ELEKTRA BECKUM

metabo germany

D **Betriebsanleitung**
Schutzgas-Schweißgeräte MIG/MAG 170 - 230

GB **Operating Instruction**
MIG Welding Machines 170 - 230 Amp Models

F **Notice d´utilisation postes de soudure semiautomatiques MIG/MAG 170 - 230**

NL **Gebruiksaanwijzing**
Lasapparaat MIG/MAG 170/230

English only

D	**Achtung!**	Lesen Sie diese Anleitung vor der Installation und Inbetriebnahme aufmerksam durch.
GB	**Attention!**	Carefully read through these instructions prior to installation and commissioning.
F	**Attention!**	Prière de lire attentivement la présente notice avant l'installation et la mise en service.
NL	**Attentie!**	Lees deze instructies voor de installatie en ingebruikname aandachtig door.

115 117 3671 / D/GB/F/NL /1303 - 5.1

Contents

User Responsibility

This machine will perform in conformity with the description contained in the instructions provided.
This machine must be checked periodically. Defective equipment (including service leads) should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated, should be replaced immediately. Should such repair or replacement become neccessary, it is recommended that such repairs are carried out by qualified persons approved by the equipment manufacturer or its representative. The user of this machine shall have the sole responsibility for any malfunction which results from improver use or unauthorized modification from standard specifications, faulty maintenance, damage or improper repair by anyone other than qualifieded persons approved by the equipment manufacturer or its representatives.
Read and understand this manual before commissioning your machine!
We reserve the right to change specifications.

Product Liability/Warranty

These welding machines shall only be used as specified. Any other use requires the written consent of Metabo GmbH, Business Unit Elektra Beckum, P.O.Box 1352, D-49703 Meppen, Germany.
This product carries 2 years (5 years on main transformer and choke) manufacturer warranty under the prevailing legal provisions, which may vary from country to country. Retain proof of purchase! You are only entitled to claim warranty against proof of purchase. Please see back cover for manufacturer representative's address nearest you. The warranty period begins with the date of the original purchase by the end user. Proof of purchase should be retained and must be presented in the event of a warranty claim. This warranty excludes and does not cover defects, malfunction and failure caused by natural wear, overload, unreasonable use or failure to provide reasonable and necessary maintenance.
In case of a defect notify your dealer or Elektra Beckum distributor, who will decide how to handle your claim. Warranty claims can only be taken care of by your Elektra Beckum dealer or authorized service centre.

1 Specifications

	MIG/MAG 170/30 TL	**MIG/MAG 170/30 TL Combi**
Welding range	25 - 160 A	25 - 160 A
Open-circuit voltage	15.3 - 22 V	15.3 - 22 V
No-load voltage	19 - 37 V	19 - 38 V
Input capacity	4.0 kVA	3.6/4.0 kVA
Mains 50/60 Hz AC	1 ~ 230 V	1 ~ 230/2 ~ 400 V
Frequency	50-60 Hz	50-60 Hz
Welding steps	6	6
Wire diameter	0.6 - 0.8 mm	0.6 - 0.8 mm
Weldable material	0.5 - 5 mm	0.5 - 5 mm
Duty cycle (25°c/ 40°C)	160 A 30%/20%	160 A 30%/20%
100% (25°c/ 40°C)	90 A/60A	90 A/60A
Mains fuse	T 16 A	T 16 A
Cooling	F	F
Protection class	IP 21	IP 21
Isulation class	F	F
Welding gun assembly	SB 14/2	SB 14/2
Dimensions l x w x h	840x410x580	840x410x580
Weight	61 kg	62 kg

	MIG/MAG 180/35 ET Combi	MIG/MAG 200/35 ET	MIG/MAG 230/40 ET
Welding range	25 - 180 A	25 - 200 A	25 - 230 A
Open-circuit voltage	15.3 - 23 V	15.3 - 24 V	15.3 - 25,5 V
No-load voltage	17.5 - 33 V	21 - 34 V	19 - 34 V
Input capacity	3.6/4.6 kVA	6 kVA	6.5 kVA
Mains 50/60 Hz AC	1 ~ 230 V/2 ~ 400 V	3 ~ 400 V	3 ~ 400 V
Frequency	50-60 Hz	50-60 Hz	50-60 Hz
Welding steps	6	6	6
Wire diameter	0.6 - 0.8 mm	1,0 mm	0.6 - 1.0 mm
Weldable material	0.5 - 6 mm	0.5 - 7 mm	0.6 - 9 mm
Duty cycle (25°c/ 40°C)	180 A 35%/25%	200 A 35%725%	230 A 40%/30%
100% (25°c/ 40°C)	100 A/70A	110 A/75A	140 A/100A
Mains fuse	T 16 A	T 16 A	T 16 A
Cooling	F	F	F
Protection class	IP 21	IP 21	IP 21
Isulation class	F	F	F
Welding gun assembly	SB 15/2	SB 15/2	SB 25/2
Dimensions l x w x h	840x410x580	840x410x580	840x410x580
Weight	68 kg	75 kg	81HAM kg

StandardScope of delivery: Welding machine with MIG/MAG torch c/w contact tip and gas shroud, pressure regulator for shielding gas, earth clamp, wire brush and nozzle anti-clogging spray.
delivery:

2 Regulations for the Prevention of Accidents

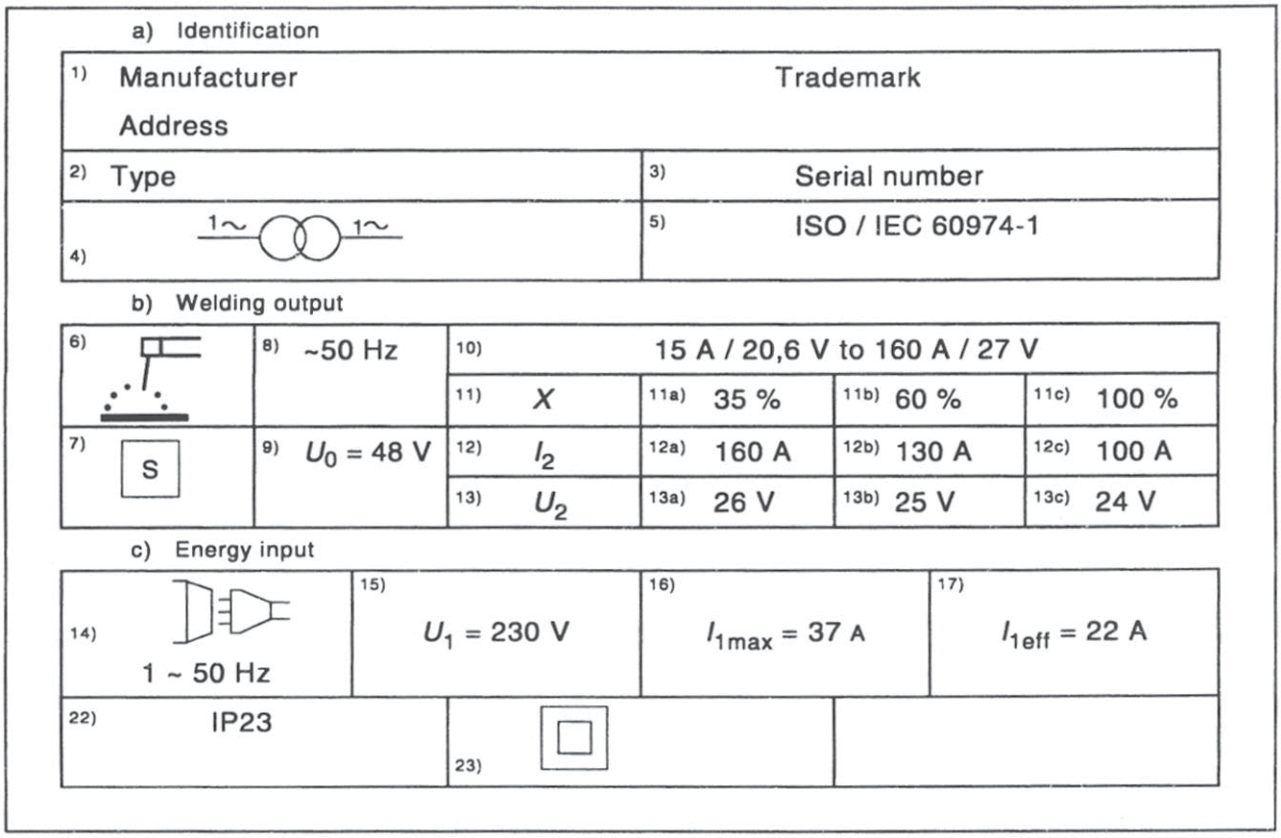
Know the applicable regulations for electric arc welding and strictly adhere to.

Safety Instructions

- **Protection against electrical accidents**
  - Welding cables are to be firmly connected to ensure proper conducting capacity
  - Mains cord and welding cables are to be protected against damages.
  - Replace damaged mains cords with genuine Elektra Beckum parts only.
  - Place welding gun onto insulating backing during short work break.
  - For longer breaks switch off machine.
  - When welding, wear dry and insulating gloves and shoes.
  - For maintenance and repair work disconnect from power mains.

- **Protection against UV rays, burns and fumes**
  - Wear protective clothing to prevent burns (sleeved gloves, welding apron etc.)
  - Always use a welding visor.
  - Screen off work place to protect other persons working nearby against UV rays.
  - Welding material having a polluted or contaminated surface may generate toxic fumes. Clean surface before welding.
  - Zinc-plated or galvanized material should not be welded as zinc fumes are highly toxic.

2.1 Welding Output



ations

Box 9 U_0... V Rated no-load voltage

a) Arithmetic mean value in case of direct current

b) RMS value in case of alternating current

c) U_r... V Reduced rated no-load voltage in case of a voltage reducing device

d) U_s... V Switched rated no-load voltage in case of an a.c. to d.c. switching device

Box 10 ... A/... V to... A/... V Range of output, rated minimum and maximum welding current and their corresponding conventional load voltage.

Box 11 X Duty cycle (duty factor) symbol.

Box 12 I_2 Rated welding current symbol.

Box 13 U_2 Conventional load voltage symbol.

Boxes 11a, 11b, 11c ...% Values of the duty cycle (duty factor).

12a, 12b, 12c ... A Values of the rated welding current.

13a, 13b, 13c ... V Values of the conventional load voltage.

These boxes form a table with corresponding values of the three settings:

a) ... % duty cycle (duty factor) at the rated maximum welding current;

b) 60 % duty cycle (duty factor);

and

b) Welding Output

Box 6 Welding process Symbol e.g.:


Manual metal arc welding with covered electrodes


Tungsten inert-gas welding


Metal inert and active gas welding including the use of flux cored wire


Selfshielded flux cored arc welding


Submerged arc welding


Symbol for plasma cutting


Symbol for plasma gouging

Box 7 S Symbol for welding power sources which are suitable for supplying power to welding operations carried out in an environment with increased hazard of electric shock (if applicable).

Box 8 Welding current symbol e.g.:


Direct current


Alternating current, and additionally the rated frequency in hertz e.g.: ~50 Hz

Box 9 U_0... V Rated no-load voltage

a) Arithmetic mean value in case of direct current

b) RMS value in case of alternating current

c) U_r... V Reduced rated no-load voltage in case of a voltage reducing device

d) U_s... V Switched rated no-load voltage in case of an a.c. to d.c. switching device

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Boxes 11a, 11b, 11c ...% Values of the duty cycle (duty factor).

12a, 12b, 12c ... A Values of the rated welding current.

13a, 13b, 13c ... V Values of the conventional load voltage.

These boxes form a table with corresponding values of the three settings:

a) ... % duty cycle (duty factor) at the rated maximum welding current;

b) 60 % duty cycle (duty factor);

and

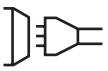
c) 100 % duty cycle (duty factor) as far as relevant.

Column a) need not be used if the duty cycle (duty factor) for the rated maximum welding current is 60 % or 100 %.

Column b) need not be used if the duty cycle (duty factor) at the rated maximum welding current is 100 %.

c) Energy input

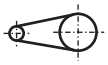
Box 14 Energy input symbol e.g.:



Input supply, number of phases (e.g. l or 3), symbol for alternating current
and the rated frequency (e.g. 50 Hz or 60 Hz)

Engine

Motor



Belt drive

Box	Electrically powered welding power sources		Box	Mechanically powered welding power sources	
15	U_1... V	Rated supply voltage	18	n... min^{-1}	Rated load speed
16	I_{1max}... A	Rated maximum supply current	19	n_0... min^{-1}	Rated no-load speed
17	I_{1eff}... A	Maximum effective supply current	20	n_i... min^{-1}	Rated idle speed, if applicable
Boxes 15 to 17 form a Table with corresponding values.			21	P_{1max}... kW	Maximum power consumption, if applicable

Box 22 IP.. Degree of protection, e.g. IP21 or IP23.

Box 23  Symbol for protection class II, if applicable.

3 Operation

Initiation

Connect cable assembly to central coupling (1). Be sure that collar nut is fully tightened. Plug earth cable into socket (7) and lock in position.
Place gas sylinder onto rack at rear of machine and secure with chain. Attach gas hose to pressure regulator and secure with hose clamp provided.
Open gas cylinder valve briefly to clear any foreign matter from it, than attach pressure regulator.
Set regulator to required gas flow rate (approx. 10 - 13 ltr./min. - 2.5 - 3 GPM).
Caution: Do not dismantle the pressure regulator for any reason. It may explode when assembled incorrectly!

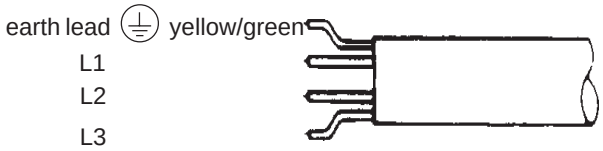
1-Phase Machines

These machines come fitted with a Schuko 2-prong plug with earth contact as standard. For the U. K. and certain other markets machines are supplied without a plug on the power cord. Connect to power mains only by earthed plug and earthed receptacle matchine your local standard. Mains furse 16 amp time-lag required.

3-Phase Machines

Three-phase machines are supplied with a CEE 5-pin plug on the power cord. If a plug matching your local standard has to be installed, connect only as shown at right. The yellow/green earth lead must be connected to the terminal marked .

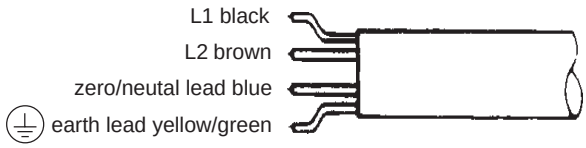
Wiring diagram for Elektra Beckum
3 phase MIG welding machines



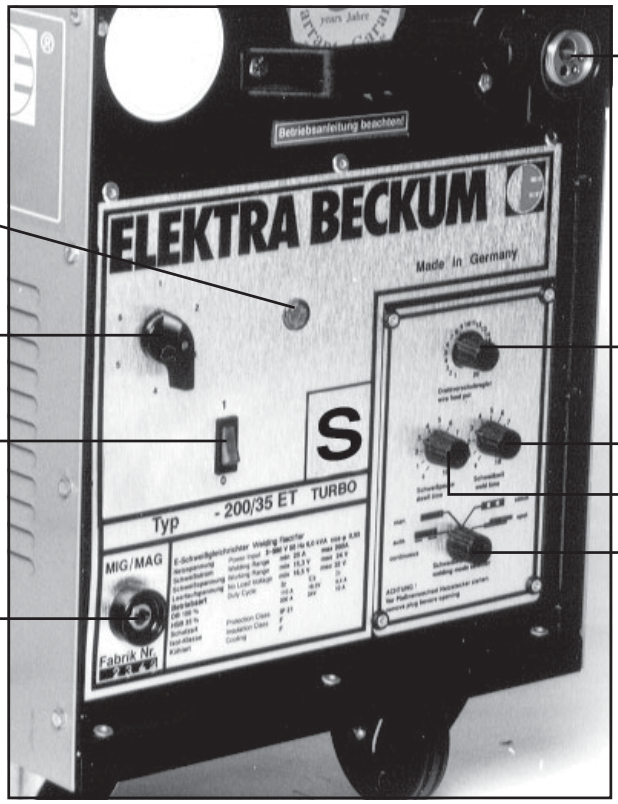
230 V/ 400 V
Combi Machines

Combi models come with a CEE 3-phase 5 prong plug fitted to power cord as standard, and an adaptor with 1-phase plug.
If a 3-phase plug matching your local standard outlet has to be installed, connection has to be made to 2 phases, neutral and earth.

For 380/415 V operation connect to 2 phases + zero and earth lead



Caution: Have machine connected to power mains by a qualified electrician only!



Central coupling KZ 2 for welding gun

Neon Control Light

Welding step selector

Wire feed regulator

Mains on/off switch

Weld time pot

Dwell time pot

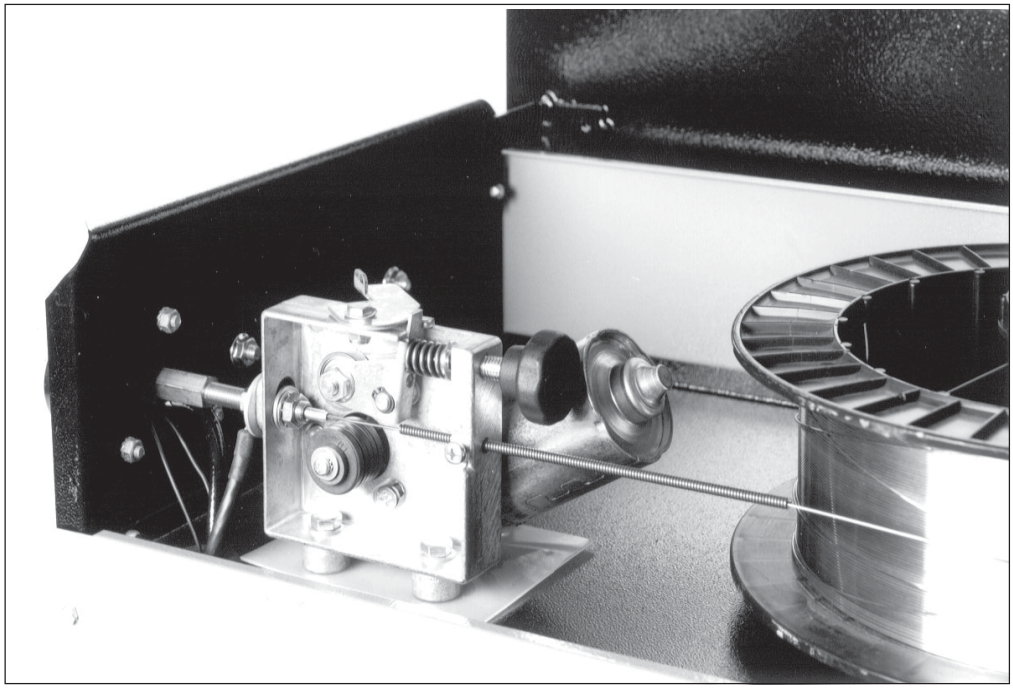
Welding mode selector (E-models only)

Earth cable socket

4 Installing the Wire Spool

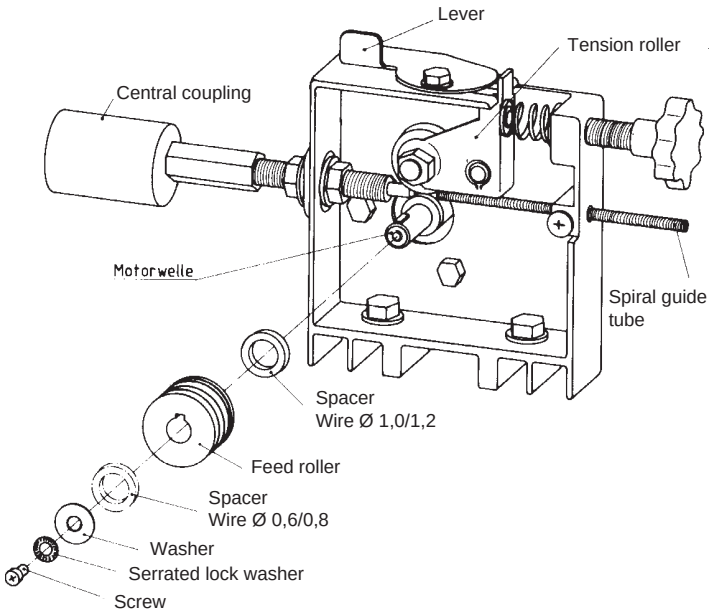
4.1 Disconnect from power mains

Place wire spool onto spool carrier so that wire runs off clockwise.



4.2 Wire Feed Set-up

The feed roller is fitted with four pilot grooves for wire diameters 0.6/0.8/1.0/1.2 mm.
To adapt the feed roller to the wire size used, first release the tension roller from the feed roller by pushing the lever back.
For 1.0 or 1.2 mm wire the corresponding outer groove is required. Place spacer washer onto drive shaft, then feed roller so that the required groove size is in line with the wire intake of the central goupling. For 0.6 or 0.8 mm wire the inner grooves are required. Place feed roller first onto shaft, followed by the spacer washer. After spacer and feed roller have been mounted as required secure in place with the washer, serated lock washer and screw. If required, the two nuts on the central coupling's wire intake can be loosened and its position centered to the groove.
Return the tension roller onto the feed roller an set to required tension by means of the setting screw.



4.3 Feeding the Wire into the Torch

Place the wire through the spiral guide tube across the feed roller into the central coupling's wire intake. Bring tension roller in position and set tension.
Unscrew the gas shroud from the swan neck by turning clockwise, contact tip by turning counter-clockwise. Switch the machine on, set wire feed speed to lowest speed and press the torch's trigger switch until the wire protrudes approx. 2.5 cm/1 in. from the swan neck. Replace contact tip and gas shroud.
Please note that all machines as standard fitted for 0.6; 0.8 and 1.0 mm electrode wire. If a wire of a different diameter is to be used, the contact tip must be exchanged against on of matching size and the feed roller installed with the corresponding groove size opposite the wire intake.

5 Welding Stainless Steel and Aluminium

This MIG welding machine is factory set for welding low-carbon steel. Use a mixed gas (e.g. Ar 99.988 %).

Setting of Wire Feed Speed

Fine tuning of setting during welding is actually carried out.The feed speed is correct when the arc burns with a steady hum.

170/30 TL

Welding Step	Ø 0.6	SG 2	Ø 0.8	SG 2
1	5		4.5	
2	6		5.5	
3	8		6	
4	10		7	
5	15		8	
6	18		9	

170/30 TL Combi

Welding Step	Ø 0.6	SG 2	Ø 0.8	SG 2
	230 V	400 V	230 V	400 V
1	5	6	4.5	5.5
2	6	8	5	6
3	8	10	6	6.5
4	10	12	7	7
5	13	15	8	8
6	16	18	9	9

180/35 ET Combi

Welding Step	Ø 0.6	SG 2	Ø 0.8	SG 2
	230 V	400 V	230 V	400 V
1	3	5	3	4
2	4.5	6.5	3.5	4.5
3	5.5	8	4	6
4	6.5	11	5	7
5	9	17	6	8.5
6	13	20	7	11

200/35 ET

Welding Step	Ø 0.6	SG 2	Ø 0.8	SG 2
1	2		1.5	
2	3		2,5	
3	5		3.5	
4	7		5.5	
5	15.5		10.0	
6	-		13.0	

230/40 ET

Welding Step	Ø 0.6	SG 2	Ø 0.8	SG 2
1	3		2.5	
2	4		3.5	
3	6		4.5	
4	8		6.5	
5	16.5		11.0	
6	-		14.0	

Welding Aluminium

To weld aluminium the following components have to be installed on welding gun and torch lead assembly:

- polyamid liner c/w copper spiral liner
- cylindrical gas shroud
- contact tip "A"
- support tube

It is important to have the feed roller set to the correct electrode wire diameter, otherwise the wire will be deformed resulting in feed problems.

Select electrode wire to match the work piece material (pure aluminium or alloys). Welding aluminium requires a pure inert gas, such as argon or helium. Set gas flow rate to 10 - 13 ltr/min.

1. Disconnect torch lead assembly from machine and remove electrode wire.
2. Place aluminium wire spool onto spool carrier.
3. Remove liner collet from the torch lead's central coupling and pull steel liner from torch lead assembly.
4. Remove gas shroud and contact tip from torch and replace with cylindrical gas shroud an contact tip "A".
5. Fit polyamid liner into central coupling and push through lead assembly until copper spiral rests firmly against contact tip. The copper spiral keeps the polyamid liner from becoming too hot and possibly melting.
6. Push liner collet with o-ring into central coupling and secure with collet nut.
7. For polyamid liners of 4.0 mm outer diameter the wire feed unit's steel capillary tube has to be replaced with a brass support tube. This brass support tube is not required for polyamid liners with 4.7 mm outer diameter.
8. Attach torch lead to central coupling and cut off liner just short of the feed roller. Use a finepitch saw, not pliers.
9. Place remaining polyamid liner between wire spool and feed unit to keep wire from bending and kinking.
10. To thread the aluminium wire into the lead assembly temporarily remove the contact tip.
    Thread wire into liner. Set guide roller(s) to match wire diameter and pressure roller(s) to only minimal pressure, so the wire will not be flattened excessive pressure. Let wire run through lead assembly until it portrudes 2 - 3 cm from the contact tip.
11. Replace contact tip and gas shroud

Welding aluminium requires a pure inert gas, such as Argon. The gas flow rate should be set to 10 - 13 ltr/min for up to 200 A. A minium electrode wire diameter of 0.8 - 1.0 mm is recommended.

Stainless Steel Welding

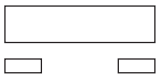
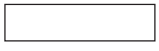
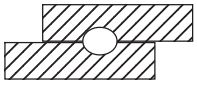
As with aluminium, as pure inert shielding gas is required. Setting of the welding current as with carbon steel. Prepare torch lead assembly for aluminium welding, but use standard contact tip and conical gas shroud. Recommended gas flow rate 8 - 12 ltr/min.To prevent a porous weld seam forehand welding is recommended. For shielding gas both a mixed gas or pure Argon can be used.
Comprising: PA liner 3 m, cylindrical gas shroud SB 15/15, contact tip SB 14-15, 0,8/1,0/1,2, guide tube for PA liner und assembly instructions.

Aluminium Welding Kit:

Wire Ø	**Stock-No.**
0.8 - 1,2 mm	090 202 7939 with polyamid liner

For shielding gas a mixed gas with a low percentage of CO2 (< 5%) can be used (observe supplier information).

Welding Mode Selector (no. 6)

Symbol	Function
	First operation of trigger switch engages continuous welding mode, second operation disengages
	Machines operates as long as trigger switch is held
	Stitch-weld mode
	Spot-weld mode

Setting of stitch and spot weld periods by potentiometers (nos. 8 + 9)
t1 = setting of weld time
t2 = setting of dwell time

6 Practical Hints for MIG Welding

This distance required between the torch and the workpiece is directly related to the welding current:

- **small current = small distance**
- **high current = greater distance**

Too little distance causes excessive wear of the contact tip and gas shroud. Too much distance will not provide enough gas protection of the welding seam, it becomes porous.
Move the welding gun along the seam in a steady motion, always keeping the same distance between the torch and workpiece.
Welding may be done either forehand or backhand, in a straight line or, with larger gaps, in a pendulum motion.
MIG welding is suitable for thin plate welding, as well as for welding thicker materials of up to 12 mm.
For thin plate welding we recommend the use of electrode wire of 0.6 mm diameter and a mixed shielding gas.

Welding Preparations

Attach earth clamp to work piece as close as possible to the welding seam (remove rust, paint etc. to ensure good conducting). Set welding current and wire feed speed with welding step selector and wire feed speed regulator as required. Make trial runs on scrap material to find correct setting.

6.1 Earth Cable

Connect earth cable plug to Earth Cable Socket on the machine's front panel. Use only genuine Elektra Beckum parts with recommended cross sections. Structural components, beams, pipes or rails should not be used for earth conducting, if they are not the actual workpiece. When using welding tables or jigs ensure proper conducting.

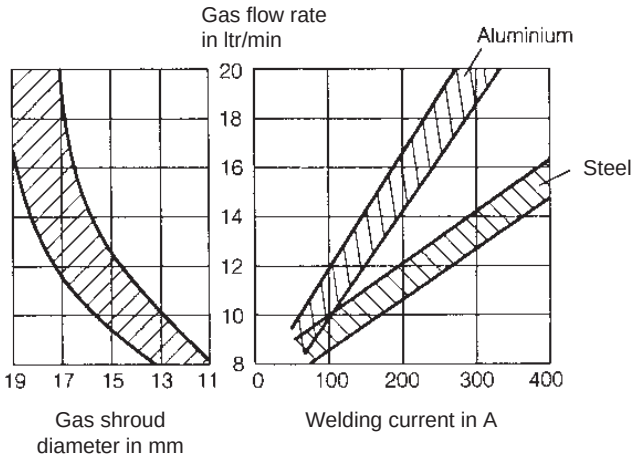
6.2 Gas Flow Setting

The correct amount of shielding gas and a steady gas flow at the welding seam are essential to provide sufficient shielding of the weld pool. Insufficient shielding causes porous welding seams.

Rule of thumb to calculate the shielding gas flow rate required:

Amount of gas in ltr/min = 10 x the electrode wire diameter in mm
Example: Wire diameter 1.0 mm requires a gas flow rate of 10 ltr/min.

Diagram showing the exact gas flow rate required, accounting for different welding current settings



7 Maintenance

The contact tip and gas shroud are the parts most exposed to the radiant heat of the arc and thus are normal wearing parts. They have to be cleaned regularly of spatters and sprayed with anti-clogging spray.
Execessive built-up of spatters can short-circuit contact tip and gas shroud, ruining both. Spatter built-up inside the gas shroud also affects the gas flow to the welding seam.
The machine has to be checked in regular intervals for visible damages.
Dust built-up inside the machine can reduce the duty cycle considerably and may even cause a short circuit. Check regularly and clean if necessary.
Before removing side panel be sure that machine is disconnected from power supply to prevent injury from electric shock.

8 Trouble Shooting

Fault	Cause	Remedy
Irregular wire feed	Incorrect tension of tension roller	Adjust tension
	Pilot groove of feed roller and intake nozzle not aligned	Align
	Liner clogged or not correct size for wire	Check and/or change
	Wire spooled irregularly, rusty or of inferior quality	Clean or change liner
	Wire spool carrier to tight	Change spool
	Feed rollers dirty of worn, groove not matching wire size	Loosen Clean or replace
Brittle or porous welding seam	Gas line fittings not tight	Check fittings
	Gas cylinder empty	Replace cylinder
	Gas cylinder valve closed	Open valve
	Pressure regulator not working	Check
	Solenoid valve not working	Check power at solenoid
	Gas shroud or line in lead ass'y clooged	Clean shroud and spray, blow out gas line
	Air draft at weld seam	Protect from draft or increase gas flow
	Workpiece not clean	Remove rust, grease, paint
	Wire of inferior quality or unsuitable gas	Change wire, use suitable gas
Constant gas flow	Solenoid valve defective or dirty	Check, clean or replace
No wire feed	Trigger switch or leads in lead ass'y defective	Check, replace if necessary
	PCB defective	Replace
	Fine wire fuse on PCB defective	Replace (2 amp time-lag)
Wire feed speed not adjustable	PCB defective	Replace
Not welding current with normal working wire feed	Contactor faulty	Replace
	Step with faulty	Replace
	Earth cable not conducting	Correct
Arcing when gas shroud touches workpiece	Short-circuit between contact tip and gas shroud	Clean shroud, treat with anti-clogging spray or nozzle dip (see footnote below).
Torch becomes excessively hot	Contact tip loose or too large for wire diameter	Tighten tip; replace with correct size tip
No function of machine	Mains fuse/circuit breaker tripped	Reset or replace
Torch under current when machine is switched OFF	Contactor sticky or contacts burned	Check and replace
3-phase machine: excessive spattering with all welding step setting	One phase missing	Check contactor for proper function Check mains fuses, check power at contactor terminals (all 3 phases)
3-phase machine: excessive spattering at a particular welding step	Step switch defective	Check and replace
	Cables between step switch and transformer loose or broken	Check and replace

Important! The capacitors of the 1-phase machines need 40 seconds to discharge completely after the machine is switched off. If the electrode wire makes contact with the workpiece during this period, a short discharge spark is generated.

9 Spare Parts List and Accessories

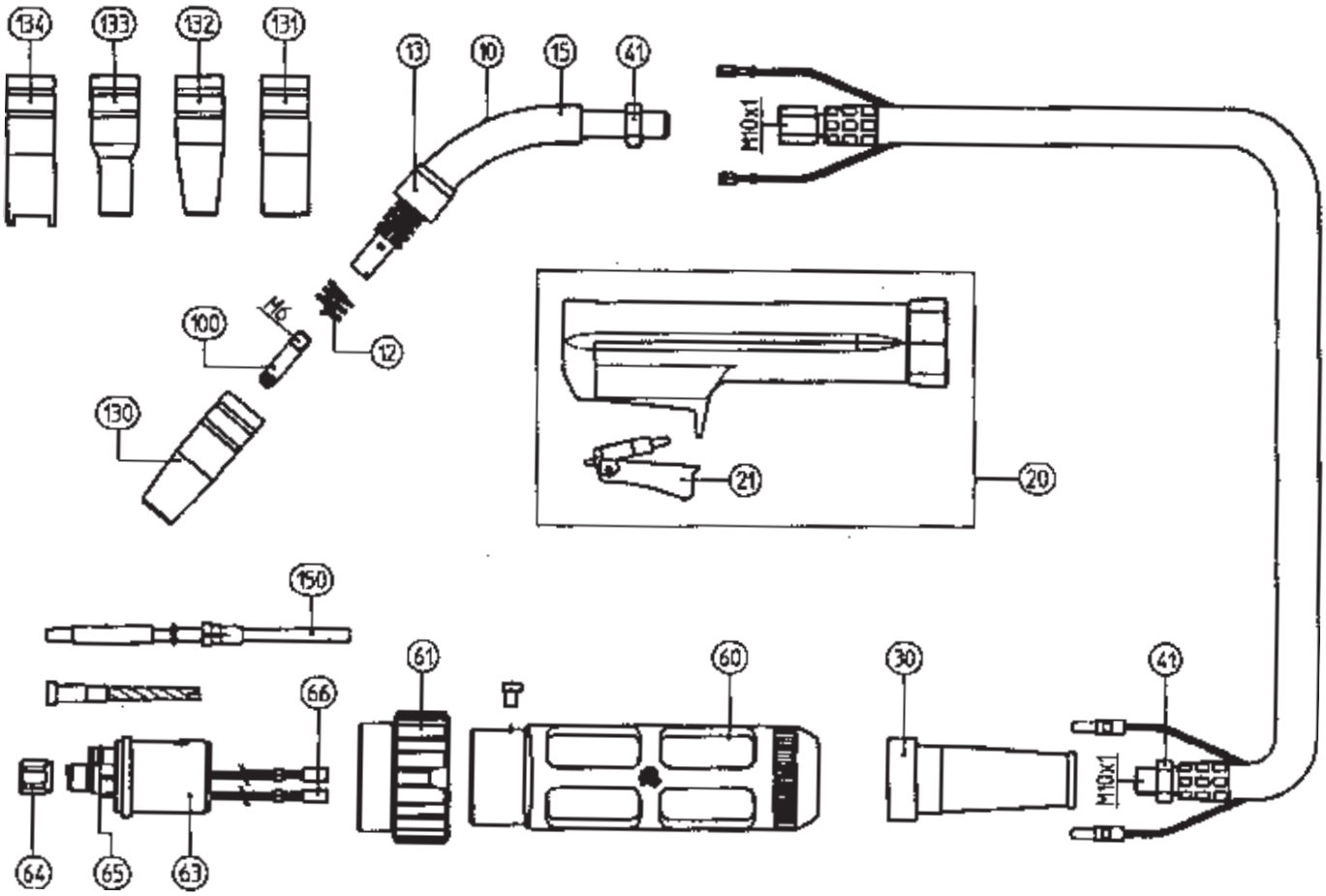
Description	Stock-no.	170/30 TL	170/30 TL Combi	180/35 ET Combi	200/35 ET	230/40 ET
Rectifier bank	805 307 5313	x	x			
Rectifier bank	805 307 0850			x		
Rectifier bank	805 307 1717				x	
Rectifier bank	805 307 1725					x
Rotary fan	804 106 5703	x	x	x	x	x
Central coupling	132 703 3430	x	x	x	x	x
6-step selector switch	811 507 1336	x	x	x		
6-step selector switch	811 507 2901				x	x
Switch on/off with pilot light	811 105 9692	x			x	x
Neon pilot Light 380 V yellow	860 112 1000	x			x	x
Neon pilot Light 380 V white	860 112 1019		x	x		
Selector switch	811 208 5620		x	x		
Capacitor bank 44.000 µF	100 200 2252	x	x			
Capacitor bank 66.000 µF	100 200 4808			x		
Contactor B 6-30-10	810 407 3825	x	x	x	x	
Contactor B 9-40-00	810 403 8140					x
PCB standard 16 A relay	810 660 0695	x	x			
PCB electronic 16 A	810 600 7390			x	x	x
Board "making current limiter"	810 662 8506	x	x	x		
Fine-wire fuse 2 A	826 010 6814			x	x	x
DINSE socket 25 mm	821 507 1309	x	x	x	x	
DINSE socket 50 mm	821 507 1317					x
DINSE plug 50 mm	821 503 7895					x
DINSE plug 25 mm	821 503 7887	x	x	x	x	
Earth clamp 200 A	090 200 1220	x	x	x	x	
Earth clamp 300 A	090 200 1239					x
Power cord	840 209 4428	x				
Power cord	840 212 7911				x	x
Power cord Combi	840 212 7938		x	x		
Adaptor Combi 1-ph/2-ph	100 200 4956		x	x		
Magnetic valve	805 205 2433	x	x	x	x	x
Spool carrier	132 107 3880	x	x	x	x	x
Wire feed motor 24 V	801 113 0047	x	x	x	x	x
Feed roller Ø 30	132 515 4795	x	x	x	x	x
Grooved ball bearning	710 001 0180	x	x	x	x	x
Pressure spring	705 108 6532	x	x	x	x	x
Spring guide	132 508 5840	x	x	x	x	x
Steel liner 140 mm	132 707 1129	x	x	x	x	x
Knotted link chain	723 607 0870	x	x	x	x	x
Pressure regulator dual clock	090 200 5285	x	x	x	x	x
Welding visor	090 200 1255	x	x	x	x	x
Panel connector 9-pin	100 201 4080			x	x	x
Wire Harness with 9-pin plug	845 007 2231			x	x	x

Accessories	Stock-no.
Anti-clogging spray	132 703 8296
2-row wire brush	090 202 7823
Nozzle pliers	090 202 7483
Adaptor for basket reel K 300, 2-tlg.	090 201 2630
Dual gauge pressure regulator	090 203 1472

Electrode Wire	
SG-2-Ø 0.6 mm (1 roll = 5.0 kg)	441 106 0905
SG-2-Ø 0.8 mm (1 roll = 5.0 kg)	441 106 0921
SG-2-Ø 0.6 mm (1 roll = 15.0 kg)	441 106 0913
SG-2-Ø 0.8 mm (1 roll = 15.0 kg)	441 106 0930
SG-2-Ø 1.0 mm (1 roll = 15.0 kg)	441 106 0948
SG-2-Ø 1.2 mm (1 roll = 15.0 kg)	441 106 0956
SG-2-Ø 0.6 mm (1 basket = 15.0 kg)	441 115 4721
SG-2-Ø 0.8 mm (1 basket = 15.0 kg)	441 114 1549
SG-2-Ø 1.0 mm (1 basket = 15.0 kg)	441 114 1557
SG-2-Ø 1.2 mm (1 basket = 15.0 kg)	441 115 4730
Alu Ø 0.8 mm (1 roll = 2.0 kg)	441 101 4555
Alu Ø 1.0 mm (1 roll = 6.0 kg)	441 100 3600

MIG Welding Torch SB 14/3

For models: MIG/MAG 170/30 TL
MIG/MAG 170/30 TL Combi

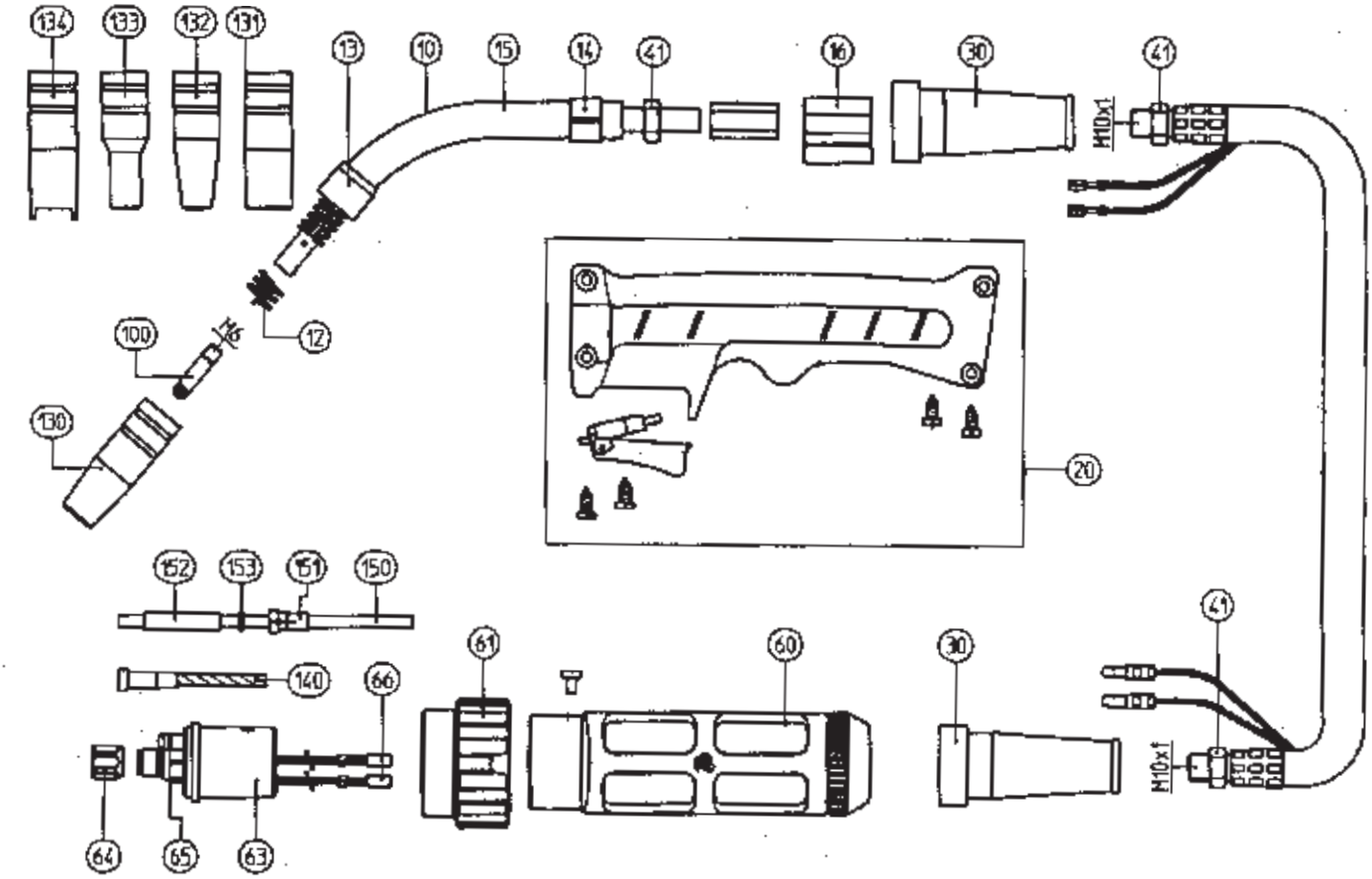


Pos.	Description	Order No.
	Welding torch SB 14/2 cpl. with torch leads 3 m	090 200 9914
10	Swan neck cpl.	090 202 7378
12	Nozzle spring (5x)	090 202 7670
13	Head insulator	132 704 5241
15	Swan neck boot	132 706 1093
20	Handle red cpl.	132 704 5101
21	Trigger red 2-pol.	132 707 4772
30	Cable support	132 704 5209
41	Lock nut M10x1	132 704 5110
60	Cable support	132 706 4068
61	Adaptor nut	132 706 4076

Pos.	Description	Order No.
63	KZ2 adaptor block	132 707 5515
64	Liner positioner nut M10x1	132 706 4106
65	O-ring	132 706 4092
66	Trigger wire connector, fermale	132 706 4084
100	Contact tip ECU M6 - 0.6 mm (5x)	090 202 7645
100	Contact tip ECU M6 - 0.8 mm (5x)	090 202 7653
130	Gas nozzle, con. (3x)	090 202 7742
131	Gas nozzle, cyl. (3x)	090 202 7750
132	Gas nozzle, con. small	132 704 5365
133	Gas nozzle, tapered	132 704 5373
134	Gas nozzle Nagelanschw. (1x/1x)	090 202 7769
134	Gas nozzle	132 704 5381
150	PE-liner with liner positioner	132 704 5195

MIG Welding Torch SB 15/3; SB 15/4; SB 15/5

For models: MIG/MAG 180/35 ET Combi
MIG/MAG 200/35 ET

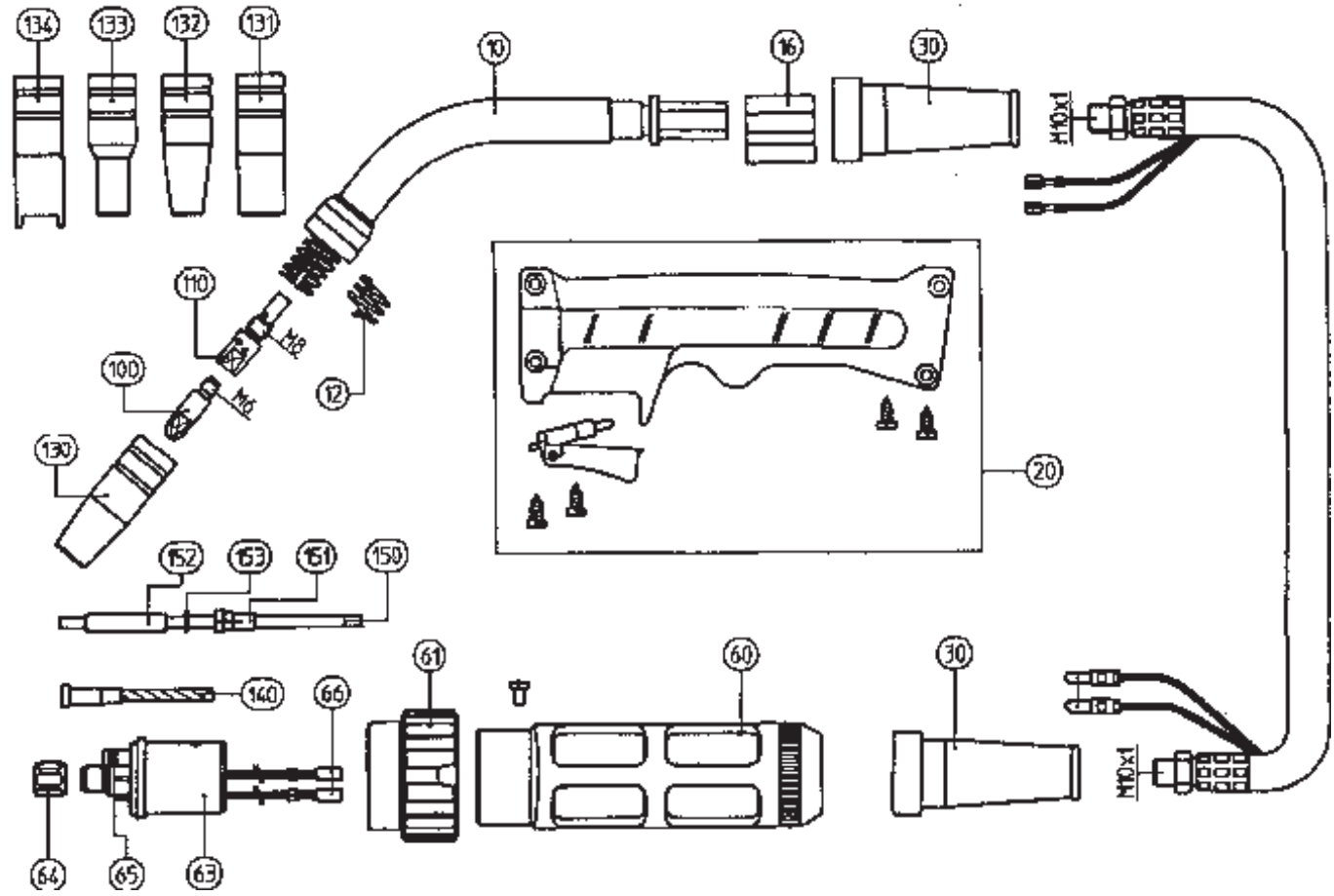


Pos.	Description	Order No.
	Welding torch SB 15/2 3	090 200 9949
	Welding torch SB 15/2 4	090 200 9957
	Welding torch SB 15/2 5	090 200 9965
10	Swan neck	090 202 7386
12	Nozzle spring (5x)	090 202 7670
13	Head insulator	132 704 5241
14	Swan neck spacer	132 704 5276
15	Swan neck boot	132 704 5233
16	Torch body, plastic	132 707 4527
16	Torch body, brass	132 707 4519
20	Handle, red cpl.	132 706 4319
30	Cable support	132 704 5209
41	Lock nut	132 704 5268
60	Cable support	132 706 4068
61	Adaptor nut	132 706 4076
63	KZ2 adaptor block	132 707 5515
64	Liner positioner nut	132 706 4106
65	O-ring	132 706 4092
66	Trigger wire connector, fermale	132 706 4084

Pos.	Description	Order No.
100	Contact tip ECU M6 - 0.6 mm (5x)	090 202 7645
100	Contact tip ECU M6 - 0.8 mm (5x)	090 202 7653
100	Contact tip ECU M6 - 1.0 mm (5x)	090 202 7669
100	Contact tip ECU M6 - 1.2 mm	132 705 6693
130	Gas nozzle, conical (3x)	090 202 7742
131	Gas nozzle, cylindrical (3x)	090 202 7750
132	Gas nozzle, conical small	132 704 5365
133	Gas nozzle, tapered	132 704 5373
134	Gas nozzle, studweld 8 (1x/1x)	090 200 1433
134	Gas nozzle	132 704 5381
140	Insulated liner 0.6 - 0.9 3 m	132 706 4203
140	Insulated liner 0.6 - 0.9 4 m	132 706 4211
140	Insulated liner 0.6 - 0.9 5 m	132 706 4220
140	Insulated liner 1.0 - 1.2 3 m	132 706 4238
140	Insulated liner 1.0 - 1.2 4 m	132 706 4246
140	Insulated liner 1.0 - 1.2 5 m	132 706 4254
150	Polyamid liner 0.8 - 1.2 3 m	132 714 4550
150	Polyamid liner 0.8 - 1.2 4 m	132 714 4541
150	Polyamid liner 0.8 - 1.2 5 m	132 714 4533
152	Guide tube for polyamid liner	132 704 5578
153	O-ring	132 707 5531

MIG Welding Torch SB 25/2

For models: MIG/MAG 230/40 ET



Pos.	Description	Stock-No.
	Welding Torch SB 25/2	
	with torch leads 3 mtr	090 200 8330
	with torch leads 4 mtr	090 200 8349
	with torch leads 5 mtr	090 200 8357
10	Swan neck, complete	090 202 7416
12	Gas shroud spring	132 704 5454
16	Torch body, plastic	132 707 4527
20	Handle ass'y, red SB 25-SB 501	132 706 4319
30	Lead support	132 704 5209
60	Lead support	132 706 4068
61	Adaptor nut	132 706 4076
63	Central adaptor block KZ2	132 707 5515
64	Collte nut M 10x1	132 706 4106
65	O-ring 4x1	132 706 4092
66	Trigger lead connector	132 706 4084
100	Contact tip M6 - 0.8 mm	132 704 5462
100	Contact tip M6 - 1.0 mm	132 704 5489
100	Contact tip M6 - 1.2 mm	132 704 5497
100	Contact tip M6 - 0.8 mm Aluminium	132 700 9695

Pos.	Description	Stock-No.
100	Contact tip M6 - 1.0 mm Aluminium	132 700 9709
100	Contact tip M6 - 1.2 mm Aluminium	132 700 9717
110	Contact tip holder	132 707 5574
130	Gas shroud, conical	132 704 5519
131	Gas shroud, cylindrical	132 704 5500
132	Gas shroud, conical small	132 704 5527
133	Gas shroud, bottle neck	132 704 5535
134	Spot weld shroud	132 704 5543
140	Insulated liner, blue, 0.6-0.9 3 mtr	132 706 4203
140	Insulated liner, blue, 0.6-0.9 4 mtr	132 706 4211
140	Insulated liner, blue, 0.6-0.9 5 mtr	132 706 4220
140	Insulated liner, red, 1.0-1.2 3 mtr	132 706 4238
140	Insulated liner, red, 1.0-1.2 4 mtr	132 706 4246
140	Insulated liner, red, 1.0-1.2 5 mtr	132 706 4254
150	Polyamid liner, 0.8 - 1.2 3 mtr	132 714 4550
150	Polyamid liner, 0.8 - 1.2 4 mtr	132 714 4541
150	Polyamid liner, 0.8 - 1.2 5 mtr	132 714 4533
152	Guide tube polyamid liner 4.0 OD	132 704 5578
153	O-ring 3.5x1.5 for guide tube	132 707 5531
	Contact tip wrench (not shown)	132 704 5411

D DEUTSCH

KONFORMITÄTSERKLÄRUNG

Wir erklären in alleiniger Verantwortlichkeit, daß dieses Produkt mit den folgenden Normen übereinstimmt* gemäß den Bestimmungen der Richtlinien**.

ENG ENGLISH

DECLARATION OF CONFORMITY

We herewith declare in our sole responsibility that this product complies with the following standards*
in accordance with the regulations of the undermentioned Directives**

F FRANÇAIS

DECLARATION DE CONFORMITE

Nous déclarons, sous notre seule responsabilité, que ce produit est en conformité avec les normes ou documents normatifs suivants* en vertu des dispositions des directives **

NL NEDERLANDS

CONFORMITEITSVERKLARING

Wij verklaren als enige verantwoordelijke, dat dit product in overeenstemming is met de volgende normen*
conform de bepalingen van de richtlijnen**

IT ITALIANO

DICHIARAZIONE DI CONFORMITÀ

Noi dichiariamo sotto la nostra esclusiva responsabilità che il presente prodotto è conforme alle seguenti norme*. in conformità con le disposizioni delle normative **

ES ESPAÑOL

DECLARACION DE CONFORMIDAD

Declaramos bajo nuestra exclusiva responsabilidad, que el presente producto cumple con las siguientes normas*.de acuerdo a lo dispuesto en las directrices**

PT PORTUGUÊS

DECLARAÇÃO DE CONFORMIDADE

Declaramos sob nossa responsabilidade que este produto está de acordo com as seguintes normas*.de acordo com as directrizes dos regulamentos **

SV SVENSKA

FÖRSÄKRAN OM ÖVERENSSTÄMMELSE

Vi försäkrar på eget ansvar att denna produkt överensstämmer med följande standarder*. Enligt bestämmelserna i direktiven**

FIN SUOMI

VAATIMUKSENMUKAISUUSVAKUUTUS

Vakuutamme, että tämä tuote vastaa seuraavia normeja*.on direktiivien määräysten mukainen**

NO NORGE

SAMSVARSERKLÆRING

Vi erklærer under eget ansvar at dette produkt samsvarer med følgende normer*. henhold til bestemmelsene i direktiv**

DA DANSK

OVERENSSTEMMELSESATTEST

Hermed erklærer vi på eget ansvar, at dette produkt stemmer overens ed følgende standarder*. iht. bestemmelserne i direktiverne**

POL POLSKI

OŚWIADCZENIE O ZGODNOŚCI

Oświadczamy z pełną odpowiedzialnością, że niniejszy produkt odpowiada wymogom następujących norm*.według ustaleń wytycznych **

EL ΕΛΛΗΝΙΚΑ

ΔΗΛΩΣΗ ΑΝΤΙΣΤΟΙΧΕΙΑΣ

Δηλώνουμε με ιδία ευθύνη ότι το προϊόν αυτό αντιστοιχεί στις ακόλουθες προδιαγραφές* σύμφωνα με τις διατάξεις των οδηγιών**

HU MAGYAR

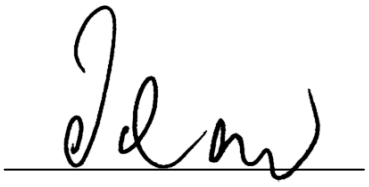
MEGEGYEZŐSÉGI NYILATKOZAT

Kizárólagos felelősségünk tudatában ezennel igazoljuk, hogy ez a termék kielégíti az alábbi szabványokban lefektetett követelményeket*.megfelel az alábbi irányelvek előírásainak**

MIG/MAG 170/30 TL - MIG/MAG 170/30 TLC
MIG/MAG 180/35 ETC - MIG/MAG 200/35 ET - MIG MAG 230/40 ET

*EN 60974-1, EN 50199, DIN EN 55104: 12.1995

** 98/37/EG - 89/336/EWG - 73/23/EWG



Ing. grad. Hans-Joachim Schaller
Leiter Entwicklung und Konstruktion

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D - 49716 Meppen, 10.02.2003

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