Laboratory Worksheet 8

Turning and Chamfering of the Flange to Final Dimensions

Names: _____ Group No.: _____

_____ Date Started: _____

(Last Name, First Name MI.) Date Completed: _____

(yy/mm/dd)

Instructor: Engr. Nico O. Aspra, M.Eng., RMP, LPT

*Note: When printing the worksheet, use long bond paper (8.5 in × 13 in). Print the Data Collection up to the Analysis section **back-to-back** on a single sheet of paper. Print the Assessment Sheet on a separate sheet and staple it at the back of this worksheet.*

8.1 Data Collection and Calculations

Record and compare the following measurements based from your plans and after the machining operation. These values will help verify the accuracy of your.....

Table 8.1: Comparison of Machined Dimensions with Design Specifications

Dimension	Specification	Actual	Deviation	Remarks
sleeve length 1, L_1				
sleeve length 2, L_2				
thickness, t				
diameter 1, D_1				
diameter 2, D_2				

* The "Remarks" column will be filled in by your instructor based on inspection.

Table 8.2: Chamfer Angle Calculation Based on Design Specifications

Parameter	Equation	Value	Unit
chamfer length	$t - (L_1 + L_2)$		mm
chamfer depth	$\frac{D_1 - D_2}{2}$		mm
chamfer angle	$\theta = \tan^{-1}\left(\frac{\text{chamfer length}}{\text{chamfer depth}}\right)$		mm

Solutions

Write down all the corresponding solutions in the space provided.

Solutions

8.2 Analysis and Discussion

Reflect on the exercise and draw upon both your experience and the data gathered to respond to the following questions. Support your answers with specific examples from your observations.

Question 1

How did you verify that both flanges were turned to the same outer diameter? Were there any noticeable differences in thickness, alignment, or finish between the two?

Question 2

When feeding the tool along the chamfer angle, what challenges did you encounter in maintaining surface finish or depth consistency?

Question 3

After remounting for the second chamfer, was alignment easily maintained? How did you ensure that the second flange was correctly positioned and did not shift during operation?

Question 4

If you were to repeat this procedure, what improvements in setup, measurement, or tool control would you implement to achieve greater precision and efficiency?

Question 5

Reflect on how this activity enhanced your understanding of compound rest operation, trigonometric application in machining, and symmetrical part production.

Assessment Sheet

Note: This page must be stapled at the back of your laboratory worksheet.

Individual Contribution Declaration

In this section, list and briefly describe each member's contributions to the activity. Itemize the specific tasks performed and assign a corresponding percentage to each member. The combined percentage must total 100%.

Name	Designation (Leader/Member)	Individual Accomplishments	%	Signature
		Total	**100%**	

Academic Honesty Statement

I/We hereby certify that I/we have written and developed this report. I/We affirm that the report I/we am/are submitting as part of the requirements of this course is original and not plagiarized. My/Our signature/s below constitute/s my/our pledge that I/we have fully complied with Bicol University's policy on academic integrity. I/We understand that academic dishonesty will not be tolerated and that, if such instance/s are found and proven in this submitted work, a final grade of 5.0 will automatically be given to me/us, and I/we will be subjected to disciplinary action/s sanctioned by Bicol University.

Signature over printed name (Group Leader)

Do not write beyond this point. This section will be completed by the instructor.

Performance Assessment Rubric

(For instructor use only)

Criteria	4 – Exemplary	3 – Proficient	2 – Developing	1 – Beginning	Score
Understanding of Task	Demonstrates complete understanding of the objectives, theory, and relevance of the activity	Shows good grasp of the task with minor conceptual gaps	Basic understanding with some confusion about the purpose or process	Limited or incorrect understanding of the task's goal	
Execution Accuracy	All procedures and tools are correctly used with high precision and consistency	Most steps are followed correctly with minor errors or inefficiencies	Several key steps missed or tools used with noticeable inaccuracy	Process poorly executed; improper use of tools or procedures	
Measurements	Measurements are accurate, clearly recorded, and well-analyzed against design targets	Mostly accurate data with partial analysis or incomplete comparison	Data is somewhat inaccurate or poorly explained	Lacks measurements or data is irrelevant or incorrect	
Reflection and Analysis	Deep insights, thoughtful evaluation of outcomes, and strong suggestions for improvement	Reflection shows good understanding with reasonable suggestions	Limited self-assessment or vague comments	Little to no reflection; fails to engage with outcomes	
Presentation	Report is highly organized, clear, and free of major errors in structure or expression	Report is generally clear and well-organized with minor lapses	Report lacks clarity or organization; some confusion in formatting or writing	Disorganized or incomplete submission; difficult to follow	
				Total	