

# DURALLOY®

## 180DS OPERATION MANUAL

Part No : DA180DS



## CONTENTS

<b>1. SAFETY .....</b>	<b>3</b>
<b>2. Summary .....</b>	<b>4</b>
<b>3. Electrical principle drawing.....</b>	<b>5</b>
<b>4. Parameters .....</b>	<b>5</b>
<b>5. Operation control and connectors. ....</b>	<b>6</b>
<b>6. Installation &amp; Adjustment .....</b>	<b>7</b>
<b>6.1 Installation .....</b>	<b>7</b>
<b>6.2 Operation .....</b>	<b>7</b>
<b>6.3 Welding Table .....</b>	<b>7</b>
<b>7. Operation Notices .....</b>	<b>8</b>
<b>7.1 Installation .....</b>	<b>8</b>
<b>7.2 Safety.....</b>	<b>8</b>
<b>8. Maintenance.....</b>	<b>9</b>
<b>9. Troubleshooting &amp; Service .....</b>	<b>10</b>
<b>10. WARRANTY.....</b>	<b>11</b>

## 1. Safety

Welding may damage your body or others, so please take protection measure in operation.



Only ones who are trained professionally can install, operate, maintain and repair the equipment.

Do not maintain and repair the machine when the machine is connected with power.



Electric shock can kill.

Never touch electrical parts.

Wear dry, hole-free gloves and clothes to insulate yourself.

Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

Ensure to install the equipment correctly and ground the work or metal to be welded to a good electrical (earth) ground according the operation manual.

Ensure to operate the equipment in safe position.

Fumes and gasses can be dangerous!



Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out the fume.

Using enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.



Welding sparks can cause fire or explosion.

Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and not materials from welding can easily go through small cracks and openings to adjacent areas.



Do not weld enclosed tanks or containers.

Prohibit to use welder to unfrozen.

Have a fire extinguisher readily available.



Hot parts can lead to burn.

Do not touch the hot parts.

Please use the torch after cooling or use the welding blow lamp.

The people with heart-pacemaker should be away from the welding arc.



Rotating parts may be dangerous.

Far away from rotating parts. (Like fan)

Keep the parts of machine in the safe position.

## 2. Summary

180DS welder is a MMA arc welder which adopts the insulated gate bipolar transistor (IGBT) power module.

It can change work frequency to medium frequency so as to replace the traditional hulking work frequency transformer with the cabinet medium frequency transformer.

Thus, it is characterized with portable, small size, light weight, low consumption and noise etc.

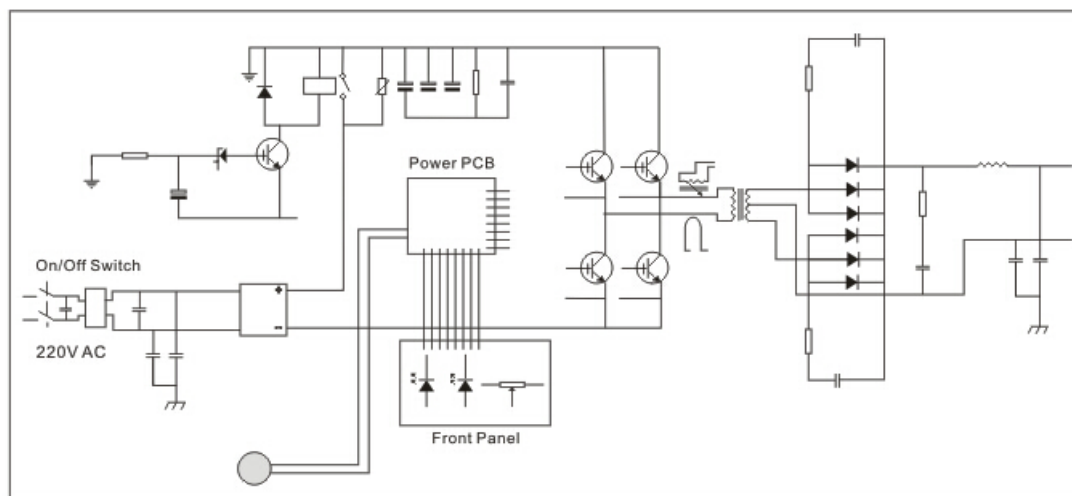
180DS has excellent performance: constant current output makes welding arc more stable; fast dynamic response speed reduces the impact from the arc length fluctuation to the current.

There are also some automatic protection functions for under voltage, over current, over heat, etc. inside the welders, when the problems listed before occurred, the alarm on the front panel is light and at the same time the output current will be cut off. It can self-protect and prolong the using life and greatly improved the reliability of the welders.

180DS can be used easily, also with little spatter and good weld bead.

180DS is widely used in Petroleum, chemical, mechanical, shipbuilding, architecture, boiler, pressure container, defence industry and installation and so on. This machine has high duty cycle even in the 40°C, which can keep the continuous operation. Which can keep working under high temperature and corrosion environment.

## 3. Electrical principle drawing



Circuit Schematic of INARC Welder

(Figures for reference are subject to change without notice.)

## 4. Parameters

Models	DA180DS
Power Supply Voltage (V)	1~220/230/240±10%
Frequency(HZ)	50/60
Rated Input Power(KW)	5.8
Rate Input Current(A)	15/34A
Duty Cycle(40°C 10min)	20% 180A 60% 104A 100% 80A
No Load Voltage(V)	84
Welding Current Range(A)	10~180
Efficiency (%)	≥85%
Power Factor	0.76
Net Weight(Kg)	3.2
Protection Class	IP21s
Insulation Class	F
Dimensions(mm)	265*120*218
Electrode Diameter	φ1.6~φ4.0
Electrode Type	6013,7018 etc.

## 5. Operation control and connectors.

- (1) Negative (-) Output terminal. FOR MMA welding Plug Earth Lead into this Terminal. FOR TIG Welding Plug TIG Torch into this terminal.
- (2) Positive (+) Output terminal . For MMA welding plug Arc Lead into this terminal. For TIG Welding plug Earth Lead into this terminal.
- (3) Mode Selector Button (MMA,MMA VRD, TIG).
- (4) Current digital display
- (5) Thermal overload light. This is illuminated if the machine overheats
- (6) Amperage adjustment knob
- (7) VRD Warning light.
- (8) Power Access client: Primary power Lead.
- (9) On/Off Switch



## 6. Installation & Adjustment

Note: Please follow steps in strictly accordance with installation!

Turn Off power at Mains power point!

The equipment protection level is IP21s. Do not use it in the rain!

### 6.1 Installation

- (1) Connect machine to 15 amp 240v power outlet.
- (2) Ensure Power Point is in good condition.
- (3) With a multi meter measure the input voltage is within the fluctuation range.
- (4) Ensure Ground Cable is fitted securely to the front panel.
- (5) Ensure Electrode lead is fitted securely to front panel.
- (6) Ensure Earth is well attached and grounded to the job.

Above (4) and (5) for the DC reverse method. Operator also on the base metal and welding rod to choose DCSP method. In general, the basic electrode reverse method is recommended (ie, connected to the positive electrode).

### 6.2 Operation

- (1) To operate the machine, turn the power switch, so that the power switch is in the "ON" position, then the power indicator light & fan comes on, the device is ready to use.
- (2) Please note, choose correct polarity selection based on the electrodes to be used.
- (3) Ensure Welding leads are kept in good condition, damaged leads or earth clamp can affect weld performance.

### 6.3 Welding Table

Note: The following table applies to low-carbon steel, other materials, please refer to related information.

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
2.5	80~120	23.2~24.8
3.2	108~148	23.32~24.92
4.0	160~200	26.4~28
5.0	180~260	27.2~30.4

## 7. Operation Notices

### 7.1 Installation

- (1) Welding environmental temperature should be between -10°C to 40°C.
- (2) Welding should be done in relatively dry environments, with air humidity of not more than 90%.
- (3) Avoid areas containing dust or corrosive gas whilst welding.
- (4) Avoid sunlight or rain, do not let water or rain infiltrate the welding machine.

### 7.2 Safety

When the Welding machine has encountered over-voltage, over current and over temperature protection circuit, when the primary voltage, output current and the internal temperature exceeds the set temperature, the welding machine will automatically stop working; so you need to note the following:

- (1) To ensure good ventilation!

The machine is equipped with internal cooling fan ensure that there is adequate air flow around the machine.

- (2) Do not exceed duty Cycle!

Operators should ensure to use the machine within its normal range of operation, continually putting the machine in overload will reduce life of the equipment in the longer term.

- (3) Ensure machine is connected to correct voltage!

The machine should only be connected to 15Amp 240v Power supply



## 8. Maintenance

The following operations require the operator has sufficient electrical expertise and comprehensive Safety knowledge, precaution should be used when opening the machine case as electrical parts are LIVE!!

- (1) Periodic inspection of welding internal circuit connections, make sure connections are correct and have good connection, (especially the joints or components). If any rust clean off rust layer and the oxide film, reconnect, and tighten.
- (2) Do not allow hands, hair and tools near live components inside the machine, such as: fans, so as not to hurt or cause damage to the person or machine.
- (3) Regularly with a clean dry compressed air to clean dust from the machine, compressed air pressure should be at reasonable levels in order to avoid damage to the welding components inside.
- (4) Avoid water or water vapor entering into the welding machine, if there is such a case, the internal welding machine should be dried. & tested by an authorized repairer prior to use
- (5) Regular inspections for damage of the welding cable, if any, replace the cable.
- (6) If not using welding machine, welding machine should be back in the box and kept in a dry environment.

## 9. Troubleshooting & Service

The following operations require the operator has sufficient electrical expertise and comprehensive Safety knowledge. Proper precautions should be adhered to if opening the machine case as parts are electrically live!

Common Faults and repair method:

Symptom	Solution
Power indicator does not light, fan does not turn, no welding output.	<ol style="list-style-type: none"> <li>1. Make sure the power switch is turned on.</li> <li>2. Confirm that the power input cable are connected with electricity.</li> </ol>
Symptom	Solution
Inconsistent weld output	<ol style="list-style-type: none"> <li>1. The current potential is damaged, should be replaced.</li> <li>2. faulty connections, such as lead plugs to be checked.</li> </ol>
Power indicator light on & fan operating with no welding output.	<ol style="list-style-type: none"> <li>1. Check all connections inside the machine. circuit output connections is faulty.</li> <li>2. the alarm indicator light (1)that access to protected status because of overheating, in which case, To maintain power, so that the temperature dropped to the machine fan Reasonable temperature, until light goes out, you can continue working; (2)Check the thermal switch is damaged, such damage, to be Replaced</li> </ol>
Earth Clamp overheating	Welding clamp rated current is too small, the replacement of larger size welding clamp.
Manual welding spatter	Output polarity is incorrect, reverse polarity

## 10. Warranty Information

Duralloy Welding Equipment.

1 year Warranty\*

Duralloy Industrial Supply warrants the original retail purchaser that the Duralloy Welding and Cutting machines purchased will be free from defects in materials and workmanship for a period of 1 years\* from the date of purchase by the customer. If a defect in material or workmanship becomes evident during this period, Duralloy Industrial Supply will at its option;

- Repair the product (or pay for the repair of the product)
- Replace the product

In case of warranty claim the product should be returned to the original place of purchase, with proof of purchase.

Any handling and transport costs (or other expenses) incurred in claiming warranty are not covered by this warranty. The warranty schedule is:

- Duralloy Power source only\* - 1 year
- Duralloy Regulator - 3 months
- MIG Torches - 3 months
- TIG Torches - 3 months
- Plasma Torches - 3 months
- Ancillary Equipment - 3 months

The Obligation of Duralloy Industrial Supply under this warranty is limited to the circumstance set out above and is subject to:

- The customer being able to provide proof of purchase of the relevant equipment.
- A defect in either material or workmanship.
- The customer returning the product to Duralloy Industrial supply or an authorized repair agent.
- The product not having been altered or tampered with.
- The product not having been used outside the normal operating parameters of this equipment.
- The product to be in good condition and not damaged which may cause a fault

All goods come with a guarantee that cannot be excluded under the Australian Consumer laws. You as a consumer are entitled to a replacement or a refund for a major failure .You are also entitled to have the goods repaired or replaced if the products fail to be of acceptable quality:

This Warranty Provided by:

Duralloy Industrial Supply - (ABN - 81 831 839 268)

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