

Metso

Metso commodities

Gold solutions



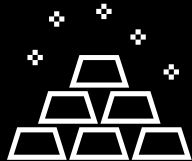
Estimates say that by 2030
global market for gold may
reach 6,300 tons



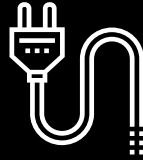
Key drivers:



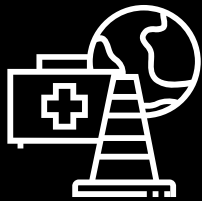
Finance and
investing



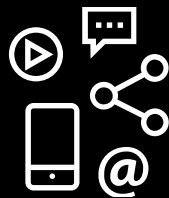
Jewelry



Electronics



Dentistry and
medicine



Communication
infrastructure



Glass making
industry



Aerospace

The gold standard

The allure of gold has been a constant throughout history. No other metal has been held in higher esteem, with almost every established culture using gold to symbolize power, beauty, purity and accomplishment.

Not only can it be beautifully shaped and sculpted, the precious yellow metal conducts electricity and does not tarnish. These qualities make it the metal of choice for a variety of crucial industries, including industrial, medical, technology and more.

The combination of growing demand, fewer substitutes, and dwindling supply is inevitably causing the value and importance of gold to increase over time. There's no doubt - it is truly the metal of the future.

The modern gold rush: Satisfying surging demands

Gold has continuously been cherished as a timeless and treasured metal. In order to meet the global demand, customers need a proven portfolio of solutions that are specifically designed to support recovery in today's dynamic landscape. That's where Metso comes in.

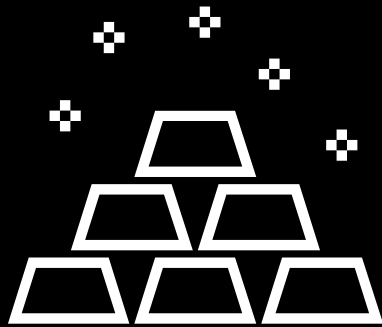
Metso's comprehensive range of solutions aligns with the evolving gold mining demands, enabling companies to thrive in an ever-expanding market, catering to the diverse needs of gold consumers worldwide.

Metso's clients include the world's major gold mining companies such as Barrick, Newmont, AngloGold Ashanti and Gold Fields.

Key challenges:

- Growing production costs and CAPEX overruns
- Environmental impact of mining processes
- Embracing water and energy efficiencies
- Declining number of new gold discoveries
- Resource nationalism





Metso capabilities:

- Full processes and equipment covering most of the gold value stream
- Cutting edge solutions from free milling to refractory gold ores
- Extensive experience in delivery of refractory gold projects
- Minimizing risks through comprehensive testing
- Digital tools such as Geminex™ for adapting operations based on variability in ore bodies
- Complete performance guarantee with risk mitigation based on advanced dynamic modeling
- Global service network
- Full project lifecycle technical services

Flowsheet optimization

Greenfield

End-to-end solutions for gold

Metso has cutting edge solutions for each step of the flowsheet. With our extensive experience in delivery of refractory gold projects, as well as our high-performance offerings, we can help optimize your operation – wherever you are in the value chain.

- Geminex™ digital twin
- Performance centers
- Life Cycle Services

- Flowsheet optimization
- Remote access and process support
- Maximize equipment utilization

Process optimization

Brownfield

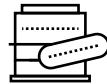
- Intelligent sensors, Samplers, Optimizers & Instruments
- Metso Metrics

- Increased asset availability
- Minimize operating costs
- Maximize overall equipment efficiency

Products & services



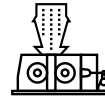
Primary crushing



Secondary crushing



Screens



HPGR



Grinding mill



HGMS



Spiral dewaterer



Flotation machine



Thickeners & clarifiers



Pressure filters



Vacuum filter



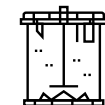
Slurry pumps



Hydrocyclone



Autoclave



Reactors



Spare & wear parts



Maintenance, shutdowns & repairs

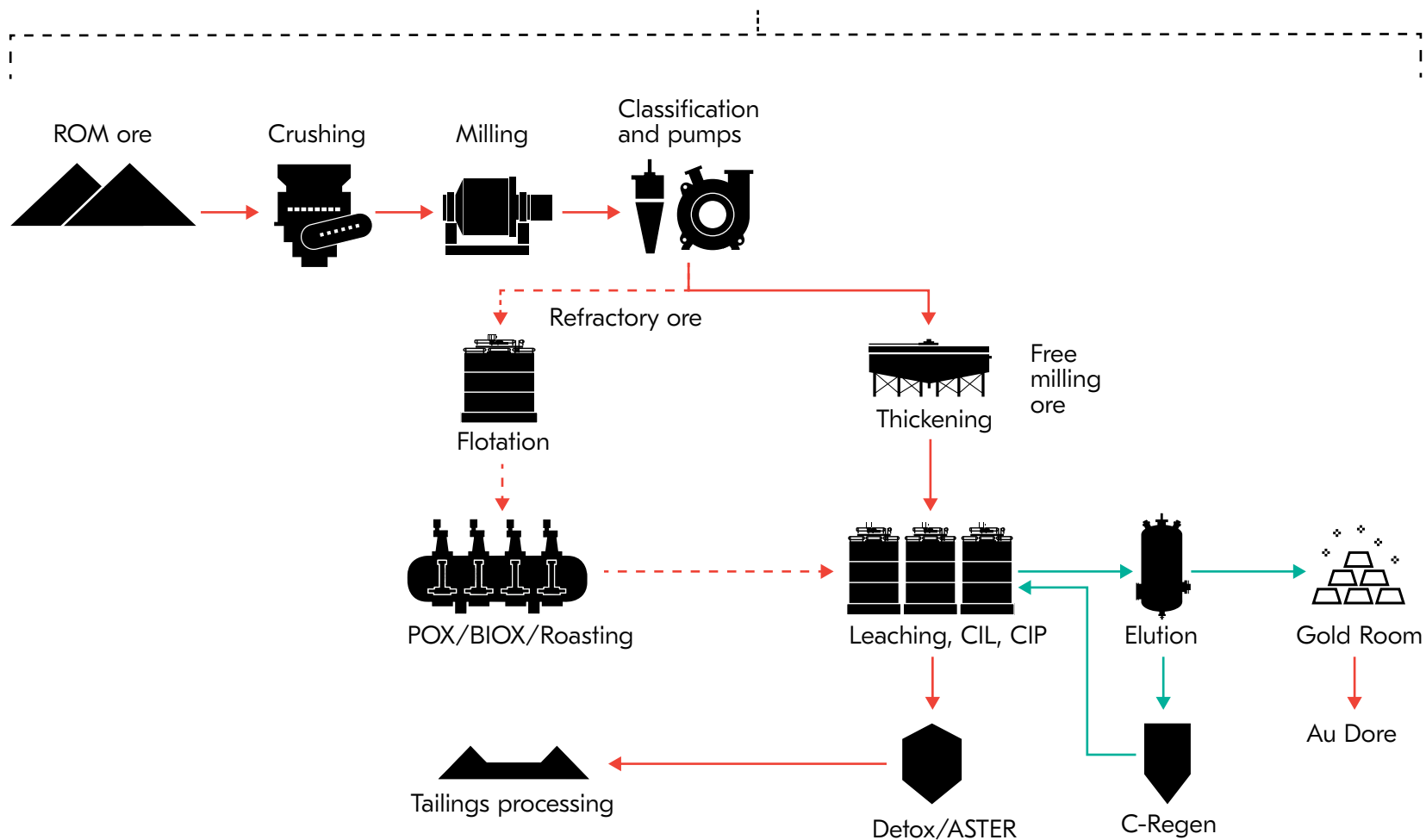



Modernization, upgrades & retrofits

A closer look at the big picture

Gold ores can be categorized into two types: free milling (non-refractory) and refractory ores. While free milling ores are easily treatable with conventional cyanidation, refractory ores require pre-treatment to ensure an economically viable recovery process. We also provide technologies for pressure oxidation, biological oxidation and roasting.

PSI® and Courier® analyzers with Geminex™





~30% of the world's
gold production comes
from China, Russia and
Australia, which produce
over 300 tons each

Why choose Metso?

1. Generations of experience

Metso has a rich history in supporting our customers, even working side by side with the largest gold mining companies in the world, to maximize the efficiency of their operation.

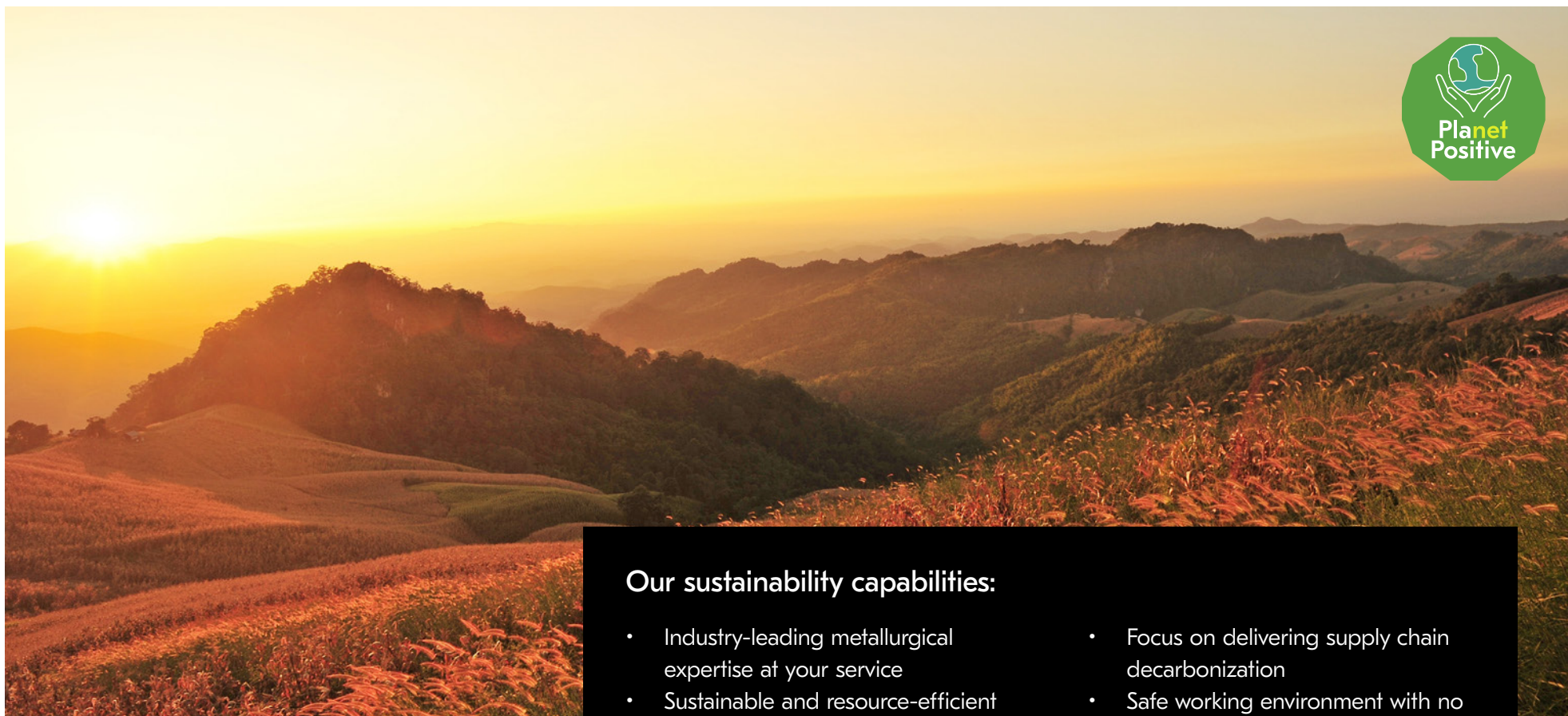
2. Comprehensive portfolio

We serve our customers with a comprehensive offering of products, technologies and services. Metso helps the customers improve efficiency, increase productivity and reduce environmental and economic risks.

3. Positive change

We seek to create long-term profitability, sustainability, transparency and customer value through know-how, service and technological excellence.





Our sustainability capabilities:

- Industry-leading metallurgical expertise at your service
- Sustainable and resource-efficient tailings management
- Focus on delivering supply chain decarbonization
- Safe working environment with no toxic gas emission

Sustainability

Our customers must satisfy the growing demand for minerals while managing deteriorating ore grades, and stricter sustainability requirements.

To reach net zero - which is the goal for most leading mining companies - will require a shift towards renewables-based electricity and an increase in energy efficiency. This is where Metso's Planet Positive offering steps in.

Our offering for the gold segment consists of technologies meeting our Planet Positive criteria:

- Energy efficient crushing and grinding
- Best in industry slurry mixing solutions including FlowBottom
- Integrated water balance management through HSC software
- Complete range of digital solutions including Mill and CIL optimizer

Case: Fosterville Gold Mine, Australia

Improved gold recovery with advanced technologies

Background:

Metso Outotec and Fosterville have partnered over the past decade on innovative technology solutions such as BIOX[®], HiTeCC[™] and the Aster[™] Process.

The Fosterville operations of Agnico Eagle Mines Limited is a high-grade, low-cost gold mine located 20 km east of the city of Bendigo in the state of Victoria, Australia. Fosterville's ore is processed at the mine's ~830,000 tons per year mill.

Challenges:

- Reduce gold losses
- Reduce capital cost
- Implement integrated water balance process

Solutions:

- BIOX[®] process
- HiTeCC[™] process
- ASTER[™] Process

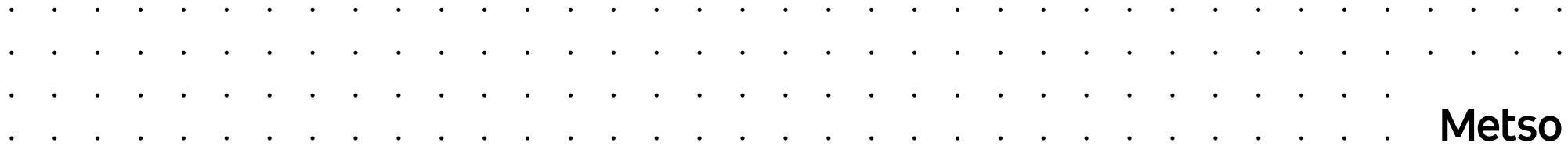
Benefits:

- Improved gold recovery
- Low CAPEX and operating costs
- Water recirculated in plant



Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

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