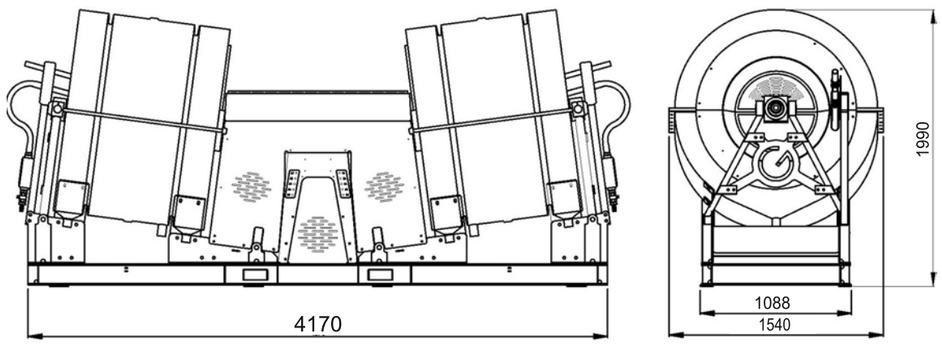
C902 MGS technical specifications

Capacity	4-5 tonnes/hr (dry basis - material dependent)
Feed Particle size range	500-1 micron
Feed Pulp Density	10% to 50% solids w/w
Unpacked dimensions	4242*1540*1980 mm
Machine weight	2,100 Kg
Electrical standard	IP66 with centrally mounted control panel
Power requirements	3 phase 415V 50Hz - other options available
Drum Drive Electric Motor	2 * 2.2 kw variable speed
Shake Drive Electric Motor	2.2 kw variable speed
Total Power	6.6 kW installed (typical consumption 3.3kW
Drive System	Belt
Rotational Speed	100-185 rpm infinitely variable
Shake Frequency	2-6 Hz infinitely variable
Shake Amplitude	15 mm std. (10 or 20 mm optional)
Tilt Angle	7.5 degrees std. (0-9 degrees optional)
Wash Water	0-40 litres/min per drum (free of solids)
Construction materials	
Frames	Galvanized steel
Drum	Aluminium
Drum Lining	Abrasion resistant polyeurethane



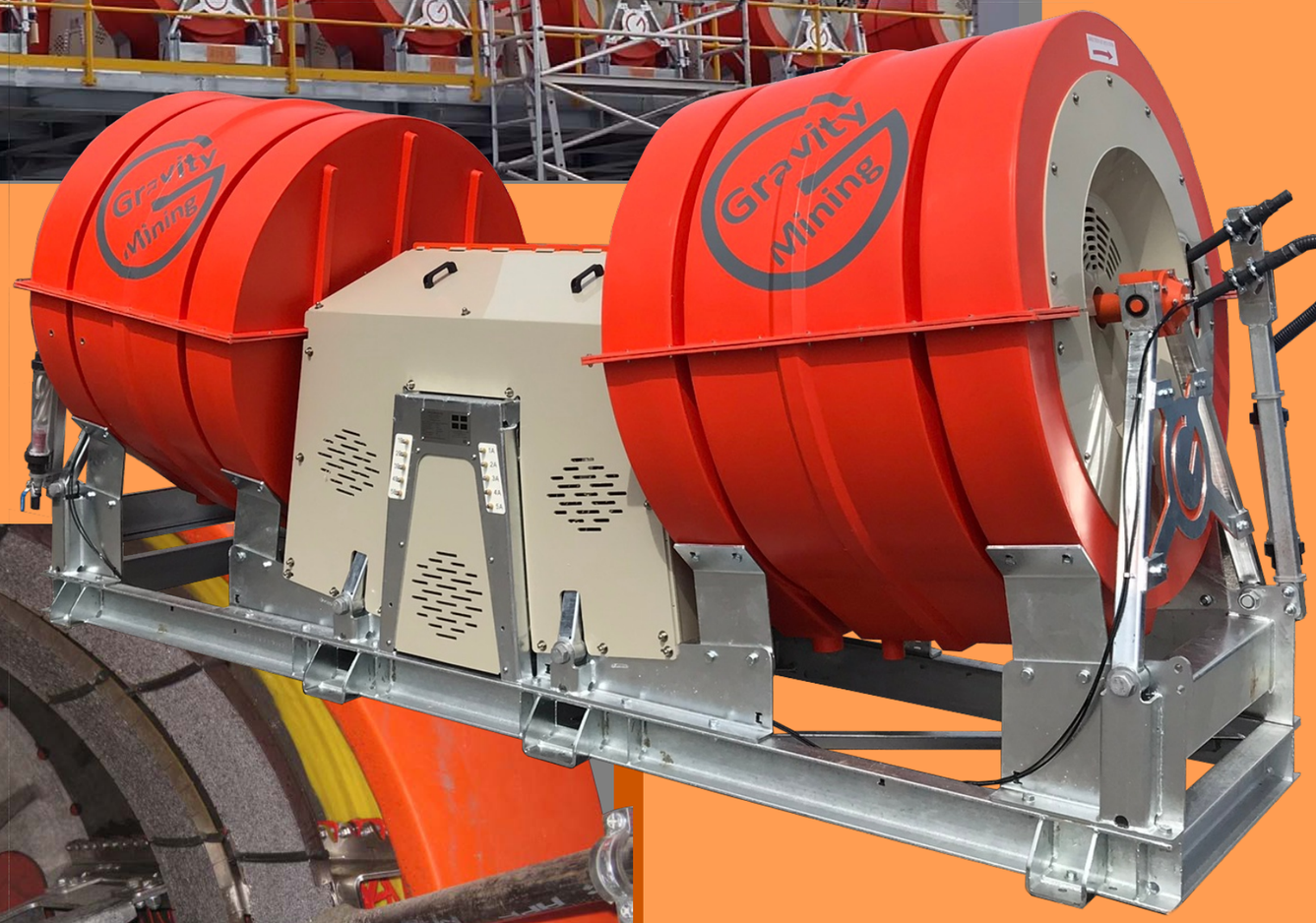
C902 Multi Gravity Separator

This proven machine has an unsurpassed ability to recover fine and ultra-fine materials. The MGS' continuous process is low energy and its robust design requires minimal maintenance

Gravity Mining Limited, Redruth, Cornwall, UK
www.gravitymining.com
email sales@gravitymining.com

Publication: C902 MGS - January 2023

Large multiple machine installations are often equipped with Ethernet/IP addressable control panels for central control room management. This installation includes 12 machines that are used to concentrate Tungsten ore and reject Calcite ahead of a flotation stage.



A slurry bed has formed in the drum and concentrate is just beginning to be pulled forward by the Pure Select™ scraper system

Updated machine with simpler chassis design that is lighter and provides better access to concentrate and tailings outlets. This new design includes simpler and more rugged guarding as well as steeper launder funnels to keep viscous slurries moving.

Originally developed for the Cornish Tin industry, the **C902 MGS** is a proven production machine with over 80 manufactured machines, many of which are still in service. The Multi Gravity Separator (MGS) operates on a similar principle to a shaking table to separate and upgrade very fine materials. MGS' subtle centrifugal force simulates **enhanced gravity**, pinning heavier materials to the wall of the drum to be dragged forward by scraper blades, while lighter tailings are agitated by the shaking motion and washed away

The MGS can be used as a primary separator of fine materials, scavenging tailings and middlings from spirals or shaking tables. Alternatively it can be used in two stages to maximise recovery and grade. The MGS will function satisfactorily with materials up to 500 microns but, it works **exceptionally well** where there is a **narrow size band** of material below **100 microns**

The benefits of using an MGS system in a gravity circuit are typically:

- Delivers very **high grade and recovery** from fine and ultrafine material
- **Sustainable, chemical free** processing
- Suitable for concentrating many valuable metal bearing ores
- Self regulating and able to cope with **significant changes in material grade** without losses

Ability to cope with changes in **feed pulp density** by adjusting wash water levels

Flexible solution

- *Can be used to produce saleable grade concentrate from low grade tailings in one step, or*
- *Can be used in a two stage process either as a rougher or finisher to optimize capacity and recovery*

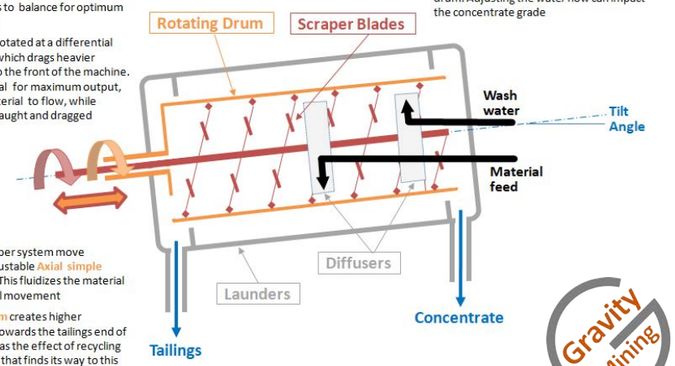
How the Gravity Mining - Multi Gravity Separator works

Drum Rotation - Slurry is fed to the mid point of the drum as it rotates. The subtle centrifugal force capitalizes on small differences in Specific Gravity keeping heavier materials in place to be dragged forward by the scraper blades. Lighter materials flow with the wash water to the rear of the drum. Rotation speed is variable (100-180 RPM) allowing flows to balance for optimum recovery and grade

Scraper blades are rotated at a differential speed to the drum which drags heavier materials forward to the front of the machine. Blade design is critical for maximum output, allowing lighter material to flow, while heavier material is caught and dragged forward

Tilt Angle of the drum is adjustable and creates a natural gravity bias for the material and wash water

Wash Water combined with natural gravity and the drum tilt angle creates a flow carrying less dense tailings to the back of the drum. Adjusting the water flow can impact the concentrate grade



The Drum and Scraper system move together in an adjustable **Axial simple harmonic motion**. This fluidizes the material allowing directional movement

MGS' **Tapered Drum** creates higher centrifugal forces towards the tailings end of the machine, this has the effect of recycling any heavy material that finds its way to this end of the machine