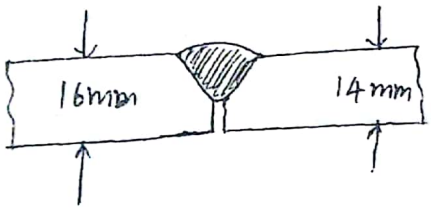
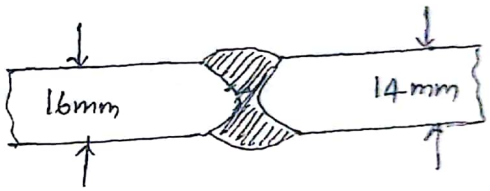
Q-1 Two plates of 16mm & 14mm are to be jointed by a groove weld as shown in figure. The joint is subjected to a factored Tensile force of 430KN. Due to some reason effective length of weld that could be provided was 175mm only. Check the safety of the joint if, a) single V groove weld is provided

b) Double V groove weld is provided.

Assume the plates to be shop welded and Fe410 grade steel.





Q-2 A flat Tension member 75mm x 8mm is to transmit a factored load of 145 KN. Design shop fillet welds and necessary overlaps when the welds are provided along;

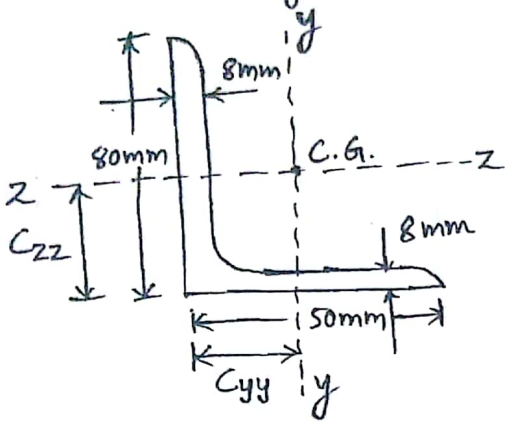
(a) Two edges (sides) of the member

(b) End and Two edges of the member

(c) All round the joint

e steel is of grade Fe 410 & gusset plate is 12mm thick

Q.3 A Tie member consisting of an ISA: 80mm × 50mm × 8mm (Fe410 grade steel) is welded to 12mm thick gusset plate at site using only side fillet weld. Design a moment free welded connection to transmit load equal to the design strength of the member if the bigger leg is connected to the Gusset plate.



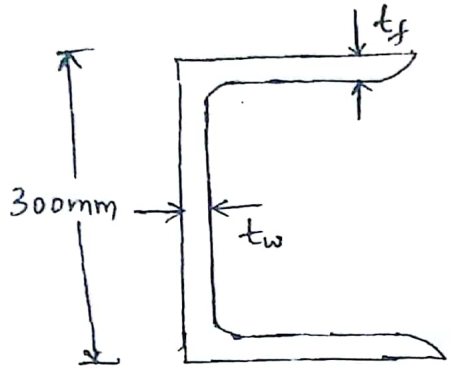
$C_{yy} = 12.4\text{mm}$

$C_{zz} = 27.3\text{mm}$

$A_g = 978\text{mm}^2$

4

An ISLC : 300 (Fe 410 grade steel) is to carry a factored Tensile force of 900 KN. The channel section is to be welded at the site to a gusset plate of 12mm thick. Design a fillet weld if the overlap is limited to 350mm



$A_g = 4211\ mm^2$

$t_f = 11.6\ mm$

$t_w = 6.7\ mm$