

Komaxi KMX energy wood grapple

Instructions for
use



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2. General information on the Komaxi grapple

Congratulations on your purchase of a new Komaxi grapple. Take good care of this user manual and familiarise yourself with its content. You have chosen a good-quality product, which will have a long service life if used and serviced correctly.

The Komaxi energy wood grapples are optional equipment intended for the collecting of energy wood and standing small trees, and the grapple's operation method is of a fixed-cutter type, based on so-called guillotine cutting. The optional equipment can be installed on an excavator, using a quick hitch adapter, or on a timber loader connected to a tractor or an equivalent device with a link adapter.

The figure following the model marking indicates the energy wood grapple's maximum permitted technical cutting capacity in millimeters. In practice, the grapple's cutting capacity can be smaller, depending on, for example, the shape of the wood to be cut, the cutting position, or the hydraulic pressure and output.

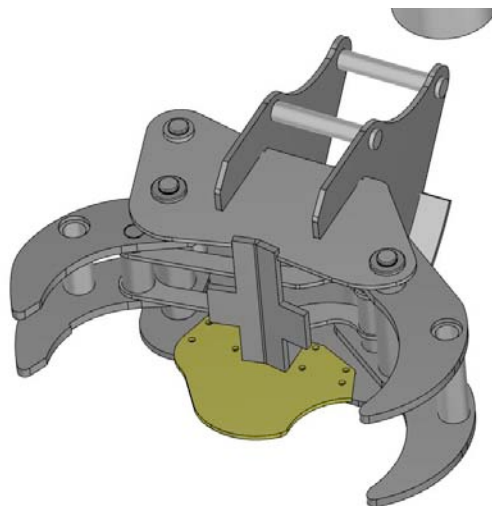


Figure 1. The pictured Komaxi basic model is the four-pawed Kmx.

3. Warranty

The Komaxi grapple has a one-year warranty from the date of purchase. The warranty does not cover faults or damage caused by normal wear and tear or use contrary to the instructions for use. The warranty also does not cover damages caused to external devices.

4. Basic functions of the KMX

4.1. Mounting of the grapple

The grapple is attached, using a method suited with the mounting device. The adapter types used in the Kmx:s models are the commercially available types, such as S series adapters. The grapple is delivered with an adapter, if needed.

4.2. Felling of a tree

The operation of the Kmx is based on a work method where the mounting device is used for placing the fixed blade of the grapple against the trunk of the tree to be cut down (refer to Figures 3 and 4 on page 6). With the help of the hydraulic pressure transmitted from the mounting device, the grapple mechanics use the moving paws to press against the blade to cut the tree. The mechanics then press the cut tree against the grapple's chest section, keeping it standing vertical to ensure a safe felling or relocation.

5. Attaching the Komaxi KMX to the working device

The grapple may only be attached to a working device (mounting device), such as an excavator or a tractor loader, intended for the relevant machine, as listed here:

| Model | | Mounting device | Mounting method |
|--------|---------|---------------------|-----------------|
| Komaxi | KMX210 | Excavator 3-8ton. | Bucket adapter |
| Komaxi | KMX270 | Excavator 6-14ton. | Bucket adapter |
| Komaxi | KMX350 | Excavator 13-25ton. | Bucket adapter |
| Komaxi | KMX210T | Tractor / Crane | Rotator adapter |
| Komaxi | KMX270T | Tractor / Crane | Rotator adapter |

The mounting adapters must be of the correct type and in the operational condition specified by the manufacturer. In the link adapters, the correct dowel sizes must be checked from the rotator manufacturer's instructions. The condition of the electrical wiring needs to be inspected daily. Electrical connections must always be made with a protective fuse (max. 10 A).

6. Main parts of the Komaxi

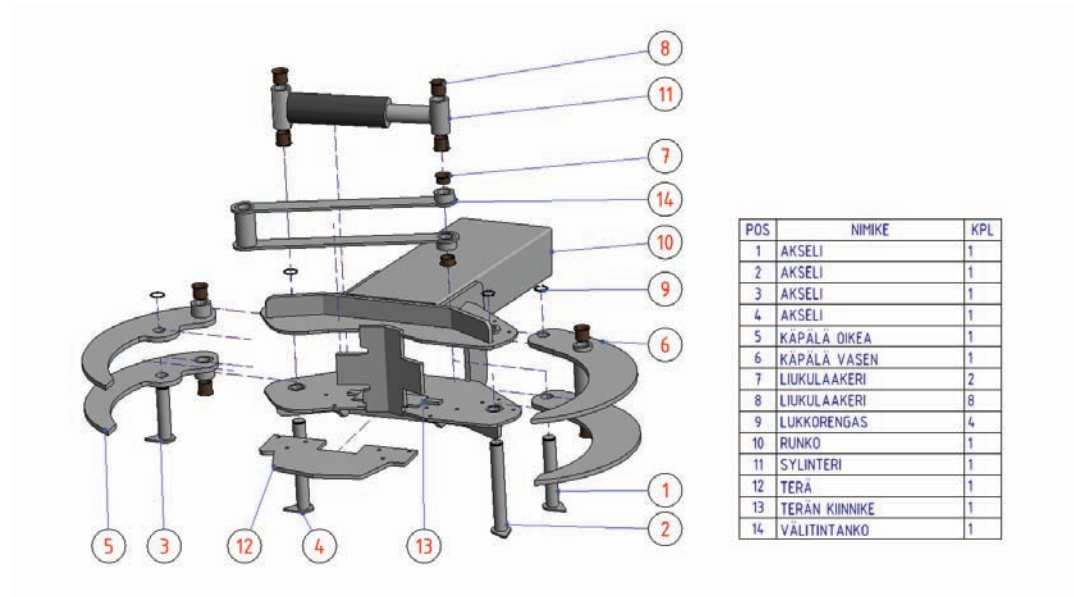


Figure 2. Main parts of the Komaxi model KMX

7. Use of the KMX

The correct operation of the grapple is essential in order to ensure occupational safety and the durability of the grapple. Also, the cutting capacity is at it best when using the correct cutting positions (e.g., the angle of the blade in relation to the tree to be cut) and the resulting cutting surface will be clean. The KMX is designed to operate with a working pressure of 220–250 bar, and the fluent operation of the grapple demands an oil flow of 50–120 litres/min, depending on model. Also check that there is no counter pressure in the oil return line. **The maximum working pressure is 250 bar!**

7.1. Tree felling:

1. Using the mounting device, place the grapple to the base of the tree, such that the tree is located in the left paw pocket against the adapter plate. The greatest cutting force is located in this spot, and the double paws will hold the tree vertical during the relocation.

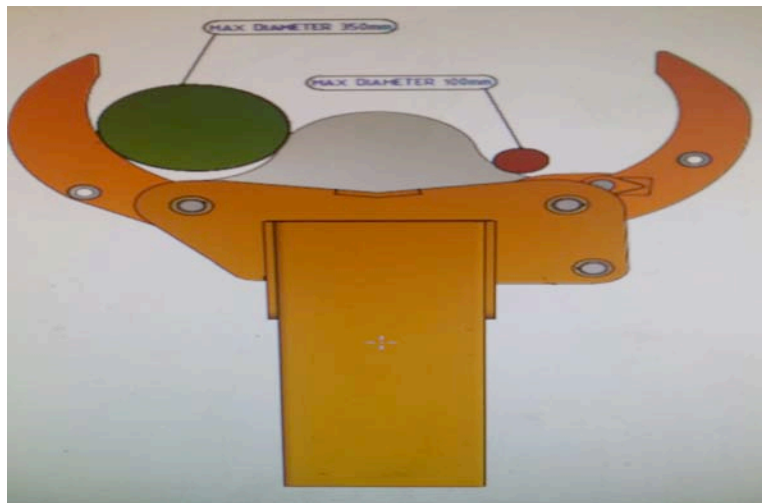


Figure 3. Place the tree to be cut in the left paw pocket.

2. Place the grapple perpendicular to the tree. If the grapple is placed diagonally up or down in relation to the tree, the slanted position will cause the blade to be under a great stress. When the paws are pressed shut, they also force the grapple to straighten against the tree and this might damage the cutting blade.



Figure 4. On the left, an upward slanting cutting position, and on the right, a downward slanting position. Both positions will place the blade under stress and can lead to the blade becoming damaged. The figure in the middle shows the correct position; the frame parallel with the tree.

3. Press the grapple paws shut and only stop pressing when the cut tree is tightly against the grapple's chest section. Do not lift or tilt the grapple before the grapple is firmly attached and the tree has been cut. The blade is not intended to be used as a handspike, as it can become damaged if it is used for bending a tree that has not yet been cut.
4. When the tree has been cut, lift the grapple slightly, and, in Excavator models, use the bucket tilt, and fell the tree and lift in the desired location.
5. The grapple's best cutting capacity is on the left side, see Figure 3. The cutting capacity is weaker on the right side, and the largest permitted cutting diameter there is **10 cm**.

8. Technical specification

KMX210 / KMX210T

Opening 680mm
Weight, approx. 190kg
Cylinder thrust 18 t
Max. oil pressure 250 bar
Oil flow 50-100 litres
Max. permitted load 150kg
Max. cutting 200mm

KMX270 / KMX270T

Opening 900 mm
Weight, approx. 330 kg
Cylinder thrust 22 t
Max. oil pressure 250 bar
Oil flow 50–120 litres
Max. permitted load 200 kg
Max. cutting 270 mm

KMX350

Opening 1050 mm
Weight, approx. 550 kg
Cylinder thrust 22 t
Max. oil pressure 250 bar
Oil flow 50–120 litres
Max. permitted load 250 kg
Max. cutting 350 mm

9. Maintenance

9.1. *To be inspected daily*

- tightness of screws, lock rings
- condition and tightness of hydraulic hoses
- operational clearances (between the blade and the frame and between the paws)
- condition of the blade
- potential electrical wiring
- attachment to the mounting device

9.2. *Every 25 hours*

- greasing of all grease points, using a good-quality vaseline (NLGI.2 classified grease)
- inspection of the condition of bearings
- Tightening of hydraulic connectors
- Tightening of the blade
- General condition of the grapple, distortion, tears etc.

Use of a defective grapple is forbidden!

10. Accessories

10.1. Rapid motion Valve

- Can be Used on KMX270 and KMX350
- Rapid motion valve is used when hydraulic flow is low or basically under 70L/min witch will appear as an slow movement.
- With the Rapid motion valve we can get an faster movement on on way movement, this is on the closing movement.
- The valve is factory adjusted but in case of weak force or slow closing movement an adjustment may be needed.
- Below shortly explained how adjustment can be done.



- Remove protection cap, open locknut then you can adjust the hexagon nut.
- If the gripper is slow, turn the hexagon nut $\frac{1}{4}$ turns clockwise at once, test and proceed until change is reached.
- If the gripper is weakless, turn the hexagon nut $\frac{1}{4}$ turns counter-clockwise at once, test and proceed until change is reached.
- When adjusted close locknut and put protection cap back on.

10.2. *Bundle collecting device*

- This is a separate grapple that is mounted on top of the grapple with 2 shared arms.
- Can be used on KMX270 and KMX350
- The collecting device can be delivered with an electric 6/2 hydraulic valve that shifts the hydraulic lines between cutting and collecting.
- Or it can be delivered with separate hydraulic sockets.
- Collecting device is used to collect several threes until the grapple is full before emptying.
- The device is used with threes that have diameter less than 10cm and schrubs.



11. Warnings

- 1. The Komaxi grapple is not intended for the handling of stumps or rocks.**
- 2. Do not cut trees above a height of 2 metres.**
- 3. If the cutting blade is stuck in the tree, try to loosen it using a lateral motion, not an up and down motion.**
- 4. Take the wind, electrical and telephone lines, and people or objects within the danger zone into consideration.**
- 5. Always consider the danger zone range of 40 metres; no unauthorised people should be within the danger zone during the operation of the grapple.**
- 6. Become familiar with the instructions for use and carefully read the safety instructions and all the machine's instruction plates. Before you allow another person to use the grapple, make sure that the user is acquainted with all the instructions for use and safety.**
- 7. The user must be 18 years of age, and in good condition.**
- 8. The machine user must not be under the influence of any intoxicants or narcotic medication.**
- 9. When servicing, cleaning, adjusting or storing the machine, or installing its accessories: Detach the grapple from the basic machine in use by taking the manufacturer's instructions and safety clearances into consideration. Place or support the grapple in a position where it cannot move. Ensure that there is no pressure in the hydraulic system before beginning any maintenance procedures.**

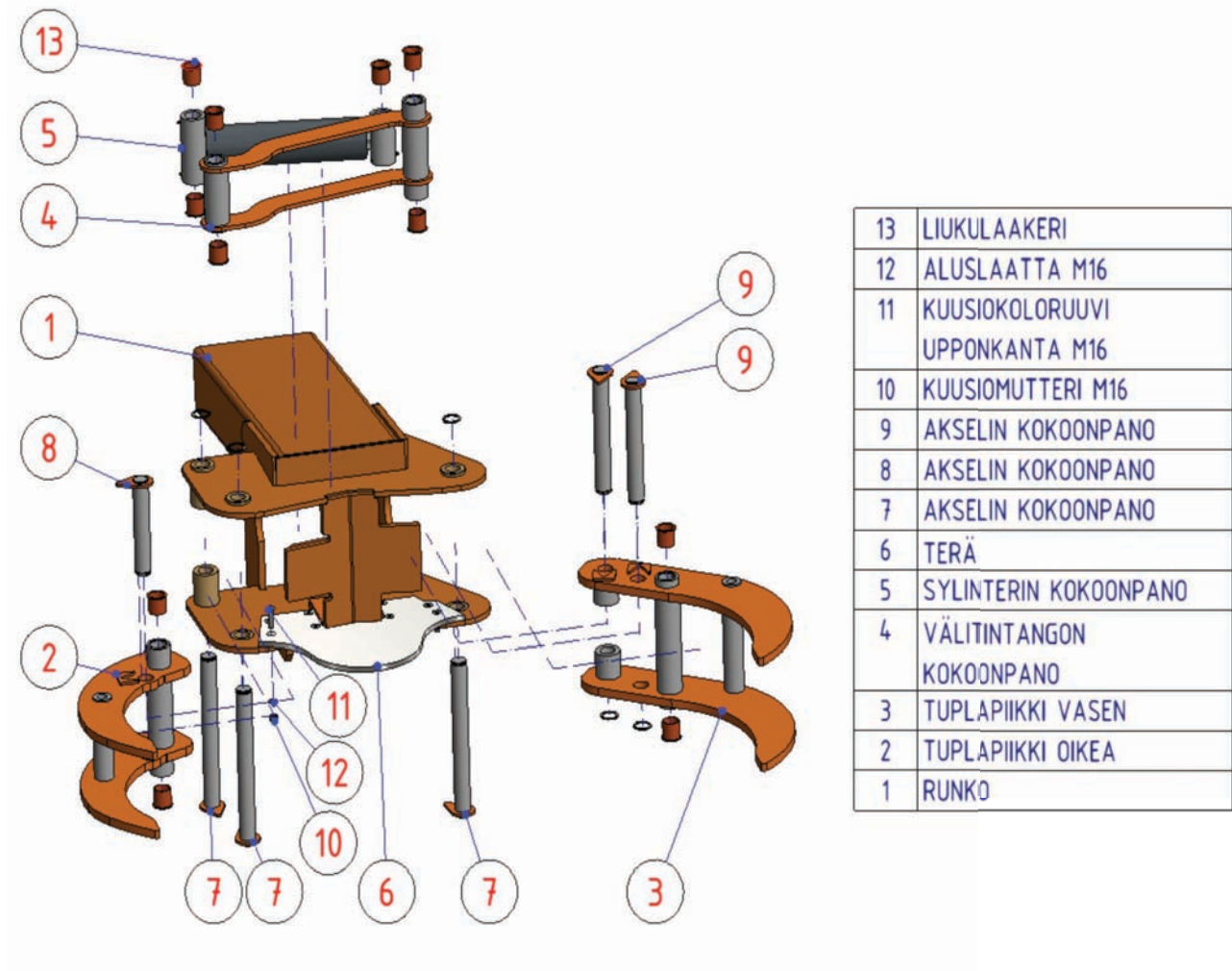
12. Manufacturer's contact information

Komaxi
Karkkimalantie 56
FI-65520 Helsingby
Finland

info@komaxi.fi

www.komaxi.fi

13. Exploded view



14. Declaration of conformity



DECLARATION OF CONFORMITY

We,

Komaxi
Karkkimalantie 56
FI-65520 HELSINGBY
Finland

certify that the following products manufactured by us are in conformity with directive 2006/42/EC of the European Parliament and of the Council on machinery.

The declaration of conformity covers the following models:

- Komaxi KMX 210 / T, from No. 210001
- Komaxi KMX 270 / T, from No. 270001
- Komaxi KMX 350, from No. 350001

NOTE:

The Declaration of conformity is no longer valid, if the above-mentioned Komaxi products are used against the laws, safety regulations or the instruction manual. In connection with the use of the machine, there may arise situations for which there are no specific instructions or regulations, and in such cases,

the users are recommended to adhere to general instructions and directives on machine safety.

The manufacturer is not liable for damages caused by the use of components of other manufacturers.

The manufacturer is not liable for damages caused by the use of the Komaxi on other machines and devices.

The owner of the machine is responsible for the use, maintenance and servicing of the machine, unless otherwise agreed upon.

The owner of the machine is responsible for ensuring that all persons using the machine are provided with sufficient information on the handling and use of the machine.

Person compiling the technical data file:

Name: Henrik Råholm

Date: 18 December 2016

Signature: _____
Henrik Råholm

This document's original language is Finnish.