

Original

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Operating instructions

Titan 80 Pro

Mechanical felling wedge



Schweigerstraße 6 – 38302 Wolfenbüttel - Germany

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About this guide

Validity

These instructions apply to the Titan 80 Pro.

The instructions are intended for trained and qualified forestry professionals.

The instructions contain important information on how to safely commission and use the Titan 80 Pro, as well as on the risks and dangers involved in using this device.

DANGER

Read and follow the instructions in this manual

This manual contains important information to prevent fire, property damage, injury and death.

Presentation of the warning notes

SIGNAL WORD

Type and source of the danger!

Consequences







- Danger prevention

- The **signal word** indicates the severity of the danger.
- The paragraph "**Type and source of danger**" indicates the type or source of danger.
- The paragraph "**Consequences**" describes the possible consequences of not observing the warning.
- The paragraph "**Danger prevention**" indicates how to avoid the danger. It is imperative that you comply with these measures for averting danger!

The signal words have the following meaning:

Warning word	Meaning
DANGER!	Indicates a hazard that will certainly lead to death or serious injury if you do not avoid the danger.
WARNING!	Indicates a hazard that can lead to death or serious injury if you do not avoid the danger.
CAUTION!	Indicates a hazard that can lead to minor or moderate injury if you do not avoid the danger.
ATTENTION!	Indicates possible damage to property. The environment, material assets or the plant itself can be damaged if you do not avoid the danger.

Symbols used in this manual and on the device

Symbol	Meaning
	If this information is not observed, this can lead to deterioration in the operating process.
	Instruction for action: Describes actions that must be carried out.
	The operating instructions contain important information for safe operation. Before using the device, read the operating instructions and the safety instructions and observe them at all times!
	Wear work gloves!
	Wear safety shoes!
	Wear a safety helmet combination with visor and ear protection

Warranty

The device is covered by the statutory warranty period. The seller must be notified immediately of any defects that can be proven to be due to material or assembly errors. Proof of purchase of the device must be provided by presenting the invoice and receipt when making a claim under the warranty. The warranty is excluded with regard to the parts concerned if the defects are caused by natural wear and tear, temperature, weather conditions as well as defects resulting from faulty connection, installation, operation, lubrication or force. Furthermore, no warranty is given for damage caused by unsuitable improper use of the machine, e.g. improper modifications or repair work carried out by the owner or third parties under his or her own responsibility, or in the case of deliberate machine overload.

Guarantee

The warranty period shall be 12 months from the date of delivery for commercial or professional use or application. The statutory warranty remains unaffected. Warranty claims must always be proven by the buyer by means of the original purchase receipt. A copy of this is to be enclosed with the warranty application. The purchaser's address and serial number must be clearly identifiable. Any defects occurring within the warranty period due to material or manufacturing faults will be remedied by repair if they have occurred despite proper operation and care of the machine.

The manufacturer does not accept any warranty/guarantee for:

- Parts which are subject to natural wear and tear
- Non-compliance with the operating instructions and insufficient or incorrect care, e.g. too little lubrication
- The consequences of improper maintenance and servicing
- Damage from improper handling and incorrect operation

Wear parts such as spring steel plates, shaft and drive nut are excluded from warranty claims.

The staples between the double-layered spring steel plates are used for initial assembly and may come loose during operation. This has no influence on the function and is not covered by the warranty/guarantee.

Safety instructions

The Titan 80 Pro has been manufactured in accordance with the generally recognized rules of technology. Nevertheless, there is a risk of personal injury and damage to property if you do not observe the following basic safety instructions and the warnings preceding instructions in this manual.

- > Read this manual thoroughly and completely before operating the Titan 80 Pro.
- > Keep the manual in a legible condition.
- > Make sure that the manual is accessible to all users at all times and pass it on to third parties if necessary

Intended use

The Titan 80 Pro is used in heavy timber harvesting and is an alternative to heavy wedge work. The Titan 80 Pro can be used with a ratchet or with an impact wrench (up to 1300 Nm). Compared to classic wedges, the Titan 80 Pro has the following advantages:

- Backscrewing and readjustment of the wedge is possible if lifting height is too low
- Effort-saving and ergonomically favourable work due to high lifting forces and ratios
- Increased safety when felling on slopes
- Danger of falling deadwood is reduced by vibration-free wedging

Limits of use

In the case of strong side or back lean, there is a risk that the hinge will break off before the pivot point is reached, therefore the Titan 80 Pro must not be used in these cases. Pre-damaged trees, e.g. due to fungal decay and rot, as well as standing deadwood should also not be felled using the Titan 80 Pro. Only healthy and normally shaped trees may be felled with this device.

The Titan 80 Pro does not replace the use of a wire rope or winch.

Intended use also implies that you have read and understood this manual in its entirety and in particular the chapter "Safety instructions".

Improper use

Any use not in accordance with the intended use is not permitted. The following is considered improper use:

- removing or modifying safety devices,
- using the Titan 80 Pro in any other way than described in the chapter "Intended use",
- Only use impact wrenches or ratchets with a ½ inch socket. Adaptation to other sizes is not permitted.
- performing cleaning, maintenance and repair measures other than those listed in the chapters Cleaning and Maintenance,
- using the attachment under operating conditions that differ from those described in this manual.

If the device is not used as intended, all warranty claims will become void.

The manufacturer is not liable for damage to the device and for personal injury resulting from improper use.

Qualification of the personnel

The Titan 80 Pro may only be used by persons

- who have familiarised themselves with the device and the associated dangers on the basis of these instructions.
- who have received appropriate training in the field of forestry and have basic knowledge of felling techniques and timber harvesting methods.
- with knowledge of first aid.
- having a certificate of competence in the use of a chainsaw.

Persons who use the Titan 80 Pro must not be under the influence of alcohol, other drugs or medicines that affect their ability to react, nor must they be tired, ill or irritable.

Persons under the age of 18 are not allowed to use the device or carry out the felling process. However, according to the Youth Employment Protection Act (JArbSchG), it is permissible to assign such activities to persons over 16 years of age, provided that this is necessary to achieve a training objective and that protection is guaranteed by the supervision of an expert.

General safety instructions

- > Always follow the instructions in this manual to avoid hazards and prevent damage.
- > Observe the relevant accident prevention regulations and other generally recognised safety and occupational health rules.
- > Only use the device when it is in perfect condition.
- > Operate the device exclusively with the protective equipment fitted or provided by the manufacturer.
- > Only use the Titan 80 Pro with technically flawless original accessories and spare parts.
- > It is imperative that the instructions for use of all equipment used are followed.
- > Protective and safety equipment must never be disabled and must be cleaned if necessary.

Safety instructions for the workplace

- > Close off the paths in the felling area with clear warning signs and barrier tape.
- > Make sure that there are no persons or objects in the felling area.
- > Keep a safety distance of at least 2 tree lengths between the trees to be felled.
- > Your work site should be free of wood debris, obstacles and tripping hazards.
- > The working area should be a level and tread-proof area with sufficient freedom of movement.
- > To ensure an obstacle-free back cut, clear the back cut area of branches and other obstacles, at an angle of approx. 45° behind the tree to be felled.
- > Make sure that the tools you need can be reached quickly, but do not obstruct you in the process.
- > Appropriate first aid equipment should be available at the work site.
- > Only carry out the work in daylight and in good weather conditions.
- > The felling operation must not be carried out in strong winds, thunderstorms, black ice or frozen ground conditions.

Behaviour in an emergency

If, for example, malfunctions or dangerous situations pose an immediate risk of injury to persons or damage to the device:

- > Cease to use the Titan 80 Pro immediately
- > Do not operate the ratchet or impact wrench and leave the device in the felling cut.
- > Move away from the danger zone immediately.
- > Have the malfunctions eliminated by an authorised specialist dealer.

Safety devices

The Titan 80 Pro may only be used with the protective and safety equipment (e.g., cover) provided for the intended use. Protective and safety equipment must never be disabled and must be cleaned if necessary.

Personal protective equipment

- > Always wear the following personal protective equipment when operating the device:
 - Safety helmet combination with visor and ear protection
 - Cut resistant safety boots
 - Protective clothing prescribed for chainsaw work
 - Work gloves

Delivery

Scope of delivery

The delivery includes a felling wedge and, depending on the order, a ratchet and an operating manual. Check that the delivery is complete.

Transport damage

Visible transport damage can be recognized by packaging damage or by scratched and deformed parts on the device.

- > Be sure to make a note of the damage on the delivery note: both on the copy you receive and on the one that you must sign.
- > Make sure that the deliverer (driver) countersigns.

If the deliverer refuses to confirm the transport damage, you should refuse to accept the delivery and inform us immediately. A claim in retrospect, without a direct note on the delivery note, will not be accepted either by the carrier or by the transport insurer.

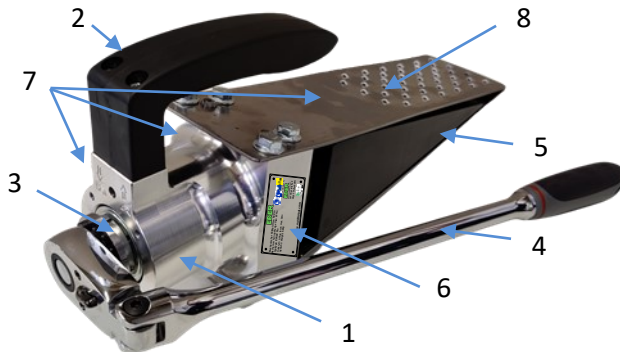
If you suspect latent transport damage:

- > Report concealed transport damage within two days at the latest, which means that you must have checked your delivered goods within this period. Reporting damage after this time is usually not accepted.
- > Make a note on the shipping documents in any case: "Goods are accepted subject to concealed transport damage".

Insurance companies of carriers often react very suspiciously and refuse to provide compensation. Therefore, try to prove the damage clearly (send a photo if possible).

Design and function

Overview of the Titan 80 Pro



1	Encapsulated shaft drive with taper roller bearing	5	Lifting wedge made of special plastic
2	Handle	6	Nameplate
3	Shaft with drive nut	7	Grease nipple 3x
4	Ratchet	8	Spring steel plates with rows of teeth

Function

The Titan 80 pro is a felling tool designed exclusively for use in timber harvesting. The Titan 80 Pro is inserted into the prepared felling cut in the tree trunk. There is a mark on the spring steel plates up to which the Titan 80 Pro must be inserted into the tree trunk. The rows of teeth on the spring steel plates engage with the vertical wood fibres. The lifting wedge made of special plastic is located between the spring steel plates. With the help of the ratchet or an impact wrench up to 1300 Nm, the shaft is driven and the lifting wedge made of special plastic is pushed forward up to 16 cm. After felling, the lifting wedge can be brought back to its original position. For big diameter trees, two Titan 80 Pro can be used side by side.

Commissioning and operation

Preparations on the tree

Assessing the tree

Before using the Titan 80 Pro, you must assess the tree to be felled. Take into account the following factors that influence the felling process:

- > Lean and height of the tree
- > Natural overhang
- > Condition and shape of the limbs (dead or loose limbs)
- > Wind direction and strength
- > Obstacles in the vicinity (houses, roads, power lines)
- > If possible, fell the tree in its natural direction of fall

Clearing buttress roots

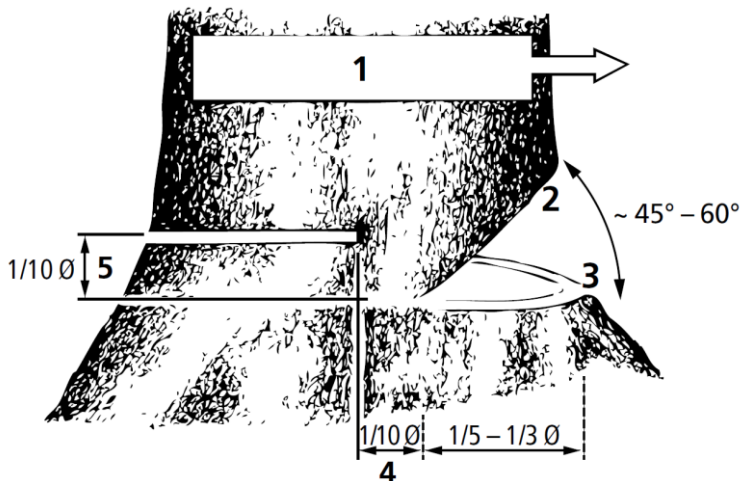
Clear big buttress roots to ensure an efficient felling process.



Notching

When the direction of fall of the tree to be felled has been determined, you must cut the notch. The notch is made toward the direction of fall. To cut the notch, proceed as follows:

- > Make the horizontal cut (3) and the wedge cut (2).



- | | |
|------------------------------|----------------|
| 1 Intended felling direction | 4 Hinge |
| 2 Wedge cut | 5 Holding wood |
| 3 Horizontal cut | |

CAUTION

Risk of injury due to tree breaking off prematurely!

Make sure that the top and bottom cuts of the notch meet exactly. They must also not be too deep, as the tree will then break off prematurely, which can lead to serious injuries.

- > Make the top and bottom cuts of the notch meet exactly.



The depth of the notch should be 1/5-1/3 of the trunk diameter and the notch angle 45°-60°.

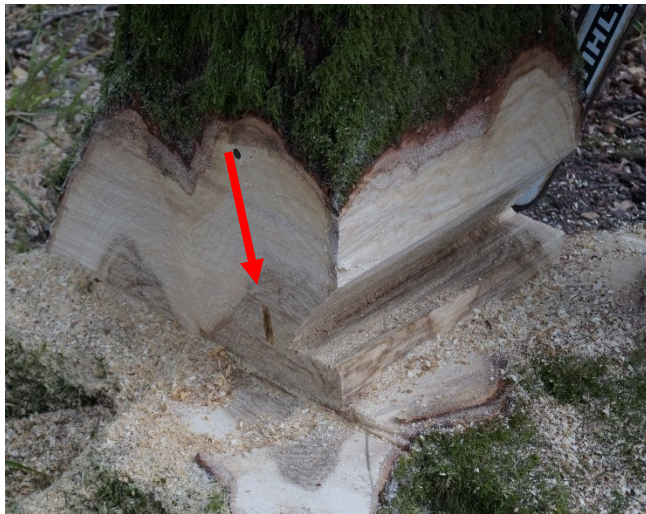
Marking the hinge

The hinge is the part between the notch and the felling cut that has not been sawn through. The hinge holds the tree to be felled during the felling process and prevents the tree from falling uncontrollably. The hinge ensures that the tree falls safely in the planned direction.



The height of the cut and the penetration depth of the saw bar must be chosen so that the hinge is 1/10 of the trunk diameter.

- > Mark the hinge



Making the felling cut at 60 %

After the notch has been cut and the hinge has been marked, you must make the felling cut at 60 % (2/3) of the tree diameter. The felling cut is sawn on the side of the trunk opposite the notch.

- > Mark the course of the felling cut.



WARNING

Danger of injury from falling tree!

The felling cut must not be made deeper than 60 %, otherwise the tree could fall in the direction of the felling cut and cause serious injuries.

- > Observe the correct dimensions of the hinge.
- > Make sure that you do not saw through the hinge.
- > The felling cut must be parallel to the bottom cut of the notch.

ATTENTION

Risk of damage to the Titan 80 Pro due to a felling cut that is too small at 60 %!

If the felling cut at 60% is smaller than 25 cm, the lifting wedge can be pushed out and the trapezoidal threaded spindle damaged.

- > Therefore, make sure that the depth of the felling cut (at 60%) is at least 25 cm. If the Titan 80 Pro is to be repositioned, the felling cut depth must be approx. 30 cm.

Inserting a safety wedge

In order to keep the felling cut open and to secure the trunk, you must insert a safety wedge.



Use safety wedges made of aluminium or plastic.



WARNING

Risk of injury from dead and falling limbs!

During inserting the safety wedge, limbs can fall off and cause serious injuries. Therefore, observe the following:

- > Insert the safety wedge into the tree trunk with minimal vibration and watch the tree crown.

ATTENTION

Risk of damage to the chainsaw due to jammed saw bar!

If a safety wedge is not used, the tree may lean in the direction of the felling cut and jam the saw bar.

- > Place a safety wedge in the felling cut.

Inserting the Titan 80 Pro

When the felling cut has been made to 60% of the tree diameter and the tree to be felled is secured with safety wedges, the Titan 80 Pro can be inserted into the felling cut.



- > Widen the felling cut so that the device can be inserted at least up to the marking on the spring steel plates.
- > Extend the wedge of the Titan 80 Pro until the device is firmly seated in the wood.



If the wood is frozen, the Titan 80 Pro must be inserted deep enough to grip securely.

ATTENTION

Risk of damage to the Titan 80 Pro due to incorrect operation!

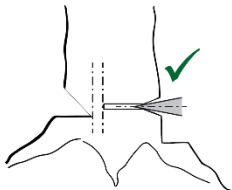
If the Titan 80 Pro is not aligned centrally with the felling cut or it is inserted at an angle to the felling cut, the lifting wedge and the spring steel plates can be damaged.

- > Check that the Titan 80 Pro is aligned centrally with the felling cut.
- > Check that the felling wedge cannot be pushed against the hinge.

Lubrication of the Titan 80 Pro

Optimal lifting power can only be achieved with sufficient lubrication. Dry extension under load can cause damage.

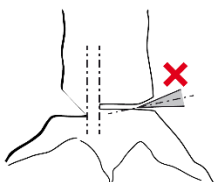
- > Lubricate the Titan 80 Pro before each felling operation.



Correct!

How to use the Titan 80 Pro correctly:

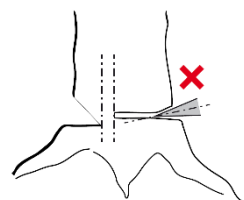
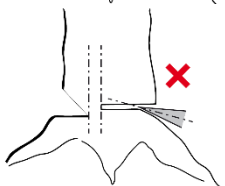
- Buttress roots cleared
- Symmetrical "beak cut"
- Titan 80 Pro inserted at least up to the sixth row of teeth (see marking).
- Wedge aligned with the felling cut, at (90°) to the trunk axis
- Wedge grips securely in the wood



Wrong!

- Asymmetrical "beak cut" (upwards or downwards).
- Wedge not aligned with the felling cut.

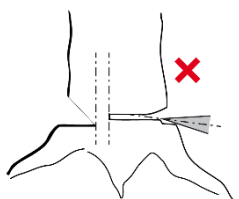
Consequence: Lifting wedge and spindle get an oblique load. Risk of damage to spindle, drive nut and lifting wedge.



Wrong!

- Buttress roots not cleared
- Wedge receives pressure from below via the buttress root. The wedge is thus pressed more and more obliquely into the felling cut.

Consequence: Risk of damage to spindle, drive nut and lifting wedge.



Wrong!

- Sawing edge made by the chainsaw chain in the "beak cut" (at the top or at the bottom).
- Wedge is pressed over the cutting edge due to insufficient shaping.
- Oblique load on the lifting wedge.

Consequence: Risk of damage to spindle, drive nut and lifting wedge.

Creating an offset felling cut



The offset felling cut is obligatory, as it avoids dangerous contact between the Titan 80 Pro and the chainsaw chain.



The offset felling cut is at least 3 cm higher than the bottom cut of the notch.

- > Make the offset felling cut.

WARNING

Danger of splintering!

If the chainsaw comes into contact with the safety wedge or the Titan 80 Pro, parts can splinter and cause serious injuries.

- > Always wear the specified protective equipment when felling.
- > Make the offset felling cut.

Danger of injury from falling tree!

- > Observe the correct dimensions of the hinge.
- > Do not cut through the hinge, as the tree can then fall in the direction of the felling cut and cause serious injuries.

Felling the tree

- > Make sure that there are no other people or objects in the felling area.
- > Give warning signs such as "Attention! Tree falling!"
- > Operate the ratchet or impact wrench clockwise so that the lifting wedge made of special plastic pushes forward and gradually causes the tree to fall.
- > Keep pushing the safety wedge until the tree falls.
- > Move out of the danger zone quickly.
- > Keep an eye on the crown and nearby trees.
- > Stay in a safe area until the tree is on the ground and there are no more dangers.
- > If the full extension length has been reached but the tree has not yet fallen, you must reposition the Titan 80 Pro. To do this, follow the steps below:
 - > The tree must be secured by sufficiently high safety wedges.
 - > Operate the ratchet or impact wrench anti-clockwise to retract the lifting wedge.
 - > Reposition the Titan 80 Pro and repeat the lifting process by turning the ratchet or impact wrench clockwise.

ATTENTION

Risk of damage to the Titan 80 Pro

The shaft drive is mechanically limited. When the full extension length of the lifting wedge is reached, do not turn the ratchet or impact wrench any further clockwise.

- > Never turn the ratchet with force and never extend it.
- > Do not use an impact wrench with more than 1300 Nm.

Cleaning and maintenance

- > Clean the Titan 80 Pro with a dry cloth.
- > Do not use any grease-dissolving, caustic or aggressive cleaning agents.
- > Clean the device from wood residues, chips and other dirt.
- > Sufficient lubrication of all rotating and sliding parts is important for a long service life.
- > Grease is pressed through the three lateral grease nipples into the device and onto the sliding surfaces between the wedge and the spring steel plates with the help of a grease gun when the wedge is retracted.
- > Regrease the wedge of the Titan 80 Pro after each felling operation.
- > Regrease the bearing (grease nipple in the aluminium housing) once a year.
- > Store the Titan 80 Pro in a dry place and protect it from dirt, dust and moisture.

ATTENTION

Risk of damage to the Titan 80 Pro due to moisture!

If the Titan 80 Pro has been exposed to moisture, relubrication is required immediately.

Maintenance and faults

Check the spring steel plates regularly for damage. If cracks or angular material deformations appear, replace them immediately.

Check the operation of the Titan 80 Pro regularly. To do this, clamp the housing in a vice and unscrew the wedge as far as it will go. If the movement of the wedge is stiff, the drive nut must be replaced. The shaft should turn softly and easily.

In the event of a malfunction, have the device checked by the manufacturer, a certified workshop or the dealer.

Only use technically flawless original accessories and spare parts.

Decommissioning and disposal

If the Titan 80 Pro is no longer serviceable and is to be scrapped, you must deactivate and dismantle it, i.e., you must bring the device into a condition in which it can no longer be used for the purposes for which it was designed.



The manufacturing company declines all responsibility for any personal injury or damage to property resulting from the reuse of tool parts if these parts are used for a purpose other than the original material purpose.

Technical data

General data	
Length	480 mm
Width	120 mm
Height	165 mm
Weight	5600 g
Height of spring steel plates with claws pushed out	1.5 mm
Lifting wedge height	80 mm
Lifting wedge width	90 mm
Lifting wedge length	224 mm
Wedge extension	160 mm
Thread pitch	3 mm
Max. lifting force	25 t
Torques for the fastening screws	
Screws of the spring steel plates	35 Nm
Screws of the drive nut	15 Nm
Screw for extension limiting	50 Nm
You must tighten the shaft nut by hand, then pretension it a fifth of a turn and fix it with the locking plate.	
The fastening screws for the locking plate are glued with Loctite 270.	

Declaration of conformity

The manufacturer: Eder Mechanical Engineering GmbH
Schweigerstraße 6
38302 Wolfenbüttel
Germany

herewith declares that the machine designated below complies with the relevant essential safety and health requirements of the EC Machinery Directive 2006/42/EC due to its design and construction.

Main designation: Titan 80 Pro
Type: EFK 80 Pro

The following standards were used to implement the safety and health requirements specified in the EC directives:

Directive 2006/42/EC
of the European Parliament and of the Council dated 17 May 2006 on machinery and amending Directive 95/16EC (revised version).

Internal measures have been taken to ensure that the serial production devices always meet the requirements of the current EC directives and the standards applied.

Authorized person for the technical documentation: Michael Pögel

Wolfenbüttel, 22.03.2022



Ulrich Schrader, Managing Director

Eder Maschinenbau GmbH
Schweigerstraße 6
38302 Wolfenbüttel
Germany
www.eder-maschinenbau.de
info@eder-maschinenbau.de