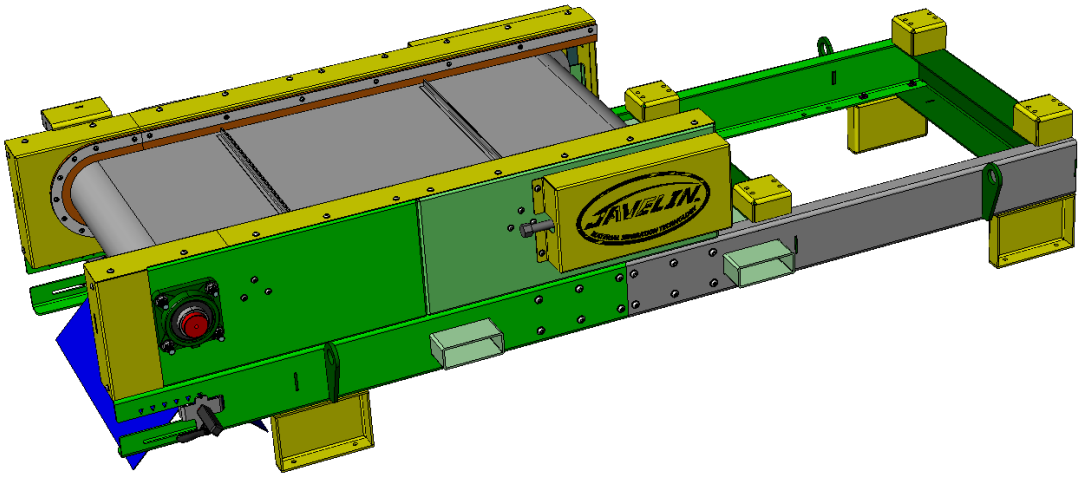
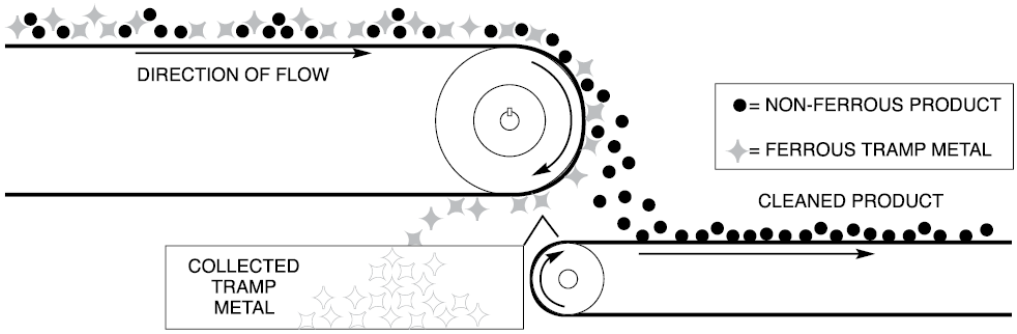
TOLL FREE: 888.582.0821

OPERATING PRINCIPLE / DESIGN OVERVIEW

The Magnetic Stainless Separation Conveyor (MSSC) is a device employed to separate select low grade stainless metals.



MSSC conveyors utilize powerful permanent magnet pulleys as head pulleys. They provide effective, automatic and continuous removal of tramp metal from material flow.



With the characteristics that lower grade metals exhibit, it is important to understand the circuitry of the magnet and the variables that ensure good separation. The magnetic pulley circuit is a high gauss **radial** design (see Figure 1).

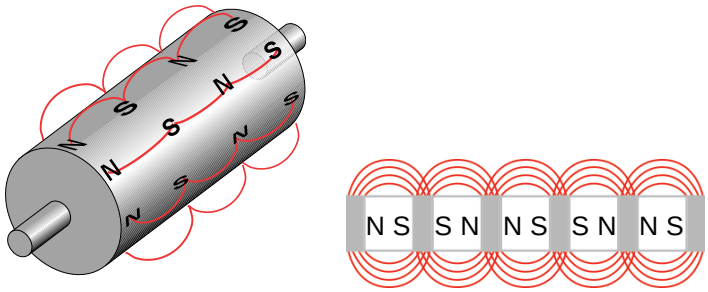


Figure 1 Radial Magnet Circuit

The radial design provides superior holding strength compared with that of an axial design circuit, however the depth of field is not as deep. The radial design exhibits high gauss close to the magnet surface, and it falls off dramatically farther from the magnet surface. This is a key factor to consider when specifying other machine variables to ensure efficient separation.

The radial design pulley is paired with a thin conveyor belt to maximize the magnetic strength at the conveying surface; belt material and thickness need to be assessed for every application.

The presentation of material to the magnet is important for optimizing separator performance. The general recommendation is to feed the MSSC with a proper metering device such as a vibratory feeder or vibratory screen. If the materials are comingled or clumped together, the result can be unsatisfactory separation.

> For example, applications for separating stainless from non-ferrous materials will require that the material at the point of separation is liberated. Clumping or nesting can result in non-ferrous material being dragged around the pulley because it is trapped, or the stainless may not have enough attraction to overcome the extra weight of a foreign object attached to it.

Note that the figures in this manual illustrate framework extensions at the inlet end of the conveyor for staging a vibrator feeder – this is a common configuration, designed per customer specifications.

It is also highly recommended that a lower strength magnet be placed in process prior to the MSSC to remove any ferritic metal or dirt from the material stream. Due to the high strength of the MSSC, the ferritic material will not be easily removed from the magnetic field.

Belt speed is another important factor affecting the effectiveness of the separation process. Running at high belt speeds is not recommended due to the sensitivity of the separation process and the characteristics of the material. Typical standard belt speed is 150 FPM.

MATERIAL TEMPERATURE

At no time should material that is being processed have a higher temperature than 125° F. The higher temperatures could cause damage to the belt and more importantly to the High Gauss Magnetic pulley. If there is a chance that the upstream separation or shredding process will transfer heat to the material, the MSSC should be installed downstream where the material has been sufficiently cooled prior to processing.

To summarize this section, it is important to understand the interaction of all variables relating to separation efficiency including the circuitry, belt thickness, belt speed, and material presentation to the Magnetic Stainless Separation Conveyor. Testing of the material to be separated should be performed prior to installation to develop an understanding of material behavior and to establish an expectation for level of performance.

MAINTENANCE

BEARINGS

Head and tail pulley bearings should be lubricated on a schedule consistent with the environment and other equipment in use at the plant. Multipurpose lithium base grease is recommended.

CONVEYOR DRIVE

The conveyor drive is a Nord Helical Bevel Gearmotor. A general parts illustration is included in the parts list contained in the Appendix; the particular model number and specifications are available by contacting IMI.

For motor and drive maintenance, refer to the manufacturer's current manual, available at the Nord website www.nord.com.

BELT

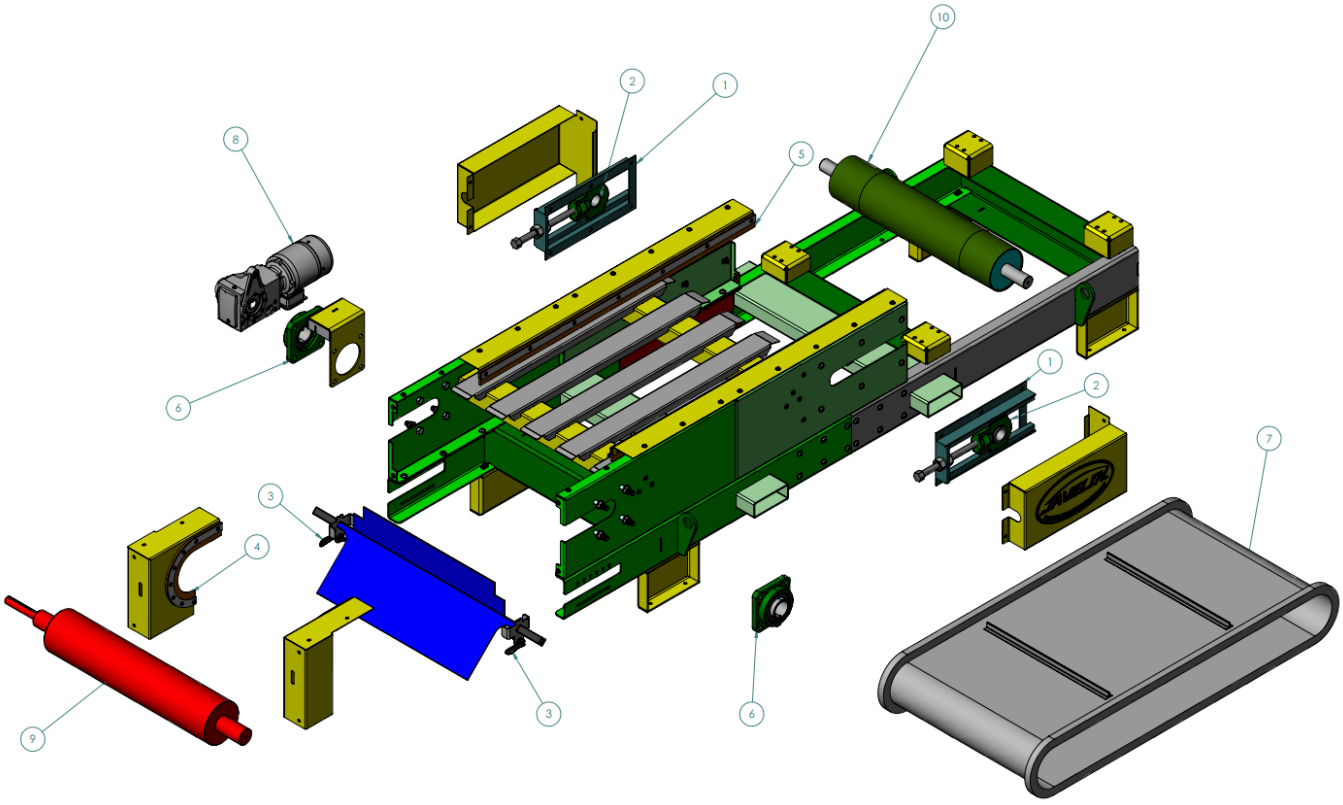
The belt is typically the highest wear item. Visually inspect the belt prior to operation for any frayed edges or tears that could get snagged and result in a belt failure. Tearing or damage to the belt can also allow material migration that could degrade the performance of the magnet or alter belt tracking. Check the tracking of the belt during every start-up sequence to prevent damage to the belt.

BELT TRACKING ADJUSTMENT

1. Take a position at the take up end (opposite of motor/drive end) and face the magnet.
2. To move belt to the right:
   a. Tighten left hand take up (move pulley toward the take up end of the unit and away from the magnet)
   b. Adjust only 1/4 turn at a time and re-check belt track (momentarily run belt).
3. To move belt to the left:
   a. Tighten right hand take up (move pulley toward the take up end of the unit and away from the magnet)
   b. Adjust only 1/4 turn at a time and recheck belt track (momentarily run belt).
4. **DO NOT** allow the belt to run until it is properly adjusted.
   a. Adjust Belt tension so that sag of the belt just contacts the slide plate of the guards, approximately an inch of sag.
   b. *CAUTION:* If the belt is too tight it will be harder to track and can cause overloading on the shaft and bearing.

REPLACEMENT PARTS LIST

1	Take-up Frame
2	Take-up Bearing
3	Clamp Handle
4	Radius Cut Felt Strip
5	Straight Cut Felt Strip
6	Four Bolt Flange Bearing
7	Polyurethane Belt
8	Nord Gearmotor
9	Magnetic Head Pulley
10	Tail Pulley



INDUSTRIAL MAGNETICS, INC.
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LIMITED WARRANTY

JAVELIN MANUFACTURING, a division of **INDUSTRIAL MAGNETICS, INC**. warrants this Magnetic Stainless Separation Conveyor to be free from defects in material and workmanship under normal operating conditions for a period of one year from date of shipment to original purchaser. One year represents 2080 operating hours. Without limitation, use or service in highly corrosive environments is not deemed normal. **JAVELIN MANUFACTURING** does not warranty against magnetic rotor damage caused by ferrous burnout, neglect, or any use that is deemed abnormal. **JAVELIN MANUFACTURING** sole obligation under this warranty is limited to repairing or replacing any piece of equipment or part that is determined to have been defective within one year of shipment. Defective parts shall be returned to **JAVELIN MANUFACTURING**, FOB our shop and a replacement part shall be returned to purchaser FOB our shop. **JAVELIN MANUFACTURING** does not warranty components manufactured by others, but will submit upon purchaser's request, the warranty of the specific manufacturer. **JAVELIN MANUFACTURING** does not warranty installation or labor associated with replacement parts granted under the normal warranty conditions. In the case of a motor failure please contact the nearest authorized service center of the motor manufacturer.

The foregoing represents the entire liability of **JAVELIN MANUFACTURING** to the purchaser. **JAVELIN MANUFACTURING** makes no other warranties either express or implied. In no event will **JAVELIN MANUFACTURING** be liable for any direct or indirect, incidental or consequential loss or damages or economic loss (including, but not limited to, loss of product, production time, or equipment) to any person or property arising from operation of this equipment.