Soup to Nuts: The Art of Making Wood Pellets

Maintenance as a Key Performance Parameter

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Bathan AG

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COBB GALLERIA CENTRE ATLANTA
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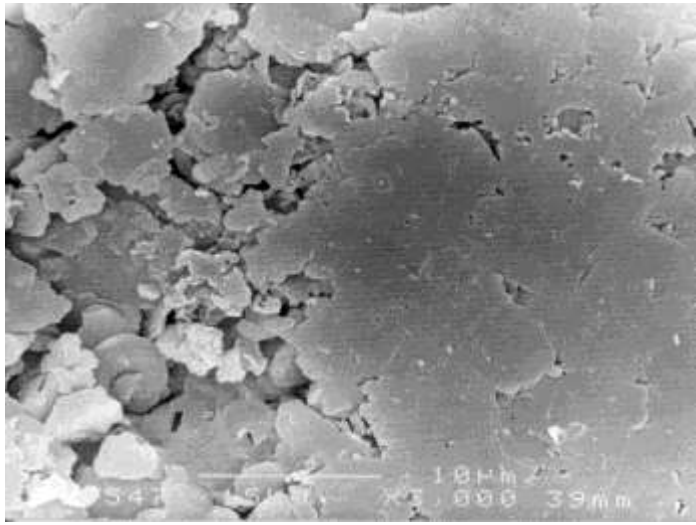
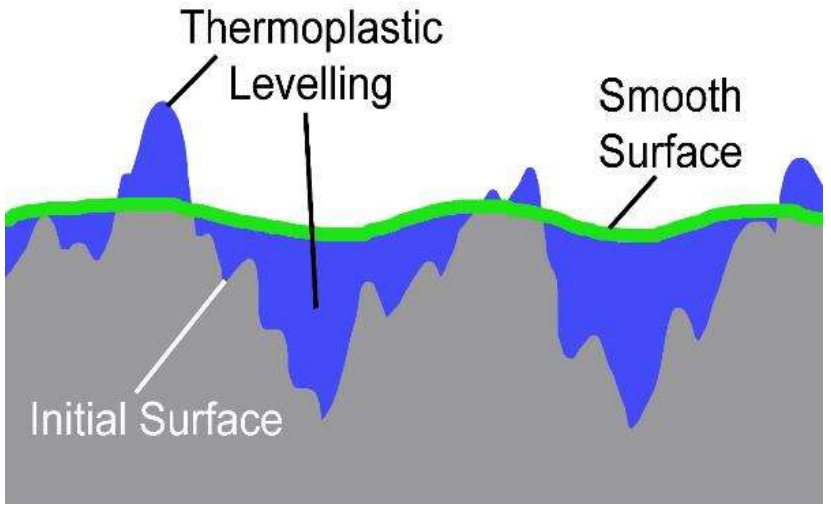
What We Do in Wood Pelleting

- Swiss manufacturer of high-performance lubricants
- Global leader in ceramic lubricants
- Solution Provider for many industries
- Full Service provider for the pellet industry



  - Commissioning
  - Service & Maintenance
  - Repairs & Spare Parts
  - Consulting & Training



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Our Achievements in Wood Pelleting

- 95% reduction in continuous lubrication volume
- Prolonged lifetime of roller bearings (x4 on average)
- 4-10% lower roller bearing operating temperatures
- 40+ pellet plants as customers
- Service, Maintenance & Technical Support
- 4-6 Consulting & Training Projects
- 2-5 Commissionings
- Spare Parts & Repairs

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Pellet Mill Maintenance – Where to Start?

Critical **P**oints of **M**aintenance

- Conveyors — Clogging | accumulations | lack of lubrication
- Wet & Dry Hammermill — Wear on hammers | sifters | Magnet check
- Pellet mill — Honey combing | temperature | power consumption
- Silo — Clogging of chutes
- Storage — Screw drive clogging

Material Handling - Conveyors

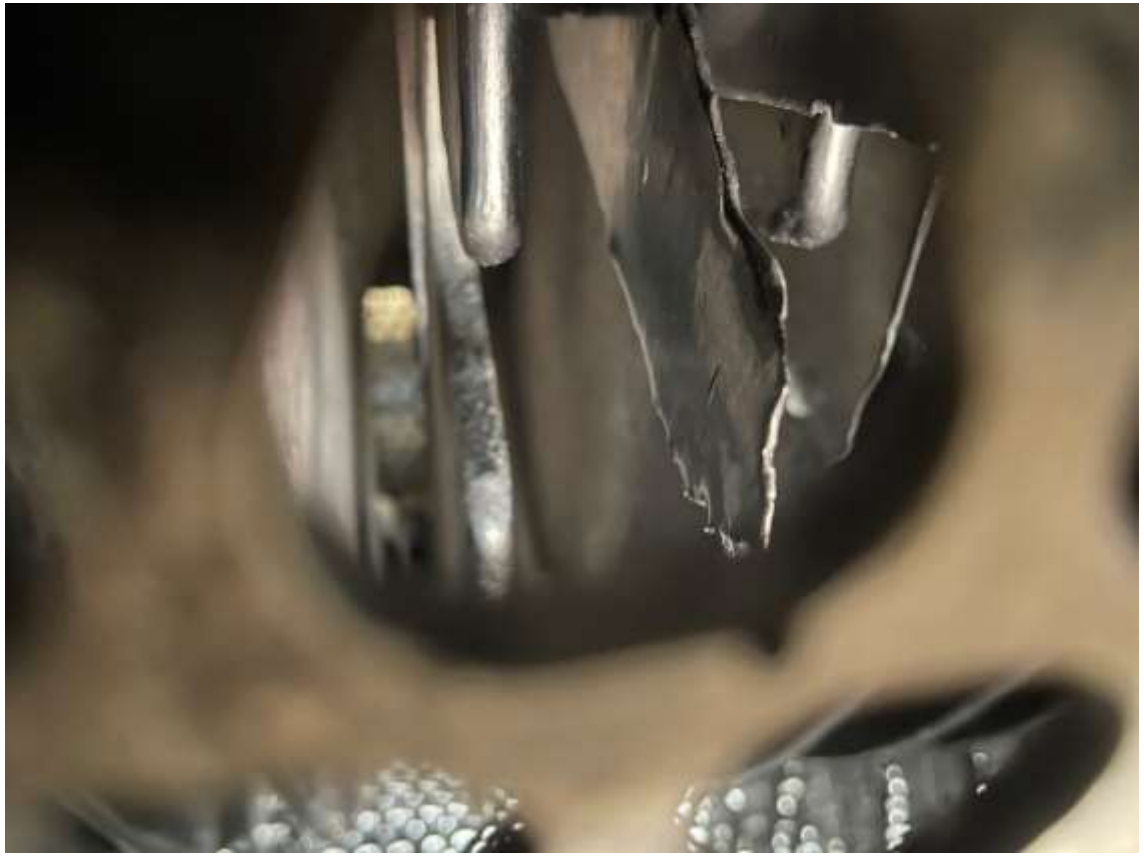
Receiving | Infeed | Storage

- Clogging
- Accumulations
- Abrasions
- Lack of Lubrication

Size Reduction – Hammermills

Producing Pellets is much more than just operating the pelletizer

- Don‘t mix wood types randomly
- Homogeneous feed is the goal
- Clean magnets and sifters regularly
- Hammermill maintenance is vital



Maintenance in Pellet Mills

Moisture check	Before moistening and after maturing vessel
Visual inspection of die	Honeycombing, micro cracks, wear, foreign material
Visual roller inspection	Adjustment, wear, temperature
Grease pump check	Fill level, grease and air pressure
Gear check	Oil pressure, oil filter, oil cooler,
	Volume (oil level glass)
Quality check	Pellet quality, abrasion, length,
	moisture, bulk weight, density

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Maintenance in Pellet Mills

Hammermill check	Wear of sifters and hammers, clean magnet
Conditioner and feeder	Clean thoroughly, check magnetic separator
Moisturizer check	Calibration, recalibrate if necessary
Pellet mill check	Clean feed chutes and sifters, clean crumbler, collector, fan, exhaust, and roto shaker
Knifes	Check sharpness

Check tonnage reports and operating hours to plan maintenance.

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Maintenance in Pellet Mills

Die and roller check	Wear pattern, leakages, micro cracks, clearance
Gear check	Wear, leakages, micro cracks, (belts if existing)
Conveyors check	Lubrication, wear, belts
Other	E.g. lubrication lines, oil and oil filter changes (according to manufacturer specifications)

Evaluate productivity and costs. Exercise die and roller change to ensure short maintenance downtimes.

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Maintenance in Pellet Mills

Staff training and education

Awareness for details

Lubrication matters

Make a plan, and follow it

Adjust and optimize continuously

Technical support ensures uptime

Establish preventive maintenance

Cultivate knowledge-sharing

Bearing lifetime improvement

Amended OPEX

Technically versatile staff

Higher production rates

A higher level of satisfaction

Nominal fluctuation

Example – Roller Refurbishment

1. Clean and seal lube intake
2. Open roller cover one side
3. Turn roller and other open cover
4. Pull out roller shaft
5. Pull off roller shell
6. Take our brg #1, distance ring and brg #2
7. Clean roller shaft with brake cleaner
8. Inspect bearings for damages, one-sided wear, etc. (in doubt, change bearing or consult expert)
9. Clean roller covers, distance rings, seals, etc.
10. Assemble one roller cover on shaft
11. Slide on new shell (pre-heated only if new)
12. Slide on pre-heated brg #2
13. Slide on distance ring, etc. (4 holes are rational)
14. Slide on pre-heated brg #1
15. Close roller cover
16. Check true run and fill with grease
17. No-load run-in

Example – Roller Refurbishment

- Pre-lubrication
  - Prevents corrosion with long storing
  - Bearing immediately ready-to-use
- Run-in with no load
  - Distributing the grease evenly
  - Ensuring no metal-on-metal contact
  - Prevents damage when starting
- Advantages
  - Fewer/no transport damages
  - No dry spots when starting press

→ Work smart not hard!

Experience Matters

Keep sharing experience with customers

Establish a love for a well-operating plant

Show love for optimizing customer‘s equipment

Controlled aiming for perfect solutions

Open-minded focus on performance, not brands

Thank you!

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Visit us at booth #334

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