SURFCOM NEX (DX2/SD2) Series

SURFCOM NEX 001 DX2/SD2

Dedicated catalog is available.

Measuring instrument designated for surface roughness
Achieved low vibration and high definition measurement by employing linear motor drive

DX type

SD type

NEX 001 (DX2/SD2) series is a model designated for surface roughness measurement. Please refer to page 22 to 23.

Measuring Unit

Item					Model	SURFCOM NEX (DX2/SD2)							
						12	13	14	15	22	23	24	25
Tracing driver	X-axis	Sensing method				Linear scale							
		Straightness accuracy (When standard styli are used)	with Roughness pickup			(0.05+1.0L/1000) μm (L: Measuring length mm)							
		Resolution				0.016 μm							
		Speed	Travel speed			0.03 to 100 mm/s							
			Measuring speed			0.03 to 30 mm/s							
		Tilt angle				±15 ° (Optional tilting device)							
Measuring stand	Column	Speed	Travel speed	CNC		Max. 50 mm/s							
				Joystick		Max. 35 mm/s							
	Base	Material				Gabbro							

Detector

Roughness pickup	Measuring range	Z-axis: vertical		1000 μm
	Roughness	Sensing method		Differential inductance
		Measuring range		6.4 to 1000 μm
		Resolution		0.1 to 20 nm
	Stylus	for Roughness	Model	DM43801 (Standard accessory for NEX **1)
			Measuring force	0.75 mN
			Tip material	Diamond
			Tip shape	Rtip 2 μm/60° cone
	Function			Down/upward measurements / Upper limit detection safety mechanism

Specifications

Measuring Unit

Item					Model	SURFCOM NEX(DX2/SD2)							
						12	13	14	15	22	23	24	25
Tracing driver	X-axis	Sensing method				Linear scale							
		Straightness accuracy (When standard styli are used)	with Hybrid detector			(0.05+1.0L/1000) μm (L: Measuring length mm) *with LH=50 mm stylus							
						2(0.05+1.0L/1000) μm (L: Measuring length mm) *with LH=100 mm stylus							
			with High-accuracy contour detector			0.8 μm/100 mm				2.0 μm/200 mm			
			with General-purpose contour detector			0.8 μm/100 mm				2.0 μm/200 mm			
			with Roughness pickup			(0.05+1.0L/1000) μm (L: Measuring length mm)							
		X-aixs indication accuracy: horizontal[*1]				±(0.8+1.0L/100) μm (L: Measuring length mm) *Contour measurement with 100 mm driver							
						±(0.8+3.0L/200) μm (L: Measuring length mm) *Contour measurement with 200 mm driver							
		Resolution				0.016 μm							
		Speed	Travel speed			0.03 to 100 mm/s							
			Measuring speed			0.03 to 30 mm/s							
		Tilt angle				±15 ° (Optional tilting device)							
Measuring stand	Column	Speed	Travel speed	CNC		Max. 50 mm/s							
				Joystick		Max. 35 mm/s							
	Base	Material				Gabbro							

Detector

Hybrid detector	Measuring range	Z-axis: vertical			13 mm (with LH=50 mm stylus)、26 mm (with LH=100 mm stylus)
	Roughness and Contour	Sensing method			High accucary scale
		Resolution			0.9 nm (Full range) *with LH=50 mm stylus
					1.8 nm (Full range) *with LH=100 mm stylus
		Indication accuracy: vertical			±(1.0+|2H|/100) μm (H: Measuring height mm) *with LH=50 mm stylus
					±(1.5+|2H|/100) μm (H: Measuring height mm) *with LH=100 mm stylus
	Stylus	for Roughness and Contour (LH=50 mm)		Model	DM84071 (Standard accessory for NEX 2**)
				Measuring force	0.75 mN
				Tip material	Diamond
				Tip shape	Rtip 2 μm/60° cone
		for Contour (LH=100 mm)		Model	DM48775 (Standard accessory for NEX 2**)
				Measuring force	4 mN
				Tip material	Cemented carbide
				Tip shape	Rtip 25 μm/24° cone
	Common function				Downward measurement / Collision detection safety function / Retract function
General-purpose contour detector	Measuring range	Z-axis: vertical			60 mm
	Contour	Sensing method			High accuracy scale
		Resolution			0.04 μm (Full range)
		Indication accuracy: vertical			±(1.2+|2H|/100) μm (H: Measuring height mm) *at 20±2 °C
					±(1.5+|2H|/100) μm (H: Measuring height mm) *at 20±5 °C
	Stylus	for Contour		Model	DM45505 (Standard accessory for NEX *3*)
				Measuring force	10 to 30 mN (Manually adjustable)
				Tip material	Cemented carbide
				Tip shape	Rtip 25 μm/24° cone
	Function				Down/upward measurements / Collision detection safety function / Retract function
High-accuracy contour detector	Measuring range	Z-axis: vertical			60 mm
	Contour	Sensing method			Laser optical diffraction scale
		Resolution			0.02 μm (Full range)
		Indication accuracy: vertical			±(0.8+|2H|/100) μm (H: Measuring height mm)
	Stylus	for Contour		Model	DM45505 (Standard accessory for *4*)
				Measuring force	2 to 30 mN (Adjustable on measuring/analysis integrated software "ACCTee")
				Tip material	Cemented carbide
				Tip shape	Rtip 25 μm/24° cone
	Function				Down/upward measurements / Collision detection safety function / Retract function
Roughness pickup	Measuring range	Z-axis : vertical			1000 μm
	Roughness	Sensing method			Differential inductance
		Measuring range			6.4 to 1000 μm
		Resolution			0.1 to 20 nm
	Stylus	for Roughness		Model	DM43801 (Standard accessory for NEX **1)
				Measuring force	0.75 mN
				Tip material	Diamond
				Tip shape	Rtip 2 μm/60° cone
	Function				Down/upward measurements / Upper limit detection safety mechanism

Other

Power supply	Voltage , Frequency		Single phase AC100 to 240 V、50/60 Hz
	Power consumption		Max. 930 VA
Air supply	Supply pressure		0.45 to 0.7 MPa
	Working pressure		0.4 MPa
	Air consumption		0.1 L/min (Max. 10 L/min)
	Position of supply port		DX2 model: main body lower left / SD2 model: main body back side (with anti-vibration table)
	Air supply connecting port		One-touch pipe joint for tubes with Outside diameter φ 6 mm
Environment	Temperature	Temperature of accuracy guarantee[*2*3]	20±5 °C (Ratio of temperature change ±0.5 °C / within an hour 0.1 °C / within one measuring time)
		Temperature of operation guarantee	15 to 30 °C
		Storage temperature	5 to 40 °C
	Humidity	Humidity of operation guarantee	40 to 80 % (without condensation)
		Storage humidity	80 % (without condensation)

*1 Excluding when using roughness pickup
*2 Guaranteed accuracy is excluding deformation of workpiece,caused by temperature change.
*3 Indication accuracy(vertical) with general-purpose contour detector is variable depending on temperature range.
■Power and air supply and a connecting hose are required before the delivery.
■Contents of the specification may be changed without any notice due to product modifications.

Dimensions and External view

DX2 type		Dimensions (mm)					Measuring range (mm)		Base (mm)		Weight (kg)		
		Width	Depth	Height	Height to top surface of base	Height of column	X-axis (Tracing driver)	C-axis (Column)	Width	Depth	Weight of measuring unit	Total weight*1	Max. loading weight
Model		W1	D1	H1	H2	H3	-	-	W2	-	-	-	-
DX2	12	960	800	1489	855	634	100	250	700	450	277	290	82
	13	960	800	1689	855	834	100	450	700	450	284	297	75
	14	1261	800	1689	855	834	100	450	1000	450	407	420	95
	15	1261	800	1909	855	1054	100	650	1000	450	421	434	81
	22	960	800	1489	855	634	200	250	700	450	284	297	75
	23	960	800	1689	855	834	200	450	700	450	291	304	68
	24	1261	800	1689	855	834	200	450	1000	450	414	427	88
	25	1261	800	1909	855	1054	200	650	1000	450	428	441	74

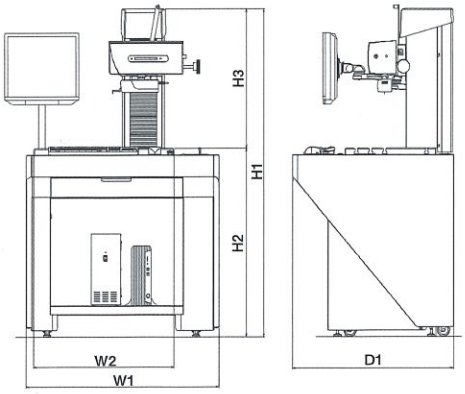
*1 Weights in include PC, driver unit, monitor

SD2 type		Dimensions (mm)					Measuring range (mm)		Base (mm)		Weight (kg)		
		Width	Depth	Height	Height to top surface of base	Height of column	X-axis (Tracing driver)	C-axis (Column)	Width	Depth	Weight of measuring unit	Total weight*2	Max. loading weight*3
Model		W1	D1	H1	H2	H3	-	-	W2	-	-	-	-
SD2	12	700	636	1452	818	634	100	250	700	450	119	132/217	81
	13	700	636	1652	818	834	100	450	700	450	126	139/224	74
	14	1000	780	1675	841	834	100	450	1000	450	206	219/442	54
	15	1000	780	1895	841	1054	100	650	1000	450	220	233/456	40
	22	700	636	1452	818	634	200	250	700	450	126	139/224	74
	23	700	636	1652	818	834	200	450	700	450	133	146/231	67
	24	1000	780	1675	841	834	200	450	1000	450	213	226/449	47
	25	1000	780	1895	841	1054	200	650	1000	450	227	240/463	33

*2 Left values ... Weights include PC, driver unit, and monitor / Right values ... Weights include PC, driver unit, monitor and optional accessories(anti-vibration table, stand, rack)
*3 Max. loading weight is the value with optional anti-vibration table(12/13/22/23 ... E-VS-S319A, 14/15/24/25 ... E-VS-R16E)

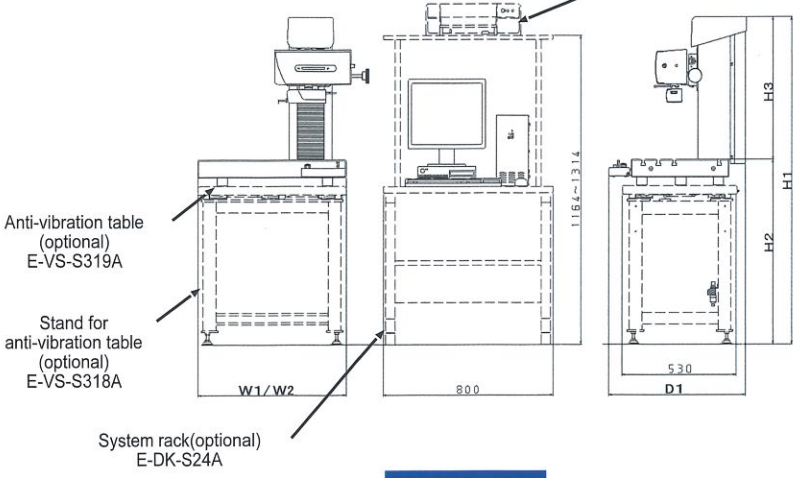
DX2 type

12 13 14 15 22 23 24 25



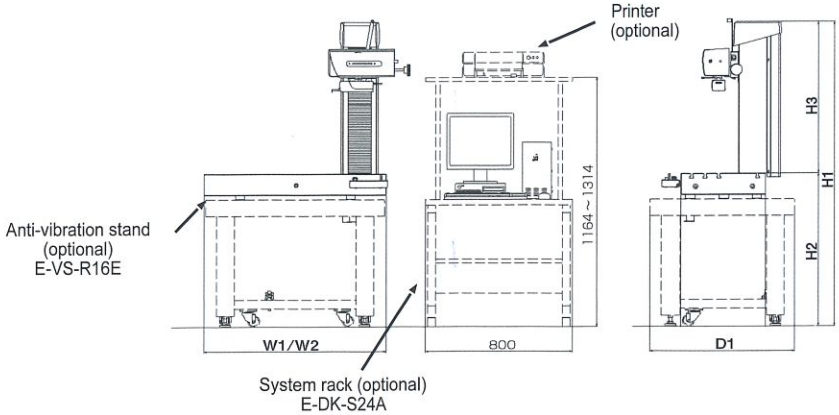
SD2 type

12 13 22 23



SD2 type

14 15 24 25



Specifications when using hybrid detector and LH=150 mm, LH=200 mm stylus

Measuring Unit

itemj			Model	SURFCOM NEX (DX2/SD2)							
				12	13	14	15	22	23	24	25
Tracing driver	X-axis	Straightness accuracy *2	When hybrid detector and LH=150 mm or LH=200 mm stylus is used	(0.45+3.0L/1000) µm (L: Measuring length mm) *with LH=150 mm stylus							
				(0.8+4.0L/1000) µm (L: Measuring length mm) *with LH=200 mm stylus							

Detector

Hybrid detector (When LH=150 mm or LH=200 mm stylus is used)	Measuring range	Z-axis: vertical		39 mm (with LH=150 mm stylus), 52 mm (with LH=200 mm stylus)
	Roughness and Contour	Sensing method		High accucary scale
		Resolution		2.7 nm (Full range) *with LH=150 mm stylus
				3.6 nm (Full range) *with LH=200 mm stylus
		Indicaton accuracy: vertical *2		±(2.0+|2H|/100) µm (H: Measuring height mm) *at 20±2 °C
				±(2.0+|10H|/100) µm (H: Measuring height mm) *at 20±5 °C
	Stylus *1	for Roughness and Contour (LH=150 mm)	Model	DM84400 (optional)
			Measuring force	4 mN
			Tip material	Diamond
			Tip shape	Rtip 2 µm/60° cone
		for Contour (LH=150 mm)	Model	DM84399 (optional)
			Measuring force	4 mN
			Tip material	Cemented carbide
			Tip shape	Rtip 25 µm/24° cone
		for Contour (LH=150 mm)	Model	DM84409 (optional)
			Measuring force	4.5 mN
			Tip material	Cemented carbide
			Tip shape	Rtip 25 µm/12° angle
		for Contour (LH=200 mm)	Model	DM84376 (optional)
			Measuring force	7 mN
			Tip material	Cemented carbide
			Tip shape	Rtip 25 µm/24° cone
		for Contour (LH=200 mm)	Model	DM84377 (optional)
			Measuring force	7 mN
			Tip material	Cemented carbide
			Tip shape	Rtip 25 µm/12° angle
	Common function			Downward measurement / Collision detection safety function / Retract function

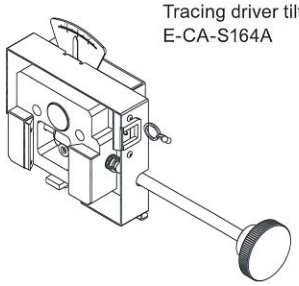
*1 For calibration with LH=150 mm and LH=200 mm stylus, a 25 mm high block gauge (optional) is required instead of the 10 mm high block gauge normally used with the SURFCOM NEX 200 DX2/SD2.
*2 Values in environments with wind speeds of 0.02 m/s or less. It is recommended to use a wind proof cover (optional) because it is easily affected by disturbances such as the wind from the air conditioner and the wind near the entrance. Also, be careful about vibrations.

● For specifications other than the above, follow the SURFCOM NEX (DX2/SD2) specification table on another page.

Expansion Map

Expanded system configurations and a wide selection of options make it possible to configure a system that can meet just about any need imaginable.

Tracing driver tiling unit

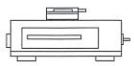


Tracing driver tilting unit
E-CA-S164A

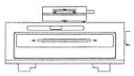
Y軸駆動部

These fixed-pitch Y-axis tracing drivers are for 3D roughness measuring.

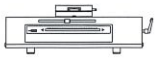
13 mm
E-DH-S173B



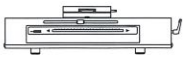
50 mm
E-YM-S06B



100 mm
E-YM-S12B



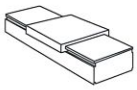
150 mm
E-YM-S07B



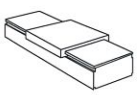
200 mm
E-YM-S08B

CNC Tables

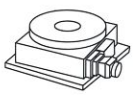
These tables enable automatic setup when used in combination with SURFCOM or CONTOURECORD Series instruments.



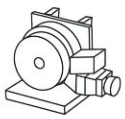
Y-axis 100 mm
E-AT-S105A



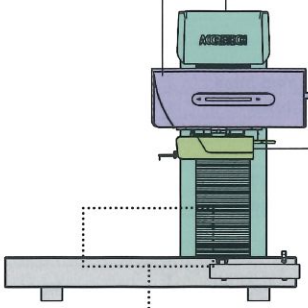
Y-axis 200 mm
E-AT-S106A



θ-axis horizontal
E-AT-S107A



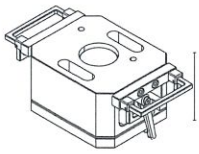
θ-axis vertical
E-AT-S108A



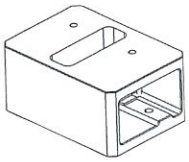
Holders

Column Spacer

These are used to shore up a column for measuring a large-sized workpiece.



Column rotation spacer
E-CS-S170A
Height = 100 mm
Rotation angle = 360°



Column spacer
E-CS-S169A
Height = 100 mm

Pickups and Detectors

These pickups and detectors are used in combination with SURFCOM NEX (DX2/SD2) series.

<Roughness>

Pickup
E-DT-SS01B

Non-contact pickup
E-DT-SL15A

<Contour>

Contour detector
E-DT-CH20A

High accuracy
E-DT-CH21A

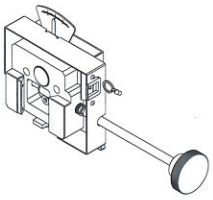
<Roughness and Contour>

Wide-range hybrid
E-DT-CR20A

Main Accessories

Tracing driver tiling unit E-CA-S164A

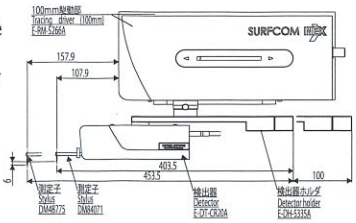
- Tilt angle: ±15 °
- Weight: 6 kg
- 100 mm/200 mm Common to the tracing drivers



Hybrid Detector offsetting holder E-DH-S335A

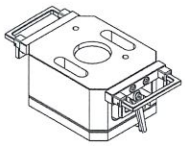
- A holder that can increase the amount of stylus extruding from the left end of tracing driver(For hybrid detector)
- Max. extrusion: approx. 108 mm*1/158 mm*2 from the left end of tracing driver
- Max. measuring height: 18 mm less than the standard holder
- Straightness:
  0.3 μm/100 mm, 0.5 μm/200 mm*1
  0.6 μm/100 mm, 1.0 μm/200 mm*2
- Measurement target*1:
  Ra≥0.02 μm, Rz≥0.2 μm

*1 When the standard stylus(LH=50 mm) DM84071 is used.
*2 When the standard stylus(LH=100 mm) EM48775 is used.



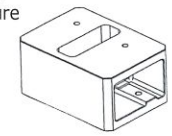
Column Rotary Spacer E-CS-S170A

- By raising the column, it is possible to measure large workpieces
- Height: 100 mm
- Rotation angle: 360°



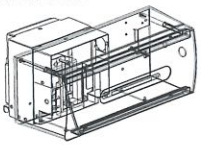
Column Spacer E-CS-S169A

- By raising the column, it is possible to measure large workpieces
- Height: 100 mm



Tracing Driver Spacer E-CA-S166A

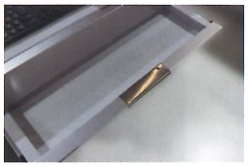
- Mounted between the column and the tracing driver
- The measurement position is offset 70 mm forward (distance equivalent to one T-groove on the base), making it easier to measure a workpiece with depth.



DX2 type accessories

Storage drawer DM51816-S400

- Drawer in front of the stand that is useful for storing accessories and small articles



Partition plate DM51816-S300

- Required when installing the printer (option) in the stand
- You can install the data processor and driver unit on the partition and the printer below it

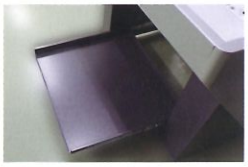
Back cover

for -○2, ○3 sizes **DM51816-S100**
for -○4, ○5 sizes **DM51817-S100**

- This cover prevents dust from entering from the rear side of the stand

Printer drawer with rail DM51816-S200

- When used in combination with the partition shown above, the drawer allows you to slide out the printer (option) installed in the stand
- Including with the partition plate DM51816-S300



Wind proof cover

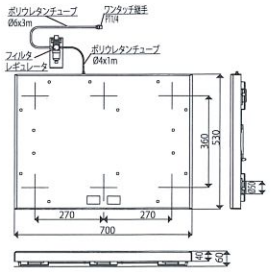
for -○2, ○3 sizes(without door) **DM78500**, for -○2, ○3 sizes(with door) **DM78503**
for -○4, ○5 sizes(without door) **DM78501**, for -○4, ○5 sizes(with door) **DM78504**

- Covers that reduce the effect of wind on measurements.
- Recommended option when using LH=150 mm, LH=200 mm styli.

SD2 type accessories

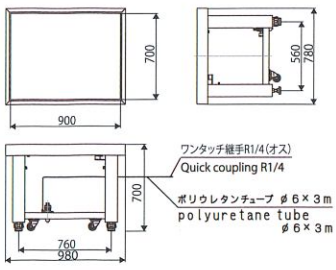
Desktop anti-vibration table E-VS-S319A

- Natural frequency: 2.5 to 3.5 Hz
- Allowable load weight: 210 kg
- Supply pressure: 0.45 to 0.7 Mpa
- Dimensions: 700×530×60 mm
- Weight: 29 kg
- Connecting port:
  One-touch joint R 1/4 male
- With regulator



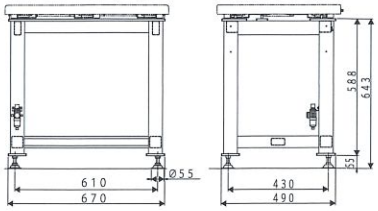
Anti-vibration stand E-VS-R16E

- Natural frequency:
  V; 2.0 Hz
  H; 2.2 Hz
- Allowable load weight: 260 kg
- Air supply: 0.45 to 0.7 Mpa
- Dimensions: 980×780×700 mm
- Weight: 190 kg
- Connecting port:
  One-touch joint R 1/4 male
- With regulator



Stand for desktop anti-vibration table E-VS-S318A

- Dimensions:
  670×490×643 mm
- For desktop anti-vibration table E-VS-S319A



System rack E-DK-S24A

- Dimensions:
  800 mm x 730 mm x (1164 to 1314) mm