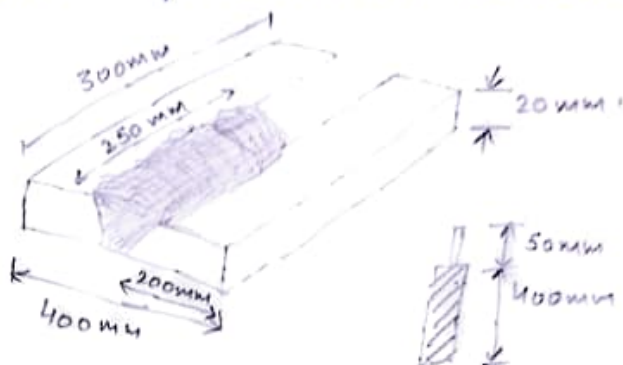
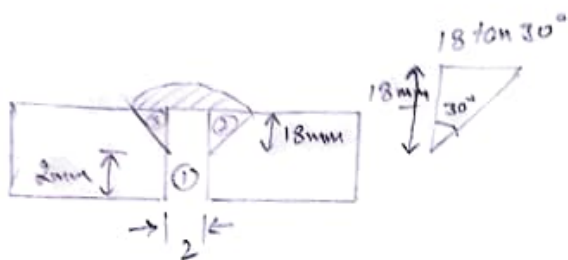


Two w/b are welded by V-butt joint with a groove angle of 60° . Dimensions of the w/b's are measured as 200, 300 and 20 mm length of the weld bead is 250 mm. Diameter of the electrode is 3 mm, Length of the electrode is 450 mm. Stub length of the electrode is 50 mm. Landing and root gap is 2 mm each. Reinforcement & other losses are 15%. Calculate the no. of electrode required to produce the weld bead.

Solⁿs



$$Area = A_1 + A_2 + A_3$$

$$= A_1 + 2A_2$$

$$A = \underline{2 \times 20} + 2 \left[\frac{1}{2} \times 18 \tan 30^\circ \times 18 \right] = 227.06 \text{ mm}^2$$

$$V_w = A \cdot L_w$$

$$227.06 \times 250 = 56765.37 \text{ mm}^3$$

$$V_w (\text{including losses}) = 1.15 \times 56765.37 = 65280.17 \text{ mm}^3$$

$$\text{Volume of electrode} = \frac{\pi}{4} d^2 \cdot l_e$$

$$(V_e) = \frac{\pi}{4} (3)^2 \times (450 - 50)$$

$$= 2827.43 \text{ mm}^3$$

$$\text{So, No. of electrodes} = \frac{V_w}{V_e}$$

$$= \frac{65280.17}{2827.43}$$

$$= 23.08$$

$$= 24 \text{ Ans}$$