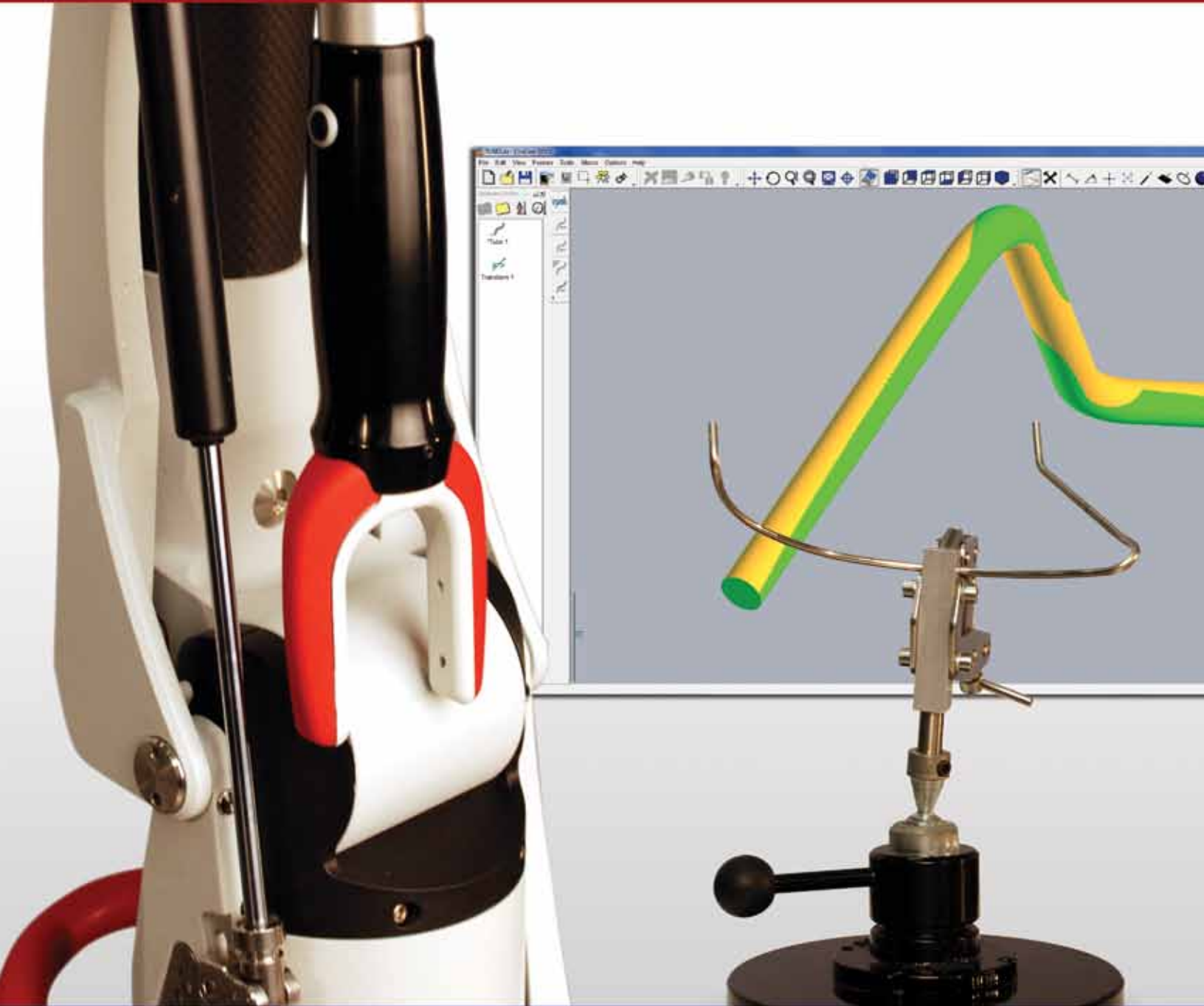


ROMER

ROMER Tube Inspection Station Maximum performance tube measurement

Metrology on the go.



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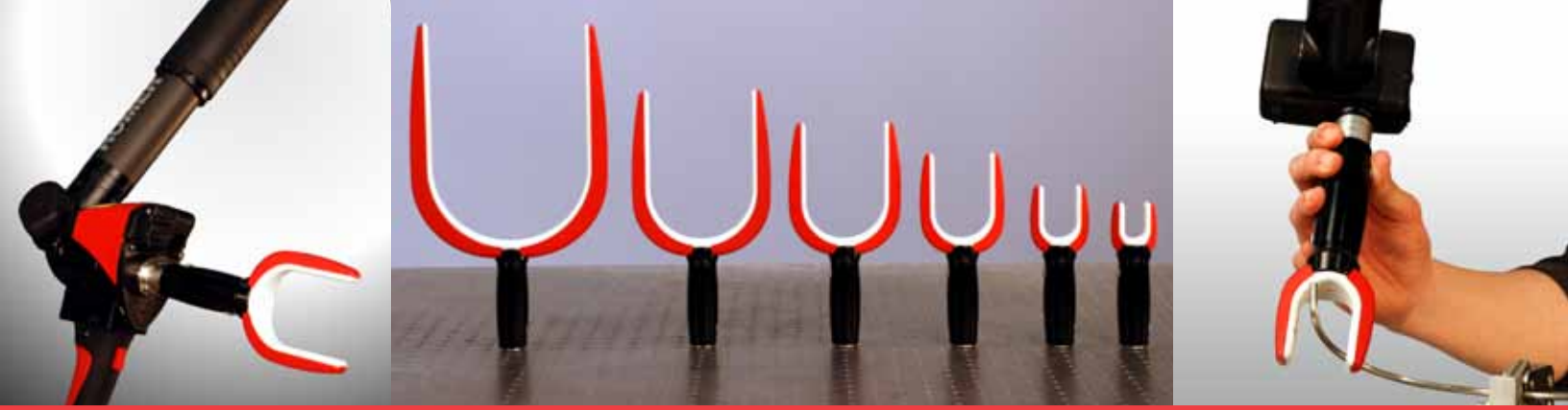
Absolutely flexible solutions for tube inspection:

Tube bending applications are vastly unique when compared to other areas of the manufacturing world. The quality control process is no longer simply verification of whether or not parts meet specifications, but a system that needs to provide the ability to adjust bending processes and achieve maximum efficiency while minimizing scrap.

ROMER, a Hexagon Metrology company, traces its roots back more than 30 years to the invention of the first tube measurement device. By continually building on this expertise, ROMER offers a unique solution designed around the special requirements of the tube bending shop user. The ROMER Tube Inspection system dramatically increases tube shop productivity and reduces scrap with a solution that combines inspection, bend correction, reverse engineering, and fixture verification into a single, flexible system ideal for manual and CNC tube bending processes.

ROMER Tube Inspection Productivity Enhancing Tools:

- Eliminate waste and guesswork from tube bending. Measure the first tube from a bender, and then automatically calculate bend corrections required to make subsequent tubes correctly. This dramatically reduces startup scrap and significantly reduces the time it takes to produce good tubes.
- Communicate bend correction values directly to a CNC bending system, reducing time and eliminating operator data entry errors.
- There's no faster or more accurate way to reverse engineer a tube. Simply measure a prototype tube, send the design to the bender, automatically compute the bend corrections from the first tube, and the next tube is identical to the prototype.
- Generate a tube design quickly and easily by simply recording the intersection points along the tube route to generate a final tube specification to send to a bender. This can be done even if the tube is fixed in a routed position.
- Inspect thin, flexible tube and wire shapes without touching them for the most accurate results obtainable.
- Effectively calculate end-to-end or cut length of a tube based on the tube geometry.
- Certify hard checking fixtures quickly and easily without the expense or lost production time sending fixtures out for verification.



Introducing the ROMER Tube Inspection System:

ROMER Absolute Arm portable CMMs combined with Tube Inspection System accessories deliver unique tube measurement capability in an efficient, cost effective inspection solution for a wide array of tube and wire bending applications.

Non-contact infrared probes specifically designed for tube and wire inspection take points by simply detecting the tube section as it is passed between the infrared sensors. This method of data collection eliminates the error incurred by tactile methods and eliminates the collection of unnecessary data points. Since it's non-contact, you can easily inspect any type of metallic or non-metallic tube material, even soft or fragile materials that could be deformed by touching.

Benefits of the ROMER Absolute Arm and Tube Inspection System include:

Laser light probe guidance: The ROMER Tube Probe provides an intuitive laser line guidance system to aid in the measuring process. The operator can clearly see where points are taken.

Automatic probe recognition: Quickly switch from tube probes to ball probes on non-tube parts with no re-calibration in between.

Completely portable measurement: The ROMER Tube Inspection System goes anywhere you need to measure, including the shop floor or customer's job site. With ROMER you take the CMM to the part, instead of taking part to the CMM.

Absolute Arm cutting edge technology: The ROMER Absolute Arm offers a multitude of features and benefits such as infinite arm rotation for superior ergonomics, Zero-G counterbalance for effortless control, and absolute encoders for faster startups and the elimination of time consuming "homing" procedures.





Available Tube Probe Sizes

Tube Probe Part Number	Measurement Range
NCA7-3-52536-01	4-13 mm
NCA7-3-52536-02	6-20 mm
NCA7-3-52536-03	10-40 mm
NCA7-3-52536-04	12-65 mm
NCA7-3-52536-05	20-85 mm
NCA7-3-52536-06	30-130 mm

Available Absolute Arm Lengths

Length	Available Models
1.5 m / 4.9 ft.	6 Axis - 73 series only
2.0 m / 6.6 ft.	6 Axis, 7 Axis Models
2.5 m / 8.2 ft.	6 Axis, 7 Axis Models
3.0 m / 9.8 ft.	6 Axis, 7 Axis Models
3.5 m / 11.5 ft.	6 Axis, 7 Axis Models
4.0 m / 13.1 ft.	6 Axis, 7 Axis Models
4.5 m / 14.8 ft.	6 Axis, 7 Axis Models

Automatically adjust CNC bending parameters

Adjusting parameters on a CNC tube bending machine is often a process of trial and error. Using the ROMER tube inspection station in conjunction with the DOCS bender interface allows corrected bend data to be sent from the ROMER arm directly to a CNC bending machine control. This data is then used by the control to make an accurate tube. Automatic bender adjustment means faster production startup, maximum efficiency and lower scrap costs.

Multiple bender interfaces can be used with a single ROMER arm system (each interface sold separately).

Interface licenses are available for the following bending machine manufacturers:

- Adaptive Motion
- Bend Pro CNC Controllers
- Eaton Leonard Lightspeed Benders
- Herber
- Horn Tube Benders
- COMCO MFG/Keins
- LANG Tube Benders
- Silfax Tube Benders
- Pines TS2000 Controllers and later
- SMT
- Scharze-Robitec
- Techno Benders with Bend-Pro CNC Controllers
- Alpine CNC Benders
- Eaton Leonard Premier Bender
- MiiC/OPTON
- BLM Electric Tube Benders

(Specific models may vary, list subject to change. Visit www.romer.com for details.)



ROMER

Responding to needs throughout industry for portable, flexible solutions for measurement and inspection applications, ROMER's co-founder patented and marketed the first multi-axis articulated arm for tube inspection in 1973. Today's ROMER arms are direct descendants of that first invention. Decades of continuous innovation have made ROMER products the technological leader in the portable arm market.

Portable coordinate measuring machines for industrial production, assembly, research and development is the ROMER brand's specialty in the global Hexagon Metrology offering. The power of Hexagon Metrology's global sales, service and support network ensures that your investment in ROMER products is secure no matter where in the world your business takes you.

ROMER. Metrology on the go.

ROMER, a brand of
Hexagon Metrology, Inc.
250 Circuit Drive
North Kingstown, RI 02852 USA
Phone: 800-274-9433
Fax: 401-886-2727
E-mail: sales@ROMER.com
<http://us.ROMER.com>

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