

EC-Screwdriving System

-

GENERAL

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Dear Customer,

You have selected a high-quality product from the extensive program manufactured by DEPRAG SCHULZ GmbH & Co. This tool is the result of our long-time experience in the development and production of Screwdriving Systems and Measuring Instruments for use in an industrial environment.

As a competent partner we are at your disposal, offering you a multitude of screwdriving solutions, from the simple Hand Tool to the complete Screwdriving Robot.

Please read this operating instruction booklet carefully, so that you may safely operate this equipment for many years. If you require further information, please contact your local representative or us directly at DEPRAG SCHULZ GmbH & Co.

1 Symbol Description



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

DANGER



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



INFORMATION

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



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, and only if equipment is disconnected from power supply.



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 make sure all detached and re-attached connections are solid
- confirm that removed covers, screens or filters were re-installed

After completion of maintenance or repair and prior to start of

- Remove all for the maintenance or repair needed materials, tools and other supplies from work area of the equipment.
- Remove leaked fluids or oils
- Make sure all safety devices on the equipment work perfectly!

2 Glossary

High	Signal Level +24V
Low	Signal Level 0V
Screwdriving Program	Sequence of a screwdriving cycle Consists of commands and screwdriving strategies
Command	General programming step to configure the screwdriving cycle. (i.e. set an output)
Strategy	Conversion of the most common screwdriving procedures with predefined parameters, which contains the correct values of the screw joint (i.e. tightening to torque with monitoring of angle)

3 Safety Tips

3.1 General



Before operating the equipment make sure to carefully read and always observe the 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. The equipment and/or machinery 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
- 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 alters 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.

Basic safety regulations for standard operation

The equipment may only be operated by trained and authorized persons, which are familiar with the operating-instructions and will follow the operating requirements!

Prior to turning on the equipment, always assure that only authorized persons are in the working-area of the equipment.

Before each start of production, assure that the equipment is free of visible damages, and that the equipment is in perfect condition!

Report damages immediately to a superior!

Before each start of production, remove materials and/or objects, which are not necessary for the production, from the working-area of the equipment!

Before each start of production, make sure that all installed safety devices work perfectly!

Basic safety regulations for maintenance and upkeep

Observe maintenance- and repair-instructions of the individual components in this operating instruction booklet!

Prior to the implementation of maintenance- or repair-work, close the access to the working-area of the equipment for unauthorized persons! Affix or setup signs, which alert personnel about the imminent maintenance- or repair-work!

Prior to maintenance- and repair-work, make sure to disconnect the equipment from power- and air-supply!

Prior to maintenance- and repair-work, make sure that external parts of the equipment have cooled-off to room temperature!

Working with electronic equipment

General

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!

Safety tips for Screwdriver

ATTENTION:

The screwdriver may increase its external temperature, which depends on the load level. If an inappropriate Screwdriver is used or if a Screwdriver is used incorrectly, the Screwdriver's external temperature will increase and may cause an injury!

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.

When using tool with 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 turning off the tool, the bit will continue to rotate [inertia].

3.2 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.

4 Construction, connection and maintenance

- **ATTENTION**

Save the packaging (transport container) for possible return-transport.
Return-Transport may only be done in the original container!

- **Installation**

Only expert personnel may carry out the installation.

For the installation, proceed according to the handbook chapter “EC-Screwdriving System Installation”.

- **Maintenance**



Prior to disassembly, disconnect the equipment from the power supply. Only trained personnel may perform assembly- or disassembly work.

When performing maintenance on the equipment, check the equipment in regards to cleanliness and function.

After repair or maintenance, verify that equipment runs to specification!

Principally, use only DEPRAG original spare parts. Otherwise, a reduction in equipment power output and an increased maintenance requirement occurs. If NON-DEPRAG parts are installed, DEPRAG is justified to void all existing warranty and liability obligations.

Please be advised that DEPRAG offers in-house training courses on this subject.

4.1 Operation

- **Owner Obligation**

General

The owner is obligated to only let persons operate the equipment, which

- are familiar with basic work environment safety regulations. Also, those persons must be 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 conscious 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.

- **Operator Obligation**

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

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

5 Warranty

Unless otherwise specified, our “General Sales and Delivery Terms” apply. Warranty and liability claims in regards to person 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 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 events that are out of our control ("force majeure").

6 General Information

THIS HANDBOOK MAY NOT BE REPRODUCED, COPIED OR OTHERWISE USED, WITHOUT THE EXPLICIT AND WRITTEN APPROVAL OF DEPRAG SCHULZ GMBH & CO.

THIS MANUAL HAS BEEN WRITTEN WITH THE MOST DETAILED CARE. HOWEVER, SHOULD THERE BE AN ERROR, WE WOULD APPRECIATE YOUR NOTIFICATION

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