

Fact Sheet | VLT® Back Channel Cooling

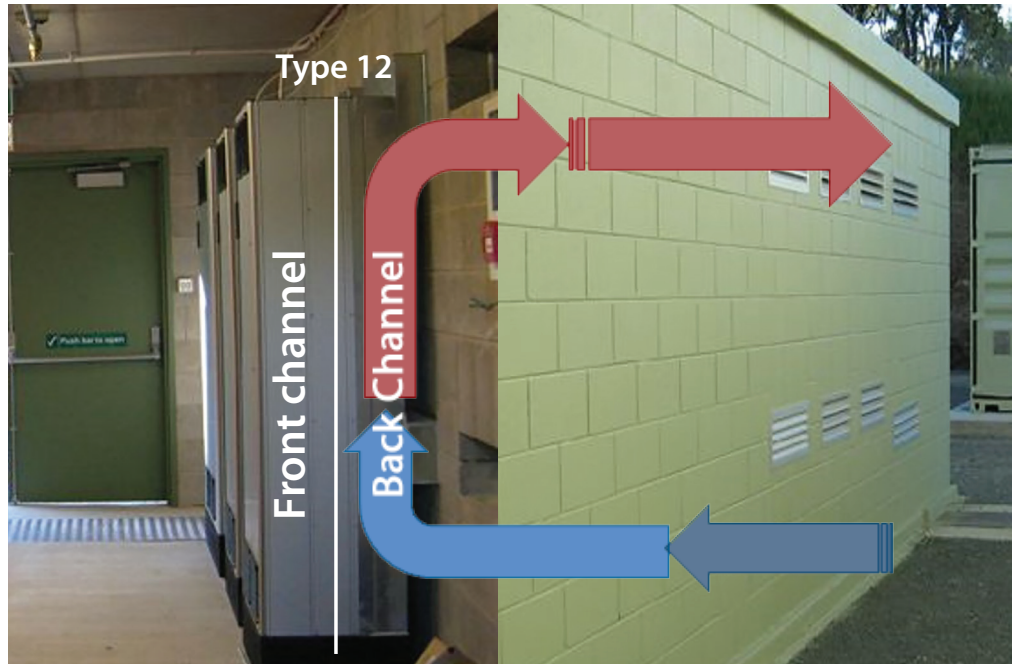
# Reduce energy costs with intelligent heat management

A cool new approach, quite literally! The back-channel cooling system in VLT® Drives delivers efficient cooling using a minimal amount of energy.

## Cost-saving heat management

A compact design that exhausts up to 90% of system heat outside the building makes it possible to reduce the size of your cooling system in the panel or switch room. These remarkable savings are achieved with Danfoss' panel-through cooling system or the extremely efficient back-channel cooling concept. Both methods considerably reduce the installation costs of the panel or switch room, as designers can shrink the size of the air conditioning system, or even eliminate it entirely.

In daily operation, the benefits are equally clear as the energy consumption related to cooling is brought down to an absolute minimum. Combined installation and energy savings result in up to 30% cost savings in the first year of your drive investment.



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**30%**  
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## Revolutionary design

The proprietary back-channel cooling concept available for VLT® Drives is based on a unique heatsink design, with heat pipes that conduct heat 20,000 times more efficiently than traditional solutions. Using a minimal amount of energy, the concept exploits the heat differentials in materials and air temperature to effectively cool high performing electronics.

## Designed to protect

In VLT® Drives, there is total separation between cooling air and the internal electronics to protect them from dust-borne contaminants. Efficient heat removal helps prolong product life, increases the overall availability of the system and reduces faults related to high temperatures.

## Intelligent heat management

- Back Channel cooling for VFD's greater than 90kW
- Type 12 seal between front & back channel
- Up to 90% of the heat losses are removed through the back channel
- Temperature controlled fan
- Reduced switch room air-conditioning costs
- No dust on electronics



Up to

**90%**

of the heat losses are removed through the back channel.

### Back-channel cooling

- Unique ducted back-channel passes cooling air over heat sinks
- Separate cooling path for power and control components
  - Up to 90% of heat losses are exhausted directly outside of the enclosure
  - Reduces contamination of the electronic components.
- Reduced air volume inside the enclosure
  - Small door fans
  - Less energy used
- Dramatically reduces temperature rise inside control room
- Zero clearance, side-by-side mounting
  - Less space required
  - Lower installation cost for additional cooling components

Every kW of losses requires another ~1/2 HP of energy to remove the heat.

### Benefits

- Air conditioning may not be required in control rooms
- If air conditioning is required, AC size is reduced
- Reduced energy costs for running AC System