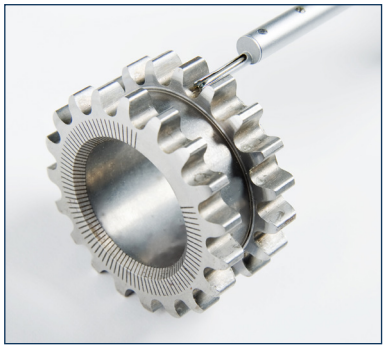
TAYLOR HOBSON®

AMETEK®
ULTRA PRECISION TECHNOLOGIES

Surtronic®
S-100 Series



Robust and portable surface roughness testers

Surtronic® **S-100**

Handheld portable surface roughness testers
Tough, fast and reliable

Durable roughness testers for shop floor, industrial & inspection room applications.

Working closely with manufacturers across a wide range of industries including precision bearings, automotive and aerospace engineering, Taylor Hobson have focused on the key attributes that are most important for quality control in today's precision industries

The Surtronic® S-100 Series of instruments offer a versatile solution for all your roughness requirements with a variety of systems and application specific accessories along with fixtures that can be tailored to your specific need.

Any surface, any height

The inclusion of a 50 mm stylus lift with right-angle attachment and more than 70 mm stylus reach means that even the most challenging surfaces can be measured without the need for expensive riser blocks, stands or fixtures.

The anti-slip V-feet also mean the system can be used on flat or curved surfaces. The stylus can even measure upside down!

The pick-up holder is mounted on a slide for vertical adjustment and can also be rotated to different measuring positions, including right-angled measurement.

An excellent investment

- Improve throughput
- Reduce part scrappage
- Monitor tool wear
- Ensure traceability

Fast and reliable…

Simply press the measurement button and in a few seconds a full set of traceable measurement results including a detailed profile graph will be displayed.

1 Lift/lower

Supplied as standard providing 50 mm height adjustment, right angle measurement and 70 mm reach into bores.

2 Measure

Tactile measurement button, great when device is being used overhead or inside pipes. InstantOn technology enables measurement to be taken in less than 1 second from standby and fully charged can remain in standby for more than 5000 hours.

3 Profile graph

Recessed, Mylar protected high durability touch screen shows detailed graph of measured area to help identify problem areas.

4 Anti-slip feet

Perfect for mounting on flat or curved surfaces.
V design aligns measurement with cylinder axis.

5 Comfort grip

Sits comfortably in the hand when reviewing results or changing settings.

6 Rubberised moulding

Impact resistant rubberised moulding adds protection and better grip in the hand, invaluable for shop floor environments.

7 Simple set-up

Shortcuts provided for all the key settings to give instant access with just a single touch.

8 Orientation

Rotate the display to any of 4 orientations – perfect for awkward measurements.

9 Power

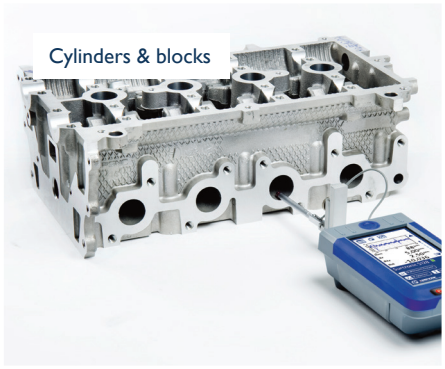
System power is provided by a 3000 mAh heavy duty Li-Poly battery that can provide up to 2000 measurements from a single charge.

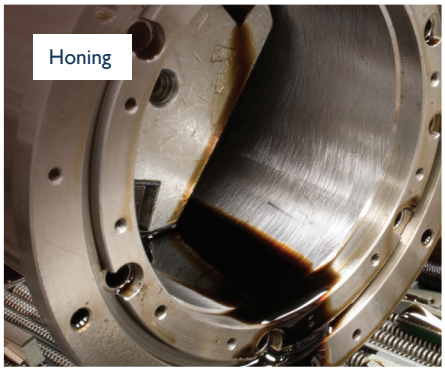
10 USB connectivity

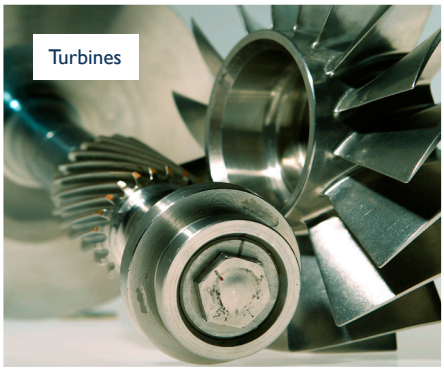
Through its industry standard Type A USB port and mini USB port the S-100 series instruments provide extensive connectivity options to many standard devices.

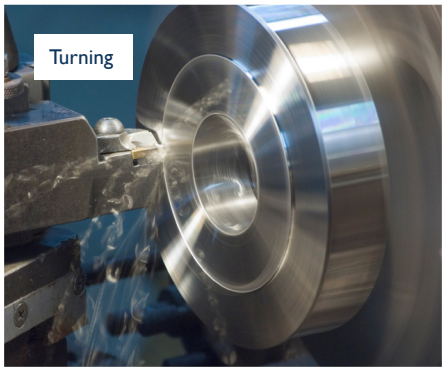
Designed to suit your application

Meeting the ever increasing demands of next generation technologies...









Plus many more...

- **Process control** – Grinding, milling, turning, honing, polishing, extrusion
- **Automotive** – Gears, con rods, cylinders, blocks, crankshafts
- **Aerospace** – Turbine blades, turbine shafts, wing composites
- **Other** – Print rollers, flooring, bonding

Further benefits...

In situ measurements

Monitor wear and roughness changes in situ during product's life. Eg. Monitoring changes in turbine blade roughness as an early warning sign for defects and efficiency losses.

User-friendly

The Surtronic® S-100 is as easy to use as any SatNav (GPS) or SmartPhone with a 4.3" daylight readable industrial touch screen display. Results are displayed with up to 7 parameters per page as well as measurement settings and system information.

Standards and traceability

The reference standard supplied can be used both to calibrate the instrument and check for stylus wear to ensure the most accurate results are always being achieved.

Measurement	Best capability
Roughness standards (Ra)	±(2% + 0.004 µm)
Workpiece or component surface texture (Ra)	±3% of measured value per trace

UKAS calibration & testing

Taylor Hobson provides full certification for artefacts and instruments in our purpose built ISO graded clean room UKAS facility.

Our UKAS laboratory is able to measure all of the parameters associated with surface texture, including French, German, USA and Japanese derivatives.

ilac-MRA UKAS CALIBRATION 0026

ilac-MRA UKAS TESTING 2624

Powerful software - TalyProfile 8

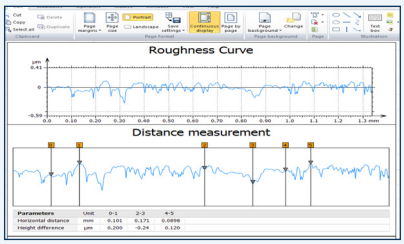
Advanced surface finish analysis

TalyProfile is a dedicated PC based software package designed for use with Surtronic® S-100 Series instruments.

	Silver	Gold
Surtronic® S-Series acquisition	✓	✓
Desktop publishing templates	✓	✓
Multi-language support	✓	✓
EN, FR, DE, ES, IT, PL, CN, KR	✓	✓
Levelling	✓	✓
Symmetries	✓	✓
Zoom	✓	✓
ISO 4287	✓	✓
Material Ratio Curve	✓	✓
Area of a hole/peak	✓	✓
Profile parameters & curves	✓	✓
Roughness & waviness curves	✓	✓
Distance measurement	✓	✓
Multiple file format reports	✓	✓
Report printing	✓	✓
Form Talysurf data import	✓	✓
Tolerance limits (pass/fail)	✓	✓
Data file explorer	✓	✓
ISO 13565 Automotive	✓	✓
Interactive MR curve	✓	✓
Step height measurement		✓
Form removal		✓
Filtering by FFT		✓
Thresholding		✓
Frequency spectrum		✓
Power spectrum density		✓
Retouch profile point		✓
Rk parameters		✓
Rk Parameters curves		✓
ISO 12085 R&W motifs		✓

Advanced time-saving analysis templates

A 'template' can be created whereby a sequence of analysis functions can be saved and applied to future measurements, turning detailed reporting tasks into routine documents.



Outstanding graphics

The software is visually advanced and provides clear on screen profile images. TalyProfile allows the user to take a basic measurement and create a full measurement report using the software's detailed analysis options and desktop publishing function.

Desktop publishing facility

TalyProfile offers a comprehensive desk top publishing function which allows clear presentation of measurements, results and profiles. Graphs, profiles and results can be arranged from within the TalyProfile software giving complete flexibility in reporting.

In depth analysis

Profiles can be levelled and zoomed to remove unwanted features or defects from the analysis. Distance measurement between features of a profile are easily achieved and the information can be displayed graphically and numerically. Step height and the area of a valley or peak can also be calculated.

Full compatibility

Surface finish results from other Taylor Hobson surface roughness instruments can be imported to TalyProfile software, allowing a uniform report style to be used throughout your workshop or laboratory.

Pass/Fail tolerances

All parameters can be assigned nominal, minimum and maximum values.

New features & benefits

NEW

- Customised analysis settings
- Batch analysis
- Undo & redo
- Drag and drop files
- Multiple tabbed documents
- Improved parameters calculation
- Quick extraction operators
- Quicker calculation times
- Advanced Modules (THAMs)

TalyProfile parameters

	Silver	Gold
ISO 4287		
Rz, Rp, Rv, Rz, Rc, Rt, Ra, Rq, Rsk, Rku, RSm, Rdq, Rmr, Rdc, RPc	✓	✓
Pp, Pv, Pz, Pc, Pt, Pa, Pq, Psk, Pku, PSm, Pdq, Pmr, Pdc, PPc	✓	✓
Wp, Wv, Wz, Wc, Wt, Wa, Wq, Wsk, Wku, WSm, Wdq, Wmr, Wdc, WPc	✓	✓
ISO 13565		
Rk, Rpk, Rvk, Mr1, Mr2		✓
Ppq, Pvq, Pmq		✓
Rpq, Rvq, Rmq		✓
ISO 12085		
R, AR, Rx, Pt, Kr, Nr, SR, SAR		✓
W, AW, Wx, Wte, Kw, Nw, SW, SAW		✓
Trc, HTrc, Rke, Rpke, Rvke		✓
Other 2D Parameters		
PLq, Pda, PLa, PLo, PzJIS, P3z, Pmax, Ptm, Py, PH, PHSC, PD, PS, Pvo, Prms, PTp, PHTp, Pfd, Ppm		✓
RLq, Rda, RLa, RLo, RzJIS, R3z, Rmax, Rtm, Ry, RH, RHSC, RD, RS, Rvo, Rrms, RTp, RHTp, Rfd, Rpm		✓
WLq, Wda, WLa, WLo, WzJIS, W3z, Wmax, Wtm, Wy, WH, WHSC, WD, WS, Wvo, Wrms, WTp, WHTp, Wfd, Wpm		✓
Applicative Parameters		
PG, AF, CH		✓
ASME B46.1		✓
Rt, Rp, Rv, Rz, Rpm, Rmax, Ra, Rq, Rsk, Rku, tp, Htp, Pc, Rda, Rdq, RSm, Wt		✓
Addon		✓
MaxHeight, AverageHeight, MinHeight, MaxArea, AverageArea, MinArea		✓

Windows® PC specification*

Operating system	Windows® 10
Memory (RAM)	3 GB
CPU speed	2 GHz
Screen resolution	1920 x 1080
USB port	2.0

Get your free trial

Scan the code to download TalyProfile 8 Silver Software

* Recommended.

Technical specifications

Instrument performance		S-116	S-128
Language	Basic	English, French, German, Italian, Spanish	
	Extended	Czech, Portuguese, Romanian, Hungarian, Swedish, Russian	
	Asian	Japanese	
Data output	On-screen	Up to 7 results per page, selectable on-screen graph with XZ axis	
	Printer	Output settings, results and high resolution profile graph	
	PC Connection	Full data analysis with TalyProfile	
Dta storage	Internal	100 measurement results, 1 raw profile	
	USB (4GB supplied)	>39,000 raw profiles, up to 100,000 results per batch (>70 batches)	
	PC connection	Unlimited data storage	
SPC / stats	Internal	Optional	Min, Max, Mean, StdDev of stored results
	USB (4GB supplied)	Optional	ASCII export of all results for SPC
	PC connection	Full SPC and tollerancing of all parameters using TalyProfile software	
Battery	Charger	USB 5v 1A 110-240VAC 50/60Hz	
	Charging time	4 hours	
	Battery life	2000 measurements	
	Standby time	5000 hours	
	InstantOn	Max. 1 sec from standby to ready to measure	
	Auto sleep function	30 sec - 6 hours	

Component capacity		S-116	S-128
Physical specifications	Weight (inc. pickup)	0.5 Kg (1.1 lbs)	
	Dimensions	See page 9	
	Power source	Li Poly rechargable battery	
Operating conditions	Temperature	5 - 40 °C (41 - 104 °F)	
	Humidity	0 - 80 % non-condensing	
Storage conditions	Temperature	0 - 50 °C (32 - 122 °F)	
	Humidity	0 - 80 % non-condensing	

Measurement capability		S-116	S-128
Gauge	Range	200 / 100 / 10 µm	400 / 100 / 10 µm
	Resolution	100 / 20 / 10 nm	50 / 10 / 5 nm
	Noise floor [1] (Ra)	250 / 150 / 100 nm	150 / 100 / 50 nm
	Repeatability [2] (Ra)	1 % of value + noise	0.5 % of value + noise
	Pickup type	Inductive	
	Gauge force	150-300 mg	
	Stylus tip radius	5 µm (200 µin) / 2 µm* (80 µin) or 10 µm* (400 µin)	
	Measurement type	Skidded	
Calibration	Process	Automated software calibration routine	
	Standards	Able to calibrate to ISO 4287 roughness standards	
Analysis	Filter cut-off	0.25 mm / 0.8 mm / 2.5 mm	
	Filter type	2CR / Gaussian	
	Evaluation length	0.25 - 17.5 mm (0.01 - 0.70 in)	0.25 - 25.0 mm (0.01 - 1.00 in)
	Max. X axis range	17.5 mm	25.5 mm
Speed	Measuring speed	1 mm / sec (0.04 in / sec)	
	Returning speed	1.5 mm / sec (0.06 in / sec)	

Analysis capability (instrument)		S-116	S-128
Parameters	Standards	ISO 4287, ISO 13565-1, ISO 13565-2, ASME 46.1, JIS 0601, N31007	
	ISO basic	Ra, Rv, Rp, Rz, Rt, Rq, Rsk, Rmr, Rdq, Rpc, RSm, Rz1max	
	ISO advanced	Optional	Rk, A1, A2, Mr1, Mr2, Rpk, Rvk
	ASME	Ra, Rv, Rp, Rz, Rt, Rq, Rsk, Rdq, RSm, Rpm, Rda	
	JIS	Ra, Rv, Rp, Rz, Rt, Rq, Rsk, Rmr, Rdq, RSm, RzJIS, Rc, Rku, Rdc	
	Other	R3z (Daimler Benz)	
	ISO Primary	Optional	Pa, Pv, Pp, Pz, Pt, Pq, Psk, Pmr, Pdq, Ppc, PSm, Pz1max
	Units	µm / µin	

1. Ra measured over a glass flat nominally parallel to the traverse datum.
2. Based on measurements of Ra taken on roughness specimens up to 25 µm Ra.

* Optional.

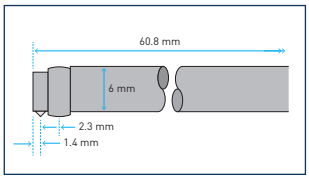
Pick-ups

Standard pick-up

For general surface roughness measurement.

Code PK-02 - 5 µm tip rad.

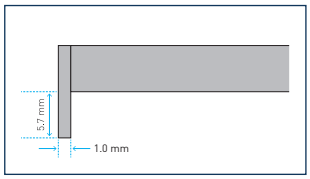
Code PK-03 - 10 µm tip rad.



Narrow gauge stylus

For measuring in 'O' rings and narrow grooves up to a depth of 5.5 mm (0.22 in).

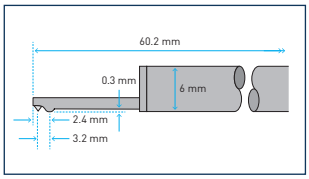
Code PK-07



Small bore pick-up

For general use in small bores, grooves and narrow surfaces. Ø3 mm (0.12 in) bore minimum.

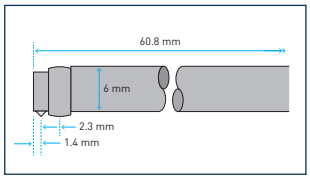
Code PK-01



Right angle pick-up

For measurement at right angles to the direction of traverse.

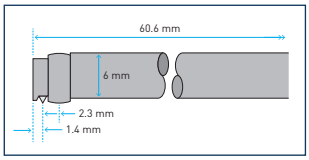
Code PK-05



Chisel edge pick-up

For measuring along sharp edges / wire. Not for use on flat surfaces.

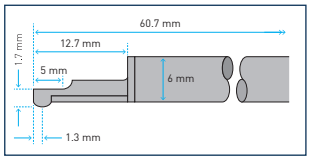
Code PK-24



Side skid pick-up

For use on curved surfaces such as gear teeth.

Code PK-31

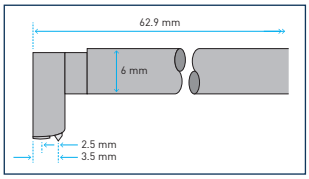


Recess pick-up**

For measuring into deep recesses.

Code PK-06 - 5.7 mm (0.23 in) recess with 5 µm tip rad.

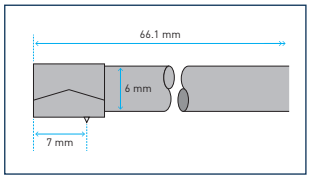
Code PK-08 - 25 mm (0.98 in) recess with 5 µm tip rad.



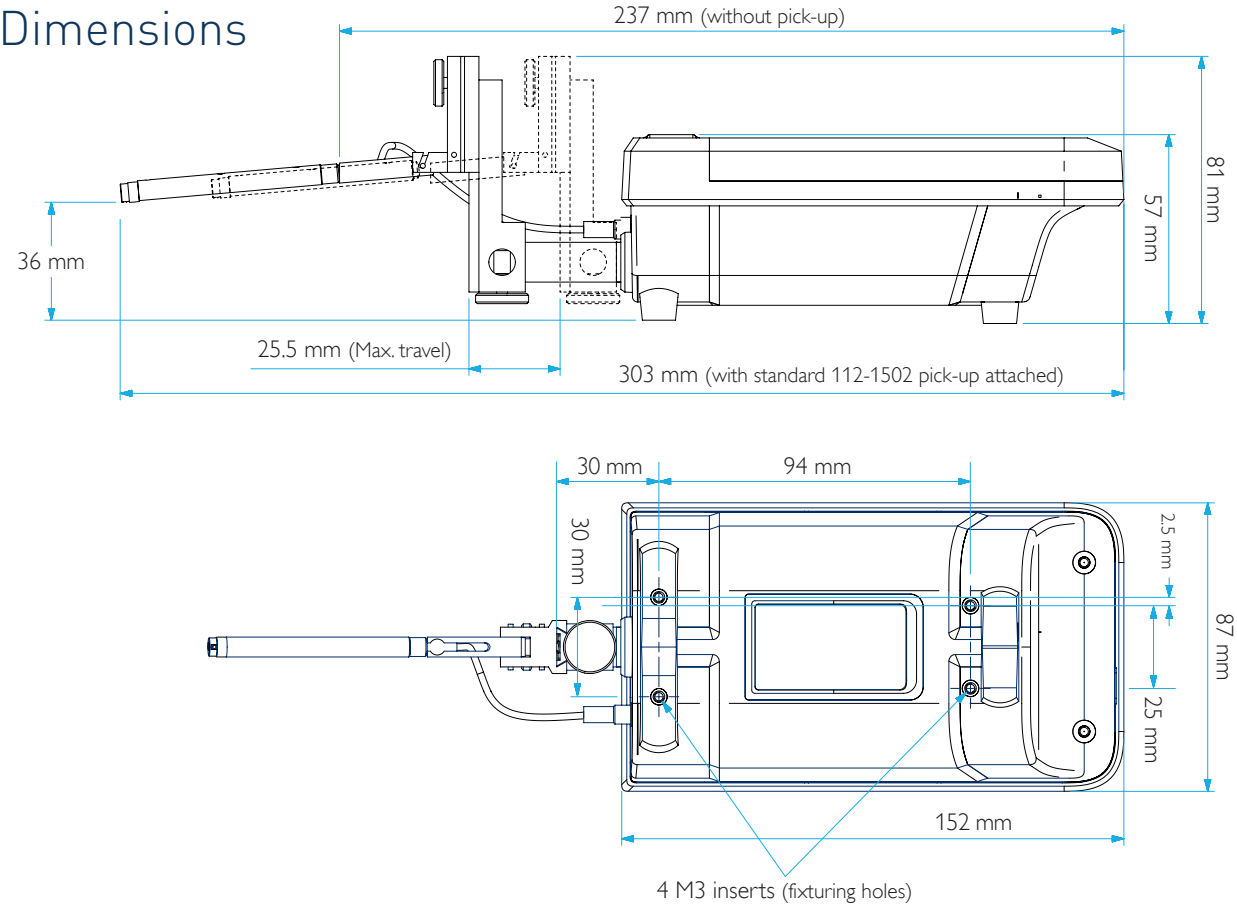
Shoe pick-up

For measuring rougher surfaces, particularly with the 2.5 mm (0.1 in) cut-off.

Code PK-99



Dimensions



** Other depths and tip radii availabe.