DESIGN AND ENGINEERING OF ORGANIC WASTE PROCESSOR FOR HOUSES WITH CAPACITY 1 KG/MINUTE

Nama Mahasiswa : Trisna Martha Mahdana
NRP : 2111 030 107
Jurusan : D3 Teknik Mesin FTI – ITS
Dosen Pembimbing : Ir. Winarto, DEA.

Abstract

This effort has been aimed to make easier in processing organic waste produced by the houses, especially the leaves, branches of the trees. Hopefully, after being designed and engineered, this machine could be used by anyone in the house for organic waste processing. It should be noted that this effort was held by a teamwork consists of two members.

The machine was designed and engineered such that in order to compacting and then cutting the waste. The compacting function is carried out by the a screw conveyor which rotates and conveys the waste into a conical chamber and then, the compacted waste will be cut by rotary cutters. This design and engineering process was merely deciding the overall dimensions of the machine and then determining the compacting chamber, the screw conveyor assembly and the rotation needed. Meanwhile, the rotary cutting system and the power transmission will be designed and engineered by other member of the team.

The design and engineering process revealed that the screw conveyor has to be rotated at 54 rpm and 0,288 kW power to meet the capacity of 60kg/hr. The overall dimensions are 590 mm x 596 mm x 910 mm and the dimensions of the compacting chamber are 150 mm diameter and 420 mm long. The screw conveyor has the specifications of 30 mm shaft diameter, 230 mm long and 20 mm pitch.

Key words : For houses, Organic waste, Capacity 1kg/minute.