

RWF MINI for SIGMA²

Instruction manual

micatronic



WARNING



Arc welding and cutting can be dangerous to the user, people working nearby, and the surroundings if the equipment is handled or used incorrectly. Therefore, the equipment must only be used under the strict observance of all relevant safety instructions. In particular, your attention is drawn to the following:

Electricity

- The welding equipment must be installed according to safety regulations and by a properly trained and qualified person. The machine must be connected to earth through the mains cable.
- Make sure that the welding equipment is correctly maintained.
- In the case of damaged cables or insulation, work must be stopped immediately in order to carry out repairs.
- Repairs and maintenance of the equipment must be carried out by a properly trained and qualified person.
- Avoid all contact with live components in the welding circuit and with electrodes and wires if you have bare hands. Always use dry welding gloves without holes.
- Make sure that you are properly and safely earthed (e.g. use shoes with rubber sole).
- Use a safe and stable working position (e.g. avoid any risk of accidents by falling).

Light and heat emissions

- Protect the eyes as even a short-term exposure can cause lasting damage to the eyes. Use a welding helmet with suitable radiation protection glass.
- Protect the body against the light from the arc as the skin can be damaged by welding radiation. Use protective clothes, covering all parts of the body.
- The place of work should be screened, if possible, and other persons in the area warned against the light from the arc.

Welding smoke and gases

- The breathing in of the smoke and gases emitted during welding is damaging to health. Make sure that any exhaust systems are working properly and that there is sufficient ventilation.

Fire hazard

- Radiation and sparks from the arc represent a fire hazard. As a consequence, combustible materials must be removed from the place of welding.
- Working clothing should also be secure against sparks from the arc (e.g. use a fire-resistant material and watch out for folds and open pockets).
- Special regulations exist for rooms with fire- and explosion hazard. These regulations must be followed.

Noise

- The arc generates acoustic noise according to welding task. In some cases, use of hearing aids is necessary.

Dangerous areas

- Fingers must not be stuck into the rotating gear wheels in the wire feed unit.
- Special consideration must be taken when welding is carried out in closed areas or in heights where there is a danger of falling down.

Positioning of the machine

- Place the welding machine so there is no risk that the machine will tip over.
- Special regulations exist for rooms with fire- and explosion hazard. These regulations must be followed.

Use of the machine for other purposes than it is designed for (e.g. to unfreeze water pipes) is strongly deprecated. If the occasion should arise this will be carried out without responsibility on our part.

**Read this instruction manual carefully
before the equipment is installed and in operation**

Electromagnetic emissions and the radiation of electromagnetic disturbances

This welding equipment for industrial and professional use is in conformity with the European Standard EN/IEC60974-10 (Class A). The purpose of this standard is to prevent the occurrence of situations where the equipment is disturbed or is itself the source of disturbance in other electrical equipment or appliances. The arc radiates disturbances, and therefore, a trouble-free performance without disturbances or disruption, requires that certain measures are taken when installing and using the welding equipment. **The user must ensure that the operation of the machine does not occasion disturbances of the above mentioned nature.**

The following shall be taken into account in the surrounding area:

1. Supply and signalling cables in the welding area which are connected to other electrical equipment.
2. Radio or television transmitters and receivers.
3. Computers and any electrical control equipment.
4. Critical safety equipment e.g. electrically or electronically controlled guards or protective systems.
5. Users of pacemakers and hearing aids etc.
6. Equipment used for calibration and measurement.
7. The time of day that welding and other activities are to be carried out.

8. The structure and use of buildings.

If the welding equipment is used in a domestic establishment it may be necessary to take special and additional precautions in order to prevent problems of emission (e.g. information of temporary welding work).

Methods of reducing electromagnetic emissions:

1. Avoid using equipment which is able to be disturbed.
2. Use short welding cables.
3. Place the positive and the negative cables close together.
4. Place the welding cables at or close to floor level.
5. Remove signalling cables in the welding area from the supply cables.
6. Protect signalling cables in the welding area, e.g. with selective screening.
7. Use separately-insulated mains supply cables for sensitive electronic equipment.
8. Screening of the entire welding installation may be considered under special circumstances and for special applications.

The RWF MINI can be used together with a SIGMA² Compact in robot installations, where 1 or 2 extra wirefeeders are required. The RWF MINI can be configured with various torches, remote interface and Mig Manager[®] interface.

1. The RWF MINI communicates with the SIGMA² via a CAN-interface and is connected on the rear panel of the SIGMA² via a cable, which can be up to 15 meters.
2. The documentations for the RWF MINI consists of the following:
 - Functional description incl. configuration
 - Mechanical drawing

Functional description

When using 2 RWF MINI-units on the same SIGMA² the RWF MINI-units must be configured as no. 1 and no. 2. This is done by placing a jumper on the PCB 71613578 as shown in fig. 1.

Functions

The main functions of RWF MINI is like a standard SIGMA² wirefeeder without any userinterface/panel and can be used with or without robotinterface connected to the SIGMA² Compact. The internal wirefeeder in the SIGMA² Compact is still available, when RWF MINI-units are connected to the SIGMA².

Using the RWF MINI without robotinterface:

The RWF MINI as well as the internal wirefeeder can be triggered from the connected torch. When the RWF MINI is active (LED-lamp on front is ON) welding is started immediately. When the RWF MINI is not active (LED-lamp on front is OFF), the trigger will make a programshift and activate the RWF MINI without starting welding. Welding is started when the trigger is activated. The internal wirefeeder in the SIGMA² is active, when none of the RWF MINI-units is active.

Pressing the wire inching-button (on front) will start wire inching immediately, if welding is not started or in progress. The wire speed can be adjusted on the SIGMA² userinterface.

The gastest function is performed only on the active RWF MINI/wirefeeder by pressing the Gastest-button on the SIGMA².

Using the RWF MINI with robotinterface

The active RWF MINI (indicated by LED-lamp on front) is selected from the robotinterface. If the robotinterface is configured for internal program select, selecting/activating a RWF MINI/wirefeeder will perform a programshift to the program last used with the specific RWF MINI/wirefeeder. If the robotinterface is configured for external program select, selecting/activating a RWF MINI/wirefeeder will not result in a programshift. The SIGMA² remembers the welding program last used for each RWF MINI/wirefeeder on power-down.

The RWF MINI can be triggered only from the robot-interface, and welding is started immediately. Pressing the wire inching-button (on front) will start wire inching immediately, if welding is not started or in progress. Wire inching can also be performed on the active RWF MINI/wirefeeder by activating the wire inching-input on the robotinterface. The wire inching speed can be adjusted from the robotinterface.

The gastest function is performed only on the active RWF MINI/wirefeeder by either activating Gastest-input on the robotinterface or by pressing the Gastest-button on the SIGMA².

The LED-lamp on the front of the RWF MINI is ON, when this RWF MINI is activated. When none of the RWF MINI-units is active, the internal wirefeeder in the SIGMA² is active.

AIR Clean (air cleaner)

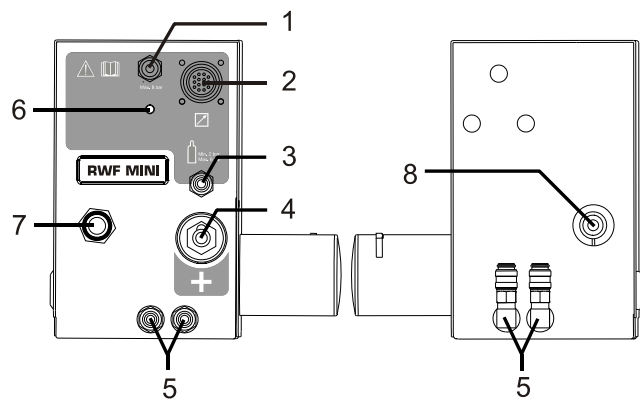
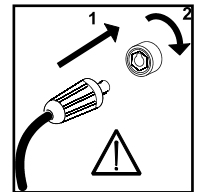
It is possible to connect compressed air for cleaning of the welding nozzle. The compressed air is controlled via commands at the CAN bus. Maximum 8 bar.

Configuration

MIGATRONIC disclaims all responsibility for damaged cables and other damages related to welding with under sized welding torch and welding cables measured by welding specifications e.g. in relation to permissible load.

Important!

In order to avoid destruction of plugs and cables, good electric contact is required when connecting earth cables and intermediary cables to the machine.



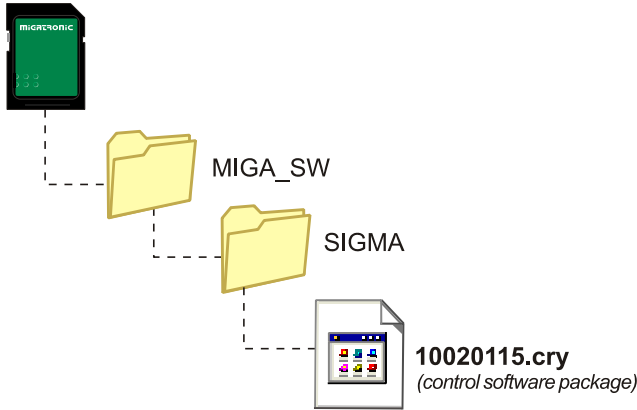
1. **Compressed air connection - AIR Clean (max 8 bar)**
2. **CAN-plug**
3. **Gas connection (2 - 6 bar)**
4. **Power +**
5. **Torch cooling connection**
6. **ON-indicator**
7. **Wire inlet**
8. **Torch connection**

Accessories

The RWF MINI can be equipped with various standard torches, Mig Manager[®] and SIGMA² remote control.

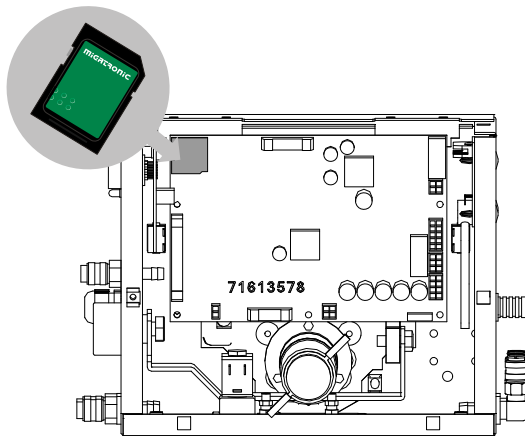
Software

The software is placed on a SD card which must contain the folders and the file as shown below. The folder names must be saved in BIG letters and with the original names.



Software reading

- Remove the left side plate on the RWF MINI (must be carried out by electrically skilled person)
- Insert the SIGMA SD-card in the card reader at the PCB 71613578 inside the RWF MINI-unit or inside the SIGMA².
- Turn on the machine.
- Wait until the LED at the RWF MINI-unit starts flashing. The standard screen is displayed at SIGMA²
- Turn off the machine and remove the SD card.
- The RWF MINI-unit is now ready for use.



Error codes

When using the RWF MINI, the following error codes are available on the SIGMA²:

E07 04 is displayed when the communication between the SIGMA² and the RWF MINI is lost.

E07 05 is displayed when controlling the motor is not running properly.

E07 06 is displayed when the motor is overloaded.

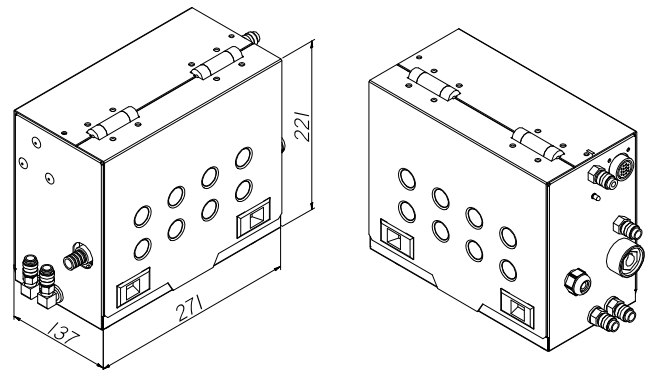
E07 6A5 Gas control fault (option):

This icon can only be shown in case a gas control kit has been mounted. Gas fault is due to a too low or high pressure on the gas flow.

Make sure that the pressure on the gas flow is higher than 2 bar and less than 6 bar, corresponding to 5 l/min and 27 l/min.

Gas fault can be set out of action by adjusting the manual gas flow to 27 l/min.

Technical data	
Wire feed speed	0.5-30 m/min
Torch connection	EURO
Wire diameter	0.6-2.4 mm
Gas pressure max.	0.6 MPa (6.0 bar)
Dimensions (HxWxL)	22.1x13.7x27.1 cm
Weight	7.0 kg
¹ Protection class	IP21C



Maintenance

The RWF MINI should be blown with compressed air and wire feed rolls should be checked for wear and tear as needed.

¹ This machine is designed for indoor operation and meets the requirements of protection class IP21.

CONDITIONS OF WARRANTY

Migatronic (which is hereinafter referred to as “the Supplier”) continuously carries out quality control throughout the manufacturing process as well as check of the complete units through comprehensive testing.

The Supplier provides warranty in accordance with the following provisions, by correcting errors and defects on units, that demonstrably and within the warranty period may have been caused by faulty material or workmanship.

The warranty period is 24 months for new welding machines, 12 months for new accessories and 6 months for spare parts. The warranty period is calculated from the date of invoice to the end user from the Supplier or the Supplier’s dealer/distributor. The original invoice is proof of the warranty period.

The warranty period is 12 months or maximum 1,800 operating hours for the CoWelder solution. The warranty period is calculated from the date of invoice to the end user from the Supplier or the Supplier’s dealer/distributor. The original invoice is proof of the warranty period.

The warranty period is 24 months for new welding machines incorporated in robotic, automated and CoWelder solutions. The warranty period is calculated from the date of invoice to the end user from the Supplier or the Supplier’s dealer/distributor. The original invoice is proof of the warranty period.

The warranty period can be extended to up to 60 months on selected parts by registration at www.migatronic.com of new welding machines not later than 30 days after the date of purchase. The following welding machines fall within the scope of the extended warranty: Automig, Automig-i, MIGx series, Omega series, Sigma series, Sigma Galaxy, Pi series, Pi Plasma, Zeta.

Welding torches and intermediary cables are considered as wearing parts, and only errors and defects found within 12 months upon delivery and due to faulty material or workmanship, will be considered under warranty.

Warranty repairs neither extend nor renew the warranty period.

Any transport of goods or persons in connection with a warranty claim is not covered under the Supplier’s warranty obligation and will therefore be at the buyer’s expense and risk.

You can read the complete Warranty Conditions at www.migatronic.com



Dispose of the product according to local standards and regulations. More information can be found under Policies at www.migatronic.com

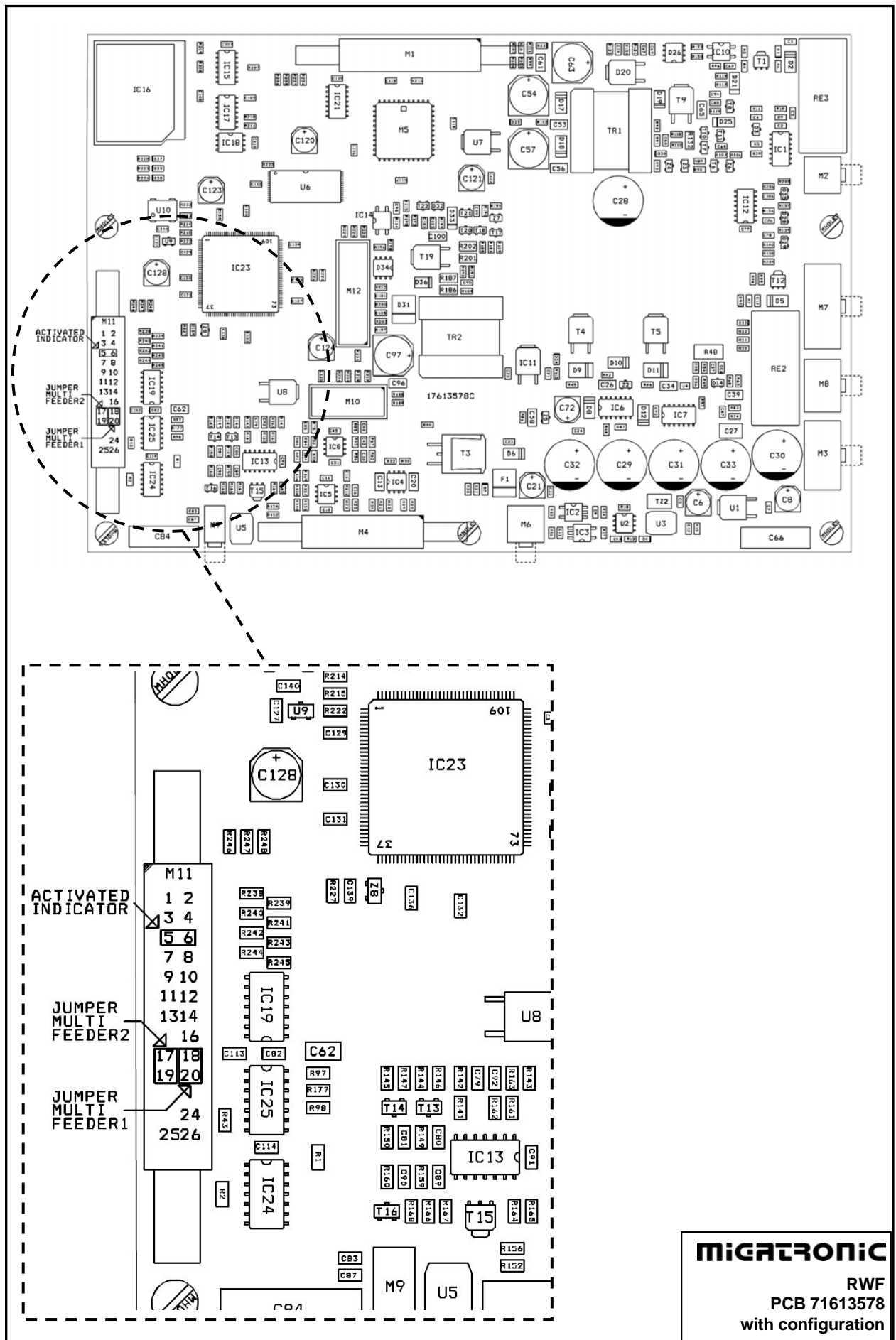


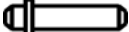

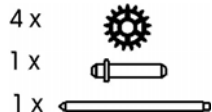







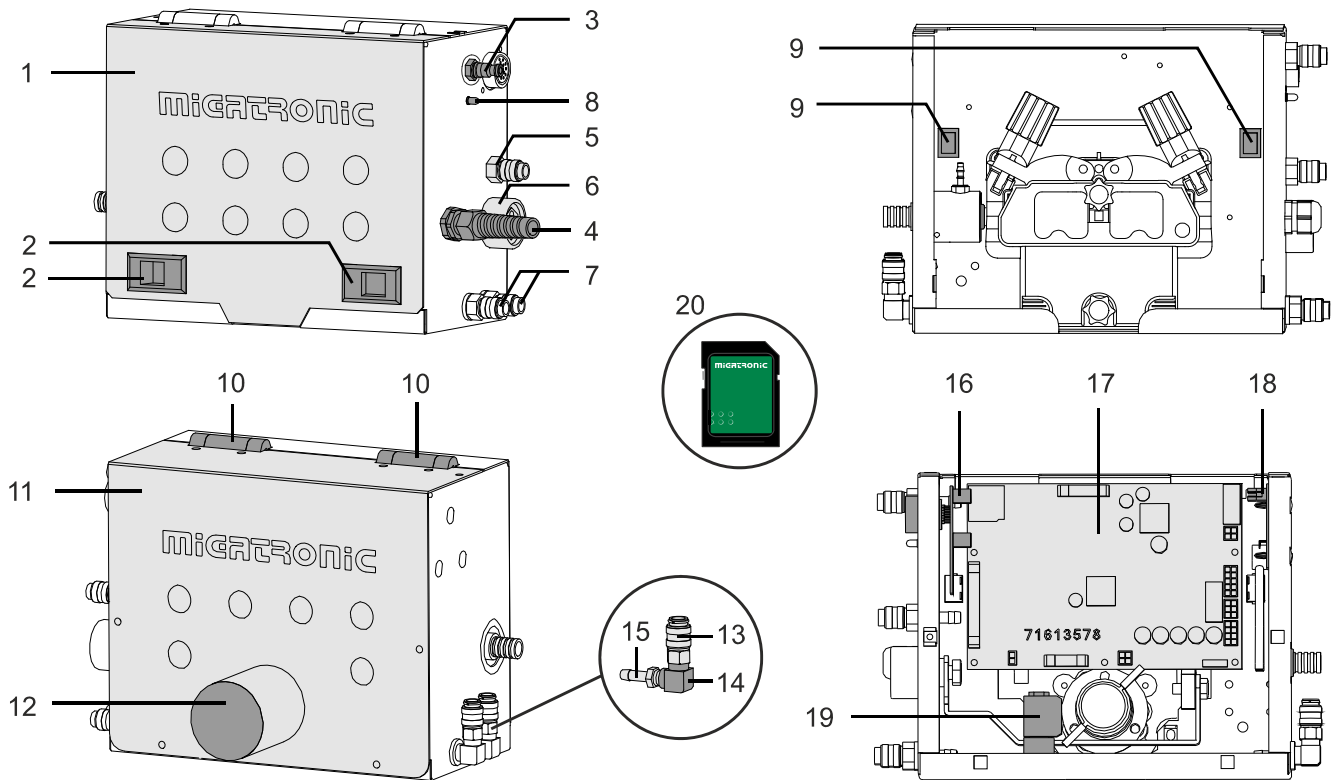
Fig. 1

WEARING PARTS – WIRE FEED

WIRE 	DIA. 	WIRE FEED ROLLS		SELECTION OF WIRE FEED ROLLS				WIRE LINER 		CAPILLARY TUBE 		KIT SET 		
												4 x	1 x	1 x
Fe	0.8 mm	72300000	white	0.8 mm			V		45050223	white	26511400	white	73940300	white
	1.0 mm	72300001	blue	1.0 mm			V		45050224	blue	26511401	blue	73940301	blue
	1.2 mm	72300003	red	1.2 mm			V		45050225	red	26511402	red	73940303	red
CrNi	0.8 mm	72300000	white	0.8 mm			V		45050223	white	26511400	white	73940300	white
	1.0 mm	72300001	blue	1.0 mm			V		45050224	blue	26511401	blue	73940301	blue
	1.2 mm	72300003	red	1.2 mm			V		45050225	red	26511402	red	73940303	red
Fe Flux	0.8 mm	72300000	white	0.8 mm			V		45050223	white	26511400	white	73940300	white
	1.0 mm	72300001	blue	1.0 mm			V		45050224	blue	26511401	blue	73940301	blue
	1.2 mm	72300003	red	1.2 mm			V		45050225	red	26511402	red	73940303	red
CrNi Flux	1.0 mm	72300001	blue	1.0 mm			V		45050224	blue	26511401	blue	73940301	blue
	1.2 mm	72300003	red	1.2 mm			V		45050225	red	26511402	red	73940303	red
Al	1.6 mm	72300008	pink	1.6 mm	U				45050225	red	26511402	red	73940308	red
	2.0 mm	72300010	yellow	2.0 mm	U				45050226	yellow	26511403	yellow	73940310	yellow
Additional choice Fe + CrNi + Fe Flux	1.2 mm	72300005	red	1.2 mm		U			45050225	red	26511402	red	73940305	red

Reservedelsliste
Spare parts list
Ersatzteilliste
Liste des pièces de rechange

RWF MINI



Pos.	No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
1	61112516	Låge Tür	Door Portillon
2	41319019	Skærmås Verschluß für Tür	Panel sliding lock Fermoir portillon
3	43120028	Lynkobling Schnellkupplung	Quick release Unité d'accouplement rapide
4	18480023	Kabelforskrning med aflastning Kabelverschraubung mit Entlastung	Cable inlet with relief Manchon fileté de câble avec support
5	43120025	Lynkobling, gas Schnellkupplung Gas	Quick clutch gas Unité d'accouplement rapide gaz
6	18110002	Dinsebøsning Dinsebuchse	Dinse coupling socket Douille de raccordement, type Dinse
7a	43120022	Lynkobling m/ventil, hun ø8mm Schnellkupplung mit Ventil, weiblich ø8mm	Quick adaptor with valve, female ø8mm Raccord eau femelle avec valve, ø8mm
7b	45050337	Bøsning for lynkobling, blå Buchse für Schnellkupplung, blau	Bush for quick release, blue Bague pour raccord eau femelle, bleu
7c	45050338	Bøsning for lynkobling, rød Buchse für Schnellkupplung, rot	Bush for quick release, red Bague pour raccord eau femelle, rouge
8	74471306	Lysdiode med kabel Lichtdiode mit Kabel	LED with cable Diode lumineuse avec câble
8a	12249002	Lysdiode-holder Lichtdiodenhalter	LED-holder Porte diode lumineuse
9	17110101	Trykknop Druckknopf	Press button Bouton-presseur
10	43810008	Hængsel Scharnier	Hinge Gond
11	61112515	Sideskærm Seitenschirm	Side panel Plaque latérale
12	45050368	Blindprop Blindstøpsel	Hole plug Cache-prise
13	43120023	Lynkobling m/ventil, hun 1/8" Schnellkupplung mit Ventil, weiblich 1/8"	Quick adaptor with valve, female 1/8" Raccord eau femelle avec valve, 1/8"
14	43620024	Vinkel ¼"x¼", messing Winkel ¼"x¼", Messing	Angle ¼"x¼", brass Angle de laiton ¼"x¼"
15	43320053	Slangenippel 8x1/8" Schlauchnippel 8x1/8"	Hose nipple 8x1/8" Raccord d'extrémité 8x1/8"
16	71613481	Print extern CAN Platine extern CAN	PCB external CAN Carte de circuits imprimés, external CAN
17	71613578	Print, CPU wire feeder Platine, CPU wire feeder	PCB, CPU wire feeder Carte de circuits imprimés, CPU wire feeder

RWF MINI

Pos.	No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
18	71613461	Print, gasregulering Platine, Gasregelung	PCB, gas control Carte de circuits imprimés, régulateur de gaz
19	17230013	Proportionalventil 24V DC 1/8" Proportionalventil 24V DC 1/8"	Proportional valve 24V DC 1/8" Solénoïde 24V DC 1/8"
20	78861297	SD hukommelseskort – SW opdatering SD memory card – Softwareaufgradieren	SD memory card – software update SD memory card - mise à jour logicielle
	11613522	Programmeringsenhed (PLD), Maxon motor Programmierbarer Logikbaustein, Maxon Motor	Programmable logical device (PLD), Maxon motor PLD (<i>Programmable logical device,</i>) moteur Maxon

Ved udskiftning af motor gøres opmærksom på følgende:

When replacing the motor, please note the following:

Beim Austausch des Motors ist folgendes zu beachten:



Gammel type motor er udgået. Erstatte af ny type (se nedenfor)

The old type of motor has be replaced by the new type shown below

Der alte Motortyp ist ausgelaufen und wird durch den unten angezeigten Typ ersetzt.



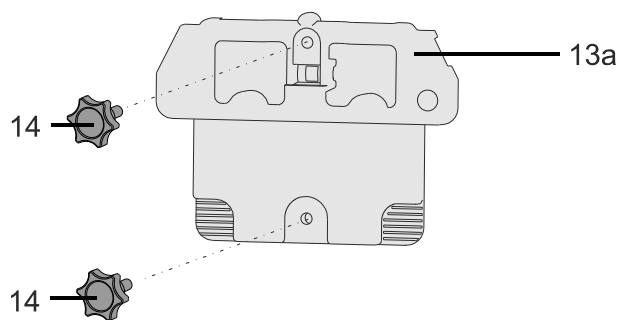
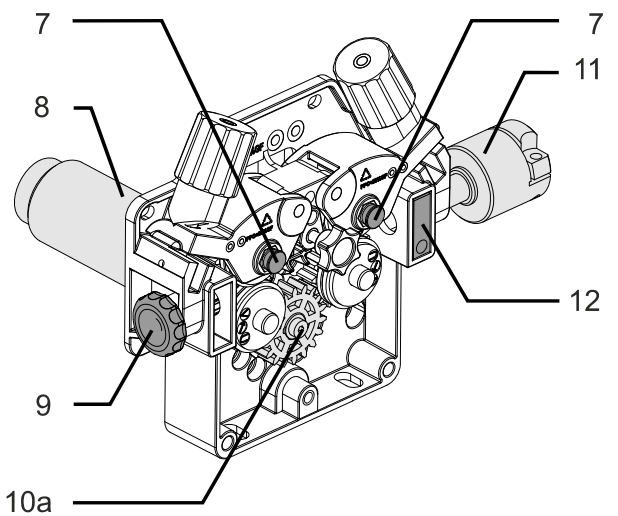
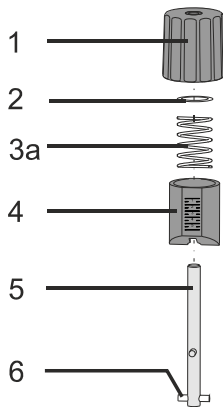
Ny type motor - bestillingsnumre:

New type of motor - Article nos.:

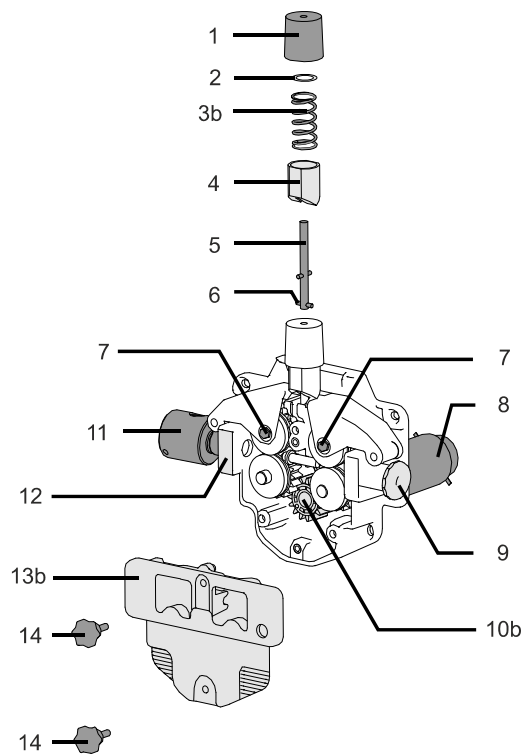
Neuer Motortyp - Artikel-Nr.:

Stk/pcs	Betegnelse Description Bezeichnung	Varenr. Article No. Warennr.
1	Motor	17220054
1	Trådfremføring Wire feed unit Drahtvorschubeinheit	73410167
4	Skruer Screw Schraube	40310420
1	Tandhjul Gear wheel Zahnrad	44450012

**TRÅDFREMFØRING
WIRE FEED UNIT
DRAHTVORSCHUBEINHEIT
DISPOSITIF DE GUIDAGE DE FIL**



**Gammel type
Old type**



Pos.	No.	Varebetegnelse Warenbezeichnung
1	45050220	Top for strammer Oberteil für Spanner
2	24510349	Fladskive Flachscheibe
3a	42110118	Fjeder for strammer Feder für Spanner
3b	42110122	Fjeder for strammer Feder für Spanner
4	61118263	Skalaknap for strammer Skalenknopf für Spanner

Description of goods Désignation des pièces
Upper piece for fastener Pièce supérieure pour tendeur
Flat disc Disque plat
Spring for tightener Ressort pour tendeur
Spring for tightener Ressort pour tendeur
Scale button for fastener Bouton commutateur

Pos.	No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
5	25110104	Gevindstang Gewindestab	Thread bar Tige de filetage
6	42710106	Kærvstift til gevindstang ø3 Kerbstift für Gewindestab ø3	Slotted pin for thread bar ø3 Goupille à encoches pour tige de filetage ø3
7	29410004	Aksel for trisse, ø10 Achse für Rolle, ø10	Axle for wire roll, ø10 Axe pour galet ø10
8	17220054	Motor Maxon, 42 V Motor Maxon, 42 V	Motor Maxon, 42 V Moteur Maxon, 42 V
9	45050322	Trådindløb Drahteinlauf	Wire inlet Entrée de fil
10a	44450012	Tandhjul Zahnrad	Gear wheel Pignon
10b	44450003	Tandhjul Zahnrad	Gear wheel Pignon
11	25420263	Centraltilslutning komplet Zentralanschluß komplett	Central adaptor complete Dispositif central de raccord complet
12	33220023	Strømskinne Verbindung, Strom	Current connection Plaque cuivre
13a	45050382	Forplade Frontplatte	Front plate Plaque avant
13b	45050321	Forplade Frontplatte	Front plate Plaque avant
14	40950516	Fingerskrue M5x16 Rändelschraube M5x16	Milled screw M5x16 Vis moleté M5x16

Bemærk:

Reservedelsnumre på trådførere, kapillarrør og trisser: Se skilt i maskinen.

Bitte bemerken:

Ersatzteilnummern für Drahtführer, Kapillarrohre und Scheiben: Bitte das Schild in der Maschine sehen.

Please note:

Spare parts nos. for wire guide liner, capillary-tube and rolls: See sign inside the machine

Important:

Numéros de pièces de rechange de guides fils, tubes capillaires et galets: Voir le panneau dans la machine

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