

Feeler gauge & uses

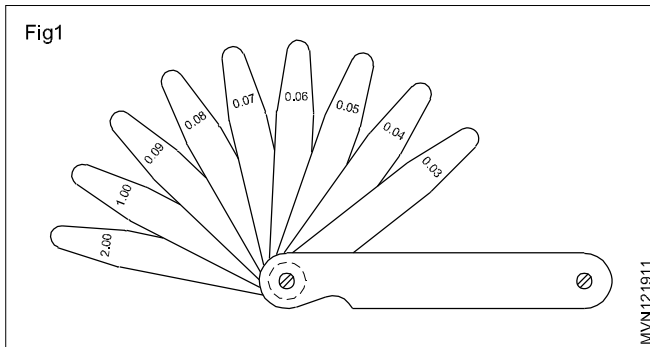
Objectives: At the end of this lesson you shall be able to

- state the **constructional features of a feeler gauge**
- state the **method of indicating different ranges of feeler gauges**
- state the **method of setting a feeler gauge**
- state the **different uses of feeler gauges.**

Features

A feeler gauge consists of a number of hardened and tempered steel blades of various thicknesses mounted in a steel case.

The thickness of individual leaves is marked on it. (Fig 1)



The sizes of the feeler gauges in a set are carefully chosen in order that a maximum number of dimensions can be formed by building up from a minimum number of leaves.

The dimension being tested is judged to be equal to the thickness of the leaves used. When a slight pull is felt while with drawing them. Accuracy in using these gauges requires a good sense of feel. (Fig.2)

B.I.S

The Indian standard establishes four sets of feeler gauges Nos.1,2,3 and 4 which differ by the number of blades in each and by the range of thickness(minimum) is 0.03mm

Example

Set No.4 of Indian standard consists of 13 blades of different thicknesses.

0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.010, 0.015, 0.20, 0.30, 0.040, 0.50.

USES

Feeler gauges are used:

- to check the gap between the mating parts

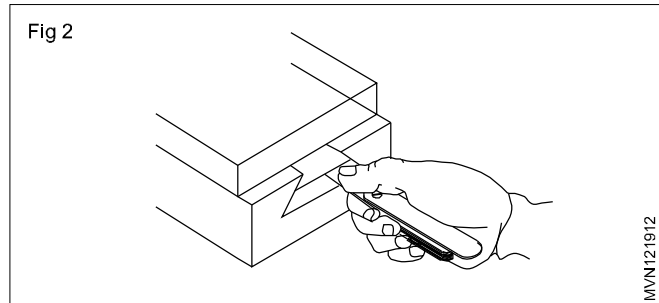
Screw Pitch Gauge

Objectives: At the end of the lesson you shall be able to

- state the **purpose of a screw pitch gauge**
- state the **features of a screw pitch gauge.**
- state the **importance of straight edge**
- state the **sizes of uses of feeler gauge.**

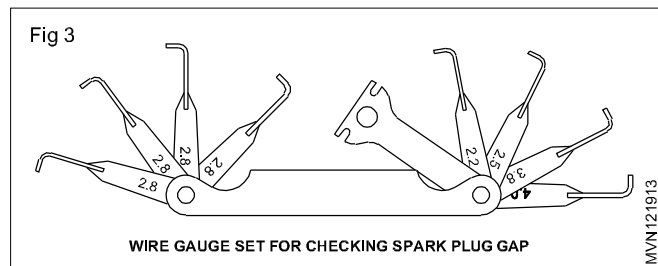
Purpose

A screw pitch gauge is used to determine the pitch of a thread.



- to check and set the spark plug gaps and tappet clearance in an engine etc.
- to set the clearance between the fixture (setting block) and the cutter/tool for machining the jobs. (Fig 2)
- to check and measure the bearing clearance, and for many other purposes where a specified clearance must be maintained.

Wire gauge (Fig 3): The plug wire gauge is a thickness gauges using wires of varying diameter instead of thin flat strips of steel. It is used fir checking spark plug gap.



Types of feeler gauge

- 1 universal master gauge
- 2 standard feeler gauge
- 3 ignition and wire gauge

Classification of feeler gauge

- Universal master gauge containing 25 leaves
- Standard feeler gauge containing 10 leaves

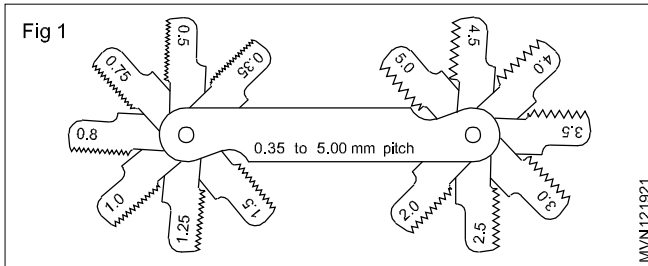
It is also used to compare the profile of threads.

Constructional features

Pitch gauges are available with a number of blades assembled as a set. Each blade is meant for checking a particular standard thread pitch. The blades are made of thin spring steel sheets, and are hardened.

Some screw pitch gauge sets will have blades provided for checking British Standards threads (BSW, BSF etc.) at one end and the Metric Standard at the other end.

The thread profile on each blade is cut for about 25 mm or 30 mm. The pitch of the blade is stamped on each blade. The standard and range of the pitches are marked on the case. (Fig 1)



For obtaining accurate results while using the screw pitch gauge, the full length of the blade should be placed on the threads. (Fig 2)

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A feeler gauge consists of a number of hardened and tempered steel blades of various thicknesses mounted in a steel case.

The thickness of individual leaves is marked on it.

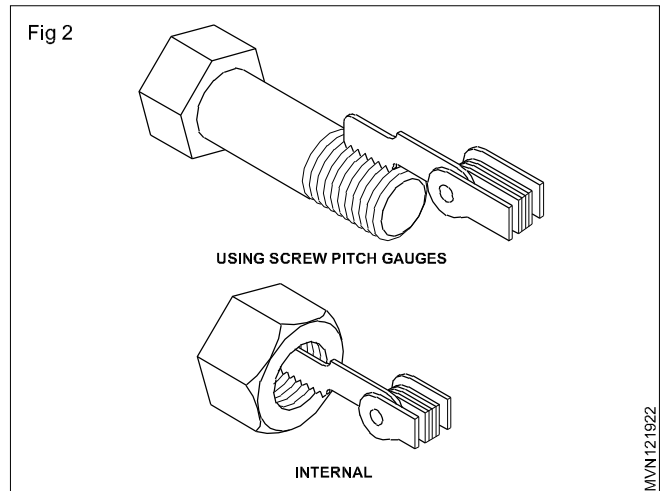
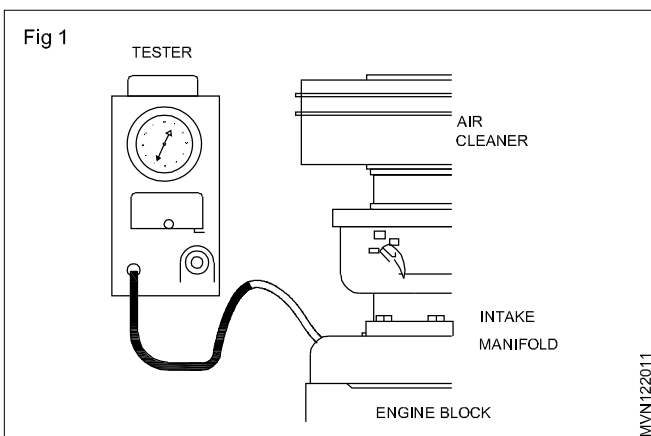
The sizes of the feeler gauges in a set are carefully chosen in order that a maximum number of dimensions can be formed by building up from a minimum number leaves.

Vacuum gauge

Objectives: At the end of this lesson you shall be able to

- state the purpose of vacuum gauge
- state the vacuum gauge attachment in an engine.

A vacuum gauge (Fig 1) is a useful diagnostic and time-up tool.



The dimension being tested is judged to be equal to the thickness of the leaves used, when a slight pull is felt while withdrawing them. Accuracy in using these gauges requires a good sense of feel.

B.I.S. set

The Indian Standard establishes four sets of feeler gauges Nos. 1, 2, 3 and 4 which differ by the number of blades in each and by the range of thickness (minimum is 0.03 mm to 1 mm in steps of 0.01 mm). The length of the blade is usually 100 mm.

Example

Set No. 4 of Indian Standard consist of 13 blades of different thicknesses.

0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50.

It is used to detect vacuum leaks at idle speed, sticking valves, worn rings, clogged exhaust, incorrect timing and positive crank case ventilation (PCV)

Attaching Vacuum Gauge

At normal operating temperature connect the vacuum gauge to the intake manifold. Some manifolds incorporated a plug that may be removed so that vacuum line adpoter may be installed.

- A relative study high vacuum reading indicate an absence vacuum leak in the system (i.e) values and rings are in good sealing.
- Fairly study vacuum reading indicate vacuum leak in the system (i.e) value and rings are not in good sealing.
- Vacuum reading indicate uneven, valve are burned or sticky and damaged piston or blown gasket.

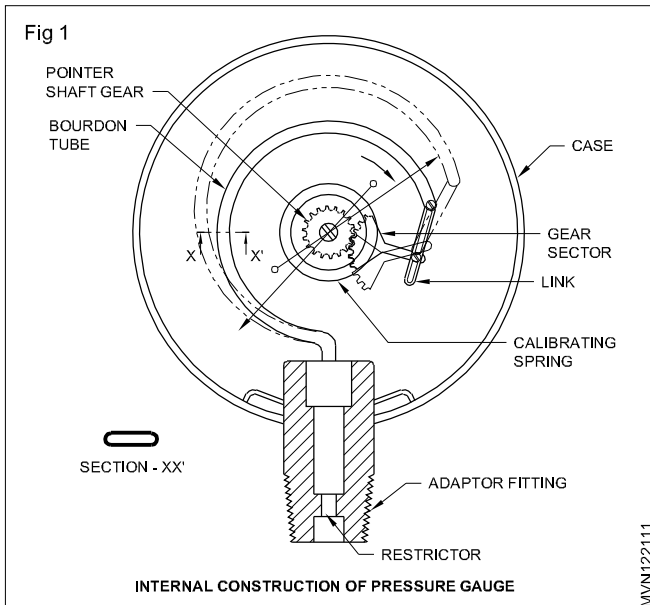
Tyre pressure gauge

Objectives: At the end of this lesson you shall be able to

- state the construction and features of tyre pressure gauge
- use a tyre pressure gauge to check & set tyre pressure.

Pressure gauge (Figs 1,2)

It is used to check the pressure of tyre unit. Bourdon tube pressure gauges made by stainless steel. A Pressure rise in bourdon tube makes it tend to straighten. This movement will pull on the link which will turn the gear sector counter clockwise. The pointer shaft with then turn clockwise to move needle on a graduated scale to indicate pressure.



Special features

- Excellent load-cycle stability and shock resistance.
- All stainless steel construction
- Positive pressure ranges 0-200 P.S.I (Fig 3)

The pressure gauge hose has a adapter, which depresses the valve pin of tyre and compressed air get into the tube of the gauge. The pressure is indicated in the dial. Compare the pressure to the recommended pressure by the manufacturer. If it is less, refill the tyre with compressed air by operating the trigger (Fig.3). When the required pressure is shown in the gauge stop filling.

