PLARAD®
Torque & Tension Systems

PLARAD®
Electric Nutsetter

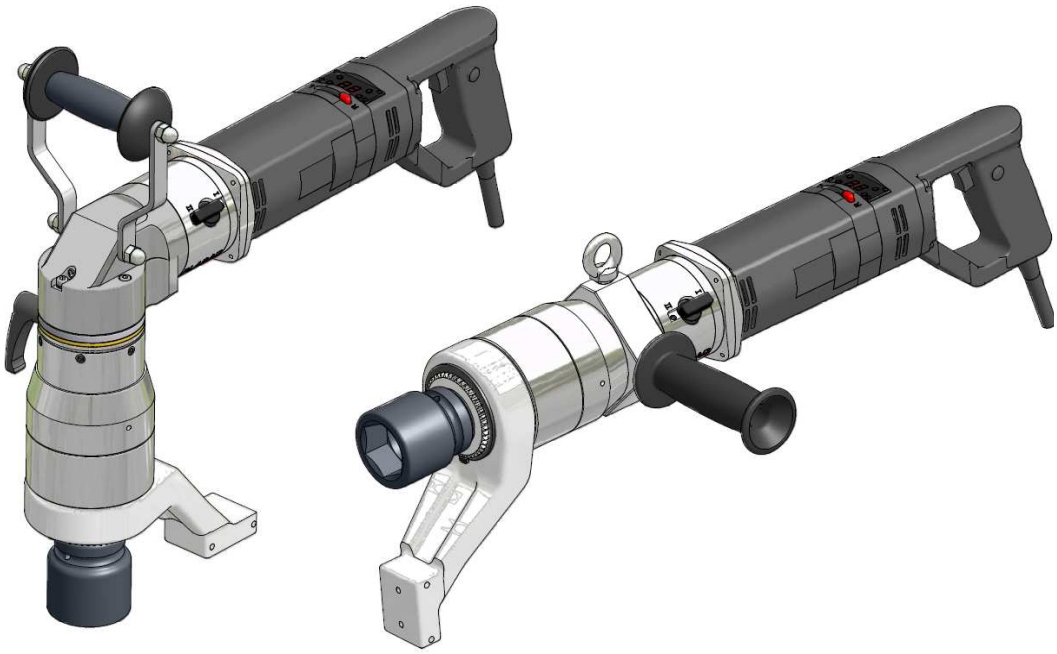
GB **DEA / DEA-W**

DEM / DEM-W

Translation of the original

Operating Instructions

Keep for future reference



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GB

Contents

1. MANUFACTURER

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2. NOTES

2.1. CE Mark

The products bear the CE Marking. The declaration of conformity certifies that the products meet the safety requirements set forth in the directives of the European Union.

2.2. Directives

The product meets the requirements of the EC Machinery Directive 2006/42/EC, EN 60745-1 and EN 60745-2-2 as well as the EMC requirements specified in:

EN 55014-1 (2006) Emission

EN 55014-2 (1997) A1 Interference immunity, Cat. II

EN 61000-3-2 (2006) Harmonic current emissions

EN 61000-3-3 (1995) + A1, A2 Voltage fluctuation and flicker

2.3. Notes Concerning the Operating Instructions

These operating instructions contain important notes concerning operation, operating site and connection of the unit. Be sure to read these notes carefully before operating the unit.

This will help protect you and will provide access to important information concerning proper connection, use and safety of the unit.

The operating instructions are part of the unit. Keep them readily available near the unit. Proper adherence to the operating instructions is a precondition for intended use and proper operation. When selling the unit, be sure to pass the operating instructions on to the new owner.

Please note that the product supplied may differ in some details from the illustrations and the technical data presented in these operating instructions.

The information presented in these operating instructions corresponds to the status at the date of printing. We reserve the right to make amendments at any time without prior notice.

2.4. Notes Concerning the Workplace

Safety of the operator and trouble-free operation are guaranteed only if original PLARAD components are employed. This is especially true of unit parts and spare parts.

If other components are used, Maschinenfabrik Wagner cannot accept any liability for safe operation and reliable function.

2.5. Basic Safety Notes

Warning!

Contact with voltage conducting parts can cause severe burns or death from electric shock.

- **Be sure to observe the safety notes below when operating electric nutsetters.**

When operating the unit, be sure to observe locally applicable laws and regulations.

Before operating the unit, check that it is functioning safely and is in proper condition. The operator must be familiar with the operation of the unit. Before taking the unit into service, check the unit and the supply cable for damages. Do not continue using defective units, units with defective cables or plugs! Have defective cables and plugs replaced by a qualified electrician before continuing operation.

If you are using an extension cable with lower cross-section and large length, a voltage drop may occur, negatively influencing start-up and function of the nutsetter. Exclusively use extension cables meeting the following requirements:

Line voltage	Minimum conductor cross-section
230 V	1.5 mm^2
100/110 V	2.5 mm^2

Outdoors use only extension cables, which are specifically approved for outdoor use and are marked to this effect.

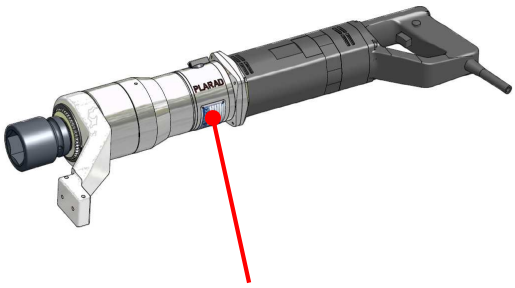
Do not allow electric power tools to get wet in the rain. Do not use electric power tools in moist or wet environments.

Store power tools safely. Store unused electric power tools in a dry room.

Before commencing with repair or maintenance work, be sure to separate the nutsetter from the power supply.

2.6. Product Identification

A nameplate identifies the nutsetter.



2.7. Symbols and Warnings

CE Mark

Observe assembly and operating instructions

Use ear protection

Wear eye protection

Use foot protection

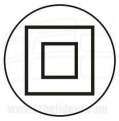
Use head protection

Warning concerning a crushing hazard

Warning of hot surface

Warning of hazardous electric voltage

Warning of hazards. The type of hazard is indicated by the text next to the symbol



Insulated for protection class 2

WEEE recycling and disposal instruction

Service tag with note concerning next check-up

3. PRODUCT INFORMATION

3.1. Process Description

The nutsetter allows tightening of screwed joints. The tightening torque is controlled electronically.

Type DEA, optionally DEA-W

The nutsetter is equipped with two-stage automatic control. When idling and at low torque, it operates in high-gear with high speed. On smoothly rotating joints, the nut can thus be turned on or off at six times the load speed. As soon as the resistance increases, however, the two-stage automatic controller switches over to the load-gear at low speed and high torque.

When the set torque is reached, the electronics switch off the nutsetter.

Type DEM, optionally DEM-W

The nutsetter is equipped with a manual-shift gearbox. Turning the knob to “1” engages high-gear. Turning the knob to “2” engages load-gear.

When the set torque is reached, the electronics switch off the nutsetter.

3.2. Intended Use

The Plarad nutsetter is a hand-guided tool and may be used exclusively for tightening and loosening of screwed joints. It must be used professionally exclusively.

Only use suitable sockets/bits meant for use with power tools to work on the joint.

If tools other than sockets for use with power tools are to be used, the manufacturer must inspect these and approve their use. Ensure proper, positive engagement of socket and bolt. Also ensure proper positive engagement of the drive square on the nutsetter and the connecting seat of the socket.

The nutsetter is suitable for indoor and outdoor operation at ambient temperature of -20 to +70 °C. If these values cannot be adhered to, contact the manufacturer before starting operation.

The nutsetter is not suitable for use as a continuously operating drive system!

Have assembly, readjustment, changes, extensions and repairs of the unit performed exclusively by Maschinenfabrik Wagner or service partners authorised by Maschinenfabrik Wagner. Exclusively use the unit as described in these operating instructions. This only will allow safe, reliable operation. Unauthorised alterations may cause unexpected hazard.

Safety of the operator and trouble-free operation are guaranteed only if original PLARAD components are employed. This is especially true of unit parts and spare parts.

If other components are used, Maschinenfabrik Wagner cannot accept any liability for safe operation and reliable function.

3.3. Improper Use

Any other use or use beyond these conditions is considered improper use. The risk lies solely with the owner/operator.

3.4. Applicable Additional Operating Instructions

EC safety datasheet for MOBILTEMP SHC 100 (EXXONMOBIL)

4. SCOPE OF DELIVERY

- Electric nutsetter, ready to operate
- Operating instructions with EC Declaration of Conformity, torque table, optionally with test certificate

5. TECHNICAL DATA

Performance range:	See enclosed torque table
Weight:	See nameplate
Vibration emission:	ah < 2.5 m/s^2
Sound pressure level:	75 dB(A) up to, temporarily, 85 dB(A)
Motor idling speed:	8,500 to 14,000 min^{-1} (RPM)

The dimensions of the unit are indicated in the technical datasheets available from our website www.plarad.de.

All data is also applicable to the nutsetters DEM-W and DEA-W, equipped with an angle drive.

5.1. Electrical Energy Supply

Line voltage:	230 V/50 Hz 110 V/60 Hz
Input power:	1.4 kW
Isolation class:	E
Protective insulation:	Degree of protection IP 20
Minimum connected load for mobile generators	4 kVA

6. FUNCTIONAL DESCRIPTION

6.1. Taking into Service

Attention!

Only components, which do not negatively influence the function and safety of the nutsetter, may be used.

- **If in doubt, contact the manufacturer.**

Warning!

Contact with voltage conducting parts can cause severe burns or death from electric shock.

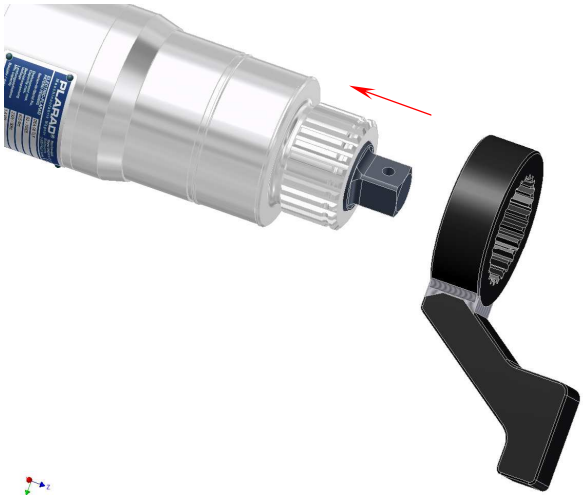
- **Before taking it into service, check the power supply cable of the nutsetter for damage.**
- **Do not use the nutsetter if the supply cable or plug are damaged.**

Attention!

Note the line voltage and frequency indicated on the nameplate.

6.2. Preparing the Nutsetter

1. Push the reaction arm over the serrated seat on the nutsetter.

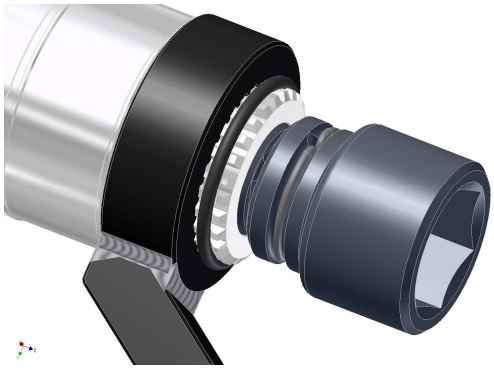


2. Secure the reaction arm with a retaining ring.

3. Plug a socket (nut) onto the square drive adapter at the nutsetter and secure it. Exclusively use sockets for use with power tools.

4. Secure the socket.

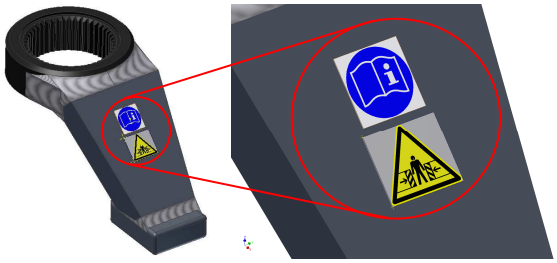
Nutsetter with reaction arm and socket locked.



Warning!

Unlocked components or nutsetters can be ejected from the joint.

- **Secure the reaction arm and the socket (nut) prior to taking into service!**
- **Observe the notes and warnings on the nutsetter.**

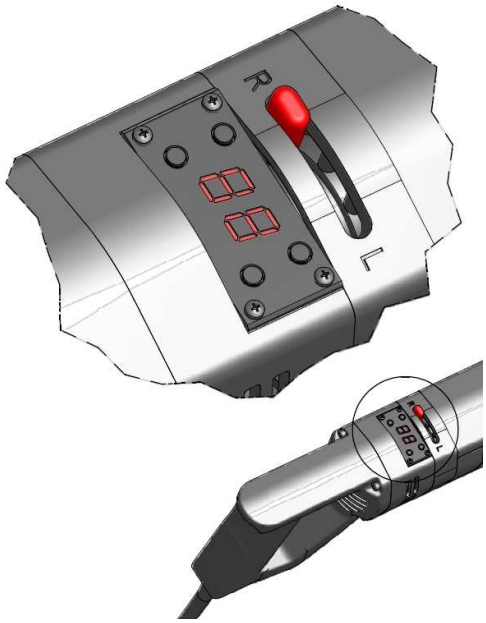


6.3. Setting the Torque

Important!

The desired torque must be set before starting the bolting process. It is not possible to set the torque during the bolting process.

1. Set the desired torque using the adjusting potentiometer on the housing above the handle. Read the required setting from the torque table enclosed.
2. To set the torque stage, press the buttons on the adjusting potentiometer.
   Press the upper buttons to increase the value of the respective digit.
   Press the lower buttons to reduce the value.

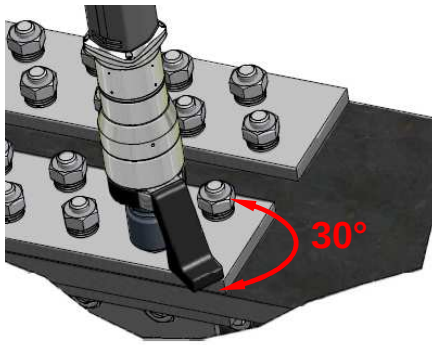


The values indicated in the torque table supplied were measured on a performance test stand and correspond to a test set-up with medium hardness acc. to ISO 5393.

3. Individually set the torque for each joint.
4. Check the torque on one joint before tightening all bolts requiring identical settings. Best use a rotating electronic transducer to perform measurements. You may also use a certified torque wrench.
5. If required, please request our quotation for torque measuring equipment.

Important!

The nutsetter will only reach the set torque if an angle of at least 30° is available for tightening from start of tightening to shut-off.



Attention!

Uncontrolled increase of torque by multiple tightening.

- **When the set torque has been reached and the nutsetter has shut off automatically, do not start it once more on the same joint.**

6.4. Safety Joint

The safety joint between the drive motor and the gearbox allows turning the handle to any desired direction, even while the nutsetter is operating. The reactive force will not act on the hand.

6.5. Supporting the Reaction Torque

Torques can only be generated, if the reactive forces are compensated for. A reaction arm on the electric nutsetter serves this purpose.

A standard reaction arm is included with the nutsetter. The nutsetter may only be used with the reaction arm installed.

Warning!

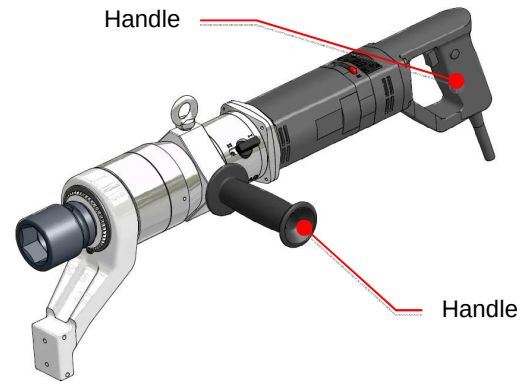
A crushing hazard occurs between the reaction arm and its contact surface. The reaction arm attached to the nutsetter may cause severe injury by crushing.

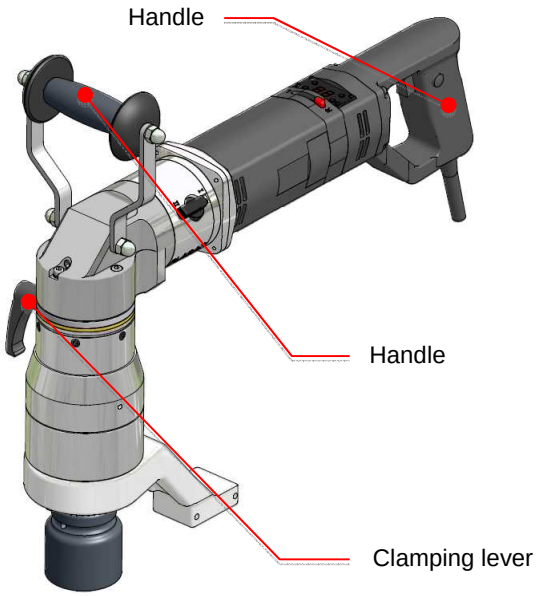
- **Do not reach with your hands between reaction arm and contact surface.**
- **Do not place hands/feet near the contact surface.**

Warning!

Cutting of the supply cable! Contact with voltage conducting parts can cause severe burns or death from electric shock.

- **While working, be absolutely sure that the supply cable is not between the reaction arm and the contact surface.**
- **While working, only hold and guide the nutsetter at the insulated handles.**





Exclusively use reaction arms and extensions approved by PLARAD.

On request, suitable reaction arms - also customised versions - can be supplied. Reaction arms and feet may not be altered beyond the approved dimensions indicated by us. If the reaction arm is altered the performance table originally supplied may become invalid.

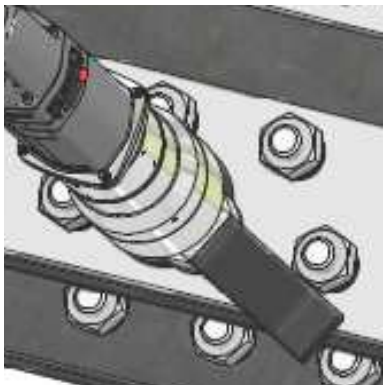
Warning!

If the nutsetter is not sufficiently supported, it may slip off and be ejected from the joint.

- **The contact point at the joint must be such that the reaction arm cannot slip off the contact surface!**

6.5.1. Optimum Reaction Support

Ensure full surface contact of the support plate!

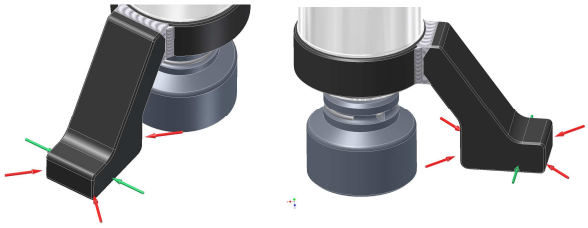


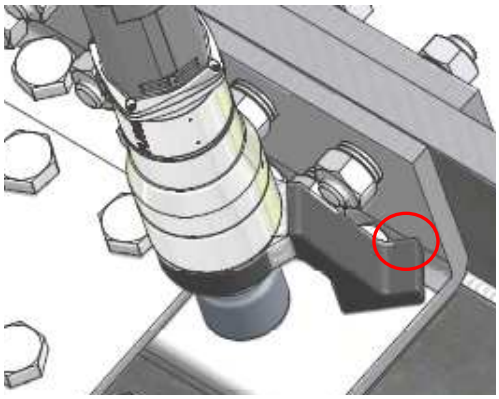
6.5.2. Inadmissible Reaction Support

Warning!

If the reaction arm contacts the work only in one spot or at the edges of the foot, the force acting on the nutsetter will be excessive. This may cause the reaction arm to slip off the bolt. Tightening accessories may break and the nutsetter be ejected from the joint.

- **Do not support the nutsetter from the directions marked in red in the illustration below!**
- **Exclusively support the nutsetter from the directions marked in green in the illustration below!**





Wrong support at the edge of the foot.

7. OPERATION

Warning!

Hazard due to dropping of the nutsetter!

- **Lift larger nutsetters with suitable lifting equipment only.**
- **When working overhead, secure the nutsetter; operators must wear head protection and safety shoes.**

Warning!

Impaired hearing due to noise.

- **Depending on the nutsetter settings and the noise exposition of the operator wear well-adapted personal hearing protectors.**
- **The owner of the nutsetter is responsible for correct selection and provision of personal protective equipment.**

Caution!

Burning hazard!
At high ambient temperatures the nutsetter may reach surface temperatures of up to 80 °C.

- **Wear safety gloves.**

Attention!

Check that the torque table for the unit is available. The serial number of the correct torque table is indicated on the unit's nameplate and in the “Technical Datasheet for Nutsetter”.

When setting the torque, be sure not to exceed the maximum admissible torques for the nutsetter and the accessories. The maximum admissible torque is indicated on the nutsetter and the accessories.

7.1. Bolting Process

1. Attach the nutsetter to the joint so that the bolt head or nut is gripped completely by the nut or hexagon socket. If that is not possible, the accessory may be subjected to reduced torque only, or a special nut or other accessory must be used.
2. Attach the nutsetter so that the support plate contacts the contact point on the joint in the direction opposed to the desired sense of rotation of the nutsetter. Ensure full-surface contact.

Warning!

During the work, components or the screwed joint may tear off. The nutsetter may then be ejected from the joint.

- **Load nutsetters and accessories only within the admissible torque limits. The admissible torques for standard operating conditions are indicated on the units and the accessories.**

7.2. Tightening

Warning!

If the nutsetter is not sufficiently supported, it may slip off and be ejected from the joint.

- **The contact point at the joint must be such that the reaction arm cannot slip off the contact surface!**

Automatic nutsetter DEA, optionally DEA-W

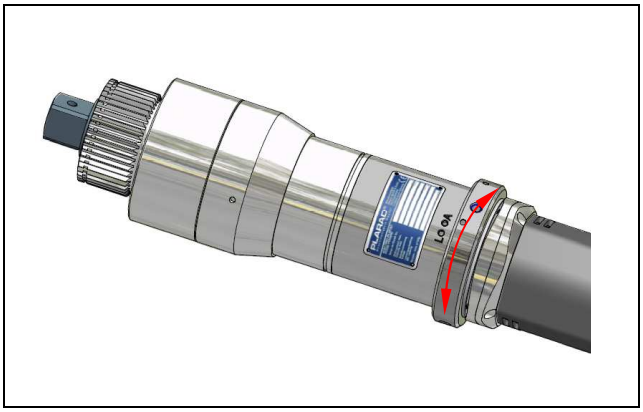
1. Select the sense of rotation at the hand lever.
2. Apply the nutsetter with socket to the bolt head or nut to be tightened.
3. Attach the reaction arm to the contact point in opposite direction to the sense of rotation of the nutsetter. Lock the angle drive of a DEA-W nutsetter to the drive unit in this position by closing the clamping lever (see figure on page 8).
4. Connect the nutsetter to the mains supply.
5. Press the start button and hold it pressed until the nutsetter shuts off automatically.
6. If required, check the torque reached using suitable equipment.

Manual nutsetter DEM, optionally DEM-W

1. Select the sense of rotation at the hand lever.
2. Select the desired gear at the knob:
   “1” = high-gear; “2” = load-gear.
3. Apply the nutsetter with socket to the bolt head or nut to be tightened.
4. Attach the reaction arm to the contact point in opposite direction to the sense of rotation of the nutsetter. Lock the angle drive of a DEM-W nutsetter to the drive unit in this position by closing the clamping lever (see figure on page 8).
5. Connect the nutsetter to the mains supply.
6. Press the start button and hold it pressed until the nutsetter shuts off automatically.
7. If required, check the torque reached using suitable equipment.

Important!

To ensure the nutsetter will not shut off prematurely during tightening, you may set the two-gear automatic to the load-gear. To do so, turn the knurled ring at the nutsetter DEA from “A” to “L”.



7.3. Loosening

The torque required to loosen a screwed joint may often be higher than the torque that was applied to tighten it. In such a situation the standard sockets and accessories often are not strong enough to withstand the forces occurring. In most cases the output of the unit also exceeds the load bearing capacity of the accessories.

Note that the accessory parts may only be loaded to the maximum torque indicated on them.

Automatic nutsetter DEA, optionally DEA-W

1. Select the sense of rotation at the hand lever.
2. Turn the knurled ring to position “A”.
3. Attach the reaction arm to the contact point in opposite direction to the sense of rotation of the nutsetter. Lock the angle drive of a DEA-W nutsetter to the drive unit in this position by closing the clamping lever (see figure on page 8).
4. Press the start button and hold it pressed until the bolt or nut has been loosened. Do not press the start button repeatedly!

Manual nutsetter DEM, optionally DEM-W

1. Select the sense of rotation at the hand lever.
2. Select the load-gear at the knob:
   “2” = load-gear.
3. Attach the reaction arm to the contact point in opposite direction to the sense of rotation of the nutsetter. Lock the angle drive of a DEM-W nutsetter to the drive unit in this position by closing the clamping lever (see figure on page 8).
4. Press the start button and hold it pressed until the bolt or nut has been loosened. Do not press the start button repeatedly!

Important!

Electric nutsetters cannot be used to check and retighten pre-tightened bolts.

- **Loosen tightened bolt.**
- **Retighten the bolt, ensuring that a rotation angle of at least 30° is reached.**

8. MAINTENANCE/SERVICE

8.1. General Considerations

The nutsetter must be serviced to maintain its function and safety.

Attention!

Service work may only be performed by the manufacturer.

Have assembly, readjustment, changes, extensions and repairs of the unit performed exclusively by Maschinenfabrik Wagner or service partners authorised by Maschinenfabrik Wagner.

Safety of the operator and trouble-free operation are guaranteed only if original PLARAD components are employed. This is especially true of unit parts and spare parts.

If other components are used, Maschinenfabrik Wagner cannot accept any liability for safe operation and reliable function.

8.2. Service Intervals

Depending on the frequency of use, the nutsetter must be serviced regularly. The service intervals here given are for orientation only. Determine the correct service interval for your operating conditions by discussing these with our representatives or service technicians.

Service may be performed in our service/repair workshop upon prior consultation with our representatives.

Every 3 months

- extreme operating conditions
- frequent use
- multi-shift operation
- constant operation in upper torque range
- soft joints

Every 6 months

- normal operating conditions
- medium frequency of use
- operation at mid torque-range

Every 12 months

- infrequent use

Cleaning:

- clean surface of nutsetter
- remove superficial rust

Visual inspection:

- damage
- leakage

Functional check-up:

- all moving parts okay
- drive and reaction arm without damage
- no leakage at the drive square
- no leakage at the hose connections

9. INSTRUCTIONS FOR DISPOSAL

Dispose of the nutsetter according to the locally applicable regulations.

Attention!

This symbol alerts to the fact that the product may not be disposed with domestic wastes as required by the WEEE directive (directive for waste electrical and electronic equipment, 2002/96/EC) and national laws.

- **This product must be turned over for recycling at the prescribed collection location. This can be done by returning the product upon purchase of a similar product or by turning it over to an authorised body for collection and recycling of waste electrical and electronic equipment.**
- **Information concerning collection locations for waste equipment is available from town authorities, public waste disposal organisations, or an authorised body for disposal of waste electrical and electronic equipment or the local waste removal company.**