

Performance Standards

Drill Press

Material

Mild steel or low carbon steel 1.00" x 2.00" x 3.00"

Duty

Setup and operate drill presses. Perform routine drill press operations.

Performance Standard

Given a part print, hand precision, and cutting tools, as well as access to a drill press and its accessories, produce a part matching the process plan and the blueprint specifications. Each hole must have at least two secondary operations. The secondary operations will consist of reaming, spot facing, countersinking, counterboring, and counterdrilling. At least one hole must be a blind hole and one a through hole. At least one hole will may be power tapped.

Other Evaluation Criteria

1. Finishes are at least 250 Ra microinches.
2. No sharp edges.
3. The mouths of all holes are lightly countersunk.

Accuracy Level: +/- 1/64 on all fractions, holes square within .005 per inch, drilled diameters, +.006, -.000. Reamed diameters +.001, -.000, +/- .005 on all decimals unless otherwise specified on the blueprint.

Assessment Equipment and Material

- Workstation:* A common workbench, a drill press. Morse taper #3 spindle capacity or greater preferred. The drill press must have a tapping capability or a tapping head accessory.
- Material:* A part matching the material requirements of the drill press blueprint, material: mild steel, cutting fluids.
- Tooling:* A 6" drill vise or greater, screws, studs, nuts, washers, and clamps sufficient to secure the vise, or the part. Assorted parallels, a composition hammer, assorted Morse taper sleeves fitted to the machine spindle, drill chucks, drills, reamers, countersinks, spot facers, counterbores, centerdrills, and various taps. A scribe, layout ink, prick punch, ball peen hammer, angle plate, 6" dividers, surface gage.
- Measuring Instruments:* Required micrometers, combination set, 6" rule, a 6" vernier, dial, or electronic caliper, go/nogo gage for threads, plug gages, telescoping gages, layout height gage, and surface finish comparison plates.
- Reference:* Machinery's Handbook.

Performance Assessment Worksheet Drill Press

INSTRUCTIONS: Rate the candidate's performance for the Drill Press job according to the twelve (12) criteria below. The checklist below represents only a listing of criteria to be evaluated. It is not a sequence of process steps or a process plan for making the part. For each item, check the box under Pass or Fail accordingly.

Remember, NIMS requires that all specifications must be met within the allowable tolerance limits. If the part does not meet all specifications, the candidate/trainee must correct or redo the project.

Candidate Name _____

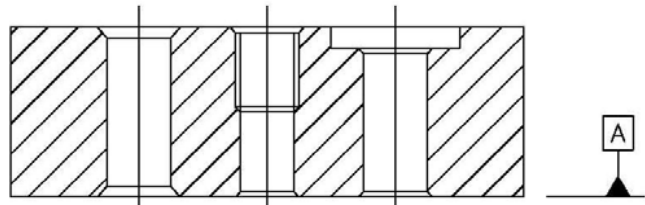
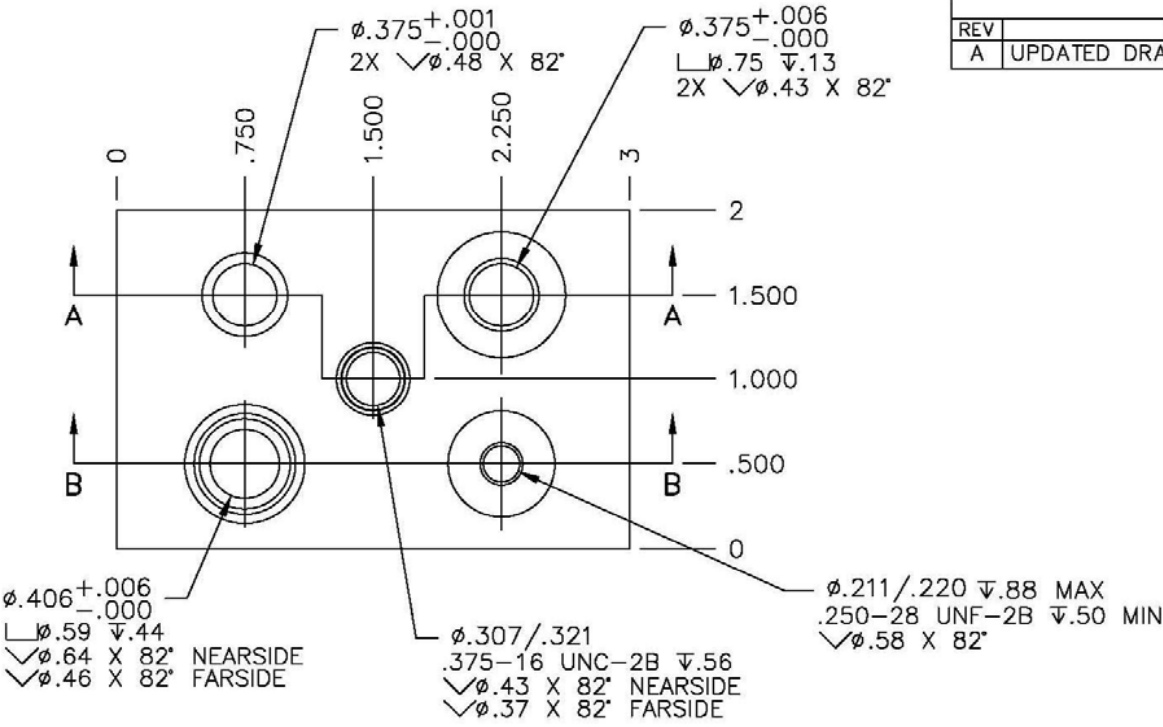
Evaluation Date _____

Performance Project – Drill Press		Pass	Fail
Evaluation Criteria			
1. $\varnothing .375 + .001/- .000$ reamed hole (hole 1)	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
2. Location of $.375-16$ tapped hole $1.500 \pm .005$ $1.00 \pm .005$	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
3. $\varnothing .375$ drilled hole $+ .006/- .000$ $\varnothing .75$ spotface $\times .13$ deep $\pm .015$ " (hole 2)	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
4. $\varnothing .406 + .006/- .000$ $\varnothing .59$ c'bore $\times .44$ deep $\pm .015$ "	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
5. $.250 - 28$ UNF 2B $.5$ deep min. full thread #3 drill ($\varnothing .213$) $.878$ deep max.	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
6. $.375$ UNC 2B, $.5$ deep min., full thread $.75$ max. #31 drill hole $+ .006/- .000$	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>
7. Holes \perp to datum A within $.005$	Pass = within tolerance Fail = out of tolerance	<input type="checkbox"/>	<input type="checkbox"/>

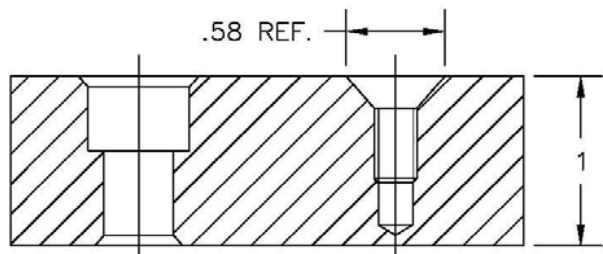
Performance Project – Drill Press			
Evaluation Criteria		Pass	Fail
8. Surface finish	Pass = 125 Ra microinches or better Fail = Over 125 Ra microinches	<input type="checkbox"/>	<input type="checkbox"/>
9. Sharp edges broken .015 max.	Pass = no sharp edges Fail = sharp edges	<input type="checkbox"/>	<input type="checkbox"/>
10. Holes: countersunks are within tolerance.	Pass = countersunk within tolerance Fail = holes not countersunk	<input type="checkbox"/>	<input type="checkbox"/>
END OF DRILL PRESS EVALUATION			

It is important to note that the part must be 100% within the tolerances listed on the print. The criteria listed here are a guide for instructors and supervisors. Not every dimension is included in this guide. Nonetheless, the completed part must be 100% within the specifications of the print. The print takes precedence over this guide when the parts are inspected by the MET-TEC committee. The part print and the Performance Affidavit should be sent along with the part to the MET-TEC for evaluation. Send to NIMS only the completed Performance Affidavit, signed by the MET-TEC members. A copy of the Performance Affidavit should be retained in the candidate's file documenting completed performance for this credential.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	UPDATED DRAWING AND TITLE BLOCK	3/7/05	LW



SECTION A-A



SECTION B-B

- NOTE: 1. FINISH 250 MICROINCHES
 2. BREAK ALL EDGES .015" MAX
 3. ALL HOLES: $\square \square \square \phi .005 \square A$

DO NOT SCALE DRAWING

		MACHINING SKILLS LEVEL I	
		Job Duty 2.8 Manual Operation, Drill Press	
DESIGNER	DK	11/04/01	MATERIAL COLD ROLL STEEL OR MILD STEEL
DWG CHK			
DWG APPD			
SCALE FULL		DWG.#98401 I	SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994

TOLERANCES
 .X ±.032 .XXX ±.005
 .XX ±.015 ANGLES ± 1 DEG.
 FRACTIONS ± 1/64

NIMS PROCEDURAL REQUIREMENTS

1. SUBMIT THIS PRINT AND WORKPIECE ALONG WITH THE PERFORMANCE AFFIDAVIT FOR EVALUATION