Electro Zavod's R & D and continuous innovations ensure the performance and reliability of metal detectors.

**Overview:**

Electro Zavod Metal Detectors detect the presence of metal—both magnetic and non-magnetic—within moving bulk material. Tramp metal affects many Industries, and presents quality-control problems or a hazard to processing equipments, i.e., Crushers, Ball Mills, Conveyor Belts, etc.

Electro Zavod Metal Detectors meet the requirements of a wide spectrum of industries such as Iron Ore, Metallic ore, Cement, Coal, etc.

Electro Zavod Metal Detectors, with rugged design and continuous heavy-duty usage, are field proven.

**Principle of operation:**

Electro Zavod pulse Metal Detectors operate on the principle of Eddy Current induced Imbalance in a set of mutually balanced coils. A frequency of 20 KHz to 100 KHz is used to generate an electromagnetic field in the aperture area. The system automatically maintains a high degree of balance which is distributed by the metal passing through the aperture resulting in a signal, which is amplified to operate an audio visual alarm and interlock or reject mechanism system.

**Electro Zavod Pulse Metal Detector:**

The Electro Zavod pulse Metal Detectors work well with magnetic and conductive and conductive ores. No other system can work effectively when a tramp metal is to be detected in the presence of magnetic and conductive ores. The Electro Zavod pulse Metal Detector detects 25 mm Ferrous sphere/cube and 25 mm Non-ferrous sphere/cube.
**KEY FEATURES:**

1. Detects ferrous and non-ferrous metal including manganese steel and stainless steel.
2. Distinguishes between stationary and moving metals.
3. Automatic sensitivity for temperature variation and static metal.
4. Adjustable sensitivity.
5. Completely solid state using latest technology, ruggedly built to give years of trouble free operation.
6. Easy installation: search coil can be installed around an endless belt.
7. Can take supply voltage variation of +/-15%
8. Extremely low power consumption.
9. Suitable for ambient temperature up to 55°C and humidity 100%.
10. Audio-visual Alarm to draw the attention of the operator.
11. Potential-free change over contact for interlocking as per customers requirements.
12. Reliable Sand Bag Marker and External Hooter can be coupled to the system.

**SYSTEM COMPONENTS:**

The Metal Detector system consists of the following components.

**Search Coil**

Search Coil is that part of the Metal Detector which creates the required electromagnetic field and senses the disturbances caused by the presence of metal in bulk material handling conveyor. The Search Coil takes the form of a closed loop around the conveyor. The Search Coil Assembly is a wooden rectangular frame with mounting on conveyor structure channels. The Search Coil comprises of a transmitter coil panel, two four-core cables are taken out which goes to the Junction Box. The whole assembly is designed such that it can be easily installed on an endless conveyor.
**Pulse Metal Detector**

**Control Panel:**
A ruggedly built dust-and water proof cubicle houses the main electronics circuitry. This generates all the D.C. supplies required and processes the signal to annunciate audio-visual indications and other systems and actuates interlocking relays. This also has all the operational controls and terminations for the interlock system etc.

**Junction Box :**
The Junction Box generates the required electro-magnetic fields, and automatically maintains a high degree of balance. It amplifies the disturbance caused by Tramp Metal and passes "Metal Detected" Signal to the Control unit. The Junction Box with door which Houses the electronic circuitry is mounted by the side of the Search Coil frame. The Junction Box is covered by Laminate and / or Aluminium sheet.

**Sandbag Marker:**
After tripping, the belt may stop at varying distance form the Search Coil depending on Conveyor speed, load conditions, braking efficiency and inclination etc. To remove the Tramp metal, an operator may have a large area to search. The depth of burden further Increases the task of the operator. To easily locate the area in which metal is detected, we offer Sand Bag Marker, which is installed just after the Search Coil. It is a solenoid operated unit which drops a Sand Bag on the conveyor where the metal is detected. So the operator has to locate the Sand Bag which will be visible on the top of the material. Thus this reduces the search area irrespective of the conveyor belt halt.

**Counter:**
The counter helps in high speed conveying by counting the number of metal pieces detected. This is useful for high speed conveyors.

**Search Coil Guard:**
The Search Coil Guard protects the Search Coil from damage due to large lumps or overburden.
**Hooter and Indication Lamp:**
The conveyor on which the Metal Detector is installed is also interlocked with other systems. To give the indication that the system has tripped due to Metal Detector an External Hooter is provided as an optional unit. Flasher Light is an optional unit. In case the control unit is away from the Search Coil, it gives the indications of SET / TRIP conditions of Metal Detector.

**APPLICATIONS:**

1. Coal Handling Plants
2. Cement Plants
3. Mining (Coal, Lignite, Ores)
4. Thermal Power Plants
5. Chemical Plants
6. Glass Manufacturing Units
7. Plastics
8. Paper Mills
9. Plywood Manufacturing Units
10. Rubber Processing Units

**SPECIFICATIONS:**

1. Power Consumption : Less than 500VA
2. Power Supply : 240/415V AC, 50Hz
3. Conveyor Belt Speed : 0.3 to 5MPS
4. Auxiliary Contact : 2Nos. Potential-free change-over contacts, rating 240V AC 5Amps
5. Weight : 50 – 200Kgs total depending on the size of the Search Coil.