

# Overcurrent Trip With VFD Applications

FOR USE WITH ABB VFD'S AND TECHSYS CORPORATION CONTROL SYSTEMS

There are a number of causes for overcurrent trips:

1. Acceleration too fast for VFD
2. Transition from one pump to additional pumps
3. Motor current set too low in VFD configuration setup
4. Motor cables could be faulty or providing excess capacitance

### **Acceleration too fast for VFD**

#### *Description*

With any motor the starting current is based on the acceleration time from stationary to full speed.

The typical start speed for a DOL start on a motor is 200ms to 2 seconds depending on the motor power.

The current draw for DOL style starting is 6-8 time FLA. This will always be higher than the capacity of the VFD as the maximum currents are designed to be 1.5x FLA before it is considered to be a fault

#### *Remedy*

To resolve the acceleration problems set the Acceleration rate for the VFD to be no less than 1 second to full speed.

For and MPCSVM set the acceleration rates to 10Hz/sec and this generally will resolve the issue.

ABB MENUS

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### **Transition from one pump to additional pumps**

#### *Description*

In cascading multi pump systems the transition from one pump to the next can cause an over current trip. This is because the de-fluxing time for the transitioning motor can cause a feedback from the motor to the VFD which sees this as an over current. Refer Application Bulletin "Circuit Breaker Tripping"

### *Remedy*

Set the transition time for de-fluxing the motor to higher.

In the MPCS go to TUNING MENU and adjust Contactor Mode to a higher number.

Typical settings

< 4kW 0.300 seconds

< 30kW 0.600 seconds

37kW + by trial and error- Typically no more than 1.2 seconds

### **Motor current set too low in VFD configuration setup**

#### *Description*

Nameplate Motor currents are set too low for the application.

#### *Remedy*

Change the motor currents in the nameplate section to the FLA from the nameplate and add 15%.

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### **Motor cables could be faulty or providing excess capacitance**

#### *Description*

With long runs of motor cables, the capacitance can reflect as a motor current. This can be a major problem and needs to be reviewed on a case-by-case basis.

#### *Remedy*

Always check with Techsys Corporation in cases involving long cable runs. If an installation is showing signs of current leakage or excess capacitance this can be fixed with pure sine wave filters. Contact Techsys Corporation for further information.