

SHARK 35



CEA COSTRUZIONI ELETTROMECCANICHE ANNETTONI S.p.A.

C.so E. Filiberto, 27 - 23900 Lecco - Italy
Tel. ++39.0341.22322 - Fax ++39.0341.422646
Cas. Post. (P.O.BOX) 205
e-mail: cea@ceaweld.com - web: www.ceaweld.com



Introduction	2
Description	2
Limits of use (IEC 60974-1)	3
Technical data	3
How to lift up the machine	3
Opening the packaging	3
Plasma cutting	3
Installation	4
Connection to the electrical supply (Fig. A)	4
Usage norms	4
Connection of plasma torch and ground wire	5
Compressed air	6
Sequence of operations to perform before cutting	6
Maximum cutting speed tables	8
Maintenance	11
Possible problems and remedies	11
Troubleshooting table	12
Common cutting defects	13
Meaning of graphic symbols on machine	13
Wiring diagram	14
Key to the electrical diagram	14
Colour key	14
Spare parts list	17-21
Ordering spare parts	22

Introduction

Thank you for buying our product.

In order to get the best performance out of the plant and ensure the maximum lifespan of its parts, the use and maintenance instructions contained in this manual must be read and strictly complied with, as well as **the safety instructions contained in the relevant folder**. If repairs to the plant are required, we recommend that our clients contact our service centre workshops, as they have the necessary equipment and personnel that are specifically trained and constantly updated.

All our machines and equipment are constantly developed and so changes may be made in terms of their construction and features.

Description

SHARK 35 COMPRESSOR single phase portable device for plasma cutting with electronic microprocessor control, new INVERTER technology, with incorporated compressor, this is the ideal solution for manually cutting all metals. Inverter technology applied to plasma cutting guarantees the best parameters with elevated cut quality in all circumstances. Powerful, compact, and light the **SHARK 35 COMPRESSOR** is ideal for panel beaters, light metalworkers, plumbers, builders, installers and maintenance work of all kinds where a compressed air supply is unavailable.

The main technical features are:

- Air compressor integrated into the plant. Thus, no external compressed air supply necessary.
- Innovative practical design.
- Supporting structure in metal with front panel in special shockproof material.
- Robust handle integrated into the chassis.
- Arc parameter control device for excellent cutting quality.
- Single-phase input.
- Reduced energy consumption.
- Stability of cutting parameters within $\pm 10\%$ of rated input voltage fluctuations.
- Faculty to grill cut and perforate sheet (possible with 15A and 30A cutting current).
- Cutting operational cycle and alarm signals displayed with lights.
- Plasma torch with ignition of pilot arc without high frequency.
- Accident prevention protection on the torch and plant compliant with new international safety norms.
- Heat protection against overloads.
- Low air consumption (40 l/min).
- Long lasting consumables.
- Easy access to compressor air filter to permit better cleaning and thus improved reliability of the plasma cutting plant.

Limits of use (IEC 60974-1)

The use of plasma equipment for cutting is typically discontinued as it consists of periods of effective operation (cutting) and rest periods (while the piece is being positioned, etc.). The size of the equipment is suitable for safe use of max. nominal current I_2 for a working time that is 40% of the total time of use. The regulations in effect stipulate that 10 minutes is the maximum total time of use. For the work cycle, 40% of that time is considered. Exceeding the permitted work cycle triggers the intervention of a thermal protector which protects the internal components of the plasma cutting plant against dangerous overheating. The intervention of the thermal protection is indicated by powering on the yellow LED sited on the rack panel. After a few minutes the thermal protection automatically resets, the yellow LED goes off and the plant is ready for use once again. This plant is built to have a protection level of IP 23 S, which means:

- That it is protected against the penetration of solid foreign bodies with diameters in excess of \varnothing 12 mm.
- That it is protected against water spray hitting the surface with an angle of incidence up to 60° .
- That the plant has been tested for withstanding harmful effects due to water getting in when the moving parts on the equipment are moving.

Technical data

The technical data for this equipment is summarized in the table 1.

Table 1

Model	SHARK 35	
Single-phase power supply 50 Hz (*)	V	230
Mains supply: Z_{max} (**)	Ω	0,32
Power input @ I_2 Max	kVA	6,05
Delayed fuse (I_2 @ 100%)	A	16
Power factor / $\cos\phi$		0,65 / 0,99
Maximum efficiency degree	η	0,71
Open circuit voltage (peak)	V	320
Current range	A	10 ÷ 30
Duty cycle @ 60% (40°C)	A	25
Duty cycle @ 40% (40°C)	A	30
Cutting capacity		
recommended	mm	8
maximum	mm	10
severance	mm	15
Standards	IEC 60974-1 IEC 60974-7 IEC 60974-10 CE S	
Insulation class	IP 23 S	
Protection class	F	
Dimensions 	mm	540-425-220
Plant weight	kg	18,8
Plant weight including SK 25 torch		20,5

(*) special 60 Hz version by request.

(**) Mains supply Z_{max} : maximum impedance value allowed for the grid according to the EN/IEC 61000-3-11 standard.

WARNING: This equipment does not comply with EN/IEC 61000-3-12. If it is connected to a public low voltage system, it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.

How to lift up the machine

This plant has a handle specifically for carrying the machine by hand.

NOTE: These hoisting and transportation devices conform to European standards. Do not use other hoisting and transportation systems.

Opening the packaging

The unit comprises the following main items:

- **SHARK 35** plasma cutting unit.
- Plasma torch with direct connector built into the plant, and consumable "starting kit".
- Earth cable.
- Trolley for transportation (optional).

On receipt of the unit, perform the following operations:

- Remove the plasma cutting unit and all relative accessories and components from the packaging.
- Check that the plasma cutting unit is in good condition. If it is not, inform your dealer immediately.
- Make sure that all the ventilation louvers are open and that the airflow is not obstructed.

Plasma cutting

The cutting system used by this equipment is a low current system that uses compressed air as its plasma equipment as well as for cooling. The air normally used is a mixture of 79% nitrogen and 21% oxygen. These two biatomic gasses have almost identical enthalpy and form a highly energetic blend. The low current also makes it possible to use torches with a low air capacity and moderate cutting speed, that are more suitable for manual procedures.

CUTTING PARAMETERS

In analyzing the parameters that characterize manual plasma cutting it is necessary to note that they depend on the material to be cut, its thickness and the skill of the operator in following the cutting line. Optimum speed depends largely on the skill of the operator and amount of material to be cut and is achieved when the fused material flows through the groove and is not projected in the direction of the torch. If the latter occurs, cutting speed has to be reduced.

The parameters that affect cutting are:

- **Electric power.** Any increase in electric power will permit higher cutting speed and greater thickness of the material to be cut
- **Compressed air capacity.** Increasing the air capacity enables cutting thicker material and ensures better quality at any thickness
- **Distance between nozzle and piece.** The appearance of the cut and wear of the active components of the torch depends on the nozzle being held as a correct distance from the piece.

NOTE: The width of the cutting groove is usually about twice the diameter of the hole in the nozzle.

Respect of the above recommendations ensures greatly reduced thermal alterations of the material due to cutting, that are in any case always fewer than those caused by oxygen torches. The thermally altered zone is in any case smaller than the zone on which the weld is effective, so that in welding pieces that have been cut by plasma it is not necessary to perform any cleaning or grinding operations.

Installation

The place where the equipment is installed should be selected with care so as to ensure satisfactory, safe use.

The user is responsible for installation and use of the equipment according to the instructions provided by the manufacturer in this manual.

Temperatures must be between $-25\text{ }^{\circ}\text{C}$ e $+55\text{ }^{\circ}\text{C}$. during transportation and/or storage in stores.

Before installing the equipment the user should take into consideration any possible electromagnetic problems in the work area.

In particular, we recommend that the equipment not be installed in the vicinity of:

- Signalling, control and telephone cables.
- Radiotelevision transmitters and receivers.
- Computers or controlling and measuring instrument.
- Safety and protection devices.

If the operator wears a pacemaker, hearing aid or other similar device, he should consult his doctor before approaching the equipment while it is running. The environment where the equipment is installed must conform with the degree of protection of the chassis that is IP 23 S (IEC publication 60529). The system is capable of working in environments where working conditions are particularly hard.

This equipment cools water by forced circulation of air and must therefore be positioned in such a way that the air can easily be drawn in and expelled through the openings in the chassis.

Connection to the electrical supply (Fig. A)

Connection of the machine to the user line (electrical current) must be performed by qualified personnel.

Before connecting the cutting equipment to the mains supply, check that the data on the machine plate correspond to the supply voltage and frequency and its main switch is on the "O" position (Pos. 1, Fig. A).

Connection to the power supply must be effected using the plug provided with the cutting plant (Pos. 2, Fig. A).

Proceed as follows if you have to replace the plug:

- 2 conducting wires are needed for connecting the machine to the supply
- The third, which is YELLOW GREEN in colour is used for making the "EARTH" connection.

Table 2 shows the capacity values that are recommended for fuses in the line with delays.

Table 2

Model		SHARK 35
Power input @ I ₂ Max	kVA	6,05
Delayed fuse	A	16
Duty cycle @ 40% (40°C)	A	30
Mains supply connection cable		
Length	m	3,5
Section	mm ²	3×2,5
Earth cable		
Length	m	4
Section	mm ²	6

NOTE: If extensions of the power supply cable are used, they must be of adequate cross section and never inferior to that of the cable supplied.

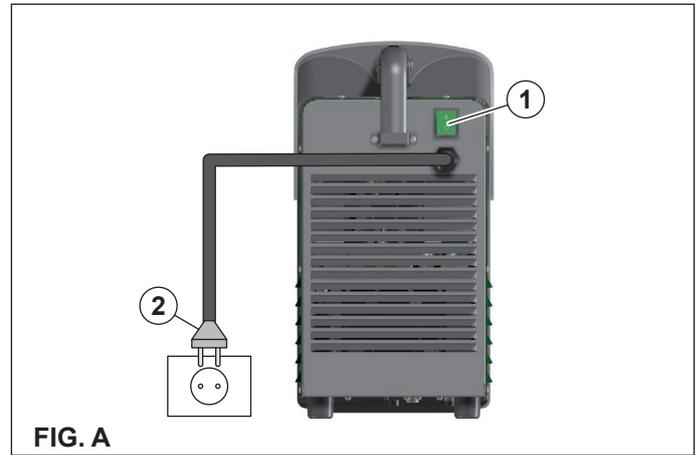


FIG. A

Usage norms

COMMAND AND CONTROL DEVICES (Fig. B)

Pos. 1 Control panel (Fig. C).

Pos. 2 Snap-in connector for ground line.

Pos. 3 Plasma torch.

Pos. 4 Power supply switch.

Pos. 5 Cutting plant power supply cable, complete with plug.



FIG. B

CONTROL PANEL (Fig. C)

- Pos. 1** Cutting current adjustment knob.
- Pos. 2** White LED - power supply on. When on the system is powered and ready for use.
- Pos. 3** Yellow LED with dual function and protection: THERMOSTAT and OVERCURRENT.
- **THERMOSTAT function:** this LED shines to indicate that the overheating protection has cut in because the work cycle is not being followed. After several minutes the overheat cut-off rearms automatically (and the yellow LED turns itself off) and the welder is ready for use again.
 - **OVERCURRENT function:** this LED shines to indicate that the overcurrent protection has cut in because the current has reached hazardous levels. The machine stops automatically. Switch off the machine by turning the power supply switch (Pos. 4, Fig. B) to position "O" and switch it on again after at least 5 seconds.
- Pos. 4** GENERAL WARNING SIGNAL yellow LED. This switches on under the following conditions:
- Switched on and flashing**
- External nozzle on the plasma torch missing or screwed on incorrectly.
 - Consumables (external nozzle holder, nozzle, electrode ecc.) on the plasma torch fitted incorrectly or worn.
 - In case of an anomalous short-circuit on the plant's secondary circuit.
- Switched on and steady**
- No compressed air or insufficient pressure (problems with the air compressor in the plant).
- Pos. 5** Red PLASMA CUTTING CYCLE CHECK LED. This LED switches on when the torch button is held down. The plant is therefore ready for the cutting operation. It switches off when the torch button is released.
- Pos. 6** Two position control:
- **CUT** - The switch must be moved to this position whenever you want to cut.
 - **AIR CHECK** - The switch must be moved to this position whenever you want to carry out a test to check that air is present.

Connection of plasma torch and ground wire

IMPORTANT: Before performing any operation regarding connection of the torch and ground wire, disconnect the power to the system.

IMPORTANT: Do not connect to the Plasma equipment any other torch different from the standard supplied ones; the utilization of other non suitable torches might be dangerous for the operator.

The plasma torch is connected directly to the plant (Fig. D). To obtain elevated cutting quality, the torch must transform the power generated by the plant into a high energy density plasma jet, so that it can efficiently melt metal and guarantee sufficient strength to remove the metal part from the cutting zone, impeding the formation of burrs. The torch is this a fundamental, indispensable component of the plasma cutting plant.

The standard supplied Plasma torch has special CEA electrical connections. Before fitting a new equipment, make sure that the torch connections are matching the ones of the Plasma equipment.

Connect the earth cable to the rapid coupling on the positive pole as indicated in figure D.

The ground wire has to be connected on the specific terminal to the piece to be cut, **which must be effectively grounded as well as the cutting bench.** Do not connect the ground terminal to the piece of material to be removed.

WARNING: The work area must be free of oil, paint, and rust!

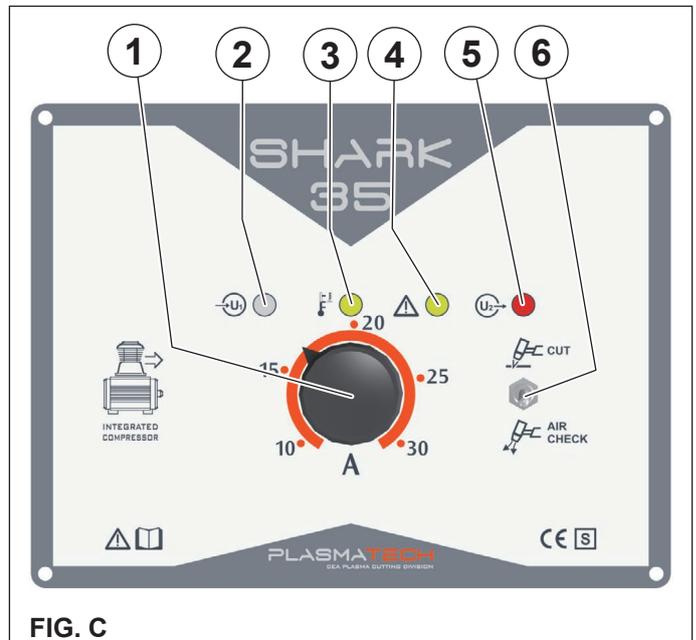


FIG. C

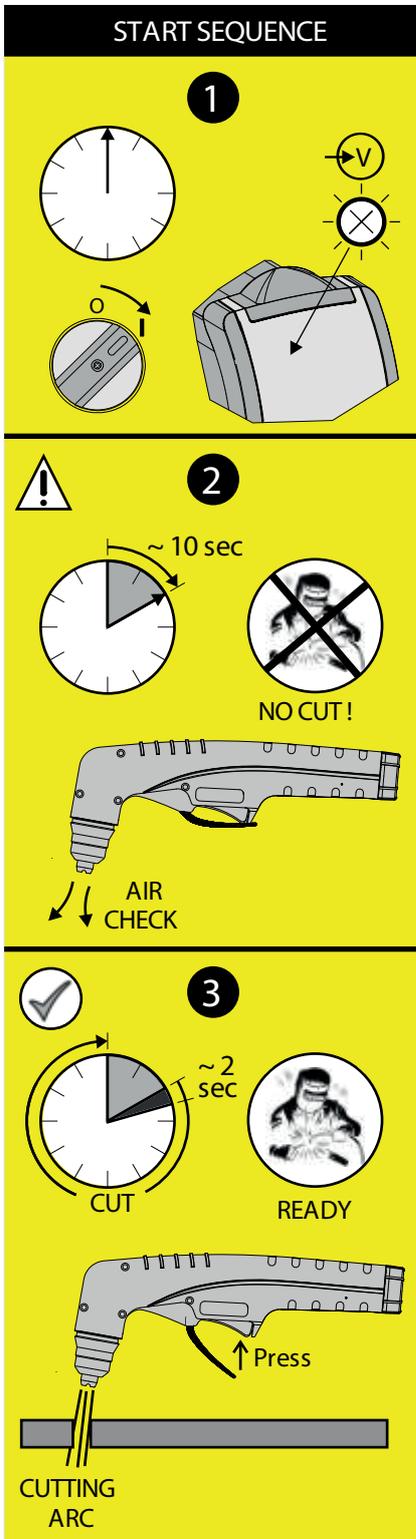


FIG. D

Compressed air

SHARK 35 contains an integrated air compressor and thus does not require an external compressed air supply. The compressor feeds the plant a constant flow at about 3 bar.

Sequence of operations to perform before cutting



IMPORTANT: Before switching on the equipment follow these instructions carefully:

- Make sure the voltage and frequency of the supply network correspond to the data on the rating plate.
- Make sure all the torch components are correctly installed.

- Do not point the torch toward yourself or other persons nearby. If switched on accidentally the pilot arc spark would ignite and cause dangerous burns.

- 1 -

Turn the power supply switch (Pos. 4, Fig. B) to position 1.

- 2 -

The plant has just been started, and only the white LED that shows that the mains power supply is on (Pos. 2, Fig. C) must stay on the rack panel. The plant's internal check runs a series of programmed tests, during which the fans and compressor switch on for a few seconds and air comes out of the torch. It is not possible to cut during this initial period, which lasts about 10 sec.

- 3 -

Move the switch (Pos. 6, Fig. C) to the AIR CHECK position and run the test to check that air is present.

WARNING: The air comes out continuously, the compressor and fans are switched on!

- 4 -

Move the switch (Pos. 6, Fig. C) to the CUT position to be able to begin cutting operations.

- 5 -

Adjust the electric current for cutting using the current regulation knob (Pos. 1, Fig. C). Increasing the current will permit higher speed cutting or, at the same speed, cutting of greater thickness.

- 6 -

Before starting to cut, effect a power on, moving the torch button protection upwards (Part A, Fig. E), and holding the torch button down (Part B, Fig. E), for several seconds until the cutting arc comes on. **Avoid contact with the metallic item!**

WARNING: After starting the plant or after the end of the post airflow phase, the first time the pilot arc switches on this takes more time for the plant to carry out the necessary electronic and pneumatic tests.

- 7 -

To start cutting, press the torch button again, lighting the pilot arc and starting air expulsion. During the cutting phase the white LED that indicates that the power supply is on (Pos. 2, Fig. C) and red LED that indicates that the plasma cutting cycle check is running (Pos. 5, Fig. C) remain on on the rack panel.

CUTTING FROM THE EDGE OF A PIECE (Fig. F)

- Position the torch, in a vertical position, on the external edge of the item to be cut. In particular cases of extinction of the arc at the entrance of the item to be cut, increase the angle between the item and the metal by 95°.
- Begin cutting from the external edge of the item until the arc has fully traversed the same.
- During the cut the nozzle may be kept in direct contact with the item being cut. Do not hold the pilot arc on in the air to avoid wasteful wear on the electrode and the nozzle.

CUTTING FROM WITHIN AN ITEM (Fig. G)

- Cut with the torch in an angular position with respect to the item, the rotate slowly until perpendicular to the metal.
- When sparks appear from the lower part of the item, this indicates that the cutting arc has completely perforated the item to be cut; The bore has been created and now the cut can proceed. If the sparks and/or residues spray upwards, this indicates that the torch is being moved too rapidly. Reduce cutting speed.

CUTTING WITH PROLONGED ITEMS

This technique is used to cut in poorly accessible positions such as angles, hollows, channels, etc.

Consumables are used at a higher rate with this technique.

CUTTING OPEN GRID OR PERFORATED PLATES

It is possible to cut open grid or perforated plates, by setting a cutting current greater than 15A (from 15A to 30A).

When the torch button is pushed, if the operator goes out of the workpiece during cutting, the pilot arc ignites again automatically, to allow cutting to continue. Cutting done in open grid mode gives rise to more wear of consumables.

IMPORTANT: *Precautions to be taken to cut correctly and efficaciously:*

- Always cut moving the torch gently to achieve a stable, precise cut.
- Always cut moving the torch towards you which is simpler than cutting while pushing or moving away from yourself.
- Do not press or apply pressure to the torch during cutting operations.
- Always use a line of reference for straight cuts.
- To execute circular cuts, we recommend application of the specific compass (supplied upon request).

- 8 -

Completion of cutting operations. The compressor continues to function for some 30 seconds to consent the torch components to cool after the arc is extinguished ("post flow" function). The useful life of consumables is prolonged in this manner. Wait for the air flow to cease before powering off the plant. During this phase you may start a new cutting cycle: press the button to restart the pilot arc.

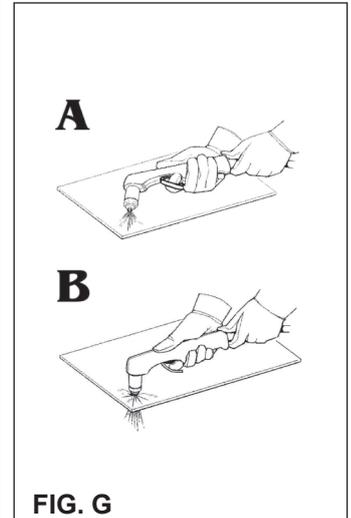
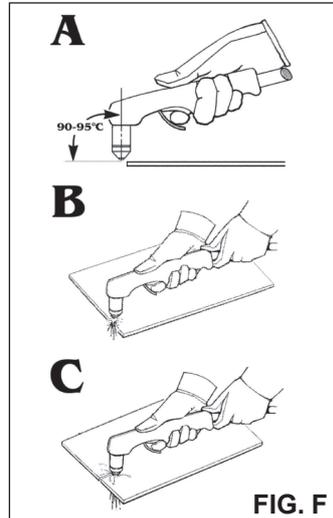
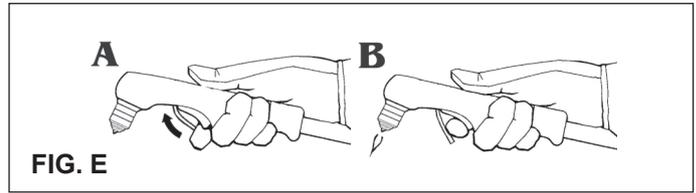
- 9 -

Turn the power supply switch (Pos. 4, Fig. B) to position "O", thereby switching off the plant.

- 10 -

When the operator switches the machine off, by pushing the power supply switch (Pos. 4, Fig. B):

- White power supply on LED (Pos. 2, Fig. C) stays lit.
- Yellow thermostat indication LED (Pos. 3, Fig. C) stays lit.
- During this period the microprocessor checks correct functioning of all the components.
- Once this checking operation has been completed (duration approx 5 sec.) the plant switches off.

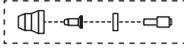
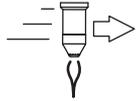
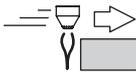


Maximum cutting speed tables

The following pages contain the maximum cutting speed tables for each series of consumables for manual cutting of the following materials:

- Mild steel.
- Stainless steel (CrNi).
- Aluminium.

Each table contains the following information:

	Cutting current setting.
Fe	Carbon steel Fe 430 B - S275JR
CrNi	Stainless steel Aisi 304 / X5 CrNi 18-10
Al	Aluminium
	Torch configuration, complete with codes for consumables to be fitted on the plasma torch.
mm	Metric system.
in	Imperial system.
	Thickness of the material to be cut.
	Maximum cutting speed.
	Starting from the edge.

NOTE: The data in the table was obtained during laboratory tests using new consumables and taking the ISO 9013 international standard as a reference.



mm

		mm	mm/min
Fe		1	4510
		2	1670
		3	860
		4	470
		6	275
CrNi		1	2275
		2	1475
		3	875
		4	665
		5	455
Al		1	3165
		2	2075
		3	990
		4	595
		5	425

in

		inches	ipm
Fe		18 GA	152
		14 GA	69
		10 GA	21
		1/4"	10
CrNi		18 GA	83
		14 GA	61
		12 GA	37
Al		1/32"	133
		1/16"	98
		1/8"	28



486076

408601
(20-30 A)
Ø 0,8 mm

482126

425021



486076

408621
(20-30 A)
Ø 0,8 mm

482126

425058

mm

		mm	mm/min
Fe		1	8640
		2	4380
		3	2170
		4	1240
		6	740
		8	415
		10	290
		12	210
CrNi		1	7900
		2	2800
		3	1670
		4	1070
		5	830
		7	450
		10	220
Al		1	8810
		2	5630
		3	3040
		4	2010
		5	1500
		7	485
		10	280

in

		inches	ipm
Fe		18 GA	330
		14 GA	180
		10 GA	54
		1/4"	25
		3/8"	11
		1/2"	7
CrNi		18 GA	314
		14 GA	115
		12 GA	81
		1/4"	20
3/8"		8	
Al		1/32"	340
		1/16"	260
		1/8"	94
		1/4"	32
		3/8"	11

Maintenance

WARNING: Before effecting any internal inspection of the SHARK 35, interrupt the mains power supply.

SPARE PARTS

Original spares have been specifically designed for our equipment. The use of spares that are not original may cause variations in the performance and reduce the safety level of the equipment. We are not liable for damage due to use of spare parts that are not original.

PLASMA CUTTING PLANT

As these systems are completely static except for the fan that is, in any case, provided with self-lubricating bushes, only the following operations are necessary:

- Periodic removal of accumulations of dirt and dust inside the plant using compressed air. Do not point the jet of air directly at the electrical parts as this could damage them.
- Periodical inspection for worn cables or loose connections that could cause overheating.
- Make sure the air circuit is completely free of any impurities and that the connections are tight and free of any leaks. In this connection, inspect the solenoid valve very carefully.

COMPRESSOR

SHARK 35 does not require an external compressed air supply as it contains an integrated air compressor which requires efficacious periodic maintenance to correct and fully explete its' function.

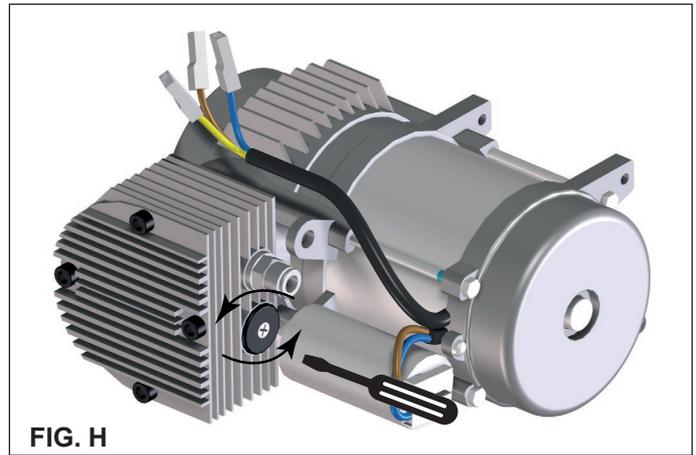
Compressor maintenance is limited to cleaning the air filter which must be dismounted (unscrew and pull it outwards - see Fig. H) regularly.

Possible problems and remedies

NOTE: Given the technical knowledge required to repair the plasma cutting plant, in the case of breakage we recommend contacting qualified personnel or our technical assistance service.

The 4 indicator LEDs, located on the SHARK 35 rack panel, enable, in most cases, identification of the cause of the fault. We therefore recommend you check the LEDs to identify the fault.

The faults possible in this plant are listed below with the probable causes, how to diagnose the same and how to solve problems rapidly and autonomously. If, however, the fault or problem remains, contact our technical assistance service.



Troubleshooting table

Defect	Cause	Remedy
White LED that indicates that the power supply is on (Pos. 2, Fig. C) is off	<ul style="list-style-type: none"> • Cutting plant power supply cable not connected to the mains power supply • Power supply switch (Pos. 4, Fig. B) off • Mains voltage incorrect • Some components in the cutting plant are defective or malfunctioning 	<ul style="list-style-type: none"> • Connect the cutting plant power supply cable to the mains power supply • Switch on the plant by turning the power supply switch (Pos. 4, Fig. B) to position 1 • Check that the voltage for the power supply to the cutting plant corresponds to that for the actual mains power supply • Call in technical assistance
Yellow LED (Pos. 3, Fig. C) with dual function and protection: THERMOSTAT and OVERCURRENT switched on	<ul style="list-style-type: none"> • THERMOSTAT function: when this LED switches on it indicates that the trip switch has tripped because you are working beyond the work cycle • OVERCURRENT function: this LED shines to indicate that the overcurrent protection has cut in because the current has reached hazardous levels; the machine stops automatically 	<ul style="list-style-type: none"> • After several minutes the overheat cut-off rearms automatically (and the yellow LED turns itself off) and the welder is ready for use again • Switch off the machine by turning the power supply switch (Pos. 4, Fig. B) to position "O" and switch it on again after at least 5 seconds • Problems on the plant's secondary circuit (diodes, snubber, etc.)
GENERAL WARNING SIGNAL yellow LED (Pos. 4, Fig. C) on and flashing	<ul style="list-style-type: none"> • External nozzle on the plasma torch missing or screwed on incorrectly • Consumables (external nozzle holder, nozzle, electrode ecc.) on the plasma torch fitted incorrectly or worn • In case of a faulty short-circuit on the plasma torch between the electrode and the nozzle 	<ul style="list-style-type: none"> • Fit the external nozzle on the plasma torch or check that it is screwed on correctly • Fit the consumables on the plasma torch correctly and replace them if necessary • Check that the electrode and the torch nozzle are fitted correctly
GENERAL WARNING SIGNAL yellow LED (Pos. 4, Fig. C) on and steady	<ul style="list-style-type: none"> • No compressed air or insufficient pressure 	<ul style="list-style-type: none"> • Check the compressor • Clean the air filter on the compressor • Inspect the pneumatic air circuit and check for leaks
Lack of air with torch button pressed	<ul style="list-style-type: none"> • Defective control board • Defective solenoid valve 	<ul style="list-style-type: none"> • Replace • Replace
Pilot arc does not go on when torch button is pressed	<ul style="list-style-type: none"> • Defective control board • Worn electrode and nozzle on torch • Torch button defective • Plasma torch connected incorrectly or defectively. 	<ul style="list-style-type: none"> • Replace • Replace • Replace • Check the plasma torch's connection and replace it if necessary.
Arc goes out on contact with piece to be cut	<ul style="list-style-type: none"> • Lack of connection of ground wire 	<ul style="list-style-type: none"> • Connect ground wire

Common cutting defects

Defect	Cause	Remedy
Insufficient penetration	<ul style="list-style-type: none"> • Cutting speed too high • Current too low 	<ul style="list-style-type: none"> • Reduce speed • Increase current
Main arc goes out	<ul style="list-style-type: none"> • Ground wire connected wrong • Cutting speed too slow • Too much space between torch and piece • Excessive erosion of electrode 	<ul style="list-style-type: none"> • Check ground wire connection • Increase speed • If present, reduce the spacer • Replace electrode
Excessive residues	<ul style="list-style-type: none"> • Air pressure wrong • Cutting speed too slow • Nozzle hole eroded • Spacer wrong 	<ul style="list-style-type: none"> • Check the compressor and for any leaks in the pneumatic circuit • Increase speed • Replace the nozzle • If present, reduce the spacer
Overheated nozzle or black	<ul style="list-style-type: none"> • Current too high • Gap between the nozzle and workpiece too small • Air dirty • Excessive erosion of electrode 	<ul style="list-style-type: none"> • Reduce current • Increase space • Clean the air filter on the compressor • Replace electrode
Pilot arc intermittent or sparking	<ul style="list-style-type: none"> • Air pressure wrong • Air dirty, greasy, wet • Pilot arc current too low 	<ul style="list-style-type: none"> • Check the compressor and for any leaks in the pneumatic circuit • Clean the air filter on the compressor • Check the equipment pilot arc circuit

Meaning of graphic symbols on machine

	Cutting current scale
	Positive pole rapid coupling for earth wiring connection
	System for use in environments with increased risk of electrocution
	White LED: signals power ON
	Red LED: signals activation of torch button
	Yellow LED used to indicate that the protective thermostat has been activated, and there is an overcurrent on the secondary circuit
	Yellow LED (generic power warning signal)
	Grounding protection

	Dangerous voltage
	Before using the equipment you should carefully read the instructions included in this manual
	Warning! Risk of electric shock
	Product suitable for free circulation in the European Community
	Cut / air test switch
	Plasma torch
	Plant on/off switch

Wiring diagram

Key to the electrical diagram

C	
DS	
EL	
EVG	
IGAP	
IGP	
IL	
L	
LA	
LP	
LT	
LU	
MV1dc	
MV2dc	
PM	
POT1	
PT	
RD	
RL	
RP	
SC	
SF	
SP	
SR	
ST	
SW1	
TA	
TF	
TIP	
TP	
TPL	
TRS	

GV	Yellow-Green
Mr	Brown
Nr	Black
Ro	Pink
Rs	Red
Vd	Green
VI	Violet

Colour key

Ar	Orange
Az	Sky Blue
Bc	White
Bl	Blue
Gg	Grey
Gl	Yellow

SHARK 35

IT	<i>Lista ricambi</i>	LEGGERE ATTENTAMENTE
EN	<i>Spare parts list</i>	READ CAREFULLY
FR	<i>Liste pièce de rechange</i>	LIRE ATTENTIVEMENT
DE	<i>Ersatzteilliste</i>	SORGFÄLTIG LESEN
ES	<i>Lista repuestos</i>	LEER ATENTAMENTE
NL	<i>Onderdelenlijst</i>	EERST GOED DOORLEZEN
PT	<i>Lista de peças de substituição</i>	LER ATENTEMENTE
DA	<i>Liste over reservedele</i>	LÆS OMHYGGELIGT
SV	<i>Reservdelslista</i>	LÄS NOGAS
FI	<i>Varaosaluettelo</i>	LUE HUOLELLISESTI
N	<i>Reservedelliste</i>	LES NØYE
RU	<i>Список запасных частей</i>	ПЕРЕД НАЧАЛОМ РАБОТЫ ВНИМАТЕЛЬНО ПРОЧИТИТЕ ИНСТРУКЦИЮ



CEA COSTRUZIONI ELETTROMECCANICHE ANNETTONI S.p.A.

C.so E. Filiberto, 27 - 23900 Lecco - Italy
Tel. ++39.0341.22322 - Fax ++39.0341.422646
Cas. Post. (P.O.BOX) 205
e-mail: cea@ceaweld.com - web: www.ceaweld.com

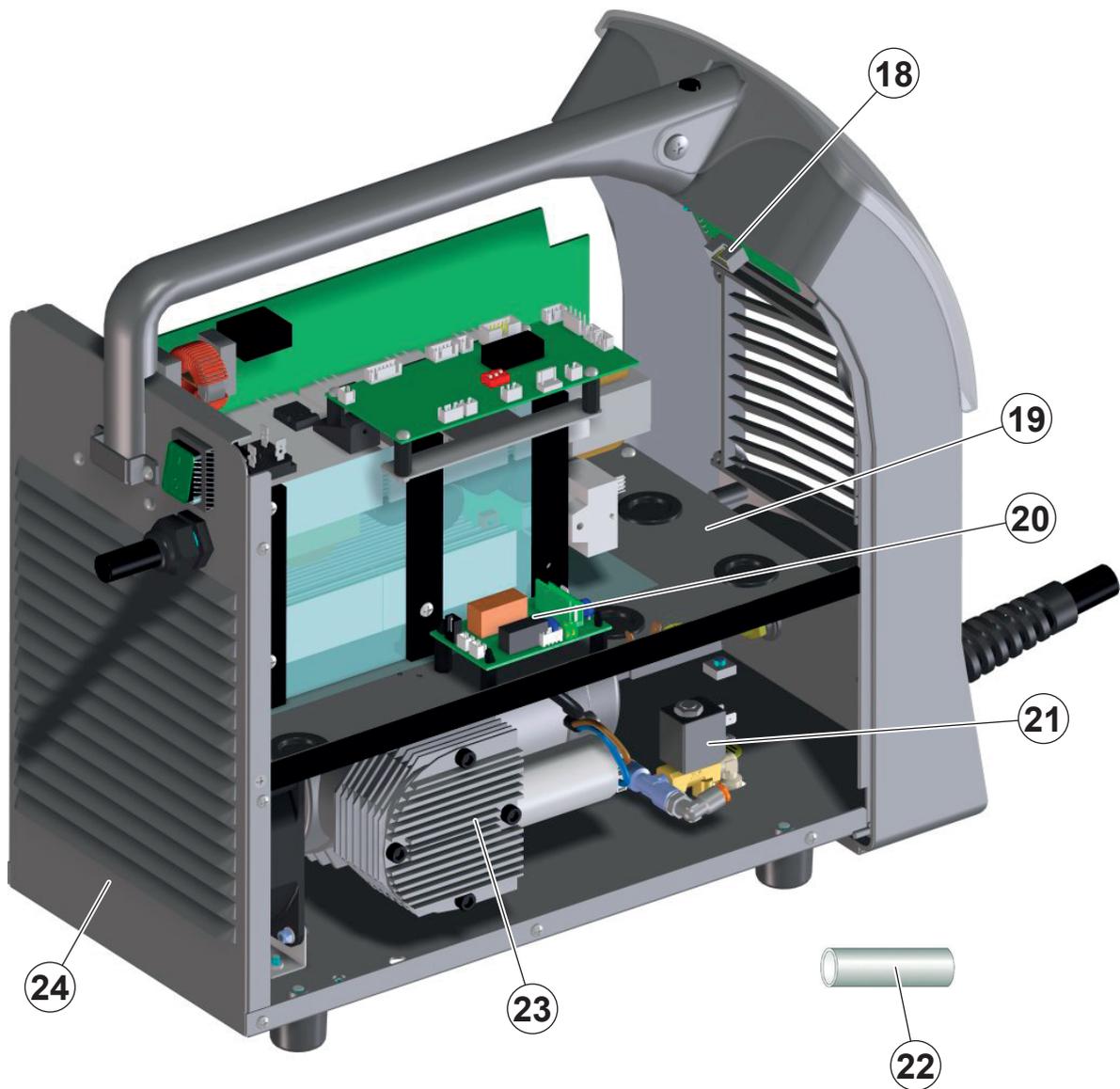




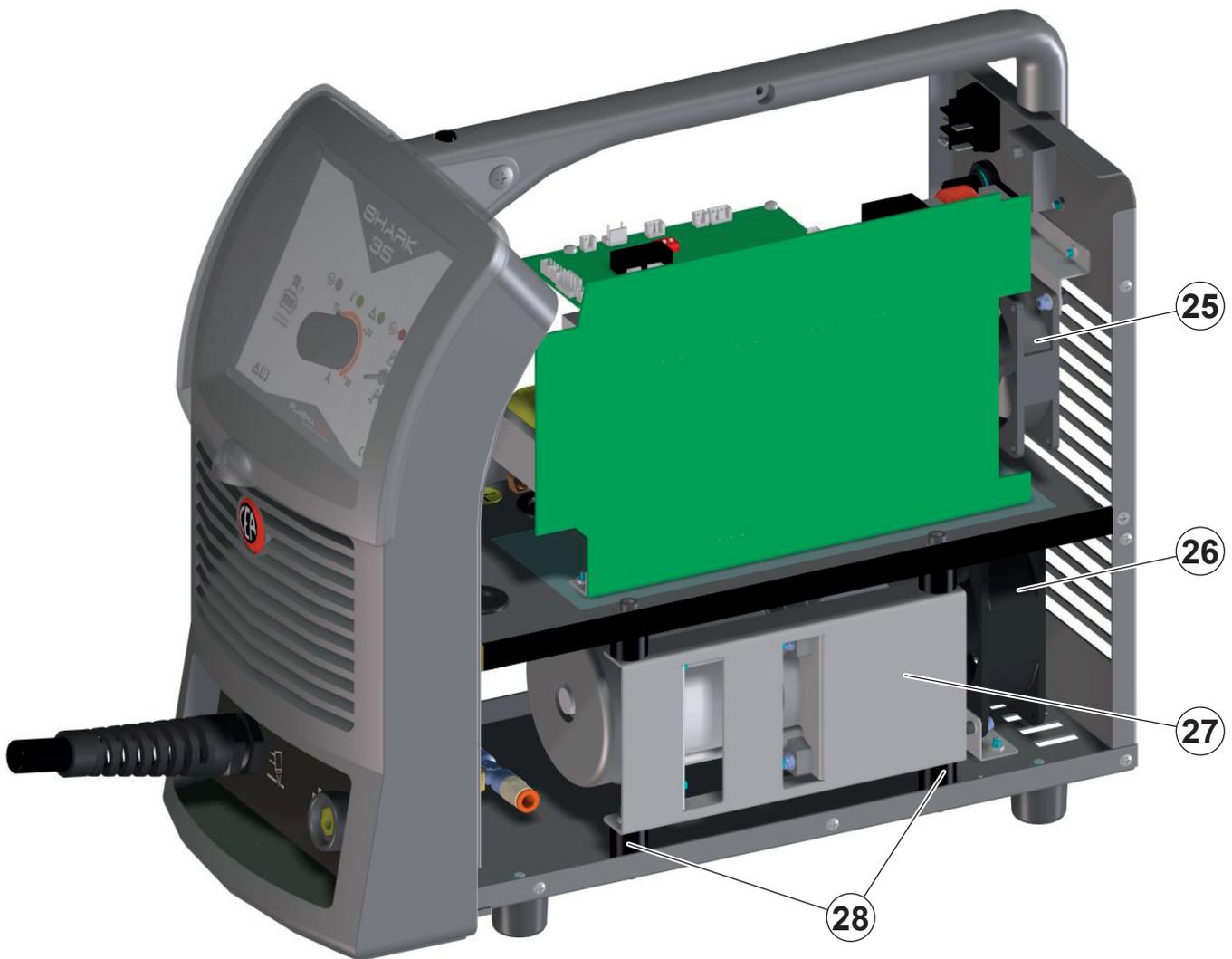
Pos.	SHARK 35	Descrizione	Description
1	352374	Visiera	Visor
2	468781	Adesivo pannello rack	Rack sticker
3	438883	Manopola	Knob
4	468725	Adesivo logo	Logo sticker
5	352373	Pannello frontale	Front panel
6	403608	Attacco rapido femmina	Quick connection positive polarity
7	239630	Cavo massa	Ground cable
8	468780	Adesivo simboli torcia / dinse +	Torch/symbols sticker
9	427858	Pressacavo torcia Plasma	Plasma torch clamp
10	022031	Torcia Plasma SK 25 4m	Plasma torch SK 25 4m



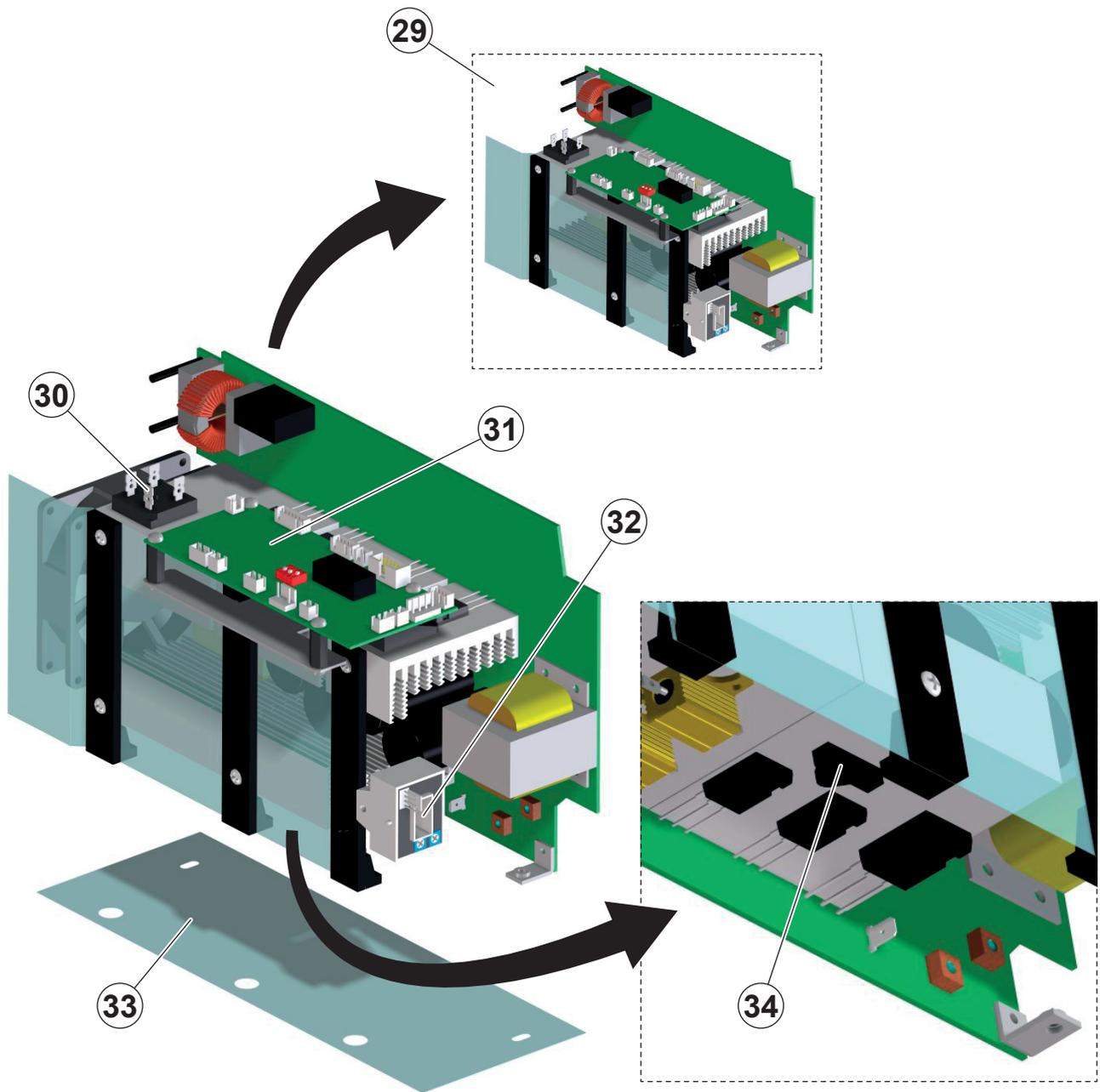
Pos.	SHARK 35	Descrizione	Description
11	352419	Copertura posteriore pannello frontale	Cover for front panel
12	434664	Maniglia	Handle
13	435364	Interruttore di linea	Main switch
14	427895	Pressacavo cavo linea	Main switch clamp
15	235942	Cavo linea	Input cable
16	420479	Coperchio	Steel cover
17	431329	Piedino in gomma	Rubber foot



Pos.	SHARK 35	Descrizione	Description
18	377122	Scheda pannello frontale	Rack pcb
19	449605	Pianale metallico	Steel plate
20	377237Z	Scheda comando elettrovalvola / compressore	Solenoid valve / compressor control pcb
21	425936	Elettrovalvola aria	Air solenoid valve
22	485492	Tubo rilsan alta temperatura	High temperature rilsan hose
23	345002	Compressore aria	Air compressor
24	404868	Telaio metallico	Steel chassis



Pos.	SHARK 35	Descrizione	Description
25	486388	Ventilatore raffreddamento inverter	Fan for inverter cooling
26	486383	Ventilatore raffreddamento compressore	Fan for air compressor cooling
27	466168	Staffa metallica supporto compressore	Steel support for air compressor
28	431326	Piedini antivibrazione per compressore	Anti-vibration rubber feet



Pos.	SHARK 35	Descrizione	Description
29	241271	Assieme inverter completo di scheda controllo (senza ventilatore)	Inverter assembly complete with control pcb (without fan motor)
30	455012	Raddrizzatore primario	Primary rectifier
31	377239	Scheda controllo inverter	Inverter control pcb
32	481463	Trasformatore corrente effetto di Hall	Current transformer
33	352936	Isolamento gruppo inverter	Insulation sheet for inverter assembly
34	478844	Termostato circuito secondario	Secondary circuit thermostat

IT Ordinazione dei pezzi di ricambio

Per la richiesta di pezzi di ricambio indicare chiaramente:

- 1) Il numero di codice del particolare
- 2) Il tipo di impianto
- 3) La tensione e la frequenza che rileverete dalla targhetta dei dati posta sull'impianto
- 4) Il numero di matricola

ESEMPIO

N° 2 pezzi, codice n. 486383 - per l'impianto SHARK 35 - 230 V - 50/60 Hz - Matricola n°

EN Ordering spare parts

To ask for spare parts clearly state:

- 1) The code number of the piece
- 2) The type of device
- 3) The voltage and frequency read on the rating plate
- 4) The serial number of the same

EXAMPLE

N. 2 pieces code n. 486383 - for SHARK 35 - 230 V - 50/60 Hz - Serial number

FR Commande des pièces de rechange

Pour commander des pièces de rechange indiquer clairement:

- 1) Le numéro de code de la pièce
- 2) Le type d'installation
- 3) La tension et la fréquence que vous trouverez sur la petite plaque de données placée sur l'installation
- 4) Le numéro de matricule de la même

EXEMPLE

N. 2 pièces code 486383 - pour l'installation SHARK 35 - 230 V - 50/60 Hz - Matr. Numéro

DE Bestellung Ersatzteile

Für die Anforderung von Ersatzteilen geben Sie bitte deutlich an:

- 1) Die Artikelnummer des Teiles
- 2) Den Anlagentyp
- 3) Die Spannung und Frequenz, die Sie auf dem Datenschild der Anlage finden
- 4) Die Seriennummer der Schweißmaschine

BEISPIEL

2 Stück Artikelnummer 486383 - für Anlage SHARK 35 - 230 V - 50/60 Hz - Seriennummer

ES Pedido de las piezas de repuesto

Para pedir piezas de repuesto indiquen claramente:

- 1) El número de código del particular
- 2) El tipo de instalación
- 3) La tensión y la frecuencia que se obtien de la chapa datos colocada sobre la instalación
- 4) El número de matrícula de la soldadora misma

EJEMPLO

N. 2 piezas código 486383 - para instalación SHARK 35 - 230 V - 50/60 Hz - Matrícula N.

NL Bestelling van reserveonderdelen

Voor het bestellen van onderdelen duidelijk aangeven:

- 1) Het codenummer van het onderdeel
- 2) Soort apparaat
- 3) Spanning en frequentie op het gegevensplaatje te vinden
- 4) Het serienummer van het lasapparaat

VOORBEELD

N. 2 stuks code 486383 - voor apparaat SHARK 35 - 230 V - 50/60 Hz - Serie Nummer

PT Requisição de peças sobressalentes

Ao pedir as peças de substituição indique claramente:

- 1) O número de código da peça
- 2) O tipo de equipamento
- 3) A tensão e a frequência indicadas na la placa de dados do equipamento
- 4) O número de matrícula da própria máquina de soldar

EXEMPLO

N° 2 peças código n. 486383 - para o equipamento SHARK 35 - 230 V - 50/60 Hz
Matrícula n.

DA Bestilling af reservedele

For at bestille reservedele skal man nøjagtigt angive:

- 1) Reservedelens kodenummer
- 2) Anlæggets type
- 3) Spænding og frekvens, som står på anlæggets typeskilt
- 4) Selve svejsemaskinens registreringsnummer

EKSEMPEL

2 stk. nummer 486383 - til anlæg model SHARK 35 - 230 V - 50/60 Hz
Registreringsnummer Nr.

SV Beställning af reservdelar

Vid förfrågan av reservdelar ange tydligt:

- 1) Detaljens kodnummer
- 2) Typ av apparat
- 3) Spänning och frekvens - den står bland tekniska data på apparatens märkplåt
- 4) Svetsens serienummer

EXEMPEL

2 st. detaljer kod 486383 - för apparat SHARK 35 - 230 V - 50/60 Hz - Serienummer

FI Varaosien tilaus

Tiedustellessanne varaosia, ilmoittakaa selvästi:

- 1) Osan koodinnumero
- 2) Laitteiston tyyppi
- 3) jännite ja taajuus, jotka on ilmoitettu laitteistolle sijoitetusta tietokyllistä
- 4) Hitsauskoneen sarjanumero

ESIMERKKI

2 osaa, koodi 486383 - laitteistoon SHARK 35 - 230 V - 50/60 Hz - Sarjanumero

N Bestilling av reservedeler

Ved bestilling av reservedeler må du oppgi:

- 1) Delenes kodenummer
- 2) Type apparat
- 3) Apparatets spenning og frekvens som finnes på merkeplaten for data på apparatet
- 4) Sveiseapparatets serienummer

EKSEMPEL

2 stk. kode 486383 - for apparat SHARK 35 - 230 V - 50/60 Hz - Serienummer.....

RU Заказ запасных частей

Для запроса запасных частей укажите точно:

- 1) код запчасти,
- 2) модель машины,
- 3) напряжение и частоту, написанные на пластине,
- 4) ее серийный номер.

ПРИМЕР

2 шт., код № 438401
n - штук деталей, код 486383, для сварочной машины SHARK 35 230 В - 50/60 Hz
Серийный номер



CEA COSTRUZIONI ELETTROMECCANICHE ANNETTONI S.p.A.

C.so E. Filiberto, 27 - 23900 LECCO - ITALY

Cas. Post. (P.O. BOX) 205

Tel. +39 0341 22322 - Fax +39 0341 422646

cea@ceaweld.com

www.ceaweld.com

