

Metso

Flotation services

Flotation aftermarket offering

Harness the power of experience
Your #1 service partner from pit to port



Contents

Flotation aftermarket offering

1. Introduction

2. Flotation spare parts

3. Modernizations, upgrades and retrofits

- Center launder upgrade
- Spider crowder upgrade
- FloatForce+® mixing mechanism upgrade
- Flotation cell retrofit
- Concorde Blast Tube™ upgrade
- ColumnCell™ retrofit
- Drive unit upgrade
- Air control upgrade
- Dart valve upgrade
- Service platform

4. Life Cycle Services

5. Maintenance, shutdowns and repairs

- Maintenance reliability planning
- Field services
- Component replacement labor
- Flotation inspections
- Installation and commissioning
- Maintenance and repairs

6. Process optimization and connected services

- Flotation process assessment
- Speed optimization service
- Metrics monitoring for TankCell®
- Performance centers

7. Training

01

Introduction

Flotation portfolio

Flotation portfolio

Read more about our
flotation offering here >>

Metso
PLUS

TankCell®



Superior metallurgical performance based on forced air technology, easy to operate while allowing a flexible layout, cell sizes range from 5 to 630 m³

Metso
PLUS

OK Cells



Operate as roughers, scavengers and cleaners. Standard OK cells range from 0,5-38 m³ have longitudinal launders and OK cells between 3-38 m³

Metso
PLUS

Concorde Cell™



Recover the unachievable ore with high-intensity pneumatic flotation cells which offer a superior recovery rate for fine and ultra-fine particles of under 20 microns

ColumnCell™



Superior metallurgical performance and energy efficiency featuring high collection with smaller bubbles, suitable for a wide range of applications

Metso
PLUS

SkimAir®



Leading flash flotation technology in the grinding circuit by recovering particles from the circulating load to boost plant recovery and improve dewatering

RCS™



A combination of circular cells with features of the DV mechanism maximizes performance for roughing, cleaning and scavenging duties

Take your flotation process to the next level



Our comprehensive flotation service portfolio is supported by deep technical knowledge, experienced people, and specialized tools to maximize profitability throughout the plant life cycle.



Spare & wear parts



Modernizations,
upgrades & retrofits



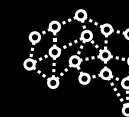
Life cycle services



Maintenance,
shutdowns & repairs



Process
optimization &
connected services

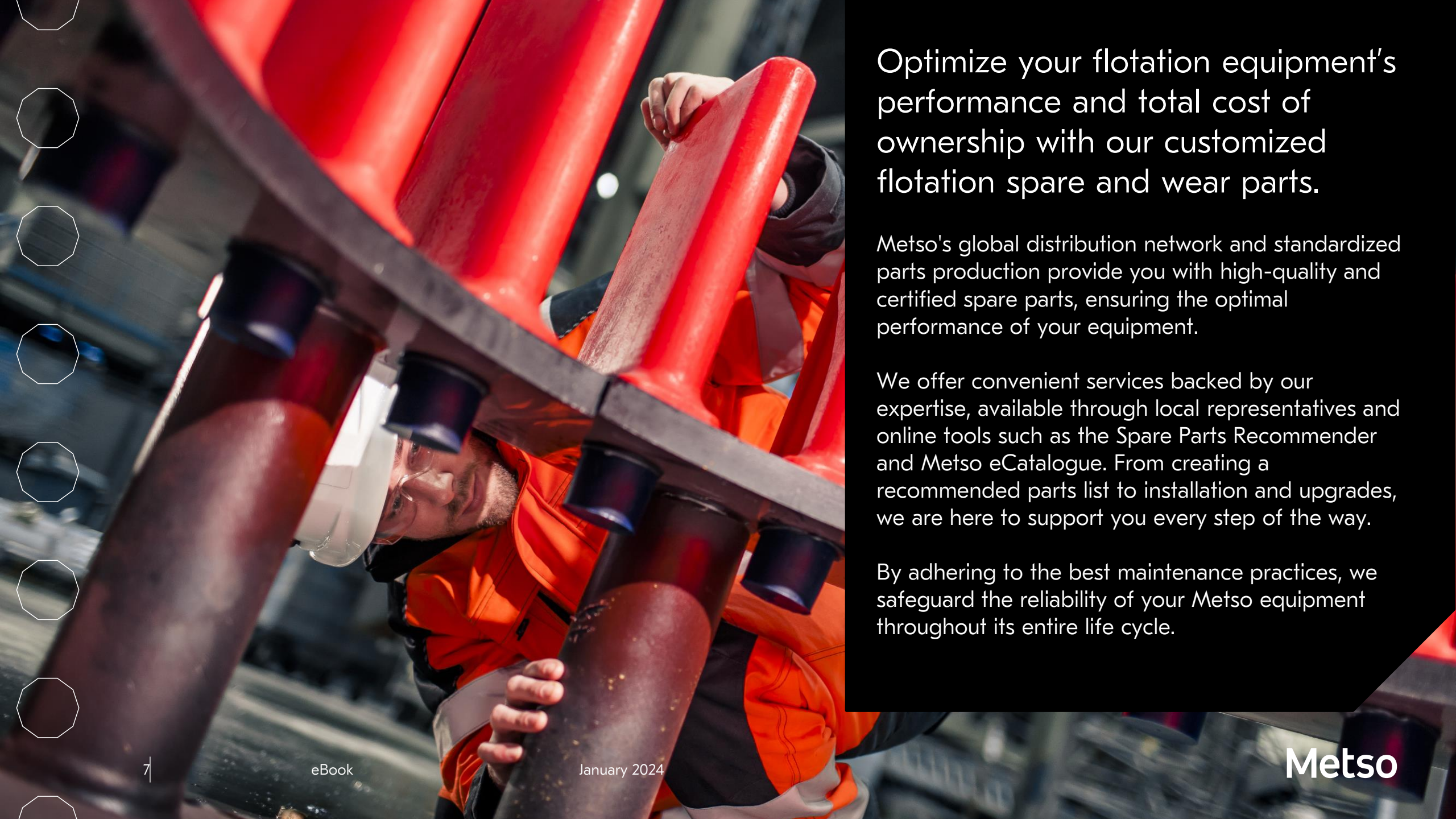


Training services

02

Flotation spare parts

Parts built to perform, because not all parts are equal



Optimize your flotation equipment's performance and total cost of ownership with our customized flotation spare and wear parts.

Metso's global distribution network and standardized parts production provide you with high-quality and certified spare parts, ensuring the optimal performance of your equipment.

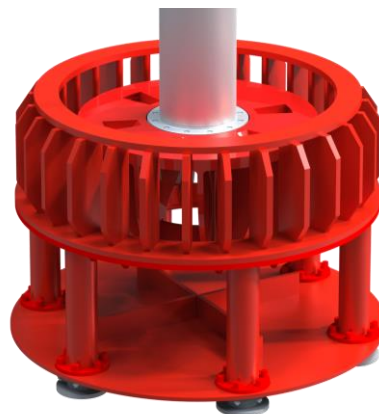
We offer convenient services backed by our expertise, available through local representatives and online tools such as the Spare Parts Recommender and Metso eCatalogue. From creating a recommended parts list to installation and upgrades, we are here to support you every step of the way.

By adhering to the best maintenance practices, we safeguard the reliability of your Metso equipment throughout its entire life cycle.

Flotation spare parts



Our OEM spare parts are made from high-quality materials and are designed to deliver optimal performance due to expert design and testing procedures.



With annual investments in our in-house research and development centres, we ensure the highest standards of manufacturing processes, materials, and quality control.

Through rigorous testing in both lab and field trials, our components outperform imitations, boasting extended lifetimes that save time and costs.

The key benefit of our spare parts is the manufacturer's warranty, enhancing plant safety and positive risk management for workers.

Designed with precision to meet demands and operating conditions, our supplied parts increase equipment lifespan, reducing downtime and saving costs throughout its lifetime.

Using genuine parts minimizes subsequent failures, lowering inventory costs for spares and improving repair cycle forecasts.

For peace of mind regarding equipment performance, opt for OEM replacements, guaranteeing optimal results.

Benefits

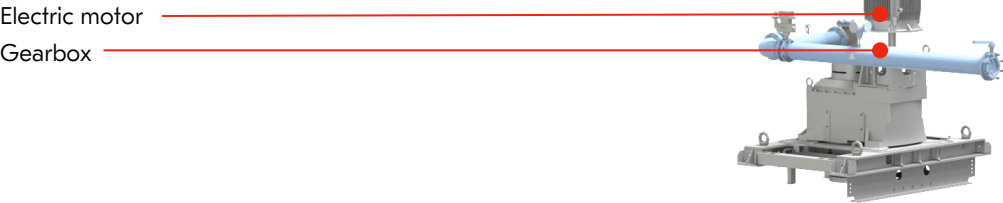
- Guaranteed quality
- Optimal performance
- Maximized wear life
- Increased safety
- OEM warranty

Enhancing flotation performance with a well-maintained mixing mechanism. [Watch video »](#)

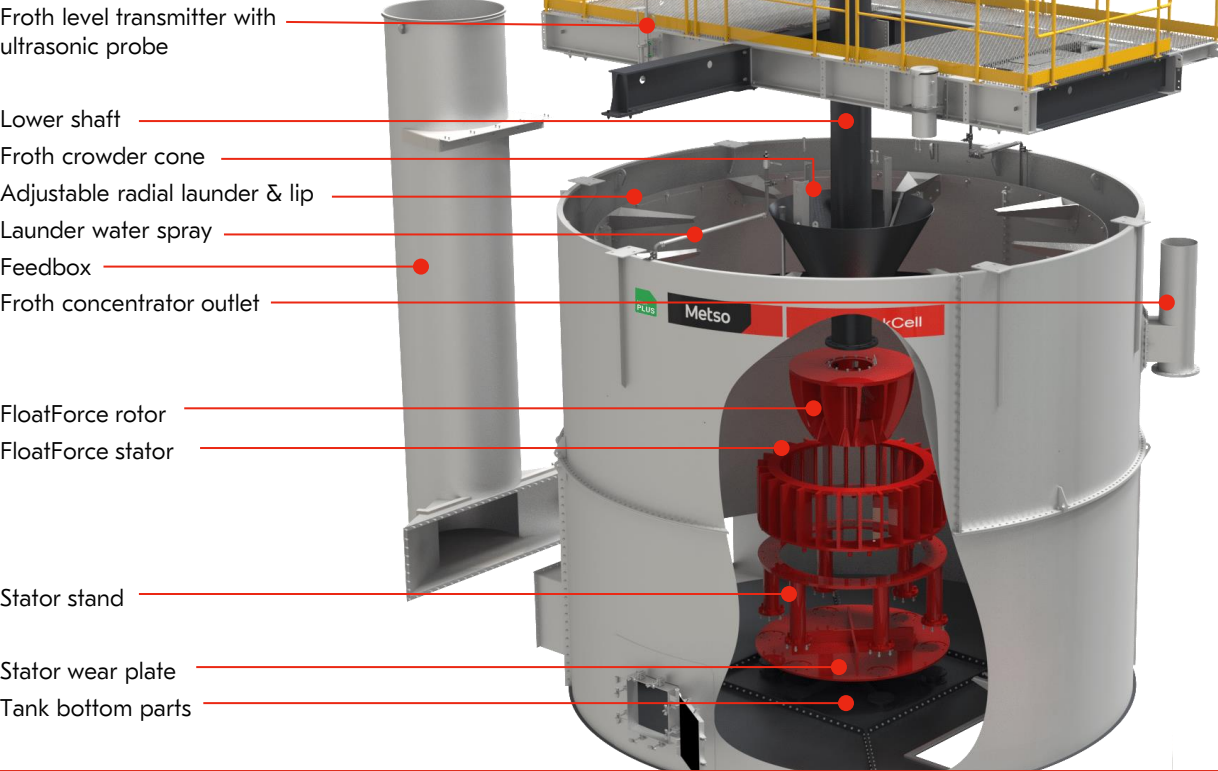


TankCell® flotation spare parts

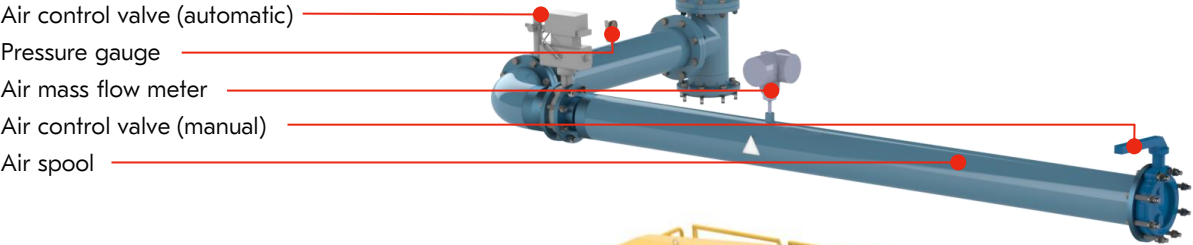
DRIVE SYSTEM, DIRECT GEAR DRIVE



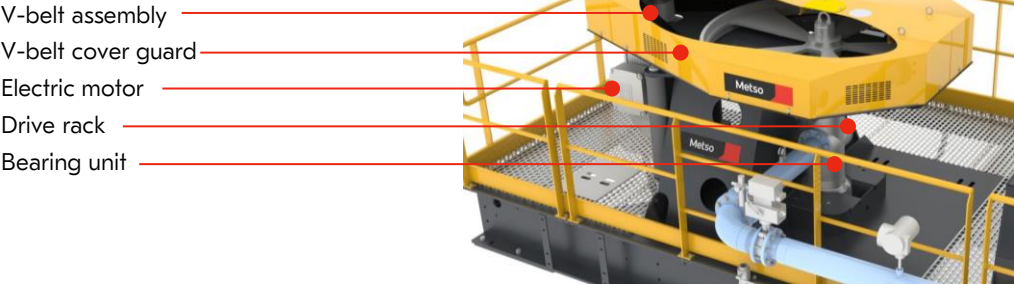
FLOTATION TANK & MIXING MECHANISM



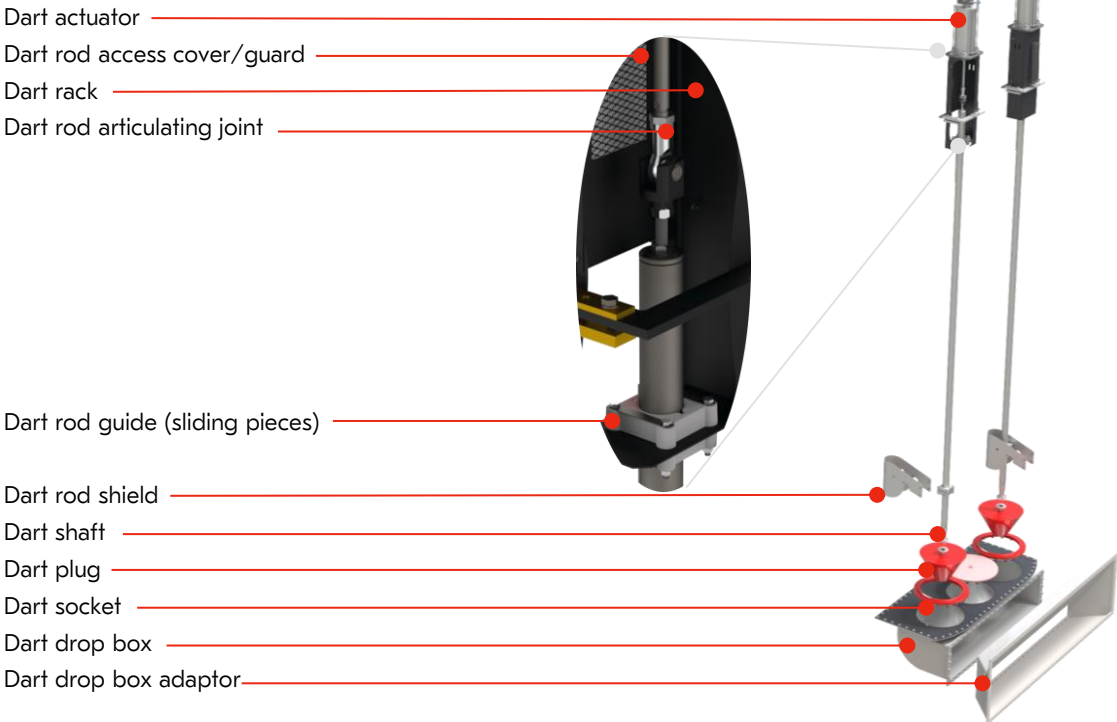
AIR CONTROL



DRIVE SYSTEM V-BELT DRIVE



LEVEL CONTROL



[Read more about our flotation spare parts here »](#)

[Read more about the TankCell® here »](#)

ColumnCell™ flotation spare parts

TANK

- Level sensor
- Froth sense camera
- Wash water system
- Laundry
- Handrails
- Froth concentrate outlet
- Ore pulp feed

Tank

- Barometric leg/Discharge system
- Ore pulp/ slurry manifold
- Air feed manifold
- Sparger system
- Control valve
- Grating
- Slurry recycle pump/sump

LAUNDER

- Spider launder

SONICSPARGER™ JET

- Connecting kit to tank wall
- Sonic sparger jet
- Hose assembly
- Sonic sparger connection kit

SONICSPARGER™ VENT/MICROCEL™

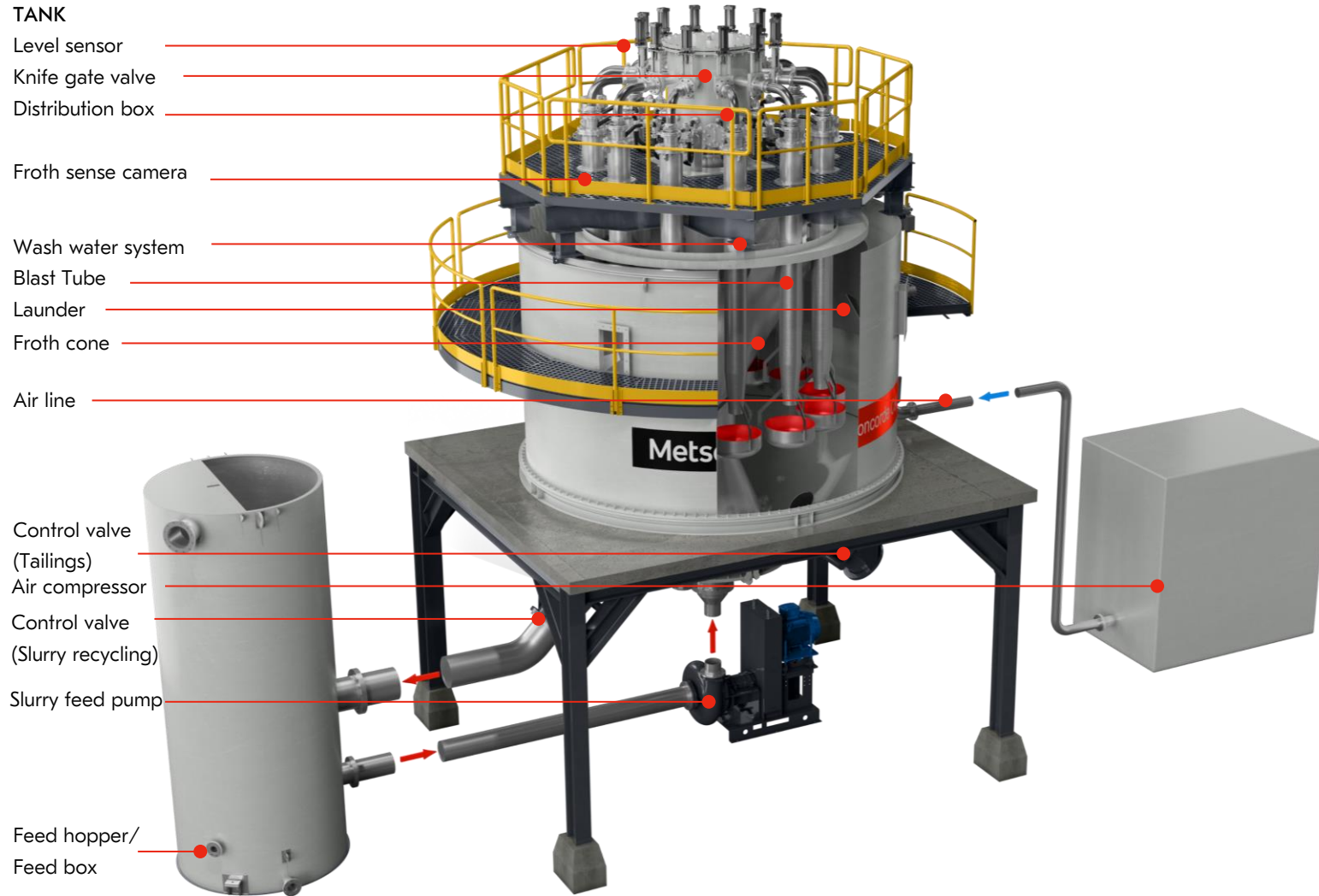
- Pinch valve
- Air feed assembly pipe
- Air hose kit
- Static mixer
- Insert
- Elbow connector 90°
- Pinch valve

- Sonic sparger jet
- Tank
- Air feed manifold



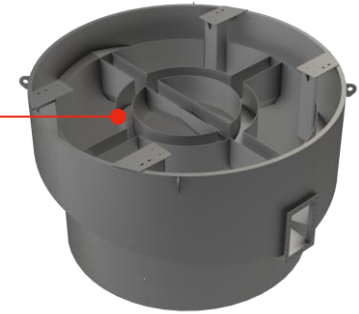
Read more about the
ColumnCell™ here »

Concorde Cell™ spare parts



LAUNDER

Radial launder



BLAST TUBE

Slurry hose (ore pulp feed)

Inlet flange

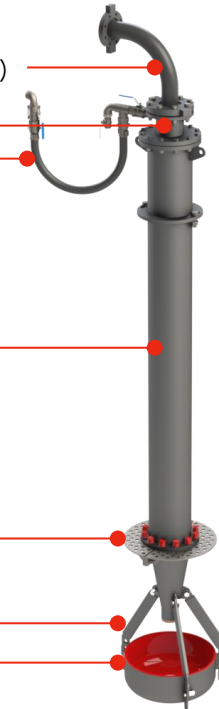
Air feed

Tube

Diffusor plate

Support arm

Impingement bowl



Read more about the
Concorde Cell™ here »

03

Modernizations, upgrades & retrofits

Delivering a real and sustainable
difference



Get the most out of your ageing flotation equipment with a modernization, upgrade or retrofit

The efficiency of your process equipment plays a vital role in enhancing operational profitability. When dealing with aging equipment, you're faced with a challenging decision: either invest substantial capital in new equipment or opt for modernizing your current setup.

Our team of experts is dedicated to collaborating closely with you, developing a tailored modernization solution that perfectly aligns with your plant and operational requirements.



Reasons to modernize

Outdated
technology

Mechanical
failure

Process plant
expansion

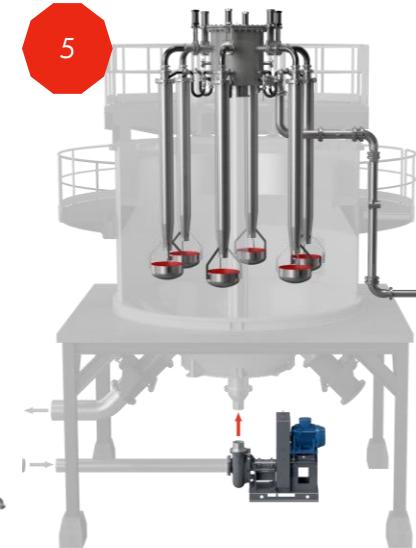
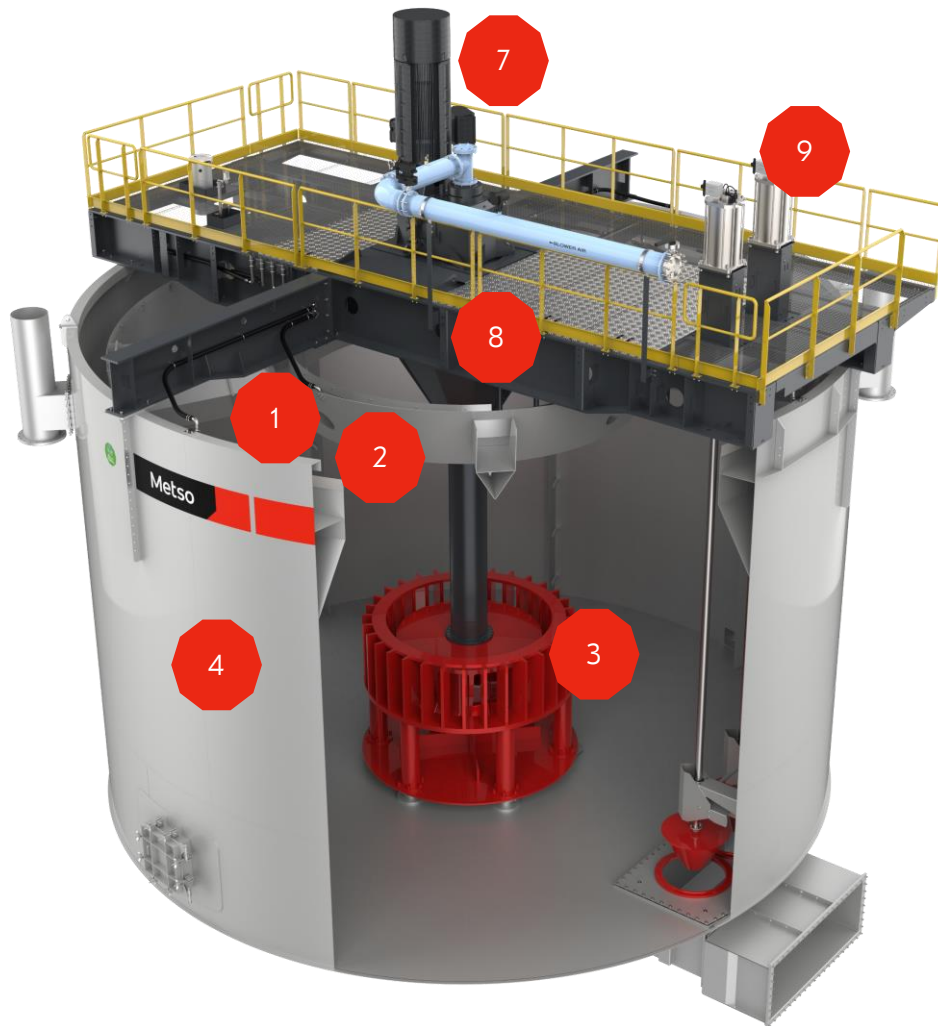
Use of
inefficient
equipment

Poor
metallurgical
performance

Process
change

Drive to
improve
energy
consumption

Modernizations, upgrades & retrofits



1

Center launder upgrade

Obtain maximum recovery with efficient froth recovery and collection

2

Spider crowder upgrade

Ultimate froth zone optimization for larger flotation cells

3

FloatForce® mixing mechanism upgrade

Improve hydrodynamics, enhance particle recovery, reduce power consumption & sanding

4

Flotation cell retrofit

Achieve reliable, energy-efficient metallurgical performance, solve sanding and gain stability

5

Concorde Blast Tube™ upgrade

Boost metallurgical performance, availability & capacity with a redesigned float circuit

6

ColumnCell retrofit

3 sparger options to maximize production rates and metallurgical performance for fine ores

7

Drive unit upgrade

Improve energy efficiency and power transmission for and reduce maintenance costs

8

Air control upgrade

Automate air regulation to optimize circuit performance, metallurgical recovery and concentrate grade

9

Level control upgrade

Get accurate level measurements with improved cell throughput, performance level and reliability

10

Service platform

Minimize downtime, maximize plant availability with quicker, easier and safer maintenance



Digital tools

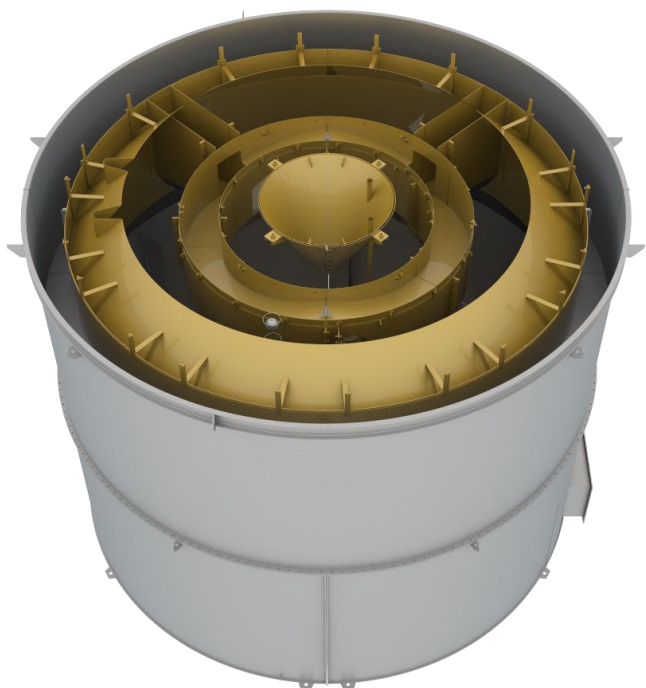
FloatForce value calculator »

Flotation modernization
recommender »

Froth management solution
value calculator »

Flotation upgrade

Center launder upgrade



The Metso center launder upgrade can deliver substantial improvements in the key aspect of the flotation process: froth recovery



To ensure optimal flotation performance, both collection zone recovery and froth recovery must operate efficiently. Collection recovery involves the blending of slurry, air, and chemical reagents in a tank, where agitation creates bubbles that carry valuable materials to the surface.

The Metso center launder upgrade consists of three components:

- Center launder
- Outer crowder
- Froth cone

Benefits

- Improved metallurgical performance
- Maximized mass pulls
- Increase concentrate recovery
- Enhanced flow control
- Robust and flexible
- Easy to upgrade existing cells

A shorter transport distance increases the chances of froth overflowing the launder lip. Conversely, a longer transport distance raises the risk of bubble bursting, causing valuable materials to sink back to the tank bottom and be carried away with the tailings.

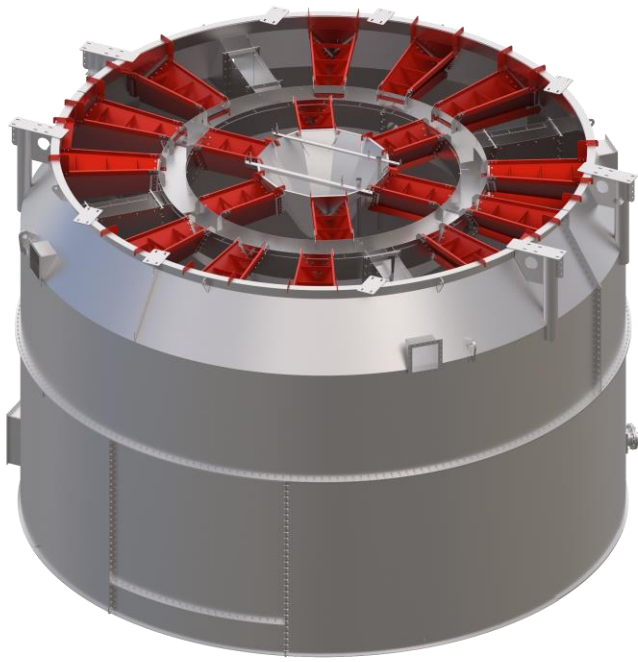
By adjusting the froth area produced by each cell's equipment, the Metso center launder enhances froth recovery, concentrate mass pull, and overall recovery throughout the circuit.

This leads to a higher retrieval of valuable materials, reducing losses through the tailings. Notably, these improvements can be achieved with existing equipment, without incurring additional operating expenses such as water or reagents.

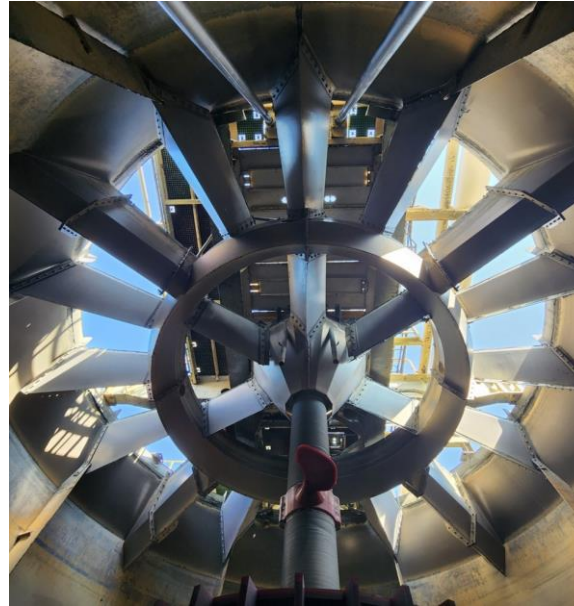
Froth management solution
value calculator »

Improved recovery in the flotation circuit is possible through one positive, sustainable, and efficient upgrade. [Read more here »](#)

Spider crowder upgrade



The Spider crowder upgrade maximizes froth recovery in large flotation cells that already have been equipped with center launders or double internal launders.



The Metso Spider crowder is a solution designed to optimize the froth zone in large flotation cells, aiming to maximize cell recovery. Larger flotation cells present challenges in froth management due to their increased surface area and longer froth transport distance.

Insufficient attention to froth management can lead to reduced concentrate collection. However, the Spider crowder offers enhanced froth management capabilities, delivering significant improvements to operational efficiency. Additionally, it has the potential to minimize energy consumption by reducing the required airflow for the air blower.

The Spider crowder features specially designed shapes for the inner and outer zones of different cell sizes, simplifying the optimization of froth performance in each area. This allows for easier customization and fine-tuning of froth management in different zones.

Benefits

- Higher metallurgical performance
- Decrease in energy consumption
- Designed for service
- Flexibility to install

The upgrade

The upgrade process for installing the Spider crowder is seamless, requiring minimal downtime and crew involvement. The crowders can be easily removed, enabling convenient tank access for maintenance purposes.

The advanced design of the Spider crowder includes a complex shape that enhances crowding in the outer area of the froth surface, near the tank perimeter. This improvement promotes efficient froth movement towards the launder, resulting in overall enhanced froth management.

Flotation upgrade

FloatForce+[®] upgrade



Improved flotation hydrodynamics and pumping performance at high air dispersion rates. [Read more here »](#)

Metso has been the market leader of mixing mechanism product development since the 1970's and have pushed through the boundaries of metallurgical performance.



The rotor and stator mixing mechanism within the flotation cell play a crucial role in blending the slurry, dispersing air, and generating kinetic turbulent energy. Turbulence is necessary to accelerate particles and provide them with sufficient energy to attach to bubbles.

The FloatForce mixing mechanism enhances flotation hydrodynamics by maintaining mixing at a higher air dispersion rate while using the same aeration rate.

This improved hydrodynamics, combined with enhanced aeration dispersions, leads to optimized metallurgical performance and recovery. The increased performance offers operational flexibility, allowing operators to lower rotation speed and reduce operating costs.

Benefits

- Enhanced metallurgical performance
- Increased particle recovery
- Improved coarse particle suspension
- Longer wear parts lifespan
- Reduced energy consumption & operational costs

FloatForce offers:

- Increased bubble area flux (S_b)
- Improved air-hold-up volume
- Enhanced suspension of coarse particles
- Optimized flotation cell hydrodynamics

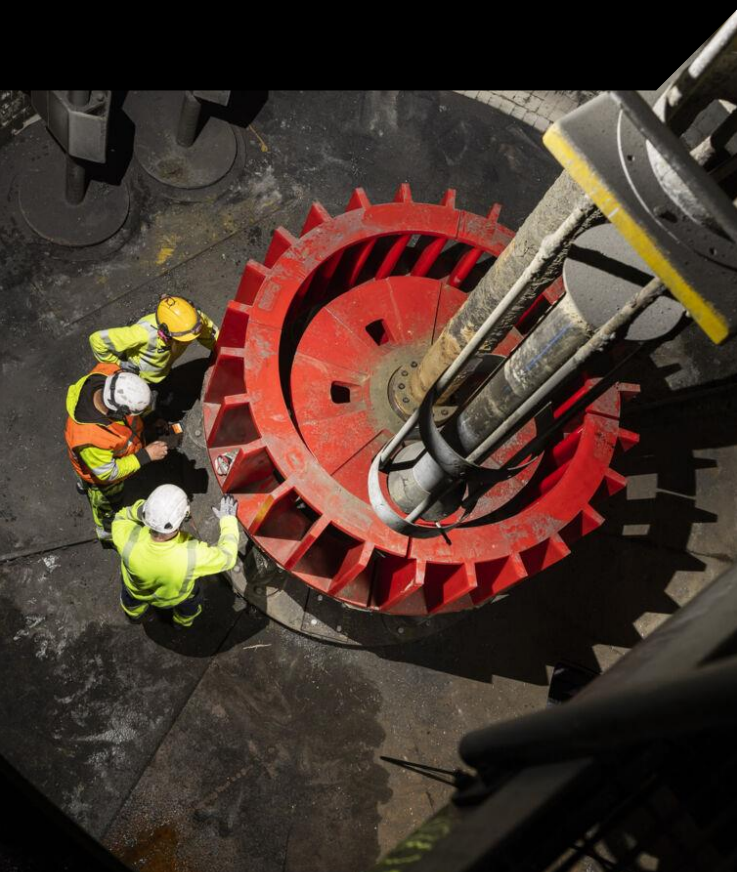
Our comparative analysis against third-party OK mechanisms demonstrates that FloatForce outperforms mixing mechanisms from other suppliers in terms of design quality.

The superior quality of FloatForce's wear parts extends the lifespan, resulting in lower operational spare parts costs and increased equipment availability. This contributes to the improved total cost of ownership.

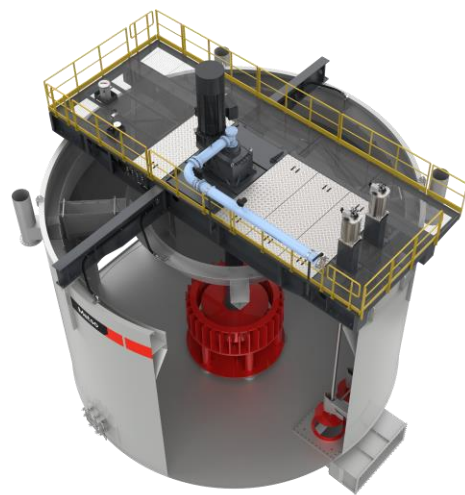
[FloatForce value calculator »](#)

Flotation upgrade

Flotation cell retrofit



Achieve reliable, energy efficient metallurgical performance and help solve sanding and stability challenges with a Metso flotation cell retrofit.



Enhance the efficiency of the flotation process with the appropriate mixing mechanism, air supply system, and froth management arrangement.

Our Metso self-aspirated cell retrofit converts your cell into forced-air flotation technology. This retrofit includes installing the Metso FloatForce mechanism, low-pressure air blowers, and a froth management system.

Self-aspirated cells face challenges like process instability, sanding, and the 'wave effect.' They consume more power and have a larger environmental footprint compared to modern forced-air technology.

At higher altitudes, self-aspirated cells perform poorly due to thin air. Aging equipment leads to frequent unplanned shutdowns, impacting productivity.

Studies show that Metso's forced-air flotation technology generally offers more stable and efficient performance. We offer a standardized retrofit package for your self-aspirated cells, including installation and start-up services by our experts.

The retrofit package includes the drive track, flotation cell gear unit, froth crowding cone, FloatForce mechanism, stator mounting, air control valve, manual isolation valve, thermal mass flow meter, motor with lower power consumption, forced air feed piping, and flotation cell lower shaft.

Benefits

- Enhanced flotation performance & efficiency
- Improved process stability
- Minimized unplanned shutdowns for repairs and maintenance
- Reduced energy consumption and environmental footprint

The flotation process can be maximized by the operation of the correct mixing mechanism, air supply system and froth management arrangement. [Read more here »](#)

Flotation upgrade

Concorde Blast Tube™ upgrade



Improve the metallurgical performance of your existing self-aspirated pneumatic flotation cell by recovering the unachievable fines and ultra-fines ore values



The Concorde forced air Blast Tubes offer several benefits by treating 100% of fresh feed combined with tailings recycling.

These tubes enable improved performance by allowing finer grinding for enhanced liberation without the risk of valuable particles ending up in tailings.

The inclusion of air blowers and advanced air control instruments enables the introduction of forced air, leading to wider process control and increased stability for optimal flotation optimization.

A direct retrofit from a self-aspirated pneumatic flotation cell to Concorde Cell technology is achievable with the Concorde Blast Tube Upgrade. This upgrade is compatible with both circular and rectangular self-aspirated pneumatic cells.

Upgrading your existing cell with the Concorde Blast Tube offers a perfect solution for complex ores and previously inaccessible ore types within various mineral processing flow sheets.

Benefits

- Expert engineering and installation
- Increased process control and stability
- Enhanced metallurgical performance
- Improved efficiency and stability

Scope

- Blast Tubes
- Slurry/air distributor
- Flotation air control
- Flotation blower arrangement
- Slurry pumps
- Control panel



The Concorde Blast Tube upgrade improves and optimizes the metallurgical performance of your existing self-aspirated pneumatic flotation cell. [Read more here »](#)

Metso

Flotation upgrade

ColumnCell™ retrofit



Leverage legacy & modern-day best practices, delivering superior metallurgical flotation performance and energy efficiency for a wide range of applications and duties.



The ColumnCell offers customers three sparger options, namely the Microcel™ Static mixer, SonicSparger™ Vent, and SonicSparger™ Jet.

These options provide operational flexibility, and all three spargers allow for online replacements, maximizing equipment availability and production rates.

Additionally, the sparger can be retrofitted not only to Metso equipment but also to competitor cells, offering even greater flexibility. The ColumnCell stands out by delivering the best flotation performance for fine ores across all flotation circuit duties.

It incorporates valuable features such as high collection efficiency with smaller bubbles for optimal recovery, a less turbulent regime, and effective slurry distribution to prevent bypass.

Moreover, it generates a thicker and more selective froth to ensure superior product quality.

The design of the ColumnCell considers the specific requirements of fines flotation, as well as the characteristics of the ore and the unique aspects of each project.

Scope of Supply

- Design and selection
- Engineering
- Spargers
- Air and slurry manifolds

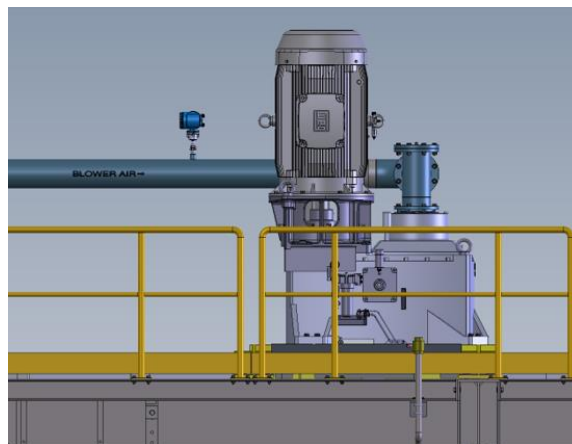
Benefits

- Superior metallurgical flotation performance for fine ores
- High concentrate and froth quality
- High availability and capacity
- Easy and safe operation
- Reduced energy consumption and small plant footprint

The Metso ColumnCell™ is the result of thorough research, proven expertise and two combined legacy technologies, which is customizable to suit the needs of every application. [Read more here »](#)



Improve energy efficiency, power transmission for high-capacity cells, and reduce maintenance requirements as well as overall lifetime equipment costs, with a drive unit upgrade.



With declining ore grades, the demand for higher-capacity flotation cells (70 m³ or larger) continues to rise, enabling the processing of a larger volume of ore while maintaining the same metal output level.

Cells of such large volumes require a proportionately sized mixing mechanism, which, in turn, necessitates higher torque from the drive unit.

Traditional v-Belt drives struggle to deliver the required power and experience greater wear on critical components. They also exhibit inferior power transmission compared to gearbox-driven drives.

To address these challenges, all new Metso high-capacity flotation cells come equipped with Metso e-Drive units.

By replacing belt-driven drive units in larger cells with the Metso eDrive direct-drive gearboxes, equipment efficiency is enhanced, maintenance becomes easier, and overall lifetime costs are reduced.

Delivery scope

- 4-pole electric motor
- Air feed, gearbox and drive rack
- Bearing-unit temperature sensors
- Oil temperature and pressure sensors
- Installation and start-up services

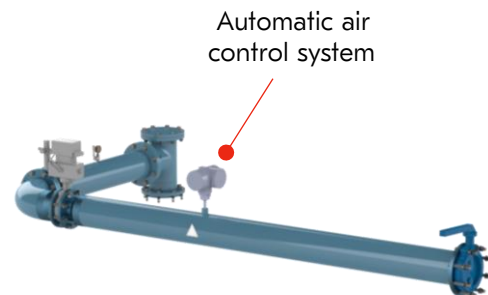
Benefits

- Improved energy efficiency
- Smaller environmental footprint
- Tailor-made gearbox for each specific application
- Low maintenance requirements
- Long service life of critical wear parts
- Higher availability

Air control upgrade



Optimize your circuit performance, metallurgical recovery, and concentrate grade, as well as reduce pressure on operators with an automatic air feed control for flotation cells.



The volume of airflow plays a crucial role in flotation performance, significantly impacting the recovery and grade of the concentrate.

One common challenge in flotation is the limited time operators have to continuously adjust the flotation air feed for optimal circuit performance.

Manual regulation becomes difficult without flow meters to indicate the air volume and skilled personnel to adjust airflow based on observed bubble properties, which can be a problem when staff turnover is high.

To address this challenge, the Metso Air Control Upgrade provides an automated solution for controlling the flotation cell air feed.

It utilizes an air mass flow meter and an automatic airflow valve to enable automatic control, simplifying the operator's work.

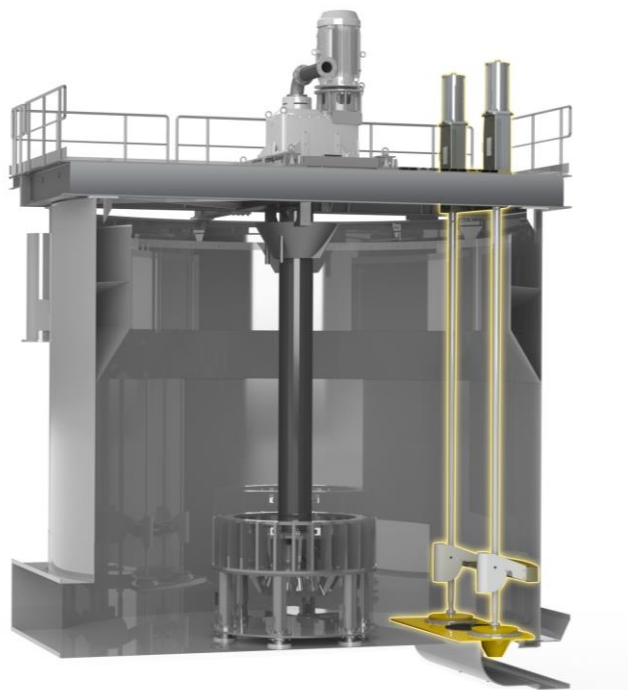
Multiple external studies have confirmed the direct correlation between the air feed rate and the metallurgical performance of flotation cells.

Additionally, besides influencing bubble-particle interaction, the air feed also helps control the speed of concentrate outflow from the cell.

Benefits

- Increased metallurgical control
- Improved recovery
- Stable operations 24/7
- Smoother froth level and speed control
- Possibility to calculate superficial gas velocity (J_g) and peak air recovery

Dart valve upgrade



Accurate and reliable level control is one of the key operating variables in flotation. Especially in big cells, every minute of lost concentrate mass pull is worth a considerable amount of money



Changing process conditions and low availability may lead to requirements for improving level control arrangements and design.

Performance, availability and low running costs are the main design criteria of the improved dart valve level control arrangement. The Dart Valve Upgrade is suitable for Metso TankCell®, OK-cell and similar flotation machines.

Smooth froth flow rate is one of the key factors affecting froth recovery and has great influence on overall metallurgical performance. Accurate and responsive level control is vital in order to ensure this.

The new actuator unit measures the valve position accurately by using intelligent piston positioners. The key design criteria is to maximize the wear life of the level control components.

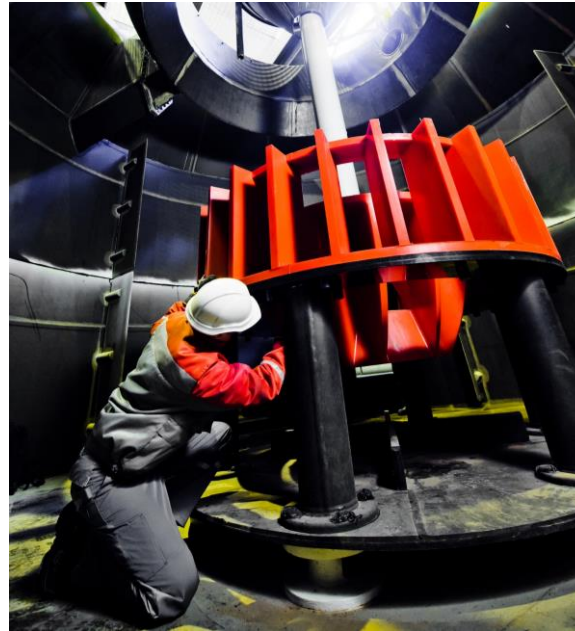
Dart Valve Upgrade consists of dart valve socket, plugs, a rod and an actuator unit. Depending on the requirements only some of the scope can be applied.

Benefits

- Optimized throughput
- Improved process control
- Increased availability
- Less maintenance costs
- Design and sizing based on Metso's extensive flotation process knowledge



Minimize downtime and maximize plant availability with quicker, easier, and safer maintenance conducted from a service platform.



Maximizing plant availability requires proactive maintenance, and one of the key components requiring attention in flotation cells is the rotor and stator located at the bottom of the cell.

Regular maintenance inspections necessitate emptying the cell, and for efficient replacement and to avoid working in a confined space, the drive, shaft, and mixing mechanism should be lifted out of the cell.

To streamline maintenance processes and reduce downtime, Metso offers the Service Platform specifically designed for use with Metso TankCell® flotation cells.

This platform enables quick and easy maintenance of the cell's mixing mechanism, resulting in improved plant availability.

The Service Platform is available in both individual and dual configurations. The dual configuration includes a spare drive shaft, minimizing downtime during maintenance.

Metso also provides service platforms tailored to various TankCell® models and their corresponding mixing mechanisms:

e100, e130, e160, e200, e300, e500, e630

Benefits

- Quicker, safer and easier maintenance
- Minimized downtime
- Plug-and-play installation
- Quick response for unexpected failure

04

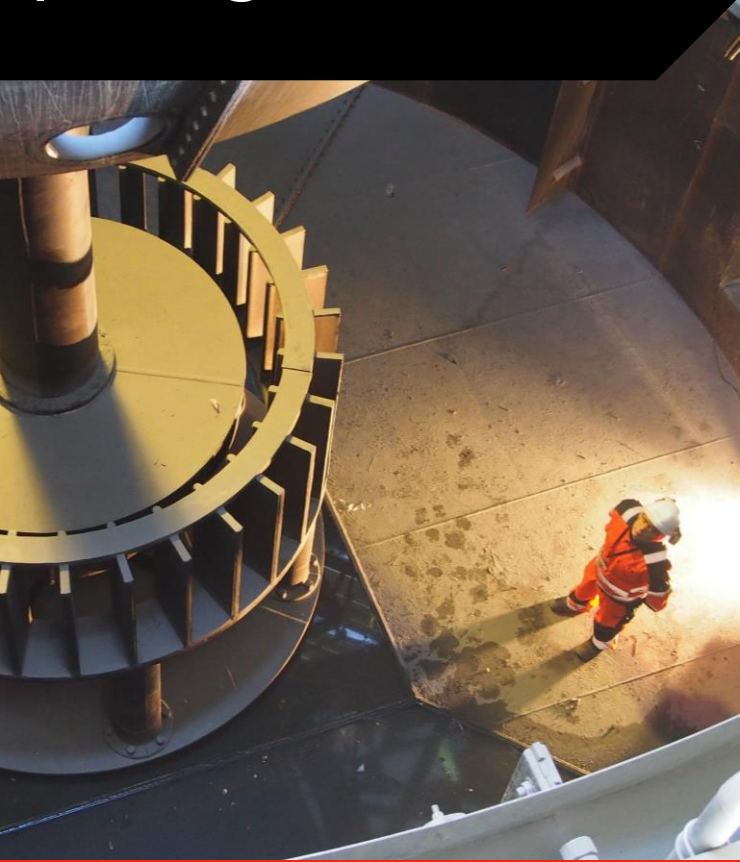
Life Cycle Services (LCS)

Customizable mining service
packages delivering performance and
sustainability outcomes



Professional services

Life cycle services packages



LCS programs drive long-term performance optimization and continuous improvement. Our customizable service packages deliver performance outcomes. [Read more Here »](#)

Life cycle services (LCS) takes our entire after-market portfolio and conveniently bundles them into customizable, easily manageable packages.



Benefits

- Higher flotation availability
- Better process results
- Increased production due to less stoppages
- Preventative maintenance
- and proactive repairs

Our packages are designed to be flexible and cater to your specific needs, whether you require coverage for a single event or an extended period spanning multiple years. We have set strict key performance indicators (KPIs) to measure and ensure the effectiveness of our services.

Our LCS (Life Cycle Services) packages can act as a valuable supplement to your existing team or can manage all aspects of your maintenance and operations, depending on your requirements and preferences. We are committed to helping you achieve your goals.

To simplify the process, we have organized LCS into four progressive packages, each building upon the previous one while still being tailored to your unique needs. Our commercial models offer flexibility, including options for monthly payments, cost-per-ton arrangements, or payment deferrals.

The three progressive packages include:

1. **Equipment edge**
Improve availability and utilization.
2. **Process edge**
Increase throughput and recovery.
3. **Business edge**
Improve results, minimize risks and environmental impact.

05

Maintenance, shutdowns & repairs

Trust those who know the equipment
best

Reliability when you need it to achieve targets, quality & capacity

Maintenance, shutdowns & repairs

Trust those who know the equipment best to ensure that your production goals are met

- Asset maintenance readiness
- Field services
- Component replacement labor
- Flotation inspections
- Installation & commissioning
- Maintenance & repairs
- Repair centers

Metso

Professional services

Field services



Our professional field service offering ranges from comprehensive solutions covering maintenance and optimization projects to performing spare part assessments.



Our dedicated field service professionals prioritize safety and efficiency, benefiting from Metso's impressive safety record. With comprehensive EHS training, we ensure a safe working environment.

Our asset performance service agreement offers planned, preventive, and corrective tasks to enhance plant availability and equipment uptime. We assess inventory and provide spare and wear parts recommendations to avoid extended downtimes.

Our field service team handles a wide range of maintenance solutions, including refurbishment, installation, and commissioning. We offer customized training on maintenance and repair procedures, emphasizing safety.

Our field services scope includes:

- Advisory services
- Maintenance services
- Upgrades and commissioning
- Spare and wear part audits and recommendations
- Component replacement labor
- Training services

With a global operating model, we provide world-class engineering, project delivery, and service wherever our customers are.

Our extensive network of technical expertise and partnerships ensures optimal performance for your investment.

Benefits

- Increased safety & competencies
- Improved availability & reliability
- Prolonged equipment life
- Spare part optimization

Safety is a priority in everything we do. We focus on proactively supporting our customers to enhance the reliability and performance of their plants and equipment. [Read more here »](#)

Metso

Professional services

Component replacement labor



Metso not only provides OEM parts for flotation equipment, but our experts can also carry out the replacement of major flotation cells' components.



Replacing major components for flotation cells requires finding trained personnel with specialized skills. Quick and safe component changes are crucial for maximizing the flotation circuit's capacity and minimizing downtime.

The handling and installation of large and heavy components necessitate specialized procedures and tools to ensure safety. Precise installation tolerances and alignment requirements must be met to avoid component damage and production issues.

The process begins with an inspection by Metso's certified specialist to determine the scope of work and required parts. Shutdown planning and final scope agreement follow. Metso Engineers, Supervisors, and/or Technicians are then deployed to the site to replace components according to the agreed-upon scope.

Special lifting procedures are identified and carried out. Metso experts follow engineering specifications, standard procedures, and best practices for component replacement.

Benefits

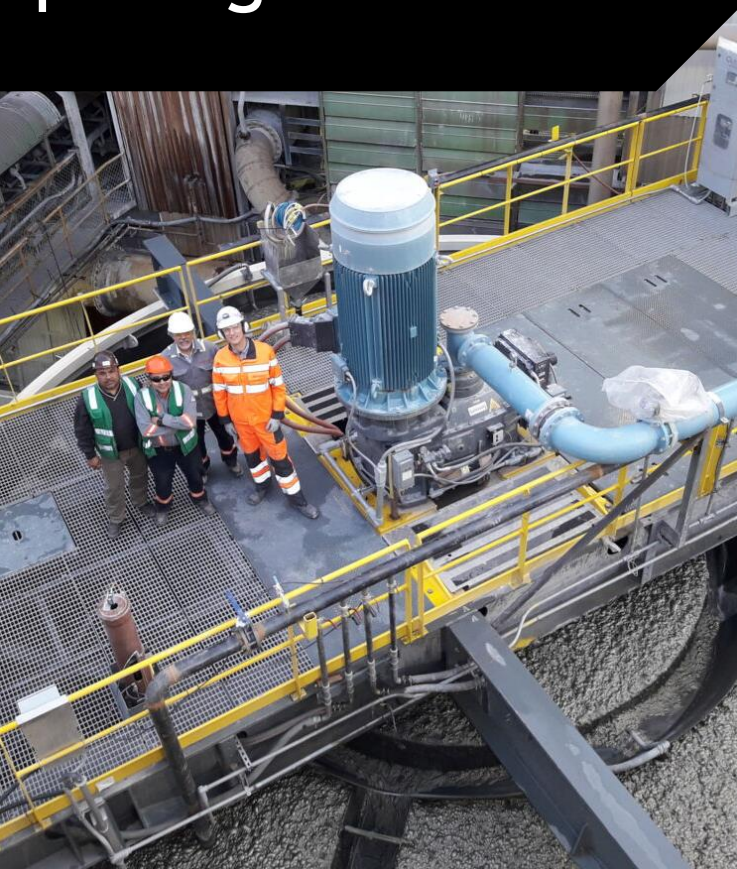
- Improved safety
- Increased uptime & availability
- Reduced maintenance costs

Core offerings for labor services:

- Dry parts replacement
- Wet parts replacement
- Heavy parts replacement
- Drive replacement
- Mechanism replacement
- Level control replacement
- Tank parts replacement/refurbishment

Our personnel can be utilized to fully execute the project or to supplement your on-site maintenance staff, with expertise in supervising thousands of shutdowns globally. [Read more here »](#)

Flotation inspection packages



3 Inspection packages for your Metso flotation cells designed to reduce unplanned downtime, equipment failure, and risks associated with operating faulty equipment.



Gain rapid and precise insights into the state of your equipment, receive maintenance suggestions, and enhance operational efficiency through our systematic flotation inspections.

Regular and proactive inspection scheduling is crucial for ensuring equipment and processes operate optimally and have a long lifespan. Unforeseen equipment downtime can result in significant financial setbacks. Equipment malfunctions, frequent service center calls, and declining process efficiency are all potential consequences of inadequate inspection and maintenance.

Key Features:

- Swift and convenient inspections deliver actionable recommendations promptly.
- Reports are concise, thorough, and easily shareable with colleagues.
- Evaluate your flotation equipment against current and historical data to identify patterns and trends.
- Comprehensive data collection enhances decision-making capabilities.

Benefits

- Higher flotation availability
- Better process results
- Increased production due to less stoppages
- Preventative maintenance and proactive repairs

1. Flotation visuals and vitals

A quick health assessment of your flotation system

2. Flotation mechanical verification

A detailed equipment condition evaluation to enhance availability

3. Flotation comprehensive/customized

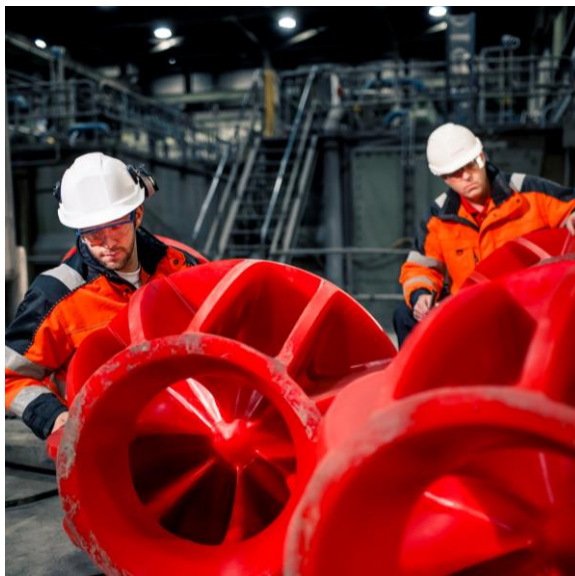
A comprehensive inspection tailored to your specific requirements, including flotation adjustments for optimal performance

Professional services

Installation and commissioning



Our installation and commissioning experts will help to ensure your equipment performs according to agreed targets.



We offer professional, effective, and safe installation and commissioning services for delivered equipment. Our team includes metallurgists and process specialists who provide expert assistance.

Training services are included to ensure personnel are well-equipped to manage the plant operation optimally with the new process and technology. Additionally, we offer an optional extended warranty for added peace of mind.

Scope

Depending on the equipment and process, the installation and commissioning service can include:

- Inspection of the plant and foundation
- Delivery package expedition and checking
- Equipment assembly/installation advice and inspection
- Pre-operational equipment testing
- Electrical and automation testing and inspection
- Water tests and test runs
- An initial continuous feed of raw material
- Process and equipment start-up

Benefits

- Improved safety
- Minimized delays and breakdowns
- Smooth production startup

Metso

Professional services

Maintenance and repairs



As equipment ages, production efficiency and reliability can decline. However, proper maintenance and repairs can reduce the signs of aging to ensure that your production goals are met.



Metso provides comprehensive maintenance services, including repairs and refurbishments for mining equipment. Skilled technicians with specialized tools are available at our repair centers or on-site at your facility, ensuring safe execution and the use of correct parts. We offer a combination of on-and-off-site services to expedite large repair projects or plant shutdowns.

Our repair work is supported by regional warranty policies, and exchange programs are available for certain parts or assemblies to minimize downtime during repairs. In the event of an unexpected failure, our emergency services help restore production quickly by identifying the root cause, fixing the problem, and implementing long-term solutions to prevent a recurrence.

With approximately 40 global service centers, we guarantee a prompt response. Our field services and engineers are available to assist you when issues arise, covering all equipment types and brands.

Our industry-leading maintenance strategy is holistic, addressing your specific priorities and incorporating elements such as safety, planning, documentation, inventory management, staffing, and reporting.

Stay proactive and enhance your management practices with valuable insights. Our diagnostic services provide maintenance planning support, identify and analyze issues, and help determine areas for improvement.

Benefits

- Reduced equipment downtime
- Extended longevity of equipment
- Improved efficiency and productivity
- Better inventory management

We are here to support you, from one-time fixes to full turnkey projects. [Read more here »](#)



Professional services

Service and repair centers



Metso repair centers are committed to maintaining and prolonging the original quality and performance of your equipment.

All our repair and service activities are designed to maximize productivity, safety and reliability of our customers' equipment.



We provide a comprehensive range of services for precise equipment inspection, repair, and restoration to operational status. Our clientele spans the mining, aggregates, and industrial sectors worldwide.

The Metso repair center services can be combined with on-site field services to expedite large-scale repair projects or plant shutdowns. All repair work is supported by our regional warranty policies.

At our repair centers, we offer an extensive array of repair services, ranging from surface reconstruction to complete rebuilds of major components.

Our skilled technicians, equipped with specialized tools, are readily available from our repair centers and global service network. We handle all repairs from start to finish, ensuring safe execution and the use of accurate parts.

To maintain consistent and high-quality repairs worldwide, our network of repair centers continuously exchanges best practices and accesses knowledge from our global design centers.

This enables us to adhere to the same rigorous standards across the globe. By always employing the most advanced processes, tooling, and methods, we deliver the value, consistency, reliability, and safety that our customers rightfully expect.

Benefits

- Reduced equipment downtime
- Extended longevity of equipment
- Improved efficiency and productivity
- Better inventory management

06

Process optimization & connected services

Get the most out of your
flotation operation

Take your flotation process to the next level

Process optimization & connected services

By understanding your business needs, we improve performance using technology & expertise

- Flotation process assessment
- Speed optimization service
- Metrics Monitoring for TankCell
- Performance centers

Flotation optimization services

Flotation process assessment



Our Flotation Process Assessment service helps identify the optimum feed size, cell design, and operational parameters to maximize recovery and revenue.



The Flotation Process Assessment goes beyond automation systems and daily sampling to gather comprehensive information that enables personalized solutions. It integrates multiple disciplines to optimize flotation performance and can be customized to specific needs.

This assessment focuses on gathering essential information for informed decision-making in the future. It involves extensive on-site work and meticulous data analysis.

Moreover, the assessment utilizes models to assess circuit tonnage disruptions, variations in feed ore composition, and adjustments in reagent addition rates. Any areas for improvement that are identified are addressed through collaborative design and implementation.

Scope includes an on-site visit (2-5 days)

- Mechanical and process control evaluation
- Process setup and performance evaluation
- Improvement of potential analysis, including:
 - Sampling campaign and analysis of results
 - Kinetic laboratory hot flotation tests
 - Simulation and modelling with HSC® Chemistry
- A written report, including:
 - Summary of findings
 - Recommendations for improvement
 - Realistic estimate of profitability improvement

Benefits

- Production analysis to optimize performance & efficiency
- Prepare circuits to adapt to future challenges & changes
- Identify areas of improvement to enhance recovery
- Upgrade recommendations with ROI calculations

Lost recovery leads to revenue loss as mines face the challenge of processing increasingly complex ores, making flotation circuit operation more challenging. [Read more here »](#)

Speed optimization service



Achieve unsurpassed performance on your flotation circuit by obtaining the optimal rotation speed with the lowest energy consumption.



The speed of the flotation mechanism plays a vital role in optimizing metallurgical performance, wear life, and energy consumption in your plant. By achieving the ideal rotation speed, you can maximize wear life, ensure superior metallurgical performance, and minimize energy usage.

Flotation Speed Optimization Service:

- With declining ore grades, the need to extract valuable minerals from coarser and finer fractions in flotation becomes crucial, emphasizing the significance of efficient processes.
- Our service offers a five-step plan that focuses on implementing improvements by conducting experiments with different rotation speeds to gather valuable data.
- Using this data, we simulate the performance of the flotation cell and evaluate its potential to deliver optimal results while minimizing energy consumption.

5 Step plan

1. Pre-assessment
2. Design of experiment
3. Sampling campaign
4. Analysis & mass balance
5. Determine the optimal speed

Delivery scope

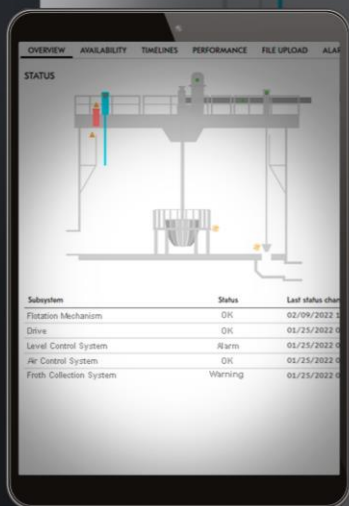
- Complete site process study
- Metallurgical simulation with the use of HSC® Chemistry
- Delivery of best rotation speed

Benefits

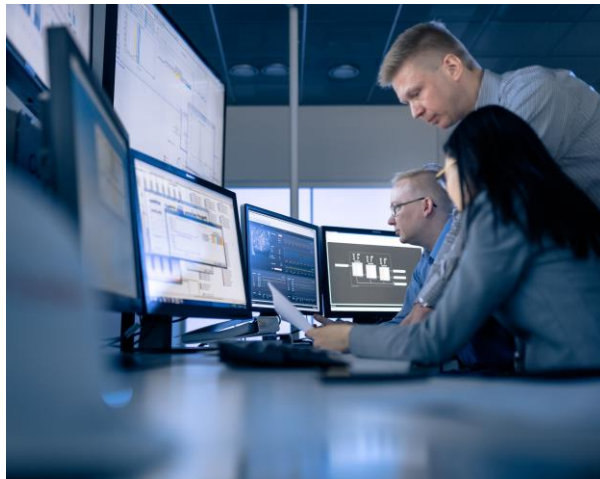
- Maximized, targeted metallurgical performance
- Enhanced grade/recovery curve
- Increased rotor and stator wear life
- Reduced energy consumption
- Greener process

Flotation optimization services

Metrics Monitoring



Metrics Monitoring provides advanced analytics and expertise to our customers, ensuring that equipment performs optimally.



Metrics Monitoring offers advanced analytics and expertise to optimize your daily operations. Through its focus on online digital monitoring, it provides valuable insights to enhance safety, sustainability, operational efficiency, and profitability.

By remotely accessing your equipment data, Metrics Monitoring enables experts to assist you from a distance, facilitating proactive problem identification to prevent costly equipment failures, unplanned downtime, and productivity losses.

Operating as a cloud-based remote condition monitoring platform, Metrics Monitoring seamlessly connects to your existing DCS or Asset PLC. It captures real-time data and transmits it to our secure cloud platform.

Benefits

- Improved sustainability
- Increased asset utilization
- Continuous process improvements
- Lower overall maintenance costs
- Visibility on flotation KPIs
- Asset performance tracking

Why choose Metrics Monitoring?

The platform is designed to provide a comprehensive understanding of asset and plant performance, aligning with customer sustainability objectives and pinpointing areas for operational optimization.

By analyzing data and delivering actionable insights, Metrics Monitoring empowers informed decision-making and prioritizes improvement areas to drive tangible results.

Performance centers



Take control of your site with remote support and optimization. [Read more here »](#)

Our Performance Centers provide remote access to the best equipment and process expertise when you need it, to help you stay ahead of problems and prevent them before they occur.



Benefits

- Real-time analytics
- Expert recommendations & assessments
- Predict and prevent issues
- Identify & sustain continuous development & performance
- Process optimization
- Reduced costs
- Improved sustainability & reliability

Mining continues to be more remote and complex than ever. However, this is no excuse for a lack of responsiveness. When things go wrong, the consequences can add up quickly. This highlights the need for timely and accurate service, to stay ahead of problems and prevent them before they occur.

This is the benefit at the heart of our state-of-the-art, Metso Performance Centers. With our proactive services, you'll be ready for what comes next.

With a team of equipment, process, and technology experts, Metso Performance Centers provide:

- State-of-the-art facilities custom-built for collaboration
- The highest level of cybersecurity
- Services for both Metso and non-Metso equipment
- Data-driven insights to complement and amplify the performance of Metso services and products

Three service levels

1. Tier 1 – local support and field services

Connected equipment for optimized life cycle services

2. Tier 2 – performance centers

Measure, monitor and optimize critical data and KPIs

3. Tier 3 – global network

Building smart equipment and benchmarking

07

Training

Bridging the knowledge gap

Metso

Training services

Metso academy



We offer comprehensive and tailored training programs designed to improve your team's technical knowledge and improve the safety, reliability and performance of your operation.



Metso Academy comprises a worldwide team of Technical Training Instructors, recognized as subject matter experts in their respective domains.

With extensive industry knowledge and decades of experience, we deliver top-notch training for your personnel.

Our Training Academy offers a comprehensive range of training programs, covering theoretical foundations to hands-on practical exercises. Whether it's training on individual equipment or implementing plant-wide solutions, we have you covered.

We provide on-demand training services, customizing our courses to meet your specific requirements, machines, and processes.

Benefits

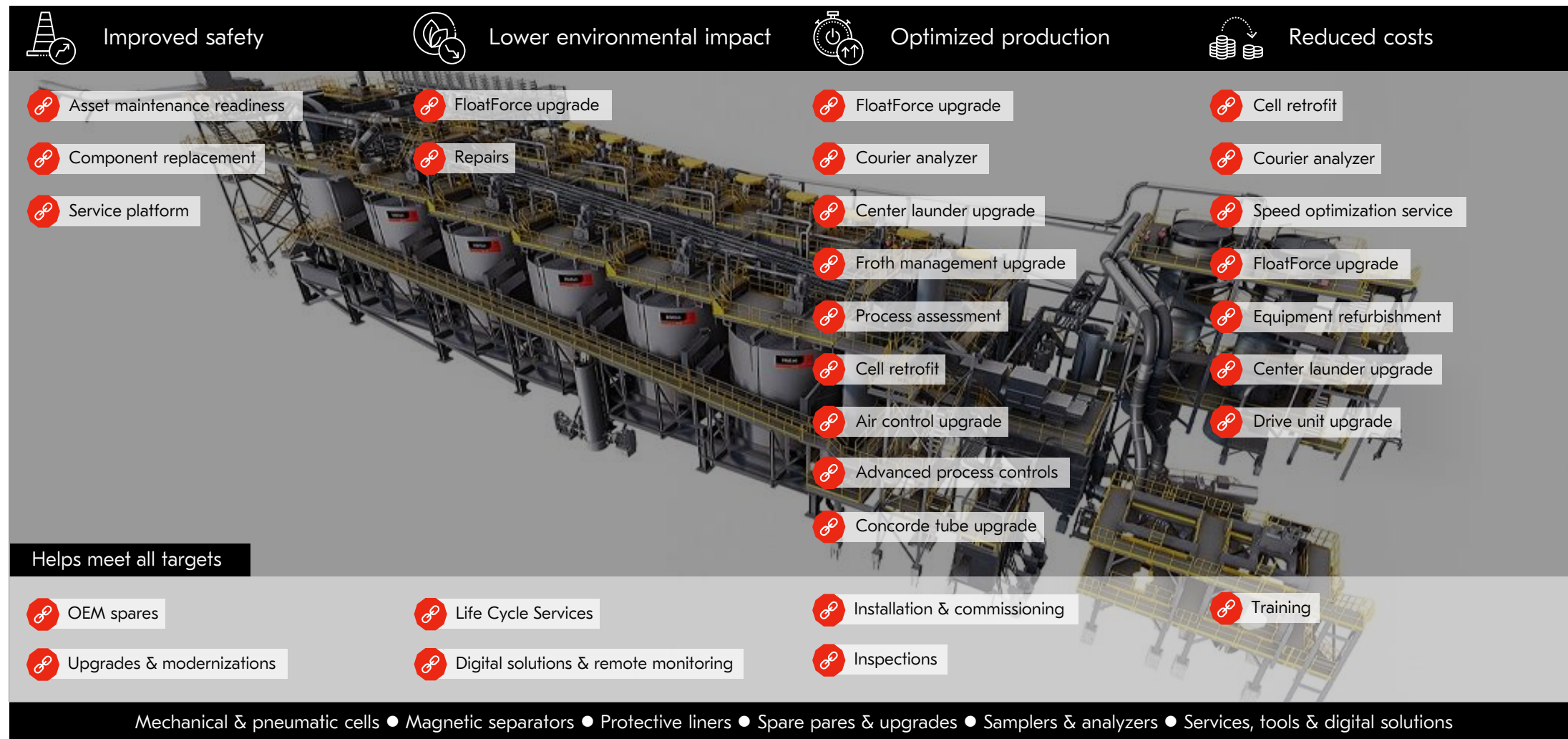
- Improved safety
- Higher performance
- Global expert network
- Culture of safety leaning

Training offering includes:

1. **Safety:** guidelines on the safe use of equipment and the relevant safety regulations
2. **Technical overview:** mechanical instrumentation, electrification, automation, hydraulic and pneumatic overviews.
3. **Operational overview:** parameter adjustments and operational overviews.
4. **Maintenance and aftersales support:** guidelines on services and performing maintenance safely and correctly.

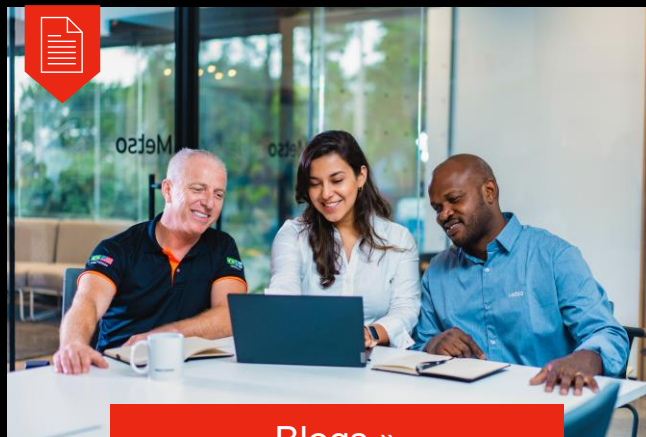
Metso Academy provides training that helps bridge the knowledge gap between your personnel, equipment and operational goals. [Read more here.»](#)

How our flotation services help you achieve your targets

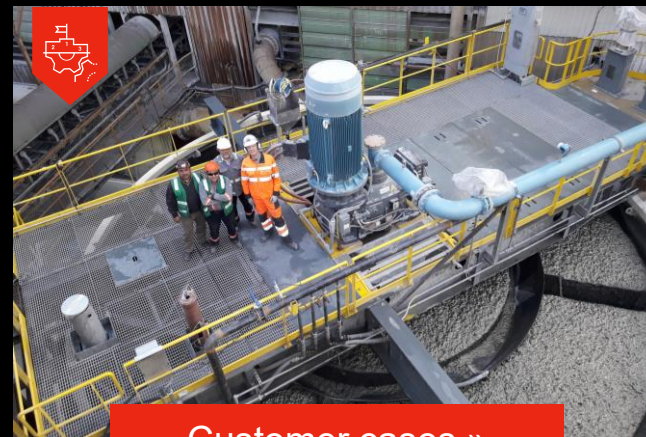


Insights

Our expert's knowledge as articles, tips and real-life examples



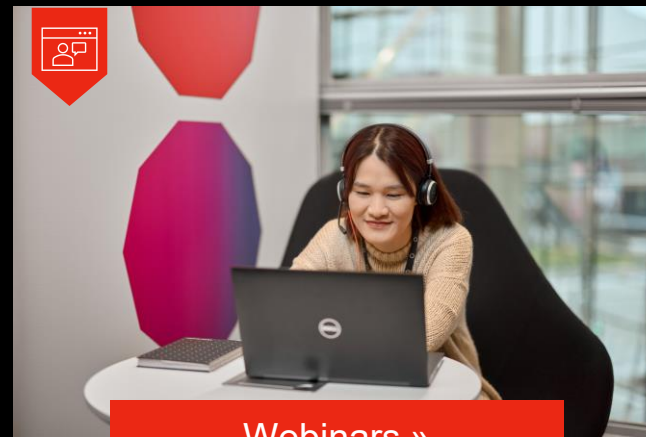
Blogs »



Customer cases »



Digital tools »



Webinars »

Metso

Partner for positive change

Harness the power of experience

Your #1 service partner from pit to port



[metso.com](https://www.metso.com)