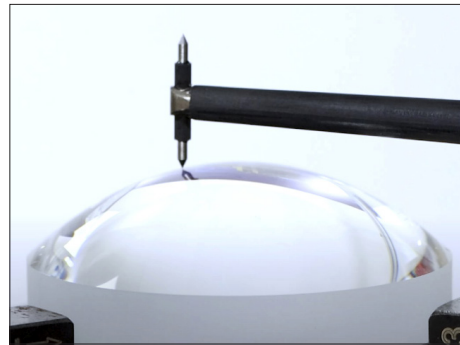
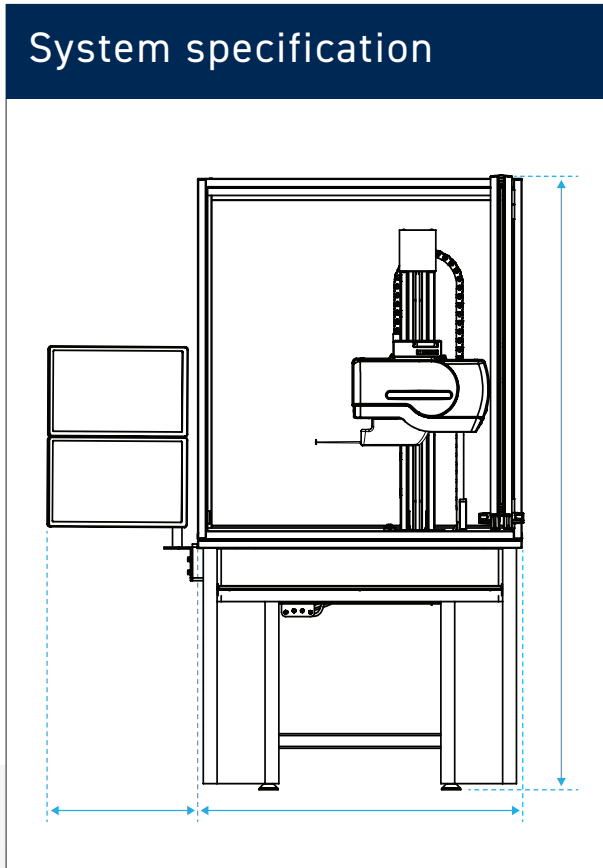


FORM TALYSURF® PGI OPTICS PRO

System specification



System specification

System performance ¹	10 mm Gauge	15 mm Gauge	20 mm Gauge
Nominal measuring range (Z) ³	10 mm (0.39 in)	15 mm (0.59 in)	20 mm (0.79 in)
Range to resolution ³	50,000,000 : 1	75,000,000 : 1	104,000,000 : 1

System performance ¹ (All variants)		Horizontal performance	
System noise ²	Rq < 2 nm (0.08 µin), Rz < 10 nm (0.39 µin)	Traverse length – X Max. / Min.	120 mm / 0.1 mm (4.7 in / 0.004 in) 200 mm / 0.1 mm (7.9 in / 0.004 in) 300 mm / 0.1 mm (11.8 in / 0.004 in)
System noise with extension tube ²	Rq < 6 nm (0.24 µin) Rz < 30 nm (1.18 µin)	Traverse speeds	13 mm/s Max. (0.51 in/s)
Form uncertainty (Pt) ⁴	< 100 nm (4 µin) typically ~60 nm (2.4 µin)	Measuring speed ⁵	0.1 mm/s, 0.2 mm/s, 0.5 mm/s, 1 mm/s, 2 mm/s & 5 mm/s (0.004 in/s, 0.008 in/s, 0.02 in/s, 0.04 in/s, 0.08 in/s & 0.2 in/s)
Radius measurement uncertainty ⁷	0.1 mm - 10 mm (0.004 in - 0.39 in)	10 mm - 360 mm (0.39 in - 14.17 in)	Minimum data sampling interval in X
	± 1 µm (39.4 µin)	± (0.41 + R [mm] / 17) µm; (± (16.14 + 58.8 R [in]) µin)	25 nm (0.98 µin)
3D Raster Calibration (St)	< 500 nm (20 µin) typically ~350 nm (12 µin)		Straightness uncertainty (Pt) ⁶
Measuring station		Y-axis length – Y Max. / Min.	120 mm Traverse unit - 0.08 µm (3.2 µin) 200 mm Traverse unit - 0.110 µm (4.3 µin) 300 mm Traverse unit - 0.150 µm (5.9 µin)
Instrument dimensions	See floor plan (Page 3)		Y-axis positioning speeds
Instrument weight ¹⁰	420 kg		0.1 mm/s to 18 mm/s (0.004 in/s to 0.7 in/s)
Motorized vertical column	450mm (17.7 in) / 700 mm* (29.5 in)		Vertical performance
Maximum component weight for motorized stages	6.8 kg		Resolution (Z) ³
Rotary axis		Z axis positioning speeds	0.2 nm (0.01 µin)
Positional accuracy	0.078 deg		Measurement Direction
Positioning speeds	0.1 deg/s to 35 deg/s		Single / Bi-directional*
Environment		Z distance measurement uncertainty ⁹	0.1 mm/s to 80 mm/s
Operating temperature (recommended)	18 °C to 22 °C (64 °F to 72 °F)		Z distance measurement uncertainty ⁹
Temperature gradient	< 2 °C per hour (< 3.6 °F per hour)		± (1.0 + L [mm] / 150) µm; ± (39.4 + 6.67 L [in]) µin
Operating humidity	45% to 75% relative, non condensing		Linearity uncertainty ⁸
Maximum RMS floor vibration	3 µm/s (120 µin/s) at < 50 Hz 6 µm/s (200 µin/s) at > 50 Hz		0.05 + 0.02 Z [mm] µm (2 + 20 Z [in] µin)
Laser classification		Stylus arm length	Standard length - 100 mm
Class 1 Laser product to EN 60825-1:2014. Compliant with 21CFR 1040.10 and 1040.11 of the United States FDA (except for deviations pursuant to Laser Notice 50, dated June 24, 2007)		Tip size	60° 2 µm radius conisphere diamond
		Force (software controlled)	30 mgf - 225 mgf
		Electrical (alternating supply, single phase with earth, 3-wire)	
		Instrument and computer voltage	Standard 100V to 230V Active AV 115 V to 230V
		Frequency	47 Hz to 63 Hz
		Power consumption	1000 VA (Inc. PC, etc.)

CE Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Machinery Directive 2006/42/EC, RoHS Directive 2011/65/EU

Compliance to directives is demonstrated using applicable European standards and sections therein.

Qualifiers

- Measured using 100 mm, 2 µm, 60° Diamond stylus.
- Measured over a glass flat nominally parallel to the traverse datum using a 100 mm diamond stylus (speed = 0.5 mm/s, Gaussian roughness filter, Lc 0.08 mm, Ls 0.0025 mm).
- Using a 100 mm diamond stylus.
- From a repeat measurement on 22 mm calibration artifact over 7 mm of the gauge range (LS Arc analysis, primary filter λs = 0.25 mm).
- For surface texture measurements, speeds of 0.5 mm/s (0.02 in/s) and less are recommended.
- Measured over a glass flat nominally parallel to the traverse datum (speed = 1 mm/s, LS Line analysis, primary filter Ls = 2.5 mm). Does not take in to account the form error of the calibrated glass flat artefact.
- Assumes a calibration artefact of perfect radius.
- Measurements up and down a ±35° angled slope over 80% of the gauge range using a 100 mm diamond stylus.
- Valid for high precision steel column only. Measured using recessed styli. Artefact corrected to 20°C.
- System includes 200 mm traverse unit, high-precision column, instrument surround and environmental chamber.

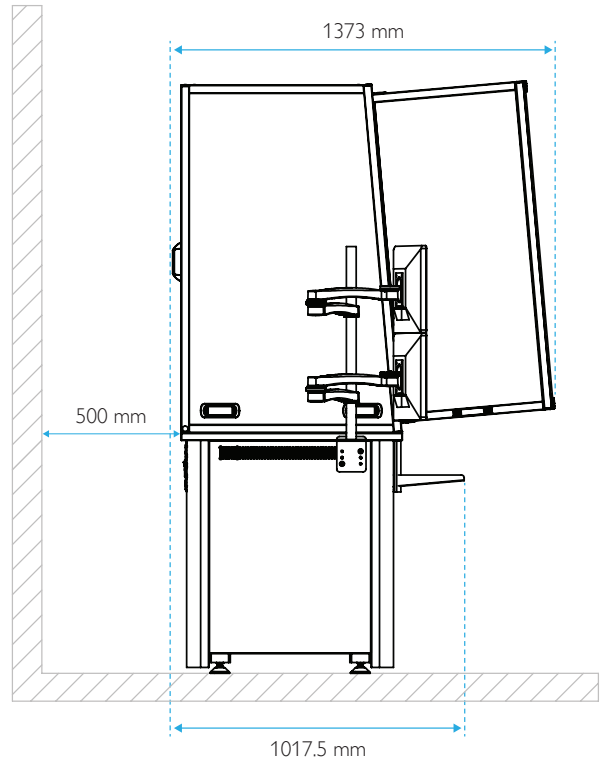
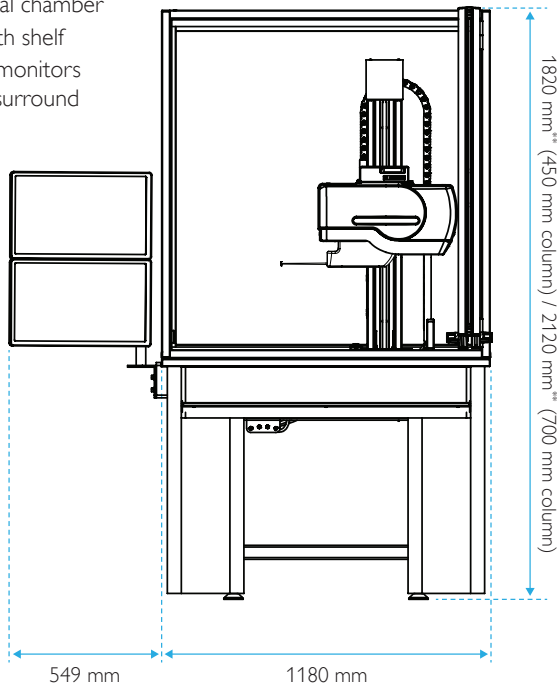
Notes

All relevant specifications apply to measurements taken in both biases.
The above quoted technical data is for measurements taken in a metrology laboratory controlled environment: 20°C ±1°C (68°F ± 1.8°F), draft free and isolated from low frequency floor borne vibration.
The above specification has been derived at 75 mgf.
All uncertainties are at 95% confidence in accordance with recommendation in the ISO guide to the expression of uncertainty in measurement (GUM:1993).

System floor plan

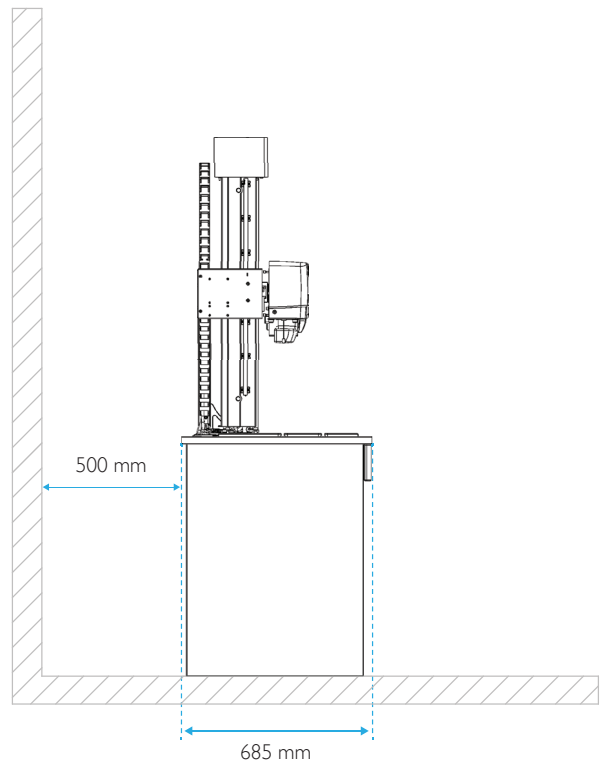
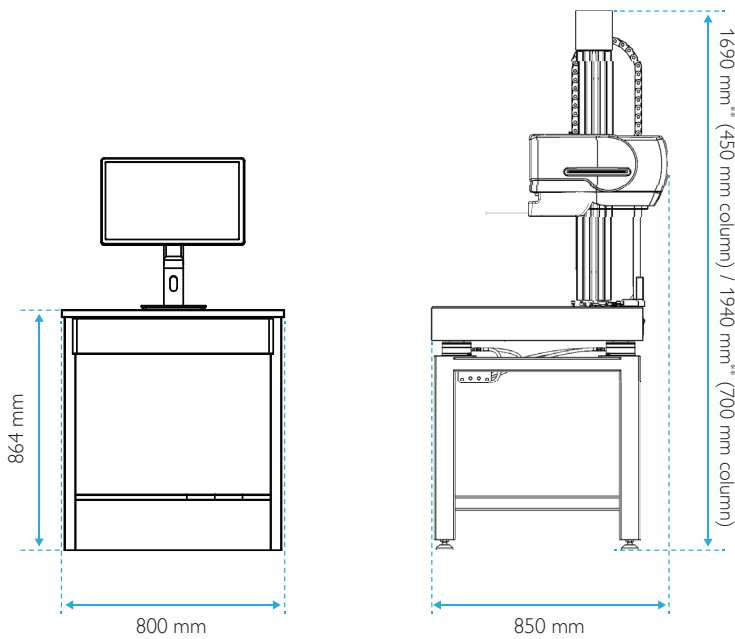
Modular design

- Environmental chamber
- Surround with shelf
- Two display monitors attached to surround



Modular design

- Single display monitor on a separate desk



System floor plans are a visual representation and may differ slightly. System floor plan displayed for Form Talysurf® PGI OPTICS PRO with surround only. Taylor Hobson pursues a policy of continual improvements due to technical developments. We therefore reserve the right to deviate from catalogue specifications.

* Optional.

** Add 80 mm for system with Active AV.

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- **Operator Training** – On-site instruction will lead to greater proficiency and higher productivity.
- **UKAS Calibration & Testing** – Certification for artifacts or instruments in our laboratory or at customer's site.



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