Magnetic separation devices use a magnetic field to attract, separate, and capture ferromagnetic particles from a non-ferromagnetic material.

The Drawer-in-Housing must be installed to allow sufficient space for preventive maintenance and tramp metal removal. Allowance must be made for the drawer movement during the cleaning cycle.

The top and bottom flanges allow for the unit to be welded or bolted into the product flow. If the unit is to be bolted into place, stainless steel bolts are required. If the flanges have not been pre-drilled for bolt installation, any drill bit suitable for 304 stainless steel will do a quality job. A minimum 3/8” diameter bolt is recommended.

Final Magnets are magnetic separation devices which are designed to be installed at the last possible point in a food handling process. This should be immediately preceding a process step which will render it un-flowable or immediately before the packaging process. Final magnets should be installed upstream of metal detectors and X-Ray equipment and downstream of pumps, augers or other machinery which could generate or proliferate ferromagnetic particles.

--- Self Clean Specific ---

The Air-Actuated, Self-Cleaning Drawer-in-Housing magnetic assembly comes ready to install. The unit requires 80 to 100 psi of shop air to operate. The filter regulator is located on one side of the Housing assembly. The standard, electrically operated, spring-return solenoid valve requires a 120 VAC/60 Hz single phase power source to operate. The solenoid is energized via a user supplied, normally open (NO) switch. A momentary push-button is typically used in many applications. Pushing the button opens the drawer, cleaning the unit. Releasing the button removes power from the solenoid, allowing the drawer to close.

The cable from the solenoid contains three conductors: black, white & green. To be connected as follows:

- **Black or Brown** - Connected to **switched** leg of 120 VAC supply circuit
- **White or Blue** - Connected to **neutral** leg of 120 VAC supply circuit
- **Green or Green/Yellow** - Connected to **ground** bus of circuit

**Solenoid Specifications:**
- Coil -120V/60 Hz - 110V/50 Hz, 4.0-4.8 VA, Rated for continuous duty at 85%-105% of rated voltage. Enclosure rated for NEMA 4P/IP67. Molded with three pin plug-in 11mm mini-DIN connector.
- Cable - 6 ft (2 m) lg., 18GA/3 conductor cord, 0.27 in Dia. (2.9 mm) O.D. PVC Jacket

**Coil Resistance:**
7.9 Kohms cold, DC resistance, Measure with a Digital Multimeter (DMM) connected to black & white leads

--- SELF CLEANING PNEUMATIC SCHEMATICS ---

--- SELF CLEANING ELECTRICAL SCHEMATICS ---
The Drawer-in-Housing has been designed to allow the product to cascade through 1 to 4 banks of tubes, depending on the unit size. Tube spacing and banks vary according to the product being cleaned and the degree of cleaning required. Captured tramp metal is held on the tubes until cleaning is activated.

The force of a permanent magnet can degrade over time and when subjected to external influences. The most common factors for loss of performance or failure include:

- Blunt force impact such as dropping or banging on a magnet which can cause fractures
- Temperatures exceeding the range of the magnet material
- Exposure to electrical fields, like generators, lightning or welding ground circuits, can result in loss of magnetism

It is recommended that magnetic devices are audited annually. IMI can provide a Magnet Audit and Plant Survey to evaluate magnetic equipment performance and assist with compliance to global industry standards.

**CLEANING GUIDELINES**

It is recommended that cleaning frequency is scheduled such that magnetic build-up does not exceed 1mm of fines on up to 50% of a magnetic surface. The recommended cleaning interval is at least twice in an 8-hour shift. Note: Cleaning frequency is dependent on the amount of tramp metal being separated from the product; if heavy concentrations of tramp metal are detected additional cleaning is necessary. When cleaning, ensure that the product flow has been shut off and that the magnetic assembly is empty.

**——— Manual Clean (SimpleClean™) Procedures ————**

1. Ensure that the product flow has been shut off and that the drawer assembly is empty.
2. Release clamps on side of housing.
3. Open door & pull drawer assembly(s) out using the finger holes.
4. Use a rag/gloved hand to wipe the collected tramp metal down to the back end of the tubes where a non-magnetic area allows for most collected material to easily fall away or to be wiped off of the tubes.
5. Place drawer assembly(s) back into the housing.
6. Re-clamp the door into the closed position.
7. Restart the product flow.

**——— EZ Clean Procedures ————**

1. Ensure that the product flow has been shut off and that the drawer assembly is empty of product.
2. Release clamps on side of housing.
3. Open the drawer, sliding the tube assemblies through the wiper seals located in the seal plate. The door moves to the doorstop of the housing on the surface of the magnetic tubes via operator supplied force (The force required to open the drawer is directly proportional to the amount of metal collected on the magnetic tubes). At the front of the housing the collected tramp metal moves beyond the magnetic portion of the tube and falls free of the tubes into the provided collection tray.
4. Re-clamp the door into the closed position.
5. Restart the product flow.

**——— Self Clean Procedures ————**

1. Ensure that the product flow has been shut off and that the drawer assembly is empty of product.
2. Activate the air cylinders by energizing solenoid valve. This opens the drawer, sliding the tube assemblies through the wiper seals located in the seal plate. The wiper seals clean the collected metal off the tubes while the drawer opens, by pushing it on to a non-magnetic section at the ends of the tubes. The metal then falls off the tubes and into the provided catch pan.
3. After the drawer is fully extended and stops, de-energize the solenoid valve. The air cylinders will then close the drawer for operation.
4. Restart the product flow.

**IMPORTANT NOTE:** COMPRESSED AIR MUST BE SUPPLIED TO THE FILTER-REGULATOR AT ALL TIMES TO ENSURE THAT THE DRAWER REMAINS IN THE CLOSED POSITION DURING BOTH OPERATION (PRODUCT FLOWING) AND IDLE TIMES. FAILURE TO SUPPLY COMPRESSED AIR DURING THESE TIMES CAN RESULT IN POSSIBLE PRODUCT ESCAPING THE UNIT AND/OR CONTAMINATES ENTERING THE PRODUCT FLOW AREA. CONSULT OUR ENGINEERING DEPARTMENT IF THE AIR SUPPLY CANNOT BE GUARANTEED AND THE DRAWER MUST REMAIN CLOSED.
**Manual Clean**

Ref. No. | Description
---|---
1. | Access Door
2. | Grate Tube Assembly
3. | Door Gasket
4. | Door Latch
5. | Guide Rod Bolts (EZ Only)
6. | Cylinder Bolts (SC Only)
7. | Tube Assembly Bolts
8. | Tube Front Plate
9. | Guide Rods (EZ Only)
10. | Cylinder Rods (SC Only)
11. | Catch Pan
12. | Spring
13. | Cylinder (SC Only)
14. | Guard Assembly (SC Only)
15. | Door Clamp Assembly
16. | Bearing Cover
17. | Guide Bracket
18. | Bearing Assembly
19. | Cylinder Mount
20. | Rear Access Door
21. | Rear Door Clamp
22. | Air Valve / Regulator Set (SC Only)

**EZ & Self Clean**

Ref. No. | Description
---|---
1. | Wiper Seal
2. | Seal Plate
3. | Tube Assembly
4. | Door Gasket
5. | Guide Rod Bolts (EZ Only)
6. | Cylinder Bolts (SC Only)
7. | Tube Assembly Bolts
8. | Cylinder Rods (SC Only)
9. | Guard Assembly (SC Only)
10. | Door Clamp Assembly
11. | Bearing Cover
12. | Guide Bracket
13. | Bearing Assembly
14. | Cylinder Mount
15. | Air Valve / Regulator Set (SC Only)
WIPER SEAL REPLACEMENT

Wiper seals should be inspected for normal wear every three to six months to ensure the integrity of the seal is intact.

To replace worn out or damaged washer seals:

——— EZ Clean Procedures ————
1. Open the drawer until it stops.
2. Unbolt the Spring Shocks (12) from the Seal Plate (2). Fasteners have been installed using thread locker. The use of a heat gun may be required to break loose the fastener.
3. Next remove the Guide Rod Bolts (5) from the Tube Front Plate (8). This separates the drawer assembly from the housing. Fasteners have been installed using thread locker. The use of a heat gun may be required to break loose the fastener.
4. Set the drawer assembly on a non-ferrous work surface and unbolt the Tube Assembly Bolts (7) and remove the Tube Front Plate (8) from the tubes.
5. Slide the Seal Plate (2) off of the tubes. Magnet tubes may repel or attract each other when seal plate is removed. Use extreme caution to avoid injury. Place a non-ferrous spacer between rows and wrap tubes with wire ties or duct tape.
6. Push the worn out or damaged Wiper Seals (1) out of the Seal Plate (2).
7. Gently push new Wiper Seals (1) in.
8. After new seals are installed in the seal plate reassemble the unit carefully, and check drawer travel to assure proper operation.
   Note: Magnet tubes are intended to have some movement to prevent binding. Apply temporary thread locker on the Tube Assembly Shoulder Bolt (7), snug them up to the Tube Front Plate (12), then loosen them each 1/4 of a turn. This will allow slight movement of the tube to prevent binding.

——— Self Clean Procedures ————
1. Remove Guard Assembly (14).
2. Activate Air Cylinders (13) to open the drawer until it stops. Fasteners have been installed using thread locker. The use of a heat gun may be required to break loose the fastener.
3. For safety, turn off air supply to Regulator Valve Assembly (22). Disconnect supply tubing from all cylinder ports.
4. Remove the Spring Shocks (12) from the Seal Plate (2).
5. Remove the Cylinder Bolts (6) from Tube Front Plate (8). This separates the drawer assembly from the housing. Fasteners have been installed using thread locker. The use of a heat gun may be required to break loose the fastener.
6. Set the drawer assembly on a non-ferrous work surface and unbolt the Tube Assembly Bolts (7) and remove the Tube Front Plate (8) from the tubes.
7. Slide the Seal Plate (2) off of the tubes. Magnet tubes may repel or attract each other when seal plate is removed. Use extreme caution to avoid injury. Place a non-ferrous spacer between rows and wrap tubes with wire ties or duct tape.
8. Push the worn out or damaged Wiper Seals (1) out of the Seal Plate (2).
9. Gently push new Wiper Seals (1) in.
10. After new seals are installed in the Seal Plate (2), reassemble the unit carefully, and check drawer travel to assure proper operation. Note: Magnet tubes are intended to have some movement to prevent binding. Apply temporary thread locker on the Tube Assembly Shoulder Bolt (7), snug them up to the Tube Front Plate (12), then loosen them each 1/4 of a turn. This will allow slight movement of the tube to prevent binding.

GENERAL HEALTH AND SAFETY WARNING

Please be advised that in and around the application of magnetic equipment, there are potential safety concerns that can arise with sensitive medical devices:
• Pacemaker behavior can be affected when they are near strong magnetic fields
• Medical implants and external fixation systems can be influenced by magnetic fields
• Hearing aid behavior may be affected when exposed to strong magnetic fields
Any individual that carries the above equipment or other sensitive medical devices should use caution when they are around or handling magnets. For more specific information the wearer should contact their physician.

COMMENTS OR CONCERNS?

We believe Industrial Magnetics, Inc. offers the finest Drawer-in-Housing available today. Great pride has gone into the design and manufacture of this unit. Any comments or concerns should be directed to our Customer Service Department at 1-888-582-0821. We appreciate the opportunity to serve you!