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(57) Abstract :
The invention discloses a device for precision measurement of surface roughness in components, comprising a sensor assembly (101), scanning stage (102), stepper motors (103), encoder system (105), and digital processing module (107). The device integrates a signal conditioning unit (106), graphical interface (108), wireless communication module (109), and calibration unit (114) to ensure accurate, non-destructive, and repeatable measurement of roughness parameters such as Ra, Rq, and Rz. Compact housing (111) and rechargeable power unit (112) make it suitable for both laboratory and industrial applications.

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