Site Cut 10

COMPRESSOR PLASMA CUTTING EQUIPMENT

GB
Inglese

INDEX

Cap. Par. DESCRIPTION PAGES

WARNING

IMPORTANT: BEFORE STARTING THE EQUIPMENT, READ THE CONTENTS OF THIS MANUAL, WHICH MUST BE STORED IN A PLACE FAMILIAR TO ALL USERS FOR THE ENTIRE OPERATIVE LIFE-SPAN OF THE MACHINE.THIS EQUIPMENT MUST BE USED SOLELY FOR CUTTING OPERATIONS.

1. Conformity declaration

The machines descripted in this manual, Site Cut 10 must be used solely for professional purposes in an industrial environment and they are manufactured in compliance with the instructions contained in the harmonized standard EN50199 (electromagnetic compatibility) and EN60974-1.
IN CASE OF BAD OPERATION YOU DEMAND THE ATTENDANCE OF QUALIFIED STAFF.

1.1 RAEE Norm

The symbol on the product or on its packaging indicates that this product may not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropiate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

2. SAFETY PRECAUTIONS

WELDING AND ARC CUTTING CAN BE HARMFUL TO YOURSELF AND OTHERS. The user must therefore be educated against the hazards, summarized below, deriving from welding operations.

ELECTRIC SHOCK – May be fatal.

Install and earth the welding machine according to the applicable regulations.
Do not touch live electrical parts or eletrodes with bare skin, gloves or wet clothing.
Isolate yourselves from both the earth and the workpiece.
Make sure your working position is safe.

FUME AND GASES – May be hazardous to your health.

Keep your head away from fumes.
Work in the presence of adequate ventilation, and use ventilators around the arc to prevent gases from forming in the work area.

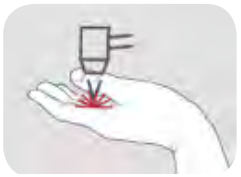
ARC RAYS – May injure the eyes and burn the skin.

Protect your eyes with welding masks fitted with filtered lenses, and protect your body with appropiate safety garments.
Protect others by installing adequate shields or curtains.

RISK OF FIRE AND BURNS

Sparks (sprays) may cause fires and burn the skin; you should therefore make sure there are no flammable materials in the area, and wear appropriate protective garments.

PLASMA ARC can injure



Keep your body away from nozzle and plasma arc.
Operate the pilot arc with caution. The pilot arc is capable of burning the operator, others even piecing safety clothing.

NOISE

This machine does not directly produce noise exceeding 80dB. The plasma cutting/welding procedure may produce noise levels beyond said limit; users must therefore implement all precautions required by law.

PACEMAKERS

The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

EXPLOSIONS

Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes. All cylinders and pressure regulators used in welding operation should be handled with care.

3. General description

This machine is a constant direct current power source, designed for cutting electrically conductive materials (metals and alloys) using the plasma arc procedure. The plasma gas may be compressed air or nitrogen.

3.1 3.1 Description of devices on the machine

Site Cut 10 power source

Figure 3

1. Power indicator
2. OK indicator
3. Over-heat protect indicator
4. Current adjustment knob
5. Power switch
6. Positive output terminal
7. Negative output terminal

Picture 3 : Site Cut 10 front and rear view

3.2 Safety devices

This system comes equipped with the following safety devices: (see table 1)

- Overload cutout:To avoid overload while cutting
- Electrical:

  * In the event of the machine termpretrue too high.

  * In the event of torch maintenance with main power on. In this event all cutting function are prevented

Table 1: Safety device signal.

SIGNAL / FUNCTION	⚡		
ON/OFF	ON/OFF		Reset function, blink for 5 sec.
When pilot arc is end ,cuntinue to press the torch tiigger cutting		Fast blinking for 10 sec.	
Pilot arc on -		On. light for 4-6 sec..	Fast blinking
		ON	
Thermal failure			ON
Torch Maintenance		Fast blinking	Fast blinking

Do not remove or short-circuit the safety devices.
Use only original parts.
Always replace any damaged parts of the machine with original materials.
Do not run the machine without its housings. This would be dangerous to the operator and anyone else in the work area, and would prevent the machine from being cooled properly.

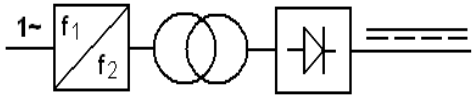
3.3 Explanation of technical specification

EN 60974.1 dards — The machine has been built according to this European standards

EN 50199

EN 50192

N..... — Serial number. Always indicate this for any request



Single phase static transformer-rectifier frequencyconverter, inverter.

Drooping characteristic.

Suitable for plasma cutting.

TORCH TYPE.. Type of torch that may be used with this machine.

U0 Secondary open-circuit voltage Peak value.

X% Percentage duty cycle.
The duty cycle expresses the percentage of 10 minutes for which the machine may work at a certain current I2 and voltage U2 without overheating.

I2 Cutting current.

U2 Secondary voltage at cutting current I2.
This voltage in measured when cutting with the gas nozzle in contact with the work piece.If this distance increases, the cutting voltage also increases and the duty cycle X% may drop.

U1 Main supply voltage

1~50/60Hz Single phase 50/60 Hz power supply

I1 Primary supply current at the corresponding cutting current I2 and cutting voltage U2 .

IP21S Housing protection rating.

GB

Inglese

3.4 Technical specifications table (table 2)

Technical data		Site Cut 10
Main supply (-15%/+15%)	VAC	1ph x 230V
Frequency	Hz	50/60
Main power (60%)	KVA	2,6
Open circut voltage V0	V	250
Current range I2	A	13-25
Arc pilot current I2	A	11-13
Cutting current I2 (X%)	A	25
I2 (60%)	A	25
I2 (100%)	A	20
Recommended cutting capacity	mm	6
Maximum cutting capacity	mm	10
Severence cutting capacity	mm	8
Gas flow	bar	Air compressor.
Insulation class		F
Protection degree	IP	21S
Dimensions	mm	425x210x415
Weight	**Kg**	**19,0**

4. Start-up and use

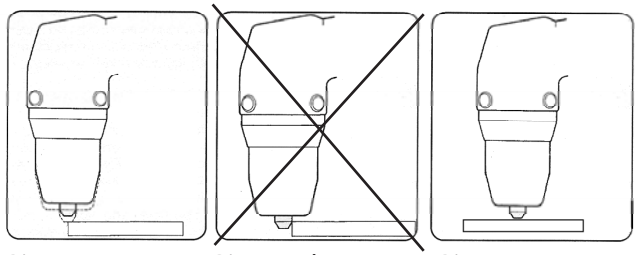
The machine must be installed by qualified personnel. All connections must be made in compliance with current safety standards and full observance of safety regulations.

4.1 Main supply connection

Connect the power cord A: the yellow-green cable wire must be connected to an efficient grounding socket on the system. The remaining wires must be connected to the power supply line by means of a switch placed as close as possible to the cutting area, to allow it to be shut off quickly in case of emergency.
The capacity of the cut-out switch or fuses installed in series with the switch must be equal to the current I1 absorbed by the machine.
The absorbed current I1 may be determined by reading the technical specifications shown on the machine under the available supply voltage U1 .
Any extension cords must be sized appropriately for the absorbed current I1.

4.2 Cutting start-up

Read the standards CEI 26/9 – CENELEC HD 407 and CEI 26.11 – CENELEC HD 433 carefully before using the equipment, and make sure the cable insulation is fully intact. Make sure the trigger has not been pressed.
Turn the machine on using the switch B. The warning lamp D will light and thermal lamp E will blink for 5 sec. to indicate that the machine is on.
Press the torch trigger briefly to open the flow of compressed air ; for first start there isn't pilot arc but only air flow to clean the air hose from pump . Since the arc is not lit, air leaves the torch for 20-25 sec.
Connect the grounding clamp to the workpiece. The cutting circuit must not be deliberately placed in direct or indirect contact with the protective wire except in the workpiece. If the workpiece is deliberately grounded using the protective conductor, the connection must be as direct as possible and use a wire of at least the same size as the cutting current return wire, and connected to the workpiece at the same point as the return wire clamp or a second grounding clamp placed in the immediate vicinity. Every precaution must be taken to avoid stray currents. Use the knob C to select the cutting current.
Make sure that the grounding clamp and workpiece have a good electrical contact, especially with painted, oxidized or insulated sheet metal.
Do not connect the grounding clamp to the part of the material that is to be removed. Press the torch trigger to strike the pilot arc.

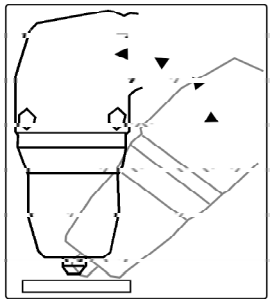


Picture 5a Picture 5b Picture 5c

Begin cutting as shown in fig. 5a, avoid starting as shown in fig. 5b. Further during cutting operation the torch have to keep in contact with workpiece in order to avoid torch overheating
(Picture 5c).

Hold the torch upright while cutting.
When you have finished cutting and released the trigger, air will continue to leave the torch for approximately 20-25 seconds to allow the torch to cool down.
The standard tip have hole 0,8 mm. , suggested from 18 to 25 A . Below is suggested to use tip 0,65 mm.
(upon request)
It is best not to turn the machine off until this cool-down period is complete.
For best cutting performances, see Tab. 4: spare parts
To cut perforated or grid metal, after any cutting cycle, pilot arc swicth on for next cutting cycle. After 4-6 sec. without cutting the arc pilot will switch off .

Use this function only if necessary to avoid unnecessary wear on the electrode and nozzle.



Picture 6: begin cutting from the center of the workpiece.

Should you need to make holes or begin cutting from the center of the workpiece, you must hold the torch at an angle and slowly straighten it so that the nozzle does not spray molten metal (see Picture 6). this must be done when making holes in pieces more than 3 mm thick.
Turn the machine off when the task is completed.

On Picture 3 we can see a plot concerning cutting speed vs cutting thickness with cutting current

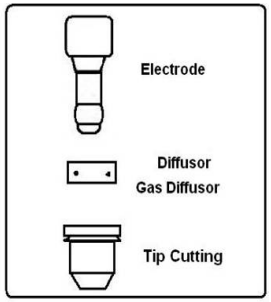
Picture 3: cutting data

Thickness(mm)	8	6
Material	carbon steel	carbon steel
Current(Amp)	25	25
Speed (m/min)	250	500
cutting width	1.2	0.9
air-pressure	Built-in airpump	Built-in airpump
Electrode, nozzle	original electrode and nozzle of the cutting torch (0.8)	original electrode and nozzle of the cutting torch (0.8)

Note: The above table has to consider only an example for setting the best parameters. The data was collected using automatic cuttin system.

For the overlapped steel (1,0-1,5 mm.) is suggested to use the nozzle with hole 0,65 mm. with 13-18 A ; automatically the generator inverter supplies a low air quantity to execute such operation .

5. Replacing consumer parts



Picture 8 : mouting schematic

Always shut off the machine before replacing consumer parts.
The electrode must be replaced when it has a crater in the center approximately 1 mm deep.
The diffuser must be replaced when some areas are blackened. Due to its small size, is very important to position it correctly during assembly (see fig. 4).
The gas nozzle or tip cutting must be replaced when the hole is no longer smooth and the cutting capacity is diminished.
The nozzle holder must be replaced when the insulating part is deteriorated.
For the best cutting performances, use the following tip cutting-nozzle holder combination (for order code see Spare part section)

Table 4: spare parts

Current/Model	From 13 to 18 Amp	From 18 to 25 Amp
Site Cut 10	Tip diameter 0,65 mmnozzle holder with 2 holes	Tip diameter 0,8 mmnozzle holder with 2 holes

Make sure that the electrode, the diffuser an the gas nozzle are mounted correctly, and that the nozzle holder is firmly tightened
If any of this parts are missing, this will interfere with smooth operation of the machine and, especially, jeopardize operator safety.

6. Cutting errors

6.1 Insufficient penetration

This error may be caused by the following:

- High speed. Always make sure that the arc fully penetrates the workpiece and is never held at a forward angle of more than 10-15°. This will avoid incorrect consumption of the nozzle and burns to the nozzle holder.
- Excessively thick workpiece This inverter cut 8 mm. Max and 10 mm. severance .
- Grounding clamp not in good electrical contact with the workpiece.
- Worn nozzle and electrode.
- Cutting current too low.
- NOTE: when the arc does not penetrate, the molten metal scraps obstruct the nozzle.

6.2 The cutting arc goes off

This error may be caused by:

- Worn nozzle, electrode or swirl ring.
- Air pressure too high.
- Supply voltage too low.

6.3 Shorter life of consumer parts

This error may be caused by:

- Oil or dirt in the arc intake.
- Unnecessarily long pilot arc.
- Low air pressure.

Make sure that the new electrode and nozzle to be mounted are thoroughly clean and degreased.
Always use original spare parts to avoid damaging the torch.

7. Maintenance

Always cut off the power supply to the machine before any operation, which must always carried out by qualified personnel.

7.1 Generator maintenance

In the case of maintenance inside the machine, make sure that the switch B is in position “O” and that the power cord is disconnected from the mains.

Site Cut 10 power source
Periodically open the cover panel and clean the interior of the machine from the accumulated metal dust, using low pressure compressed air.
The air compressor is equipped with an air filter (Pos. 1 – Picture 10); periodically, remove this filter and clean it with low flow air compressed.

7.2 Precautions after repairs

After making repairs, take care to organize the wiring so that there is secure insulation. Do not allow the wires to come into contact with moving parts or those that heat up during operation. Reassemble all clamps as they were on the original machine, to prevent a connection from a wire accidentally break or be disconnected. To ensure earth connection, also mount the screws with geared washers as on the original machine.

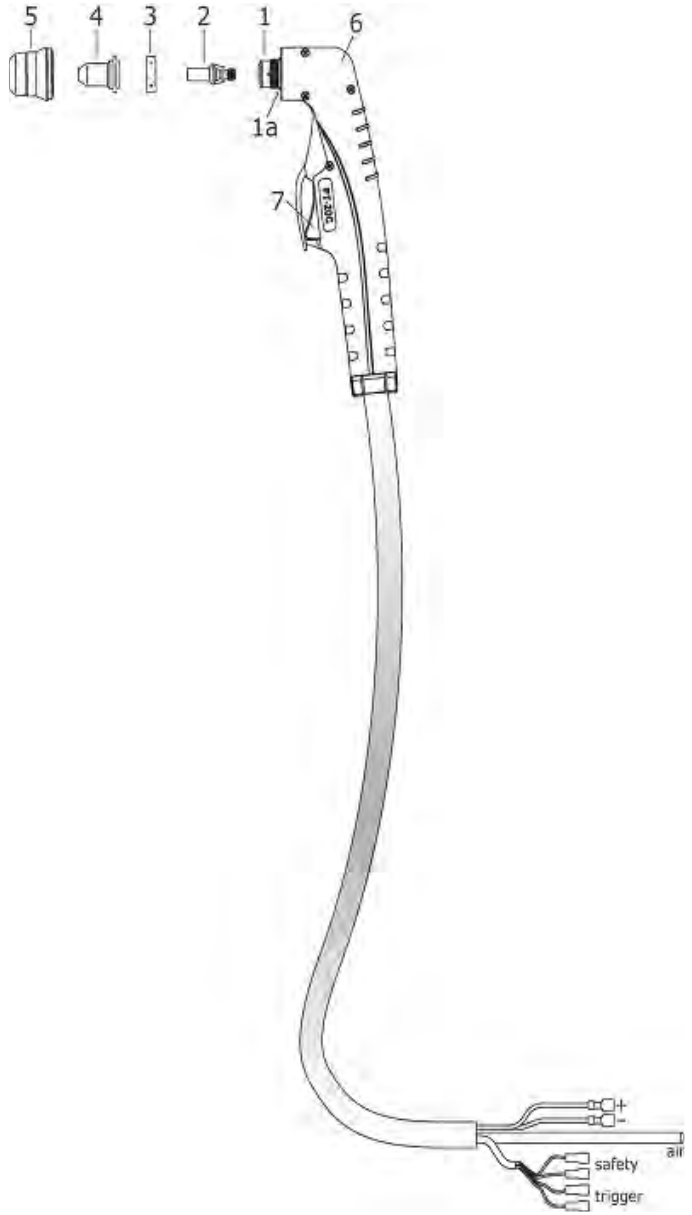
8. Spare parts

8.1 Site Cut 10 power source

Figura 10: Viste generali Site Cut 10

Ref.	Description
1	Green Led 3 mm
2	Yellow Led 3 mm
	Led holder
3	Red Led 3 mm
4	Regulation current knob
	Potentiometer 1 Kohm
5	Main power switch 230 VAC
6	Earth clamp
7	Plasma torch 4 mt (see torch spare parts)

8.2 Plasma torch



	T3981120	Hand torch 4 m. - Compressor
1	R4919102	Torch head
1a	R4929101	O-Ring
2	R4924109	Electrode Hf - back arc stricking
3	R4622101	Air diffuser
4	R4913130	Tip 0,65 (10-20 A) back arc stricking
	R4913131	Tip 0,8 (20-30A) back arc stricking
	R4913132	Tip 0,9 (40A) back arc stricking
5	R4612102	Outside nozzle , 2 holes
6	R4930117	Handle complete
7	R4932102	Trigger

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