



TuLAKO NEXT GENERATION X2 HARVESTER HEADS



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TuLAKO X2. models 42.2 and 52.2 and light + hybrid heads presentation
more efficiency and output with an excellent weight-power ratio and large opening of the arms.
Updated next generation asymmetric harvester heads with low impact to environment & fuel cost

Turkka Lastunen Consulting Oy Ltd

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www.tulaco.fi

TuLaCo 2026 Confident

- Market needs and potential
- Product overview - approach
- Product details - benefits
- Benefits to company
- Planned next steps
- Market entry opportunities and global sales potential
- Timeline and key numbers
- Management and staff as well production
- Summary of the costs and payments
- Contact information
- **Attached Annexes (separately shared)**
 - Youtube video links of LAKO 42 and 52 working in Europe and Russia (Lako Forest Youtube page)



The new TuLAKO X2 products will be based on proven first generation LAKO 2-series harvesting knowhow and experience

Market needs and potential TuLAKO NEXT GENERATION HARVESTER HEADS



Topic	North America	Europe	Latin America	China & Asia	Oceania	Africa
Bioenergy wood	<ul style="list-style-type: none"> Potential is very minimal due to non-existent bioenergy wood market 	<ul style="list-style-type: none"> Emerging market and the potential is very high especially in northern part of EU countries 	<ul style="list-style-type: none"> Potential in the pine trees area like in Parana (BR) States, Argentina, Chile 	<ul style="list-style-type: none"> Growing demand and potential will be high for strong but small heads 	<ul style="list-style-type: none"> Growing market and the potential will be high because of environment 	<ul style="list-style-type: none"> Possible potential because of environment topics
Commercial thinning	<ul style="list-style-type: none"> Emerging market and the potential is very high a good weight –power ratio heads 	<ul style="list-style-type: none"> Emerging market and the potential is all the time very high 	<ul style="list-style-type: none"> Potential in pine tree area like Parana (BR) State, Argentina, Chile 	<ul style="list-style-type: none"> Now, low potential is because trees are growing fast & mainly clear cuts 	<ul style="list-style-type: none"> Growing potential because of environment topics 	<ul style="list-style-type: none"> Growing market but should be checked
Hardwood operations, acacia and eucalyptus	<ul style="list-style-type: none"> No real need, Only in some special cases 	<ul style="list-style-type: none"> High potential in both in the and in the Iberian Peninsula 	<ul style="list-style-type: none"> High potential, especially eucalyptus in large scale but still also ref. acacia (negro) 	<ul style="list-style-type: none"> Strong existing potential both for acacia and eucalyptus, in the future more euca 	<ul style="list-style-type: none"> Existing potential for eucalyptus and other larger soft and hardwoods 	<ul style="list-style-type: none"> Growing potential for eucalyptus
Forest management	<ul style="list-style-type: none"> Emerging market and the potential is very high, lots of needs 	<ul style="list-style-type: none"> Emerging market and the potential is very high, still lots of needs 	<ul style="list-style-type: none"> In pine forest there are already some needs and civil culture projects 	<ul style="list-style-type: none"> Growing potential because of environmental topics. Lack of work force 	<ul style="list-style-type: none"> Growing potential because of environment topics, new era 	<ul style="list-style-type: none"> Possible potential because of environment topics,
Multi-tree handling/felling	<ul style="list-style-type: none"> Possible potential in the Southern U.S. and Eastern Canada 	<ul style="list-style-type: none"> High potential in both in the Central Europe and Scandinavia 	<ul style="list-style-type: none"> Growing potential among the Eucalyptus debarking applications where higher output is needed 	<ul style="list-style-type: none"> Rapidly growing potential among the hardwood debarking applications 	<ul style="list-style-type: none"> Growing potential among the hardwood debarking applications 	<ul style="list-style-type: none"> Later when CTL will be in use, also double debarking

Result of our market research: There is an increasing need to improve the efficiency of existing harvesting solutions!

Product overview – approach **TuLAKO NEXT GENERATION HARVESTER HEADS**



Topic Description

Product overview

We are the harvesting attachment company revolutionizing efficiency of global forest operations and always presenting the latest technology

- In-house design, outsourced manufacturing, using the most skillful companies, hydraulic parts and components can be found also from globally
- All the products designed based on the general platform to enable cost efficiency in the product family, lots of commonality design & components
- All the in-house team members and distributors are selected based on during the 40+ years created network in the dangle harvester head business
- The biggest benefit is the flexibility to install our product to all common wheeled and tracked forestry machines, every conditions and globally

Present X2 Product line

TuLako advanced multipurpose X2 -series has models from 42.2 and 52.2

Suitable for mechanized mid size forest harvesting operations globally

- The main difference between X2 – series to typical Scandinavian style of head is versatility and X2 is strongly dedicated different applications,
- The 2-series 52.2 head suits very well small size multi tree handling operations, especially as a double stem hardwood head
- The both sizes of X2 are also suitable for the Cut-To-Length (+ tree length) method as a better alternative than our competitors
- X2 product ranges consist of harvester heads from 42 cm handling capacity up to 52cm as a single tree handling, multiple from Ø5-15 cm The possible larger 52 sizes are designed better for double stemming, also as a hardwood head when the single tree diameter is under 12cm
- The unique part of this product families is their modular construction to enable ultimate efficiency, for all the applications but still simple design
- The key factors are simple design, easy service & maintenance as well very good fuel economy and so low running costs.





Topic	Description
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**TuLAKO
42.2. and
52.2.
product
line**

2. TuLAKO processor/harvester heads NOT really represents the most common way to mechanized forest harvesting operations like our competitors do. At the global markets there are real needs for next generation harvester/debarker heads. So, the main principle cannot be compared to existing products, and it is our exceptional strength now and in the future.

The sophisticated TuLAKO X2 series consisting now different sizes saw section with one main frame size based on unique wheel arm geometry or simple arm pivoting by one axle.

- This same X2-series head product is suitable from first thinning up to medium size final felling, either used as a single tree or small size multi tree handling operations, there are 42 (cm) and 52 (cm) models but to be able to handle medium size of trees and specially enable debarking curved trees.
- The 52.2 size of head is targeted to be suitable for the Cut-To-Length method as simultaneously handling small size 2 trees effectively at once, mostly also with one pass as well match tree length operations in versatile needs.
- The product range will consist of the harvester heads, which max cross cutting capacity up to 65 cm (26”) trees. The updated head structure is very clear, simple and different than any other existing heads but versatile thanks for its modular design and standard componentry.
- The unique part of these product family is its flexibility to use it at variety of cutting tasks like single stem feed, multi-stemming, debarking, double stem debarking and tree length operations including pick up ability.
- Already present X2-series products have been developed to meet environmental aspects like advanced energy-efficient hydraulic system of the head to reduce the operating cost and revolutionarily decrease fuel consumption 10 - 30%. Less CO2 emissions and so impact to our environment.
- The key factors are: Exceptional high hydraulic oil flow rate of the main valve (<350 L/min nominal hydr. flow) and feed motors are in one circuit and equipped high pressure hydraulic motor with elastic fixation to eliminate both mechanical and hydraulic shocks generated by unequal trees. Also, this system allows constant contact to different diameter of trees when double stemming. It means steadily contact all way from the butt to top of the tree.
- X2 -series have been used successfully in certain European countries like Portugal, Germany and Czech as well Russia, Belarus
- X2 are adapted to demanding needs besides EU e.g. in China and SEA, Brazil as well in rest of Asia like India, etc. new market areas where the mechanization and C-T-L is now taking place strongly in the near future.

Product details – benefits **TuLAKO X2 NEXT GENERATION HARVESTER HEADS**



Topic	Description
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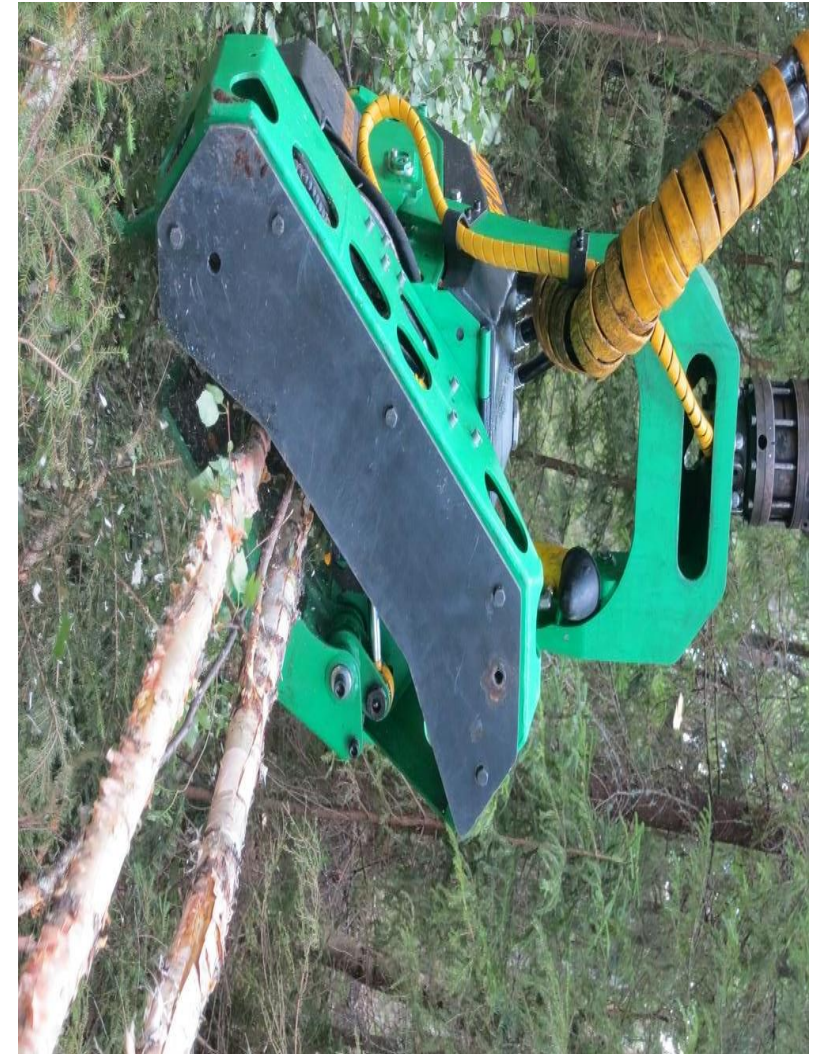


These two Photos of the unique wheel arm geometry of the TuLAKO X2 product line are illustrating the key mechanical elements and solution to be able to solve the DOUBLE (EUCALYPTUS) STEM SIMULTANEOUSLY DEBARKING SYSTEM AND METHODOLOGY. In addition there is shown rubber cushioned linear geometry arms with a small cap giving the ability of the moving feed roller box. This unique construction eliminated the high pressure spikes during feeding, especially when operation with curved hardwood trees

Product details – benefits TuLAKO X2 NEXT GENERATION HARVESTER HEADS

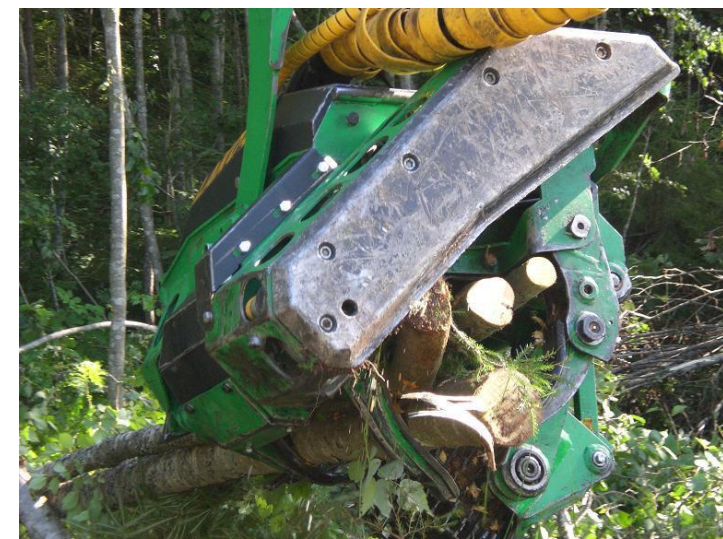


Topic Description



These two photos are showing how the TuLAKO 2 series head suitable for the double stemming in softwood application

Product details – benefits TuLAKO X2 NEXT GENERATION HARVESTER HEADS



These two photos are showing how the TuLAKO 2 series head suitable for the multi-stemming in softwood application

Product details – benefits TuLAKO X2 NEXT GENERATION HARVESTER HEADS



Topic Description

SOLUTIONS, existing & new technology to be developed to increase the debarking head productivity

- We have new way of thinking to solve the earlier mentioned challenges to be more productive in forest operations compared all the main existing harvester head suppliers.
- The starting points for developing the TuLAKO X2-Series are purely the needs of modern forest harvesting and customer feedback. Anticipating future requirements is the benchmark for designing TULAKO's innovative modular structure.
- Our solution is to develop an eucalyptus double stemming system to enable up to 1,35 x higher productivity than existing harvester heads.
- Besides the higher output and production capacity, this new head will not practically consume more energy (diesel) and not need larger base machines or bigger engines. No essential difference of hourly fuel cost or investment cost of carriers (excavator or wheeled forest machines)
- Much attention has been paid to the high efficiency of the hydraulic system as well the wheel arms geometry as well the strength of the frame.
- The main feed motors are high pressure piston motors with exceptionally high hydraulic oil flow rate. The shape and diameter of the feed rollers, as well as their locations in respect of the motor flange and bearings, have been optimised to minimise the external loads (shocks)
- Traditional so called series hydraulic connection is used between the upper and lower main motor, while the fastening of the moving arm motor to the roller arm is elastic, featuring a unique feed roller arm geometry generation softer contact to he tree without higher pressure in the circuit.
- The saw motor has a significantly better efficiency and better cutting power than a traditional saw motor. Heavier saw chain can be used, which is very important then cutting of the small diameter of the trees (The heavier saw chain will stay on the bar better and has much longer life span).
- The chosen hydraulic valve system features exceptionally low flow losses, and one valve package includes all the functions needed. There are individual pressure control valves for each arm cylinder with integrated adjustable port relief function, which follows continuously the working pressure of each individual arm cylinders. This feature gives the optimal protection.
- This concept will be much more environment friendly method to do logging operations, the CO2 emissions are less pro produced cubic meters.

**THE LATEST
REMARKABLE
SOLUTIONS
EXPLAINED**

Product details – benefits TULAKO NEXT GENERATION HARVESTER HEADS



Topic Description

SOLUTIONS, new & existing technology to be developed to increase the debarking head productivity , continues

- The new product range rests on 40+ years of designing experience accumulated by the pioneer in harvesting heads manufacturing. We could indeed say that the new TuLAKO X2-SERIES combines the advantages of the 4-roller, 3-roller, and 2-roller feed system in a truly innovative way that adds to its efficiency with a very lightweight but very versatile implementation
- The updated mid-sized TuLAKO 42.2/52.2 harvesting heads can, for instance, efficiently handle single trees from Ø 4...42/52 cm and fell up to Ø 50/60 cm trees in a single cross cutting operation. With the optional assistance of the upper collecting delimiting knife arm and assisted the continuously collection system adapted the main feed roller simultaneous handling of two trees with smaller or medium size trunks can also be done efficiently, owing to the large contacting surface of the main feed roller and especially the unique adjustable adaptive roller box fixation system which X2 linear geometry features (NOTE Only one feed roller is moving, very unique way)
- Thanks for the asymmetrical X2 -series feeding unit and the additional arm attached to it, collection and loading of trees can be done efficiently without compromising the harvesting head's normal cutting properties. Collecting and handling wood is possible as well, also the very small ones.
- Also, asymmetrical X2 -series main frame and saw section enables very versatile selection of saw bar length and saw chain pitch selection. On the other words there are space for longer saw bar if needed but short bar, which is more durable and cheaper, will reach to also cut a bit larger diameter butt of the tree. And there are available a saw in both for 0,404 or 3/4" saw chain pitch (3/4" is an option only with 52.2 size of head)
- TuLAKO X2-Series is one harvesting head for several purposes. The new product family is intended to offer a comprehensive range of harvesting heads for the traditional range of operations – from the first thinning and energy wood cutting, to final felling – but in a modern way and debarking of hardwood, also double eucalyptus tree debarking, which unique way to increase productivity in the Eucalyptus plantations. Globally
- In addition, the structure of the new harvesting head series is stronger and modular, which means that optional features can be added afterwards.
- All the TuLAKO of head series will match to the tracked based machines, but also modern wheeled harvesters, not forgetting operations supported by winches when operating slopes and hilly operation conditions. The key factor is the size of the carrier need not to be as large as for competitors.

**BOTH THE
REMARKABLE
SOLUTIONS
EXPLAINED**

TuLAKO NEXT GENERATION X2 HARVESTER HEADS

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MORE INFORMATION / CONTACT INFORMATION:

Mr. Turkka Lastunen, CEO and entrepreneur

Turkka Lastunen Consulting Oy Ltd

Head office in the Western Finland:
Lehtohaankuja 101, FIN 20900 Turku, Finland

Desingers office: Länsikatu 15 3F211, 80110 Joensuu Finland

Factory address: Pamilonkatu 25, FIN 80100 Joensuu, Finland

Tel. [+358 44 5133615](tel:+358445133615) tulaco.oy@gmail.com www.tulaent.com

