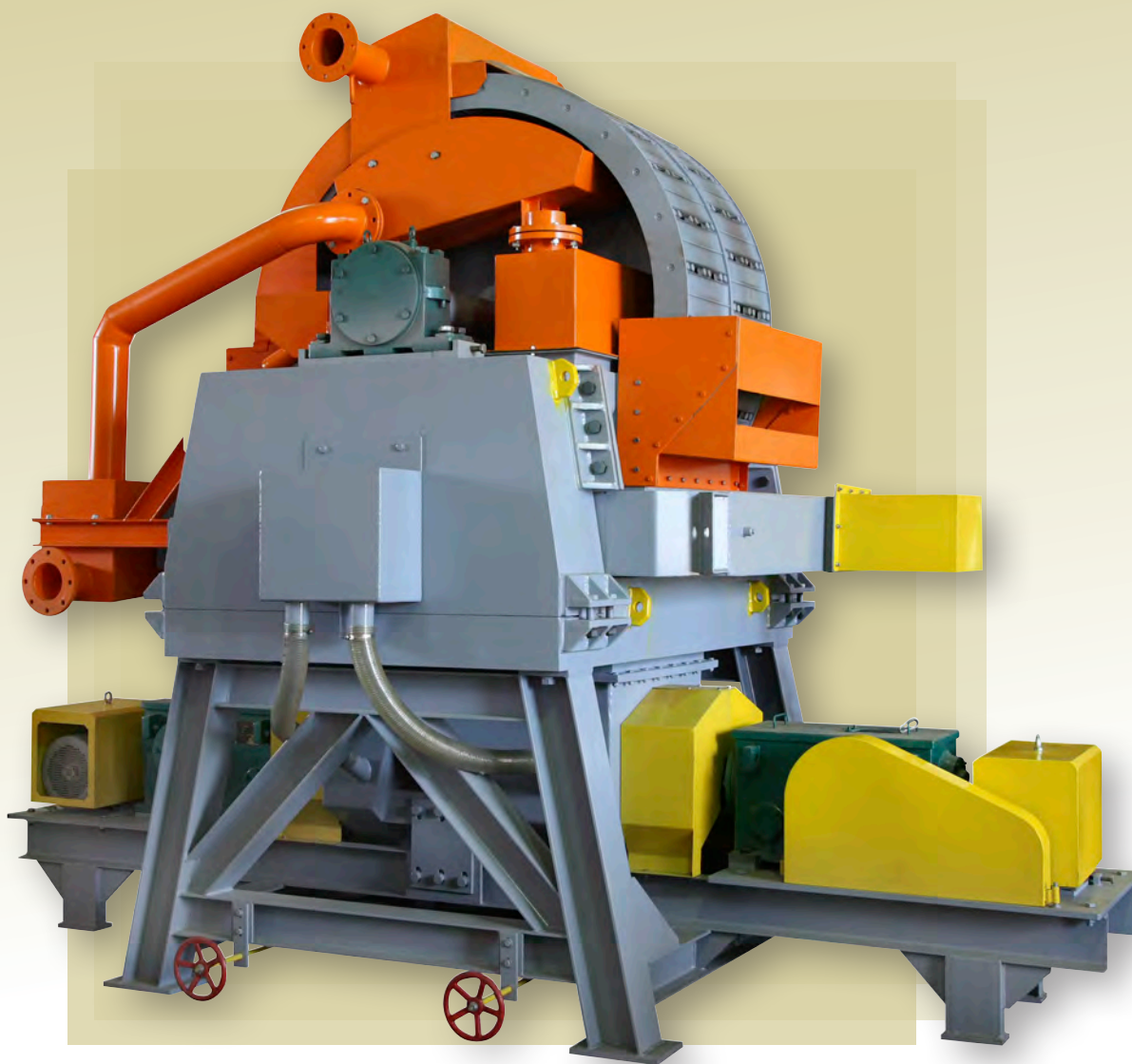


WET HIGH INTENSITY MAGNETIC SEPARATOR (WHIMS)



WET HIGH INTENSITY MAGNETIC SEPARATION

Unique Features for Customer's Satisfaction

- Excellent performance on even weakly magnetic materials: higher recovery (4-6% higher at the same grade) or higher grade.
- High capacity without clogging.
- Advanced design and durable construction with less maintenance (Matrix fabrication technology patented).
- Dual jigging washing for a higher separation efficiency (patented).
- Air assisted discharge for less water usage (patented).
- No ring step motion/indexing.
- No concentrate early drop off (patented).
- Many models and sizes to choose.
- Direct water cooling to make it a simple and reliable operation.



Analytical Lab

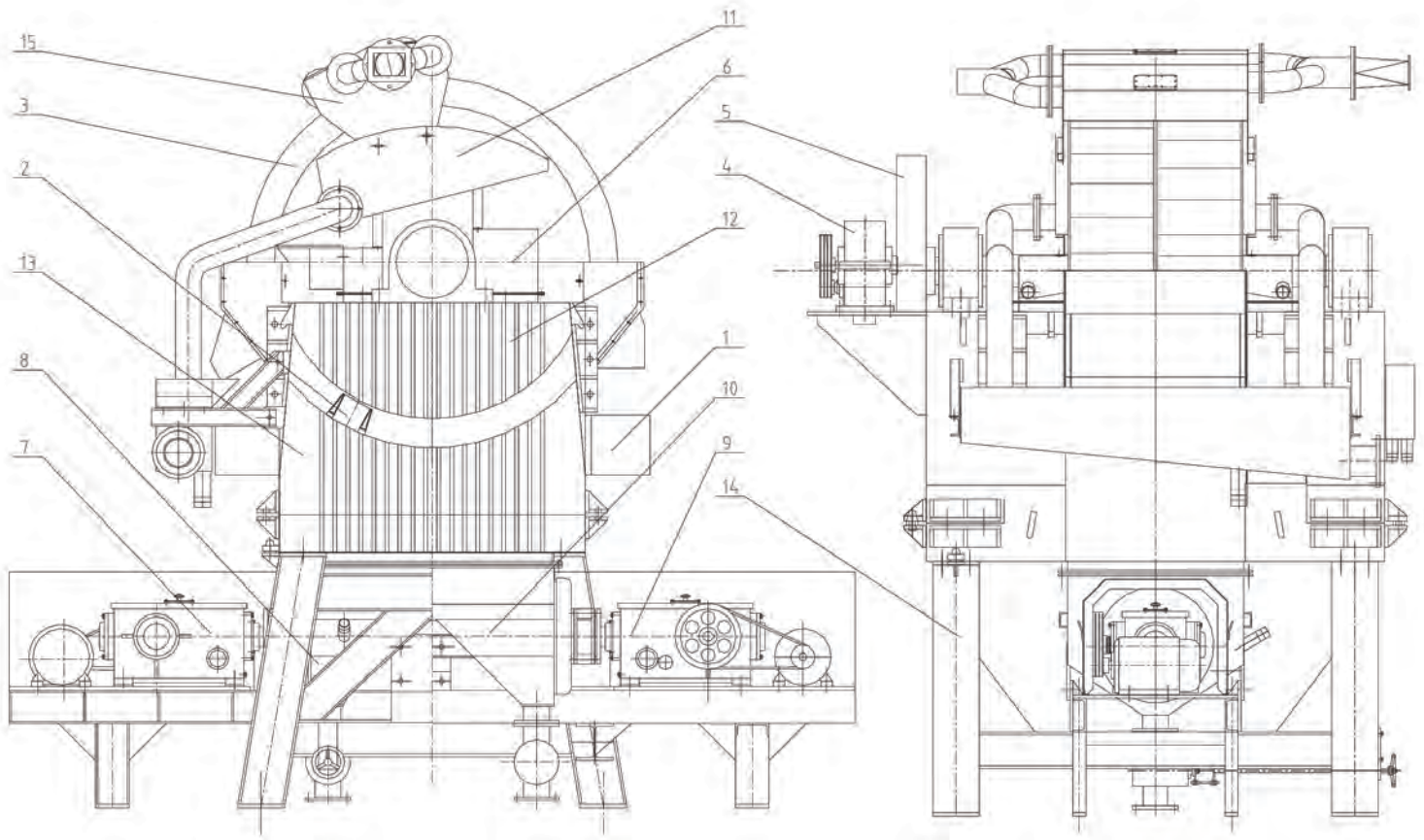


WHIMS Test Lab



Silica Sand

RATOR (WHIMS)



- | | | | |
|-----------------------|---------------------|-------------------------|-------------------------------|
| 1. Excitation coil | 5. Gear | 9. Tailings jig | 13. Lower pole |
| 2. Matrix/compartment | 6. Feed box | 10. Tailings launder | 14. Frame |
| 3. Vertical ring | 7. Middling jig | 11. Concentrate launder | 15. Air/water flushing device |
| 4. Reducer | 8. Middling launder | 12. Upper pole | |

Mechanism

When a DC current is applied to the coil (1), a magnetic field is formed in the separating compartment (2). A high magnetic field gradient is generated in the vicinity of the rod in matrix (2). The vertical rotating separation ring (3) is driven clockwise by the drive motor and reducer (4) via a pair of gears (5). The lower part of the separation ring passes through the arc separation chamber formed by the upper pole (12) and the lower pole (13) which are mounted to the frame (14). Slurry is fed into the separation chamber evenly through the feed box (6). Because of the high magnetic force produced on the matrix, magnetic particles are attracted onto the surface of the magnetic matrix carried by the compartments (2). The tailings jig (9) is normally adjusted for a higher pulse frequency and lower stroke. This reduces the fluid power, allowing only extremely weak magnetic particles and non-magnetic particles to be washed away from the matrix because the fluid power was still greater than

the opposing pinning magnetic force for those particles. This washed away material passes through the matrix compartments (2) into the tailings discharge launder (10). More strongly magnetic particles hang onto the matrix and are carried by the rotation of the vertical ring (3) into the middling area of the separating chamber. Here the middling jig (7) is adjusted for a lower frequency and a higher pulse stroke to remove moderately magnetic particles, allowing them to be rinsed into the middling discharge launder (8). Only the most strongly magnetic particles are retained and rotated along with vertical ring (3). As the ring moves away from the separating chamber, the magnetic force is gradually reduced until it is very weak. This is the magnetic discharge area where an air/water flushing device (15) will flush magnetic material from the magnetic matrix assembly compartments (2) into the concentrate discharge launder (11).

WET HIGH INTENSITY MAGNETIC SEPARATION

Technical Specification for SSS-I WHIMS

MODEL	SSS-I-500	SSS-I-800	SSS-I-1000	SSS-I-1200	SSS-I-1500	SSS-I-1750	SSS-I-2000	SSS-I-2500	SSS-I-3000
RATED INTENSITY (T)	1.2	1	1	1	1	1	1	1	1
RATED MAGNET POWER (KW)	30	17	24	30	33	46	61	74	90
SOLIDS CAPACITY (TPH)	0.3-1.0	1.0-3.0	4-8	8-18	10-30	20-50	30-80	60-150	150-250
% SOLIDS W/W	10-40	10-40	10-40	10-40	10-40	10-40	10-40	10-40	10-40
MAX PARTICLE SIZE (MM)	0-1	1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
RATED MAGNET CURRENT (A)	1800	1000	1000	1000	1000	1000	1450	1600	1400
RATED VOLTAGE (V)	22	17	24	30	33	46	42	46	60
RING OD (MM)	500	800	1000	1200	1500	1750	2000	2500	3000
RING ROTATION SPEED (RPM)	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4
RING DRIVING POWER (KW)	0.4	1.5	2.2	2.2	3	5.5	5.5	11	18.5
PULSATING DRIVING POWER (KW)	0.4	1.5+2.2	1.5+2.2	2.2+1.5	2.2 X2	2.2 X2	2.2X2	4X2	2X18.5
BLOWER DRIVING POWER (KW)	2.2	4	4	4	5.5	5.5	7.5	11	18.5
PULSATING STROKE (MM)	0-16	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-30
PULSATING FREQUENCY (CYCLE/MIN)	0-140	0-280	0-280	0-280	0-280	0-280	0-280	0-280	0-280
PULSATING STROKE, ADJUSTABLE?	YES	YES	YES	YES	YES	YES	YES	YES	YES
PULSATION FREQUENCY, ADJUSTABLE?	YES	YES	YES	YES	YES	YES	YES	YES	YES
WATER PRESSURE (MPA)	0.2-0.3	0.1-0.2	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.4
WATER CONSUMPTION (M3/H)	1-2	5-8	8-16	25-40	50-80	70-100	90-120	180-250	300-480
COOLING WATER(M3/H)	1-2	1.5-2	2-2.5	2-3	2.5-3.5	3-4	4-5	5-8	8-10
EQUIPMENT WEIGHT (MT)	2	6	10	14	22	30	41	89	160

Note:

1. The specifications in above table are for basic types of models.
2. The maximum background field strength can reach 1.3 Tesla upon request.
3. The selection of matrix will be based on test result.
4. If customer does not have a tap water for cooling the coil, we can provide the oil cooling WHIMS on customer's request. Elevated temperature and higher power consumption may be expected for the same background magnetic field intensity.

Applications of WHIMS

The WHIMS can separate weakly magnetic minerals, moderately magnetic minerals and can remove impurities from non-metallic minerals.

Some typical applications are:

FERROUS METAL ORE

Recovery of hematite, limonite, siderite, chromite, manganese ores, etc.

NONFERROUS METAL ORE

Separation of fine embedded wolframite from quartz, magnetic pyrite from cassiterite in a polymetallic sulfide ore, and cassiterite, wolframite from limonite, etc.

Separation of tungsten, wolframite from garnet, etc.

RARE EARTH METAL

Recovery of titanium iron ore, iron and tantalum-niobium ore, lithium mica, monazite, and phosphorus yttrium ore.

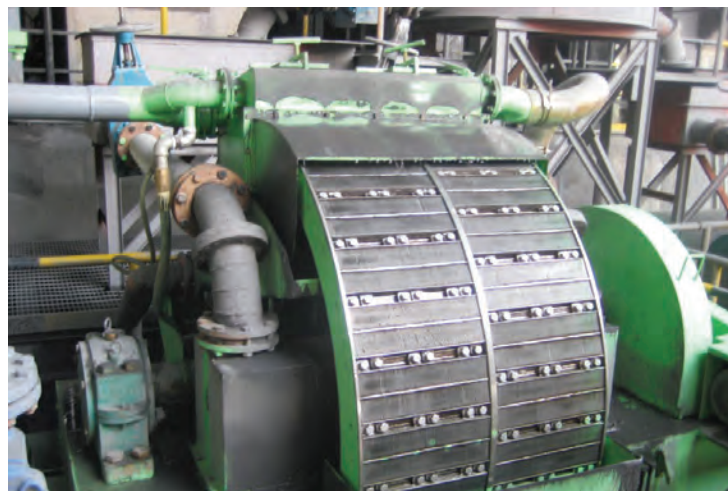
Separation of lithium pyroxene from hornblende, tantalum from niobium, iron ore from microlite, titanium iron ore from man-made rutile, and rutile from garnet etc.



Rutile/Ilmenite



Hematite



Titanium



Siderite

NON-METALLIC ORES

Purification of glass ceramics industrial raw materials like quartz, feldspar and kaolin.

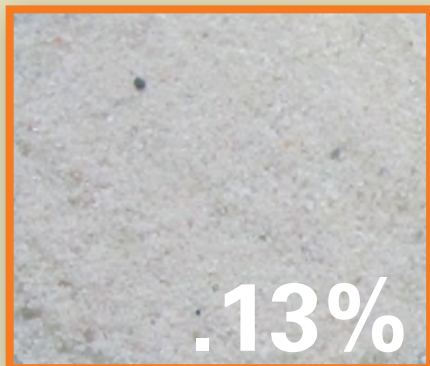
Purification of high-temperature refractory silicates like andalusite & kyanite. Elimination of iron, hornblende, mica, electrical stone, garnet and other harmful impurities, etc.

OTHER APPLICATIONS

Wastewater treatment for steel mills and power plants or removing catalyst pollution from chemical raw materials.

WET HIGH INTENSITY MAGNETIC SEPARATION

Typical Silica Application One Pass



Feed



Concentrate



Tailing

Quality Control

- Eriez and GZRINM work together to control the product quality.
- ISO 9000 certified.
- Customers are invited to inspect equipment during fabrication and before shipping.



Customer Inspection During Fabrication



Customer Inspection Before Shipping



Eriez and GZRINM strategy alliance since 2010

Guangzhou Research Institute of Non-ferrous Metals (GZRINM), is the largest scientific research organization engaging in the research and development of mineral resources utilization and new materials in the south of China. With 1.94 million square meter facility, GZRINM employs more than 1,300 with 475 senior engineers and 394 personnel with master and PhD degrees, and provides equipment and service in the area of mineral resource, environmental protection, material and chemical engineering, advanced manufacturing, electronic and biotechnology. Vertical ring wet high intensity magnetic separator is one of its project leading to a wide application in mineral processing industry. More than 500 units have been sold worldwide.



GZRINM Headquarters

GZRINM's mineral processing department with 110 engineers and technicians provides technical solution for flowsheet design, equipment selection, and service after sales. GZRINM's analytical testing center is the largest certified testing lab for steel and non-ferrous metals commodity in the south of China and provide accurate analysis for the products.



GZRINM Factory

Many Patents Protect the Advanced Features of our WHIMS.





The Eriez Technical Center

Eriez maintains the industry's largest magnetic, vibratory and inspection system test laboratory at its Technical Center in Erie, Pennsylvania, U.S.A. More than 100 pieces of specialized test equipment are on hand. Here, customer products and raw materials are analyzed confidentially and ways to separate or move, screen or detect them more efficiently and economically are then suggested. Feasibility and definitive studies are also conducted.



5-Star Service Center

Eriez' 5-Star Service Center, located in Erie, PA, is staffed with an experienced team of professionals available through our 24/7 hotline, 1-888-300-ERIEZ. We use original OEM parts and offer on-site field testing, equipment re-manufacturing and full "as new" warranties.

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