Digital Salescard

Fronius International, Winkler Michael, 20.12.2024 Information Class: Confidential

Benefits of simulated welding

- Safety:

  No risk of injuries at virtual welding

  (UV-radiation, flying sparks, sharp edges, fire protection,...)

  No smoke development (smoke extraction not necessary)

- Cost saving:

  No material usage (components, additives, gas,...)

  No wear parts usage (contact tips, inner liner,...)

- Virtual help:

  Interactive support (*Know-how*) and feedback function such as weld seam analysis

THE ADVANTAGES OF OUR VIRTUAL TRAINING

Simulation & Training

- An established procedure for many professions!
- Pilots: train take-off and landing on the flight simulator
- ocomotive drivers: training on the simulator

Potential Savings

- Consumables such as metal, gas, wire,...
- The simulator also teaches basic knowledge
- Spatial resources, as fewer welding stations are required

Safety and group dynamics

- The simulator minimizes the safety risk during welding...
- ...and promotes group dynamics in the training centers
- Young trainees in particular train each other without realizing it

Case Study: Fonsdorf

Potential Savings
Welducation Simulator

STUDY TRAINING CENTER FOHNSDORF WHAT WAS EXAMINED?

/ Learning progress on the Virtual Welding System
/ Material consumption during real welding
/ General consumables

APPROACH AND METHODOLOGY

/ 13 participants
/ documentation of metal, gas, welding rod and energy consumption
/ comparison with data from virtual welding seams
/ welding exercises considered:

135 P FW PB ml
135 T FW PB sl

Study: Customer benefits

Up to € 231
Savings on material costs per participant

16,3%

More efficient training

65%

Longer arc burning time on the simulator

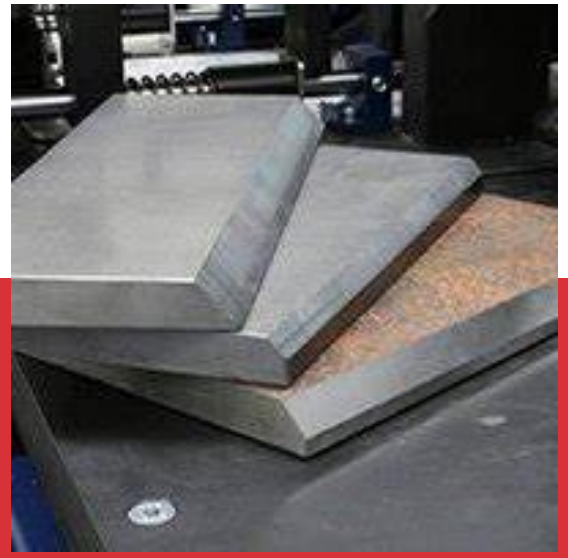
> 3x more tests

In the same training time, >3x more welding tests can be carried out on the simulator than in the welding booth

Efficiency??

No unnecessary retooling

- Change core e.g. steel to aluminum
- Wire feed rolls
- Gas



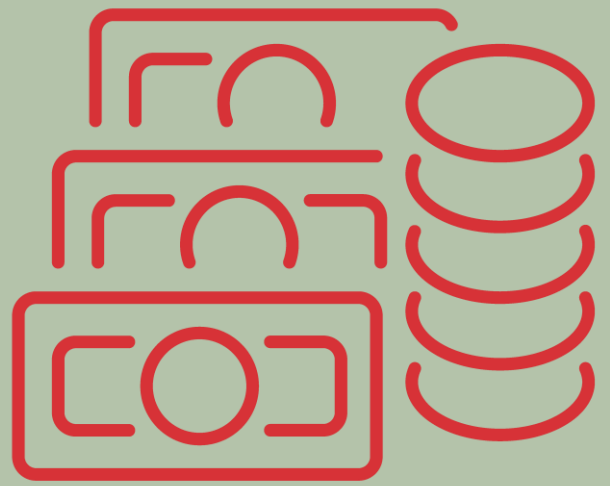
preparation necessary

- No machining of the workpieces
- No cleaning of the surfaces
- No additional occupational safety necessary

Less follow-up time

- No waste production(filler metal, workpieces,...)
- No removal of slag, spatter.....

Amortization through virtual welding



Per weld seam

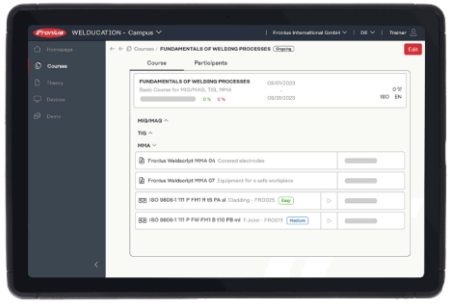
135 P FW PB sl saves € 0.55 in material costs
135 T FW PB ml saves € 2.95 in material costs

Savings per participant between € 74.45 (P) and € 231.88 (P+T)

Amortization after 282 or 90 participants (only through material savings!)

OUR SOLUTION!!
Welducation Simulator(WES)

Basic equipment incl. 3 processes



Samsung Tablet

Currently available in 14 languages

MIG/MAG

TIG

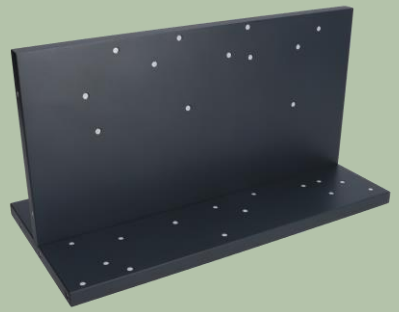
MMA

PUK
Interactive User-Menu

WORKPIECES AND WELDING POSITIONS

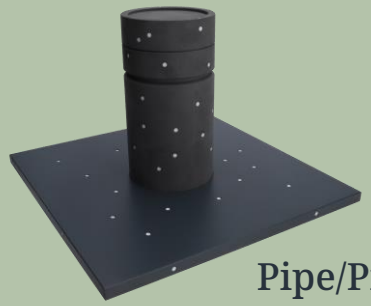
5 WORKPIECES FOR DIFFERENT
SEAM SHAPES AND WELDING POSITIONS:

Table stand for changing position

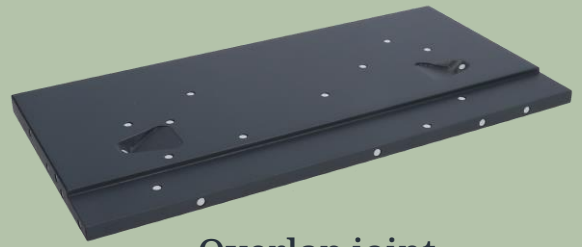


Fillet weld

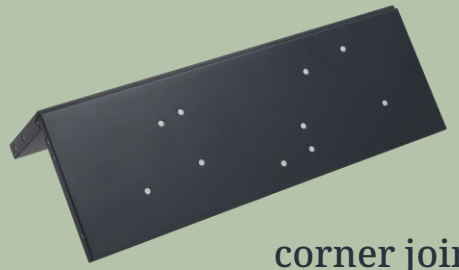
Butt weld
Single-/multilayer



Pipe/Pipe-
Pipe/Flange



Overlap joint



corner joint

Welding Positions

Virtual training to unleash your welding potential

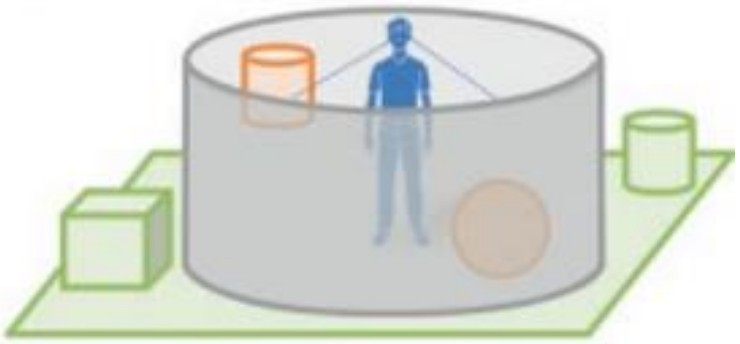
Together with the associated Welducation Campus platform, the Welducation Simulator offers trainees and teachers an overall didactic concept comprising theoretical content and virtual training units with the simulator.

- **VIRTUAL TRAINING with predefined welding tasks, based on EN-ISO 9606**
- **FRONIUS THEORY DOCUMENTS for basic theoretical knowledge(Can also be expanded with your own documents)**
- **KNOWLEDGE TEST to check the content learned**

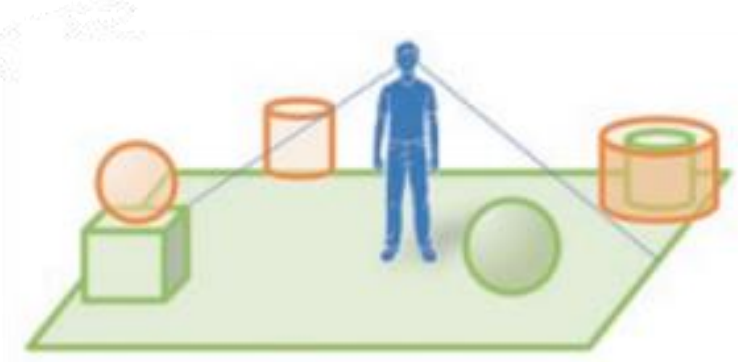
Augmented Reality

VIRTUAL vs. AUGMENTED

While VR is very different from physical reality, AR extends or improves physical reality by adding new information. In contrast to VR, with AR the user interacts with both the virtual content and the real environment. In addition, interaction can take place between the real environment and the virtual content. Virtual content and the real environment are not strictly separated from each other, but can overlap, overlap and penetrate each other. Due to its direct connection with physical reality, AR is increasingly being used in the medical sector. With the help of AR technology, it is possible for surgeons to view superimposed virtual organs in order to gain a better understanding of the upcoming operation.



VR



AR

Probably the best-known examples of AR are Pokemon Go and Google Glass. In both examples, the user's real environment is recorded and supplemented with additional information/details.

Learning platform

Course design on campus

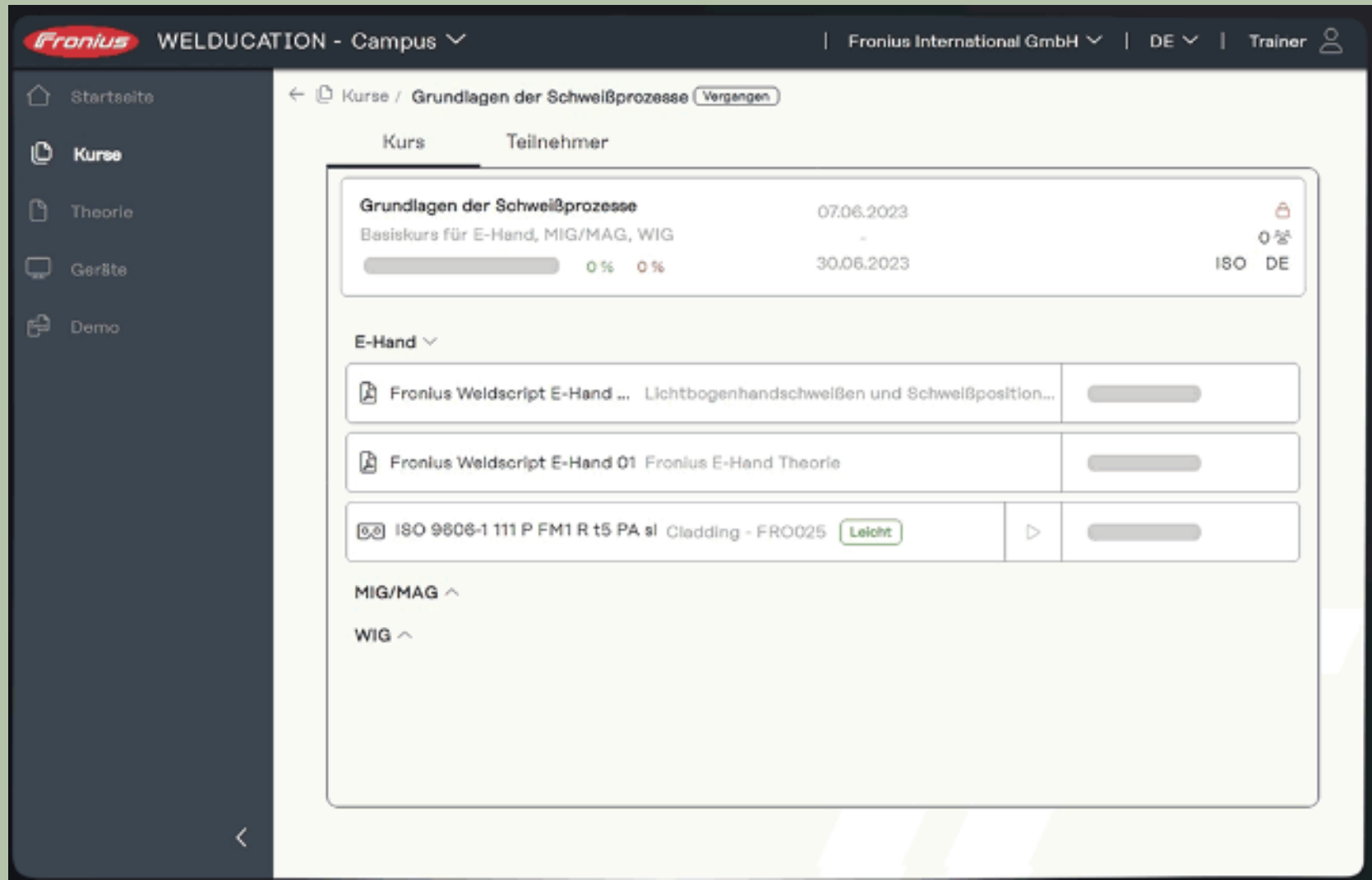
The Welducation Simulator combines practical training units with theoretical content in the Welducation Campus - a sophisticated didactic system that makes life easier, especially in times of skills shortages.

Trainees are not permanently dependent on teachers, but can acquire knowledge and skills independently with the help of theoretical content and created courses.

The course overview in the Campus provides teachers with an overview of the trainees' performance. They can see how often virtual welding has already taken place and whether the respective welds have been successfully or unsuccessfully completed.

Advantages

- Courses can be open (no set order) or closed (theory first, knowledge check….).
- Participants work independently
- Learning progress is saved and can be viewed at any time
- Courses can be designed at your own discretion



Difficulty levels

Difficulty levels

Depending on the skill level of the participants, the trainer has the option of incorporating welding tasks with varying degrees of difficulty into the course.
The aim here is not only to improve manual skills such as welding speed or angle of attack, but also to learn and deepen the necessary presettings step by step.

Level: Easy

- Welding parameters, process, etc., are preset
- Supports (ghosts) are permanently visible
- Low level
- Self-analysis in playback possible incl. the ghosts

Level: Medium

- Welding parameters, process, etc., must be set (
- Gas flow rate must be set
- Ghosts disappear with optimum guidance
- All presettings are supported with a warning message
- Self-analysis in playback possible incl. the ghosts

Level: Hard

- Welding parameters, process, etc., are set to the best of our knowledge
- Gas flow rate is set by the user to the best of their knowledge
- Ghosts are not visible and the user is on their own
- All results are only visible once the task has been completed
- Self-analysis in playback possible incl. the ghosts

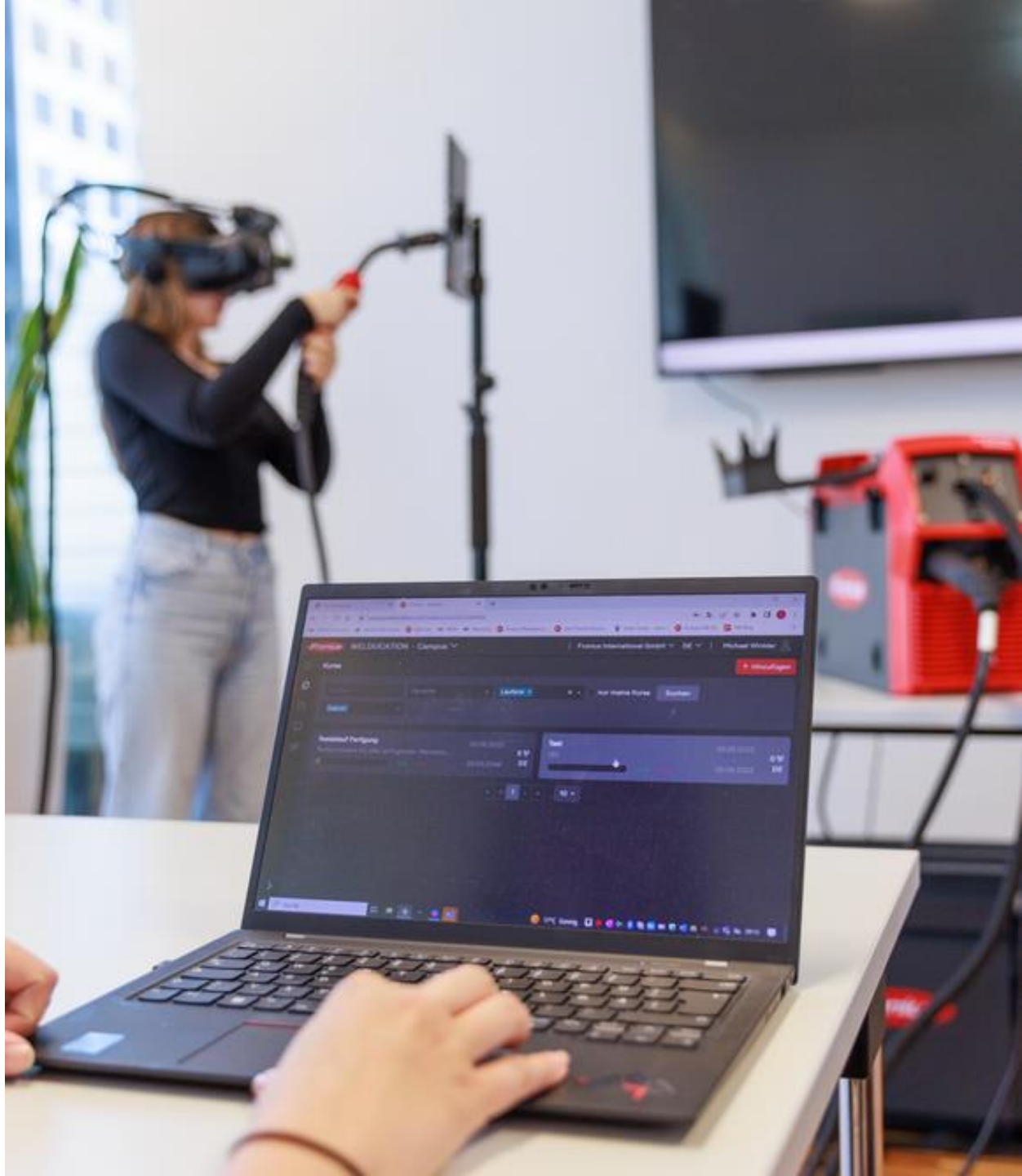
Variant

Cloud Variant

By using the cloud license, the use of the CAMPUS learning platform is not tied to the operational simulator. Login is via the standard Google Chrome browser.

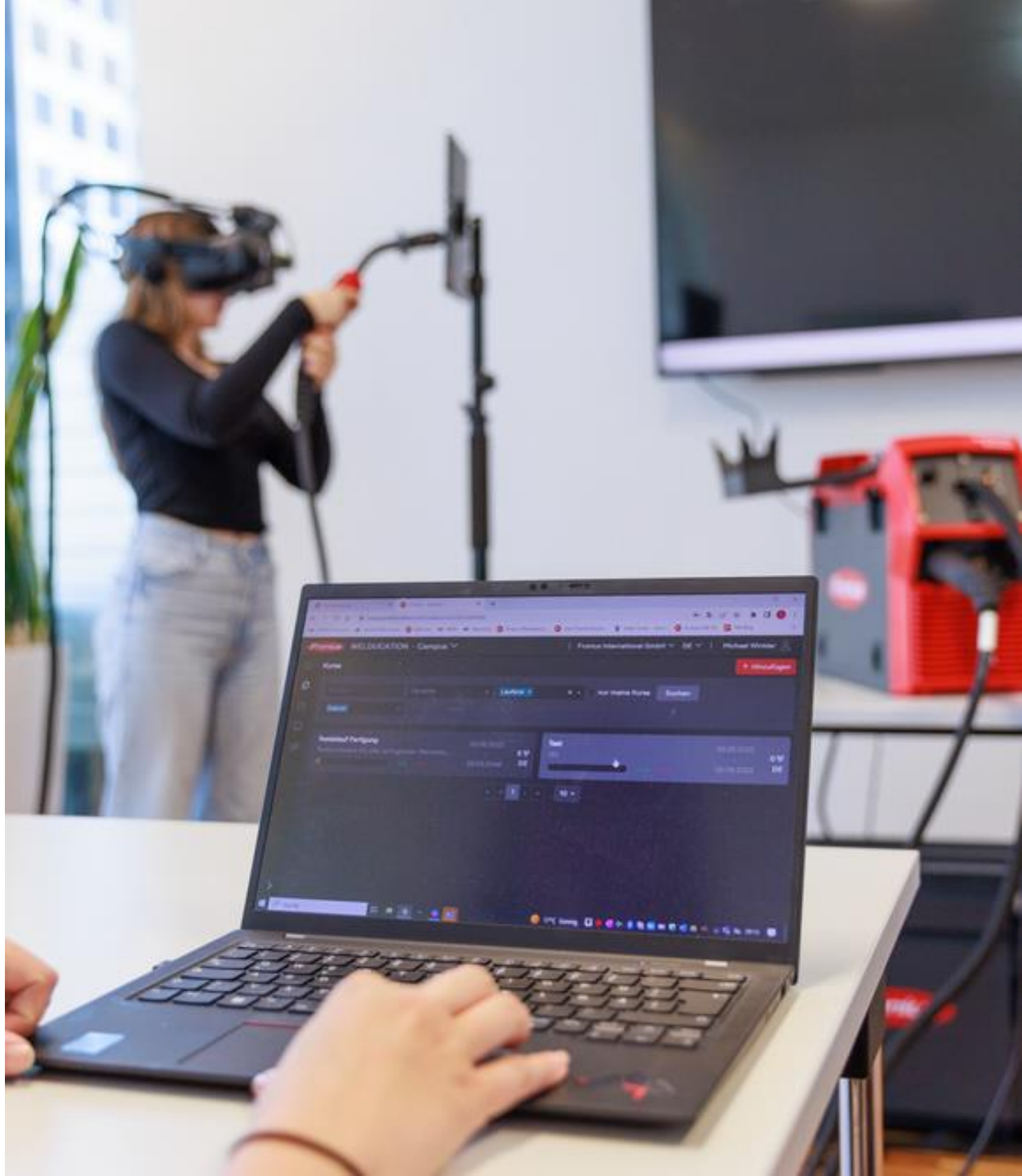
Data processing runs via Microsoft Azure and, thanks to state-of-the-art encryption methods, Azure protects both data at rest and data in transit. Azure ensures the security of your data with various encryption methods.

Various well-known manufacturers as well as educational institutions, technical colleges and universities have been using it for years for internal learning management.



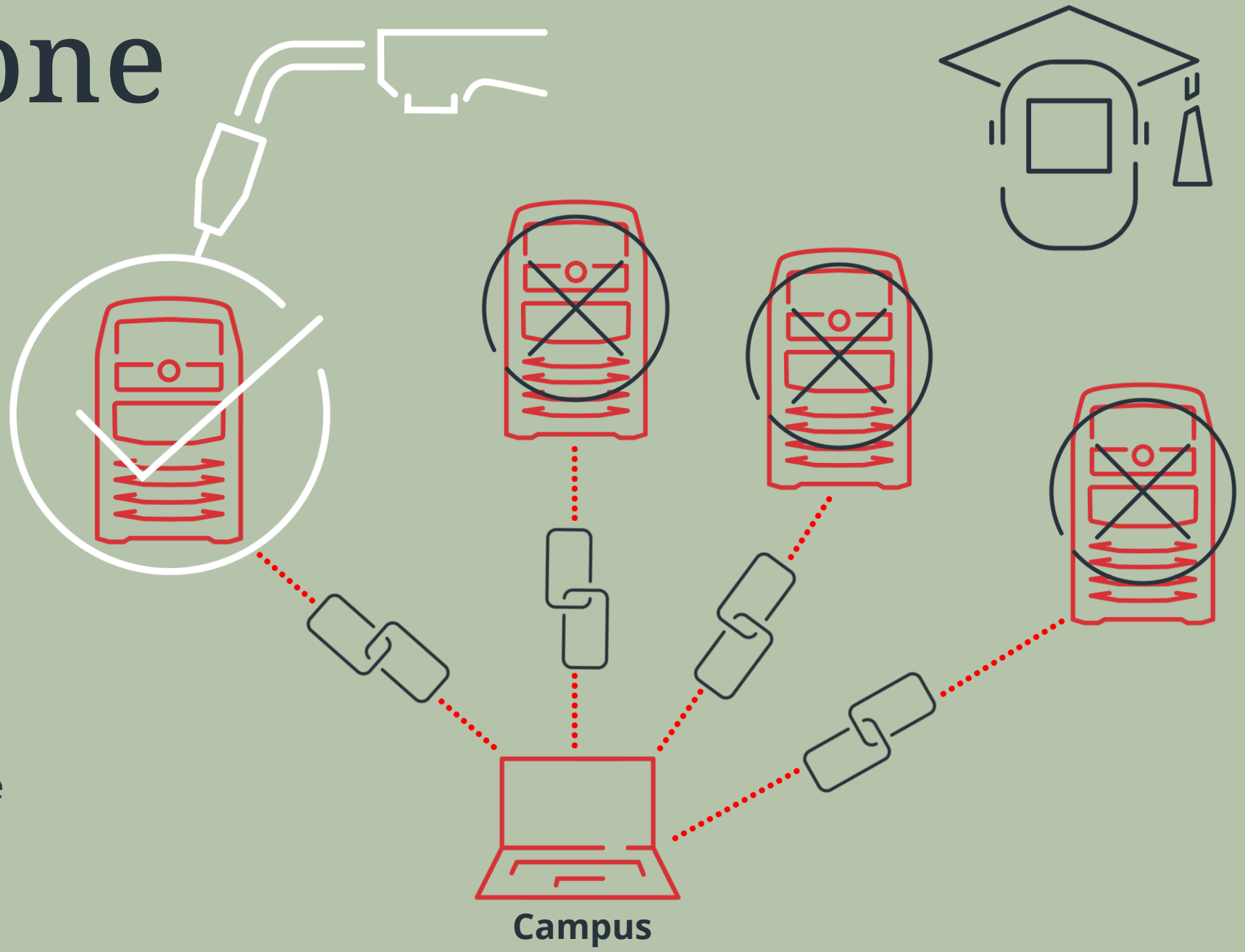
Cloud Variant

- Online version
- Networking with other devices possible
- Can be used with your own laptop, tablet or PC
- External use from the office or from home possible (trainer and participants)
- Only one course creation necessary
- Data is stored online
- Updates can be carried out automatically



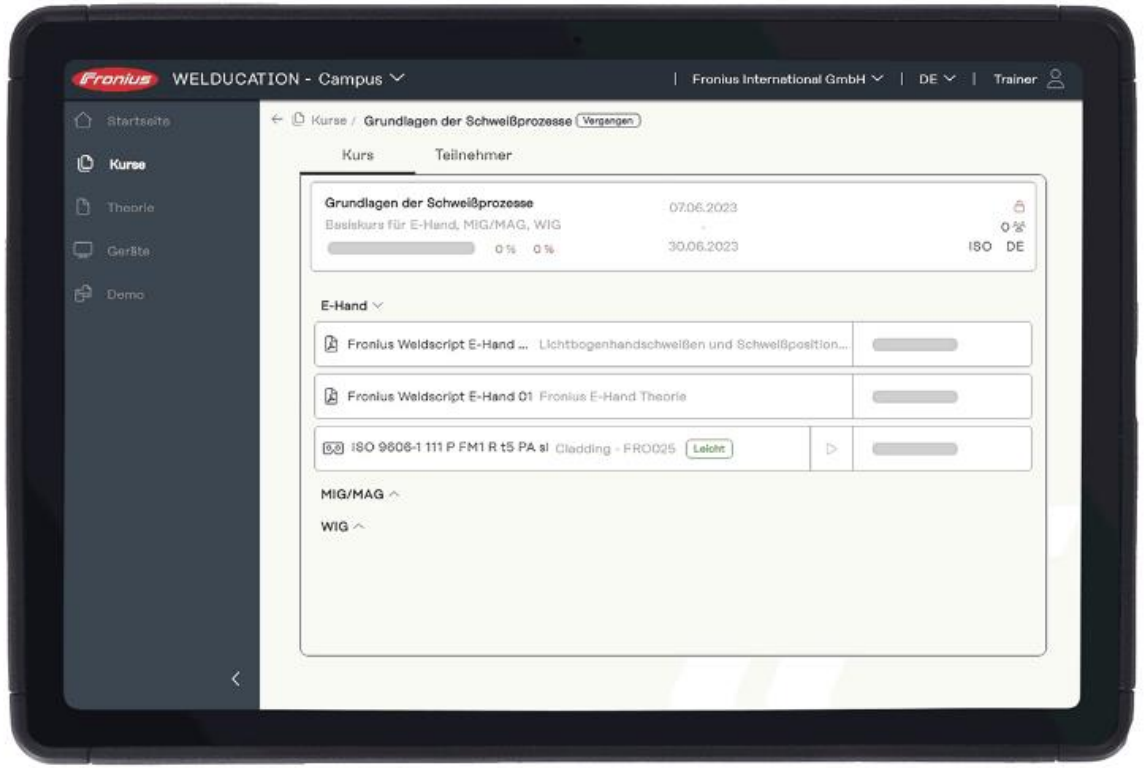
Standalone

- Offline-Variant
- No networking with other devices
- Use only on the tablet provided
- Course creation necessary on every device
- No external use possible, e.g. from the office or from home
- Data is stored on the device
- Expandable with the cloud license possible



Standalone Variant

Use with the standalone version is limited compared to the cloud. The trainer/participant can only use the Campus locally, with the included tablet and ready-to-use simulator.



Unique Selling Points

Unique selling points

- Housing of an **original** welding power source incl. connections
- Position detection of the workpieces (no deception possible)
- Dynamic process-specific welding torch recognition
- Specially coordinated in combination with the difficulty levels
- Control and operation via external terminal device
- Web-based tool for content management
- No additional installation necessary
- Location-independent use possible (cloud version)
- Learning how to handle, including correct fixing of the welding torch, the earth cable and regulating the gas flow
- Parameter settings using the real user interface of a welding power source
- Selection options for additional materials (gas, filler materials, etc.)
- Multilayer multi-process welding tasks (111, 135, 141 are included in one task)

Unique selling points

- Multilayer multi-process welding tasks(111,135,141 are contained in one task)
- (Own) knowledge check?
- Lowering current for TIG welding
- "Option ready for welding"
- Trainee is prepared in the best possible way for real welding
- Welding task definition according to EN ISO 9606 incl. tooltips as explanation
- Visualization of the heat input on the workpiece (front and back)
- Visualized workpiece thickness (2,3,4,6,8,...mm) corresponds to the selected task
- Torch control 2-cycle, 4-cycle, special 4-cycle with GMAW
- Existing company accounts can be used for registration with a SAML-Login

Unique selling points

- Assessment/evaluation of the entire welding process
  - Gas pre-flow
  - Start current incl. slopes, if applicable
  - Lowering current
  - Gas post-flow
- Grinding out when the weld seam is interrupted
- Interaction with the torch in the visualization

Advantages

What are the advantages over the competition?

- Know-how from our own power source production (research and development)
- In-house production (no outsourcing)
- Fronius theory documents for the entire course
- Original housing/components/operating interface of a power source (no familiarization with a real power source)
- No annual costs for standard updates
- The Campus App clearly separates practice and theory (no unnecessary waiting times)
- Ongoing expansion of Fronius characteristic curves such as CMT, PMC.....
- Direct Fronius service and support
- Own area at Fronius for training and further education (training documents, posters, welding tables, protective clothing, measuring aids, Weld-Connect App, Basic App.....)

The Welducation Simulator is produced in the usual quality of a premium manufacturer from Fronius!

Argue

Ready to Weld!!!

To make it as real as possible, we have also opted for an original housing and original torches. Learning should begin as soon as the "power source" is switched on and you should know which work steps lead to the best possible result. Connect the ground cable and the correct torch, gas flow rate, welding parameters, correct filler and what I have to do before, during and after welding. All these things and more should become firmly anchored in the back of your mind in conjunction with the WES.

The user interface for adjusting the settings is based on that of the TPSi and is designed to familiarize users with Fronius power sources.

Depending on the level of the welding task, settings can be predefined or adjusted. Work sequences or activities such as continuing to weld after contaminating the tungsten electrode are not possible in Level Easy. A note follows! Welding is possible from level Medium, but it affects the seam quality and welding behavior. A negative evaluation follows after completing the task!

The user should be introduced to work steps and sequences step by step!

Scope of delivery

Delivery Scope: Standalone

- Simulator + AR-Goggles (ArtNr:4,050,005)
- Fronius Tablet(Samsung Galaxy Tab A7 ArtNr: 41,0006,019)
- PUK(interactive menu)
- Torches + Hosepack(MIG/MAG, TIG, Electrode holder)
- Electrodes and TIG additive
- Torchholder
- Earth clamp
- 5 workpieces (butt, fillet, corner, overlap seam, tube-tube, tube-flange)
- Small Stand (Table stand for changing position)

Accessories & spare parts

Accessories/Options!!

Tool case 85 Universal

(42,0510,0272)

for accessories such as torches, workpieces, stand, ...

Tool case 120

(42,0510,0283)

for the simulator incl. the XR glass

Big Stand

(4,101,391)

For higher welding positions and overhead positions

Tablet holder

(42,0411,0391)

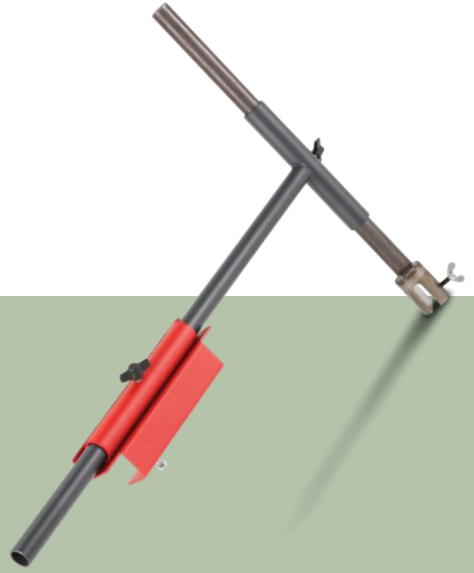
For fixing to the simulator

Zubehör/Optionen!!

Welding Table Basic

(4,001,794)

Is ideal for a real welding setting



Workpiece holder

(4,001,793)

Ideal for forced positions but only in conjunction with the magnet holder (on the right)

Magnet holder

(4,101,392)

After replacing the wing nut, the magnet for the SIM. workpieces can be screwed in

Spare parts!!

Accessories Box

(40,0012,0174)

Protection for the foam insert of the workpieces

(included in the standard packaging)

Inlay accessories

(40,0012,0175)

This foam insert serves as protection for the standard workpieces

(included in the standard packaging)

Bottom part VR-Goggles

(40,0012,0177)

It can be used for the **Tool Case 120**. Serves to protect the VR glasses

(included in the standard packaging)

Additional portfolio

WELDSCRIPT

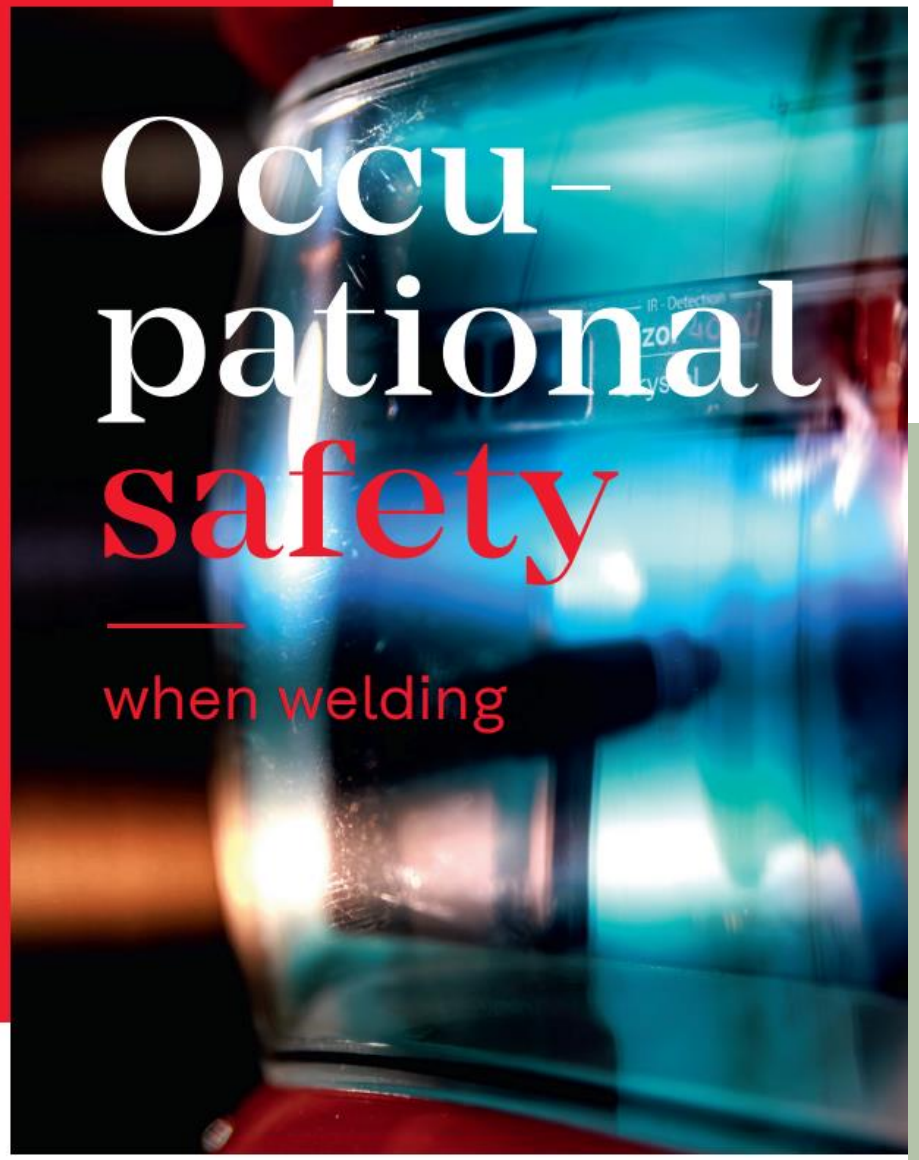
Extensive teaching materials for welding

- **Processes**

MMA	M1,02,0006,EN
MIG/MAG	M1,02,0005,EN
TIG	M1,02,0004,EN

- **Sprachen:**

German,English



- ArtNr.: M1,00,0020
- Free Download
- In collaboration with **AUVA**

- **For the processes**
  - MMA
  - MIG/MAG
  - TIG
- **Weldseam defects**
- **Welding positions**
  - ISO und ASME
- **Occupational safety**
- **FREE DOWNLOAD**

Trainingsposters (in many languages)

Welducation Tools

- **Welding table**
- **Workpiece holder for position welding**
- **Torch holders for MIG/MAG and TIG torches**
- **Weldseam and test gauges**
  - **Analog**
  - **Digital**

Occupational safety

To protect yourself from heat, radiation, sharp edges and falling parts, it is important to equip yourself with a minimum requirement of personal protective equipment.

Possible dangers due to...

- Radiation
- Electric current
- Heat
- Gases and Vapors
- Noise

Welducation Basic APP

The Basic App...
...explains everything
you need to know about
welding on your
smartphone and tablet

BASIC
Fronius

Get it on iTunes

JETZT BEI Google Play

Welducation is more!!!!