



OPERATING INSTRUCTIONS

MIG/MAG gas-shielded metal arc welding units

MEGA.ARC² 250 – 450 WS

REHM SCHWEISSTECHNIK



Operating Instructions

Designation MIG/MAG gas-shielded metal arc welding units

Type

- MEGA.ARC² 250**
- MEGA.ARC² 300**
- MEGA.ARC² 350 S**
- MEGA.ARC² 350 WS**
- MEGA.ARC² 450 WS**

Manufacturer **REHM GmbH u. Co. KG**
Ottostr. 2
D-73066 Uhingen

Telephone: 07161/3007-0
Fax: 07161/3007-20
e-mail: rehm@rehm-online.de
Internet: <http://www.rehm-online.de>

Documents N.: 730 1942

Date of issue: 15.10.2015

© REHM GmbH u. Co. KG, Uhingen, Germany 2006






The content of this specification is the sole property of REHM GmbH u. Co. KG. Passing on and copying of this document and the application and communication of its contents are prohibited, unless explicitly permitted.

We reserve the right to recover damages for any contraventions. All rights are reserved in the event of the granting of patents, utility models or designs.

Any production based on these documents is not permitted.

Subject to technical changes.

Table of contents

	Product Identification	2
1	INTRODUCTION	6
1.1	Foreword	6
1.2	General Description	7
1.2.1	Features of MEGA.ARC ² MIG / MAG gas-shielded welding units.....	8
1.2.2	Principle of the gas-shielded metal arc welding process.....	9
1.2.3	Operating principle of REHM - MEGA.ARC ² welding units.....	9
1.2.4	Intended use.....	9
1.3	Symbols used	10
2	SAFETY INSTRUCTIONS	11
2.1	Safety symbols in this manual	11
2.2	Warning symbols on the system	11
2.3	Instructions and requirements	12
3	DESCRIPTION OF FUNCTIONS	14
3.1	Switching on	14
3.2	Description of Controls	14
3.3	Operating mode selector	18
3.3.1	2-step function 	18
3.3.2	2-step function with step-down sequence: 	18
3.3.3	4-step function 	19
3.3.4	4-step function with reduction sequence: 	20
3.3.5	Spot welding 	21
3.3.6	Stitch---.....	22
3.4	Characteristic curve selector button	22
3.4.1	Wire diameter (and hand-program).....	23
3.4.2	Material/gas combination.....	23
3.5	Digital Display	24
3.5.1	Digital display for energy and special parameters.....	24
3.5.1.1	Energy display.....	24
3.5.1.2	Special parameter display.....	24
3.5.1.3	Error message display.....	25
3.5.2	Digital display for voltage and special parameters [13].....	25
3.5.2.1	Voltage display.....	25
3.5.2.2	Special parameter display.....	25
3.5.2.3	Error number display.....	25
3.5.2.4	Display of correction of wire speed.....	25
3.5.2.5	Display of SDI <i>plus</i> continuously variable choke.....	25
3.6	Welding energy and special parameters knob	26
3.7	SDI <i>plus</i> continuously variable choke	26
3.8	Indicator lamps	27
3.9	Wire feed speed correction knob	27
3.10	Characteristic curve selection	27


3.11	Selection of the welding process	28
3.12	Gouging.....	29
3.13	Push button Job 1-4.....	30
3.13.1	Saving Jobs.....	30
3.13.2	Load job.....	30
3.13.3	Exiting a job.....	30
3.14	Special parameters	31
3.14.1	Parameter overview	31
3.14.2	Setting the special parameters.....	32
3.14.3	Explanation of the special parameters.....	32
3.14.4	Special parameter values.....	35
3.15	Automatic creep feed.....	35
3.16	Automatic burn-free.....	36
3.17	Forced shutdown	36
3.18	Threading	36
3.19	Gas Test	37
3.20	Other Functions.....	37
3.20.1	Water recirculation cooling.....	37
3.20.2	Temperature monitoring of the power components 	38
3.20.3	External cooling of the power components	38
3.20.4	Fan and water pump switching	38
4	ACCESSORIES AND OPTIONS	39
4.1	Accessories	39
4.2	Options.....	40
4.3	MEGA.ARC² CONSTRUCTION	41
4.3.1	General Description.....	41
4.3.2	Options for CONSTRUCTION.....	41
4.4	Functional Description of MEGA.ARC² CONSTRUCTION.....	42
4.4.1	Switching on	42
4.4.2	Description of Controls	42
4.4.3	Digital displays	43
4.4.4	Digital Display Energy [6]	43
4.4.4.1	Energy display	43
4.4.4.2	Error message display.....	43
4.4.5	Digital display for voltage and special parameters [4].....	43
4.4.5.1	Voltage display	43
4.4.5.2	Error code display	43
4.5	Rotary knob (welding current)	43
4.6	SDI <i>plus</i> continuously variable choke	44
4.7	Wire feed speed correction knob	44
4.8	Components of the MEGA.ARC² CONSTRUCTION	45
4.8.1	Parts list with REHM order numbers	45
4.9	Technical data for the MEGA.ARC² CONSTRUCTION	45
5	COMMISSIONING	46
5.1	Safety instructions	46
5.2	Working under conditions of increased electrical danger.....	46

Table of contents

5.3	Setting up the welding unit	46
5.4	Device Connections.....	47
5.5	Connecting the welding unit.....	50
5.6	Remote control socket	50
5.6.1	Configuration of the remote control socket	50
5.6.2	External wiring of the remote control parameters	51
5.6.3	Coding of the remote control accessories.....	52
5.7	Cooling the welding unit	52
5.8	Water cooling for MIG/MAG welding torches.....	52
5.9	Connection of the welding power supply cables	53
5.10	Connecting the torch	53
5.11	Inserting the wire	53
6	OPERATION.....	54
6.1	Safety instructions.....	54
6.2	Tests before switching on.....	54
6.3	Connecting the earthing cable	54
6.4	Practical application instructions	54
7	FAULTS	57
7.1	Safety instructions.....	57
7.2	Troubleshooting table	57
7.3	Fault reporting.....	59
8	MAINTENANCE AND REPAIR	60
8.1	Safety instructions.....	60
8.2	Maintenance Table.....	61
8.3	Cleaning the inside of the unit.....	61
8.4	Cooling water control	62
8.5	Proper Disposal.....	62
9	CIRCUIT DIAGRAMS.....	63
10	MEGA.ARC ² COMPONENTS.....	66
10.1	List of components with REHM order numbers	66
10.2	Exploded drawings	69
11	SPECIFICATIONS	76
12	INDEX	77

1 Introduction

1.1 Foreword

Dear Customer,

You have purchased a REHM gas-shielded welding unit, a brand-name German product. We would like to thank you for your confidence in the quality of our products.

Only the highest quality components are used in the development and manufacture of REHM MEGA.ARC² gas-shielded welding units. For a long service life, even under the toughest conditions, only those components that meet the REHM's strict quality requirements are used in REHM welding units. MEGA.ARC² MIG/MAG gas-shielded welding units have been developed and manufactured in accordance with generally recognised safety and technical regulations. All the relevant legal requirements have been observed, and the equipment is supplied with a declaration of conformity as well as the CE symbol.

REHM welding units are manufactured in Germany and carry the quality label "Made in Germany".

As REHM tries to make immediate use of technical advances, we reserve the right to adapt and modify the design of these welding units to conform with the latest technical requirements.

1.2 General Description



*Illustration 1 : MEGA.ARC² 450 WS
(picture similar)*

1.2.1 Features of MEGA.ARC² MIG / MAG gas-shielded welding units

- **Housing in REHM design**
Improved ergonomics thanks to systematic and continuing enhancement of the REHM design. It has a protection degree of IP23 thanks to its protected and intelligent structure. So welding outside is allowed.
- **REHM high-performance transformers**
High-performance transformer with double enamelled wire, insulation class H (180 °C).
High-quality enamelled copper wire is used for all transformers; transformer windings are layer wound with inter-layer insulation.
- **High-power switches with REHM transistors**
Thoroughly tested and patented high-power switches.
- **REHM thermal protection**
All REHM equipment is protected against overheating by thermal sensors.
- **Powerful 4-roll wire feed**
Guarantees dependable wire feed even for torches with excess length.
The tandem guide ensures a uniform pressure is exerted evenly over both pairs of feed rolls. All 4 rolls are gear-linked and thus run at the same speed.
- **REHM SDI *plus* (Stepless Dynamic Induction)**
With REHM-SDI *plus*, the MEGA.ARC² has a continuously variable electronic choke, guaranteeing excellent ignition characteristics and an even more stable arc.
- **REHM automatic creep feed**
The system reduces the wire feed speed until the arc has ignited. This ensures dependable ignition.
- **REHM automatic free burning**
Ensures that the operator has a consistent length of wire “stick out” at the end of the welding process.
- **REHM safety shut-down**
The REHM forced safety shut-down prevents accidentally turning on power to the equipment and, thus, provides maximum user protection.
- **REHM FOCUS.ARC**
The REHM FOCUS.ARC welding processes give high arc stability for welding under special conditions, for example in narrow gaps or with a long stickout

1.2.2 Principle of the gas-shielded metal arc welding process

The gas-shielded metal arc welding process consists of an arc that burns between a wire electrode, which melts away, and the work piece. Argon, carbon dioxide (CO₂) or a mixture of these or other gases are used as shielding gas.

The wire electrode is unwound from a spool by a feed motor and pushed through the torch bundle to the contact tip.

The positive pole of the current source is situated above the current contact tip on the wire electrode and the negative pole is on the work piece. An arc is established between the wire electrode and the work piece, which melts away the wire electrode and fuses onto the work piece. The electrode therefore functions as the arc carrier and the filler metal at the same time.

The wire electrode and the weld pool are shielded from atmospheric oxygen by shielding gas emerging from the shielding gas nozzle which is arranged concentrically around the electrode.

1.2.3 Operating principle of REHM - MEGA.ARC² welding units

REHM MEGA.ARC² gas-shielded welding units are secondary pulsed, steplessly adjustable constant voltage sources for the MIG/MAG process. A high-performance transformer converts the power grid voltage to the voltages needed for the MIG/MAG process and provided by the REHM zero-potential transistor module. The REHM transistor module continuously regulates the output voltage and current gain using the on/off intermittence ratio. Based on user settings, the multiprocessor control unit calculates the optimum current and voltage circulation as well as the relative feeding speed of the wire for individual welding types and provides nominal values to the wire-feed unit and the REHM transistor module. Power grid voltage oscillations are automatically stabilized through recourse to modern, transistor switching technology, obtaining a high degree of efficiency. Since the output inductance is electronically reproduced, the multiprocessor control unit constantly and dynamically imposes the optimum throttling effect for a stable arc with little splashing.

Alloyed and non-alloyed steels, stainless steels, aluminium and CuSi₃ can be welded with REHM MEGA.ARC² gas-shielded welding units.

These units are designed for optimum welding performance and high efficiency, are equipped with robust housings and feature cooling systems designed for minimum noise output. All the components have been tested extensively under practical conditions for heavy-duty and industrial usage.

1.2.4 Intended use

REHM welding units are designed to weld various metals such as non-alloyed and alloyed steels, stainless steels, aluminium and CuSi₃. Please note also any special regulations that may apply to your application. Please contact your safety officer or REHM Customer Service if you have any queries.

REHM welding units are for sale to commercial / industrial users and only intended to be used by them, unless explicitly stated in writing by REHM. They may only be used by personnel who have been instructed and trained by REHM in the operation and maintenance of welding units.

Unauthorised modifications and changes to the machine are prohibited for safety reasons. The manufacturer is not liable for any resulting damages.

Welding power sources may not be used in areas where there is an increased electrical risk.

This manual contains rules and guidelines for the use of the equipment for which it is intended. Use in accordance with its intended purpose requires compliance with these rules and guidelines. Risks and damage which arise from other forms of use are the responsibility of the operator. In case of special requirements, there may be additional particular provisions to be observed.

If in doubt, please ask your local Safety Officer or contact REHM Customer Service.

Note should also be taken of the specific instructions for proper use listed in the supplier's documentation.

The operation of the equipment is also governed by national regulations without any restrictions.

Proper use also includes compliance with the specified conditions for installation, dismantling, re-installation, commissioning, operation, maintenance and disposal measures.

In particular, follow the instructions in Chapter 2, Safety Instructions and Chapter 8.5 Proper Disposal.

The equipment may be operated only under the above-mentioned conditions. Any other use is deemed not to be for the intended purpose. The operator will be liable for any consequences arising from improper use of the equipment.

1.3 Symbols used

Typographical conventions

- List with preceding dots: General enumeration
- Enumerated items are preceded by a square: Work or operational steps that must be performed in the order listed.

➔ Chapter 2.2, Warning symbols on the unit

Cross-reference: to Chapter 2.2, warning symbols on the unit.

Bold text is used for emphasis

Note:

... indicates tips and other useful information.



Safety symbols

For the safety symbols used in this manual: ➔ **Chapter 2.1.**

2 Safety instructions

2.1 Safety symbols in this manual

Warnings and symbols



This symbol, or one that more accurately identifies the risk, is used with all safety instructions in this manual where there is a risk to life and limb.

One of the signal words below (Danger!, Warning!, Caution!) indicates the level of risk:

Danger! ... an imminent danger.

If this is not avoided, can result in death or serious injury.

Warning ... a potentially dangerous situation.

If this is not avoided, can result in death or serious injury.

Caution: ... a potentially harmful situation.

If this is not avoided, can result in slight or minor injuries and may cause damage.

Important!



Reference to a possibly harmful situation. If this is not avoided, can result in the product or something nearby being damaged.



Substances which are injurious to health and/or the environment.

Materials / consumables that are to be handled and/or disposed of in accordance with regulations.

2.2 Warning symbols on the system

identify risks and hazards in the unit.



Danger!

Risk of electric shock!

Failure to comply can result in death or injury.

2.3 Instructions and requirements

Risks arising from non-compliance

The equipment was designed and manufactured in accordance with generally recognised technical regulations.

Nevertheless, its use may constitute a risk to the life and limb of the user or third parties or cause damage to the equipment or other property.



Safety devices must never be removed or disabled, as this may result in hazards and the equipment no longer being used in accordance with its intended use. The removal of safety devices when setting up, repairing and carrying out maintenance is described elsewhere. Immediately after completing such work, the safety devices must be reattached.

When using third party materials (e.g. solvents for cleaning) the operator of the equipment must ensure the safety of the unit.

All safety and hazard information and the rating plate on the equipment must be kept complete and legible, and be complied with.

Safety instructions

Safety instructions are for health and safety. They must be observed.

Safety instructions, including those listed in other chapters, must be observed, as must the special safety instructions contained in the text.



In addition to the instructions in these operating instructions, the general safety and accident prevention regulations (in Germany including UVV BGV A3, TRBS 2131 and BGR 500 Chapter 2.26 (formerly VGB15 15): "Welding, cutting and associated processes" and in particular the references to arc welding and cutting or the appropriate national regulations) must be observed.

Also observe the safety information signs in the operator's workshop.

Areas of application

Except where expressly stated otherwise in writing by REHM, REHM welding equipment is only intended for sale to commercial or industrial users and only for use by such users.



MEGA.ARC² MIG/MAG gas-shielded welding units are designed according to EN 60974-1 *Arc welding equipment – Welding power sources* for welding for overvoltage category III and pollution level 3 and EN 60974-10 *Arc welding equipment – Electromagnetic compatibility (EMC)*.



The MEGA.ARC² MIG/MAG gas-shielded welding units designed in accordance with EN 60974-1 *Arc welding equipment – Welding power sources* for welding for overvoltage category III and pollution level 3 and EN 60974-10 *Arc welding equipment – Electromagnetic compatibility (EMC)*, and may only be used on power supply systems that have a three-phase four-wire system with earthed neutral.

MEGA.ARC² MIG/MAG gas-shielded welding units may only be used

- for the purpose intended and
- in a safe condition

Hazards of this machine

The MEGA.ARC² MIG/MAG welding units have been subjected to a safety check and acceptance. Improper operation or misuse can pose a risk to

- Life and limb of the operator,
- The machine, and other property belonging to the operator
- The efficient operation of the machine

All persons who are involved with the installation, commissioning, operation and maintenance of the machine must

- be suitably qualified
- carefully observe these operating instructions.

Safety instructions

It's about your safety!

Qualification of operating personnel

MEGA.ARC² MIG/MAG gas-shielded welding units may only be operated by personnel who have been instructed and trained in the use and maintenance of welding units. Only qualified, trained personnel who have been tasked to do so may work on the equipment.

The machine operator is responsible for others present in the work area. The responsibilities for this machine must be clearly defined and adhered to. Inadequate competence is a safety risk.

The user must

- make the operating instructions accessible to the machine operator
- make sure that the machine operator has read and understood them.

Fit the machine with a lockable switch that makes operation by unauthorised personnel impossible.

Purpose of the document

This manual contains important information on how you can operate this equipment safely, properly and efficiently. A copy of the manual must be kept near the equipment at a suitable location. Before using the unit, be sure to read the information summarised for you in the operating instructions. You will receive important advice on using the unit, which will enable you to benefit fully from the technical features of your REHM unit. You will also find information regarding maintenance and repair, as well as operation and functional safety.



Changes to the equipment

This manual does not replace instruction given by REHM service personnel.

The documentation of any additional options that may possibly be present must also be considered.

No alterations to the unit or the attachment of additional equipment, are permitted. Doing so will invalidate the warranty and any liability claims.

Any tampering with or disabling of safety devices will result in all warranty claims becoming null and void.

Power supply requirements

High performance units may affect the main power supply due to their high power consumption. For certain types of equipment, there may be connection restrictions, requirements for a maximum permissible network impedance or requirements for a minimum available power to be available at the point of connection to the general power grid (see specifications). In these cases, the user of a device - if necessary in consultation with the electricity supplier - must ensure that the unit may be connected.

3 Description of functions

3.1 Switching on

The main switch is used to put the MEGA.ARC² welding unit into operation. The software version number of the control unit (e.g. P1.0) is displayed for two seconds on the upper display and the version number of the data set of the characteristic curves (e.g. d01) is displayed on the lower display. Then, for 2 seconds, the type of machine is displayed in the upper digital display (e.g. 250) and the lower one displays "on". All LEDs are illuminated during the entire period. After two seconds, the upper digital displays shows the nominal energy values (A, m/min) and the lower display shows the voltage, which is determined by the characteristic curve currently loaded in the unit when it was switched on. The LEDs indicating mode settings, wire diameter and material/gas are illuminated as appropriate. The welding unit is now ready to operate.

3.2 Description of Controls

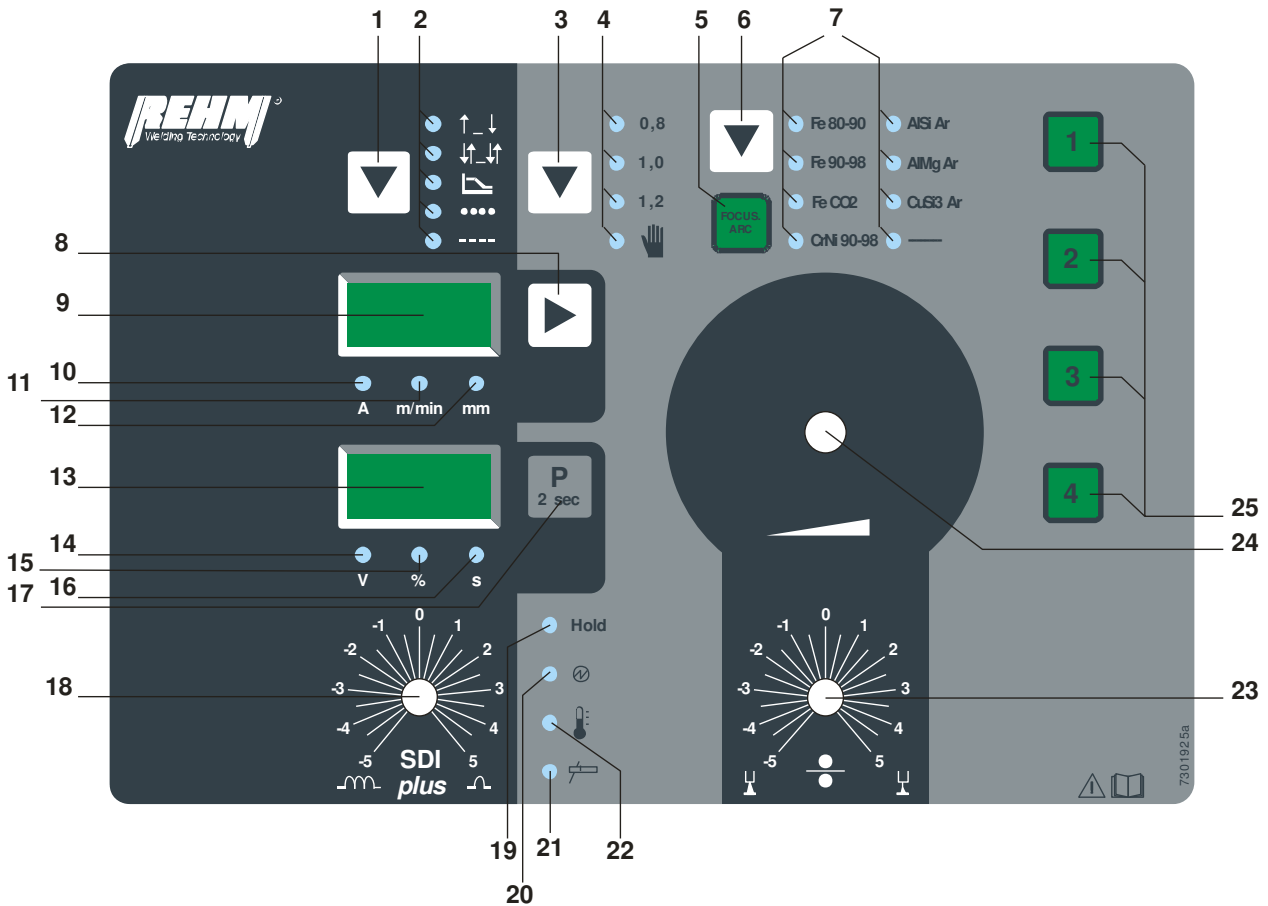


Illustration 2: Operating element MEGA.ARC² COMPACT

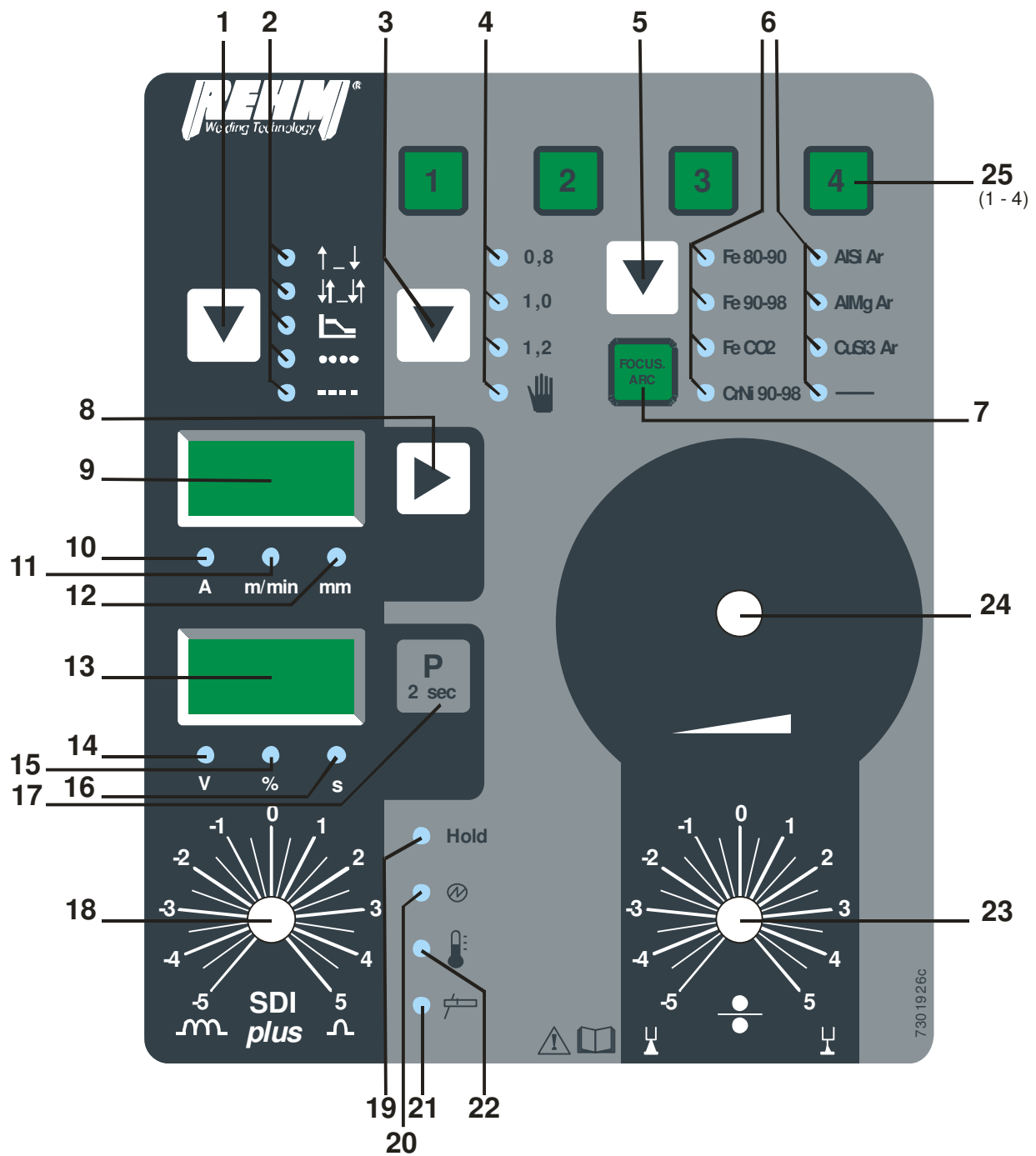


Illustration 3: Operating element MEGA.ARC² case unit.

- 1 Operating mode selector
- 2 Operating mode LEDs
 - 2-step
 - 2-step with step-down
 - 4-step
 - 4-step with step-down
 - spot
 - interval
- 3 Characteristic curve selector button wire diameter
- 4 Wire diameter LED indicator

- 5 Characteristic curve selector button material/gas combination
- 6 Material/gas combination LED indicator
- 7 FOCUS.ARC welding button
- 8 Energy and special parameters button
- 9 Digital display for energy and special parameters
- 10 LED indicator A (ampere)
- 11 LED indicator m/min (wire-feed speed)
- 12 LED indicator mm (material thickness)
- 13 Digital display for energy and special parameters
- 14 LED indicator V (voltage)
- 15 LED indicator % (percentage, special parameters)
- 16 LED indicator s (seconds, special parameters)
- 17 Energy and special parameters button
- 18 SDI plus knob - continuously variable choke
- 19 Hold function control lamp
- 20 OPERATION control lamp
- 21 GOUGING active control lamp
- 22 TEMPERATURE control lamp
- 23 Wire feed speed correction key
- 24 Welding energy and special parameters knob
- 25 Job 1-4 button

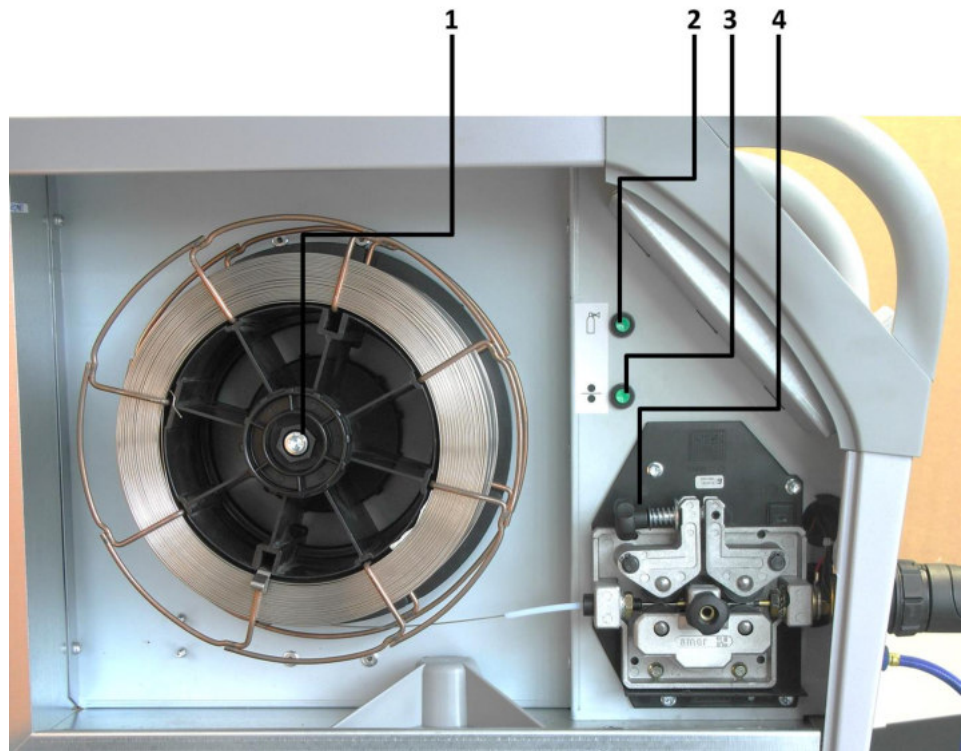


Illustration 4: Wire feed case controls

- 1 Spool spindle
- 2 Gas test button
- 3 Threading button
- 4 Fixation for pinch rolls

3.3 Operating mode selector

Button [1] is used to select the operating mode: 2-step, 4-step, 4-step with step-down, spot welding and interval welding. The mode is set by pressing the button and the LED indicator lights indicating the operating mode selected.

3.3.1 2-step function ↑ ↓

2-step welding is recommended for rapid, controlled tacking and manual spot welding.

2-step function sequence:

- 1. Step - press torch key
 - Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc
 - The welding current runs with the set hotstart value P03
 - Feed is switched to the set wire feed speed
 - At the end of the hotstart time P04, the welding current of the hotstart value P03 is changed to the value set for welding
- 2. Step - release torch button
 - Wire feed stops
 - Welding current is switched off after the free burn time P08 has expired.
 - Gas-shielding is switched off after the post-purge gas flow time has expired.

Unit is available for new welding process.

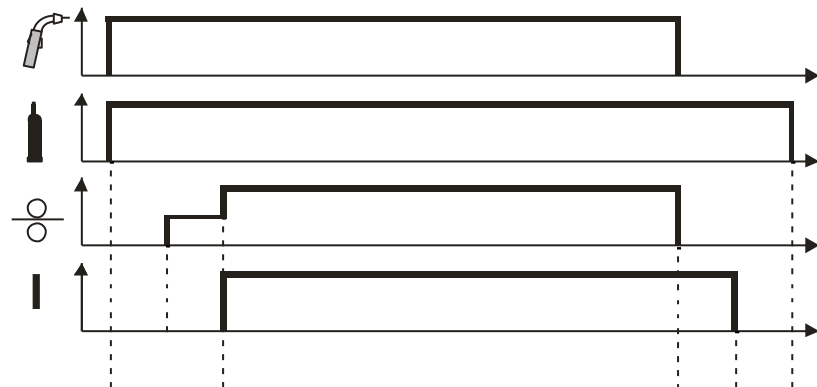


Illustration 5: Sequence 2 - step function

3.3.2 2-step function with step-down sequence: ↑ ↓ ↘

2-step function with step-down sequence:

- 1. Step- press torch button
 - Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc

Functional Description

- The welding current runs with the set hotstart value P03
 - Feed is switched to the set wire feed speed
 - At the end of the hotstart time P04, the welding current of the hotstart value P03 is changed to the value set for welding
2. Step- release torch button
- Welding current decreases with the pre-selected down slope P05 to the end current set value (ACTU P06)
 - Wire feed stops
 - Welding current is switched off after the free burn time P08 has expired.
 - Shielding gas is switched off after the post-purge gas flow time P07 has expired.

Unit is available for a new welding process.

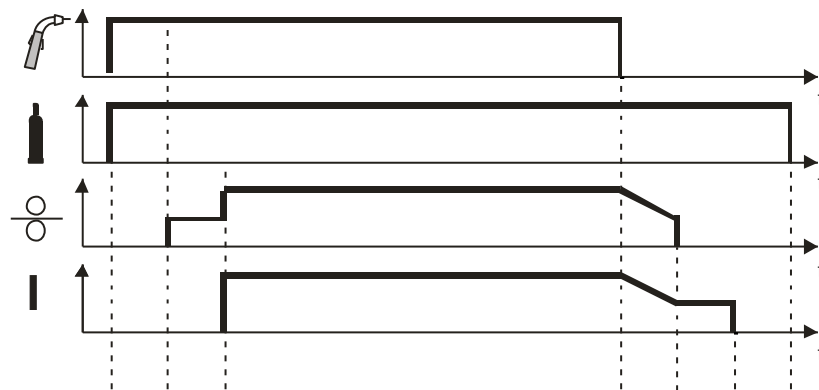


Illustration 6: 2-step operation with step-down

3.3.3 4-step function $\downarrow\uparrow_ \downarrow\uparrow$

4-step welding is recommended for longer weld seams.

4-step function sequence:

1. step - press torch button
- Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc
 - Feed is switched to the set wire feed speed
 - The welding current runs with the set hotstart value P03
2. Step - release torch button
- The welding current is changed from the hotstart value to the value set for welding
3. step - press torch button
- pressing the torch button has no effect
4. Step - release torch button
- Wire feed stops
 - Welding current is switched off after the free burn time P08 has expired.
 - Shielding gas is switched off after the post-purge gas flow time P07 has expired.

Unit is available for a new welding process.

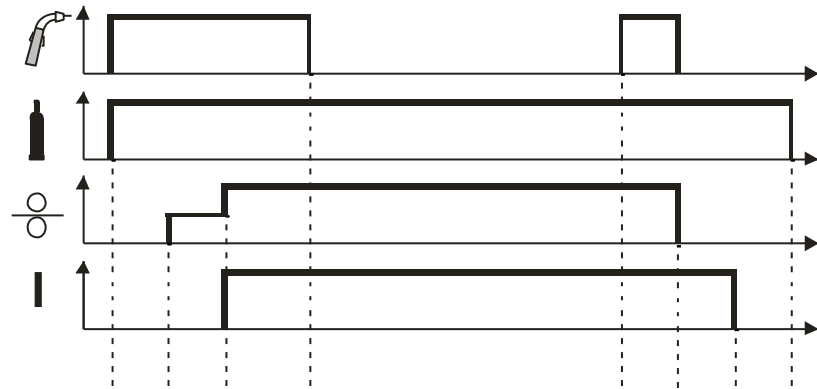


Illustration 7: Sequence 4 - step function

3.3.4 4-step function with reduction sequence: ↓↑_↓↑

4-step function with reduction sequence:

- 1. step - press torch button
 - Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc
 - The welding current runs with the set hotstart value P03
 - Feed is switched to the set wire feed speed
- 2. step - release torch button
 - The welding current is changed from the hotstart value to the value set for welding
- 3. step - press torch button
 - The welding current is reduced over the selected lowering time P05, to the value set for the end crater current (lowering value P06) *****
- 4. step - release torch button
 - Wire feed stops
 - Welding current is switched off after the free burn time P08 has expired.
 - Shielding gas is switched off after the post-purge gas flow time P07 has expired.

Unit is available for a new welding process.

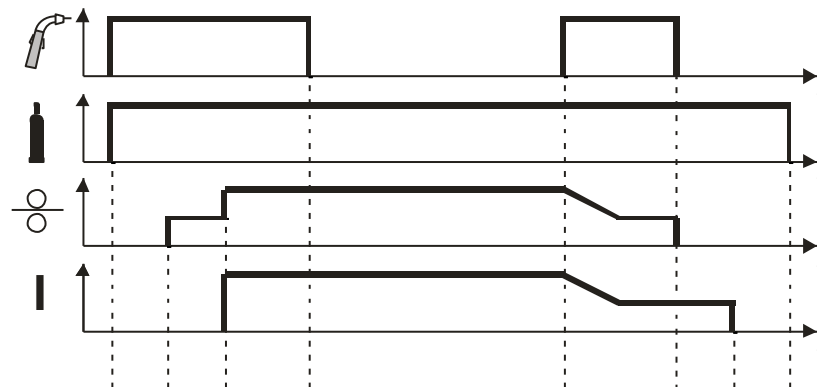


Illustration 8: Sequence of 4-step function with lowering

3.3.5 Spot welding ••••

The spot function permits precisely-timed spot welding, e.g. for consistent tacking. Once the torch key has been pressed, the welding process is ended automatically by the processor control once the pre-set spot time P09 has expired. The spot-welding time P09 can be freely selected in the special parameters sub-menu (see Chapter 3.11).

Sequence of spot function:

- 1. step - press torch button
 - Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc
 - The welding current flows
 - Feed is switched to the set wire feed speed
 - At the end of the spot welding time P09, the power source is automatically switched off
 - Wire feed stops
 - Welding current is switched off after the free burn time P08 has expired.
 - Shielding gas is switched off after the post-purge gas flow time P07 has expired.

- 2. Step - Releasing the torch
 - By releasing the torch button during the spot welding time, the welding process is immediately stopped and the shielding gas is switched off after the post-purge gas flow time P07.

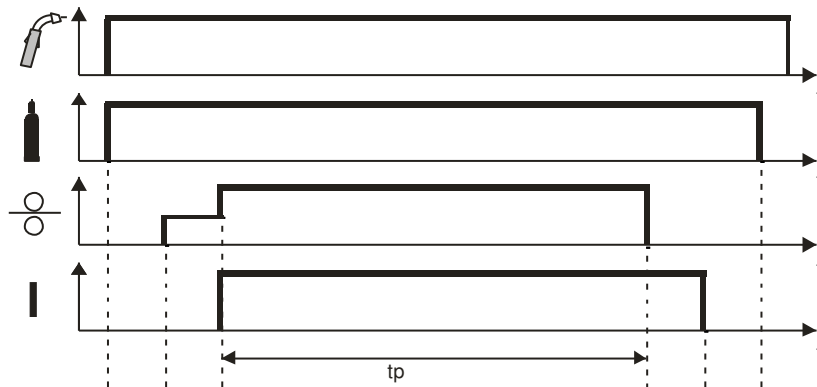


Illustration 9: Sequence spot welding

3.3.6 Stitch---

Stitch welding is defined as spot welding with defined pauses. The welding time P09 and P10 pause time can be freely selected in the special parameters sub-menu (see Chapter 3.13)

Sequence of stitch welding function:

- 1. step - press torch button
 - Solenoid valve for shielding gas is opened
 - Welding voltage is available
 - The wire feed operates at reduced speed (automatic creep feed)
 - Strike the arc
 - The welding current runs with the set hotstart value P03
 - Feed is switched to the set wire feed speed
 - After the set welding time P09, the welding process is defined as at an end.
 - The pause time P10 runs
 - After the pause time is complete, the welding process is ignited again and the welding process starts up again.
- 2. step - release torch button
 - Stitch-welding is terminated

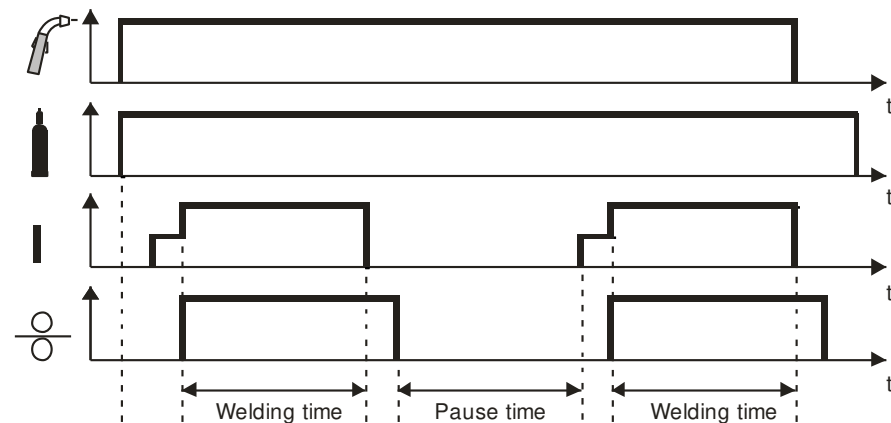


Illustration 10: Sequence stitch-welding

3.4 Characteristic curve selector button

With these buttons [3] and [5] it is possible to set the diameter of the welding wire used and the material/gas combination for the welding task in hand. Based on the programmed characteristic curve data sets, it is no longer necessary to lose time making tests, since, thanks to the innovative, synergistic control unit, the wire-feed speed, choke setting and the start and end phases are perfectly adjusted to the welding task in hand. Setting is always carried out by pressing the button and the LED indicator lights indicating the selected setting.

In the following table all the standard characteristics that can be selected are marked with an "x". For material/gas combinations marked with (FOCUS.ARC), the FOCUS.ARC process can also be selected.

Functional Description

Material and gas combination	Wire diameter			
	0.8 mm	1.0 mm	1.2 mm	Hand function
Fe 80-90	x	x FOCUS.ARC	x FOCUS.ARC	x
Fe 90-98	x	x	x	x
Fe CO2	x	x	x	x
CrNi 90-98	x	x FOCUS.ARC	x FOCUS.ARC	x
AlSi Ar	-	x FOCUS.ARC	x FOCUS.ARC	x
AlMg Ar	-	x FOCUS.ARC	x FOCUS.ARC	x
CuSi3 Ar	x	x	-	x
-----	-	-	-	
x	Characteristic curve in standard delivery condition available			
-	Characteristic curve in standard delivery condition available not included			
FOCUS.ARC	Characteristic curve with FOCUS.ARC process available			

3.4.1 Wire diameter (and hand-program)

The diameter of the welding wire inserted is set by pressing button [3]. The following wire diameters can be selected: 0.8 mm, 1.0 mm and 1.2 mm.

If using welding wire with other diameters, select the manual function. The user can directly define the correct equipment setting (such as wire feed speed, spool regulation, etc.) over the entire range of values.

3.4.2 Material/gas combination

The user sets the material/gas combination [5] for the welding task in hand by pressing the characteristic curve selection button. The following common combinations can be selected:

- Fe 80-90 (steel/gas: 80%-90% Ar)
- Fe 90-98 (steel/gas: 90%-98% Ar)
- Fe CO2 (steel/gas: 100% CO2)
- CrNi 90-98 (CrNi/gas: 90%-98% Ar)
- AlSi Ar (AlSi/gas: 100% Ar)
- AlMg Ar (AlMg/gas: 100% Ar)
- CuSi3 Ar (CuSi3/gas:100% Ar)
- -----For specific material/gas combinations, an application-specific characteristic curve data set can be stored. These special characteristic curves can be programmed and installed at the main REHM plant in Uchingen, upon request.

3.5 Digital Display

Two, 7 segment displays [9+13] permit a rapid and clear view both of the special welding parameters and of the anomaly messages (see chapter 7). There are LEDs below the digital displays that, when lit, indicate which values (such as welding current A, wire-feed speed m/min and sheet metal thickness mm) are displayed. To select the display mode, press the button [8+16] next to the digital display.

When the equipment is switched on the software version number of the control unit (e.g. P1.0) is displayed for two seconds on the upper display [9] and the version number of the characteristic curve data set (e.g. d01) is displayed on the lower display [13]. Then, for 2 seconds, the type of machine is displayed in the upper digital display (e.g. 250) and the lower one displays "on". After two seconds, the upper digital display shows the nominal energy values (A, m/min, mm) and the lower display shows the voltage, which is determined by the program loaded in the system when it is switched on.

The digital displays are also used for reading and changing the special parameters (such as gas pre flow, reduction or spot-welding time) and for error messages (ERR).

3.5.1 Digital display for energy and special parameters

3.5.1.1 Energy display

By pressing button [8] next to the upper digital display [9], the user can choose to display the current type of welding energy A, the wire-feed speed m/min or the material thickness mm, while the LEDs [from 10 to 12] indicate the selected display mode, when lit. During the welding process the welding current value is always displayed independently of the type of energy selected.

- **Display A (ampere):** During no-load voltage, it displays the nominal value of the welding current obtained from the programmed characteristic welding curve. During welding, the actual welding current is displayed. When welding is finished, the last welding current used is displayed for about 7 seconds (HOLD function), while the HOLD control lamp [19] remains lit.
- **The m/min display (wire feed speed) display:** displays the selected wire feed speed. All the other welding parameters are automatically set based on the characteristic curve data set. Setting the wire feed speed [23] with the correction button doesn't affect this display.
- **The mm (material thickness) display:** displays the material thickness of the base metal to be welded. All the other welding parameters are automatically set based on the characteristic curve data set.

3.5.1.2 Special parameter display

With the special parameters, the user can change the fundamental basic settings and the technical welding parameters such as the gas pre-flow time creep feed, operation of the external potentiometers 1 and 2, etc. to his own needs. The special parameters are displayed and set from the sub-menu. The upper digital display for special parameters [9] displays the value of the single special parameter. The detailed description of the special parameters is shown in Chapter 3.11.

3.5.1.3 Error message display

In the case of a fault, this display shows "Err". The error number concerned is displayed on the lower digital display [13] (see Chapter 7.3)

3.5.2 Digital display for voltage and special parameters [13]

3.5.2.1 Voltage display

If the V LED [14] (voltage) is lit under the lower digital display [13], the actual welding voltage is displayed during the entire welding process. Normally, the individual no-load voltage derived from the programmed characteristic curve is displayed.

3.5.2.2 Special parameter display

The special parameters allow the user to change fundamental machine settings and technical welding parameters to adapt them to his own needs. The special parameters are displayed and set from the sub-menu. The lower digital display for special parameters [13] displays the number of the relevant special parameter. The % indicator LEDs [15] (percentage) or s [16] (seconds) illuminate if the particular parameter selected is indicated as a percentage or in seconds. The values of the special parameters are displayed, respectively, as a percentage (such as reduction value) and in seconds (such as spot-welding time). The detailed description of the special parameters is shown in Chapter 3.11.

3.5.2.3 Error number display

During operation, the MEGA.ARC²'s processor control unit monitors a series of important functions. If an error or anomaly is detected, welding is interrupted or inhibited and the error number displayed. The detailed description of the special parameters is shown in chapter 7.3.

3.5.2.4 Display of correction of wire speed

When adjusting the wire feed speed correction (see Chapter 3.9) the exact correction value is displayed.

3.5.2.5 Display of SDI *plus* continuously variable choke

When adjusting the SDI *plus* variable choke (see Chapter 3.7), the exact choke value is displayed when the SDI *plus* function is switched on (special parameter P11 "On").

When SDI *plus* function is switched off (special parameter P11 "OFF"), "OFF" appears in the digital display when a change is made using the [18] SDI *plus* knob.

3.6 Welding energy and special parameters knob

With the welding energy knob [24] it is possible to set the welding power (welding current, wire feed speed, material thickness) steplessly and consequently establish the operating point. Almost any operating point between the minimum and maximum can be selected. The processor control unit automatically provides all the parameters necessary for the entire welding process.

In the sub-menu, the user can use the knob [24] to change the values of the special parameters selected.





3.7 SDI *plus* continuously variable choke

All MEGA.ARC² units are equipped with a continuously variable electronic choke. The choke characteristics are dynamically adjusted to the welding task by the processor control. This allows for the optimum choke adjustment (except in the manual program) as a function of the material selected, either at the start or during welding.

The MEGA.ARC² units from the 250 to the 450 offer the possibility of adjusting the choke action to suit your way of working; the arc can therefore be made harder or softer. (Special parameter P11 "On"). If the SDI *plus* knob [18] (see Fig. 2 and 3) is in the central "0" position, the choke action recommended by the factory is based on the material selection. The arc can steplessly be made harder by rotating the knob [18] towards the right and softer by rotating it steplessly to the left. In this way, the arc can also be better adapted to difficult welding locations, such as when working in an overhead position or in a tight space. During setting, the exact value is displayed on the lower digital display [13].

When the SDI *plus* function is switched off (special parameter P11 "OFF"), the factory recommended choke action is set (centre position "0").

3.8 Indicator lamps

Symbol	Description
Hold function [19] 	For about 7 seconds after the end of welding, the energy and voltage digital displays show the welding current and voltage values used for welding until the end. The Hold lamp is lit during this period (Hold time).
OPERATION [20] 	There is a no-load voltage on the wire electrode. The wire electrode is pushed out of the current nozzle of the torch. The arc is ignited when the work piece is touched.
TEMPERATURE [22] 	Since all pertinent components are constantly monitored, the welding current is interrupted when the maximum operating temperature of the components is exceeded. After cooling, the system automatically returns to operating status.
GOUGING [21] 	The "gouging" welding process is active.

3.9 Wire feed speed correction knob

The wire feed speed can be reduced or increased with the knob [23]. In this way, the user can even individually change the length of the arc (shorter/longer arc).

When threading-in the wire, it is possible to vary the threading-in speed from half to double the factory-set speed by rotating the correction key from position 0 to the left or right. During setting, the exact value is displayed on the lower digital display [13].

3.10 Characteristic curve selection

With REHM characteristic curve selection, you can set the MEGA.ARC² unit immediately to the required welding job without time-consuming experimentation by pre-setting the material/gas type and the wire diameter. The wire feed speed, the choke setting and the start and end phases are optimally adjusted to the respective welding job electronically. For this purpose, the characteristic curves establishing the assignment of these values to the material/gas and wire diameter set are saved in the MEGA.ARC² system.

For this, the wire feed speed correction key should be set to 0.

Characteristic curve selection process (sequence irrelevant):

- Set the wire diameter (or the manual program)

Set the value of the welding wire inserted using the wire diameter selector [3] (see Chapter 3.4.1). For other diameters, select the manual program. The LED [4] corresponding to the diameter selected, or the manual program, comes on.

- Set the material/gas combination.

Press the material/gas combination program selector [5] to set the type of welding desired. The LED [6] for the material/gas combination selected comes on.

For a different material/gas combination, select the manual program. For specific material/gas combinations, a special user-defined characteristic curve data set

can be stored. These special characteristic curves have been developed and installed by welding professionals at the main REHM plant in Uhingen.

Manual program

If the manual program was selected at the time of selecting the wire diameter [3], the material/gas LED [6] goes off. The appropriate settings of the machine (such as energy, wire feed speed and voltage) can be set directly by the user over the entire range of values using the welding energy knob [24] as well as with the wire feed speed correction knob [23] and the SDI *plus* knob [18].

Digital displays

Depending on the display mode set, during program selection, the upper digital display [9] shows the values of welding current A, wire feed speed m/min or material thickness mm, while the lower digital display shows the no-load voltage established by the synergistic characteristic curve based on the program parameters selected.

Special welding positions

In the case of welding in difficult locations, such as overhead or in tight space, the arc can be steplessly adjusted to be harder or softer, by turning the SDI *plus* knob [18] (continuously variable choke, see Chapter 3.7). If need be, the arc is better adjusted with single fine movements of the SDI *plus* or wire feed speed [23] (arc length correction) in order to better suit the welding task.

3.11 Selection of the welding process

Pressing the FOCUS.ARC [7] welding button selects the FOCUS.ARC welding process. The FOCUS.ARC welding button [7] lights up.

Pressing the FOCUS.ARC welding button [7] again switches the FOCUS.ARC welding process off. The FOCUS.ARC welding button [7] is not lit.

Select the FOCUS.ARC welding method for an arc with the following properties:

- Short powerful arc
- Directionally stable arc
- Low spatter arc despite the short arc length

Functional Description

The advantages of this welding process result from:

- Welding with a long stick out, e.g. in confined spaces
- Reducing the seam opening angle
- Deep penetration
- Reliable root formation
- Limited rework due to low spatter
- Faster welding
- Safe control of the process
- Saving on layers

3.12 Gouging

When gouging, a carbon electrode and compressed air are used to gouge the weld roots or cracks in order to be able to back-weld or over-weld. All materials that can be fused in the arc can be gouged. Particularly suitable for gouging are unalloyed, low-alloy and high-alloy steels, cast iron, aluminium and aluminium alloys.

To gouge, the intermediate hose bundle welding power cable must be unplugged and the gouging torch welding power cable inserted (see Paragraph 4.1, accessories). Activate the special parameter P18 for the gouging function (On). After 2 seconds, the "operation" [20] indicator light comes on, and voltage is applied to the welding sockets. The current is set using the welding energy and special parameter knob [24].

To return to MIG / MAG welding, set the special parameter P18 to "OFF". Unplug the gouging torch welding power cable and insert the intermediate hose bundle welding power cable.

Recommended settings for the joining steel with a carbon electrode and "+" pole

Type of unit	Electrode diameter	Working pressure
MegaArc ² 350	6 mm	7 bar
MegaArc ² 450	8 mm	7 bar

3.13 Push button Job 1-4

Pressing the Job button 1 to 4 [25] allows the desired jobs to be selected and saved. For each characteristic curve, a data set with 4 jobs can be saved.

3.13.1 Saving Jobs

Making the required machine settings (power, choke correction [SDI *plus*], wire feed speed correction [Vd]) on the MEGA.ARC² unit.

Press the button with the desired job number (1 - 4) [25] and hold for about 2 seconds.

When saving the values, the digital display [13] goes out for about 0.5 seconds.

The selected button [25] lights up and the job is now stored on this button.

3.13.2 Load job

A job is loaded with a short press of the button 1 - 4 [25].

The selected button will light up.

The values stored for this job (power, throttle correction (SDI *plus*), wire feed speed correction (V d)) are then loaded.

Jobs 1 to 4 may also be called up using the Up-/Down torch. See special parameters P13.



3.13.3 Exiting a job

The activated job is exited by selecting a new welding characteristic curve or by changing the welding current, the choke setting and wire feed speed correction.

The button [25] is no longer lit.

3.14 Special parameters

The special parameters allow the user to change fundamental machine settings and technical welding parameters to adapt them to his own needs.

3.14.1 Parameter overview

The special parameters sub-menu allows for changing and saving the most important welding parameters. The special parameters are identified by a parameter number (Pxx). In the case of a standard unit or when the Clear All function has been called up (see Chapter 3.11.4), the factory settings are assigned to these parameters.

Parameter-no.	Parameter
■ P01	Gasvorströmzeit gas pre-flow time
■ P02	Einschleichen creeping speed
■ P03	Hotstart hotstart
■ P04	Hotstartzeit hotstart time
■ P05	Absenzeit down slope time
■ P06	Absenstrom down slope current
■ P07	Gasnachströmzeit gas post-flow time
□ P08	Freibrandzeit burn-back time
□ P09	Punkt-/Schweißzeit spot time/welding time
□ P10	Pausenzeit non welding time
□ P11	SDI plus off/on SDI plus off/on
□ P12	Funktion des externen Potentiometer 1 function of external potentiometer 1
□ P13	Funktion des externen Potentiometer 2 function of external potentiometer 2
□ P14	Brennertaster Up-/Down torch push-button up/down
□ P15	Wasserpumpe water pump
□ P16	Lüfter fan
□ P17	Nachlaufzeit für Wasserpumpe und Lüfter follow-up time for water pump and fan
□ P18	Fugenhobeln off/on gouging off/on
Clear All	Setzt alle Parameter auf Werkseinstellungen zurück Reset to factory settings

pro Kernlinie / for each curve für alle Kernlinien / for all curves

Illustration 11: Special parameter overview

This special parameters overview is to be found in the wire-feed unit of MEGA.ARC²- units.

3.14.2 Setting the special parameters

Setting or changing special parameters requires activating the special parameter sub-menu.

- Activate the sub-menu by holding down the "Voltage and Special Parameters" button [17] for at least 2 seconds.
- The desired special parameter is selected by briefly holding down (less than 2 seconds) the "Voltage and Special Parameters" button [17].
- The user can change the value of the parameter with the "Welding Energy and Special Parameters" knob [24].
- In order to save, the "Energy and Special Parameters" button [8] must be held down for at least 2 seconds. When the parameter is saved, the display goes off for 2 seconds.
- If you wish to reset the parameter values to the factory settings, select "CLrALL" (Clear All) with the Special Parameters button [17] (rather than a parameter number). When the Special Parameters button [17] is held down (for about 2 seconds) all the parameter values are brought back to the factory settings and the digital display goes out for 2 seconds.

To exit the sub-menu, hold down the Voltage and Special Parameters button [17] for at least 2 seconds.

3.14.3 Explanation of the special parameters

- **Parameter P01 "Gas preflow time"**
Time between the opening of the gas valve and the beginning of creep feed. This parameter depends on the characteristic curve selected, i.e., a different gas pre flow time can be set for each curve.
- **Parameter P02 "Creep feed"**
Setting of creep feed speed.
OFF → no creep speed. The wire feed speed has the same value as during welding.
On → creep speed. The wire feed value is reduced depending on the characteristic curve selected (characteristic curve value).
This parameter depends on the characteristic curve selected, i.e., a different creep feed can be set for each curve.
- **Parameter P03 "Hotstart"**
Hotstart energy after ignition, as a percentage of welding energy (100%). Depending on the application, the value can be reduced (set to less than 100) or increased (set to higher than 100). This parameter depends on the characteristic curve selected, i.e., a different reduction value can be set for each curve.

- **Parameter P04 "Hotstart time"**
The hotstart time defines the duration of the hotstart (parameter P03). This parameter depends on the characteristic curve selected, i.e., a different hotstart time can be set for each curve.
- **Parameter P05 "Reduction value"**
Duration of the reduction of the welding current to the reduction current. This parameter depends on the characteristic curve selected, i.e., a different reduction time can be set for each curve.
- **Parameter P06 "Reduction value"**
The reduction current after the reduction time has elapsed (P04). The reduction current is related to the welding current (100%). This parameter depends on the characteristic curve selected, i.e., a different reduction value can be set for each curve.
- **Parameter P07 "Gas postflow time"**
The time between switching-off the power module (end of free burning time) and switching-off the gas valve. This parameter depends on the characteristic curve selected, i.e. it is possible to set the gas postflow time individually.
- **Parameter P08 "Free burning time"**
The time between switching-off the wire feed motor and switching off the power module. This parameter changes the free burning time predefined for each characteristic curve value and allows the individual adjustment of the length of the free end of the wire at the end of welding.
Au → Factory defined free burning time
Number → Individual setting of the free burning time
A higher free burning time value produces a shorter wire free end (since the wire burns back for longer), while a lower value produces a longer wire free end.
Free burning time set too high:
 - Wire end can be burnt in the contact tip
 - Big balling up of the wire electrode → poor ignition
- **Parameter P09 "spot time" / "welding time"**
Duration of welding in "spot" and "interval" mode, when the torch button is not released early. See "spot" mode (Point 3.3.5) or "interval" mode (Point 3.3.6 ff).
- **Parameter P10 "pause time"**
Pause time in "interval" mode. See "interval" mode (Point 3.3.6 ff)
- **Parameter P11 "SDI plus"**
Enable or disable SDI *plus* function (see Chapter 3.7 "SDI *plus* continuously variable choke").
OFF → SDI *plus* function is inactive
On → SDI *plus* function is active
- **Parameter P12 "External potentiometer function 1"**
Behaviour of external potentiometer (energy regulation) 1:
0 → External potentiometer (energy) 1 is inactive.
1 → External potentiometer (energy) 1 is active.

- **Parameter P13 "External potentiometer function 2"**
Behaviour of external potentiometer 2 (with respect to wire feed speed and choke adjustment):
0 → External potentiometer 2: is inactive.
1 → External potentiometer 2: Wire feed speed regulation active.
2 → External potentiometer 2: Choke adjustment active.
- **Parameter P14 "torch function Up / Down"**
This setting is provided when using an Up-/Down burner. The following settings can be made for the Up / Down buttons of the Up / Down torch:
0 → Inactive
1 → Energy
2 → Job sequence 1-2
3 → Job sequence 1-2-3
4 → Job sequence 1-2-3-4

Note:
The loading of a job within a job sequence ends with the first or last job.
- **Parameter P15 "Water pump"**
Water pump behaviour.
OFF → Water pump is off.
On → Water pump is on (continuous operation).
Au → Water pump is controlled load-dependently i.e. water pump is switched on during welding and switched off after the termination of the welding process following a set delay time (adjustable via P17).
- **Parameter P16 "Fan"**
Behaviour of the fan.
On → The fan is switched on (continuous operation).
Au → The fan is controlled load-dependently i.e. switched on when welding and after termination of the welding process, switched off following a delay time on (adjustable via P17).
- **Parameter P17 "Water pump and fan delay time"**
The water pump and fan delay time can be set from 2 to 7 minutes. In order to reach the specified duty cycle value (ED), the delay time should be set to 7 minutes.
- **Parameter P18 "gouging welding method"**
Enables or disables the "gouging" welding method.
OFF → "gouging" welding method is inactive
On → "gouging" welding method is active
- **"Clear All" parameter**
Reset all parameters to their factory settings. The parameters that depend on the characteristic curve are only reset for the characteristic curve.

3.14.4 Special parameter values

	Parameter number	Parameter	Factory setting	Value range
■	P01	Gas pre-flow time	0.1 s	0.1 ... 20 s
■	P02	Feed in	On	On / Off
■	P03	Hotstart	100 %	50 .. 200%
■	P04	Hotstart time	2.0 s	0.1...5.0s
■	P05	Lowering time	1.0 s	0.1 ... 5.0 s
■	P06	Lowering value	65 %	20 .. 100 %
■	P07	Gas post-flow time	0.3 s	0.1 ... 20 s
□	P08	Free burn time	Auto	Auto...30
□	P09	Spot welding time / welding time	0.5s	0.1 ... 5.0s
□	P10	Pause time	0.5s	0.1 ... 5.0s
□	P11	SDI <i>plus</i>	On	On / Off
□	P12	Function external potentiometer 1	1	0 = inactive 1 = Energy
□	P13	Function external potentiometer 2	0	0 = inactive 1 = wire correction 2 = choke
□	P14	Torch function Up / Down	0	0 = inactive 1 = Energy 2 = job sequence 1-2 3 = job sequence 1-2-3 4 = job sequence 1-2-3-4
□	P15	Water pump	Auto	On / Off / Auto
□	P16	Fan	Auto	On / Auto
□	P17	Follow-up time	7 min	2...7 min
□	P18	Welding method gouging	Off	On / Off
	CLrALL	Resets all parameters to factory settings (Clear All)		

- Special parameter is valid for the currently selected characteristic curve
- Special parameter is valid for all characteristic curves

3.15 Automatic creep feed

Dependable ignition is assured by the automatic creep feed. It reduces the wire feed speed when the tip of the wire is cold. Once the arc has been ignited, it switches to the pre-set wire feed speed. Creep feed can also be switched-off in the "parameters" P02 sub-menu (see Chapter 3.13).

3.16 Automatic burn-free

An appropriate free burning time is automatically set to match the wire feed speed depending on the motor brake phase. At the end of welding, the correct length and shape of the free end of the wire is produced for the next ignition thanks to the automatic free burning device. An individual adjustment of the free burning can be carried out in the "Parameter P08" sub-menu (see Chapter 3.13).

3.17 Forced shutdown

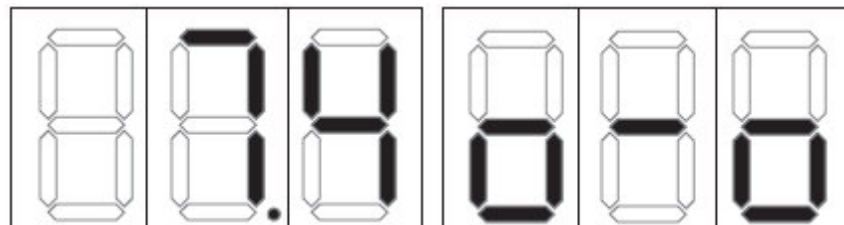
If the welding current is interrupted for more than 3 seconds during welding, i.e., if the arc is not switched on within 3 seconds, the welding voltage, wire feed and gas are automatically switched off. The machine is then immediately reset to the initial settings. Users of REHM MEGA.ARC² welding units therefore benefit from additional protection against electric shock and fire.

3.18 Threading

The threading function involves threading the welding wire into the torch hose assembly without current. Threading-in the welding wire into the torch hose assembly is carried out with the button above the power supply unit. When threading-in the wire, it is possible to vary the threading-in speed from half to double the factory-set speed by rotating the wire feed speed correction knob [23] from 0 to the left or right respectively.

By pressing the "threading" button, the wire is threaded for 2 seconds at a reduced speed. Then the threading speed is increased over a period of about 2 seconds up to the set threading speed.

During threading, the current threading speed is shown on the "energy" digital display [9] and the "threading" symbol shown in the "power" digital display [13].



Energy digital display [9]
Current threading speed

Voltage digital display [13]
Threading symbol

Illustration 12: View of digital display [9] + [13] in threading setting.

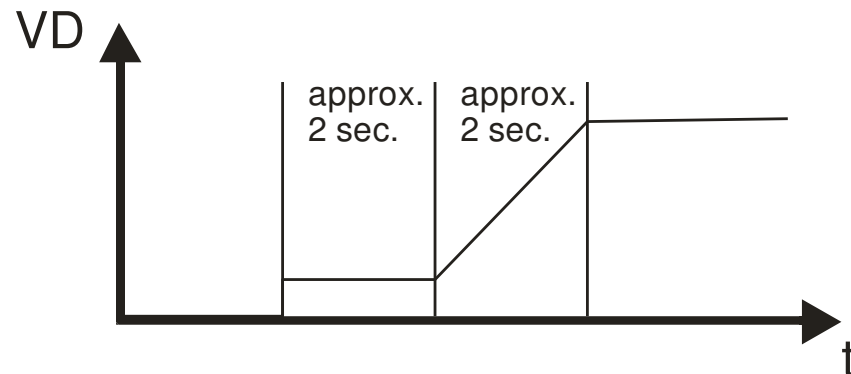


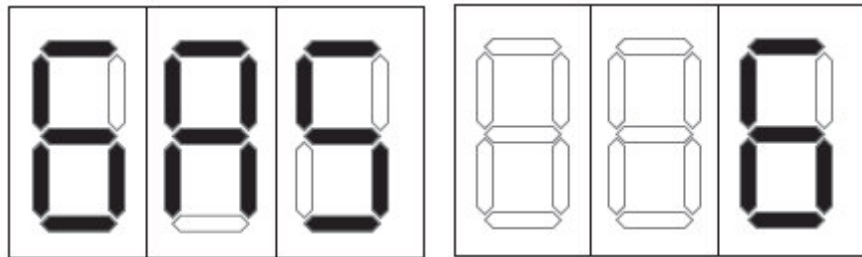
Illustration 13: Sequence when threading

3.19 Gas Test

The "gas test" is used to set the required amount of gas on the pressure reducer. In this way, it is possible to set the desired gas flow using the pressure reducer in the absence of voltage and wire feed.

There is a button above the supply system for the gas test. As long as this button is held down, the gas valve is open and the shielding gas flows from the torch.

"GAS" is shown in the "energy" digital display [9] and the remaining time for the gas test is displayed in the "power" digital display [13]. After 10 seconds, the gas test is automatically terminated. The gas test can be interrupted by pressing the "gas test" button or the torch button.



Energy digital display [9]
Gas test setting

Voltage digital display [13]
Gas test time remaining

Illustration 14: View of the digital display [9] + [13] in gas test setting.

3.20 Other Functions

3.20.1 Water recirculation cooling

The MEGA.ARC² 450 and MEGA.ARC² 350 are equipped as standard with cooling by water recirculation cooling for the torch A flow meter on the cooling water return monitors the flow and issues an error message if this falls below the critical value of 0.4l/min. This protects the torch from overheating due to a lack of water cooling.

3.20.2 Temperature monitoring of the power components



The welding current is automatically switched-off when the maximum temperature of the power components (transformer and transistor switches) is exceeded. This condition is signalled by the TEMPERATURE control lamp [22] and by an error message on the control panel. After the power components have cooled, the system automatically returns to its operating status.

3.20.3 External cooling of the power components

The power components of MEGA.ARC² units are designed for a high level of operational safety. Optimum heat dissipation with minimum noise is achieved by the targeted positioning of the cooling fan and the power components.

3.20.4 Fan and water pump switching

MEGA.ARC² units have on-demand fan and water pump switching. The fan and the water pump switch-on immediately at the start of welding. There is a delay time of 7 minutes at the end of welding, which can be changed in the special parameters sub-menu by setting P13. The fan and water pump then enter stand-by mode. This reduces noise, wear and energy consumption.

To ensure perfect cooling of the torch during the first welding process, once the main power is switched-on, the water pump is automatically activated until cooling water has run through the return for 10 seconds.

4 Accessories and options

This manual is based on using accessories approved by REHM.

4.1 Accessories

Recommended accessories for the MEGA.ARC ²		MEGA.ARC ²				
		250	300	350S	350WS	450WS
Pressure reducer with readout and working pressure gauge.	7830100	x	x	x	x	x
Earthing cable						
Earthing cable 35mm ² 4m	7810102	x	x			
Earthing cable 50mm ² 4m	7810109	x	x	x	x	x
Earthing cable 70mm ² 4m	7810104	x	x	x	x	x
Earthing cable 95mm ² 4m	7810106	x	x	x	x	x
Intermediate hose packages						
Intermediate hose bundle 1.4m	1380600				x	x
Intermediate hose bundle 5m	1380601				x	x
Intermediate hose bundle 10m	1380602				x	x
Intermediate hose bundle 15m	1380603				x	x
Intermediate hose bundle 20m	1380608				x	x
Intermediate hose bundle 30m	1380609				x	x
Intermediate hose bundle 1.4m	1380604			x		
Intermediate hose bundle 5m	1380605			x		
Intermediate hose bundle 10m	1380606			x		
Intermediate hose bundle 15m	1380607			x		
Torch						
MB 25 3m	7602543	x	x	x	x	x
MB 25 4m	7602544	x	x	x	x	x
MB 25 5m	7602545	x	x	x	x	x
MB 25 3m potentiometer	7602563	x	x	x	x	x
MB 25 4m potentiometer	7602564	x	x	x	x	x
MB 25 5m potentiometer	7602565	x	x	x	x	x
MB 25 3m UpDown	7602553	x	x	x	x	x
MB 25 4m UpDown	7602554	x	x	x	x	x
MB 25 5m UpDown	7602555	x	x	x	x	x
MB 36 3m	7603606			x	x	x
MB 36 4m	7603607			x	x	x
MB 36 5m	7603608			x	x	x
MB 401 Ergo 3m	7604146				x	x
MB 401 Ergo 4m	7604149				x	x
MB 401 Ergo 5m	7604150				x	x
MB 401 Ergo 3m potentiometer	7604173				x	x
MB 401 Ergo 4m potentiometer	7604174				x	x
MB 401 Ergo 5m potentiometer	7604175				x	x
MB 401 Ergo 3m UpDown	7604163				x	x
MB 401 Ergo 4m UpDown	7604164				x	x
MB 401 Ergo 5m UpDown	7604165				x	x

Recommended accessories for the MEGA.ARC ²		MEGA.ARC ²				
		250	300	350S	350WS	450WS
9W-S short neck 3m	7600905				x	x
9W-S short neck 4m	7600910				x	x
9W-S short neck 5m	7600911				x	x
Abimig 452 DW 3m	7606999				x	x
Abimig 452 DW 4m	7607000				x	x
Abimig 452 DW 5m	7607001				x	x
Abimig 452 DW 3m potentiometer	7602463				x	x
Abimig 452 DW 4m potentiometer	7602464				x	x
Abimig 452 DW 5m potentiometer	7602465				x	x
Abimig 452 DW 3m UpDown	7602473				x	x
Abimig 452 DW 4m UpDown	7602474				x	x
Abimig 452 DW 5m UpDown	7602475				x	x
Push pull torch PP401 exactly 8m	7604137	x	x	x	x	x
Planet pull torch PPPW-7.1W with potentiometer	7603601	x	x	x	x	x
Planet pull torch PPPW-7.1W 12m with potentiometer	7603602	x	x	x	x	x
Gouging K10 6m	7820183			x	x	x
Hand remote control MIG Plus 2	7501002	x	x	x	x	x

4.2 Options

Options MEGA.ARC ²		MEGA.ARC ²				
		250	300	350S	350WS	450WS
Air filter attachment (with metal filter 7501120)	1381351	X	X	X	X	X
Retrofit air filter attachment	1180260	X	X	X	X	X
Toolset	1180212	X	X	X	X	X
Option: eyebolts with storage compartment	1180213	X	X	X	X	X
Hose assembly holder	1180214	X	X	X	X	X
Eyebolts on case	1180167			X	X	X
Dinse central connection	1181241	X	X			
Dinse central connection	1181246			X	X	X
Push-Pull	1180148	X	X	X	X	X
Feed case trolley	7501500			X	X	X
Feed case trolley MEGA.ARC ² CONSTRUCTION	7501502			X	X	X
Rotary pump	1381352				X	X
Interface for MEGA.ARC on turntable (TRAF-and TGA-series)	1381284	X	X	X	X	X
HKS interface	1381360	X	X	X	X	X

4.3 MEGA.ARC² CONSTRUCTION

4.3.1 General Description

Feed unit case CONSTRUCTION



Illustration 15: MEGA.ARC² CONSTRUCTION case

The feed unit case was designed for use in shipyards, tank construction and similar environments. With a feeder unit that has been optimised for small sizes, there are no problems with access in tight working areas. Distances of up to 42m between machine and arc are possible (30m intermediate hose package, 12m push-pull torch).

Other features include:

- Abrasion-resistant plastic runners
- Proven digitally controlled 4-roller drive
- Base plate made of 3mm steel plate, side panels of 2mm steel plate.
- Reinforced cord grip for the intermediate hose package
- Through-holes for compressed or fresh air

4.3.2 Options for CONSTRUCTION

- Robust chassis with large wheels for smoothly and safely transporting the feed unit
- Remote holder for, for example, job manager, up-down torch, automation, quality data collection.
- Eyebolts / case attachments for machine and feed case
- Length of the intermediate hose package up to 30m on request.
- Push-pull up to 12m length

4.4 Functional Description of MEGA.ARC² CONSTRUCTION

4.4.1 Switching on

The main switch is used to put the MEGA.ARC² welding unit into operation. The software version number of the control unit (e.g. P2.0) is displayed for two seconds on the upper display and the version number of the data set of the characteristic curves (e.g. d01) is displayed on the lower display. Then, for 2 seconds, the type of machine is displayed in the upper digital display (e.g. 350) and the lower one displays "on". After two seconds, the upper digital display shows the nominal energy value (A) and the lower display shows the voltage, which is determined by the characteristic curve loaded in the unit when it is switched on. The LEDs indicating the mode settings, wire diameter and material/gas are illuminated as appropriate. The welding unit is now ready to operate.

4.4.2 Description of Controls

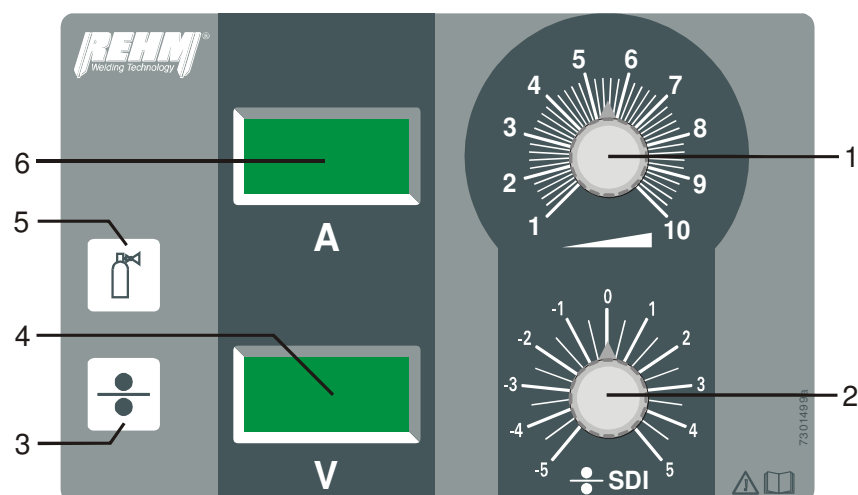


Illustration 16:

- 1 Rotary knob (welding energy)
- 2 SDI plus knob or wire feed speed
- 3 Threading button
- 4 Voltage digital display
- 5 Gas test button
- 6 Energy digital display

4.4.3 Digital displays

Two, 7 segment displays [4+6] give a rapid and clear view both of the welding energy and of the error messages.

When the equipment is switched on the software version number of the control unit (e.g. P2.0) is displayed for two seconds on the upper display [6] and the version number of the characteristic curve data set (e.g. d01) is displayed on the lower display [4]. Then, for 2 seconds, the type of machine (e.g. 350) is displayed in the upper digital display and the lower one displays "on". After two seconds, the upper digital display shows the nominal energy values (A) and the lower display shows the voltage, which is determined by the characteristic curve loaded in the unit when it is switched on.

4.4.4 Digital Display Energy [6]

4.4.4.1 Energy display

During the welding process the welding current value is always displayed independently of the type of energy selected.

- **Display A (ampere):** During no-load, the nominal value of the welding current obtained from the programmed characteristic welding curve is displayed. During welding, the actual welding current is displayed. When welding is finished, the last welding current used is displayed for about 7 seconds (HOLD function).

4.4.4.2 Error message display

In the event of a fault, this display shows "Err". The error number concerned is displayed on the lower digital display [4] (see Chapter 7.3)

4.4.5 Digital display for voltage and special parameters [4]

4.4.5.1 Voltage display

During welding, the actual welding current is displayed. Normally, the relevant no-load voltage derived from the programmed characteristic curve is displayed.

4.4.5.2 Error code display

During operation, the MEGA.ARC's processor control unit monitors a series of important functions. If an error or anomaly is detected, welding is interrupted or inhibited and the error number displayed. A detailed description of the error codes is given in chapter 7.3.

4.5 Rotary knob (welding current)

With the welding energy knob [1] it is possible to set the welding power (welding current, wire feed speed, material thickness) steplessly and consequently establish the operating point. Almost any operating point between the minimum and maximum can be selected. The processor control unit automatically provides all the parameters necessary for the entire welding process.

4.6 SDI *plus* continuously variable choke

All MEGA.ARC² units are equipped with a continuously variable electronic choke. The choke characteristics are dynamically adjusted to the welding task by the processor control. This allows for the optimum choke adjustment (except in the manual program) as a function of the material selected, either at the start or during welding.

The MEGA.ARC² units from the 250 to the 450 offer the possibility of adjusting the choke action to suit your way of working; the arc can therefore be made harder or softer (special parameter P11 "On"). If the SDI *plus* knob [2] (see Fig. 16) is in the central "0" position, the choke action recommended by the factory is set for each material selection. The arc can continuously be made harder by rotating the knob [2] towards the right and softer by rotating it continuously to the left. Thus the arc can also be better adapted to difficult welding locations, such as when working in an overhead position or in a tight space. During setting, the exact value is displayed on the lower digital display [4].

When the SDI *plus* function is switched off (special parameter P11 "OFF"), the factory recommended choke action is set (centre position "0").

4.7 Wire feed speed correction knob

The wire feed speed can be reduced or increased using the knob [2]. Thus the user can even individually change the length of the arc (shorter/longer arc).

When threading-in the wire, it is possible to vary the threading-in speed from half to double the factory-set speed by rotating the correction knob from position 0 to the left or right. During setting, the exact value is displayed on the lower digital display [4].

- **Parameter P12 "External potentiometer function 1"**
Behaviour of external potentiometer 1 (energy adjustment):
0 → External potentiometer (energy) 1 is inactive.
1 → External potentiometer (energy) 1 is active.
- **Parameter P13 "External potentiometer function 2"**
Behaviour of external potentiometer 2 (with respect to wire feed speed and choke adjustment):
0 → External potentiometer 2: is inactive.
1 → External potentiometer 2: Wire feed speed adjustment active.
2 → External potentiometer 2: Choke adjustment active.

4.8 Components of the MEGA.ARC² CONSTRUCTION

4.8.1 Parts list with REHM order numbers

		350 s Construction	350 WS Construction	450 WS Construction
1	Machine number	1330353	1330352	1330452
2	Feed case	7500673	750672	750672
Power source				
3	Cylinder trolley	2101802	2101802	2101802
4	Front frame	2101801	2101801	2101801
5	Front panel	2101833	2101833	2101833
6	Rear panel	2101807	2101807	2101807
7	Partition	2101813	2101813	2101813
8	Cover	2101819	2101819	2101819
9	Right side panel	2101816	2101816	2101816
10	Left side panel	2101817	2101817	2101817
11	Corner section	2101803	2101803	2101803
12	Fan panel	2101809	2101809	2101809
13	Undershelf	2101811	2101811	2101811
14	Base	2101800	2101800	2101800
15	Rotation device	2101832	2101832	2101832
16	Handle	2500100	2500100	2500100
17	Grip plate	2500101	2500101	2500101
18	Graphic film	7301493	7301493	7301494
19	Operation	6900548	6900548	6900548
20	Control unit	6900549	6900549	6900549
21	Shunt board	6900542	6900542	6900542
22	EMC board	6900545	6900545	6900545
23	Transformer	2201009	2201009	2201010
24	Thermal controller	6600021	6600021	6600021
25	Choke	4700370	4700370	4700370
26	RTM	2200997	2200997	2201000
27	Control transformer	4700371	4700371	4700371
28	Main rectifier	5300035	5300035	5300036
29	Gas hose	2200100		
30	Operating Instructions	7301574	7301574	7301574
Feed case				
31	Base	2101885	2101885	2101885
32	Front panel	2101886	2101886	2101886
33	Rear panel	2101889	2101889	2101889
34	Left side panel	2101890	2101890	2101890
35	Right side panel	2101891	2101891	2101891
36	Partition	2101893	2101893	2101893
37	Handle	2101895	2101895	2101895
38	Board cover	2101896	2101896	2101896
39	Wire spool cover	2600188	2600188	2600188
40	Spool spindle	2600187	2600187	2600187
41	Spool spindle socket	2101894	2101894	2101894
42	Case sleeve	2600196	2600196	2600196
43	Plastic runner	2600197	2600197	2600197
44	Operation	6900547	6900547	6900547
45	Graphic film	7301499	7301499	7301499

4.9 Technical data for the MEGA.ARC² CONSTRUCTION

Dimensions (L x W x H) CONSTRUCTION Case	[mm]	650 x 225 430
---	------	---------------

5 Commissioning

5.1 Safety instructions

Please read the operating instructions through carefully, in particular **Chapter 2, Safety**, prior to commissioning, before you begin working on this welding power source.



Warning

REHM welding units may only be operated by personnel who have been instructed and trained in their use, maintenance and are acquainted with their safety instructions.

Always wear protective clothing when welding, making sure that bystanders are not endangered by the UV radiation from the arc.

5.2 Working under conditions of increased electrical danger according to specifications IEC 974, EN 60 974-1, TRBS 2131 and BGR 500 Chapter 2.26 (formerly VGB 15) (S)

REHM MEGA.ARC² gas-shielded welding units comply with the regulations above. Care should be taken that the welding current source is not set up in this area when working under increased electrical danger. Please observe regulations EN 60 974-1, TRBS 2131 and BGR 500 Chapter 2.26 (formerly VGB 15).

5.3 Setting up the welding unit

Position the *REHM* welding unit so that the welder has sufficient space in front of the machine to observe and operate the controls.

When transporting the unit, always comply with the applicable accident prevention regulations.



When securing the MEGA.ARC² unit for transporting it when suspended, for example with ropes or chains, crane eyes must be used. Securing it to the handles or other points on the unit is not permitted.

Danger! Electric shock!

Do not use the welding unit in the open air when it is raining!

5.4 Device Connections

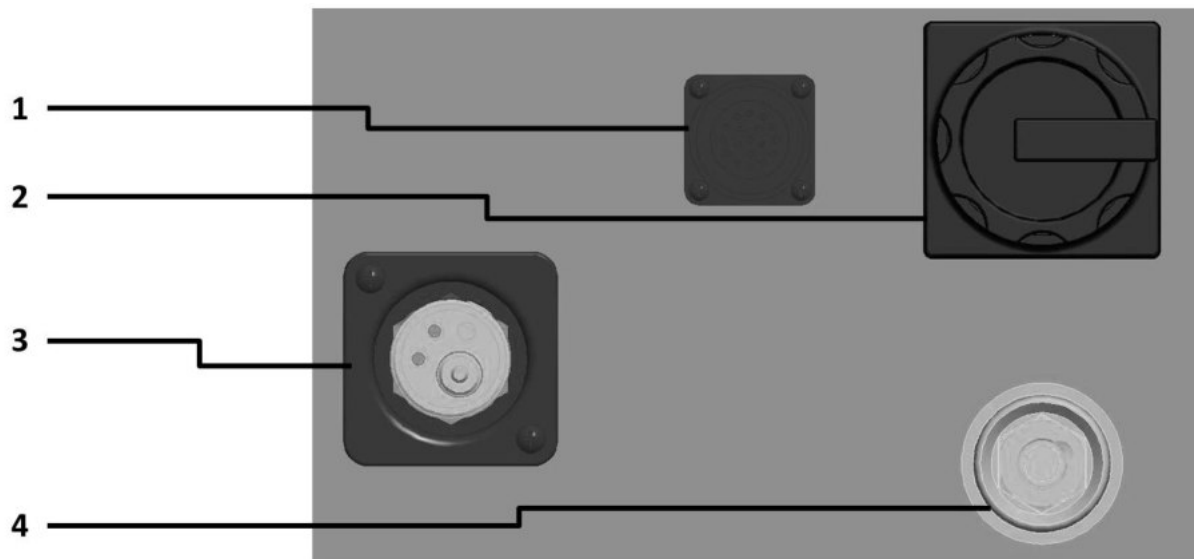


Illustration 17: Front view of compact machine

- 1 Burner Interface
- 2 Main switch
- 3 Burner connection socket
- 4 Earthing connection socket

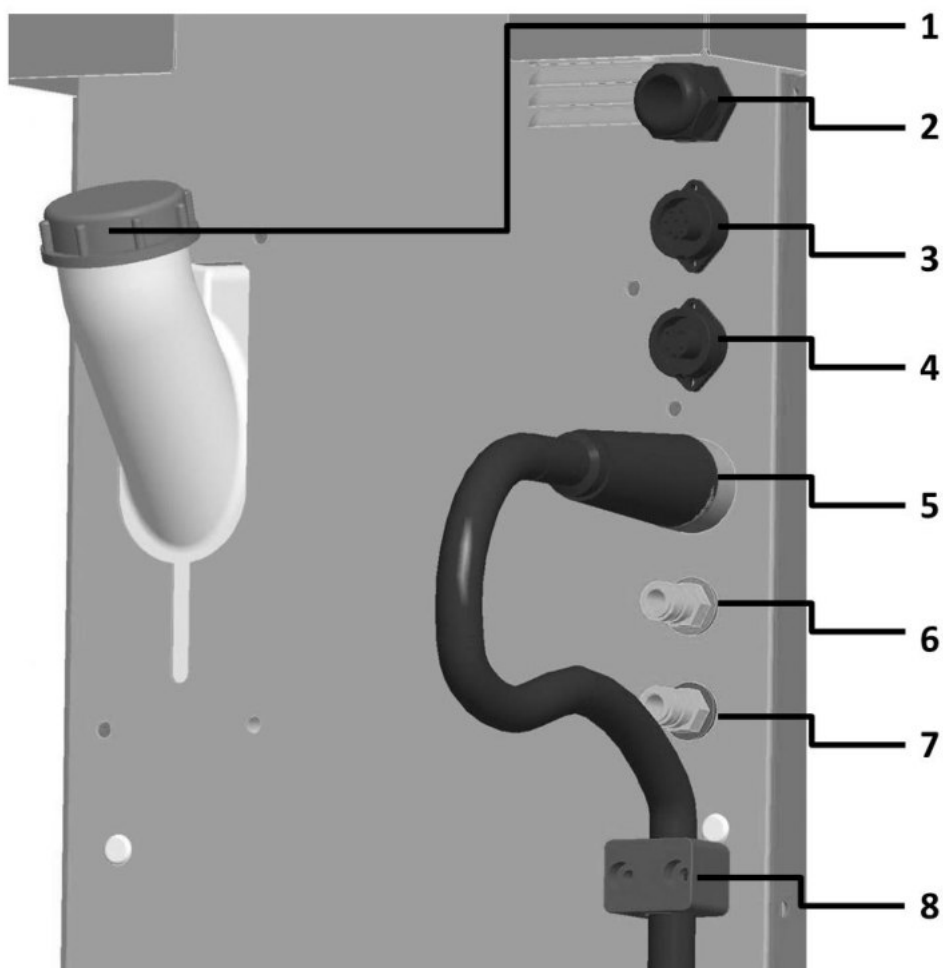


Illustration 18: Rear view of case machine

- 1 Cooling fluid filler plug
- 2 Power cord
- 3 Intermediate hose bundle BUS connection
- 4 Intermediate hose bundle control cable
- 5 Intermediate hose bundle welding cable
- 6 Intermediate hose bundle quick-release coupling
- 7 Intermediate hose bundle quick-release coupling
- 8 Cable grip

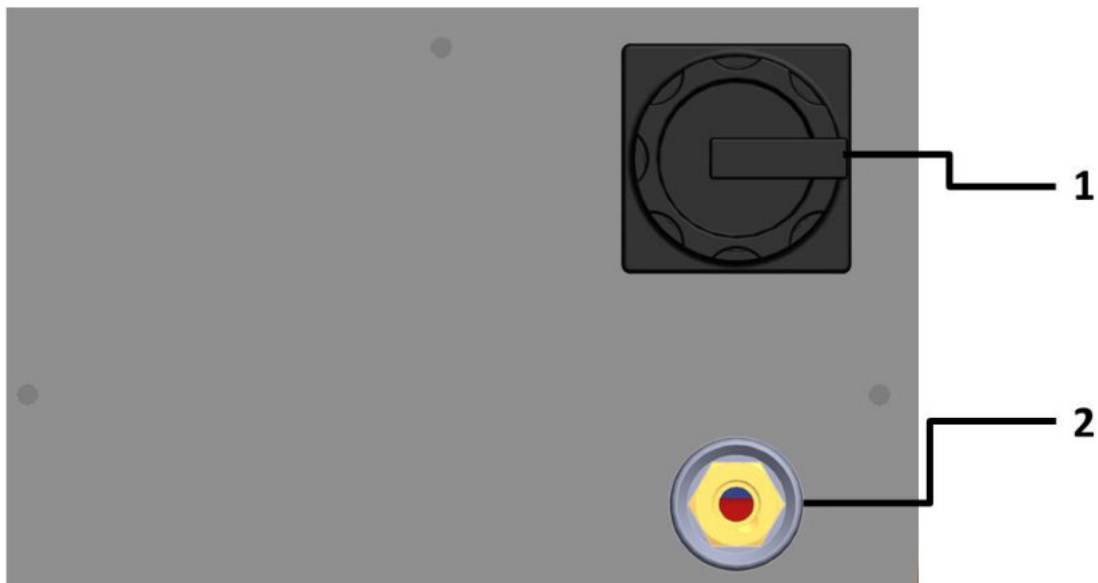


Illustration 19: Front view of case machine
1 Main switch
2: Earthing socket

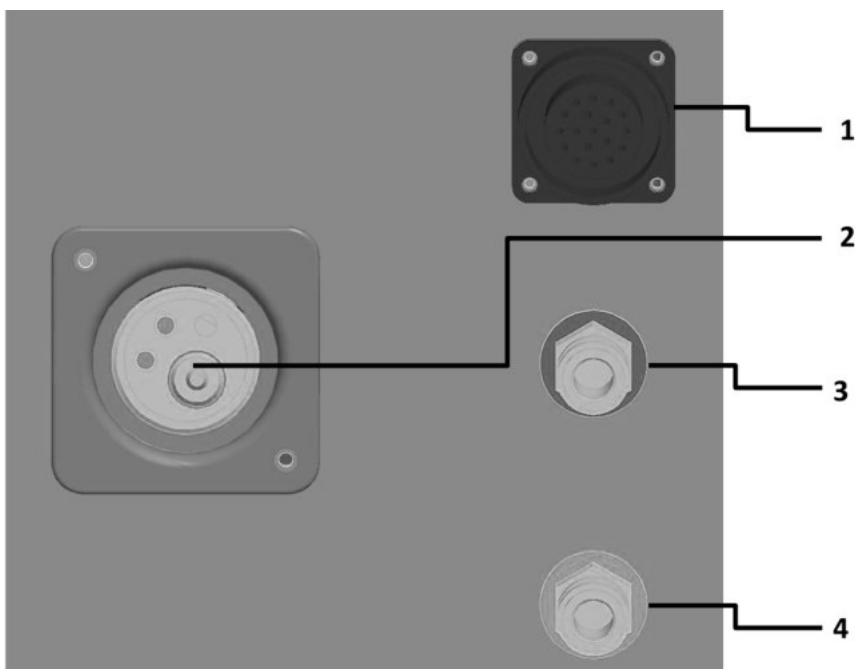


Illustration 20: Front view of case
1 Burner connection socket
2 Burner connection socket
3 Quick release coupling for torch cooling
4 Quick release coupling for torch cooling

5.5 Connecting the welding unit

The REHM welding unit should only be connected to the mains according to the current VDE regulations, keeping in mind the relevant health and safety rules.

When connecting the unit, note the information regarding the supply voltage and the mains fuse. Circuit breakers and fuses must always be suitable for the specified current. You will find the necessary details in **Chapter 11, Technical Data**.

Turn the unit off when not in use.

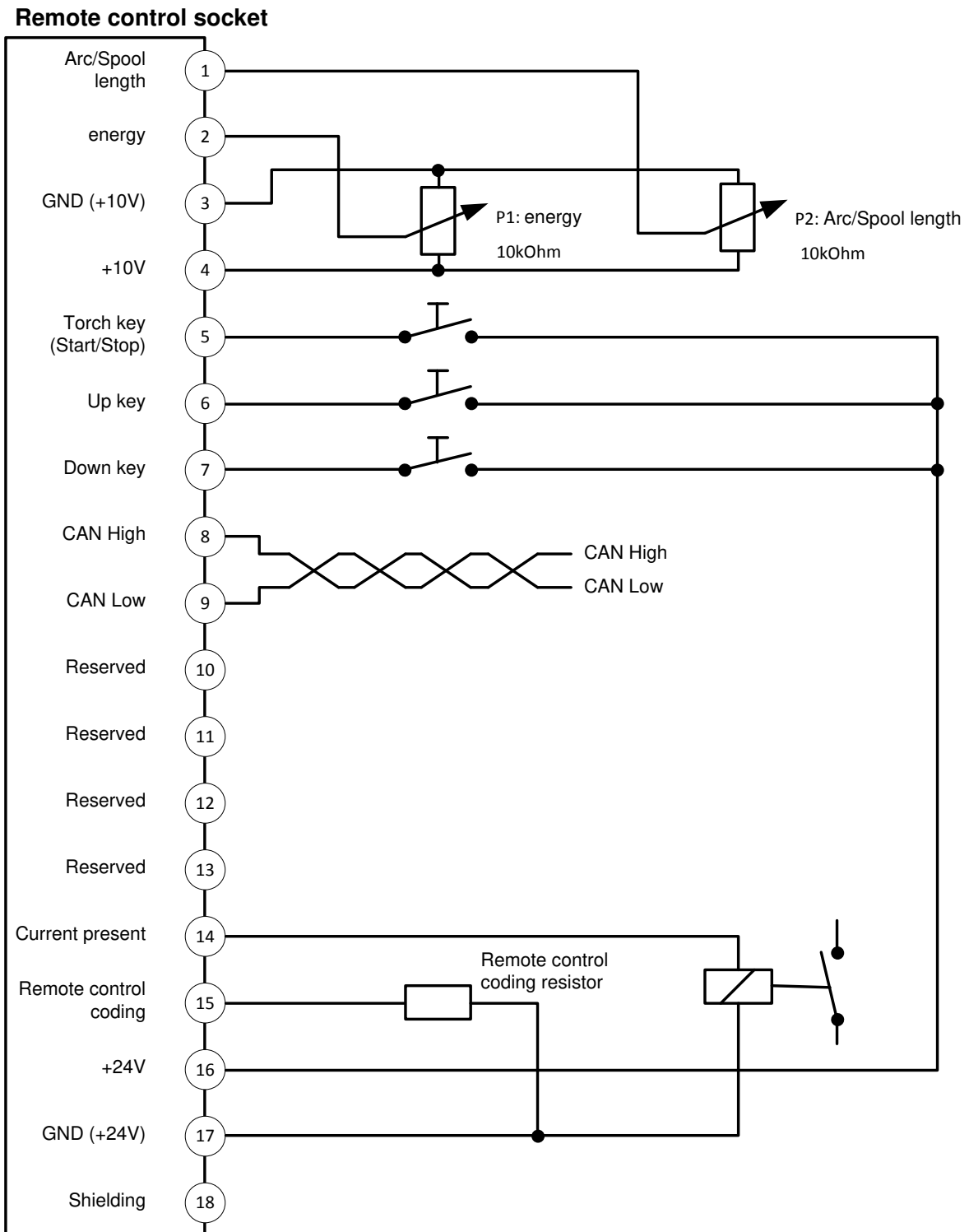
Place the shielding gas bottle in the cylinder bracket on the unit and secure it with the safety chain. Screw the cylinder pressure regulator onto the cylinder and check the connection for tightness. Always close the cylinder valve after working. Observe the regulations of the competent safety authorities.

5.6 Remote control socket

5.6.1 Configuration of the remote control socket

Pin number	Designation	Voltage level	Remarks
1	Potenziom. 2 (10k Ohm)	From 0 to 10V DC	Arc length/choke
2	Potenziom. 1 (10k Ohm)	From 0 to 10V DC	energy
3	GND (+10V)		
4	Voltage +10V (200mA)	5V DC	Potentiometer power
5	Torch button (Start/Stop)	+24V DC	High active
6	Up button	+24V DC	High active
7	Down button	+24V DC	High active
8	CAN High		CAN bus
9	CAN Low		CAN bus
10	Reserved		
11	Reserved		
12	Reserved		
13	Reserved		
14	"Current present" message	+24V DC	High active
15	Remote control coding	+24V DC	See remote control accessory coding
16	Voltage +24V (400mA)	+24V DC	
17	GND (+24V)		
Earth	Shielding		

5.6.2 External wiring of the remote control parameters



5.6.3 Coding of the remote control accessories

The remote control accessory on the remote control socket must have a code (resistance), so that the remote control accessory is recognised by the current source. Coding is provided by a resistance that must be plugged into the 17 pin + PE remote control connector [art. code 430 0003] (between pin 17 and pin 15) of the remote control accessory. The resistance values of a suitable remote control accessory can be derived from the following table.

Resistance (in Ohms)	Code number of the remote control accessory	Remote control accessory
144k & Larger	15	No remote control present
100k	14	-
56k	13	-
33k	12	-
27k	11	-
18k	10	-
15k	9	-
12k	8	-
8.2k	7	-
6.8 k	6	-
5.6k	5	-
3.9 k	4	-
2.7 k	3	-
1.8 k	2	-
1k	1	-
0	0	MIG Plus II & S-burner

5.7 Cooling the welding unit



Install the REHM welding equipment so as not to obstruct the air inflow and outflow. The machine cannot achieve the given duty cycle without a sufficient flow of air.

Ensure that no metal parts, grinding dust or other foreign matter can enter the unit.

5.8 Water cooling for MIG/MAG welding torches

The burner is water-cooled on MEGA.ARC² 350 WS and MEGA.ARC² 450 WS units.

Before commissioning, check the water level in the tank. If the water level is less than 3/4 of the tank content, the water must be topped up. The recommended coolant is the one developed and tested by REHM - "REHM coolant" (Order no. 1680075, 5 litres). The coolant level must be checked at regular intervals.

The MEGA.ARC² has a flow meter that triggers an error message in the event of low water flow (see Chapter 7.3).

5.9 Connection of the welding power supply cables

REHM welding equipment is equipped with quick-connect devices for connecting the earthing cable. In order to achieve optimum welding results, please ensure that all power supply cables are firmly connected and the insulation is not damaged.

5.10 Connecting the torch

For connecting the MIG/MAG welding torch, the housing has a special connection (Euro central connection), through which the welding current, the contact button leads and the gas are connected up.

When using water cooled torches, the cooling water hoses are connected by quick fitting couplings. These are marked with different colours. (red = return, blue = delivery).



Important!

If a gas-cooled torch is used with a water-cooled unit, the water connections must be connected using a hose bridge, or the special parameter "P11" in the sub-menu must be set to "OFF" to prevent damage to the water pump.

5.11 Inserting the wire

After inserting the wire on the spool spindle, thread the wire by hand through the guides on the feed rollers. Make sure that you use the right drive wheels for the wire diameter and wire type (solid, tubes, aluminium). When the wire is located on the second drive roller in the guide tube, you can fold down the pinch rollers on the wire. Now by pressing the threading button [3] you can thread the wire through. Make sure that the wire runs through the torch as straight as possible without any bends that complicate the threading and to avoid kinking or damaging the wire or the wire liners.

6 Operation

6.1 Safety instructions

Please read the operating instructions through carefully, in particular **Chapter 2, Safety**, prior to commissioning, before you begin working on this welding power source.



Warning

REHM welding units may only be operated by personnel who have been instructed and trained in the use and maintenance of welding units, and are acquainted with their safety instructions.

6.2 Tests before switching on

It is assumed that

- The system is set up properly according to → **Chapter 5, Start-up**,
- All connections (shielding gas, torch adapter) have been made properly according to → **Chapter 5, Start-up**,
- The maintenance work that is due according to the service interval has been carried out according to → **Chapter 8, Maintenance**
- the safety devices and system components (in particular the torch connecting hoses) have been checked by the operator and are functioning correctly,
- the operator and those involved have put on appropriate protective clothing and secured the work area such that no bystanders are at risk.



6.3 Connecting the earthing cable

Warning!

Take care to ensure that the welding current cannot flow through hoist chains, crane ropes or other components that conduct electricity.



Ensure that the earthing cable is connected to the work piece as close to the welding location as possible. Earthing connections that are made at a distance reduce the efficiency and increase the risk of electrical shocks and stray currents.

6.4 Practical application instructions

The practical application instructions below cover just a few of the many applications of *REHM* MEGA.ARC² welding systems. For questions about special types of welding, materials, shielding gases or welding devices, please see specialist literature or contact a REHM specialist reseller.

REHM MEGA.ARC² gas shielded welding units can be used to weld a wide variety of components, e.g. non-alloyed and alloyed steel, stainless steel and aluminium.

**Weldable
materials**

Operation

Wire electrodes	Various wire diameters and materials are available and used for MIG/MAG welding. The wire diameter depends on the thickness of the basic material and the required welding current. The material of the wire electrode is selected according to the type of base material and the required quality of the weld. You will find the most common materials with wire diameters and their relevant specifications in the relevant technical literature.
Shielding gas	Mainly gas mixtures composed of argon with 18% CO ² are used to weld steels Mainly gas mixtures composed of argon with 2% CO ₂ are used to weld stainless steel . Pure argon is used as the shielding gas for aluminium . The shielding gas flow rate required depends on the wire diameter, the size of the gas nozzle, the welding current and the air movement, which is determined by the work location. The amount of gas required for mixed gases is about 7 ... 16 l/min, for argon about 10 ... 18 l/min. <i>Rule of thumb for setting the gas flow:</i> <i>For steel: Wire diameter x 10 = gas quantity in litres</i> <i>For stainless steel: Wire diameter x 11 = gas quantity in litres</i> <i>For aluminium: Wire diameter x 12 = gas quantity in litres</i>
MIG/MAG welding torches	Gas-cooled MIG/MAG welding torches recommended by REHM must be mounted on REHM MEGA.ARC ² 250, 300 and 300 L, while water-cooled versions must be mounted on models 350 WS and 450 WS.
Torch equipment	The torch accessories depend on the welding task and should be chosen to suit . Nozzles Contact tips are wear parts and must be replaced from time to time. The right contact tips must be used for the wire diameter selected. For welding aluminium, <i>REHM welding accessories</i> catalogue includes special contact tips for various wire diameters. Gas nozzles The <i>REHM welding accessories catalogue</i> includes various types of gas nozzles.
Wire liners	Wire liners must be selected on the basis of the various material types and wire thicknesses used. The assortment is shown in the <i>REHM welding accessories catalogue</i> . The torch manufacturer's instructions should be noted (see operating instructions).
Wire feed adjustment	For safe wire handling, the following points must be observed: The feed rolls must be selected to fit the wire diameter. Precise control of the feed motor speed ensures a constant wire feed speed. Safe wire handling is ensured by the compact 4-roll system. Care must be taken to set the conveyor rolls so that they apply the correct pressure to the wire. The pressure should be as low as possible for aluminium, but still enough to permit the wire to be transported safely. For steel and stainless steel, the pressure should be such that the wire spool can still be stopped by hand when in operation.



WARNING: In order to prevent the risk of injury during welding, (e.g. crushing), the lateral wall – protecting the wire feed area - must remain absolutely closed!

The wire feed speed should be set to obtain a stable arc. When the welding energy is increased, the speed is automatically increased and can be easily corrected with the wire feed speed correction button.

Adjustment of the feed mandrel

The feed mandrel brake must be set so that the wire does not unwind when the wire feed is switched off at the end of welding.

Welding voltage levels

The power of the machine is regulated through the welding energy knob (and special parameters). The welding power required depends on the welding task.

Recommended wire diameters and materials

MEGA.ARC²	Steel	Stainless steel	Aluminium	CuSi3
250-4	0.8...1.0	0.8...1.0	1.0...1.2	0.8...1.0
300-4	0.8...1.0	0.8...1.0	1.0...1.2	0.8...1.0
350-4	1.0...1.2	1.0...1.2	1.0...1.2	0.8...1.0
450-4	1.0...1.2	1.0...1.2	1.0...1.2	0.8...1.0

7 Faults

7.1 Safety instructions



Warning!

If a fault occurs that poses a risk to personnel, equipment and/or the environment, the system must be immediately shut down and secured to prevent it being switched on again.

Only start the system up again when the cause of the fault has been eliminated and there is no longer any risk to people, machines and/or the environment.

Faults should only be rectified by qualified personnel in accordance with all safety instructions. → Chapter 2

Before re-starting, the system must be released for use by a qualified person.

7.2 Troubleshooting table

Fans do not turn

<u>Cause:</u>	<u>Remedial action:</u>
Blown fuse	Change fuse
Fan faulty	<i>Service support needed!</i>
Control defective	<i>Service support needed!</i>
Broken cable	<i>Service support needed!</i>

TEMPERATURE control lamp on

<u>Cause:</u>	<u>Remedial action:</u>
Excessive temperature in a power component. machine if necessary.	Allow to cool, ensure free air circulation, clear
Maximum duty cycle exceeded	Allow unit to cool down
High ambient temperature	Make cooling available
Clogged air inlet or outlet	Clean, ensure free access of air
Covered air inlet or outlet	Remove cover, ensure free access of air
Fan faulty	<i>Service support needed!</i>

No welding current or welding current below set value

<u>Cause:</u>	<u>Remedial action:</u>
Earthing cable connected badly or not at all	Check

No shielding gas

Cause:

Cylinder empty
Pressure regulator defective
Hose kinked
Faulty gas valve on the machine

Remedial action:

Check
Check
Check
Service support needed!

Arc flickers and jumps

Cause:

Contact tip is worn
Conveyor rollers are the wrong diameter
Wire liner heavily soiled
Electrode and workpiece do not reach working temperature
Wrong wire speed

Remedial action:

Replace contact tip
Use conveyor rollers with the correct diameter
Replace wire liner

Use thinner wire
Adjust speed

Arc has an unusual colour

Cause:

Too little or no shielding gas
Incorrect shielding gas

Remedial action:

Check shielding gas supply
Use suitable inert gas

Wire unwinds uncontrollably

Cause:

Wire spool brake too hard or too soft
Wire feeding problems

Control defective

Remedial action:

Adjust wire spool brake
Hosepack should be blown through at each wire change. The guide spirals and feed rollers must be suitable for the diameter of the wire.
Service support needed!

Water-cooled torch gets too hot

Cause:

Water hoses kinked
Too little or no cooling water in tank
Faulty water pump

Remedial action:

Check water hoses for correct positioning
Check cooling water level
Service support needed!

7.3 Fault reporting

Fault number	Fault	Cause	Remedy
4	Phase error	<ul style="list-style-type: none"> Phase missing 	<ul style="list-style-type: none"> Check fuse, power supply cable and power plug
6	System error 1	<ul style="list-style-type: none"> No power 	<ul style="list-style-type: none"> Check all power and voltages on control unit 690 0559.
8	System error 2	<ul style="list-style-type: none"> Internal error 	<ul style="list-style-type: none"> Service support needed
10	Bus error	<ul style="list-style-type: none"> No connection between case and source of current. The CAN-Bus cables are faulty CAN-Bus is faulty. Control unit 690 0540 or 690 0541 defective. 	<ul style="list-style-type: none"> Check the intermediate hose package. Check connector. Check the CAN-Bus lines. Check connector. Remove the source of the fault Replace console 690 0558 or control unit 690 0559.
12	System fault in CAN network	<ul style="list-style-type: none"> One or more electronic component assemblies are missing in the CAN network Incompatibility of the different electronic components 	<ul style="list-style-type: none"> Check cable connections Service support needed
15	Control FRAM-memory *	<ul style="list-style-type: none"> FRAM memory not present, defective or not correctly inserted. 	<ul style="list-style-type: none"> Service support needed
16	EEPROM memory *	<ul style="list-style-type: none"> EEPROM memory is not present, defective or not correctly inserted. Data not present in the EEPROM memory. 	<ul style="list-style-type: none"> Insert the EEPROM memory correctly or insert a new one. Otherwise, contact service Insert a new EEPROM. Otherwise, contact service
18	UI calibration	<ul style="list-style-type: none"> Calibration of current/voltage detection when machine switches on has failed 	<ul style="list-style-type: none"> Control unit 690 0559 defective Power module faulty Service support needed
43	Transformer temperature	<ul style="list-style-type: none"> Transformer overheated 	<ul style="list-style-type: none"> Cool the current source down
44	Panel temperature	<ul style="list-style-type: none"> Panel overheated 	<ul style="list-style-type: none"> Cool the current source down
60 H2O	Cooling water	<ul style="list-style-type: none"> The flow meter has detected an insufficient flow of cooling fluid. Flow meter blocked with dirt 	<ul style="list-style-type: none"> Top up cooling fluid. Find the break in the cooling fluid circuit Bleed the air from the cooling fluid circuit. Check the pump. Replace the flow meter
61	Cooling water	<ul style="list-style-type: none"> The flow meter indicates flow even though the pump is switched off 	<ul style="list-style-type: none"> Replace the flow meter Check the connection cable

Fault number	Fault	Cause	Remedy
63	DV motor power *	<ul style="list-style-type: none"> The wire feed motor is consuming too much current. 	<ul style="list-style-type: none"> Wire transport irregular. Wire feed motor defective.
64	Wire feed speed	<ul style="list-style-type: none"> Actual r.p.m. not the same as nominal r.p.m. No encoder signal available for feed speed Low power output from wire feed motor 	<ul style="list-style-type: none"> Check wire feed Check cable connections to wire feed Check intermediate hose bundle Check the cable connections between the intermediate hose bundle and the controller and/or the intermediate hose bundle and the control unit Check the controller and/or control unit
80 noP	No characteristic curve	<ul style="list-style-type: none"> No valid characteristic curve selected 	<ul style="list-style-type: none"> Select welding characteristic curve
90	Remote control	<ul style="list-style-type: none"> Remote control coding wrong 	<ul style="list-style-type: none"> Check the remote control

*When these error messages appear, you must turn-off the current source. There is no automatic reset for this fault.

8 Maintenance and repair

8.1 Safety instructions



Warning!

Repair and maintenance work may only be carried out by personnel who have been trained by REHM. Consult your REHM dealer. When replacing parts, only use original REHM spare parts.

If service or repair work is carried out on this unit by personnel who have not been trained by REHM and are not authorised to carry out such work, all REHM warranties and liabilities are null and void.

The welding unit must be switched off and disconnected from the mains supply before starting cleaning!

Before maintenance is carried out, the welding unit must be switched off and disconnected from the mains supply and protected against being switched back on inadvertently.

Supply lines must be shut off and de-pressurised.

The warnings contained in → Chapter 2 "Safety Instructions" must be observed.

The welding unit and its components must be maintained in accordance with the information in the maintenance table.

Inadequate or inappropriate maintenance or repair work can lead to downtime. Regular maintenance of the system is therefore essential. No structural modifications or additions to the equipment may be undertaken.

8.2 Maintenance Table

The maintenance intervals are recommended by REHM on the basis of normal standard usage (e.g. one shift operation, use in a clean, dry environment). The exact intervals are to be set by your Safety Officer.

Activity	Chapter	Interval
Cleaning the inside of the unit	8.3	At least twice per year
Check the cooling water and the cooler	8.4	Daily
Function testing of safety devices by operating staff		daily
Visual check of the unit, especially the connecting cables and torch hoses		daily
Have specialised personnel check the connecting cables and torch hoses; record the check in the log book. Perform test according to state law or more frequently.		biannually
Have specialized personnel check the entire welding system; record the check in the log book. Perform test according to state law or more frequently.		annually

8.3 Cleaning the inside of the unit

If the *REHM* welding machine is used in dusty conditions, the inside of the unit must be cleaned periodically by blowing or sucking.

The frequency of this cleaning depends on the conditions of use; however, the units should be cleaned at least twice a year. Only use clean, dry air to blow through the unit or use a vacuum cleaner.

8.4 Cooling water control

In the case of machines with built-in water circulation cooling, the water level in the tank must be checked daily.

If the water level is less than 3/4 of the tank content, the water must be topped up. The special cooling liquid developed and tested by REHM "REHM cooling liquid" (order no 1680043) is required.

During this check, the degree of fouling in the water cooler should also be checked. To ensure optimum torch cooling, the cooler must be cleaned by blowing it through or by vacuum suction.



Coolants are dangerous for the environment; they must not be poured down the drain.

Dispose of these fluids at suitable collection points for problem materials.

If service or repair work is carried out on this unit by personnel who have not been trained by REHM and are not authorised to carry out such work, all REHM warranties and liabilities are null and void.

8.5 Proper Disposal

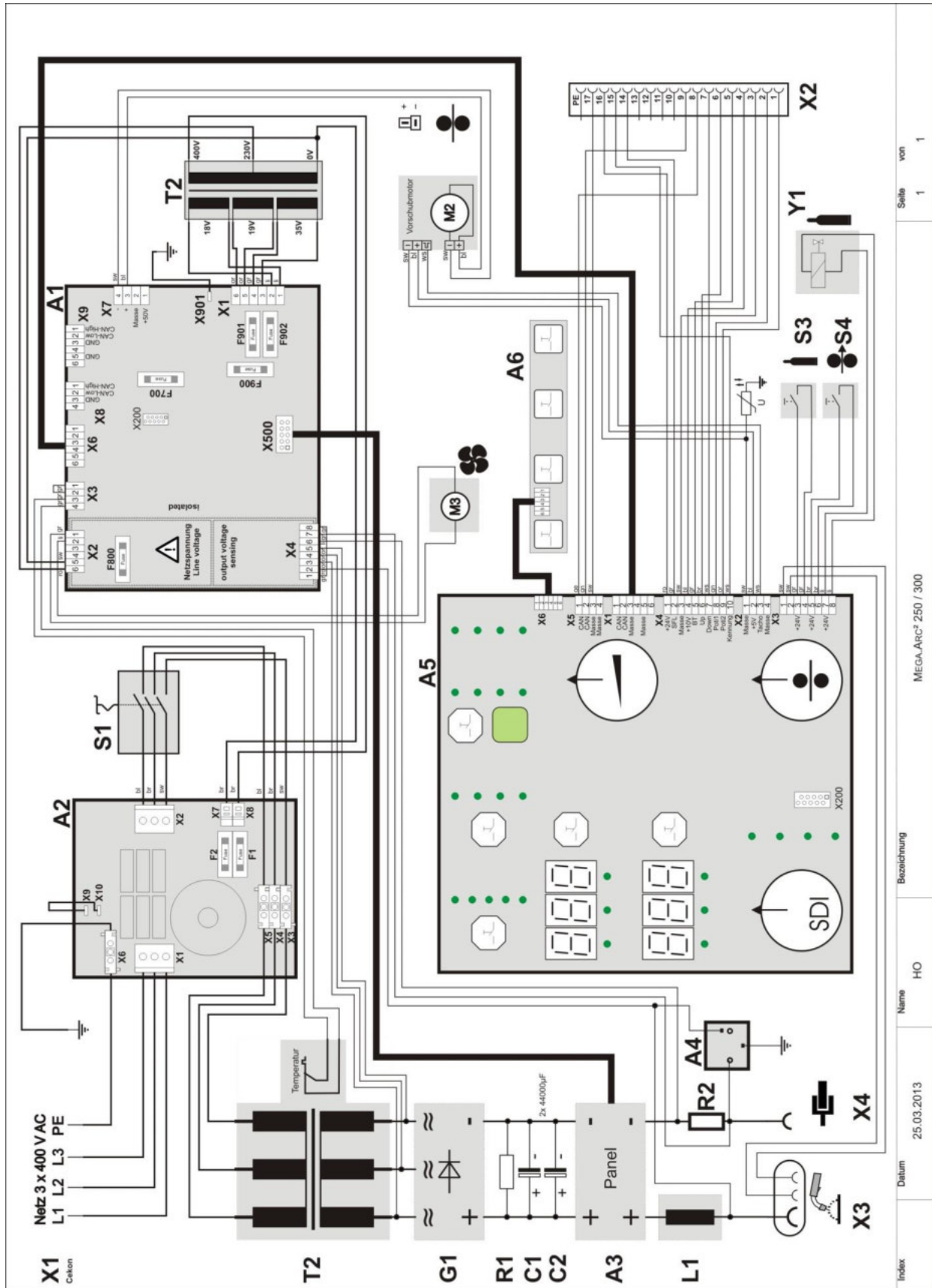


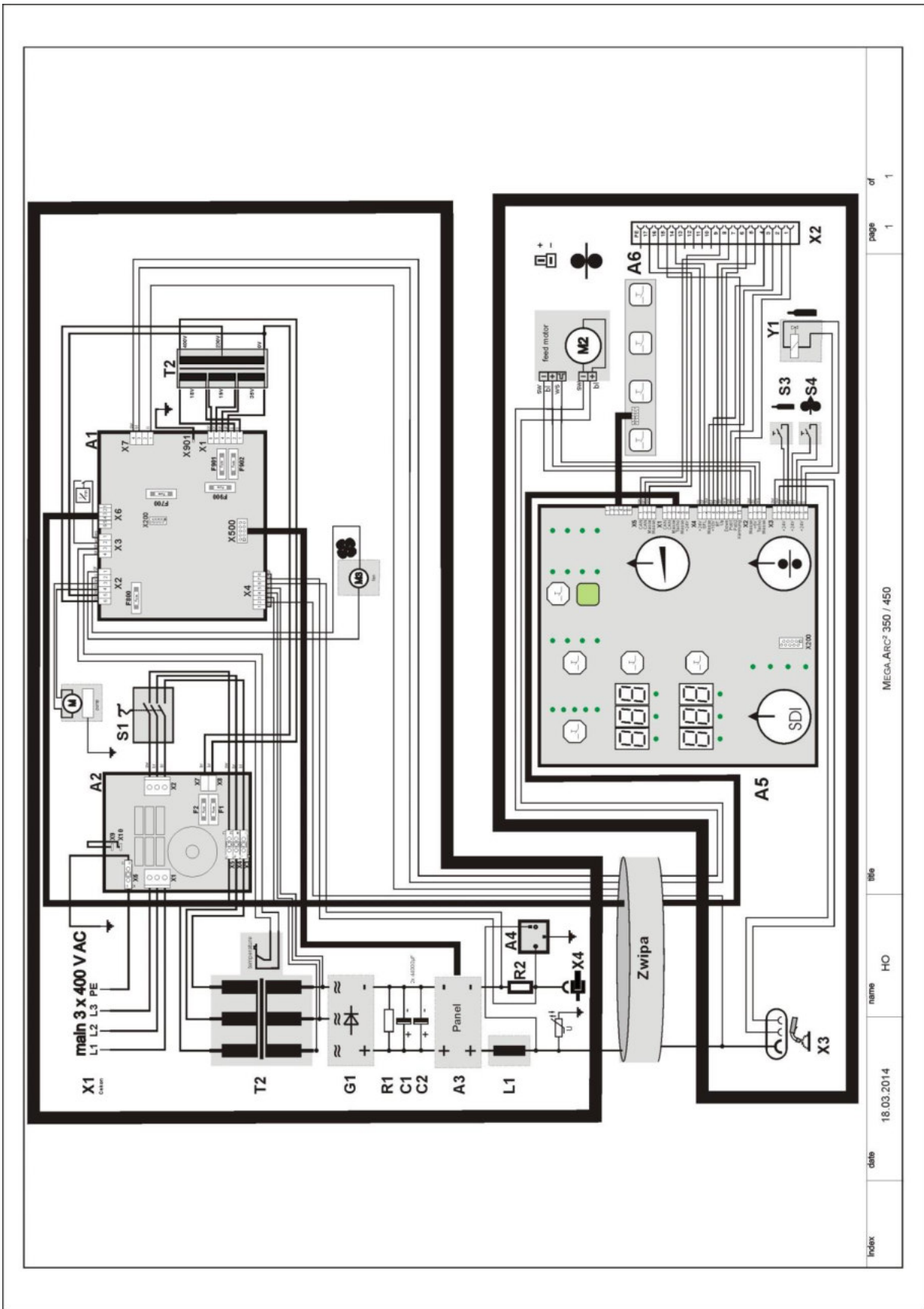
Only for EU countries.

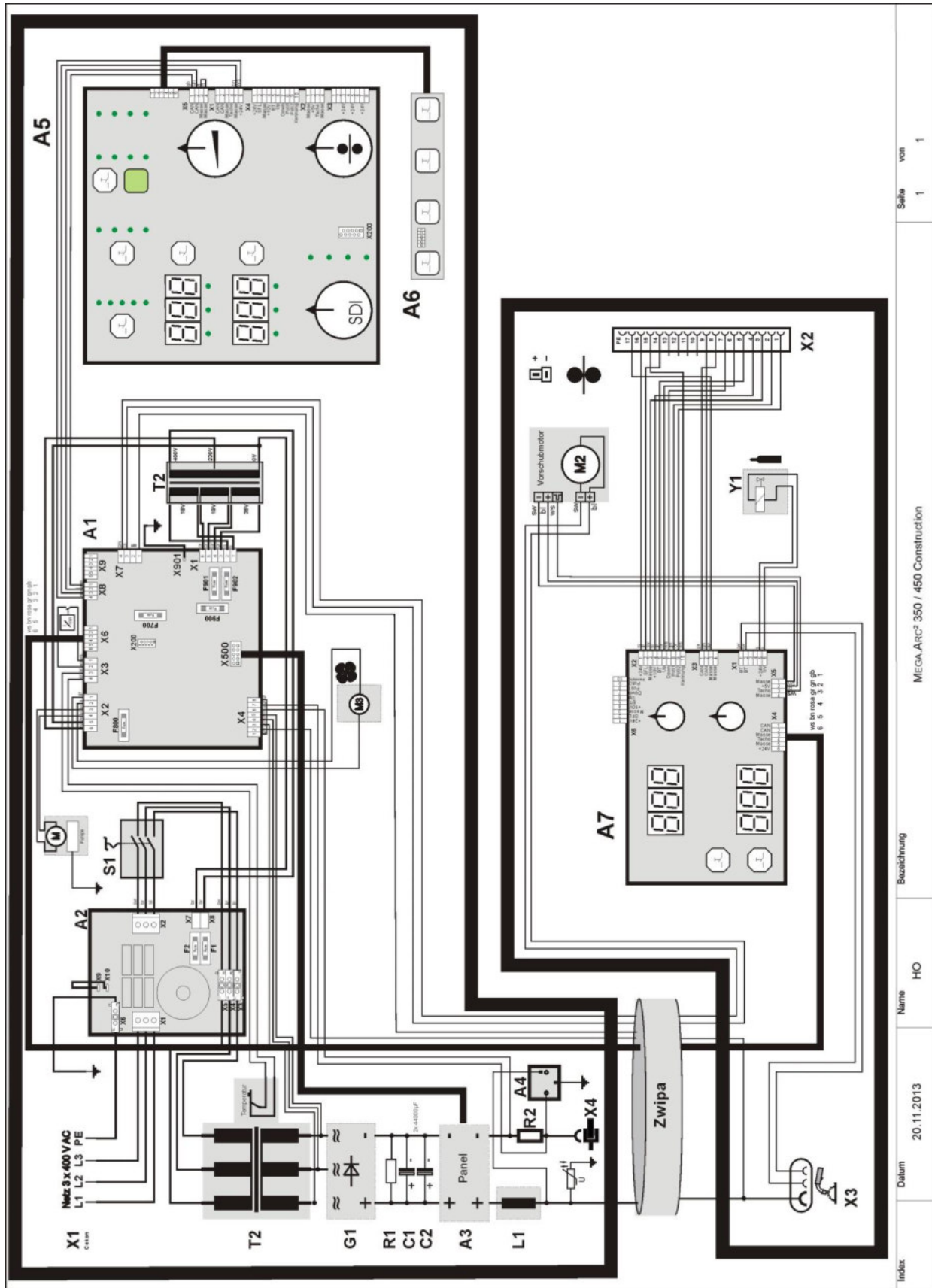
Do not dispose of electrical tools with household waste!

In accordance with European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

9 Circuit Diagrams







Index	Datum	20.11.2013	Name	HO	Bezeichnung	MEGA-ARC ³ 350 / 450 Construction	Seite	1	von	1
-------	-------	------------	------	----	-------------	--	-------	---	-----	---

10 MEGA.ARC² components

10.1 List of components with REHM order numbers

C = components also rom the MEGA.ARC² CONSTRUCTION unit

		250-4	300-4	350-4 S + C	350-4 WS + C	450-4 WS + C
1	cylinder trolley	2101802	2101802	2101802	2101802	2101802
2	Front frame	2101801	2101801	2101801	2101801	2101801
3	Front panel	2101978	2101978	2101805	2101805	2101805
4	Rear panel	2101806	2101806	2101807	2101807	2101807
5	Cover	2101818	2101818	2101819	2101819	2101819
6	Right side panel	2101816	2101816	2101816	2101816	2101816
7	Side panel lower left	2101814	2101814			
8	Side panel top left	2101815	2101815			
9	Snap lock	2500035	2500035	2500035	2500035	2500035
10	180 hinge	2500066	2500066	2500066	2500066	2500066
11	Wheel d = 250 mm	2500013	2500013	2500013	2500013	2500013
12	Cap d = 25mm	2500046	2500046	2500046	2500046	2500046
13	Guide roller d = 160 mm	2500071	2500071	2500071	2500071	2500071
14	Handle	2500100	2500100	2500100	2500100	2500100
15	Grip plate	2500101	2500101	2500101	2500101	2500101
16	Graphic film	7301925	7301925	7301926	7301926	7301926
17	Feeder assy. .	2201091	2201091	2201090	2201090	2201090
18	Gear motor	4100003	4100003	4100003	4100003	4100003
19	Feed plate assy.	4000103	4000103	4000115	4000115	4000115
20	4-R drive insulating plate	2600195	2600195	2600195	2600195	2600195
21	Drive gear wheel	4002092	4002092	4002092	4002092	4002092
22	Woodruff key	4000109	4000109	4000109	4000109	4000109
23	Stop ring	2900123	2900123	2900123	2900123	2900123
24	Central adapter	7500446	7500446	7500446	7500446	7500446
25	ZA front cover	3400126	3400126	2600194	2600194	2600194
26	Spool spindle, large	2600051	2600051	2600051	2600051	2600051
27	Nut for spool spindle	2600049	2600049	2600049	2600049	2600049
28	Operation	6900558	6900558	6900558	6900558	6900558
29	Keypad operation	6900557	6900557	6900557	6900557	6900557
30	Control unit	6900559	6900559	6900559	6900559	6900559
31	Shunt board	6900542	6900542	6900542	6900542	6900542
32	EMC card	6900545	6900545	6900545	6900545	6900545
33	Transformer	2201007	2201008	2201009	2201009	2201010
34	Thermal controller	6600021 not pictured	6600021 not pictured	6600021 not pictured	6600021 not pictured	6600021 not pictured
35	Choke	4700369	4700369	4700370	4700370	4700370
36	RTM	2200996	2200996	2200997	2200997	2201000
37	Control transformer	4700371	4700371	4700371	4700371	4700371
38	Main rectifier	5300034	5300035	5300035	5300035	5300036
39	Integrated socket	4300122	4300122	4300122	4300122	4300122
40	Fan	4100008	4100008	4100008	4100008	4100008
41	Fan cable	3600069	3600069	3600069	3600069	3600069
42	Shunt	6700033	6700033	6700033	6700033	6700033
43	Mains cable	3600110	3600134	3600091	3600091	3600091
44	Main switch	4200096	4200096	4200096	4200096	4200096
45	Noise suppressor	2201022 not pictured	2201022 not pictured	2201019 not pictured	2201019 not pictured	2201019 not pictured
46	Solenoid valve	4200074	4200074	4200037	4200037	4200037
47	Gas hose	2200100	2200100			
48	Operating Instructions	7301940 not pictured	7301940 not pictured	7301940 not pictured	7301940 not pictured	7301940 not pictured
49	Chain	2500014	2500014	2500014	2500014	2500014
50	Parameter sticker	7301939 not pictured	7301939 not pictured	7301939 not pictured	7301939 not pictured	7301939 not pictured
51	Gas test sticker	7301576 not pictured	7301576 not pictured	7301576 not pictured	7301576 not pictured	7301576 not pictured
52	System feed sticker	7300402 not pictured	7300402 not pictured	7300402 not pictured	7300402 not pictured	7300402 not pictured
53	"REHM" sticker	7300031	7300031	7300031	7300031	7300031
54	"Before opening..." sticker	7300364	7300364	7300364	7300364	7300364
55	Potentiometer knob size 1 complete.	2600053	2600053	2600053	2600053	2600053

Components



		250-4	300-4	350-4 S + C	350-4 WS + C	450-4 WS + C
56	Potentiometer knob size 3 complete.	2600046	2600046	2600046	2600046	2600046
57	Cover size 3	2600130	2600130	2600130	2600130	2600130
58	Wire threading/gas button	4200082	4200082	4200082	4200082	4200082
59	Cage nut	2900105	2900105	2900105	2900105	2900105
60	Capacitor	5200109	5200109	5200109	5200109	5200109
61	Remote control socket	4300018	4300018	4300018	4300018	4300018
62	Cap	4300218	4300218	4300218	4300218	4300218
63	Left side panel			2101817	2101817	2101817
64	Case adapter			2600196	2600196	2600196
65	Rotation device			2102832	2102832	2102832
66	Model sticker	7301937 not pictured	7301936 not pictured	7301572 not pictured	7301572 not pictured	7301573 not pictured
67	Base / back panel of case			2101870	2101870	2101870
68	Front panel of case			2101977	2101977	2101977
69	Case cover			2101873	2101873	2101873
70	Case left side panel			2101874	2101874	2101874
71	Case right side panel			2101875	2101875	2101875
72	Case grip			2600207	2600207	2600207
73	Rubber-metal pad			3300006	3300006	3300006
74	Built-in plug			4300138	4300138	4300138
75	Locking coupling, red			3100098	3100098	3100098
76	Locking coupling, blue			3100099	3100099	3100099
77	Locking coupling / cord grip			2600079	2600079	2600079
78	Fan			4100007	4100007	4100007
79	Water pump				4100022	4100022
80	Cooler				2800025	2800025
81	Water tank				2800018	2800018
82	Filter cartridge				2800023 not pictured	2800023 not pictured
83	Filler cap				2800019	2800019
84	Flow meter				3100083	3100083
85	Pressure cell				2800019	2800019
86	"REHM" sticker			7300032	7300032	7300032
90	Locking cap	4000002	4000002	4000002	4000002	4000002
91	Holding rail	4000122	4000122	4000122	4000122	4000122
92	Rubber mat	3300200	3300200			
93	Solid wire feed roller 0.6mm	7502010 not pictured	7502010	7502010	7502010	7502010
93	Solid wire feed roller 0.8mm	7502011 not pictured	7502011	7502011	7502011	7502011
93	Solid wire feed roller 1.0mm	7502012 not pictured	7502012	7502012	7502012	7502012
93	Solid wire feed roller 1.2mm	7502013 not pictured	7502013	7502013	7502013	7502013
93	Solid wire feed roller 1.6mm	7502014 not pictured	7502014	7502014	7502014	7502014
93	Tubular wire feed roller 1.2mm	7502007 not pictured	7502007	7502007	7502007	7502007
93	Tubular wire feed roller 1.6mm	7502008 not pictured	7502008	7502008	7502008	7502008
93	Tubular wire feed roller from 1.8 mm to 2.4 mm	7502009 not pictured	7502009	7502009	7502009	7502009
93 + 94	Pair solid feed rollers with sprocket 0.6 mm	7502034	7502034	7502034	7502034	7502034
93 + 94	Pair solid feed rollers with sprocket 0.8mm	7502030	7502030	7502030	7502030	7502030
93 + 94	Pair solid feed rollers with sprocket 1.0mm	7502031	7502031	7502031	7502031	7502031
93 + 94	Pair solid feed rollers with sprocket 1.2mm	7502032	7502032	7502032	7502032	7502032
93 + 94	Pair solid feed rollers with sprocket 1.6mm	7502033	7502033	7502033	7502033	7502033
93 + 94	Pair solid feed rollers with sprocket 1.2mm	7502035	7502035	7502035	7502035	7502035
93 + 94	Pair solid feed rollers with sprocket 1.6mm	7502036	7502036	7502036	7502036	7502036
93 + 94	Pair solid feed rollers with sprocket 2.4 mm	7502037	7502037	7502037	7502037	7502037
94	Sprocket	4000112	4000112	4000112	4000112	4000112
95	Metal washer	4000101	4000101	4000101	4000101	4000101
96	PVCI washer	4000102	4000102	4000102	4000102	4000102
97	Angle lever with hole for lock handles	4000117	4000117	4000117	4000117	4000117

		250-4	300-4	350-4 S + C	350-4 WS + C	450-4 WS + C
98	Angle lever	4000116	4000116	4000116	4000116	4000116
99	Feed plate	4000119	4000119	4000119	4000119	4000119
100	Locking lever	4000118	4000118	4000118	4000118	4000118
101	Wire guide	4000012	4000012	4000012	4000012	4000012
102	Counter pressure roller	7502038 no illustration	7502038 no illustration	7502038 no illustration	7502038 no illustration	7502038 no illustration
103	Wire guide	4100035	4100035	4100035	4100035	4100035
104	Capillary tube	7502046 not pictured	7502046 not pictured	7502049 not pictured	7502049 not pictured	7502049 not pictured
105	Support tube	7502052 not pictured	7502052 not pictured	7502053 not pictured	7502053 not pictured	7502053 not pictured
110	Fuse 2A/T F1/F2 EMC card 6900545	6600042 no illustration	6600042 no illustration	6600042 no illustration	6600042 no illustration	6600042 no illustration
111	Fuse 2A/T F700 Control unit 6900559	6600011 no illustration	6600011 no illustration	6600011 no illustration	6600011 no illustration	6600011 no illustration
112	Fuse 2A/T F800 Control unit 6900559	6600011 not pictured	6600011 not pictured	6600011 not pictured	6600011 not pictured	6600011 not pictured
113	Fuse 3.15A/T F900 Control unit 6900559	6600013 not pictured	6600013 not pictured	6600013 not pictured	6600013 not pictured	6600013 not pictured
114	Fuse 6.3A/T F901 Control unit 6900559	6600016 not pictured	6600016 not pictured	6600016 not pictured	6600016 not pictured	6600016 not pictured
115	Fuse 1A/T F902 Control unit 6900559	6600008 not pictured	6600008 not pictured	6600008 not pictured	6600008 not pictured	6600008 not pictured
116	Earthing cable	7810102	7810102	7810109	7810109	7810104
117	Metal filter cell	7501120 not pictured	7501120 not pictured	7501120 not pictured	7501120 not pictured	7501120 not pictured
118	Retrofit air filter attachment	1381353 not pictured	1381353 not pictured	1381353 not pictured	1381353 not pictured	1381353 not pictured

10.2 Exploded drawings

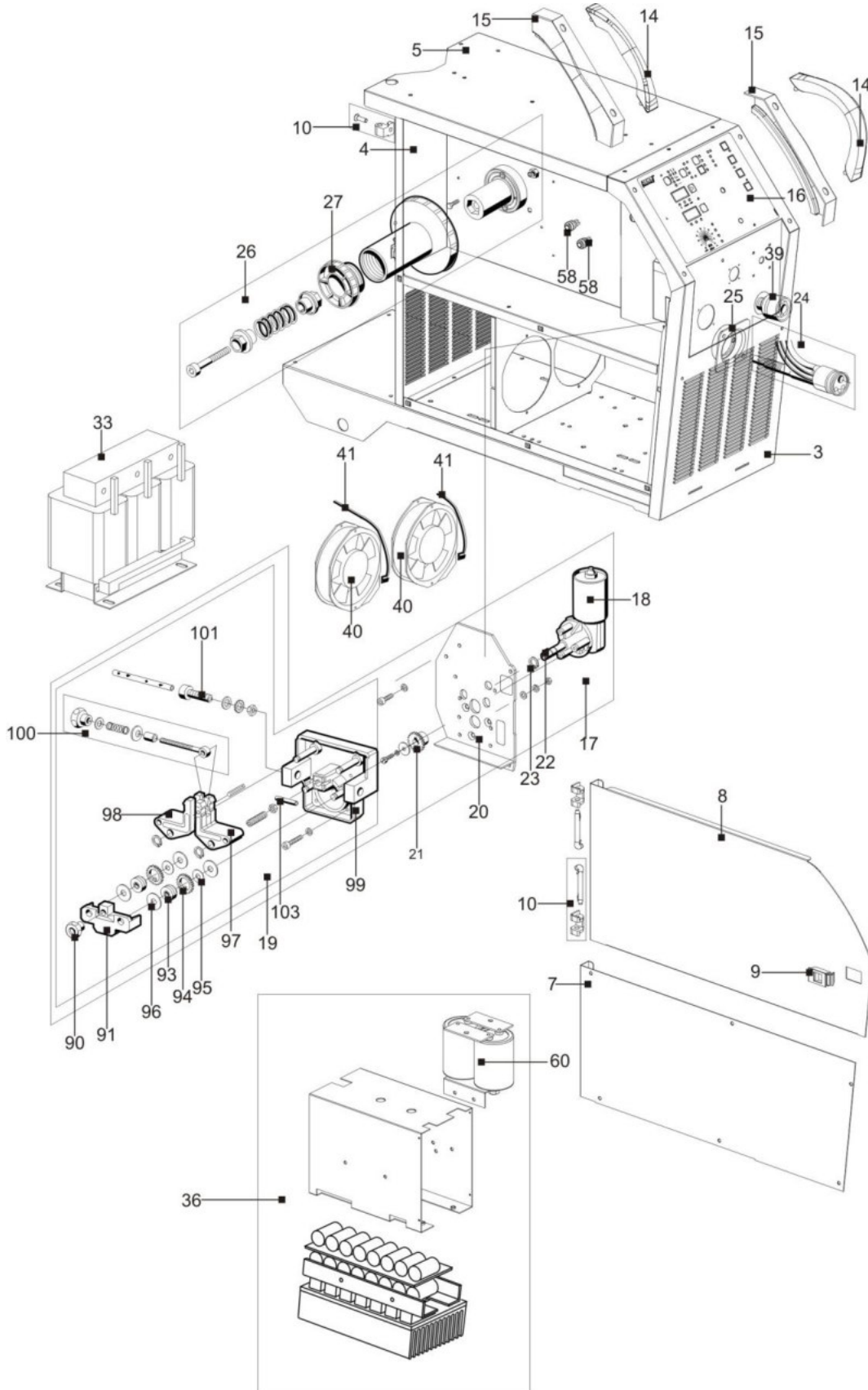


Illustration 21: MEGA.ARC² COMPACT

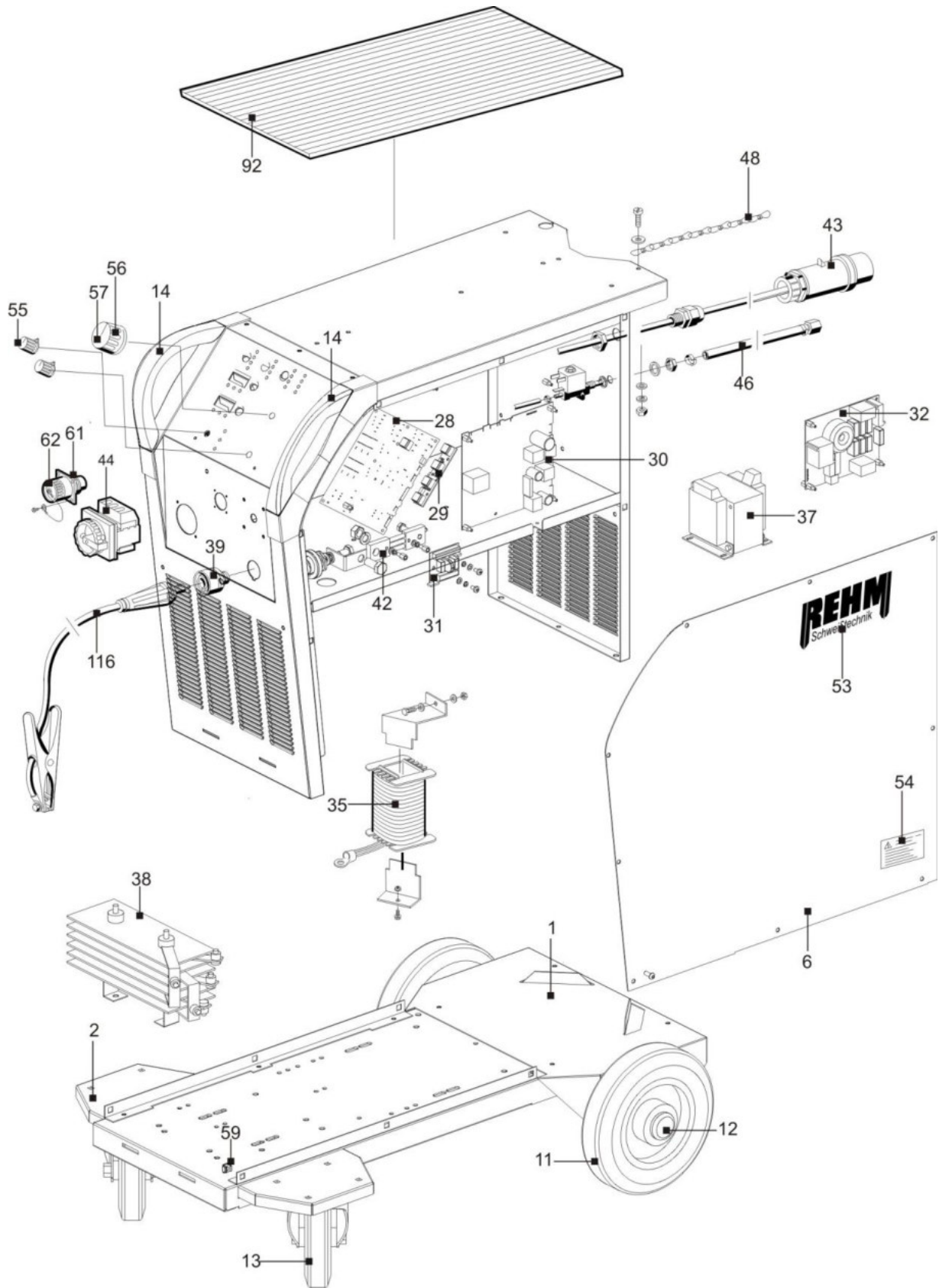


Illustration 22: MEGA.ARC² COMPACT

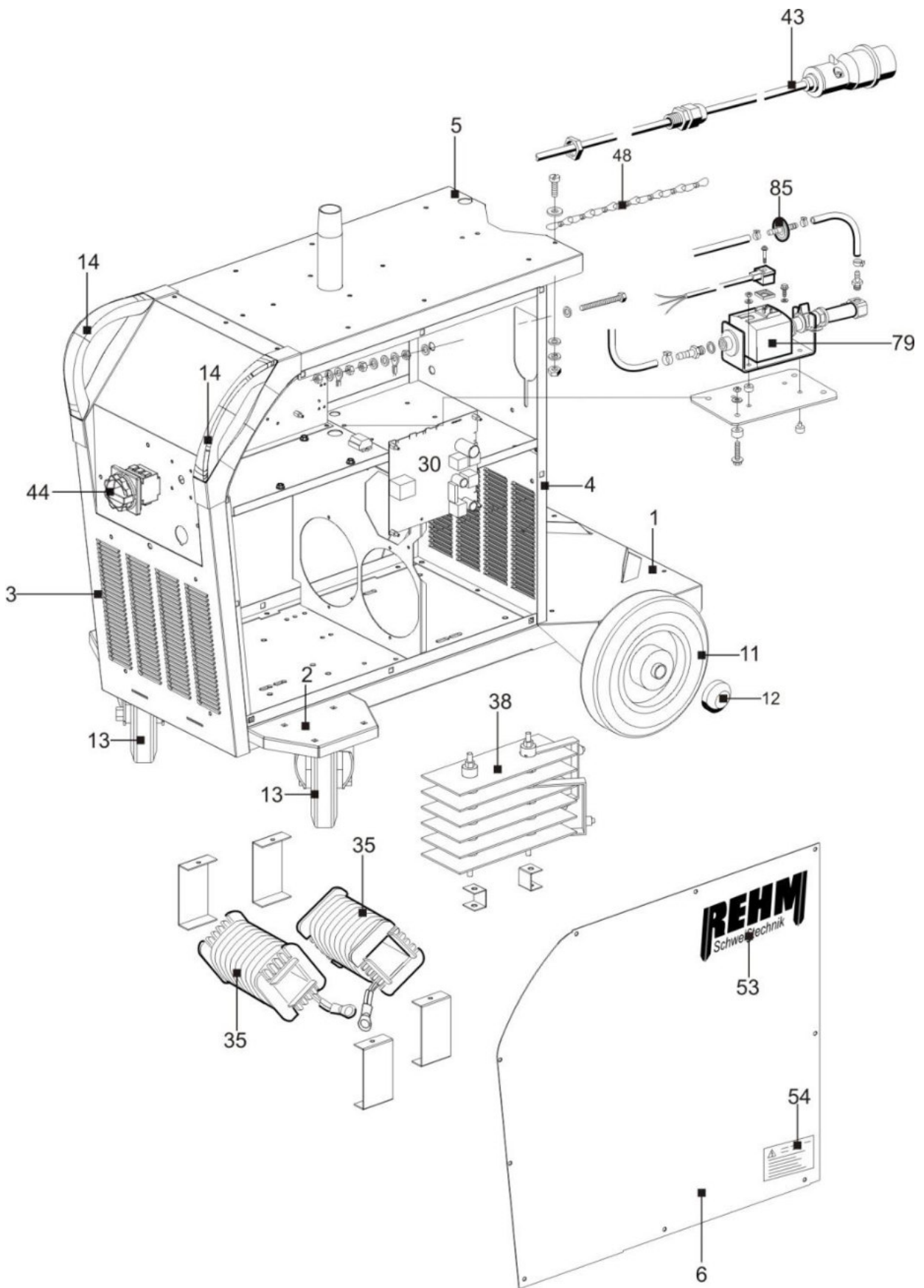


Illustration 23: MEGA.ARC² case machine

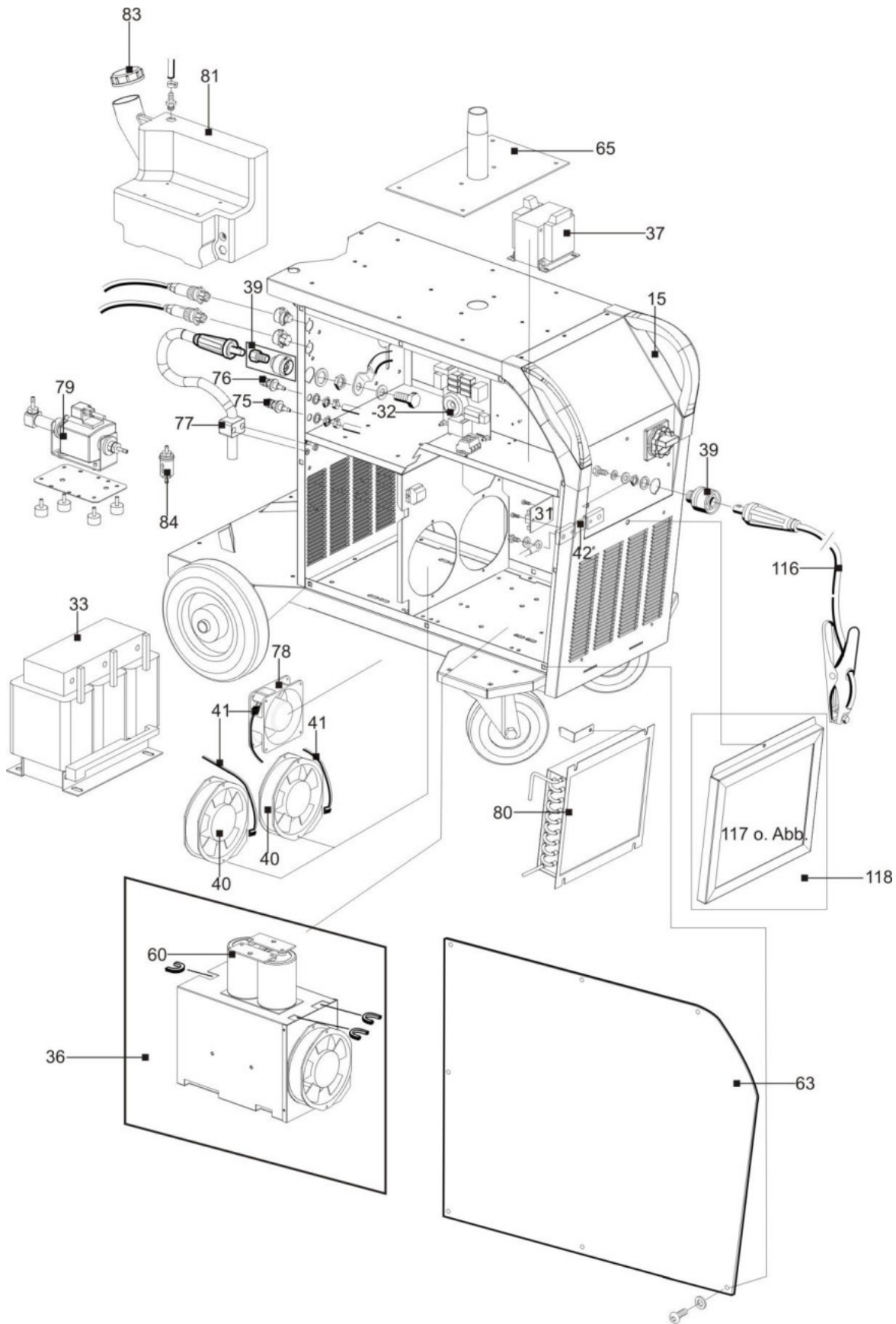


Illustration 24: MEGA.ARC² case machine

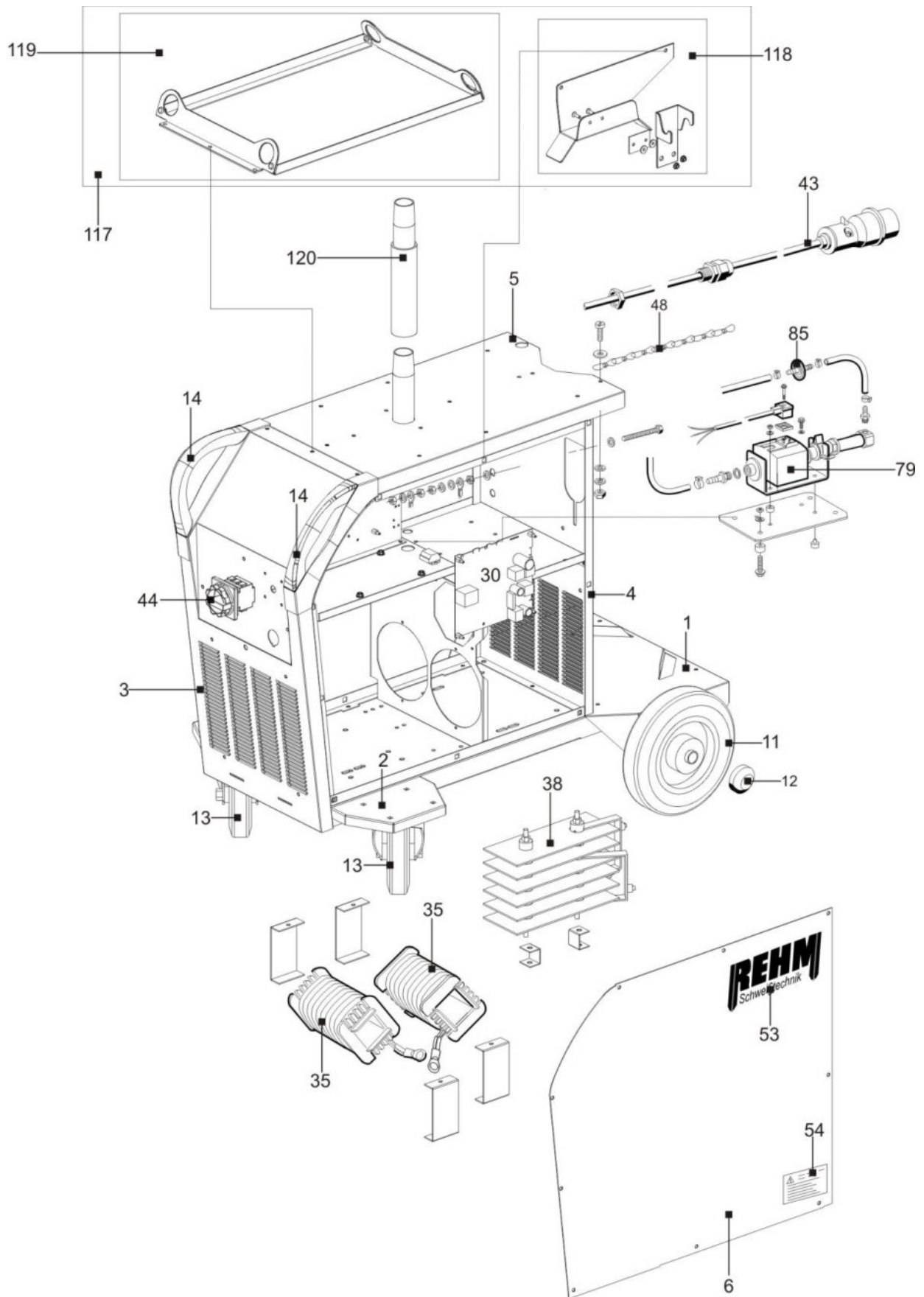


Illustration 25: MEGA.ARC² case machine with options

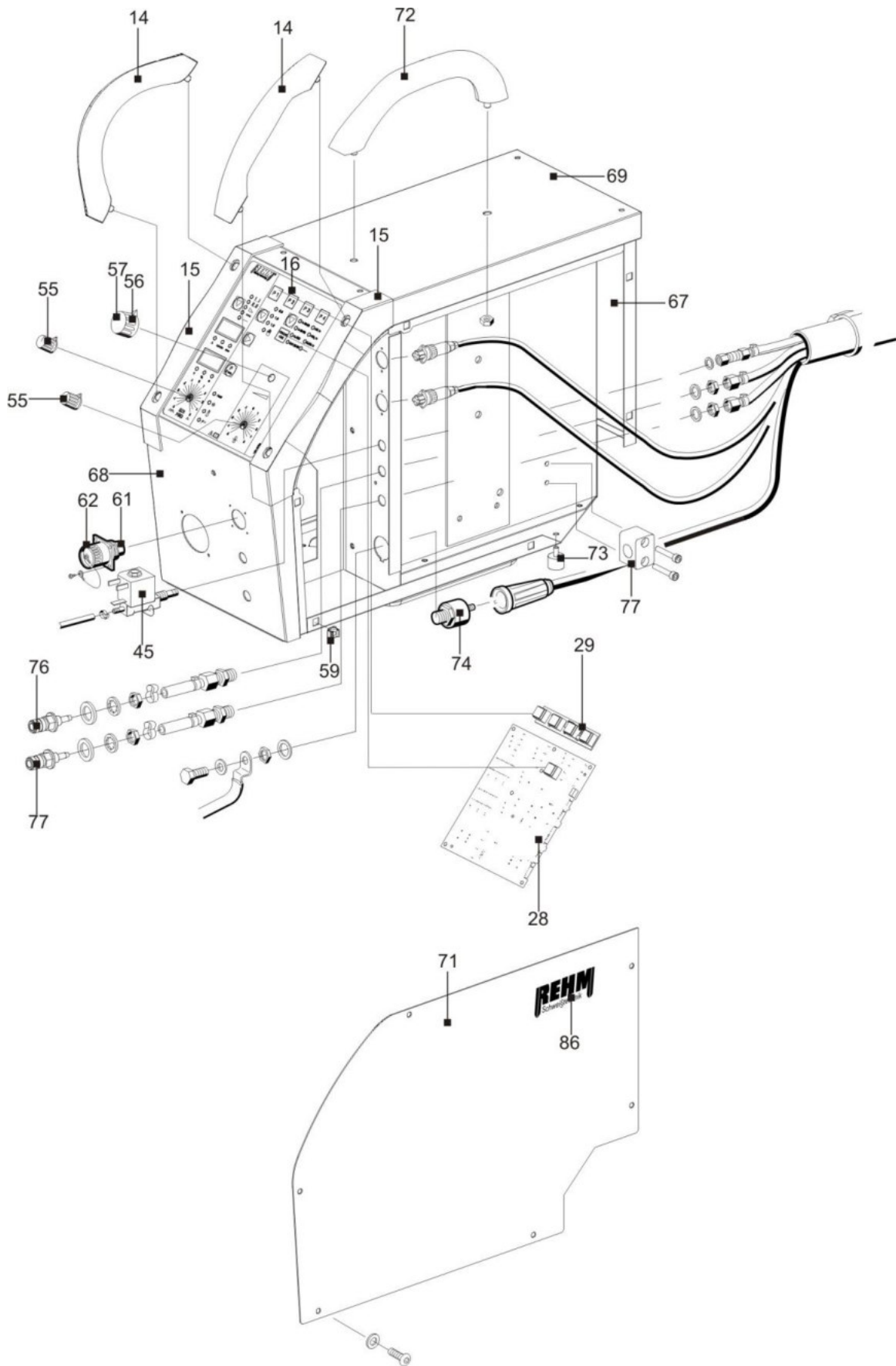


Illustration 26: MEGA.ARC² case

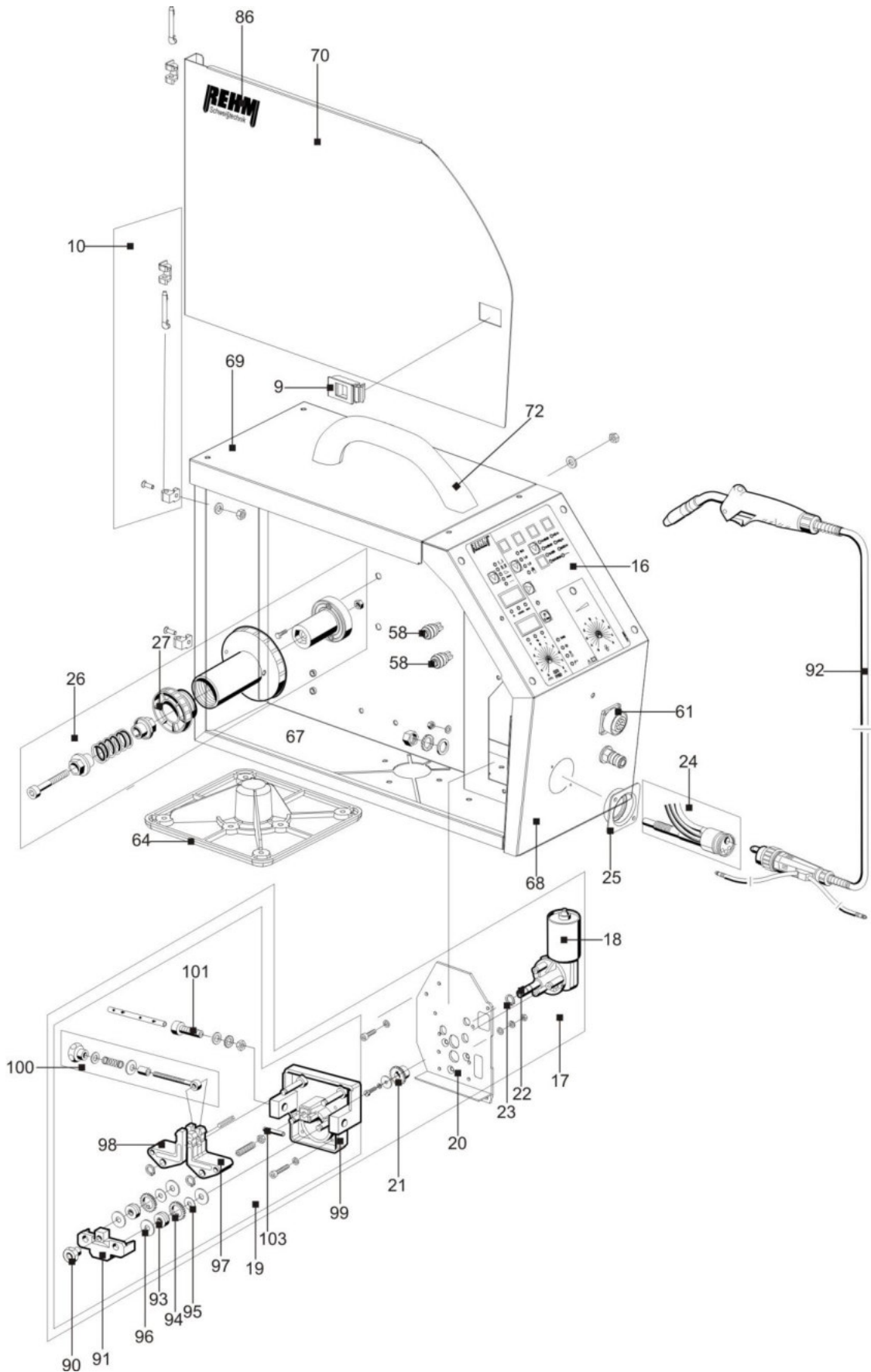


Illustration 27: MEGA.ARC² case

11 Specifications

Overview of model range

		Mega.Arc ² 250	Mega.Arc ² 300	Mega.Arc ² 350 S	Mega.Arc ² 350 WS	Mega.Arc ² 450 WS
Adjustment range	A	25 - 250	25 - 300	25 - 350	25 - 350	25 - 450
Duty cycle (ED) at I max (40°C)	%	50	50	50	50	50
Welding current at i 100% duty cycle (40°C)	A	180	220	250	250	320
Open circuit voltage	[V]	68	68	68	68	68
Mains connection	[V]	3 x 400	3 x 400	3 x 400	3 x 400	3 x 400
Mains voltage tolerance	%	+10 / -15	+10 / -15	+10 / -15	+10 / -15	+10 / -15
Continuous output at 100% duty cycle	[KVA]	5.8	7.6	9.2	9.2	13.4
Fuses (slow)	A	16	32	32	32	32
Performance factor λ	%	0.98	0.98	0.98	0.98	0.98
Cooling type		AF	AF	AF	AF	AF
Torch cooling		Gas	Gas	Gas	Water	Water
Protection class b)		IP 23	IP 23	IP 23	IP 23	IP 23
Insulation class c)		H	H	H	H	H
Dimensions (L x W x H) Power source Current source with case	[mm]	1030 x 605 845		1030 x 605 845 1030 x 605 1410		
Weight	kg	120	124	164	173	176

Dimensions of CONSTRUCTION case

Dimensions (L x W x H) CONSTRUCTION Case	[mm]	650 x 225 430
---	------	---------------

Technical changes as a result of further development reserved.

- a) Performance factor λ = describes the relationship of effective power to apparent power
- b) Protection class = Degree of protection afforded by the case against penetration by foreign bodies and water (IP23 = Protection for solid foreign bodies > 12.0 mm in diameter \varnothing and against water sprays 60° from above)
- c) Insulation class = Class of the insulation materials used and their maximum allowed continuous temperature (H= highest permissible temperature 180°)

12 INDEX

A	
Accident Prevention	12
Adjustment of the feed mandrel	56
Alterations to the equipment	13
Application instructions	54
B	
Burner Accessories	55
C	
Checking the cooling water and the cooler	62
Cleaning the inside of the unit	61
Commissioning	46
Components	45
Connecting the earthing cable	54
Connecting the welding unit	50
Cooling the welding unit	52
E	
Electrodes	55
F	
Faults	57, 60
G	
Gas nozzles	55
H	
Health and Safety	12
I	
Increased electrical danger	46
M	
Machine description	2
Maintenance	60
Manufacturer	2
Materials	56
MIG/MAG welding torches	55
MIG/MAG welding torches Water cooling	52
N	
Nozzles	55
O	
Operation	54
Safety instructions	54
Tests before switching-on	54
P	
Product identification	
Machine description	2
Type number	2
Proper use	10
Proper waste disposal	62
Purpose of the document	13

R	
Remote control socket	50
Residual risks	12
S	
Safety	
Risks arising from non-compliance	12
Safety instructions	6, 11, 12
Operation	54
Safety regulations	
Safety symbols	6
Safety symbols	6
Shielding Gases	55
Specifications	76
Storage of the Manual	13
Supplementary Regulations	10
Switching-on	14, 42
Symbols	10
T	
Tests before switching-on	54
Threading	36
Troubleshooting table	57
Type number	2
Typographical conventions	10
W	
Warning symbols on the equipment	11
Warnings and symbols	
representation	11
Water cooling for MIG/MAG welding torches	52
Weldable materials	55
Wire diameter	56
Wire electrodes	55
Wire liners	55
Working under conditions of increased electrical danger	46



EU Declaration of Conformity

For the following product

MIG/MAG gas-shielded welding units

MEGA.ARC²	250
MEGA.ARC²	300
MEGA.ARC²	350 S
MEGA.ARC²	350 WS
MEGA.ARC²	450 WS

meet all the major protection requirements laid down in the Council Directive **2004/108/EC** (EMC directive) on the approximation of the laws of the member states relating to electromagnetic compatibility and in the Directive **2006/95/EC** relating to electrical equipment designed for use within certain voltage limits.

The above products conform to the regulations in this Directive and meet the safety requirements for equipment used for arc welding in accordance with the following product standards:

60 974-1 2006-07

Arc welding equipment part 1: Welding power sources

EN 60 974-2: 2003-09

Arc welding equipment part 2: Liquid cooling systems

EN 60 974-5: 2003-02

Arc welding equipment part 5: Wire feeder units

EN 60974-10: 2004-01

Arc welding equipment part 10: Requirements for electromagnetic compatibility (EMC)

According to the EC. Guideline **2006/42/EG** Article 1, Paragraph 2 the above products come exclusively under the scope of Directive **2006/95/EC** relating to electrical equipment designed for use within certain voltage limits.

This declaration is made on behalf of the manufacturer:

REHM GmbH u. Co. KG Schweißtechnik
Ottostr. 2
73066 Uhingen

Uhingen, 15/10/2015

issued by

R. Stumpp
Managing Director

REHM – Setting the pace in welding and cutting

The REHM range

- **REHM MIG/MAG inert gas welding units**
 - SYNERGIC.PRO² gas- and water-cooled to 450 A
 - SYNERGIC.PRO² water-cooled 500 A to 600 A
 - MEGA.ARC² stepless regulation to 450 A
 - RP REHM Professional to 560 A
 - PANTHER 202 PULS pulse welding unit with 200 A
 - MEGA.PULS *FOCUS* pulse welding units to 500 A
- **REHM TIG inert gas welding units**
 - TIGER, portable 100 KHz inverter
 - INVERTIG.PRO TIG welding unit
 - INVERTIG.PRO *digital* TIG welding unit
- **REHM MMA inverter technology**
 - TIGER and BOOSTER.PRO 100 KHz electrode inverter
- **REHM plasma cutting units**
- **Welding accessories and additional materials**
- **Welding smoke extraction fans**
- **Welding rotary tables and positioners**
- **Technical welding consultation**
- **Torch repair**
- **Machine Service**

REHM WELDING TECHNOLOGY – German Engineering and Production at its best

Development, construction and production – all under one roof – in our factory in Uhingen. Thanks to this central organisation and our forward-thinking policies, new discoveries can be rapidly incorporated into our production. The wishes and requirements of our customers form the basis for our innovative product development. A multitude of patents and awards represent the precision and quality of our products. Customer proximity and competence are the principles which take highest priority in our consultation, training and service.

WEEE-Reg.-Nr. DE 42214869

REHM Service-Hotline: Tel.: +49 (0) 7161 30 07-77 REHM online: www.rehm-online.de
Fax: +49 (0) 7161 30 07-60

Please contact your local distributor:

REHM GmbH u. Co. KG Schweißtechnik

Ottostraße 2 · D-73066 Uhingen
Telefon: +49 (0) 7161 30 07-0
Telefax: +49 (0) 7161 30 07-20
E-Mail: rehm@rehm-online.de
Internet: <http://www.rehm-online.de>