



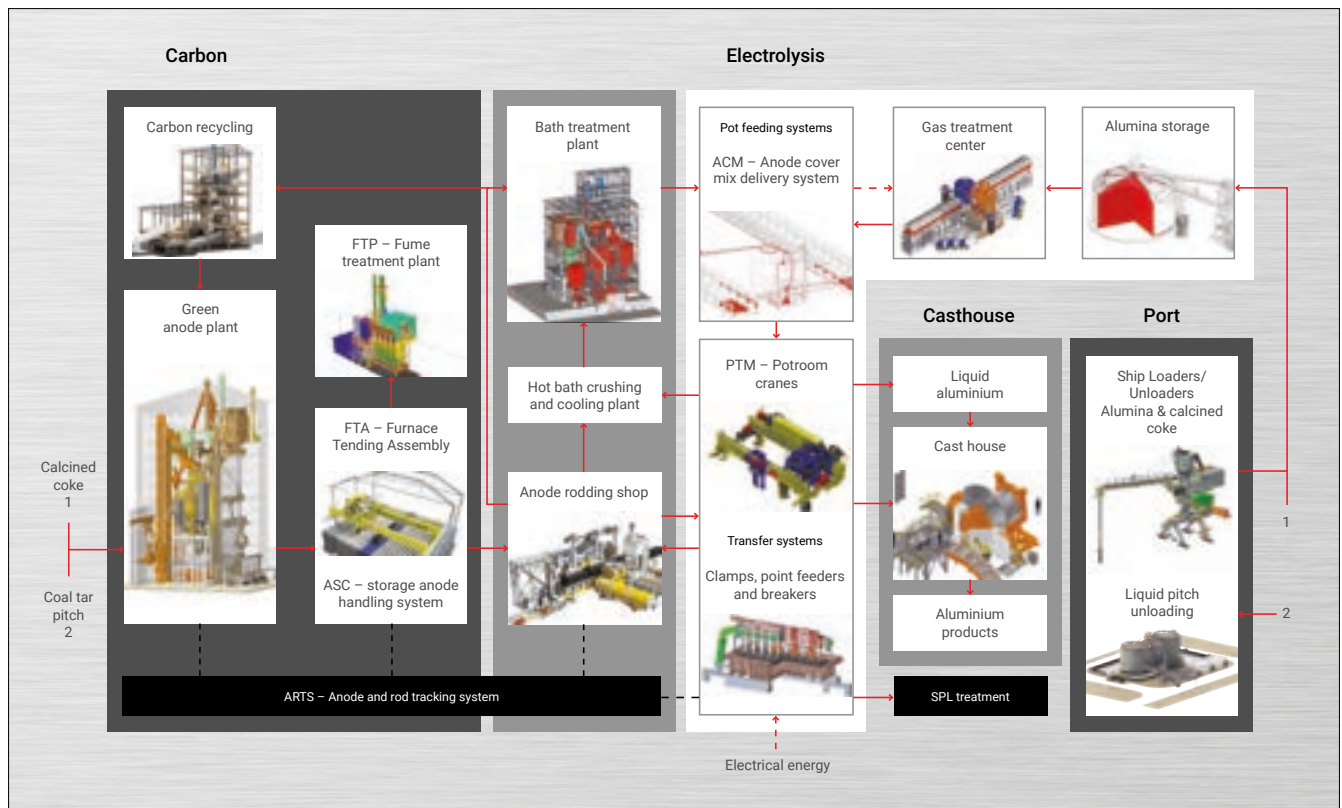
*TOGETHER  
TOWARDS  
PERFORMANCE*

## **REEL Anodes & Casting**

Plant Engineering Solutions and Technologies  
for the Aluminium Smelter Industry



# Global Solution Provider to the complete primary Aluminium Smelter Process





## **REEL's Anodes and Casting plant solutions and technologies**

are based on their proven track record over the past 65 years, a reliable plant and proprietary equipment portfolio and comprehensive service expertise.

REEL Anode and Casting provides complete engineering solutions for paste plants, rodding shops, carbon recycling plants, bath treatment plants, and casthouses, as well as plant and equipment upgrades and retrofits.

Committed to continuous improvement, REEL has served every major primary aluminium producer in the world with innovative designs and reliable equipment.

### **Benefits**

- Extensive expertise in all process and production stages
- Advanced technologies, developed through continuous R&D
- Complete life-cycle solutions, from design to operation and maintenance
- Custom-designed solutions for every step in your process flow
- Long-term partnership supporting sustainable, profitable, and safe operations

# Comprehensive Range of Process and Production Solutions

## REEL Anode and Casting provides proven business solutions

with comprehensive expertise in the field of paste plants, rodding shops, carbon recycling plants bath treatment plants, and casthouse machinery.

We are committed to continuously develop equipment for our customer's needs and enhancing their production process while taking care of the entire supply, deliver, installation and commissioning.

### Our REEL team will support you every step of the way

We can custom-design solutions for every step in your production process. Working with a single, well experienced technology provider is not only more cost-effective but it also saves you the time and effort of coordinating with multiple equipment providers.

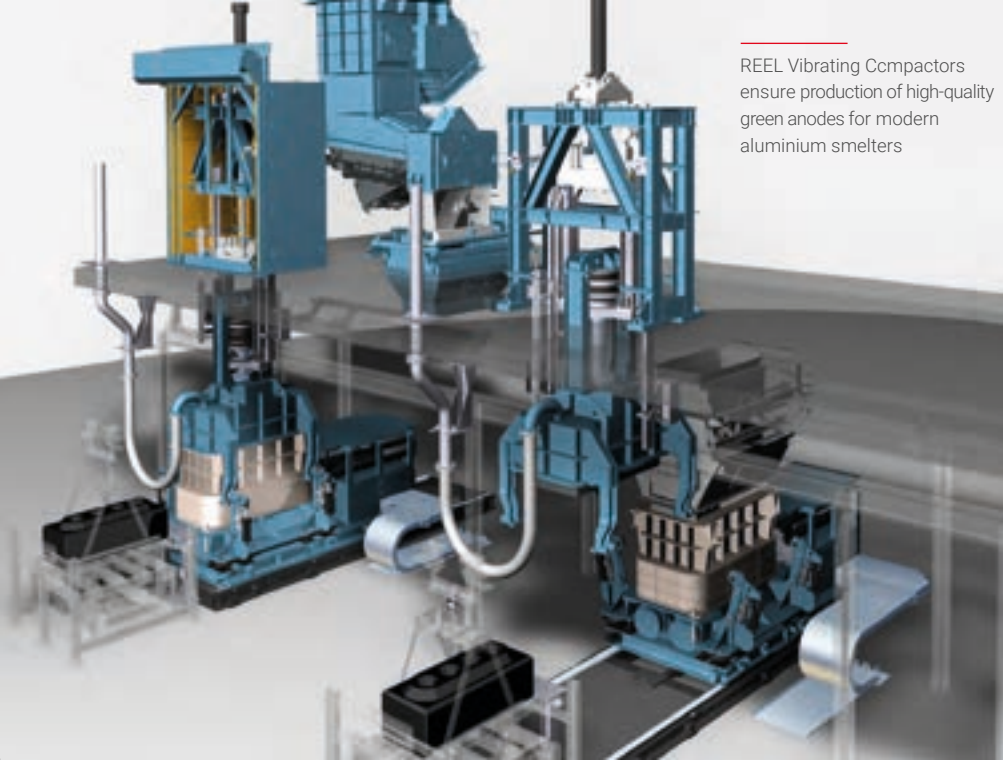
Our aim is to build a long-term partnership that will support sustainable, profitable, and safe operations in your smelters.

Projects may begin with a feasibility study and can range from smaller upgrades of existing equipment to larger technology packages and complete turnkey plant delivery.

We support you with a wide range of design, operation, maintenance services and after sales service through our global service center network.

### Our service expertise covers:

- Feasibility studies
- Risk management
- Project management and control
- Basic and detailed engineering
- Proprietary and global equipment supply
- Site supervision
- Plant commissioning and start-up
- Maintenance and operations support



REEL Vibrating Compactors ensure production of high-quality green anodes for modern aluminium smelters

# Green Anode Plant Solutions

## We provide a complete range

of technologies and process solutions for green anode manufacturing, both for new-build plants and the upgrading of existing facilities. We can design a solution based on your flowsheet, or recommend a proprietary solution based on our innovative process technologies.

REEL Green Anode Plant solutions are designed for excellent reliability and availability. They are based on highly efficient anode-forming technology that uses vibrating compactors to produce high-quality anodes with consistent properties and low variability. With more than 130 anode vibrating compactors supplied to multiple customers worldwide, REEL is the leading supplier of anode vibrating compactors to the aluminium smelter industry.

## Green Anode Plant applications

- Storage, screening and crushing of calcined coke and recycled anode scrap for fraction classification
- Fine milling of undersize coke material using an air-swept ball mill or vertical mill
- Proportioning and preheating of dry material fractions, and mixing with liquid pitch to produce a homogenous anode paste
- Vibrocompacting of green anode blocks
- Water-cooling of green anode blocks by spraying or submersion
- Pitch fume treatment system (RTO or dry scrubbing)
- Liquid Pitch and HTM Storage, handling and distribution facilities to support Green Anode Production
- Fully automated plant solution with remote process operation, monitoring, and analysis via intuitive graphical interface
- Our INDUSTRIE 4.0 is a unique approach connecting experts, systems and users to provide real-time insights

## Proprietary equipment

- Vibrating Compactor
- Preheating Screw
- Anode Cooling Conveyor
- Pitch Fume Dry Scrubbing System
- ARTS anode and Rod Tracking System





# Carbon Recycling Plant Solutions

## Our Carbon Recycling Plants for

aluminium smelters are designed for high reliability and plant availability, with robust equipment capable of performing in harsh environments. We provide complete recycling plant solutions for processing anode butts and baked and green anode scrap, as well as plant upgrades for existing facilities.

Our capabilities include global delivery starting from conceptual engineering studies to full detailed engineering, fabrication, supply, construction and commissioning services. Our effective project management and control ensures cost-effective delivery with the shortest possible lead time.

We have successfully delivered more than 25 carbon recycling projects worldwide, ranging from plant upgrades to complete turnkey solutions.

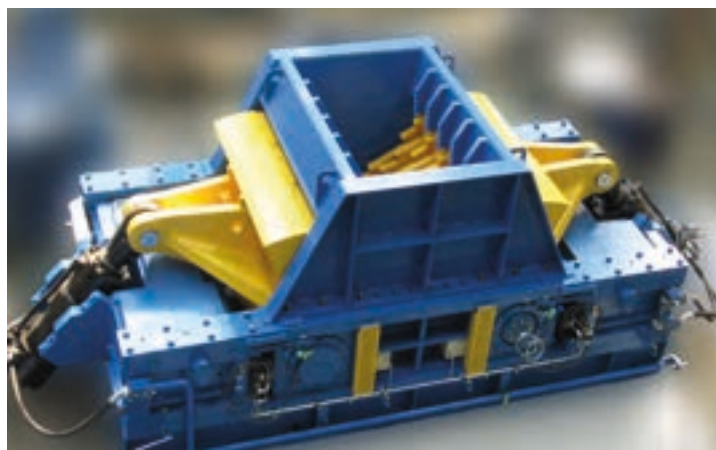


## Carbon recycling applications

- Two-step screening and crushing circuit for recycled anode scrap enables a high crushing ratio and lower capital expenditure
- Proprietary hydraulic anode crusher for primary crushing of full-sized green and baked anode scrap or recycled spent anodes
- Metal separation and removal of tramp iron and non-magnetic metal pieces
- Efficient Dust Collection and Control
- PLC-based automation system

## Proprietary equipment

- REEL Hydraulic Anode Crusher



The REEL Hydraulic Anode Crusher is specifically designed for the primary crushing of butts, carbon scrap material, and full-size green and baked anodes.

# Liquid Pitch Storage and Handling Solutions



## Our liquid pitch storage and handling solutions

which include loading and unloading port terminal solutions, storage tanks, jacketed or heat traced piping and HTM facilities are designed for safe operations and long-term, sustainable, and profitable performance. During the design phase, special attention is given to all health, safety and environmental requirements (HSE).

The REEL HSE Rules and Standards establish the principle of managing quality, occupational health, safety, and environmental matters in accordance with the corporate policies of our customers and with their local legislation and regulations.

Our ultimate goal is to ensure that our industrial plants provide a reliable, risk-free, safe, and healthy working environment.

## Liquid pitch storage and handling applications

- Ship unloading arm with flexible points for easy loading and unloading
- Liquid pitch storage tanks
- Fully sealed pitch pumps
- Tanker loading arms with fume return line
- Peripheral systems including heat transfer medium, pitch fume handling system, and nitrogen blanketing systems for storage tanks

Unloading road tankers using hydraulically actuated unloading arm with quick-connection coupling for easy operation



# Anode Rodding Shop Solutions

## We offer the full scope of technologies for anode rodding shops

including solutions for bath removal, stripping of spent anodes and thimble stripping, rod reconditioning and rodding of new anode assemblies having either in-line or quadri/hexa/octopod stub hole design. Our cost-effective and highly automated solutions are based on over 50 years of experience serving the aluminium industry and are designed to help you improve productivity, reduce maintenance costs and down-time, while contributing to a safer working environment.

REEL solutions are designed to meet your specific plant layout and operational requirements. Our high-quality proprietary equipment is built to last, with low operating and maintenance costs that contribute to a faster return on your investment. All our systems are rigorously tested prior to delivery to ensure trouble-free installation and commissioning.

## Rodding shop applications

- Basic and detailed engineering for any plant solution
- Proprietary and key equipment supply
- Site supervision, commissioning, and start-up services
- Complete turnkey plant deliveries
- Plant retrofit and machinery upgrade services



## Proprietary equipment

- Loading and Unloading
- Primary Bath Cleaning
- Butt Shotblast
- Butt Stripping Press
- Thimble Press
- Combination Butt and Thimble Stripping Press
- Rod Reconditioning Station
- Stub Straightening
- Rod Straightening
- Rod Brushing
- Cast Iron Thimble Cleaning
- Mating Station
- Semi-Automatic-Casting
- Anode Slot Saw





# Casthouse Solutions

## REEL is a leader

in the design, fabrication, and supply for casthouse equipment for today's highly competitive and quality-driven aluminium industry.

Our solutions draw on our extensive experience in the research, testing, design operation, installation, and service of ingot and sow casters.

We have supplied both air and water-cooled sow casters, including delivery of the largest automated sow casting system in the world.

Our equipment portfolio also includes ingot casting plus saw lines for billet, rolling slab, and T-bar.

Our modular systems can be customized for your specific plant layout and offer easy integration and maximized productivity and safety.

## Proprietary equipment

- Sow-Caster System
- Foundry Ingot Casting
- Slab, T-bar and Billet Handling Sawline



REEL Rolling slab saw  
and handling

# REEL Bath Treatment Plant



## Benefits

- High degree of tolerance
- Efficient design and operation
- High reliability
- Proven technology in operations

The Bath Treatment Plant will crush the bath material to a nominal product size. During crushing unwanted materials are removed including carbon, aluminium, steel and other uncrushable material. This is rejected directly from the mill.

The crushed bath is blended with alumina to produce the anode cover that is used in the potlines. The anode cover is transported via dense phase conveyors and/or bath tankers to the potlines.

## The REEL Bath Treatment Plant is designed to process bath material from multiple sources, including:

- Butt bath that comes from the Rodding Shop after bath is cleaned from the spent anodes
- Crust bath that comes from the potline in skips
- Pure bath that comes from the potline in moulds which are upturned and the bath/aluminium is then placed in skips or handled via front end loader
- Other sources, such as delining bath, bath from sweepings and ladle cleaning or skimming bath

## Benefits

- High reliability
- Low maintenance costs
- Efficient design and operation



# REEL Slot Cutting System



## Benefits

- No hydraulics
- Low maintenance costs
- Efficient design and operation
- High reliability

The REEL Slot Cutting System is designed to cut two parallel slots in each carbon anode block. The anodes are handled by roller conveyors and a carriage system as they are processed through the machine.

The Slot Cutting System is controlled through the PLC and runs automatically.

The Slot Cutting System can cut slots in excess of 425mm deep with a cycle time of 60 seconds per carbon anode.

# REEL Anode Cleaning System

The REEL Anode Cleaning System is designed to remove the loose packing coke from the external surfaces and stub holes of baked anodes and, as an option, the material trapped in formed slots.

REEL offers a complete electromechanical system - without hydraulics - as well as a conventional hydraulically actuated system.

The Anode Cleaning System is controlled through the PLC and runs automatically.

The system is engineered to handle all types of anodes, including 2, 3 and 4 stub anode blocks, with the stub holes in either horizontal or vertical orientation.



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