Equipment Details

GRAVITY SEPARATION

mtSpirals

The world's most proven spiral technology.

Mineral Technologies
A Downer Company

Process Design | Engineering | Equipment

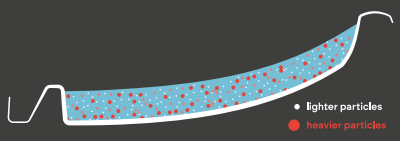
Delivering certainty in fine mineral recovery

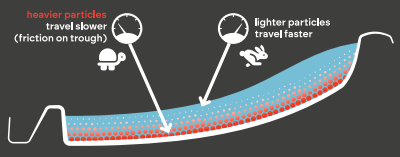
How it works

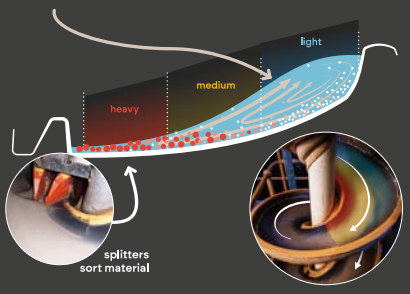
Did you know:

8 out of 10 spirals worldwide are from Mineral Technologies.

The Spiral is a **gravity-based separator** designed to recover fine minerals by exploiting differences in particle density. It consists of a spiral trough wrapped around a central column and is made from strong, wear-resistant composite materials.







SEPARATION IN FIVE STAGES

1.
Gravity starts the journey
Gravity provides the energy that moves slurry through the spiral.

2.
Particles begin to stratify
Heavier particles settle while lighter particles remain closer to the surface, creating the first stages of vertical layering.

3.
Spiral geometry creates secondary flow
The curved trough generates secondary circulation that encourages particles to migrate into distinct mineral bands.

4.
Every turn improves the separation
Diverters, splitters, variable pitch, spiral radius, they all help mineral bands become cleaner and more clearly defined turn by turn.

5.
Splitters recover the products
Adjustable splitters collect concentrate, middlings and tailings once separation has sufficiently developed.

Technical Features

Every spiral exists because it solved a separation challenge.

Mineral Technologies introduced the original spiral concentrator more than eighty years ago. Since then, every generation has built upon the lessons learned from laboratory testing, pilot plants and operating concentrators around the world.

The result is not simply a larger product range. It is decades of accumulated separation knowledge embodied in spiral geometry. Every spiral in today's portfolio exists because, somewhere, it recovered more valuable mineral than the alternative.

Every feature of a spiral exists for one reason: To create better conditions for separation. Changes to geometry influence how slurry behaves, how particles move and ultimately how much valuable mineral is recovered.

OUR ENGINEERS EVALUATE:

- → Diameter
- → Pitch and variable pitch
- → Trough profile
- → Splitter arrangements
- → Auxiliary splitters
- → Repulpers
- → Diverters
- → Surface finish and wear characteristics to select the spirals perfectly suited to your orebody.

Every parameter influences the hydrodynamics and every change influences recovery.

Typical Use Case

An existing gravity circuit was experiencing valuable mineral losses despite stable operating conditions. Following evaluation of the ore body and separation duty, Mineral Technologies recommended an alternative spiral geometry better suited to the application's particle behaviour. The revised configuration improved recovery while maintaining product quality and reducing valuable material reporting to tailings.

Where mt Spirals create value

Suitable across a broad range of gravity concentration duties, including:

- Roughing
- Cleaning
- Scavenging
- Fine mineral recovery
- Heavy mineral concentration
- Circuit optimisation
- Existing plant upgrades
- New project developments

Benefits of Solution

Match the spiral model to your ore

A broad portfolio allows geometry to be selected for the separation challenge rather than compromising with a one-size-fits-all approach.

Confidence built on experience

More than eighty years of spiral development continue to inform every recommendation.

Recover more

Every valuable particle recovered is one that doesn't end up in tailings.

80+
Years
Experience

Your partner for fine mineral beneficiation

We are the leading specialist provider of fine physical mineral separation solutions, services and equipment **across all stages of the project lifecycle.**

mt Spirals

mt Spirals Configurations

Mineral Technologies offers modular mtSpiral model range across a wide range of capacities and applications.

Every spiral's geometry exists for a purpose. That's why mt Spirals match your orebody best.

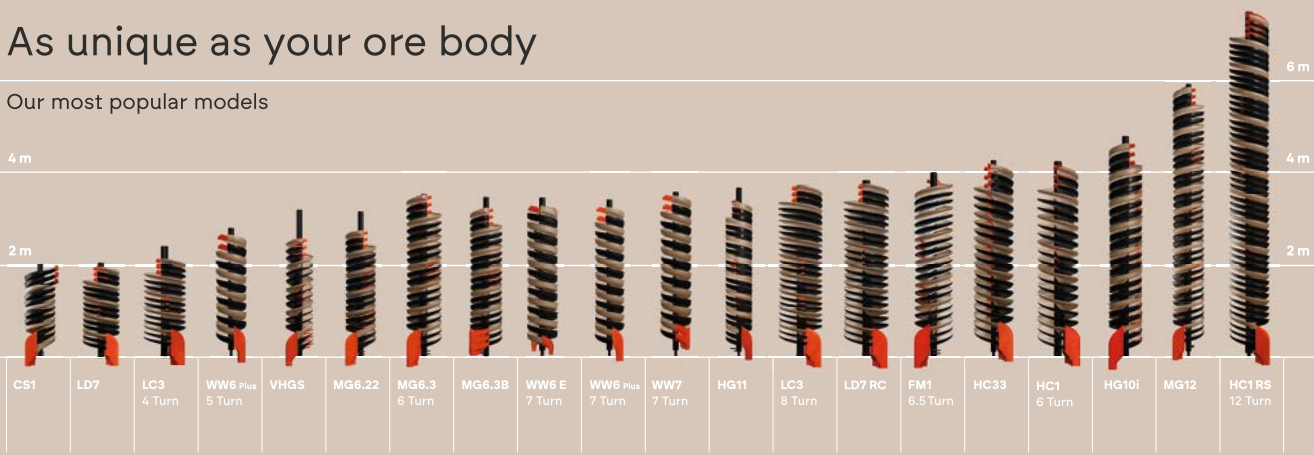
mt Spirals come with ...

- → ... different diameters.
- → ... different pitches.
- → ... different trough profiles.
- → ... different numbers of turns.
- → ... different splitter arrangements.
- → ... different hydrodynamic behaviour.

Not because more spirals are better. Because different ore bodies deserve different solutions.

As unique as your ore body

Our most popular models



Mineral DNA

We start with the mineral not the equipment.

FACT: No two ore bodies behave the same. That's why one-size-fits-all solutions rarely deliver the best recovery.

Let us help you discover your ore body's Mineral DNA, and which mtSpiral is the right technology to recover more of what matters.

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