

## Saw and cleaving machine

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Specialization Electromechanical Engineering Technology

### Introduction

This bachelor thesis is carried out for VDMJ Machinebouw. This manufacturer of agricultural machines is looking to expand their assortment. Specifically they are looking for a single machine that combines the sawing and cleaving of wooden logs into firewood.

### problem

The current practice to process wooden logs into firewood is to use two separate machines: a first machine for sawing the log in smaller pieces and a second machine to cleave those pieces. This method requires a lot of manual labor to drag the processed logs from the sawing machine to the cleaving machine. Because of this way of working a first problem is that processing wooden logs is very time-consuming. This results in a more expensive process with smaller profits for the producer of firewood as a result. A second problem is that this method is very physically demanding.

### Objectives

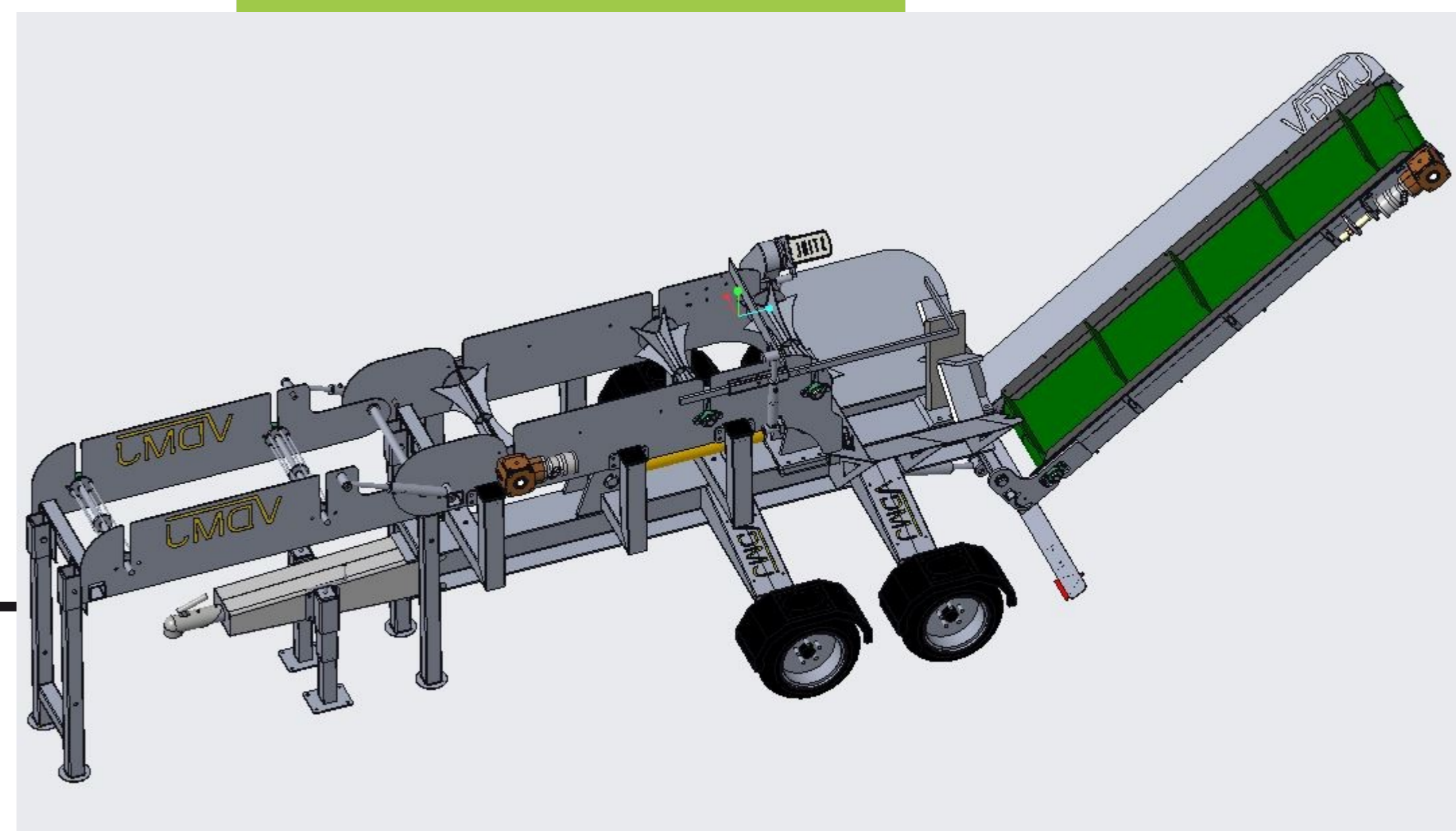
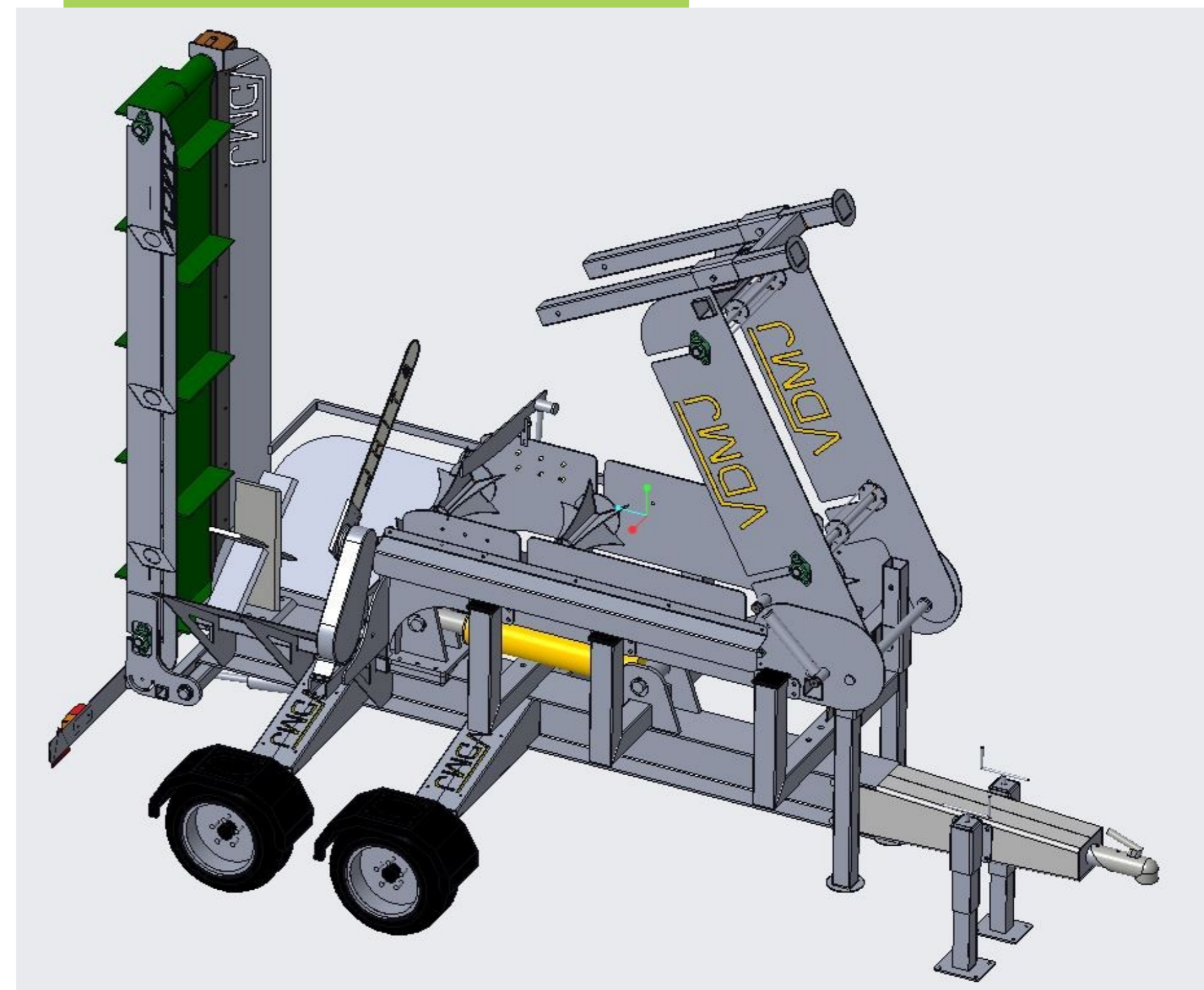
- ✓ A fully automatic machine.
- ✓ The machine must have all the necessary safety implementations according to the 2006/42/EG guidelines.
- ✓ A maximum price of 10.000 euro
- ✓ Wooden logs ranging from 1 to 6 meters
- ✓ Log diameters from 15 to 60 centimeters
- ✓ A capacity of 1,5 meters of wooden log per minute

### functionblocks



### The principle

First the full tree trunk is placed on the conveyor belt. Then the chainsaw cuts the trunk in smaller pieces. The smaller pieces fall to a lower floor. Here the pieces are cleaved by means of a hydraulic cylinder and a large knife. At the end the pieces of wood are removed by a second conveyor belt.



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