

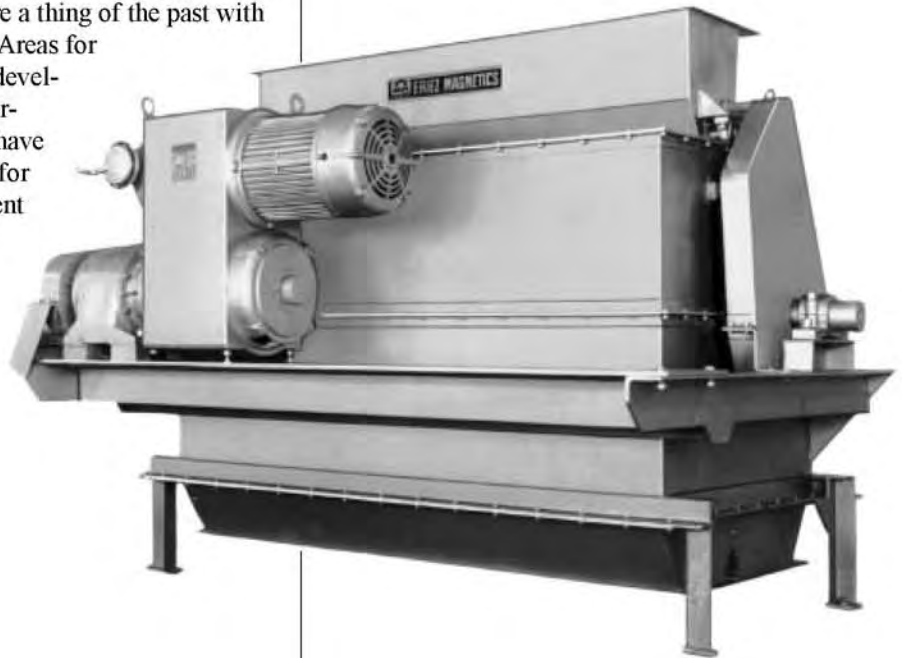
Permanent Magnetic Separators 永久磁鐵式磁選機

...Only from Eriez.

DF High Speed Drum DF 高速滾桶

Dry Low Intensity Magnetic Separators (DLIMS) for automatic continuous concentration of magnetic ores, removal of magnetite from fly ash, purification of ground slag, foundry sand, cement and minerals.

Eriez now has the separator capable of **dry** treatment of finely ground iron ore, slag, fly ash and other difficult ferromagnetic concentration and removal problems. High strength, high capacity and a complete range of models and options are available in the Eriez DF High Speed Drum line. Adequate water supply considerations are a thing of the past with this equipment. Areas for exploration and development which formerly could not have been considered for magnetic treatment are now getting another look.



DF Drum Separators operate in a way similar to other drums but with some important differences. Older type, slow, agitating or radial field drums employ only magnetic attraction and gravity as the separating forces. Their capacity is limited due to the slow speed of rotation of the drum shell. The DF High Speed Drums employ high strength magnetic elements and high speed shell rotation. This makes it possible to introduce a third factor in the separation of materials – inertia.

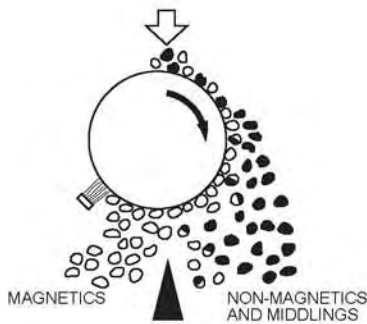


Figure 1. Operating Principle of DF Drum Separator

To take maximum advantage of all these forces, Eriez engineered new, powerful magnetic circuits which permit high rotational speeds for the drum shell.

Carefully balanced magnetic attraction, field depth and shell speed achieve an efficient, high capacity machine which effectively throws out fine non-magnetics and retains the magnetics.

SEPARATOR REQUIREMENTS VARY 磁選機可依需要而變化

Different applications require unique configurations of features and the Eriez line includes models for every purpose. Different magnetic elements and shell speeds are indicated for materials of various sizes and magnetic permeabilities. Eriez provides elements with a varying number of poles in axial (agitating) field design to produce high grade magnetic concentrates plus a high strength radial (nonagitating) field design for use where a clean, non-magnetic product is the most important consideration. A wide range of peripheral drum speeds variable from 300 to 1500 fpm (91 to 457 mpm) is provided to suit all applications. Capacity per unit of magnetic width varies from approximately 5 to 40 tph per foot (14.7 to 119.0 mtph per meter) and depends to a great extent on feed particle size, magnetic permeability and drum speed.

All DF Separator models require a feed with certain common characteristics. The magnetic fraction to be separated must be ferromagnetic and dry, and the feed size should be $-1''$ (-25 mm). Selectivity increases when the products to be separated are within four Tyler mesh sizes. Moisture adversely affects separator performance but can be tolerated as long as the feed is free-flowing.

Capacity, grade and recovery are directly related to the peripheral speed of the drum. For high recovery of magnetics or purification of non-magnetics coarser than $1/8''$ (3mm), the Model DF-A10 or DF-R at a relatively slow peripheral shell speed is used. The DF-A25 is used at moderate speeds for cobbing or roughing concentration jobs. When a very high grade, finished magnetic concentrate is desired, the DF-A50 is used at a higher shell speed.

ORE PROCESSING 鐵礦砂製程

Some operations require the use of multiple stage treatment. For example, in iron ore beneficiation a first stage cobbing provides a high recovery, low grade concentrate with minimum loss of magnetics in the tailings. The magnetic concentrate

Description of Feed	Magnetics in Feed	Particle Size Range		Drum Speed		Model	Capacity	
		in.	mm	fpm	mpm		tph/ft	mtph/m
1st Stage concentration of average grade magnetite ore	50%	$-1\frac{1}{4}$ inch	-25 mm+6 mm	400	122	DF-A10	15 – 40	45 – 120
	50%	$-1/4$ inch	-6 mm	700	213	DF-A25	10 – 35	30 – 105
	50%	-100 mesh	-149 micron	1,000	305	DF-A50	5 – 15	15 – 45
2nd Stage concentration of magnetite rough concentrate	90%	$-1\frac{1}{4}$ inch	-25 mm+6 mm	800	244	DF-A10	10 – 30	30 – 90
	90%	$-1/4$ inch	-6 mm	1,200	366	DF-A25	10 – 15	30 – 45
	90%	-100 mesh	-149 micron	1,500	457	DF-A50	5 – 10	15 – 30
Purification of primarily nonmagnetic material	Less than 5%	$-1\frac{1}{4}$ inch	-25 mm+6 mm	300	91	DF-R	15 – 30	45 – 90
	Less than 5%	$-1/4$ inch	-6 mm	500	152	DF-R	10 – 25	30 – 75
	Less than 5%	-100 mesh	-149 micron	700	213	DF-R	5 – 10	15 – 30

from the first drum is recleaned on the second stage to produce a finished high grade concentrate and a middling product. The middlings can be sent back for further grinding or can be recirculated without grinding.

勿需直流電力

NO DC ELECTRICAL POWER SOURCE NEEDED

All of the DF Separator magnetic elements are of permanent magnetic construction which eliminates element maintenance and concern with electrical failures.

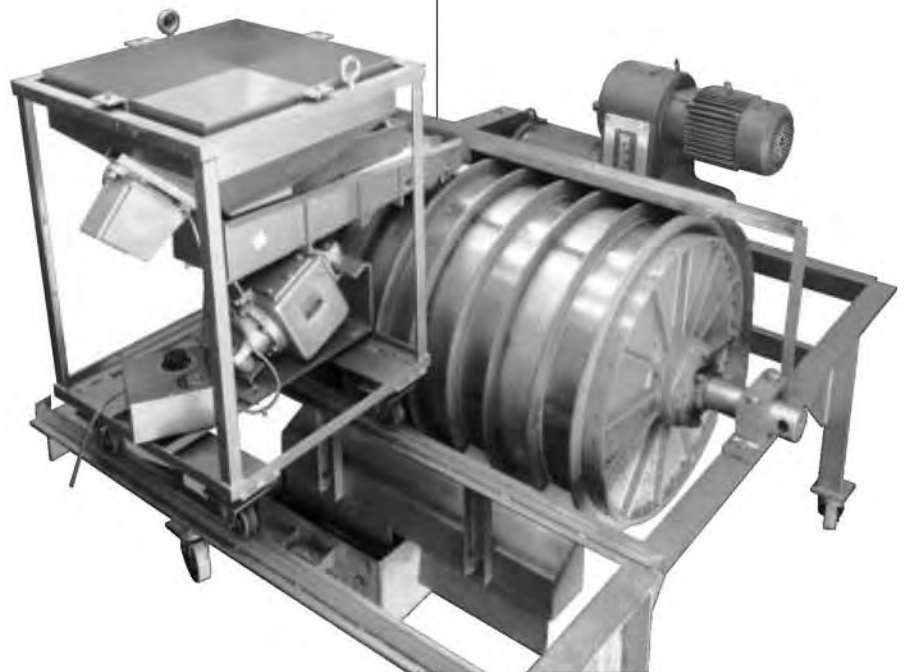
The standard drum shell for all DF Drums is 1/8" (3mm) thick 304 stainless steel with a 1/8" (3mm) thick abrasion resistant rubber cover. The extra high strength fields of the Eriez DF Separators permit the use of heavier 1/4" (6mm) rubber liners to give longer wear in severe applications where the maximum field strength of the separator may not be needed. Optional manganese steel covers are also available in place of the rubber covers. Housing end panels have abrasion-resistant rubber lining at product impingement points. For most applications, a vibratory feeder is recommended. Depending on the application, belt feeders are available as an alternate feed method.

**可作實驗室或先導工廠作業
FOR LABORATORY OR PILOT PLANT WORK**

The special Eriez High Speed Drum Separator at right combines all models of DF Separators into one unit. Used to test a wide variety of materials, it offers a quick, efficient way to determine under controlled conditions which magnetic elements and speeds will provide the best separation for a particular product.



Single Stage DF Separator removing ferrous contamination from slag for use in cement block manufacture.



High Speed Drum Separator test unit combines the features of all DF models for quick and efficient sample testing.

SPECIFICATIONS 規格

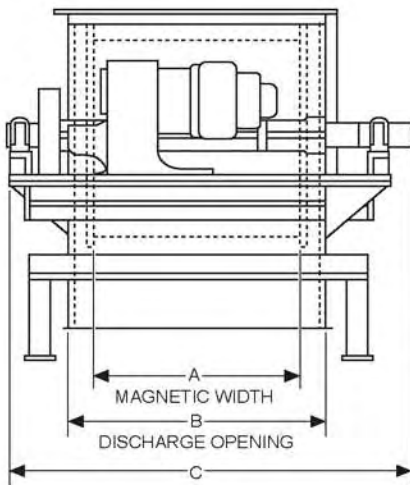
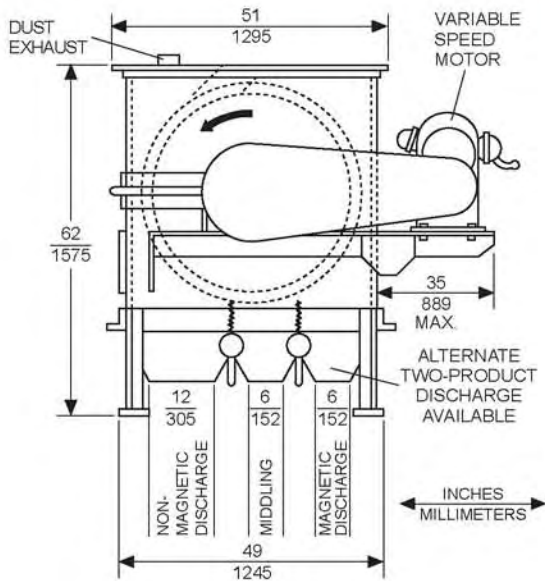
A		B		C		Drive Hp						*Shipping Weight	
						A-10 500fpm (152mpm)		A-10 1000fpm (305mpm)		A-10 1500fpm (457mpm)			
in.	mm	in.	mm	in.	mm	hp	kw	hp	kw	hp	kw	lb	kg
6	152	16.5	419	40	1016	3	2.23	7.5	5.59	10	7.46	2700	1225
12	305	22.5	572	46	1168	5	3.72	7.5	5.59	15	11.18	3100	1406
18	457	28.5	724	52	1321	5	3.72	7.5	5.59	15	11.18	3800	1724
24	610	34.5	876	58	1473	5	3.72	10	7.46	20	14.90	4200	1905
36	914	46.5	1181	70	1778	5	3.72	15	11.18	25	18.64	5100	2313
48	1219	58.5	1486	82	2083	5	3.72	15	11.18	30	22.37	5800	2631
60	1524	70.5	1791	94	2388	5	3.72	20	14.90	40	29.82	6600	2994
72	1829	82.5	2096	106	2692	5	3.72	25	18.64	40	29.82	7600	3447
96	2438	106.5	2705	130	3302	7.5	5.59	30	22.37	50	37.28	8600	3901
120	3048	136.5	3467	154	3912	7.5	5.59	40	29.82	60	44.74	9700	4400
A		B		C		A-25 500fpm (152mpm)		A-25 1000fpm (305mpm)		A-25 1500fpm (457mpm)		*Shipping Weight	
in.	mm	in.	mm	in.	mm	hp	kw	hp	kw	hp	kw	lb	kg
6	152	16.5	419	40	1016	3	2.23	5	3.72	7.5	5.59	2700	1225
12	305	22.5	572	46	1168	3	2.23	5	3.72	7.5	5.59	3100	1406
18	457	28.5	724	52	1321	3	2.23	5	3.72	7.5	5.59	3800	1724
24	610	34.5	876	58	1473	5	3.72	7.5	5.59	10	7.46	4200	1905
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96	2438	106.5	2705	130	3302	5	3.72	15	11.18	30	22.37	8600	3901
120	3048	136.5	3467	154	3912	7.5	5.59	20	14.90	30	22.37	9700	4400
A		B		C		A-50 500fpm (152mpm)		A-50 1000fpm (305mpm)		A-50 1500fpm (457mpm)		*Shipping Weight	
in.	mm	in.	mm	in.	mm	hp	kw	hp	kw	hp	kw	lb	kg
6	152	16.5	419	40	1016	3	2.23	5	3.72	5	3.72	2700	1225
12	305	22.5	572	46	1168	3	2.23	5	3.72	7.5	5.59	3100	1406
18	457	28.5	724	52	1321	3	2.23	5	3.72	7.5	5.59	3800	1724
24	610	34.5	876	58	1473	3	2.23	5	3.72	7.5	5.59	4200	1905
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48	1219	58.5	1486	82	2083	5	3.72	7.5	5.59	10	7.46	5800	2631
60	1524	70.5	1791	94	2388	5	3.72	7.5	5.59	15	11.18	6600	2994
72	1829	82.5	2096	106	2692	5	3.72	7.5	5.59	15	11.18	7600	3447
96	2438	106.5	2705	130	3302	5	3.72	10	7.46	20	14.90	8600	3901
120	3048	136.5	3467	154	3912	5	3.72	15	11.18	25	18.64	9700	4400
A		B		C		R 500fpm (152mpm)		R 1000fpm (305mpm)		*Shipping Weight			
in.	mm	in.	mm	in.	mm	hp	kw	hp	kw	lb	kg		
6	152	16.5	419	40	1016	3	2.23	5	3.72	2700	1225		
12	305	22.5	572	46	1168	3	2.23	5	3.72	3100	1406		
18	457	28.5	724	52	1321	3	2.23	5	3.72	3800	1724		
24	610	34.5	876	58	1473	5	3.72	7.5	5.59	4200	1905		
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48	1219	58.5	1486	82	2083	5	3.72	7.5	5.59	5800	2631		
60	1524	70.5	1791	94	2388	5	3.72	10	7.46	6600	2994		
72	1829	82.5	2096	106	2692	5	3.72	10	7.46	7600	3447		
96	2438	106.5	2705	130	3302	5	3.72	15	11.18	8600	3901		
120	3048	136.5	3467	154	3912	7.5	5.59	20	14.90	9700	4400		

*Shipping weights include largest motor

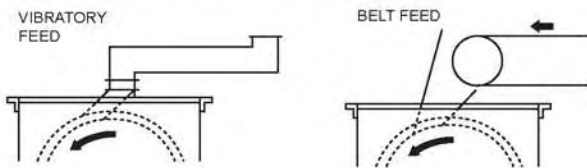
Dimensions and specifications are subject to change without notice.



SPECIFICATIONS 規格



FEED OPTIONS 進料選項



A variable speed TEFC motor and drive is furnished as standard for all applications. The drive consists of a chain and sprockets with an oil-tight chain guard. A fixed speed drive is available.

Inspection ports and dust exhaust connections are provided.

Either two or three product discharge adapters are available.

部份使用者名單

PARTIAL USERS LIST - ERIEZ DF DRUM SEPARATORS

Hoeganaes Corporation
Riverton, New Jersey

Mineral Mills, Inc.
Raleigh, West Virginia

Mineral Extractors Co.
29 Palms, California

Aluminum Co. of America
Bauxite, Arkansas

Great Lakes Carbon Corp.
Chicago, Illinois

Akerlow Industries, Inc.
Grafton, Wisconsin

Iron & Titanium Co. of California
Amboy, California

H. Bairston Co.
Chicago, Illinois

Eveleth Taconite Co.
Eveleth, Minnesota

Kaiser Steel Corp.
Eagle Mountain, California

Inland Steel Corp.
East Chicago, Illinois

Hevi-Wate Corp.
Laramie, Wyoming

Wheelwright Corp.
Cleveland, Ohio

Quebec Iron & Titanium Co.
Canada

Quebec Iron & Titanium Co.
Southwest Africa

The Siam Iron & Steel Co., Ltd.
Thailand

Nippon Kokan Kaisha
Japan

Compania de Acero del Pacifico
Chile

Falconbridge Nickle
Canada

Johns Manville
Denver, Colorado

Lone Star Steel
Lone Star, Texas