

Ferrous Permanent Magnetic Traps



WITH ERIEZ XTREME® RARE EARTH MAGNETS



Standard Magnetic Traps

FEATURES & BENEFITS

- **Rugged cast metal construction**
- **Sanitary and nonsanitary models**
- **Easy to clean designs**
- **Pipe sizes from 2"–30" diameters (51 mm–762 mm)**

Eriez' line of powerful, permanent magnetic Ferrous Traps provide magnetic protection for liquid lines and processing equipment. They preserve product purity by removing small particles of magnetic scale, rust and fine iron contamination.

Over the years Eriez has applied its magnetic design, engineering and application know-how to develop ideal magnetic separators for liquid purification and a variety of wet separation applications.

Principle of Operation

With Eriez you choose the unit designed to perform best for your particular need... Super B Ferrous Traps in standard or sanitary models... low cost Model L-2 Ferrous Traps for many scalping applications... Model L-2-F units with a filter to provide nonmagnetic as well as magnetic separating action... and Model T Traps for large diameter lines handling big volumes of liquids and slurries.

Eriez' design in all of these units incorporates a sump to help trap nonmagnetic particles that tend to settle to the bottom of the enclosure. You can enjoy the benefits of this magnetic-mechanical protection, in most cases, without an appreciable pressure drop or reduction in present flow rates.

Protect your flow lines and products with the world's finest liquid handling magnetic separators. Prevent abrasive wear... prevent pumps from jamming... assure yourself a product free of iron contamination... achieve the iron contamination protection your particular operation requires – whether it be a tiny 1/2-inch (13 mm) pipeline or a huge 30-inch (762 mm) diameter line, Eriez has a magnetic circuit to provide the protection that will serve you best!

All models of Ferrous Traps have a constant powerful magnetic circuit designed to attract and hold iron contamination. Clean, simple designs have no moving parts... powerful, permanent magnetic element will perform well handling materials with temperatures up to 150°F (65°C), with special models available for temperatures to 850°F (454°C).

Ferrous Trap magnetic elements lift from their bodies in seconds... easy to inspect and clean!

Xtreme® Traps

The Xtreme® style Rare Earth (RE) separators available from Eriez remove weakly magnetic or very fine iron contaminants. These separators are made with a high quality rare earth permanent magnetic power source. Eriez Rare Earth develops a magnetic field up to 25 times the strength of conventional ceramic or Alnico magnet materials.

The gap between low and high intensity magnetic separators has been filled with these Xtreme magnets. They have more strength at a greater distance than conventional permanent magnets, high gradients and increased holding force. This means they can reach out and attract magnetic or very fine iron contaminants, and hold them so tightly that wipe-off by product flow is virtually eliminated.

All models of Eriez trap magnets are available with Xtreme elements. Existing units can be easily retrofitted with these more powerful magnetic assemblies.



New or Retrofit

If you have existing Eriez Magnetic Traps, it is simple to retrofit your existing separator body with Xtreme style RE magnet assemblies. This provides a fast and economical way to upgrade iron separation performance. In many cases conventional ceramic magnets can be used to scalp easier-to-remove iron, with an Xtreme RE magnet providing a final stage of separation to capture weakly magnetic contaminants.



Five Often Asked Questions About Rare Earth Magnets

1 **Q.** *What's so special about rare earth magnetic separators?*

A. RE magnets offer solutions that were not available before to many fine and/or weakly magnetic iron contamination problems. Their magnetic strengths fall in the medium-intensity range — 4,000 to 12,000+ gauss. Previously, this strength was available only through high-intensity electromagnets, which are bulky, expensive to purchase and expensive to operate. All too often, the high-cost electromagnetic level of separation isn't really needed, or its cost exceeds the "value added" to the product or process, making it difficult to justify.

The gap between high-intensity electromagnets, then, and the low-intensity conventional ferrite and alnico magnets, left a void in the medium-intensity range. Rare earth magnets fill this void and allow economically feasible solutions to those ferrous contamination problems that are too tough for low-intensity separation but for which high-intensity separation was overkill.

2 **Q.** *How can these new magnets benefit a processing operation?*

A. The improved performance of RE magnets makes them particularly suited for certain applications. These include (1) the removal of fine iron, such as iron of abrasion, which is difficult to attract and hold because of its small mass; (2) the removal of weakly magnetic contaminants, such as iron oxide, which do not respond well to conventional ferrite magnets; and (3) the removal of some stainless steel particles which have been rendered paramagnetic through work hardening.

3 **Q.** *What exactly are rare earth magnets?*

A. Rare earth magnetic materials are neither rare nor earth. Lanthanides is the proper name for these metals, which range from atomic number 57 to 71 on the periodic table of elements. While rare earth materials have been known for a long time, it's only recently that their use has become economically feasible. Using new technology, rare earth metals are being combined with other elements to produce a new breed of permanent magnet.

4 **Q.** *How are rare earth magnets different from other magnets?*

A. The rare earth magnets are a major advancement, since they have much higher magnetic strength than conventional ferrite or ceramic magnets — (up to 25-times more pull) — yet provide similar circuit stability and long service life.

Properly designed RE magnets also have high magnetic gradients and greatly increased holding force. This means they can reach out and attract weakly magnetic or very fine iron contaminants and hold them so tightly that wash-off by product flow is virtually eliminated.

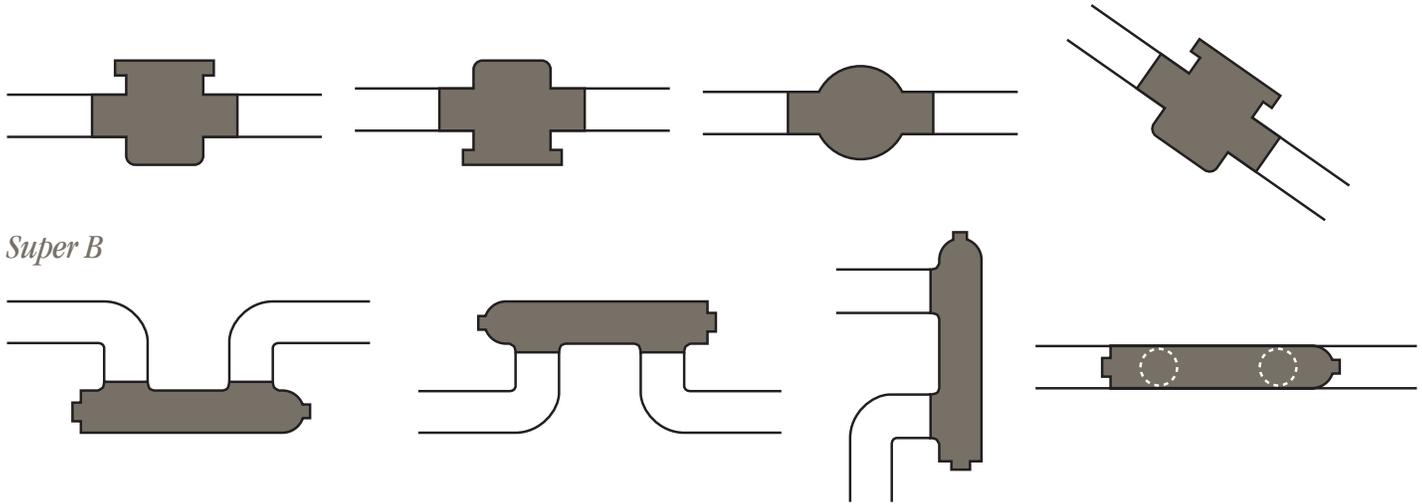
5 **Q.** *Are all rare earth magnets this strong?*

A. Definitely not. An Eriez Magnetics Technical Center evaluation of different compounds and magnetic circuits showed that some rare earth compositions and circuits were only slightly better than ferrite (ceramic) magnet circuits, while others were many times stronger. This research led Eriez to the development of RE7, a very powerful permanent rare earth magnetic compound. Depending upon their circuit design, these rare earth magnets, as noted above, can provide up to 25 times the pulling power of conventional permanent magnets — with no increase in size.

Installation & Capacities

INSTALLATION POSITIONS

Both Super B and L types can be installed in most any position. The illustrations show a few suggested installations — units can be installed right side up, upside down, on side and on any angle.



Super B

Model L

CAPABILITIES: PRODUCT CLASSIFICATIONS

Trap Size		Fluid and Strained		Fibrous and Crushed		Viscous or Heavy	
in	mm	gpm	lps	gpm	lps	gpm	lps
2	51	1-64	0.06-4.0	1-53	0.06-3.3	1-33	0.06-2.1
3	76	65-132	4-8	54-116	3.3-7.0	34-77	2.1-5.0
4	102	133-364	8-10	117-132	7-8	78-105	5-7
6	152	365-714	23-45	220-429	14-27	145-284	9-18
8	203	715-1299	45-82	430-779	27-49	285-519	18-33
10	254	1300-1949	82-123	780-1169	49-74	520-779	33-49
12	305	1950-2249	123-142	1170-1349	74-85	780-899	49-57
14	356	2250-3299	142-208	1350-1999	85-126	900-1299	57-82
16	406	3300-4199	208-265	2000-2499	126-158	1300-1699	82-107
18	457	4200-5300	265-334	2500-3200	158-202	1700-2100	107-133

SUPER B EASY-TO-CLEAN DESIGN

Eriez' Super B Traps are also available with Rare Earth easy-to-clean elements that insure complete removal of fine iron particles and speed up the cleaning process. The element stud can be padlocked to eliminate accidental cleaning.



Super B

FOR 2" (51 MM) THROUGH 4" (102 MM) PIPELINES



Many Sizes in Stock

The magnetic element, consisting of a group of magnetic tubes, is arranged to cause the material flow entering

the body to impinge against the tubes and filter through the magnetic field, completely covering the open area. This arrangement takes advantage of the material change in direction and the difference in inertia between the unwanted iron and the material carrying it. The magnetic circuit is designed so the entrapped iron will have a tendency to work around and cling to the down-stream side of the tubes... this action prevents iron particles from being washed off by the continuous flow of material.

The "pocket type" body contour of a ferrous trap tends to spread the material up and down and cause it to pass around and through the magnetic

barrier in relatively thin streams without restricting the flow in the unit. With this design, installed with the closure either up or down, a sump is provided that tends to trap heavy nonmagnetic objects such as stones, etc. The rugged body will withstand working pressures to 150 psi (10.5 kg/sq cm).

For even better retention of micron-sized particles and easier cleaning, the standard (ceramic and alnico) magnetic tubes can be covered with slide-on steel screens. Each of the thousands of points on the screen develops a high-gradient magnetic field which attracts and holds fine particles. The screens are cleaned by sliding them off the tubes and rinsing.

Specifications

Standard Super B

Cast type 316 stainless steel body, 316 stainless steel cover plate, 316 stainless steel magnetic fingers, nitrile gasket, and standard (NPT) pipe threads.

Sanitary Super B

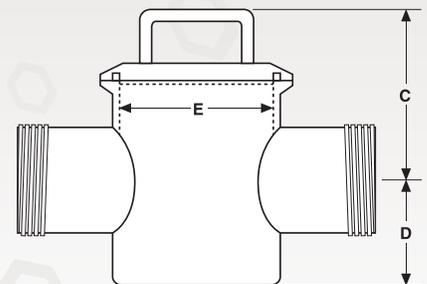
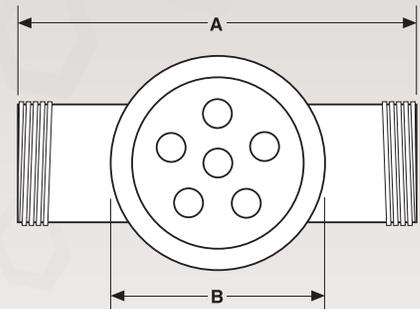
Same general construction except with no cracks or crevices, satin finish on interior and exterior surfaces, type 316 stainless steel magnetic fingers and Acme sanitary threads.

Magnetic Elements

Super B-2 and Super B-3 have five magnetic fingers, Super B-4 has six. Special constructions are available for unique applications.

Flanged or Ferrule Ends

Such as Cherry Burrell, Tri-Clover and others are available in 2, 3 and 4 inch (51, 76 and 102 mm) sizes.



Model No.	B-2		B-3		B-4	
	in	mm	in	mm	in	mm
Pipeline Size	2	51	3	76	4	102
A	11	279	12	305	15	381
B	6-5/8	164	7-1/8	175	8-1/8	200
C	4-3/8	111	5-13/16	148	6-3/16	157
D	2-11/16	68	4-1/16	102	4-7/16	111
E	5	127	5-1/2	140	6-1/2	165
	lb	kg	lb	kg	lb	kg
Net Weight	26	12	37	17	50	23

Model T FOR 6" (152 MM) THROUGH 30" (762 MM) PIPELINES



Reduce damage and maintenance to filters, pumps, refiners and other processing machinery handling paper,

chemical slurries and other liquid materials. Rugged welded pipe and reinforced plate and tube construction withstands working pressures up to 75 psi (5.3 kg/sq cm). Pressure drop through unit is no more than that of a 90° elbow.

Guide lugs on element fit guide bars in body for alignment and prevent rotation. Bolted cover has a lifting slot and the magnetic element has lifting hook to facilitate fast removal for cleaning.

Bottom of the body provides sump

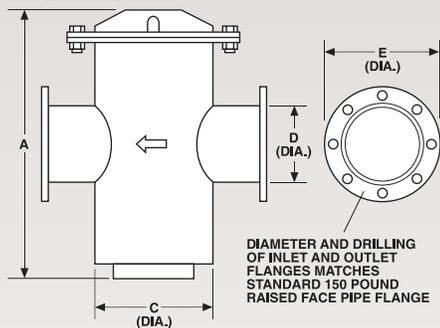
for trapping heavy nonmagnetic tramp metal, stones, etc. A bottom plug allows draining of sump.

Magnetic element provided with nonmagnetic area at bottom for easy cleaning. Shut-downs can be avoided by providing bypass to divert flow during cleaning. Frequent cleaning maintains separation efficiency. Model T Traps are primarily for upright installation in horizontal lines, however, they may also be mounted sideways, or in inclined or vertical lines.

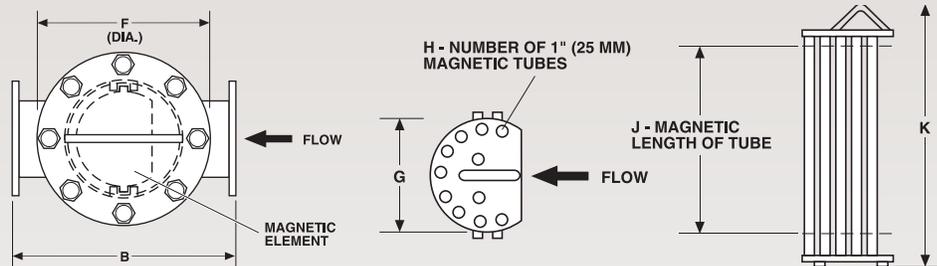
Specifications

The standard units are constructed of mild steel with stainless reinforced magnetic tubes. Internal surfaces can be epoxy resin coated for corrosion resistance. All stainless steel units are also available.

Trap Body



Magnetic Element



Model T: Dimensions

Trap Size	6 (152mm)		8 (203mm)		10 (254mm)		12 (305mm)		14 (356mm)		16 (406mm)		18 (457mm)		24 (610mm)		30 (762mm)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	21-3/4	552	29-1/2	749	37	940	37	940	42-1/2	1080	46-1/4	1175	50	1270	55	1396	58	1473
B	23	584	26	660	30	762	34	864	36	914	40	1016	40	1016	60	1524	68	1727
C	10-3/4	273	12-3/4	311	16	406	18	457	20	508	24	610	24	610	30	762	36	914
D	6	152	8	203	10	254	12	305	14	356	16	406	18	457	24	610	30	762
E	11	279	13-1/2	343	16	406	19	483	21	533	23-1/2	597	25	635	32	813	38-3/4	984
F	16	406	19	483	23-1/2	597	25	635	27-1/2	699	32	813	32	813	38-3/4	984	46	1168
G	8	203	10-1/2	267	13	330	15	381	17	432	20-1/2	521	20-1/2	521	25	635	33-1/8	841
H	6		9		11		13		15		17		17		19		33	
J	11-1/2	292	15-1/4	387	22-3/4	578	22-3/4	578	26-1/2	673	26-1/2	673	30-1/4	768	36	914	40	1016
K	16-1/2	419	22-3/4	578	30-1/4	768	30-1/4	768	34	864	35	889	38-3/4	984	45	1143	49	1245

Model-T: Weights

Trap Size	6 (152mm)		8 (203mm)		10 (254mm)		12 (305mm)		14 (356mm)		16 (406mm)		18 (457mm)		24 (610mm)		30 (762mm)	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Trap Body	170	77	203	92	345	156	390	177	580	260	812	368	860	390	1900	862	3030	1374
Magnetic Element	40	18	61	28	96	44	130	59	155	70	178	81	190	86	305	139	545	238

Model L FOR 2" (51 MM) PIPELINES



This Ferrous Trap model has been designed to serve as an effective, low-cost, magnetic pipeline trap where operating conditions are not too severe. This unit is of 316 stainless steel construction capable of withstanding pressures up to 150 psi (10.5 kg/sq cm). It is built for 2-inch (51 mm) pipelines; standard reducers can be used to adapt it to lines as small as

1/2-inch (13 mm). The powerful magnetic circuit is encased in one stainless steel tube. As a built-in safety factor, any material that might be brushed off by the flow will tend to pass the outlet and accumulate in the pocket at the end of the body.

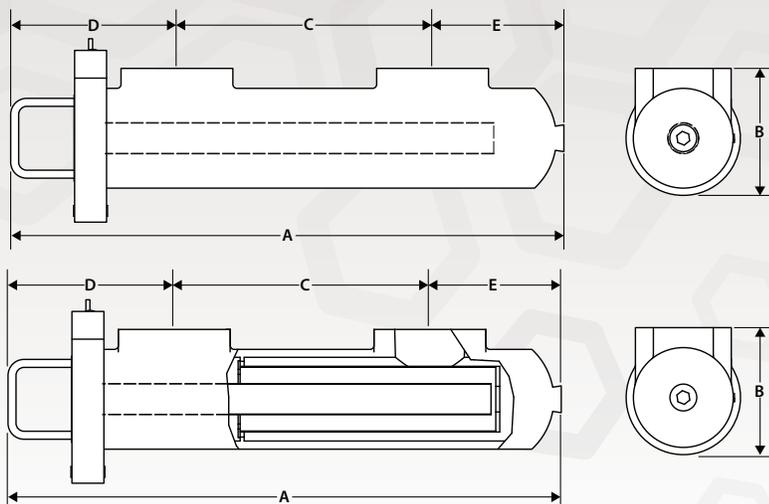
MODEL L-2-F For Separating/Filtering

This unit is the same as the Model L, except it has a brass or optional stainless steel filter sleeve that fits around the magnetic tube, making the unit perform a dual separating operation. Magnetic power from the tube draws and holds fine iron contamination, while the filter element catches and holds nonmagnetic fines, lint, etc. This model is recommended where more than magnetic impurities contaminate a product. The perforated brass filter with steel end discs is available with either .023-inch (.6 mm) diameter openings or .033-inch (.8 mm) diameter openings. Each trap is furnished with one screen.

Specifications

MODELS L-2 & L-2-F

Stainless Steel trap body with standard pipe threads. One magnet element encased in stainless steel tube attached to stainless cover. L-2-F also has brass filter screen with steel end discs.



MODEL L: DIMENSIONS

Model No.	L-2 & L-2-F	
	in	mm
Pipeline Size	2*	51*
A	17-5/16	440
B	3-3/4	95
C	8	203
D	5-3/16	133
E	4-1/4	106
	lb	kg
Net Weight	17	8

* Adaptable for 1/2" up to 2" (13 to 51mm) pipelines with standard reducer

Model U FOR DIFFICULT-TO-FLOW PRODUCTS



The Model U Trap utilizes a Rare Earth magnet circuit to remove fine and weakly magnetic contamination like rust, scale, or screen wire. Model U Traps remove ferrous contamination from difficult-to-flow or chunky products like vegetables, salsa, or meat batters.

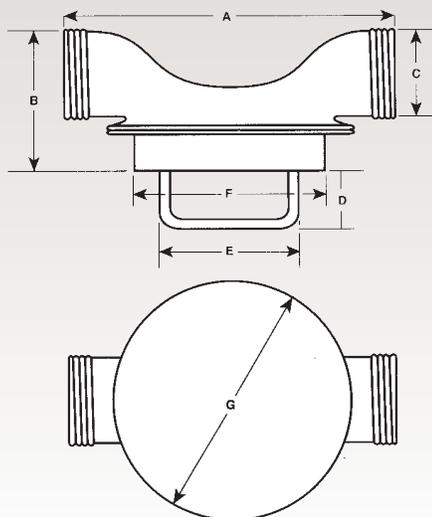
The special body design of the Model U incorporates a gradually tapered transition that gently directs the product over a smooth magnetic surface. The body design does not incorporate diverters or baffles.

This design works well for applications where finger-style traps would plug due to large product size or where delicate products would break if forced against a baffle.

The Model U Trap with its compact design can be installed easily into 3 or 4-inch (76 or 102 mm) lines. The standard unit is sanitary, incorporates our Super-Strength Rare Earth magnet element, a 316 stainless steel body and ACME threads. Optional features include stronger and high-temperature Rare Earth magnet circuits, ferrule and flanged ports.

Specifications

MODEL U: DIMENSIONS



Line Size		A	B	C	D	E	F	G	Weight
3	in	14-3/8	5-7/8	3	2-3/4	5-3/4	8	10	33 lbs
76	mm	365	149	76	70	146	203	254	15 kg
4	in	14-3/8	7	4	2-3/4	5-3/4	8	10	40 lbs
102	mm	365	178	102	70	146	203	254	18 kg

Design \leq 50 psi



World Authority in Separation Technologies

Headquarters: 2200 Asbury Road, Erie, PA 16506-1402 U.S.A.

Telephone: 814-835-6000 • 800-345-4946 • Fax: 814-838-4960 • International Fax: 814-833-3348

Web Site: <http://www.eriez.com> e-mail: eriez@eriez.com

