MAGNETIC SEPARATION AUDITS of MILLS

By Don Harris
Sales Manager - Canada
Why have a -

MAGNETIC SEPARATION AUDIT?

- Do they have a metal contamination problem?
(Are They Meeting Their Quality Standards for their Customers?)

- They question whether their existing Magnets effective?
- Are the Magnets being cleaned & maintained?
- Do they have Safety Concerns?
- Where would they add additional Magnets?
“LEG RUSTY SCALE, GROUND METAL AND SEMOLINA”
1. Photo Document Location of All Existing Magnets
5 THINGS WE PROVIDE

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2. Do Pull Test on Each Existing Magnet & Evaluate it’s Performance
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3. Recommend Additional Magnet or Metal Detection Placement if Needed
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4. Observe & Discuss Existing Maintenance Procedures
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4. Observe & Discuss Existing Maintenance Procedures

5. Discuss Current Technology Upgrades that may Enhance Performance
Good Magnetic Separation & Product Purity is a PROCESS!
A Magnetically Protected Flour Mill
Grain Elevator vs. Flour Mill
LOOKING FOR OPPORTUNITIES
TRUCK RECEIVING
A Magnetically Protected Flour Mill
RAIL RECEIVING
BARGE RECEIVING
BARGE RECEIVING
- OPPORTUNITY -

“OUTSIDE LEG FROM METAL STORAGE BINS”

“First Chance” - Infeed Magnetic Protection Before Leg
- OPPORTUNITY -

“INSIDE LEG FROM RAIL UNLOAD”

“First Chance” - Infeed Magnetic Protection Before Leg
PITS - TOUGH PLACES!
PITS - LEG HOPPERS - CLEANING
For Maintenance Improvements
WHOLE WHEAT SCREW CONVEYOR
Plate Housing Magnets
“OUTSIDE SCREW CONVEYOR”
Currently Ceramic Plate Housing Magnet
Recommend New Neo Plate Housing Magnet - 12# Pull

Pull Test lbs. : .4#
THIRD TEMPER SCOURER
Plate Housing Magnet - Take Pull Test & Compare
MILL FEED LINES

Neo Plate Housing Magnets - Document & Test

Pull Test lbs.: 11.2, 10.8, 11.0 FRONT
11.0, 10.6, 10.8 BACK
- OPPORTUNITY -

“SCREW CONVEYOR FEEDING 1ST BREAK”

“First Chance” - Infeed Magnetic Protection before Rollers”
PURITAN SC DRAWER MAGNET
Whole Wheat Line??????

Pull Test lbs.: 9.3, 10.6, 10.3#
WHOLE WHEAT WEAR
LOAD OUT MAGNET LINE #2
Neo Drawer Magnets - Document & Test

Pull Test lbs.: 11.3, 11.2, 12.0 UPPER
11.7, 11.5, 11.2 LOWER

Good Job of Separation
LOAD OUT LINE #2
Upgrade Magnetic Cartridges in Drawer - Test
BRAN PROCESSING - HAMMER MILL
Half Hump Magnet - Document
BRAN PROCESSING - HAMMER MILLS
Plate Magnets - Document
“LOAD OUT MAGNET LINE #1”
Currently HFS 2012 NPB Drawer Magnet
Recommend New Neo NHI Replacement Cartridges - 14# Pull

Pull Test lbs. : 5.7, 6.0, 6.1 UPPER
6.1, 6.5, 6.3 LOWER
“LOAD OUT MAGNET LINE #2”
Currently HFS 2012 NPB Drawer Magnet
Recommend New Neo NHI Replacement Cartridges - 14# Pull

Pull Test lbs.:
- 6.3, 6.2, 6.0  UPPER
- 6.7, 6.5, 6.2  LOWER
“SEMOLINA MAGNET”
Currently HFS 2010 NHI Drawer Magnet
Very Good Magnet - Critical Area & Recommend
Second Identical Unit to Stack - Makes 4 Rows of Protection
PNEUMATIC FLOUR LOAD OUTS
Dual Center Flow Magnets
PNEUMATIC FLOUR LOAD OUTS
Dual Center Flow Magnets
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Dual Center Flow Magnets
PNEUMATIC FLOUR LOAD OUT
Center Flow Magnets - Working Well

“LAST CHANCE MAGNET”
RAIL LOAD OUT of Clean Flour
RAIL LOAD OUT
- OPPORTUNITY -
TANKER TRUCK LOAD OUT of Clean Flour
- OPPORTUNITY -

BAGGING OPERATION

Add Metal Detector either Before or After
- OPPORTUNITY -

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Add Metal Detector either Before or After
- OPPORTUNITY -
BAGGING OPERATION
Add Metal Detector after Bagging
MAINTENANCE PROCEDURES
CLEANING MAGNETS

• Regular Cleaning Schedule
• Sign Off Cleaning Log - best for QC
• Spot Checks are good
MAINTENANCE PROCEDURES for CLEANING MAGNETS

• Regular Cleaning Schedule (Weekly - Daily - Per Shift - Hourly)
• Sign Off Cleaning Log - best for QC
• Spot Checks are good
CHECKING FOR ABUSED MAGNETS
REASONS FOR CONTINUAL TESTING of Magnetic Equipment

1. Quality Control Verification
2. Evaluating Magnetic Equipment
3. Comparing Potential Upgrades
Common Metal Detectors in Flour Mills

QUICKTRON FREE FLOWING

Free-Falling Flour - Before Sacking

C-COIL DETECTORS

Conveyor - Sacked Flour
Theory of Detection

- A signal is generated as the metal passes by the first receiver.
- An opposite signal is generated as the metal passes by the second receiver.
- When the signal passes over both thresholds, metal is detected.
- By knowing the distance between the coils, and measuring the time it takes to pass the thresholds, we can calculate the speed at which the metal moving.
07 Electronics

- Full Color, Full Touch Display Control Panel
- User Access by PassCode and Name for Dual Security
- Stores up to 1,000 Product Learn in Memory
- USB Interface for Reports and Programming
- Ethernet/LAN and Wireless Connectivity Available
- Advanced Reporting for HACCP Compliance
- Automated Testing Procedures
- Standard Signal Evaluation
- imagePHASE
Data Exchanges

Optional Wireless Transmitter in coil head

Download reports, or upload settings via USB
Reports, reports, reports

- QA log with Date and Time stamped events
- Critical errors are recorded in log
- Run reports for Batch, Product or selected Date and Time range
- Download reports to USB
- Ethernet connection to retrieve and print reports

Compliant with reporting requirements of HACCP, IFS, BRC, SQF
Key Features:

- mesuCAGE shielding for reduced MFZ
- Catalysed epoxy filled search head that eliminates water intrusion and reduces the effects of vibration
- Triple seal gasket on control housing keeps water out of electronics
- Lexan display cover mounts without holes in control housing
- All control functions inside protected environment
- Available Wi-Fi connection eliminates external cabling
Rejecting metal contamination.
Fill prior to bagging.
Conveyor Designs
QUICKTRON 05 (Flap)

- Text or Touch interface
- Simple user interface
- Single board design
- Integrated controls
- Password protected
- Auto Product Learning
- Compact design
- RS-232 Interface
- Firmware upgradeable
Quicktron 05 (CB)
A Magnetically Protected Flour Mill

PERFECT GRAIN MILLING PROCESSING PLANT™

BUNTING Magnetics Co.

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Outside U.S. and Canada 1-316-284-2020

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MAGNETIC SEPARATION AUDITS

For FLOUR MILLS