

Quality Compliance

Certificate of Conformity

The designs of Variable Frequency Drive, VFD-CP series, of Delta Electronics were in accordance with following European Directives and International standards and met the high quality requirements on Safety and Environment.

Directive/Standard	Description
2006/95/EC	Low Voltage Directive(LVD)
EN 61800-5-1 Part 5-1:	Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy
4.2	Protection against electric shock, thermal, and energy hazards – Fault conditions
4.3.1	Decisive voltage classification
4.3.2	Protective separation
4.3.3	Protection against direct contact
4.3.4	Protection in case of direct contact
4.3.5.1	Protection against indirect contact - General
4.3.5.2	Insulation between live parts and accessible conductive parts
4.3.5.3	Protective bonding circuit
4.3.5.4	Protective earthing conductor
4.3.5.5	Means of connection for the protective earthing conductor
4.3.5.6	Special features in equipment for protective class II
4.3.6	Insulation
4.3.7	Enclosures
4.3.8	Wiring and connections
4.3.9	Output short-circuit requirements
4.3.10	Residual Current-operated protective (RCD) or monitoring (RCM) device compatibility
4.3.11	Capacitor discharge
4.4	Protection against thermal hazards
4.5.1	Electrical energy hazards
4.5.2	Mechanical energy hazards
4.6	Protection against environmental stresses
5.2.1	Visual inspection
5.2.2	Mechanical tests
5.2.3	Electrical tests
5.2.4	Abnormal operation tests
5.2.5	Material tests
5.2.6	Environmental tests
6.1	Information and marking requirements - General

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Directive/Standard	Description
2004/108/EC	Electromagnetic Compatibility (EMC)
EN 61800-3 Part 3:	Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods
EN 61000-6-4	Emission – Industrial environments
EN 61800-3 EN 61800-3	Conducted Emission : Category C2 Radiated Emission : Category C2 *All models with EMI Filter Kits under Category C1
EN 61000-6-1	Immunity –residential, commercial and light-industrial environments
EN 61000-6-2	Immunity – industrial environments
EN 61800-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6	Immunity ESD: Electrostatic Discharge RS: Electromagnetic radiated susceptibility EFT: Electric Fast Transient Surge transient CS: Conducted emission susceptibility
EN 61800-3 IEC 61000-2-4 EN 61000-4-11 IEC 61000-2-4 IEC 61000-2-4	Low frequency immunity Voltage variations and fluctuation Voltage dips and short interruption Voltage unbalance Frequency variations
EN 61800-3 EN 61000-3-2 EN 61000-3-12	Low frequency emission Harmonics($I \leq 16A$) Harmonics($I > 16A$)

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Directive/Standard	Description
UL508C CAN/CSA-C22.2 No. 14-2005	Power Conversion Equipment Industrial Control Equipment cULus marking (Approved by UL)
Enclosure Construction Section 6 (UL 50)	Frames and Enclosure
Environmental Ration Related Enclosure Construction Section 7 (UL 50) Section 8 (UL 50)	General Protection against corrosion
Environmental Rating Related Enclosure Performance section 9 (UL 50)	General
Non-Environmental Rating Related Enclosure Performance section 10 section 11	General Securement of snap-on cover test
Instructions and Marking Pertaining to Enclosures section 12 section 13	Permanence of marking Details
Device Construction Section 14 Section 15 Section 16 Section 17 Section 18 Section 19 Section 20 Section 21 Section 23 Section 24 Section 25 Section 26 Section 27 Section 29 Section 30 Section 32 Section 35 Section 36 Section 37 Section 38	General Protection against corrosion Provisions for Mounting Insulation Material Means for switching Live Parts Drive Protection Capacitors Internal Wiring External interconnections Transformers Blower Motors Supply Connections Risk of Electric Shock Risk of Fire Secondary Circuits Isolation Devices Spacings Grounding Accessories
Device Performance Section 39 Section 40 Section 41 Section 41.1	General Temperature Abnormal operation test General

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Directive/Standard

Description

UL508C

CAN/CSA-C22.2 No. 14-2005

**Power Conversion Equipment
Industrial Control Equipment
cULus marking (Approved by UL)**

Section 41.2
Section 41.3
Section 41.4
Section 41.5
Section 41.6
Section 42
Section 43
Section 44
Section 45
Section 48
Section 50
Section 51
Section 53
Section 54

Contactor overload
Single phasing
Inoperative blower motor
Clogged filter
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
Breakdown of component
Terminal torque test
Secondary circuits test
Rating

Device Marking

Section 55
Section 56
Section 57
Section 60
Section 61
Section 62
Section 63

General
Overload, over-current, and over-speed protection
Branch circuit short circuit protection
Wiring terminal markings
Cautionary Markings
Instructions and markings pertaining to accessories
Marking location

Manufacturing and production line test

Section 64
Section 64A

Circuit functionality evaluation
Production-line dielectric voltage withstand test

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Regional Certification

Australia(*)

EN 61800-3

Russia

TP TC 004/2011

TP TC 020/2011

Miscellaneous standards

ISTA Procedure 1A

ISTA Procedure 2B

EN 50178

IEC 60068-2-6

IEC 60068-2-27

IEC 60068-2-31(*)

IEC 60529

Description

RCM

Section 182 of the Australian Radio communications Act 1992

EMI: Conducted and Radiated emission

Gost/EAC

Safety of low voltage equipment

Electromagnetic compatibility of technical means

Package Drop test and package vibration test

Packaged-Products weighing 150 lb (68 kg) or Less

Package Drop test and package vibration test

Packaged-Products weighing over 150 lb (68 kg)

Operation and non-operation vibration test

Overvoltage Category I

Vibration (sinusoidal)

Shock

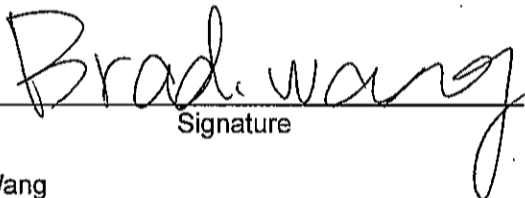
Rough handling shocks, primarily for equipment-type specimens

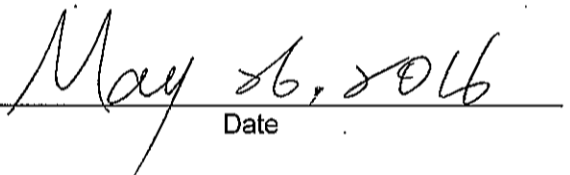
Degrees of protection provided by enclosures (IP Code)

(*) – for VFD-CP series, up to 355KW.

(*) – for VFD-CP series, Frame A thru Frame D & D0.

Performance upon above Directives/Standards might be discrete based on different installation and operation, reading user manual and quick start is advised.


Signature


Date

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