



THE VMC GROUP

The Power of Together™



**Power
Generation**

CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS



Certification No.

VMA-51071-01C (REVISION 02)

Expiration Date: 07/31/2018

Certification Parameters:

The nonstructural products (mechanical and/or electrical components) listed on this certificate are CERTIFIED¹ FOR SEISMIC APPLICATIONS in accordance with the following building code² releases.

IBC 2012, 2015

The following model designations, options, and accessories are included in this certification. Reference report number 77789-1302 and 33817-1501 as issued by Dynamic Certification Laboratories for a complete list of certified models, included accessories/options, and certified installation methods.

CUMMINS POWER GENERATION 10kW – 125kW Diesel Generator Sets

The above referenced equipment is **APPROVED** for seismic application when properly installed³, used as intended, and contains a Seismic Certification Label referencing this Certificate of Compliance⁴. As limited by the tabulated values, below grade, grade, and roof-level installations, installations in essential facilities, for life safety applications, and/or of equipment containing hazardous contents are permitted and included in this certification with an Equipment Importance Factor assigned as $I_p=1.5$. The equipment is qualified by successful seismic shake table testing at the nationally recognized Dynamic Certification Laboratories under the review of the ISO Accredited Product Certification Agency, The VMC Group.

Certified Seismic Design Levels

		$S_{DS} \leq 2.000 \text{ g}^7$	$S_{DS} \leq 2.000 \text{ g}^7$
Certified IBC	Importance $I_p \leq 1.5$ Soil Classes A-E Risk Categories I-IV Design Categories A-F	$z/h = 0.0$	$z/h \leq 1.0$
		Horizontal Design ⁵	$\frac{F_p}{W_p} = 0.4 S_{DS} I_p \frac{a_p}{R_p} \left(1 + 2 \frac{z}{h}\right) \leq 1.440 \text{ g}$
		Test Datum AC156	ISO 17025 Laboratory Pre/Post-Shake Functionality Tri-axial, 5% Damping SRS
		$A_{FLEX-H} \leq 3.200 \text{ g}$	$A_{FLEX-V} \leq 1.333 \text{ g}$
		$A_{RIG-H} \leq 2.400 \text{ g}$	$A_{RIG-V} \leq 0.533 \text{ g}$
		$ZPA_H \leq 2.160 \text{ g}$	$ZPA_V \leq 0.480 \text{ g}$

Certified Seismic Installation Methods

Rigid mounting from unit base to rigid structure



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Certified Product Table:

Model	Power Rating	RPM	Maximum Dimensions (in)			Max Weight with Enclosure (lb)	Certified Fuel Tank Capacities (gal)	S _{DS} (g) z/h=1
			Length	Width	Height			
C10 D6	10 kW	1800	98	34	88	4,300	46, 74, 91, 132, 195, 263	2.0
C15 D6	15 kW	1800	98	34	88	4,400		
C20 D6	20 kW	1800	98	34	88	4,470		
C25 D6	25 kW	1800	131	34	88	5,890	74, 132, 195, 263, 389	
C30 D6	30 kW	1800	131	34	88	5,930		
C35 D6	35 kW	1800	131	34	88	5,960		
C40 D6	40 kW	1800	131	34	88	6,140		
C50 D6	50 kW	1800	131	34	88	6,260		
C60 D6	60 kW	1800	131	34	88	6,260		
C50 D6C	50 kW	1800	170	40	104	8,943	250, 425, 625	
C60 D6C	60 kW	1800	170	40	104	8,990		
C80 D6C	80 kW	1800	170	40	104	9,040		
C100 D6C	100 kW	1800	170	40	104	9,216		
C125 D6C	125 kW	1800	170	40	104	9,300		

This certification **includes** the open generator set and the enclosed generator set when installed with or without the sub-base tank. This certification also includes the sub-base tank as a stand-alone accessory. The generator set and included options shall be a catalogue design and factory supplied. The generator set and applicable options shall be installed and attached to the building structure per the manufacturer supplied seismic installation instructions. This certification **excludes** all non-factory supplied accessories, including but not limited to mufflers, isolation/restraint devices, remote control panels, remote radiators, pumps and other electrical/mechanical components.



VMA-51071-01C (Revision 01)
 Issue Date: July 3, 2015
 Revision Date: January 29, 2016
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Notes and Comments:

1. All equipment listed herein successfully passed the seismic acceptance criteria for shake testing non-structural components and systems as set forth in the ICC AC-156. The Test Response Spectrum (TRS) enveloped the Required Response Spectrum (RRS) for all units tested. The units cited in this certification were representative sample(s) of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing as functional testing was completed by the equipment manufacturer before and after the seismic simulations. Although a seismic qualified unit inherently contains some wind resisting capacity, that capacity is undetermined and is excluded from this certification. Snow/Ice loads have been neglected and thus limit the unit to be installed both indoors (covered by an independent protective structure) and out of doors (exposed to accumulating snow/ice) for ground snow loads no greater than 30 psf for all applications.
2. The following building codes are addressed under this certification:

IBC 2012 – referencing ASCE7-10 and ICC AC-156
IBC 2015 – referencing ASCE7-10 and ICC AC-156
3. Refer to the manufacturer supplied installation drawings for anchor requirements and mounting considerations for seismic applications. Required anchor locations, size, style, and load capacities (tension and shear) are specified on the installation drawings. Mounting requirement details such as anchor brand, type, embedment depth, edge spacing, anchor-to-anchor spacing, concrete strength, special inspection, wall design, and attachment to non-building structures must be outlined and approved by the Engineer of Record for the project or building. Structural walls, structural floors, and housekeeping pads must also be seismically designed and approved by the project or building Structural Engineer of Record to withstand the seismic anchor loads as defined on the installation drawings. The installing contractor is responsible for observing the installation detailed in the seismic installation drawings and the proper installation of all anchors and mounting hardware.
4. For this certificate and certification to remain valid, this certificate must correspond to the “Seismic Certification Label” found affixed to the unit by the factory. The label ensures the manufacturer built the unit in conformance to the IBC seismic design criteria set forth by the Certified Seismic Qualification Agency, The VMC Group, and meets the seismic design levels claimed by this certificate.
5. Mechanical, Electrical, and Plumbing connections to the equipment must be flexibly attached as to not transfer load through the connection. The structural integrity of any conduit, cable trays, piping, ductwork and/or flexible connections is the responsibility of others. This certification does not guarantee the equipment will remain compliant to UL or NEMA standards after a seismic event.
6. This certificate applies to units manufactured at 1400 73rd Ave NE, OF 143, Minneapolis, MN 55432.
7. The qualified seismic design level stated is the lowest for all series this certificate covers, for more detailed ranges of qualified seismic design levels, see the certified product tables.

John P. Giuliano, PE
President, The VMC Group

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