



Resistance welding catalogue

2026

SINCE 1950



**RES**TECH  
CEA RESISTANCE WELDING DIVISION

PROUD OF  
OUR HISTORY | 

CEA, founded by Ezio Annettoni in 1950, is one of the worldwide leaders for the design and manufacture of Arc and Resistance welding machines and Plasma cutting equipment for the industrial market.

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CEA is WELDING TOGETHER. Our mission is to stand side by side our customers, offering the best solutions to their needs in every moment by providing innovative welding and cutting equipment with excellent performances and an outstanding and functional design.

We believe that a sustainable approach with care for the environment and the people that work and weld with us always ensures a better product.

CEA has three divisions:



made in italy  
SINCE 1950



## CERTIFICATION AND STANDARDS



CEA has its quality management system ISO 9001 certified since 1994.



All CEA products are CE marked, therefore compliant with all EU Directives and Standards. In particular CE marking implies the conformity to the following main Directives:

2014/35/EU (LVD)  
2014/30/EU (EMC)  
2011/65/EU (RoHS)  
2006/42/EU (Machinery Directive)



CEA products have been designed and built according to the following harmonized standards:

IEC 62135-1  
Safety requirements for design, manufacture and installation  
IEC 62135-2  
Electromagnetic compatibility (EMC) requirements  
ISO 669  
Mechanical and electrical requirements



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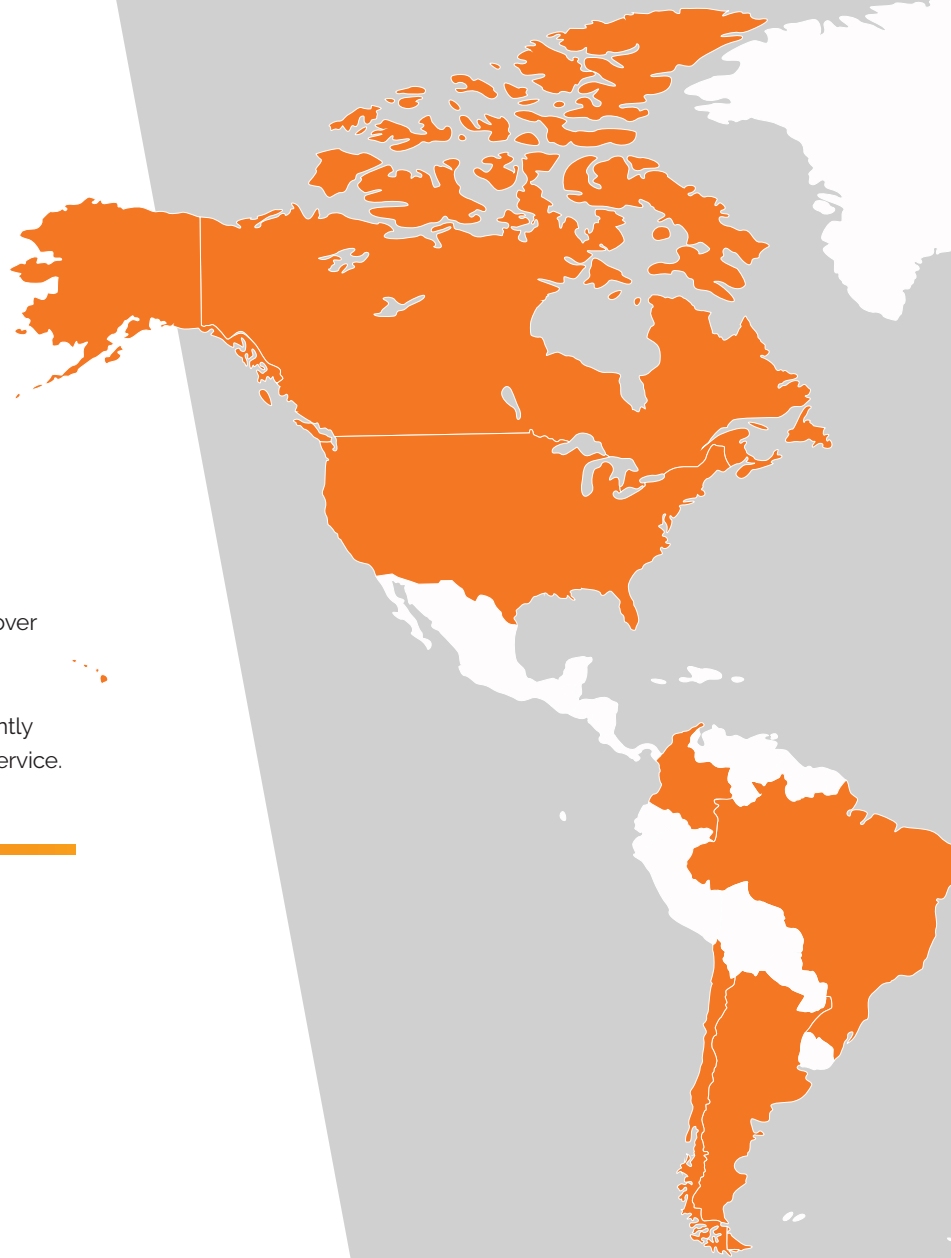
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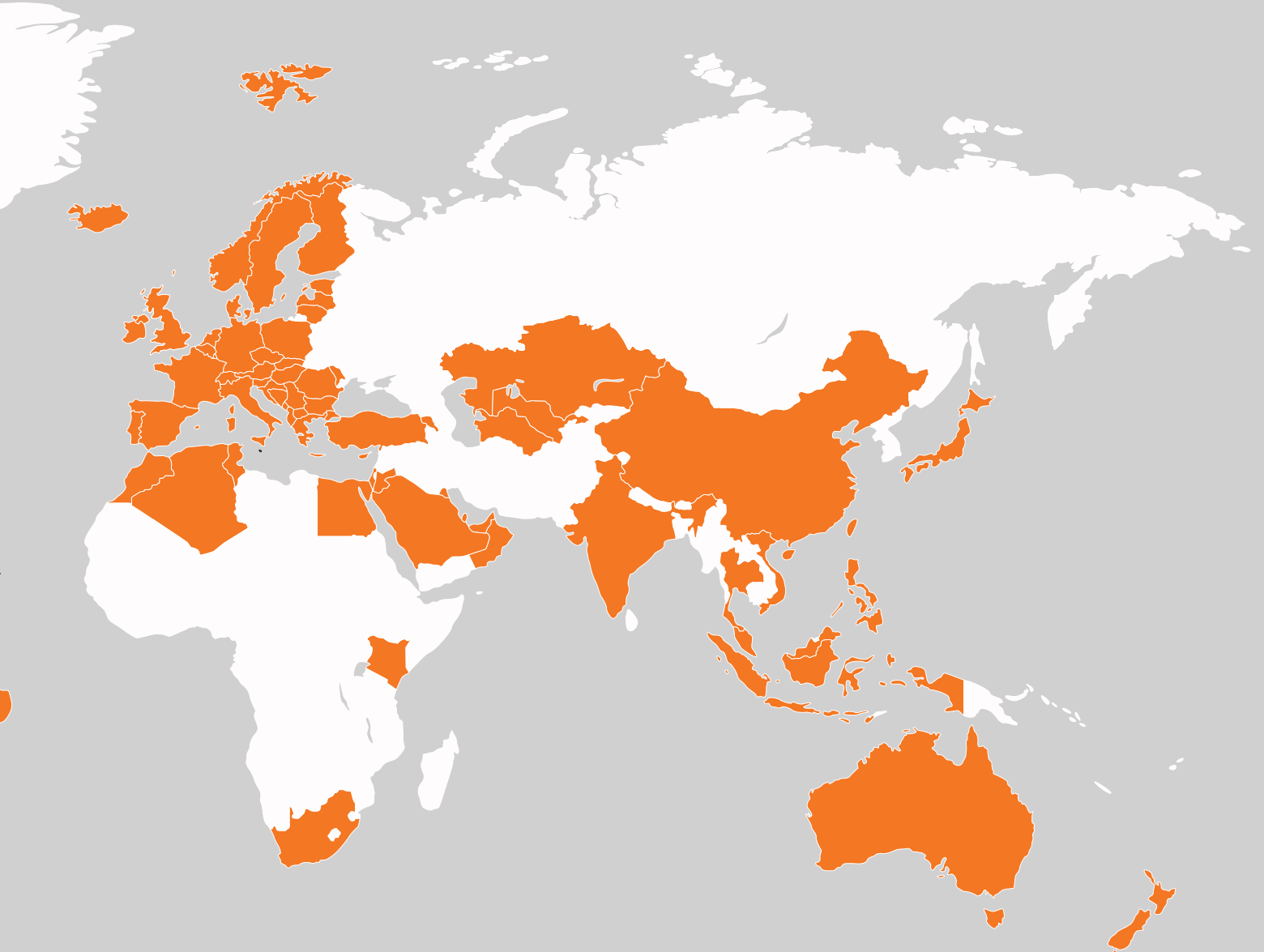
## A Global Presence

In over 70 years of history, CEA has built long lasting relationships with distributors and service centres in over 70 countries to satisfy the needs of all markets.

CEA's service centres are highly qualified and constantly updated to ensure a prompt and efficient after sale service.

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## A sustainable choice for the future

CEA GOES GREEN is not a mere slogan, but the hallmark that highlights the goal to create value for our customers through sustainable and innovative products.

Throughout its history, CEA has always put effort to reduce the environmental footprint of its activities and products thanks to the implementation of strategies to promote a more sustainable development.

- Focus on high-efficiency welding processes
- Renewable sources to produce electricity
- Eco-sustainable technologies for industrial production
- Use of recycled materials

## Carbon neutral

Thanks to investments in renewable sources, CEA is on the path to become carbon neutral; a goal that is partly already been achieved. A photovoltaic system of 350 kWp allows us to produce energy annually for 320 MWh, a value higher than our internal energy consumption, making CEA self-sufficient from an electric energy standpoint.

## High efficiency technology

The latest generation inverter technology and the development of new arc control software allows us to offer products with efficiencies that fully meet the energy-saving requirements of the ECODSIGN directive. In particular, the use of the new special welding processes "vision." enables welding to be carried out more quickly with lower heat input than traditional processes, guaranteeing energy savings often not considered.

CEA GOES GREEN identifies CEA products that meet our sustainability standards.

- Energy-efficient products
- Compliance with regulations for environmental protection.
- Care in the choice of components
- Use of paints with low environmental impact
- Low weights and dimensions for low shipping, disposal and recycling costs
- Use of recycled or recyclable material in all our packaging systems







# Innovation and Technology

Unique for its extensive range, CEA is always ahead in technological innovation, being large resources constantly invested in research and development. Excellent welding characteristics, continuous innovation, reliability, design and care for the industry's needs are the secrets of CEA's growing worldwide success.





# Bridge 4 Companies

A COMMON SPIRIT



Welding machines. Robotics. Sawing machines. Metal sheet working. Apparently different sectors and distinct commercial networks, but they share many similarities. The companies that make up **Bridge4Companies** are above all united by the same passion and the same attention to the customer.

**B4C** is an aggregate of companies linked by the same spirit whose common denominator is the Annettoni family, historical owner and founder of **CEA**.

Through great synergy, **B4C** has been able to create and grow over the years an aggregate of companies that now boasts important numbers.



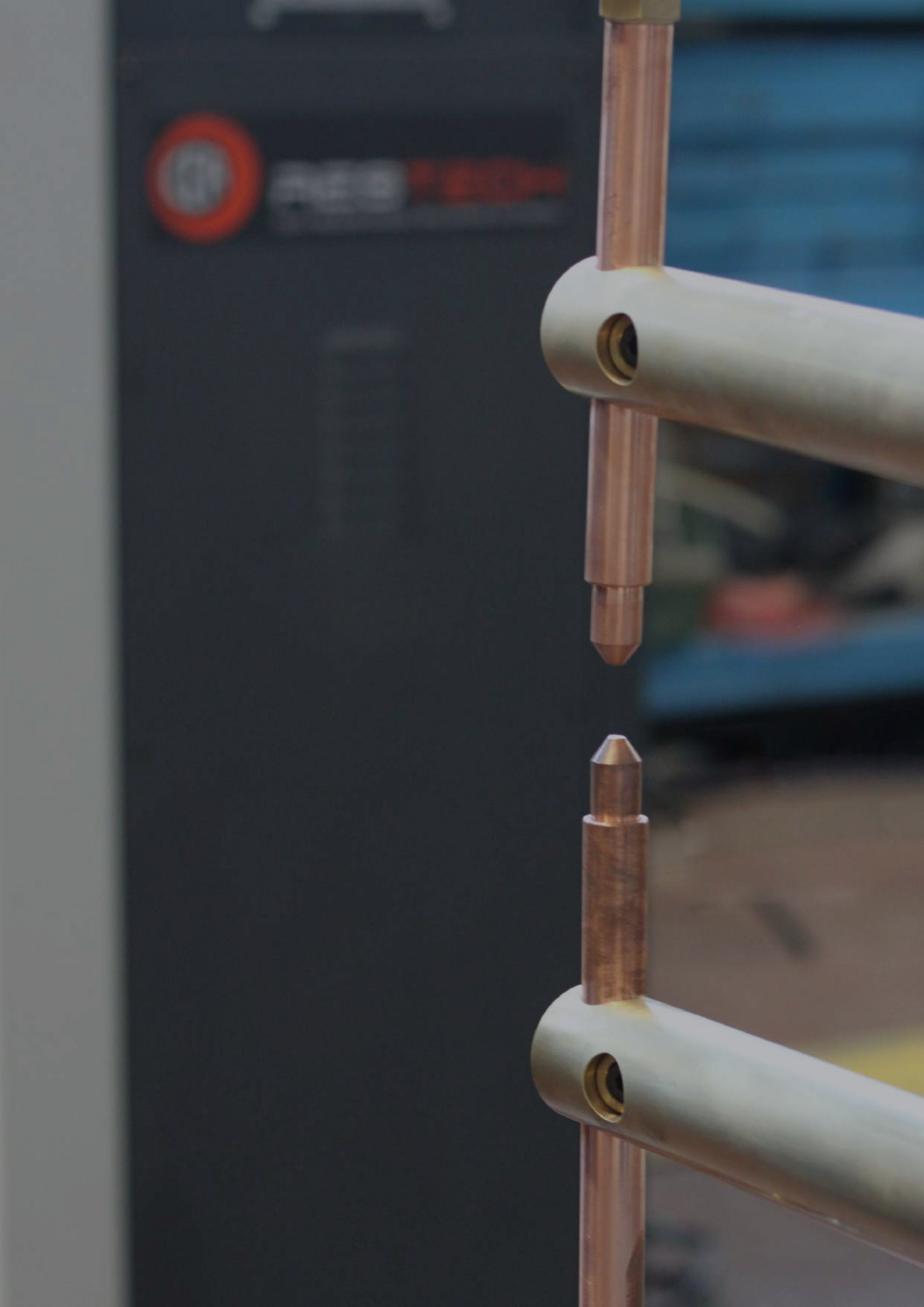
The 4 companies are: **CEA**, worldwide brand focused on industrial welding and plasma cutting, **TECNOROBOT**, specialized in customised welding robotic systems, **IMET**, bandsaws, circular saws and innovative systems for metal cutting, and **LAMETEC**, metal sheet working.

**Bridge4Companies** counts more than 250 employees and sales in over 100 countries.

**B4C** is proof of the 4 companies' great attachment to the territory overlooking the edge of Lake Lecco and along Adda River's course, which, through great passion for their work and continuous research of quality, have managed to assert themselves on all major world markets.

[www.bridge4companies.com](http://www.bridge4companies.com)







# SPOT WELDERS



16 Z / ZP



20 K / KP



26 PPS



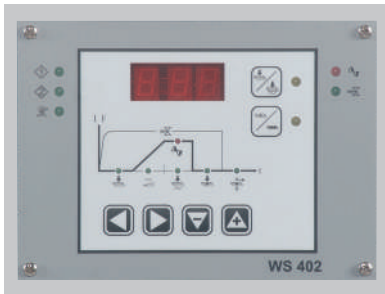
Control panel details:

- JOB: 3.5
- Buttons: F1/F2, I/F, I, %, K, T, I, I
- SET: 3.50
- Navigation: Up, Down, Left, Right arrows
- Model: WS 750
- SPOT H. KA: 3.50
- Buttons: Fx, USB
- Icons: Triangle, Square, CE, USB, 3 pin

 **RESTEED**  
CEA RESISTANCE WELDING D

# ELECTRONIC CONTROLS

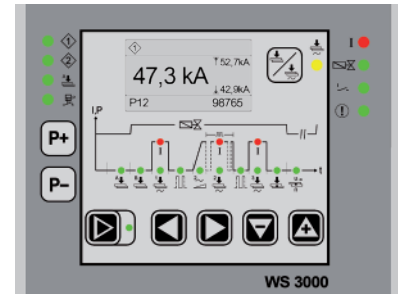
## SUMMARY



WS 402



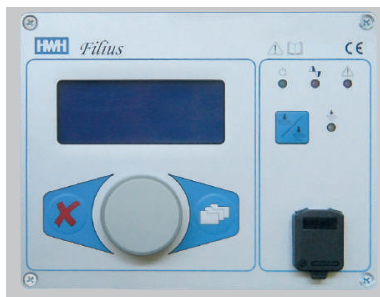
WS 708



WS 3000 AC



WS 750



FILIUS



WSI 100

## SPOT / PROJECTION WELDERS

FUNCTIONS	WS 402*	WS 708	WS 3000 AC*	WS 750		FILIUS MULTI	FILIUS MF CLASSIC	WSI 100
				STD	ADV			
Pre-squeeze		●	●	●	●			●
Squeeze	●	●	●	●	●	●	●	●
Preheating time		●	●	●	●	●	●	●
Preheating current		●	●	●	●	●	●	●
Cooling time		●	●	●	●	●	●	●
Slope Up	●	●	●	●	●	●	●	●
Welding time	●	●	●	●	●	●	●	●
Welding current	●	●	●	●	●	●	●	●
1/2 period welding time		●	●	●	●			
Welding time adj. in msec							●	●
Welding time 2	●	●	●	●	●	●	●	●
Welding current 2	●	●	●	●	●	●	●	●
Pulse		●	●	●	●	●	●	●
Pulse interval		●	●	●	●	●	●	●
Postheating time			●	●	●	●	●	●
Postheating current			●	●	●	●	●	●
Holding time	●	●	●	●	●	●	●	●
Pause	●	●	●	●	●	●	●	●
Auto-repeat	●	●	●	●	●	●	●	●
Program no.	1	8	100	100	100	32	128	64
Welding current display			●	●	●	●	●	●
Limit monitoring			●	●	●	●	●	●
Constant current facility					●	●	●	●
Mains voltage compensation	●	●	●	●	●	●	●	●
Error message	●	●	●	●	●	●	●	●
Spot counter			●	●	●	●	●	●
Pressure contact	●	●	●	●	●	●	●	●
Proportional valve			●	●	●	●	●	●
End cycle contact		●	●	●	●	●	●	●

\* Available only as a spare or control kit

## BUTT WELDERS

FUNCTIONS	WS 708	CS-T10
Butt welding cycle	●	●
Flashing butt welding cycle		●
No. Solenoid valves	2	8
Pre-Squeeze time	●	●
Squeeze time	●	●
Preheating time	●	
Preheating current	●	
Cooling time	●	●
Slope Up	●	●
Welding time	●	●
Welding current	●	●
1/2 period welding time	●	
Pulse	●	●
Pulse interval	●	●
Upsetting time		●
Upsetting current		●
Holding time	●	
Program no.	8	32
Mains voltage compensation	●	●
Error message	●	●
Pressure contact	●	●
End cycle contact	●	●
End of cycle with set times	●	●
End cycle by limit switch	●	●



# WS 750 STD / ADV AC

WS 750 is a microprocessor welding control for resistance welding machines with 100 programs/JOBs developed for spot, projection and butt-welding applications.

The combination of 3 displays, 6 keys and LEDs allow a user-friendly parameterization and configuration. The LEDs have the functions to show the status of the welding cycle and to set the correct parameters of the welding JOB.

WS 750 is available in 2 different configurations: STANDARD and ADVANCED. WS 750 in STANDARD version allows to manage the main welding parameters for spot welding application parameters. Additionally, the WS 750 ADVANCED can measure the welding current, which allows to control the quality of the weld by setting minimum and maximum values, and to adjust the welding force by using a proportional valve (optional).

An USB port enables the backup of the welding JOBS, firmware updates and the saving of the welding data and parameters in Excel format.



## WELDING FORCE REGULATION

The new WS 750 ADV allows to set directly by a specific parameter the welding force. This value is indicated in daN and it is affecting directly the pressure used during the welding. The welding force parameter is programmable via WS 750 ADV only when the machine is equipped with a proportional valve.

Thanks to the new feature of WS 750 ADV, it is possible to set a different welding force for each welding JOB. This unleashes the possibility to save up to 100 different welding forces per every CEA welding equipment.



## HOW TO USE WS 750

Scan to watch the video



## HOW TO USE WS 750 ADV

Scan to watch the video



# WS 708

## ELECTRONIC CONTROL AC

- 8 programs
- Half period welding time
- Pre-heating current
- Two 24 V DC solenoid valves
- 50/60 Hz frequency
- Mains voltage compensation
- Error message
- Weld/no weld switch
- Single or multi spot



### HOW TO USE WS 708

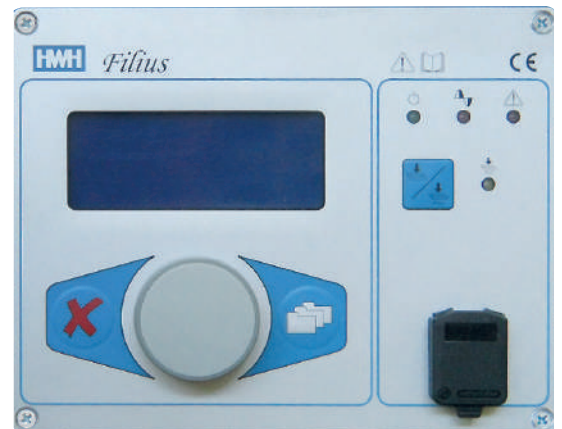
Scan to see the video



# FILIUS

## ELECTRONIC CONTROL AVAILABLE AC / MF

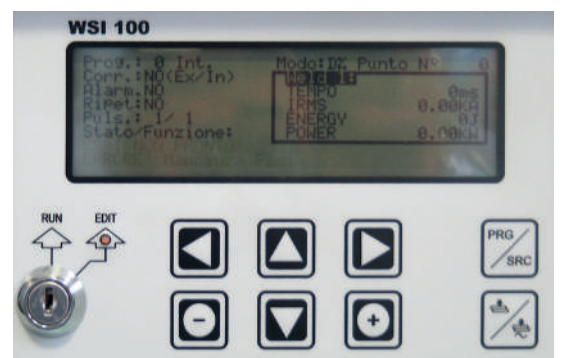
- Welding time adjustable by periods
- Single or repeated spotting facility
- Automatic compensation of mains voltage fluctuation
- Error display during the welding cycle
- Weld/no Weld selector key
- 24 V DC supply solenoid valve
- 50/60 Hz frequency automatic identification
- 24 V AC supply electronic control
- 2 welding program facility by using a double pedal (optional on filius AC for PPN)
- Proportional valve output



# WSI 100

## ELECTRONIC CONTROL MF

- Welding time adjustable by periods ms
- Single or repeated spotting facility
- Automatic compensation of mains voltage fluctuation
- Error display during the welding cycle
- Weld/no Weld selector key
- 24 V DC supply solenoid valve
- 50/60 Hz frequency automatic identification
- 24 V AC supply electronic control
- 2 welding program facility by using a double pedal (optional)
- Proportional valve output





# Z / ZP

## ROCKER ARM SPOT WELDERS WITH ADJUSTABLE ARM LENGTH



The **Z** and **ZP** series resistance spot welders, versatile, robust and easy-to-use, ensure best welding results on all weldable metals. Thanks to their adjustable length feature they represent the ideal solution in a large variety of spot-welding applications.

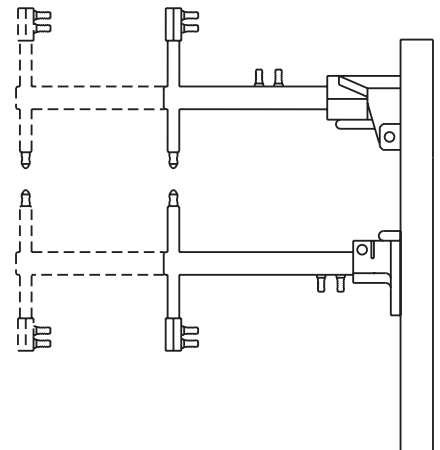
**Z** models are mechanical pedal operated, whilst **ZP**'s are pneumatically operated by an electric pedal.



- Adjustable arm length
- Pressed-in electrode version available
- Electrical or mechanical pedal version available

### Z / ZP FEATURES

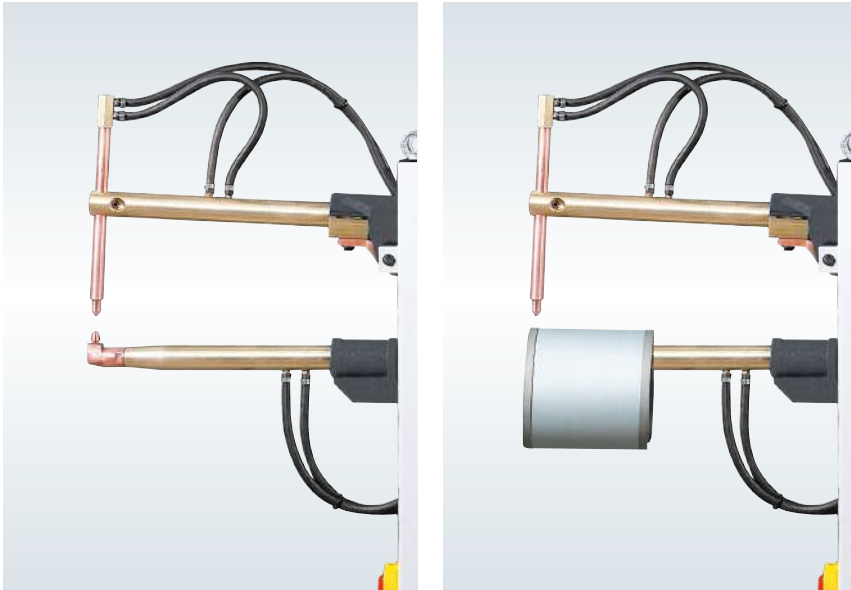
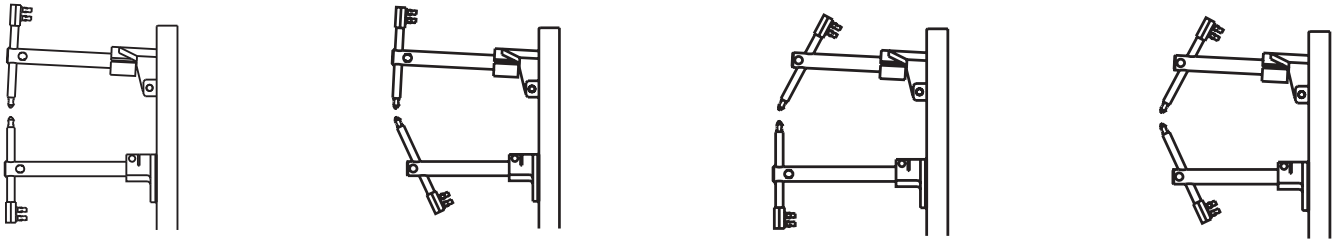
- Excellent welding on all weldable metals
- Welding current and time electronic adjustments
- Synchronous ignition SCR group with phase shift welding current adjustment to eliminate initial transient
- Water cooled arms
- Water cooled copper electrodeholders with adjustable height
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants (ZP)



CONTROL PANELS

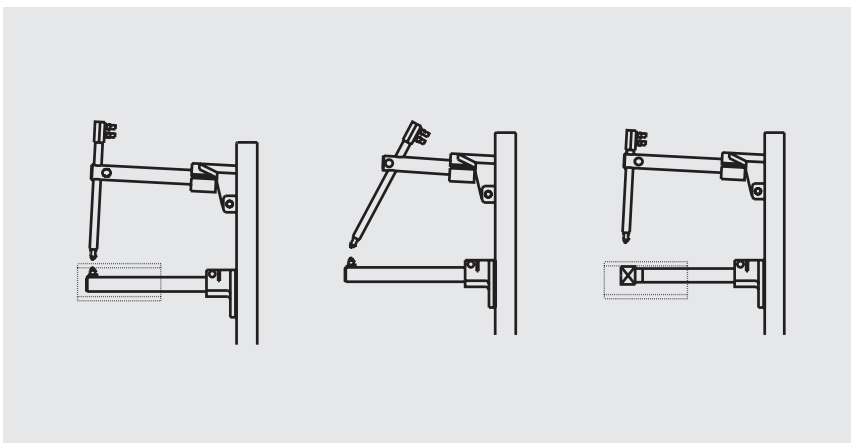


## HIGH VERSATILITY THANKS TO ALL DIFFERENT POSSIBLE WORK CONFIGURATIONS



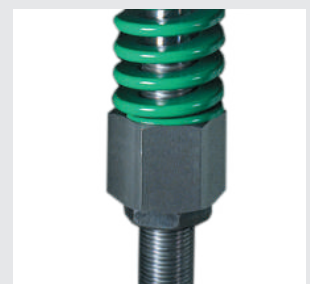
### Z/ZP LOWER ARM FITTED WITH PRESSED-IN ELECTRODE

Whenever the lower arm is fitted with a pressed-in electrode, also a long electrodeholder is necessary on the upper arm.



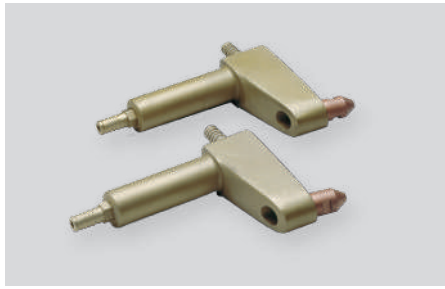
### AVAILABLE SETTINGS

- Electrode force adjustable by spring nut and, for ZP, also by air pressure regulation
- Easy electrode gap adjustment without moving the electrodeholders

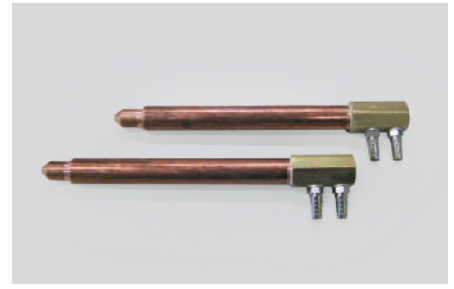




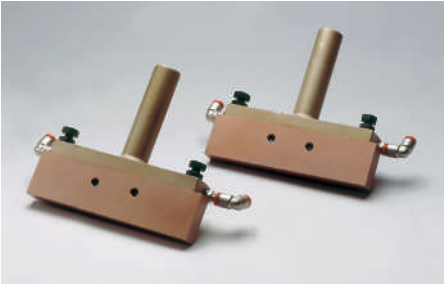
WS 750 STD / ADV control



Set of pipe tips with electrodes depth 65 mm



Set of electrodeholders with electrodes



Set of barholders with 100 mm bars



Possibility of a two-step pedal: squeeze without welding and welding by pressing the second step

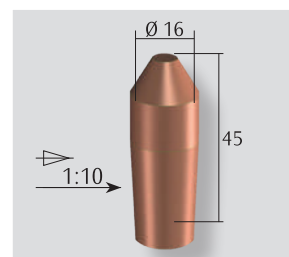


IR 14 water cooling equipment (for all Z's and ZP's)

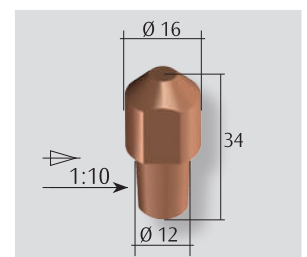
Z / ZP			Z 18	Z 28
		MIN.	ZP 18	ZP 28
		MAX.		
A		mm	250	250
B		mm	600	600
C		mm	215	215
		mm	135	135
		Ø mm	40	40
		Ø mm	21	21
		Ø mm	16	16
			10%	10%

			Z 18	Z 28
			ZP 18	ZP 28
L1	mm		492	492
Ø1 Min	mm		60	60
L2	mm		570	570
Ø2 Min	mm		85	85

TECHNICAL DATA		Z 18	Z 28
		ZP 18	ZP 28
Single phase input 50/60 Hz	V	400	400
Rated power	kVA	15	25
Max. welding power	kVA	23	41,6
Installed power	kVA	11	14
Cross section connecting cables	mm <sup>2</sup>	10	10
Mains Delayed fuse	A	32	40
Open Circuit Voltage	V	2,6	3,5
Short circuit current	kA	10,2	13,8
Max. welding current	kA	8,2	11
Max. electrode force (6 bar)	daN	300	300
Water consumption at 300 kPa (3 bar)	l/min	3,8	3,8
	↗ mm	760	760
Dimensions	→ mm	330	330
	↑ mm	1200	1200
Weight	kg	104	118



Standard electrode



Electrode for lower arm in pressed-in electrode version

## SPOT WELDERS WITH STANDARD ELECTRODE HOLDERS

CODE	DESCRIPTION	Z 18	Z 28	ZP 18	ZP 28
MECHANICALLY OPERATED					
009330	<b>Z 18</b> 400 V - WS 750 Control - with adjustable length arms 250÷600 mm Ø 40 mm	○			
009340	<b>Z 28</b> 400 V - WS 750 Control - with adjustable length arms 250÷600 mm Ø 40 mm <i>5% increase if required with 230 V input voltage</i>		○		
PNEUMATICALLY OPERATED - WITHOUT PEDAL					
009335	<b>ZP 18</b> 400 V - WS 750 Control - with adjustable length arms 250÷600 mm Ø 40 mm			○	
009345	<b>ZP 28</b> 400 V - WS 750 Control - with adjustable length arms 250÷600 mm Ø 40 mm <i>5% increase if required with 230 V input voltage</i>				○
STANDARD SUPPLIED WITH					
324147	Set of adjustable length arms: 250÷600 mm cooled Ø 40				
268085	Set of electrodeholders with electrodes				
ELECTRIC PEDALS					
260021	Single pedal for welding start			○	○
260018	2 pedals (2 times - 2 welding currents)				
260027	2 step pedal (1st step: squeeze, 2nd step: welding)				
260026	2 double step pedals (2 pedals, both with: 1st step: squeeze, 2nd step: welding)				
ACCESSORIES					
271231	Set of pipe tips with electrodes depth 65 mm				
264400	Set of barholders with 100 mm bars				
032050	Water cooling equipment IR 14 400 V				
460055	Water cooling connection Kit				
SPARES					
324147	Set of adjustable length arms: 250÷600 mm cooled Ø 40				
268085	Set of electrodeholders with electrodes				
380004	Set of 6 standard electrodes - Ø 16 mm				
SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS					
SPV 05	WS 750 ADV (Advanced) with current measuring				
SPV 205	Special color different from the standard				
EXAMPLE OF COMPOSITION:					
	Z 18 400 V - with mechanical pedal start	○			
	Z 28 400 V - with mechanical pedal start		○		
	ZP 18 400 V - Single pedal for welding start			○	
	ZP 28 400 V - Single pedal for welding start				○

## SPOT WELDERS WITH PRESSED-IN ELECTRODE ON LOWER ARM

CODE	DESCRIPTION	Z 18	Z 28	ZP 18	ZP 28
MECHANICALLY OPERATED					
009331	<b>Z 18</b> 400 V - WS 750 Control - with arms length 600 mm Ø 40 mm	○			
009341	<b>Z 28</b> 400 V - WS 750 Control - with arms length 600 mm Ø 40 mm <i>Notes: 5% increase if required with 230 V input voltage</i>		○		
PNEUMATICALLY OPERATED - WITHOUT PEDAL					
009336	<b>ZP 18</b> 400 V - WS 750 Control - with arms length 600 mm Ø 40 mm			○	
009346	<b>ZP 28</b> 400 V - WS 750 Control - with arms length 600 mm Ø 40 mm <i>Notes: 5% increase if required with 230 V input voltage</i>				○
ELECTRIC PEDALS					
260021	Single pedal for welding start			○	○
260018	2 pedals (2 times - 2 welding currents)				
260027	2 step pedal (1st step: squeeze, 2nd step: welding)				
260026	2 double step pedals (2 pedals, both with: 1st step: squeeze, 2nd step: welding)				
ACCESSORIES					
032050	Water cooling equipment IR 14 400 V				
460055	Water cooling connection Kit				
SPARES					
324155	Adjustable length upper arm 250÷600 mm cooled Ø 40 mm				
324380	Lower arm with pressed-in electrode				
268990	Longer Electrodeholder complete with electrode				
380004	Set of 6 standard electrodes - Ø 16 mm				
380005	Set of 6 electrodes 16/12mm Ø for pressed-in electrode lower arm				
SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS					
SPV 05	WS 750 ADV (Advanced) with current measuring				
SPV 205	Special color different from the standard				
EXAMPLE OF COMPOSITION:					
	Z 18 400 V - with mechanical pedal start	○			
	Z 28 400 V - with mechanical pedal start		○		
	ZP 18 400 V - single pedal for welding start			○	
	ZP 28 400 V - single pedal for welding start				○

## NOTES:

- All standard welders are supplied in a strong carton on a wooden pallet
- For electronic control features see ELECTRONIC CONTROL SUMMARY
- Special configuration codes must be duly indicated on the P.O. together with chosen machine model



# K / KP

## ROCKER ARM SPOT WELDERS WITH ADJUSTABLE LOWER ARM HEIGHT



The **K** and **KP** series resistance spot welders, versatile, robust and easy-to-use, ensure best welding results on all weldable metals and represent the ideal solution in a large variety of spot-welding applications.

**K**'s and **KP**'s allow to adjust lower arm both in height and also laterally.

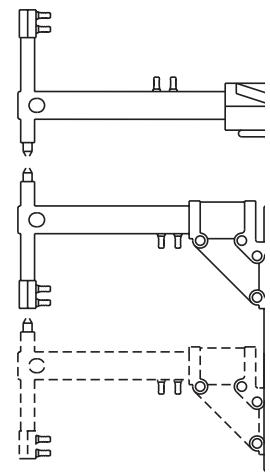
**K** models are mechanical pedal operated, whilst **KP**'s are pneumatically operated by an electric pedal.



- Adjustable lower arm height
- Pressed-in electrode version available
- Electrical or mechanical pedal available

## K / KP FEATURES

- Excellent welding on all weldable metals
- Welding current and time electronic adjustments
- Synchronous ignition SCR group with phase shift welding current adjustment to eliminate initial transient
- Water cooled arms
- Water cooled copper electrodeholders with adjustable height
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants (KP)



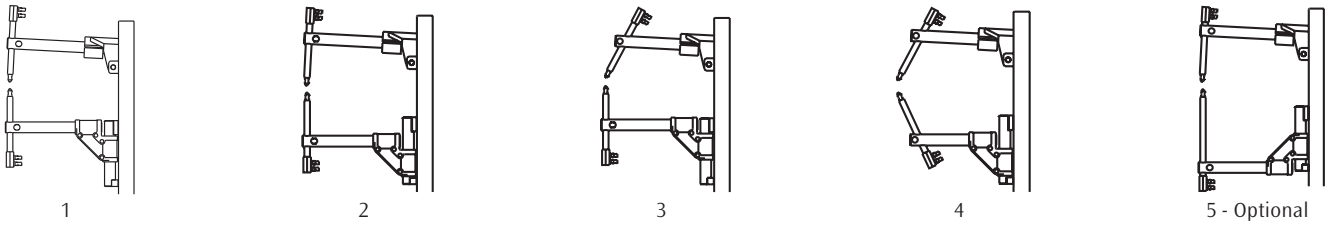
Lower arm with adjustable height



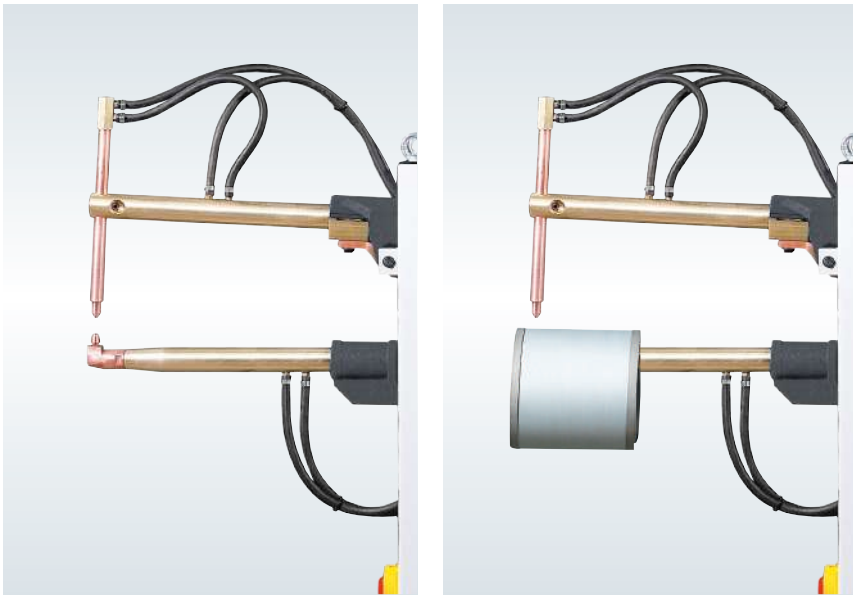
CONTROL PANELS



## HIGH VERSATILITY THANKS TO ALL DIFFERENT POSSIBLE WORK CONFIGURATIONS



Lower arm with adjustable height which can be rotated for use with a longer electrodeholder (Optional K/KP fig.5)

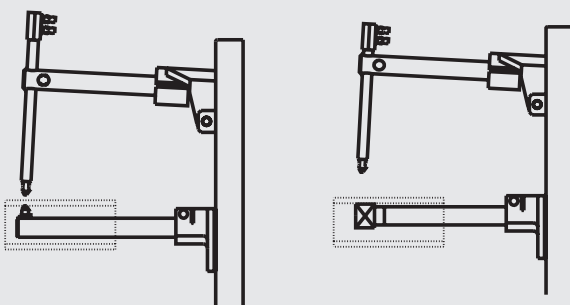


### K/KP LOWER ARM FITTED WITH PRESSED-IN ELECTRODE

Whenever the lower arm is fitted with a pressed-in electrode, also a long electrode holder is necessary on the upper arm.

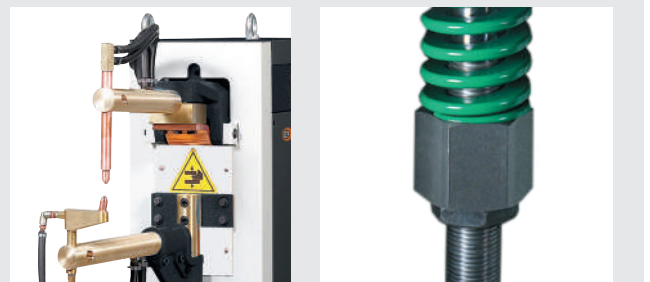


### K - KP OPTIONAL



### AVAILABLE SETTINGS

- Electrode force adjustable by spring nut and, for KP, also by air pressure regulation manometer
- Easy electrode gap adjustment without moving the electrodeholders



## WS 750 STD / ADV AC

WS 750 is a microprocessor welding control for resistance welding machines with 100 programs/JOBs developed for spot, projection and butt-welding applications.

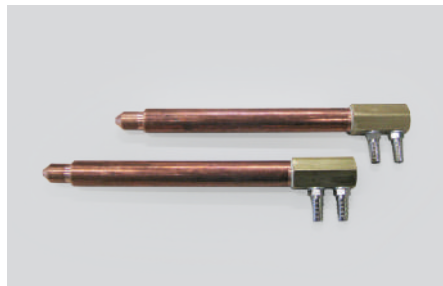
The combination of 3 displays, 6 keys and LEDs allow a user-friendly parameterization and configuration. The LEDs have the functions to show the status of the welding cycle and to set the correct parameters of the welding JOB.

WS 750 is available in 2 different configurations: STANDARD and ADVANCED. WS 750 in STANDARD version allows to manage the main welding parameters for spot welding application. Additionally, the WS 750 ADVANCED allows to measure the welding current which enables the quality control of the cycle by selecting the min./max. current, and to adjust the welding force by using a proportional valve (optional).

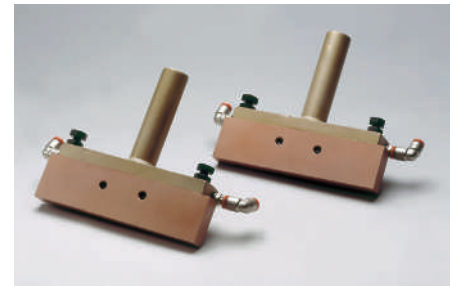
An USB port enables the backup of the welding JOBS, firmware updates and the saving of the welding logbook in Excel format.



Set of pipe tips with electrodes depth 65 mm



Set of electrodeholders with electrodes



Set of barholders with 100 mm bars



Possibility of a two-step pedal: squeeze without welding and welding after pressing the second step



IR 14 water cooling equipment only for K / KP 22 and 28



Water cooling connection Kit

K - KP				K 22	K 28	K 48
				KP 22	KP 28	KP 48
	A		mm	455	455	490
	A (Optional)		mm	600	600	700
			mm	800	800	1000
	B	MIN.	mm	173	168	163
		MAX.	mm	410	443	438
	C		mm	255	255	285
			Ø mm	40	45	50
			Ø mm	21	21	25
			Ø mm	16	16	16
				10%	10%	10%

				K 22	K 22	K 28	K 28	K 48	K 48	K 48
				KP 22	KP 22	KP 28	KP 28	KP 48	KP 48	KP 48
	A	mm	455	600	455	800	490	700	1000	
	L1	mm	252	397	252	597	257	467	767	
	Ø1 Min	mm	60	60	63	63	65	65	65	
	L2	mm	280	429	289	643	295	505	805	
	Ø2 Min	mm	85	85	90	90	98	98	98	
	L3	mm	397	542	402	747	427	637	937	
	Ø3 Min	mm	180	180	185	185	205	205	205	

TECHNICAL DATA			K 22	K 28	K 48
			KP 22	KP 28	KP 48
Single phase input 50/60 Hz		V	400	400	400
Rated power		kVA	20	25	45
Max. welding power		kVA	36,5	54,7	75
Installed power		kVA	12	14	24
Cross section connecting cables		mm <sup>2</sup>	10	16	25
Mains Delayed fuse		A	25	36	63
Open Circuit Voltage		V	3,5	4,2	5,2
Short circuit current		kA	11,6	14	17,8
Max. welding current		kA	9,3	11,2	14,2
Max. electrode force (6 bar)		daN	180	300	280
Water consumption at 300 kPa (3 bar)		l/min	3,8	3,8	3,8
Dimensions		↗ mm	980	980	1020
		→ mm	330	390	390
		↑ mm	1200	1250	1250
Weight		kg	120	167	194

## SPOT WELDERS WITH STANDARD ELECTRODE HOLDERS

CODE	DESCRIPTION	K 22	K 28	K 48	KP 22	KP 28	KP 48	
<b>MECHANICALLY OPERATED</b>								
009435	K 22 400 V - WS 750 Control - Set of arms 455 mm	○						
009436	K 22 400 V - WS 750 Control - Set of arms 600 mm							
009455	K 28 400 V - WS 750 Control - Set of arms 455 mm		○					
009456	K 28 400 V - WS 750 Control - Set of arms 800 mm							
009490	K 48 400 V - WS 750 Control - Set of arms 490 mm			○				
009491	K 48 400 V - WS 750 Control - Set of arms 700 mm							
009492	K 48 400 V - WS 750 Control - Set of arms 1000 mm							
<i>Notes: 5% increase if required with 230 V input voltage</i>								
<b>PNEUMATICALLY OPERATED - WITHOUT PEDAL</b>								
009445	KP 22 400 V - WS 750 Control - Set of arms 455 mm				○			
009446	KP 22 400 V - WS 750 Control - Set of arms 600 mm							
009465	KP 28 400 V - WS 750 Control - Set of arms 455 mm					○		
009466	KP 28 400 V - WS 750 Control - Set of arms 800 mm							
009495	KP 48 400 V - WS 750 Control - Set of arms 490 mm						○	
009496	KP 48 400 V - WS 750 Control - Set of arms 700 mm							
009497	KP 48 400 V - WS 750 Control - Set of arms 1000 mm							
<i>Notes: 5% increase if required with 230 V input voltage</i>								
<b>STANDARD SUPPLIED WITH</b>								
268085	Set of electrodeholders with electrodes	/						
268090	Set of electrodeholders with electrodes	/						
<b>ELECTRIC PEDALS</b>								
260021	Single pedal for welding start	/						○
260018	2 pedals (2 times - 2 welding currents)	/						○
260027	2 step pedal (1st step: squeeze, 2nd step: welding)	/						○
260026	2 double step pedals (2 pedals, both with: 1st step: squeeze, 2nd step: welding)	/						○
<b>ACCESSORIES</b>								
271231	Set of pipe tips with electrodes depth 65 mm	/						
271240	Set of pipe tips with electrodes depth 65 mm	/						
264400	Set of barholders with 100 mm bars	/						
264430	Set of barholders with 100 mm bars	/						
032050	Water cooling equipment IR 14 400 V	/						
460055	Water cooling connection Kit	/						
<b>SPARES</b>								
324146	Set of arms 455 mm cooled Ø 40 mm	/						
316806	Set of arms 600 mm cooled Ø 40 mm	/						
324072	Set of arms 455 mm cooled Ø 45 mm	/						
320406	Set of arms 800 mm cooled Ø 45 mm	/						
324058	Set of arms 490 mm cooled Ø 50 mm	/						
318506	Set of arms 700 mm cooled Ø 50 mm	/						
312309	Set of arms 1000 mm cooled Ø 50 mm	/						
268085	Set of electrodeholders with electrodes	/						
268090	Set of electrodeholders with electrodes	/						
380004	Set of 6 standard electrodes - Ø 16 mm	/						
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>								
SPV 05	WS 750 ADV (Advanced) with current measuring	/						
SPV 205	Special color different from the standard	/						
<b>EXAMPLE OF COMPOSITION:</b>								
K 22 400 V - WS 750 Control - Set of arms 455 mm - mechanical pedal start		○						
K 28 400 V - WS 750 Control - Set of arms 455 mm - mechanical pedal start			○					
K 48 400 V - WS 750 Control - Set of arms 490 mm - mechanical pedal start				○				
KP 22 400 V - WS 750 Control - Set of arms 455 mm - Single pedal for welding start					○			
KP 28 400 V - WS 750 Control - Set of arms 455 mm - Single pedal for welding start						○		
KP 48 400 V - WS 750 Control - Set of arms 490 mm - Single pedal for welding start							○	

Notes:

- a) All standard welders are supplied in a strong carton on a wooden pallet
- b) For electronic control features see ELECTRONIC CONTROL SUMMARY
- c) The price of spot welders with a different configuration is obtained subtracting from the welder

**SPOT WELDERS WITH PRESSED-IN ELECTRODE ON LOWER ARM**

CODE	DESCRIPTION	K 22	K 28	K 48	KP 22	KP 28	KP 48
<b>MECHANICALLY OPERATED</b>							
009435A	<b>K 22</b> 400 V - <b>WS 750</b> Control - Set of arms 455 mm	○					
009436A	<b>K 22</b> 400 V - <b>WS 750</b> Control - Set of arms 600 mm						
009455A	<b>K 28</b> 400 V - <b>WS 750</b> Control - Set of arms 455 mm		○				
009456A	<b>K 28</b> 400 V - <b>WS 750</b> Control - Set of arms 800 mm						
009490A	<b>K 48</b> 400 V - <b>WS 750</b> Control - Set of arms 490 mm			○			
009491A	<b>K 48</b> 400 V - <b>WS 750</b> Control - Set of arms 700 mm						
009492A	<b>K 48</b> 400 V - <b>WS 750</b> Control - Set of arms 1000 mm						
<i>Notes: 5% increase if required with 230 V input voltage</i>							
<b>PNEUMATICALLY OPERATED - WITHOUT PEDAL</b>							
009445A	<b>KP 22</b> 400 V - <b>WS 750</b> Control - Set of arms 455 mm				○		
009446A	<b>KP 22</b> 400 V - <b>WS 750</b> Control - Set of arms 600 mm						
009465A	<b>KP 28</b> 400 V - <b>WS 750</b> Control - Set of arms 455 mm					○	
009466A	<b>KP 28</b> 400 V - <b>WS 750</b> Control - Set of arms 800 mm						
009495A	<b>KP 48</b> 400 V - <b>WS 750</b> Control - Set of arms 490 mm						○
009496A	<b>KP 48</b> 400 V - <b>WS 750</b> Control - Set of arms 700 mm						
009497A	<b>KP 48</b> 400 V - <b>WS 750</b> Control - Set of arms 1000 mm						
<i>Notes: 5% increase if required with 230 V input voltage</i>							
<b>ELECTRIC PEDALS</b>							
260021	Single pedal for welding start	/	/	/	○	○	○
260018	2 pedals (2 times - 2 welding currents)	/	/	/			
260027	2 step pedal (1st step: squeeze, 2nd step: welding)	/	/	/			
260026	2 double step pedals (2 pedals, both with: 1st step: squeeze, 2nd step: welding)	/	/	/			
<b>ACCESSORIES</b>							
032050	Water cooling equipment IR 14 400 V	/	/	/	/	/	/
460055	Water cooling connection Kit	/	/	/	/	/	/
<b>SPARES</b>							
324129	Upper Arm Length: 455 mm Ø: 40mm	/	/	/	/	/	/
324381	Inferior Straight Arm 455 mm (Useful Length: 200 mm)	/	/	/	/	/	/
316805	Upper Arm Length: 600 mm Ø: 40mm	/	/	/	/	/	/
324382	Inferior Straight Arm 600 mm (Useful Length: 345 mm)	/	/	/	/	/	/
324066	Upper Arm Length: 455 mm Ø: 45mm	/	/	/	/	/	/
324384	Inferior Straight Arm 455 mm (Useful Length: 200 mm)	/	/	/	/	/	/
320405	Upper Arm Length: 800 mm Ø: 45mm	/	/	/	/	/	/
324386	Inferior Straight Arm 800 mm (Useful Length: 545 mm)	/	/	/	/	/	/
324062	Upper Arm Length: 490 mm Ø: 50 mm	/	/	/	/	/	/
324387	Inferior Straight Arm 490 mm (Useful Length: 205 mm)	/	/	/	/	/	/
318505	Upper Arm Length: 700 mm Ø: 50mm	/	/	/	/	/	/
324388	Inferior Straight Arm 700 mm (Useful Length: 415 mm)	/	/	/	/	/	/
312305	Upper Arm Length: 1000 mm Ø: 50mm	/	/	/	/	/	/
324389	Inferior Straight Arm 1000 mm (Useful Length: 715 mm)	/	/	/	/	/	/
<i>Notes: (**) Useful length is given only for small pipe spotwelding considering water inlets/outlets</i>							
268990	Longer Electrodeholder complete with electrode	/	/	/	/	/	/
268991	Longer Electrodeholder complete with standard electrode	/	/	/	/	/	/
380004	Set of 6 standard electrodes - Ø 16 mm						
380005	Set of 6 electrodes 16/12mm Ø for pressed-in electrode lower arm						
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>							
SPV 05	WS 750 ADV (Advanced) with current measuring						
SPV 205	Special color different from the standard						
<b>EXAMPLE OF COMPOSITION</b>							
K 22	400 V - WS 750 Control - Set of arms 455 mm - mechanical pedal start	○					
K 28	400 V - WS 750 Control - Set of arms 455 mm - mechanical pedal start		○				
K 48	400 V - WS 750 Control - Set of arms 490 mm - mechanical pedal start			○			
KP 22	400 V - WS 750 Control - Set of arms 455 mm - Single pedal for welding start				○		
KP 28	400 V - WS 750 Control - Set of arms 455 mm - Single pedal for welding start					○	
KP 48	400 V - WS 750 Control - Set of arms 490 mm - Single pedal for welding start						○

Notes:

- a) All standard welders are supplied in a strong carton on a wooden pallet
- b) For electronic control features see ELECTRONIC CONTROL SUMMARY
- c) The price of spot welders with a different configuration is obtained subtracting from the welder



# PPS

## VERTICAL STROKE SPOT WELDERS



PPS models, developed appositely for spot welding jobs, fully satisfy a wide range of the heaviest large production industrial applications.

Equipped with a microprocessor control, upon request they can be supplied in special configurations or fitted with an optional safety concomitant push button external unit.



- High precision vertical stroke welding
- Spot welding
- Standard and special version available

### PPS FEATURES

- Excellent welding on all weldable metals
- Synchronous ignition SCR group with phase shift welding current adjustment to eliminate initial transient
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants
- Water cooled secondary circuit, i.e. electrodes, electrodeholders and transformer, to avoid overheating
- Water cooled copper electrodeholders with adjustable height
- Upper electrode movement by self-lubricated double effect pneumatic cylinder fitted with speed regulator, end stroke shock-absorber and silencer for compressed air discharge
- Manual valve for upper head descent without pressure for cleaning, centering and ordinary maintenance of the electrodes
- Solenoid DC valve to control welding cylinder
- Cycle stop emergency button



CONTROL PANEL



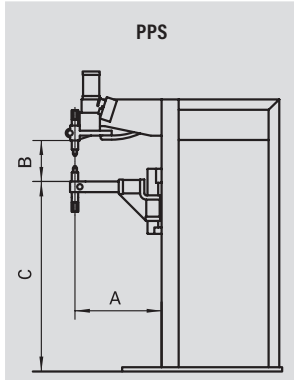
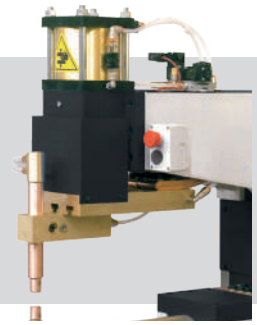
## PPS 35 - 60

- Lower round arm with adjustable height and lateral adjustment
- Lower arm holder can be adjusted for use with larger arm gap



## PPS 125

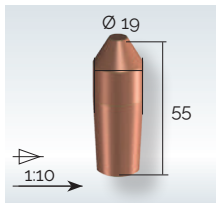
Upper head low friction driving system for precision welding



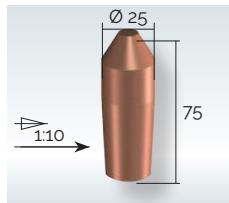
		PPS 35	PPS 60	PPS 125
A	mm	395	435	500
A Optional	mm	-	650	700
B	MIN. mm	140	180	170
	MAX. mm	400	510	320
C	MIN. mm	690	615	710
	MAX. mm	950	945	860
	∅ mm	50	60	88
	∅ mm	30	35	35

TECHNICAL DATA	PPS			
	35	60	125	
Single phase input 50/60 Hz	V	400	400	400
Rated power at 50%	kVA	35	60	125
Short circuit power	kVA	86	142	368
Max. welding power	kVA	69	113	294
Installed power	kVA	20	38	80
Cross section connecting cables	mm <sup>2</sup>	25	35	95
Mains Delayed fuse	A	63	100	250
Open Circuit Voltage	V	4,5	5,9	11,5
Short circuit current	kA	19	24	32
Max. welding current	kA	15,2	19,2	25,6
Thermal secondary current at 100%	kA	3,9	7,2	7,68
Work stroke	mm	60	65	100
Max. electrode force (6 bar)	daN	230	470	900
Water consumption at 300 kPa (3 bar)	l/min	6	7	8
Dimensions	↗mm	1005	1070	1370
	→mm	410	430	420
	↑mm	1425	1520	1750
Weight	kg	200	335	700

Other voltages on request



380007



380008



Set of pipes with electrodes



Set of electrodeholders with electrodes

## ORDER INFORMATION

CODE	DESCRIPTION	PPS 35	PPS 60	PPS 125
<b>SPOT WELDING MACHINES</b>				
009620	PPS 35 400 V 395 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)	●		
009625	PPS 60 400 V 435 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)		●	
009626	PPS 60 400 V 650 mm* arms - WS 750 ADV Control (Double pedal for 2 welding programs)		●	
009630	PPS 125 400 V 500 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)			●
009631	PPS 125 400 V 700 mm* arms - WS 750 ADV Control (Double pedal for 2 welding programs) (* with lower arm support)			●
Notes: 1) PPS's are usually supplied with a set of electrodeholders with electrodes 5% increase if required with 230 V input voltage				
<b>ACCESSORIES</b>				
271250	Set of pipe tips with electrodes depth 65 mm	●		
271258	Set of pipe tips with electrodes depth 115 mm		●	
020962	External safety concomitant push buttons unit	●	●	●
<b>SPARES</b>				
268100	Set electrodeholders with electrodes	●		
268110	Set of electrodeholders with electrodes		●	
268120	Set of electrodeholders with electrodes			●
380007	Set of 6 standard electrodes - ∅ 19 mm	●	●	
380008	Set of 6 standard electrodes - ∅ 25 mm			●
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>				
SPV 10	2 step pedal (1st step: squeeze, 2nd step: welding) only for machine with single pedal	●	●	●
SPV 30	Double stroke cylinder (60+25mm) + pedal	●		
SPV 35	Double stroke cylinder (70+30 mm) ∅ 100 mm + pedal		●	
SPV 40	Double stroke cylinder (70+30 mm) ∅ 160 mm + pedal			●
SPV 60	Solenoid valve to weld aluminium or for low pressure applications		●	
SPV 65	Solenoid valve to weld aluminium or for low pressure applications			●
SPV 70	Double pressure version (Squeeze: low, Welding: high) not available with FILIUS	●	●	●
SPV 90	Proportional solenoid valve	●	●	●
SPV 205	Special color different from the standard	●	●	●

Notes:

- All standard welders are supplied in a strong carton on a wooden pallet
- For electronic control features see ELECTRONIC CONTROL SUMMARY
- Special configuration codes must be duly indicated on the P.O. together with chosen machine model.





# SPOT / PROJECTION WELDERS

			30	PPN
			36	BSW
			40	MF
			44	PPN 3F CC

# PPN

## VERTICAL STROKE SPOT / PROJECTION WELDERS



Being suitable for both spot and projection welding jobs, **PPN** models fully satisfy an extremely large variety of the heaviest mass production industrial applications.

Equipped with a microprocessor control and safety concomitant side buttons, upon request they can also be supplied fitted with special controls and in different configurations.



- High precision vertical stroke welding
- Spot and projection welding
- Standard and special version available

### PPN FEATURES

- Excellent welding on all weldable metals
- Synchronous ignition SCR group with phase shift welding current adjustment to eliminate initial transient
- Set up time reduction thanks to quick and easy modification of electrodeholders platens opening without any intervention on the secondary circuit (patent pending)
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants
- Water cooled secondary circuit, i.e. electrodes, electrodeholders, platens and transformer, to avoid overheating

- Water cooled copper electrodeholders with adjustable height
- Electrode force adjustable by pressure reducer group equipped with a manometer and filter for automatic air impurity expulsion
- Upper electrode movement by self-lubricated double effect pneumatic cylinder fitted with speed regulator, end stroke shock-absorber and silencer for compressed air discharge
- Solenoid DC valve to control welding cylinder
- Safety cycle start by means of concomitant side buttons or, alternatively only if the operator can work in safe conditions, by electric pedal. Either option can be chosen by a selector with removable key
- Cycle stop emergency button



CONTROL PANEL

WS 750  
ADV

FILIUS

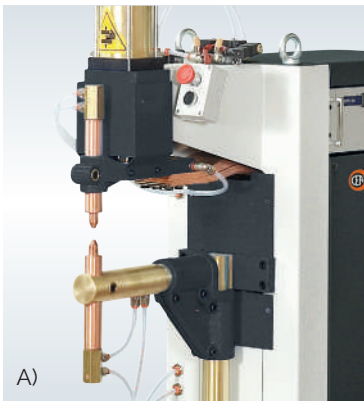
## PPN 63

THEY ARE EQUIPPED WITH:

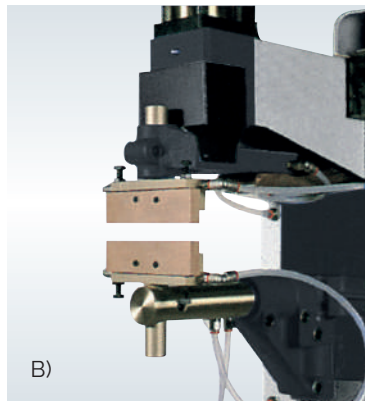
- Lower round arm with adjustable height and lateral adjustment
- Electrodeholders with electrodes for spotwelding and ability to easily fit barholders for projection welding
- Lower arm holder can be adjusted for use with larger arm gap
- Spotwelding (A)
- Projection welding with bars for mesh (B)

UPON REQUEST ALSO AVAILABLE WITH:

- Different length arms (optional)
- Lower arms with pressed-in electrode (for entering pipes or boxes) and longer electrodeholder on the upper arm (optional)
- Special version with platens only for projection welding (PPN 63) (C)



A)



B)

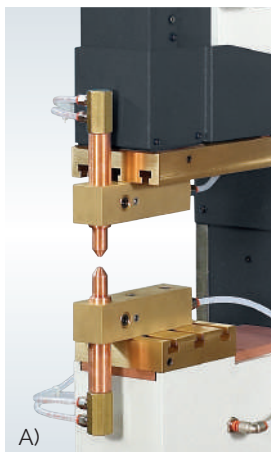


C)

## PPN 83 - 103 - 153 - 253

All supplied with lower platen adjustable in height and fitted with T-slots, enabling the quick assembly of barholders, electrodeholders or any dedicated tooling for a specific application. Platens gap is easily and quickly adjustable without any intervention on the secondary circuit (patent pending).

- Manual valve for upper head descent without pressure for cleaning, centering and ordinary maintenance of the electrodes
- Upper head low friction driving system for precision welding (except PPN 83)



A)



B)



C)

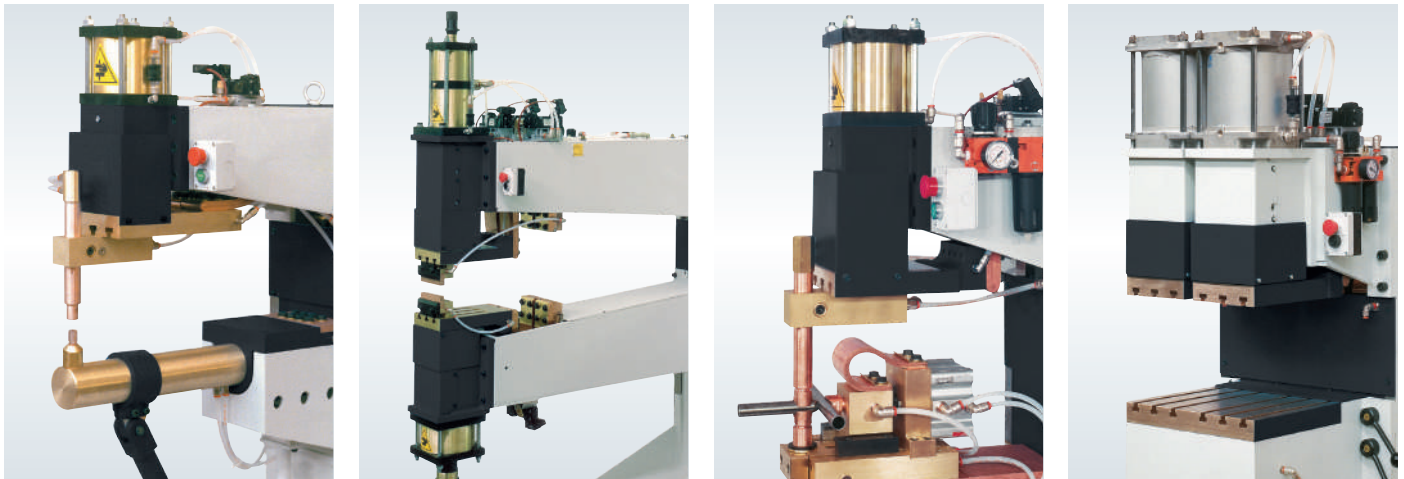


A) Spotwelding

B) Barholder welding for mesh

C) Projection welding

## PPN SPECIAL VERSION AVAILABLE



PPN 63		PPN		63	83	103	153	253
	A		mm	435	400	400	400	445
	A (Optional)	MIN.	mm	650	650	650	650	650
		MAX.	mm	750	---	---	---	---
	B		mm	---	445	445	445	490
		MIN.	mm	180	145	145	145	200
	C	MAX.	mm	510	300	300	300	330
		MIN.		615	800	800	800	865
	D	MAX.		945	955	955	955	995
				Ø mm	60	---	---	---
				Ø mm	35	30	35	35
			Ø mm	19	19	25	25	25
	E	F	E mm	---	150	180	180	200
		F mm	---	150	180	180	200	
		G	G mm	---	63	63	63	63
		T	T	---	2	3	3	3

TECHNICAL DATA		PPN				
		63	83	103	153	253
Single phase input 50/60 Hz	V	400	400	400	400	400
Rated power at 50%	kVA	60	80	100	150	250
Short circuit power	kVA	142	266	366	575	763
Max. welding power	kVA	113	210	293	460	610
Installed power	kVA	38	65	78	120	195
Cross section connecting cables	mm <sup>2</sup>	35	50	50	95	120
Mains Delayed fuse	A	100	150	200	300	500
Open Circuit Voltage	V	5,9	8,3	9,4	11,5	12,5
Short circuit current	kA	24	32	39	50	61
Max. welding current	kA	19	25	31,2	40	49
Thermal secondary current at 100%	kA	7,2	6,8	7,5	10,1	14,2
Work stroke	mm	65	100	100	100	100
Max. electrode force (6 bar)	daN	470	736	900	1200	1884
Water consumption at 300 kPa (3 bar)	l/min	7	8	8	8	8
Dimensions	↗ mm	1070	1115	1115	1170	1210
	→ mm	430	400	400	400	460
	↑ mm	1520	1650	1650	1800	1800
Weight	kg	335	560	580	610	900

# PPN 63



SPV 110



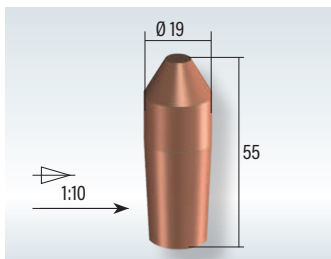
Set of electrodeholders with electrodes



Set of pipes with electrodes



Set of barholders with bars



380007

## ORDER INFORMATION

CODE	DESCRIPTION	PPN 63
<b>SPOT / PROJECTION WELDING MACHINES</b>		
008967	<b>PPN 63</b> 400 V - 435 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)	●
008963	<b>PPN 63</b> 400 V - 435 mm arms - FILIUS Control (Double pedal for 2 welding programs)	●
008968	<b>PPN 63</b> 400 V - 650 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)	●
008966	<b>PPN 63</b> 400 V - 650 mm arms - FILIUS Control (Double pedal for 2 welding programs)	●
Notes: 650 mm arms versions are fitted with lower arm support		
Notes: a) PPN 63 is supplied complete with a set of electrodeholders with electrode b) 5% increase if required with 230 V input voltage c) PPN 63 models are standard supplied with concomitant buttons / pedal selector		
<b>ACCESSORIES</b>		
271258	Set of pipe tips with electrodes depth 115 mm	●
264530	Set of barholders with 200 mm bars	●
264540	Set of barholders with 400 mm bars	●
<b>SPARE PARTS</b>		
268110	Set of electrodeholders with electrodes	●
380007	Set of 6 standard electrodes - Ø 19 mm	●
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>		
SPV 10	2 step pedal (1st step: squeeze, 2nd step: welding) only for machine with single pedal	●
SPV 35	Double stroke cylinder (70+30 mm) Ø 100 mm + pedal	●
SPV 70	Solenoid valve to weld aluminium or for low pressure applications	●
SPV 60	Double pressure version (Squeeze: low, Welding: high) not available with FILIUS	●
SPV 90	Proportional solenoid valve	●
SPV 100	750 mm arms with anti-flexure lower arm support	●
SPV 110	Special version with platens and lower arm support for projection welding	●
SPV 120	Device for "T" welding of pipes/wires	●
SPV 205	Special color different from the standard	●

Notes:

- a) All standard welders are supplied in a strong carton on a wooden pallet
- b) For electronic control features see ELECTRONIC CONTROL SUMMARY
- c) Special configuration codes must be duly indicated on the P.O. together with chosen machine

## PPN 83 / PPN 103



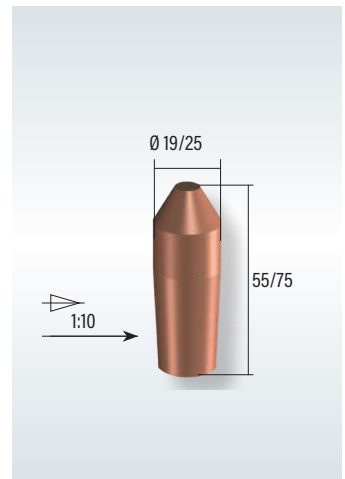
Set of electrodeholder supports



Set of electrodeholders with electrodes



Set of barholders with bars



380007 / 38008

### ORDER INFORMATION

CODE	DESCRIPTION	PPN 83	PPN 103
<b>PROJECTION / SPOT WELDING MACHINES</b>			
009077	<b>PPN 83</b> 400 V - 400 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)	●	
009066	<b>PPN 83</b> 400 V - 400 mm arms - FILIUS Control (Double pedal for 2 welding programs)	●	
009078	<b>PPN 83</b> 400 V - 650 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)	●	
009075	<b>PPN 83</b> 400 V - 650 mm arms - FILIUS Control (Double pedal for 2 welding programs)	●	
009145	<b>PPN 103</b> 400 V - 400 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)		●
009121	<b>PPN 103</b> 400 V - 400 mm arms - FILIUS Control (Double pedal for 2 welding programs)		●
009146	<b>PPN 103</b> 400 V - 650 mm arms - WS 750 ADV Control (Double pedal for 2 welding programs)		●
009130	<b>PPN 103</b> 400 V - 650 mm arms - FILIUS Control (Double pedal for 2 welding programs)		●
<i>Notes: 1) PPN 83 and PPN 103 are supplied with "T" slots platens 2) 5% increase if required with 230 V input voltage 3) PPN 83 and 103 are standard supplied with concomitant buttons / pedal selector</i>			
<b>ACCESSORIES</b>			
268100	Set of electrodeholders with electrodes	●	
268120	Set of electrodeholders with electrodes		●
280885	Set of electrodeholder supports	●	
280874	Set of electrodeholder supports		●
264578	Set of barholders with 400 mm bars	●	
264588	Set of barholders with 600 mm bars	●	
264575	Set of barholders with 400 mm bars		●
264585	Set of barholders with 600 mm bars		●
<b>SPARE PARTS</b>			
380007	Set of 6 standard electrodes - Ø 19 mm	●	
380008	Set of 6 standard electrodes - Ø 25 mm		●
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>			
SPV 10	2 step pedal (1st step: squeeze, 2nd step: welding)	●	●
SPV 40	Double stroke welding cylinder (70+30mm) Ø 160 mm + pedal		●
SPV 140	Adjustable double stroke welding cylinder (70+30mm) + pedal	●	●
SPV 65	Solenoid valve to weld aluminium or for low pressure applications	●	●
SPV 70	Double pressure version (Squeeze:low, Welding: high) only for WS 750	●	●
SPV 90	Proportional valve	●	●
SPV 130	RATIA 73 IQ1 control (128 Programs) (PC excluded)	●	●
SPV 115	Device for "T" welding of pipes/wires (horizontal/vertical)	●	●
SPV 150	Adjustable single stroke cylinder on lower arm	●	●
SPV 170	4 way water flow regulator	●	●
SPV 180	Water flow sensor	●	●
SPV 200	External pedestal with concomitant push buttons	●	●
SPV 205	Special color different from the standard	●	●
SPV 210	Extra Safety Device with PLC and solenoid valve for welding stroke	●	●

#### Notes:

- All standard welders are supplied in a strong carton on a wooden pallet.
- For electronic control features see ELECTRONIC CONTROL SUMMARY
- Special configuration codes must be duly indicated on the P.O. together with chosen machine

## PPN 153 / PPN 253



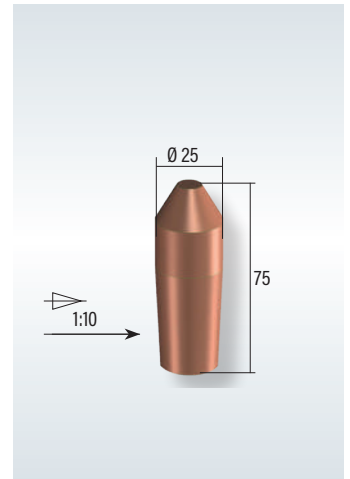
Set of electrodeholder supports



Set of electrodeholders with electrodes



Set of barholders with bars



380007

### ORDER INFORMATION

CODE	DESCRIPTION	PPN 153	PPN 253
<b>PROJECTION / SPOT WELDING MACHINES</b>			
009185	<b>PPN 153</b> 400 V - 400 mm arms - WS 750 ADV control (Double pedal for 2 welding programs)	●	
009167	<b>PPN 153</b> 400 V - 400 mm arms - FILIUS control (Double pedal for 2 welding programs)	●	
009186	<b>PPN 153</b> 400 V - 650 mm arms - WS 750 ADV control (Double pedal for 2 welding programs)	●	
009176	<b>PPN 153</b> 400 V - 650 mm arms - FILIUS control (Double pedal for 2 welding programs)	●	
009225	<b>PPN 253</b> 400 V - 445 mm arms - WS 750 ADV control (Double pedal for 2 welding programs)		●
009211	<b>PPN 253</b> 400 V - 445 mm arms - FILIUS control (Double pedal for 2 welding programs)		●
009226	<b>PPN 253</b> 400 V - 650 mm arms - WS 750 ADV control (Double pedal for 2 welding programs)		●
009212	<b>PPN 253</b> 400 V - 650 mm arms - FILIUS control (Double pedal for 2 welding programs)		●

Notes: 1) PPN 153 and PPN 253 are supplied with "T" slots platens  
 2) PPN 153 and 253 are standard supplied with concomitant buttons / pedal selector

Notes: a) All standard welders are supplied in a strong carton on a wooden pallet.  
 b) For electronic control features see ELECTRONIC CONTROL SUMMARY  
 c) Special configuration codes must be duly indicated on the P.O. together with chosen machine model.

# BSW

## VERTICAL STROKE SPOT / PROJECTION BENCH WELDERS



**BSW** bench welders, thanks to their reduced dimensions, are suitable to build customised multispot welding equipment. **BSW 25** is particularly suitable for precision spot welding and, fitted with special accessories, can be used to weld small size parts.

**BSW 50** and **100**, thanks to their rigid structure, allow high quality projection welding.



- Vertical stroke
- Spot and projection bench welders
- Special version available

## BSW FEATURES

- Upper head low friction driving system for very precise and quality welding
- Secondary circuit low impedance to grant high welding currents
- BSW 50 and 100, with a platens adjustable in height and fitted with T-slots, enable the quick assembly of barholders, electrodeholders and any dedicated tooling for a specific application
- Safety cycle start by means of concomitant side buttons or, as alternative only if the operator can work in safe conditions, by electric pedal. Either option can be chosen by a selector with removable key
- Cycle stop emergency button



CONTROL PANELS

WS 750

FILIUS



## BSW SPECIAL VERSIONS

- Possibility to be integrated in automatic system as partly completed welding machine
- Possibility of creating welding system with multiple BSW
- Adjustable double stroke cylinder
- 0,5 bar low pressure solenoid valve for applications requiring low welding force
- High welding quality and process reliability
- MF Direct current welding available
- In MF version it is possible of monitoring the welding process each 1ms (1000 Hz) or even each 0,2 ms with 5000Hz versus 20 ms of traditional 50 Hz equipment



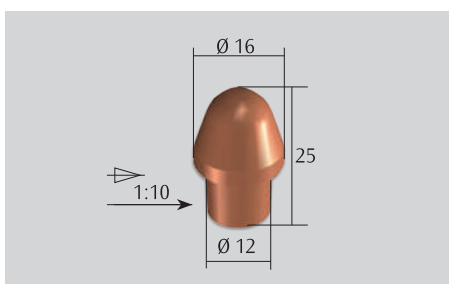
Set of electrodeholders with electrodes



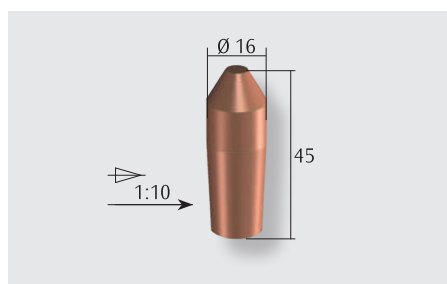
Set of barholders 400 - 600 mm with bars



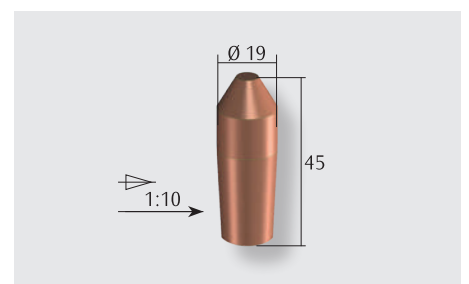
Special electrode available



380006 Electrode BSW 25



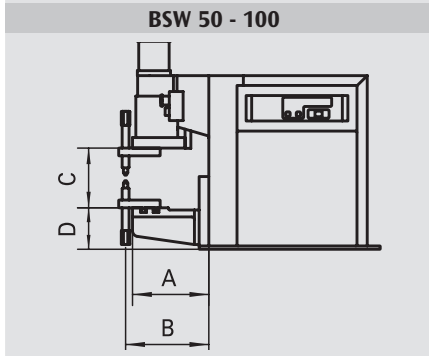
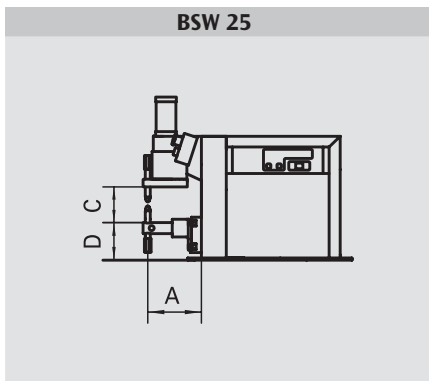
380004 Electrode BSW 50



380007 Electrode BSW 100

## BSW OPTIONAL

- Set of barholders with bars
- Two step pedal for squeeze without welding and welding by pressing the second step



BSW		25	50	100
A	mm	192	276	335
B	mm	---	301	370
C	MIN. mm	---	100	130
	MAX. mm	129	225	300
D	MIN. mm	---	140	163
	MAX. mm	136	265	334
	Ø mm	40	---	---
	Ø mm	18	25	30
	Ø mm	16	16	19
	E mm	---	90	150
	F mm	---	130	150
	G mm	---	45	63
	T	---	2	2

TECHNICAL DATA	BSW			
		25	50	100
Single phase input 50/60 Hz	V	400	400	400
Rated power at 50%	kVA	25	50	100
Short circuit power	kVA	65	160	414
Max. welding power	kVA	52	128	331
Installed power	kVA	14	38	78
Cross section connecting cables	mm <sup>2</sup>	16	25	50
Mains Delayed fuse	A	40	100	200
Open Circuit Voltage	V	3,7	5,5	9,4
Short circuit current	kA	18	29	45
Max. welding current	kA	14,4	23,2	36
Thermal secondary current at 100%	kA	4,8	6,4	7,5
Work stroke	mm	50	75	100
Max. electrode force (6 bar)	daN	187	470	900
Water consumption at 300 kPa (3 bar)	l/min	4	7	7
Dimensions		800	900	1080
		300	300	325
		590	770	1015
Weight	kg	96	210	380

Other voltages on request

ORDER INFORMATION

CODE	DESCRIPTION	BSW 25	BSW 50	BSW 100
<b>BENCH SPOT /PROJECTION WELDERS</b>				
008978	<b>BSW 25</b> 400 V Microprocessor control WS 750 ADV (Double pedal for 2 welding programs)	●		
008977	<b>BSW 25</b> 400 V Microprocessor control FILIUS (Double pedal for 2 welding programs)	●		
<i>Note: BSW 25 is supplied complete with a set of electrodeholders with electrode</i>				
009015	<b>BSW 50</b> 400 V Microprocessor control WS 750 ADV (Double pedal for 2 welding programs)		●	
009011	<b>BSW 50</b> 400 V Microprocessor control FILIUS (Double pedal for 2 welding programs)		●	
<i>Note: BSW 50 is supplied without a set of electrodeholders with electrode</i>				
009024	<b>BSW 100</b> 400 V Microprocessor control WS 750 ADV (Double pedal for 2 welding programs)			●
009021	<b>BSW 100</b> 400 V Microprocessor control FILIUS (Double pedal for 2 welding programs)			●
<i>Note: BSW 100 is supplied without a set of electrodeholders with electrode</i>				
<i>Notes:1) BSW models are standard equipped with concomitant buttons/pedal selector 2) 5% increase if required with 230 V input voltage</i>				
<b>ACCESSORIES</b>				
268090	Set of electrodeholders with electrodes		●	
280880	Set of electrodeholder supports		●	
268110	Set of electrodeholders with electrodes			●
280885	Set of electrodeholder supports			●
264578	Set of barholders with 400 mm bars			●
264588	Set of barholders with 600 mm bars			●
<b>SPARE PARTS</b>				
270606	Set of electrodeholders with electrodes	●		
380006	Set of 6 standard electrodes - Ø 16/12 mm	●		
380004	Set of 6 standard electrodes - Ø 16 mm		●	
380007	Set of 6 standard electrodes - Ø 19 mm			●
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSIONS</b>				
SPV 10	2 step pedal (1st step: squeeze, 2nd step: welding) only for machine with single pedal	●	●	●
SPV 60	Solenoid valve to weld aluminium or for low pressure applications		●	
SPV 65	Solenoid valve to weld aluminium or for low pressure applications			●
SPV 70	Double pressure version (Squeeze: low, Welding: high) not available with FILIUS		●	●
SPV 80	Cabinet with Ratia 73 IQ1 control (PC excluded)	●	●	●
SPV 90	Proportional solenoid valve	●	●	●
SPV 205	Special color different from the standard	●	●	●

- Notes:*
- a) All standard welders are supplied in a strong carton on a wooden pallet.
  - b) For electronic control features see **ELECTRONIC CONTROL SUMMARY**
  - c) Special configuration codes must be duly indicated on the P.O. together with chosen machine

# MF

## MEDIUM FREQUENCY SPOT / PROJECTION WELDERS



The **MF** range of medium-frequency inverter resistance welders is the ultimate answer to increasing demand for quality in resistance welding applications.

Constant current control, fast millisecond current regulation, high quality and perfect control of the energy transferred to the weld nugget are the main advantages versus traditional 50 Hz equipment.

**MF** models fully meet the toughest mass production industrial applications. Thanks to their features, they represent the ideal solution for resistance spot welding of thin thickness and of hardly weldable material, such as copper, brass, aluminium alloys, zinc plated and other coated steel.



- Reduced energy consumption
- Fine current management
- High quality joints

### MF FEATURES

- High power factor and efficiency
- Balanced load on the three mains phases
- Low primary consumption
- Lower energy consumption costs
- Ability to produce quality joints on hardly weldable materials
- Ability to reduce welding time to a few milliseconds with a consequent saving in welding time
- Welding tasks previously solved by capacitor discharge welding are now possible by MF range in a more economical way
- Quick transient to the set welding current
- Short welding current transient
- The energy converts mostly in the weld nugget
- Less thermal loss through the workpiece and the electrodes
- Weld nugget quality indirect control
- High welding quality and process reliability
- Water cooled secondary circuit
- Low tendency for welding spatters
- Less imprint and deformation
- Very long electrode life



## MF 1040 - MF 1041

The most enhanced inverter technology for medium frequency spotwelding available for everyone. These equipment, fitted with new inverters with WSI 100 or FILIUS CLASSIC MF controls, represent a valid solution for anybody looking for all Medium Frequency benefits in both spotwelding applications and nut projection welding too.

**MF 1040** and **1041** models allow to monitor the whole welding process every 1 ms (1000 Hz).

- Lower round arm with adjustable height and lateral adjustment
- Electrodeholders with electrodes for spotwelding
- Lower arm can be lowered and adjusted for use with larger arm gap

UPON REQUEST ALSO AVAILABLE WITH:

- Different length arms (optional)
- Lower arms with pressed-in electrode (for entering pipes or boxes) and longer electrodeholder on the upper arm (optional)



## MF 100 - MF 160 - MF 200 - MF 300 - MF 400

Medium frequency (1000 Hz) **MF 100 - 160 - 200 - 300 - 400** are particularly suitable for projection welding applications requiring high welding current and force and also for spotwelding special material and alloys to be joined with elevated currents and short welding time.

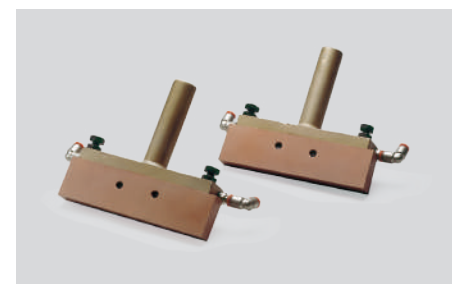
- High power spot and projection welding
- Lower platen adjustable in height and fitted, like the upper one, with T-slots, enabling the quick assembly of barholders, electrodeholders or any dedicated tooling for specific applications
- Platens gap is easily and quickly adjustable without any intervention on the secondary circuit
- Safety cycle start by means of concomitant side buttons or, as alternative only if the operator can work in safe conditions, by electric pedal. Either option can be chosen by a selector with removable key
- Upper head linear low friction driving system for very precise welding
- Manual valve for upper head descent without pressure for cleaning, centering and ordinary maintenance of the electrodes
- Solenoid valve to stop water circulation whenever the machine is switched off from the mains supply
- All the machines are supplied with lower platen adjustable in height and fitted with T-slots, enabling the quick assembly of barholders, electrodeholders or any dedicated tooling for each application.



Offset electrode holder set



Electrodeholder set



Set of barholders with bars



## MF SPECIAL VERSION AVAILABLE

- All MF equipment can be converted into bench version types (BSW) or utilized in seamwelding applications too
- Direct current welding
- Large power for welding with increased arm lengths
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants
- Possibility to be integrated in automatic system as partly completed welding machine

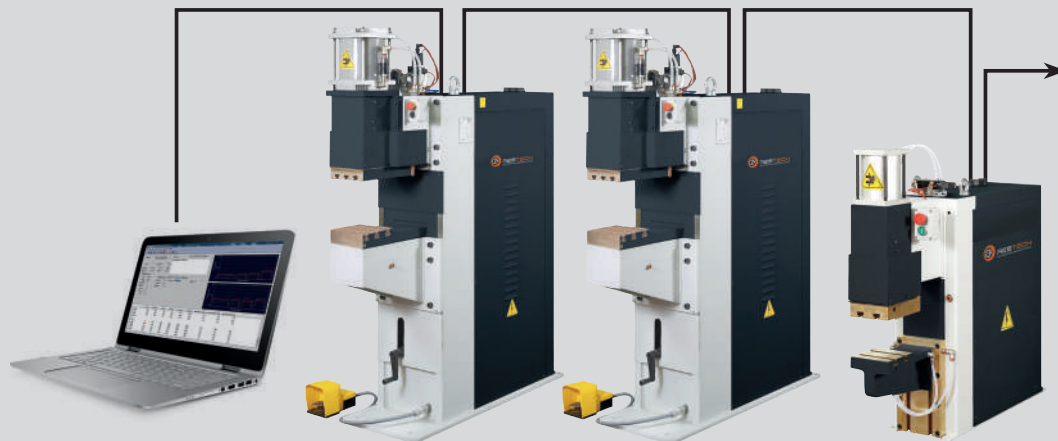


## INTEGRATED CONTROL PANEL

- 128 programs
- Constant current facility
- Limit current monitoring
- Preheating current
- Annealing current
- Linearized stepper function
- Two 24 V DC solenoid valves
- Proportional valve
- Weld/no weld switch
- Error message logbook
- Weld counter
- Mains voltage compensation
- Single or multi spot
- Liquid crystal display



## REMOTE CONTROL BY COMPUTER



- Network by Ethernet
- 128 programs
- Constant current facility
- Limit current monitoring
- Preheating current
- Annealing current
- Linearized stepper function
- Two 24 V DC solenoid valves
- Proportional valve
- Production monitoring
- Error message logbook
- Weld counter
- Mains voltage compensation
- Single or multi spot
- Stored data files
- Back up file
- Parameters settings by software on external PC

MF 1040 - 1041		MF								
		1040	1041	100	160	200	300	400		
	A	mm	435	435	400	400	445	445	445	
	A (Optional)	mm	650	650	650	650	650	650	650	
		mm	750	750	---	---	---	---	---	
	B	mm	---	---	445	445	490	490	490	
	C	MIN.	mm	180	180	145	145	200	200	200
		MAX.	mm	510	510	300	300	330	330	330
	D	MIN.	mm	615	615	800	800	865	865	865
		MAX.	mm	945	945	955	955	995	995	995
		Ø mm		60	60	---	---	---	---	---
		Ø mm		35	35	30	35	35	35	35
	E mm		---	---	180	180	200	200	200	
	F mm		---	---	180	180	200	200	200	
	G mm		---	---	63	63	63	63	63	
	T		---	---	3	3	3	3	3	

MF 100 - 160 - 200		MF								
		100	160	200	300	400				
		Ø mm		35	35	30	35	35	35	35
		Ø mm		19	19	25	25	25	25	25
		E mm		---	---	180	180	200	200	200
		F mm		---	---	180	180	200	200	200
		G mm		---	---	63	63	63	63	63
		T		---	---	3	3	3	3	3

TECHNICAL DATA		1040	1041	100	160	200	300	400
Three phase input 50/60 Hz	V	400	400	400	400	400	400	400
Rated power at 50%	kVA	40	40	100	160	200	300	400
Installed power	kVA	40	40	45	70	100	70	100
Cross section connecting cables	mm <sup>2</sup>	35	35	35	50	70	50	70
Mains Delayed fuse	A	63	63	63	100	160	160	200
Open Circuit Voltage	V	5,0	5,0	10	10	12	10	12
Short circuit current	kA	22	22	28	45	55	45	55
Max. welding current	kA	20	20	23	36	44	36	44
Thermal secondary current at 100%	kA	5,4	5,4	6,5	12,0	12,0	12,0	12,0
Work stroke	mm	65	65	100	100	100	100	100
Max. electrode force 600 kPa (6 bar)	daN	470	470	900	1200	1800	1200	1800
Water consumption at 300 kPa (3 bar)	l/min	6	6	20	20	20	20	20
Dimensions	↗ mm	1070	1070	1115	1115	1210	1115	1210
	→ mm	430	430	400	400	460	400	460
	↑ mm	1520	1520	1650	1650	1800	1650	1800
Weight	kg	260	260	530	550	850	550	850

## ORDER INFORMATION

CODE	DESCRIPTION	MF 1040 WSI 100	MF 1041 FILIUS
SPOT/PROJECTION WELDING MACHINES - 1000 HZ			
009255	<b>MF 1040</b> 400 V - 435 mm arms - WSI 100 control	●	
009256	<b>MF 1040</b> 400 V - 650 mm arms - WSI 100 control	●	
009250	<b>MF 1041</b> 400 V - 435 mm arms - FILIUS control		●
009251	<b>MF 1041</b> 400 V - 650 mm arms - FILIUS control		●
Notes: 1) MF 1040 and MF 1041 are supplied complete with a set of electrodeholders with electrode 2) MF 1040 and MF 1041 with 650 mm arms are supplied with anti-flexure lower arm support			
SPOT/PROJECTION WELDING MACHINES - 1000 HZ			
	<b>MF 100</b> 400 V	●	●
	<b>MF 160</b> 400 V	●	●
	<b>MF 200</b> 400 V	●	●
	<b>MF 300</b> 400 V	●	●
	<b>MF 400</b> 400 V	●	●



# PPN 3F CC

## THREE PHASE DC SPOT / PROJECTION WELDERS



Suitable for both spot and projection welding, **PPN 3F CC** models fully meet the most sophisticated and toughest mass production industrial applications. Thanks to their features, they represent the ideal solution for resistance spot welding of aluminium and other material not easily weldable by conventional resistance equipment.

Equipped with microprocessor control, concomitant safety side buttons and solenoid valve, upon request, they can be supplied with special controls in various configurations.

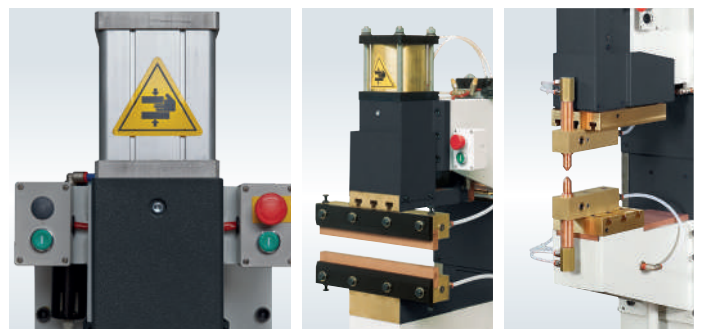


- High quality joints
- Large power for projection welding
- Large power for welding with increased arm lengths

### PPN 3F CC FEATURES

- Platens gap is easily and quickly adjustable without any intervention on the secondary circuit (patent pending)
- Upper head low friction linear driving system for very precise welding
- Manual valve for upper head descent without pressure for cleaning, centering and ordinary maintenance of the electrodes
- Solenoid valve to stop water circulation whenever the machine is switched off from the mains supply
- Suitable for applications requiring high welding power, such as mesh welding

- High welding quality and process reliability
- Water cooled SCR power panel
- Thermostatic protection on the SCR group
- Six phase rectifier bridge with diodes protected against overheating and overvoltage

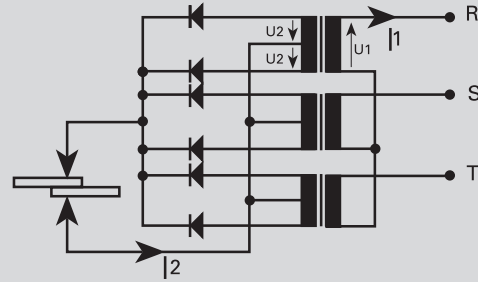


## DIRECT CURRENT

- High quality joints
- Large power for projection welding
- Large power for welding with increased arm lengths
- The presence of magnetic materials between the arms does not affect welding
- Long electrode life
- Highest efficiency
- Reduced welding time

## 3-PHASE MAINS SUPPLY

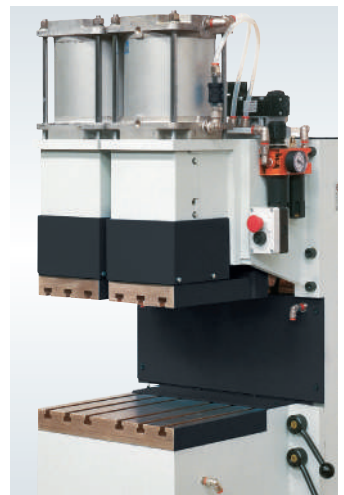
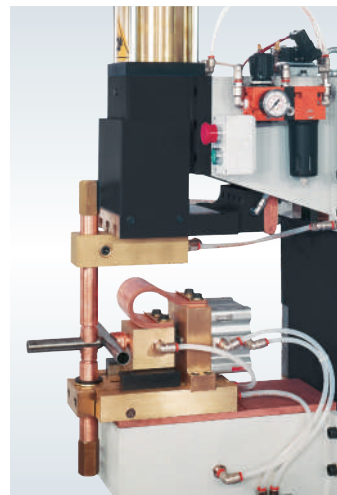
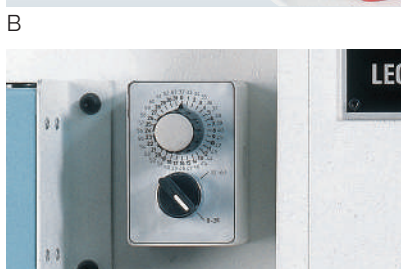
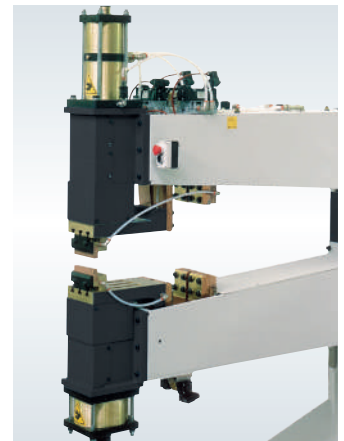
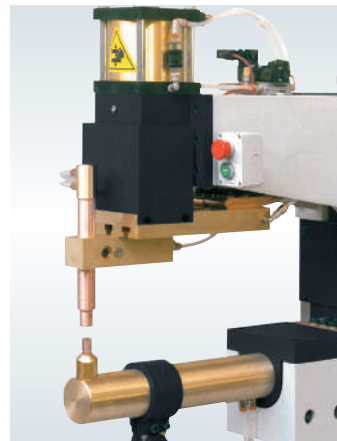
- Balanced power absorption on the three mains phases
- Low primary consumption
- High power factor and output
- Lower cost for electric power
- Water cooled secondary circuit to avoid electrical parts overheating
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants
- Safety cycle start by means of concomitant side buttons or, as alternative only if the operator can work in safe conditions, by electric pedal. Either option can be chosen by a selector with removable key



- Cycle stop emergency button
- All the machines are supplied with lower platen adjustable in height and fitted with T-slots, enabling the quick assembly of barholders, electrodeholders or any dedicated tooling for each application

## PPN 3F CC OPTIONAL AND SPECIAL VERSIONS

- A - Adjustable double stroke cylinder
- B - Double set of concomitant side buttons and double pedal for 2 program welding cycles
- C - Welding program quick selector
  - Flowmeter stopping the welding process in case of insufficient water flow
  - Two step pedal for squeeze without welding and welding after pushing the second step
  - 0,5 bar low pressure solenoid valve for applications requiring low welding force
  - Proportional valve to select and control two pressure levels into the same program



A

B

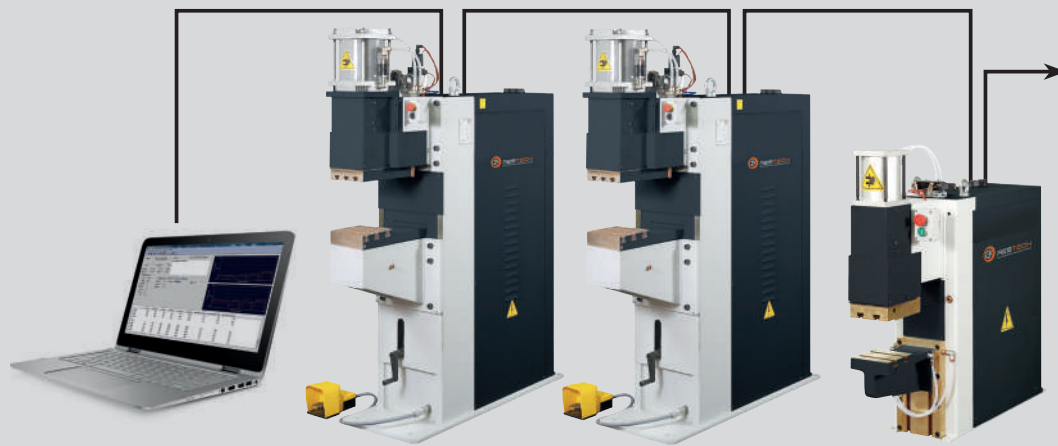
C

## INTEGRATED CONTROL PANEL

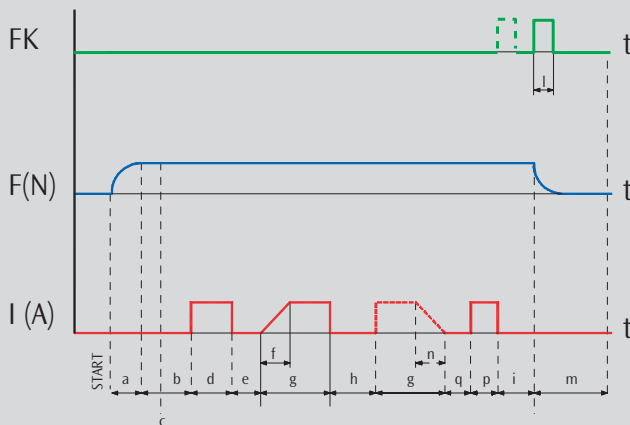
- 128 programs
- Constant current facility
- Limit current monitoring
- Preheating current
- Annealing current
- Linearized stepper function
- Two 24 V DC solenoid valves
- Proportional valve
- Weld/no weld switch
- Error message logbook
- Weld counter
- Main voltage compensation
- Single or multi spot
- Liquid crystal display



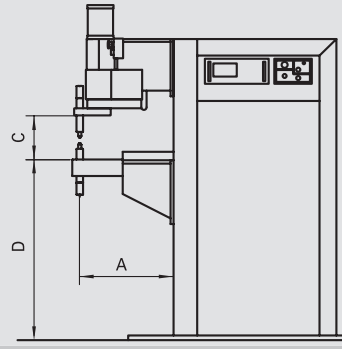
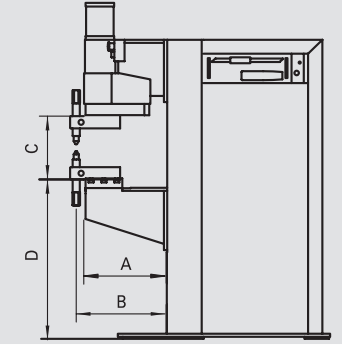



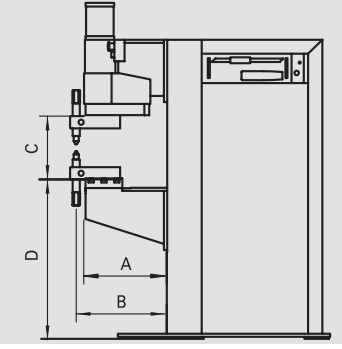
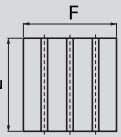
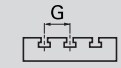
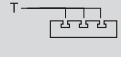
## REMOTE CONTROL BY COMPUTER






- Network by Ethernet
- 128 programs
- Constant current facility
- Limit current monitoring
- Preheating current
- Annealing current
- Linearized stepper function
- Two 24 V DC solenoid valves
- Proportional valve
- Production monitoring
- Error message logbook
- Weld counter
- Mains voltage compensation
- Single or multi spot
- Stored data files
- Back up file
- Operating parameter software



FUNCTIONS	A - B
a Pre-squeeze time	•
b Squeeze time	•
c Pressure contact	•
d Preheating time	•
e Cooling time	•
f Slope up time	•
g Welding time	•
h Pulse interval time	•
n Slope down time	•
q Cooling time	•
p Annealing time	•
i Holding time	•
l Cycle end contact	•
m Pause time	•

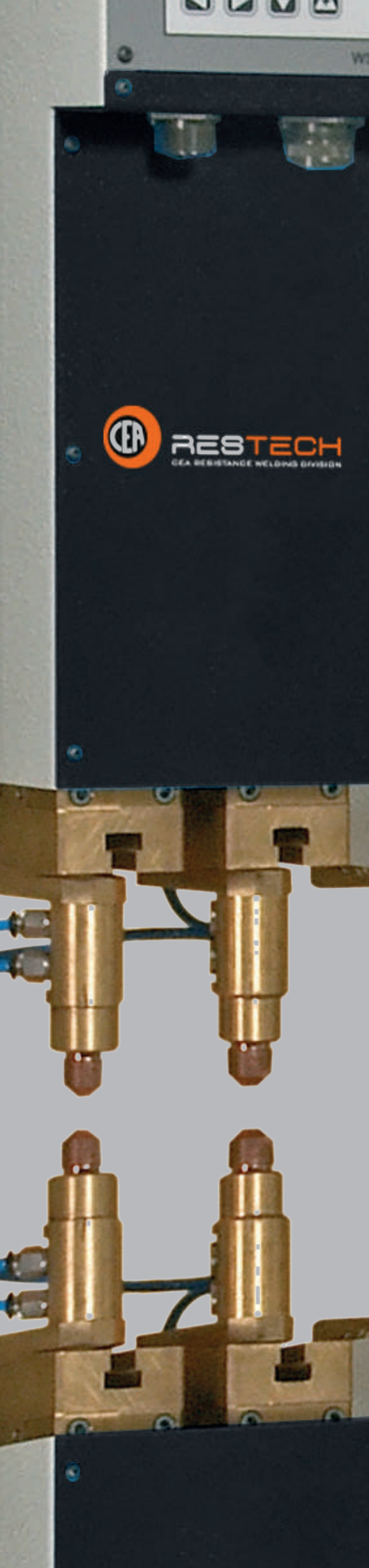
<b>PPN 100 3F CC</b>		<b>100</b>	<b>160</b>	<b>260</b>	<b>360</b>	<b>460</b>	
	A	mm	500	445	445	445	
	A (Optional)	mm	700	650	650	650	
	B	mm	---	490	490	490	
	C	MIN. mm	235	200	200	200	
		MAX. mm	390	330	332	350	
	D	MIN. mm	900	852	852	900	
		MAX. mm	1055	982	982	1050	
		Ø mm	88	---	---	---	---
		Ø mm	35	---	---	---	---
		Ø mm	25	---	---	---	
		F mm	---	200	200	250	
		F mm	---	200	200	250	
		G mm	---	63	63	63	
		T	---	3	3	4	

TECHNICAL DATA		PPN 3F CC				
		100	160	260	360	460
Three phase input 50/60 Hz	V	400	400	400	400	400
Rated power at 50%	kVA	40	40	100	160	200
Installed power	kVA	40	40	50	70	100
Cross section connecting cables	mm <sup>2</sup>	35	35	35	50	70
Mains Delayed fuse	A	63	63	63	100	160
Open Circuit Voltage	V	5,0	5,0	10	10	12
Short circuit current	kA	22	22	28	45	55
Max. welding current	kA	20	20	23	36	44
Thermal secondary current at 100%	kA	5,4	5,4	6,5	12,0	12,0
Work stroke	mm	65	65	100	100	100
Max. electrode force 600 kPa (6 bar)	daN	470	470	900	1200	1800
Water consumption at 300 kPa (3 bar)	l/min	6	6	20	20	20
Dimensions		1070	1070	1115	1115	1210
		430	430	400	400	460
		1520	1520	1650	1650	1800
Weight	kg	260	260	530	550	850

Other voltages on request

## ORDER INFORMATION

DESCRIPTION	
<b>SPOT/PROJECTION WELDING MACHINES - DC WELDING</b>	
PPN 160 3F CC	400 V
PPN 260 3F CC	400 V
PPN 360 3F CC	400 V
PPN 460 3F CC	400 V



# TWIN AND GUN SPOT WELDERS



49 DUAL



50 X-GUN / C-GUN

# DUAL

## TWIN SPOT WELDING UNIT



The twin spot welding units are the most suitable solution for single side welding and they ensure the possibility to realise multi spot welding equipment in a simple and economical way. Each twin spot unit is fitted with its own welding control, thus allowing independent operation or, by connecting more units together, the operator can weld either in electric or pneumatic cascade or simultaneously.

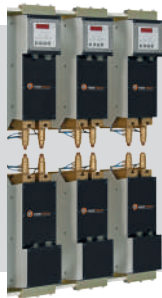
TECHNICAL DATA		DUAL 30
Single Phase Input (L1-L2)	V 50/60 Hz	400
Rated Power at 50%	kVA	30
Max. welding Power	kVA	96
Installed Power	kVA	20
Mains Delayed Fuse	A	63
Open Circuit Voltage Max.	V	6
Secondary short circuit current	kA	20
Max. welding current	kA	16
Work stroke	mm	60
Distance between electrodes	mm	40 ÷ 180
Electrode Force max max (6 bar)	daN	2 x 180
Water consumption	l/min	4
Weight	kg	68



- Modular system
- Available with push pull system

### PUSH-PULL

The "push-pull" system allows to operate on thicker thickness; it's obtained, as shown in the left picture, by connecting a special version of DUAL 30 to another opposite unit without any control.



### ADJUSTABLE ELECTRODE DISTANCE

Adjustable distance between electrodes (40-180 mm).



### ORDER INFORMATION

CODE	DESCRIPTION	DUAL 30
	<b>TWIN SPOT WELDING UNIT</b>	
009500	<b>DUAL 30</b> 400 V - 30 kVA at 50% - WS 708 Control with possibility of electric or pneumatic cascade welding Welding Capacity 1,5 mm + base <i>Note: 5% increase if required with 230 V input voltage</i>	●
	<b>ACCESSORIES</b>	
413576	3 m cycle start and emergency cable with connector (*) (**) <i>Notes: (*) cable external connection is at customer's care. (**) the order quantity is always 1 also when more (N) DUAL's are ordered</i>	●
413577	1 m interconnecting cable between DUAL's (***) <i>Note: (***) for multiple (N) DUAL's, the order quantity is equal to N-1 (e.g. 5 DUAL units - 1 = 4 cables)</i>	●
481918	"Push-Pull" connection transformer	●
020850	Air filter group with pressure reducer with manometer	●
	<b>SPARES</b>	
268985	Set of electrodeholders with electrodes	●
380003	Set of 6 standard electrodes	●
264590	Set of barholders with 80 mm bars	●

*Notes: a) All standard welders are supplied in a strong carton on a wooden pallet.  
b) For electronic control features see ELECTRONIC CONTROL SUMMARY*

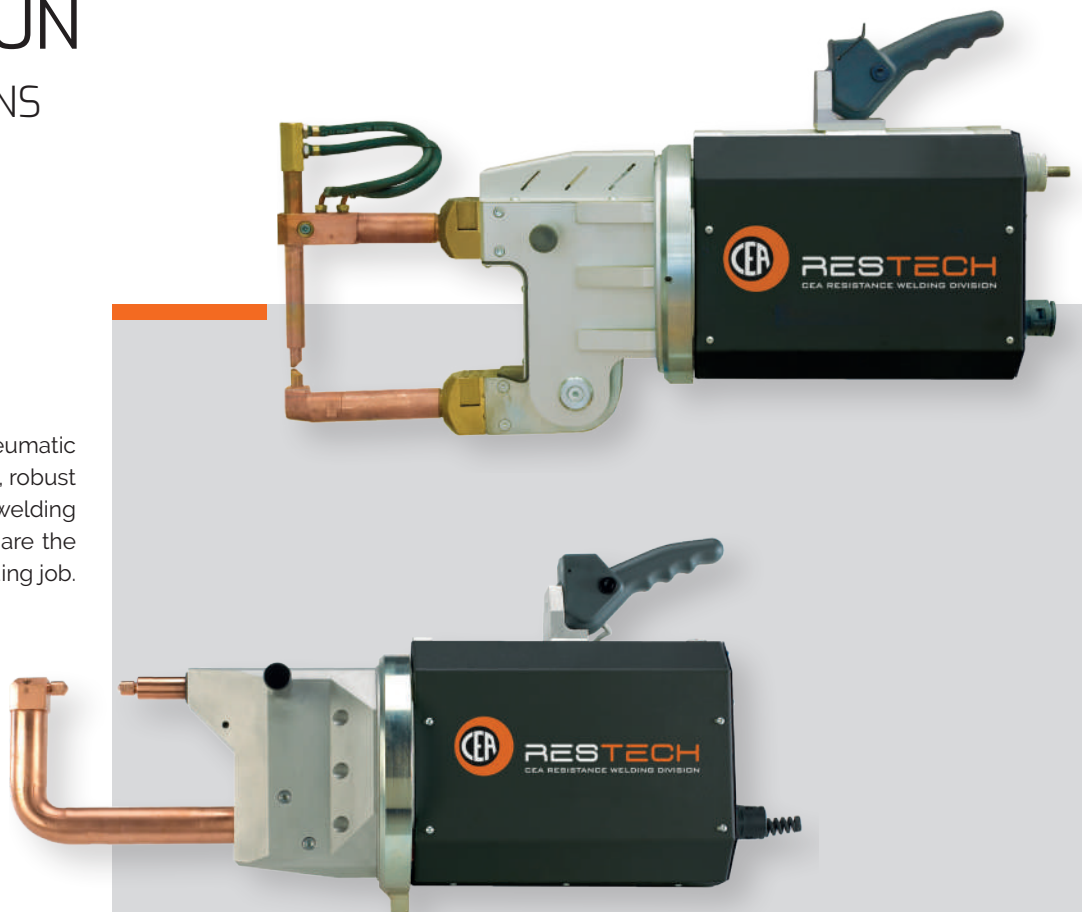


# X-GUN / C-GUN

## SPOT WELDING GUNS WITH BUILT-IN TRANSFORMER



The **X-Gun** and **C-Gun** series pneumatic operated suspended guns, versatile, robust and easy-to-use, ensure best welding results on any weldable metal and are the most ideal solution for any spotwelding job.



- High flexibility in daily work
- Portable spot welders
- Large range of arms

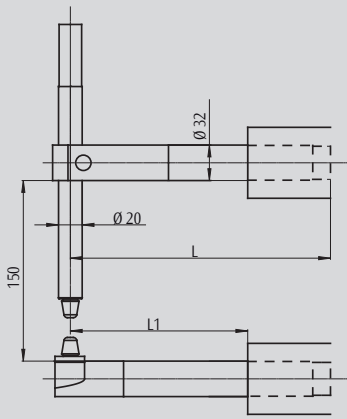
## X-GUN / C-GUN FEATURES

- Welding control in a separate cabinet with circuit breaker with residual current device and cycle stop emergency button
- Synchronous ignition SCR group with phase shift welding current adjustment to eliminate initial transient
- Water cooled transformer
- Water cooled arms, electrode holders and electrodes
- Gyroscope suspension on sealed bearings for easy gun rotation and manoeuvrability in any position
- Adjustable working stroke
- Temporary extra stroke to easily reach workpiece areas also getting over obstacles
- High versatility in all applications thanks to all possible configurations
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants



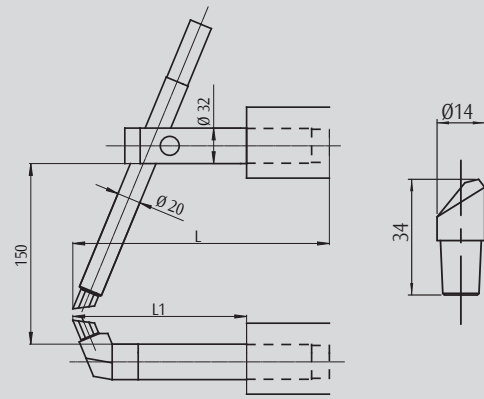
CONTROL PANEL





**X-GUN VERSION 1**

L (mm)	220	300	400	500	600
L1 (mm)	155	235	335	435	535
(1) F (daN)	230	170	135	110	95
(2) P (kg)	2,7	3,5	4,6	5,7	6,7
(3) Cs (mm)	0-24	0-30	0-38	0-46	0-55
(4) Cl (mm)	57	73	93	112	131

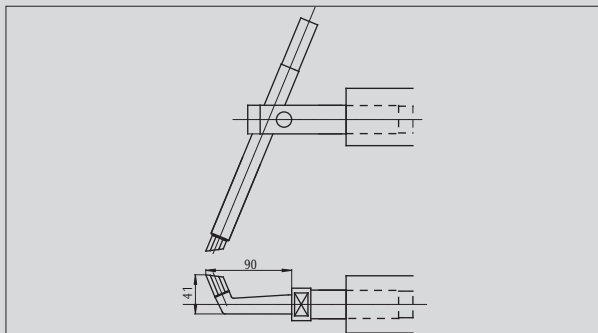
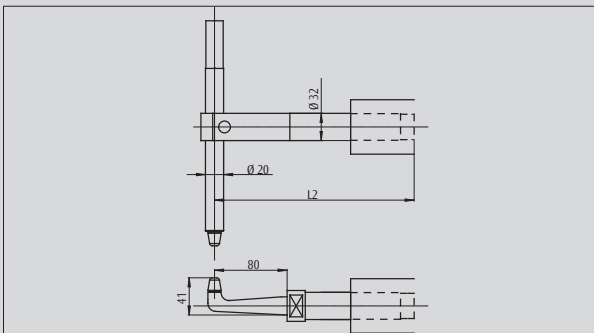


**X-GUN VERSION 2**

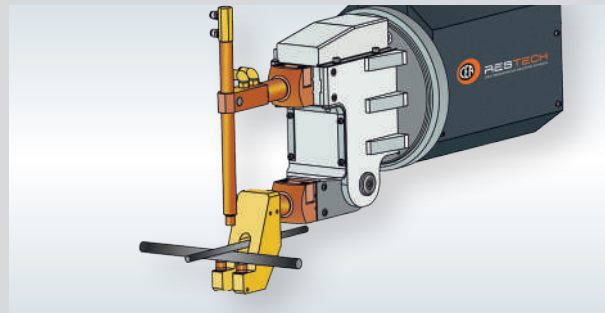
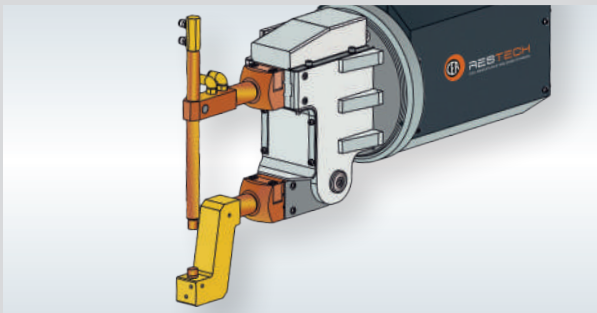
L (mm)	220	300	400	500	600
L1 (mm)	155	235	335	435	535
(1) F (daN)	230	170	135	110	95
(2) P (kg)	2,7	3,5	4,6	5,7	6,7
(3) Cs (mm)	0-24	0-30	0-38	0-46	0-55
(4) Cl (mm)	57	73	93	112	131

1. Electrode force at 600 kPa (6bar) 2. Arm set weight 3. Welding stroke 4. Temporary extra stroke

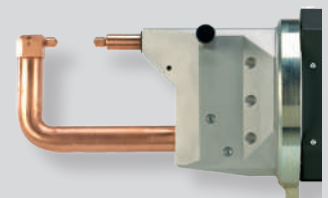
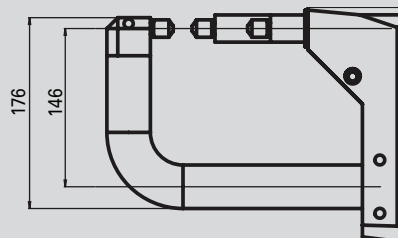
### X-GUN SPECIAL VERSION



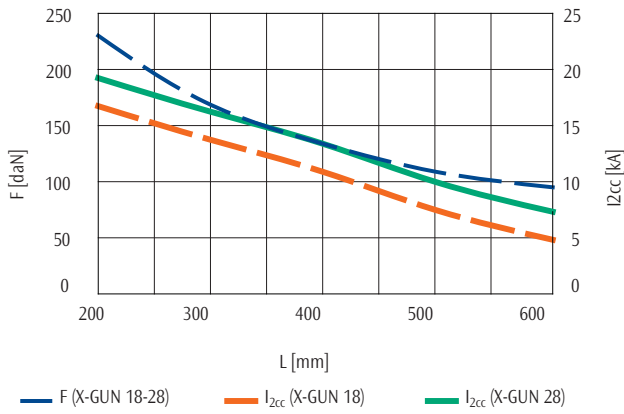
### X-GUN ROD WELDING ( 8mm Ø MAX. )



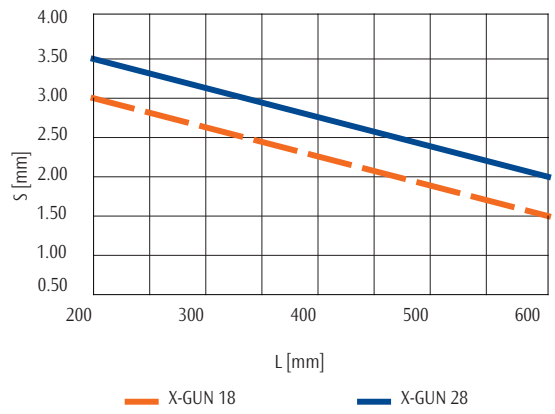
### C-GUN STANDARD



### FORCE - SHORT CIRCUIT CURRENT



### WELDING CAPACITY (MILD STEEL)



TECHNICAL DATA	X-GUN			C-GUN
		18	28	28
Single phase input 50/60 Hz	V	400	400	400
Rated power at 50%	kVA	18	28	28
Max. welding power	kVA	58	88	98
Installed power	kVA	15	25	25
Mains Delayed fuse	A	32	40	40
Open Circuit Voltage	V	4,8	5,8	5,8
Short circuit current	kA	15	19	21
Max. welding current	kA	12	15,2	16,8
Work stroke	mm	50	50	50 + 20
Max. electrode force (6 bar)	daN	230	230	300
Water consumption at 300 kPa (3 bar)	l/min	4	4	4
Dimensions	↗ mm	650	650	800
	→ mm	250	250	250
	↑ mm	425	425	425
Weight	kg	47	53	58

Other voltages on request



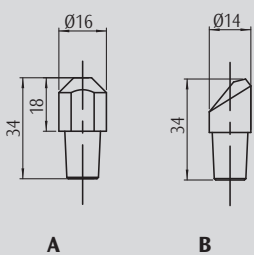
Gun spring balancer



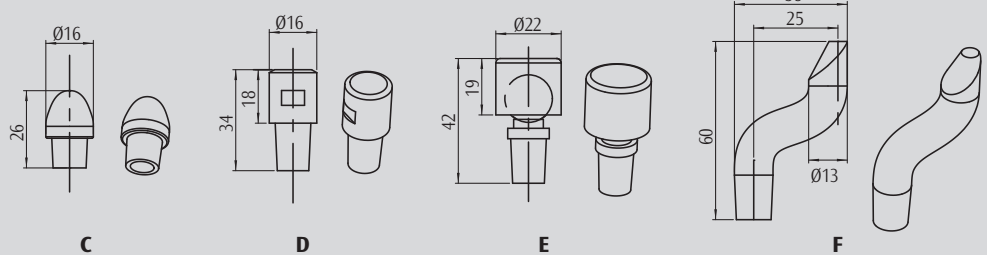
Reducer with filter and manometer

### X-GUN ELECTRODES

#### Standard



#### Special



**X-GUN**

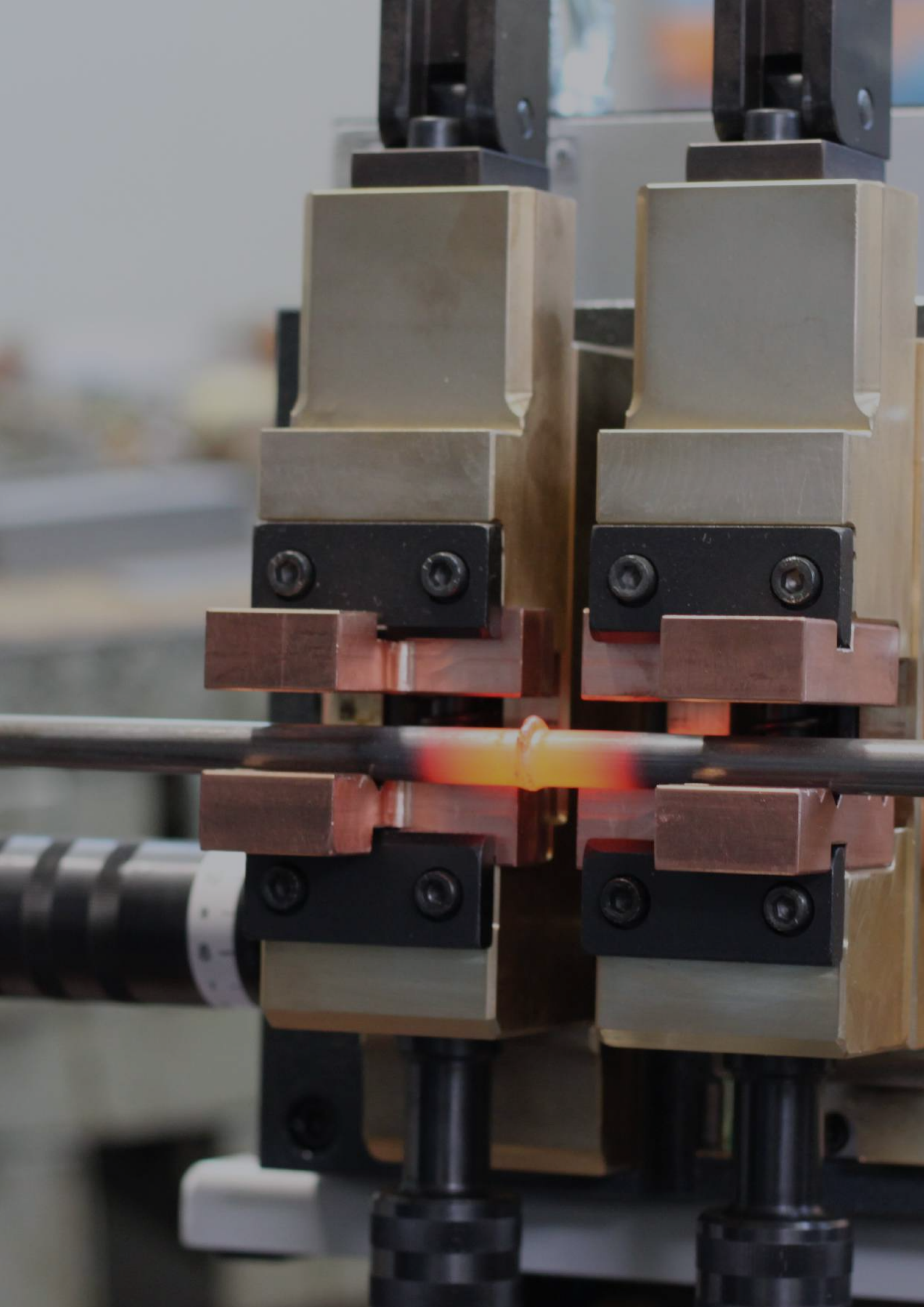
CODE	DESCRIPTION	X-GUN 18	X-GUN 28
<b>SUSPENDED SPOT GUNS</b>			
009550	<b>X-GUN 18</b> 400 V - WS 708 Control, without arms	●	
009560	<b>X-GUN 28</b> 400 V - WS 708 Control, without arms Note: 5% increase for 230 V input voltage		●
<b>STANDARD SUPPLIED WITH</b>			
WS 708 welding control			
Hanging support			
Gun spring balancer			
Superior and inferior arms with related electrode holder and electrodes			
<b>ARMS WITH 90° ELECTRODE HOLDERS &amp; ELECTRODES (OPTION 1)</b>			
324405	200 mm long upper arm	●	●
324406	200 mm long lower arm	●	●
324410	300 mm long upper arm	●	●
324411	300 mm long lower arm	●	●
324415	400 mm long upper arm	●	●
324416	400 mm long lower arm	●	●
324420	500 mm long upper arm	●	●
324421	500 mm long lower arm	●	●
324425	600 mm long upper arm	●	●
324426	600 mm long lower arm	●	●
<b>ELECTRODES</b>			
380002	Set of 6 standard electrodes	●	●
<b>ARMS WITH INCLINED ELECTRODE HOLDERS &amp; ELECTRODES (OPTION 2)</b>			
324555	200 mm long upper arm	●	●
324556	200 mm long lower arm	●	●
324560	300 mm long upper arm	●	●
324561	300 mm long lower arm	●	●
324565	400 mm long upper arm	●	●
324566	400 mm long lower arm	●	●
324570	500 mm long upper arm	●	●
324571	500 mm long lower arm	●	●
324575	600 mm long upper arm	●	●
324576	600 mm long lower arm	●	●
<b>ELECTRODES</b>			
425525	Standard electrode (for option 2) Ø 12 mm (10% conicity)		
<b>ACCESSORIES</b>			
307700	Gun spring balancer	●	●
020850	Air filter group with pressure reducer with manometer	●	●

**C-GUN**

CODE	DESCRIPTION		C-GUN 28
<b>SUSPENDED SPOT GUN</b>			
009580	<b>C-GUN 28</b> 400 V - WS 708 Control, with arms		●
<b>STANDARD SUPPLIED WITH</b>			
WS 708 welding control			
Hanging support			
Gun spring balancer			
Superior and inferior arms with related electrode holders			
<b>ACCESSORIES</b>			
307700	Gun spring balancer		●
020850	Air filter group with pressure reducer with manometer		●

Notes: a) All standard welders are supplied in a strong carton on a wooden pallet.  
 b) For electronic control features see ELECTRONIC CONTROL SUMMARY

(\*\*\*) See spares price-list





# BUTT WELDERS

## RESISTANCE BUTT WELDERS



56 N



59 N 20



60 SRT - SQ/A

## FLASH BUTT WELDERS



61 SQ/AS

# N

## MANUAL BUTT WELDERS



**N 3, N 9, N 12** and **N 22** butt welders have been particularly designed for wire drawing mills for joining steel, brass, aluminium and copper rods and are suitable for all low-cadence applications. All models are available with annealing facility. Jaws opening and closing is by means of foot pedals only in **N 9**, whilst it is operated by manual levers in **N 3, N 12** and **N 22**.

**N 3, N 9** and **N 12** are standard supplied with a 4 wheel trolley for easy manoeuvrability, whilst **N 22**, on request, may be supplied with optional transport wheels. Upon request all models of the **N** series can be supplied with a burr-removing grinding wheel lighted magnifying glass is additionally available for **N 3** only.

### N FEATURES

- Manually operated
- Welding upset adjustment
- Welding power adjustment
- Movable jaw by bearing guides
- Graduated scale to easily adjust jaws opening (N 3, N 9, N 12 and N22)
- Electronic control for welding parameter adjustment (option)

mm + mm		N 3		N 9		N 12		N 22		N 20	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Fe	ø mm	0,5	2,5	0,8	8	2	14	3	18	8	22
	mm <sup>2</sup>		4,9		50		150		250		---
CrNi	ø mm	0,5	1,2	0,8	6	2	9	3	16	---	---
	mm <sup>2</sup>		1,1		28		65		200		---
Al	ø mm	0,8	2	2	5	2	8	4	12	---	---
	mm <sup>2</sup>		3,1		20		50		110		---
Cu	ø mm	0,5	1,8	1,5	3,5	2	6	4	8	---	---
	mm <sup>2</sup>		2,5		10		28		50		---
CuZn	ø mm	0,5	1,8	1,5	3,5	2	6	4	14	---	---
	mm <sup>2</sup>		2,5		10		28		150		---



OPTIONAL CONTROL PANEL

WS 708



N 12

- Designed for drawing mills
- Reliable industrial structure
- Special versions available on request



N 3

N 9

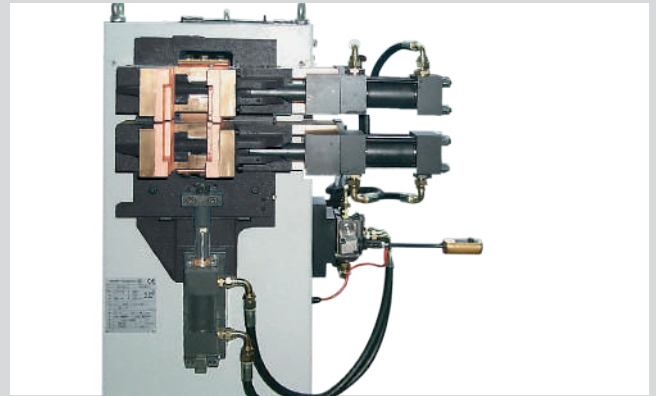
## N22 STANDARD AND SPECIAL VERSION AVAILABLE

**N 22** is available in standard version for horizontal butt welding up to 18mm diameter wire. The standard version is equipped with a mechanical manual clamping system.

It's also possible to have a special version **N/I 22** dedicated for vertical wire butt welding. This version is supplied with a pneumatical clamping system.



N 22



Vertical up wire welding (N/I 22 VERT)

## OPTIONAL

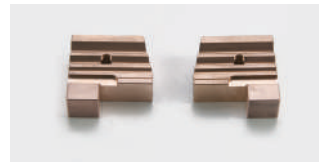
- Grinding wheel with magneto-thermal switch and blackout safety protection device
- Four wheel trolley for N 22
- Lighted magnifying glass for N 3
- Integrated IMET Circular Saws with special trolley for N 12 and N 22
- Integrated manual shears with reinforced trolley (Ng)



380067 - N 3 set of lower jaws



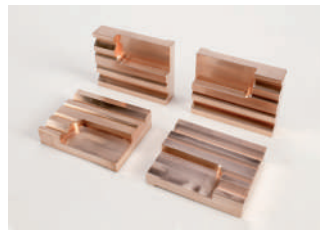
380065 - N 9 set of upper jaws



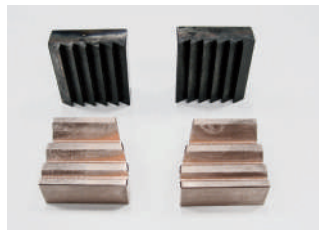
380066 - N 9 set of lower jaws



380057 - N 12 set of jaws



380062 - N 22 set of jaws



380058 - N 20 set of jaws



SPV235



Emery wheel



234950 - Wheels Kit N 22



439220 - Magnifying lens



SPV240

TECHNICAL DATA			N 3	N 9	N 12	N 22
Single phase input 50/60 Hz		V	400	400	400	400
Rated power at 50%		kVA	0,8	3	4	20
Max. welding power		kVA	2	9,6	18	93
Installed power		kVA	1	3	4	15
Cross section connecting cables		mm <sup>2</sup>	2,5	2,5	2,5	16
Mains Delayed fuse		A	10	10	10	40
Open Circuit Voltage		V	2	2,6	2,4	4,2
Short circuit current		kA	1,2	4,4	10	28
Clamping force		daN	10	80	200	1000
Upsetting force		daN	1,3	20	80	300
Max. welding capacity on mild steel		mm <sup>2</sup>	4,9	50	150	250
Wire diameter	MIN.	mm	0,5	0,8	2	3
	MAX.	mm	2,5	8	14	18
Dimensions		↗ mm	518	565	770	800
		→ mm	515	565	660	600
		↑ mm	1145	1100	1120	1550
Weight		kg	52	80	80	280

## ORDER INFORMATION

CODE	DESCRIPTION	N 3	N 9	N 12	N 22
<b>BUTT WELDER</b>					
000740	<b>N 3</b> 400 V with Annealing jaws	●			
000760	<b>N 9</b> 400 V with Annealing jaws		●		
000725	<b>N 12</b> 400 V with Annealing jaws			●	
000755	<b>N 22</b> 400 V with Annealing jaws				●
Note: 5% increase if required with 230 V input voltage					
<b>ACCESSORIES</b>					
439765	Emery wheel 400V / 3Ph with magnetothermal switch and "blackout" safety protection device	●			
439741	Emery wheel 400V / 3Ph with magnetothermal switch and "blackout" safety protection device		●	●	
439748	Emery wheel 400V / 3Ph with magnetothermal switch and "blackout" safety protection device				●
234950	Wheels Kit				●
439220	Magnifying lens with built in light, fitted on a flexible arm	●			
<b>SPARE PARTS</b>					
380067	Set of "V" grooved copper lower jaws	●			
380068	Set of copper lower jaws for annealing	●			
380065	Set of upper annealing jaws		●		
380066	Set of "V" grooved copper lower annealing jaws		●		
380057	Set of jaws for Annealing (Upper ones flat - Lower ones "V" grooved)			●	
380062	Set of "V" grooved copper annealing jaws				●
<b>SPECIAL CONFIGURATION EXTRA PRICE TO BE ADDED TO BASIC VERSION</b>					
SPV 220	EWAC - Electronic Welding and Annealing Control for N 3 - N 9 - N 12	●	●	●	
SPV 225	IWAC - Integrated Welding Annealing Control with WS708				●
SPV 235	Integrated IMET Circular Saws with special trolley for N 12			●	
SPV 236	Integrated IMET Circular Saws with special trolley for N 22				●
SPV 240	Integrated manual shears with reinforced trolley		●		
SPV 245	5 poles plug (3Ph, neutral+ground) N3 -N9 - N12	●	●	●	
SPV 246	12m cable with 5 poles plug N3 -N9 - N12	●	●	●	
SPV 247	N12 trolley with adjustable height 983-1383 mm			●	
SPV 248	Schuko Plug 230V / 16A with Magnetothermal protection and Residual Current Device (RCD)*	●	●	●	

\*Include SPV 245 and SPV 246

# N 20

## CONCRETE REBAR BUTT WELDER



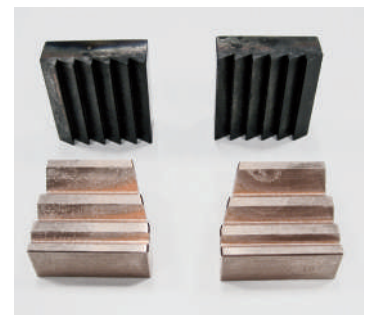
**N 20** is a manually operated butt welder especially developed for joining concrete reinforcing steel rods. Working height adjustable, pedals accessible from the rear of the machine, powerful upsetting force: this equipment has been developed carefully considering all daily needs of the typical user.

**N 20** is standard equipped with annealing facility and four wheels for easy transportability.



- Designed for rebar butt welding
- High reliability
- Movable jaw by bearings for very precise low friction sliding to achieve quality welding

TECHNICAL DATA		N	
		20	
Single phase input 50/60 Hz	V	400	
Rated power at 50%	kVA	20	
Max. welding power	kVA	88	
Installed power	kVA	15	
Cross section connecting cables	mm <sup>2</sup>	16	
Mains Delayed fuse	A	63	
Open Circuit Voltage	V	4,4	
Short circuit current	kA	25	
Clamping force	daN	400	
Upsetting force	daN	250	
Wire diameter	MIN.	mm	8
	MAX.	mm	22
Dimensions		↗ mm	800
		→ mm	880
		↑ mm	1650
Weight	kg	320	



Set of jaws for N 20

### ORDER INFORMATION

CODE	DESCRIPTION	N 20
BUTT WELDER		
000745	N 20 400 V FOR CONCRETE REBAR ONLY	●
Note: 5% increase if required with 230 V input voltage		
SPARE PARTS		
380058	Set of standard jaws (also for annealing)	●

Note: a) All standard welders are supplied in a strong carton on a wooden pallet.  
 b) For electronic control features see ELECTRONIC CONTROL SUMMARY  
 c) Special configuration codes must be duly indicated on the P.O. together with chosen machine model.



# SRT - SQ/A

## MASS PRODUCTION BUTT WELDERS



**SRT** and **SQ/A** butt welders, air operated with completely automatic cycle, allow high productivity and are suitable for welding wire-manufactured goods. **SRT 11**, due to its welding speed, is particularly recommended for high-cadence applications.

**SRT** and **SQ/A** equipment, being fitted with welding current control even with pulsations, enable to obtain much better finishing joints, slightly expanded with reduced burr.

- Air operated
- Electronic control for adjusting the welding parameters
- Movable jaw by bearing guides



SRT 11

SQ/A 121

TECHNICAL DATA		SRT 11	SQ/A 121	SQ/A 62	SQ/A 100
Single phase input 50/60 Hz (L1-L2)	V 50/60 Hz	400	400	400	400
Rated power at 50%	kVA	4	25	60	100
Installed power	kVA	4	15	80	120
Mains Delayed Fuse	A	10	40	200	300
Open Circuit Voltage	V	2,2	5,1	6	10,8
Clamping force	daN	150	900	3000	5150
Upsetting force	daN	58	350	1800	2400
Max. welding capacity on mild steel	mm <sup>2</sup>	50	200	450	620
Dimensions	↗ mm	620	830	850	850
	→ mm	600	640	1750	1750
	↑ mm	1100	1460	1900	2100
Weight	kg	84	280	1200	1300

- Industrial productivity
- Electronic control for adjusting welding parameters



380060



380061

CODE	DESCRIPTION	SRT 11 PULSE
RESISTANCE BUTT WELDERS		
000712	<b>SRT 11 Pulsed</b> 400 V WS 708 Microprocessor control <i>Note: 5% increase if required with 230 V input voltage</i>	●
SPARE PARTS		
380060	Set of standard jaws (Upper ones flat - Lower ones "V" grooved) Set of special lower and upper jaws	● ●
CODE	DESCRIPTION	SQ/A 121
RESISTANCE BUTT WELDERS		
007990	<b>SQ/A 121</b> 400 V Pulsed with independent/contemporary jaws opening, CS-T10 Electronic control <i>Note: 5% increase if required with 230 V input voltage</i>	●
SPARE PARTS		
380061	Set of standard jaws (Upper ones flat - Lower ones "V" grooved) Set of special lower and upper jaws	● ●
CODE	DESCRIPTION	
RESISTANCE BUTT WELDERS		
	<b>SQ/A 62</b> 400 V	
	<b>SQ/A 100</b> 400 V	

### CONTROL PANELS



- Notes: a) All standard welders are supplied in a strong carton on a wooden pallet.  
b) For electronic control features see ELECTRONIC CONTROL SUMMARY  
c) Special configuration codes must be duly indicated on the P.O. together with chosen machine model.

# SQ / AS

## FLASH BUTT WELDERS



**SQ/AS** models are suitable for flash butt welding solid material, profiles and hollow sections and mostly pipes, whenever water tight joints are needed, by obtaining very high quality welding results. Particularly suitable for mass production with fully automatic controls aiding speed and efficiency.

**SQ/AS** machines start the welding operation by slowly approaching, at a reduced pressure, the two parts to be joined; when they are close one another, an electric arc strikes between them and, in a very short time, they are brought to a pre-melting condition; at this point the two ends, in a semi-solid status, are heavily pressed one against the other by the upsetting force. This will result in a totally impurity-free high quality joint.



SQ/AS 121

SQ/AS 62

- Sealed permanent joint
- Industrial productivity
- Electronic control for adjusting welding parameters

TECHNICAL DATA		SQ/AS 121	SQ/AS 62	SQ/AS 100
Single phase input 50/60 Hz (L1-L2)	V 50/60 Hz	400	400	400
Rated power at 50%	kVA	25	60	100
Installed power	kVA	15	60	100
Mains Delayed Fuse	A	40	160	250
Open Circuit Voltage	V	5,1	6,0	10,8
Clamping force	daN	1350	2100	5150
Upsetting force	daN	450	1200	2400
Max. welding capacity on mild steel	mm <sup>2</sup>	250	350	550
	↗ mm	830	850	850
	→ mm	920	1750	1750
Dimensions	↑ mm	1600	1900	2100
	kg	300	1200	1300

### ORDER INFORMATION

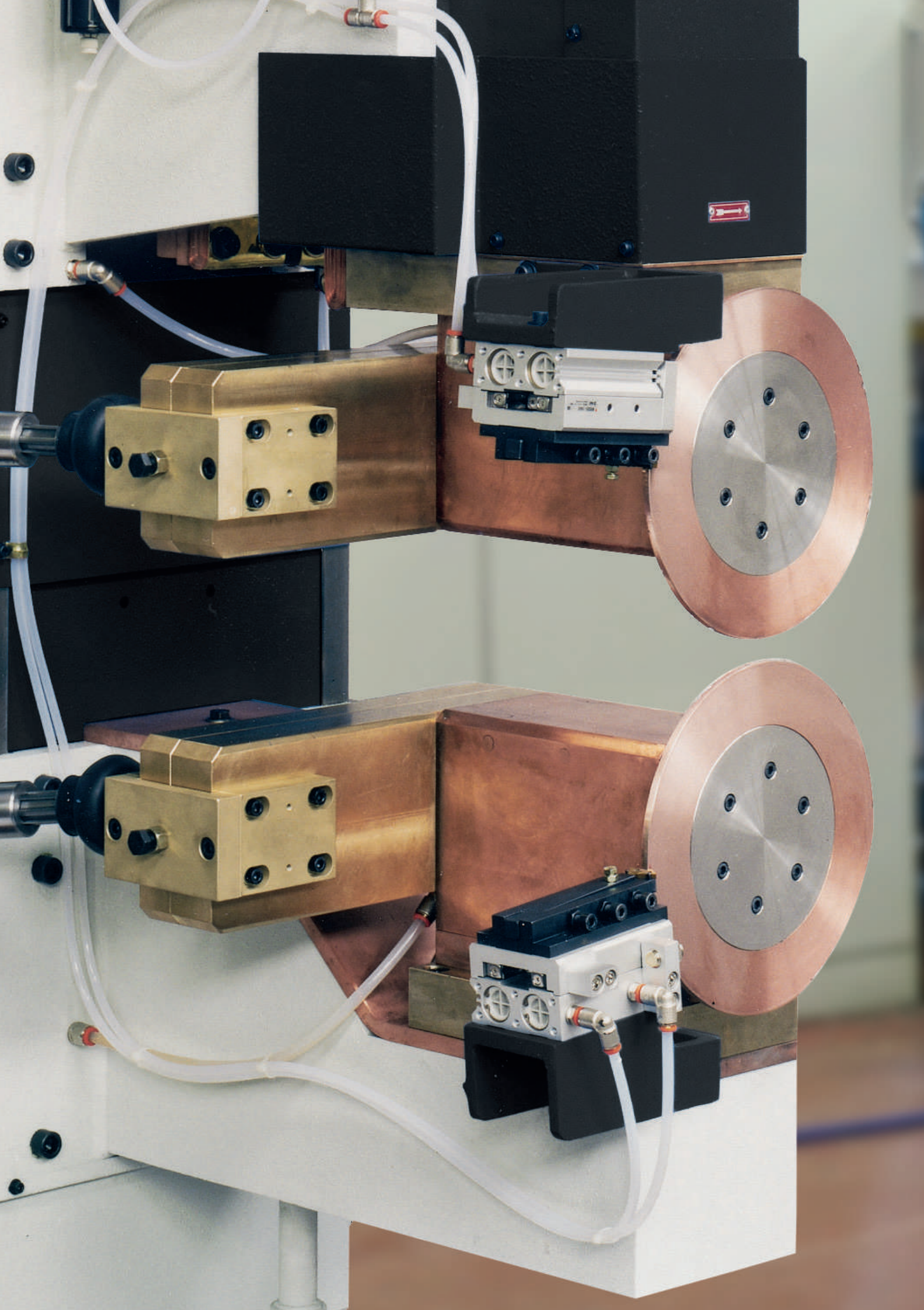
CODE	DESCRIPTION	SQ/AS 121
FLASH BUTT WELDER		
007995	<b>SQ/AS 121</b> 400 V with upper and lower FLAT JAWS, CS-T10 Electronic control	●

CODE	DESCRIPTION
FLASH BUTT WELDER	
SQ/AS 62	400 V
SQ/AS 100	400 V

### CONTROL PANELS







SEAM  
WELDERS



64 RT / RL

# RT / RL

## SEAM WELDERS



**RT / RL** range of resistance machines allows the joining of metals by a sequence of welds, made one after the other, achieved by the rotation of copper alloy discs.

**RT / RL** welders allow either longitudinal or transversal seamwelding - also water tight - of cylindrical containers, fire extinguishers, radiators, heaters, tanks, filters and similar items with excellent quality results.

Customised equipment are built to fully meet any specific welding need: also D.C. three phase supply and/or D.C. Medium Frequency (1000 Hz) three phase inverter versions are available on request.

In particular Medium Frequency seam welders enable extremely high quality welds at greatly increased welding speeds and represent the ideal solution for joining thin sheets and/or filter nets with very contained deformations.

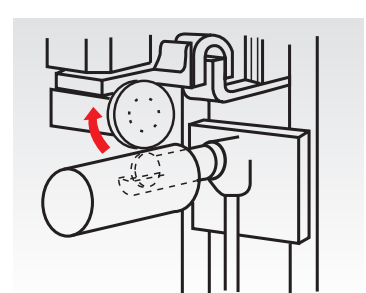
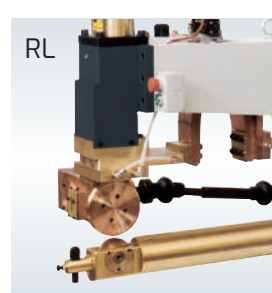
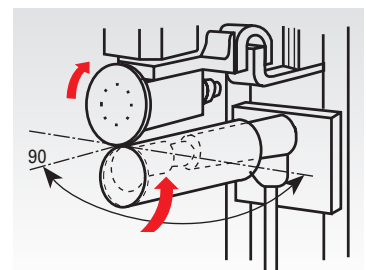
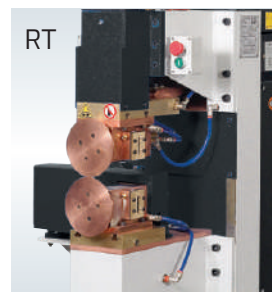


RT 80

- Sealed or interval welding
- High productivity
- Special version available on request

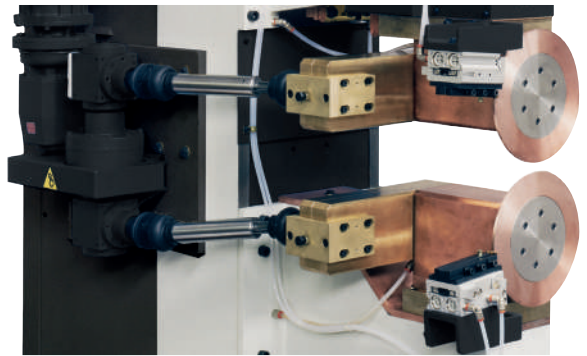
### RT / RL FEATURES

- RT version for transversal welding only
- RL version for longitudinal welding only
- Water cooled seam heads with silver contacts, ensuring a good current transmission from the static part to the shaft
- Reduced maintenance costs
- Self-lubricated pneumatic components to eliminate oil deposits and to safeguard the environment from contaminants
- Frequency converter to adjust the welding speed of the discs



## RT 2T FEATURES

- Double traction movement thanks to an industrial differential
- High control of the piece travelling during the welding
- Better managing of seam welding whenever it is needed to do a curve during the welding
- Possibility of operating the seam welders also with two different rolls dimensions



### SEAM WELDING

SEAM WELDING is a welding process by electric resistance. In such joining process overlapped metals are welded under pressure by a sequence of spots made by copper alloy rotating discs.

Depending on the choice of the parameters, such as spot frequency and rotation speed of the electrodes, two typical joints are usually achieved.

Fig. A represents the welding pattern made by choosing a short welding time with a long pause time. This is for joining two metals without water tight welding.

Fig. B shows the welding pattern made by adjusting welding and pause times in a way that each spot is overlapped by the next one. This joint allows water tight welding.

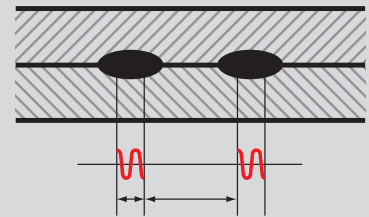


Fig. A

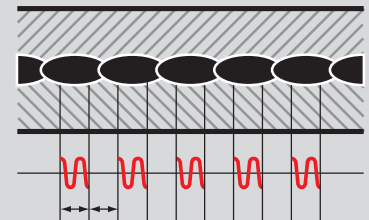


Fig. B

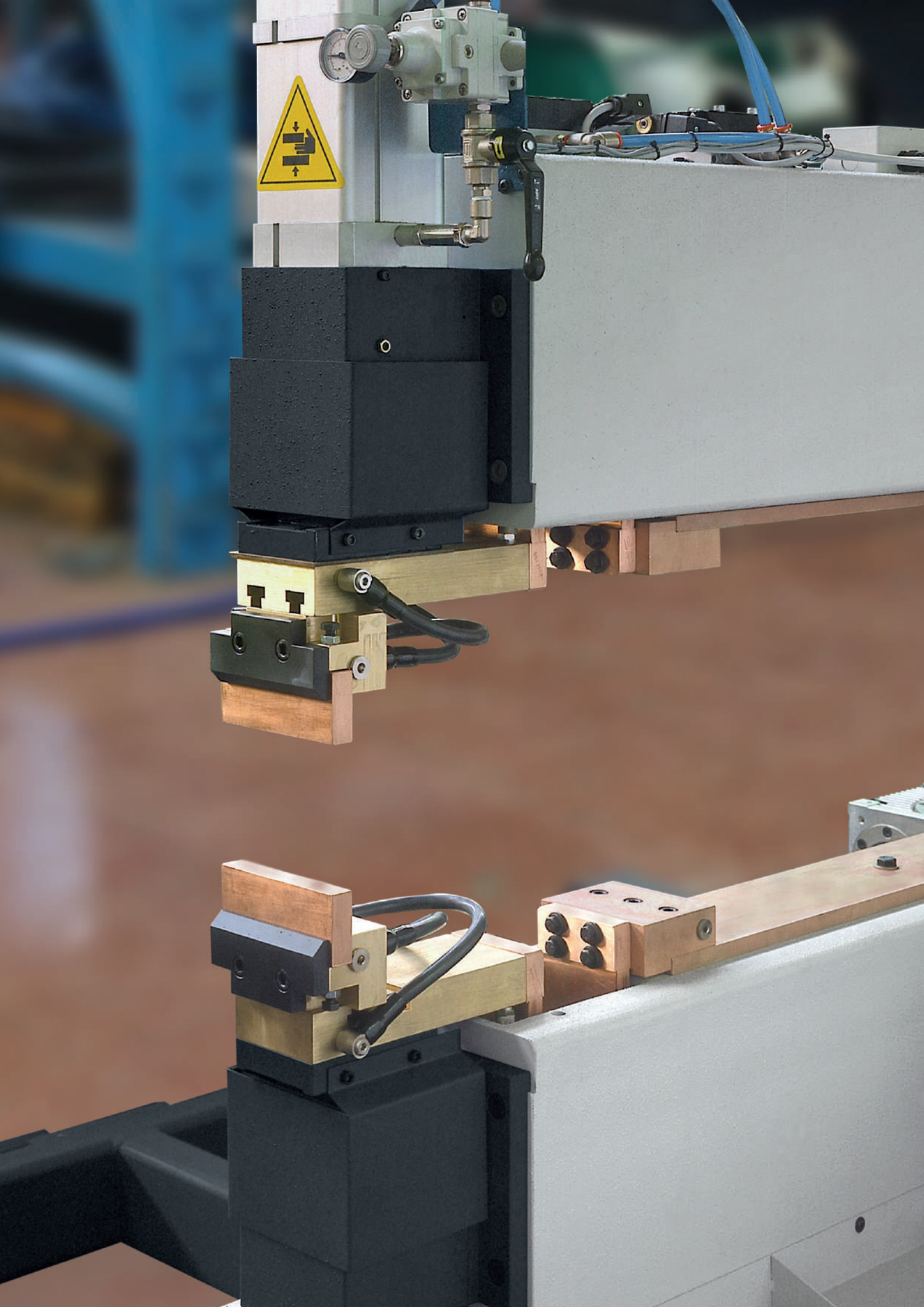
TECHNICAL DATA	RT					RL
	80	80 2t	81	180 2T	81	
Single phase input 50/60 Hz	V	400	400	400	400	400
Rated power at 50%	kVA	60	60	80	180	80
Installed power	kVA	60	60	80	180	80
Mains Delayed fuse	A	150	150	200	400	200
Open Circuit Voltage	V	5,1	5,1	6,7	9,5	6,7
Arm length	mm	450	450	800	450	800
Work stroke	mm	80	80	80	100	80
Max. disc force 600 kPa (6 bar)	daN	470	470	470	1200	470
Water consumption at 300 kPa (3 bar)	l/min	6	6	6	7	6
Welding speed	m/min	0,6 - 4,2	0,6 - 4,2	0,6 - 4,2	0,8 + 5	0,6 - 4,2
Max. welding capacity on mild steel	mm	1,2 + 1,2	1,2 + 1,2	1,2 + 1,2	2 + 2	1,2 + 1,2
Max. welding capacity on stainless steel	mm	1,5 + 1,5	1,5 + 1,5	1,5 + 1,5	3 + 3	1,5 + 1,5
Dimensions	↗ mm	1150	1150	1450	1450	1450
	→ mm	800	800	800	800	800
	↑ mm	2020	2020	2100	2100	2100
Weight	kg	800	800	900	1540	900
Drive head		A	A + B	B	A + B	B
Driving system		C	E	D	E	D

Drive head A = lower / B = upper  
Driving system C = toothed belt / D = direct with Hooke's joint / E = Differential

Other voltages on request

### ORDER INFORMATION

DESCRIPTION	
SEAM WELDERS	
RT 80	400 V
RT 80 2 T	400 V
RT 81	400 V
RT 180 2 T	400 V
RL 81	400 V





# CUSTOMIZED VERSION



68 VOYAGER



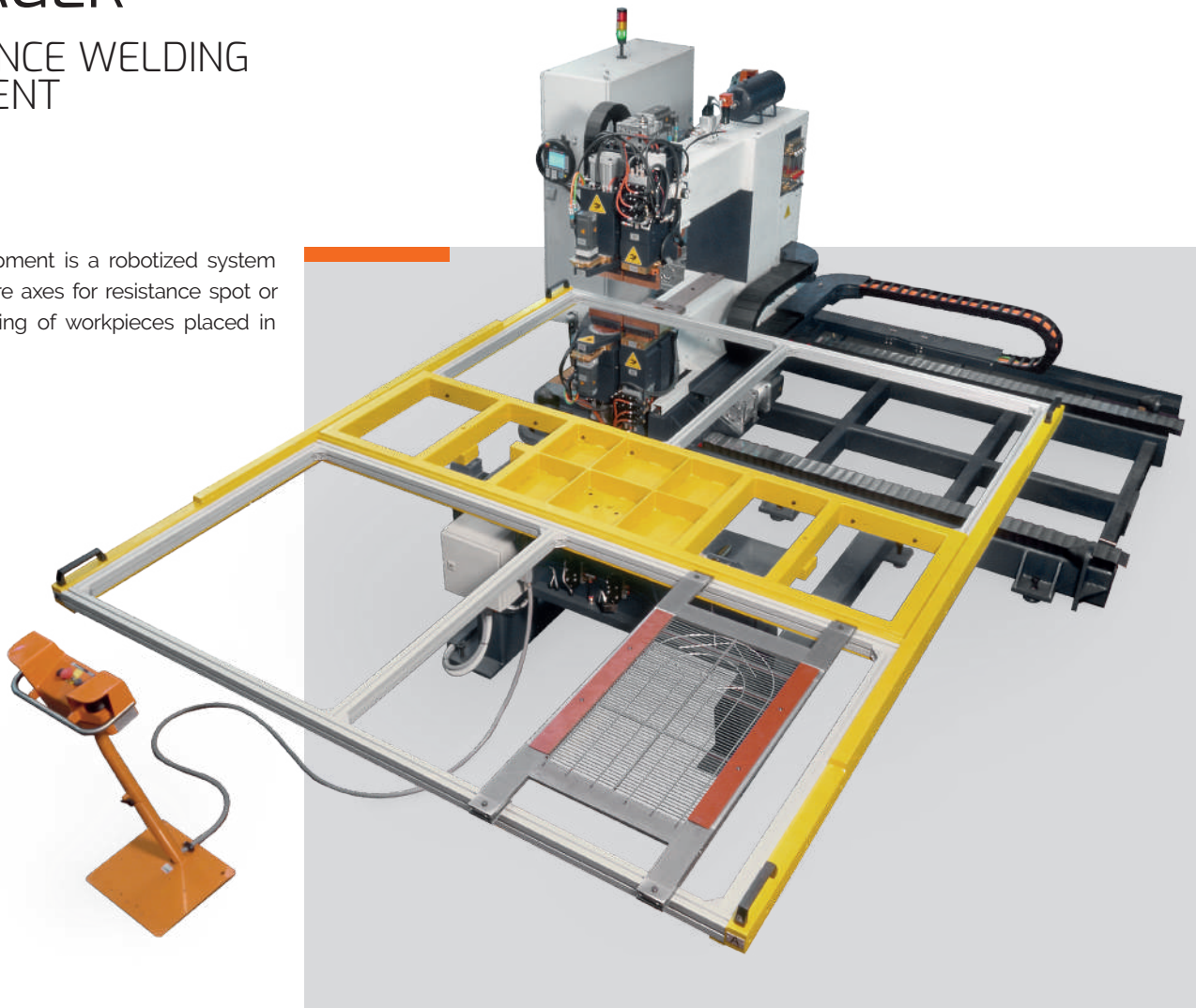
71 SPECIAL VERSION



# VOYAGER

## RESISTANCE WELDING EQUIPMENT

**VOYAGER** equipment is a robotized system working on more axes for resistance spot or projection welding of workpieces placed in proper jigs.



Flexibility, productivity and easy programming are the main features of **VOYAGER** equipment, suitable not only for small series mesh applications but also for lamination spotwelding of all materials, such as mild steel, stainless steel and aluminium.



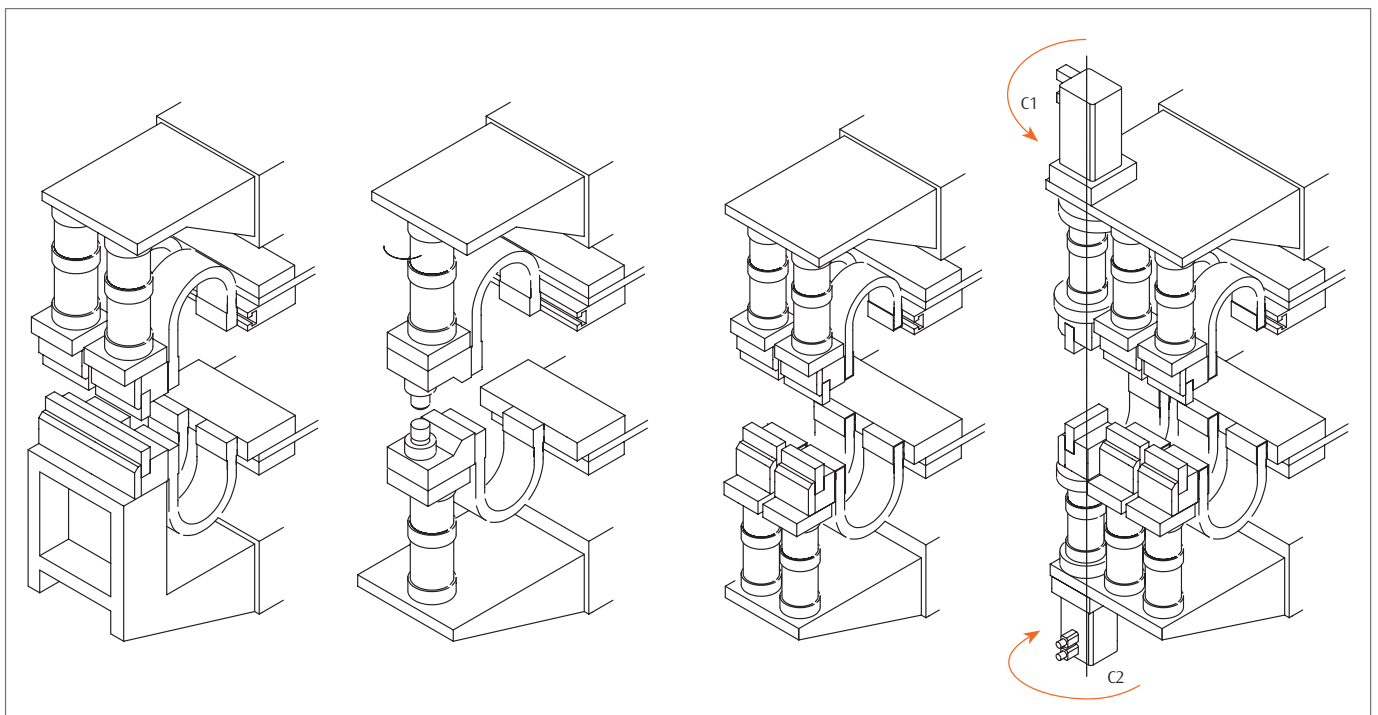
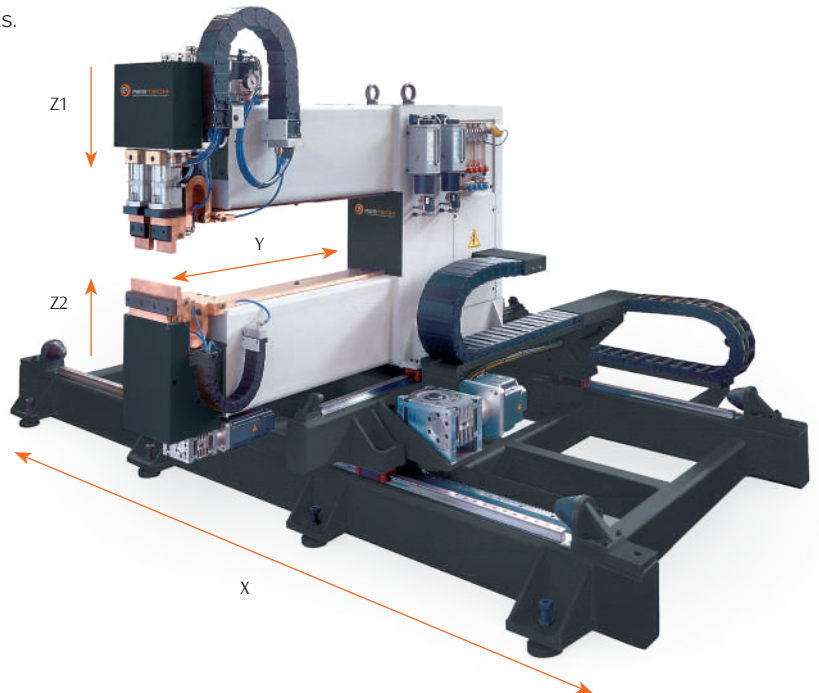
## VOYAGER FEATURES

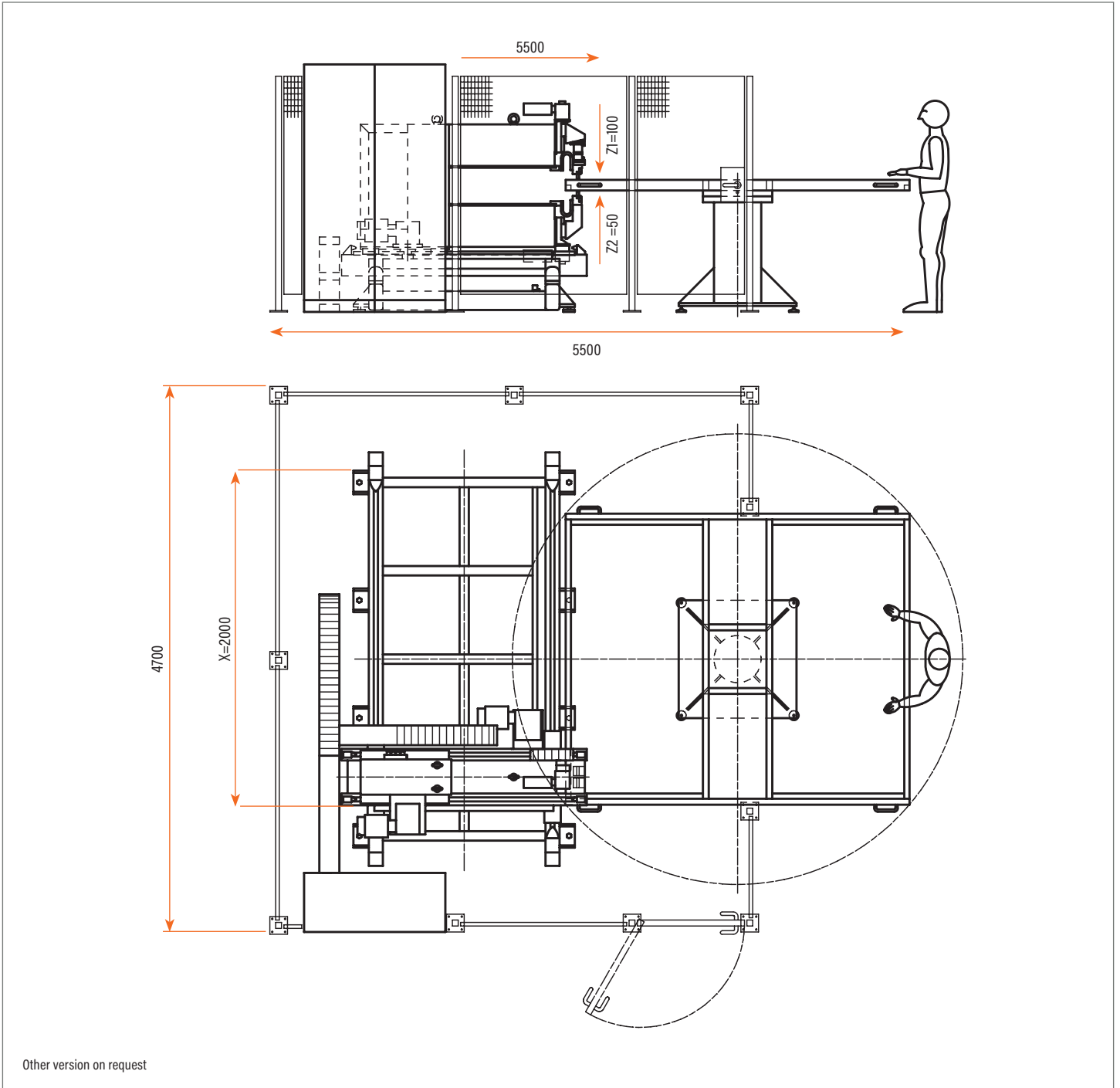
- Flexible programmable CNC system for positioning and welding at high and constant productivity.
- Easy programming thanks to CNC control teach-in function.
- Programmable independent welding parameters for each single spot.
- Possibility of welding at different heights thanks to programmable axes: Z1 (pre-stroke of upper electrode) and Z2 (stroke of the lower counterelectrode).
- Easy-to-operate and quick production shifting
- Shorter work cycle: workpiece loading/offloading during hidden time, by means of two station rotating table
- Working by servo operated brushless motors
- Robust and silent operation equipment
- Handheld remote control unit

## EQUIPMENT CONFIGURATION

The equipment can be customized on customer's needs. Several options are available.

- Welding mode:
  - Spotwelding
  - Projection welding
- Welding technology:
  - Medium Frequency inverter
  - Traditional 50 Hz
- Axis number
- Axis stroke length
- Welding head number
- Rotating electrodes (C1 - C2)
- Welding gun





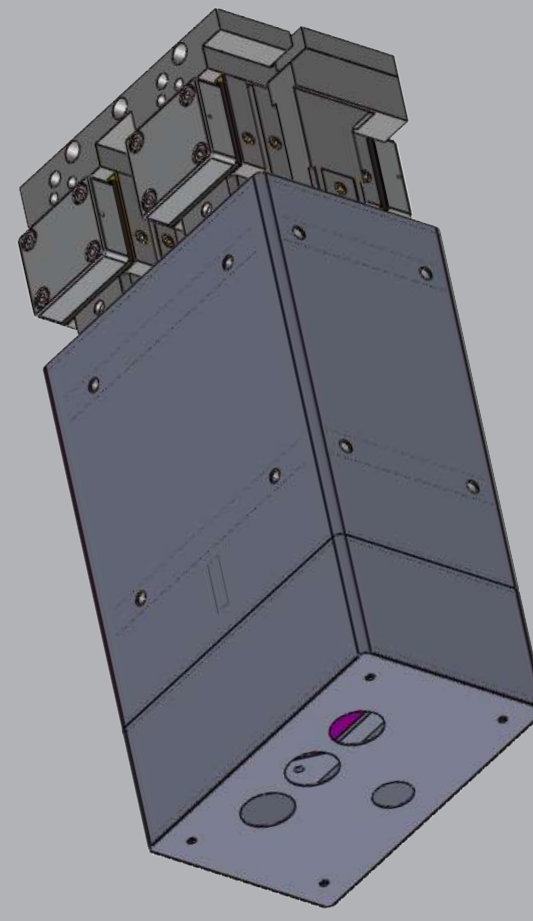
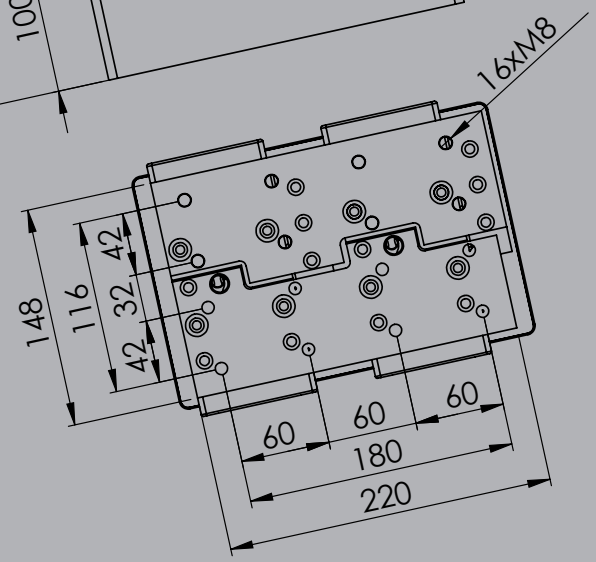
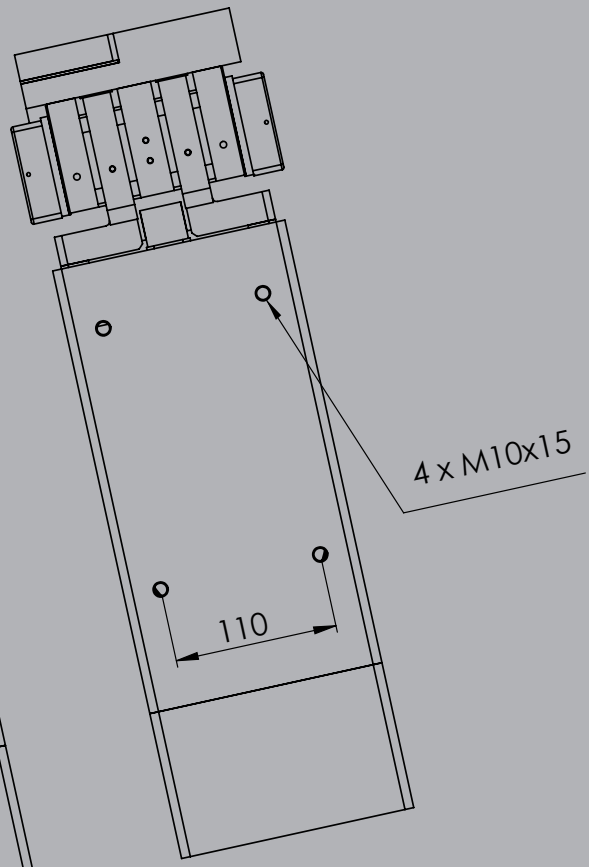
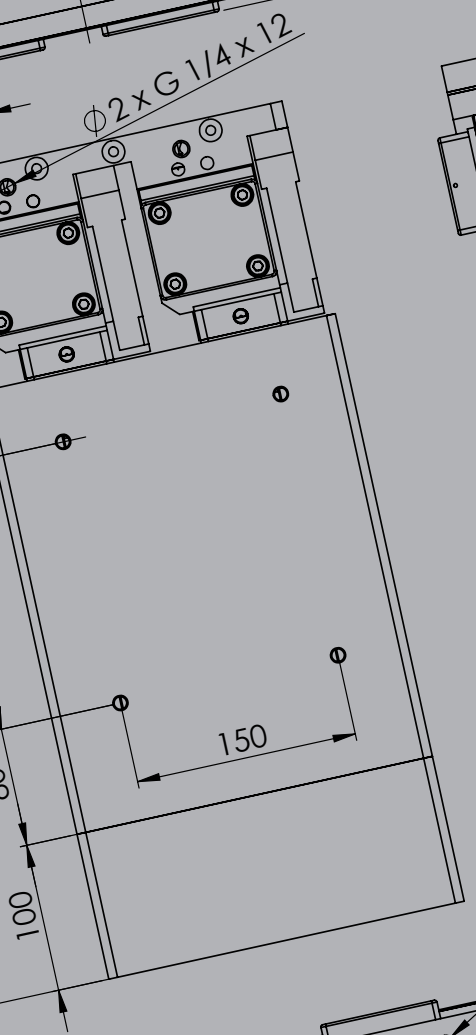
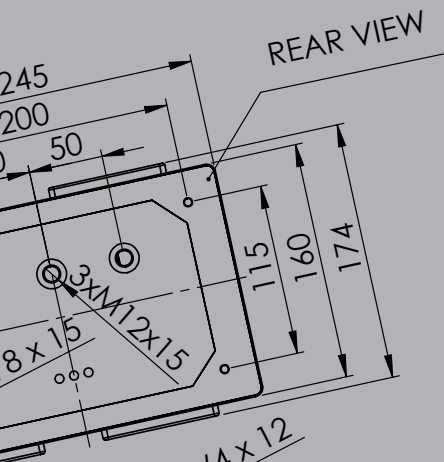
# SPECIAL VERSION

## BASED ON END-USER PROJECT

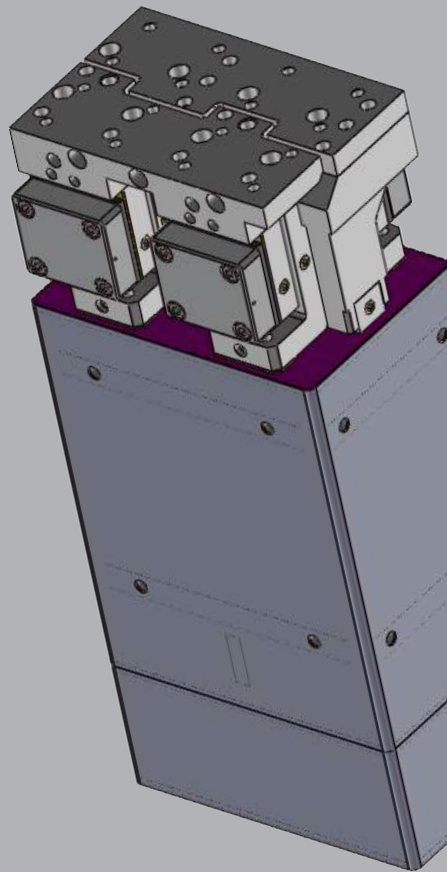
CEA also designs and manufactures special resistance machines, either fully automated or developed as purpose-built fully customized.

According to a specific requirement from clients and depending on parts to be welded, CEA resistance engineers are able to propose the best solutions most suiting any needs of resistance application or automation





MFT



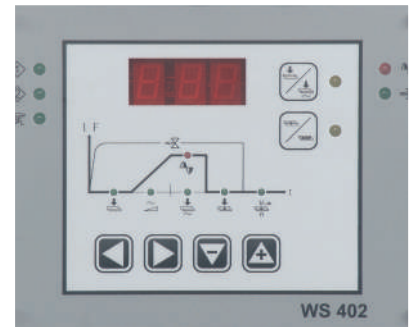
# RETROFIT KIT, TRANSFORMERS AND ELECTRONIC CONTROLS

400

# RETROFIT ELECTRONIC CONTROL KITS

## ORDER INFORMATION

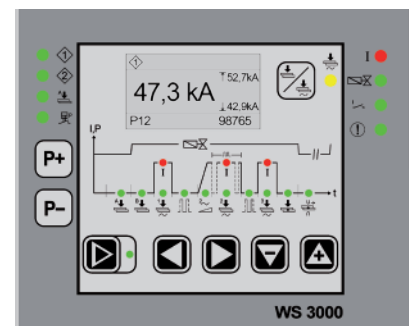
CODE	DESCRIPTION
<b>WS 402</b>	
352050	WS 402 control kit 230/400V without SCR
<b>WS 402 components included into the kit</b>	
349008	WS 402 electronic control
417360	Power panel without SCR module 230-400 V
413439	Auxiliary wiring for WS 402
<b>SCR module for WS 402</b>	
352105	SCR Module 110 A
352110	SCR Module 160 A
352115	SCR Module 250 A



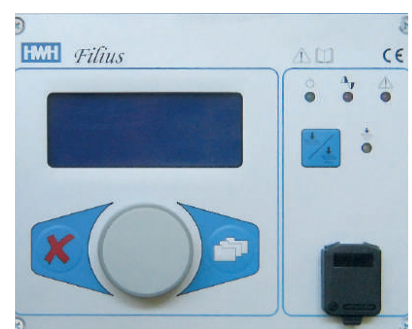
CODE	DESCRIPTION
<b>WS 708</b>	
352051	WS 708 control kit 230/400V without SCR
<b>WS 708 components included into the kit</b>	
417258	WS 708 electronic control
417397	Power panel without SCR module 230-400 V
413606	2m flat cable to connect WS 708 to firing circuit
413440	Auxiliary wiring for WS 708
<b>SCR module for WS 708</b>	
352105	SCR module 110 A
352110	SCR module 160 A
352115	SCR module 250 A
<b>OPTIONAL INSTEAD OF CODE 417397</b>	
352031	Power panel with SCR 800 A 230/400V water cooled
352026	Power panel with SCR 1200 A 230/400V water cooled



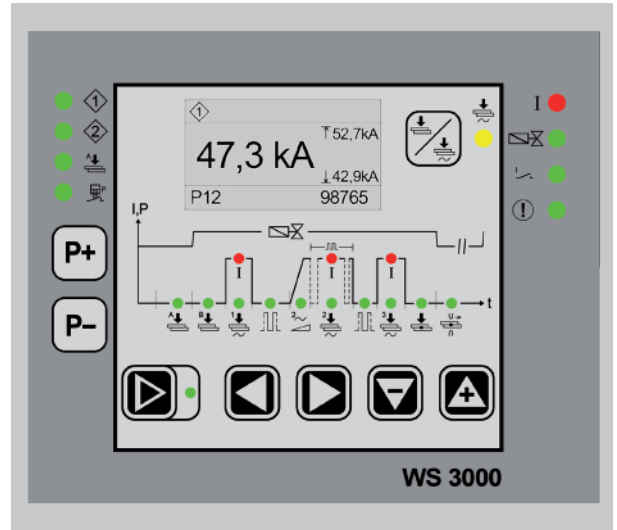
CODE	DESCRIPTION
<b>WS 3000 AC</b>	
352053	WS 3000 AC control kit 230/400V without SCR
<b>WS 3000 AC components included into the kit</b>	
417384	WS 3000 AC electronic control
417397	Power panel without SCR module 230-400 V
413606	2m flat cable to connect WS 3000 AC to firing circuit
417155	Toroidal coil 150 mV/kA , length 600 mm
413426	Auxiliary wiring for WS 3000 AC
<b>SCR module for WS 3000 AC</b>	
352105	SCR module 110 A
352110	SCR module 160 A
352115	SCR module 250 A
<b>OPTIONAL INSTEAD OF CODE 417397</b>	
352031	Power panel with SCR 800 A 230/400V water cooled
352026	Power panel with SCR 1200 A 230/400V water cooled



CODE	DESCRIPTION
<b>FILIUS</b>	
352052	FILIUS control kit 230/400V without SCR
<b>FILIUS components included into the kit</b>	
417215	FILIUS electronic control
415423	Interface module to power panel
413594	0,5m flat cable to connect FILIUS to interface module
417397	Power panel without SCR module 230-400 V
413606	2m flat cable to connect interface module to firing circuit
417155	Toroidal coil 150 mV/kA
<b>SCR module for FILIUS</b>	
352105	SCR module 110 A
352110	SCR module 160 A
352115	SCR module 250 A
<b>OPTIONAL INSTEAD OF CODE 417397</b>	
352031	Power panel with SCR 800 A 230/400V water cooled
352026	Power panel with SCR 1200 A 230/400V water cooled



# AC RETROFIT KITS



WS 3000 AC

## WELDING AC TRANSFORMERS - 1PH - 50 HZ

CODE	DESCRIPTION	S <sub>n</sub>	U <sub>2</sub>	I <sub>2p</sub>	V
290240	ACT 63	63 kVA	7,1 V	6,3 kA	400 V
290241	ACT 75	75 kVA	8,1 V	6,5 kA	400 V
290242	ACT 100	100 kVA	10,0 V	7,1 kA	400 V
290243	ACT 125	125 kVA	11,1 V	8,0 kA	400 V
290244	ACT 150	150 kVA	13,1 V	8,1 kA	400 V
290245	ACT 180	180 kVA	15,3 V	8,4 kA	400 V
290246	ACT 200	200 kVA	10,5 V	13,5 kA	400 V
290247	ACT 250	250 kVA	12,1 V	14,6 kA	400 V

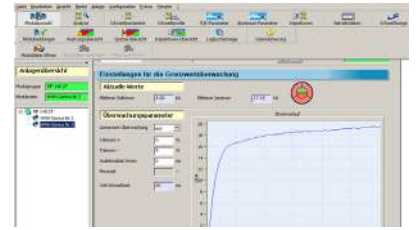
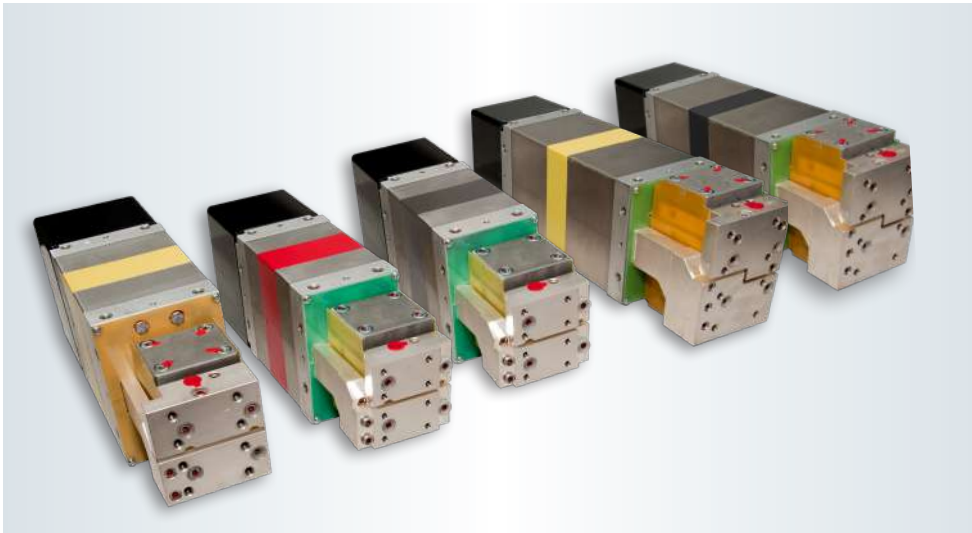
S<sub>n</sub>= Rated power at 50%

U<sub>2</sub>= Open circuit voltage

I<sub>2p</sub>= Secondary permanent current



# MEDIUM FREQUENCY KITS FOR INTEGRATORS



PC Software



CEA MF

## MEDIUM FREQUENCY KITS

INVERTER TYPE MF	Wt	@	MEDIUM FREQUENCY TRANSFORMER							
			MFT 40	MFT 75	MFT 100	MFT 170	MFT 200	MFT 250	MFT 400	
406	100 ms	5%	14 kA	14 kA						
408	100 ms	5%		14 kA	20 kA					
413	100 ms	5%		14 kA	20 kA	30 kA				
416	100 ms	5%			20 kA	36 kA	36 kA	26 kA		
424	100 ms	5%				36 kA	36 kA	35 kA	48 kA	

WT=max welding time @= duty cycle

## MF INVERTER UNITS - 1 KHZ

CODE	DESCRIPTION	V	I	A / W		
352060	Inverter group type 406	400 V	400 A	A		
352061	Inverter group type 406 W	400 V	400 A	W		
352062	Inverter group type 408	400 V	600 A	A		
352063	Inverter group type 408 W	400 V	600 A	W		
352064	Inverter group type 413	400 V	800 A	A		
352065	Inverter group type 413 W	400 V	800 A	W		
352066	Inverter group type 416 W	400 V	1200 A	W		
352067	Inverter group type 424 W	400 V	1600 A	W		
400594	PC Software X-PEGASUS SILVER					

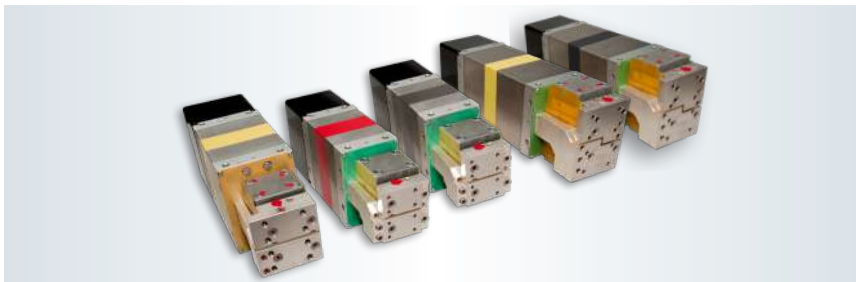
I= output current A= air cooled W= water cooled

## MEDIUM FREQUENCY TRANSFORMER - 1 KHZ

CODE	DESCRIPTION	Sn	U2		
290225	MFT 40	40 kVA	5,0 V		
290226	MFT 75	75 kVA	8,4 V		
290232	MFT 100	100 kVA	10,0 V		
290228	MFT 170	170 kVA	10,0 V		
290233	MFT 200	200 kVA	12,0 V		
290230	MFT 250	250 kVa	16,5 V		
290231	MFT 400	400 kVa	12,0 V		

Sn= nominal power at 50% duty cycle U2= no load secondary voltage

# RETROFIT MEDIUM FREQUENCY KIT



CEA MF



FILIUS MFS CLASSIC

## RETROFIT MEDIUM FREQUENCY KIT

INVERTER TYPE MF	Wt	@	MEDIUM FREQUENCY TRANSFORMER							
			MFT 40	MFT 75	MFT 100	MFT 170	MFT 200	MFT 250	MFT 400	
406	100 ms	5%	14 kA	14 kA						
408	100 ms	5%		14 kA	20 kA					
413	100 ms	5%		14 kA	20 kA	30 kA				
416	100 ms	5%			20 kA	36 kA	36 kA	26 kA		
424	100 ms	5%				36 kA	36 kA	35 kA	48 kA	

WT=max welding time @= duty cycle

## MF INVERTER UNIT - 1 KHZ - INCLUDING FILIUS MFS CLASSIC CONTROL

CODE	DESCRIPTION	V	I	A / W		
352085	Inverter group type 406 L with FILIUS MFS CLASSIC	400 V	400 A	A		
352080	Inverter group type 406 W with FILIUS MFS CLASSIC	400 V	400 A	W		
352086	Inverter group type 408 L with FILIUS MFS CLASSIC	400 V	600 A	A		
352081	Inverter group type 408 W with FILIUS MFS CLASSIC	400 V	600 A	W		
352087	Inverter group type 413 L with FILIUS MFS CLASSIC	400 V	800 A	A		
352082	Inverter group type 413 W with FILIUS MFS CLASSIC	400 V	800 A	W		
352083	Inverter group type 416 W with FILIUS MFS CLASSIC	400 V	1200 A	W		
352084	Inverter group type 424 W with FILIUS MFS CLASSIC	400 V	1600 A	W		

I= inverter output current A= air cooled W= water cooled

## ELECTRONIC CONTROL FOR MEDIUM FREQUENCY

CODE	DESCRIPTION	Sn	U <sub>2</sub>		
417218	FILIUS MFS CLASSIC control (**)	40kVA	5,0 V		

(\*\*) These controls are already included in the respective inverter unit

## MEDIUM FREQUENCY TRANSFORMERS - 1KHZ

CODE	DESCRIPTION	Sn	U <sub>2</sub>		
290225	MFT 40	40 kVA	5,0 V		
290226	MFT 75	75 kVA	8,4 V		
290232	MFT 100	100 kVA	10,0 V		
290228	MFT 170	170 kVA	10,0 V		
290233	MFT 200	200 kVA	12,0 V		
290230	MFT 250	250 kVA	16,5 V		
290231	MFT 400	400 kVA	12,0 V		

Sn= nominal power at 50% duty cycle U<sub>2</sub>= no load secondary voltage



# ELECTRONIC CONTROL SPARE PARTS

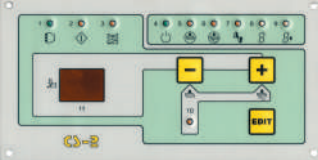
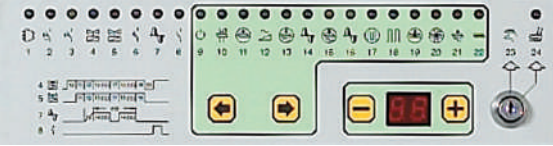


CODE	DESCRIPTION	Z18	ZP18	Z28	ZP28	K22	KP22	K28	KP28	K48	KP48
<b>WS 750</b>											
258281	Electronic control: WS 750	●	●	●	●	●	●	●	●	●	●
414289	Auxiliary wiring for Z and K	●		●		●		●		●	
414288	Auxiliary wiring for ZP and KP		●		●		●		●		●
417370	Power Panel without SCR module for WS 750	●	●	●	●	●	●	●	●	●	●
352100	SCR module 55A 400V	400V	400V								
352105	SCR module 110A 230/400V	230V	230V	400V	400V	400V	400V	400V	400V	400V	400V
352110	SCR module 160A 230V			230V	230V	230V	230V	230V	230V		
352115	SCR module 250A 230V									230V	230V
<b>WS 402</b>											
349008	Electronic control: WS 402	△	△	△	△	△	△	△	△	△	△
413663	Auxiliary wiring for Z and K	△		△		△		△		△	
413660	Auxiliary wiring for ZP and KP		△		△		△		△		△
417360	Power Panel without SCR module for WS 402	△	△	△	△	△	△	△	△	△	△
352100	SCR module 55A 400V	400V	400V								
352105	SCR module 110A 230/400V	230V	230V	400V	400V	400V	400V	400V	400V	400V	400V
352110	SCR module 160A 230V			230V	230V	230V	230V	230V	230V		
352115	SCR module 250A 230V									230V	230V

CODE	DESCRIPTION	DUAL	X-GUN	C-GUN	BSW			PPS			PPN						
		30	18/28	28	25	50	100	35	60	125	28	53	63	83	103	153	253
<b>WS 750</b>																	
258281	Electronic control: WS 750				●	●	●	●	●	●	●	●	●	●	●	●	●
417372	Power Panel without SCR module for WS 750				●	●											
417370	Power Panel without SCR module for WS 750							●	●				●				
352110	SCR module 160A 230V				400V;400V;			400V;400V;					400V;				
352115	SCR module 250A 230V				230V;230V;			230V;230V;					230V;				
417373	Power Panel with SCR module for 800A								●					●	●		
417374	Power Panel with SCR module for 1200A															●	●
<b>DIGIT 8 &gt; CS-290P</b>																	
417241	Electronic control: CS-290P				△	△	△				△	△		△	△	△	△
417250	Electronic control: DIGIT 8 (> code 417241)				△	△	△				△	△		△	△	△	△
417389	Power Panel without SCR modul for DIGIT 8				△	△											
417385	Power Panel without SCR modul for DIGIT 8											△	△				
352110	SCR module 160A 230V				400V;400V;							400V;400V;					
352115	SCR module 250A 230V				230V;230V;							230V;230V;					
432067	Power Panel with SCR group 800A 400V							400V;						400V;400V;			
432071	Power Panel with SCR group 1200A 230/400V													230V;230V;	400V;400V;		
<b>WS 708</b>																	
417258	Electronic control: WS 708	●	●	●	△	△	△	△	△	△	△	△	△	△	△	△	△
417365	Power Panel without SCR modul for WS 708	●	●	●	△	△											
417397	Power Panel without SCR modul for WS 708								△	△		△	△	△			
352105	SCR module 110A 400V	400V	400V	400V													
352110	SCR module 160A 230/400V	230V	230V	230V	400V;400V;			400V;400V;				400V;400V;400V;					
352115	SCR module 250A 230V				230V;230V;			230V;230V;				230V;230V;230V;					
352031	Power Panel with SCR group 800A 400V							400V;			400V;			400V;400V;			
352026	Power Panel with SCR group 1200A 230/400V							230V;			230V;			230V;230V;	400V;400V;		
<b>MPS 300 RI</b>																	
352110	SCR module 160A 400V				400V;400V;							400V;400V;					
352115	SCR module 250A 230V				230V;230V;							230V;230V;					
432086	Power Panel with SCR group 800A 400V							400V;						400V;400V;			
432087	Power Panel with SCR group 1200A 230/400V													230V;230V;	400V;400V;		
417150	Toroidal coil					△	△				△	△					
417155	Toroidal coil (600 mm)														△	△	△
<b>WS 3000 AC - FILIUS</b>																	
417384	Electronic control: WS 3000 AC																
417215	Electronic control: FILIUS				●	●	●				△	△	●	●	●	●	●
417365	Power Panel without SCR module				●	●											
417397	Power Panel without SCR module								●	●		△	△	●			
352110	SCR module 160A 400V				400V;400V;							400V;400V;400V;					
352115	SCR module 250A 230V				230V;230V;							230V;230V;					
352031	Power Panel with SCR group 800A 400 V							400V;			400V;			400V;400V;			
352026	Power Panel with SCR group 1200A 230/400V							230V;			230V;			230V;230V;	400V;400V;		
417150	Toroidal coil				●	●	●										
417155	Toroidal coil (600 mm)								●	●	●			●	●	●	●

● = Spares for machines quoted in the present list  
 △ = Spares for old machines

N.D. Not Available  
 (\*\*\*) See Spares Parts ex- Works Price List

# ELECTRONIC CONTROL SPARE PARTS FOR BUTT WELDERS

CODE	DESCRIPTION	SQ 121	SRT 11	SRT 11 Pulse	SRT 10 R	SQ/A 120 Pulse	SQ/A 121	SQ/AS 121
<b>CS-2</b>								
								
417243	CS-2 electronic control	△	△					
352105	SCR module 110A 400V		400V					
352110	SCR module 160A 230/400V		400V;230V					
352115	SCR module 250A 230V		230V					
<b>DIGIT-8</b>								
								
417257	DIGIT 8 electronic control for butt welders			N.A.	N.A.			
417385	Power Panel without SCR module		△	△				
352105	SCR module 110A 400V		400V					
352110	SCR module 160A 230/400V		230V	400V				
352115	SCR module 250A 230V			230V				
<b>DIGIT-816</b>								
								
417251	DIGIT 816 electronic control			N.A.				
417385	Power Panel without SCR module		△	△				
352105	SCR module 110A 400V		400V					
352110	SCR module 160A 230V		230V					
<b>CS-T10</b>								
								
417245	CS-T10 electronic control						● ●	
432089	Power panel with SCR group 160A 400V						400V;400V	
432090	Power panel with SCR group 800A 230V						230V;230V	

● = Spares for machines quoted in the present list

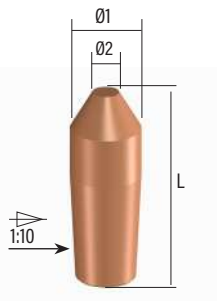
△ = Spares for old machines

N.D. Not Available

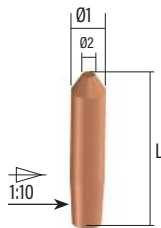
(\*\*\*) See Spares Parts ex- Works Price List

# ELECTRODES

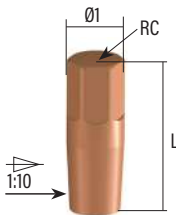
CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
380004	Z 18/28 ZP 18/28	6	16	6	45
380004	K 22/28/48 KP 22/28/48	6	16	6	45
380007	PPS 35/60 PPN 63/83 MF 1040/1041/5020	6	19	8	55
380008	PPS 125 PPN 103/153/253	6	25	8	75



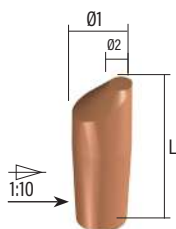
CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
425253	Z 18/28 ZP 18/28	1	16	6	80
425253	K 22/28/48 KP 22/28/48	1	16	6	80
425255	PPS 35/60 PPN 63/83 MF 1040/1041/5020	1	19	8	80



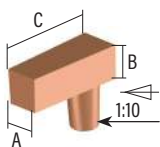
CODE	MACHINE TYPE	Q.ty	Ø1	L	RC
425323	PPS 60 PPN 63/83	1	19	55	75
345311	PPN 103/153/253	1	25	67	125
345312	PPN 103/153/253	1	25	67	175
425323	MF 1040 MF 1041	1	19	55	75



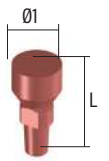
CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
425081	Z 18/28 ZP 18/28	1	16	6	45
425081	K 22/28/48 KP 22/28/48	1	16	6	45
425091	PPS 35/60 PPN 63/83 MF 1040/1041/5020	1	19	8	55



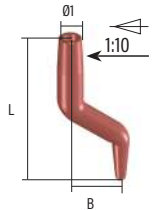
CODE	MACHINE TYPE	Q.ty	A	B	C
345439	Z 18/28 ZP 18/28	1	20	17	50
345439	K 22/28/48 KP 22/28/48	1	20	17	50



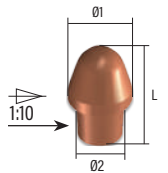
CODE	MACHINE TYPE	Q.ty	Ø1	L
425121	Z 18/28 ZP 18/28	1	30	62
425121	K 22/28/48 KP 22/28/48	1	30	62



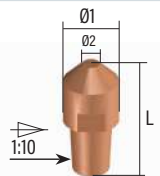
CODE	MACHINE TYPE	Q.ty	Ø1	L	B
424881	Z 18/28 ZP 18/28	1	16	94	35
424881	K 22/28/48 KP 22/28/48	1	16	94	35
425325	K 22/28/48 KP 22/28/48	1	16	94	40



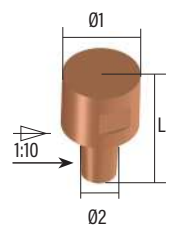
CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
380006	BSW 25	6	16	12	25



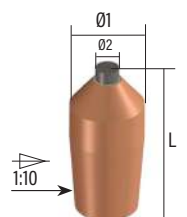
CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
380005	Z 18/28 ZP 18/28	6	16	6	34
380005	K 22/28/48 KP 22/28/48	6	16	6	34



CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
425327	Z 18/28 ZP 18/28	1	30	16	50
425327	K 22/28/48 KP 22/28/48	1	30	16	50
425326	PPS 35/60 PPN 63/83 MF 1040/1041/5020	1	30	19	55
345313	PPN 103	1	25	25	67



CODE	MACHINE TYPE	Q.ty	Ø1	Ø2	L
425328	Z 18/28 ZP 18/28	1	16	5	45
425328	K 22/28/48 KP 22/28/48	1	16	5	45
425329	PPS 35/60 PPN 63/83 MF 1040/1041/5020	1	19	5	60



# SYMBOLS LIST



Rocker arm spot welders



Vertical stroke welders



Spot welders



Projection welders



Twin spot welders



Butt welders



Flash butt welders



Seam welders



Single phase input



WS 750 Standard control panel



Three phase input



WS 750 Advanced control panel



Alternating current output



WS 708 control panel



Direct current output



FILIUS control panel



Inverter



WSI 100 control panel



Digital display



CST 10 control panel



Mechanical foot pedal



Electrical pedal



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September 2025



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.



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