



- es Manual de instrucciones
- it Istruzioni d'uso
- gb Operating instructions
- fr Instructions d'emploi
- P Manual de instruções
- tr Kullanma Kılavuzu
- pl Instrukcja obsługi

CITYWORK PLUS120BGE/PLUS140BGE PLUS160BGE/PLUS200DIG GE PROGRESS1500/PROGRESS1700L PROGRESS2000 PROGRESS2100PFC PROGRESS2100PFC POTENZA BITENSIÓN GE DEFENDER160GE/POTENZA160GE DEFENDER200GE/POTENZA200GE POTENZA200CEL GE S100.20 / S250DV / S400T





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fig. 2: S60.17L / PROGRESS1500 / PROGRESS1700L / PROGRESS2000







fig. 6: S250DV



fig. 8: POTENZA200CEL GE



fig. 9: PLUS200DIGITAL

fig. 7: S400T



PROGRESS2100PFC







	CITYWORK	PLUS120BGE	PLUS140BGE	PLUS160BGE	PLUS200DIG GE
V	1ph 230	1ph 230	1ph 230	1ph 230	1ph 230
Α		14	21	22	26
A	125	120	140	160	200
%	60	30	30	30	30
Kg	2	3	3.5	4	5
cm	20x12x9	19x32x12	11.5x26x17.5	16x29x18	16x29x20
KVA	2-4	2-4	2-4	2-5	2-6
	V A A M Kg cm KVA	CITYWORK V 1ph 230 A 125 % 60 Kg 2 cm 20x12x9 KVA 2-4	CITYWORK PLUS120BGE V 1ph 230 1ph 230 A 1ph 230 14 A 125 120 % 60 30 Kg 2 3 cm 20x12x9 19x32x12 KVA 2-4 2-4	CITYWORK PLUS120BGE PLUS140BGE V 1ph 230 1ph 230 1ph 230 A 1ph 230 1ph 230 1ph 230 A 125 14 21 A 125 120 140 % 60 30 30 Kg 2 3 3.5 cm 20x12x9 19x32x12 11.5x26x17.5 KVA 2-4 2-4 2-4	CITYWORK PLUS120BGE PLUS140BGE PLUS160BGE V 1ph 230 1ph 230 1ph 230 A 1ph 230 1ph 230 1ph 230 A 14 21 22 A 125 120 140 160 % 60 30 30 30 Kg 2 3 3.5 4 cm 20x12x9 19x32x12 11.5x26x17.5 16x29x18 KVA 2-4 2-4 2-5 16

		PROGRESS 1500	PROGRESS 1700L /S60.17L	PROGRESS 1700PFC	PROGRESS 2000	PROGRESS 2100PFC
	V	1ph230	1ph230	1ph185-265	1ph230	1ph180-265
	Α	19	22	22(230V)/35(110V)	19	28.2(230V)/44(110V)
	A	150	170	170(230V)/130(110V)	160	210(230V)/160(110V)
ON / OFF ENEOD74	%	60	60	100	60	100
ł	Kg	4	5	6.4	4.5	8.4
	cm	12.5x30.5x16.5	12.5x34x18.5	39x12x20	26x13.5x19.5	41x14.5x24
	KVA	4.5	5	5	4.4	6



		POTENZA160GE DEFENDER160GE	POTENZA200GE DEFENDER200GE	POTENZA200 CEL GE
	V	1ph230	1ph230	1ph230
	Α	19	26	26
	> A	160	200	200
ON / OFF	. %	60	60	60
ŧ	Kg	4.5	6	6
	cm	28x13.5x19.5	38x16x25	38x16x25
	KVA	4.4	6	6

		S100.20	S250DV	S400T
	V	1ph230	1ph230	3ph400
	Α	27	14(400)/36(230)	30
	[×] A	200	250	400
ON / OFF ENEO974	%	100	60	60
ŧ	Kg	14	18	20
	cm	18x41x29	50x24x40	50x24x40
	KVA	6	8	11



POTENZA BITENSIÓN GE

	V	110	230
	Α	36/42	27/29
	· A	140/160	200/210
ON / OFF EN60974	%	100	60
ţ	Kg	5	5
	cm	13.5x32.5x22	13.5x32.5x22
	KVA	3-8	3-8



DESCRIPTION OF THE EQUIPMENT

This product is an equipment for manually welding metals by means of heat produced by an electric arc.

Technologically, the **STAYER WELDING** equipment is an electrical power source for welding by transferring high frequency power managed by intelligent control logic And improved welding.

Compared to traditional technology based on transformers operating at 50 Hz public grid frequency, Inverter **STAYER WELDING** technology has a larger power density per unit of weight, increased power saving and the possibility of an automatic, instantaneous and precise control of all welding parameters.

As a result, you will more easily produce a better weld with equipments having lower power consumption and less weight compared to equivalent traditional equipments based on heavy transformers.

All series MMA **STAYER WELDING** equipments are apt for coated electrode welding and tungsten electrode torch welding with inert gas protection.

Figs: 1, 2, 3, 9.

- 1. On/off switch
- 2. Light emitting indicator
- 3. Cooling pause indicator light
- 4. Welding intensity adjustment control
- 5. Connection terminals of the welding cables

6. Power supply cable and plug of the equipment by country 7.Electrode mode switch /TIG (models PROGRESS1700L, PROGRESS1700PFC / 2100PFC only)

- 8. Display indicator
- 9. Regulator Arc Force (PROGRESS1700PFC / 2100PFC)

Fig 4.

1 Positive (+) Weld Output Terminal Connect work lead to positive weldoutput terminal.

2 Negative (-) Weld Output Terminal Connect TIG torch to negative weld output terminal.

3 Gas Cylinder

4 Cylinder Valve Open valve slightly so gas flowblows dirt from valve. Close valve.

5 Regulator/Flowmeter

6 Flow AdjustTypical flow rate is (15 cubic feet perhour) 7.1 liters per minute. Connect torch gas hose to regulator/ flowmeter.

7 Gas Valve. Valve controls on the handle gas preflow andpostflow. Open valve on torch just before welding And close when finished.

Fig 5, 9.

1 Negative (-) Weld Output Terminal Connect work lead to negative weld output terminal.

2 Positive (+) Weld Output Terminal Connect electrode holder topositive weld output terminal.

Fig. 6 - S100.25B Series:

- 1. Display indicator.
- 2. Regulation of Hot Start.
- 3. Regulation of Arc Force.
- 4. Regulation of Amps.
- 5. Fire indicator light
- 6. Alarm indicator and / or thermal rest

1.- EXPLANATION OF THE NORMATIVE MARKINGS

1								
		3						
4				5				
				10				
6	8	3	11	11a	1'	1b	11c	
7	7 9		12	12a	1:	2b	12c	
1			13	13a	1:	3b	13c	
14	15	16			17			
	1	8				I		

Pos. 1 Name, address and mark of the manufacturer, distributor or importer.

- Pos. 2 Identification of the model
- Pos. 3 Model mapping
- Pos. 4 Symbol of the welding power source
- Pos. 5 Reference to the standard complied by the equipment
- Pos. 6 Symbol for the welding process

Pos. 7 Symbol for use in environments with increased electrical shock risk

- Pos. 8 Symbol of the welding current
- Pos. 9 Nominal no-load voltage
- Pos. 10 Voltage range and nominal output current
- Pos. 11 Duty cycle
- Pos. 11a Duty cycle at 45%
- Pos. 11b Duty cycle at 60%
- Pos. 11c Duty cycle at 100%
- Pos. 12 Nominal cutoff current (I2)
- Pos. 12a Current value for duty cycle at 45%
- Pos. 12b Current value for duty cycle at 60%
- Pos. 12c Current value for duty cycle at 100%
- Pos. 13 Load voltage (U2)
- Pos. 13a Voltage value for duty cycle at 45%
- Pos. 13b Voltage value for duty cycle at 60%
- Pos. 13c Voltage value for duty cycle at 100%
- Pos. 14 Symbol for power supply
- Pos. 15 Nominal value of voltage supply
- Pos. 16 Maximum nominal supply current
- Pos. 17 Maximum effective supply current
- Pos. 18 IP degree of protection

2.- SAFETY PRECAUTIONS

READ INSTRUCTIONS.

- · Read Owner's Manual before using or servic-ing unit.
- Use only genuine replacement parts from themanufacturer.

SYMBOL USAGE



- 9 -

DANGER! - Indicates a hazardous situation which, ifnot avoided, will result in death or serious injury. Thepossible hazards are shown in the adjoining symbolsor explained in the text.

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Indicates a hazardous situation which, if not avoided,could result in death or serious injury. The possible hazards ex-plained in the text.

ARC WELDING HAZARDS

Only qualified persons should install, operate, maintain, andrepair this unit.

During operation, keep everybody, especially children, away.

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocksor severe burns. The electrode and work circuit iselectrically live whenever the output is on. The inputpower circuit and machine internal circuits are alsolive when power is on. In semiautomatic or automatic wire welding, thewire, wire reel, drive roll housing, and all metal parts touching thewelding wire are electrically live. Incorrectly installed or improperlygrounded equipment is a hazard.

• Do not touch live electrical parts.

• Wear dry, hole-free insulating gloves and body protection.

• Insulate yourself from work and ground using dry insulating matsor covers big enough to prevent any physical contact with the workor ground.

• Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.

· Use AC output ONLYif required for the welding process.

 If AC output is required, use remote output control if present onunit.

• Additional safety precautions are required when any of the follow-ing electrically hazardous conditions are present: in damplocations or while wearing wet clothing; on metal structures suchas floors, gratings, or scaffolds; when in cramped positions suchas sitting, kneeling, or lying; or when there is a high risk of unavoid-able or accidental contact with the workpiece or ground.

• Disconnect input power or stop engine before installing orservicing this equipment.

• Properly install and ground this equipment according to itsOwner's Manual and national, state, and local codes

• Always verify the supply ground - check and be sure that inputpower cord ground wire is properly connected to ground terminal indisconnect box or that cord plug is connected to a properlygrounded receptacle outlet.

• When making input connections, attach proper grounding conduc-tor first - double-check connections.

• Keep cords dry, free of oil and grease, and protected from hot metaland sparks.

• Frequently inspect input power cord for damage or bare wiring - replace cord immediately if damaged - bare wiring can kill. Turn off all equipment when not in use.

• Do not use worn, damaged, undersized, or poorly spliced cables.

• Do not drape cables over your body. If earth grounding of the workpiece is required, ground it directly with a separate cable.

• Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.

• Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will bepresent.

• Use only well-maintained equipment. Repair or replace damagedparts at once. Maintain unit according to manual.

- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpieceor worktable as near the weld as practical.

• Insulate work clamp when not connected to workpiece to prevent contact with any metal object.

• Do not connect more than one electrode or work cable to anysingle weld output terminal.

HOT PARTS can cause severe burns.

- · Do not touch hot parts bare handed.
- · Allow cooling period before working on gun ortorch.

• To handle hot parts, use proper tools and/orwear heavy, insulated welding gloves and clothing to prevent burns.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathingthese fumes and gases can be hazardous to yourhealth.

• Keep your head out of the fumes. Do not breathe the fumes.

• If inside, ventilate the area and/or use local forced ventilation at thearc to remove welding fumes and gases.

• If ventilation is poor, wear an approved air-supplied respirator.

• Read and understand the Material Safety Data Sheets (MSDSs)and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.

• Work in a confined space only if it is well ventilated, or whilewearing an airsupplied respirator. Always have a trained watch person nearby. Welding fumes and gases can displace air and/ower the oxygen level causing injury or death. Be sure the breath-ing air is safe.

• Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to formhighly toxic and irritating gases.

• Do not weld on coated metals, such as galvanized, lead, orcadmium plated steel, unless the coating is removed from the weldarea, the area is well ventilated, and while wearing an airsuppliedrespirator. The coatings and any metals containing these elementscan give off toxic fumes if welded.

ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intensevisible and invisible (ultraviolet and infrared) raysthat can burn eyes and skin.

• Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes when welding or watching see ANSI Z49.1, Z87.1, EN175, EN379 listed in Safety Standards

• Wear approved safety glasses with side shields under your helmet.

• Use protective screens or barriers to protect others from flash,glare and sparks; warn others not to watch the arc.

• Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

WELDING can cause fire or explosion.

Welding on closed containers, such as tanks,drums, or pipes, can cause them to blow up. Sparkscan fly off from the welding arc.

The flying sparks, hotworkpiece, and hot equipment can cause fires andburns. Accidental contact of electrode to metal objects can causesparks, explosion, overheating, or fire. Check and be sure the area issafe before doing any welding.



• Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.

• Do not weld where flying sparks can strike flammable material.

· Protect yourself and others from flying sparks and hot metal.

• Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.

· Watch for fire, and keep a fire extinguisher nearby.

• Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.

• Do not weld on closed containers such as tanks, drums, or pipes,unless they are properly prepared according to AWS F4.1.

• Do not weld where the atmosphere may contain flammable dust, gas, or liquid vapors (such as gasoline).

• Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.

· Do not use welder to thaw frozen pipes.

• Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

• Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.

• Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.

• After completion of work, inspect area to ensure it is free of sparks,glowing embers, and flames.

• Use only correct fuses or circuit breakers. Do not oversize or bypass them.

• Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51Bfor hot work and have a fire watcher and extinguisher nearby.

FLYING METALor DIRT can injure eyes.

• Welding, chipping, wire brushing, and grindingcause sparks and flying metal. As welds cool, they can throw off slag.

• Wear approved safety glasses with sideshields even under your welding helmet.

BUILDUPOF GAS can injure or kill.

· Shut off shielding gas supply when not in use.

 Always ventilate confined spaces or useapproved air supplied respirator.

MAGNETIC FIELDS can affect ImplantedMedical Devices.

• Wearers of Pacemakers and other ImplantedMedical Devices should keep away.

• Implanted Medical Device wearers should consult their doctorand the device manufacturer before going near arc welding, spotwelding, gouging, plasma arc cutting, or induction heating operations.

NOISE can damage hearing.

Noise from some processes or equipment candamage hearing.

Wear approved ear protection if noise level is high.

CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under highpressure. If damaged, a cylinder can explode.

Sincegas cylinders are normally part of the weldingprocess, be sure to treat them carefully.

• Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.

 Install cylinders in an upright position by securing to a stationarysupport or cylinder rack to prevent falling or tipping.

• Keep cylinders away from any welding or other electrical circuits.

- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder explosion will result.
 Use only correct shielding gas cylinders, regulators, hoses,

and fittings designed for the specific application; maintain them and associated parts in good condition.

• Turn face away from valve outlet when opening cylinder valve.

• Keep protective cap in place over valve except when cylinder is inuse or connected for use.

• Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.

 Read and follow instructions on compressed gas cylinders,associated equipment, and Compressed Gas Association (CGA)publication P-1 listed in Safety Standards.

FIRE OR EXPLOSION hazard.

• Do not install or place unit on, over, or nearcombustible surfaces.

• Do not install unit near flammables.

• Do not overload building wiring - be sure power supply system is properly sized, rated, and protected to handle this unit

FALLING UNIT can cause injury.

• Use lifting eye to lift unit only, NOT runninggear, gas cylinders, or any other accessories.

- · Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks arelong enough to extend beyond opposite side ofunit.

OVERUSE can cause **OVERHEATING**

- · Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle beforestarting to weld again.
- · Do not block or filter airflow to unit.

FLYING SPARKS can cause injury.

· Wear a face shield to protect eyes and face.

• Shape tungsten electrode only on grinder withproper guards in a safe location wearing properface, hand, and body protection.

· Sparks can cause fires — keep flammables away.

MOVING PARTS can cause injury.

- · Keep away from moving parts.
- · Keep away from pinch points such as driverolls.

WELDING WIRE can cause injury.

- · Do not press gun trigger until instructed to doso.
- Do not point gun toward any part of the body,other people, or any metal when threading welding wire.

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MOVING PARTS can cause injury.

· Keep away from moving parts such as fans.

• Keep all doors, panels, covers, and guardsclosed and securely in place.

• Have only qualified persons remove doors, panels, covers, or guards for maintenance as necessary.

• Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.

H.F. RADIATION can cause interference.

• High-frequency (H.F.) can interfere with radionavigation, safety services, computers, and communications equipment.

• Have only qualified persons familiar withelectronic equipment perform this installation.

• The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.

· Have the installation regularly checked and maintained.

• Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding tominimize the possibility of interference.

ARC WELDING can cause interference.

• Electromagnetic energy can interfere withsensitive electronic equipment such ascomputers and computerdriven equipment such as robots.

• Be sure all equipment in the welding area iselectromagnetically compatible.

• To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.

• Locate welding operation 100 meters from any sensitive electronic equipment.

• Be sure this welding machine is installed and grounded according to this manual.

 If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

EMF INFORMATION

To reduce magnetic fields in the workplace, use the followingprocedures:

1.Keep cables close together by twisting or taping them, or using acable cover.

2.Arrange cables to one side and away from the operator.

3.Do not coil or drape cables around your body.

4.Keep welding power source and cables as far away from operator as practical.

5.Connect work clamp to workpiece as close to the weld as possible.

Warning: In fire and electrical shock increment risk places as close to flammable and explosive stuff, height, reduced freedom of movement, physical contact with conductors, hot ambiences that reduces

electrical resistance of human skin and devices please compulsory observe the local and national legal regulations.

3. - STARTUP INSTRUCTIONS

PLACEMENT

The machine must be placed in a dry, ventilated area and at a distance of at least 15 cm away from any wall. The equipment may skid on surfaces with inclinations of more than 30 so that ii must always compulsorily be placed on an even and dry surface. For placement on surfaces having a higher slope, please secure the machine with chains or belts.

MOUNTING

The equipment must be mounted respecting its environmental limits and placing it adequately.

The equipment will be installed according to the requirements indicated on the rating plate of the equipment.

CONNECTION TO THE GRID

The equipment is powered by means of the series-provided cable and connector through a differential switch and a connector slowfeature electromagnet of an electrical strength according to the table of technical features. Any connection must have a regulatory connection to earth and comply with all domestic regulations on electricity.

Offline Use spaces to regulatory ground.

In the case of a connection to an electric generator, the power needs as indicated in the technical features are to be observed. It must be taken into account that an equipment can operate with a generator with a power that is lower than the indicated one with the limitation that it is to be used at a maximum electrical strength that is lower than the nominal one.

Model BITENSIÓN 20/14 is able to work in the range of power supply voltage 100V to 240V, 50Hz-400Hz.

The computer automatically detects the input voltage and configures itself.

LIMITATION OF ENVIRONMENTAL CONDITIONS

The equipment must be installed respecting the IP21 classification thereof; this means that the equipment is protected at the most against the vertical fall of water drops and access to dangerous parts with a finger and against solid bodies of 12.5 mm and larger ones.

The equipment is prepared for working within the temperature range of -15° C to 70° C, taking into account the limitation of its drop in performance (duty cycle) as of temperatures higher than 40° C.

4.- OPERATING INSTRUCTIONS

PLACEMENT AND TESTS

All **STAYER WELDING** machines of the MMA series must be handled by means of the belt handle which is enabled for transport. A free space of at least 15 cm must be provided around the equipment, and free circulation of air must be secured for a correct heat dissipation.

Before each work, the good status and correct tightening of each of the external elements of the equipment must be verified: power supply plug, cable, carpentry of the casing and connection terminals and switches.



CHANGING TOOLS

All **STAYER WELDING** machines of the MMAseries have a DINSE half-inch or 3/8 inch quick connector for the welding cables. For removing or putting the connector it is sufficient to turn the connector a fourth of a turn leftward or rightward.



ATTENTION: Always turn the DINSE connector to the limit and make sure that the junction with the cable is in a good status and that the contact surface is clean. Abad junction or a dirty junction lead to a bad yield and will cause the front panel to heat up, fuse or burn.

ADJUSTING OPERATIONS

All **STAYER WELDING** machines of contain a complex electronic system and are provided ex works in a completely calibrated status, so that the user is not authorized to manipulate it for reasons of efficiency and safety. In the case of any doubt concerning bad functioning please contact your dealer or our customer service system.

LIMITS OF THE SIZE OF THE WORK PIECE

The main restriction on the size of the piece to be welded is the thickness thereof that it limited by the power of the equipment. The higher power is, you will be able to make correct welds (with an adequate penetration of the weld bead) in pieces of major thickness. The following table may serve as an orientation.

THICKNESS OF THE PIECE TO BE WELDED	ELECTRODE DIAMETER E6013	AMPERAGE ADJUSTING RANGE
1 a 2 mm	1,6mm	30 - 60
1,5 a 3mm	2,0mm	50 - 70
2,5 a 5mm	2,5mm	60 - 100
5 a 8mm	3,2mm	85 - 140
8 a 12mm	4,0mm	120 - 190
More than 12mm	5,0 - 6,0mm	180 - 350

GENERAL INSTRUCTIONS FOR USE

Before starting, make sure that you read, understand and apply the safety instructions and the rest of the instructions included in the present manual.

Hereinafter you will find a series of general indications that will allow you to initiate yourself in the world of welding and to start to work efficiently.

Instruction on the rudiments of welding by means of coated electrodes with a relatively moderate level of execution and on TIG welding having a relatively higher difficulty is provided in the present manual. Please take into account that, at a professional level, welding is a qualified and specialized activity. Please refer to specialized books and regulated professional training courses for more information.

1.- Welding with coated electrode

In this class of electric arc welding, the electrode itself produced the heat in the form of an electric arc, the protection ambient and improves the weld coating and the filler metal when the metal core of the electrode fuses in accordance with the weld being made. You must choose the electrode (size and type) that is adequate for the kind of work to be carried out. The electrode we recommend due to its mean characteristic, validity or the major part of works and for being the easiest one to find, is the E-6013 electrode commonly known as "rutile electrode". The material par excellence to weld with a coated electrode is carbon steel. The following table may serve you as an initial orientation for electing the type of electrode and amperage adjustment of the operation for medium-type carbon steel of the S275 type.

After having confirmed all safety measures and inspected the equipment, cleaned, prepared and fastened the material to be welded, the cables are connected in accordance with the indications in the tables. For the usual case of the E-6013 electrode, the output with negative polarity (marked -) is connected to the piece by means of the mass clamp.

The output with positive polarity (marked +) is connected to the electrode carrier clamp that has the working electrode connected to it by its blank end.

The welder must put on his individual protection equipment using a welding mask or helmet that is adequate for the work and adequately covers any portion of his skin so as to avoid spills or radiation.

Welding is started by priming the arc. There are various processes, the simplest one being scraping the piece.

Once the arc ha started, the electrode is held at a distance that is approximately equal to the diameter of the electrode itself, and the advance of the weld is initiated by pulling backwards as if a righthanded occidental person was writing. The electrode will be kept in a position near (65° to 80°) to the vertical line with respect to the horizontal line, and balanced with respect to the weld coating center, depending on the kind of passing (initial or filling) and the need of covering the joint to advance in a straight line, zigzag movement or small circles. A good adjustment of the intensity, position and advancing speed of the welding results in a pleasant, soft sound that is similar to the sound of grilled meat on a barbecue. When the work is carried out correctly, the resulting weld bead will be homogeneous, with surface marks in the shape of uniform half-moons. The transverse profile will not be protruding and the slag formed can be removed easily.

Once the bead has been carried out, remove slag with the hammer and brush before carrying out a possible subsequent bead.

Special settings for CEL, PFC, S250DV AND S400T series (Fig 6, 7, 9)

To maximize the adaptation series offers manual adjustment for professional welders:

Fig. 2: Manual Setting of HOT START

Hot start sets the initial increase of energy when electric arc initializes. Control must be set depending on the type of electrode, class of the welding joint and temperature in the workpiece. Start adjusting knob in the middle position in order to get an arc start without a stuck rod or with projections. If the electrode sticks increase energy turning clockwise the knob. If you get projections or splash please decrease energy turning left over. If you use the machine as TIG welding put at minimum the knob. gb

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nº. 3: Manual Setting of ARC FORCE

Regulates the arc response when dynamic voltage drop occurs. Depending on the type of electrode please initially setting:

Minimum (full left) for rutile electrodes (Example: E6013)

Halfway to basic electrodes (eg E7018)

Maximum (full right) for cellulosic electrodes (Example: E6010)

nº. 4: Manual control of AMP

Standard setting of welding amps. See above for details.

nº. 5: A / V Toggle Switch

Makes the display 1 amps welding or the welding voltage is displayed.

nº. 6: VRD Toggle Switch

Makes the no load voltage reduced to standard value or reduced value when special conditions where necessary. Note: the quality of arc start will be reduced very slightly by using VRD.

 $n^{o}.7:$ Remote Control de amperaje, conectar aquí el conector cable.

Ajustes especiales para Power 200 Cel (Fig 8)

nº.1 Selector type de ELECTRODE.

Pulse Normal para trabajar with ELECTRODE de rutile y básicos.

Pulse Cel & Al para trabajar with Electrodos celulósicos y de aluminum.

nº.2 Selector type de proceso

Pulse MMA para soldar with ELECTRODE recubierto Pulse TIG LA para soldadura TIG Lift Arc cebado

2.- TIG welding

In tungsten-electrode electric arc welding protected by an inert gas, the consumable material is not the electrode itself but a filler rod of a material that similar to the material to be welded.

Compared to the coated-electrode system, the TIG system is less productive and more difficult in return for a very high weld quality in almost all metals and alloys thereof, including stainless steel and situations of links with small thicknesses or without filler material. The weld is produced without slag, projections or fumes.



Notice: Do not use or sharpen thorium-doped tungsten electrodes because of the risk deriving for the moderate radioactive activity of that material. You can recognize the presence and concentration

of thorium dioxide by the indicator band on the electrode according to EN ISO 688848:2004 (colors: yellow, red, purple and orange). Avoid these electrodes and use substitute materials as, for example, electrodes with lanthanum or cerium derivates (bands: black, grey, blue, gold) that do not have any radioactive activity.

So as to correctly place the electrode on the torch it must protrude from the nozzle about 5 mm.

As a general rule, connect the output inversely to the usual connection of the electrode, the TIG torch to the negative terminal of the equipment and the mass clamp to the positive terminal.

Prepare and secure the piece. Adjust the current intensity in accordance with the needs of the kind of material and joint to be made, first making a test on a test piece. Refer to specialized literature o regulated professional training for more information in this respect.

The torch must receive a supply of inert gas (pure argon, usually) proceeding from a cylinder, through a pressurereducing system capable of adequately regulating the gas flow as necessary.

All equipments require a TIG torch with direct connection to the flow meter and gas control by means of a shutoff valve included in the TIG torch itself.

TIG DC 200 HF model includes a 2T-4T selector in order to choose between pressing the trigger while you want to weld (2T) and pressing the trigger when you want to start the welding and being able to remove the finger of the trigger while you are welding (4T). When you press the trigger the second time, the welding will finish.

Except for models S60.17L, PROGRESS1700L and T100.20H, to initiate the arc, the tip of the torch must be slightly scratched until imitation of the working arch.

Model S60.17L, PROGRESS1700L y POTENZA 200 CEL GE, has the improved feature of a lift arc starting system (LiftArc). To initiate the TIG weld, move switch 7 to position TIG, open the gas outlet valve and bring the tip of the torch into contact with the piece to be welded. Wait about 2 seconds and slowly lift the torch so that the arc initiates automatically.

Once the arc has initiated, the weld is made in accordance with the needs thereof. As a general orientation, it must advance in a manner inverse to electrode welding so that, instead of pulling backwards, it is started by pushing forward as if the gas flow were helped to impact on the weld coating. Incline the torch such that it is incident in a position near (70° to 80°) to the vertical line with respect to the horizontal line and centered with respect to the weld coating.

Slowly deposit the filler material of the rod by bringing the latter near the coating of successively fused material. To finish, simply slightly separate the torch until the arc is interrupted, and close the manual shutoff valve of the inert gas cylinder.

POTENZA TIG 170 HF GE model includes two welding adjustments ending:

1. "Down Time" 11 control establishes a decrease amperage ramp when the welding stops. The ramp starts in the selected working amperage and it finishes in 0 amps. The ramp duration (from 0 to 5 seconds) is what it is adjusted with the control. The purpose is to implement very soft arc stop for improving finishing and crater quality. As a general rule, increase the time at the same time you increase the welding amperage. 2. "Post Time" 12 control established the time (from 0,5 to 7 seconds) of additional gas's output (argon) after finishing the welding bow. The aim is that the weld is not polluted by the air when it is liquid or too hot. As a general rule, increase the time at the same time you increase the welding amperage.

5.- MAINTENANCE INSTRUCTIONS AND SERVICE

CLEANING, MAINTENANCE, LUBRICATION, SHARPENING

For cleaning operations, always disconnect the equipment and wait for at least 10 minutes for securing that capacitors are discharged. Clean the housing with a slightly wetted cloth.

Depending on the pollution of the working environment or at least every 1000 hours, clean the inside with dry compressed air, removing the upper housing and eliminating dust, metal pollution and fluffs, paying special attention to dissipaters and to the fan.

REPAIR SERVICES WITH THEIR ADDRESSES

STAYER IBERICA

Área Empresarial Andalucía – Sector I Calle Sierra de Cazorla No. 7 ZIP: 28320 Pinto (Madrid) SPAIN

List of parts that may be replaced by the user.

Due to the sophistication and potential danger, qualified intervention is required except for minor repairs such as inspection of connections and replacement of the standard power supply plug and revision of the welding cable; they are therefore not considered as parts that are replaceable by the user.

6.- REGULATIONS

TECHNICAL SPECIFICATIONS



DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product is in conformity with the following standards or standardized documents: EN 60745-1, EN 60745 2-3, EN 55014-1, EN 55014-2, EN 61000-3-2, EN 61000-3-3 according to EU Regulations 2006/42/EC, 2014/30/EU, 2011/65/EU.

Ramiro de la Fuente Director Manager



January, 2017

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