

Roterende buisschiller PF



Peeling tools

Instruction Manual

1. Dimension ranges

1.1. PES 200

For pipe dimensions	[mm]	63-200
	IPS	3-6"
	DIPS	3-6"

1.2. PES 315, PES 315 (PE-X)

For pipe dimensions	[mm]	90-315
	IPS	4-10"
	DIPS	3-10"

1.3. PES 400, PES 400 (PE-X)

For pipe dimensions	[mm]	180-400
	IPS	8-16"
	DIPS	8-16"

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2. Information about this manual

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No part of the document may be altered, copied, electronically processed or distributed without the prior written consent of PF Schweißtechnologie GmbH.

Read this instruction manual completely. The handling and use of the product described below are not always self-explanatory. Therefore the knowledge of the technical documentation is obligatory.

Only in this way can you use the product properly, correctly, safely and effectively.

If parts of the technical documentation are damaged, illegible or lost contact your dealer or the manufacturer to obtain the documents again.



Residual risk

This document informs you about remaining residual risks against which construction and protective measures are not or only partially effective.



Errata and technical modifications reserved!

All notes and technical specification in this instructions manual were prepared with all necessary care. The manufacturer reserves all rights for technical modifications of the product or its components without prior notice to customers. Technical modifications cannot always be directly transferred to the documentation.

If you are in doubt about the topicality of the documentation please contact your distributor or the manufacturer.

2.1. Applicable Documents

The product includes additional documentation from suppliers. The following documents are included in delivery and are to be seen as part of the technical documentation. Therefore, it is imperative that you also read and observe them completely.

Document

Optional: Instruction manual for cordless drill and torque attachment



Optional: Instruction manual for battery charger

2.2. Warnings

When using the product, it is always necessary to carry out activities in which danger may occur. In this document, dangerous situations are preceded by warnings, which must be observed under all circumstances.









2.2.1. Description of the structure of the warnings

The warnings are provided with a signal word and one or more symbols. The signal word with the pictogram describes the severity of the danger. Below is an example for clarification.

 CAUTION (A)	
	<p>Hazard description (B) Further explanation on the nature and cause of the danger (C)</p> <p>➤ Measures to prevent or avoid the danger (D)</p>

Symbol	Information	Content	Example
O	Signal word	Classification of the danger by symbol and signal word	Caution
B	Danger description	What is the danger and when does it occur?	Danger due to hot surface
C	Possible consequences if the danger occurs	What will or can happen if you do not pay attention to the warning?	The hot surface can cause burns.
D	Measures to avoid the danger	What needs to be done? What must be avoided? What protective measures must be taken?	Keep your distance and wear fire resistant gloves.


2.2.2. List of warnings

	<p>General remark This is a remark of a general nature. These advices describe recommended courses of action to enable the user to perform steps quicker and safer. This warning symbol can also indicate important or obligatory general conditions.</p>
NOTE	
	<p>Potentially harmful situation This signal word indicates a possible dangerous situation for the product, its components, accessories and / or the environment.</p>
 CAUTION	
	<p>Potentially dangerous situation This signal word indicates a danger with a low degree of risk. Failure to do so could result in minor or moderate injury.</p>
 WARNING	
	<p>Dangerous situation This signal word indicates a danger with a medium degree of risk. Failure to do so may result in serious injury or death.</p>
 DANGER	
	<p>Immediate danger This signal word indicates a danger with a high or very high degree of risk. Failure to do so will result in serious injury or death.</p>






2.3. Symbolism

In this document, various symbols are used as aids. The meaning of each is explained below.









2.3.1. General symbols and signs

Symbol/sign	Explanation
	Important information




2.3.2. Warning symbols

Symbol	Explanation
	General warning symbol
	Warning: Electricity
	Warning: Risk of entanglement
	Warning: Risk of cutting or puncturing
	Warning: Risk of injury to the hands / extremities

2.3.3. Requirement symbols

Symbol/sign	Explanation
	General requirement
	Information about / in the documentation This symbol indicates that special attention must be paid to the technical documentation.
	Wear eye protection!
	Cover long hair with hairnet or cap!
	Use hand protection!
	Wear safety shoes!
	Ground before use!
	Pull out the mains plug!

2.3.4. Prohibition symbols

Symbol/sign	Explanation
	General prohibition
	No reaching in!
	Wearing gloves is prohibited!

2.4. Preconditions, requirements and steps

2.4.1. Preconditions and requirements

If certain prerequisites or conditions are attached to the execution of a work step, these are mentioned separately prior to the process description and marked with an exclamation mark.

Example precondition

- ! Key SW4 is ready.
- ! Case is open.
- ! ...

2.4.2. Action steps with a predetermined sequence

Steps that must be carried out according to a fixed sequence are provided with a consecutive numbering. These steps can be interrupted by intermediate results or descriptions of running processes, which is represented by a square. When the result of the work steps is reached, this is indicated by a tick.

Example Steps without fixed sequence

1. Press button A to start the trimming procedure.
 - ❖ The trimmer starts to trim.
 2. Watch the trimming procedure.
 3. Press button B to stop the procedure.
- ✓ Trimming procedure is finished.

3. Warranty and liability

Warranty and liability claims for personal injury and property damage are excluded if they are attributable to one or more of the following causes:

- Improper use of the product, its components and accessories outside its scope of application.
- Improper assembly, commissioning, operation, maintenance and improper transport of the product including its components and accessories.
- Operation of the product including its components with defective or improperly installed safety devices.
- Failure to follow the instructions in the instruction manual.
- Unauthorized structural changes on the product or its components and accessories.
- Inadequate monitoring of machine parts that are subject to wear.
- Repairs carried out improperly.
- Disasters due to foreign bodies and force majeure.

4. Identification

4.1. Product labeling

Product description: Pipe End Peeler

Product type: Tool for peeling pipe ends of PE/PP/PE-X pipe ends

Serial number:

Construction year:

4.2. Information about the manufacturer

PF-Schweißtechnologie GmbH

Karl-Bröger-Str.10

DE-36304 Alsfeld

Germany

Tel.: +49-6631-9652-0

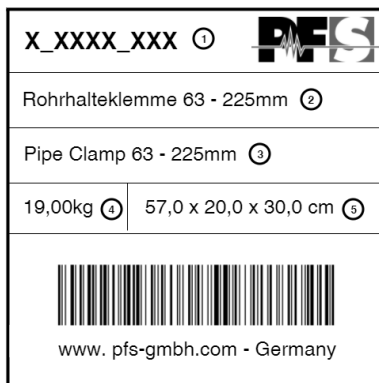
Fax.: +49-6631-9652-52

E-Mail: info@pfs-gmbh.com

Web: www.pfs-gmbh.com

4.3. Type plate

The type plate is a unique identifier of the product and is structured as follows:



No. Description

- 1 Product code
- 2 Productname in German
- 3 Productname in English
- 4 Transport weight
- 5 Dimensions

5. Product description



Note

When the term "Pipe End Peeler" is used, this includes all variants of the tool. Otherwise, details of each specific feature will be mentioned separately. Furthermore, the following abbreviations are used:

PES200	Pipe End Peeler 63-200 mm
PES315	Pipe End Peeler 90-315 mm
PES315 (PE-X)	Pipe End Peeler 90-315 mm with rails
PES400	Pipe End Peeler 180-400 mm
PES400 (PE-X)	Pipe End Peeler 180-400 mm with rails

5.1. Purpose and intended use

The Pipe End Peeler is meant exclusively for the removal of the oxide layer on polyethylene pipes as preparation for electrofusion (EF). The scraper tool can be used for pipe end and spigot fittings and outlets. Additionally it is approved for usage on polypropylene (PP) and cross-linked polyethylene (PE-X) pipes. A variant of the 90-315 mm and 180-400 mm Pipe End Peeler specially modified for PE-X pipes is available on request. These variants can be used to peel suitable T-pieces and saddle branches due to the variable insertion depth.

The 180-400 mm version of the tool features a bit with which it can also be driven by a cordless drill with high torque and low speed. We generally recommend this operating mode only together with the cordless drill with torque attachment and handle approved by us in the technical data. For safety reasons, the cylinder handle on the pilot arm of the tool must also be removed beforehand. If other cordless drills are used or if the procedure described in this documentation for driving the 180-400 mm Pipe End Peeler with a cordless drill is not followed, we accept no liability whatsoever for any resulting problems, personal injury or damage to the material.

The product may only be used with the components with which it was delivered or with accessories that have been explicitly released for use by PF-Schweißtechnologie GmbH. Only the use of original spare parts and original accessories is permitted. It is forbidden to replace parts or components of the product with third-party products.

The use of the product is reserved to trained professional personnel only. The applicable standards and guidelines (e. g. DVS, CEN, ISO, national standards, etc.), as well as, in particular, the accidental regulations must be complied with. The manufacturer is not liable for damage caused by improper handling or operation.

The described product must only be operated, maintained and repaired by personnel that is familiar with use of the tool and its dangers.

Proper use includes observing all instructions in the entire associated documentation, performing the inspection and maintenance work, in accordance with the instructions in this documentation as well as adhering to the general accident prevention regulations and taking note of all safety and application instructions.

5.2. Improper use



Disclaimer!

The product may not be used for any purposes other than those mentioned. The basic conditions mentioned must be adhered to. The use of the product as a whole or parts thereof for purposes other than those mentioned above shall be considered as improper use.

➤ The operator or user is liable for improper use!

5.3. Modifications and alterations

Modifying the product without prior consulting of the manufacturer is forbidden and shall be considered as improper use.



Constructional modifications are subject to prior approval!

No modifications, additions or conversions of the product or its components may be made without the manufacturer's approval.

In the case of infringements, the warranty and liability claims shall be void.

5.4. Ambient conditions

5.4.1. Environmental conditions

Do not use the pipe end peeling tools on wet or oil contaminated pipes.

5.4.2. Space requirements

The Pipe End Peelers require a space of at least 20 cm from the pipe surface in order to allow unhindered operation.

5.4.3. Weight

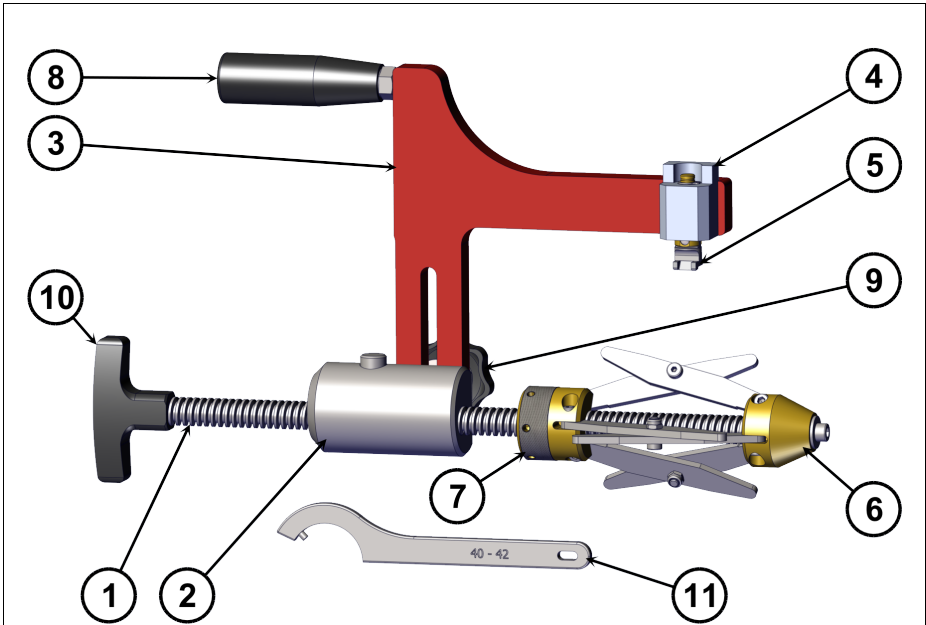
No special arrangements required.

5.5. Assembly and mounting

The Pipe End Peelers are available in different versions. The assembly and installation of the individual variants differ. The respective special features will be described individually.

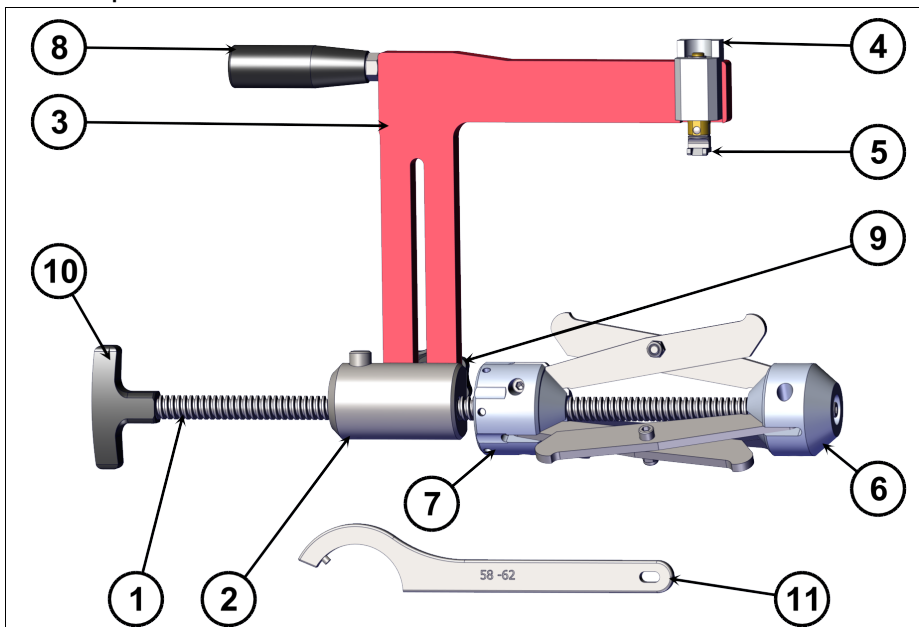
5.6. Overview

5.6.1. Pipe End Peeler 63-200 mm



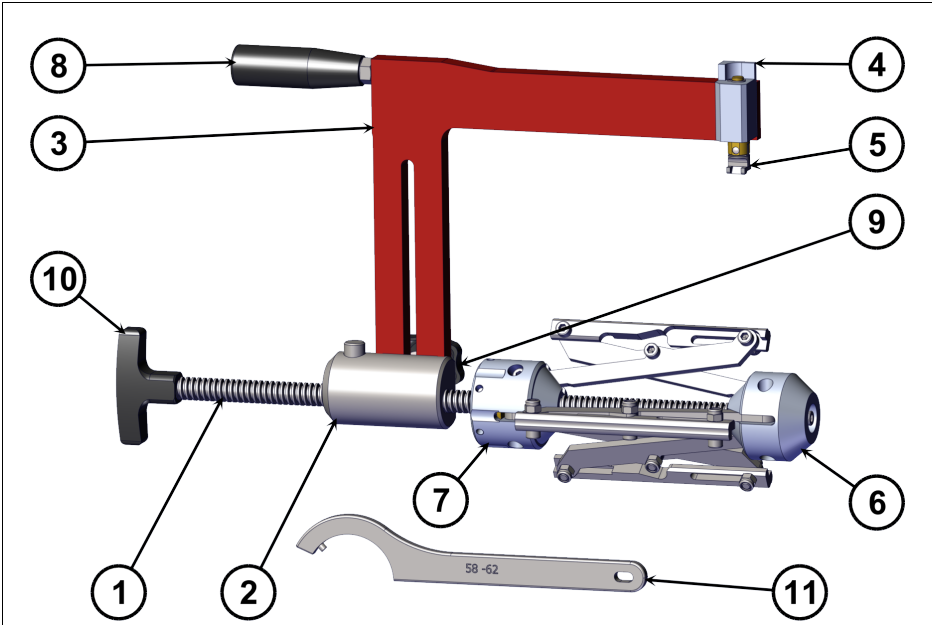
No.	Description	Code
1	Threaded spindle with T-handle	2_4200_027/1
2	Catch holder small, incl. catch	2_4200_023
3	Piloting arm for blade holder small	2_4200_029
4	Blade holder small complete incl. blade	2_4200_031
5	Peeling blade (PES2)	2_4201_005
6	Expander support small, fixed (3-way)	-
7	Expander support small, with thread (3-way)	-
8	Cylindrical handle with nut	1_2400_023
9	Star knob	1_2400_013/1
10	T-handle	1_2400_036
11	Hook spanner with pin 40-42 mm	1_2904_028

5.6.2. Pipe End Peeler 90-315 mm



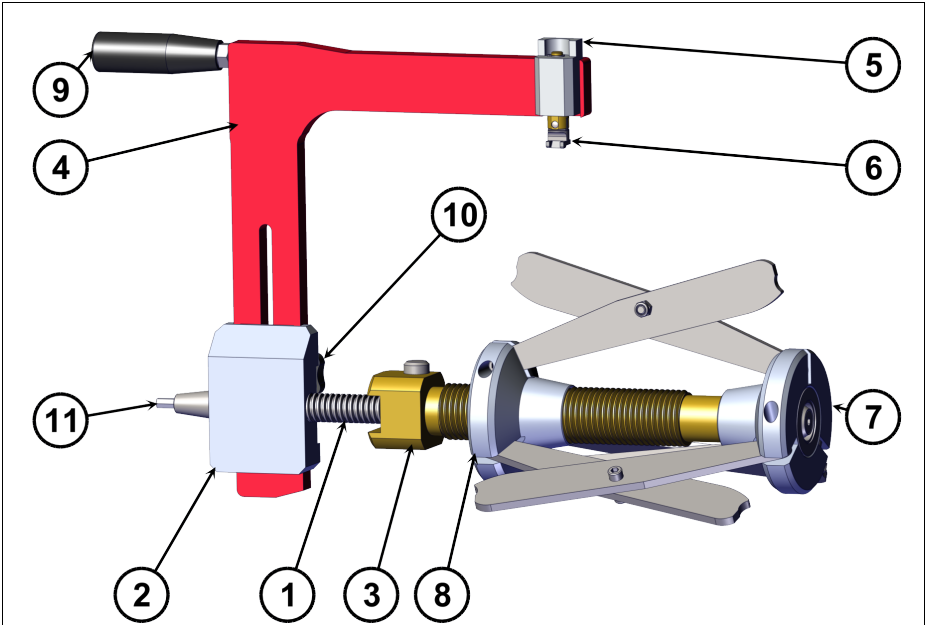
No.	Description	Code
1	Threaded spindle with T-handle	2_4200_036/1
2	Catch holder medium incl. catch	2_4200_035
3	Piloting arm for blade holder medium	2_4200_037
4	Blade holder large complete incl. blade	2_4200_032
5	Peeling blade (PES3)	2_4201_008
6	Expander support medium, fixed (3-way)	-
7	Expander support medium, with thread (3-way)	-
8	Cylindrical handle with nut	1_2400_023
9	Star knob	1_2400_013/1
10	T-handle	1_2400_036
11	Hook spanner with pin 58-62 mm	1_2904_029

5.6.3. Pipe End Peeler 90-315 mm (PE-X)



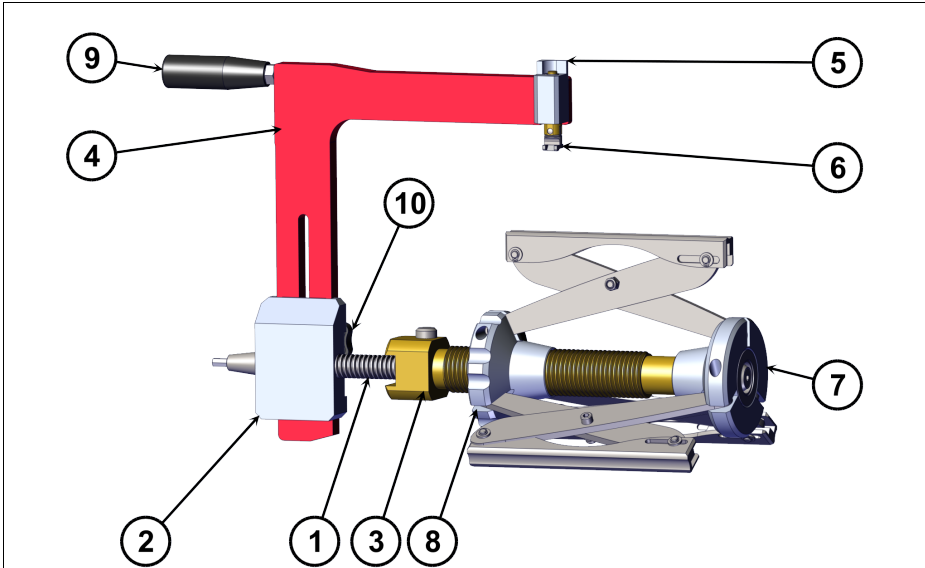
No.	Description	Code
1	Threaded spindle with T-handle	2_4200_036/1
2	Catch holder medium incl. catch	2_4200_035
3	Piloting arm for blade holder medium	2_4200_037/1
4	Blade holder medium complete incl. blade	2_4200_032/1
5	Peeling blade (PES3)	2_4201_008
6	Expander support medium, fixed (3-way)	-
7	Expander support medium, with thread (3-way)	-
8	Cylindrical handle with nut	1_2400_023
9	Star knob	1_2400_013/1
10	T-handle	1_2400_036
11	Hook spanner with pin 58-62 mm	1_2904_029

5.6.4. Pipe End Peeler 180-400 mm



No.	Description	Code
1	Threaded spindle	2_4200_028
2	Carrier for piloting arm incl. star handle	2_4200_033
3	Catch holder inkl. catch large	2_4200_024
4	Piloting arm for blade holder large	2_4200_030
5	Blade holder large complete incl. blade	2_4200_032
6	Peeling blade (PES3)	2_4201_008
7	Expander support large, fixed (3-way)	-
8	Expander support large, with thread (3-way)	-
9	Cylindrical handle with nut	1_2400_023
10	Star knob	1_2400_013/1
11	Drive bit	2_4200_086

5.6.5. Pipe End Peeler 180-400 mm (PE-X)



No.	Description	Code
1	Threaded spindle	2_4200_028
2	Carrier for pilot arm incl. star handle and drive bit	2_4200_033
3	Catch holder inkl. catch large	2_4200_024
4	Piloting arm for blade holder large	2_4200_030/1
5	Blade holder large complete incl. blade	2_4200_032/1
6	Peeling blade (PES3)	2_4201_008
7	Expander support large, fixed (3-way)	-
8	Expander support large, with thread (3-way)	-
9	Cylindrical handle with nut	1_2400_023
10	Star knob	1_2400_013/1
11	Drive bit	2_4200_086

5.7. Description of the function

After the pipe surface has been cleaned of dirt such as sand, stones, mud, oil, water or other foreign material, the tool can be installed. The area of the pipe to be peeled must first be marked.

The tool is clamped in the pipe using a scissor mechanism. This mechanism can be continuously expanded by holding the expander support and turning the handle on the spindle (variants 63-200 mm and 90-315 mm) or turning the locked peeling arm (variant 180-400 mm). After determining how far the tool must be inserted into the pipe to peel the desired area, it can be expanded and clamped. Then the piloting arm is lowered and the peeling blade is pressed against the pipe surface. After the piloting arm has been fixed, the peeling process can be carried out by turning the handle on the arm.

The 180-400 mm version of the tool features a bit with which it can also be driven by a cordless drill with high torque and low speed. We generally recommend this operating mode only together with the cordless drill with torque attachment and handle approved by us in the technical data. For safety reasons, the cylinder handle on the pilot arm of the tool must also be removed beforehand. If other cordless drills are used or if the procedure described in this documentation for driving the 180-400 mm Pipe End Peeler with a cordless drill is not followed, we accept no liability whatsoever for any resulting problems, personal injury or damage to the material.

5.8. Safety features

5.8.1. General

Safety features on the product or its components serve to protect operators. The product may only be used if all safety-related equipment is present and fully functional.

5.8.2. List of safety features on the product

Safety feature	Explanation
-	No special safety features.

6. Safety



Note

The safety guidelines for power tools apply when the optionally available cordless drill with torque attachment is used.

Our Pipe End Peelers are built according to the latest state of the art and the recognized safety regulations and directions. Nevertheless, dangers to the user or other nearby persons, as well as damage to property values, may arise if the use is improper, easy or incorrect.

The Pipe End Peeler as well as its components and accessories are only to be used if the following conditions are met:

- The use may only be carried out within the scope of the intended use.
- The Pipe End Peeler as well as its components and accessories must be generally, electrically and mechanically in perfect condition.



Warning!

Any faults which may affect safety must be rectified immediately. Until being fully rectified, the product, including all components and accessories, must not be put into operation.

- If you have questions or in case of doubt, always contact your supplier or the manufacturer.

6.1. General safety guidelines

The basic condition for safely handling and a hassle-free operation of the product is the knowledge about the fundamental safety guidelines and safety regulations. This instruction manual contains essential information on how to handle the product, including its components and accessories, safely. The safety guidelines have to be acknowledged and observed by everyone working with the product. These instructions shall be read and implemented in accordance with the relevant standards, workplace health and safety legislation, installation instructions, Codes of Practice and technical connection guideline in force in your country.

- Keep and store tools that are not in use away from children. Do not let people, who are not familiar with the product or have not read and understood the instruction manuals, use the device. Tools are dangerous if being used by inexperienced users.
- Maintain the tool with care. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the operation of the tools. If damaged, have the tool repaired before use. Many accidents are caused by poorly maintained tools.
- Keep the Pipe End Peeler clean. Follow the servicing instructions and the instructions for changing the tools. Keep oil and grease away from the handles.
- Use power tools as well as components and accessories etc. in accordance with these instructions. Take the working conditions and the work to be performed into account. Using the Pipe End Peeler together with the cordless drill for any purpose other than its intended use can lead to dangerous situations.
- Pipes and other workpieces must be firmly clamped or fixed. Poorly clamped or fixed workpieces may hurt you or affect your safe foothold.
- Keep your cutting and peeling tools sharp and clean. Properly maintained cutting and peeling tools with sharp and clean blades do not get stuck as easily and are easier to handle during operation.

NOTE**Read the provided documentation!**

Read the provided documentation thoroughly to prevent applications errors and to work safer and according to the scope of application with the respective product. Reading the documentation thoroughly and completely helps preventing accidents due to improper use and eases the work with the product.



- All users of the product must thoroughly read and understand the provided documentation prior to use.

 DANGER**Danger due to non-compliance with accident prevention regulations!**

In order to be able to use the product safely, the knowledge of the applicable accident prevention regulations in your country is absolutely necessary. Working with the product without the knowledge of the valid accident prevention regulations carries a great risk for irreversible injuries and property damage.

- Germany: Familiarize yourself with the general accident prevention regulations (UUV).
- International: International: Familiarize yourself with the standards and regulations for accident prevention in your country. Take note of these and act accordingly.

6.2. Duty of care of the operator

The operator is obliged to allow the usage of the product only to people that:

- are familiar with the basic regulations on work safety and accident prevention and are thoroughly instructed in the proper handling of the product, its components and accessories.
- have read and understood the complete documentation of the product, its components and accessories.
- are sufficiently qualified and authorized to use the product as intended.
- are fully trained and familiarized with the process of peeling PE pipes.

Furthermore, the operator must ensure that:

- responsibilities of the staff / user shall be clearly defined with regard to transport, installation, dismantling, commissioning, setting up and adjustment, operation, maintenance and inspection, repair and disassembly.
- the product and its components are used only in accordance with the intended use.
- the product, its components and accessories is used only together with accessories and retrofit parts provided by the manufacturer.
- the product and its components must be in perfect and functional condition.
- the parts of the personal protective equipment necessary for carrying out the work are available and used for the personnel employed.
- the documentation associated with the product and its components is always fully and legibly available on the job site.
- at each change of or ownership, or when loaned to other persons, all documentation must be included and its importance pointed out.
- the general and local regulations for accident prevention and environmental protection are provided and adhered to.
- all safety and danger warnings on the product, its components and accessories are kept in readable condition and renewed if damaged.

Technical condition of the product:

Subsequent requirements are based on the technical condition of the product. Compliance with these requirements must be ensured by the operator.

- The product may only be used as intended.
- The product must be checked for perfect technical condition before each use.
- No unauthorized or arbitrary modifications or manipulations of the product, its components or accessories may be made.
- The full technical documentation must always be kept completely and legibly at the place of use of the product for inspection.

6.3. Duty of care of the user**All persons entrusted with work on the tool have the obligation to:**

- familiarize themselves with the basic regulations on work safety and accident prevention before starting to work.
- thoroughly read the entire documentation.
- inform oneself about the functioning of the product, its components and accessories.

6.4. Safety in the work area

- Keep your work area clean and well lit. Working in cluttered or dark areas can easily lead to accidents.
- Prevent the product from unintentional movement or dropping and assume a secure foothold.
- **Do not work with the product in potentially explosive areas** in which flammable liquids, gases or dust is present. Power tools can produce sparks, which can ignite dust or fumes.
- Keep children and bystanders at distance while operating the product. Distractions can cause you to lose control over the tool.
- Do not allow other people touch the Saddle Drilling Equipment or cables/lines and keep them away from your working place.
- Run cables and hydraulic lines neatly to avoid trip accidents.
- Avoid an unnatural posture. Always make sure that you have a safe foothold and stay in balance. This ensures optimum control of the product in unexpected situations.
- According to national and international guidelines, the use of power tools with a supply voltage of 230 V AC or higher (or 110 V AC or higher) in trenches and confined spaces is only permitted if additional security measures are taken. Each electrical device operated in such an environment has to be powered by its own safety isolating transformer or its own insulation protective device.

6.5. General safety guidelines for power tools



The term "power tool" used in the safety guidelines relates to mains-operated power tools (with cord) as well as battery-operated power tools (without cord).

NOTE



Protect the tool from humidity!

All electrical tools must be protected against rain and dripping water.

- If necessary, place a welding tent.

- Read and make sure you understand all safety guidelines and instructions. Failure to follow the safety guidelines and instructions can lead to electric shock, fire and/or serious injury.
- Keep these safety guidelines and instructions for future use.

Electrical safety

- The plug of the power tool must fit in the outlet. Never modify the plug in any way. Unmodified plugs and matching outlets will reduce the risk of electric shock.
- Avoid physical contact with earthed/grounded surfaces or objects such as pipes, radiators, stoves and refrigerators. There is an increased risk of electric shock if your body is earthed/grounded.
- Keep the product clear of rain and wetness. The penetration of water into a power tool considerably increases the risk of electric shock.
- Do not misuse the cords and lines of the product to carry it, hang it up or pull the plug out of the socket. Keep the cord away from heat, oil, sharp edges and movable machine parts. Damaged or bent cords increase the risk of an electric shock.
- When operating the product outdoors, use extension cords that are suitable and approved for outdoor use. Usage of an extension cord suitable and approved for outdoor use reduces the risk of an electric shock.
- The use of a residual current-operated protective device (RCD) is mandatory when working at outdoor construction sites. Note all directives and technical connection regulations in force in your country. **Always** use a residual current-operated protective device (RCD). Using an RCD reduces the risk of an electric shock.
- In accordance with the workplace health and safety legislation in force in your country for connection and usage of electric devices you must ensure that the tool, any extension cords and RCDs are regularly inspected (tested and tagged) by a licensed electrician or other competent person.
- It is very important that there is a Protective Earthing (PE) conductor which is continuous (i.e. <math><0.5\text{ Ohms}</math>) from the earth terminal of the generator to the earth terminal of the plug on the flexible supply cord of the power tool. If the protective earthing conductor is interrupted or becomes higher in resistance, there is a risk of electric shock.

- The power tool shall only be used on a power circuit with a protective earthing conductor. Otherwise there is a risk of an electric shock.
- If the power tool is used together with a generator, the generator shall be grounded. Otherwise there is a risk of an electric shock.
- Do not use any adapters in combination with earthed/grounded products.

Personal safety

- Stay alert! Watch what you are doing and use common sense when operating a tool. Do not use the product while being tired or under the influence of drugs, alcohol or medication. One moment of inattention while operating the product can cause serious personal injury.
- Remove adjusting tools and wrenches before switching on the device. A tool or wrench getting caught in a rotating part of the power tool can cause serious accidents.
- If dust extractors or chip trapping equipment can be installed, they must be connected and used. The use of these devices can prevent hazards due to dust or flying chips.
- Do not have a false sense of security and do not overstep the safety rules for power tools, even if you are familiar with the power tool after many uses. Careless action can lead to serious injuries in a split second.

Power tool usage and care

- Do not overload the power tool. Use the appropriate power tool for your application. When using an appropriate power tool you can work better and more safely in its range of capacity.
- Do not use the power tool if the switches are broken. A power tool, which cannot be turned on or off, is dangerous and must be repaired.
- Pull out the plug resp. the battery when you do not use the Electrical Chain Peeler or when changing the adapters and attachments. This precaution prevents an unintentional start of the power tool.
- Prevent unintentional starting of the device. Make sure that the power tool is switched off before connecting it to the mains and/or battery or before picking it up/carrying it. It can lead to accidents if you connect the product in a switched-on state to the power supply.
- Only use accessories, particularly extension cords and generators, that are specified/recommended in this instruction manual. The use of any other accessories than the ones mentioned in the documentation can damage the power tool and increases your risk of injury.
- Before each use of the product, the user must visually inspect that the product, its cables and accessories as well as its electrical supply cord to ensure that all parts are free from damage and are correctly installed. Damaged protection facilities and device parts must be repaired or replaced by an authorized service agent.

6.6. Safety instructions for battery packs and chargers

Use and treatment of the battery charger

- Charge the batteries only with chargers recommended by the manufacturer. A charger suitable for a particular type of battery may present a fire hazard when used with other types of battery
- Follow all charging instructions and never charge the battery or the cordless tool outside the temperature range specified in the operating instructions. Incorrect charging or charging outside the permitted temperature range can destroy the battery and increase the risk of fire.
- Use chargers only at the intended supply voltage.
- Pull out the mains plug immediately if the battery charger starts to smoke or flames emerge.
- Do not insert objects into the ventilation slots on the battery charger. There is a danger of electric shocks and short circuits.

Usage and treatment of the battery pack

- Use only the appropriate batteries in the power tools. Use of other batteries than specified may cause injury or fire.
- Keep the unused battery away from paper clips, coins, keys, nails, screws, or other small metal objects that could bridge the contacts. A short circuit between the battery contacts can cause burns or 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.
- Protect battery packs from water and moisture!
- Do not expose a battery pack or tool to fire or excessive temperature. Exposure to fire or temperature above 130 °C may cause explosion.
- Never service damaged battery packs. Service of battery packs should only be performed by the manufacturer or authorised service providers. Please contact your distributor.
- If your power tool has a defect, remove the battery pack.

CAUTION



Danger due to electrostatic charge / discharge!

If metallic objects or tools are to be mounted on insulating pipes, such as plastic pipes, they must be grounded because the pipe can get statically charged otherwise. Electrostatic discharge can cause sparks that can become a source of ignition or electrical shock.

- Ground all metallic objects that you mount on plastic pipes.

6.7. Personal protective equipment

NOTE



Obligation to use the personal protective equipment!

During transport, assembly, assembly and disassembly of the product, the respective personnel must wear and use the appropriate PPE.

Which parts of the PPE must be used must be evaluated on an individual basis, determined by the operator and announced to the personnel.



The nature and extent of the PPE to be worn must be assessed and determined for the individual case.

The following PPE is recommended when working with this product:



Wear eye protection!

When working with the product, eye protection should always be worn. Flying chips or foreign objects can damage your eyesight.



Wear safety shoes!

Wearing safety shoes protects the feet from falling objects and reduces the risk of slipping.



Cover long hair with hairnet or cap!

The tying of long hair or the wearing of a hair net or a cap prevents the danger of catching by rotating parts.

6.8. Qualification of personnel

Only persons with sufficient knowledge in the field of peeling PE pipes may work with this product. This knowledge may have been gained through several years of professional experience, training, instruction or other training. Persons who do not have sufficient knowledge in this area must be supervised and instructed by a person with appropriate knowledge.



WARNING



Danger due to insufficient personnel qualification

If insufficiently skilled operators work with the product or are in the work area, there is a risk of serious injury or property damage.

- Allow only qualified personnel to work with the product.
- Unqualified personnel must be kept away from the danger area.
- Personnel in training may only work with the product under the supervision of an experienced person.

6.9. Deadlines for recurring checks

Annual

- The product should be inspected at least once a year by a service center authorized by the manufacturer.

Upon need

- Operability of the mechanism

Each working day

- Visual inspection for damage to the components.
- Checking the proper functioning of all switches and buttons on the tool.

6.10. Dangers during individual work phases

6.10.1. Dangers during transport and assembly

Transport

During loading and transport, only auxiliary tools such as lifting devices, load suspension devices and transport vehicles may be used which have sufficient carrying capacity and stability. When transporting, observe all mandatory safety measures and, if required, use the appropriate protective equipment.

Installation

The installation of the components may only be carried out by trained personnel who have read and understood all parts of the documentation. The assembly must be performed by at least two people.

CAUTION



Risk of cutting injuries on sharp edges

In case of carelessness or improper use, the very sharp peeling blade can lead to cutting injuries.

- Avoid touching the cutting edge of the peeling blade.
- Pay attention to the sharp edge when handling.
- Wear suitable protective gloves when handling.

CAUTION



Accidental start of the drive

When installing and removing the tool always make sure that you do not switch on the drive unintentionally. If the drive starts unintentionally, this means that the user is in danger of being entangled.

- Put the rotation selector in the middle position (locked). That way the trigger switch can not be pressed down.
- Remove the battery during installation and removal.

6.10.2. Dangers during operation

The operator must have been instructed by the operator in the handling of the tool. Working with the tool without prior instruction is prohibited. The proof obligation lies with the operator.

Only use the tool according to its intended use. Activities that impair safety are to be avoided.

WARNING



Injury due to improper / unintended operation

Incorrect or unintentional operation of the tool can lead to injury and / or property damage.

- Before using the tool, check that all components are free from damage.
- Check all safety devices for damage before operation.
- Never operate the tool if it has any damage, protective devices are defective or missing.

WARNING



Pipe End Peeler 180-400 mm used combination with electric drive:

Trauma by the black cylinder handle

When the 180-400 mm Pipe End Peeler is used with an electric drive, serious injury to the user and/or damage to property may result.

- Unscrew the black cylinder handle if you want to use the PES400 with an electric drive.
- The use of an electric drive on the PES400 with mounted cylinder handle is strictly prohibited.

6.10.3. Dangers during removal

The disassembly of the components may only be carried out by trained personnel who have read and understood all parts of the documentation. The removal must be performed by at least two people.

CAUTION



Risk of cutting injuries on sharp edges

In case of carelessness or improper use, the very sharp peeling blade can lead to cutting injuries.

- Avoid touching the cutting edge of the peeling blade.
- Pay attention to the sharp edge when handling.
- Wear suitable protective gloves when handling.



CAUTION



Accidental start of the drive


When installing and removing the tool always make sure that you do not switch on the drive unintentionally. If the drive starts unintentionally, this means that the user is in danger of being entangled.

- Put the rotation selector in the middle position (locked). That way the trigger switch can not be pressed down.
- Remove the battery during installation and removal.

6.11. Device specific dangers

6.11.1. Dangers due to electric current

⚠ DANGER

 **Danger to life due to electric shock**
Depending on the variant, the battery charger is operated with 230 V AC or 110 V AC. If the supply line or the battery charger itself is damaged or has been tampered with it can lead to life-threatening accidents. It is strictly forbidden to open the battery charger.

- Always check the supply line for damage before using the battery charger.
- In the event of damage to the supply line, the battery charger must not be used before it is professionally repaired.
- Repairs to the supply line may only be carried out by the manufacturer.
- Operation on construction sites may only be carried out by means of a power distributor with a residual current circuit breaker in accordance with VDE 0100.
- General as well as nationally and internationally valid safety guidelines and regulations for handling power tools must be followed.




Pull out the mains plug!

If you are not using the tool, disconnect the power plug from the power source.

6.11.2. Risk of entanglement

⚠ CAUTION

 **Danger of entanglement by the rotating pilot arm**
In the event of carelessness or improper use, the pilot arm can catch objects, jewellery, long hair or clothing as it rotates during operation. This can lead to serious injuries, broken bones or property damage.

- Avoid touching the rotating parts of the tool.
- If necessary, wear a hairnet or tie long hair together.
- Do not wear jewellery.
- Keep foreign objects away from the rotating parts.
- Wear tight-fitting clothing.
- Tools with mains connection: Disconnect the tool from the power supply before and after work.
- Tools with battery: Battery powered tools: move the rotation selector switch into its center position and remove the battery.




Cover long hair with hairnet or cap!

The tying of long hair or the wearing of a hair net or a cap prevents the danger of catching by rotating parts.

6.12. Residual risks

NOTE

 **Residual risks**
Due to the design of the Pipe End Peelers, certain residual risks can not be completely excluded. Read the following instructions carefully. This allows you to react faster and safer in case of a problem.

- If a drive other than the recommended one is used, dangerous situations may occur if is used carelessness or the number of revolutions is too high.

7. Scope of delivery



Note

The product is available in different versions. The scope of delivery differs, depending on the ordered variant. The given technical information is valid for the standard setup of the tool. Depending on the ordered setup there may be variations. Errata and technical modifications reserved!

Code	Pipe End Peeler 63-200 mm	Pipe End Peeler 90-315 mm	Pipe End Peeler 90-315 mm (PE-X)	Pipe End Peeler 180-400 mm	Pipe End Peeler 180-400 mm (PE-X)
	4_4200_015	4_4200_027	4_4200_027/1	4_4200_016	4_4200_016/1
Instruction manual	1 x EN269				
Plastic suitcase	1_2800_024	1_2800_025/1	1_2800_025		
Hex key screwdriver	1 x 1_2904_003				
Spare blade	2_4201_005		2_4201_008		
Color of blade container	Blue		Red		

7.1. Optional accessories

4_4200_999	Cordless drill Metabo LTX incl. 5.5 Ah batteries and 230 V charger	Enclosed
1 x	Cordless drill LTX	
2 x	Battery pack 5.5 Ah	
1 x	Battery charger 230 V	
1 x	Handle	
1_4200_509	Battery charger 110 V for Metabo batteries	Enclosed
1 x	Battery charger 110 V	

8. Technical data



Note

Further technical data as well as important information can be found in the additionally applicable documents of the suppliers.

General						
	Pipe End Peeler 63-200 mm	Pipe End Peeler 90-315 mm	Pipe End Peeler 90-315 mm (PE-X)	Pipe End Peeler 180-400 mm	Pipe End Peeler 180-400 mm	Pipe End Peeler 180-400 mm (PE-X)
Code	4_4200_015	4_4200_027	4_4200_027/1	4_4200_016	4_4200_016	4_4200_016/1
For pipe dimensions [mm]	63 (min. SDR11) to 200 (max. SDR17.6)	90 (min. SDR11) to 315 (max. SDR17.6)	90 (min. SDR11) to 315 (max. SDR17.6)	180 (min. SDR11) to 400 (max. SDR17.6)	180 (min. SDR11) to 400 (max. SDR17.6)	180 (min. SDR11) to 400 (max. SDR17.6)
For pipe dimensions IPS	3-6"	4-10"	4-10"	8-16"	8-16"	8-16"
For pipe dimensions DIPS	3-6"	3-10"	3-10"	8-14"	8-14"	8-14"
Suitable for pipes made of	PE, PE-HD, PE-X, PP					
Peeling blade	PES2*					
Peeling depth [mm]	PES3*					
Length of peeling at max. insertion depth [mm]	0.2 (0.15 to 0.25) Approx. 125	Approx. 160	Depending on the pipe size Approx. 125	0.3 (0.25 to 0.35)	Depending on the pipe size Approx. 170	
*Operation with battery powered drill						
General requirements	-	-	-	-	Cordless drill with low RPM and high torque	
**Device recommendation	-	-	-	-	Metabo BS 18 LTX BL Qi with Power X3 attachment and handle in 1st gear at speed setting 4-5	
Rotational speed [min ⁻¹]	-	-	-	-	Max. 100	
Torque [Nm]	-	-	-	-	Min. 50	

The specifications apply to the standard setup of the tools. Depending on the ordered setup there may be variations.

* There is no cordless drill included in the scope of delivery.

** This cordless drill is available on request from PF-Schweißtechnologier GmbH.

Pipe End Peeler 63-200 mm		Pipe End Peeler 90-315 mm	Pipe End Peeler 90-315 mm (PE-X)	Pipe End Peeler 180-400 mm	Pipe End Peeler 180-400 mm (PE-X)
Dimensions, weights and packaging					
Product dimensions L×W×H	[mm]	425×230×90	500×260×100	500×260×100	530×330×150
Product weight	[kg]	2.8	4.4	3.9	7.2
Packaging dimensions L×W×H	[mm]	450×370×140	600×420×150	600×420×150	600×420×150
Packaging material		Plastic			
Packaging type		Suitcase			
Packaging weight	[kg]	1.5	2.8	2.8	2.6
Transport weight	[kg]	4.3	7.2	7	9.8
					10.6

The specifications apply to the standard setup of the tools. Depending on the ordered setup there may be variations.

* There is no cordless drill included in the scope of delivery.

** This cordless drill is available on request from PF-Schweißtechnologier GmbH.

8.1. Insertion depths and peeling lengths

Pipe dimension	Pipe End Peeler 63-200 mm		Pipe End Peeler 90-315 mm		Pipe End Peeler 90-315 mm (PE-X)		Pipe End Peeler 180-400 mm		Pipe End Peeler 180-400 mm (PE-X)	
	Max. insertion depth	Length of peeling at max. insertion depth	Max. insertion depth	Length of peeling at max. insertion depth	Max. insertion depth	Length of peeling at max. insertion depth	Max. insertion depth	Length of peeling at max. insertion depth	Max. insertion depth	Length of peeling at max. insertion depth
Ø 63 mm	[mm]	Approx. 160	-	-	-	-	-	-	-	-
Ø 75 mm	[mm]	Approx. 160	-	-	-	-	-	-	-	-
Ø 90 mm	[mm]	Approx. 160	Approx. 230	Approx. 150	Approx. 150	Approx. 120	-	-	-	-
Ø 110 mm	[mm]	Approx. 165	Approx. 235	Approx. 150	Approx. 145	Approx. 125	-	-	-	-
Ø 125 mm	[mm]	Approx. 170	Approx. 235	Approx. 160	Approx. 150	Approx. 125	-	-	-	-
Ø 140 mm	[mm]	Approx. 170	Approx. 235	Approx. 160	Approx. 145	Approx. 125	-	-	-	-
Ø 160 mm	[mm]	Approx. 170	Approx. 235	Approx. 160	Approx. 150	Approx. 125	-	-	-	-
Ø 180 mm	[mm]	Approx. 170	Approx. 230	Approx. 160	Approx. 150	Approx. 125	Approx. 350	Approx. 165	Approx. 350	Approx. 165
Ø 200 mm	[mm]	Approx. 170	Approx. 225	Approx. 165	Approx. 140	Approx. 125	Approx. 360	Approx. 170	Approx. 360	Approx. 170
Ø 225 mm	[mm]	-	Approx. 220	Approx. 165	Approx. 145	Approx. 135	Approx. 360	Approx. 170	Approx. 360	Approx. 170
Ø 250 mm	[mm]	-	-	Approx. 165	Approx. 145	Approx. 135	Approx. 360	Approx. 175	Approx. 360	Approx. 175
Ø 280 mm	[mm]	-	-	Approx. 165	Approx. 150	Approx. 150	Approx. 365	Approx. 175	Approx. 365	Approx. 175
Ø 315 mm	[mm]	-	-	Approx. 165	Approx. 195	Approx. 170	Approx. 365	Approx. 175	Approx. 365	Approx. 175
Ø 355 mm	[mm]	-	-	-	-	-	Approx. 365	Approx. 175	Approx. 365	Approx. 175
Ø 400 mm	[mm]	-	-	-	-	-	Approx. 365	Approx. 175	Approx. 365	Approx. 175

The given technical information is valid for the standard setup of the tool. Depending on the ordered setup there may be variations.

* There is no cordless drill included in the scope of delivery.

** This cordless drill is available on request from PF-Schweißtechnologie GmbH.

8.2. Optional accessories

4_4200_999		Cordless drill Metabo LTX incl. 5.5 Ah batteries and 230 V charger	
Electrical data for drive			
Supply voltage for the battery charger	[V]	230	
Battery voltage	[V]	18	
Mechanical data for drive with torque attachment			
RPM 1st gear	[min ⁻¹]	Approx. 0-160	
RPM 2nd gear	[min ⁻¹]	Approx. 0-600	
Max. torque 1st gear	[Nm]	Approx. 170	
Max. torque 2nd gear	[Nm]	Approx. 170	
Dimensions, weights and packaging			
Product dimensions L×W×H	[mm]	310×280×260	
Product weight	[kg]	3.3	
Packaging dimensions L×W×H	[mm]	500×300×150	
Packaging material		Plastic	
Packaging type		Suitcase	
Packaging weight	[kg]	1.4	
Transport weight	[kg]	5.5	

1_4200_509		Battery charger 110 V for Metabo batteries	
Electrical data for drive			
Supply voltage for the battery charger	[V]	110	
Battery voltage	[V]	18	
Dimensions, weights and packaging			
Product dimensions L×W×H	[mm]	450×300×120	
Product weight	[kg]	0.6	
Packaging dimensions L×W×H	[mm]	-	
Packaging material		-	
Packaging type		-	
Packaging weight	[kg]	-	
Transport weight	[kg]	0.8	

9. Transport, Installation and removal, storing



Qualification of personnel

The tool may only be transported, installed, removed and stored by persons with relevant professional experience and expertise in using the tool.



Safety

User and operator are responsible. Observe all safety instructions in this instruction manual as well as all valid safety regulations.

9.1. Transport damage

Check the tool for damage immediately after receipt. If damage or abnormalities are present, ideally document them with pictures and contact the manufacturer or your dealer.

9.2. Packaging

The tool is delivered in a plastic suitcase. Keep the suitcase for transport and storage.



Damage to the plastic suitcase

Damage to the plastic suitcase may indicate damage to the tool. If in doubt about the condition of the tool, contact the manufacturer or your dealer.

9.3. Assembly and installation

Conditions for the installation site

- ❖ Make sure you have enough space and good lighting.
- ❖ The pipe must be free of dirt and foreign objects.
- ❖ There must be no moisture near the power cord or power supply.
- ❖ Provide a free escape route in case you lose control of the tool during assembly.
- ❖ If necessary, set up a tent to protect the work area and the tool from the effects of the weather, such as strong sunlight, rain or moisture.

9.4. Storage

Store the product in its transport suitcase, protected from the weather. The temperature should be between 10 and 30 ° C with a humidity of not more than 60%.

10. Installation



Note

In the following, the installation of the Pipe End Peelers 63-200 mm and 180-400 mm is described. The design of the pipe peeling tools 90-315 mm and 90-315 mm (PE-X) is largely identical to that of the Pipe End Peeler 63-200 mm. Special features and deviations are explained separately.

CAUTION



Danger of cutting

When handling the tool there is a risk of cuts by the peeling blade.

- Wear cut-resistant gloves and long-sleeved clothing.
- Avoid touching the peeling blade with your bare hands.



Qualification of personnel

- All persons involved in the assembly and installation must have read and understood this instruction manual and in particular all safety instructions.



Important information about your safety

You are responsible!

All safety instructions in this instruction manual and the generally applicable measures for accident prevention must be adhered to.

Requirement:

- ! The safety instructions are observed.
- ! The outer diameter of the pipe was measured to prevent from peeling the pipe too much (under nominal diameter).
- ! The pipe surface was cleaned and foreign objects were removed.
- ! The area to be peeled was marked with an approved marking pen.
- ! There is at least a space of 20 cm around the pipe.

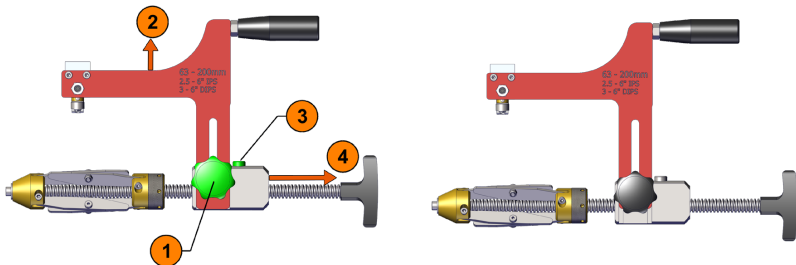
10.1. Preparation

10.1.1. PES200, PES315 and PES315 (PE-X)

Perform the following actions to return the tool to its initial position.

Establishing the basic position:

1. Loosen the knob (1).
2. Bring the pilot arm all the way up (2).
3. Tighten the knob (1) to lock the pilot arm.
4. Press and hold the catch (3) and move the pilot arm with the catch holder in direction (4) up to one thread towards the T-handle.
5. Release the catch (3).



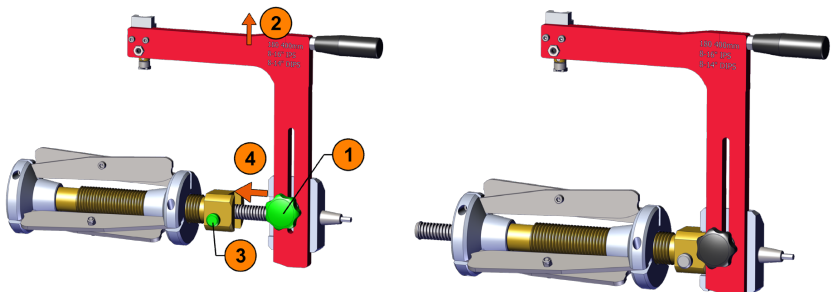
✓ The Pipe End Peeler is in its basic position.

10.1.2. PES400 and PES400 (PE-X)

Perform the following actions to return the tool to its initial position.

Establishing the basic position:

1. Loosen the knob (1).
2. Bring the pilot arm all the way up (2).
3. Tighten the knob (1) to lock the pilot arm.
4. Press and hold the catch (3) and move the pilot arm with the catch holder in direction (4) until it is fully inserted into the recess.
5. Release the catch (3).



✓ The Pipe End Peeler is in its basic position.

10.1.3. Drive for PES400 and PES400 (PE-X)

NOTE**Only use the recommended drive.**

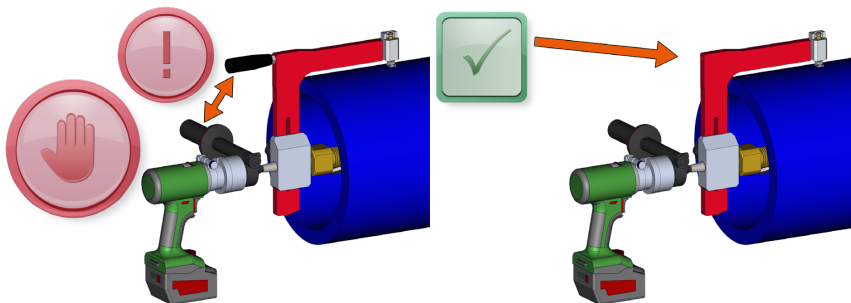
The 180-400 mm version of the tool features a bit with which it can also be driven by a cordless drill with high torque and low speed. We generally recommend this operating mode only together with the cordless drill with torque attachment and handle approved by us in the technical data. For safety reasons, the cylinder handle on the pilot arm of the tool must also be removed beforehand. If other cordless drills are used or if the procedure described in this documentation for driving the 180-400 mm Pipe End Peeler with a cordless drill is not followed, we accept no liability whatsoever for any resulting problems, personal injury or damage to the material.

Preconditions:

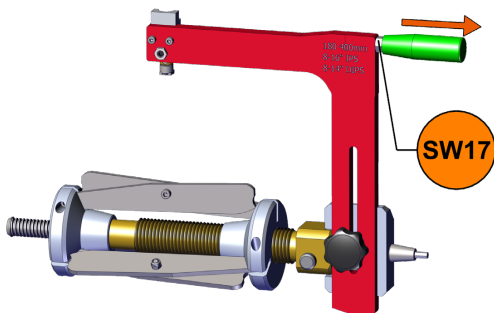
! The battery is charged.

Preparations:

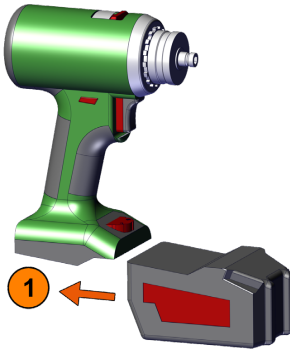
1. The cylinder handle for manual peeling MUST be removed when using a drive.



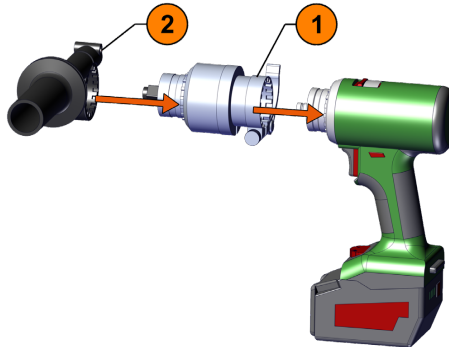
2. Only use the recommended drive. Unscrew the cylinder handle using a wrench size SW17.



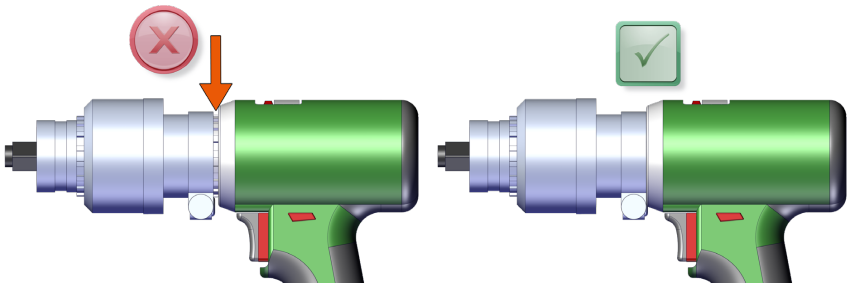
3. Push the battery in direction (1) until it engages.



4. Plug the torque attachment (1) onto the cordless drill and secure it with the clamping lever.
5. Then slide the black handle onto the torque attachment and tighten it.



6. Make sure that the teeth of the torque attachment and the handle are fully engaged so that they have a good connection.



10.2. Inserting the tool into the pipe

⚠ CAUTION



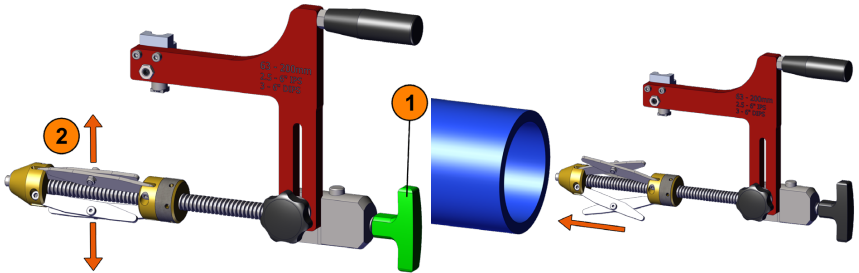
Danger of cutting

When handling the tool there is a risk of cuts by the peeling blade.

- Wear cut-resistant gloves and long-sleeved clothing.
- Avoid touching the peeling blade with your bare hands.

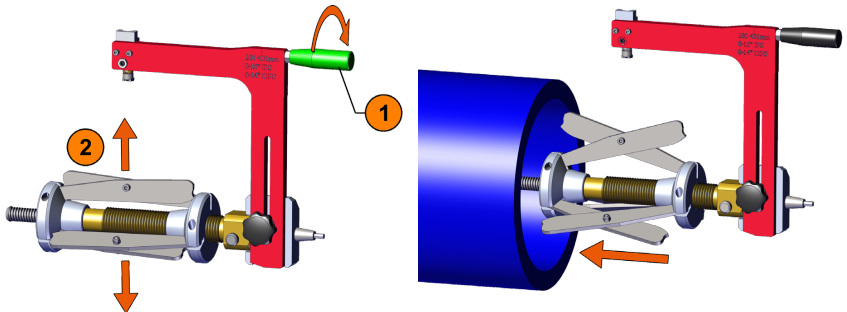
10.2.1. PES200, PES315 and PES315 (PE-X)

1. Turn the handle (1) to open the scissor mechanism (2).
2. Open the scissor mechanism only so far, that you can still insert the tool into the pipe without any problems.



10.2.2. PES400 and PES400 (PE-X)

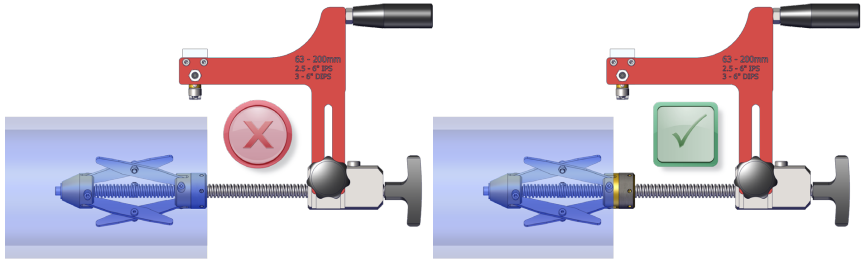
1. If the tool is in the basic position described above, turn the handle (1) to open the scissor mechanism (2). This can only be opened and closed if the pilot arm is in the recess of the catch holder.
2. Open the scissor mechanism only so far, that you can still insert the tool into the pipe without any problems.



10.3. Insertion depth and peeling zone

Be sure to observe the insertion depth and the peeling area. You must be able to peel all the way to the pipe end with the tool.

1. The following pictures illustrate the effect of the insertion depth. Depending on the pipe size, the tool can be inserted very far into the pipe end. However, peeling up to the end of the pipe may not be possible then.
2. Therefore choose a suitable insertion depth.

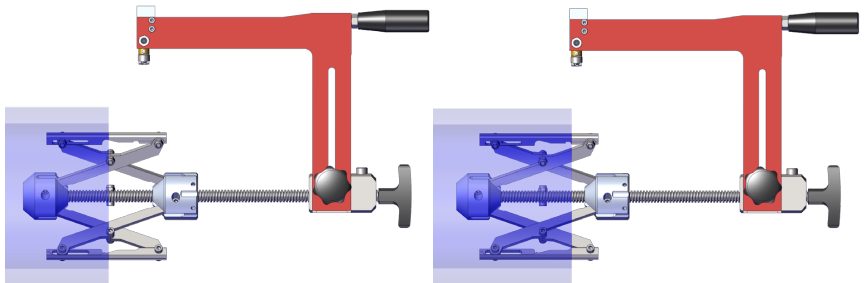


10.3.1. PE-X versions



PES315 (PE-X) and PES400 (PE-X)

- The PE-X versions of the Pipe End Peelers 90-315 mm and 180-400 mm offer the possibility to peel coupler branches such as T-pieces or saddle outlets due to their support rails. The insertion depth can be chosen freely due to the scissor mechanism with rails.



10.4. Tensioning

NOTE



Do not apply too much tensioning force!

If you apply too much tensioning force, it can damage the scissor mechanism of the tool. If you need a lot of force when using the tool, there is most likely a problem. Further use of the tool can lead to serious damage.

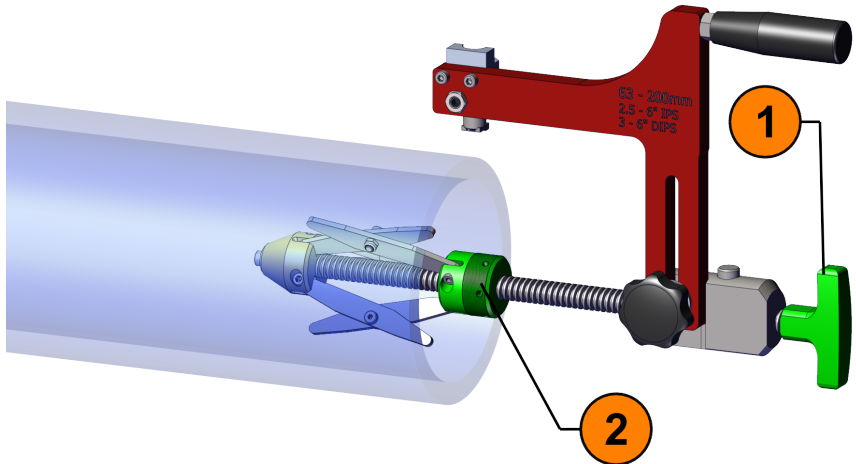
Preconditions:

- ! A proper insertion depth was chosen so the pipe can be peeled until its end.

10.4.1. PES200, PES315, PES315 (PE-X) without hook wrench

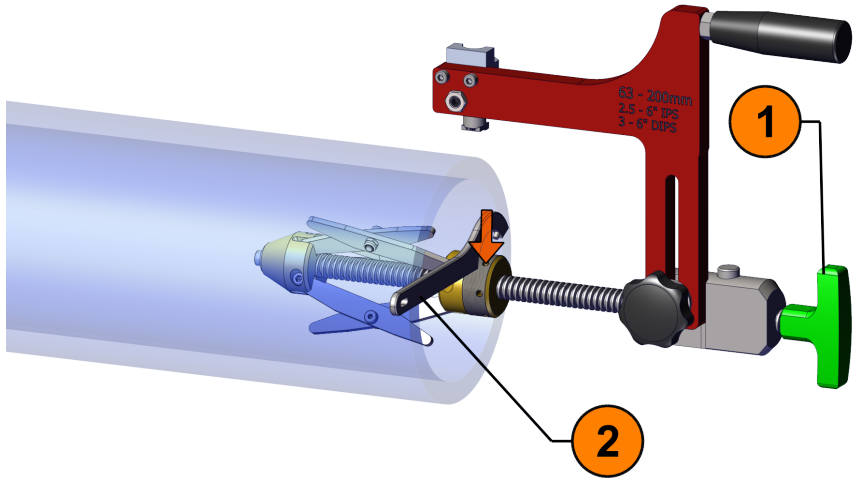
Tensioning without hook wrench:

1. Hold the tool by the expander support (2) and turn the handle (1) clockwise. The scissor mechanism expands.
2. Expand the scissor mechanism until it touches the inside of the pipe.
3. Continue turning the handle until the tool is sufficiently tensioned and it no longer turns in the pipe.



10.4.2. PES200, PES315, PES315 (PE-X) with hook wrench**Tensioning with hook wrench:**

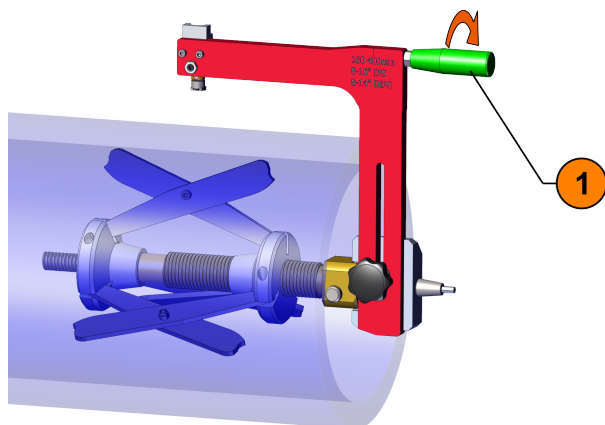
1. If you have problems tensioning the tool, you can use the supplied hook wrench for a better grip.
2. Insert the tip of the hook wrench (2) into one of the holes on the expander support.
3. Hold the hook wrench firmly and turn the handle (1) clockwise. With the hook wrench you can apply additional clamping force.



10.4.3. PES400 and PES400 (PE-X)

Tensioning:

1. Turn the handle (1) counterclockwise. The scissor mechanism expands.



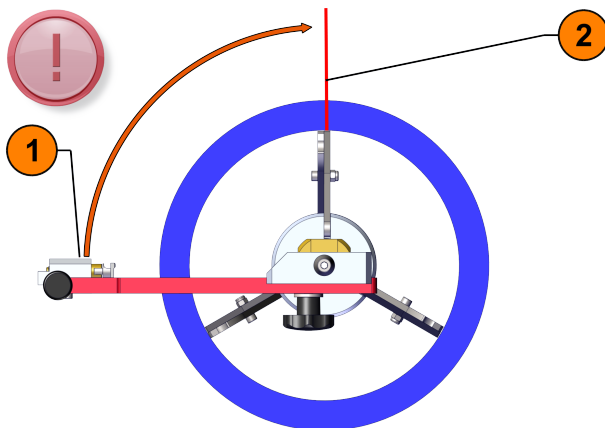
2. Expand the scissor mechanism until it touches the inside of the pipe.
3. Continue turning the handle until the tool is sufficiently tensioned and it no longer turns in the pipe.

NOTE



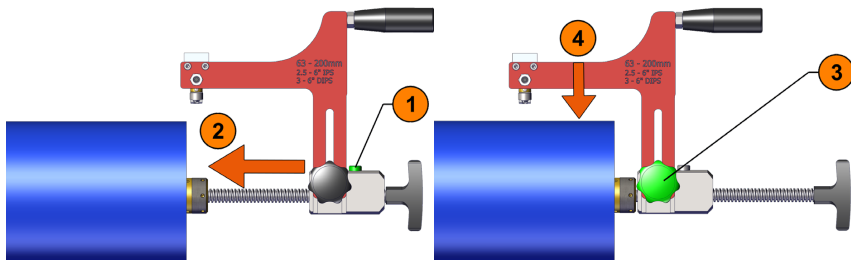
Do not apply too much tensioning force!

Example: In position (1) you can feel that the pilot arm can only be moved further with a great deal of force for increased tensioning. Interrupt the clamping process at this point! From this point turn the pilot arm for tensioning **MAXIMUM** another 1/4 turn for tensioning.



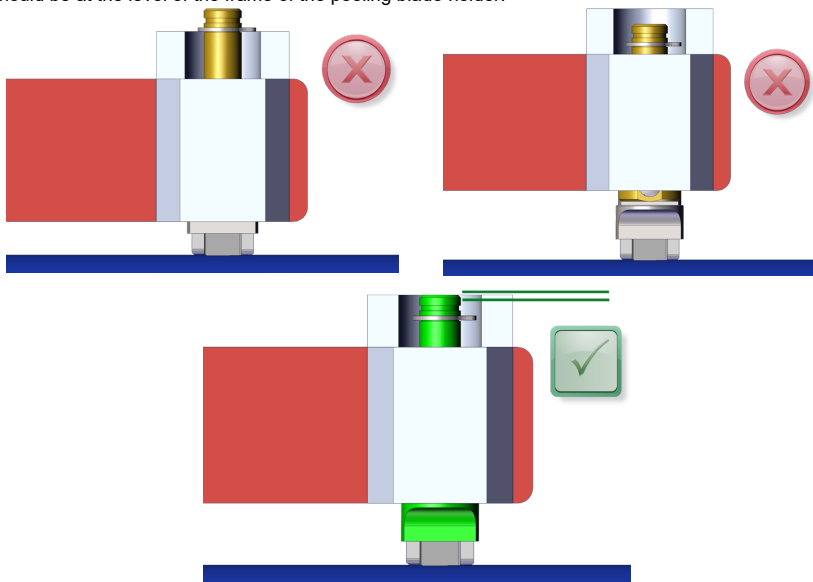
10.5. Positioning and lowering the pilot arm (PES200, PES315 and PES315 (PE-X))

1. Press and hold the catch (1) and move the pilot arm in direction (2). Then release the catch (1).
2. Loosen the handle (3) with one turn and press the pilot arm down until the peeling blade makes contact with the pipe surface.



10.6. Note the indicator on the blade holder

The blade holder features an indicator pin. When the contact pressure on the pipe surface is increased, the indicator pin rises. When the pressure is sufficient, the upper end of the indicator pin should be at the level of the frame of the peeling blade holder.



Attention!

Always make sure that the blade holder is not fully compressed. Only then the spring in the blade holder will push the peeler blade forcefully enough against the pipe surface to peel flat spots.

11. Manual peeling procedure

11.1. PES200, PES315, PES315 (PE-X)

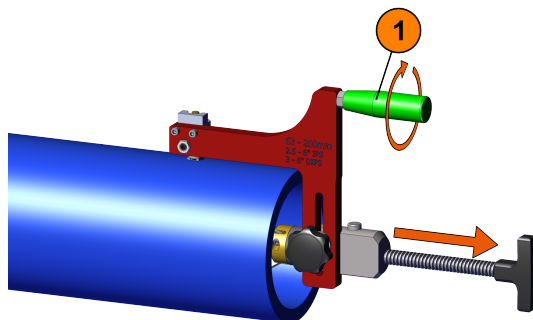
After the preparations and the installation have taken place, the peeling process can be started.

Preconditions

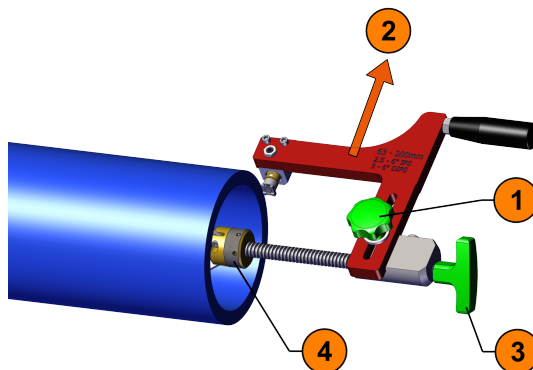
- ! The tool is installed.

Peeling:

1. Turn the pilot arm continuously in a clockwise manner by using the black cylinder handle.
2. Watch the peel formation. The peel should be continuous.



3. Reduzieren Sie Ihr Arbeitstempo bevor Sie das Rohrende erreichen.
4. Continue turning the pilot arm until the peeling blade has reached the end of the pipe. Der Anpressdruck an das Schälmesser entspannt sich schlagartig, wenn das Schälmesser das Rohrende verlässt.
5. When the peeling blade runs freely, the tool can be removed. Loosen the star knob (1) by turning it counterclockwise. Bring the pilot arm all the way up (2). Then turn the star knob (1) clockwise to fix the pilot arm in place. Hold the tool by the expander support (4) and turn the handle (3) counterclockwise to close the scissor mechanism.



11.2. PES400 and PES400 (PE-X)

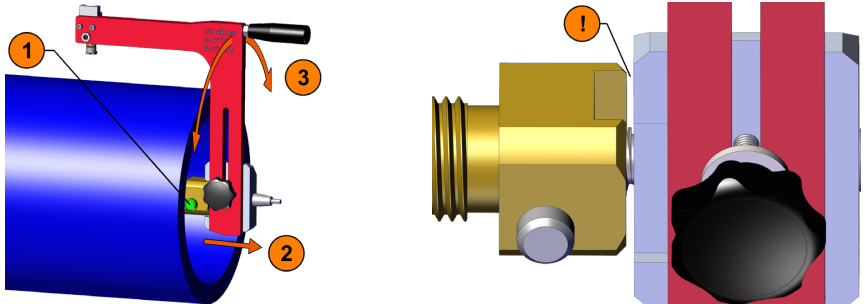
After the preparations and the installation have taken place, the peeling process can be started.

Preconditions

- ! The tool is installed.
- ! The pilot arm is not yet lowered.

Unlocking the pilot arm:

1. Press and hold the catch (1) and move the pilot arm approx. 1.5 cm in direction (2). This will unlock the pilot arm (!).
2. The pilot arm can now be moved freely (3) without actuating the tensioning mechanism.

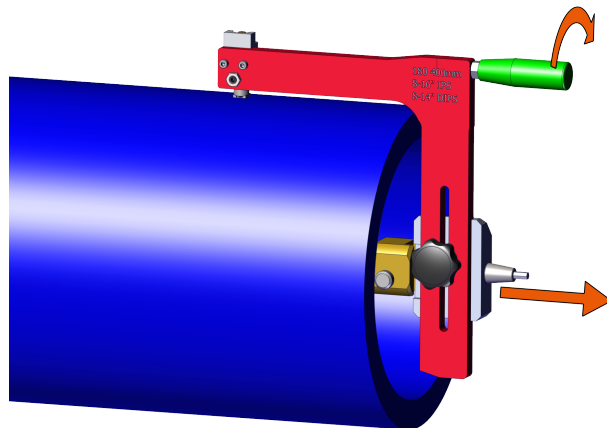


Lowering the pilot arm:

1. Lower the pilot arm and press the peeling blade against the pipe surface as described in chapters 9.5 and 9.6.

Peeling:

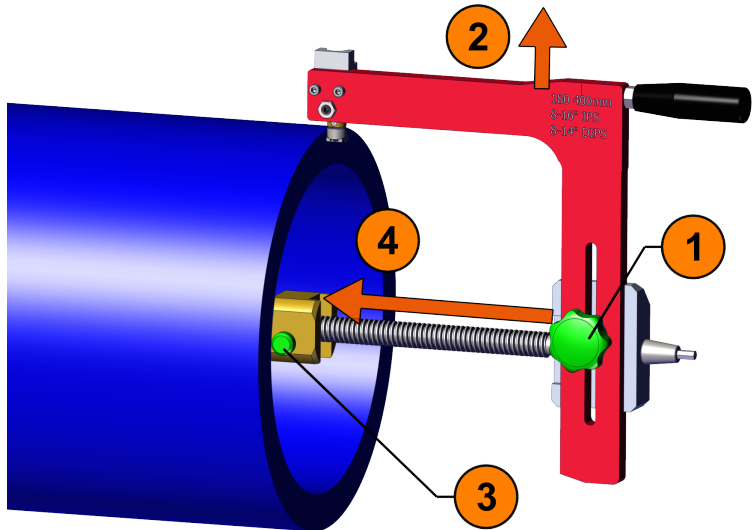
1. Turn the pilot arm continuously in a clockwise manner by using the black cylinder handle.
2. Watch the peel formation. The peel should be continuous.



3. Reduzieren Sie Ihr Arbeitstempo bevor Sie das Rohrende erreichen.
4. Continue turning the pilot arm until the peeling blade has reached the end of the pipe. Der Anpressdruck an das Schälmesser entspannt sich schlagartig, wenn das Schälmesser das Rohrende verlässt.
5. When the peeling blade runs freely, the tool can be removed.

Disassembly

1. Loosen the star knob (1) by turning it counterclockwise.
2. Bring the pilot arm all the way up (2).
3. Then turn the star knob (1) clockwise to fix the pilot arm in place.
4. Press and hold the catch (3) and slide the peeling arm back into the notch towards direction (4).
5. Turn the pilot arm with the cylinder handle counterclockwise to close the scissor mechanism.



12. Peeling procedure using a drive (ONLY PES400 and PES400 (PE-X))

NOTE



Never work with the drive in 2nd gear!

The drive is set to 1st gear in the factory and blocked accordingly. For controlled work, the drive must be used in 1st gear. This is the only way to ensure that the number of revolutions is low enough to prevent personal injury or damage to the material.

NOTE



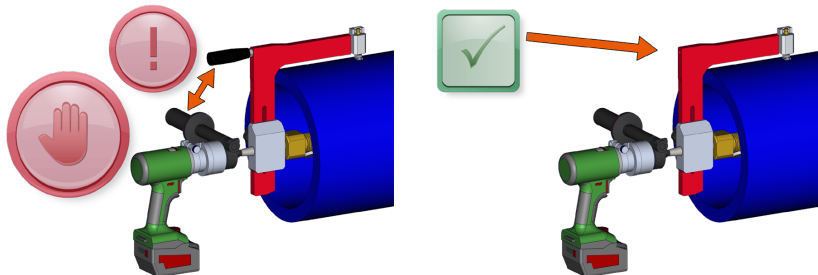
Foreign drives

The use of a drive other than that mentioned in the technical data is not supported by the manufacturer. The operator works at his own risk.

DANGER



Unscrew cylinder handle



If you connect the drive to the tool and start it without unscrewing the cylinder handle, the cylinder handle will hit the handle of the drive during the very first rotation of the pilot arm. This can lead to serious hand injuries.

- The cylinder handle for manual peeling **MUST** be removed when using a drive.

DANGER



Unlocking the pilot arm

If you connect the drive to the tool and start it without unlocking the pilot arm, the drive will drive the scissor mechanism. This leads to an immediate blockage and the drive will transmit its full actuating force onto the operator. This can cause severe injury.

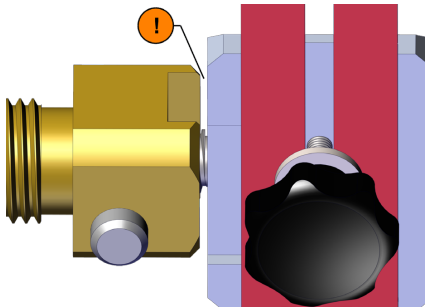
- Make sure that you take the pilot arm out of its rest and unlock it.

Preconditions

- ! The cylinder handle on the tool was unscrewed.
- ! The drive is in 1st gear.
- ! The setting wheel for torque adjustment is set to max. 4.
- ! The rotation selector switch is set to clockwise rotation.
- ! The handle is firmly installed on the torque attachment.
- ! The tool was prepared accordingly and is tensioned in the pipe.

Unlocking the pilot arm:

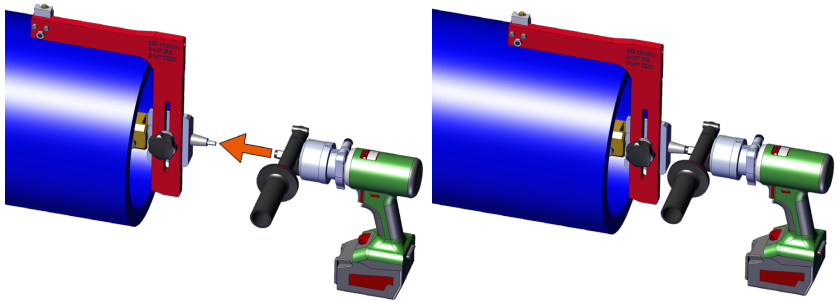
1. Make sure that the pilot arm is unlocked (!).

**Lowering the pilot arm:**

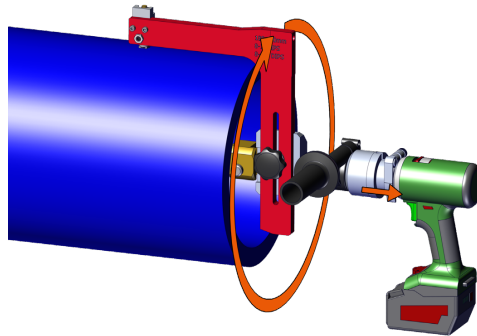
1. Lower the pilot arm and press the peeling blade against the pipe surface as described in chapters 9.5 and 9.6.

Peeling:

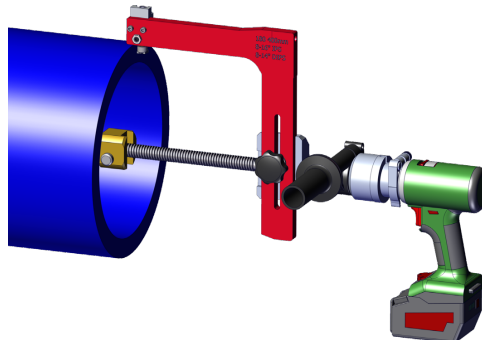
1. Connect the prepared cordless drill to the bit on the Pipe End Peeler.



2. Hold the drive by the handle and start it. Do not fully push down the power button during the first few rotations. Watch the peel formation. If a uniform peel is forming, you can increase the speed if necessary by further pushing down the power button.



3. When you have almost reached the end of the pipe, reduce the speed of rotation by slightly releasing the power button. If you continue to work at high speed, you will feel a violent knock when the peeling blade jumps off the pipe end.



4. At the end of the peeling process, disconnect the drive from the Pipe End Peeler and remove Pipe End Peeler from the pipe as described in section 10.2.

13. Battery charger

Preconditions

! You have read all safety guidelines in chapter 5.

NOTE



Read the safety guidelines

Before using the charger, carefully read all safety instructions in this document and all accompanying documents.

NOTE



Mains operation!

Make sure that the rated voltage of the product and all its components match the voltage level provided by the mains supply.

CAUTION



Do not use in areas with high metal dust pollution / EX areas!

The active cooling can cause metal dust, which enters the charger's housing, to cause damage to the fan or cause sparking. This represents a source of ignition.

- The charger must not be used in areas with high levels of metal dust.
- The charger must not be used in potentially explosive (EX) environments.



The charger has a power indicator and a warning indicator. These two indicator lights let you read the status of the connected battery pack.

13.1. Charging the battery pack

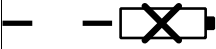

After you plug in the power plug, the charger performs a self-test. The power indicator and the warning indicator light up one after another for approx. 1 second. The built-in fan runs for about 5 seconds.

To charge the battery pack, connect the charger to mains voltage and slide on the battery pack. Notice the indicator lights.










13.2. Power indicator (lights up green)

Symbol	Status of the indicator lights	Meaning
	Flashes	➤ The battery pack is being charged.
	Lit up constantly	➤ The battery pack is charged. A trickle charge is applied.

13.3. Warning indicator (lights up red)

Symbol	Status of the indicator lights	Meaning
	Flashes	No charge <ul style="list-style-type: none"> ➤ The battery pack is defective and must be removed. ➤ The battery pack is not seated correctly.
	Lit up constantly	No charge <ul style="list-style-type: none"> ➤ The temperature of the battery pack is too high or too low. ➤ Only when the temperature is between 0 °C and 50 °C, the battery pack can be charged.

14. Troubleshooting

	<p>The peel is constantly torn off.</p>
	<ul style="list-style-type: none"> ➤ There are scratches in the pipe surface. ➤ The pipe surface is dirty or damp. ➤ The pipe is too oval. ➤ The peeling blade was not pressed firmly enough onto the pipe surface ➤ The blade holder is stuck. ➤ The peeling blade is dull.
	<ul style="list-style-type: none"> ➤ Check the pipe surface. Observe the valid standards in force and processing guidelines of the pipe manufacturer. ➤ Make sure that the pipe surface is clean and dry. ➤ Use suitable rounding tools to remove the ovality. ➤ Read chapter 9 of this instruction manual. Observe the tension force indicator. ➤ Check the mechanical system of the blade holder. The blade holder must be able to be pushed in without blocking. CAUTION! RISK OF CUTTING INJURIES! ➤ Exchange the peeling blade.
	<p>The peel is too thin or thick.</p>
	<ul style="list-style-type: none"> ➤ Measuring the peel thickness with a caliper gauge can lead to an incorrect result. ➤ The peeling blade was not pressed firmly enough onto the pipe surface
	<ul style="list-style-type: none"> ➤ The peel can get compressed during peeling, especially when peeling with a drive. This will increase the peel thickness. However, the removed pipe material is less. Therefore, measure the pipe before and after peeling. Then you have an exact indication of the amount of removed material. ➤ Read chapter 9 of this instruction manual. Observe the tension force indicator.
	<p>The pipe surface has a uniform scoring pattern.</p>
	<ul style="list-style-type: none"> ➤ A wrong peeling blade is used. ➤ A peeling blade from a third-party manufacturer is used.
	<ul style="list-style-type: none"> ➤ Check whether a peeling blade with the PES2 or PES3 marking is used on your Pipe End Peeler. The Pipe End Peelers are not compatible with the RST peeling blades for Rotational Peeling Tools. ➤ Make sure that you only use original peeling blades from PF Schweisstechnologie GmbH. The Pipe End Peelers are not compatible with peeling blades of other manufacturers.

15. Maintenance, repair and cleaning



Important information about your safety

You are responsible!

All safety instructions in this instruction manual and the generally applicable measures for accident prevention must be adhered to.

The product, its components and accessories must be handled with care and maintained regularly in order to achieve the best possible work result.

NOTE



Maintenance work

All maintenance beyond the removal of simple mechanical disturbances, such as for example disassembling the product into its components, may only be performed by the manufacturer or an authorized service center within the first 24 months of purchase. If you are unsure whether you are allowed to perform a particular activity, please contact your dealer or the manufacturer.

For safety reasons, even after the expiry of the 24 months, we strongly advise that repairs and maintenance be carried out only by the manufacturer or an authorized service station.

Tampering with components of the product without prior consultation of your dealer or the manufacturer may compromise safety and is therefore considered improper use.

In all correspondence, please provide the serial number (S/N) as shown on the type plate of the tool.

15.1. Safety measures



Remove the battery pack!

Before you start any maintenance or cleaning work, always remove the battery pack. Disconnect the drive from the tool.

15.2. Qualification of personnel



Maintenance and repair

- Only personnel with user and specialist knowledge in handling the product may service this according to the specifications.



Cleaning

- The personnel responsible for the cleaning must at least have read and understood the safety instructions. Furthermore, it is only necessary that the generally applicable procedures and safety regulations are observed when handling precision tools or power tools.

15.3. Maintenance by laymen

Laymen should not perform any work on the product without the supervision of experienced people or professionals. Under supervision, laymen may carry out the following maintenance work on the product:

- Remove dirt and grime with a soft cloth or cotton bud.
- Lubricate the relevant points with a suitable lubricant approved for the application and the tool.
- General cleaning work

15.4. Maintenance by specialists

The manufacturer and service stations approved by the manufacturer are able to carry out all necessary maintenance and repair work that will bring your product to a technically sound and safe condition. The following activities may only be carried out by the manufacturer or an authorized service station:

- Elimination of mechanical or electrical malfunctions of the drive that require the drive or drive unit to be opened.
- Replacement of components that require disassembly of the product.

15.5. Maintenance cycles for safe operation

Please note that the product is a technically demanding machine for field application. In accordance with the product-specific applicable standards and regulations in your country (eg DGUV V3), this must be regularly checked and maintained. The maintenance interval is 12 months, with heavy use shorter intervals are recommended.

NOTE



Damage due to poor maintenance

If maintenance and service is omitted and maintenance intervals are exceeded, damage to the product or other property damage may result from product use.

Avoidable damage often occurs due to increased mechanical abrasion by sand and dirt on the threaded spindle. Never work with extreme force. It is a precision tool!

Regular cleaning, checks and maintenance of the maintenance cycle can avoid this.

15.5.1. Cyclical maintenance activities



Important information about your safety

You are responsible!

All safety instructions in this instruction manual and the generally applicable measures for accident prevention must be adhered to.



Instructions for components of the product or external suppliers

Read the entire documentation. That's the only way you can reliably carry out your maintenance work.

The following activities are intended to maintain the proper and safe condition of the product. The stated intervals must be observed.

If defects in the product or parts of the product are detected during the execution of the activities, they must be rectified before reuse. Until the defects have been eliminated, the product must be taken out of service.

The staff responsible for carrying out the activities ensures that all activities have been completed successfully.

Action	Interval
Cleaning of the product after completion of the work and removal of dirt, especially in the area of the threaded spindle. Check mechanics for function.	Each working day
Maintenance by the manufacturer or an authorized service station	Annual

15.6. Measures after maintenance or servicing

After maintenance or servicing, be sure to inspect all safety features of the product and to ensure that the product functions properly and safely. Do not work with the product without prior checking.

15.7. Cleaning**NOTE****Damage due to incorrect cleaning**

Use a damp cloth for cleaning. Do not use any aggressive cleaners and avoid the penetration of cleaning fluid into the drive or the mechanics.

16. Maintenance and service by the customer service

The maintenance and the related checks are important for your safety and the continuous working reliability and safety of the product.

Should the product, its components or accessories fail despite the great care taken in manufacturing and testing it, the necessary repairs should only be carried out by an after-sales service centre authorised by the manufacturer.

Have this product serviced only by a qualified person authorized by the manufacturer and only with original spare parts. This ensures that the safety of the product is maintained.

During maintenance, the product will be upgraded to the current technical standard of our devices and you get a 3-month guarantee on function for the maintained tool, excluding wearing parts.

16.1. Addresses of service stations

Always contact your dealer or the manufacturer of the product.

16.2. Repackaging before transport

If the product is to be transported after use, it must be packed again in the packaging (boxes, suitcases) provided. This ensures that the product is best protected against transport damage.

17. Decommissioning, Disassemble, Disposal

The products, its components and accessories must be disposed of in an environment-friendly way sorted by materials. For products with hydraulic drive: Make sure that hydraulic oil and other lubricants are disposed of properly.

17.1. Environment-friendly disposal (PES400 with drive)

EU countries only: Do not dispose of electric devices in the household waste.

According to the European directive 2002/96/EC for Waste Electrical and Electronic Equipment (WEEE) and its implementation into national legislation, electric devices which are no longer serviceable/usable must be collected separately and be recycled in an environment-friendly manner.

18. EU declaration of conformity (PES400 with drive)

in accordance with the EEC machine directive 2006/42/EEC of 17th May 2006, appendix II A.



We hereby certify that the following described product in its conception, construction and design brought by us in circulation is in accordance with all the relevant essential health and safety requirements of EC machinery directive, as amended, and the national laws and regulations adopting this directive.

This declaration loses its validity if the product is modified without our consent.

Manufacturer: PF-Schweißtechnologie GmbH
Karl-Bröger-Str.10
DE-36304 Alsfeld / Germany

Tel: +49-6631-9652-0
E-Mail: info@pfs-gmbh.com
Web: www.pfs-gmbh.com

Object of declaration: Pipe End Peeler 180-400 mm with battery powered drill supplied by PF Schweisstechnologie GmbH

The product described above is in conformity with the requirements of the following documents.

Classification: Classification: D = Directive, H = Harmonised standard, o = Others

Document	Description	Edition	Cl.
2006/42/EEC	Machine directive	2006	D
2014/35/EU	Low-voltage directive	2014	D
2011/65/EU	Restriction of use of certain hazardous substances (RoHS)	2011	D
EN 60335-1:2012/AC:2014	Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 1: General requirements	2012	H
EN 60745-1:2009+A11:2010	Hand-held motor-operated electric tools - Safety - Part 1: General requirements	2009	H
EN 60745-2-1:2010	Hand-held motor-operated electric tools - Safety - Part 2-1: Particular requirements for drills and impact drills	2010	H
EN 60745-2-2:2010	Hand-held motor-operated electric tools - Safety - Part 2-2: Particular requirements for screwdrivers and impact wrenches	2010	H
DVS 2208	Welding of thermoplastics – Machines and devices for [...]	2007-03	O
DVS 2207-1	Welding of thermoplastics - Heated tool welding of pipes, pipeline components and sheets made of PE	2005-09	O
DVS 2207-11	Welding thermoplastic materials - Heated element welding of pipes, piping parts and panels made of PP	2008-08	O

Achim Spychalski-Merle
CEO
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DE-36304 Alsfeld/Germany

Alsfeld, 09.02.2022
(Place and date of issue)

(Name, function, address)

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