

AP Technology™

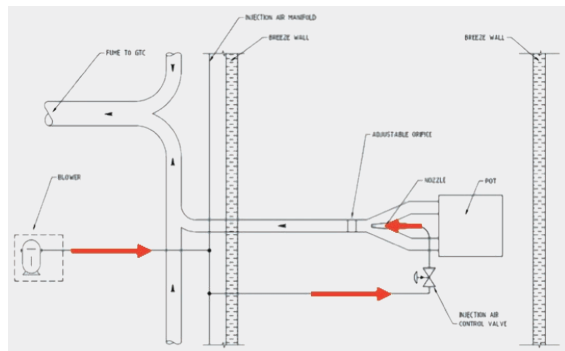
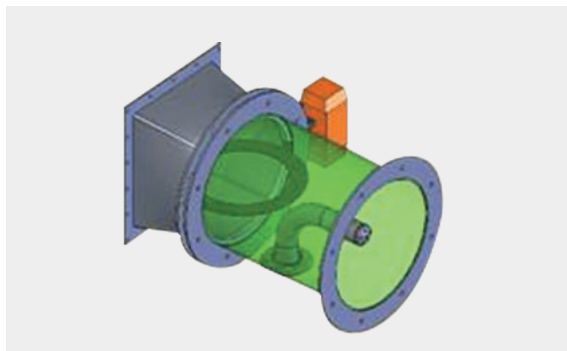
Sustainable Development Jet induced boosted suction (JIBS): our patented pot over suction system



Increased benefits

Like any other over suction system, JIBS is designed to increase the pot flow during specific pot operations and to lower pot emissions. The difference is that JIBS uses the Venturi effect to achieve these objectives. Another difference is that JIBS achieves twice the nominal base flow at a significantly reduced CAPEX and OPEX compared to other over suction technologies.

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Unique design

JIBS consists of a blower designed to blow air into a feeding duct, connected to each pot, that is individually equipped with a rotating balancing orifice and an injection probe at the gas exhaust duct.

How does it work? When the tapping doors are opened, the orifice at the gas outlet duct pivots to lower restriction in the duct, increasing the flow (partial JIBS mode). When the hoods are opened, in addition to the orifice rotation, low pressure air is injected into the duct through a specifically designed nozzle. The jet's static pressure upstream decreases as the pot flow increases (normal JIBS mode). The over suction system can either be triggered manually by an operator or by using an optional automatic hood/door opening detection system.

Operations

AP2x and AP3x tests (with normal JIBS mode) show that fluoride emissions are reduced by about 0.07 to 0.13 kg Ft/t Al, depending on the initial emission levels. Further developments related to the automatic detection mode improvements are in progress and are expected to generate additional reductions which could lead to a decrease of 0.10 to 0.15 kg Ft/t Al or about 35 per cent.

Value

On the cost side, CAPEX estimates demonstrate a 50 per cent cost savings compared to the conventional double ducting boosted section (DDBS) while OPEX costs appear to be similar or slightly lower than conventional systems.

Our JIBS technology is ready for industrial implementation for AP2X, AP3X and AP4X plants and projects. JIBS scale-up work for our AP6X technology is under way in Jonquière, Canada (2013-2014).

Summary

Main objective: reduce hydrogen fluoride (HF) emissions during operations including anode change and tapping

Flow in over suction operation: 2x the nominal base flow with optimal compromise between flow and emissions

Expected HF reduction: 0.10 to 0.15 kg Ft/t Al or about 35%

CAPEX: roughly 50% of a double ducting boosted system (DDBS)

OPEX: similar to or lower than DDBS

Applies to projects and operating plants using AP Technology™ and other prebaked pot technologies

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