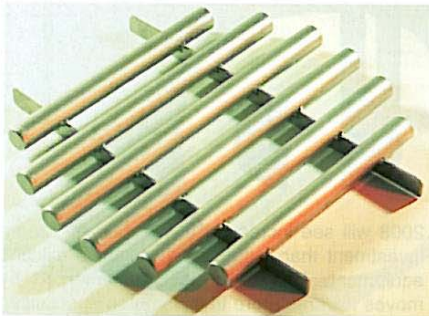


Stronger Magnets the Key to Separation Success

Two special 'P' type Rare Earth Grate Magnets have been installed by Jardox Ltd to remove fine iron particles from food ingredients used in the production of pastes and sauces. The Grate Magnets were designed, manufactured and supplied by Eriez Magnetics Europe Ltd.

A Grate Magnet is one of the simplest magnetic separators commonly supplied to the process industry, comprising of a number of Tube Magnets aligned side by side in a grid formation with a separating gap of approximately 25mm. Material is commonly fed onto the top of a Grate and flows down through the gaps between the Tubes, leaving any magnetically susceptible material entrapped in the magnetic field.

In this application, the strong magnetic forces are



not only removing any coarse tramp metal such as screws, but more importantly, fine iron particles and even abraded stainless steel from the food ingredients.

Aside from the nature of the material, the separation efficiency is determined by the magnetic strength of the Tube Magnet and the depth of magnetic field. The easiest way to determine the strength of a Tube Magnet, as promoted by Eriez, is to conduct a pull test using a simple spring balance.

A 6mm ball bearing is placed on the Tube's surface and the force required to detect this from the magnetic field is recorded as the 'pull test strength'. This is a reliable and practical way of measuring the magnetic power of a Tube Magnet. Relying on a company's claims of the gauss value on the surface of the Tube can be fraught with danger, especially as there is no easy way to measure it. The 'pull test' is a measurement that any customer can make and will quickly confirm the relative magnetic strength. The 'Mega' type Rare Earth Tube Magnets, used in the Eriez Grate Magnets, have



A typical 'P' Grate

a surface magnetic pulling strength of over 2.5kg. Jardox approached Eriez as they required Grate Magnets specifically designed to meet their special requirements. This included sandwiching Tube Magnets into a 270mm diameter HDPE frame to withstand the vibration generated in a screen. Magnet strength was also a key issue, as the new Grates would be replacing far weaker Rare Earth Tube Magnets supplied by another company. Initially one unit was produced and successfully tested, leading to subsequent orders for additional units.

Eriez supply a wide range of magnetic separator types to food processing companies and specialise in providing high strength solutions.

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