

FELLING HEADS | ENERGY WOOD HEADS | STROKE HARVESTERS | UPROOTERS

For the  
management  
of young forests,  
integrated  
harvesting,  
and removal of  
problem trees



 МОСТ-ТЕХНИКА ЭФФЕКТИВНЫЕ ТРАКТОРНЫЕ ТЕХНОЛОГИИ!

SUITABLE FOR ALL BASE MACHINES





## Naarva offers a wide range of high-performance forest harvesting equipment

Do you have a tractor, forest-machine, excavator, or truck loader crane that you use for energy wood harvesting; first thinning; integrated harvesting; park management; clearing of power lines, headlands, and road bed shoulders; and removing problem trees in urban areas? If you do, we have just the right Naarva product for you.

The first Naarva grapple was introduced in the market already in 1993. Thanks to our pioneering product development and constructive feedback received from customers all over the world, we have continuously extended the selection of Naarva products. Currently, **we offer over 10 stroke harvester, felling head, energy wood head, and uprooter models**. We have so far manufactured nearly

1500 Naarva products. Our experience brings you the best equipment for cost-effective harvesting of forests. Our products have achieved excellent results in various tests and studies as well.

The modular structure of the Naarva grapple and the **various frame, guillotine, and accumulating grip size options facilitate customisation based on the base machine and the intended purpose**. Optional accessories can be used to improve even further the functions and usability of the grapple based on your personal preferences. We have revised our product range and model markings in 2011. Read more about our products and contact us to **request a quote!**



### The most appreciated features of Naarva products

- effective guillotine cutting
- multi-tree handling
- excellent loading capabilities
- easy installation, no additional hydraulics or hosing
- radio-control option
- a wide product range, options suitable for all base machines

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Naarva EF28

A new product!



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# Leading features with patented Naarva technology

All Naarva felling heads, energy wood heads, and stroke harvesters are equipped with an efficient guillotine that cuts the wood with a single blade. One of the five available options (Ø20–Ø32 cm) will suit each application.

Naarva guillotine is a separate device that is attached to the grapple frame with a slide bar. The guillotine does not obstruct the handling of tree bunches, big or small, during loading. The guillotine always cuts against grippers and slides along the slide bar during cutting, thus allowing for the full cutting power to be directed to the wood. **Even the thickest of trees can be cut without straining the grapple frame or crane.**

Naarva guillotine is reliable and can also be used for tasks where chainsaws would be of no use and shear cutting would be ineffective. The cutting blade is made

of wear-resistant steel, which is not damaged by sand or other impurities. Therefore stumps can be cut close to the ground and trees harvested in challenging terrains also. **The cutting power is sufficient to cut through thick tree bunches, bushes, and hard woods.** Problems with chainsaw bars and chains will become a thing of the past, as the guillotine is practically service-free compared with various types of chainsaw equipment. The blade will remain sharp for a long time and can be sharpened with a grinder or similar.

## THE SELECTION OF NAARVA GUILLOTINES

### THE ROBUST 32 GUILLotine

MAX. CUTTING DIAMETER: Ø32 CM\*

The 12 mm blade is made of wear-resistant steel and slides during cutting guided by the grippers. The entire cutting device slides backwards during cutting and is restored to its original position by a spring. The grippers can grip a bush or a bundle of trees up to 50 cm thick and squeeze it tight before cutting. The efficiency of cutting is increased by auxiliary blades located in the grippers.



### THE STRONG 23 AND 25 GUILLOTINES

MAX. CUTTING DIAMETER: Ø23 AND Ø25 CM.\*

Robust grippers close around the tree and a powerful cutting cylinder pushes the blade through the wood. The grippers support the blade from the sides and the extended side bars of the blade slide inside the frame during cutting. The entire cutting device slides backwards during cutting and is restored to its original position by a spring.

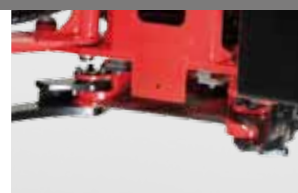


### THE QUICK 20 AND 28 GUILLOTINES

**A new product!**

MAX. CUTTING DIAMETER: Ø20 AND Ø28 CM.\*

In the newest innovative guillotine model, the grippers press the tree against the blade with one movement, which speeds up the work. During cutting, the entire guillotine slides towards the tree pushed by hydraulic cylinders and same cylinders restores to its original position after cutting. Cutting is quick and the blade cuts through the entire tree. Due to the unique structure, full cutting power is maintained throughout the entire movement. In case of tree bundles, this means that full cutting power is maintained from the first to the last tree in the bundle.



\* The max. cutting diameter is approx. 30% lower for hard wood (such as oak and beech).

**Naarva guillotine for efficient cutting:**

- five sizes
- cuts up to Ø 32 cm trees and Ø 50 cm bushes
- durable, virtually service-free technology
- also suitable for cutting tree bundles
- does not restrict loading capabilities
- a clean and even cutting surface

See a video clip of the operation of Naarva guillotines at [www.naarva.fi](http://www.naarva.fi)



# Naarva EF28 small wood and energy wood head

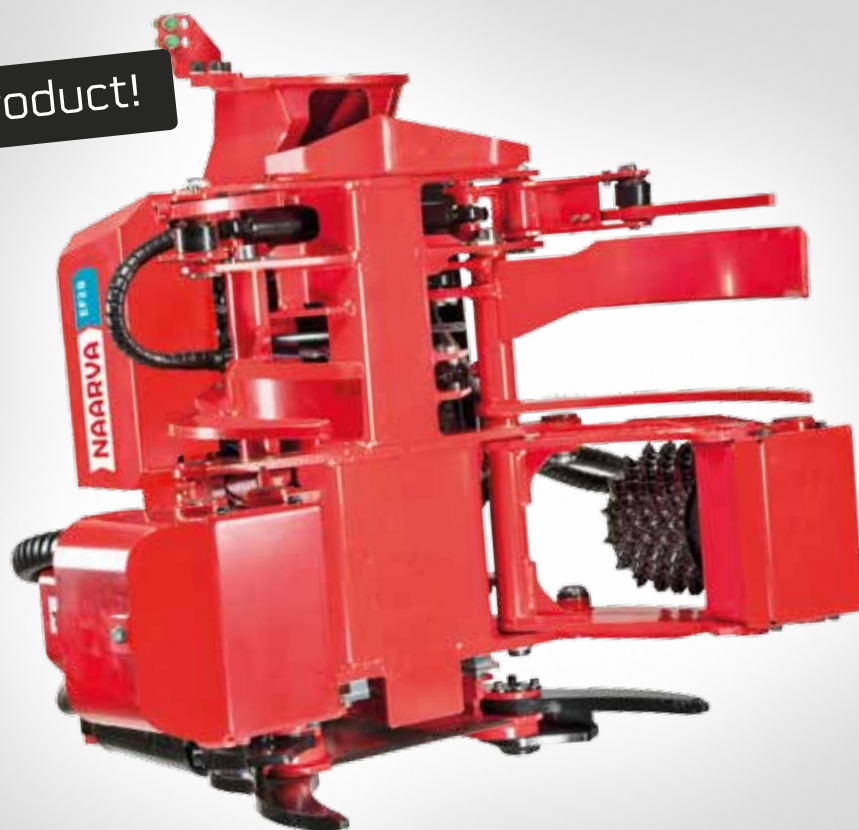
A feeding and delimbing grapple optimized for energy wood harvesting, first thinning, and integrated harvesting. Naarva EF28 is the first model designed as a cooperation project between Pentin Paja Oy and Outokummun Metalli Oy. Together these companies have extensive expertise in energy wood harvesting equipment and harvester heads. The product is manufactured at Outokummun Metalli's production facility.

Naarva EF28 is the first model in a completely new Naarva product group. It has been designed to meet the most current energy wood and small wood harvesting and handling requirements. This compact grapple is capable of cutting and accumulating, delimbing in bunches, length measuring and cutting, and loading. All you will need for efficient small wood harvesting and nothing else.

In the design of Naarva EF28, the starting point was to create a top-quality product that is both reliable and economical to operate. The technology of the grapple is

reliable and care-free for the operator and includes the guillotine cutting, new automatics, and smartly designed hydraulics. The grapple can be equipped with a radio control system, which makes installation really easy. In addition, Naarva EF28 is cost effective to operate, since it requires only about half of the power needed by large harvester heads. Despite this, the grapple is ideally suited to small wood handling and performs reliably in all conditions. EF28 can be installed in harvesters, excavators (14-20 tn), and combi machines.

A new product!





## Efficient cutting, feeding, and delimbing

Naarva EF28 is equipped with a new quick guillotine cutting. The maximum cutting diameter is 28 cm. Robust grippers close around the tree and press it against the blade that slides from under the grapple. Cutting is quick and the blade cuts through the entire tree. During cutting, the entire guillotine slides towards the tree pushed by hydraulic cylinders and same cylinders restores to its original position after cutting. The guillotine has a replaceable cutting blade and is easy to maintain. Stump treatment is available as an option.

The feeding rollers of Naarva EF28 always hold the tree or a tree bundle in an optimal angle. The movement of the rollers is based on a system of parallel joints. The opening of the rollers is wide; up to 730 mm. Slipping is not possible during the feeding, because the motors have been connected in series. Each tree in the bundle move at the same speed.

The handling of oversized trees is prevented, and the structure of the frame and width of the rollers allow

for the feeding of bent and curved trees also. Feeding works effortlessly up until the end of the stem and the feeding rollers have been specially designed for the feeding of bundles. The special rib-type spikes of the feeding rollers provide excellent grip and prevent bark from getting stuck between the spikes. Alternatively, tempered, aggressive evolvent spike rollers can be used. The feeding force is limited, which reduces the need for hydraulic power. Special attention has been paid to the ease of accumulation. The feeding rollers open sideways, making it easier to collect the next tree stem.

Naarva EF28 is equipped with loading grapple-type delimbing blades. The opening of the delimbing blades is 825 mm, which makes it easier to grab tree bundles that are on the ground. The upper blade is fixed and bolted in place. The open shape of the upper blade has been designed so as to provide perfect operation when more than one tree at a time is being delimbed.

### The new Naarva EF28 feeding energy wood head

- Cutting and accumulation, delimbing in bunches, length measuring and cutting, loading, and integrated harvesting
- New, quick Ø28 cm guillotine cutting
- Controlled lifting of the tree during feeding and non-slipping feeding of bunches
- A wide opening of the grapple, which facilitates easy intermediate cutting and excellent loading capabilities
- Reliable customised hydraulics
- Simple and cost-effective radio-controlled automation system
- Economical to operate



## Efficient multi-tree handling

The efficiency of multi-tree handling is at the top of energy wood heads. The high-capacity multi-tree handling grippers, reliable guillotine, and loader grapple type delimbing blades facilitate quick and easy accumulation. Excellent stability in the upright position supports productive multi-tree handling.

The feeding rollers open sideways, making it easier to collect the next stem.



## Frame and covers – durable quality

The Naarva EF28 frame is made of high strength steel. The frame is machined as a single block after the welding, which makes the structure compact and strong. Covers are also made of high strength steel. They come in three parts and are fastened with bolts. This design makes servicing significantly easier.

## Optimal hydraulics and automation

No compromises have been made during the development of this system that is specially designed for integrated harvesting. Hydraulic valves have been located on two sides of the head, which makes the installation and servicing of hoses easy and contributes to the stability of the head in an upright position.

The operation and adjustments of the automation system have intentionally been kept simple. Thus the price is reasonable and system is easy to install. The length of the stems is measured through the feeding rollers. In multi-tree handling, the system also calculates the number of stems. Radio control is used to transfer data and control the head.

## TECHNICAL INFORMATION | NAARVA FEEDING ENERGY WOOD HEAD

Model	Weight	Cutting diameter*, power, and speed of the guillotine	Height in felling position	Grapple opening	Required hydraulic pressure and oil flow	Feed force and speed	Recommended base machine
EF28	700 kg	Ø28 cm 240 kN 0.7 s @ 200 l/min	116 cm	83 cm	240 bar 170 l/min	13 kN 4 m/s	<ul style="list-style-type: none"> <li>Harvester</li> <li>Combi machine</li> <li>14-20 tn excavator</li> </ul>

\* The max. cutting diameter is approx. 30% lower for hard wood (such as oak and beech).



NAARVA

K20

NAARVA

K25

NAARVA

K32

## Naarva felling heads – effortless cutting and loading

Naarva K models are reliable combinations of a felling head and a loading grapple. They are suitable for all kinds of clearing and thinning operations. Naarva felling head facilitates easy felling, collecting, cutting, and loading of trees, bushes, and branches.

Naarva felling head is quick to install in the place of the crane's own loading grapple or harvester head without additional hydraulics or hoses. Installation is even easier with the optional radio control.

The guillotine slides along its sliding bar and cuts the tree against separate grippers. The cutting of trees, big or small, does not put a strain on the loading grapple. The efficient direct cutting is patented Naarva technology.

The modular structure of the felling head facilitates the combining of three frame and five guillotine options, to form a combination that best suits each

base machine and purpose. The smallest of the felling heads, Naarva K20, only weights 200 kg but is capable of cutting up to 23 mm thick trees when a strong guillotine is used. The largest of the felling heads, Naarva K32, weights 500 kg and its maximum cutting is 32 cm. Other maximum cutting diameter options are 20, 25, and 28 cm. The felling head has three separate grippers that are excellent for grabbing tree bunches. Guillotine does not interfere with loading when it is fully open. Cutting is possible in the loading position also.



Naarva K20 with the strong Ø 23 cm guillotine.





Naarva K20 installed in a tractor.

## Suitable for various base machines, always easy to install and use

Naarva K20 and K25 models can be used in tractors, forwarders, and excavators (5-8 tn). In the hydraulic solution, the base machine's own open/close-function is used to change the direction of the movement. Naarva felling head has three control buttons that are used to select the function: tilting, cutting, or grapple locking. With Naarva K20 model, delimbing can be done before felling. The grippers have been sharpened and there is a fixed delimbing blade on the frame side.

Naarva K32 can be used with harvesters and excavators. Hydraulic system and controls can be easily customised to be compatible with the control system of the base machine. Naarva's own control system that is sold as an accessory can be delivered without a boom cable, in which case radio control is used. Rotator can also be controlled with a valve in the grapple.



Naarva K32 installed in a truck loader crane.

## A versatile harvesting equipment for truck loader cranes

Naarva K25 and K32 felling heads with **Naarva radio control** provide truck loader cranes with various new working methods:

- removing problem trees in urban areas and residential plots
- removing hedges, old poles, and posts
- shortening branches
- cutting and lifting of trees fallen on power lines, roads, and buildings

Trees and bushes that have been cut down can be lifted onto the bed of a truck directly, which makes harvesting safe and efficient in areas of restricted access. Thanks to the long extension capacity of the loader crane, all trees can be cut into sections from the top down, regardless of their height.

## TECHNICAL INFORMATION | NAARVA FELLING HEADS

Model	Weight	Cutting diameter*, power, and speed of the guillotine options		Height in felling position	Grapple opening	Required hydraulic pressure and oil flow	Recommended base machine
		Quick guillotine	Strong guillotine				
<b>K20</b>	200–230 kg	Ø20 cm 50 kN 1.2 s @ 70 l/min	Ø23 cm 95 kN 1.8 s @ 70 l/min	70 cm	60 cm	170–200 bar 40–70 l/min	<div></div> Tractor <div></div> 5-8 tn excavator
<b>K25</b>	300 kg	Not available	Ø25 cm 95 kN 1.8 s @ 90 l/min	90 cm	90 cm	170–200 bar 40–90 l/min	<div></div> Tractor <div></div> Forwarder <div></div> 5–8 tn excavator <div></div> Truck loader crane
<b>K32</b>	500 kg	Ø28 cm 60kN 0.8 s @ 160 l/min	Ø32 cm 140 kN 1.7 s–2.2 s @160 l/min	122 cm	90 cm	170–200 bar 60–160 l/min	<div></div> Harvester <div></div> Excavator <div></div> Truck loader crane

\* The max. cutting diameter is approx. 30% lower for hard wood (such as oak and beech).

## Accumulating grippers increase productivity

Naarva E models have been equipped with accumulating grippers that significantly enhance the productivity of small wood harvesting. The accumulation of bunches in an upright position speeds up the work and significantly reduces the number of crane movements required. Tree bunches that are placed by the harvesting track are easy to collect and load.

The grapple is balanced and does not tilt forward even when the bunches being accumulated and handled are large. The unique sliding guillotine and cutting against the grippers ensure that even the last of the stems in the bunch are cut through. All accumulating Naarva energy wood heads can be used for loading and the guillotine does not interfere with loading when it is fully open.

The modular structure of the E models allows flexible combination of the various frame, guillotine,

and accumulating grapple options, to form a product that best suits each base machine and purpose. Three frame, five guillotine, and four accumulating grapple options provide a wealth of choice: a total of twelve different combinations.

Naarva radio control is available as an option and facilitates installation without a boom cable and plugs. Radio control also allows for a free rotation of the grapple, which contributes to ease of working.



Naarva E32 basic model with the robust Ø32 cm guillotine.

### The professional Naarva E32 model for harvesters and 10-20 ton excavators

Hydraulic system and controls of Naarva E32 can be easily customised to be compatible with the control system of most base machines. The Naarva control system is available as an option. Rotator can also be controlled by a valve in the grapple.

The low structure of the grapple is suitable for parallel cranes, which have a lower operating height than sliding boom and knuckle boom cranes. Moving and intermediate cutting of bunches is also easier. In addition to a low accumulating gripper, E32 model has extra-high accumulating grippers as an option. The higher structure of the accumulating grippers facilitates stable handling of tall stems. Guillotine options include the quick Ø28 cm or the robust Ø32 cm guillotine. Stump treatment is available as an option.



Naarva E25 with the strong Ø25 cm guillotine.

## The handy Naarva E25 model for forwarders, small harvesters, and 8-15 ton excavators

Naarva E25 is easy and effortless to install, since no additional hydraulics or hoses are needed. All movements are performed with the open/close valve of the base machine's own grapple. Three buttons (cutting, tilt, and accumulating grippers) are used to choose the desired action. Control button panel and the cable are included in the delivery.

Hydraulics designed for small harvesters in particular are available as an option. Naarva E25 that is equipped to be used in harvesters only weighs 430-490 kg when the standard version weighs less than 400 kg.

E25 model can be used with the quick Ø28 cm and the strong Ø25 cm guillotine. Stump treatment is available as an option.



Naarva E20 with the strong Ø23 cm guillotine and higher accumulating grippers.

## The light Naarva E20 model for tractors and 5-8 ton excavators

The smallest accumulating Naarva E20 model is light but efficient energy wood head for tractor cranes and small excavators. It only weighs 260-310 kg depending on the options but is capable of cutting 20-23 cm diameter trees. Simple and reliable hydraulics is operated with the open/close controls of the tractor crane grapple. All that needs to be done is to install a cable in the boom and control button panel into the crane control lever at the cabin. With radio control, no boom cable is required.

With the small Naarva energy wood head, the trees can be delimbed before felling. The grippers of the loading grapple have been sharpened, and there is a fixed delimbing blade on the frame.

E20 model can be ordered with the quick Ø20 cm or the strong Ø23 cm guillotine. The accumulating gripper options include the higher standard model for especially tall stems and a wider model for multi-tree and bush accumulating in particular.

### TECHNICAL INFORMATION | NAARVA ACCUMULATING ENERGY WOOD HEADS

Model	Weight	Cutting diameter*, power, and speed of the guillotine options		Height in felling position	Grapple opening	Required hydraulic pressure and oil flow	Recommended base machine
		Quick guillotine	Strong guillotine				
<b>E20</b>	260–310 kg	Ø20 cm 50 kN 1.2 s @ 70 l/min	Ø23 cm 95 kN 1.8 s @ 70 l/min	90–120 cm	60 cm	170–200 bar 40–70 l/min	<div></div> Tractor <div></div> 5-8 tn excavator
<b>E25</b>	390–490 kg	Ø28 cm 60 kN 1.4 s @ 90 l/min	Ø25 cm 95 kN 1.8 s @ 90 l/min	95–105 cm	90 cm	170–200 bar 50–90 l/min	<div></div> Forwarder <div></div> 8-15 tn excavator
<b>E32</b>	560–600 kg	Ø28 cm 60 kN 0.8 s @ 160 l/min	Ø32 cm 140 kN 1.7 s – 2.2 s @ 160 l/min	125–165 cm	90 cm	170–200 bar 80–160 l/min	<div></div> Harvester <div></div> 10-20 tn excavator

\* The max. cutting diameter is approx. 30% lower for hard wood (such as oak and beech).



## An economic harvester head for the crane of a tractor

Naarva stroke harvesters are reliable and efficient harvester heads for first thinning. They have been designed especially for the cranes used in agricultural tractors and small excavators. The lighter Naarva S25 is a traditional stroke harvester. Naarva S25R has mechanical, cable-driven feeding rollers that double the delimbing speed.

The first Naarva stroke harvester was introduced already in 1995. The current structure is the result of a long product development that has been supported by feedback received from experienced operators.

Naarva stroke harvesters only need 40-70 l/min oil flow, and can be installed in tractors without additional hydraulics. All functions of the harvester can be used with the open/close valve of the loading grapple. Naarva stroke harvesters are installed in place of the loading grapple

without additional hoses. When the stroke harvester is installed for the first time, only a cable is installed in the boom and control button panel into the boom control lever at the cabin. When Naarva radio control is used (optional), installation is even easier, as no boom cable will be needed. Stroke harvesters are operated with a control unit that is included in the delivery and has four control buttons: cutting, tilting (felling), stroke delimbing, and delimbing booster.



Naarva S25.

### An effortless and durable guillotine solution

A patented guillotine with a 25 cm cutting diameter is used for cutting. The guillotine is durable and easy to maintain, even in demanding conditions. While cutting, grippers close around the tree and 8 mm blade made of wear-resistant steel cuts through the tree.

The cutting surface is smooth and even because the trees are always cut against the grippers. The guillotine slides along a sliding bar and puts no strain on the other structures of the stroke harvester regardless of the thickness of the cut trees. The blade is not easily damaged or lose its sharpness, which means that the trees can be cut very close to the ground. Low stumps do not damage the tyres of the tractor and no valuable wood is left in the forest. The maintenance of stroke harvesters mainly consists of greasing the joints.

### Power and speed to delimbing as required

The delimbing blades have been shaped so that excellent results are achieved with low oil flow. The grip force can be adjusted and the stroke movement has two speeds. Operator can stop delimbing even in the middle of the stroke movement. Stroke harvester with feeding rollers has four available delimbing speeds and forces, two speeds with the rollers unlocked and two speeds with the rollers locked. The maximum delimbing force is over 30 kN.



Naarva S25R has mechanical, cable-driven feeding rollers.

## More productive first thinning

Naarva stroke harvesters ensure that the first thinning is completed productively and without damaging the forest. Forest owners like the low stumps and narrow harvesting tracks. With the grippers open, Naarva is only 80 cm wide, which makes it easy to operate in young forests.

In a test conducted by TTS (Work efficiency institute)\* the timber cutting productivity per effective hour that was achieved with Naarva RS25 stroke harvester (current model marking: Naarva S25R) was 5.2m<sup>3</sup> in the first thinning of a pine-dominated forest when the average volume of the stems was 92 dm<sup>3</sup>. In combined pulpwood and energy wood harvesting, the productivity was 5.5 m<sup>3</sup> per effective hour when the average volume of the stems was 62 dm<sup>3</sup>.

Stroke harvesters utilize the tractor's own hydraulics, which keeps fuel consumption at a reasonable level. Guillotine cutting removes all costs related to chainsaw bars and chains, and there are no parts that require expensive or complex servicing.

\*Study of the TTS Research, Natural resources, forest 3/2009 (729)



Feeding rollers double the delimbing speed!

Stroke harvester with feeding rollers has four available delimbing speeds and forces.

## Feeding rollers enhance the speed of delimbing significantly

The innovative, patented solution used in the Naarva S25R model doubles the delimbing speed with mechanic feeding rollers. When the stroke cylinder feeds the stem one metre, the rollers feed it two metres – this means three metres with one stroke!

Together the 25 cm high grippers of the guillotine and the 15 cm high feeding rollers give the tree stem space to move, which allows for the delimbing of bent and curved stems also.

Naarva S25R is capable of delimbing three metres of the stem with one stroke of the stroke cylinder.

## TECHNICAL INFORMATION | NAARVA STROKE HARVESTERS

Model	Weight	Max. cutting diameter and power (18 Mpa)	Feeding speed	Delimbing diameter	Required hydraulic pressure and oil flow	Recommended base machine
<b>S25</b>	300 kg	Ø25 cm 108 kN	0.5–0.7 m/s	5–25 cm	170–200 bar 40–90 l/min	<div></div> Tractor <div></div> 5-8 tn excavator
<b>S25R</b>	380 kg	Ø25 cm 108 kN	0.8–1.4 m/s	5–25 cm	170–200 bar 40–90 l/min	<div></div> Tractor <div></div> 8-15 tn excavator

\* The max. cutting diameter is approx. 30% lower for hard wood (such as oak and beech).

# Customise your Naarva product

We offer a wide selection of accessories and spare parts to suit every need. We are experienced in finding the best equipment for each model, base machine, and customer need. We are also pleased to assist with the installation of the equipment where required.



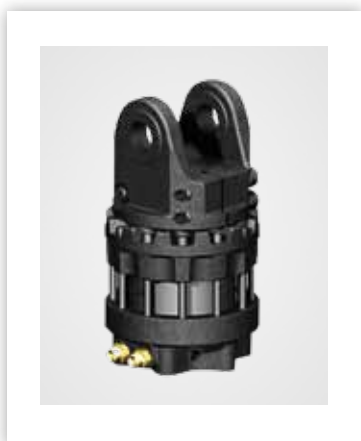
## Naarva radio control - no more boom cables

Naarva felling heads, accumulating energy wood heads, and stroke harvesters can be equipped with radio control. Radio transmitter and 12 V battery are located in a protective box. A small transmitter equipped with four control buttons has its own rack that is fastened on the operating levers of the crane. **No cables need to be installed in the boom and the rotator can be rotated freely.**

As an alternative to the standard transmitter, a separate transmitter can be used, which allows for the use of various other control buttons: the basic control buttons in an aluminium box, buttons fastened on mini-levers, and a free selection of the base machine's own controls.

The radio control system delivery includes a transmitter and rack, a receiver in a protective box, 2 pieces of 12V (12 Ah) batteries, a charger, an inverter DC 12 V or 24V/AC 230V, and operating instructions.

A new and more diverse radio control system is available for Naarva E32 and EF28 models (harvester as a base machine).

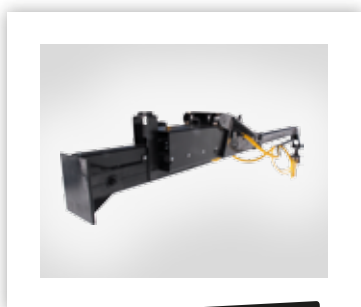


## Rotators and links

Various rotator and link options are available for all our products including those manufactured by Finnrotor, Baltrotors, and Black Bruin.

## Spare part kits

When you purchase a new Naarva product, you can also order an economically priced spare parts kit that is customised for each model. Kit includes wearing parts as well as components required in annual and standard servicing.



## Excavator equipment

Naarva products are often installed in excavators. Available accessories include a hydraulic extension boom for 10-20 ton excavators and fixed extension booms for excavators of all sizes. Hydraulic extension booms increase the reach with 1.5 metres. All extension boom models include a support leg, which makes turning an excavator easier in tight and narrow places which are common in young forests.

## Installation packages

We have extensive experience in the installation of Naarva products in various types of base machines. The products can be installed in nearly all tractors, excavators, forwarders, harvesters, and truck cranes. We have even delivered a Naarva felling head for use in a helicopter!

More information  
about accessories:  
[www.naarva.fi](http://www.naarva.fi),  
retailers, and the  
manufacturer.



# An outstanding and patented innovation

The Naarva uprooter is a revolutionary invention for mechanical cleaning of seedling stands and clearing of headlands, power and gas pipe lines, and railway and road bed shoulders.



Naarva P55 uprooter presses unwanted saplings between rubbers with its jaws and roots them out of the ground.

Naarva uprooter presses unwanted saplings between rubbers with its jaws and roots them out of the ground. The drying and breaking of the roots during the process is an efficient way of preventing the growth of new unwanted plants from the roots. When the uprooting method is used for cleaning the seedling stands fewer treatment cycles are required prior to the first thinning. Our solution of mechanized uprooting has been awarded the provincial Inno-Finland prize.

We have three uprooter models. The area that can be uprooted with one working cycle varies between 1.6 and 5.5 m<sup>2</sup>. Depending on the model, a tractor, harvester, or excavator can be used as a base machine.

## Benefits of uprooting

- No sprouts, and work can be performed throughout the whole period of unfrozen soil.
- Prevents the establishment of heterobasidion annosum, no stump treatments are required as part of the seedling stand management.
- Grass that grows in the cleared area prevents the establishment of unwanted seedlings.
- The cost of stand management is nearly halved and productivity tripled (Metsäteho Oy).
- Fewer treatment cycles are needed due to the reduced growth rate of new saplings. In ideal conditions, only one uprooting is required before the first thinning.

## TECHNICAL INFORMATION | NAARVA UPROOTERS

Model	Weight	Area uprooted with one stroke	Features and applications	Hydraulic pressure	Recommended base machine
P16	270 kg	1.6 m <sup>2</sup>	Double-jaw model <b>Field edges, headlands, bushes</b>	max. 180 bar	<div></div> Tractor <div></div> 5-8 tn excavator
P25	590 kg	2.5 m <sup>2</sup>	A middle-sized model, 6 jaw pairs <b>Seedling stands, headlands, electric and gas lines</b>	max. 70 bar	<div></div> Harvester <div></div> 8-15 tn excavator
P55	980 kg	5.5 m <sup>2</sup>	The largest model, 6 jaw pairs. Includes seedling protection in the middle of the uprooter. <b>Seedling stands</b>	max. 70 bar	<div></div> Harvester <div></div> Excavator >10 tn



TRACTOR



HARVESTER



FORWARDER



EXCAVATOR  
10–20 tn



EXCAVATOR  
5–8 TN



TRUCK LOADER  
CRANE

SUMMARY OF THE NAARVA MODEL RANGE AND APPLICATIONS	Felling heads			Accumulating energy wood heads			Feeding energy wood head	Stroke harvesters		Uprooters		
	H20	H25	H32	E20	E25	E32	EF28	S25	S25R	P16	P25	P55
Felling and loading of single trees and bushes												
Removal of problem trees												
Clearing of electricity lines and road sides												
Energy wood harvesting, small wood harvesting by accumulation												
Integrated harvesting												
Initial thinning by the forest owner and harvesting of firewood timber. Delimbing and cutting												
Mechanical uprooting of seedling stands												

MANUFACTURER

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