

INFRARED/HOT PLATE WELDER

THE ULTIMATE RANGE IN **IR/HP** TECHNOLOGY

RELIABLE AS EVER, EVEN MORE EFFICIENT



YOUR PARTNER
IN PLASTIC JOINING

Cutting edge technology and full equipment as a standard

FULL ELECTRIC

Thanks to an “user friendly” electrical engine, able to meet even the most stringent requirements, the machines are cleaner, speedier and really efficient from the a power consumption point of view, especially if compared to the traditional hydraulic machines. These machines ensure an incomparable production rate capability.



128 TOOL MEMORIES

The machines can store up to 128 different equipment parameters, automatically recognizable. Data can be easily copied to other machines, if needed.



NO COMPROMISE FOR QUALITY

All the components used by CEMAS are from the world leading suppliers and never from sub-brands. Safety is our ultimate goal, as well as a prompt availability of spares worldwide.



EASY MAINTENANCE

The use of the latest-generation electronic components has resulted in a remarkably small control panel.

The machines are provided with rear and lateral doors (electrically controlled) to allow a comfortable access to the tools/mirror for an easy maintenance or tool adjustment.



HIGHLY CUSTOMIZABLE

Many standard features included in our machines are optionals for our competitors and, should this not be enough, just turn the page to discover a full range of over 60 optionals for your tailor-made machines.



INNOVATIVE OPERATOR INTERFACE SYSTEM

Accurate does not mean complicated: no other machine on the market is so “user friendly”. We have made a big effort in designing our video graphic to simplify any operation. Actually, there would be no need for operator’s training.

- switching to your language is as simple as pressing a key;
- tool movement graphic programming: no need to call us for a new tool!
- constantly linked to CEMAS through the Teleservice system for diagnostics and online customer’s service.



Control screen



Time schedule programmer



Heating



PLC I/Os



Top quality and cost-effectiveness

The hot plate welding machines are part of our traditional production since 1986, and nowadays CEMAS ELETTRA owns a remarkable know-how linked to this technology.

CEMAS ELETTRA provides three different models of standard machines, all of them "full electrical": HP9, HP14, HP20.

There is also a "special" model, HP13², specifically dedicated to the welding of plastic pallets.

Starting from 2007, **CEMAS ELETTRA has also developed different infrared applications** suitable to be applied to the same range of machines: IR9, IR14, IR20. Currently infrared is one of our best-seller technologies, further proof of the reliability of our machines.



IR9/HP9

The smallest and the most popular of its range.

This machine is designed to weld tiny components, as well as more challenging parts.

Ideal to perform the welding of resonators, air intake manifolds, glove-box or rear lamps in "single cavity".

As all the other CEMAS machines, it is extremely compact in size when compared to the inner working area available. Thanks to its power supply, this machine guarantees high productivity and reduced power consumption.

IR14/HP14

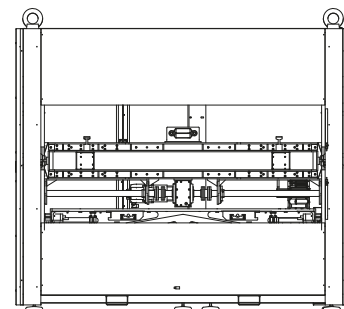
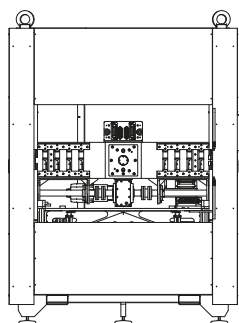
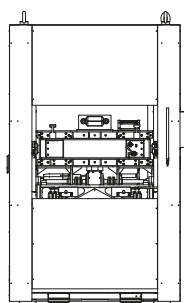
This medium-size machine is very versatile and suitable to perform the welding of medium to large size components.

Its electric nature, extremely functional and precise at the same time, makes this machine a one-of-a-kind for welding rear lamps in "double cavity", as well as other medium plastic components, for example washing machine drums.

IR20/HP20

This is the largest machine of its range.

Despite its size, given its electrical nature, this machine keeps the same standards of precision and power of the previous ones, but within an increased body, designed to perform the welding of large and oversized components, like instrument panels, air ducts, dashboards or outdoor furniture. In this machine, it is possible to integrate other welding devices, such as ultrasonic, cutting, etc.



HP13²

This is a "special" hot plate machine model, designed to weld plastic pallets (maximum area 1300x1300 mm).



All the hydraulic movements are controlled by speed proportional valves on the presses, for a highly dynamic and soft operations. All the parameters can be set from the operator panel. Loading and unloading zones can have different configurations, in order to be used either by one or two operators; moreover the machine has the possibility to be integrated in an automatic production line.

There are different kinds of optionals available depending on the working cycles/technical specifications needed.

INPUT

Power supply	[50HzThree-phases+N+GND]
Pneumatic power (min.)	[bar]
Maximum power required (peak load)	[KW]

IR9/HP9

a.c. 400V
5
23 (IR) 31 (HP)

IR14/HP14

a.c. 400V
5
28 (IR) 44 (HP)

IR20/HP20

a.c. 400V
5
40 (IR) 72 (HP)

HP13²

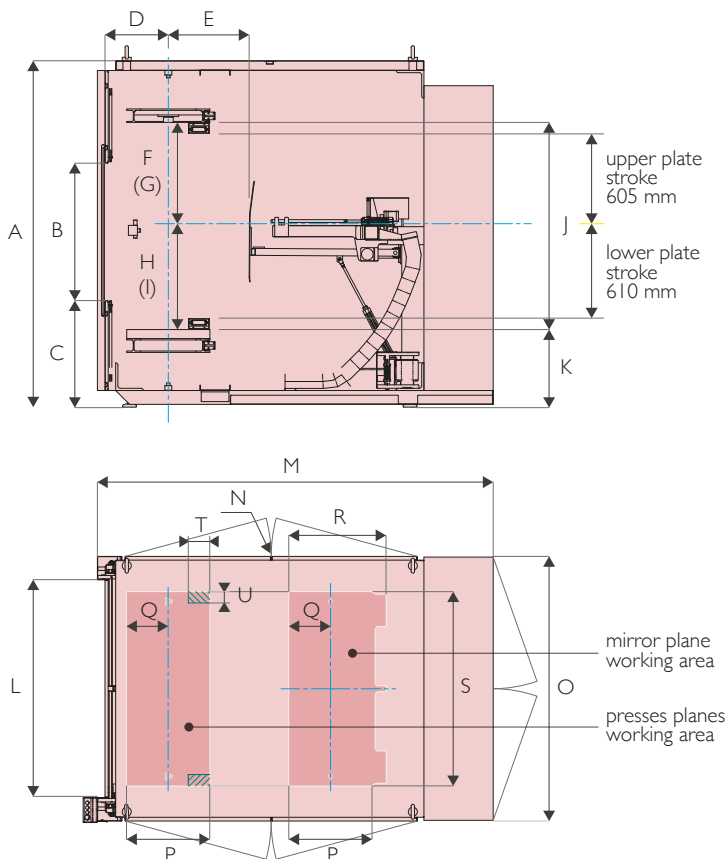
a.c. 400V
5
65

MECHANICAL DATA

Lifting table height	[mm]	560	560	740	655
Front-door span	[mm]	1070 × 990	1570 × 990	2300 × 980	1600 × 1000
Overall dimensions	[W×D×H mm]	1580 × 2660 × 2545	2080 × 2860 × 2545	2780 × 2835 × 2350	2320 × 4100 × 2200
Total weight	[Kg]	3000	3500	4500	7700
Hydraulic oil	[Lt/ISO32]				400
Lower plate	[mm]	900 × 500	1400 × 600	2000 × 800	1200 × 1200
Upper plate	[mm]	900 × 500	1400 × 600	2000 × 800	1200 × 1200
Presses opening min/max	[mm]	280/1495	280/1495	100/1020	1000
Mirror	[mm]	900 × 500	1400 × 600	2000 × 800	1300 × 1300
Presses speed	[mm/sec]	650	650	500	200
Mirror speed	[mm/sec]	2200	2000	1000	300
Mirror stroke	[mm]	840	940	1000	1700
Clamp maximum force	[kg/F]	1000/1400 (opt)	1400	1500	3000
Heating zones		4	8	16	4
Movement type					Hydraulic

CONTROL

PLC Control	Siemens S7-CPU 1512SP-1PN	Siemens S7-CPU 1512SP-1PN	Siemens S7-CPU 1512SP-1PN	Siemens S7-CPU 1512SP-1PN
Operating panel	PC PANEL 9' IPC 277E	PC PANEL 9' IPC 277E	PC PANEL 9' IPC 277E	PC PANEL 9' IPC 277E
Welding depth sensitivity	[mm]	0,05	0,05	0,05
Work settings memory		up to 128 automatic equipment	up to 128 automatic equipment	up to 128 automatic equipment
Type of communication		Ethernet/profinet	Ethernet/profinet	Ethernet/profinet



IR9/HP9

IR14/HP14

IR20/HP20

A	2545	2545	2350
B	990	990	980
C	770	770	735
D	410	460	480
E	535	585	545
F	730	730	510
G	140	140	50
H	765	765	510
I	155	155	50
J	1495	1495	1020
K	560	560	740
L	1070	1570	2300
M	2660	2860	2835
N	955	1050	1155
O	1580	2080	2780
P	500	600	800
Q	250	300	400
R	600	700	900
S	900	1400	2000
T	155	155	210
U	80	80	80

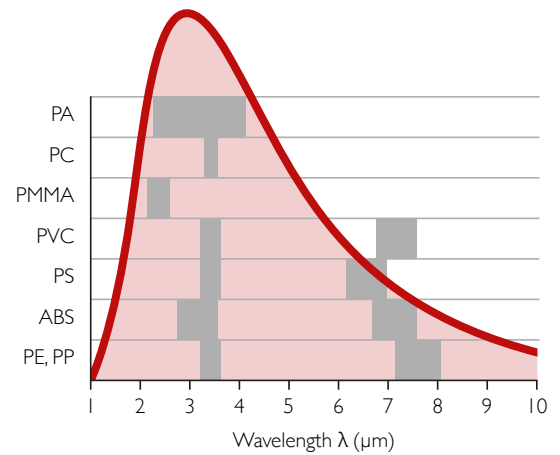
INFRARED TECHNOLOGY

The new way to weld by irradiation without contact

The infrared welding process uses a non-contact heat input issued from medium-wavelength metal-foil emitters (that reach surface temperatures between 800°-950°).

Emitters with metal coil are mounted on ceramic substrates, and manufactured to exactly follow the welding profile, allowing a **really high design flexibility**; they are not enclosed in any container and this **significantly increases the efficiency of the emission**. The welding zones are controlled and managed **individually** and each emitter is operated by its own controller: IRM (Infrared Module). This feature is particularly important when dealing with heat-sensitive parts.

Infrared technology is the "natural" evolution of the hot-plate technology. It has been developed to **overcome** some critical issues that, following the introduction of new welding materials, have become more and more evident, particularly in recent years.



Emission spectrum of a medium-wave metal-foil emitter (red) and self-absorption bands of technical plastics (grey)



ENERGY EFFICIENCY

Depending on the molecular structure of the materials to be welded, using specific bands of medium-wavelength, it is possible to obtain a high transmission of power and an excellent absorption.



NON-CONTACT = CLEAN WELDING TECHNOLOGY

Welding without contact is particle-free and allows to avoid problems of smokes and residual molten material: materials will maintain their natural consistency (without deterioration); this is very important for all materials and even indispensable for low density materials such as PE-LD and the polystyrene.



NO HEATING TIME AND REDUCED POWER CONSUMPTION

The infrared metal-coil emitters are heated instantaneously at the time of welding. During the rest of the process the system works in standby mode, significantly reducing the power consumption.



NO DESIGN LIMITS

Its process is characterized by a great design flexibility that allows high joining performances, even for the most complex shapes. The infrared technology ensures an unmatched design freedom, including 3D-geometries and it is specifically well-suited for welding reinforced plastic components, as well as materials with high flow rate.

HOT PLATE TECHNOLOGY

The simplest and intuitive welding system existing to date

Even though other new welding systems have gradually put aside the hot plate technology, there are always cases in which its use is necessary or simply more economical. CEMAS ELETTRA has developed its own hot plate machines range: HP9, HP14, HP20. All of them are "full electric" and capable to answer to any production requirement."

THE CEMAS WAY

Proprietary technology and a fully scalable modular architecture

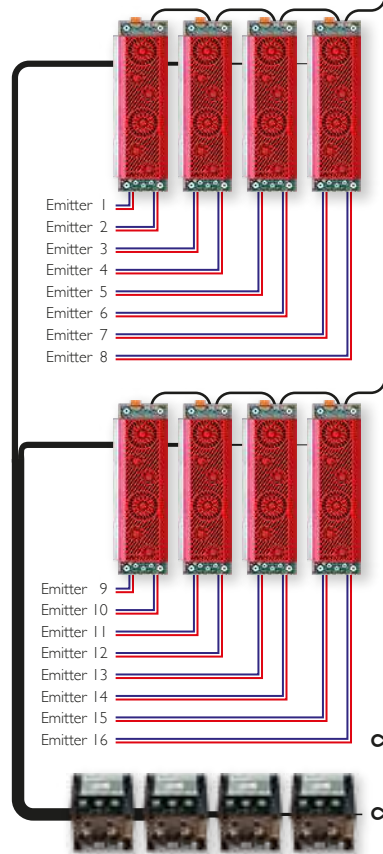
The core of our innovative system is the **IRM** 3.0, a microprocessor based device able to manage separately two different channels, in order to perform an optimal use of each metal foil. This unique feature dramatically **optimizes the space management**, maintaining a **high output power**.



Proprietary technology



FULL ELECTRIC DRIVING SYSTEM



◀ The ultra fast protocol communication enables a **FULLY DIGITAL MODULAR ARCHITECTURE**. For unrivaled management, diagnostic and flexibility.

The **IRM** control modules are powered by **SPECIFICALLY DESIGNED POWER UNITS**. Even the electrical power system is **COMPLETELY MODULAR** and can be freely configured based on your specific power needs with virtually **NO LIMITS**. ◀

LOW MAINTENANCE



All the maintenance problems related to hydraulic operations, such as oil leakage, are avoided. Moreover, thanks to this non-contact welding, it is not necessary to clean the "plate", as it happens for the traditional hot plate machines.



RELIABILITY

CEMAS infrared machines are full electric and always equipped with top class materials and components. No cost-saving is allowed, because we take meticulous care on the design of our products. For this reason, our machines ensure the highest welding standards in terms of flexibility, quality and cost-effectiveness.



PRECISION

Full electric means unmatched repetitiveness, accuracy and fluidity in movements dynamics and, for this reason, guarantees an aesthetically perfect and clean joint. Moreover, the user interface allows the complete control of all the welding parameters, offering the possibility to monitor and, if necessary, to instantaneously change heating settings.

OPTIONALS

● Included

□ Optional

IR

HP

DESCRIPTION	IR			HP			
	9	14	20	9	14	20	
Vacuum on upper tool							1
Vacuum on lower tool							2
Heating zones by GFXA module/IR module	4	8	16	4	8	16	3
Pneumatic valves for tool movements (total upper and lower)	2	4	6	2	4	6	4
Part detection - signals (total upper and lower)	2	4	6	2	4	6	5
Safety edge on the front door	●	●	●	●	●	●	6
Middle gate for fire protection	●	●	●	●	●	●	7
Linear transducer Balluff							8
LED lighting	●	●	●	●	●	●	9
128 automatic tool detections & up to 32 tools memories	●	●	●	●	●	●	10
Noise level ≤80dB	●	●	●	●	●	●	11
Start buttons on the right side							12
Automatic plug connection for mirror (electrical & pneumatic)	●	●	●	●	●	●	13
Automatic tool change for mirror (mechanical clamps)	●	●	●	●	●	●	14
Pneumatic foot switch	□	□	□	□	□	□	15
Additional pneumatic valve - Festo	□	□	□	□	□	□	16
Second vacuum circuit - VADMI Festo	□	□	□	□	□	□	17
Third vacuum circuit - VADMI Festo	□	□	□	□	□	□	18
Vacuum pump (Brand Becker) with remote digital vacuumeter - (VT 4.10 Becker)	□	□	□	□	□	□	19
Additional vacuum circuit with remote digital vacuumeter	□	□	□	□	□	□	20
Remote digital vacuumeter	□	□	□	□	□	□	21
Air gun outlet	□	□	□	□	□	□	22
Air gun outlet with ionized air	□	□	□	□	□	□	23
Automatic tool change on upper/lower tool	□	□	□	□	□	□	24
Trolley interface for toolchange on front side + connection plate	□	□	□	□	□	□	25
Ball transfer units on lower table	□	□	□	□	□	□	26
Siemens Pc Panel	□	□	□	□	□	□	27
Additional light curtains on front side	□	□	□	□	□	□	28
Traceability system (Included module wifi+barcode reader)	□	□	□	□	□	□	29
Voltage stabilizer	□	□	□	□	□	□	30
UPS power backup	□	□	□	□	□	□	31
Electrical cabinet cooling system	□	□	□	□	□	□	32
Modem analogic for teleservice (Siemens)	□	□	□	□	□	□	33
Modem with SIM/WIFI connection for teleservice (EWON)	□	□	□	□	□	□	34
USB plug for production data downloading	□	□	□	□	□	□	35
BADGE reader	□	□	□	□	□	□	36
External label printer (Modello Zebra)	□	□	□	□	□	□	37
Integrated mini printer (Ticket with welding parameters)	□	□	□	□	□	□	38
Robot connection setup	□	□	□	□	□	□	39
Additional 4 IR controllers	□	□	□				40
Acoustic alarm warning	□	□	□	□	□	□	41
Light column	□	□	□	□	□	□	42
Second push-buttons panel on left side	□	□	□	□	□	□	43
External lighting high performance	□	□	□	□	□	□	44
External lighting normal neon	□	□	□	□	□	□	45
Bar Code reader	□	□	□	□	□	□	46
Start cycle optical button	□	□	□	□	□	□	47
Additional linear transducers Balluff (total 2)	□	□	□	□	□	□	48
Automatic plug connection for upper/lower tool (electrical & pneumatic)	□	□	□	□	□	□	49
Part detection management - Additional signal up to 8°	□	□	□	□	□	□	50
Extractor fan for mirror smoke	□	□	□	□	□	□	51
External air exhaust and filtering system	□	□	□	□	□	□	52
HMI with adjustable level (1350-->1900 from the floor)	□	□	□	□	□	□	53
Special color	□	□	□	□	□	□	54

● PRODUCTION PLANTS



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