



GRAPPLE proG

20, 25, 25E, 25P, 26, 26E



**OPERATION
SERVICE
SPARE PARTS**

2018 09

(a translation from the original version)

INDEX

1. GENERAL INSTRUCTIONS	2
1.1. ABOUT THE USER MANUAL	2
1.2. CONTACT DETAILS	3
1.2. WARNING AND INSTRUCTION DECALS	3
2. IMPORTANT SAFETY INSTRUCTIONS.....	5
3. INTRODUCTION OF THE MACHINE.....	8
4. INSTALLATION INSTRUCTIONS	9
4.1. INSTALLING THE GRAPPLE	9
4.2. SAFETY GLASSES OF THE BASE MACHINE.....	9
4.3. INSTALLATION OF THE HYDRAULICS.....	10
5. OPERATION INSTRUCTIONS	11
5.1. SAFETY.....	11
6. MAINTENANCE	12
6.1. SAFETY IN MAINTENANCE	12
6.2. GENERAL INSTRUCTIONS.....	12
6.2.1. <i>Spare parts</i>	12
6.2.2. <i>Cleaning</i>	12
6.2.3. <i>Welding</i>	12
6.3. REGULAR SCHEDULED MAINTENANCE	13
6.3.1. <i>After the first 20 hours</i>	13
6.3.2. <i>Daily maintenance (or after every 20 hours)</i>	14
7. HYDRAULIC SYSTEM – FUNCTION AND ADJUSTMENTS	15
7.1. SAFETY INSTRUCTIONS	15
7.2. HYDRAULIC OIL.....	15
7.3. BIODEGRADABLE HYDRAULIC OILS.....	16
8. TROUBLESHOOTING.....	17
8.1. GENERAL	17
8.1.1. <i>Mechanical faults</i>	17
8.1.2. <i>Electric faults</i>	17
8.1.3. <i>Hydraulic faults</i>	17
9. DISPOSING OF THE MACHINE	17
APPENDIX 1: DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY	18
APPENDIX 2: TERMS OF WARRANTY	19
APPENDIX 3: CERTIFICATE OF DELIVERY	22
APPENDIX 4: CUSTOMER FEEDBACK.....	24
APPENDIX 5 TECHNICAL DATA.....	25

DEAR CUSTOMER

Thank you for the confidence you have shown towards KESLA product. We wish you the best of success in your efforts. Please read through this owner's manual carefully, because thorough knowledge of the machine, correct adjustments and careful maintenance will guarantee user safety and reliable operation of the machine. It is important that every part of this manual is understood and that the instructions are followed. In unclear situations, please contact the seller of the machine. You can also give a feedback to Kesla by a questionnaire in the end of this manual or in www.kesla.com.

1. GENERAL INSTRUCTIONS**1.1. ABOUT THE USER MANUAL**

This manual concerns the operation and maintenance of a KESLA grapple. Study the manual carefully before operating the machine. Using the machine requires also some general knowledge and skills in forestry. This user manual is written for persons with prior practical experience in using forestry machines.

In addition to this user manual there is also a spare parts catalogue and specified technical data.

The KESLA grapples are intended to be installed on carriers specially equipped for forest use. Study carefully also the user manuals of the carrier as well as control before operating or servicing the machine.



The warning symbol is used with a very important safety warning. Failure to observe these instructions may result in danger of death or personal injury.



The note symbol reminds of a risk that the product, process or environment may be harmed.

All the descriptions, instructions and technical specifications in this manual are based on the latest information about the machine structure when printing the manual. The product is constantly developed and therefore the manufacturer reserves the right to changes in the product without prior notice.

In case of malfunctions in the machine contact the seller of the machine or a repair shop authorised by the seller.

1.2. CONTACT DETAILS

www.kesla.com

ORDERING OF SPARE PARTS

spare.parts@kesla.com

MAINTENANCE AND WARRANTY ISSUES

after.sales@kesla.com

SPARE PART AND MAINTENANCE SERVICES

tel. +358 40 709 2208

1.2. WARNING AND INSTRUCTION DECALS

Warning and instruction decals have been attached to the grapple to warn for possible risks caused by operation or to give instructions for use. Following them will help avoiding accidents and machine breakage.

DECAL NR 1: MACHINE IDENTIFICATION PLATE

- Weight: Includes the weight of the grapple without any optional equipment or accessories.
- Type: Model name
- Serial No: Individual identification number
- Year: Manufacturing year

Fill the information on the machine identification plate in the picture below.

The image shows a rectangular machine identification plate. At the top left is the KESLA logo. To its right are two checkboxes: FIN-80100 Joensuu and FIN-59800 Kesälahti, with the phone number Tel. +358 (0)207862841 below them. The main body of the plate contains several input fields: 'Type' (empty), 'Year' (201), 'Serial No' (empty), 'Weight' (empty) kg, 'Max. load' (empty) kg, and 'Max. pressure' (empty) MPa. At the bottom left, it says 'MADE IN FINLAND' and at the bottom right, the number '3280431' is printed vertically.

When ordering spare parts or asking for repair instructions, tell the seller or repair personnel the information given in the machine identification plate. This way you can speed up getting help regarding malfunctions and ensure that you get the right spare parts as quickly as possible.



DECAL NR. 2: READ THE USER MANUAL

This label reminds the user to study carefully the user manual before using, installing, servicing or repairing the grapple. If the machine has several operators, the owner / keeper must guide them in using, installing, servicing or repairing as well as make the operators to study the user manual. The owner / keeper must return to an authorised re-seller a filled in delivery certificate and assurance certificate about familiarising himself with the user manual, at the latest 14 days after the delivery of the grapple to the client (see terms of warranty).

Mailing address for the delivery/assurance certificate:
Kesla Oyj, Metsolantie 2, FIN-59800 Kesälahti, Finland.

There is no storage place for the user manual in grapple so the user must store the manual in the cabin .The user manual must always be available to the user.



DECAL NO. 3: DANGER OF CRUSHING

The machine in operation has a risk zone of 25 metres. The operator is responsible for ensuring that no bystanders enter the risk zone.

2.

2. IMPORTANT SAFETY INSTRUCTIONS

DE-PRESSURIZING GRAPPLE:



After stopping the engine there may remain some pressure in hydraulic components of the grapple. This pressure may cause spraying of high-pressure oil. RISK OF SERIOUS INJURY!

BEFORE ANY MAINTENANCE DE-PRESSURIZE THE GRAPPLE



These safety instructions do not cover all possible operating conditions, but are helpful in avoiding dangerous situations and accidents.

In addition to the given instructions, follow the legal safety instructions and occupational safety regulations. Observe also the instructions given in the user manuals of the base machine. The dealer and owner of the machine have to make sure to comply with all the local rules and regulations.



Familiarise yourself with the functions, controls and operating instructions of the grapple before using the machine.

Follow all the precautions and instructions related to grapple use. This way you may avoid accidents when working with the grapple.

Do not operate, service or repair the grapple under the influence of alcohol or drugs.

Using the grapple is allowed only when all the safety equipment and protections are appropriately in place and in good condition.

When operating, servicing or repairing the grapple, wear personal safety equipment such as safety boots and helmet, ear protection and safety goggles. Use well-fitting clothes with no long hanging parts. Loose clothes can cause a danger of entanglement.

Note the danger of slipping when working near the grapple.

Check that no bystander is within **25 m** of the grapple when you start the engine and start operating. When necessary, place warning signs around the logging site.

Pay attention to phone and power lines. Be extremely careful when working close to high voltage power lines. Check safety distances from the local electrical safety regulations. When necessary, contact the telephone and power company.

In case of accident with phone or power lines, consider what to do. When you have to leave the machine, do not touch the machine and the ground at the same time. Exit outside the electrical field jumping both feet together.

Always stop the engine of base machine and take care that no one connects power when servicing the grapple. Make sure that hydraulic pressure is released from all parts of the grapple. Note that the grapple head may fall down if the boom lowers or the base machine moves.

Perform maintenance activities with due consideration and calm.

When changing components, connectors and hoses, use only spare parts with sufficient pressure classification.

The hydraulic pressure measurement and adjustment can only be performed by a service engineer familiar with hydraulics, using great care and consideration.

The engine must be stopped when connecting pressure gauge, adjusting valves, repairing the grapple etc., because service engineer is close to the moving parts of the grapple. While measuring pressure, the persons must be out of reach of the moving parts of the grapple.



Raising the pressure settings out the range specified by manufacturer will cause an overload situation which can break the grapple. **Danger of accident!**

Keep the hydraulic hoses in good condition. Change the broken ones immediately. High-pressure oil spray from a broken hydraulic hose or connector may penetrate under skin and cause serious infection. In case of accident, contact physician immediately.

When finishing work or stopping the engine always lower the grapple head onto the ground or onto some other stable surface. Notice that unwanted lowering of the crane may cause the grapple falling down.

Staying under a hanging grapple is always prohibited without an exception.

When finishing work, switch off the grapple. Switch off the main power switch of the machine (if exists) when leaving the machine.

A blown fuse may be replaced only with a fuse of same size and type.

When operating or maintaining the machine, avoid skin contact with oil or grease. The oil and grease may contain additives which can be harmful when frequently contacted with the skin. Always follow the manufacturers' and authorities' instructions and regulations when handling these substances.



Be careful of hot oil!

Use appropriate protective clothes, protective skin lotions or appropriate gloves when handling oils and greases. Use safety goggles as well.

Do not use lubricants or greases to clean your hands. Possible metal flakes and additives in lubricants may damage your skin.

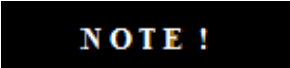
If the oil or grease causes changes to the skin, contact a physician immediately.

Waste oil released in servicing or repair as well as oily hoses are harmful for environment and must be taken to appropriate treatment.

3. INTRODUCTION OF THE MACHINE

The KESLA grapples are designed to be installed on cranes specially equipped for forestry use. Before mounting make sure your grapple is suitable for the base machine size.

The grapple is used for the handling of felled, delimbed and cut-to-length timber as the loading device of a timber loader.

**NOTE !**

Grapple is designed only for mounted hanging free.

**WARNING !**

The heads are intended to process trees, all other use is prohibited.

Never use the grapple for handling stones, scrap, etc., and never use it as a hammer.

Pushing the grapple hard against the ground may damage it.

When handling fragile goods, note that there is a risk that the goods can be damaged.

4. INSTALLATION INSTRUCTIONS

4.1. INSTALLING THE GRAPPLE

Remove the corrosion protection from the hydraulic cylinder. Clean the rotator mounting face.

The strength class of fixing bolts must be at least 8.8 and that of nuts at least 8. Check tightening torque table 6.3.1

After the first 20 working hours please check and tighten.

After installed the grapple, check the stability of the combination according to standard EN12999 both by calculation and experimentation.

Because of the risk of hitting objects the basic machine shall be equipped with windscreen qualifying the local safety regulations!

4.2. SAFETY GLASSES OF THE BASE MACHINE

For forest use, the base machine must be equipped with safety glasses because of the risk of timber hitting the cabin.

In excavators where the cabin turns with the boom, it is normally enough to change the front windscreen and the sunroof. In machines where the boom turns to the side of the cabin, also the side windows and when necessary also the back window must be changed.

In the EU, the minimum requirement is defined in ISO8084 standard. Safety regulations may vary and they must be checked locally.

KESLA recommends using a minimum of 12 mm thick hard-surfaced polycarbonate in the windows of grapple base machine.



When working always remember the **25 m** safety distance from other persons.

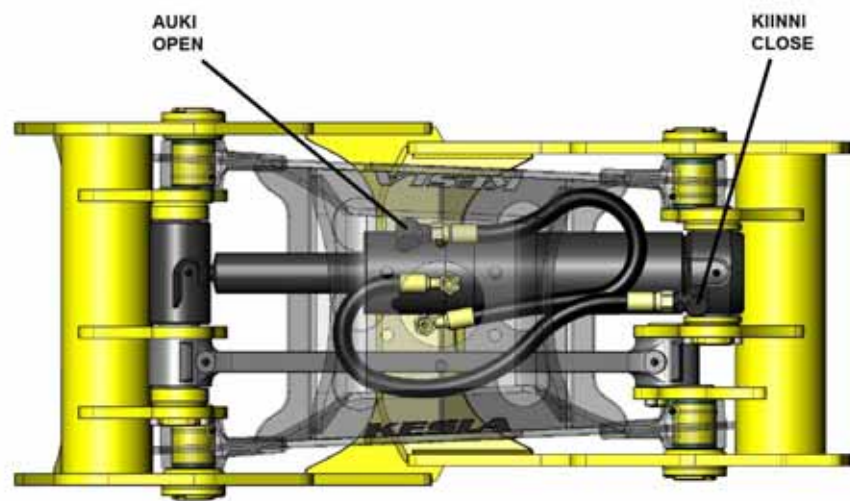
4.3. INSTALLATION OF THE HYDRAULICS

Use hoses of proper diameter and pressure class.

Take care of cleanliness in all hydraulic installations.

Check hydraulic pressure. The pressure must not exceed the value given on the machine plate.

When installing hoses, make sure that the hoses do not rub against each other or against other parts of the grapple's structure. Check this by opening and closing the grapple jaws several times.



Removal of air from cylinders:

Fully open the jaws. Carefully open the hose coupling on the rod side and allow air to escape (Note! Air is always in the upper part of a cylinder), then tighten the hose coupling. Close the grapple jaws, and repeat the procedure for the coupling at the bottom. Repeat this until no further air is released. Air in the cylinder may damage seals.

Adjust pressure to suit the grapple. See the correct model-specific pressure from the technical specifications of the grapple.



Do not exceed specified pressure values. Risk of an accident!

NOTE !

Grapple cylinder must be protected by pressure relief/ anti-cav valve. Use shock valves in both A and B ports of the directional valve of the crane. Choose pressure set of the shock valves 2Mpa higher than max pressure of the grapple.

5. OPERATION INSTRUCTIONS

5.1. SAFETY



Familiarize yourself well with the operation and safety instructions before starting to operate the grapple and follow them during operation.

Use of the grapple to handle persons, live animals, or hazardous substances is strictly forbidden.

Lifting loads above or in the immediate vicinity of people or animals is forbidden.

Ensure the stability of the machine when working on soft ground or slope and lock the parking brake during timber handling.

Before starting the engine, make sure that there is no one inside the danger zone. **DANGER ZONE is 25 m.**

Make sure that you can see the entire working area without obstacles.

Stop the engine when leaving the cabin.

Un-trained persons are not allowed to manoeuvre the machine. As a user you are responsible for the machine not causing harm to others.

6. MAINTENANCE

6.1. SAFETY IN MAINTENANCE



BEFORE ANY MAINTENANCE DE-PRESSURIZE THE GRAPPLE

NOTE !

Note the risk of grapple falling down when the boom lowers or the machine moves.

6.2. GENERAL INSTRUCTIONS

6.2.1. Spare parts

Always state the individual machine identification number (serial no.) given in the machine identification plate when ordering spare parts.

Use only original KESLA spare parts.

6.2.2. Cleaning

Be careful when cleaning the grapple with pressure washer. Seals, bearings and electric cables can be damaged by high-pressure water.

6.2.3. Welding

In case you have to weld the grapple or the base machine, disconnect the cables from the electronic units of the base machine, according to the instructions given by the manufacturer.

Clean the weld area of oil, paint and dirt.

Ground as close to the weld area as possible.

Take care that electrical components, cables and hydraulic hoses are not heated.

Wear appropriate welding mask and protective clothes.

Keep a fire extinguisher available during welding.




6.3. REGULAR SCHEDULED MAINTENANCE

The given maintenance intervals are valid only when the machine works at normal capacity in normal operation conditions. Shorten the maintenance intervals if the machine is used heavily or when working conditions are disadvantageous (very high or low temperature, sand, dust, mud, etc.).

6.3.1. After the first 20 hours

During the first working hours with a new machine loosening of some screws and bolts is normal. Therefore, after the first 20 working hours please check and tighten, if needed, all the bolts and screws of the grapple.

Please see the list below for the correct tightening torque for each screw.

Tightening torque for screws with a metric ISO thread <i>(unless specified separately)</i>			
	Nm		
			
M4	2.8	4.0	4.9
M5	5.7	7.9	9.5
M6	9.7	13.7	16.2
M8	23.5	33.3	39.2
M10	47.1	65.7	79.4
M12	81.4	114.7	137.0
M14	130.0	181.0	216.0
M16	196.0	280.0	333.0
M18	270.0	382.0	461.0
M20	382.0	539.0	647.0
M22	519.0	730.0	873.0
M24	662.0	932.0	1118.0
M30	1324.0	1863.0	2236.0



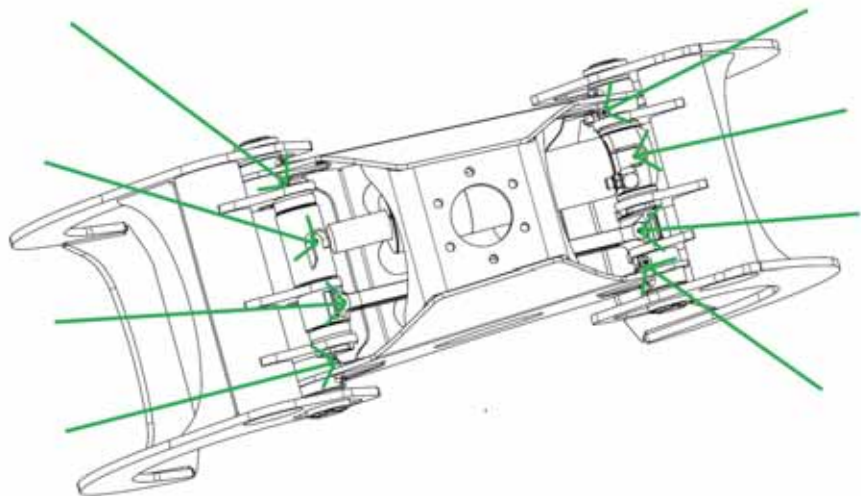
6.3.2. Daily maintenance (or after every 20 hours)

- Grease all grease nipples of the grapple
- Check possible oil leaks, hoses, structures, tightness of screws and nuts as well as fastening of axles and pins.
- Clean the grapple from sand, snow, ice and trash.

The given lubrication interval is valid only in normal working conditions. Shorten the lubrication interval if the machine is used heavily or working in difficult conditions.

Recommended lubricants:

<i>BP</i>	<i>LS-EP2</i>
<i>AGIP</i>	<i>GRMU EP2</i>
<i>ESSO</i>	<i>Beacon EP 2</i>
<i>MOBIL</i>	<i>Mobilux EP2</i>
<i>SHELL</i>	<i>Calithia EP 2</i>



7. HYDRAULIC SYSTEM – FUNCTION AND ADJUSTMENTS

7.1. SAFETY INSTRUCTIONS

Hydraulic pressure measurement and adjustment must only be performed by a person familiar with hydraulics.



When working at the grapple be careful of the lowering crane. Keep unauthorised persons away from the controls. **RISK OF AN ACCIDENT!**

Be careful when measuring pressure because of the high pressure in the hydraulic system. Ruptured hoses, leakage and opening of connectors can cause serious injuries because of oil spraying out.

Always before any maintenance engine must be stopped, power switched off and hydraulic system pressure-free

Remember cleanliness also when handling pressure gauge and measuring connectors.

7.2. HYDRAULIC OIL

A mineral-based hydraulic oil is suitable for grapple use.

Check the pertinent ISO classification (ISO32 or ISO46) according to the conditions and instructions given by manufacturer of the base machine.

Current bio-degradable oils are unsuitable for use in Kesla grapples.

Continuous high temperature of the hydraulic oil prematurely ages the seals of the grapple.

Check the oil level daily!

The hydraulic oil should qualify cleanliness class 18/16/13 ISO 4406 or cleaner.

Oil temperature must be between -20 ... +70 °C (-4 ... +158 °F)

Oil viscosity must be 20 - 50 cSt during normal operation (15 – 2000 cSt at start-up)

The hydraulic oil must not contain water.

Change the hydraulic oil according to the instructions given by the manufacturer of the base machine.

Cleanliness is of utmost importance in storing and handling hydraulic oil.

Remember cleanliness also when handling spare parts and hoses.

Fill hydraulic oil to the system always through a filter.

7.3. BIODEGRADABLE HYDRAULIC OILS

* Instead of normal hydraulic oils, oils that dissolve quicker in the environment have been developed to minimise the damage in case of oil leakage. Many forestry companies require the use of these oils in their machines.

* Normal oils cannot directly be replaced with any biodegradable oil without changing the hydraulic components (e.g. hoses).

* Biodegradable oils are divided into three main classes:

1. Synthetic hydraulic oils based on esters (HEE)
2. Synthetic hydraulic oils based on polyglycols (HEPG)
3. Hydraulic oils based on vegetable oils (HETG) e.g. rapeseed oils

***NOTE!** The use of HETG oils is prohibited in Kesla products!

* **NOTE!** Before using a biodegradable hydraulic oil, consult your oil dealer when choosing a suitable oil type and clarify its suitability for the hydraulic components.

8. TROUBLESHOOTING

8.1. GENERAL

When troubleshooting first find out if the fault is mechanical, electrical or hydraulic.

8.1.1. Mechanical faults

Check that the function is not jammed.

8.1.2. Electric faults

The most common electric faults are

- bad contact in connectors (loose connector, wire became loose from connector, moisture)
- broken wire (no contact or shortcut)

8.1.3. Hydraulic faults

Troubles in hydraulic system are often caused by foreign particles in valve spool or restrictor, or a broken seal. Be careful to avoid getting impurity to the oil when changing hoses and filling oil to the system.

9. DISPOSING OF THE MACHINE

When the grapple ends its service life, it shall be disposed appropriately. Follow these instructions to avoid unnecessary damage to the environment.

- A grapple to be scrapped should be delivered to a scrap yard where scrapping takes place under control.

If you cannot deliver the grapple to be scrapped, act as follows:

- Drain the oil from the hydraulic system and deliver waste oil to a monitored waste oil collection point.
 - Disconnect all hydraulic hoses and deliver them to a suitable collection point.
 - Deliver the metallic parts to metal waste collection.
-

APPENDIX 1: DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY

Manufacturer: Kesla Oyj
Kuurnankatu 24, FI-80100 JOENSUU, FINLAND

Name and address of the person authorised to compile the relevant technical documentation:

Riku Väyrynen
Kuurnankatu 24, FI-80100 JOENSUU, FINLAND

Herewith declares that for the Partly Completed Machinery

Grapple head KESLA proG 20, 25, 25P, 26, 28, 30, 35, 40, 46, 50, 50L, 25E, 26E, 30E, 40E, 40E3, 50E, 50E6

Serial number: _____

- The following essential requirements of the Machinery Directive (2006/42/EC) are applied and fulfilled: 1.1.1, 1.1.2, 1.3.2, 1.3.4, 1.3.6, 1.3.7, 1.3.8, 1.4.1, 1.5.3, 1.5.4, 1.5.11, 1.6.1, 1.6.2, 1.7.1, 1.7.1.1, 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2, 1.7.4.3
- The relevant technical documentation is compiled in accordance with part B of Annex VII and that this documentation or parts hereof will be transmitted by post or electronically in response to a reasoned request by the national authorities
- And that this partly completed machinery is in conformity with the provisions of the following other EC-Directives

And furthermore, declares that

- This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC, where appropriate

- the following (parts/clauses of) European harmonised standards have been used

SFS-EN ISO 12100

- the following (parts/clauses of) other technical standards and specifications have been used

ISO/TR 14121-2

Place, date: Joensuu 06.09.2018

Signature: 
managing director, Simo Saastamoinen

(a translation from the original version)

Kesla Oyj	Kotipaikka:	Joensuu	Y-tunnus	0168715-8
Kesälahden tehdas	Metsolantie 2	59800 KESÄLAHTI	puh. +358 207 862 841	fax. +358 13 6100 322
Joensuun tehdas	Kuurnankatu 24	80100 JOENSUU	puh. +358 207 862 841	fax. +358 13 6100 523

APPENDIX 2: TERMS OF WARRANTY

Kesla Oyj guarantees that the products they sell are free of defects and provides the following warranty for any problems that might appear in workmanship or materials:

1. *The warranty period is valid starting from the day the product is installed and covers only new products sold to their first owner.*
 - *For truck- and stationary installed loaders the warranty period is 2000 working hours or 12 months. The main components of the timber loader frame structure such as the boom, stabilizers and slew mechanism are warranted for 24 months from the date of delivery from factory.*
 - *For forest machine cranes and harvester heads the warranty period is 2000 working hours or 12 months.*
 - *For chippers the warranty period is 1000 working hours or 12 months.*
 - *For tractor-mounted timber trailers and loaders the warranty period is 12 months from the date of delivery to the customer. However, the warranty is valid max. 18 months from the date of delivery from the Kesla factory.*
 - *For spare parts the warranty period is 6 months from the date of purchase.*
 - *Kesla shall supply spare parts, produced by Kesla, for a period of ten (10) years, after the manufacturing of the Product has been stopped.*
 - *Warranty will be void when either working hours or calendar time of warranty period is filled.*
 2. *Repair work under warranty is done during normal business hours only by Kesla Oyj factory authorized repair workshops or by Kesla Oyj authorized service repairman working according to their standard working schedule.*
 3. *Kesla Oyj reserves the right to approve and authorize any part or work claimed under warranty.*
 4. *The warranty stipulates that crane installation registration records to be properly filled out and returned to Kesla Oyj within 30 days of installation. The registration record contains the assurance that the new owner/user has been familiarized with the instruction manual. In order for the warranty to be valid the bill of delivery for loaders/trailers and the initial registration documents for harvester heads must be returned to Kesla Oyj. Furthermore the warranty requires first service to be carried out on cranes within 30 days of initial active use.*
 5. *Reimbursement applications for repair work must be filled out by the buyer or the authorized service repair workshop and returned to Kesla Oyj within 30 days from the date of damage. Damaged parts should be marked with both the customer's and machinery's information and may be requested to be returned to Kesla Oyj for inspection. Kesla Oyj will bear the cost of normal shipping charges for the returned parts if the matter has been agreed on in advance with Keslas warranty handling personnel. The warranty period for the exchanged part is valid to the end of the original warranty of the machine.*
 6. *In case the warranty demand concerns a faulty part that has been taken apart from a Kesla product, it can be replaced with a similar functioning part free of charge by Kesla Oyj spare parts warehouse, at an authorized service workshop or by Kesla Oyj authorized service repairmen. The warranty covers defects arising in raw material, structure or manufacturing. The defected part will be replaced with a new or reconditioned part from Kesla Oyj.*
-

7. *The warranty does not cover parts which normally wear out and need to be regularly replaced such as filters, oil, hoses, gaskets, belts, skid bearings and glide pads or any similar.*
 8. *The warranty does not cover faults resulting from:*
 - *Non-compliance with proper use and/or safety issues as mentioned in the product manual*
 - *Improper or non-sufficient installment or service*
 - *Normal wear and tear*
 - *Accidents*
 - *Overloading*
 - *Impurities in oil or in hydraulic system*
 9. *The customer bears financial responsibility for costs arising from fulfilling warranty requirements such as travel and accommodation costs for repair personnel, fees for transporting equipment or components, overtime or other similar costs.*
 10. *If machinery breaks down, Kesla Oyj bears no responsibility for damages caused by machinery to property or persons. Furthermore, Kesla Oyj bears no responsibility for financial loss occurring in down time (for example, losses arising from wages or transportation fees).*
 11. *Attachments or components supplied to Kesla Oyj by sub-contractors are guaranteed only according to the warranty terms given by the supplier.*
 12. *The warranty will be considered either partially or entirely invalidated if repair or maintenance carried out by the owner/user are done improperly, if unsuitable, non-compatible or foreign parts are installed, if modifications or changes to the product or hydraulic equipment are made without the a written permission of Kesla Oyj or if hydraulic system is adjusted exceeding allowed tolerances or reference values.*
 13. *In addition to the above mentioned terms there may be more detailed product-specific warranty terms which are written into the user manual of each product.*
-

LIABILITY FOR DAMAGE

Kesla Oyj is not responsible for damage caused by the machine if the use and safety instructions in the user manual have not been followed. The machine is not allowed to be used before you have thoroughly familiarised yourself with the user manual.

The responsibility of Kesla Oyj for damage is valid when the attached combined delivery certificate and owner/keeper assurance for familiarising yourself with the user manual is returned to the factory within 14 days of delivery date.

KESLA OYJ
FIN-59800 KESÄLAHTI

CERTIFICATE OF WARRANTY

____ / ____ 20____

SERIAL NUMBER _____

SELLER:

KESLA OYJ
FIN-59800 KESÄLAHTI

APPENDIX 3: CERTIFICATE OF DELIVERY

<i>KESLA OYJ</i>				<i>Stays with the seller</i>	
<i>FIN-59800 KESÄLAHTI</i>					
<i>Date (dd/mm/yy)</i>		/	/	<i>20</i>	
<i>Product</i>				<i>Owner/keeper</i>	
<i>Serial no.</i>				<i>Address</i>	
<i>Accessories</i>					
				<i>ZIP code</i>	
				<i>Domicile</i>	
				<i>Telephone</i>	
				<i>Seller</i>	

CERTIFICATE OF DELIVERY AND OWNER/KEEPER ASSURANCE FOR FAMILIARIZING HIMSELF WITH THE USER MANUAL

KESLA OYJ		<i>To be returned to the manufacturer by mail or fax</i>	
Metsolantie 2			
FIN-59800 KESÄLAHTI			
fax: +358 13 6100 322			
Date (dd/mm/yy)		/	/ 20
<i>Product</i>		<i>Owner/keeper</i>	
<i>Serial no.</i>		<i>Address</i>	
<i>Accessories</i>		<i>ZIP code</i>	
		<i>Domicile</i>	
		<i>Telephone</i>	
		<i>Seller</i>	

ASSURANCE:

I have familiarized myself with the user manual and operation and safety instructions

Signature _____

Name clarification _____

APPENDIX 4: CUSTOMER FEEDBACK

Please send us your feedback about the KESLA product

or

our customer service with the form below, to enable us to improve our activities.

Client's name :

Street address :

Postal code / region :

Telephone :

E-mail :

Product :

Serial number :

Seller :

Purchase day :

	Excellent	Good	Satisfactory	Poor
Quality of our activities :	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Quality of our products :	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Competitiveness of our product prices :	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Customer service / doing business with us :	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Doing business with the reseller :	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other feedback :

I would like to be contacted :

Yes	No
<input type="text"/>	<input type="text"/>

You can send the feedback by mail to the address:

Kesla Oyj / Customer feedback

Kuurnankatu 24

80100 Joensuu

or

FAX : +35813 6100523

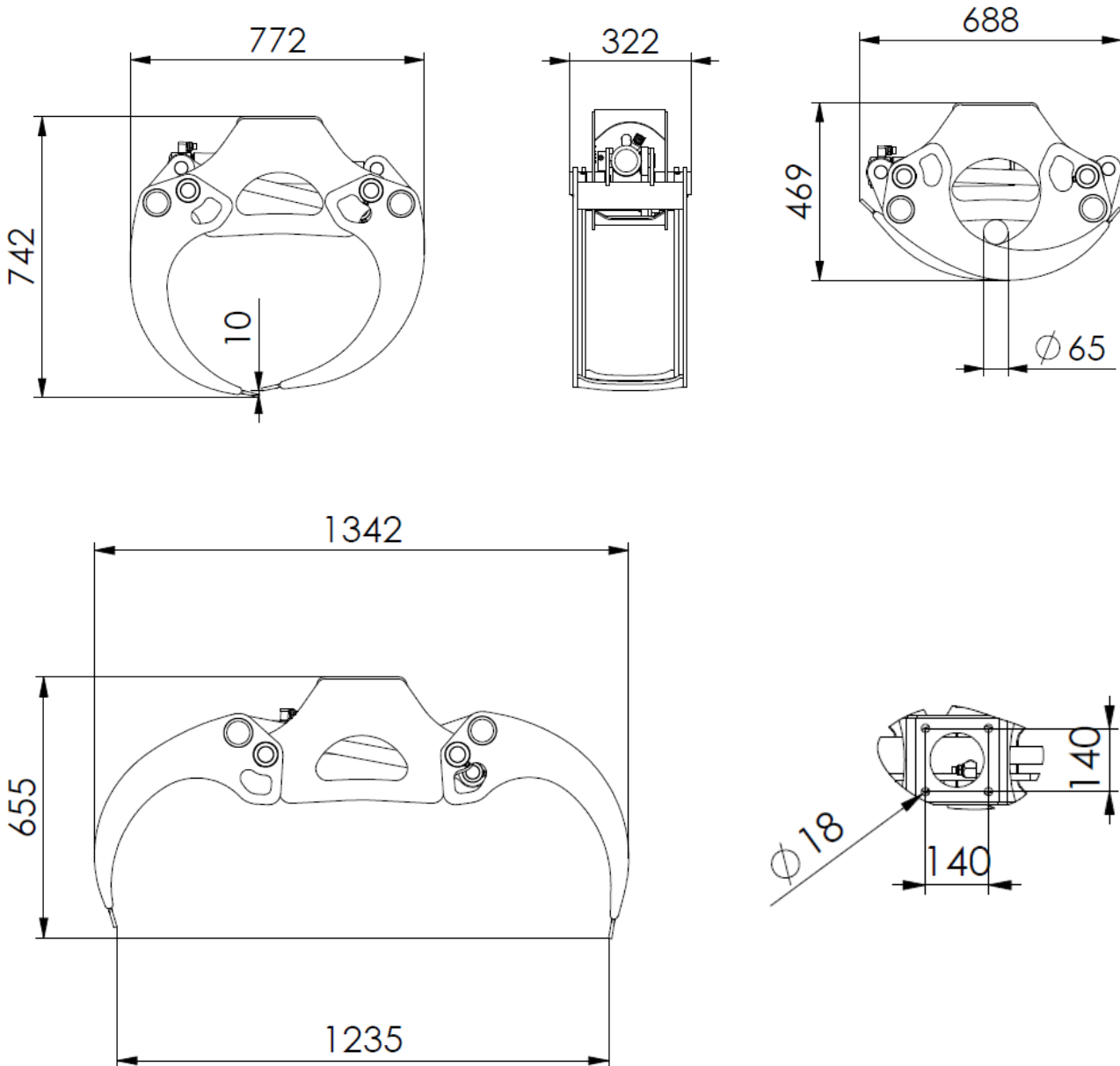
or

append it to an e-mail and send it to the address : sales@kesla.com

**You can provide feedback also with the contacting form available on our website www.kesla.fi
or submit the form to your nearest reseller.**

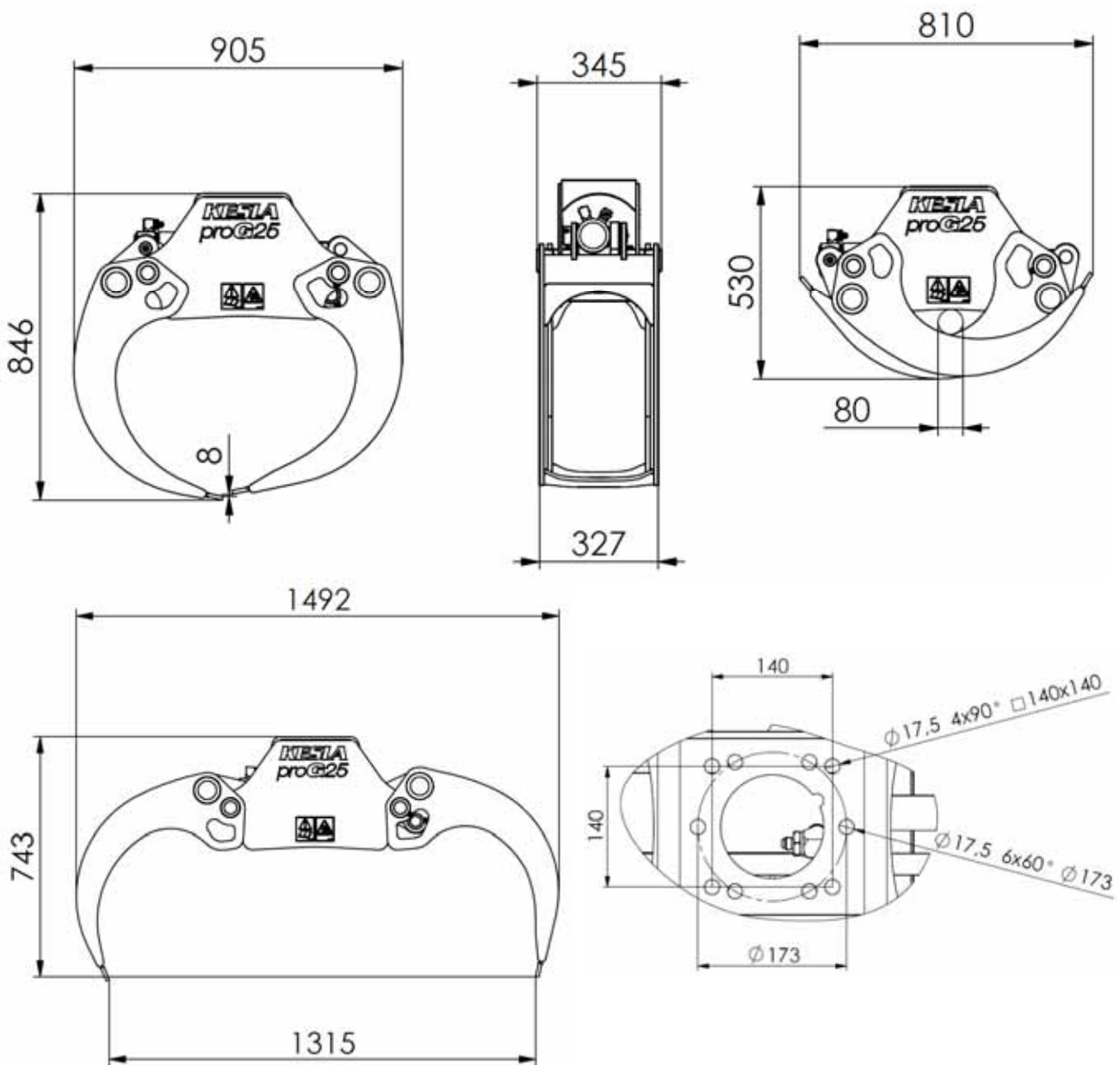
TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG20

<i>Ala kärjet vastakkain / Area:</i>	0,18	m ²
<i>Käyttöpaine / Operating pressure:</i>	17,5	Mpa
<i>Puristusvoima / Jaw force:</i>	7	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,6	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,0	s
<i>Max kuorma / Max load</i>	1500	kg
<i>Paino / Weight</i>	70	kg



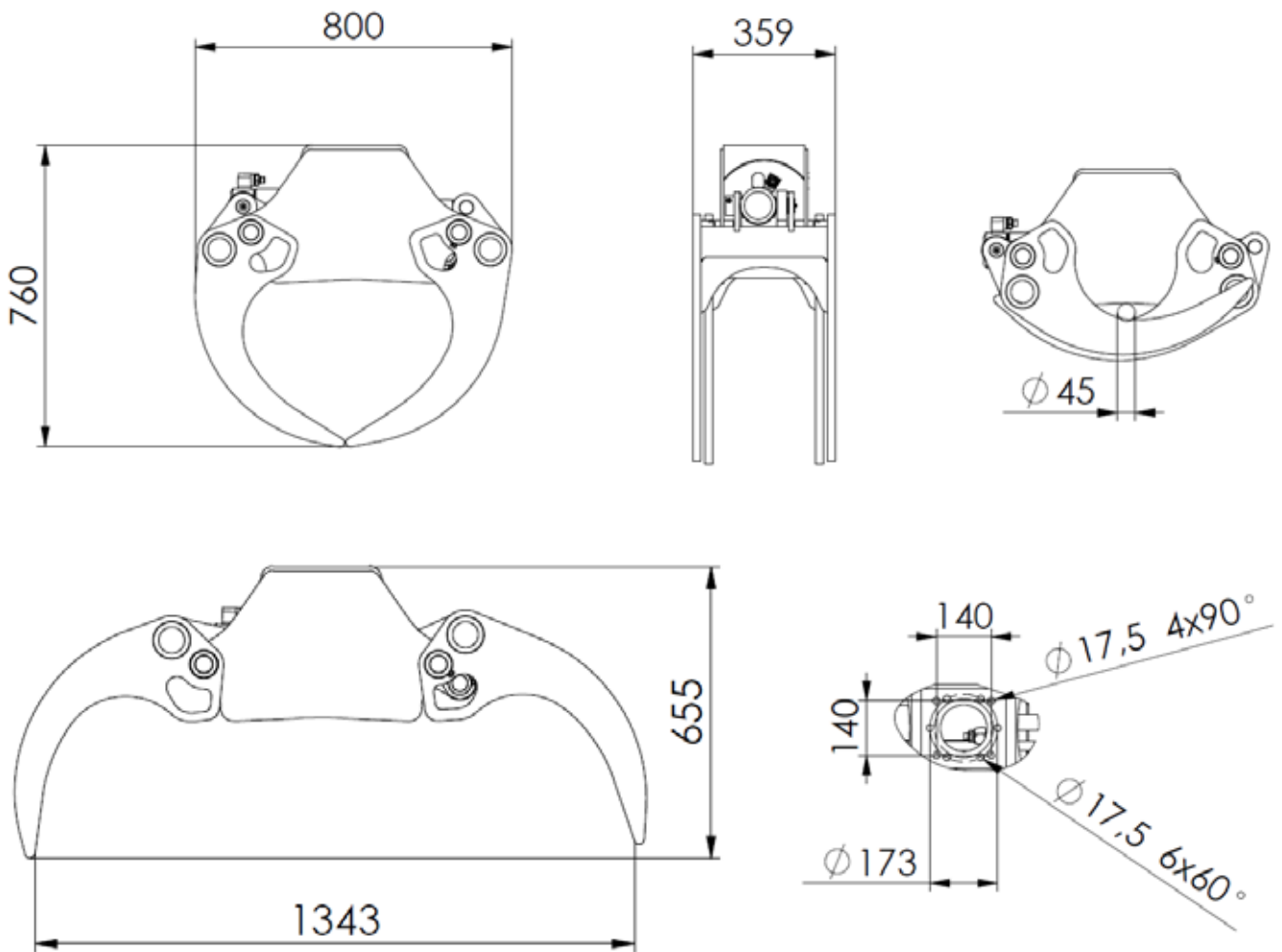
TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG25

<i>Ala kärjet vastakkain / Area:</i>	0,24	m ²
<i>Käyttöpaine / Operating pressure:</i>	19	Mpa
<i>Puristusvoima / Jaw force:</i>	10	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,9	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,3	s
<i>Max kuorma / Max load</i>	2000	kg
<i>Paino / Weight</i>	110	kg



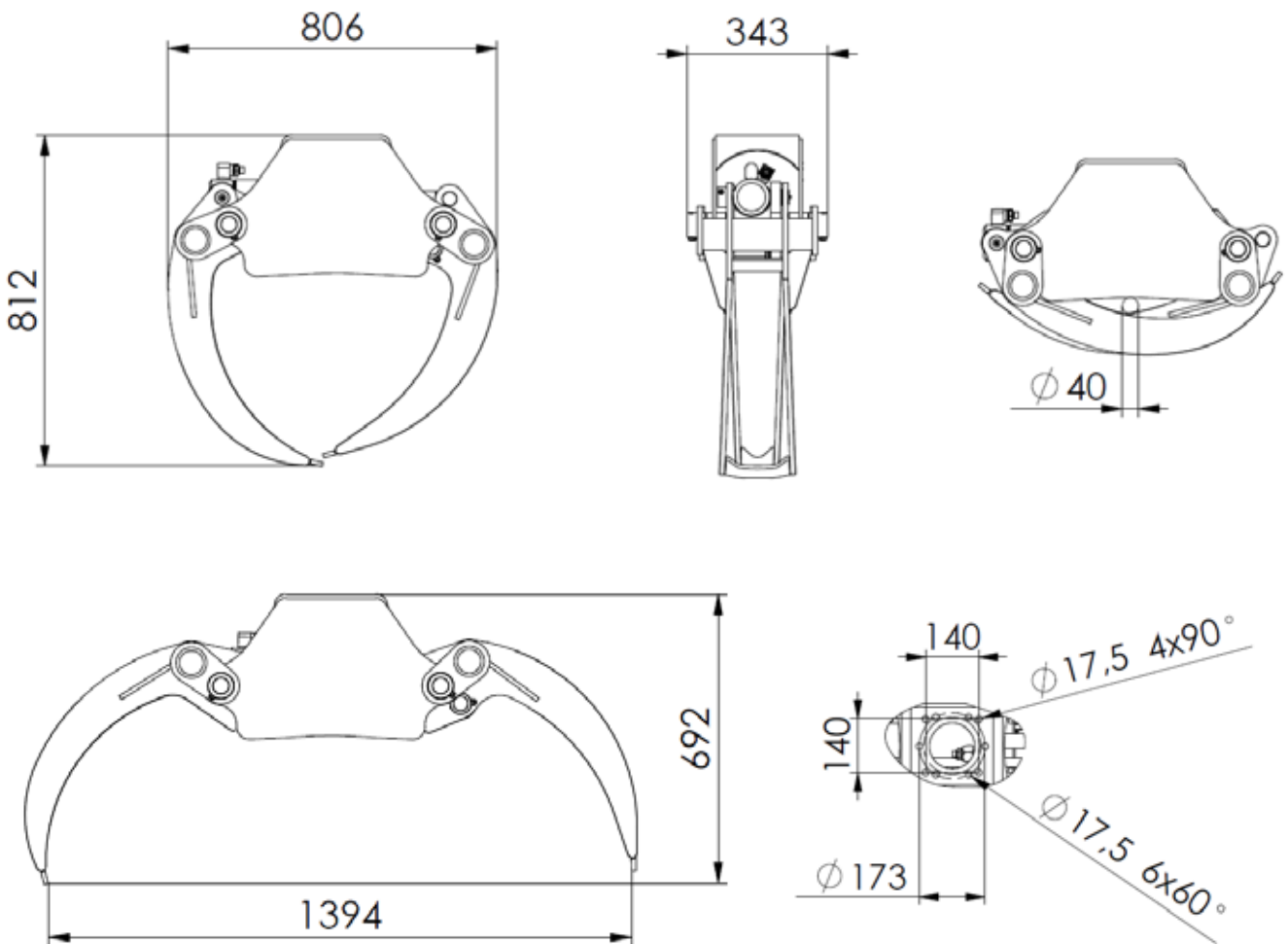
TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG25E

<i>Ala kärjet vastakkain / Area:</i>	0,15	m ²
<i>Käyttöpaine / Operating pressure:</i>	19	Mpa
<i>Puristusvoima / Jaw force:</i>	11	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,9	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,3	s
<i>Max kuorma / Max load</i>	2000	kg
<i>Paino / Weight</i>	120	kg



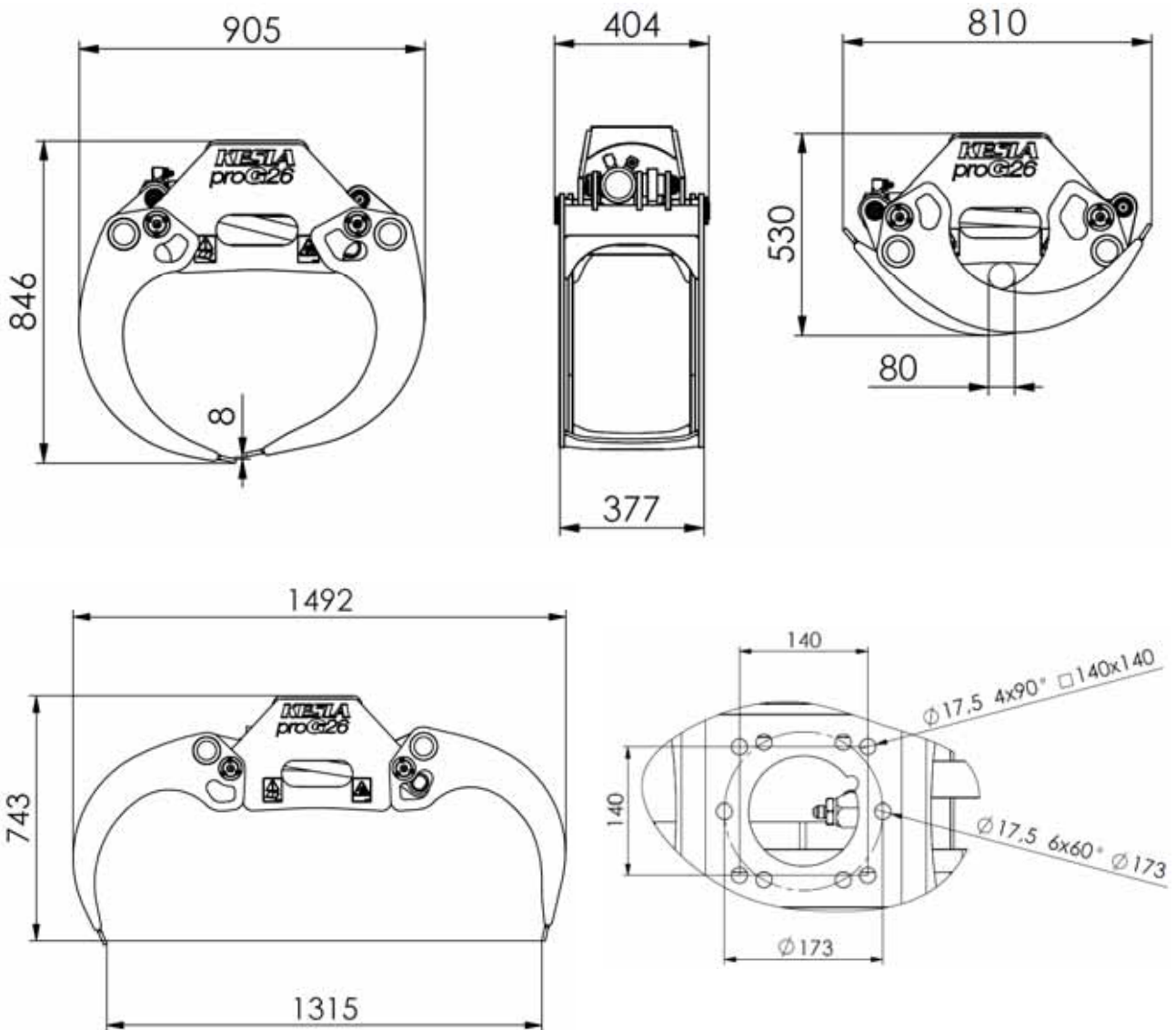
TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG25P

<i>Ala kärjet vastakkain / Area:</i>	0,20	m ²
<i>Käyttöpaine / Operating pressure:</i>	19	Mpa
<i>Puristusvoima / Jaw force:</i>	11	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,9	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,3	s
<i>Max kuorma / Max load</i>	2000	kg
<i>Paino / Weight</i>	110	kg



TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG26

<i>Ala kärjet vastakkain / Area:</i>	0,24	m ²
<i>Käyttöpaine / Operating pressure:</i>	21	Mpa
<i>Puristusvoima / Jaw force:</i>	10	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,9	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,3	s
<i>Max kuorma / Max load</i>	2000	kg
<i>Paino / Weight</i>	130	kg



TEKNISET TIEDOT / TECHNICAL SPECIFICATIONS KESLA proG26E

<i>Ala kärjet vastakkain / Area:</i>	0,15	m ²
<i>Käyttöpaine / Operating pressure:</i>	21	Mpa
<i>Puristusvoima / Jaw force:</i>	11	kN
<i>Aukeamisnopeus / Opening time (50l/min)</i>	0,9	s
<i>Sulkeutumisnopeus / Closing time (50l/min)</i>	1,3	s
<i>Max kuorma / Max load</i>	2000	kg
<i>Paino / Weight</i>	140	kg

