

Operating Instruction Booklet

Electr. Screwdriver

320EGA19-0002

320EGA19-0008

320EGA19-0005

402030 A

402030 B

402030 C

MICROMAT-E

Dear Customer:

This tool is the result of more than 75 years of experience in the design and manufacturing of tools for the industrial market.

We kindly ask, that you read these operating instructions carefully, so that you will be able to use this tool safely and for many years to come.

If you need additional information, please contact your DEPRAG Representative, one of our international support offices or us direct at DEPRAG. We will be happy to answer any questions. Please visit our web site: www.deprag.com

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1 Safety Tips

1.1. General Safety Tips



Before operating tool, make sure to carefully read and always observe these operating instructions.

Generally, the operator of the equipment and/or machinery is responsible for the equipment's perfect condition and operation, while observing all necessary safety regulations. This equipment has been constructed in accordance with the newest stage of the technology, while recognizing all necessary safety related requirements. Nevertheless, while operating the equipment and/or machinery there is a chance of bodily harm to the operator as well as damage to equipment and/or machinery and other property. Operate the equipment and/or machinery only

- if equipment/machinery is used for the task it was designed for and
- is in perfect working condition and safe to use.

It is important to observe the technical data of the equipment, especially in regards to the environmental temperatures.

Prerequisite for the safe conduct and the uninterrupted operation of the equipment is the knowledge of the basic safety tips and the safety regulations. Additionally, all current regulations for a safe operational area, for accident prevention guidelines of electrical and mechanical installations, as well as noise suppression demands must be observed. During any maintenance or repair work, a clean work surface is recommended. Also, it is not recommended to either eat or smoke during repair or maintenance. Arbitrary changes made to the equipment, which alter its designated use, voids the warranty and cancels the manufacturer's liability.

- The equipment is insulated to protect against an electrical power surge.
- It is not recommended to use this tool in an explosive hazardous environment, unless it was specifically designed for such a use.

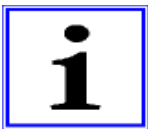
The operating instruction booklet, especially the safety symbols and safety notes attached to the equipment or included in the documentation, must be observed at all times by all persons coming in contact with the equipment.

1.2. General Safety Regulations for Electronic Screwdriver Spindles



- Disconnect the spindle from the power supply, prior to changing bits.
- Do not wear loose clothing or jewelry; for movable parts can seize them. Wear a hairnet, if operator has long hair.

- Keep hands off the installed bit or socket.
- Injury is possible, if the driver reacts with an unexpected motion or when driver is used with a broken bit.
- Injury is possible, if the driver or the installed bits/socket reacts with an unexpected motion.
- When using tool with a bit-adapter or bit-extension (i.e. Magnetic Bitholder), make sure that those items are in good condition and well suited for the application with this tool.
- When installing driver into a support arm, make sure that the tool is rigidly mounted. When not using any support arm or stand, place both feet securely on the floor. This enables the Operator to easily absorb any tool reaction force.



- Install a side-handle or counter-holder to the driver, if the reaction force cannot safely be absorbed by operator.
- After turning off the tool, the bit will continue to rotate (inertia).

- In no case is it permissible to exceed the rated voltage.
- In the case of a power interruption, it is necessary to reset the controller.

Attention:



The screwdriver spindle will heat-up in relation to its average load respectively sequence of operation. If the selection of the type of screwdriver spindle is incorrectly or its operation is not appropriate for the application, the tool might overheat which could result in injuries (burnings).

1.3. Owner Obligation

The owner is obliged to only let persons operate the equipment, who

- are familiar with basic work environment safety rules and accident-preventing regulations. Also, those persons must have been instructed in the correct use of the equipment.
- have read and understood all safety and warning notifications in the Operating Instruction Booklet, as well as all other documentation pertaining to this equipment.
- check and confirm at regular intervals, that a safety oriented operation is guaranteed.

Only qualified and authorized personnel is allowed to operate, maintain and repair this equipment. A malfunction, which impairs operator safety, must be immediately removed.

1.4. Operator Obligation

Personnel, who is engaged in the operation of the equipment, must always be committed to

- observe the basic safety and accident preventing regulations,
- read and observe the safety and warning notifications of this operating instruction booklet.

1.5. Warranty and Liability

Unless otherwise specified, our “General Sales and Delivery Conditions” apply. Warranty and liability claims in regards to persons or equipment damages are invalid, if one or several of the following causes apply:

- Use of the equipment in a non-designated application.
- Improper installation, operation, service or maintenance of the machine.
- Operation of the machine with either defective or removed safety and protection devices.
- Non-observance of the requirements stated in the operating instruction booklet, in regards to transportation, storage, mounting, installation, operation, maintenance and service of the equipment.
- Structural change or adjustment on the equipment to a non-designated use.
- Inadequate supervision of wear parts.
- Improper repair, inspection or maintenance.
- Catastrophic cases because of a war, acts of god or other reasons which are beyond our control.

1.6. Symbol Description



Read and observe the Operating Instruction Booklet, prior to and during operation of tool.



DANGER

Reference to an immediate danger to a person. May lead to serious injuries or even death, if unobserved!



Properly recycle environmentally damaging grease, cooling agents or detergents.



RECOMMENDATIONS

Important or additional information on the equipment or in the documentation.



Use eye protection or wear safety goggles.



Wear hearing protection.



Warning against hand-injuries.

Attention: Keep away your hands from areas, which are marked with this symbol!



Hands may be crushed, seized or otherwise injured.



ESD-protected area

Equipment may be damaged or destroyed by an electrostatic discharge.

Maintenance and repair on hydraulic and pneumatic equipment may only be performed by specially trained personnel!



Disconnect equipment from air supply, prior to repair of pneumatic or hydraulic equipment.

Provide regular preventive maintenance on hoses and airlines. Exchange hose lines, even if there is no visible damage! (Observe corresponding requirements of the manufacturer!)



After repair and maintenance, check the following items:

- make sure all detached and re-attached connections are solid.
- confirm that removed covers, screens or filters were re-installed
- during disconnecting or reconnecting of an air-operated equipment, injury may occur due to a whipping air-hose

After conclusion of maintenance or repair and prior to start of operation, make sure to

- remove all materials, tools and other supplies needed for the maintenance or repair from work area of the equipment
- remove leaking liquid or oils
- make sure all safety devices on the equipment work perfectly!



Only a trained electrician may perform repair work on the electrical components of the equipment!

- Check electric equipment regularly!
- Re-attach loose connections!
- Replace damaged cables or lines immediately!
- Keep control cabinet closed at all times. Access is only allowed for authorized persons with suitable key!
- Never hose down control cabinets and other housings of electrical equipment with water!

1.7. Observe Environmental Regulations



When working on or with the equipment, it is imperative to observe all requirements in regards to waste-disposal and proper recycling.

Especially during installation, repair or maintenance, water damaging agents such as

- lubricating grease and oil
- hydraulic fluid
- cooling agents
- solvent-containing cleaning agents

must not leak into the ground or into the sewage system!

Such materials must be stored, transported, contained and recycled in suitable containers.

2 Designated Equipment Use

The EC-Screwdriving System is exclusively designed for screw-assembly in an industrial environment. The system is especially well suited for assembly areas with high demands in regards to quality, flexibility and documentation.

DEPRAG MINIMAT-E Screwdrivers of straight shape are used for manual, controlled assemblies, preferably for vertical applications.

The DEPRAG EC Screwdrivers allow free programming of the screw tightening process. Within the power range of the selected tool,

- the torque value,
- the speed,
- the stand-by and
- the direction of rotation

can be adjusted individually to the assembly requirement.

3 General

The Electr. Screwdriver 320EGA... is part of the EC-Screwdriving System.

The essential characteristics of this screwdriver series are:

- brush-less EC-Drive with commutator over encoder
- torque- and angle-controlling

The EC-Screwdriving System is designed for the use in an industrial environment for a maximum torque of 0,2 / 0,5 resp. 0,8 Nm (depending on the screwdriver type – see chapter *Technical Data*).

This system is especially well suited for the use in an assembly area which has a high demand in regards to flexibility of the screw-assembly and documentation possibility.

The EC-Screwdriving System mainly consists of two components.

They are:

- the EC-Screwdriver of the series 320EGA...
- the sequence controller AST10-1 with integrated amplifier

For further accessories – see Operating Instructions EC-Screwdriving System.



The operation of the screwdriver requires a programmable sequence controller (AST10) with integrated amplifier.

The motor cable is already integrated. If necessary, the cable can be also be ordered in other lengths (see Accessories – Optional Equipment).

The sequence controller offers standard screwdriving programs for tightening screws to a specific torque value respectively loosening at a specific angle value. Their parameters are adjustable directly via the controller's keyboard. Special screwdriving sequences are easy to create: standard assembly steps, already stored in the controller, can be selected and comfortably built up to form a complete assembly process. This happens via the integrated web-server's PC operator board.

- No special PC software is required – only a normal web browser (such as MS explorer) and a Ethernet port.

Additional software modules for documentation and screw joint analysis (data logging, graphics, etc.) are available as optional accessories.

- Also optionally available is an update service for the AST10 which provides continuous update of the controller's function and control software.

The controller's integrated display and operating unit indicates the operating mode and assembly status. It also allows a direct change of parameters (such as speed, torque and angle values, etc.) within the assembly process and without the need of a PC connection.

The screwdriving sequence will be initiated by push-to-start. Another program (such as an other direction of rotation etc.) can be started by actuating the button. Selection resp. change of the screwdriving sequence can be done via a menu function.

- Applications with frequently changing screwdriving parameters can be controlled via a program selection box or a input/output communication of a PLC.

A higher level of process security is offered with the use of a position checking stand in conjunction with a PLC. The selection of screwdriving programs or the series of screw assemblies is possible in conjunction with the XY-coordinates of this stand.

4 Installation

see item Dimensional Drawing as well as Operating Instructions EC-Screwdriving System



Picture: Installation

5 Operation

Trained personnel may operate the Electr. Screwdriver only.

Proceed with the operating according to the **Operating Instructions of the EC-Screwdriving System - Operation**.

The EC-Screwdriver 320EGA... starts by pushing it down. You can start different screwdriving programs by actuating the button (see also Operating Instructions EC-Screwdriving System).

6 Handling



DANGER

Make sure to always disconnect the Screwdriver Spindle from the power supply, when performing maintenance, adjustments or disassembly.

Attention:



The screwdriver spindle will heat-up in relation to its average load respectively sequence of operation. If the selection of the type of Screwdriver Spindle is incorrectly or its operation is not appropriate for the application, the tool might overheat which could result in injuries (burnings).

7 Change of bits



DANGER

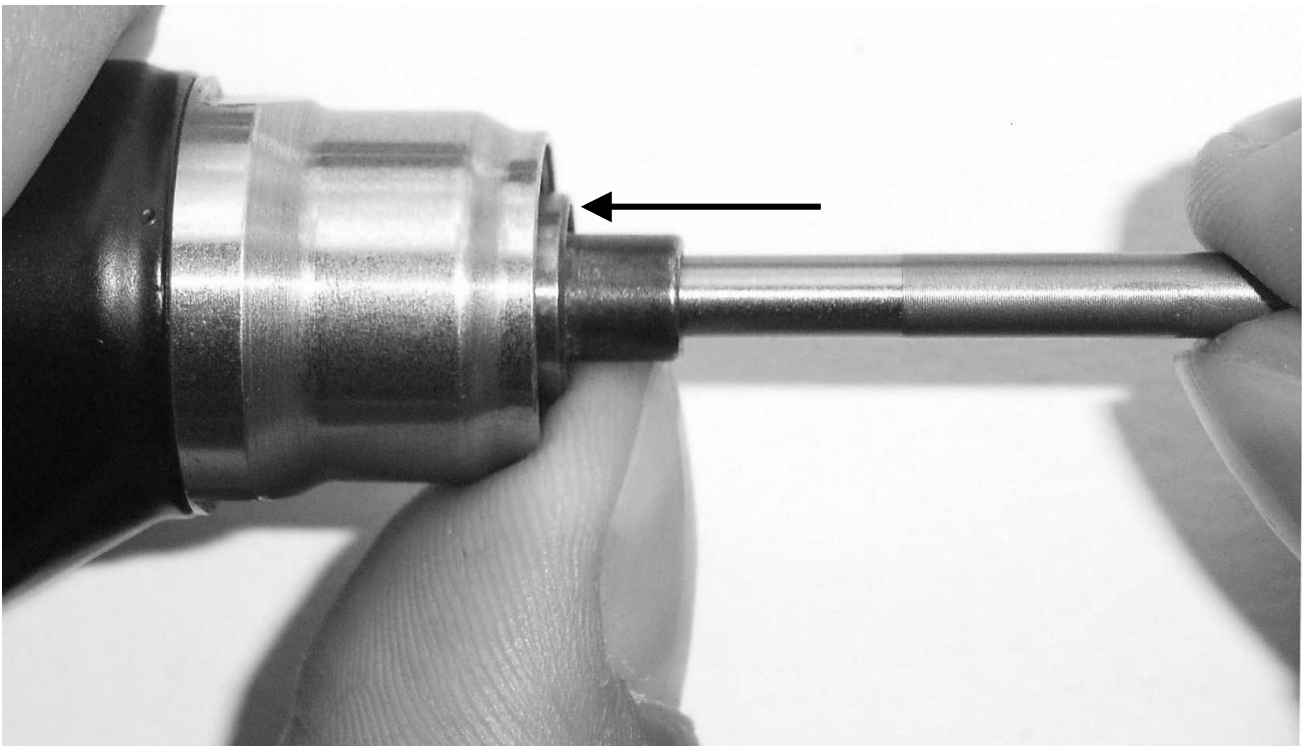
Make sure to disconnect the Spindle from the power supply, prior to changing of bits. This will avoid that Spindle starts unintentionally and creates an injury.



INFORMATION

The Screwdriver is equipped with a quick change chuck. Use high-quality bits in accordance to the DIN-Norm 3126 only.

- To remove or insert the bit, push the sleeve into the screwdriver.
- Push the bit into the hex until it locks.
- Let the sleeve snap back.
- Drive A3 (3mm).

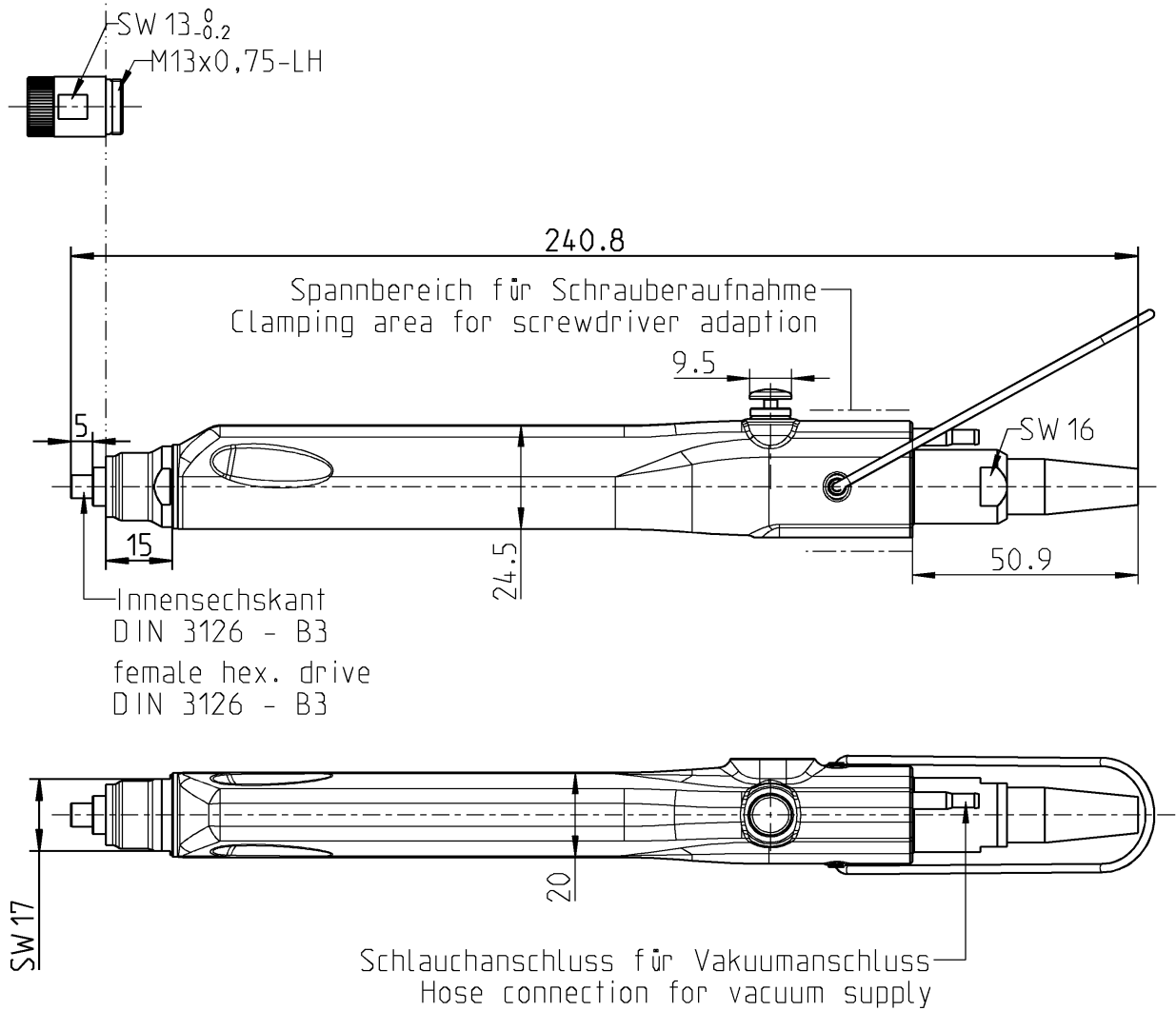


Picture: Change of bits

8 Dimensional Drawing

Zubehör auf besondere Bestellung
Accessories - Optional Equipment

Federhülse kpl. 403280 A (ohne Vacuum)
Spring Sleeve cpl. 403280 A (without vacuum)



320EGA19-0002/0005/0008

DEPRAG

MAßBLATT
405014

Änderungsstand
1

9 Maintenance and Upkeep



Disconnect screwdriver from power supply prior to disassembly, maintenance and repair!

Only trained DEPRAG personnel is authorized to perform disassembly or reassembly of this screwdriver.

Only a trained Electrician may perform inspection and maintenance. Incorrect assembly or disassembly can lead to injury of an operator and damage of the equipment.

When performing maintenance or repair, please observe that...

- screwdriver has to be disconnected from power supply.
- the work area is not disarray and the work surface is clean. Do not eat or smoke while performing maintenance.

If the following service rules are observed, the screwdriver will have a long life expectancy and will be safe to use.

- check tool on a regular basis for external damage.
- replace worn or damaged bits immediately for they can cause an injury.
- In case of tool malfunctions, we recommend sending the tool to DEPRAG.

10 Trouble Shooting

Please refer to the Operating Instructions of the EC-Screwdriving System.

11 Delivery Capacity

Please check the delivery capacity in regards to its completeness.

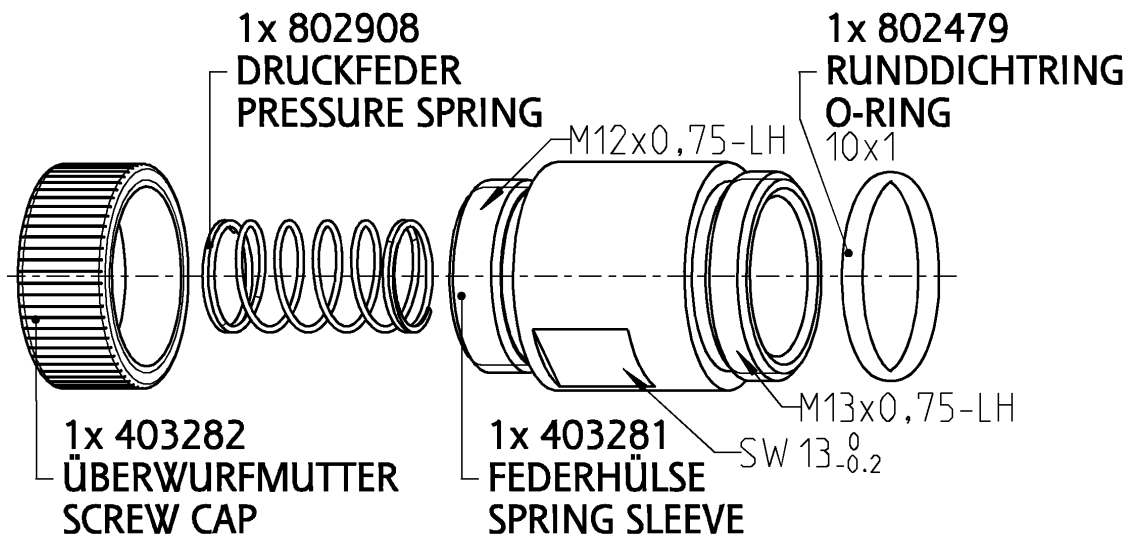
QUANTITY	NAME	PART No.
1	Operating Instruction Booklet	012523EN
1	Electr. Screwdriver	402030 A / B / C

12 Accessories - Optional Equipment

NAME	PART No.
Spring sleeve cpl. (without vacuum)	403280 A
Linear stand	408010 A
Screwdriver adaption (for linear stand)	400833 H

Further accessories - see Operating Instructions of the EC-Screwdriving System and leaflet D 3490 E

403280 A FEDERHÜLSE / SPRING SLEEVE



Picture: Spring sleeve cpl. 403280 A

13 Storage

Unused machines should be stored in a dry, locked area.

14 Technical Data

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Address Kurfürstenring 12 - 18 Postfach 1352
D-92224 Amberg D-92203 Amberg
Phone 09621/371-0
Fax 09621/371-120

Technical Data:

SCREWDRIVER TYPE	320EGA19-0002	320EGA19-0008	320EGA19-0005
Part No.	402030 A	402030 B	402030 C
Direction of rotation	variable adjustable		
Torque min. (Nm/in.lbs)	0,03 / 0,3	0,15 / 1,5	0,08 / 0,7
Torque max. *) (Nm/in.lbs)	0,2 / 2	0,8 / 8	0,5 / 5
Speed, unloaded min. (rpm)	150	100	120
Speed, unloaded max. *) (rpm)	1500	1000	1200
Weight (kg/lbs)	0,3 / 0,66		
Noise level (dB(A))	60		
Line Voltage (DC) (V)	48		
Drive hex. female (DIN 3126)	B3 (3 mm)		
Suitable inserting tools and connection parts with DIN 3126 inserting end	A3 (3 mm)		

*) as per VDI/VDE 2647 Directive

15 Disposal

Disassemble the machine for the required disposal complete. Observe local and environmental regulations for the separation and recycling of materials.

16 Conformity Declaration

EC-Conformity Declaration according to the EC-Machine-Guidelines 98/37/EC, Amendment IIA

We,

DEPRAG SCHULZ GMBH & CO.
PO Box 1352
D-92203 Amberg

hereby confirm, that the design of the
Electr. Screwdriver

320EGA19-0002

320EGA19-0005

320EGA19-0008

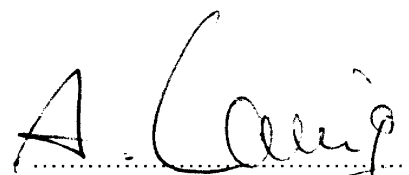
conforms to the following, relevant regulation:

- LVD-Low Voltage Directive 73/23/EEC, Amendment by EC Guidelines 93/68/EEC
- EC-Machine-Guidelines, Version 98/37/EEC, Amendment No.1 and No. 2.2
- EMV-Guidelines, Version 89/336/EEC

Applicable Standard

- | | |
|-----------------|------------------|
| - EN 292 | - DIN VDE 0846 |
| - IEC 801 | - DIN VDE 0843 |
| - EN50082-1 | - DIN VDE 0871 |
| - EN 61000-4-11 | - EN 55011 Kl. A |

Amberg, 02.11.2006


Dipl. Ing. (EH) A. Lanig
Mr. Design Dept.

17 Service Locations and Authorized Partners

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