ABSTRACT

Coconut milk is one of the most usefull cooking material in Indonesia. The production of coconut milk in several places stil use conventional tools, hand power, which needs more time to get fresh coconut milk. In Kolombo market there is coconut seller who uses separated coconut grater machine and coconut milk expeller machine. This separated machine takes additional time to take grated coconut and put it into coconut milk expeller. Therefore, in this study has goal to design integrated coconut grater with coconut expeller which rotation is able to be adjusted.

There was several methods used in this study, the first was observation. After that, the works of machine components were calculated, and the material were selected. Then the design of the machine can be started by using Solidwork 2020. Evaluation was done after the complete design made. Finally improved and fixed the design of integrated coconut grater machine with coconut expeller machine which rotation was able to be adjusted.

From the study and calculation which has been done, it can be conclude that integrated coconut grater machine with coconut expeller machine which rotation is able to be aligned needs 1HP of electric motor for performing coconut processing. Alignment is operated when machine is off, so the velocity is 0 m/s. Clutch shaft with 30 mm diameter. Expeller shaft diameter is 30 mm with 70 mm diameter of screw and 2° tappering. Grater shaft diameter is 19mm. Motor to clutch V-belt is two type A V-belts. Clutch to expeller V-belt is two type B V-belts. Clutch to grater V-belt is one type A V-belt and diameter of square jaw clutch is $d_s = 30mm$, $D_1 = 46\ mm$, $D_2 = 85\ mm$, $h = 23\ mm$. The bearing used is a pair of pillow block bearing UCP204, UCP206, and three pairs of pillow block bearing UCF206. Beside those, machine's frame uses St 37 L profile steel with 40 x 40 x 3 mm in size.

Keyword: coconut milk, expeller, coconut grater, clutch, VCO