argema

PATENT NO:27746

Since 1994

“KEDI”

Magnetic Metal Cather

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HISTORY AND DEFINITION OF THE PRODUCT

In all facilities that use fiber in production and convey it with vacuum air, it is essential to remove contaminants—both metallic and non-metallic—mixed into the fiber. In practice, metal detectors, heavy-part and colored-fiber separators, and magnets are used for this purpose.

Ferrous (magnetic) metals in particular can cause machine damage and fires in plants. Since the systems used to separate magnetic metals are not flawless and have shortcomings—an issue observed by textile companies and conveyed to us—our company designed a system in 1994 that eliminates these problems, introduced it worldwide as a patented solution, and, by demonstrating its effectiveness, put it into service for manufacturers.

DEVICES USED TO SEPARATE FOREIGN MATERIALS MIXED INTO FIBER

1. Metal detectors
2. Magnets
   a) Z-type magnets
   b) L-type magnets
3. Heavy-part and colored-fiber separators
4. Argema Metal Holder

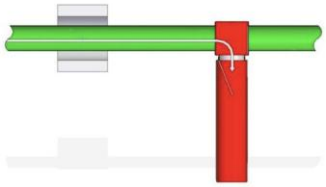


Figure 1

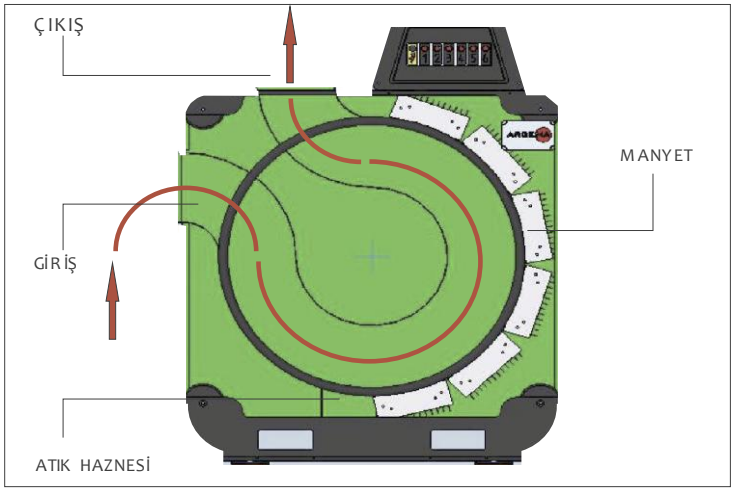
a) Z-Type magnets

Metal detectors open the bypass flap of the main flow pipe and drop the detected metal piece into the fiber bag together with a tuft of fiber. Metal detectors sense all kinds of metal; however, when metal parts arrive frequently, operating continuously interrupts the flow and leads to an accumulation of waste fiber that must be sorted or destroyed manually.

Figure 2

Magnet systems arranged with Z-type and L-type magnets are designed so that fiber pieces carrying metal strike the magnet surface and the metal is captured. The impact with the magnet surface occurs instantaneously, and the fiber tuft separates from the magnet surfaces.

If the metal remains on the top of the fiber tuft away from the magnet surface, or if it rebounds due to the impact, it proceeds through the system without being captured by the magnet.



4) ARGEMA METAL CATHER "KEDI"

Our patented device consists of an arrangement of magnets forming the outer walls of a channel that follows a circular path.

As the fiber—and the metals mixed into it—move along this circular orbit, they are pressed onto the magnet surfaces by both the centrifugal force of the motion and the surface pressure drop described by Bernoulli's flow laws. Magnetic metals are then attracted by the magnetic field and are captured with high efficiency.

In addition, the fiber layer "skims" along the magnet surfaces (similar to airflow over an aircraft wing), creating surface adhesion and friction that prevent metals from bouncing off and escaping the magnet surfaces.

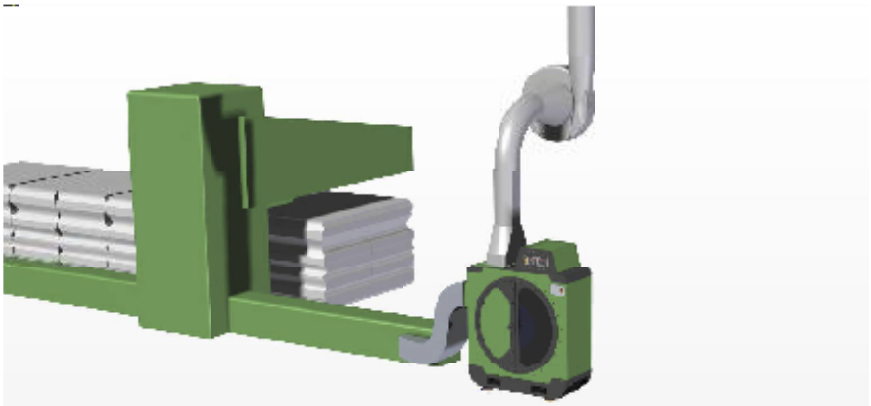
Seeds, stones, and other heavy pieces are also separated in our device: vanes that create a turbulence trap drop them into a chamber, where they are removed together with the metals.

All ARGEMA Metal Cathers have on the side a rotating cover with one half sealed with glass (airtight) and the other half open. During operation, the glazed half acts as a closed surface. When access to the magnet surfaces and the waste hopper is needed, the cover is rotated about its axis and access is made from the open section.

In our metal holders equipped with an automatic heavy-parts and trash hopper, the unit is emptied under PLC control. The operator does not need to perform cleaning; the operator only collects the metals captured on the magnet surfaces.

PLACE OF USE AND INSTALLATION

The Argema Metal Holder operates in the blowroom section of spinning mills. It is installed at the fiber outlet point of blowroom machines such as Blendomat or Unifloc. It must always be positioned **upstream of the suction fan**.



MODELS AND FEATURES OF ARGEMA METAL CATHERS

Our device is defined in various models depending on:

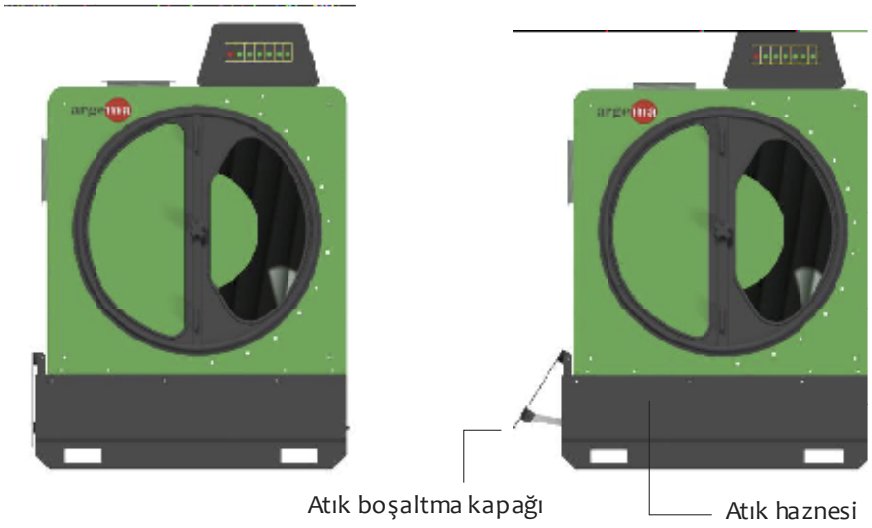
- whether the unit is equipped with electromagnets or natural magnets,
- the pull force of the natural (permanent) magnet used,
- and whether the debris hopper is emptied manually or automatically.
- Units with natural magnets (neodymium)
- Units with **manual** debris-hopper emptying
- Units with **automatic** debris-hopper emptying
- Model reinforced with **super magnets**

Model codes shown: PMT 63500, PMT 64500, PMTE 63500, PMTE 64500

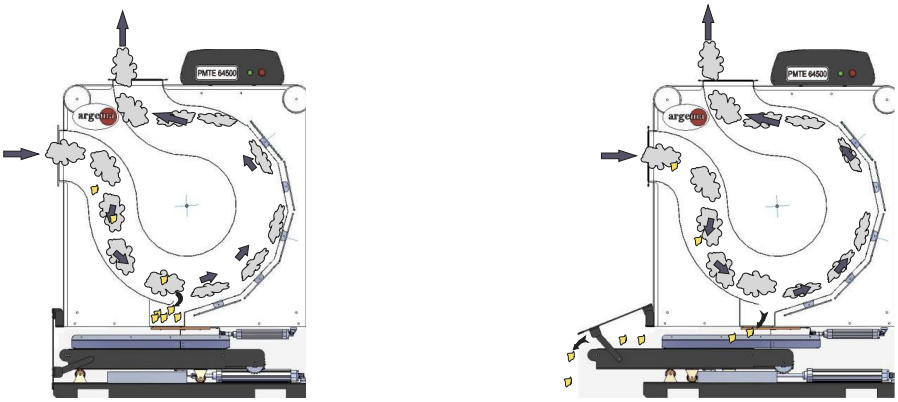
PMT-PMTE 63500

PMTE 64500

Automatic Discharge Model (PMTE 64500)



In our Automatic-Discharge Metal Cathers, there is a **waste hopper** at the bottom section where waste materials fall. This hopper is located **beneath the inlet** in front of the vane that protrudes into the channel and generates turbulence. Inside the hopper, a mechanism operates that **opens the waste-discharge flap** and periodically pushes the waste out for disposal. The system **does not allow the hopper to overfill**.



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