

# Micro 3D

Coordinate Measuring Machines



MICRO 3D  
SPECIFICATIONS  
Release 2017-03





|                 |                   |                 |                                   |
|-----------------|-------------------|-----------------|-----------------------------------|
| Cruise Speed    | mm/s              | Joystick (axes) | 0 to 100                          |
|                 |                   | CNC (vector)    | max. 500 to 800 depending on size |
| Acceleration    | mm/s <sup>2</sup> | CNC (vector)    | max. 1000                         |
| Measuring speed | mm/s              |                 | max. 8                            |
| Scanning speed  | mm/s              |                 | max. 200 (REVO)                   |

**SCANNING PROBE HEADS: REVO, SP80. INDEXING HEADS WITH SP25, EAGLE.scan™**

|   |                                  |    |                     | 5/6/4, 6/8/5 to 6/10/5 | 8/10/6 to 8/15/6 | 10/10/8 to 10/25/8 | 12/15/10 to 12/30/10 |
|---|----------------------------------|----|---------------------|------------------------|------------------|--------------------|----------------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup>      | E <sub>0</sub> /E <sub>150</sub> | μm | T1 (18 °C to 22 °C) | 2.2 + L/350            | 2.3 + L/350      | 2.6 + L/350        | 2.8 + L/300          |
|   | E <sub>0</sub> /E <sub>150</sub> | μm | T2 (16 °C to 26 °C) | 2.4 + L/250            | 2.5 + L/250      | 2.8 + L/250        | 3.0 + L/200          |
| Repeatability range, MPL as per ISO 10360-2:2009                              | R <sub>0</sub>                   | μm |                     | 2.0                    | 2.1              | 2.4                | 2.6                  |
| Single stylus form error, MPE as per ISO 10360-5:2010                         | PFTU                             | μm |                     | 2.2                    | 2.3              | 2.6                | 2.8                  |
| Single Stylus form error, scanning. MPE as per ISO 10360-4:2000 <sup>3)</sup> | THP                              | μm |                     | 4.0                    | 4.1              | 4.3                | 4.5                  |
|   | MPT(T)                           | s  |                     | 50                     | 50               | 50                 | 70                   |
| Single Stylus form error, scanning. MPE as per ISO 10360-4:2000 <sup>3)</sup> | THN                              | μm |                     | 4.0                    | 4.1              | 4.3                | 4.5                  |
|   | MPT(T)                           | s  |                     | 70                     | 70               | 70                 | 80                   |
| Form measurement error  | RONt (MZCI) <sup>2)</sup>        | μm |                     | 2.3                    | 2.4              | 2.6                | 2.9                  |

**INDEXING HEADS WITH TP200 STRAIN-GAUGE TRIGGER PROBE**

|  |                                  |    |                     |             |             |             |             |
|--|----------------------------------|----|---------------------|-------------|-------------|-------------|-------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup> | E <sub>0</sub> /E <sub>150</sub> | μm | T1 (18 °C to 22 °C) | 2.3 + L/350 | 2.5 + L/350 | 2.8 + L/350 | 2.9 + L/300 |
|  | E <sub>0</sub> /E <sub>150</sub> | μm | T2 (16 °C to 26 °C) | 2.5 + L/250 | 2.7 + L/250 | 3.0 + L/250 | 3.0 + L/200 |
| Repeatability range, MPL as per ISO 10360-2:2009                         | R <sub>0</sub>                   | μm | -                   | 2.2         | 2.4         | 2.6         | 2.8         |
| Single stylus form error, MPE as per ISO 10360-5:2010                    | PFTU                             | μm | -                   | 2.3         | 2.5         | 2.8         | 2.9         |

**INDEXING HEADS WITH EAGLE.p touch™ TRIGGER PROBE**

|  |                                  |    |                     |             |             |             |             |
|--|----------------------------------|----|---------------------|-------------|-------------|-------------|-------------|
| Volumetric Length meas. Error, MPE as per ISO 10360-2:2009 <sup>1)</sup> | E <sub>0</sub> /E <sub>150</sub> | μm | T1 (18 °C to 22 °C) | 2.5 + L/350 | 2.7 + L/350 | 2.8 + L/350 | 2.9 + L/300 |
|  | E <sub>0</sub> /E <sub>150</sub> | μm | T2 (16 °C to 26 °C) | 2.7 + L/250 | 2.8 + L/250 | 2.9 + L/250 | 3.1 + L/200 |
| Repeatability range, MPL as per ISO 10360-2:2009                         | R <sub>0</sub>                   | μm | -                   | 2.4         | 2.5         | 2.6         | 2.9         |
| Single stylus form error, MPE as per ISO 10360-5:2010                    | PFTU                             | μm | -                   | 2.5         | 2.7         | 2.8         | 2.9         |

**CONDITIONS TO GUARANTEE ABOVE SPECIFIED ACCURACIES**

|                                    | TEMPERATURES          |                       | TOOLS / STYLUS CONFIGURATIONS |   |
|------------------------------------|-----------------------|-----------------------|-------------------------------|---|
|                                    | Ambient T1            | Ambient T2            | SP25 / EAGLE.scan™            | SM25-1, stylus Ø4 x 21 mm                   |
| Measuring Reference Temperature    | 18 °C to 22 °C        | 16 °C to 26 °C        | SP80                          | Stylus Ø5 x 50 mm                           |
| Maximum air temperature variations | 1.0 °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           | 0.8 °C / m            | 1.0 °C / m            | EAGLE.p touch™                | Standard Force Module and stylus Ø4 x 10 mm |

1) Measuring length L in mm.

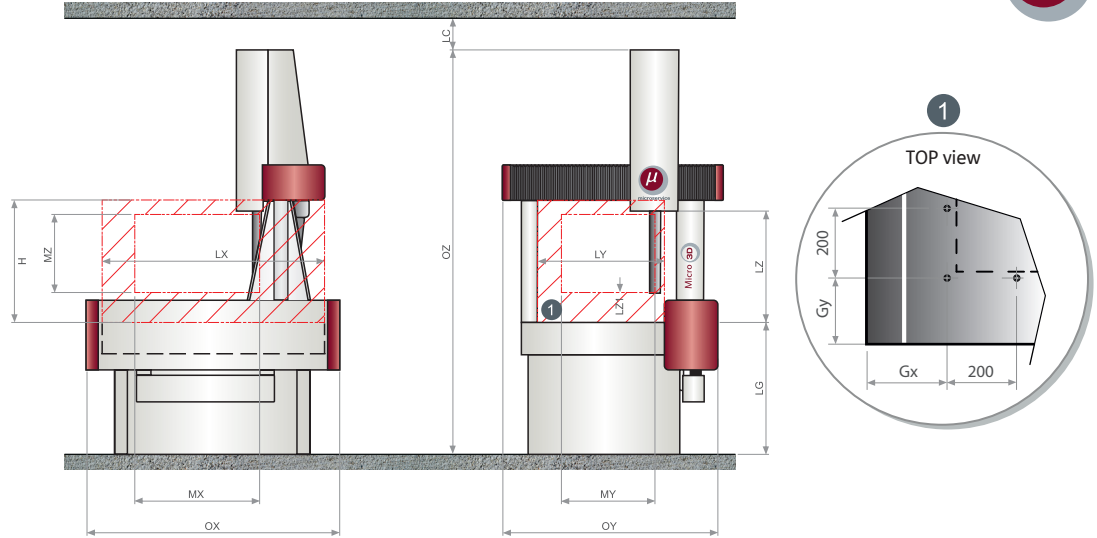
2) RONt test available on SP80 probe head, with Stylus Ø5 x 50 mm, 50 mm ring gauge, speed 5 mm/s, located in the middle of the measuring Volume.

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

# OVERALL DIMENSIONS

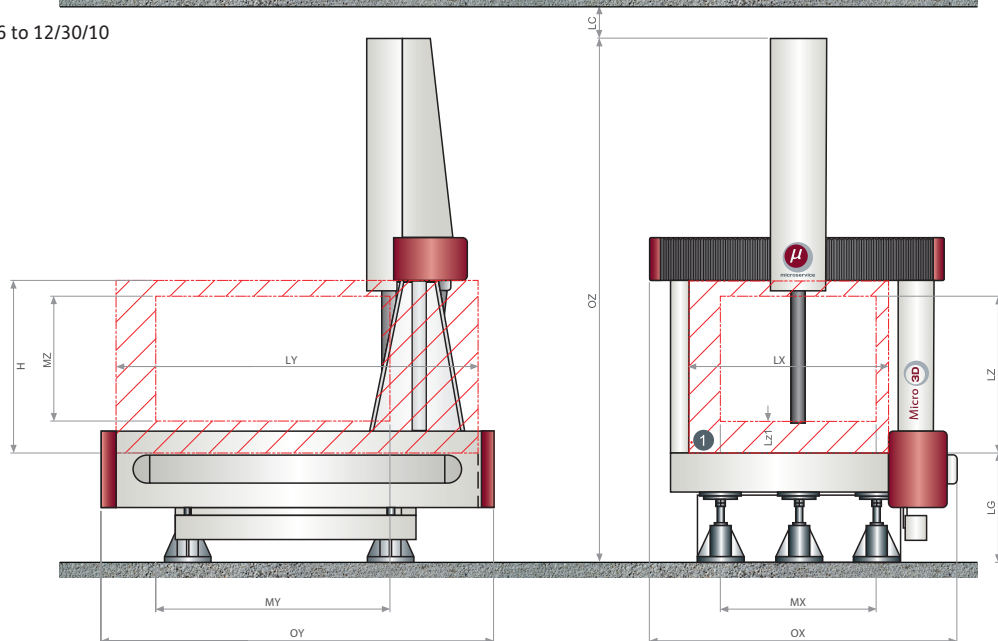


From 5/6/4 to 6/10/5

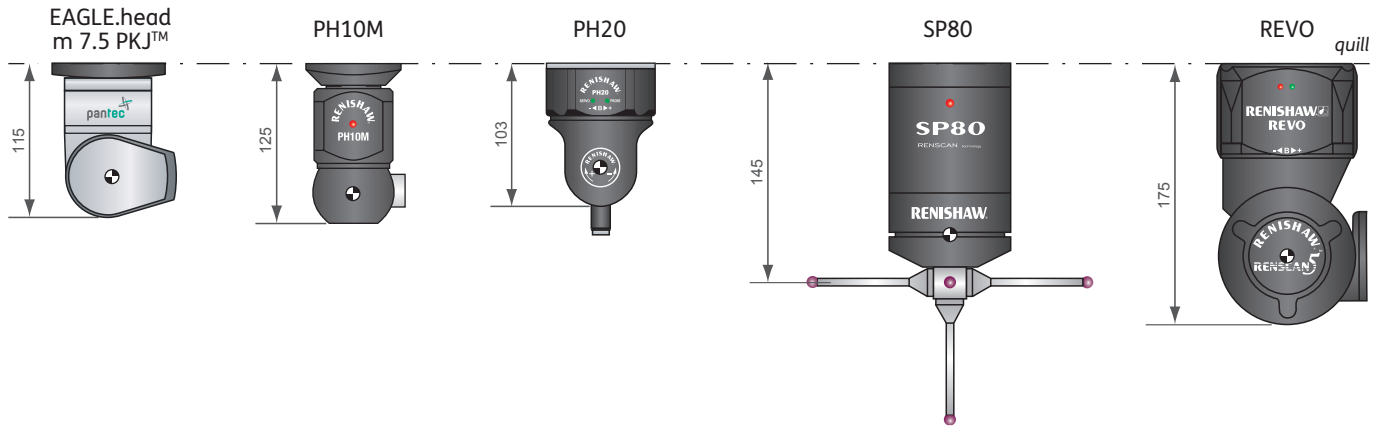


| Micro 3D Sizes | Measuring Range <sup>2)</sup> |        |        | Overall Dimensions |        |        | Working Range |        |        |        | Table Height | Thd. Pattern Datum | Assy Clearance | CMM Weight | Workpiece Max. Weight |      |
|----------------|-------------------------------|--------|--------|--------------------|--------|--------|---------------|--------|--------|--------|--------------|--------------------|----------------|------------|-----------------------|------|
|                | X Axis                        | Y Axis | Z Axis | Width              | Length | Height | Width         | Length | Height | Height |              |                    |                |            |                       |      |
|                | MX                            | MY     | MZ     | OX                 | OY     | OZ     | LX            | LY     | LZ     | H      | LG           | Gx                 | Gy             | LC         | MW                    | WW   |
| 5 / 6 / 4      | 500                           | 600    | 400    | 1285               | 1420   | 2535   | 720           | 1220   | 596    | 684    | 885          | 130                | 190            | ≥100       | 1125                  | 500  |
| 6 / 8 / 5      | 600                           | 800    | 500    | 1380               | 1620   | 2700   | 818           | 1420   | 696    | 784    | 850          | 230                | 190            | ≥100       | 1465                  | 500  |
| 6 / 10 / 5     | 600                           | 1000   | 500    | 1380               | 1820   | 2700   | 818           | 1620   | 696    | 784    | 850          | 230                | 190            | ≥100       | 1550                  | 500  |
| 8 / 10 / 6     | 800                           | 1000   | 600    | 1600               | 2030   | 2750   | 991           | 1770   | 796    | 884    | 700          | 222                | 190            | ≥100       | 2300                  | 800  |
| 8 / 15 / 6     | 800                           | 1500   | 600    | 1600               | 2530   | 2750   | 991           | 2270   | 796    | 884    | 700          | 222                | 235            | ≥100       | 2800                  | 800  |
| 10 / 10 / 8    | 1000                          | 1000   | 800    | 1970               | 2020   | 3360   | 1280          | 1820   | 1039   | 1107   | 700          | 260                | 210            | ≥100       | 3050                  | 2500 |
| 10 / 15 / 8    | 1000                          | 1500   | 800    | 1970               | 2520   | 3360   | 1280          | 2320   | 1039   | 1107   | 700          | 260                | 260            | ≥100       | 3800                  | 2500 |
| 10 / 20 / 8    | 1000                          | 2000   | 800    | 1970               | 3020   | 3360   | 1280          | 2820   | 1039   | 1107   | 700          | 260                | 310            | ≥100       | 4400                  | 2500 |
| 10 / 25 / 8    | 1000                          | 2500   | 800    | 1970               | 3520   | 3360   | 1280          | 3320   | 1039   | 1107   | 700          | 260                | 310            | ≥100       | 4900                  | 2500 |
| 10 / 30 / 8    | 1000                          | 3000   | 800    | 1970               | 4020   | 3360   | 1277          | 3820   | 1042   | 1107   | 600          | 260                | 310            | ≥100       | 5550                  | 2500 |
| 12 / 15 / 10   | 1200                          | 1500   | 1000   | 2170               | 2520   | 3760   | 1480          | 2320   | 1239   | 1307   | 700          | 260                | 260            | ≥100       | 4200                  | 2500 |
| 12 / 20 / 10   | 1200                          | 2000   | 1000   | 2170               | 3020   | 3760   | 1480          | 2820   | 1239   | 1307   | 700          | 260                | 240            | ≥100       | 4900                  | 2500 |
| 12 / 25 / 10   | 1200                          | 2500   | 1000   | 2170               | 3520   | 3760   | 1480          | 3320   | 1239   | 1307   | 700          | 260                | 260            | ≥100       | 5690                  | 2500 |
| 12 / 30 / 10   | 1200                          | 3000   | 1000   | 2170               | 4020   | 3760   | 1477          | 3820   | 1242   | 1307   | 600          | 260                | 260            | ≥100       | 7250                  | 2500 |

From 8/10/6 to 12/30/10



1) Given dimensions and weights are approximate values, subject to change, due to the continuous improvement of the product. Actual appearance of specific sizes may be different from above pictures.  
 2) Measuring range is given without probe, at the quill base. Please refer to specific probeheads / probe system to evaluate the actual range.



**TECHNICAL DATA**

|                                     |   |
|-------------------------------------|---|
| <b>Mechanical frame</b>             | X, Y, Z all in Granite  |
| <b>Sliding system</b>               | Air bearings for all axes   |
| <b>Length measuring system</b>      | Steel scale, 0.1 µm resolution  |
| <b>Controller</b>                   | Pantec EAGLE™ series / Renishaw® UCC series   |
|                                     | 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>Damping system</b>               | Passive elastometer damping (optional active pneumatic damping)   |
| <b>Options</b>                      | Automatic styli changer, Automatic multisensor temperature compensation for T2 (16 °C to 26 °C), on top rotary table, manual and automated part loading system. |

**MAINS AND COMPRESSED AIR SUPPLY REQUIREMENTS**

|                          |                                     |                             |              |              |                         |       |
|--------------------------|-------------------------------------|-----------------------------|--------------|--------------|-------------------------|-------|
| <b>Mains</b>             | 115/230 V 10 % - 50 - 60 Hz; 1,N,PE |                             |              |              |                         |       |
| <b>Power requirement</b> | 1.5 kVA                             |                             |              |              |                         |       |
| <b>Power consumption</b> | 0.6 kVA                             |                             |              |              |                         |       |
|                          |                                     | <b>5-6-4</b>                | <b>6-x-5</b> | <b>8-x-6</b> | <b>10-x-8 / 12-x-10</b> |       |
|                          |                                     | <b>Pressure (MPa)</b>       | ≥ 0.6        | ≥ 0.6        | ≥ 0.6                   | ≥ 0.7 |
|                          |                                     | <b>Consumption (Nl/min)</b> | ≤ 40         | ≤ 60         | ≤ 90                    | ≤ 120 |

**OPERATING CONDITIONS**

|                              |   |
|------------------------------|---|
| <b>Ambient Humidity</b>      | 40 % to 70 % UR (non condensing)  |
| <b>Ambient temperature</b>   | 15 °C to 35 °C  |
| <b>Mains Supply</b>          | 1/N/PE 115/230 V~ ± 10 %; 50 / 60 Hz (± 4 %) Max. power consumption 2.5 kVA |
| <b>Compressed air Supply</b> | min. 0.6 MPa, max. 1.0 MPa, pre-cleaned, Class 4 according to ISO 8573/1    |

**SAFETY REGULATIONS**

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

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Due to continuous improvement and product development, listed specifications are subject to change in design and scope of delivery.

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