

NISULA



THE FUTURE OF EFFICIENT LOGGING



CONVERSION OF FORWARDERS INTO A COMBI MACHINE



BENEFITS OF A COMBI MACHINE

- Increases the productivity of the base machine
- One machine can be used to provide harvesting services from the tree stump to the roadside
- Harvesting areas / cubic volumes that are too small for a harvesting chain can offer full-time use for a combi machine
- Less risky Less capital tied to machinery than in a traditional chain
- Smaller transportation and maintenance costs compared with a chain
- More diversified operations
- Highly competitive at small sites where the impact of road transfer costs on the unit costs in harvesting are highest
- Possibility to convert both a new and an old base machine into a versatile combi machine

WATCH THE VIDEO
NISULA 425C + PONSSE GAZELLE
(LOGGING)

<https://www.youtube.com/watch?v=FmEQDbCgfEg>



WATCH THE VIDEO
NISULA 425C + PONSSE GAZELLE
(UNLOADING)

<https://www.youtube.com/watch?v=hcVOegPq50k>



HEAD ALTERNATIVES

NISULA 425C



Base machine requirements

- 100 cm³ variable volume pump
- Twelve-ton or heavier base machine with a minimum lifting capacity of the crane with full reach 550 kg
- Safety glass windows

NISULA 500C



Base machine requirements

- 130 cm³ variable volume pump
- Fifteen-ton or heavier base machine with a minimum lifting capacity of the crane with full reach 750 kg
- Safety glass windows

NISULA 285E+



Head change facility and accumulating energy wood head as accessories

425C

MORE FEATURES TO ENHANCE HARVESTING OPERATIONS

Nisula 425C is a multi-purpose harvester head equipped with grapple arms that make handling and sorting timber effortless. The NCU3 control system adjusts the grip force of the grapple arms to the tree stem being handled, enabling a firm grip of the stem during felling, feeding and moving operations. In combined use, the separate grapple arms also allow loading without changing the head.

When larger and heavier trees are felled and moved, the grapple arms apply a strong grip on the stem. When feeding starts, the grip force is reduced to minimise friction. The control system has a diameter limit set for the utilization of the grapple arms during processing. If necessary, the settings can be adjusted via the control system, but usually the harvester head works best with the standard settings.

New stronger driver motors increase the feeding capacity by 20% compared with the previous model. New machined front knives offer improved delimiting efficiency and durability as well as a larger delimiting diameter compared with the C model. 425C offers additional features for thinning.

DETAILS THAT MAKE THE C SERIES HARVESTER HEAD UNIQUE

- The head is extremely easy to maintain. All the grease points can be handled with the head in one position.
- The cylinders of the head do not move lengthways, which minimises the movements of the hoses and thereby the risk of damage.
- The additional delimiting knives located in the centre of the head and below the stem create a triangular support for the stem while it is being processed. Thanks to this facility, also larger trees are kept in a tight grip.
- The triangular support structure also facilitates the handling of the stem and improves measuring accuracy.
- The additional knives next to the feeding rolls facilitate the delimiting of crooked stems. If necessary, the head can be slid past the crooks with the front knives open without losing grip of the stem or delimiting efficiency.
- The grapple arms make the head extremely versatile. For example, forked and fallen trees are processed without difficulty. The grapple arms make it easy to pick up the stem with the right grip for processing, which significantly reduces the risk of damaging the knives and the feed rolls.

NEW GENERATION EASY-TO-USE CONTROL SYSTEMS

NISULA NCU3 WITH CUBIC VOLUME MEASURING



Nisula's new NCU3 measuring device is a result of four decades of experience. The new electronics generation has increased the computing capacity of the system; NCU3 controls the head accurately. The simple menu structure makes it easy for the operators to find the settings they need.

The hydraulics control has been taken to a new level, allowing fast and accurate positioning in the sawing window. Accuracy is excellent in all conditions. There is a separate fuse for the sensors to reduce the risk of damage to them.

NISULA NCU3X WITH VALUE AND QUALITY SCALING



NCU3X is equipped with a larger 12.1" touch screen. The X Model has value and quality scaling and data transfer facilities. Thanks to the new electronics generation and increased computing capacity, value and quality scaling is accurate. The new advanced algorithm also adds to the maximisation of production.

As the PC used for reading mapping software and for data transfer is a separate system, the embedded solution guarantees reliability. Possible Windows/PC problems do not stop harvesting operations. The harvesting operations do not depend on the PC's computing capacity, either. Therefore forestry companies' software may contain extensive maps and other heavy-duty features.

ALTERNATIVE 1

Combi machine in which both the work phases can be performed in one go without changes in the equipment

Nisula offers two head alternatives for combi machines that can perform both the work phases in one go. Depending on the crane capacity, the 425C multi-purpose head suits 12-ton and heavier base machines. The 425C head is ideal for first and second thinnings and the 500C multi-purpose head for more extensive thinning operations. Depending on the crane capacity, 500C suits 15-ton or heavier base machines.

The customer's requirements and thoughts concerning the logging road are determined at the time of purchase. Depending on the model and make of the base machine, the logging road can be opened at the front over the cabin or by reversing over the loading space. The harvesting direction can be taken into consideration in equipping the base machine.

ALTERNATIVE 2

Forwarders equipped with a separate harvester head and timber grapple

If the harvester head and the loading grapple are changed for the operation to be performed, a traditional harvester head can also be used in harvesting. In this case, the requirements concerning the base machine equipment and the lifting capacity of the crane are not so high. This means that older and smaller base machines can also be converted for combined use.

The head alternatives are Nisula 325H designed for first thinning and delimbed energy wood harvesting, 425 series heads designed for first and second thinnings, and 500 series heads designed for more extensive thinning operations.

DETAILS THAT FACILITATE EVERYDAY WORK

Harvester head/grapple changing facility

Nisula has designed the motorised hosing to be installed on the crane in such a way that the change of the harvester head to a timber grapple and vice versa is quick and easy. Quick couplers make it easy to disconnect the motorized hoses, and the hose brackets are also easy to dismantle from the boom assembly. The same dual swing damper and shaft rotator suit both the work phases. This reduces unnecessary investments. The shaft rotator with a machined adapter flange ensures fast head/grapple change. It normally takes 15-30 minutes to change the harvester head to a timber grapple and vice versa.

HEAD ALTERNATIVES



NISULA 500H/C

	500H	500C
Weight, kg	640	650
Clean delimiting Ø, mm	430	320
Single cut Ø, mm (1 stem)	500	500
Number of delimiting knives	5+1	3+1
Opening of front knives, mm	500	500
Opening of additional knives, mm	720	1150
Width in delimiting position, mm (open/closed)	1200/980	1350/980
Height in delimiting position, mm (open/closed)	1250/1050	1250/1050
Height in felling position, mm	1120	1120
Operating pressure, bar	210-230	210-230
Oil consumption, l/m	140-180	140-180

Accessories: Stump treatment facility, colour marking, saw control, automatic chain adjustment

Nisula Syncro provides a traditional forwarder with the features of a parallel crane

Nisula has developed a Syncro function for vertical pole cranes. This ingenious solution provides a vertical pole crane with the functionality of a parallel crane when the crane is pulled inwards. This hydraulically implemented feature increases energy efficiency and makes it easy to move the stem from the tree stump for processing. The syncro function improves felling and loading efficiency.

NISULA 425H/C

	425H	425C
Weight, kg	410	425
Clean delimiting Ø, mm	320	300
Single cut Ø, mm (1 stem)	425	425
Number of delimiting knives	4+1	2+1
Opening of front knives, mm	430	430
Grapple opening, mm	580	920
Width in delimiting position, mm (open/closed)	1100/940	1100/940
Height in delimiting position, mm	880	880
Height in felling position, mm	880	880
Operating pressure, bar	210	210
Oil consumption, l/m	120-150	120-150

Accessories: Stump treatment facility, colour marking, saw control, automatic chain adjustment

Modification of the base machine for combined use

Ajokoneen tyyppi ja asiakastarpeet määrittelevät muut tarvittavat peruskoneen muutokset. Nämä yksityiskohdat määritellään aina yhdessä asiakkaan kanssa. Tyypillisiä muutoksia ovat nosturin käännön nollakohdan muuttaminen, kuormatilan muutokset ja esimerkiksi valo varustelut.

NISULA 325H

Weight, kg	285
Kaatoläpimitta Ø mm	340
Number of delimiting knives	3+1
Clean delimiting Ø, mm	240
Operating pressure, bar	190

Accessories: Thickness measure sensor, cylinders for the front knives, saw control, automatic chain adjustment

ACCUMULATING ENERGY WOOD HEAD



NISULA 285E+

Weight, kg	330
Grapple opening mm	930
Cut diameter Ø mm	280
Single cut Ø, mm (1 stem)	180-240
Operating pressure, bar	180-210
Oil consumption, l/m	80-150