Process	Type	Description
Adhesive Application	F+S	Used to bond non-metal components. Adhesives are applied either by hand or in a spray booth controlled for air emissions.
Aluminum Making	VENDOR	A two-step process by which the aluminum is first dissolved in a caustic bath and then precipitated out in crystals. This two-step process can be circumvented by using recycled scrap that is melted down to form new parts.
Anneal and Pickle	VENDOR	Most stainless steels receive a final annealing (a heat treatment that refines the material's mechanical properties) and pickling (an acid wash that removes furnace scale from annealing and helps promote the passive surface film that naturally occurs).
Anodizing	VENDOR	An electrolytic passivation process used to increase the thickness of the natural oxide layer on aluminum. Produces a protective surface that inhibits further oxidation (corrosion).
Bead Blasting	F+S / VENDOR	Process that provides a matte/etched looking surface finish to material by applying fine glass beads at low pressure.
Bonded Metal Casting	F+S	Process in which a Fiber-Reinforced Polymer and metal granule matrix is blended and cast in a mold.
Brake Forming	F+S	A mechanical process in which material is shaped at a single angle along a straight axis. The process can be repeated to form more complicated shapes.
Bright Annealing	VENDOR	An annealing process carried out in a controlled atmosphere furnace or vacuum so that oxidation is reduced to a minimum and the surface remains relatively bright.
Calendaring	VENDOR	Metalworking process in which sheet metal is rolled out at room temperature, changing the molecular structure to make it harder and more resistant to scratching.
Concrete Mold Making	VENDOR	Process of pouring premixed concrete into mold cavities. Molds cure over a 24-hour period under ambient temperature.
Eco-Etch	F+S	Physical etching process in which an artwork mask is applied to a metal surface that is then bead-blasted. Unmasked areas become more matte, whereas masked areas retain their original look. Beads are recycled within the process until the particles become too small to use.
Extrusion	VENDOR	Process in which heated metal is pushed through a cross-sectional die to create a linear part with a specific shape.
Galvanizing	VENDOR	A zinc plating electrochemically bonded to carbon steel for enhanced corrosion-resistance.
Glass Sheet	VENDOR	Float glass is made by floating molten glass on a bed of molten tin. This allows uniform thickness and a very flat surface. The sheet glass is passed through rollers and eventually a kiln to gradually cool the liquid to its solid state. Once cool, the glass can be machined to specification. It is then tempered and can no longer be machined. Applies for soda-lime or borosilicate glass sheet.
Gravity Die Casting	VENDOR	Process of using gravity to force molten metal into mold cavities. Gravity die casting allows for high volume production while retaining good part detail, fine surface quality and dimensional consistency.
High Pressure Die Casting	VENDOR	Process of forcing molten metal under high pressure into mold cavities. Die casting allows for high volume production while retaining good part detail, fine surface quality and dimensional consistency.
Impression	F+S	Creates three-dimensional images/patterns onto a material by pressing the substrate between two patterns using pressure.
Investment Casting	VENDOR	Ceramic-mold casting process in which a number of small parts are cast simultaneously in a ceramic mold.
Laser Cutting	F+S	A powerful, computer-controlled laser is used to precisely cut shapes or designs into metal.
Metal Finishing	F+S / VENDOR	Applied using grinding/sanding wheels. Finishing produces a grained or brushed finish on the surface, and depending on the material will increase corrosion resistance. Typically, products are either finished at our vendors' facility or at F+S but usually not both.

Process	Type	Description
Metal Punching	F+S	A mechanical process where a die tool creates a whole in the material using velocity and pressure. This is an efficient alternative to laser cutting or water jet cutting when patterns to be placed into the material are small and numerous.
Metal Polishing	F+S / VENDOR	Applied using polishing wheels with a buffing compound. Polishing produces a mirror-like finish and, depending on the material, may enhance corrosion resistance. For many of our products, initial polishing takes place at the vendor facility and final polishing takes place at our facility.
Metal Spinning	F+S / VENDOR	A metal working process in which a tube or sheet of metal is rotated on a single axis to form an axially symmetric part.
Multi-Ion Vapor Deposition (Fusing)	VENDOR	Using a vacuum chamber, a thin layer of titanium is chemically fused to the surface of a stainless steel substrate. By changing vacuum gas composition, temperature, and pressure, the titanium can be made to take on different decorative colors as it bonds with the stainless steel.
Painting	F+S	Used primarily for custom projects, our standard paint system is water-based and uses biodegradable thinners and cleaners where possible.
Plastics Manufacture	VENDOR	Plastic is the common term for a wide range of synthetic or semi-synthetic organic solid materials used in industrial applications. Plastics are typically polymers of high molecular weight, and may contain other substances to improve performance or reduce costs.
Powdercoating	F+S	A solvent-free finishing method in which electrically charged particles of pigmented resins are sprayed onto a product. Electrical grounding of the coated object causes the charged powder to adhere to the surface. When baked in a curing oven the deposited powder melts and fuses together to form a durable, cross-linked coating
Roll Forming	F+S	A mechanical process in which material is passed through a set of rolls in order to form a continuous curved/radiused bend in the material. Typically a set of three rolls is required to apply pressure at necessary points in the material to achieve the desired radius.
Safety Laminated Decorative Glass Making	F+S	Polyvinyl butyral (PVB) based thermoplastic interlayer laminated between two lites of glass under heat and pressure to create a safety laminated glass.
Sand Blasting	F+S / VENDOR	The process of smoothing, shaping and cleaning a hard surface by forcing solid particles across that surface at high speeds to provide an even finish.
Sand Casting	VENDOR	Using a master tool, a two part mold is formed out of sand and binder. Molten metal is poured into the sand mold and allowed to cool.
Screen Printing	F+S	A printing technique that uses a woven mesh to support a stencil. The attached stencil forms open areas of mesh that transfer a sharp-edged image onto a substrate when a roller or squeegee is applied.
Steel Making	VENDOR	Steel and stainless steel are made in one of two types of furnace: a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). A BOF is used to make steel from iron ore or from scrap steel; an EAF is used primarily to reprocess scrap steel.
Vacuum Casting	VENDOR	A two part mold is formed out of sand and plastic sheet held in place by a vacuum. Molten metal is poured into the mold and allowed to cool. When the vacuum releases, the sand falls away and the part is left.
VHB Tape Application	F+S	Used to bond components. Tape is applied by hand.
Water Jet Cutting	F+S	A water jet cut utilizes water and a mixture of abrasives (garnet) at high pressure and velocity in order to carve/cut the material. Can be used to machine a large variety of materials, including heat sensitive or delicate materials. It produces no heat damage to the cutting area, and can yield a smooth edge finish when using the proper operating speed.
Welding	F+S	A process that joins two similar metals by causing coalescence. Usually accomplished by melting the work pieces and adding a filler material to form a pool of molten metal that cools to become a strong joint.
Wood Finishing	F+S	Wood is sanded smooth and finishes are applied to adjust the wood's color, enhance its appearance or to protect it from staining or weathering.

Process	Type	Description
Wood Processing	VENDOR	Wood is milled from trees and turned into lumber.
Wood Staining	F+S / VENDOR	Wood stain consists of three primary ingredients: pigment, solvent, and binder. Stain has much less binder than paint, which allows it to reside below the surface of the material while pigment remains near the top of the surface. Wood stain enhances the natural look of wood.
Zinc Plating	VENDOR	Material is dipped into a solution and coated using an electric charge; yellow zinc is applied to the surface to increase corrosion resistance.

The table provides a brief description of our processes, and classifies them as either "F+S" (carried out at one or more of the F+S manufacturing facilities) or "VENDOR" (takes place at a vendor facility or outsourced process facility).