

# Welder training on a whole new level

Lincoln Electric's latest VRTEX® virtual reality arc welding trainers, which now also include a dual user option and TIG process capabilities, among other improvements, provide a more powerful than ever solution for developing welding talent quickly and resourcefully.

**F**rom superior graphics creating the most realistic and responsive welding puddles available, to exceptionally accurate sounds and movements, what can be learned virtually using Lincoln Electric's VRTEX® trainers can now be seamlessly transferred into real-world, hands-on welder training.

Designed to build confidence, reduce mistakes and train welders in a variety of situations and orientations, VRTEX creates a safe environment for the initial stages of a welder's training while eliminating material and consumable costs. New welders get to practice on each virtual welding coupon repeatedly, without having to waste time preparing plate and tacking up joints, fetching or welding consumables from stores, connecting gas bottles and, after every practice run, throwing away the scrap metal.

More importantly, however, according to an Iowa State University study, welder certification rates increased by 23% on average by using Lincoln Electric's virtual reality equipment at the beginning of a welder training course.

There are now four different versions of Lincoln Electric's VRTEX welder trainer: the VRTEX Engage and Transport, the VRTEX 360 single user and the 360+ dual user.

The simplest of the four systems is the VRTEX Engage, which offers virtual training routines for shielded metal arc

(SMAW or stick welding), gas metal arc (GMAW or MIG welding) and self-shielded flux-cored arc welding (FCAW-S) processes. The system includes a universal welding handle with attachments for a welding gun and a manual welding stick electrode holder.

With features to enable trainees to practice SMAW, GMAW, FCAW and GTAW, the VRTEX Transport system has a fixed-length SMAW stick attachment, a MIG gun, and a TIG torch with foot pedal current control to enable horizontal and vertical welds to be practiced.

The VRTEX 360 single user system now includes a retractable SMAW stick stinger, which simulates burn down of a stick electrode, along with a GMAW/FCAW gun and a GTAW TIG torch. Filler metal and adaptive foot pedal devices realistically simulate the look, feel and action of actual guns and torches. This system enables horizontal, vertical and overhead (5G and 6G) welding positions to be practiced.

Brand new to the VRTEX offering is the VRTEX 360+ dual user system, which now allows two welders to access a single machine while independently experiencing all of the features available from the VRTEX 360 system.

Enhancing the range of welding processes and materials that VRTEX machines can now simulate are the new GTAW processes, which include autogenous and very realistic simulation of the process while manually feeding filler material.

Simulations are also "stunningly intricate" with a realistic look and feel, embedded with actual welding sounds that are specific to the different material and alloy choices. This helps welders to respond and adjust their welding technique while welding. Sparks, slag, grinding and weld cooling are also accurately simulated and discontinuities appear when an improper welding technique is used.

Virtual bend tests are also now included, which provide results that can immediately be

linked to the position and cause of the weld failure.

## Support for students and instructors

Demonstrations on how to achieve successful welds for each particular process and position are accessible to trainees and the system replicates proper machine set-up based on given welding procedure specifications (WPSs). Welders must select gas type, process, gas flow, current/voltage and wirefeed speed.

VRTEX systems can all track and score key welding parameters, including work angle, travel angle, travel speed, stand-off distance and position. In addition, both during and after welding, instructors can view and rotate the trainee's coupon to check for proper angles.

The system encourages more consistent feedback than traditional training. Replay mode (in multiple views) helps instructors and welders identify what went wrong or well and intuitive software programs help to bridge the theoretical welding curriculum and hands-on training activities.

Following the successful completion of a VRTEX training programme, Lincoln Electric also now offers its REALWELD trainer, which retains all of the virtual features, capabilities, prompts and recording features of VRTEX while the welder is using a real welding power source to lay down real weld metal.

[www.lincolnelectric.com](http://www.lincolnelectric.com)



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