



MASTER MAGNETS LIMITED

MASTERMAG HIGH INTENSITY ELECTRO MAGNETIC FILTERS



INTRODUCTION

The Mastermag High Intensity Electromagnetic Filter is designed for the continuous removal of ferrous particles from many liquid based applications, particularly ceramic, slips and glazes, and is designed to handle from 45 litres per minutes to 900 litres per minute. Filters are fitted with an auto backflush system on a timed cycle to enhance performance and prevent clogging, and have proved particularly successful where superior quality ceramics are required, outperforming competitors units.

The filters enable companies to overcome the perennial problem faced by the ceramic industry of eliminating iron contamination in the glaze and slip processes, dramatically reducing structural and cosmetic defects in the manufactured product, resulting in a costly rejects.

REQUIREMENT

Traditionally, heavy patterns disguised cosmetic defects but modern taste for delicate, fine patterns and plain backgrounds mean the ceramic industry is faced with finding effective solutions to contamination problems, or else reject a higher proportion of products.

Iron contamination can occur naturally from iron bearing minerals, such as hematite, chalcopyrite, ilmenite and biotite micas which appear in many of the raw materials used for ceramics. Most of these minerals are removed during preparation, but some may pass to the fine grinding stage.

Introduced contamination is often the result of machinery wear when in contact with abrasive materials and this, together with oxidation, can lead to particles entering the product stream. During the process of abrasion the particles harden and this can induce paramagnetism. The high intensity magnetic separator will remove a high percentage of paramagnetic particles.

OPERATION

The Mastermag filter consists of highly efficient computer designed coil into which a canister containing a stainless steel matrix is inserted. The slurry is pumped through the matrix which allows greater control of particle residence time. Magnetic contaminants are



One of the many applications for the Mastermag High Intensity Filter, shown above in a typical ceramic sliphouse.

washed down through the matrix once the separator is de-energised.

The matrix amplifies the background magnetic field to produce points of very high magnetic intensity and gradient. A typical amplified field produced by the matrix is many times that of the background field.

Mastermag High Intensity Electromagnetic filters are supplied with a single inlet and outlet to and from the matrix. Product is fed to the separator at the bottom via a butterfly valve and passes up through the energised matrix. Contaminates are captured by the matrix and the cleaned product passes out at the top of the separator via another butterfly valve and on to the next processing stage. During the filter cycle valves 1 & 2 remain closed. See fig. (1).

To produce Clean Product

- Energise magnet coil
- Open valves 1 + 2

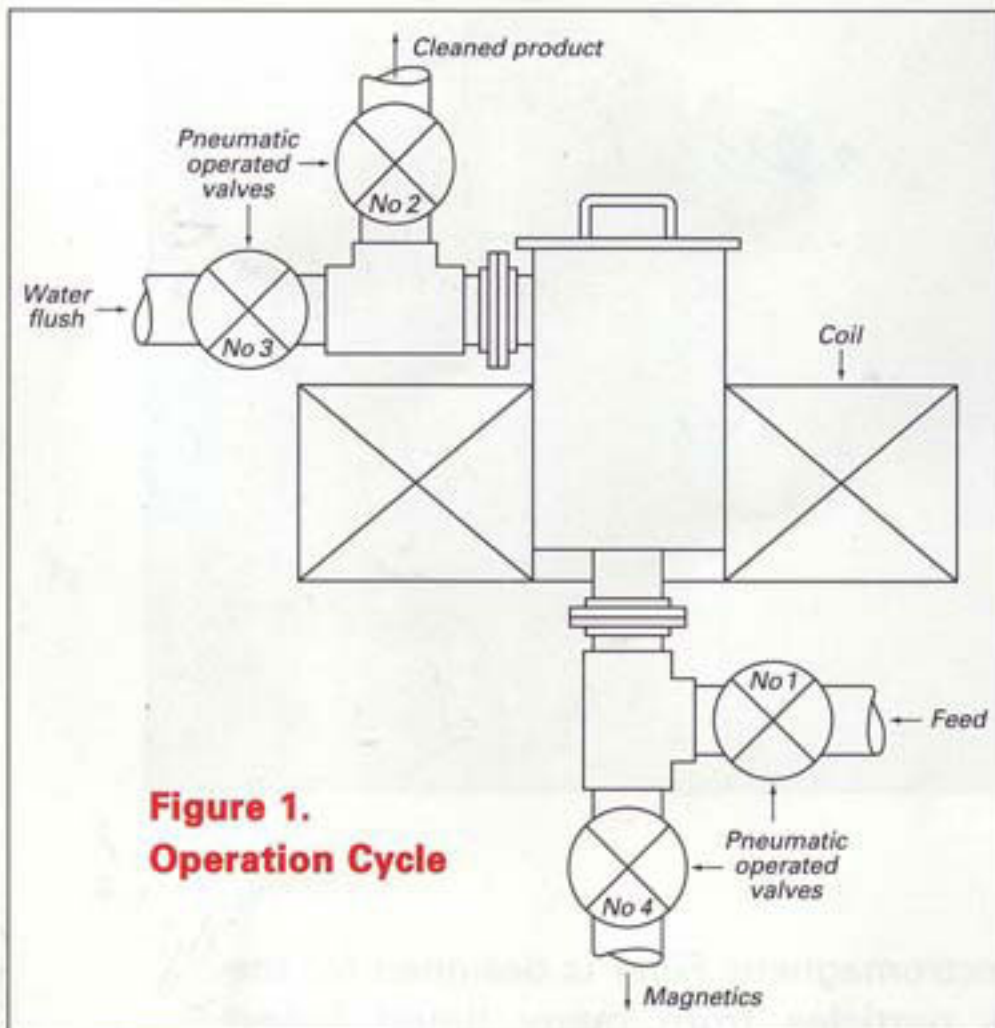
To discharge collected magnetics

- Close valves 1 + 2
- Open valves 3 + 4
- Switch off magnet coil
- Wash matrix through

If uninterrupted product flow is required, two filters installed in parallel and controlled automatically will give continuous flow.

Other products used within the ceramics industry include: Pipeline magnetic filters; magnetic tubes; plate magnets; suspension magnets and high intensity wet (HIW) magnetic separators.

We encourage potential clients to send us a representative sample of contaminated product for testing and evaluation in our fully equipped mineral processing laboratory.



Other products include overband separators, magnetic drums, magnetic conveyors, fragmentiser drums, suspension magnets, wet drums and a full range of mineral separation equipment supported by a fully equipped mineral processing laboratory.



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