



INNOVATIVE TECHNOLOGIES FOR PGM SMELTING AND RECYCLING

9TH INTERNATIONAL PGM CONFERENCE

Hugo Joubert
General Manager: Base Metals
Tenova Pyromet



9TH INTERNATIONAL PGM CONFERENCE

27 - 28 OCTOBER 2025 - CONFERENCE
29 OCTOBER 2025 - TECHNICAL VISIT
VENUE - SUN CITY, RUSTENBURG, SOUTH AFRICA

PGMs - Enabling a cleaner world

OUR FAMILY



USD **36.3** billion
Annual Revenues



74,500
Permanent Employees



89,000
Total Employees



5
Continents

Revenues as of December 31, 2024

Six main Companies with operations worldwide



48



34



5.5



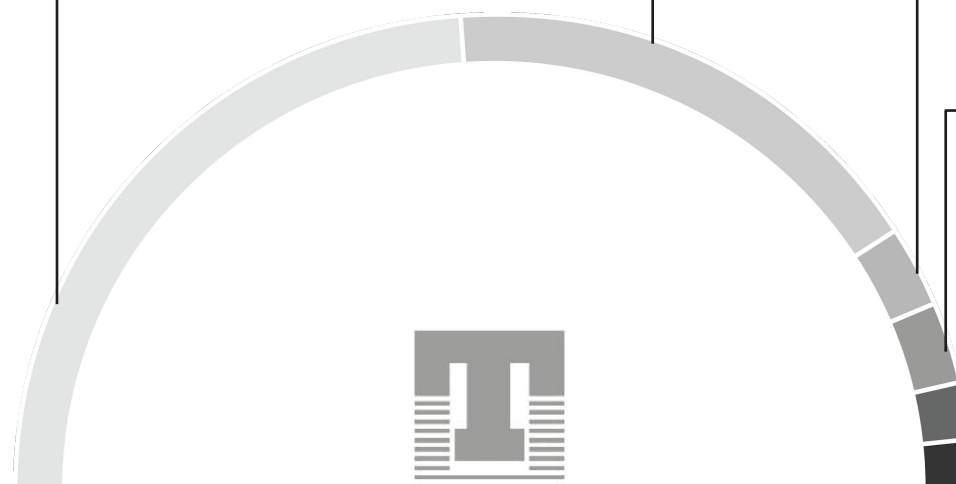
5.5



4



3

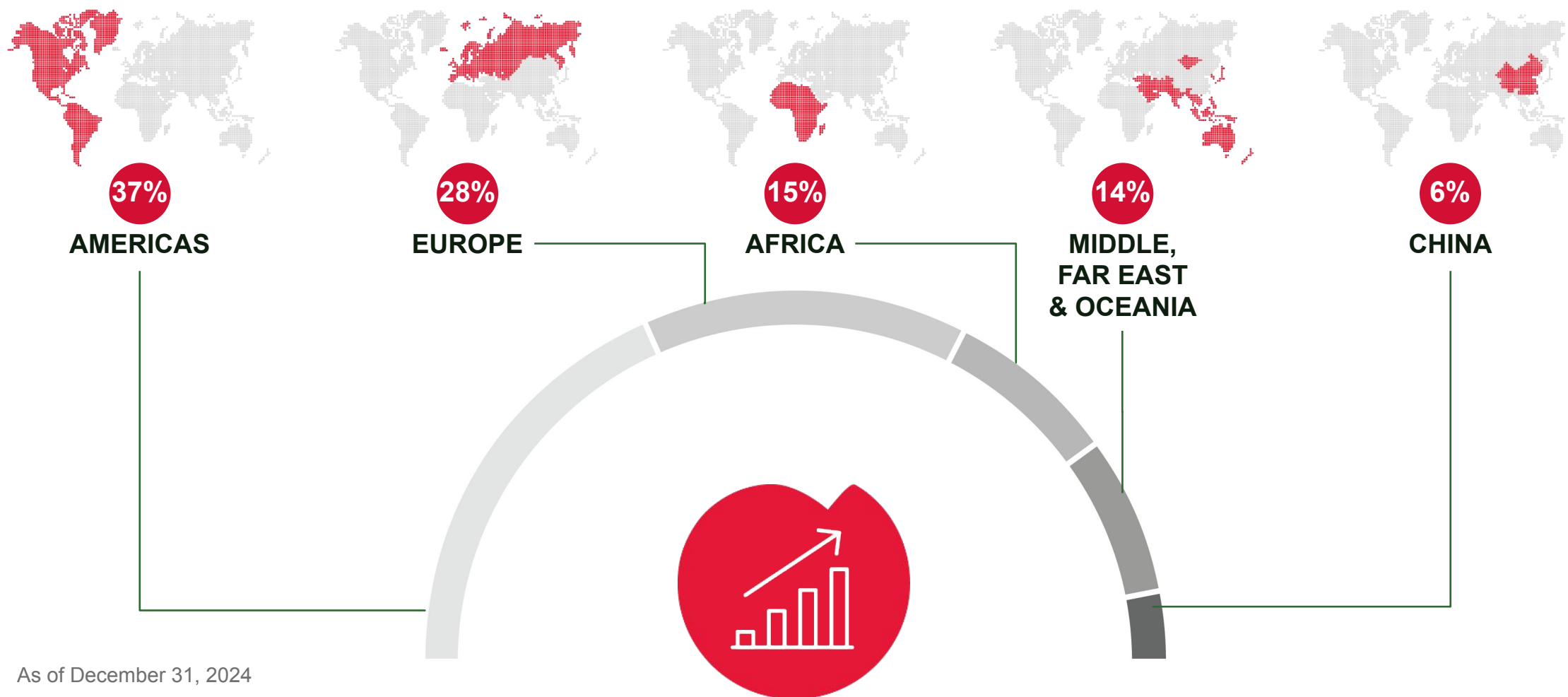


Data in %



Backlog of Orders: 1,730 Million Euros

OUR KEY FIGURES

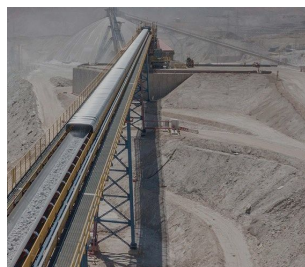


As of December 31, 2024

Tenova Brands in the Metals Value Chain

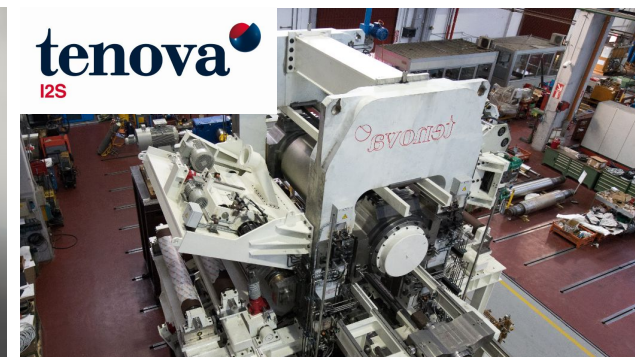
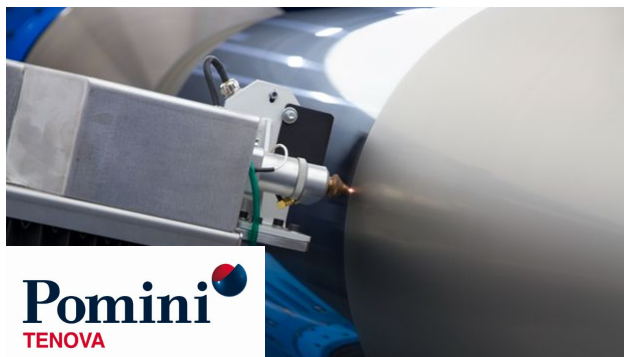
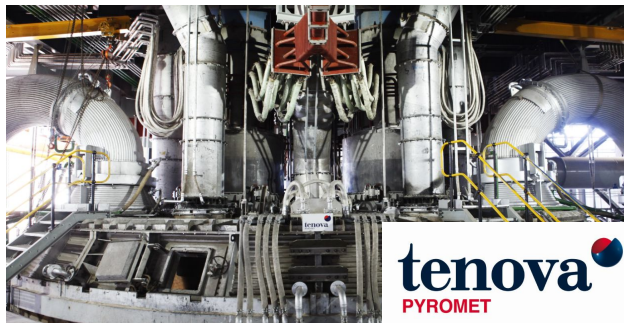


TENOVA AT GLANCE - FROM UPSTREAM TO DOWNSTREAM



from mines

from waste



Tenova's technologies in the field of Metals

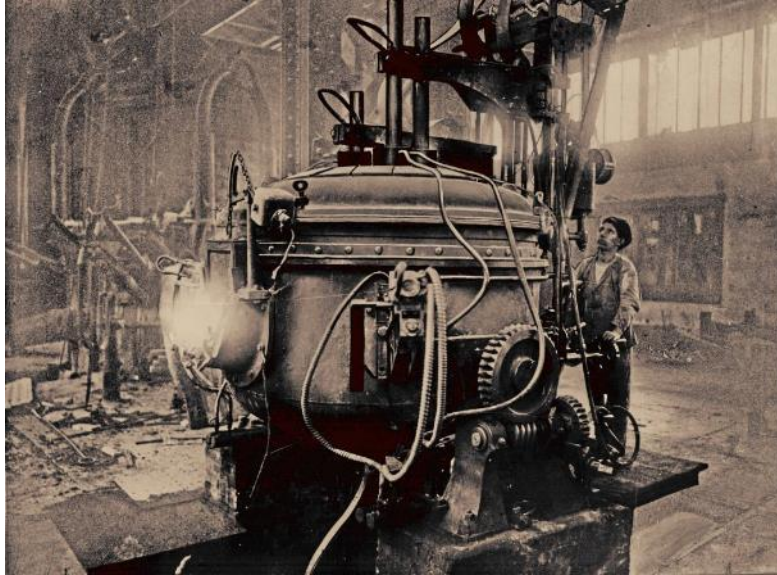


REFERENCES

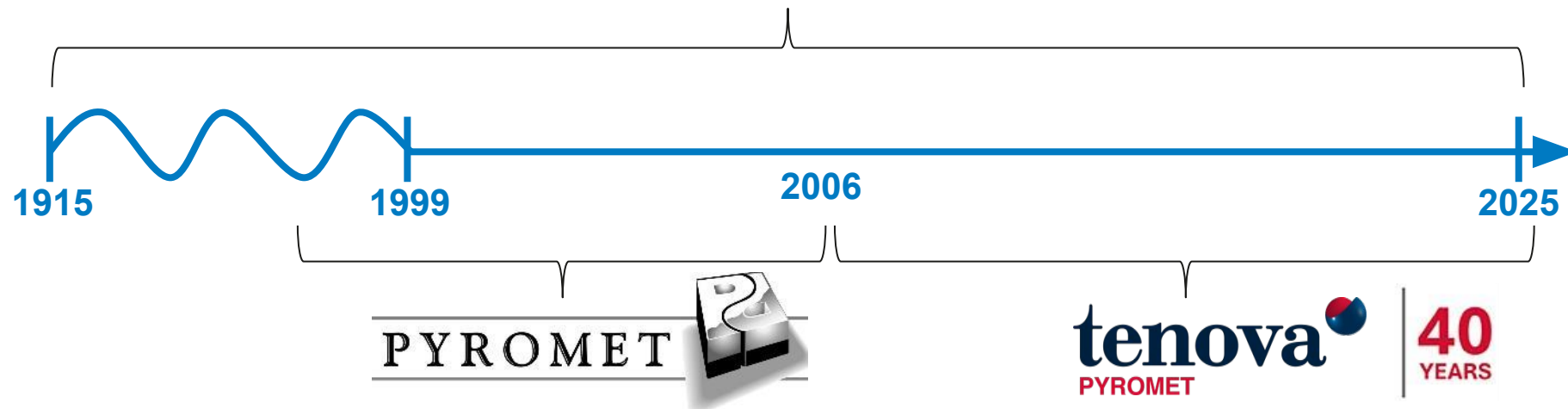


Furnace Heritage

FURNACE HISTORY



*Tenova has supplied more than
2,700 Electric Furnaces worldwide
over the last 100 years*



WHAT WE DO

Complete smelting solutions for the production of Ferroalloys, Base Metals, Precious Group Metals and Iron making industries

Main Processes

- Ferroalloys
 - Ferromanganese & Silicon Manganese
 - Ferronickel
 - Ferrovanadium
 - Ferrosilicon, Silicon Metal & alloys
- Base Metals and Non-Ferrous
 - Platinum Group Metals & Autocatalyst recycling
 - Copper/Nickel/Platinum slag cleaning
 - Ilmenite
- Iron
- Mineral Wool

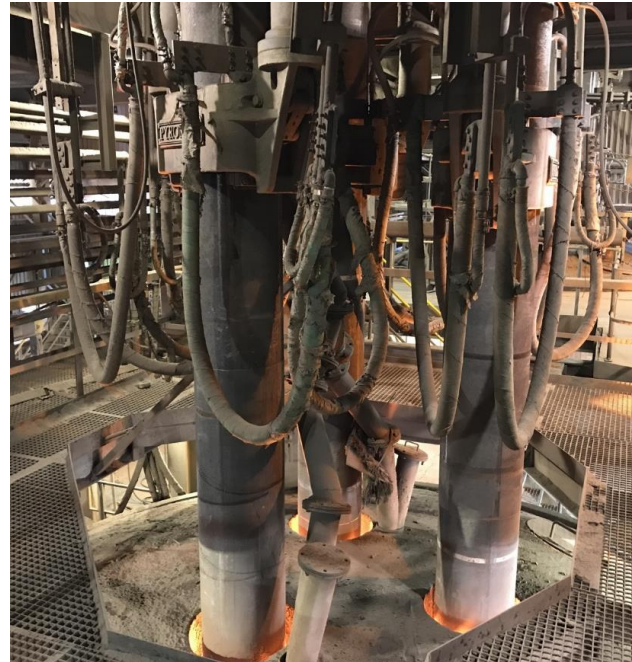


PGM Smelting Technology...

REFERENCES

Tenova is a major supplier of PGM electric smelting furnaces. Our clients include:

Sibanye-Stillwater



PGM Smelting Technology...



REFERENCES

Tenova is a **major supplier of PGM electric smelting furnaces**. Our clients include:

Sibanye-Stillwater

Northam Platinum



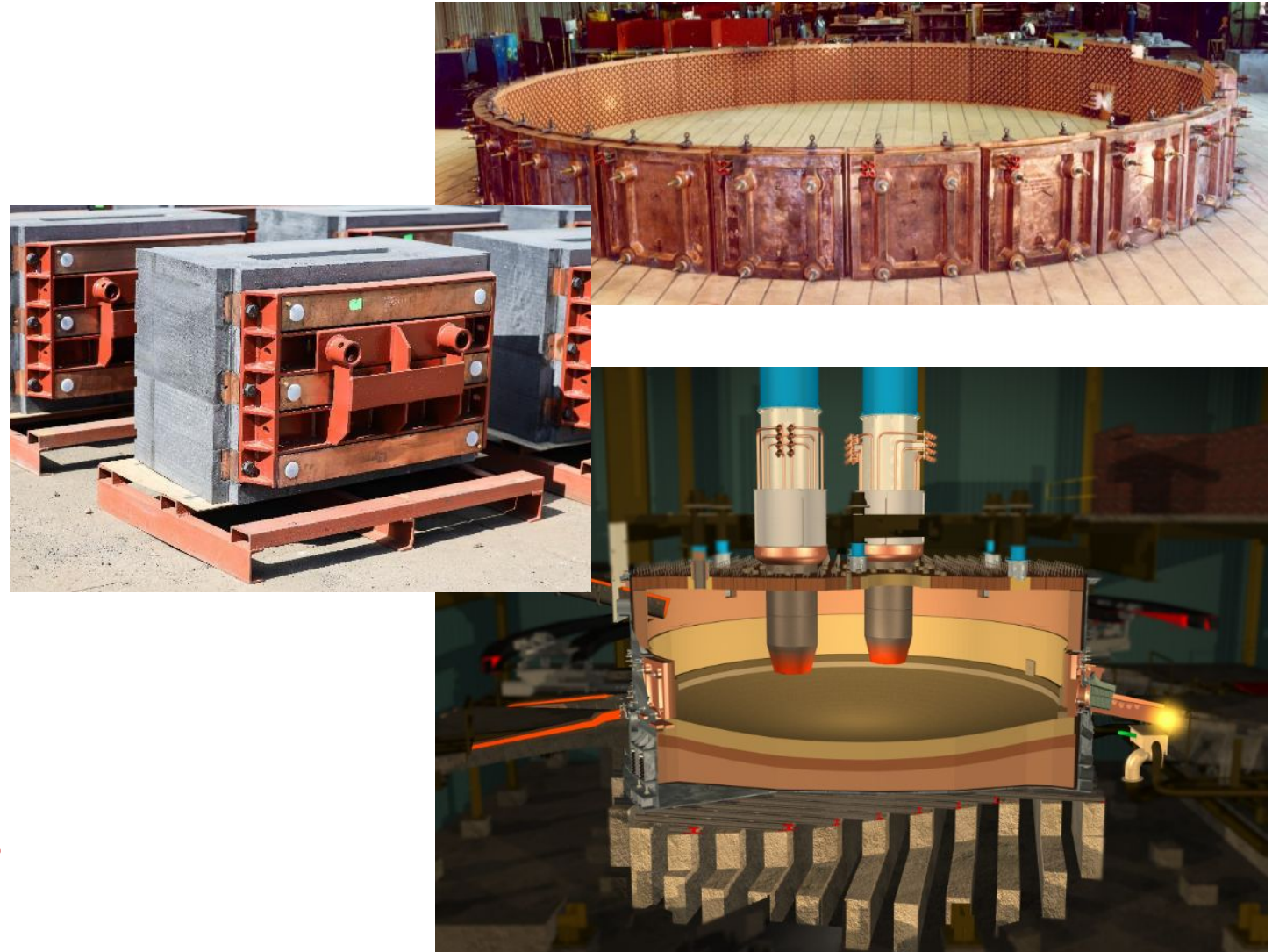
PGM Smelting Technology...

REFERENCES

Tenova is a **major supplier of PGM electric smelting furnaces**. Our clients include:

- 1987 – Barplats x 2 – PGM
- 1991 – Sibanye F3,4,5 – PGM
- 2001 – Anglo – PGM SCF
- 2011 – Northam – PGM
- 2012 – Sibanye F2 – PGM
- 2017 – Northam F2 – PGM
- 2021 – Sibanye F1 – PGM

**8 PGM Furnaces
+ 2 PGM Furnace Upgrades**



Nickel Smelting Technology...

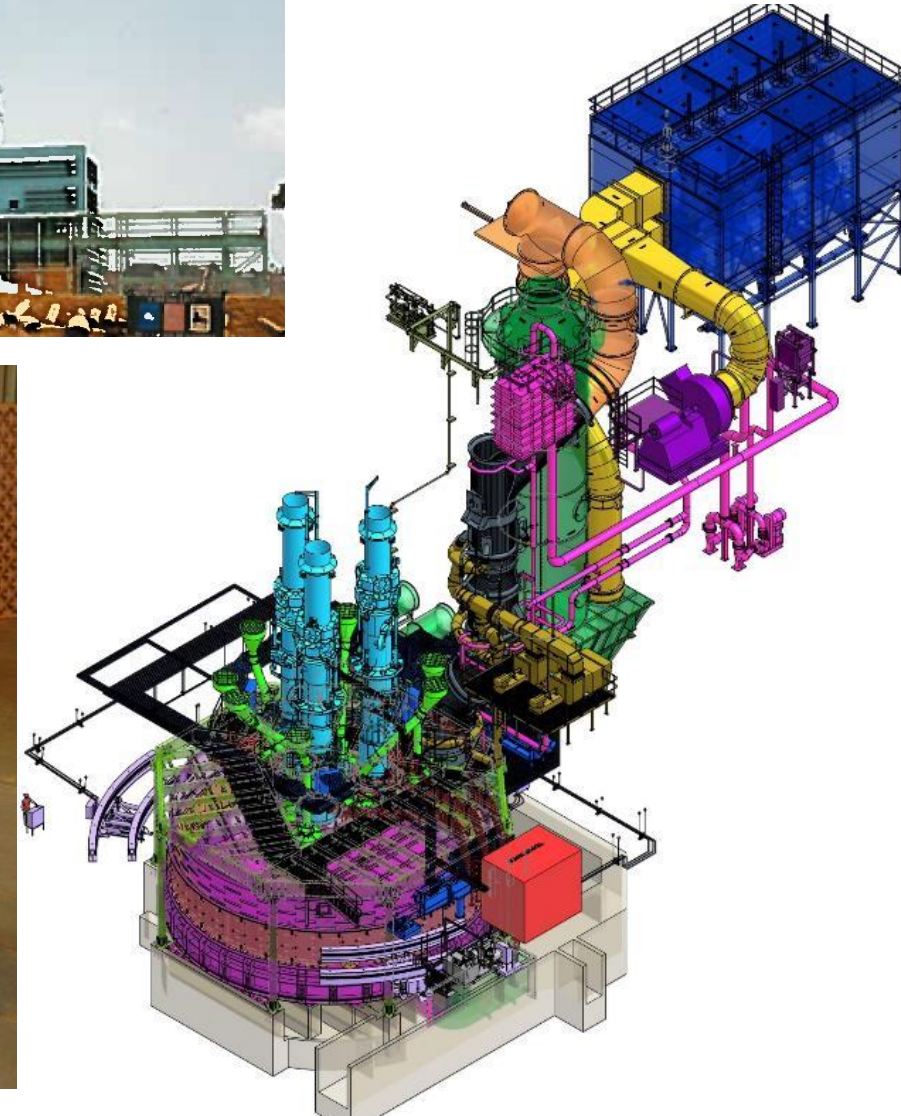
REFERENCES

Tenova has supplied **Nickel smelting technology** to clients across the globe:

MSF (Rio Tinto) - Brazil

Norilsk Nickel - Russia

PT Vale - Indonesia



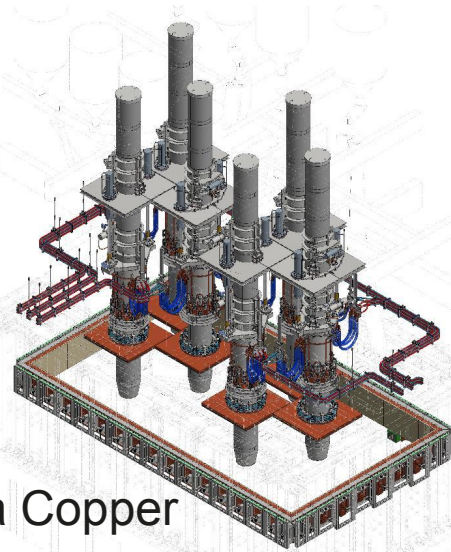
Copper Smelting Technology...

REFERENCES

Tenova supplies a range of smelting technologies to clients in the **copper** industry:

Electric slag cleaning and matte settling furnaces

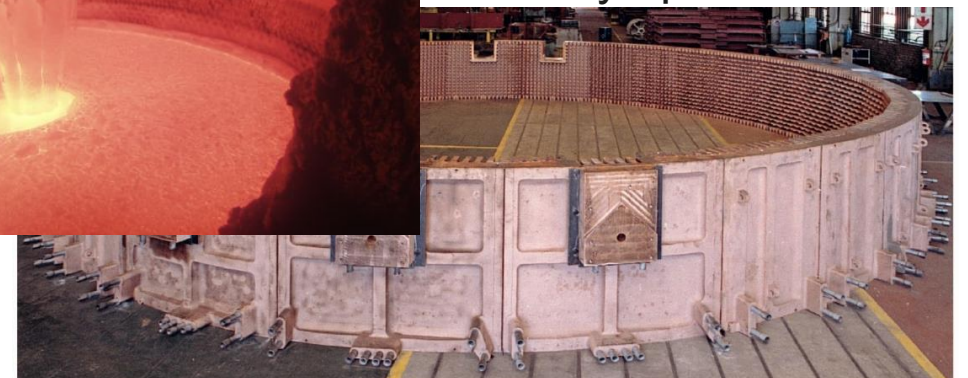
Kamoa Copper



KCM (Vedanta)



BHP Olympic Dam

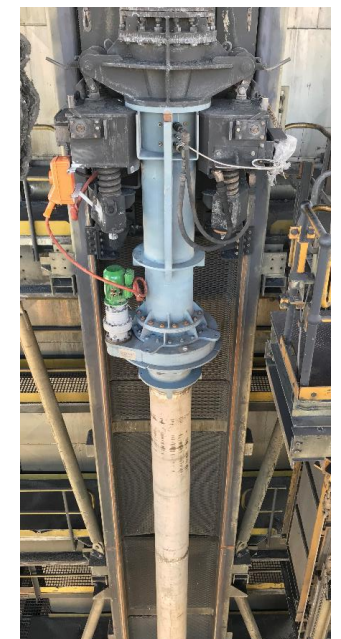
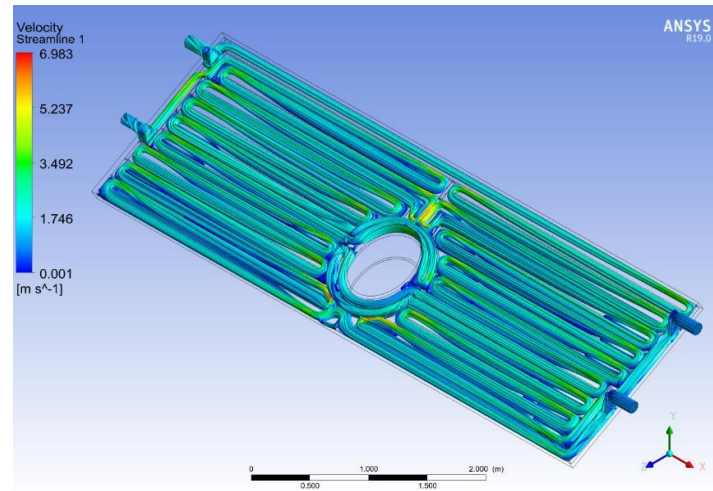


Copper Smelting Technology...

REFERENCES

Tenova supplies a range of smelting technologies to clients in the **copper** industry:

Top Submerged Lance Furnace Equipment

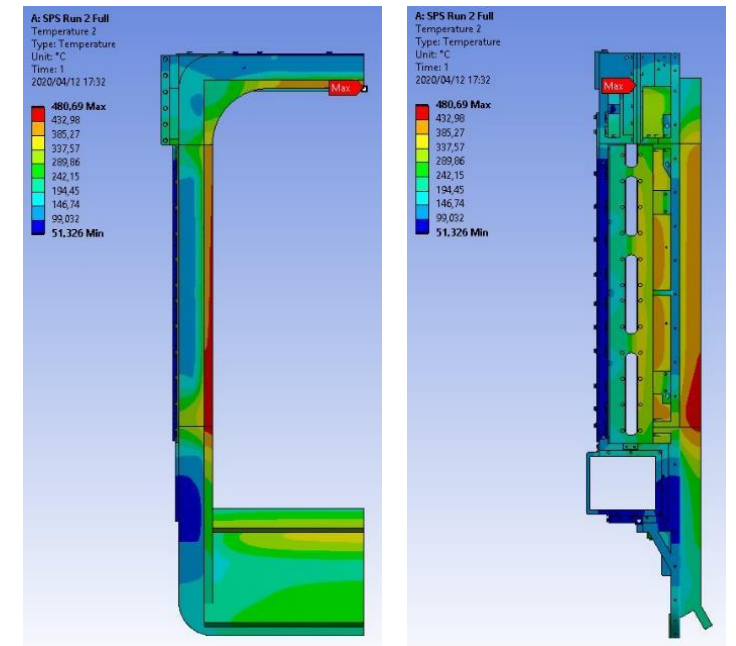
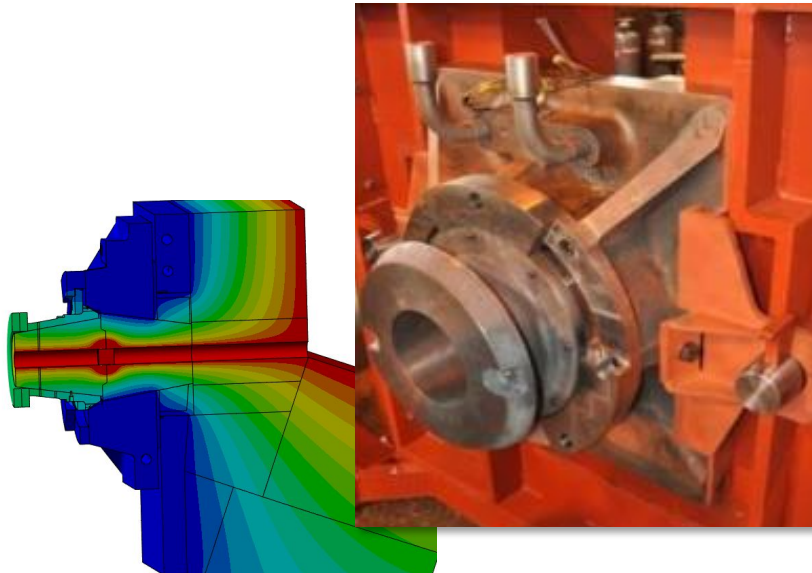
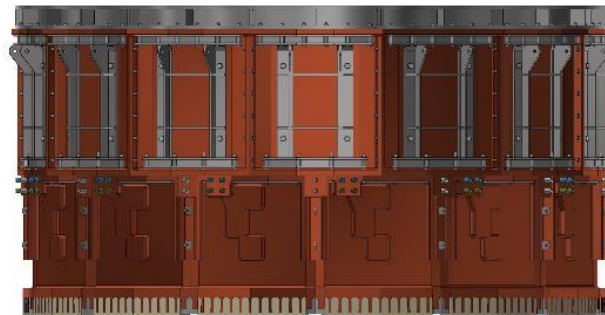
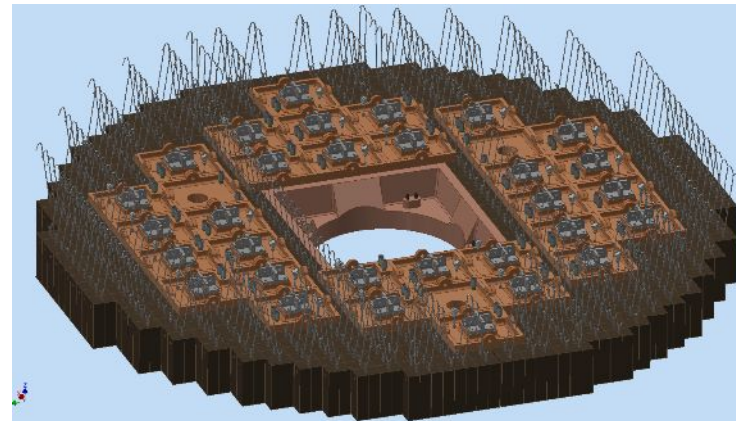
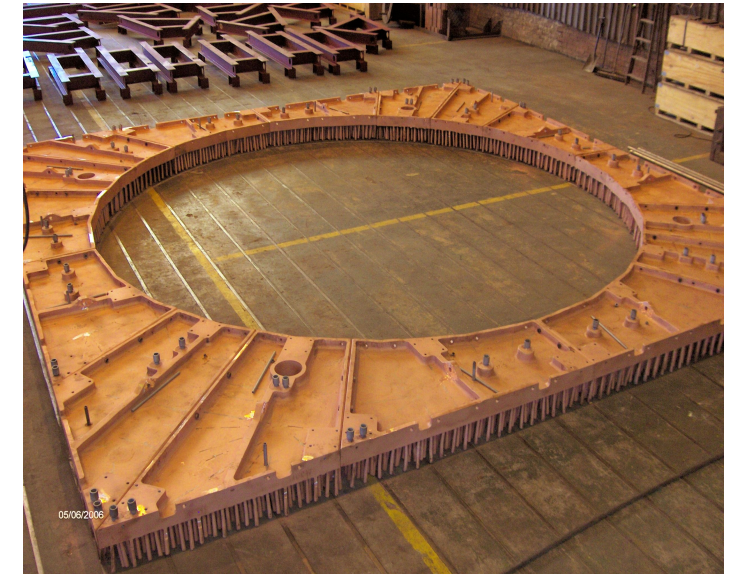
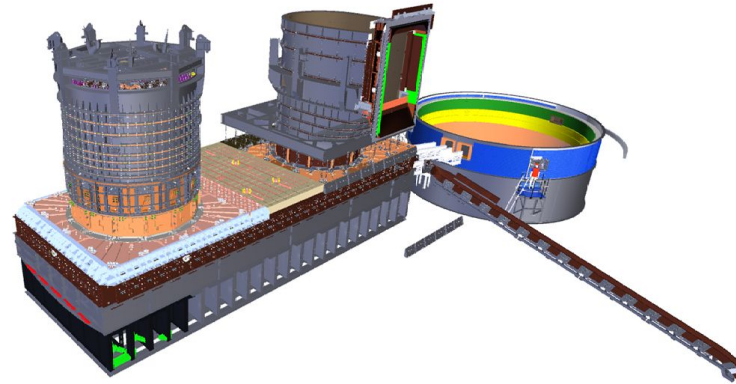


Copper Smelting Technology...

REFERENCES

Tenova supplies a range of smelting technologies to clients in the **copper** industry:

Flash Furnace Equipment

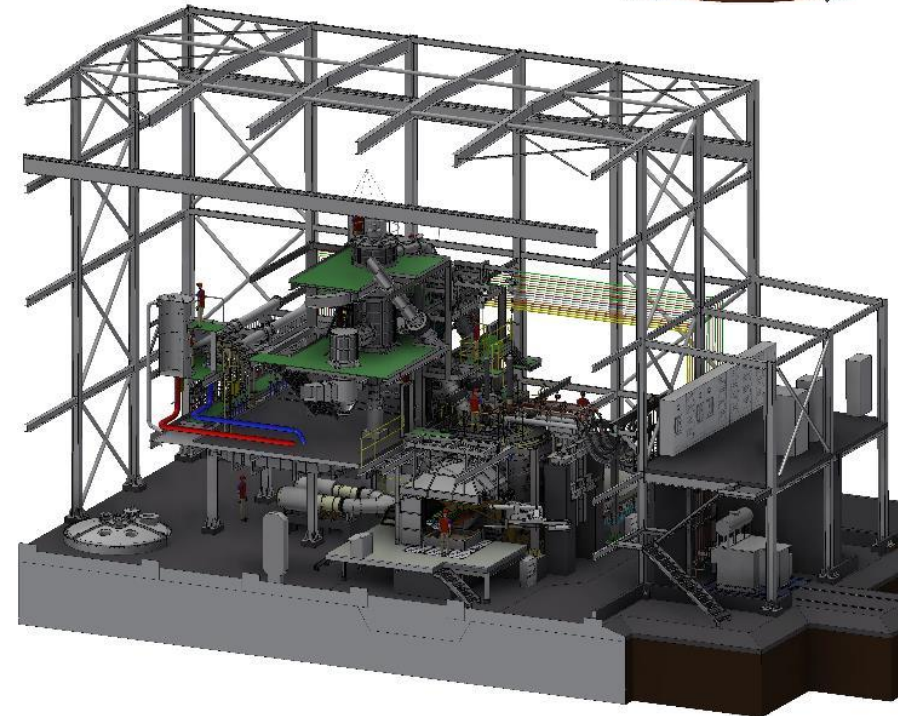
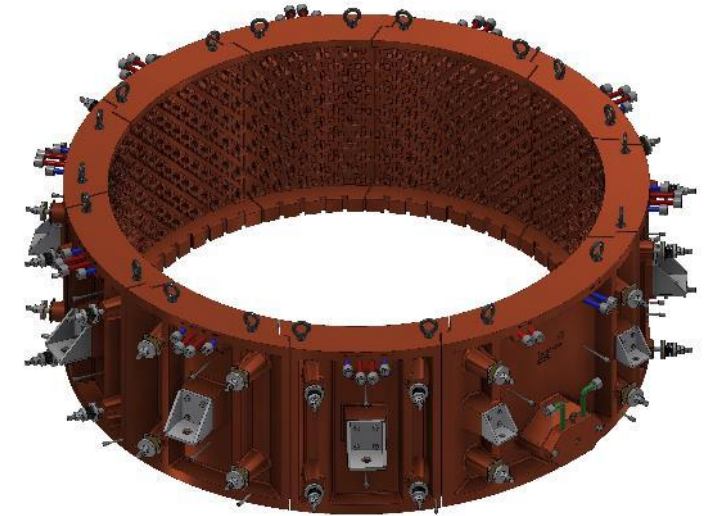


PGM Recycling Experience...

REFERENCES

Electric Smelting Furnaces

BASF x 2 Autocatalyst Recycling Furnaces



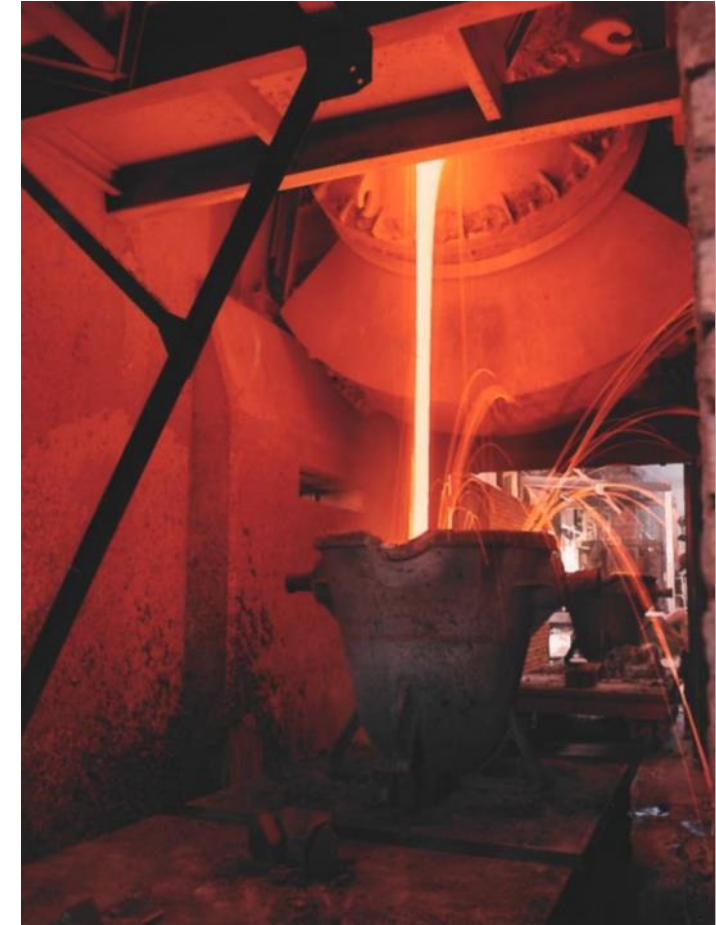
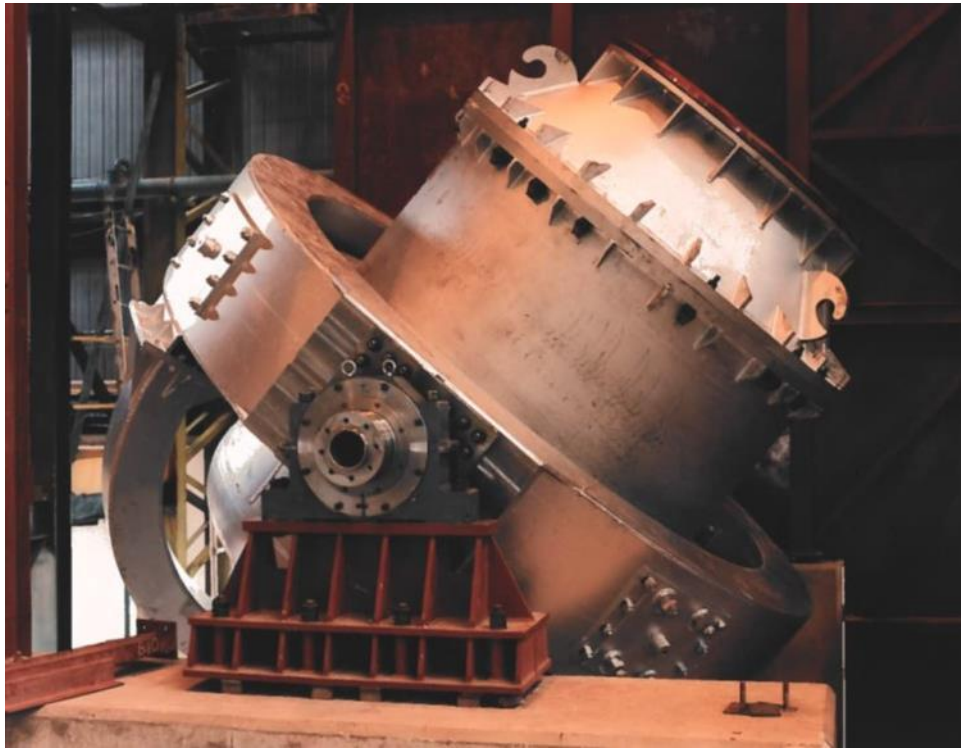
PGM Recycling Experience...

REFERENCES

Top Blown Rotary Converters

2 x Autocatalyst Recycling

1 x Copper Scrap Recycling

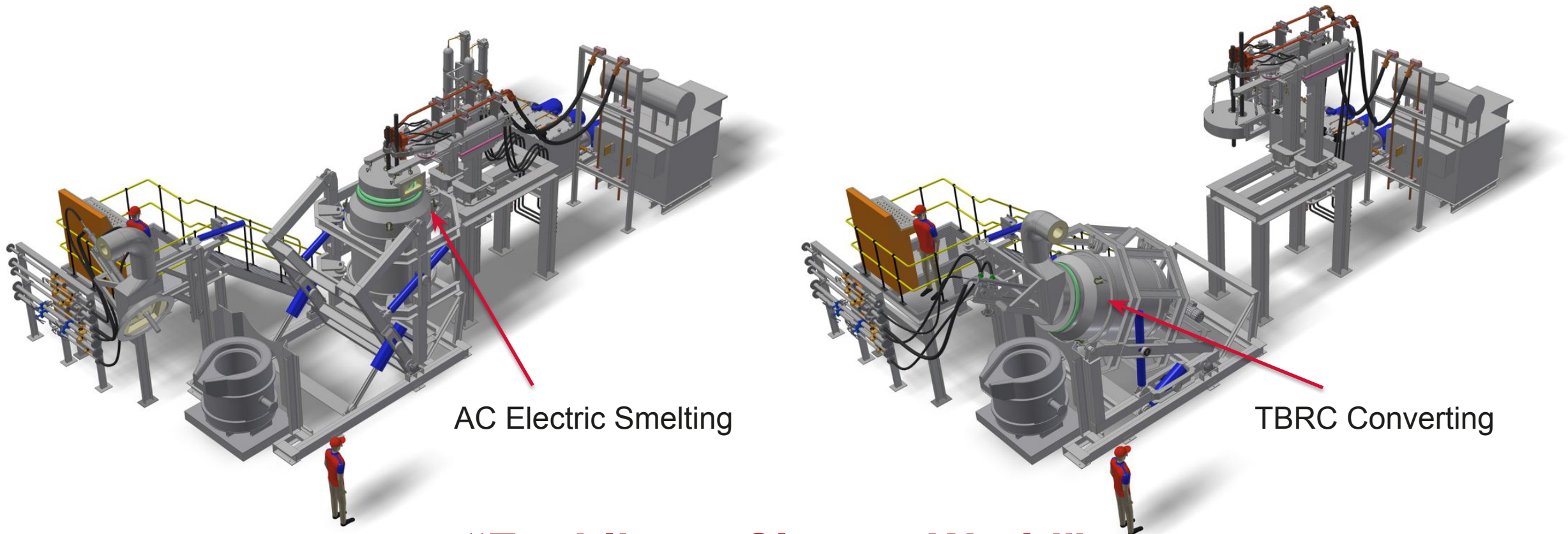


NOVACYCLE™ - Patented Technology



INTERNATIONAL PATENT PENDING

Compact unit for smelting and converting in single vessel



AC Electric Smelting

TBRC Converting

“Enabling a Cleaner World”

NOVACYCLE™ - Patented Technology

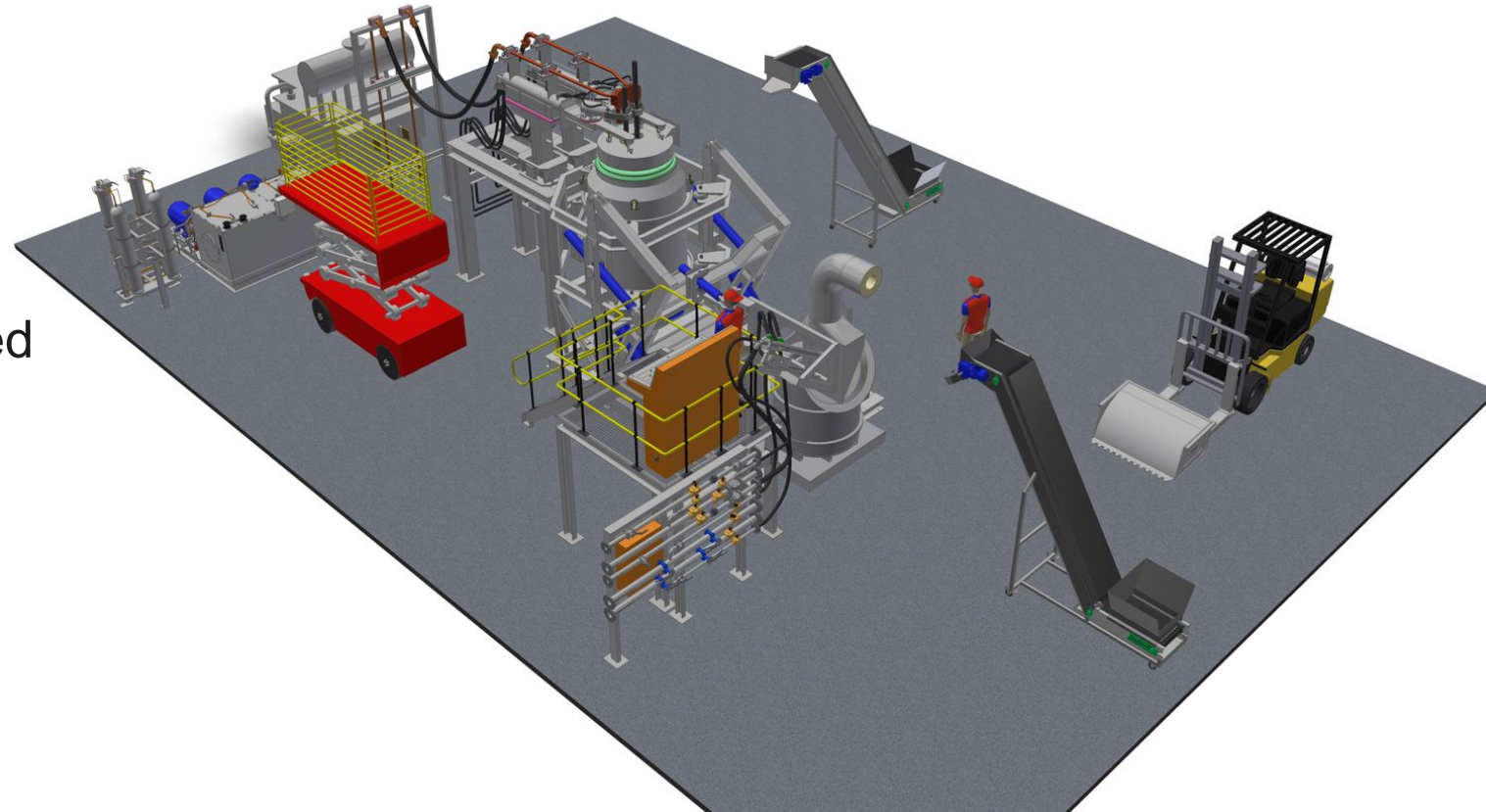


INTERNATIONAL PATENT PENDING

Compact unit for smelting and converting in single vessel

Benefits

- Lower CAPEX
 - 1 vs 2 furnaces
 - Modular design for reduced installation costs
- Lower OPEX
 - High energy efficiency
 - Reduced batch cycle time
- Smaller footprint
- Reduced CO₂ emissions



“Enabling a Cleaner World”

Satisfied clients...

OUR MAIN PRIORITY



NEWSFLASH

4 October 2022

FURNACE #1 SUCCESSFUL RESTART



In the last week of September 2022, Sibanye-Stillwater Marikana Smelter Furnace #1 made its first matte tap after a redesign and rebuild, which commenced in early May 2022.

The redesign and rebuild aimed to improve the Furnace's safety, extend the sidewall's campaign life; reconfigure the matte tap-hole and hearth, and reduce downtime for sidewall repairs.

This significant refurbishment project took 189 451 person-hours and recorded zero injuries. "I would like to thank all our Sibanye-Stillwater employees and TENOVA Pyromet team for their relentless commitment during this project, from the onboarding process through the construction phase and the subsequent successful start-up.

The fact that we had no injuries shows dedication and commitment to our drive towards zero harm. Thank you." said Bennie Du Toit, VP and Head of Surface Operating Unit Processing Operations.





Hugo Joubert
General Manager: Base Metals

hugo.joubert@tenova.com

Tel: +27 78 0133594

Tenova South Africa (Pty) Limited
Tenova Pyromet

Midrand Business Park, Building no 4
563 Old Pretoria Main Road
Midrand 1685, South Africa

pyromet@tenova.com

www.tenova.com

TECHINT GROUP

