



The Importance of Beveling in Proper Weld Preparation



GULLCO INTERNATIONAL
WELDING AND CUTTING AUTOMATION

Gullco International is a leading manufacturer of welding automation equipment for a worldwide customer base. We supply welding and cutting automation solutions and plate beveling machines to improve productivity and consistency in your fabrication processes.

Since 1954, we have served the demands of the welding industry throughout the global market. Gullco International has a reliable worldwide distributor network and is involved in continuous research and development to meet the ever-changing needs of the welding industry. We provide top-quality mechanized welding and beveling equipment suitable for a broad range of applications.

This eBook will explain the importance of beveling and how (with the right processes in place) it can create successful results that meet exact specifications. You'll also learn about the distinct benefits of the different beveling options available, including shear beveling, plasma cutting, and oxy fuel cutting.

What Is Beveling?

On a workpiece, beveling is the process of creating a smooth, even edge that is not perpendicular to the planes of the workpiece. One of the most crucial surface preparation processes in welding applications is beveling, but if performed incorrectly, the technique can slow productivity and create restrictive bottlenecks.

While poor preparation can lead to inadequate weld quality and improper joint fit-ups, consistency in the beveling process can lead to:

- Improved accuracy
- Reduction of excessive welding
- Elimination of excess labor, heat input, and consumable wastage

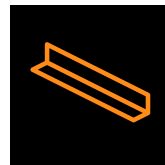
Many industries rely on proper weld edge preparation, especially in heavy fabrication applications such as tank welding, energy production, and shipbuilding.

Gullco International's plate beveling machines are portable and can operate at high speeds while offering easy maneuverability. Our equipment can bevel the top and bottom of a plate without the need to flip or rotate the material. The machines can also be brought to the workpiece, greatly reducing material handling costs.

The following materials can be successfully beveled using Gullco International beveling machines:



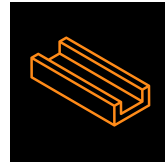
Alloyed steel



High tensile steel



Aluminum



Stainless steel



Carbon steel



What Is a Beveling Machine?

A beveling machine is a specialized tool that bevels flat plates or large-diameter pipes. The machine solves issues like rough slopes and irregular angles. It also does not produce the sparks and loud noise commonly associated with other operating processes like hand grinding.

Gullco's KBM® mechanized plate beveling machines can reduce material handling requirements, improve weld quality, and increase productivity. Our machines use an engineered shearing cutter to bevel plate, thereby eliminating the heat-affected zones caused by grinding or flame cutting to improve welder safety and work environment while eliminating material distortion and long processing times.

The advantages of using a beveling machine from Gullco International include the following:

- Easy operation
- Consistent bevel angle
- Ready to weld surface
- Increased productivity
- Reduced material handling
- No heat-affected zone
- No sparks or noise

Our KBM® machines reduce labor intensity, saving on operation time and leading to improved efficiency and significant cost-saving benefits. Both flat beveling and large-diameter pipe beveling are possible using our beveling machines.



KBM@18
With Undercarriage



KBM@28
Hydraulic Undercarriage



KBM@28U
Hydraulic Undercarriage

Shear Beveling

Shear beveling is a mechanized process that does not cause thermal distortion and offers several distinct advantages, such as:

- Elimination of noise pollution and sparks
- Reduction of material handling costs
- Portability
- Spring-loaded undercarriage, which allows the machine to operate on an undulating or uneven floor and navigate curves in long plate workpieces
- Quick and easy adjustment of the bevel angle and root face
- Simple operation with minimal training required
- Both sides of the plates can be beveled without the need to turn the workpiece



Plasma Cutting

Plasma arc cutting is a thermal material riddance process that is chiefly used for cutting bulky sections of electrically conducive materials.

Applications of plasma cutting can include the following:

- Joint preparation for welding large diameter pipe or tanks made of titanium or stainless steel
- Critical on-site repairs

The plasma beveling application results in reduced dross with minimal finishing required due to the process of removing excess material. The fast speed of this process reduces heat transfer, resulting in less warping.



Oxy-Acetylene/Oxy Fuel Cutting

Oxy fuel cutting utilizes concentrated fuel gas flames that react with oxygen or acetylene to flame-cut the desired bevel into the workpiece. Oxy-acetylene beveling can be used to cut carbon steel plates and is most effective for metals such as mild steel that use carbon as its alloy. Advantages include:

- Low-cost equipment
- Minimal training required
- Angle can be as steep as 70°
- Offers more flexibility and versatility

While the oxy fuel beveling process can be cost-effective, there are several disadvantages to be aware of, which include:



High thermal output



Inaccuracies in the bevel angle



Low speeds



Requires significant labor hours



Cost of gases



Oxy-Acetylene



Oxy Fuel Cutting

Contact Gullco International to Learn More About Our Beveling Equipment and Capabilities

Gullco International designs and manufactures automated welding machines that improve productivity, decrease overall costs, and reduce the rate of defects. For over 60 years, we have been providing welding solutions for a wide variety of industries and applications, and we are dedicated to utilizing the latest in mechanization and automation technologies to produce exceptional quality equipment our customers can rely on.

Each automated welding method offers distinct advantages and disadvantages, and our experienced team can help you select the right process for your specific application. Our KBM® plate beveling machines eliminate the need for excessive labor hours and offer a full range of benefits, including simple operation, reduced handling costs, reduced noise pollution, and more.

[Contact us](#) for more information, or [request a quote](#) to start your beveling solution.

About Gullco International

Gullco International was formed in 1954 to serve the demands of the emerging welding industry in North America. Gullco is a family owned company, with its world headquarters located in Newmarket, Ontario, Canada. Gullco International serves the entire world market through its companies in Canada, United States, United Kingdom, India, Australia, and China as well as its strong world wide distributor network with high quality automated welding machines for welding and cutting applications.

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[Resource Library](#)



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