

# **GLOBAL S and Advantage**

## Speed model

Version 2023-2



## GLOBAL Speed: Specifications

	07.07.05 07.10.07	09.YY.08	12.YY.10	15.YY.10	15.YY.14	20.YY.15
MPE(E0/E150) <sup>1)</sup> - (18 °C - 22 °C)	1.5 + L/333	1.5 + L/333	2.0 + L/333	-	-	-
MPE(E0/E150) <sup>1)</sup> - (16 °C - 26 °C)	1.7 + L/250	1.8 + L/250	2.4 + L/200	-	-	-
MPE(E0/E150) <sup>1)</sup> - (15 °C - 30 °C) <sup>4)</sup>	1.5 + L/263	1.5 + L/256	2.0 + L/250	-	-	-
MPL(R0)	1.4	1.5	1.9	-	-	-
MPE(PFTU)	1.5	1.5	2.0	-	-	-
MPE(THP)/MPT(τ) <sup>2)</sup>	2.9/45	2.9/45	4.0/45	-	-	-

Accuracy +	07.07.05 07.10.07	09.YY.08	12.YY.10	15.YY.10	15.YY.14	20.YY.15
MPE(E0/E150) <sup>1)</sup> - (18 °C - 22 °C)	1.2 + L/350	1.2 + L/350	1.7 + L/350	1.7 + L/350	3.0 + L/333	3.3 + L/333
MPE(E0/E150) <sup>1)</sup> - (16 °C - 26 °C)	1.4 + L/250	1.5 + L/250	2.1 + L/200	2.1 + L/200	3.0 + L/182	3.3 + L/182
MPE(E0/E150) <sup>1)</sup> - (15 °C - 30 °C) <sup>4)</sup>	1.2 + L/263	1.2 + L/256	1.7 + L/250	1.7 + L/182	-	-
MPL(R0)	1.2	1.2	1.7	1.7	3.0	3.3
MPE(PFTU)	1.2	1.2	1.7	1.7	3.0	3.3
MPE(THP)/MPT(τ) <sup>2)</sup>	2.0/30	2.0/30	2.5/35	2.9/35	3.5/68	3.7/68
MPE(THN)/MPT(τ) - Non-predefined path <sup>2)</sup>	2.0/50	2.0/50	2.5/50	2.9/50	-	-
RONt (MZCI) <sup>3)</sup>	1.4	1.4	1.7	1.8	2.6	3.4

Max. Permissible error MPE (μm) and Max. Permissible limit MPL (μm) according to ISO 10360-2:2009:

- Volumetric length measuring error: MPE(E0/E150)

- Repeatability range: MPL(R0)

Max. Permissible error MPE (μm) according to ISO 10360-5:2010:

- Single stylus form error: MPE(PFTU)

Max. Permissible error MPE (μm) and Max. Permissible time MPT (s) according to ISO 10360-4: 2000:

- Single stylus form error, scanning: MPE(THP)/MPT(τ)

- Single stylus form error, scanning - Non-predefined path: MPE(THN)/MPT(τ)

ISO 12181-1: 2011 (VDI/VDE 2617 part 2.2): Form measurement error (μm): RONt (MZCI)

### Probe configuration:

- HP-S-X5HD: stylus length 60 mm, tip diameter 5 mm
- HP-S-X1S/H: stylus length 50 mm, tip diameter 5 mm
- HP-THDe: Standard force module, stylus length 10 mm, tip diameter 4 mm

<sup>1)</sup> MPE(E0/E150) specifications are to be formally understood as MPE(E0/E150)\* for the case where non-normal CTE material calibrated test lengths are used. Length unit measure (L) in mm.

<sup>2)</sup> MPE(THP/THN) and MPT(τ): test sphere placed in the centre of measuring volume

<sup>3)</sup> RONt test on Ø 50 mm ring gauge. Ring axis parallel to machine vertical axis, gauge placed in the centre of measuring volume

<sup>4)</sup> For shop floor packages only.

## GLOBAL Speed: Non contact sensors specifications

HH-A HP-L-10.10 <sup>5)</sup>	
<sup>6)</sup> Probing Form Error	8 µm
<sup>6)</sup> Probing size error All	14 µm
<sup>6)</sup> Probing dispersion value	12 µm
<sup>6)</sup> Articulated location value	24 µm
<sup>6)</sup> Probing location error	18 µm

<sup>5)</sup> Some restrictions to workpiece size and machine configuration may apply when used on GLOBAL S 07.07.05 and 07.10.07

<sup>6)</sup> Probing Form error [µm] P[Form.Sph.1x25:Tr:ODS] according to ISO 10360-8:2013

Probing Size error All [µm] P[Size.Sph.All:Tr:ODS] according to ISO 10360-8:2013

Probe Dispersion value [µm] P[Form.Sph.D95:Tr:ODS] according to ISO 10360-8:2013

Articulated location value [µm] L[Dia.5x25:Art:ODS] according to ISO 10360-8:2013

Probing Location error [µm] L[Dia.2x25::MPS] according to ISO 10360-9:2013

Values are including expanded measurement uncertainty according ISO/TS 17865:2016. Measured using a manufacturer supplied sphere- and plane artefact, each calibrated by an independent accredited lab.

## GLOBAL Speed: Throughput and dynamics

	Max. probing frequency (with scanning probes)	Max. 3D Speed	Max. 3D Acceleration <sup>8)</sup>
Dynamics with Throughput+ <sup>7)</sup>			
from GLOBAL S 07.07.05 to 12.YY.10	1000 point/s	860 mm/s	4300 mm/s <sup>2</sup>
for GLOBAL S 15.YY.10	1000 point/s	860 mm/s	2590 mm/s <sup>2</sup>
for GLOBAL Advantage 15.YY.14	1000 point/s	666 mm/s	1000 mm/s <sup>2</sup>
for GLOBAL Advantage 20.YY.15	1000 point/s	500 mm/s	800 mm/s <sup>2</sup>
Dynamics			
from GLOBAL S 07.07.05 to 09.YY.08	1000 point/s	510 mm/s	1700 mm/s <sup>2</sup>
for GLOBAL S 12.YY.10	1000 point/s	430 mm/s	1000 mm/s <sup>2</sup>

<sup>7)</sup> Dynamics reduction may apply to meet specific customer and/or local safety requirements.

<sup>8)</sup> Acceleration reduction may apply with pneumatic dampers configuration

## GLOBAL Speed: Temperature specifications

	Lab temperature	Extended temperature	Shop floor temperature <sup>10)</sup>
Ambient temperature	18 °C ÷ 22 °C	16 °C ÷ 26 °C	15 °C ÷ 30 °C
Max. air temperature variation	1 °C/h - 2 °C/24h	1 °C/h - 5 °C/24h	1 °C/h - 5 °C/24h 2 °C/h - 10 °C/24h <sup>9)</sup>
Max. gradient in space	1 °C/m	1 °C/m	1 °C/m

<sup>9)</sup> Accuracy specifications for this temperature range are available on request.

<sup>10)</sup> Not available on GLOBAL Advantage.

## Probe heads and sensors



Technical characteristics	HP-S-X5 HD
Overtravel range	± 2 mm in all axes
Stylus joint	M5
Max. stylus weight	650 g
Max. stylus length	800 mm

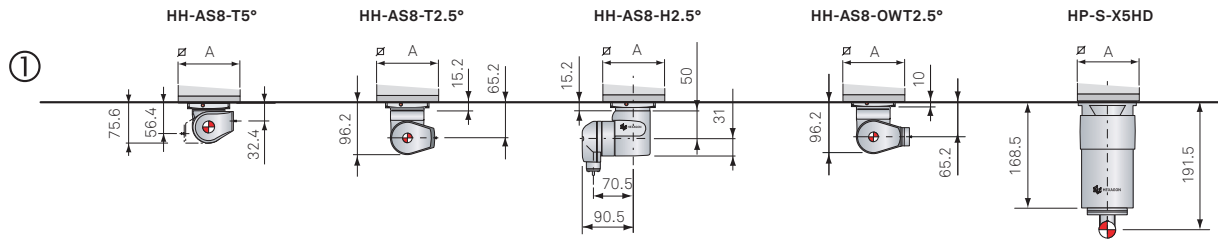


Technical characteristics	HH-AS8-T5° indexable probe head	HH-AS8-T2.5° / HH-AS8-OW2.5° indexable probe head	HH-AS8-H2.5° indexable probe head
Angular rotation	A axis: +90° / -115° B axis: ±180°	A axis: ±105° B axis: ±180°	A axis: ±180° B axis: ±180°
Angular rotation step	5°	2.5°	2.5°
Max. applied torque	0.6 Nm	1.4 Nm	1.7 Nm
Max. extensions length	300 mm	450 mm	750 mm



Technical characteristics	HP-L-10.10
Laser	Visible blue, class 2
Standoff and depth of FOV	90 ±30 mm (additional 30 mm with eFOV)
Line-Width at mid-field of view	80 mm (At mid-field)
Ambient light immunity of the sensor	10,000 lx
Protection against dust and water	IP51 (IEC 60529)
Sensor size L x W x H	103 x 68 x 102 mm

# Probe heads compatibility matrix

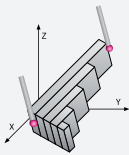


Cross sections	A mm	HH-AS8-T 5°	HH-AS8-T 2.5°	HH-AS8-H 2.5°	HH-AS8-OWT 2.5°	HP-S-X5 HD *)
07.07.05-07.10.07	80	✓	✓	X	✓	X
09.YY.08	88	✓	✓	✓	✓	✓
12.YY.10	88	✓	✓	✓	✓	✓
15.YY.10	88	✓	✓	✓	✓	✓
15.YY.14	105	✓	✓	✓	✓	✓
20.YY.15	105	✓	✓	✓	✓	✓

\*) Available only with Accuracy+ | Throughput+

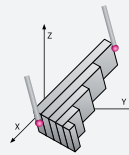
## Performance verification

**MPE(E0)** : maximum permissible error of length measurement



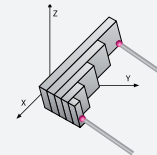
5 gauges have to be measured 3 times with one probing at each end, in 7 different directions. All measuring results must be within MPE(E0).

**MPL(R0)** : maximum permissible limit of the repeatability range



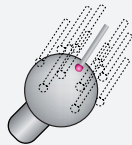
Extreme value of the repeatability range of the length measurement error, calculated by three repeated measurements on each size for a total of 35 values. The 35 repeatability range results must be within MPL(R0).

**MPE(E150)** : maximum permissible error of length measurement



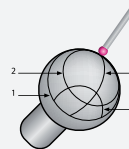
5 length gauges have to be measured 3 times in the YZ- or XZ plane with opposite styli, mounted 150 mm off the Z spindle axis. All measuring results must be within MPE(E150).

**MPE(PFTU)** : maximum permissible single stylus form error



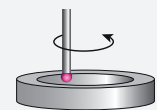
A precision sphere has to be measured with 25 probeings. PFTU is the range of all radii. The range of all radii must be within MPE(PFTU).

Maximum permissible scanning probing error



**MPE(THP)/MPT(τ)** : A precision sphere has to be scanned with 4 defined lines. THP is the range of all radii with the predefined path.  
**MPE(THN)/MPT(τ)** : A precision sphere has to be scanned with 4 defined lines. THN is the range of all radii with the non-predefined path.  
 The range of all radii and the scanning time must be within MPE(THP/THN) and MPT(τ).

**RONt (MZCI)** maximum permissible form measurement error (2D)



A ring gauge is measured in scanning mode, with high points density. The range of radial distances from two concentric circles enclosing the roundness profile and having the least radial separation, is then evaluated. The range of radial distances must be within RONt.

NOTE: ISO 10360-2:2009 test with maximum part weight performed as an option upon request only.



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