



# Metal refining and Electrowinning

## High Power Transformer Rectifier Systems For Electro Winning and Metal Refining Applications

### **Added Benefits of Power Electronic Systems Supplied by Neeltran – Robust and Reliable Power to run your 24/7 processes.**

At Neeltran, we design and manufacture our own transformer rectifiers and rectifiers in the same facility. Neeltran performs Full Current and Full Voltage factory testing of the transformer and rectifier in their actual configuration prior to shipment.

This combined testing to eliminate integration problems at the site and to assure the shortest commissioning time for your mining or electrowinning rectifier. This results in significant cost savings and produces the highest quality units.

Neeltran possesses multi-industry, engineering, and manufacturing experience that helps us to be flexible and design products that meet your specific technical and safety requirements. Neeltran offers oil cooled transformers with water cooled rectifiers as well as complete water cooled systems including the transformer which is a green solution as well as lower cost.

Markets served for electrowinning and metal refining dc power supply: Copper, Nickel, Zinc, Cobalt, Lithium and other non-ferrous metals that use electrolytic processes.

**Rectifier for mining product Range: 5 kA to 60 kA per 6 pulse unit, multi-pulse configurations with total process up to 270 kAdc available.**

### **Product Details:**

- Latest safety features.
- Design to all types of environments.
- Remote monitoring via PLC modem.
- State-of-the-art Neeltran control boards with Microprocessor based controller available.
- All types of PLC's available for ease of interface to customer systems
- Semiconductor Plasma Arc protection available Diode units available.
- On Load Tap Changer available, in all cases including NLTC tap changer will have its own separate oil supply.
- Design to local environment, altitude and cooling conditions with all cooling system types available Multiple DC current measurement types available.
- EMF, RFI and Magnetic studies available FEM analysis available.
- System coordination study available.
- Harmonic studies available.
- E House style available



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### General Specifications

|   |            |   |
|---|------------|---|
| Three-phase supply voltage main by customer     | V          | up to 69000                                       |
| Maximum power                                   | kVA        | up to 10000                                       |
| Three phase voltage on the secondary            | V          | up to 300   |
| Frequency                                       | Hz         | 50 / 60   |
| NLTC or OLTC                                    |            | No Load and On Load Tap Changers                  |
| DC Current                                      | A          | up to 60000                                       |
| DC Voltage                                      | V          | up to 300   |
| Rectifier Connection                            | ANSI - IEC | Bridge or Single Way                              |
| Pulses  |            | 6 / 12 / 18 / 24 / 36 and more                    |
| Control card type                               |            | Digital or Analog, hard wired or OPTO             |
| Accuracy of the constant current control system |            | ±0.5%   |
| Transformer Cooling                             |            | ONAN-ONAF-OFAF-OFWF-KNAN                          |
| Transformer Manufacturer                        |            | Neeltran  |
| Transformer Oil Type                            |            | Mineral, FR3, Silicon                             |
| Temp class                                      |            | 105°C   |
| Installation                                    |            | Indoor or Outdoor                                 |
| Rectifier Cooling                               |            | Deionized Water to Water / Deionized Water to Air |
| Rectifier Enclosure Type                        |            | Compact / Semi-walk in / Walk in                  |
| Rectifier Manufacturer                          |            | Neeltran  |
| Rectifier power section material                |            | Aluminum or Copper                                |
| Rectifying elements                             |            | Thyristors / Diodes / IGBT                        |
| Redundancy                                      |            | N+X   |
| Line Up Testing Available                       |            | Combined Test at Neeltran Factory                 |

#### American Superconductor

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