JASIC

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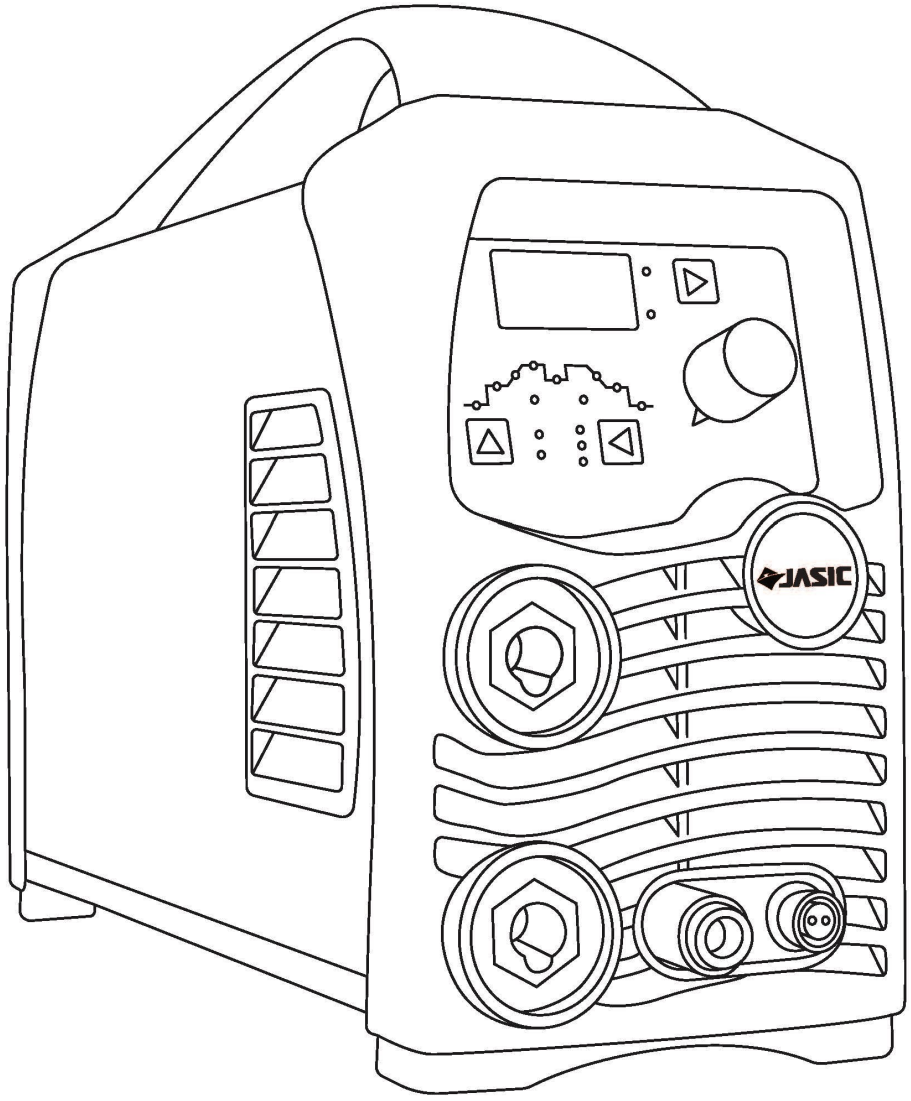
TIG Series

| TIG 200 Pulse PFC (JT-200P-PFC) |



Operator Manual

CE

RoHS 2002/95/EC

Intertek

WILKINSON STAR

wilkinsonstar.com

Your new product

Thank you for selecting this Jasic Technology, Wilkinson Star product.

This product manual has been designed to ensure that you get the most from your new product. Please ensure that you are fully conversant with the information provided paying particular attention to the safety precautions. The information will help protect yourself and others against the potential hazards that you may come across.

Please ensure that you carry out daily and periodic maintenance checks to ensure years of reliable and trouble free operation.

Wilkinson Star Limited are a leading supplier of equipment in the UK and our products are supported by our extensive service network. Call your distributor in the unlikely event of a problem occurring. Please record below the details from your product as these will be required for warranty purposes and to ensure you get the correct information should you require assistance or

spare parts.

Date purchased _____

From where _____

Serial Number _____

(The serial number will normally be located on the equipment data plate on the top or underside of the machine)

PLEASE REGISTER YOUR PRODUCT ONLINE AT WWW.JASIC.CO.UK/REGISTER

When all entry fields are complete the system will show a short message thanking you for a successful registration.

Disclaimer

Whilst every effort has been made to ensure that the information contained within this manual is complete and accurate, no liability can be accepted for any errors or omissions. Please note products are subject to continual development and may be subject to change without notice.

This manual should not be copied or reproduced without the written permission of Wilkinson Star Limited

SAFETY

These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted.

The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules.

Only suitably trained and competent persons should use the equipment. Operators should respect the safety of other persons.

Prevention against electric shock

The equipment should be installed by a qualified person and in accordance with current standards in operation. It is the users responsibility to ensure that the equipment is connected to a suitable power supply. Consult with your utility supplier if required

If earth grounding of the work piece is required, ground it directly with a separate cable.

Do not use the equipment with the covers removed.

Do not touch live electrical parts or parts which are

electrically charged.

Turn off all equipment when not in use.

Cables (both primary supply and welding) should be

regularly checked for damage and overheating. Do not use worn, damaged, under sized, or poorly jointed cables.

Ensure that you wear the correct protective clothing, gloves, head and eye protection.

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

Never touch the electrode if you are in contact with the work ground, or another electrode from a different machine.

Do not wrap cables over your body.

Ensure that you take additional safety precautions when you are welding in electrically hazardous conditions such as damp environments, wearing wet clothing, and metal structures. Try to avoid welding in cramped or restricted positions.

Ensure that the equipment is well maintained. Repair or replace damaged or defective parts immediately. Carry out any regular maintenance in accordance with the manufacturers instructions.

Safety against fumes and welding gases

Locate the equipment in a well-ventilated position.

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

Ensure the welding zone is in a well-ventilated area. If this is not possible provision should be made for suitable fume extraction.

If ventilation is poor, wear an approved respirator.

Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumable, coatings, cleaners, and de-greasers.

Do not weld in locations near any de-greasing, cleaning, or spraying operations. Be aware that heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

Do not weld on coated metals, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings on many metals can give off toxic fumes if welded.

Prevention against burns and radiation

Arc rays from the welding process produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin.

Wear an approved welding helmet fitted with a proper shade of filter lens to protect your face and eyes when welding or watching.

Wear approved safety glasses with side shields under your helmet.

Never use broken or faulty welding helmets.

Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding area. Ensure that there are adequate warnings that welding or cutting is taking place.

Wear suitable protective flame resistant clothing.

The sparks and spatter from welding, hot work pieces, and hot equipment can cause fires and burns

Welding on closed containers, such as tanks, drums, or pipes, can cause them to explode.

Accidental contact of electrode to metal objects can cause arcs, explosion, overheating, or fire.

Check and be sure the area is safe and clear of inflammable material before carrying out any welding.

Protection against noise

Some welding and cutting operations may produce noise.

Wear safety ear protection to protect your hearing.

Protection from moving parts

When the machine is in operation keep away from moving parts such as motors and fans. Moving parts, such as the fan, may cut fingers and hands and snag garments.

Protections and coverings may be removed for maintenance and controls only by qualified personnel, after first disconnecting the power supply cable.

Replace the coverings and protections and close all doors when the intervention is finished, and before starting the equipment.

Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation.

When feeding wire be careful to avoid pointing it at other people or toward your body.

Always ensure machine covers and protective devices are in operation.

Precautions against fire and explosion

Avoid causing fires due to sparks and hot waste or molten metal

Ensure that appropriate fire safety devices are available near the cutting / welding area.

Remove all flammable and combustible materials from the cutting / welding zone and surrounding areas

Do not cut/weld fuel and lubricant containers, even if empty.

These must be carefully cleaned before they can be cut/ welded.

Always allow the cut/welded material to cool before touching it or placing it in contact with combustible or flammable material.

Do not work in atmospheres with high concentrations of combustible fumes, flammable gases and dust.

Always check the work area half an hour after cutting to make sure that no fires have begun.

Risks due to magnetic fields

The magnetic fields created by high currents may affect the operation of pacemakers or electronically controlled medical equipment.

Wearers of vital electronic equipment should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

Do not go near welding equipment with any sensitive electronic equipment as the magnetic fields may cause damage.

RF Declaration

Equipment that complies with directive 2004/108/

EC concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not those for domestic use where electricity is provided via the low voltage public distribution system. Difficulties may arise in assuring class A electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated emissions.

In the case of electromagnetic problems, it is the responsibility of the user to resolve the situation. It may be necessary to shield the equipment and fit suitable filters on the mains supply.

LF Declaration

Consult the data plate on the equipment for the power supply requirements.

Due to the elevated absorbance of the primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point must be applied to these systems.

In this case the installer or the user is responsible for ensuring the equipment can be connected, consulting the electricity provider if necessary.

Materials and their disposal

The equipment is manufactured with materials, which do not contain any toxic or poisonous materials dangerous to the operator.

When the equipment is scrapped, it should be dismantled separating components according to the type of materials.

Do not dispose of the equipment with normal waste. The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment states the electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.

Handling of Compressed gas cylinders and regulators

All cylinders and pressure regulators used in welding operations should be handled with care.

Never allow the electrode, electrode holder or any other electrically “hot” parts to touch a cylinder.

Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

Always secure the cylinder safely

Never deface or alter any cylinder

PRODUCT OVERVIEW

Welding modes: DC TIG, Pulse TIG, DC MMA

Operating modes: Spot welding, 2T, 4T

MMA is equipped with automatic anti-stick.

Advanced IGBT inverter technology

User friendly control panel

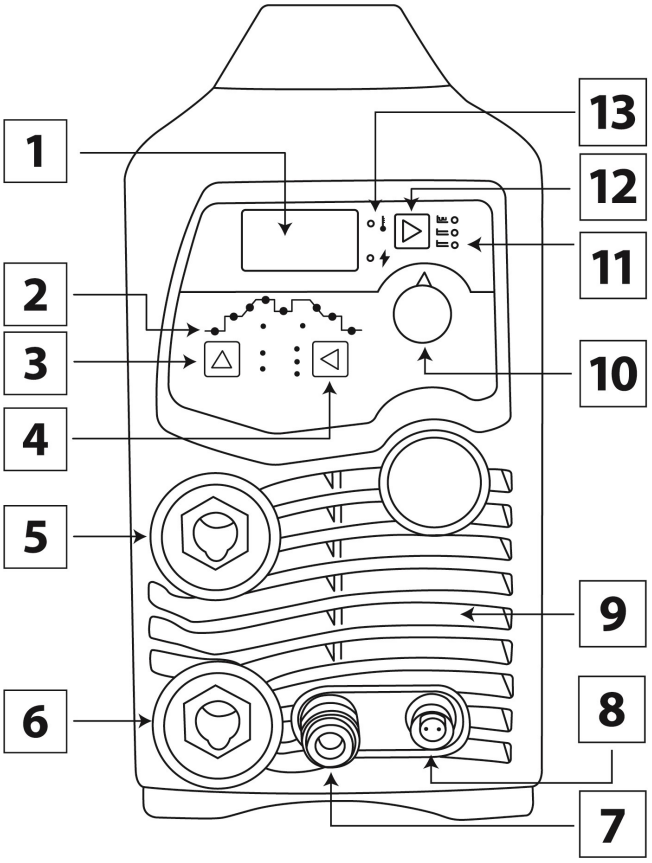
Easy to use intuitive digital control panel for setting of parameters.

- LED display
- Rotary encoder control
- Self adaptive Arc force current control
- Upslope, Downslope, pre and post-flow gas function all adjustable
- Full control of pulse parameters
- Self-adaptive arc force technology improves the performance of the machine when using long-cable welding.
- Excellent HF arc ignition: High reliability arc striking.
- Over current, under-voltage and overheating protection functions are standard.
- Fault memory display
- Memory function of last used parameters

CONTROLS

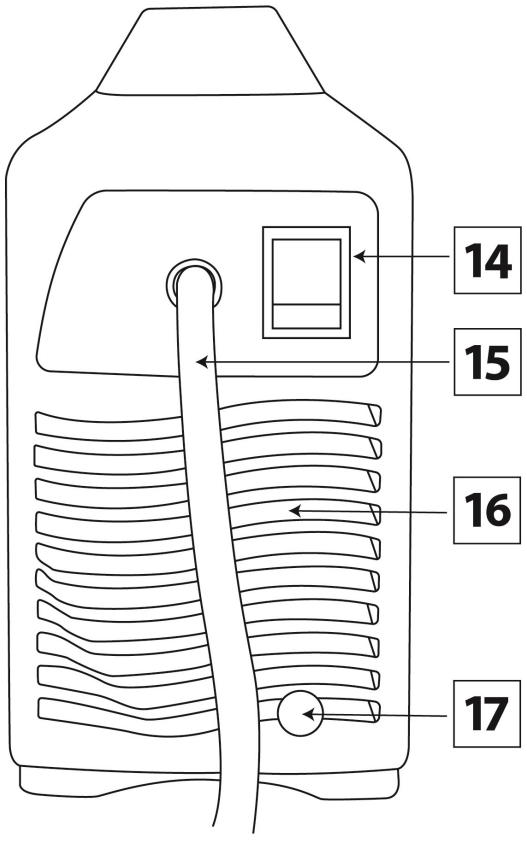
Front view

No.	Part name
1	Digital meter
2	Controls
3	Selector switch
4	Selector for 2T, 4T or spot mode
5	“+” output terminal
6	“-” output terminal
7	Gas outlet
8	Torch switch plug socket
9	Air vent
10	Adjusting knob
11	Process LEDs
12	Process selector
13	Mains and overheat LEDs

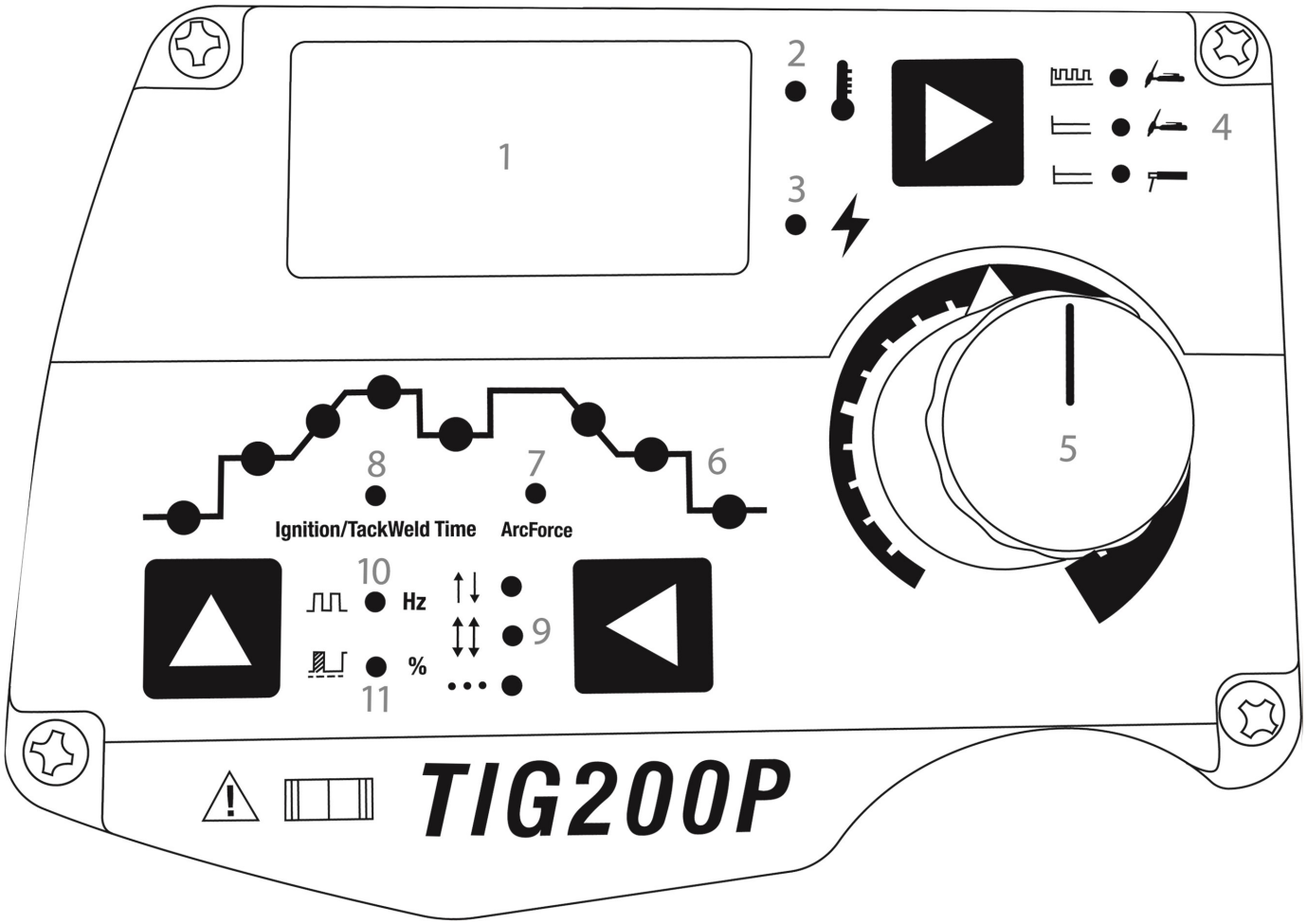


Rear view

No.	Part name
14	Mains switch
15	Cable inlet
16	Air vent
17	Shield gas inlet



Machine panel functions



1 DIGITAL METER—Displays parameters during set up and actual values when welding. Also used to display any error message codes

2 Overheat LED. Will be lit when the machine enters overheat conditions. Welding will cease whilst this LED is lit.

3 Mains LED. This will be lit when mains supply is connected and the mains switch is on.

4 Welding mode selection zone. Welding mode selection zone contains welding mode indicators and selection key. Welding modes include DC TIG, Pulse TIG, DIC MMA(TIG400 has no pulse TIG function). Press the welding mode selection key to choose the according welding mode. The welding mode being selected LED will be lit when selected and there is welding current flowing.

5 Adjustment knob. Used to select and adjust parameters

6 Parameter selection area. Using the adjustment knob highlight the LED of the parameter to be adjusted in the selection area

7 Arc force LED. When selected this will be lit and the arc force parameter can be adjusted.

8 HF / Spot LED

9 Use the selector to choose the mode 2T, 4T or Spot

10 Frequency LED. When lit the pulse frequency can be adjusted

11 Pulse duty LED . When lit the time on peak current during each pulse can be adjusted.

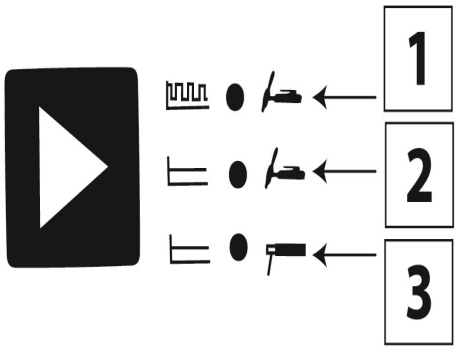
FUNCTIONS

Press the selector until the LED is lit against the required parameter. The parameter can the be adjusted

1 DC Pulsed TIG mode

2 DC TIG mode

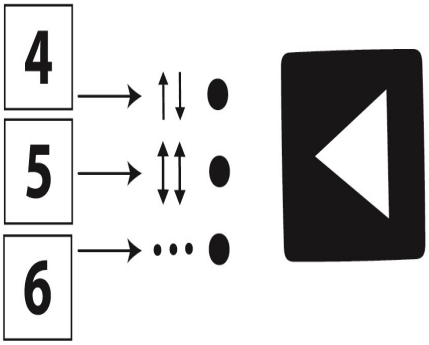
3 DC MMA mode



4 2T mode

5 4T mode

6 Spot welding mode



7 Pre flow gas time LED

8 Start current LED

9 Slope up time LED

10 Peak current LED

11 Background current (in pulse mode) LED

12 Downslope time LED

13 Crater current LED

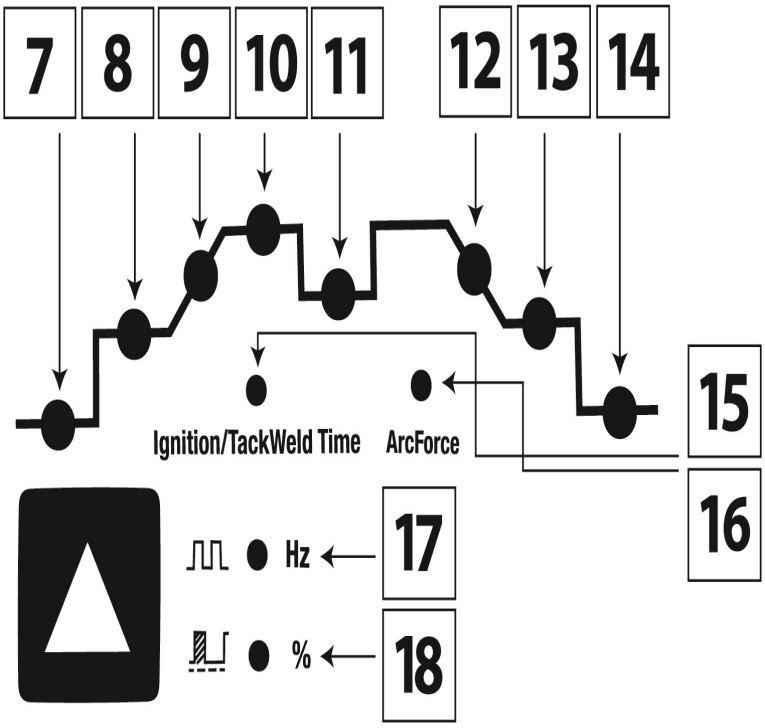
14 Post flow gas time LED

15 HF/ Spot time LED

16 Arc force LED

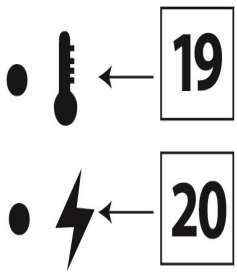
17 Pulse frequency LED

18 Pulse duty LED



19 Overheat LED

20 Mains power LED



Parameter AutoSaving

The parameters having been adjusted will be AutoSaved in the parameter group currently used (no AutoSaving will be done in the case that no operation is done after parameters are adjusted and the machine was turned off in 5s' time). When the machine is turned on next time, the parameters in this parameter group are just the parameters used last time. When the welding mode and operation mode are reselected, AutoSaving will be done in 10s. No special save key and manual saving operation is available for this machine.

Protection function

When the overcurrent indicator illuminates and the digital meter displays "E-1", it indicates that overcurrent occurs. Restart the machine, and welding can be continued.

When the under-voltage indicator illuminates and the digital meter displays "E-2", it indicates that the mains voltage is overly low, and welding can be recovered when the mains voltage goes into normal.

When the overheating indicator illuminates and the digital meter displays "E-3", it indicates that welding is forced to stop because the main circuit of the machine gets overheated. In this condition, It is unnecessary to turn off the machine, but just wait a few minutes, and then welding can be continued.

When the current sensor fails and the digital meter displays "E-4", welding may still be carried out. However, the current value at this time is inaccurate.

Unpacking

Check the packaging for any signs of damage. Carefully remove the machine and retain the packaging until the installation is complete.

Location

The machine should be located in a suitable position and environment. Care should be taken to avoid moisture, dust, steam, oil or corrosive gases. Place on a secure level surface and ensure that there is adequate clearance around the machine to ensure natural airflow.

Input connection

Before connecting the machine you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual.

The equipment should be connected by a suitably qualified competent person. Always ensure the equipment has a proper grounding. Never connect the machine to the mains supply with the panels removed.

Output connections

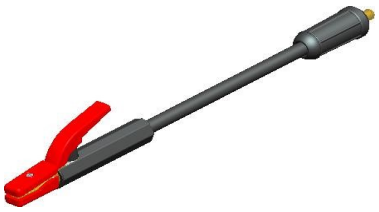
Electrode polarity

In general when using manual arc welding electrodes the electrode holder is connected the the positive terminal and the work return to the negative terminal. Always consult the electrode manufacturer's data sheet if you have any doubts.

When using the machine for TIG welding the TIG torch should be connected to the negative terminal and the work return to the positive terminal.

MMA welding

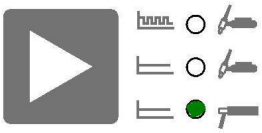
Insert the cable plug with electrode holder into the "+" socket on the front panel of the welding machine, and tighten it clockwise. Insert the cable plug of the work return lead into the "-"ve socket on the front panel of the welding machine, and tighten it clockwise



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the area.

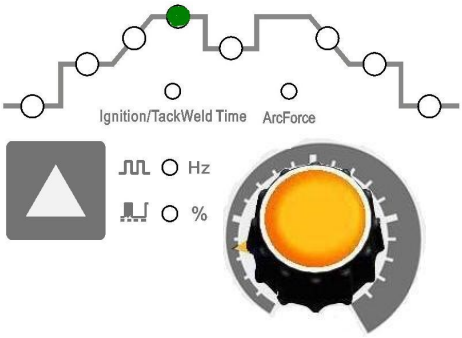
MMA operation steps

Select MMA mode by pressing the welding mode selecting key, and MMA can be carries out. There is voltage output at both output terminals.

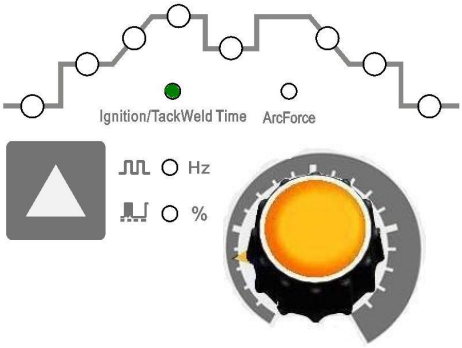


At this time, the voltage indicator illuminates, and welding can be carried out.

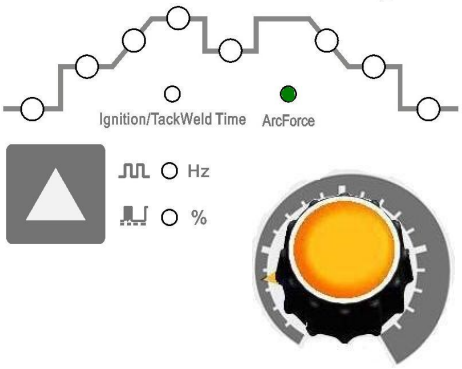
Select the welding current setting function by pressing the welding parameter selecting key, and welding current in MMA can be set. Welding current setting can be carried out during welding.



Select the arc ignition time setting function (This function changes into spot welding time setting function in TIG spot welding mode.) by pressing the welding parameter selecting key, and arc ignition time in MMA can be set. Besides, arc ignition time setting can be carried out during welding.



Select the arc force current setting function by pressing the welding parameter selecting key, and arc force current in MMA can be set. Besides, arc force current setting can be carried out during welding.



If the secondary cables (welding cable and earth cable) are long, select cable with larger cross-section to reduce the voltage drop.

Preset the welding current according to the type and size of the electrode, clip the electrode and then welding can be carried out by short circuit arc ignition. For welding parameters, please refer to the below table

Electrode diameter (mm)	Recommended welding current (A)	Recommended welding voltage (V)
1.0	20~60	20.8~22.4
1.6	44~84	21.76~23.36
2.0	60~100	22.4~24.0
2.5	80~120	23.2~24.8
3.2	108~148	24.32~24.92
4.0	140~180	24.6~27.2

.

TIG WELDING

Connect the TIG torch connector to the “-” quick socket on the machine panel, and tighten it clockwise.

Connect the switch plug on the TIG torch to the corresponding socket on the machine panel, this is a quick connector so it is not necessary to turn the plug.

Insert the quick plug on the work return cable into the “+” quick socket on the machine panel, and tighten it clockwise. Clamp the workpiece with the work clamp at the other end of the earth cable.

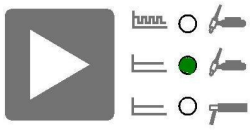
Connect the gas hose of the TIG torch to the quick connector on the machine front.

Connect the gas hose to the gas inlet on the back panel of the machine. The other end of the supply hose connects to the gas regulator on the cylinder.

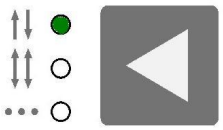
OPERATION

DC TIG

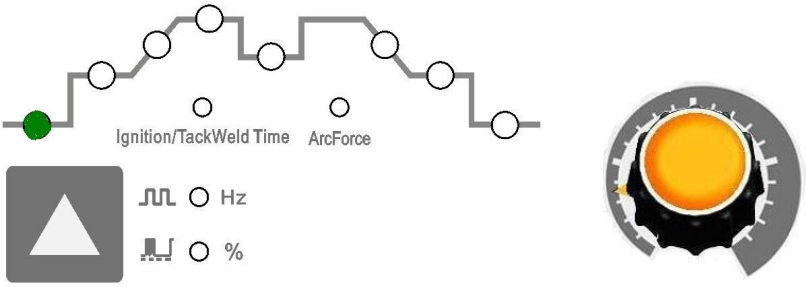
Select the DC TIG mode by pressing the welding mode selecting key,



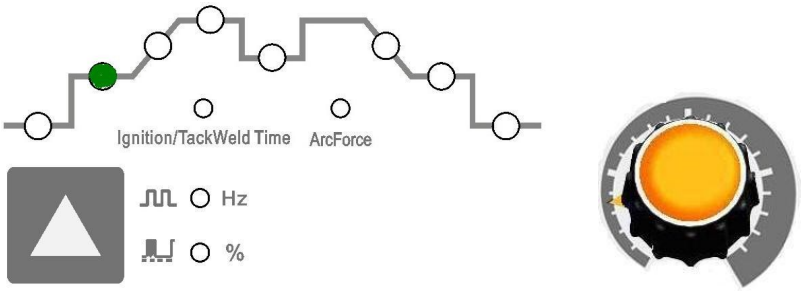
Select the 2T mode by pressing the operation mode selecting key.



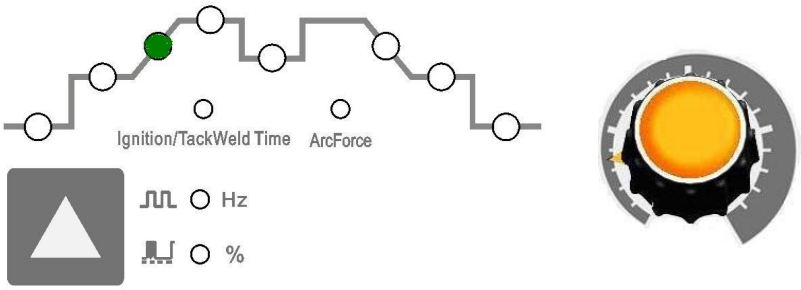
Select the pre-flow time setting function by pressing the welding parameter selecting key, and set the pre-flow time.



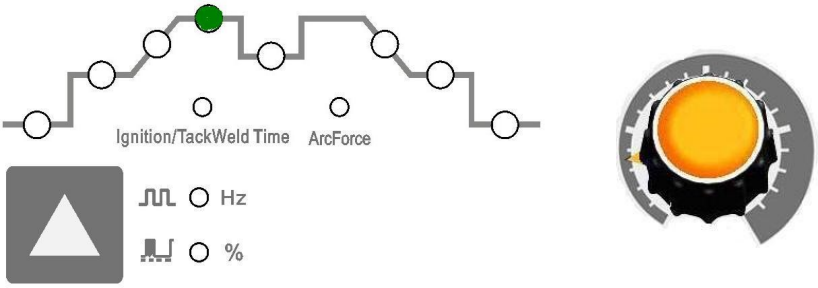
Select the initial current setting function by pressing the welding parameter selecting key, and set the initial current.



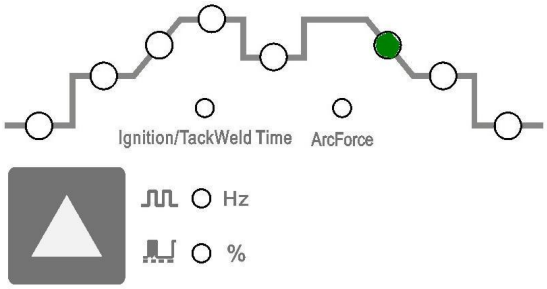
Select the upslope time setting function by pressing the welding parameter selecting key, and set the upslope time.



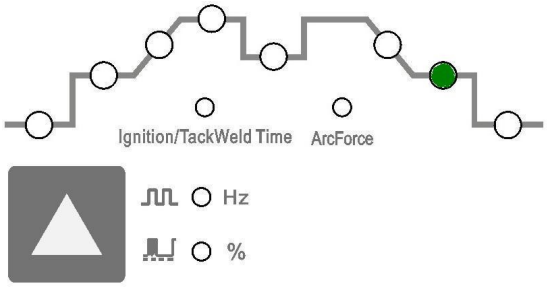
Select the welding current setting function by pressing the welding parameter selecting key, and set the welding current.



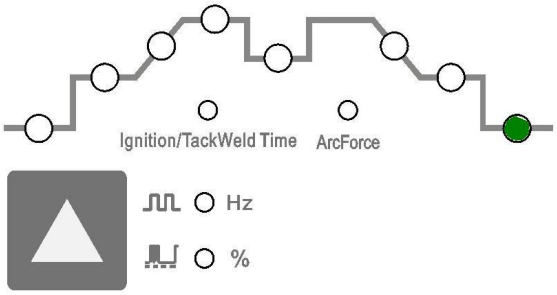
Select the downslope time setting function by pressing the welding parameter selecting key, and set the downslope time.



Select the crater current setting function by pressing the welding parameter selecting key, and set the pilot arc current.



Select the post-flow time setting function by pressing the welding parameter selecting key, and set the post-flow time.



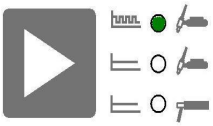
After the parameters are set appropriately, open the gas valve of the cylinder, and adjust the gas regulator to the desired flow value.

Keep the torch 2~4mm away from the workpiece, and then press the torch trigger, the solenoid valve will operate , gas will flow and HF starts.

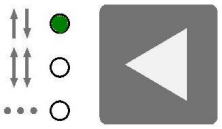
After arc is ignited, the HF discharge rustling disappears, the current rises up to the preset value, and welding can be carried out. After releasing the torch trigger, the current begin to decrease automatically to the crater current value. Then, arc stops with gas kept flowing for the post-flow time, and welding ends.

PULSED TIG

Select the pulsed TIG mode by pressing the welding mode selecting key.

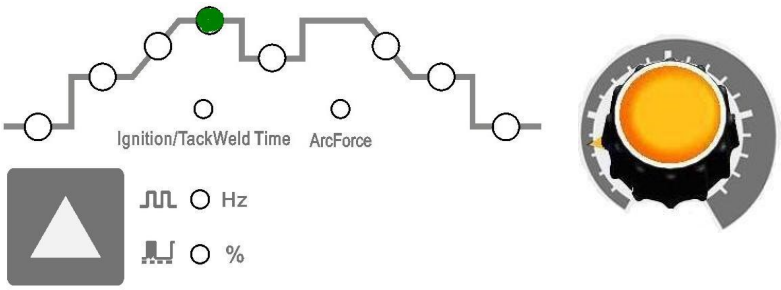


Select the 2T mode by pressing the operation mode selecting key.

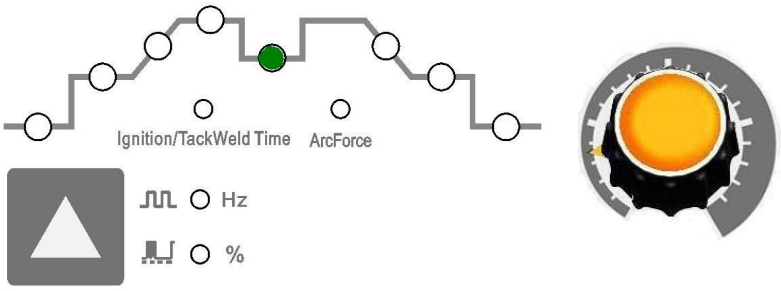


Proceed with the set up as for standard TIG. The welding current setting now becomes the peak welding current of the pulse. The next step will allow setting of the base current. This is only allowed when the pulse mode is selected.

Select the peak welding current setting function by pressing the welding parameter selecting key, and set the peak welding current.

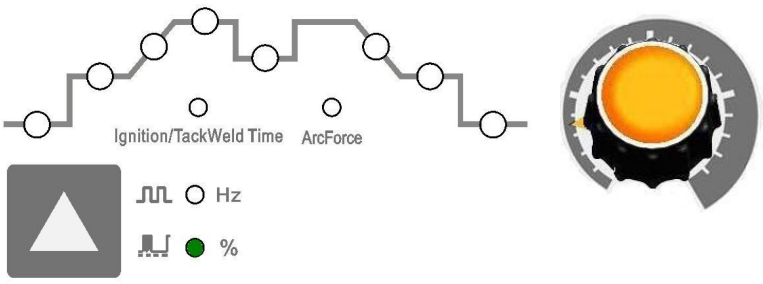


Select the base current setting function by pressing the welding parameter selecting key, and set the base current.

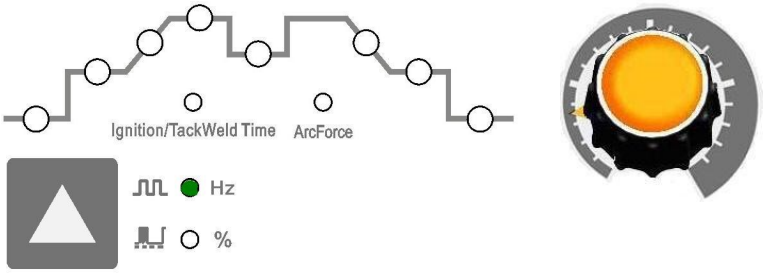


Select the downslope time, crater current ans post flow gas time as standard TIG.

Select pulse duty ratio setting function by pressing the welding parameter selecting key, and set the pulse duty ratio.



Select pulse frequency setting function by pressing the welding parameter selecting key, and set the pulse frequency.

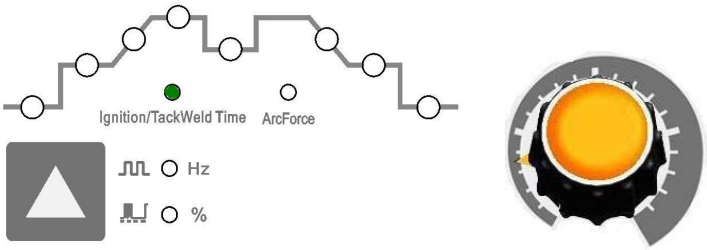


After the parameters are set appropriately, open the gas valve of the cylinder, and adjust the gas regulator to the desired gas flow.

Keep the torch 2-4mm away from the workpiece, and then press the torch trigger. Gas will flow followed by the HF and the arc is ignited. Once the arc is ignited the HF will cease and , the current rises up to the preset value, and welding can be carried out. After releasing the torch trigger, the current begins to decrease automatically to the crater current value. Then, arc stops with gas keeping flowing for the post-flow time, and welding ends.

SPOT WELDING

Select the spot welding time setting function by pressing the welding parameter selecting key, and set the spot welding time.



Operation steps in spot welding:

Keep the torch 2-4mm away from the workpiece Press the torch trigger, gas valve opens, and HF starts and this ignites the arc. When the arc is established the HF stops, and the current goes to the the preset value. Welding begins, and it ends when the spot welding time is up. There is no current upslope and downslope in spot welding mode.

TROUBLESHOOTING

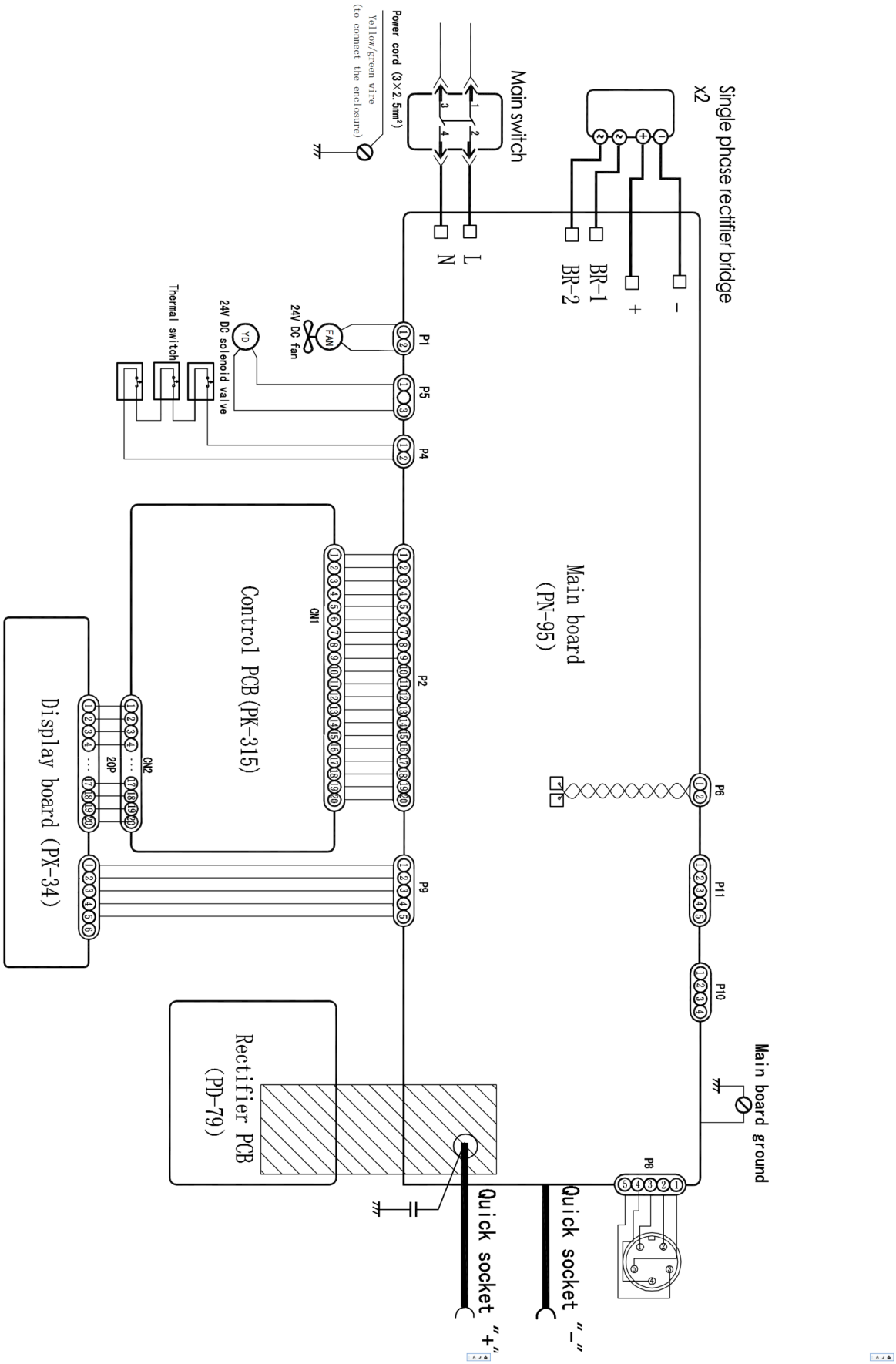
The following operations should only be carried out by suitably qualified competent persons. Make sure the input cable of the machine is disconnected from the electricity supply before removing covers from the welding machine.

Fault symptom	**Causes and Solutions**
Turn on the machine, the power indicator does not illuminate, the fan doesn't work, and no welding output.	Check if the power switch is closed. No input power.
Turn on the machine, the fan works, but the output current is unstable and can't be controlled by potentiometer when welding.	The current potentiometer fails. Replace it. Check if any loose contact exists inside the machine. If any, reconnect.
Turn on the machine, the power indicator illuminates, the fan works, but no welding output.	Check if any loose contact exists inside the machine. Open circuit or loose contact occurs at the joint of output terminal. The overheating LED illuminates. The machine is under overheating protection status. It can recover automatically after the welding machine is cooled. Check if the thermal switch is ok. Replace it if damaged. Check if the thermal switch is loosely connected, and reconnect it if
The electrode holder becomes very hot.	The rated current of the electrode holder is smaller than its actual working
Excessive spatter in MMA welding.	The output polarity connection is incorrect. Exchange the polarity.

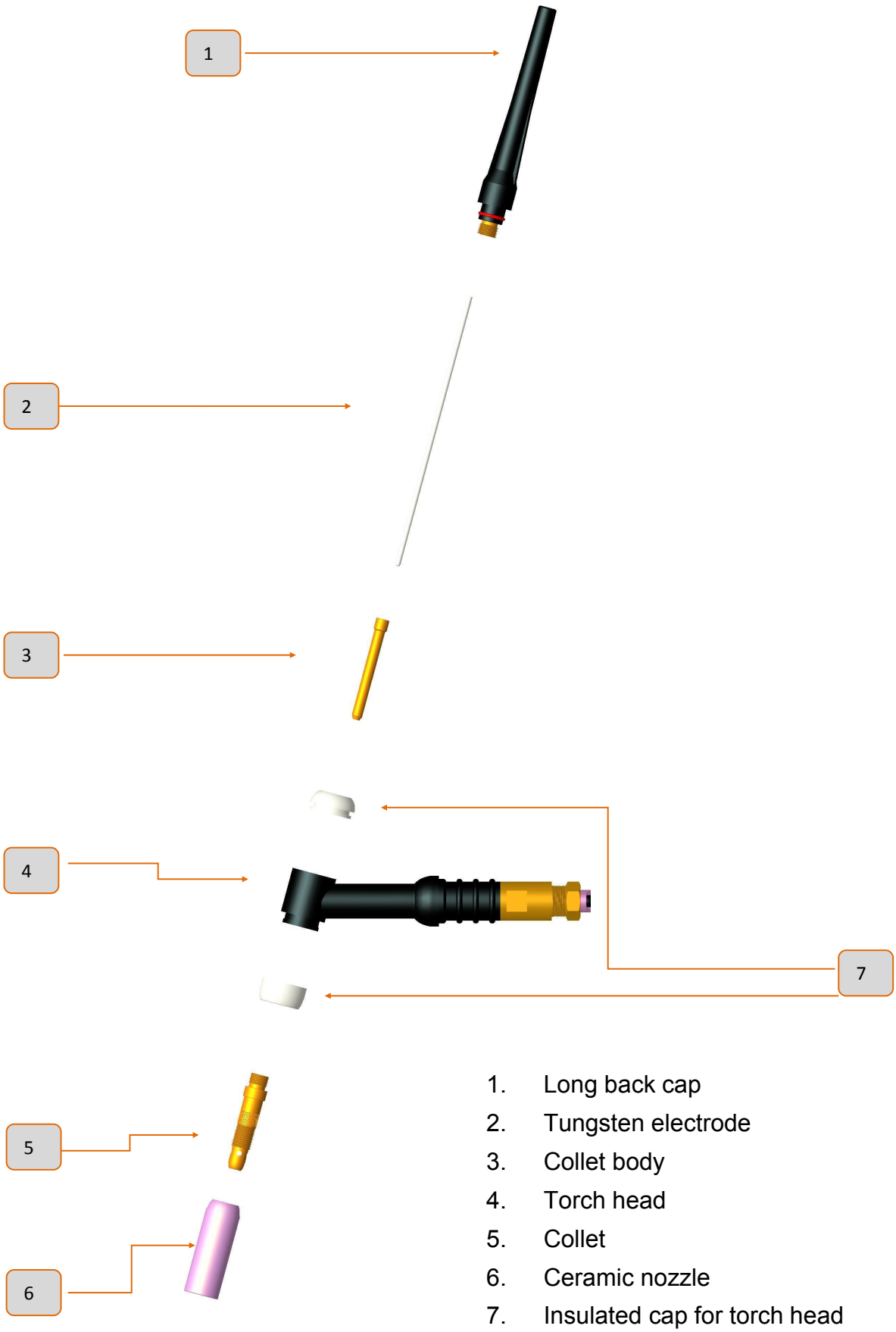
TECHNICAL PARAMETERS

Technical Parameter			Unit	Model
				TIG200P PFC
Rated input voltage			V	AC95-270V; 50/60HZ
Input current Ieff		110V	A	27.7
		230V		14.2
Welding current range		MMA	A	10—125 - 110V
			A	10—180 - 230V
		TIG	A	10—160 - 110V
			A	10—200 - 230V
No-load voltage		MMA	V	65
		TIG		65
Duty cycle		MMA	%	125@60 - 110V
				180@25 - 230V
		TIG		160@60 - 110V
				200 @30 - 230V
Post-flow time			s	0~15
Overall efficiency			%	85
Housing protection grade			IP	21S
Power factor			cosϕ	0.99
Insulation grade				F
Arc ignition mode				HF arc ignition
Standard				IEC60974-1
Noise			db	＜70
Size	without handle		mm	420*135*235
	with handle②			420*135*277
Weight			kg	7.5

ELECTRICAL SCHEMATIC



TIG TORCH COMPONENTS



1. Long back cap
2. Tungsten electrode
3. Collet body
4. Torch head
5. Collet
6. Ceramic nozzle
7. Insulated cap for torch head

NOTES

TIG Series

TIG 200P PFC Order code ZXJT-200P-PFC

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