ABSTRACT

One part of the coconut plant that is most widely used is the fruit that can be consumed. One of the preparations that are widely used is coconut milk. The operator has tools to peel the coconut husk but the result of the peeling is still not clean and leaves the remaining coconut husk. The reason is that the shape of the peeler knife is not flexible, the movement of the peeler knife arm is not stable, and the thickness of the peeler knife arm is relatively small which results in unstable arm movement.

In designing a peeler knife for a coconut husk peeler machine, the reverse engineering method is used because the existing condition already uses a machine so decomposition can be carried out on the existing machine to find out the components and functions of the existing machine. Based on the research results, it was found that the design of the proposed paring knife was in the form of changes in the shape of the paring knife blade and the use of SS 304 Stainless Steel material for the proposed paring knife.

Based on the von Mises stress simulation on a paring knife given a load of 50 N, it shows that the maximum value is the sensitive area when given a high load, which is 1.715 x 108 N/m^2. Then the most secure shaft mounting point is 1.029 x 108 N/m^2. The resulting minimum point is 0 N/m^2. From the results of the displacement analysis, the highest value is 1.884 mm with the lowest value being 1.00 mm. The average level of cleanliness obtained in peeling the coconut husk is 69%. These results are better than the results on the existing machine.

The results of the proposed paring knife design have an impact to the operator. It is expected that these improvements can be implemented directly in real conditions in the field such as traditional markets.

Key Words: coconut husk peeler machine, peeler, reverse engineering