ABC™ Inlet

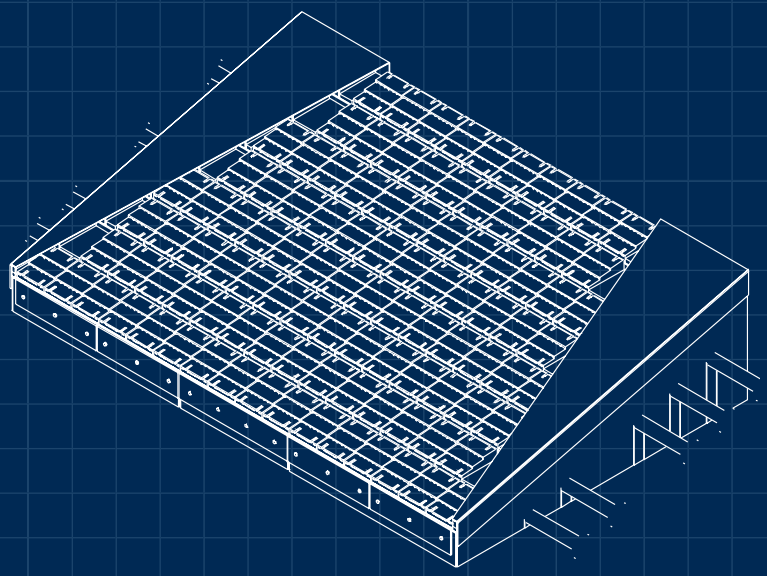
No more snowmen.
Guaranteed.

FLSmidth

WE DISCOVER POTENTIAL

Increase uptime. Improve quality. Enhance efficiency.

The use of alternative fuels and petcoke creates the perfect conditions for snowman formation. Once the dusty, sticky clinker has agglomerated you are in a race against the clock to eliminate the snowman before it affects productivity. It's time to get proactive. The ABC Inlet is the world's only cooler inlet proven to prevent snowman formation – so you can wave goodbye to all that downtime. Better yet, it also enables reduced fuel consumption and improved clinker quality – a gain for the environment and your bottom line.



Key benefits

- No more snowmen
- Less downtime
- Lower heat consumption
- Reduced CO_2 emissions
- Improved clinker quality

Put an end to snowmen – for good

When snowmen build up, the cooler goes down. While you can 'fire-fight' the beginnings of agglomeration, there comes a time when your only recourse is to shut down the pyro system for a clearout. Each time this happens you lose days of production and consume excess fuel getting the pyro line back up to temperature again. It's expensive, stressful and unsustainable. No process can afford repeated shutdowns over an extended period.

Sometimes it can seem that the occurrence of snowmen is the price you pay for being 'green'. Environmentally-friendly alternative fuels and petcoke are one of the main causes of snowmen, creating this dusty, sticky clinker that builds up so easily. But it's a price you shouldn't have to pay. Destroying snowmen should not be part of your 'business as usual'. They should never be able to form in the first place. That's the basis of the ABC Inlet.

How does the ABC Inlet work?

Ordinary fixed inlets use air blasting to destroy agglomerations. These air blasters are built into the side walls and back of the cooler inlet. But with a maximum blast radius of about half a metre, there's a huge area in the centre of the inlet that the air can't reach. That's where the snowmen can still form.

The ABC Inlet uses a patented in-grate design that pushes compressed air up through the grates, blasting agglomerations. Pressure sensors detect when build-up is starting to occur and the automated blast control system reacts accordingly, increasing blast frequency to disperse the clinker and prevent further agglomeration. Smart, targeted and efficient. The result? No snowmen. Ever.

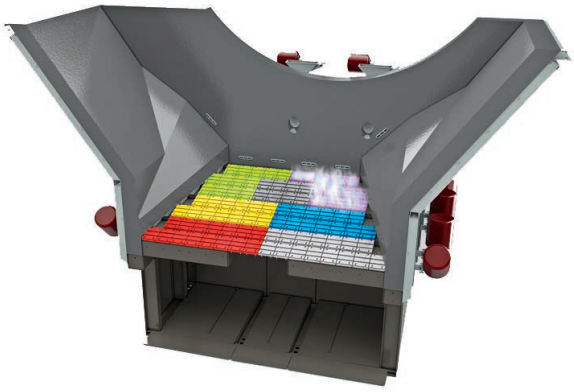
Increasing efficiency in the cooler and beyond

It's not all about the snowmen. The main job of the cooler inlet is to get the clinker temperature down quickly and efficiently. This avoids the C3S (alite) reverting to C2S (belite), which has severe implications for the final cement strength. We also want to make good use of the heat coming off the clinker to reduce fuel consumption in the pyro system.

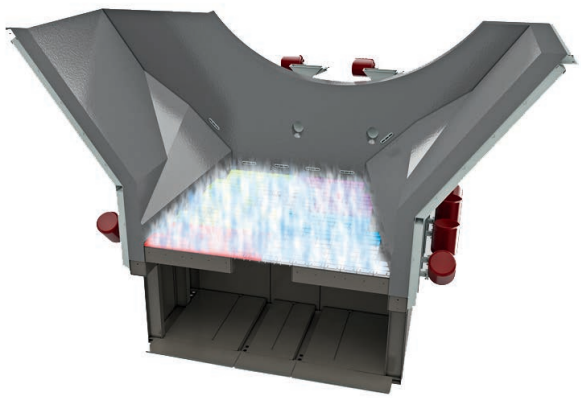
The ABC Inlet's rapid quenching process enables you to both cool the clinker very quickly and return the maximum heat to the pyro line, giving you heat consumption savings in the range of 10 – 30 kcal/kg of clinker. This rapid cooling also ensures you maintain the optimum chemical composition in the clinker, which both enhances the clinker quality and gives you more flexibility with your cement product. The greater the clinker quality, the more chance you have to reduce the clinker factor in your cement mix and reduce energy consumption in the clinker grinding process – better for the environment and your bottom line.

The blast zones enable you to fully control how much, and where to blast.

Cooling and blasting



Controlled blast



One-shot "Megablast" on demand

Sustainable benefits

- Reduction in fuel consumption and associated emissions
- Ability to reduce the clinker factor, thanks to improved clinker quality
- Reduction in energy consumption in the clinker grinding process
- Energy-efficient cooling and air blasting
- Opportunity to increase the use of alternative fuels, now that snowmen aren't causing a bottleneck

Logical engineering

The basis of good engineering is to keep it simple. The less parts you have, the less there is to maintain. The ABC Inlet design follows exactly that premise, utilising hard-wearing materials and a straightforward design for maximum performance and minimal maintenance.

The ABC Inlet is sloped at a 15° angle to allow the steady movement of clinker through the inlet to the main cooler beyond. The grates themselves, with an average wear life of 3 – 5 years, are also sloped and the cooling air is pushed through air slots that face the direction of clinker travel. This cooling air is regulated by the Mechanical Flow Regulator (MFR), which provides even distribution of air flow through the cooler inlet and enables the rapid quenching and maximum heat recovery that make the ABC inlet so efficient.

Available to all

The ABC Inlet is included as standard on all new coolers, but it is also available as an upgrade to existing coolers – whether or not they were supplied by FLSmidth. This relatively simple upgrade can be completed in 2 – 3 weeks and has an immediate impact on cooler performance – and on your finances. Savings on fuel consumption and maintenance, as well as gains in clinker quality, all add up to a generous and swift return on investment.

Case Study

		Unit	Case I	Case II	Case III	Case IV
	Production	tpd	3000	4500	6000	9000
Case A	**Fuel savings**	kcal/kg cl.	10	10	10	10
	Annual fuel savings	tons/year	1800	2700	3600	5400
	CO_2 emission reduction	tons/year	3800	5700	7600	11500
Case B	**Fuel savings**	kcal/kg cl.	20	20	20	20
	Annual fuel savings	tons/year	3600	5400	7200	10800
	CO_2 emission reduction	tons/year	7600	11400	15200	23000
Case C	**Fuel savings**	kcal/kg cl.	30	30	30	30
	Annual fuel savings	tons/year	5400	8100	10800	16200
	CO_2 emission reduction	tons/year	11400	17100	22800	34500

Table showing potential specific and annual fuel savings as well as CO_2 emissions reduction, within the range of 10 – 30 kcal/kg.cl. The savings vary depending on the existing fixed inlet technology, but ROI is typically 1 – 2 years or less. In cases where you have stoppage due to snowmen formation, ROI can be less than 1 year. Annual fuel savings and CO_2 emission reduction are calculated for fossil fuels.

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