COPPER SMELTER PROJECTS & SERVICES
Introduction

Dickinson Group of Companies was founded in 1910 followed by the establishment of its furnace service business in 1928. The company has more than 85 years experience in providing Specialist Furnace and Industrial Services to the mining, metals smelting, mineral processing, thermal power generation and petrochemical refining industries.

VISION

Dickinson Group of Companies' Vision is to be a Leading provider of Furnace and Industrial Services

MISSION

Dickinson Group of Companies’ purpose is to provide an integrated and multidisciplinary “One Personalised Solution” by offering essential furnace and industrial services, which increase productivity and performance together with reducing costs for our customers.

CERTIFICATION

Dickinson Group of Companies is certified to OSHAS 18001
Dickinson Geographic Presence - Footprint

Office Locations
- Dickinson South Africa
- Dickinson Zambia
- Dickinson Mauritius
- Dickinson Tianjin China
- Dickinson – Menco, Egypt
- Angola Representative Office
Dickinson Office & Workshops

Total land area: 14,000 m²
Total buildings (including offices, workshops & warehouses): 8,500 m²
Services

- Furnace Rebuild Projects
- Refractory Installation Services
- Furnace Demolition Services
- Silo Cleaning Services
- Industrial Vacuum Services
- Catalyst Services
- Deep Level Mining Services
- Turnkey Mechanical Projects
- Heavy Industrial Demolition
- Metallurgical Advisory Services
Products
Industrial Sectors

- Copper & Non-Ferrous Smelter Services
- Glass Furnace Projects
- Blast Furnace Casthouse Services
- Industrial Corrosion Protection
- Rotary Kiln Services
- Cement Plant Services
- Aluminium Smelter Services
- Waste Heat Recovery Technology
Industries we serve

- Aluminium
- Glass
- Platinum
- Iron, Coke and Steel
- Copper and Cobalt
- Ferrochrome & Ferromanganese
- Heavy Sands
- Nickel
- Power Plants
- Lead Smelter
- Cement & Lime
- Chemical & Petrochemical
- Power Generation
- Vanadium
- Ceramic
- Refractory Manufacturing
Global References
Copper Smelter Projects and Services

- Turnkey Furnace Rebuild Project Service - Project and construction management
- Salamander tapping and controlled furnace decommissioning and cool down
- Mechanical, structural, steel and piping dismantling, fabrication and erection
- Refractory materials and Industrial Plant Spares management, including selection, procurement, and testing
- Quality assurance and control systems
- Demolition of furnaces, removal of refractory linings, and waste management
- Design, manufacture and installation of anchor systems
- Manufacture of customised precast refractory shapes
- Installation of refractory materials
- Hot and cold furnace repairs
- Hot sealing and insulation
- Drilling and installation of thermocouples
- Drying and curing of refractory linings
- Industrial Vacuum & Silo Cleaning Services
- Furnace start-ups and commissioning
Primary & Secondary Vessels Services

- Dickinson Group offers the complete range of services on the following Copper & Ferro-Nickel smelter vessels
  - Isasmelt, Ausmelt & Smelting Furnaces
  - Anode Furnaces
  - Matte Settling Electric Furnaces
  - Flash Furnaces & Slag Cleaning Furnaces
  - Six-in-Line / Three-in-line / Two Electrode Furnaces
  - PS Converters / Teniente Converters
  - Mould Twin Casting Wheel
Isasmelt & Ausmelt Furnaces

- Partial, major or full demolition of refractories
- Partial, major or full refractory installation
- Refractory materials supply & coordination
- Shell repairs or replacements
- Tap hole repairs or replacements
- Cleaning service on the boiler and transition piece
- Launder replacements
- Stack cleaning and maintenance
- Platform repairs or replacements
- Cleaning Copper & Ferronickel spills
- Precast launder tiles
Isasmelt Refractory Demolition

Isasmelt Demolition utilizing Brokk Machine

Only 48 hours for complete demolition
Isasmelt Refractory Demolition

Isasmelt Demolition utilizing Brokk Machine
Isasmelt Refractory Installation by use of 6061-T6 Aluminum Multi-point Suspended Platform
Isasmelt Refractory Installation with Suspended Platform
Isasmelt Refractory Installation
Anode Furnaces Maintenance

- Partial, major or full Demolition on refractory
- Partial, major or full Refractory installation
- Material supply and coordination
- Gooseneck repairs or replacements
- Maintain spare gooseneck units
- Charge door repair or replacements
- Charge door platform repairs
- Maintain spare charge door units
- Tuyere plate repairs or replacements
- Shell plate repairs or replacements
- Tap hole shell repair
- Lip repairs or replacements
Anode Furnaces Maintenance

- Copper cooler replacements
- Lip maintenance
- Lip cleaning with the Brokk
- Tuyere maintenance
- Porous plug maintenance
- Diesel, water, air and nitrogen line repairs or replacements
- Slag settling chamber repairs and maintenance
- Slag settling chamber cleaning
- Growth monitoring
- Cleaning copper spills
Anode Furnaces Reline Statistics

- Full Reline Brick Removal: 3.5 days
- Partial Repair Brick Removal: 2.5 days
- Full Reline Refractory Brick Installation: 13 days
- Partial Reline Refractory Brick Installation: 8 days
- Full reline on Anode Furnace: 16.5 days
Matte Settling Furnaces

- Partial, major or full Demolition on refractory
- Partial, major or full Refractory installation
- Material supply and coordination
- Shell repairs or replacements
- Structural repairs or replacements
- Tap hole repairs/maintenance
- Matt launder repairs or replacements
- Supply of precast launder blocks
- Matte Launder blocks installation
- Matte Launder maintenance
- Feeding chutes repairs/maintenance
- Electrode repairs/maintenance
- Slag launder head maintenance
- Roof cleaning and maintenance
Matte Settling Furnaces

- Growth monitoring
- Cleaning copper spills
- De-bricking of MSEF furnace roof
- Removal of roof brick suspension members
- Installation of new members and alignment
- Installation of new roof bricks where necessary
- Demolition of furnace side and end walls up to the base of furnace
- Bricking of new side walls and the repair of the DR System where necessary

_Last reline completed in 33 days including demolition mechanical & refractory installation_
_Removed working Hearth and sidewalls from Skew back up of the permanent lining_
Matte Settling Furnaces Precast Launders

- Pre-dried up to 650 °C
- Ready to use with no drying out required
- Ease of Installation and removal
- Reduce time required to replace the blocks
- Reduce Labour required for launder maintenance
- Increases refractory lining life cycle
- Reduces need to constantly repair Launder refractories
- Modular design with capability to remove only damaged sections
- Less skill require as installation & removal is rigging activity
- Ability to keep pre-cast launders in stock
Matte Settling Furnaces Precast Launders
Matte Settling Furnaces Precast Launders

Precast Matte Launder Life Time of 9 months
Flash & Slag Cleaning Furnaces

- Partial, major or full demolition of refractories
- Partial, major or full refractory installation
- Refractory materials supply & coordination
- Shell repairs or replacements
- Tap hole repairs or replacements
- Matte launder repairs or replacements
- Supply of precast launder blocks
- Matte launder block installation
- Matte launder maintenance
- Feed chutes repairs & maintenance
- Electrode repairs & maintenance
- Slag launder head maintenance
- Roof cleaning & maintenance
- Growth monitoring
- Cleaning copper spills
Flash & Slag Cleaning Furnaces – Recent Projects
Flash & Slag Cleaning Furnaces – Recent Projects
Six and Three-in-line Smelting Furnaces

- Partial, major or full demolition of refractories
- Partial, major or full refractory installation
- Refractory materials supply & coordination
- Shell repairs or replacements
- Tap hole repairs or replacements
- Matte launder repairs or replacements
- Supply of precast launder blocks
- Matte launder block installation
- Matte tap hole deep repairs
- Feed chutes repairs & maintenance
- Electrode repairs & maintenance
- Slag launder head maintenance
- Roof cleaning & maintenance
- Growth monitoring and Cleaning copper spills
Six & Three-in-line Furnaces
Six and Three-in-line Furnaces
Convertisers

- Partial, major or full Demolition on refractory
- Partial, major or full Refractory installation
- Material supply and coordination
- Hood inspection and repairs (Hood door, hood rails and water leaks)
- Cleaning of hang ups
- Protection plate repairs or replacements
- Apron repairs or replacements
- Pouring lip, gable and invert arch liners supply and replacements.
Converters

- Retaining plate and mounting plate repairs
- Replacements on the mouth area
- Shell repairs or replacements
- Burner hole repair or replacement
- Tuyer line base plate repairs
- Tuyer boxes maintenance
- Distribution pipe installation
- Supply of tuyer pipes and installation
- Repairs on tuyer mounting plates
- Discharge chute’s repairs
- Swivel and bustle repairs and maintenance.
Converters

- Auxiliary maintenance (handrails, walkways)
- Off gas maintenance and repairs
- Growth monitoring
- Cleaning copper spills
- Pouring lip cleaning with the Brokk
Converters

- Full reline hot to hot rebuilds: 15 days
- Partial repair hot to hot repairs: 12 days
Converters
WE COMPLETED OVER 80 CONVERTER REBUILDS IN PAST 9 YEARS
Converters - Mechanical
Converters - Mechanical
Mould Twin Casting Wheel

- Maintain the refractory on the receiving launder
- Maintain the refractory on the long lasting launder
- Maintain the refractory on the Y-Piece
- Maintain the refractory on the launder tip
- Maintain the refractory on the intermediate ladle
- Maintain the refractory on the spoons
Mould Twin Casting Wheel

- Maintain the refractory on all the spares units
- Maintain the refractory on the pouring spout
- Supply of pre cast shapes on the spoon tips
- Curing facility for the units
- Mechanical repairs on units (Anchors, Base plates ext.)
- Material supply
- Demolition on the units with the Brokk machine
Our company currently carry out maintenance on spoons, launders and intermediate launders utilizing recycled brick lining grog to reduce refractory consumption up to 50%
Copper Recovery – Vacuum Services
Copper Recovery – Vacuum Services
Copper Recovery – Vacuum Services
Copper Recovery – Vacuum Services

- Recovery of copper concentrate from Ducts, Conveyor Spillages, Walkways and Plant Floor Space
- Solid and Liquid Recovery and disposal
- Recovery from Slag Pits
Business Alliances

USA

FRANCE

EGYPT

DENMARK

UK

GERMANY

EGYPT

SOUTH AFRICA

USA
Dickinson Group of Companies provides a “One Personalised Solution” and strives to be your preferred partner and supplier.

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