

food outlook

REDEFINING FOOD SECTOR

- Maharashtra's Plastic Ban
- The FSSAI Experience Zone
- De-Husking Rubber Rolls



**CELEBRATES THE SPIRIT of
"UNSUNG MOTHERS"**

Exclusive Conversation



Mr. Gaurav Jain - Director
DCP India (P) Ltd.



Mr. Rahul Mittal - CEO & ED
Bhagwati Lacto Vegetarian Exports (P) Ltd.

₹50,000 CR. Amul
TURNOVER IN FY19

PRODUCT LAUNCH

Pavan New MULTIDRIVE Technology

Nestlé Introduces Breakfast Cereals

BOSCH New Industry 4.0 packaging solutions

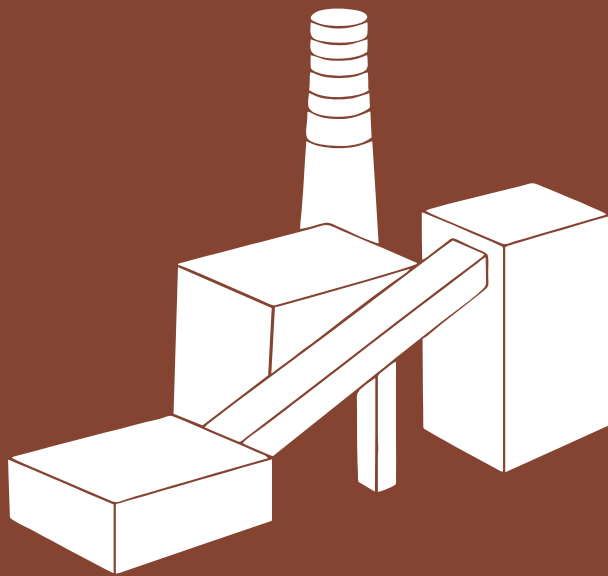
BUHLER launches 20 digital innovations

Coca-Cola Launches Glucocharge & Vitingo



Exclusive Conversation with Mr. Atul Asthana, Managing Director and CEO,
Goodricke Group Ltd.

Grain Processing Machinery



- 42 Technology behind De-Husking Rubber Rolls
- 46 Bühler unveils over 20 digital innovations at the Ipack
Ima trade show
- 48 Satake Releases New Optical Sorter in Brazil
- 50 Bühler LumoVision: Saving lives and improving
livelihoods with revolutionary data-driven grain
sorting technology



Rostfrei Make Zincalume Steel Silos
“The Future of Grain Silo Industry”

42

Technology behind De-Husking Rubber Rolls

Choosing a pair of de-husking rolls for paddy de-husking is difficult task unless we understand the specifications. There are many types of de-husking rolls currently available in the market. It consists of a Metal Drum or Core and Rubber reinforced over it. Bonding between Metal and Rubber must always be intact and must never come out. In case it does, reject whole batch of rubber rolls.

Metal drums may be Cast Iron, Mild Steel, Aluminum, or Aluminum Alloy. Aluminum Alloy Metal drums are light weight, more durable and consume less electricity

the variety of paddy to be de-husked shore hardness of rubber rolls varies between 82 to 95 degrees. Although exact Shore A hardness is little difficult to achieve hence the most practical acceptable tolerance norm should be -3 to +2 points e.g. in case you need a Rubber Roll of Shore A Hardness of 87 degree then the acceptable shore A hardness range is 85 to 89 degrees.

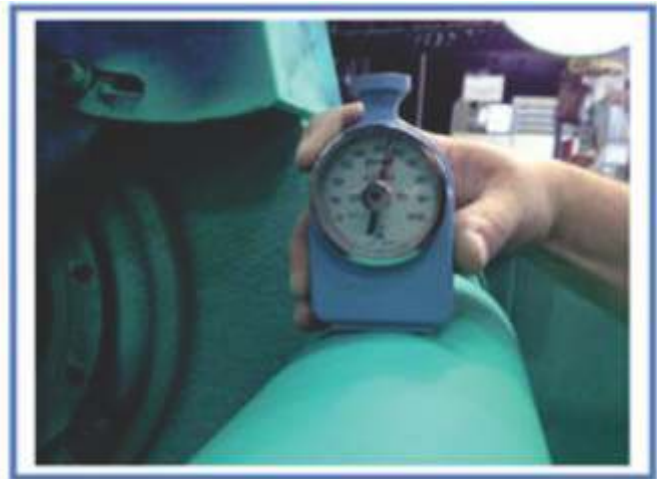
Hardness should be more or less uniform to ensure uniform de-husking with lesser broken percentage. Please check Shore hardness at approximately 8 points on a Rubber Roll randomly at ambient temperature below 50 degree

softening. Soft Rubber rolls will de-husk more but wear fast and similarly hard rubber rolls will de-husk less but last longer. One has to choose optimum hardness of rubber roll based on 85% to 90% shelling rate.

Measuring Hardness of Rubber Rolls
While measuring shore hardness with Durometer, it is important to hold the Durometer correctly i.e. parallel to the axis of rubber roll to be measured as shown in figures below;

“Incorrect”

Note: Durometer will not give accurate



Rubber roll's history started with Natural Rubber rolls but later shifted to more stable materials like

1. Silica-filled Styrene-butadiene rubber (SBR)
2. Nitrile Butadiene Rubber (NBR)
3. Poly-chloroprene Rubber, and
4. EPDM Rubber Roll material should be uniform and air trap free.

Hardness of Rubber Rolls

Shore A Hardness of a Rubber is measured in IRHD by an instrument called Durometer. Shore Hardness of all Rubber Rolls must be checked for its correctness before mounted the rubber rolls on De-Huskers. Depending upon

centigrade. It must be noted here that while rubber rolls are in operation the temperature of rubber rolls may go up to 83 degrees C. Checking Shore A Hardness at this temperature is of utmost importance. At this increased temperature of 83 degree C the Shore A hardness must not decrease below 50 to 60 degrees. Good Rubber rolls are always designed to work efficiently at working temperatures of rubber rolls that is at 83oC.

Significance of Hardness of Rubber Rolls

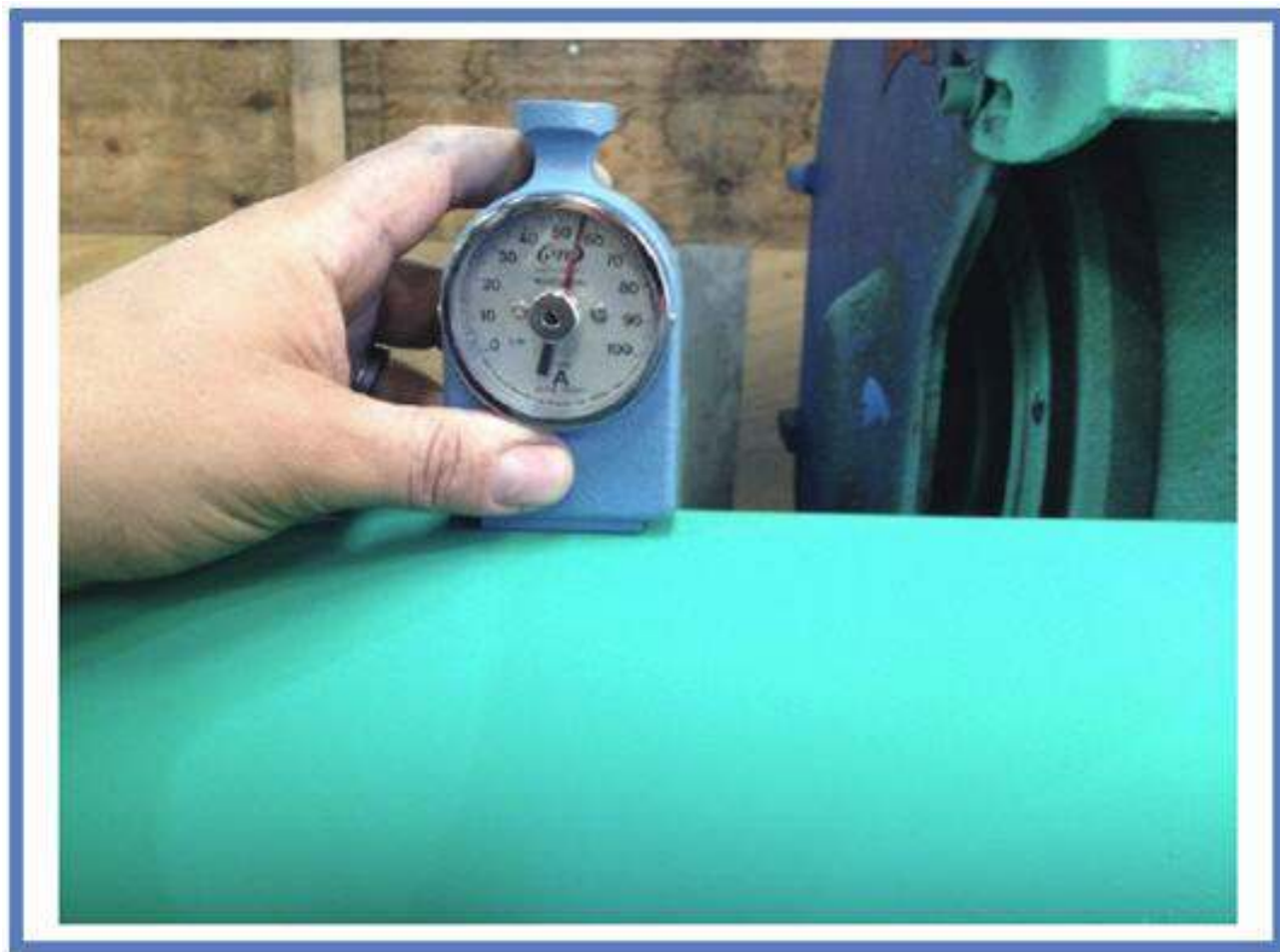
Rubbers rolls undergo both shear and compressive forces while de-husking paddy, which result in gradual abrasion of the rubber surface and its thermal

reading if the rubber thickness is less than 6.5mm.

Peripheral Speed of the Rubber Rolls
While in operation both rubber rolls operate in opposite direction, whereas one roll is fixed and another is adjustable. It must be understood here that since adjustable roll is approximately 25% slower than the fixed one, and this results is a differential speed at the contact surface of two rolls. This differential speed is very important to maintain shelling rate.

The fixed roll have higher speed hence wears fast, thus to keep the differential speed to an acceptable level the two rolls must be rotated. Always replace

“Correct”



Food Processor

Grain Processor

Beverages

Food Processing Machinery

Grain Processing Machinery

Packaging & Storage

Ancillary Services

both the rolls instead of single roll to maintain the shelling efficiency.

Balancing of Rubber Rolls

Dynamic Balancing of Rubber Rolls is very important in a sense that it not only reduces the vibrations but also reduces the broken percentages. Sometimes when everything is alright and you still are facing problem of increased broken percentage do check if your rubber rolls are properly balanced.

Vendor Selection for Rubber Rolls



Please do visit vendor's manufacturing unit and check for the following;

- Does he have proper lab to ensure a consistent quality of rubber rolls?
- Does he keep record of raw material quality?
- What kind of in-process quality controls he adopts to give consistent quality?
- How does he check the air entrapment in Rubber?
- How does he ensure the uniformity of Shore A Hardness of rubber roll surface.
- Does he conduct balancing of each and every rubber roll?

Please note that all these checks are very important to ensure that you are getting good quality rolls.

Efficiency and Durability of De-

husking Rolls

Besides, quality parameters of paddy variety and equipment specifications following measures must be taken to ensure high efficiency and durability of rubber rolls.

- While mounting the rolls of the mandrel, please ensure that all the screws are tightened properly. Diagonally opposite bolts must be tightened first.
- Eccentricity of mandrel and ovality of bolt-holes must be corrected before mounted rubber rolls.
- Preferably rubber rolls must be consumed within 6 months of their manufacturing date.
- Paddy must be fed in laminar flow between the rolls.
- Storage instructions of manufacturer must be followed.

P.K. Bhardwaj
Vice President (Grain Management)
Rostfrei Steels Pvt. Ltd.
Website: www.rostfreisteels.com

