

## Fitting Shop

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Q1) Write down answers of following questions in Two Three sentences.

a) What is debarring

Ans. Debarring is a material modification process that removes sharp edges from material and leave smooth edges. It is commonly performed on machine operations.

b) For ~~what~~ what purpose are twist drills used?

Ans. A twist drill ~~is~~ is cutting tool that used to create holes in workpiece. The process is known as drilling. The general purpose drill bit to create hole in wood plastic, metal and other materials. They are also used to create through holes in PCB, drill through wall studs etc.

c) What are three filing method used in fitting shop?

Ans. Three filing methods are -

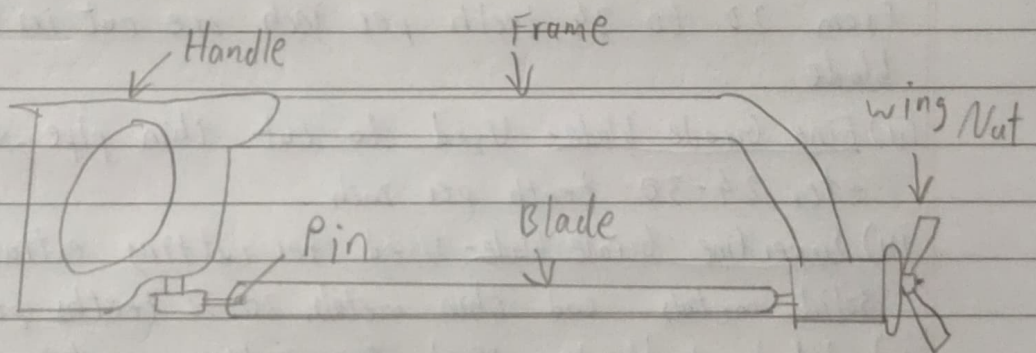
i) Cross filing - This technique involves pushing the file across the edge of material. It can be used finishing shaping or sharpening

ii) Draw filing - Used for finishing and only with single cut files.

iii) Lathe files - Used to smooth and shape cylindrical pieces of material, such as wooden chair legs.

Q2) Explain in brief with labelled diagram what is Hacksaw  
Types of frame, types of blades and use of Hacksaw?

Ans. Hacksaw consists of a frame which holds a thin blade firmly in position. The blade has a number of cutting teeth. The number of teeth per 25mm of the blade length or teeth per inch is selected on basis of the work material and thickness being cut. The teeth of hacksaw blade are staggered as shown in figure which is known as 'set of teeth'. These make the slots wider than the blade thickness, preventing the blade from jamming.



Use - Hacksaw are originally and principally made for cutting metal, but can also cut various other materials such as plastic and wood. Example - Plumbers and electrician often cut plastic pipe and plastic conduit with them.

Types of hacksaw frame -

- 1) Fixed Hacksaw Frame - In this type of hacksaw frame, only hacksaw blade of a specific size can be fixed, not of shorter or longer size. Two types of handles are - straight handle, pistol type handle.



2) Adjustable hacksaw frame - The frame is made in 2 parts. These parts can be adjusted. Hence in this hacksaw, big and small blades of different standards can be used. Straight, pistol type, tubular type and flexible are the types of handle used.

Types of Hacksaw Blades -

- i) Course grade blade - Used for cutting thickness of copper, aluminium, brass etc. 14-18 teeth per inch.
- ii) Medium grade blade - Used for cutting all kinds of metal such as cast iron, aluminium, brass, high carbon steel etc. From 20 to 24 teeth per inch are cut in this Hacksaw blade.
- iii) Fine Grade blade - Used to cut thin pipe, sheets, tubes etc. 24-30 teeth per inch.
- iv) Superfine Grade blade - Used for cutting extraordinary solid metals and thin metals. 30-32 teeth per inch.
- v) Air hand blade - Used for cutting cast iron or mould iron.
- vi) Flexible blade - Used for cutting thin sheets, pipes, curves etc.

- Q3) List Cutting, Marking and measuring tools used in fitting shop
- Q2) ~~Cutting tools used in fitting shops are~~

Ans. Cutting Tools used in fitting shop are

i) Hack saw

ii) Files

Marking Tools used in fitting shop are-

i) Scriber

ii) Dot-Punch

iii) Center - Punch

Measuring Tools used in Fitting shop are -

i) steel rule

ii) Try square

iii) Vernier calliper

iv) Divider

v) Inside calliper

vi) Outside calliper

vii) Odd leg calliper

viii) Vernier height gauge



Q4) What is use of Files in workshop? Explain in Brief Types of Files according to size, shape, grade and cut of Files?

Ans. A file is a tool used to remove fine amounts of materials from a workpiece. Most are hand tools, made of hardened steel bar of rectangular, square, triangular or round cross section, with one or more surfaces cut with sharp ~~gera~~ generally parallel teeth. A narrow pointed tang is a common at one end to which a handle may be fitted.

Types of file according to shape

- i) Flat File - It has a rectangular cross section shape. This instruments is used to reduce flat surfaces by filing and finishing workpiece.
- ii) Round File - It has a circular cross section. Used for rubbing or finishing keyholes or small diameter.
- iii) Half Round File - It is found on side & curved on other sides. Used to repair damaged holes.
- iv) Square File - It is shape of square and are found being tapered.
- v) Hand File - Used for filling internal right and side of a job.
- vi) Knife edge File - Used in ~~tech~~<sup>lock</sup> industry for making keys.

Types of file according to cut-

- i) Single cut file - Used for hard metal as well as for finishing
- ii) Double cut file - Used for cutting metal quickly
- iii) Curved cut file - Used for filing of wide surfaces of soft metals like zinc, aluminium, copper etc.
- iv) Spiral cut file - Has teeth which are cut in round or semi-round files.
- v) Rasp cut file - Used for working in woods, plastic fibre hard rubber etc.

Types of file according to size

The size of file is its length. This distance is from point to heel without tang. Files for fine work are usually 100-200mm and those for heavier work from 200-450mm in length.



Q5) Job-Title - To perform fitting job for drawing given

Materials used - One mild steel sheet cut into piece of 50x50mm in dimension.

Tools and equipment - Hacksaw, files, dot punch, center punch, steel rule, try square bench vise table, hammer

operations - Fitting, Filing, right angle making & sawing

Procedure -

- i) The piece required is checked for its dimensions.
- ii) Adjacent edges are filed to straightness and are checked with 'try-square'
- iii) Marker is used to mark one side and is dried for marking
- iv) Lines are marked according to figure
- v) Center is marked with dot and center punch.
- vi) Excess material is cut off using saw from remaining edges.
- vii) Finally all parts are removed by filing the surface of the job

Use: ~~Usually~~ Usually carried out to obtain material like washers

Conclusion: Filing of the piece, right-angle making and sawing off material is successfully done to obtain a square

Job Drawing

