

Magnetic Separators

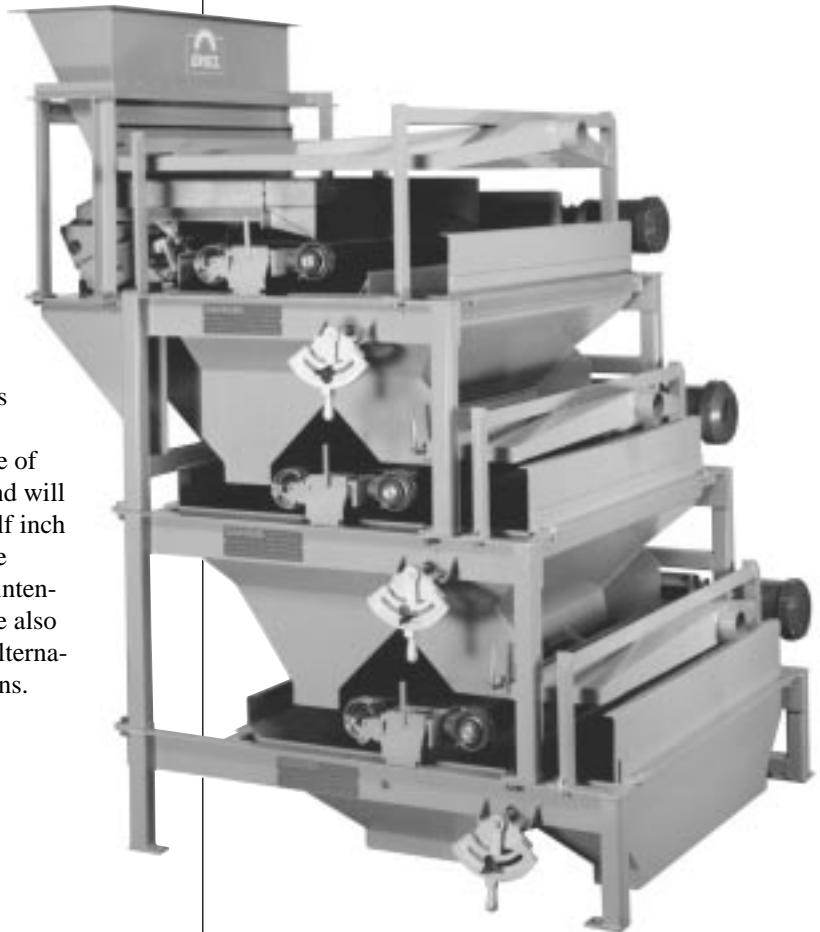
...Only from Eriez.

Rare Earth Roll

New, stronger permanent magnetic separators for purification or concentration of weakly magnetic materials.

Eriez' Rare Earth Roll Separators provide an alternative in handling a wide variety of materials which do not respond well to traditional methods of processing on low intensity dry drum separators or high intensity induced magnetic roll separators.

The extremely powerful high gradient magnetic circuits in the RE Roll are obtained with new Erium 3000®, a material with at least ten times the attractive force of conventional ceramic magnets. These separators are capable of recovering particles with a wide range of magnetic susceptibility, and will handle feeds from one-half inch (13 mm) down to very fine material. Optional lower intensity magnetic materials are also available as a lower cost alternative for specific applications.



PRINCIPLE OF OPERATION

The continued improvement of high energy rare earth permanent magnetic materials has contributed to an unprecedented acceptance by several industries of rare earth permanent magnetic separators. The evolution of these high strength permanent magnets has led to the development of high intensity separators that operate energy-free. The Rare Earth Roll separator was designed to provide peak separation efficiency and is typically used when a high level of product purity is required. The roll is constructed with ERIUM 3000® permanent magnetic discs alternating with thin steel pole pieces along a shaft. The steel poles are saturated with magnetic flux and produce a magnetic field in excess of 21,000 gauss.

The Rare Earth Roll is used as a head pulley, and a thin belt connects the roll to a Dynaloc, self cleaning tail pulley. The standard belting is Teflon coated, graphite filled KEVLAR with thickness of 5 and 10 mils. Accepted belting is also available for food and pharmaceutical applications. The belt conveys the feed material to the magnetic field or separation zone. When the feed enters the magnetic field, the magnetic and/or paramagnetic particles are attracted to the roll while the non-magnetic material follows the natural discharge trajectory. A splitter arrangement is used to segregate the two streams. Other components of the Rare Earth Roll separator include a vibratory feeder with a mounted hopper, stainless steel product discharges, TEFC gearmotor and controls. The rare earth roll separators are available in single, double and triple stage versions with either non-magnetic or magnetic rerun.

FEATURES

- 3 and 4 inch (75 and 100 mm) diameter Rolls
- Roll widths ranging from 5 inches (125 mm) to 60 inches (1.5 m)
- Cantilever design which allows for quick belt replacement (less than 5 minutes) by a single operator
- Improved positive belt tracking
- Magnetic field in excess of 21,000 gauss at the pole of the magnetic circuit
- Standard 5 and 10 mils thick Kevlar belts. Optional FDA belting available
- No power required for magnetic field
- Standard models include single, double, and triple stage machines
- Compact, modular design
- Even, consistent and controllable feed to the RE Roll via an Eriez patented electromagnetic vibratory feeder
- Handles wide range of particle sizes
- Effectively attracts para-magnetic and very fine (minus 325 mesh) ferromagnetic materials

APPLICATIONS

The Rare Earth Roll separator has been accepted by a number of industries as the most effective magnetic separation method for the purification of non-magnetic materials. These industries and their specific applications are listed below.

Industrial Minerals

Effectively reduces the level of iron from beach sands, feldspar, silica sand, calcium carbonate, magnesite, kyanite, bauxite, andalusite, etc. by removing iron bearing minerals such as hematite. Magnetically concentrates weakly magnetic minerals, such as garnet, ilmenite, muscovite, mica, etc.

Abrasives

Extremely high levels of product purity are obtained by removing the very fine iron of abrasion and iron smeared on the abrasives. Specific abrasive material treated includes aluminum oxide, silicon carbide, glass beads, tumbling media.

Plastics

Iron and/or stainless steel encapsulated in pellets are effectively removed from the product stream. Free stainless steel and very fine iron is also removed with very high levels of efficiency.

PVC flakes can also be treated to remove iron smeared flakes from uncontaminated product.

RE Rolls are also utilized to scalp 40% to 70% of aluminum from shredded PET soda bottles that use aluminum caps.

Food and Pharmaceutical

Effectively removes rust from free flowing, granular chemicals and dehydrated vegetables.

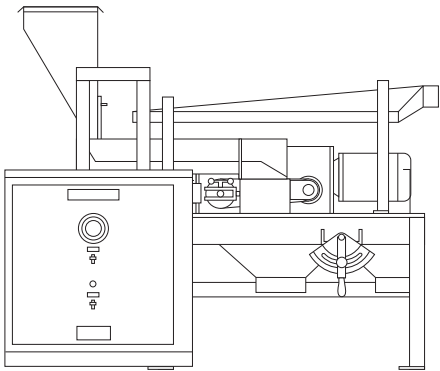
Recycling

The RE roll is capable of sorting the nickel and cobalt bearing metal turnings from titanium or zirconium metals. Other applications include removal of shredded aluminum from PET, separation of chrome from crushed automobile grills, and sorting of paramagnetic, synthetic diamonds from natural diamonds.

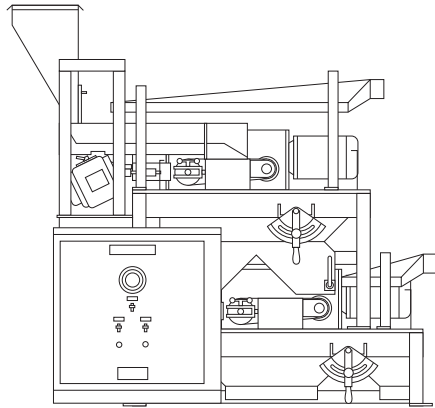
Other Industries

Glass, foundries, specialty materials and metals, electronics.

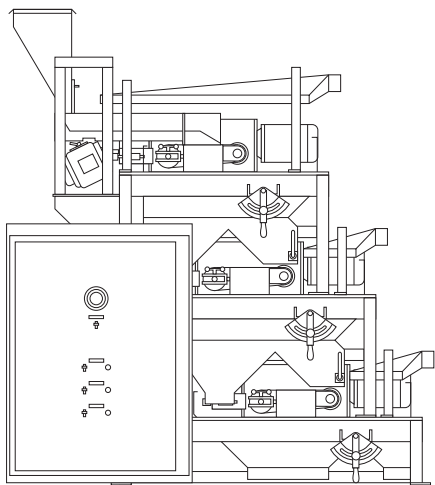
SINGLE ROLL SEPARATOR



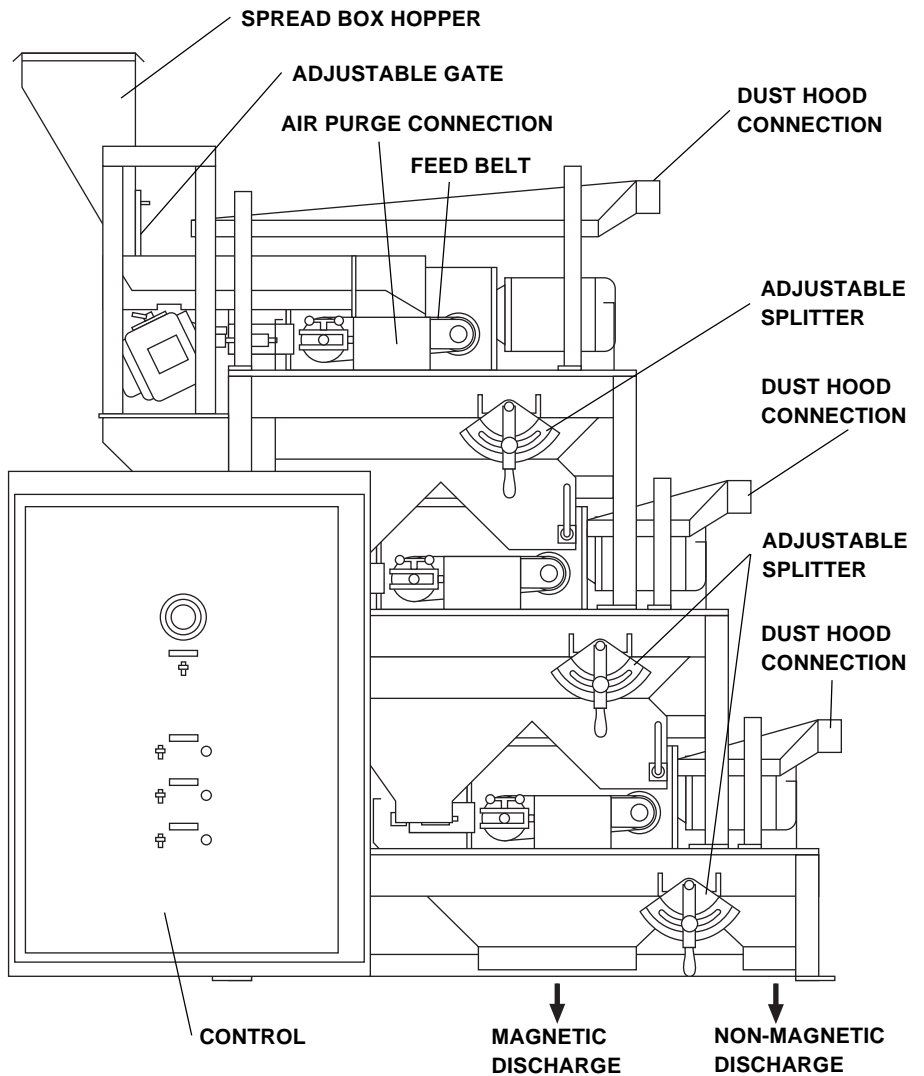
DOUBLE ROLL SEPARATOR



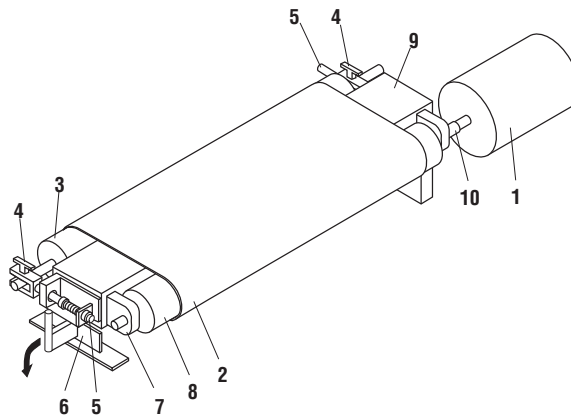
TRIPLE ROLL SEPARATOR



TYPICAL RE ROLL SEPARATOR CONFIGURATION



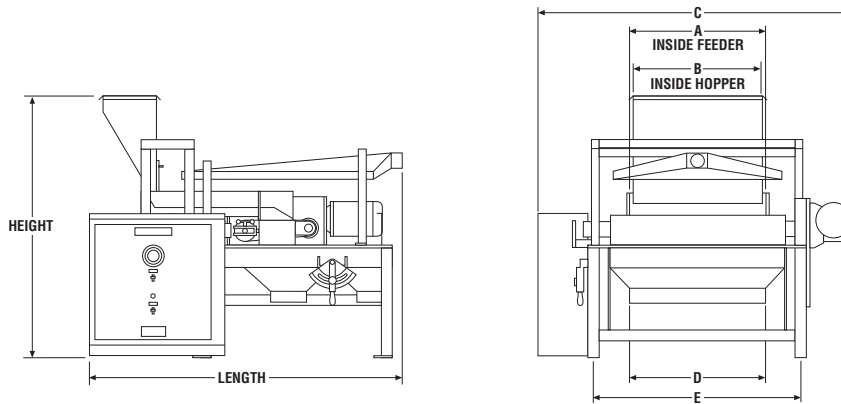
PULLEY AND ROLL ASSEMBLIES



1. Electric Motor - TEFC
2. Feed Belt
3. Tail Pulley Assembly – Dynaloc for positive belt tensioning
4. Tail Pulley Shaft Pin
5. Tracking Adjustment
6. Steady-Cantilever Arm
7. Hanger Type Bearing Housing
8. Rare Earth Roll Assembly
9. Cantilevered Support Frame
10. Direct Drive with Flexible Coupling

RARE EARTH ROLL

DIMENSIONS



| MODEL NO. | A | | B | | C | | D | | E | | LENGTH | | HEIGHT | | WEIGHT | |
|-----------|----|------|--------|------|----------|------|--------|------|--------|------|--------|------|---------|------|--------|------|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lb | kg |
| RE-10-1 | 6 | 152 | 4-1/2 | 214 | 39 | 991 | 6 | 152 | 19-3/4 | 502 | 54-1/2 | 1384 | 50-1/16 | 1272 | 520 | 236 |
| RE-15-1 | 11 | 279 | 9-1/2 | 241 | 44 | 1118 | 11 | 279 | 24-3/4 | 629 | 54-1/2 | 1384 | 50-1/16 | 1272 | 645 | 293 |
| RE-20-1 | 16 | 406 | 14-1/2 | 368 | 49 | 1245 | 16 | 406 | 29-3/4 | 756 | 54-1/2 | 1384 | 50-1/16 | 1272 | 720 | 327 |
| RE-30-1 | 26 | 660 | 24-1/2 | 622 | 59 | 1499 | 26 | 660 | 39-3/4 | 1010 | 54-1/2 | 1384 | 50-1/16 | 1272 | 895 | 406 |
| RE-40-1 | 36 | 915 | 34-1/2 | 876 | 69 | 1753 | 36 | 914 | 49-3/4 | 1264 | 54-1/2 | 1384 | 50-1/16 | 1272 | 980 | 445 |
| RE-60-1 | 56 | 1422 | 54-1/2 | 1384 | 88-13/16 | 2256 | 54-5/8 | 1387 | 70-3/4 | 1797 | 56-1/2 | 1435 | 50 | 1270 | 1150 | 522 |
| RE-10-2 | 6 | 152 | 4-1/2 | 214 | 39 | 991 | 6 | 152 | 19-3/4 | 502 | 62-1/2 | 1587 | 62-1/16 | 1576 | 1050 | 476 |
| RE-15-2 | 11 | 279 | 9-1/2 | 241 | 44 | 1118 | 11 | 279 | 24-3/4 | 629 | 62-1/2 | 1587 | 62-1/16 | 1576 | 1235 | 560 |
| RE-20-2 | 16 | 406 | 14-1/2 | 368 | 49 | 1245 | 16 | 406 | 29-3/4 | 756 | 62-1/2 | 1587 | 62-1/16 | 1576 | 1425 | 646 |
| RE-30-2 | 26 | 660 | 24-1/2 | 622 | 59 | 1499 | 26 | 660 | 39-3/4 | 1010 | 62-1/2 | 1587 | 62-1/16 | 1576 | 1745 | 792 |
| RE-40-2 | 36 | 915 | 34-1/2 | 876 | 69 | 1753 | 36 | 914 | 49-3/4 | 1264 | 62-1/2 | 1587 | 62-1/16 | 1576 | 1885 | 855 |
| RE-60-2 | 56 | 1422 | 54-1/2 | 1384 | 88-13/16 | 2256 | 54-5/8 | 1387 | 70-3/4 | 1797 | 64-1/2 | 1638 | 62 | 1575 | 2400 | 1089 |
| RE-10-3 | 6 | 152 | 4-1/2 | 214 | 39 | 991 | 6 | 152 | 19-3/4 | 502 | 72-1/2 | 1842 | 83-1/2 | 2121 | 1580 | 717 |
| RE-15-3 | 11 | 279 | 9-1/2 | 241 | 44 | 1118 | 11 | 279 | 24-3/4 | 629 | 72-1/2 | 1842 | 83-1/2 | 2121 | 1825 | 828 |
| RE-20-3 | 16 | 406 | 14-1/2 | 368 | 49 | 1245 | 16 | 406 | 29-3/4 | 756 | 72-1/2 | 1842 | 83-1/2 | 2121 | 2130 | 966 |
| RE-30-3 | 26 | 660 | 24-1/2 | 622 | 59 | 1499 | 26 | 660 | 39-3/4 | 1010 | 72-1/2 | 1842 | 83-1/2 | 2121 | 2595 | 1177 |
| RE-40-3 | 36 | 915 | 34-1/2 | 876 | 69 | 1753 | 36 | 914 | 49-3/4 | 1264 | 72-1/2 | 1842 | 83-1/2 | 2121 | 2790 | 1266 |
| RE-60-3 | 56 | 1422 | 54-1/2 | 1384 | 88-13/16 | 2256 | 54-5/8 | 1387 | 70-3/4 | 1797 | 72-1/2 | 1842 | 83-1/2 | 2121 | 3900 | 1770 |

Dimensions and specifications are subject to change without notice.



World Authority in Advanced Technology for Magnetic, Vibratory and Metal Detection Applications

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