Certificate of Conformity

The below listed national and international directives/standards were observed during the design of the VLT® series 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 (EN 61800-3/ IEC 1800-3)	**Emission- public/industry**
EN 55011	Conducted Class A-1
EN 55011	Conducted Class B-1
EN 55011	Radiated Class A-1
EN50082-2 (EN 61800-3/ IEC 1800-3)	**Immunity- industry**
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 voltage
ENV50204	Rediated magnetic field from digital radio telephones
EN 61800-3/IEC 61800-3	**Low frequency immunity**
section 5.2.1 (IEC 61000-2-4, table 1)	Harmonic and commutatation notches Class 3 (Industry)
section 5.2.2.1 (IEC 61000-2-4, table 1)	Voltage fluctuations, Class 3 (Industry)
section 5.2.3.2 (IEC 61000-2-4, table 1)	Frequency deviations, Class 3 (Industry)
EN 61800-3/IEC 61800-3	**Low frequency emission**
section 6.1.1	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	
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section 20	Capacitors
section 21	Fuseholders
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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
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section 35 (UL840)	Spacings
section 36	Grounding
section 37	Accessories
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section 39	Temperature
section 40	Operation tests
section 40.1	General
section 40.3	Single phasing
section 40.4	Inoperative blower motor
section 40.6	Current limiting control

section 41	Full-load motor-running current tables
section 42	Solid state motor overload protection test
UL 508c (continued)	**Safety for Power Conversion Equipment**
section 43	Dielectric voltage withstand test
section 44	Short circuit test-standard fault currents
section 47	Transient-voltage-surge surpression test
section 49	Brake down of components test
section 50	Terminal torque test
section 52	Rating
Device Marking	
section 53	General
section 55	Branch circuit short circuit protection
section 57	Wiring terminal markings
section 58	Cautionary markings
section 59	Instructions and markings pertaining to accessories
section 60	Marking location
Manufacturing and production line test	
section 61	Circuit functionality evaluation
CAN/CSA-C22.2 No. 14-95 (approved by UL)	**Industrial Control Equipment**
CAN/CSA-22.2 No. 0.15-95	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	Guideline for Vibration test Vibration, Sinus
IEC 68-2-34, test Fd	Vibration, random, wide band
IEC 68-2-35, test Fda	Vibration, random, wide band
IEC 68-2-36, test Fdb	Vibration, random, wide band
IEC 68-2-37, test Fdc	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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