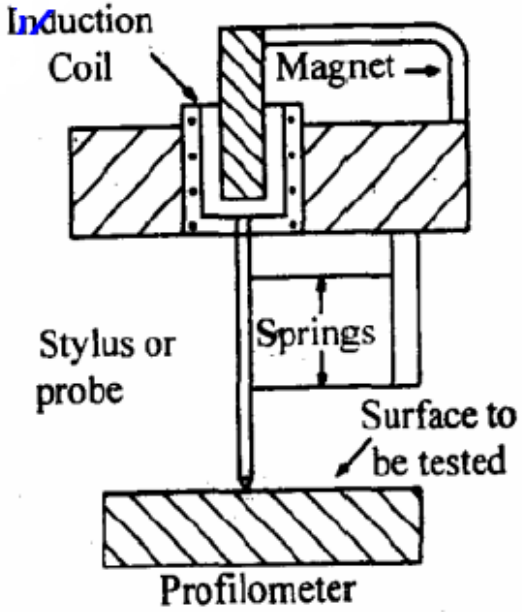
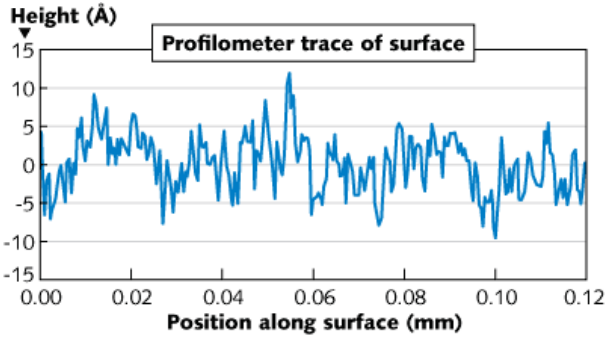
Methods of Measuring Surface Finish

Profilometer

It is an indicating and recording instrument to measure roughness in microns. The main parts of the instrument are tracer and an amplifier. The stylus is mounted in the pickup and it consists of induction oil located in the magnet. When the stylus is moved on the surface to be tested, it is displaced up and down due to irregularities in the surface. This movement induces the induction coil to move in the direction of permanent magnet and produces a voltage. This is amplified and recorded.





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Talyor-Hobson

It is working a carrier modulating principle and it is an accurate method comparing with the other methods. The main parts of this instrument is diamond stylus (0.002mm radius) and skid

Principle

The irregularities of the surface are traced by the stylus and the movement of the stylus is converted into changes in electric current.

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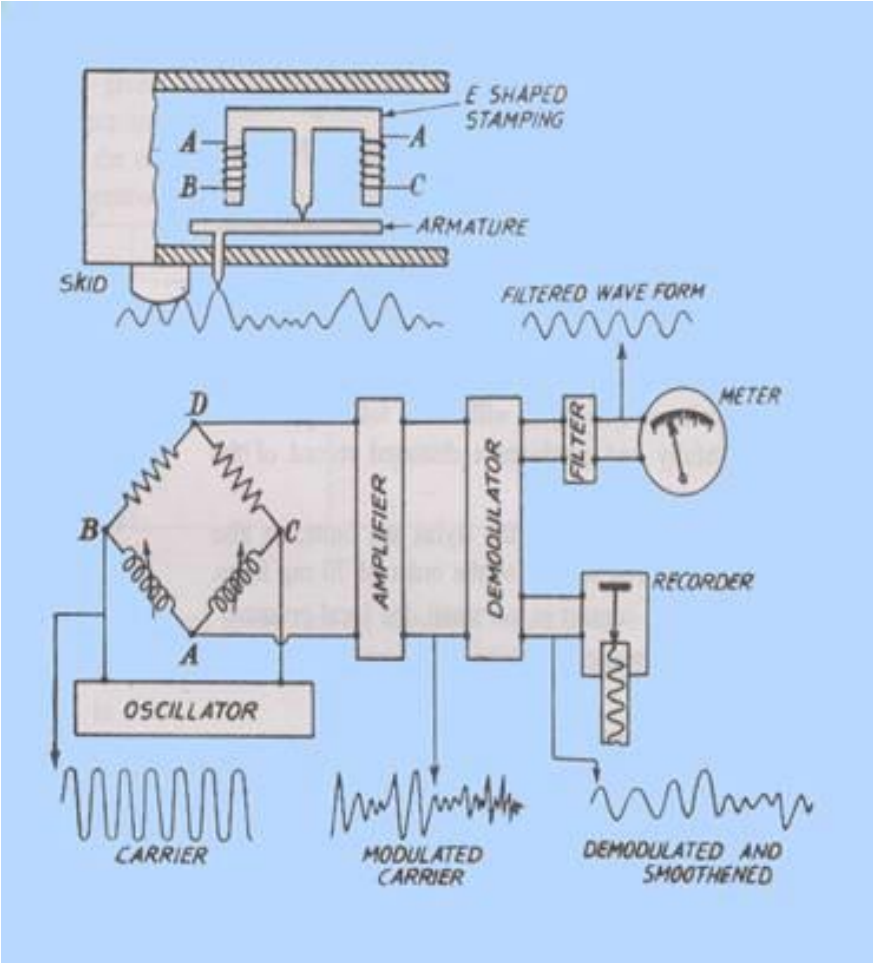

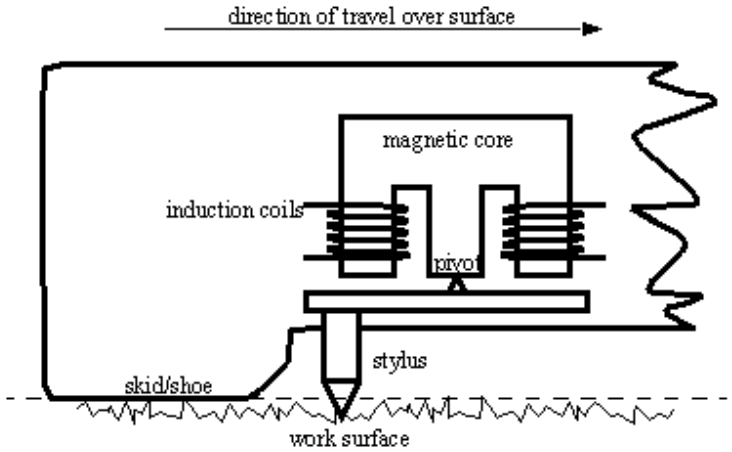

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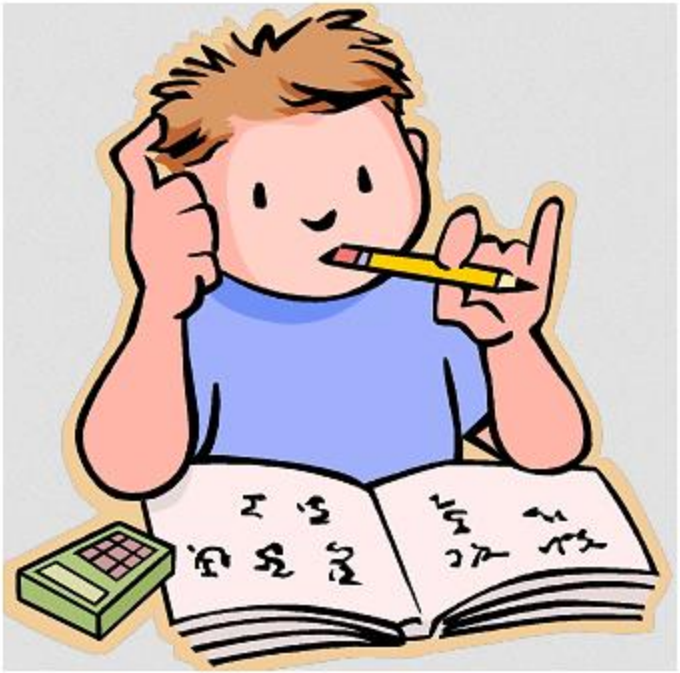
Working

On two legs of the E-shaped stamping there are coils for carrying an A.C. current and these coils form an oscillator. As the armature is pivoted about the central leg the movement of the stylus causes the air gap to vary and thus the amplitude is modulated. This modulation is again demodulated for the vertical displacement of the stylus. So this demodulated output is move the pen recorder to produce a numerical record and to make a direct numerical assessment.


QUIZ

Q (3)

1. *Explain use of slip gauges. Show a setup for the measurement of cone angle of a taper plug gauge by a sine bar.*
2. *Why sine bars are not suitable for measuring angles above 45 degrees?*



Homework

HW (4)

Shafts of 75± 0.02 mm diameter are to be checked by the help of a Go, Not Go snap gauges. Design the gauge, sketch it and show its Go size and Not Go size dimensions. Assume normal wear allowance and gauge maker's tolerance.


Thank
You