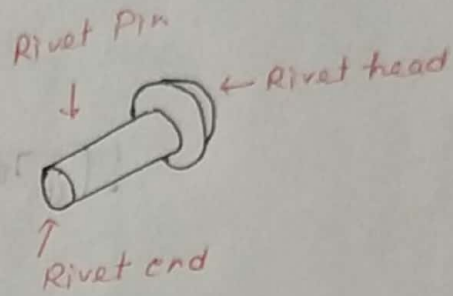
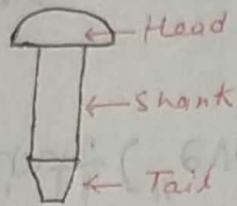


RIVETS

A rivet is a permanent mechanical fastener.

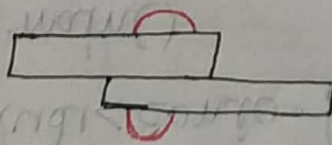
It is a permanent joint which means that it cannot be disassembled without failure of machine component.

This joint forms interference fit to joining the parts.



Rivet Joints

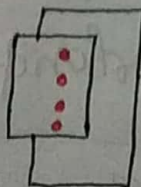
1- **Lap Joint** - When the plates to be joint, are brought together which overlap each other at face, and rivet is inserted in overlap section as shown in figure, the joint is known as Lap Joint.



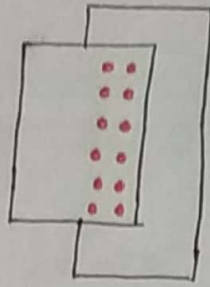
Lap Joint

Types -

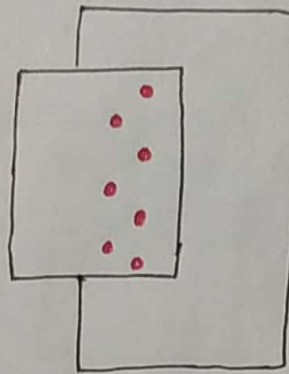
a) **Single riveted Lap Joint** - In this joint, the rivets are inserted in the single line, that's why it is called a single riveted lap joint.



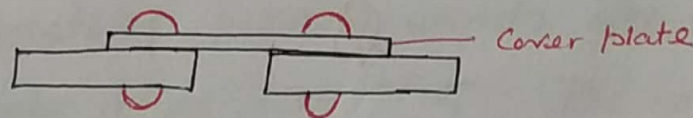
b). Double riveted Lap joint: In this joint, the rivets are inserted in the double line.



c). Zig-Zag riveted lap joint: In this joint, the rivets are inserted in the zig-zag line.



2. Butt Joint: In this type of rivet joint both plates are brought together without overlapping each other, and joints are made by use of one or two cover plates.

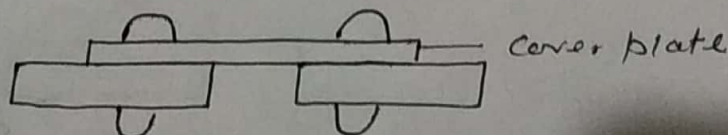


$P = 20$

(Butt Joint)

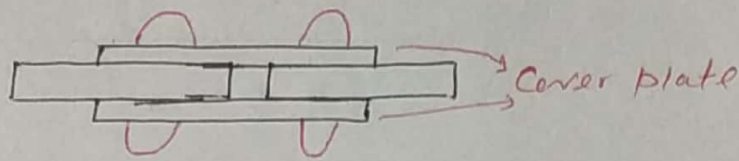
Types

a). Single strap butt joint: In this type of joints there is only one cover plate used.



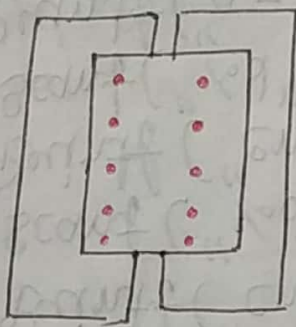
(Single strap butt joint)

b) Double straps butt joint: In this joint cover plates are used in both sides of the work piece.

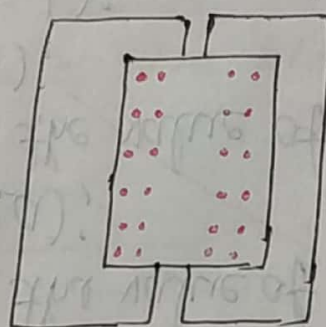


Butt joints can be further classified according to the number / type of rivets used.

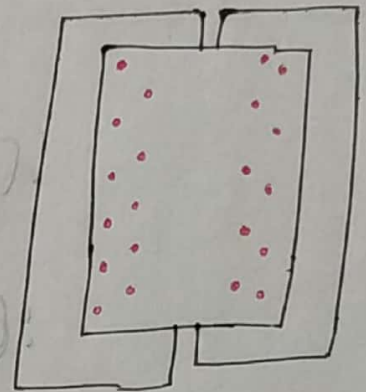
- a) Single riveted butt joint
- b) Double riveted butt joint
- c) Zig-zag riveted butt joint



(a) $\sigma = p$
 $p = \sigma - p$
 $\sigma = \sigma + p$

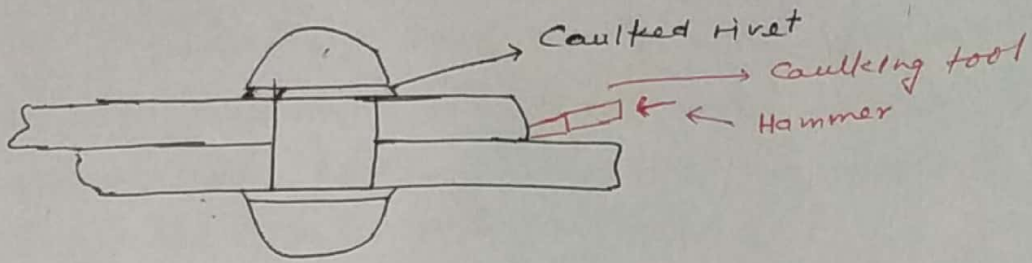


(b)



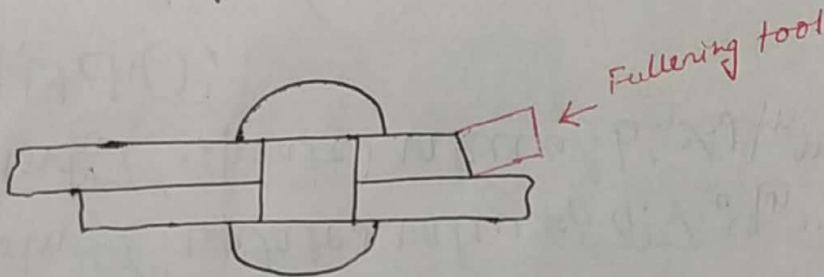
(c)

Caulking :- Caulking is a process employed on riveted joints of pressure vessels like tanks, steam boiler to make joints leak proof. The narrow blunt chisel tool used for caulking is known as caulking tool. Caulking is done at the edges of plates in lap joint and edges of ~~plates~~ strap plate in a butt joint.



(Caulking)

Fullering: Fullering is also a process to make a sealed joint. It is similar to caulking except the shape of tool. The tools used for this purpose is known as fullering tool. The thickness of the fullering tool is equal to the thickness of plates. So the blow on the fullering tool results in simultaneous pressure on the entire edges of the plate.



(Fullering)

Comparison:

Caulking

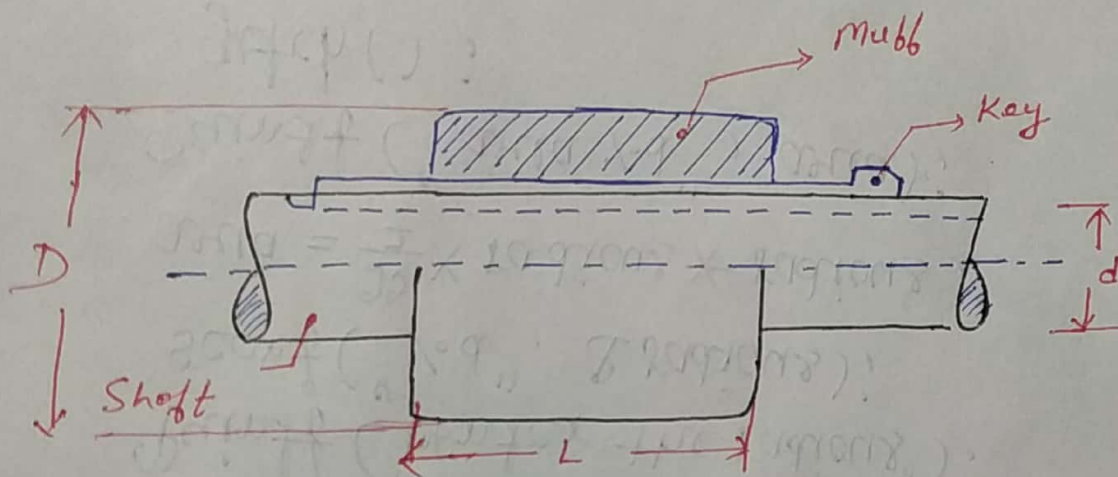
- 1). An operation to make leak proof joint.
- 2). The narrow blunt tool is known as caulking tool.
- 3). Caulking carried out at the edges of both plates and rivets.
- 4). The achieved surface finish is not good.

Fullering

- 1). A process to ~~to~~ make leak proof joint.
- 2). The tool used is known as fullering tool.
- 3). Fullering is carried out at edges of plates.
- 4). Very good surface finish.

Coupling :- Couplings are mechanical elements that couple two drive elements which enable motion to be transferred from one element to another. The drive elements are normally shafts.

Muff coupling :- Muff / Sleeve coupling is the simplest type of rigid coupling. It consists of a hollow cylinder whose inner diameter is same as shaft. It is fitted over the ends of the two shafts by means of a gib head key. The power is transmitted from one shaft to the other shaft by means of a key and a muff.



(Design of muff)

The diameter and length of sleeve is calculated by below mentioned formula:

Outer diameter of sleeve, $D = 2d + 13$

Length of sleeve, $L = 3.5d$

Where d is the diameter of the shaft.