



# **ARISTOTIG 250 AC/DC**

**Svetsutrustning  
Welding equipment  
Schweissausrüstung  
Equipement de soudage**

**Bruksanvisning och reservdelsförteckning  
Instruction manual and spare parts list  
Betriebsanweisung und Ersatzteilverzeichnis  
Manuel d'instructions et liste de pièces détachées**

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**INTRODUCTION**

ARISTOTIG 250 AC/DC is the name of ESAB's new transistorised inverter power source DTM 250, for TIG and metal arc welding. The machine is constructed with very advanced electronics which amongst other things gives a very quick current control and a low power consumption. It also has extremely good welding characteristics for both TIG and MMA welding processes.

The rating plate with the serial number and the connection data is located on the back of the machine.

DTM 250 is supplied with a digital amperemeter, a central connector for the TIG torch, OKC coupling and 5 m of return cable.

	<b>WARNING</b>	
<p><b>ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.</b></p>		
<p><b>ELECTRIC SHOCK - Can kill</b></p> <ul style="list-style-type: none"><li>• Install and earth the welding unit in accordance with applicable standards.</li><li>• Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.</li><li>• Insulate yourself from earth and the workpiece.</li><li>• Ensure your working stance is safe.</li></ul>		
<p><b>FUMES AND GASES - Can be dangerous to health</b></p> <ul style="list-style-type: none"><li>• Keep your head out of the fumes.</li><li>• Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.</li></ul>		
<p><b>ARC RAYS - Can injure eyes and burn skin.</b></p> <ul style="list-style-type: none"><li>• Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.</li><li>• Protect bystanders with suitable screens or curtains.</li></ul>		
<p><b>FIRE HAZARD</b></p> <ul style="list-style-type: none"><li>• Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.</li></ul>		
<p><b>MALFUNCTION - Call for expert assistance in the event of malfunction.</b></p>		
<b>READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING.</b>		
<b>PROTECT YOURSELF AND OTHERS!</b>		

## TECHNICAL DESCRIPTION

### TECHNICAL DESCRIPTION

ARISTOTIG 250 AC/DC is a double current inverter which gives a clean square wave at the output with AC welding and a very clean direct current with DC welding.

The transistorised power pack operates with a frequency of 20 kHz which allows the weight and size of the power source to be reduced to a minimum and gives a low load on the mains supply.

The power source is constructed in modules with the power pack as a separate unit. This allows the possibility of a module unit comprising of a complete cooling unit to be connected. There is also the possibility to fit an auto-transformer for 230/415/500 V 50/60 HZ.

The cooling unit is automatically connected when a water cooled ESAB torch is fitted to the central connection. **DO NOT FORGET TO CHECK THAT THE CORRECT MIXTURE AND AMOUNT OF COOLANT IS IN THE COOLING UNIT.** A large number of carriages are available for the power source enabling all the different requirements to be met.

### TECHNICAL DATA

Permissible load	250 A
60%	250 A
100%	200 A
Setting range	5-250 A
Slope up	0.1-10 sec.
Slope down	0.1-10 sec.
Post gas flow	0.1-20 sec.
Open circuit voltage	75 V
Power factor	0.85
Max current, primary	25 A
Fuse, slow blow	25 A
Mains power	400 V
Frequency	50/60 Hz
Weight	65 kg.
Dimensions (LxWxH)	700x325x750
Temperature class	F
Enclosure type	IP 23
Standards	VDE 0544, ISO 700, IEC 9741

**INSTALLATION**

DTM 250 is supplied as standard connected for 400 V 50/60 Hz, it can also be fitted with an auto-transformer allowing the following voltages to be connected: 230/415/500 V 50/60 Hz.

1. Check that the welding power source is connected to the correct mains voltage.
2. The power cable connected to the machine is dimensioned for a 400 V mains supply or higher. Should the machine be connected to 230 V then a heavier cable must be fitted.
3. The welding cable for MMA welding and the return cable for TIG/MMA welding should have a cable cross section of at least 35 mm. To reduce the voltage field when an extra longer cable is connected it might be necessary to select a heavier cable cross section. Check that all cables and connections are correctly fitted.

**WELDING**

- Check that the TIG torch and the return cable are connected correctly.
- Check that the correct thoriated tungsten or lanthanum electrodes are used with DC welding and tungsten and lanthanum with AC welding. The electrodes must also be correctly ground for DC welding.
- Set the correct gas flow, 5-10 lit/min. (Argon 99.95).
- Set the mains switch to position "1" and check that there is a free air flow through the machine.
- Select either machine or remote control.
- Set the different welding parameters e.g. current, slope up etc.
- The machine is now ready to weld. If any further questions arise please refer to ESAB's tutorial video for TIG welding or the nearest retail dealer.


## OPERATION


## OPERATION

All controls on the DTM 250 are located with easy access on the front of the machine thereby simplifying the setting of the parameters.

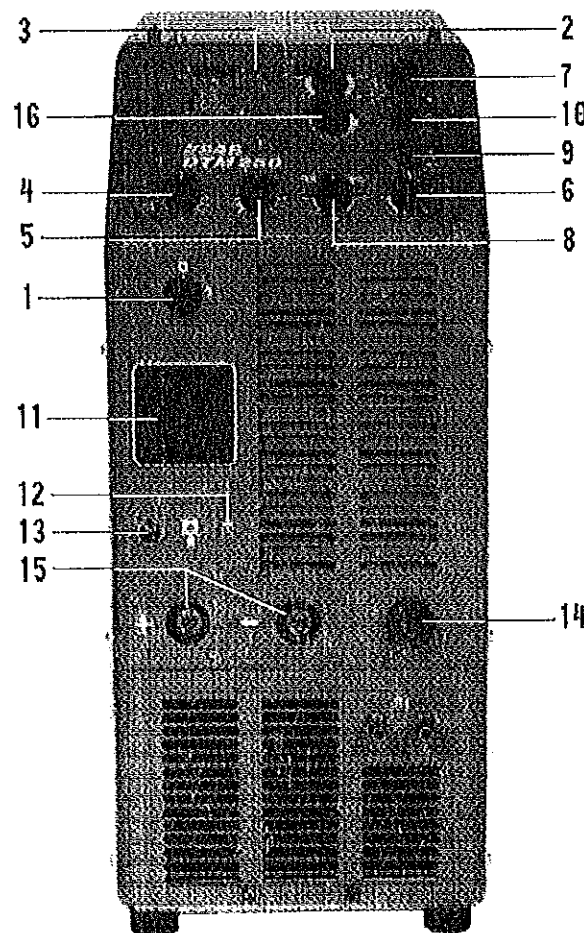
1. Mains supply switch (1): To switch the mains supply on or off. In position "1" the fan is started.
2. Potentiometer (2): To set the welding current 5-250 amp.
3. Push button (3): When the button is pushed in then the current can be preset using potentiometer 2 and the preset value can be read on the ammeter.
4. Potentiometer (4): To set the slope up time from 0.1-10 seconds. This means that the current slowly increases from the minimum value to the set value during the time set. This reduces the risk of contamination on the tungsten electrode.
5. Potentiometer (5): To set the slope down time from 0.1-10 seconds. This means that the current is slowly reduced from the set value to the minimum value during the time set.
6. Potentiometer (6): To set the post gas flow time from 0.1-20 seconds. The long post gas flow time makes the power source fully equipped for the welding of materials susceptible to oxidization e.g. titanium.
7. Potentiometer (7): To set the balance when welding in the AC mode. The square wave can be set to a more positive or more negative half cycle to achieve oxide break up or increased material penetration. The balance is adjustable between 20%- 80% of the cycle.  
  
20% = max. material penetration. 80% = max. oxide break-up.
8. Potentiometer (8): To set the welding frequency between 50-200 Hz in the AC position. The welding frequency is used to reduce the heat transference to the material and to increase the welding speed. The adjustable welding frequency also allows materials which are difficult to weld, such as anodized aluminium, to be welded.
9. Switch (9): To set the switch to either the 2 or 4 action setting when TIG welding. 2 action setting means that the arc is ignited when the torch switch is pressed in and extinguished when the torch switch is released. 4 action setting means that the torch switch does not need to be held in while welding. Pressing the switch and then releasing it ignites the arc and by pressing and releasing once again the arc is extinguished.
10. Switch (10): For TIG and MMA welding. The power source is constructed in such a manner that it gives exceptionally good welding results with TIG and MMA welding.

11. Switch (11): To switch between AC and DC mode. Never switch between the two current modes while welding.
12. Switch (12): To switch the remote output on or off. Allows remote control of the welding current with e.g. PHA 5.

Position  :Means that the value set on the machine is operational.

Position  :Means that the value set on the remote control is operational.

13. Remote socket (13): For connection of the remote unit.
14. Central connector (14): Quick connector for current, gas and the control cable.
15. OKC connectors (15): For the connection of the return cable and the electrode holder for MMA welding.
16. Hot Start - TIG (16). Adjustable hotstart time between 5-20 ms. TIG-welding - At the moment of starting the tungsten electrode is positive during max 20 ms. then it switch over automatically to negative polarity.



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## **MAINTENANCE**

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### **IMPORTANT**

This welding equipment has been designed, manufactured and tested to the highest quality standards to ensure long and trouble free life. However, regular maintenance is an essential part of keeping the machine operating in a reliable and safe manner and your attention is drawn to any maintenance instructions that are contained in this manual.

In general, all welding equipment should be thoroughly inspected, tested and serviced at least annually. More frequent checking will be required when the equipment is heavily used.

Wear and tear, particularly in electro-mechanical and moving components, are gradual processes. Caught in time, repair costs are small and the benefits in performance, reliability and safety are significant. Left alone, they can put the equipment, and you at risk.

Have this equipment regularly inspected and maintained by an approved service centre.

## **ACCESSORIES**

Spare parts are ordered through the nearest ESAB representative. See the last page of this publication. When ordering please quote the type of machine, machine number and the designation and the spare parts number as set out in the spare parts list.

This both simplifies and assures the correct delivery when dispatching.

### **ORDER No.**

DTM 250 Water cooled 400 V 50/60 Hz.	0467 370-880
DTM 250 Air cooled 400 V 50/60 Hz.	0467 370-881
TIG Torch BTD 253W 4 M	0368 350-884
Pulse unit PHA 5	0367 970-880
Connecting cable 10 m For PHA 5	0367 144-882
Foot pedal FS 002 incl. cable	0349 090-886
Carriage kit chassis	0369 580-880
Carriage 5-20 L. Gas bottle	0466 600-880
Carriage, model semi, 50 l. gas bottle	0369 580-880



**EINLEITUNG**

ARISTOTIG 250 AC/DC heißt die neue transistorgesteuerte Inverterstromquelle DTM 250, die für WIG- und Metalllicht bogenschweißen vorgesehen ist.



Die Maschine ist mit Hilfe moderner Elektronik aufgebaut, ermöglicht eine schnelle Steuerung des Stroms und ist sparsam im Energieverbrauch.

Sie zeichnet sich sowohl beim WIG- als auch beim Stabelektroden-schweißen (MMA) durch hervorragende Schweißeigenschaften aus.

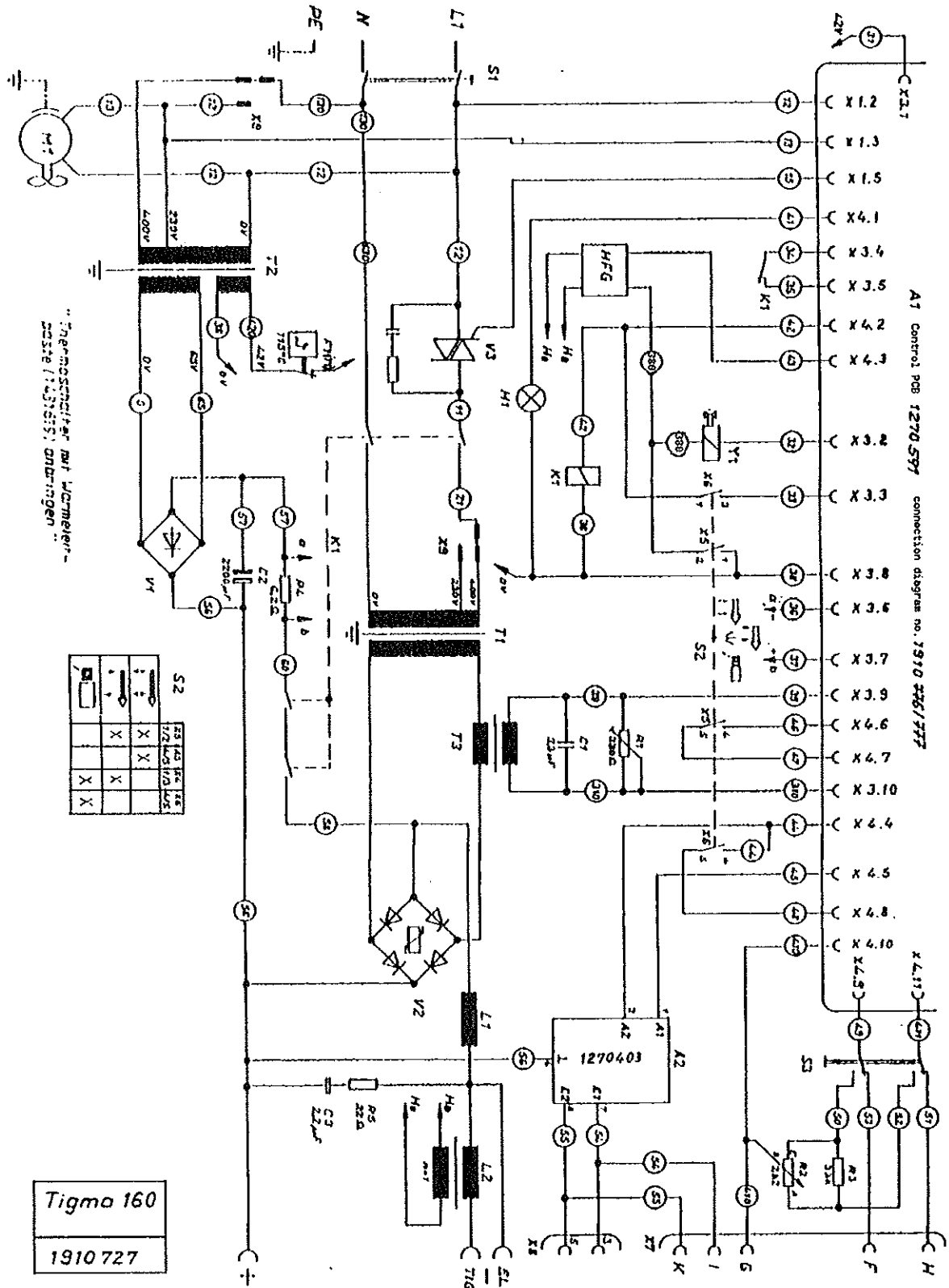
Das Typenschild mit der HerstellNr. und den Anschlußdaten befindet sich auf der Rückseite der Maschine.

DTM 250 ist mit digitalem Amperemeter, Zentralanschluß für WIG-Brenner, Dinse-Buchsen und 5 m Rückleiterkabel ausgestattet.

Fehlersuche und Reparatur setzen geeignete Fachkenntnisse voraus. Als Faustregel gilt, daß ein größerer Eingriff nur von speziell ausgebildetem Personal ausgeführt werden soll.

	<b>WARNUNG</b>	
<p><b>BEIM LICHTBOGENSCHWEIßEN UND LICHTBOGENSCHNEIDEN KANN IHNEN UND ANDEREN SCHADEN ZUGEFÜGT WERDEN. DESHALB MÜSSEN SIE BEI DIESEN ARBEITEN BESONDERS VORSICHTIG SEIN. BEFOLGEN SIE DIE SICHERHEITSVORSCHRIFTEN IHRES ARBEITGEBERS, DIE SICH AUF DEN WARNUNGSTEXT DES HERSTELLERS BEZIEHEN.</b></p>		
<p><b>ELEKTRISCHER SCHLAG - Kann den Tod bringen.</b></p> <ul style="list-style-type: none"><li>• Die Schweißausrüstung gemäß örtlichen Standards installieren und erden.</li><li>• Keine stromführenden Teile oder Elektroden mit bloßen Händen oder mit nasser Schutzausrüstung berühren.</li><li>• Personen müssen sich selbst von Erde und Werkstück isolieren.</li><li>• Der Arbeitsplatz muß sicher sein.</li></ul>		
<p><b>RAUCH UND GAS - Können Ihre Gesundheit gefährden.</b></p> <ul style="list-style-type: none"><li>• Das Angesicht ist vom Schweißrauch wegzudrehen.</li><li>• Ventillieren Sie und saugen Sie den Rauch aus dem Arbeitsbereich ab.</li></ul>		
<p><b>UV- und IR - Licht können Brandschäden an Augen und Haut verursachen</b></p> <ul style="list-style-type: none"><li>• Augen und Körper schützen. Geeigneten Schutzhelm mit Filtereinsatz und Schutzkleider tragen.</li><li>• Übriges Personal in der Nähe, ist durch Schutzwände oder Vorhänge zu schützen.</li></ul>		
<p><b>FEUERGEFAHR</b></p> <ul style="list-style-type: none"><li>• Schweißfunken können ein Feuer entzünden. Daher ist dafür zu sorgen, daß sich am Schweißarbeitsplatz keine brennbaren Gegenstände befinden.</li></ul>		
<p><b>BEI STÖRUNGEN - Nur Fachleute mit der Behebung von Störungen beauftragen.</b></p>		
<p><b>LESEN SIE DIE BETRIEBSANWEISUNG VOR DER INSTALLATION UND INBETRIEBNAHME DURCH.</b></p>		
<p><b>SCHÜTZEN SIE SICH SELBST UND ANDERE!</b></p>		

# Schema - Diagram - Schaltplan - Schéma



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Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

**Reservdelsförteckning**

Reservdelar beställs genom närmaste ESAB-representant, se sista sidan. Vid beställning v.v. uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enl. reservdelsförteckningen.

**Spare parts list**

Spare parts are to be ordered through the nearest ESAB agency as per the list on the back of the cover. Kindly indicate type of unit, serial number, denominations, and ordering numbers acc. to the spare parts list.

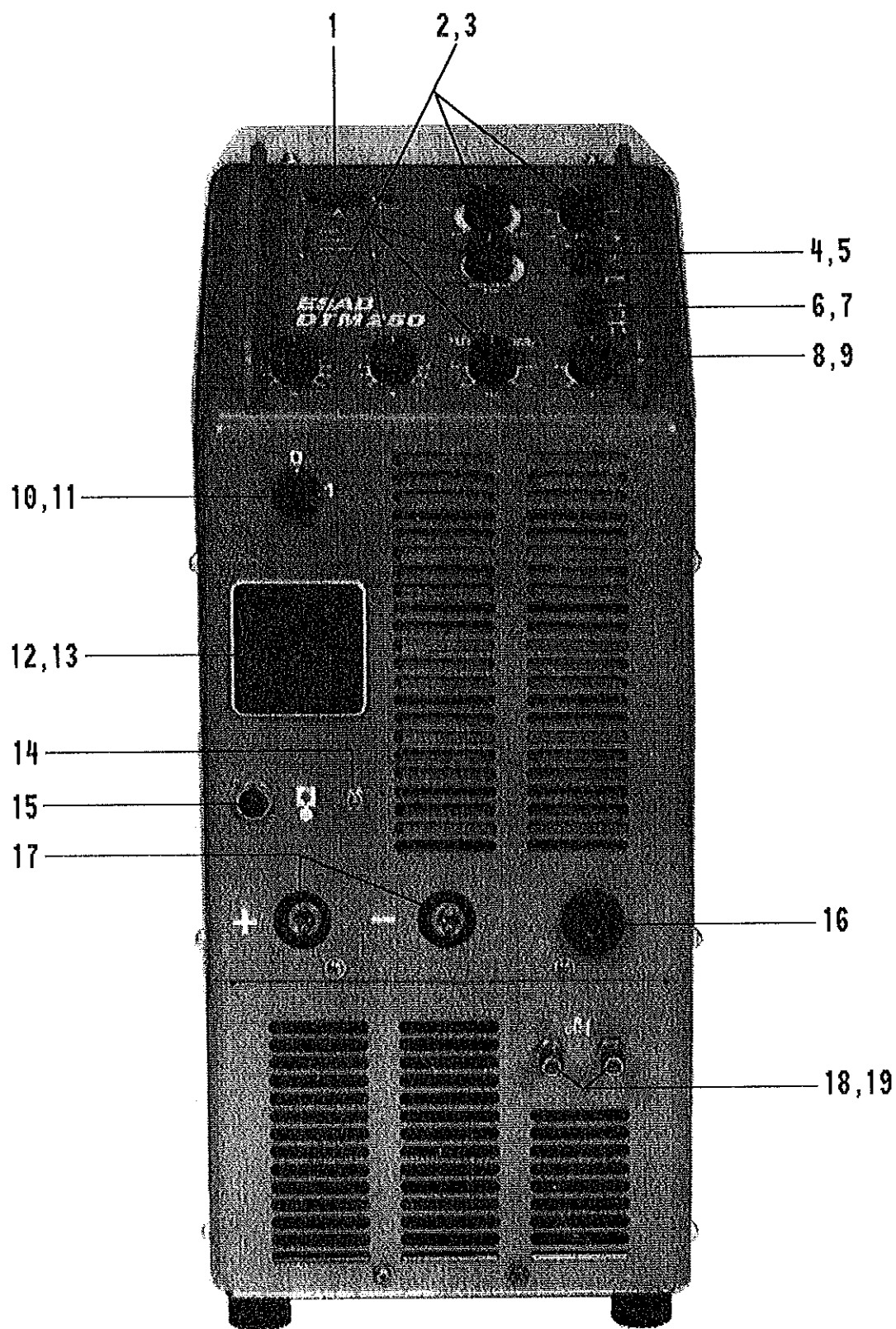
**Ersatzteilverzeichnis**

Die Ersatzteile können bei der nächsten ESAB-Vertretung bestellt werden, siehe letzte Seite. Bitte geben Sie Typenbezeichnung und Hersteller- sowie Bezeichnungen und Bestellnummern lt. Ersatzteilverzeichnis an.

**Liste de pièces détachées**

Au dos de la brochure, vous trouverez l'adresse du représentant ESAB le plus proche. Prière de lui adresser votre commande, après avoir pris le soin de mentionner le type et le numéro de série de l'unité ainsi que le numéro de commande et la désignation conformément à la liste de pièces détachées.

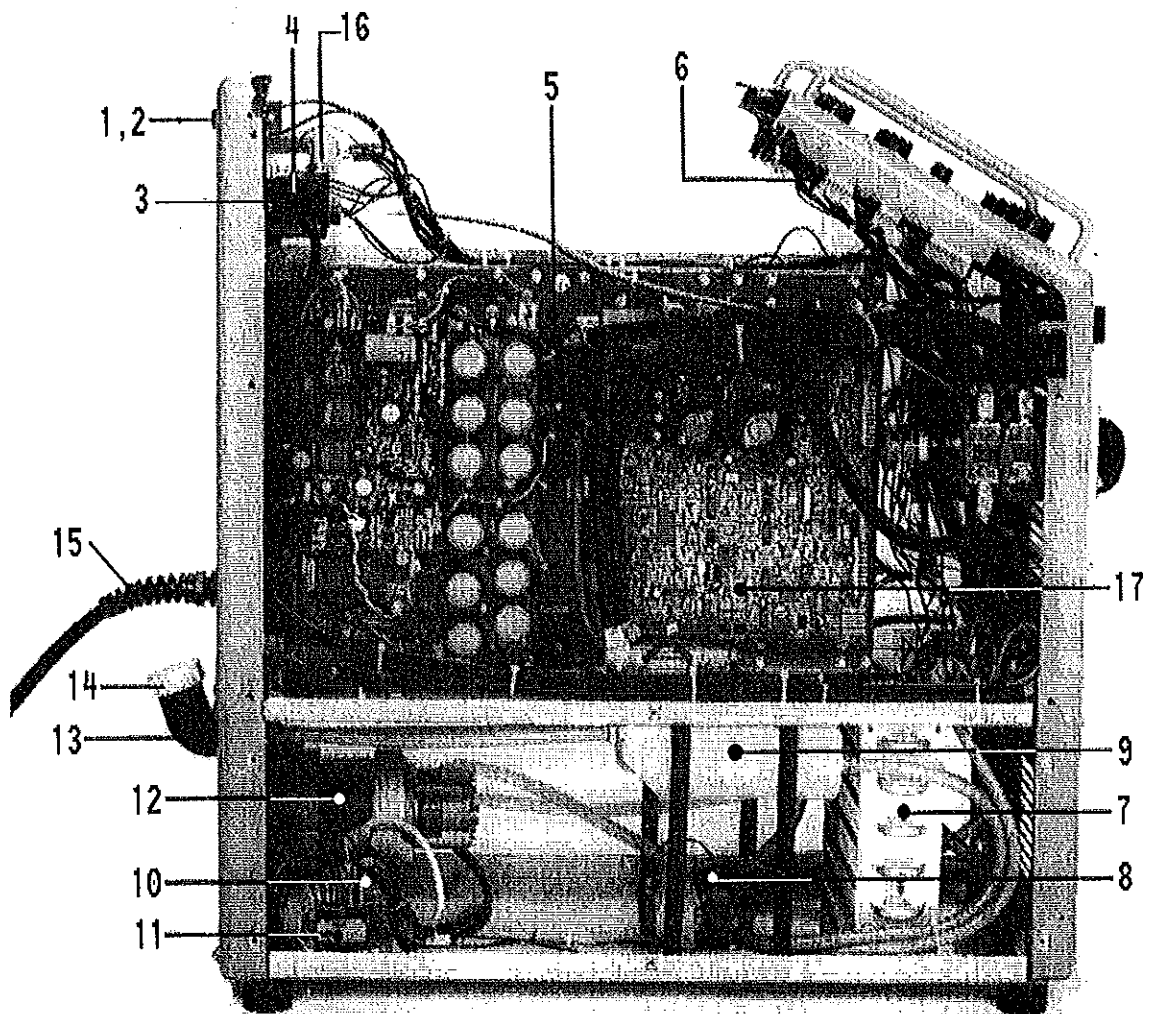
Pos nr Item no. Pos. Nr. No. de réf.	Ant Qty Anz Qté	Best nr Ordering no. Beställnr. No. de commande	Benämning	Denomination	Bezeichnung	Désignation	Anm Remarks Anm. Remarque
		467 370-880	Strömkälla, vattenkyld	Power source, water cooled	Schweißgerät, wassergekühlt	Source de cou- rant, refroidi par eau	
		467 370-881	Strömkälla, luftkyld	Power source, air cooled	Schweißgerät, luftgekühlt	Source de cou- rant, refroidi par air	
01	1	467 852-001	Digital instru- ment kompl.	Digital meter	Digital Instru- ment	Instrument di- gital	
02	6	467 837-001	Potentiometer	Potentiometer	Potentiometer	Potentiomètre	
03	6	467 841-001	Ratt	Knob	Drehknopf	Bouton	
04	1	467 839-001	Omkopplare	Switch	Schalter	Interrupteur	
05	1	467 840-001	Ratt	Knob	Drehknopf	Bouton	
06	1	467 839-001	Omkopplare	Switch	Schalter	Interrupteur	
07	1	467 840-001	Ratt	Knob	Drehknopf	Bouton	
08	1	467 838-001	Potentiometer	Potentiometer	Potentiometer	Potentiomètre	
09	1	467 841-001	Ratt	Knob	Drehknopf	Bouton	
10	1	467 835-001	Strömställare	Switch	Schalter	Interrupteur	Q1
11	1	467 854-001	Ratt	Knob	Drehknopf	Bouton	
12	1	467 773-001	Polaritetsom- kopplare	Polarity switch	Schalter	Interrupteur	S1
13	1	467 853-001	Ratt	Knob	Drehknopf	Bouton	
14	1	147 866-001	Omkopplare	Switch	Schalter	Interrupteur	S2
15	1	323 941-003	Fjärrutttag	Socket	Steckdose	Réglage à di- stance	X11
16	1	367 258-880	TIG-Centralan- slutning	TIG-Central- connection	Zentral anschluß,WIG	Connecteur TIG central	
17	2	160 362-881	Maskinkontakt	Current termi- nal	Stromanschluß	Prise machine	
18	2	467 855-001	Snabbkoppling blå	Quick-coupling blue	Schnellkupp- lung blau	Raccord rapide bleu	
19	2	467 856-001	Snabbkoppling röd	Quick-coupling red	Schnellkupp- lung rot	Raccord rapide rouge	



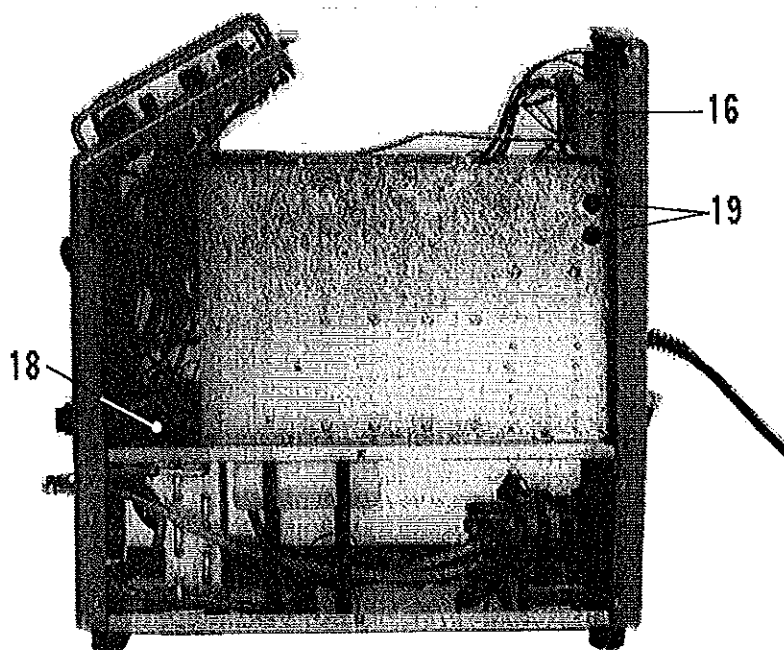
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Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Pos nr Item no. Pos. Nr. No. de réf.	Ant Qty Anz Qté	Best nr Ordering no. Bestellnr. No. de commande	Benämning	Denomination	Bezeichnung	Désignation	Anm Remarks Ann. Remarque
1	1	157 028-002	Säkringshållare	Fuse holder	Sicherungs- halter	Porte-fusible	F1
2	1	5679 001-11	Säkring	Fuse	Sicherung	Fusible	Y1
3	1	193 054-002	Magnetventil	Solenoid valve	Magnetventil	Electrovanne	T1
4	1	467 767-001	Transformator	Transformer	Transformator	Transformateur	
5	1	467 834-001	Kraftpaket	Power module	Kraft Paket	Module de pu- issance	
6	1	467 772-001	Komplett kon- trollenhet	Control mo- dule, complete	Steuerung komplett	Circuit imprimé compl.	A1
	1	468 244-001	Kretskort	Control PCB	Steuerung Pla- tine	Circuit imprimé	
	1	468 245-001	Tillsatskret- skort	Add on control PCB	Zusatzplatine	Circuit imprimé	
7	1	467 770-001	Kylare	Cooling ele- ment	Kühlelement	Elément réfrigérant	
8	1	467 771-001	Flödesvakt	Flow guard	Durchfluss- wächter	Capteur de débit	V
9	1	369 232-001	Vattentank	Coolant reser- voir	Wassertank	Réservoir d'eau	
10	1	467 768-001	Kondensator	Capacitor	Kondensator	Condensateur	
11	1	467 766-001	Relä	Relay	Relais	Relais	K1
12	1	467 769-001	Pump	Pump	Pumpe	Pompe	M1
13	1	368 568-001	Vattenintag	Water inlet	Wasse- ranschluß	Tube de remp- lissage d'eau	
14	1	369 241-001	Lock	Cover	Deckel	Couvercle	
15	1	193 307-103	Kabel-förskruv- ning	Cable clamp	Klamme	Equilibreur du Câble	
16	1	468 240-001	HF-don	HF-unit	HF-Gerät	Dispositif HF	42V
17	1	467 836-001	Kretskort	PC-board	Platine	Circuit imprimé	TR-SQW
18	1	468 243-001	Kretskort	Start PCB	Start Platine	Circuit imprimé	A3
19	2	468 246-001	Säkring	Fuse	Sicherung	Fusible	1A 5x30mm



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# Group H.Q. International directory of subsidiary and associated companies.

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**ASIA**  
 Bahrain, Hongkong, Japan,  
 Jordania, Korea, Kuwait,  
 Lebanon, New Guinea, Oman,  
 Pakistan, The Philippines, Qatar,  
 Saudi Arabia, Sri Lanka, Syria,  
 Taiwan, Turkey, Vietnam, Yemen

**LATIN AMERICA**  
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