

Basic Machining Practices

Exercise 1

Name: _____

Date: _____

Score (100 possible): _____

5 points each (answers begin on page 273)

Use this drawing to answer the questions below.

Technical drawing of a top mounting plate. The front view shows a rectangular plate with a total width of 3.00 and a total height of 5.00. A rectangular pocket is located in the center, with a width of 1.50 and a depth of 0.875. The distance between the centerlines of two 0.50 diameter holes is 1.50. The distance from the left edge to the centerline of the first hole is 0.75. The distance from the centerline of the first hole to the left edge of the pocket is 0.75. The distance from the centerline of the second hole to the right edge of the pocket is 1.250. The distance from the centerline of the second hole to the right edge of the plate is 0.87. The pocket has rounded ends with a radius of 0.37 R (4). The side view shows a total height of 4.00 and a slot width of 0.750. The distance from the top edge to the top of the slot is 0.750. The distance from the top edge to the bottom of the slot is 1.00. The distance from the centerline of the slot to the right edge of the plate is 0.3750. A feature control symbol (A) is located on the side view, indicating a tolerance of 0.875 +0.001, -0.002.

Revisions	
Rev	Description
A	Was +/- 0.001

Notes:
 1) Break all sharp edges.
 2) Similar part: A -37625.

Implied tolerances:
 x.x: +/-0.01
 x.xx: +/-0.005
 x.xxx: +/-0.001
 x.xxxx: +/-0.0005

Top Mounting Plate	A-37625
Drawn: MCH	Checked: LDA
Date: 4/03/08	Assembly: none
Material: 316 stainless	Scale: none

1) Specify the overall size of this workpiece (thickness, width, and height).

2) What is the distance between the two 0.5 diameter holes?

3) What is the size of the rectangular pocket (width, length, and depth)?

4) What material will this workpiece be made from?

5) Do the 0.5 diameter holes go all the way through the workpiece?

6) All tolerances but one are implied.

- true
- false

7) What is the tolerance for the rectangular pocket's width and length (not depth)?

8) For the slot width (0.750 dimension), specify the mean value, high limit, and low limit.

mv: _____ hl: _____ ll: _____

9) For the hole diameters (0.50 dia. dimension), specify the mean value, high limit, and low limit.

mv: _____ hl: _____ ll: _____

10) For the rectangular pocket depth (0.875 dimension), specify the mean value, high limit, and low limit.

mv: _____ hl: _____ ll: _____

11) Unless told otherwise, you should use the mean value as your target value when making adjustments.

- true
- false

12) What is the current revision (letter) for this drawing?

13) After removing a completed workpiece from the machine, you measure the width of the 0.750 slot and find it to be 0.7503.

- a. Is it acceptable? _____
- b. Is an adjustment necessary? _____
- c. If so, how much? _____

14) After removing a completed workpiece from the machine, you measure the depth of the 0.750 slot and find it to be 0.3743.

- a. Is it acceptable? _____
- b. Is an adjustment necessary? _____
- c. If so, how much? _____

15) After removing a completed workpiece from the machine, you measure the width of the rectangular pocket and find it to be 1.252.

- a. Is it acceptable? _____
- b. Is an adjustment necessary? _____
- c. If so, how much? _____

16) After removing a completed workpiece from the machine, you measure the length of the rectangular pocket and find it to be 2.002.

- a. Is it acceptable? _____
- b. Is an adjustment necessary? _____
- c. If so, how much? _____

17) After removing a completed workpiece from the machine, you measure the depth of the rectangular pocket and find it to be 1.8737.

- a. Is it acceptable? _____

b. Is an adjustment necessary? _____

c. If so, how much? _____

18) After removing a completed workpiece from the machine, you measure the distance between the two 0.5 diameter holes and find it to be 1.503.

a. Is it acceptable? _____

b. Is an adjustment necessary? _____

c. If so, how much? _____

19) When adjustments are necessary, adjustment polarity (plus or minus) is determined by whether or not more material must be removed from the workpiece. If more material must be removed, the polarity for the adjustment will usually be negative.

- true
- false

20) When a workpiece attribute is out of tolerance, it can usually be saved if more material must be machined in order to bring the attribute within its tolerance band.

- true
- false