A MAGNET IS NOT “JUST A MAGNET”!
AN OVERVIEW OF MAGNETIC POLARITY AND COMPOSITION

WE BUILD THEM CORRECTLY!
Contrary to popular belief, a magnet is not just a magnet. When making a magnet purchase, it is advantageous to understand more about a magnet’s “inner” design as well as outer appearance. The inner design criteria are composed of three elements:
1) Magnet polarity design
2) Composite material construction
3) Magnet material rating

MAGNET POLARITY
All magnets including Grates, Drawers and Plates can be assembled internally in a variety of magnetic polarities. These internal differences, although not visually noticeable on the exterior, will produce a different magnetic performance result. Selecting the best magnetic polarity design depends on (a) the specific application criteria, and (b) knowing the differences when comparing these products offered by various manufacturers. Due to the fact that equipment manufacturers operate as an unregulated industry without uniform product standards, it is incumbent on the buyer to know how to compare “apples to apples.”

MAGNET MATERIAL RATING
Throughout the history of magnetics, like materials have generally possessed like magnetic characteristics. Although Alnico and Ceramic magnet materials are available in a wide range of grades of magnetic values, the differences from one end of the range to the other has not been as significant as it is today. With the advent of new high energy Rare Earth magnet materials, this generalization is no longer acceptable.

Based on current rare earth magnet manufacturing technology, Neodymium-Iron-Boron magnets dominate this segment of the permanent magnet market. Due to the lower costs as compared to Samarium-Cobalt magnets and higher magnet strengths, nearly all rare earth magnets manufactured for the Plastics Industry are made from Neodymium-Iron-Boron magnetic materials. Unlike Ceramic and Alnico materials, Rare Earth materials can vary greatly in strength. This variation is measured in MGOe (Mega Gauss Orsteds) and represents a magnet’s peak energy. This can be compared to a magnet’s “horsepower” and will have a great impact on maximum potential strength of the magnetic separator such as a Grate or Drawer magnet.

Because the rare earth magnetic material component cost represents the greatest cost component of the magnetic equipment, knowing the MGOe grade of material is critical in the selection/comparison process.

Standard PPE Rare Earth Magnets have an MGOe rating of 52. It has been our practice to always offer the highest commercial grade available as we understand our customers are paying a significant price premium to have the most powerful permanent magnets when “buying up” to rare earth magnets.

The maximum temperature your PPE Magnets will be exposed to must be a consideration when selecting the proper magnet for the application. PPE Ceramic magnetic material may be placed in applications seeing temperatures up to 400°F, while standard PPE Rare Earth Magnets may be placed in applications with a maximum temperature up to 176°F. PPE High-Temperature Rare Earth Magnets may be placed in applications with a maximum temperature up to 356°F.

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Some of our competitors like to offer rare earth magnets with a rating of 27 and only provide the higher quality magnets to informed customers who know what to ask. Now you know what to ask.

As you can see, knowing a magnet’s “inner” design and construction will help guide you in selecting the right magnet for your application.