



SUSPENDED OVERHEAD PERMANENT MAGNET (SMS) INSTALLATION MANUAL

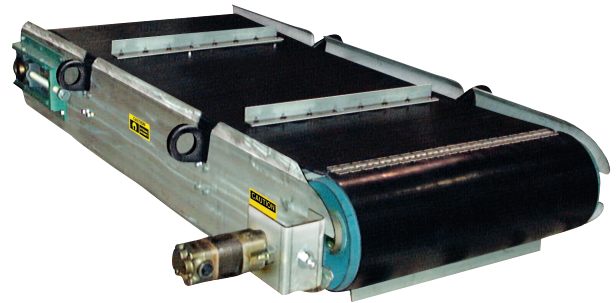
P.O. #: Order #: Part #:

OPERATING PRINCIPLE

Suspended Magnetic Separator (SMS) magnets are cross-belt or overband in-line, permanent magnet separators designed for separation of ferrous metal from a variety of over-the-belt conveyor applications.

Our 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 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. See the Installation and Trouble Shooting Sections for more detail.



Shown: SMS with
Hydraulic Drive & Stainless Steel Cleated Belt
(SMS38H2X)

OPTIONAL CONFIGURATIONS

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 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, Vulcanized Cleats
- » *Option 4*
220 2 ply Rubber Belt, R2S Flexco Lacing, 304 Stainless Steel Cleats and Belt Cladding
- » *Option 5*
H.D. 330 3 ply Rubber Belt, R2S Flexco Lacing, 304 Stainless Cleats



HEALTH and SAFETY WARNINGS

MOTOR DRIVEN ROTATING EQUIPMENT



Rotating shafts, gears, sprockets and drum components can present hazards when running; equipment should only be serviced by trained service personnel.



Electric shock hazard - observe all local plant Lockout/Tagout procedures before removing any guards or initiating service or cleaning activity.

GENERAL



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.



Beware of pinch points from sudden attraction and unexpected movement between magnets and ferrous metal equipment components or tools.

MAGNET DEGRADATION

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 operating range of the magnet material
 - » 180°F for neodymium material
 - » 480°F for ceramic grade 8
 - » High temperature options are available.
- » 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; Pull Test Kits are available for self-auditing plant activity.



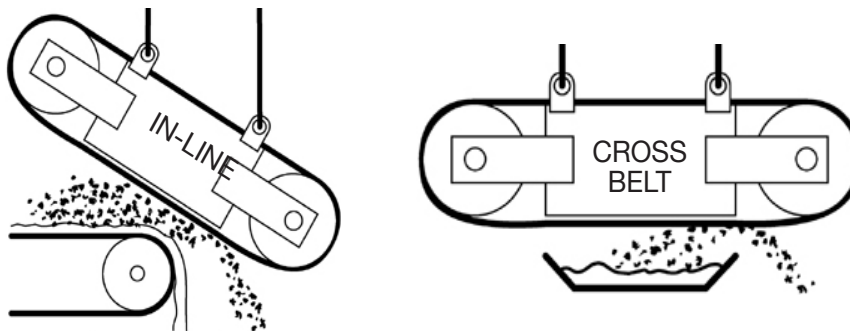


INSTALLATION GUIDELINES

When determining the location for the installation of a suspended permanent magnet, consider the fact that any ferrous material within the field of the magnet will become magnetic and may attract other ferrous materials. When the magnet is located directly over the conveyor belt, conveyor sections below the magnet need to be made of non-ferrous material 18 to 24 inches on all sides of the magnet.

Turnbuckles are strongly recommended for mounting of the magnet. They allow for the proper adjustment of height and angle once the magnet is suspended. The magnet face and the product should be parallel. This normally eliminates the need for heavy equipment after the initial hanging of the magnet. The closer the face of the magnet is to the burden the stronger the magnet will be.

MAGNET ORIENTATION



IN-LINE INSTALLATION

When the conveyor belt speed is greater than 350 FPM, use the in-line installation method for the best possible results. Locate the magnet so that the material being conveyed passes approximately 2 inches from the face of the magnet near the center of the magnet. If the belt speed is changed the magnet location may have to be adjusted to maintain proper clearance between the face of the magnet and the material being conveyed. For the best magnetic performance, a non-ferrous pulley should be used under the magnet.

CROSS-BELT INSTALLATION

When the belt speed is less than 350 FPM use the cross-belt set installation. The magnet should be located as close to the conveyed material as possible, but clearance must be maintained for removal of the tramp metal that accumulates on the magnet's belt. The most efficient separation is accomplished by controlling the burden depth. Using a leveler ahead of the magnet will limit any irregularities. Check to ensure there is adequate room for the unit to run and that provisions have been made to collect the discharged tramp metal.



MAINTENANCE

This unit has been operated & adjusted at the factory. Belt tracking was done with the magnet hanging at the operation angle. Belt rotation is counter clockwise when looking at the motor side of the unit. The belt may settle during shipment so some adjustment may be required. After installation, momentarily operate the belt drive to determine if the belt tends to wander, and if so, see directions below for belt tracking and tension adjustments.

BELT TRACKING ADJUSTMENT

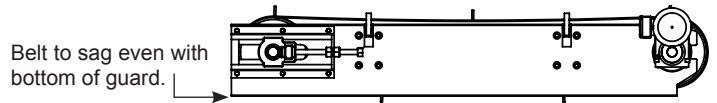
- Position yourself on the take up end (opposite of motor/drive end) and face the magnet.
- To move belt to the right:
 - Tighten left hand take up (move pulley toward you and away from magnet)
 - Adjust only 1/4 turn at a time and re-check belt track (momentarily run belt).
- To move belt to the left:
 - Tighten right hand take up (move pulley toward you and away from magnet)
 - Adjust only 1/4 turn at a time and recheck belt track (momentarily run belt).
- DO NOT** allow the belt to run until it is properly adjusted.
 - Adjust Belt tension so that sag of the belt just comes in contact with slide plate of guards, about 1"-2" of sag.
 - CAUTION:* The belt will be harder to track, and can cause overloading on the shaft and bearing, if it is too tight.

General Maintenance Notes: Bearings should be lubricated on a schedule consistent with the environment and other equipment being used at the plant or site. Multi-purpose lithium base grease is recommended such as Lubriplate No. 930-2. For motor and drive maintenance, refer to the manufacturer's instructions contained herein.

BELT REPLACEMENT

The following steps are to be used when replacing the belt:

- Verify that the new belt width and length are correct
 - Loosen take ups and remove belt hinge pin
 - Lay out new belt with cleats down
 - Center magnet assembly equidistant on the belt
 - Fold belt over the pulleys and line up the edge of the belt and the belt fastener splice
 - Slide a 1/4" hinge pin (cable) through the belt fastener mesh
 - Fasten Collar Clamps on end of the hinge pin and tighten belt using the take-ups on the tail pulley
 - Belt tension should be so that sag of the belt just comes in contact with slide plate of guards, about 1"-2" of sag
 - See belt tracking instructions for additional tracking adjustments
- CAUTION:* If the belt is too tight, it will be harder to track, and can cause overloading on the shaft and bearing.



TROUBLE SHOOTING

MAGNET WILL NOT ATTRACT METAL

POSSIBLE CAUSE	SOLUTION
A. Burden depth is too deep	A. Check depth of burden and use a leveling bar to reduce if possible.
B. Magnet is too far from burden	B. Check distance of magnet from burden and determine that it is within the recommended height.
C. Tramp Metal is non-ferrous	C. Check with permanent magnet to determine whether Tramp Metal is magnetic.

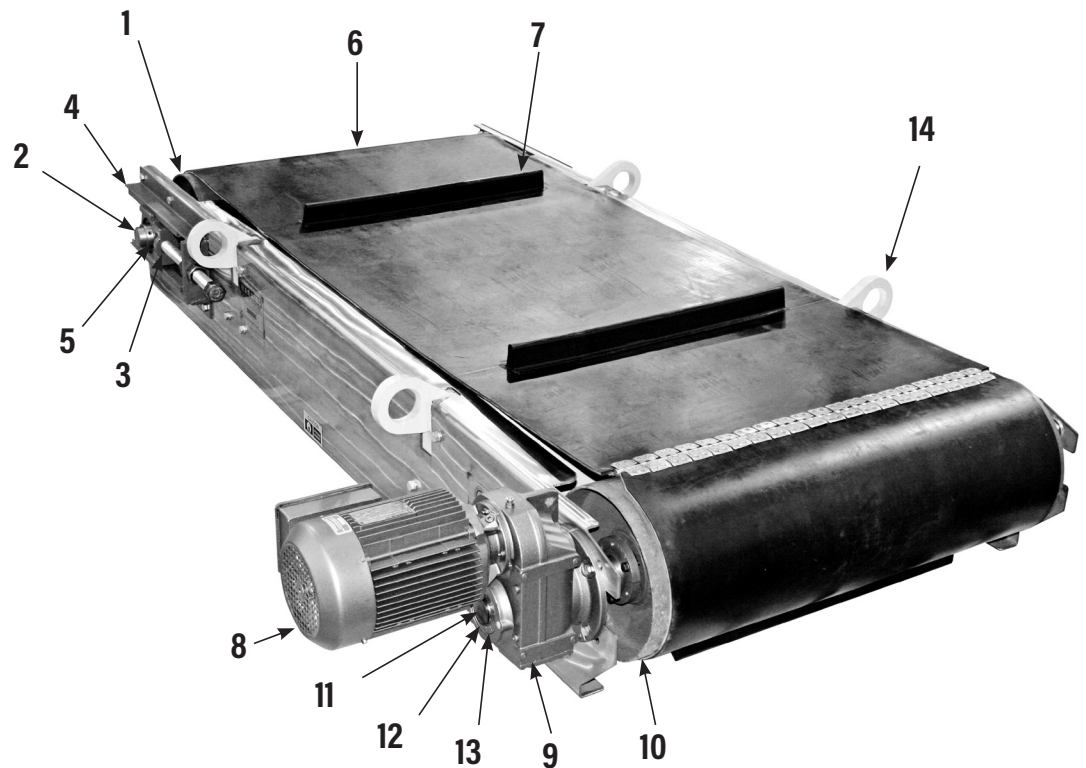
TRAMP METAL REENTERING THE PRODUCT FLOW

POSSIBLE CAUSE	SOLUTION
A. Customer's diverter is improperly positioned	A. Check depth of burden and use a leveling bar to reduce if possible.
B. Clearance not sufficient for discharge of tramp metal from the magnet.	B. Check clearance between bottom of magnet belt and edge of conveyor and adjust as necessary.



PARTS ILLUSTRATION

1. Take-Up Pulley
2. Take-Up Pulley Shaft
3. Take-Up Bearing
4. Take-Up Frame
5. Take-Up Bushing
6. Belt
7. Cleat
8. Motor
9. Reducer
10. Drive Pulley
11. Drive Pulley Shaft
12. Drive Pulley Bearing
13. Drive Pulley Bushing
14. Suspension Lug



COMMENTS OR CONCERNS?

We believe Industrial Magnetics, Inc. offers the finest Suspended Overhead Magnets 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 of serving you!