**PULSE AC/DC TIG WELDER**

 **INSTRUCTION MANUAL**

**THANK YOU FOR BUYING OUR PRODUCT, PLEASE**

**READ THIS INSTRUCTION MANUAL BEFORE USE AND**

**KEEP FOR FUTURE REFERANCE. PROPER USE WILL**

**BRING YOU MORE ECONOMIC BENEFIT!**

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 **EQUIPMENT INNOVATIONS**

**TA-200**

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1、Safety Notice

Danger！ In order to avoid accident, should accord with the following regulations

1． We fully consider safety when designing and making this machine. Should accord with the attention

points in this manual, or may cause physical accident.

2． Please accord with relative regulation and the domestic standards for construction of input of power

source, workplace, use and keeping and arrangement of high pressure gas, and keeping of

workpiece after welding, dispose of offal after welding.

3． Unrelated person shouldn’t get close to the welding work place.

4．People who are using pacemaker should not get close to working welder, nor around welding workplace,

because the magnetic wave generated when the welding power is on will cause adverse impact on it.

5． Should let people with professional knowledge to assemble, check and maintain welder.

6. In order to ensure safety, please comprehend the contents in this manual correctly, and ask the

person with safety knowledge and skill to operate machine.

7． Shouldn’t use this machine to do the work doesn’t relate with welding area.

Danger！ In order to avoid electric shock, please accord with the following regulations.

\* If touching electrified parts besides secondary electrode causes electric shock

1． Please don’t touch any electrified part.

2． Please ask electrician to do earth connection for machine and material.

3． Should turn off power of Distribution Box 5 minutes before assembling or checking.

4． Shouldn’t use cable with insufficient capacity or the one with broken insulation cover.

5． Make sure of proper insulation for cable connection.

6． Shouldn’t use machine while its cover is taken apart.

7． Please use dry insulation gloves.

8． Please use safety net while working at high place.

9. Should maintain or check machine periodically and use after the damaged part is repaired.

10．If not use, should cut off the input power.

Attention！Avoid the welding smoke may injure you or other, should accord

with the following regulations.

\* Smoke or gas generated from welding is hazardous to health.

\* If operating in narrow place, will cause being suffocated due to oxygen deficiency.

1． In order to avoid accidents like gas poisoning and suffocation, please use regulated gas vent

equipment and wear breathing protecting tools.

2． When welding in bottom of Box place and oven and ship, the CO2 and Argon heavier than air will

keep in the bottom, so should change air well enough and wear breathing protecting tools.

3． Shouldn’t do welding in the degreasing, cleaning or spraying places.

4． May generate hazardous gas when welding steel with coating or painting layer, please wear

breathing protect tools.

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Attention！ In order to avoid accidents like fire, blast, crack, should accord with

the following regulations

1． Shouldn’t place flammable substances near to welding place.

2． Shouldn’t do welding near to flammable gas.

3． Shouldn’t place heated material after welding near to flammable substances.

4． When welding dooryard, ground, wall, should clear off the flammable substances on cover.

5． The cable connection should be insulated well enough.

6． Connection of earth wire should be as nearest as possible to welding spot.

7． Shouldn’t weld the gas-filled tube or sealed tunnel.

8． In case of fire, should install fire extinguisher.

Attention！ Please wear regulated protecting tools, in case of being

injured by welding arc, splash, spatter and noise.

\* Arc rays may cause eyes rankle or burn.

\* Splash and spatter may burn eyes or skin.

1.

2.

Should wear protecting tools to shield arc rays when doing or supervising welding.

Should wear protecting glass.

Attention！ Touching rotating part may be injured, should accord with the

following regulation.

\* Keep finger, hair and clothes away from the cooling fan.

1. Shouldn’t use welder while its cover is taken apart.

2． Should ask professional person to install, operate, check and maintain welder.

3． Shouldn’t let your fingers, hair or clothes get close to the cooling fan.

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Attention！ In case that the insulation of welder deteriorates and cause fire,

should accord with the following regulations.

\* If the welding splash or iron powder generated from polishing gets into welding power source,

it will lead to deterioration inside, and cause fire.

1． In case that welding splash or iron powder get into inside of welding power source, please isolate

welding machine from welding spot and polishing spot.

2． In case that powder accumulated inside and deteriorates insulation, should periodically maintain,

check machine. If the splash or iron powder gets into machine body, should power off machine and

Distribution Box, use dry air to clear them off.

2、 General Description

WSME series PULSE AC/DC tig welder adopts advanced Inverter Technology, easy to strike arc,

and arc is stable with quick dynamic feedback, perform high welding quality.

Figure：

● Adopt SCM digital control technology, with constant output current, stable welding current.

● High frequency arc strike function, easy to strike arc.

● Designed with protecting functions. When outer power supply is abnormal or welder works over

duty cycle, it can send warning signal and stop welding automatically.

● Compact，light，easy to carry.

● Digital panel, easy to operate.

● The preset current and actual one can convert automatically

● With the different welding ways, adjustable parameters automatically increase or decrease.

● Applicable for stainless steel, aluminum, carbon steel, alloy steel, copper and titanium. Widely used

in petrochemical industry, electricity, building and tube installment and machinery making etc.

3、 Main technical Parameter

Type

TA-200

Model

Rated Input Voltage (V)

1～220

Power Frequency (Hz)

Welding Current (A)

Rated Input Power (KVA)

No-load Voltage (V)

Rated Duty Cycle (%)

Cover Protection Class

Cooling Way

50/60

5～200

4.7

70

70

IP21

Fan-cooling

Dimension (mm)

487\*230\*380

20

Weight (kg)

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4、 The panel’s function and parameter illustration

The panel function illustration：

No

Name

Explain

Choose welding mode under different function. The standard for "no arc"

function, gradient "crater" function.

1

Choose welding function

Choose parameter left

key

Move left to determine the position of the indicator light for the preset

parameters.

2

3

Choose parameter right Move right to determine the position of the indicator light for the preset

key

parameters.

4

5

Display screen

Save key

To display the parameters.

To store the welding data and can store ten sets of different welding data.

6

7

8

Parameter adjusting knob

Adjust the preset parameters.

Adjust Key

Welding mode selection

key

The storage of different welding parameters were obtained.

Long press 3 secondson TIG, then release, can be converted to MMA

welding.

9

Waveform selection key

Choose three different welding output waveform.

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AC/DC selection keys

Pulse function selection

key

DC, AC feature selection.

Choose the pulse and the composite pulse, and the composite pulse

function can be used in the AC condition.

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High pressure indicator

Warning light

No-load voltage output indicator.

overheat, over current alarm indicator.

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The panel parameter illustration：

Default

value

0.1 S

Name

Summary

Adjust range

Pregas

Arc strict

Arc start

Time of gas in advance

Arc moment current

0～10 S

5～200A

5～200A

100A

40 A

Adjusting the arc start current preset value when "crater" control

Adjusting the up slope time from the arc start current to peak

current,when "crater" control

Up slope

0～20 S

0～10 S

5 S

3 S

Spot welding

time

The welding time in the functional state of the spot welding

Valley current

adjust pulse valley current in pulse mode

Adjust welding current or pulse peak current

5～200A

5～200A

10～90 %

10 A

150 A

50 %

Peak current

Duty cycle

Pulse

Adjust the ratio of the peak current to the pulse period in pulse mode.

Ajust the pulse frequency in the pulse mode

0.1～20HZ

5HZ

frequency

Clean width

Adjust the clearance width when using AC mode

Adjust the depth of cleaning when using AC mode

10～90 %

-50～+50 %

20～200HZ

30 %

0%

Clean depth

AC frequency

Adjust the frequency of the alternating current in the AC mode

Adjust the down slope time from the peak current to the arc current

fall when "crater" control

80HZ

Down slope

0～10 S

5 S

Slope current

After gas

Adjust the arc crater preset value when "crater" control

5～200A

0～10 S

20 A

5 S

When welding end, the time delay of the gas

5、Installation

A) need a professional electrician to install and maintain this equipment.

B) Before installation, cut off the power input switch.

C) Do not touch the electriferous parts exposed to the outside.

Before installation, the input power must be cut off, and the welding machine must be installed as

following.

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6、Operation

Turn on switch of Distribution Box

Turn on power switch on front faceplate

● Cooling fan turns.

● Adjust Argon Gas gauge to suitable scale.

● Open the switch for cooling water.

● Preset welding current according to

thickness of material.

Start welding

● Try welding

● Adjust welding parameters according to

result of try welding. Set each switch to

suitable position.

● Doing welding normally.

Finish welding

Turn off Argon source and cooling water

Turn off power switch on front faceplate

Turn off switch on Distribution Box

7、Attention Points

1．During welding, should use cable to let machine connect ground reliable.

2．When using machine, shouldn’t block the intake of machine.

3．When AC welding, please pay attention the following:

a) Avoid using of unnecessary prolonged cable, should straighten up the torch cable and

material cable before using.

b) When used prolonged cables, should roll up earth wire and torch cable, if can’t roll up

them, the torch cable should go along in the direction of workpiece.

c) If can’t avoid to roll up cables, should roll as follows:

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1

2

3

Downright View

Side View

Divide the unwanted cable

into two parts: A and B

Roll them up:

\*Roll in the same direction.

\*Roll in same number of

turns.

Roll A and B in Overlap A and B, and

Explanation

right-about directions tie overlapped

the

of each other. plate to keep it tight.

\*Roll

with

the

same

diameter.

4．If power switch trips itself, it shows machine goes broken. Shouldn’t cloze the switch before

proper examination, or the broken will be increased, should contact us.

5. Abnormal Indicating Light

If it’s on, should check the main points according to the after parts.

6. Duty Cycle:

This machine’s rated duty cycle is 35%, it means: 10 minutes is a period, do welding at rated

current for 3.5 minutes, and left 4 minutes is for No-load. When doing actual welding, due to

different duty cycle, so the applicable current is different, see following form:

Type

TA-200

200

TA-250

250

TA-315

315A

TA-500

500A

Duty Cycle

Current

70%

85%

152

118

191

148

240A

185A

380A

295A

100%

7. Deposit Storage

When deposit storage, for safety’s sake, should deposit less than 3 layers, and use cables to

firm it. If moving them, should deposit less than 2 layers, and use cables to firm them.

8． If welder is put on slop, should prevent it may sway down.

9. Should not use welding machine to do thaw.

10. Environment Requirement

The machine protecting grade is IP21，should use under the following environment:

● Dry room without dust（never use in rain）；

● Temperature around between-10°C～40°C；

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● Relative air humidity

40°C：≤50%；

20°C：≤90%。

● Dust or acid or erosive substances shouldn’t transcend normal quantity, except the one

generated from welding.

● Height above sea level should transcend 1000m。

● The space distance between wall shouldn’t less than 20cm。

● Without abnormal vibration or surge.

● When two or more than two welders are put in parallel use, the space distance between

machines shouldn’t less than 30cm.

● Should avoid been exposed to rain or snow during transit and storage, the store house

should keep air ventilated well, without erosive gas or dust.

8、 Welding Reference Value

1. Relationship between welding current, tungsten diameter and Argon gas flow:

Welding Current (A)

5～15

Tungsten Diameter (mm)

Argon Gas Flow (L/min)

0.5

1.0

1.6

2.0

2.4

3.2

4.0

4.8

3～7

4～8

10～65

55～120

6～9

85～150

6～10

7～10

10～15

12～20

15～25

120～200

200～320

320～400

400～640

2. Welding Parameters For Stainless Steel (SUS304):

Steel

Thickness

(mm)

Tungsten

Diameter

(mm)

Wire

Diameter

(mm)

Welding

Current

(A)

Argon Gas

Flow

Space

Space

Shape

(L/min)

(mm)

1

0.6

1.0

1.5

2.5

3.0

4.0

5.0

6.0

8.0

12.0

1.0～1.6

1.0～1.6

1.0～1.6

1.6～2.4

1.6～2.4

2.4

0～1.0

0～1.6

15～30

25～30

4～5

4～7

a、b

a、b

b

1

0～1.6

50～70

6～9

1

1.6～2.4

1.6～2.4

1.6～2.4

2.4～3.2

2.4～3.2

3.2～4.0

3.2～4.0

65～95

6～9

1

b

90～120

110～150

120～180

150～200

160～220

180～240

7～10

10～15

10～15

10～15

12～18

12～18

1～2

2～3

2～3

3～4

4～5

6～8

b、c

c、d

c、d

c、d

d

2.4～3.2

2.4～3.2

3.2～4.0

3.2～4.0

d

3. Welding Parameter For Aluminum:

Aluminum

Thickness

Tungsten

Diameter

Wire

Diameter

Welding

Current

Argon Gas

Flow

Space

Shape

Space

11



(mm)

0.6

1.0

1.5

2.5

3.0

4.0

5.0

6.0

8.0

(mm)

(mm)

(A)

(L/min)

4～5

(mm)

1

1.0～1.6

1.0～1.6

1.0～1.6

1.6～2.4

1.6～2.4

2.4

0～1.0

25～40

a、b

a、b

b

0～1.6

40～60

4～7

1

0～1.6

60～90

6～9

1

1.6～2.4

1.6～2.4

1.6～2.4

2.4～3.2

2.4～3.2

3.2～4.0

80～120

100～160

130～200

150～250

200～280

200～300

6～9

1

b

7～10

10～15

10～15

10～15

12～18

1～2

2～3

2～3

3～4

4～5

b、c

c、d

c、d

c、d

d

2.4～3.2

2.4～3.2

3.2～4.0

(a)

(b)

(d)

Space Shape

(c)

9、Maintain and Check

Make sure of safe use, should maintain and check

periodically. When checking the outer and inner terminals should

power off the input Distribution Box at first.

1．Daily attention points

If find out abnormal during checking following items, should contact professional person:

（1） Abnormal vibration, noise or smell？

（2） Whether connections of cables are heated.

（3） After turn on power switch, whether fan can turn normally.

（4） Whether switch is broken.

（5） The connection and insulation of cables are correct or not.

（6） Whether cables are broken or not.

2．The items to check each 3～6 months

（1） Electrical connection

Check input and side connection of output cable, whether the fixing screws are

loose or is poorly insulated.

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（2） Connect ground

Make sure machine body connects ground.

（3） Machine inside

If heat radiator is covered by dust, will affect heat radiation, the semi-conduct

power element will be affect too. Also the dust accumulated on transformer winding

will affect insulation, so should take apart coves of machine and use dry compressed air

to clear off the inside of machine at lease once 6 months.

After cleaning the inside of machine, should install the taken covers before using

welder again. Attention，if don’t install the taken cover, the fan will lose efficiency, and

the transformer and semi-conduct power elements would be broken down.

If welder is just power off, shouldn’t check machine

immediately, should check 5 minutes later after power switch and

switch of Distribution Box is turned off, so inside capacitor can

discharge electricity.

10、Key Point For Check During Abnormal

Broken Condition

Can’t generate Arc

Reason

Torch switch fails, torch connection cable is broken up.

Fuse blows out or switch of Distribution Box fails.

Workpiece connection cable is connected poorly.

Torch cable is broken.

Cable connection is loose.

Can’t strike arc or arc is not

stable.

Protective gas is mixed with air.

Gas flow is not enough.

Time for Delay Gas Cutoff is too short.

The workpiece is dirty with grease.

Tungsten surface is dirty.

Welding surface is poor or

not good.

Current is set to over high.

Protective gas is mixed with air.

Torch and earth connection are connected conversely.

Alumina Clearing Effect is set to high.

Tungsten is too small.

Tungsten is worn out too

quickly.

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