BILKE S3

BILKE S3 WOODCHOPPER
OPERATION MANUAL

CONTENTS

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1. GENERAL

The Bilke Woodchopper is a machine for chopping firewood of a maximum diameter of 22,5 centimeters and a maximum length of 55 centimeters. Suitable for chopping are slender trunks, sawmill and small amounts demolition timber, and corresponding materials.If the material consists mainly of demolition timber, then the Eco-Bilke should be used.

Please ensure that the operator has studied the operating and safety instructions.

To ensure optimal output, always adhere to the operating instructions.

2. SAFETY INSTRUCTIONS

Do not start the chopper unless the feed conveyor is in the operating position. The conveyor may be positioned when the chopper is working, but this can damage the drive mechanism.

Do not start the chopper unless the feed conveyor is in the operating position as the cutter is unprotected. It is **strictly forbidden** to feed pieces manually into the chopper while the feed conveyor is not in the operating position.

Before starting the chopper, always ensure that no-one is standing close to it.

Do not stand behind the ejection conveyor during operation. The risk area measures 10 meters. Do not stand behind the conveyor even if you have finished feeding the chopper. There may be pieces left inside, and you may be hit if they are suddenly ejected.

When the chopper is operating, do not work inside the plastic guard which protects the cutter area. Your hand may be caught in the cutter with serious consequences.

It is rare, but still possible, that the beginning of the ejection conveyor clogs, and that the clog does not immediately clear of itself. In that case:
** stop feeding wood into the feed conveyor and let the chopper run for about one minute. If the clog does not clear in that time, stop the chopper and remove the clog by hand. To avoid accidents, do not clear clogs while the chopper is running.
Never move the machine with the feed conveyor in it´s working position as the conveyor may be damaged.
To avoid accidents, do not put hands inside the safety guard of the feed conveyor.
Do not move the chopper if the feed conveyor is on the operating position.

Take particular care when you shift the feed conveyor from the transport to the operating position to avoid trapped fingers of other personnel in the vicinity.

When the chopper is moved, the conveyors must be in their transport positions and tied together with a strap or rope. (see picture 1)

3. ATTACHING THE CHOPPER

The chopper must be attached to three-point linkage when used with a tractor.

For transmission the PTO shaft **must have max 40 kW overload protection.**

The maximum transmission rotation is 540 rpm at power take-off.

Please ensure the correct mounting angle of the PTO shaft. Do not forget the guard. (Check also the conditions of the shaft, locking pins, greasing and guards.)

The centre of gravity of the chopper is very close to the cutter. Unless the chopper is not fastened to the tractor arms or otherwise supported, it may topple when the feed conveyor is opened.

Attach the chopper to the tractor arms so that the chopper bottom and the opened feed conveyor are horizontal when the tractor stands on level ground. **The feed end of the feed conveyor may be up to 5 cm (2 in) higher than the chopper end,** especially when chopping icy/slippery wood.

4. OPERATION

Avoid chopping unseasoned hardwood pieces in excess of 15 centimeters at temperatures below –5 C. Do not use the chopper at temperatures below -20 C as cold brittles the cutter and the conveyor belts.

Check that nuts and bolts are tight before you start the chopper.

Check that the emergency stop cord is fastened to the throttle.

Check that there are no loose parts inside the chopper.

1. Crank and lock the feed conveyor into the operating position

2. Crank the ejection conveyor into the desired position. Avoid a too upright position which causes the pieces to tumble inside the conveyor instead of being ejected. Lock the crank.

3. During operation the oil flow should be 10-20 drops per minute. A strong flow oil is dispensed during start-up and stopping. (see picture 1/2).

4. The belts should be tensioned so that they can be lifted to give a clearance of 10 cm (L").

5. Switch on the tractor power take-off. Adjust the take-off rotation speed as desired. The faster the take-off rotation, the faster the rotation of the cutter and conveyors. The maximum take-off rotation is 540 rpm.

6. Check the feed and ejection conveyor alignment. If either edge of the belt is chafing, adjust the adjustment screw for that edge until the belt runs centrally. **To avoid belt freeze-ups in winter, use e.g. a some anti-freeze between the belt and the plate.**

7. Adjust the desired cut length between 25 - 55 centimeters.

8. Start feeding wood onto the feed conveyor.

The chopper will split the wood in the middle on average when the diameter of the piece is over 8 centimeters. When the diameter is less than 8 centimeters you may feed as many pieces as the inlet can take. The chopper will then split the pieces randomly.

Always feed the pieces butt end first.

Always stand behind or to the right of the feed conveyor when feeding the chopper. Crooked pieces may flip over the left edge of the conveyor during chopping.

The distance between the end of the ejection conveyor and the pile of chopped wood should be at least one meter. Otherwise pieces bouncing off the pile may land between the ejection conveyor belt and the bottom housing causing damage.

If the operating speed is less than 280 rpm, the pieces may stick between the end of the ejection conveyor and the plate, especially when the position of the ejection conveyor is very upright.

5. ENDING OPERATION

Before stopping increase the oil flow, run for one minute, close the oil flow in order to immerse the bearing in oil while the machine is not being used.

1. Stop the tractor power take off rotation.

2. Loosen the conveyor belts overnight.

3. Crank the ejection conveyor until it stands up.

4. Crank the feed conveyor into the transport position.

5. Lock the conveyors with the pin.

For longer transports, strap the conveyors together.

6. Clean the inside and underside of the chopper from chips. This is particularly important in winter as icy slush and wood chips may prevent restarting of the chopper.

6. MAINTENANCE

Check the volume of oil in the oil container by the feed conveyor. Use engine or gearbox oil. Select a lower viscosity oil in winter.

The flow of oil is controlled by a tap. A stronger flow of oil must be dispensed during start-up and stopping. **During operation the flow shall be adjusted to some 10 to 20 drops per minute. (Picture 2)**

Lubricate the chains with grease for open gear after every four hours, other grease nipples after every eight hours of operation.

The big gearwheel is automatically lubricated with oil from a container in front. Check that there is a film of oil on the gear rim. If there is no film, add e.g. an open-gear spray (WD 40 or similar). You can spray open-gear spray straight onto the gearwheel through openings in the back, above the length adjustment locking handle. Add lubricant while the chopper is running.

Monitor the tightness of the feed and ejection conveyor transmission chains. Tighten as required. Chain tension is correct when the ejection conveyor chain has some 2 centimetres (¾ in.) and the feed conveyor chain about one centimetre (½ in.) of slack when you test the chains at midpoint.

Lubricate the chopper if it will not be in used for a longish time. Rotate the works so that the lubricant spreads evenly and so that moisture will not cause corrosion.

NOTE! Check the tightness of the cutter bolts every 80 work hour.

7. ADJUSTMENT OF FEED CONVEYOR OVERLOAD GUARD

The feed conveyor is equipped with an overload clutch for the belt movement in case the belt should lock for some reason.

Adjust the overload clutch as needed. The overload clutch is located next to the feed conveyor drive chain.

1. Switch of the tractor.

2. Lock the rotation of the angle transmission e.g. by switching off the tractor and leaving the take-off on, or by locking the universal joint rotation in some other way.

3. Apply a torque wrench to the end of the angle transmission, on the auxiliary piece (AV 41) delivered with the chopper. Which is put on to the conveyor drive shaft. (Picture 4)

4. Turn the torque wrench. If the torque is less than 65 Nm. Tighten the locking nut using a spanner wrench or a hammer and punch. Turn clockwise to increase the torque and anti-clockwise to decrease the torque. (Picture 6)

Adjust the torque to 65 Nm.

Tighten the feed conveyor belt so that there is no slippage. **Any slippage must be in the overload clutch.** If the belt slips on the draw-in roller, there will be miss feeding and the conveyor belt will be damaged.

8. ADJUSTMENT OF EJECTION CONVEYOR OVERLOAD GUARD

The ejection conveyor is equipped with an overload clutch for the belt movement in case the belt should lock for some reason.

Adjust the overload guard as needed. The overload guard is located on the lower left hand side viewed from the end of the ejection conveyor.

1. Stop the chopper and the tractor.

2. Lock the angle transmission rotation.

3. Apply a torque wrench (AV 41) to the end of the drive on the right hand side of the ejection conveyor as viewed from behind. (Picture 6) Fitted to the axle on the conveyor drive shaft.

4. Turn the torque wrench. If the torque is less than 65 Nm, take the lock washer claw out of the safety clutch locking nut slot. Tighten the locking nut using a spanner wrench or a hammer and punch. Turn clockwise to increase the torque and anti-clockwise to decrease the torque.

Adjust the torque to 65 Nm and bend the lock washer claw into the locking nut slot to prevent vibration from turning the nut.

9. SHARPENING OF THE CUTTER

The cutter may be sharpened in place in the chopper using an angle grinding machine. Before commencing work, remove PTO to ensure that the chopper cannot be started even by mistake.

Lift up the feed conveyor to the transport position and lock it in place.

Turn the angle transmission from the universal joint or the end of the angle transmission with an adjustable spanner so that approximately 15 centimeters (6 inch) of the cutter comes into view in the feed opening. Sharpen this section of the cutter.

Then go inside the chopper and sharpen the cutter by grinding from the inside.

Using the spanner turn the angle transmission so that the next 15 centimeters (6 inch)of the cutter come into view. Continue the sharpening alternately from the inside and the outside until the whole cutter is sharpened.

It is important not to change the original angle of cutting and that the edge of the cutter is in the middle of the blade. (Picture 7)

10. WHEN THE CHOPPER IS STUCK

A big and exceptionally hard and tough piece of wood or some other object which accidentally gets into chopper may stop cutter rotation. Max. 40 kW overload guard in the universal joint will then start slipping. **Stop the power take-off rotation immediately.**

If you can reverse the powers source rotation, rotate carefully 1/4 turn in the reverse direction. Or turn at the universal joint using e.g. a lever to extract the cutter from the wood. Check the cutter for damage. **Continue operation normally.**

11. NOISE

Please note that the operation noise level of the chopper is over 82 dB. Hearing protectors are recommended.

12. LIFTING THE CHOPPER

The machine should be lifted by the fork pockets.

13. EMERGENCY STOP

A 6-metre piece of nylon cord comes with the chopper. One end of the cord should be attached to the feed conveyor guard pipe, and the other end to the tractor stopping device.

14. BILKE WOODCHOPPER WARRANTY

On machines of their manufacture Bilke Oy offer a warranty which covers faulty materials and manufacture. When possible, defective parts will be repaired or replaced.

Repair work under this warranty shall not provide a new warranty period.

Replaced parts shall be the property of the factory.

The warranty period shall start on the date of delivery.

Warranty repair work shall always be done as single shift work.

The warranty period shall be one year for
the cutting/chopping cutter;
the chopper body;
the feed and ejector conveyor bodies;
the two angle transmission.

The warranty period shall be six months for all other parts.

The warranty shall not cover damage or faults caused by
non adherence to regulations or instructions as regards connecting up the chopper;
incorrect operation;
neglect of the operation manual;
careless maintenance; nor
natural wear of the chopper.

The warranty shall not cover
freight;
travel expenses;
hourly rates;
indirect costs
caused by repairs to the chopper.

Warranty repairs may be made only by the factory or by a repair shop authorised by the factory.

Should the chopper be modified without the written permission of the factory, this warranty shall expire.

ASSURANCE OF BILKE CHOPPER COMPATIBILITY WITH EUROPEAN UNION REQUIREMENTS

The manufacturer Bilke Oy
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FI-78850 Varkaus, Finland
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Hereby assure that the BILKE S3 woodchopper

serial number: _____

That they have placed on the market fulfils the regulations of machinery directive 2006/42/EY including amendments to the directive as well as the national acts bringing them into force (Government Regulations VNa 400/2008).

The chopper design implements the following uniform standards:

SFS EN ISO 13857, SFS-EN ISO 14121-1, SFS-EN 349+A1

The chopper design implements the following national standards and specifications:

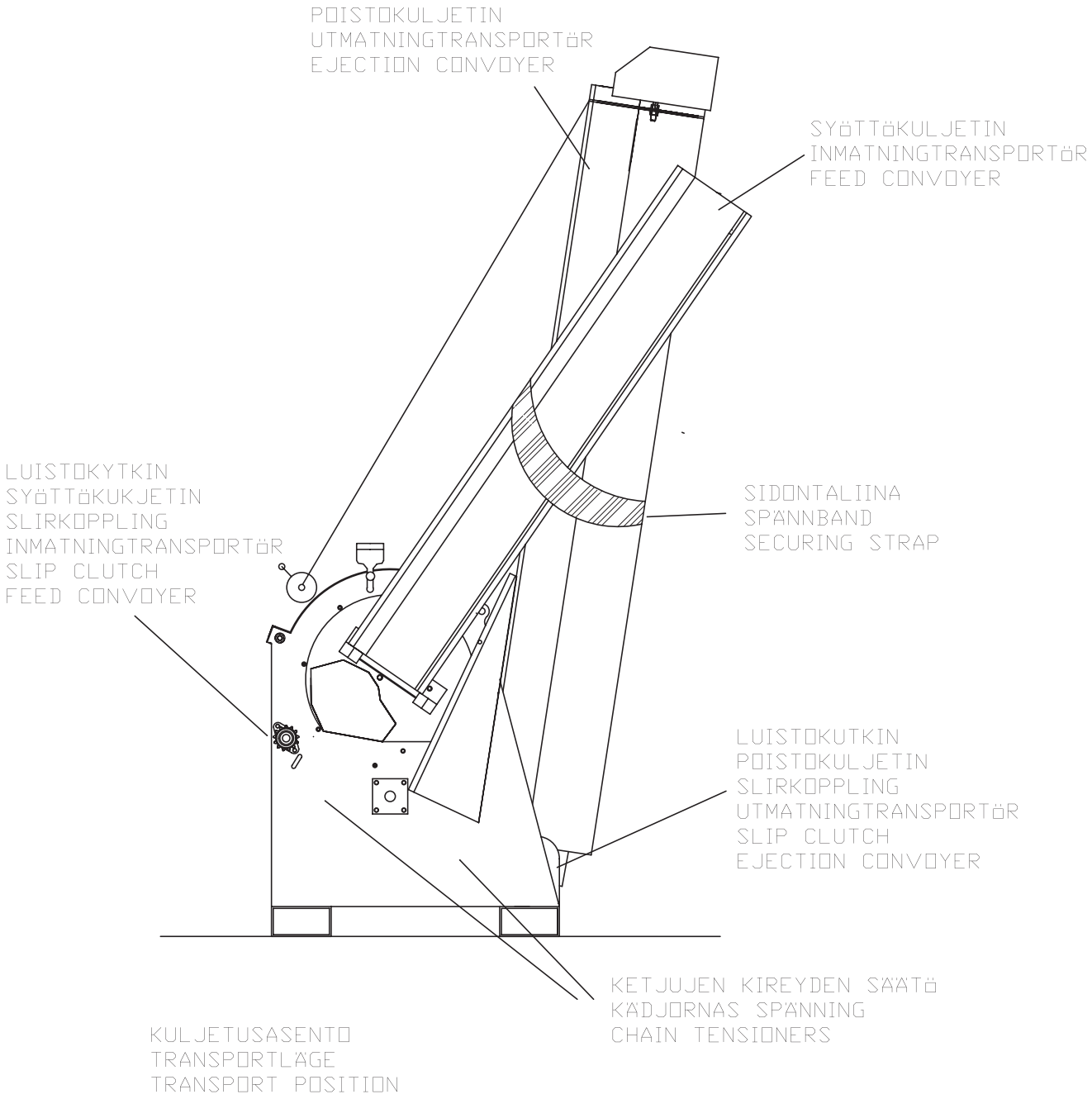
SFS-EN ISO 12100-1, SFS-EN ISO 12100-2, SFS-EN 609-1, SFS-EN ISO 14121-2

_____ _____ _____
(place) (date)

_____
(signature)

_____
(printed name)

KUVA 1
BILD 2
PICTURE 2



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Nimitys: BILKE S					Kok. paino	
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	Tark.	pv.			Tiedosto	
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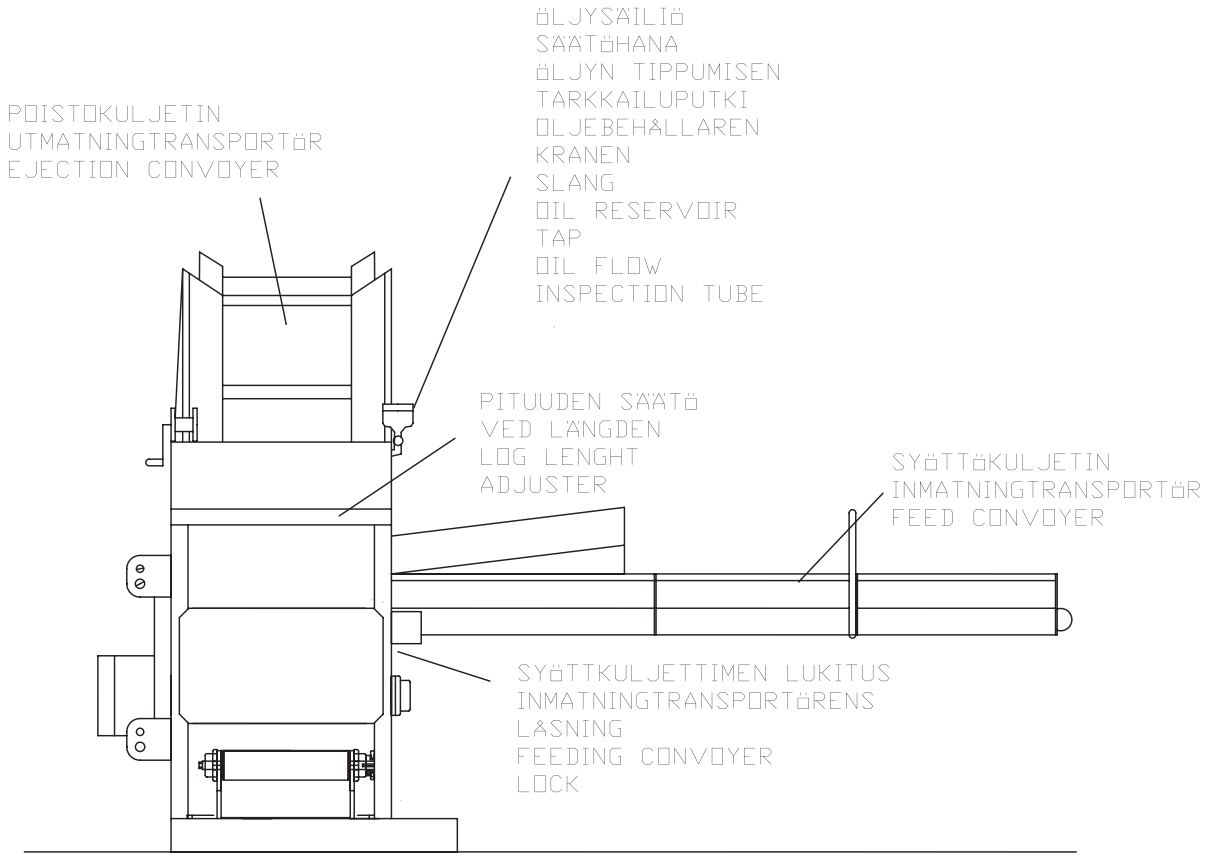
	Liittyy					

KUVA 2
BILD 2
PICTURE 2



TYÖASENTO
ARBETSLÄGE
WORKING POSITION

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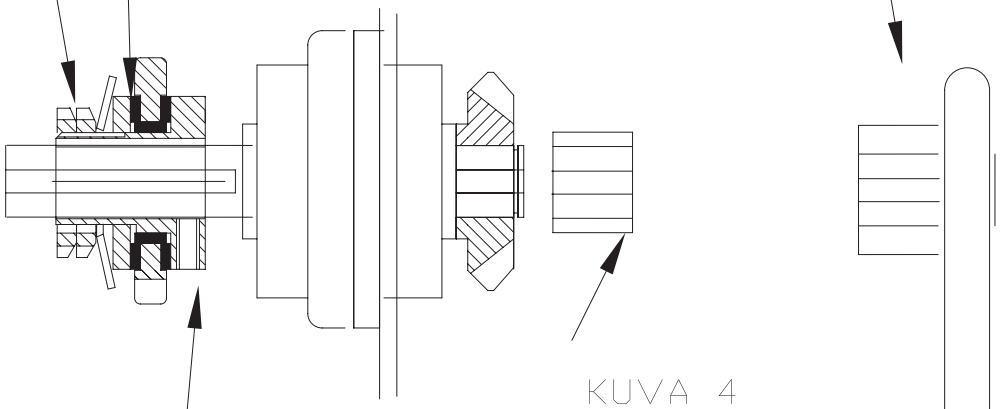
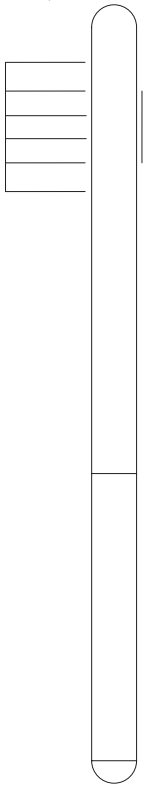
KUVA 4
BILD 4
PICTURE 4

KIRISTYSMUTTERI
SPÄNNINGS MUTTER
ADJUSTING NUT

LÄMMÖNKESTÄVÄ VASELIINI
250 C MERKKI KENDALL SHP
LAAKERIHOLKKI, KITKALEVY JA
KIERRE.

MOMENTTI-
AVAIN.
MOMENTTI
65-70NM
MOMENT NYCKEL
MOMENT 65 -70Nm
TORQUE WRENCH





KUVA 4
BILD 4
PICTURE 4

TYÖKALU
TULEE KONEEN
MUKANA

VERKTYGET
FÖLJER MED
MASKINEN

NUT SUPPLIED
WITH MACHINE

LUISTOKYTKIN
KUVA 1

SLIRKOPPLING
BILD 1
SLIP CLUTCH PICTURE 1

Osa	Kpl	Piirustus	Kuvaus	Materiaali	Mitat	Paino

Nimitys

LUISTOKYTKIN SYÖTTÖKULJETIN
SLIRKOPPLING INMATNINGTRANSPORTÖR

Kok. paino

Suhde

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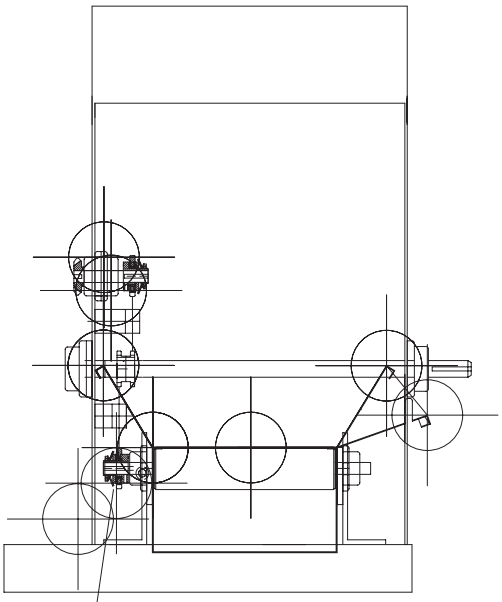
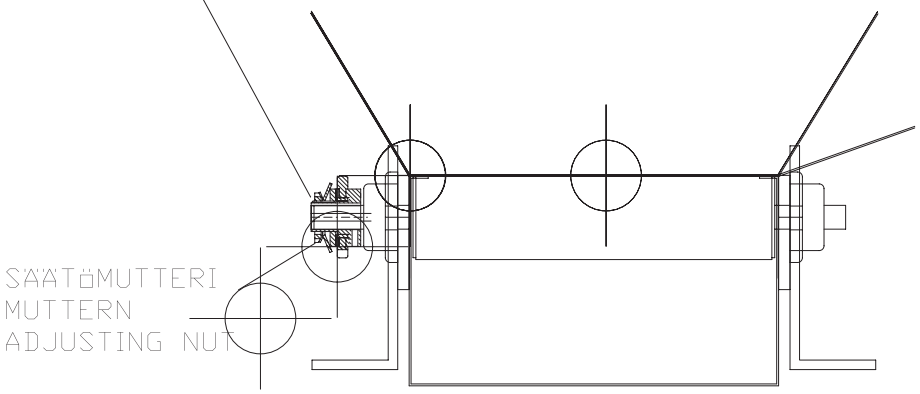
KUVA 6
BILD 6
PICTURE 6

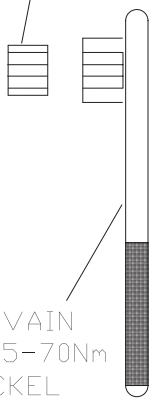


POISTOKULJETTIMEN LUISTOKYTKIN
UTMATNINGTRANSPORTÖR SLIRKOPPLING
EJECTION CONVOYER SLIP CLUTCH

TYÖKALU TULEE KONEEN MUKANA
VERKTYGT FÖLJER MED MASKINEN
NUT SUPPLIED WITH MACHINE



SÄÄTÖMUTTERI
MUTTERN
ADJUSTING NUT



MOMENTTI AVAIN
MOMENTTI 65-70Nm
MOMENT NYCKEL
MOMENT 65-70Nm
TORQUE WRENCH

Osa	Kpl	Piirustus	Kuvaus	Materiaali	Mitat	Paino

Nimitys

POISTOKULJETTIMEN LUISTOKYTKIMEN SÄÄTÖ
SLIRKOPLINGENS JUSTERING

Kok. paino

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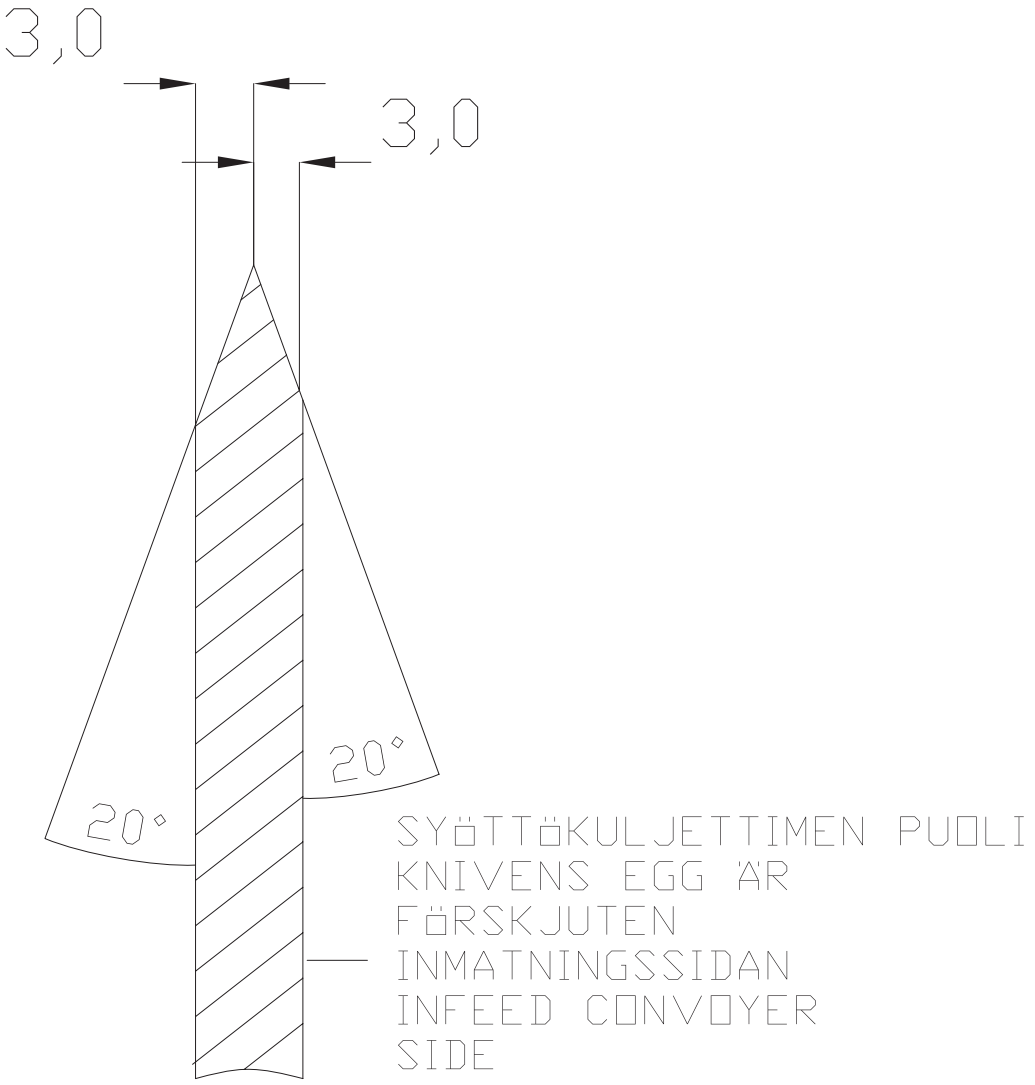
KUVA 7
BILD 7
PICTURE 7



Osa	Kpl	Piirustus	Kuvaus	Materiaali	Mitat	Paino

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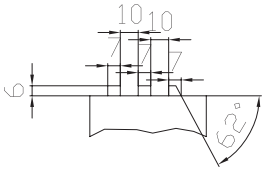
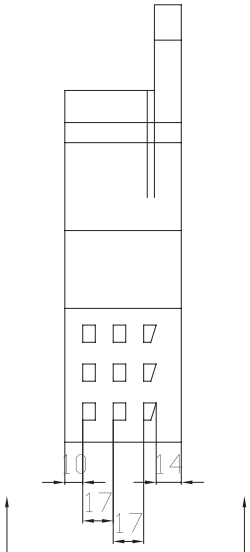
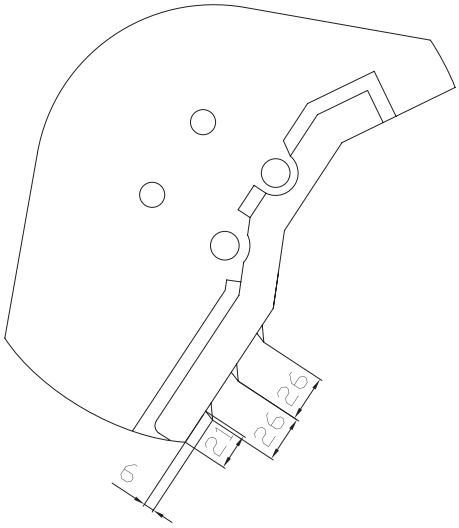
KATSONTA
SUUNTA A-A







Osa	Kpl	Piirustus	Kuvaus	Materiaali	Mitat	Paino

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TUKILEVYN JA NASTUROITTEN HITSAUS

Kok. paino

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