

Example 4.1 Calculate the strength of a 20 mm diameter bolt of grade 4.6 for the following cases. The main plates to be jointed are 12 mm thick.

- (a) Lap joint
- (b) Single cover butt joint; the cover plate being 10 mm thick
- (c) Double cover butt joint; each of the cover plate being 8 mm thick.

Example 4.6 Two plates 10 mm and 18 mm thick are to be jointed by double cover butt joint. Design the joint for the following data.

Factored design load	750 kN
Bolt diameter	20 mm
Grade of steel	Fe 410
Grade of bolts	4.6
Cover plates 2 (one on each side)	8 mm thick

Example 4.11 An ISA 100 mm × 100 mm × 100 mm carries a factored tensile force of 100 kN. It is to be jointed with a 12 mm thick gusset plate. Design a high strength bolted joint when (a) no slip is permitted, (b) when slip is permitted. Steel is of grade Fe 410.