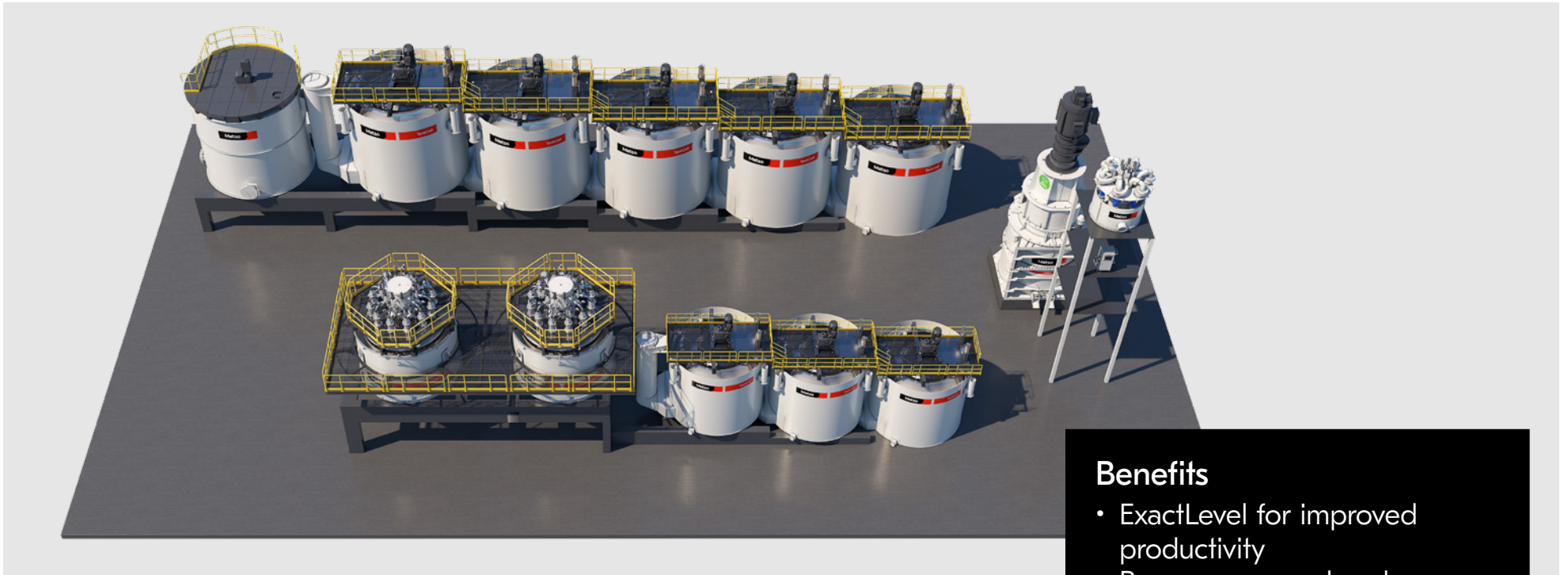


# Metso

## Flotation Local Control System



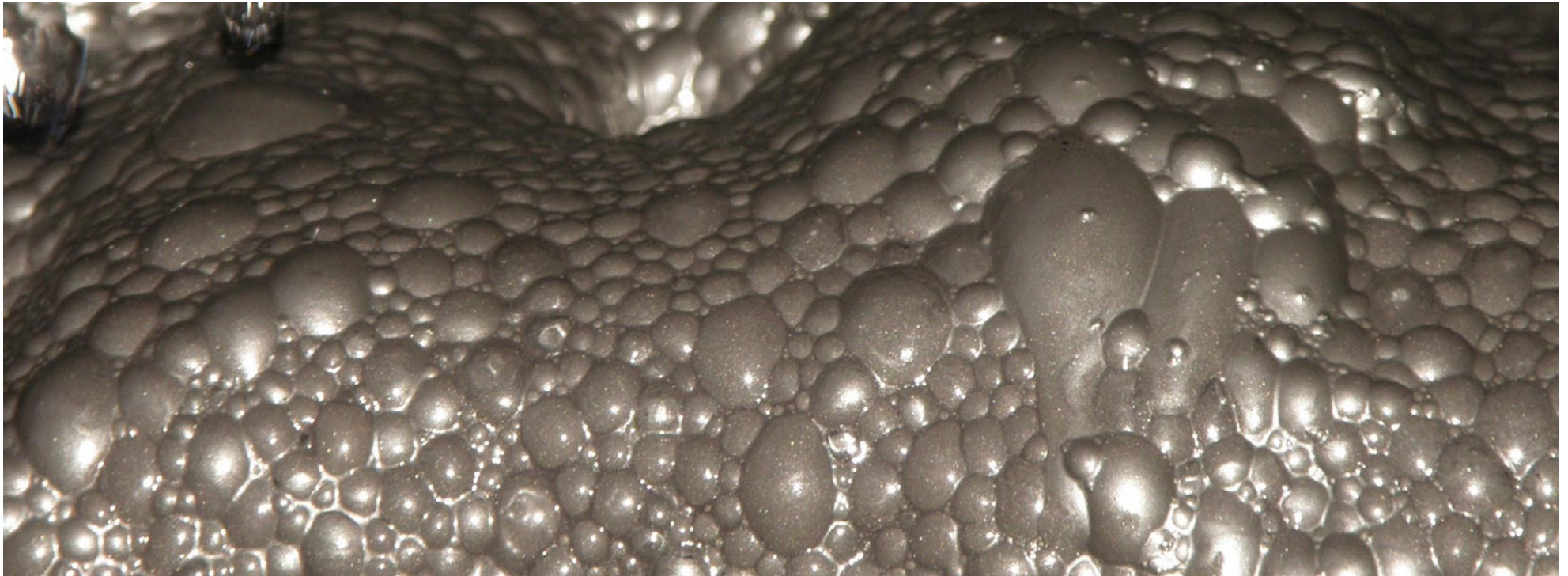


## Flotation Local Control System

Metso® Flotation Local Control System (FLCS) is an intelligent control system that keeps the flotation air feed and slurry level in flotation cells under control. The control is based on Metso's decades of experience in flotation operations around the world. The local control is seamlessly integrated in the Metso flotation machines to enhance metallurgical grade and recovery of the process.

### Benefits

- ExactLevel for improved productivity
- Pre-programmed and tested system ensures quick commissioning
- Scalable system providing flexibility for future expansions
- Common Metso software component library means support is quickly available, thus reduces downtime
- Easy to integrate with Metso FrothSense+™ and Flotation optimizer for increased process stability



An intelligent solution for controlling the air feed and pulp level of flotation cells. The Metso Flotation Local Control System helps to simplify control, resulting in improved flotation circuit performance.

**Accurate level control for improved metallurgical performance**

In order to maintain good pulp level control in flotation cells, various elements need to be considered. These include the effect of cell structure and valve sizing, for example. The size of the flotation circuit and its configuration also has an effect on pulp level and the need to control it.

**Maximized availability with comprehensive support**

Metso Flotation Local Control uses hardware and software components that are commonly used also in the other Metso products. This ensures readily available support from Metso services and helps to reduce the need for specialized training of on-site operators.

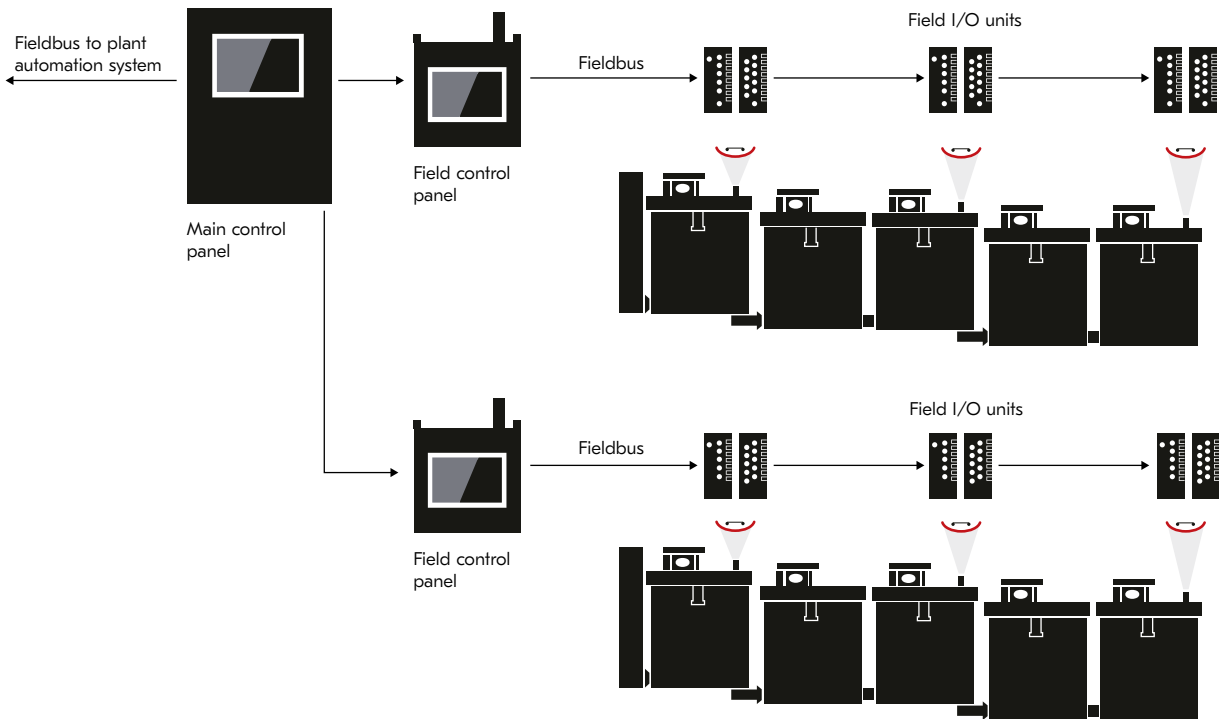
**Accurate level control and increased process stability**

The pulp level is stabilized by the embedded Metso ExactLevel controller. The ExactLevel compensates for disturbances generated by upstream sources before they affect the pulp level in the cell. Compared to traditional PID controllers, the Metso ExactLevel enables more accurate level control. This results in more stable froth conditions and improvements in the flotation cell's metallurgical performance.

The Flotation Local Control is easy to integrate with Metso FrothSense+™ and Flotation optimizer for increased efficiency. The connectivity with the Metso FrothSense+™ camera system measures essential properties of froth appearance, including froth speed, direction, bubble size, froth stability, and froth color and provides statistical data related to these variables.

# Typical system layout

## Flotation local control



FLCS main screen



FLCS level control



### CellStation vs. Flotation Local Control System

	Disp size	Air	Level	Agitator motor	ExactLevel	Trend displays
CellStation	7"	X	X	—	X	X
FLCS	15"	X	X	X	X	X

#### Typical scope:

- Main control cabinet with PLC and main HMI
- Field control cabinets with HMI for each row of flotation machines
- Field I/O-units

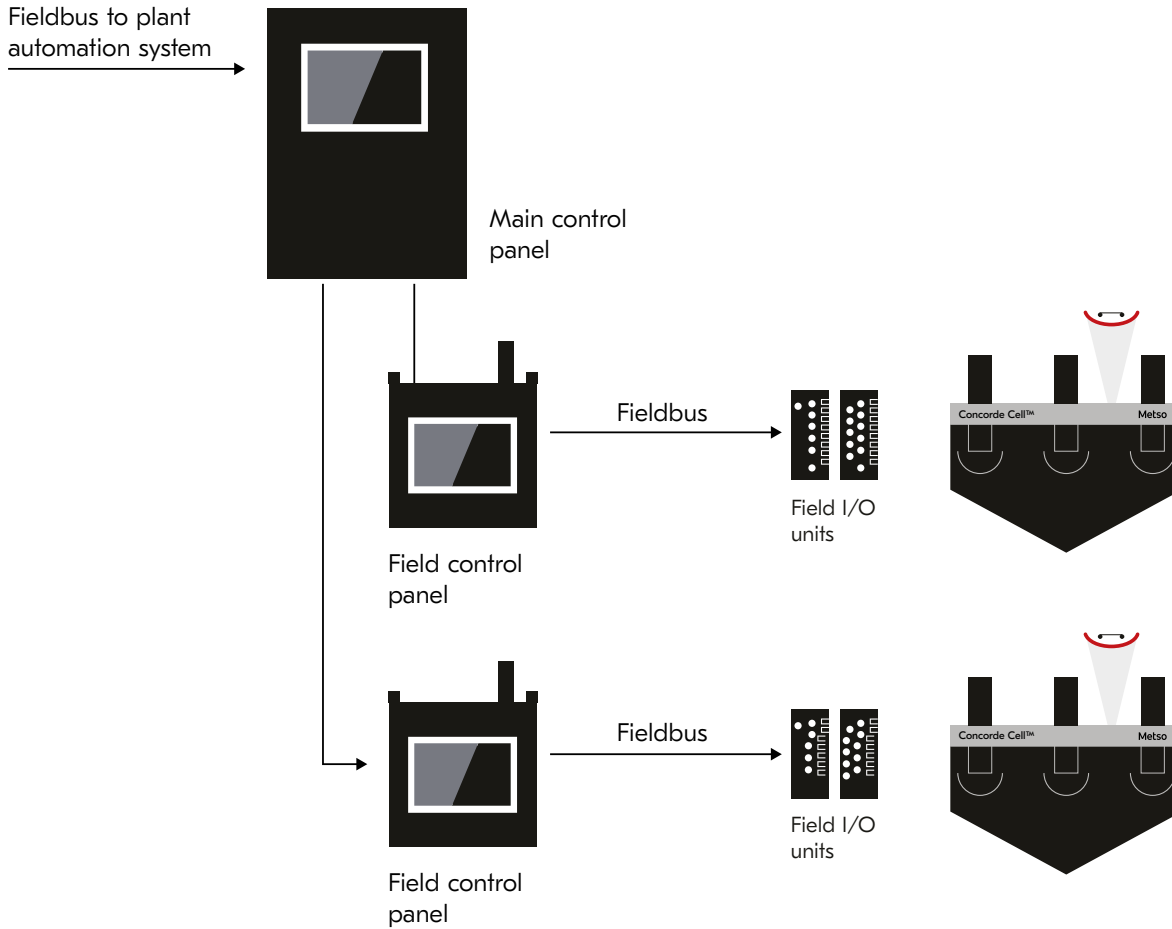
- Instrument cables
- Operating instructions
- Automation engineering, configuration and FAT of the system
- Project specific documentation (P&ID, Circuit diagrams, cable lists, etc.)

Flotation local control system is available also on other PLC platforms such as Allen&Bradley or Schneider Electric upon separate agreement and specifications.



# Typical system layout

Concorde Cell™



## Typical scope:

- PLC-cabinet
- Remote unit with display for each Concorde Cells
- Field I/O-units
- Instrument cables
- Operating instructions
- Automation engineering, configuration and FAT of the system
- Project specific documentation (P&I, Circuit diagrams, cable lists, etc.)

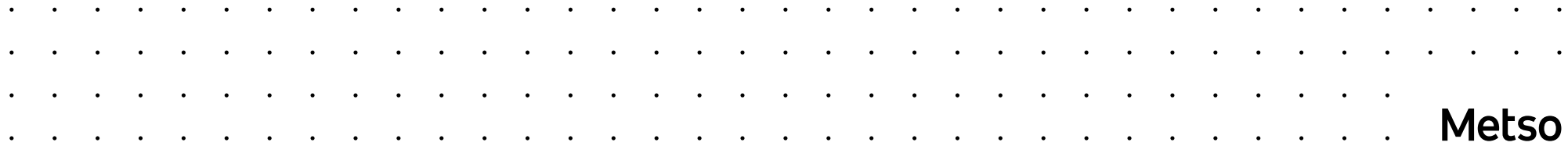


## Technical specifications

Hardware components	<p>HMI: 15 inch Siemens Comfort Outdoor TP1500</p> <p>PLC: Siemens Simatic S7-1500</p> <p>Stainless steel (AISI304) control panel with painted (RAL 7035) mild steel pedestal</p>
Software components	<p>Software programming tool: Siemens TIA Portal. Programming language based on IEC 61131-3:</p> <ul style="list-style-type: none"> <li>• Function Block Diagram (FBD)</li> <li>• Structured Control Language (SCL)</li> <li>• Trend logging and visualization with Metso proprietary standard library software components</li> </ul> <p>Common software modules for flotation machines:</p> <ul style="list-style-type: none"> <li>• Motor control (DOL and VSD options)</li> <li>• Pulp Level control</li> <li>• Flotation Air control</li> <li>• trending of all monitored values</li> </ul> <p>SkimAir® modules:</p> <ul style="list-style-type: none"> <li>• Dilution Water control</li> <li>• Bottom Outlet Pulp Density control</li> <li>• Top Outlet Pulp Flow monitoring</li> <li>• Distribution Box controls (valves, level monitoring)</li> </ul> <p>Concorde Cell™ modules:</p> <ul style="list-style-type: none"> <li>• Froth wash water control</li> <li>• Internal recycle control</li> </ul>
Connections	Communication protocol to DCS: Profinet. Optionally Ethernet/IP, Modbus TCP/IP or Profibus DP
Options	<p>Installation accessories (signal cables, instrument air tubes and connectors)</p> <p>Instrument air distribution manifold with double filtering and isolation valve</p> <p>Fibre optic converter for fieldbus connection to plant automation system</p> <p>Profibus DP module</p>
Installation requirements	<p>Operating temperature: -10 °C to + 45 °C, direct sunlight should be avoided</p> <p>Storage temperature: -25 °C to + 60 °C</p> <p>Relative humidity 90%; no condensation</p> <p>Installation altitude above sea level, max. 3000 m; Depending on the operating temperature</p> <p>Enclosure: IP65 / NEMA 4X (electrical box and main switch)</p> <p>Electrical: Single phase AC, 110-240 V, 50-60 Hz, max 450 W</p>
Dimensions	<p>Main control cabinet</p> <p>W800 x H1200 x D300, 80 kg</p> <p>Remote control cabinet</p> <p>W600 x H884 x D300, 60 kg</p>

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

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