



Construction of a De-vulcanization plant producing 2.6 MT DRC per hour

Important Note: Levgum is NOT a supplier of equipment. It has no intention of profiting from selling equipment. This information is to assist Potential Licensees. With this and the help of Levgum they can ask for quotations.

Levgum can put the Licensee in contact with companies that can supply such a plant as a Turn Key Project. This is done as a service to our customers.

Levgum Ltd. לבגום בע"מ



PLANT CAPACITY

Requested output	2.6 MT/hr
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We assume:

- A) 16 hours working day (2 shifts)
- B) 250 working days a year
- C) 4 similar lines of 3 roller mills each working in parallel

INPUT

Rubber crumb (ideally truck tyres buffing, but all sulfur cured rubber crumb can be de-vulcanized using this line) with a maximum volume of 2,600 kg/h

Rubber crumb size below 2 mm

Preferably, free of any contamination

OUTPUT

The output of the process is based on rubber crumb. Yield will be 100 % of the input by weight. DRC will be in accordance to the raw material (rubber crumb) used.

MANPOWER

Production: **Four operator** will be required.

Maintenance: **2 maintenance man** only in dayshift service.

POWER CONSUMPTION

The total power installed is 450 kW. From this installed power only 85–90 % is continuously used. This is per each line of 3 machines – 4 lines working in parallel.

WATER CONSUMPTION

The equipment requires water only for cooling purposes.

MAINTENANCE COSTS

The maintenance costs are low. The maintenance can be carried out by your own operators. The spare parts can easily be removed, welded and sharpened and replaced. This method enables you to use these parts many times again and keeping the maintenance costs low.



Fig.1: Illustration of the three de-vulcanizing roller – mills with all the necessary auxiliaries, roller mill cooling system etc.

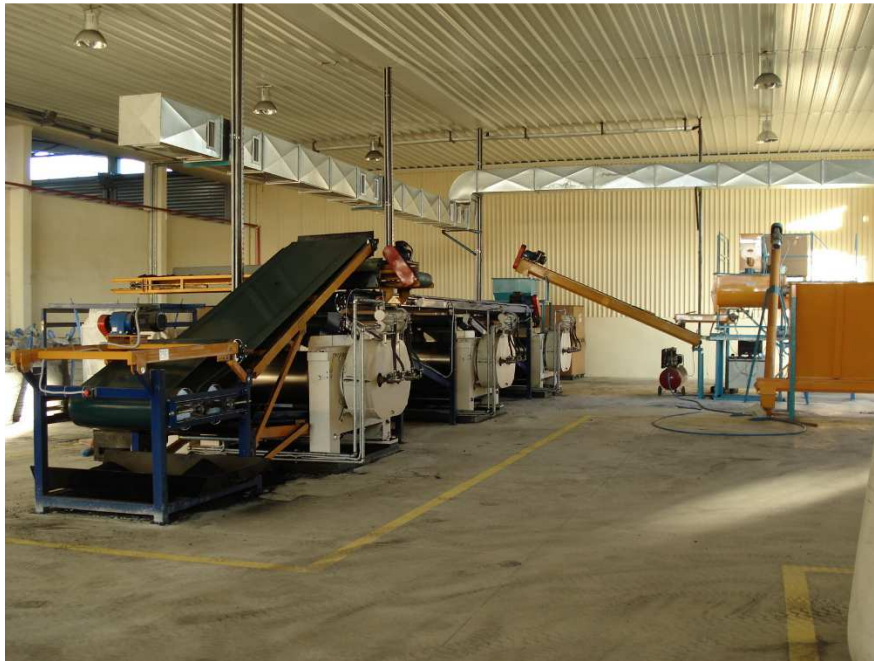


Fig.2: Overall overview of the de-vulcanizing process.



TECHNICAL DATA – per line of 3 roller mills. 4 lines are to work in parallel

- Raw material hopper (2)
 1. Capacity – 3000 lt. with an embedded screw conveyor
 2. Motor – 1.5 kW
- Raw material screw conveyor (2)
 1. Motor – 1.1 kW
 2. Diameter – 150 mm
 3. Length – 4.5 m
- Ribbon mixer with discharge screw and an online weighing system and a magnet at its inlet for metal removal.
 1. Capacity – 300 kg
 2. Motor – 2.6 kW
- EDV dosing hopper with an online weighing system
 1. Motor – 0.18 kW
- Ribbon mixer discharge screw
 1. Motor – 1.5 kW
 2. Diameter – 150 mm
 3. Length – 4 m
- Feeder
 1. With an installed magnet for metal detection and removal
 2. Motor – 1.5 kW



- Roller mills (3 items)

1. Roller Mill with Smooth Surface Rolls

2. Rollers Sizes:

- a. Length - 900 mm Smooth Surface Rolls
- b. External diameter of the rollers – 550 mm to both rollers of each machine
- c. Internal cooling cavity with a diameter of – 220 – 230 mm
- d. External surface (included in the 550 mm) of at least 30 mm should be made from 45-48 Rockwell steel

3. Rollers speed:

- a. The tangential velocity ratio between the two rollers should be between 1:2 to 1:3 (see drawing below)
- b. The tangential velocity of the fastest roller should be 0.7 m/sec (maximal that can be considered is 1m/sec)

4. Rollers Nip (distance between the rollers):

- a. Adjustable from 0.0 mm to 10 mm. Working NIP is 0.1 mm
- b. NIP adjustment should be in parallel on both sides of the roller

5. Rollers Cooling:

- a. Rollers should be water cooled
- b. All pipes and parts of the rollers cooling should be a part of the machine supplied.
- c. All connections of the cooling system coming out of the machine should be 3/4" in diameter with standard screwing

6. Bearings: Heavy duty. Manual Lubrication once every 25 working days

7. Motor: 180 HP (132 KW) with Thermal relay

8. Gear:

- a. New gear box to take care of the relative tangential velocity
- b. Auto lubrication to both shafts of the gear
- c. Teeth Whiles treated with induction to increase abrasion resistance

9. Machine Body:

- a. Made from twin 35 mm steel profiles welded to each other

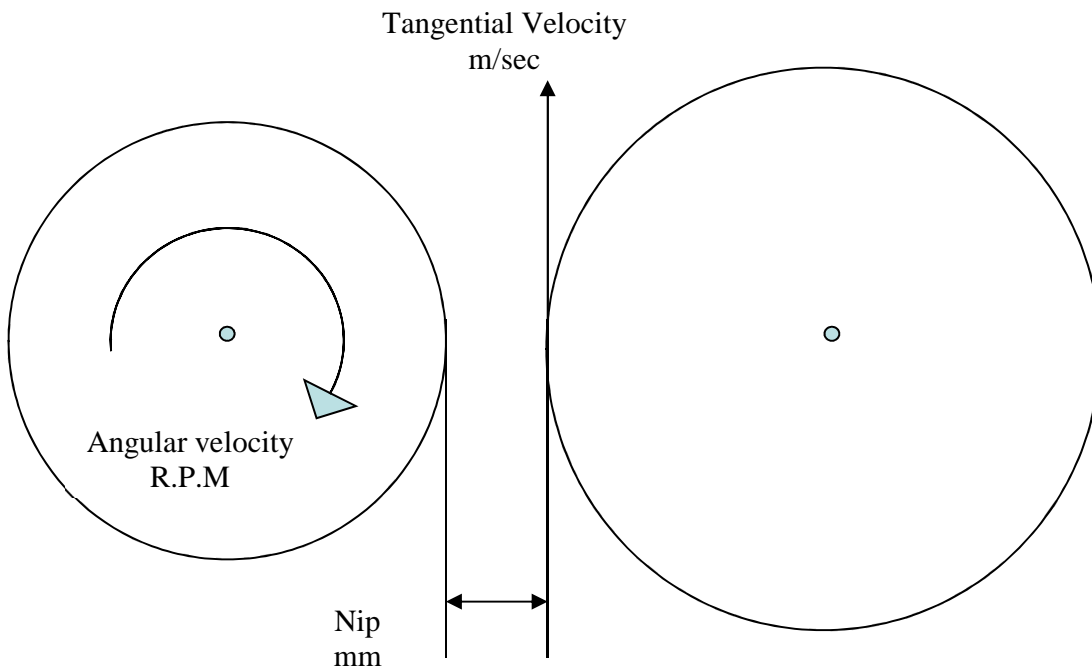


b. Color: Epoxy paint

10. Safety: 4 emergency stops at machines 4 corners are required

11. Total weight of each roller mill: approximately 13 MT

12. Each machine should be delivered fully assembled





13. Guarantee:

- a. At least one year full guarantee should be asked for
 - b. The said guarantee will only hold when the machine is used to de-vulcanize rubber in a regular way
 - c. Terms and conditions of the Guarantee should be negotiated directly with the supplier
- Conveyor belts (2 items)
 1. One of which is fitted with a magnet in order to increase metal removal
 2. Motor – 1.5 kW
 - Elevation conveyor (1 item) retaining the rubber distribution
 1. Motor – 1.5 kW
 - Return belt (1 item)
 1. Motor – 1.5 kW
 2. Length – 9.7 m
 - Product belt (1 item)
 1. Motor – 1.5 kW
 2. Length – 3.8 m
 - Big – Bag Packing (1 item)
 - Complete ventilation system guiding any odors that may occur away from the production area.
 - Complete electrical cabinet with all controls, PLC and computer main control.

SPACE RECOMMENDATION

The space recommendation for this facility is approximately 5,000 Square Meters with 6 meters clear height, including the required storage area. (Raw material storage: 1,000 m², Product storage: 1,000 m², Production area: 3,000 m²)



EXCLUSIONS

- Granulation Machinery. We do not do that part for it is already known
- All Ducting For Air System and connections of all utilities
- Building And Site Work and any permits or fees required
- Any Taxes Or Duties
- Civil works and civil engineering and sewerage system
- Lighting and lighting connections
- Quality control equipment
- Tools, mobile crane, forklifts, scaffolding and consumables etc. required during erection
- Front-end loader, forklifts, big bags etc.
- Raw materials required during test-run and commissioning

PRICE

To be negotiated with the contractor.

NOTE

All dimensions of buildings, conveyors and other equipment as mentioned in this quotation have to be considered as preliminary and subject to the final project design.