R&W TECH

PRODUCT CATALOGUE 2025

INTRODUCTION

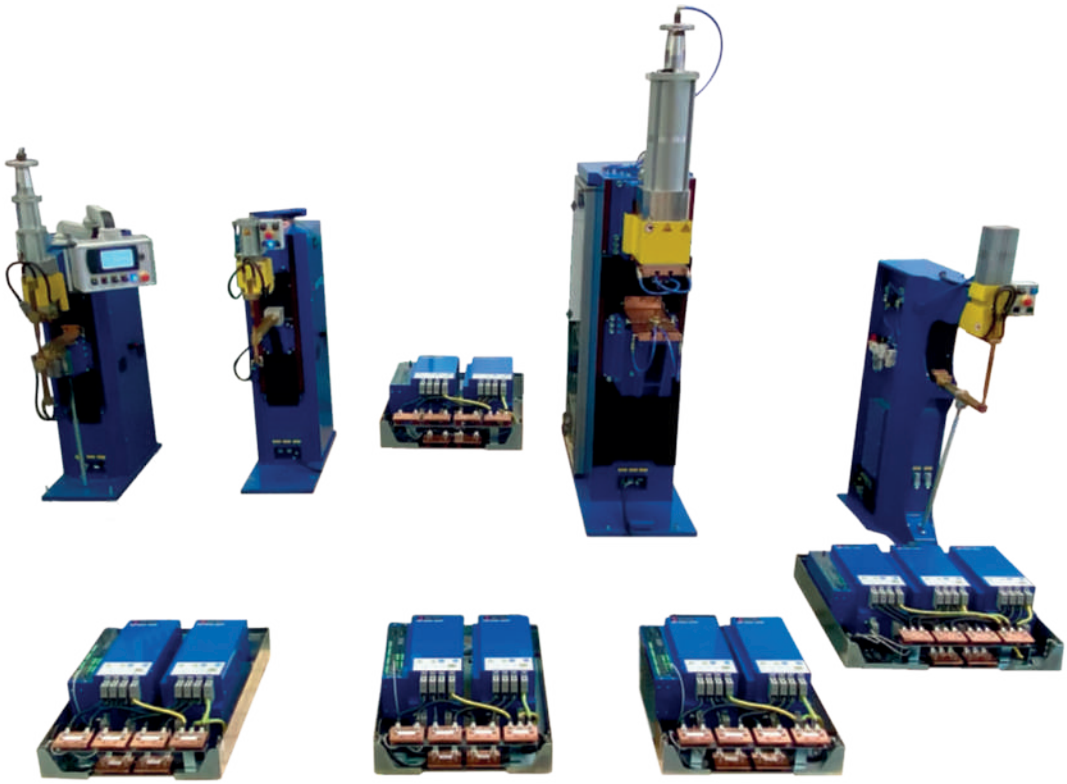
R&W Tech S.r.l. is the Italian market leader in the field of resistance welding technology.

R&W Tech S.r.l. specialises in the design and production of control systems for resistance welding and medium frequency welding machines.

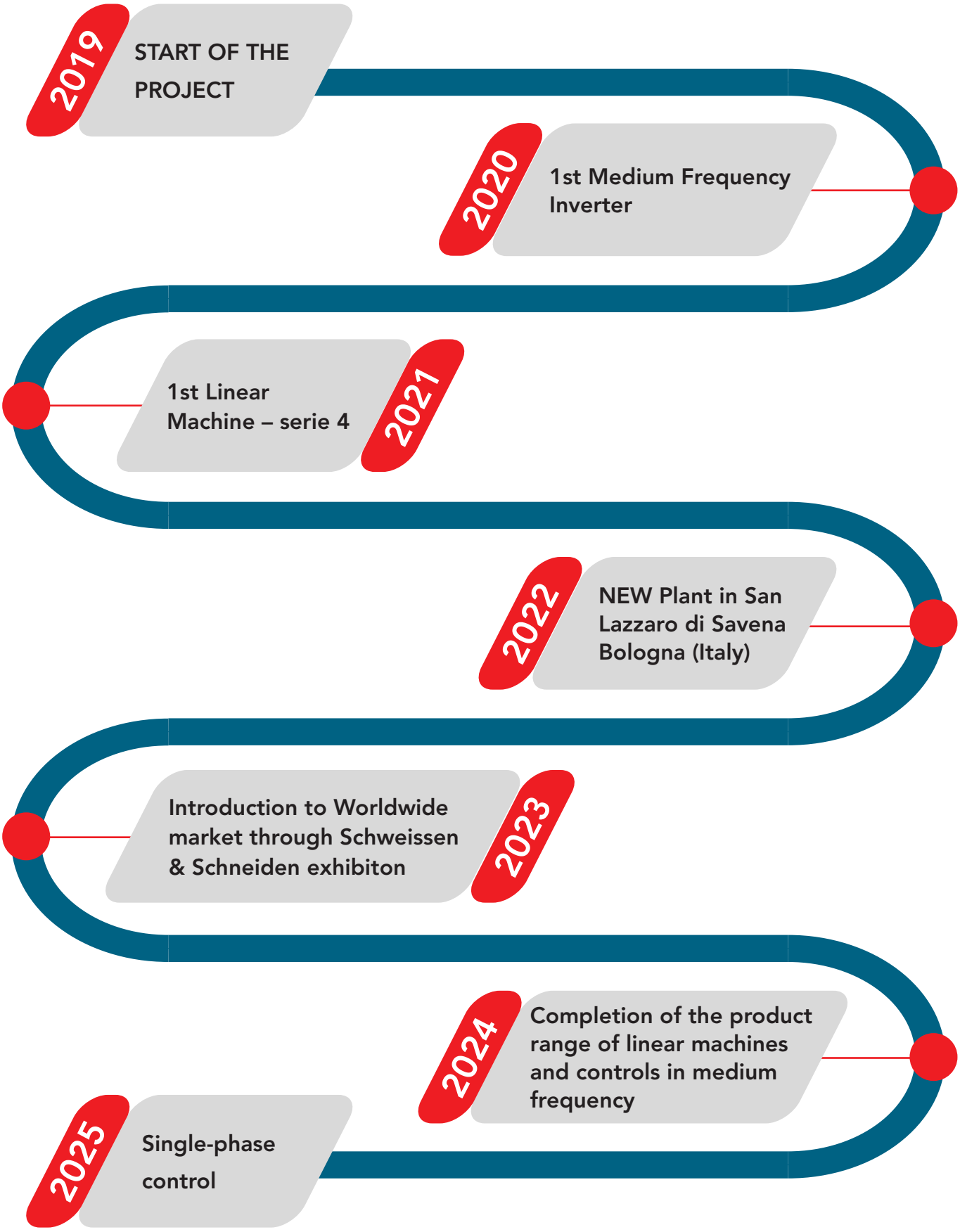
R&W Tech is a specialist in the design and production of:

- Controls for resistance welding: with a focus on high-performance, safe and user-friendly medium frequency systems.
- Welding machines: designed from the ground up to guarantee precision, speed, connectivity, and ease of use.

R&W Tech S.r.l. is committed to the creation of technological value and to providing a high level of customer attention and service. The company's comprehensive control of its processes (inverter, control, mechanics, cylinders) enables it to deliver solutions that meet the needs of today's customers and those of the future.



TIME LINE


2019
START OF THE PROJECT
2020
1st Medium Frequency Inverter
2021
1st Linear Machine – serie 4
2022
NEW Plant in San Lazzaro di Savena Bologna (Italy)
2023
Introduction to Worldwide market through Schweissen & Schneiden exhibiton
2024
Completion of the product range of linear machines and controls in medium frequency
2025
Single-phase control

AC SINGLE-PHASE CONTROLS

MODEL AC-RWC 100 – 200 – 400

Constant current work mode
Measure of the secondary current with Rogoski coil
USB interface for saving welding data, for backup operations and firmware updating
Control limits on welding current and conduction angle
Seam/spot welding
RTC for marking points with date and time
Possibility to operate with zero cold times

TECHNICAL CHARACTERISTICS

	100	200	400
Programming with graphic icon display	✓	✓	
Number of programs	16 – 64	16 – 64	512
Mode: Constant partialization	✓	✓	✓
Mode: Constant current on welding 1	✓		
Mode: Constant current over the entire cycle included pre and post weld		✓	✓
Mode: Independent constant current regulation for each welding transformer with primary regulation (only with SMART-FIRING MODULE)			✓
Driving AC tranformers through SCR	✓	✓	✓
Driving AC tranformers through SMART FIRING MODULE			✓
Max delay from start to weld: 1 cycle	✓		
Max delay from start to weld with SMART SYNC*: 1/2 cycle		✓	✓
PLC connection through phisical I/O	✓	✓	✓
Fielbus PLC Interface: EtherCAT, Profinet, Modbus TCP, Ethernet/IP			✓
Web Page: possible to remotely program though LAN interface		✓	✓
DMS Software: collecting and statistical analysis software		✓	✓
Driving of 1 proportional valves with signal for not reached pressure		✓	✓
Double channel pneumatic valve driving	✓	✓	

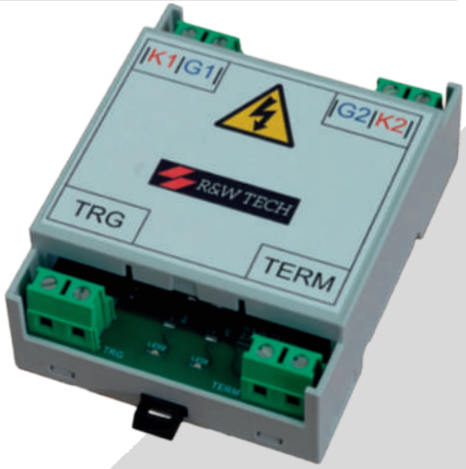
AVAILABLE ONLY FOR MODEL 400 SMART-FIRING-MODULE:

- Short-circuited SCR detection.
- Identification of SCR miss fire and prevention of damage to the SCR group and welding transformer.
- Possibility of managing single-phase systems distributed over different phases without the need for synchronism tripler cards.
- Measurement and control of the primary current for each welding transformer.
- Possibility of associating a subset of SMART-FIRING-MODULE with a welding program in order to weld only with a part of the transformers connected to the control.
- Possibility of associating different welding parameters for SMART-FIRING-MODULE groups within a single program and executing them simultaneously SFM-FLEX-PROGRAM*.
- Each SMART-FIRING-MODULE can manage the transformer it is driving in primary constant current separately and independently from the other firing modules present in the SFM-FLEX-CURRENT* network.
*PATENT PENDING

AC SINGLE-PHASE CONTROLS

AC-RWC-100/200

AC-RWC-400



FIRING MODULE

SMART FIRING MODULE

MEDIUM FREQUENCY INVERTER CONTROLS

MODEL MF-RWC 3000 – 3500 – 4000 – 5000

Work mode: IK, VK, PK, ENE, FIX, Automatic
Frequency from 1.000 to 10.000Hz user selectable
Web-Interface for inverter menagement and DMS connection
Fielbus PLC interface (Profinet, EhterCAT, Ethernet IP, Modbus)
Change of welding parameters without interruption of production
Direct control up 4 nut feeders
DOCERAM® ModulMaster integration

TECHNICAL CHARACTERISTICS

	3000	3500	4000	5000
Single Module primary current	300 – 450 A	300 – 600 A	300 –1200 A	1.800 – 3.000 A
Available Heavy Duty Configuration for increased thermal current	-	-	✓	-
Available Master-Slave (max 4 modules)	-	-	✓	✓
Max primary current in master-slave configuration	-	-	4.800	12.000
Cooling	Air	Water	Water	Water
Programs	250	250	500	500
Menagement of different welding transformers	4	4	8	8
Additional analog input	1	1	3	3
Proportional valve	1	1	2+1	2+1
Double channel pneumatic valve driving	3	3	4+2	4+2

INTERFACE FOR PROGRAMMING AND CONTROLLING THE WELDING INVERTER

- 7-inch color display with resistive touch screen.
- User access and authentication via NFC TAG.
- Management of permissions associated with the user.
- Saving of the points performed within a database for subsequent export or consultation.
- Display of graphs relating to the quantities acquired during the welding process.
- Management of the historical errors.

MEDIUM FREQUENCY INVERTER CONTROLS

3000

3500

4000

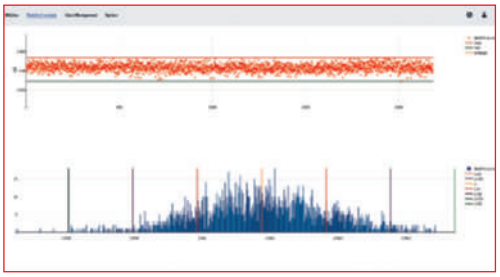
5000

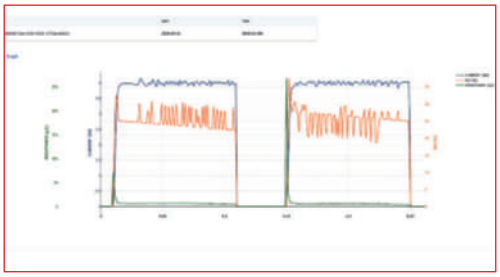
MASTER-SLAVE CONFIGURATIONS

DMS SOFTWARE

SPOT WELD MACHINE CONTROL AND MONITOR
SPOT DATA COLLECT AND ANALYSIS

DMS software can menage 1 or multiple controls/machine (up to 250). Customer can install on its server or pc. The software, as alternative can be delivered already installed and configured in an industrial PC.
All the data are safe and locally stored. Clearly a production manager can access to its network through VPN to control also the status of the production if not phisically present in the plant.





- Spot weld machine status available in a quick view (inactive, error, warning, working)
- Complete log of the changes made to the parametrization of the control unit
- Real time spot data and graph view for each machine – all the welding data are stored automatically inside a high performance database for recall and analysis
- Control unit parametrization.
- Advanced backup management – possibility to create different configurations
- Statystical analysis
  1. Scatter plot and Gaussian plot for the variation of a parameter
  2. Overlapping plot of a parameter
  3. Comparison of up to 3 different datasets

INDUSTRIAL PC WITH READY TO USE DMS INSTALLATION

MEDIUM FREQUENCY BOX INVERTER

- AUTOMATION
- ROBOT
- MANUAL GUN
- RETROFIT
- MICROWELDING

MF CONTROL WITH MAX PRIMARY WELDING CURRENT FROM 300A UP TO 1200A, WATER COOLED

- Inverter module MF-RWC-4000, with the possibility to select the working frequency from 1.000Hz to 10.000Hz
- Internal USB interface for data collecting, backup and restore and firmware upgrade
- Web interface for first commissioning, control unit programming and weld data view
- Ready to be connected to a PLC system
- Working modes available IK, VK, PK, FIX ENE and automatic.
- Secondary current measure by Rogowski coil and secondary voltage measure
- Up to 512 welding programs selectable by the user
- Possibility to edit the welding program without stopping the welding operation

(OPTION TOUCH)

OPT: HMI on the BOX wall

OPT: HMI with connection cable up to 5 m

OPTION RCD – Residual Current Detection

OPTION PNEUMATIC

- Pneumatic and water circuit mounted on external plate and assembled on the side of the electrical cabinet
- Cut off of pneumatic air and cooling water connected to the emergency chain
- Flow meter and flow switch for the cooling water
- Manual regulator for the welding pressure and for the counter pressure (proportional valves available as option)
- Pneumatic valve for double stroke management

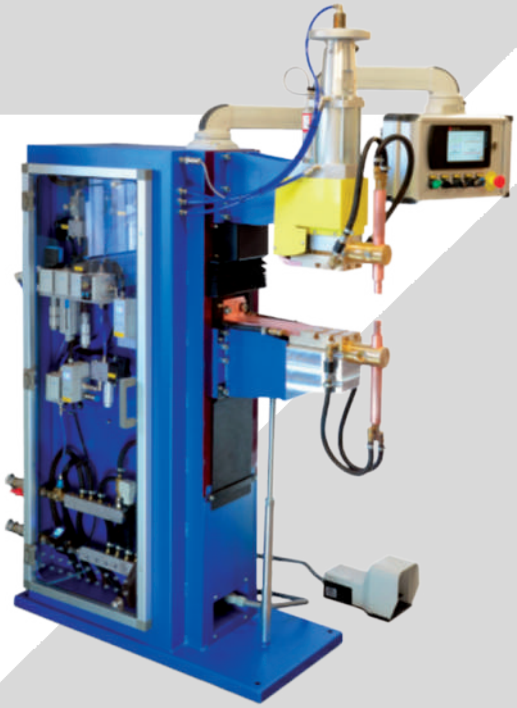
MFDC LINEAR MACHINES

	Serie 1	Serie 2	Serie 4	Serie 6
Nominal power 50%	40 KVA	40 – 56 kVA	78 – 197 kVA	154 – 392 kVA
No load secondary voltage	6,4 V	6,4 – 8,4 V	6,4 – 13,2 V	10,8 – 21,4 V
Max short circuit current	18 – 20 kA	20 – 25 kA	27 – 55 kA	45 – 100 kA
Thermal current 100%	4 kA	4 kA	6,5 – 10 kA	10 – 13 kA
Spot	✓	✓	✓	
Projection		✓	✓	✓
Seam			✓	✓
Depth electrodes	500 mm	400 – 600 mm	400 – 800 mm	-
Depth projections plates	-	470 mm	320 – 650 mm	400 – 800 mm
Max electrodes force (6Bar)	300daN - 470daN	470 daN	470 – 1.300 daN	1.200 – 3.388 daN
Max electrodes stroke	100	100	100	150
Double stroke	60	80	0 – 80	0 – 120
Adjustable height of lower arm	-	-	730 -1.030 mm	764 – 1.204 mm
Pneumatic by FESTO®	-	✓	✓	✓
Max Proportional valves	1	2	2	3
Safety pneumatic	-	-	✓	✓
Resolution of position sensor	0,1mm	0,002mm	0,002mm	0,002mm
Touch panel mount	Side	Side – Pendant – Arm	Side – Arm	Arm

MFDC LINEAR MACHINES

SERIE 1

SERIE 2



SERIE 4

SERIE 6

CYLINDER:

Zero friction

Designed for perfect weld pool tracking

Double stroke: possibility of optimizing production times

ERGONOMICS AND DESIGN

Clean and compact machine layout

Touch Control: Positioned on an adjustable rotating arm

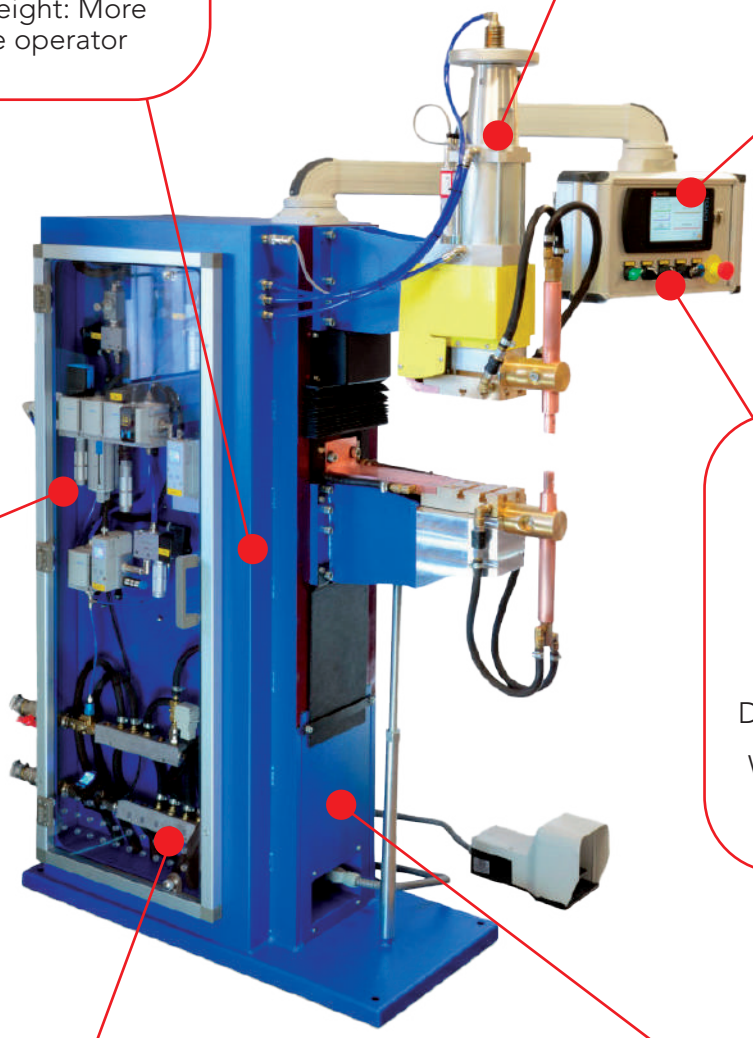
Increased working height: More comfortable for the operator

TOUCH

Easy to program

Weld point reports

Parameter graphs



PNEUMATICS

Best components on the market: FESTO pneumatic system (series 2/4/6)

Smooth approach: Differentiated pressure management on the two cylinder chambers

CONTROL

Medium-frequency inverter control from 1,000 to 10,000 Hz

Up to 500 welding programs

Dynamic/adaptive mode

Web page interface for machine control and DMS software

COOLING SYSTEM

Water cooling for inverter, transformer, electrode holder, electrodes and plates

Valve to stop cooling when the machine is turned off or the emergency button is pressed

MECHANICAL STRUCTURE

Made in Italy: all mechanical parts are manufactured in Italy

Rigidity: flexion is half that of the competition

OPTIONS

DOUBLE PROPORTIONAL VALVE
- Maximum weld pool tracking: no flow regulator in the pneumatic circuit.
- Change format/program does not need manual regulation of pneumatic

POSITION SENSOR
2 micron resolution – not affected by magnetic field
- NUT: correct positioning at beginning + complete welding
- WIRE: correct compenetration + adaptive mode to weld different number of crosses
- SHEET METAL: correct thickness before and after

FORCE SENSOR:
Not affected by magnetic field
The sensor is positioned on the structure and records the electrode force trend not only at the beginning of the cycle but also during it

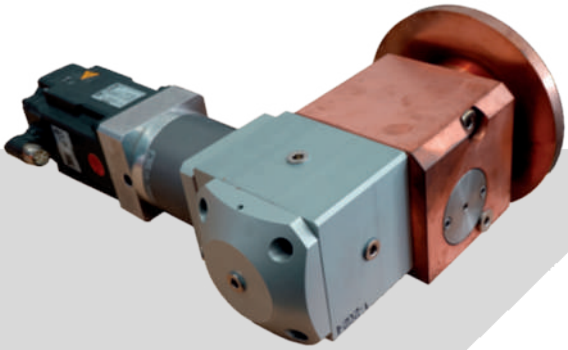
DOUBLE CYLINDER
Useful in case of automation or rotary table

NUT FEEDERS
No need of additional PLC.
Up to 4 nut feeder it become part of the program of welding

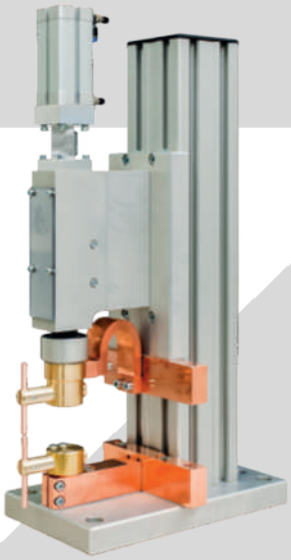
DOCERAM MODUL MASTER SYSTEM
No need of additional PLC.
Control can manage position and presence sensor

COMPONENTS

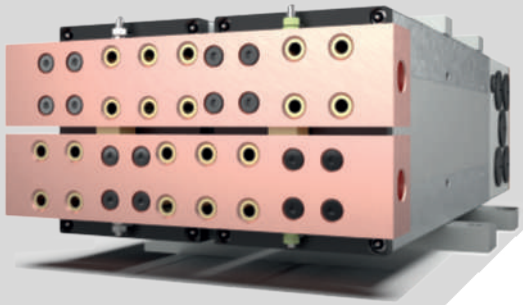
MEDIUM FREQUENCY DOUBLE SPOT
Aluminum frame
Speed and aesthetics weld on stainless steel and galvanized steel
Ability to make even very close stitches



SEAM WELDING
Seam parameters are integrated inside the welding program.
Up to 4 different combinations of speed/current/time user selectable for each welding program
Limit current check for each pulse during welding.
Overlap function available.
Motorized heads with Siemens Brushless motors and Siemens drives can be supplied.



MICRO-WELDING
Frequency up to 10.000Hz
Welding current stable ±1A at 30Ampere
Control of force for pneumatic cylinders through balance of pressure of two chambers of the cylinder

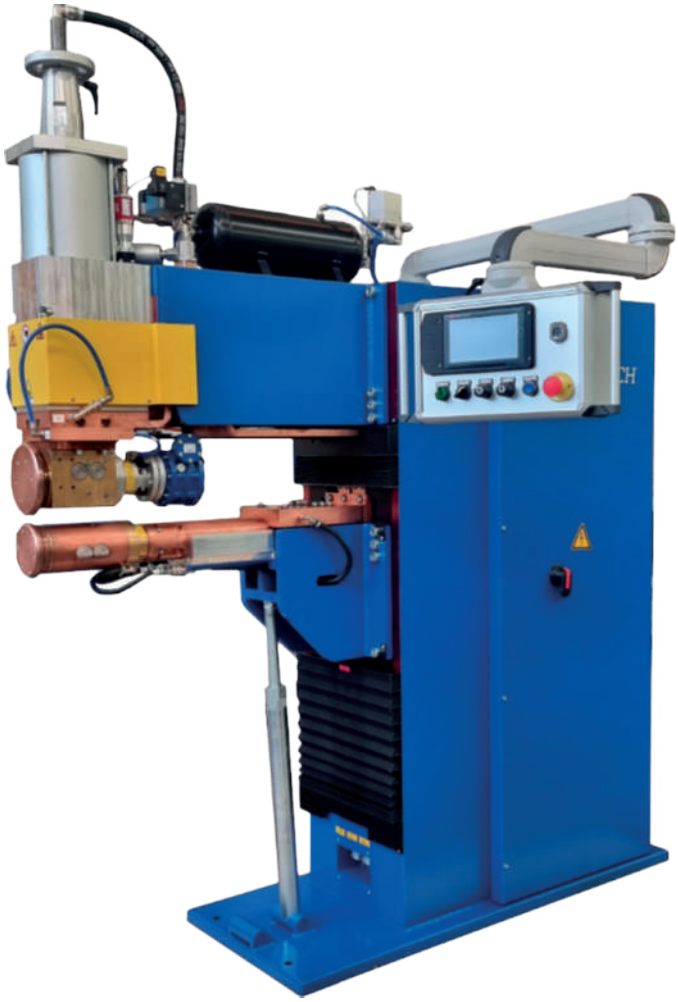


TRANSFORMERS
Each customer requirement is carefully analyzed, and the best solution and configuration are developed in close collaboration to ensure optimal performance.

R&W Tech S.r.l. also supplies transformers with:

- power rating: 40 – 1200kVA
- voltage: 8,9 – 21,4V
- frequency: 1.000 – 10.000Hz

SPECIAL MACHINES_CASE HISTORY



R&W Tech is able to deliver also special machines.
For example for Aeronautical application,
R&W Tech deliverd machine with 3 different welding configuration:

- Spot welding
- Longitudinal seam welding
- Transversal seam welding

In addition the customer had to weld alluminium.
Dedicated kit for alluminium was composed by:

- 3rd proportional valve
- Compressed air tank close to main cylinder for forging

The machine has also force sensor to measure the cylinder force during the whole welding cycle.

Welding is not just
joining two pieces
but creating a strong,
lasting bond.

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