ROMER ABSOLUTE ARM
Portable Measuring Arms
Quality control, inspection, on-machine verification, reverse engineering or 3D modeling wherever they are needed are no problem for the ROMER Absolute Arm. It is much more than just a metrology tool, its value lies in its versatility. Portability, stability, light weight and high-performance laser scanners make the ROMER Absolute Arm an all-purpose 3D measurement, analysis and digitizing tool that can be used by anyone, and with minimum training.

Unlike many metrology devices, the ROMER Absolute Arm does not require warm-up time or initialization, thanks to a stable carbon fiber structure and industry leading Absolute encoders. Simply take the measuring arm to the part, switch it on and start measuring.

INCREASING PRODUCTIVITY ACROSS ALL INDUSTRIES

Typical Industries:

- Automotive and aerospace
- Power generation / Wind energy
- Forming industry
- Casting and forging
- Fabricated metal products
- Machinery manufacturing
- Sports equipment
- Piping and tubing
- Agriculture and heavy equipment
- Ship and boat building
- Railway
- Archaeological and historic preservation

Typical Measuring Applications:

- Sheet metal parts
- Dies and molds / tooling
- Machined parts
- Jigs and fixture setup and alignment
- Tubes and tube assembly
- CAD-to-part comparison
- Alignment
- Reverse engineering
- Virtual assembly
- Body in white
- On-machine tool inspection
- Composites inspection
- Die-Casting and patterns
ROMER ABSOLUTE ARM
TOP FEATURES

RDS
ROMER proprietary RDS software is the virtual double of the ROMER Absolute Arm. For highspeed accuracy checks, calibration and simple measurements.

Laser Scanning
The ROMER Absolute Arm is available with a completely integrated high-performance laser scanner or the external HP-L-20.8 scanner, for complex scanning tasks.

ROMER Absolute Arms are the only scanning systems on the market to offer fully verifiable scanning system accuracy.

Automatic and repeatable Probe Recognition
Intelligent Quick Change Probes: Swap touch-probes at any time without the need to recalibrate. The Romer Absolute Arm’s repeatable mount allows to change probes on the fly, according to your measurement needs.

Instant Feedback
The ROMER Absolute Arm provides immediate acoustic and haptic feedback to the operator, allowing the Romer Absolute Arm to be used in even the most harsh industrial environments.
Absolute Encoders
Referencing and warm-up time was for yesterday – just switch the arm on and measure.

SmartLock
If the ROMER Absolute Arm is not in use it can be locked safely into its rest position. SmartLock also allows the arm to be fixed in any intermediate position.

Measurement Volume
Size does matter: The ROMER Absolute Arm is available in seven lengths between 1.2 m and 4.5 m.

Certification
All ROMER Absolute Arms including scanning systems pass through B89.4.22 certification. Additional certifications according to VDI/VDE 2617-9 or ISO 10360 are available.

Zero G
The Zero G counterbalance minimizes torque in the base of the arm. This allows greater freedom in mounting options such as lightweight tripods, magnetic and vacuum bases making the Absolute Arm the most portable available.

Feature Packs
Thanks to easily interchangeable Feature Packs, the functionality of the ROMER Absolute Arm can always be enhanced. Feature packs are available for wi-fi communication, wi-fi scanning capability and full battery operation.
“HEXAGON METROLOGY IS OUR VALUABLE AND RELIABLE PARTNER, WHILE THE ROMER ABSOLUTE ARM GUARANTEES THE QUALITY OF OUR PRODUCTS.”

Marcin Wojciechowski, Solaris, Sroda Wielkopolska, Poland

“By greatly shortening the feedback loop between the production measurement activity and the design process, we’re both saving time and improving results.”

Steve Ruggiero, Pratt & Whitney, CT, USA

“The arms are very good, we are finding errors on components now that we didn’t know we had before, the handling of the arm is excellent compared to previous arms and the easy changing of probes makes the arms very user friendly.”

Sam Harper, Red Bull Technology, Milton Keynes, UK

“THE VERSATILITY OF THE ARM MADE IT PERFECT FOR OUR NEEDS: WE COULD IMMEDIATELY SEE WHERE IT WOULD SAVE US TIME IN SLED SET UP, BUT WE’RE NOW FINDING APPLICATIONS FOR IT THAT WE HADN’T EVEN IMAGINED BEFORE.”

Kristan Bromley, Bromley Technologies, Rotherham, UK

“Hexagon Metrology helps us to optimize every area of the car and engine, which drives results on the track. The race engineers are confident that measurements made with the ROMER arms are more accurate than those gathered with previous inspection techniques.”

Doug Duchardt, Hendrick Motorsports, NC, USA

“When you are standing in the middle of the fixture, the absolute encoders on the ROMER arm are superb, because you don’t have to reference them.”

Peter Haase, Bombardier Bautzen, Germany

“The time saved is the key factor. What used to take days now takes hours. The percentage of scrap tubing has almost been eliminated entirely.”

Tony Wells, Fabspeed, PA, USA
ACCURACY MADE EASY

Thousands of users across all industry sectors rely on portable measuring arms from Hexagon Metrology. These users appreciate how the ROMER Absolute Arm is designed to facilitate their daily measurement routines.

Carbon fibre makes the arm rock-solid under any environmental condition such as temperature changes.

SpinGrip facilitates handling the arm on larger parts.

Instant Feedback through acoustic guidance and haptic interface allows the user to be sure of his measurements in any environment.

User aids, such as a wrist with incorporated mouse function, a work-light and an integrated digital camera, are designed to make industrial measurement easier, anywhere.

The ZeroG counterbalance lets the arm float in the user’s hand turning a painful ergonomic experience into a pleasant and productive one.

AS INDIVIDUAL AS YOUR APPLICATION

Feature Packs

ROMER Feature Packs unfold the full potential of a portable measuring arm. These interchangeable extensions can be mounted onto the rear of the arm, providing you with new functionality:

The ROMER Mobility Pack includes battery and WiFi communication – maximum flexibility for the ROMER Absolute Arm.

The ROMER Scanning Pack is the interface for laser scanners.

The ROMER Wireless Scanning Pack for the integrated laser scanner makes high-speed 3D scanning completely wireless.

Accessories

Different probes, tripods and stands for different applications: All ROMER Absolute Arms are ready for a multitude of environments. Hundreds of accessories are available à la carte.
The ROMER Absolute Arm with six rotational axes is designed for highly accurate tactile measurements on countless work pieces. The six axis ROMER Absolute Arm allows reliable part inspection on features of sheet metal parts, plastic components or carbon fibre structures. In case your measurement jobs require laser scanning later, an upgrade is possible at any time.

Freedom of movement: with a fully integrated and certified laser scanning system, this is an all-purpose metrology system for a multitude of applications. 3D digitizing, 3D modelling, point cloud inspection, reverse engineering, rapid prototyping or copy milling are the most frequent laser scanner applications. The laser scanner is tuned for a vast variety of materials without compromise in accuracy. ROMER's integrated laser scanner does not need warm-up time or additional cables and controllers. Changing from scanning to probing and vice versa is possible at any time.
The ROMER Absolute Arm with external scanner is a modular high-end laser scanning platform designed for the HP-L-20.8 laser scanner from Hexagon Metrology. With HP-L-20.8, the ROMER Absolute Arm offers first-class performance even on complex surfaces and work pieces made of the most challenging materials. Setting the laser according to surface colour or reflectivity is not required; the automatic laser control of the HP-L-20.8 automatically adapts to the surface conditions. HP-L-20.8 is also the first ever laser scanner with a zoom function, providing five different line widths.

The ROMER Tube Inspection Solution covers all 3 main tasks of tube measurement in a single non-contact product: tube inspection and definition, geometry measurement and even interfacing to CNC tube bending machines is possible, via bending program correction. The ROMER Tube Inspection Solution is the only portable true tube inspection solution on the market. It can be taken to the work piece to measure pipes, lines, hoses and tubes in situ, thereby saving time and effort. Reverse engineering of tubes and hoses is also unbelievably fast, and without any need for complex laser scanning.
### 6-AXIS PROBING SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Measuring range</th>
<th>Point repeatability</th>
<th>Volumetric accuracy</th>
<th>Arm weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>7320</td>
<td>2.0 m / 6.6 ft.</td>
<td>±0.007 mm</td>
<td>±0.035 mm</td>
<td>8.3 kg</td>
</tr>
<tr>
<td>7325</td>
<td>2.5 m / 8.2 ft.</td>
<td>±0.008 mm</td>
<td>±0.035 mm</td>
<td>8.6 kg</td>
</tr>
<tr>
<td>7330</td>
<td>3.0 m / 9.8 ft.</td>
<td>±0.009 mm</td>
<td>±0.035 mm</td>
<td>8.9 kg</td>
</tr>
<tr>
<td>7335</td>
<td>3.5 m / 11.5 ft.</td>
<td>±0.009 mm</td>
<td>±0.035 mm</td>
<td>9.2 kg</td>
</tr>
<tr>
<td>7340</td>
<td>4.0 m / 13.1 ft.</td>
<td>±0.010 mm</td>
<td>±0.035 mm</td>
<td>9.4 kg</td>
</tr>
<tr>
<td>7345</td>
<td>4.5 m / 14.8 ft.</td>
<td>±0.011 mm</td>
<td>±0.035 mm</td>
<td>9.6 kg</td>
</tr>
<tr>
<td>7520</td>
<td>2.0 m / 6.6 ft.</td>
<td>±0.008 mm</td>
<td>±0.020 mm</td>
<td>7.9 kg</td>
</tr>
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<td>7540</td>
<td>4.0 m / 13.1 ft.</td>
<td>±0.011 mm</td>
<td>±0.020 mm</td>
<td>9.1 kg</td>
</tr>
<tr>
<td>7545</td>
<td>4.5 m / 14.8 ft.</td>
<td>±0.011 mm</td>
<td>±0.020 mm</td>
<td>9.3 kg</td>
</tr>
</tbody>
</table>

### 7-AXIS PROBING AND SCANNING SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Measuring range</th>
<th>Probing point repeatability</th>
<th>Probing volumetric accuracy</th>
<th>Scanning system accuracy SI</th>
<th>Scanning system accuracy SE</th>
<th>Arm weights SI</th>
<th>Arm weights SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7320SI/SE</td>
<td>2.0 m / 6.6 ft.</td>
<td>±0.004 mm</td>
<td>±0.005 mm</td>
<td>8.3 kg</td>
<td>8.7 kg</td>
<td>18.3 lbs</td>
<td>18.7 lbs</td>
</tr>
<tr>
<td>7325SI/SE</td>
<td>2.5 m / 8.2 ft.</td>
<td>±0.005 mm</td>
<td>±0.006 mm</td>
<td>8.6 kg</td>
<td>8.9 kg</td>
<td>19.0 lbs</td>
<td>19.4 lbs</td>
</tr>
<tr>
<td>7330SI/SE</td>
<td>3.0 m / 9.8 ft.</td>
<td>±0.006 mm</td>
<td>±0.008 mm</td>
<td>8.9 kg</td>
<td>9.2 kg</td>
<td>19.6 lbs</td>
<td>19.9 lbs</td>
</tr>
<tr>
<td>7335SI/SE</td>
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<td>±0.006 mm</td>
<td>±0.008 mm</td>
<td>9.2 kg</td>
<td>9.5 kg</td>
<td>20.2 lbs</td>
<td>20.5 lbs</td>
</tr>
<tr>
<td>7340SI/SE</td>
<td>4.0 m / 13.1 ft.</td>
<td>±0.007 mm</td>
<td>±0.010 mm</td>
<td>9.5 kg</td>
<td>9.8 kg</td>
<td>20.9 lbs</td>
<td>21.2 lbs</td>
</tr>
<tr>
<td>7345SI/SE</td>
<td>4.5 m / 14.8 ft.</td>
<td>±0.007 mm</td>
<td>±0.010 mm</td>
<td>9.8 kg</td>
<td>10.1 kg</td>
<td>21.6 lbs</td>
<td>21.9 lbs</td>
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<td>2.0 m / 6.6 ft.</td>
<td>±0.005 mm</td>
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<td>±0.007 mm</td>
<td>±0.008 mm</td>
<td>9.2 kg</td>
<td>9.5 kg</td>
<td>20.2 lbs</td>
<td>20.5 lbs</td>
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<td>7540SI/SE</td>
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<td>9.8 kg</td>
<td>10.1 kg</td>
<td>21.6 lbs</td>
<td>21.9 lbs</td>
</tr>
</tbody>
</table>

### Integrated scanner RS2

**Max. point acquisition rate**: 50'000 Points/s
**Points per Line**: 1000
**Line rate**: 50 Hz
**Line width**: 46 mm
**Minimum point spacing**: 0.046 mm
**Laser power control**: Fully automatic – per line
**Accuracy**: 2 sigma / 30 μm
**Probing Dispersion value**
- **SF**: 0.000 / 0.000
- **DF**: 0.000 / 0.000
- **DS**: 0.000 / 0.000
**Weight**: 340 g
**Controller**: No
**Laser safety**: Class 2
**Working temperature**: 5°C – 40°C (41°F – 104°F)

### External scanner HP-L-20.8

**Max. point acquisition rate**: 150'000 Points/s
**Points per Line**: max. 4000
**Line rate**: max. 100 Hz
**Line width**: 176 mm / 104 mm / 51 mm / 40 mm / 20 mm
**Minimum point spacing**: 0.213 mm
**Laser power control**: Fully automatic – per point
**Accuracy**: 2 sigma / 10 μm
**Probing Dispersion value**
- **SF**: 0.000 / 0.000
- **DF**: 0.000 / 0.000
- **DS**: 0.000 / 0.000
**Weight**: 410 g
**Controller**: No
**Laser safety**: Class 2
**Working temperature**: 10°C – 42°C (50°F – 108°F)

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1. The **Point Repeatability Test** is the reference test to determine measurement arm repeatability with ball probe. The cone is in front of the machine. Points are measured from multiple approach directions. The average point and the deviation of each point to the average center are calculated. The result is the maximum range divided by two.

2. The **Volumetric Accuracy Test** most accurately represents the reasonable expectations for machine performance in practical measuring applications, since it involves measuring a certified length standard many times in several locations and orientations and compares the resultant measurements to the actual length. The Volumetric Length Accuracy Test is the most appropriate test for determining machine accuracy and repeatability. The result is the maximum deviation of the measuring distance less the theoretical length.

3. **Ambient conditions**
   - **Working temperature**: 0°C – 50°C (32°F – 122°F)
   - **Storage temperature**: -30°C – 70°C (-22°F – 158°F)
   - **Relative humidity**: 10% – 90% non-condensing
   - **Operational elevation**: 0 – 2000 m (0 – 6600 ft)

4. **Marks of conformity**
   - **CE Compliance**: Yes
   - **Power requirement**: Universal worldwide voltage: 110V – 240V

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All specifications according to B99.4.22 and VDI/VDE 2617-9.
Hexagon Metrology offers a comprehensive range of products and services for all industrial metrology applications in sectors such as automotive, aerospace, energy and medical. We support our customers with actionable measurement information along the complete life cycle of a product – from development and design to production, assembly and final inspection.

With more than 20 production facilities and 70 Precision Centers for service and demonstrations, and a network of over 100 distribution partners on five continents, we empower our customers to fully control their manufacturing processes, enhancing the quality of products and increasing efficiency in manufacturing plants around the world.

For more information, visit www.hexagonmetrology.com

Hexagon Metrology is part of Hexagon (Nordic exchange: HEXA B). Hexagon is a leading global provider of design, measurement and visualisation technologies that enable customers to design, measure and position objects, and process and present data.

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