

Permanent Magnetic Flocculators

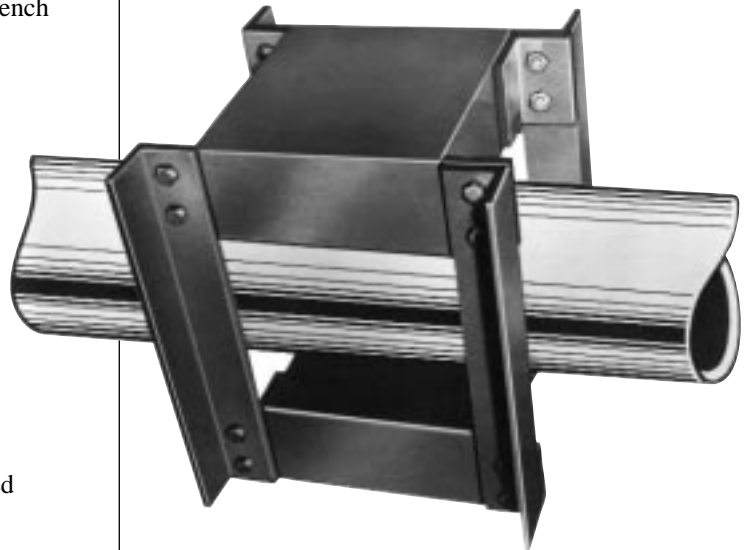
Complete Line

Compact, powerful units use Erium 25 permanent magnets to speed settling of magnetic solids from slurries and liquids for easier recovery and separation.

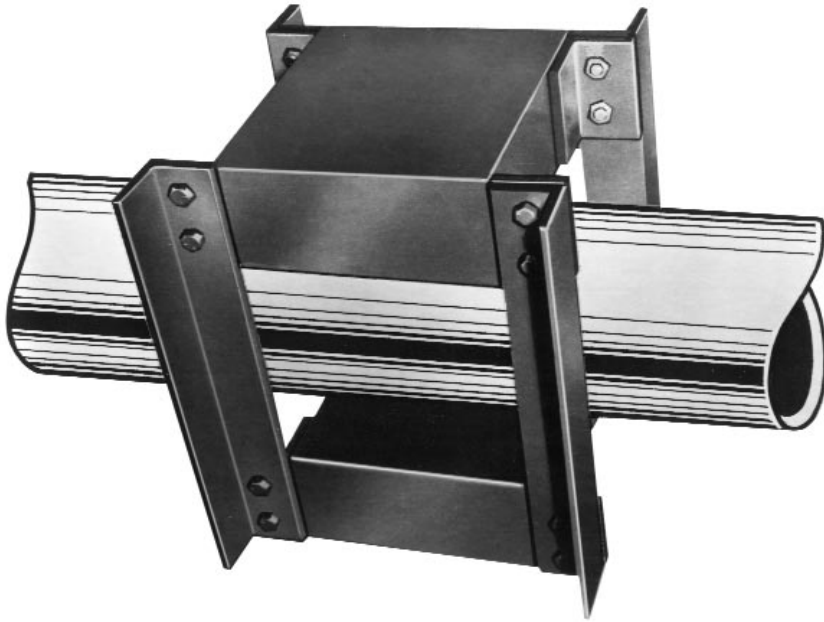
Eriez Permanent Magnetic Flocculators aid in the separation of minute magnetic particles from liquids and slurries. Used widely in the iron and coal mining industries to speed settling of fine magnetic particles in ore slurries and heavy media slurries, they are finding new use in steel and other industries for agglomerating fine magnetic contaminants in quench water, cooling oils, etc.

FEATURES

- 4" - 24" pipeline volumes accommodated
- Simple installation
- Floor, wall or ceiling mount
- Vertical or horizontal flow
- No operating costs
- No moving parts to wear out
- Minimum maintenance required



THREE STRENGTHS, 17 STANDARD SIZES



U.S. Patent No. 3,536,198

Flocculation occurs when a slurry or liquid containing magnetic particles passes through the magnetic field. The fine particles become magnetized and attract each other, forming larger particles or "flocs." These larger particles are less affected by flow turbulence and have enough mass to cause them to settle out of the slurry at a much faster rate than individual unflocculated particles.

Three standard strengths are available. For free iron particles, ferrosilicon and magnetite a 600 gauss magnet is recommended. Weakly magnetic particles require more magnetizing force to achieve flocculation, and either an 800 or 1000 gauss unit would be required. Generally, laboratory tests are needed to provide firm recommendations.

To recommend the proper unit for your particular application, the following information is required:

1. Type of magnetic material
2. Material particle size
3. Percent of magnetic solids in slurry
4. Density of slurry
5. Volume of slurry to be handled
6. Pipeline material and diameter
7. Flow velocity
8. Minimum temperature

FEATURES

The volume from pipelines from 4" through 24" (102 through 610 mm) in diameter can be accommodated with standard units. Units for larger or smaller pipelines can be furnished when required.

Installation is simple; mount on floor, wall or ceiling, for either horizontal or vertical flow.

Powered by ERIUM 25, a powerful permanent magnetic material.

No operating costs . . . no moving parts to wear and get out of order. Minimum maintenance is required.

ENGINEERED FOR SPECIFIC APPLICATIONS

The magnetic flocculator can be engineered for any specific application. Design variables include the magnetic field strength, retention time in the magnetic field, and the overall size of the flocculator. These features allow installation on existing pipework as well as new applications. Please contact us with your application.

INSTALLATION

Units can be installed around any suitable hose, pipe or duct. Sections that pass through the flocculator must be of nonmagnetic material. Flexible pipe or hose can be compressed into a cross section to fit the rectangular opening of the magnetic flocculator. A rigid, circular duct that exceeds the width of the opening will require transition sections at the inlet and outlet of the unit.

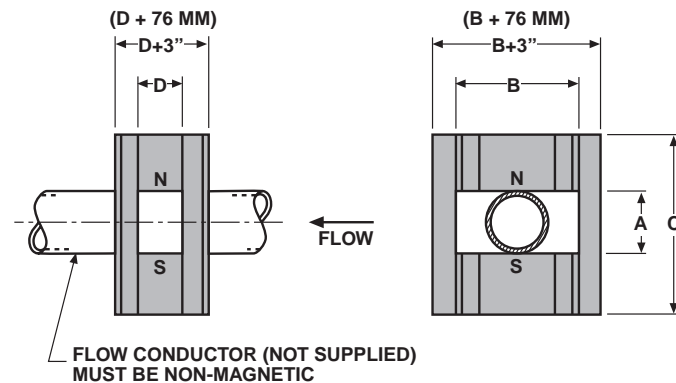
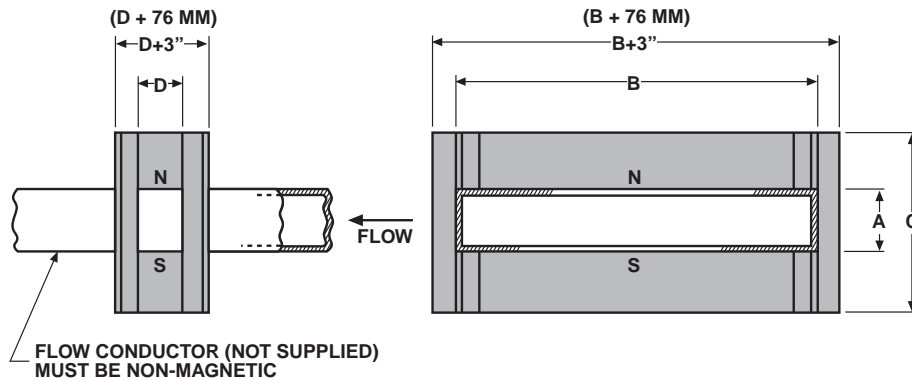
A flocculator should be installed without disassembly and the pipe or flow conductor should then be inserted into the opening between poles. Disassembly should not be considered except where it is absolutely impossible to make the installation in any other manner. **Disassembly is a high-risk operation** and the procedure should be discussed with Eriez' Engineering Department before any such operation is begun.

Angles which may be welded or drilled are provided as standard for mounting purposes. Additional supporting structure, transition sections and ducts are furnished by the customer, but may be supplied by Eriez as special equipment.

SPECIFICATIONS

(600 gauss unit, specifications for 800 and 1000 gauss units available upon request)

Model No.	Area of Opening		A (min.)		B		C (max.)		D		Maximum Recommended Flow Capacity		Weight	
	in.	cm	in.	mm	in.	mm	in.	mm	in.	mm	ft/sec	m/min	lb	kg
6-32	32	206	4	102	8	203	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	35	16
6-48	48	310	4	102	12	305	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	49	22
6-72	72	465	4	102	18	457	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	74	34
6-96	96	619	4	102	24	610	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	96	44
6-144	144	929	4	102	36	914	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	148	67
6-192	192	1239	4	102	48	1219	11 ⁵ / ₈	295	2 ⁵ / ₈	67	2.1	38	195	88
6-56	56	361	7	178	8	203	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	67	30
6-84	84	542	7	178	12	305	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	94	43
6-126	126	813	7	178	18	457	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	142	64
6-168	168	1084	7	178	24	610	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	195	88
6-252	252	1626	7	178	36	914	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	300	136
6-336	336	2168	7	178	48	1219	17 ¹ / ₄	438	4 ¹ / ₄	108	3.3	60	395	179
6-120	120	774	10	254	12	305	24 ¹ / ₂	622	6 ¹ / ₄	159	5.0	91	193	88
6-180	180	1161	10	254	18	457	24 ¹ / ₂	622	6 ¹ / ₄	159	5.0	91	279	127
6-240	240	1548	10	254	24	610	24 ¹ / ₂	622	6 ¹ / ₄	159	5.0	91	378	171
6-360	360	2323	10	254	36	914	24 ¹ / ₂	622	6 ¹ / ₄	159	5.0	91	595	270
6-480	480	3097	10	254	48	1219	24 ¹ / ₂	622	6 ¹ / ₄	159	5.0	91	811	368



Dimensions and specifications subject to change without notice.

VALUE OF MAGNETIC FLOCCULATION PROVED IN PLANT INSTALLATIONS

New, efficient magnetic flocculators developed by Eriez are helping the iron and steel industries achieve cleaner water faster and more economically by increasing the settling rates in liquids and slurries.

Magnetic flocculator assemblies have proven their value in actual installations. They are ideally suited for blast furnaces, BOF shops, pipe and tube mills — any place where ferrous particles are suspended in water.

By promoting faster sinking action, magnetic flocculation speeds up the clarification process, helps return cleaner water to the source or to a recirculation system and produces a denser cake.

A magnetic flocculator can be adapted to many chemical flocculation installations with the effect of reducing the latter's operating costs. Benefits of combined magnetic and chemical flocculation include:

1. Substantial savings of reagents when chemical flocculation is followed by magnetic flocculation
2. Doubling of settling rate with a small increase (two percent) in the solids content of the underflow
3. Substantial improvement in filtration rates
4. Increased clarity of the supernatant



This close-up of an Eriez Flocculator Magnet and the photo at right below show how the flocculator can be installed easily and quickly in the inlet pipe to the clarifier. Its design forces water to be spread out over a large area. Magnetic flocculation requires only split-second exposure to magnetic flux generated by the permanent magnets on top and bottom. Maintenance costs are virtually nil.



Eriez Flocculator Magnet installation at a large steel plant is shown above. Magnetic flocculation reduced ferrous solids in overflow from 600 parts per million to as low as 40 parts per million.

