

# *Ferrous Permanent Magnetic Traps*



WITH ERIEZ XTREME® RARE EARTH MAGNETS



# Magnetic Traps

*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.*

*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.*

## Better Design

Eriez incorporates a sump to help trap nonmagnetic particles that tend to settle to the bottom of the enclosure. This magnetic-mechanical protection, in most cases, does not cause an appreciable pressure drop or reduction in present flow rates.

Eriez Trap Magnets prevent abrasive wear, prevent pumps from jamming, assure a product free of iron contamination and achieve the iron contamination protection your particular operation requires – whether it be a small 1/2-inch (13 mm) pipeline or a huge 30-inch (762 mm) diameter line.

All models of Ferrous Traps have a powerful permanent magnetic circuit designed to attract and hold iron contamination. Our clean, simple designs have no moving parts. Standard designs 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 for easy inspection and cleaning.

### FEATURES & BENEFITS

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

## Xtreme® Traps

Xtreme® Rare Earth (RE) separators available from Eriez remove weakly magnetic or very fine iron contaminants. These separators are made with high quality rare earth permanent magnets. Eriez' Rare Earth design 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 RE magnets. They have more strength at a greater distance, higher gradients and increased holding force than conventional permanent magnets. This means they can reach out and attract 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 powerful magnetic assemblies.



## Rare Earth Magnet FAQ's

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

**A.** Rare Earth magnets offer solutions to many fine and/or weakly magnetic iron contamination problems that were not available before. 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.

Rare earth magnets allow economical solutions to ferrous contamination problems that are too tough for low-intensity separation but for which high-intensity separation was overkill.

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.

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

**A.** The performance of Rare Earth magnets make them particularly well-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.

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

**A.** No. 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. Eriez RE7 can provide up to 25 times the pulling power of conventional permanent magnets – with no increase in size.

## New or Retrofit

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

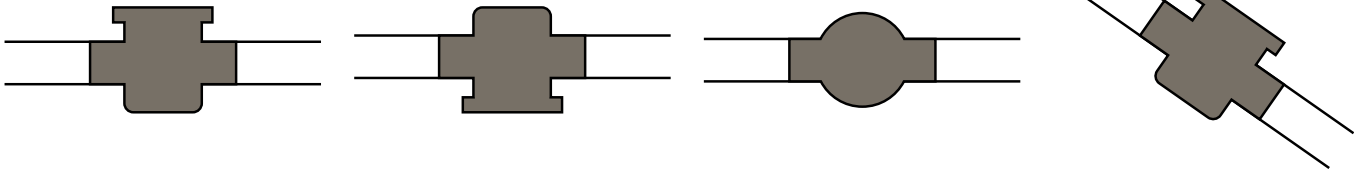


# Installation & Capacities

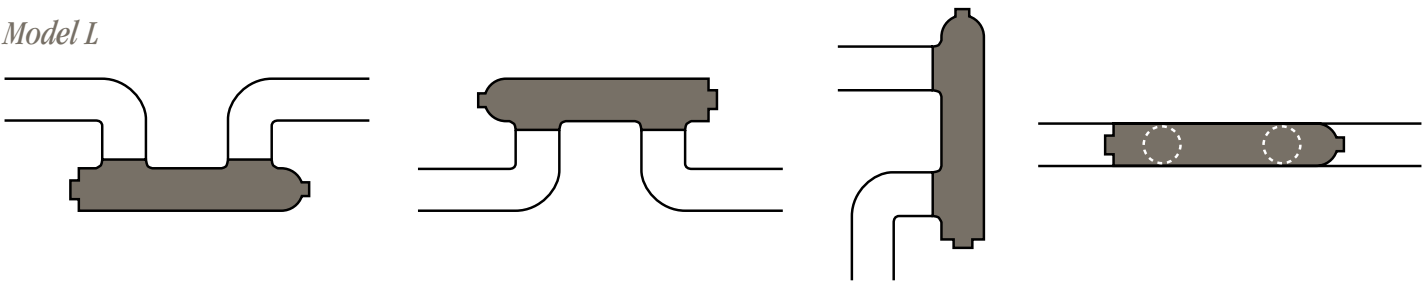
## INSTALLATION POSITIONS

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

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



Many Sizes in Stock

The Super B Trap's magnetic tubes are arranged to cause the flow of material to impinge against the tubes and filter

through the magnetic field throughout 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. Entrapped iron clings to the down-stream side of the tubes preventing iron particles from being washed off by the continuous flow of material.

The trap's "pocket type" body contour spreads the material up and down and causes it to pass around and through the magnetic barrier in thin streams without restricting flow. Installed with the closure either up or down, with this

design, a sump is provided 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.

## 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.



## 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

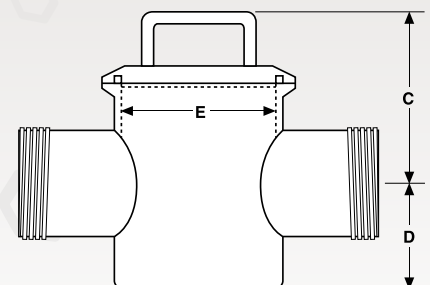
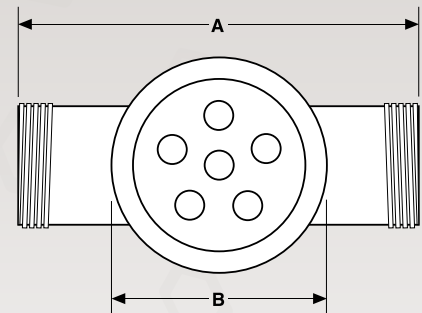
Same general construction except with no cracks or crevices, satin finish on interior and exterior surfaces, type 316 stainless steel magnetic fingers and Acme sanitary threads.

### 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

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
	<b>lb</b>	<b>kg</b>	<b>lb</b>	<b>kg</b>	<b>lb</b>	<b>kg</b>
Net Weight	26	12	37	17	50	23

# Model L FOR 2" (51 MM) PIPELINES



The Model L Trap was designed to serve as an effective, low-cost, magnetic pipeline trap where operating conditions are not 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

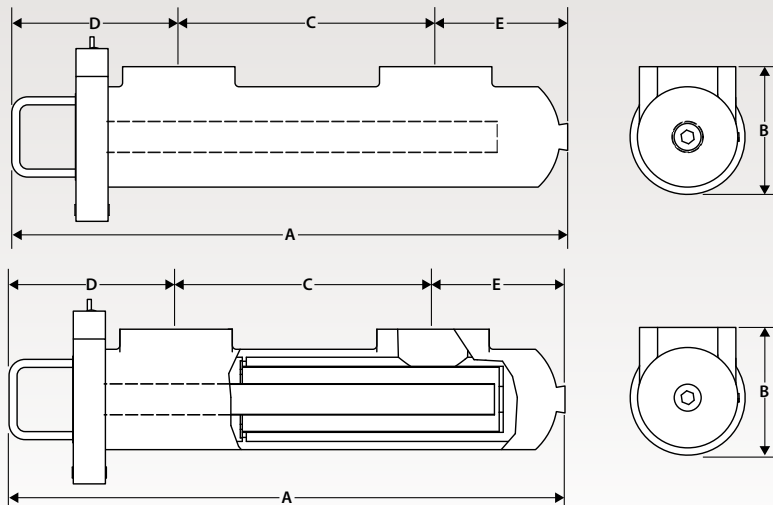
### For Separating/Filtering

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 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 with Model T Traps. Rugged welded pipe and reinforced plate and tube construction withstands working pressures up to 75 psi (5.3 kg/sq cm). Pressure drop through the unit is no more than that of a 90° elbow.

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

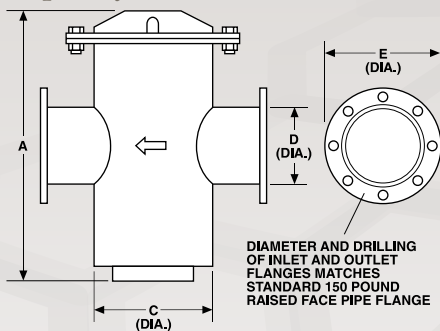
The bottom of the body provides a sump for trapping heavy nonmagnetic tramp metal, stones, etc. A bottom plug allows draining.

The magnetic element is provided with nonmagnetic area at bottom for easy cleaning. Shutdowns can be avoided by providing a bypass to divert flow during cleaning. Model T Traps are primarily for upright installation in horizontal lines, however, they may also be mounted sideways, or in inclined or vertical lines.

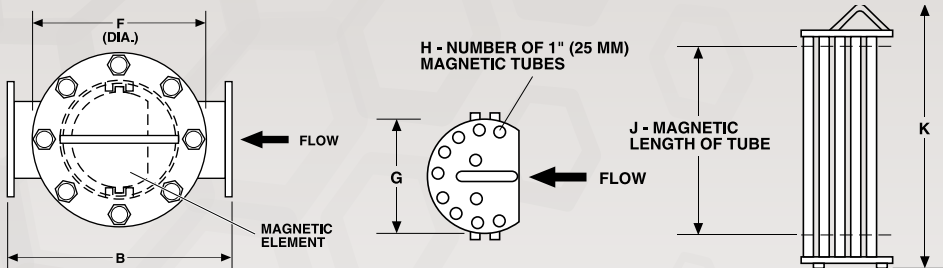
## Specifications

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 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

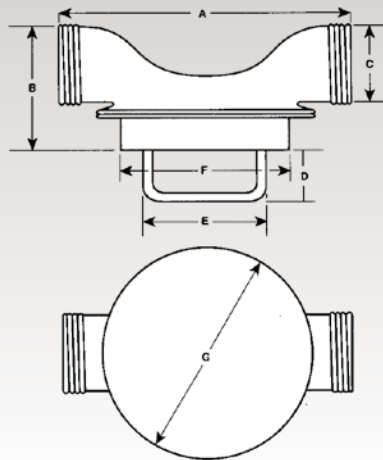
Traps remove ferrous contamination from difficult-to-flow or chunky products like vegetables, salsa, or meat batters.

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 ≤ 50 psi



### WORLD AUTHORITY IN SEPARATION TECHNOLOGIES



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