy and speed, which translates into increased productivity and product quality.

Fast. Accurate. Versatile. Introducing the MetraSCAN-R scanners.

MetraSCAN-R

MetraSCAN 70-R

The MetraSCAN 70-R offers increased resolution. It is ideal for projects where geometrical feature definition is key, such as sheet metal and tooling inspection.

MetraSCAN 210-R

Featuring extended scanning surface, the MetraSCAN 210-R offers increased measurement speed with equal accuracy. Its increased stand-off and depth of field make for enhanced scanning speed and flexibility.

APPLICATIONS

Inspection

- On-line inspection in mass production, up to a few hundreds parts per day;
- On-line inspection of parts ranging from 0.5 to 3 m. in size;
- Part-to-CAD analysis;
- Supplier product quality inspection;
- Conformity assessment of 3D models against original parts or production tooling;
- Conformity assessment of manufactured parts against originals.



MetraSCAN-R SOLUTION

AUTOMATIC ALIGNMENT.

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



FAST.

INSPECTION OF UP TO A **FEW HUNDRED PARTS PER DAY**, DIRECTLY ON THE PRODUCTION LINE.

DYNAMIC REFERENCING.

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

VERSATILITY.

THE SOLUTION CAN BE **FULLY CONFIGURED AND PROGRAMMED** (INSPECTION PROGRAMS) TO MEET INSPECTION AUTOMATION PROJECTS REQUIREMENTS FOR PARTS OF VARIOUS SIZES AND SHAPES.

TECHNOLOGY.

HIGHLY-ACCURATE MEASUREMENTS.

ACCURACY OF **UP TO 0.085 mm** IN REAL-LIFE SHOP FLOOR CONDITIONS (NO MATTER INSTABILITY, VIBRATIONS, THERMAL VARIATIONS, ETC.). ACCURACY IS DETERMINED BY THE OPTICAL CMM SCANNER AND IS **INDEPENDENT FROM THE ROBOT.**

SELF-CALIBRATION.

FAST CALIBRATION PROCESS USING A CERTIFIED GAUGE, WHICH ENSURES CONSTANT ACCURACY DURING THE MetraSCAN-R ENTIRE LIFE CYCLE.

CONTINUOUS MONITORING OF PARAMETERS.

MONITORING OF PARAMETERS SUCH AS TEMPERATURE AND ACCURACY ENSURE **CONSTANT DEVICE ACCURACY** DURING ENTIRE USEFUL LIFE.

C-Track DUAL-CAMERA SENSORS.

THE C-Track DUAL-CAMERA SENSORS ARE FITTED WITH **HIGH QUALITY OPTICS** AND SPECIAL LIGHTING, ENABLING THEM TO MEASURE ALL REFLECTORS WITHIN THEIR OPERATING SPACE. IN ADDITION TO **TRACKING THE WHOLE SYSTEM'S REFERENCE MODEL**, THE C-Tracks ENSURE THE EXACT LOCALIZATION OF THE MetraSCAN-R SCANNER.

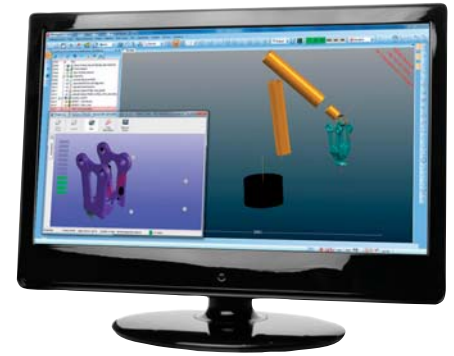
C-Link™.

IT IS POSSIBLE TO **NETWORK** THE MetraSCAN 70-R AND 210-R **WITH TO 2 TO 4 C-Tracks** TO GET ACCESS TO AND BENEFIT FROM THE **C-Link FUNCTIONALITY**, WHICH DRASTICALLY INCREASES THE VERSATILITY OF THE SYSTEM.

VXelements™ DATA ACQUISITION SOFTWARE

The MetraSCAN-R robot-mounted optical CMM scanners are powered by Creaform's VXelements data acquisition software, interfaced with Metrologic®'s X4 i-Robot software. Thanks to VXelements, the Creaform MetraSCAN-R 3D scanners generate a surface quality that compares very favourably with other high end scanning devices on the market. Because they combine Creaform's 3D scanning capabilities with the robot-driving and inspection capabilities of Metrologic's i-Robot software solution, the MetraSCAN-R series represents a high end automated scanning solution.

- Surface optimization algorithm;
- Optimized meshing output;
- No limitation 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 surface rendering;
- Optimization of the meshing such as hole filling, smart decimation (without definition loss on the meshing), or boundary filters.



METROLOGIC'S X4 I-ROBOT METROLOGY SOFTWARE

X4 i-Robot production metrology solution is perfectly suited for applications requiring flexibility and productivity while providing high metrological accuracy.

- Robot movements perfectly synchronized with measurement;
- Robot trajectory entirely controlled by Metrolog X4 part program.

PRODUCT INTEGRATION

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

CREAFORM CUSTOMER SERVICE



When you purchase a MetraSCAN-R optical CMM scanner, Creaform backs you up with the CreaCare customer service program. We offer readily available, multilingual technical support on all continents, ensured by knowledgeable, proactive and committed product specialists.

We find it important to help you simplify your work, increase your efficiency and make the most out of your MetraSCAN-R scanner. To keep you on the technological edge, you can also choose to get instant downloading access to every new release of VXelements (and the VXscan module). If you wish, you can ask that a qualified metrologist or applications engineer comes over to your place to help you get started with your optical CMM scanner, and to train you and/or your staff on your specific applications.

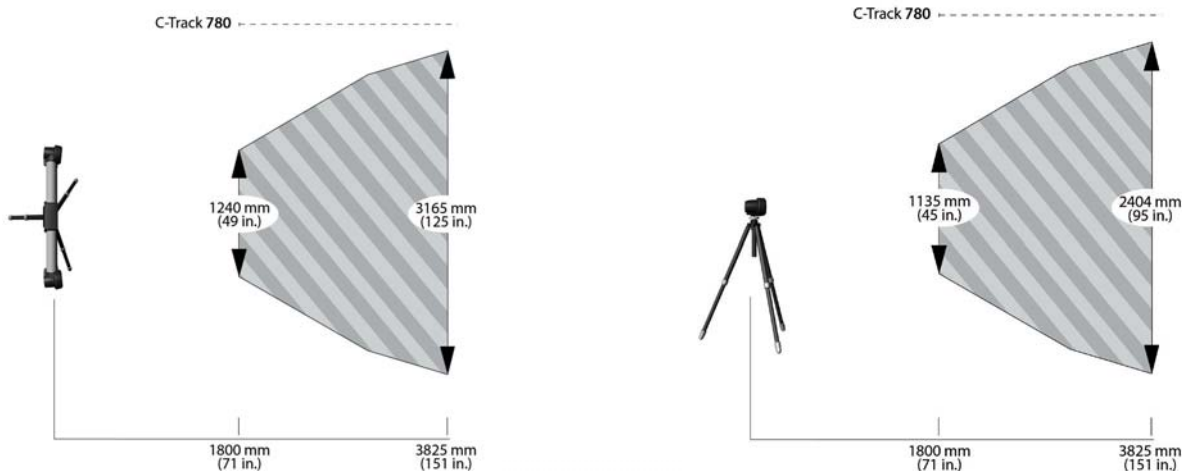
Last but not least, Creaform's client service agents follow up with each and every client to make sure that they are satisfied with their MetraSCAN-R, and that they know exactly who to contact in case of a problem. And if anything should happen, we guarantee quick and reliable servicing.

TECHNICAL SPECIFICATIONS	MetraSCAN 70-R	MetraSCAN 210-R
WEIGHT	2.75 kg (6 lbs.)	2.75 kg (6 lbs.)
DIMENSIONS	282 x 250 x 282 mm (11 x 9.8 x 11 in.)	282 x 250 x 282 mm (11 x 9.8 x 11 in.)
MEASUREMENT RATE	36,000 mesures /sec.	36,000 mesures /sec.
VOLUMETRIC PERFORMANCE (with C-Track 780) ⁽¹⁾	0.085 mm (0.003 in.)	0.085 mm (0.003 in.)
VOLUMETRIC PERFORMANCE (with MaxSHOT 3D™ or C-Link)	0.085 mm if L ⁽²⁾ ≤ 1.2 m (0.0033 in. if L* ≤ 4 ft)	0.085 mm if L ⁽²⁾ ≤ 1.2 m (0.0033 in. if L* ≤ 4 ft)
	0.055 mm + 0.025 mm/m if L > 1.2 m (0.0022 in. + 0.0003 in./ft if L > 4 ft)	0.055 mm + 0.025 mm/m if L > 1.2 m (0.0022 in. + 0.0003 in./ft if L > 4 ft)
RESOLUTION IN X, Y, Z AXIS	0.05 mm (0.002 in.)	0.1 mm (0.004 in.)
STAND-OFF DISTANCE	152 mm (6 in.)	300 mm (12 in.)
DEPTH-OF-FIELD	± 50 mm	± 100 mm
LASER CROSS AREA	70 mm x 70 mm (2.7 x 2.7 in.)	210 mm x 210 mm (8.2 x 8.2 in.)
OPERATING TEMPERATURE RANGE	15-40 °C (59-104 °F)	15-40 °C (59-104 °F)
OPERATING HUMIDITY RANGE (NON-CONDENSING)	10-90%	10-90%
CERTIFICATIONS	EN 301 489-1, EN 301 489-3, EN 300 220-1	EN 301 489-1, EN 301 489-3, EN 300 220-1

⁽¹⁾ Test methods based on the ASME B89.4.22 Standard. Volumetric performance is assessed with traceable length artifacts by measuring these at different locations and orientations within the working volume of the MetraSCAN-R. (range/2 methods).

⁽²⁾ "L" being the size of the object measured.

THE C-Track DUAL-CAMERA SENSORS



CREAFORM

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