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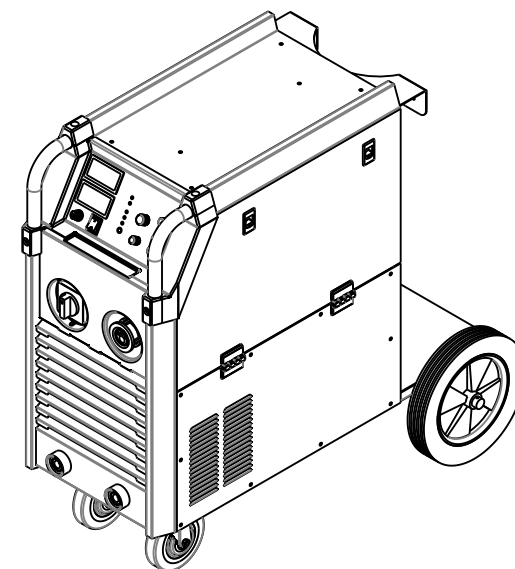


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## OPERATORS' MANUAL

# SMART MIG-250 SMART MIG-350

HIGH TECH PROFESSIONAL MIG/MAG MACHINE



### ⚠ IMPORTANT

Read this Owner's Manual Completely before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to safety instructions we have provided for your protection. Contact your distributor if you do not fully understand this manual.





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We thank your preference for our mark. We continue building equipments that guarantee reliability and robustness. We thank you any suggestion wich can help us to serve you better. This manual must be read and understood carefully. Do not install, operate or maintain this appliance before read this user's manual. The equipment must be installed, operated or maintained only by qualified persons. Never start up this welding rectifier without his casing. Before open, disconnect it from the main's socket.

## 1 - SAFETY PRESCRIPTIONS FOR ARC WELDING GENERATORS

The Safety Prescriptions given in this manual do not replace but summarise the obligations for compliance with the current safety and accident-prevention regulations. Before install, operate or maintain the welding equipment, read and understand carefully the current safety and accident-prevention regulations.

In any case, the personnel involved in the use of the welding machine must be adequately trained with regard to use of the machine and observance of the fundamental welding rules.

Setting up of the work area must comply with certain fundamental principles. Basic safety of persons and things depends on the observance of these minimum requires.

### 1). Personal Protection

The skin or eyes burns resulting from the exposure to the electric arc welding radiations or metal fusion can bring more dangerous effects than sunburn. Therefore:

- a) Use a protection mask equipped with the respective inhatic filter to protect the eyes, face, neck and ears from the projections and the arc welding radiation. Prevent the persons near the welding places of the negative effects provoked by the arc welding radiations or metal fusion.
- b) Use non-inflammable gloves, long sleeves shirt, trousers without folds, boots, welding mask, apron and hat to protect the hair. These protections are needed to insure that the skin stays protected from the referred radiations.

Avoid using clothes with pockets or folds so that in case of occurring any projection of hot metal these will not deposit in the clothes folds or pockets.

- c) To protect the persons near the welding place, separations of non-inflammable curtains ought to be installed.
- d) Always use safety glasses when standing in a place where metal projections can occur. Persons that circulate in the working area ought to use safety glasses.

### 2). Preventing Fires

The projections can cause fires when in contact with combustible substances, liquids or gaseous. Therefore:

- a) Every combustible material must stay far from the working place. When possible the combustible materials must be covered with non-inflammable covers. These materials include wool, clothes, sawdust, natural gas, acetylene, propane and similar materials.
- b) The metal projections can penetrate in wall or floor cracks causing non detectable latent fire. These cracks must be conveniently protected from the metal fusion projections.
- c) Welding, cutting or any kind of hot operation should not be made in recipients, deposits, tanks or other kind of used containers that haven't been carefully cleaned from substances that can produce toxic or inflammable vapours.
- d) For protection against fire must exists a fire extinguisher system nearby, that can be used quickly like a water hose, a water recipient, sand or a portable extinguisher.
- e) Once the welding operations are concluded, the working area must be inspected to insure the absence of metal fusion projections that can cause further fires.

### 3). Electric Discharge

Burns or mortal electrocution can be caused by 110 voltages or less. The gravity of this kind of discharges is determined by the intensity of electric current that passes through the human body. Therefore:

- a) Do not permit contact of the skin with metal pieces or even the use of wet or humid clothing. Wear only well dry gloves.
- b) If it's really needed to make welding operations in humid places the operators must wear very well dry gloves, rubber shoes or boots and stepping the dry floor in order to be isolated from the electric current.
- c) The welding machine must be connected to an electrical board equipped with an appropriate differential and earth connection. The earth connection wire's section must be correct according the norms about electric cables.
- d) Do not use damaged welding cables. Do not overload the cable. Cable extensions or connections must be always correctly isolated.
- e) The equipment must remain disconnected when not in use because an accidental electrical discharge can cause overheating and provoke a fire. Do not roll the welding cable around the body.
- f) The earth cable must be connected to the welding piece closest from the welding area. Welding current must passes through metallic elevations or crane cables if long distance earth cable connections are made.

### 4). Ventilation

The smoke produced by the welding, mainly in closed spaces can provoke irritations if breathed during a long period of time.

- a) Always take special care having proper ventilation in the welding places by the means of natural or forced ventilation systems. Do not weld over zinc galvanised materials, cadmium, lead or beryllium, without prevent the needed ventilation to avoid smoke provoked by the welding of these materials.
- b) Do not weld near places containing chlorinated hydrocarbon vapours resultants from degreasing operations. Reactions can be provoked from the vapours of dissolvents with the resultant heat of electric welding arc producing toxic or irritating gas.
- c) Eye, nose or throat irritations during the welding process means that the ventilation system isn't proper. In this case the ventilation should be increased in the welding area. Stop the welding operation if the irritations persist.

### 5). Equipment maintenance

The quality of the welding process depends on the good condition of the welding equipment. To maintain it's good condition and protect the operator, maintenance reviews should be made periodically. If reviews aren't made, accidents can occur due to fire or electric discharges. Therefore:

- a) The equipment installation and maintenance operations must be done by qualified personal. Do not proceed with electric repairs if you are not properly qualified.
- b) Before starting with any maintenance operation the welding equipment must be disconnect from the power supply.
- c) The welding cables and the power supply cable and even the welding machine must be kept in good working conditions. This equipment must never be used in less proper working conditions.
- d) The welding equipment and its accessories must be treated carefully. Keep the machine far from heating sources, ovens or hothouses, from humid places as water wells, oils or lubricants, from corrosive environments or intemperate weather.
- e) Keep the safety systems and the chassis of the machine in proper working conditions.
- f) Use the welding equipment only in jobs that are according to the equipment characteristics.

### 6). Using WELDING or GAS CUTTING equipment.

- a) The operator of welding or gas cutting equipments must know the specific characteristics and the correct form of use.
- b) The pressures ought to be according to the manufacture recommendations.
- c) The welding torches, hoses and reducers must be kept well tightened with no leaks, cleaned and free from oils or lubricant greases.
- d) The pressure reducers can not be submitted to sudden changes of pressure and must be used according to the manufacturer specifications. Do not use an installation without being equipped with proper retention valves.
- e) Periodical checks must be made to the installation for detection possible gas leaks or other defects. Qualified personnel must execute the maintenance operations.

### 7). Handling of Gas Tubes

The user must know and follow the safety instructions for stocking, use and transportation of compressed, liquefied and dissolved gases under pressure used in welding or cutting operations.

Besides the specified norms must follow those that concern the kind of welding process to be used (Electrode, Tig, Mig, Plasma, Plasmacutting, Laser, etc.), as well as the specific characteristics of the equipment, the power supply conditions, hygiene norms and safety at work and the machine's safety regulations. The fulfilment of this safety norms, does not guarantee that the content is enough for all cases or conditions, or invalids the fulfilment of current legal norms.

**2 – DESCRIPTION**

Machines are suitable for arc welding under protective gas, using inert gases, such as argon and his mixtures ( MIG process - metal inert gas ) or active gases such as CO<sub>2</sub> ( MAG process- metal active gas ).

**PROTECTION GAS**

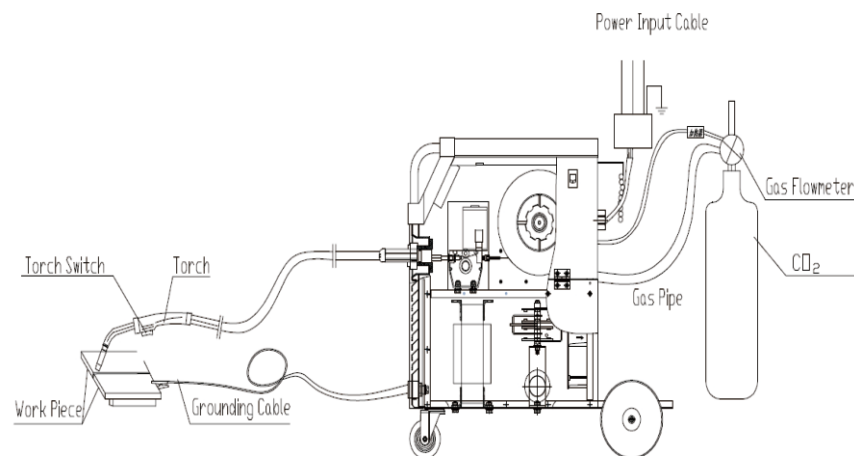
Carbon dioxide (CO<sub>2</sub>)..... Steel






80 to 85% Argon + 20 to 15% CO<sub>2</sub>..... Steel

95 to 98% Argon + 5 to 2% CO<sub>2</sub>..... Stainless steel






**WELDING METAL**

These machines are equipped with integrated wire feeder, with coil holder and 2 rolls motor (Smart Mig250) or 4 rolls motor ( Smart Mig350) protected by a removable cover.

**3 – TECHNICAL DATA**

Smart Mig 250		No.			
		EN60974-1			
		25A/15.3V-250A/26.5V			
		X	40%	60%	100%
	U <sub>0</sub> =17~37V	I <sub>2</sub>	250A	205A	160A
		U <sub>2</sub>	26.5V	24.3V	22V
	U <sub>1</sub> =400V	I <sub>1max</sub> =14A		I <sub>1eff</sub> =8.9A	
IP21S		Class H			

Technical data	Un.	Smart Mig-250
Adjustment positions	Pos.	12
Wire diameter	Ø mm	0.8-1.2
Weight	Kg	85
Dimensions	cm	91x50.5x81

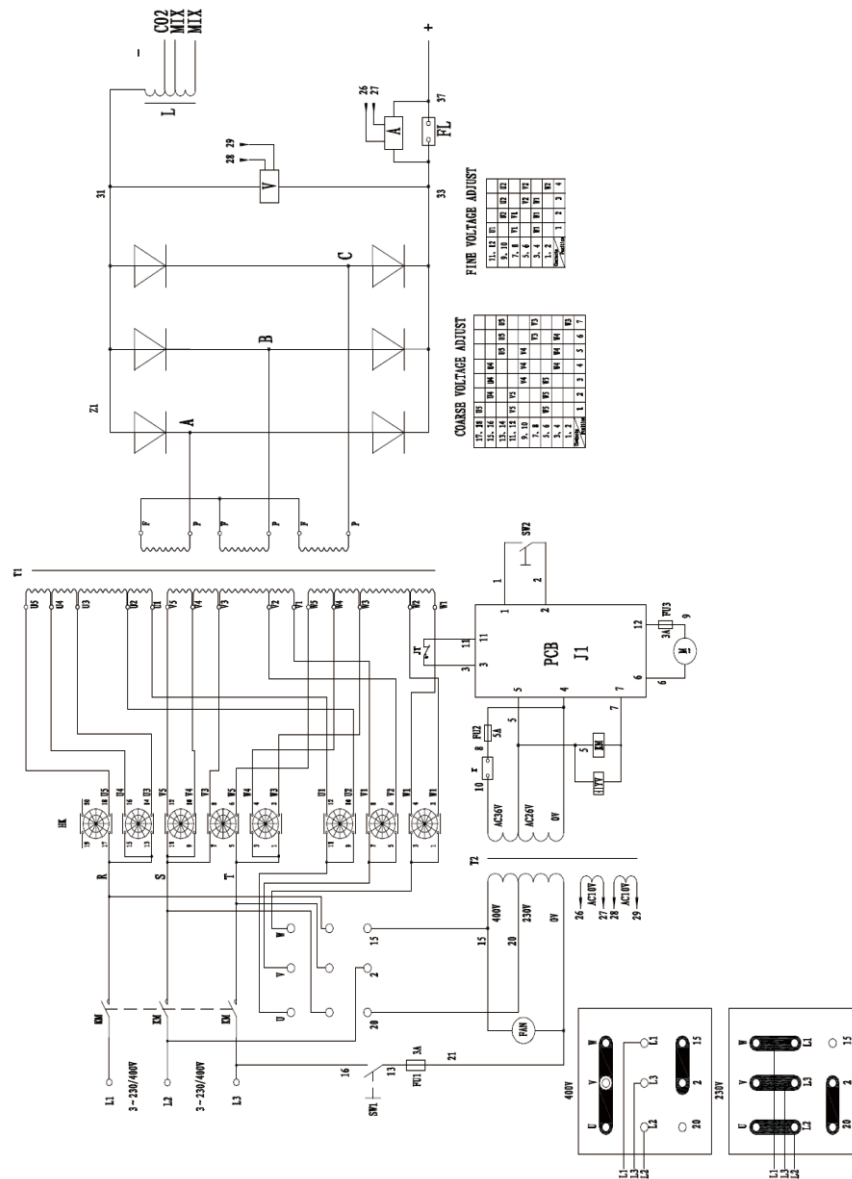
Smart Mig 350		No.			
		EN60974-1			
		35A/15.8V-350A/31.5V			
		X	50%	60%	100%
	U <sub>0</sub> =17~41V	I <sub>2</sub>	350A	320A	250A
		U <sub>2</sub>	31.5V	30V	26.5V
	U <sub>1</sub> =230V U <sub>1</sub> =400V	I <sub>1max</sub> =40A I <sub>1max</sub> =23A		I <sub>1eff</sub> =28A I <sub>1eff</sub> =16A	
IP21S		Class H			

Technical data	Un.	Smart Mig-350
Adjustment positions	Pos.	28
Wire diameter	Ø mm	0.8 – 1.2
Weight	Kg	108
Dimensions	cm	97x56.5x89

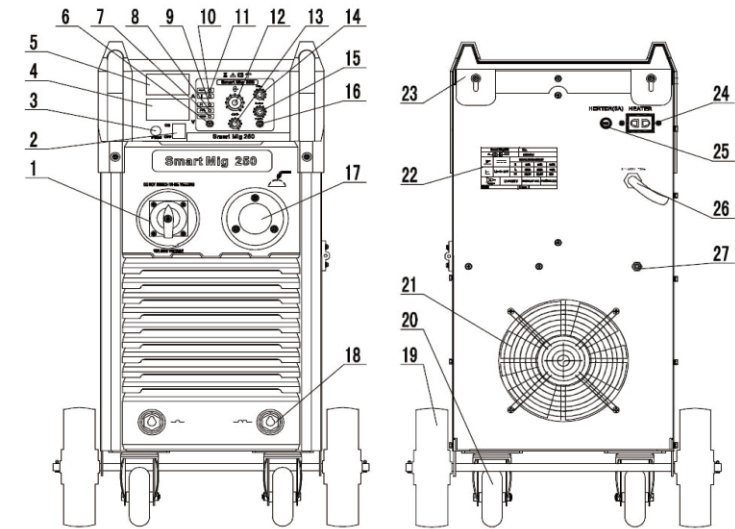




### Smart Mig -350

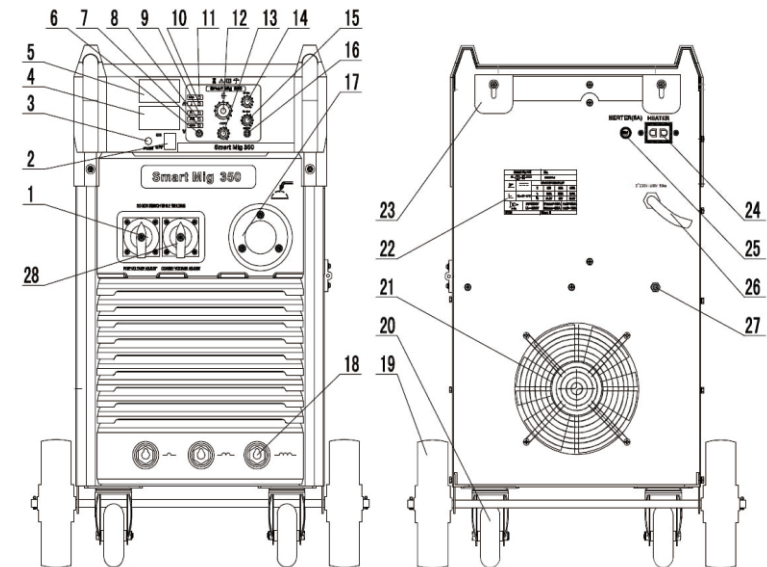


## 6 - SPARE PARTS LIST ( Smart Mig-250/350 )



### Smart Mig 250 Front Panel Sketch

### Smart Mig 250 Back Panel Sketch



### Smart Mig 350 Front Panel Sketch

### Smart Mig 350 Back Panel Sketch

**Smart Mig-250**

Code	Describe	Code	
1	Voltage adjust switch	15	Burn back Time adjust knob
2	Power Switch	16	Wire switch
3	Power fuse	17	Torch plug
4	Digital display for Voltage	18	Earth Plug
5	Digital display for Current	19	Wheel
6	Function adjust switch	20	Rotate wheel
7	Spot welding indicator light	21	Fan Guard
8	4 STEP indicator light	22	Parameter nameplates
9	2 STEP indicator light	23	Support for gas bottle
10	Overheating indicator	24	Heater socket
11	Power led	25	Heater Fuse
12	Wire speed knob	26	Power cable
13	Time adjust knob for Spot weld	27	Air inlet
14	Slow wire adjustment knob		

**Smart Mig-350**

Code	Describe	Code	
1	Voltage adjust switch	15	Burn back Time adjust knob
2	Power Switch	16	Wire switch
3	Power fuse	17	Torch plug
4	Digital display for Voltage	18	Earth Plug
5	Digital display for Current	19	Wheel
6	Function adjust switch	20	Rotate wheel
7	Spot welding indicator light	21	Fan Guard
8	4 STEP indicator light	22	Parameter nameplates
9	2 STEP indicator light	23	Support for gas bottle
10	Overheating indicator	24	Heater socket
11	Power led	25	Heater Fuse
12	Wire speed knob	26	Power cable
13	Time adjust knob for Spot weld	27	Air inlet
14	Slow wire adjustment knob		Coarse voltage adjust switch

**7 – MAINTENANCE**

MIG machines do not need special cares of maintenance, however, it is recommended a periodically inspecting and cleaning operation. The frequency of this operation must be in according to the environment values of dust or humidity. It must be made as follows:

- Disconnect the machine from the mains supply.
- Remove lateral covers.
- Clean all dust or humidity with a low pressure and dry air flow.
- Well retighten all electrical contacts (bolts and nuts).
- Also the torch must be periodically inspected. During operation it is subjected to high temperatures. To obtain more informations about torch maintenance it is recommended to read the respective user's manual.

DAMAGE	CAUSE	PROCEEDING
The machine do not weld when conected the main switch.	Failure on main voltage	Check main supply voltage and protective electrical circuits.
	Blowed command circuit fuses.	Check and replace, if necessary.
	Interruption of the primary cable.	Check and replace, if necessary
Irregular advance of wire	Low pressure of rolls.	Adjust the pressure system.
	Wire guide damaged or in bad condition.	Clean properly and replace, if necessary.
	Diameter rolls do not match with wire diameter.	Replace rolls with the adequate diameter.
	Wire coil breakage system too much tightened.	Adjust with the adequate pressure
	Damaged wire or wire coil.	Check and replace, if necessary.

<i>DAMAGE</i>	<i>CAUSE</i>	<i>PROCEEDING</i>
<i>Porosity in welding melt.</i>	<i>Gas failure</i>	<i>Check the bottle pressure and control de gas flow.</i>
	<i>Solenoid valve blocked</i>	<i>Check and, if necessary, disassemble for cleaning.</i>
	<i>Too much wind blowing through the welding zone.</i>	<i>Protect the welding zone from wind or adjust up the gas flow.</i>
	<i>Torch nozzle blocked or in bad condition.</i>	<i>Clean or replace the torch nozzle.</i>
	<i>Welding piece too dirty, wet or greased.</i>	<i>Clean the welding surfaces.</i>
<i>Failure on the welding quality. Defective electrical contact of earth clamp or torch.</i>		<i>Well tighten the earth clamp and torch. Check the earth cable.</i>
	<i>Failure on electrical contactor.</i>	<i>Disassemble and clean electrical contactor. If not possible, replace contactor.</i>
	<i>Damaged rectifier bridge.</i>	<i>Check bridge and replace, if necessary.</i>
<i>The wire feed motor do not run.</i>	<i>Failure of the wire feed motor electrical supply.</i>	<i>Check and replace, if necessary the wire feed motor fuse. Check the electrical insulating of the wire feed motor.</i>
	<i>Failure of wire feed motor brushes.</i>	<i>Replace brushes.</i>

## TERMS OF PRODUCT GUARANTEE SMARTER

All products are guaranteed for SMARTER 12 months. The warranty is for manufacturing defects detected upon receipt of the products.

The warranty is for manufacturing defects detected upon receipt of the products.

SMARTER reserves the right to alter the characteristics lawful general, technical, and aesthetic improvements to its products at any time without concern the obligation to make the same products in stock or have sold it.

Depending on the severity and extent of the problem SMARTER may choose to repair the equipment or replace the defective product for new equipment.

The exchange of defective equipment manufacturing, have assured their warranty for replacement or maintenance free, only at Authorized Technical Service and inside of the guarantee deadlines.

To repair done where the machine is installed, will be charged a travel fee.

### The SMARTER product warranty does not cover the following situations:

- Wear on the finish, parts and / or parts damaged by heavy use or exposure to adverse conditions and unforeseen (rain, extreme humidity, high temperatures, freezing temperatures).
- Damage caused during transport and assembly of the product, if they have not been implemented by the company or professional designated by the company SMARTER.
- Misuse, undue effort or use different from that proposed by the company for each product. Defects caused by attrition or institutional use for products that are not explicitly indicated for this purpose.
- Problems caused by not fitting in accordance with the instructions in the manual, or related to adaptations or alterations to the product.
- Mistreatment, neglect, cleaning or maintenance contrary to the instructions passed by the company.
- Damage caused by repairs hired by the consumer and not by the SMARTER Authorized Technical Service.
- Damage caused by accidents, falls, short circuits, lightning, improper connection to power sources, flood and other natural phenomena, pest attacks or natural, are not covered by warranty

**Identification requirement**

Buyer	
Address	
Telephone	Mobile
E mail	
Distributor	
Purchasing Date	
Product	
Stamp and Signature	