

T-DRILL

PRODUCTIVITY AS A PRODUCT.

INSTRUCTION MANUAL SPARE PARTS LIST



PORTABLE COLLARING SYSTEM
FOR COPPER TUBE BRANCHING

PLUS 115 CU

Version

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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 copper tube Branching.

Type code : 7006

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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.

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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 T-65Cu 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".

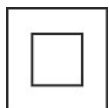
Acquaint yourself with the machine before using it. Read the operation sequence described in the instruction manual thoroughly before preparing, operating or maintenance of the machine.

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

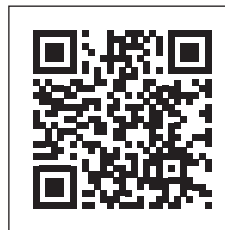
3. T-DRILL PLUS 115 FOR COPPER TUBES, GENERAL

Your T-DRILL PLUS 115 is a special purpose 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 in commercial copper tubing of sizes from 54 mm to 206 mm / 2" to 8".

Before putting your PLUS 115 into operation, make sure you have read and fully understood the safety instructions that apply to all power tools as well as the capabilities and limitations of this device in particular.

The PLUS 115 must be used with the T-DRILL T-65 grounded tool supplied with a three-prong plug and must be grounded while in use. The T-DRILL PLUS 115 is intended primarily for use on hard copper tubes.

For an introduction video of the stainless steel machine operation, 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 copper | Value |
|---------------------|-----------------------------|
| Type code | 7006 |
| Run tube sizes | 54 mm - 206 mm (NS 2" - 8") |
| Collar sizes | 54 mm - 115 mm (NS 2" - 4") |
| Run tube materials | Copper |
| 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.



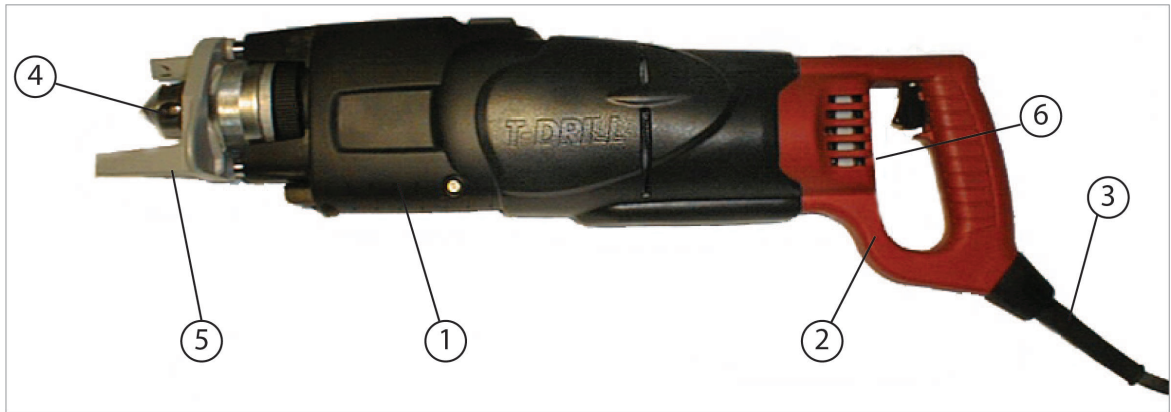
PLUS 115 cu transport boxes and top shelf

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

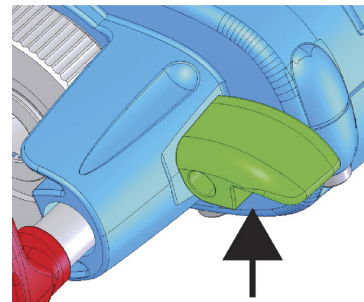
5.1 THE PARTS OF THE T-65



Main parts: 1. T-DRILL tee forming unit, 2. Power unit, 3. Connecting cord, 4. T-DRILL head, 5. Tube support, 6. Nameplate.



The speed selector



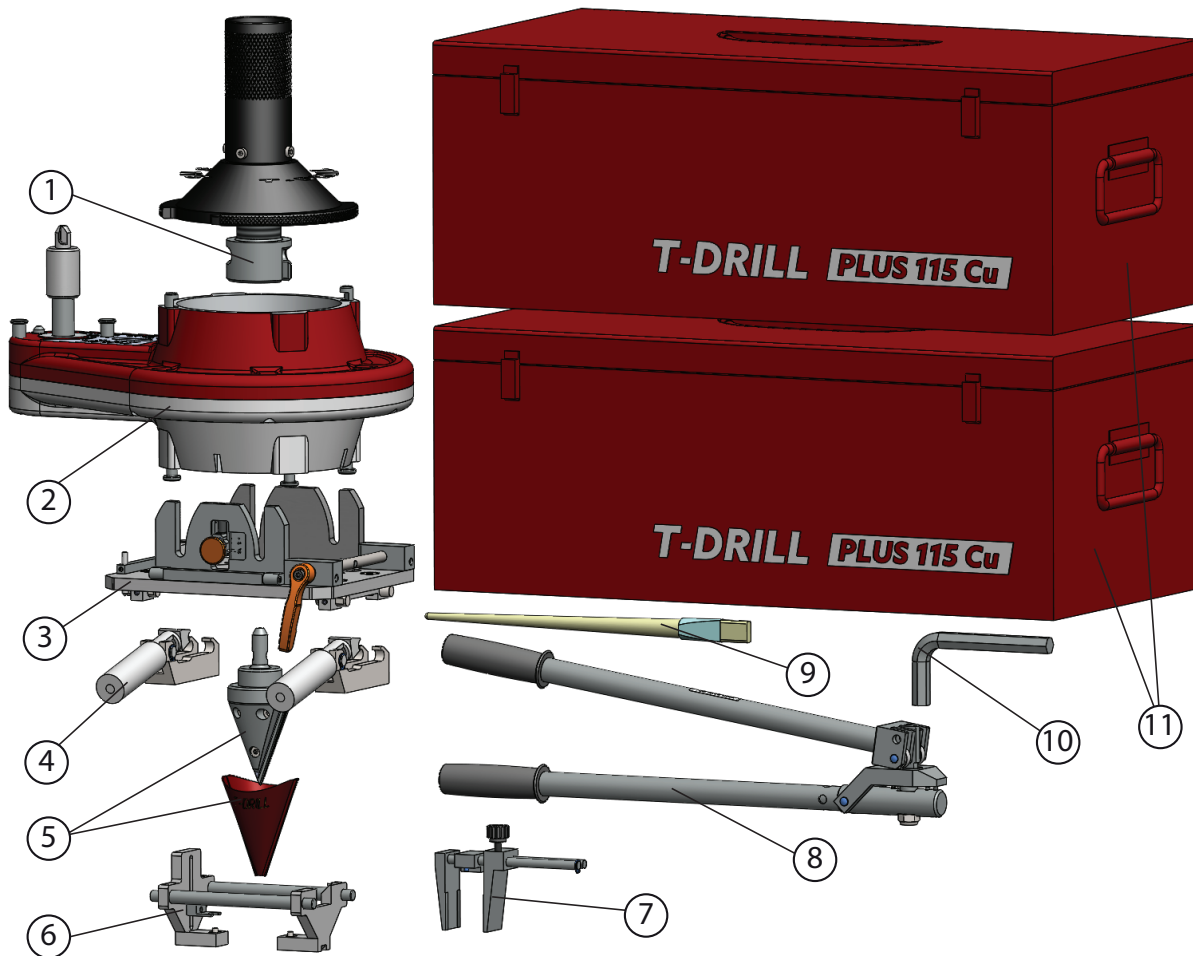
The feed mechanism lever

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. Leadscrew, 2. Gear, 3. Base plate assembly, 4. Locking lever, 5. Pilot hole drill, 6. Tilt rod, 7. Gauge, 8. Dimpler, 9. Brush for lubricant, 10. Tools, 11. Transport boxes. (The T-65 machine is not pictured)

5.3 INFORMATION ABOUT ACCESSORIES

Two collaring heads are available for the PLUS 115. They cover collar diameters from 54mm to 115 mm / 2" to 4". Within the diameter range, each collaring head is freely adjustable to any required dimension. Once adjusted, the settings will produce accurate collar diameters repeatedly.

Instructions for forming tees in various combinations of parameters are listed in the PLUS 115 capacity and instruction chart at the back of the manual. However, for processing the largest run tube dimensions, the collaring head must be properly lubricated and the instructions for the annealing must be followed. Use of improperly or poorly lubricated collaring head may overload the tool!

6. LUBRICATION

In order to prevent device overloading, the lubrication of the collaring head is essential. Lubrication also reduces wear of the collaring heads and hole drill and ensures that the collar is formed correctly. T-DRILL recommends use of T-DRILL lubricant. The lubricant should be applied generously:

1. To the cutting edges of the drill before each drilling.
2. To the forming pins before each collaring operation.



Use safety gloves when operating with the machine.

➔ **NOTE!** Your PLUS 115 is supplied with lubricant in a convenient plastic squeeze bottle. Additional lubricants are available from T-DRILL.

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. BRAZING AND TORCH RECOMMENDATIONS

Due to the height of the extruded collar, soft solder can not be used to join the branch tube to the run tube. Use only a recommended brazing material. T-DRILL recommends the use of brazes and flux as prescribed by the Copper Development Association with the silver content of the brazing alloy, as specified by them.

➔ **NOTE!** Temperatures required for brazing are higher than the ones required for soft soldering. The torch used must be capable of heating the joint area to 600 - 800 °C (1100-1500 °F). All brazing on copper sprinkler systems must conform to requirements of NFPA-13.

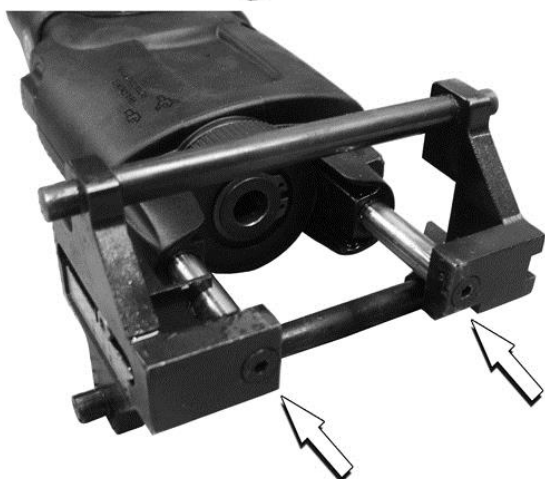
8. TAKING THE MACHINE INTO OPERATION

Creating a collar with your PLUS 115 and completing the joint is simple. This is a new and innovative technology and therefore it is strongly recommended that you read the following instructions carefully and then practice a few times on a piece of scrap tubing.

The T-DRILL T-65 that is used as a power source for the PLUS 115 and for the drilling of the pilot hole requires the following changes before it is put into use:



1. Replace the chuck ring of the T-65. The required chuck ring is identified from the hole drilled into it. Snap ring pliers are needed to do this.



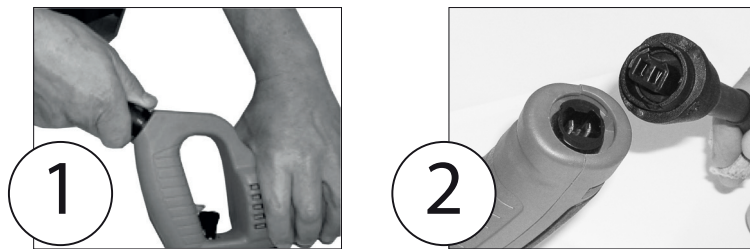
2. Using the hex key provided, replace the tube support with the tilt rod assembly. When changing to the tilt rod assembly use the provided shorter screws. The drilling depth scale is placed on the opposite side from the cord of the T-65. Do not let the push rods rotate when loosening or tightening the screws at the end of the push rods. Use pliers and cover the push rod with a workshop rag. That prevents damage to the surface of the push rods.

Before using it, check that the power supply voltage matches the rated voltage specified on the device.

➔ **NOTE!** Before forming any tee always make sure that the pipe is completely drained and that it is not under pressure.

8.1 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.

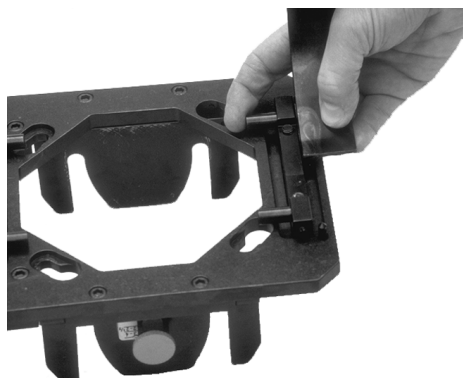
Attachment of the cord

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.

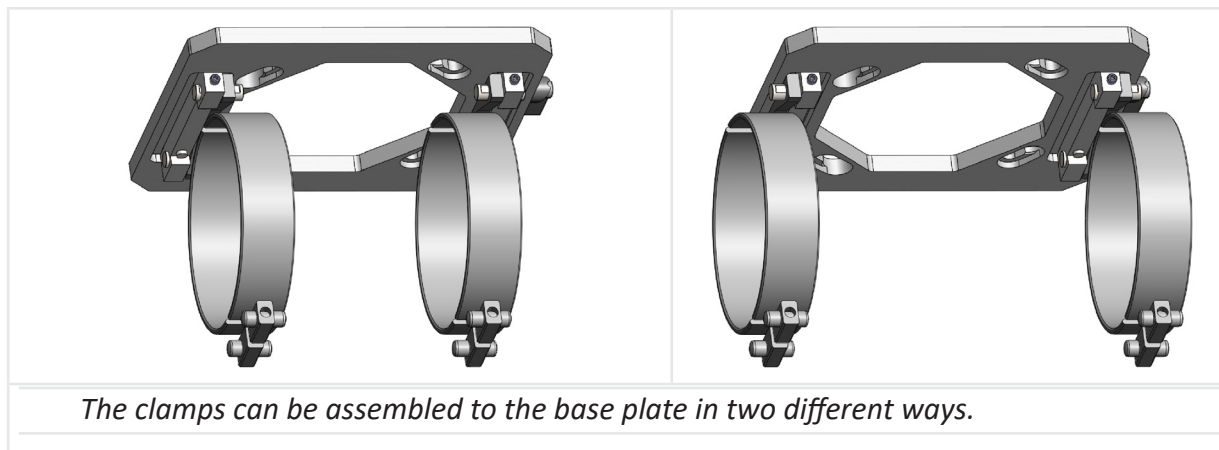
➔ **NOTE!** See 8.3 Foot pedal: Remove original power cord from the T-65 when used with the PLUS 115.

9. PLUS 115 COLLARING PROCESS

9.1. USING THE T-65



1. 1. Choose the ring clamps according to the run tube diameter and fix the clamps to the base plate. The device is secured by inserting the clamp locking pins in the base plate. For 4" collars, the ring clamps must be mounted into the outer groove.

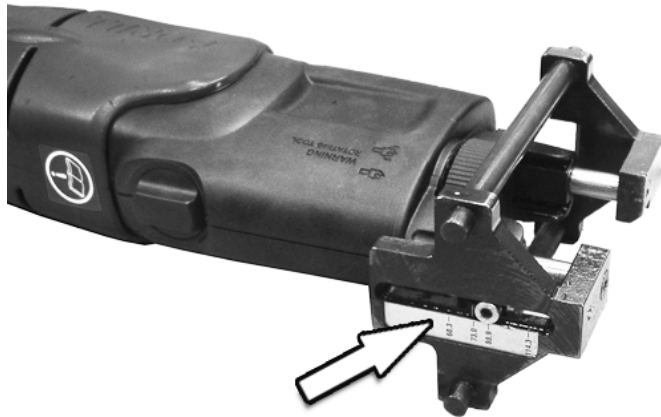


2. Clamp the base plate assembly over the collaring area.

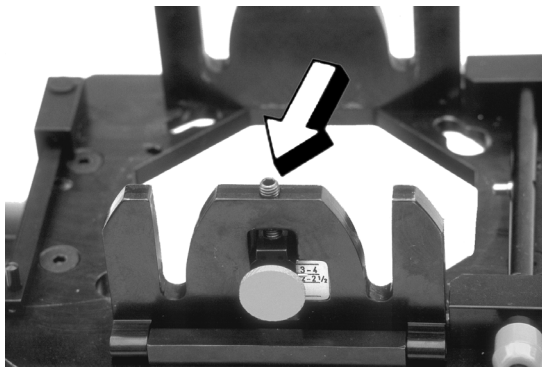


3. Center the base plate on the specified place with the centering rod and lock it with the locking levers.

4. Select the right adjustment dimensions for drilling the pilot hole from the scales on the tilting plate and tilt rod assembly.



5. The depth of the drilling is controlled by position of the indicator on the rod assembly. Loosen the hex screw on the indicator to adjust its position.



The depth of the drilling is controlled by position of the indicator on the rod assembly. Loosen the hex screw on the indicator to adjust its position



7. Chuck the pilot hole drill. The drill is covered by a leather sleeve to prevent injury because of the sharp drilling blades. Therefore remove the leather cover only after chucking the pilot hole drill.

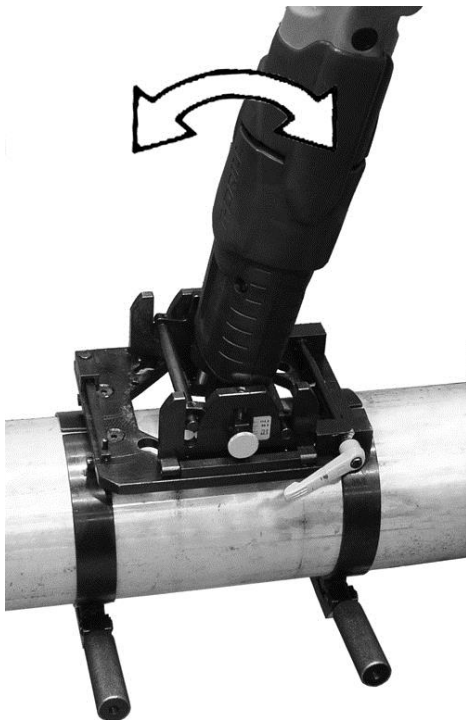
8. Apply the T-Drill lubricant on the drill cutting edges.

9. Make sure the tilting plates are in the locked position (the orange handle pointing down)

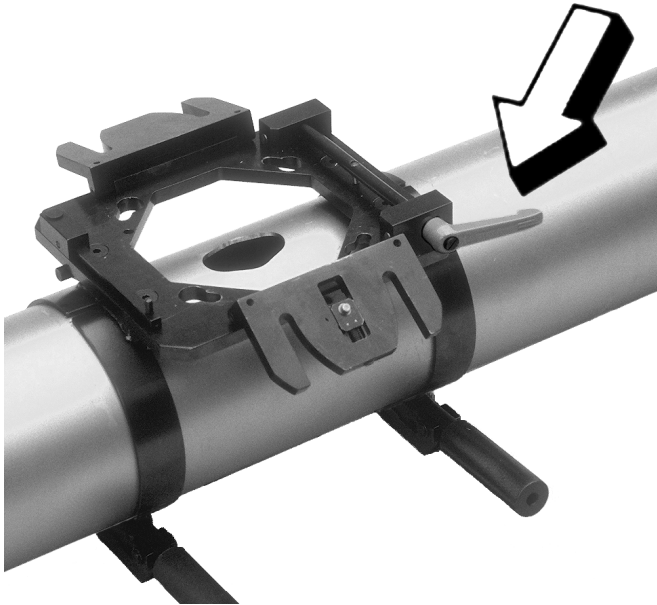


10. Place the T-DRILL T-65 into the slots in the base plate assembly. Check that the speed selector knob is in position "II" and the feed mechanism lever is in OFF-position.

➔ **NOTE!** Place the T-65 cord in the same direction as the orange locking levers.



11. Drill the pilot hole. When you have reached the depth adjustment point, tilt the device both left and right to the stop point to produce the right dimensions for the elliptical pilot hole.



12. Pull the orange knob in the tilting plate and remove the T-65 from the base plate assembly. Turn the tilting plates down to both sides of the base plate by releasing the orange locking lever. When unchucking the pilot hole drill always use the leather cover to prevent injury.

13. Place the PLUS 115 unit atop 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. Turn the orange locking lever to the down position.

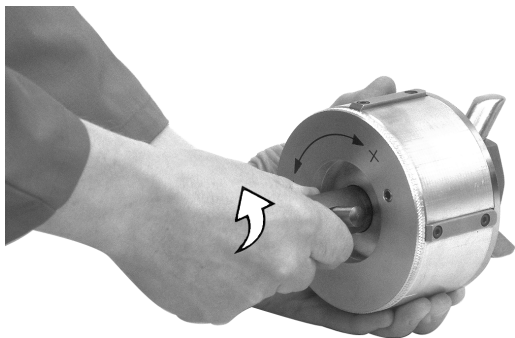
➔ **NOTE!** The PLUS 115 unit can also be placed sideways (90° angle to the run tube), giving a total of four different configurations.

9.2. COLLARING HEAD ADJUSTMENT



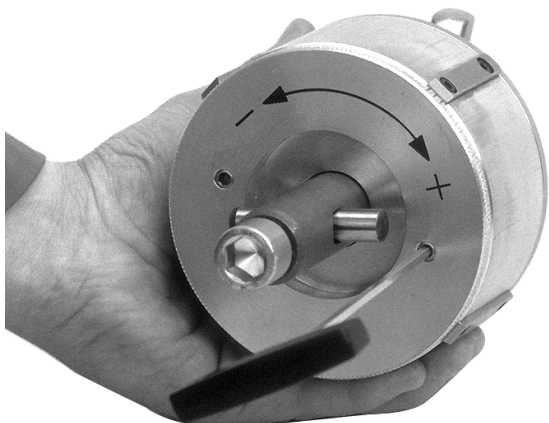
1. Loosen the thumbscrew to place the gauge on the branch tube and lock according to the O.D.

➔ **NOTE!** Do not measure the end of the branch tube.

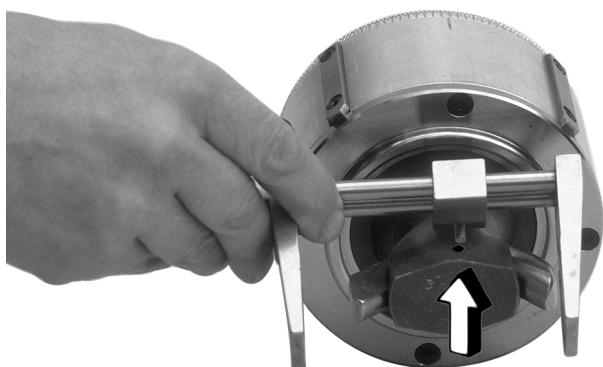


2. Hold the collaring head in your left hand.

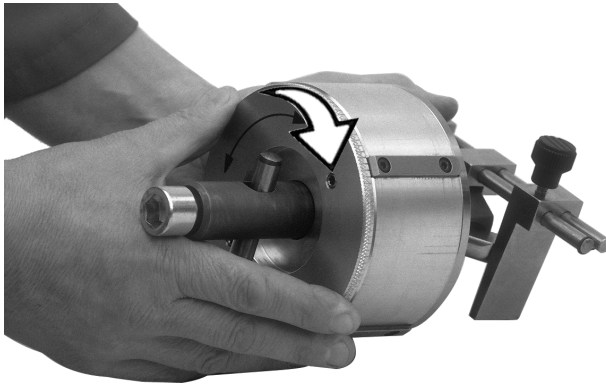
3. Rotate the middle shaft with your right hand counter-clockwise as far as it will go.



4. Using the 4 mm hex wrench, loosen the set screws on the cover plate of the collaring head for one half of a turn.



5. Place the gauge onto the collaring head so that the pin in the gauge goes into the hole at the end of the collaring head.



6. If the forming pins are too extended, rotate the cover plate with your right hand in a counter-clockwise direction enough so that they lock on the gauge.

7. Now, with your right hand turn the cover plate clockwise so that the forming pins touch both gauge jaws.

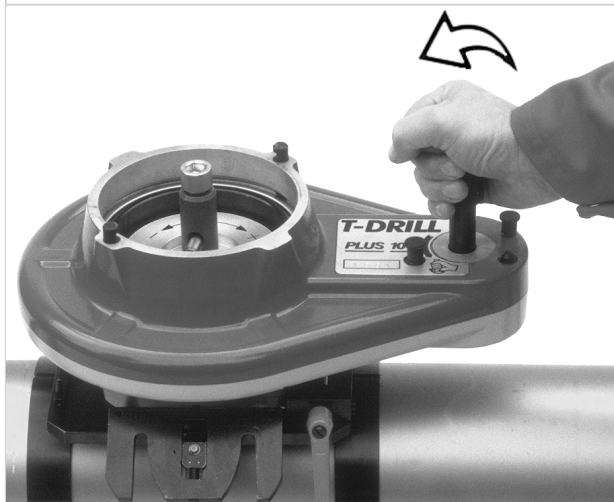
8. While maintaining tension on the cover plate (so as to avoid spring back), tighten the set screws with the 4 mm hex wrench.

9. Turn the middle shaft clockwise to release the gauge.

9.3. USING PLUS 115



1. 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 in the PLUS 115. Turn in a clockwise direction only!



2. Bring the collaring head lower to the collaring start position by rotating the adapter counter-clockwise by hand.



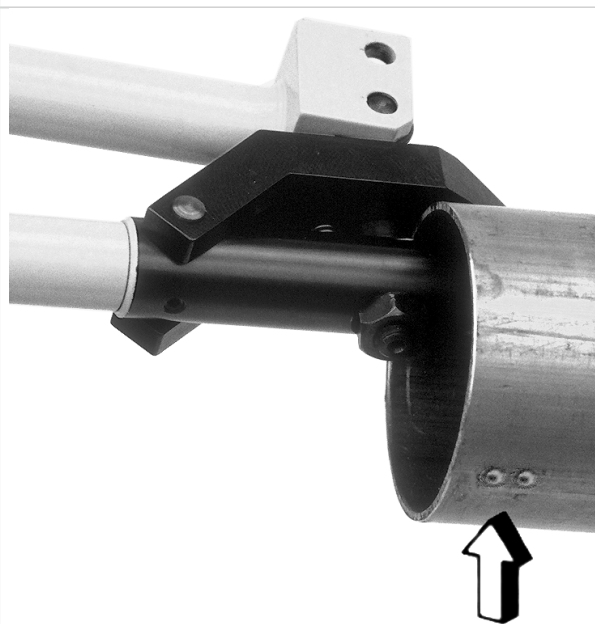
3. Before engaging the lead screw, it must be rotated to the full length by hand. Engage the lead screw onto the collaring head so that the drive pin of the shank is in the groove of the lead screw.

4. Chuck the T-65 onto the adapter and turn the tilt rod assembly counter clockwise against the stop pins on the PLUS 115 unit.

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

6. Start the drill by squeezing the trigger of the T-65. The forming pins are automatically extended until they reach the collaring position. When the collar is completed after approx. 5 minutes, the rotation of the lead screw inside the lead screw assembly stops automatically. Press the locking pin down to release the T-65, turn and lift it straight up to remove it from the adapter.

7. Lift the lead screw assembly together with the collaring head from the PLUS 115 unit. Remove the PLUS 115 unit from the base plate by turning the orange locking lever for 90° to the right. Loosen the locking levers of the ring clamp, open the ring clamp and remove the base plate from the tube.



8. The end of the branch tube is now to be dimpled. The PLUS 115 package includes a dimpling feature which place two dimples one atop the other on the tube branch. One dimple is used as a depth delimiter and the other as a point of inspection. The dimples must be made on both sides of the tube and parallel to the axis of the tube.

➔ **NOTE!** Make sure that the dimpling tool is “bottomed out” on the tube wall.

9.4. FINE ADJUSTMENT OF THE COLLARING TOOL

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

1. Extend the 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 for half a turn on the cover plate.

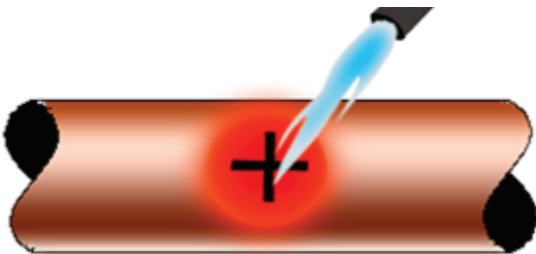


4. Rotate the cover plate relative to the cylindrical cover clockwise / counter-clockwise to increase and decrease the diameter of adjustment, respectively. One notch on the cover plate equals to 0.5mm / 0.02" on the forming pin span.

9.5. ANNEALING OF THE PILOT HOLE

Annealing a part or the entire pilot hole before collaring is necessary for certain collars.

Please refer to the PLUS 115 capacity and instruction chart for more detailed information on the annealing.



1. Anneal the area where outlet is to be formed to a dull red. The area will remain annealed even when cool. It is not necessary to form the outlet on hot tube!

9.6. STALLING

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

1. Disconnect the cord from the power source 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.

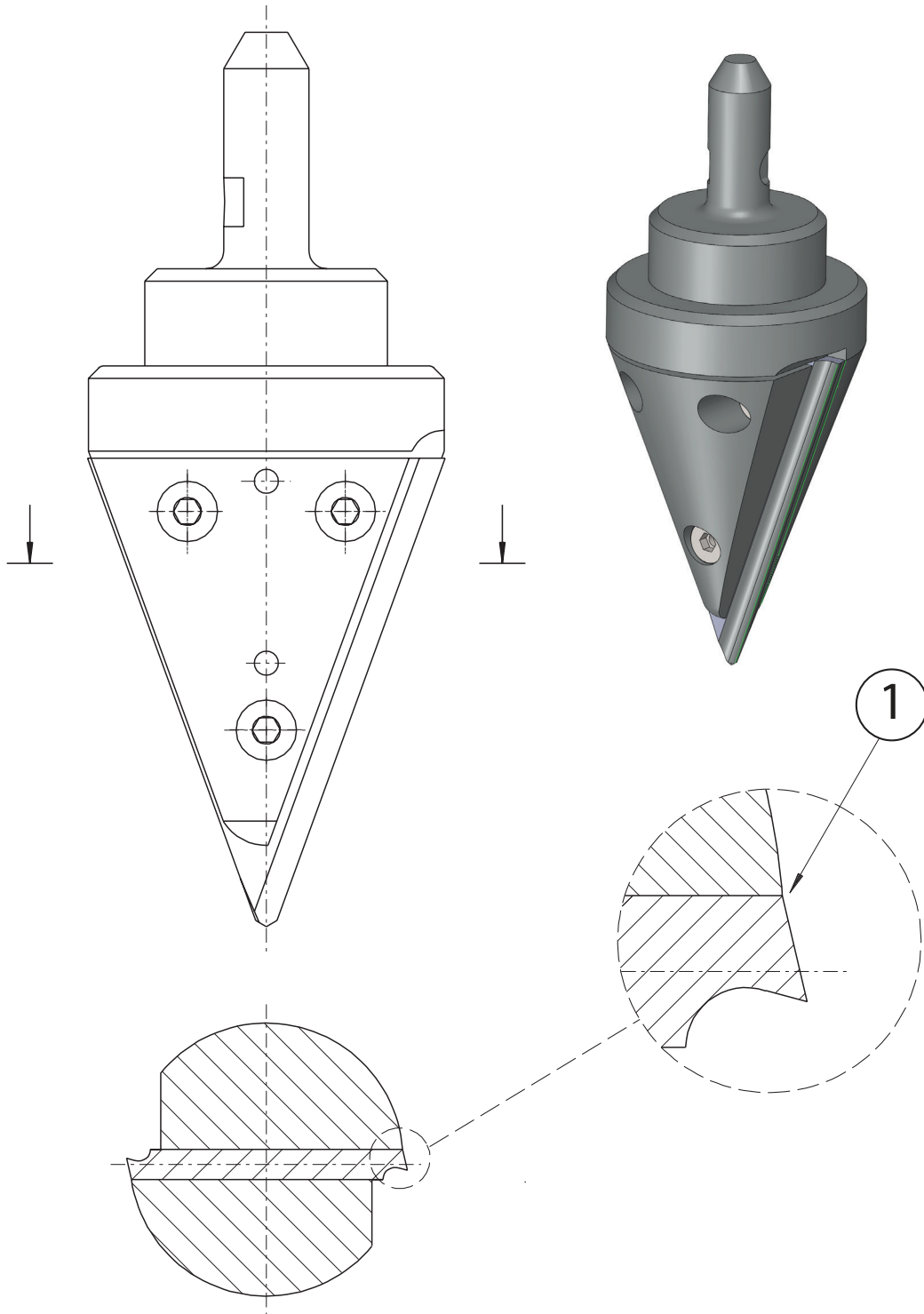
3. Remove the plug from the end of the lead screw and put the 14 mm hex wrench through the hole of the lead screw and into the screw at the end of the collaring head.

4. Turn the hex wrench counter-clockwise four rounds and then tap the wrench with a hammer in order to release the collaring head. Use a handle of the dimpler for the turning of the hex wrench.

5. To remove the collaring head, turn the adapter by hand counterclockwise several rounds and lift the lead screw and then 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.

10. PLUS 115 PILOT HOLE DRILL BLADE INSTALLATION



The clearance edge of the blade has to be on the same level with the drill body surface.

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.

Keep the tools clean, and lubricate lightly after cleaning (to avoid the tool getting stuck).

12. PLUS 115 CAPACITY AND INSTRUCTION CHART

Capacity chart for M tubing

| M | | Run tube size | | | | |
|---------------------|------|---------------|-----|-----|----|----|
| | | 2 ½" | 3" | 4" | 6" | 8" |
| Nominal branch size | 2" | | | | * | * |
| | 2 ½" | *** | *** | * | * | * |
| | 3" | | *** | *** | * | * |
| | 4" | | | *** | ** | ** |

Capacity chart for L tubing

| L | | Run tube size | | | | |
|---------------------|------|---------------|-----|-----|----|----|
| | | 2 ½" | 3" | 4" | 6" | 8" |
| Nominal branch size | 2" | | | | * | ** |
| | 2 ½" | *** | *** | * | * | ** |
| | 3" | | *** | * | * | ** |
| | 4" | | | *** | ** | ** |

Capacity chart for K tubing

| K | | Run tube size | | | | |
|---------------------|------|---------------|-----|-----|----|----|
| | | 2 ½" | 3" | 4" | 6" | 8" |
| Nominal branch size | 2" | | | | ** | ** |
| | 2 ½" | *** | *** | * | ** | ** |
| | 3" | | *** | * | ** | ** |
| | 4" | | | *** | ** | ** |

* No annealing of the pilot hole. Use slow speed when collaring.

** Anneal area where outlet is to be formed to a dull red.

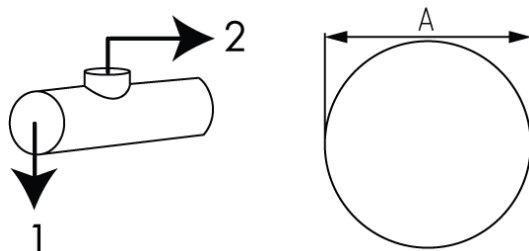
*** On run size outlets it is important to anneal the saddle side of the tube where the outlet is to be formed.

➔ **NOTE!** When annealing is required, heat the area to dull red.

➔ **NOTE!** ALWAYS RUN THE COLLARING PROCESS SLOWLY!

13. PILOT HOLE TABLE FOR PLUS 115 CU

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, A. Pilot hole size

| Run pipe O.D. NS inch | Run pipe O.D. mm | Branch pipe I.D. NS inch | Branch pipe I.D. mm | Pilot hole Ø mm |
|--------------------------|---------------------|-----------------------------|------------------------|--------------------|
| 2" | 54 | 2" | 54 | 37 |
| 2 1/2" | 64 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| 3" | 76,1 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| 3 1/2" | 88,9 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| 4" | 108 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| | | 4" | 108 | 80 |
| 5" | 159 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| | | 4" | 108 | 80 |

| Run pipe O.D. NS inch | Run pipe O.D. mm | Branch pipe I.D. NS inch | Branch pipe I.D. mm | Pilot hole Ø mm |
|--------------------------|---------------------|-----------------------------|------------------------|--------------------|
| 6" | 159 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| | | 4" | 108 | 80 |
| 8" | 219 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| | | 4" | 108 | 80 |
| 10" | 267 | 2" | 54 | 37 |
| | | 2 1/2" | 64 | 46 |
| | | 3" | 76,1 | 56 |
| | | 3 1/2" | 88,9 | 66 |
| | | 4" | 108 | 80 |

14. 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.

15. 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:

- On PLUS 115 on top of the machine cover
- On 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.

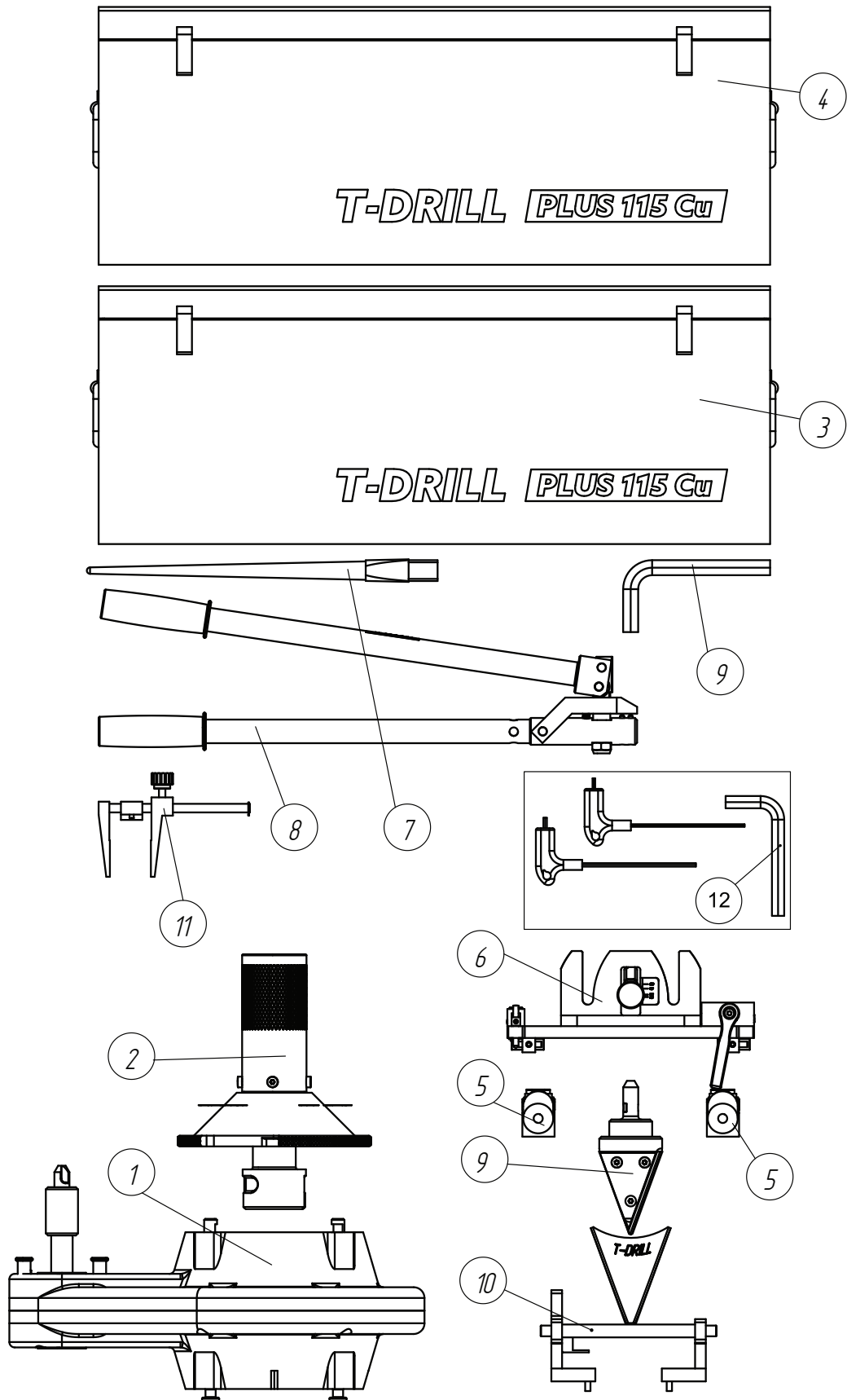
| Contact information: | Global | USA, Mexico, Canada |
|---------------------------------|--------------------|---------------------------|
| Spare part inquiries and orders | sales@t-drill.fi | sales@t-drill.com |
| Technical support | service@t-drill.fi | service@t-drill.com |
| Fax: | +358-6-4753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

15. SPARE PARTS LIST PLUS 115 FOR COPPER

15.1 PLUS 115 FOR COPPER (EU) 5700313

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|---|--------------|-------------|-----|
| 1 | 5700307 | Gear | | | 1 |
| 2 | 5700309 | Leadscrew | | | 1 |
| 3 | 5700316 | Transport box | Cu | | 1 |
| 4 | 5700315 | Transport box | Cu | | 1 |
| 5 | 5290206 | Locking Lever | | | 2 |
| 6 | 5700008 | Base plate assembly | | | 1 |
| 7 | 9011602 | Paint brush | koko 10...11 | | 1 |
| 8 | 5700091 | Dimpler | | | 1 |
| 9 | 5700163 | Pilot hole drill | | | 1 |
| 10 | 5700131 | Tilt rod | | | 1 |
| 11 | 5700082 | Gauge | | | 1 |
| 12 | 5700328 | Tool set | | | 1 |
| 13 | 5300134 | Lubricant bottle Cu assembly | | | 1 |
| 14 | 6700318 | Instruction manual and spare parts list | 7006 EU/USA | | 1 |

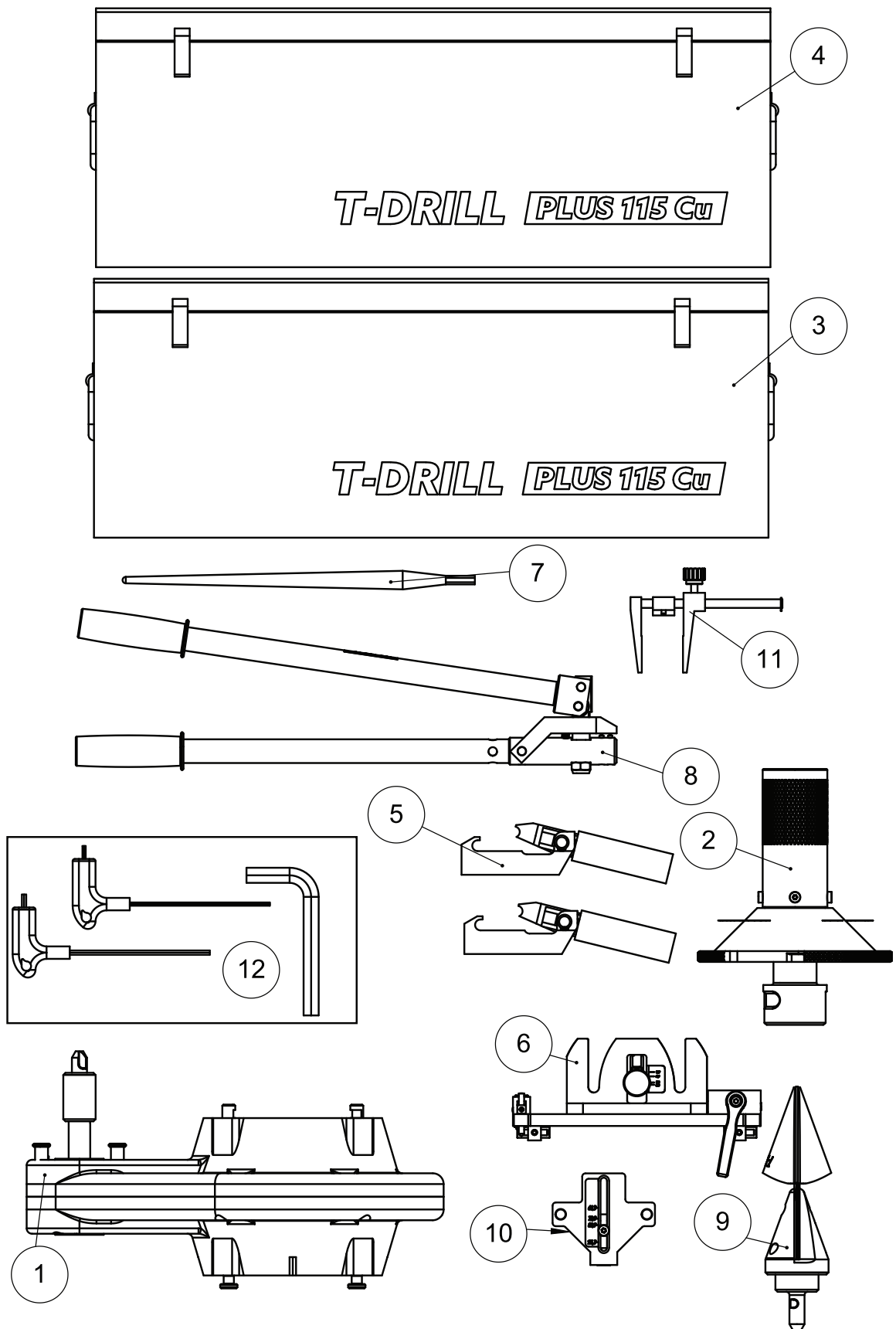
15.1 PLUS 115 FOR COPPER (EU) 5700313



15.2 PLUS 115 FOR COPPER (USA) 5700312

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|---|---------------------|-------------|-----|
| 1 | 5700307 | Gear | | | 1 |
| 2 | 5700309 | Leadscrew | | | 1 |
| 3 | 5700316 | Transport box | Cu | | 1 |
| 4 | 5700315 | Transport box | Cu | | 1 |
| 5 | 5290206 | Locking Lever | | | 2 |
| 6 | 5700008 | Base plate assembly | | | 1 |
| 7 | 9011602 | Paint brush | koko 10...11 | | 1 |
| 8 | 5700091 | Dimpler | | | 1 |
| 9 | 5700163 | Pilot hole drill | | | 1 |
| 10 | 5700131 | Tilt rod | | | 1 |
| 11 | 5700082 | Gauge | | | 1 |
| 12 | 5700328 | Tool set | | | 1 |
| 13 | 5300134 | Lubricant bottle Cu assembly | | | 1 |
| 14 | 6700318 | Instruction manual and spare parts list | 7006 EU/USA | | 1 |
| 15 | 5700091 | Dimpler | | | 1 |
| 16 | 9051027 | Allen key | SW =4 Facom 84TZS.4 | | 1 |
| 17 | 6700318 | Instruction manual and spare parts list | 7006 EU/USA | | 1 |

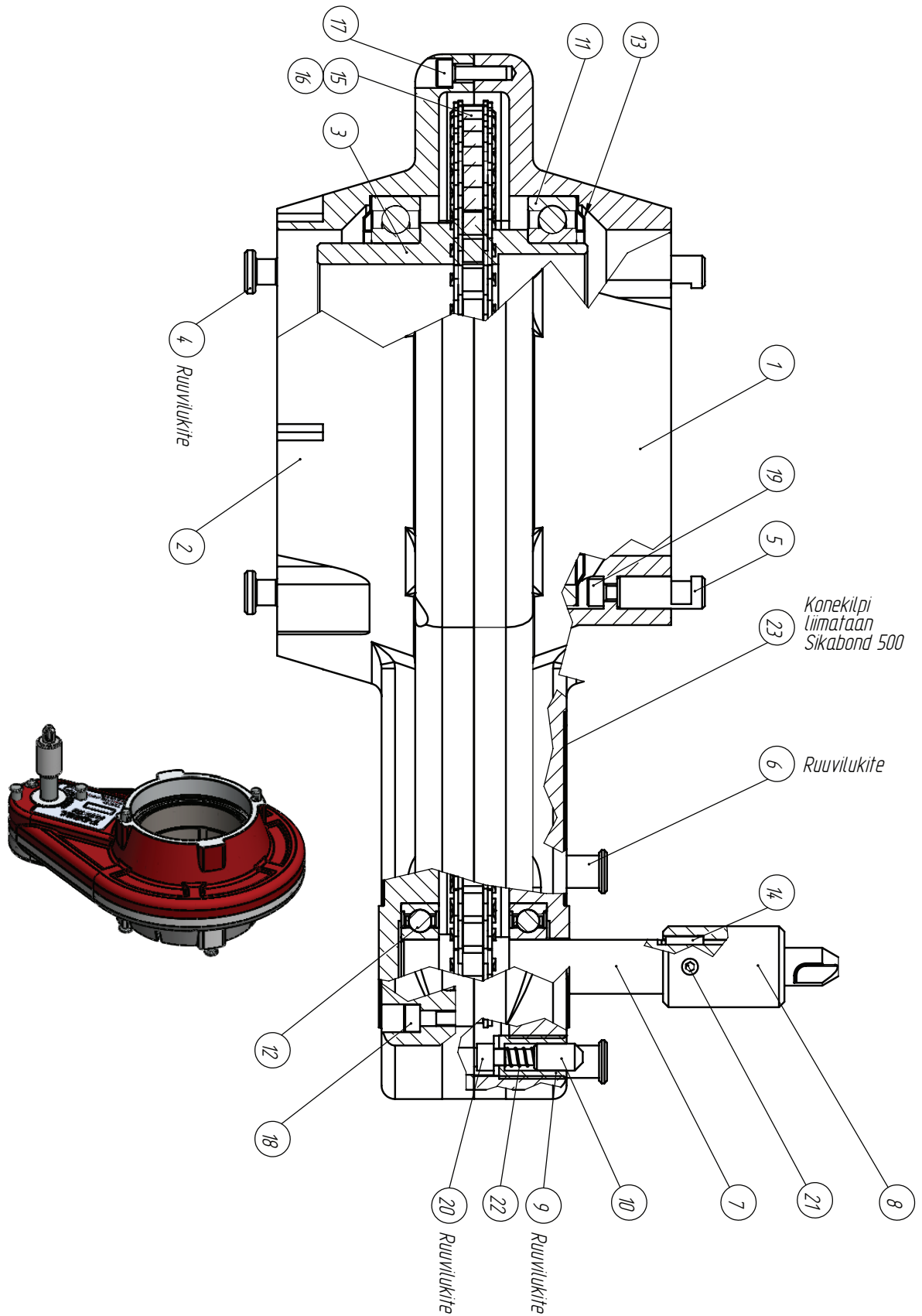
15.2 PLUS 115 FOR COPPER (USA) 5700312



15.3 GEAR 5700307

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|------------------------------------|-------------------|-----|
| 1 | 1700042 | Gear box | | | 1 |
| 2 | 1700043 | Gear box | | | 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 |

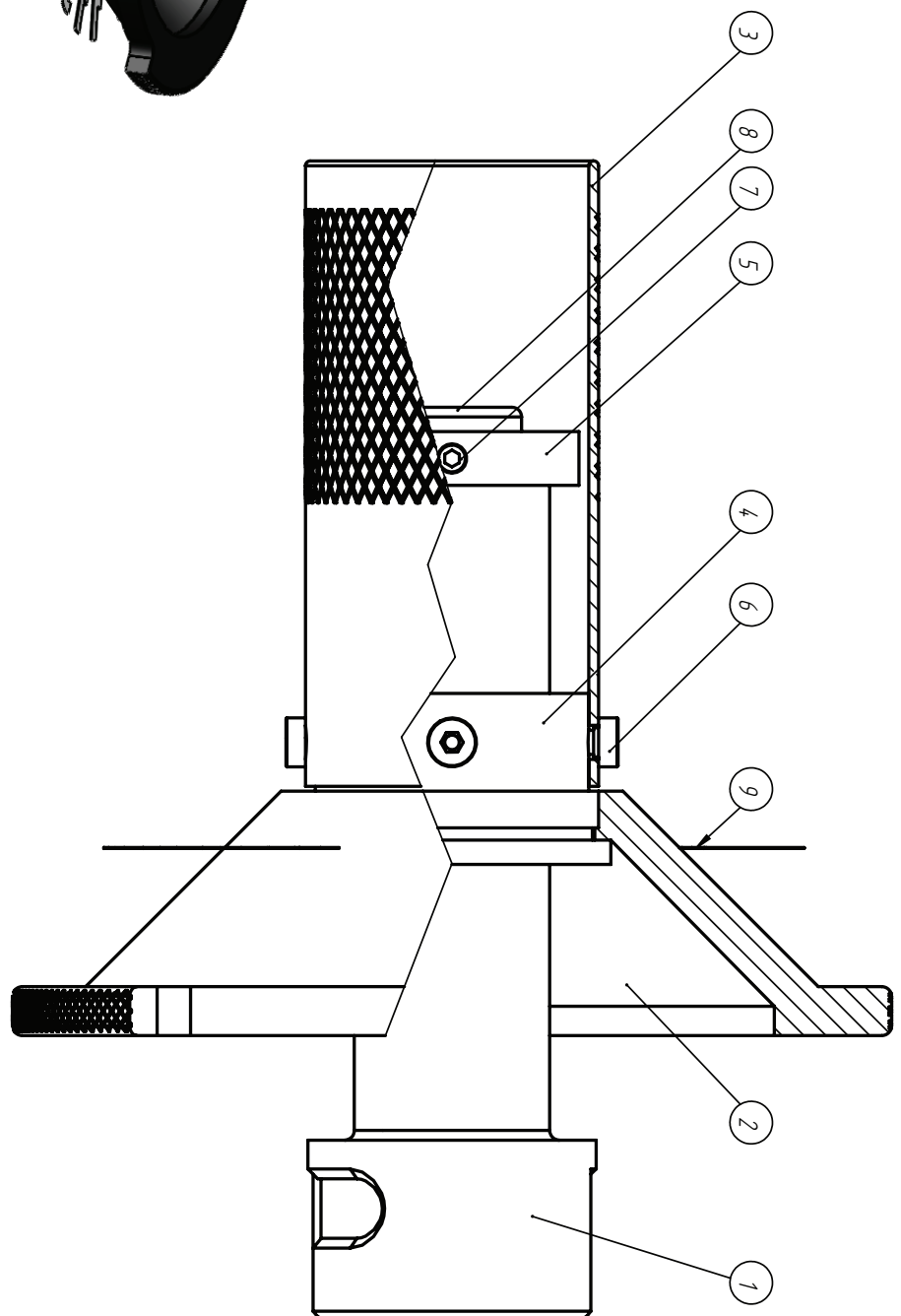
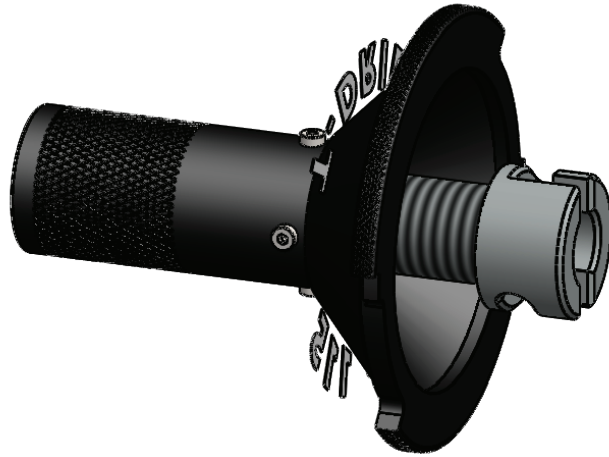
15.3 GEAR 5700307



15.4 LEAD SCREW 5700309

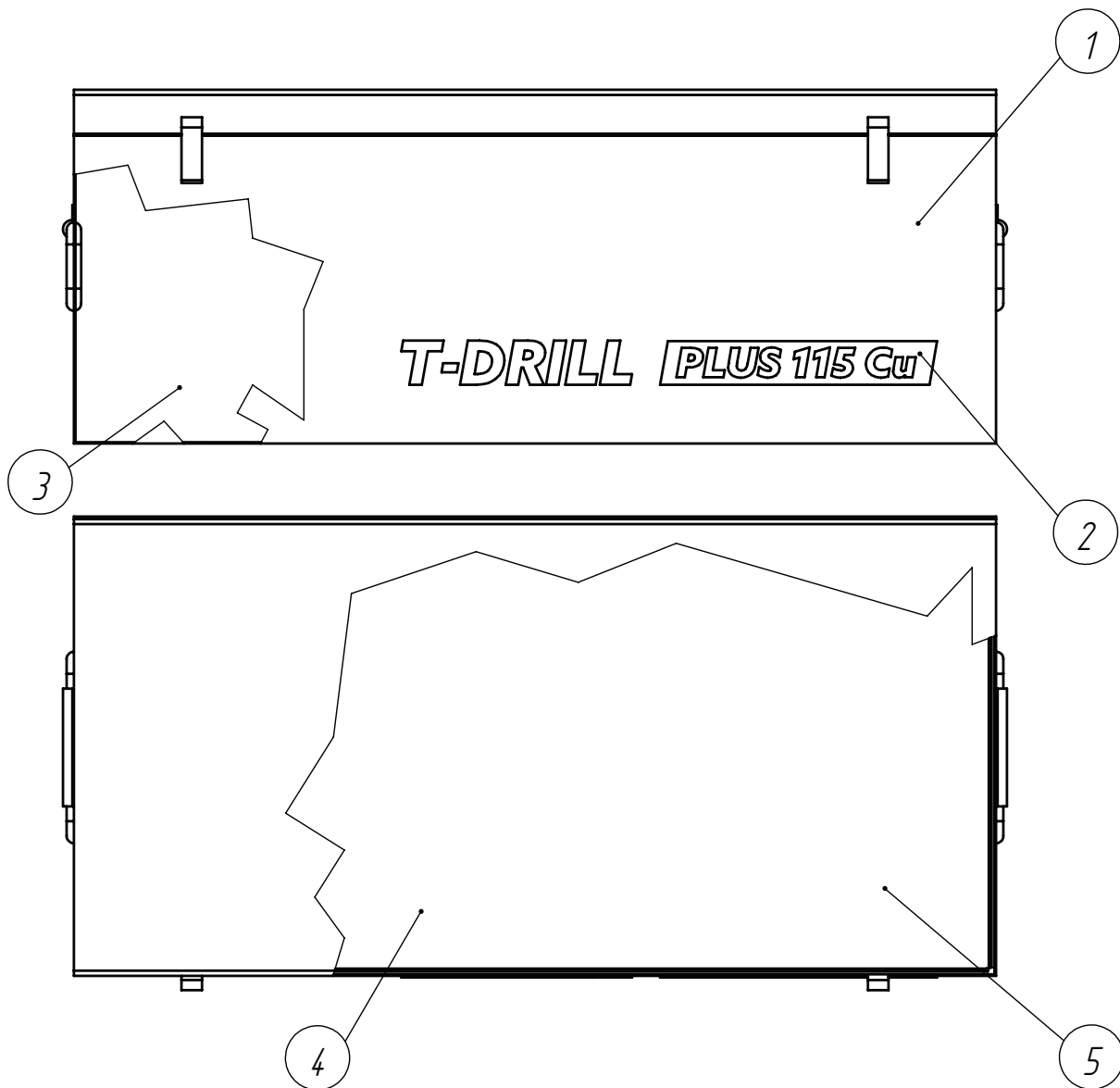
| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|--------------------------------|-------------|-----|
| 1 | 4700062 | Leadscrew | | | 1 |
| 2 | 3700063 | Cover | | | 1 |
| 3 | 4700064 | Bushing | | | 1 |
| 4 | 4700065 | Nut | | | 1 |
| 5 | 4700066 | 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



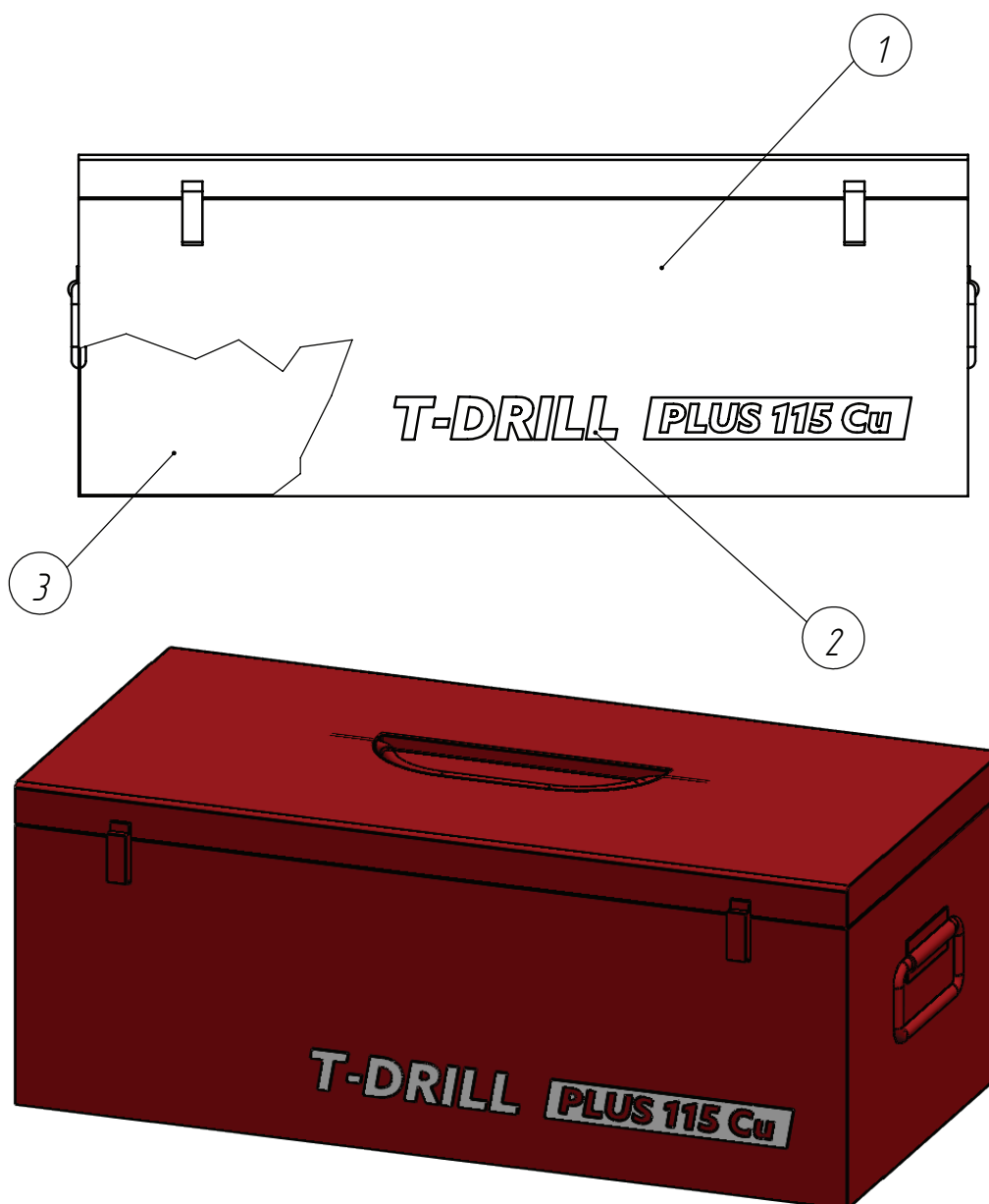
15.5 TRANSPORT BOX (2) 5700316

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|--------------|-----------------------------|-------------|-----|
| 1 | 5330774 | Metal case | | | 1 |
| 2 | 6700314 | Sticker | Harmaa, T-DRILL PLUS 115 Cu | | 1 |
| 3 | 1700144 | Palette 2 | | | 1 |
| 4 | 6700201 | Clamp box | PLUS 100 | | 1 |
| 5 | 3700137 | Foam coating | | | 1 |



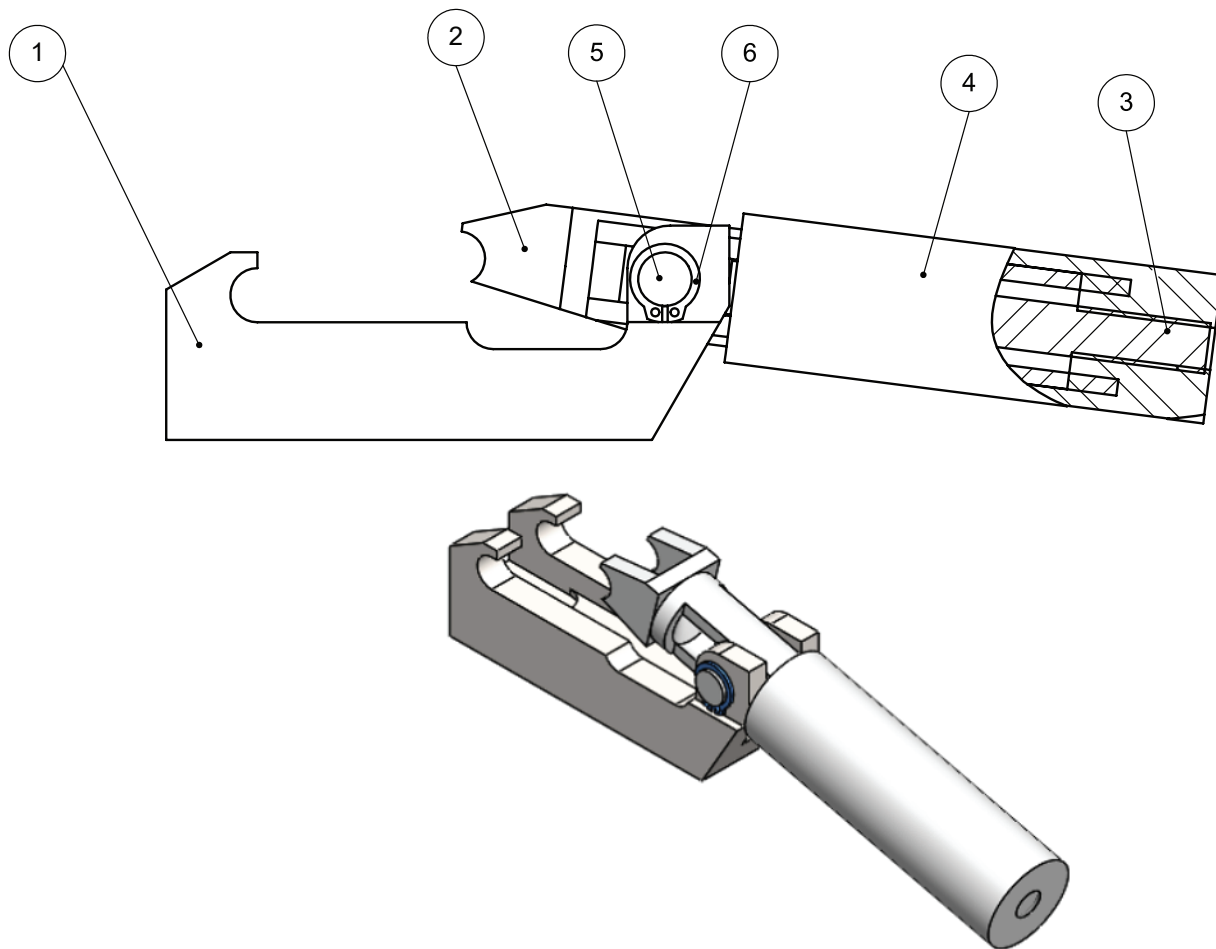
15.6 TRANSPORT BOX (1) 5700315

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|------------|--------------------------------|-------------|-----|
| 1 | 5330774 | Metal case | | | 1 |
| 2 | 6700314 | Sticker | Harmaa, T-DRILL PLUS 115 Cu | | 1 |
| 3 | 1700143 | Palette 1. | | | 1 |



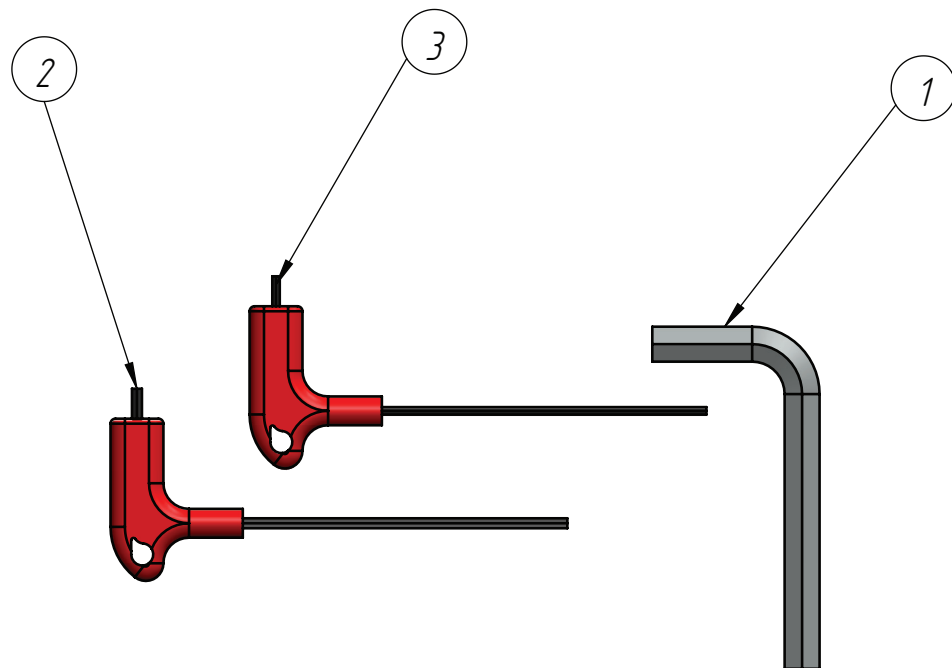
15.7 LOCKING LEVER 5290206 A

| 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 | 9051010 | Allen key | SW = 14 | DIN 911 | 1 |
| 2 | 9051014 | Hexagon socket screw driver | SW = 4 L=150 | | 1 |
| 3 | 9051017 | Hexagon socket screw driver | SW =3 Facom 84TZS.3 | | 1 |



15.8 BASE PLATE 5700008 B

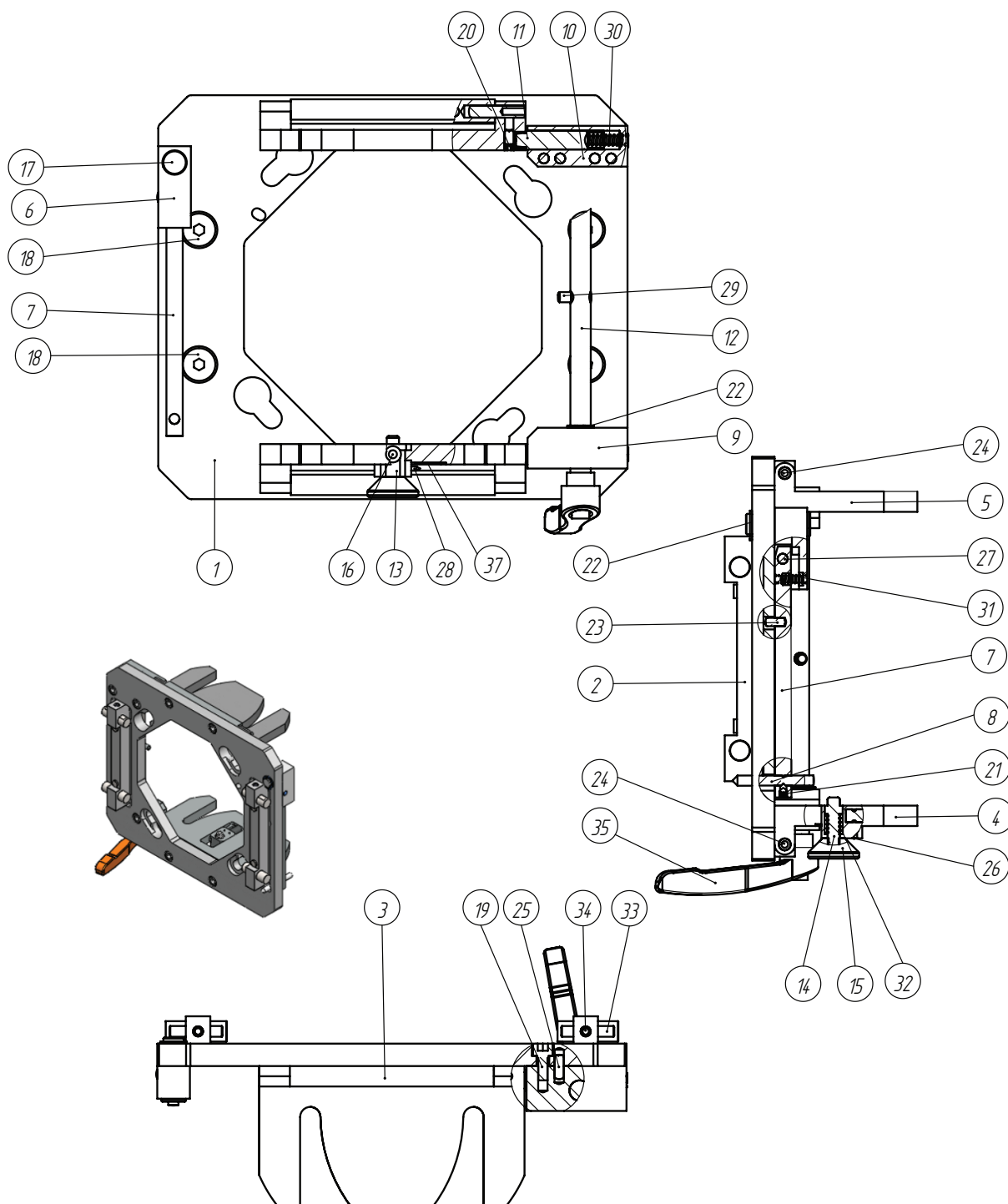
| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|--|-------------------|-----|
| 1 | 1700011 | Base plate | | | 1 |
| 2 | 4700012 | Clamp holder bar | | | 2 |
| 3 | 4700013 | Fastening piece | | | 2 |
| 4 | 3700015 | Tilting plate | | | 1 |
| 5 | 3700016 | Tilting plate | Rear | | 1 |
| 6 | 4700017 | Body | | | 1 |
| 7 | 4700018 | Centering arm | | | 1 |
| 8 | 4700028 | Centering head | | | 1 |
| 9 | 4700019 | Lock body 1 | | | 1 |
| 10 | 4700020 | Lock body | | | 1 |
| 11 | 4700021 | Lock pin | | | 2 |
| 12 | 4700022 | Shaft | | | 1 |
| 13 | 4700023 | Body | | | 1 |
| 14 | 4700024 | Pin | | | 1 |
| 15 | 4700025 | Knob | | | 1 |
| 16 | 4700026 | Screw | | | 1 |
| 17 | 4700027 | Hinge pin | | | 1 |
| 18 | 9014316 | Socket head cap screw | M8x20 | DIN 7991 | 4 |
| 19 | 9014028 | Socket head cap screw | M6x12 8.8 | DIN 912 | 8 |
| 20 | 9016302 | Set screw | M5x10 12.9 | DIN 916 | 4 |
| 21 | 9016101 | Set screw | M4x5 12.9 | DIN 914 | 1 |
| 22 | 9019002 | Retaining ring | Ø10x1 | DIN 471 B11 | 2 |
| 23 | 9018076 | Parallel pin | Ø5m6x10 | DIN 6325 | 1 |
| 24 | 9018077 | Parallel pin | Ø6m6x28 | DIN 7979-C | 4 |
| 25 | 9018078 | Parallel pin | Ø5m6x12 | DIN 6325 | 8 |
| 26 | 9018004 | Parallel pin | Ø2m6x12 | DIN 6325 | 2 |
| 27 | 9018079 | Parallel pin | Ø5m6x16 | DIN 6325 | 1 |
| 28 | 4700031 | Pointer | | | 1 |
| 29 | 4700036 | Pin | | | 1 |
| 30 | 9026113 | Pressure spring | Ø1/Ø6x20 DIN2098, SS2387-2 & SF-TF | Lesjöfors Springs | 2 |
| 31 | 9026160 | Pressure spring | Ø0.6/Ø5x15 DIN2098, SS2387-2 & SF-TF | Lesjöfors Springs | 1 |
| 32 | 9026161 | Pressure spring | Ø1/Ø6x10 SF-TF SS1774-04 | Lesjöfors Springs | 1 |
| 33 | 4280104 | Fastening pin | | | 4 |

TEE FORMING MACHINE

PLUS 115

15.8 BASE PLATE 5700008 B

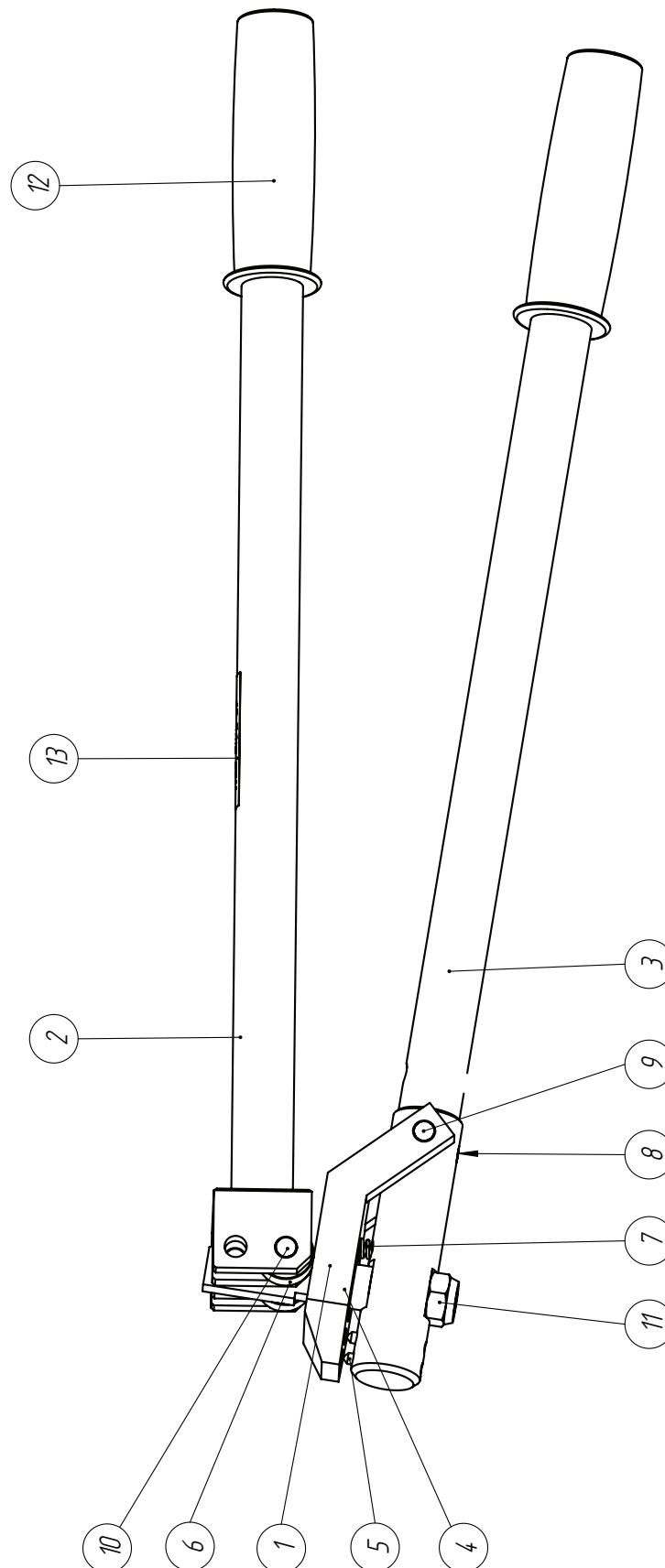
| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|----------------|----------------------------|-------------|-----|
| 34 | 9028065 | Spring plunger | M6x16 teräs 5.8 (16 06008) | | 4 |
| 35 | 9028081 | Fixing lever | M8 (50 208000 02) | KIPP | 1 |
| 36 | 4700037 | Tilting scale | | | 1 |
| 37 | 4700146 | Tilting scale | | | 1 |



15.9 DIMPLER 5700091 B

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|--------------------|---------------------------------------|-------------------|-----|
| 1 | 4700094 | Upper jaw | | | 1 |
| 2 | 3700097 | Lever | | | 1 |
| 3 | 3700099 | Lower jaw assembly | | | 1 |
| 4 | 4700095 | Retention knob | | | 1 |
| 5 | 4700098 | Tip | | | 2 |
| 6 | 4090094 | Roll | | | 2 |
| 7 | 9026113 | Pressure spring | Ø1/Ø6x20 DIN2098, SS2387-2 & SF-TF | Lesjöfors Springs | 1 |
| 8 | 9016303 | Set screw | M6x8 12.9 | DIN 916 | 1 |
| 9 | 9018027 | Parallel pin | Ø8m6x45 | DIN 6325 | 1 |
| 10 | 9018039 | Parallel pin | Ø8m6x20 | DIN 6325 | 3 |
| 11 | 9013041 | Self-locking nut | M10 | DIN 985 | 1 |
| 12 | 9028013 | Handle | No 6 muovi (2993990) | | 2 |
| 13 | 4700169 | Sticker | This side up | | 1 |

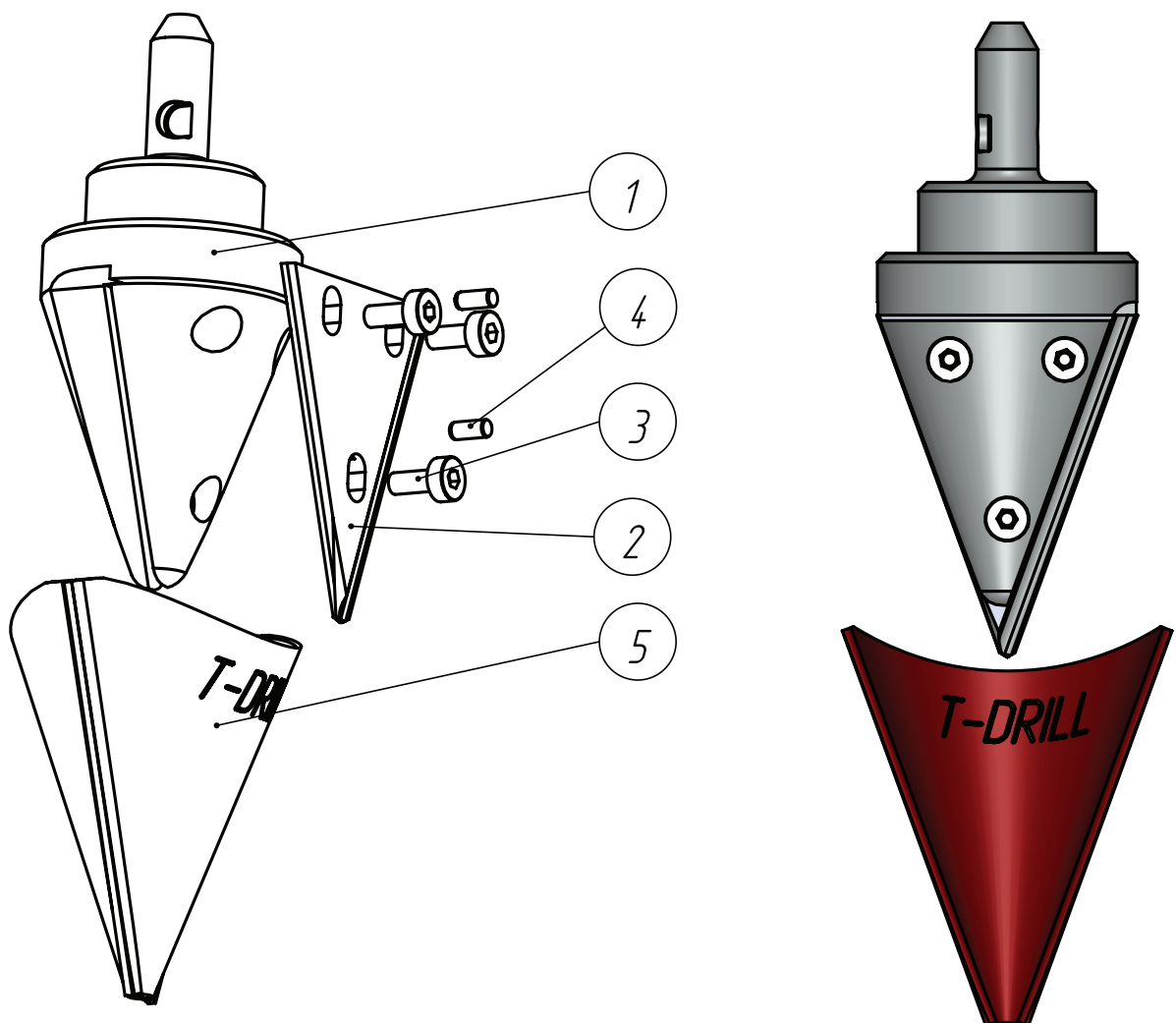
15.9 DIMPLER 5700091 B



15.10 PILOT HOLE DRILL 5700163 A

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|-----------|-------------|-----|
| 1 | 3700115 | Drill body | | | 1 |
| 2 | 3700160 | Blade | | | 1 |
| 3 | 9014090 | Socket head cap screw | M6x12 8.8 | DIN 7984 | 3 |
| 4 | 9018070 | Parallel pin | Ø4m6x10 | DIN 6325 | 2 |
| 5 | 4700007 | Drill cover | | | 1 |

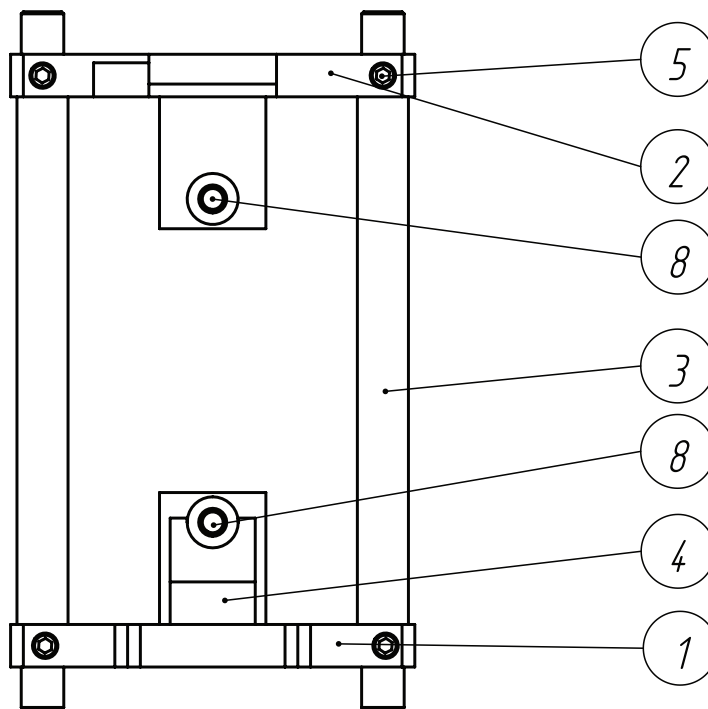
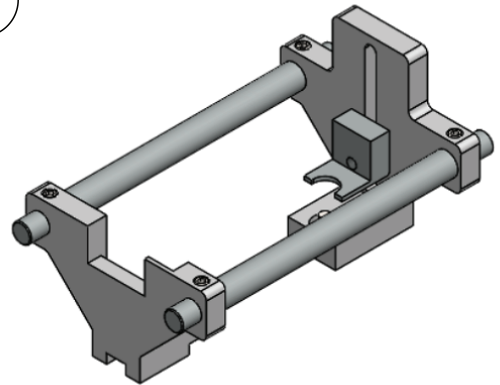
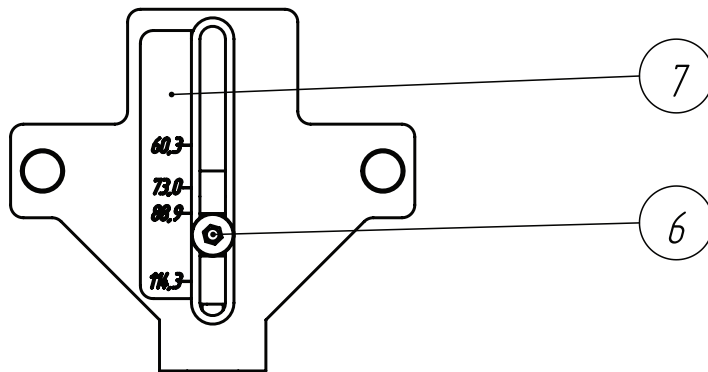
15.10 PILOT HOLE DRILL 5700163 A



15.11 TILT ROD 5700131 A

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|-----------|-------------|-----|
| 1 | 3700132 | Angle plate 1 | | | 1 |
| 2 | 3700133 | Angle plate 2 | | | 1 |
| 3 | 4700034 | Bar | | | 2 |
| 4 | 4700035 | Adjusting piece | | | 1 |
| 5 | 9016004 | Set screw | M6x6 12.9 | DIN 913 | 4 |
| 6 | 9014090 | Socket head cap screw | M6x12 8.8 | DIN 7984 | 1 |
| 7 | 4700147 | Depth scale | | | 1 |
| 8 | 9014308 | Socket head cap screw | M6x16 | DIN 7991 | 2 |

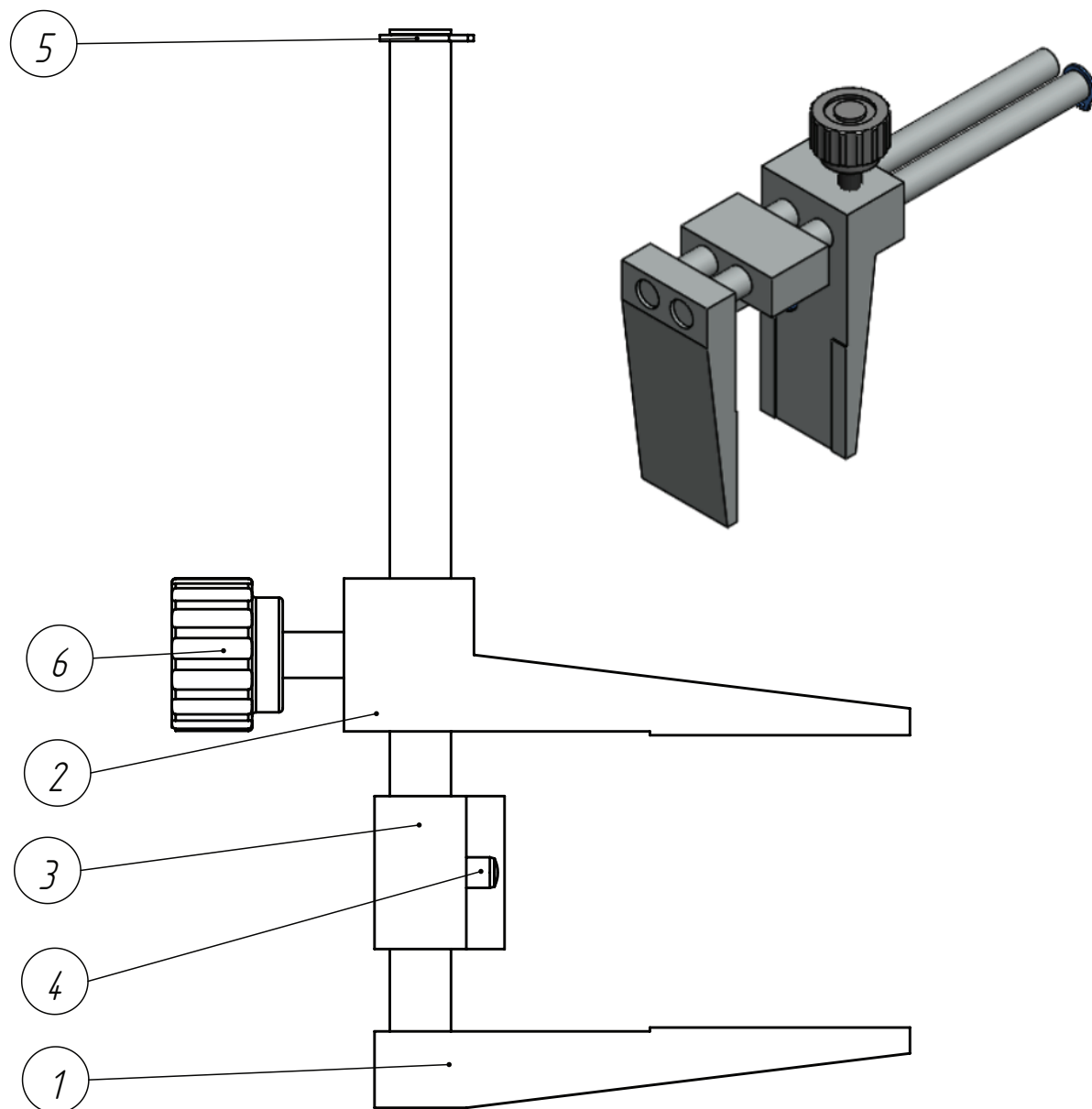
15.11 TILT ROD 5700131 A



15.12 GAUGE 5700082 A

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------|-----------|-------------|-----|
| 1 | 4700089 | Gauge body | | | 1 |
| 2 | 4700085 | Sliding jaw | | | 1 |
| 3 | 4700086 | Fastening piece | | | 1 |
| 4 | 9018075 | Parallel pin | Ø4x6x12 | DIN 6325 | 1 |
| 5 | 9019001 | Retaining ring | Ø8x0.8 | DIN 471 B11 | 1 |
| 6 | 4700108 | Knob | | | 1 |

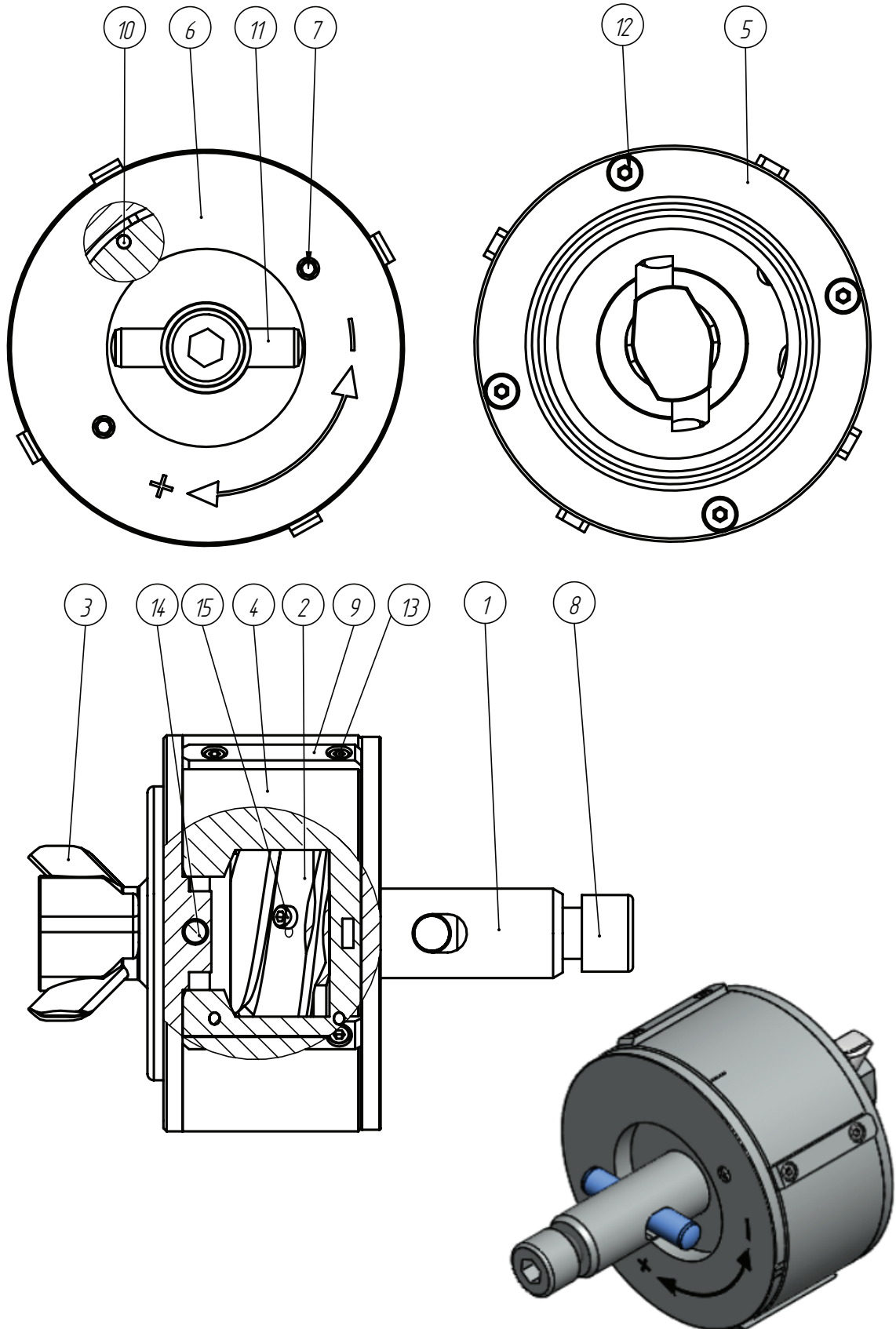
15.12 GAUGE 5700082 A



15.13 COLLARING HEAD 2" – 2 ½" 5700067 B

| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|-------------------------|-------------|-----|
| 1 | 2700069 | Drill core | 2"-2 1/2" | | 1 |
| 2 | 3290054 | Adjuster cone | | | 1 |
| 3 | 3700109 | Forming pin | Ø15 HSS | | 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 teräs 5.8 (16 08008) | | 1 |
| 15 | 9014002 | Socket head cap screw | M4x8 8.8 | DIN 912 | 1 |

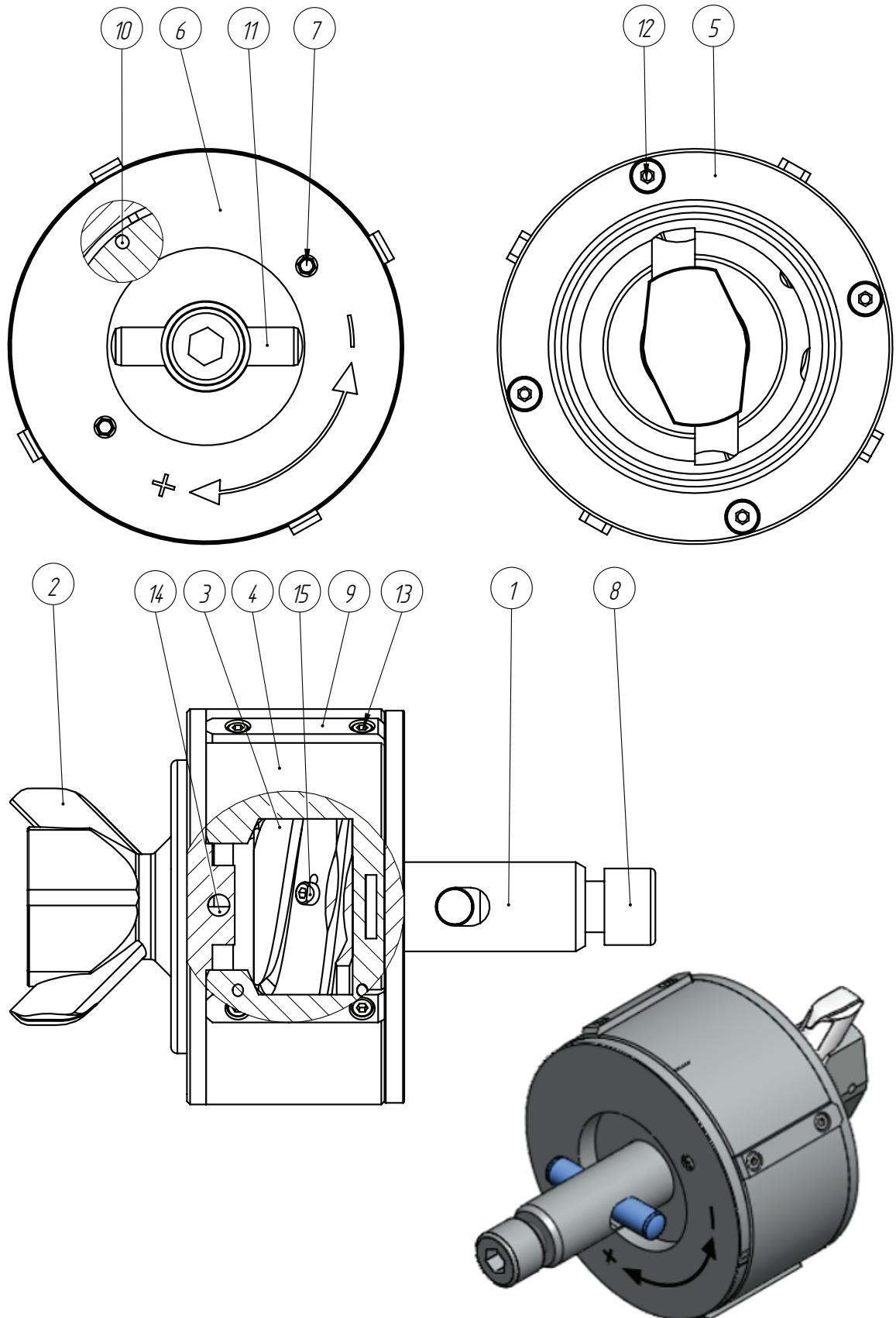
15.13 COLLARING HEAD 2" – 2 ½" 5700067 B



15.14 COLLARING HEAD 3" – 4" 5700075 B

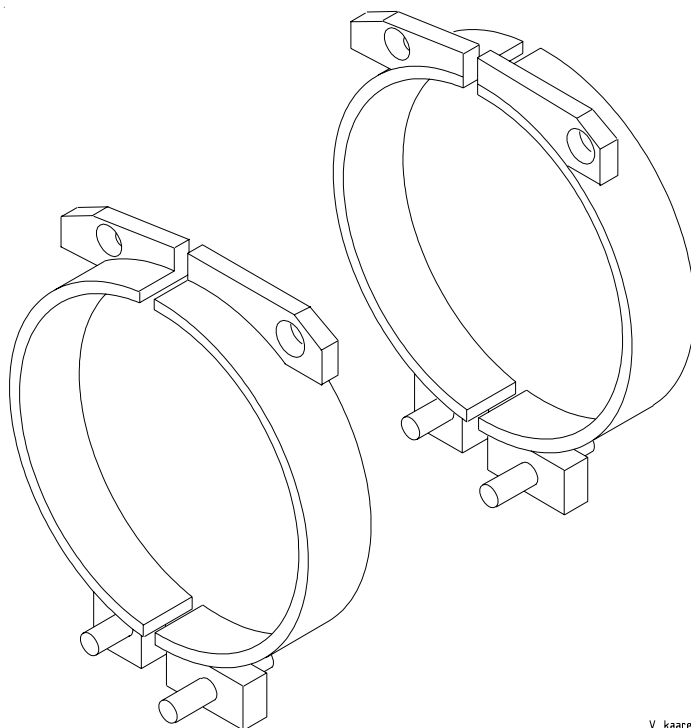
| Pos | Part No. | Name | Size/Type | Std./Manuf. | Qty |
|-----|----------|-----------------------|-------------------------|-------------|-----|
| 1 | 2700077 | Drill core | 3"-4" | | 1 |
| 2 | 3290738 | Forming pin | Ø18 /Plus 115 Cu only | | 2 |
| 3 | 3290054 | Adjuster cone | | | 1 |
| 4 | 3700070 | 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 |

15.14 COLLARING HEAD 3" – 4" 5700075 B



15.15 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

TEE FORMING MACHINE

PLUS 115

15.16 T-DRILL T-65 COLLARING MACHINE EU 5330722

15.17 T-DRILL T-65 COLLARING MACHINE US 5330717

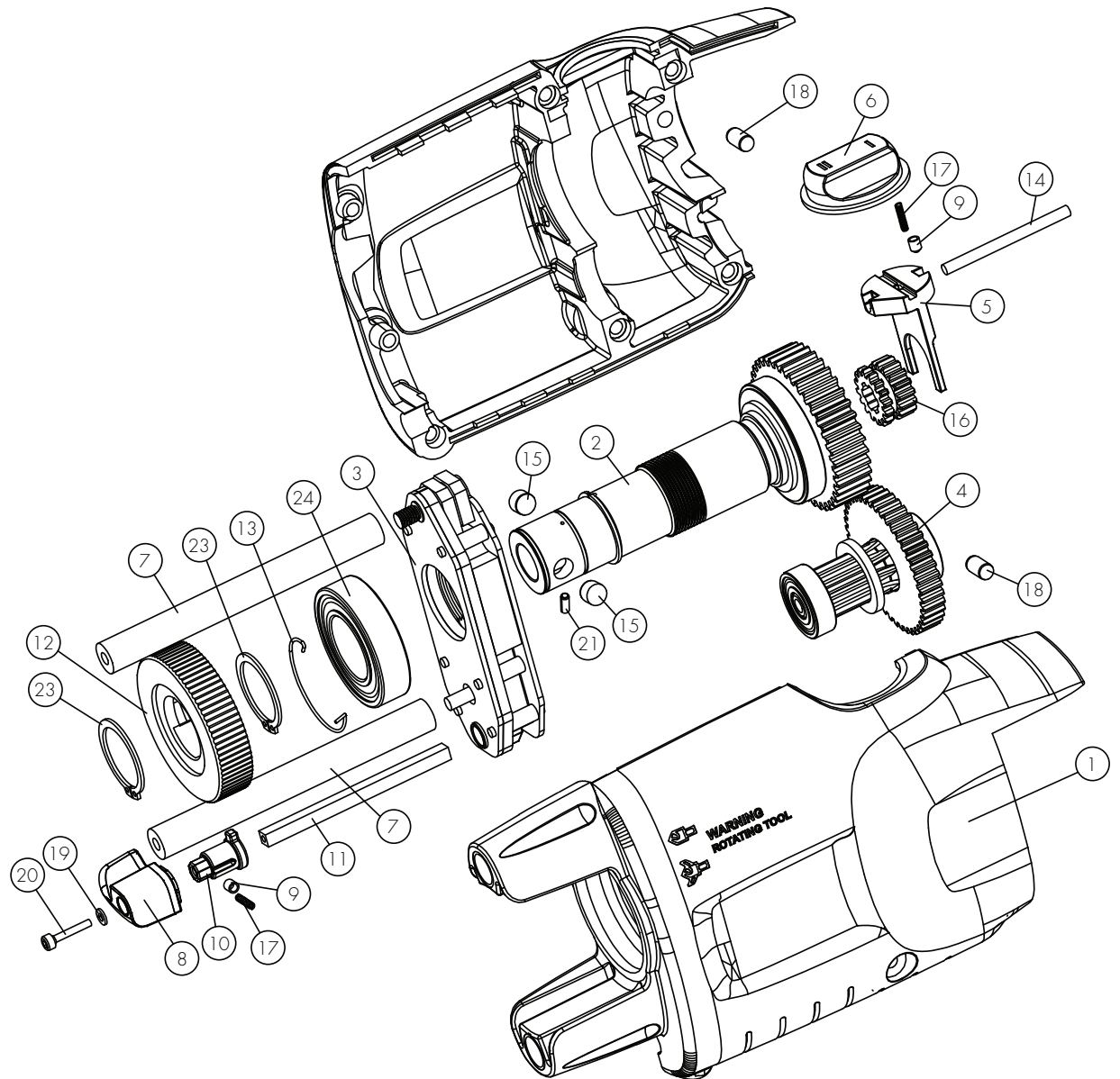


| Pos | Part No. | Description | Size/type | Qty |
|-----|-------------------------------|---|---------------------------|-----|
| 1 | 5330158 5330160 | Power Unit Power Unit | 120 V USA 230 V Europe | 1 |
| 2 | 5330154 | T-65 Tee Forming Unit | | 1 |
| 3 | 6330680 | Adapter PUR | | 1 |
| 4 | 3330032 | 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 |

15.18 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 |

15.18 THE T-65 TEE FORMING UNIT





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 7006)**, 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)

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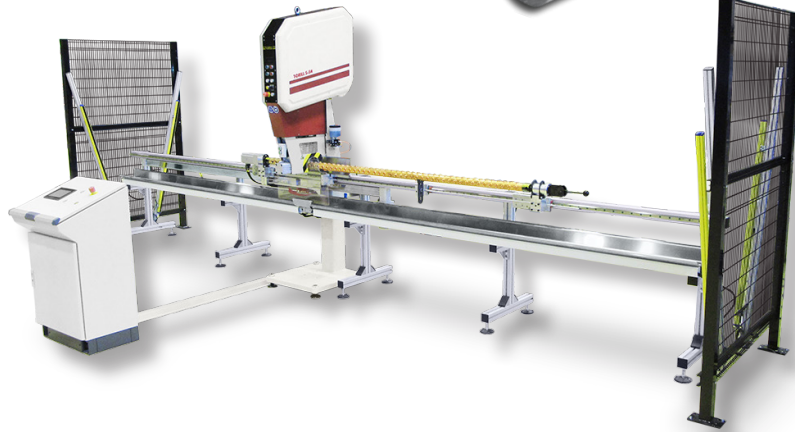
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Y-tunnus
0548785-8
VAT No
FI 05487858

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