

# VFD-A800/W800 VFD-A1200/W1200

Variable Frequency Drive for Face Conveyor Systems

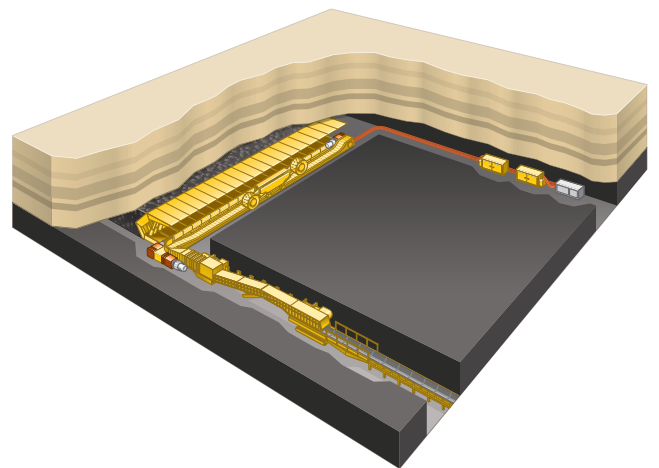


## Ultimate Control of Your Drive System

You are utilizing megawatts of electrical power to drive your longwall operation. You want that power to be 100 percent efficient for your production.

The Cat® variable frequency drive for face conveyor systems will supply exactly the power needed at your AFC or plow application – available with rated power of 800 and 1200 kW (1,072 and 1,609 hp). A 1600 kW (2,145 hp) version is under development.

Cat VFDs simply make the most intelligent use of electrical power in longwall operations, yet. Optimizing the flow of material while saving on equipment life the Cat VFD is the accelerator for your productivity and return on investment while applying the brake on specific operating costs!



## Simply Plug in Tomorrow's Drive Technology

Cat medium voltage drives – consisting out of one air-cooled and one liquid-cooled unit - are incorporated in a flame-proof enclosure. Together with a dual circuit liquid cooling station the VFD containers can be positioned in the energy train at the gateroads of a longwall system. Cable distances to motors of up to 4 km (2.5 miles) are possible. The parameterization and control of the VFDs can be modified from the control system located on the surface.

The Cat VFD drive does not require special motors. This medium voltage converter allows the use of standard AC motors and adopt to most existing systems providing you these benefits:

- ▶ No significant voltage drops during start-ups so even “weaker” networks can increase their performance
- ▶ VFD separated from motor so that converter units can be installed up to 4 kilometers away from drives/motors saving space at the face entries
- ▶ VFD can be stacked in the energy train to meet whatever power demand your equipment may have
- ▶ 4Q-operation uses motors to brake and regenerate power into the mains

## Start up – Run – Share – Brake

The ever-repeating cycles of AFC and plow chain drive operation are expertly mastered by the Cat VFD: Total torque at zero speed, maximum torque at start-up, perfectly balanced torque at motors to share loads, motors braking the AFC (or plow) or stopping them immediately if overload situations occur.

Infinitely controlling speed and torque through the alternating current's frequency makes the most efficient use of electrical power while keeping stress levels for the equipment and especially the chains at a minimum.

## Precise Performance through Effective Power Structure

The Cat VFDs are utilizing a Pulse Width Modulated (PWM) Current Source Inverter (CSI). Converters of this type possess an effective power structure with a current limiting DC link inductor. The CSI VFD provides a near sinusoidal current and voltage waveform with total harmonic distortion (THD) below 5%. This reduces stress on the motor winding insulation.

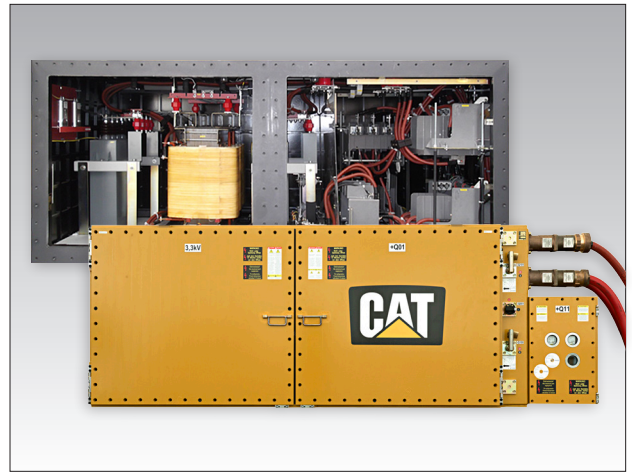
## Make electric power your production's brainwaves

Since VFD operation is all electrical and non-mechanical, system parameters can be analyzed and adjusted in no time and with highest precision: data on torque, power, speed, and resolution/rpm are instantly available.

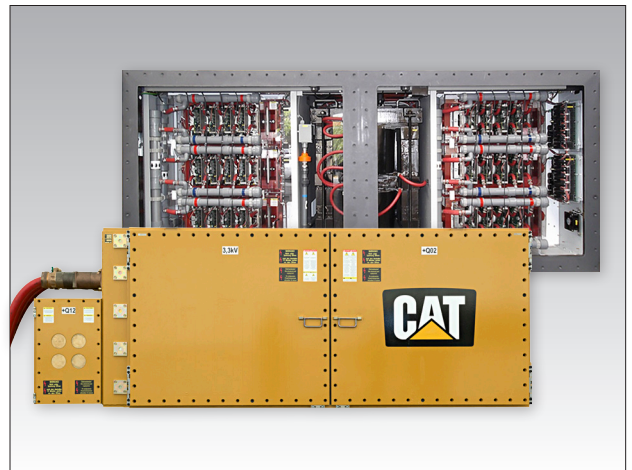
So, adjusting the AFC's speed to the loading by plow or shearer is an instant operation that can match the longwall's overall output to outbye systems like the crusher or belt conveyor.

## Cat® VFD Specifications

Rated Power:	800 kW / 1,072 hp (VFD-A800/W800) 1200 kW / 1,609 hp (VFD-A1200/W1200) 1600 kW / 2,145 hp (under development)
Primary Voltage:	3.3 kV
Type of Converter:	Current Source Inverter (CSI)
Motor Type:	AC Motor
Motor Nominal Speed:	1,500 RPM
Max. Operational Torque:	210% of Nominal Torque
Length / Width / Height:	3700 mm (146 in) / 1245 mm (49 in) / 1300 mm (51 in)
Weight:	6700 kg / 14,771 lb (air cooled) 7800 kg / 17,196 lb (liquid cooled)



*Air-cooled VFD Container*



*Liquid-cooled VFD Container*



*Separate Cooling Station*

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at [mining.cat.com](http://mining.cat.com) and [www.cat.com](http://www.cat.com)

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