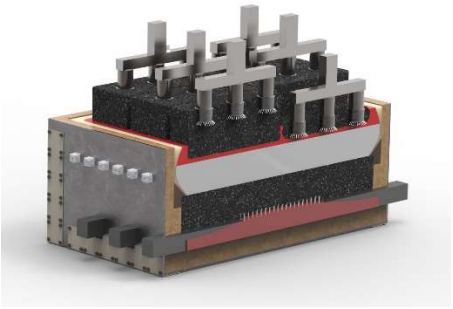
# AluCellTech

Technologies to improve the performance of existing and new Aluminium Reduction Cells

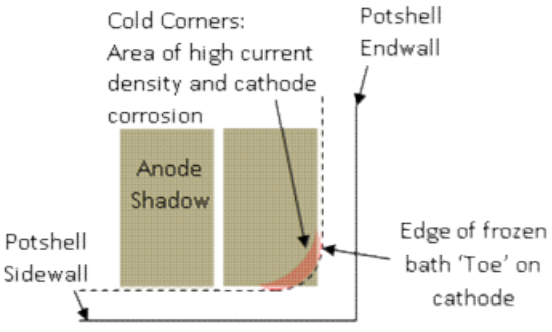


# Magnetic Mounted Potshell Insulation Blanket

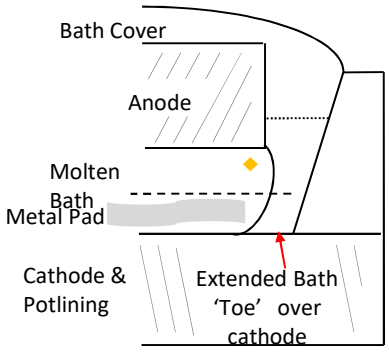
- Reduce potshell heat removal in local areas
- Reduce ledge thickness of bath in pot corners

Frozen bath in the corners of reduction cells may cause two problems for operations and potlife. Anodes may become frozen in bath against the sidewall, which affects anode beam motion and hampers anode replacement. Also, the electric current passing around the bath toe includes a horizontal vector that may cause MHD induced metal pad turbulence and pot-noise. The current passing into the cathode at the toe ledge may have a very high current density that can accelerate cathode corrosion and therefore shorten potlife. The images below illustrate the cathode corrosion.

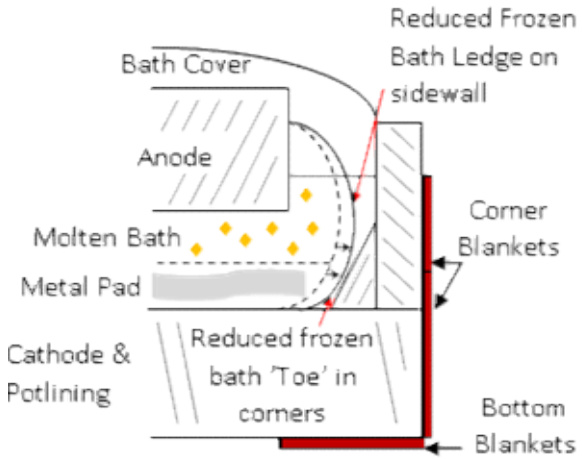
Localized cathode corrosion evident at pot corner from extended bath toe



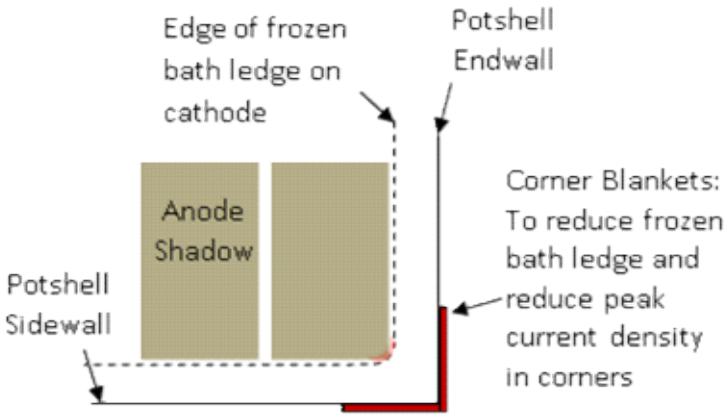

Plan view of frozen-in corner anode




Elevation view at pot corner



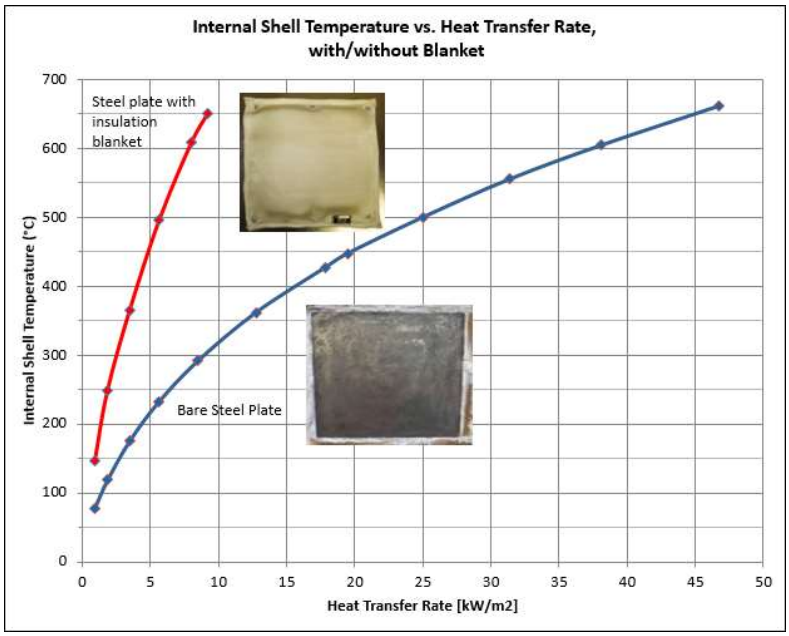

Elevation view of reduced bath toe & ledge when using insulation blanket




Plan view of reduced bath toe when using insulation blanket

The magnetically mounted insulation blankets are easily applied or removed to the potshell external surface to accommodate changing heat transfer requirements due to refractory wear, or changes in bath chemistry or potline amperage.

The Blanket eliminates natural convention cooling of the steel potshell to the environment. The graph below shows measured heat transfer rates of insulation blankets versus bare steel with natural convection cooling in ambient air of 20 °C.




Two sizes of blankets are available, 150 x 300 mm, and 300 x 300 mm, which can be connected. Custom shapes and sizes are also available.

The blankets are made of pre-shrunk silica cloth, with e-glass fibreglass insulation, and high temperature magnets. The blankets are affixed to the potshell manually.

Warning: The blankets are intended only to warm cold external surfaces that start below 125 °C when uncovered. The use of blankets on surfaces starting above 125 °C may increase the temperature above 300°C which may present a danger to the potshell steel. Use at own risk.

www.AluCellTech.com

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International patents pending.



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