Work Holding Lathes Devices

What are the different types of work holding devices used to hold a workpiece in a lathe machine?

3 Answers

Cs Chong, A Maker of Things
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When cutting operations are performed on the machine, lots of forces are created. To counter these forces the job and the tool must be held rigidly so there is no vibration or jerk during cutting. The tool is held rigidly in the tool post with the assistance of bolts. The workpiece is held by various types of work holding devices depending on its shape, length, diameter and weight of the workpiece and the location of turning on the work.

The following are the work holding devices used:

1.*Chucks*
2.*Faceplates*
3.*Drivingplates*
4.*Carriers*
5.*Mandrels*
6.*Centres*
7.*Rests*

Chucks

Chucks are efficient and accurate devices for holding the work on the lathe during the operation. The most common types of chucks are:

Related Questions

- What are the types of tool holding devices in a lathe machine?
- What are the few cutting tools holding devices in a lathe machine?
- Can a different operation be done on the lathe machine?
- Which type of material is used in the work pieces of a lathe machine?
- Why do we call the different type of machines, like the lathe, milling as a machine tool?
- Why does the bending of a workpiece occur in a lathe machine?
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(a) Three Jaw Chucks. It has three jaws fixed radially to a cylindrical body at its front, and it has a hole at its center to allow long workpieces to project backward in the spindle.

This work holding device is for holding regular shaped workpieces such as round or hexagonal rods about its axis. The chuck cannot be used for workpieces of irregular shapes.

(b) Four Jaw Chucks. In outside appearance, It looks like three jaw chuck, but its mechanism differs. Its jaws are threaded and they are engaged with separate adjusting screws. So, all the jaws can be moved separately and adjusted independently. This enables the chuck to successfully hold irregular or eccentric

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(c) Magnetic Chucks. The workpiece is held by magnetic forces.

(d) Combination Chucks. The features of the three-jaw chuck and four-jaw chuck are combined. The jaws can be moved in unison or individually if desired.

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(e) Collet Chucks. It is the most accurate device for holding small workpieces and is used when the workpiece is very long in size.

Face Plates

It is a cast iron disk with a threaded hole in the centre for screwing onto the nose of the spindle. It also has a number of holes and slots for securing the workpiece.

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Driving Plates (Catch Plates)

It is a small faceplate with a hole to accommodate a pin. This pin engages with the tail of a lathe dog or carriers.

Carriers (Lathe dog)

These are used along with driving plates. The workpiece is inserted into the 'V' shaped hole of the lathe dog and then firmly secured.

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Mandrels

This device is used to hold previously drilled or bored hole for outer surface machining. The workpiece is loaded over the mandrels between the centres. The ends of the mandrel is slightly smaller than the original diameter for effective gripping of the mandrel in the chuck.

Centres

Centers are used to support workpieces in a lathe. Workpieces are supported between two centres, one in the headstock spindle and one in the tailstock spindle. Most have a tapered point with a 60° angle, fitting workpieces with the same angle.

Rests

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Angle Plates

This device is used together with faceplates for keeping the workpiece flat i.e. perpendicular to the cutting tool. Angle plates have two highly machined faces, with holes for the clamping of workpieces.

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Related Questions More Answers Below

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Mohammed Shafi, Blogger @mechanicalstudents.com
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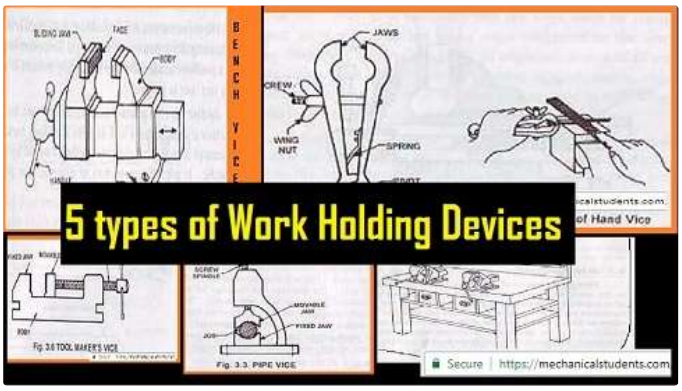
The holding devices are used to hold the workpiece or specimen to make various operations on it. Around 5 work holding devices are presented in this article in a detailed manner. The various work holding devices are

1. Workbench
2. Bench Vice
3. Pipe Vice
4. Hand Vice
5. Toolmakers vice



The Detailed explanation of 5 types of work holding devices is presented in the link below.

READ:Work Holding Devices in Fitting

Regards,

Mohammed shafi,

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Dan Smith, President/Owner - GulfStream Research Corporation (1980-present)
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This looks like a Homework question. Suggest you pay attention in class, read the assignments and reap the rewards of the education someone is paying for.

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- What is a lathe machine? How does it work?
- What is a lathe machine and its types used in construction?
- What are some uses for a lathe machine?
- What is different between other machines and lathe machine?
- How is a lathe machine a tool? It's a machine.
- How do you locate a workpiece axis in a lathe centre?
- Which is the best type of lathe machine?
- How does the lathe machine hold the workpiece?
- What mechanism is used in a lathe machine?
- Which type of material is used in the tool of a lathe?
- How many types of lathe machines are there?

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