TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE00001HC
Revision No:
4

This is to certify:

that the Frequency Converter

with type designation(s)
Emotron FDU 2.X, Emotron VFX 2.X

issued to
CG Drives & Automation Sweden AB
Helsingborg, **Sweden**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Frequency Converter for Asynchronous Motors Emotron FDU 2.X series and VFX 2.X.
Range: 0.75/0.55 kW to 3000/2400 kW, 230 - 690 VAC supply.

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2026-06-03**

This Certificate is valid until **2031-01-28**.
DNV local unit: **Sweden CMC**

Approval Engineer: **Qiang William Guo**

for **DNV**

This document has been digitally signed and will therefore not have handwritten signature

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Variable speed controller for asynchronous motor. Variable torque applications. Air and liquid cooled.

FDU 480V Series:

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
FDU48-003	3	0,75	2,5	0,55	2	B
FDU48-004	4,8	1,5	4,0	1,1	3,2	
FDU48-006	7,2	2,2	6,0	1,5	4,8	
FDU48-008	9	3	7,5	2,2	6,0	
FDU48-010	11,4	4	9,5	3,0	7,6	
FDU48-013	15,6	5,5	13,0	4,0	10,4	
FDU48-018	21,6	7,5	18,0	5,5	14,4	
FDU48-026	31	11	26,0	7,5	21,0	C
FDU48-031	37	15	31,0	11,0	25,0	
FDU48-037	44	18,5	37,0	15,0	29,6	
FDU48-046	55	22	46,0	18,5	37,0	
FDU48-061	73	30	61	22	49	D
FDU48-074	89	37	74	30	59	
FDU48-090	108	45	90	37	72	E
FDU48-109	131	55	109	45	87	
FDU48-146	175	75	146	55	117	
FDU48-175	210	90	175	75	140	
FDU48-210	252	110	210	90	168	F
FDU48-228	300	110	228	90	182	
FDU48-250	300	132	250	110	200	
FDU48-295	354	160	295	132	236	
FDU48-365	438	200	365	160	293	FA
FDU48-300	360	160	300	132	240	G
FDU48-375	450	200	375	160	300	
FDU48-430	516	220	430	200	344	H
FDU48-500	600	250	500	220	400	
FDU48-590	708	315	590	250	472	G2
FDU48-600	720	315	600	250	480	I
FDU48-650	780	355	650	315	520	I
FDU48-660	792	355	660	250	528	H2
FDU48-730	876	400	730	315	584	H2
FDU48-750	900	400	750	355	600	I
FDU48-810	972	450	810	355	648	G3
FDU48-860	1032	450	860	400	688	J
FDU48-885	1062	500	885	400	708	G3
FDU48-1K0	1200	560	1000	450	800	J
FDU48-1010	1212	560	1010	450	808	H3

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
FDU48-1100	1320	630	1100	500	880	H3
FDU48-1K15	1380	630	1150	500	920	KA
FDU48-1K25	1500	710	1250	560	1000	KA
FDU48-1300	1560	710	1300	560	1040	H4
FDU48-1K35	1620	710	1350	600	1080	K
FDU48-1460	1752	800	1460	630	1168	H4
FDU48-1K5	1800	800	1500	630	1200	K
FDU48-1K75	2100	900	1750	800	1400	L
FDU48-1710	2052	900	1710	750	1368	H5
FDU48-1820	2184	1000	1820	800	1456	H5
FDU48-2K0	2400	1120	2000	900	1600	M
FDU48-2190	2628	1200	2190	1000	1752	H6
FDU48-2K25	2700	1250	2250	1000	1800	N
FDU48-2K5	3000	1400	2500	1120	2000	O
FDU48-2550	3060	1400	2550	1120	2040	H7
FDU48-2920	3504	1600	2920	1300	2336	H8

FDU 525 V series:

Model	Max. output current [A]*	Normal duty (120%, 1 min. every 10 min)		Heavy duty (150%, 1 min every 10 min)		Frame size
		Power 525 V [kW]	Rated current [A]	Power 525 V [kW]	Rated current [A]	
FDU52-003	3.0	1.1	2.5	1.1	2.0	B
FDU52-004	4.8	2.2	4.0	1.5	3.2	
FDU52-006	7.2	3	6.0	2.2	4.8	
FDU52-008	9.0	4	7.5	3	6.0	
FDU52-010	11.4	5.5	9.5	4	7.6	
FDU52-013	15.6	7.5	13	5.5	10.4	
FDU52-018	21.6	11.0	18.0	7.5	14.4	
FDU52-026	31	15.0	26.0	11.0	20.1	C
FDU52-031	37	18.5	31.0	15.0	25.0	
FDU52-037	44	22.0	37.0	18.5	29.6	
FDU52-046	55	30	46	22	37	
FDU52-061	73	37	61	30	49	D
FDU52-074	89	45	74	37	59	

FDU 690 V Series:

Model	Max. output current [A]*	Normal duty (120%, 1 min. every 10 min)		Heavy duty (150%, 1 min every 10 min)		Frame size
		Power 690 V [kW]	Rated current [A]	Power 690 V [kW]	Rated current [A]	
FDU69-002-54	3.2	1.5	2.0	0.75	1.6	C69
FDU69-003-54	4.8	2.2	3.0	1.5	2.4	
FDU69-004-54	6.4	3.0	4.0	2.2	3.2	
FDU69-006-54	9.6	4,0	6,0	3,0	4,8	

Model	Max. output current [A]*	Normal duty (120%, 1 min. every 10 min)		Heavy duty (150%, 1 min every 10 min)		Frame size
		Power 690 V [kW]	Rated current [A]	Power 690 V [kW]	Rated current [A]	
FDU69-008-54	12,8	5.5	8.0	4.0	6.4	
FDU69-010-54	16.0	7.5	10.0	5.5	8.0	
FDU69-013-54	20.8	11.0	13.0	7.5	10.4	
FDU69-018-54	29.0	15.0	18.0	11.0	14.4	
FDU69-021-54	34.0	18.5	21.0	15.0	16.8	
FDU69-025-54	40.0	22.0	25.0	18.5	20.0	
FDU69-033-54	53	30	33	22	26	D69
FDU69-042-54	67	37	42	30	34	
FDU69-050-54	80	45	50	37	40	
FDU69-058-54	93	55	58	45	46	
FDU69-082	98	75	82	55	66	F69
FDU69-090	108	90	90	75	72	
FDU69-109	131	110	109	90	87	
FDU69-146	175	132	146	110	117	
FDU69-175	210	160	175	132	140	
FDU69-200	240	200	200	160	160	
FDU69-250	300	250	250	200	200	H69
FDU69-300	360	315	300	250	240	
FDU69-375	450	355	375	315	300	
FDU69-400	480	400	400	315	320	
FDU69-430	516	450	430	315	344	I69
FDU69-500	600	500	500	355	400	
FDU69-595	720	600	600	450	480	
FDU69-650	780	630	650	500	520	J69
FDU69-720	864	710	720	560	576	
FDU69-800	960	800	800	630	640	
FDU69-905	1080	900	900	710	720	KA69
FDU69-995	1200	1000	1000	800	800	
FDU69-1K2	1440	1200	1200	900	960	K69
FDU69-1K4	1680	1400	1400	1120	1120	L69
FDU69-1K6	1920	1600	1600	1250	1280	M69
FDU69-1K8	2160	1800	1800	1400	1440	N69
FDU69-2K0	2400	2000	2000	1600	1600	O69
FDU69-2K2	2640	2200	2200	1700	1760	P69
FDU69-2K4	2880	2400	2400	1900	1920	Q69
FDU69-2K6	3120	2600	2600	2000	2080	R69
FDU69-2K8	3360	2800	2800	2200	2240	S69
FDU69-3K0	3600	3000	3000	2400	2400	T69

-Liquid cooled models will be marked with “L” in the last in model name. For example, FDU48-1100L

VFX 480V Series:

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
VFX48-003	3,8	0,8	2,5	0,6	2,0	B
VFX48-004	6,0	1,5	4,0	1,1	3,2	
VFX48-006	9,0	2,2	6,0	1,5	4,8	
VFX48-008	11,3	3,0	7,5	2,2	6,0	
VFX48-010	14,3	4,0	9,5	3,0	7,6	
VFX48-013	19,5	5,5	13,0	4,0	10,4	
VFX48-018	27,0	7,5	18,0	5,5	14,4	
VFX48-026	39,0	11,0	26,0	7,5	21,0	C
VFX48-031	46,0	15,0	31,0	11,0	25,0	
VFX48-037	55,0	18,5	37,0	15,0	29,6	
VFX48-046	69,0	22,0	46,0	18,5	37,0	
VFX48-061	92	30	61	22	49	D
VFX48-074	111	37	74	30	59	
VFX48-090	108	45	90	37	72	E
VFX48-109	131	55	109	45	87	
VFX48-146	175	75	146	55	117	
VFX48-175	210	90	175	75	140	
VFX48-210	252	110	210	90	168	F
VFX48-228	300	110	228	90	182	
VFX48-250	300	132	250	110	200	
VFX48-295	354	160	295	132	236	
VFX48-300	360	160	300	132	240	G
VFX48-365	438	200	365	160	293	FA
VFX48-375	450	200	375	160	300	G
VFX48-430	516	220	430	200	344	H
VFX48-500	600	250	500	220	400	H
VFX48-590	708	315	590	250	472	G2
VFX48-600	720	315	600	250	480	I
VFX48-650	780	355	650	315	520	I
VFX48-660	792	355	660	250	528	H2
VFX48-730	876	400	730	315	584	H2
VFX48-750	900	400	750	355	600	I
VFX48-810	972	450	810	355	648	G3
VFX48-860	1032	450	860	400	688	J
VFX48-885	1062	500	885	400	708	G3
VFX48-1K0	1200	560	1000	450	800	J
VFX48-1010	1212	560	1010	450	808	H3
VFX48-1100	1320	630	1100	500	880	H3
VFX48-1K15	1380	630	1150	500	920	KA

VFX48-1K25	1500	710	1250	560	1000	KA
VFX48-1300	1560	710	1300	560	1040	H4
VFX48-1K35	1620	710	1350	600	1080	K
VFX48-1460	1752	800	1460	630	1168	H4
VFX48-1K5	1800	800	1500	630	1200	K
VFX48-1710	2052	900	1710	750	1368	H5
VFX48-1K75	2100	900	1750	800	1400	L
VFX48-1820	2184	1000	1820	800	1456	H5
VFX48-2K0	2400	1120	2000	900	1600	M
VFX48-2190	2628	1200	2190	1000	1752	H6
VFX48-2K25	2700	1250	2250	1000	1800	N
VFX48-2K5	3000	1400	2500	1120	2000	O
VFX48-2550	3060	1400	2550	1120	2040	H7
VFX48-2920	3504	1600	2920	1300	2336	H8

VFX 525V Series:

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
VFX52-003	3,8	1,1	2,5	0,8	2,0	B
VFX52-004	6,0	2,2	4,0	1,5	3,2	
VFX52-006	9,0	3,0	6,0	2,2	4,8	
VFX52-008	11,3	4,0	7,5	3,0	6,0	
VFX52-010	14,3	5,5	9,5	4,0	7,6	
VFX52-013	19,5	7,5	13,0	5,5	10,4	
VFX52-018	27,0	11,0	18,0	7,5	14,4	
VFX52-026	39,0	15,0	26,0	11,0	21,0	C
VFX52-031	46,0	18,5	31,0	15,0	25,0	
VFX52-037	55,0	22,0	37,0	18,5	29,6	
VFX52-046	69	30	46	22	37	
VFX52-061	92	37	61	30	49	D
VFX52-074	111	45	74	37	59	

VFX 690V Series:

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
VFX69-002-54	3,2	1,5	2,0	0,8	1,6	C69
VFX69-003-54	4,8	2,2	3,0	1,5	2,4	
VFX69-004-54	6,4	3,0	4,0	2,2	3,2	
VFX69-006-54	9,6	4,0	6,0	3,0	4,8	
VFX69-008-54	12,8	5,5	8,0	4,0	6,4	
VFX69-010-54	16,0	7,5	10,0	5,5	8,0	
VFX69-013-54	20,8	11,0	13,0	7,5	10,4	
VFX69-018-54	29,0	15,0	18,0	11,0	14,4	
VFX69-021-54	34,0	18,5	21,0	15,0	16,8	
VFX69-025-54	40,0	22,0	25,0	18,5	20,0	
VFX69-033-54	53	30	33	22	26	D69
VFX69-042-54	67	37	42	30	34	
VFX69-050-54	80	45	50	37	40	
VFX69-058-54	93	55	58	45	46	
VFX69-082	98	75	82	55	66	F69
VFX69-090	108	90	90	75	72	
VFX69-109	131	110	109	90	87	
VFX69-146	175	132	146	110	117	
VFX69-175	210	160	175	132	140	
VFX69-200	240	200	200	160	160	
VFX69-250	300	250	250	200	200	H69
VFX69-300	360	315	300	250	240	
VFX69-375	450	355	375	315	300	
VFX69-400	480	400	400	315	320	
VFX69-430	516	450	430	315	344	I69
VFX69-500	600	500	500	355	400	
VFX69-595	720	600	600	450	480	
VFX69-650	780	630	650	500	520	J69
VFX69-720	864	710	720	560	576	
VFX69-800	960	800	800	630	640	
VFX69-905	1080	900	900	710	720	KA69
VFX69-995	1200	1000	1000	800	800	
VFX69-1K2	1440	1200	1200	900	960	K69
VFX69-1K4	1680	1400	1400	1120	1120	L69
VFX69-1K6	1920	1600	1600	1250	1280	M69
VFX69-1K8	2160	1800	1800	1400	1440	N69
VFX69-2K0	2400	2000	2000	1600	1600	O69
VFX69-2K2	2640	2200	2200	1700	1760	P69
VFX69-2K4	2880	2400	2400	1900	1920	Q69
VFX69-2K6	3120	2600	2600	2000	2080	R69

Model	Max output current [A]	Normal Duty (120%, 1 min. every 10 min)		Heavy Duty (150%, 1 min every 10 min)		Frame size
		Power 400V [kW]	Rated current [A]	Power 400V [kW]	Rated current [A]	
VFX69-2K8	3360	2800	2800	2200	2240	S69
VFX69-3K0	3600	3000	3000	2400	2400	T69

* Drive suffix explanation: -IP

-IP category can be either IP20 or IP54. IP20 drive modules are without cabinet. IP54 means, IP20 drive modules are mounted in an IP54 cabinet.
-Liquid cooled models will be marked with “L” in the last in model name. For example, VFX48-1100L

In cases where multiple drives are installed in parallel an improved insulation resistance to ground may be required to avoid false earth fault detection. In such cases drives may be equipped with an optional high impedance DC link measurement board based on an opto coupler.

Application/Limitation

Supply voltage range:	230 - 480 or 500 - 690 V, 50/60 Hz
Voltage variation:	÷15 % + 10 % (steady state) at U ≥ 380V ÷10 % + 10 % (steady state) at U = 230V
Frequency range:	45 - 65 Hz
Output frequency:	0 - 400 Hz
Temperature range in operation:	0 - 45 °C (up to 55 °C when derated 1 % reduction in output power for per °C rise in ambient temperature)
Temperature class:	A
Vibration class:	A (Vibration kit to be installed)
Humidity class:	A
EMC class*:	IEC 61800-3 To be used on EMC class A locations

The FDU/VFX must be regarded as a component. The actual installation shall be designed according to CG Drives & Automation Sweden AB Users Manual and according to the applicable DNV Rules for the actual application.

Product certificate:
Frequency converters rated equal or larger than 100kW serving essential or important functions as defined in DNV rules Pt.4 Ch.8 shall have a product certificate according to DNV Pt.4 Ch.8 Sec.1 Table 3 for each delivery to DNV classed vessels.

For product certification, the following documents should be submitted for approval, Ref. to DNV Pt.4 Ch.8 Sec.1 Table 2:

- Reference to this Type Approval Certificate
- (E180) A drawing showing external location of instruments and devices for operation (panel layout)
- (E240) Functional description for the intended use, configuration and interface (e.g. alarms, monitoring and auxiliary power supplies)
- (Z252) Test program at manufacturer for routine tests and functional tests as per DNV Pt.4 Ch.8 Sec.7, 2.1.1
- Single line diagram (only applicable for multi drive configuration)
- If additional components to the type approved frequency converter are delivered, documentation according to DNV rules Pt.4 Ch.8 Sec.1 table 2 shall be submitted for review.

Frame sizes H69 to T69/G to H8 are to be installed in an enclosure with an IP degree in accordance with DNV Rules w.r.t. location.

*Converters with conducted and radiated emission above the DNV 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 the safe operation is assured. Planned EMC measures shall be submitted for approval prior to installation onboard. The EMC measures should be derived from an EMC analysis and plan in accordance with IEC 60533 Annex B and /or IEC 61800-3 Annex E.

Type Approval documentation

Documentation Title	Report No. / Reference	Issued Date
Technical data, Emotron FDU 2.1 AC Drive, SW ver. 5.0 (Chap. 14)	01-7491-01r0	—
Schematic drawings, Template VFX_FDU48-1k5-6P MS	—	2010-06-30
Instruction manual, Emotron FDU/VFX 2.0 Liquid Cooling	01-4636-01r1	—
FORCE test report	119-24190-1	2020-06-17
CG Drives type test reports	—	2020-07-07
EMC test report, FDU69-058-54	—	2019-02-19 to 2019-03-04
EMC test report, FDU69-058-20	—	2019-02-19 to 2019-03-11
EMC test report, FDU69-025-20	—	2019-02-19 to 2019-03-04
EMC test report, FDU69-025-54	—	2019-08-21
EMC test report, FDU69-042-54	—	2019-02-19
LVD/type test reports, IP54 Size D	—	2018-11-20 to 2018-12-06
LVD/type test reports, IP20 Size D	—	2013-01-31 to 2018-12-06
LVD/type test reports, IP20 Size C	—	2018-11-05 to 2018-12-06
DELTA test report	A506587	2009-12-15
DNV additional type tests (Binder/CD)	—	2010-03-10
DELTA test report	DANAK-1910574	2009-08-26
Serbert Trillingstechniek report	M09.011-2009.7076	2009-08-28
DECTRON test report	06047	2006-03-15
DECTRON test report	07019	2007-02-02
DECTRON test report	07020	2007-02-20
DECTRON test report	07275	2007-12-18
DECTRON test report	07276	2007-12-19
Protective impedance test (R40)	2.2.4	2009-09-17
Temperature rise test (R61)	2.2.9	2009-10-03
Voltage unbalance/frequency variations (R50)	5.2.4	—
Voltage deviations/dips/interruptions (R5x)	5.2.3	2009-03-17
KEMA test report	2097658.01-QUA/INC	2007-01-31
UL test report	E311216	2008-04-29
DELTA project report	ProjA506587	2009-12-15
Serbert Trillingstechniek report	M10.001-2010.7017	2010-01-26
Converter losses report	—	2010-01-29
LC on stacked drive test report	—	2014-03-26
Test report, 2 × FDU69-720L	—	2014-02-28
Emotron temperature rise test (R61)	2.2.9	2009-10-13
High impedance DC link measurement board description	—	—
Data sheet, optically isolated voltage sensor	—	—
Specification, drive transformer T60403-F5046-X006	—	2007-02-27
Schematic, insulated DC measurement / standby supply	01-6415-00	2016-09-07
FDU-295 / FDU-365 test reports (NPS ref.)	262.1-008042-14	—

Updated in 2026

Documentation Title	Report No. / Reference	Issued Date
Marine testing AC Drives (Environmental and EMC tests)	124-27212-1	2025-02-13
AC or DC Voltage test - VFX-FDU48-885-3x295A PEBB unit - R00- signed DNV	----	2026-03-20
Breakdown of Components test VFX-FDU48-885 - 3x295A PEBB unit - signed DNV	----	2026-03-20
Capacitor discharge test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Clogged filter test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-05-06

Electronic motor overload protection test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Inoperative blower motor test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Loss of phase test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Output Short circuit test VFX-FDU48-885-3x295A PEBB unit - signed DNV	----	2026-03-20
Protective bonding test - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Temperature rise test - VFX-FDU48-885 - 3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Testing & Inspections as per DNV-RU-SHIP Pt.4 Ch.8 - VFX-FDU48-885-3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
Touch current measurement test - VFX-FDU48-885 - 3x295A PEBB unit - R00 - signed DNV	----	2026-03-20
AC or DC Voltage test - VFX-FDU48-1100-3x365A PEBB unit - R00- signed DNV	----	2026-03-20
Breakdown of Components test VFX-FDU48-1100-3x365A PEBB unit - signed DNV	----	2026-03-20
Capacitor discharge test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Clogged filter test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-05-06
Electronic motor overload protection test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Inoperative blower motor test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Loss of phase test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Output Short circuit test VFX-FDU48-1100-3x365A PEBB unit - signed DNV	----	2026-03-20
Protective bonding test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Temperature rise test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Testing & Inspections as per DNV-RU-SHIP Pt.4 Ch.8 - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Touch current measurement test - VFX-FDU48-1100-3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Hydrostatic pressure test - VFX-FDU48-1100L - 3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Loss of coolant test - VFX-FDU48-1100L - 3x365A PEBB unit - R00 - signed DNV	----	2026-03-20
Temp rise test - VFX-FDU48-1100L-3x365A PEBB - DNV	----	2026-05-06
Creepage and clearance test report – FDU-VFX48-1100	----	2025-06-10

Tests carried out

Safety test in accordance with DNV Rules Pt 4 Ch 8 Sec7,edition July 2025, Visual inspection, Performance/heat run/temperature rise test, Power supply failure, Power supply variations, Voltage/frequency variation, Vibration, Dry heat, Damp heat, Insulation resistance test, High voltage test, Cold test, inclination test, rated current/full load test, short circuit test, cooling failure test, capacitors discharge test, Breakdown of components test, Pressure test of coolant piping/hoses.

Safety tests in accordance with IEC61800-5-1:2022.

EMC: The following tests are in accordance with the DNV-CG-0339 AUG.2021/ IEC 61800-3: Electrical fast transient (Burst), electrical slow transient (Surge), RF-common mode Voltage, radiated RF-electromagnetic fields, electric discharge (ESD), radiated and conducted emission. (See under application limitation).

Marking of product

Type designation – Voltage – Current

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE