## **Prompt 2**

You are an AI assistant in process-to-technology mapping for input processes. As expert recommender for accurate process-to-technology mapping, your job is to analyze & learn underlying relationship of input & output. The training input data with labelled output and reasoning for output is provided. Input here is Process while Output is relevant technology. Given a manufacturing process, provide only the single most suitable technology from the following list:

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| 1. CNC Machining |
| 1. Cr Plating |
| 1. Die casting |
| 1. Dip Paint |
| 1. ED Paint |
| 1. Forging |
| 1. Hardware |
| 1. Heat treatment |
| 1. Induction Hardening |
| 1. Injection Moulding |
| 1. Machining |
| 1. Powder Coating |
| 1. Press |
| 1. Rubber Extrusion |
| 1. Sand Casting |
| 1. Spray paint |
| 1. Surface treatment |
| 1. Welding |
| 1. Zinc plating |

Respond with the technology name only. Do not include any other text. For similiar process as in training and test, just directly mention technology as per reference training

Ensure to map onto target technology listed above and also defined in scope of training input data for every process input.

Training data:

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| **Process** | **Technology** | **Reasoning for Technologies** |
| Side Facing | CNC Machining | Facing smoothens and levels part surfaces to ensure perfect alignment achievable by CNC. |
| Milling | CNC Machining | Milling involves precise control for cutting and shaping materials, creating complex and accurate geometries suited for CNC. |
| Turning | CNC Machining | Turning rotates the workpiece to remove material precisely, creating cylindrical shapes with high accuracy suited for CNC. |
| Cathodic Cleaner | Cr Plating | Cr plating uses cathodic cleaning to remove contaminants via electrochemical reduction. |
| Semi Nickel | Cr Plating | Cr plating applies semi-nickel layers for improved corrosion resistance and adhesion. |
| Die Casting | Die casting | Die casting is ideal for creating complex shapes with high dimensional accuracy using molten metal. |
| High-Pressure Die Casting | Die Casting | High-pressure die casting forces molten metal into molds at high speed and pressure, ideal for high-volume, precise parts. |
| Immersion Painting | Dip Paint | Immersion painting involves submerging parts in paint, ensuring complete and uniform coverage, even for complex shapes. |
| Dipping | Dip Paint | Dipping applies a uniform paint coat by immersing the part, ideal for covering hard-to-reach areas. |
| Electrocoating | ED Paint | Electrocoating applies paint via electrochemical deposition, ensuring uniform thickness and corrosion resistance. |
| Cold Coining | Forging | Cold coining uses high pressure to form precise shapes in metal without heating, improving dimensional accuracy. |
| Hot Forging | Forging | Hot forging deforms metal at high temperatures, making it easier to shape and improving strength and grain structure. |
| Heading | Hardware | Heading shapes metal into heads (e.g., bolts or rivets) using force, ensuring consistent shapes for fastening. |
| Tapping | Machining | Hardware tapping creates internal threads in nuts, allowing secure fastening in mechanical assemblies. |
| Quenching | Heat treatment | Heat treatment rapidly cools the material to lock in hardness and improve structural integrity. |
| Tempering | Heat treatment | Heat treatment reduces brittleness in hardened materials, balancing strength and toughness. |
| Induction Hardening | Induction Hardening | Induction heating rapidly hardens specific areas of metal by localized heating and quenching, improving durability. |
| Surface Induction Hardening | Induction Hardening | Surface induction hardening heats the surface layer quickly, followed by quenching, enhancing wear resistance on specific areas. |
| Moulding | Injection Moulding | Injection moulding is used to form complex plastic shapes with high durability and aesthetic finish. |
| Drilling | Machining | Machining drills holes into materials, ensuring dimensional accuracy possible on conventional non-CNC machines, similar for boring, reaming etc. |
| Profile Cutting | CNC Machining | Machining provides precision cutting for creating intricate profiles in parts through CNC. |
| Burnishing | Machining | Machining smoothens surfaces by pressing a hardened tool, enhancing finish and improving wear resistance possible on conventional non-CNC machines. |
| Electrostatic Powder Coating | Powder Coating | Electrostatic powder coating uses charged particles to adhere powder to surfaces, providing a durable and uniform finish. |
| Fluidized Bed Coating | Powder Coating | Fluidized bed coating dips heated parts into a fluidized powder bath, creating a thick, uniform, protective layer. |
| Blanking | Press | Press machines are used to cut flat material into shapes through precision blanking operations. |
| Edge Bend | Press | Press machines bend edges with precision by applying controlled force, ensuring accurate and consistent shaping. |
| Cap Fitting | Press | Press machines securely fit caps onto components using controlled force for tight and consistent assembly. |
| Profile Extrusion | Rubber Extrusion | Profile extrusion continuously shapes rubber into specific cross-sectional profiles, ideal for seals and gaskets. |
| Tubing Extrusion | Rubber Extrusion | Tubing extrusion produces hollow rubber tubes with consistent dimensions, commonly used for hoses and tubing. |
| Green Sand Casting | Sand Casting | Green sand casting uses moist sand molds for low-cost, versatile casting of complex metal parts. |
| Dry Sand Casting | Sand Casting | Dry sand casting uses baked molds for higher dimensional accuracy and better surface finish compared to green sand casting. |
| Paint | Spray paint | Spray paint technology applies an even coat of paint, improving aesthetics and protection. |
| Spray | Spray Paint | Spray painting uses a fine mist of paint for even coating, providing good coverage and a smooth finish. |
| Degreasing | Surface treatment | Surface treatment removes oil, grease, and contaminants, ensuring a clean part for further processing. |
| Shot Blasting | Surface Treatment | Shot blasting cleans and strengthens surfaces by propelling abrasive particles, removing contaminants and imperfections. |
| Buffing | Surface Treatment | Buffing polishes surfaces to a high gloss, improving aesthetics and removing minor imperfections. |
| Argon Welding | Welding | Argon welding uses an inert gas shield to prevent oxidation, ensuring clean, precise welds with minimal contamination. |
| Spot Welding | Welding | Spot welding uses localized heat and pressure to join metal parts at specific points, ensuring strong welds quickly. |
| Pickling | Zinc plating | Pickling removes oxides and scales, preparing the surface for zinc plating to improve adhesion. |
| Hot-Dip Galvanizing | Zinc Plating | Hot-dip galvanizing coats metal by dipping it in molten zinc, providing a thick, durable layer for corrosion protection. |