



Wet High Intensity Magnetic Separator



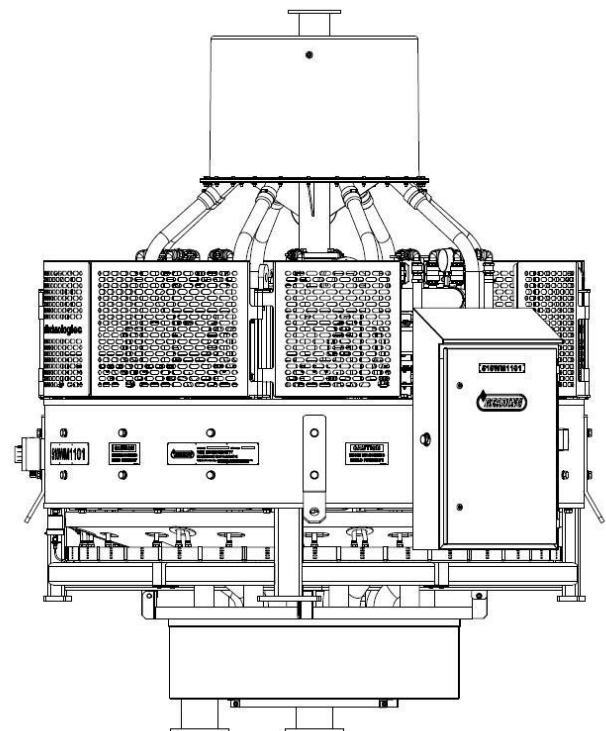
WHIMS Production Separators

Overview

The Reading WHIMS set the industry benchmark for wet magnetic separation of fine minerals. They afford the most efficient separation of minerals in slurry form, when drying of the material is undesirable or uneconomical.

Features

- Smaller, lighter and more compact than any other WHIMS of comparable capacity
- Ideal for floating concentration plants, lighter machine means less buoyancy required
- 16 pole units are transportable fully assembled to any location – excluding distributor and product collection launders
- Extensive use of 316 stainless steel to minimise maintenance costs
- Extensive use of polyurethane lining and componentry to reduce wear
- Latest technology control panel incorporating DC rectifier and motor starters etc
- Fully variable electro-magnetic field intensity (0–1.4 Tesla) giving the client the ability to adjust intensity for optimum separation.
- Two segment product discharge (mags and non-mags) minimises plant pipework
- Volume of wash water to separator can be varied and controlled to optimise process performance
- Option of either water cooled or air cooled heat exchanger
- All models have comparable performance for pilot study evaluations



New and improved features

- Operator protection guards for a safer plant operation.
- New catch-box assembly to improve separation and control under machine spillage.
- Redesigned rotor drive assembly improving reliability and reducing the spare part inventory
- Redesigned electrical systems achieving improved operations interface and a reduction in energy consumption.
- New wash water distribution system incorporating operator friendly fixed position process components.
- Utilisation of latest corrosion protection systems further extending the service life of the machine

Applications

- Upgrading iron ore fines (10micron to 1mm)
- Recovery of fine iron ore from tailing streams
- Separation of ilmenite from heavy mineral sand concentrates to reduce downstream processing
- Removal of magnetic contaminants from slurried materials eg cassiterite, kaolin, silica, etc



WHIMS Production Separators

Control Panel Features

The standard electrical control panel is typically located near the separator with stand-alone capability and /or connection to plant PLC. Optional Profibus or alternative communication protocol available.

Standard PLC options are Siemens or Allen Bradley with HMI screen control at the panel. Internal systems monitoring with access to parameter view/change via HMI screen.

Remote Ability

“Start/stop”

“increase/decrease magnet intensity(magnet power)”

“Select local operation”

“Select remote operation”

Monitoring information includes indication of

“Machine Run”

“local mode engaged”

“Remote mode engaged”

“Machine running”

“Machine ready”

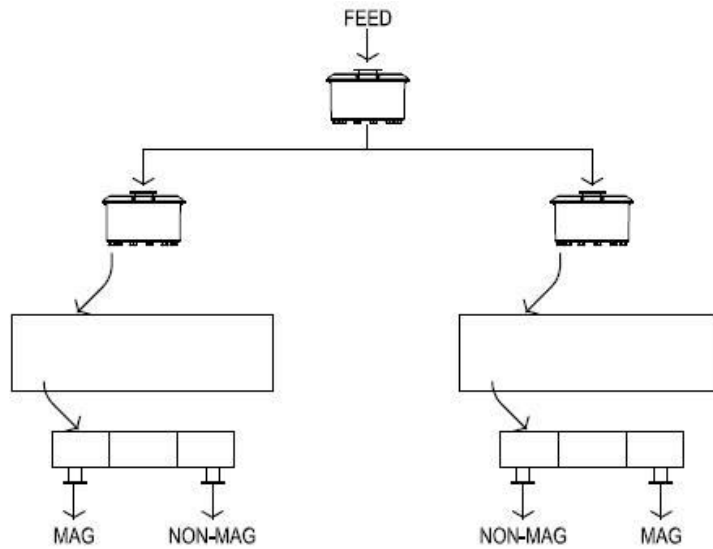
“Machine fault” (individual fault/s displayed on screen)

“Magnet intensity (0-100%) monitoring

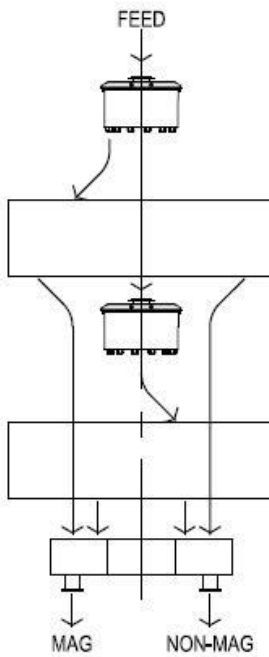
WHIMS Production Separators

Design Data		48P (120mm)	24P (120mm)	16P (120mm)	16P (68mm)
Equip. No. Separator		RW9060-1	RW9063-1	RW9001-1	RW9011-1
Equip. No. Control Panel		RW9061	RW9038-24	RW9038-16	
Equip. No. Heat Exchanger Air Blast		RW9064 & RW9046 (Oil Unit & Air Unit) 2 of each for 48P		RW9045 & RW9046 (Oil Unit & Air Unit)	
Equip. No. Heat Exchanger Water		RW9068 (Refer Equip. Eng) (Oil Unit & Air Unit) 2 of each for 48P		RW9042	
Recommended Installation - Air		Drawing Ref. RW9066 - 1		Drawing Ref. RW9047	
Recommended Installation - Water		Drawing Ref. RW9066 - 2		Drawing Ref. RW9043 (Refer Equip. Eng))	
Capacity	Feed Points	24	12	8	
	Nominal Processing Capacity	Upto 180 t/h	Upto 90 t/h	Upto 60 t/h	Upto 30 t/h
	Special Note - Refer Layout Combination (next page)	Maximum throughput will vary with application and testwork is required for confirmation. Plant applications can use a combination of std machine sizes to match required tph			
Optimum Pulp Density Range		30% to 40% solids (w/w)			
Nominal Feed Material Size Range		>10 micron to 1.0mm			
Washwater Requirements		1600 / 800 (94/48 m ³ /hr)	800 / 400 (48/24 m ³ /hr)	500 / 250 (30/15 m ³ /hr)	200 / 100 (12/6 m ³ /hr)
Mags / Non-Mags (lpm)		Water requirements indicated are the typical requirement to allow for feedpipe design. On some feeds the non-mags washwater may be as low as zero. We advise confirmation through testwork or at commissioning			
Quality / Pressure requirements		Quality - All washwater MUST not exceed 45°C and MUST not contain solids greater than 300 microns & 5% solids by volume (Clean Process Water) Pressure :65kPa Nominal (Plant water supply to be a minimum of 200kPa)			
Separator Size		3300 mmØ x 6000mm (1230mm under floor)	3300 Dia. mm x 2800mm (800mm under floor)	2413 Dia. mm x 2695mm (above Floor) x 590mm (Under Floor)	
Separator Nett Weight (kg)		24000	12000	7250	7100
Separator Operating Weight (kg)		25000	12500	7500	7300
Separator Choked Weight (kg)		28000	14000	9000	8500
Rotor Drive Power		2 x 4 kW	1 x 4 kW	1 x 1.5 kW	
Battery Limits					
Feed Connection		200 NB ASTD		125 NB Table D Flange	
Washwater Connection		2 x 100 NB Table D Flange (Mags / Non-Mags)			
Product Launder Connection (Mags / Non-Mags)		2 x 150NB ASTD		2 x 150 NB Table D Flange	
Oil Header Connection		50NB (2") BSPP Male Seated			
Cooling Requirements (Heat Exchanger)					
Electrical Requirements		415 Volts 50 Hertz (other voltages & frequencies are available)			
Power Consumption @ max. intensity incl. Rotor drive / Coil / Heat Exchanger (at 100%)		108 kW (Water) 116 kW (Air)	54 kW (Water) 58 kW (Air)	36 kW (Water Cooled) 39 kW (Air Cooled)	
Dynamic Load, kN		<5 Horizontally and Vertically			

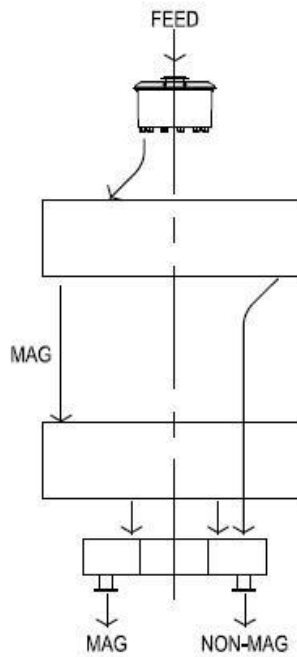
WHIMS Production Layout combinations



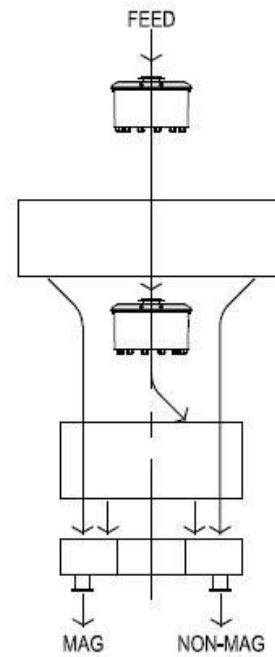
PARALLEL FEED
Single Floor Layout
(approx. 180tph)



PARALLEL FEED
(approx. 180tph)



MAGS RETREAT
(approx. 90tph)



PARALLEL FEED
(approx. 150tph)

Wet High Intensity Magnetic Separator



WHIMS Laboratory / Pilot Scale Separator

Twin feed point unit suitable for batch or closed loop operation

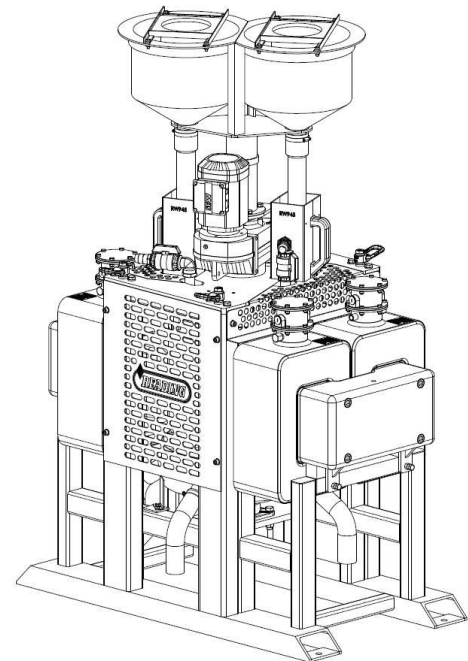
The Reading WHIMS set the industry benchmark for magnetic separation of fine minerals. They afford the most efficient separation of minerals in slurry form, when drying of the material is undesirable or uneconomical.

Features

- Variable magnetic field intensity (up to 1.4 Tesla) via simple controls using a potentiometer
- Two product stainless steel collection launder (Mags / Non-Mags)
- Simple scale up from laboratory tests for confidence in plant performance as Lab unit utilises the same separation principles and dynamics
- Twin feed distributor for continuous operation – also able to treat two separate streams
- Support bracket and feed vessel with calibrated plug for batch feeding at controlled feed rate.
- Individual control of wash water (Mags / Non-Mags) volumes for optimum process control
- Integrated heat exchanger and cooling oil pump
- Control Panel (Stand Alone)

Applications

- Laboratory scale batch testing or continuous pilot plant duty
- Beneficiation of iron ore fines from 10 microns to 1mm
- Purification of silica / glass sands
- Removal of magnetic / contaminants from slurried materials, eg. cassiterite, kaolin, silica, etc.
- Separation of any slurried materials with different magnetic susceptibilities



WHIMS Laboratory / Pilot Scale Separator

Design Data

	4P
Equipment No.- Separator	RW9302-101
Equipment No. – Control Panel	RW9302-102
Nominal Processing Capacity	4 t/h
Feed Points	2
Optimum Pulp Density Range	30% to 40% solids (w/w)
Nominal Feed Material Size Range	Rotor A - 10micron to 400micron, Rotor B - 20micron to 1mm (Standard) Rotor C - 200micron to 2.0mm
Total Washwater Requirements (under normal conditions)	Quality - All washwater MUST not exceed 45°C and MUST not contain solids greater than 300 microns & 5% solids by volume (Clean Process Water)
Nominal Magnetic Washwater	100 LPM
Nominal Non-Magnetics Washwater	50 LPM
Separator Size	870mm x 1370mm x 2000mm High
Separator Nett Weight (kg) incl. Oil	1780
Separator Operating Weight (kg) incl. Oil	1830
Separator Choked Weight (kg) incl. Oil	1930
Rotor Geared Motor	1 x 1.1 kW
Feed Inlet	Max. 150mm OD Pipe
Washwater Connection (Mags / Non-Mags)	Mags 25mm BSP Port / Non-Mags 32mm NB Hose connection
Product Launder Connection	50mm OD Tube
Electrical Requirements	415V 3Ph + Neutral & Earth @ 15amps
Power Consumption @ max. intensity incl. Rotor drive / Coil / Heat Exchanger	13 kW
Control Panel Size (W x H x D)	800mm x 1300mm x 400mm
Control Panel Weight (kg)	160
Control Panel IP rating :	54

Note:

Mineral Technologies reserves the right to alter specifications without prior notice.
For Certified Drawings suitable for Engineering Design purposes please refer to Mineral Technologies