

Kabin Crin'

BCT-A

Roll-044.

A Lathe Machine.

A lathe machine is a machine tool that removes the undesired material from a rotating workpiece in the form of chips with the help of a tool that is traversed across the work and can be feed deep into the work.

Lathe Machine Parts:

i) Bed

The bed of the lathe machine is the base on which all the other parts of the lathe are mounted. It is made up of Cast iron.

ii) Headstock.

The main function of head stock is to transmit power to the different parts of the lathe.

iii) Tailstock.

Function: i) To support the other end of the work when being machined

ii) To hold a tool for performing operations like drilling, reaming, tapping, etc.

Carriage:

The basic function of carriage is to support, guid and feed the tool against the job during operation.

Its five main parts are:-

- Saddle
- Cross slide
- Compound rest
- Tool post
- Apron,

Tool post.

The tool post is mounted on the compound rest. It is used to hold various cutting tool holders.

Chuck

Chuck is basically used to hold the workpiece, particularly of short length and large diameter of irregular shape which can't be conveniently mounted between centers.

Feed Rod:

Feed Rod is a power transmission mechanism used for precise linear movement of the carriage along the longitudinal axis of the lathe.

Apron:-

Apron consists of the gears and clutches for transmitting motion from the feed rod to the carriage, and the split nut which engages with lead screw cutting threads.

Application of Lathe Machine:-

- Turning Operation
- Facing operation
- Thread cutting operation
- Knurling operation
- Drilling Operation.

Shaper Machine:

Shaper Machine is a production machine in which the single point cutting tools are attached and the workpiece is fixed and while moving forward the tools cut the workpiece and in the return, there is no cut on the workpiece and used for producing flat and angular shaped surfaces.

Shaper Machine Parts:

Base:

It holds all the loads of the machine. It absorbs vibration and other forces that occur while performing shaping operations.

Column:

Column supports the ram that is moving forward and backward for operation.

Table:

The table can be moved crosswise by rotating the crossfeed feed and also for vertical by rotating the elevating screw.

Cross rail:

The vertical movement and horizontal movement is given to the table by raising or lowering the cross rail.

Ram

The ram reciprocates and it carries the tool head in which single point cutting is attached.

Shaper-Machine Operation

- Vertical Cutting Operation
- Horizontal Cutting Operation
- Inclined Cutting
- Angular or Irregular Cutting Operation.

Drilling Machine.

A drilling machine is a type of machine in which the holes are being made on the workpiece by making use of a rotating tool called drill bit or the twist drill. Drilling is basically a technology of creating holes.

Parts:-

Bed:-

The bed is the main part of the machine on which the whole machine is being mounted.

Pillar:-

The pillar is a type of vertical column the rests on the bed. The pillar helps the motor and the spindle head.

Swivel Table:-

The table is the place where the workpiece is being mounted.

Stepped Pulley

Two stepped pulleys are present on either side of the column at the top. The basic function of the stepped pulley is to control the speed of the rotation of the motor.

Chuck

The basic function of the chuck is to hold the cutting tool firmly.

Drill bit

A drill bit is an actual cutting tool that is used to create a hole in the workpiece.

Hand-wheel

The basic function of the hand-wheel is to adjust the spindle position as per the requirement.

Operations:

- Drilling
- Reaming
- Tapping
- Spot Facing
- Trepanning Operation
- Honing Operation

Types

- Portable Drilling machine
- Sensitive Drilling machine
- Gang Drilling
- Multi-spindle Drilling
- Turret Drilling
- Automatic Drilling Machine.

Milling Machine.

The milling machine is a type of machine which removes the material from the workpiece by feeding the work past a rotating multipoint cutter.

Application:

- Milling machine is used for machining flat surfaces, slotting, contoured surfaces
- It is also useful for making complex and irregular areas, gear cutting, revolution surfaces.

Parts:

Base:

The base is the part upon which the whole machine parts are being mounted.

Column

The main supporting frame which consists of all the driving mechanism and the motor is called the column.

Knee

The knee is an important part of this machine which supports the other parts like saddle and table.

Table:

The table consists of T-slots or sometimes fixtures are used for holding up the workpiece on the table.

Spindle or Arbor:

The spindle is also an important part of the machine as it is the part where the multipoint cutter is attached.

Operations:

- Plain Milling or Slab Milling Operation
- UP and DOWN Milling Operation
 - Face Milling operation
 - Gang Milling operation
 - Groove Milling Operation,
 - Gear Milling Operation,

Grinding Machine

A grinding machine is a production machine tool used in the manufacturing industry in which the grinding wheel is attached in the tool post and the work-piece is fixed to the work table and when the operation starts it removes the unwanted material to get the desired surface finish, correct size, and accurate shape of the workpiece.

Parts:

i) Base or Bed

It is horizontally situated and it is the bottom part of the grinding machine, provides support to all grinding parts.

ii) Column

Column is like a vertical pillar of the machine, in this section the abrasive wheel, wheel head, and wheel guard are kept.

iii) Headstock

The headstock work is to match the center and helps to grip workpiece.

iv) Tailstock

Tailstock is known as dead center. It also provides gripping to the workpiece.

Grinding wheel

It is main tool used here to remove the unwanted material from the workpiece to get desired smoothness and surface finish.

Operations:-

- Surface grinding
 - Cylindrical grinding
 - Thread grinding
 - Internal and external grinding
 - Centerless grinding
- Frame
 - Traversing Wheel
 - Crossfeed
 - Wheel head

Other parts are:-

- Coolant supply nozzle

- Frame

- Traversing Wheel

- Crossfeed

- Wheel head

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