

5.11 FOUNDATION BOLTS

Foundation bolts are used for fixing machines to their foundations. Foundation bolts are made by forging from mild steel or wrought iron rods. The bolt size depends upon the size of the machine and the magnitude of the forces that act on them when the machine is in operation.

For setting the bolts in position, their positions are marked and then suspended in the holes made in the ground. Afterwards, cement concrete is filled in the space around in the bolts. Once the concrete sets; the bolts are firmly secured to the ground.

5.11.1 Eye Foundation Bolt

This is the simplest form of all foundation bolts. In this, one end of the bolt is forged into an eye and a cross piece is fixed in it. Figure 5.36 shows an eye foundation bolt that is set in concrete.

5.11.2 Bent Foundation Bolt

As the name implies, this bolt is forged in bent form and set in cement concrete. When machines are to be placed on stone beds, the bolts are set in lead. Figure 5.37 shows a bent foundation bolt that is set first in lead and then in cement concrete, resulting in a firm and stable bolt.

5.11.3 Rag Foundation Bolt

This bolt consists of a tapered body, square or rectangular in cross-section, the tapered edges being grooved. Figure 5.38 shows a rag foundation bolt that is set first in lead and then in cement concrete.

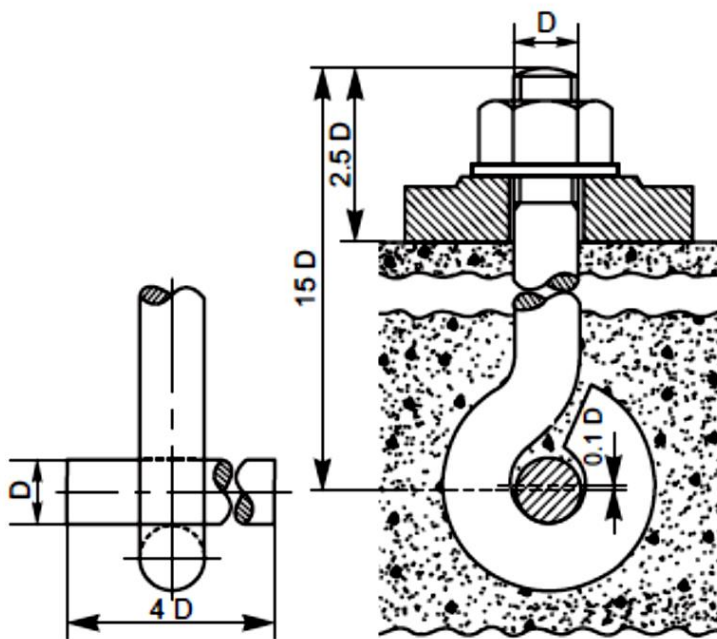


Fig. 5.36 Eye foundation bolt

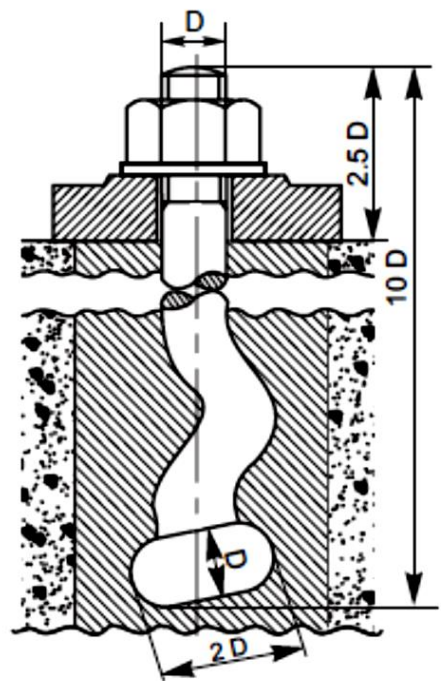


Fig. 5.37 Bent foundation bolt

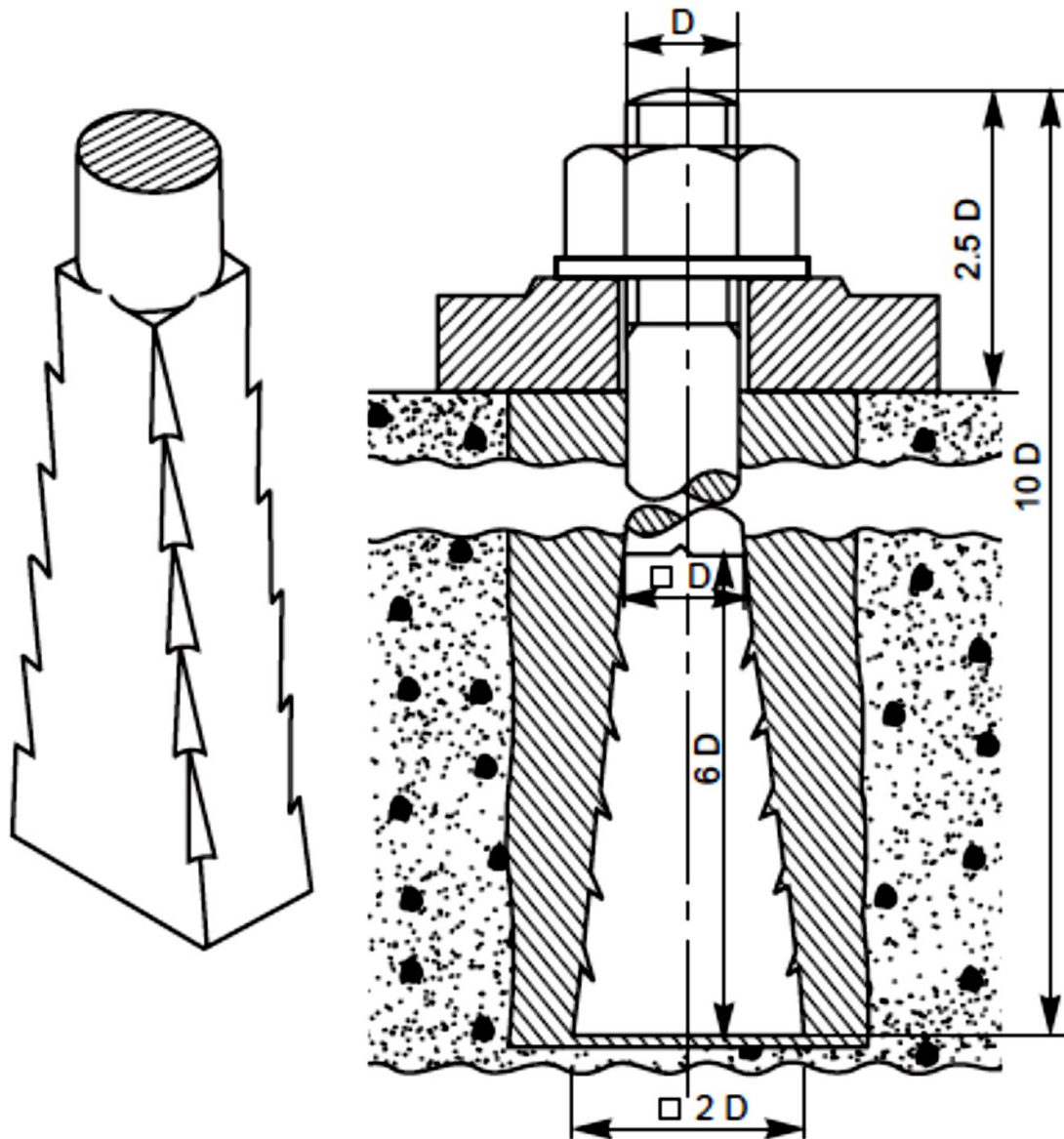


Fig. 5.38 Rag foundation bolt

5.11.4 Lewis Foundation Bolt

This is a removable foundation bolt. The body of the bolt is tapered in width on one side. To use this bolt, a pit is produced in cement concrete, by using a (foundation) block. Once the concrete sets-in, the bolt is placed in it so that the tapered bolt surface, bears against the tapered face of the pit. A key is then inserted, bearing against the straight surfaces of the pit and the bolt. This arrangement makes the bolt firm in the bed. However, the bolt may be removed by withdrawing the key (Fig. 5.39).

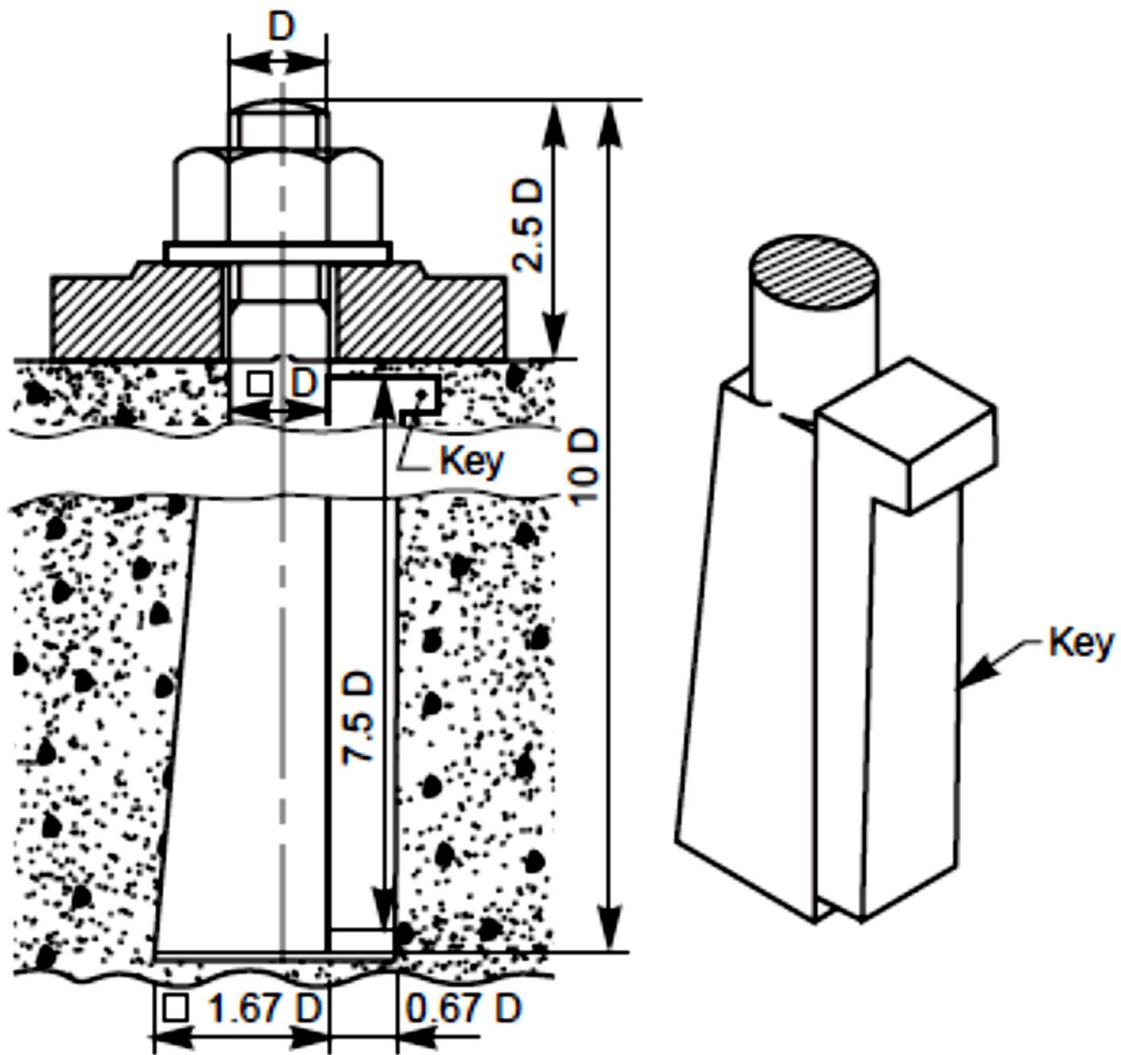


Fig. 5.39 Lewis foundation bolt

5.11.5 Cotter Foundation Bolt

It is used for fixing heavy machines. It has a rectangular slot at its bottom end, to receive a cotter. For putting the bolts in position, the foundation bed is first made, providing holes for inserting cotters. Figure 5.40 shows a cotter foundation bolt in position. A cast iron washer (W) placed as shown, provides bearing surface for the cotter (C).

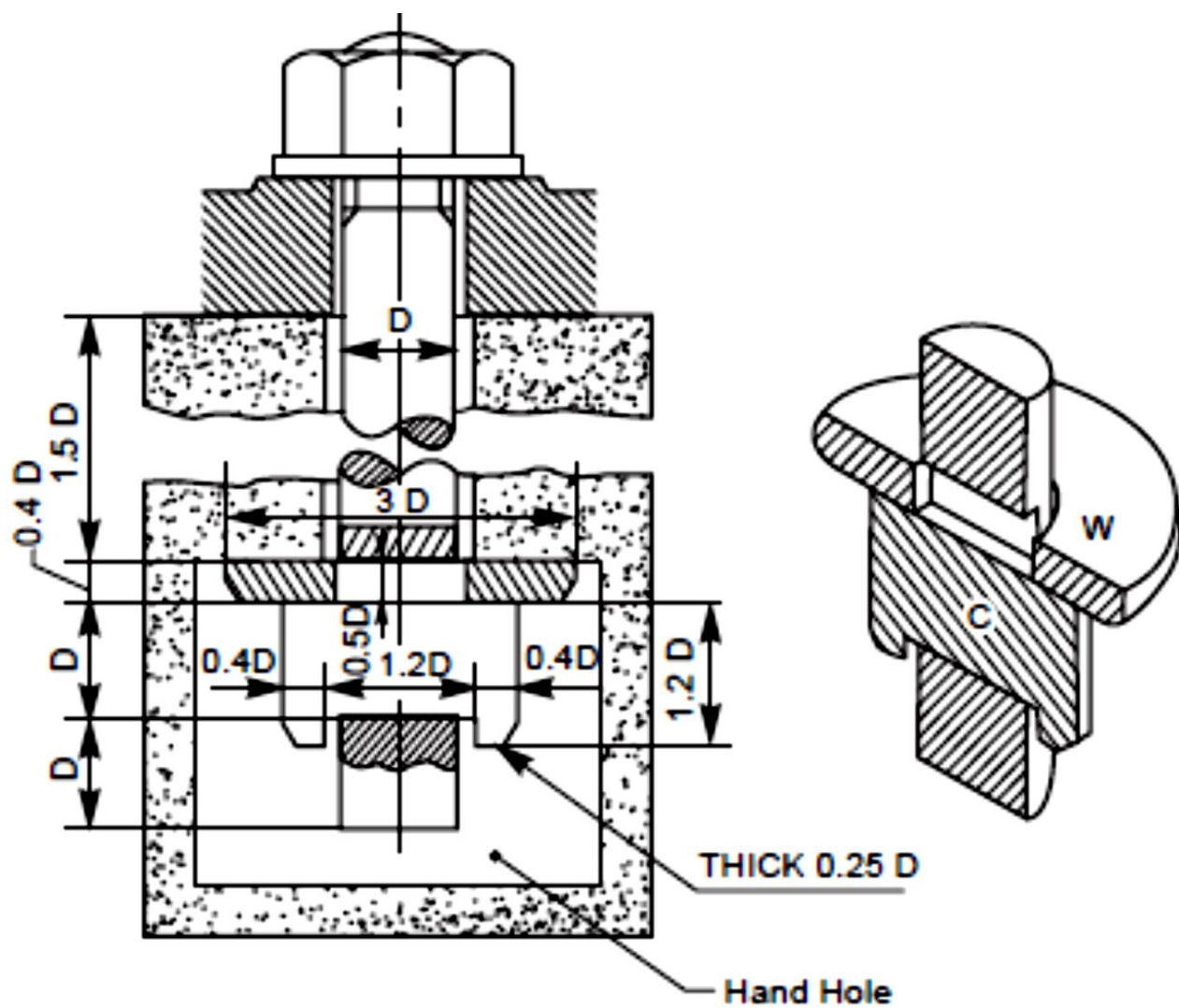


Fig. 5.40 Cotter foundation bolt