LiMCA III
Liquid metal cleanliness analyzer
The LiMCA III is a versatile aluminium cleanliness analyzer that can be used to sample at multiple locations along the casting lines of most casthouses

The LiMCA III uses the proven LiMCA measurement principle that is the industry standard for measuring non-metallic inclusions in molten aluminium. It can be used under harsh industrial production conditions to provide an accurate indicator for the metal cleanliness of aluminium alloys. The LiMCA III takes advantage of a lighter measuring head for more versatile and flexible positioning in molten metal than previous LiMCA analyzers. Its lower center of gravity makes it also more stable and easy to maneuver. Furthermore, the LiMCA III comes with a laser level sensor that enables automatic raising and lowering of the measurement head to adapt to the varying levels of molten metal during a cast.
Effects of settling on cleanliness
Settling time is often based on experience. What if you knew the level of cleanliness you could achieve just by selecting the right settling time in your furnace? Without this information, productivity is lost.

Inclusion release from a sudden metal level change while casting
When systems are unstable, variations in quality occur. What if you knew how and why your process was unstable? Without this information, it is difficult to know the cause of your rejects.

LIMCA results showing filter efficiency
Top quality producing plants rely on expensive in-line filtration systems. What if you knew your filtration efficiency and its limitations? Without this information, you may use your filtration system incorrectly.

Web-based software
The LiMCA III is operated via a web-based software. There is no need to install any software in customer control systems or computers. The software is built in the LiMCA III and can be accessed via a web browser. The LiMCA III Internet Interface is the primary graphical user interface (GUI) tool to control, monitor and configure the LiMCA III analyzer. The application also provides a complete set of tools to view and manage the inclusion, status and log data produced by the LiMCA III system.
Versatile and flexible positioning of measuring head
1. Upward/downward mechanical actuator positioning system
2. Forward/aft manual positioning rail system
3. Automated/manual electrical actuator with tracking system
4. Three positioning systems combined to offer a wide range of motion

Technical Specifications

Measurements
- Particle size measurement: 20 to 155 µm
- Particle size detection: 15 to 300 µm
- Inclusion concentration (numerical): 0.05 to 1000 k/kg
- Reproducibility at high inclusion concentration: ±10%
- Reproducibility at low inclusion concentration: Dominated by statistical noise
- Typical melt sample mass: 17.5 g
- Typical melt sample volume: 7.5 ml
- Typical data sample interval: 80.0 seconds

Ambient specifications
- Operating ambient temperature: 0 to 50 °C (32 to 122 °F), with active cooling
- Storage ambient temperature: –20 to +40 °C (–4 to 104 °F)
- Internal operating temperature: –5 to +50 °C (23 to 122 °F)
- Ambient humidity: 35 to 85% RH, non-condensing

Electric power supply specifications
- Rated nominal line voltage: 100 to 240 VAC, autoselect
- Line voltage phases: Single, neutral grounded VAC
- Maximum line voltage fluctuation: ±10%
- Rated frequency: 47 to 63 Hz
- Rated power consumption: 200 VA average, 450 VA peak
- Breaker type (100 to 240 VAC): 5A, 2 poles, Tripping curve K (according to IEC/EN 60947-2)
- Minimum extension wire gauge: 18 AWG

Analyzer compressed air supply specifications
- Maximum temperature: 40 °C (104 °F)
- Minimum pressure: 552 kPa (80 psig)
- Maximum input pressure: 1400 kPa (200 psig)
- Flow at 552 kPa (80 psig): 481 SLPM, typically 17 SCFM (max. 25 SCFM)
- Filter: 0.3 µm
- Purity: 99%
- Dew point: –40 °C (–40 °F)
- LIMCA air hose internal diameter: 19.05 mm (0.75 in)
- Plant argon hose minimum internal diameter: 12.7 mm (0.5 in)

Analyzer compressed argon supply specifications
- Maximum temperature: 40 °C (104 °F)
- Minimum pressure: 300 kPa (45 psig)
- Maximum input pressure: 800 kPa (115 psig)
- Minimum flow: 0.015 m³/min, 0.5 SCFM
- Filter size: 40 µm
- Purity: 99%
- Dew point: –40 °C (–40 °F)
- LIMCA argon hose internal diameter: 4 mm (3/32 in)
- Plant argon hose minimum internal diameter: 6 mm (1/4 in)

Laser specifications
- Laser classification: Class 2 (IEC) / IIb (FDA)
- Laser power: Less than 1 mW
- Laser light source wavelength: 655 nm
- Laser light source: Visible red light
- Laser measuring range: 200-1000 mm (7.9 - 39 in)
- Laser measuring resolution: 0.3 mm

Analyzer mechanical specifications
- Mass: 80 kg (176 lbs)
- Height: 1280 mm (50 in)
- Width: 510 mm (20 in)
- Depth: 470 mm (19 in)
- Transit case mass: 65 kg (143 lbs)