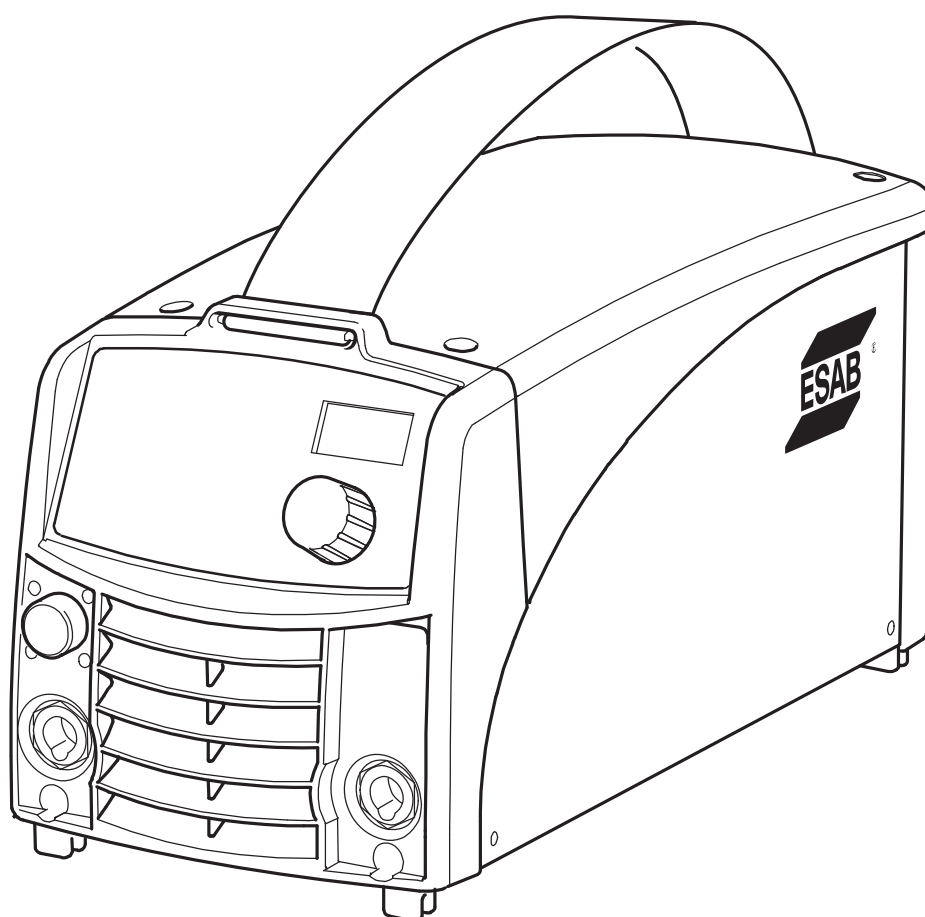


Caddy[®]

Arc 151i, Arc 201i



Instruction manual



DECLARATION OF CONFORMITY

According to

The Low Voltage Directive 2006/95/EC, entering into force 16 January 2007

The EMC Directive 2004/108/EC, entering into force 20 July 2007

Type of equipment

Arc 151i, Arc 201i

Type designation etc.

Arc 151i and Arc 201i, from serial number 803 xxx xxxx (2008 w.3)

Arc 151i and Arc 201i are members of the ESAB product family Caddy®

Brand name or trade mark

ESAB

Manufacturer or his authorised representative established within the EEA

Name, address, telephone No, telefax No:

ESAB AB, Welding Equipment

Esabvägen, SE-695 81 LAXÅ, Sweden

Phone: +46 584 81 000, Fax: +46 584 411 924

The following harmonised standard in force within the EEA has been used in the design:

EN 60974-1, Arc welding equipment – Part 1: Welding power sources

EN 60974-10, Arc welding equipment – Part 10: Electromagnetic compatibility (EMC) requirements

Additional information: Restrictive use, Class A equipment, intended for use in locations other than residential

By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.

Date
Laxå 2008-01-25

Signature

A handwritten signature in dark ink, appearing to read "Kent Eimbrodt", is written over a horizontal line.

Kent Eimbrodt
Clarification

Position
Global Director
Equipment and Automation

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1 SAFETY

Users of ESAB welding equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of welding equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the welding equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the welding equipment must be familiar with:
 - its operation
 - location of emergency stops
 - its function
 - relevant safety precautions
 - welding
2. The operator must ensure that:
 - no unauthorized person is stationed within the working area of the equipment when it is started up.
 - no-one is unprotected when the arc is struck
3. The workplace must:
 - be suitable for the purpose
 - be free from drafts
4. Personal safety equipment
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
 - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
5. General precautions
 - Make sure the return cable is connected securely.
 - Work on high voltage equipment may only be carried out by a qualified electrician.
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand.



CAUTION

This product is solely intended for arc welding.



WARNING

Do not use the power source for thawing frozen pipes.



WARNING



Arc welding and cutting can be injurious to yourself and others. Take precautions when welding and cutting. Ask for your employer's safety practices which should be based on manufacturers' hazard data.

ELECTRIC SHOCK - Can kill

- Install and earth the unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the workpiece.
- Ensure your working stance is safe.

FUMES AND GASES - Can be dangerous to health

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.

ARC RAYS - Can injure eyes and burn skin.

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

FIRE HAZARD

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.

NOISE - Excessive noise can damage hearing

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk.

MALFUNCTION - Call for expert assistance in the event of malfunction.

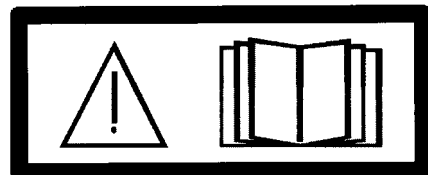
Read and understand the instruction manual before installing or operating.

PROTECT YOURSELF AND OTHERS!



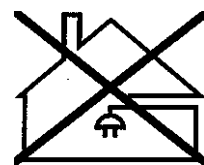
CAUTION

Read and understand the instruction manual before installing or operating.



CAUTION

Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility of class A equipment in those locations, due to conducted as well as radiated disturbances.



ESAB can provide you with all necessary welding protection and accessories.

2 INTRODUCTION

Arc 151i, Arc 201i is a welding current power source intended for use with coated electrodes (MMA welding) and TIG welding.

ESAB's accessories for the product can be found on page [19](#).

2.1 Equipment

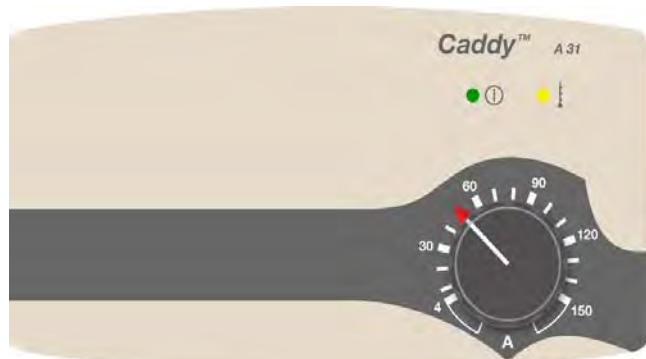
Arc 151i, Arc 201i is supplied with a 3 m welding cable, return cable, 3 m mains cable and an instruction manual for power source and control panel.

Instruction manuals in other languages can be downloaded from the website, www.esab.com.

2.2 Control panel

Control panel A31

- Knob for setting the current
- Mains voltage LED (green)
- Thermal overload trip indicator (yellow)



Control panel A33



Welding process parameters are controlled via the control panel.

NOTE! See the separate instruction manual for a detailed description of the control panel.

3 TECHNICAL DATA

	Arc 151i	Arc 201i
Mains voltage	230 V, 1 ~ 50/60 Hz	230 V, 1 ~ 50/60 Hz
Primary current		
I_{\max} TIG	13.8 A	24.1 A
I_{\max} MMA	21.3 A	24.9 A
Mains supply	Z_{\max} 0.35 ohm	Z_{\max} 0.30 ohm
No-load power	30 W	30 W
Voltage/current range, MMA		
A31	8 A /20 V - 150 A /26 V	-
A33	4 A /20 V - 150 A /26 V	4 A /20 V - 170 A /26.8 V
Voltage/current range TIG	3 - 150 A	3 - 220 A
Permissible load at MMA		
25% duty cycle	150 A / 26.0 V	170 A / 26.8 V
60% duty cycle	100 A / 24.0 V	130 A / 25.2 V
100% duty cycle	90 A / 23.6 V	110 A / 24.4 V
Permissible load at TIG		
20% duty cycle	-	220 A / 18.8 V
25% duty cycle	150 A / 16.0 V	-
60% duty cycle	120 A / 14.8 V	150 A / 16.0 V
100% duty cycle	110 A / 14.4 V	110 A / 14.4 V
Power factor at maximum current	0.99	0.99
Efficiency at maximum current	80%	81%
Open-circuit voltage		
A31 without VRD function ¹⁾	58 - 72 V	-
A33 VRD function deactivated ²⁾	55 - 60 V	55 - 60 V
VRD function activated ²⁾	< 35 V	< 35 V
Operating temperature	-10° C - +40° C	-10° C - +40° C
Transportation temperature	-20° C - +55° C	-20° C - +55° C
Constant A-weighted sound pressure	< 70 dB	< 70 dB
Dimensions, l x b x h	418 x 188 x 208 mm	418 x 188 x 208 mm
Weight		
with A31	7.9 kg	-
with A33	8.1 kg	8.3 kg
Enclosure class	IP 23	IP 23
Application class	S	S

1) Valid for power sources without VRD specification on the rating plate.

2) Valid for power sources with VRD specification on the rating plate. The VRD function is explained in the instruction manual for the control panel.

Mains supply, Z_{\max}

Maximum permissible line impedance of the network in accordance with IEC 61000-3-11.

Duty cycle

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld or cut at a certain load without overloading. The duty cycle is valid for 40° C.

Enclosure class

The IP code indicates the enclosure class, i. e. the degree of protection against penetration by solid objects or water. Equipment marked IP23 is designed for indoor and outdoor use.

Application class

The symbol **S** indicates that the power source is designed for use in areas with increased electrical hazard.

4 INSTALLATION

The installation must be executed by a professional.

Note

Mains supply requirements

High power equipment may, due to the primary current drawn from the mains supply, influence the power quality of the grid. Therefore connection restrictions or requirements regarding the maximum permissible mains impedance or the required minimum supply capacity at the interface point to the public grid may apply for some types of equipment (see technical data). In this case it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.

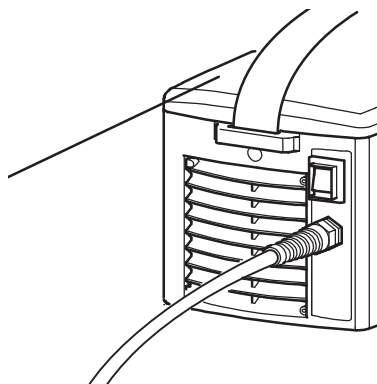
4.1 Location

Position the power source such that its cooling air inlets and outlets are not obstructed.

4.2 Mains power supply

Check that the welding power source is connected to the correct voltage and that the correct fuse size is used. A protective earth connection must be made in accordance with regulations

Location of rating plate



4.2.1 Recommended fuse sizes and minimum cable area

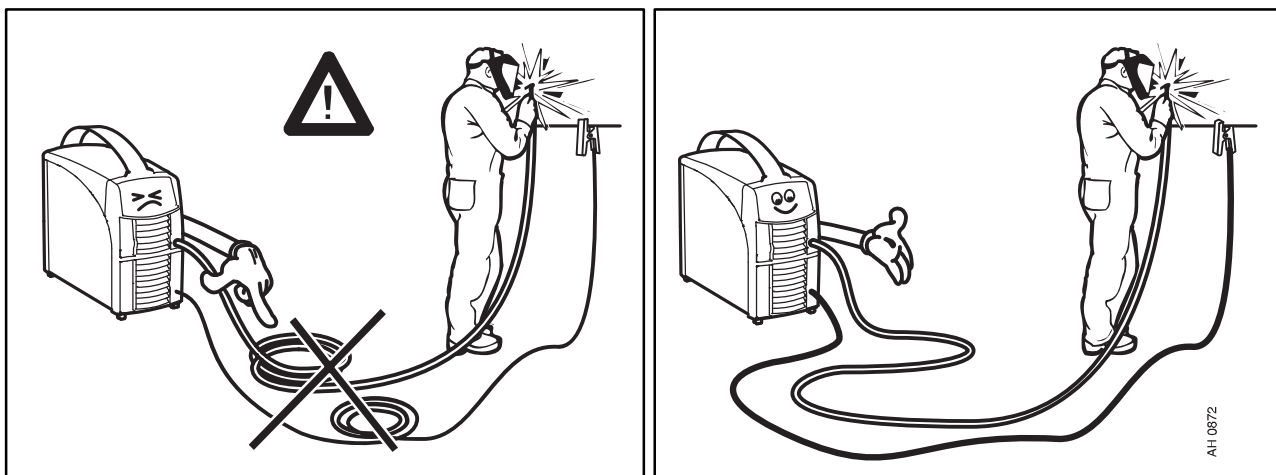
	Arc 151i	Arc 201i
Mains voltage	230 V ± 10 %, 1-phase	230 V ± 10 %, 1-phase
Mains frequency	50-60 Hz	50-60 Hz
Mains cable, area	3G2.5 mm ²	3G2.5 mm ²
Phase current I_{1eff}	11.5 A	13.4 A
Welding cable, area	16 mm ²	16 mm ²
Fuse		
anti-surge	16 A	16 A
type C MCB	13 A	16 A

NOTE!

The cable area and fuse rating above comply with Swedish regulations. Use the welding power source in accordance with the relevant national regulations.

5 OPERATION

General safety regulations for the handling of the equipment can be found on page 4. Read through before you start using the equipment!

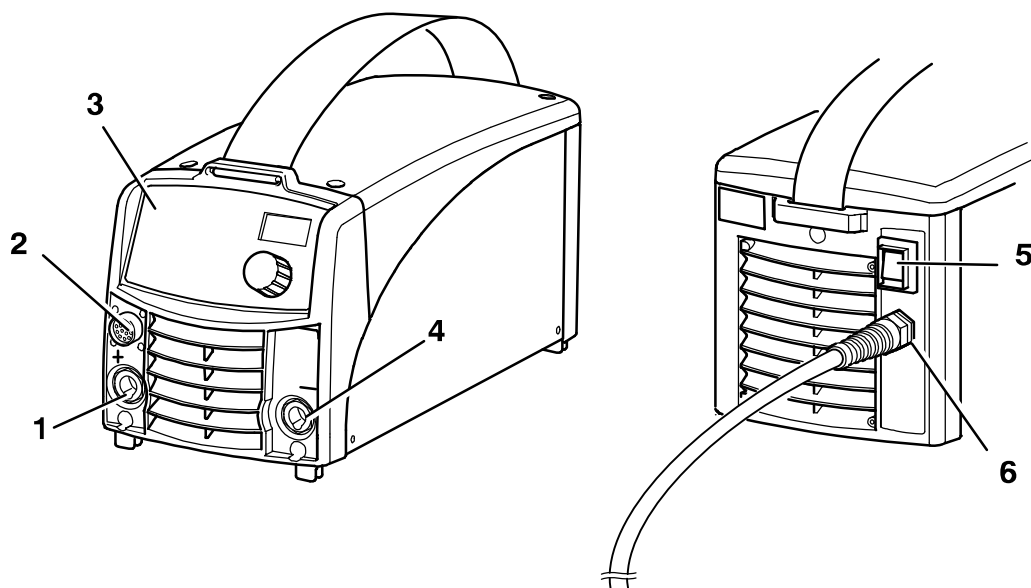


5.1 PFC - Power factor correction

The Caddy™ Arc 151i/201i are 230 V single-phase power sources equipped with a PFC circuit making it possible to use the full range of the machine on a 16 A fuse. The PFC also protects the machines against fluctuating mains voltage and makes it safer to use with a generator. Caddy™ Arc 151i/201i can operate with extra long mains cables, over 100 m, giving you a very larger working radius.

5.2 Connections and control devices

- | | | | |
|---|---|---|--|
| 1 | Connection (+)
MMA: for return cable or welding cable
TIG: for return cable | 4 | Connection (+)
MMA: for return cable or welding cable
TIG: for Tig torch I |
| 2 | Connection for remote control unit | 5 | Toggle switch for mains power supply 0 / 1 |
| 3 | Control panel, see under 2.2 | 6 | Mains cable |



5.3 Connection of welding and return cable

The power source has two outputs, a positive terminal (+) and a negative terminal (-), for connecting welding and return cables. The output to which the welding cable is connected depends on the type of electrode used. The connecting polarity is stated on the electrode packaging. Connect the welding cable to the terminal stated on the electrode packaging.

Connect the return cable to the other output on the power source. Secure the return cable's contact clamp to the work piece and ensure that there is good contact between the work piece and the output for the return cable on the power source.

5.4 Overheating protection

The welding power source has a thermal overload trip which operates if the temperature becomes too high, interrupting the welding current and lighting a yellow indicating lamp on the front of the power source. The thermal overload trip resets automatically when the temperature has fallen.

5.5 MMA welding

Arc 151i / 201i gives direct current, and you can weld most metals to alloy and non-alloy steel, stainless steel and cast iron.

Arc 151i / 201i allows you to weld most coated electrodes from Ø 1.6 to Ø 3.25.

MMA welding may also be referred to as welding with coated electrodes. Striking the arc melts the electrode, and its coating forms protective slag.

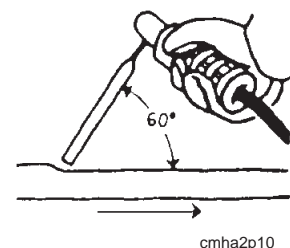
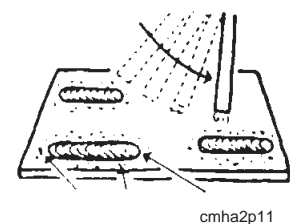
If, when striking the arc, the tip of the electrode is pressed against the metal, it immediately melts and sticks to the metal, rendering continued welding impossible. Therefore, the arc has to be struck in the same way that you would light a match.

Quickly strike the electrode against the metal, then raise it so as to give an appropriate arc length (approx. 2 mm). If the arc is too long, it will crackle and spit before finally going out completely.

If you are working on a welding bench, check before attempting to strike the arc that residual waste metal, pieces of electrode or other objects on the bench do not insulate the part to be welded.

Once the arc has been struck, move the electrode from left to right. The electrode must be at an angle of 60° to the metal in relation to the direction of welding.

When you want to weld wide beads, or when you want the weld to be so thick that you have to weld in a number of layers, however, you have to use lateral movements.



5.6 TIG welding

TIG welding melts the metal of the workpiece, using an arc struck from a tungsten electrode, which does not itself melt. The weld pool and the electrode are protected by shielding gas.

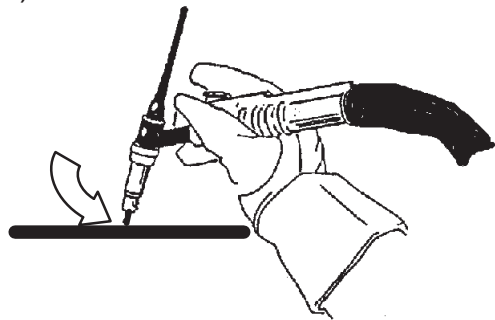
TIG welding is particularly useful where high quality is demanded and for welding thin plate. Arc 151i / 201i also has good characteristics for TIG welding.

In order to TIG weld Arc 151i / 201i must be equipped with:

- a TIG torch with gas valve
- a welding gas cylinder (a suitable welding gas)
- a welding gas regulator (suitable gas regulator)
- tungsten electrode
- suitable auxiliary material, if necessary.

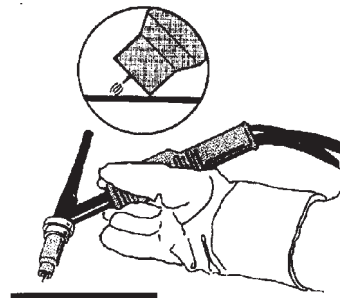
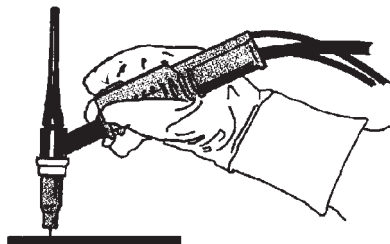
TIG scrape start (only A31)

To scrape start lightly scrape the tungsten electrode against the workpiece to create an arc.



"Live TIG-start" (only A33)

With "Live TIG start" the arc strikes when the tungsten electrode is brought into contact with the workpiece and then lifted away from it.



5.7 Remote control unit

The remote control unit is connected to the remote control socket on the power source.

6 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates to connect or carry out service, maintenance or repair work on welding equipment.



CAUTION

All guarantee undertakings from the supplier cease to apply if the customer himself attempts any work in the product during the guarantee period in order to rectify any faults.

6.1 Inspection and cleaning

Power source

Check regularly that the welding power source is not clogged with dirt.

How often and which cleaning methods apply depend on: the welding process, arc times, placement, and the surrounding environment. It is normally sufficient to blow down the power source with dry compressed air (reduced pressure) once a year.

Clogged or blocked air inlets and outlets otherwise result in overheating.

TIG torch

The TIG torch's wear parts should be cleaned and replaced at regular intervals in order to achieve trouble-free welding.

7 FAULT-TRACING

Try these recommended checks and inspections before sending for an authorized service technician.

Type of fault	Corrective action
No arc.	<ul style="list-style-type: none"> • Check that the mains power supply switch is turned on. • Check that the welding current supply and return cables are correctly connected. • Check that the correct current value is set. • Check to see whether the MCB has tripped.
The welding current is interrupted during welding.	<ul style="list-style-type: none"> • Check whether the thermal cut-outs have tripped (indicated by the orange lamp on the front panel). • Check the mains power supply fuses.
The thermal cut-out trips frequently.	<ul style="list-style-type: none"> • Check to see whether the dust filter is clogged. • Make sure that you are not exceeding the rated data for the power source (i.e. that the unit is not being overloaded).
Poor welding performance.	<ul style="list-style-type: none"> • Check that the welding current supply and return cables are correctly connected. • Check that the correct current value is set. • Check that the correct electrodes are being used. • Check the gas flow.

7.1 Fault codes

Arc 151i, 201i comes with built-in fault monitoring. If a fault occurs, a code is shown in the display. See instruction manual for the control panel.

8 ORDERING SPARE PARTS

Repair and electrical work should be performed by an authorized ESAB serviceman.
Use only ESAB original spare and wear parts.

Arc 151i, Arc 201i is designed and tested in accordance with the international and European standards EN 60974-1 and IEC 60974-10 . It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

9 DISMANTLING AND SCRAPPING

Welding equipment primarily consists of steel, plastic and non-ferrous metals, and must be handled according to local environmental regulations.
Coolant must also be handled according to local environmental regulations.



Dispose of electronic equipment at the recycling facility!

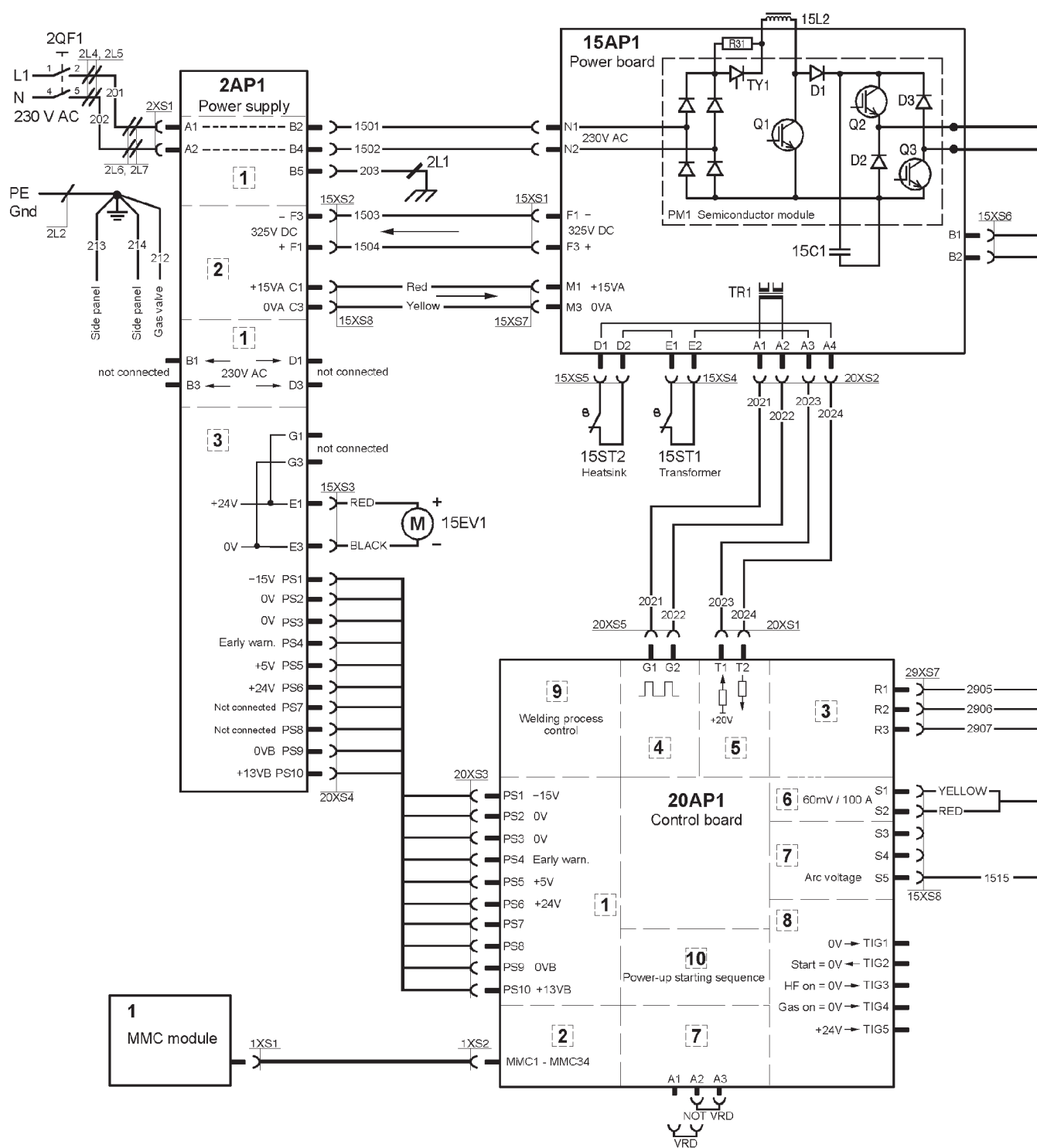
In observance of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

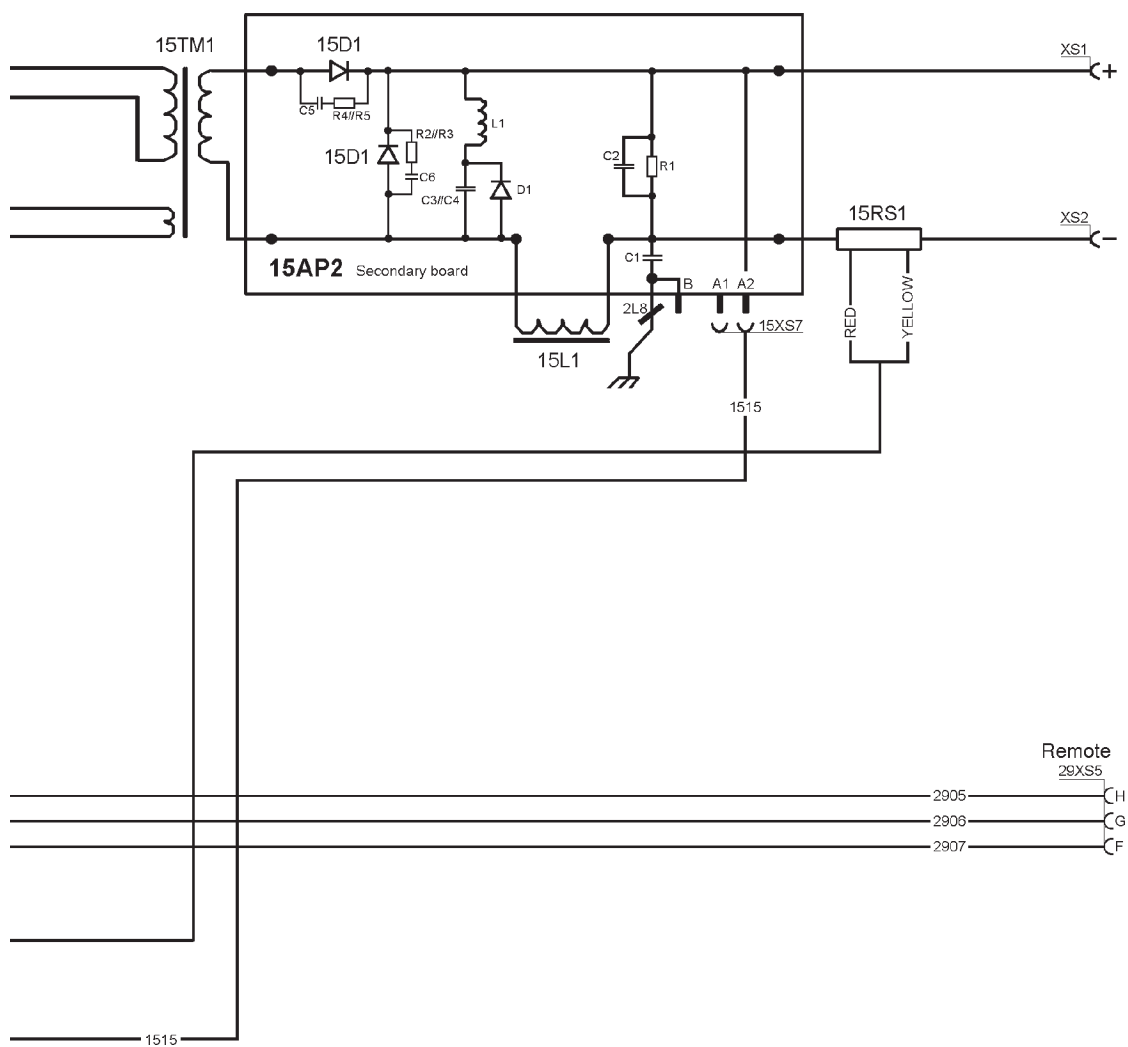
As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.

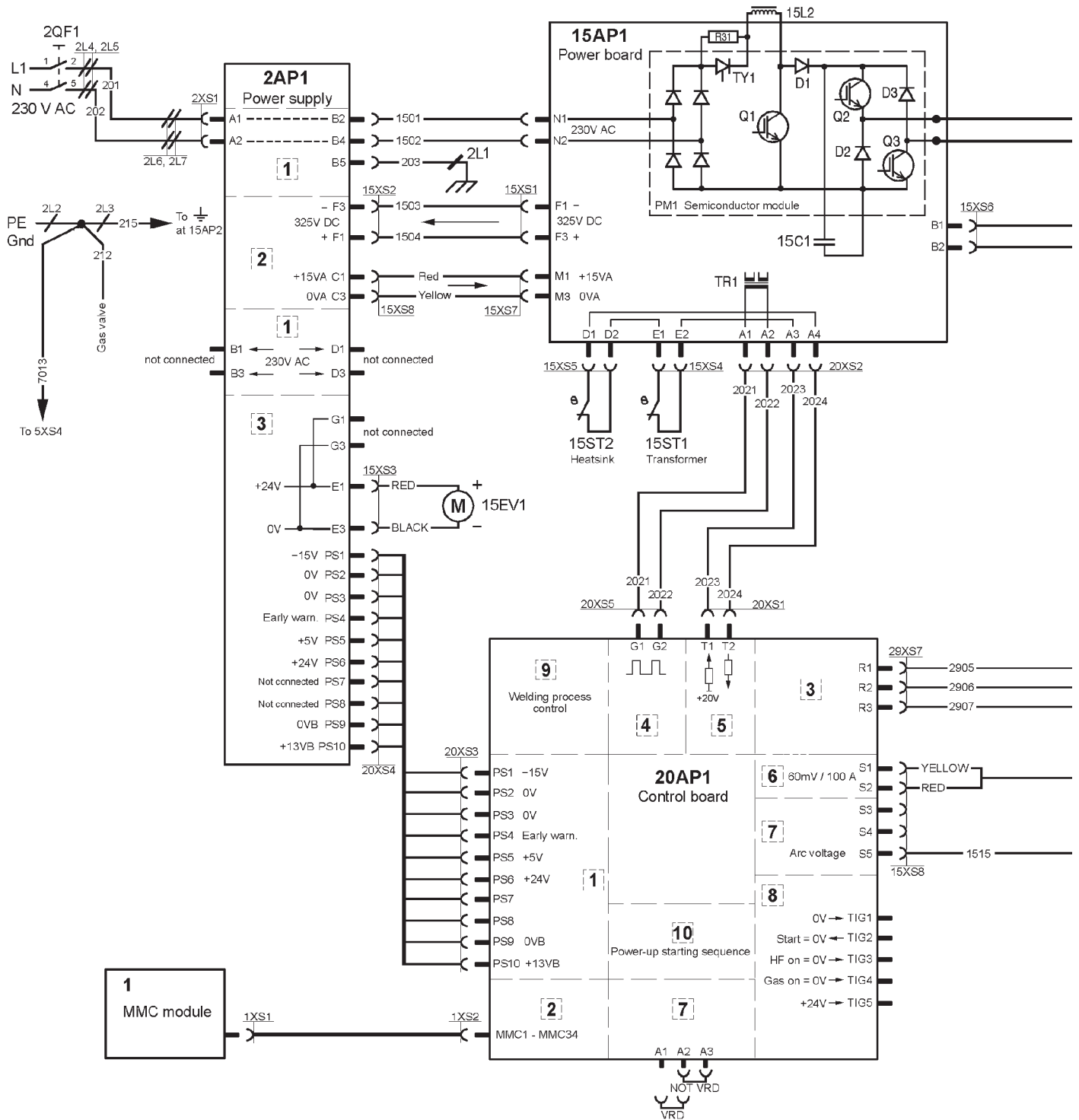
Diagram

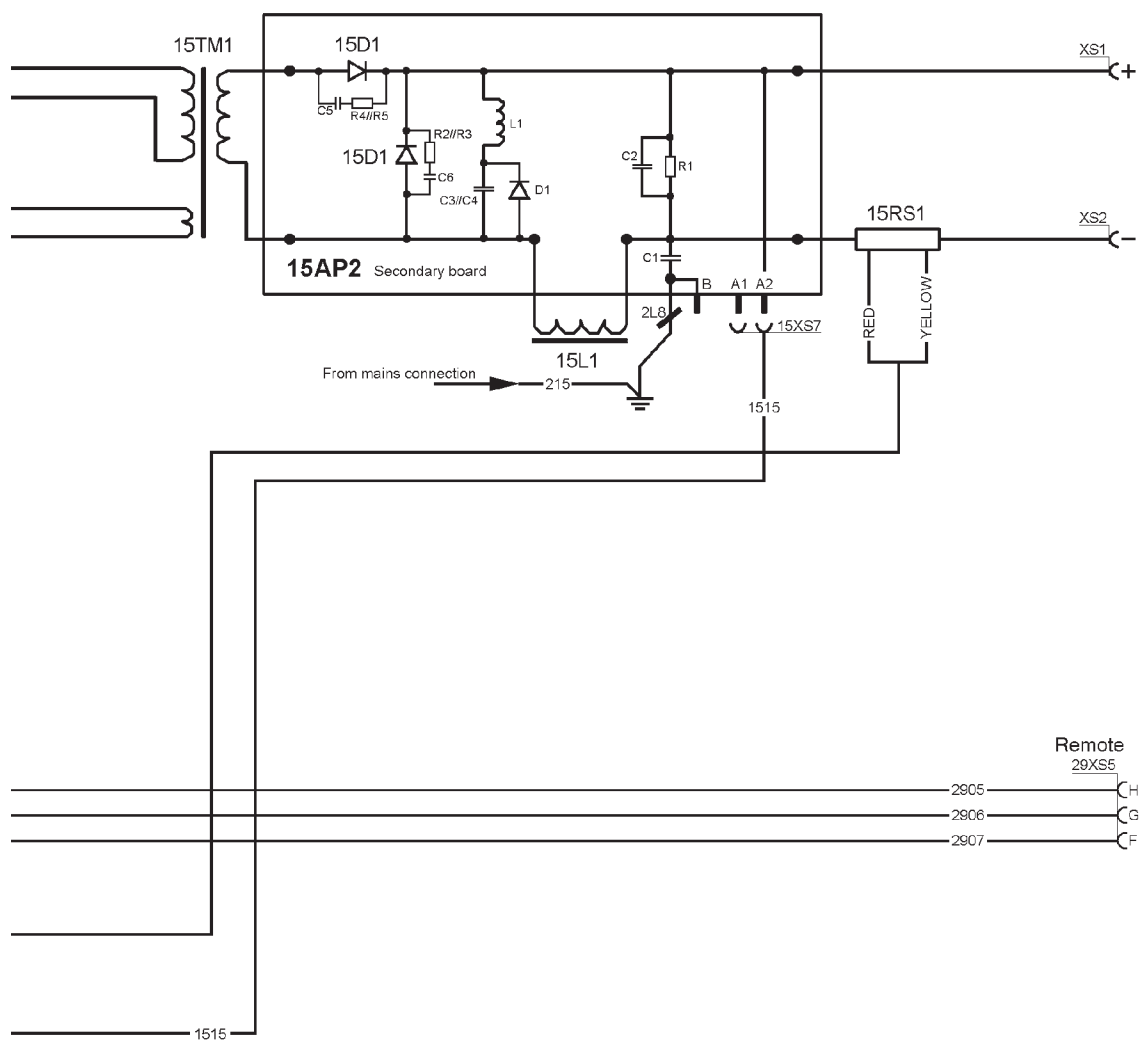
Arc 151i





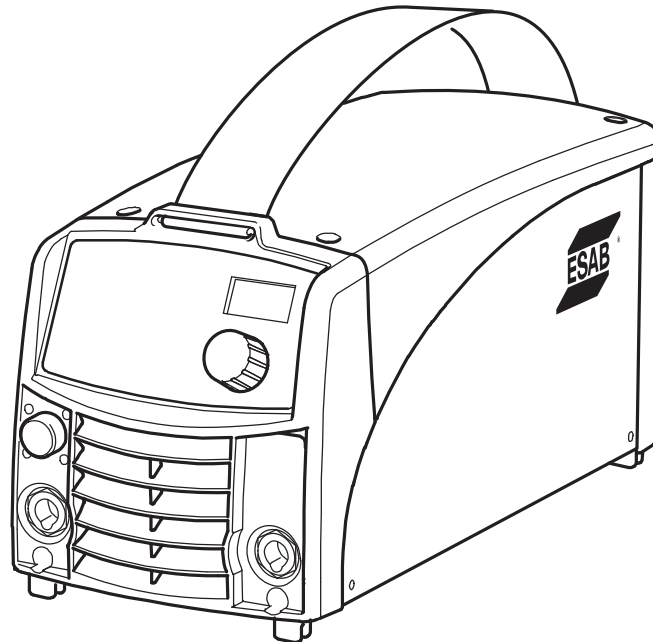
Arc 201i





Arc 151i/Arc 201i

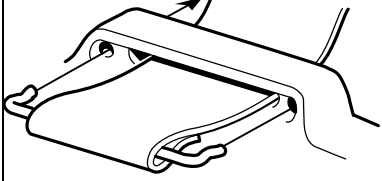
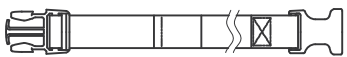

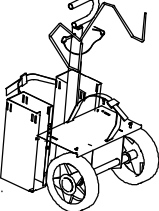
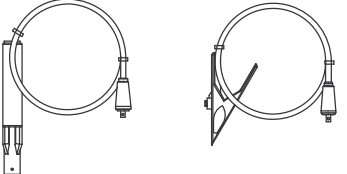
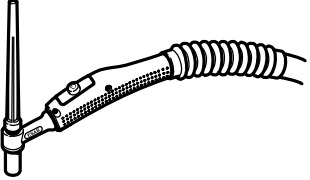
Ordering number



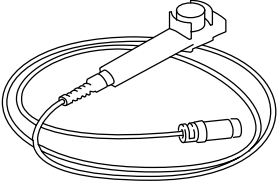
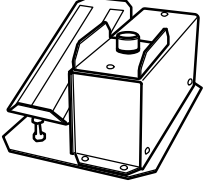


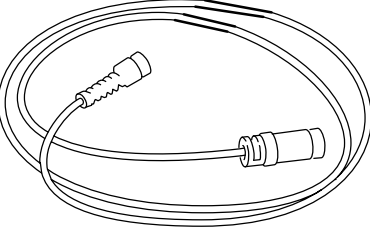
Ordering no.	Denomination	Type
0460 445 881	Welding Power source	Caddy® Arc 151i, A31
0460 445 883	Welding Power source	Caddy® Arc 151i, A33
0460 445 884	Welding Power source	Caddy® Arc 201i, A33
0460 449 174	Instruction manual Control panel	Caddy® A32, A33, A34
0459 839 027	Spare parts list	Caddy® Arc 151i, Arc 152i, A31
0459 839 028	Spare parts list	Caddy® Arc 151i, Arc 201i, A33

Instruction manuals and the spare parts list are available on the Internet at www.esab.com

Accessories

	<p>Strap 0460 265 001</p>
	<p>Cable holder 2 pcs 0460 265 002</p>
	<p>Shoulder strap 0460 265 003</p>
	<p>Trolley for 5-10 litre gasbottle 0459 366 885</p>
	<p>Welding cable kit, Arc 151i 0700 006 898 Return cable kit, Arc 151i 0700 006 899 Welding cable kit, Arc 201i 0700 006 900 Return cable kit, Arc 201i 0700 006 901</p>
	<p>Tig torch TXH 151V, Arc 151i 0700 300 539 Tig torch TXH 201V, Arc 201i 0700 300 553</p>

Only for A33 control panel

	<p>Remote control MMA 1 (10 m cable)0349 501 024 MMA and TIG: current</p>
	<p>Foot control F50020349 090 886 MMA and TIG current</p>
	<p>Remote control unit AT10459 491 896 MMA and TIG: current</p>
	<p>Remote control unit AT1 CF0459 491 897 MMA and TIG: rough and fine setting of current.</p>
	<p>Remote cable 12 pole - 8 pole 5 m0459 552 880 10 m0459 552 881 15 m0459 552 882 25 m0459 552 883</p>

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