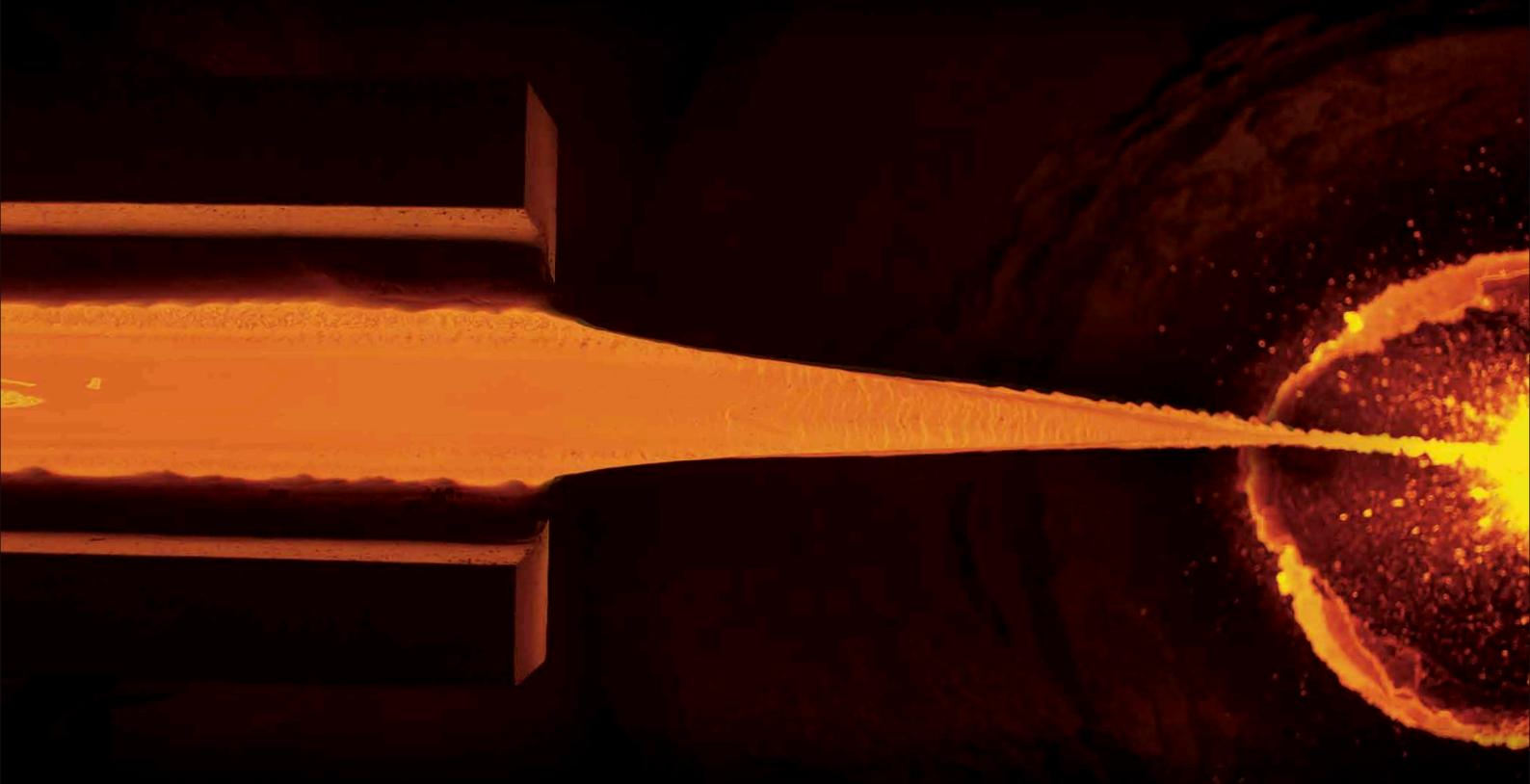


ROTARY HOLDING
FURNACE

**Settle and separate
your matte faster,
for less cost with
greater total plant
availability**



GLENCORE TECHNOLOGY

A **GLENCORE** COMPANY

The ISASMELT™ Rotary Holding Furnace is the best performing settling and separation technology in the world, because of its low capital cost, low operating cost and its reliability over a very long life.

The settling and separation of matte from slag can be a hidden cost in smelting, depending on the process and the technology.

All smelting operations need settling and separation technology. Furnaces that try to combine smelting and settling in the one unit incur considerable plant downtime because one furnace cannot perform two functions at the same time. This leaves two viable options – electric furnaces and the ISASMELT™ Rotary Holding Furnace.

The Electric Furnace, or MSEF, is costly

- About **USD 23 million** for core equipment
- Four operators
- High electricity consumption.

The ISASMELT™ Rotary Holding Furnace, or RHF, is not

- About **USD 16 Million** per set of two furnaces
- One operator
- Uses a range of low cost fuels.

Whether or not you use an ISASMELT™, our Rotary Holding Furnace is the separation technology you need to invest in.

Single furnace versus dual furnace

When smelting and settling are performed in a single vessel, the copper losses are usually quite high. We've seen ~1.7 wt% Cu slag from a Flash Furnace. You need to do downstream processing to recover that copper in slag. These furnaces try to do two duties at once, unsuccessfully.

If you're appraising the options of both smelting and settling, choose an ISASMELT™ for smelting and an ISASMELT™ Rotary Holding Furnace for settling and separation. The number of furnaces might increase, but the availability, flexibility and smelter performance you can expect is vastly improved. While multiple furnaces sounds more expensive, it isn't. It'll give you lower initial investment costs and lower ongoing costs to deliver a faster payback and much higher profits.



For more:

isasmelt@glencore.com.au

Tel +61 7 3833 8500



How the ISASMELT™ rotary holding furnace works

The RHF is a drum-style furnace. It has a feed port for the molten material, a matte spout (or taphole) for pouring matte and a slag spout for pouring slag.

The vessel has a steel shell with a spring binding system on the endwalls. The RHF uses a gear and chain system, with a high-precision hydraulic motor for accurate positioning and pouring. This is critical for good molten phase separation.

There are a range of options for this vessel including:

- Furnace burner fuel, style and type
- Matte Pouring or Matte Tapping
- Slag Skimming into Ladles or Direct Granulation.

The RHF is simple to operate and very robust. A single operator can perform all the tasks needed to monitor, operate and control your RHF furnace. And the control room can be installed in close proximity to the furnace.

You operate your RHF as a batch vessel, with four key steps:

1. Molten material is transferred into the vessel via a launder
2. The slag and matte is separated by holding the vessel stationary for about 10 minutes.

3. The slag is skimmed from the slag spout, at a controlled rate to ensure minimal entrainment of matte
4. Then the matte is poured (or tapped) from the vessel

The process is simple, low cost and extremely reliable. But in addition, other functions are performed during operation:

- Furnace level measurement can be taken via a dipping port
- Accretion removal is easy using a pig iron via a purpose-specific pig iron port.

From the ISASMELT™ team

The RHF was developed at Mount Isa Mines (MIM) as a low cost way to separate matte and slag tapped from the ISASMELT™ Furnace, and with minimal operator labour.

The technology has been installed in smelters around the world and is considered the leading technology for settling molten slag.

And at most sites, the Rotary Holding Furnace is the lowest-cost settling

furnace option. In addition, when coupled with a Jameson Concentrator, you can expect the copper in slag to be the lowest in the industry.

Further slag cleaning is easy

The slag produced by the RHF is low in copper, with less than 1 wt% Cu able to be achieved. In order to recover the unsettled matte droplets in the slag, the slag can be slow cooled and undergo flotation. (Ask about our Jameson Cell for your flotation duty.)

To perform slag flotation, the slag is slow-cooled to form coarse sulphide grains. The slag is then ground using conventional milling technology to separate the sulphide grains from the oxide slag material.

The sulphides then undergo flotation to produce a slag concentrate containing about 40 wt% copper. That slag concentrate can then be returned to the primary furnace for resmelting.

Real world success

Since installing the first RHF into the copper industry, it has been adopted all over the world. The RHF is currently approaching 30 years of continuous operation. To learn more, contact the ISASMELT™ team today.



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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.

CONTACT

Glencore Technology Pty Limited

ABN 65 118 727 870

Level 29, 180 Ann Street
Brisbane QLD 4000
Australia

T. +61 7 3833 8500
E. isasmelt@glencore.com.au

Chile · T. +56 2 2342 9078
Vancouver · T. +1 604 601 2070
South Africa · T. +27 11 772 0555

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