

Manufactures Declaration

Factory testing of VLT® Frequency Converters

The test sequence on the next page is used for the factory testing of all types of

VLT® HVAC Drive series FC-101 (FC-101P15KT2 - FC-101P45KT2)
VLT® HVAC Drive series FC-101 (FC-101P22KT4 - FC-101P90KT4)
VLT® HVAC Drive series FC-101 (FC-101P2K2T6 - FC-101P90KT6)
VLT® HVAC Drive series FC-102 (FC-102P1K1T2 - FC-102P45KT2)
VLT® HVAC Drive series FC-102 (FC-102P1K1T4 - FC-102P90KT4)
VLT® HVAC Drive series FC-102 (FC-102P1K1T6 - FC-102P90KT6)
VLT® AQUA Drive series FC-202 (FC-202P1K1S2 - FC-202P22KS2)
VLT® AQUA Drive series FC-202 (FC-202P7K5S4 - FC-202P37KS4)
VLT® AQUA Drive series FC-202 (FC-202PK25T2 - FC-202P45KT2)
VLT® AQUA Drive series FC-202 (FC-202PK37T4 - FC-202P90KT4)
VLT® AQUA Drive series FC-202 (FC-202PK75T6 - FC-202P90KT6)
VLT® AQUA Drive series FC-202 (FC-202P11KT7 - FC-202P90KT7)
VLT® AutomationDrive series FC-301 (FC-301PK25T2 - FC-301P37KT2)
VLT® AutomationDrive series FC-301 (FC-301PK37T4 - FC-301P75KT4)
VLT® AutomationDrive series FC-302 (FC-302PK25T2 - FC-302P37KT2)
VLT® AutomationDrive series FC-302 (FC-302PK37T5 - FC-302P75KT5)
VLT® AutomationDrive series FC-302 (FC-302PK75T6 - FC-302P75KT6)
VLT® AutomationDrive series FC-302 (FC-302P11KT7 - FC-302P75KT7)
VLT® Automation VT Drive series FC-322 (FC-322P1K1S2 - FC-322P22KS2)
VLT® Automation VT Drive series FC-322 (FC-322P7K5S4 - FC-322P37KS4)
VLT® Automation VT Drive series FC-322 (FC-322PK25T2 - FC-322P45KT2)
VLT® Automation VT Drive series FC-322 (FC-322PK37T4 - FC-322P90KT4)
VLT® Automation VT Drive series FC-322 (FC-322PK75T6 - FC-322P90KT6)
VLT® Automation VT Drive series FC-322 (FC-322P11KT7 - FC-322P90KT7)

The tests ensure that the drives are in compliance with our specifications which can be documented.

Final UNIT test: Insulation, Initial, Function, Burn-in, Final test and Factory setting:

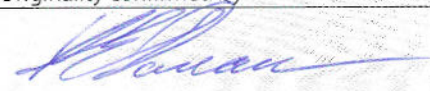
| Test | Test no. | Description | Remarks |
|--------------------------------|-----------------|---|---|
| Insulation test | 1 | Insulation test at input/output terminals | 2150 V DC for 1 second |
| Initial test I | 2 | Alive test – 24V or 10V test* ¹ | Load on +24V |
| | 3 | Alive test- Fan check | Check if fans are connected |
| | 4 | Verification- Control Card software ver. check | Read software version (P15-43) and implement new software if asked for. |
| | 5 | Verification- Type code check (There are no type code) * ¹ | Read type code in Control Card (P15-45) |
| | 6 | Verification- Language update | Check country code. Only if update is necessary |
| | 7 | Control Card and parameter setup | Parameter test at special parameter set up |
| | Initial test II | 8a | Rev/Fwd / and test of thermal sensors |
| 8b | | Current measurement | Current measurement at 0% load and 100% load |
| 9 | | 2 phase short circuit | FC must enter Short circuit TRIP lock mode (Alarm 16) |
| 10 | | Ground fault | FC must enter Earth fault TRIP lock mode. |
| Function test | 11 | Heating of thermal foil* ¹ | Temperature measurement. |
| | 12 | Current limit test* ¹ | The FC may run in torque limit |
| | 13 | Brake* ¹ | Measuring brake current and function |
| | 14 | Mains drop out | The FC must operate after this test without reset |
| | 15 | Over voltage* ² , * ¹ | Quick stop: The FC may trip |
| | 16 | Switching on output* ¹ | The FC may trip during this test |
| Burn in test | 17 | Load test, is running repetitively during the burn-in test time. | Load \geq 100% of Inom. running with different speed references. |
| Final test and factory setting | 18 | Set frequency converter to factory initialization at next power-up. | Update to parameter 14-29 (Servicemode enable) Update 1 to parameter 14-28 (Master.reset) Power-down End of test |

*¹ For FC-101 are the following deviations:

| Test no. | Description |
|----------|---|
| 2 | There is no approach to 24V or 10V test. |
| 5 | Current Type Code is not in the drive, but the driven's id no. becomes controller, and motoring display becomes controllert otherwise. |
| 11 | Are Removing from every test since no more is spent foil. |
| 12 | Is not implemented because it is just something we run on industrial drives. But the same is in principle also be done in Load Test PNK. 17 |
| 13 | Is not implemented as fc-101 does not exist with brake. |
| 15, 16 | Not implemented because they have been based on the medium test where these points are removed. |

*² Medium sizes

| Test no. | Description |
|----------|-------------------------------------|
| 15 | Removed, No failures were observed. |

| Test prepared by | Document prepared by | Originality confirmed by |
|---|--|---|
| Unit Test Danfoss Power Electronic A/S Graasten Denmark 29. April 2011 | Quality department Danfoss Power Electronic A/S Graasten Denmark 29. April 2011 |  Lars Erik Donau Quality Systems Manager |