Mechanical Components Vocabulary Guide

Key Terms and Definitions

1. **Gear (Engranaje)** – A rotating machine part having cut teeth that mesh with another toothed part to transmit torque.
2. **Bearing (Rodamiento)** – A machine element that constrains relative motion and reduces friction between moving parts.
3. **Shaft (Eje)** – A long cylindrical component used to transmit mechanical power.
4. **Bolt (Perno)** – A threaded fastener designed to be used with a nut to join materials together.
5. **Nut (Tuerca)** – A fastening device with a threaded hole that works with a bolt to secure parts.
6. **Washer (Arandela)** – A flat ring used to distribute the load of a threaded fastener.
7. **Lathe (Torno)** – A machine tool used to shape materials by rotating them against a cutting tool.
8. **Milling machine (Fresadora)** – A machine tool that removes material from a workpiece using rotary cutters.
9. **Welding (Soldadura)** – A process that joins metal parts by melting and fusing them together.
10. **Blueprint (Plano)** – A detailed technical drawing representing the design of an object.
11. **Tolerance (Tolerancia)** – The permissible limit of variation in a physical dimension.
12. **Drill bit (Broca)** – A cutting tool used to create holes in materials.
13. **Thread (Rosca)** – A helical structure used for fastening or transmitting motion.
14. **Casting (Fundición)** – A manufacturing process where liquid material is poured into a mold and solidified.
15. **Forging (Forja)** – A manufacturing process involving the shaping of metal using compressive forces.
16. **Torque (Par de torsión)** – A measure of the rotational force applied to an object.
17. **Hardness (Dureza)** – The ability of a material to resist deformation, indentation, or penetration.
18. **Shear stress (Esfuerzo cortante)** – A force that causes parts of a material to slide past each other in opposite directions.
19. **Tensile strength (Resistencia a la tracción)** – The maximum stress a material can withstand while being stretched or pulled.
20. **CNC (Computer Numerical Control)** – A system used to automate machine tools through computer programming.

Exercises

1. **Matching:** Match the English terms with their Spanish translations.
    - Gear → a) Forja
    - Bearing → b) Soldadura
    - Shaft → c) Eje
    - Bolt → d) Engranaje
    - Nut → e) Tolerancia
    - Washer → f) Rodamiento
    - Lathe → g) Perno
    - Milling machine → h) Fresadora
    - Welding → i) Torno
    - Blueprint → j) Tuerca

2. **Fill in the blanks:** Complete the sentences with the correct vocabulary word.
    - A ___ is used to transmit rotational force between parts.
    - A ___ is a machine tool that removes material using rotary cutters.
    - A ___ is used to join two parts by melting and fusing them.
    - A ___ fastener works with a bolt to secure parts together.
    - A ___ is used to reduce friction between moving parts.

3. **True or False:** Identify whether the following statements are correct.
    - A bolt and a nut are used together to join materials.
    - A blueprint is a machine used for cutting metal.
    - Casting involves pouring liquid material into a mold.
    - Torque measures the force applied to an object's rotation.
    - A lathe is used for welding metal.

4. **Multiple Choice:** Choose the correct definition for each term.

- What is a drill bit used for?

  a) Cutting metal sheets **b)** Creating holes in materials **c)** Measuring torque

- What does a washer do?

  a) Transmits rotational force **b)** Distributes the load of a fastener **c)** Joins two metal parts by melting

- What is the function of a bearing?

  a) To reduce friction between moving parts **b)** To create threaded holes **c)** To secure bolts and nuts

- What is a blueprint?

  a) A tool for cutting metal **b)** A technical drawing of a design **c)** A type of welding technique

- What does a CNC machine do?

  a) Automates machine tools **b)** Measures torque **c)** Applies shear stress to materials

- What does tensile strength measure?

  a) The ability of a material to stretch without breaking **b)** The resistance of a material to indentation **c)** The amount of torque applied to a shaft

5. **Short Answer:** Explain the difference between "forging" and "casting."

   _____
   _____
   _____

6. **Translation:** Translate the following sentences from English to Spanish using the vocabulary terms.
   - The bolt and nut secure the components together.
   - A lathe is used to shape rotating parts.
   - Welding is necessary for joining metal structures.
   - The blueprint shows the design of the mechanical component.
   - The CNC machine automates precision cutting.
