



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.  
WG22PTB00006

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

Danfoss LLC

地址/Address

4401 N. Bell School Road, Loves Park, IL 61111, USA

产品名称/Product

电源变换装置  
Power Conversion Device  
变频器  
Frequency Converter

附加标志/Notations

无/Nil.

认可标准/Approval Standard

1. 中国船级社《钢质海船入级规范》（2022）及其修改通报第4篇第1&3章  
Chapter 1&3, Part Four of China Classification Society Rules for Classification of Sea-Going Steel Ships 2022 and its Amendments

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

证书有效期至/ This Certificate is valid until 2024年08月26日/ Aug. 26,2024

发证机构/ Issued by 中国船级社温哥华办事处  
CCS Vancouver Office

签发日期/ Date 2022年08月09日  
Aug. 09,2022

本证书根据中国船级社规范和相关规定签发。所有证书页为一个整体，必须同时使用。纸质证书每页均须由本社盖章方为有效，电子证书含数字签名方为有效，本证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。有关方对所持证书的真实性有疑问时，可以向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



Form No: T01.

联系方式/Contact Us, 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P022-93159672

**产品明细/Product Description**

变频器/Frequency Converter (M0001)

名称/Name	属性(值)/Value	单位/Unit
型号/Type	FC-102, FC-202, FC-302, AAF006	
规格/Specification	See additional pages	

**批准的图纸/Approved Drawings**

图纸批准号/ Drawings Approval No. : NP13A00825, NP17A00793

**产品认可试验报告/ Approval Test Report**

试验报告编号/ Test Report No. : P407-151, -152, -154

试验报告日期/ Test Report Date : 2007-03-29

试验单位/ Laboratory: Danfoss

试验单位地址/ Test Address: Denmark

试验报告编号/ Test Report No. : Test reports updates to enclosure E1h, E2h, E3h, E4h

试验报告日期/ Test Report Date : 2017-04-12

试验单位/ Laboratory: Danfoss

试验单位地址/ Test Address: Loves Park, USA

试验报告编号/ Test Report No. : Environmental and EMC test report updates

试验报告日期/ Test Report Date : 2012-10-24

试验单位/ Laboratory: Danfoss

试验单位地址/ Test Address: Loves Park, USA

**认可后的产品检验方式/ Method of Product Inspection after Approval**

按规范认可后应进行产品检验的产品/The product should be inspected in term of the rules:

认可后的产品检验应由本社验船师根据本社规范规定按批准的产品检验计划进行检验, 经检验合格后由本社颁发船用产品证书。

After approval, product inspection should be carried out by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Marine Product Certificate will be issued by the Society upon satisfactory inspection.

**认可保持条件/ Maintenance Requirements of Approval**

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance

with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

#### 备注/Remarks

本证书由原型式认可证书 (No. WG20PTB00009) 变更并替代原证书。  
This certificate is modified from and supersedes the previous Type Approval Certificate No. WG20PTB00009.

产品制造厂/The product manufactory:

1. Danfoss LLC  
4401 N. Bell School Road, Loves Park, IL 61111, USA
2. Zhejiang Holip Electronic Technology Co., Ltd.  
No. 339, North Xinqiao Road, Wuyuan, Haiyan, Jiaxing, Zhejiang 314300, China

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

**中国船级社温哥华办事处**

**CCS Vancouver Office**

注: 本证书含有附页, 共2页

Note: The certificate is attached with additional 2 page(s)

## Product Description:

## 1. Frequency Converters

## FC-102 VLT HVAC Drive Series:

Voltage/Type	Power Rating	Enclosure Type	RFI Filter Type
380-480V (T4)	110-1000kW	IP00/IP20/IP21/IP54	H2 and H4
380-480V (T4)	315-1000kW	IP00/IP21/IP54	B2 and B4
380-480V (T4)	132-630kW	IP00/IP21/IP54	N2 and N4
525-690V (T7)	75-1400kW	IP00/IP20/IP21/IP54	H2
525-690V (T7)	450-1400kW	IP00/IP21/IP54	B2

## FC-202 VLT AQUA Drive Series:

Voltage/Type	Power Rating	Enclosure Type	RFI Filter Type
380-480V (T4)	110-1000kW	IP00/IP20/IP21/IP54	H2 and H4
380-480V (T4)	315-1000kW	IP00/IP21/IP54	B2 and B4
380-480V (T4)	132-630kW	IP00/IP21/IP54	N2 and N4
525-690V (T7)	75-1400kW	IP00/IP20/IP21/IP54	H2
525-690V (T7)	450-1400kW	IP00/IP21/IP54	B2

## FC-302 VLT Automation Drive Series:

Voltage/Type	Power Rating	Enclosure Type	RFI Filter Type
380-500V (T5)	90-800kW	IP00/IP20/IP21/IP54	H2 and H4
380-500V (T5)	250-800kW	IP00/IP21/IP54	B2 and B4
380-480V (T4)	132-630kW	IP00/IP21/IP54	N2 and N4
525-690V (T7)	55-1200kW	IP00/IP20/IP21/IP54	H2
525-690V (T7)	355-1200kW	IP00/IP21/IP54	B2

## Enclosure type specification:

FC-102/202/302: 380-480/500V							
Power rating [kW]			Enclosure type				
			6-pulse			12-pulse	Low Harmonic Drive (LHD)
FC-102	FC-202	FC-302	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)		
110	110	90	D3h	N/A	D1h/D5h/D6h	N/A	N/A
132	132	110					D1n
160	160	132					D2n
200	200	160	D4h		D2h/D7h/D8h	F8/F9	E9
250	250	200					
315	315	250	E3h		E2	E1/E1h	F10/F11
355	355	315					
400	400	355					
450	450	400	E4h	N/A	F1/F3/E2h	F10/F11	F18
500	500	450					
560	560	500	E4h				
630	630	560	N/A		F1/F3		
710	710	630	N/A	F1/F3	F12/F13	N/A	
800	800	710	N/A	N/A			F2/F4
1M0	1M0	800					

Enclosure type specification:

FC-102/202/302: 525-690V						
Power rating [kW]			Enclosure type			
			6-pulse			12-pulse
FC-102	FC-202	FC-302	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)	
75	75	55	D3h	N/A	D1h/D5h/D6h	N/A
90	90	75				
110	110	90				
132	132	110				
160	160	132				
200	200	160	D4h	N/A	D2h/D7h/D8h	N/A
250	250	200				
315	315	250				
400	400	315				
450	450	355	E3h	E2	E1/E1h	F8/F9
500	500	400				
560	560	500				
630	630	560				
710	710	630	E4h	N/A	F1/F3/E2h	F10/F11
800	800	710	E4h		F1/F3/E2h	
900	900	800	N/A		F1/F3	
1M0	1M0	900	N/A	N/A	F2/F4	F12/F13
1M2	1M2	1M0				
1M4	1M4	1M2				

(\*1) IP00/IP20/Panel mount; (\*2) IP21/NEMA Type 1, IP54/NEMA Type 12; N/A: Not Applicable

## 2. Active Filter

VLT AAF006

Voltage/Type	Current Rating	Enclosure Type	RFI Filter Type
380-480V (T4)	190A	IP21/IP54	HX
380-480V (T4)	250A		
380-480V (T4)	310A		
380-480V (T4)	400A		

Enclosure type specification:

AAF006: 380-480V				
Current rating [Amps]	Enclosure type			RFI filter Type (*3)
	IP20 (*1)	IP00 (*1)	IP21/IP54 (*2)	
190	N/A	N/A	D14	HX
250				
310				
400				

(\*1) IP00/IP20 Panel mount; (\*2) IP21/NEMA Type 1, IP54/NEMA Type 12; (\*3) HX: Active Filter RFI for maritime complies with IACS E10 requirements except radiated and conducted emissions.

## 3. Restriction for application of product:

The selected marine products should be appropriate to the condition of location and manufacturer's instruction.