

## Variable Speed Drive (VFD) Pre-Startup Checklist (HVAC)

Please contact 3 Phase Technical Support 2 weeks prior to your desired date to schedule a start up. In order to help us provide the start-up commissioning of your Danfoss variable frequency drive without any delay, extra cost, voiding or limiting of the warranty, we **require** the following checklist to be completed, signed and returned to 3 Phase HVAC Systems via fax or email **at least 48 hours prior to scheduling**.

**Electricians - please refer to local electrical regulations and the supplied VFD User's Manual for proper installation practices, maximum wire sizes, tightening torques, and electrical warnings prior to installation. If there are any installation questions, please call us.**

- All of the drives are wired and ready for start-up.

If all of the drives are not ready, \_\_\_\_\_drives are ready.

**Note:** Our startup service assumes all drives are available for startup at the same time (up to 7 per day). Extra trips due to drives not being ready will result in extra travel charges.

### Job Coordination

- Is the jobsite available for shutdown to accommodate the equipment startup? **Delays caused by the inability to shut down the equipment are not included in our startup service and will be invoiced.**
- Are the customer's representatives scheduled to be available for training at the time of our startup visit? **Additional job visits for customer training (i.e. Owner's demos) are not included unless explicitly stated on our confirming order.**
- Is a 120 Volt AC power source available and operational within 20 feet of the drive for test equipment operation?
- Is sufficient overhead lighting available for our services?
- Is the drive located indoors? If no, please coordinate a time and date when the weather is suitable for startup.

### Equipment Condition

- Has the drive been installed without any shipping or installation damage? **Shipping Damage is not covered by Danfoss warranty. Any claims must be filed with the freight company immediately.**
- Is the drive clean and free of dust and debris? **Cleaning dust and/or debris from the enclosure is not part of our start-up service.**
- Was the removable access plate removed from the drive to accommodate conduit hole drilling? **Cleaning the enclosure and drive circuitry is not part of our startup service and will be invoiced. Damage caused by foreign objects (metal shavings, etc.) in our circuitry is not covered by warranty.**
- Is the drive mounted per the spacing requirements specified in the manual? **Damage caused by restriction of air flow is not covered under warranty. Extra repair labor on warranty services caused by inaccessibility due to improper mounting will be invoiced.**

- Is the drive in a clean, uncontaminated environment? **Do not attempt to operate the drive in a heavy dust environment. Damage due to contamination is not covered by warranty. Do not attempt to operate the drive with dust covers. Heat damage is not covered by warranty.**
- Is the drive in an environment with humidity below 95% and temperatures between 16 °C (60 °F) and 40 °C (104 °F)? **Check for heat sources.**

### Electrical Installation

- Is a grounding wire installed to the chassis grounding lug? **Grounding the conduit and attaching it to the removable conduit plate is inadequate for safe and reliable operation.**
- Is the grounding wire terminated to the utility grounding bus bar or a properly installed grounding rod?
- Is shielded wire installed for the DC control circuit interface connections?
- Is the shielded wire terminated to the drive grounding terminal on the customer terminal strip (terminated on one end only)?
- Is the customer's emergency interlock contacts terminated in the drive's emergency shutdown circuit (Freeze stats, etc.)?
- Is the interconnect wiring terminated in the drive per the installation diagram provided with the drive?
- Are the motor wires installed in a conduit separate from all other wiring? **Electrical noise induced onto the utility power lines can adversely affect other equipment and can only be corrected by proper wire installation.**
- If there are devices on the motor leads, are they interlocked to the drive's emergency shutdown circuit (interlock loop)? **Nuisance drive fault trips or equipment damage due to opening/closing motor circuit wiring while the drive is in operation may not be covered by warranty.**
- Are all devices such as power factor correction capacitors and control relay coils removed from the motor lead wiring?
- Is all of the power and control wiring installed, terminated and ready for power and testing? **Delays and/or extra trips due to incomplete installation are not included in our startup service and will be invoiced.**
- Is the system completed and ready for operational testing?

### Bypass Circuitry (If equipped)

- Is the starter installed per the Danfoss installation schematic?
- Is a high-pressure state or a pressure relief damper installed to prevent over-pressurization in the event of full speed operation in bypass mode?

### Control Circuitry — If the drive has no external control (DDC, flow control, etc.), disregard this section

- Is the automatic control wiring installed and operational?
- Is the automatic speed reference signal calibrated per the system specifications and ready for testing?
- Will the control company representative be available on site while we are there for the startup?

- Is the control contractor's wiring complete and operational for a system performance test (including damper or valve control)? **Unless explicitly stated in our confirming order, additional jobsite visits for control start up are not included, and will be invoiced.**

**WARNING!** Do not attempt to power or operate the drive prior to our startup services. Warranty coverage may be affected if power is applied prior to our checkout.

**Jobsite Info**

Jobsite Name \_\_\_\_\_ Site Contact \_\_\_\_\_  
 Jobsite Address \_\_\_\_\_ Contact's Phone \_\_\_\_\_  
 Jobsite City, Province \_\_\_\_\_ Alternate Contact \_\_\_\_\_  
 Customer units to be started \_\_\_\_\_

**Equipment Ready for Startup Confirmation**

I confirm that the above listed equipment will be ready for Danfoss factory authorized startup at a time and date agreed to. All control and power wiring necessary to perform startup will be completed by the agreed date. All processes will be ready and available by agreed date. All equipment is installed per Danfoss installation instructions and all local codes. I will coordinate all personnel and contractors that I want present at startup, I agree to notify 3 Phase 24 hours prior to the agreed startup time and date of any changes to schedule. I accept any additional charges not covered by the service agreement for the startup contract.

Printed Name \_\_\_\_\_ Signature \_\_\_\_\_  
 Company \_\_\_\_\_ Phone \_\_\_\_\_

Who should we contact to coordinate a date and time for startup?

Printed Name \_\_\_\_\_ Phone \_\_\_\_\_

Please return to:

**3 Phase HVAC Systems**

Tel (604) 940-7740 Fax (604) 940-7749  
 Attn Dean Lefebvre E-mail dean.lefebvre@3phasepower.ca