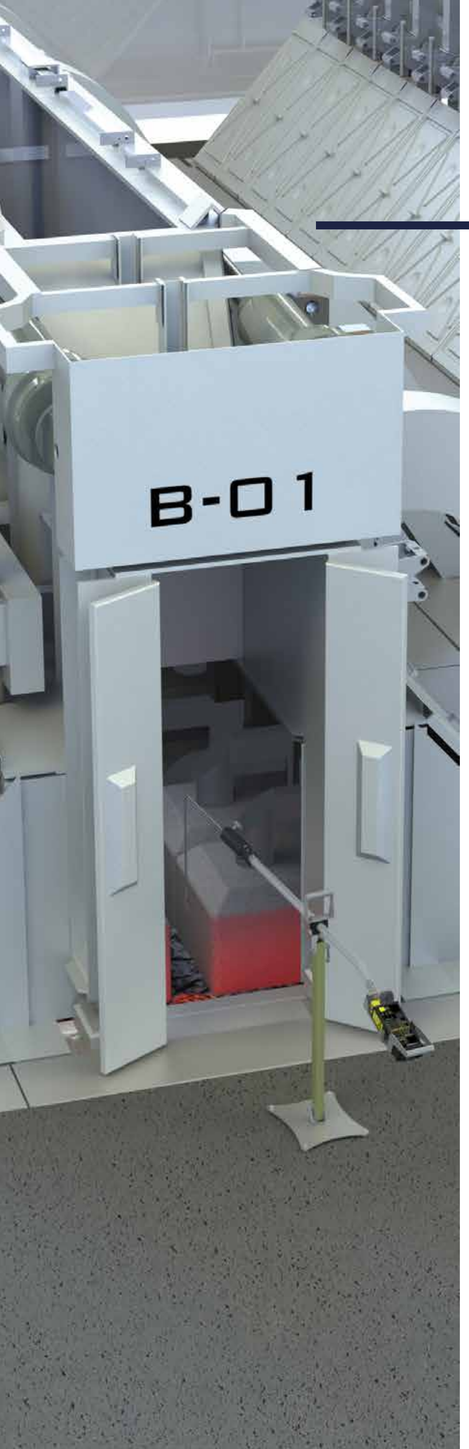

STARprobe™

Superheat, Temperature, Alumina concentration, bath Ratio and calcium fluoride measurement.

> « A proven technology allowing simultaneous measurements of five cryolitic bath properties instantly. »

How it works

It is currently difficult to instantly know the exact and complete status of a pot. The STARprobe™ has been developed specifically to provide all critical real-time information necessary for optimal pot control in the potroom.

The probe is used to take a sample of the liquid bath of the pot to be controlled. The patented probe tip comprises two calibrated temperature sensors: one measuring the reference material, the second measuring the molten bath sample. Thanks to the DTA (Differential Temperature Analysis), the cooling curve of the bath can be precisely monitored without any interference from ambient conditions.

The five bath properties measured by the STARprobe™ are:

- Bath temperature
- Superheat
- Alumina concentration
- Bath Ratio (excess AlF_3)
- Calcium fluoride (CaF_2)

Key features

IMPROVED POT CONTROL

- Real-time information on status of a pot.
- Precise measurement.
- Measurements are perfectly synchronized, allowing for precise adjustment of parameters to run the pots very close to their optimal limits. Huge improvements have been achieved in Alcoa's plants using a new automated pot control algorithm[1], developed especially to take advantage of this new opportunity:
  - 0.5% improvement of current efficiency
  - Savings in voltage (35 mV)
  - 5% savings in AlF_3

PRODUCTIVITY IMPROVEMENT

- Very easy to operate – touch-screen interface.
- Automatic data transfer. (Wi-Fi)
- Reliable system – Proven technology used for ten years with over 4 million measurements.

ENVIRONMENT-FRIENDLY

- Reusable probe tips – each allowing 100 measurements on average.
- Probe tips are recyclable – no waste.

[1] Wang, X., Tarcy, G., Batista, E. and Wood, G. "Active pot control using Alcoa STARprobeTM" Light Metals,(2011),491-496

Typical specifications

Probe life	Battery life	Certifications	Measurement cycle
Over 100 measurements	12 hours	ETL CE	3 minutes on average using both probes