

SURFCOM TOUCH

Intuitively Operated Surface Texture
Measuring Instruments



SURFCOM TOUCH 35/40/45

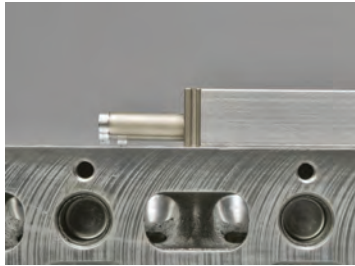
Portable surface roughness solution for any measurement challenge

The system is available with three small and light skidded tracing drivers for measurement with different attitudes. In addition to horizontal surfaces, measurement on vertical surfaces can be performed in narrow areas with a transverse trace.



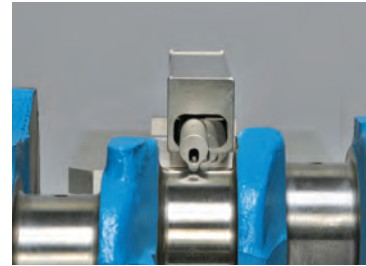
35 (Standard type)

The standard-type with different attitudes to measure horizontal, inclined, vertical and ceiling surfaces.



40 (Retraction type)

Retract-type that reduces damage to the stylus and pickup by raising the pickup while waiting for measurement or at the end.



45 (Horizontal tracing type)

The transverse trace-type where the pickup moves sideways.



Advantages

- Palm-sized tracing drivers selectable for workpieces and measurement areas
- A calibration table offered as an accessory makes calibration work easy
- Optional pickups allow for various types of measurement

Technical data summary	SURFCOM TOUCH 35	SURFCOM TOUCH 40	SURFCOM TOUCH 45
Z direction	-210 to +160 μm	-210 to +160 μm	-210 to +160 μm
Drive axis	X direction 16 mm	X direction 16 mm	Y direction 4 mm
Movement type	Standard type	Retraction type	Horizontal tracing type
Evaluation length	0.2 to 16 mm	0.2 to 16 mm	0.2 mm to 4.0 mm
Measurement speed	0.5, 0.6, 0.75, 1.0 mm/s	0.5, 0.6, 0.75, 1.0 mm/s	0.6 mm/s

1 μm + $\mu\text{m}/\text{mm}$ measuring height

SURFCOM TOUCH 50

Surface roughness and straightness in one compact machine

Skidless measurement with a high performance pickup while having high resolution and with a wide measuring range. Various types of workpieces can be measured by changing the stylus for deep, long, or small holes or a round surface.

Extended Z-axis measurement range from 800 to 1,000 μm

The high performance pickup with a measurement range of 1,000 μm and a Z-axis minimum resolution of 0.0001 μm allows for wide-range and high resolution skidless measurement. In addition to a flat surface, the roughness or waviness on an undulating surface such as a stepped or round surface can be evaluated with one trace.

A compact high performance tracing driver

Retract-type that reduces damage to the stylus and pickup by raising the pickup while waiting for measurement or at the end.

A handy-type driver can be attached

SURFCOM TOUCH 50 can be connected with a handytype tracing driver*.

Advantages

Suited for measuring cylindrical workpieces, a tracing driver can be placed on workpieces by using an optional roll footing.



Technical data summary

SURFCOM TOUCH 50

Z direction	$\pm 500 \mu\text{m}$
X direction	50 mm
Evaluation length	0.1 to 50 mm
Straightness accuracy	0.3 $\mu\text{m}/50 \text{ mm}$
Detector vertical movement range	50 mm
Measurement Speed	0.15, 0.3, 0.6, 1.5, 3 / 0.05, 0.1, 0.2, 0.5, 1 mm/s (Switching)

* Tracing driver attached to SURFCOM TOUCH 35/40/45, HANDYSURF E-35B/40A/45A, and SURFCOM FLEX-35B/40A/45A.
An optional dedicated cable is required for connection.

SURFCOM TOUCH 550

High-end solution with an electric column offering high accuracy and size variation



Extended Z-axis measurement range from 800 to 1,000 μm

The high performing pickup with a measurement range of 1,000 μm and a z-axis minimum resolution of 0.0001 μm allows for wide-range and high resolution skidless measurement. In addition to flat surface, the roughness or waviness on undulating surface such as stepped or round surface can be evaluated with one trace.

Machine size variations for various types of workpieces

SURFCOM TOUCH 550 allows users to select a combination of the size of the granite base, the height and type of the column and the drive range in the X axis direction.

Optional Equipment Available

An optional compact measurement stand for measuring high workpieces or measuring with jigs.

Technical data summary

SURFCOM TOUCH 550

Z direction	$\pm 500 \mu\text{m}$
X direction	100 mm or 200 mm
Drive distance	100 mm or 200 mm
Straightness accuracy	$(0.05 + 1.5L/1000) \mu\text{m}$ (L: measurement length (mm))
Measurement Speed	0.03, 0.06, 0.15, 0.3, 0.6, 1.5, 3, 6 / 0.05, 0.1, 0.2, 0.5, 1, 2, 5 mm/s (switching)

SURFCOM TOUCH COMMON FUNCTIONS

Intuitive and easy-to-use screen for condition setting, calibration, measurement and analysis

An amplifier with a 7-inch wide touch panel and a new interface provides higher operability. Easy-to-use operation eliminates the need of instructions.



Main Screen

- Settings can be performed such as language, icon layout, management of internal/USB memories.

Advantages

- Multi-language support available worldwide
- Easy-to-follow user's guide/quick reference guide
- USB/micro USB ports as standard equipment
- Measurement results can be printed quickly

Control screen of the driver

- It shows the level meter (Z) (contact level of the stylus with the workpiece), and horizontal (X) and vertical (C) positions of the tracing driver. (Z is shown on all models, X on TOUCH 50/550, C on TOUCH 550)
- The pickup can be moved horizontally and the tracing driver can be moved vertically from the screen. (TOUCH 50 can move the pickup, and TOUCH 550 can move the pickup and tracing driver) Two moving speeds are available for selection.

Setting Condition Screen

Parameter Selection Screen

Output Item Screen

- Output items can be set for printing with the small printer attached to SURFCOM TOUCH*.
**Some TOUCH 35, 40, 45 and 50 types have no printer.*

Calibration Screen

- Calibration can be performed before measurement.
- Any wear or chip of the stylus tip can be checked with the waveform and values.

Measurement Result Screen

- Measurement results are shown in waveform and selected parameters. Horizontal and vertical display magnification for waves can be changed intuitively with pinch-in or pinchout. No need to specify magnification in number (although it is also possible).
- OK/NG is easily identified by setting acceptance/rejection criteria in advance.

Technical Data

SURFCOM TOUCH 35/40/45

Model		SURFCOM TOUCH				
		35	35	40	40	45
		Tip radius 5 μm	Tip radius 2 μm	Tip radius 5 μm	Tip radius 2 μm	Tip radius 5 μm
Measurement range						
Z direction		-210 to +160 μm	-210 to +160 μm	-210 to +160 μm	-210 to +160 μm	-210 to +160 μm
Drive axis		X direction 16 mm	X direction 16 mm	X direction 16 mm	X direction 16 mm	Y direction 4 mm
Tracing Driver						
Movement type		Standard type	Standard type	Retraction type	Retraction type	Horizontal tracing type
Evaluation Length		0.2 to 16 mm	0.2 to 16 mm	0.2 to 16 mm	0.2 to 16 mm	0.2 mm to 4.0 mm
Measurement speed		0.5, 0.6, 0.75, 1.0 mm/s	0.5, 0.6, 0.75, 1.0 mm/s	0.5, 0.6, 0.75, 1.0 mm/s	0.5, 0.6, 0.75, 1.0 mm/s	0.6 mm/s
Pickup						
Sensing type		Differential inductance	Differential inductance	Differential inductance	Differential inductance	Differential inductance
Measurement Method		Skid	Skid	Skid	Skid	Skid
Z direction resolution		0.0007 μm/-210 to 160 μm	0.0007 μm/-210 to 160 μm	0.0007 μm/-210 to 160 μm	0.0007 μm/-210 to 160 μm	0.0007 μm/-210 to 160 μm
Model		E-DT-SM10A	E-DT-SM49A	E-DT-SM10A	E-DT-SM49A	E-DT-SM39A
Stylus	Measurement force	4 mN	0.75 mN	4 mN	0.75 mN	4 mN
	Tip radius	r _{tip} = 5 μm	r _{tip} = 2 μm	r _{tip} = 5 μm	r _{tip} = 2 μm	r _{tip} = 5 μm
	Tip angle	90°cone	60°cone	90°cone	60°cone	90°cone
	Tip material	Diamond	Diamond	Diamond	Diamond	Diamond
Analysis item						
Calculation Standards		Comply with ISO 4287-1997/2009, ISO 13565, ASME B46.1-2002/2009, JIS2013/2001, JIS1994, JIS1982, CNOMO and further standards				
Parameter	Profile Curve	Pa, Pq, Pp, Pv, Pc, PSm, PΔq, PPC, Psk, Pku, Pt, Pmr(c), Pmr, Pδc, Rz82, TILTA, AVH, Hmax, Hmin, AREA, Rmax, Rz, Sm, Δa, Δq, λa, λq, Lr, Rsk, Rku, Rk, Rpk, Rvk, Mr1, Mr2, Vo, K, tp, tp2, Hp				
	Roughness Curve	Ra, Rq, Rz, Rv, Rc, Rt, RSm, RΔq, Rsk, Rku, Rmr(c), Rmr, Rδc, Rz94, R3z, RΔa, Rλa, Rλq, Ry, Lr, Sm, S, tp, tp2, PC, RPC, JIS, RPe ISO, RPe EN, Pc, PPI, Rp, Rmax, Rz.l, RS, Rmr2, Mr1, Mr2, Rpk, Rvk, Rk, Vo, K, A1, A2, Rpm, Δa, Δq, Htp				
	Motif	R, Rx, AR, W, Wx, AW, Rke, Rpke, Rvke, NCRX, NR, CPM, SR, SAR, Wte, NW, SAW, SW, Mr1e, Mr2e, Vo, K				
Evaluation Curve		Profile Curve, Roughness Curve, ISO13565 Special Roughness Curve, Roughness motif curve, Waviness motif curve, Upper envelope waviness curve				
Characteristics graph		Abbot curve, Amplitude density function, Power graph				
Filter type						
Filter type		Gaussian, 2RC (phase compensation), 2RC (non-phase compensation)				
Cutoff value	λc	0.08, 0.25, 0.8, 2.5 mm				
	λs	None, 2.5, 8, 25 μm				
Amplification Indicator						
Display		Display 7-inch color liquid crystal touch panel				
Data output		USB connectors for USB memory x 2 (model without printer) x 1 (model with printer), Micro USB connector for USB communication x 1				
Print output		Standard function for models with printer and optional for models without printer (external printer unit)/Thermal recording paper width: 58 mm (recording width: 48 mm)				
Language		Japanese, English, Chinese (Traditional Chinese/Simplified Chinese), Korean, Thai, Malay, Vietnamese, Indonesian, German, French, Italian, Czech, Polish, Hungarian, Turkish, Swedish, Dutch, Spanish, Portuguese				
Specifications						
Power Supply	Charging	Built-in battery (to be charged using AC adaptor), charging period: 3 hours (about 600 measurements can be take when fully charged)				
	Power Supply	AC100 to 240 V ±10%, 50/60 Hz, Single phase				
	Power consumption	Maximum 80VA				
External dimensions (W x D x H)/Weight	Printer-Equipped Model	Amplification indicator: 320 x 167 x 44 mm/about 2 kg for the entire system				
	Models without printer	Amplification indicator: 252 x 167 x 44 mm/about 1.6 kg for the entire system				
Standard accessories		Roughness specimen (E-MC-S24C), calibration table (E-WJ-S1045A), touch pen (E-MA-S112A), printing paper (E-CH-S25A)*1, instruction manuals, SupportWare II, nosepiece (V-type) (E-WJ-S536A)*2				

*1 For models with printer only

*2 For SURFCOM TOUCH 45 only

Technical Data

SURFCOM TOUCH 50

Model		SURFCOM TOUCH 50
Measurement range		
Z direction		±500 μm
X direction		50 mm
Tracing Driver		
Evaluation Length		0.1 to 50 mm
Straightness accuracy		0.3 μm/50 mm
Detector vertical movement volume		50 mm
Measurement Speed		0.15, 0.3, 0.6, 1.5, 3 / 0.05, 0.1, 0.2, 0.5, 1 mm/s (Switching)
Pickup		
Sensing type		Differential inductance
Measurement Method		Skidless/Skid (optional)
Z direction resolution		0.0001 μm/±40 μm, 0.00125 μm/±500 μm
Model		DM43801
Stylus (standard accessory)	Measurement force	0.75 mN
	Radius	rtip = 2 μm
	Angle	60°cone
	Material	Diamond
Analysis item		
Calculation Standards		Comply with ISO 4287-1997/2009, ISO 13565, ASME B46.1-2002/2009, JIS2013/2001, JIS1994, JIS1982, CNOMO and further standards
Characteristics graph	Parameter	
	Profile Curve	Pa, Pq, Pp, Pv, Pc, PSm, PΔq, PPC, Psk, Pku, Pt, Pmr(c), Pmr, Pδc, Rz82, TILTA, AVH, Hmax, Hmin, AREA, Rmax, Rz, Sm, Δa, Δq, λa, λq, Lr, Rsk, Rku, Rk, Rpk, Rvk, Mr1, Mr2, Vo, K, tp, tp2, Hp
	Roughness Curve	Ra, Rq, Rz, Rv, Rc, Rt, RSm, RΔq, Rsk, Rku, Rmr(c), Rmr, Rδc, Rz94, R3z, RΔa, Rλa, Rλq, Ry, Lr, Sm, S, tp, tp2, PC, RPe JIS, RPe ISO, RPe EN, Pc, PPI, Rp, Rmax, Rz.J, RS, Rmr2, Mr1, Mr2, Rpk, Rvk, Rk, Vo, K, A1, A2, Rpm, Δa, Δq, Htp
	Waviness Profile Curve	Wa, Wq, Wt, Wp, Wv, WSm, WPC, Wsk, Wmr(c), Wmr, Wδc, Wz, Wc, Wku, WΔq, WEM, WEA, WE-a, WE-q, WE-p, WE-v, WE-Sm, WEC-q, WEC-m, WEC-p, WEC-v, WEC-Sm
	Motif	R, Rx, AR, W, Wx, AW, Rke, Rpk, Rvke, NCRX, NR, CPM, SR, SAR, Wte, NW, SAW, SW, Mr1e, Mr2e, Vo, K
Evaluation Curve		Profile Curve, Roughness Curve, Filtered Waviness Curve, Waviness Profile Curve, ISO13565 Special Roughness Curve, Roughness motif curve, Waviness motif curve, Upper envelope waviness curve, Rolling Circle Waviness Curve
Characteristics graph		Abbot curve, Amplitude density function, Power graph
Filter type		
Filter type		Gaussian, 2RC (phase compensation), 2RC (non-phase compensation)
Cutoff value	λc	0.08, 0.25, 0.8, 2.5, 8, 25 mm
	λs	None, 2.5, 8, 25 μm
Amplification indicator		
Display		7-inch color liquid crystal touch panel
Data output		USB connectors for USB memory x 2 (model without printer) x 1 (model with printer), Micro USB connector for USB communication x 1
Print output		Standard function for models with printer and optional for models without printer (external printer unit)/Thermal recording paper width: 58 mm (recording width: 48 mm)
Language		Japanese, English, Chinese (Traditional Chinese/Simplified Chinese), Korean, Thai, Malay, Vietnamese, Indonesian, German, French, Italian, Czech, Polish, Hungarian, Turkish, Swedish, Dutch, Spanish, Portuguese
Specifications		
Power Supply	Charging	Built-in battery (to be charged using AC adaptor), charging period: 3 hours (about 600 measurements can be take when fully charged)
	Power Supply	AC100 to 240 V ±10%, 50/60 Hz, Single phase
	Power consumption	Maximum 80 VA
External dimensions (W x D x H)/Weight		
Printer-Equipped Model		Amplification indicator : 320 x 167 x 44 mm/about 4.2 kg for the entire system
Models without Printer		Amplification indicator : 252 x 167 x 44 mm/about 3.8 kg for the entire system
Standard accessories		
		Roughness specimen (E-MC-S24C), touch pen (E-MA-S112A), printing paper (E-CH-S25A)*1, instruction manuals, SupportWare II

*1 For models with printer only

Technical Data

SURFCOM TOUCH 550

Model		SURFCOM TOUCH 550							
		-11	-12	-13	-14	-21	-22	-23	-24
Measurement range									
Z direction		±500 μm	±500 μm	±500 μm	±500 μm	±500 μm	±500 μm	±500 μm	±500 μm
X direction		100 mm	100 mm	100 mm	100 mm	200 mm	200 mm	200 mm	200 mm
Tracing Driver									
Drive distance		100 mm	100 mm	100 mm	100 mm	200 mm	200 mm	200 mm	200 mm
Straightness accuracy		(0.05 + 1.5L/1000) μm (L: measurement length (mm))							
Speed	Measurement Speed	0.03, 0.06, 0.15, 0.3, 0.6, 1.5, 3, 6 / 0.05, 0.1, 0.2, 0.5, 1, 2, 5 mm/s (switching)							
	Moving speed	to 3 mm/s (when operating the amplification indication section), to 6 mm/s (when using the joystick)							
Pickup									
Sensing type		Differential inductance							
Measurement Method		Skidless/Skid (optional)							
Z direction resolution		0.0001 μm/±40 μm, 0.00125 μm/±500 μm							
Model		DM43801	DM43801	DM43801	DM43801	DM43801	DM43801	DM43801	DM43801
Stylus (standard accessory)	Measurement force	0.75 mN	0.75 mN	0.75 mN	0.75 mN	0.75 mN	0.75 mN	0.75 mN	0.75 mN
	Radius	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm	rtip = 2 μm
	Angle	60°cone	60°cone	60°cone	60°cone	60°cone	60°cone	60°cone	60°cone
	Material	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond
Measurement stand									
Column	Drive distance	250 mm	250 mm	450 mm	450 mm	250 mm	250 mm	450 mm	450 mm
	Moving speed	-(Manual)	to 3 mm/s (when operating the amplification indication section), to 10 mm/s (when using the joystick)			-(Manual)	to 3 mm/s (when operating the amplification indication section), to 10 mm/s (when using the joystick)		
Base	Size	600 mm x 317 mm	600 mm x 317 mm	600 mm x 317 mm	1000 mm x 450 mm	600 mm x 317 mm	600 mm x 317 mm	600 mm x 317 mm	1000 mm x 450 mm
	Material	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite
	Maximum allowable load weight*1	Approx. 48 kg	Approx. 42 kg	Approx. 33 kg	Approx. 48 kg	Approx. 43 kg	Approx. 37 kg	Approx. 28 kg	Approx. 43 kg
Analysis item									
Calculation Standards		Comply with JIS2013/2001, JIS1994, JIS1982, ISO1997/2009, ISO13565, DIN1990, ASME2002/2009, ASME1995, CNOMO							
Parameter	Profile Curve	Pa, Pq, Pp, Pv, Pc, PSm, PΔq, PPC, Psk, Pku, Pt, Pmr(c), Pmr, Pδc, Rz82, TILTA, AVH, Hmax, Hmin, AREA, Rmax, Rz, Sm, Δa, Δq, λa, λq, Lr, Rsk, Rku, Rk, Rpk, Rvk, Mr1, Mr2, Vo, K, tp, tp2, Hp							
	Roughness Curve	Ra, Rq, Rz, Rv, Rc, Rt, RSm, RΔq, Rsk, Rku, Rmr(c), Rmr, Rδc, Rz94, R3z, RΔa, Rλa, Rλq, Ry, Lr, Sm, S, tp, tp2, PC, RPe JIS, RPe ISO, RPe EN, Pc, PPI, Rp, Rmax, Rz.l, RS, Rmr2, Mr1, Mr2, Rpk, Rvk, Rk, Vo, K, A1, A2, Rpm, Δa, Δq, Htp							
	Waviness Profile Curve	Wa, Wq, Wt, Wp, Wv, WSm, WPC, Wsk, Wmr(c), Wmr, Wδc, Wz, Wc, Wku, WΔq, WEM, WEA, WE-a, WE-q, WE-p, WE-v, WE-Sm, WEC-q, WEC-m, WEC-p, WEC-v, WEC-Sm							
	Motif	R, Rx, AR, W, Wx, AW, Rke, Rpke, Rvke, NCRX, NR, CPM, SR, SAR, Wte, NW, SAW, SW, Mr1e, Mr2e, Vo, K							
Evaluation Curve		Profile Curve, Roughness Curve, Filtered Waviness Curve, Waviness Profile Curve, ISO13565 Special Roughness Curve, Roughness motif curve, Waviness motif curve, Upper envelope waviness curve, Rolling Circle Waviness Curve							
Characteristics graph		Abbot curve, Amplitude density function, Power graph							
Filter type									
Filter type		Gaussian, 2RC (phase compensation), 2RC (non-phase compensation)							
Cutoff value	λc	0.08, 0.25, 0.8, 2.5, 8, 25 mm							
	λs	None, 2.5, 8, 25 μm							
Amplification indicator									
Display		7-inch color liquid crystal touch panel							
Data output		USB connector for USB memory x 1, Micro USB connector for USB communication x 1							
Print output		Standard function/Thermal recording paper width: 58 mm (recording width: 48 mm)							
Language		Japanese, English, Chinese (Traditional Chinese/Simplified Chinese), Korean, Thai, Malay, Vietnamese, Indonesian, German, French, Italian, Czech, Polish, Hungarian, Turkish, Swedish, Dutch, Spanish, Portuguese							
Specifications									
Power Supply	Power Supply	AC100 to 240 V±10%, 50/60 Hz, single phase, D-type grounding							
	Power consumption	Maximum 110 VA							
External dimensions (W x D x H)/Weight		Measurement unit: See the external view below. Amplification indicator: 340 x 214.5 x 139.5 mm/about 4.1 kg							
Standard accessories		Roughness specimen (E-MC-S24C), leveling adjustment table (E-AT-S02A), touch pen (E-MA-S112A), printing paper (E-CH-S25A), instruction manuals, SupportWare II							

*1 This maximum allowable load weight is for the case when using the optional antivibration table (E-VS-S57B for -11, -12, -13, -21, -22, -23 system, and E-VS-R16B for -14, -24 system)

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