

Summary

One of the most important sources of revenues of poor local women living in Bihar and Jharkhand is generated with Tasar silk yarn sales. Tasar silk yarn is produced by means of the reeling and the re-reeling machine. However the current applied machines do not function properly for the following reasons:

- The machines have a low performance;
- The maintenance costs of the machines are high;
- The reliability of the machines is low;
- The machines are expensive;
- The machines are heavily constructed and are therefore difficult to carry.

The assignment description is: design new machines which meet the following demands:

- Low cost
- Good performance
- Low power consumption
- reliable
- easy to maintain
- low noise/vibration emission
- Portable (lightly constructed and small size)
- Save

On long term 10,000 machines will be manufactured.

To meet the demands, the machines are constructed as follows:

- The drive transmission is simple and consists out of a small number of parts;
- The frame is simple and light;

Compared to the current applied machines, the construction of the designed machines is an improvement, because:

- They are cheaper. The cost price of the current machines is €260 and that of the designed machines is €196;
- They are more reliable and require less maintenance ;
- They have a lower vibration/noise emission;
- They are safer to operate. The frame of the designed machines covers the drive components completely, which is not the case for the current applied machines;
- They are portable, due to their light construction.

The designed reeling and re-reeling machines are driven by a motor with a power of 60W respectively 70W. The current machines are driven by physical power.