ADVANCEMIG400C
MIG/ARC/Lift TIG

OPERATING INSTRUCTIONS

48 MONTH WARRANTY

☞IMPORTANT!

Read these Operating Instructions Completely before attempting to use this machine. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. Contact your distributor if you do not fully understand anything in this manual.

www.strata.co.nz

CONTENTS

400A
Max Ouput (MIG)

4.0mm
Max Electrode Size

32A 400V
THREE-PHASE

48 MONTH WARRANTY

*Available in package versions.

400A Three-Phase Compact Synergic MIG/ARC/Lift TIG Inverter Welder

- **Powerful 400A high duty cycle output in a compact size** - Ideal for heavy duty site work
- **Can be used as compact unit, or with separate wirefeeder** - Ultimate flexibility for every job
- **Intelligent synergic system** - Easily set parameters by material type, wire size and work thickness
- **Arc air gouging capability**
- **IGBT Module Inverter Technology** - Smooth & stable output, increased reliability, high duty cycle
- **4 Roll Geared Industrial Wire Feed Unit** - Powerful and smooth wirefeeding
- **MIG Waveform (Inductance) Control** - Greater control of the arc for smoother welding results
- **Adjustable secondary settings such as pre flow, post flow, burn back and soft start** - Greater control for MIG welding operation
- **2T/4T/ Bi - Level, Spot Weld Trigger Modes**
- **Lift TIG operation with down slope and remote current control ability**
- **Spool Gun Ready**
- **Production tested with 550V** - Extreme stress testing in production for rugged reliability.
- **Intelligent Protection System** - Temperature, voltage and current sensors for increased reliability & safety
- **Generator Friendly** - Designed to work with generator power supply and protect from power surges.
- **Phase Loss Protection** - Machine automatically shuts down if power supply phase loss occurs, to prevent damage.
- **Power Source Wind Tunnel Cooling Construction** - Protection against environmental contamination
- **Quick connect inlet gas fitting** - Tool-less easy connection of gas supply to machine

Description	Details
POWER SOURCE DIMENSIONS (LxWxH)	670 x 250 x 445mm
WEIGHT	23kg
INPUT POWER SUPPLY	400V AC 3 Phase 32A 50/60Hz
INPUT POWER SUPPLY TOLERANCE	+/- 20%
MAXIMUM INPUT CURRENT	30A
GENERATOR CAPACITY	20kVA
MIG CURRENT OUTPUT	40-400A
MIG OUTPUT VOLTAGE	16V-34V
MMA O/C VOLTAGE	67V
MIG DUTY CYCLE	400A@60% 310A@100%
WIRE FEEDING SPEED	2.4-18m/min
MMA CURRENT OUTPUT	10-400A
MMA DUTY CYCLE	400A@60% 310A@100%
TIG CURRENT OUTPUT	10-400A
TIG DUTY CYCLE	400A@60% 310A@100%

Description	Details
TIG SYSTEM	Internal Solenoid Gas Control, Lift Ignition
MIG DRIVE ROLLERS	0.6/0.8/0.9/1.0/1.2mm V Groove 0.8/0.9/1.0/1.2mm Knurled 0.8/1.0/1.2mm U Grooved
INSULATION CLASS	IP23
MIG WIRE SPOOL SIZE	D200/D300, 5KG/15KG
POWER EFFICIENCY	80%
POWER FACTOR	0.7
STANDARDS	AS/ IEC60974-1:2012
WARRANTY	48 Months

Includes:


5m Arc Lead


5m Earth Lead


Strata professional MT360 4m MIG Torch


2-Stage Flowmeter Argon Gas Regulator & Adapter


2m QC Gas Hose Kit


Wire Drive Rollers
2x 0.8/0.9mm V Groover
2x 1.0/1.2mm V Groove
2x 1.2/1.6mm Flux Cored


32A 400V 3 Phase Supply Plug

ADVANCEMIG400C
User guide, specs, videos
LEARN MORE

MIG Inverter Welder Accessories & consumables

○ Standard ● Optional ☆ Common Consumables

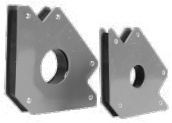
ACCESSORY:	ADVANCEMIG400C
Arc Leads	○ 17479
Earth Leads	○ 17478
MIG Torch	○ MT360-4E ● XP400A-40E/MT360-3E + MTL2432T
Argon Regulator	○ GR102ARFL ● GR105CO2
Gas Hose	○ 17844 + 31104
MIG Starter Kit	● MB36KIT
Push-Pull Gun	● 37692
TIG Torch	● 17374
Gouging Torch	● GTK4000
Spool Gun	● 34302
Drive Roller 'V' Groove 0.6 - 0.8mm	○ 17835 (x2)
Drive Roller 'V' Groove 0.9 - 1.0mm	-
Drive Roller 'V' Groove 1.0 - 1.2mm	-
Drive Roller Knurled 0.8 - 0.9mm	● 17838 (x2)
Drive Roller Knurled 1.0 - 1.2mm	● 17839 (x2)
Drive Roller Knurled 1.2 - 1.6mm	-
Drive Roller U Groove 0.8 - 1.0mm	● 17841 (x2)
Drive Roller U Groover 1.2 - 1.6mm	● 17842 (x2)

Automatic Welding Helmets

- ✓ Variable Shade
- ✓ Complete with batteries ready to go
- ✓ Suitable for automotive DIY and industrial use.

WT180	Variable Shade 9-13
WT350	True Colour, 4 Sensor with grind function
SV3000	True Colour, Shade 5 - 13 + Grind Function (MIG/TIG/MMA/Plasma)
SV4000	Panoramic view with auto darkening side panels. Shade 4 - 13 + Grind Function (MIG/TIG/MMA/Plasma)
DW7000XL	True Colour, with grinding visor. Shade 5 - 13 + PRSL Filtration System (MIG/TIG/MMA/Plasma)

Welding Magnets



WT-WMG03	3" Welding Magnet
WT-WMG05	5" Welding Magnet

Chipping Hammer

✓ Heavy duty chipping hammer for the trade

WT-SPCH	Spring Handle Chipping Hammer

Mild Steel MIG Wire - ER70S-6

✓ Copper coated MIG wire for general purpose welding of mild steel using CO^2 or argon based shielding gases.

MW5KG06	5kg Spool - 0.6mm MIG wire (D200)
MW5KG08	5kg Spool - 0.8mm MIG wire (D200)
MW5KG09	5kg Spool - 0.9mm MIG wire (D200)
D300 MW15KG08S	15kg Spool - 0.8mm MIG wire (D300)
D300 MW15KG09S	15kg Spool - 0.9mm MIG wire (D300)
D300 MW15KG10	15kg Spool - 1.0mm MIG wire (D300)
D300 MW15KG12	15kg Spool - 1.2mm MIG wire (D300)

Wire Feeder

39557	Separate Wire Feeder
39558	10M Machine SWF Interconnect Lead

Water Coolers

- ✓ Suitable for AdvanceMIG machines with a water cooled torch set up (not incl.)
- ✓ Induction motor with safety pressure switch.

22109	Industrial Integrated Water Cooler 400V w/ Connection Cable

Industrial Storage Trolley

22115	Industrial Storage Unit V2
22108	Integrated Industrial Trolley

WT180

WT350

SV3000

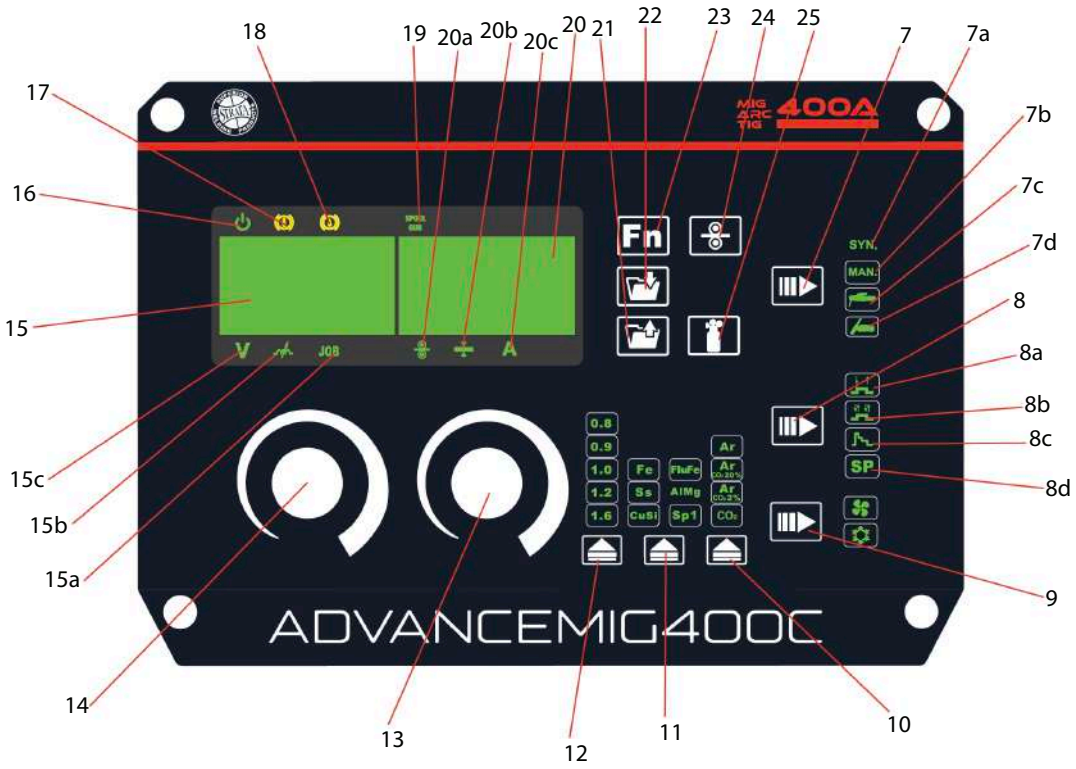
SV4000

DW7000XL comes with battery powered air respirator.

Know your Machine

1. Remote control 9 pin connection socket
2. MIG Torch Power Connection Lead
3. TIG Torch Gas Connector
4. Negative (-) welding power output connection socket
5. Positive (+) welding power output connection socket
6. MIG Torch Euro Connection Socket

ADVANCEMIG400C



7. Welding Mode Control Selector Button
   - a. MIG Synergic Mode*
   - b. MIG Manual Mode*
   - c. MMA/ Arc Air Gouging Mode
   - d. TIG Mode
8. Trigger Mode Selector Button
   - 8a 2T Trigger Mode*
   - 8b 4T Trigger Mode*
   - 8C 4T Multi Level Trigger Mode*
   - 8d Spot Welding Mode*
9. Air/ Water Torch Cooling Mode – Feature not activated by default
10. Synergic Mode – Shielding Gas Selection
    - Ar= 100% Argon
    - AR CO2 20%= Argon/ 20% CO2 Mixed Gas
    - AR CO2 2% = Argon/ 2% CO2 Mixed Gas
    - CO2 = 100% CO2
11. Welding Material Synergic Selection
    - Fe= Mild Steel -Solid Wire
    - FluFe = Mild Steel- Flux Cored Wire
    - Ss = Stainless Steel
    - Al-Mg= Aluminium 5xxx Grade
    - CuSi = Silicon Bronze
    - Sp1 = Additional special synergic program
12. Welding Wire Diameter Synergic Selection 0.8mm, 0.9mm, 1.0mm, 1.2mm, 1.6mm
13. RH Control Knob – Turn to adjust, depress to change to next parameter. Controls parameter displayed on the RH display (20)
14. LH Control Knob – Turn to adjust, depress to change to next parameter. Controls parameter displayed on the RH display (15)
15. LH Multifunction Display – Displays setting value adjusted by the LH Control Knob
    - 15a Program/ job number setting*
    - 15b Inductance Adjustment*
    - 15c- Welding Voltage/ Synergic Arc Length Adjustment*
16. Mains power Indicator Light – Lights when mains power is connected and machine is switched on
17. Alarm/Over Temp Indicator Indicator*
18. Water cooling error indicator - Feature not activated by default
19. Spool gun mode indicator – Lights when spool gun mode activated
20. RH Multifunction Display – Displays setting value adjusted by the RH Control Knob
    - 20a Wire feeding speed in m/minute*
    - 20b Welding material thickness in mm *
    - 20c Welding current in amps*
21. Load program setting*
22. Save program setting *
23. Secondary functions control access button*
24. Wire inch button
25. Gas test button

* Denotes more detailed function control explanation below

Note- Not all settings may be available, dependent on the welding mode selected

In Depth Controls Explanation

7a - MIG Synergic function makes the setup of MIG welding more simple; the operator sets the welding parameters; welding material, welding wire size, gas type, material thickness and the machine automatically calculates the optimal voltage and wire speed required. When in synergic mode, the welding power can be adjusted by either wire feeding speed (20a), material thickness (20b), or welding current (20c). Adjusting one of these parameters will adjust the others together.
The intelligent synergic program will only allow a selection or range of parameters according to recommended best practise to obtain optimum welding results. If the parameter or output required is not available, this means the operator may need to change to a different wire size or other primary setup input required for the job.
Other variables such as welding joint type and air temperature may affect the optimal voltage and wire feed setting required, so the synergic program provides a voltage fine tuning function for the synergic program selected (15c). Once the voltage is adjusted in a synergic program, it will stay fixed at this variation as the material thickness/ wire speed/ current setting is changed. To reset the voltage for a synergic program back to factory default, change to another program and back again, or manually adjust the voltage +// back to 0.

7b - MIG Manual Mode - Voltage and wire feeding speed settings are controlled independently, like traditional non synergic mig welding machine controls.

8a. 2T Trigger mode - the trigger is pulled and held on to activate the welding cycle, when the trigger is released, the welding cycle finishes.

8b. 4T is known as 'latching' mode. The trigger is pulled once and released to activate the welding circuit, pulled and released again to stops the welding circuit. This function is useful to longer welds as the trigger is not required to be held on continuously, reducing operator fatigue.

8c 4T Multi Level Trigger Mode - Pull and hold the trigger to activate start current level set. Release trigger to activate main welding current. Pull and hold trigger again to activate finish current level set. Release trigger to finish welding and activate post gas.

8d Spot Welding Mode - Welding arc will start and stop automatically according to the spot time set.

15b - MIG Wave Control/ Inductance Setting - This setting changes the MIG waveform to simulate changing the inductance of the welding circuit. Inductance controls the rate of the current rise and fall as the welding wire contacts the workpiece (known as a short circuit). More inductance increases the short circuit time and decreases the short circuit frequency rate. This causes a wider and more penetrating arc, useful for thicker weld joints. Less inductance will create a narrow more focused arc. This effect can also be used to fine tune the arc to produce less splatter. Wire speed, wire size and type, shielding gas will all change the effect that the inductance setting has on the welding arc. Inductance change will have little effect on MIG spray transfer process (as opposed to short circuit process).

17 Alarm/Over Temp Indicator Lamp - Lights when over voltage, current or temperature is detected and protection is activated. When activated, welding output will be disabled until the overload condition has reduced sufficiently and indicator lamp goes out.
– Refer duty cycle rating. If this indicator light stays illuminated permanently, this may indicate internal machine damage, in which case please contact Strata customer service.

Duty Cycle Rating - Welding duty cycle is the percentage of actual welding time that can occur in a ten minute cycle. E.g. 20% at 160 amps - this means the welder can weld at 160 amps for 2 minutes and then the unit will need to be rested for 8 minutes. All duty c ycle ratings are based on an ambient air temperature f 40°C with 50% humidity, which is the international standard for such a rating. In an environment with temperatures exceeding 40°C, the duty cycle will be less than stated. In ambient temperature less than 40°C, duty cycle performance will be higher.

21,22,15a - Settings save/ recall function. This feature can be used to quickly save and easily recall settings for a specific job. To save a setting, press the save button (22), rotate RH control knob to the desired program spot (1-99 program setting spaces), press the save button (22) again to save the settings. To recall a setting, press the recall button(21), rotate the LH control knob to select the program number required, press the recall button again to load the program.

23 Secondary function control access - Accesses additional control features available in various welding modes, as listed below. The name of the function will be listed on the LH display screen (15), change the setting by turning the LH control knob (14). The value of the function will be displayed on the RH display (20), adjust the value of the setting using the RH control knob (13). Press the secondary function button again to return to the main welding control mode.

PrG - Pre-Gas Time (seconds) - Adjusts 'delay' time from when trigger is pulled and arc/wire-feed starts, to ensure effective gas coverage and prevent por osity at the start of the weld

PoG - Post-Gas Time (seconds) - Adjust time that gas continues to flow after welding stops, to ensure effective gas coverage and prevent porosity etc at the end of the weld. Also available in TIG mode.

SFt - Soft Start Adjustment - When a weld is started, the workpiece and the wire will be cold compared to welding temperature, and if full wire speed is applied immediately this can cause an uneven and poor start to the weld. To prevent this, Soft-Start gradually accelerates wire speed at the start of the weld. If you find the wire 'bumping' the workpiece before the arc is fully established, try increasing Soft-Start setting. Adjustable from 1-100%.

bUb - Burnback Adjustment - Burnback adjustment controls brief time that the wire feed will continue after the trigger is released and welding current stops. If wire feed and current stop at exactly the same time, the wire will still be hot and will 'burn back' and stick to the tip. If this is occurring, increase burnback. If the burnback is too high, this will leave excessive wire 'stick out' that will need to be corrected before starting the next weld. Adjustable from 0-1.0sec, in 0.01s increments.

SPo - Spool Gun (On/Off) - Turns spool gun setting on or off.

SCP -Start Current Percent - When using 4T Multi Level Mode (8c) this is the % of the main welding current for the starting current part of the trigger cycle.

ECP - End Current Percent - When using 4T Multi Level Mode (8c) this is the % of the main welding current used for the end current part of the trigger cycle.

dSL- Downslope - TIG mode only (7d) - When the trigger is released, the welding current will reduce gradually over the time selected down to 0. This allows the operator to complete the weld without leaving a 'crater' at the end of the weld pool.

HSt- Hot Start Adjustment - MMA Mode (7c) Only - Provides extra power when the weld is first started. This overcomes the problem of needing to set higher welding current than would otherwise be required due to the workpiece and welding rod being cooler for the start of the first weld, or using a rod type that is more difficult to start.

ACF- Arc Force Control - MMA Mode Only - A MMA welding power source is designed to produce constant output current (CC). This means with different types of electrode and arc length; the welding voltage varies to keep the current constant. This can cause instability in some welding conditions as MMA welding electrodes will have a minimum voltage they can operate with and still have a stable arc. Arc Force control boosts the welding power if its senses the welding voltage is getting too low. The higher the arc force adjustment, the higher the minimum voltage that the power source will allow. This effect will also cause the welding current to increase. 0 is Arc Force off, 10 is maximum Arc Force. This is practically useful for electrode types that have a higher operating voltage requirement or joint types that require a short arc length such as out of position welds.

Quick Start Guide

Welder Installation

Electrical Power Supply

The AdvanceMig400C is designed to operate on a 3 phase 32A 400V AC power supply Operating with a lower current rated supply circuit will reduce the rated maximum output and duty cycle performance.

If powering from a generator, refer to specification table at the start of this manual for required generator capacity.

Operating Environment

Adequate ventilation is required to provide proper cooling for the AdvanceMig400C. Ensure that the machine is placed on a stable level surface where clean cool air can easily flow through the unit. The AdvanceMig400C has electrical components and control circuit boards which may be damaged by excessive dust and contamination, so a clean operating environment is important for long term reliable operation.

Basic Operation

MIG Welding Operation

1.1 Open the machine wire feeder spool cover by lifting it upwards (there is a securing catch in the bottom of the cover). Unthread the wire spool retainer. Fit the wire spool to spool holder shaft, ensuring that the wire exits the spool towards the bottom the spool.

1.2 Set the spool brake tension by adjusting the spool tension adjustment screw before replacing the wire spool retainer. The spool brake tension should be set so that the spool can rotate freely, but does not continue to rotate once the wire feed stops. This may need to be adjusted as the wire is used up and the spool weight decreases.

Warning! Excessive spool brake tension will cause wire feeding issues and affect welding performance as well as cause premature failure/ wear of wire feed components.

1.3 Feed the wire from the spool through the wire drive inlet guide into the wire feeder.

1.4 Release the wire feed tension arms by pivoting the wire feed tension adjustment lever from the vertical to the horizontal position.

1.5 Check the wire drive roller) grooves match the selected MIG wire type and size. The drive roller will have two different sized grooves; the size of the groove in use is stamped on the side of the drive roller. For flux cored 'soft' wire, such as that used in gasless MIG welding, the drive roller groove has a serrated profile (known as knurled). For solid core 'hard' MIG wire, the drive roller groove used has a 'V' shaped profile. For Aluminium solid core 'soft' MIG wire, the drive roller required has a 'u' shaped groove. If necessary, remove and change the drive roller by unthreading the drive roller retainer.

Note to welding with Aluminium and other soft wires. MIG welding with aluminium provides a unique challenge, due to the low column strength of the wire. This causes the wire to deform more as it is pushed through the feed mechanism and the torch wire delivery liner, greatly increasing friction. Because good MIG welding results are dependent on a smooth wire feed, certain changes must be made to the wire feed system to minimise friction caused issues. For a standard 'push' fed torch, a length of no longer than 3m cable may be used, as well as the torch feed liner must be changed to a special Teflon/ PVC liner, rather than the conventional steel liner. Also the correct style drive roller must be used and specific Aluminium rated torch contact tip (or a standard tip in one size oversize, e.g. 0.8mm aluminium wire, use standard 1.0mm contact tip). For this reason, it is standard practice for operators to have an extra MIG torch specifically set up for aluminium use, if the machine is used for welding steel as well. With the heavy duty 4 roll geared wire feeder, the AdvanceMig400c will have a more steady and consistent wire feed when 'push' feeding soft wire, than other machines with standard 2 roll wire feed units. Another option to overcome aluminum wire feed issues is using an optional spool gun.

1.6 Once the correct drive rollers are selected and fitted, manually feed the wire through the wire drive inlet guide through the drive roller grooves and into the brass outlet wire guide tube. Ensuring that the wire is correctly seated in the drive roller grooves, replace the wire feed tension arms and lock them into place by rotating the wire feed tension adjustment lever back to the vertical position.

1.7 Adjusting wire feed tension: this is accomplished by turning the knob on the tension adjustment lever. Clockwise will increase tension, anti-clockwise will decrease drive tension. Ideal tension is as little as possible, while maintaining a consistent wire feed with no drive roller slippage. Check all other causes of excess wire feeding friction causing slippage first, such as; incorrect/ worn drive roller, worn/ damaged torch consumables, blocked/ damaged torch wire guide liner, before increasing wire feed tension. There is a number scale on the tension adjustment lever to indicate the adjustment position. The higher the number indicated, the higher the tension that is set.

1.8 Connect the MIG Torch Euro Connector to the MIG torch Euro connection socket (6) on the front of the wire machine. Secure by firmly hand tightening the threaded collar on the MIG Torch connector clockwise. Check that the correct size consumables are fitted to the mig torch to match the wire size.

1.9 Connect the machine to suitable mains power using the mains input power lead. Switch the power source mains power switch on the rear of the machine to 'on'.

1.10 Select mig synergic(7a) or manual (7b) mode using the mode selector button (7)

1.11 You are now ready to feed the wire through the torch. With the wire feeder cover open, pull the trigger of the MIG torch to check that the wire is feeding smoothly through the feeder and into the torch.

1.12 With the tip removed from the torch and the torch laid out as straight as possible, activate the torch trigger until the wire feeds out through the end of the MIG torch. Alternatively use the wire inching button on the control panel (24) to active the wire feeder without triggering the gas control and welding output. Replace the tip on the MIG torch and trim off any excess wire.

1.13 Connect the MIG power connection lead to the positive output socket (5). Without this step there will be no welding power connection to the torch!

1.14 Connect the earth cable quick connector to the negative welding power output socket (4) Connect the earth clamp to the work piece. Contact with the work piece must be firm contact with clean, bare metal, with no corrosion, paint or scale at the contact point
Note this polarity configuration is standard for gas shielded might welding applications. However, for gasless flux cored wire application, the polarity connection should be reversed, with the earth cable connected to the positive welding socket (4), and the torch power cable to the negative socket (5)

1.15 Connect the gas regulator to the gas cylinder and tighten firmly with a spanner. Connect the flexible gas line to the hose tail outlet on the regulator and secure using the hose clamp. Connect the female quick connector on the other end of the gas line to the male gas inlet quick connector on the rear of the machine. Ensure all connections are tight, then open gas cylinder valve. Adjust regulator flow setting to between 15-25l/min as required. Re-check regulator flow pressure using gas flow test button (25) prior to welding as static gas flow setting may drop once gas is flowing.

1.16 Set the welding control parameters as required using the control settings described earlier in this manual.

You are now ready to weld!

Optional External Separate Wire Feeder Operation

The AdvanceMig400C has an external separate wire feeder option. The controls and setup for the separate wire feeder are the same as for the standalone AdvanceMig400C Machine.

2. ARC/ MMA Welding Operation

2.1 Connect the earth cable quick connector to the power source negative welding power output socket (4) Connect the earth clamp to the work piece. Contact with the work piece must be firm contact with clean, bare metal, with no corrosion, paint or scale at the contact point.

2.2 Insert an electrode into the electrode holder and connect the electrode holder and work lead to the power source positive welding power output socket (5).
Note - This polarity connection configuration is valid for most GP (General Purpose) MMA electrodes. There are variances to this. If in doubt, check the electrode specifications or consult the electrode manufacturer.

4.3 Connect the machine to suitable mains power using the mains input power lead. Switch the mains power switch to 'on' to power up the machine.

4.4 Select MMA mode (7c) using the mode select button (7). Set the welding current and other MMA parameters according to the control settings described earlier in this manual.

You are now ready to weld!

3 TIG Operation

Note- TIG operation requires an optional TIG torch and argon gas supply.

3.1 Connect the earth cable quick connector to the power source positive welding power output socket (5). Connect the earth clamp to the work piece. Contact with the work piece must be firm contact with clean, bare metal, with no corrosion, paint or scale at the contact point.

3.2 Insert TIG torch power connection into the negative welding power output socket (4). Connect TIG torch remote plug to remote socket (1) and torch gas connection to the TIG gas outlet (3).

3.3 Connect the machine to suitable mains power using the mains input power lead. Switch the mains power switch to 'on' to power up the machine.

3.4 Select TIG mode (7d) using the mode select button (7). Set the welding current and other TIG parameters according to the control settings described earlier in this manual.

3.5 Connect the argon gas regulator to the argon gas cylinder and tighten firmly with a spanner. Connect the flexible gas line to the hose tail outlet on the regulator and secure using the hose clamp. Connect the female quick connector on the other end of the gas line to the male gas inlet quick connector on the rear of the machine. Ensure all connections are tight, then open gas cylinder valve. Adjust regulator flow setting to between 5-10l/min as required. Re-check regulator flow pressure using gas flow test function (25) prior to welding as static gas flow setting may drop once gas is flowing.

You are now ready to weld!

Note - The AdvanceMig400C has TIG remote current control function when fitted with a suitable torch with remote control potentiometer.

Please note, the AdvanceMig400C is a DC (Direct Current) output welder only, this means that it is unable to TIG weld reactive metals such as Aluminium alloys and Brass (which require AC output). DC TIG output is suitable for steel, stainless steel and copper. The AdvanceTig ACDC models in the Strata range are designed for TIG welding Aluminium and its alloys.

Care & Maintenance

Keep your Welding Machine in Top Condition

The ADVANCEMIG400C does not require any special maintenance, however the user should take care of the machine as follows:

- Regularly clean the ventilation slots.
- Keep the casing clean.
- Check all cables before use.
- Check electrode holders, work lead/clamps and welding torches before use.
- Replace worn electrode holders and earth clamps, which do not provide a good connection.
- Replace worn consumable parts in a timely manner.
- Use a soft cloth or brush to clean electrical components.
- Do not use liquid cleaning products, water or especially solvents.
- Do not use compressed air to clean electrical components as this can force dirt and dust further into components, causing electrical short circuits.
- Check for damaged parts. Do not use the welder with damaged parts.
- A damaged welder must be carefully checked by a qualified person to determine that it will operate properly. Check for breakage of parts, mountings and other conditions that may affect its operation. An authorised service centre should properly repair a damaged part. Have your welder repaired by an expert.

This appliance is manufactured in accordance with relevant safety standards. Only experts must carry out repairing of electrical appliances, otherwise considerable danger for the user may result. Use only genuine replacement parts. Do not use modified or non-genuine parts.

Storing the Welder

When not in use the welder should be stored in the dry and frost-free environment.

WARNING! Before performing cleaning/maintenance, replacing cables / connections, make sure the welding machine is switched off and disconnected from the power supply.

Safety

Store and Retain this Manual

Retain this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number into the NOTES section at the rear, and keep this manual and the receipt in a safe and dry place for future reference.

Important Safety Information

Failure to follow the warnings and instructions may result in electric shock, fire, serious injury and/or death. Save all warnings and instructions for future reference.

This is the safety alert symbol to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER! indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING! indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE, used to address practices not related to personal injury.

General Safety Warnings

1. Maintain labels and nameplates on the welder. These carry important information. If unreadableor missing, contact Euroquip for a replacement.

2. Avoid unintentional starting. Make sure the welder is setup correctly and you are prepared to begin work before turning on the welder.

3. Unplug before performing maintenance. Always unplug the welder from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

4. Never leave the welder unattended while energised. Turn power off before leaving the welder unattended.

5. Do not touch live electrical parts. Wear dry, insulating gloves. Do not touch the electrode or the conductor tong with bare hands. Do not wear wet or damaged gloves.

6. Protect yourself from electric shock. Do not use the welder outdoors. Insulate yourself from the work piece and the ground. Use non-flammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material large enough to cover the area of contact with the work or the ground.

7. Avoid inhaling dust. Some dust created by power sanding, sawing, grinding, drilling, cutting, welding and other construction activities, contain chemicals known to cause cancer, birth defects or other harm. Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilatedarea, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

8. People with pacemakers should consult their physician(s) before using this machine.

WARNING!
Electromagnetic fields in close proximity to a heart pacemaker could cause interference, or failure of the pacemaker. The use of a Welder is NOT RECOMMENDED for pacemaker wearers. Consult your doctor.

9. Ensure that the unit is placed on a stable location before use.

WARNING!
If this unit falls while pluggedin, severe injury, electric shock, or fire may result.

10. Transportation Methods Lift unit with the handles provided, or use a handcart or similar device of adequate capacity. If using a fork lift vehicle, secure the unit to a skid before transporting.

CAUTION!
Disconnect input power conductors from de-energized supply line before moving the welding power source.

11. Exercise good work practices. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be considered by the operator.

Welding Safety Instructions & Warnings

WARNING!
Protect yourself and others from possible serious injury or death. Keep children away. Read the operating/Instruction manual before installing, operating or servicing this equipment. Have all installation, operation, maintenance, and repair work performed by qualified people.

If an operator does not strictly observe all safety rules and take precautionary actions, welding products and welding processes can cause serious injury or death, or damage to other equipment or property. Safe practices have developed from past experience in the use of welding and cutting.

These practices must be learned through study and training before using this equipment. Some of these practices apply to equipment connected to power lines; other practices apply to engine driven equipment. Anyone not having extensive training in welding and cutting practices should not attempt to weld.

Safe practices are outlined in the European Standard EN60974-1 entitled: Safety in welding and allied processes.

WARNING!
Only use safety equipment that has been approved by an appropriate standards agency. Unapproved safety equipment may not provide adequate protection. Eye and breathing protection must be AS/NZS compliant for the specific hazards in the work area.

DANGER!
Always wear AS/NZS compliant safety glasses and full face shield fitted with appropriate filter shade number (Refer Filter Table on page 17.)

CAUTION!
Heavy-duty work gloves, non-skid safety shoes and hearing protection used for appropriate conditions will reduce personal injuries.

CAUTION!
Have the equipment serviced by a qualified repair person using identical replacement parts. This will ensure that the safety of the power tool is maintained.

Personal Safety

CAUTION!
Keep the work area well lit. Make sure there is adequate space surrounding the work area. Always keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use equipment in areas near flammable chemicals, dust, and vapours. Do not use this product in a damp or wet location.

1. Stay alert , watch what you are doing and use common sense when operating equipment. Do not use a tool while you are tired or under the influence of drugs, alcohol or medication. A moment of distraction when operating equipment
may result in serious personal injury.

2. Do not over-reach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.

Arc Rays can Burn Eyes and Skin

DANGER!
Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin.

1. **Use a Welding Helmet or Welding Face Shield fitting with a proper shade filter** (refer AS 60974-1, AS/NZS 1337.1 and AS/NZS 1338.1 Safety Standards) to protect your face and eyes when welding or watching. (See Filter Table on Page 20)

2. Wear approved safety glasses. Side shields are recommended.

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

4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot safety protection.

5. Never wear contact lenses while welding.

Noise Can Damage Hearing

CAUTION!
Noise from some processes can damage hearing. Use AS/NZS compliant ear plugs or ear muffs if the noise level is high.

Work Environment Safety

DANGER!
Remove any combustible material from the work area.

1. When possible, move the work to a location well away from combustible materials. If relocation is not possible, protect the combustibles with a cover made of fire resistant material.

2. Remove or make safe all combustible materials for a radius of 10 metres around the work area. Use a fire resistant material to cover or block all doorways, windows, cracks, and other openings.

3. Enclose the work area with portable fire resistant screens. Protect combustible walls, ceilings, floors, etc., from sparks and heat with fire resistant covers.

4. If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by moving the combustibles to a safe location. If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the welding process and well after the welding is completed.

5. Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.

6. After welding, make a thorough examination for evidence of fire. Be aware that visible smoke or flame may not be present for some time after the fire has started. Do not weld or cut in atmospheres containing dangerously reactive or flammable gases, vapours, liquids, and dust. Provide adequate ventilation in work areas to prevent accumulation of flammable gases, vapours, and dust.

7. Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapours. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.

Electricity Can Kill

DANGER!
Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on.

The input power circuit and machine internal circuits are also live when power is on. In semi-automatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

1. Do not touch live electrical parts.

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

3. Insulate yourself from the work and the ground using dry insulating mats or covers.

4. Disconnect input power before installing or servicing this equipment. Lock input power, disconnect switch open, or remove line fuses so power cannot be turned on accidentally.

5. Properly install and ground this equipment according to national, state, and local codes.

6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.

7. Use fully insulated electrode holders. Never dip the holder in water to cool it or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.

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

9. Do not wrap cables around your body.

10. Connect work piece to a good electrical ground.

11. Do not touch the electrode while in contact with the work (ground) circuit.

12. Use only well-maintained equipment. Repair or replace damaged parts as soon as practical.

13. In confined spaces or damp locations, do not use a welder with AC output unless equipped with a voltage reducer.

Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Use the following table to select the appropriate shade number for a Welding Helmet or Welding Face Shield.

Recommended Protective Filters for Electric Welding		
Description of Process	**Approximate Range of Welding Current in Amps**	**Minimum Shade Number of Filter(s)**
Manual Metal Arc Welding - Covered Electrodes (MMA)	Less than or equal to 100	8
	100 to 200	10
	200 to 300	11
	300 to 400	12
	Greater than 400	13
Gas Metal Arc Welding (GWAW) (MIG) other than Aluminium And Stainless Steel	Less than or equal to 150	10
	150 to 250	11
	250 to 300	12
	300 to 400	13
	Greater than 400	14
Gas Metal Arc Welding(GWAW) (MIG) Aluminium and Stainless Steel	Less than or equal to 250	12
	250 to 350	13
Gas Tungsten Arc Welding (GTAW) (TIG)	Less than or equal to 100	10
	100 to 200	11
	200 to 250	12
	250 to 350	13
	Greater than 350	14
Flux-Cored Arc Welding (FCAW) - with or without Shielding Gas	Less than or equal to 300	11
	300 to 400	12
	400 to 500	13
	Greater than 500	14
Air - Arc Gouging	Less than or equal to 400	12
Plasma - Arc Cutting	50 to 100	10
	100 to 400	12
	400 to 800	14
Plasma - Arc Spraying	—	15
Plasma - Arc Welding	Less than or equal to 20	8
	20 to 100	10
	100 to 400	12
	400 to 800	14
Submerged - Arc Welding	—	2 (5)
Resistance Welding	—	Safety Spectacles or Eye Shield

Refer to standard AS/NZS 1338.1 for comprehensive information regarding the above table.

Fumes And Gases

WARNING!
Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

1. Keep your head out of the fumes. Do not breathe the fumes.
2. If inside, ventilate the area and/or use an exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Safety Data Sheets (SDS) and the manufacturer's instruction for the metals, consumables, coatings, and cleaners.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

7. Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air- supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

Fire & Explosive Risks

WARNING!
Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, work piece, and hot equipment can cause fires and burns.

Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 10m of the welding site.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. Connect the work lead/clamp to the job as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use a welder to thaw frozen pipes.
10. Remove the stick electrode from the holder or cut off the welding wire at the contact tip when not in use.

Sparks & Hot Metal

WARNING!
Chipping and grinding causes flying metal, and as welds cool they can throw off slag.

1. Wear an AS/NZS approved face shield or safety goggles. Side shields are recommended.
2. Wear appropriate safety equipment to protect the skin and body.

Cylinders

WARNING!
Gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
2. Install and secure cylinders in an upright position by chaining them to a stationary support or equipment cylinder rack to prevent falling or tipping.
3. Keep cylinders away from any welding or other electrical circuits.
4. Never allow a welding electrode to touch any cylinder.
5. Use appropriate shielding gas, regulators, hoses, and fittings designed for the specific application; maintain them and their associated parts in good condition.
6. Turn your face away from the valve outlet when opening the cylinder valve.

Warranty

As part of an on-going commitment to excellence in product support, Euroquip offers a comprehensive product warranty program.

Registered warranty period for the AdvanceMig400C:

Commercial Use: 48 Months

Domestic Use: 48 Months

Warranty covers failure caused by manufacturing and material defects in the product, during the warranty period specified. The warranty period begins when the product is purchased by the end user. Warranty is not transferrable and is only claimable by the original purchaser.

Warranty does not cover parts that are subject to wear and tear from usage.

Warranty covers failure of a product caused by defective materials and/or manufacturing for the period given and the usage specified by Euroquip. The warranty period begins when the product is purchased by the end user. Warranty is not transferrable and is only claimable by the original purchaser.

Warranty also does not cover failure caused by the untimely replacement or service of the above wearing parts. Evidence must be provided that the product has been maintained and serviced suitably for a claim to be considered under warranty.

Failure caused by incorrect operation of the product, lack of proper care and maintenance of the product, external damage, external circumstances such as contaminated fuel or poor water supply, modifications to the product, attempted repair/ service by a party other than an Approved Service Agent, is not covered under warranty.

Warranty does not cover pre delivery service and adjustment, or failure that may occur as a result of lack of/ incorrect pre delivery service and adjustment.

Warranty does not cover any incidental, indirect or consequential loss, damage or expense that may result from any defect, failure or malfunction of a product.

Should any issue be found to be a combination of a warranty failure and a non-warranty issue, the repair cost component to rectify and repair the non-warranty failure is the customers' full responsibility.

The decision that an issue with a product qualifies as a warranty claim is made at the sole jurisdiction of Euroquip.

No costs incurred will be considered under warranty if repairs are carried out by a party other than a Euroquip Approved Service Agent, unless with prior consent in writing from Euroquip.

It is the responsibility of the purchaser to deliver a product under warranty to the nearest relevant service agent or product reseller. Warranty does not cover call outs, mileage and freight costs.

If a product is repaired under warranty, parts and labour required for the repair will be supplied at no charge. Warranty assessment and repair will be scheduled and executed according to the normal work flow at the service location and depending on the availability of suitable replacement parts.

This warranty policy is an additional benefit and does not affect the legal rights of any end user, reseller or service agent.

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