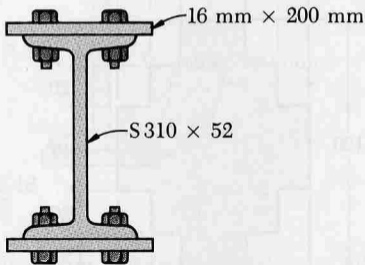


**5.6** The American Standard rolled-steel beam shown has been reinforced by attaching to it two  $16 \times 200$ -mm plates, using 18-mm-diameter bolts spaced longitudinally every 120 mm. Knowing that the average allowable shearing stress in the bolts is 90 MPa, determine the largest permissible vertical shearing force.



**Fig. P5.6**