

T-DRILL

PRODUCTIVITY AS A PRODUCT.

INSTRUCTION MANUAL SPARE PARTS LIST



PORTABLE COLLARING SYSTEM
FOR STAINLESS STEEL BRANCHING

PLUS 115 SS

Version

6700319EN EU B
03.01.2020 / MT
25.03.2021 / MT revision A
27.04.2021 / MT revision B

Original instructions

This instruction manual includes a spare parts list and instructions for set-up, operation and maintenance of the T-DRILL PLUS 115 Portable Collaring System for Stainless Steel Branching.

Type code : 7005

Manufacturer:

T-DRILL OY
Ampujantie 32 / P.O BOX 20
FIN-66401 Laihia, Finland
Tel.Int +358-6-4753 333
Telefax: +358-6-4753 300
www.t-drill.fi

Sales and Service in the USA:

T-DRILL INDUSTRIES, INC.
1740 Corporate Drive, Suite 820,
Norcross, Georgia 30093, USA
Phone: 800-5542730
Fax#: 770-925-3912
www.t-drill.com

Your local **T-DRILL** dealer is:

Copyright © 2021 T-DRILL Oy. All rights reserved. This manual, or parts thereof, may not be reproduced in any form or by any means, nor translated into any other language without a written permission of T-DRILL Oy

It has been our aim to elaborate this instruction book with the greatest possible care and attention. The accuracy of the information has been carefully checked during the preparation of the manual. Should any subsequent modifications be made to the product, we decline liability for erroneous or incomplete information.

CONTENTS

1. Notes on the use of the instruction manual.....	5
1.1 General.....	5
1.2 Symbols and warnings.....	5
1.3 Symbolism.....	5
2. General safety instructions.....	6
2.1 General safety instructions for work area.....	7
2.2 Safety instructions for tool.....	7
2.3 Safety instructions for tee forming.....	8
3. T-DRILL PLUS 115, general.....	9
3.1 Technical data.....	9
4. Transport, Handling and Storage.....	10
5. Introduction.....	11
5.1 The parts of the T-65.....	11
5.2 Parts of the PLUS 115.....	12
5.2.1 <i>The elliptic pilot hole device</i>	13
5.3 Information about Accessories.....	14
6. Lubrication.....	14
6.1 Flush out Lines.....	14
7. Taking the machine into operation.....	15
7.1 Assembly of the PLUS 115 drilling unit to T-65.....	15
7.2 The T-DRILL milling spindle.....	16
7.2.1 <i>Assembly of the milling pin to the spindle</i>	16
7.2.2 <i>Chucking of the milling pin spindle</i>	16
7.2.3 <i>Removal of the milling pin spindle</i>	16
7.3 Foot pedal.....	17
7.3.1 <i>Detachment and attachment of the T-65 connecting cord</i>	18
8. PLUS 115 Collaring process.....	19
8.1 Clamps and base plate.....	19
8.2 Making of the pilot hole with elliptic device.....	20
8.2.1 <i>Interruption of pilot hole milling</i>	22
8.3 Making of the collar.....	23
8.3.1 <i>Collaring head adjustment</i>	23
8.3.2 <i>Collaring with PLUS 115</i>	24
8.4 Facing.....	27
9. Fine adjustment of the collaring tool.....	28
10. Stalling.....	29
11. Maintenance.....	30
11.1 Pilot hole cutter for elliptic pilot hole.....	30
12. PLUS 115 Capacity and instruction chart.....	31
12.1 Pilot hole table for PLUS 115.....	32
12.2 Pilot holes for stainless steel pipes, wall thickness $\leq 2.0\text{mm}$	34
13. T-Drill standard warranty.....	37
14. Ordering spare parts.....	39
15. Spare parts list PLUS 115 for steel.....	40
15.1 PLUS 115 for steel (EU) 5700310.....	40

15.2 PLUS 115 for steel (USA) 5700311.....	42
15.3 Gear 5700307.....	44
15.4 Lead screw 5700309.....	46
15.5 Base plate 5700291.....	48
15.6 Pilot hole cutter 5700288.....	50
15.6.1 Pilot Hole Drill bits.....	53
15.7 Trimming device 5700118 A.....	54
15.8 Drilling unit 5700293 A	56
15.9 Spindle 5700301.....	58
15.10 Transport box 5700303	59
15.11 Transport box 5700304	60
15.12 Locking lever 5290206 A	61
15.13 Tool set 5700317	62
15.14 Pedal kit EU 5700320	63
15.15 Pedal kit US 5700321	63
15.16 Collaring head 2" – 2 ½" 5700148 C SSt.....	64
15.17 Collaring head 3" – 4" 5700150 D SSt	66
15.18 Clamps (2290159)	68
15.19 T-Drill T-65 collaring machine EU 5330722.....	69
15.20 T-Drill T-65 collaring machine US 5330717	69
15.21 The T-65 Tee Forming Unit	71
16. EC declaration of conformity	72

1. NOTES ON THE USE OF THE INSTRUCTION MANUAL

1.1 GENERAL

This instruction book contains the instructions for use, maintenance and setting of the T-DRILL PLUS 115 capacity expanding attachment for the heavy duty T-65 SS Collaring Machine.

Before proceeding with the operation of the machine, read the safety instructions in chapter 2 "General safety instructions."

1.2 SYMBOLS AND WARNINGS

IMPORTANT! Gray base color is used to emphasize an important detail

➔ **NOTE!** May cause an accident or damage other property, if the right precautionary measures have not been taken.

ⓘ **DANGER!** Will or may cause a serious accident or death, if the right precautionary measures have not been taken.

This instruction manual includes instructions for set-up, operation and maintenance of the T-DRILL tee forming machine.

➔ **NOTE!** Before carrying out any actions, read chapter 2 "Safety Instructions".

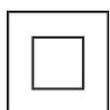
Acquaint yourself with the machine before using it. Read the operation sequence described in the instruction manual thoroughly before preparing, operating or maintenance of the machine.

IMPORTANT! Save these instructions for future use!

1.3 SYMBOLISM



Read the instruction manual attentively before carrying out installation, operation, setting or maintenance of the machine.



Double insulated.



Warning! Do not throw to trash. Please recycle



Warning! Watch your fingers. Rotating tool!

1.4 PERSONAL PROTECTIVE EQUIPMENT FOR THE OPERATOR

Always wear the appropriate personal protective equipment, and use extreme caution when operating the machine.

Take all local safety regulations into account! This manual does not undermine any your own safety regulations.



Use protective glasses when operating with the machine.



Use hearing protector when operating with the machine.



Use safety shoes when handling pipes and the tools of the machine.



Always use protective gloves when handling the tools - the cutting edges of the tool and the lubricant used when collaring may cause wounds and inflammations.

2. GENERAL SAFETY INSTRUCTIONS

Read all the instructions before using the machine.

Know your power tool - Read the instruction manual carefully. Learn to know your own skill and limitations as well as the specific potential hazards peculiar to this tool.

ⓘ DANGER! - The use of any accessory or attachment other than the ones recommended in this operating instruction or T-DRILL catalogue may create a risk of personal injury.

➔NOTE! Never detach the MILWAUKEE power unit from the T-DRILL tee forming unit. Detaching the power unit will damage the alignment made in factory.

➔NOTE! The T-DRILL T-65 is designed for use with MILWAUKEE power unit. Using any other power units with the T-DRILL T-65 tee forming unit is not allowed.

IMPORTANT! Warranty is void if the power unit is detached from the tee forming unit!

2.1 GENERAL SAFETY INSTRUCTIONS FOR WORK AREA

Keep work area clean – Cluttered areas and benches invite injuries.

Consider work area environment – Don't use power tool in humid or wet conditions. Keep work area well illuminated. Don't use power tool in the presence of flammable liquids or gases.

Keep children away – Do not let visitors touch the tool or its extension cord. All visitors should be kept away from work area.

Stay alert – Be aware of what you are doing. Use common sense. Do not operate tool when you are tired.

2.2 SAFETY INSTRUCTIONS FOR TOOL

Store idle tools – when not in use, tools should be stored in dry, high, or locked-up place, out of the reach of children.

Don't force tool – It will do the job better and safer at the rate for which it is intended.

Dress properly – Do not wear loose clothing or jewelry. They can be caught in moving parts. Use appropriate gloves and footwear. Wear protective hair covering to contain long hair.

Use safety glasses – Also use face or dust mask if cutting operation is dusty.

Secure work – Use clamps or a vise to hold your work piece. It's safer than using your hand and it frees both hands to operate the tool.

Don't overreach – Keep proper footing and balance at all times.

Maintain tools with care – Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have them repaired by authorized service workshop. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.

Don't abuse cord – Never carry a tool by its cord or yank it to disconnect it from receptacle. Keep cord from heat, oil and sharp edges.

Disconnect tools – When not in use, before servicing, and when changing accessories such as blades, bits and cutters.

Remove adjusting keys and wrenches – Make it a rule to check that keys and adjusting wrenches are removed from tool before turning it on.

Avoid accidental starting – Do not use a tool if the power switch does not turn the tool on and off. Do not carry the tool with your finger on the switch.

Outdoor use extension cords – When tool is used outdoors, use only extension cords intended for use outdoors and so marked.

Check damaged parts – Before further use of tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by an authorized service. Do not use tool if switch will not turn it on and off.

Have your tool repaired only by T-DRILL – This electric tool is in accordance with the relevant safety requirements. Repairs should be carried out only by certified persons using original spare parts; otherwise, this may result in considerable danger to the user.

Keep tools away from items that may be damaged by magnets – The motor contains a powerful magnet that may damage magnetic tape, credit cards, computer disks and watches.

Use ear protectors. During operation the noise level of the collaring machine may exceed 95dB(A).

The vibration exercised on the operator's hand is less than 2.5 m/s.

2.3 SAFETY INSTRUCTIONS FOR TEE FORMING

Do not touch the rotating tool when the work cycle is on.

When fixing the machine to the tube, be careful not to leave your fingers between the machine and the tube.

When handling the tools, be careful with the cutting blades. Use protective gloves. A falling machine or tool may damage your feet. Use protective shoes.

The lubricating oil you use may cause irritation of the skin. Use protective gloves. The fumes emitted by the lubricant may irritate your eyes and hinder your respiration. Pay attention to an adequate ventilation.

Make yourself familiar with the contents of the safety data sheet regarding the lubricants.

The loosening chips are hot and sharp. Provide adequate protection in order not to get damaged.

When cleaning the collar always use protecting gloves. The edges of the collar use to be sharp.

Do not use inadequate protecting gloves, because they may get caught by the rotating tool. Keep your hands off the dangerous area.

Every time the T-65 machine is moved, detach the power cord from the T-65 machine.



Use safety gloves when operating with the machine

3. T-DRILL PLUS 115, GENERAL

Your T-DRILL PLUS 115 is a special purpose portable collaring system unit which, when used with the T-DRILL T-65 power tool and (specially designed) T-DRILL collaring heads, is capable of producing a range of branch connections sizes 48,3 - 114,3 mm / 2" - 4" in stainless steel tubing.

Before attempting to put your PLUS 115 into service make sure you have read and fully understood the safety instructions that apply to all power tools and the capabilities and limitations of this special tool.

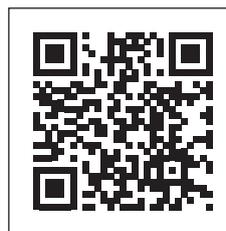
The PLUS 115 must be used with the T-DRILL T-65 grounded power tool with it's own connecting cord and a foot pedal for controlling of the T-65. This is because, when milling, the other hand drives the ellipse and the other is needed for lubricating the milling pin.

The T-DRILL PLUS 115 is intended primarily for use on stainless steel tubes.

For an introduction video, see T-Drill website:

<https://t-drill.fi/plus-115-ss-portable-collaring-system-for-stainless-steel/>

or scan the QR code:



3.1 TECHNICAL DATA

PLUS 115 for stainless steel	Value
Type code	7005
Run tube sizes	60,3 - 219,1 mm (2 ½" - 8")
Collar sizes	48,3 - 114,3 mm (2" - 4")
Run tube materials	Steel, stainless steel
Weight	68 kg

4. TRANSPORT, HANDLING AND STORAGE

The PLUS 115 is delivered in two transport boxes, dimensions of each are 630 mm (24.8") x 250 mm (9.8") x 315 mm (12.4") (w x h x d).

The weight of two boxes is, depending on the accessories, between 65 kg and 75 kg.



PLUS 115 transport boxes and top shelf

Storage

Storing of T-Drill machines and tools: Clean machines, tools and parts from lubricant, chips and other debris, lubricate all components lightly with protective oil to prevent rust. Use, for example, Zerust, WD40 or other light rust protection oil. Keep the machine and tools stored in a cool, dry place, and covered against dust.

5. INTRODUCTION

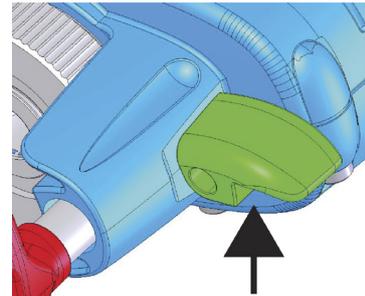
5.1 THE PARTS OF THE T-65



Main parts: 1. T-DRILL tee forming unit, 2. Power unit, 3. Connecting cord, 4. T-DRILL head, 5. Tube support.



The speed selector



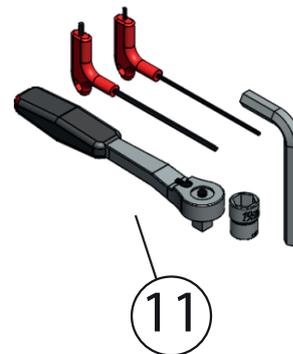
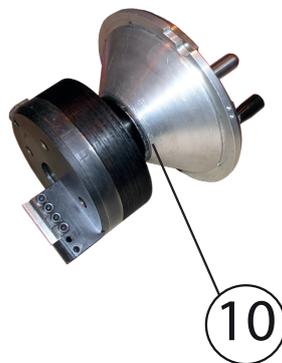
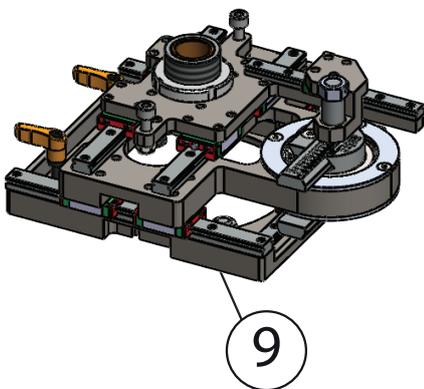
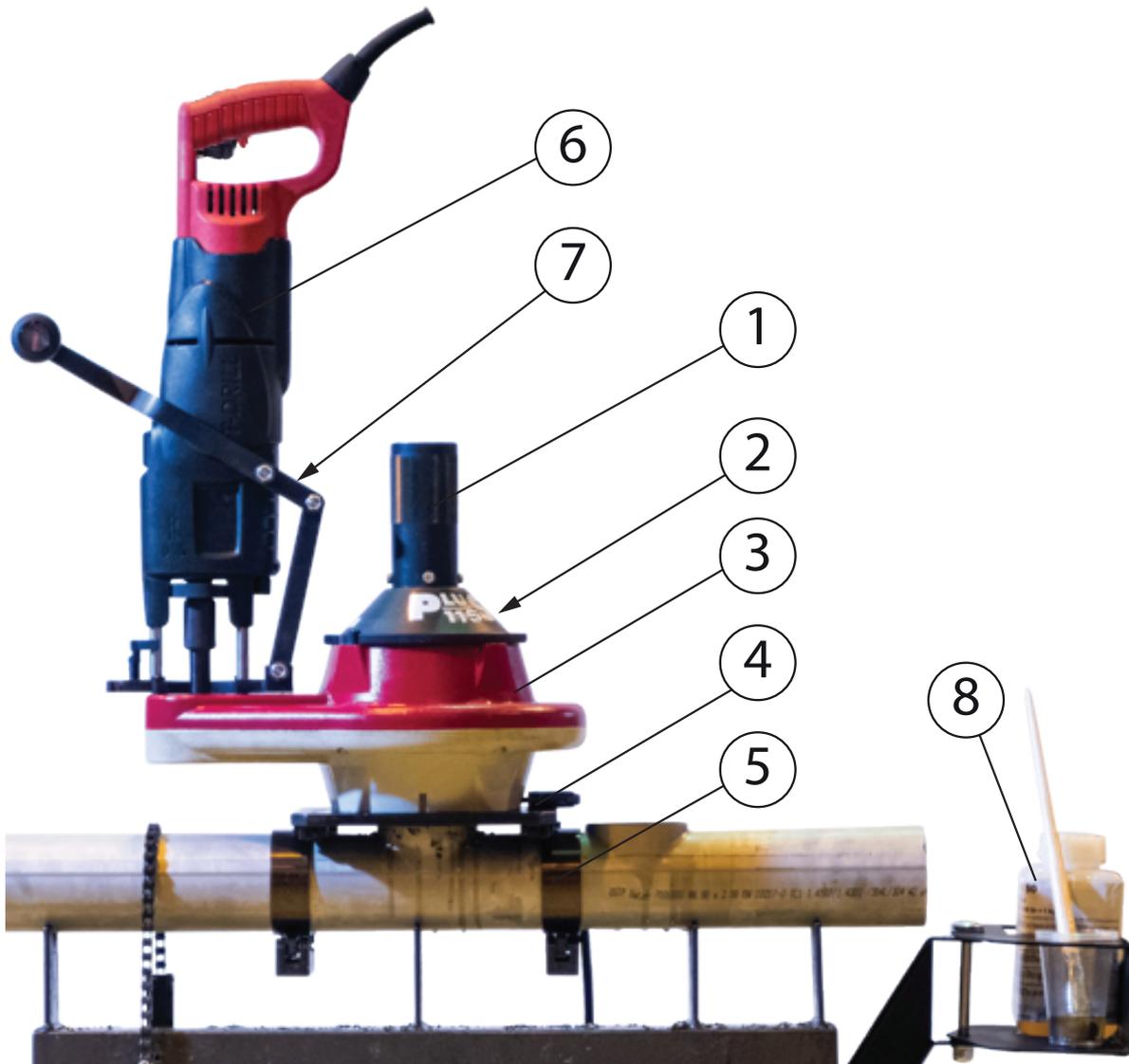
The feed mechanism lever

1. The speed selector knob is on the top of the gearbox of the outlet forming unit. To engage high or slow speed, turn the selector knob 180°. When the selector is as shown in the picture, the slow speed is switched on. Slow speed I is used for forming of the outlet and trimming. High speed II is for drilling. If the torsional force of the machine is not sufficient, then turn the speed selector to speed I.

2. The feed mechanism lever is situated near the chuck-ring. The feed mechanism has been engaged (on) when the lever is turned downward. If the feed does not engage smoothly rotate the motor by “pumping” the trigger.

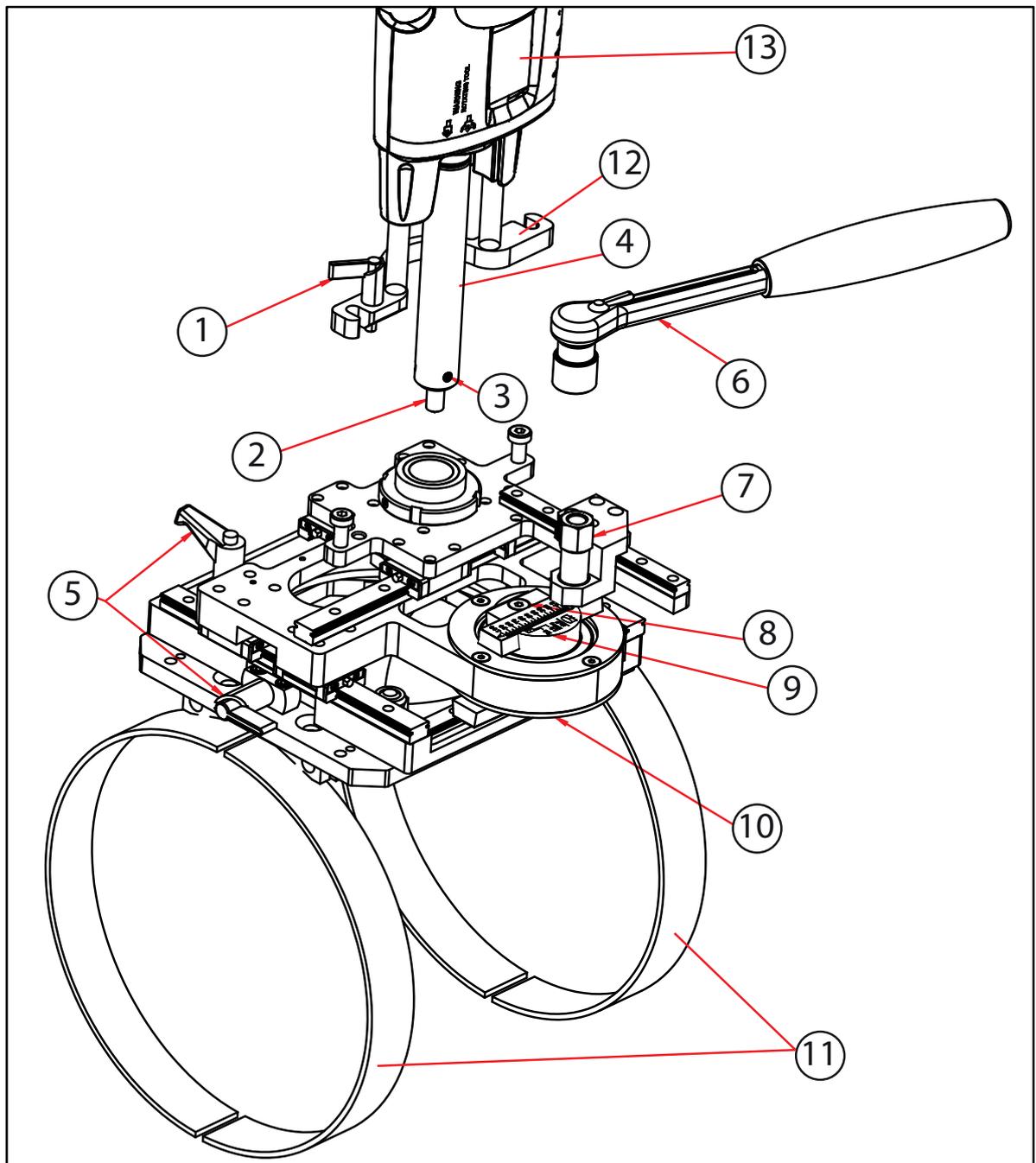
➔ **NOTE!** Do not force lever.

5.2 PARTS OF THE PLUS 115



1. Lead screw, 2. Collaring head (not visible), 3. PLUS 115 unit, 4. Base plate, 5. Ring clamps, 6. T-65 machine, 7. Drilling unit, 8. Lubricant, 9. Elliptical pilot hole device, 10. Facing tool, 11. Tools

5.2.1 THE ELLIPTIC PILOT HOLE DEVICE



Main parts of the elliptic pilot hole device

1	T-65 locking lever	7	Ellipse pilot hole operation nut
2	Milling pin	8	Scale locking screw for A-scale
3	Milling pin locking screws (3 pcs)	9	Scale adjustment for A-scale
4	Milling spindle	10	Scale adjustment and locking screw for B-scale (under the unit)
5	Elliptic pilot hole locking to base plate	11	Ring clamps
6	Ratchet	12	Drilling unit of PLUS 115
		13	T-65 machine

5.3 INFORMATION ABOUT ACCESSORIES

Two collaring heads are available for the PLUS 115. They cover collar diameters from 54mm to 114,3 mm / 2" to 4". Each collaring head is adjustable within a range to a precise setting that will repeatedly give accurate collar diameters.

Individual collaring instructions are listed in the PLUS 115 capacity and instruction chart at the back of the manual. However, the stated maximum run tube dimensions assume that the collaring head is correctly lubricated and annealing instructions listed are followed. Using an unlubricated collaring head may overload the tool!

6. LUBRICATION

Lubrication of the collaring head is essential to prevent overloading tool. Lubrication also reduces wear on the collaring heads and hole drill and insures that the collar is formed correctly.

T-DRILL recommends the use of T-DRILL lubricant that should be applied generously;

1. Every time before drilling through, and constantly during the milling of the pilot hole to the milling pin.
2. Every time before collaring to the forming pins.
3. Every time before facing to the facing tool blade



Use safety gloves when operating with the machine.

6.1 FLUSH OUT LINES

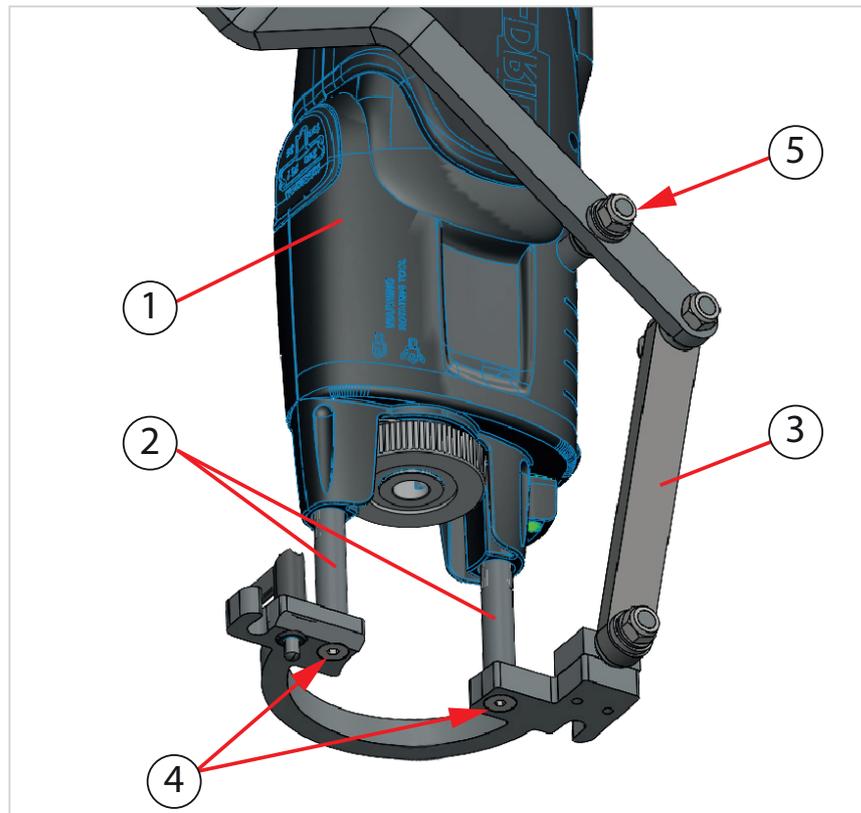
After the collars are made, all lines must be flushed out before the system is put into operation in order to remove any lubricant residue and metal chips from the lines.

7. TAKING THE MACHINE INTO OPERATION

Creating a collar with your PLUS 115 and completing the joint is simple. Because it is a new process we recommend you to read the following instructions carefully and then practice a few times on some pieces of scrap tubing.

► **NOTE!** Before using, check that the supply voltage agrees with the rated voltage specified on the tool.

7.1 ASSEMBLY OF THE PLUS 115 DRILLING UNIT TO T-65



Drilling unit and T-65: 1. T-65 machine, 2. Push rods of the T-65, 3. Drilling unit of PLUS 115, 4. Attachment screws of drilling unit (to T-65 push rods), 5. Handle attachment screw.

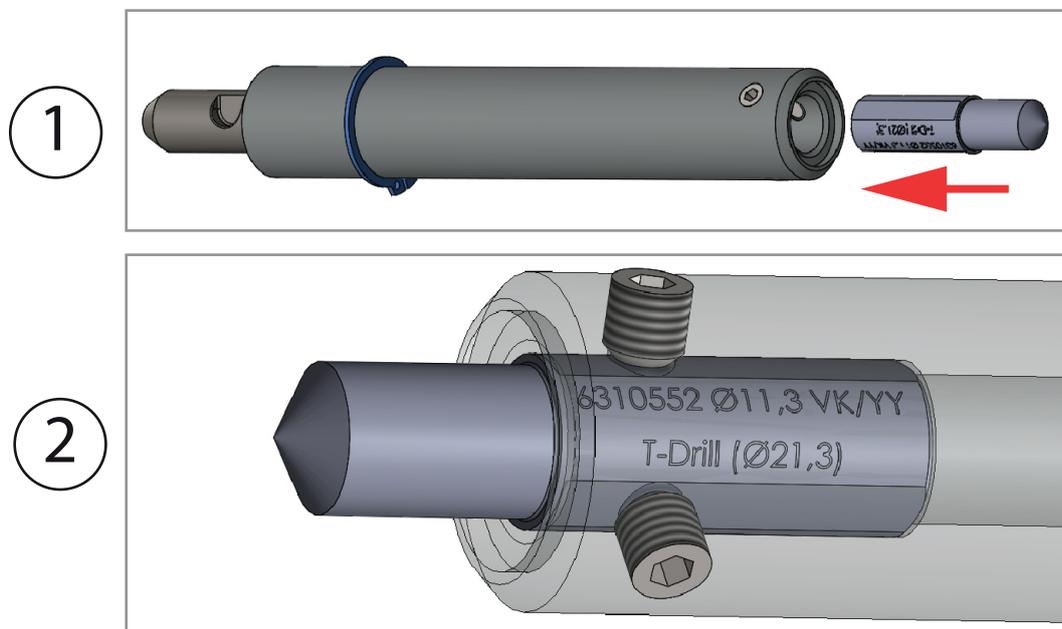
Assemble the drilling unit to T-65 the following way:

1. Remove the T-65 body screw and attach the drilling handle with (5) Handle attachment screw.
2. Attach the drilling unit bottom plate to T-65 push rods (2) with 2 M6x16 countersunk socket head cap screws (4).

Test mobility of handle joints.

7.2 THE T-DRILL MILLING SPINDLE

7.2.1 ASSEMBLY OF THE MILLING PIN TO THE SPINDLE



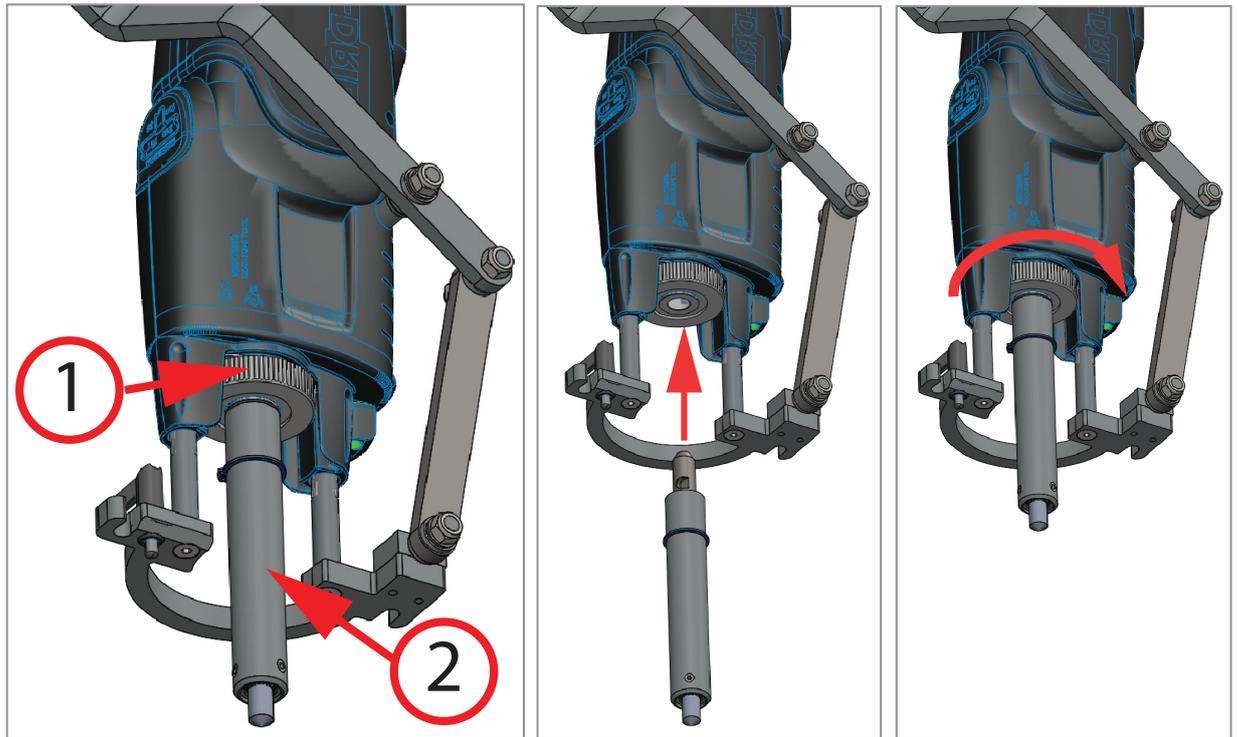
1. Insert the milling pin to the bottom of the spindle, down to the stopper inside spindle.
2. The pilot hole drill bit stem flat sides must be placed towards the chuck screws!
Tighten the 3 locking screws with care.

7.2.2 CHUCKING OF THE MILLING PIN SPINDLE

To insert the T-DRILL milling pin spindle into the chuck, rotate the locking ring (1) clockwise and slide the spindle shaft into the chuck. Release the locking ring. Rotate the T-DRILL milling pin spindle (2) in the chuck until it locks. Make sure the spindle is tightly chucked.

7.2.3 REMOVAL OF THE MILLING PIN SPINDLE

To remove the T-DRILL milling pin spindle (2) from the chuck (1), rotate the locking ring as far it will go. Turn the T-DRILL milling pin spindle to the same direction one quarter of a turn (1/4) at the same time pulling it straight out. Release the lock ring.



Chucking the T-DRILL milling pin spindle (and removing it): 1. Locking ring, 2. Milling pin spindle.

7.3 FOOT PEDAL

The foot pedal is used to control the T-65 power unit, as when milling, the other hand drives the ellipse device, and the other is required for lubricating of the milling pin.

How to connect the foot pedal and T-65 machine:

1. Secure the T-65 power trigger to “ON” position with lock ring enclosed to the drilling unit package.
2. Connect the power cord from pedal to the T-65 machine.
3. Connect the foot pedal power cord to wall plug.

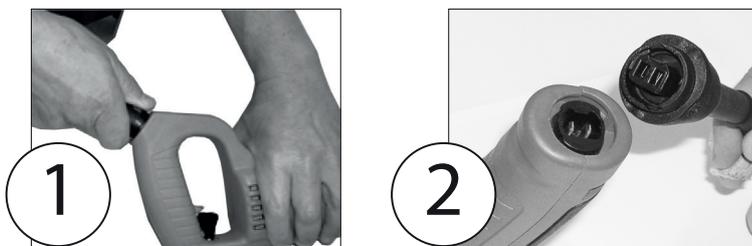


PLUS 115 foot pedal

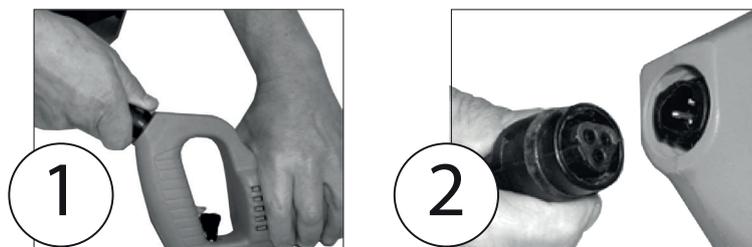
Detach the cable from T-65 every time the machine is moved off the PLUS 115.

7.3.1 DETACHMENT AND ATTACHMENT OF THE T-65 CONNECTING CORD

When delivered the T-65 power unit is fitted with a quick disconnect connecting cord, which allows quick replacement of the cord in field conditions.



The European type of connecting cord.



The American type of connecting cord.

Detachment of the cord

1. Turn the nut of the cord 1/2 turn to the left in order to loosen the cord.
2. Draw the cord out of the power unit.

Attachment of the cord

1. Push the connector of the cord into the socket of the power unit, pushing the connector as far as it will go.
2. In order to lock the cord, turn the nut 1/2 turn to the right.

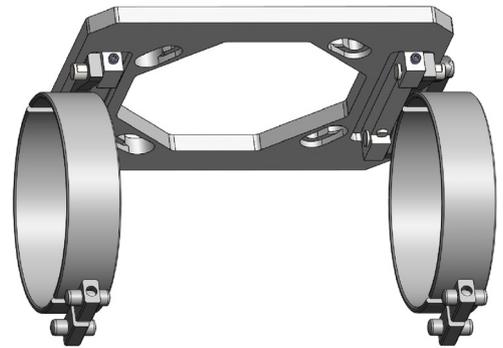
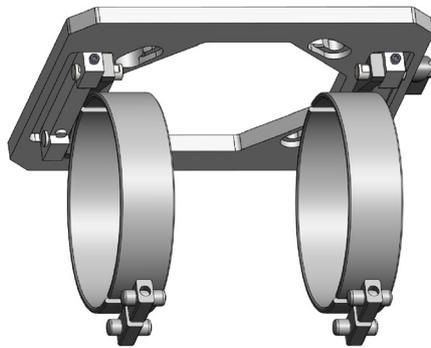
➔ **NOTE!** See 7.3 Foot pedal: Remove original power cord from the T-65 when used with the PLUS 115.

8. PLUS 115 COLLARING PROCESS

8.1 CLAMPS AND BASE PLATE

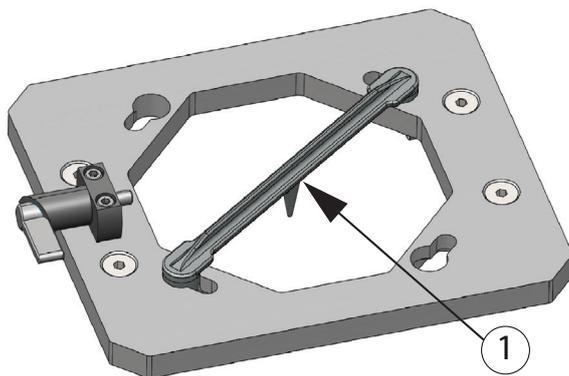


1. Choose the ring clamps according to the run tube diameter and fix the clamps to the base plate. Attachment takes place with the clamp locking pins in the base plate.
For 4" collars, the ring clamps must be assembled into the outer groove.



The clamps can be assembled to the base plate in two different ways.

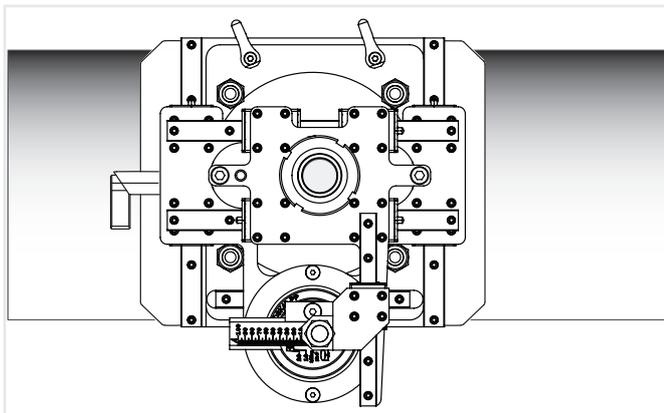
2. Clamp the base plate assembly over the collaring area.



Place the pointer (1) to the base plate holes.

3. Center the base plate on the specified place of collar with the pointer and lock it with the locking levers.

➔ **NOTE!** You may also place the PLUS 115 unit sideways to 90° increments, so you have four different collaring positions available to the same point!



The base plate and elliptic pilot hole device can be attached to the tube in only one position: The base plate locking lever pointing to the left, and the pilot hole device adjustment part in front of the operator.

8.2 MAKING OF THE PILOT HOLE WITH ELLIPTIC DEVICE

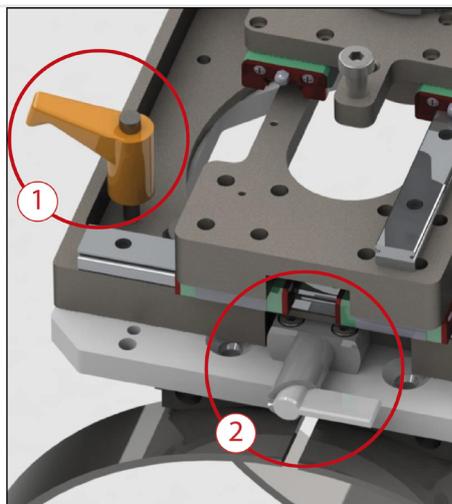
Adjustment of the pilot hole measures A and B



The A and B dimensions of the ellipse are adjusted by loosening the locking screws (Adjust scales separately, so that the locking screws are open only one at a time). The adjustment is done by sliding the scale in the desired direction. The diameter of the milling pin is screened on the same line as the desired dimension and tightening the screw. The best size of the milling pin is proved to be 11.3mm.

Note, the scale only reads 10 and 20, start with 10, and test.

Attaching the elliptic pilot hole device to the base plate

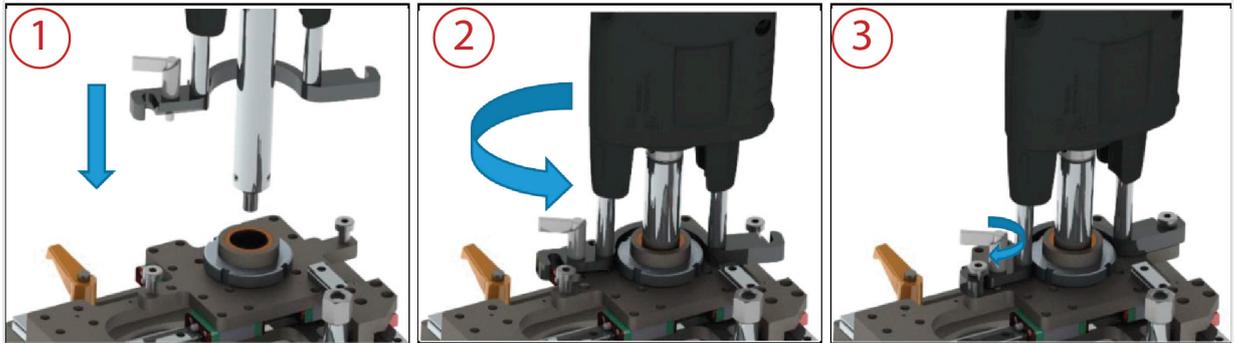


The pilot hole cutter is placed to the base plate so, that the control system is towards the operator. Device is lowered to base plate the same way as the PLUS 115 gearbox: the bottom mounting pins are placed in the holes and turning the ellipse unit counterclockwise until the ellipse is straight on the base plate.

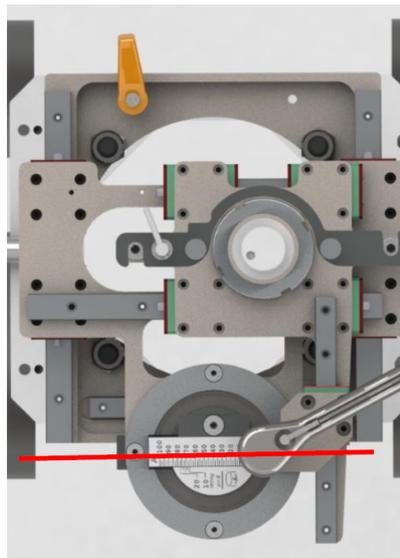
The locking of the device is done by two systems: the locking lever attached to the base plate (2), and the pilot hole cutter with an attached orange screw handle (1). The lever (2) also locks the PLUS 115 gearbox to the basic plate.

Attaching the T-65 to the elliptic pilot hole device

The milling spindle is fastened to the T-65. The spindle is pushed through the bearing in the pilot hole cutter (1). The machine is then rotated counterclockwise so that the screws in the pilot hole cutter go into the slots (2). At this point, the locking lever can be locked (3). Turn T-65 machine back and forth to see that the machine is properly locked.



Ellipse milling

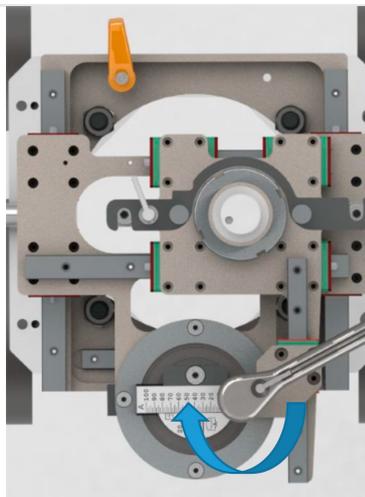


The machine allows the ellipse to run only in one direction. First you need to turn the ellipse rotation nut counterclockwise so that the adjustment scale is parallel to the tube. This to ensure that the drilling is done at the end of the ellipse, where the pipe surface is perpendicular to the milling pin.

Use the foot pedal to run the drill.

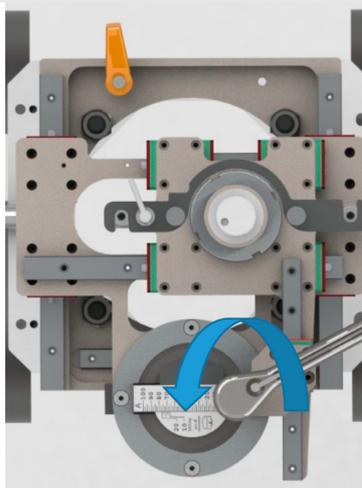
Lubricate the milling pin before starting to drill. (Use either brush and TD-50 or cutting fluid spray)

Drill down using the T-65 drilling handle.



Drill through the pipe wall.

When drilling, turn the ratchet clockwise to prevent the pin wandering along the tube surface.



When the drill has passed through the pipe wall, switch the ratchet reversing lever and start turning by the ratchet counterclockwise. Do not use too much force, but try to keep the milling in motion without stopping.

Remember to lubricate the milling pin.

When the entire ellipse is milled, lift the T-65 by the handle and only after the machine is lifted fully, stop the drill.

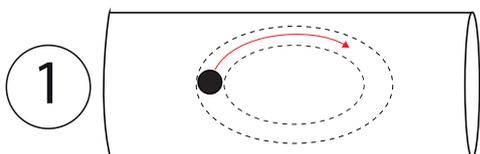
Detach the power cord from the T-65 machine.

Remove the T-65 machine from the pilot hole cutter, and remove pilot hole cutter from the base plate. Clean metal chips from the tube before collaring.

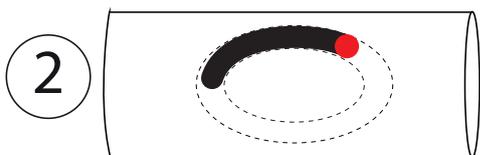
8.2.1 INTERRUPTION OF PILOT HOLE MILLING

If the pilot hole milling process is interrupted, for example, because of pin breakage, do not restart milling from the starting point, but as close as possible to the point where the process was interrupted.

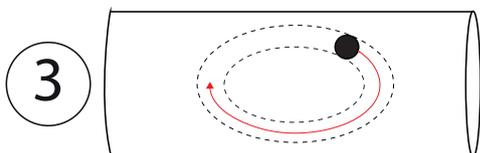
Example of interruption and continuing:



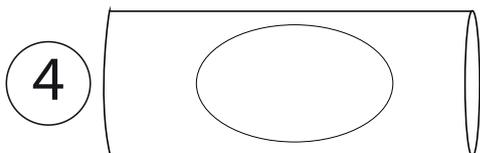
1. Start milling of the pilot hole.



2. The milling pin breaks.
* Change new milling pin.



3. Continue milling from as close to the point of breakage as possible.



4. Finished pilot hole.

If the milling is continued from already milled (empty) area, the machine will rush, and that may cause danger and pilot hole quality deteriorates.

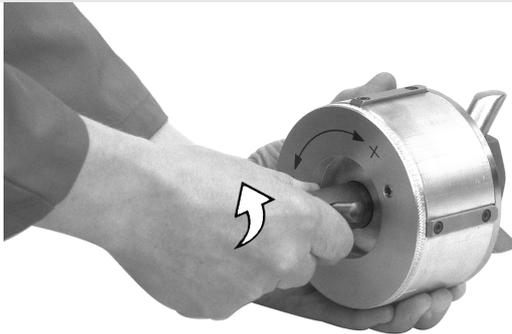
Risk of pin breakage if the milling is started on already milled (empty) area!

8.3 MAKING OF THE COLLAR

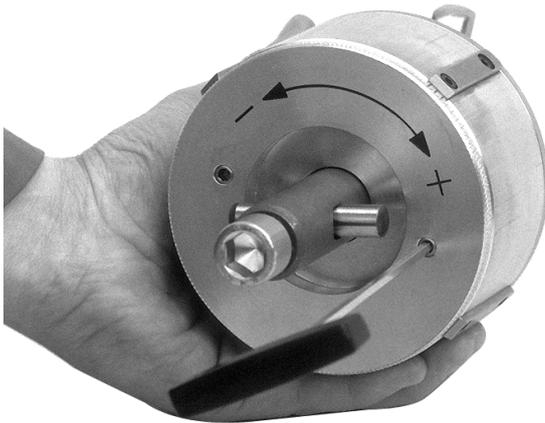
8.3.1 COLLARING HEAD ADJUSTMENT

1. Choose the collaring head according to the branch tube. Collaring head 1 (forming pin diameter 15 mm) for O.D. dimensions 54 - 87 mm / 2" - 2½" and collaring head 2 (forming pin diameter 18 mm) for O.D. dimensions 85 - 114,3 mm / 3" - 4".

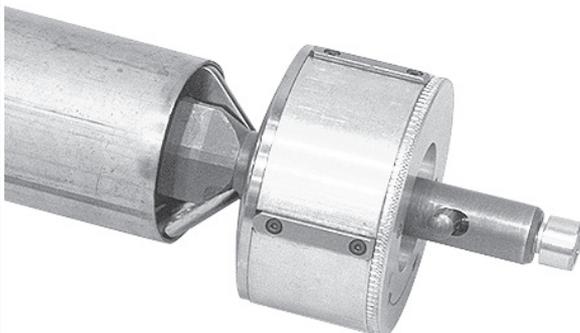
➔ **NOTE!** Don't measure the end of the branch tube.



2. Set the collaring head to the adjustment position; rotate the shank counter-clockwise as far as it will go. The forming pins will be extended to collaring position. You can hear a light "click"-sound of locking in this position.



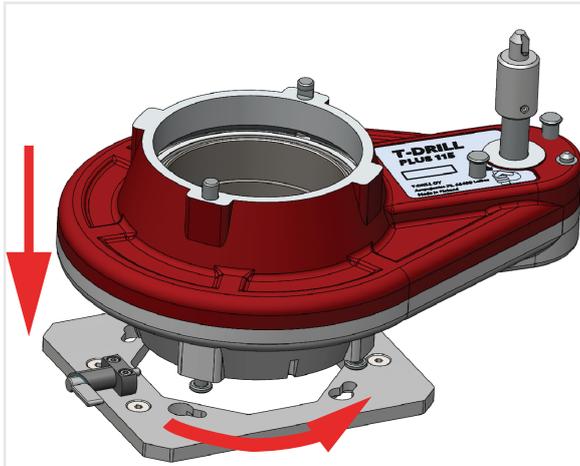
3. Loosen the set screws on the cover plate of the collaring head one half turn using the 4 mm hex wrench.



4. You can use a branch tube as a gauge. Retract the forming pins by rotating the cover plate counterclockwise (-). Put the collaring head (forming pins) inside the branch tube. Turn the cover plate clockwise (+) so that the forming pins touch the walls of the pipe. Take the collaring head out of the pipe. Turn the cover plate two notches (1 notch = 0,5 mm / 0.02") in plus direction to compensate the spring back in collaring.

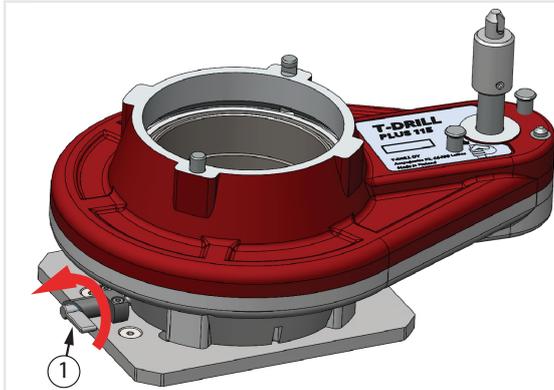
9. Tighten the adjustment screws on the cover plate.

8.3.2 COLLARING WITH PLUS 115

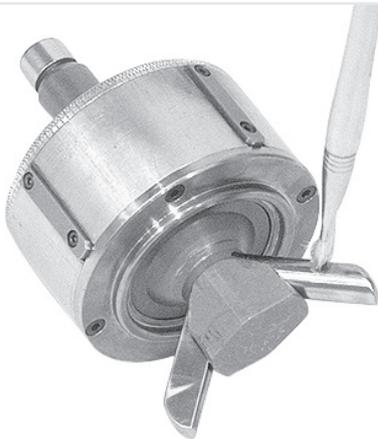


1. Place the PLUS 115 unit on top of the base plate assembly so that the locking pins underneath the unit match the four holes in the base plate assembly. Turn the unit counter-clockwise so that it locks.

You may also place the PLUS 115 unit sideways to 90° increments, so you have four different collaring positions available to the same point.

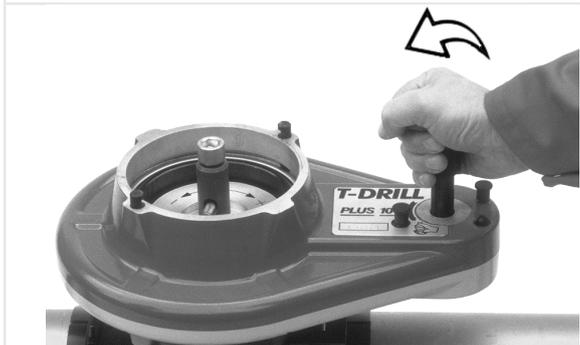


Turn the locking lever (1) to lock the PLUS 115 unit to base plate.



2. Lubricate the forming pins of the collaring head and retract the pins into the shank. Place the collaring head into the PLUS 115 unit so that the keys of the collaring head lock into the grooves inside the PLUS 115.

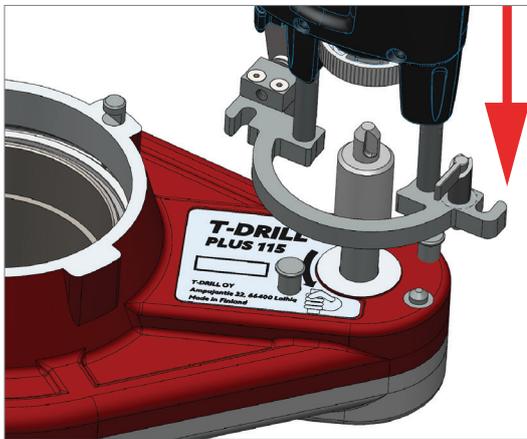
Turn clockwise only!



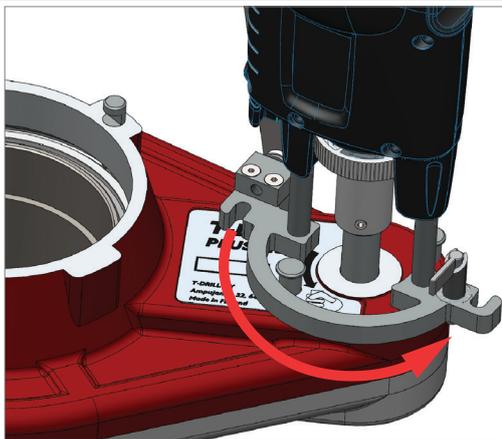
3. Let the collaring head drop to the collaring start position by rotating the adapter counterclockwise by hand.



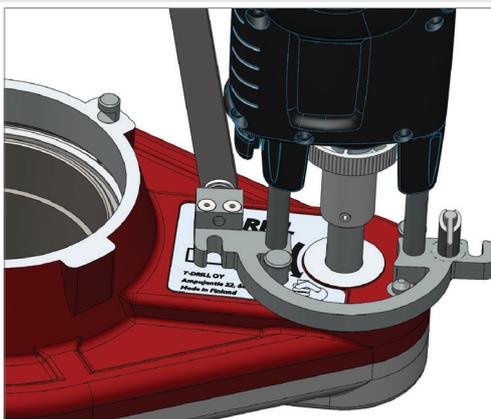
4. Before engaging the lead screw, it must be rotated to the full length by hand. Engage the lead screw onto the collaring head so that the drive pin of the shank is in the groove of the lead screw.



5. Lower down the T-65 onto the adapter and turn the machine counterclockwise, drilling unit assembly grooves against the stop pins on the PLUS 115 unit.



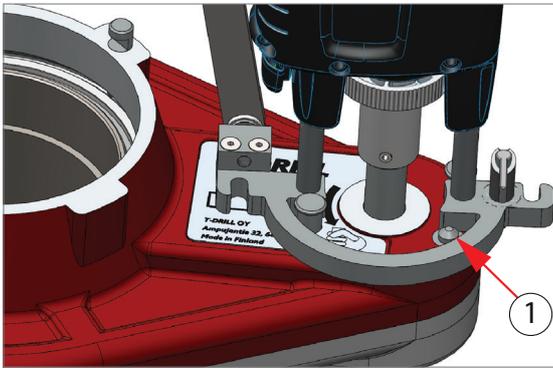
(When attaching the T-65 to the PLUS 115 gearbox, note that the T-65 attaches to it only when the machine is in correct position. The locking lever on the T-65 is not used for locking, but instead locking occurs as usual with a spring-loaded pin on the PLUS 115 unit. Make sure, that the T-65 machine is properly attached to the PLUS 115 unit by turning it back and forth. The T-65 machine should not move).





6. Turn the speed selector knob on the T-65 to position I. You may have to “pump” the foot pedal to get it engaged.

7. Start the drill by pressing the foot pedal. The forming pins are extended automatically to the collaring position. When the collar is ready (approx. 5 minutes), the rotation of the lead screw inside the lead screw assembly automatically stops.



Detach the power cord from the T-65 machine. Press the locking pin (1) down to release the T-65, turn and lift it straight up to remove from the adapter.

8. Lift the lead screw assembly together with the collaring head from the PLUS 115 unit. As soon as the collaring head clears the PLUS 115 unit, place your hand beneath the collaring head so that it does not inadvertently come loose from the lead screw.

8.4 FACING

1. Adjust the wanted facing height. The adjustment is made by rotating the facing tool handwheel to the wanted scale reading. To do that you have to loosen the locking wheel under the handwheel. After the adjustment, tighten the locking wheel.



2. Lubricate the facing tool blade.
Place the facing tool inside the PLUS 115 unit and turn the cover into the locking position.

➔ **NOTE!** Make sure that the facing tool blade is rotated up enough before placing it inside the PLUS 115 unit.

3. Turn the speed selector knob on the T-65 to position II. Start the drill by pressing the foot pedal and rotating the facing tool handwheel in clockwise direction. Rotate the handwheel smoothly as far as it will go.

Stop the T-65 and rotate the facing tool blade up for the next collar.

4. Detach the power cord from the T-65 machine and remove T-65 from the PLUS-115 unit. Take the facing tool out from the PLUS 115 unit.

5. Remove the PLUS 115 unit from the base plate by turning the locking lever. Loosen the ring clamp locking levers, open the ring clamps and remove the base plate from the tube).

9. FINE ADJUSTMENT OF THE COLLARING TOOL

To obtain appropriate joint clearance a fine adjustment is occasionally needed.

1. Extend forming pins to the collaring position.
2. Note the position of the hash mark on the cylindrical cover in relation to a mark on the cover plate.
3. Loosen the adjustment screws a half turn on the cover plate.



4. Rotate the cover plate relative to the cylindrical cover clockwise for increasing and counter-clockwise for decreasing the diameter of adjustment. One notch on the cover plate equals to 0.5mm / 0.02" on the forming pin span.

10. STALLING

If the PLUS 115 is overloaded, the adapter will break and the collaring head will stall. If this occurs, do the following:

1. Detach the power cord from the T-65 machine and remove the T-65 from the PLUS 115 unit.



2. Loosen the 4 screws of the knurled handle of the lead screw with 4 mm hex wrench and remove the handle.
3. Remove the plug from the end of the lead screw and put the 14 mm hex wrench through the hole of the lead screw and into the screw at the end of the collaring head.
4. Turn the hex wrench counter-clockwise four rounds and then tap the wrench with a hammer in order to release the collaring head.
5. To remove the collaring head, turn the adapter by hand counterclockwise several rounds and lift the lead screw and then remove the collaring head from the PLUS 115 unit.

➡ **NOTE!** Before the next collar, lock the drive pin with the releasing screw and replace the broken adapter.

11. MAINTENANCE

All servicing should be done only by T-DRILL. The PLUS 115 unit is lubricated for life and doesn't need any extra maintenance.

Clean dust and dirt from machine surface weekly.

11.1 PILOT HOLE CUTTER FOR ELLIPTIC PILOT HOLE

Milling pin size 11,3 TiAlN is suitable for all collar sizes, others can be used, if desired.

List of replacement pilot hole milling pins:

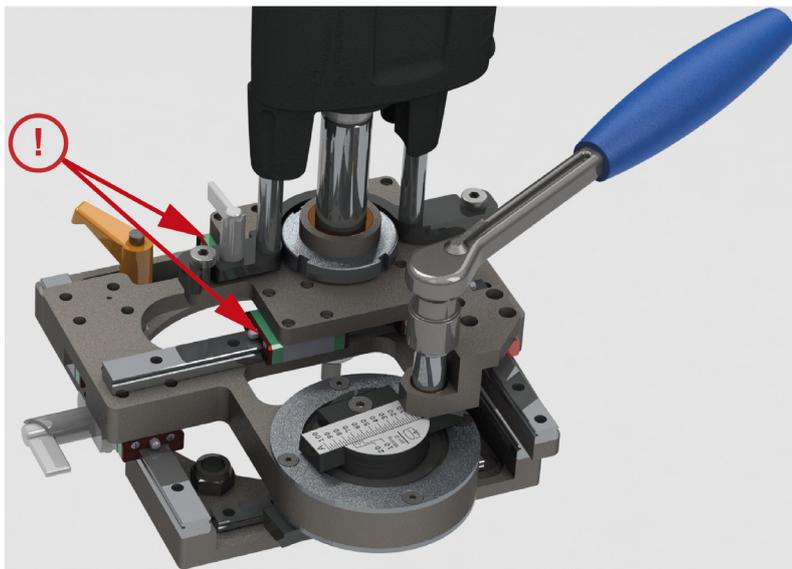
Part No.	Name	Size
6310558	Drill 9,9 TiAlN	For 17,2 head
6310552	Drill 11,3 TiAlN	For 21,3 head
6310553	Drill 12,5 TiAlN	For 26,9 head
6310554	Drill 15,8 TiAlN	For 33,7 and 42,4 heads
6310555	Drill 17,3 TiAlN	For 48,3 head
6310722	Drill 19,0 TiAlN	For 48,3 head

Maintenance

Keep the device clean, wipe off all metal chips and oil residue every time after operating with the pilot hole cutter.

Wipe slide guides every time chips appear on them.

The slide bush of the pilot hole device spindle is lubricated for life.



Lubricate guide blocks regularly.

Lubricate the collaring unit guide blocks through the grease nipples once a year or after every 30 000 working cycles; see separate Hiwin manual for details.

Lubricant: Use, for example: DIN 51825 KP 2K or NLGI 2, EP-grease, lithium complex, 40°C 190cSt, -20...+120°C. E.g. Shell Gadus S2 V220 2 or equivalent.

12. PLUS 115 CAPACITY AND INSTRUCTION CHART

t = max. wall thickness of stainless steel pipe in mm

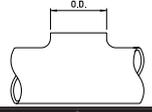
BRANCH OUTLET		RUN PIPE MAX. WALL THICKNESS										
O.D. mm		33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	219.1	
	Nom. pipesize inch	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	
21.3	1/2	2.0 Sch 5										
26.9	3/4	2.0 Sch 5										
33.7	1	1.6	2.0 Sch 5									
42.4	1 1/4		1.6	2.0 Sch 5								
48.3	1 1/2			1.6	2.0 Sch 5		3.4 Sch10					
60.3	2				3.4 Sch 10						3.4 Sch 5	
76.1	2 1/2					3.4 Sch 10						
88.9	3						3.4 Sch 10					
114.3	4							3.4 Sch 10				

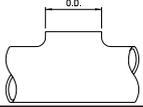
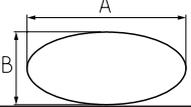
	T-65
	PLUS 115

12.1 PILOT HOLE TABLE FOR PLUS 115

Small tool: $A_{\min} = 36$ and $B_{\min} = 25$, for collars 1.1/2" - 2.1/2"

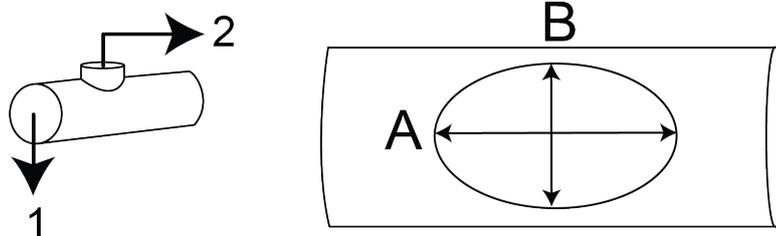
Large tool: $A_{\min} = 50$ and $B_{\min} = 33$, for collars 3" - 4"

						
Run pipe O.D. mm	Run pipe NS inch	Branch pipe O.D. mm	Branch pipe NS inch	Pilot hole a mm	Pilot hole b mm	Max wall thickness s
60.3	2	48,3	1½	37	23	3.4
		60,3	2	49	27	3.4
76.1	2¾	48,3	1½	36	25	3.4
		60,3	2	46	32	3.4
		76,1	2¾	63	35	3.4
88.9	3	48,3	1 ½	36	26	3.4
		60,3	2	48	32	3.4
88.9		48,3	1 ½	36	26	3.4
		60,3	2	48	32	3.4
		76,1	2¾	62	37	3.4
		88,9	3	73	43	3.4
114.3	4	48,3	1½	36	27	3.4
		60,3	2	47	35	3.4
		76,1	2¾	60	40	3.4
		88,9	3	72	45	3.4
		114,3	4	92	53	3.4
139.7	5	48,3	1½	36	28	3.4
		60,3	2	46	36	3.4
		76,1	2¾	59	44	3.4
		88,9	3	73	51	3.4
		114,3	4	92	60	3.4
168.3	6	48,3	1½	36	28	3.4
		60,3	2	45	37	3.4
		76,1	2¾	58	45	3.4
		88,9	3	72	54	3.4
		114,3	4	92	62	3.4
219,1	8	48,3	1½	36	29	3.4

						
Run pipe O.D. mm	Run pipe NS inch	Branch pipe O.D. mm	Branch pipe NS inch	Pilot hole a mm	Pilot hole b mm	Max wall thickness s
		60,3	2	42	38	3.4
		76,1	2¾	56	46	3.4
		88,9	3	67	53	3.4
		114,3	4	89	66	3.4
273,0	10	48,3	1½	36	29	3.4
		60,3	2	42	38	3.4
		76,1	2¾	55	47	3.4
		88,9	3	65	53	3.4
		114,3	4	87	68	3.4
323,9	12	48,3	1½	36	29	3.4
		60,3	2	42	38	3.4
		76,1	2¾	55	47	3.4
		88,9	3	65	55	3.4
		114,3	4	87	70	3.4

12.2 PILOT HOLES FOR STAINLESS STEEL PIPES, WALL THICKNESS ≤ 2.0MM

This table is indicative only. The values depend on the pipe materials and wall thicknesses as well as on the condition of the tool used.



1. Run tube, 2. Branch

Run pipe O.D. mm	Branch pipe O.D. mm	Pilot hole a mm	Pilot hole b mm
51	51	40	25
57	51	40	25
	57	46	25
63.5	51	40	25
	57	46	27
	63.5	52	28
70	51	40	27
	57	46	28
	63.5	52	30
	70	56	31
76	51	40	27
	57	46	29
	63.5	56	31
	70	56	32
	76	62	34
80/82.5/84	51	40	28
	57	46	30
	63.5	51	32
	70	56	33
	76	62	36
	80	66	36
82.5	82.5	68	37
84	70	56	35

Run pipe O.D. mm	Branch pipe O.D. mm	Pilot hole a mm	Pilot hole b mm
	76	62	36
	80	66	37
	82.5	68	38
	84	70	38
104 / 108	51	39	28
	57	45	31
	63.5	50	33
	70	56	36
	76	61	40
	80	66	42
	82.5	68	43
	84	70	44
104	104	88	48
108	104	88	50
	108	91	50
133	51	38	30
	57	44	34
	63.5	49	36
	70	56	40
	76	61	43
	80	66	45
	82.5	68	46
	84	70	47
	104	88	55
	108	91	55
159 / 164	51	38	31
	57	43	35
	63.5	49	37
	70	56	41
	76	61	44
	80	65	47
	82.5	67	48
	84	69	49
	104	88	60
	108	91	61

Run pipe O.D. mm	Branch pipe O.D. mm	Pilot hole a mm	Pilot hole b mm
193.7	51	38	31
	57	43	35
	63.5	49	39
	70	55	44
	76	60	47
	80	65	49
	82.5	67	50
	84	69	51
	104	88	62
	108	91	63
219.1	51	38	31
	57	44	35
	63.5	48	38
	70	55	43
	76	61	47
	80	61	47
	82.5	63	48
	84	65	49
	104	85	61
	108	89	63

13. T-DRILL STANDARD WARRANTY

T-Drill agrees to warrant to the original purchaser, that the Product is free from defects in material and workmanship under normal use and service. The warranty period is: (a) twelve (12) months from the date of taking-over, or (b) 2000 hours of operation from the date of taking-over, or (c) eighteen (18) months from the date of delivery to the Customer, whichever occurs first. For spare parts and packages for retrofit the warranty period is 6 months from the date of delivery to the Customer. Warranty is not transferable from the original purchaser to further owners.

Extended warranty shall be available only subject to separate written Service agreement between T-Drill and the Customer.

In the event that the Customer wants to avail itself of this warranty, the Customer shall complete the Warranty Claim Form and send it to T-Drill without delay, and in any event within seven (7) days of the Customer being put on notice of the defect. The Customer shall, immediately upon being put on notice of a defect in the Product, take all reasonable steps to avoid aggravation of the defect or further damage to the Product.

In the event of a valid warranty claim, T-Drill shall, at its sole discretion, have the option of repairing or replacing the relevant part or parts free of charge and supplying them to the Customer. In such cases, replaced parts may be either new or factory refurbished, at T-Drill's discretion. Repair or replacement services shall be carried out by the Customer at its own risk and expense. The Customer shall ensure that T-Drill or any third party appointed by T-Drill have all necessary access to the Product in question. In no event shall the Customer have a right to return any Product without the prior written consent of T-Drill. The Customer acknowledges and agrees that the provisions of this warranty constitute the sole and exclusive remedy available to it with regard to said defective Products.

This warranty shall not extend to any Product which has been: (a) rendered in need of repair due to normal wear and tear; (b) subjected to unusual physical or other stress (e.g. from electricity, gas, water or compressed air), misuse, neglect, accident or abuse, or damaged by any other external causes; (c) repaired or altered by any third party or maintenance is carried out by other than T-Drill authorized service provider; (d) improperly installed by any third party; (e) installed on foundations or in environmental conditions which are not in accordance with specifications; (f) used or maintained in violation of instructions furnished by T-Drill; (g) rendered defective due to materials, components, use of other spare parts than T-Drill's original spare parts, or design provided by T-Drill; or (h) rendered defective or in need of repair due to any other cause which is not under the control of T-Drill. The warranty does not cover defects which are insignificant to the use of the Product, such as repair of superficial scratches. In addition the warranty does not cover the adjustments or structural changes to the Product, nor any per diem, traveling costs, freights or remuneration for out-of-operation days.

EXCEPT AS EXPRESSLY PROVIDED HEREIN, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS, INDEMNITIES AND GUARANTEES WITH RESPECT TO THE PRODUCT, WHETHER EXPRESS OR IMPLIED, ARISING BY LAW, CUSTOM, PRIOR ORAL OR WRITTEN STATEMENTS BY T-DRILL OR OTHERWISE (INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE) ARE HEREBY OVERRIDDEN, EXCLUDED AND DISCLAIMED.

LIMITATION OF LIABILITY

UNDER NO CIRCUMSTANCES WILL T-DRILL OR ITS AFFILIATES BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, SPECIAL, PUNITIVE, OR INCIDENTAL DAMAGES OR LOST PROFITS, WHETHER FORESEEABLE OR UNFORESEEABLE, BASED ON CLAIMS OF THE CUSTOMER (INCLUDING, BUT NOT LIMITED TO, CLAIMS FOR LOSS OF GOODWILL, LOSS OF SHARE VALUE OR INVESTMENT, USE OF MONEY OR USE OF THE PRODUCTS, INTERRUPTION IN USE OR AVAILABILITY, STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS), ARISING OUT OF BREACH OR FAILURE OF EXPRESS OR IMPLIED WARRANTIES, BREACH OF CONTRACT, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, EXCEPT IN THE CASE OF PERSONAL INJURY CAUSED DESPITE THE PROPER USE OF THE PRODUCTS, IF AND TO THE EXTENT REQUIRED BY APPLICABLE LAW. IN NO EVENT WILL THE AGGREGATE LIABILITY WHICH T-DRILL OR ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR AFFILIATES MAY INCUR IN ANY ACTION OR PROCEEDING EXCEED THE TOTAL AMOUNT ACTUALLY PAID TO T-DRILL BY THE CUSTOMER FOR THE SPECIFIC PRODUCT THAT DIRECTLY CAUSED THE DAMAGE.

14. ORDERING SPARE PARTS

When ordering spare parts, please state the following details:

- Type code of the machine
- Manufacturing code of the machine
- The part number
- A description of the part
- The quantity of the parts required

The type code and manufacturing code of the machine are indicated on the nameplate of the machine. The other information can be found from parts list.

Nameplate placement on the machines:

- PLUS 115 on top of the machine cover
- T-65 machine handle, near the trigger

For example:

10.1. CLAMP SUPPORT <168 5500896

Item	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	3500903	Clamp frame			2
2	3500904	Fastening plate			2
3	9214010	Screw	M8 x 25	8.8 DIN7984	8
4	9016007	Set screw	M8 x 8	12.9 DIN913	4
5	4280104	Clamp holder pin			4
6	9018037	Parallel pin	Ø6m6 x 32	DIN6325	4
7	9018219	Spring pin	Ø6 x 30	DIN1481	2



1. Part number 2. Description 3. Quantity

When ordering spare parts, send an email or a fax.

To proceeding this way you will prevent misunderstandings and you make sure to receive the correct spare parts and a prompt service.

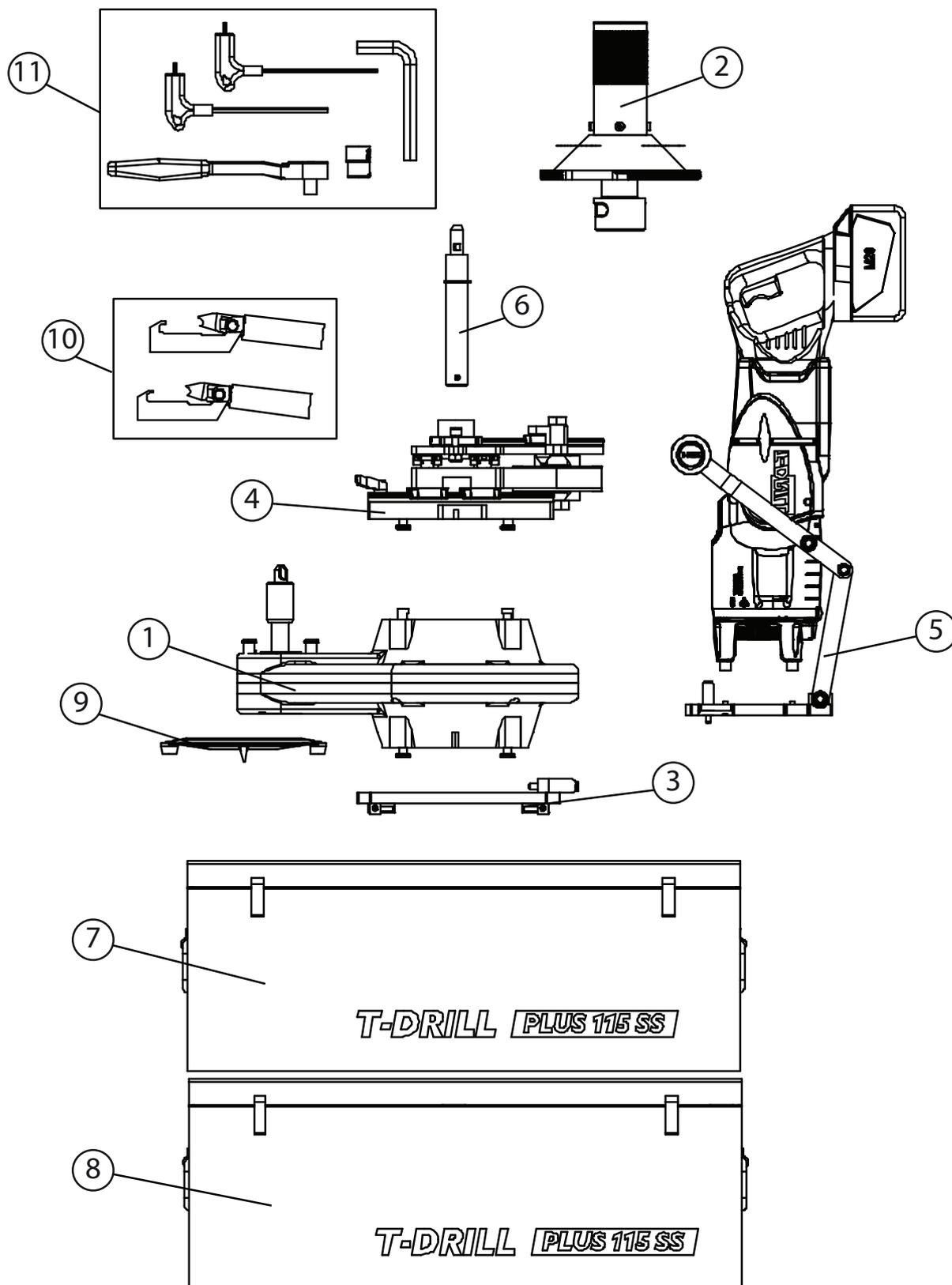
Contact information:	Global	USA, Mexico, Canada
Spare part inquiries and orders	sales@t-drill.fi	sales@t-drill.com
Technical support	service@t-drill.fi	service@t-drill.com
Fax:	+358-6-4753 383	(+1) 770-925-3912
Telephone:	+358-6-4753 344	(+1)770-925-0520 ext. 245

15. SPARE PARTS LIST PLUS 115 FOR STEEL

15.1 PLUS 115 FOR STEEL (EU) 5700310

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	5700307	Gear			1
2	5700309	Leadscrew			1
3	5700291	Base plate			1
4	5700288	Pilot hole cutter			1
5	5700293	Drilling unit			1
6	5700301	Spindle			1
7	5700303	Transport box			1
8	5700304	Transport box			1
9	6700300	Pointer			1
10	5290206	Locking Lever			2
11	5700317	Tool set			1
12	5700118	Trimming device			1
13	9011602	Paint brush	koko 10...11		1
14	5292322	Grease	1 kg Isoform TD50		1
15	5700320	Foot switch			1
16	6700319	Instruction manual and spare parts list	7005 EU/USA		1

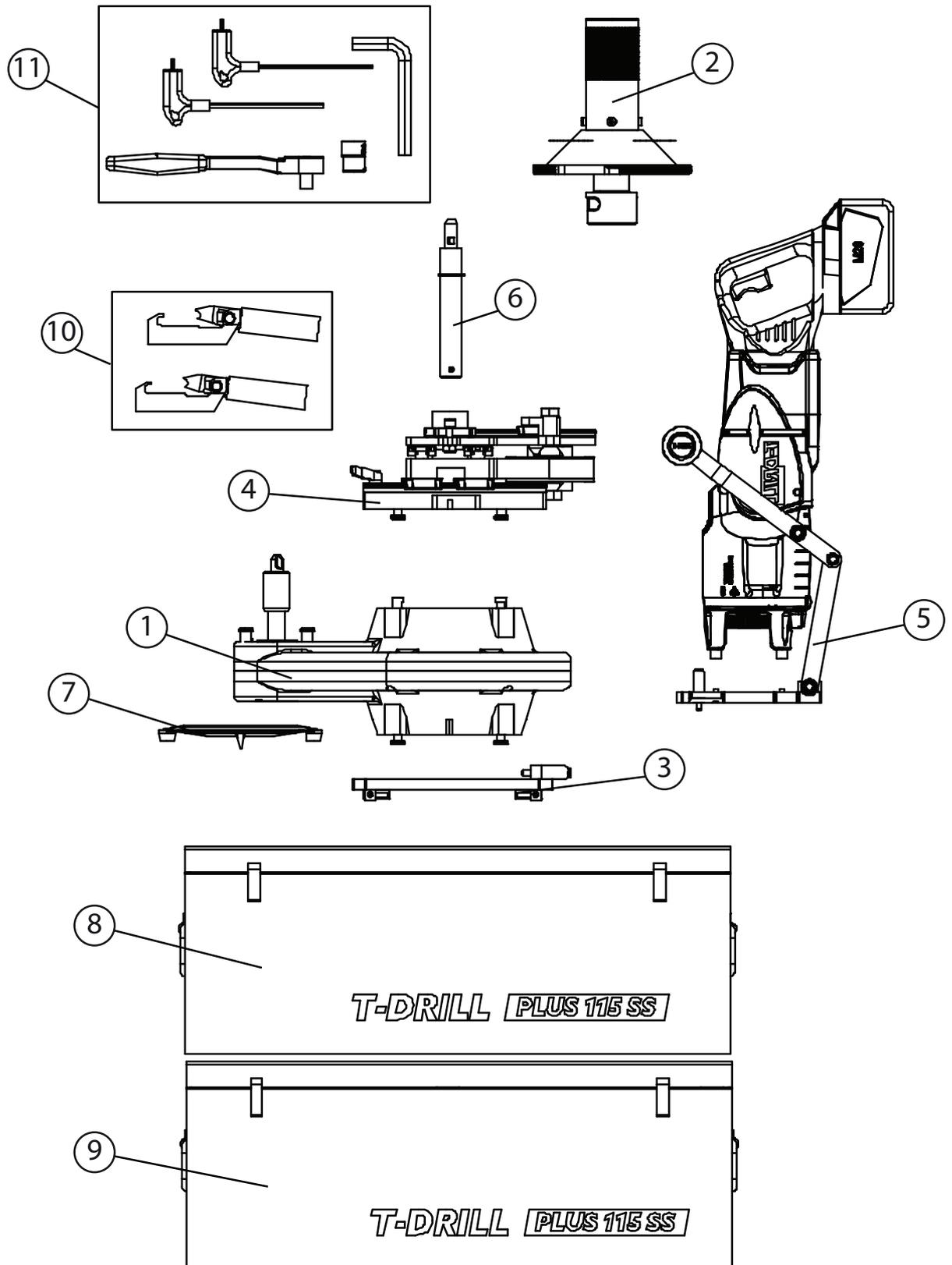
15.1 PLUS 115 FOR STEEL (EU) 5700310



15.2 PLUS 115 FOR STEEL (USA) 5700311

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	5700307	Gear			1
2	5700309	Leadscrew			1
3	5700291	Base plate			1
4	5700288	Pilot hole cutter			1
5	5700293	Drilling unit			1
6	5700301	Spindle			1
7	6700300	Pointer			1
8	5700304	Transport box			1
9	5700303	Transport box			1
10	5290206	Locking Lever			2
11	5700317	Tool set			1
12	5700118	Trimming device			1
13	5700321	Foot switch			1
14	9011602	Paint brush	koko 10...11		1
15	5292322	Grease	1 kg Isoform TD50		1
16	6700319	Instruction manual and spare parts list	7005 EU/USA		1

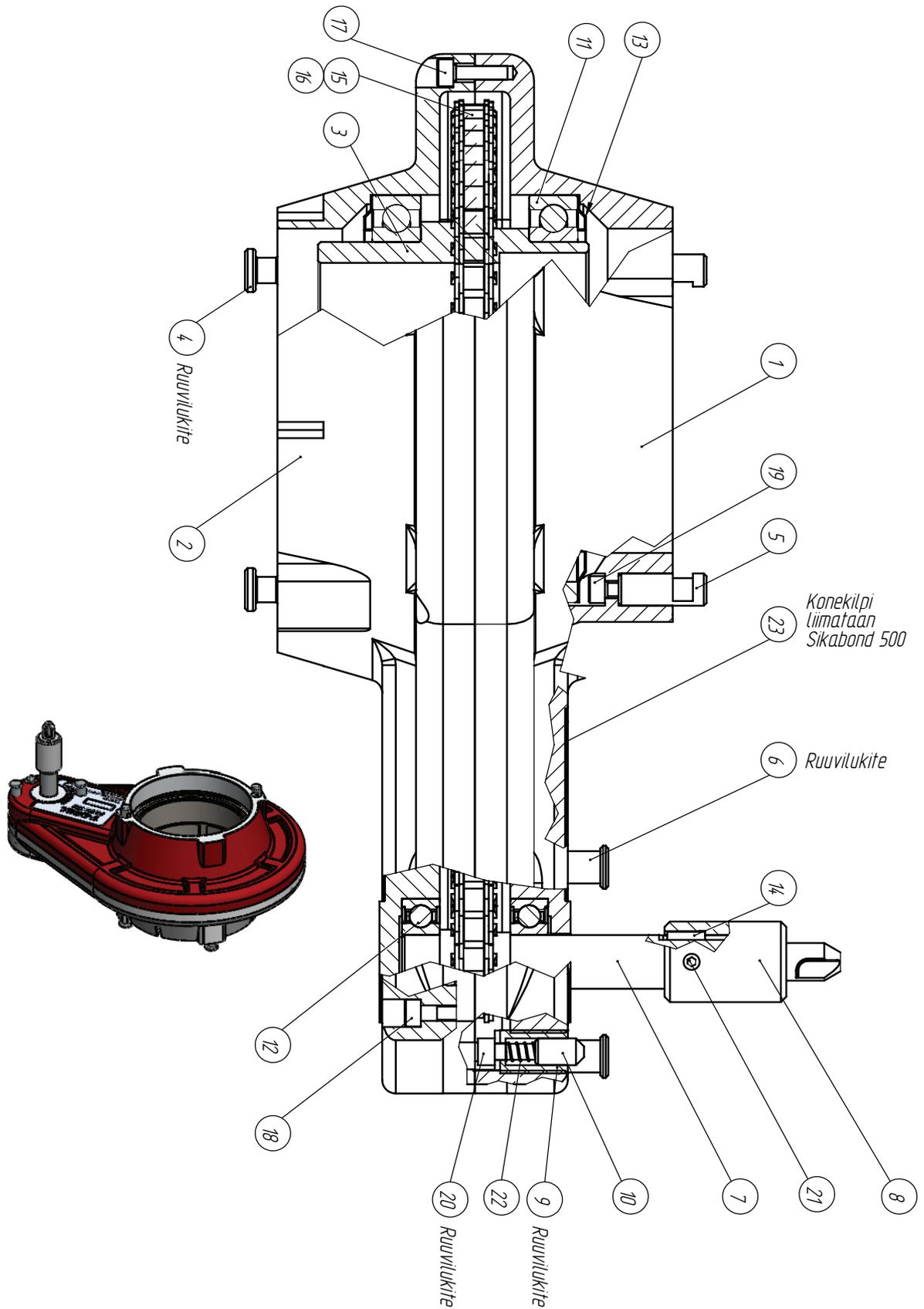
15.2 PLUS 115 FOR STEEL (USA) 5700311



15.3 GEAR 5700307

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	1700042	Upper house			1
2	1700043	Lower housing			1
3	2700141	Middle bushing			1
4	4700052	Locking pin			4
5	4700054	Locking pin			2
6	4700053	Locking pin			2
7	4700047	Primary shaft			1
8	3700051	Adapter			1
9	4700055	Bushing			1
10	4700056	Pin			1
11	9021035	Groove ball bearing	Ø140/Ø175x18 61828-HLU		2
12	9021054	Groove ball bearing	Ø20/Ø47x14 6204- 2RS		2
13	9032408	Nilos ring	Ø140/Ø175 (61828 JV)		2
14	9018707	Parallel key	3x3x14 C45K PKR	SMS2306	1
15	9024119	Roller chain	1/2" 08 B-1 (Wiperman 462)	DIN 8187	1
16	9024120	Coupler link	1/2" 08 B-1 no 11, ketjulle 462		1
17	9014030	Socket head cap screw	M6x20 8.8	DIN 912	5
18	9014032	Socket head cap screw	M6x30 8.8	DIN 912	2
19	9014029	Socket head cap screw	M6x16 8.8	DIN 912	2
20	4700057	Adjuster screw			1
21	9016004	Set screw	M6x6 12.9	DIN 913	1
22	9026162	Pressure spring	Ø0.6/Ø6x15 SF-TF SS1774-04	Lesjöfors Springs	1
23	6700306	Machine plate			1

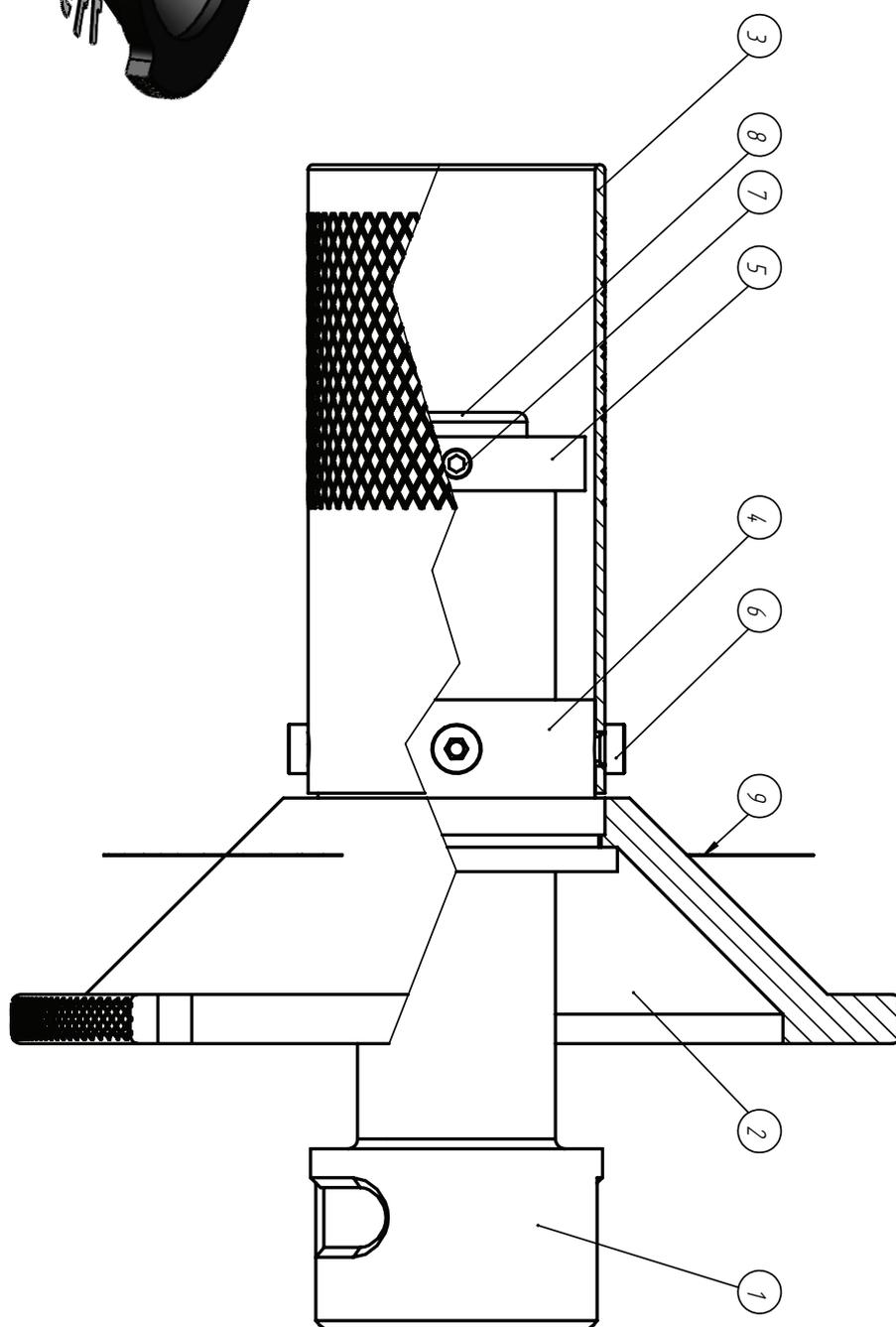
15.3 GEAR 5700307



15.4 LEAD SCREW 5700309

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	4700062	Leadscrew			1
2	3700063	Cover			1
3	4700064	Bushing			1
4	4700065	Nut			1
5	4700066	Limiter nut			1
6	9014079	Socket head cap screw	M6x8 8.8	DIN 7984	4
7	9016004	Set screw	M6x6 12.9	DIN 913	1
8	9028320	Male plug	Ø28 Valkoinen muovi		1
9	6700305	Sticker	Harmaa, T-DRILL PLUS 115 SS		1

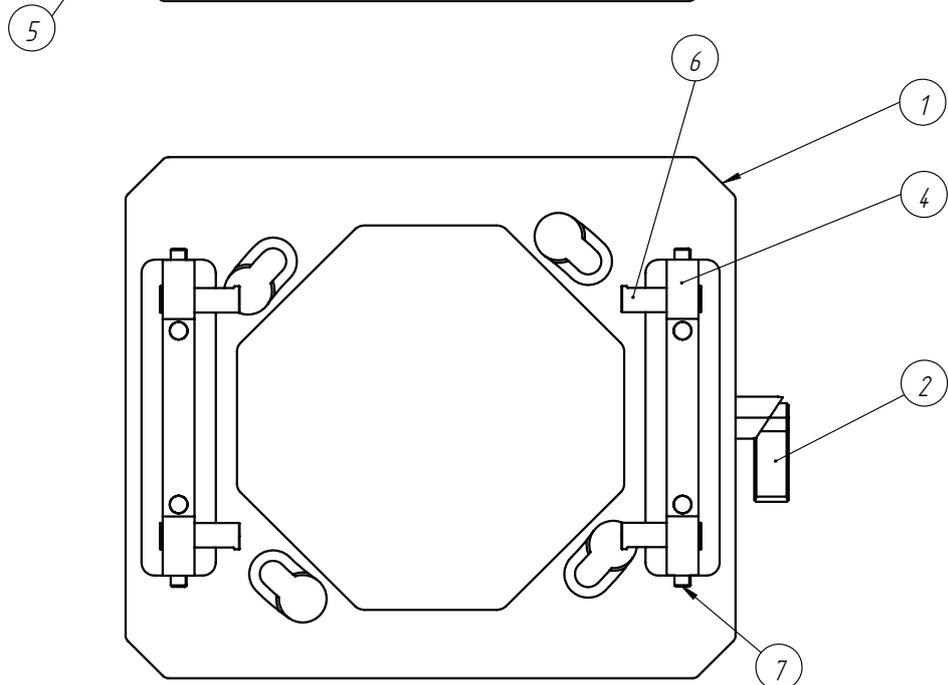
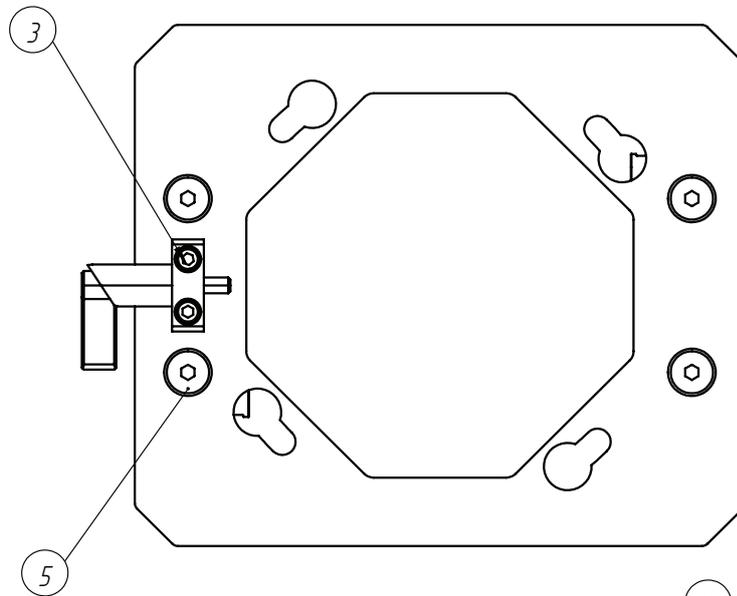
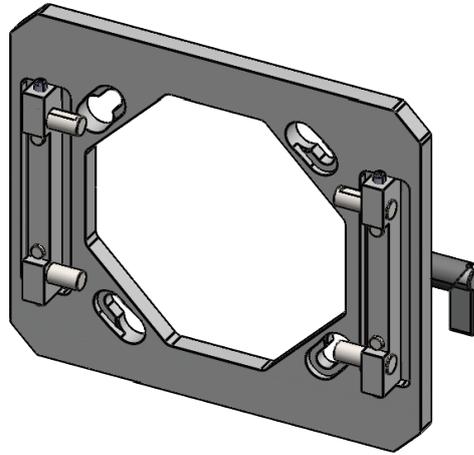
15.4 LEAD SCREW 5700309



15.5 BASE PLATE 5700291

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	6700290	Base plate			1
2	8003707	Index knob	22120_0376		1
3	9014020	Socket head cap screw	M5x16 8.8	DIN 912	2
4	6700292	Clamp holder bar			2
5	9014316	Socket head cap screw	M8x20	DIN 7991	4
6	4280104	Fastening pin			4
7	9028065	Spring plunger	M6x16 teräs 5.8 (16 06008)		4

15.5 BASE PLATE 5700291

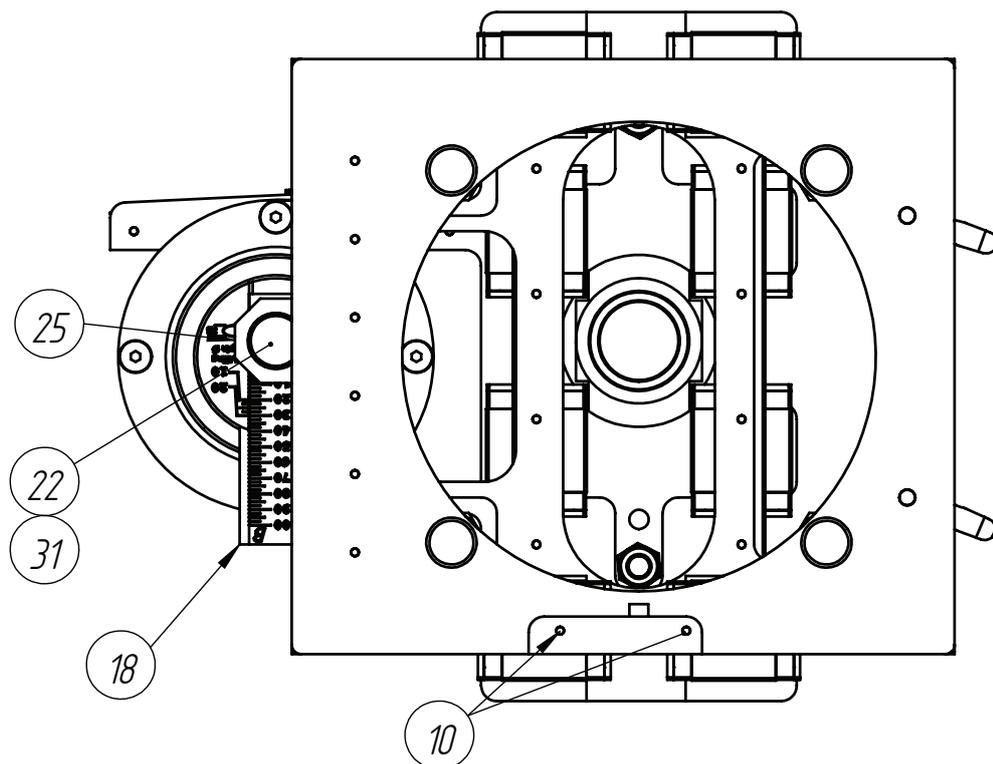
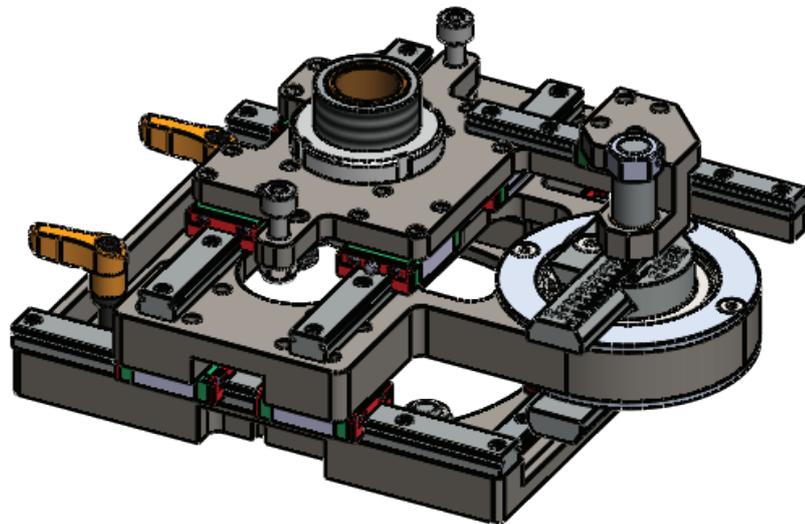


15.6 PILOT HOLE CUTTER 5700288

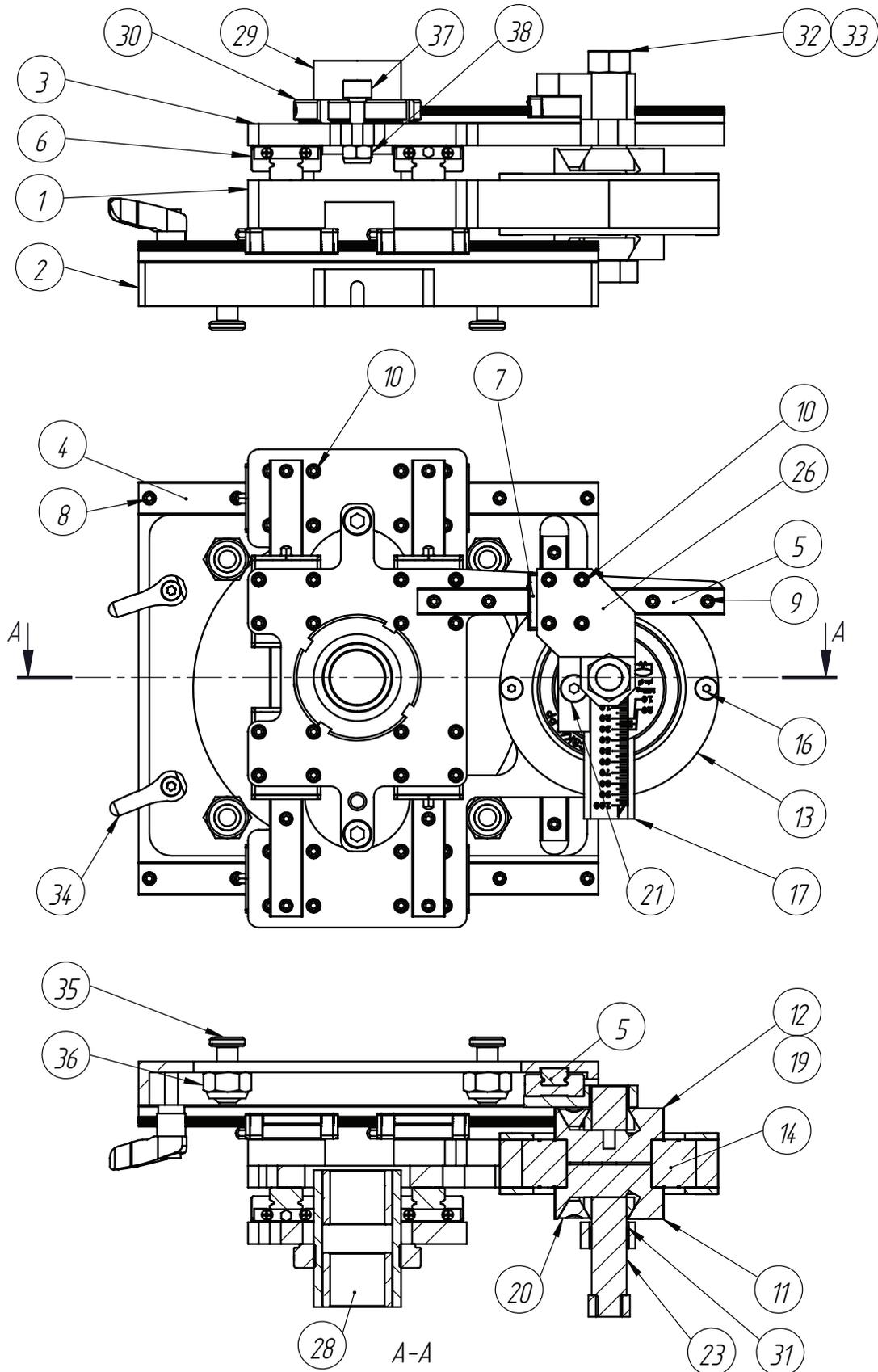
Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	6700268	Body			1
2	6700272	Base frame			1
3	6700275	Upper frame			1
4	8003708	Guide rail	MGNR15R210CM 5/5		4
5	8003710	Guide rail	MGNR12R140HM		2
6	8003709	Runner block	MGN15CZFC		8
7	8003539	Runner block	Hiwin MGN12CZFC		2
8	9114016	Socket head cap screw	M3x12 8.8	DIN 912	22
9	8002259	Socket head cap screw	M3x6 12.9 MUSTA		12
10	9014001	Socket head cap screw	M3x8 12.9	DIN 912	38
11	6700277	Shaft	A		1
12	6700278	Shaft			1
13	6700260	Locking plate			2
14	9021532	Freewheel clutch	Ø40/Ø80x22 CSK 40-PP		1
15	9018724	Parallel key	10x8x22 PKT		1
16	9014311	Socket head cap screw	M5x10	DIN 7991	8
17	6700283	Adjusting bar	A		1
18	6700284	Adjusting bar	B		1
19	9014036	Socket head cap screw	M8x20 8.8	DIN 912	2
20	6700279	Key			2
21	9014310	Socket head cap screw	M6x20	DIN 7991	2
22	6700256	Hinge pin			1
23	6700255	Hinge pin			1
24	9016016	Set screw	M6x8 12.9	DIN 913	2
25	6700254	Joining piece			1
26	6700253	Joining piece			1
27	9214004	Socket head cap screw	M3x6 8.8 Zn	DIN 912	4
28	9022074	Slide bearing	Ø25/Ø32x25 SMS 777	ISO 2705 Johnson Metall	2
29	6700249	Bearing housing			1
30	8003332	Spinner nut	M40x1.5 KMK 8 (SKF)	SKF	1
31	8003712	Slide bearing	Ø16/Ø18x10 DIN1494		2
32	6700289	Nut			1

15.6 PILOT HOLE CUTTER 5700288

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
33	9016101	Set screw	M4x5 12.9	DIN 914	1
34	9128016	Fixing lever	M6x20 K1000.106.020.02		2
35	4700052	Locking pin			4
36	9013014	Self-locking nut	M12	DIN 985	4
37	9114070	Socket head cap screw	M8x30 8.8 Zn	DIN 912	2
38	9013035	Self-locking nut	M8 Zn	DIN 985	2



15.6 PILOT HOLE CUTTER 5700288



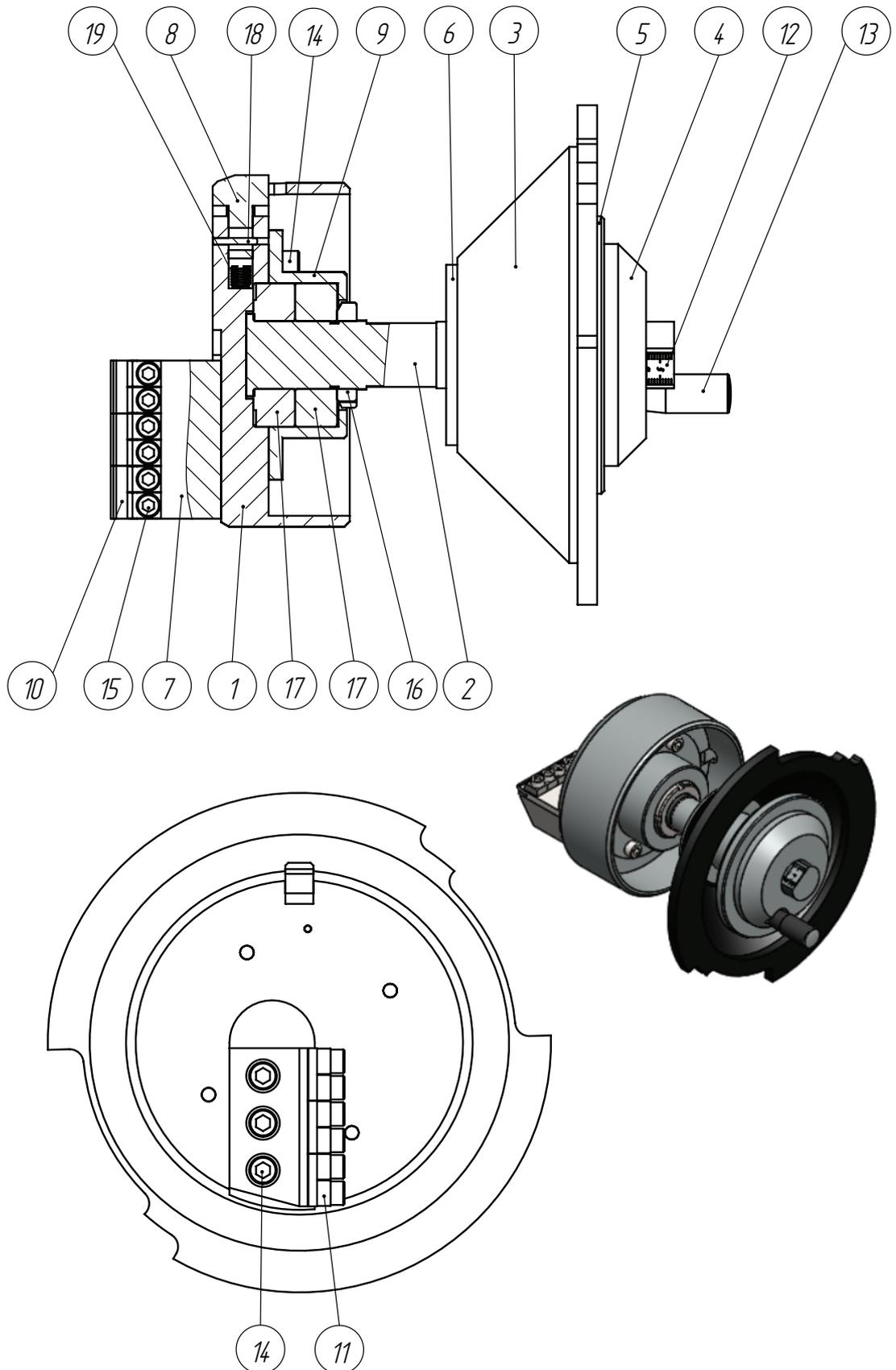
15.6.1 PILOT HOLE DRILL BITS

Part No.	Name	Size, standard, manufacturer
6310552	Drill 11,3 TiAlN	For 21,3 head

15.7 TRIMMING DEVICE 5700118 A

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	3700120	Body			1
2	3700121	Screw			1
3	3700122	Cover			1
4	4700123	Handwheel			1
5	4700124	Locking nut			1
6	4700125	Nut			1
7	4700126	Blade retainer			1
8	4700127	Locking pin			1
9	4290082	Bearing cap			1
10	4120156	Reversible Blade L=19			3
11	4120155	Blade fastener			6
12	4700145	Measuring scale	(mm)		1
13	9028088	Handle	M6 Pyörivä Elesä 1.301/28+X-M6	Elesa	1
14	9014029	Socket head cap screw	M6x16 8.8	DIN 912	7
15	9014019	Socket head cap screw	M5x12 8.8	DIN 912	6
16	9013401	Spinner nut	(M25x1,5) KM5		1
17	9021045	Groove ball bearing	Ø25/Ø52x15 6205- RS1		2
18	9018068	Parallel pin	Ø2.5m6x16	DIN 6325	1
19	9026140	Pressure spring	Ø0.75/Ø7x15 SF-TF SS1774-04	Lesjöfors Springs	1

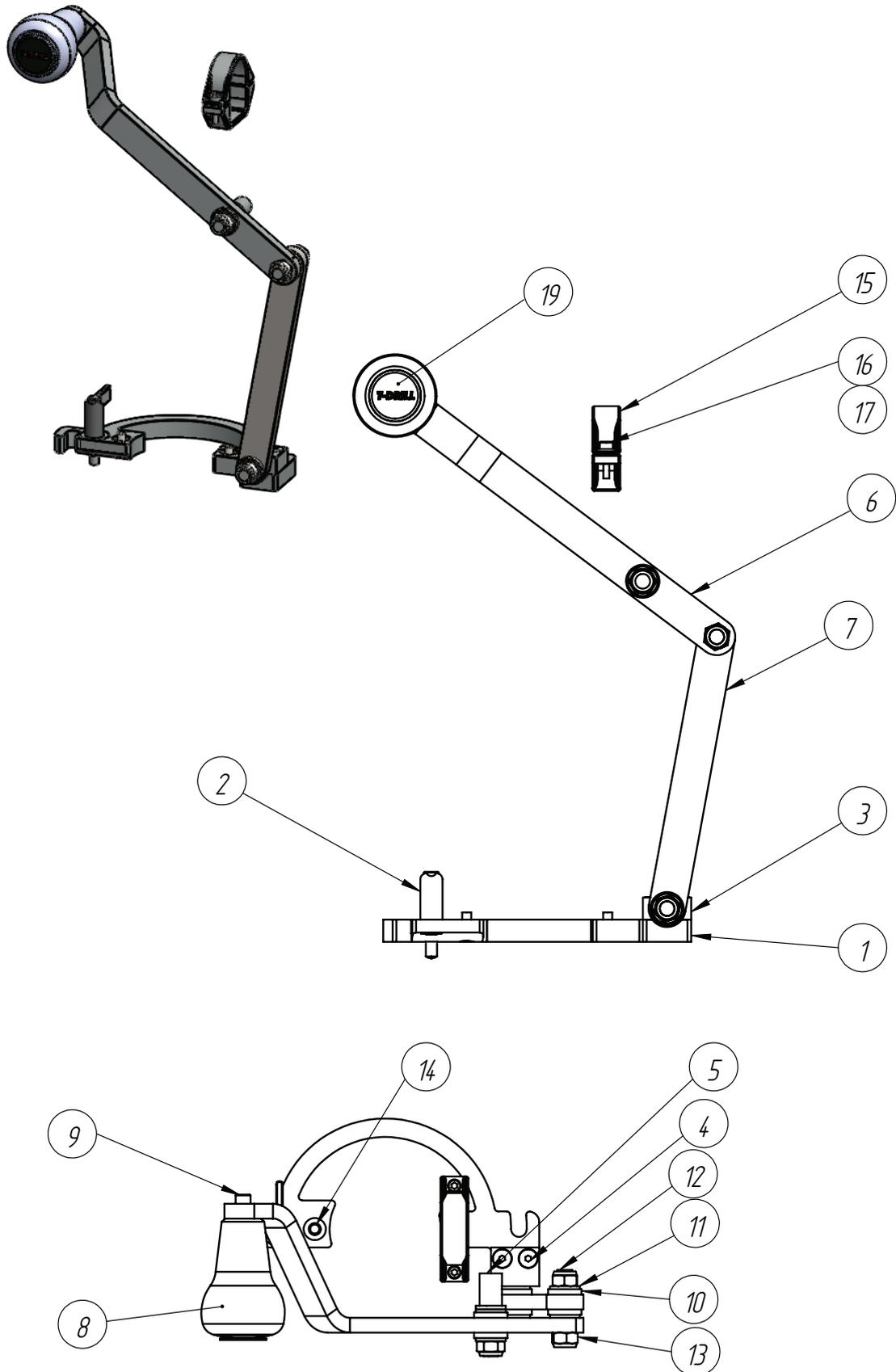
15.7 TRIMMING DEVICE 5700118 A



15.8 DRILLING UNIT 5700293 A

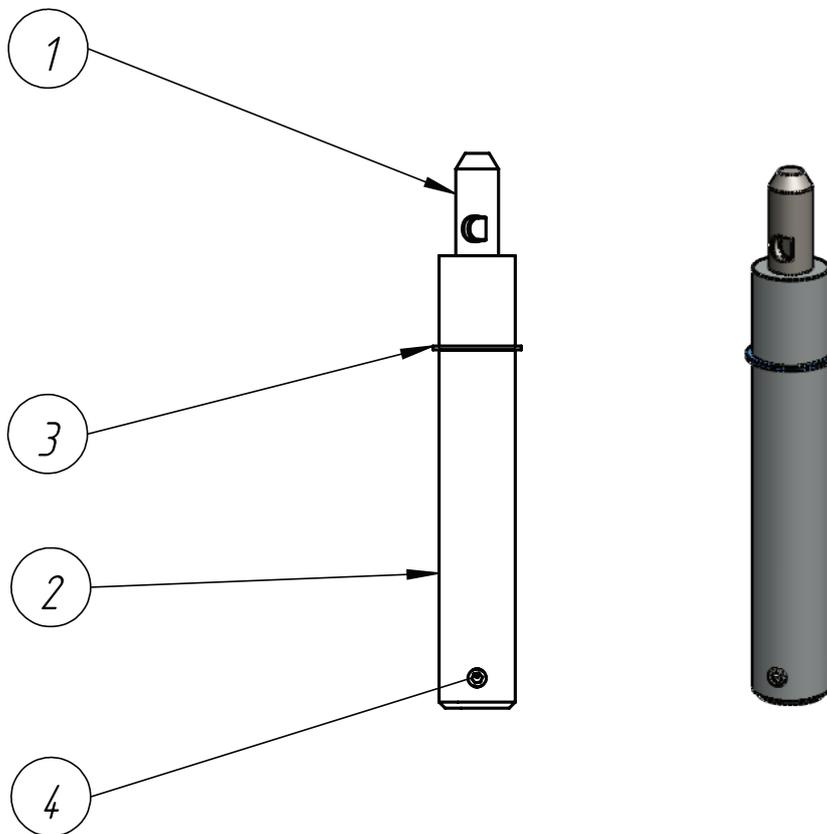
Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	6700270	Fastener			1
2	8003706	Index knob	22120.0314		1
3	6700282	Fixture			1
4	9014332	Socket head cap screw	M5x20	DIN 7991	2
5	6330763	Hinge pin			1
6	6330894	Lever			1
7	6330765	Lever			1
8	8003595	Knob			1
9	6080257	Pin	M8/Ø10x50mm		1
10	8000988	Slide bearing	Ø8 / Ø14 / Ø18-3 MFM-0814-06	Igus	6
11	9012005	Washer	Ø8.4	DIN 125	6
12	6330771	Hinge pin			2
13	9013035	Self-locking nut	M8 Zn	DIN 985	4
14	9014308	Socket head cap screw	M6x16	DIN 7991	2
15	6700294	Fastening part			1
16	9014006	Socket head cap screw	M4x16 8.8	DIN 912	2
17	9013016	Hexagon nut	M4 Zn	DIN 934	2
18	6330850	Cap			1

15.8 DRILLING UNIT 5700293 A



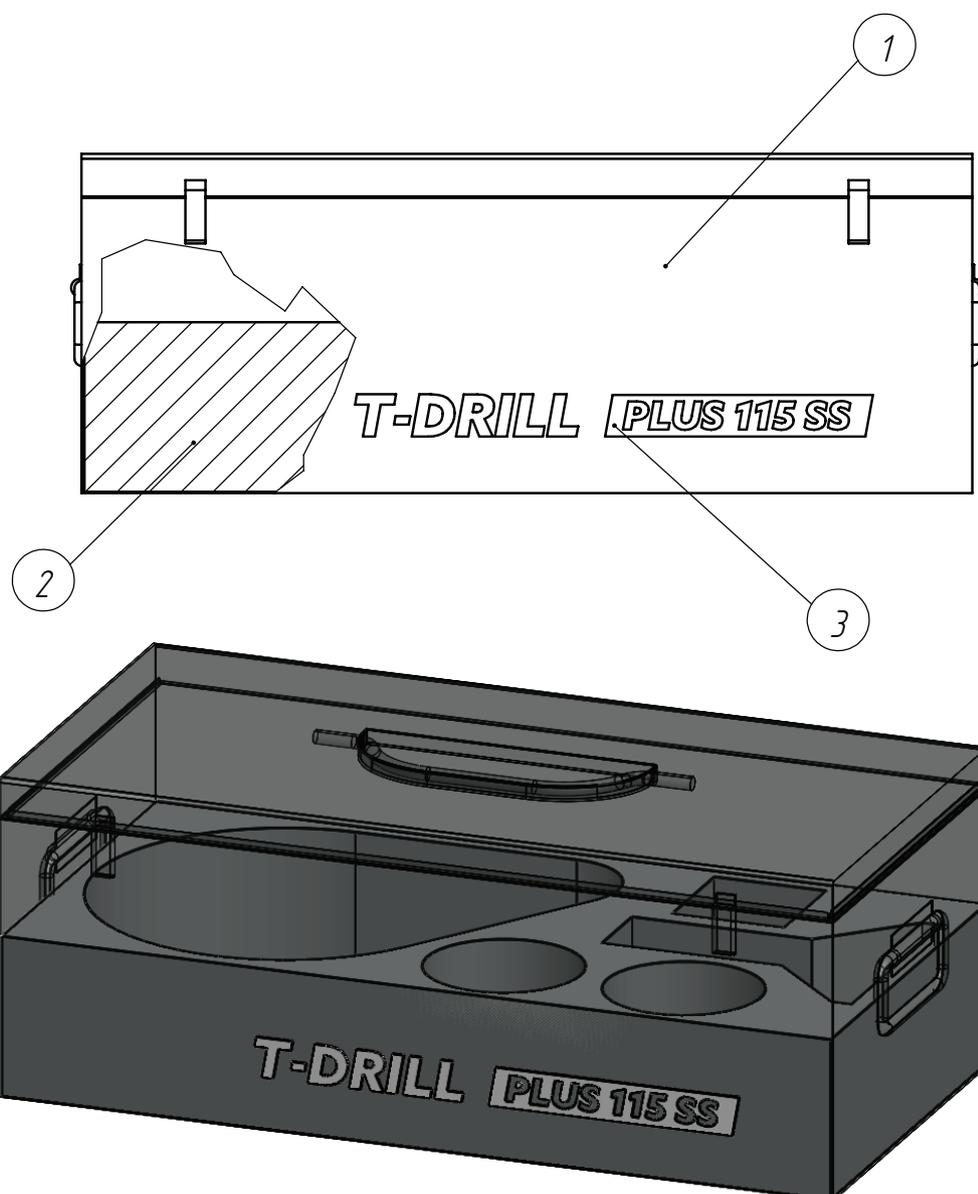
15.9 SPINDLE 5700301

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	6310530	Spindle shaft			1
2	6700248	Sliding shaft			1
3	9019007	Retaining ring	Ø25x1.2	DIN 471 B11	1
4	9016004	Set screw	M6x6 12.9	DIN 913	3



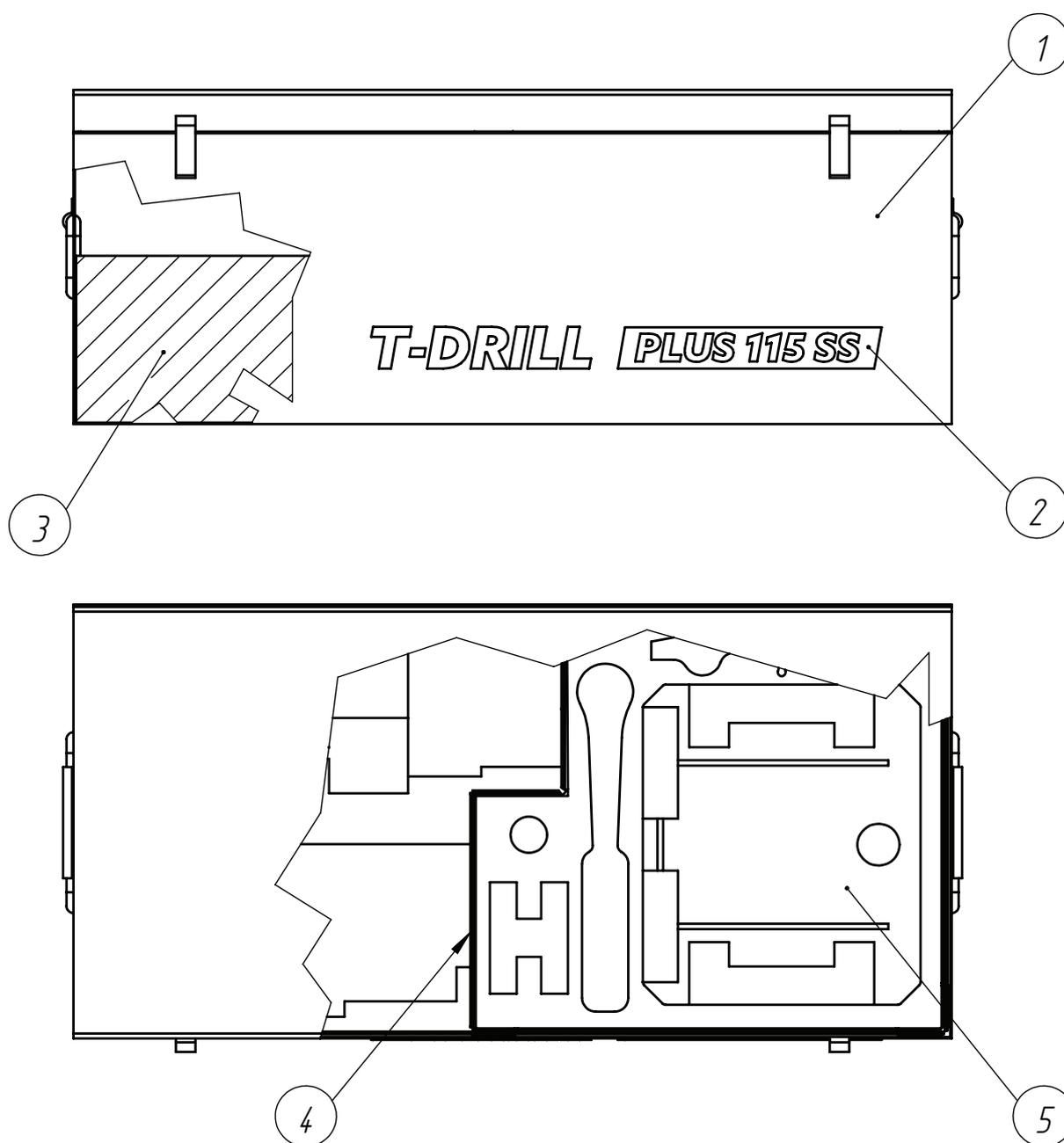
15.10 TRANSPORT BOX 5700303

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	5330774	Metal case			1
2	6700298	Moulded insert			1
3	6700302	Sticker	Harmaa, T-DRILL PLUS 115 SS		1



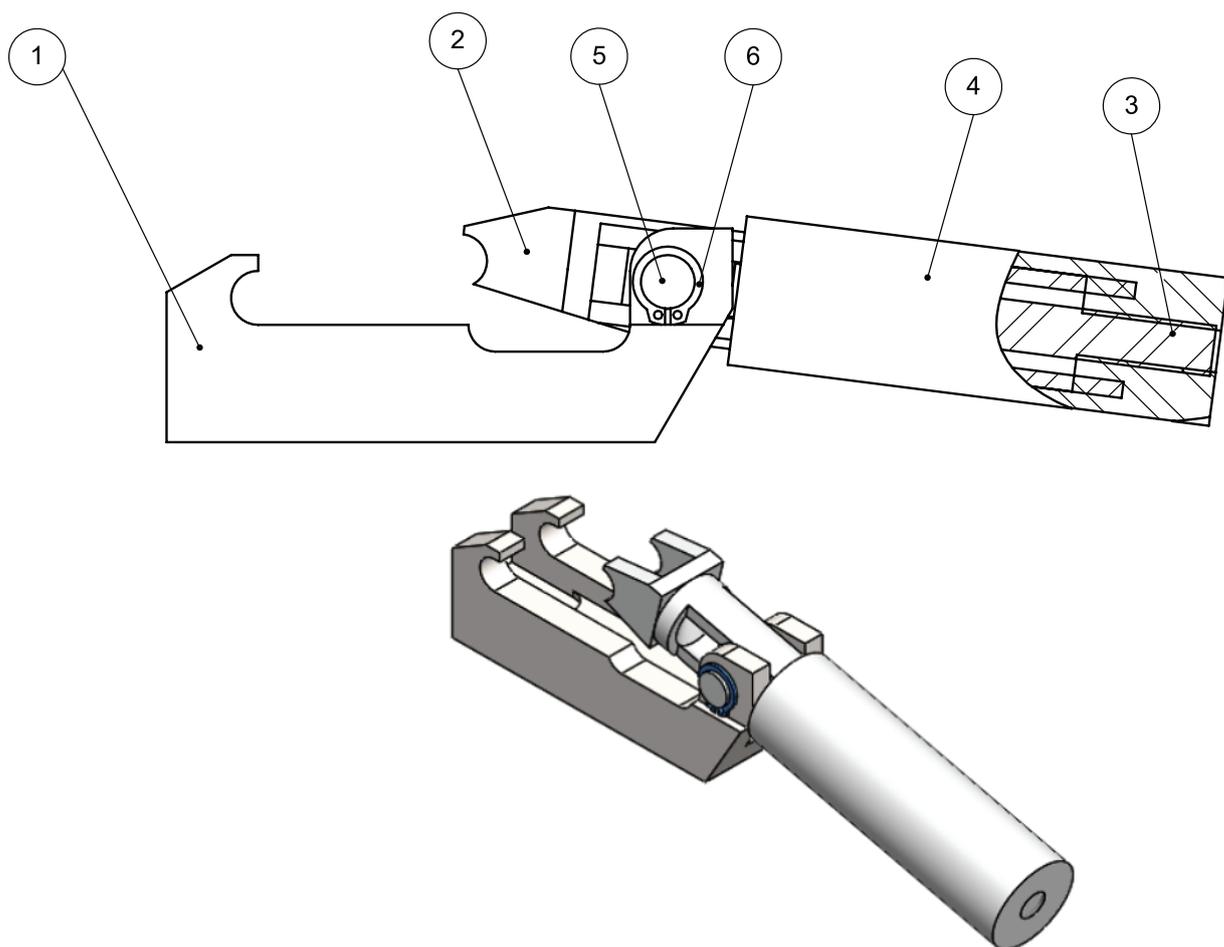
15.11 TRANSPORT BOX 5700304

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	5330774	Metal case			1
2	6700302	Sticker	Harmaa, T-DRILL PLUS 115 SS		1
3	6700297	Moulded insert			1
4	6330895	Metal case			1
5	6700299	Moulded insert			1



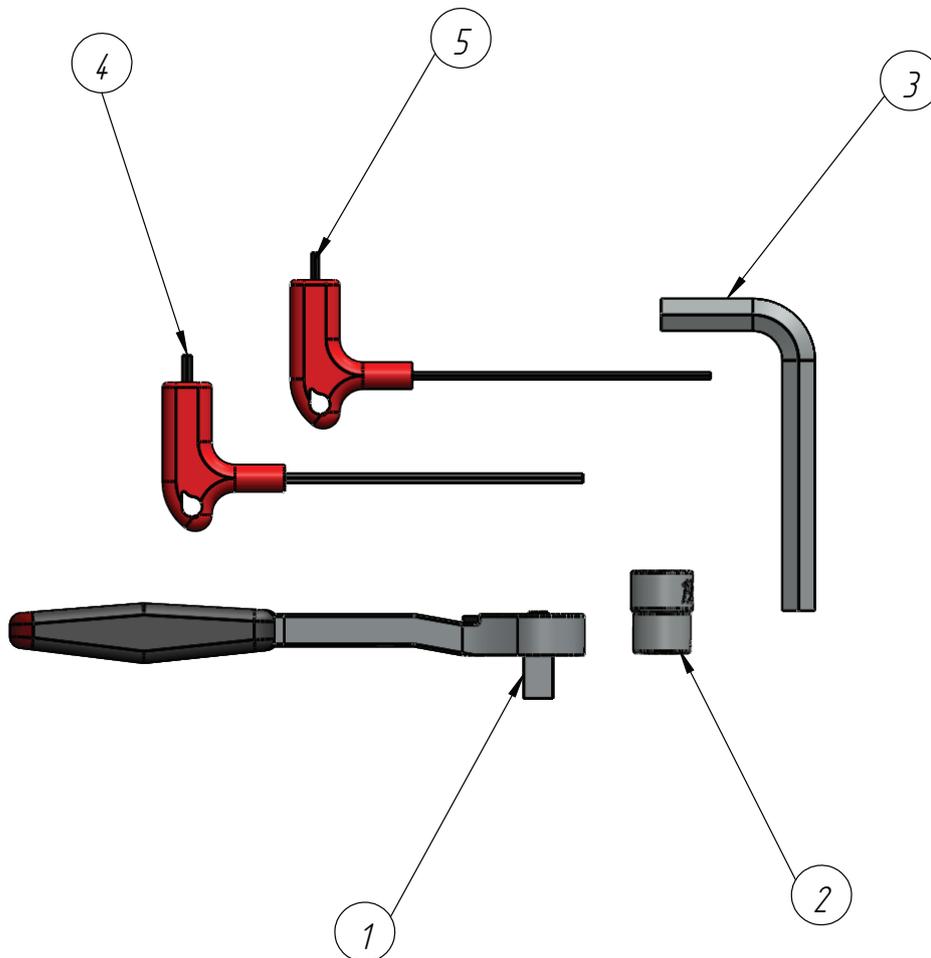
15.12 LOCKING LEVER 5290206 A

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	3290200	Lock body			1
2	4290203	Pusher			1
3	4290201	Pivot pin			1
4	4290202	Handle			1
5	4290204	Shaft			1
6	9019002	Retaining ring	Ø10x1	DIN 471 B11	2



15.13 TOOL SET 5700317

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	8004534	Ratchet			1
2	8004535	Socket	19mm		1
3	9051010	Allen key	SW = 14	DIN 911	1
4	9051014	Hexagon socket screw driver	SW = 4 L=150		1
5	9051017	Hexagon socket screw driver	SW =3 Facom 84TZS.3		1



15.14 PEDAL KIT EU 5700320

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	8004542	Foot switch	F1-U2ZUN 606.1700.004	Bernstein	1
2	9047245	Cable gland	MS-M 20x1.5	EN 50262 Skintop	2
3	9048341	Power cord	3x1,5 mm2x3000 VSBA3x1,5 280 3M SSTL 2440221		1

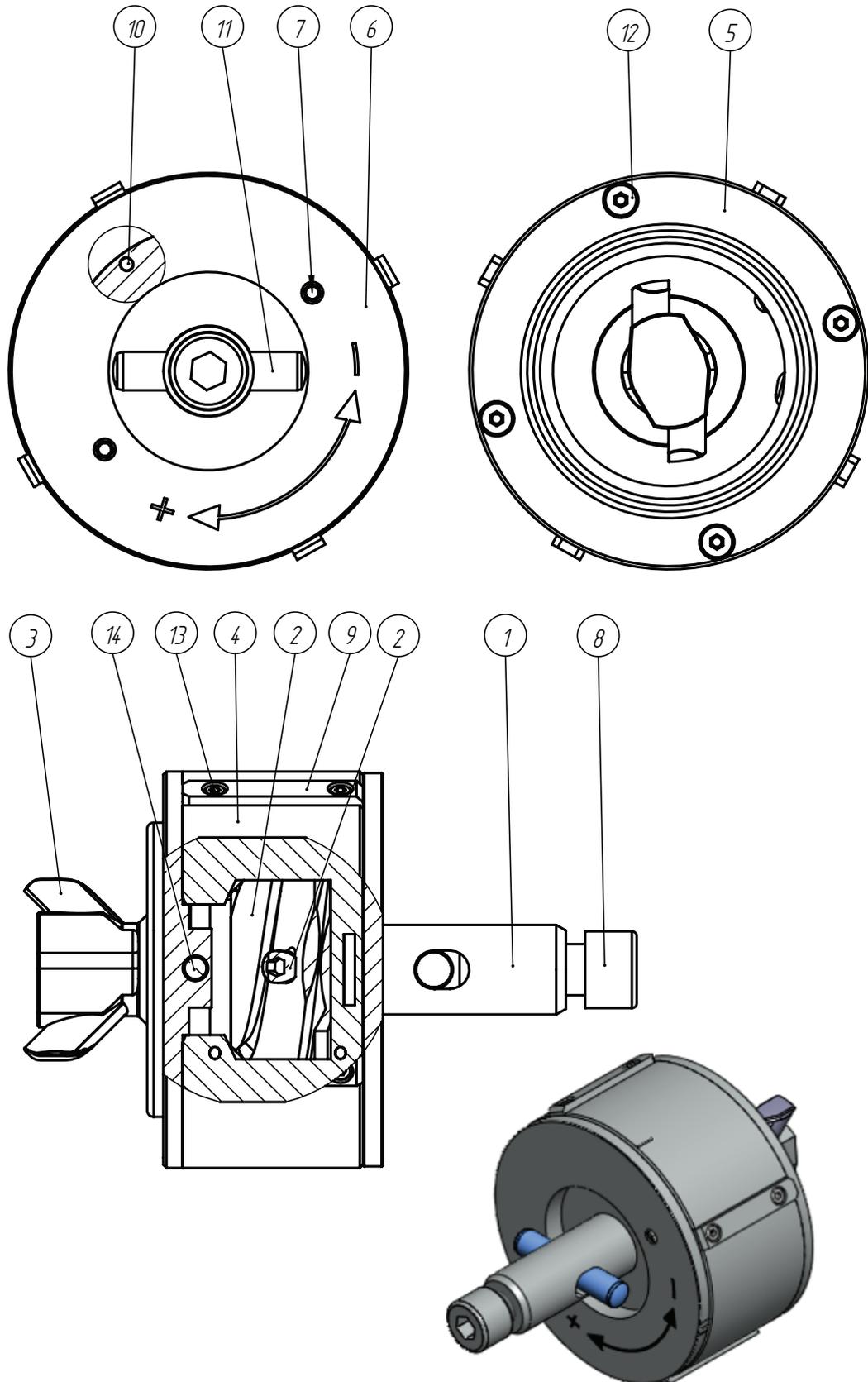
15.15 PEDAL KIT US 5700321

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	8004542	Foot switch	F1-U2ZUN 606.1700.004	Bernstein	1
2	9047245	Cable gland	MS-M 20x1.5	EN 50262 Skintop	2
3	8004549	Power cord	P024-010-13 NEMA 5-15P/5-15R, 10FT, 13A 2578489		1

15.16 COLLARING HEAD 2" – 2 ½" 5700148 C SST

Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	2700069	Drill core	2"-2 1/2"		1
2	3290054	Adjuster cone			1
3	6291994	Forming pin	Ø15 TiAlN		2
4	3700070	Drive drum			1
5	3700071	Bottom cover			1
6	3700072	Disk			1
7	4700073	Screw			2
8	4700074	Releasing screw			1
9	4700090	Key			4
10	9018049	Parallel pin	Ø4m6x16	DIN 6325	1
11	9018080	Parallel pin	Ø12m6x60	DIN 6325	1
12	9014090	Socket head cap screw	M6x12 8.8	DIN 7984	4
13	9014003	Socket head cap screw	M4x10 8.8	DIN 912	8
14	9028082	Spring plunger	M8 5.8 (16 08008)		1
15	9114034	Socket head cap screw	M6x8 8.8	DIN 912	1

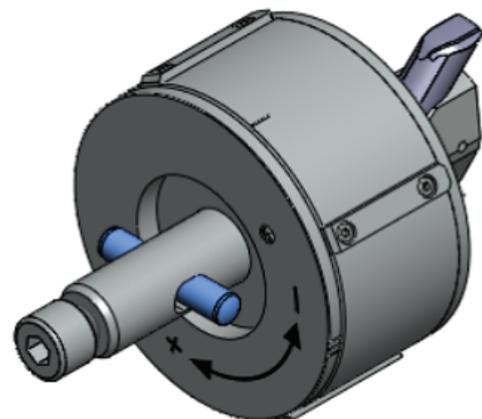
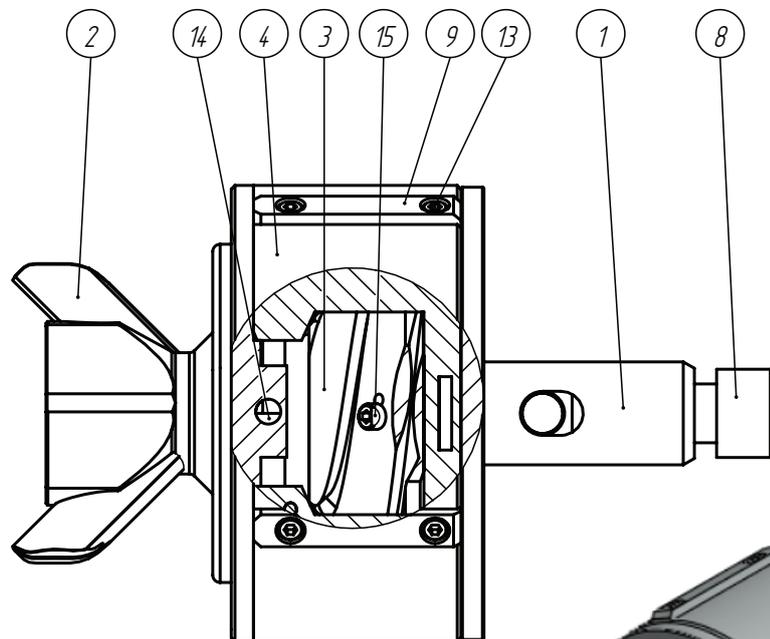
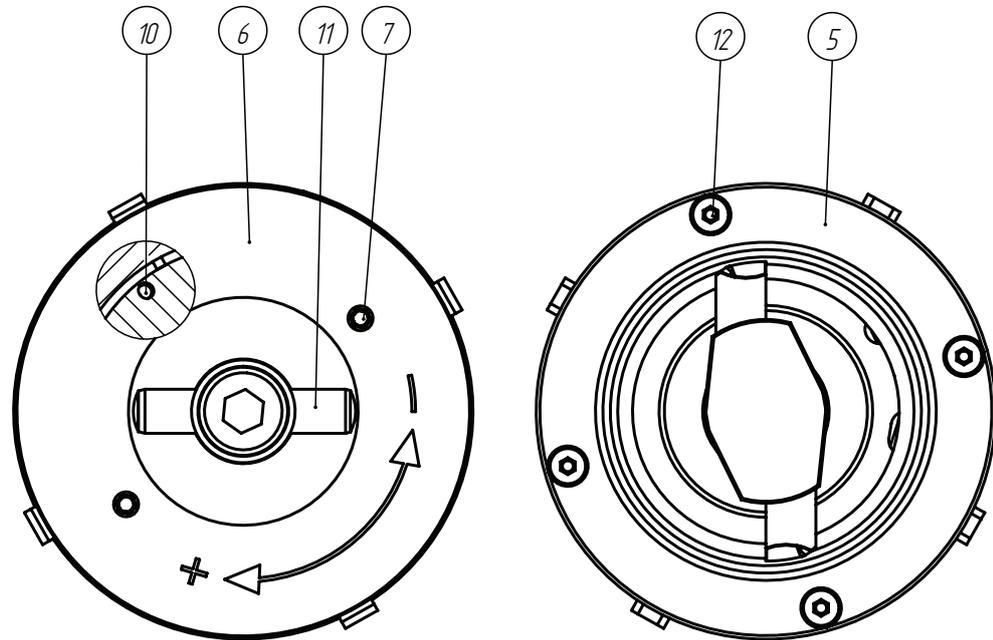
15.16 COLLARING HEAD 2" – 2 ½" 5700148 C SST



15.17 COLLARING HEAD 3" – 4" 5700150 D SST

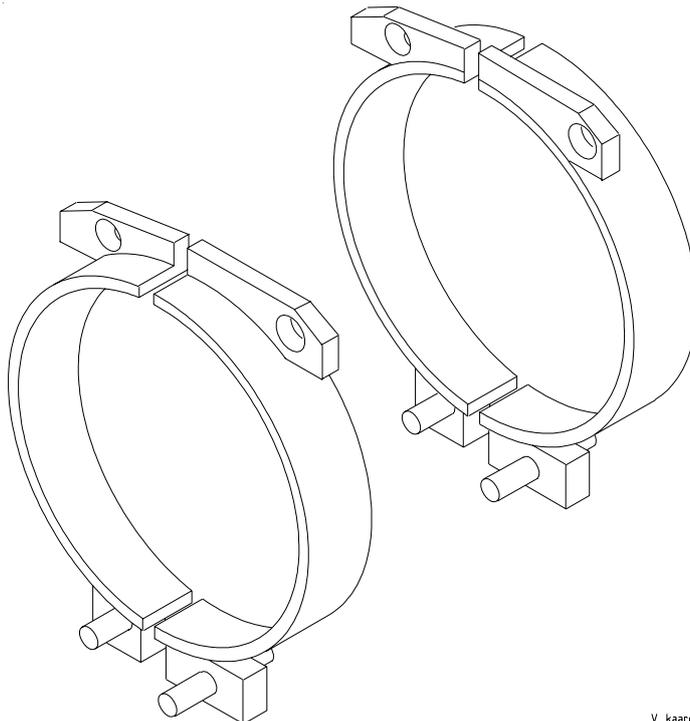
Pos	Part No.	Name	Size/Type	Std./Manuf.	Qty
1	2700077	Drill core	3"-4"		1
2	3700117	Forming pin	Ø18(128/135 long) TiAlN		2
3	3290054	Adjuster cone			1
4	3700070	Drive drum			1
5	3700071	Bottom cover			1
6	3700072	Disk			1
7	4700073	Screw			2
8	4700074	Releasing screw			1
9	4700090	Key			4
10	9018049	Parallel pin	Ø4m6x16	DIN 6325	1
11	9018080	Parallel pin	Ø12m6x60	DIN 6325	1
12	9014090	Socket head cap screw	M6x12 8.8	DIN 7984	4
13	9014003	Socket head cap screw	M4x10 8.8	DIN 912	8
14	9028082	Spring plunger	M8 teräs 5.8 (16 08008)		1
15	9014002	Socket head cap screw	M4x8 8.8	DIN 912	1

15.17 COLLARING HEAD 3" – 4" 5700150 D SST



15.18 CLAMPS (2290159)

Part No.	Name	Size/Type
4290194	Ring Clamps	NS 2 ½"
4290195	Ring Clamps	NS 3"
4290196	Ring Clamps	NS 4"
4290199	Ring Clamps	NS 6"
4290240	Ring Clamps	NS 8"
4290170	Ring Clamps	Ø 73,0
4290173	Ring Clamps	Ø 88,9
4290176	Ring Clamps	Ø 114,3
4290178	Ring Clamps	Ø 141,3
4290179	Ring Clamps	Ø 168,3
4290230	Ring Clamps	Ø 219,0



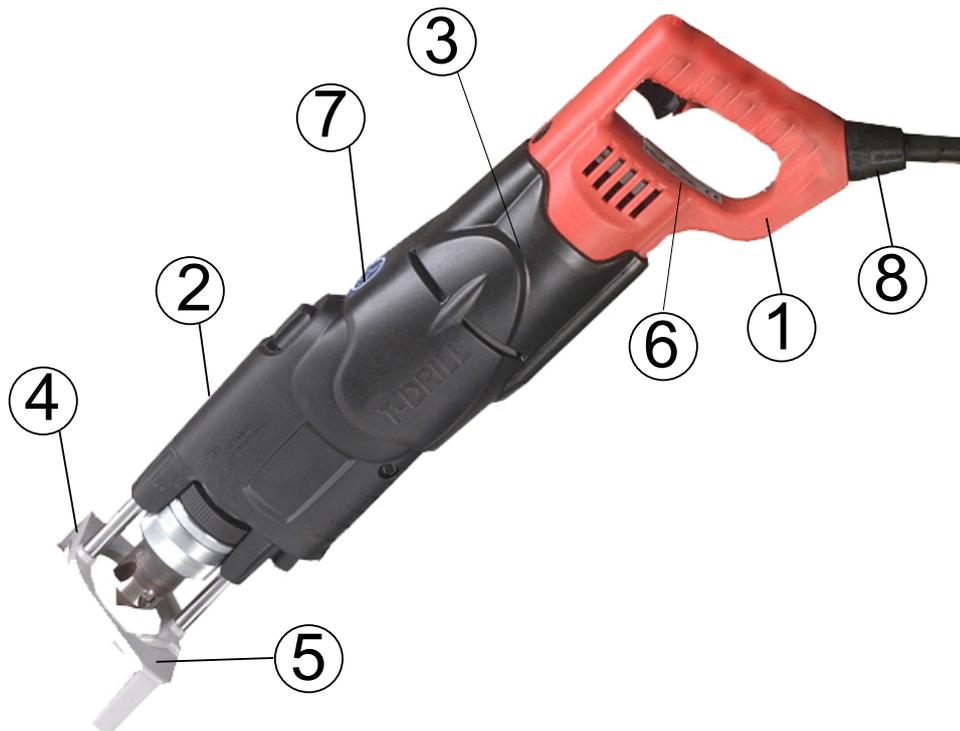
V kaaret

PORTABLE COLLARING SYSTEM

PLUS 115

15.19 T-DRILL T-65 COLLARING MACHINE EU 5330722

15.20 T-DRILL T-65 COLLARING MACHINE US 5330717

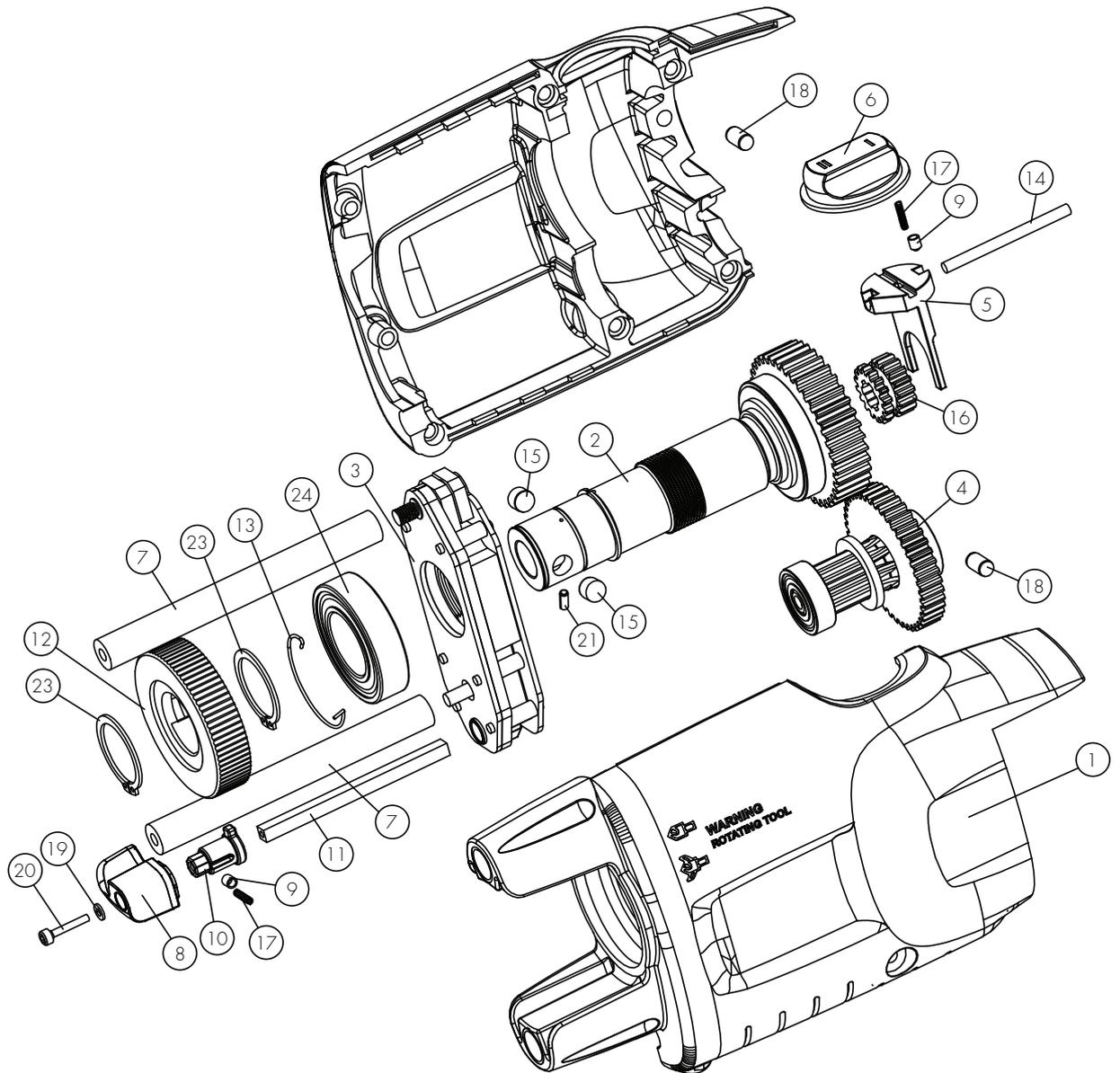


Pos	Part No.	Description	Size/type	Qty
1	5330158 5330160	Power Unit Power Unit	120 V USA 230 V Europe	1
2	5330154	T-65 Tee Forming Unit		1
3	6330680	Adapter PUR		1
4	3330032	Tube Support		1
5	9114027	Socket head cap screw		2
6	6330674 6330673 6330687	Name plate 120 V USA Name plate 230 V Europe Name plate T-65B		1
7	9146622	Sticker, read the instr.		1
8	9048335 9048320	Cord 120 V USA Cord 230 V Europe	T-65 only	1

15.21 THE T-65 TEE FORMING UNIT 5330154

Pos	Part No.	Description	Size/type	Std./manuf.	Qty
1	5330156	Housing	T-65		1
2	5330117	Lead Screw			1
3	5330097	Nut assembly			1
4	5540031	Gear			1
5	3330178	Gear changer			1
6	5330115	Shift Knob			1
7	4330099	Push rod			2
8	3330074	Lever			1
9	4540068	Tip			2
10	3330075	Fastening bush			1
11	4540056	Bar			1
12	3300056	Chuck ring			1
13	4300055	Chuck spring			1
14	4540069	Shaft			1
15	4300054	Chuck pin			2
16	3540045	Selector gear			1
17	9026146	Pressure spring	Ø0.4/Ø2.0x10,6 SS2387	Lesjöfors Springs	2
18	9018089	Parallel pin	Ø6m6x12	DIN 6325	2
19	9012205	Wave washer	Ø3.2x6x0,4 DIN 137 A	DIN 137	1
20	9017033	Slot-head screw	M3x16 5.8 Zn	DIN 7985	1
21	9018206	Spring pin	Ø3x8	DIN 1481	1
23	9019007	Retaining ring	Ø25x1.2	DIN 471 BI1	2
24	9021006	Groove ball bearing	Ø25/Ø47x12 6005-2RS	DIN 625	1

15.21 THE T-65 TEE FORMING UNIT





16. EC DECLARATION OF CONFORMITY

Manufacturer: **T-DRILL OY**

Address: **Ampujantie 32 FIN-66400 LAIHIA FINLAND**

Name of the person authorized to compile the technical file:

Juha Murtomäki, Ampujantie 32 FIN-66400 LAIHIA FINLAND

Confirms that **the manually operated accessory T-DRILL PLUS115 (type code 7005),** together with the T-DRILL T-65 pipe collaring machine

Complies with the regulations of the following other EU directives:

- Machinery Directive 2006/42/EU and any associated amendments and with any national acts to enforce it
- EC directive 2014/30/EC (Electromagnetic compatibility)
- EC directive 2014/35/EC (Low voltage directive)

And also confirms that the following harmonized standards (or their sections/parts) have been applied

EN 60745-1

EN 60745-2-1

EN 55014-1,-2

EN 61000-4-2,-3,-4,-5,-6

Laihia 15.02.2021

(Location and date)

Juha Murtomäki

(Head of the Assembly Group)

Postiosoite
T-Drill Oy
PL 20
66401 LAIHIA

Postal address
T-Drill Oy
P.O. Box 20
FI-66401 LAIHIA
FINLAND

Puhelin/Telephone
nat. (06) 475 3333
int. +358 6 475 3333

Telefax (G 3)
(06) 475 3300
+358 6 475 3300

Pankki/Bank
Svenska Handelsbanken AB
Aleksanterinkatu 11
FI-00100 HELSINKI
313130-1035765
IBAN: FI67 3131 3001 0357 65
BIC/SWIFT HANDFIHH

Y-tunnus
0548785-8
VAT No
FI 05487858

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500 Isoform TD 50
Print date: 12.04.2021 Revision date: 07.04.2021
Version: 18.0 Issue date: 07.04.2021

EN
Page 1 / 7 industrial oils and chemicals

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Article No. (manufacturer/supplier) 317500
Trade name/designation Isoform TD 50

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Metal working fluid
Industrial use

1.3. Details of the supplier of the safety data sheet

supplier (manufacturer/importer/downstream user/distributor)

PETROFER-CHEMIE
Römerring 12-16 Telephone: +49 5121/7627-0
DE-31137 Hildesheim Telefax: +49(0)5121/7627-2211

Department responsible for information:

E-mail (competent person) MSDS@Petrofer.com

1.4. Emergency telephone number

Emergency telephone number +44(0)1235 239670 Petrofer-NCEC29003
+49 5121/7627-0

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Lact. / H362	Reproductive toxicity	May cause harm to breast-fed children.
Aquatic Chronic 1 / H410	Hazardous to the aquatic environment	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Warning

Hazard statements

H362 May cause harm to breast-fed children.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P263 Avoid contact during pregnancy and while nursing.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

Hazard components for labelling

alkanes, C14-17, chloro

Supplemental hazard information

not applicable

2.3. Other hazards

No information available.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No.	REACH No.	weight-%
CAS No.	Designation	
Index No.	classification: // Remark	

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500 Isoform TD 50
Print date: 12.04.2021 Revision date: 07.04.2021
Version: 18.0 Issue date: 07.04.2021

EN
Page 2 / 7 **PETROFER**
industrial oils and chemicals

287-477-0 01-2119519269-33
85535-85-9 alkanes, C14-17, chloro 60 < 100
602-095-00-X Lact. H362 / Aquatic Chronic 1 H410

Additional information

Full text of H-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

After eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Following ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Seek medical advice immediately. Keep victim calm.

4.2. Most important symptoms and effects, both acute and delayed

In all cases of doubt, or when symptoms persist, seek medical advice.

4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Unsuitable extinguishing media

strong water jet

5.2. Special hazards arising from the substance or mixture

Inhaling hazardous decomposing products can cause serious health damage.

5.3. Advice for firefighters

Provide a conveniently located respiratory protective device. Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways. Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ventilate affected area.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).

6.4. Reference to other sections

See protective measures under point 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling



Article No.: 317500 Isoform TD 50
Print date: 12.04.2021 Revision date: 07.04.2021
Version: 18.0 Issue date: 07.04.2021

EN **PETROFER**
Page 3 / 7 industrial oils and chemicals

Advices on safe handling

Avoid contact with skin, eyes and clothes. When using do not eat, drink or smoke. Personal protection equipment: refer to section 8. Do not empty containers with pressure - no pressure vessel! Always keep in containers that correspond to the material of the original container. Follow the legal protection and safety regulations.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSivO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

Further information on storage conditions

Store in a well-ventilated and dry room at temperatures between 5 °C and 35 °C. Keep container tightly closed. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

7.3. Specific end use(s)

Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values:

not applicable

8.2. Exposure controls

Provide good ventilation. This can be achieved with local or room suction.

Personal protection equipment

Respiratory protection

Avoid breathing spray.

Hand protection

For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber), PVC (polyvinyl chloride), CR (polychloroprene, chloroprene rubber). Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye/face protection

Wear closely fitting protective glasses in case of splashes.

Body protection

Wear suitable protective clothing and gloves.

Protective measures

After contact clean skin thoroughly with water and soap or use appropriate cleanser.

Environmental exposure controls

Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:

Physical state:

Liquid

Colour:

yellow

Odour:

mild

Odour threshold:

No data available

pH at 20 °C:

not applicable

Method: DIN 51369

Melting point/freezing point:

No data available

Initial boiling point and boiling range:

not determined

Flash point:

> 220 °C

Method: ISO 2592

Evaporation rate:

No data available

flammability

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500
Print date: 12.04.2021
Version: 18.0

Isoform TD 50
Revision date: 07.04.2021
Issue date: 07.04.2021

EN
Page 4 / 7 **PETROFER**
industrial oils and chemicals

Burning time:	No data available
Upper/lower flammability or explosive limits:	
Lower explosion limit:	0,6 Vol-%
Upper explosion limit:	6,5 Vol-%
Vapour pressure at 20 °C:	No data available
Vapour density:	No data available
Relative density:	
Density at 20 °C:	1,220 g/cm³ Method: DIN 51757
Solubility(ies):	
Water solubility at 20 °C:	insoluble
Partition coefficient: n-octanol/water:	not determined
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity at 40 °C:	560 Method: mm ² /s DIN 51562/1
Explosive properties:	No data available
Oxidising properties:	No data available
9.2. Other information	
Pourpoint: <=	0 °C

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.3. Possibility of hazardous reactions

Keep away from strong acids, strong bases and strong oxidizing agents to avoid exothermic reactions.

10.4. Conditions to avoid

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7. Hazardous decomposition byproducts may form with exposure to high temperatures.

10.5. Incompatible materials

not applicable

10.6. Hazardous decomposition products

Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

SECTION 11: Toxicological information

Classification according to Regulation (EC) No 1272/2008 [CLP]

11.1. Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

Skin corrosion/irritation; Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

May cause harm to breast-fed children.

STOT-single exposure; STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500 Isoform TD 50
Print date: 12.04.2021 Revision date: 07.04.2021
Version: 18.0 Issue date: 07.04.2021

EN
Page 5 / 7 **PETROFER**
industrial oils and chemicals

Based on available data, the classification criteria are not met.

Practical experience/human evidence

Overall Assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]
Do not allow to enter into surface water or drains.

12.1. Toxicity

Based on available data, the classification criteria are not met.

Long-term Ecotoxicity

Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

Toxicological data are not available.

12.3. Bioaccumulative potential

Toxicological data are not available.

Bioconcentration factor (BCF)

Toxicological data are not available.

12.4. Mobility in soil

Toxicological data are not available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Appropriate disposal / Product Recommendation

Do not allow to enter into surface water or drains. This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

List of proposed waste codes/waste designations in accordance with EWC

120106* mineral-based machining oils containing halogens (except emulsions and solutions)

*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Appropriate disposal / Package Recommendation

Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

14.1. UN number

UN 3082

14.2. UN proper shipping name

Land transport (ADR/RID):

Environmentally hazardous substance, liquid, n.o.s.
(chlorinated paraffines, medium chained)

Sea transport (IMDG):

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(chlorinated paraffines, medium chained)

Air transport (ICAO-TI / IATA-DGR):

Environmentally hazardous substance, liquid, n.o.s.
(chlorinated paraffines, medium chained)

14.3. Transport hazard class(es)

9

14.4. Packing group

III

14.5. Environmental hazards

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500
Print date: 12.04.2021
Version: 18.0

Isoform TD 50
Revision date: 07.04.2021
Issue date: 07.04.2021

EN
Page 6 / 7
PETROFER
industrial oils and chemicals

Land transport (ADR/RID) ENVIRONMENTAL HAZARD
Marine pollutant p

14.6. Special precautions for user

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

tunnel restriction code -

in packages <= 5 kg

Not a class 9 good. Carriage acc. SV375

Sea transport (IMDG)

EmS-No.

F-A, S-F

Segregation group

IMDG Code segregation group - None

in packages <= 5 kg

"not restricted 2.10.2.7"

Air transport (ICAO-TI / IATA-DGR)

in packages <= 5 kg

"Not restricted, special provision A 197"

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

National regulations

Restrictions of occupation

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Substance/product listed in the following inventories:

All ingredients are listed in or exempt from the EPA Toxic Substance Control Act (TSCA)

15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Full text of classification in section 3

Lact. / H362

Reproductive toxicity

May cause harm to breast-fed children.

Aquatic Chronic 1 / H410

Hazardous to the aquatic environment

Very toxic to aquatic life with long lasting effects.

Classification procedure

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Lact.

Reproductive toxicity

Calculation method.

Aquatic Chronic 1

Hazardous to the aquatic environment

Calculation method.

Abbreviations and acronyms

ADR

European Agreement concerning the International Carriage of Dangerous Goods by Road

OEL

Occupational Exposure Limit Value

BLV

Biological Limit Value

CAS

Chemical Abstracts Service

CLP

Classification, Labelling and Packaging

CMR

Carcinogenic, Mutagenic and Reprotoxic

DIN

German Institute for Standardization / German industrial standard

DNEL

Derived No-Effect Level

EAKV

European Waste Catalogue Directive

EC

Effective Concentration

EC

European Community

EN

European Standard

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830



Article No.: 317500 Isoform TD 50
Print date: 12.04.2021 Revision date: 07.04.2021
Version: 18.0 Issue date: 07.04.2021

EN **PETROFER**
Page 7 / 7 industrial oils and chemicals

IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration
LD	Lethal Dose
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

Further information

Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in section 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.

More T-DRILL products for tube fabrication



S-54 AFT
S-54 collaring unit with Automatic Feed Table (AFT).



T-115
Transportable Collaring Unit for both factory and on-site
-Collar sizes 21.3 - 114.3 mm
-Run tube sizes 33.7 - 323.9 mm



SP-55/SP-110
Tube End Spinning machine for closing, reducing and expanding of copper tubes.
- Max tube diameter 108 mm
- Max wall thickness 3 mm



TCC-50 MCS
Transportable manually operated cutting machine with optional cut to length setting adjustment. For tube diameters 1.5 - 45 mm



TCC-28
Automatic tube cutting machine for chipless tube cutting from coil and straight lengths. Automatic cut length setting tube diameters 4.76 - 22 mm