



54-720-777

Fowler's new surface roughness and waviness tester combines powerful performance and versatility with very modern design.

A highly advanced and compact multifunction Surface Finish and Form Measuring Instrument... meets the criteria required by manufacturing and research for a truly comprehensive surface analyzer at a realistic price.

This very accurate and compact instrument incorporates a unique 'touch' screen multilayer control window which displays all the necessary pages of instruction, function and parameters required to preset and measure.

Offering a touch-screen system and both skid and skidless measurements, Fowler's new surface roughness tester sets the standard for accuracy and ease of use.

- Interchangeable stylus arms
- High performance LVDT pick-up
- RS-232C output and input
- Statistical analysis (SPC)
- High and low tolerance limits
- Recalculation from stored data
- Built-in real time clock
- Vertical and fine pick-up movement
- Comments in data printout
- Measuring units are inch/mm switchable
- Supports 32 measurement parameters
- Supports 5 International standards including the new ANSI specification.
- Built in thermal graphic printer
- Measures roughness and waviness
- Optional styli, memory card and many other accessories are available





Surface Roughness & Form Measuring Unit

Specifications

Measuring system: Stylus method using inductive (LVDT) pick-up with interchangeable styli. Skid and skidless mode of operation.

Parameters: Ra (Ra75), Rq, RMS, Ry, Rmax, Rz, Sm, tp, SK, Kr, Rp, Rv, Pc, PPI, HSC, Rpm, Rz3, R3zmax, R3z, λ_a , λ_q , $\bar{\Delta}_a$, $\bar{\Delta}_q$, Rk, Rpk, Rvk, Mr1, Mr2, WcA, WcM, BC, ADC

Profiles: Unfiltered, filtered (roughness), filtered waviness, filtered centerline waviness

Measuring range 800 μ m (1,600 μ m*) 80 μ m (160 μ m*) 8 μ m (16 μ m*) *With optional stylus

Cutoff Roughness 0.08, 0.25, 0.8, 2.5, 8mm and unfiltered

Cutoff Waviness • 0.25, 0.8, 2.5, 8mm-fh0.08, 0.25, 0.8, 2.5mm and fh0.08, 0.25, 0.8, 2.5mm

Filter: Gaussian/2CR/special Gaussian

Measuring length: Evaluation length: $\lambda_{cx}1, x2, x3, x4, x5$ times;
0.25, 0.8, 2.5, 8., 25mm (Selectable up to 30mm with Real time recording)

Traverse speed: 0.05, 0.1, 0.5, 1, 2mm/s

Display: 320 x 240 dots LCD, touch screen

Data recording: 8 dots/mm graphic printer.

Data input/output: RS232C

Measurement mode: Normal, average, multiple continuous, cutout, parabola, externally controlled measurement mode

Applicable standards: ISO, ANSI, BS, DIN(90/85), DIN4776, JIS(94/82), JIS waviness and new ANSI

Instrument calibration V/H: Both directions (automatic calibration/coefficient calibration)

Partial Cutout: Surface profile to be "cutout" selected in display window

Measuring conditions memory: Normally stores two sets of data. Equipped with a memory card driver (16 memories/card)

Acceptability judgment: Possible with 3 parameters

Statistical processing: X bar, R, Max, Min, S, sigma, X bar-R control chart, frequency distribution table, X bar-R control chart, histogram

Real time recording: Surface profile direct in display and printer at same time

Printout data: Each item selectable for printout, 2 steps of automatic feed, comment (alphanumeric & symbols), date & time

Auxiliary functions: Metric/inch switching, Japanese/English display switching, repeated arithmetic processing, selectable return speed, selectable pre-length, automatic return, motorized up/down by optional column. Measuring conditions in data printout/display

Drive unit: 50mm vertical pick-up movement with 5mm fine adjustment, levelling $\pm 1.5^\circ$

Stylus/contact force: R2 μ m diamond, 0.7mN

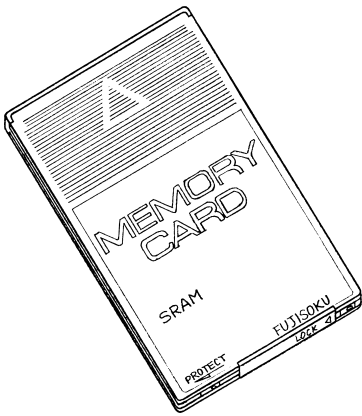
Skid: R40mm x R2mm. Made of Sapphire

Size/Weight: Pick-up: $\varnothing .670 \times 3.15$ " ($\varnothing 17\text{mm} \times \text{L}80\text{mm}$). Weight .15 lb (70g.)

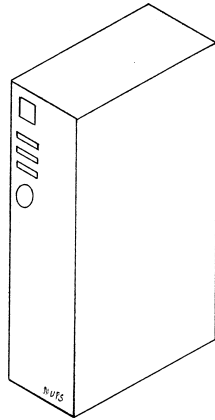
Traverse unit: W6.62XD2.91XH2.76" (W168XD74XH70mm). Weight 2 lb (0.9kg.)

Amplifier: W6.62XD14.18XH5.91" (W168XD360XH150mm). Weight 10 lb (4.5kg.)

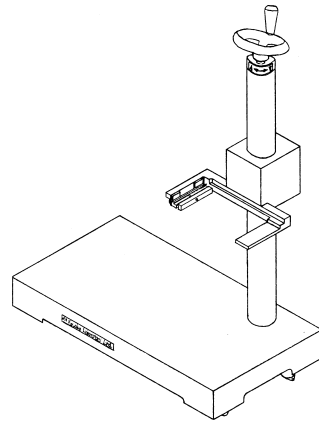




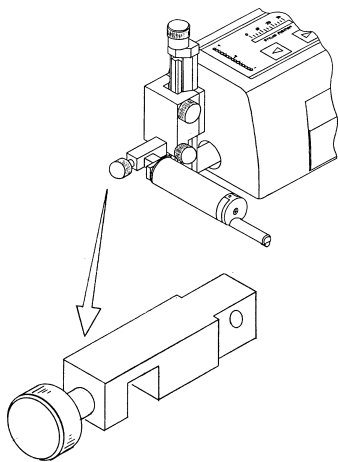
▲ 54-720-703



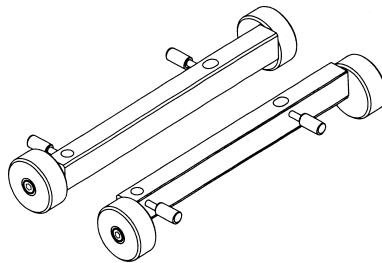
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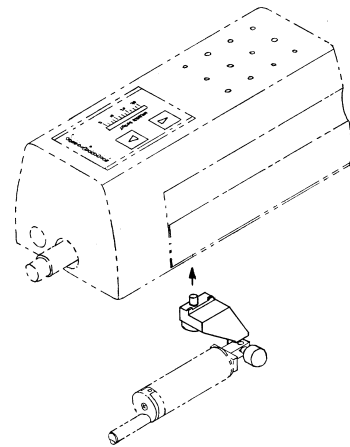
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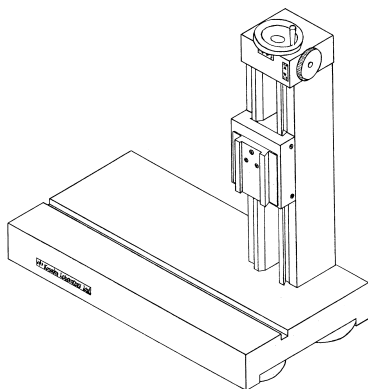
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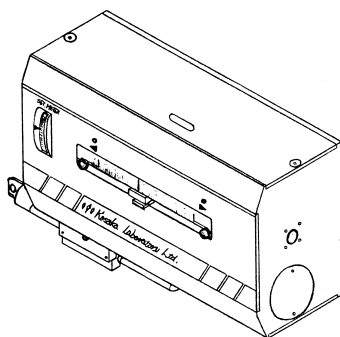
▲ 54-720-725



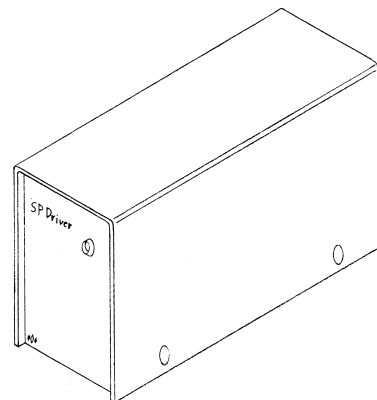
▲ 54-720-715



▲ 54-720-735



▲ 54-720-730



▲ 54-720-740



Applications	Stylus Arm	Applications	Nosepiece
General use Normal bores 	Ref. A Stylus R5μm/90°/0.7mN diamond 	General uses Applicable Stylus A	Ref. J Skid R40\timesR2mm/sapphire
Knife edge Very small wires 	Ref. B Stylus R5μm/90°/0.7mN diamond 	Skidless measurement Ref. G Skid, None Applicable Stylus All styli	Ref. G Skid, None
Curve surfaces Deep grooves 	Ref. C Stylus R5μm/90°/0.7mN diamond 	Curve Surfaces Applicable Stylus C	Ref. F Skid R0.5mm/sapphire
Very small bores 	Ref. D Stylus R5μm/90°/0.7mN diamond 	Crankshafts/ Between flanks Applicable Stylus A	Ref. H Skid R40mm/sapphire
Long bore Flat surfaces. 	Ref. E Stylus R10μm/90°/5mN diamond 	Long bores or flat surfaces. Applicable Stylus E	Ref. I Skid R40\timesR2mm/sapphire

Included
 with #54-720-777

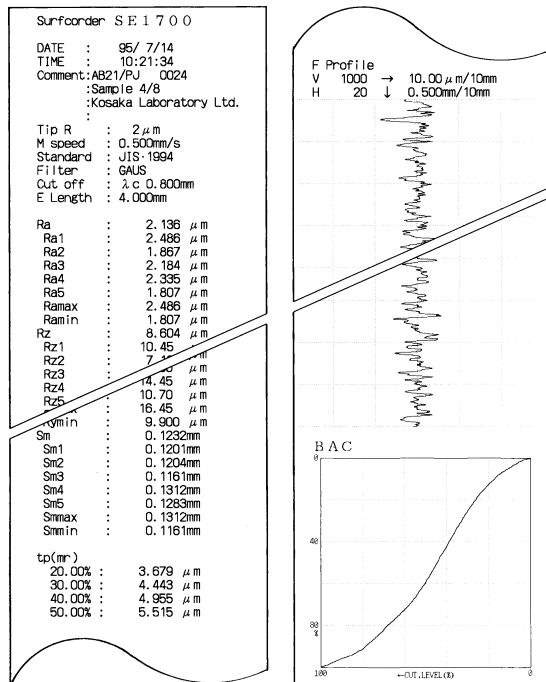
Diagram



Order No.	Ref. Letter	Description
54-720-777	-	Surface Roughness Tester with calibration specimen; #54-720-682 stylus for general use and #54-720-691 nose piece.

Accessories

54-720-682	A	Stylus for general use and normal bores (included w#54-720-777)
54-720-683	B	Stylus for knife edges and very small wires
54-720-684	C	Stylus for curved surfaces and deep grooves
54-720-685	D	Stylus for very small bores
54-720-686	E	Stylus for long bores and flat surfaces
54-720-687	F	Nose piece. Used with stylus 54-720-684
54-720-688	G	Nose piece. Used with all styli
54-720-689	H	Nose piece. Used with stylus 54-720-682
54-720-690	I	Nose piece. Used with stylus 54-720-686
54-720-691	J	Standard Nose piece (included w#54-720-777)



Examples of surface profile graphs & records.

MEMORY OF MEASUREMENT CONDITIONS

Two individual sets of measuring data conditions may be stored in the instrument, with 16 sets stored in each memory card used.

REAL TIME RECORDINGS

Surface profile graphs can be displayed on the touch screen and printer in real time, allowing visual assessment of the surface during set-up or measurement.

DRIVE UNIT

Yellow, green and red indication along with stylus position are shown.

CALIBRATION ROUGHNESS STANDARD

The high accuracy specimen included with unit has established traceability.

INSTRUMENT CALIBRATION

Calibration of instrument is automatically carried out using the master specimen supplied.

MEASUREMENT PARAMETERS

Surface roughness parameters meeting all current international standards of ISO, ANSI, BS, DIN, DIN 4776 (Rk), JIS and Waviness to JIS. Plus many other parameters for special applications and analysis.

MODES OF OPERATION. In addition to normal operation, this model can be set to measure in the modes of Average, Continuous, Curve, Partial Surface and External Control.



Order No.	Description
More Accessories	
54-720-701	Replacement chart paper. Box of 10 rolls.
54-720-702	Replacement surface roughness specimen (included).
54-720-703	Memory card. Capacity to store 16 sets of measuring conditions for different applications.
54-720-704	Rechargeable battery for portable use.
54-720-710	Manual column and base.
54-720-715	Direct mount bracket. Mounts pick-up directly beneath traverse unit. May only be used with column and base unit.
54-720-720	Crankshaft accessory. Right angle bracket to turn the pick-up through 90° to enter between flank side of crankshaft.
54-720-725	Roll measuring accessory. Roll mounting foot to position the drive unit onto a cylindrical surface.
54-720-730	Drive unit with 100mm stroke.
54-720-735	Motorized column. Used together with 54-720-730.
54-720-740	Amplifier for 54-720-735. Used together with 54-720-730.
54-720-745	Drive controller. Used together with 54-720-730.
54-720-750	Levelling stand.