Introduction to Suspended Magnetic Separators

Suspended magnets are designed for separation of ferrous metal from a variety of over-the-belt conveyor applications. Proven in industries such as Mining, Aggregate, Recycling, Tire Shredding, Foundry, Wood Chip, Pulp & Paper, Power Generation, Construction and Demolition.

Benefits of Suspended Magnetic Separators:

- Protect vital processing equipment from ferrous metal damage
- Improve product purity and quality for high volume belt conveyed products
- Deep reaching magnetic circuits supply superior separation capabilities
- Use prior to a metal detector to achieve maximum separation and system performance capabilities
- Reclains valuable ferrous metal
- Reduce product liability

Self-Cleaning Permanent Magnets (SMS)

The SMS magnets offer optimum operating efficiency with a continuous cleaning belt to keep the magnet face free of collected metal. The powerful, deep reaching magnetic circuit pulls metal to the face of the magnet where the cleated belt can remove the metal off the end of the magnet and out of the product flow. The compact design of the SMS makes it ideal for use on portable size reduction equipment.

Suspended Electromagnets (SEMO)

These powerful electromagnets are designed to deliver peak ferrous metal separation performance. The “Deep Reaching” magnetic field is ideal for applications that require increased suspension heights for the magnet or that have a deep product burden.

The Self-Cleaning Suspended Electromagnet offers optimum separation capacity by removing collected metal from the magnet face instantly and discharging it out of the product flow. This continuous cleaning function allows the magnetic circuit to maintain maximum magnetic strength at all times.

Manual Clean SEMOs are best suited for applications with a lower volume of ferrous metal in the product flow or in applications where the system is only run intermittently. The ability to turn the magnet “OFF” makes removing the collected metal easy for the operator. These units can also be converted at a later time to a Self-cleaning version with the purchase and installation of an upgrade package. Upgrade packages are excellent options when tramp metal collection exceeds expectations or the magnet is in a difficult to access location.

Manual Clean Permanent Magnets (SPMC)

These magnets are a good economical solution for applications that require a magnet for equipment protection but don’t encounter enough ferrous metal in their product flow to justify a self-cleaning magnet.

Key Markets
Mining & Aggregate, Waste Recycling, Pulp & Paper, Foundry

Related Products
Magnetic Separation Pulleys, Drum Separators, Eddy Current (Aluminum) Separators, Extractors, Vibratory Feeders, M.A.R.S.
FEATURES:
- Unique magnetic circuit engineered for extended reach-out through heavy product burdens
- Low profile design is ideal for portable systems
- Uniform magnetic field across belt width for full coverage
- Extra long field for extended magnetic exposure
- Continuous operation at peak magnetic efficiency
- Stainless steel housing and side guards
- Industrial welded construction
- Four rugged lift lugs for easy suspension
- Pick-up test data is available upon request

SMS Standard Specifications:
- Ceramic grade 8 magnet material
- Stainless steel magnet box & guards
- 240/480 volt 3 phase motor (Option D)
- 3/8” thick 2 ply rubber belt (Option 1)
- Cross-Belt Application configuration Option X (Std)
- Crowned head & tail pulleys

SMS Performance Specifications:
- 26 = 26” wide by 8” thick magnet. Magnet cleaning belt speed is 315 FPM.
- 38 = 38” wide by 10.5” thick magnet. Magnet cleaning belt speed is 380 FPM.
- 44 = 44” wide by 12.5” thick magnet. Magnet cleaning belt speed is 440 FPM.

SMS Drive Package Options:
- Option D (Std) - NORD Gearmotor
- Option H - Direct Drive Hydraulic Motor (10 gpm, 3000 PSI)
- Option B - Shaft Mounted Belt Drive

SMS Cleaning Belt Options:
- Option 1 (Std) 220 2 ply Rubber Belt, R2S Flexco Lacing, Vulcanized Cleats
- Option 2 220 2 ply Rubber Belt, R2S Flexco Lacing, 304 Stainless Steel Cleats
- Option 3 Urethane Belt 150 PIW, R2S Flexco Lacing, 304 Stainless Steel Cleats
- Option 4 220 2 ply Rubber Belt, R2S Flexco Lacing, 304 Stainless Steel Cleats and Belt Cleating
- Option 5 H.D. 330 3 ply Rubber Belt, R2S Flexco Lacing, 304 Stainless Steel Cleats

SMS Application Type:
- Option I - In-line Applications: The Magnet runs parallel to the conveyor belt and is suspended over the discharge end of the belt.
- Option X (Std) - Cross-Belt Applications: The Magnet runs across the conveyor belt and discharges the collected metal off to the side of the conveyor.

OTHER AVAILABLE OPTIONS:
- 380 volt, 50Hz, 3 phase motor
- Explosion proof motor
- Custom construction and guarding

SPECIAL CONSIDERATIONS: The removal of tramp metal can create many challenges and is dependent upon many factors. These include product size, density, moisture, tramp metal geometry, orientation, entrapment by large product pieces, location in the burden, magnet suspension height and many others.

*Note: Add the appropriate drive package, belt type and application type initials to the end of the Model Number before ordering. Example: SMS3824D2X is the SMS2438 Magnet with the “Direct Drive” package D, belt package 2 and cross belt X application design.
Manual Clean Electromagnetic Overhead

MANUAL CLEAN OPERATION:
Ferrous material is pulled out of the product flow and held to the face of the magnet. The collected tramp metal is held in place for as long as the unit has power. To clean the unit, the power source is simply turned off, instantly releasing the metal from the magnet's hold.

SPECIFICATIONS:
- 10 year limited coil warranty
- Non-combustible coolant
- Anodized Aluminum coils with Glastic™ Spacers
- Manganese impact plate
- Oil level sight glass

POWER SUPPLY FEATURES (SEMO241 to SEMO722):
- Standard enclosures meet NEMA 4 & 12 specifications
- Isolation transformer with secondary fusing
- Three phase full wave bridge rectifier
- Transformer oversized for additional protection
- Allowable ambient temperature: -22°F to 104°F (-30°C to 40°C). Consult factory if ambient temp. is out of range.

POWER SUPPLY FEATURES (SEMO782 and up):
- Standard enclosures meet NEMA 4 & 12 specifications
- Through-door disconnect with Type J fuses
- Rectifier fusing is Bussmann FWX high-speed series
- Externally mounted transformer in vented enclosure on capacities 20kW and up
- Three-phase, full-wave bridge rectifier on heat sink
- Allowable ambient temperature: -22°F to 104°F (-30°C to 40°C). Consult factory if ambient temperature is out of range.

OPTIONS:
- Contactors for magnet and self-clean belt motor, meter package (analog or digital), field loss relay.

Note: Power supplies are available in VAC single phase, 240/480/575 3-Phase.
SEMO(SC) OPERATION:
As the product on a conveyor belt flows under the powerful magnetic field, ferrous material is pulled out of the product flow up to the face of the magnet. With Self-Cleaning models, continuous cleaning of the magnet face is made possible by a heavy duty belt that encircles the magnet on a series of rotating pulleys. As ferrous metal is attracted and held by the magnet, the moving belt carries the collected metal outside of the magnetic field where it is then released beyond the product flow.

SEMO(SC) SPECIFICATIONS:
- Industry-leading drive components
- 240/480 volt, 3 phase, AC motor
- Shaft mounted gear motor
- Anodized Aluminum coils with Glastic™ Spacers
- Non-combustible coolant
- 2” high stainless steel cleats
- Multi-layer industrial grade rubber belting
- Standard industrial bearings & take-ups
- Heavy duty steel channel framework
- Manganese impact plate
- 10 year limited coil warranty
- Oil level sight glass

SEMO(SC) OPTIONS:
- Turnbuckles
- Stainless steel clad belt

Note: All dimensions are stated in inches.

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*Dimensions represent product at date of publication. If dimensions are critical call for up to date changes. Coolant oil levels must be checked regularly.

**10 Year Warranty / 4 Week Delivery Guarantee applies to Suspended Electromagnet Overhead models 72 inches or less.
BENEFITS:
• Protects Processing Equipment from Ferrous Metal Damage
• Improves Product Purity

DESIGN FEATURES:
• Powerful deep reaching Ceramic 8 magnetic circuit design to penetrate heavy product burdens.
• Uniform magnetic field across belt width for full coverage
• Long magnetic field for extended magnetic exposure
• Continuously operates at peak magnetic efficiency
• Four rigid lift lugs for easy suspension
• Stainless steel housing
• All welded construction
• No operating cost

OPTIONAL FEATURES:
• EZ-Clean swiper bar
• Stainless steel (roller guided) slider plate design for easy removal of collected metal
• Hand crank stainless steel slider with chain & sprocket for even easier cleaning
• Air-Actuated slider plate available for easier cleaning
• Custom features available upon request

SPMC10: (Suspension Height - 8" to 10")
• High strength magnetic separator for typical over the belt applications
• Ideal for low profile burden depths

SPMC12: (Suspension Height - 10" to 12")
• High strength magnetic separator for typical over the belt applications
• Meets or exceeds typical product burdens and magnet suspension height requirements

SPMC14: (Suspension Height - 12" to 14")
• Super strength magnetic separator for over the conveyor separation applications that have above average burden depths & magnet suspension height requirements

When determining Magnet size, the width of the Magnet (B) should be equal to or greater than the Burden width on Conveyor.