

SUBJECT:-PRODUCTION TECHNOLOGY (MECH. 2ND YEAR)

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IMPORTANCE AND USE OF JIG AND FIXTURE

The successful running of any mass production depends upon the interchangeability to facilitate easy assembly and reduction of unit cost. Mass production methods demand a fast and easy method of positioning work for accurate operations on it. Jigs and fixtures are production tools used to accurately manufacture duplicate and interchangeable parts. Jigs and fixtures are specially designed so that large numbers of components can be machined or assembled identically, and to ensure interchangeability of components.

JIGS

It is a work holding device that holds, supports and locates the workpiece and guides the cutting tool for a specific operation. Jigs are usually fitted with hardened steel bushings for guiding or other cutting tools. A jig is a type of tool used to control the location and/or motion of another tool. A jig's primary purpose is to provide repeatability, accuracy, and interchangeability in the manufacturing of products. A device that does both functions (holding the work and guiding a tool) is called a jig. An example of a jig is when a key is duplicated, the original is used as a jig so the new key can have the same path as the old one.

FIXTURES

It is a work holding device that holds, supports and locates the workpiece for a specific operation but does not guide the cutting tool. It provides only a reference surface or a device. What makes a fixture unique is that each one is built to fit a particular part or shape. The main purpose of a fixture is to locate and in some cases hold a workpiece during either a machining operation or some other industrial process. A jig differs from a fixture in that it guides the tool to its correct position in addition to locating and supporting the workpiece. Examples: Vises, chucks

Advantages of Jigs and Fixtures

PRODUCTIVITY

Jigs and fixtures increases the productivity by eliminating the individual marking, positioning and frequent checking. The operation time is also reduced due to increase in speed, feed and depth of cut because of high clamping rigidity.

INTERCHANGEABILITY AND QUALITY

Jigs and fixtures facilitate the production of articles in large quantities with high degree of accuracy, uniform quality and interchangeability at a competitive cost .

SKILL REDUCTION

There is no need for skillful setting of work on tool. Jigs and fixtures makes possible to employ unskilled or semi skilled machine operator to make savings in labour cost.

COST REDUCTION

Higher production, reduction in scrap, easy assembly and savings in labour cost results in ultimate reduction in unit cost.