

USABILITY AS A CRITICAL FACTOR IN LONG TERM WELDER SATISFACTION

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INTRODUCTION

Welding machines are essential tools in a wide range of industrial applications, from construction and manufacturing to shipbuilding and repair. The usability of these machines can have a significant impact on the efficiency and quality of the welding process, and thus on the overall performance of the industry. The purpose of this white paper is to discuss the importance of welding machine usability and the various factors that contribute to it.

A good welding machine is characterized by several factors, including:

- » POWER OUTPUT: Measured in amperes, the output is an important factor to consider when selecting a machine. It determines the thickness of the material that can be welded and the type of weld that can be performed.
- » DUTY CYCLE: The amount of time a welding machine can be used continuously before it needs to cool down. A higher duty cycle means a more efficient and reliable machine.
- » PORTABILITY: An important consideration for those who need to move their welding machine from jobsite to jobsite.

- » VERSATILITY: A versatile welding machine can perform a variety of welding processes, such as MIG, TIG including high frequency ignition and stick welding.
- » QUALITY OF THE WELD: A good welding machine should produce consistent, high-quality welds, with minimal splatter and no porosity, undercut, pores or any other common defects.
- PRICE-PERFORMANCE-RATIO: The price of a welding machine can vary widely, so it's important to consider your budget and what features are most important to you before making a purchase.
- » BRAND REPUTATION: Consider purchasing a welding machine from a reputable brand with a history of producing high-quality products and providing good customer support.

- » SAFETY FEATURES: Welding can be dangerous, so be sure to look for machines with built-in safety features, such as over-voltage protection and thermal overload protection.
- » WARRANTY: Consider the warranty offered by the manufacturer, as this can give you peace of mind and protection against potential defects or problems with your welding machine.
- » Ease of Use: A good welding machine should be easy to set up and use, with clear controls and intuitive settings.

On the following pages, we'll discuss a few of them and their relationship to usability.

USABILITY IN WELDING MACHINES

Usability, defined as the ease of use and learning of a product, system or service, is an important factor in determining the success and widespread adoption of a technology. For welding machines, usability refers to the ease with which operators can use the machine to perform welding tasks and the speed with which they can learn to use it effectively. This applies to actions such as placing the spool on the machine, finding the right welding parameters, or switching between different operating modes. Several factors contribute to the usability of welding equipment, including ergonomics, user interfaces, adaptability, connectivity, and the availability of documentation and training.





ERGONOMICS

Ergonomics is a critical aspect of welding machine usability, as it directly affects the comfort and productivity of the operator. Welding machines can be heavy and cumbersome, and they often require operators to work in awkward positions. A welldesigned welding machine should have ergonomic features that reduce the physical strain on the operator, such as adjustable height, easily accessible controls, and wellplaced handles.



USER INTERFACES

The user interface is the primary means by which the operator interacts with the welding machine. A user-friendly interface should be intuitive and easy to understand, with clear, concise labeling and well-organized controls. The interface should also provide feedback to the operator, such as status updates and error messages, to help them understand the machine's current state and take appropriate action.

DOCUMENTATION AND TRAINING

Adequate documentation and training can also greatly affect the usability of welding equipment. Each machine should be accompanied by a comprehensive manual that provides step-by-step instructions for setting up and using the machine, as well as troubleshooting information. Training should be available for operators, either in person or online, to help them understand how to use the machine and get the most out of it.



CUSTOMIZABILITY

The level of customizability of welding machines can be an important factor for a variety of users, depending on their specific needs and requirements. Here are a few reasons why customization may be important:

- Improved efficiency: Customization allows welding machines to be optimized for specific applications, resulting in improved efficiency and productivity. Böhler Welding enables you to choose from a wide range of power sources, wire feeders and software packages to meet your current needs. But even if your needs change over time, you can still upgrade the performance and versatility of your welding equipment.
- Increased safety: Customization can add safety features to the machine, such as emergency stops or safety barriers, which can help prevent accidents and injuries. Uranos and Terra welders work with standardized bus systems that allow you to connect the machine to a variety of welding automation devices, including safety systems.

- » **Better weld quality:** Customization can help ensure that the welding machine is set up correctly for the specific application, which can result in improved weld quality and consistency. The fact that Böhler Welding offers a huge portfolio of filler metals, including the specially designed Synergic program, makes a perfect weld easily achievable. The symbiosis of machine, process and consumables makes it possible.
- » **Enhanced user experience:** Customizing a welding machine to the specific needs and preferences of the user can make the machine easier and more enjoyable to use, improving the overall user experience. When you customize your welding program or the design of the welding display that can store different jobs on the machine, you are ready to weld as quickly as you are ready to select a channel on your television.



CONNECTIVITY

Welding machines can be connected to various automation devices to enhance their capabilities and improve the overall efficiency of the welding process. Some common welding automation devices and the methods used to connect them to welding machines are:

- Welding Positioners: Welding positioners are devices that precisely rotate and position workpieces. They are typically connected to welding machines through a control panel that allows the welder to control the speed and direction of the positioner.
- Welding Robots: Welding robots are automated systems that perform welding tasks using pre-programmed instructions. They are connected to welding machines through a control system that can be operated through a computer interface.
- Welding Columns and Booms: Welding columns and booms are devices that provide a flexible, adjustable welding platform for workpieces. They are connected to welding machines through a control panel that allows the welder to control the movement and positioning of the device.
- Welding Carriages: A welding carriage is a device that allows the welder to move the welding machine along a track, providing increased mobility and flexibility during the welding process.

CONCLUSION

Usability is an important factor in the design and acceptance of welding equipment. By considering ergonomics, user interfaces, availability of documentation and training, customization and connectivity, manufacturers can create welding machines that are easy to use, learn and maintain, ultimately leading to increased efficiency, quality welds and welder satisfaction.





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I have been working for voestalpine for more than 15 years in various departments and positions. For the last 6 years I have been fortunate enough to spend most of my time dealing with demanding customer challenges and, most importantly, finding solutions to them.

Within my department we find ways to handle and optimize customer applications in all conventional arc welding processes. Our daily job is to create new welding solutions that we implement together with our customers and partners. We also share our industry knowledge through the WELDINGacademy learning platform.

In my job, it is sometimes necessary to take a step back and look at things as a whole. Welding means a lot to me, but sometimes you have to respect that it is just a small part of something bigger that our customers are creating. We try to focus on what we do best so that our customers have one less thing to worry about - and that is Global Applications and Welding Solutions.

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We are a leader in the welding industry with over 100 years of experience, more than 50 subsidiaries and more than 4,000 distribution partners around the world. Our extensive product portfolio and welding expertise combined with our global presence guarantees we are close when you need us. Having a profound understanding of your needs enables us to solve your demanding challenges with Full Welding Solutions - perfectly synchronized and as unique as your company.





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