



Welcome

Corporate Presentation

Agenda

- Corporate Overview – Ionic Technology Group
- Ionic Mechatronics – What we do?
- Equipments and Machines
- Desom – Ventilation Systems
- Solutions and Applications
- SafeBox: An automated isolation system
- SafeBox Components
- Cases of study
- Case Study: Improves Safety & Productivity
- Deployment Roadmap

Corporate Overview

Ionic Technology Group has been in business since 1999. With 150 employees, and two assembly facilities in Lively, Ontario and Cambridge, Ontario.

85% of workforce are Engineers or Technologists / Designers

Serves medium and heavy industry with automation installations on every continent

- Industrial Automation and Robotics
- Systems Integration and Assembly - Combine several subsystems to work together as one large system
- Electronics Design and Manufacturing
- Consulting Engineering
- Full Project Cycle focus (Concepts, Design, Builds, On-site commissioning)

Ionic Mechatronics is focused on Heavy Industries (Mining, Smelters, Refineries, Minerals, Forestry, Steel, Manufacturing)

Ionic Technology Group



Corporate Overview

Global Presence and Customers



Ionic Mechatronics

What We Do

- Custom machines to meet the customers standards and specifications
- On-site machine operational studies
- Safety Upgrades to existing machines
- Panel builds



Custom Built Machines

Ionic Mechatronics – Tank House Equipment

Overview

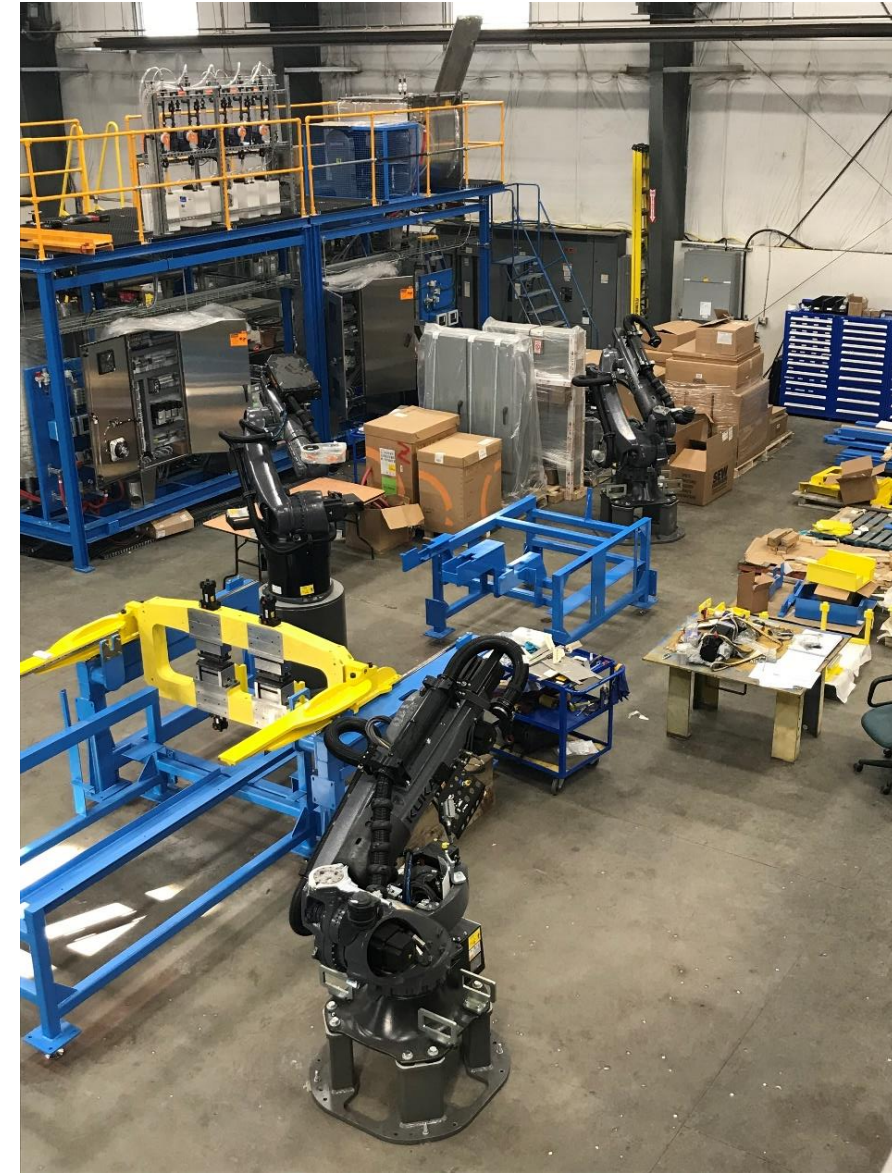
Ionic has designed and built equipment for the following Processes

- Cathode Starter Sheet Processes
- Permanent Cathode Processes
- Anode Processing
- PGM
- Uranium
- Concentrates



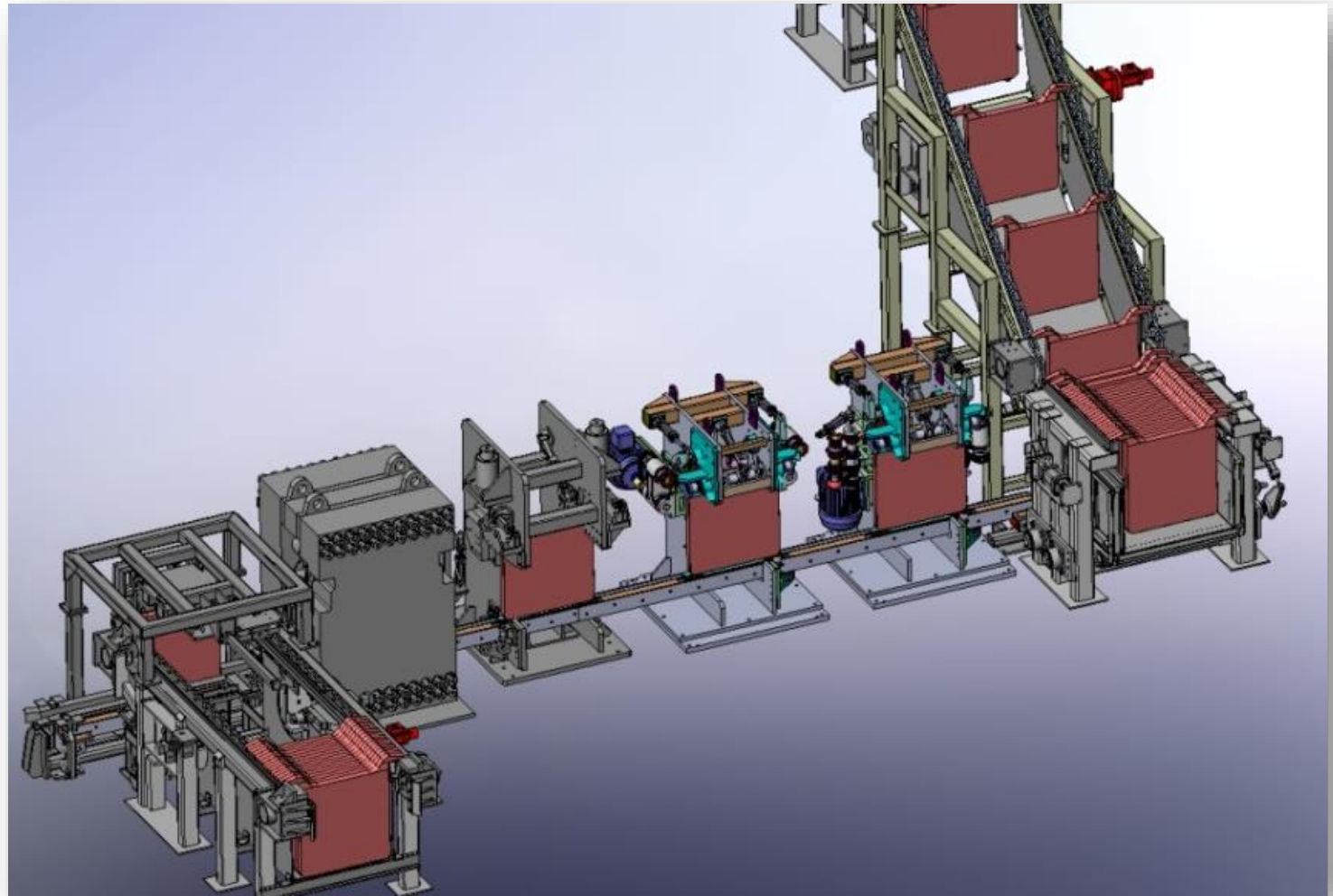
Cathode Starter Sheet and Permanent Cathode Process

- Stripping Machines (Starter Sheet Peeling and Cathode Stripping)
- Starter Sheet Preparation and Assembly
- Harvesting Machines (Bar Removal)
- Stacking and Weighing
- Cathode Sorting and Inspections
- Packaging and Strapping
- Cathode Blank Buffing and Washing
- Starter Sheet Casting



Anode Systems

- Anode Preparation Machines
 - Rotary and Linear
 - Up to 500 APH
- Anode Scrap Wash



Rounds (Mandrel) / Cathode Preparation

- Robotic high pressure ink removal system
- Custom Mandrel grit blast
- Mandrel cleaning
- Baking / Drying Ovens



Mandrel / Cathode Preparation System



Machine Operation Audits

- Site visit to watch machine in operation
- Cycle time and fault analysis
- Detailed report with finding
- 5yr capital and operating plan for improvements
- Complete machine safety audit. Improvements included in report



Machine Safety Upgrades

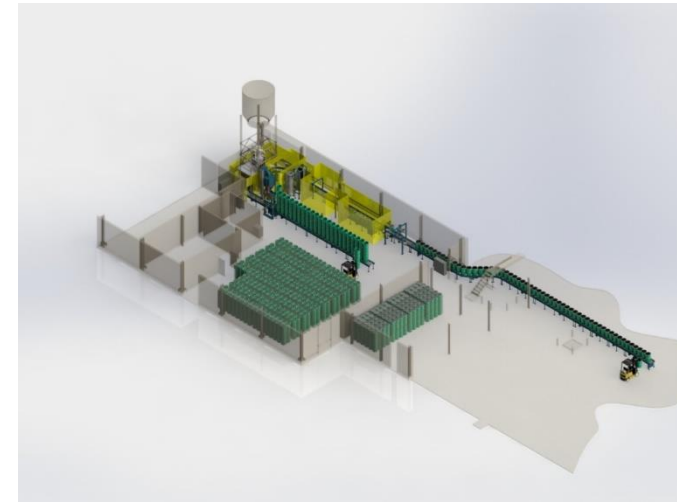
- Application of ISO 13849-1 & CSA Z432 Codes
- Safety Audits
- Pre-Start Health and Safety Reviews (PSSR / PSR)
- Design and Implement Safety Upgrades
- In House CMSE Certification



PGM, Rare Earth Drumming and Uranium Drumming



- Dust –free filling
- Small footprint
- Manual drum load and unload
- Drum fill by weight
- Modular System



- Dust –free filling
- Auto Sampling
- Auto or Manual Lidding
- Drum Cleaning
- Legal for Trade Weight
- Labelling
- Up to 8 drums per hour

Desom and Its History

Overview



A company founded 40 years ago and currently was acquire in 2021 by Ionic Technology Goup.

Initially, the focus was on providing primary and secondary environmental control systems to the iron and steel industry.

Desom quickly pivoted to become an industry leader in electrowinning tankhouses.

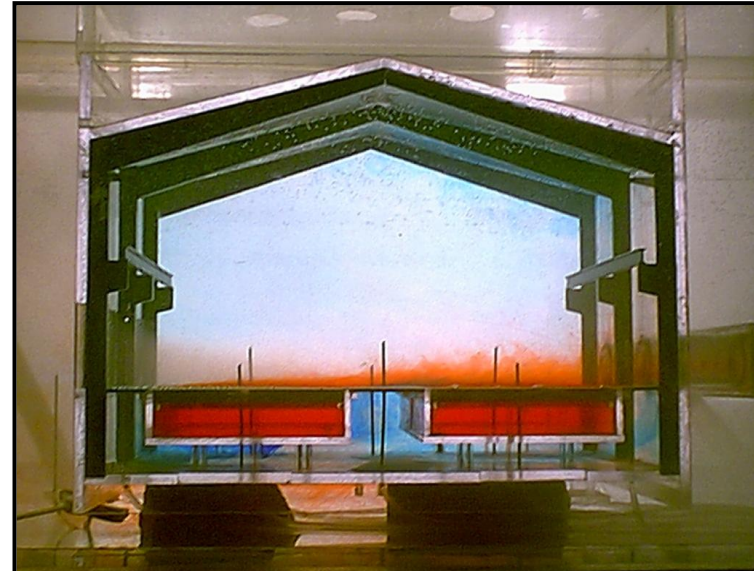
With over thirty-five (35) electrowinning ventilation systems deployed worldwide.

We offer ventilation solutions to electrowinning tank houses for zinc, copper, nickel & cobalt applications.

Our systems compliant with current environmental, health and safety regulations.

Desom Technical Systems

Overview



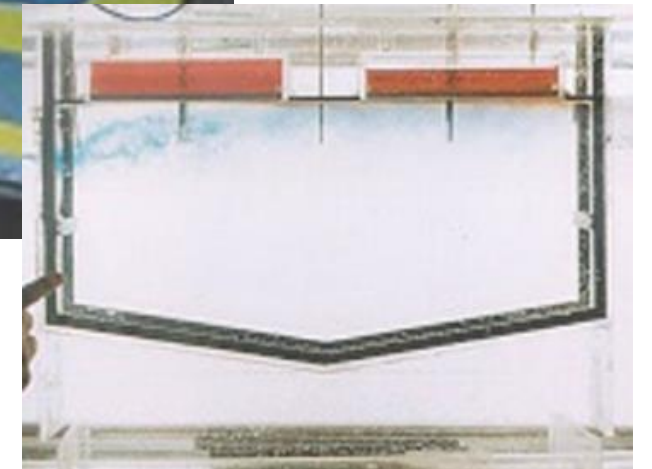
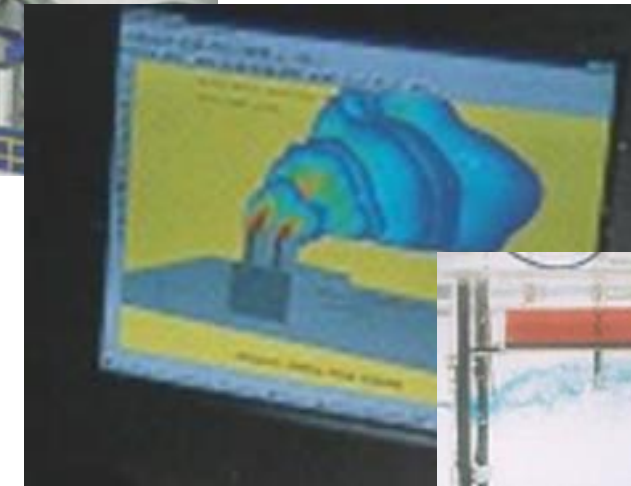
- Cross Flow Ventilation Systems
- Close Capture Ventilation Systems
- VentiCover
- AnodeControl
- EnerCon
- HiPro EW Cells

- ElectroClean - Electrode Cleaning System
- DWCT - Dynamic Wall Cooling Towers
- MistElim
- DirectFlow Primary Jets
- StormStop Inlet Louvers
- ElectroCaps Source Control Systems

Desom Technical Services



- Ventilation Assessment
- Upgrades to existing systems
- New system Installations
- Spare Parts
- Gas Monitoring for Tankhouses
- CFD Analysis - Simulation (Computational Fluid Dynamics)



Desom – Systems Deployed



- Chile – Codelco El Teniente – Cross Flow – Cu SX/EW
- Chile – Antofagasta PLC El Tesoro – Centinela – Cross Flow/ MistElim – Cu SX/EW
- Mexico – Grupo Mexico Mexicana de Cobre/La Caridad - Cross Flow – CU SX/EW
- Spain – First Quantum Cobre Las Cruces – Dynamic Wall Cooling Towers
- USA – Anaconda Copper – Refinery Ventilation System
- Botswana – Tati Project – MistElim System
- Australia – Cawse Nickel – AnodeControl System

SAFE BOX



**Safe, fast, automated isolation system
of complex industrial machinery.**

SafeBox Components



SafeBox Master
Up to 10 Masters per system



SafeBox FID
Up to 50 FIDs per system

SafeBox Master

- Safety-rated components throughout
- Touch-screen interface provides status feedback
- Records a full history of LOTO operations
- Optional access control via PIN or Password login
- Physical buttons for Isolation and Energization
- Physical lockout bar for familiar use of padlocks
- Captured lockout bar can not be raised to the 'lockout' position until all remote systems are verified disconnected and verified at zero energy
- Bright LED lights indicate the state of the SafeBox system at a distance

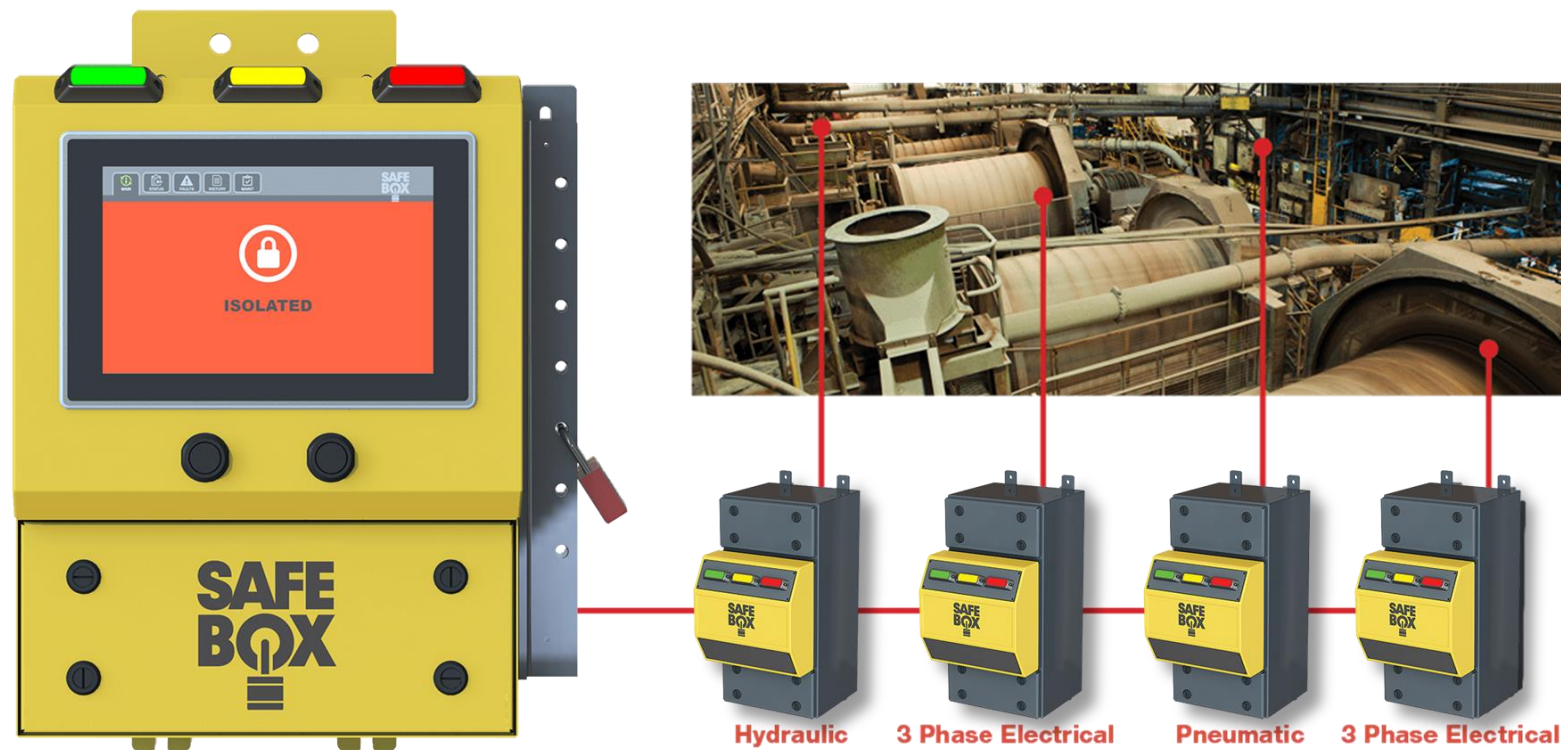


SafeBox FID

- Safety-rated components throughout
- Available in:
 - Low Voltage (up to 1,000v), 100A, 300A or 600A
 - Medium Voltage (up to 6,900v), 400A or 800A
 - Pneumatic, with vent to atmosphere to achieve zero-energy
 - Hydraulic
 - Custom applications as needed
- Dual, parallel redundant safety rated disconnects
- Monitored by safety test-pulse and N/O-N/C contacts
- Zero-energy verification
- Bright LED lights indicate the state of the SafeBox system at a distance



SafeBox Configuration



Master Control Device

Safely isolates all connected Field Isolation Devices from a single lockout point.

Field Isolation Devices (FID)

Install individual Field Isolation Devices to power sources throughout plant. Devices are connected to Master Control Device via safety-rated communications.

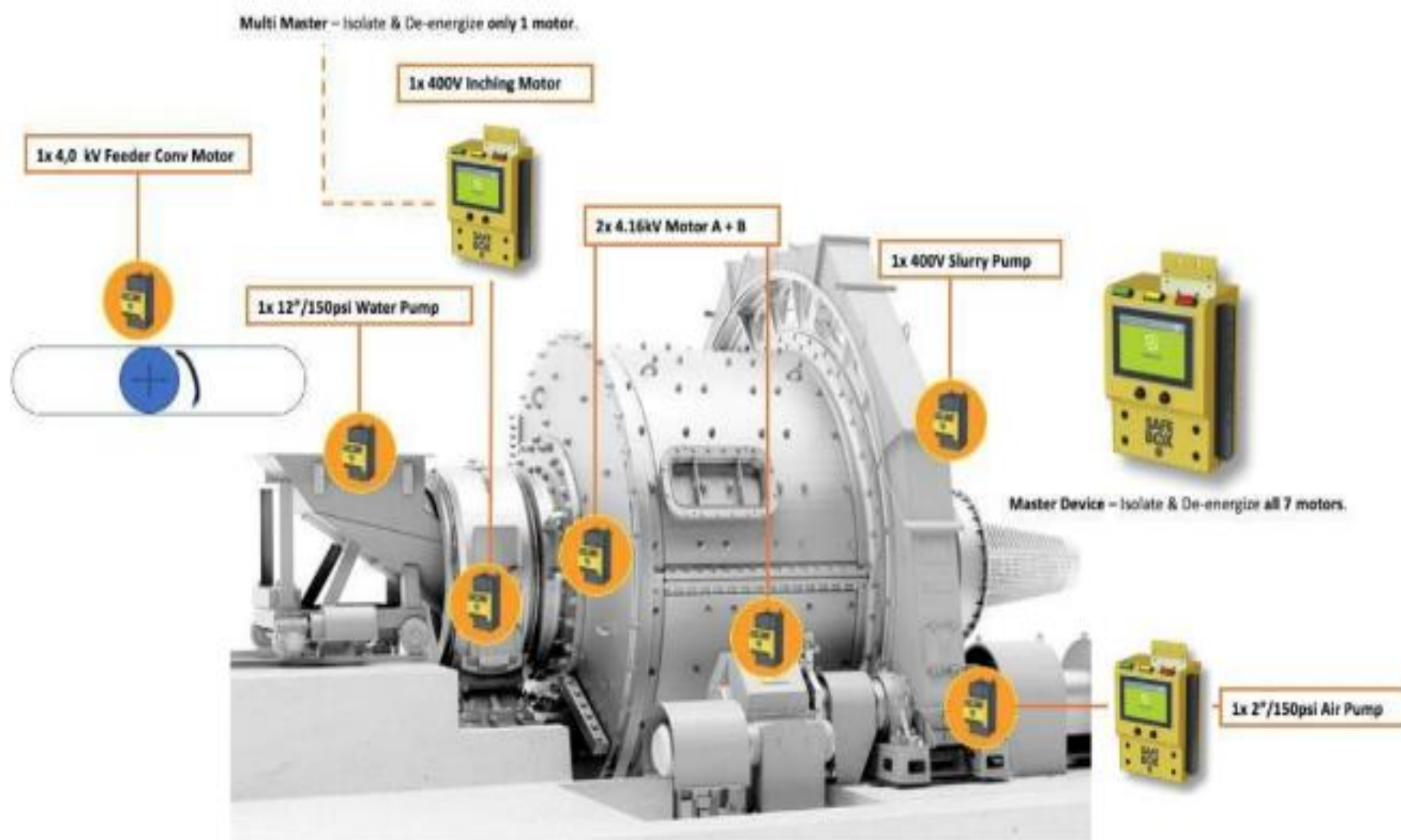
- A single SafeBox Master can control up to 50 Field Isolation Devices (FID)
- SafeBox systems can automate any combination of **Low Voltage, Medium Voltage, Pneumatic or Hydraulic FIDs**
- Up to 10 Masters can be configured in a single SafeBox implementation
- Multiple Masters can control identical lockout sequences from different locations, or Masters can have unique lockout sequences
- SafeBox validates **zero energy** state at every FID before allowing lockout

Case Study: Underground Conveyor Lockout

- 750ft underground conveyer spans multiple levels of mine
- Lockout at head of conveyer only
- Travel time between levels > 2hrs
- Takes an entire 10hr shift to lockout, service tail, and energize
- Some workers would service conveyer without locking out, putting their lives at risk
- SafeBox solved the problem with a Master at the head and a second Master at the tail



Case Study: SAG Mill



- Complex lockout
- 5 Electrical FIDs (3 medium voltage, 2 low voltage)
- 1 Hydraulic FID (knifegate)
- 1 Pneumatic FID
- 3 Master units
- Lockout process put workers at risk due to physical proximity to dangers
- SafeBox solved the problem by distancing workers from dangers and locking the entire system out with one action.

Case Study: Overland Conveyor

- 2km overland conveyor
- Required full PPE and Electricians to manually isolate
- SafeBox allows remote lockout from a central location, without PPE or Electricians
- SafeBox reduced lockout time from 2hrs to 18 seconds
- 2 medium voltage, 800A FIDs
- 2 SafeBox Master units (either unit locks out the entire system)



Deployment Roadmap

Phase 1: Project Definition

- Identify use case
- Review existing LOTO procedures
- Review existing single line diagrams
- Quote SafeBox components

Phase 2: Manufacturing and Supply

- Engineer pneumatic / hydraulic components and bespoke integrations
- Manufacture SafeBox components
- Perform Factory Acceptance Test (customer invited to attend)
- Ship SafeBox to site

Phase 3: Installation and Commissioning

- Installation by client's preferred contractor, or SafeBox integrator
- SafeBox commissioning (SafeBox representative on-site)
- Worker training
- Support as required



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

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

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