

*Turkka Lastunen Consulting Oy Ltd (TULACO)*  
*Master of Global Forest Machinery*



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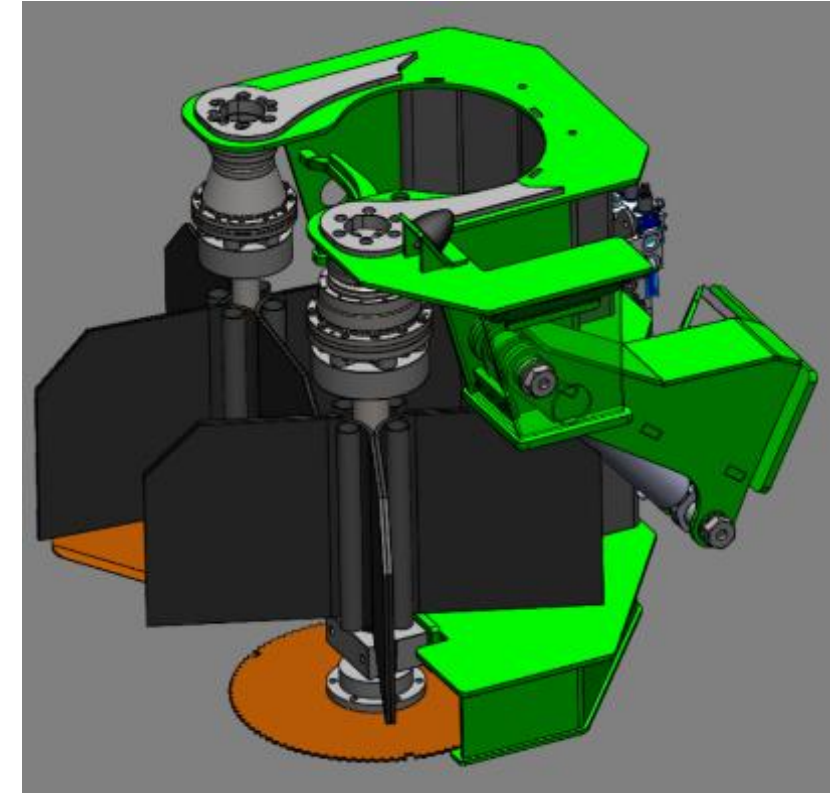
# STEMMASTER: CONTINUOUSLY COLLECTING FELLING HEAD

StemMaster head is a unique, totally new felling and continuous collection head, to operate in young forest with small diameter trees as well in 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 healthy. Better income.

Our heads are designed to produce non-limbed energy wood 2-3 times more efficiently than existing solutions thanks to StemMaster construction and its working method compared to existing single grip biomass grapples/heads.

Our StemMaster head cuts the tree with a hydraulically driven disc blade or robust chain saw and moves the trees continuously to the intermediate wood storage situated at the middle of the head when trees are still at the standing position.



*The diameter range or variation of the handled stems is from 1cm up to 25cm with 250 head and up to 40cm (16") with bigger capacity StemMaster 400.*



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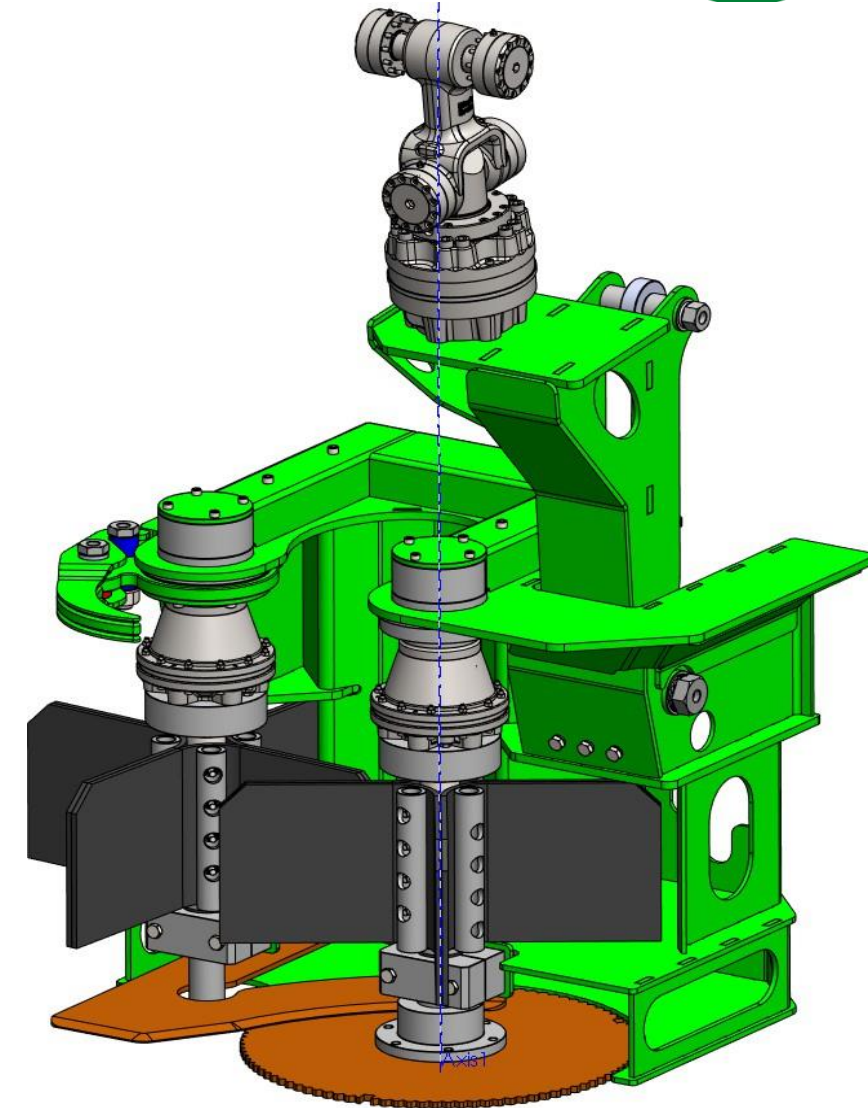
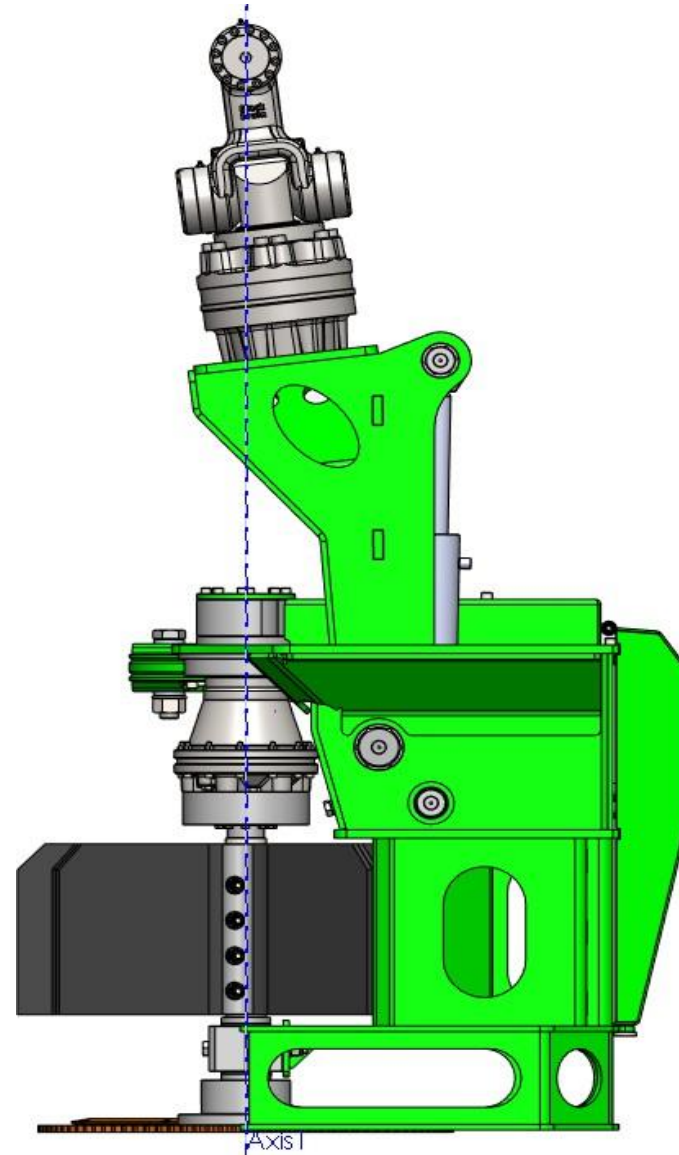
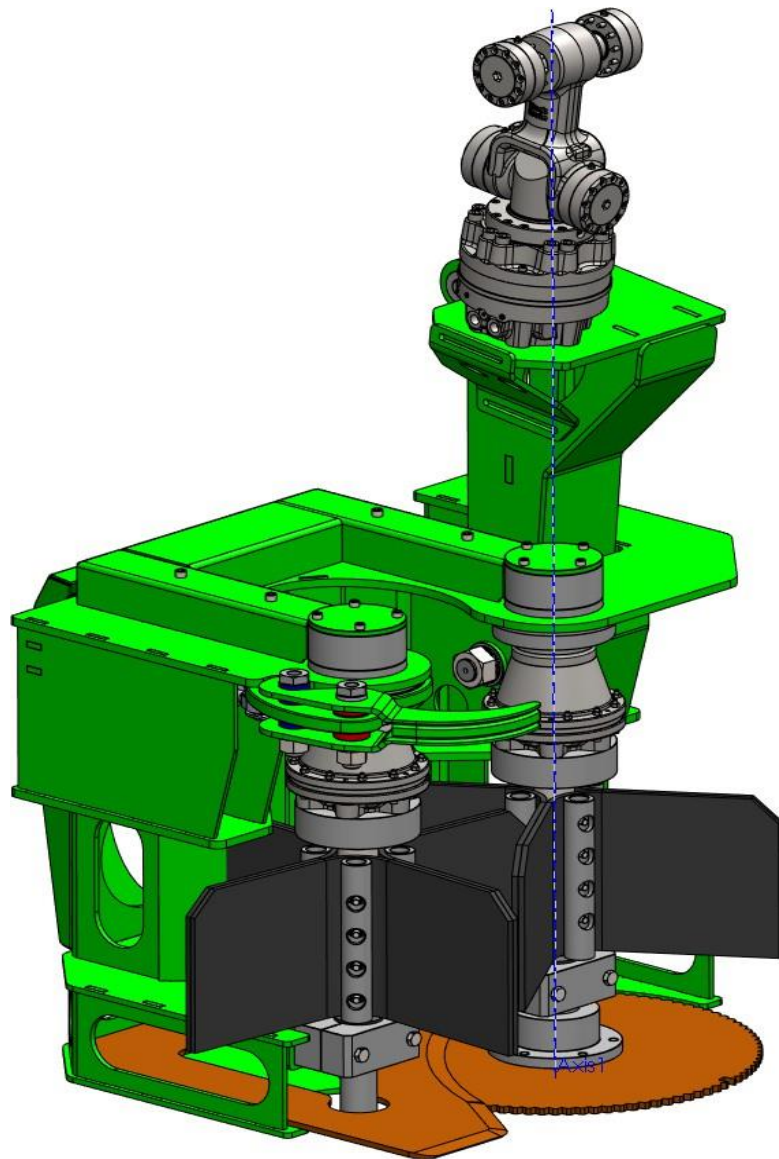
- The main operation idea of the Stem Master head is to make selective thinning to enable the remaining trees to grow healthy and faster and leave forest clean.
- The most interesting applications of the StemMaster is the fuel management to prevent forest fires and to collect biomass, with low CO2 impact during the process.
- To complete job site small-medium size thinning forwarder will follow and pick up the bunches of stems (5-12 tons payload)
- In addition to the smaller (250) size of StemMaster can act as a felling head for a chipping machine working inside the forest (e.g. GreenChip), even a collecting grapple mounting boom end of forwarder.



*Left side, the skid rail is unthinned forest and right side is thinned*



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## StemMaster heads technical parameters and their productivity

250 TILT VERSION		400 TILT VERSION
10 – 250 mm	<i>Tree handling capacity</i>	10 – 400 mm
30 – 120 mm	<i>Optimum diameter range</i>	40 -180 mm
745 kg / 1640 lbs	<i>Weight of the head</i>	1050 kg / 2300lbs
80 kg / 175 lbs	<i>Additional weight of rotator+ link</i>	108 kg / 240 lbs
950 / 1350 mm	<i>Height frame / tilt up</i>	1250 / 1600 mm
1135 / 1385 mm	<i>Width frame / collectors</i>	1350 / 1600 mm
From 45kW / 61 hp	<i>Hydraulic power need</i>	From 75kW / 102 hp
Between 8 – 15 tons	<i>Recommend size of carrier</i>	Between 14 – 25 tons
7 - 14 m <sup>3</sup> /operation hour	<i>Typical output (optimum cond.)</i>	10 – 20 m <sup>3</sup> /operation hour

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



# 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: 250 and 400 mm maximum cutting capacity.
  - 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 an 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.
  - 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. The diameter range or variation of the handled stems is from 1 cm up to 25 cm (3/8" – 10") with StemMaster 250T head and up to 40 cm (16") with bigger capacity StemMaster 400T.
  - Practically any tree species can be processed.
  - StemMaster cuts the tree with a hydraulically driven disc 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 2-400 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").
  - 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 operators.