English

Surface Texture & Contour
Measuring Instrument

Surfcom Nex Series

S-Nex 100 | 030 | 040 | 001

ACCRETECH | EUROPE

Next Stage
The New

Feature 1 Global model with the highest accuracy in class

Feature 2 Detectors can be selected according to application

Feature 3 Excellent extensibility worth initial investment

Feature 4 Available for the world-first hybrid detector with dual sensor technology

Feature 5 Advanced ACCTee software

New advanced SURFCOM design

New design expresses quality and innovation, with the extensibility of the linear x drive and detector.

Hairline-finish aluminum side covers are provided for the column, providing a beautiful and smooth line. An accordion-type cover is provided to the guide part to increase dust resistance. The depth of the granite table has been extended by 133 mm from the previous model to provide sufficient working space. The improved internal structure of the advanced-type linear x drive is surrounded by a high-quality front aluminium panel.

High-end design and innovative new technology have been combined to create SURFCOM NEX.

SURFCOM NEX

Linear Technology

Surface texture and contour measuring instrument with world-first dual sensor technology and a linear x drive

SURFCOM NEX

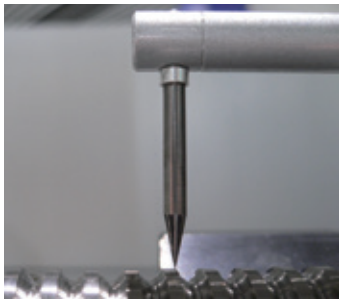
SURFCOM NEX allows you to set the specifications
You can add detectors after installation to upgrade

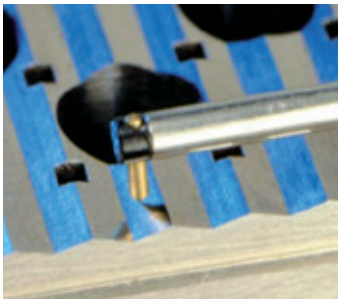
This machine provides innovative extensibility.

The SURFCOM NEX series provides three functions: roughness, contour, and roughness/contour measurements.
Necessary detectors can be selected according to measurement purposes.
Separate detectors can be added later when necessary.

For example, if you need a general roughness measuring machine, you may purchase the roughness detector only and use the system for roughness measurements.
But later, if you need a wide range of roughness measurements such as roughness evaluations of round shapes, you may then add the hybrid detector unit and use several detectors interchangeably. The system can also be upgraded by installing a detector dedicated to contour measurements, a 3D roughness measurement unit, etc.

Photo: NEX001DX-12 with optional tilt device





by selecting the necessary detectors.
its ability.

Multiple sensors are available. Detectors can be selected according to the application.

This machine offers hybrid, roughness, contour, and combined functions.

The SURFCOM NEX series allows you to select detectors according to the application. Detectors can be used as a single detector or combined with others to serve as multiple sensors.

Hybrid detector with dual sensor technology
E-DT-CR14A

▶ pages 5 to 6

An integrated measuring instrument with newly developed dual sensor technology capable of measuring roughness and contour simultaneously. Please refer to the next page for details.

Contour detector
E-DT-CH18A

▶ Top of page 9

General purpose detector equipped with a newly-developed high-precision scale. The Z-axis measurement range is 60 mm.
Stress-free replacement is possible with the newly-developed quick-change arm mechanism.
Upward/downward measurements are optionally available.

High-accuracy contour detector with automatic measuring force adjustment mechanism
E-DT-CH19A

▶ Bottom of page 9

High accuracy type detector equipped with a new laser diffraction linear scale. The full-range measurement resolution is 0.02 µm.
It features an automatic measuring force adjustment mechanism as well as the Z-axis measurement range of 60 mm and quick-change arm mechanism. Upward/downward measurement is optionally available.

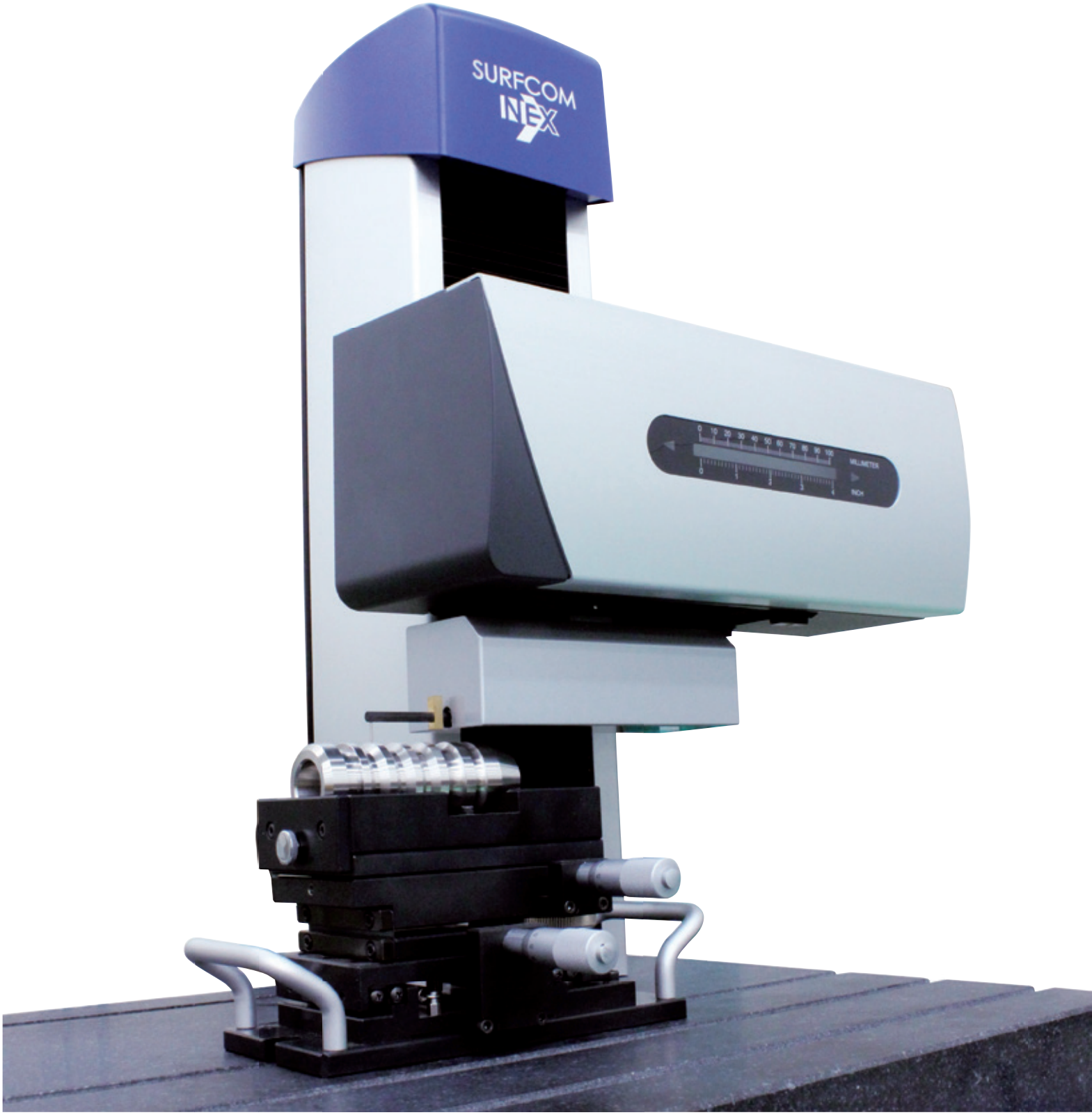
Detector for roughness measurement
E-DT-SS01A

▶ P.11

A detector with compact design for high magnification and wide-range measurements. Its outer diameter is 14 mm, measurement range is 1000 µm, and its maximum measurement magnification is 500,000 times. It is used for upward measurements (with the auto-stop function) and horizontal trace measurements.

Optical sensor for roughness measurement
E-DT-SL12B

An optical white light sensor for roughness measurements with a range of 300 µm and a resolution of 10 nm by a work piece distance of 4.5 mm. This Pickup can be used in addition to common materials also for softer materials such as plastic, film and paper.



World-first! Hybrid detector with dual sensor technology.

ACCRETECH has developed the world's first hybrid detector with dual sensor technology (patent obtained). Unlike conventional detectors, it has a high-accuracy linear Z scale for wide-range measurements and high resolution differential inductance for narrow-range measurements. Using these two sensors simultaneously for measurements maximizes their performance.

This new hybrid detector model is compatible with the previous model series (DX2/SD2 and later).

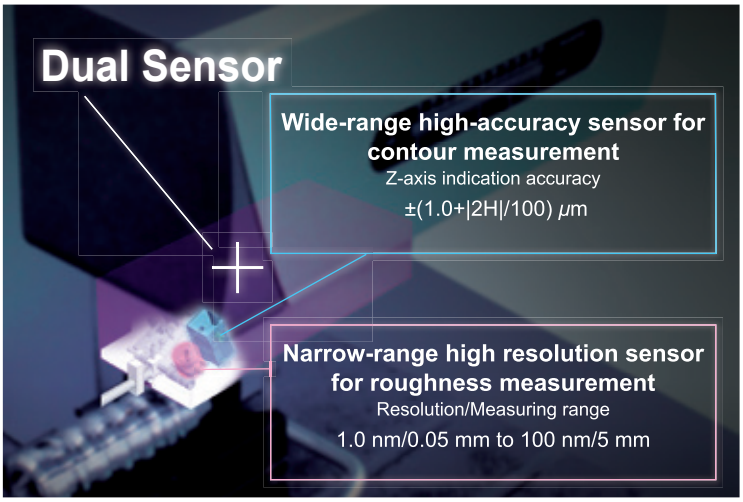
Hybrid detector with dual sensor technology

E-DT-CR14A

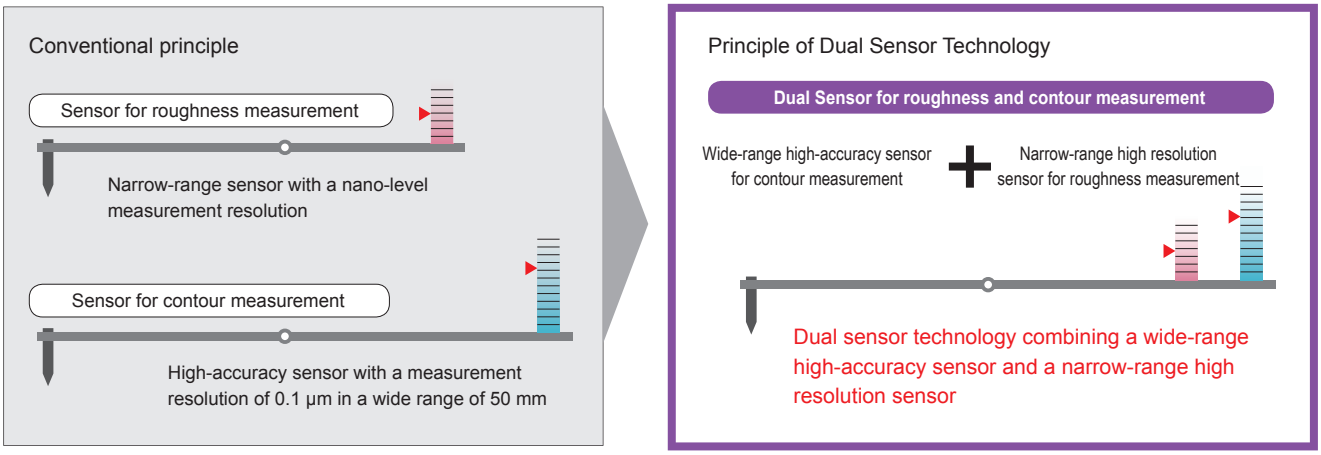
World-First!! **Patented**

Availability of dual sensor technology

The combination of a wide-range high-accuracy sensor and a narrow-range high resolution sensor allows for simultaneous measurements. This new operating principle enables you to measure surface roughness and contour at the same time, thus no longer requiring the change of detectors and increasing measurement efficiency.

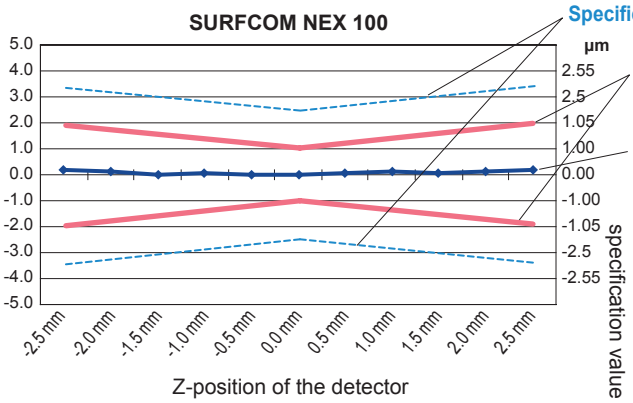


SURFCOM NEX 100 Principle of Dual Sensor Technology (Patented)



Highest Accuracy in Class **World No.1**

Z-axis indication accuracy is ±(1.0 + |2H|/100) μm. This is a 60% improvement in specifications for first term accuracy from the previous model, achieving 1.05 μm at a full stroke of 2.5 mm. This is the highest accuracy in class.



Specification value for existing model

Specification value for SURFCOM NEX

Sample value actually measured with SURFCOM NEX 100 on factory inspection.

60% improvement in specifications for first term accuracy from the previous model.

Detector for contour measurement offering excellent convenience by incorporating linear drive with a temperature correction system. This is the evolution of ultimate refinement without compromise to make high accuracy a common thing.

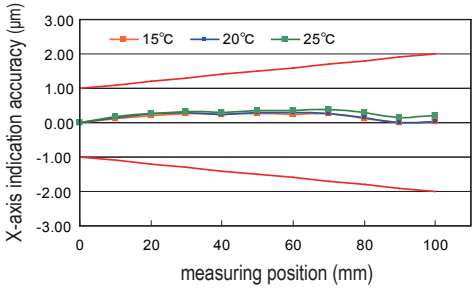
Feature 1 Temperature correction system increases the guaranteed accuracy temperature range to 20°C ± 5°C

The NEX series driver unit provides scale temperature correction technology. The accuracy-guaranteed temperature range of the system was increased to 20°C ± 5°C from 20°C ± 2°C.

Conventionally, expansion and contraction of the drive's scale caused by temperature change affected the indication accuracy of the X direction. However, it can be corrected automatically in real time by having a temperature sensor.

This is a special function achieved only by the NEX series by combining the temperature correction system and detectors which are all less affected by temperature changes.

X-axis tracing driver accuracy indication

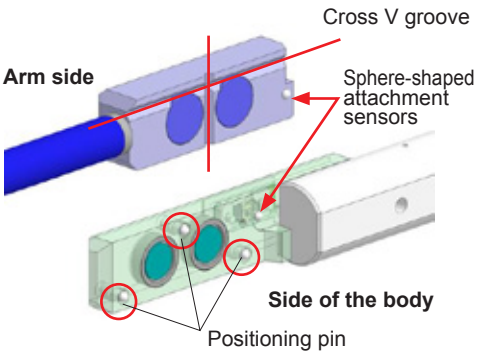


Feature 2

Quick-change arm with attachment recognition sensors

Patent Pending

Availability of quick-change function which changes arm easily by magnet desorption. In addition to double magnet which stably holds the arm, the crossing V-groove structure with three-part support ensures extremely high reproducibility. Moreover, sphere-shaped sensors quickly detect deviation in all directions. A complete safety mechanism has also been introduced including the design to reduce the impact on the detector: When a strong impact is applied in the X direction, a slide guiding structure releases the force in oblique directions.



Feature 3

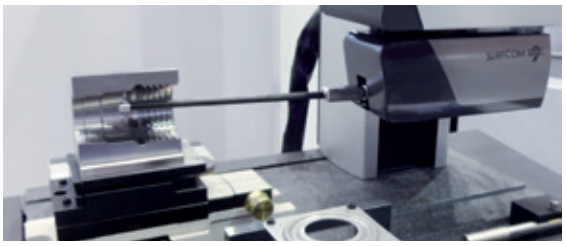
Z-axis measurement range expanded to 60 mm (±30 mm)

Feature 4

T-shaped stylus for continuous upward/downward measurement

Although upward/downward measurement was available with conventional models, the T-shaped stylus now guarantees the spatial accuracy during such measurement. This enables measurements and evaluations of workpieces' diameter, thickness, uneven thickness, etc.
(The optional masterball calibration unit for upward/downward measurement is required.)

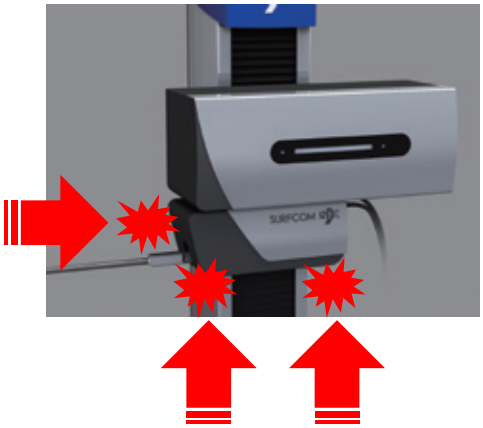

Thickness measurement


Diameter measurement

Feature 5

Safety mechanism to prevent detector collision

A safety mechanism is featured as standard to activate a sensor and stop driving in case the left side or bottom of the detector hits a workpiece or other object. The linear drive is designed to have a slide structure which can release the force with shaft motor when a large load is applied to the drive direction (X-axis direction).



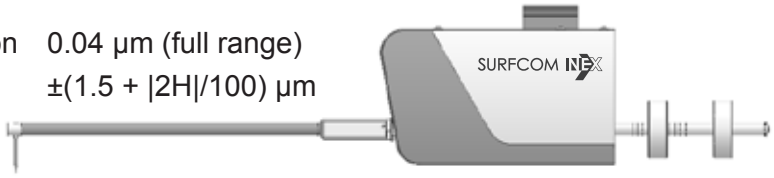
Two types of new detectors for contour measurement can be selected based on the application and required accuracy.

General-purpose detector for contour measurement NEX030 E-DT-CH18A

Detector with correction function for temperature effects to provide the highest-in-class accuracy

The measuring force should be adjusted manually with weights.
A newly-developed high resolution scale allows the highest accuracy in this class.

Measuring resolution 0.04 µm (full range)
Indication accuracy ±(1.5 + |2H|/100) µm

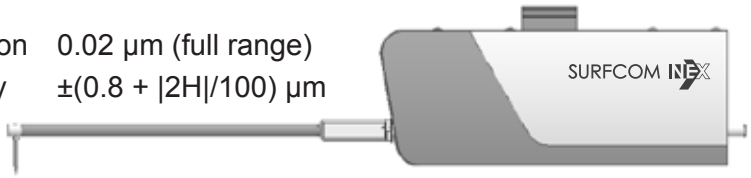


High-accuracy detector for contour measurement NEX040 E-DT-CH19A

High-accuracy detector with built-in auto balance (automatic measuring force adjustment) function

The measuring force can be finely specified and controlled on PC software in 2 mN increments. This prevents scratching or chipping a stylus tip when it hits a step. Various special arms/styluses are supported to ensure an optimum measuring force. *An auxiliary weight may be needed depending on the combination of arms and styluses.

Measuring resolution 0.02 µm (full range)
Indication accuracy ±(0.8 + |2H|/100) µm



T-shaped stylus for vertical contour measurements (optional)

Masterball calibration unit for upward/downward measurements

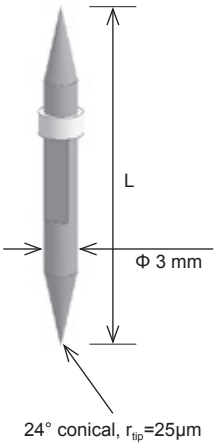
E-MC-S97A

This is a calibration unit to guarantee the spatial accuracy of upward and downward measurements using SURFCOM NEX 030/040.
Use this unit to calibrate the parameters required to set the stylus upward/downward. Arc correction and stylus tip radius correction performed based on the calculated parameter provides advanced measurements.
Dimensions: 150(W) x 120(D) x 230(H) mm
Weight: Approx. 3.3 kg

Stylus for vertical measurements

The stylus designed for the upward/downward measurement using SURFCOM NEX 030/040.

	Length	Tip radius	Edge angle	Material
DM83502	L=26 mm	r_{tip}=25µm	24° conical	Cemented carbide
DM83503	L=32 mm	r_{tip}=25µm	24° conical	Cemented carbide
DM83504	L=44 mm	r_{tip}=25µm	24° conical	Cemented carbide



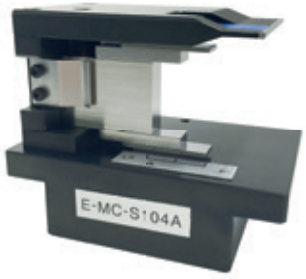
T-shaped stylus dedicated to vertical measurement of small holes (optional)

Calibration unit of T-shaped stylus for small hole measurements (E-MC-S104A)

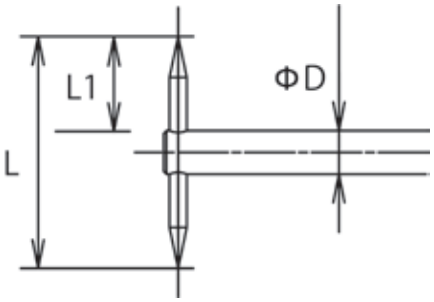
This is a calibration unit for vertical measurement of small-diameter holes for SURFCOM NEX 030/040.

Stylus for vertical measurement of small holes

The T-shaped stylus for small holes measurement is used in combination with ARM DM83521. Since the arm and the stylus are separable, if an abrasion or damage occurs to the stylus tip, it is possible to replace only the stylus parts. This makes the design user-friedly. The relation between the vertical length of the stylus and the shank is as shown in the table to the right.

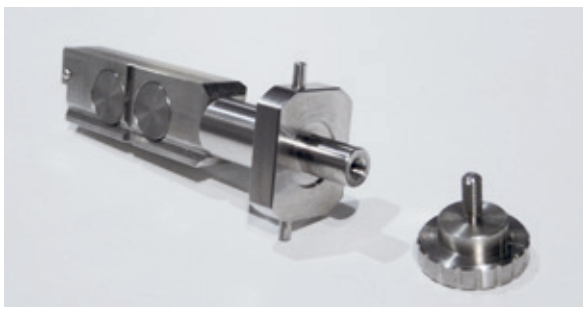


	L	ΦD	L1
DM83534	16	3	6,5
DM83535	9	3	3
DM83536	5	2	1,5
DM83537	2,4	1	0,7

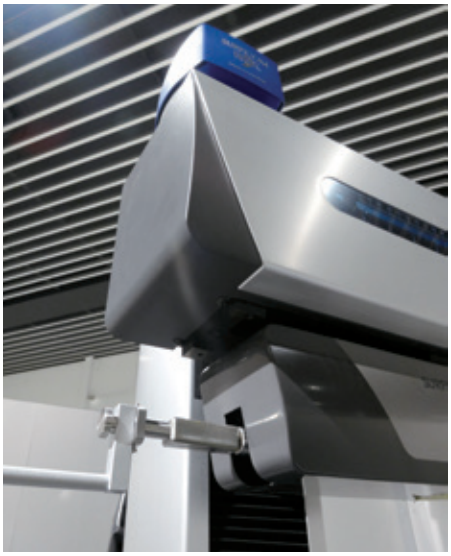


Attachment for quick-change arm (optional) DM83506

This attachment attaches conventional arms to a quick-change contour measurement detector. You can continue to use the arms from your conventional measuring instrument to save costs. It is designed to make the total length of the combined attachment and conventional arm the same as that of the supplied standard arm. Even when the conventional arm is used, the detector's Z-axis measurement range (60 mm(±30 mm)) can be ensured.
For applicable arms, contact our sales representative.

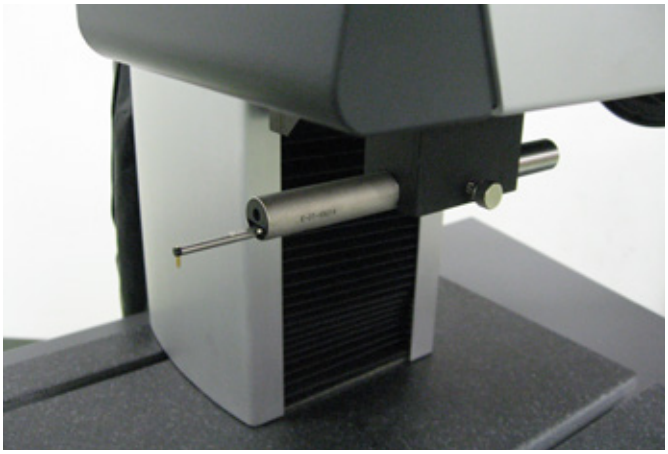


Example of using the quick-change arm attachment



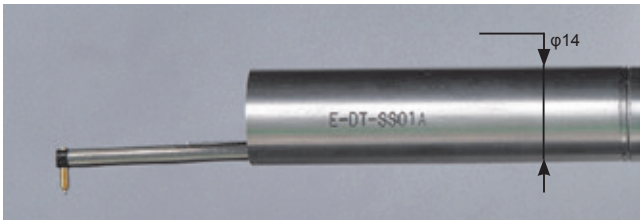
Stylus for roughness measurement NEX001 E-DT-SS01A

Detector (stylus) dedicated to surface roughness measurement providing unparalleled possibilities resulting from our long history as a market leader. When combined with linear x drive, it provides excellent reliability for surface profile evaluation.

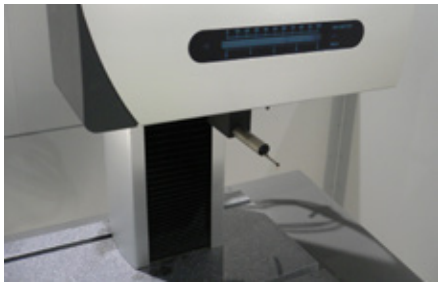


The detector specificaftion for roughness measurements is 1000 µm.

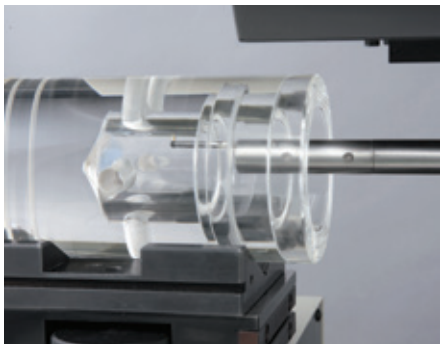
This detector offers a measurement range of 1000 µm in the Z direction, which is 25% wider compared with 800 µm for standard detectors. It has an excellent wide stroke as a roughness measuring machine. The wide-range measurements significantly reduce the tilt angle of the measurement surface and detailed alignment at the R surface measurements (such as shafts, bearing workpieces).



The newly developed detector supports high magnification and wide-range measurements. The compact body with an outside diameter of 14 mm provides the measurement range of 1000 µm and measurement magnification of 500,000x.



Just changing the holder direction allows horizontal trace measurements.



Auto stop is also possible for upward measurements.

Optional connecting rod for ultra-long holes

No screwdriver or other tools needed to replace detectors

This is an option effective for users who replace sensors (detector/stylus) frequently. The wider clearance between the drive part and the detector allows easy replacement of the detector. A special pin is provided for mounting/removing detectors. You can easily mount/remove the detector by pulling out the special pin and turning it to either the left or right by a half turn. No screwdriver or other tool is required.

When the pin is retracted

When the pin is pulled out

The detector is locked and unlocked by a half turn clockwise or counterclockwise respectively.

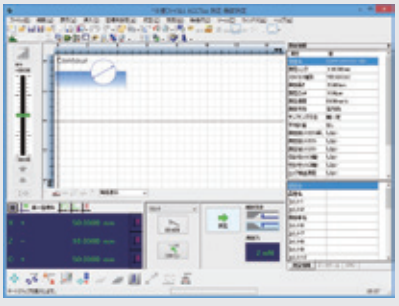
Sharing data, performing re-analysis, and editing output data.

Second licence proposal... ACCTee software for offline analysis.

You can use special analysis software on your computer (limited to those running on the specified Windows OS) With the offline software, you can perform analysis, editing, or printing work on your desktop independent of the measuring instrument.

Supports network licence

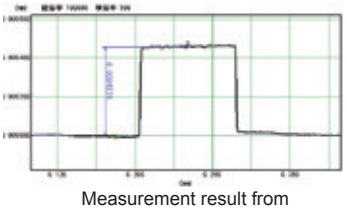
Besides working with UBS protection key, Offline ACCTee Analysis Software can also be used with network licences. The software can be started up and used on network-connected personal computers within the specified number of acquired licences (rights to use the software).
*The software is delivered in DVD-ROM.



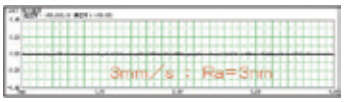
Discover why you need

Linear Drive for Amazingly Low Vibration Patented

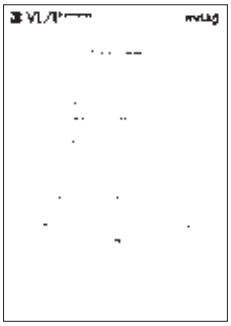
Continually increasing the resolution of a detector is a simple task. However, unless you also improve factors like the structure that drives the detector, unnecessarily raising the resolution of the detector is merely window-dressing the specifications.
ACCRETECH is the first company in the world to use a high-accuracy linear motor as the drive motor (patened) in a revolutionary new structure that dramatically pushes the envelope in terms of high accuracy. The result is a dynamic solution that improves actual values to unmatched levels.



Measurement result from level difference master



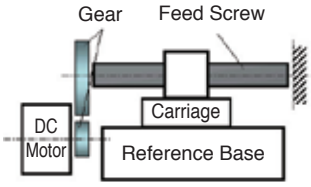
Optical flat measurement



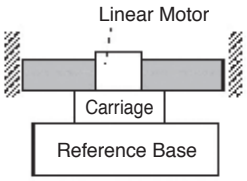
Calibration certificate of level difference master

Effectiveness of the Non-Contact Drive Patented

A linear motor is ideal even for reciprocating motion, and enables accurate positioning and high-speed measuring. Conventional control uses a ball screw drive control system that combines a motor, encoder, and linear scale, which limits the reciprocating motion control response especially when determining accurate positioning during 3D surface evaluation. Linear drive, on the other hand, enables simplified control consisting basically of a linear motor and scale, for high response, high accuracy positioning.



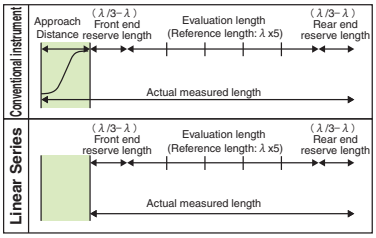
Standard series



Linear series

Approach Distance

Approach distance is effective when you do not want to waste measuring distance or when you can only measure short distances. With conventional measuring instruments, approach distance is always required before data sampling, while taking backlash and motor startup characteristics into consideration. ACCRETECH linear motor models are designed for high response and zero backlash, which eliminates the need for approach distance.



Response startup speed graph

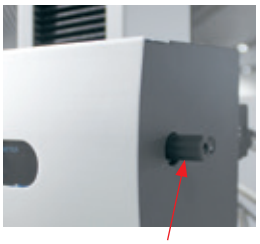
Maintenance free

It is not necessary to apply grease or lubricate the drive mechanism on a daily basis. By reviewing the material and mechanism of the guide surface that supports driving, daily maintenance is no longer required. Periodic maintenance (inspection and calibration) is recommended to ensure guaranteed accuracy of the instrument.

the linear x drive.

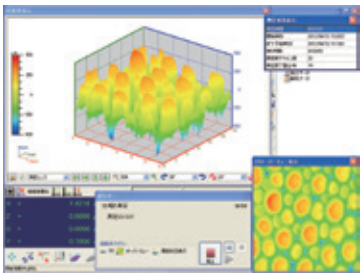
Positioning Patented

The manual feed mechanism installed on the X-axis drive is designed so that the connection between the manual gear mechanism and the linear measurement mechanism is automatically cut off in the actual measurements in order not to affect the low vibration characteristics achieved by the linear motor. This results in high operability and accuracy. A jog dial for minute feeding has been laid out in addition to the joy stick in the manual operation section to ensure that subtle positioning can be securely carried out.


Manual grip

World's Fastest Speed Measurements

The measuring time for 3D roughness measuring is: [1/10 Conventional Measuring Time] x [Number of Measuring Lines], resulting in greatly reduced measuring times. This reduces the risk of measurements being affected by temperature change and other measuring error factors, leading to more reliable measurement results.
The linear motor and minimal lost motion provided by the 1/100-second link control combined with outstanding start response deliver dramatic overall reductions in total measuring time.

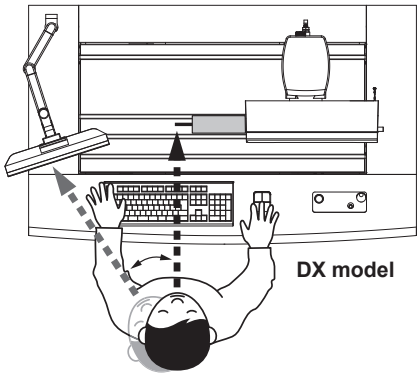

Example of 3D roughness measurement with linear series and ACCTee

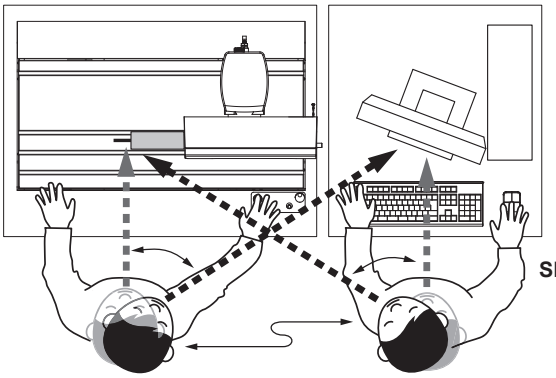
The Perfect Combination of Operation and Cost Performance

C.O.A.P. (Comfortable Operation and All-in-one Package) Design Plan

DX DESIGN

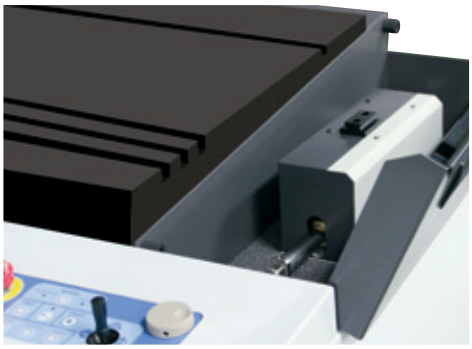
The DX model is designed for much more than simply saving space. Bear in mind that the idea of "Important Functions for Realization of Comfortable Measurement and Analysis," a COAP concept design derived from ergonomics, has been introduced to minimize frequent operator movements while measuring and analysing multiple workpieces. The DX model also comes complete with essential options, making it an all-in-one package. The Windows computer is stored in the space under the vibration isolation stand, to provide a high level of environmental resistance. Dead space on the right side of the column is also put to use by providing a storage box that can be used for system accessories and peripherals. The Windows computer is stored in the space under the vibration isolation stand, to provide a high level of environmental resistance. As a result, the area required for installation is approximately 25% less than the standard installation area of previous models (SD specifications require the same area as previous models).


DX model


SD model

DX model

Specially designed mount with anti-vibration device



DX model detector storage box

PC, controller unit storage

Detector changeover switch

After replacing detectors, the connected detector is switched over.
A detector change is automatically recognized without turning off the computer.
*Standard accessories for integrated machines equipped with a detector for contour measurement
Models: SUFRCOM NEX 131/130/141/140

SD model

Desktop-style anti-vibration table is optional.

Detector table

It is standard equipment for integrated machines.

Detector

Detectors can be selected according to usage:

- Hybrid detector with dual sensor technology
- General-purpose detector for contour measurement
- High-accuracy detector for contour measurement
- Roughness detector

X-axis drive

This drive with a linear motor is provided as standard equipment.
You can choose 100 or 200 mm measuring range.

Z-axis column

An accordion-type dust prevention function is provided.
You can choose 250, 450, or 650 mm as maximum driving range.

Measuring stand base

Surface plates can be selected according to the size of the workpiece.

- 600 mm x 450 mm
- 1000 mm x 450 mm

Tilting device (Option)

Tilting is allowed up to ±10° when the hybrid detector with dual sensor is used, and up to ±15° for other detectors.

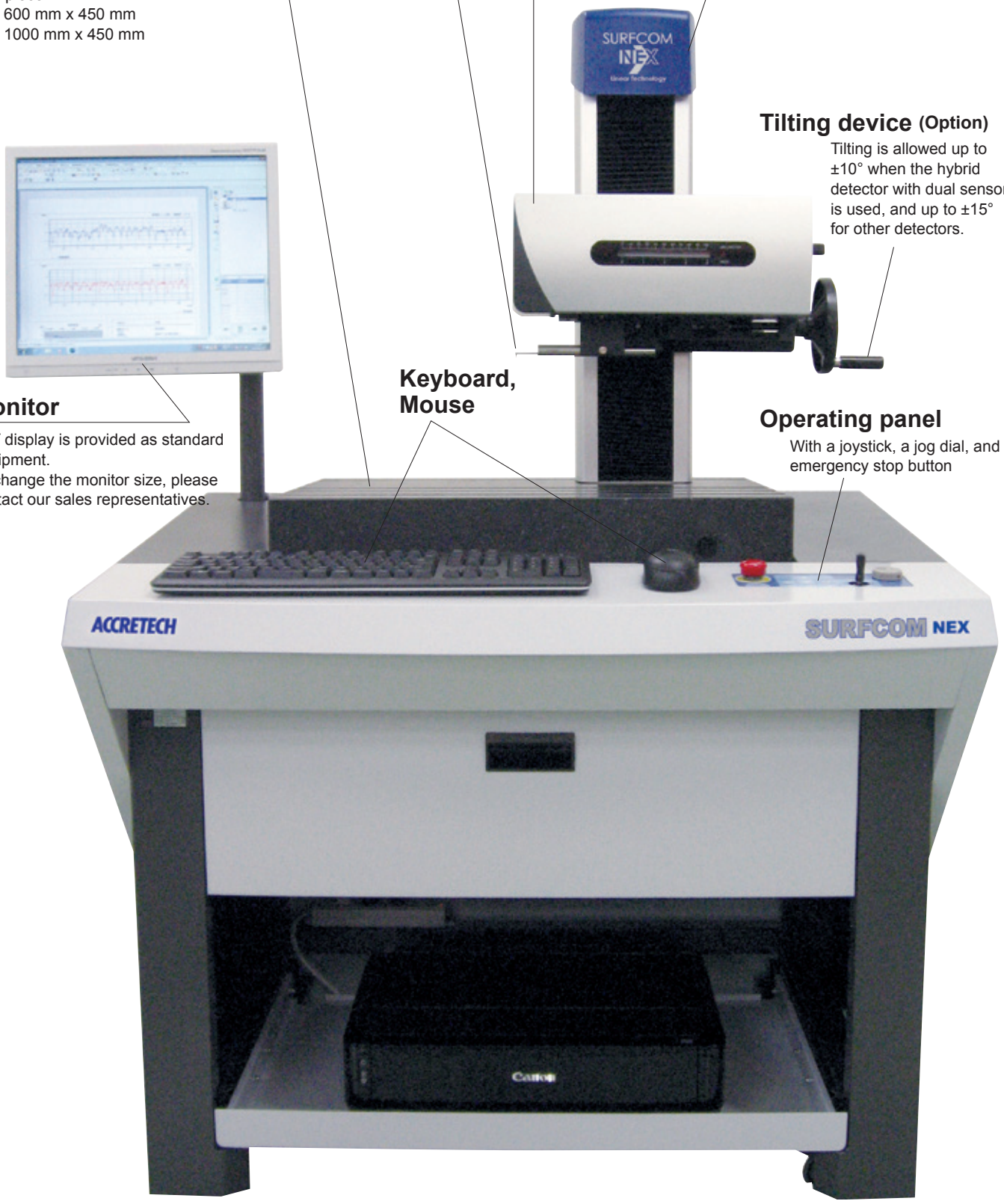
Monitor

TFT display is provided as standard equipment.
To change the monitor size, please contact our sales representatives.

Keyboard, Mouse

Operating panel

With a joystick, a jog dial, and emergency stop button

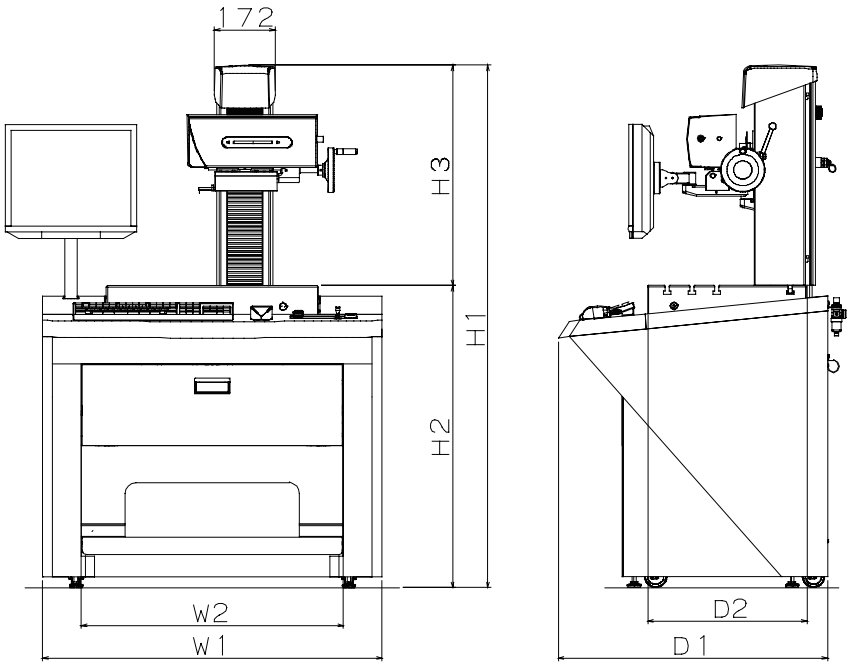


Dimensional drawings

DX model				Main unit dimentions					Measuring range (mm)		Base (mm)		Weight (kg)	
				Width	Depth	Height	Table height	Colum height	X-axis (Tracing driver)	Z-axis (Column)	Width	Depth	Main unit weight ※1	Max. loading weight
Model		Code		W 1	D 1	H 1	H 2	H 3	-	-	W 2	D 2	-	-
DX	12	K2	A	960	762	1478	855	623	100	250	600	450	245 (275)	82
	13			960	762	1678	855	823	100	450	600	450	255 (285)	72
	14		C	1360	840	1673	850	823	100	450	1000	450	395 (425)	89
	15		D	1360	840	1893	850	1043	100	650	1000	450	405 (435)	79
	22		E	960	762	1478	855	623	200	250	600	450	250 (280)	76
	23		F	960	762	1678	855	823	200	450	600	450	260 (290)	66
	24		G	1360	840	1673	850	823	200	450	1000	450	400 (430)	83
	25		H	1360	840	1893	850	1043	200	650	1000	450	410 (440)	73

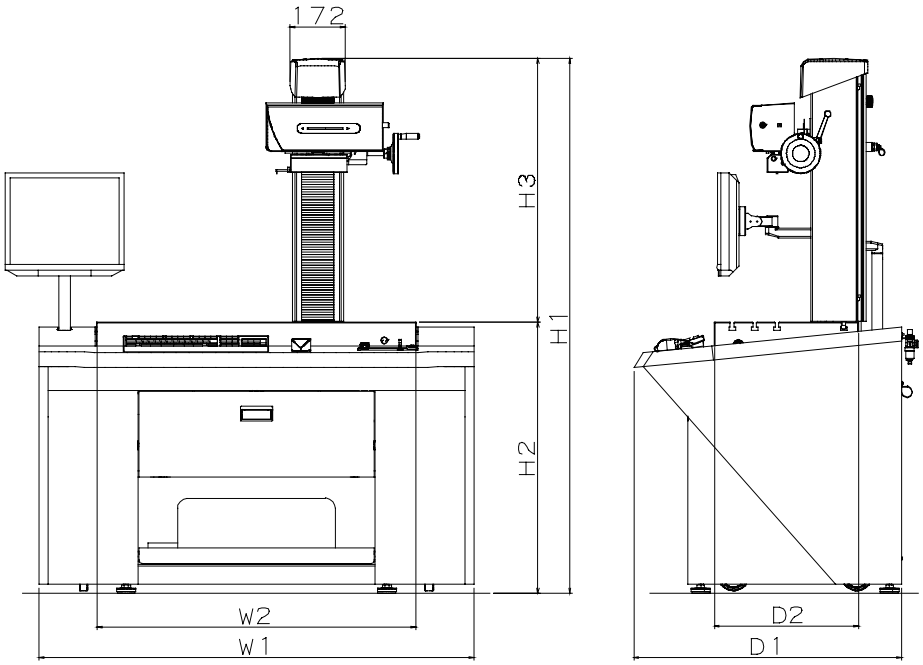
※ Weights in parentheses include PC, driver unit, monitor and printer (DX model only).

DX model			
12	13	22	23



※Tracing driver tilting device is optional.
※Air supply connecting port Rc 1/4 male screw (outside diameter Φ 6 mm one-touch pipe joint for pipe)

DX model			
14	15	24	25



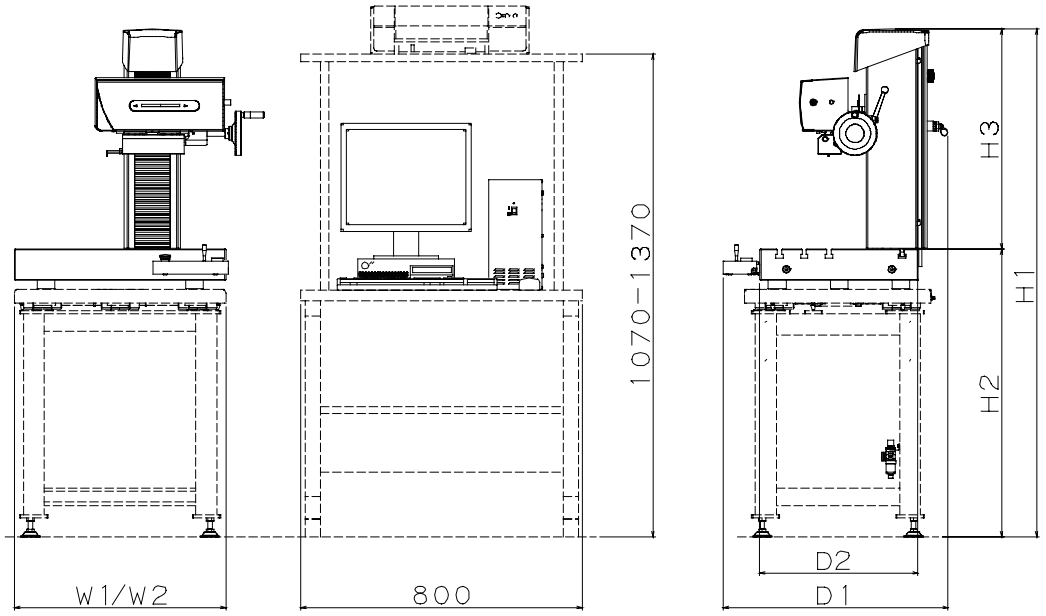
※Tracing driver tilting device is optional.
※Air supply connecting port Rc 1/4 male screw (outside diameter Φ 6 mm one-touch pipe joint for pipe)

Dimensional drawings

SD model				Main unit dimensions					Measuring range (mm)		Base (mm)		Weight (kg)	
				Width	Depth	Height	Table height	Colum height	X-axis (Tracing driver)	Z-axis (Column)	Width	Depth	Main unit weight ※1	Max. loading weight
Model		Code		W 1	D 1	H 1	H 2	H 3	-	-	W 2	D 2	-	-
SD	12	K2	A	600	638	1441	818	623	100	250	600	450	120 (145) 242	82
	13		B	600	638	1641	818	823	100	450	600	450	130 (155) 252	72
	14		C	1000	780	1663	840	823	100	450	1000	450	215 (240) 472	39
	15		D	1000	780	1883	840	1043	100	650	1000	450	225 (250) 488	29
	22		E	600	638	1441	818	623	200	250	600	450	125 (150) 247	76
	23		F	600	638	1641	818	823	200	450	600	450	135 (160) 256	66
	24		G	1000	780	1663	840	823	200	450	1000	450	220 (245) 483	33
	25		H	1000	780	1883	840	1043	200	650	1000	450	230 (255) 493	23

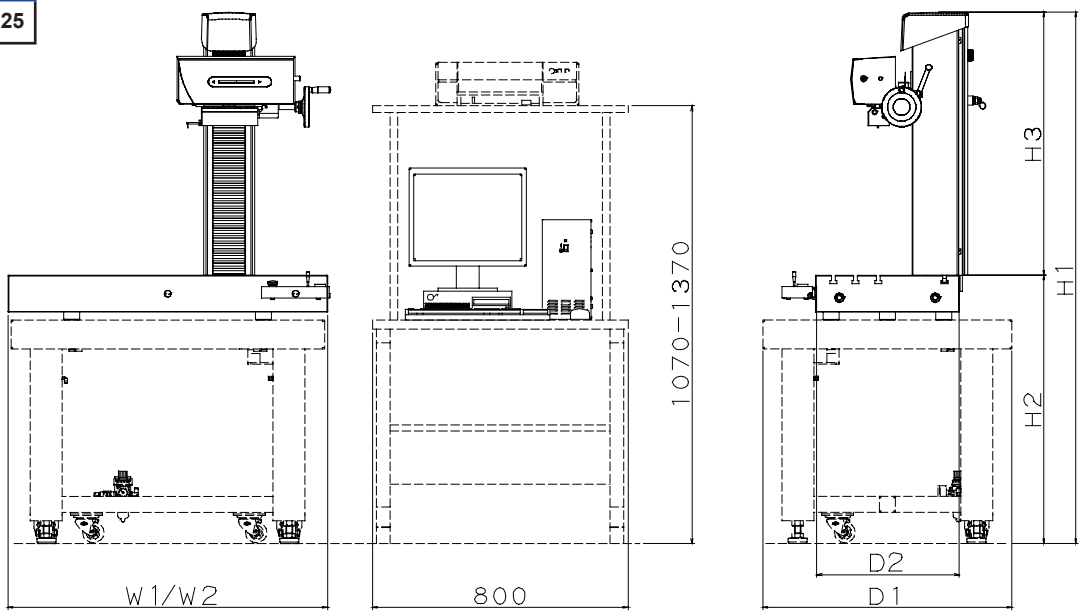
※ Weights in parentheses include PC, driver unit, monitor and printer (DX model only).
Gross weights in lower lines include optional anti-vibration table, bench, rack and printer (SD model only).

SD model
12 13 22 23



※Tracing driver tilting device is optional.
※Air supply connecting port Rc 1/4 male screw (outside diameter Φ 6 mm one-touch pipe joint for pipe)

SD model
14 15 24 25



※Tracing driver tilting device is optional.
※Air supply connecting port Rc 1/4 male screw (outside diameter Φ 6 mm one-touch pipe joint for pipe)

Specifications

Measuring Unit

Model				SURFCOM NEX							
				12	13	14	15	22	23	24	25
Tracing driver	X-axis (L: Measuring length:mm)	Sensing method		Linear scale							
		Straightness accuracy	When hybrid detector with dual sensor technology is used (μm)	(0.05 + 1.0L/1000) *When standard arm is used							
			When high-accuracy detector for contour measurement is used (μm/mm)	1.0/100				2.0/200			
			When general-purpose detector for contour measurement is used (μm/mm)	1.0/100				2.0/200			
			When detector for roughness measurement is used (μm)	(0.05+1.0L/1000)							
		X-axis indication accuracy (μm): Lateral		±(1.0 + 1.0L/100)							
		Resolution (μm)		0.016							
		Speed (mm/s)	Moving speed	0.03 to 60							
			Measuring speed	0.03 to 20							
		Tilt angle (°)	When hybrid detector with dual sensor technology is used	±10 (Optional tilting device)							
			Other than above	±15 (Optional tilting device)							
Measuring stand	Column	Speed (mm/s)	Travel speed	Max. 10							
	Base	Material		Gabbro							

Detector

Hybrid detector with dual sensor technology (E-DT-CR14A)	Measuring range	Z-axis (mm): Vertical direction		5.0 (Standard arm), 10.0 (2x arm)
	Roughness	Sensing method		Differential inductance
		Measuring range (mm)		0.05 to 5.0
		Resolution (nm)		1.0 to 100
	Contour measurement (H: Measuring height (mm))	Sensing method		High-accuracy scale
		Measuring range (mm)		5.0
		Resolution (μm)		0.015 (Full range)
		Indication accuracy (μm): Vertical direction		±(1.0 + |2H|/100) *When LH = 50 mm stylus is used
	Stylus	For Roughness and Contour	Model	DM84071 (LH=50 mm, Standard arm)
			Measuring force (mN)	0.75
			Stylus material	Diamond
			Stylus shape	2 μmR/60° conical
		For Contour	Model	DM48775 (LH = 100 mm, 2x arm)
			Measuring force (mN)	4.0
			Stylus material	Cemented carbide
			Stylus shape	25 μmR/24° conical
		Replacement method		Replaceable
	Common Function			Downward measurements/Upper limit detection safety mechanism/Retract function

General-purpose contour detector (E-DT-CH18A)	Measuring range	Z-axis (mm): Vertical direction		60.0
	Contour measurement (H: Measuring height (mm))	Sensing method		Laser optical diffraction scale
		Measuring range (mm)		60.0
		Resolution (μm)		0.04(Full range)
		Indication accuracy (μm): Vertical direction		±(1.5 + |2H|/100)
		Function		Downward/upward measurements/Lower/upper limit detection safety mechanism/ Retract function
	Stylus Tip	For Contour	Model	DM45505
			Replacement method	Replaceable
			Measuring force (mN)	10 to 30
			Stylus Material	Cemented carbide
			Stylus shape	25 μmR/24° conical

High-accuracy contour detector (E-DT-CH19A)	Measuring range	Z-axis (mm): Vertical direction		60.0
	Contour measurement (H: Measuring height (mm))	Sensing method		Laser optical diffraction scale
		Measuring range (mm)		60.0
		Resolution (μm)		0.02 (Full range)
		Indication accuracy (μm): Vertical direction		±(0.8 + |2H|/100)
		Function		Downward/upward measurements/Lower/upper limit detection safety mechanism/ Retract function
	Stylus Tip	For Contour	Model	DM45505
			Replacement method	Replaceable
			Measuring force (mN)	2 to 30 (Set from ACCTee)
			Material	Cemented carbide
			Stylus shape	25 μmR/24° conical

Detector for roughness measurement (E-DT-SS01A)	Measuring range	Z-axis (μm): Vertical direction		1000
	Roughness measurement	Sensing method		Differential inductance
		Measuring range (μm)		6.4 to 1000
		Resolution (nm)		0.1 to 20
		Function		Downward/Upward measurements/Upper limit detection safety mechanism
	Stylus	For Roughness	Model	DM43801
			Replacement method	Replaceable
			Measuring force (mN)	0.75
			Stylus Material	diamond
			Stylus shape	2 μmR/60° conical

Other

Power supply	Voltage (V), Frequency (Hz)		Single-phase AC100 to 240, 50/60
	Power consumption (VA)		Max. 670
Air supply (For anti-vibration table)	Supply pressure (MPa)		0.45 to 0.7
	Working pressure (MPa)		0.4
	Air consumption (L/min)		0.1 (Max. 10)
	Supply position		main body rear side
	*Air supply connecting port diameter		Rc1/4 male screw (Outside diameter Φ 6 mm one-touch pipe joint for pipe)
Setting environment	Temperature	Temperature of accuracy guarantee (°C)	20 ± 5 (temperature change rate ±0.5°C/hour and 0.1°C/measurement time.)
		Temperature of operation guarantee (°C)	10 to 30
		Storage temperature (°C)	5 to 40
	Humidity	Humidity of operation guarantee (%)	40 to 80 (without condensation)
		Storage humidity (%)	80 or lower (without condensation)

* Power and air supply and a connecting hose are required before the delivery.
* The power supply must be grounded (Type D grounding).
* The temperature change rate for guaranteed accuracy is limited to ±0.5°C/hour and 0.1°C/measurement time.
* Contents of the specification may be changed without any notice due to product modifications.

SURFCOM NEX
Standard configuration table

A typical detector/stylus combination is shown. For the standard configuration of other combinations, please contact our sales representatives.

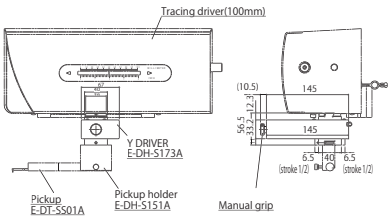
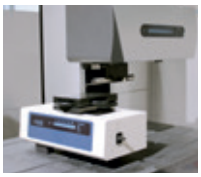
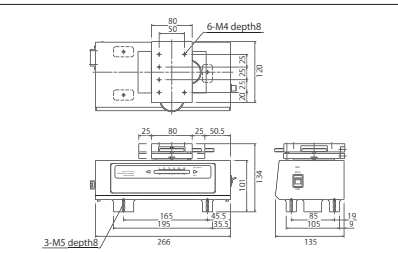
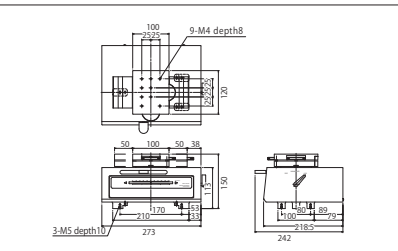
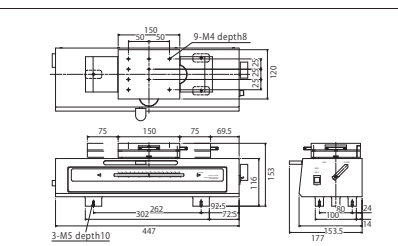
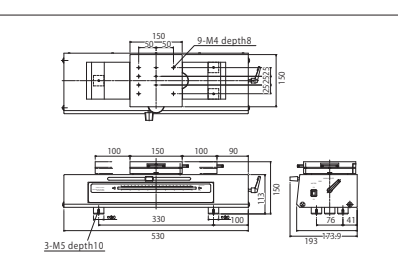
Classification		Surface Texture and Contour Integrated Measuring Instruments	Surface Texture and Contour Combined Measuring Instruments		Contour Measuring Instruments		Surface Texture Measuring Instruments
Standard accessories / Model		100	031	041	030	040	001
Detector/ Stylus	Hybrid detector with dual sensor technology [E-DT-CR14A]	●	–	–	–	–	–
	General-purpose detector for contour measurement [E-DT-CH18A]	–	●	–	●	–	–
	High-accuracy detector for contour measurement [E-DT-CH19A]	–	–	●	–	●	–
	Detector for roughness measurement [E-DT-SS01A]	–	●	●	–	–	●
Measurement analysis software		Surface Texture and Contour measurement analysis program	Surface Texture and Contour measurement analysis program	Surface Texture and Contour measurement analysis program	Contour profile measurement analysis program	Contour profile measurement analysis program	Surface Texture measurement analysis program
Reference specimen	Reference specimen [E-MC-S24C]	●	–	–	–	–	–
	Level difference reference specimen [E-MC-S57A]	–	●	●	–	–	●
Master ball calibration unit	[E-MC-S65B]	●	–	–	–	–	–
	[E-MC-S34A]	–	●	●	●	●	–
Gauge block unit	[E-MG-S39A]	●	–	–	–	–	–
	[E-MG-S22A]	–	●	●	●	●	–
Arm *3	[DM83501]	–	●	●	●	●	–
Stylus Tip	[DM45505]	–	●	●	●	●	–
Stylus	[DM84071]	●	–	–	–	–	–
	[DM48775]	●	–	–	–	–	–
	[DM43801]	–	●	●	–	–	●

A measuring unit set*1, data processing equipment*2, oil clay, a set of hex wrenches, a flat-blade screwdriver, lubrication oil, an accessory case, an inspection certificate, and an operation manual are provided with all machines.

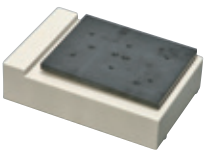
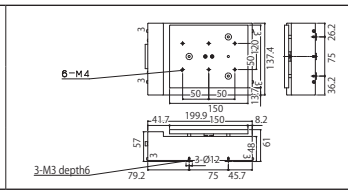
*1... Detector/Stylus, tracing driver, measuring stand column, measuring stand base (anti-vibration table and bench are standard for the DX model and optional for the SD model)
*2... Driver unit, PC, keyboard, mouse, liquid crystal display (A4 color inkjet printer is standard for the DX model and optional for the SD model)
*3... Straight arm with magnet-based attachment mechanism

Major options

Tracing driver options

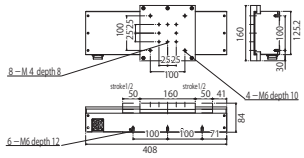
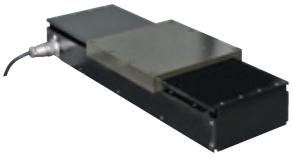
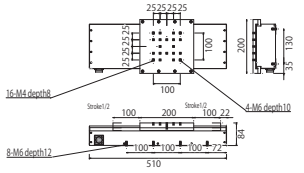
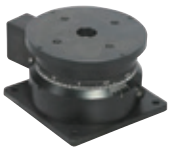
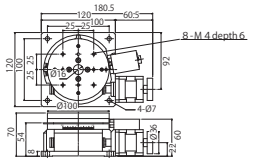
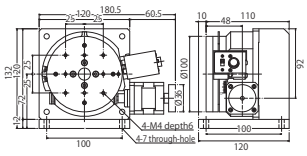
Name	Model	Specifications		External view	
Y-axis fixed pitch tracing driver for 3D roughness measurement (Detector movement type)	E-DH-S173A	Drive range	13 mm		
		Min. feed pitch	0.001 mm		
		Number of feed line	2 to 4001 lines		
		Straightness accuracy	1 μm		
		Table surface dimensions	—		
		Max. loading weight	—		
Y-axis fixed pitch tracing driver for 3D roughness measurement (Workpiece movement type)	E-YM-S06A	Drive range	50 mm		
		Min. feed pitch	0.001 mm		
		Number of feed line	2 to 4001 lines		
		Straightness accuracy	0.05 + 3L/1000 μm		
		Table surface dimensions	80 × 120 mm		
		Max. loading weight	5 kg		
	E-YM-S12A	Drive range	100 mm		
		Min. feed pitch	0.001 mm		
		Number of feed line	2 to 4001 lines		
		Straightness accuracy	0.05 + 3L/1000 μm		
		Table surface dimensions	100 x 120 mm		
		Max. loading weight	10 kg		
	E-YM-S07A	Drive range	150 mm		
		Min. feed pitch	0.001 mm		
		Number of feed line	2 to 4001 lines		
		Straightness accuracy	0.05 + 3L/1000 μm		
		Table surface dimensions	120 x 150 mm		
		Max. loading weight	5 kg		
	E-YM-S08A	Drive range	200 mm		
		Min. feed pitch	0.001 mm		
		Number of feed line	2 to 4001 lines		
		Straightness accuracy	0.05 + 3L/1000 μm		
		Table surface dimensions	150 x 150 mm		
		Max. loading weight	10 kg		

Automatic Adjustment Stand Options

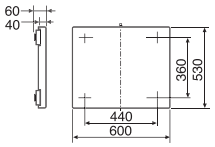
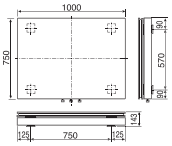
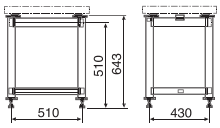
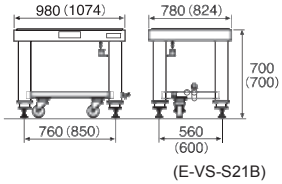
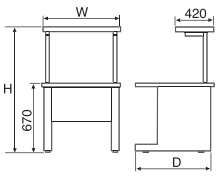
2-axes auto leveling table	E-AT-S62A	Leveling range	± 2 °		
		Max. load	5 kg		
		Weight	4 kg		

CNC Table Options

The standard measuring system can be automated by adding a CNC table unit.
CNC table is controlled, and fully automatic measurements can be performed from the ACCTee integrated measuring software.
The Y-axis and θ-axis CNC table can be rearranged as needed in order to configure the system to suit the workpiece.

Name	Model	Specifications		External view	
Y-axis CNC table (100 mm)	E-AT-S105A	Travel	100 mm		
		Max. travel speed	50 mm/s		
		Positioning accuracy	20 μm		
		Max. load	30 kg		
		Weight	Approx. 19 kg		
Y-axis CNC table (200 mm)	E-AT-S106A	Travel	200 mm		
		Max. travel speed	50 mm/s		
		Positioning accuracy	20 μm		
		Max. load	30 kg		
		Weight	Approx. 22 kg		
θ-axis CNC table (horizontal)	E-AT-S107A	Travel	360 °		
		Max. travel speed	20 °/s		
		Positioning accuracy	0.03 °		
		Max. load	15 kg		
		Weight	Approx. 2.5 kg		
θ-axis CNC table (vertical)	E-AT-S108A	Travel	360 °		
		Max. travel speed	20 °/s		
		Positioning accuracy	0.03 °		
		Max. load	5 kg		
		Weight	Approx. 3.2 kg		

Automatic Adjustment Stand Options

Name	Model	External view	Specifications	Remarks
Desktop anti-vibration table	E-VS-S213A		Anti-vibration method: Diaphragm air spring Natural frequency: 2.5 Hz to 3.5 Hz Load weight: 200 kg	・Dimensions: 600 (W) x 530 (D) x 60 (H) mm ・Air supply: 350 kPa to 700 kPa ・Weight: 27 kg Requires nylon tube with Φ 6 mm outside and Φ 4 mm inside diameter for quick joint connecting aperture.
Desktop large anti-vibration table	E-VS-S45A		Anti-vibration method: Diaphragm air spring Natural frequency: 4 Hz Load weight: 300 kg	・Dimensions: 1000(W) x 750(D) x 143(H) mm ・Air supply: Pump ・Weight: 80 kg
Bench for desktop anti-vibration table	E-VS-S218A		—	・Dimensions: 510 (W) x 430 (D) x 643 (H) mm ・Weight:23kg ・For E-VS-S213A
Anti-vibration table	E-VS-R16A		Anti-vibration method: Diaphragm air spring Natural frequency: V: 2 Hz; H: 2.2 Hz Load weight: 250 kg	・Dimensions: 980 (W) x 780 (D) x 700 (H) mm ・Air supply: 350 kPa to 700 kPa ・Weight: 170 kg
	E-VS-S21B	(E-VS-S21B)	Anti-vibration method: Diaphragm air spring Natural frequency: V: 1.6 Hz; H: 2 Hz Load weight: 550 kg	・Dimensions: 1100 (W) x 850 (D) x 700 (H) mm ・Air supply: 350 kPa to 700 kPa ・Weight: 340 kg
System rack	E-DK-S24A		—	・Dimensions: 800 (W) x 800 (D) x 1070 mm to 1370(H) mm ・Weight: 44.5 kg
	E-DK-S25A		—	・Dimensions: 1200 (W) x 800 (D) x 1070 mm to 1370 (H) mm

Standard Inventory Parts

Model naming convention based on the system configuration and selection

Product name **SURFCOM NEX** ＊＊＊ **DX/SD** – ○○

1 Detector　2 Type　3 Tracing driver and measuring stand

1 Detector selection

Item		Detector/Stylus: Hybrid detector with dual sensor technology	Detector/Stylus: For contour measurement: General-purpose detector	Detector/Stylus: For contour measurement: High-accuracy detector	Detector/Stylus: Detector for roughness measurement	Model (Commodity code)	Remarks
Model		E-DT-CR14A	E-DT-CH18A	E-DT-CH19A	E-DT-SS01A		
External View							
Model name	100	●	-	-	-	K2 △□ **100**	* Three digit code shows the following: Third digit (hundreds place): Presence or absence of hybrid detector 0 = Hybrid detector is not provided 1 = Hybrid detector is provided Second digit (tens place): Presence or absence of detector for contour measurement 0 = Contour detector is not provided 3 = Contour detector (general-purpose) is provided 4 = Contour detector (high-accuracy) is provided First digit (ones place): Presence or absence of detector for roughness measurement 0 = Roughness detector is not provided 1 = Roughness detector is provided
	130	●	●	-	-	K2 △□ **130**	
	140	●	-	●	-	K2 △□ **140**	
	101	●	-	-	●	K2 △□ **101**	
	131	●	●	-	●	K2 △□ **131**	
	141	●	-	●	●	K2 △□ **141**	
	030	-	●	-	-	K2 △□ **030**	
	040	-	-	●	-	K2 △□ **040**	
	001	-	-	-	●	K2 △□ **001**	
	031	-	●	-	●	K2 △□ **031**	
	041	-	-	●	●	K2 △□ **041**	

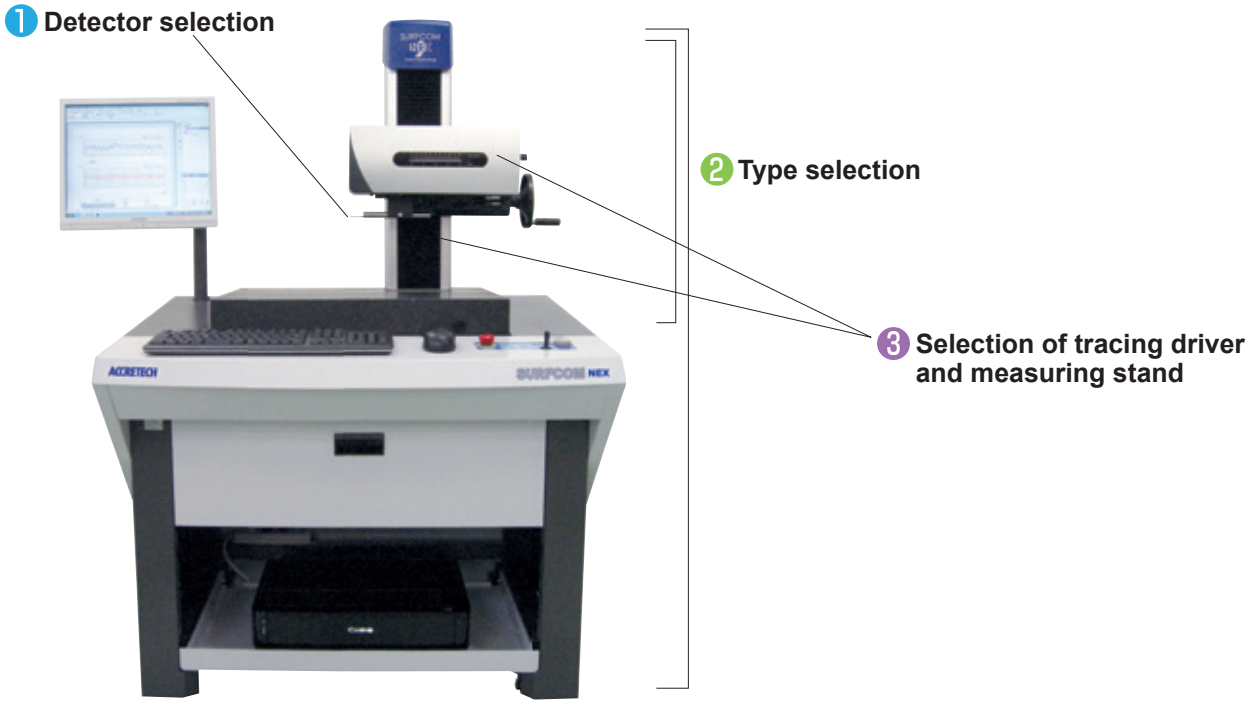
2 Type selection

Item		Type: DX			Type: SD			Model (Commodity code)
External View								
Specifications	Destination	Japan	Overseas		Japan	Overseas		
	Computer	Included	Included	Not included	Included	Included	Not included	
Model name	DX	●	-	-	-	-	-	K2 **A** □＊＊＊
		-	●	-	-	-	-	K2 **B** □＊＊＊
		-	-	●	-	-	-	K2 **C** □＊＊＊
	SD	-	-	-	●	-	-	K2 **D** □＊＊＊
		-	-	-	-	●	-	K2 **E** □＊＊＊
		-	-	-	-	-	●	K2 **F** □＊＊＊

❸ Selection of tracing driver and measuring stand

Item			Tracing driver		Measuring stand				Model (Commodity code)
Model			E-RM-S214A	E-RM-S215A	E-ST-S389A E-CL-S148A	E-ST-S389A E-CL-S150A	E-ST-S390A E-CL-S150A	E-ST-S390A E-CL-S151A	
External View									
Tracing driver		X-axis stroke (mm)	100	200	-	-	-	-	
Measuring stand	Base	Width (mm)	-	-	600	600	1000	1000	
		Depth (mm)	-	-	450	450	450	450	
		Maximum payload (kg) *1	-	-	82	72	89	79	
			-	-	76	66	83	73	
	Column	up and down stroke (mm)	-	-	250	450	450	650	
Model name		12	●	-	●	-	-	-	K2 △**A** ＊＊＊
		13	●	-	-	●	-	-	K2 △**B** ＊＊＊
		14	●	-	-	-	●		K2 △**C** ＊＊＊
		15	●	-	-	-	-	●	K2 △**D** ＊＊＊
		22	-	●	●	-	-	-	K2 △**E** ＊＊＊
		23	-	●	-	●	-	-	K2 △**F** ＊＊＊
		24	-	●	-	-	●		K2 △**G** ＊＊＊
		25	-	●	-	-	-	●	K2 △**H** ＊＊＊

*1 The upper is the maximum payload with 100 mm tracing driver. The lower is the maximum payload with 200 mm tracing driver.



Notes

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