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| HY120 and HY060 Technology |

TECNA®

Advanced Resistance Welding Systems

Hybrid welding technology (Patent Pending)

Medium Frequency Resistance Welding with Energy Storage

The HY120 and HY060 introduce a new hybrid technology, comprehending energy storage and inverter, which propels us into the logic of energy saving towards which the world is evolving. The low energy absorption diluted over time combined with excellent welding quality make this technology suitable for any kind of operating locations, from small workshops to large warehouses of mechanical factories.

Features of the HY120 and HY060 welding systems

- Low power absorption from the power line;; the constant energy storage within the capacitors allows to supply welding currents higher than 100kA by connecting the machine to a 32A line, though.

- The welding process results free from the quality of the mains the machine is connected to; it is possible to perform welds showing more constant and uniform quality, independently from the mains fluctuations.

- Reduction of the operative and maintenance costs; other than the traditional resistance welding system, the HY120 and HY060 require a much lower line current thus enabling reducing the installed power which is usually required to perform the same job. Also, the welding times result to be shortened, compared to a traditional AC system, thus allowing to decrease the electrodes maintenance frequency and to increase the productivity.

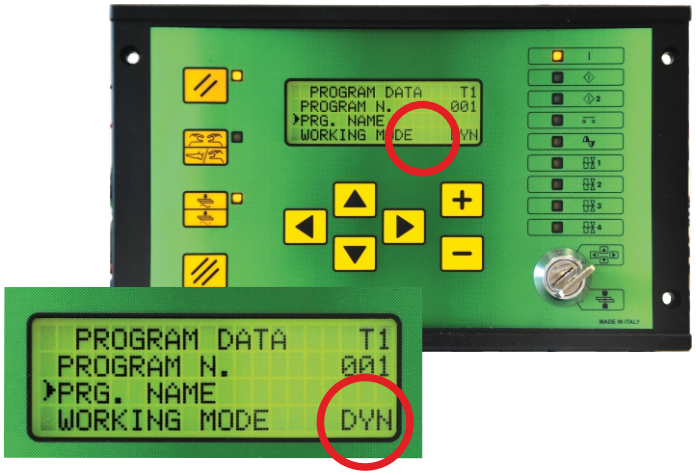
- Excellent precision on the current control by means of the double feedback system. The system checks every 500 microseconds whether the requested current actually corresponds to the supplied one. This is done by controlling the current in parallel both on the primary and on the secondary of the welding transformer.

- Excellent flexibility and adaptability to the materials to be welded.

- Ability to work in "Dynamic mode". This mode is an ADAPTIVE type inverter working mode which enables the machine to detect anomalous conditions during the welding operation, such as the imperfect contact of the sheets to be welded, presence of impurities between the pieces to be welded and wear of the electrodes. After having identified one or more anomalous conditions, the control unit can dynamically modify the welding process to correct said conditions. The welding process is corrected by extending the welding time up to a max limit defined by the operator. In DYNAMIC MODE, the control unit adjusts the welding current for the purpose of obtaining a correct weld and avoiding, at the same time, the squirting of molten material that could lead to welds of lower classes.

“Dynamic Mode”

- Balanced load on the mains and complete autonomy from the mains frequency. The connection of the machine can be carried out to all of the 3 phases, without creating imbalances. In case an anomaly is found on one of these phases (for instance, the lack of a phase), the welding machine is able to signal it.



Advantages when welding with the HY120 and HY060 systems

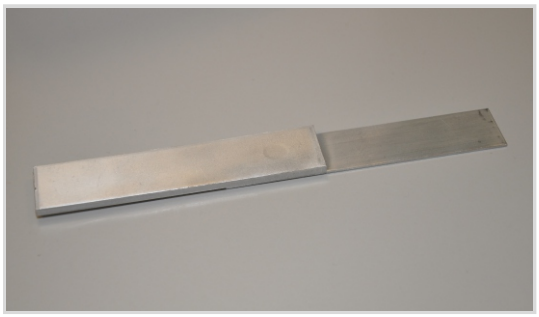
- Suitable for welding different types of materials: high strength steels (Boron, HSS, Dual Phase Trip, etc. ..), low strength materials (such as aluminium, silver, tinned copper etc...) and galvanized metal sheets.

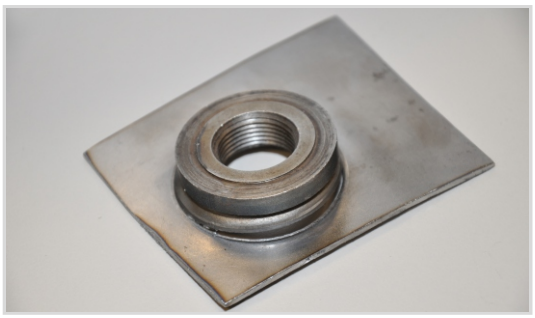
- Reduction of thermal alterations. The HY120 and HY060 systems supply heat faster than a traditional resistance welding machine. This allows to obtain the same welding result in less time, reducing this way the dissipated heat around the weld nugget (HAZ heat affected zone) and avoiding to alter the features of the welded material.

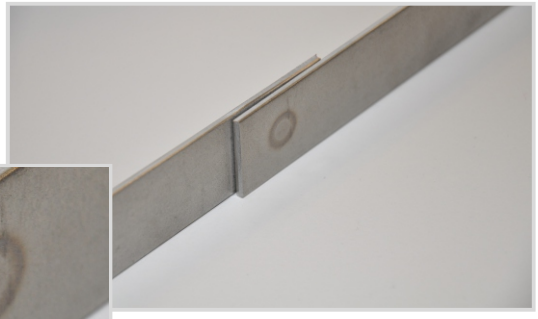
It does not require extremely high precision of the contact surfaces of the components to be welded. Being the HY120 and HY060 feedback systems, they are able - within certain limits - to correct the process during its course and to adjust to any non-homogeneous pieces (i.e. sizes, flatness, etc..) by changing the parameters of time and current.

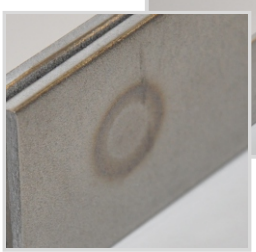
- High Voltage on the secondary circuit: this peculiar feature makes the HY120 and HY060 systems particularly well suited for welding all the HIGH STRENGTH products, such as bushings and items with several projections.

- Aesthetic Quality of the welded joint. Other than the results achieved with the traditional AC resistance welding systems, the aesthetic quality of the welded joint proves to be higher thanks to the current supply speed.

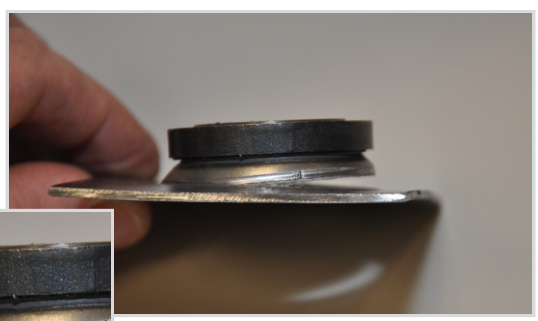






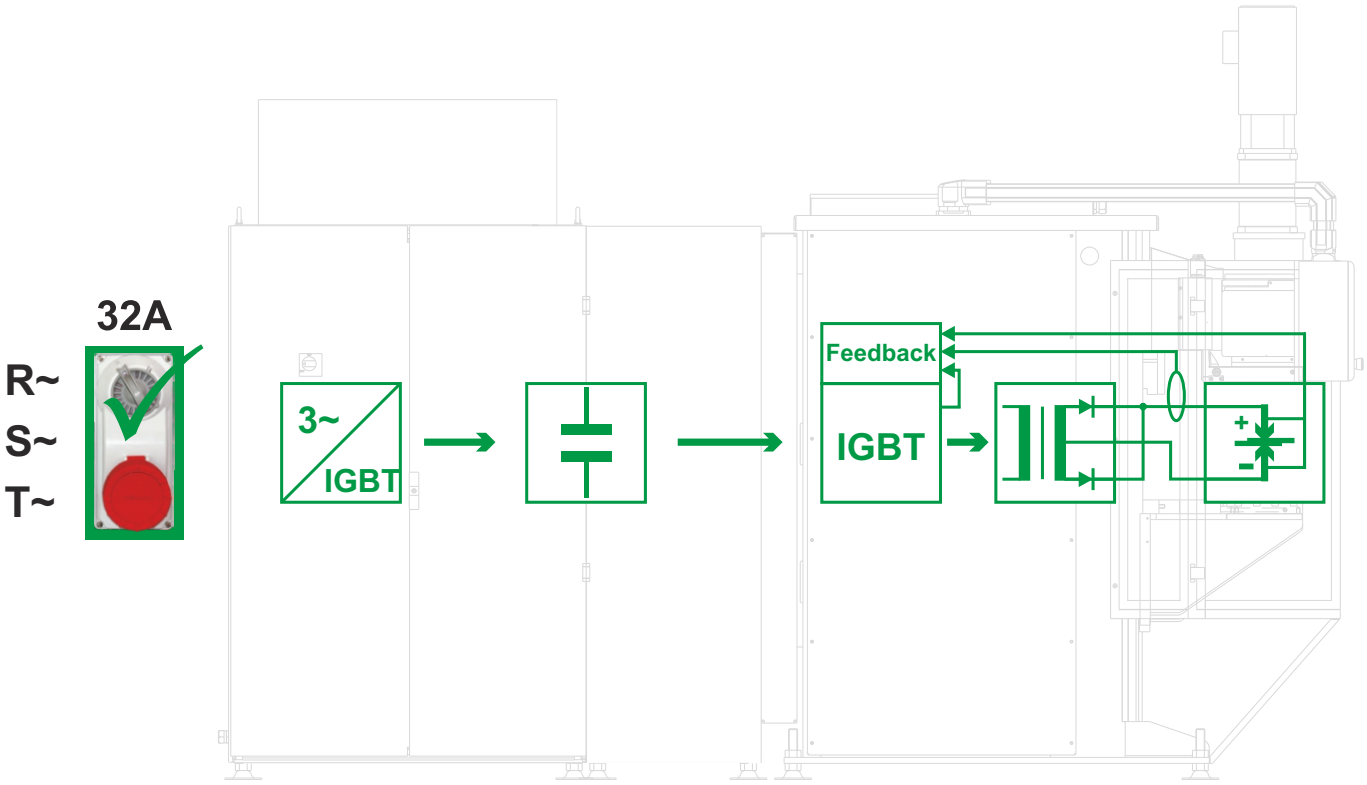


Weld spot



Weld spot

Circuit diagram of the HY120 and HY060 welding systems



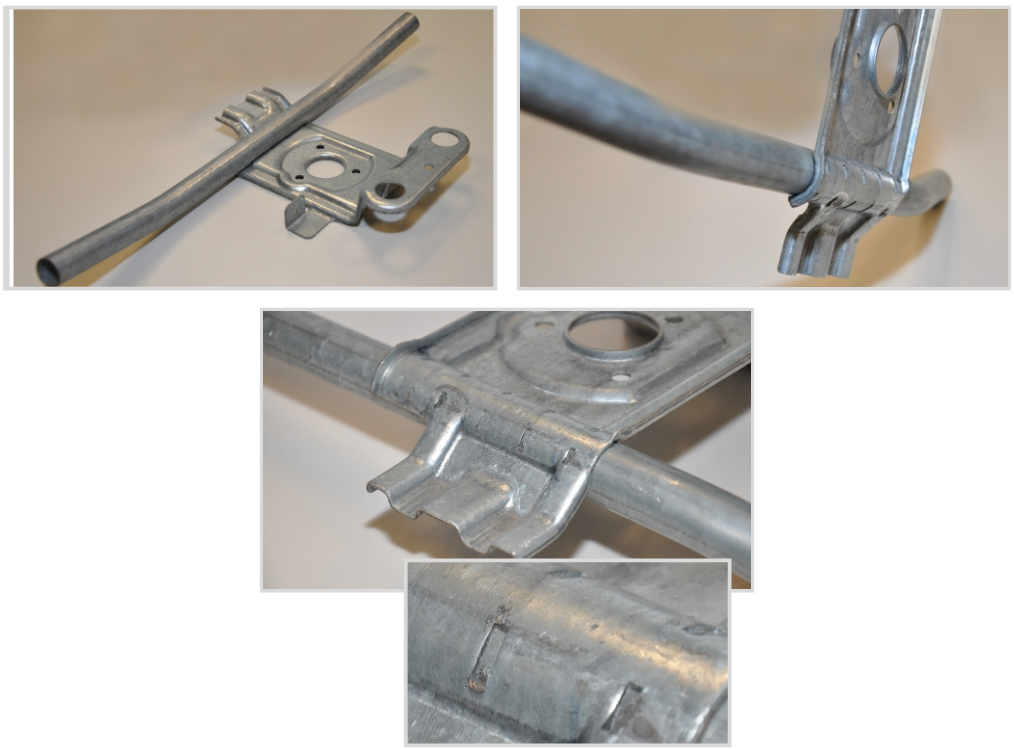
Supply -> High voltage -> Energy storage -> Inverter -> Welding

Foto di particolari saldati con la HY120 e HY060

Example 1 - Circular projection with hermetic seal

macro

Example 2 - Oval projection support



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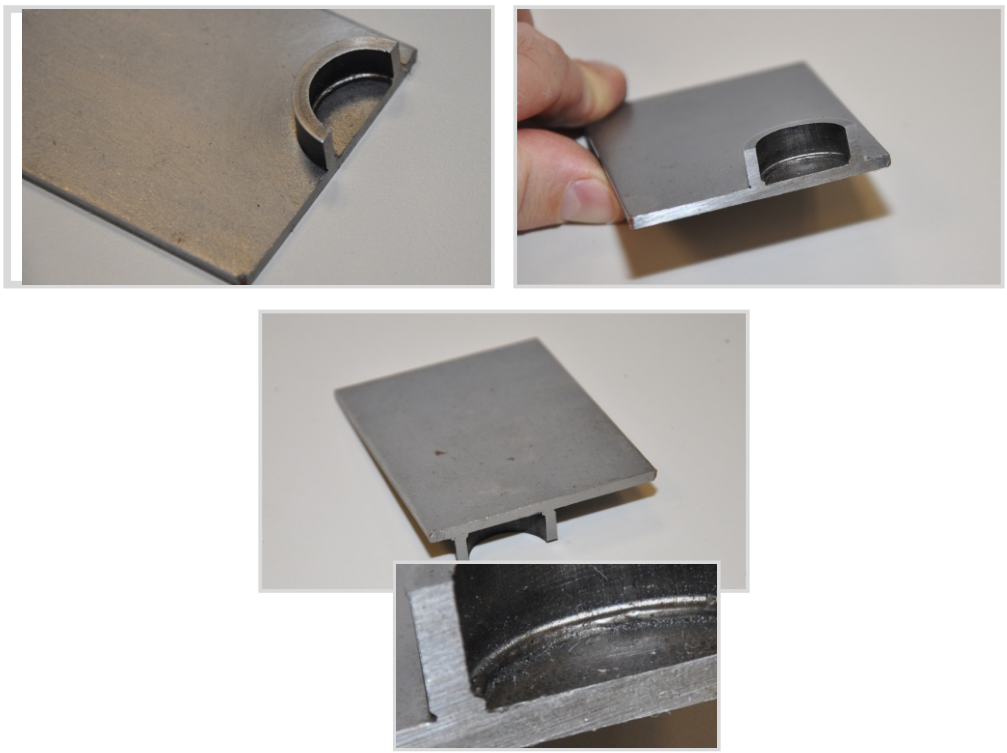
Example 3 - Bushing with circular projection



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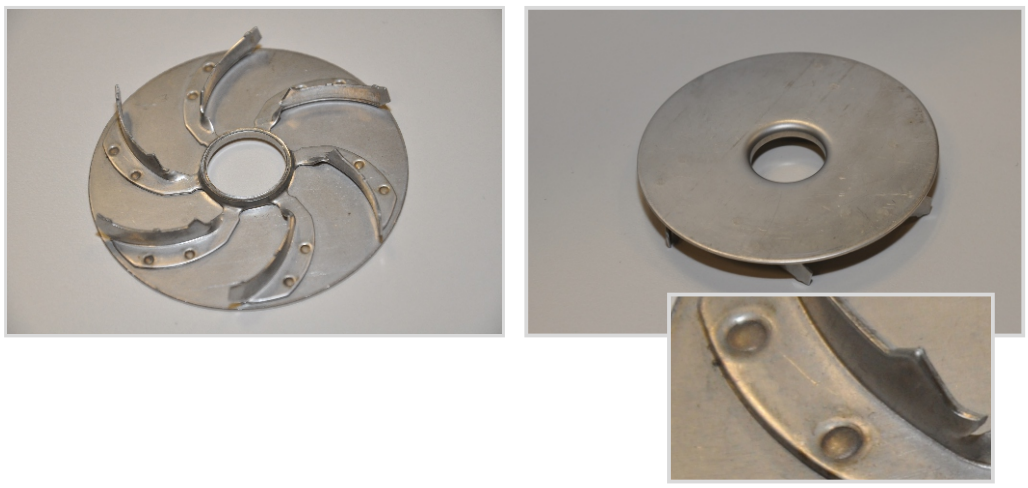
Example 4 - Sample with multiple projections

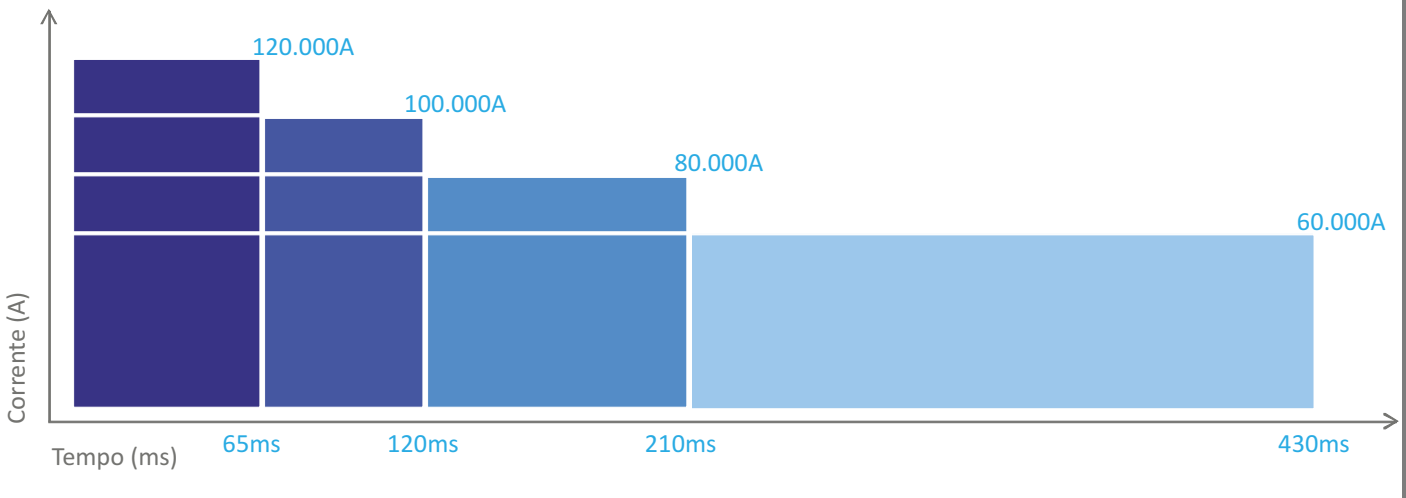


macro

going green...

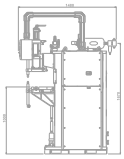
HYBRID HY120

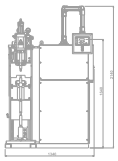
HY120		120.000A
Maximum welding power	kVA	2500
No load secondary voltage	V	23
Short circuit maximum welding current (x 65 ms)	kA	120
Supply	V Hz	400 50/60
Delayed fuses (400 V)	A	32
Cables section (L=30 m / 400 V)	mm^2	10
Protection class		F
Max. electrode force	daN	3500
Net weight	kg	2700

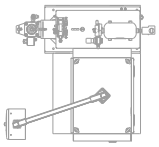


going green...

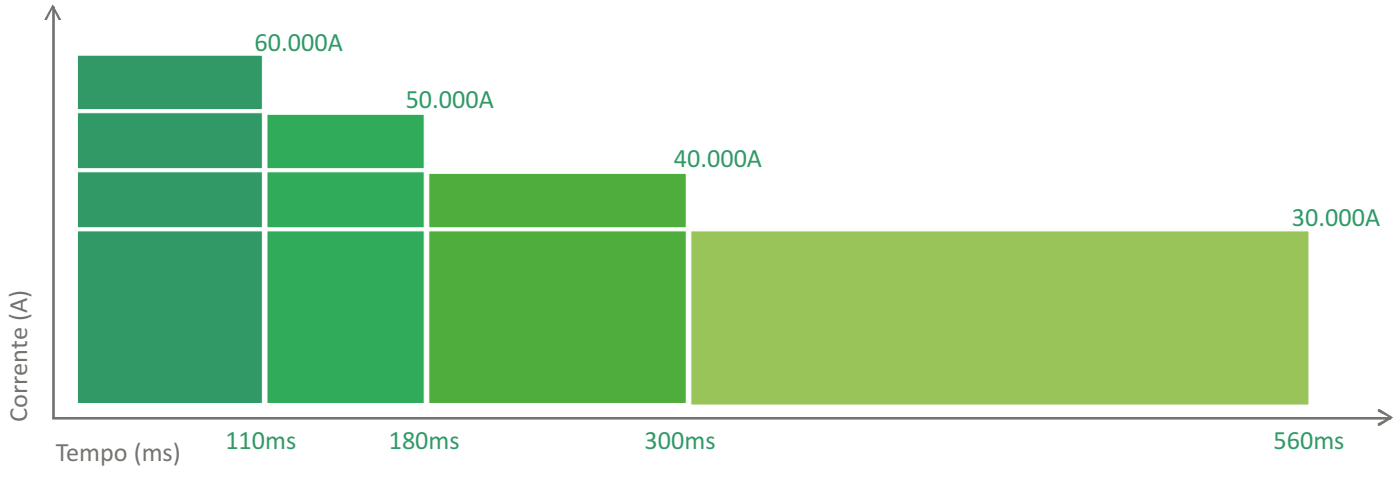
HYBRID HY060







HY060		60.000A
Maximum welding power	kVA	1080
No load secondary voltage	V	18
Short circuit maximum welding current (x 110 ms)	kA	60
Supply	V Hz	400 50/60
Delayed fuses (400 V)	A	32
Cables section (L=30 m / 400 V)	mm^2	6
Protection class		F
Max. electrode force	daN	736
Net weight	kg	990



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