

Type Approval Certificate



This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. **46 995 - 12 HH**

Company **Danfoss Power Electronics A/S**

**Ulsnæs 1
6300 Graasten, DENMARK**

Product Description **Adjustable frequency converter
VLT® HVAC-, VLT® AQUA- and VLT® Automation Drive**

Type **FC-102 VLT® HVAC Drive, FC-202 VLT® AQUA Drive,
FC-302 VLT® Automation Drive, AAF006 VLT® Advanced Active Filter**

Environmental Category **A**

Technical Data /
Range of Application **Rated input voltages (3ph) : T2 200-240V - T4 380-480V - T5 380-500V - T7 525-690V
Rated output voltages : 0 - 100% of supply voltages
Rated input frequency : 50 Hz, 60 Hz
Power outputs : 0.25 kW - 1.4 MW
Output frequency : up to 590 Hz
Degree of protection : E00: IP00/Chassis - E20: IP20/Chassis -
E21: IP21/Type1 - E54: IP54/Type12 -
E5H: Hybrid IP54**

**Hardware: H2 / B2 option 6 / 12- Pulse Converter
H4, H5, H6 option RFI - Filter
N2 option Low Harmonic Drive (LHD)**

**Ratings for FC-302 based on 160% overload / constant torque 60 sec.
Ratings for FC-102 and FC-202 based on 110% overload / variable torque 60 sec.**

Test Standard **Guidelines for the Performance of Type Approvals Chapter 2, Edition 2012;
IEC 61800-5-1:2008; IEC 60533:1999**

Documents **Test reports: See page 2 of this certificate**

Remarks **For installation in special power distribution zone according IEC 60533**

Valid until **2017-10-10**

Page **1 of 3**

File No. **I.H.02**

Hamburg, 2014-03-21

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Germanischer Lloyd

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Test Reports:

DELTA Project no. A402342 Danark 19k0441 "RF Field immunity" on EUT FC302 90 kW T5 Prototype	02.03.2007
DANFOSS Doc. P407-151_R0126T01 v 100b "ESD Test" EUT: FC302 90 kW T5 Prototype	09.03.2007
DANFOSS Doc. P407-152_R0126T02 v 100a "Burst-Fast Transients" EUT:FC302 90 kW T5 Prototype	09.03.2007
DANFOSS Doc. P407-154_R0126 T05 v 100a "Conducted Immunity" EUT:FC302 90 kW T5 Prototype	09.03.2007
The tests have been conducted on VLT FC302 90 kW T5 being representative for the three ranges.	
NTS report: Danfoss Drivers A9182 Report Rev 1 on F3 and LHD 210	21.01.2010
Danfoss report: LHD 210 Marine Vibration Analysis	14.01.2010
Danfoss Report: F3 Vibration Analysis	16.12.2010

New D-Frame:

DANFOSS Doc. 00705181, 2011-11-12; 00705683, 00708506, 00705781, 00708507, 2012-09-27; 00707038, 2012-10-24
DATASYST D15-14845 October 25, 2011; D15-14976 February 20, 2012; D15-15282 October 19, 2012

New Low Harmonic Drive (LHD):

DANFOSS Doc. 00708868, 2012-10-30; 00703684, 2011-09-25; 00702667, 2013-02-01; 00706801, 2012-11-26;
NTS CTR-11-0125, 2011-08-24; NTS A11198 2011-06-27; INGENIUM TESTING CTR-11-0127, 2011-04-11

Advanced Active Filter AAF 006

DANFOSS Doc. 00711223, 2012-10-31; 00702489, 2011-08-24; 00596396, 2012-09-19; 00706801, 2012-11-26
NTS CTR-10-0185, 2011-08-11; NTS Report A8366 -500B0432, 2008-12-05; NTS Report: A10116 2010-06-14

Reports listed in „P462 marine test report summary - 2013-10-28” cover converters with power levels from 0,25kW, including frame sizes A3, B4, C3 (in addition refer to GL Certificate 75 110-09 HH)

Place of Production:

Danfoss Power Electronics A/S, Ulsnæs 1, 6300 Graasten, DENMARK and
Danfoss LLC, 4401 N Bell School Rd, Loves Park, IL USA 61111

Remarks:

Manufacturers EMC instructions to be observed.

With reference to the remark on page 1, measures like separate cable installation, use of insulating transformers and installation in special converter rooms shall be observed.

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Page **2 of 3**

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Specification Key for FC 100 Drives

FC - 102
 1 4 7 11 13 16 24 39

Specification Key for FC 200 Drives

FC - 202
 1 4 7 11 13 16 24 39

Specification Key for FC 300 Drives

FC - 302
 1 4 7 11 13 16 24 39

Character	Specification	Options
1-3 4-6	Frq Converter VLT series	FC- 102 VLT® HVAC Drive 202 VLT® AQUA Drive 302 VLT® Automation Drive
7-10 11-12 13-15	Power Size Voltage range Enclosure	0.25 kW - 1.4 MW T2 200-240V - T4 380-480V - T5 380-500V - T7 525-690V E00: IP00/Chassis - E20: IP20/Chassis - E21: IP21/Type1 - E54: IP54/Type12 - E5H: Hybrid IP54
16-17	HW / RFI Filter	H2 / B2 option 6 / 12- Pulse Converter H4, H5, H6 option RFI - Filter N2 option Low Harmonic Drive
18-20 21 22-39	Hardware Hardware Other options	Brake & Stop / Display / Coating Mains: X (none), 3 (disconnect + fuse), 7 (fuse)

This type approval includes the following devices as described in specification of Danfoss, LLC Power Electronics, dated 2012-12-12 Page 1 to 4 :

- New D-frame VLT Drives
- New Low Harmonic Drives (LHD), "Option N2 in characters 16-17 of type code"
- New Advanced Active Filter AAF006

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Page **3 of 3**

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