

# Micro 3D<sup>A</sup>

Coordinate Measuring Machines





|                   |                  |                   | 05.04.04 M | 06.05.04 M | 05.04.04 | 06.05.04 | xx.05.05 | xx.07.05 | xx.07.07 |
|-------------------|------------------|-------------------|------------|------------|----------|----------|----------|----------|----------|
| Max. Cruise Speed | Motorized (axes) | mm/s              | -          | -          | 0 - 100  | 0 - 100  | 0 - 100  | 0 - 100  | 0 - 100  |
|                   | CNC (vector)     | mm/s              | -          | -          | 500      | 500      | 500      | 500      | 500      |
| Max. Acceleration | CNC (vector)     | mm/s <sup>2</sup> | -          | -          | 1500     | 1500     | 1500     | 1500     | 1200     |

### SCANNING PROBE HEADS

|   |                           |    |    |   |   |   |   |             |             |             |
|---|---------------------------|----|----|---|---|---|---|-------------|-------------|-------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup>      | E0/E150                   | μm | T1 | - | - | - | - | 1,8 + L/333 | 1,9 + L/333 | 2,3 + L/300 |
|   | E0/E150                   | μm | T2 | - | - | - | - | 1,8 + L/250 | 1,9 + L/250 | 2,3 + L/200 |
| Repeatability range, MPL as per ISO 10360-2:2009                              | R0                        | μm | -  | - | - | - | - | 1,7         | 1,8         | 2,2         |
| Single stylus form error, MPE as per ISO 10360-5:2010                         | PFTU                      | μm | -  | - | - | - | - | 1,8         | 1,9         | 2,3         |
| Single Stylus form error, scanning. MPE as per ISO 10360-4:2000 <sup>3)</sup> | THP                       | μm | -  | - | - | - | - | 3,9         | 4,0         | 4,5         |
| Required measuring time MPT   | T                         | s  | -  | - | - | - | - | 120         | 120         | 120         |
| Single Stylus form error, scanning. MPE as per ISO 10360-4:2000 <sup>3)</sup> | THN                       | μm | -  | - | - | - | - | 3,9         | 4,0         | 4,5         |
| Required measuring time MPT   | T                         | s  | -  | - | - | - | - | 120         | 120         | 120         |
| Form measurement error  | RONt (MZCI) <sup>2)</sup> | μm | -  | - | - | - | - | 1,9         | 2,0         | 2,4         |

### INDEXING HEADS OR FIXED HEADS WITH STRAIN-GAUGE TRIGGER PROBE

|  |         |    |    |   |     |             |             |             |             |             |
|--|---------|----|----|---|-----|-------------|-------------|-------------|-------------|-------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup> | E0/E150 | μm | T1 | - | -   | 2,3 + L/333 | 2,5 + L/333 | 1,8 + L/333 | 1,9 + L/333 | 2,3 + L/300 |
|  | E0/E150 | μm | T2 | - | -   | -           | -           | 1,8 + L/250 | 1,9 + L/250 | 2,3 + L/200 |
| Repeatability range, MPL as per ISO 10360-2:2009                         | R0      | μm | -  | - | 2,2 | 2,4         | 1,7         | 1,8         | 1,8         | 2,2         |
| Single stylus form error, MPE as per ISO 10360-5:2010                    | PFTU    | μm | -  | - | 2,3 | 2,5         | 1,8         | 1,9         | 1,9         | 2,3         |

### INDEXING HEADS OR FIXED HEADS WITH TRIGGER PROBE

|  |         |    |     |             |             |             |             |             |             |             |
|--|---------|----|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup> | E0/E150 | μm | T1  | 3,0 + L/300 | 3,2 + L/300 | 2,5 + L/333 | 2,7 + L/333 | 2,0 + L/333 | 2,1 + L/333 | 2,5 + L/300 |
|  | E0/E150 | μm | T2  | -           | -           | -           | -           | 2,0 + L/250 | 2,1 + L/250 | 2,5 + L/200 |
| Repeatability range, MPL as per ISO 10360-2:2009                         | R0      | μm | 3,0 | 3,2         | 2,5         | 2,7         | 2,0         | 2,1         | 2,1         | 2,5         |
| Single stylus form error, MPE as per ISO 10360-5:2010                    | PFTU    | μm | 3,0 | 3,2         | 2,5         | 2,7         | 2,0         | 2,1         | 2,1         | 2,5         |

### METROLOGICAL SPECIFICATIONS

|                                    | TEMPERATURES          |                       | TOOLS / STYLUS CONFIGURATIONS |   |
|------------------------------------|-----------------------|-----------------------|-------------------------------|---|
|                                    | Ambient T1            | Ambient T2            |                               |   |
| Measuring Reference Temperature    | 18 °C to 22 °C        | 16 °C to 26 °C        | SP25                          | Stylus Ø5 x 50 mm                           |
| Maximum air temperature variations | 0,5 °C/h - 2,0 °C/24h | 1,0 °C/h - 5,0 °C/24h | TP200                         | Standard Force Module and stylus Ø4 x 10 mm |
| Maximum spatial gradient           | 0,5 °C / m            | 1,0 °C / m            | Trigger Probe                 | Standard Force Module and stylus Ø4 x 10 mm |

1) Measuring length L in mm.

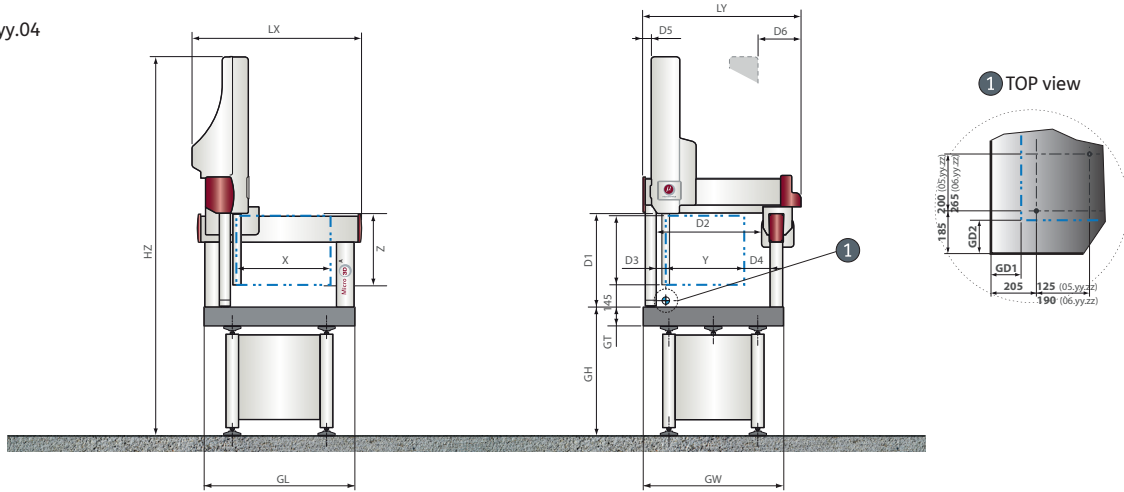
2) RONt test available on SP80 probe head, with Stylus Ø5 x 50 mm, 50 mm ring gauge, speed 5 mm/s, located in the middle of the measuring Volume.

3) For MPE(THP/THN) and MPT(T): sphere is placed in the middle of the measuring volume.

# GENERAL DIMENSIONS

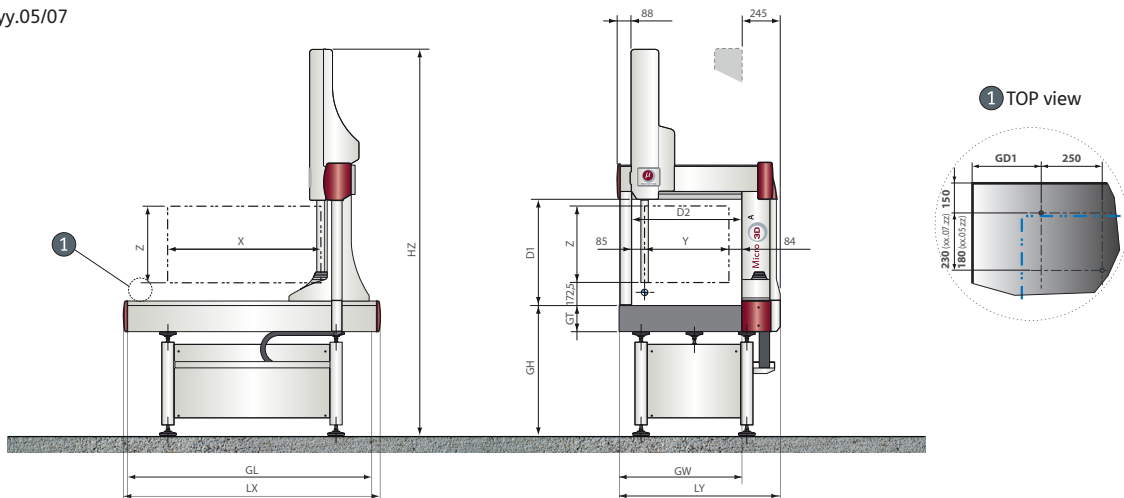


xx.yy.04



| Micro 3D <sup>A</sup> sizes | Measuring range |     |                  | Overall dimensions |        |        | Surface plate |        |        |       |       | Daylights |     |     |    |     |    | Weights               |                       |     |
|-----------------------------|-----------------|-----|------------------|--------------------|--------|--------|---------------|--------|--------|-------|-------|-----------|-----|-----|----|-----|----|-----------------------|-----------------------|-----|
|                             | mm              |     |                  |                    |        |        |               |        |        |       | daN   |           |     |     |    |     |    |                       |                       |     |
|                             | X               | Y   | Z <sup>(1)</sup> | Width              | Length | Height | Height        | Spess. | Length | Width | Holes | D1        | D2  | D3  | D4 | D5  | D6 | Max. workpiece weight | Max. workpiece weight |     |
| MX                          | MY              | MZ  | LX               | LY                 | HZ     | GH     | GT            | GL     | GW     | GD1   | GD2   | D1        | D2  | D3  | D4 | D5  | D6 |                       |                       |     |
| 05.04.04                    | 500             | 400 | 440              | 929                | 888    | 2411   | 830           | 100    | 830    | 673   | 135   | 135       | 598 | 537 | 49 | 141 | 53 | 252                   | 300                   | 300 |
| 06.05.04                    | 600             | 500 | 440              | 1044               | 1018   | 2411   | 830           | 100    | 960    | 803   | 150   | 150       | 598 | 670 | 64 | 156 | 68 | 267                   | 300                   | 390 |

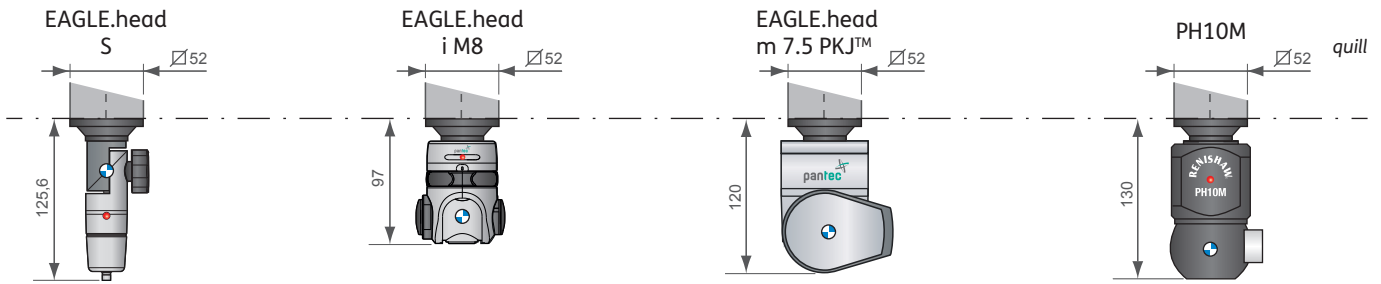
xx.yy.05/07



| Micro 3D <sup>A</sup> sizes | Measuring range |     |                  | Overall dimensions |        |        | Surface plate |        |        |       |       | Daylights |     | Weights               |                       |
|-----------------------------|-----------------|-----|------------------|--------------------|--------|--------|---------------|--------|--------|-------|-------|-----------|-----|-----------------------|-----------------------|
|                             | mm              |     |                  |                    |        |        |               |        |        |       | daN   |           |     |                       |                       |
|                             | X               | Y   | Z <sup>(1)</sup> | Width              | Length | Height | Height        | Spess. | Length | Width | Holes | D1        | D2  | Max. workpiece weight | Max. workpiece weight |
| MX                          | MY              | MZ  | LX               | LY                 | HZ     | GH     | GT            | GL     | GW     | GD    | D1    | D2        |     |                       |                       |
| 05.05.05                    | 500             | 500 | 500              | 1180               | 1015   | 2393   | 720           | 140    | 1130   | 751   | 200   | 688       | 669 | 300                   | 470                   |
| 07.05.05                    | 700             | 500 | 500              | 1380               | 1015   | 2393   | 720           | 140    | 1330   | 751   | 350   | 688       | 669 | 300                   | 540                   |
| 07.07.05                    | 700             | 650 | 500              | 1380               | 1160   | 2429   | 750           | 170    | 1330   | 899   | 350   | 688       | 819 | 650                   | 775                   |
| 07.07.07                    | 700             | 650 | 650              | 1380               | 1160   | 2734   | 750           | 170    | 1330   | 899   | 350   | 838       | 819 | 700                   | 950                   |
| 10.07.05                    | 1000            | 650 | 500              | 1680               | 1160   | 2429   | 750           | 170    | 1630   | 899   | 350   | 688       | 819 | 700                   | 925                   |
| 10.07.07                    | 1000            | 650 | 650              | 1680               | 1160   | 2734   | 750           | 170    | 1630   | 899   | 350   | 838       | 819 | 700                   | 950                   |
| 12.07.05                    | 1200            | 650 | 500              | 1880               | 1160   | 2429   | 750           | 170    | 1830   | 899   | 300   | 688       | 819 | 700                   | 990                   |
| 12.07.07                    | 1200            | 650 | 650              | 1880               | 1160   | 2734   | 750           | 170    | 1830   | 899   | 300   | 838       | 819 | 700                   | 1015                  |



## PROBE HEADS



## TECHNICAL FEATURES

|   |   |  |
|---|---|--|
| <b>Mechanical frame</b>                       | Coordinate Measuring Machine, MAN and CNC type, with mobile traverse (XX,YY,04) or mobile bridge structure.   |  |
|   | <b>xx.yy.04</b>   | <b>xx.yy.05/07</b>                               |
| <b>Sliding guideways</b>                      | Asse X On anodized light alloy extrusion (right) Machined into the granite table (left)   | Machined into the granite table                  |
|   | Asse Y On anodized alloy extrusion  | Micromachined on anodized light alloy extrusion. |
|   | Asse Z On anodized light alloy extrusion  | Micromachined on silicon carbide extrusion.      |
| <b>Sliding elements</b>                       | Air bearings  |  |
| <b>Drive system</b>                           | Direct drive belt all axes  |  |
| <b>Drives</b>                                 | DC servomotor or manual handles (xx.yy.04 M)  |  |
| <b>Length measuring system</b>                | Free-moving linear transducers on carrier, resolution 0.1 μm  |  |
| <b>Controller</b>                             | Pantec EAGLE™ / Renishaw® UCC   |  |
|   | Protection degree: IP40 (IP54 upon request)   |  |
|   | Cooling system: Fan   |  |
| <b>Surface Plate (part locking)</b>           | Granite, threaded inserts M8x1.25: flatness according to DIN 876/3  |  |
| <b>Vibration damping system</b> <sup>1)</sup> | Passive elastometer vibration damping   |  |
| <b>Options</b>                                | Automatic tip/tool changer, Automatic multisensor temperature compensation for sizes xx.yy.05/07 for T2 (16 °C to 26 °C), on top rotary table, manual and automated part loading system, active pneumatic vibration damping.<br><sup>1)</sup> if requested, we will perform a vibration analysis. |  |

## ELECTRIC AND COMPRESSED AIR SUPPLY

|                               |  |                              |                                    |
|-------------------------------|--|------------------------------|------------------------------------|
| <b>Power Supply</b>           | 1/N/PE 115/230 V~ ± 10 %; 50 / 60 Hz (± 4 %) | <b>Compressed air supply</b> | From 0,6 to 1,0 MPa, pre-cleaned   |
| <b>Max. power consumption</b> | 2,5 kVA                                      | <b>Operating Pressure</b>    | ≤ 0,5 MPa                          |
| <b>Typ. power consumption</b> | 0,6 kVA                                      | <b>Consumption</b>           | ≤ 250 NI/min                       |
|                               |  | <b>Quality</b>               | According ISO 8573 part 1: class 4 |

## ENVIRONMENT

|                              |  |
|------------------------------|--|
| <b>Humidity</b>              | 40 % to 70 % UR (non condensing)   |
| <b>Operating Temperature</b> | From 15 °C to 35 °C  |
| <b>Acceptable Vibrations</b> | (Peak to Peak acceleration)<br>30 mm/s <sup>2</sup> from 1 to 10 Hz<br>15 mm/s <sup>2</sup> from 10 to 20 Hz<br>50 mm/s <sup>2</sup> from 20 to 100 Hz |

## SAFETY

### Regulations

Micro 3D <sup>A</sup> complies with EC machine directive 2006/42/EC and EMC directive 2004/108/EEC

### Disposal

Microservice products and packaging returned to us are disposed of in accordance with applicable legal provisions.

### Microservice Srl

Via dei Ronchi, 45/L  
10091 Alpignano (TO) / Italy  
Phone: +39 011 9682524  
Fax: +39 011 9685975  
Email: sales@micro3d.it  
Web: micro3d.it

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Specifications subject to change, due to the continuous improvement of the product.

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