Type Approval Certificate

[Frequency Converter]

Initial Approval 22 November 2017

Manufacturer Danfoss Drives A/S

Ulsnaes 1, DK-6300 Graasten, Denmark

Product Description Type : FC-102 VLT HVAC Series, FC-202 VLT Aqua Series,
FC-302 VLT Automation Series, AAF006 VLT Active Filter

* Manufacturing place ;
- Danfoss Drives A/S
Ulsnæs 1, DK-6300 Graasten, Denmark
- Danfoss LLC
4401 N Bell School Rd, Loves Park, IL 61111, USA

″ See Appendix 1 ″

Approval Condition ″ See Appendix 1 ″

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 21 November 2027

Issued at Busan, Korea on 7 March 2023

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME23016144227) and certificate No.(CPH37436-AC001).

KOREAN REGISTER

General Manager of
Marine & Ocean Equipment Team

Note : *1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.*
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 7 March 2023

A. Product Description ; (Type : FC-102 VLT HVAC, FC-202 VLT Aqua, FC-302 VLT Automation Series)

1. Product Specification

1) FC-102 VLT HVAC, FC-202 VLT Aqua, FC-302 VLT Automation Series manufactured in Danfoss Drives AS, GRAASTEN, Denmark consists of the following products.

Type	Power rating	Voltage range
FC-102 VLT HVAC Series		
FC-102 Standard Drive(6-pulse)	1.1 kW - 45 kW	200 V - 240 V(T2)
FC-102 Standard Drive(6-pulse)	1.1 kW - 90 kW	380 V - 480 V(T4)
FC-102 Standard Drive(6-pulse)	1.1 kW - 90 kW	525 V - 690 V(T7)
FC-202 VLT Aqua Series		
FC-202 Standard Drives(6-pulse)	0.25 kW - 90 kW	200 V - 240 V(T2)
FC-202 Standard Drives(6-pulse)	0.25 kW - 90 kW	380 V - 480 V(T4)
FC-202 Standard Drives(6-pulse)	1.1 kW - 90 kW	525 V - 690 V(T7)
FC-302 VLT Automation Series		
FC-302 Standard Drives(6-pulse)	0.25 kW - 90 kW	200 V - 240 V(T2)
FC-302 Standard Drives(6-pulse)	0.25 kW - 75 kW	380 V - 480 V(T4)
FC-302 Standard Drives(6-pulse)	1.1 kW - 75 kW	525 V - 690 V(T7)

2) FC-102 VLT HVAC, FC-202 VLT Aqua, FC-302 VLT Automation Series & AAF006 Active Filter manufactured in Danfoss LLC, Loves Park IL, USA consists of the following products.

Type	Power rating	Voltage range
FC-102 VLT HVAC Series		
FC-102 Standard Drive(6-pulse)	110 kW - 1000 kW	380 V - 480 V(T4)
FC-102 Standard Drive(6-pulse)	75 kW - 1400 kW	525 V - 690 V(T7)
FC-102 12 pulse	315 kW - 1000 kW	380 V - 480 V(T4)
FC-102 12 pulse	450 kW - 1400 kW	525 V - 690 V(T7)
FC-102 Low Harmonic Drive	160 kW - 710 kW	380 V - 480 V(T4)
FC-202 VLT Aqua Series		
FC-202 Standard Drive(6-pulse)	110 kW - 1000 kW	380 V - 480 V(T4)
FC-202 Standard Drive(6-pulse)	75 kW - 1400 kW	525 V - 690 V(T7)
FC-202 12 pulse	315 kW - 1000 kW	380 V - 480 V(T4)
FC-202 12 pulse	450 kW - 1400 kW	525 V - 690 V(T7)
FC-202 Low Harmonic Drive	160 kW - 710 kW	380 V - 480 V(T4)
FC-302 VLT Automation Series		
FC-302 Standard Drive(6-pulse)	90 kW - 800 kW	380 V - 500 V(T5)
FC-302 Standard Drive(6-pulse)	55 kW - 1200 kW	525 V - 690 V(T7)
FC-302 12 pulse	250 kW - 800 kW	380 V - 500 V(T5)
FC-302 12 pulse	355 kW - 1200 kW	525 V - 690 V(T7)
FC-302 Low Harmonic Drive	132 kW - 630 kW	380 V - 500 V(T5)
VLT Active Filter AAF006		
AAF006 Active Filter	190 Amp - 400 Amp	380 V - 480 V(T4)

3) Selection types for Type Codes for FC 102, 202, 302 Series & AAF006 Filter

1	4	7	11	13	16	23
_____	_____	_____	___	_____	_____	(character 24 - 39 software + options)

Basic string definitions:

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- Product Group (character 1-3)
  FC-: Adjustable Frequency Converters
  AAF: Active Filters
- VLT series (character 4-6)
  102: VLT HVAC Drive - Advanced version
  202: VLT AQUA Drive - Advanced version
  302: VLT Automation Drive - Advanced version
  006: VLT Active Filter1; Series 6
- Power size (character 7-10)
  PK25: 0.25 kW / 0.33 HP ··· N90K: 90 KW / 125 HP
  N55K: 55kW / 75 HP ···. P1M4: 1400kW / 1900 HP
- Current Rating (character 7-10)
  A190: 190 Amp
- Voltage: (character 11-12)
  T2 : Three phase 200-240 VAC
  T4 : Three phase 380-480 VAC
  T5 : Three phase 380-500 VAC
  T7 : Three Phase 525-690 VAC
- Enclosure (character 13-15)
  "E" & "H" units denote standard sized variants:
  E00: IP00 / Chassis
  E20 : IP20 / Chassis
  E21 : IP21 / (NEMA) Type 1
  E54: IP54 / (NEMA) Type 12
  E55 : IP55/ (NEMA) Type 12
  E66 : IP66 / Type 4X
  E5S: IP54 / (NEMA) Type 12 Stainless Steel screws + heater
  E2M: IP21 / (NEMA) Type 1 + mains shield
  E5M: IP54 / (NEMA) Type 12 + mains shield
  H21: IP21 / (NEMA) Type 1 + heater
  H54:IP54 / (NEMA) Type 12 + heater
  "C" units with corrosion resistant back channel:
  C00: IP00 / Chassis
  C20: IP20 / Chassis
  C21: IP21 / (NEMA) Type 1
  C2H: IP21 / (NEMA) Type 1 + heater
  C54: IP54 / (NEMA) Type 12
  C5H: IP54 / (NEMA) Type 12 + heater
  C2M: IP21 / (NEMA) Type 1 + Mains Shield
  C5M: IP54 / (NEMA) Type 12 + Mains Shield
- Hardware, RFI filter (character 16-17)
  H1; H2; H3; H4; H5 RFI comply with IACS E10 except radiated and conducted emissions
  B2; B4: 12 Pulse Drive with RFI for Maritime
  (complies with IACS E10 requirements except radiated and conducted emissions)
  N2; N4: Low Harmonic Drive with RFI for Maritime
  (complies with IACS E10 requirements except radiated and conducted emissions)
  HX: No Active Filter RFI for Maritime
  (complies with IACS E10 except radiated and conducted emissions)
  H4: Active Filter RFI for Maritime complies with IACS E10 requirements except radiated and conducted emissions
- Hardware, Brake & Stop (character 18)
- Hardware, Display (character 19)
- Hardware, Coating (character 20)
  C: Coated PCB
  R: Coated PCB + Ruggedized
- Hardware, Mains options (character 21)
- Hardware, adaptation A (character 22)
- Hardware, adaptation B (character 23)

2. Documents & Drawings

1) Approved documents for High Power Drives
- Mechanical Drawings
  177R0339, 177R0340, 177R0374, 177R0375, 177R0490, 177R0491, 177R0492, 177R0493, 177R0704, 177R0705, 177R0706, 177R0707, 177R5955, 177R0029, 177R0352, 177R0354, 177R0530, 177R0349, 177R0351, 177R0620, 177R0621

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- Electrical Block Diagram
  177R0433, 177R0489, 177R0659, 177R0042, 177R0046, 177R0048, 177R0197, 177R0632, 177R0196, 177R0359

- Operating Guide
  MG38A102, MG11F502, MG20P402, MG33U402, MG16B202, MG20Y202, MG34Q402, MG16I302, MG21B302, MG37A302, MG90V302, MG16D502, MG160202, MG21A502, MG22A202, MG34U502

2) Approved documents for Low Power Drives
- Mechanical Drawings
  MCAD-A2-IP20, -A2-IP20-A, -A2-IP20-AB, -A2-IP20-ABC, -A2-IP20-AC, -A2-IP20-B, -A2-IP20-C, -A2-IP21, -A2-IP21-B, -A3-IP20, -A3-IP20-A, -A3-IP20-AB, -A3-IP20-ABC, -A3-IP20-AC, -A3-IP20-B, -A3-IP20-C, -A3-IP21, -A3-IP21-B, -B1-IP21, -B1-IP66, -B2-IP66, -B3-IP20, -B4-IP02, -B4-IP21, -C3-IP20, -C3-IP21, -C4-IP20, -C4-IP21, -FC-C2-IP21, -B4-IP20/C3-IP20/C4-IP20-OPTION, -B2-IP21-WITH-DISCONNECTOR, -C1-IP66-WITH-DISCONNECTOR, -B1-IP21-WITH-DISCONNECTOR, -B1-IP66-WITH-DISCONNECTOR

- Operating Guide
  MG11AK02, MG11BC02, MG20MD02, MG20N602, MG33AR02, MG33BF-2

3) Product overview complete Marine Approval note 00714813 rev.A,33 dated 2022-09-06

4) Approved Documents
- 177R0707 Rev 001, 177R0706 Rev 001, 177R0705 Rev 001, 177R0704 Rev 001, 177R0659 Rev C, 177R0621 Rev 002, 177R0620 Rev 002, 177R0490 Rev 006, 177R0375 Rev 004, 177R0374 Rev 005, 177R0349 Rev 003, 177R0340 Rev 003, 177R0339 Rev 004, 177R0197 Rev 6, 177R0048 Rev 13

3. Test Reports

1) Environmental Test Report for High Power Drives
- CTL Vibration Test Report 250948 dated Sep 21, 2007
- CTL Vibration Test Report 250959 dated Oct 31, 2007
- Danfoss Cold Test Report 00726256, dated Jul 10, 2015
- Danfoss Cold Test Report P407-131_R0123T04v100a, dated June 3, 2005
- Danfoss Damp Heat Report 00715502 Rev.A1, dated Jul 30, 2013
- Danfoss Damp Heat Test Report 00726257, dated Jul 10, 2015
- Danfoss Damp Heat Test Report P407-122_R0102T02v100a, dated Feb 10, 2006
- Danfoss Dry Heat Test Report 00708868
- Danfoss Dry Heat Test Report 00708869
- Danfoss Dry Heat Test Report 00708874
- Danfoss Dry Heat Test Report 00711218 Rev.A1, dated Oct 31, 2012
- Danfoss Dry Heat Test Report 00711223 Rev.A1, dated Oct 31, 2012
- Danfoss Dry Heat Test Report 00720712, dated Jul 8, 2015
- Danfoss Dry Heat Test Report 00735629 dated Mar 16, 2017
- Danfoss LLC Damp Heat Test Report 00705181 Rev.A3, dated Nov 12, 2011
- Danfoss LLC Vibration Test Report 00707038 Rev.A3, dated Oct 24, 2012
- Danfoss Vibration Test Report 00706801 Rev. A2 dated Feb 19, 2012
- Danfoss Vibration Test Report 00720571, dated Jul 8, 2015
- Danfoss Vibration Test Report No. 00596396 Rev.A6 dated Sep 19, 2012
- Danfoss Vibration Test Report No. 00702667 dated Nov 19, 2012
- DATASYST Damp Heat Test Report D15-15766 Rev. A, dated Jul 29, 2013
- DATASYST Vibration Test Report D15-15282 dated Oct 19, 2012
- DATASYST Vibration Test Report D15-17445 dated Aug 17, 2016
- DATASYST Vibration Test Report DI5-14976, dated Feb 20, 2012
- Elite Environmental Test Report 1401064-01, Rev. A, dated Jun 17, 2014
- NTS Environmental Test Report A8366 dated Dec 5, 2008
- NTS Vibration Test Report A10116 dated Jun 13, 2010
- NTS Vibration Test Report A11198 dated Jun 27, 2011
- UL Cold Test Report 4786962025-S1-1, dated Jul 9, 2015
- UL Damp Heat Test Report 4786962025-S1-2, dated Jul 9, 2015
- UL Dry Heat Test Report 11NK14834 dated Nov.10, 2011
- UL Dry Heat Test Report 10NK15036 dated Oct 28, 2010

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- UL Dry Heat Test Report 10NK05983 dated Apr 01, 2010

2) EMC Test Report for High Power Drives
- Danfoss Test Report 00702489 dated Jun 29, 2011
- Danfoss Test Report 00703682 Rev. A1, dated Sep 01, 2011
- Danfoss Test Report 00703684 Rev. A2, dated Sep 25, 2011
- Danfoss Test Report 00705156 Rev. A3, dated Jan 04, 2012
- Danfoss Test Report 00705602 dated Jan 05, 2012
- Danfoss Test Report 00722298 Rev. A2, dated Dec 08, 2014
- Danfoss Test Report 00734306 Rev. A13, Jan 12, 2017
- Danfoss Test Report 00734307 Rev. A8, Jan 13, 2017
- Danfoss Test Report 00734308 Rev. A12, Jan 13, 2017
- Danfoss Test Report 00734309 Rev. A7, Jan 13, 2017
- Danfoss Test Report 00705683 Rev. A19, dated Apr 8, 2013
- Danfoss Test Report 00705781 Rev. A9, dated Mar 1, 2013
- Danfoss Test Report 00708506 Rev. A5, dated Jan 16, 2013
- Danfoss Test Report 00708507 Rev. A6, dated Sep 10, 2012
- Danfoss Test Report P407-154_R0126T05v100a Rev. 1.00a, dated Mar 09, 2007
- Danfoss Test Report P407-3 dated Feb 05, 2004
- Danfoss Test Report P408-2_R0131T01v100 dated Apr 06, 2005
- Danfoss Test Report P408-77_R0131T01v100b Rev. 1.00a, dated Apr 16, 2007
- Danfoss Test Report P408-78_R0131T02v100b Rev. 1.00a, dated May 29, 2007
- Danfoss Test Report P408-79_R0132T01v100b Rev. 1.00a, dated Apr 16, 2007
- Danfoss Test Report P408-82_R0132T05v100b Rev. 1.00a, dated Apr 17, 2007
- Danfoss Test Report P408B-06_tr4082051122 dated Nov 22, 2005
- Elite Tests on LHD120 Drive System 1401200-01 Rev. C, dated Jan 12, 2015
- Elite Tests on LHDI20 Drive System 1402112-01 Rev. B, dated Nov 12, 2014
- Ingenium Test Report CTR-10-0145 Rev. B, dated Nov 23, 2010
- Ingenium Test Report CTR-10-0170 dated Oct 22, 2010
- Nts EMC Test Report CTR-10-0125 Rev. B, dated Aug 24, 2011
- Nts EMC Test Report CTR-10-0185 Rev. 4, dated Aug 11, 2011
- Nts EMC Test Report CTR-10-0185 Rev. 4, dated Aug 11, 2011
- Nts EMC Test Report CTR-11-0125 Rev. B, dated Aug 24, 2011
- Nts EMC Test Report CTR-11-0145 Rev. 2, dated Aug 24, 2011
- Nts EMC Test Report CTR-11-0155 dated Jan 03, 2012
- Nts EMC Test Report CTR-11-0205 dated Dec 29, 2011
- P4001 Immunity Test Simulations 00734559 dated Mar 27, 2017
- TUV EMC Test Report 19645766 dated Jan 11, 2017
- TUV EMC Test Report 19645767 dated Jan 11, 2017
- UL EMC Test Report 11494250A dated Dec 16, 2016
- UL EMC Test Report 11494250B dated Dec 16, 2016

3) Performance Test Report for High Power Drives
- AC Line loss Test Report tr7020 PTP AC Line loss N200T5, dated Nov 9, 2014
- Danfoss Test Report 00360920 Rev. A1, dated May 01, 2009
- Danfoss Test Report 00360921 Rev. A1, dated May 01, 2009
- Danfoss Test Report 00360949 Rev. A1, dated May 04, 2009
- Danfoss Test Report 00361344 Rev. A1, dated Jun 03, 2009
- Danfoss Test Report 00361623 Rev. A1, dated Jun 22, 2009
- Danfoss Test Report 00361954 Rev. A1, dated Jul 23, 2009
- Danfoss Test Report 00590167 Rev. A1, dated Apr 13, 2010
- Danfoss Test Report 00702784 dated Jul 06, 2011
- Danfoss Test Report 00702788 dated Jul 11, 2011
- Danfoss Test Report 00702920 dated Jul 22, 2011
- Danfoss Test Report 00702958 dated Jul 28, 2011
- Danfoss Test Report 00703021
- Danfoss Test Report 00705120
- Danfoss Test Report 00705153 dated Nov 11, 2011
- Danfoss Test Report 00705926 dated Dec 28, 2011
- Danfoss Test Report 00706040 dated Aug 03, 2012 & Dec 21, 2011
- Danfoss Test Report 00708720 dated May 31, 2012
- Danfoss Test Report 00708780 Rev. A1, dated Jul 09, 2012
- Danfoss Test Report 00709736 Rev. A1, dated Aug 07, 2012
- Danfoss Test Report 00709737 Rev. A1, dated Aug 07, 2012
- Danfoss Test Report 00709738 Rev. A1, dated Aug 07, 2012
- Danfoss Test Report 00710230 dated Sep 05, 2012
- Danfoss Test Report 00710962 Rev. A3, dated Oct 17, 2012

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- Danfoss Test Report 00710965 Rev. A3, dated Oct 30, 2012
- Danfoss Test Report 00711188 Rev. A2, dated Oct 30, 2012
- Danfoss Test Report 00723166 Rev. A1, dated Feb 03, 2015
- Danfoss Test Report 00724479 dated Apr 02, 2015
- Danfoss Test Report 00724629 dated Mar 15, 2017
- Danfoss Test Report 00734665 dated Jan 18, 2017
- Danfoss Test Report P4001_N710T7_4quardant dated Dec 18, 2016
- Danfoss Test Report P408-2-1_tr4082060111 dated Jan 11, 2006
- Danfoss Test Report P408-2-19_tr4082051201 dated Dec 01, 2005
- Danfoss Test Report P408-2VisInsp6502C54 dated Jan 05, 2006
- Danfoss Test Report P408-2VisInsp8652C00 dated Jan 05, 2006
- Danfoss Test Report P408-89_R0134T01v200a Rev. 1.00a, dated Nov 15, 2007
- Danfoss Test Report P408VisInsp5352C00 dated Aug 09, 2005
- Danfoss Test Report P408VisInsp5352C54 dated Aug 09, 2005
- Danfoss Test Report tr4001_LVD_Insulation_Resistance_Test dated Dec 9, 2016
- Danfoss Test Report tr4001_PTP_4_Quadrant_Operation_N400T5 dated Sep 06, 2016
- Danfoss Test Report tr408_050818-3 dated Aug 18, 2005
- Danfoss Test Report Tr4082060104-2 dated Jan 05, 2006
- Danfoss Test Report tr454_PTP_Intermittent_AC_Line_Loss_N132T5 dated Aug 15, 2011
- Danfoss Test Report tr454_PTP_Intermittent_AC_Line_Loss_N132T7 dated Apr 30, 2012
- Danfoss Test Report tr454_PTP_Intermittent_AC_Line_Loss_N315T7
- Danfoss Test Report tr454_PTP_Intermittent_AC_Line_Loss_P250T5 dated May 09, 2011
- Danfoss Test Report P408-3 Visual inspection for Power Drive System dated Oct 03, 2007
- Lab Data Package 11NK14834, dated Nov 10, 2011
- Lab Data Package 4786469180, dated Sep 4, 2014
- Performance Test Report tr7020_PTP Input_THD LHD N200, dated Jul 30, 2014
- Test Report tr454 PTP 4 Quadrant Operation N250T5, dated Oct 31, 2011
- Test Report tr454 PTP 4 Quadrant Operation NI32T5, dated Feb 11 , 2011
- Test Report tr454 PTP Torque Speed Curve N132T5, dated Aug 25,2011
- Test Report tr454 PTP Torque Speed Curve N250t5, dated Aug 23, 2011
- Test Report tr7020 PTP Inrush Switch On Mains N200T5, dated Oct 6, 2014
- Test Report tr7020 PTP Unit_Initialization Time P200T5, dated Feb 6, 2014
- UL P454 Test Report 12NK08900 dated Jun 22, 2012
- UL Test Report 00733941 dated Dec 05, 2016

4) Environmental Test Report for Low Power Drives
- Danfoss Bump Test Report P404-795_R0230T02v100a dated Jan 04, 2007
- Danfoss Bump Test Report P429-168_R0230T02v100a dated Dec 19, 2008
- Danfoss Bump Test Report P429-169_R0230T02v100a dated Dec 19, 2008
- Danfoss Cold Test Report P401-1095_R0123T04v110a dated Apr 20, 2006
- Danfoss Cold Test Report P420-368_R0123T04v110a dated Dec 13, 2007
- Danfoss Cold Test Report P420-541_R0123T04v110a dated Dec 19, 2007
- Danfoss Cold Test Report P420-585_R0123T04v110a dated Dec 19, 2007
- Danfoss Damp Heat Test Report P420-367_R0123T03v110a dated Dec 20, 2007
- Danfoss Damp Heat Test Report P462-454_R0123T03v110a dated May 08, 2013
- Danfoss Damp Heat Test Report P462-517_R0123T03v110a dated Jun 23, 2015
- Danfoss Damp Heat Test Report P462-518_R0123T03v110a dated Jun 23, 2015
- Danfoss Damp Heat Test Report P462-519_R0123T03v110a dated Jun 23, 2015
- Danfoss Dry Heat Test Report P429-100_R0123T01v110a dated Feb 26, 2008
- Danfoss Dry Heat Test Report P429-60_R0102T01v200a dated Jul 04, 2008
- Danfoss Dry Heat Test Report P462-122_R0102T01v300b dated Oct 27, 2011
- Danfoss Dry Heat Test Report P462-321_R0123T03v110a dated Apr 30, 2013
- Danfoss Dry Heat Test Report P462-362_R0102T01v300b dated Apr 30, 2013
- Danfoss Dry Heat Test Report P462-391_R0102T01v300b dated Apr 30, 2013
- Danfoss Dry Heat Test Report P462-514_R0102T01v300b dated Jun 15, 2015
- Danfoss Dry Heat Test Report P462-515_S0102T01v300b dated Apr 28, 2015
- Danfoss Dry Heat Test Report P462-516_R0102T01v300b dated Jun 16, 2015
- Danfoss Impact Test Report P401-963_R0104T06v200a dated Oct 19, 2005
- Danfoss Impact Test Report P420-517_R0104T06v200a dated Jun 12, 2015
- Danfoss IP Test Report P401-962_R0104T02v200a dated Oct 19, 2005
- Danfoss IP Test Report P420-403_R0104T02v200a dated Jun 12, 2015
- Danfoss Shock Test Report P462-509_R0411T01v100c dated Jun 25, 2014
- Danfoss Shock Test Report P462-510_R0411T01v100c dated Jun 25, 2014
- Danfoss Temperature Rise Test Report P462-365_R0106T09v300b dated May 24, 2013
- Danfoss Temperature Rise Test Report P462-415_R0106T09v300b dated Jun 19, 2013
- Danfoss Vibration Test Report P429-63_R0103T02v200a dated Jul 03, 2008

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- Danfoss Wide Band Random Test Report No. P462-467_R0124T02v100a dated Jan 15, 2014
- Danfoss Wide Band Random Test Report No. P462-469_R0124T02v100a dated Jun 04, 2013
- Danfoss Wide Band Random Test Report P429-163_R0124T01v100a dated Dec 19, 2008
- Danfoss Wide Band Random Test Report P429-164_R0124T01v100a dated Dec 22, 2008
- Danfoss Wide Band Random Test Report P462-450_R0124T02v100a dated Jan 11, 2013
- Danfoss Wide Band Random Test Report P462-451_R0124T02v100a dated Jul 30, 2013
- Danfoss Wide Band Random Vibrations Test Report P462-506_R0124T02v100a dated Aug 26, 2014

5) EMC Test Report for Low Power Drives
- Danfoss Test Report P404-948_S0127T01v100b dated Oct 10, 2007
- Danfoss Test Report P404-949_R0127T01v100c dated May 16, 2008
- Danfoss Test Report P407-151_R0126T01v100b dated Mar 09, 2007
- Danfoss Test Report P407-152_R0126T02v100a dated Mar 09, 2007
- Danfoss Test Report P407-153_R0126T05v100a dated Mar 09, 2007
- Danfoss Test Report P407-154_R0126T05v100a dated Mar 09, 2007
- Danfoss Test Report P429-150_R0126T01v100b dated Dec 19, 2008
- Danfoss Test Report P429-151_R0126T02v100a dated Jun 25, 2012
- Danfoss Test Report P429-154_R0122T01v110a dated Dec 19, 2008
- Danfoss Test Report P429-161_R0126T01v100b dated Nov 25, 2008
- Danfoss Test Report P429-162_R0126T02v100a dated Dec 19, 2008
- Danfoss Test Report P429-165_R0122T01v110a dated Dec 19, 2008
- Danfoss Test Report P429-231_R0127T01v100c dated Dec 19, 2008
- Danfoss Test Report P429-90_R0127T01v100b dated Jul 11, 2008
- Danfoss Test Report P429-92_R0127T02v100b dated Apr 10, 2008
- Danfoss Test Report P462-159_R0132T04v100d dated May 28, 2013
- Danfoss Test Report P462-164_R0134T05v210a dated Feb 09, 2012
- Danfoss Test Report P462-305_R0131T01v100e dated Jun 28, 2012
- Danfoss Test Report P462-308_R0132T02v200c dated Jun 25, 2012
- Danfoss Test Report P462-317 (No date)
- Danfoss Test Report P462-355_R0134T05v210a dated Aug 14, 2012
- Danfoss Test Report P462-456_R0132T02v200c dated May 08, 2013
- Danfoss Test Report P462-459_R0134T05v300a dated Mar 21, 2013
- Danfoss Test Report P462-473_R0122T01v110a dated Jul 01, 2015
- Danfoss Test Report P462-511_R0105T02v400a dated Jul 11, 2014
- Danfoss Test Report P462-512_R0105T02v400a dated Jul 11, 2014
- Danfoss Test Report P462-520_R0105T02v400a dated Jun 30, 2015
- Danfoss Test Report P462-521_R0122T01v110a dated Jul 01, 2015
- Danfoss Test Report P462-522_R0122T01v110a dated Jul 05, 2015
- Danfoss Test Report P462-91_R0132T02v200c dated Jan 03, 2012
- Danfoss Test Report S0127T01v100b dated Oct 10, 2007
- DELTA Test Report 19K0441 dated Mar 02, 2007
- Nts EMC Test Report CTR-12-0125 dated May 11, 2012
- Nts EMC Test Report CTR-12-0130 dated May 30, 2012
- Nts EMC Test Report CTR-13-0120 dated May 17, 2013
- Nts EMC Test Report CTR-13-0155 dated Aug 26, 2013

6) Performance Test Report for Low Power Drives
- A3 Frame Visual inspection Report dated Jun 21, 2012
- B4 Frame Visual inspection Report dated Aug 21, 2013
- C3 Frame Visual Inspection Report dated Jun 21, 201 2
- Danfoss Test Report No. P462-120_R0101T02v200a date d Nov 20, 2012
- Danfoss Test Report No. P462-329_R0101T02v200a dated Dec 17, 2012
- Danfoss Test Report No. P462-395_R0101T02v200a dated Jun 04, 2013

7) Additional EMC Test Report
- Danfoss Test Report No. PEC-4680 dated Oct 04, 2021
- Danfoss Test Report No. PEC-4679 dated Sep 28, 2021
- Danfoss Test Report No. PEC-4640 dated Sep 24, 2021
- Danfoss Test Report No. PEC-4639 dated Oct 19, 2021
- Danfoss Test Report No. PEC-4682 dated Oct 15, 2021
- Danfoss Test Report No. PEC-4681 dated Oct 13, 2021
- LSR Test Report No. 316365 dated Feb 17, 2017
- DANAK Test Report No. EMC-2022-002-RI-STO-E1 dated Oct 07, 2022
- DLS Test Report No. 25952 dated Mar 01, 2021

Product Description and/or Approval Condition

Date of Issue : 7 March 2023

B. Approval Condition;

1. Application & Limitation

1) This approval is granted on the basis of the approved documentation and the test reports (IACS UR E10 Rev.8).

2) Degree of protection is to be complied with Rule Pt.6 Ch.1 Sec.2 201.2.(5).

3) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4) This product is to have the appropriate IP grade according to Pt. 6, Ch. 1, Sec. 103 of the Rules for Classification, Steel Ships.

5) Converters with conducted and radiated emission above the KR required limits can be installed in special distribution zone and general power distribution zone, in accordance with IEC 60533 provided measures are taken to attenuate these effects on the distribution system, so safe operation is assured.

2. Individual Product Cert. and Drawing Approval Requirement

1) If the converters are used as parts of the motor controller which drive essential auxiliaries specified in KR Rule Pt. 5, Ch. 1, 102 and exceed the output 7.5 kW, Individual Product Certification is required for the motor controller.

< End of Certificate >