1. Two flat plates subjected to a tensile force P are connected together by means of double-strap butt joint as shown in fig. the force P is 250 kN and the width of the plate w is 200 mm. the rivets and plates are made of the same steel and the permissible stress in tension, compression and shear are 70,100 and 60 MPa. Calculate.
2. Diameter of rivets
3. Thickness of the plates
4. Efficiency of the joints
5. Design the longitudinal riveted Joint for a boiler of diameter 2 m taking the permissible pressure as 25 MPa. Assume the tensile, shear and compressive stresses for the material of shell and rivets as 90 MPa, 60 MPa and 120 MPa respectively.
6. Figure shows a bracket supported by four rivets of equal diameter to withstand an

eccentric load of 50 kN. Determine the size of the rivet taking the permissible shear stress in the rivet equal to 80 MPa.



1. A bracket is attached to a steel chamber by means of 9 identical rivets as shown in Fig. Determine the diameters of the rivets if the permissible shear stress is 60 MPa.



1. A double riveted lap joint is made out of 16 mm thick plate, find the maximum force per pitch length which will rupture the joint assuming the following ultimate stresses : 𝜎𝑡= 400 MPa, 𝜎𝑠= 320 MPa and 𝜎𝑐= 640 MPa. What would be the actual stresses developed in the joint if a factor of safety 4 is used?
2. Double riveted double cover butt joint in plates 20 mm thick is made with 25 mm diameter rivets at 100 mm pitch. The permissible stresses are :,σt = 120 MPa; τ = 100 MPa; σc = 150 MPa

Find the efficiency of joint, taking the strength of the rivet in double shear as twice than that of single shear.

1. Find the efficiency of the following riveted joints :

1. Single riveted lap joint of 6 mm plates with 20 mm diameter rivets having a pitch of 50 mm.

2. Double riveted lap joint of 6 mm plates with 20 mm diameter rivets having a pitch of 65 mm.

Assume

Permissible tensile stress in plate = 120 MPa

Permissible shearing stress in rivets = 90 MPa

Permissible crushing stress in rivets = 180 MPa