Certificate of Conformity

The below listed national and international directives/standards were observed during the design of the VLT® series 5000, 6000 and 2800.

Directive/standard/norm	Description
73/23/EEC (EN 50178 as preferred safety standard) **EN 50178**	**LOW VOLTAGE DIRECTIVE** **Electronic equipment** **for use in power installations**
section 9.4.1 to establish compliance with the following sub clauses:	Visual inspections
• 5.2.1	Requirements for protections against electric chock
• 5.2.2	Protection against direct contact
• 5.2.4	Protection by means of enclosures and barriers
• 5.2.4.1	Distances
• 5.2.8.3	Protection by means of protective impedance
• 5.2.8.4	Protection by using limited voltage in control circuits
• 5.2.9	Protection with regard to indirect contact
• 5.2.9.1	Insulation between live parts and exposed conductive parts
• 5.2.9.2	Protective bonding
• 5.2.14	Solid insulation, insulation of circuits
• 5.2.15.1	Clearances and creepage distances
• 5.2.18.1	Constructive measures
• 5.3	Requirements for EE in installations with regard to protection against electric shock
• 5.3.1	Protection with regard to direct contact
• 5.3.1.2	Connection of EE with protective separation
• 5.3.2	Protection with regard to indirect contact
• 7.1.8	Electrical connections
• 7.2	Marking, identification, documentation
section 9.4.2.1 (EN60068-2-2, test Bd /IEC 68-2-2, test Bd)	Dry heat test
section 9.4.2.2 (HD 323.2.3 S2, test Ca/ IEC 68-2-3, test Ca)	Damp heat steady state
section 9.4.3.1 (EN 60068-2-31, test Ec/IEC 68-2-31, test Ec)	Topple test
section 9.4.3.2 (EN 60068-2-6, test Fc/IEC 68-2-6,test Fc)	Vibration, sinusoidal
section 9.4.4.2 (EN 60529/ IEC 529)	Non-accessiblity test
section 9.4.4.3(EN 60529/ IEC 529)	Enclosure test
section 9.4.5.1 (HD 588.1 S1/ IEC 664-1)	Impulse voltage test
section 9.4.5.2	AC or DC voltage test
section 9.4.5.3 (HD 625.1 S1)	Partial discharge test
section 9.4.6.1 (see under EMC Directive)	Emission of EMC disturbances
section 9.4.6.2 (see under EMC Directive)	Immunity from EMC disturbances
section 9.4.6.3	Short-circuit withstand capability
89/336/EEC	**EMC DIRECTIVE**
EN 50081-1/2	**Emission- public/industry**
EN61800-3/IEC61800-3	**Emission PDS Product Standard**
EN 55011	Conducted Class A-1
EN 55011	Conducted Class B-1
EN 55011	Radiated Class A-1
EN50082-1/2	**Immunity- Industry**

EN 61800-3/IEC61800-3	**Immunity Industri**
EN 61000-4-2 (IEC 61000-4-2)	Electrostatic discharge (ESD)
EN 61000-4-3 (IEC 61000-4-3)	Electromagnetic radiated field, A.M. modulated
EN 61000-4-4 (IEC 61000-4-4)	Burst transients
EN 61000-4-5 (IEC 61000-4-5)	Surge transients
EN61000-4-6	RF field, common mode
ENV50204	Electromagnetic field, pulse modulated
EN 61800-3/IEC 61800-3	**Low frequency immunity**
IEC 61000-2-4	Harmonics
IEC 60146-1-1	Commutation notches
IEC 61000-2-4	Voltage variations and fluctuations
IEC 61000-2-1	Voltage dips and short interruptions
IEC 61000-2-4	Voltage unbalance
IEC 61000-2-4	Frequency variations
EN 61800-3/IEC 61800-3	**Low frequency emission**
IEC 60146-1-1	Commutation notches

UL 508c

Safety for Power Conversion Equipment

Enclosure Construction	
section 5	Frames and Enclosure
Environmental Rating Related Enclosure Construction	
section 6	General
section 7	Protection against corrosion
Environmental Rating Related Enclosure Performance	
section 8	General
Non-Environmental Rating Related Enclosure Performance	
section 9	General
section 10	Securement of snap-on cover test
Instructions and Marking Pertaining to Enclosures	
section 11	Permanence of marking
section 12	details
Device Construction	
section 13	General
section 14	Protection against corrosion
section 15	Provisions for Mounting
section 16	Insulation Material
section 18	Live Parts
section 19	Drive Protection
section 20	Capacitors
section 21	Fuseholders
section 22	Internal wiring
section 23	External Interconnections
section 25	Blower Motors
section 26	Supply Connections
section 28	Risk of Electric shock
section 29	Risk of Fire
section 31	Secondary Circuits
section 34	Isolation Devices
section 35 (UL840)	Spacings
section 36	Grounding
section 37	Accessories
Device Performance	
section 38	General
section 39	Temperature

UL 508c (continued)
section 40
section 40.1
section 40.3
section 40.4
section 40.6
section 41
section 42
section 43
section 44
section 47
section 49
section 50
section 52
Device Marking
section 53
section 55
section 57
section 58
section 59
section 60
Manufacturing and production line test
section 61

Safety for Power Conversion Equipment
Operation tests
General
Single phasing
Inoperative blower motor
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 surpression 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

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

CAN/CSA-22.2 No. 0.15-95

Industrial Control Equipment

Adhesive Labels

Miscellaneous standards/norms:

Danfoss Corporate Guideline: 500B0430
and ISTA, procedure 1A and 1

Guideline for Transportation test
(Packaging)

Danfoss Corporate Guideline: 500B0432,
Sinus Vibration, curve V (IEC 68-2-6, test Fc)
Random vibration, curve E / F
IEC 68-2-34, test Fd
IEC 68-2-35, test Fda
IEC 68-2-36, test Fdb
IEC 68-2-37, test Fdc

Guideline for Vibration test
Vibration, Sinus
Vibration, Random
Vibration, random, wide band
Vibration, random, wide band
Vibration, random, wide band
Vibration, random, wide band

VDE 0160

Mains transients test pulse, class 1/2

EN 50178 (section 5.2.11)

Leakage current and fault current

EN50178 (section 6.1, table 7)(IEC 721-3-3)

Temperature (Class 3K3), Relative humidity (Class 3K3), Air pressure (Class 3K3)

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

In Storage: Temperature (Class1K4), Relative humidity (Class 1K3), Air pressure (Class 1K4)

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

During transportation: Temperature (Class 2K3), Relative humidity (Class 2K3), Air pressure (Class 2K3)

VBG-4

Direct touching

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