



EN

Electrode grinding machine

TGM 40230 Porta 230V 50Hz

099-003694-EW501

04.05.2017

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General instructions

WARNING



Read the operating instructions!

The operating instructions provide an introduction to the safe use of the products.

- Read and observe the operating instructions for all system components, especially the safety instructions and warning notices!
- Observe the accident prevention regulations and any regional regulations!
- The operating instructions must be kept at the location where the machine is operated.
- Safety and warning labels on the machine indicate any possible risks. Keep these labels clean and legible at all times.
- The machine has been constructed to state-of-the-art standards in line with any applicable regulations and industrial standards. Only trained personnel may operate, service and repair the machine.
- Technical changes due to further development in machine technology may lead to a differing welding behaviour.



In the event of queries on installation, commissioning, operation or special conditions at the installation site, or on usage, please contact your sales partner or our customer service department on +49 2680 181-0.

A list of authorised sales partners can be found at www.ewm-group.com.

Liability relating to the operation of this equipment is restricted solely to the function of the equipment. No other form of liability, regardless of type, shall be accepted. This exclusion of liability shall be deemed accepted by the user on commissioning the equipment.

The manufacturer is unable to monitor whether or not these instructions or the conditions and methods are observed during installation, operation, usage and maintenance of the equipment.

An incorrectly performed installation can result in material damage and injure persons as a result. For this reason, we do not accept any responsibility or liability for losses, damages or costs arising from incorrect installation, improper operation or incorrect usage and maintenance or any actions connected to this in any way.

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The content of this document has been prepared and reviewed with all reasonable care. The information provided is subject to change; errors excepted.

1 Contents

1 Contents	3
2 For your safety	4
2.1 Notes on the use of these operating instructions	4
2.2 Explanation of icons.....	5
2.3 General	5
3 Intended use	7
3.1 Applications.....	7
3.2 Documents which also apply	7
3.2.1 Warranty	7
3.2.2 Declaration of Conformity.....	7
3.2.3 Service documents (spare parts)	7
4 Machine description	8
5 Design and function	9
5.1 Transport and installation	9
5.1.1 Ambient conditions	9
5.1.1.1 In operation	10
5.1.1.2 Transport and storage.....	10
5.1.2 Presets	10
5.1.2.1 Topping up the grinding liquid.....	11
5.1.2.2 Preparing electrodes for the grinding process	12
5.1.2.3 Setting the grinding angle of the tungsten electrode	13
5.2 Grinding the electrode	13
6 Maintenance and care	14
6.1 Cleaning.....	14
6.2 Replacing the grinding disk.....	15
7 Technical data	16
7.1 TGM 40230 – PORTA.....	16
8 Accessories	17
8.1 Replaceable parts	17
9 Appendix A	18
9.1 Overview of EWM branches	18

2 For your safety

2.1 Notes on the use of these operating instructions

DANGER

Working or operating procedures which must be closely observed to prevent imminent serious and even fatal injuries.

- Safety notes include the "DANGER" keyword in the heading with a general warning symbol.
- The hazard is also highlighted using a symbol on the edge of the page.

WARNING

Working or operating procedures which must be closely observed to prevent serious and even fatal injuries.

- Safety notes include the "WARNING" keyword in the heading with a general warning symbol.
- The hazard is also highlighted using a symbol in the page margin.

CAUTION

Working or operating procedures which must be closely observed to prevent possible minor personal injury.

- The safety information includes the "CAUTION" keyword in its heading with a general warning symbol.
- The risk is explained using a symbol on the edge of the page.



Special technical points which users must observe.

Instructions and lists detailing step-by-step actions for given situations can be recognised via bullet points, e.g.:

- Insert the welding current lead socket into the relevant socket and lock.

2.2 Explanation of icons

Symbol	Description	Symbol	Description
	Indicates technical aspects which the user must observe.		Activate and release/tap/tip
	Switch off machine		Release
	Switch on machine		Press and keep pressed
			Switch
	Wrong		Turn
	Correct		Numerical value – adjustable
	Menu entry		Signal light lights up in green
	Navigating the menu		Signal light flashes green
	Exit menu		Signal light lights up in red
	Time representation (e.g.: wait 4 s/activate)		Signal light flashes red
	Interruption in the menu display (other setting options possible)		
	Tool not required/do not use		
	Tool required/use		

2.3 General

WARNING



Risk of accidents due to non-compliance with the safety instructions!

Non-compliance with the safety instructions can be fatal!

- Carefully read the safety instructions in this manual!
- Observe the accident prevention regulations and any regional regulations!
- Inform persons in the working area that they must comply with the regulations!



CAUTION



Noise exposure!

Noise exceeding 70 dBA can cause permanent hearing damage!

- Wear suitable ear protection!
- Persons located within the working area must wear suitable ear protection!

-  **The respective national directives and laws must be observed when operating the machine!**
- **National implementation of the framework directive (89/391/EWG), as well as the associated individual directives.**
 - **In particular, the directive (89/655/EWG) on the minimum regulations for safety and health protection when staff members use equipment during work.**
 - **The regulations regarding occupational safety and accident prevention for the respective country.**
 - **Check at regular intervals that users are adhering to the safety regulations in their work.**
 - **Check the machine at regular intervals according to BGV A3.**
-  **The manufacturer's warranty becomes void if non-genuine parts are used!**
- **Only use system components and options (power sources, welding torches, electrode holders, remote controls, spare parts and replacement parts, etc.) from our range of products!**
 - **Only insert and lock accessory components into the relevant connection socket when the machine is switched off.**

3 Intended use

WARNING



Hazards due to improper usage!

The machine has been constructed to the state of the art and any regulations and standards applicable for use in industry and trade. It may only be used for the welding procedures indicated at the rating plate. Hazards may arise for persons, animals and material objects if the equipment is not used correctly. No liability is accepted for any damages arising from improper usage!

- The equipment must only be used in line with its designated purpose and by trained or expert personnel!
- Do not improperly modify or convert the equipment!

3.1 Applications

Grinder for TIG electrodes.

3.2 Documents which also apply

3.2.1 Warranty



For more information refer to the "Warranty registration" brochure supplied and our information regarding warranty, maintenance and testing at www.ewm-group.com!

3.2.2 Declaration of Conformity



The labelled machine complies with the following EC directives in terms of its design and construction:

- Machine directive
- Low Voltage Directive (LVD)
- Electromagnetic Compatibility Directive (EMC)
- Restriction of Hazardous Substance (RoHS)

In case of unauthorised changes, improper repairs, non-compliance with specified deadlines for "Arc Welding Equipment – Inspection and Testing during Operation", and/or prohibited modifications which have not been explicitly authorised by EWM, this declaration shall be voided. An original document of the specific declaration of conformity is included with every product.

3.2.3 Service documents (spare parts)

WARNING



Do not carry out any unauthorised repairs or modifications!

To avoid injury and equipment damage, the unit must only be repaired or modified by specialist, skilled persons!

The warranty becomes null and void in the event of unauthorised interference.

- Appoint only skilled persons for repair work (trained service personnel)!

Spare parts can be obtained from the relevant authorised dealer.

4 Machine description

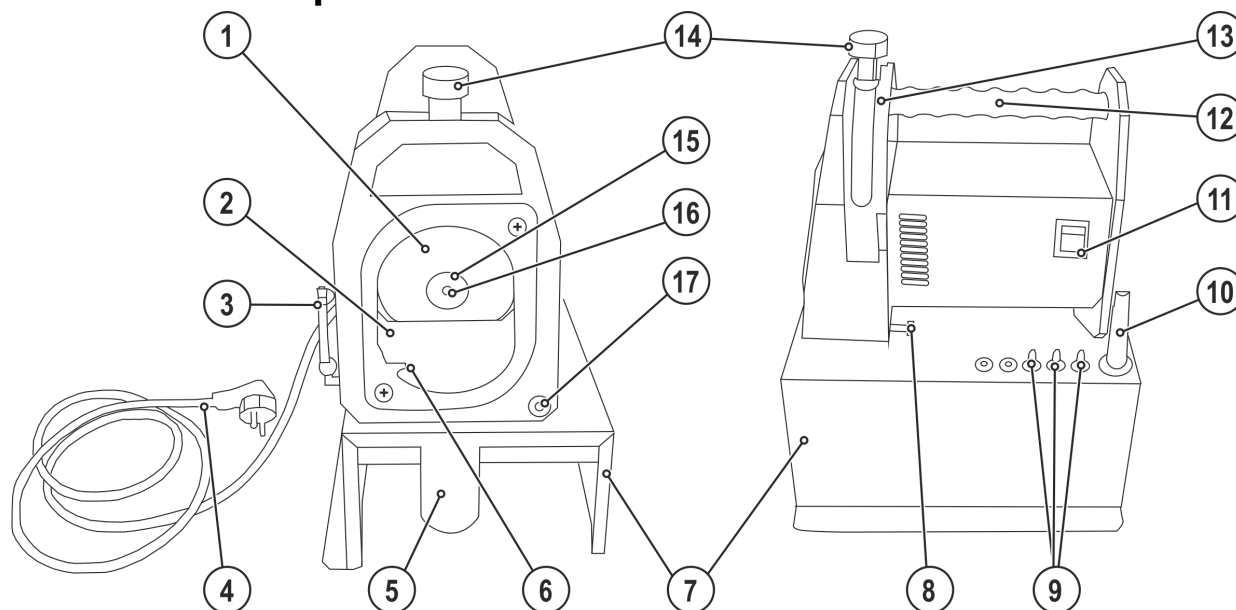


Figure 4-1

Item	Symbol	Description
1		Grinding disk
2		Inspection glass
3		Filling hose
4		Mains connection cable
5		Dust container
6		Indication of correct liquid level
7		Machine table
8		Depth gauge setting bolt
9		Collet chuck
10		Electrode holder Area of application: unalloyed and low-alloy materials
11		On/off switch
12		Torch body
13		Grinding angle scale
14		Infeed channel
15		Brass disc
16		Allen screw
17		Depth gauge

5 Design and function

⚠ WARNING



Harmful electrode material!

Electrodes may contain harmful substances!

- Observe the instructions by the electrode manufacturer!

⚠ CAUTION



Open infeed channel!

If the infeed channel is left open, chips and dirt particles can be expelled from the channel when the grinding disk is running and might get into the eyes or be breathed in!

- Place the electrode holder in the infeed channel before switching on.
- Allow the grinding disk to come to a stop after switching off before removing the electrode holder from the infeed channel.



Starting with electrode against grinding disc!

If the grinder is started while the electrode lies against the grinding disc, the electrode can jam and cause damage to the disc, the machine and people!

- When starting the grinder, make sure the electrode does not lie against the grinding disc!
- Before starting the grinder, check the electrode position through the inspection window!



If too much pressure is exerted from the electrode onto the grinding disk, the electrode may overheat and become annealed. An annealed electrode can become unusable and damage the machine!

- ***Do not press the electrode too forcefully against the grinding disk!***
- ***Turn the electrode evenly during the grinding process!***

5.1 Transport and installation

⚠ CAUTION



Risk of accidents due to supply lines!

During transport, attached supply lines (mains leads, control cables, etc.) can cause risks, e.g. by causing connected machines to tip over and injure persons!

- Disconnect all supply lines before transport!

5.1.1 Ambient conditions



Unusually high quantities of dust, acid, corrosive gases or substances may damage the equipment.

- ***Avoid high volumes of smoke, vapour, oil vapour and grinding dust!***
- ***Avoid ambient air containing salt (sea air)!***



Insufficient ventilation results in a reduction in performance and equipment damage.

- ***Observe the ambient conditions!***
- ***Keep the cooling air inlet and outlet clear!***
- ***Observe the minimum distance of 0.5 m from obstacles!***

5.1.1.1 In operation

Temperature range of the ambient air:

- -25 °C to +40 °C

Relative air humidity:

- Up to 50% at 40 °C
- Up to 90% at 20 °C

5.1.1.2 Transport and storage

Storage in an enclosed space, temperature range of the ambient air:

- -30 °C to +70 °C

Relative air humidity

- Up to 90% at 20 °C

5.1.2 Presets

CAUTION



Complete assembly!

The machine must only be used with all the add-on parts fitted to the casing. Operating the machine when incomplete can result in damage and injury.

- Check that all components are fitted correctly before operation!

5.1.2.1 Topping up the grinding liquid



Operating without grinding liquid!

The machine is not factory-filled with grinding liquid. The machine must not be operated without grinding liquid!

- **Top up the grinding liquid before commissioning!**

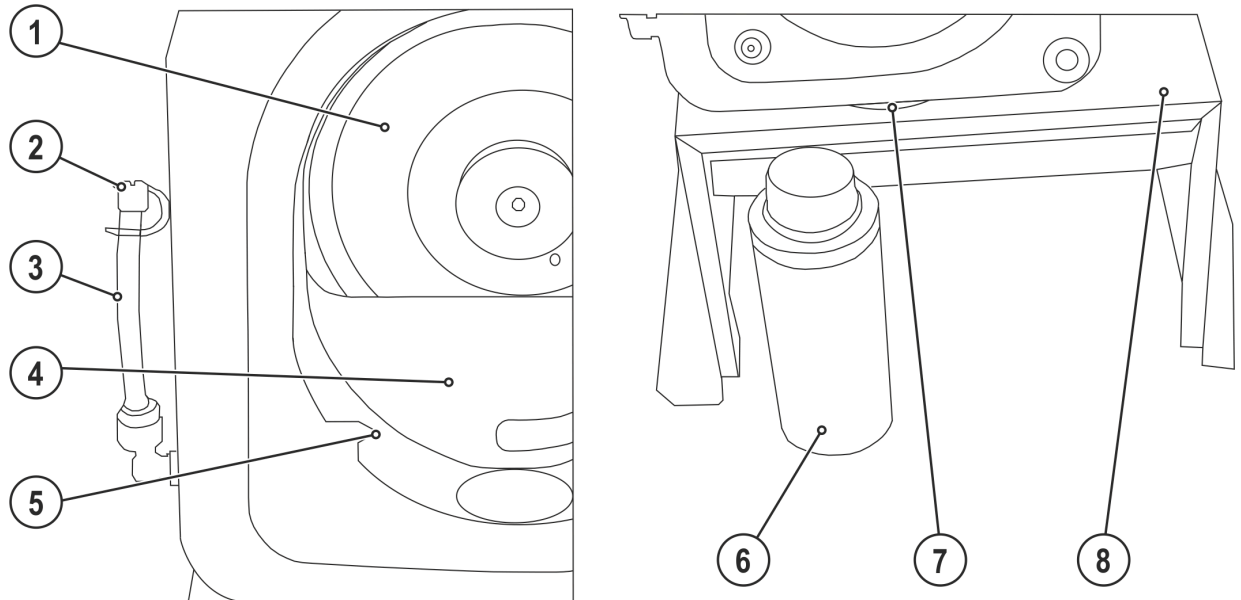


Figure 5-1

Item	Symbol	Description
1		Grinding disk
2		Grease nipple plug
3		Filling hose
4		Inspection glass
5		Indication of correct liquid level
6		Dust container
7		Drain thread
8		Machine table

- Unfasten the locking screw from the drain thread.
- Manually screw the duct collector to the drain thread.
- Remove the lubricating nipple plug from the filling hose.
- Place the grinding liquid container inlet onto the filling hose.
- Refill grinding liquid.
- Observe the indication of the correct liquid level in the inspection window (do not exceed)!



Do not transport the grinder with grinding liquid filled in!

- **Drain the grinding liquid into a container that can be tightly closed!**

5.1.2.2 Preparing electrodes for the grinding process

Various collet chucks modified to the electrode diameter should be used to secure the electrodes for the grinding process.

⚠ CAUTION

! Incorrect collet chuck!
Using a collet chuck that does not match the electrode size can mean that the electrode may become loose, the machine damaged and can also result in injury.

- Only use genuine collet chucks!
- Only use collet chucks that match the relevant electrode diameter!

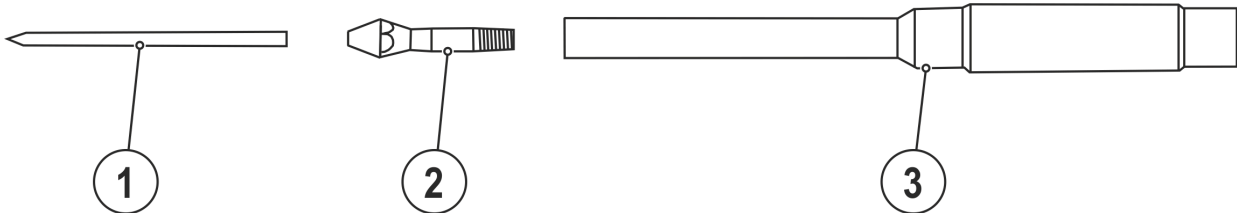


Figure 5-2

Item	Symbol	Description
1		Electrode
2		Collet chuck
3		Electrode holder Area of application: unalloyed and low-alloy materials

- Select the collet chuck according to the electrode diameter.
- Insert the electrode into the collet chuck.
- Screw the collet chuck into the electrode holder.

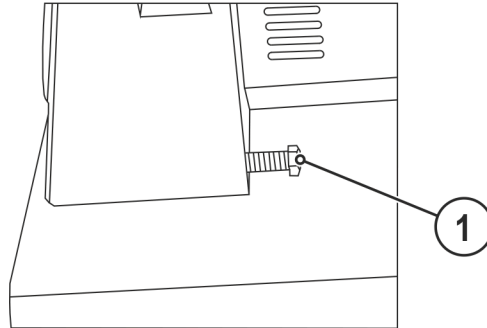


Figure 5-3

Item	Symbol	Description
1		Depth gauge setting bolt



Depth gauge setting bolt

The setting bolt on the rear of the depth gauge can be used to set the grinding of the tungsten electrode.

- **Rotate out: More grinding**
- **Rotate in: Less grinding**

5.1.2.3 Setting the grinding angle of the tungsten electrode

The grinding angle is set via the indicator mark on the infeed. Half angles of 7.5 to 90° can be set.

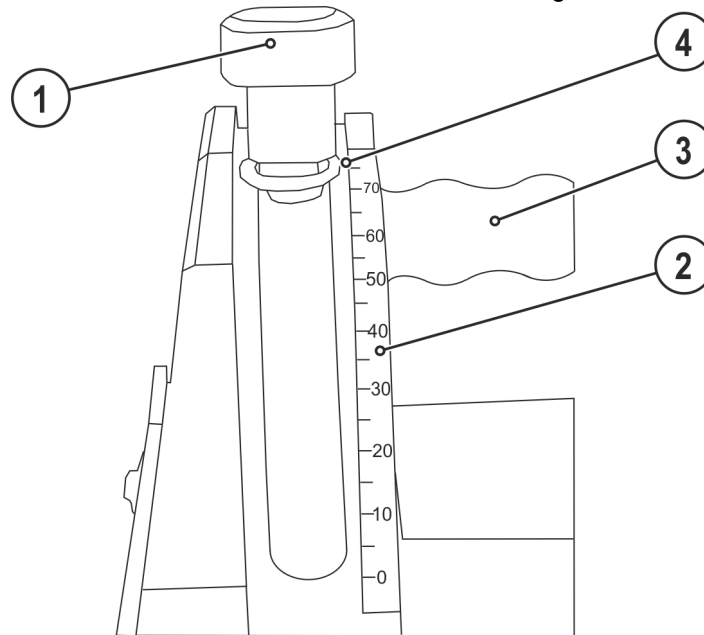


Figure 5-4

Item	Symbol	Description
1		Infeed
2		Grinding angle scale
3		Carrying handle
4		Mark

- Unfasten the knurled screw on the infeed.
- Set the mark on the infeed to the required half angle.
- Tighten the knurled screw hand-tight.

5.2 Grinding the electrode



A faulty grinding disc can cause damage to the electrode and electrode holder.

- **Do not use the grinder if the grinding disc is damaged.**
- **Use original grinding discs only.**
- Check that the on/off switch is in the "0" position.
- Connect the machine to the power supply.
- Check through the inspection glass that the electrode is not positioned against the grinding disk.
- Switch on machine.
- Move the electrode holder onto the grinding disk while turning it slowly, so that the tungsten electrode does not anneal. Check the process through the inspection glass.
- Complete the grinding process using light pressure and slow even rotation of the electrode holder.
- The grinding process is complete when the electrode holder limit stop has been reached.
- Switch off the machine and allow it to come to a stop.
- Remove the electrode holder from the infeed channel.
- Insert the electrode holder into the depth gauge and unfasten the electrode by turning to the left.

6 Maintenance and care

6.1 Cleaning

⚠ WARNING



Mains voltage!

Before carrying out any cleaning or testing measures, ensure that all mains connections and supply lines of the machine are disconnected.

- Disconnect all mains connections and supply lines.

⚠ CAUTION



Grinding dust!

Grinding dust may get into the eyes during cleaning. Grinding liquid residue can enter the bloodstream via surface skin wounds.

- Wear safety glasses and protective gloves during cleaning!

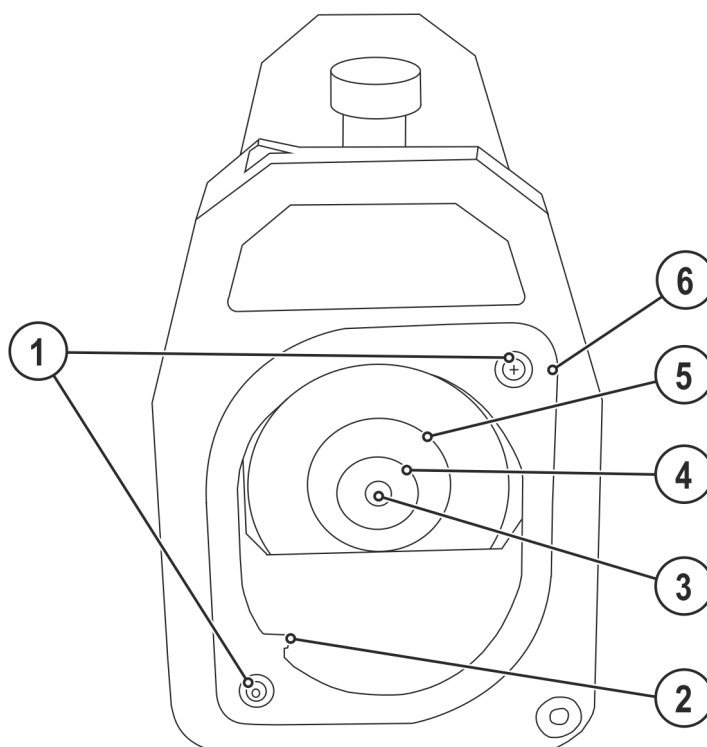


Figure 6-1

Item	Symbol	Description
1		Inspection glass frame screws
2		Indication of correct liquid level
3		Allen screw
4		Brass disc
5		Grinding disk
6		Inspection glass frame

- Disconnect the grinding machine from the mains.
- Draw off the grinding liquid in an appropriate container.
- Disassemble the dust container.
- Remove the screws on the inspection glass frame.
- Remove the inspection glass and inspection glass frame.
- Clean the grinding chamber using clean water.
- Top up the cleaning water in a suitable container and dispose of in accordance with regulations.
- Re-fit the inspection glass and inspection glass frame using the screws.
- Make sure the sealing ring fits tightly between casing and inspection glass.

6.2 Replacing the grinding disk

- Disconnect the grinding machine from the mains.
- Draw off the grinding liquid into an appropriate container.
- Remove the inspection glass and inspection glass frame.
- Remove the Allen screw (left-hand thread) in the centre of the grinding disk.
- Remove the brass disk.
- Replace the grinding disk.
- Re-fit the brass disk using the Allen screw.
- Re-fit the inspection glass and inspection glass frame.
- Top up the grinding liquid.
- Make sure the sealing ring fits tightly between casing and inspection glass.

7 Technical data**7.1 TGM 40230 – PORTA**

Mains cable length	2 m
Output	380 W
Mains connection (EN 50144)	230 V, 50/60 Hz
Speed	8500 rpm
Diamond disk diameter	40 mm
Grinding speed	44 m/s
Grinding angle setting	7.5 °-90 °
Grinding liquid fill capacity	250 ml
Weight	9.3 kg
Harmonised standards used	EN 61029
Safety identification	CE

8 Accessories

8.1 Replaceable parts



Using replacement parts which are not genuine, such as grinding disks and grinding concentrate, may shorten the service life of the machine and void the warranty. Use only genuine replacement parts!

Type	Designation	Item no.
COL Porta/Handy Ø 0.8 mm	Collet chuck for EWM tungsten electrode grinders	098-003696-00000
COL Porta/Handy Ø 1.0 mm	Collet chuck for EWM tungsten electrode grinders	098-003697-00000
COL Porta/Handy Ø 1.2 mm	Collet chuck for EWM tungsten electrode grinders	098-003698-00000
COL Porta/Handy Ø 1.6 mm	Collet chuck for EWM tungsten electrode grinders	098-003674-00000
COL Porta/Handy Ø 2.0 mm	Collet chuck for EWM tungsten electrode grinders	098-003675-00000
COL Porta/Handy Ø 2.4 mm	Collet chuck for EWM tungsten electrode grinders	098-003676-00000
COL Porta/Handy Ø 3.2 mm	Collet chuck for EWM tungsten electrode grinders	098-003677-00000
COL Porta/Handy Ø 4.0 mm	Collet chuck for EWM tungsten electrode grinders	098-003678-00000
Diamond grinding disk	Grinding disk	098-003695-00000
Grinding concentrate, 250 ml	Grinding concentrate	098-003699-00000

9 Appendix A

9.1 Overview of EWM branches

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