The Thermo Scientific CB Omni cross-belt elemental analyzer provides reliable and accurate analysis of bulk materials. Providing minute-by-minute composition analysis of ores and concentrates will reduce process upsets, therefore increasing your mill throughput. The modular design allows for quick, low cost installation and maintenance.

Benefits
- Increases mill throughput
- Reduces the effect of process upsets
- Yields consistent product quality
- Extends mine life
- Reduces energy and refractory consumption in pyrometallurgical process
- Removes the need for continuous sampling and lab analysis
- Low installation costs and requirements

Features
- No need to cut existing structure
- Modular design for ease of installation
- Modules are moveable without the need for heavy lifting equipment
- Belt widths from 600 mm (24 in) to 1800 mm (72 in)
- Variable tunnel heights to accommodate process conditions
- Superior, robust accuracy (ABLC)
- State-of-the-art electronics
- Flexible plant connectivity
- Comprehensive user interface

The Thermo Scientific CB Omni is a Prompt Gamma Neutron Activation Analysis (PGNAA) system designed to integrate into either a new or an existing conveyor structure and analyze, in real time, the composition of bulk materials being transported by conveyor belt. The system analyzes the entire material stream, providing a representative analysis of the material conveyed.

The CB Omni represents tried and proven technology that has become the standard over decades in cement, coal, and recycled metals applications.

Applications
Thermo Scientific cross-belt analyzer systems are powerful optimization tools in the following applications:
- Material sorting
- Homogenization/blending stockpile control
- Blending of materials from multiple sources
- Mine grade control

Materials include:
- Sinter
- Iron ore
- Sulphide and laterite nickel ores
- Phosphates
- Ores of ferrochrome and ferromanganese
- Bauxite/alumina
- Copper
- Industrial minerals
Sorting Applications
In many cases, a process can be optimized if the raw materials can be sorted based on material composition. This can be based on the economic metal component or the concentration of impurities. The CB Omni is perfectly suited for this type of work and rapidly determines when a material composition changes.

Blending Stockpile Applications (from multiple sources)
One of the most popular uses of cross-belt online analysis systems is controlling stockpile grade/chemistry to meet quality targets. This ensures smoother downstream processing and provides flexibility in mining operations. Whether the stockpile is longitudinal or circular, the CB Omni allows the producer to achieve consistent stockpiles, with minimal variations within and between piles.

The analyzer can be used for quality control by tracking the chemistry of the stockpile compared to the target chemistry, which determines the preferred proportions of the source raw materials.

Proportioning Applications
A primary determinant of pyrometallurgical process efficiency is the chemical uniformity of the feed. Feed uniformity is in turn derived from the precise dosage control for fluxes and slag-builders. Located downstream of the last component addition, a CB Omni system provides the precise control needed to reduce feed variability while at the same time minimizing raw material costs and satisfying multiple quality control targets.

The Thermo Scientific AccuINt™ software provides a rigorous, statistical analysis and subsequent automatic implementation of calibrations into your online analyzer system. The package compares the results of your online analyzer with the site laboratory and provides in-depth data analysis in both table and graphics formats.

This software ensures the very best online accuracy possible, through continuous comparisons with the lab, and timely, automatic calibrations. In essence, we are applying laboratory type accuracy to an online instrument. This unprecedented step not only brings you the ultimate in analyzer accuracy, but it does so without any user intervention.

The CB Omni: The Best of the Best
The expertise of Thermo Fisher Scientific brings the most advanced and flexible technologies to your process.

• Multiple detector configurations to provide optimum accuracy for each application
• Factory calibrated
• Modular design that removes the need to cut the belt line, simplifying the installation process
• Mounts directly onto the conveyor line
• Designed to suit belt sizes from 600 mm to 1800 mm (24 in to 72 in)
• Spectral analysis process, improved calibration methods and the latest generation electronics ensure peak accuracy
• Applications expertise coupled with proven optimization software and highly popular user interface
• Service staff are located around the globe for quick response times

The CB Omni: The Best of the Best
The CB Omni analyzer is designed for peak performance with maximum flexibility and reduced installation costs.

Easily Integrates into the Conveyor Line
The CB Omni’s steel framework sits on and integrates with the conveyor line’s existing support structure. In other words, a belt line does not need to be cut to install a CB Omni. This minimizes installation complexity and costs. The CB Omni fits cleanly onto a conveyor structure with few modifications and walkways are generally not affected. Furthermore, clearance requirements between the delivery and return strand of the conveyor are minimized, such that bend pulleys used to clear the lower part of the system may not be required.
Analysis Zone Configuration—Tunnel Height, Width and Detector Position
- System accommodates all material profiles and processes
- Tunnel width and height optimized per application
- Adjustable detector position allows optimization to specific application

Automatic Belt Load Compensation (ABLC)
The CB Omni incorporates the unique Automatic Belt Load Compensation feature which ensures analyzer accuracy over a range of changing production rates and belt loading. As the material loading on the belt decreases, the background signal from elements in the conveyor itself grows accordingly. If not accommodated this would increase the analyzer measurement error. The unique ABLC feature ensures that the system remains accurate no matter what loading conditions are encountered.

Integration with other Thermo Scientific Products, Providing Quality and Quantity Control
CB Omni can be supplied with:
- Belt scales
- Weigh feeders
- Metal detectors
- Moisture analyzer
- Sampling system
- Magnetic content gauge
- Nautilus and AccuLINK™

Remote Diagnostics and Assistance
All Thermo Scientific online analyzers are equipped with the capability to connect to the system from one of our regional service centers in order to provide rapid interactive assistance. The connection is made either via the web or through a dedicated telephone connection.

Analyzer Components
The CB Omni analyzer system consists of four major subassemblies:

Analyzer Assembly
A unique modular assembly and frame easily mounts onto an existing conveyor structure without cutting the conveyor structure. The analyzer assembly contains the detection and measurement mechanics of the system.

Electronics Module
Advanced, high-speed digital electronics control, process, monitor and exchange information between the Analyzer Assembly and the Operator Console.

Operator Console
The Thermo Scientific Operator Console is the user interface for the CB Omni system. The OpCon utilizes the Thermo Scientific standard software package that provides analysis data on minute-by-minute, rolling average and interval average basis; product tracking capabilities; extensive graphic functionality; alarms; and the ability to transfer data to control systems. Optionally, the OpCon can be coupled with process control software that allows either automatic or manual control of blending stockpiles or proportioning circuits.

Reference Standards
Unique modular reference standards are used to qualify and monitor system performance.

Analysis Capabilities
The CB Omni system measures and reports various elements, the performance is application dependant and capabilities are subject to concentrations being above the limits of detection. Please contact your sales manager for measurement levels.*

*Capability is subject to concentrations being above the limits of detection.

The CB Omni can compute customer defined ratios, for example:
- CaO: SiO2 (Basicity)
- SiO2:MgO
- Ni:Fe
### Thermo Scientific CB Omni Specifications

#### Specifications

<table>
<thead>
<tr>
<th>Belt Size</th>
<th>Length of Unit</th>
<th>Width</th>
<th>Approximate Height (base)</th>
<th>Weight (base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600/800 mm (24/32 in)</td>
<td>3392 mm (133.5 in)</td>
<td>1890 mm (74.5 in)</td>
<td>1645 mm (64.5 in)</td>
<td>3500 kg (7700 lb)</td>
</tr>
<tr>
<td>900/1050/1200 mm (36/42/48 in)</td>
<td>3392 mm (133.5 in)</td>
<td>2090 mm (82 in)</td>
<td>1671 mm (65.5 in)</td>
<td>3900 kg (8600 lb)</td>
</tr>
<tr>
<td>1400/1600/1800 mm (55/63/71 in)</td>
<td>3392 mm (133.5 in)</td>
<td>2606 mm (102.5 in)</td>
<td>1798 mm (71 in)</td>
<td>4900 kg (10800 lb)</td>
</tr>
</tbody>
</table>

#### Standard Physical Specifications

- **Troughing Angle**: 35° ; 45°
- **Electronics Enclosure**: NEMA 4 enclosure
  - 800mm tall x 6000mm wide x 300mm deep (31.5 in tall x 23.5 in wide x 12 in deep)
- **Electronics Connection to Analyzer**: Standard 25-meter cable provided; Configurable on request
- **Operating Temperature**: -30°C to +50°C (-22°F to +122°F)

#### Electrical Specifications

- **Electronics Enclosure**: 230 VAC 50 or 60 Hz, 7 Amps 3 wire (L1, N, GND)
- **Operator Console**: 120 VAC 50 or 60 Hz, 5 Amps 1 Phase or 230 VAC 50 or 60 Hz, 2.5 Amps 1 Phase

#### Communications

- **Electronics Enclosure to Operator Console (Customer Supplied)**: Fiber Optic 62.5/125 multimode (minimum of 2 fibers) 2000 meters maximum (longer distances optionally available) or Optional wireless data communication package (Thermo Scientific Wireless Xpert)
- **Operator Console to Customer Control System (Customer Supplied)**: OPC client/server link, major communication protocols, ODBC
- **Offsite (Remote) Communication**: One data quality phone line or internet link required
- **Isotope**: Cf-252 Neutron source; amount defined per application and performance requirements

#### Related Products

- **AccuLINK™ – Automatic Calibration Software**