

A woman is shown in profile, wearing a VR headset and holding a welding torch. The background is white, and the woman's silhouette is dark. The text 'Welducation Simulator' is overlaid in a large, red, sans-serif font.

Welducation Simulator

Virtual training
to unleash your
welding potential



Learning to weldm

Risk-free welding: Virtual training offers a safe, affordable, and resource-conserving way to realistically simulate complex welding processes. Those new to welding can repeat jobs as many times as necessary, improve their skills in a safe environment, and learn from their mistakes as a result. This is an ideal way of preparing trainees for real-life welding situations and lets them quickly and effectively respond to the constantly changing requirements of the job market and the industry.



Prepared for the challenges of tomorrow

Using the Welducation Simulator, welders can train and consolidate skills step by step. They carry out welding on various workpieces, can train on various welds and positions, and unleash their welding potential without any risk to safety or additional costs for items such as materials, gases, filler metals, and wear parts.

Alongside the associated Welducation Campus platform, the Welducation Simulator offers trainees and trainers a complete teaching concept consisting of theoretical content and virtual training units with the simulator.



The advantages for you



Training and theory

The combination of theory and virtual training lets training participants consolidate their knowledge while also developing their practical skills. They can apply the concepts they have learned on the spot in the simulation, try out different welding techniques, and see the effects they have on the virtual workpiece.



More realistic than ever

Using AR technology, actual welding torches, and the housing of a real welding system creates a real-world welding simulation. The new simulator is also used to prepare for the actual welding process and to practice the tasks between welds (checking the gas supply, connecting the ground cable, setting parameters, removing slag, etc.).



Safe and risk-free

The safety risk due to the hot arc, UV radiation, and welding fume is significantly higher for beginners during welding than in other professions. Virtual training completely eliminates this risk.



Cost-saving and sustainable

The Welducation Simulator enables resource-conserving training by saving expensive consumables such as workpiece material, wire, and shielding gas. In addition to protecting the environment, this also cuts costs.

More realistic than ever

Training is conducted with original welding torches and hosepacks, typical workpieces, and adjustable welding parameters, and without any safety risks. Creating the perfect weld is not the only focus. The tasks prior to, between, and after welding also need to be completed, just as they would in real life. Examples of these tasks include attaching the return lead cable, setting the correct welding parameters, and cleaning and touching up the weld.



Real components

Actual welding torches, original connections, and the installation of the simulator in a standard welding system make the virtual welding simulation more realistic than ever.

Three process variants

Trainees can use the Welducation Simulator to practice all three process variants (manual arc welding, MIG/MAG, and TIG). They do this while using various materials (steel, stainless steel, and aluminum), material thicknesses, and welding positions in the welding simulation.

Augmented reality

Using AR glasses to integrate the real-life environment takes the welding simulation to a completely new level, giving the virtual welding situation an even more realistic look.

The same prep as for real welding

The preparation stage prior to welding is also part of the training with the new Welducation Simulator. In addition to producing the perfect weld, users have to carry out checks ahead of time to ensure the ground earth connection has been established, the gas flow is regulated, and the correct welding parameters are set. The standard Fronius welding system interface is shown on the associated tablet so participants can become familiar with handling welding systems during their training.

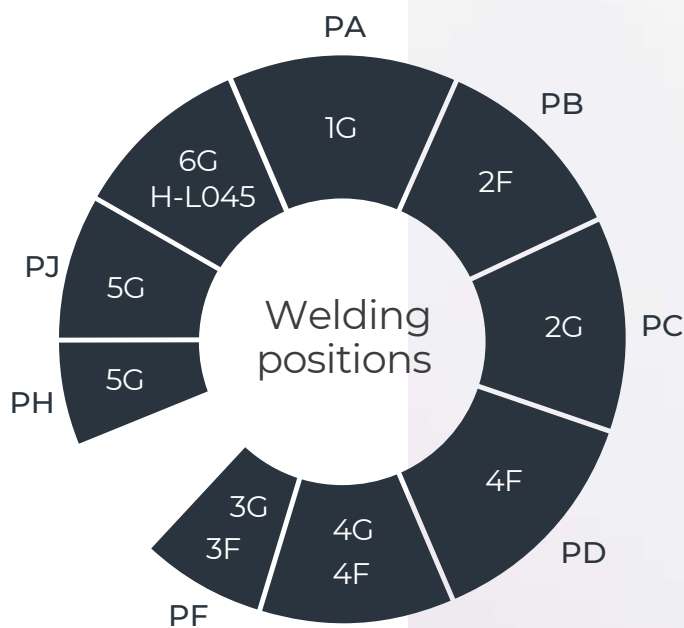


Front

Rear

Step by step

to a professional level



Each welding task requires different techniques and manual skills, so learning different welding positions is an essential part of welding training.



Pipe connection



Butt weld



Lap joint



Fillet weld



Corner weld



Extensive training options

Participants can train with a wide variety of workpieces, which they can attach in various positions on the included stand. A large version of the stand is also available to provide even more variation. Whether an overhead fillet weld or a single-V butt weld, participants can train on nearly any welding position.

Analysis and feedback

Extensive weld analysis options help training participants improve their technique and identify mistakes by letting them continually track their progress. Welding can be recorded and replayed at any time via the Welducation Campus, meaning the trainee's own welding performance can be closely analyzed against the optimal target.

Workpieces
for different weld seam
profiles, material thicknesses,
and welding positions

Training modes

Three different levels of difficulty can be selected for virtual training.

Medium

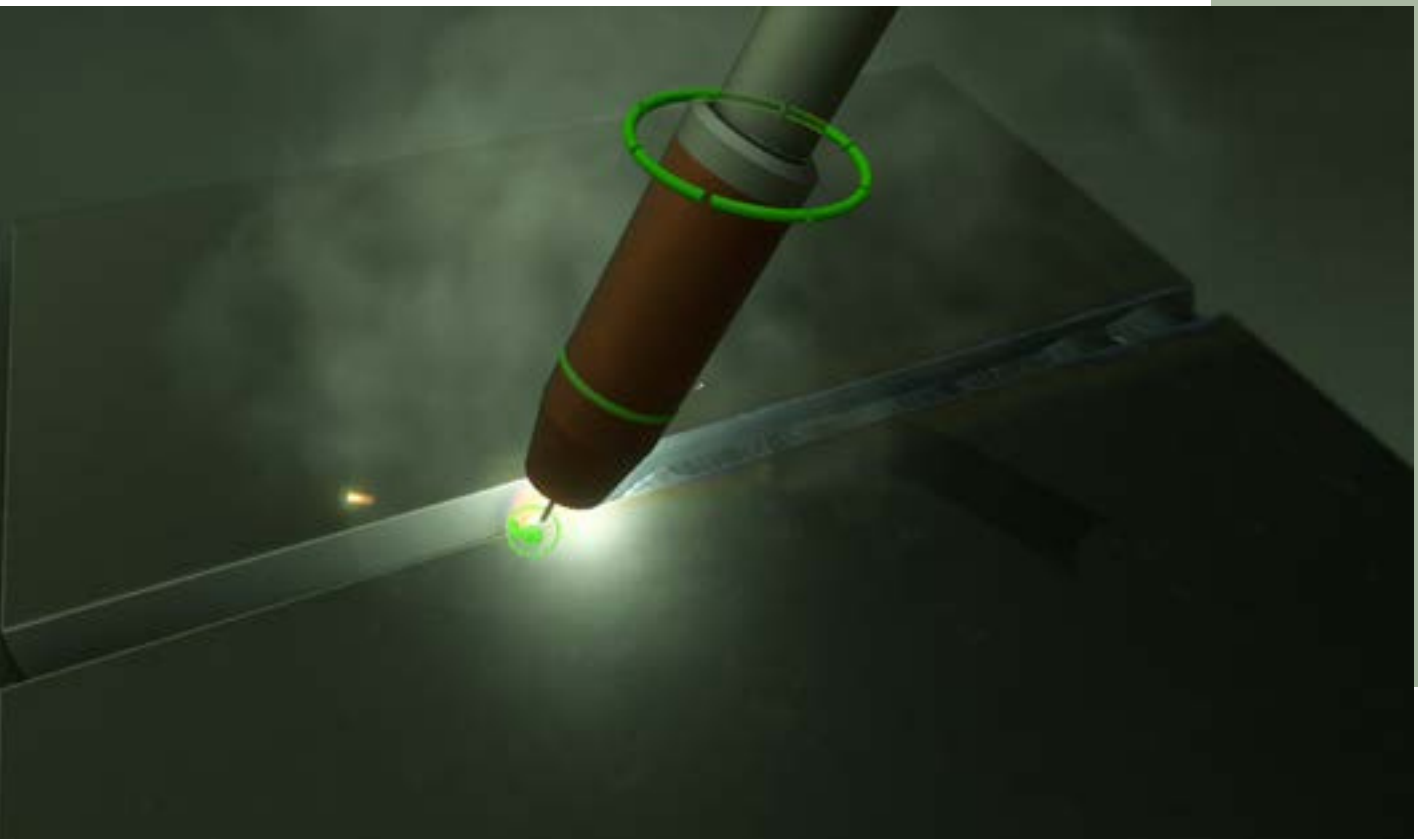
The intermediate level of difficulty does require prior knowledge, but learners are still assisted by the virtual trainer. The visual guidance is only shown when the welding torch is moved incorrectly during the weld.

Easy

This mode is suitable for everyone without any prior knowledge who wants to familiarize themselves with welding and the virtual simulation for the first time. The visual guidance indicates the optimal welding speed, the distance to the workpiece, and the work angle of the welding torch or electrode holder. Traffic light color signals and real welding noises show the trainee any deviations and/or correct techniques so they can make corrections directly during the welding process.

Hard

This mode is ideally suited for everyone who has put in a lot of practice as there is no visual guidance whatsoever. Only after completing the weld are users given their evaluation and an insight into how they performed as well as tips on any welding errors that were made prior to or during the welding procedure. The Hard training mode is also an ideal way of preparing trainees for upcoming welding tests.



Welducation Campus



The Welducation Simulator provides a fast way of training skilled workers by combining practical training units with theoretical content on the Welducation Campus platform. This carefully designed training system takes the pressure off especially in times of skills shortages. Trainees can acquire knowledge and skills on their own with the help of theoretical content and prepared courses rather than requiring continual guidance from trainers.

For trainers

The admin tool is used to create accounts for trainers and trainees and to assign authorizations. Trainers can set up their own courses on the Welducation Campus platform. In addition to the theory documents that Fronius provides via the Campus, trainers are also free to upload their own theory documents.

The course overview on the Campus platform offers trainers a summary of trainees' performance. They can see how many times the participants have practiced welding in the virtual space and whether the individual processes were successfully completed or not.

For trainees

Training participants can complete the courses created by their trainers and practice the virtual welding jobs on the workpieces as needed. The Welducation Campus supports this by offering an up-to-date overview of their own learning progress at all times.

Customized, clear, flexible



Positive group dynamic

By spurring one another on and interacting in this way, as well as being assessed professionally, trainees learn swiftly and effectively.

An academically sophisticated evaluation system makes it possible to compare training results, allowing for the objective and transparent assessment of trainees. The ranking of their own welding performance also encourages trainees to achieve their full welding potential.

Cloud or stand-alone

The stand-alone version of the Welducation Campus is available free of charge and offers the user an offline option to use locally on their tablet.

The cloud license is subject to a fee and enables location-independent training. This license is available as a subscription for one, three, or five years.



Create your own courses

The theoretical content on the Welducation Campus platform corresponds to a curriculum covering the latest methods. All results and learning progress are managed in this comprehensive training tool. In addition to the existing learning material, trainers have the option to create customized curricula and courses in order to adapt the training to the target group.




Easy display

The simulator's HDMI connection makes it possible to display the simulation on external screens for training purposes.

Digital training tool

The Welducation Simulator is simple and easy to operate with the included tablet. When using the cloud version, the Welducation Campus can be accessed both via the tablet and with other devices such as a cell phone or laptop.





Participants who train with the Welducation Simulator learn to weld in a protected environment where they are not subjected to any dangers or hazardous substances. This means they can have fun learning to weld in the virtual environment before creating their first weld in the real world.

Safe Space

for training

Training of the future



We use the latest technology to make a positive impact on people and the environment. The realistic welding simulation lets training participants practice, make mistakes, and learn from them, all in a risk-free environment without wasting resources unnecessarily.

Text and illustrations were accurate as of the time of printing. Fronius reserves the right to make changes.

Unleash your
welding potential



To ignite the welding potential of our customers: that is our mission. As the innovation leader for arc welding and global market leader for robot-assisted welding, we create both advanced and profitable welding solutions, which are inspired by our sustainable mindset. We enjoy long-standing relationships with our customers. We understand their challenges and perspectives and maintain a close relationship with them through our regional service teams throughout the world. We listen, understand, and therefore shape the mindset of the welding industry. Our strengths lie in combining our customers' knowledge with our expertise, which allows them to unleash their full welding potential.