

trigontek

Industrial Design,
Modeling, Production

www.trigontek.com

ABOUT US



trigontek
Industrial Design,
Modeling, Production

WE ARE YOUR SOLUTION PARTNER FOR ALL YOUR INDUSTRIAL DESIGN, MANUFACTURING, AND PRODUCT NEEDS, PROVIDED BY OUR EXPERT STAFF.

With over **15 years of experience in the energy**, IT, construction machinery, machinery and its equipments sectors, our team offers specialized solutions tailored to your needs. These include manufacturing-assembly, production elements, design, know-how, and consultancy services.

Our comprehensive range of services features precision manufacturing, computer-aided design and modeling, various types of CNC cutting, and full or partial assembly, all adhering to the highest specifications.

Our solutions are fast, world-class quality, and budget-friendly. We leverage the latest technologies and methodologies to ensure efficiency and precision in every project.

You can reach us through our contact information, social media, or the contact form on our website. Our dedicated team is ready to assist you and provide the best solutions for your industrial design and manufacturing needs.

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DESIGN

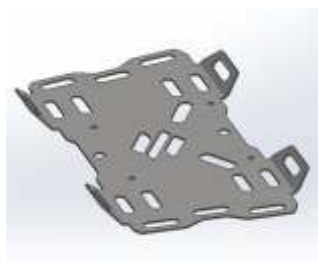


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**MOTORBIKE
ACCESSORIES**



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FASTENERS

The features of the fasteners are:

Material: Fasteners are usually made of steel, stainless steel, aluminum, brass or plastic.

Durability: Fasteners must be of high strength and durability. This means they will withstand a variety of environmental conditions and weight loads.

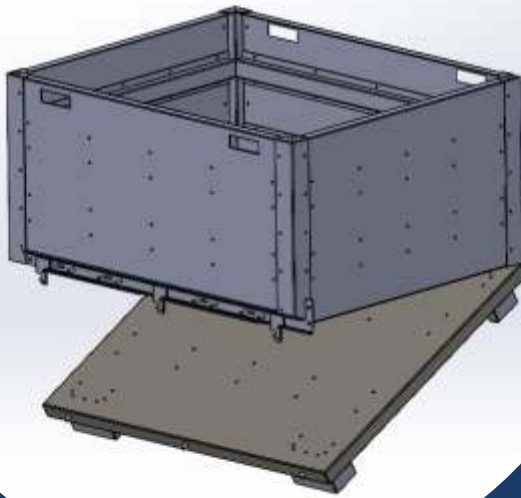
Corrosion Resistance: Fasteners must be resistant to corrosion. This is especially important when used in outdoor applications or in wet areas.

Size: Fasteners are available in different sizes. These should be selected based on application requirements.

Ease of Assembly: Fasteners should be easy to install. This reduces labor time and cost.

Security: Fasteners must securely hold together the structure to which they are attached. This ensures they maintain their functionality and security.

Aesthetics: Fasteners are also important from an aesthetic perspective in some applications. Therefore, in some cases it should also be taken into account from a design perspective.



CUSTOM DESIGNS

CONTAINER WITH OPEN BASE

The collapsible bottom container has been professionally designed with every detail in mind for collecting, transporting, stocking and pouring your scrap parts.

It is designed to carry 2 tons of scrap materials.

When the forklift lifts the container up and approaches to pour, it pulls the spring locking system with the help of the rope, the lower base is opened and the pouring process takes place.



MACHINING

Machining

Machining is the process of shaping different materials by removing excess material to create a desired form. During this process, material is removed to achieve the desired surface shape and size. The removed layer is called a chip.

The main machining methods are:

Turning: Circular movements produce round geometric products.

Milling: Used for more detailed surfaces and threaded products (screws).

Drilling: Holes are drilled using a drilling attachment.

Grinding: Cylindrical stones are used to achieve smooth surfaces.

Cutting: Shapes are given to workpieces using saws.

Reaming: Smoothens previously drilled holes.

Planing: Removes material from vertical, horizontal, and inclined surfaces.

Broaching: Holes are drilled into metal workpieces.

Advantages & Disadvantages of Machining

Advantages:

Low cost

High precision and smooth surface quality

High quality and efficiency

Zero-error production

A wide variety of materials can be processed

Desired dimensions and shapes can be achieved

Disadvantages:

Material removal results in production waste

It is a time-consuming production method



LASER CUTTING

Metal Laser Cutting: A Precise and Efficient Metalworking Method

Metal laser cutting is an advanced manufacturing method used to cut and shape metals precisely. This technology utilizes the intensity of a laser beam to cut metal parts into the desired shapes.

Features of Metal Laser Cutting:

Precise Cutting: Laser technology has the ability to cut with sub-millimeter precision, making it ideal for cutting complex geometries and details.

Fast and Efficient: Laser cutting operates faster and more efficiently compared to other traditional cutting methods, accelerating production processes and reducing costs.

Flexibility: Metal laser cutting is suitable for different types and thicknesses of metals, offering a versatile solution for various industries and applications.

Applications of Metal Laser Cutting:

Automotive Industry: Commonly used in the production of automotive parts and custom designs.

Aerospace: Plays a significant role in producing precise and lightweight parts for the aerospace industry.

Machinery Manufacturing: Used for producing metal components and creating prototypes.

Medical Devices: Provides sterile and precise cutting for the production of medical devices.

Art and Decoration: Employed for cutting artistic designs and decorative metal products.

Advantages of Metal Laser Cutting:

Minimal Material Waste: Laser cutting minimizes material waste and increases efficiency.

Rapid Prototyping: Ideal for rapid prototyping, accelerating product development processes.

Cutting Quality: The cutting results are usually smooth and clean, enhancing the quality of the final products. Metal laser cutting has become an indispensable part of modern industry. Its precision cutting capability, speed, and versatility benefit numerous industries and applications. By utilizing this technology, you can make the design and production processes of metal products more effective and gain a competitive advantage. Metal laser cutting is a revolutionary technology in the field of metalworking and will continue to provide further innovation and development in the future.



METAL BENDING

Metal bending is an essential metalworking method that involves bending, curving, or shaping metals into various forms. This process has become an art that highlights the flexibility of metal, used in many industries and applications.

Features of Metal Bending:

Flexibility: Metal bending is suitable for many different types of metals. Steel, aluminum, copper, and other metals can be shaped using this process.

Precision: Metal bending allows for the creation of precise and complex geometries, which is particularly important in architectural and industrial design.

Durability: Bent metal parts enhance durability and enable the production of long-lasting products.

Applications of Metal Bending:

Construction: Metal bending is widely used in the construction industry for creating steel frames, roofs, and other structural elements.

Architectural Design: Metal bending is employed in architectural projects for aesthetic and functional purposes. Beautiful and unique metal designs can enhance the appeal of spaces.

Automotive: The automotive industry uses metal bending for shaping vehicle chassis and body parts.

Furniture: Metal furniture and accessories are designed using metal bending for aesthetics and durability.

The Metal Bending Process:

Material Selection: The appropriate metal material is chosen for the process.

Determining the Bending Shape: The designer or engineer determines the specific shape the metal will be bent into.

Heating: In some cases, the metal is heated before bending. This makes the metal more flexible.

Bending: The metal is bent into the desired shape using special machines or molds.

Finishing: The bent metal is cleaned and polished with stainless steel brushes or other processes.

Metal bending is an important metalworking method that combines the flexibility and durability of metals. This art holds a significant place in industrial design, architecture, and construction projects. Metal bending brings together functionality and aesthetics by fully utilizing the potential of metals.



CASTING

Casting is the process of pouring molten metal into molds with specific shapes and solidifying it. Steel scrap, various pig irons, and alloys are melted at high temperatures and transformed into steel, pig iron, spheroidal graphite iron, and temper cast products.

The casting process is completed by pouring the molten material into pre-determined molds. The molds used in casting can be made of sand, plaster, ceramic, or metal. There are permanent and expendable molds; metal molds can be used multiple times.

Casting types are examined under two main categories: expendable and permanent molds. Expendable molds include sand, ceramic, and plaster molds. Permanent molds include metal (die) molds,

centrifugal, pressure, and continuous casting methods. The most common casting method is sand casting.

Main types of casting:

Precision casting: Complex parts are obtained cleanly and accurately.

Continuous casting: The metal is solidified by cooling with water.

Centrifugal casting: Casting is done using centrifugal force.

Die casting: Casting is done using metal molds.

Pressure casting: Preferred for light metals.

Plaster casting: Used for casting light alloys.

Each casting method is suitable for different metals and applications.



WELDING

Welding is a crucial metalworking technique used for joining or structuring metals. This method is widely used across various industries and applications, providing not only structural durability but also design flexibility.

Importance of Welding:

Joining: Welding is used to combine different metal parts or components, allowing for the creation of large and complex structures.

Durability: Welding enhances the durability of joined parts and ensures structural integrity.

Customization: Welding enables the creation of customized designs and can be used in various industrial and decorative applications.

Types of Welding:

Arc Welding: This method involves working with an electrode and is commonly known as MIG (Metal Inert Gas) and TIG (Tungsten Inert Gas) welding.

Gas Welding: It operates by combining acetylene and oxygen gases and is typically used for manual welding operations.

Spot Welding: This is a rapid and automatic type of welding where electrodes apply pressure to metal surfaces.

Applications of Welding:

Construction: Welding is widely used in the construction industry for joining steel frames, pipes, and other structural components.

Automotive: In automobile manufacturing, welding is commonly used to join vehicle bodies and chassis parts.

Machinery Production: Welding plays a significant role in assembling and manufacturing machine parts.

Metal Art: Artists use welding techniques to create artistic sculptures and metal artworks.

The Welding Process:

Preparation: Metal parts to be joined are cleaned, aligned, and positioned for welding.

Electrode Selection: The appropriate electrode or welding wire for the job is selected.

Welding Operation: The electrode or welding wire is applied to the joint of the metal parts, and the welding process is carried out.

Cooling and Cleaning: After welding, the parts are allowed to cool and are cleaned and polished if necessary.

Welding is an indispensable metalworking technique for assembling and structuring metals. This process not only enhances durability but also offers design flexibility, making it valuable for numerous industrial and artistic applications. Welding plays a crucial role as a fundamental component of modern manufacturing, ensuring the successful completion of industrial, architectural, and artistic projects.



PAINTING

Metal painting is a method for adding color to metal surfaces and providing protection. This process not only enhances the aesthetic appeal but also increases the durability of metal products while offering the opportunity to make them more attractive.

Why is Metal Painting Done?

Aesthetic Enhancement: Metal painting gives metal products an attractive and aesthetic appearance, enriching the design of decorative metal items, furniture, automobiles, and many other objects.

Protection: It protects metal surfaces from rust, corrosion, and other external factors. Metal painting helps shield metals from environmental damage and extends the lifespan of products.

Chemical Resistance: Some specialized metal painting types provide resistance to chemical exposure. This feature is often preferred in industrial applications.

Metal Painting Methods:

Powder Coating: Fine powder particles applied electrostatically adhere to the metal surface and are hardened by baking.

Liquid Paint (Spray Painting): Liquid paint is sprayed onto the metal surface and left to dry.

Electrophoretic Painting: Metal parts are immersed in an electrically charged coating bath, and the coating process occurs through electrical current.

Applications:

Metal painting is widely used across various industries and applications, including.

Automotive: Car bodies, wheels, and interior trims are coated with metal paint.

Furniture: Metal furniture and accessories are painted for decorative purposes.

Construction: Structural metal products like roofing, door, and window frames are painted for protection and aesthetics..

Industrial Equipment: Industrial machines and equipment are painted for protection and identification.

Metal painting plays a crucial role in improving the appearance and providing protection to metals. This process is critical in many industries and applications seeking both aesthetic richness and durability. Leveraging the power of metal painting ensures that metal products remain long-lasting and visually appealing.



ASSEMBLY

Assembly: Integrating Products with Laser Cutting, Metal Painting, and Metal Bending

The assembly process is a crucial stage in manufacturing where different parts or components are brought together to create a final product. This process can involve various metalworking techniques such as laser cutting, metal painting, and metal bending. Here is an overview of how these three key metalworking techniques are integrated into the assembly process:

Laser Cutting: Laser cutting is a precise method used for cutting and shaping metal parts. In the assembly process, components produced by laser cutting are combined with other parts. Laser cutting is particularly useful for producing pieces with complex geometries and sharp corners. This technique ensures smooth and accurate cuts, aiding in a more seamless and efficient assembly process.

Metal Painting: Metal painting is used to apply a protective coating and provide an aesthetic appearance to metal surfaces. During assembly, painted metal parts are joined with other components, enhancing the durability of the products while

also achieving an attractive visual result. Metal painting improves the appearance of the product post-assembly and provides protection against environmental effects.

Metal Bending: Metal bending is a technique used to bend, curve, or shape metals. In the assembly process, parts shaped through metal bending are combined with other components, allowing for the creation of more complex structures. This is particularly relevant for large and durable parts used in construction, automotive, and industrial equipment manufacturing.

The assembly process allows for the integration of different metalworking techniques to create various products. Techniques such as laser cutting, metal painting, and metal bending enhance the efficiency of the assembly process while improving the quality and aesthetics of the products. These methods are used across various fields, from industrial products to architectural projects, offering reliable and visually appealing outcomes to end-users. The combination of metalworking techniques with the assembly process plays a critical role in modern manufacturing and will continue to drive innovation and development in the future.

**PROVIDING SOLUTIONS IN ENERGY,
IT, CONSTRUCTION AND PRECISION MACHINE COMPONENTS**



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