



Corporate Presentation

Corporate Overview

Vision and Values

Vision

“Deeply devoted to improving our customers’ safety, productivity, and profitability with innovative and practical automation”

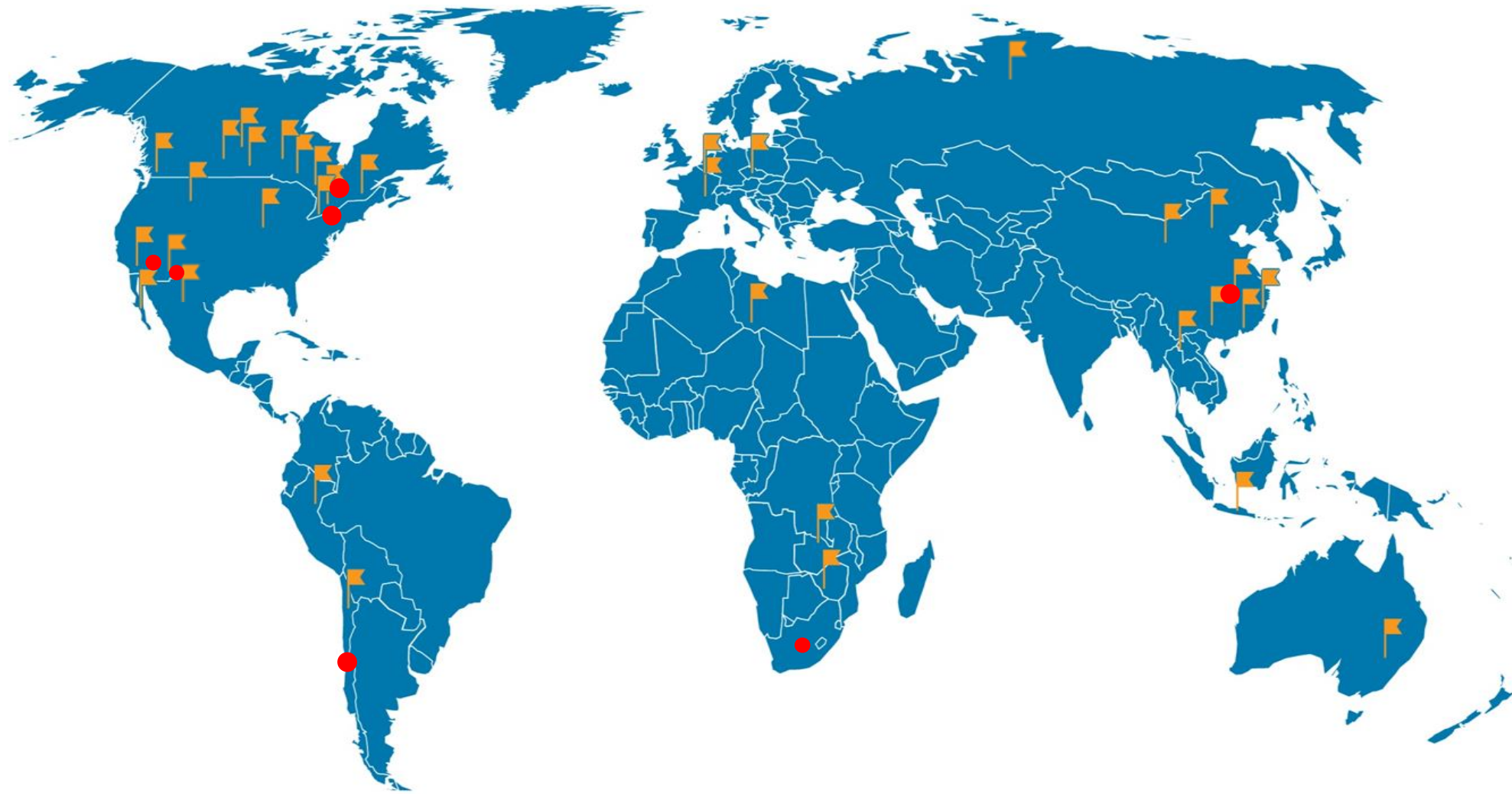
Values

Ionic is a technology company, formed and run by engineers and the company embodies engineering values

- Passionate about innovation
- Enthusiastic about new challenges
- Financially conservative

Corporate Overview

Global Presence



Corporate Overview

Industries Served

- Metals Processing
- Mining
- Power Generation
- Forestry
- Automotive
- Manufacturing
- Medical Devices



Ionic Mechatronics – Custom Machinery

- Custom machines to meet the customers standards and specifications
- Machines are built for the specific application
- Engineering, design and manufacturing of electric and electro-hydraulic machinery
- Ionic knows Mining and Processing Facilitates - Designed for rugged, contaminated, dusty environments

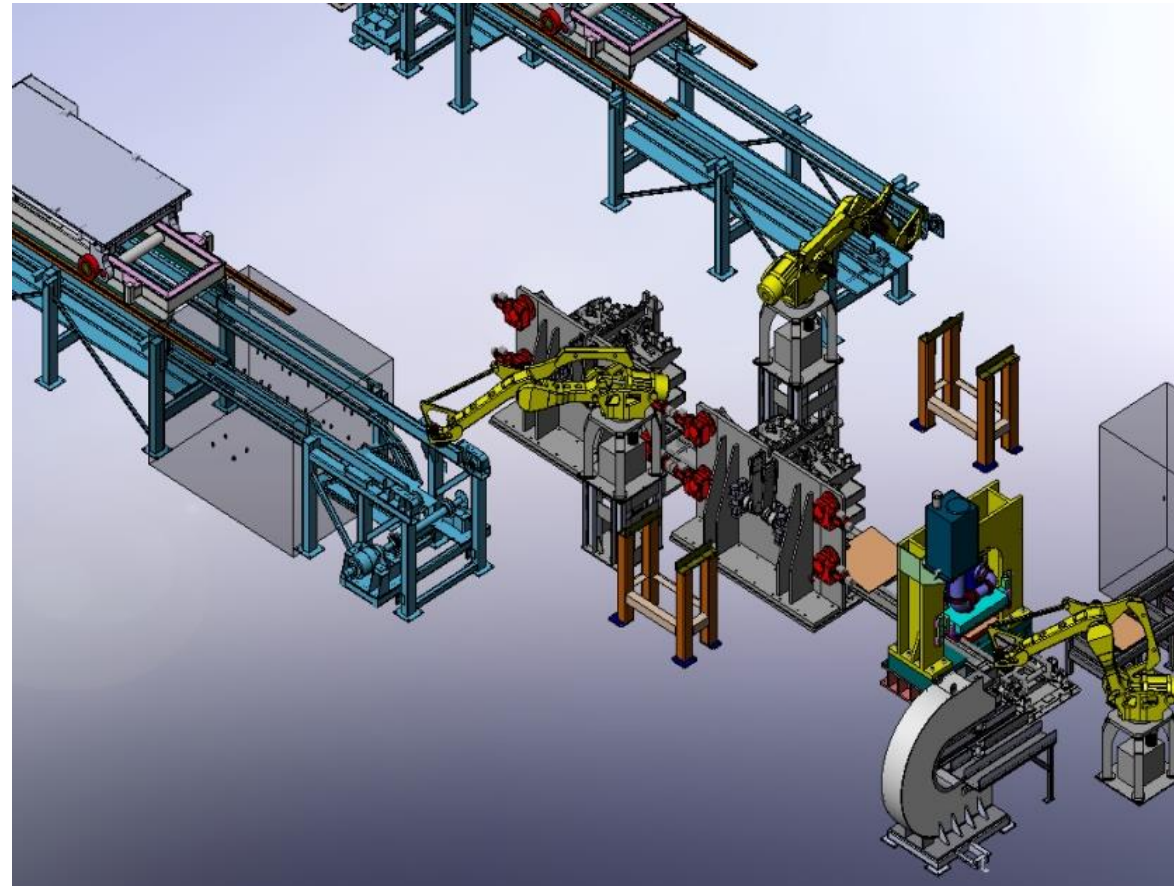


Custom Built Machines

Ionic Mechatronics - Technologies

Metal Processing Experience

- Copper
- Nickel
- Manganese
- Zinc
- Cobalt
- Gold
- Lead
- Uranium
- Concentrates



Cathode Stripping Machine

Ionic Mechatronics – Refinery and Smelter Equipment

Overview

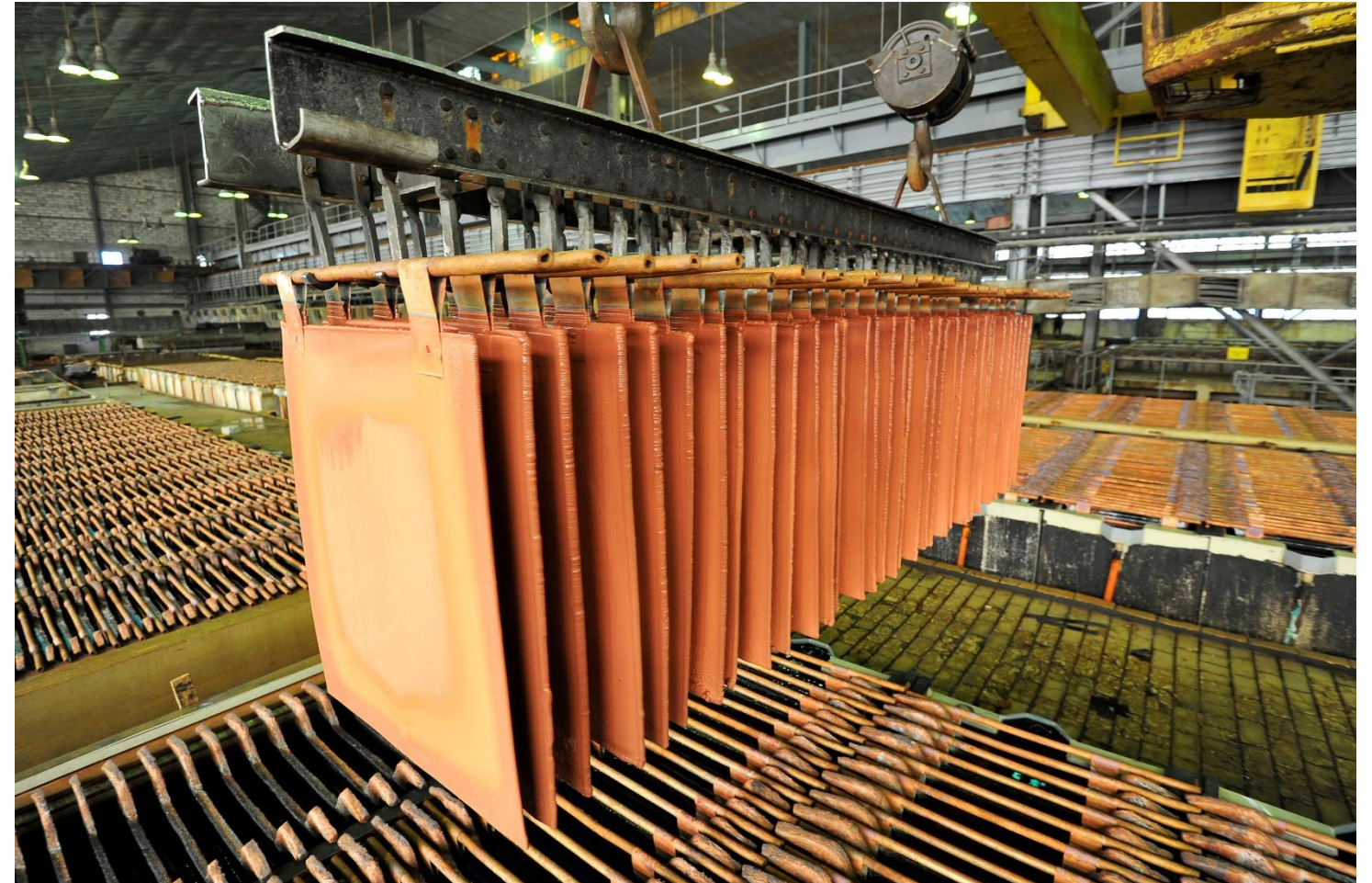
Ionic has designed and build equipment for the following Smelter and Refinery Processes

- Cathode Starter Sheet Processes
- Permanent Cathode Processes
- Electrowinning Processes
- Electrorefining Processes
- Anode Processing



Ionic Mechatronics – Cathode Starter Sheet Process

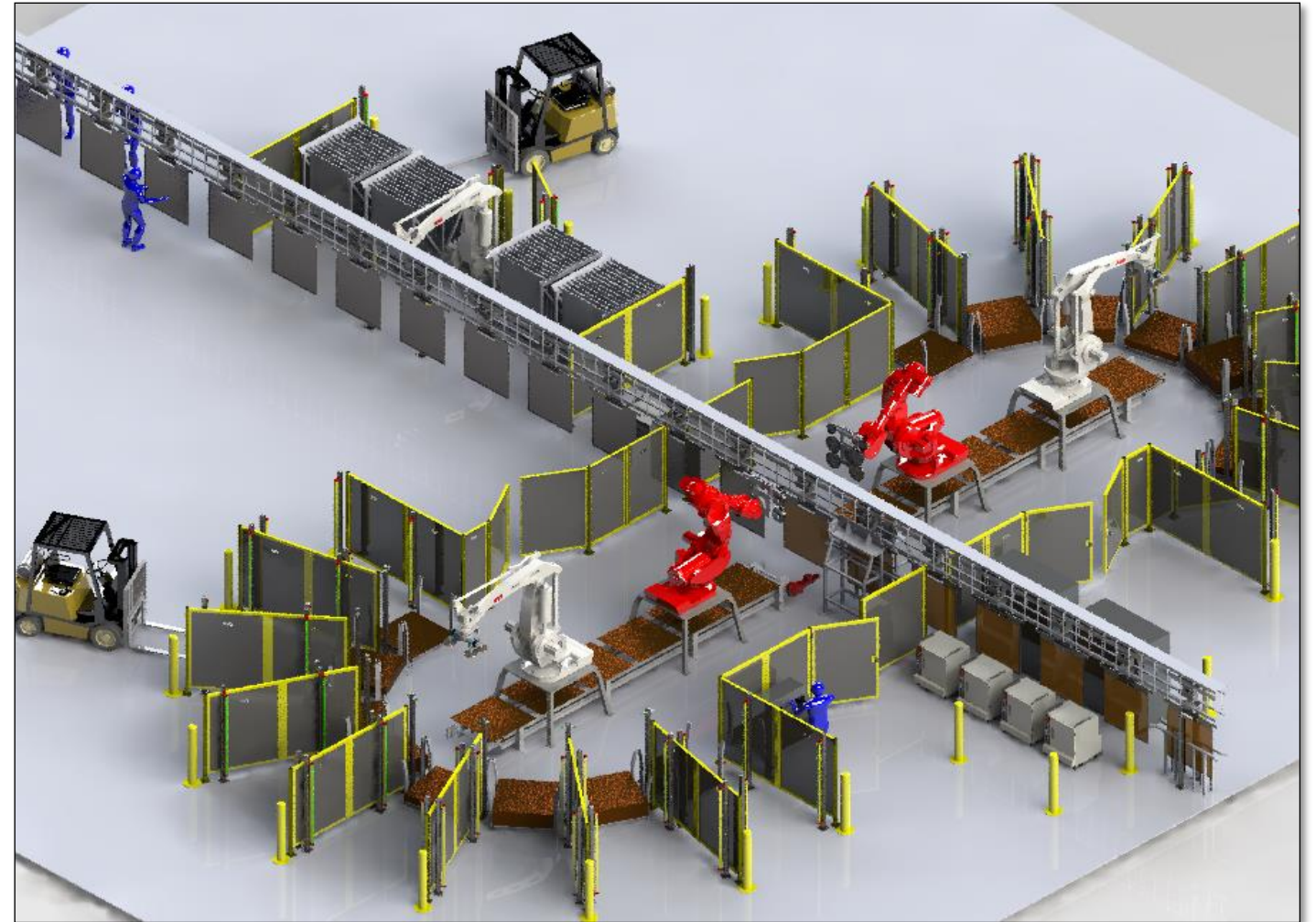
- *Starter Sheet Stripping Machines*
- *Starter Sheet Preparation and Assembly*
- *Harvesting Machines (Bar Removal)*
- *Stacking and Weighing*
- *Cathode Sorting*
- *Packaging and Strapping*
- *Starter Sheet Casting*



Ionic Mechatronics – Cathode Starter Sheet Process

Starter Sheet Stripping

- 2 or 4 Robot Cell depending on required throughput
- Similar Flexing technology to Cathode Stripping Machine
- Safety Rated
- Starter Sheet Stacking for fork lift removal



Starter Sheet Harvesting Machine

Ionic Mechatronics – Cathode Starter Sheet Process

Starter Sheet Preparation - General

- 3 Robot Cell – Fully Safety Rated
- Blank Sheet Bundle Loading Station – Sliding Gate Access
- Pre-Cut Loop Station
- Copper Bar Staging Station
- Hydraulic Clinching of Loops to Cathode

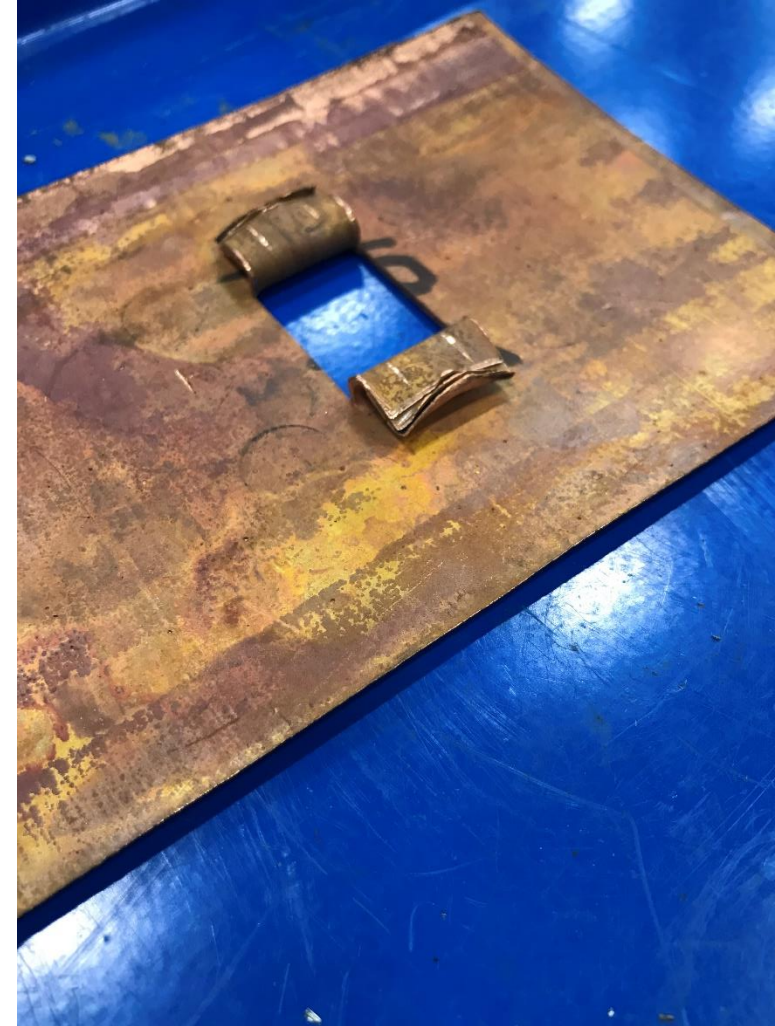


Starter Sheet Preparation - Build

Ionic Mechatronics – Cathode Starter Sheet Process

Starter Sheet Preparation - Specifications

- 150-200 Cathodes / Hr
- Hydraulic and Pneumatic Functions
- Manual Loading Areas
 - Bundle Loading -1
 - Bundle Loading – 2 Bar Loading Conveyor
 - Loop Loading Station
 - Accumulator Conveyor

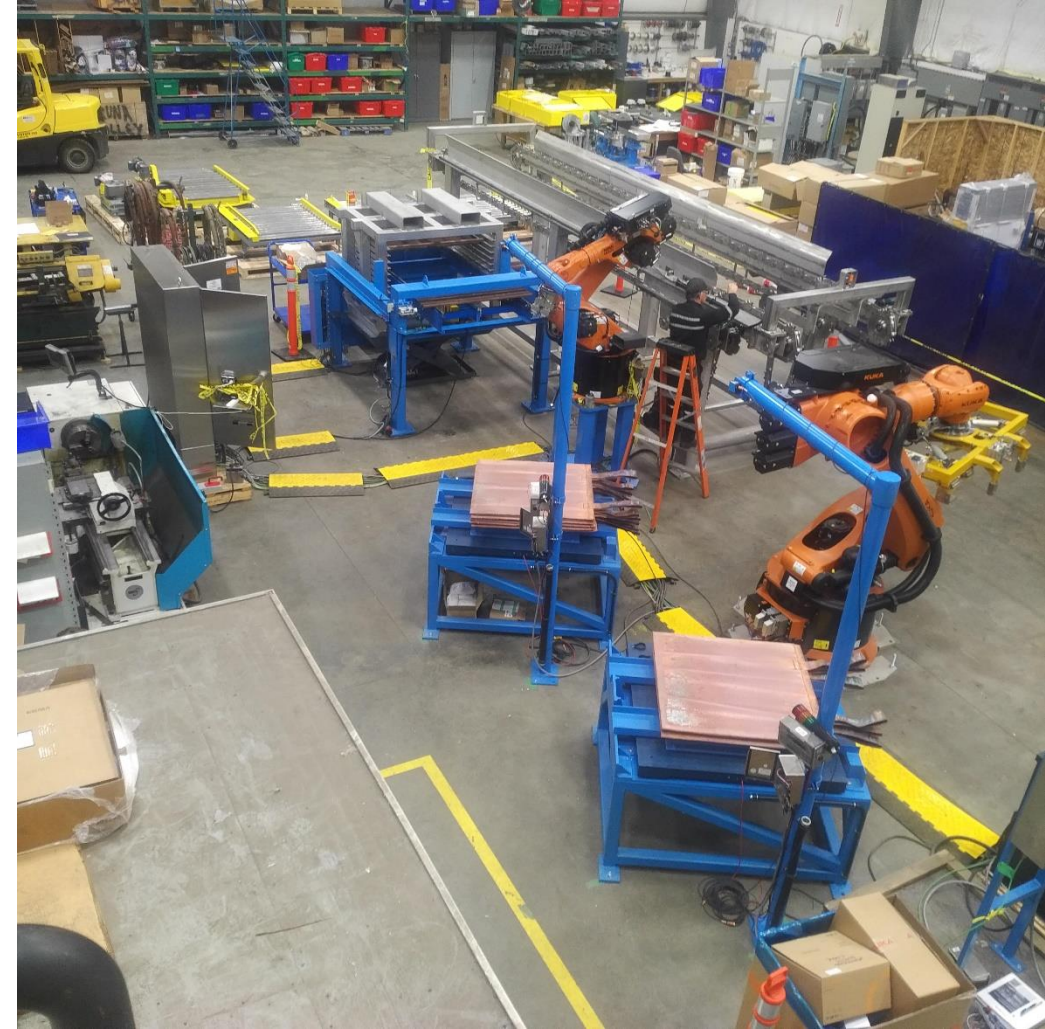


Starter Sheet Preparation - Clinching

Ionic Mechatronics – Cathode Starter Sheet Process

Harvesting (Bar Removal) System - Overall

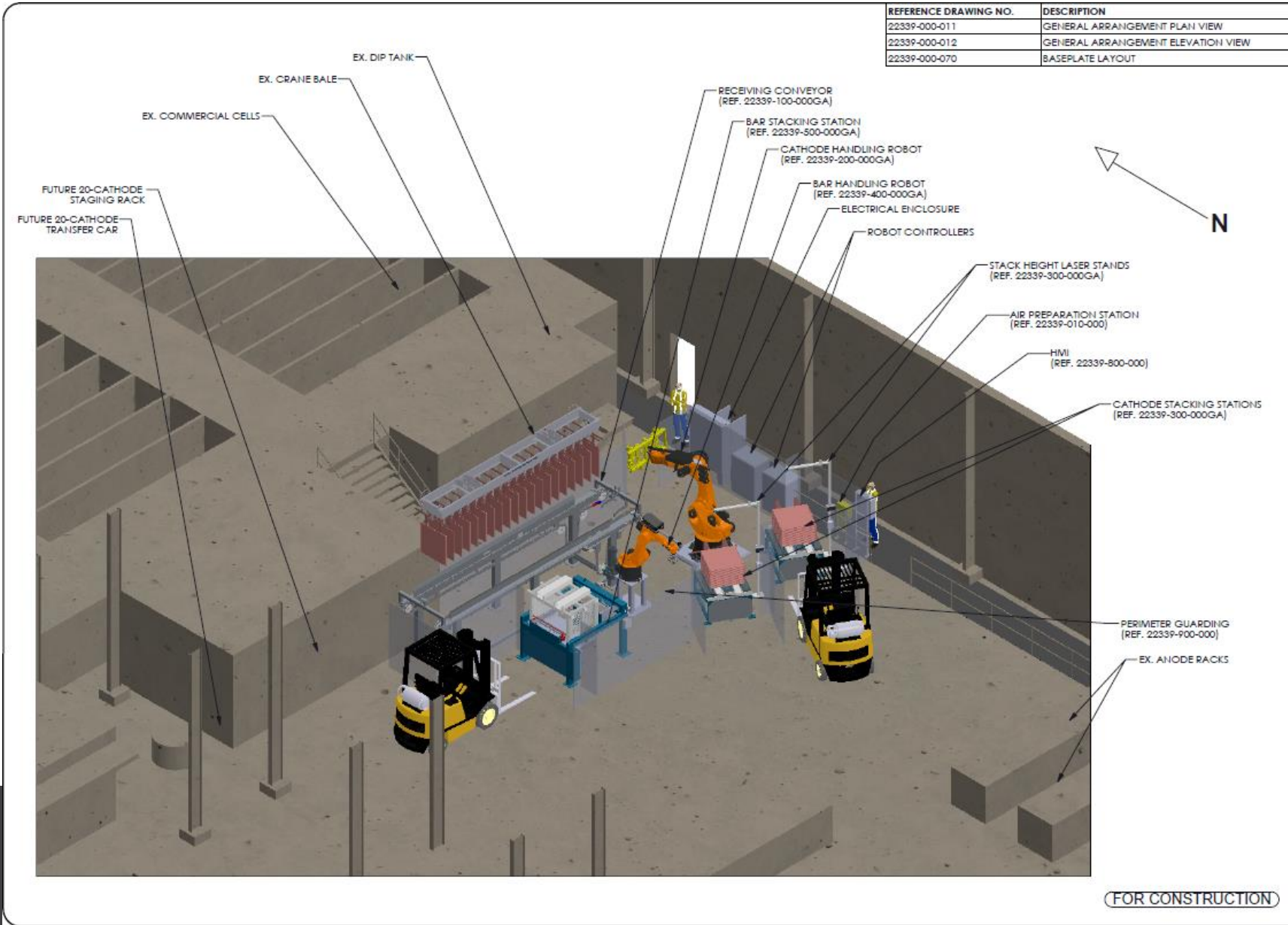
- Robotic Transfer and Sorting
- Infeed conveyor can be adjusted for exact cathode spacing
- 2 Robot System
- 150-200 Cathodes / Hour
- Automated bar unload racks
- Cathode slab stacking station with integrated weight monitoring
- Complete slab bundles to be removed by fork truck
- Manual or Automatic Strapping - Option



Bar Removal System

Ionic Mechatronics – Cathode Starter Sheet Process

Harvesting (Bar Removal) System - Design



Ionic Mechatronics – Cathode Starter Sheet Process

Bundling and Strapping - Overall

- Inline or Offline
- Built in weight system with digital readouts
- Automated steel band strapping
- Automatic labelling – Option. Label information is tied into weight system
- Bundles are moved by transfer beam style conveyor



Bundling and Strapping

Ionic Mechatronics – Cathode Starter Sheet Process

Cathode Sorting – Ionic Smart/Sort

- Network Connected
- Operator Defined database for classifying cathodes
- Continually improving – learns from plant operators
- Can be integrated with a robot for sorting into proper classification
- Machine vision camera technology
- Throughput of 700 CPH



Ionic Smart/Sort System

Ionic Mechatronics – Permanent Cathode Process

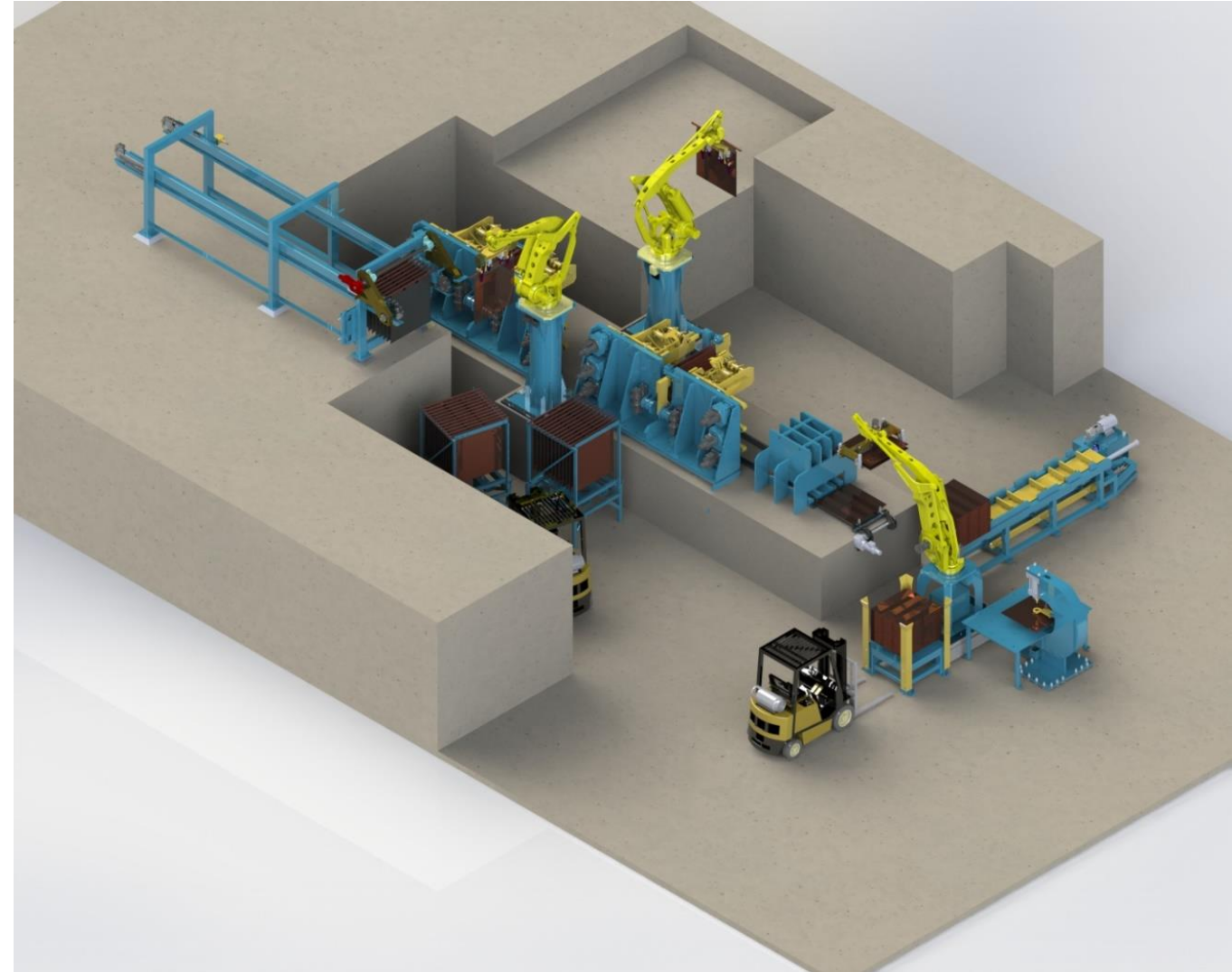
- *Stripping Machines*
- *Cathode Washing and Buffing*
- *Stacking and Weighing*
- *Cathode Sorting*
- *Packaging and Strapping*
- *Cathode Inspections*



Ionic Mechatronics – Permanent Cathode Process

Stripping Machine - Overview

- Electric Servo Driven
- Single Station Stripping Units
- Modular Design
- Reduced Footprint (up to 50% space savings)
- No Need for hydraulics
- Integrated Wash Booth
- 60% reduction in I/O counts
- 50% reduction in power consumption



Cathode Stripping Machine

Ionic Mechatronics – Permanent Cathode Process

Stripping Machine - Specifications

Unit	Capacity (CPH)
Manual Flexor	30-60
Semi - Automatic	60
Low Capacity (1 Robot, 1 Stripping Station)	180
Medium Capacity (2 Robots, 1 Stripping Station)	300
High Capacity (2 Robots, 2 Stripping Stations)	700

Ionic Mechatronics – Permanent Cathode Process

Cathode Buffing and Washing

- Robotic Transfers
- Patented Buffing System
- High Temperature and Pressure Washing
- Allows cathode washing to be completed within tank house
- Reduced costs – No need to ship cathodes for buffing and washing



Cathode Buffing and Washing

Ionic Mechatronics – Anode System

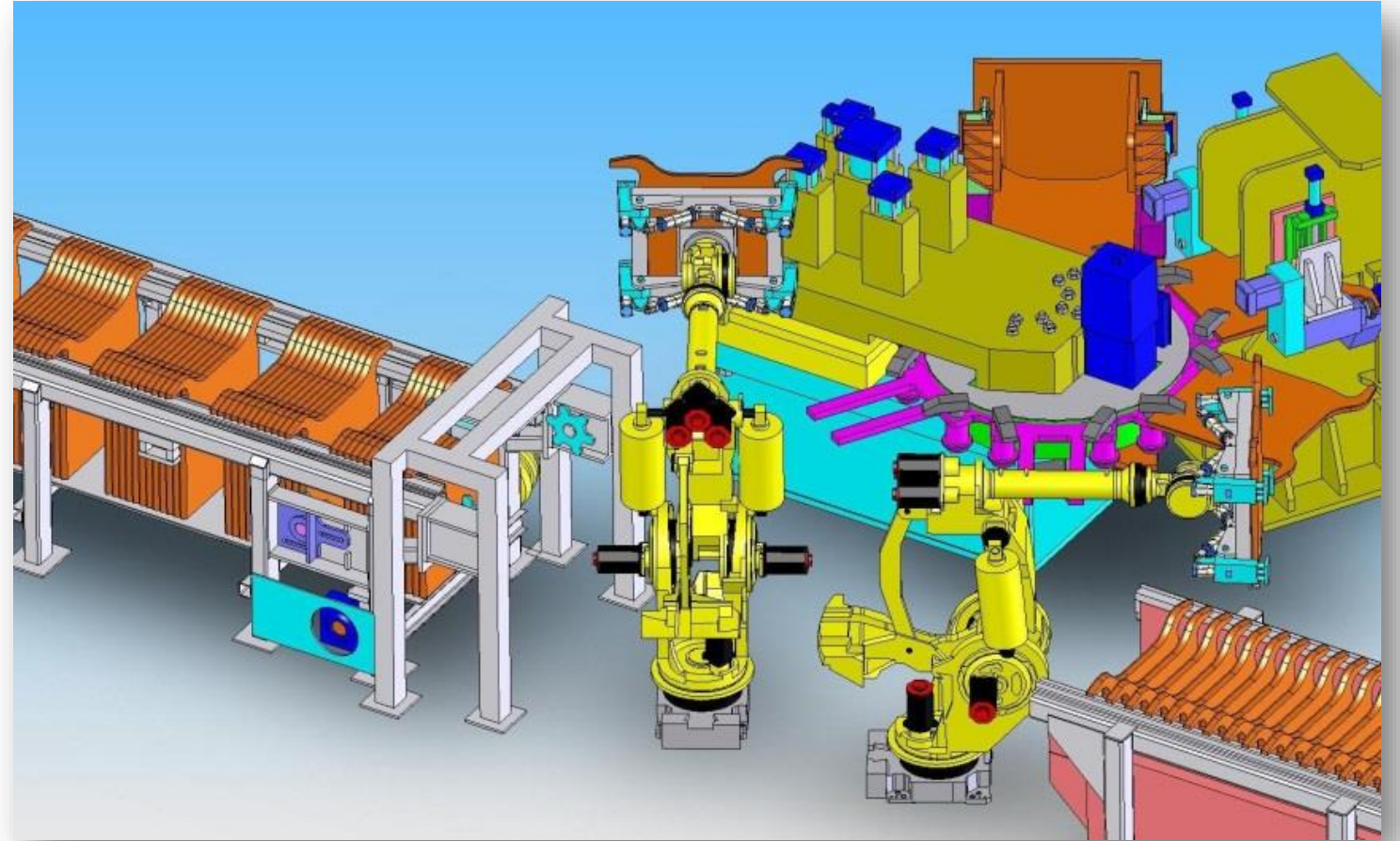
- *Anode Preparation Machines*
- *Anode Scrap Wash*



Ionic Mechatronics – Anode System

Anode Preparation Machine

- Linear and Robotic (Dial) Models
- Significantly reduced footprint with Dial Model. Dial System is horizontal orientation instead of vertical
- Capacity from 250 APH to 550 APH
- Full Safety Rated
- Hydraulic and Pneumatic Functions

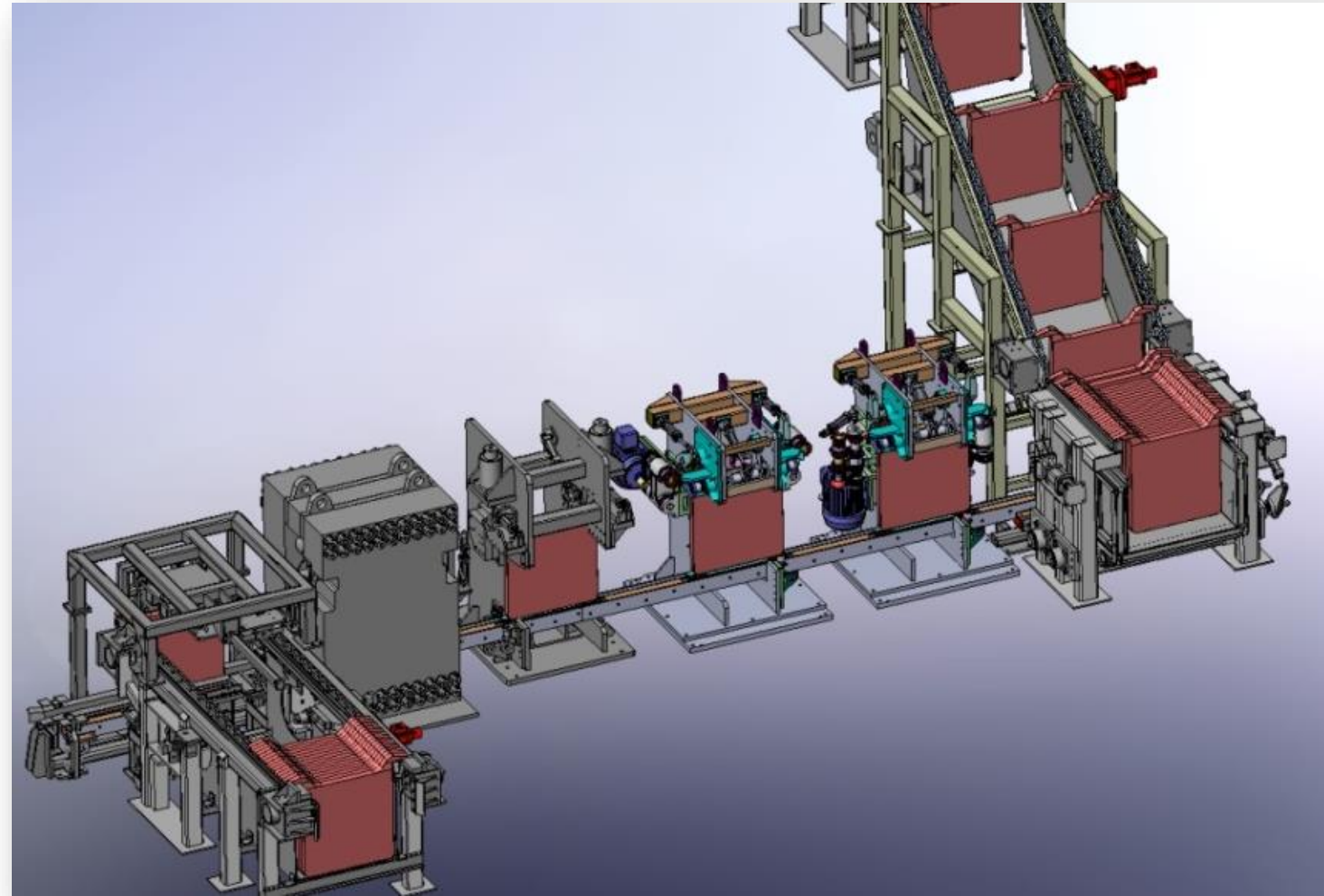


Rotary Dial Anode Preparation Machine

Ionic Mechatronics – Anode System

Anode Preparation Machine

- Receiving Conveyor
- Body and Lug Press Station
- Face and Lug Milling Station
- Reject Conveyor
- Transfer Car

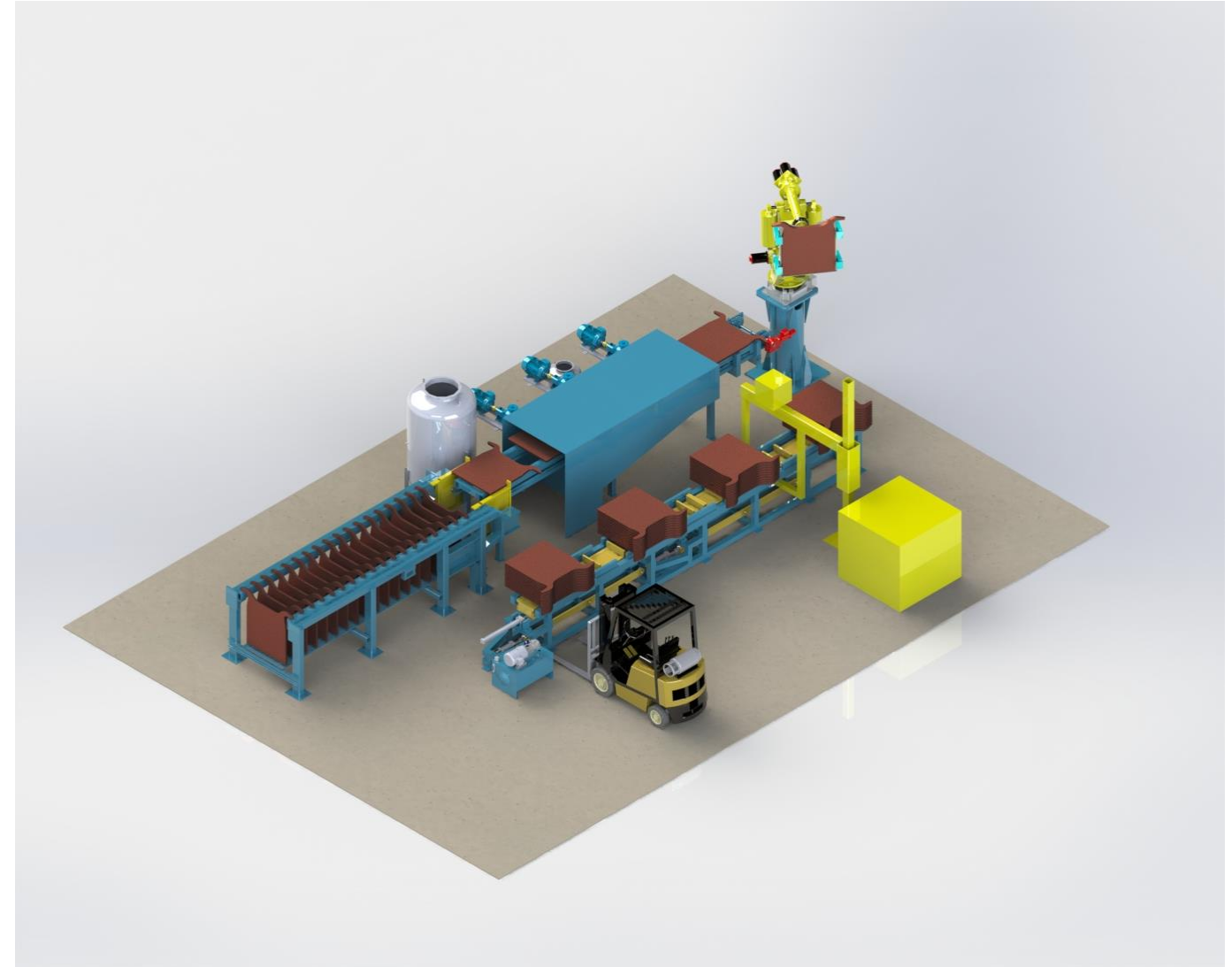


Linear Anode Preparation Machine

Ionic Mechatronics – Anode System

Anode Scrap Wash

- 1 Robot Cell
- High Pressure Wash
- Infeed Conveyor
- Robot Stacking
- Fork Lift Removal of Stacks



Ionic Mechatronics – Our Advantage

- Custom Solutions – Work closely with the customer on solutions. No “out of the box” solutions
- Safety rated solutions
- All machines are designed and built in the same building
- We have experience in Smelter and Refinery environments
- Will help commission machines. The same designers and programmers that built the machine will commission the machine. Will also help with training on site
- Brand Agnostic – Follow Customers specifications for the equipment they want to use (Robots, PLC, HMI, Controls, Valves, Sensors...etc.)





Thank you

www.ionicmechatronics.com

**Ryan Catton – Business Development Manager
ryan.catton@ionicmechatronics.com
1-705-665-2889**