

Laboratory Worksheet 9

Keyway Cutting on the Flange

Names: _____	Group No.: _____
_____	_____
(Last Name, First Name MI.)	Date Started: _____
	Date Completed: _____
Instructor: Engr. Nico O. Aspra, M.Eng., RMP, LPT	
(yy/mm/dd)	

Note: When printing the worksheet, use long bond paper (8.5 in \times 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.

9.1 Data Collection

Record the actual dimensions of the machined keyway and compare them with the design specifications. Use precise instruments such as a vernier caliper or depth gauge to measure depth and width.

Table 9.1: Comparison of Keyway Dimensions with Design Specifications

Dimension	Specification	Actual	Deviation	Remarks
Width of Keyway				
Depth of Keyway				
Surface Finish				
Fit of Key				

* The surface finish should be rated as rough, grooved, matte, glossy, or mirror-like depending on the observed surface quality.

* The fit of key should be rated as loose, sliding, or tight depending on the observed fit.

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

9.2 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.

Solutions

How did you ensure proper alignment of the shaping tool with the bore centerline?

Question 2

Describe any challenges encountered during the setup or cutting process. How did you address them?

Question 3

Was the stroke length and feed rate appropriate for the material and cut? Justify your answer.

Question 4

Evaluate the dimensional accuracy of your keyway. If deviations were observed, what might have caused them?

Question 5

Reflect on the quality of the key fit. Was it acceptable? What impact does it have on assembly performance?

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					