OUR MANAGEMENT & TEAM

Turkka Lastunen, CEO, President, Director, Mechanical engineer, Finnish citizen

- 45 Years experience in global forest machinery business, the excellency is related to the dangle forest harvester heads, made over 3000 harvester heads under LAKO brand sold worldwide
- Director of factories, most of the time entrepreneur in own family business but also CEO of Stock market company daughter company and consultant/agent by own company for large manufacturers like Guerra Industries
- Acting in RDI, as a chief engineer to develop several harvester head product families, applied 13 different patents in harvesting technology
- Knowledge of the global forest machinery market, very wide global network, over 3,000 contacts in LinkedIn. Personally generated export sales over 100 million USD, practically to every continent
- Excellent know-how of mechanized harvesting, in plantation eucalyptus and acacia trees debarking since 1985, nowadays expertise of fuel treatment/management operations as well mechanization of oil palm trees harvesting.
- Made technology transfer projects in Europe (Germany, Austria) as well in Canada, Brazil and China, new projects about to start, widery made consultancy of export marketing and sales.
- Understanding different cultures, wide language skills, fluent in Finnish, English, Swedish, German and Spanish, has been travelling over 55 countries by now. In United States already visited in 27 states by now.

Mr. Joonas Raivio and Janne Kaarto,

both mechanical engineers and designers

Jukka Matikainen in Williams Lake First Nation forest w Mr. John Walker

STEMMASTER
THE MULTICATCH THINHEAD

Continuously-Collecting Energy Wood & Fuel Treatment Felling Head 3.2026

TULACO

Master of Global Forest Machinery

Turkka Lastunen Consulting Oy Ltd is developing an environmentally friendly, continuously collecting biomass and energy wood StemMaster harvester head product range, including the ability to do mechanized fuel management forest operations globally.
The product range head can be attached to a variety of brands, models, and sizes of base machines existing around the world. StemMaster can also be mounted with heads on used base machines, which means recycling the used machines.
The European Union is our co-founder and enables the professional execution of the project.

Co-funded by
the European Union

The journey of TulaCo started 45 years ago in Finland. Since then more than 3000 harvesting heads has been sold. First ones were sold in BC and Alberta in late 1980's.

LAKO 80 workshop test by Turkka

LAKO 45 and 60 with rubber wheels

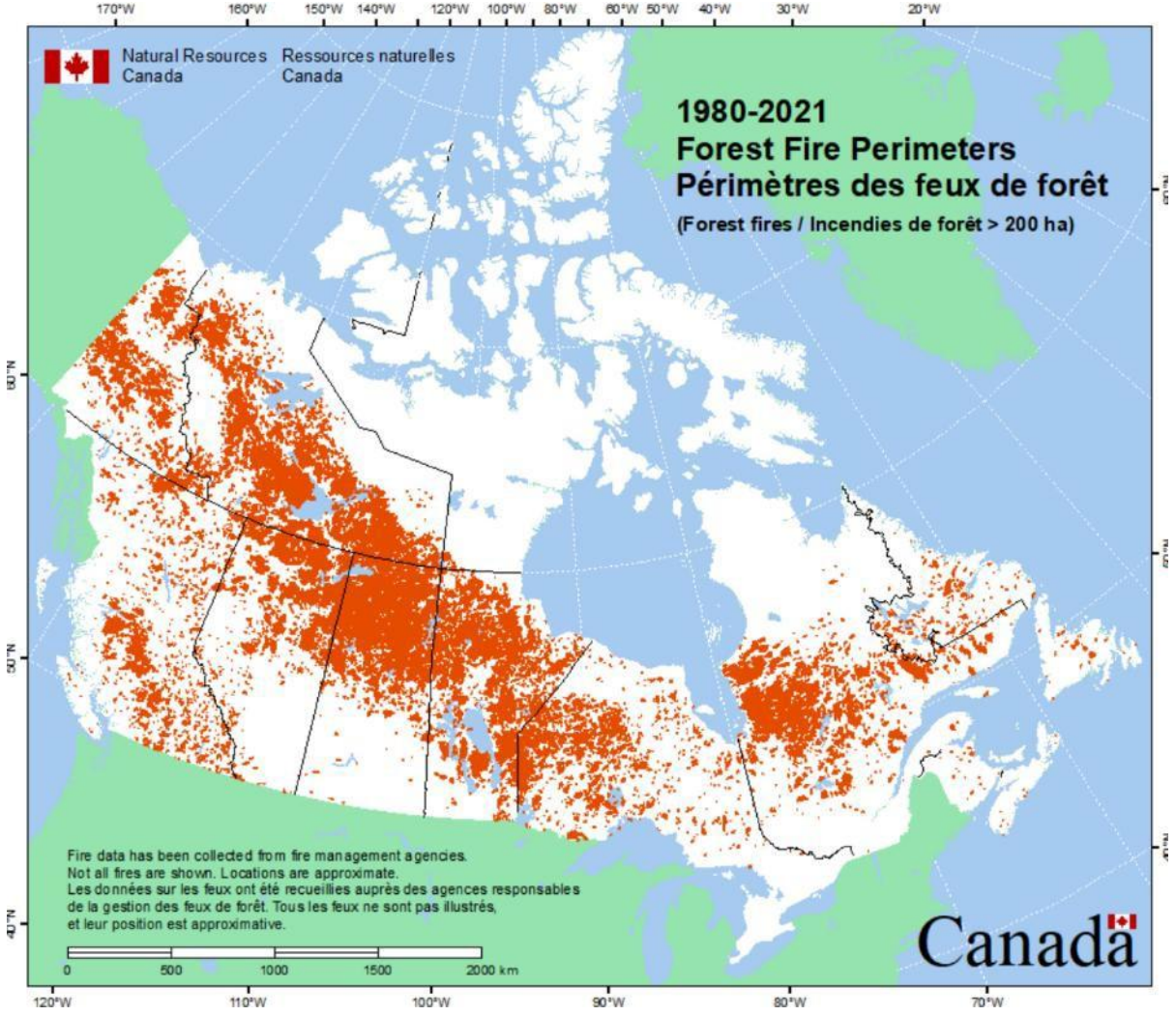
LAKO 550 debarking acacia in Asia/Brazil

LAKO 52 handling a big pine tree

LAKO 5–series debarking hardwood

StemMaster energy head

The challenge: Wildfire prevention thinning is expensive, inefficient, and requires lots of resources



Source: voanews.com

Current fuel treatment practices are inefficient, expensive and quite often also unfriendly for the environment, large feller-buncher, or single grip guillotine or harvester heads or even manual fell

We have been studying the fuel treatment topic for the last 4 years and as an outcome we have developed a felling head for fuel treatments that meet Canadian requirements.

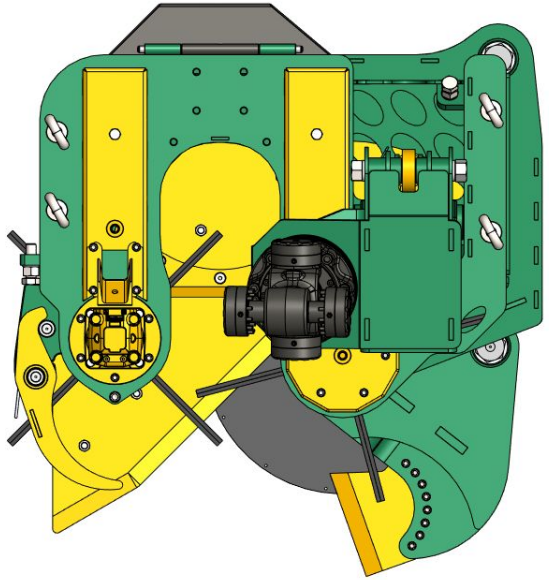
Continuously collecting felling head

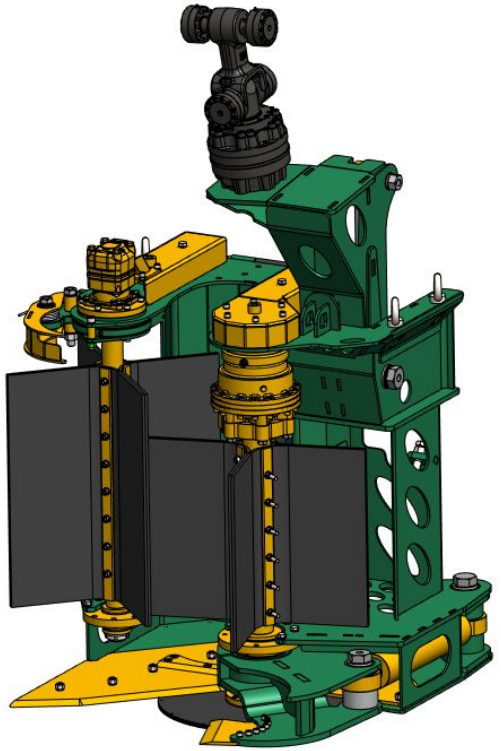
- A unique felling and continuous collection head
  - Built for forests with small-diameter trees and fuel management operations
- The main operation idea is to make selective pre-commercial thinning or first thinning to enable the remaining trees to grow faster and healthier
- Designed to produce non-limbed energy wood 2-3 times more efficiently than the existing solutions (single grip biomass grapples/heads)
- 200 -series is designed to be mounted on widely available base machines (10+ ton excavators)
- Easy to use, requiring only a few days of training

STEMMASTER WITH AN OPTIONAL GUILLOTINE CUT ARM

Continuously collecting felling head, larger 300T

- A unique felling and continuous collection, called 300 series
- The main operation idea is to make selective pre-commercial thinning or small diameter trees first thinning and enable to cut single 15cm (6 ”) by optional hyd.cylinder driven guillotine
- Equipped with larger ccm hydraulic motor for cutting, up to 700…1000 ccm which all are 2-speed motors
- Designed to be mounted on MEDIUM-LARGE base machines 18+ ton excavators or larger wheeled bases





Volvo 230E harvester base

John Deere 11170-1470

CAT 318-323 Road builder

Ponsse Scorpion / King

Suitability

Stemmaster is optimized for thick forests where the felled trees are less than 4 inches but no bigger than 10 inches

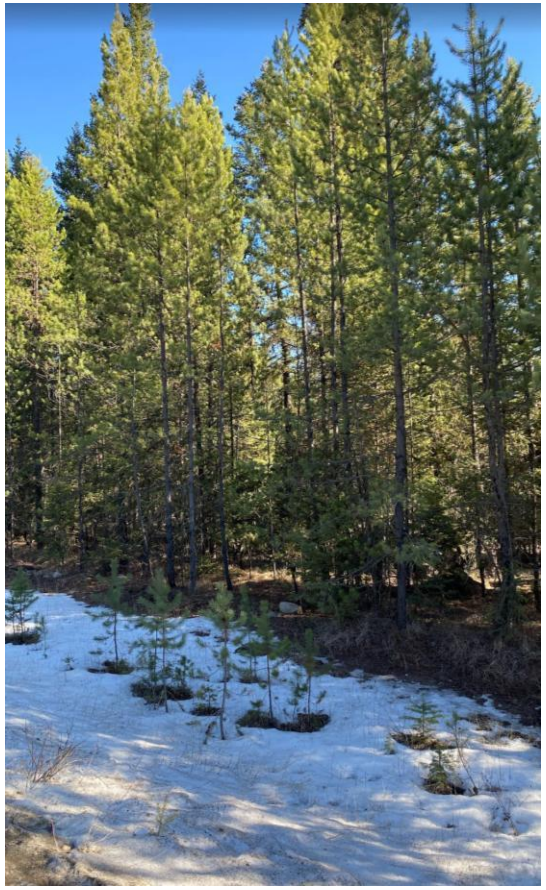
- The optimal tree size is 1-4 inches
- The thicker the forest is, the better fit with StemMaster
- To complete the job site, a small-medium size thinning forwarder will follow and pick up the bunches of stems (5-12 tons payload)

A fuel management site in Interior British Columbia

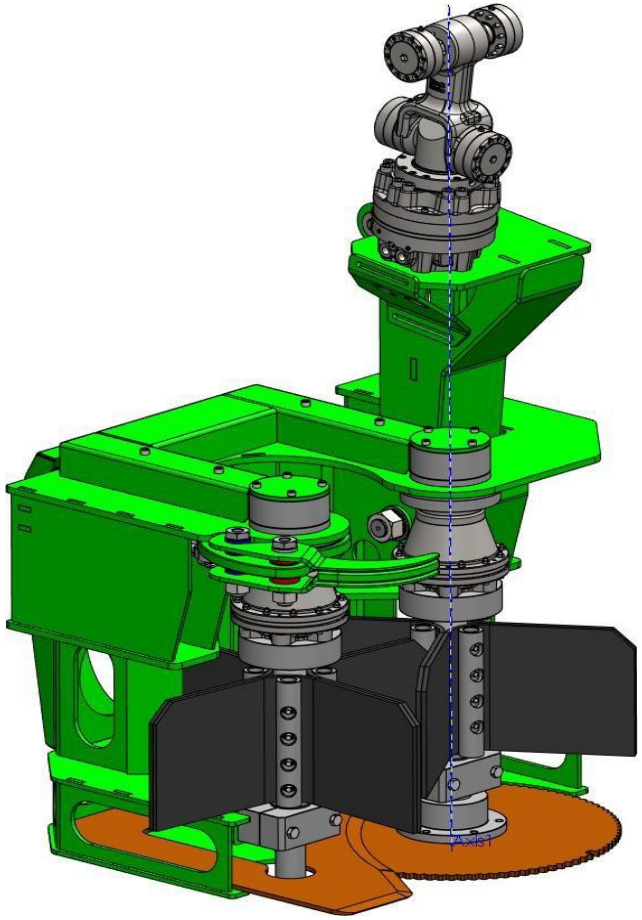
Suitability

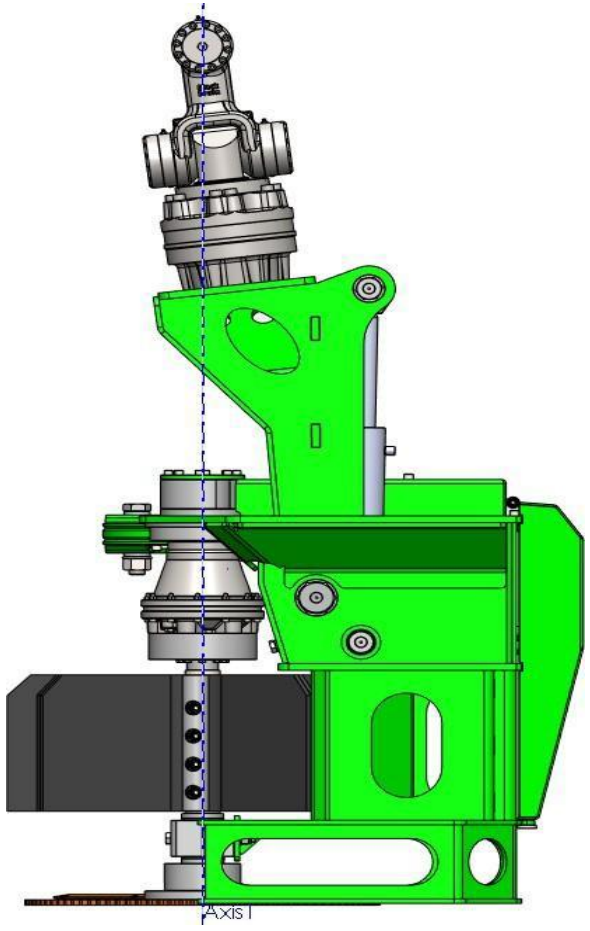
Stemmaster is optimized for thick forests where the felled trees are less than 4 inches but no bigger than 10 inches

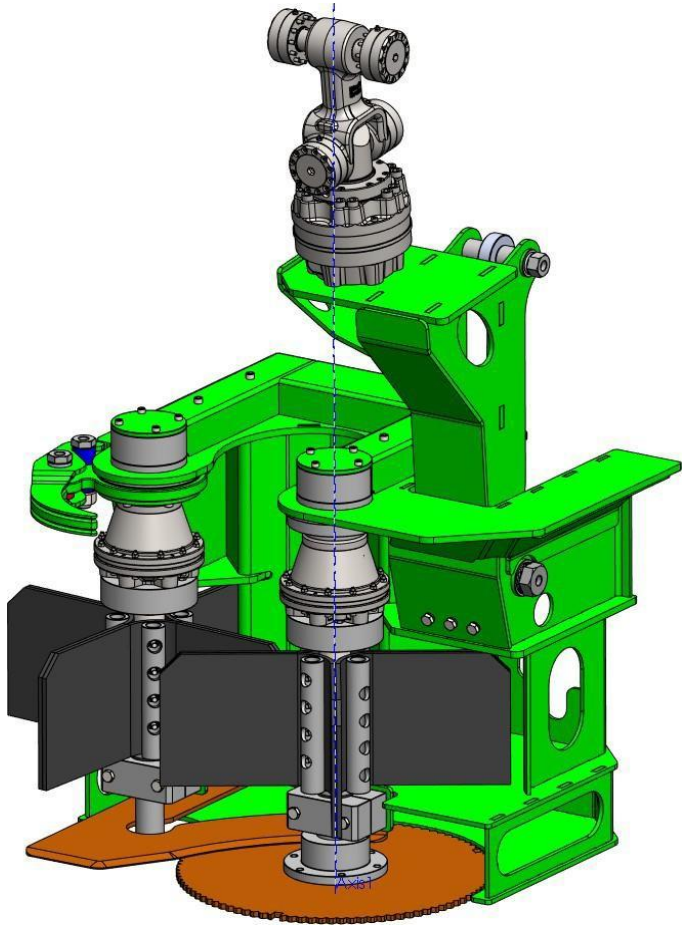




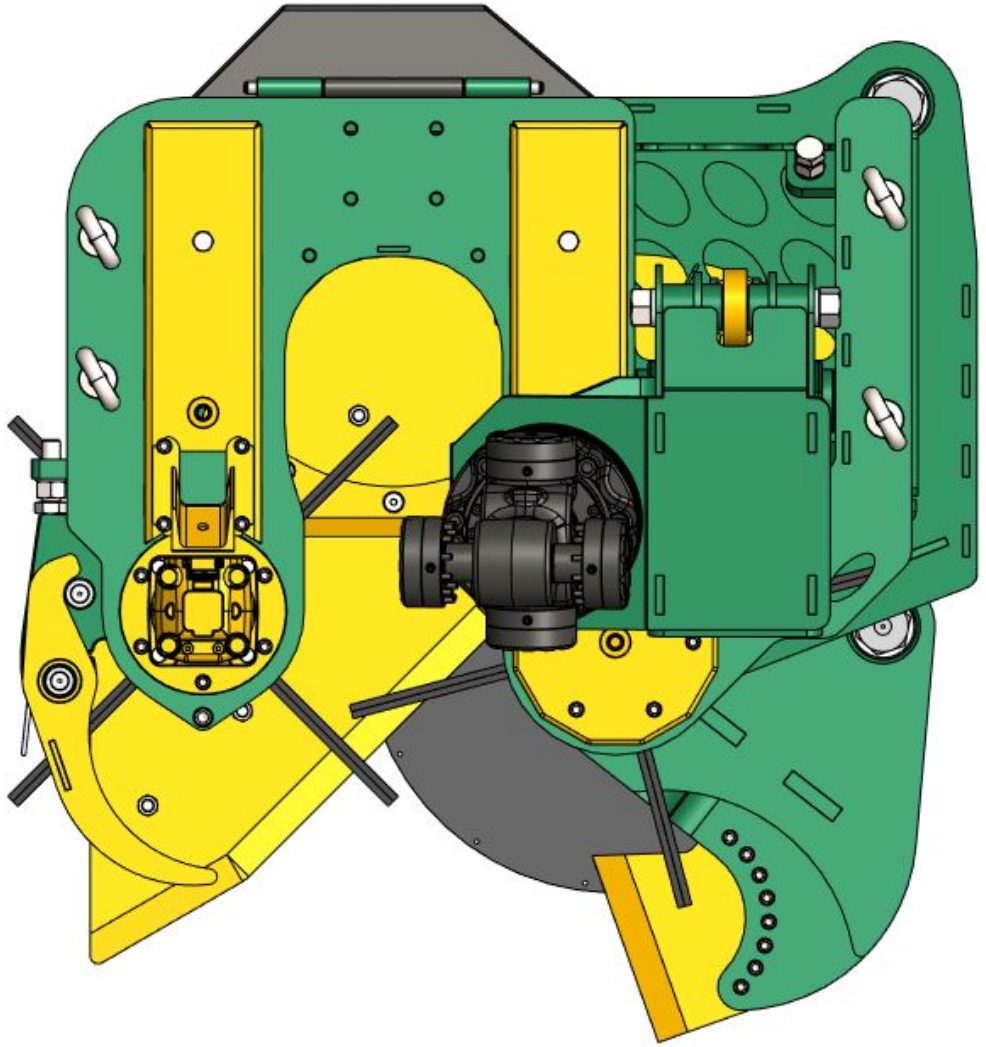

StemMaster head cuts the tree with a hydraulically driven disc blade or robust chain saw and moves the trees continuously by elastic collectors to the intermediate wood storage. When the storage became full (couple hundreds kilograms of wood), the operator will tilt the head down and run the motors opposite direction and in one second storage is empty and there is a bunch of wood to be collected by forwarder or skidder/tractor with a trailer



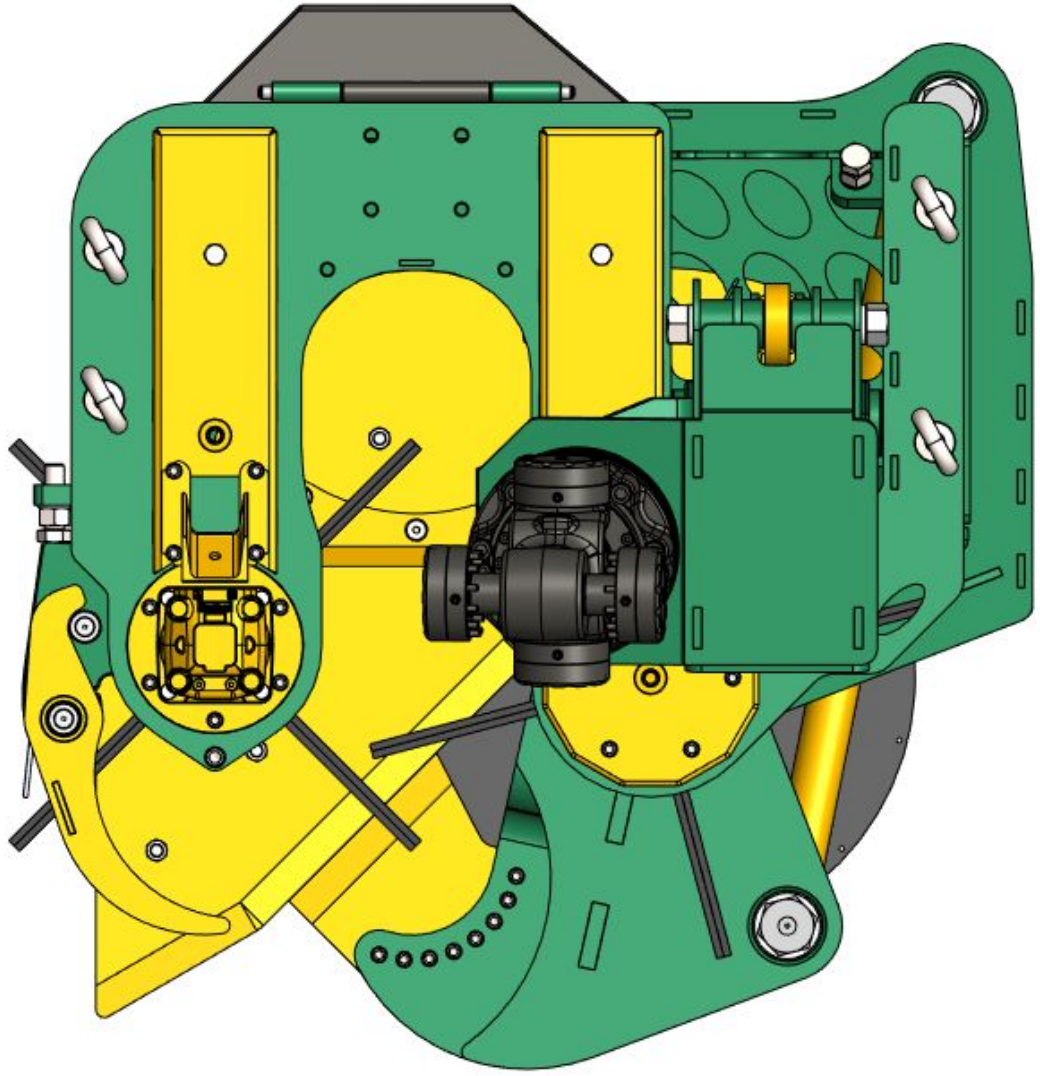




StemMaster 300 series head with an optional guillotine and stronger hydraulic motors

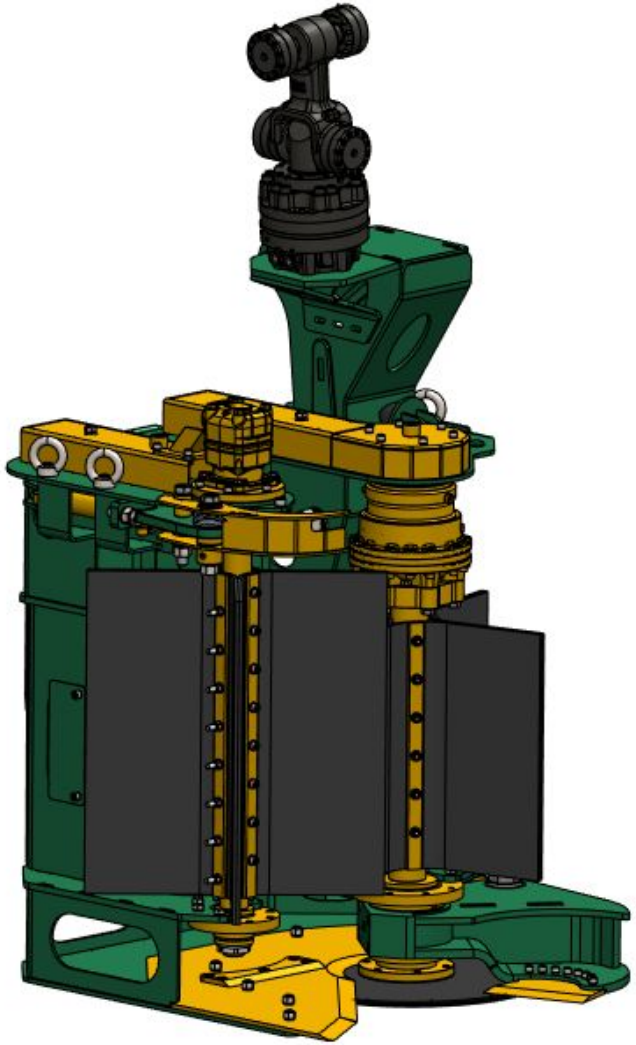


Bird view, guillotine fully open

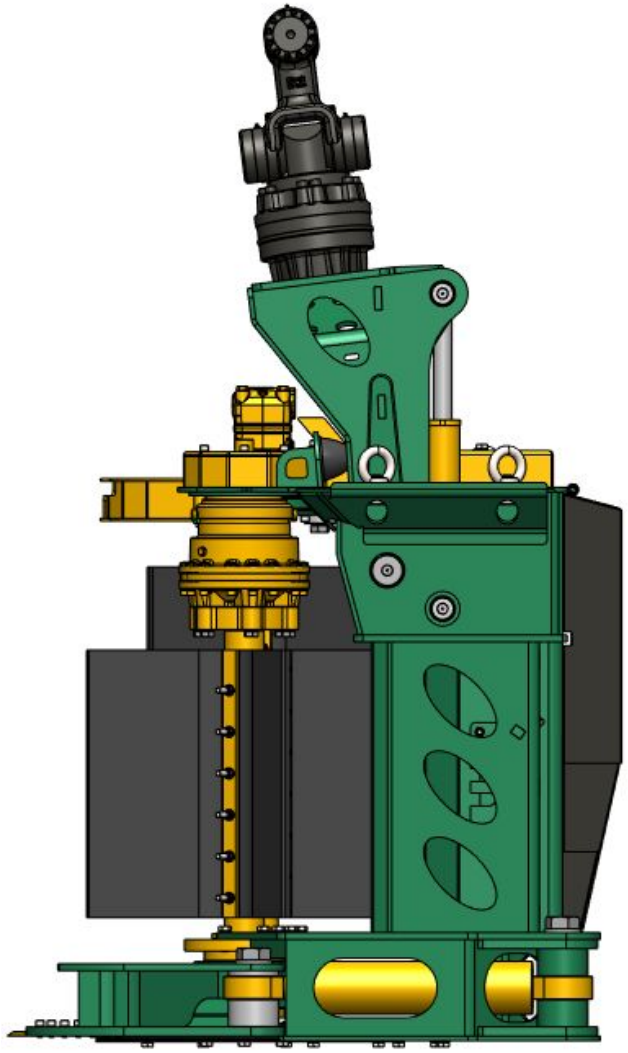


Bird view, guillotine fully closed

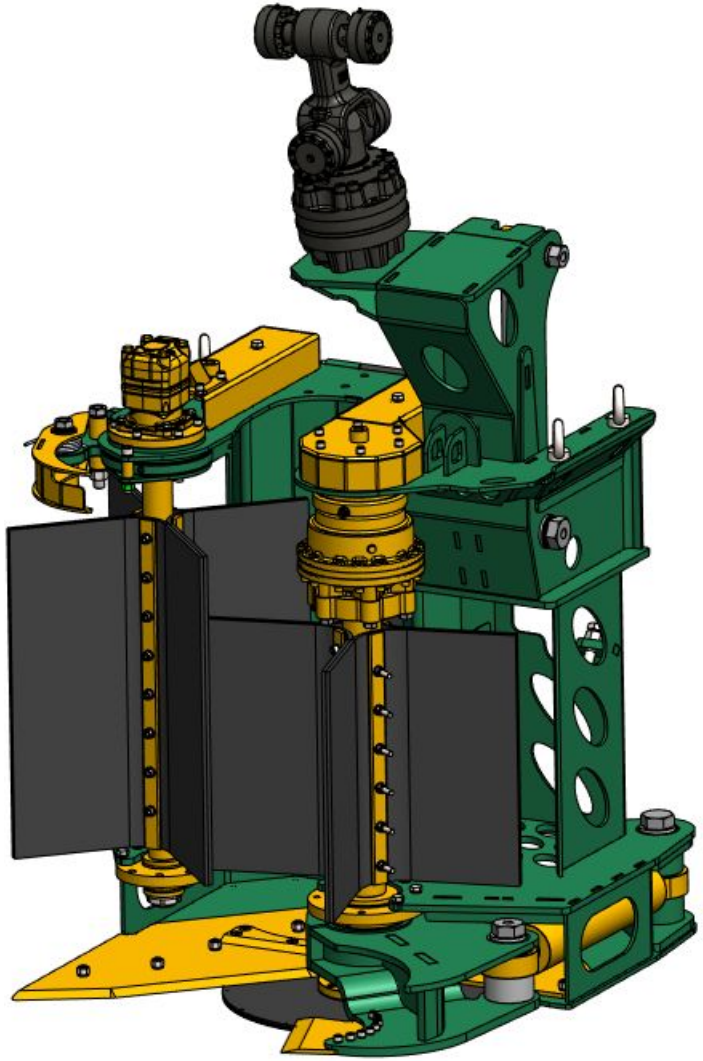
StemMaster 300 -series head with an optional guillotine and stronger hydraulic motors



Left front view guillotine fully open

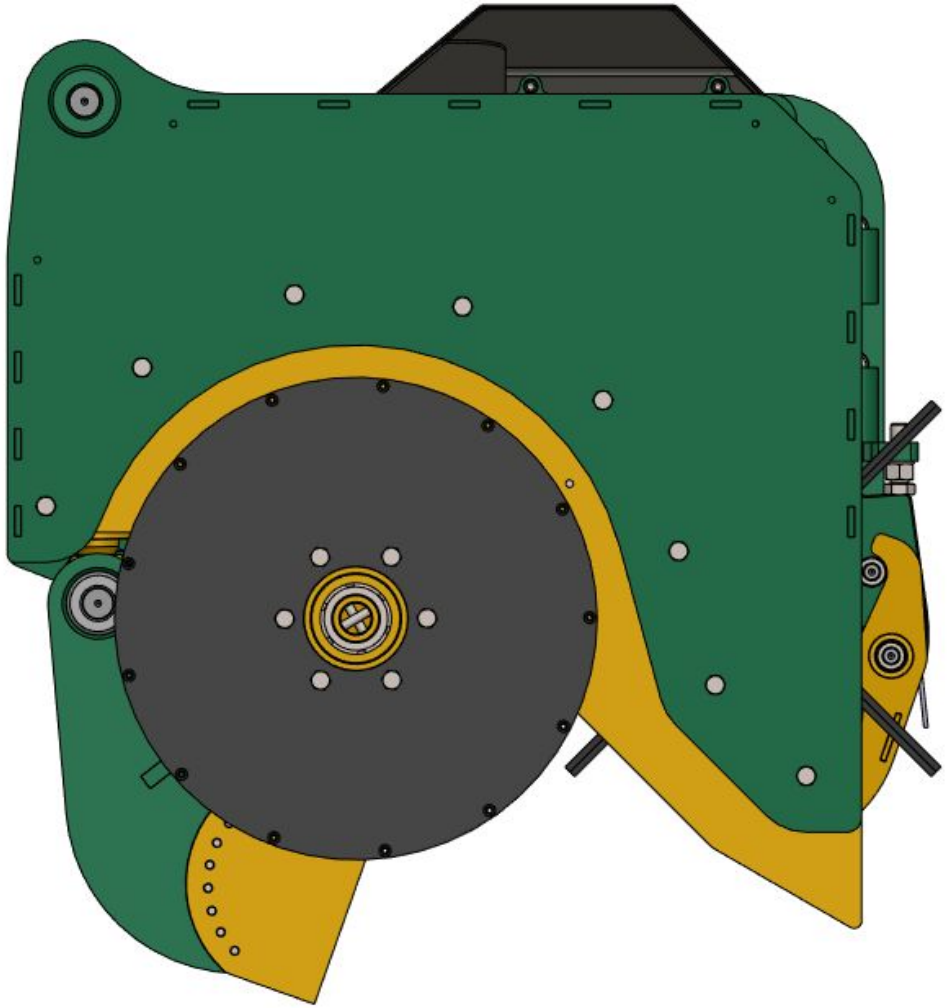


Side view right

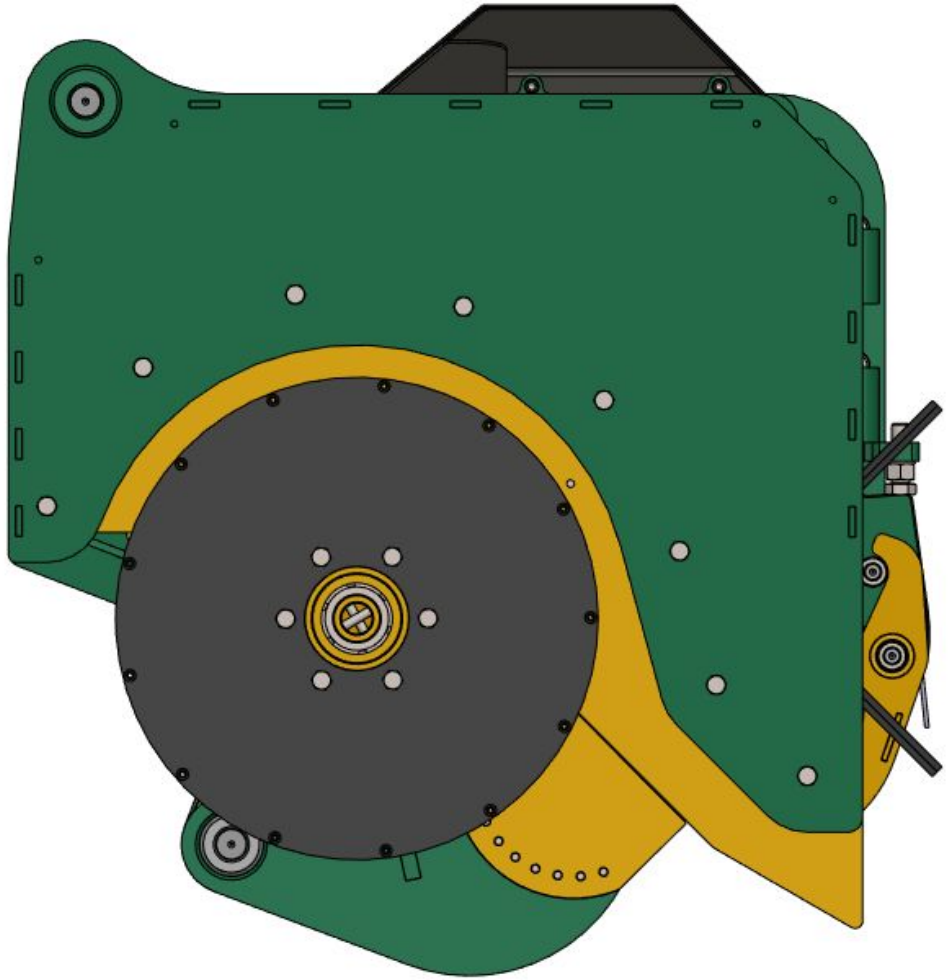


Right front view, guillotine open

StemMaster 300 series head with an optional quillotine and stronger hydraulic motors



Bottom view, guillotine fully open



Bottom view, guillotine closed

Durability & Operation

The head is drawing much less power compared to felling heads which enables the use of older machines which are widely available. Also fuel economy of the base is phenomenal. In addition the learning curve to be able to operate the StemMaster effectively is very short

The continuously stem collecting system with an integrated cutting blade is the key principle

Second hand small scale forest machine can be utilized as a StemMaster's base machines

StemMaster bioenergy heads have a simple robust design with a modern hydraulic system

STEMMASTER: CONTINUOUSLY COLLECTING FELLING HEAD

- **The most unique, environment-friendly and effective product range for the small tree cutting in the young forests and fuel management:**
  - The product range consist of two sizes of StemMaster felling heads: 200 and 300 mm maximum opening of the storage area.
  - There will be versions for C-T-C (track or wheeled) with a conventional tilt arm (felling device) like normal harvester heads have.
  - Optionally with a tilt rotator unit for modified hydraulic excavator (typical harvester base in North and South America).
  - More simple attaching system for existing feller bunchers which are very common in areas where of typically tree length method is used
  - StemMaster heads are a unique, totally new felling and continuous collection head, to operate in young forest with small diameter trees.
  - The main operation idea is to make selective pre commercial thinning or first thinning to enable the remaining trees to grow faster and healthy. Then the forest owner will have more sales income in the future and better forest management.
  - The other important application is the prevention of the wild forest fires and well collection effectively wood material Biochar needs
  - StemMaster heads are designed to produce non-limbed energy wood 2-3 times more efficiently than existing solutions thanks to their working method compared to conventional single grip biomass heads.
  - Practically any tree species can be processed. The collection method is very gently thanks for proportional feed speed control
  - StemMaster cuts the tree with a hydraulically driven disc sharp blade or robust chain saw (3/4”) and moves the trees continuously to the intermediate storage situated at the middle of the StemMaster head when trees are still at the standing position.
  - There are two sets of rotating elastic collector elements driven the same hydraulic power unit which is integrated to the cutting blade. The whole process happens quickly and continuously, meaning the operator needs not to handle the trees individually.
  - When the storage become full (around 150-400 kg trees), the operator will tilt the head down and unload the bunch by rotating opposite direction the collector elements/devices, after seconds the head is again ready to start a new cycle to collect standing trees.
  - The forest and environment will stay very nice and clean after StemMaster has done its job. This is the most environment friendly method
  - The new StemMaster head extend the lifetime of the second-hand wheeled harvester base or feller-buncher (“recycling”) as well excavators.
  - StemMaster is easy to use and much faster to learn to us it effectively and safely, no need to have a long training periods to reach effective operators. There is only a simple control system to operate the functions of the StemMaster head with needed easy adjustments (settings)

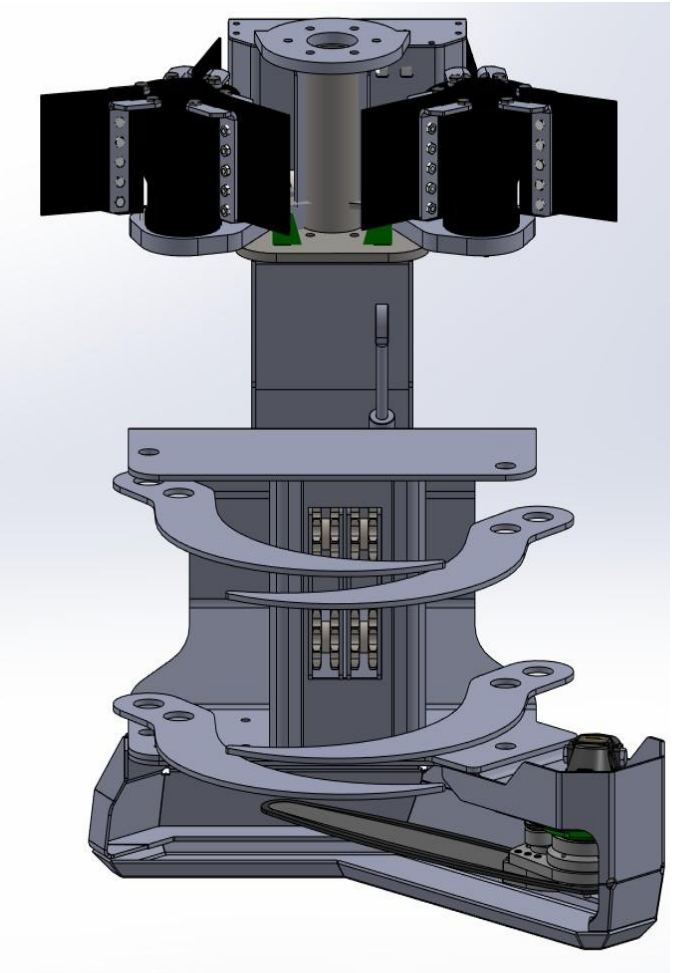
StemMaster is available now in two sizes. In optimal conditions, the top hourly output of the bigger model is 12 or 15 m3 depending on the size of the StemMaster head.

STEMMASTER heads technical parameters and their productivity

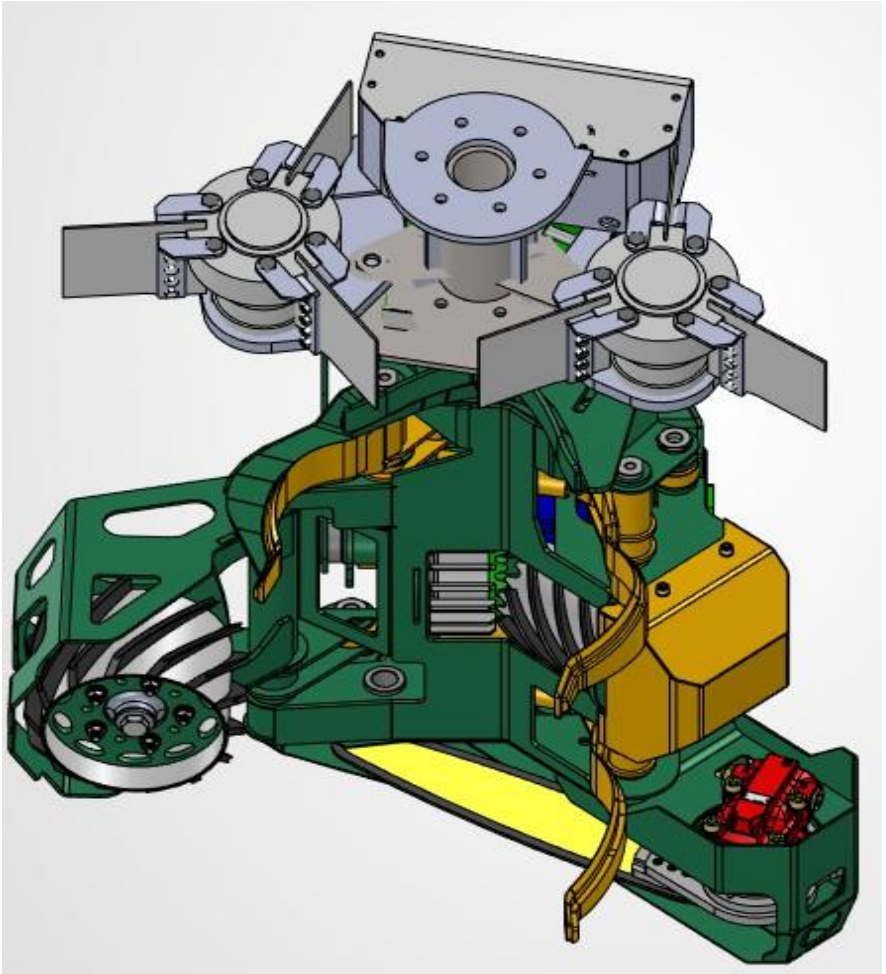
200 -series TILT VERSION		300 -series TILT VERSION
10 – 250 mm	*Tree handling capacity/opening*	10 – 300 mm
10 – 120 mm	*Optimum diameter range Weight*	20 - 150 mm
775 kg / 1700 lbs	*of the head*	1000 kg / 2200 lbs
80 kg / 175 lbs	*Additional weight of rotator+ link*	108 kg / 240 lbs
N/A	*Optional guillotine (around 150 mm)*	100 kg / 220 lbs
950 / 1350 mm	*Height frame / tilt up*	1275 / 1680 mm
1215 / 1365 mm	*Width frame / collectors Hydraulic*	1215 / 1365 mm
From 55kW / 75 hp	*Engine power need*	From 75 kW / 102 hp
Between 10 – 18 tons	*Recommend size of carrier Typical*	Between 15 – 25 tons
6 - 12 m3/operation hour	*output (optimum cond.)*	

THE BIGGEST FACTORS OF THE PRODUCTION ARE DENSITY OF FOREST, TREE SIZES, AND OPERATOR

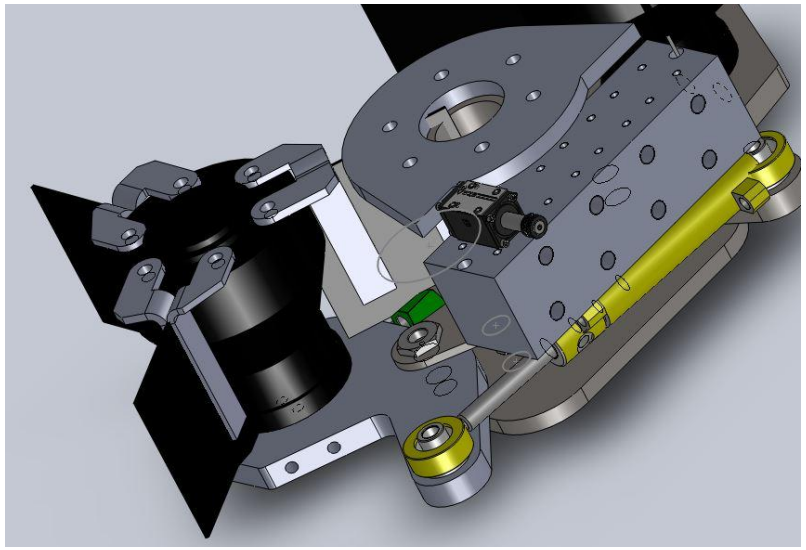
HYBRID: Expanding the StemMaster utilization like a harvester & felling head

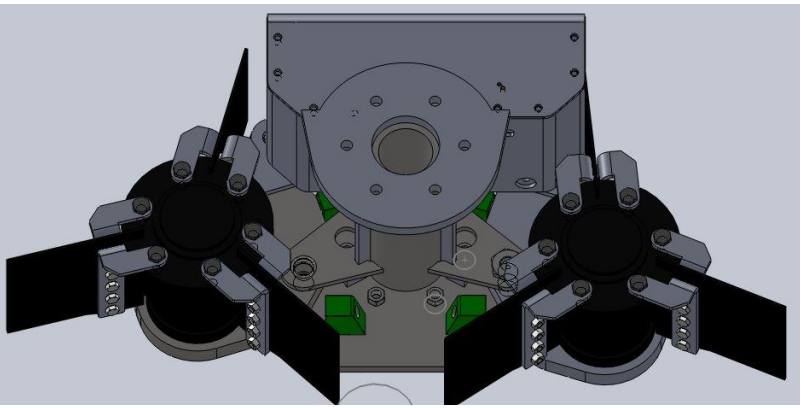


Common felling head can be modified as a continuously collection head by adding feeder units to the tilt arm



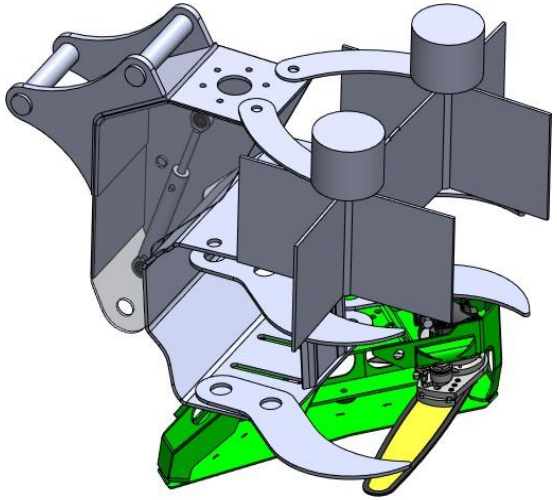
Also a typical harvester head can be modified as a continuously collection head by feeder units to tilt

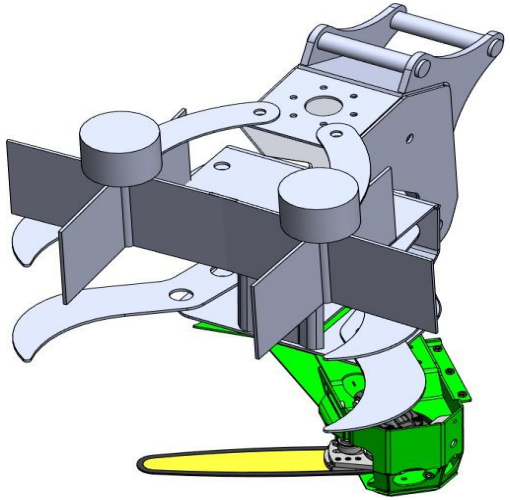




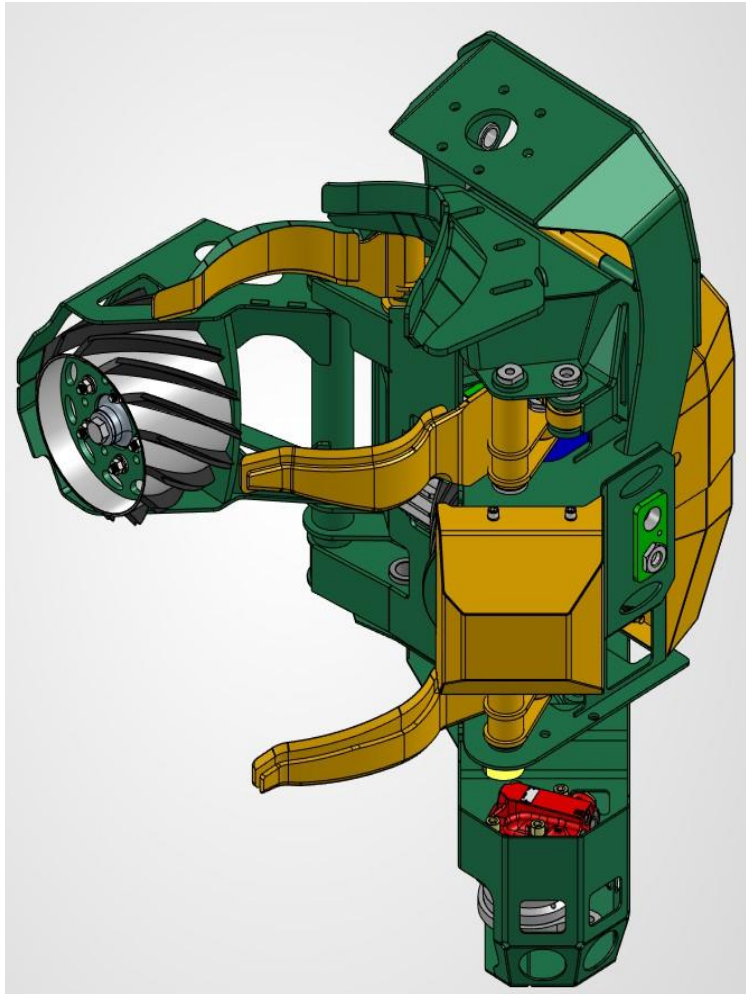
Standard style of harvester head can be updated as a continuously collection head by adding bolted on feeder units to tilt arm

THE NEW LIGHT 2-SERIES HARVESTER HEAD VERSION: TuLAKO 22 and 32

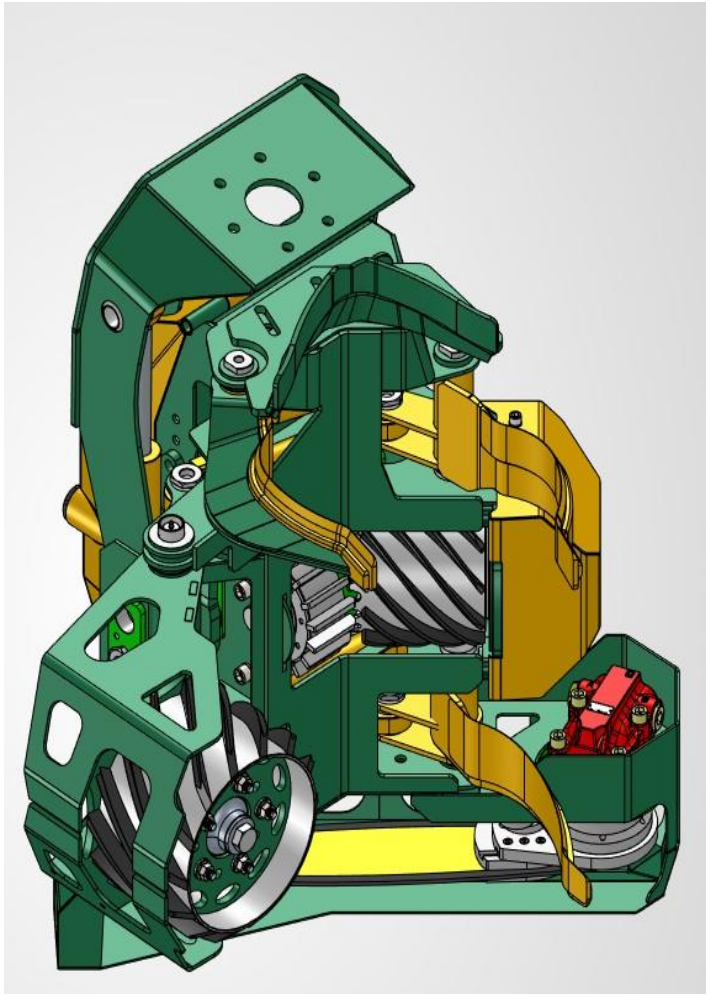




Common felling head can be modified as a continuously collection head by adding feeder units to the tilt arm, also can be constructed as a fixed head (tilt)



Asymmetric light weight harvester head for smaller scale of harvesters or very long outreach of the cranes



Standard style of harvester head can be updated as a continuously collection head by adding bolted on feeder units to tilt arm

Contact details

Feel free to reach out anytime to discuss about opportunities to collaborate

STEMMASTER
THE MULTICATCH THINHEAD

EU and Global

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