Cod. 006.0001.1360
17/07/2023 V.2.11

WELD THE WORLD

Micro Mag 302MFK

Instruction Manual

Translation of original instructions

ENGLISH

INDEX

1 INTRODUCTION

IMPORTANT!

This handbook must be handed over to the user prior to installation and commissioning of the unit. Read the "General prescriptions for use" handbook supplied separately from this manual before installing and commissioning the unit.
The meaning of the symbols in this manual and the associated precautionary information are given in the "General prescriptions for use".
If the "General prescriptions for use" are not present, it is mandatory to request a replacement copy from the manufacturer or from your dealer.
Retain these documents for future consultation.

KEY

DANGER!

This pictogram warns of danger of death or serious injury.

WARNING!

This pictogram warns of a risk of injury or damage to property.

CAUTION!

This pictogram warns of a potentially hazardous situation.

INFORMATION!

This pictogram gives important information concerning the execution of the relevant operations.

➲	This symbol identifies an action that occurs automatically as a result of a previous action.
ⓘ	This symbol identifies additional information or a reference to a different section of the manual containing the associated information.
§	This symbol identifies a reference to a chapter of the manual.

NOTE
The figures in this manual are simply provided to depict the operations and may contain differences with respect to the actual equipment to which they refer.

1.1 INTRODUCTION

Micro Mag 302 MFK is a compact and rugged three-phase, synergic inverter power source for MIG/MAG, MMA and TIG Lift welding.
Easy to transport, only 22 kg , it is the best option for maintenance and repair on fi eld, shipyard and off -shore operations.
Polarity change allows welding with self shielded wires.
Innovative unique HAC (Hybrid Arc Control) supplies a soft and very stable MIG/MAG arc with excellent weld bead quality and minimal spattering in any working conditions.
3T Mode allows both Hot Start and Crater Filler current setting, for optimal penetration at start and crater fi lling at bead's end.
Additional parameters, Motor Slope, Soft Start, Burn Back and Post Gas are included for perfect arc ignition and optimum wire cutting at the end of welding.
Microprocessor, inverter technology, digital displays, synergic curves and memory locations for customized welding parameters assure complete welding process repeatability.
The inductance can be adjusted electronically by means of the user interface in order to optimize the arc.
A perfect wire feeding is guaranteed thanks to a 4-rolls motor drive included in Micro Mag 302 MFK.

Fan. The fan is turned on only during welding, at the end of the welding process it remains on for a fixed period of time according to welding conditions. The fan is nonetheless controlled by specific thermal sensors that guarantee a correct cooling of the machine.

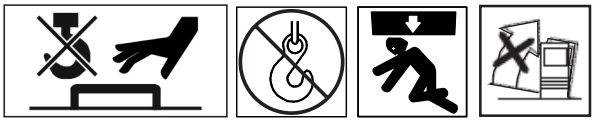
Accessories that can be connected to the unit:

- Manual remote controller for remote adjustment of the welding current.
- Push-Pull torch(purchasing and installing the relative kit).

2 INSTALLATION

DANGER!
Lifting and positioning

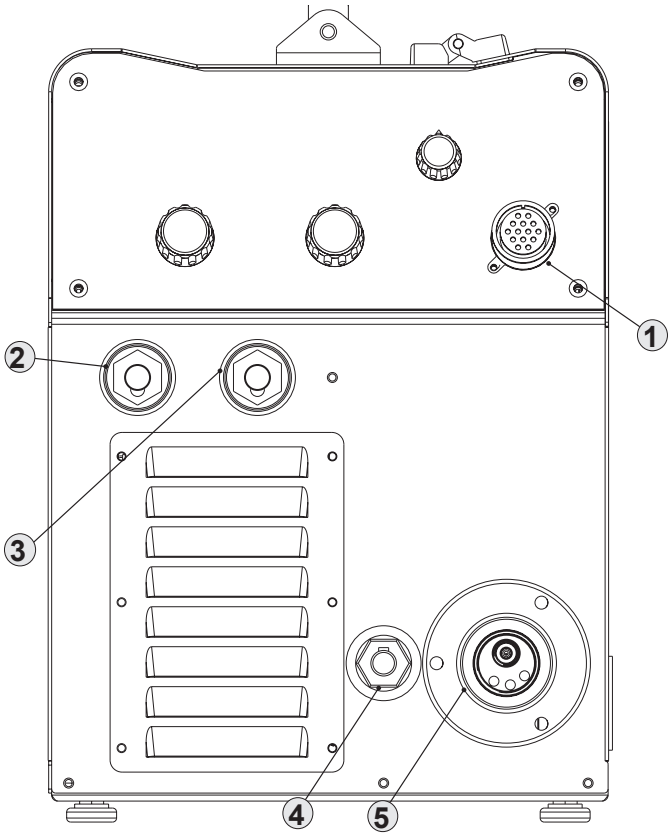
Read the warnings highlighted by the following symbols in the "General prescriptions for use".



2.1 CONNECTIONS TO THE ELECTRICAL MAINS NETWORK

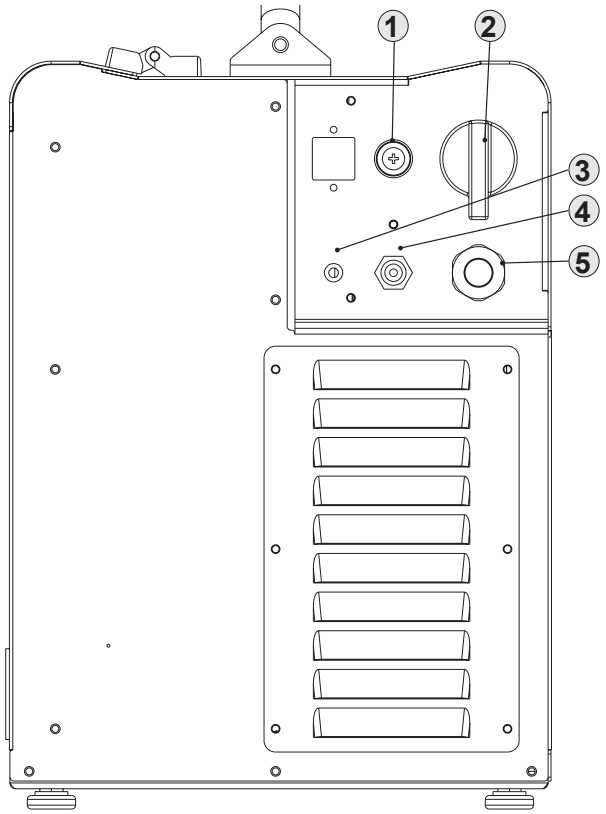
The characteristics of the mains power supply to which the equipment shall be connected are given in the section entitled "TECHNICAL DATA" on page 37.
The machine can be connected to motorgenerators provided their voltage is stabilised.
Connect/disconnect the various devices with the machine switched off.

2.2 FRONT PANEL



- Remote controller connector [Part. 1].
- Negative pole welding socket [Part. 2].
- Positive pole welding socket [Part. 3].
- Polarity selector cable [Part. 4].
- EURO TORCH welding socket [Part. 5].

2.3 REAR PANEL

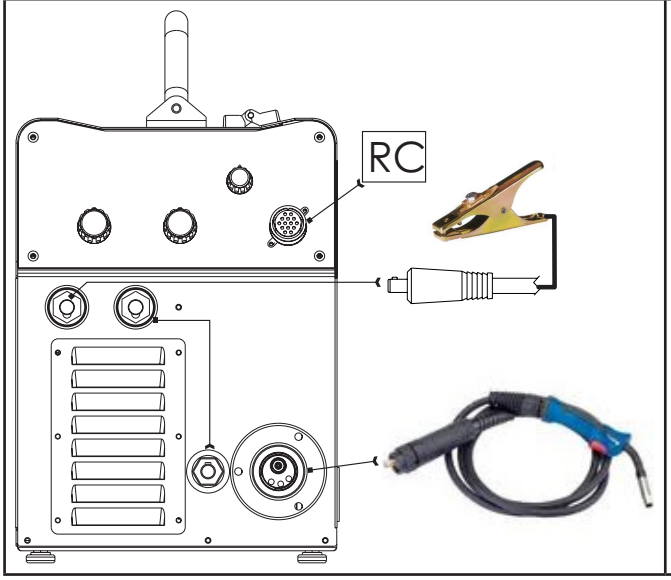
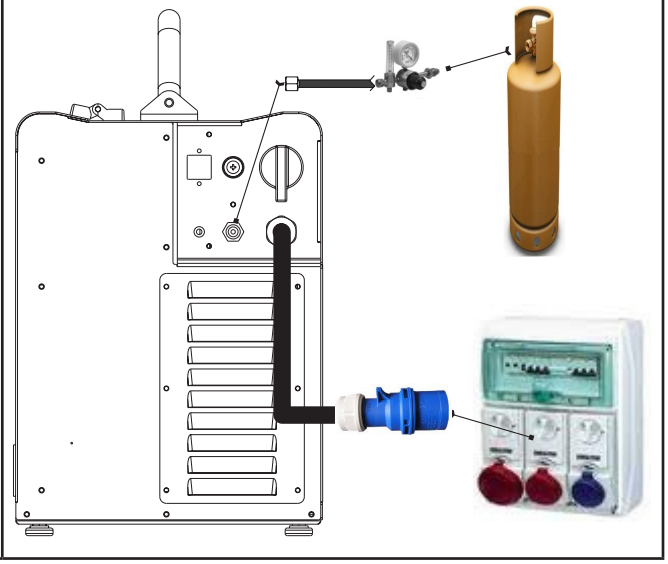


- ○ Wire feed motor power transformer fuse [Part. 1].
  - Type: Delayed acting (T)
  - Amperage: 630 mA
  - Voltage: 500 V
- ○ Welding power source ON/OFF switch [Part. 2].
- ○ Mains protection ON LED [Part. 3].
- ○ Connector for gas feed hose: cylinder → power source [Part. 4].
- ○ Power cable [Part. 5].
  - Total length (including internal part): 3,5 m
  - Number and cross section of wires: 4 x 2,5 mm^2
  - Power plug type: not supplied

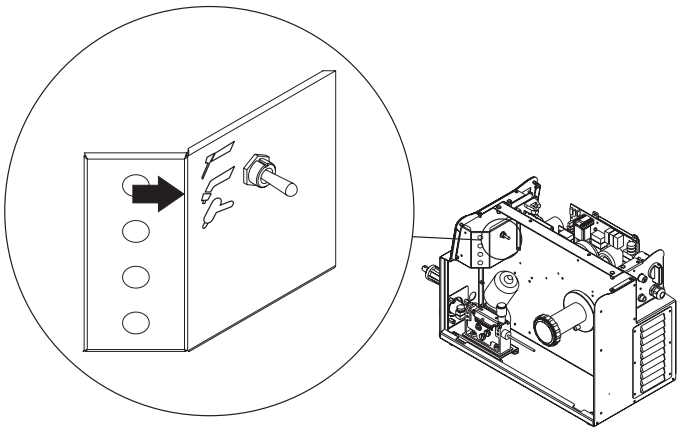
2.4 PREPARING FOR MIG/MAG WELDING

DANGER!
Electric shock hazard!

Read the warnings highlighted by the following symbols in the "General prescriptions for use".

FRONT VIEW	REAR VIEW
	

1. Set the welding power source ON/OFF switch to "O" (unit de-energized).
2. Plug the power cable plug into a mains socket outlet.
3. Connect the gas hose from the welding gas cylinder to the relative socket.
4. Open the cylinder gas valve.
5. Connect the MIG/MAG torch plug to the EURO TORCH welding socket.
6. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
7. Connect the plug of the polarity selector cable to the welding socket on the basis of the polarity required.
8. Connect the earth clamp to the workpiece being processed.
9. Set the welding power source ON/OFF switch to "I" (unit powered).
10. Select the following welding mode on the selector located in the spool compartment: MIG/MAG



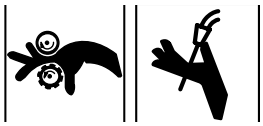
11. Feed the wire through the torch until it protrudes from the tip, pressing button on the unit's user interface. The insertion speed is 1.2 m/min for 3 seconds, subsequently increasing to 10 m/min. When the button is released wire feed is interrupted. This function produces a slower feed rate and hence greater precision when inserting the wire when it enters the torch nozzle.
12. Select the torch trigger procedure on the user interface.
13. Open the gas solenoid valve by pressing and releasing the button .
14. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
15. Close the gas solenoid valve by pressing and releasing the button .
16. Set the required welding parameter values on the user interface.

ⓘ On connecting and enabling a remote controller [RC] certain settings can be modified from said controller without having to take action on the user interface of the welding power source.
The system is ready to start welding.

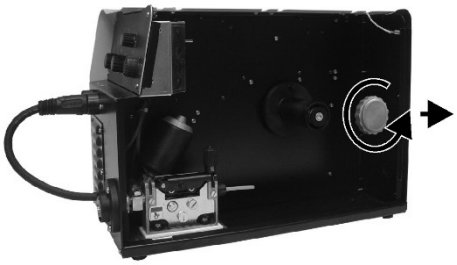
WIRE SPOOL POSITIONING

WARNING!
Mechanical Hazards

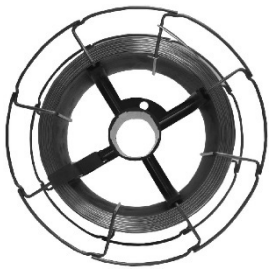
Read the warnings highlighted by the following symbols in the "General prescriptions for use".



17. Open the unit side door to gain access to the spool compartment.
18. Unscrew the cap of the spool holder.

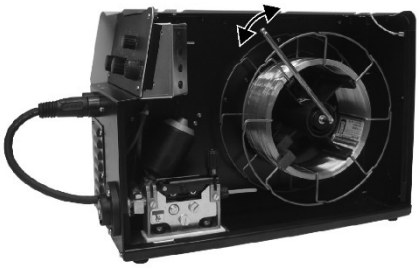


19. If necessary, fit an adapter for the wire spool.

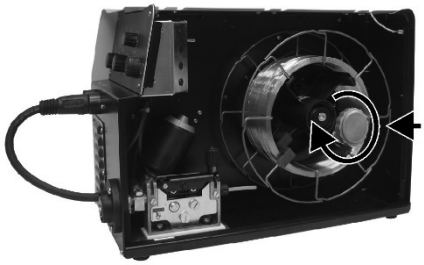


20. Choose the wire on the basis of the workpiece thickness and material type.
21. Fit the spool in the spool holder, ensuring it is located correctly.

22. Adjust the spool holder braking system by tightening/ loosening the screw in such a way that the wire feed force is not excessive and when the spool stops rotating no excess wire is released.

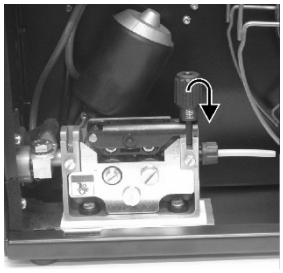


23. Refit the plug.

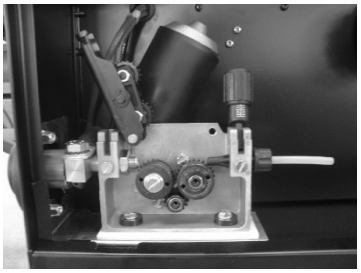


POSITIONING THE WIRE IN THE WIRE FEEDER

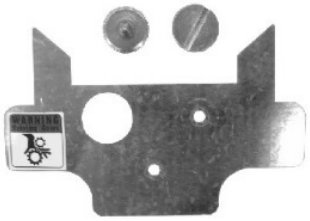
24. Lower the wire feeder pressure devices.



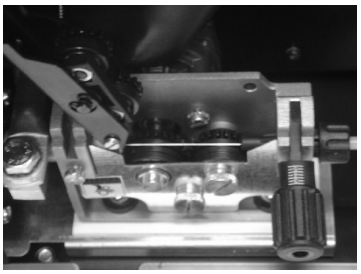
25. Raise the wire feeder pressure arms.
26. Remove the protective cover.
27. 4Check that the feed rolls are suitable for the wire gauge.



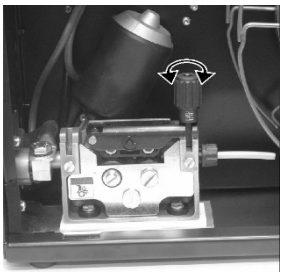
(See § “WIRE FEEDER ROLLS” on page 49.)
The diameter of the roll groovemust be compatible with the diameter of the welding wire.
The roll must be of suitable shape in relation to the composition of the wire material.
The groove must feature a “U” profile for soft materials (Aluminium and its alloys, CuSi3).
The groove must be “V” shaped for harder materials (SG2-SG3, stainless steels).
Rolls with a knurled groove profile are available for flux-cored wire.



28. Fare scorrere il filo tra i rulli del traina filo e infilarlo nel punzone dell’attacco TORCIA MIG/MAG.
29. Controllare che il filo sia alloggiato correttamente dentro i solchi dei rulli.



30. Chiudere i bracci di pressione del traina filo.
31. Regolare il sistema di pressione affinché i bracci premano il filo con una forza che non lo deformi e che garantisca un avanzamento senza slittamenti.
32. Rimontare la lamiera di protezione.
33. Chiudere lo sportello laterale dell’apparecchiatura.

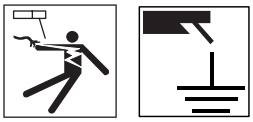


2.5 PREPARING FOR MMA WELDING

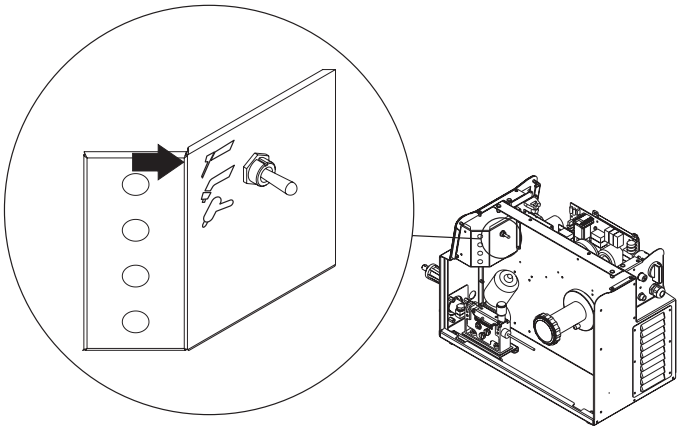
1. Set the welding power source ON/OFF switch to “O” (unit de-energized).
2. Plug the power cable plug into a mains socket outlet.
3. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
4. Insert the electrode in the electrode holder.
5. Connect the electrode holder cable to the welding socket based on the polarity requested by the type of electrode used.
6. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
7. Connect the earth clamp to the workpiece being processed.

DANGER!
Electric shock hazard!

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



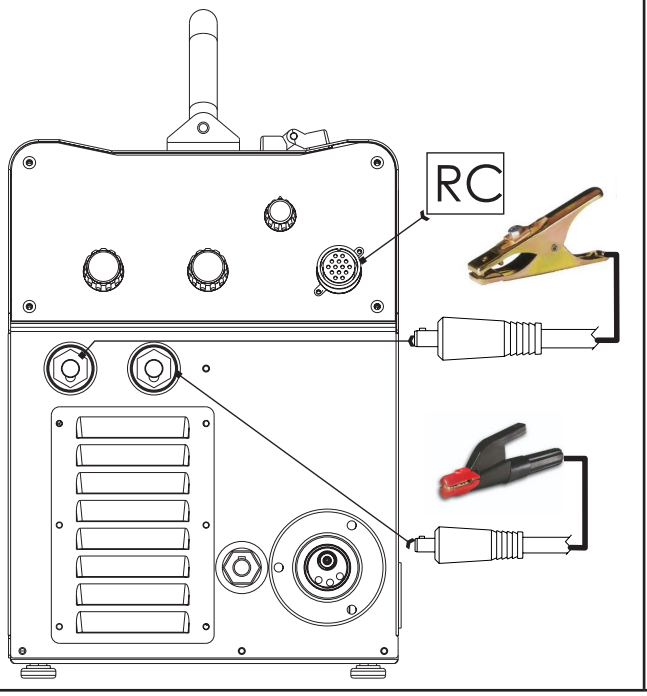
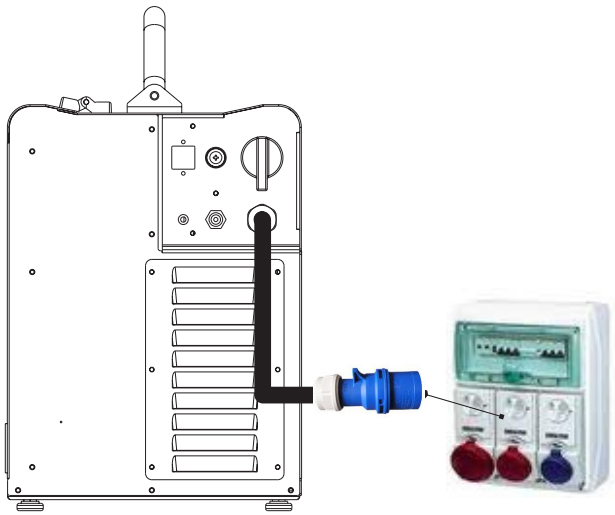
8. 8Set the welding power source ON/OFF switch to “I” (unit powered).
9. Select the following welding mode on the selector located in the spool compartment: MMA



10. Set the required welding parameter values on the user interface.

ⓘ When the remote controller [RC] is connected and the relative locking screw is tightened, welding current can be adjusted using the remote controller.

The system is ready to start welding.

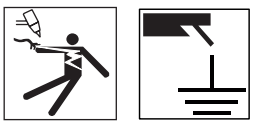
FRONT VIEW (polarity to basic electrode)	REAR VIEW
	

2.6 PREPARING FOR TIG WELDING

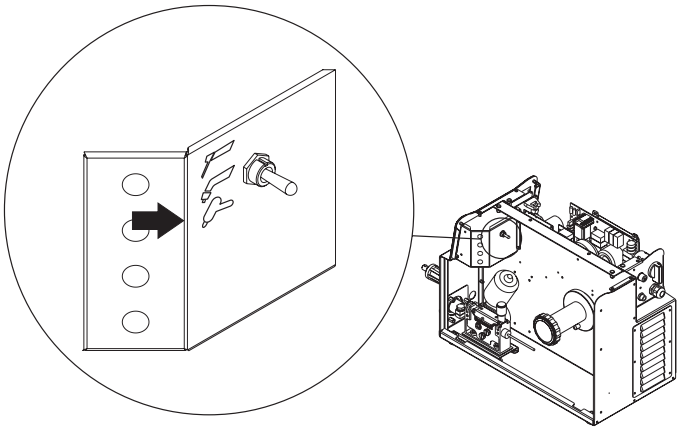
1. Set the welding power source ON/OFF switch to “O” (unit de-energized).
2. Plug the power cable plug into a mains socket outlet.
3. Connect the gas hose from the welding gas cylinder to the rear gas socket.
4. Open the cylinder gas valve.
5. Connect the TIG torch plug to the EURO TORCH welding socket.
6. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
7. Insert the electrode in the TIG torch.
8. Connect the plug of the polarity selector cable to the welding socket on the basis of the polarity required.
9. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
10. Connect the earth clamp to the workpiece being processed.

DANGER!
Electric shock hazard!

Read the warnings highlighted by the following symbols in the “General prescriptions for use”.



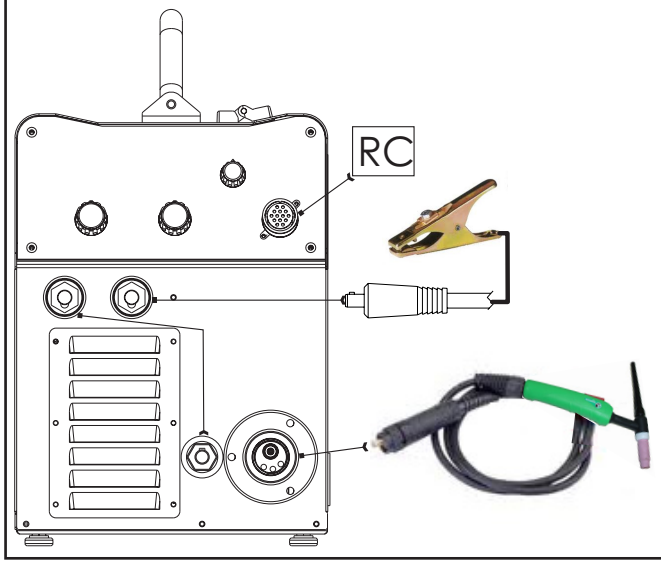
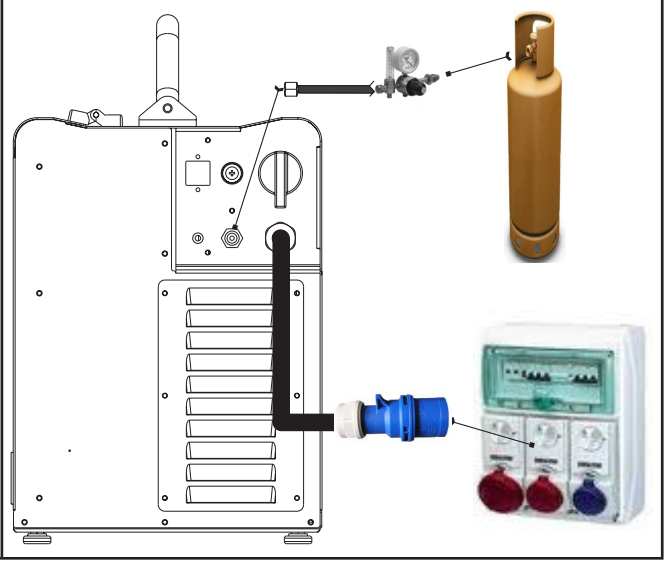
11. Set the welding power source ON/OFF switch to “I” (unit powered).
12. Select the following welding mode on the selector located in the spool compartment: DC TIG



13. Open the gas solenoid valve by pressing and releasing the button .
14. Use the flow control valve to adjust the flow of gas as required while the gas is flowing out.
15. Close the gas solenoid valve by pressing and releasing the button .
16. Set the required welding parameter values on the user interface.

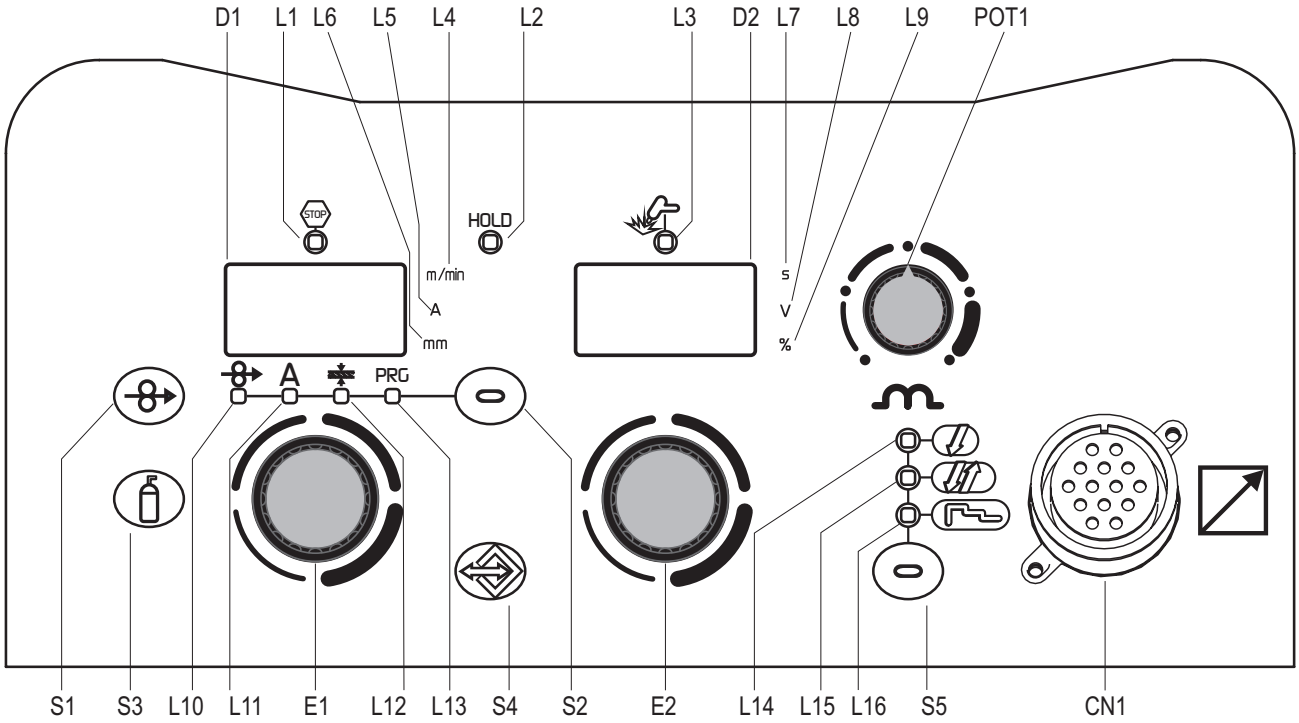
ⓘ When the remote control pedal is connected and the relative locking screw is tightened the welding current will vary in relation to the pressure exerted on the pedal.

The system is ready to start welding.

FRONT VIEW (polarity for tungsten electrode)	REAR VIEW
	

3 COMMISSIONING

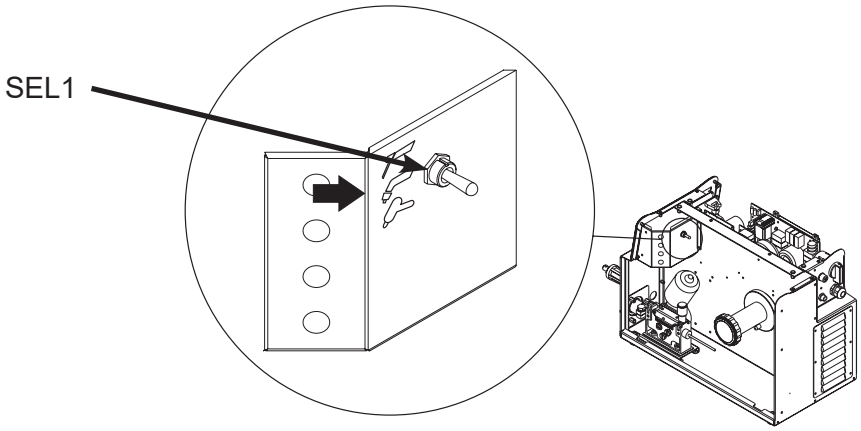
3.1 USER INTERFACE



CODE	SYMBOL	DESCRIPTION
L1	STOP	This LED illuminates to show an anomaly in the operating conditions. ⓘ See § 3.7 ALARMS MANAGEMENT page 16.
L2	HOLD	Illumination of this LED indicates the display of the average voltage and current value measured during the final moments of welding. The value appears on the following displays: D1-D2
L3		This LED illuminates to confirm the presence of power on the output sockets.
L4	m/min	Illuminates to show a value in the following unit of measurement: METRES PER MINUTE
L5	A	Illuminates to show a value in the following unit of measurement: AMPERES
L6	mm	Illuminates to show a value in the following unit of measurement: MILLIMETRES
L7	s	Illuminates to show a value in the following unit of measurement: SECONDS
L8	V	Illuminates to show a value in the following unit of measurement: VOLTS
L9	%	Illuminates to show a value in the following unit of measurement: PERCENTAGE
L10		When this LED illuminates the following parameter can be set: WIRE FEED RATE
L11	A	When this LED illuminates the following parameter can be set: WELDING CURRENT
L12		When this LED illuminates the following parameter can be set: THICKNESS

CODE	SYMBOL	DESCRIPTION
L13	PRG	Illuminates to show that the required Synergic welding program can be set.
L14		Illumination shows that the following function has been activated: 2 stroke procedure.
L15		Illumination shows that the following function has been activated: 4 stroke procedure.
L16		Illumination shows that the following function has been activated: 3 stroke Special procedure.
D1		**Parameters/functions setting** Manual MIG/MAG mode: the display shows the programmed wire feed rate. Synergic MIG/MAG mode: the display shows the value of the selected main welding parameter.
		Welding MIG/MAG mode: The display shows the modification of the main welding parameter. MMA mode: The display shows the effective amperes value during welding. TIG Mode: The display shows the effective amperes value during welding.
		Menu function The display shows the acronym of the parameter or function to be adjusted.
		Programs setting The display shows the message P “program no.”.
D2		**Parameters/functions setting** Manual MIG/MAG mode: the display shows the programmed voltage. Synergic MIG/MAG mode: the display shows the arc correction value imposed by the operator with respect to the default value of the synergic curve.
		Welding MIG/MAG mode: The display shows the effective voltage value during welding.
		Menu function The display shows the value of the parameter or function to be adjusted.
		Programs setting The display shows the acronym of the material to be welded on the basis of the selected synergic curve.
S1		MIG/MAG mode: this button activates wire feed to insert it through the MIG/MAG torch.
S2		**Parameters/functions setting** Manual MIG/MAG mode: the button selects one of the following settings: WIRE FEED RATE - SYNERGIC PROGRAM Synergic MIG/MAG mode: the button selects one of the following settings: WIRE FEED RATE - WELDING CURRENT - THICKNESS - SYNERGIC PROGRAM
		In all welding modes This button provides the facility to gain access to the secondary parameters adjustment menu.
		Powering up the unit This button opens the initial setup menu.

CODE	SYMBOL	DESCRIPTION
S3		This button opens the gas solenoid valve to fill the circuit and calibrate the pressure with the regulator on the gas cylinder.
		Gas menu function Hold down the button for 3 seconds to open the menu.
S4		**Press and release:** the button opens the JOBs upload menu. **Hold down for 3 seconds:** the button opens the JOBs save and delete menu.
S5		MIG/MAG mode: this button selects the torch trigger procedure.
E1		**Parameters/functions setting** Manual MIG/MAG mode: the encoder sets the wire feed rate. Synergic MIG/MAG mode: the encoder sets the main adjustment value.
		Welding The encoder selects the main welding parameter to be set.
		Menu function The encoder selects the function or parameter to be adjusted.
		Programs setting The encoder selects the synergic program to be uploaded.
E2		**Parameters/functions setting** Manual MIG/MAG mode: the encoder sets the welding voltage. Synergic MIG/MAG mode: the encoder sets the arc correction.
		Menu function The encoder sets the value of the selected function or parameter.
		Programs setting The encoder selects the MIG/MAG welding program.
POT1		Manual MIG/MAG mode: the potentiometer sets the inductance value. Synergic MIG/MAG mode: the potentiometer sets the inductance value from the minimum to the maximum permissible value in accordance with the selected synergic curve.
SEL1		The selector sets the welding mode.



3.2 UNIT POWER-UP

Set the welding power source ON/OFF switch to “I” to switch on the unit.

➲ F x.x The message appears for a few seconds on the following displays: D1-D2
x.x= software version.

First power-up or power-ups following a RESET procedure

➲ The welding power source sets up for welding with the factory presets.

Subsequent power-ups

➲ The welding power source sets up for welding in the latest stable welding configuration that was active at the time of power-off.

3.3 RESET (LOAD FACTORY SETTINGS)

The reset procedure involves complete restoration of the default values, parameters and memory settings set in the factory.
All memory locations will be reset and hence all your personal welding settings will be lost!
The reset procedure is useful in the following cases:
Too many changes made to the welding parameters so user finds it difficult to restore defaults.
Unidentified software problems that prevent the welding power source from functioning correctly.

Set the welding power source ON/OFF switch to “O” to switch the unit off.

☞ SIMULTANEOUS ACTIONS	S3 ⊖ S5 ⊖ Hold down both buttons simultaneously. Set the welding power source ON/OFF switch to “I” to switch on the unit.

➲ **rEC FAC** The message appears on the following displays: D1-D2
Wait for the memory clear procedure to terminate.

3.4 SET-UP (INITIAL SET-UP OF THE WELDING POWER SOURCE)

Set the welding power source ON/OFF switch to “O” to switch the unit off.
SEL1 Use this selector to select one of the following welding modes:

- MMA
- MIG/MAG
- TIG

SIMULTANEOUS ACTIONS	S2 Hold down the button. Set the welding power source ON/OFF switch to “I” to switch on the unit.

Set UP: The message appears for a few seconds on the following displays: D1-D2
The acronym relative to the setting to be edited appears on the following displays: D1
The value relative to the selected setting appears on the following displays: D2
E1 Using the encoder, select the setting to be changed.
E2 Using the encoder, edit the value of the selected setting.
E1 Use the encoder to select the following setting: **ESC**
S2 Press any button to save the setting and quit the menu.

- Setup settings MMA, TIG

ACRONYM	SETTING	MIN	DEFAULT	MAX
rC	REMOTE CONTROLLER SELECTION	oFF	oFF	3

REMOTE CONTROLLER SELECTION

OFF= No remote controller enabled.
3= The unit is enabled to receive commands from a remote control equipped with 1 potentiometer.
4= The unit is enabled to receive commands from a remote control equipped with 2 potentiometers.
5= The unit is enabled to receive commands from a remote control equipped with 1 UP/DOWN lever.
6= The unit is enabled to receive commands from a remote control equipped with 2 UP/DOWN levers.

- Setup settings MIG/MAG

ACRONYM	SETTING	MIN	DEFAULT	MAX
rC	REMOTE CONTROLLER SELECTION	oFF	oFF	6
LoC	LOCK STATUS ACTIVATION	oFF	oFF	3
PP	PUSH PULL ACTIVATION (purchasing and installing the relative kit)	oFF	oFF	oN
bb.	SELECTION OF BURN TYPE	SPc	Std	Std
ESC	QUITTING THE MENU			

LOCK STATUS ACTIVATION

OFF= All adjustments enabled.
1 - 2 - 3= All adjustments are disabled with the exceptions shown in on page 22.

SELECTION OF BURN TYPE

SPc= The setting activates Special burning.
Std= The setting activates Standard burning.

QUITTING THE MENU

To quit the menu select this setting and press button S2.

3.5 LOCKING PROCEDURE

The locks are enabled only in MIG/MAG welding mode.
The procedure inhibits unit adjustments, allowing the user to modify only certain settings depending on the selected lock status.
The procedure is used to prevent accidental alteration of the unit settings and welding settings by the operator.

Enabling
If no locking status is selected (LOC = oFF) and if you wish to set up a limitation on use of the power source, display the LOC function in the SETUP menu.

Open the Setup menu.

	➲	The acronym relative to the setting to be edited appears on the following displays: D1
	➲	The value relative to the selected setting appears on the following displays: D2
E1	◌	Use the encoder to select the following setting: LoC
E2	◌	Use the encoder to select the required lock status.
	ⓘ	Depending on the selected Lock, certain functions will remain enabled.
E1	◌	Use the encoder to select the following setting: ESC
S2	⊖	Press any button to save the setting and quit the menu.

- Functions not disabled by Locks

LOCK STATUS	USER INTERFACE	RC03	RC04	RC05	RC06
OFF	All adjustments enabled.	All adjustments enabled.	All adjustments enabled.	All adjustments enabled.	All adjustments enabled.
1	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) Arc correction (encoder E2) Wire insertion (button S1) Gas test (button S3)		Arc correction (Potentiometer Pot2)		Arc correction (UP/DOWN lever 2)
2	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) Arc correction (encoder E2) Synergy (encoder E1) Wire insertion (button S1) Gas test (button S3)	All adjustments enabled.	All adjustments enabled.	All adjustments enabled.	All adjustments enabled.
3 The LOCK 3 setting becomes active only when a JOB is loaded. When no JOB is loaded, the user interface is completely unlocked.	Selection of torch trigger procedure (button S5) Display of main welding parameters (button S2) JOB selection (encoder E2) Wire insertion (button S1) Gas test (button S3)			Scroll JOBS (UP/DOWN lever 1)	Scroll JOBS (UP/DOWN lever 1)

Disabling
If a lock status is selected, you can only edit parameters permitted by the currently active lock status.

Open the Setup menu.

	➔	The acronym relative to the setting to be edited appears on the following displays: D1
	➔	The value relative to the selected setting appears on the following displays: D2
E1	◯	Use the encoder to select the following setting: **LoC**
E2	◯	Use the encoder to select the following setting: **oFF**
E1	◯	Use the encoder to select the following setting: **ESC**
S2	⊖	Press any button to save the setting and quit the menu.

3.6 GAS FLOW ADJUSTMENT

When the unit is powered on the solenoid valve opens for 1 second.
This serves to fill the gas circuit.

S3		Open the gas solenoid valve by pressing and releasing the button. Adjust the pressure of gas flowing from the torch by means of the flow meter connected to the gas cylinder.
S3		Close the gas solenoid valve by pressing and releasing the button. The solenoid valve closes automatically after 30 seconds.

4 ALARMS MANAGEMENT

This LED illuminates if an incorrect operating condition occurs.
An alarm message appears on the following display: D3

- Alarm messages

MESSAGE	MEANING	EVENT	CHECKS
AL. HEA.	**Overheating alarm** Indicates tripping of the welding power source thermal protection.	All functions disabled. Exceptions: - cooling fan. Leave the unit running so that the overheated components cool as rapidly as possible. When the unit has cooled, the welding power source will reset automatically.	- Make sure that the power required by the welding process is lower than the maximum rated power output. - Check that the operating conditions are in compliance with the welding power source data plate specifications. - Check for the presence of adequate air circulation around the welding power source.
AL. Cur.	**Overcurrent alarm** Indicates tripping of the welding power source current surge protection.	All functions disabled. Exceptions: - cooling fan. An audible signal will sound (buzzer). Muting the audible signal: - in torch trigger procedure 2T, release the torch trigger. - In torch trigger procedure 4T or 3TS the alarm mutes automatically after 5 seconds. Exit the alarm state by performing one of the following actions: - press any button. - switch the power source off.	- Check that the programmed arc voltage value is not too high in relation to the thickness of the work to be welded.

5 WELDING SETTINGS

5.1 TORCH TRIGGER MODES

5.1.1 2 STROKE LIFT-ARC TIG WELDING (2T)

1. Touch the workpiece with the torch electrode.
2. Press (1T) and keep the torch trigger pressed.
3. Slowly lift the torch to strike the arc.

➲ The welding current reaches the preset value, by way of a up slope time, if programmed.

4. Release (2T) the trigger to start the weld completion procedure.

➲ The current reaches the end current value in the time set in the down slope time parameter.

➲ The arc is extinguished.

➲ Gas delivery continues for the time set in the post gas parameter.

5.1.2 4 STROKE LIFT-ARC TIG WELDING (4T)

1. Touch the workpiece with the torch electrode.
2. Press (1T) and release (2T) the torch trigger.
3. Slowly lift the torch to strike the arc.

➲ The welding current reaches the preset value, by way of a up slope time, if programmed.

4. Press (3T) the trigger and keep it pressed to start the weld completion procedure.

➲ The current reaches the end current value in the time set in the down slope time parameter.

➲ The arc continues and the current output will be the value set in the end current parameter.

ⓘ In these conditions the weld pool can be closed (crater filler current).

5. Release (4T) the trigger to extinguish the arc.

➲ Gas delivery continues for the time set in the post gas parameter.

5.1.3 2 STROKE MIG/MAG WELDING (2T)

1. Bring the torch up to the workpiece.
2. Press (1T) and keep the torch trigger pressed.

➲ The wire advances at the approach speed until making contact with the work.
The arc strikes and the wire feeder accelerates to the set feed rate value.

3. Release (2T) the trigger to start the weld completion procedure.

➲ Gas flow continues for the time set in the post gas parameter (adjustable time).

5.1.4 4 STROKE MIG/MAG WELDING (4T)

1. Bring the torch up to the workpiece.
2. Press (1T) and release (2T) the torch trigger.

➲ The wire advances at the approach speed until making contact with the work.
The arc strikes and the wire feeder accelerates to the set feed rate value.

3. Press (3T) the trigger to start the weld completion procedure.

➲ Gas flow continues until the torch trigger is released.

4. Release (4T) the torch trigger to start the post gas procedure (adjustable time).

5.1.5 3 STROKE SPECIAL MIG/MAG WELDING (3TS)

1. Bring the torch up to the workpiece.
2. Press (1T) the torch trigger.

➲ The wire advances at the approach speed until making contact with the work.

The welding arc strikes and the wire feed rate changes to the first welding level (hot start), which is set as a percentage of the normal welding feed rate.

ⓘ This first level is used to create the weld pool: for example, when welding aluminium a value of 130 % is recommended.

3. Release (2T) the trigger to switch to normal welding speed; the switch to normal welding speed is performed in accordance with the start ramp, which can be set in seconds.
4. Press the torch trigger again (Level 3) to switch to the third welding level (crater filler), which is set as a percentage of the normal welding feed rate.

ⓘ The switch of welding current level in terms of crater filling is performed in accordance with the crater ramp, which can be set in seconds.
This third level is used to complete the weld and fill the final crater (crater filler) in the weld pool: for example, when welding aluminium a value of 80 % is recommended.

5. Release the torch trigger a second time (4T) to close the weld and run the post gas procedure.

5.2 SELECTION OF THE WELDING MODE AND TORCH TRIGGER PROCEDURE

Specific torch trigger procedures are available in accordance with the selecting welding mode.
The availability of certain procedures depends on whether or not certain parameters or functions of the unit are enabled or set in the associated menus.
The table shows the settings to be made to enable each procedure.

KEY

1: Not enabled with manual program P0.
2: Always available.

- Selection of the welding mode and torch trigger procedure

SEL1 Use this selector to select one of the following welding modes.

S5 Use this button to select one of the following torch trigger procedures.

		PROCEDURE		
		2 STROKE	4 STROKE	3 STROKE SPECIAL
MODE				
MMA				
TIG DC CONTINUOUS		2	2	
MIG/MAG		2	2	1

5.3 PARAMETERS ACTIVATION

The welding parameters are available in accordance with the selected welding mode and procedure. The table shows the settings required to enable each parameter.

KEY
1: Not enabled with manual program P0.
2: Always available.

- Parameters activation

	MODE						
	PROCEDURE						
MENU	PARAMETER						
1°	WELDING CURRENT	2	2	2	1	1	1
1°	ARC CORRECTION				2	2	2
1°	INDUCTANCE				2	2	2
1°	WIRE FEED RATE				2	2	2
1°	THICKNESS				1	1	1
1°	PROGRAMS				2	2	2
2°	HOT-START	2					2
2°	ARC FORCE	2					
2°	CRATER FILLER						2
2°	3 LEVELS SLOPE						2
2°	SOFT START				2	2	2
2°	MOTOR SLOPE				2	2	2
2°	BURN BACK				2	2	2
GAS	POST GAS TIME		2	2	2	2	2
GAS	PRE-GAS TIME				2	2	2

5.4 WELDING PARAMETERS

WELDING CURRENT
Output current value during welding.

HOT-START (MMA)
This parameter aids electrode melting at the time of arc striking.
Consequences of a higher value:
- Easier arc strike.
- Increased spatter at welding start.
- Increase of strike area.

Consequences of a lower value:
- More difficult arc strike.
- Less spatter at welding start.
- Smaller strike area.

HOT-START (MIG/MAG)
This function is useful when using aluminium alloy welding wire.
Consequences of a higher value:
- Greater heat output.
- Greater penetration.

Consequences of a lower value:
- “Cold” weld bead.

ARC FORCE
This parameter helps to avoid electrode sticking during welding.
During electrode fusion low conductivity parts of the coating become detached and tend to become interposed between the electrode tip as it is fusing and the workpiece. This condition results in an interruption of the arc. In addition, it may occur that the electrode comes into contact with the workpiece creating a short circuit and consequent quenching of the arc. To avoid arc quenching the power source therefore delivers instantaneous peak currents in correspondence with preset arc voltage thresholds.
Consequences of a higher value:
- Fluidity during welding.
- Welding arc stability.
- Greater electrode fusion in workpiece.
- More welding spatter.

Consequences of a lower value:
- The arc is extinguished more easily.
- Less welding spatter.

MOTOR SLOPE
Time required to switch from SOFT START speed to welding speed.

ARC CORRECTION IN VOLTS
This parameter corrects the synergic voltage value relative to the synergic point of the MIG/MAG processes.
The default value for horizontal and frontal welding is 0.0 V.
NOTE: A value >0 produces an increase in the length of the welding arc, while a value <0 produces a shorter arc.

INDUCTANCE

Consequences of a higher value:
- “Softer welding”.
- Less spatter.
- Less positive starting.

Consequences of a lower value:
- “Harder welding”.
- More spatter.
- More reliable starting.

PRE GAS

Time of gas delivery before the arc strike.
CAUTION: an excessively long value will slow the welding procedure. Other than in the presence of special requirements the value should generally be kept at 0.0 s or anyway very low.
Consequences of a higher value:
- This parameter allows a shielded environment to be created, thereby eliminating contaminants at the start of the welding pass.

SOFT START

The soft start is the wire approach speed to the workpiece.
The value is expressed as a percentage of the set feed rate.
Consequences of a lower value:
- The start of welding is “softer”.

Consequences of a higher value:
- The welding start may prove difficult.

BURN BACK

The burn back value is associated with the quantity of wire that is burnt at the end of the welding procedure.
Consequences of a higher value:
- Wire significantly retracted into the torch nozzle.

Consequences of a lower value:
- Stick-out at welding start is longer.

POST GAS

Time of post gas delivery when the welding arc is extinguished.
This is useful when welding at high current values or with materials that oxidise readily to cool the weld pool in an uncontaminated atmosphere.
In the absence of specific requirements the value should generally be kept low.
Consequences of a higher value:
- More effective pickling (improved appearance of workpiece at the end of the welding pass).
- Higher gas consumption.

Consequences of a lower value:
- Lower gas consumption.
- Oxidation of electrode tip (more difficult arc strike).

CRATER FILLER

This parameter serves to obtain a uniform deposit at the end of the welding process to fill the crater with a reduced wire feed rate to facilitate the deposition of filler material.
By keeping the torch trigger pressed during the 3rd time, the wire feed rate is reduced (crater filler speed) thereby ensuring optimal crater filling, until the POST GAS time is started by releasing the torch trigger (4Th time).
Consequences of a higher value:

- Difficult crater filling (values greater than 100%).

Consequences of a lower value:

- Cold welding (values close to 1%).

3 LEVELS SLOPE

Establishes the duration of the slope between the 1st and 2nd time and between the 3rd and 4th time.

6 WELDING SETTINGS

6.1 ELECTRODE WELDING (MMA)

SEL1 Select the following welding mode on the selector located in the spool compartment: MMA

➔ MMA The message appears on the following displays: D2

6.1.1 PARAMETERS SETTING

E1 Using the encoder, edit the value of the parameter.

➔ The value appears on the following display: D1

The value is saved automatically.

- Main welding parameters: MMA mode

PARAMETER	MIN	DEFAULT	MAX
WELDING CURRENT	10 A	80 A	250 A

6.1.2 PARAMETERS SETTING: (1ST LEVEL)

S2 Hold down the button for 3 seconds to gain access to the 1st level menu.

➔ The acronym relative to the setting to be edited appears on the following displays: D1

➔ The value relative to the selected setting appears on the following displays: D2

E1 Use the encoder to scroll the list of settings to edit.

E2 Using the encoder, edit the value of the selected setting.

Press any button to save the setting and quit the menu.

- Parameters of the 1st level menu: MMA mode

ACRONYM	PARAMETER	MIN	DEFAULT	MAX
H.S.	HOT-START	0 %	50 %	100 %
A.F.	ARC FORCE	0 %	30 %	100 %

6.2 DC TIG WELDING

SEL1 Select the following welding mode on the selector located in the spool compartment: DC TIG
➔ **tIG** The message appears on the following displays: D2

6.2.1 PARAMETERS SETTING

E1 Using the encoder, edit the value of the parameter.
➔ The value appears on the following display: D1
The value is saved automatically.

- Main welding parameters: DC TIG mode

PARAMETER	MIN	DEFAULT	MAX
WELDING CURRENT	10 A	80 A	250 A

6.2.2 PARAMETERS SETTING: (GAS MENU)

S3 Hold down the button for 3 seconds to open the menu.
➔ The acronym relative to the setting to be edited appears on the following displays: D1
➔ The value relative to the selected setting appears on the following displays: D2
E2 Using the encoder, edit the value of the selected setting.
Press any button to save the setting and quit the menu.

- GAS menu parameters: DC TIG mode

ACRONYM	PARAMETER	MIN	DEFAULT	MAX	NOTE
Po.G.	POST GAS TIME	0.0 s	3.0 s	10.0 s	When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message “SYN” will be shown on the display.

6.3 MIG/MAG WELDING

SEL1 Select the following welding mode on the selector located in the spool compartment: MIG/MAG

6.3.1 PARAMETERS SETTING

ARC CORRECTION

E2 Using the encoder, edit the value of the parameter.
The value is saved automatically.

PARAMETER	MIN	DEFAULT	MAX
ARC CORRECTION	10.0 V	-	40.0 V

INDUCTANCE SETTING

POT1 Using the potentiometer, edit the value of the parameter.

6.3.2 PARAMETERS SETTING: (1ST LEVEL)

S2 Press this button to scroll the list of settings to edit.
The LED associated with the selected setting will illuminate.
The value relative to the selected setting appears on the following displays: D1
E1 Using the encoder, edit the value of the selected setting.
The value is saved automatically.

- Parameters of the 1st level menu: MIG/MAG mode

PARAMETER		MIN	DEFAULT	MAX	NOTE
	WIRE FEED RATE	1.0 m/min		20.0 m/min	*1
A	WELDING CURRENT	-	Syn	-	*1
	THICKNESS	-	Syn	-	*1 *2
PRG	PROGRAMS	P0	P0	P34	*1

*1: By changing the main adjustment value shown on display D1, the voltage value of the synergic curve shown on display D2 changes accordingly.
*2: Reference is made to “T” fillet welds on identical thicknesses. The relative value is purely guideline.
Syn: By synergy we mean a simple and fast way to regulate the generator. Through this function, an optimum balancing of all the welding parameters in every position can be granted, thus helping the user. This is the reason why the synergic curves of most of the wire types have been introduced, however these curves can be easily modified so as to allow the user to optimise his own welding procedure.

- Programmed synergic curves

	WIRE DIAMETER				ACRONYM	WIRE MATERIAL (GAS MIXTURE)
	0.8	1.0	1.2	1.4		

PROGRAM	P0	P0	P0	P0	MAn	MANUAL
	P1	P2	P3	---	FE	SG2/SG3 (80 % Ar - 20 % CO2)
	P4	P5	P6	---	FE	SG2/SG3 (92 % Ar - 8 % CO2)
	P7	P8	P9	---	FE	SG2/SG3 (100 % CO2)
	P10	P11	P12	---	S.S.	INOX 308 (98 % Ar - 2 % CO2)
	P13	P14	P15	---	S.S.	INOX 316 (98 % Ar - 2 % CO2)
	P16	P17	P18	---	AL	AlMg5 (100 % Ar)
	P19	P20	P21	---	AL	AlSi5 (100 % Ar)
	P22	P23	P24	---	CU.S.	CuSi3 (100 % Ar)
	P25	P26	P27	---	CU.A.	CuAl8 (100 % Ar)
	---	---	P28	P29	rFC	RFCW (80 % Ar - 20 % CO2)
	---	---	P30	P31	bFC	BFCW (80 % Ar - 20 % CO2)
	---	---	P32	P33	MFC	MFCW (80 % Ar - 20 % CO2)
	P34	---	---	---	nPr	FREE PROGRAMS

NOTE: The synergic curves were created with reference to a fillet weld in position PB (horizontal-vertical) with 10 mm stick-out (distance from torch to workpiece).

6.3.3 PARAMETERS SETTING: (2ND LEVEL)

S2 Hold down the button for 3 seconds to gain access to the 2nd level menu.
The acronym relative to the setting to be edited appears on the following displays: D1
The value relative to the selected setting appears on the following displays: D2
E1 Use the encoder to scroll the list of settings to edit.
E2 Using the encoder, edit the value of the selected setting.
Press any button to save the setting and quit the menu.

- Parameters of the 2nd level menu: MIG/MAG mode

ACRONYM	PARAMETER	MIN	DEFAULT	MAX	
H.-S.	HOT-START	1 %	130 %	200 %	
C.-F.	CRATER-FILLER	1 %	80 %	200 %	
S.3L.	3 LEVELS SLOPE	0.1 s	0.5 s	10.0 s	
S.-S.	SOFT-START	10 %	30 %	100 %	*1
SLO.	MOTOR SLOPE	0.0 ms	40 ms	200 ms	*1
b.-b.	BOURN BACK	0.0 ms	26 ms	100 ms	*1

*1: When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message “SYN” will be shown on the display.

6.3.4 PARAMETERS SETTING: (GAS MENU)

S3 Hold down the button for 3 seconds to open the menu.
The acronym relative to the setting to be edited appears on the following displays: D1
The value relative to the selected setting appears on the following displays: D2
E1 Use the encoder to scroll the list of settings to edit.
E2 Using the encoder, edit the value of the selected setting.
Press any button to save the setting and quit the menu.

- GAS menu parameters: MIG/MAG mode

ACRONYM	PARAMETER	MIN	DEFAULT	MAX	
Po.G.	POST GAS TIME	0.0 s	0.3 s	10.0 s	*1
P.G.	PRE-GAS TIME	0.0 s	0.0 s	10.0 s	*1

*1: When a synergic program is loaded the default value of the parameter is defined automatically by the software and the message “SYN” will be shown on the display.

6.4 JOBS MANAGEMENT

Personalised welding settings, or JOBs, can be saved in memory locations and subsequently uploaded.
Up to 50 JOBS can be saved (j01-j50).
The settings of the SETUP menu are not saved.
JOBs can be managed only when the unit is not in welding mode.

6.4.1 SAVING A JOB

S4 Hold down the button for 3 seconds.
- ➔ **S.A. J.xx** The message appears on the following displays: D1-D2
- ⓘ xx= number of the first free JOB.

E2 Use the encoder to select the required JOB number.
- ⓘ On selecting a currently occupied memory location, the JOB number flashes. If you confirm at this point, the new JOB will overwrite the previously saved settings.

Exit without confirmation

Press any button (except S4).
- ➔ This action will automatically close the menu.

Exit with confirmation

S4 Press the button.
- ➔ This action will automatically close the menu.

6.4.2 LOADING A USER JOB

S4 Press and release the button.
- ➔ **LO. J.xx** Only when the JOBs have been uploaded, the message is shown on the following displays: D1-D2
- ⓘ xx= number of the latest JOB used.
- ➔ **nO. Job** If there are no JOBs in the memory the message is shown on the following displays: D1-D2

E2 Using the encoder, select the JOB number to load.

Exit without confirmation

Press any button (except S4).
- ➔ This action will automatically close the menu.

Exit with confirmation

S4 Press the button.
- ➔ This action will automatically close the menu.
- ➔ **J. xx** The loaded JOB number is shown on the following display: D2
- ⓘ xx= number of loaded JOB.

6.4.3 DELETING A JOB

S4 Hold down the button for 3 seconds.
- ➔ **S.A. J.xx** The message appears on the following displays: D1-D2
- ⓘ xx= number of the first free JOB.

E1 Use the encoder to select the following setting: **Er.**

E2 Use the encoder to select the number of the JOB to be deleted.

Exit without confirmation

Press any button (except S4).
- ➔ This action will automatically close the menu.

Exit with confirmation

S4  Press the button.

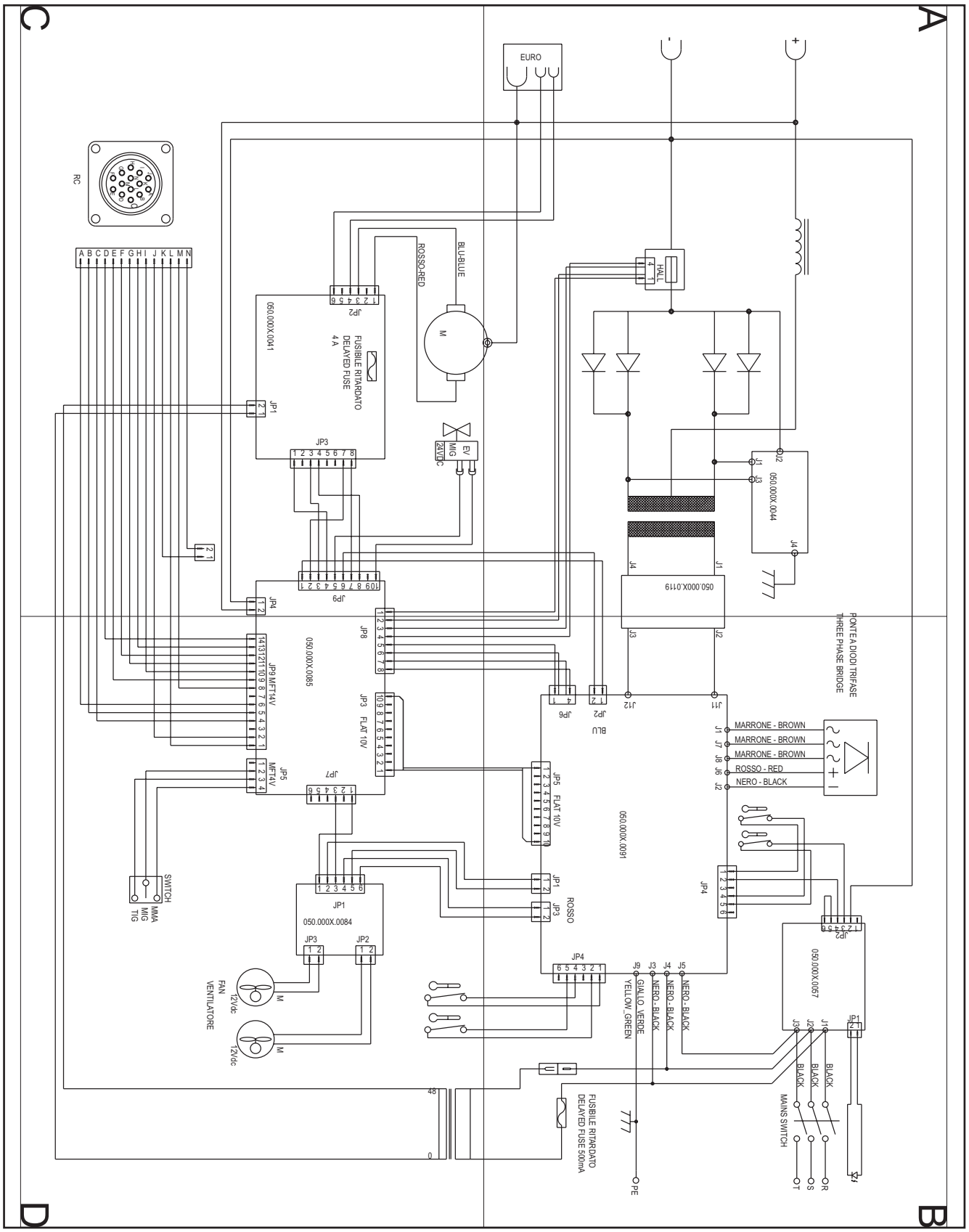
➔ This action will automatically close the menu.

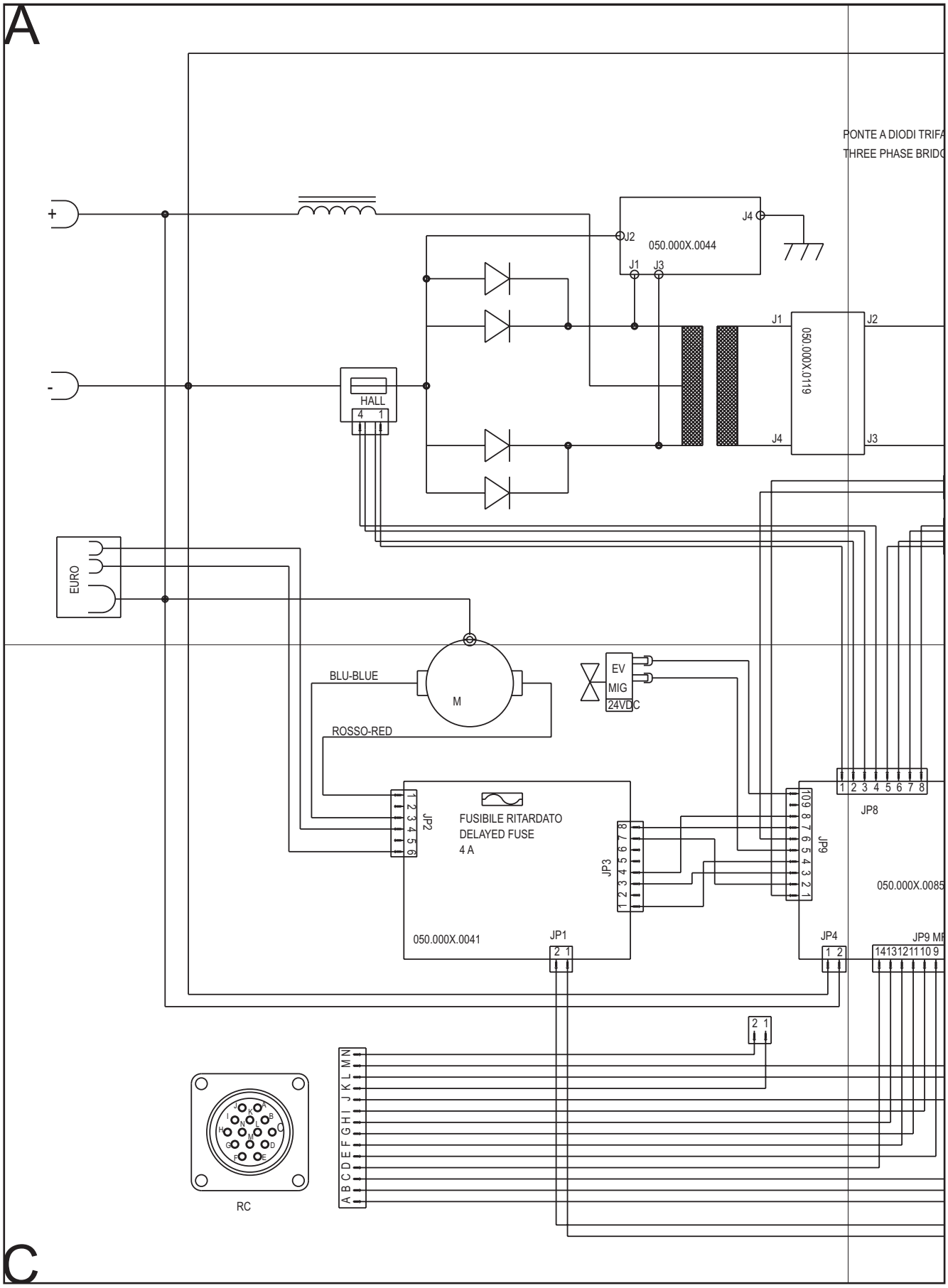
7 TECHNICAL DATA

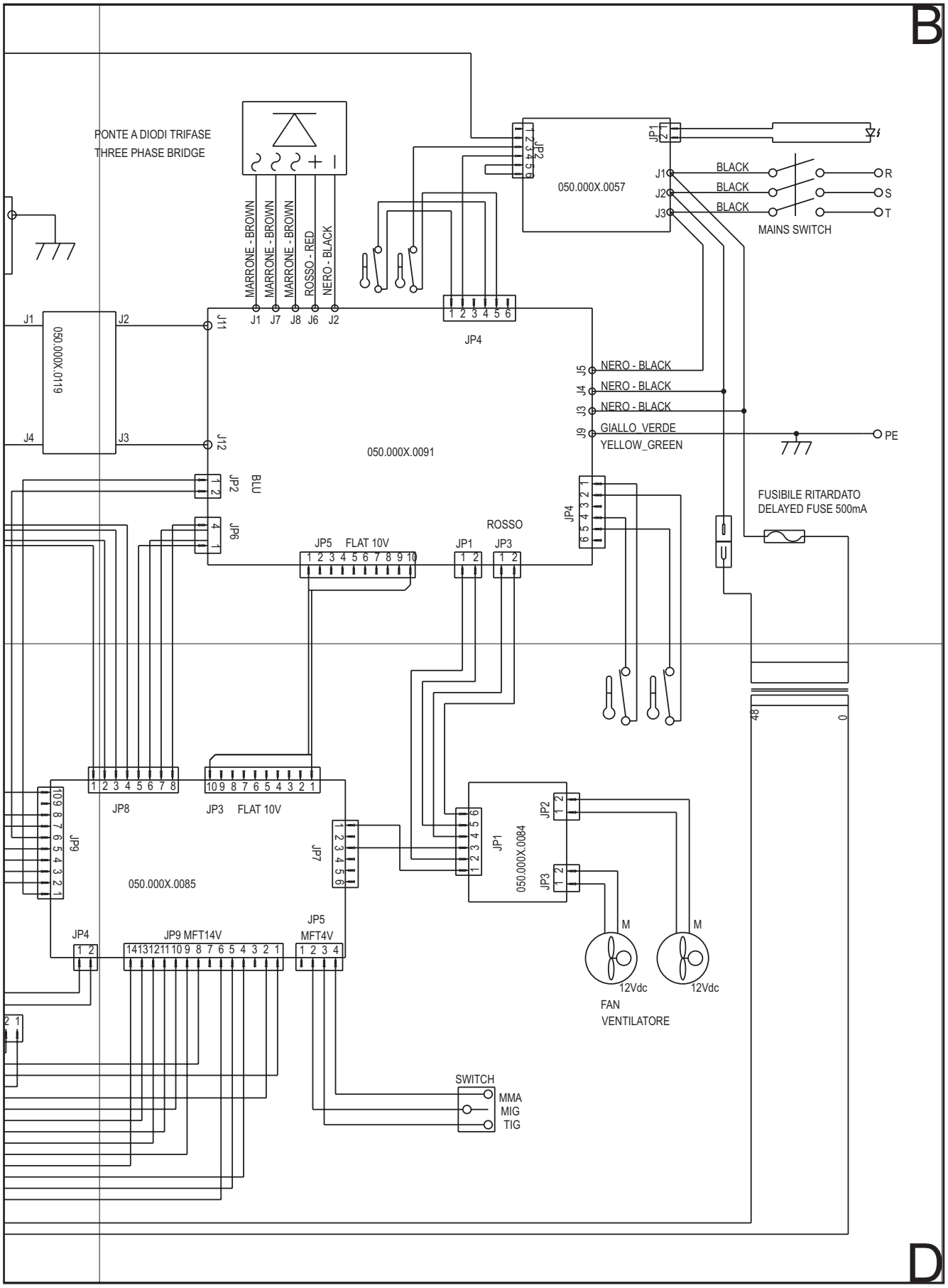
Directives applied	Waste electrical and electronic equipment (WEEE)		
	Electromagnetic compatibility (EMC)		
	Low voltage (LVD)		
	Restriction of the use of certain hazardous substances (RoHS)		
Construction standards	EN 60974-1; EN 60974-5; EN 60974-10 Class A		
Conformity markings	CE Equipment compliant with European directives in force		
	S Equipment suitable in an environment with increased hazard of electric shock		
	Equipment compliant with directive WEEE		
	RoHS Equipment compliant with directive RoHS		
Supply voltage	3 x 400 Va.c. ± 15 % / 50-60 Hz		
Mains protection	16 A Delayed		
Zmax	This equipment complies with IEC 61000-3-12 provided that the maximum permissible system impedance is less than or equal to 155 mΩ at the interface point between the user's supply and the public 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 is connected only to a supply with maximum permissible system impedance less than or equal to 155 mΩ.		
Dimensions (L x D x H)	560 x 280 x 390 mm		
Weight	21.0 kg		
Insulation class	H		
Protection rating	IP23S		
Cooling	AF: Air-over cooling (fan assisted)		
Maximum gas pressure	0,5 MPa (5 bar)		
Motor speed	1.0 - 20.0 m/min		
Wire spool: (dimensions/weight)	300 mm / 15 kg		
Static characteristic	MMA	Drooping characteristic	
	TIG	Drooping characteristic	
	MIG/MAG	Flat characteristic	
Current and voltage adjustment range	MMA	10 A / 20.4V - 250 A - 30.0 V	
	TIG	10 A / 10.4 V - 250 A - 20.0 V	
	MIG/MAG	5 A / 14.2 V - 300 A - 29.0 V	
Welding current / Working voltage	MMA	40 % (40° C)	250 A / 30.0 V
		60 % (40° C)	220 A / 28.8 V
		100 % (40° C)	190 A / 27.6 V
	TIG	50 % (40° C)	250 A / 20.0 V
		60 % (40° C)	240 A / 19.6 V
		100 % (40° C)	210 A / 18.4 V
	MIG/MAG	35 % (40° C)	300 A / 29.0 V
		60 % (40° C)	230 A / 25.5 V
		100 % (40° C)	200 A / 24.0 V

Maximum input power	MMA	40 % (40° C)	8.7 kVA - 8.4 kW
		60 % (40° C)	7.3 kVA - 7.0 kW
		100 % (40° C)	6.1 kVA - 5.8 kW
	TIG	50 % (40° C)	6.1 kVA - 5.8 kW
		60 % (40° C)	5.8 kVA - 5.5 kW
		100 % (40° C)	4.8 kVA - 4.5 kW
	MIG/MAG	35 % (40° C)	10.3 kVA - 9.7 kW
		60 % (40° C)	6.9 kVA - 6.5 kW
		100 % (40° C)	5.8 kVA - 5.5 kW
Maximum supply current	MMA	40 % (40° C)	12.7 A
		60 % (40° C)	10.6 A
		100 % (40° C)	8.8 A
	TIG	50 % (40° C)	8.8 A
		60 % (40° C)	8.3 A
		100 % (40° C)	6.8 A
	MIG/MAG	35 % (40° C)	15.0 A
		60 % (40° C)	10.0 A
		100 % (40° C)	8.4 A
Maximum effective supply current	MMA	40 % (40° C)	8.0 A
		60 % (40° C)	8.2 A
		100 % (40° C)	8.8 A
	TIG	50 % (40° C)	6.2 A
		60 % (40° C)	6.4 A
		100 % (40° C)	6.8 A
	MIG/MAG	35 % (40° C)	8.8 A
		60 % (40° C)	7.7 A
		100 % (40° C)	8.4 A
No-load voltage (U0)	MMA	60 V	
	TIG	60 V	
	MIG/MAG	60 V	
Power source efficiency	Efficiency (300A / 29,0V): 88,7%		
	No-Load condition power consumption (U1= 400 Va.c.): 28 W		
Essential raw materials	According to the information provided by our suppliers, this product does not contain essential raw materials in quantities greater than 1g per component.		

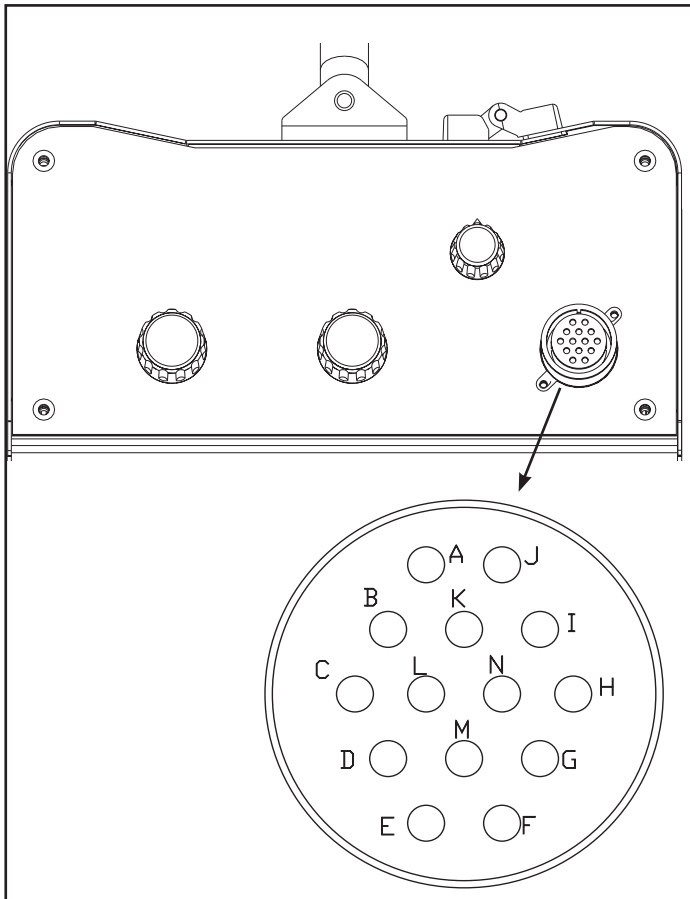
8 WIRING DIAGRAM




A
PONTE A DIODI TRIFA
THREE PHASE BRIDG
+
-
J2
J4
050.000X.0044
J1
J3
J1
J2
050.000X.0119
J4
J3
HALL
4 1
EURO
BLU-BLUE
M
ROSSO-RED
EV
MIG
24VDC
JP2
1 2 3 4 5 6
FUSIBILE RITARDATO
DELAYED FUSE
4 A
JP3
1 2 3 4 5 6 7 8
JP9
10 9 8 7 6 5 4 3 2 1
JP8
1 2 3 4 5 6 7 8
050.000X.0085
050.000X.0041
JP1
2 1
JP4
1 2
JP9 MF
14 13 12 11 10 9
2 1
A B C D E F G H I J K L M N
RC
C

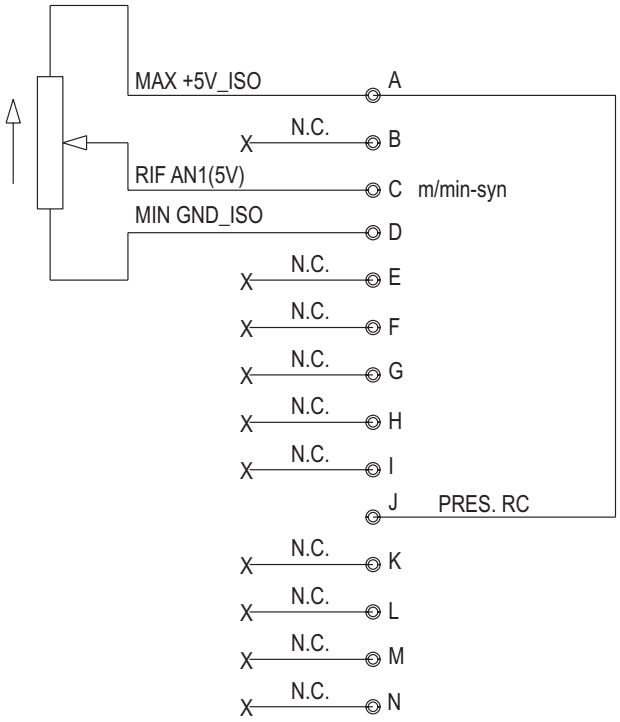

B
D
PONTE A DIODI TRIFASE
THREE PHASE BRIDGE
MARRONE - BROWN
MARRONE - BROWN
MARRONE - BROWN
ROSSO - RED
NERO - BLACK
050.000X.0057
BLACK
BLACK
BLACK
MAINS SWITCH
R
S
T
050.000X.0119
050.000X.0091
NERO - BLACK
NERO - BLACK
NERO - BLACK
GIALLO VERDE
YELLOW_GREEN
PE
FUSIBILE RITARDATO
DELAYED FUSE 500mA
ROSSO
BLU
JP5 FLAT 10V
JP8
JP3 FLAT 10V
050.000X.0085
050.000X.0084
JP9 MFT14V
JP5 MFT4V
12Vdc
12Vdc
FAN
VENTILATORE
SWITCH
MMA
MIG
TIG

8.1 REMOTE CONTROL CONNECTOR



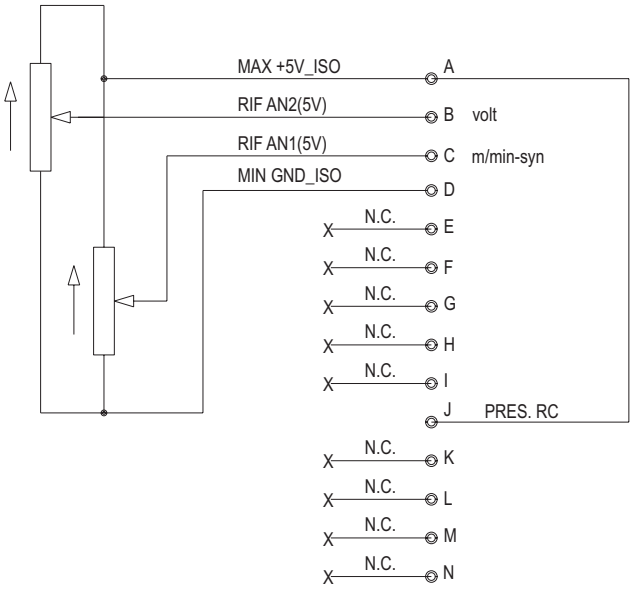
Pin	Name	Voltage	Input/Output
A	+5V-ISO	5 V d.c.	Out
B	AN REM IN2	0-5 V	In
C	AN REM IN1	0-5 V	In
D	GND-ISO	GND	Out
E	DIG REM IN1	0-5 V	In
F	AN REM IN1/10V	0-10 V	In
G	DIG CMD OUT	0-5 V	Out
H	AN REM IN2/10V	0-10 V	In
I	DIG REM IN2	0-5 V	In
J	-	-	Not use
K	-	-	Not use
L	-	-	Not use
M	-	-	Not use
N	-	-	Not use

8.1.1 RC03: Wiring diagram



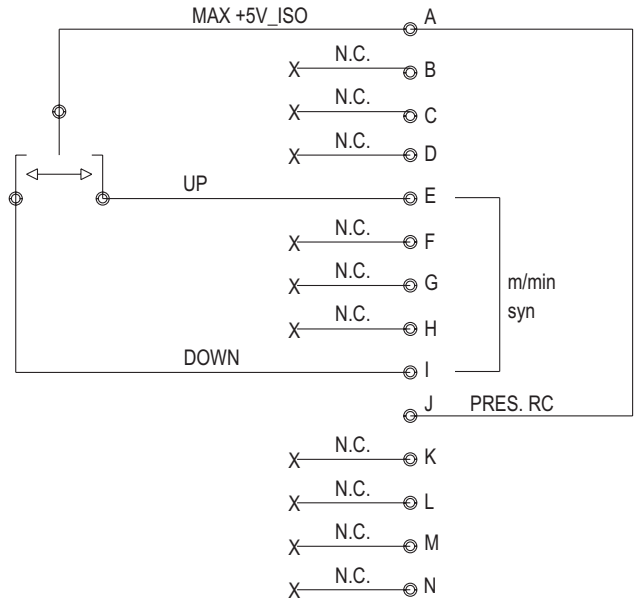
10 kOhm - 100 kOhm potentiometer

8.1.2 RC04: Wiring diagram

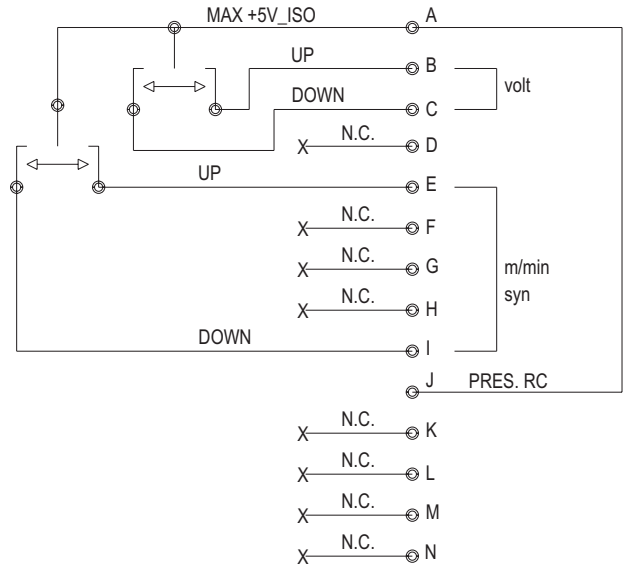


10 kOhm - 100 kOhm potentiometer

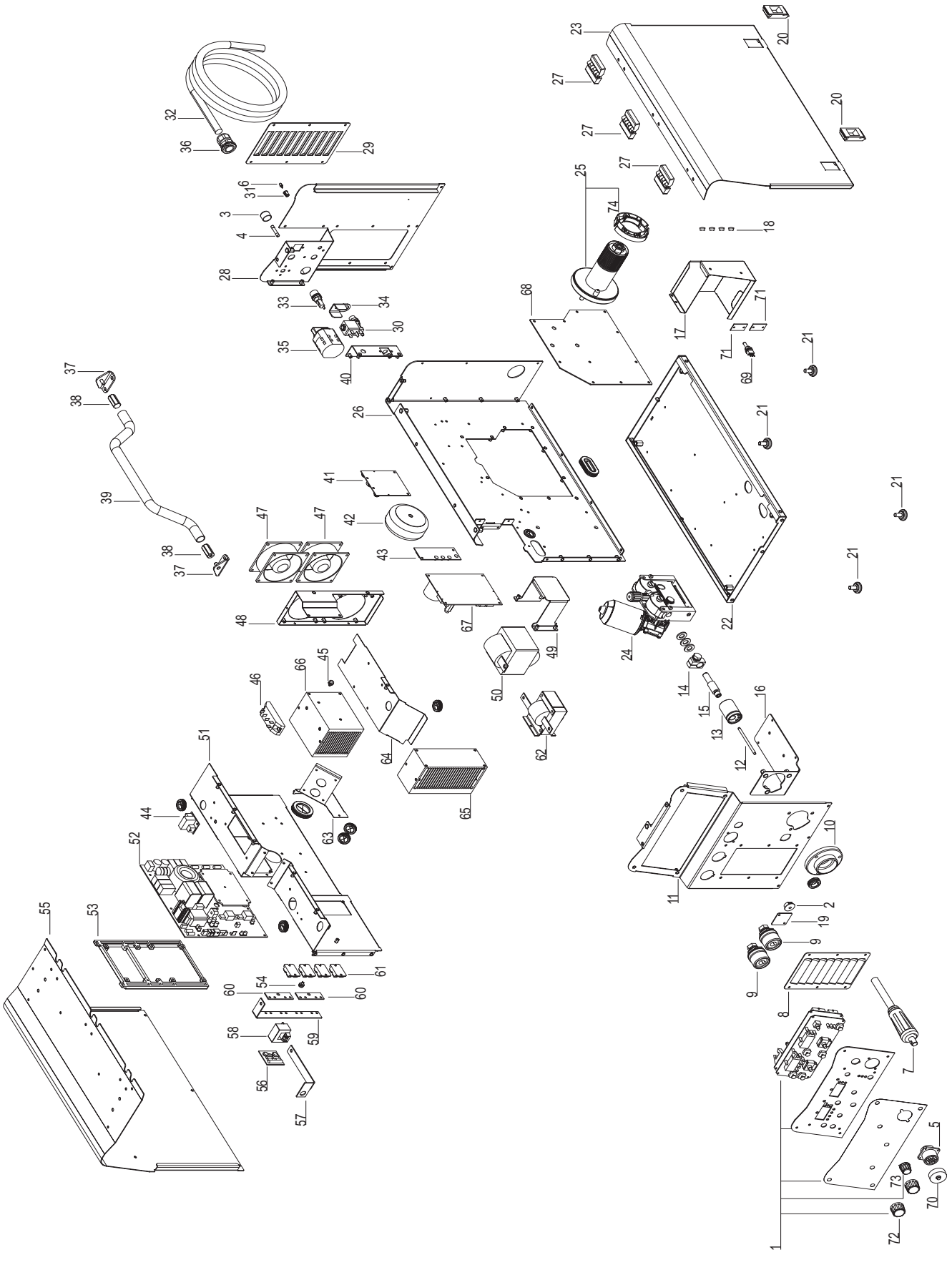
8.1.3 RC05: Wiring diagram



8.1.4 RC06: Wiring diagram



9 SPARES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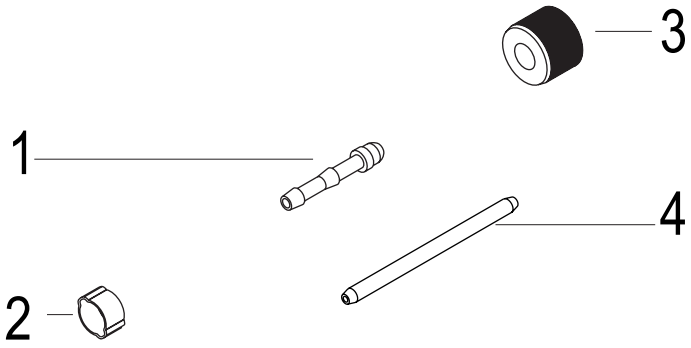
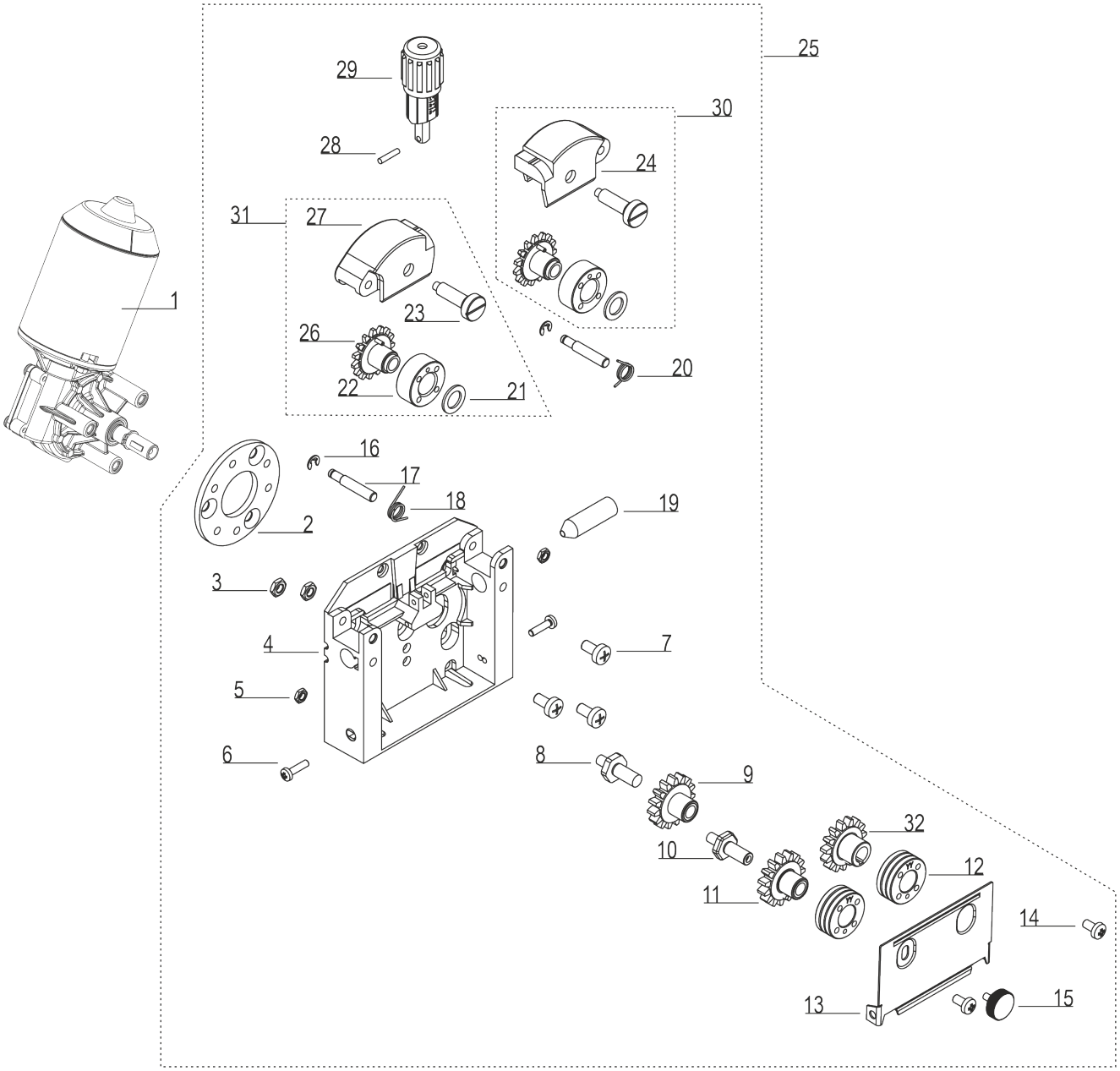
N°	CODE	DESCRIPTION
1	050.5069.0000	COMPLETE FRONT PANEL
2	016.0011.0014	CAP D=19
3	016.0011.0004	FUSE HOLDER CAP
4	040.0007.1063	FUSE
5	022.0002.0177	REMOTE CONTROL CONNECTOR + CABLE
6	022.0002.0198	RED LED CABLE
7	022.0002.0055	POLARITY SELECTOR CABLE
8	011.0009.0208	BLIND METAL FRONT PLATE
9	021.0001.0259	COMPLETE FIXED SOCKET
10	021.0001.2005	EURO CONNECTOR HOUSING
11	011.0009.0221	FRONT PLATE
12	021.0001.2028	CAPILLARY TUBE FOR EURO CONNECTOR
13	021.0001.2001	AXIAL EURO BODY
14	021.0001.2010	CURRENT CLAMP FOR BRASS GUIDE FOR EURO CONNECTOR
15	021.0001.2015	BRASS GUIDE FOR EURO CONNECTOR
16	011.0009.0224	MOTOR SUPPORT PLATE
17	011.0009.0222	LOGIC PROTECTION PLATE
18	016.0011.0001	CAP Ø=10
19	011.0014.0070	14-17V CONNECTOR COVER PLATE
20	011.0006.0002	PLATE SLIDE CLOSURE
21	016.0009.0003	RUBBER FOOT
22	011.0009.0200	BASE PLATE
23	011.0000.0891	DOOR COVER
24	010.0008.0007	WIRE FEEDER MOTOR
25	011.0006.0062	SPOOL HOLDER
26	011.0009.0220	INTERNAL PLATE
27	011.0006.0006	PLASTIC HINGE
28	011.0009.0202	REAR PLATE
29	011.0009.0206	BLIND METAL REAR PLATE
30	017.0001.5542	SOLENOID VALVE
31	016.4107.0001	LED HOLDER
32	045.0002.0005	NEOPRENE CABLE
33	040.0006.1880	FUSE HOLDER
34	011.0002.0018	SOLENOID VALVE BLOCK PLATE
35	040.0001.0015	THREE-POLE SWITCH
36	045.0000.0007	COMPLETE CABLE CLAMP
37	011.0009.0213	HANDLE TUBE SUPPORT PLATE
38	016.0002.0001	PIN
39	011.0009.0214	HANDLE TUBE
40	011.0009.0203	REAR FIXING PLATE
41	050.0002.0057	THREE-PHASE SUPPLY PROTECTION BOARD
42	041.0006.0005	AUXILIARY TRANSFORMER
43	050.0002.0119	PRIMARY CAPACITOR BOARD
44	050.0001.0084	FAN CONTROL BOARD
45	040.0003.1003	THERMAL CUT-OUT 75°C
46	032.0001.8215	THREE PHASE BRIDGE RECTIFIER
47	003.0002.0015	FAN
48	011.0009.0207	FANS SUPPORT PLATE
49	011.0009.0121	TRANSFORMER SUPPORT PLATE
50	042.0003.0003	TRANSFORMER
51	011.0009.0209	DEFLECTOR PLATE
52	050.0013.0091	POWER BOARD
53	012.0003.0000	INTERNAL FRAMEWORKS
54	040.0003.1007	THERMAL CUT-OUT 85°C
55	011.0000.0881	COVER PANEL

56	050.0003.0044	SNUBBER BOARD
57	045.0006.0079	HALL-SOCKET COPPER BRACKET
58	041.0004.0301	HALL EFFECT SENSOR
59	045.0006.0078	DIODES-HALL COPPER BRACKET
60	045.0006.0053	DIODES-TRANSFORMER COPPER BRACKET
61	032.0002.2403	ISOTOP DIODE
62	044.0004.0013	INDUCTOR
63	011.0009.0205	OBLIQUE PLATE FOR DEFLECTOR
64	011.0009.0204	INTERNAL DEFLECTOR PLATE
65	015.0001.0014	HEAT SINK (60X86X162)
66	015.0001.0013	HEAT SINK (120X90X90)
67	050.0001.0041	MOTOR BOARD
68	011.0009.0219	SPOOL HOLDER SUPPORT PLATE
69	022.0002.0192	SWITCH + CABLE
70	021.0004.2994	REMOTE CONNECTOR CAP (OPTIONAL)
71	011.0014.0069	RS232 COVER PLATE
72	014.0002.0010	KNOB + CAP
73	014.0002.0008	KNOB WITH INDEX + CAP
74	002.0000.0287	RING FOR SPOOL HOLDER



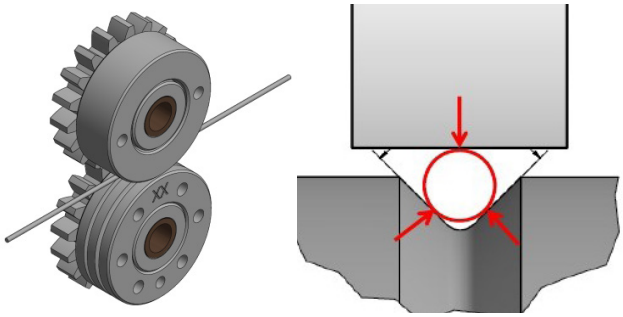
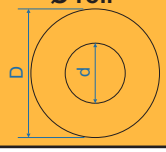
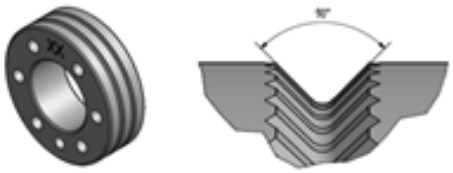
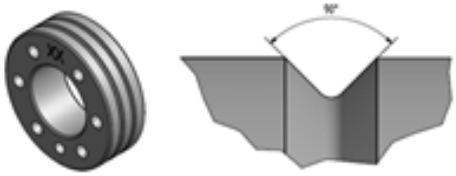
N°	CODE	DESCRIPTION
	021.0000.0009	TORCH CONNECTORS COMPLETE KIT
1	016.5001.0822	SLEEVE HOSE ADAPTER FOR RUBBER HOSE
2	016.0007.0001	HOSE CLAMP Ø= 11-13
3	016.5001.0823	NUT 1/4
4	021.0001.2028	CAPILLARY TUBE

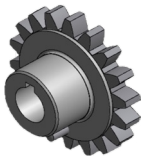
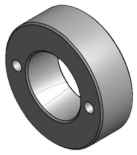
9.1 WIRE FEED MOTOR



No.	CODE	DESCRIPTION
1	002.0000.0201	MOTOR COIL
2	002.0000.0308	DISTANCE RING
3	002.0000.0349	NUT M6
5	002.0000.0348	NUT M5
4	002.0000.0327	FEED PLATE
6	002.0000.0347	SCREW M4x18
7	002.0000.0350	SCREW M6x12
8	002.0000.0341	SHAFT (1)
9	002.0000.0343	MAIN GEAR DRIVE
10	002.0000.0340	SHAFT (2)
11	002.0000.0342	GEAR DRIVE
12	002.0000.0121	FEED ROLL
13	002.0000.0345	INTERNAL PROTECTION PLATE
14	002.0000.0324	SCREW M5x10
15	002.0000.0346	RETAINING SCREW M5x6
16	002.0000.0352	SNAP RING 4 mm
17	002.0000.0336	JOINT AXLE
18	002.0000.0337	LEFT SPRING
19	002.0000.0297	INLET GUIDE WITH SOFT LINER
20	002.0000.0338	RIGHT SPRING
21	002.0000.0371	WASHER
22	002.0000.0370	PRESSURE ROLL
23	002.0000.0372	PRESSURE ROLL AXLE
24	002.0000.0368	RIGHT PRESSURE ARM
25	002.0000.0061	WIRE FEEDER BODY COMPLETE
26	002.0000.0369	GEAR WHEEL UPPER
27	002.0000.0367	LEFT PRESSURE ARM
28	002.0000.0319	PIN
29	002.0000.0339	COMPLETE PRESSURE DEVICE
30	002.0000.0366	COMPLETE RIGHT PRESSURE ARM
31	002.0000.0365	COMPLETE LEFT PRESSURE ARM
32	002.0000.0344	GEAR WHEEL UPPER

9.2 WIRE FEEDER ROLLS

Double driving roll (2 roll with groove + 2 flat roll)			
			
Code	**Ø wire**	**Ø roll** 	**Groove**
002.0000.0119	0.6-0.8	D=30x12/d=14 V	 V groove Solid wire
002.0000.0120	0.8-1.0	D=30x12/d=14 V	
002.0000.0121	1.0-1.2	D=30x12/d=14 V	
002.0000.0125	1.2-1.6	D=30x12/d=14 V	
002.0000.0124	1.0-1.2	D=30x12/d=14 VK	 VK shape Flux-cored wire
002.0000.0127	1.2-1.6	D=30x12/d=14 VK	
002.0000.0122	0.8-1.0	D=30x12/d=14 U	 U shape Aluminium wire
002.0000.0123	1.0-1.2	D=30x12/d=14 U	
002.0000.0126	1.2-1.6	D=30x12/d=14 U	

002.0000.0369	GEAR ADAPTOR FEED ROLL (BRONZE BUSHING)	
002.0000.0370	SMOOTH FOR DOUBLE FEED ROLL	

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