

Quality, Environment and Safety

Manufacturers Declaration Certificate of Conformity

The below listed national and international directives/standards were observed during the design of the VLT® Decentral(FCD) series and the Frequency Converter Part (ISA) of the FCM series

Directive/standard/norm

73/23/EEC (EN 50178 as preferred safety standard)
EN 50178

section 9.4.1 to establish compliance with the following sub clauses:

- 5.2.1
- 5.2.2
- 5.2.4
- 5.2.4.1
- 5.2.8.3
- 5.2.8.4
- 5.2.9
- 5.2.9.1

- 5.2.9.2
- 5.2.14
- 5.2.15.1
- 5.2.18.1
- 5.3

- 5.3.1
- 5.3.1.2
- 5.3.2
- 7.1.8
- 7.2

section 9.4.2.1 (EN60068-2-2, test Bd /IEC 60068-2-2, test Bd)

section 9.4.2.2 (HD 323.2.3 S2, test Ca/ IEC 60068-2-3, test Ca)

section 9.4.3.1 (EN 60068-2-31, test Ec/IEC 60068-2-31, test Ec)

section 9.4.3.2 (EN 60068-2-6, test Fc/IEC 60068-2-6, test Fc)

section 9.4.4.2 (EN 60529/ IEC 60529)

section 9.4.4.3(EN 60529/ IEC 60529)

section 9.4.5.1 (HD 588.1 S1/ IEC 60664-1)

section 9.4.5.2

section 9.4.5.3 (HD 625.1 S1)

section 9.4.6.1 (see under EMC Directive)

section 9.4.6.2 (see under EMC Directive)

section 9.4.6.3

89/336/EEC

EN/IEC61600-6-3/4

EN61800-3/A11/ IEC61800-3

EN 55011

EN 55011

EN50082-1/2

Description

LOW VOLTAGE DIRECTIVE

Electronic equipment

for use in power installations

Visual inspections
Requirements for protections against electric chock
Protection against direct contact
Protection by means of enclosures and barriers
Distances
Protection by means of protective impedance
Protection by using limited voltage in control circuits
Protection with regard to indirect contact
Insulation between live parts and exposed conductive parts
Protective bonding
Solid insulation, insulation of circuits
Clearances and creepage distances
Constructive measures
Requirements for EE in installations with regard to protection against electric shock
Protection with regard to direct contact
Connection of EE with protective separation
Protection with regard to indirect contact
Electrical connections
Marking, identification, documentation
Dry heat test
Damp heat steady state
Topple test
Vibration, sinusoidal
Non-accessibility test
Enclosure test
Impulse voltage test
AC or DC voltage test
Partial discharge test
Emission of EMC disturbances
Immunity from EMC disturbances
Short-circuit withstand capability

EMC DIRECTIVE

Emission- public/industry

Emission PDS Product Standard

Emission PDS Product Standard

Conducted Class A-1

Radiated Class A-1

Immunity- industry

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EN 61800-3/IEC61800-3

EN 61000-4-2 (IEC 61000-4-2)
EN 61000-4-3 (IEC 61000-4-3)
EN 61000-4-4 (IEC 61000-4-4)
EN 61000-4-5 (IEC 61000-4-5)
EN 61000-4-6 (IEC 61000-4-6)

EN 61800-3 (IEC 61800-3)

IEC 61000-2-4
IEC 60146-1-1
IEC 61000-2-4
IEC/EN61000-4-11
IEC 61000-2-4
IEC 61000-2-4

EN 61800-3/A11 (IEC 61000-3)

EN 61000-3-2 (IEC 61000-3-2)
EN 61000-3-12 (IEC 61000-3-12)

UL 508c**Enclosure Construction**

section 6 (UL 50)

Environmental Rating Related Enclosure Construction

section 7 (UL 50)

section 8 (UL 50)

Environmental Rating Related Enclosure Performance

section 9 (UL 50)

Non-Environmental Rating Related Enclosure Performance

section 10

section 11

Instructions and Marking Pertaining to Enclosures

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section 13

Device Construction

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section 36 (UL840)

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section 38

Device Performance

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UL 508c

section 40

Immunity Industri

Electrostatic discharge (ESD)

Electromagnetic radiated field, A.M. modulated

Burst transients

Surge transients

RF field, common mode

Low frequency immunity

Harmonics

Commutation notches

Voltage variations and fluctuations

Voltage dips and short interruptions

Voltage unbalance

Frequency variations

Low frequency emission

Harmonics ($I \leq 16A$)

Harmonics ($I > 16A$)

Safety for Power Conversion Equipment

Frames and Enclosure

General

Protection against corrosion

General

General

Securement of snap-on cover test

Permanence of marking
details

General

Protection against corrosion

Provisions for Mounting

Insulation Material

Live Parts

Drive Protection

Capacitors

Internal wiring

External Interconnections

Supply Connections

Risk of Electric shock

Risk of Fire

Secondary Circuits

Isolation Devices

Spacings

Grounding

Accessories

General

Safety for Power Conversion Equipment

Temperature

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section 41.1
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Device Marking

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Manufacturing and production line test

section 64

CAN/CSA-C22.2 No. 14-95 (approved by UL)

CAN/CSA-22.2 No. 0.15-95

Miscellaneous standards/norms:

Danfoss Corporate Guideline: 500B0430
and ISTA, procedure 1A and 1
Danfoss Corporate Guideline: 500B0432,
Sinus Vibration, curve V (IEC 68-2-6, test Fc)
Random vibration, curve E / F
IEC 60068-2-64
VDE 0160
EN 50178 (section 5.2.11)
EN50178 (section 6.1, table 7)(IEC 721-3-3)

EN 50178 (section 6.1, table 7)(IEC 721-3-1)

EN 50178 (section 6.1, table 7)(IEC 721-3-2)

VBG-4

Issued by:



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Abnormal operation tests

General

Single phasing

Current limiting control

Full-load motor-running current tables

Solid state motor overload protection test

Dielectric voltage withstand test

Short circuit test-standard fault currents

Transient-voltage-surge suppression test

Brake down of components test

Terminal torque test

Rating

General

Branch circuit short circuit protection

Wiring terminal markings

Cautionary markings

Instructions and markings pertaining to accessories

Marking location

Circuit functionality evaluation

Industrial Control Equipment

Adhesive Labels

Guideline for Transportation test
(Packaging)

Guideline for Vibration test

Vibration, Sinus

Vibration, Random

Vibration, random, broad-band

Mains transients test pulse, class 1/2

Leakage current and fault current

Temperature (Class 3K3), Relative humidity

(Class 3K3), Air pressure (Class 3K3)

In Storage: Temperature (Class 1K4), Relative

humidity (Class 1K3), Air pressure (Class 1K4)

During transportation: Temperature (Class 2K3),

Relative humidity (Class 2K3), Air pressure

(Class 2K3)

Direct touching