Starrett®

SR300
SR400
Surface Roughness Testers

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, Starrett focuses on the key attributes that are most important for quality control in today's precision industries.

The new SR300 and SR400 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.

USB Connectivity

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

USB type A

The Type A USB port can be used to attach a portable printer (ESC/POS compatible), see 'Accessories' page or a standard USB storage device for recording results, raw data or screen images.

USB mini

The mini USB port can be used for charging (with any standard USB charger) and / or connection to a PC to provide further analysis and reporting functionality.

SR series

A range of roughness testers robust enough for the shop floor and flexible enough for any inspection room.

Measure
Tactile measurement button, great when device is being used overhead or inside pipes

Lift/lower
Supplied as standard providing 50 mm height adjustment, right angle measurement and 70 mm reach into bores
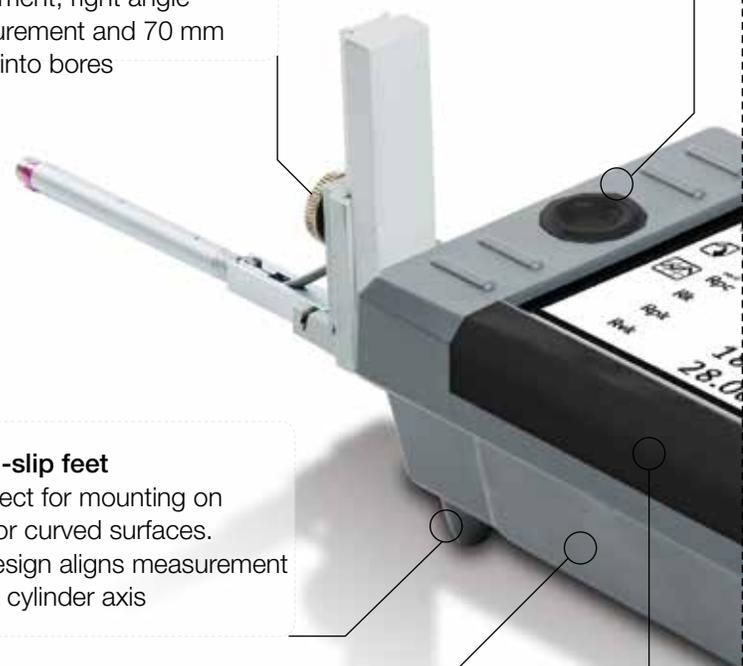
Anti-slip feet
Perfect for mounting on flat or curved surfaces. V design aligns measurement with cylinder axis

Comfort grip
Sits comfortably in the hand when reviewing results or changing settings

Rubberized moulding
Added protection and better grip in the hand invaluable in shop floor environments

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- Improve throughput

- Reduce part scrappage

- Monitor tool wear

- Ensure traceability

Profile graph
Detailed graph shows measured area to help identify problem areas

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

USB mini
for charging (with any standard USB charger) and / or connection to a PC for data transfer

USB type A
attach a portable printer or USB storage device

Orientation
Fix the display in 1 of 4 orientations perfect for awkward measurements

Features

Any surface, any height

The inclusion of a 50mm stylus lift with right-angle attachment and more than 70mm 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!

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% + 0.004µm)
Workpiece or component surface texture (Ra)	±3% of measured value per track

Talyprofile

Advanced surface finish analysis

Talyprofile is a dedicated PC based software package designed for use with the SR300 and SR400 series instruments. Three versions are available. Talyprofile "Lite" has all functions typically used for a shopfloor inspection, Talyprofile "Silver" has enhanced features for R&W parameters, a statistics module and full report printing and Talyprofile "Gold" has complete laboratory analysis functions:

- **Outstanding graphics**
- **Advanced time-saving analysis templates**
- **Desktop publishing facility**
- **In depth analysis**
- **Full compatibility**

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

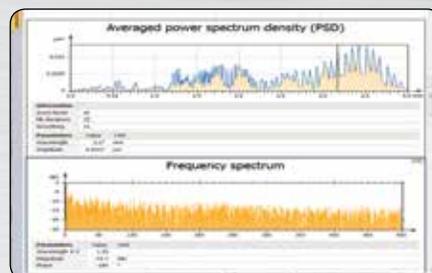| PC specification	Minimum	Recommended
Operating system	Windows XP	Windows 8
Memory (RAM)	1 GB	3 GB
CPU speed	1 GHz	2 GHz
Screen resolution	1024 x 768	1920 x 1080
USB port	1.1	2.0

Talyprofile parameters

Roughness parameters obtained by filtering: Ra, Rq, Rt, Rp, Ry, Rku, Rsk, RSm, Rz, RΔq, RTp, RHTp, Rlo, RΔq, RPC, RzJIS, R3z.

Parameters on the raw profile (unfiltered): Pa, Pq, Pt, Pp, Pv, Pku, Psk, PSm, Pz, PΔq, PΔq, PTp, PHTp, PLo, PPc.

Parameters obtained by double filtering (DIN 4776): Rk, Rpk, Rvk, MR1, MR2, A1, A2, Rpk, Rvk

Parameters obtained by the motifs method ("R&W")*: R, AR, Pt, Rx, SR, SAR, Nr, Kr, W, AW, Wte, Wx, SW, SAW, Nw, Kw, Rke, Rpke, Rvke, Trc, HTrc.
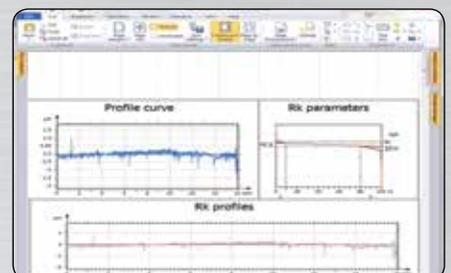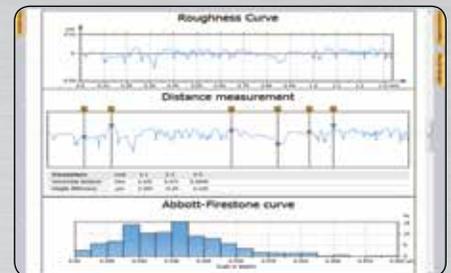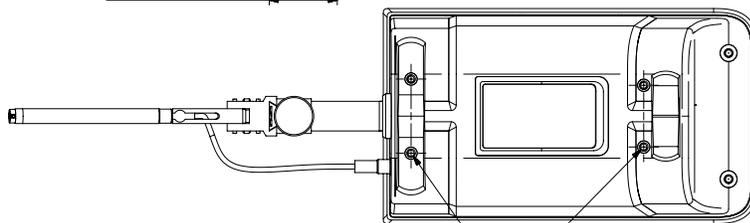
*Only with gold or silver versions

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Technical Specifications

Technical		SR300	SR400
Languages	Basic	English, French, German, Italian, Spanish	
	Extended		
	Asian		
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	
Data 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 tolerancing 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		SR300	SR400
Physical specifications	Weight including pickup	0.5 Kg (1.1 lbs)	
	IP rating	none	IP43
	Power source	Li Poly rechargeable 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 - 90 % non-condensing	
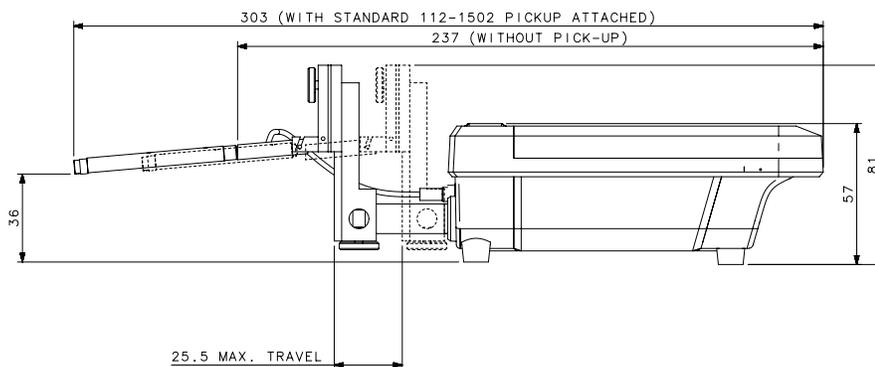
303 (WITH STANDARD 112-1502 PICKUP ATTACHED)
237 (WITHOUT PICK-UP)
36
57
81
25.5 MAX. TRAVEL
4.3"
152
87
4 FIXTURING HOLES.
DETAILS AVAILABLE
ON REQUEST.
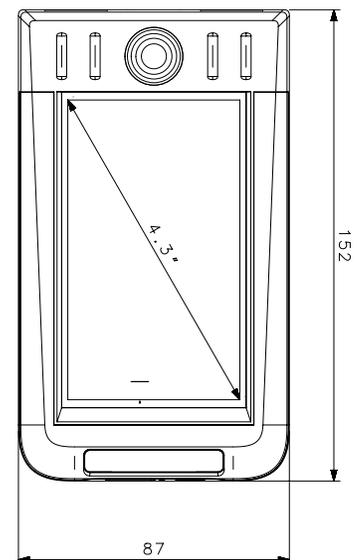
Accessories

Surface Roughness Tester and Accessories

Cat. No.	EDP	Description
SR300	21000	SR300 display and 17.5mm traverse unit, TalyProfile Lite software pick-up and diamond stylus, calibration standard, manual and carrying case
SR400	21001	SR400 display and 25mm traverse unit, TalyProfile Lite software and pick-up diamond stylus, calibration standard, manual and carrying case
SR-112-1510	20961	7.875"/200mm Extension Rod with Lead
SR-112-1534	20962	Reference Standard
SR-112-1517	20963	Support Stand
SR-112-2693	20964	Column and Stand
SR-112-1502	20956	Standard Pickup with 200µ" / 5µm Stylus
SR-112-1503	20957	Standard Pickup with 400µ" / 10µm Stylus
SR-115-P28495	21004	Small Bore Pickup
SR-112-1505	20959	Right Angle Pickup
SR-112-1506	20960	Recess Pickup
SR-112-3680	20952	TalyProfile Gold - 2D Analysis Software w/cable
SR-112-3681	20953	TalyProfile Silver - 2D Analysis Software w/cable
SR-K509-1578	20954	TalyProfile 8'/2.5m Cable
SR-K509-1820	20955	TalyProfile 5'/1.5m Cable
SR-112-4570	21002	USB Thermal Printer
SR-112-4571	21003	Thermal Paper

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Dimensions

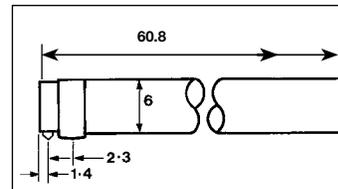| Measurement capability		SR300	SR400
Gauge	Range	200 µm 100 µm 10 µm	400 µm 100 µm 10 µm
	Resolution	100 nm 20 nm 10 nm	50 nm 10 nm 5 nm
	Noise floor (Ra)	250 nm 150 nm 100 nm	150 nm 100 nm 50 nm
	Repeatability (Ra)	1 % of value + noise	0.5 % of value + noise
	Pickup type	Inductive	
	Gauge force	150-300 mg	
	Stylus tip radius	5 µm (200 µin) default / 2 µm (80 µin) or 10 µm (400 µin) optional	
	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 mm - 12.5 mm (0.01 in - 0.49 in)	0.25 mm - 25.0 mm (0.01 in - 0.89 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)	
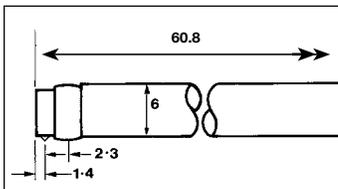
Standard Pick-up
For general surface roughness measurement
code SR-112-1502
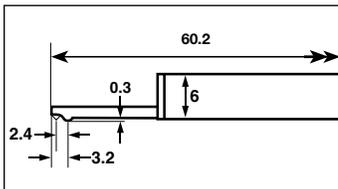(5 µm tip radius)
code SR-112-1503
(10 µm tip radius)

Small Bore Pick-up
For general use in small bores, grooves and on narrow surfaces
code SR-115-P28495

Right Angle Pick-up
For measurement at right angles to the direction of traverse
code SR-112-1505
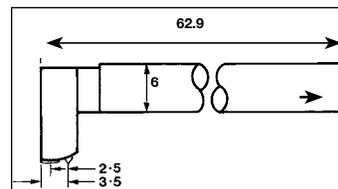
Recess Pick-up
For measuring into deep recesses
code SR-112-1506 recess 5.7 mm (0.23 in)

Analysis capability		SR300	SR400
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	

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