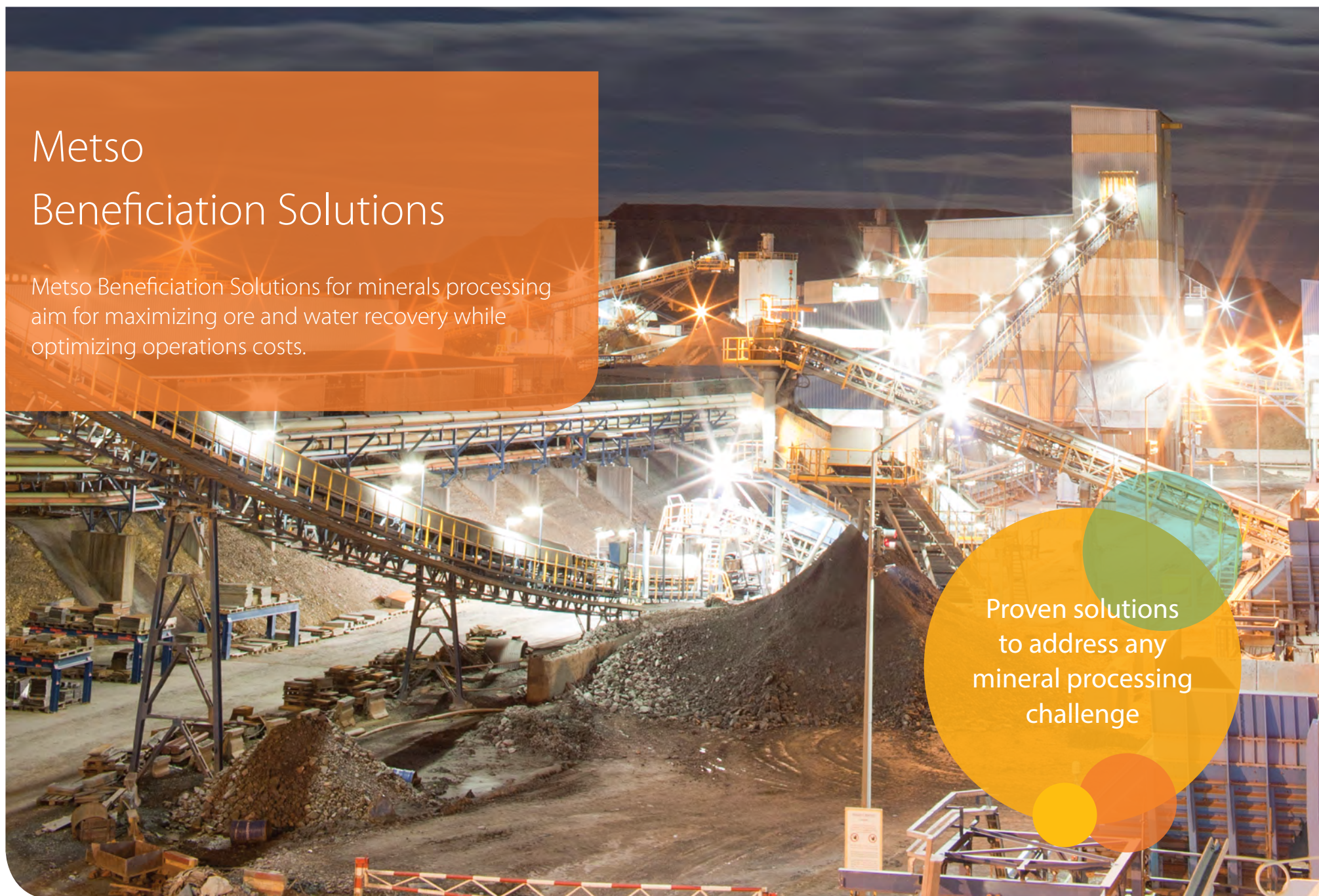


RCS™ flotation solutions



Excellent
performance,
maximum flotation
recovery



Metso Beneficiation Solutions

Metso Beneficiation Solutions for minerals processing aim for maximizing ore and water recovery while optimizing operations costs.

Proven solutions
to address any
mineral processing
challenge

Integrated packages for maximizing ore and water recovery

From plant modules to complete solutions, Metso offers world class technology for the beneficiation a wide variety of ores such as copper, gold, iron, lead, zinc, platinum and industrial minerals.

Maximizing Ore and Water Recovery is our ultimate goal and promise

Delivering a combined value with our Beneficiation Solutions



Proven solutions, Expanded value

Many challenges can be faced in your flotation process, and any recovery losses have an impact in the long run. Without the proper flotation circuit analysis capabilities, chances for losses greatly increase. By installing the right flotation solution into your process, your plant will experience:



Increased uptime



Maximized recovery rate



Maximized throughput



Reduced operating costs

Solutions to achieve maximized recovery results

RCS™ flotation concept

Combining the benefits of circular cells with the unique features of the patented DV™ mechanism, the RCS™ (Reactor Cell System) flotation technology has been developed to create ideal conditions to maximize flotation performance for all roughing, cleaning and scavenging duties. The cell can be modified to handle high density slurries. RCS flotation technology provides excellent air dispersion, producing fine even sized bubbles. Maximum flotation recovery and performance have been achieved by careful attention to the tank design.

DV™ flotation mechanism

The latest DV™ (Deep Vane) flotation mechanism design improves air dispersion and bubble size distribution. The patent protected DV™ mechanism impeller consists of a unique arrangement of vertical vanes with shaped lower edges and air dispersion shelf. The mechanism design produces powerful radial slurry pumping to the cell wall and gives strong return flows to the underside of the impeller to minimize sanding. Additionally, it is the only mechanism to give maximum slurry recirculation to the upper part of the impeller. Vertical diffuser vanes promote these radial flow patterns and eliminate slurry rotation in the tank.

The fully suspended DV™ mechanism allows for the entire mechanism to be removed from the tank without the need to drain the tank of its valuable contents. The profile of the DV™ impeller, and the design and construction of the complete mechanism makes it possible to start the mechanism in a fully sanded situation.



RCS™ flotation machines are available in sizes 0,8 m³ to 600 m³



Why choose Metso RCS™ flotation solutions

Enhanced performance

- Maximum particle-bubble contacts
- Effective solids suspension & resuspension
- Active air dispersion & distribution
- Smooth froth surface & removal

Innovative tank design

- Circular tank concept to minimize slurry short circuiting
- Modular design for quick construction, shipment & installation
- Simplified froth handling
- Internal dart valves

Proven drive systems

- Standard V-belt drive up to 70 m³ cells
- Standard gearbox drive with extended output shaft bearings and drywell construction for cell volumes 100 m³ and greater
- Availability of gearboxes for 30 m³, 40 m³, 50 m³ and 70 m³ cells
- Availability of v-belts for 100 m³ and 130 m³ cells

Efficient air & level control

- Flotation air provided by separate air blower
- Controlled aeration rate at each cell
- Effective pulp level control by pneumatically operated dart valves with ultrasonic level sensor and float

Reduced operating costs

- Extended wear life due to minimized local high velocity zones
- Impeller & diffusor constructed with abrasion-resistant elastomers
- Impeller profile designed to minimize absorbed power
- VisioFroth technology for live image analysis

Ease of maintenance

- Easily replaceable wear parts within the machine
- Easy routine maintenance due to full suspension of the DV™ mechanism from the cell superstructure
- Modular dart valve design provides flexibility to capacity changes

Advanced automation & control systems

As raw materials and other resources become scarcer, plants look for ways to be more efficient and productive. Digital tools, such as advanced process control and optimized control systems, maximize recovery and reduce energy demands by improving quality management during operation. Strong R&D within Metso and active collaboration with recognized research institutes keeps us at the forefront of innovation. Our Capabilities include, among others, the OCS® and OCS-4D® software for advanced process control and the VisioFroth™ technology for flotation circuits.

Optimizing Control Systems

OCS® and OCS-4D® are among the most cost-and time-effective proven tools for improving metallurgic plant performance, continuously maximizing plant throughput & metal recovery, and optimizing production cost. These solution use model-based fuzzy expert control methodologies, which can include vision and acoustic information. Since 1990, Metso has provided the industry with optimizing control systems for grinding and flotation circuits with successful applications in Europe, North & South America, Africa and Asia.

VisioFroth™ technology

VisioFroth™ 4, the latest version of VisioFroth™ technology, is an industry leading image analysis system for live measurement of multiple flotation froth properties such as froth velocity, bubble size distribution, colour, stability, texture and other parameters. Continuous monitoring and analysis of all flotation cells combined with next generation algorithms generates an increase of floated minerals and a higher froth recovery. VisioFroth™ is currently the world market leader, with more than 1400 cameras installed in more than 60 plants.

Industry leading process technology bringing a step change in your operations



Promising results

RTB Bor, Serbia

Together with Metso, the Serbian RTB Bor mine renewed the processing plant at its largest site, Veliki Krivelj. The result was a higher throughput and better recoveries with less energy consumption per ton of processed copper.

Challenge

Outdated flotation cells due to obsolete automation, adding major bottlenecks to the production goals.

Solution

Complete RCS flotation plant was commissioned with advanced automation and process controls.

Result

RTB Bor improves recovery by more than 20% while reducing operating costs at the Veliki Krivelj concentrator plant

➤ [metso.com/showroom/rtb-bor](https://www.metso.com/showroom/rtb-bor)

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

20%
improved recovery

Promising results

Hindustan Zinc Limited, India

HZL is a multi-metal mining conglomerate, engaged in the mining of lead, zinc and silver. Metso has been providing solutions for the mining company taking the collaboration to the next level.

Challenge

HZL was facing quality problem regarding lead-zinc grades & recovery.

Solution

Metso supplied 68 RCS flotation machines which have given better yield and improved results. Installed plant with 1.5 MT capacity, which is achieving close to 2 MT now.

Result

Flotation cells are designed to handle fluctuations in capacity. Even at higher capacities, recoveries of 89% lead and 91% zinc are achieved. At these recoveries, concentrate grades of 55% and 51% are achieved for lead and zinc, respectively. With Visiofroth, changes in the flotation cell are identified very quickly, making it possible to quantify the change in bubble size, colour and velocity

➤ www.youtube.com/watch?v=tePUBtelyTE





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

89% lead
and
91% zinc recovery

Maximizing recovery with 2000+ installations worldwide

At Metso, we know that the only real measure of our worth is in the results we deliver to our customers. Metso has the resources to bring you a full range of capabilities. Right where you need us, whenever you need us.



-  Copper
-  Lead/Zinc
-  Platinum
-  Others (cobalt, pyrite, oil sands, magnetite, gold, kieserite, nickel molybdenum, silver, phosphate, calcium carbonate, molybdenum, silica)



RCS™ footprint at
300+ locations
worldwide

Through our knowledge and experience, we work with our mining and aggregates customers to create solutions that enable them to attain their objectives. We call this **The Metso Way**, which focuses on creating value to our customers.

The Metso Way is built upon:

Knowledge –



We have deep knowledge about our customers' business environment, processes and challenges

People –



Our committed and highly competent people make the difference to our customers

Solutions –



We create the technology and services required to meet our customer needs



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