

# EPCM the tankhouse automation leader.

For 45 years, we've supplied global copper, nickel, manganese, and cobalt producers with industry-leading tankhouse automation solutions including Cathode Stripping Machines. From ongoing maintenance to upgrades and complete overhauls, we've earned a reputation for innovation, reliability, safety and measurable results.

No one knows tankhouse automation like we do.

## The EPCM Group: Pioneering automation in natural resources.

### Expertise

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Innovative solutions that automate challenging and complex environments

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Modernization of aging equipment

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Complete replacement of existing systems and ongoing equipment maintenance

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Global team of highly skilled professionals available for on-site and remote support

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Design, fabrication and testing conducted world-wide by specialists in Canada, Chile and Germany

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EPCM was the first automation company to introduce robotic materials handling to the natural resources industry. Built on the early success of our Cathode Stripping Machines (CSMs), Anode Preparation Machines (APMs), Anode Scrap Wash (ASW) and starter sheet automation, EPCM's solutions are used in all aspects of global electro-winning and electro-refining operations today.

### Track Record

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**45+**  
years' global tankhouse  
automation experience

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**80+**  
automation systems  
installed globally

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**100%**  
on-time delivery  
of projects

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**25**  
base metal  
tankhouse clients

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**10**  
countries

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**50+**  
CSMs producing 5 MTs  
of copper alone

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## Client-first automation solutions

With our extensive tankhouse experience, we have first-hand knowledge of your environment and the challenges you face. We'll apply our insights and original thinking to design a solution focused specifically on the operational, financial and safety objectives you'd like to achieve.

Our automation solutions are constantly evolving as we integrate new and advanced technologies into our systems. Visit [www.epcm.com](http://www.epcm.com) for a full list of our latest offerings.

Our tailored solutions include:

- Anode Preparation Machines (APMs)
- Anode Scrap Wash (ASW) Machines
- Cathode Stripping Machines (CSMs)
- Inspection, Classification and Sortation (ICS) Systems
- Starter sheet assembly machines (SAMs)



BHP



GLENCORE



LS-Nikko copper



RioTinto



## Reduce costs while improving performance and safety.



### Our proven approach

#### Design with flexible capacity

Our time-tested designs can be adapted for hourly capacity ranging from 30 to 500+ cathodes/anodes. We'll create a solution tailored to your needs.

#### Industry 4.0 practices

Our solutions include real-time remote monitoring, allowing informed decisions and corrective actions to be taken immediately.

#### Focus on client objectives

We're experts at designing our solutions to maximize long-term reliability and safety – while decreasing operational costs.

#### Easy and affordable maintenance

We apply our proven success maintaining tankhouse equipment to design easily maintained systems that are cost-effective.

#### Sorting in the tankhouse

By performing quality control in the tankhouse, we eliminate double-handling and provide immediate process feedback.

#### Wash the whole cathode

Our full-surface wash improves quality and eliminates the risk of dropped cathodes.

#### Identify cathode defects in the CSM

By identifying off-spec cathodes and missing edge strips in the CSM, we substantially increase plating quality.

# Our tankhouse equipment outperforms the rest

Poorly performing equipment can cost millions of dollars annually in lower Overall Equipment Effectiveness (OEE), unstrippable copper, maintenance challenges, safety issues and poor-quality product. Here's how our integrated design saves clients money.

### Simplified design

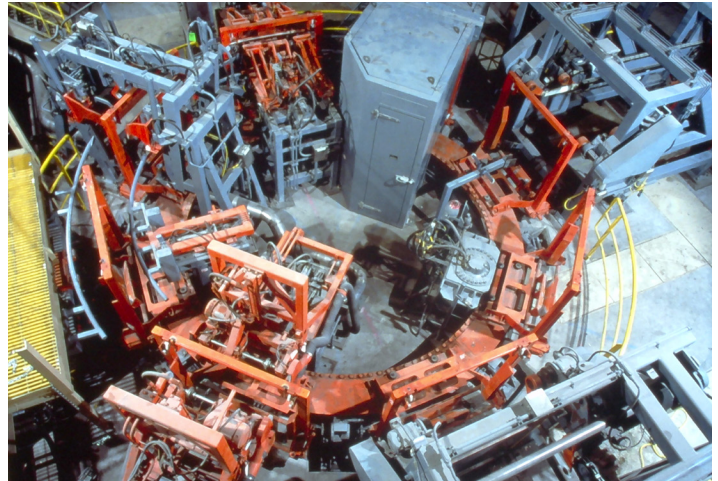
We design our systems to significantly reduce the number of operating stations, employee access points and product position changes required. This results in fewer jams and better performance – driving savings on multiple fronts.

### Improved safety and performance

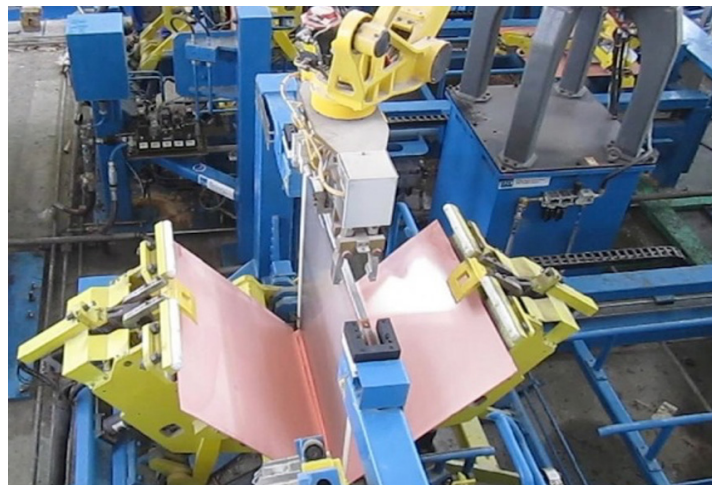
By eliminating steps from the process, reducing the complexity of the system and decreasing high-risk activity, our clients consistently see operational performance and safety improve substantially.

### Higher reliability and reduced maintenance requirements

Robotic materials handling systems are proven to have higher reliability and accuracy than traditional systems. What's more, our equipment has significantly fewer components and sensors – which mean less time and money dealing with equipment breakdowns and ongoing maintenance.



TYPICAL CAROUSEL-TYPE CSM



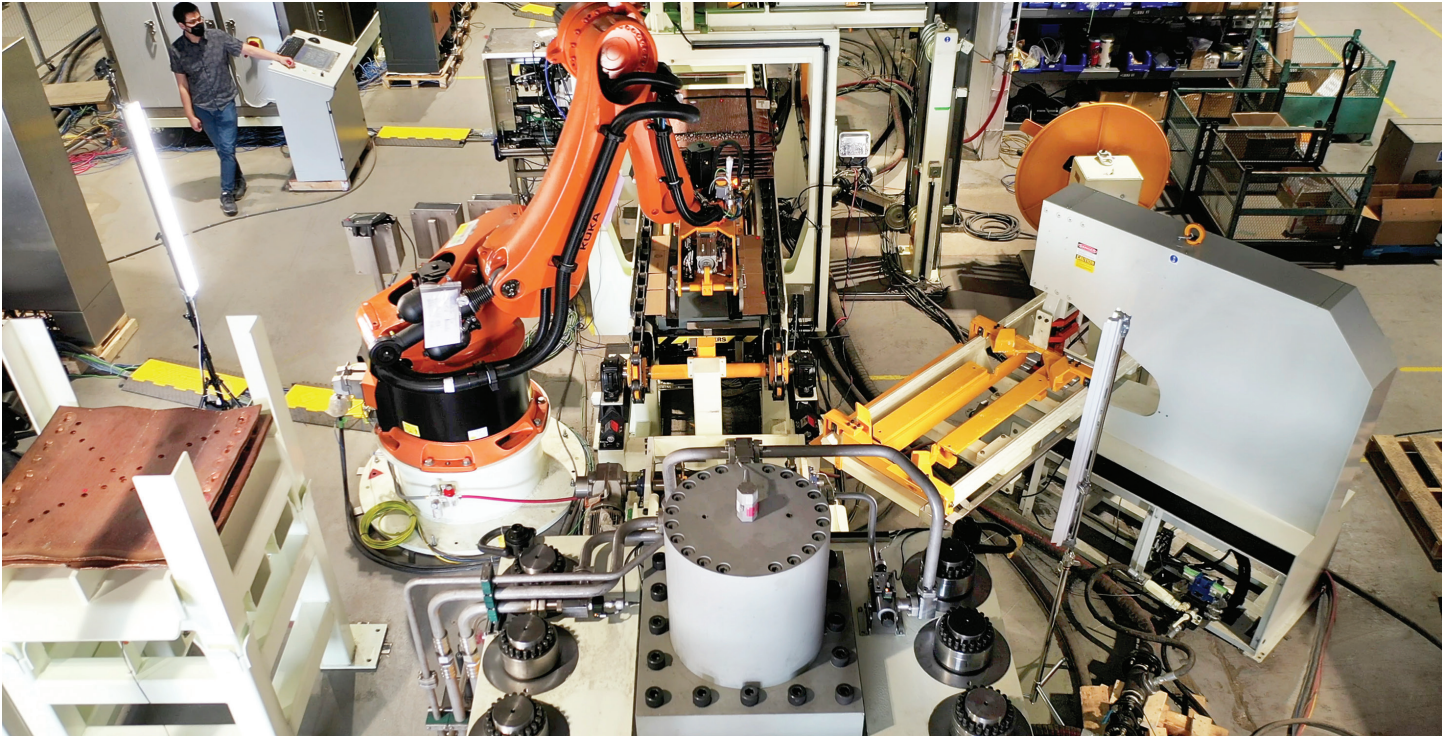
ROBOTIC-TYPE CSM

## How we address common tankhouse challenges

Issue		Our solutions
Low Overall Equipment Effectiveness (OEE)	<b>Associated losses</b> <ul style="list-style-type: none"> <li>• Lost production</li> <li>• High operational costs</li> <li>• High maintenance costs</li> <li>• High spare parts inventory</li> <li>• Damaged cathodes</li> <li>• Lost revenue</li> </ul>	<ul style="list-style-type: none"> <li>• Remote analysis system</li> <li>• Full cathode wash</li> </ul>
Unstrippable copper		<ul style="list-style-type: none"> <li>• Highest stripping capability</li> <li>• Greater design flexibility</li> </ul>
Difficult-to-maintain CSM		<ul style="list-style-type: none"> <li>• Design for maintainability</li> <li>• On-site and remote support</li> <li>• Spare parts support &amp; supply</li> </ul>
Quality control		<ul style="list-style-type: none"> <li>• Inspection vision system</li> <li>• Edgestrip inspection</li> <li>• Cathode verticality inspection</li> </ul>

## Continuously adding value for clients.

We leverage advanced technologies and design highly efficient processes to eliminate problems before they arise.



### In-line inspection

Inspect surface and provide immediate feedback to production:

- Nodules
- Side and corner quality
- Organic and sulfur

### Cathode verticality check

Check cathode verticality while in the CSM to identify cathodes that could lead to shorts, nodulation or poor plating quality.

### Blank and edgestrip inspection

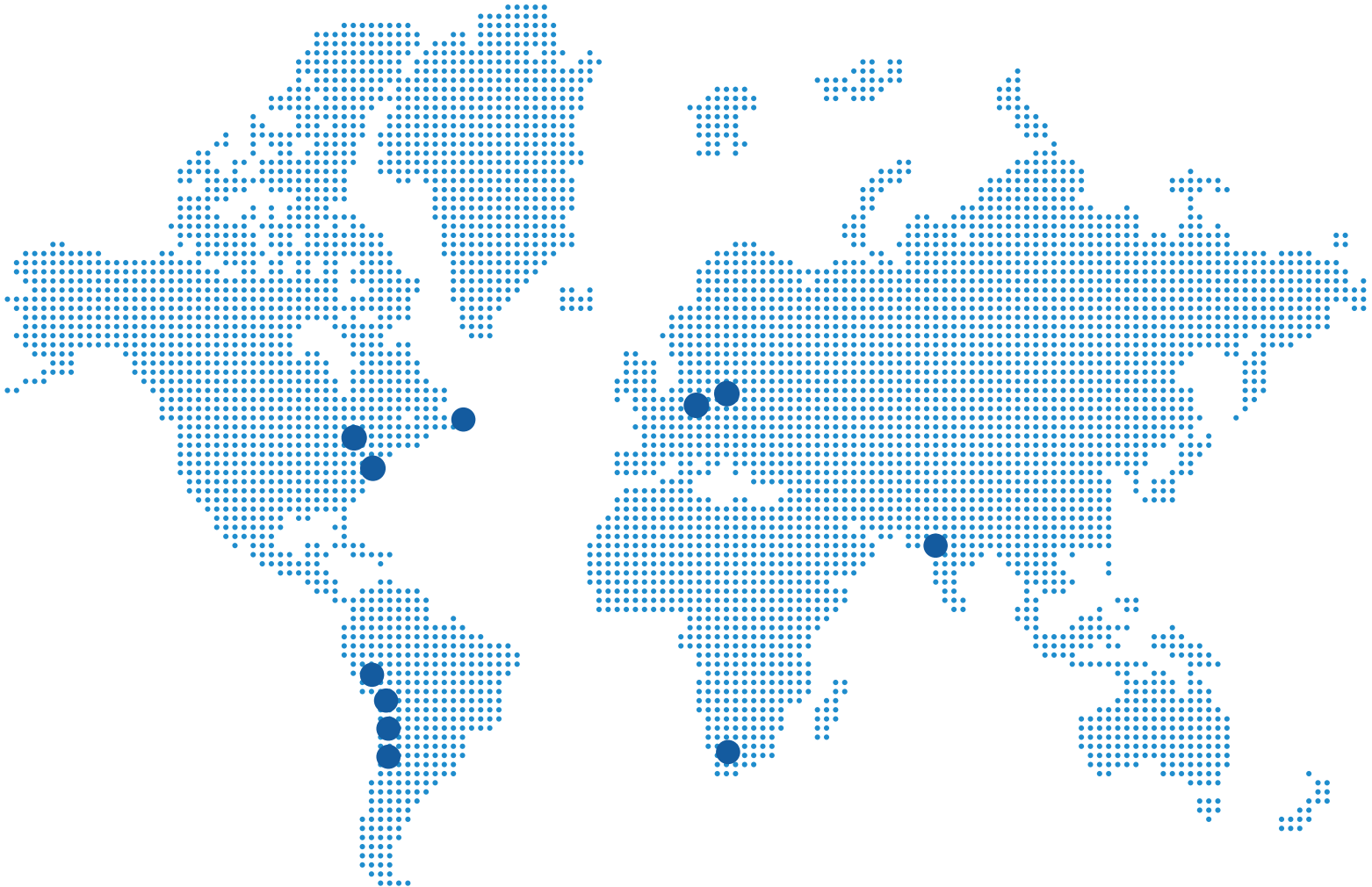
Conduct thorough inspection before we return to tankhouse.

*The EPCM Group has been providing daily support for our tankhouse automation equipment for over 30 years. Since they started, they have increased OEE and consistently provided reliable support including major overhauls and equipment upgrades.*

**South American Tankhouse Manager**

*The Tecnologías COBRA and EPCM teams have service experience across all CSM OEMs. They have helped us improve the reliability of our system.*

South American Tankhouse Manager



Headquartered in Canada, EPCM operates globally but supports clients locally through our operations in South America, North America, Europe, Asia and Africa.

Contact us today to learn how our automation solutions can help you improve safety, productivity and overall performance.

**North America, Europe, the Middle East, Asia and Africa**

EPCM Service & Supply  
info@epcm.com

**South America**

EPCM  
info@epcm.com  
Tecnologías COBRA  
info@tecnologiascobra.cl  
ANCOR TECMIN  
info@ancortecmin.com

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*EPCM's system was  
commissioned on time and  
ramped up quickly to meet  
the design specifications.*

Refinery Tankhouse Manager  
Client in Asia

## Global insight. Local presence.

Celebrating 45+ years of global excellence in engineering, procurement and construction management. We deliver single-source life-cycle solutions through EPCM Engineering, EPCM Automation, EPCM Service & Supply, Tecnologias COBRA and ANCOR TECMIN. Our customer-first solutions are specifically designed to help our clients achieve and maintain leadership in their industries.



[www.epcm.com](http://www.epcm.com)