

/ Perfect Welding / Solar Energy / Perfect Charging

Fronius



HTW ROBOTIC WELDING CELL

COLLABORATIVE, FULLY AUTOMATED WELDING
MIG/MAG, CMT, TIG, ARCTIG, PLASMA

NOT ONLY INTELLIGENT AND ECONOMICAL WELDING BUT ALSO FUTURE-PROOF.

Whatever you are welding - which component in which form and made of which material: With the handling-to-welding robotic welding cell, your welding equipment is future-proof. Technologically and economically. And the partnership with Fronius Welding Automation offers you a high level of safety. Not least because of the comprehensive services.

ONE ROBOTIC WELDING CELL – STRONG ADVANTAGES

- / Modular engineering concept supports individual solutions
- / Proven welding systems perfectly adapted to the robot
- / Components and periphery freely configurable
- / High autonomy thanks to fully automated welding and component handling processes
- / Perfect synchronization of the system components (robot, system control and power sources)
- / Problem-free welding of complex, angular component geometries
- / Central data management of production data and welding parameters
- / Feasibility check, simulation and offline programming
- / Web-API for data transfer to third party systems
- / Interfaces to common ERP systems
- / Independent contact tube and torch replacement
- / Fronius welding processes

IDEALLY EQUIPPED FOR
PRESENT AND FUTURE.

HTW – AN INVESTMENT THAT
ONE HUNDRED PERCENT
IS WORTH IT.

What's your
Welding Challenge?

Let's get connected.

STRONG PARTNERSHIP FOR CHALLENGING TASKS.

A wide variety of components of all shapes and sizes require intelligent welding concepts: the close partnership with Fronius guarantees efficiency and reliability.

We provide support where you need us – **QUICKLY, COMPETENTLY & ON SITE.**

QUALITY



- / High-quality systems that meet every industry standard
- / Outstanding service by first-class qualified specialists
- / Worldwide, regional support - directly on site at the customer

ECONOMIC EFFICIENCY



- / Intelligent integration of our welding systems into the customer's production process
- / Optimisation of throughput times and production costs for all robot welding systems always the goal
- / High system availability thanks to high-quality components

KNOW-HOW



- / The latest information about welding
- / Professional training for your employees
- / Comprehensive knowledge of welding processes and their application

GOOD RELATIONS



- / Long-term partnerships and reliable cooperation with the customer
- / Reliable contact persons and intensive support for all aspects of robotic welding

NOT JUST A WELDING SYSTEM.
**A UNIVERSE FOR MORE
PRODUCTIVITY
AND PROFITABILITY.**

INDIVIDUAL CONCEPTS

- / Conception and engineering
- / Feasibility studies
- / Simulation of all motion sequences



WELDING PROCESSES FOR ALL JOBS

- / The software recognizes the component and selects the correct welding job fully automatically
- / MIG/MAG, CMT, TIG cold- and hotwire, ArcTig, Plasma



FLEXIBLE ROBOTIC WELDING CELL

- / Modular system of standardized components
- / Comprehensive functions
- / Individually configurable
- / Complex, angled component geometries



YOUR WELDING UNIVERSE FROM ONE SOURCE. EXACTLY THE WAY YOU NEED IT.

/ If you are welding steel frames today, stainless steel containers tomorrow and aluminium profiles the day after tomorrow, you could use a component-specific welding system for every single component. You can produce far more economically if you do all these different jobs with a single robotic welding cell. Better still, with a whole "welding universe" that not only delivers perfect welding results, but also takes over important welding jobs:

The inward and outward transport of components, torch and contact tube replacement, torch cleaning or the replacement of component grippers. And it is best if you get all this from a single source. As with Fronius Welding Automation: feasibility studies, welding tests, engineering, production, delivery, commissioning, training and service.



INTELLIGENT DATA MANAGEMENT

- / Documentation of all welding parameters of single components
- / Serialization and tracing of components
- / Data interface for third-party software

FRONIUS PATHFINDER FINDS THE WAY

- / Create and simulate welding programs offline
- / Generates complex robot programs independently
- / No stopping of the running production during programming
- / Measuring and adjusting of the welding system with the virtual plant

ALL-INCLUSIVE SERVICE

- / Feasibility studies and welding tests
- / Commissioning with user training
- / Calibration, remote maintenance, international service centres

HANDLING ROBOT

- / Component unloading
- / Component positioning for the welding process
- / Transport of components in and out
- / Automatic change of different gripping systems

WELDING ROBOT

- / Welding process
- / TCP measuring
- / Torch cleaning
- / Contact tube change
- / Synchronized collaboration with the handling robot

ROBOT CONTROL

- / Control of the robot axes
- / Activation of the power source (extensive arc welding functions)
- / Control of external axes (chassis, turntable axes)
- / Communication with TCP torch measurement
- / Communication with sensors (optional)



HTW ROBOTIC WELDING CELL

SYSTEM OVERVIEW

Two robots do the perfect job: The handling robot picks up the components and "serves" them to its colleague, the welding robot, for welding. Depending on the component, the handling robot can use different gripper systems for this purpose, and different positioners are also available. They are automatically loaded and unloaded by the handling robot. Depending on the configuration, the system provides locks for the inward and outward transport of components, TCP measurement, torch cleaning and various other modules. All components interact via designated interfaces.

COMPONENT LOCKS

- / Component transport in and out
- / Different variants available
- / Individual equipment depending on component and customer request
- / Proven safety engineering

PROTECTIVE HOUSING

- / Protective door
- / Control panel, signal light
- / CE for the entire plant

HMI-T21 RS SYSTEM CONTROL

- / 21" multi-touch display
- / All welding processes selectable (CMT, MIG-MAG, Plasma, TIG,...)
- / Full access to all power source parameters
- / Predefined program modules, selectable via program editor
- / Definition of program sequences and storage of sequence step chains
- / Diagnosis with fault message texts and remote maintenance option (internet)
- / User login administration with password levels

STANDARDIZATION WITH VISION.

ONE PLATFORM CREATES FLEXIBILITY AND SECURITY FOR THE FUTURE.

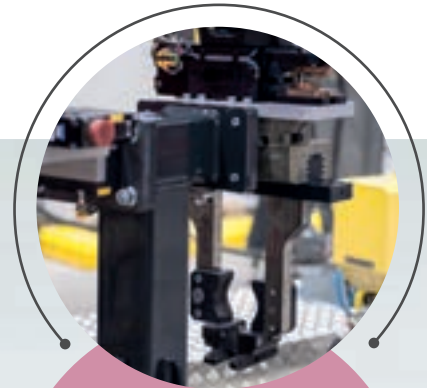
The intelligently chosen modularity of our robotic welding cells leaves many options open to you. It enables the system to weld components of different geometries and materials. In addition to various peripheral components such as gripper deposit systems, contact tube changing station, component locks or automated rack systems, various welding processes such as MIG-MAG, CMT, TIG, ArcTig or plasma are available. And the international Fronius service network offers you a high degree of security. Now and in the future.



/ DIFFERENT TORCH SYSTEMS depending on the welding process and component geometry



/ TCP MEASURING & TORCH CLEANING / CHANGING STATIONS for TORCHES and for CONTACT TUBES



/ GRIPPER STORAGE SYSTEM for different GRIPPING SYSTEMS



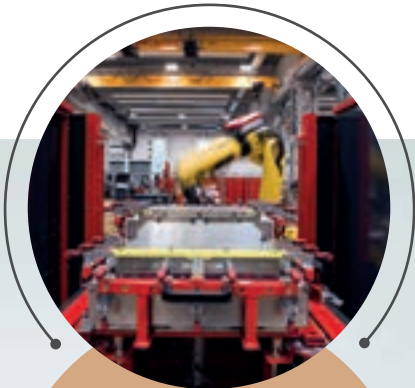
ALL UNDER CONTROL:
THE HMI T21-RS SYSTEM CONTROL STEERS AND VISUALIZES ALL PROCEDURES IN REAL TIME.



THE ROBOTS BY SHORT HAIRS:
ROBOT CONTROL.



THEY ARE BOSOM BUDDIES:
HANDLING AND WELDING ROBOTS.



/ COMPONENT LOCKS
for the
IN- & OUTWARD
TRANSPORT
of components



/ STORAGE SYSTEMS
for
STORING different
components



/ POSITIONER
in different
DESIGNS
&
SIZES

THOUGHT OUT IN DETAIL.

INTELLIGENT PLANNING, CONTROL AND MONITORING OF ALL PROCESSES. FROM SIMULATION TO FINAL WELDING RESULT.

The unique Fronius hmi T21-RS system controller is at the heart of operation and control. It is no exaggeration if we claim that you will be one hundred percent convinced of its ease of operation and range of functions, just like all our customers have been so far. It starts with a 3D real-time display and ends with intelligent features such as welding data management with WeldCube.



HMI T21-RS:
THE CENTRAL SYSTEM
CONTROLLER



FRONIUS PATHFINDER

Offline programming and
welding simulation



ROBOT CONTROL

Controls all robot jobs,
from welding to
component manipulation



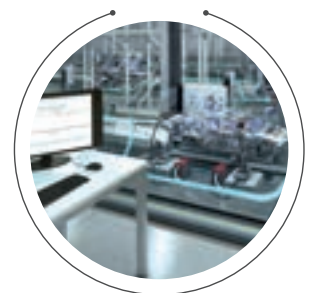
TPS/i Robotics POWER SOURCE

Perfect welding properties and
high process reliability



FRONIUS WELDCUBE PREMIUM

Data management
for more transparency and
productivity





INNOVATIVE AND FUTURE-LOOKING.

HMI T21-RS: PIONEERING IN FUNCTIONAL SCOPE AND OPERATING COMFORT.

MAIN MANU

/ Shows the activated menu items. The entries can be extended by activating software options or by other system configurations.

STATUS BAR

/ Displays error, warning or info messages in plain text. If there are no messages, aggregate states and program run status are displayed. In the right-hand column you can see the user who is logged in and a brief info on the selected control element.

STATION CONTROLLER

/ The station controller is an integral part of the production view. Via the "Load/Unload" buttons the operator calls up the sequence program of the respective station and loads it into the controller. The station manager of the PLC controller processes the programs as soon as they are loaded. The maximum number of stations individually available to the operator is four.

FAVORITES SETTING

/ Quick View buttons are displayed in the lower part of the production view. Further windows can be displayed here: For example Teach Pendant Robot, QMaster, Piece Counter and others.

QMASTER-EDITOR

/ Easy monitoring and control of welding data with pre-configured warning levels and error limits. Time delays for start and alarm can also be set.

USER ADMINISTRATION

/ Operators are registered and edited here and authorizations are assigned. Each user can individually set both the operating language and the system of unities and secure them with his password.



ALL COMPONENTS UNDER CONTROL. FROM THE WELDING ROBOT TO THE PERIPHERY.

/ The HMI T21-RS system control is the higher-level control for monitoring and coordinating all peripheral components such as robots, welding power source, positioners, shelf systems or torch cleaning. Proverbial highlights are the program editor for defining all program sequences and the three-dimensional real-time visualization. To give the operator an optimal overview of the complete system status and all components, both system

modules and protective areas are visualized - depending on the respective status. The standard scope of functions includes user and program management, fault message displays, cycle and piece counters, language switching, plant status displays and power management (media supply) of all components.



3D REAL-TIME VIEWS

/ They display the current welding work (robot movements) on the monitor - in real time! The operator can select and save preset views as required. But also individual views can be created and saved at any time.

PROGRAM EDITOR

/ In the program editor, the operator defines the program sequences and saves them as a sequence step chain. Each program is assigned to a machining station and is configured via individual program sequences. It can be selected from a predefined selection of program modules.



VIRTUAL PROGRAMMING AND SIMULATION

PATHFINDER: HIGH-QUALITY WELDING PROGRAMS FOR DIFFERENT PARTS AND WELDING PROCESSES.

QUALITY CONTROL AND WPS INTEGRATED.



WHILE THE SYSTEM IS STILL WELDING COMPONENT BY COMPONENT, YOU CONFIGURE AND PARAMETERIZE THE NEXT WELDING PROCESS.

Waiting until the ongoing welding work is finished is now a thing of the past! Now you can program your new welding processes while the machine is still running. Offline, i.e. separate from your robot welding cell. The software recognises axis limits, calculates start points, end points and approach routes and sets teach points independently. Interfering contours can be visualised and torch positions can be corrected accordingly and in good time. Not only during the first welding tests. This saves time and costs.

PATHFINDER FUNCTIONS:

- / Autoseam - automatic generation and management of welding seams along a path
- / Corner welding function, automatic adjustment of speed and welding path
- / Variable adjustment of the torch cleaning unit
- / Manual fine-tuning of all welding tracks and movement points
- / Multilayer welding and automatic generation of passes
- / Copying, linking, grouping, and mirroring of welding seams (for mirrored workpieces)
- / Weld seam tracking with wire or gas nozzle
- / Management of process parameters and welding performance
- / WPS welding database (Welding Procedure Specification)
- / Selection of the robot configuration
- / Tool change management
- / Unlimited, automatic management of external robot axes (e.g., positioners, linear paths and multi-axis workpiece positioning devices)



ROBOT CONTROL

/ Controls the movements of the handling and welding robot and ensures fully synchronized, coordinated welding sequences. Programming is intuitive and straightforward. The operator has full access to welding parameters and corrections. Integrated safety functions for both robots.



TPS/i ROBOTICS POWER SOURCE

/ Smooth communication between robot and power source via the integrated robot interface. TPS/i power sources correspond to the latest state of welding technology. Built for the future, they are used day after day by renowned industrial companies worldwide.



WELDCUBE PREMIUM

/ The software stores welding data from several Fronius systems in a central database. It also offers intelligent management, statistics, and analysis functions. The primary storage of data from networked Fronius systems makes it possible to document data for each component and create PDF reports for each part.



SPACE OPTIMIZED AND FULLY AUTOMATED.

KARDEX STORAGE SYSTEMS.

Extremely flexible solution for the insertion, storage, and handling of different welding fixtures and components. Area and room height are optimized. Includes operating openings for manual loading and for tray pull-outs, which are automatically loaded and unloaded by the handling robot. Software-supported management of all trays, components, and welding fixtures. Intuitive operation of the racking systems with the Fronius HMI T21-RS system controller.



SHELF FRONT
Trays are loaded manually



SHELF BACKSIDE
Handling robot loads and unloads the trays

/ Perfect Welding / Solar Energy / Perfect Charging

THREE BUSINESS UNITS, ONE GOAL: TO SET THE STANDARD THROUGH TECHNOLOGICAL ADVANCEMENT.

What began in 1945 as a one-man operation now sets technological standards in the fields of welding technology, photovoltaics and battery charging. Today, the company has around 5,440 employees worldwide and 1,264 patents for product development show the innovative spirit within the company. Sustainable development means for us to implement environmentally relevant and social aspects equally with economic factors. Our goal has remained constant throughout: to be the innovation leader.

Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

Fronius India Private Limited

Plot no BG-71/2/B,
Pimpri Industrial Area,
MIDC- Bhosari,
Pune- 411026
India
Telephone + 91 98 20 60 52 07
sales.india@fronius.com
www.fronius.in

Fronius (Thailand) Ltd.

Pinthong Industrial Estate P
789/193 Moo 1, Sriracha,
Chonburi 20230
Building: P17/B1
Thailand
Telephone +66 (033) 047421
sales.Thailand@fronius.com
www.fronius.co.th

Fronius Middle East FZE

P.O. Box: 263241
Jebel Ali / JAFZA ONE BUILDING
Dubai / U.A.E
Telephone +971 (0) 56 499 8224
contact.middleeast@fronius.com
www.fronius.ae/pw

Fronius Canada Ltd.

2875 Argenta Road, Units 4,5 & 6
Mississauga, ON L5N 8G6
Canada
Telephone +1 905 288-2100
Fax +1 905 288-2101
sales.canada@fronius.com
www.fronius.ca

Fronius USA LLC

6797 Fronius Drive
Portage, IN 46368
USA
Telephone +1 877 FRONIUS
sales.usa@fronius.com
www.fronius-usa.com

Fronius UK Limited

Maidstone Road, Kingston
Milton Keynes, MK10 0BD
United Kingdom
Telephone +44 1908 512 300
Fax +44 1908 512 329
info-uk@fronius.com
www.fronius.co.uk

Fronius International GmbH

Froniusplatz 1
4600 Wels
Austria
Telephone +43 7242 241-0
Fax +43 7242 241-953940
sales@fronius.com
www.fronius.com