

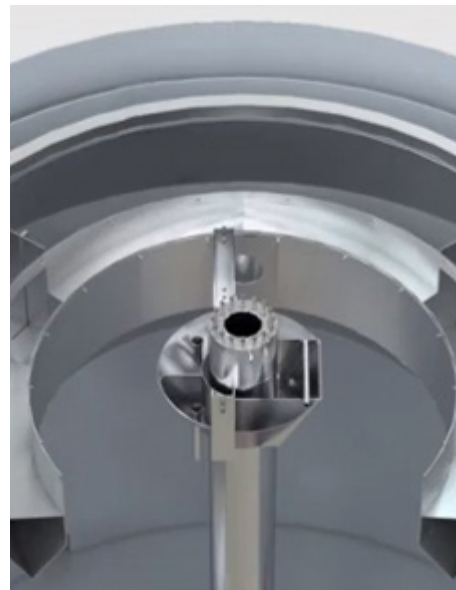
Metso

Flotation services

Froth management upgrade



An optimal launder and crowder design helps you maximize your flotation cell performance and achieve your grade and recovery targets.



Optimize flotation cell froth carry rates, lip loading properties, and mass pull stability with our custom designed froth recovery management.

About froth management

Launders are critical to flotation cell performance, and selecting the right design and orientation is essential for achieving grade and recovery targets.

An incorrect launder setup can cause low mass pull and recovery issues, often due to oversized froth areas or excessively long transport distances.

Because froth can only carry and move a limited amount of material—its froth carry rate (FCR)—both under- and over-crowding lead to non-optimal performance.

Froth crowding problems usually stem from one or more underlying design or operating issues

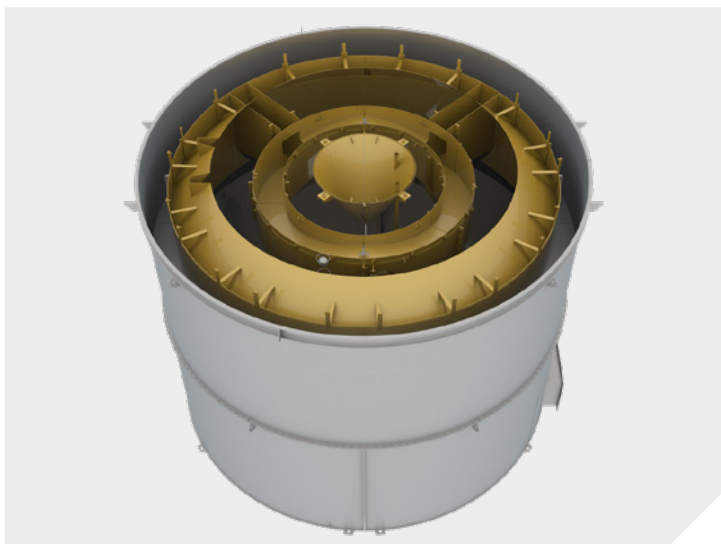
- Insufficient data is available during the design phase to calculate the correct FCR down a bank of cells
- The safety margin calculated by the design engineer is too wide
- A change in feed grade or capacity, leading to a larger or smaller amount of froth flowing to the concentrate. This directly affects the FCR and can result in the froth area being too large for the cell duty.

Benefits

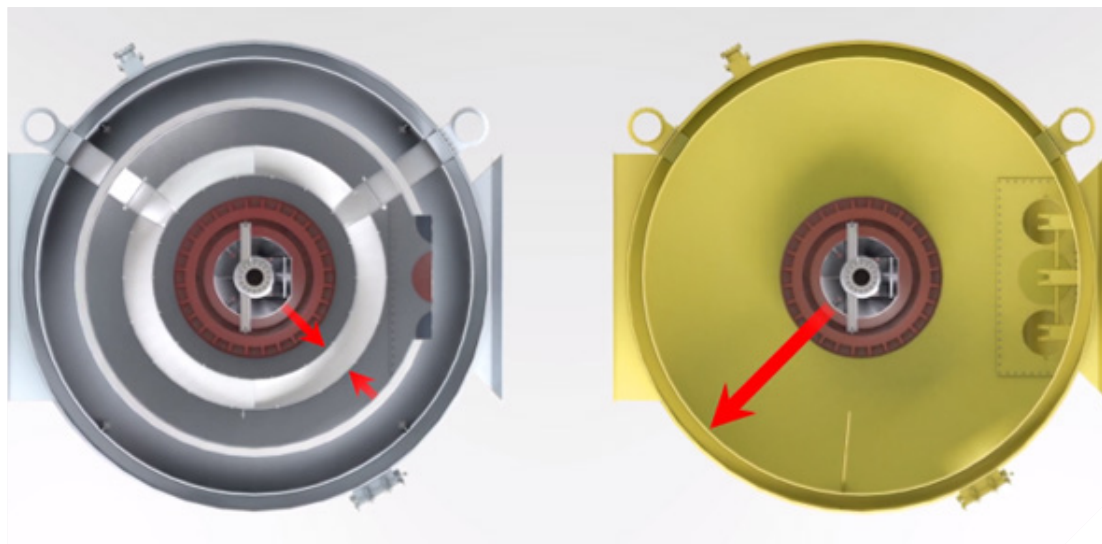
- Easier formation of thicker froth beds
- Controlled directional flow
- Improved froth properties and stability
- Optimized froth carry rate (FCR) and lip loading (LL)
- Minimized transportation distance increases recoveries

Multiple management solutions to suite your application

Center launder upgrade



Center launder, consisting of three parts: center launder, outer crowder and froth cone



The center launder radically shortens the transference distance from the froth zone to the collection area

The center launder upgrade is consists of three parts:

- Center launder
- Outer crowder
- Froth cone

Each of these components are customized for each application to provide the optimum froth surface area, froth transport distance and launder lip.

The center launder radically shortens the transference distance from the froth zone to the collection area.

A shorter transference distance enhances the likelihood of ore-containing froth bubbles flowing over the lip of the tank for collection.

Our center launder components are designed in small sections to reduce installation complexity and minimize required shutdown time for installation. The bridge does not need to be removed to install the center launder.

The launder segments can be lowered into the tank through the openings in the bridge and assembled.

Delivery scope

- Recalculation of required air flow and blower capacity
- Tailor made design of center launder, outer crowder and froth cone according with process data
- Delivery of new froth cone, center launder and outer crowder
- Performance guarantee for metallurgical performance
- Installation, commissioning, and start-up advisory services

Benefits

- Improved metallurgical performance
- Maximized mass pulls
- Improved concentrate recovery
- Robust and flexible
- Thicker, stable, productive froth with enhanced flow control
- Easy to upgrade existing cells

Radial launder upgrade

Different types of cells need different solutions in order to create the best outcome.

Radial launders are good solutions for medium size cells around 70 m³, where there is

a need to increase the lip load and decrease the transport distance.

Combined with internal peripheral or external peripheral launders, Radial Launder will:

- Maximize lip length
- Reduce froth transport distance
- Not provide much froth crowding.

Delivery scope

- Recalculation of required froth surface area and lip length
- Delivery of new radial launders
- Installation, commissioning, and start-up advisory services. The safety margin calculated by the design engineer is too wide
- A change in feed grade or capacity, leading to a larger or smaller amount of froth flowing to the concentrate. This directly affects the FCR and can result in the froth area being too large for the cell duty.



Froth cone upgrade

Upgrading a cell with a larger crowder cone is the most cost-effective solution for smaller cells up to 40 m³.

Larger crowder cones can be installed on cells with internal peripheral or external peripheral launders. This upgrade will:

- Minimize froth surface area and increase froth crowding
- Reduce froth transport distance
- Does not change lip length

New crowders are designed as a plug-and-play installation and are supplied with a detailed installation manual.

Delivery scope

- Recalculation of required froth surface area
- Delivery of the new crowder cone
- Installation, commissioning, and start-up advisory services



Frequently asked questions

Question	Answer
Can Metso design a new launder configuration, and how is this done?	Our experts can design a new launder configuration based on your current process performance. The mass pull and froth carry rate is used to calculate the optimal lip length and froth area for the specific cell duty. There is an assessment to identify current FCR and lip loading.
Can different launder designs be combined?	Different designs can be combined in order to achieve the optimal lip length and froth area. For example, this can be done by combining radial and external peripheral launders.
Does the upgrade require the cell bridge to be strengthened?	Changing the launder setup does not require any structural changes to the flotation cell.
Does Metso check that all lips are at the same height in order to ensure that the speed of froth crossing the lip is equal throughout the cell?	All lip heights are adjustable, and we can check the lip heights as a standard part of our installation process.
What impact can incorrect froth area and lip length have on the froth speed measured by Metso FrothSense™?	The froth speed is highly dependent on the froth area and lip length. If either of these is incorrectly designed for the cell duty it may result in the froth speed being too fast or too slow, making froth speed control extremely challenging.

Read more at metso.com