Tenova is a leading supplier of technological solutions and engineering services for the metals and mining industries, including key segments of the metallurgical process as well as in the mining value chain. Combining innovative engineering with process and automation expertise, Tenova delivers a full range of integrated solutions from greenfield projects, equipment and technology solutions to modernization upgrades and service packages. Passion for technology and a commitment to understanding needs of its global customer base are the key drivers of Tenova’s business operations.

Tenova Pyromet is a leading company in the design and supply of AC and DC furnaces for the production of ferroalloys, platinum group metals, base metals, slag cleaning and alloy refining. Tenova Pyromet also designs and supplies plant equipment that is associated with furnaces such as material handling and pre-treatment, alloy conversion and refining, granulation of metal, matte and slag, furnace off-gas/mine collection and treatment and treatment of hazardous dust and waste. Tenova Pyromet provides feasibility studies, construction and commissioning supervision and training and also, provides several technologies to reduce operating costs and increase production efficiencies.

The company has been certified to ISO 9001:2008 for “The Design and Supply of Smelting Technology and Equipment”.

Every furnace operator wants his furnace to run in a stable and reliable manner. Today’s intelligent furnace control software makes this possible. The value of information gathered by the plant instrumentation and processed by the SCADA and PLC, is enhanced by further analyzing this data and using it for advanced furnace control and monitoring. The Pyromet Furnace Controller automatically controls the furnace to optimise the power input to the furnace, whilst safeguarding the electrical equipment against overcurrent situations, minimising furnace trips, downtime and damage to expensive equipment. Operator intervention in routine activities is reduced, allowing operators to concentrate on genuine emergencies. The Lining Management System is an online condition monitoring tool, which facilitates planning of relining events, as well as assessment of damage after temperature excursions in the furnace.

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TECHINT GROUP
The Tenova Pyromet AutoFurn™ is enhanced by the Tenova Pyromet AutoFurn™TM which facilitates planning of relining events, as well as assessment of damage after temperature exceedences in the furnace.

**Features**
- Predictive control — rapid correction of unbalanced conditions.
- Furnace transformer and secondary circuit impedances are calculated from real-time electrical measurements.
- No electrode to bath voltages are used for calculations.
- Controls to MW or MVA setpoint.
- Automatic resistance control.
- Automatic electrode slipping.
- Electrode baking control — standard baking schedules can be stored and started with the touch of a button.
- Automated dip tests for electrode position calculation.
- Operators can adjust slit prompts.
- Password protection is provided for key settings.
- Easy to customize.
- Data trends are output to the PLC and historian.

**Benefits**
- More Power: Controlling furnace power at the setpoint results in increased average power input to the furnace.
- More Control: Resistance control means better electrode penetration and no electrode interaction effects, even with unbalanced furnace conditions.
- More Static Operation: Ensures even heating and reduction under each electrode and stable furnace conditions that can be maintained day after day.

**Dip Test**
- Automated dip test provides an indication of electrode position.
- Dip test process is completely automated.
- Information is continually calculated.

**AutoFurn™**

The Tenova Pyromet AutoFurn™ is an intelligent system which provides an additional level of automation, above the SCADA and PLC.

The Tenova Pyromet AutoFurn™TM is designed to be user friendly. It improves the efficiency of furnace operation by obtaining a higher average power input to the furnace and maintaining stability or balance in the furnace. It is suitable for new and existing submerged arc: on furnace and can easily be retrofitted to existing furnaces. It configures and manages high frequency processes, as well as other reduction processes such as base metals and platinum group metals.

**Hardware Requirements**

The LMS also offers the following features:
- Radiator mode that scans vertical and horizontal sections through the furnace, which allows the following information in real time:
  - Estimated southerly of hot face temperature
  - Actual lining thickness
  - Refractory wear
  - Initial lining thickness

**Features**

The Lining Monitoring System displays information graphically in horizontal and vertical sections through the furnace which allows the following information in real time:
- Long terms trend of lining thickness and remaining life can be extracted from the built-in historian.
- The effect of specific operating procedures on the lining condition can be evaluated.
- Effect of upset conditions can be evaluated.

**Benefits**

- Long term trend of lining thickness and remaining life can be extracted from the built-in historian.
- The effect of specific operating procedures on the lining condition can be evaluated.
- Effect of upset conditions can be evaluated.

Applicable to a variety of furnaces
- AC or DC
- Refractory linings
- Copper cooled linings
- Linings
- Other applicable to any type of furnaces