




ISASMELT™ 30
YEARS



**ISASMELT™ gives
you flexible, clean
smelting for the
real world**

GLENCORE TECHNOLOGY

A GLENCORE COMPANY

ISASMELT™ has been producing matte from concentrates and secondary materials for more than 40 years.

More than **10.35 million tonnes** of feed per year are treated in **15 ISASMELT™ plants** around the world in Australia, USA, Germany, Belgium, Zambia, Peru, and Kazakhstan.

At a glance

- ISASMELT™'s top submerged lance (TSL) smelters are low in capex and opex, low in maintenance and easy to run.
 - ISASMELT™ ramps up to 100% of design capacity in just a few months.
 - It's flexible so you can change feed as your run-of-mine ore changes.
 - It has a small footprint so it can be installed in greenfield or brownfield operations.
 - And its environmental performance is world class.
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Why ISASMELT™ is the world's highest-performing smelting furnace

The high intensity of the ISASMELT™ process results in high productivity from a relatively small diameter furnace. This means a small footprint, lower installation costs, straightforward maintenance and cost effective operation.

1. Flexible

ISASMELT™ is flexible for the real world. Feed compositions and opportunities change over time and ISASMELT™ can adapt to those changes.

2. Variable feed

Unlike other smelters, ISASMELT™ can take both coarse and fine feeds. For coarse materials, you'll simply drop it directly into the furnace. For fine feeds, you'll agglomerate the fine materials to keep dusting super low.

3. Fast ramp-up

The ramp-up to the designed capacity of a newly built ISASMELT™ is fast – three months instead of a number of years.

4. Lower cost

ISASMELT™ has lower operational expenses and maintenance. For example:

- Rebricking your ISASMELT™ furnace is quicker and easier.
- ISASMELT™ lances are cheaper to maintain and faster to replace.
- There are fewer copper blocks to monitor – and they last longer.
- The ISASMELT™ furnace is easier to learn, simpler to operate, and more robust to handle any upset conditions.

5. Higher availability

ISASMELT™ availability is well over ninety percent. The availability of other smelters can be two to five percent less. That translates to a lot of revenue.

6. Long campaigns

ISASMELT™ can be operated for long campaigns between furnace repairs, up to four times longer than other furnaces operating similar processes. You can expect a four-year campaign for a typical ISASMELT™ furnace and some have demonstrated more than six years on a single refractory lining!

7. Advanced control systems

ISASMELT™ has advanced control systems to minimise fugitive emissions and deliver a world-class environmental result.

8. Advanced safety

ISASMELT™ has advanced safety and design features at all locations where operators work to ensure they are safe.

9. Advanced instrumentation

Advanced instrumentation and controls allow ISASMELT™ to stay running in the optimum operating window. Other furnace technologies struggle to optimise.

10. Simple, safe tapping

ISASMELT™ tapping systems are simple, safe, easy to operate, and highly reliable.

11. Technology transfer

Technology transfer from the ISASMELT™ team to you, our client, includes training at an existing operational ISASMELT™ site, hands-on help commissioning and hands-on help to ramp-up your ISASMELT™. Along the way, we help solve any technical problems.

12. Community knowledge sharing

We have a licensee community who talk with us and each other, helping us all improve our operations. When you're an ISASMELT™ licensee, you're part of that community. We have private workshops, online webinars, and conferences at site.



ISASMELT™ is flexible for all applications

ISASMELT™ can be used for a range of applications including primary and secondary copper smelting and copper converting, primary and secondary lead smelting, primary nickel smelting and converting, and tin, zinc and precious metals smelting.

Since its introduction to the marketplace, the ISASMELT™ process has had the highest adoption rate of any base metals smelting process.

The ISASMELT™ process is installed in countries with major lead and copper smelting and converting operations around the world, including Australia, USA, Belgium, Germany, Great Britain, India, Malaysia, China, Peru, Zambia and Kazakhstan.

In the copper industry, the ISASMELT™ process has been rapidly accepted, resulting in a transformation of the copper smelting industry. The total capacity of copper ISASMELT™ plants is over 10,000,000 tonnes per year (t/y) of copper bearing feed.



Perfect for secondary smelting applications

For the emerging e-scrap and clean/green copper sector, ISASMELT™ is the ideal fit. Low in emissions, efficient, low in capital cost and well proven in the treatment of e-scrap, ISASMELT™ is the fastest and most commercially viable option for you if you are in this emerging sector.

Our furnace sizing ranges from the F600, which can fit inside a small warehouse, to the F5500 which is our traditional sizing and capable of processing well over a million tpa.

You can efficiently process for copper, gold, tin and nickel sulphate products. And your ISASMELT™ furnace will produce only by-products, not waste. It's an ideal solution for existing operations wanting to expand to this sector, for scrap collectors and waste collectors.

Importantly, both Glencore and Glencore Technology have experience in running e-scrap operations, and we use this experience to design, install and train. We can also retro-fit existing ISASMELT™ technology to include the processing of e-scrap and we can even assist non-ISASMELT™ furnaces to adopt ISASMELT™ technology to improve their performance.

We can also offer you supply, offtake and financing agreements through Glencore.

How ISASMELT™ has grown to be the preferred furnace

The ISASMELT™ process allows new operations to reach design capacity quickly and cost-effectively and enables brownfield operations to improve profitability and meet stringent environmental standards. These operations have recognised the superior results delivered by the ISASMELT™ process in copper and lead smelters around the world.

For new greenfield plants, the ISASMELT™ process has made entry into the smelting marketplace a straightforward, less expensive decision. The ISASMELT™ process requires much less up front capital than its alternatives. The innovative design, combined with Glencore Technology's training and commissioning services means that the smelter can be rapidly commissioned to achieve design capacity at a much faster rate. For an investor in the industry this means faster time to profitability.

New operators can clearly see the innovation developed by Glencore Technology. This innovation is not only in the equipment but also in the design and skill passed on during training, commissioning and ongoing support.

This results in quick ramp-up to design capacity, long refractory campaigns and low operating costs.

ISASMELT™ performance in detail

High production capacity	The high intensity smelting process results in high productivity from a relatively small diameter furnace. Using a single ISASMELT™ furnace of 4.4 metres in diameter, Kansanshi Mining PLC treats over 1.38 Mtpa of copper concentrate
Demonstrated rapid ramp-up to design capacity	Glencore Technology's complete package of detailed design, equipment supply, training and commissioning, ensures that ISASMELT™ start up is smooth, and that quick ramp-up to design capacity is achieved. Glencore Technology's operating expertise has assisted Kansanshi Mining PLC to reach design capacity in just three months.
High volatilisation of impurities	The turbulent bath in the ISASMELT™ process ensures efficient removal of volatile elements into the offgas stream. The majority of arsenic, for example, is removed from the molten bath into the offgas stream and can be bled out of the smelting process through the offgas cleaning system.
Environmentally friendly technology	ISASMELT™ technology can meet the most stringent environmental guidelines and has demonstrated virtually zero fugitive emissions, with extremely efficient offgas capture. For example, the carry-over of dust from an ISASMELT™ furnace into pollution control equipment is much lower than alternative technologies. Dust from mechanical carry-over is approximately 1% of feed weight. This results in much lower recycle of dust and lower operating and capital costs for dust capture and recirculation systems.
High specific smelting rate	The ISASMELT™ lance is submerged in the slag, providing an extremely turbulent molten bath. When the raw materials enter the bath they are immediately drawn beneath the surface and react very quickly. This enables a comparatively large amount of raw material to be processed.
Innovative low cost furnace	The stationary vertical cylinder shape of the furnace allows it to be bricked easily. The furnace construction requires less maintenance than other processes, which rely on rotating furnaces, water-cooled panels and complex systems for injecting gases and solids through the walls or roof of the furnace. The lance can be removed from the furnace easily at any time if maintenance is required, with smelting continuing using a new/refurbished lance inserted from the waiting rack. Typical lance maintenance involves the replacement of the tip section of the lance.
Low cost operation	The ISASMELT™ process achieves a low total operating cost through a combination of minimal maintenance, high-energy efficiency, and low personnel requirements. Smelters utilising the ISASMELT™ process are amongst the lowest-cost smelting facilities in the world.
Flexible technology	The ISASMELT™ process is extremely flexible. Furnaces can be custom designed to meet the needs of the client while minimising capital cost. Lance oxygen enrichment ranges from 21% to 90%. The process has been used for primary and secondary (scrap) copper smelting, copper converting, primary and secondary lead smelting, and nickel smelting.
Flexible design	The ISASMELT™ TSL process can be adapted from the smallest to the largest plant throughputs. Glencore Technology can customise the design to meet the client's varying needs in feed materials and production capacity.
Minimal feed preparation	Raw materials only need to be mixed in a drum or paddle mixer. Fine grinding and drying are unnecessary. In secondary smelting, large lumps of raw materials can be fed directly into the bath. For example, in one smelter, scrap copper up to 300 mm in length is incorporated in the continuous feed mix.
Ease of operation	A modern distributed control system is used for overall plant control. Sophisticated algorithms have been developed over the years in Glencore's own operations to simplify control of critical process parameters. Compared to other processes, operators can learn the process quickly.
Easy stop and start-up procedures	The ease of stopping and re-starting the ISASMELT™ furnace is a significant operating advantage. Typically the furnace can be stopped within 20 seconds and re-started within five minutes. Cold re-starts, due to extended shutdowns (greater than two days), are also straightforward with return to smelting typically taking less than four hours.
Flexibility in fuel types	The ISASMELT™ process can use most types of coals, petroleum coke, coke breeze, oil (including recycled oil), propane or natural gas for fuel. An ISASMELT™ furnace can be designed to use the cheapest available fuel, and can be adapted in the future to other types should fuel costs change.



How ISASMELT™ works

ISASMELT™ uses an innovative top-submerged lance and furnace design to deliver flexibility, performance and the lowest environmental impact.

ISASMELT™ is a high-intensity smelting process that can be used in either continuous or semi-continuous operation.

It uses an extremely efficient Top Submerged Lance (TSL) technology and a stationary refractory-lined furnace.

The lance tip is submerged into the bath of molten slag. Air, oxygen and fuel are fed down the lance into the molten bath, creating a highly turbulent environment that promotes very rapid reaction of raw materials.

The ISASMELT™ process can be used for a range of applications. Depending upon the application, the raw materials may consist of concentrates, metal-bearing residues, metal scrap, fluxes and solid fuel if required. These materials are typically fed on a continuous or semi-continuous basis through a port in the furnace roof.

The ability of the ISASMELT™ process to handle a wide range of feed materials, in an environmentally friendly manner, also makes it ideal for recycling applications.

The Umicore and Aurubis recycling plants in Europe utilise ISASMELT™ technology in their highly successful secondary copper plants. These operations treat electronic waste, metal bearing residues, shredder materials, copper scrap, matte, slag and dusts to produce copper, lead and tin alloys and precious metals.

The ISASMELT™ furnace

Air, oxygen, fuels and solids

Oil, natural gas and/or solids or solid fuels can be injected down the lance with combustion air. Air can be enriched with oxygen.

Offgas and fume

The stationary furnace design allows efficient offgas collection and maximise offgas strength while minimising solids carryover.

Agglomerated feed

Wet, agglomerated feed can be charged directly to the furnace with no further treatment.

Patented lance design

The submerged lance design promotes formation of a frozen slag layer on the lance tip.

Refractory-lined

Simple furnace design reduces capital cost and allows problem free, rapid refractory installation.

Frozen slag coating

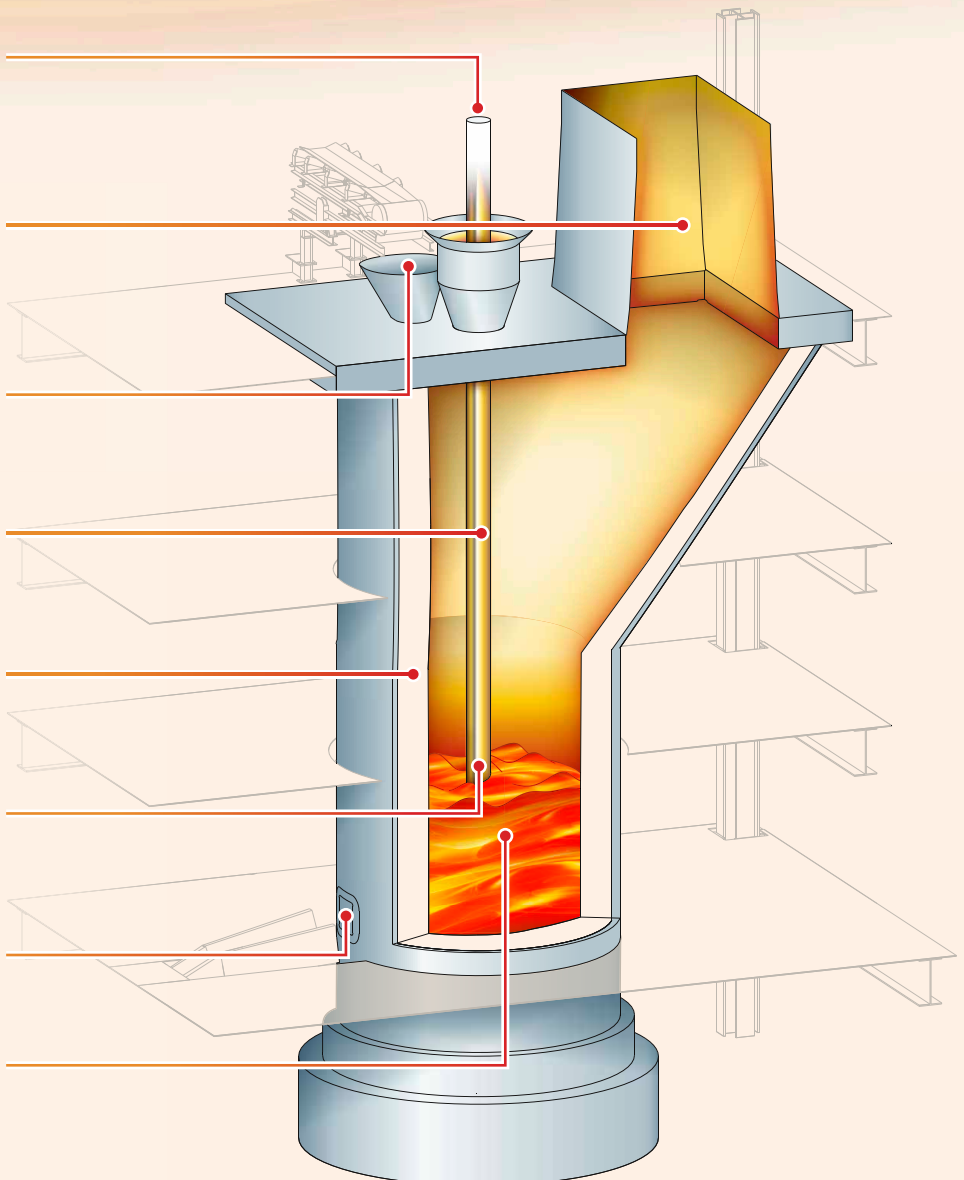
The slag coating on the lance tip protects it from wear by the molten bath.

Taphole

One or more water-cooled tapholes can be used for molten product removal.

Vigorously stirred bath

The submerged lance creates a highly agitated bath ensuring rapid chemical reactions and good mixing.





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40 years of continuous evolution and performance

After more than 40 years of continuous development, the ISASMELT™ design provides you with flexible, clean, effective and low cost smelting.

The ISASMELT™ process was developed by Mount Isa Mines (a subsidiary of Glencore) and is based on the patented SIROSMELT lance that was invented by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia.

The first demonstration scale lead ISASMELT™ furnace was commissioned in Mount Isa, Australia, in 1983. This was followed by demonstration and commercial scale copper and lead smelters commissioned at Mount Isa.

The success of these plants prompted further licensing to external clients. The ISASMELT™ is now in production in a variety of applications around

the world, and with each installation, improvements in design and operation are made and these are available to all customers.

We'll create for you the best fit for purpose smelter

Glencore Technology's highly experienced team of engineers, metallurgists and operators work closely with your team to create the best design and installation for your needs.

We provide support to you along every step of the project, including:

- regular project meetings
- site visits during the design phases
- construction supervision

- hands-on training in an operating smelter
- specialist support during proprietary equipment installation and commissioning and advice on how to optimise plant performance following start-up.

Then we provide ongoing support to you following commissioning. We encourage frequent interaction between our own team and yours, as well as interaction between your own teams.

Technology partnership: the ISASMELT™ Success Zone

We hold regular licensee workshops, hosted by ISASMELT™ customers, during which you'll join other personnel from smelters all around the world to compare operating techniques and discuss how to improve profitability.

Glencore Technology's metallurgical teams are backed by world class engineering and mechanical teams. We use these to build with you the ISASMELT™ Success Zone.

We blend Process, Mechanical and Operation expertise to cover all aspects of your smelting operation's success from design through to optimised operating. It means things happen right the first time and from the beginning.

Glencore Technology offers a range of services that are customised to meet your needs. This includes:

- feasibility studies
- pilot plant testing
- engineering design
- supply of specialised equipment and spares
- process and operational training
- commissioning assistance and plant optimisation assistance.



**ISAKIDD™ cathode
plates and handling
equipment deliver the
best fit for purpose in
the real world.**

ISAKIDD™ 

ISAKIDD™

The ISAKIDD™ range of plates and handling equipment create the best fit-for-purpose in real-world copper electro-winning and electro-refining. Long the benchmark in the industry, ISAKIDD™ accounts for over 13.6 mtpa of copper production from over 116 licensees world wide, including Glencore's own operations. We provide clients with a comprehensive range of technology, process support and core equipment to ensure long term operational and economic success.

» Quality Technology and Continuous Development

ISAKIDD™ Technology is focused on delivering quality products and services to its customers whilst continuously working on technical innovations and developments to address the ever changing needs of the market. We have successfully maintained ISO accreditation since 1993 ensuring the integration of quality management principals into all aspects of our business.

Since development and commercialisation in the early 1980s, both ISA and KIDD technologies have undergone continuous improvement and today are regarded as the benchmark technologies for high intensity copper electro-refining and electro-winning operations.

Significant advancements have been achieved with both the stainless steel cathode technology and the electrode handling equipment used in copper tankhouses.

Important to our success is our close co-operation with a number of smaller technology companies to enhance the overall package solution offered. ISAKIDD™ Technology works together with these companies to continually develop all aspects of the technology ensuring our customers have the latest products on the market.

» ISAKIDD™ History

- 1978:** First stainless steel permanent cathode plate technology, Isa Process™ developed by MIM in Townsville Australia
- 1980:** Commercialisation Isa Process™
- 1985:** KIDD Process developed at Kidd Creek Refinery Canada
- 1992:** Commercialisation Kidd Process
- 2003:** Xstrata purchases MIM
- 2006:** Xstrata purchases Falconbridge – Isa Process™ and Kidd Process form backbone of ISAKIDD™ Technology
- 2013:** Glencore purchases Xstrata



Above: Glencore Technology is at the forefront of continuous development in copper ER and EW plants including electrode handling equipment and permanent cathode designs to ensure high productivity and high quality copper production.

Cathode Plates

Glencore Technology developed the first stainless steel production cathode in the late 1970s and has over 30 years experience in cathode plate development, design and manufacture.

We are committed to continually improving our offerings to address customer needs.

This has led to the development of different cathode types such as the HP, Isa Cathode BR™ and the Duplex Cathode.

» Hanger Bar Design

ISAKIDD™ Cathode

The patented ISAKIDD™ Cathode features a copper core fully enveloped with stainless steel, giving exceptional strength and corrosion resistance. Specifically designed for aggressive conditions found in electro-winning plants, this plate is equally suited to electro-refining. The copper core is exposed at each end to form the electrical contacts and a specially developed non-corroding 'seal-weld' joins the copper core to the stainless steel tube preventing ingress of electrolyte into the bar. The hanger bar can be retrofitted to existing blades as a replacement for any traditional design hanger bar. An affixed or welded copper contact on the top of the bar also allows it to be used with shorting frames in EW plants.

HP Cathode Plate – High Corrosion Resistance

Suited for high corrosion environments, such as liberator cells in electro-refineries and high corrosion electro-winning plants, the HP Cathode is favoured by operators seeking long cathode life in harsh environments.

The plate features a stainless steel jacket that encapsulates the solid copper head bar, protecting it from corrosion. A specially formulated corrosion resistant resin, protects the conductive interior weld between the head bar and the cathode blade throughout the interior of the jacket preventing ingress of electrolyte into the conductive interior weld.

ISA Cathode Plate

The traditional Isa Cathode features a stainless steel structural core electro-plated with high conductivity copper around the bar and partially down the blade. In the ISA Cathode BR™ Plate this copper plating is applied to the thickness and depth required by customers, with commensurate improvements in electrical conductivity of the plate.



Steerhorn Cathode

The Steerhorn Cathode is the lowest resistance cathode plate on the market. It consists of a bar designed to reduce the distance for the current to travel from the cathode blade to the hanger bar. Operators can achieve tankhouse power savings of 2.0% or more, compared with traditional straight hanger bars. This development can be retrofitted into existing plant, or can be designed into new projects, to provide power savings from the start of the operation (suited for IsaKidd™ Cathode or HP Cathode Plates designs).

Cathode Plates Fit for Purpose – Low Capex or Low Opex

Duplex Cathode

Duplex plates have been used since 2006 with over 370,000 plates ordered. Their superior mechanical properties allows for a thinner plate design and provides a high level of flexibility and reliability in the cathode stripping operation, without permanent deformation to the blade, and has demonstrated improved corrosion resistance in operation.

The patented Duplex Stainless Steel cathode design has a unique surface finish to enhance stripping performance, with successful operation in EW and ER tankhouses.

316L (GT Brand)

Supplied to our exclusive specification by the Nyby mill in Sweden, this material has superior strength and flatness to standard grade 316L. With a 30 year track-record, this material provides long life and reliable performance. Operators in copper electro-refining operations can achieve 15 years or more operation with properly maintained plates.

Standard 316L Plates

Aside from our premium brand steel we also offer industry standard 316L plates. Proven over many years of operation, these plates will meet the basic requirements of many operations. They are supplied to the same flatness as our Premium plates without the superior strength of our premium grade 316L or Duplex cathodes. They are an affordable option for operators looking to minimise capex. GT will work with its clients to find the most suitable and economic steel type for each operation.

Guarantee

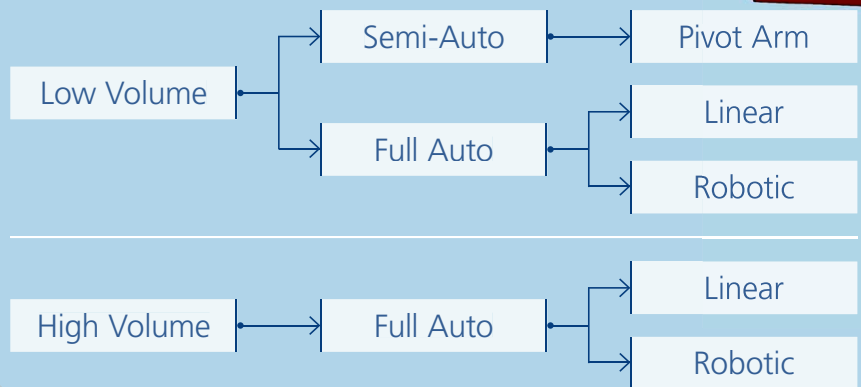
All our plates are guaranteed to meet strict specifications on flatness, verticality and dimensional tolerances for both blades and hanger bars.

Electrode Handling Equipment

Glencore Technology has a long history of developing and providing a wide range of Electrode Handling Equipment, suitable for all types of cathode plates.



Cathode Stripping Machine Types



From Robotic High Volume to Semi-Auto Low Volume Copper Electrode Handling

ISAKIDD™ offers electrode handling machines for all volumes of cathode handling. This means you secure fit for purpose and value.

ISAKIDD™ was first to use robotics for electrode handling in tankhouses, greatly improving efficiencies, while improving handling practices. The same technology was adapted for copper stripping operations in electro-winning and electro-refining, successfully stripping cathodes using robotics.

ISAKIDD™ engineers realised that to increase stripping rates with existing technologies meant designing the process for the 'rare' problematic cathode, which posed a stripping limitation with

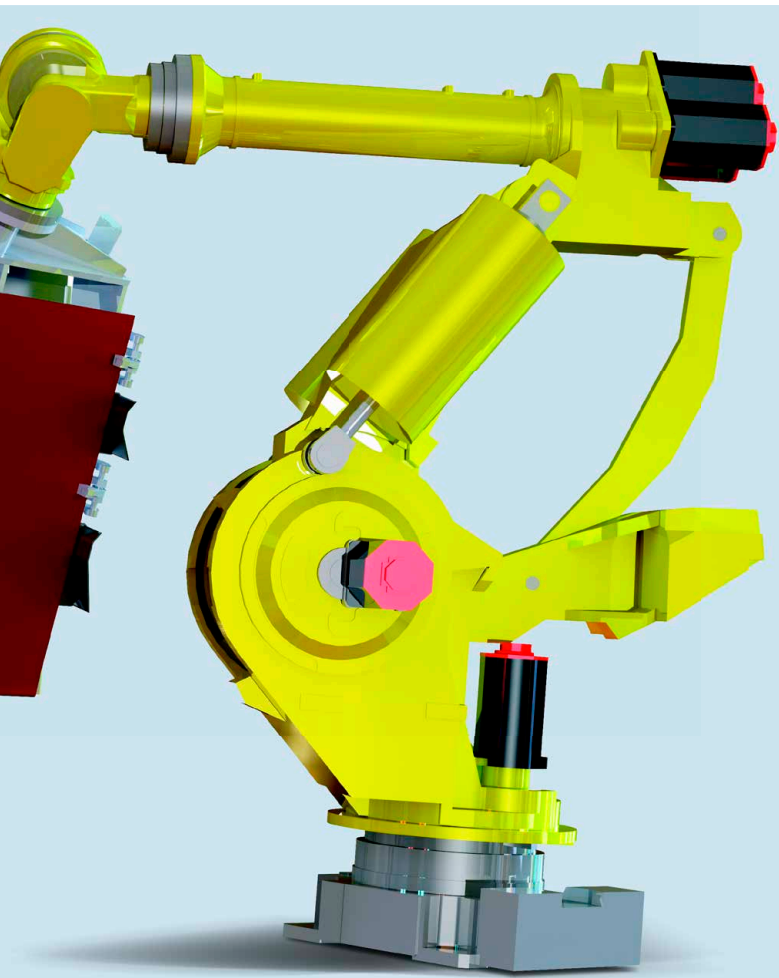
mechanical stripping machines. However with the development of the robotic stripping machines, they can overcome this limitation, as they can be programmed to accommodate the many and varied forms of copper cathode that can be produced in tankhouse operations. ISAKIDD™ engineers have further optimised the stripping process with proprietary stripping mechanisms, enabling high speed, successful stripping operations.

Our semi-automatic cathode stripping machine forms processes automatically and manually under hydraulic, pneumatic and electrical control systems. Receiving, washing, pivot transferring, flexing and chiselling, stacking, discharging and rejection are all provided.

“After years of development, ISAKIDD™ offers manual and robotic stripping concepts – suitable for the smallest to the largest operations.”

» Equipment and technology available:

- » Cathode stripping machines (CSM) both single sheet (up to 600 plates per hour) and enveloped/taco style (up to 700 plates per hour)
- » Anode preparation machines
- » Anode scrap washing machines
- » Tankhouse cranes
- » Tankhouse management system



Robotic Stripping Machine

The robotic stripping machine is based on the learnings of over 30 years of copper refining and winning technology. It still uses flexing rams, to release the copper deposits from the stainless steel cathode, as well as a 'pre-opening' device to ensure separation at the top of the copper and the mother blank.

The robotic stripping function is performed by robots fitted with a proprietary wedge tool at the end of the robot arm. The wedge tool has been designed to slide between the copper deposit and the mother blank to prevent scratching of the stainless steel mother plate, and then 'down ends' the copper to produce either individual or envelope copper sheets. This approach greatly improves splitting and separation with minimal deformation of copper sheets, even where lamination has occurred and with no impact on the stainless steel.

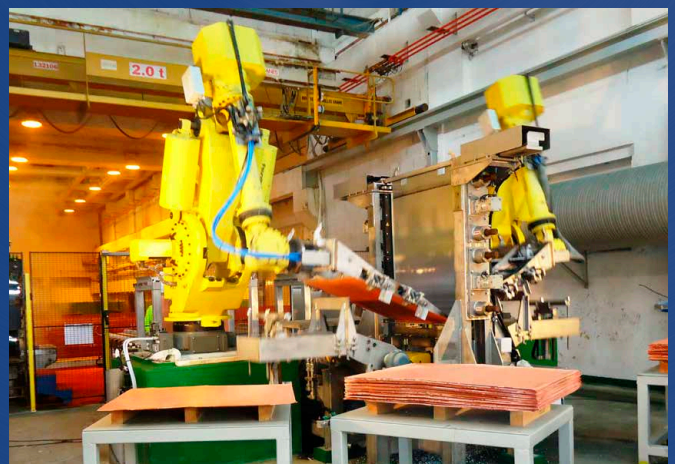
The robotic stripping function can successfully strip poorly grown cathode copper that cannot be handled by conventional machines. Efficient and reliable, the robust stripping technology and can be designed for low and high capacity automatic operation, across a wide range of cathode types.

Guarantee

All our robotic and semi-automatic machines are guaranteed for 12 months. Fabrication and functionality are secured. Performance testing is made and handover is not considered complete until the machine is performing as we promised.

Robotic Cathode Stripping Machine

- › Suitable for enveloped/taco cathodes and split sheets
- › Less maintenance
- › Less operator input when stripping poorly grown cathodes



Above: Robotic stripping at Nikkelverk refinery.

"Robotic Stripping Machines are fully automated and designed to operate continuously without manual interaction."

Process Design

ISAKIDD™ Technology teams provide complete engineering for a project from the initial concept study right through to commissioning and start up services. Highly experienced engineers and technologists provide the latest designs for clients, based on over 100 installations, over the last 30 years.

» Our services include:

Engineering Design for Electro-Refining and Electro-Winning Tankhouses

- » concept
- » pre-feasibility
- » feasibility
- » bankable feasibility
- » basic engineering

Detailed Engineering Review

- » layouts and material handling designs
- » process and tonnage guarantees
- » equipment warranties
- » flowsheet development
- » impurities treatment

Plant Optimisation

- » technical audits
- » electrode handling optimisation
- » process optimisation studies
- » process troubleshooting
- » metallurgical consulting

Commissioning and Start-up Services

- » technical and operational training
- » oversight of core equipment installation
- » start-up assistance covering operational and technical issues
- » spare parts supply
- » technical and engineering reference and backup
- » exchange of know-how and experience with other ISAKIDD™ operators



» Process Design



» Plant Optimisation



» Commissioning and Startup Services

Technology Partnership

ISA KIDD™ technology is used extensively in some of the world's biggest Electro-Refining and Electro-Winning operations. The technology was initially developed at Glencore operations, and further developed to address individual client site needs.



*ISA KIDD™ Licensees
Conferences facilitate
learning between clients*

» More than a machine

The ISA KIDD™ Technology package is more than just a cathode plate or stripping machine, but rather a technology solution encompassing all aspects of design and operation to ensure a highly efficient and functional copper refining operation.

Technology Partnership Concept

Our Technology Partnership concept is an approach that makes a wide body of knowledge and experience available, resulting in clients achieving the full benefits of ISA KIDD™ Technology.

Glencore Technology prides itself with an ongoing technical relationship with users. We facilitate interchange and learning between clients. Glencore operations provide a core reference base for ISA KIDD™ and clients.

The strong operational foundation of ISA KIDD™ ensures rapid technology transfer to your operation.

Licensees are invited to participate in regular ISA KIDD™ conferences where latest developments are presented and technical and operational issues discussed.



Commissioning Kazzinc Copper Refinery, Kazakhstan

“We facilitate interchange and learning between clients.”



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Glencore Technology

Glencore Technology develops innovative products that help mining operations extract more from their flowsheet. ISASMELT™, IsaKidd™, IsaMill™, Jameson Cell and Albion Process™ have been developed in the real world and proven in more than 500 operations across every continent.

Many of our technologies have been developed and proven at our own sites, like ISASMELT™ and IsaMill™, which were pioneered by Mount Isa Mines and helped revolutionise mining and smelting processes all over the world.

Our approach is premised on a technology partnership to provide a full product and service offering, including process flow design, engineering, equipment supply, commissioning and operational expertise, and ongoing process and maintenance support.

Glencore

Glencore is one of the world's largest global diversified natural resource companies and a major producer and marketer of more than 90 commodities. The Group's operations comprise around 150 mining and metallurgical sites, oil production assets and agricultural facilities. With a strong footprint in both established and emerging regions for natural resources, Glencore's industrial and marketing activities are supported by a global network of more than 90 offices located in over 50 countries.

Glencore's customers are industrial consumers, such as those in the automotive, steel, power generation, oil and food processing sectors. We also provide financing, logistics and other services to producers and consumers of commodities. Glencore's companies employ around 146,000 people, including contractors.

Glencore is proud to be a member of the Voluntary Principles on Security and Human Rights and the International Council on Mining and Metals. We are an active participant in the Extractive Industries Transparency Initiative.

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