



DEA MERCURY  
Horizontal-Arm  
Coordinate Measuring Machines



Serving Metrology Worldwide



 **HEXAGON**  
METROLOGY

# New Perspectives in Flexibility

The DEA MERCURY horizontal-arm CMM line is the result of the synergy between Hexagon Metrology companies.

Designed to provide maximum flexibility and suitability to a variety of applications, DEA MERCURY is available in both manual and automatic versions, as well as in single, double, and even multiple-arm configurations.

The combination of performance and affordability makes DEA MERCURY the ideal solution for any budget requirement.

DEA MERCURY is available in a **wide range of standard sizes**. In addition, its simple and modular design allows the manufacture of customised sizes - easily, rapidly and economically – whenever necessary.

The DEA MERCURY arm has been designed to be assembled in different models, to better satisfy application, customer, and environment requirements. It is available as **Console model** (carriage sliding at the side of the workplate), as well as **Runway model** (mobile carriage sliding on the top of a beam).

In addition, it can also be installed on the **customer's worktable** so as to minimise the need for new investments, while maximizing savings, and leveraging previous investments.

DEA MERCURY gives you the freedom to choose the machine model that better suits your needs without any compromise in terms of performance.

- **Console** – ideal for mid-size parts, the arm slides on guideways located at the side of the workplate (**DEA MERCURY C** models). As a result, the arm is totally outside of the working area so as to allow the easiest part loading/unloading operations and optimal accessibility.
- **Runway** – designed to accommodate up to very large parts, the arms slide on self-standing beams (**DEA MERCURY R** models). Walk-on X beams make the machine extremely suitable for flush-floor installations allowing the user to walk around the part and the machine safely. This configuration offers maximum flexibility and it is ideal for the measurement of medium, large and very large parts and/or heavy parts. As an alternative, the arm can be installed on the top of a worktable (**DEA MERCURY T** models), either supplied with the machine or by the customer.

All DEA MERCURY models are available as either **single or double arm configuration**. Dual arm configurations can also be operated as two independent single arm systems.

In addition, DEA MERCURY R models can be configured as a multiple arm CMM. In this case, arms are combined to form a **multi-arm measuring system** with individual arms sharing a common workplate and X guideway. This configuration allows to implement different multi-role or task-specific working areas, ideal for research and styling centers.

Integrated solutions for under part inspection are also available.





# Tailored to Fit a Variety of Applications

**DEA MERCURY is available as Manual and DCC version.**

**Manual version** – Ideal solution for the inspection of medium tolerance parts and for manual scribing operations. It allows to keep the investment to the very minimum while permitting upgrades to DCC version at a later stage. Available as both Console and Runway models. DEA MERCURY manual models can either be supplied with a basic digital readout system or with a PC-based system.

**DCC version** – Fully automatic version, DEA MERCURY DCC offers the most comprehensive and cost effective solution for the unmanned inspection of any medium tolerance part. It features excellent dynamics in its class, thus allowing to minimize cycle time and optimize dimensional inspection. Optional disengageable drives allow the system to switch from automatic to manual operation whenever necessary and ensuring maximum application flexibility. The option includes manual motion knobs and stand-by brakes, independent for each axis. Available as both Console and Runway models.

## Probing Configurations

Use the full power of Hexagon Metrology probing technology! DEA MERCURY models can be equipped with fixed probe holders, manual and motorized indexing heads, as well as with the DEA exclusive CW43L-mw multi-axis continuous wrist. The system is compatible with the full range of traditional and versatile touch-trigger probes.

Non-contact measuring sensors are also available for fast and accurate digitizing and inspection operations.

All machines are supplied with a proprietary design 5-way probe holder. A special probe holder suitable for scribing operations is available as an option.

## Scribing Accessories

A wide selection of scribing tools and accessories is available.

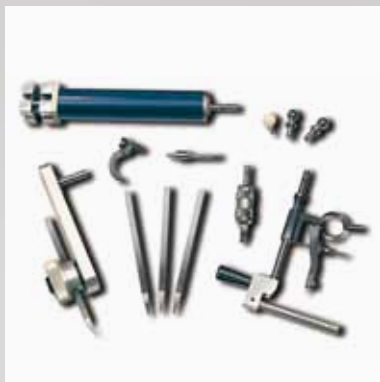
The optional 5-way scribing cubic probe holder is recommended for scribing operations.



*The reliable multi-axis continuous wrist CW43L-mw allows to quickly reach any probing attitude. Full accessibility to all part features is also ensured by the availability of very long probe extensions.*



*The CW43L-mw AC probe changer allows the automatic repeatable change of all adapters/extensions during execution of the measuring program. Available with a variable number of stations.*



*Basic scribing kit including the most common tools.*



*Optional 5-way cubic probe holder for scribing operations.*



*Scribing on a car door.*

## Technical Features

### Mechanical Structure

Z column and Y ram made of stabilized steel with hardened guideways; X carriage made of stabilized steel; Z carriage in light aluminium alloy.

### Worktable

Supplied in steel or granite depending on machine size, model and configuration. Standard threaded inserts and special inserts optionally available.

### Sliding System

X axis: air bearings, roller bearings or other depending on machine model, configuration, and customer requirements.  
Y and Z axes: roller bearings on hardened guide rails.

### Measuring System

METALLUR® linear scales.

System resolution: 1 µm

### Ram Counterbalance System

Belt multi-wire system with safety timing belt

### Temperature Compensation

Linear temperature compensation optionally available to ensure optimal measuring accuracy in a wide temperature range.

### Air Supply

Required for models using air bearings, or equipped with disengageable drives and/or CW43L-mw continuous wrist.

Minimum air pressure: 5 bar.

Average air consumption: 150 l/min.

### Foundations

Console type models: foundations are typically not required for standard size machines installed in standard environmental conditions.

Runway type models: light foundations required for dual arm systems, for single arm exceeding 4 m length, and in general for installations in non standard environmental conditions.

Light foundations are also needed when vibration limits specified by the manufacturer are exceeded.

### Main Options

- Disengageable drives
- Scribing tools and accessories
- On-board remote terminal
- Linear temperature compensation

## Dimensions and Accuracy Specifications

Models	Strokes (mm)			Maximum Permissible Error MPE <sub>E</sub> (µm), L (mm)			Overall Dimensions (mm)					
				Single Arm		Dual Arm	X		Y		Z	
	X	Y	Z	MPE <sub>E</sub>	MPE <sub>P</sub>	MPE <sub>E</sub>	C model	R and T models	Single Arm (all models)	Double Arm (all models)	C model	R and T models*
<b>xx.14.16</b>	from 2500 mm	1400	1600	15 + 20 L/1000 ≤ 55	17	35 + 25 L/1000 ≤ 85	X+660	X+800	3406	6712	3170	3020
<b>xx.14.21</b>			2100	20 + 20 L/1000 ≤ 60	20	35 + 30 L/1000 ≤ 90					3670	3520
<b>xx.14.25</b>			2500	22 + 25 L/1000 ≤ 65	23	40 + 40 L/1000 ≤ 95					4070	3920
<b>xx.14.30</b>			3000	25 + 25 L/1000 ≤ 75	25	45 + 40 L/1000 ≤ 100					4570	4420
<b>xx.16.16</b>	from 2500 mm	1600	1600	20 + 20 L/1000 ≤ 60	20	35 + 30 L/1000 ≤ 90	X+660	X+800	3806	7512	3170	3020
<b>xx.16.21</b>			2100	22 + 25 L/1000 ≤ 65	23	40 + 40 L/1000 ≤ 95					3670	3520
<b>xx.16.25</b>			2500	25 + 25 L/1000 ≤ 75	25	45 + 40 L/1000 ≤ 100					4070	3920
<b>xx.16.30</b>			3000	35 + 30 L/1000 ≤ 90	27	55 + 55 L/1000 ≤ 145					4570	4420
<b>xx.18.16</b>	from 2500 mm	1800	1600	20 + 20 L/1000 ≤ 60	20	35 + 30 L/1000 ≤ 90	X+660	X+800	4206	8312	3170	3020
<b>xx.18.21</b>			2100	25 + 25 L/1000 ≤ 85	25	45 + 40 L/1000 ≤ 100					3670	3520
<b>xx.18.25</b>			2500	35 + 30 L/1000 ≤ 90	27	55 + 55 L/1000 ≤ 145					4070	3920
<b>xx.18.30</b>			3000	35 + 35 L/1000 ≤ 100	30	60 + 55 L/1000 ≤ 155					4570	4420
<b>xx.20.16</b>	from 2500 mm	2000	1600	20 + 25 L/1000 ≤ 65	23	40 + 40 L/1000 ≤ 95	X+660	X+800	4606	9112	3170	3020
<b>xx.20.21</b>			2100	35 + 30 L/1000 ≤ 90	27	55 + 55 L/1000 ≤ 145					3670	3520
<b>xx.20.25</b>			2500	35 + 40 L/1000 ≤ 110	30	60 + 55 L/1000 ≤ 155					4070	3920
<b>xx.20.30</b>			3000	40 + 45 L/1000 ≤ 120	30	60 + 60 L/1000 ≤ 165					4570	4420

\* excluding flush floor installations

Probe configurations for performance test:  
TESASTAR-i, TESASTAR-m/PH10 with TESASTAR-p,  
TESASTAR-mp, TP2, TP20: stylus length 20 mm, tip  
diameter 4 mm

Metrological specifications are valid if the following  
conditions are met:

- Ambient temperature: 18-22 °C
- Max air temperature variation: 1 K/h; 3 K/24h
- Max gradient in space: 1 K/m

DEA MERCURY DCC Dynamic Performance:

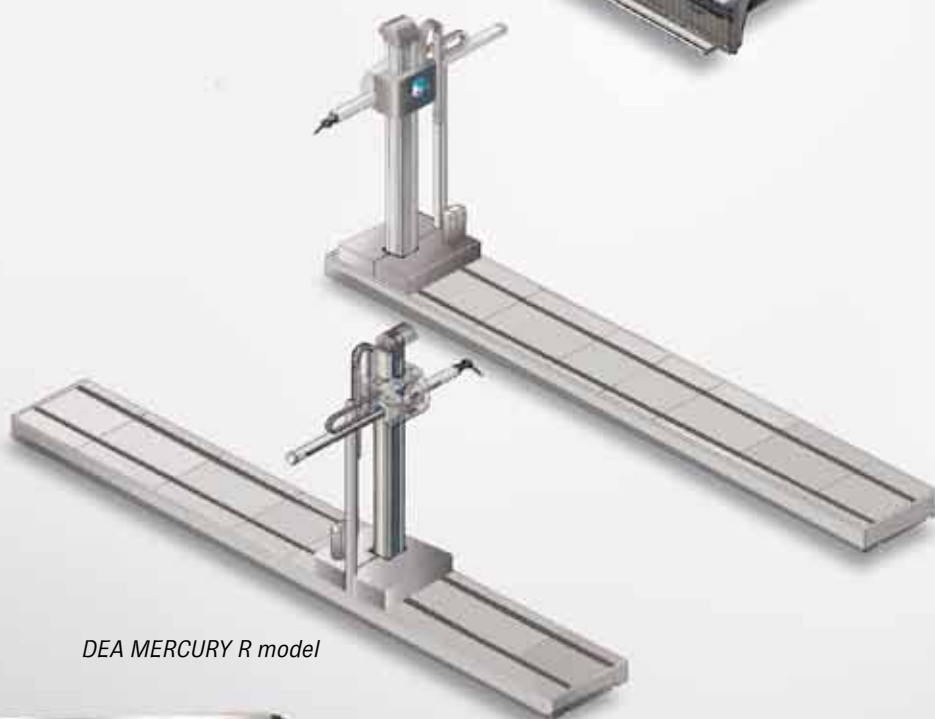
- Max 3D speed = 433 mm/s
- Max 3D acceleration = 768 mm/s²

# *mercury*

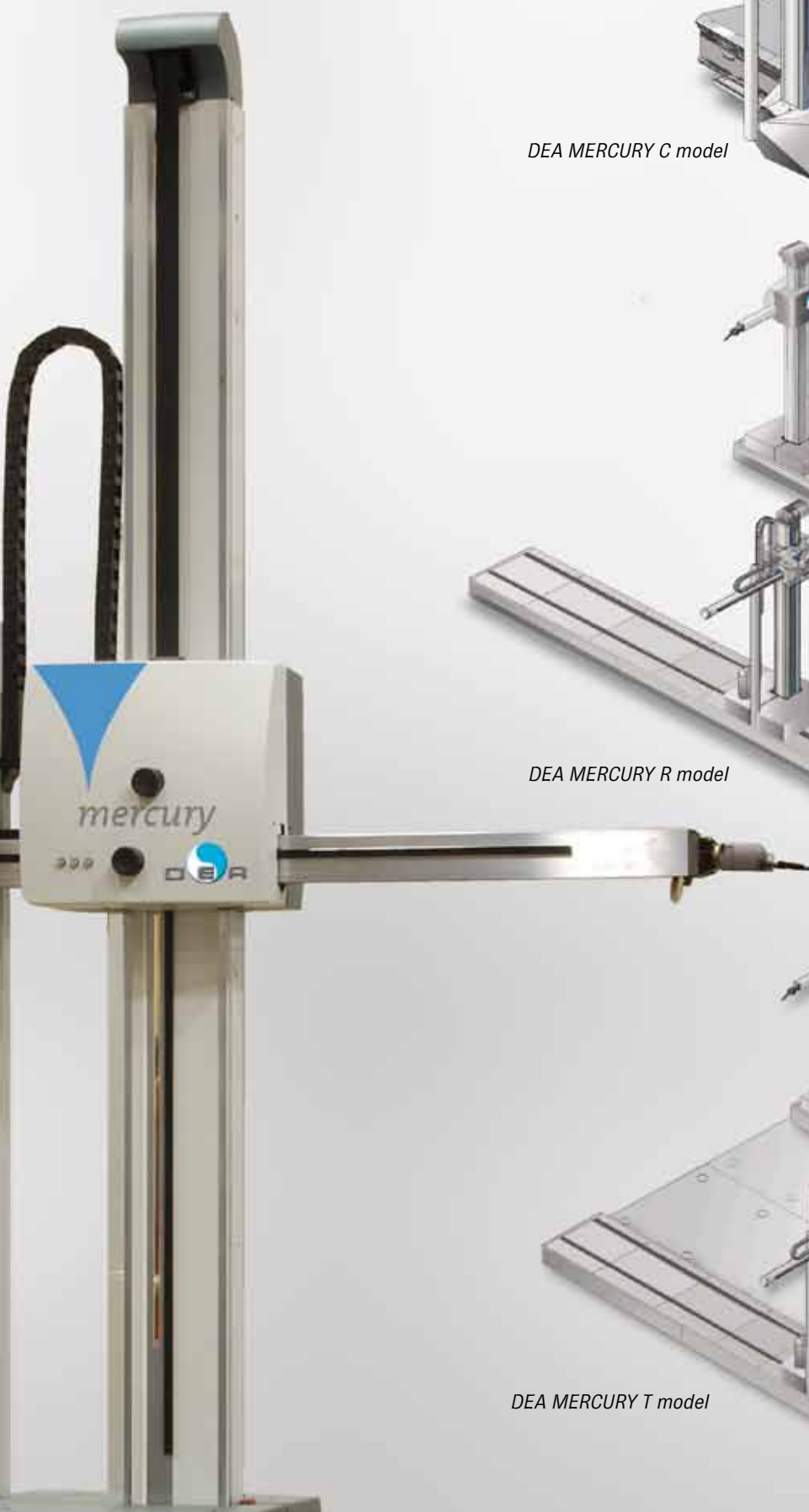
Designed to Fit  
Your Requirements



*DEA MERCURY C model*



*DEA MERCURY R model*



*DEA MERCURY T model*



## DEA

Since 1963, DEA has been one of the world's premier brands in Coordinate Measuring Machine technology. The main facilities are located in the Torino area (Italy), where highly skilled teams of mechanical, electronic and software engineers are committed to the continuous development of state-of-the-art solutions for dimensional quality inspection. DEA products are used by virtually every industry in every geographical market throughout the world.

## Hexagon Metrology

Hexagon Metrology is part of the Hexagon Group and brings leading brands from the field of industrial metrology under one roof.

[info.dea@hexagonmetrology.com](mailto:info.dea@hexagonmetrology.com)

[www.dea.it](http://www.dea.it)

[www.hexagonmetrology.com](http://www.hexagonmetrology.com)

© 2009 Hexagon Metrology. Part of Hexagon Group

All rights reserved. Due to continuing product development, Hexagon Metrology reserves the right to change product specifications without prior notice.

Printed in Germany. June 2011



ISO 14001

ISO 9001

VDA 6.4