NOVA - RT 10

Celestis NOVA surface roughness tester

TECHNICAL SPECIFICATIONS

Measurement range	Ra, Rq: 0,05-10 µm / 1- 400 µinch
	Rz, Rt: 0,02 – 100 µm / 0.780 - 40 µinch
Accuracy	< ± 10% (DIN 4772 Class 2.)
Fluctuation of display value	< ± 6%
Max. contact peak radius	10 µm
Cutoff length	0,25 mm; 0,8 mm; 2,5 mm
Greatest resolution	0,001 µm
Data output	RS-232 port
Display	LCD display
Power	4x AA batteries (not included)
Overall dimensions	140x52x48 mm
Weight	~280 g

ATTRIBUTIONS

Ra and Rz measurement range

LCD display with background lights

Threshold function

Diamond sensor

Low fluctuation on display

Induction principle

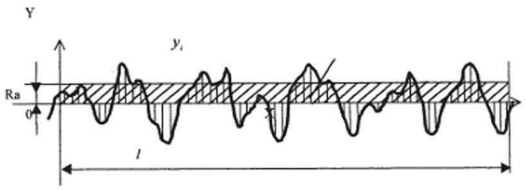
When measuring surface roughness, a sensor is placed on the surface and then uniformly slides along the surface by driving the mechanism inside the tester. The sensor gets the surface roughness by the sharp built-in probe. This roughness causes the displacement of the probe which results in change of inductive amount of induction coils so as to generate analogue signal, which is in proportion to the surface roughness at output end of phase-sensitive rectifier. The digital signal processor processes and calculates then outputs the measurement results on LCD.

ROUGHNESS PARAMETERS

Ra – arithmetical mean deviation of roughness

Arithmetic value of mean deviation of profile within sampling length.

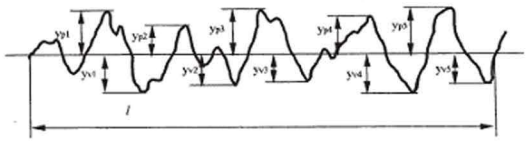
$$Ra = \frac{1}{n}\sum_{i=1}^{n}|y_i|$$



Rz – ten point height of irregularities

The average of the sum of five maximum profile peaks and the average of five maximum profile valleys along the sampling length.

$$Rz = \frac{\sum_{i=1}^{5} y_{pi} + \sum_{i=1}^{5} y_{vi}}{5}$$



RECOMMENDED CUTOFF LENGTHS

Ra (µm)	Rz (µm)	Cutoff length (mm)
>5~10	>20~40	2.5
>2.5~5	>10~20	
>1.25~2.5	>6.3~10	0.8
>0.63~1.25	>3.2~6.3	
>0.32~0.63	>1.6~3.2	
>0.25~0.32	>1.25~1.6	0.25
>0.20~0.25 >0.16~0.20	>1.0~1.25 >0.8~1.0	
>0.125~0.16 >0.1~0.125 >0.08~0.1	>0.63~0.8 >0.5~0.63 >0.4~0.5	
>0.063~0.08 >0.05~0.063 >0.04~0.05	>0.32~0.4 >0.25~0.32 >0.2~0.25	
>0.032~0.04 >0.025~0.032 >0.02~0.025	>0.16~0.2 >0.125~0.16 >0.1~0.125	

ACCESSORIES

Surface texture meter - 1 pc.

Standard probe - 1 pc.

Precision reference standard (Ra: 4.42 µm) - 1 pc.

User's Manual