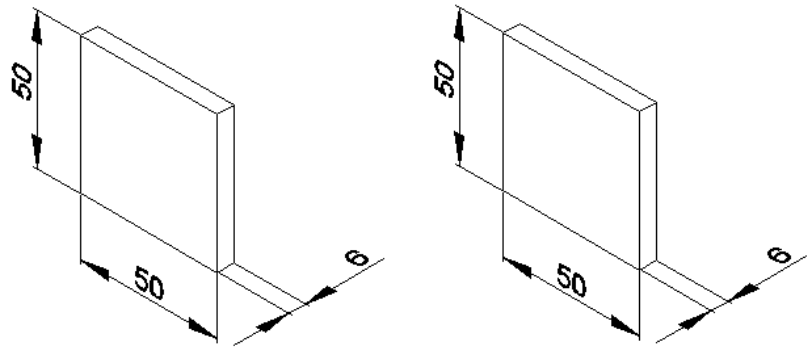
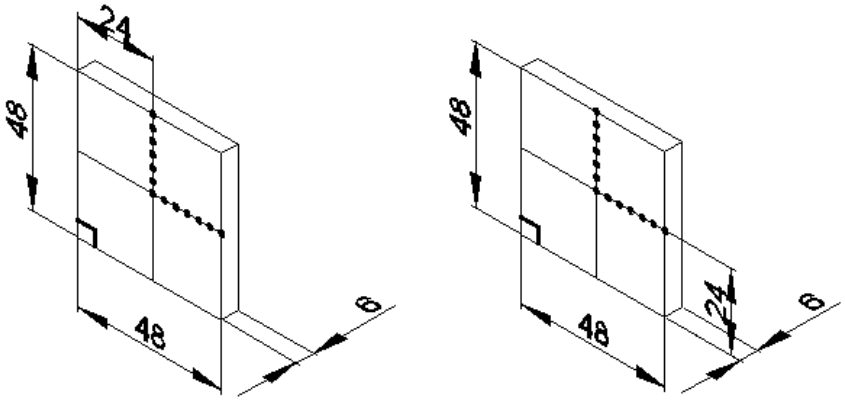
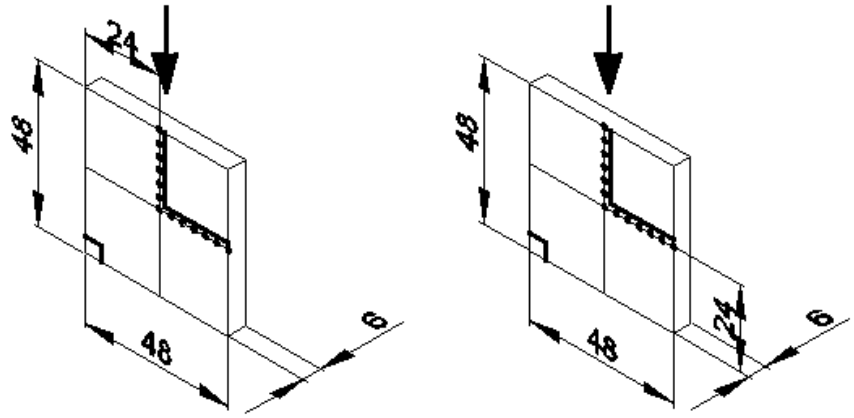
STEP FITTING



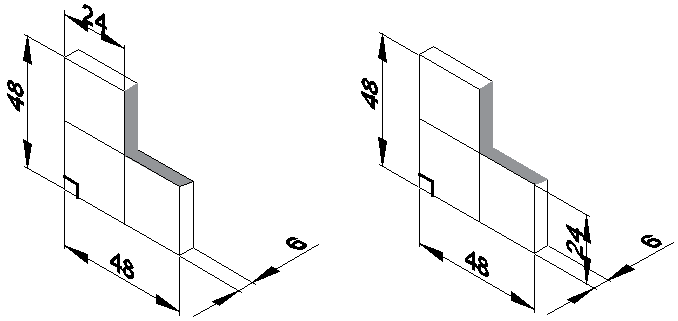
RAW MATERIAL



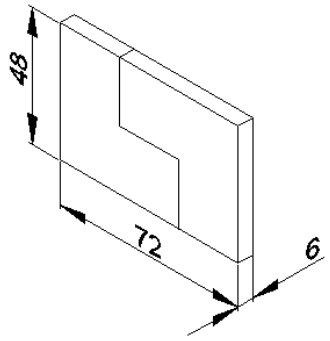
MARKING AND PUNCHING



CUTTING LINE



FINISHED WORK PIECES



ASSEMBLED WORK PIECE
ALL DIMENSIONS ARE IN mm.

STEP FITTING

Ex no :

Date :

Aim:

To construct step fitting using mild steel work piece.

Application:

Fabrication industries, Aircraft industries, Automobile industries

Material Specifications:

Mild steel metal plates of dimension is 50mm x 50mm x 6mm.

Tools Required:

1) Steel rule 2) Try square 3) Jenny caliper 4) 12'' Flat rough File
5) 6'' Flat smooth file 6) 6'' Try angular file 7) Dot punch 8) Ball peen hammer
9) Bench vice 10) Hacksaw frame with blade

Sequence of Operation:

1) Preparation 2) Marking 3) Cutting 4) Filling 5) Finishing 6) Fitting

Working Steps:

1) Preparation:

a) Check the initial dimensions using steel rule.

b) Fix the job on a bench vice and file the two adjacent sides using a flat file to form right angles.
c) Check for the perpendicularity with try square.

2) Marking:

a) Apply chalk on the work surface.
b) Measure the given dimension using jenny caliper from the steel rule.
c) Transfer the measured dimensions to the work piece.
d) Mark the dimensions on the work piece with right angle side as reference edge.
e) Repeat the above steps with the next right angle side as reference edge to mark the dimension.
f) Scribe line along the marked dimensions on the work piece.
Indicate the unwanted portion
g) Make dots along these lines using dot punch, which is called as punch lines.

I) Draw line parallel to these punch line at a distance of 2 mm from them, which are called cutting lines

3) Cutting:

a) Fix the work piece in the bench vice in such a way that the cutting line is perpendicular to the jaws of vice.

b) Cut along the cutting line.

c) Repeat the step till cutting is finished along all the cutting lines by rearranging the work piece in the vice.

d) Must ensure that cutting is carried out along all the cutting lines.

4) Filling:

a) Fix the work piece in the bench vice in such a way that the cutting edges (punch line) are parallel to the jaws.

b) File the cut edges using flat rough file to a distance of 2 mm, So that the punch lines are exposed.

c) Remove and refit the work piece in the bench vice to make the next set of cut edges parallel to the jaws.

d) File the cut edges using flat rough file to a distance of 2 mm.

e) Must ensure that filing is carried out along all the cutting edge punch line.

5) Finishing:

a) Using a flat smooth file to produce a smooth surface finish in all the filed edges.

6) Fitting:

Check for true from with a mating gauge and for symmetry about the axis with a Vernier caliper. The fitting accuracy is considered if both contours make without misalignment and clearances.

Pre Lab Question:

1) What is fitting?

2) Mention processes in the fitting shop?

3) List out the fitting tools?

4) Describe of filing?

5) List out type of file?

Post Lab Question:

1) What is the Dot punch angle?

2) How to check the perpendicular?

3) Expansion of TPI?

4) What is the least count of steel rule?

5) How to fix the blade in the Hacksaw frame?

Result:

Thus a Step fitting is obtained out of the given work piece with specified dimensions shape, finish and accuracy with proper fitting.