

# Category

Primary Process	Markets	Materials/Applications
<b>1 Casting</b>		
<b>A Sand Casting</b>	Auto, Home appliance, Industrial Equipment, Lawn & Garden, Multiple categories	Aluminum, Alloys, Steel, Glass, Brass, Iron
<b>B Investment Casting (lost wax, precision)</b>	Auto, Home appliance, Retail, Promotional, Medical, Multiple categories	Brass, SS, Aluminum
<b>C Die Casting</b>	Auto, Emergency Lighting, Retail Appliance, Promotional, Medical, Multiple categories	Alloy, Aluminum, Steel
<b>D Low Pressure</b>	Auto, Home appliance, Retail, Promotional, Medical, Multiple categories	Automotive Wheels, Alloy

<b>2 Molding</b>		
<b>A Powder Metallurgy</b>		
<b>1 Metal Injection Molding</b>	Auto, Emergency Lighting, Retail Hardware, Retail Bath, Electronics, Multiple categories	Carbide, Stainless, Powdered Iron
<b>B Plastics</b>		
<b>1 Injection</b>	Auto, Promotional, Components, Industrial Equipment, Multiple categories	Multiple Materials and Applications
<b>2 Compression</b>	Auto, Promotional, Home Furniture, Lawn & Garden, Multiple categories	Multiple Materials and Applications
<b>3 Transfer</b>	Auto, Defense, Industrial Equipment, Multiple categories	Multiple Materials and Applications
<b>4 Extrusion</b>	Medical, Industrial Mechanical, Home Supplies & Appliances, Multiple categories	Multiple Materials and Applications
<b>5 Blow Molding</b>	Medical, Promotional, Retail Home Appliance, Industrial Agriculture, Multiple categories	Multiple Materials and Applications
<b>6 Rotational Molding</b>	Medical, Promotional, Retail Home Appliance, Industrial Agriculture, Multiple categories	Multiple Materials and Applications
<b>7 Thermoforming</b>	Retail Packaging, Promotional, Medical, Multiple categories	Multiple Materials and Applications
<b>8 Laminating</b>	Retail Home Appliances, Furniture, Medical	Multiple Materials and Applications
<b>9 Expandable Bead</b>	Defense, Auto, Retail computer, Electronics	Multiple Materials and Applications
<b>10 Foam</b>	Retail Car Accessory, Promotional, Medical, Retail Packaging	Multiple Materials and Applications
<b>11 Rotomolding</b>	Medical, Promotional, Retail Appliances, Multiple categories	Multiple Materials and Applications
<b>C Shrink Fitting</b>	Retail Packaging, Internal component packaging	PP, ABS
<b>D Shrink Wrapping</b>	Retail Packaging, Internal component packaging	PP, ABS

<b>3 Forming</b>		
<b>A Forging</b>		
<b>1 Drop Forge</b>	Hand Tools, Medical Instruments, Lawn & Garden	Steel, Titanium, Alloys
<b>2 Impact (also see Extrusion)</b>	Defense Cartridge Housings	Aluminum, Copper
<b>B Rolling</b>		
<b>(Thick Plate &amp; Sheet)</b>		
<b>1 Hot Rolling</b>	Composite Plastics for Home Appliances, Medical Mechanical	Composites, Fiberglass, Paper
<b>2 Sheet Metal</b>	Cylinders, Containers, Home Appliance, Electronics	Steel, Tin, Aluminum
<b>3 Orbital/Spinning</b>	Pressure Vessel Heads, Industrial Cleaning	Steel
<b>4 Cross-Rolling</b>	PROCESSES - Knurling, Hardware, Hand Tools, Lawn and Garden	Steel, Plastics
<b>5 Thread</b>	Screw Machine Parts, Hardware, Fixtures	Steel
<b>C Extrusion</b>		Steel, Plastic, Aluminum, Rubber
<b>D Pressing</b>		
<b>1 Embossing</b>	Sheet Metal Parts, Industrial Equipment, Defense	Steel, Plastics, Paper
<b>2 Blanking (See Dwg below)</b>	Large Part Processing, Industrial Eqptm, Defense	Steel, Sheet Metal, Plastic, Fabrics
<b>3 Drawing (mrfg)(pulling sheet metal, wire, bar or tube)</b>		
<b>A Bulging</b>	Containers, Housings, Industrial, Home Appliance	Steel, Aluminum, Copper
<b>B Necking</b>	Containers, Housings, Industrial, Home Appliance	Steel, Aluminum
<b>C Nosing</b>	Containers, Housings, Industrial, Home Appliance	Steel, Copper
<b>D Oil-Canning</b>	Containers, Housings, Industrial, Home Appliance	Steel, Copper
<b>E Deep Drawing</b>	Auto Body, Containers, Housings, Industrial, Home Appliance (sinks)	Steel, Stainless Steel
<b>E Piercing</b>		
<b>1 Stamping</b>	Hardware, Sub components, Defense, Medical, Multiple Categories	Steel, Aluminum, Plastic
<b>F Miscellaneous Other</b>		
<b>1 Swaging</b>	Hardware Fitting, Fixtures, Home, Industrial, Multiple Categories	Steel
<b>2 Peening</b>	Hardware Fitting, Fixtures, Home, Industrial, Multiple Categories	Steel
<b>G Shearing</b>		
<b>1 Line Shearing (slitting)</b>	Coil Metal Processing, Industrial, Defense	Steel, Paper
<b>A Notching</b>	Computer Housings & Enclosures, Industrial Equipment	Steel, Aluminum, Paper, Sheet Stock
<b>B Perforating</b>	Computer Housings & Enclosures, Industrial Equipment	Steel, Aluminum, Paper, Sheet Stock
<b>C Nibbling</b>	Computer Housings & Enclosures, Industrial Equipment	Steel, Aluminum, Paper, Sheet Stock
<b>D Cutoff</b>	Pre-Processing Materials from Stock, Industrial, Home, Defense	Steel, Bar Stock

<b>4 Machining (material removal)</b>		
<b>A Mills</b>		
<b>1 Steel Mill</b>		
<b>A Casting (also see #1 above)</b>	Auto, Home appliance	Aluminum, Alloys, Steel, Brass
<b>B Annealing</b>	Stress Relief (less brittle, more flexible)	Aluminum, Steel
<b>C Pickling</b>	Cleaning Process	Stainless Steel
<b>D Passivate</b>	Corrosion treatments for Steel, Home, Industrial, Retail, Defense, Various methods of protection	SS Bolts, Alloys, Stainless Steel
<b>E Coating</b>	Corrosion treatments for Steel, Home, Industrial, Retail, Defense, Various methods of protection	Aluminum, Steel
<b>B Turning</b>		
<b>1 Lathe</b>	Medical, Defense, Home Appliance, Multiple categories	Steel, Plastics, Wood
<b>2 Facing</b>	Hardware, Home Appliance, Multiple categories	Steel, Plastics, Wood
<b>3 Spinning (flow turning)</b>	Industrial Equipment	Steel, Plastics, Wood
<b>4 Knurling</b>	Cross Rolling, Hardware, Hand Tools, Retail, Lawn and Garden	Steel, Plastics, Wood
<b>5 Cutoff (parting)</b>	Hardware, Hand Tools, Retail Handles, Lawn and Garden	Steel, Plastics, Wood
<b>C Drilling</b>		
<b>1 Ream</b>	Medical, Retail Accessories, Auto, Appliances, Multiple categories	Steel, Stainless, Aluminum, Plastics
<b>2 Countersink</b>	Medical, Retail Accessories, Auto, Appliances, Multiple categories	Steel
<b>3 Tapping</b>	Medical, Retail Accessories, Auto, Appliances, Multiple categories	Steel
<b>D Sawing</b>		
<b>1 Filing</b>	Retail Furniture, OEM Carrying Boxes	Wood
<b>E Planing</b>		
<b>1 Edge or Plate</b>	Tooling Fabrication	Steel
<b>2 Abrasive Belt</b>	Tool & Medical Instruments	Steel, Copper, Brass, Aluminum
<b>F Finishing</b>		
<b>1 Polishing</b>	Medical, Defense, OEM Metal Housings, Lawn & Garden, Multiple categories	Steel, Stainless, Brass
<b>2 Buffing</b>	Medical, Defense, OEM Metal Housings, Lawn & Garden, Multiple categories	Steel, Stainless, Brass
<b>3 Grit or Shot-Blasting</b>	Medical, Defense, OEM Metal Housings, Lawn & Garden, Multiple categories	Steel, Stainless, Brass, Die Cast
<b>4 Tumbling</b>	Medical, Defense, OEM Metal Housings, Retail Home, Promotional	Steel, Stainless, Brass
<b>5 Wire Brushing</b>	Medical, Defense, OEM Metal Housings	Steel, Stainless, Brass
<b>6 Vibratory Finishing</b>	Medical, Defense, OEM Metal Housings, Retail Home, Promotional	Steel, Stainless, Brass
<b>7 Electroplating</b>	Medical, Defense, OEM Metal Housings	Stainless Steel
<b>8 Electropolishing</b>	Medical, Defense, OEM Metal Housings	Stainless Steel
<b>9 Plating</b>	Medical, Defense, OEM Metal Housings	Stainless Steel
<b>10 Sand Blasting</b>	Medical, Defense, OEM Metal Housings	Stainless Steel
<b>G Routing</b>	PCB's for Home, Industrial, Medical, Furniture, Multiple categories	PCB's, Wood
<b>H Hobbing (hubbing)</b>	Gears for Industrial Equipment, Defense, Multiple categories	Steel, Brass, Plastics

<b>5 Joining (see also Joinery (woodworking))</b>		
<b>A Welding</b>		
<b>1 Arc</b>		
<b>A Manual Metal</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>B Shielded Metal</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>C Gas Metal</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>D Gas Tungsten</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>E Fusion Welding</b>	OEM Metal Housings	Steel
<b>F Submerged</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>G Plasma Arc</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel Metal Plate Cutting
<b>H Carbon Arc</b>	Industrial Equipment	Steel Metal Plate Cutting
<b>I Plasma-MIG (metal inert gas)</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>J Impregnated Tape</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>2 Resistance</b>		
<b>A Spot Welding</b>	Auto, OEM Metal Housings, Defense, Multiple categories	Steel
<b>3 Solid State</b>		
<b>A Ultrasonic</b>	Promotional, Packaging, Retail, Home, Multiple categories	Plastics, Vinyl, Multiple
<b>B Friction Welding</b>	Promotional, Packaging, Retail, Home, Multiple categories	Plastics
<b>4 Other Types of Welding</b>		
<b>A Heated Metal Plate</b>	OEM Equipment, Industrial Equipment, Defense	Extruded Rubber (natural/synthetic)
<b>B Solvent</b>	OEM Equipment, Industrial Equipment, Defense	Plastics
<b>D Ultrasonic</b>	Consumer Goods, Home Appliance, Promotional, Multiple categories	Plastics
<b>B Brazing</b>		
<b>1 Torch</b>	Valves, Industrial Fittings, Industrial Equipment	Steel, Brass, Copper, Aluminum
<b>2 Induction</b>	Valves, Industrial Fittings, Industrial Equipment	Steel, Brass, Copper, Aluminum
<b>C Soldering</b>		
<b>1 Iron</b>	Auto, Defense, OEM Metal Housing	Steel, Electronics, Copper, Lead
<b>2 Oven</b>	Automotive, Industrial, Consumer goods	SMT's, LED's
<b>3 Dip</b>	Industrial, Consumer Goods	PCBA Assemblies
<b>4 Wave</b>	Industrial, Consumer Goods	PCBA Assemblies
<b>D Adhesive Bonding</b>		
<b>1 Thermo-Setting and Thermoplastic</b>	Auto, Industrial, Consumer Goods, Multiple categories	Plastic, Synthetics
<b>2 Epoxy</b>	Defense, OEM Metal Housings, Auto, Multiple categories	Plastics
<b>3 Modified Epoxy</b>	Defense, OEM Metal Housings, Auto, Multiple categories	Plastics
<b>4 Phenolics</b>	Consumer, Industrial Goods	Insulators, high temp. applications
<b>5 Polyurethane</b>	Auto, Defense, OEM Metal Housings	Plastics
<b>6 Misc Other Powders, liquids, solids and tapes</b>	Auto, Defense, OEM Metal Housings	Plastics
<b>F Fastening Wood &amp; Metal</b>		
<b>1 Nailing</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal
<b>2 Screwing</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal
<b>3 (By material fastened)</b>		
<b>A Machine (metal)</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal
<b>B Wood Screws</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal
<b>4 (By slot type)</b>		
<b>A Phillips ("plus sign" in Canada)</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>B Straight ("minus sign" in Canada)</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>5 (By shape)</b>		
<b>A Round Head</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>B Flat Head</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>C Box Head</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>D Hex</b>	Retail Furniture, OEM Holding Boxes, Medical Mechanical, Multiple categories	Wood, Metal, Plastics
<b>6 Nuts and Bolting</b>	Hardware, Auto, Medical, Home appliance, Multiple categories	Wood, Metal, Plastics
<b>7 Riveting</b>	Hardware, Auto, Medical, Home appliance, Multiple categories	Wood, Metal, Plastics
<b>G Stitching</b>	Apparel, Retail Kits, OEM Bags, Multiple categories	Cloth, Synthetics
<b>H Stapling</b>	Packaging, Retail, Bulk, Protective, Multiple categories	Cloth, Corrugated
<b>I Press Fitting</b>	Medical, Home Appliance, Auto, Hardware, Multiple categories	Plastics

<b>6 Electronics</b>		
<b>A Circuit Boards</b>		
<b>1 FR4 Fiberglass Reinforced</b>	Consumer, Industrial, Defense, Retail, Multiple categories	PCB's
<b>A 1-12 Layers (China)</b>		
<b>B 1-16 Layers (Taiwan)</b>		
<b>2 Metal Core</b>	Consumer, Industrial, Defense, Retail, Multiple categories	PCB's
<b>3 Kapton (Flexible)</b>	Consumer, Industrial, Medical, Multiple categories	PCB's, Thermo conditions
<b>4 Stuffing</b>	Consumer, Industrial, Defense, Retail, Multiple categories	PCB's
<b>A Surface Mount</b>		
<b>B Through Hole</b>		
<b>Die Bonding</b>		
<b>Encapsulation/Conformal Coating/Potting</b>		
<b>5 Custom IC</b>		
<b>B LED</b>	Consumer, Industrial, Defense, Retail, Multiple categories	

<b>7 Rapid Manufacturing</b>		
<b>A Stereolithography</b>	Prototyping for Medical, Promotional, multiple	
<b>C Fused Deposition Modeling</b>	Prototyping for Medical, Promotional, multiple	
<b>D 3 Dimensional Printing</b>	Prototyping for Medical, Promotional, multiple	

<b>8 Woodworking</b>	Promotional, Toys, Furniture, OEM Housing Boxes, Multiple categories	Wood
<b>A Saw Cut - Band/rotary</b>		
<b>B Shaping</b>		
<b>C Sanding</b>		
<b>D Routing</b>		
<b>E Drilling</b>		
<b>F Buffing</b>		
<b>G Painting/Lacquer</b>		
<b>H Laser</b>		
<b>I CNC</b>		

<b>9 Sewing</b>	Promotional, Retail, Equipment Bags, Multiple categories	Cloth, Synthetics
<b>A Stitching</b>		
<b>1 Box Stitch (computerized)</b>		
<b>2 Overlock</b>		
<b>B Cutting</b>		
<b>1 Die</b>		
<b>2 Vertical Knife</b>		
<b>3 Heat Cut</b>		