DRAPER

EN

Original Instructions
Version 2
February 2026

180A

ARC WELDER

69939

UK CA CE

1. Preface

These are the original product instructions. Read the instruction manual in full and retain for future reference.

Please visit **drapertools.com/manuals** for the latest version of this manual and the associated parts list, if applicable.

1.1 Product Reference

User Manual for: 180A Arc Welder

Stock No: 69939

Part No: AW180A

1.2 Revisions

Version 1: March 2021
First release

Version 2: February 2026

1.3 Understanding the Safety Content of This Manual

WARNING! – Situations or actions that may result in personal injury or death.

CAUTION! – Situations or actions that may result in damage to the product or surroundings.

Important: – Information or instructions of particular importance.

2. Contents

3. Product Introduction

EN

3.1 Intended Use

This ARC welding machine is designed to weld ferrous metals such as steel and cast iron.

This product is suitable for enthusiasts and tradespersons alike.

Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

Read this manual in full before attempting to assemble, operate or maintain the product, and retain it for later use.

3.2 Specification

Stock No.	69939
Part No.	AW180A
Rated Voltage	230V/50Hz
Input Current	16.4A
Current Range	70 – 180A
Electrode Size	1.6 - 4.0mm
Degree of Protection	IP21S
Cooling	Air (fan)
Insulation Class	H
Duty Cycle	10% @180A 60% @73A
Net Weight (machine only)	17.5kg

4. Health and Safety Information

4.1 General Health and Safety Precautions

WARNING! Read all safety warnings and all instructions. When using electric tools basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury including the following:

Read all these instructions before attempting to operate this product and retain for future use.

Electric shock can kill:

- Unplug from the socket before carrying out adjustment, servicing, or maintenance.
- Allow 5 minutes waiting time for the capacitors to discharge before removing the panels for any maintenance operations.
- **DO NOT** touch live electrical parts.
- **NEVER** use electrode holders or cables with damaged or deteriorated insulation.
- Keep the working environment, equipment, cables, and clothing free from grease, oil, moisture, and dirt.
- Ensure the welding machine has been correctly earthed and all panels are fitted securely.
- The operator must be insulated from the floor and workbench using a dry insulation mat.
- Wear isolating footwear and gloves that are in good condition, i.e. without holes.
- In hazardous conditions of increased electric shock always ensure a second person is present in case of an accident.
- **NEVER** change electrodes with bare hands or damp gloves (for ARC/MMA welders).
- Keep welding cables away from power cables.
- Regularly inspect the condition of the welding, earth, and power cables for signs of damage.
- **DO NOT** leave the machine unattended and unplug from the socket when not in use.
- **DO NOT** use welding cables unsuitable for the amperage.
- Ensure the earth clamp is adjacent to the weld seam, secured to bare metal and when not in use is insulated for safety.
- Keep all equipment well maintained.
- The operator shall prevent gas cylinders in the vicinity of the workpiece from becoming part of the welding circuit.

Fumes & Gases can be harmful:

- The welding process generates hazardous fumes as a by-product. Inhalation of these fumes is hazardous to health.
- Keep your head away from the weld to avoid breathing the fumes.
- If welding in confined spaces ensure adequate ventilation and use a fume extractor.
- Welding fumes displace oxygen. There is a danger of suffocation.
- By-products of welding can react with other chemical vapours to produce a toxic/explosive environment.

Welding can cause fire or explosion:

- Arc welding and allied processes can cause fire and explosions and precautions shall be taken to prevent these hazards.
- Before starting a weld ensure the area is clear of flammable materials.
- Remove any inflammables to a safe distance, especially substances likely to generate a dangerous vapour.
- The welding arc can cause serious burns. Avoid contact with skin.
- Sparks and molten metal are cast out during welding. Take precautions to prevent fire igniting and wear protective clothing.
- Sparks and molten metal can pass through gaps. Be aware that fire can start out of sight. Flammables in a locked cabinet may not be safe.
- **DO NOT** weld pressurised containers.
- **DO NOT** weld tanks, drums, or other vessels until they have been correctly cleaned/prepared for welding.
- **ALWAYS** have appropriate and fully maintained fire-fighting equipment suitable for the materials used and for use in electrical environments available in close proximity at all times.
- Keep clothing free from oil and grease.
- Wear a hat, flame-proof apron, woollen clothing, gloves, long sleeve tops with closed neck, trousers (without turn-ups) to cover non-slip boots.
- Protective head and shoulder coverings should be worn when overhead welding.
- Avoid taking any fuels with you e.g. cigarette lighters or matches.

- Hot spots and their immediate surroundings should be observed until their temperature has dropped to normal.

Personal Protection

- The body should be protected by suitable clothing.
- The use of neck protection may be necessary against reflected radiation.
- Wear safety glasses when chipping, wire brushing, grinding, or when near cooling welds as metal filings or slag can be thrown up. Fully enclosed goggles are advisable.
- **Arc machines generate a magnetic field which is detrimental to pacemaker recipients. Consult your doctor before going near welding equipment/ operations.**
- The UV and IR radiation generated by welding is highly damaging to the eye, causing burns. This can also affect the skin. Protect the eyes and face.
- The face and eyes shall be protected by suitable welding shields equipped with appropriate ocular protection filters.
- Where environments are subject to pedestrians and traffic ensure a protective screen is used to avoid accidental arc glare.
- **DO NOT** weld in the vicinity of children or animals and ensure no one is looking before striking up.
- In the welding environment, damaging levels of noise can exist. Wear hearing protection if the process dictates.
- **DO NOT** touch hot equipment or metal. Allow the weld time to cool, use the correct tool and wear protective welding gauntlets.
- Wear flame retardant clothing (leather, wool, etc.).
- Take care when adjusting or maintaining the torch that it has had time to cool sufficiently and is disconnected.
- The arc generates:
  - ultra-violet radiation (can damage skin and eyes).
  - visible light (can dazzle eyes and impair vision).
  - infra-red (heat) radiation (can damage skin and eyes).
- Such radiation can be direct or reflected from surfaces such as bright metals and light coloured objects.

Gas cylinders:

- Gas cylinders should be located or secured so that they cannot be knocked over.
- Shield gas containers can explode if damaged. Take care when handling.
- Ensure gas cylinders are shut-off when not in use and between operations.
- Take care that no build-up of gas is permitted to form in confined areas.
- Cylinders must be in an upright position at all times during use and storage.
- The gas cylinder must never come in contact with the electrode.
- Follow the manufacturer's instructions for handling, storing, and using the gas bottle correctly and safely.
- Use the correct equipment to connect the gas bottle to the welding torch.

Limitations:

- **DO NOT** use for:
  - operations in severe conditions (e.g. extreme climates, freezer applications, strong magnetic fields, etc).
  - operations subject to special rules (e.g. potentially explosive atmospheres, mines, etc).
  - operations that require ingress protection greater than IPX0, e.g. in rain or snow, etc.

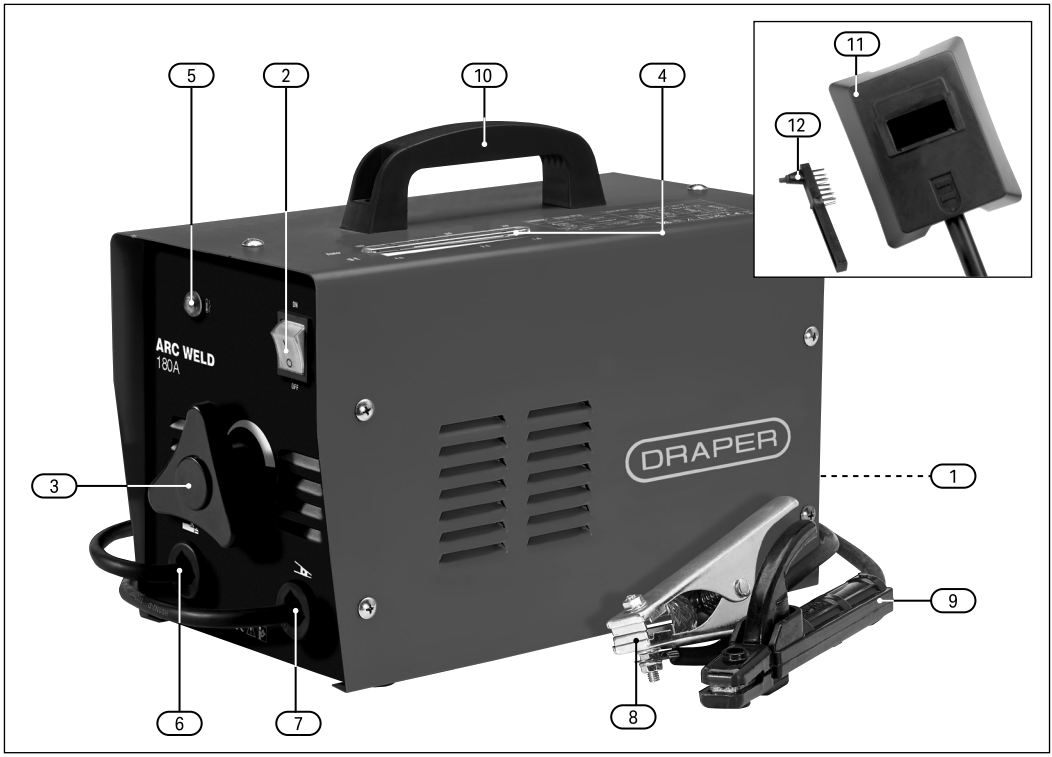
General:

- Training should be sought out in:
  - the safe use of this equipment;
  - the processes;
  - the emergency procedures.
- Welding power sources are not to be used for pipe thawing.
- Take precautions against toppling over, if the power source shall be placed on a tilted plane.
- All equipment should be kept in good working condition, inspected and, when defective, promptly repaired or withdrawn from service.
- All equipment should be placed so that it does not present a hazard in passageways, on ladders, or stairways, and should be operated in accordance with the manufacturer's instructions.
- In the vicinity of an arc, non-reflective curtains or screens shall be used to isolate persons from the arc radiation. A warning, e.g. a symbol for eye protection, should refer to the hazard of arc radiation.

5. Identification and Unpacking

5.1 Product Overview

Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment. If any part is damaged or missing, **DO NOT** attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.



1. Power cord
2. ON/OFF switch
3. Welding current adjustment
4. Current adjustment indicator
5. Thermal cut-out light
6. Electrode holder connection (directly wired)
7. Earth clamp connection (directly wired)
8. Earth clamp
9. Electrode holder
10. Carry handle
11. Face mask
12. Brush/hammer

5.2 Packaging

Keep the product packaging for the duration of the warranty period for reference should the product need to be returned for repair.

WARNING! Keep packaging materials out of reach of children. Dispose of packaging correctly and responsibly and in accordance with local regulations.

Please visit **drapertools.com** for our full range of accessories and consumables.

6.1 Connection to the Power Supply

- Ensure the power supply information on the product's rating plate is compatible with the power supply you intend to connect it to.
- **A suitable plug must be fitted by a qualified electrician.**
- This product's wiring has insulation stripped in preparation for wiring a 16A plug (not supplied).
- It is designed for connection to a 16 amp power supply rated at 230V AC.
- Because it is constructed mostly of metal parts, it is a Class 1 machine; meaning, it must have an earth connection in the power supply. This is to prevent electrocution in the event of a failure.
- Unplug from the socket before carrying out adjustment, servicing or maintenance.
- Check that the electrical supply delivers the voltage and frequency corresponding to the product and that it is fitted with a delayed fuse suited to the maximum delivered rated current.
- This product has been set to the highest voltage at the factory.

7. Setting the Arc Welder

7.1 Rating plate

DRAPER Stock No.69939		Serial No.:		
1~ 1~		EN 60974-1:2012		
	~50Hz	70A/20.8V~180A/25.2V		
S	U_0=46V	X (%)	10	60
		I_2 (A)	180	73
		U_2 (V)	25.2	20.9
1~50Hz	U_1=230V	I_{1MAX}=40A		I_{1eff}=16.4A
IP21S	Class H		Made in China	

IP21S — Unit's protection class rating.

ARC welder.

Read relevant safety manual.

Do not dispose of WEEE* as unsorted municipal waste.

UK CA — UK Conformity Assessed.

1~50/60Hz — Power supply identifier, e.g. socket with 3 poles.

S — Denotes that the unit has the potential to be used safely in environments subject to electrical discharges.

Warning!

Transformer.†

Fan cooled.

Indoor use only. **DO NOT** expose to rain.

Class F — Insulation rating.

†Symbols can be combined, for example: 1~ 1~

Denotes that this welder produces an A.C welding current.

* Waste Electrical & Electronic Equipment

CE — European conformity.

U_0=46V — Secondary no-load voltage.

U_1=230V — Rated supply voltage.

X(%): — Rated duty cycle.

I_2(A): — Welding current (AMPS)

U_2(V): — Welding voltage

I_{1max} = 36A — Unit's maximum absorbed current (AMPS).

I_{1eff} = 15.3A — Unit's effective absorbed current (AMPS).

EN 60974-1 — European reference safety standard.

7.2 MMA/ARC Welding Filler Rod (Electrode) Selection

The correct selection of electrode size and type will vary for each application dependent upon material thickness, material type, amperage and equipment, however the figures in the table below provide an indication.

MMA Electrode Ø	Material Thickness	Amp Range
1.6mm	1.0mm	30-50
2.0mm	2.0-2.5mm	50-75
2.5mm	2.5 - 3.0mm	75-105
3.2mm	3.0 - 4.0mm	105 - 140

8.1 Basic MMA//ARC Welding Process Overview

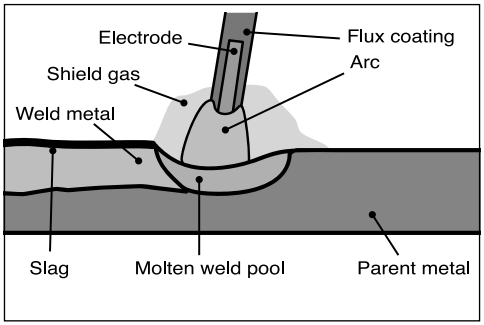


Fig. 1

- During the MMA/ARC welding process, the arc created between the workpiece and the consumable electrode rod melts the parent metal and the filler metal in a weld pool.
- The electrode's flux coating reacts during this process and develops into a shield gas protecting the weld bead. Part of this reaction leaves a trail of slag which solidifies behind the weld pool protecting the weld as it cools.
- The most common varieties of electrodes are cellulosic, rutile and basic, the latter two being the most general purpose.
- Selection of the appropriate specification electrode is important to achieve a good quality weld. Seek guidance if unsure of selection.

8.2 MMA/ARC Machine Operation

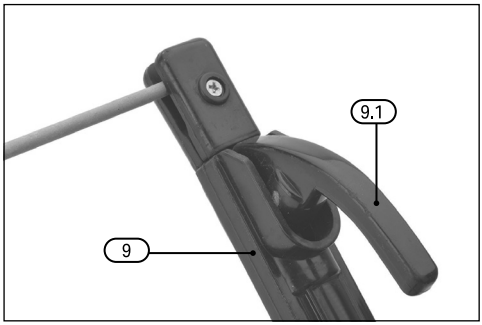


Fig. 2

- Prepare the joint(s) to be welded.
- Insert the electrode suitable for the application into the electrode holder (9) while pressing lever (9.1).
- With the earth clamp and electrode holder connected, connect the machine to the power supply.
- The power display will illuminate as confirmation. Set the amperage appropriate to the selected electrode size.
- Secure the earth clamp to a clean sound section of the parent metal in the vicinity to the intended weld.
- With all safety equipment in place and personal protective clothing on begin welding.
- Lower the electrode down toward the parent metal and strike the arc.
- The position of the electrode is critical to the arc and the end result.
- Achieving a good weld will take practice. For more detailed information refer to an industry standard welding publication and/or seek training on the subject.
- Use of an anti-spatter spray will help to achieve a cleaner finished weld.

8.3 Direction of Weld

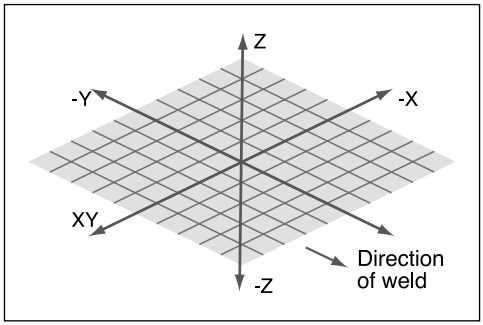


Fig. 3

- Strike the initial arc perpendicular to the parent metal before moving the electrode holder in the direction of travel 20-30° (Z,Y axis) and tilt it 20-30° (Z,X axis).
- Maintain a constant gap between the electrode tip and the weld pool of approximately 1 – 1.5 × the diameter of the electrode for a stable arc.

8.4 Duty Cycle

Duty Cycle is a percentage of 10 mins, in which a machine can operate at a rated load without overheating and interruption from the thermal cut-out device.

Example: **150A @ 30% Duty factor**:		
		150amp welding for 3 minutes
		7 minutes down time

Example: **95A @ 100% Duty factor**:		
		95A continuous welding to increase the operation time, reduce the amperage.

Note: The heating tests have been carried out at ambient temperature and the duty cycle (duty factor) at 20°C has been determined by simulation.

8.5 Thermal Cut Out

- If welding for extended periods, the thermal cut-out will activate and the indicator light (5) will illuminate, prohibiting use of the machine until sufficiently cool.

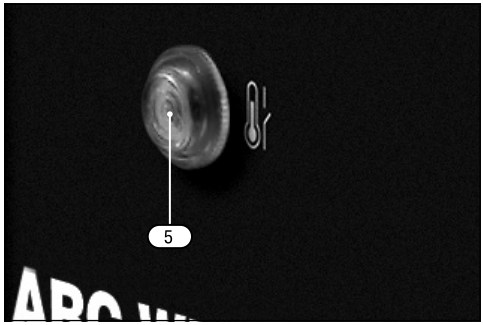


Fig. 4

CAUTION! After completion of any welding task, leave the unit connected to the power supply for a sufficient period to allow the cooling fan to continue working.

9. Maintenance and Troubleshooting

Important: **ALWAYS** unplug the welder from the power supply before carrying out any adjustments or maintenance.

If the power supply cord is damaged, it must be replaced by Draper Tools, an authorised service agent or similarly qualified personnel in order to avoid a hazard.

9.1 General Maintenance

- Regular inspection and cleaning will reduce the necessity for maintenance operations and will keep your tool in good working condition.
- Periodically the welder must be checked as detailed below.
  - Check the electrode and earth cable connections.
  - Occasionally test to ensure the thermal cut-out device is operating correctly, i.e. weld for an extended period or on a maximum duty cycle.
  - Clean the outside of the welder with a damp cloth. **DO NOT** use solvents or fuels to clean the product.
- Check the condition of the warning labels.
- Replace any worn parts.
- Clean the outside of the welder with a damp cloth.
- The welder must be correctly ventilated during tool operation. Avoid blocking the air inlets and vacuum the ventilation slots regularly.
- When not in use, store the product in a safe, dry place.

9.2 Troubleshooting

Problem	Possible Cause	Remedy
No spark.	Poor clamp connection.	Check clamp connection.
	PCB on the inverter defective or damaged.	Contact Draper Tools for advice.
No output voltage.	Welder overheated – thermal cut out light activated.	Allow unit to cool, then reset thermal cut out.
	Internal relay failure.	Contact Draper Tools for advice.
	PCB on the inverter defective or damaged.	Contact Draper Tools for advice.
Incorrect current output.	Current control is defective.	Contact Draper Tools for advice.
	Supply power is low voltage.	Check the power supply.
Porous welded joint.	Acid electrode on steel with high sulphur content.	Use a basic electrode.
	Workpieces are too far apart.	Move welded edges closer together.
	Workpiece is too cold.	Move slowly at beginning of weld.
Cracks in weld.	Material contaminated with dirt, oil or rust.	Clean workpiece before welding.
	Insufficient current.	Enable sufficient current.
Limited penetration.	Low current.	Make the appropriate correction.
	Reverse polarity.	
	Electrode non-aligned to position of movement.	
	High welding rate.	
High spray.	Electrode too inclined.	Correct incline.

Problem	Possible Cause	Remedy
Welding profile defects.	Welding parameters incorrect.	Follow the correct welding processes and procedures.
	Pass rate does not relate to operating parameters required.	
	Electrode not inclined during operation.	
Unstable arc.	Insufficient current.	Check condition of earth connection and electrode.

10. Disposal

At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

DO NOT dispose of this product with domestic waste; most local authorities provide appropriate recycling facilities.

11. Warranty

12 months from date of purchase - visit **drapertools.com/warranty** for more information.

However, if the tools are hired out, the warranty period is 90 days from the date of purchase.

12. Explanation of Symbols


Read the instruction manual


Warning! Wear suitable welding eye/face protection.


Wear ear defenders


Wear protective gloves


Keep out of the reach of children


Warning!


Danger of electric shock


Danger of fire


Danger of explosion


Danger of fumes


Danger of ultraviolet radiation


Danger of burning splashes


DO NOT expose to rain


Fan cooled

Power supply plug

Input voltage

Protection rating


Thermal overload

Electrode size 1.6 - 4mm

MMA welding range 70 - 180A

Machine weight


WEEE – Waste Electrical & Electronic Equipment
Do not dispose of Waste Electrical & Electronic Equipment in with domestic rubbish


Class 1 appliance (Must be earthed)


European conformity

UK Conformity Assessed

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Please contact the Draper Tools Product Helpline for repair and servicing enquiries.