# Operating manual

## Pneumatic nut runner:
## DP1


Store for future reference

PLARAD®
Torque & Tension Systems

# Contents

# 1 Manufacturer

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# 2 User instructions

## 2.1 Purpose of the document

This operating manual is intended to familiarise the owner/operator with the machine and provide information about its possible applications and intended use. The operating manual contains important information that allows the owner/operator to use the machine safely, correctly and efficiently. Observing this information helps avoid hazards, minimise repair costs and downtimes and increase the reliability and service life of the machine.

Information about precautions to be taken by the owner:

- Only entrust personnel who have the necessary qualification for the respective work with tasks on the machine.
- Clearly define the responsibilities and accountabilities of the operating and maintenance personnel.
- Supplement the operating manual by rules arising from national regulations regarding occupational health and safety and the environment (e.g. work organisation).
- Order and occasionally verify compliance with the operating manual and its supplements. Keep a copy of the operating manual at the place where the machine is used at all times!
- Only operate the machine when it is in technically faultless condition and maintain this.

In addition to the operating manual, the mandatory accident prevention regulations applicable in the country and the place where the machine is used must be observed. In addition, all recognised technical rules devised to ensure safe and correct working must be observed.

## 2.2 Target groups

a) The **owner** as the superior legal person is responsible for the intended use of the machine and the training and deployment of authorised persons. He defines the mandatory competences and authorisations of the authorised personnel for his company.
b) A **specialist** is defined as a person who is capable of assessing the tasks assigned to him and recognising possible hazards due to his professional training, knowledge and experience. This person is also familiar with all applicable regulations. Only trained specialist personnel or such personnel who have been selected and found capable by the owner are qualified to work with the machine.
c) A **trained/instructed person** is a person who has been instructed and, if necessary, trained in the assigned tasks and the possible risks for incorrect behaviour. This person has also been informed about the necessary safety devices and protective measures. Personnel to be qualified, trained, instructed or undergoing general job training may only act under the constant supervision of an experienced person.

## 2.3 Liability and warranty

All tasks and instructions provided in this operating manual are based on our previous experience and findings and given to the best of our knowledge. The original version of this operating manual was prepared in German and reviewed by us for technical accuracy. The translation into the respective national/contractual language has been prepared by a certified translation agency.
This operating manual has been compiled with the greatest level of care. However, If you discover any parts that are incomplete and/or incorrect, please notify us in writing. Your suggested improvements help us create an operating manual that is more user-friendly.

# 3 Product safety

The prerequisite for the safety-compliant handling and trouble-free operation of this machine is knowledge of the basic safety instructions.

## 3.1 CE mark

The products are labelled with the CE mark. The Declaration of Conformity verifies that the products are in compliance with the safety directives of the European Union.

## 3.2 Directives

The product meets the requirements of the EC Machinery Directive 2006/42/EC.
This manual contains important instructions on how to operate, set up and connect the machine. Read these instructions carefully before putting the machine into operation. This is for your own protection and will provide you with important information for connection, use and safety of the machine. The operating manual is an integral part of the machine. Keep it ready to hand near the machine. Observing every detail of the operating manual is a requirement for using the tool correctly and as intended. For this reason, pass this operating manual on to the next owner when selling the machine. Please note that details of the illustrations and technical specifications contained in this operating manual may deviate from the product you purchased. The information provided in this operating manual is current as of the time it was printed. We reserve the right to make changes at any time without prior notice.

## 3.3 Information about the workplace

The safety of the operator and the trouble-free operation of the machine are only guaranteed if original Plarad components are used. This applies both to device components and spare parts.

If different components are used, Maschinenfabrik Wagner cannot guarantee the safe and reliable operation of the tool.

## 3.4 Organisational measures

a) The operating manual must always be kept in legible condition and readily available at the place where the machine is used.
b) The operating manual also needs to be supplemented by mandatory local regulations regarding accident prevention and environmental protection (e.g. handling hazardous materials, disposal of auxiliary and/or operating materials, and the provision/requirement to wear personal protective equipment).
c) Personnel must be instructed to observe the operating manual.

Personnel are required to notify the owner or his agent of any defects or hazards they have discovered.

### 3.5 Technically faultless condition

a) All safety instructions and warnings at / on the machine must be maintained in complete and legible condition.
b) Do not make any modifications, attachments and conversions to the machine that could impair safety without consultation/agreement with the manufacturer/supplier.

Substantial changes to the machine can also invalidate the EC Declaration of Conformity.

c) Comply with the deadlines stated in the operating manual for recurring tests / inspections.
d) All spare parts used must comply with the technical requirements specified by the manufacturer. This requirement is always satisfied by the use of original spare parts.
e) When performing maintenance work independently, make sure the appropriate workshop equipment necessary to complete the work is provided.

### 3.6 Training of personnel

a) Only reliable personnel are permitted to work on/with the machine. Observe the minimum age requirements stipulated by law.
b) Only use trained or at least instructed personnel. Instruct and occasionally verify that only authorised personnel are used to work on/with the machine.
c) Clearly define the responsibilities and accountabilities of the personnel with regard to operation, set-up, maintenance and repair.
d) Only let personnel undergoing training, instruction or in the context of general training work on the machine while under constant supervision by an experienced person.

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## 3.7 Presentation of safety instructions

CE mark

Read all safety information and instructions. Failure to observe the safety information and instructions can result in electric shock, fire and/or serious injuries.

Particular tasks and/or requirements and prohibitions regarding the correct and efficient use of the machine

Wear hearing protection

Use protective eye wear

Use protective footwear

Wear protective headgear

Crushing hazard warning

Warning about hot surface

Hazard warning. The type of hazard is specified in the text found next to the respective warning.


Service seal specifying the date of the next inspection

# 4 Description of the machine

## 4.1 Illustration and identification

The pneumatic nut runner is identified by its type plate.

## 4.2 Technical specifications

**Range of capacity:** see included torque table
**Weight:** see type plate
**Max. operating pressure:** 8bar
**Air consumption:** 200-900l/min (see technical data sheets)
**Emission values:**
**Sound pressure level:** 73 to 95dB(A) (depending on the set flow pressure)
**Vibration emission value:** < 2.5 m/s²

For the nut runner dimensions, refer to the technical data sheets which are available at www.plarad.de.

## 4.3 Scope of delivery

- Pneumatic nut runner, ready for operation
- Operating manual with EC Declaration of Conformity
- Torque table with (optional) test certificate

## 4.4 Intended use

The pneumatic nut runner is a hand-held tool that is designed exclusively for tightening and loosening bolted connections. It may only be used for commercial purposes.
Each bolting application requires the use of suitable impact sockets/tools. The suitability for use of tools other than power sockets must be tested and approved by the manufacturer. Make sure there is a proper positive connection between the impact socket and the bolt. Make sure there is a proper positive connection between the square drive of the tool and the square retainer of the impact socket. The tool is designed for indoor and outdoor operation within an ambient temperature range of -20°C to +50°C. If intending to deviate from these conditions, consult the manufacturer first.

**The pneumatic nut runner is not suitable for continuous operation as a drive unit.**

## 4.5 Non-intended use

Any use deviating from or exceeding the scope of intended use is considered to be improper. The risk is borne solely by the owner / user.

## 4.6 Pneumatic energy

Operation of the Plarad pneumatic nut runner requires the use of a compressed air regulation unit including water separator (filter), pressure regulator and mist lubricator. Connect the pressure regulation unit between compressed air supply and nut runner by following the arrow direction given in the following pattern:

**Filter → pressure reducer → lubricator**

The connecting hose must not be longer than 3 m. The clearance width of the connecting hose must be at least 13 mm. Using longer and thinner hoses will have a negative impact on flow pressure and air throughput.
We recommend that you use the Plarad pressure regulation unit, order number 13540.

**Attention!**

The tool may only be operated with compressed air that complies with the specifications given in chapter 5. "Technical specifications".

## 4.7 Filter

Drain condensation on a regular basis, but no later than the time the water level in the water separator reaches the "Max. Level" marking.

If clogged, the sinter filter needs to be cleaned as follows:
1. Loosen the bolting.

2. Remove the tank.

3. Loosen the fastening nut on the sinter filter.

4. Take out the sinter filter.

5. Place the sinter filter in solvent or other suitable cleaning solution, agitate and dry.

6. Reinsert the sinter filter. Ensure a tight seal when doing so.

## 4.8 Pressure reducer

Lightly lubricate the o-rings on sealing cone and pin every once in a while following the steps below:
1. Shut off the compressed air and depressurise the tool.

2. Unscrew the sealing cap (knurled nut).

3. Remove the sealing cone.

4. Lightly lubricate o-ring and pin.

Proceed as follows when putting the compressed air line into service:
1. Before putting the compressed air line into service, relieve the pressure reducer by unscrewing the control screw.

2. Screw the control screw back in until the pressure gauge on the pressure reducer indicates the desired operating pressure.

### 4.9. Mist lubricator

The compressed air mist lubricator adds a fine mist of oil to the compressed air, thereby providing for continuous and reliable lubrication of the drive motor.
The minimum operating pressure is 0.5 bar.

The fill level can be read at the tank and must be checked on a regular basis.
The tank can be topped up during operation without the need to shut off the air.
Proceed as follows to refill oil:

1. Unscrew the filler screw.
2. Fill the tank with oil (no funnel)
3. Reseal the opening with the filler screw.
4. The refilling of oil can be performed during operation and does not require that the air supply be shut off.

Setting:

- Adjust the oil quantity (drops per minute) at the metering screw during operation.
  The drop count is indicated in the sight glass.
- Turning the screw counter-clockwise will increase the oil quantity while
- Turning the screw clockwise will reduce the oil quantity.

The required oil varies from system to system.
The guideline value is the factory setting of one drop per minute.

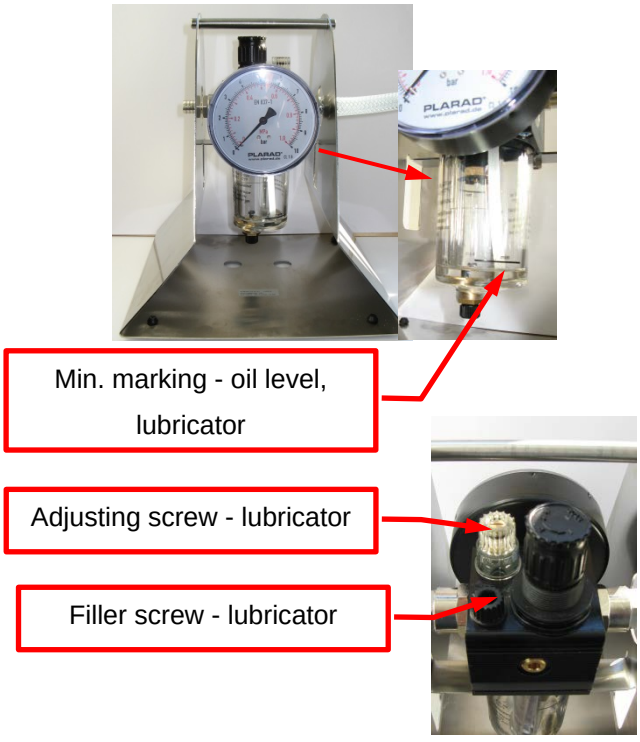
Recommended oil grades:

- SHELL Cassida Fluid HF 32
- VIA Avilup RSL 46
- BP Energol HPL 46
- ESSO Nuto H
- TEXACO Rando Oil HD C 38

**Attention!**

Unsuitable cleaning agents will damage the plastic tank of the pressure regulation unit!
Use only water, petroleum or benzine to clean the plastic tank.

- **Do not use petrol. Do not use cleaners or similar agents that contain benzene, acetone or trichloroethylene.**
- **Do not dilute or mix the oil with liquids that contain plasticisers, alcohol or glysantine.**




### 4.10 Other applicable operating manual

- EC Material Safety Data Sheets:
- Klübersynth GE - 151
- Shell Cassida Fluid HF 32
- Ingersoll-Rand compressed-air impact wrench 2130 XP
- Riegler Combined Air Treatment Unit

Description of operation

## 4.11 Start-up

**Attention!**
Only components and accessories that do not impair the function and safety of the tool are permitted to be used.

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

## 4.12 Preparing the tool

1. Attach O-ring to toothing.

2. Attach the reaction arm to the toothed holder on the nut runner.

3. Secure the reaction arm using retaining ring.

4. Put the socket insert (socket) on the square drive on the nut runner and secure it. Use only power sockets.

5. Secure the impact socket.

6. Nut runner with secured reaction arm and secured impact socket.

**Warning!**
Unsecured components or tools can be flung out. **Secure reaction arm and impact socket before start-up. Follow the instructions and warnings provided on the tool and the accessories.**

# 5 Operation

## 5.1 Controls and display elements

The following illustrations show the positions of the various controls on the machine.


## 5.2 Setting the torque

You adjust the torque using the pressure regulator of the pressure regulation unit.

1. Turn the rotary knob on the pressure regulator to adjust the air pressure and, thus, the torque.

2. Read the air pressure at the pressure gauge on the pressure regulation unit. It is essential that you regulate the dynamic flow pressure rather than the stagnation pressure. The values listed in the included torque tables have been determined on a test rig and correspond to a medium-hard test set-up as required by ISO 5393 in normal ambient temperatures.
   The torque range may shift if temperatures change.

3. Check the generated torque during an actual bolting application before tightening all bolts during an identical bolting application. We recommend that you verify the torque using a rotating electronic transducer. However, you can also use a certified torque wrench for this purpose.

4. If in need of any such devices, request our range of torque measurement equipment.

## 5.3 Safety pivot

The safety pivot situated between drive motor and gearbox makes it possible to rotate the grab handle into any desired position - even under load. The reaction force will not affect your hand during this process.

## 5.4 Supporting the reaction arm

Torques cannot be generated without an absorption of the reaction forces. This function is provided by the nut runner's reaction arm. A standard reaction arm is included in the scope of delivery of the tool. The tool is only permitted to be used with the included reaction arm.

**Warning!**
There is a crushing hazard between the reaction arm and the contact surface. The reaction arm attached to the tool can cause serious crushing injuries.

- **Do not reach between the reaction arm and the contact surface.**
- **Do not place hands/feet close to the contact surface.**

Only use reaction arms or extensions that have been approved by Plarad. Suitable reaction arms - including custom models - are available on request. Reaction arms must never be modified. Modifications to the reaction arm can invalidate the included original performance table.

Substantial changes to the machine can also invalidate the EU Declaration of Conformity.

**Warning!**
If supported insufficiently, the tool can slip off and be flung out.

- **The thrust bearing at the bolting position must prevent the reaction arm from slipping off the contact surface.**

### 5.4.1 Optimum support scenario

Make sure the supporting plate rests fully against the surface.

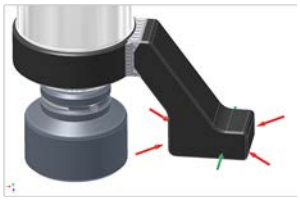
### 5.4.2 Impermissible support scenario

**Warning!**

If the reaction arm rests only partially against the surface at the corners of the reaction foot, considerable forces can impact the tool. The device accessories can break, and the tool may be flung out.

**Do not support tool on the corners of the support feet.**

**Only support tool on the surfaces of the support feet.**



Incorrect support at the corner of the foot.

# 6 Operation

**Warning!**

**Danger from a falling tool!**

- **Only use suitable aids to lift larger tools.**
- **When working overhead, secure the tool and wear protective headgear and safety footwear.**

**Warning!**

Hearing damage from noise!

- **Depending on your nut runner setting and the noise level to which the user is exposed, wear well-fitting personal hearing protection during operation.**
- **It is the owner's responsibility to select and provide the correct kind of equipment.**

**Caution!**

Risk of burns!

When used in high ambient temperatures, the nut runner can reach surface temperatures of up to 80 C.

- **Wear protective gloves.**

**Attention!**
Check if valid torque tables are available for the tool. The serial number of the appropriate torque table is specified on the type plate of the tool and included in the "Technical Data Sheet - Wrench". When setting the torque, strictly ensure that the maximum permissible torque of the tool and the accessories is not exceeded.

## 6.1 Bolting process

1. Use a compressed air regulation unit to connect the tool to the compressed air supply.

2. Preselect the rotation direction on the rotation direction switch.

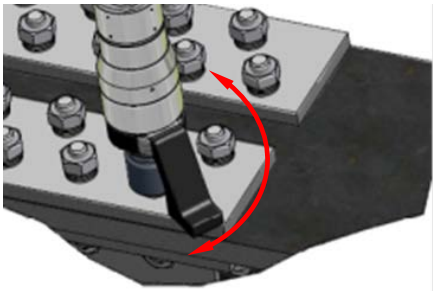
Press the ON button and set the flow pressure on the compressed air regulation unit based on the torque table that specifies the torque required for the tool.

3. Place the nut runner on top of the bolting so that the bolt head/nut is captured in its entirety by the socket or the hexagon socket insert. If this is not possible, you may only subject the accessories to reduced torque or use a special socket/different accessories.

4. Bring the nut runner with the supporting plate into contact with the thrust bearing against the desired rotational direction of the nut runner. Make sure it rests against the entire surface.

**Attention!**
The tool can exceed the specified torque if the starting rotation angle (reaction arm + bolt) is too small.
Recommended values:

- DP1-05 60°
- DP1-10 60°
- DP1-20 60°
- DP1-30 30°
- DP1-36 30°
- DP1-48 30°



Warning!
Components or the bolted connections may tear during work. The tool can be flung out of the bolting position.

- **Do not subject tool and accessories to more than the permissible torque.**

## 6.2 Tightening

Warning!
If supported insufficiently, the tool can slip off and be flung out.

- **The thrust bearing at the bolting position must prevent the reaction arm from slipping off the contact surface.**

1. Preselect the rotation direction on the selector switch or the control valve.

2. Place the nut runner with the socket wrench insert on top of the bolt head or the nut you wish to turn.

3. Support foot against the desired rotation direction of the tool.

4. Press down and hold the power button until the nut runner switches off.

5. Check the torque using suitable means if necessary.

Warning!
Uncontrolled torque increase due to multiple bolting processes. The screw and the accessories may break and be flung out.

**Do not turn on the tool at the same bolting position for a second time after it was switched off automatically upon reaching the set torque.**

## 6.3 Loosening

Loosening boltings often requires higher levels of torque than are necessary for tightening boltings. When faced with a situation like this, you will find that standard sockets and accessories often do not provide the necessary stability. Also, the power of the tool is usually greater than the load capacity of the accessories. Note that the accessories are only permitted to be loaded with the maximum permissible torque.

1. Set the suitable torque at the pressure regulation unit.

2. Preselect the rotation direction on the selector switch or the control valve.

3. Press down and hold the power button until the bolt or the nut has been loosened. Do not press the power button more than once!

## 6.4 General Maintenance/Service

The tool needs to be serviced in order to retain its operability and safety.

**Attention!**
Service work may only be performed by the manufacturer. Only allow Maschinenfabrik Wagner or bodies authorised by Maschinenfabrik Wagner to install, readjust, modify, expand and repair the tool.

The safety for the operator and the trouble-free operation of the tool are only guaranteed if original Plarad components are used. This applies both to all tool components and spare parts.

If different components are used, Maschinenfabrik Wagner cannot guarantee the safe and reliable operation.

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## 6.5 Service intervals

The nut runner needs to be serviced on a regular basis depending on the frequency with which it is used. The service intervals specified merely represent recommendations. You can determine the service interval that fits your individual conditions of use by consulting one of our field representatives or service technicians.

You can arrange for the service to be performed by our service/repairs department on our premises by consulting our field representatives.

**Every 3 months:**
- in extreme usage conditions
- if application frequency is high
- if used during multi-shift operation
- if used continuously for work in the upper torque range
- if used for soft bolting applications

**Every 6 months:**
- in normal usage conditions
- if application frequency is medium
- if used for work in the medium torque range

**Every 12 months:**
- if application frequency is low

**Cleaning:**
- Clean the surface of the tool
- Remove flash rust as necessary

**Visual inspection:**
- Damage
- Leaks

**Function check:**
- All moving parts OK
- Output drive and reaction arm without damage
- Compressed air line

# 7 Instructions on disposal

Dispose of the tool in accordance with the applicable local regulations.

- **Dispose of this product at an authorised waste collection facility. Turn to your local administration office, your public waste disposal authority or your waste management company.**

PLARAD® Torque & Tension Systems

... eine erfolgreiche Verbindung!

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