EN

COORDINATE MEASURING MACHINE

WENZEL SF 107

Technical Data

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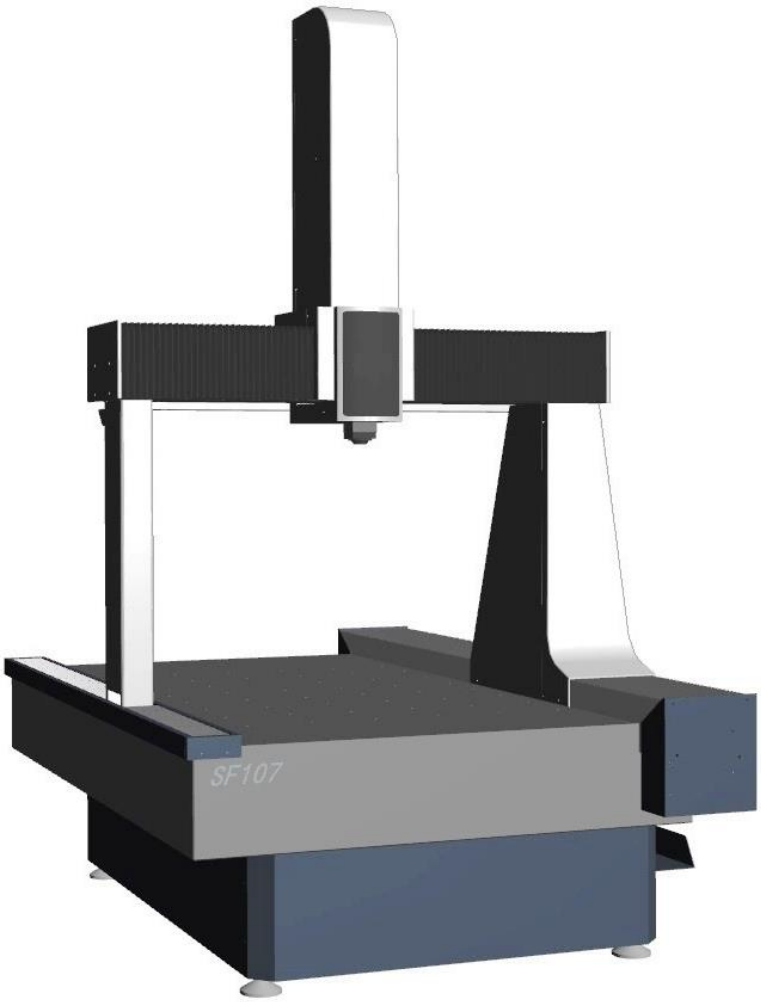

MEASURING IN THE
PRODUCTION ENVIRONMENT

Short description

- CNC coordinate measuring machine in portal design with touch-trigger, scanning and optical probe systems.
- All guideways made of high precision machined and hand lapped granite.
- Operator workstation with integrated controller and computer.
- Large measuring volume with small footprint.
- Tolerant for shopfloor conditions.

Application fields

- Designed for production, quality control and analysis. Also well suited for reverse engineering and model construction.
- Geometric and free-form components.
- Series and individual measurements.
- Machinist Inspection.
- Automation in the shopfloor area.

Equipment

- High precision linear air bearing guides with pre-stressed, encompassing air bearings in all axes.
- Optimal long-term stability due to directly into the base plate integrated guide profile of the Y-axis.
- Bellows protective covers on all guides of the X and Y axis.
- Elastomer vibration damping system.
- Optional active pneumatic vibration damping system available (also retrofittable).
- High dynamic servo drives with following error monitoring and combined friction/form locking power transmission.
- 3-axis continuous path control with intelligent "lookahead function" for application-optimized trajectory.
- Compact control panel with a central located progressive joystick, "mouse function" and context-sensitive function buttons. Selectable joystick axis assignment. Wireless version optionally available.
- Two-stage speed selection and variable speed adjustment (override 0-100%) enable a sensitive movement in joystick and CNC mode.
- Manual temperature compensation.
- Optional automatic temperature compensation including temperature sensors on device axes and work piece available.
- Automation ready.

Probe systems

- PH10M PLUS / PH10T PLUS: 2-axis motorized rotary swivel head that can be indexed in 7.5 degree steps up to 720 reproducible positions. The PH10M PLUS / PH10T PLUS is equipped with an auto joint adapter, which enables to mount different measuring probes and optical sensors via a quick-release fastener.
  - TP20 (optional): Touch trigger probe with interchangeable probe modules.
  - TP200 (optional): High precision touch trigger probe with interchangeable probe modules.
  - SP25M (optional): High precision, flexible scanning measuring probe with interchangeable probe module and stylus holder that can be used for scanning tasks or single point probing.
  - SHAPETRACER (optional): Optical 3D line scanner for contactless measurement and processing of data point clouds.
- PH20 (optional): Stepless 5-axis touch trigger system employs "head touch" method to decrease measurement times in CNC mode.
- PH6M (optional): Compact, rigid probe head with a fixed position.

Device type			SF 107		
Measuring range					
	X	[mm]	1000		
	Y	[mm]	1200	1500	2000
	Z	[mm]	700		
Weight					
Device weight		[kg]	3500	3670	5270
Maximum workpiece weight		[kg]	900	1000	1200
Accuracies*					
Temperature range for $E_{L, MPE}$			18 °C to 22 °C		
Probe system			SP25M	TP200	PH20
Limit value Single stylus probing error[1]	$P_{FTU, MPE}$	[µm]	1.8	1.9	2.1
Limit value Repeatability range[2]	$R_{0, MPL}$	[µm]	1.8	1.9	2.1
Limit value Length measurement error[2]	$E_{0, MPE}$ / $E_{150, MPE}$	[µm]	1.8 + L/350	1.9 + L/350	2.1 + L/350
Limit value Scanning probing error[3]	MPE_{THP}	[µm]	2.3	-	-
Limit value Scanning test duration	MPT_{τ}	[s]	68	-	-
Measuring system			Photoelectric reflected light measuring system		
	optical division	[µm]	40		
	resolution	[µm]	0.4		
Dynamic**					
Joystick mode v_{max}	creep mode	[mm/s]	0 to 20		
	normal	[mm/s]	0 to 100		
CNC mode v_{max}	axis	[mm/s]	300		
	vector	[mm/s]	519		
CNC mode a_{max}	axis	[mm/s²]	900		
	vector	[mm/s²]	1557		

[1] **according to DIN EN ISO 10360-5 / Limit value single stylus probing error $P_{FTU, MPE}$**
- SP25M with Module SM25-1 and stylus Ø 4 x 21 mm
- TP200 with Standard Force Module and stylus Ø 4 x 10 mm
- PH20 with TP20 Standard Force Module and stylus Ø 4 x 10 mm

[2] **according to DIN EN ISO 10360-2 / Limit value length measurement error $E_{L, MPE}$**
- SP25M with Module SM25-1 and stylus Ø 4 x 20 mm
- TP200 with Standard Force Module and stylus Ø 4 x 20 mm
- PH20 with TP20 Standard Force Module and stylus Ø 4 x 20 mm

[3] **according to DIN EN ISO 10360-4 / Limit value scanning probing error MPE_{THP}**
- SP25M with Module SM25-1 and stylus Ø 4 x 20 mm

* Accuracy values are achieved by incorporating of the temperature compensation.
** Depending on the used controller.

Table 1: Technical Data SF 107

Device type		SF 107
Connection data		
Electrical		Electricity quality according to EN 60204-1:2019-06
		Single phase alternating current (1P+N+PE), 115/230 V (±10 %), 50/60 Hz
		Fuse protection 16 A, characteristic B, 1 RCD on site (according to nationally applicable regulations)
		Electrical power consumption: max. 1000 VA
Pneumatic connection values with elastomer vibration damping system		Supply pressure min. 6 bar, max. 10 bar, pre-filtered
		Compressed air quality according to DIN ISO 8573-1:2010 [5:4:4]
		Air consumption: ø 70 Nl/min
Pneumatic connection values with pneumatic vibration damping system (optional)		Supply pressure min. 6 bar, max. 10 bar, pre-filtered
		Compressed air quality according to DIN ISO 8573-1:2010 [4:3:0], max. total oil content: 0.003 mg/m³
		Air consumption: ø 94 Nl/min
Permitted environmental conditions		
Operating temperature		15 °C to 30 °C
Temperature range für $E_{L,\ MPE}$		18 °C to 22 °C
	per day	$2\ ^{K}/_{d}$
	per hour	$1\ ^{K}/_{h}$
	per meter	$1\ ^{K}/_{m}$
Relative humidity		40 % to 70 % (non-condensing)
Max. height of the installation site		2000 over sea level

Table 2: Connection data and permitted environmental conditionsSF 107

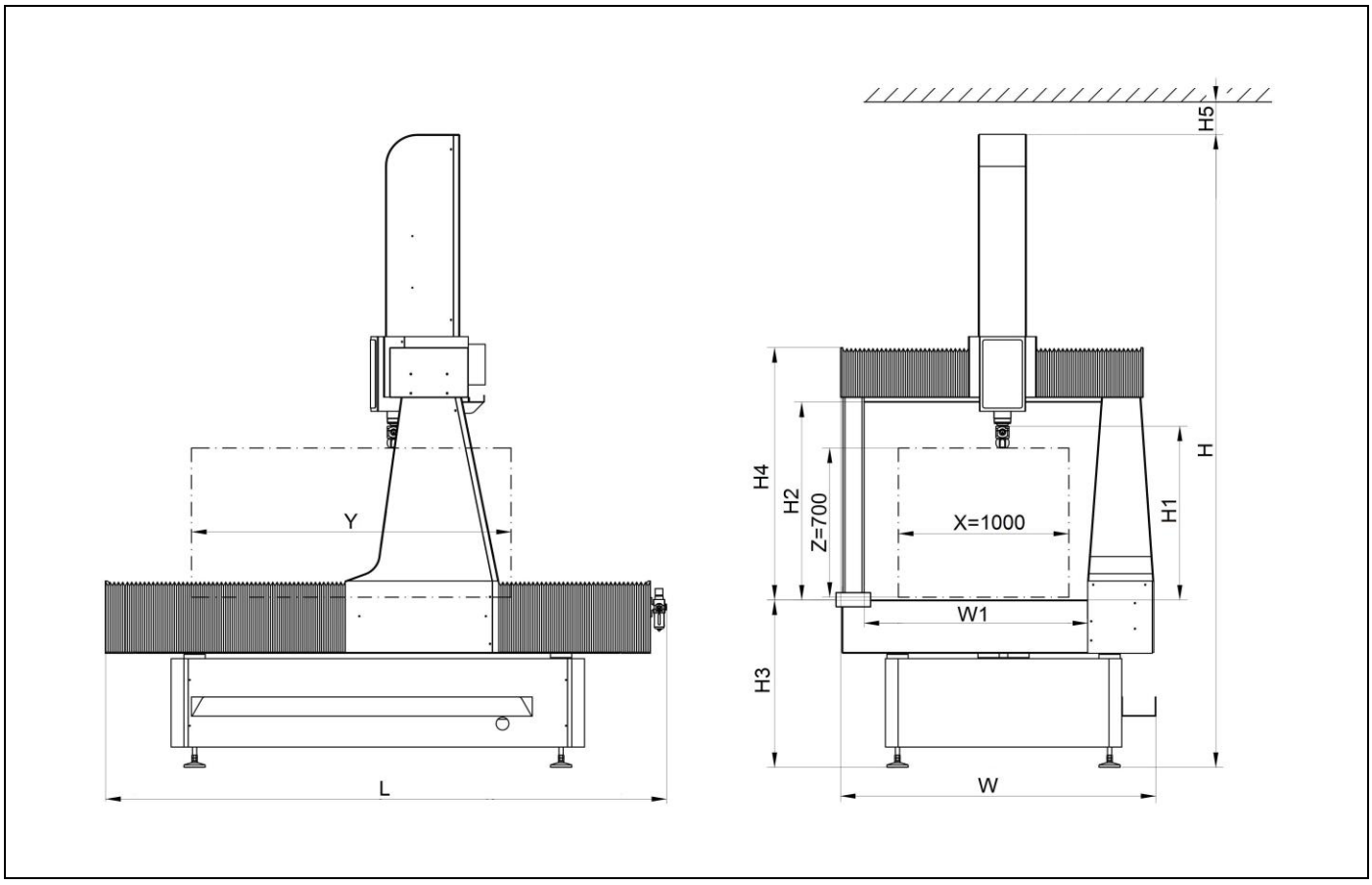

Figure 1: Layout SF 107

Dimensions		Value			Unit
Measuring range	X	1000			[mm]
	Y	1200	1500	2000	[mm]
	Z	700			[mm]
Overall dimensions	L	2340	2640	3230	[mm]
	W	1720			[mm]
	H	2970	2970	2885	[mm]
Required space (without computer trolley)	length	3340	3640	4230	[mm]
	width	2680			[mm]
	height	≥ 3020	≥ 3690	≥ 4280	[mm]
Minimum distance to the ceiling	H5	≥ 50			[mm]
Minimum distance to the wall		≥ 500			[mm]
Computer trolley (L x W x H)		1200 x 900 x 750			[mm]
Working area	W1	1245			[mm]
	H1	855			[mm]
	H2	925			[mm]
	H3	785	785	700	[mm]
	H4	1184			[mm]

Table 3: Dimensions SF 107

INNOVATION MEETS TRADITION

The WENZEL Group is a market leader in innovative Metrology. WENZEL offers a comprehensive product portfolio in the fields of Coordinate Metrology, Computed Tomography and Optical High Speed Scanning. The technology of WENZEL is used in all industries, including the automotive sector, aeronautics, power generation and medicine. WENZEL looks at today on an installed base of more than 10,000 machines worldwide. Subsidiaries and agencies in more than 50 countries support sales and provide after-sales service for our customers. The WENZEL Group today employs more than 600 people.

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