

Operating instructions

Battery nutrunner

DA3power | DA3docu | DA3control | DA3motion



PLARAD[®]
Torque & Tension Systems 

Read the manual carefully before use!
Keep for future use.

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Translation of the original operating instructions

pA# 86832, 1, en_GB



Information about this manual



This manual enables safe and efficient handling of the battery nutrunners *DA3power*, *DA3docu*, *DA3control* and *DA3motion* (referred to in the following as “nutrunner” or “power tool”).

The manual is a component of the nutrunner and must be kept in its immediate vicinity so that the user can access it at any time.

The user must have read and understood this manual prior to commencing any tasks. A basic prerequisite for ensuring that work is performed safely is compliance with all safety instructions and guidelines in this manual. In addition, the local accident prevention regulations and general safety provisions for the nutrunner’s area of application apply.

Illustrations in this manual serve to provide a basic understanding and may differ from the actual design.

Versions



This manual is valid for the following battery nutrunners and software:

-  *DA3power*
-  *DA3docu*
-  *DA3control*
-  *DA3motion*

<i>DA3power</i>	<i>DA3docu</i>	<i>DA3control</i>	with angular gearbox*	<i>DA3motion</i>
DA3power-05	DA3docu-05	DA3control-05	DA3xxx-05-W	DA3motion-05
DA3power-10	DA3docu-10	DA3control-10	DA3xxx-10-W	DA3motion-10
DA3power-20	DA3docu-20	DA3control-20	DA3xxx-20-W	DA3motion-20
DA3power-30	DA3docu-30	DA3control-30	DA3xxx-30-W	
DA3power-36	DA3docu-36	DA3control-36	DA3xxx-36-W	
DA3power-48	DA3docu-48	DA3control-48	DA3xxx-48-W	
DA3power-80	DA3docu-80	DA3control-80	DA3xxx-80-W	

* Nutrunners with angular gearbox are available in the *DA3power*, *DA3docu* and *DA3control* versions.

Other applicable documents



The following documents must be observed in addition to this manual:

- Rating plate
- EU declaration of conformity
- Torque chart
Individual assignment of fastening operations and torques to the torque levels of the supplied nutrunner
- Certificates (option)
- Technical data sheet
- Battery safety data sheet

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Further development of the manual

This manual was compiled with great care. If you notice any errors, have any questions or identify any inconsistencies, please notify us in writing. Your suggestions for improvement will help us design a user-friendly manual.

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1 Unpacking

Delivery

The nutrunner is delivered in a plastic transport case together with the other items in the scope of delivery.

The transport case is packed in a cardboard box upon delivery.

The transport case is fitted with a foam inlay. The recesses in the inlay enable precision storage of the scope of delivery.

Scope of delivery



The scope of delivery includes:

- Transport case
- Trolley
- Nutrunner
- Reaction arm
- Circlip pliers
- Circlip
- O-ring
- Document folder
 - Operating instructions
 - Torque chart
 - EU declaration of conformity
- Batteries
- Battery charger



In the following countries, batteries and battery charger are included in the scope of delivery;

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, USA

Options:

- Impact wrench socket
- Test certificate for torque chart
- Reaction arm versions
- Any accessory ordered



Technical data sheet is available online at: <https://www.plarad.de/download-center.html>

Scope of delivery for DA3motion

The standard scope of delivery for the DA3motion comprises:

- Transport case
- Trolley

- DA3motion
- Telescopic reaction arm with adapter
- Circlip pliers
- Circlip
- Document folder
 - Operating instructions
 - Torque selection diagram (not dependent on the serial number)
 - EU declaration of conformity
 - Technical data sheet
- Batteries
- Battery charger

Options:

- Telescopic adapter (e.g. for ground fittings)
- Handwheel adapter

Further accessories are optionally available.

Checking the delivery



Check the delivery for transport damage and ensure it is complete immediately upon receipt. If it is incomplete or if there are defects, note the extent of the damage on the transport documents and lodge a complaint immediately.

Handling packaging material

The individual packages are packed according to the expected transport conditions. Only environmentally friendly materials are used for the packaging.

The packaging should provide protection against transport damage, corrosion and other damage. For this reason, do not destroy the packaging and do not remove it until shortly before use.

Dispose of packaging material in accordance with the applicable statutory provisions and local regulations.



ENVIRONMENT!

Danger to the environment due to incorrect disposal!

Packaging materials are valuable raw materials and, in many cases, can be further utilised or appropriately reconditioned and recycled. Incorrect disposal of packaging materials can be hazardous to the environment.

- Reuse pallets.
- Dispose of packaging materials in an environmentally sound manner.
- Observe the locally applicable disposal regulations. If necessary, engage the services of a specialist company with regard to disposal.

**Transport and storage**

Always store and transport the nutrunner in the transport case.

Set the direction of rotation setting to the middle position (transport position) ↺ *'Direction of rotation setting' on page 19.*

Do not take the nutrunner out of the transport case until shortly before use.

Lift the nutrunner only by the pistol grip.

Transporting batteries

Batteries contain hazardous substances are classified globally as dangerous goods. These products are therefore only approved for commercial transport under certain conditions.

With regard to road transport in Europe, the regulations of the ADR must be complied with; the regulations of IATA DGR must be complied with for air transport. These contain specifications for packaging and accompanying documentation, for example.



Before transporting hazardous substances, always familiarise yourself with current regulations pertaining to the transport of dangerous goods.

2 Getting to know the nutrunner

2.1 Illustration of DA3power | DA3docu | DA3control

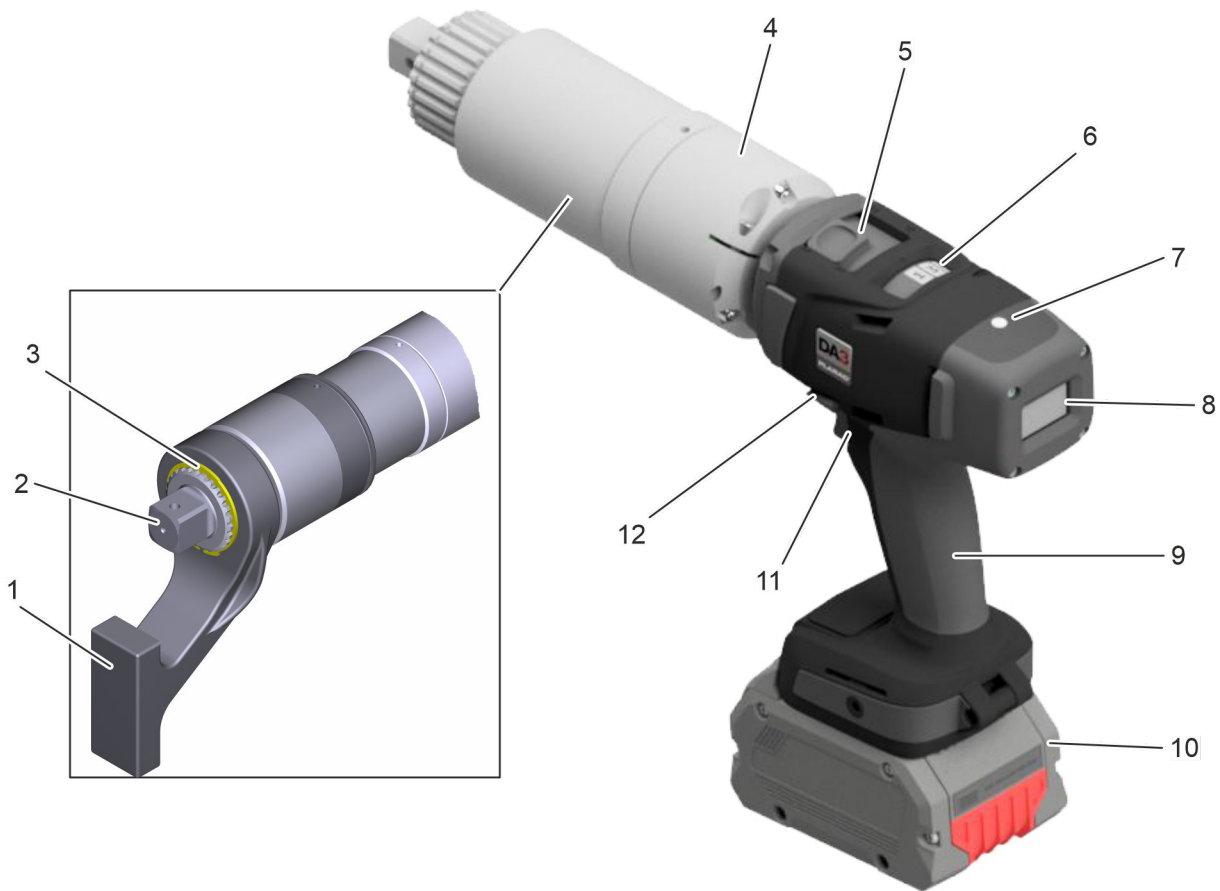


Fig. 1: Illustration of battery nutrunner DA3power / DA3docu / DA3control

- | | | | |
|---|----------------------------|----|-------------------------------|
| 1 | Reaction arm | 7 | Dual trigger 2 |
| 2 | Square drive (tool holder) | 8 | Control unit, display |
| 3 | Reaction arm circlip | 9 | Pistol grip |
| 4 | Safety swivel joint | 10 | Battery |
| 5 | Gear setting | 11 | Dual trigger 1 |
| 6 | Setting levels | 12 | Direction of rotation setting |



DA3 with angular gearbox

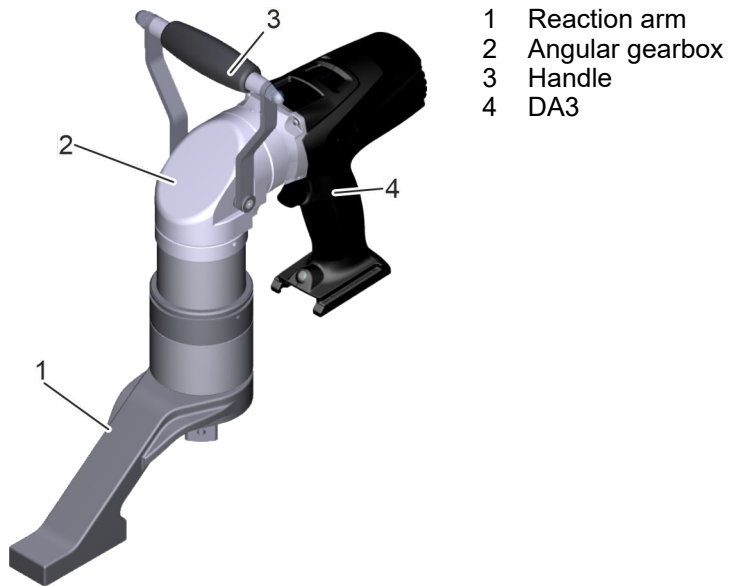


Fig. 2: Angular gearbox

2.2 DA3motion

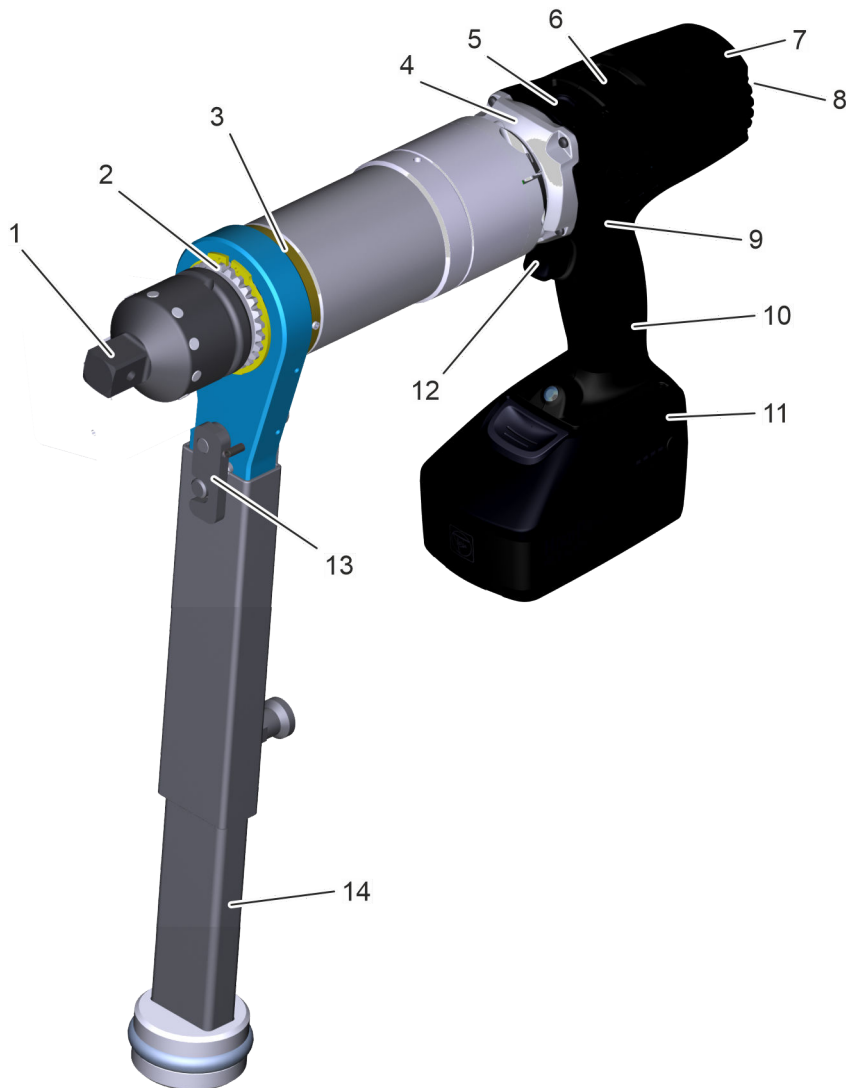


Fig. 3: Illustration of DA3motion

- | | | | |
|---|----------------------------|----|-------------------------------|
| 1 | Square drive (tool holder) | 8 | Control unit, display |
| 2 | Reaction arm circlip | 9 | Direction of rotation setting |
| 3 | Spacer | 10 | Pistol grip |
| 4 | Safety swivel joint | 11 | Battery |
| 5 | Gear setting | 12 | Dual trigger 1 |
| 6 | Setting levels | 13 | Reaction arm lock |
| 7 | Dual trigger 2 | 14 | Reaction arm of DA3motion |



Illustration of reaction arm of DA3motion

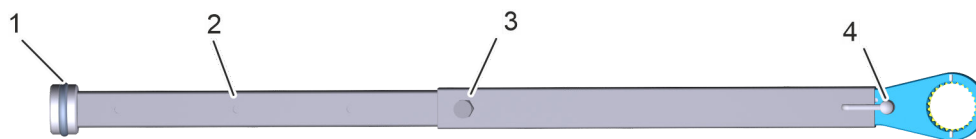


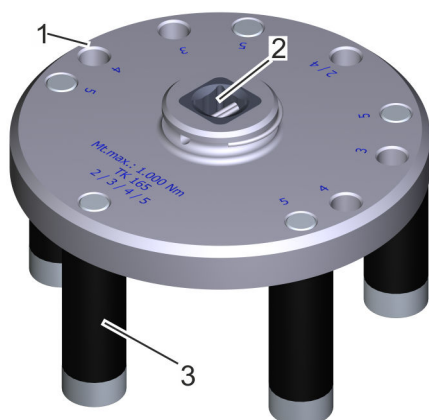
Fig. 4: Illustration of reaction arm of DA3motion

- | | | | |
|---|---|---|-------------------|
| 1 | End cap | 3 | Locking bolt |
| 2 | Four lock-in holes on the pull-out lower part of the reaction arm | 4 | Reaction arm lock |

The reaction arm DA3motion can be dismantled into three parts.

The top part is fastened to the serration of the nutrunner. The middle part is plugged into the top part and locked. The bottom part is plugged into the middle part and locked into one of four points.

Handwheel adapter



- | | |
|---|--------------------------|
| 1 | Claw slots with markings |
| 2 | Square drive holder |
| 3 | Adjustable claws |

With the aid of the handwheel adapter, handwheels can be moved with the nutrunner. The number of claws (2 to 5) can be adjusted to match the handwheel.

Fig. 5: Handwheel adapter

Telescopic adapter – Extension



Fig. 6: Extension

- | | | | |
|---|------------------------------------|---|-------------|
| 1 | Square drive spring clip | 4 | Spring clip |
| 2 | Locking bolt | 5 | Safety bolt |
| 3 | Pull-out part with 4 lock-in holes | 6 | Adapter |

An extension can be used to operate underfloor fittings more easily, for example.

2.3 Battery and battery charger

Battery



Only Bosch batteries of type ProCORE18V with 4 Ah battery capacity or more can be used.

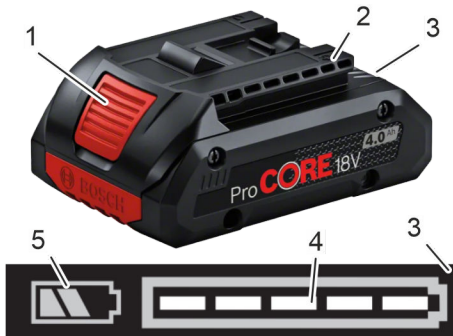


Fig. 7: Battery

- 1 Battery release button
- 2 Electrical contacts and guide rail
- 3 Charge status indicator
- 4 LED for battery charge status indicator
- 5 Battery charge status indicator button

Press to display the battery's state of charge as a percentage:

20% – 40% – 60% – 80% – 100%

Battery charger



Fig. 8: Battery charger rating plate



Only the Bosch GAL 18V-160 charger may be used.



Fig. 9: Battery charger

- 1 Red display for temperature monitoring/fault
- 2 Ventilation slot
- 3 Battery charging bay
- 4 Green battery charge status indicator
- 5 [Power Boost] button



The green charge status indicator indicates the percentage charge status of the battery: 20% – 40% – 60% – 80% – 100%



A continuous light on the red display indicates that the temperature of the battery is outside the permissible charging temperature range (0–45°C). As soon as the permissible temperature range is reached, the charging process begins.

A flashing light on the red display indicates that the battery or charger is faulty.



The *[Power Boost]* button can be used to enable fast charging mode. The battery charges up to 50% of the battery capacity at a higher speed.

Charging procedure

Fast charging mode

With Power Boost, batteries are charged in fast-charging mode up to approx. 50% battery capacity. With Power Boost, the battery is initially charged with a high charging current. The charging current is then gradually reduced.

To activate fast charging mode, press the *[Power Boost]* button. The *[Power Boost]* button can be pressed before plugging in the battery or when the battery is plugged in. The *[Power Boost]* button lights up red during fast charging.

To switch to standard charging mode, press the *[Power Boost]* button again. Fast charging mode ends automatically at about 50% battery capacity. The *[Power Boost]* button does not light up. The battery will continue to charge in standard charging mode.

Standard charging mode

The battery is charged to approx. 100% battery capacity. Standard charging mode is the best combination of fast charging time and full battery charging. Standard charging mode optimises the battery's service life.

Battery cooling (Active Air Cooling)

The fan control integrated into the battery charger monitors the temperature of the inserted battery.

If the battery temperature is above approx. 0°C, the battery is cooled by a fan. The switched-on fan generates a ventilation noise.

The fan will not run if the fan is faulty or the battery temperature is < 0°C. This can increase the charging time.

2.4 Brief description

DA3power, DA3docu, DA3control

The nutrunner is a hand-held power tool for tightening and loosening bolted connections in a dry environment.

The nutrunner is powered electrically with the aid of a battery.

An individually adjustable reaction arm is used to brace the tool against the torque.

In the **DA3docu** nutrunner version, fastening operations can be set with the help of an electronic control unit and events can be documented in the nutrunner.

In the **DA3control** nutrunner version, the rotation angle, torque/rotation angle and rotation angle counter functions can also be used.

DA3motion

The nutrunner DA3*motion* is a hand-held power tool for opening and closing fittings in a dry environment.

The nutrunner is powered electrically with the aid of a battery.

A telescopic reaction arm is used to brace the tool against the torque.

The desired torque can be selected by switching the gearbox stages and the setting levels.

The nutrunner DA3*motion* is **not** suitable for bolting processes.

2.5 Rating plate

nutrunner

The following data is inscribed on the rating plate:

- Name of the manufacturer including their full address
- Machine designation
- Type designation
- Article/serial number
- Maximum torque
- Year of construction
- Weight
- CE marking/UKCA marking

2.6 Performance variables

Overview of available performance variables for the nutrunner versions:

DA3power	DA3docu	DA3control	with angular gearbox*	DA3motion
DA3power-05	DA3docu-05	DA3control-05	DA3xxx-05-W	DA3motion-05
DA3power-10	DA3docu-10	DA3control-10	DA3xxx-10-W	DA3motion-10
DA3power-20	DA3docu-20	DA3control-20	DA3xxx-20-W	DA3motion-20
DA3power-30	DA3docu-30	DA3control-30	DA3xxx-30-W	
DA3power-36	DA3docu-36	DA3control-36	DA3xxx-36-W	
DA3power-48	DA3docu-48	DA3control-48	DA3xxx-48-W	
DA3power-80	DA3docu-80	DA3control-80	DA3xxx-80-W	

* Nutrunners with angular gearbox are available in the DA3power, DA3docu and DA3control versions.



2.7 Nutrunner controls

DA3power, DA3docu, DA3control



Fig. 10: Controls for DA3power, DA3docu, DA3control

- | | |
|-------------------------|-----------------------------------|
| 1 Gear setting | 6 Battery charge status indicator |
| 2 Setting levels | 7 Battery release button |
| 3 Dual trigger 2 | 8 Dual trigger 1 |
| 4 Control unit, display | 9 Direction of rotation setting |
| 5 Pistol grip | |

DA3motion

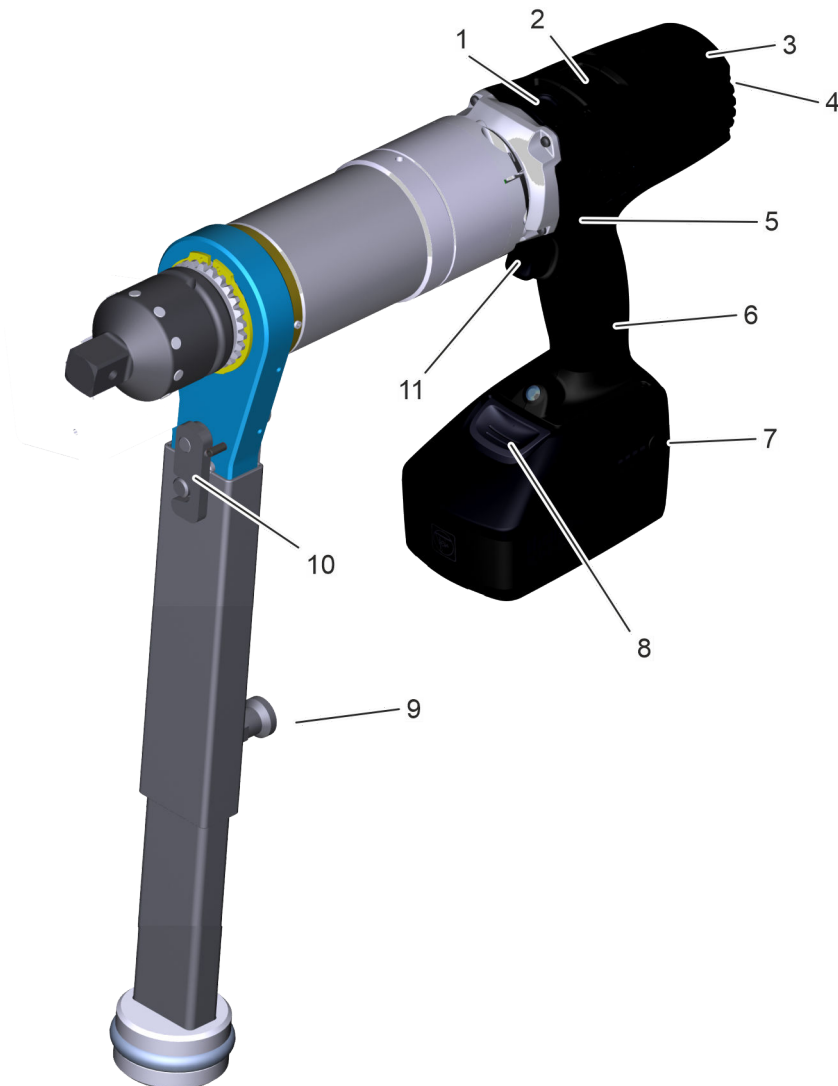


Fig. 11: Controls

- | | | | |
|---|-------------------------------|----|---------------------------------|
| 1 | Gear setting | 7 | Battery charge status indicator |
| 2 | Setting levels | 8 | Battery release button |
| 3 | Dual trigger 2 | 9 | Locking bolt |
| 4 | Control unit, display | 10 | Reaction arm lock |
| 5 | Direction of rotation setting | 11 | Dual trigger 1 |
| 6 | Pistol grip | | |

The nutrunner features the following controls:

2.7.1 DA3

Gear setting and setting levels

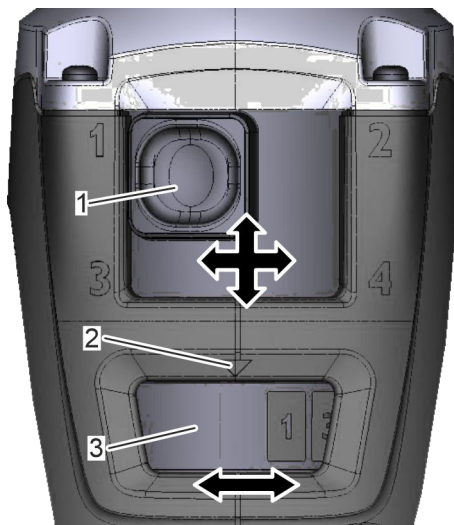


Fig. 12: Gear setting and setting levels

- 1 Gear setting
- 2 Marking for setting level
- 3 Setting levels

The torque is selected using a combination of gear and setting level.



Note the enclosed torque chart.

Gear: Gear 1 to 4

The gearbox gears are adjusted manually.

The highest torque is obtained in gear 1.

Setting level: Level 1 to 15

The potentiometer is adjusted electronically.

The highest torque is obtained in level 15.

Direction of rotation setting



Fig. 13: Direction of rotation setting (1)

The direction of rotation can be changed with the aid of the direction of rotation setting (Fig. 13/1).



Standard direction of rotation: Right-hand thread

	Direction of rotation setting	Direction of rotation
	Right-hand side is pressed.	Clockwise (CW) Tightening in clockwise direction
	Middle position	No rotation possible. Transport position
	Left-hand side is pressed.	Counterclockwise (CCW) Loosening in anti-clockwise direction

Pistol grip

The nutrunner can be gripped securely and carried by the pistol grip (Fig. 1/5). Ergonomic use of the dual triggers is possible.



Handle (with angular gearbox)

The handle (Fig. 2/3) offers an additional option for securely holding and transporting the nutrunner. The DA3power, DA3docu and DA3control with angular gearbox come with the handle as standard.

Dual trigger

To start the nutrunner using the two dual triggers 1 and 2, you need to use both hands.

The set fastening operation is started and executed for as long as both dual triggers (Fig. 1/7 and 11) are kept pressed simultaneously. When only one dual trigger is pressed, the nutrunner stops.

To start a new fastening operation, both dual triggers first need to be reset.

Dual trigger 1 is also used to navigate through the display of the control unit.

Do not pulse



Do not pulse!

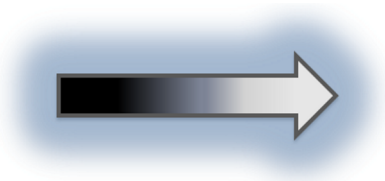
(Pulse: press and release the dual triggers in quick succession)

Always execute the fastening operation in full. To do so, press and hold the dual triggers for the entire duration of the fastening operation.



The dual trigger for DA3power, DA3docu and DA3control operates digitally. The drive is off when the dual trigger is pressed to a point (0). 100% of the torque is available beyond this (1). The dual trigger does not need to be operated sensitively. This makes it easier to use for longer periods of time and if gloves are worn.

Trigger DA3motion



A rotation is initiated at the square drive with the dual trigger DA3motion and is executed for as long as the dual trigger is pressed.

Dual trigger 1 has a potentiometer function. The more the dual trigger 1 is pressed, the more power the drive provides. The full torque and the full speed are achieved when dual trigger 1 is fully pressed.

This function makes it easier to move a fitting carefully to the end positions. The end positions **must** be approached slowly. Between these positions, the full power with maximum rotational speed and the highest speed can be used.



WARNING!

Danger of injury due to strong forces in the end positions!

If the end positions of a fitting (fully open/closed) are approached at high speed or high torque, this could destroy the fitting, nutrunner and attachment parts of the nutrunner and cause serious injuries.

- Always approach end positions with care.
- Use the potentiometer function of the DA3motion dual trigger carefully. Use a low speed.

2.7.2 DA3motion

Reaction arm of DA3motion

The reaction arm of the DA3motion can be removed for transport purposes.

Attach the reaction arm, lock it and set to the desired length prior to use.

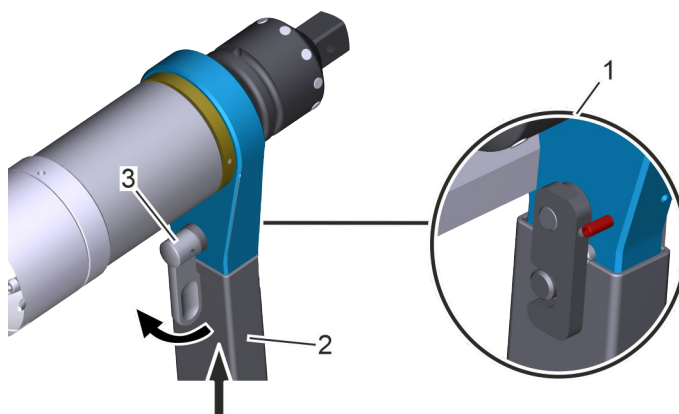


Fig. 14: Lock for reaction arm of DA3motion

- 1 Lock on back
- 2 Reaction arm
- 3 Lock

2.7.3 Battery and battery charger

Button and LEDs for charge status indicator



Fig. 15: Battery charge indicator



The battery charge status can only be displayed correctly when the drive motor is switched off.

The battery charge status is displayed (as a percentage) by pressing the  button.

LED	Capacity
Continuous light 5 × green	81–100%
Continuous light 4 × green	61–80%
Continuous light 3 × green	41–60%
Continuous light 2 × green	21–40%
Continuous light 1 × green	6–20%
Flashing light 1 × green	0–5%

Battery release button

The battery is released from the nutrunner using the release button, after which it can be removed.

LED display for battery charger



The green charge status indicator indicates the percentage charge status of the battery: 20% – 40% – 60% – 80% – 100%



A continuous light on the red display indicates that the temperature of the battery is outside the permissible charging temperature range (0–45°C). As soon as the permissible temperature range is reached, the charging process begins.

If the red indicator is flashing, the battery or battery charger is faulty.

[Power Boost] button

To activate fast charging mode, press the [Power Boost] button. The [Power Boost] button can be pressed before plugging in the battery or when the battery is plugged in. The [Power Boost] button lights up red during fast charging.

To switch to standard charging mode, press the [Power Boost] button again. Fast charging mode ends automatically at about 50% battery capacity. The [Power Boost] button does not light up. The battery will continue to charge in standard charging mode.



2.8 Overview of functions

The DA3 nutrunner versions offer the following functions:

(Individual functions will not be available until the end of 2026.)

DA3power



- Tightening and loosening
- Torque can be set via 4 gears and the setting levels
- Dual trigger with on/off switch function
- Automatic safety swivel joint
- Automatic release function
- Error acknowledgement
- Control unit with display
- Switching between left/right thread
- Changing between imperial/metric units
- Operation of the lock
- Information for customer/PLARAD
- Service counter for customer/PLARAD
- Free rotation angle
- OTA (over the air update)
- Resetting to factory settings
- Password protection

DA3docu



- Tightening and loosening
- Torque can be set via 4 gears and the control unit
- Dual trigger with on/off switch function
- Setting fastening operations
- Retrieving operating data and bolted connection documentation including GPS data (optional)
- Adjusting settings
- Reading out data from the nutrunner (bolted connection documentation)
- Blocking individual torque levels
- Saving the status report as a PDF file
- Automatic safety swivel joint
- Automatic release function
- Error acknowledgement
- Control unit with display
- Switching between left/right thread
- Changing between imperial/metric units
- Operation of the lock
- Information for customer/PLARAD
- Service counter for customer/PLARAD
- Free rotation angle
- OTA (over the air update)
- Resetting to factory settings
- Password protection for users and masters

- Documentation
- Jobs and presets
- Signing documentation
- Deleting documentation
- Blocking steps and gears
- GPS position

DA3control



DA3control offers the following functions in addition to those in the DA3docu:

- Rotation angle function
- Torque – rotation angle function
- Rotation angle counter function
- Test mode function

DA3motion



- Torque can be set via 4 gears and the control unit
- Dual trigger with potentiometer switch function
- Automatic safety swivel joint
- Automatic release function
- Error acknowledgement
- Control unit with display
- Switching between left/right thread
- Changing between imperial/metric units
- Operation of the lock
- Information for customer/PLARAD
- Service counter for customer/PLARAD
- Free rotation angle
- OTA (over the air update)
- Resetting to factory settings
- Password protection for users and masters
- Documentation
- Blocking steps and gears
- GPS position
- Revolution counter
- Countdown counter

Automatic safety swivel joint

The safety swivel joint between the drive motor and gearbox makes it possible to rotate the handle into any position you wish. As soon as the torque on the handle exceeds 2 Nm, the safety swivel joint is automatically locked such that no reaction force is applied to the user's hand.

If the nutrunner is switched off, the safety swivel joint is unlocked again and can be rotated freely.



Automatic release function

Load on the gearbox is relieved after the bolting process. The reaction arm retracts slightly. This makes it easier to remove the nutrunner from the bolt and facilitates further work.

2.9 Control unit

Display



The nutrunner is equipped with a control unit with electronic display.

Fig. 16: Display

Operating the control unit

The control unit is operated using the direction of rotation setting and dual trigger 1.

- Anti-clockwise direction of rotation setting selected
- Right side pressed

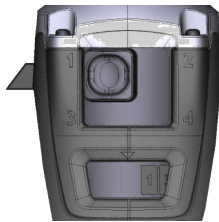


Fig. 17: Right side pressed

- Clockwise direction of rotation setting selected
- Left side pressed

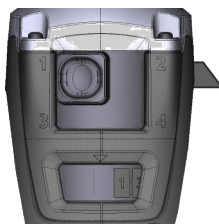


Fig. 18: Left side pressed



Button	Direction of rotation setting Trigger	Result	Display
Start	Right or left side is pressed. Press dual trigger 1.	The control unit starts. The home screen is displayed with the parameters of the last fastening operation. The nutrunner can be used with the set values for screwing and loosening.	
-	Right-hand side is pressed (Fig. 17). Press dual trigger 1.	Scroll forwards on the display. Menu item on the right is selected. Decrease values. During screwing: tighten.	
+	Left-hand side is pressed (Fig. 18). Press dual trigger 1.	Scroll back on the display. Menu item on the left is selected. Increase values. During screwing: loosen.	
OK	Middle position Maintenance.	Confirm selection. Screwing is not possible.	

Meaning of colours

Blue and white are used in the display to distinguish between operations.



Example: Left-hand thread selected.
The selection still has to be confirmed with **OK**.



Example: Colour change
Countdown
After you confirm a selection with **OK**, a countdown is visualised by a change of colour.
The direction of rotation setting is in the middle position.
To cancel the countdown, press the direction of rotation setting to the left or right.



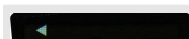
Example: Left-hand thread selected.
The nutrunner can be used with the selection.

Displaying the direction of rotation setting

The main menu displays the position of the direction of rotation setting:



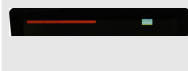
Direction of rotation setting in the middle position



Direction of rotation setting pressed to the right



Direction of rotation setting pressed to the left



Limitation of the adjustable range, e.g. 1,500 Nm. The maximum torque must be at least as large as the previously set snug torque.

Main menu



Sequence of main menu

Back ↔ Torque ↔ Torque rotation angle ↔ Rotation angle ↔ Settings ↔ Documentation

Menu overview

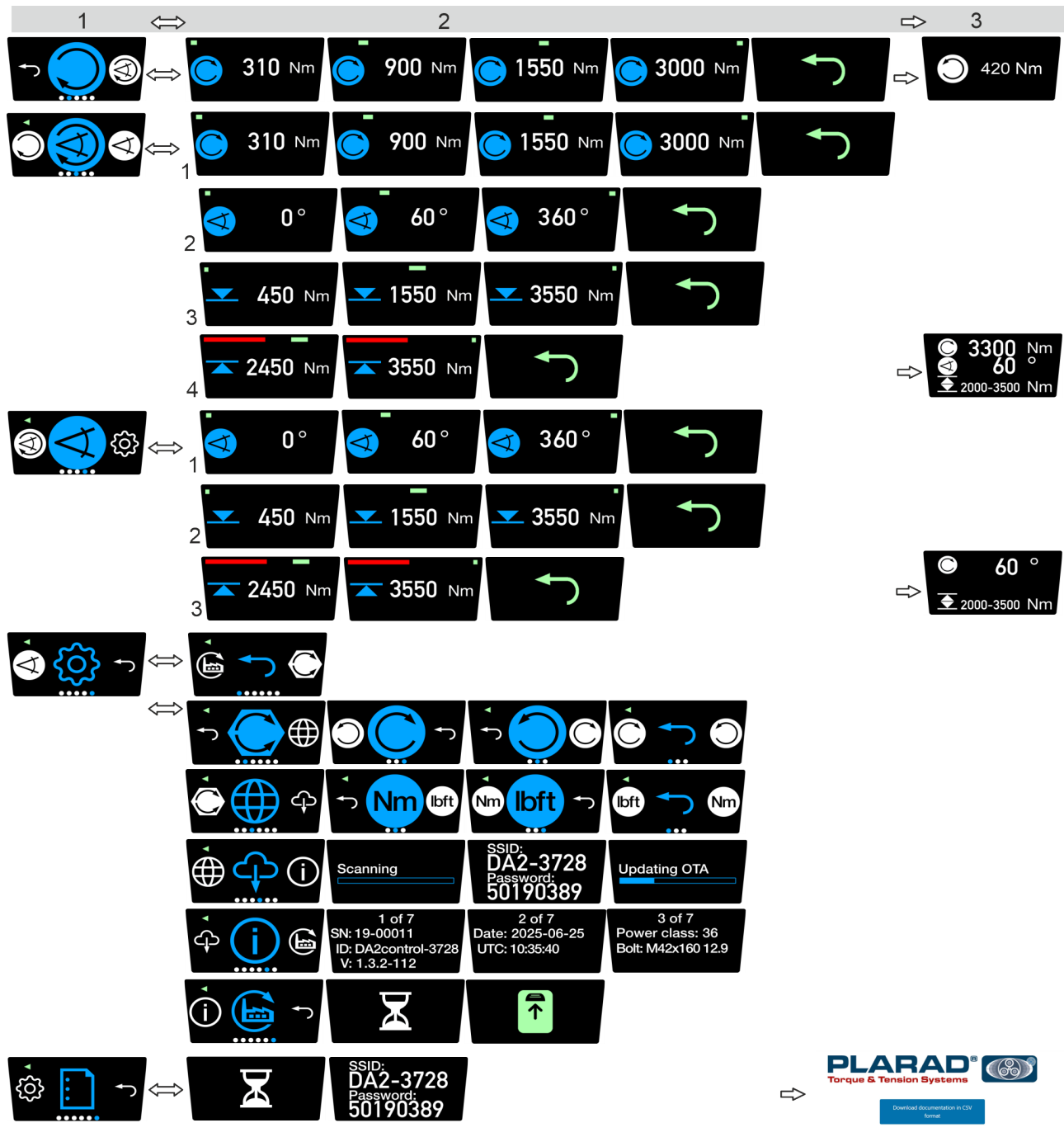


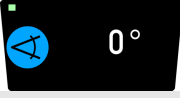
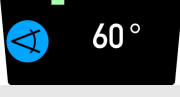
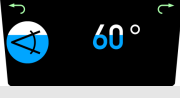
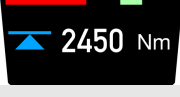
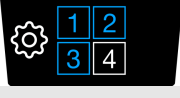
Fig. 19: Menu overview

- 1 Main menu
- 2 Sequence of submenus, examples of parameter input
- 3 Example home screen after leaving the fastening functions submenu, website documentation



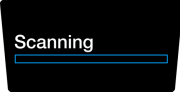
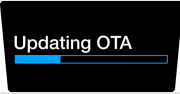
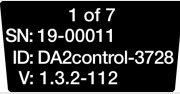
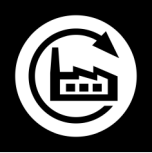
Overview of displays

Display	Meaning
	Start logo
	Start screen Parameters of the last fastening operation: ■ Snug torque ■ Rotation angle ■ Maximum cut-off torque The nutrunner is ready for use and can be operated with these parameters.
	Main menu Back to start menu has been selected. Countdown
	Main menu Back to start screen
	Main menu Torque
	Main menu Torque-angle
	Main menu Rotation angle
	Main menu Torque – rotation angle has been selected. Countdown
	Main menu Settings
	Main menu Load documentation
	Torque fastening function Current torque setting The green bar at the top visualises the setting range, in this example 300 to 3,000 Nm.
	Torque setting Set the value with – and +.

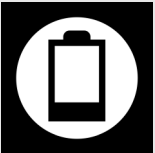
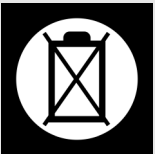
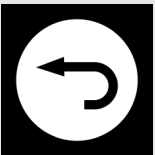
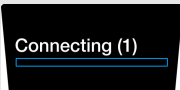
Display	Meaning
	
	
	Torque fastening function The set value is adopted when you confirm with OK . Countdown
	Rotation angle fastening function Current angle of rotation setting
	
	The set value is adopted when you confirm with OK . Countdown
	Rotation angle fastening function Enter the lower torque limit
	Rotation angle fastening function Enter the upper torque limit If there is a limitation of the adjustable range, the range that is not possible is visualised with a red bar. Example: 1,500 Nm is set as the snug torque. The red bar visualises the non-adjustable range from the minimum torque to 1,500 Nm. Since the maximum torque must be at least as large as the previously set snug torque, there is a limited setting range.
	Current gear 4
	Current gear 2 Prompt to switch to gear 1 Colours: ■ Requested gear – black font, white flashing background ■ Current gear – white font, black background ■ Other gears – grey font, black background
	Main menu Settings menu has been selected. Countdown

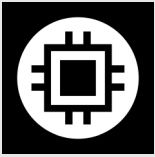
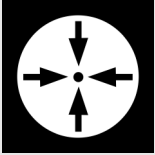


Display	Meaning
	Direction of rotation menu
	Direction of rotation menu Back to main menu
	Direction of rotation menu Right-hand thread
	Direction of rotation menu Left-hand thread
	Direction of rotation menu Direction of rotation has been selected. Countdown
	System of measurement menu
	System of measurement menu Select metric system. Torque data in Nm
	System of measurement menu Select imperial system. Torque data in lb ft
	System of measurement menu Back to settings

Display	Meaning
	OTA menu Carry out “over the air” updates.
	OTA menu Network search
	OTA menu Login details
	OTA menu Update is performed.
	Information menu
	Information menu Information page
	Factory settings menu
	Countdown Process in progress Maintenance. Do not remove the battery.
	Start screen during fastening operation. In this example, the snug torque is screwed at 1,550 Nm, then the angle of rotation is screwed at 60°. Maximum torque
	Loosening mode (maximum torque) selected



Display	Meaning
	Loosening mode (maximum torque) selected The direction of rotation is set contrary to the screwing direction via the direction of rotation setting. Clockwise rotation with right-hand threaded screws
	Nutrunner fault
	Restart. To do this, remove the battery and reinsert it.
	Replace the battery. Battery is old.
	Battery not compatible. Only use Bosch batteries type ProCORE18V with 4 Ah battery capacity or more.
	Operation completed successfully.
	Outside limits Back without saving new values
	Error Operation not completed successfully.
	WiFi connection

Display	Meaning
	Flash
	Calibration parameters
	Time
	Overheating
	WiFi

2.10 Accessories

DA3

The following accessories are available for ordering together with the nutrunner and may be included in the delivery:

- Impact wrench socket with circlip (spring clip)
- Reaction arm with circlip
 - Special reaction arm
 - Extensions
- Mobile measuring unit
- Impact wrench sockets in various designs
- Certificate
 - Technical, more detailed supplement to the torque chart
- Offset gears for long studs



DA3motion

The following accessory has been specially designed for the DA3motion:

■ Extensions



Fig. 20: Extension accessory for DA3motion

- | | |
|---|--------------------------|
| 1 Square drive holder | 4 Pull-out part |
| 2 4 lock-in holes on the pull-out part of the extension | 5 Adaptation for fitting |
| 3 Locking bolt | |

■ Attachment for pillar hydrants



Fig. 21: Attachment for pillar hydrants

■ Offset gear STX 22-02 TL-S slider



Fig. 22: Offset gear STX 22-02 TL-S slider

Special accessories



Contact PLARAD® service.

2.11 Offset gear accessories

Reference number pA# 83103

2.11.1 Overview

Versions

Three versions of PLARAD® offset gears are available.

For more details, visit <https://www.plarad.de/download-center.html>

Illustration example STX

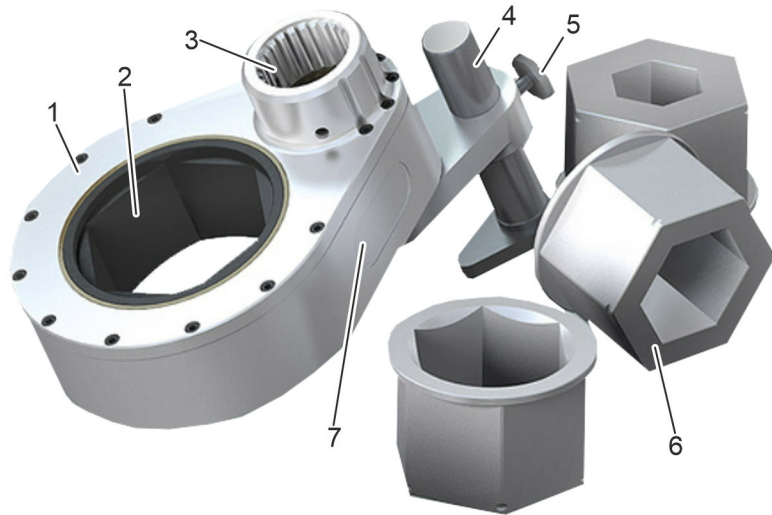


Fig. 23: Illustration example STX

- 1 STX offset gear
- 2 Hexagon insert
- 3 Square drive holder
- 4 Offset gear brace
- 5 Locking screw
- 6 Hexagon reducer pieces
- 7 Rating plate

Brief description

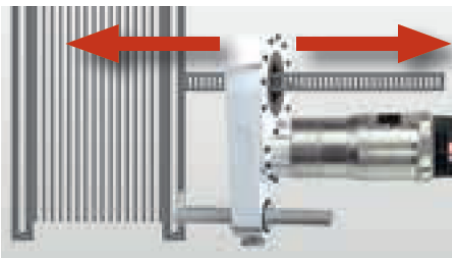


Fig. 24: Example: long threaded spindles

Offset gears let you perform fastening operations in spaces that are too small to accommodate a nutrunner directly above the bolt. The nutrunner's square drive and hexagon insert for bolting are offset to one side.

Offset gears facilitate screwing nuts along long threaded spindles (Fig. 24).



Gearbox damage



NOTICE!

Gearbox damage from exceeding the maximum torque!

Exceeding the maximum torque can lead to gearbox damage.

- Note the following torque calculations for offset gears ST, STX and ST2.
- Never exceed the torque.

ST, STX – torque chart

The following applies to ST and STX offset gears:



The ST and STX offset gears have their own torque chart.

Maximum input torque = output torque ÷ transmission ratio

ST2 – no torque chart

The following applies to ST2xxx offset gears:



The adapted transmission ratio means that no separate torque chart is required for the offset gear.

Input torque = output torque

There is the option of creating a factory certificate.

Technical data sheet



Technical data sheet is available online at: <https://www.plarad.de/download-center.html>

Rating plate

The rating plate lists the following data:

- Name of the manufacturer including their full address
- Type designation
- Article/serial number
- Maximum torque
- Year of construction
- Weight
- Gear reduction
- Multiplier 'x'

'x' – conversion of the rotation angle

The rotation angle of the square drive and the hexagon insert differ by multiplier x.

Multiplier 'x' is specified for each offset gear in the following locations:

- Rating plate
- Technical data sheet

2.11.2 Installing the offset gear

- Personnel: ■ Qualified nutrunner personnel
- Protective equipment: ■ Protective work clothing
■ Safety shoes

The following section outlines the installation of an ST2 offset gear on nutrunners from PLARAD[®] tool generation DE1, DA2, DP1, DP2.

1. ➤ Dismantle the union nut and remove the two retaining rings.
2. ➤ Dismantle the O-ring behind the serration of the planetary gear.
3. ➤ Attach the union nut.
4. ➤ Insert the retaining ring without serration. Position the centring spigot facing the gearbox.
5. ➤ Insert the retaining ring with serration. Position the centring spigot facing the gearbox.
6. ➤ Attach the offset gear and insert the nutrunner into the offset gear holder by turning the square drive.
7. ➤ Tighten the union nut by hand.

2.11.3 Using an offset gear

- Personnel: ■ Qualified nutrunner personnel
- Protective equipment: ■ Protective work clothing
■ Safety shoes

Further details ➤ *Chapter 6 'Preparing the nutrunner' on page 76.*

Preparing the offset gear

1. ➤ Choose an offset gear suitable for the bolting operation.
2. ➤ If necessary, insert a hexagon reducer piece for the offset gear into the hexagon insert.
3. ➤ Insert the offset gear's brace. Securely tighten the offset gear brace's locking screw.

If there are bracing panels available, use these to brace the nutrunner.

4. ➤ Attach the offset gear to the bolted connection.

Offset gear brace

5. ➤ Brace the offset gear. To do so, loosen the locking screw, position the offset gear's braces on a suitable bracing surface and securely tighten the locking screw.
 6. ➤ Attach the nutrunner's square drive.
- ⇒ The offset gear is ready to perform bolting.



Note the direction of rotation. Configure the nutrunner correctly.

2.11.4 Dismantling the offset gear

- Personnel: ■ Qualified nutrunner personnel
- Protective equipment: ■ Protective work clothing
■ Safety shoes

The following section outlines the disassembly of an ST2 offset gear on nutrunners from PLARAD[®] tool generation DE1, DA2, DP1, DP2.

1. ➤ Loosen the union nut.
2. ➤ Remove the nutrunner from the offset gear holder.
3. ➤ Remove the retaining ring with serration.
4. ➤ Remove the retaining ring without serration.
5. ➤ Remove the union nut.
6. ➤ Install the O-ring behind the serration of the planetary gear.
7. ➤ Insert the two retaining rings and secure the union nut.

2.11.5 Maintaining an offset gear

Improperly performed maintenance tasks



WARNING!

Danger of injury from improperly performed maintenance tasks!

Improper maintenance can cause serious injuries and significant damage.

- Ensure sufficient assembly space prior to commencing the tasks.
- Ensure that the assembly site is clean and tidy. Loosely stacked or randomly scattered components and tools may cause accidents.
- With regard to maintenance tasks, only allow “Lubricate”, “Clean” and “Check for damage” to be performed by the user.
- Have all repairs performed by the manufacturer.
- Use only PLARAD[®] original parts.

Maintenance tasks

If routine checks reveal increased wear, shorten the requisite maintenance intervals according to the actual signs of wear. If you have questions about maintenance tasks and intervals, contact PLARAD® service.

Interval	Maintenance task	Personnel
Before and after every use	■ Clean. ■ Check surfaces, warning symbols and pictograms for damage. ■ Check all components for damage and correct operation.	User
Every month if used frequently	If there are any grease nipples, lubricate with Molykote LT165 or Molykote BR2.	User
Once a year	If there are any grease nipples, lubricate with Molykote LT165 or Molykote BR2.	PLARAD® service

Accessories, spare parts and wear parts

Spare parts must meet the technical requirements specified by PLARAD®. This is always ensured by original spare parts. A warranty can only be provided for original spare parts supplied by PLARAD®.

The installation or use of other spare parts can, under certain circumstances, adversely alter the specified design properties and, consequently, impair active or passive safety.

Any liability and warranty for damage resulting from the use of parts other than the original spare parts and accessory parts is excluded.

Have at least the following information about the nutrunner to hand to enable quick and easy processing:

- Client
- Serial number of offset gear
- Desired spare part
- Desired quantity
- Desired mode of shipping

🔗 *'PLARAD® service' on page 4*



Offset gear maintenance by the user

Personnel: ☒ User

Perform the following maintenance steps before and after every use:

Cleaning

1. ➔



NOTICE!
Damage from improper cleaning!

Clean the offset gear with a soft cloth. Never use strong cleaning agents, water, brushes, sharp-edged tools or high-pressure cleaners.



WARNING!
Fire hazard!

When using isopropyl alcohol, do not clean the offset gear near ignition sources. Do not smoke. Let it evaporate.

Surfaces and markings

2. ➔

Check surfaces and markings for damage. Arrange for repairs if there is damage or illegible markings.

Checking components

3. ➔

Check all components (offset gear, head, interchangeable inserts, reducer pieces, offset gear braces, safety splints, circlips etc.) for damage, deformation and correct operation. Arrange for exchange if there is damage.

4. ➔



WARNING!
Danger of injury from faulty offset gear!

Do not use the offset gear if it is faulty. Have it repaired immediately or have the faulty parts exchanged. Contact PLARAD® service.

Lubricating

If an offset gear with grease nipples is used frequently, lubricate it once a month.

1. ➔

Squeeze Molykote LT165 or Molykote BR2 lubricant into the grease nipple with a grease gun.

2. ➔

Dispose of excess lubricant properly.

3. ➔

Clean the offset gear and work environment. Dispose of cleaning agents and excess lubricant in an environmentally sound manner.

3 Before you begin – safety

This section provides an overview of all safety aspects that are essential to the best possible protection of the personnel and the safe and trouble-free operation of the machine. Additional safety instructions for specific work tasks are contained in the sections regarding the individual life stages of the machine.

3.1 Symbols in this manual

Safety warnings

Safety warnings in this manual are indicated by symbols. Safety warnings are introduced by signal words that identify the severity of the hazard.

**DANGER!**

This combination of symbol and signal word indicates an immediate danger that will cause serious injury or death if not avoided.

**WARNING!**

This combination of symbol and signal word indicates a potential danger that may cause serious injury or death if not avoided.

**CAUTION!**

This combination of symbol and signal word indicates a potential danger that may cause minor or slight injury if not avoided.

**NOTICE!**

This combination of symbol and signal word indicates a potential danger that may cause damage if not avoided.

**ENVIRONMENT!**

This combination of symbol and signal word indicates potential pollution of the environment.

Safety warnings in step-by-step instructions

Safety warnings may apply to specific, individual instructions. Such safety warnings will be embedded in the list of instructions to maintain readability when executing the respective action. The signal words listed above are used.



Example:

1. ➔ Loosen the bolt.

2. ➔



CAUTION!
Risk of getting trapped by lid!

Close lid carefully.

3. ➔ Tighten the bolt.

Tips and recommendations



This symbol highlights useful tips and recommendations as well as information to help you use your equipment efficiently and without disruption.

Other markings

The following markings are used in this manual in order to highlight instructions, outcomes, lists, references and other elements:

Marking	Explanation
➔	Step-by-step instructions
⇒	Outcomes of steps
§	References to sections of this manual and to other applicable documents
■	Lists without a fixed order
[Button]	Controls (e.g. buttons, switches), indicators (e.g. signal lamps)
'Display'	Display elements (e.g. on-screen buttons, assignment of function keys)
⚠	Basic instructions for handling the manual and the tool

3.2 Symbols on the nutrunner

Overview DA3

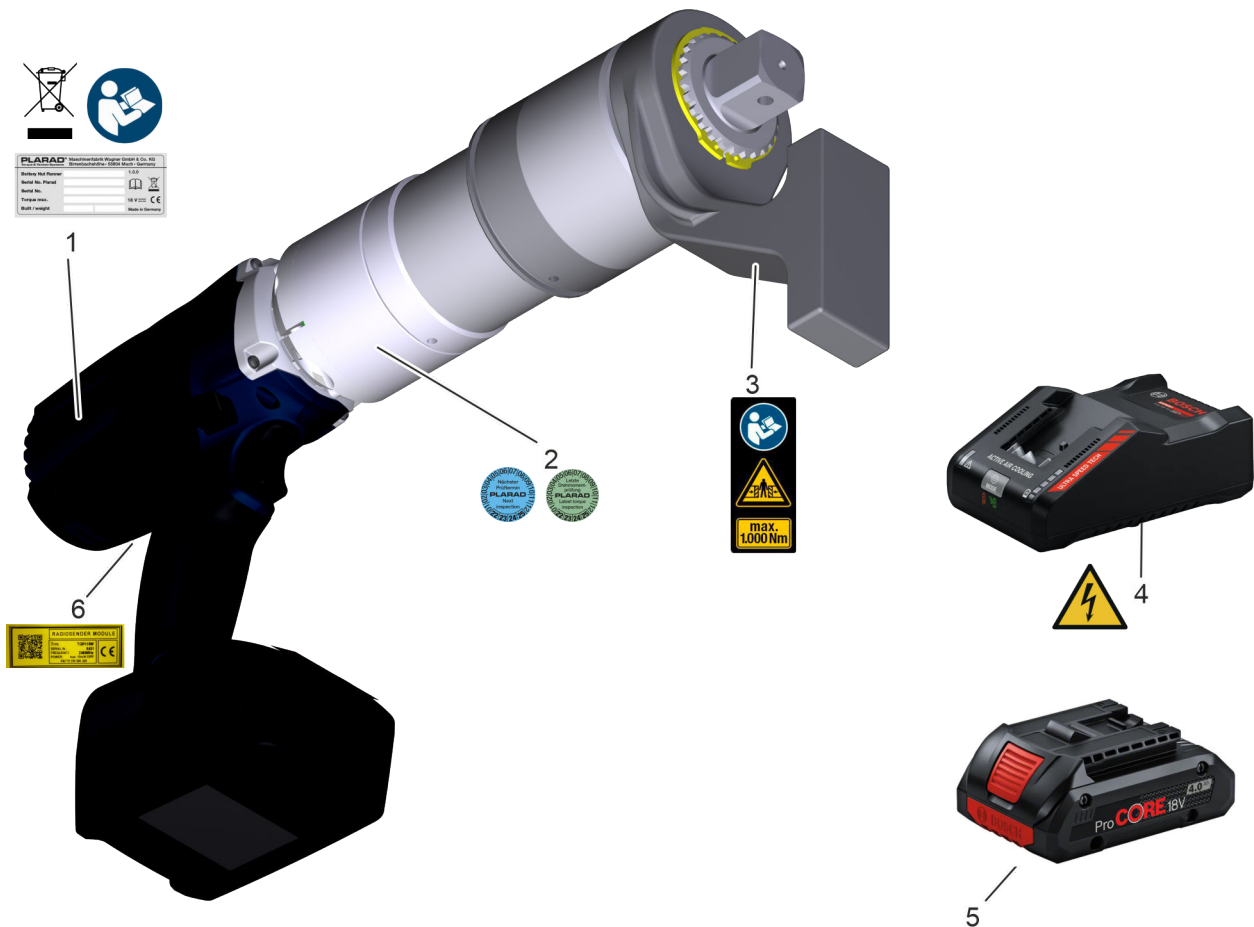


Fig. 25: Overview of symbols

- | | | |
|---|--------------------------------------|--|
| 1 | Nutrunner rating plate | |
| 2 | Test badges | |
| 3 | DA3 reaction arm | |
| 4 | Battery charger rating plate | |
| 5 | Battery rating plate | |
| 6 | Notes on the radio module, device ID | |

Additional markings on DA3motion

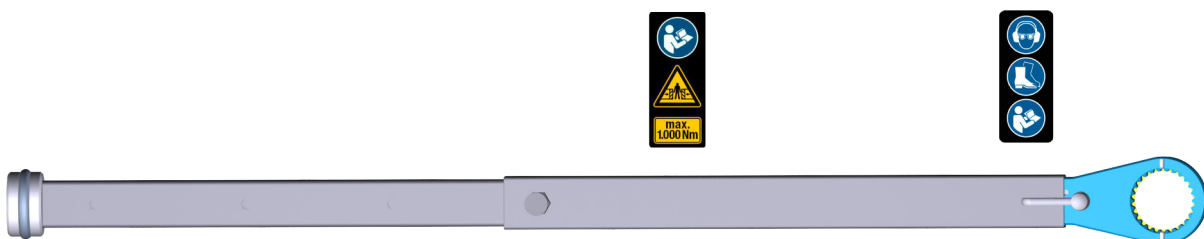


Fig. 26: Overview of symbols for the DA3motion reaction arm

- | | | |
|---|--|--|
| ■ | | |
| ■ | | |



Illegible signage



WARNING!

Danger in the event of illegible signage!

Over time, signs and stickers can become dirty or be rendered unrecognisable by other means, such that hazards cannot be recognised and necessary operating instructions cannot be followed. This creates a danger of injury.

- Keep all safety notices, warnings and operating instructions in a clearly legible state at all times.
- Replace damaged signs and stickers immediately.

The following symbols and information notices are located on the nutrunner:

Voltage



The equipment marked in this way is supplied with electrical energy.

Do not open the nutrunner.

Danger of crushing



Keep your hands away from areas bearing this warning.

There is a danger of body parts being crushed, pulled in or otherwise injured.

It is necessary to pay greater attention when performing work at the marked locations.

Follow the manual



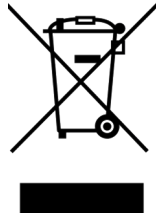
Read the operating instructions prior to using the nutrunner.



Safety shoes protect the feet from crushing, falling parts and from slipping on slippery ground.

Hearing protection is used to protect against hearing damage caused by noise.

Separate collection



Do not dispose of waste electronic and electrical equipment marked with this symbol in household waste.

Test badges



The test badges state the dates of the respective tests.

Date of the next PLARAD[®] inspection



For nutrunners with certificate:

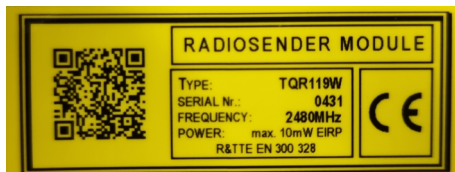
Date of the last torque inspection

Reaction arm



The stated value indicates the maximum permissible torque for the reaction arm.

Radio module

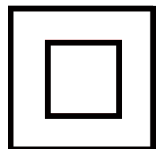


Notes on the radio module:

- Type
- Serial number
- Frequency
- Transmission power

The nutrunner's '*SERIAL no.*' (device ID) is used when registering for data transfer.

Protection class II



This symbol indicates protection class II. Equipment of protection class II has reinforced insulation between active and touchable parts.

Use only in enclosed spaces



The charger may only be used in enclosed spaces. Keep away from moisture.

If water penetrates a charger, the risk of electric shock increases.



Battery type ProCORE18V



Protect the battery from heat, e.g. from prolonged exposure to sunlight, fire, dirt, water and moisture. There is a danger of explosion and short circuit.



Do not charge the damaged batteries. There is a danger of explosion and short circuit.

3.3 Intended use

DA3power, DA3docu, DA3control

The battery nutrunner DA3 is a hand-held tool and may only be used for tightening and loosening bolted connections within the defined specifications (↪ *Chapter 20 'Technical data' on page 123*).

The nutrunner may only be used in a commercial setting and must not be used in a potentially explosive atmosphere.

The nutrunner may only be used in a dry environment.



WARNING!

Danger of injury due to unadjusted torque levels!

The assignment of torque level (power level) and torque was determined on a test joint according to ISO 5393 (medium joint). If these values do not correspond to the actual fastening operation, this could result in injuries and damage.

- Determine the specific fastening operation and adjust the torque levels.

↪ *Chapter 4 'Determining the fastening operation' on page 74*

DA3motion

The battery nutrunner DA3*motion* is a hand-held tool and may only be used for opening and closing fittings and as a moving machine within the defined specifications (↪ *Chapter 20 'Technical data' on page 123*).

The nutrunner may only be used in a commercial setting and must not be used in a potentially explosive atmosphere.

The nutrunner may only be used in a dry environment.



WARNING!

Danger of injury due to unadjusted torque levels!

The torques of the application may vary significantly from the torque values in the torque selection diagram. This could result in injuries and property damage.

- Make your selection with great care.
- Determine the specific application and adjust the torque levels.

Intended use includes compliance with all of the stipulations in this manual.



3.4 Misuse

DA3power, DA3docu, DA3control

Any use beyond the intended use as well as any other use is considered misuse.



WARNING!

Danger in the event of misuse!

Misuse of the nutrunner can lead to dangerous situations.

- Never operate without the reaction arm.
- Do not operate the nutrunner as a driving motor.
- Do not operate the nutrunner in continuous operation.
- Never subject the nutrunner, bolts or accessories to loads exceeding the permitted torque.
- Never use to tighten pre-tightened bolts.
- Never operate unless properly braced.
- Never disregard protection ratings.
- Never operate outside the permissible environmental conditions.
- Never carry out fastening operations that have not been considered in the torque chart.
- Do not “pulse” (briefly start up the nutrunner multiple times).
- Never operate with batteries other than Bosch batteries of type ProCORE18V with 4 Ah battery capacity or more. The torque wrench detects non-validated batteries.
- Do not switch on in a damp environment.
- Never change the gear setting or setting levels during operation.

DA3motion



WARNING!

Danger in the event of misuse!

Misuse of the nutrunner can lead to dangerous situations.

- Never use the DA3motion for bolted connections.
- Never move the nutrunner to the end position at full speed. Reduce speed beforehand.
- Never operate without the reaction arm.
- Never operate the nutrunner in continuous operation.
- Never subject the nutrunner, fittings or accessories to loads exceeding the permitted torque.
- Never operate unless properly braced.
- Never disregard protection ratings.
- Never operate outside the permissible environmental conditions.
- Never process applications that are not accounted for in the torque selection diagram.
- Never operate with batteries other than Bosch batteries of type ProCORE18V with 4 Ah battery capacity or more.
- Do not switch on in a damp environment.
- Never change the gear setting during operation.

3.5 General power tool safety warnings

EN 62841-1, EN 62841-2-2

Safety instructions according to:

- EN 62841-1
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 1: General requirements
- EN 62841-2-2
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-2: Particular requirements for hand-held screwdrivers and impact wrenches

⚠ WARNING Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool” used in the safety instructions refers to mains-operated (corded) or to battery-operated (cordless) power tool.



3.5.1 Work area safety

- **Keep work area clean and well lit.**
Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.**
Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.**
Distractions can cause you to lose control of the power tool.

3.5.2 Electrical safety

- **Power tool plugs must match the outlet. Never modify the plug in any way.** Do not use any adapter plugs with earthed (grounded) power tools.
Unmodified plugs and matching outlets will reduce risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.**
There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.**
Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep the cord away from heat, oil, sharp edges or moving parts.**
Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.**
Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. Use of an RCD reduces the risk electric tool of electric shock.**
Use of an RCD reduces the risk of electric shock.

3.5.3 Personal safety

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.**
A moment of inattention while operating power tools may result in serious personal injury.
- **Use personal protective equipment. Always wear eye protection.**
Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.**
Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- **Remove any adjusting key or wrench before turning the power tool on.**
A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.**
This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear any loose clothing or jewellery. Keep your hair and clothing away from moving parts.**
Loose clothes, jewellery or long hair can be caught in moving parts.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.**
A careless action can cause severe injury within a fraction of a second.

3.5.4 Power tool use and care

- **Do not force the power tool Use the correct power tool for your application.**
The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn it on and off.**
Any power tool that cannot be controlled with the switch is dangerous and must be repaired.



- **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.**
Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Store unused power tools out of reach from children. Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.**
Power tools are dangerous in the hands of untrained users.
- **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.**
Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.**
Use of the power tool for operations different from those intended could result in a hazardous situation.
- **Keep handles and grasping surfaces dry, clean and free from oil and grease.**
Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

3.5.5 Battery tool use and care

- **Recharge only with the charger specified by the manufacturer.**
A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- **Use power tools only with specifically designated battery packs.**
Use of any other battery packs may create a risk of injury and fire.
- **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another**
Shorting the battery terminals together may cause burns or a fire.
- **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.**
Liquid ejected from the battery may cause irritation or burns.

- **Do not use a battery pack or tool that is damaged or modified.**
Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.
- **Do not expose a battery pack or tool to fire or excessive temperature.**
Exposure to fire or temperature above 130 °C may cause explosion.
- **Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions.**
Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.

3.5.6 Service

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.**
This will ensure that the safety of the power tool is maintained.
- **Never service damaged battery packs.**
Service of battery packs should only be performed by the manufacturer or authorized service providers.

3.6 Safety instructions for battery charger

The following safety instructions apply specifically to the battery charger.



Read all safety information and instructions. Failure to comply with the safety information and instructions could cause electric shock, fire and/or serious injuries.

Store these instructions in a safe place.

Only use the charger if you can fully assess all functions and carry them out without restrictions or if you have received appropriate instructions.

- **This charger is not intended for use by children and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge. This charger can be used by children aged from eight years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are supervised by a person responsible for their safety or have been instructed by this person in safe handling of the charger and understand the associated dangers.** Otherwise, there is a risk of incorrect operation and injury.
- **Supervise children during use, cleaning and maintenance.** This ensures that children do not play with the charger.



- **Only charge Bosch Li-ion batteries or batteries of AMP-Share partners with a capacity of 1.3 Ah or more. The battery voltage must match the battery charging voltage of the charger. Do not charge any non-rechargeable batteries.** Otherwise, there is a risk of fire and explosion.
DA3 power Bosch batteries of type ProCORE18V with 4 Ah battery capacity or more can be used with the PLARAD[®] nutrunner.
- **Only use the charger in closed rooms and keep it away from moisture.** If water penetrates a charger, the risk of electric shock increases.
- **Keep the charger clean.** There is a danger of electric shock due to soiling.
- **Check the charger, its cable and its plug. Do not use the charger if you notice any damage. Do not open the charger yourself and have it repaired only by Bosch or by authorised service centers and only with original spare parts.** Damaged chargers, cables and plugs increase the risk of electric shock.
- **Do not operate the charger on an easily flammable surface (e.g. paper, textiles etc.) or in a flammable environment.** The charger heats up during the charging process, which poses a risk of fire.
- **Do not cover the ventilation slots on the charger.** The charger may otherwise overheat and no longer function properly.
- **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- **Fumes may also escape if the battery is damaged and used improperly.** Supply fresh air and consult a doctor if you have any complaints. The fumes can irritate the respiratory tract.
- **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If the fluid gets into your eyes, seek additional medical attention.** Liquid ejected from the battery may cause irritation or burns.

3.7 Residual risks

The following section outlines the residual risks potentially posed by the nutrunner even when it is used as intended.

To reduce the risks of personal injury and property damage and to avoid dangerous situations, observe the safety instructions listed here and the safety instructions in the other sections of this manual.

3.7.1 Electrical dangers

Electrical current



DANGER!

Danger of death due to electric shock!

Touching live parts poses an immediate danger of death due to electric shock. Damage to the insulation or individual components can be life-threatening.

- Do not open the nutrunner.
 - If the housing is damaged, disconnect the battery from the nutrunner immediately and arrange for repair.
 - Never operate the nutrunner if the trigger is faulty.
 - Keep moisture away from live parts. Moisture can cause short circuits.
 - Never operate a damaged nutrunner.
 - Only operate the nutrunner with Bosch batteries of type ProCORE18V with 4 Ah battery capacity or more.
 - Ensure that the power supply complies with local regulations.
 - Never make modifications to the nutrunner.
 - Never operate after the inspection period has elapsed. See the test seal for the date of the next test.
 - Never operate in a potentially explosive atmosphere.
 - Keep away from moisture, liquids, steam, dust and coarse contamination.
- Do not switch on in a damp environment or in the rain.



Battery charger



DANGER!

Danger of death from incorrect handling of the battery charger!

Incorrect handling of the battery charger can be life-threatening.

- Do not open the battery charger.
- If the housing is damaged, disconnect the battery charger from the power supply immediately and arrange for repair.
- Operate exclusively with compatible batteries.
- Keep moisture away from live parts. Moisture can cause short circuits.
- Never operate the battery charger with a mains voltage and mains frequency other than those specified on the rating plate.
- Never put a damaged battery charger, a damaged power plug or a damaged power cord into service.
- Never cover the ventilation slots on the battery charger during operation.
- Ensure that the power supply complies with local regulations.
- Never make modifications to the battery or battery charger.
- Never modify the power plug or power cord for the battery charger.
- Have the power cord of the battery charger replaced exclusively by the manufacturer or by personnel commissioned by the manufacturer.
- Only operate the battery charger on suitable power sockets.
- Never operate after the inspection period has elapsed. See the test seal for the date of the next test.
- Never operate in a potentially explosive atmosphere.
- Keep away from moisture, liquids, steam, dust and coarse contamination.
Do not switch on in a damp environment or in the rain.
- If possible, operate the battery charger with a residual current-operated circuit breaker installed.
- When charging the battery charger with mobile power generators, ensure continuous and constant compliance with the specified values for voltage, frequency, sufficient power and earthing.

Batteries



WARNING!

Danger of death due to fire, explosion, smoke and toxic gases if batteries are handled incorrectly!

Incorrect handling of rechargeable batteries can result in fire, explosions and electric shock. Escaping gases or smoke can lead to poisoning and suffocation.

- Never charge batteries.
- Only use and charge batteries supplied by the manufacturer.
- Only use the charger included in the delivery to charge the battery.
- Only insert a battery with the correct polarity (+/-) in the charger. If the battery cannot be inserted properly, never use force to insert it.
- Never short-circuit the contacts (positive and negative terminal) of the battery.
- Never modify, drill, open, disassemble or subject the battery to mechanical loads.
- Never charge batteries that are clearly damaged. Do not put inflated, dropped or damaged batteries into service. Dispose of them in the proper manner.
- Never expose the battery to moisture or humidity (rain, saltwater, liquids). A humid or moist battery must not be used or charged under any circumstances.
- Avoid permanent damage due to deep discharge of the lithium-ion battery.
- Never use, charge or store the battery in places where there is a potentially explosive atmosphere or where high temperatures could occur.
- Charge lithium-ion batteries in a dry state, at room temperature and in a fireproof location.
- Do not expose to extreme heat. Do not store in the sun or in an overheated car.
- Do not throw the battery into a fire.
- Only use approved chargers.
- Only operate in the designated nutrunners.
- Do not inhale escaping gases or smoke.
- Dispose of in an environmentally sound manner.
- Transport lithium-ion batteries in accordance with the currently applicable legal regulations pertaining to dangerous goods.



EMC



WARNING!

Danger of injury due to very strong electromagnetic radiation!

Very strong electromagnetic radiation can cause the nutrunner to malfunction, resulting in serious injuries and major property damage.

- Do not operate in the immediate vicinity of strong transmitting antennas.
- Suspend use immediately and remove the battery as soon as there are signs of malfunctions.

3.7.2 Mechanical dangers

Moving components and rotational movements



WARNING!

Danger of injury due to moving components!

Moving components can cause serious injuries. There is a danger of being pulled in during rotational movements.

- During operation, do not reach into moving components or handle moving components. Do not touch the reaction arm, drive shaft, impact wrench socket, nut and other moving attachment parts.
DA3motion: Grip the reaction arm securely at the outermost end if it cannot be braced against an on-site structural element. Only press the trigger slowly. Do not touch the drive shaft, extension or other moving attachment parts. Do not reach into the handwheel adapter.
- *DA3motion*: Never use your body or body parts to brace the reaction arm.
At all times, protect your head against being hit by the reaction arm.
- Secure the extension (accessory for *DA3motion*), reaction arm and impact wrench socket properly with the circlips prior to commissioning.
- *DA3motion*: Never move to the end position at full speed. Always reduce the speed beforehand.
- Do not switch on the nutrunner while carrying it. Set the direction of rotation setting to the middle position. Transport the nutrunner in the transport case.
- Never open the nutrunner.
- Wear tight fitting work clothing with a low tear resistance
- Wear safety goggles.
- Wear a protective cap (hair net) to prevent long hair from being pulled in by rotating parts.



Incorrect bracing and overloading



WARNING!

Danger of injury from incorrect bracing, overloading, breakage!

If the torque wrench is not sufficiently braced, it can slip out of place and be ejected. Any point contact between the reaction arm and the corners of a bracing element can cause considerable forces to act on the torque wrench. Incorrect bracing or overloading of the reaction arm, bolts or other components can result in serious injuries and damage to the torque wrench.

- Do not use the torque wrench if the particulars of the fastening operation are not entirely clear.
- Note the torque chart.
- Check the reaction arm for visible damage prior to use. Do not use the reaction arm if it is damaged.
- Brace the reaction arm correctly. Note the instructions regarding bracing.
 ↳ Chapter 11 'Bracing the reaction arm' on page 99
 ↳ Chapter 12 'Using the DA3motion reaction arm' on page 101
- Always ensure that the reaction arm is in full contact with the surface.
- Use only PLARAD[®] original reaction arms.

Reaction arm



The reaction arms are designed for a maximum permissible load.

Observe the stickers on the reaction arm and data sheet.

Crushing



WARNING!

Danger of crushing when bracing and due to high weight!

During operation, very strong forces act on the nutrunner, reaction arm, bracing surface and bolts. There is a danger of crushing between the reaction arm and bracing surface during tightening and loosening. The high weight of the nutrunner can cause crushing if it falls down.

- Handle the nutrunner with care and as intended.
- Give due consideration to the weight during transport and during all work.
- Have work performed only by persons who are physically capable of using the nutrunner safely despite its high weight.
- Do not reach between the reaction arm and bracing surface.
- Secure the nutrunner against falling when working at height.
- Wear safety shoes.
- Also wear an industrial safety helmet for overhead work.

End positions of fittings



WARNING!

Danger of injury and property damage due to strong forces in the end positions!

If the end positions of a fitting (fully open/closed) are approached at high speed or high torque, this could destroy the fitting, nutrunner and attachment parts of the nutrunner and cause serious injuries.

- Always approach end positions with care.
- Use the potentiometer function of the DA3*motion* trigger carefully. Use a low speed.



Dirt and scattered objects



CAUTION!

Danger of injury from falling over dirt and scattered objects!

People may slip on or stumble over dirt and scattered objects. Falling may cause injuries.

- Always keep the work area clean.
- If objects are no longer needed, remove them from the work area and especially if such objects are at ground level.
- Mark unavoidable stumbling points with hazard tape.
- Keep handles and gripping surfaces of the nutrunner dry, clean and free of lubricants. Clean them immediately if they are dirty.

Impact wrench sockets



NOTICE!

Property damage due to incorrect use of impact wrench sockets!

- Use impact wrench sockets suitable for the bolting process without exception.
- Ensure a flawless, positive connection between the nutrunner, impact wrench socket and bolt. Ensure that there is a positive connection between the tool holder (square drive of the nutrunner) and square drive of the impact socket wrench.

Gear setting



NOTICE!

Damage to property due to gear setting!

Changing the setting during operation causes property damage including destruction of the nutrunner. Changing the gear causes mechanical damage to the gearbox.

- Only make changes to the gear settings when the nutrunner is at a standstill.

Conserving materials



In order to prevent premature damage to tools and accessories, only use the nutrunner up to 80% of the maximum torque of the nutrunner during continuous use, if possible to do so.

Especially during loosening, loads could occur that have adversely effect durability.

Torques in excess of 80% (based on the maximum torque of the nutrunner) should only be used in exceptional cases.

3.7.3 Noise, vibrations and ergonomics

Noise



WARNING!

Danger of injury from noise!

The noise level of 54 dB(A) (3 dB(A) measurement uncertainty) occurring in the work area can cause hearing damage.

Depending on how the nutrunner is used, emission values may differ from these measured values and cause injury.

- Measure noise loads under the actual conditions of use. If the emission values are different, take additional precautions.
- Make hearing protection available.
- Recommendation: Wear hearing protection.

Vibrations



WARNING!

Danger of injury from vibrations!

The measured total vibration value does not exceed 2.5 m/s². However, depending on how the nutrunner is used, vibrations may differ from these measured values and cause injury.

- Estimate vibration loads occurring under the actual conditions of use. Take into account the relative impact of the various operating cycles. If loads are higher, take additional precautions.
- Brace the nutrunner correctly.
- Use the pistol grip and, if present, the carrying handle properly.
- If there are notable vibration loads, stop working.

**Hot surfaces****WARNING!****Danger of injury from hot surfaces!**

The surfaces of components, such as the drive motor or gearbox, could heat up significantly during operation. Surface temperatures of up to 80°C could develop. Contact between the skin and hot surfaces will result in severe burns to the skin.

- Always wear protective work clothing and safety gloves when working in the vicinity of hot surfaces.

Inadequate ergonomics**CAUTION!****Damage to the musculoskeletal system due to the high weight of the nutrunner!**

Lifting and carrying heavy loads can cause permanent damage to the musculoskeletal system.

- Ensure stable footing and sufficient room for movement.
- Keep your back as straight as possible. Do not lift with your upper body hunched over, bent forward, or with your back arched.
- Lift the nutrunner as close to your body as possible.
- Avoid one-sided loading. Avoid twisting your spine. Do not carry one-handed.
- Never move the nutrunner abruptly.
- Use the safety swivel joint to rotate the trigger in such a way that it is possible to work without any discomfort.
- Use suitable auxiliary devices (e.g. lifting eyes).

Inattention



WARNING!

Danger of injury due to distraction, inattention or irresponsible use!

Distraction, inattention or irresponsible use can result in losing control of the nutrunner and thus cause serious injuries.

- Always keep the work area well-lit.
- Keep children and unauthorised persons away.
- Work purposefully and in a responsible manner. Do not allow yourself to be distracted.
- Do not work if you are tired or under the influence of drugs, alcohol or medicine.
- Do not be lulled into a false sense of security. Do not disregard the safety information and instructions in this manual, even if the nutrunner seems familiar to you after frequent use.
- When the nutrunner is not in use, always store it in the transport case out of reach from children and other unauthorised persons.
- Wear the prescribed personal protective equipment.



Faulty safety devices



WARNING!

Danger of death from inoperative safety devices!

If safety devices or safety functions are inoperative or disabled, there is a danger of serious injuries.

- Prior to commencing work, check that all safety devices are operative and correctly installed.
- Never disable or bypass safety devices or safety functions.

The nutrunner is equipped with the following safety devices and safety functions:

- Automatic safety swivel joint
The safety swivel joint prevents reaction forces acting on the wrist.
- Automatic release function
Load on the gearbox is relieved after the fastening operation.
The nutrunner can be removed more easily.
- Insulation of the power cord for the charger
- Protection rating 2
- Insulated handle
- Overheating protection for drive motor
The drive motor switches off at the maximum temperature.
- Undervoltage detection
The nutrunner switches off if there is undervoltage (loss of power).
- Automatic start-up protection
The nutrunner is protected against automatic start-up when the power supply is switched on.
- Start-up protection/transport position
The nutrunner is protected against unintentional start-up in the middle position of the direction of rotation setting.
- Reaction arm circlip
The reaction arm is protected against outward ejection by means of a circlip.
- Spring clip for impact wrench socket
The impact wrench socket is secured against outward ejection by means of a spring clip on the square drive of the nutrunner.
- Acoustic signal
Indicates that a fastening operation has been completed correctly or indicates a faulty fastening operation.
- Password protection
The nutrunner is password-protected to prevent unauthorised use.
Making changes through the display requires entering the correct password.
The nutrunner configuration is access-protected by different password levels.
- Dual trigger
The nutrunner starts only when both triggers are pressed simultaneously.

3.7.4 Data protection

Personal data



The nutrunner can store user data, bolting data and GPS positions.

Observe all current local data protection regulations when using, storing and disclosing this data.

Delete all data before passing on the nutrunner to third parties and before disposal.

*PLARAD[®] data protection declaration 
www.plarad.de/datenschutzerklaerung/*

Data security



The nutrunner does not have any security-relevant components that can be compromised from the outside.

The risk potential from cyber attacks is negligible.



3.8 Operator's obligations

The nutrunner is used in the commercial sector. The operator of the nutrunner is therefore subject to the statutory obligations pertaining to occupational safety.

In addition to the safety instructions in this manual, the applicable safety, occupational safety and environmental protection regulations for the nutrunner's area of application must be adhered to.

The following specifically applies in this regard:

- The operator must familiarise themselves with the applicable occupational safety regulations and, as part of a risk assessment, determine additional dangers that arise as a result of the specific operating conditions at the operating site of the nutrunner. This risk assessment must be implemented in the form of safety instructions for operation of the nutrunner.
- During the entire time the nutrunner is in use, the operator must check whether the safety instructions they have compiled reflect current regulations and, if necessary, the operator must change the instructions accordingly.
- The operator must clearly define and regulate responsibilities for all work on and with the nutrunner. The authority and responsibilities of personnel regarding operation, set-up, maintenance and repair must be clearly defined.
- The operator must reliably check the use of the nutrunner and ensure that only commissioned and instructed personnel work with the nutrunner. Only allow personnel to be trained or instructed and those undertaking vocational training to work on the nutrunner under the supervision of an experienced person.
- The operator must ensure that the nutrunner is not opened and that no work is performed on the electrical equipment by unauthorised persons.

Work on electrical equipment may only be performed by an electrician or by trained persons under the guidance and supervision of an electrician. Adhere to electrotechnical regulations for safety reasons.

- The work environment, method of use and specific conditions of the respective bolting job may result in vibration and noise emissions to differ from those indicated.

Measure the actual noise emissions.

Estimate vibration loads occurring under the actual conditions of use. Take into account the relative impact of the various operating cycles.

The operator must ensure that the applicable safety, occupational safety and environmental regulations are observed and that their limits are not exceeded. In the event of additional loads or stresses, define and implement additional safety precautions.

The operator is also responsible for ensuring that the nutrunner is in technically flawless condition at all times. The following applies for this reason:

- The operator must ensure adherence to the maintenance intervals described in this manual.
- The operator must have the functionality and integrity of all safety devices checked on a regular basis.

Data protection

When using the nutrunner, data may be recorded.

The operator must ensure that saving and processing of personal data complies with the locally applicable data protection laws.

3.9 Who is permitted to use the nutrunner?



WARNING!

Danger of injury if personnel are insufficiently qualified!

If unqualified personnel perform work on or with the nutrunner or if such persons are present in the danger zone while work is being performed, dangers arise that could cause serious injuries and considerable property damage.

- Have all tasks performed by suitable qualified personnel without exception.
- Keep unqualified personnel away from the danger zones and work areas.

User

The user of the nutrunner has the requisite knowledge and the requisite training for handling electrical tools. Furthermore, as part of training provided by the operator, the user was trained in relation to the tasks assigned to them and the potential dangers associated with improper conduct.

The user is trained in how to use the personal protective equipment, is familiar with the most important specifications, situations and information relating to the specific application and is physically capable of using the nutrunner safely despite its weight. This includes overhead work, working at heights, etc.

The user must be older than the legally permissible minimum age.

Tasks that go beyond operation during normal operation may only be carried out by the user if this is specified in this manual and the operator has expressly entrusted them with the performance of such tasks.

The user knows who their supervisor is, can contact their supervisor if they have questions or in an emergency, and is able to communicate with their supervisor.

The user is familiar with all residual risks and is trained in the practical handling of the nutrunner.

Qualified nutrunner personnel

Qualified nutrunner personnel are trained for the specific task area in which they work and are familiar with the relevant standards and regulations.

Due to their professional training and experience, qualified nutrunner personnel are able to perform work with the nutrunner, recognise and avoid potential dangers independently and convey this to users.



Specific capabilities of qualified nutrunner personnel include:

- Identify bolting processes.
- Prepare the nutrunner. Select the appropriate impact wrench socket.
- Use all functions of the nutrunner.
- Create passwords for users.
- Uphold safety, occupational safety and health protection when using the nutrunner and convey this to users.
- Identify damage on the nutrunner and arrange for repairs or get in touch with the manufacturer.
- Instruct users in the proper manner.

Operator

The operator is the person who operates the nutrunner for commercial or economic purposes themselves, or makes it available for a third party to use, and who bears legal responsibility for the product vis-à-vis protection of personnel and third parties during operation.

🔗 Chapter 3.8 'Operator's obligations' on page 69

PLARAD[®] service

Certain work may only be performed by PLARAD[®] service or by personnel authorised by Maschinenfabrik Wagner GmbH & Co. KG. Other personnel are not authorised to perform this work. Contact PLARAD[®] service or authorised PLARAD[®] partners regarding performance of the work that is due.

Contact: www.plarad.de

🔗 Chapter 17.3 'Having service tasks performed by the manufacturer' on page 117

Unauthorised persons



WARNING!

Danger of death for unauthorised persons due to dangers in the danger zone and work area!

Unauthorised persons, who do not meet the requirements described in this manual, are not aware of the dangers in the danger zone. There is therefore a danger of serious injuries or even death for unauthorised persons.

- Keep unauthorised persons away from the danger zone and work area.
- If in doubt, address the respective persons and instruct them to leave the danger zone and work area.
- Suspend work while there are unauthorised persons loitering in the work and danger zone.

3.10 Personal protective equipment

Safety gloves



Safety gloves are used to protect the hands from friction, abrasions, punctures or deeper injuries and from contact with hot surfaces.

Safety shoes



Safety shoes protect the feet from crushing, falling parts and from slipping on slippery ground.

Hearing protection



Hearing protection is used to protect against hearing damage caused by noise.

Safety goggles



Safety goggles are used to protect the eyes from airborne parts and liquid jets.

Protective work clothing



Protective work clothing is tight fitting work clothing with a low tearing resistance, with tight sleeves and without any protruding parts.

Protective cap



The protective cap (hairnet) is used to protect the hair from being pulled in by rotating and moving parts, such as bolts.

The wearing of a protective cap is mandatory if your hair is longer than the circumference of the moving shaft.

Industrial safety helmet



Industrial safety helmets are used to protect the head from falling objects, suspended and swinging objects and from bumping into stationary objects.

An industrial safety helmet must be worn for overhead work involving the nutrunner.



3.11 Environmental protection



ENVIRONMENT!

Danger of pollution from incorrect handling of environmentally hazardous substances!

If environmentally hazardous substances are handled incorrectly, especially if such substances are disposed of incorrectly, this could cause significant damage to the environment.

- Always adhere to the instructions given below in relation to the handling of environmentally hazardous substances and the disposal thereof.
- If environmentally hazardous substances accidentally enter the environment, adopt suitable measures immediately. If in doubt, notify the competent local authority of the damage and inquire about suitable measures to be taken.

The following environmentally hazardous substances are used:

Batteries and rechargeable batteries

Batteries and rechargeable batteries contain toxic heavy metals. They are subject to special waste treatment and must be deposited at municipal collection points or be disposed of by a specialist company.

Lubricants

Lubricants, such as greases and oils, contain toxic substances. Such substances must not enter the environment.

The nutrunner must not be lubricated by the operator. If lubricants do however escape, arrange for them to be disposed of by a specialist disposal company.

Electrical and electronic components

Electrical and electronic components contain toxic materials. These components must be collected separately and deposited at municipal collection points or be disposed of by a specialist company.

4 Determining the fastening operation

Information about bolted connections

The torque wrench reacts differently to “soft” and “hard” bolted connections. Even “soft” and “hard” bolted connections react individually to each other, as the thread and lubrication state can vary from bolted connection to bolted connection.

The torque setting of the nutrunner must be made for each fastening operation individually and checked directly during the fastening operation.

Use a rotating, electrical measuring transducer or a calibrated torque spanner for checking purposes.

Personnel: ■ Operator

The torque wrench can only be used safely and properly if the particulars of the fastening operation are known.

Determining the fastening operation

1. ➤ Determine the fastening operation. To do so:

Determine a suitable bracing surface and select a suitable reaction arm for proper bracing.

Determine the appropriate impact wrench socket.

Determining torque and angles

2. ➤ Determine the requisite torque and angles for the fastening operation.

To do so, for example, measure the torque of a fastening operation applied using a mobile measuring unit (not included in the scope of delivery; see available accessories).

Providing accessories

3. ➤ Make further accessories (bracing aids, suspension etc.) available according to the situation.

5 DA3motion: Determining the application

The torque setting of the nutrunner must be made for each application individually and checked directly during the application.

Use a rotating, electrical measuring transducer or a calibrated torque spanner for checking purposes.

Personnel: ■ Operator

The nutrunner can only be used safely and properly if the application is known.

1. ➤ Determine the application. To do so:
Determine a suitable bracing surface and set up bracing accordingly.
2. ➤ Determine the requisite torque for the application.
To this end, measure the applied torque when undoing and closing a fitting, e.g. using the mobile measuring unit (not included in the scope of delivery; see available accessories).
3. ➤ Make further accessories (bracing aids, suspension etc.) available according to the situation.

6 Preparing the nutrunner

Unsecured or overloaded components



WARNING!

Danger of injury due to unsecured or overloaded components!

Unsecured components or components subjected to loads exceeding the intended use could result in uncontrolled nutrunner behaviour, outward ejection of components or breakage and thereby cause serious injuries.

- Carefully determine all parameters for a bolting process.
- Ensure that all components are used within the scope of their intended use.
Never exceed load limits (e.g. maximum torques).
- Only use impact wrench sockets.
- Never put the nutrunner into operation if the reaction arm or impact wrench socket are unsecured.

- Personnel: ■ Qualified nutrunner personnel
- Protective equipment: ■ Protective work clothing
■ Safety shoes

Prior to being used for tightening or loosening, the bolting process must be known and the nutrunner must be prepared.

1. ➔ Ensure that the bolting process has been determined
✂ *Chapter 4 'Determining the fastening operation'*
on page 74 and that all parameters are available.

2. ➔



NOTICE!

Property damage to the O-ring!

Carefully slide the O-ring (Fig. 27/3) onto the serration (Fig. 27/4) on the nutrunner.

3. ➔ Push the reaction arm (Fig. 27/2) onto the serration.

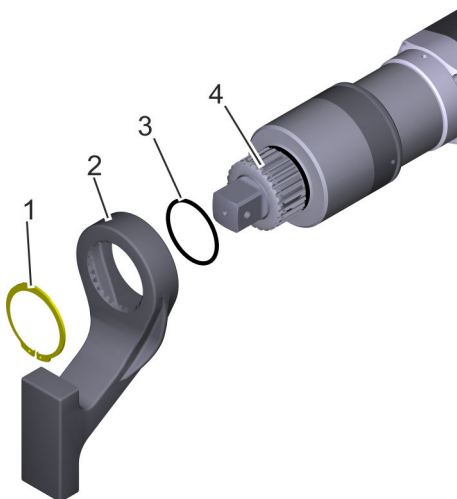


Fig. 27: Securing the reaction arm

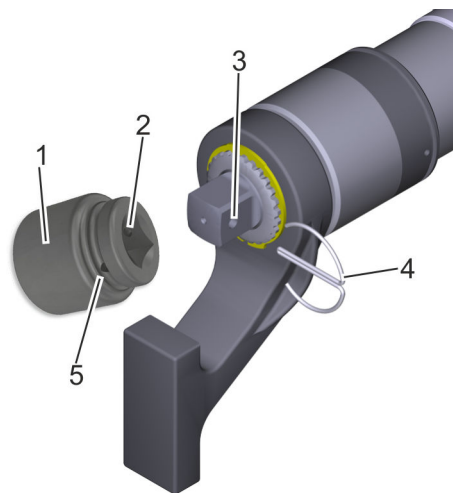
- 1 Circlip
- 2 Reaction arm
- 3 O-ring
- 4 Serration



Fig. 28: Circlip pliers

- 4.** → Slide on the circlip (Fig. 27/1) with the aid of the circlip pliers (Fig. 28) and clamp it.

⇒ The reaction arm is secured.



- 5.** → Attach the impact wrench socket (nut) to the square drive on the nutrunner and secure it.

To do so, push the impact wrench socket (Fig. 29/1) fully onto the square drive (Fig. 29/3). The bores (Fig. 29/2, 3 and 5) for securing must be on top of each other.

Fully insert the spring clip (Fig. 29/4) in all bores (Fig. 29/2, 3 and 5) until the ring is fully seated.

⇒ The impact wrench socket is secured.

- 6.** → Attach further accessories if such accessories have been determined for the bolting process.

Fig. 29: Securing the impact wrench socket

- 1 Impact wrench socket
- 2 Bore
- 3 Square drive with bore
- 4 Spring clip for impact wrench socket
- 5 Bore

7 Preparing DA3motion

Unsecured or overloaded components



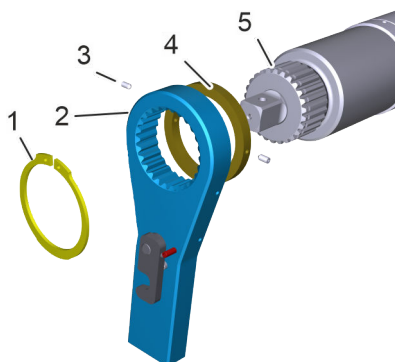
WARNING!

Danger of injury from unsecured or overloaded components!

Unsecured components or components subjected to loads exceeding the intended use could result in uncontrolled torque wrench behaviour, outward ejection of components or breakage and thereby cause serious injuries.

- Carefully determine all parameters for an application.
- Ensure that all components are used within the scope of their intended use.
Never exceed load limits (e.g. maximum torques).
- Never put the nutrunner into operation if the reaction arm is unsecured.

- Personnel: ■ Qualified nutrunner personnel
- Protective equipment: ■ Protective work clothing
■ Safety shoes



Prior to use, the application must be known and the nutrunner must be prepared.

- 1.** ➔ Ensure that the application has been determined and that all parameters are available.
- 2.** ➔ Carefully slide the spacer (Fig. 30/4) over the serration (Fig. 30/5) and onto the nutrunner.
- 3.** ➔ Secure the spacer with two screws (Fig. 30/3).
- 4.** ➔ Attach the top part of the reaction arm (Fig. 30/2) to the serration (Fig. 30/5).

Fig. 30: Securing the reaction arm

- 1 Circlip
- 2 Top part of the reaction arm
- 3 Safety bolt
- 4 Spacer
- 5 Serration



Fig. 31: Circlip pliers

- 5.** → Slide on the circlip (Fig. 30/1) with the aid of the circlip pliers (Fig. 31) and clamp it.

⇒ The reaction arm is secured.

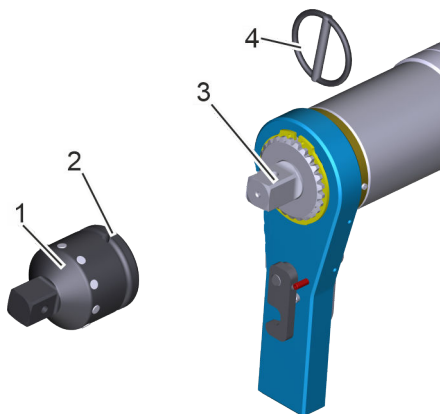


Fig. 32: Securing accessories

- 1 Accessories
- 2 Bores
- 3 Square drive with hole
- 4 Spring clip

- 6.** → Attach the accessory to the square drive on the nutrunner and secure it.

To do so, push the accessory (Fig. 32/1) fully onto the square drive (Fig. 32/3). The holes (Fig. 32/2 and 3) for securing must align above each other.

Fully insert the spring clip (Fig. 32/4) in all holes (Fig. 32/2 and 3) until the ring is fully seated.

⇒ The accessory is now secured.

- 7.** → Attach further accessories if such accessories are necessary for the application.

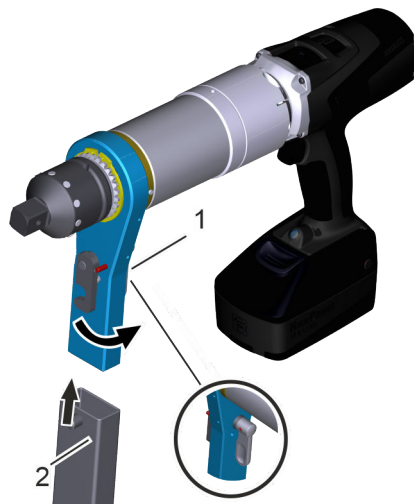


Fig. 33: Reaction arm

- 1 Lock
- 2 Middle part of the reaction arm

- 8.** → Turn the lever of the lock (Fig. 33/1).

- 9.** → Fully attach the middle part of the reaction arm (Fig. 33/2) and lock it.

⇒ The bolt (Fig. 33/1) is engaged correctly in the lock (Fig. 33/2).

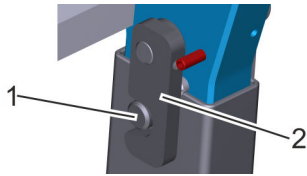


Fig. 34: Correct lock

- 1 Bolt
- 2 Lock

10. ➤



WARNING!
Danger of injury due to reaction arm coming loose!

Ensure that the lock is fully engaged.

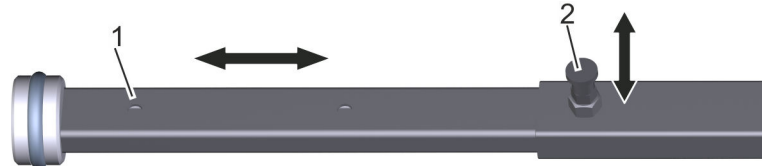


Fig. 35: Extending the reaction arm

11. ➤ Plug the bottom part of the reaction arm into the middle part. To do so, pull the locking bolt (Fig. 35/2), push the bottom part into the middle part as far as you wish, and let the locking bolt (Fig. 35/2) lock into place in one of the four lock-in holes (Fig. 35/1).

12. ➤



WARNING!
Danger of injury due to reaction arm coming loose!

Ensure that the reaction arm is fully engaged.



8 Supplying with energy

8.1 Battery care

Battery care instructions

In order to obtain the full performance, lithium-ion batteries (Li-Ion) require care.

Battery care rules

- The first charging process is crucial. Charge the battery fully prior to first use.
- Each battery has a limited number of charge cycles. For this reason, do not recharge the battery at every opportunity. Instead, wait until the charge status reaches between 10% and 20% capacity before recharging.
- If the battery is discharged below its nominal voltage, the battery could be damaged or destroyed. The batteries included in the delivery therefore have electronics that warn of deep discharge and switch off the torque wrench.
- Frequent overcharging can cause permanent damage to the battery. The charger automatically concludes the charging process if the battery is fully charged. Do not connect the battery again.
- The battery can only be charged at temperatures between 0°C and 35°C. To avoid damaging the battery cells, do not charge the battery when it is cold. Let it warm up to room temperature beforehand. Charge the battery at room temperature (18°C to 21°C).
- High temperatures damage the battery. Never leave the battery or the transport case in the car or in the sunshine on hot days. The lithium-ion battery loses capacity and performance capability at temperatures above +60°C.
- Do not store lithium-ion batteries empty or fully charged for a prolonged period of time. Optimum storage at a capacity of 40% to 50% and at temperatures of 0°C to 20°C.
- Store unused batteries in a cool but not cold location. Batteries also lose energy in an unused state. The energy loss for lithium-ion batteries is approx. 3% to 5% per month.
- If a lithium-ion battery is not used for a prolonged period of time, recharge the battery after 12 months at the latest.
- Always dispose of old and used batteries in an environmentally sound manner.

Storing the battery

Optimum storage temperature: 0°C to 20°C.

Lithium-ion batteries (Li-Ion) should not be stored empty or fully charged for a prolonged period of time. Optimum storage, which was determined in an extensive series of tests, is at 40% to 50% of capacity and at low temperatures, but not below 0°C. Due to self-discharge, recharging is required every 12 months at the latest.

Battery not in use for a prolonged period of time

Disconnect the battery from the nutrunner if the nutrunner will not be used for a prolonged period of time.

Even when the device is switched off, a small current can flow that leads to a deep discharge after a prolonged period of time. Deep discharge damages the battery and, in extreme cases, will destroy it.

Self-discharge

A charge loss of 3% to 5% per month is possible for lithium-ion batteries. The self-discharge is temperature-dependent and greater at high temperatures.

Deep discharge

The capacity of the battery is fully exhausted in the event of deep discharge. In such cases, the voltage drops to as low as 0 volt.

In the battery, chemical reactions take place on the electrodes. Such reactions can render them unusable. The battery loses considerable capacity and can potentially no longer be charged. For this reason, the battery must not be discharged below a type-dependent end-of-discharge voltage and must be recharged as quickly as possible.



Do not fully discharge lithium-ion batteries and lithium-ion polymer batteries.

Good lithium-ion batteries usually have extensive protection or monitoring circuits in the battery pack that prevent deep discharging/overcharging and explosion.

Temperature range for battery operation

Temperature range for use: -20°C to +50°C

Temperature range for charging: 0°C to +35°C.

The ideal temperature range for batteries is at room temperature.

A sensor in the battery ensures that no quick charging takes place outside this range.

Service life of batteries

Lithium-ion batteries can be charged up to 1,000 times (capacity-dependent). This value is only achieved under optimum conditions.

The number of cycles could decrease depending on battery treatment and care. The capacity decreases over the course of the service life.

Batteries should generally be replaced below 70% nominal capacity.

Memory effect, lazy battery effect

Lithium-ion batteries and lithium-ion polymer batteries can and may be recharged at any time. These batteries do not have any memory effect. It is only necessary to avoid frequent brief charging. Even full charging in several stages, with or without partial discharge in between stages, does no harm.

Lithium-ion batteries and lithium-ion polymer batteries must not be fully discharged.



8.2 Charing the battery

The first time



Charge the battery fully prior to first-time use.

Electrical current



DANGER!

Danger of death due to electric shock!

Touching live parts poses an immediate danger of death due to electric shock. Damage to the insulation or individual components can be life-threatening.

- If the housing is damaged, disconnect it from the power supply immediately and arrange for repair.
- Keep moisture away from live parts. Moisture can cause short circuits.
- Never operate with a mains voltage and mains frequency other than those specified on the rating plate.
- Ensure that the power supply complies with local regulations.
- Never modify the power plug or power cord.
- Only operate at suitable power sockets.
- Never operate after the inspection period has elapsed. See the test seal for the date of the next test.
- Keep away from moisture, liquids, steam, dust and coarse contamination.
Do not switch on outdoors, in a damp environment or in the rain.
- During operation with mobile power generators, ensure continuous and constant compliance with the specified values for voltage, frequency, sufficient power and earthing.

Battery charger

The batteries can be charged using the battery charger included in the scope of delivery.



Only compatible Bosch batteries of type Pro-CORE18V with 4 Ah battery capacity or more can be used in the nutrunner.

Setting up the battery charger

1. ➤ Set up the battery charger in a cool, dry place. Do not place on an easily flammable surface (e.g. paper, textiles etc.) or in a flammable environment. Make sure that the ventilation slots are not dirty or covered.
2. ➤ Connect to a power socket.
3. ➤ If necessary, press the *[Power Boost]* button.

[Power Boost] button



*The *[Power Boost]* button can also be pressed after inserting the battery.*

Inserting the battery

4. ➤ Carefully slide the battery onto the battery charger.
 - ⇒ The state of charge is detected automatically.

The charging process begins with the optimal charging current according to the battery temperature and voltage.

If all five LEDs of the battery charge status indicator light up green, the battery is fully charged.

 - ⇒ If there is a continuous red light, the temperature of the battery is outside the permissible charging temperature range.
 - ⇒ If there is a flashing red light, the battery or the charger is faulty.

Using the battery

5. ➤ Pull the battery off the battery charger.

8.3 Connecting the nutrunner to the battery

A charged battery needs to be inserted prior to using the nutrunner.

State of charge

1. ➤ Ensure that the battery is charged. Press the battery charge indicator button in order to check the state of charge.

Inserting the battery

2. ➤ Carefully slide the battery into the nutrunner until the locking mechanism clicks into place.
 - ⇒ The nutrunner is ready for use.

Replacing the battery

3. ➤ In order to remove the battery, press the battery release button and remove the battery.
Insert a charged battery.



9 Setting the nutrunner

Gear setting



NOTICE!

Damage to property due to gear setting!

Changing the gear setting during operation causes mechanical damage to the gearbox including destruction of the nutrunner.

- Only make changes to the gear settings when the nutrunner is at a standstill.

9.1 Using the direction of rotation setting and trigger

Operating the control unit

The control unit is operated using the direction of rotation setting and dual trigger 1.



Fig. 36: Right side pressed

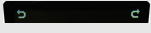
- Anti-clockwise direction of rotation setting selected
- Right side pressed



Fig. 37: Left side pressed

- Clockwise direction of rotation setting selected
- Left side pressed

Button	Direction of rotation setting Trigger	Result	Display
Start	Right or left side is pressed. Press dual trigger 1.	The control unit starts. The home screen is displayed with the parameters of the last fastening operation. The nutrunner can be used with the set values for screwing and loosening.	
–	Right-hand side is pressed (Fig. 36). Press dual trigger 1.	Scroll forwards on the display. Menu item on the right is selected. Decrease values. During screwing: tighten.	

Button	Direction of rotation setting Trigger	Result	Display
+	Left-hand side is pressed (Fig. 37). Press dual trigger 1.	Scroll back on the display. Menu item on the left is selected. Increase values. During screwing: loosen.	
OK	Middle position Maintenance.	Confirm selection. Screwing is not possible.	

Navigation

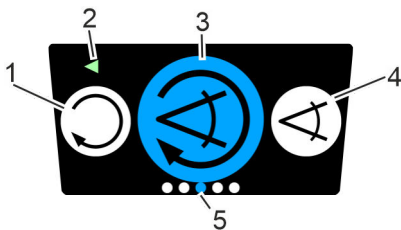


Fig. 38: Navigation

Three menu items are displayed in the menus of the control unit:

- In the middle, the currently selected menu item (Fig. 38/3)
- To the left and right of this, the next menu items (Fig. 38/1 and 4)

To facilitate navigation, the position of the direction of rotation indicator is indicated by arrows:

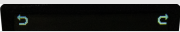
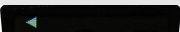
- Arrow to left (Fig. 38/2): right-hand side is pressed (anti-clockwise rotary setting selected). – button.
Pressing the trigger selects the menu item on the left (Fig. 38/1).
- Arrow to right: left-hand side is pressed (clockwise rotary setting selected). + button.
Pressing the trigger selects the menu item on the right (Fig. 38/4).

The menu is circular. Once the last menu item is reached, scrolling forwards takes you back to the first menu item.

Fig. 38/5 shows the number of menu items and the position of the current menu item.

Displaying the direction of rotation setting

The main menu displays the position of the direction of rotation setting:

	Direction of rotation setting in the middle position
	Direction of rotation setting pressed to the right
	Direction of rotation setting pressed to the left
	Limitation of the adjustable range, e.g. 1,500 Nm. The maximum torque must be at least as large as the previously set snug torque.

Setting the values

In the setting menus, values can be changed within a specified range.

The smallest and largest value and the step size depend on the nutrunner.



Fig. 39: Setting the values

Changing values:

- To decrease a value, press the – button (right-hand direction of rotation setting).
- To increase a value, press the + button (left-hand direction of rotation setting).

Continuous change

When the trigger is pressed, the value changes continuously. The speed of the change depends on how far the trigger is pressed.

At the top of the screen, a green rectangle (Fig. 39/2) indicates the position of the current value within the possible maximum values:

- Left margin: minimum value
- Right margin: maximum value

When the value is changed, the rectangle on the screen moves with it.

Locked value ranges

Value ranges that are not adjustable are marked with a red bar (Fig. 39/1).

For example, setting a lower torque limit locks the torque range below this when setting the upper torque limit. This is shown as a red bar.



Abort

If the value is outside the adjustable range (minimum value – maximum value), an abort arrow is displayed. If you confirm the arrow with **OK**, the newly set value is not accepted and the value before adjustment is retained.

Circular arrangement

The value setting is circular. If you continuously increase the value and reach the maximum value, first the abort arrow is displayed and then the minimum value is displayed.

Example: 340 Nm ⇔ 1500 Nm ⇔ 3000 Nm ⇔  ⇔ 340 Nm

9.2 Selecting the main menu

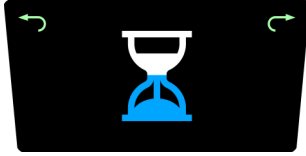
To access the main menu, proceed as follows:

Start screen



1. Start the control unit. To do this, press the direction of rotation setting to the left or right and press the trigger.
 - ⇒ A start logo is displayed.
 - ⇒ After a short time, the start screen is displayed. The parameters of the last fastening operation are displayed.

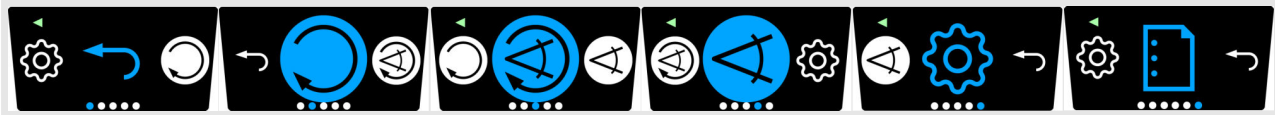
Main menu



2. ➤ To switch to the main menu, press **OK**.

⇒ The countdown is displayed.

3. ➤ Use **–** or **+** to select the submenu.



Sequence of main menu

Back ↔ Torque ↔ Torque rotation angle ↔ Rotation angle ↔ Settings ↔ Documentation

⇒ The large icon in the middle represents the selected submenu.

9.3 Setting the fastening operation

The fastening function and the correct parameters must be set in the nutrunner for each fastening operation.

The following fastening functions can be selected:

■ Torque fastening function

The torque fastening function is used to set the required torque.

■ Torque – rotation angle fastening function

The torque-angle fastening function tightens the bolt to the set snug torque and then turns the bolt further through the set angle.

■ Rotation angle fastening function

The rotation angle fastening function turns the bolt further through the set angle.

Main menu



1. ➤ Select the main menu ↪ *Chapter 9.2 'Selecting the main menu' on page 87.*

2. ➤ Select the fastening function with **–** or **+**.

⇒ The large icon in the middle represents the selected fastening function.



3. To confirm the selected fastening function, press **OK**.

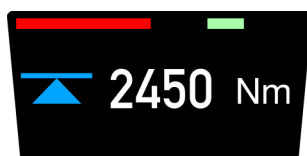
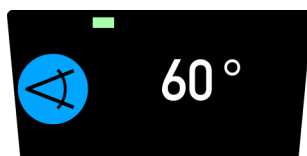
Icon	Fastening function
	Torque fastening function Set the torque.
	Torque – rotation angle fastening function Set the torque, angle of rotation, lower and upper torque limits.
	Rotation angle fastening function Set the angle of rotation, lower and upper torque limits.

Parameterisation

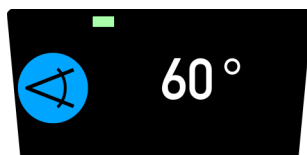
Torque fastening function



Torque – rotation angle fastening function

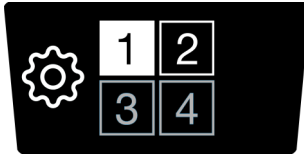


Rotation angle fastening function



4. To switch to the parameterisation, press **OK**.
5. Set the values of the selected fastening function with **-** or **+** and confirm with **OK**.
6. Set the torque and confirm with **OK**.
7. Set the torque and confirm with **OK**.
8. Set the angle of rotation and confirm with **OK**.
9. If the angle of rotation is greater than 0°, set the lower torque limit and confirm with **OK**.
- ⇒ The upper torque limit setting range blocked by setting the lower torque limit is displayed as a red bar.
10. Set the upper torque limit and confirm with **OK**.
11. Set the angle of rotation and confirm with **OK**.
- If the angle of rotation is greater than 0°, set the lower torque limit and confirm with **OK**.
- If the angle of rotation is greater than 0°, set the upper torque limit and confirm with **OK**.

Gear monitoring



- 12.** If it is necessary to change the gear setting, a prompt will be displayed.



Fastening functions with angle of rotation are only possible in gear 1.

Colours displayed:

- Requested gear – black font, white flashing background
- Current gear – white font, black background
- Other gears – grey font, black background

- 13.** Switch to the requested gear.

Keeping parameters



- 14.** To keep the preset parameters, press **OK**.

Start screen



The start screen displays the set parameters.

The nutrunner is ready for screwing and can be used with the stored fastening operation.

Lower and upper torque limit

Setting the angle of rotation (rotation angle fastening function and torque – rotation angle fastening function) also includes the settings for the lower and upper torque limits.

If these values are unknown, apply the lower and upper torque limits of the power class.

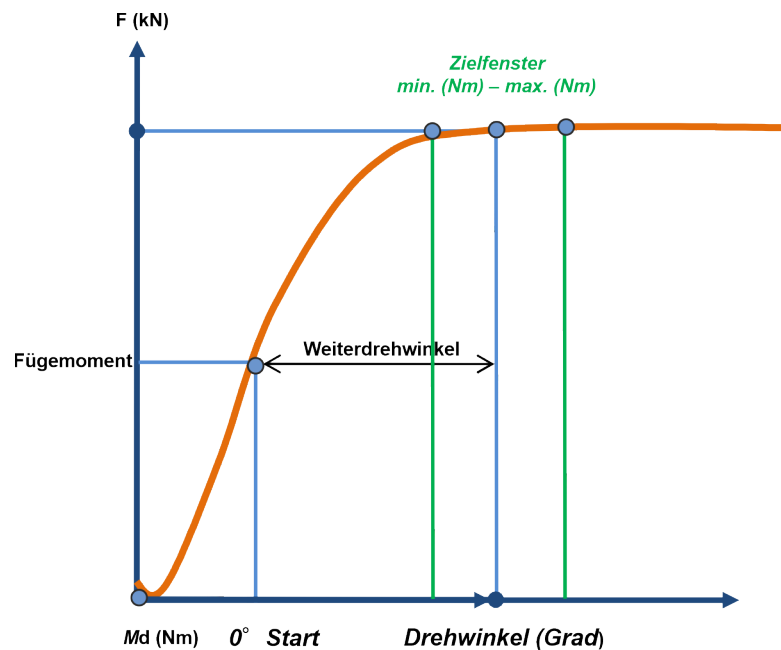
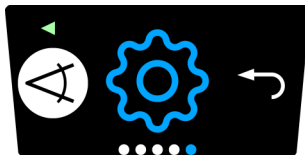


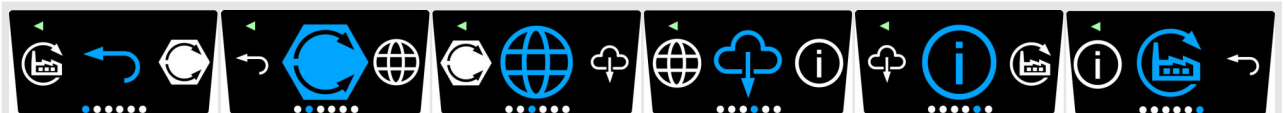
Fig. 40: Min-max rotation angle

9.4 Modifying settings

Main menu



1. Select the main menu ↪ Chapter 9.2 'Selecting the main menu' on page 87.
2. Use – or + to select the settings and confirm with **OK**.
3. Use – or + to select the submenu.



Sequence of settings menu

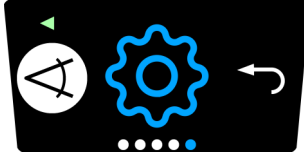
Back ↔ Direction of rotation ↔ System of measurement ↔ OTA ↔ Information ↔ Factory settings

4. Make settings in the selected submenu.

9.4.1 Setting the direction of rotation

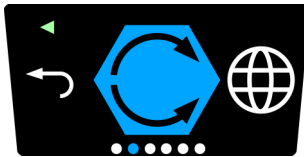
The default direction of rotation can be set globally.

Main menu



1. ➔ Select the main menu ↪ *Chapter 9.2 'Selecting the main menu' on page 87.*
2. ➔ Use – or + to select the settings and confirm with **OK**.

Direction of rotation

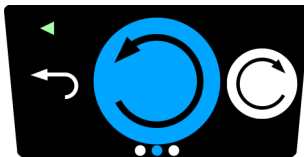


3. ➔ Use – or + to select the direction of rotation and confirm with **OK**.
4. ➔ Use – or + to set left-hand or right-hand thread as the default direction of rotation and confirm with **OK**.

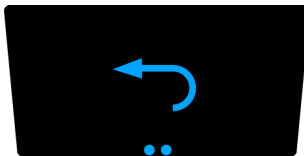
⇒ Right-hand thread has been set.



⇒ Left-hand thread has been set.



Back



5. ➔ To return to the main menu, use – or + to select Back and confirm with **OK**.

9.4.2 Setting the system of measurement

The details of the system of measurement can be set globally.

Main menu



1. ➔ Select the main menu ↪ *Chapter 9.2 'Selecting the main menu' on page 87.*
2. ➔ Use – or + to select the settings and confirm with **OK**.

System of measurement



3. ➔ Use – or + to select the system of measurement and confirm with **OK**.



4. Use – or + Nm or lb ft as the default system of measurement and confirm with **OK**.

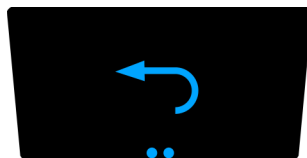
⇒ Torque specifications are shown in Nm.



⇒ Torque specifications are shown in lb ft.



Back



5. To return to the main menu, use – or + to select Back and confirm with **OK**.

9.4.3 Performing an (OTA) update

The control unit can be updated “over the air” (OTA).

Prerequisites:

- The nutrunner’s battery is fully charged.
- A WiFi router with internet access is accessible and the login details are known (SSID, password).
- A terminal with WiFi interface is available.
- The terminal is not connected to the internet or a local network.
- Ideally, the distance between the nutrunner and the WiFi router should be less than 5 m.

Proceed as follows in order to update:

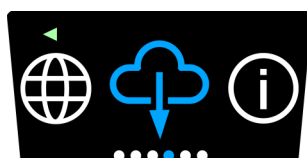
Main menu



1. Select the main menu ↗ *Chapter 9.2 ‘Selecting the main menu’ on page 87.*

2. Use – or + to select the settings and confirm with **OK**.

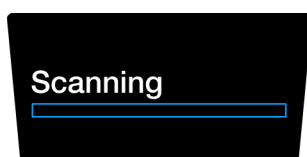
OTA



3. Use – or + to select OTA and confirm with **OK**.

⇒ The nutrunner searches for an existing WiFi connection.

If there is a WiFi connection, the update is performed automatically.



WPA



SSID

Password

Save

4. To connect the nutrunner to a terminal via WPA, ensure that all prerequisites are met.

5. Connect the nutrunner and the terminal via WPA ↗ Chapter 10 'Connecting to WiFi' on page 97.

⇒ Once connected, a PLARAD[®] web page will be displayed.

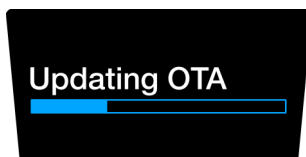
Connecting to WiFi

6. Enter and save the login details (SSID and password) for the WiFi router.



Enter the login details for the router (network name and password) on this website. These are not the same as the login details entered previously for the nutrunner.

The WiFi router must be connected to the internet.



⇒ The nutrunner searches for a connection to the PLARAD[®] server.

If the connection is successful, the download and update will start automatically.

The download progress is displayed.



7. Wait for the update to fully download.



Never remove the battery during the update.

Leave the direction of rotation setting in the middle position.

⇒ When the update is finished,  is displayed and the control unit restarts.

9.4.4 Displaying information

Various sets of information about the nutrunner can be displayed.

Main menu



1. Select the main menu ↗ Chapter 9.2 'Selecting the main menu' on page 87.

2. Use – or + to select the settings and confirm with **OK**.



Information



3. Use – or + to select information and confirm with **OK**.

4. Use – or + to scroll through 7 pages.

⇒ The following information is displayed:

- Serial number
- Nutrunner ID
- Software version
- Date
- Time
- Power class of the nutrunner
- Reference screw
- Parameters

⇒ After the 7 pages have been displayed, the start screen with the current fastening operation is displayed.

9.4.5 Resetting to factory settings

You can reset the nutrunner to its factory settings.

Main menu



1. Select the main menu ↩ *Chapter 9.2 'Selecting the main menu' on page 87.*

Factory settings



2. Use – or + to select the factory settings and confirm with **OK**.

⇒ An hourglass is displayed during the reset.



3. To complete the reset, remove the battery.

⇒ The parameters of the factory settings are restored.



The existing documentation is deleted.

9.5 Loading documentation

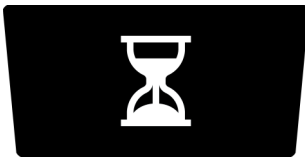
You can view the nutrunner's documentation.

Main menu



1. ➤ Select the main menu ↗ *Chapter 9.2 'Selecting the main menu' on page 87.*

Documentation



2. ➤ Use – or + to select the documentation and confirm with **OK**.
⇒ An hourglass is displayed during the process.

WPA

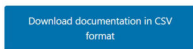


3. ➤ To connect the nutrunner to a terminal via WPA, ensure that all prerequisites are met.
4. ➤ Connect the nutrunner and the terminal via WPA ↗ *Chapter 10 'Connecting to WiFi' on page 97.*

⇒ Once connected, a PLARAD® web page will be displayed.

5. ➤ To load the documentation, press '*Download documentation in CSV format*' and specify the storage location.

⇒ The documentation is saved to the specified location and can be opened.





10 Connecting to WiFi

Prerequisites



The nutrunner can only connect to a single terminal device. Multiple connections are not possible.

Reading out data through WiFi is not possible during fastening operations.



To use the WiFi network, the antivirus software needs to be configured to allow local IP addresses. Consult the appointed network administrator if you have any questions.

Disable antivirus JavaScript injection (e.g. Kaspersky Antivirus).

The nutrunner should not be moved further than 5 metres from the WiFi router/repeater and terminal device.

It may take several minutes to establish the connection. The nutrunner will perform multiple connection attempts in succession.

For a WPA connection, the terminal must be equipped with a WiFi interface and must not be connected to the internet or another local network.

The battery of the nutrunner must have a sufficient charge level.

Wireless Access Point (WAP)



Data protection

The nutrunner acts as a Wireless Access Point (WAP) for the terminal device to connect to directly (point-to-point connection).



Data transfer by Wireless Point Access (WAP) is encrypted and thus secure.

WPA



1. To connect the nutrunner to a terminal via WPA, ensure that all prerequisites are met.
2. Access the network settings of the terminal, select the WAP network name of the nutrunner (SSID) in the WiFi list and connect.
3. Enter password.

- 4.** ▶ Some mobile terminal devices will show the message no internet connection. This does not mean that the connection to the nutrunner has failed.

Acknowledge the message so that the nutrunner remains connected to the WiFi.

⇒ The nutrunner connects to the terminal device.

As a rule, the default web browser of the terminal is automatically started and a PLARAD[®] web page is displayed.

- 5.** ▶ If the web browser does not start automatically, start the web browser manually.

Enter the IP address “192.168.4.1” and start.



11 Bracing the reaction arm

Reaction arm

Torques can only be generated if the reaction forces are absorbed. The reaction arm fulfils this function on the nutrunner:

The scope of delivery for the nutrunner contains a standard reaction arm. The nutrunner may only be used with the reaction arm included in the delivery.

For bolting processes for which the standard reaction arm is unsuitable, contact PLARAD[®] service.

Incorrect bracing and overloading



WARNING!

Danger of injury due to incorrect bracing, overloading, breakage!

If the nutrunner is not sufficiently braced, it can slip out of place and be ejected. Any point contact between the reaction arm and the corners of a bracing element can cause considerable forces to act on the nutrunner. Incorrect bracing or overloading of the reaction arm, bolts or other components can result in serious injuries and damage to the nutrunner.

- Do not use the nutrunner if the bolting process is not entirely clear.
- Note the torque chart.
- Check the reaction arm for visible damage prior to use. Do not use the reaction arm if it is damaged.
- Brace the reaction arm correctly. Note the following instructions regarding bracing.
- Always ensure that the reaction arm is in full contact with the surface.
- Use only PLARAD[®] original reaction arms.

Bracing



Fig. 41: Bracing the reaction arm correctly

- 1 Reaction arm
- 2 Starting rotation angle

- 3 Bracing/abutment
→ Correct bracing point

1. Find the ideal bracing surface for the fastening operation. Ensure that the reaction arm (Fig. 41/1) is in full contact with the bracing surface (Fig. 41/3) and cannot slip out of place. Note the starting angle of rotation (Fig. 41/2).

If the standard reaction arm is not suitable for this, use a suitable reaction arm. If you have questions, contact PLARAD[®] service.



Fig. 42: Reaction arm braced incorrectly

- Incorrect bracing point

2. Ensure that only the points (Fig. 41) marked with → absorb the torque and are in full contact.



12 Using the DA3motion reaction arm

Hand-held reaction arm



WARNING!

Danger of crushing from hand-held reaction arm!

The use of the reaction arm without a suitable bracing surface can result in severe crushing.

- Always keep the distance between the rotation axis (square drive) and bracing point (of the reaction arm) as wide as possible. A narrow distance between the rotation axis and bracing position can result in increased forces in the system that cannot be supported by one person.
- Never use your body or body parts to brace the reaction arm.
- Always approach the end positions of the fittings slowly.

Incorrect bracing and overloading



WARNING!

Danger of injury from incorrect bracing, overloading, breakage!

If the torque wrench is not sufficiently braced, it can slip out of place and be ejected. Any point contact between the reaction arm and the corners of a bracing element can cause considerable forces to act on the torque wrench. Incorrect bracing or overloading of the reaction arm, bracing point or other components can result in serious injuries and damage to the nutrunner.

- Do not use the nutrunner if you are uncertain about any of the job parameters.
- Note the torque selection diagram.
- Check the reaction arm for visible damage prior to use. Do not use the reaction arm if it is damaged.
- Brace the reaction arm correctly. Note the following instructions regarding bracing.
- Always ensure that the reaction arm is in full contact with the surface.
- Use only PLARAD[®] original reaction arms.

Crushing



WARNING!

Danger of crushing from slewing telescopic bar!

Strong forces arise as a result of using an extended reaction arm. Such forces can cause serious injuries and major property damage.

- Only use suitable bracing points of sufficient size and strength.
- Never use people to brace the tool.
- Note the direction of rotation.
- Change the stop side when changing the direction of rotation.
- Ensure that the slewing range of the reaction arm or telescopic bar is clear of people.

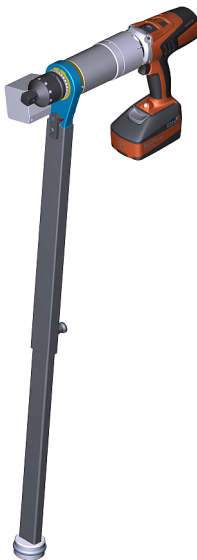
Reaction arm



The reaction arms are designed for a maximum permissible load.

Observe the stickers on the reaction arm and data sheet.

Bracing the DA3motion reaction arm



At low torque only: when operating fittings, you can brace the reaction arm by hand.

1. ➤ Ensure that the reaction arm is properly secured.
2. ➤ Extend the reaction arm according to requirements. Ensure that the bottom part of the reaction arm is fully engaged.
3. ➤ Ensure that no crushing points are formed with objects in the vicinity.
4. ➤ Ensure stable footing.
5. ➤ Always use the nutrunner with care. Always increase the torque slowly.
6. ➤ At higher torque, or if there is a danger of crushing injury when bracing by hand, find a suitable bracing point on an on-site structural element ➤ *'Bracing' on page 103.*

Fig. 43: Reaction arm



Bracing

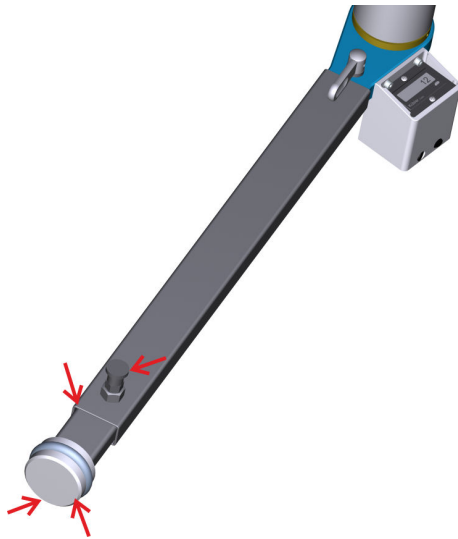


Fig. 44: Reaction arm braced incorrectly

→ Incorrect bracing point

1. Find an ideal bracing point suitable for the job at hand on an on-site structural element. Ensure that the reaction arm is in full contact with the bracing surface and cannot slip out of place. Note the starting angle of rotation.

If the standard reaction arm is not suitable for this, use a suitable reaction arm. If you have questions, contact PLARAD® service.

2. Ensure that the nutrunner is braced with the telescopic bar attached and that the bar is in full contact with the surface. Also ensure that the points marked with → (Fig. 44) never absorb the torque.

13 Tightening

Danger of crushing



WARNING!

Danger of crushing between the reaction arm and bracing surface!

Body parts could get between the reaction arm and bracing surface. This could result in serious injuries.

- Never put body parts between the reaction arm and bracing surface.
- Carefully attach the impact wrench socket.

Overloading and breakage



WARNING!

Danger of injury due to overloading and breakage!

Overloading of the nutrunner or individual components can result in serious injuries.

- Do not use the torque wrench if the particulars of the fastening operation are not entirely clear.
- Note the torque chart.
- Check the reaction arm for visible damage prior to use. Do not use the reaction arm if it is damaged.
- Brace the reaction arm correctly ↪ *Chapter 11 'Bracing the reaction arm' on page 99.*

Starting the fastening operation



Contact PLARAD® service prior to operation at temperatures below 0°C.

1. ➤ Ensure that the nutrunner has been properly prepared (↪ *Chapter 6 'Preparing the nutrunner' on page 76*) and that the fastening operation is known ↪ *Chapter 4 'Determining the fastening operation' on page 74.*
2. ➤ Ensure that the battery is charged and correctly connected to the nutrunner ↪ *Chapter 8 'Supplying with energy' on page 81.*
3. ➤ Ensure that the nutrunner is properly set ↪ *Chapter 9 'Setting the nutrunner' on page 85.*
4. ➤ Attach the nutrunner to the bolted connection in such a way that the full height of the bolt head or nut is gripped by the impact wrench socket.

If this is not possible, use an impact wrench socket and accessories that match the fastening operation.

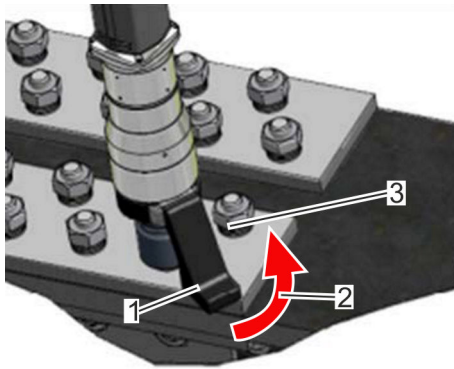


Fig. 45: Starting rotation angle

- 1 Reaction arm
- 2 Starting rotation angle
- 3 Bracing

5. ➤ Ensure that the reaction arm (Fig. 45/1) is braced against a bracing surface/abutment (Fig. 45/3) on its side facing the nutrunner's desired direction of rotation. Ensure that there is full contact. Note the starting angle of rotation (Fig. 45/2).
6. ➤ Do not retighten. Do not repeat correctly completed fastening operations.



⇒ If the fastening operation was successful,  is displayed and the next fastening operation can be started.



⇒ If the fastening operation was unsuccessful, the set torque was not reached.  is displayed.

Direction of rotation

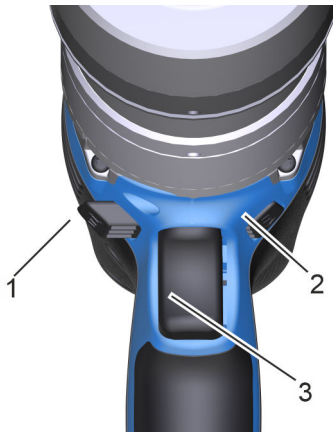


Fig. 46: Direction of rotation

- 1 Tightening in clockwise direction
- 2 Loosening in anti-clockwise direction
- 3 Dual trigger 1

7. ➤



Standard direction of rotation: Right-hand thread

	Direction of rotation setting	Direction of rotation
	Right-hand side is pressed.	Clockwise (CW) Tightening in clockwise direction
	Middle position	No rotation possible. Transport position
	Left-hand side is pressed.	Counterclockwise (CCW) Loosening in anti-clockwise direction

To tighten in clockwise direction (CW), push the direction of rotation setting (Fig. 46/1) to the right.

To loosen in counterclockwise direction (CCW), push the direction of rotation setting (Fig. 46/2) to the left.

⇒ An acoustic signal sounds if torque levels are blocked.

Dual trigger

8. ➤



NOTICE!
Damage due to pulsing!

Press and hold dual triggers 1 and 2 simultaneously until the bolting operation has concluded and an acoustic signal sounds. Do not pulse (press and release the trigger in quick succession).

9. ➤

If the fastening operation does not start, ensure that the selected torque level is not blocked.

10. ➤

Check the torque with a suitable torque gauge to verify that the fastening operation was successful.

Checking the result

During the fastening operation

During the fastening operation, the handle of the nutrunner can be turned to ensure that ergonomic use is possible. The automatic safety swivel joint between the drive motor and gearbox locks at a torque in excess of 2 Nm. Reaction forces acting on the user's hand are prevented.

If the nutrunner is switched off, the handle can be turned freely once more.

The automatic release mode makes it easier to continue working after finishing a bolted connection. The torque resulting from the bracing within the nutrunner is reduced to move the reaction arm away from the bracing surface. The nutrunner can be easily removed from the bolted connection.



14 Loosening

Danger of crushing



WARNING!

Danger of crushing between the reaction arm and bracing surface!

Body parts could get between the reaction arm and bracing surface and result in serious injuries.

- Never put body parts between the reaction arm and bracing surface.
- Carefully attach the impact wrench socket.

Overloading



NOTICE!

Damage due to overloading!

Significant torques are exerted on the components during loosening. This can cause breakages.

- Do not overload components.

Starting the loosening process



Contact PLARAD[®] service prior to operation at temperatures below 0°C.

1. ➤ Ensure that the nutrunner has been properly prepared (↪ *Chapter 6 'Preparing the nutrunner' on page 76*) and that the fastening operation is known ↪ *Chapter 4 'Determining the fastening operation' on page 74*.
2. ➤ Ensure that the battery is charged and correctly connected to the nutrunner ↪ *Chapter 8 'Supplying with energy' on page 81*.
3. ➤ Ensure that the torque level setting has been made.
4. ➤ Attach the nutrunner to the bolted connection in such a way that the full height of the bolt head or nut is gripped by the impact wrench socket.

If this is not possible, use an impact wrench socket and accessories that match the fastening operation.
5. ➤ Ensure that the reaction arm is braced against a bracing surface/abutment on its side facing the nutrunner's desired direction of rotation. Ensure that there is full contact.

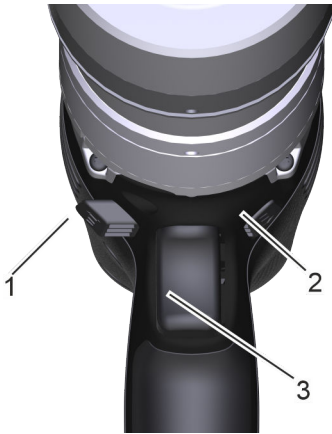


Fig. 47: Direction of rotation

- 1 Tightening in clockwise direction
- 2 Loosening in anti-clockwise direction
- 3 Dual trigger 1

Dual trigger

6. ➔



Standard direction of rotation: Right-hand thread

To tighten in counterclockwise direction (CCW), push the direction of rotation lever (Fig. 47/2) to the left.

⇒ An acoustic signal sounds if torque levels are blocked.

7. ➔



NOTICE!
Damage due to overloading!

In order to loosen bolted connections, it is often the case that greater torque is needed than for bolting. To set the maximum torque, set the setting level to 15. Ensure that all components are designed for this load.

Do not use the breakaway torque level for bolting.



In delivery state, the breakaway torque level is blocked when tightening in clockwise direction (CW).

8. ➔



NOTICE!
Damage due to pulsing!

Press and hold the dual triggers 1 and 2 at the same time until the loosening process has been completed. Do not pulse (press and release the trigger in quick succession).

⇒ If loosening was successful, the next fastening operation can be started.

9. ➔

If the fastening operation does not start, ensure that the selected torque level is not blocked.



15 Opening and closing fittings with DA3motion

Danger of crushing



WARNING!

Danger of crushing between the reaction arm and bracing surface!

Body parts could get between the reaction arm and bracing surface. This could result in serious injuries.

- Never brace the reaction arm by hand at high torque.
- Never put body parts between the reaction arm and any on-site structural elements used for bracing.
- Carefully attach the impact wrench socket or claw adapter.

Overloading and breakage



WARNING!

Danger of injury due to overloading and breakage!

Overloading of the nutrunner or individual components can result in serious injuries.

- Do not use the nutrunner if you are uncertain about any of the job parameters.
- Note the torque selection diagram.
- Check the reaction arm for visible damage prior to use. Do not use the reaction arm if it is damaged.
- Brace the reaction arm correctly ↗ *Chapter 12 'Using the DA3motion reaction arm' on page 101.*

End positions of fittings



WARNING!

Danger of injury and property damage due to strong forces in the end positions!

If the end positions of a fitting (fully open/closed) are approached at high speed or high torque, this could destroy the fitting, nutrunner and attachment parts of the nutrunner and cause serious injuries.

- Always approach end positions with care.
- Use the potentiometer function of the DA3motion trigger carefully. Use a low speed.

Starting the process



Contact PLARAD[®] service prior to operation at temperatures below 0°C.

1. ➤ Ensure that the nutrunner has been properly prepared (↪ Chapter 7 'Preparing DA3motion' on page 78) and that the application is known.
2. ➤ Ensure that the battery is charged and correctly connected to the nutrunner ↪ Chapter 8 'Supplying with energy' on page 81.
3. ➤ Ensure that the torque level setting has been made.
4. ➤ Attach the nutrunner to the fitting in such a way that the nutrunner cannot slip out of place.
5. ➤ Brace the reaction arm correctly ↪ Chapter 12 'Using the DA3motion reaction arm' on page 101.

Direction of rotation

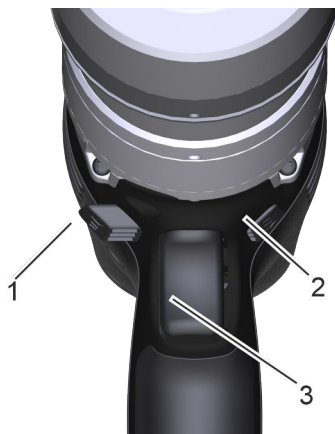


Fig. 48: Direction of rotation

- 1 Rotation in clockwise direction
- 2 Rotation in counterclockwise direction
- 3 Trigger

6. ➤



Standard direction of rotation: Right-hand thread

	Direction of rotation setting	Direction of rotation
	Right-hand side is pressed.	Clockwise (CW) Rotation in clockwise direction
	Middle position	No rotation possible. Transport position
	Left-hand side is pressed.	Counterclockwise (CCW) Rotation in counterclockwise direction

To rotate in clockwise direction (CW), push the direction of rotation lever (Fig. 48/1) to the right.

To rotate in counterclockwise direction (CCW), push the direction of rotation lever (Fig. 48/2) to the left.

⇒ An acoustic signal sounds if torque levels are blocked.



Dual trigger

7. ➔



WARNING!

Danger of injury and property damage from rapidly approaching the end positions with high torque!

Press dual trigger 1 (Fig. 48/3) carefully.

At the same time, press dual trigger 2.

⇒ The nutrunner starts up slowly due to the potentiometer function of dual trigger 1.

8. ➔

If necessary, fully push dual trigger 1 outside of the end position areas in order to reach full rotational speed.

9. ➔



WARNING!

Danger of injury from hand-held reaction arm!

If possible, use suitable support and avoid holding the reaction arm by hand.

If this is not possible, reduce the pressure on dual trigger 1 before reaching the end position and approach the end position with care.

⇒ The reaction forces can be felt on the hand-held reaction arm.

16 Evaluating the documentation

Save

The recorded data for the nutrunner can be evaluated.

1. Save documentation ↗ Chapter 9.5 'Loading documentation' on page 96.

⇒ A *.csv file will be downloaded.

- 2.



Do not change the .csv file name extension. Saving as an Excel file, for example, leads to loss of data.

Modifying the file is considered tampering.

Open the saved file with a suitable program.

Spreadsheet contents

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
ID	Date	Time UTC	Duration [s]	Mode	Rot.Dir	Gear	Torque Meas	Set/Smug Tor	Set Angle [de	Minimum To	Maximum Tc	State	Power Class	SN	Calibration Date	
1	25.06.2025	10:58:44	5	0	CW		4 nm	390				Err: 001	36	19-00011	14.04.2025	
2	25.06.2025	10:59:28	3	0	CW		4 nm	390				Err: 001				
3	25.06.2025	11:00:21	4	0	CW		4 nm	390				Err: 001				
4	25.06.2025	11:00:29	3	0	CW		4 nm	390				Err: 001				
5	25.06.2025	11:00:56	4	0	CW		4 nm	390				Err: 001				
6	26.06.2025	06:11:25	3	2	CW		1 nm	1020	85		2370	Err: 001				

Fig. 49: Documentation

The CSV file lists the following information in spreadsheet form:

Nutrunner information

DE1.S.no	Serial number of the nutrunner on which the data sets were created
Mot.no, Gear.S.no	Serial number of the motor (drive unit) and gearbox
Disp.Sw, CuSw, WLANSw	Software version number of display, control unit and WiFi module
DtNo	Data set number, each nutrunner generates a unique identifier for these data sets
Type	DE1 version

Fastening operation information

ID	Sequential number of the data set, one per fastening operation performed Total fastening operation counter
Date	Date of fastening operation
Time	Time of fastening operation
Duration	Duration of fastening operation
Mode	Fastening mode



Fastening operation information	
Rot Dir	Direction of rotation clockwise/anti-clockwise
Gear	Transmission stage
Torque Measurement Unit	Imperial/metric
Set/Snug Torque	Setpoint torque (for torque mode), snug torque (for torque-angle mode)
Set Angle	Setpoint rotation angle
Minimum Torque	In rotation angle mode: set minimum torque
Maximum Torque	In rotation angle mode: set maximum torque
State	Status display of fastening operation
Power Class	Power class of the nutrunner
SN	Serial number of the torque wrench
Calibration Date	Date of the last factory calibration

Mode information coding		
Mode	0	Torque mode
	1	Rotation angle mode
	2	Torque-angle mode

State information coding		
State	OK	Fastening operation OK
	Err 001	Cancelled by user
	Err 010	Minimum torque is not reached
	Err 011	Maximum torque is reached
	Err 012	General error

17 Performing maintenance

17.1 Maintenance schedule

Improperly performed maintenance tasks



WARNING!

Danger of injury from improperly performed maintenance tasks!

Improper maintenance can cause serious injuries and significant damage.

- Ensure sufficient assembly space prior to commencing the tasks.
- Ensure that the assembly site is clean and tidy. Loosely stacked or randomly scattered components and tools may cause accidents.
- With regard to maintenance tasks, only allow “Clean nutrunner” and “Have it checked for damage” to be performed by the user.
- Have all repairs performed by the manufacturer.
- Never open the nutrunner.
- Use only PLARAD[®] original parts.

Faultless operation

The following sections describe the maintenance tasks that are required in order to ensure optimum and faultless operation.

If routine checks reveal increased wear, shorten the requisite maintenance intervals according to the actual signs of wear. If you have questions about maintenance tasks and intervals, contact PLARAD[®] service.



Interval	Maintenance task	Personnel
Before and after every use	■ Clean. ■ Check surfaces, warning symbols and pictograms for damage. ■ Check the power cable, power plug and fasteners of the battery charger for damage. ■ Check the impact wrench socket and spring clip for damage and correct operation. ■ Check the reaction arm and circlip for damage and correct operation. ■ Check for leaks. 🔗 Chapter 17.2 'Having the nutrunner maintained by the user' on page 116	User
Every 3 months ■ In the event of extreme operating conditions (e.g. dust, dirt) ■ In the event of high frequency of use, multi-shift operation ■ In the event of constant work in the upper torque range ■ In the event of soft bolting processes	■ Drive motor Perform service as stipulated by the motor manufacturer. ■ Perform the software update. ■ Planetary gearbox Perform service as stipulated by the manufacturer. Lubricate. ■ Nutrunner Exchange damaged markings. Recalibrate. Determine characteristics. Create torque chart/factory certificate. ■ Accessories Check for damage; exchange. ■ Exchange damaged markings. 🔗 Chapter 17.3 'Having service tasks performed by the manufacturer' on page 117	PLARAD [®] service
Every 6 months ■ In the event of standard operating conditions ■ In the event of average frequency of use ■ In the event of work in the medium torque range		
Every 12 months ■ In the event of low frequency of use ■ In the event of work in the low torque range		

Accessories, spare parts and wear parts

Spare parts must meet the technical requirements specified by PLARAD[®]. This is always ensured by original spare parts. A warranty can only be provided for original spare parts supplied by PLARAD[®].

The installation or use of other spare parts can, under certain circumstances, adversely alter the specified design properties and, consequently, impair active or passive safety.

Any liability and warranty for damage resulting from the use of parts other than the original spare parts and accessory parts is excluded.

Have at least the following information about the nutrunner to hand to enable quick and easy processing:

- Client
- Serial number of the nutrunner
- Desired spare part
- Desired quantity
- Desired mode of shipping

🔗 'PLARAD® service' on page 4

17.2 Having the nutrunner maintained by the user

Personnel: ■ User

Perform the following maintenance steps before and after every use:

Cleaning

1. ➤



NOTICE!

Property damage due to improper cleaning!

Clean the nutrunner with a soft cloth. Never use strong cleaning agents, water, brushes, sharp-edged tools or high-pressure cleaners.

Surfaces and markings

2. ➤

Check surfaces and markings for damage. Arrange for repairs if there is damage or illegible markings.

Battery charger

3. ➤

Check the power cable and power plug for damage and insufficient fastening. Arrange for exchange if there is damage.

Impact wrench socket

4. ➤

Check the impact wrench socket and spring clip for damage, deformation and correct operation. Arrange for exchange if there is damage.

Reaction arm

5. ➤

Check the reaction arm for damage and deformation. Check the circlip for correct operation. Arrange for exchange if there is damage.

6. ➤



WARNING!

Danger of injury due to faulty nutrunner!

Do not use a faulty nutrunner. This also applies if there are leaks. Have it repaired immediately or have the faulty parts exchanged. Contact PLARAD® service.

Transport case

7. ➤

Store the cleaned and damage-free nutrunner in the transport case until its next use.



17.3 Having service tasks performed by the manufacturer

Service intervals

The service intervals are dependent on the conditions of use and the operating site.

Service interval	Conditions
Every 3 months	■ In the event of extreme operating conditions (e.g. dust, dirt) ■ In the event of high frequency of use, multi-shift operation ■ In the event of constant work in the upper torque range ■ In the event of soft bolting processes
Every 6 months	■ In the event of standard operating conditions ■ In the event of average frequency of use ■ In the event of work in the medium torque range
Every 12 months	■ In the event of low frequency of use ■ In the event of work in the low torque range

Contacting service



WARNING!

Danger of injury and property damage due to improperly performed service tasks!

Improperly performed service tasks can cause incorrect bolted connections, destruction of the nutrunner and to injuries.

- Do not perform service tasks yourself.

→ Contact PLARAD® service in good time regarding the following service tasks.

Service tasks

Personnel: ■ PLARAD® service

Component	Service task
Drive motor	Perform service in accordance with the manufacturer's specifications.
	Perform the software update.
Planetary gearbox	Perform service as stipulated by the manufacturer.
	Lubricate.
Accessories	Check for damage; exchange.
	Exchange damaged markings.
Nutrunner	Exchange damaged markings.
	Recalibrate. Determine characteristics.
	Create torque chart/factory certificate.

Torque chart



The torques need to be checked after repairs and, in the event of deviations, a new torque chart or a new torque selection diagram needs to be created.

Newly determined values need to be stored in the nutrunner.



18 Troubleshooting

18.1 Identifying faults

Malfunctions and faults can become noticeable in different ways:

- Nutrunner is not working for no apparent reason:
First note the list of typical errors and issues ↗ 'FAQs' on page 119.
- Nutrunner, battery or accessory is faulty or shows signs of damage.
Contact ↗ 'PLARAD® service' on page 4.

FAQs

Below is a summary of typical malfunctions, issues and answers. This is intended to provide rapid assistance. For problems that cannot be solved in this way, contact ↗ 'PLARAD® service' on page 4.

Fault symptom	Measure
The nutrunner will not start.	Check the battery charge status and charge or replace the battery in the event of insufficient charge. Is the torque level blocked?
The device gets hot too quickly.	Are the openings for the air supply dirty or clogged? Clean with a soft cloth. ↗ Chapter 17.2 'Having the nutrunner maintained by the user' on page 116
An acoustic signal sounds.	Is the torque level blocked?
Two brief acoustic signals during use.	The fastening operation was not successful. The set torque was not reached. Determine the fastening operation. Repeat tightening.

Battery charger

Red temperature monitoring/error indicator flashes:

Cause	Measure
Battery not (correctly) attached	Position the battery correctly on the charger.
Battery contacts dirty	Clean the battery contacts. Insert and remove the battery several times. Replace the battery if necessary.
Battery faulty	Replace the battery.
Battery charger faulty	Replace the battery charger.

Green battery charge status indicator does not light up:

Cause	Measure
Battery charger power plug not (correctly) connected	Plug the power plug completely into the power socket.
Power socket, power cord or battery charger faulty	Replace faulty device. Do not replace the power cord yourself.

18.2 Performing troubleshooting

Improperly performed troubleshooting



WARNING!

Danger of injury from improperly performed troubleshooting!

Improper troubleshooting can cause serious injuries and significant property damage.

- The user may only clean the nutrunner and check it for damage.
- Have all repairs performed by the manufacturer.
- Never open the nutrunner.
- Use only PLARAD[®] original parts.

Device damage

→ Contact  'PLARAD[®] service' on page 4 if there is any damage to the nutrunner.

Battery



1. → Replace a faulty or uncharged battery. Do not put faulty batteries into service.



Reorder battery:

Contact PLARAD[®] service.



2. → Ensure that only compatible Bosch batteries of type Pro-CORE18V with 4 Ah battery capacity or more are used.



The aging of the battery is displayed.



→ Replace the battery.

Returning to service after repair



WARNING!

Danger of injury due to faulty nutrunner!

If a nutrunner is not properly repaired, this can cause serious injuries.

- Never put a defective nutrunner back into service.

→ Check for correct operation prior to first-time use.

19 Disposing of the nutrunner

The nutrunner must be disposed of in an environmentally sound manner at the end of its service life.

Disassembly



WARNING!

Danger of injury due to short circuit and stored residual energy!

If components are damaged, there is a danger of injury due to short circuit or the continued presence of stored residual energy.

1. ➤ Disconnect the battery from the nutrunner.
2. ➤ Remove the impact wrench socket, reaction arm and all other optional attachment parts.
⇒ Reuse these components if necessary.
3. ➤ Do not dismantle the nutrunner any further.

Disposal

Insofar as no take-back or disposal agreement has been put in place, dispose of the nutrunner as electronic waste in accordance with local regulations. Use authorised collection points for the reprocessing of old electrical and electronic devices.



ENVIRONMENT!

Danger to the environment due to incorrect disposal!

Incorrect disposal can be hazardous to the environment.



Do not allow electronic components to enter bodies of water, the sewage system, the soil or household waste collection.

Have electronic waste, electronic components, lubricants and other auxiliary materials disposed of by approved specialist companies.



Do not dispose of battery cells and button cells in household waste.

Dispose of the plastic transport case and foam inlay separately from the nutrunner.

If in doubt, obtain information about environmentally sound disposal from the local municipal authority or from specialist disposal companies.



20 Technical data

Technical data sheet



Technical data sheet is available online at: <https://www.plarad.de/download-center.html>

Dimensions and weight

Dimensions and weight depend on the DA3 version. See the technical data sheet for specific values for the nutrunner.

Data	Value	Unit
Weight*	4.74–14.13	kg
Length	365–522	mm
Width	68–101	mm
Height	245	mm

* Specific details on the rating plate. Specifications without reaction arm and without battery.

Performance values

Data	Value	Unit
Performance range	See torque chart	
Repeatability*	≤ 4%	
Speed	0.7–71.6	rpm

* Depending on the fastening operation. Independently of the torque, the repeatability depends on the individual fastening operation and must therefore be determined in the specific fastening situation.

Electrical connected loads

Data	Value	Unit
Battery charger	Bosch GAL 18V-160 charger	
Battery charger nominal input voltage, 50 to 60 Hz	220 to 240	V
Battery charger power consumption, maximum	375	W
Battery charger charging current, maximum	16	A
Nominal battery voltage	18	V
Battery capacity	4–12	Ah
Battery	Pro- CORE18V	
Protective insulation	Protection rating IP20	

Battery

The nutrunner can be operated with the following ProCore 18V batteries: 4 Ah | 8 Ah | 12 Ah

ProCORE18V	Battery capacity		
	4 Ah	8 Ah	12 Ah
Nominal battery voltage	18.0 V	18.0 V	18.0 V
Weight	0.515 kg	0.955 kg	1.35 kg
Battery dimensions (width x length x height)	77 x 117 x 47 mm	77 x 117 x 69 mm	78 x 116 x 92 mm
Package dimensions (width x length x height)	90 x 140 x 72 mm	119 x 85 x 121 mm	86 x 126 x 124 mm

Ambient conditions

Data	Value	Unit
Ambient temperature during operation and storage, battery	-20 to 50	°C
Recommended ambient temperature during charging, battery	0 to 20	°C
Ambient temperature during charging, battery	0 to 35	°C
Temperature range for charger, bat- tery	5 to 45	°C



Emissions

Sound emission values as per EN ISO 3740:2000, EN ISO 3744:2010, EN ISO 11203:2009 and EN ISO 4871:2009

Vibration emission values as per ISO 5349-1 and EN ISO 5349-2

Data	Value	Unit
Emission sound power level L_{WA}	54	dB(A)
Emission sound pressure level L_{pA}	46	dB(A)
Peak emission sound pressure level L_{pCpeak}	64	dB(C)
Measurement uncertainty of emission sound pressure level	3	dB(A)
Vibration total value	0.1	m/s ²
Measurement uncertainty for vibration total value	1.5	m/s ²

The specified total vibration value and the specified noise emission value have been obtained through a standardised testing procedure and can be used to compare one power tool to another.

The specified total vibration value and the specified noise emission value may also be used for a preliminary estimate of the load.

During actual use, deviations from the specified values may occur for emission values.

WiFi

Data	Value	Unit
Frequency range	2.48	GHz
WiFi standard	IEEE802.11b/g/n	
Security standard	WPA2	
Encryption standard	AES	
Network protocol	IPv4, TCP/http	
Communication protocol	DHCP	
Range outdoors, maximum	30	m
Range indoors, maximum	15	m
Optimum range, maximum	5	m
Transmission power, maximum	10	W EIRP
Temperature range (docu module)	-20 to 60	°C

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Appendix



The following documents are supplied with the nutrunner in a document folder in addition to this manual.

- EU declaration of conformity
- USB stick
- Torque chart
- Certificates (option)