



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx UL 17.0076X

Issue No: 0

Certificate history:

[Issue No. 0 \(2017-09-13\)](#)

Status: **Current**

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Date of Issue: **2017-09-13**

Applicant: **Elwood Corp.**  
2701 N. Green Bay Road  
Racine, WI 53154  
**United States of America**

Equipment: **Servo Motors - M43X-XXXX-BXXX, M43X-XXXX-CXXX, M44X-XXXX-BXXX, M44X-XXXX-CXXX, M46X-XXXX-BXXX, M46X-XXXX-CXXX**

*Optional accessory:*

Type of Protection: **Dust Ignition Protection by Enclosure "tb"**

Marking:  
Ex tb IIIC T135°C Db IP6X (Models M43X and M46X)  
Ex tb IIIC T115°C Db IP6X (Models M44X)  
-25°C to +40°C

*Approved for issue on behalf of the IECEx  
Certification Body:*

Katy A. Holdredge

*Position:*

Senior Staff Engineer

*Signature:  
(for printed version)*

*Date:*

2017-09-13

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**UL LLC**  
333 Pfingsten Road  
Northbrook IL 60062-2096  
United States of America





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Manufacturer: **Elwood Corp.**  
2701 N. Green Bay Road  
Racine, WI 53154  
**United States of America**

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-31 : 2013** Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

[US/UL/ExTR17.0088/00](#)

Quality Assessment Report:

[FR/LCIE/QAR12.0003/04](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

These motors are total enclosed non-ventilated permanent magnet, servo specialty motors. The motors have a three-phase connection wound field. They are intended to be controlled by a pulse width modulated (PWM) variable frequency drive. The speed of the motor is varied by changing the frequency of the power supplied. The drive frequency and voltage are changed by rapid pulse width modulating of a bus voltage. The current waveform used is sinusoidal. The motors are rated for a 320 max or 640 max bus voltages.

The motors are brushless designs employing a feedback device that controls the motor rotation and shaft position. The motors are temperature limited with over temperature (OTL) devices installed in the windings. The OTL is an automatic resetting device and should be connected directly into a power disabling or latched (locked-out) type circuit that requires manual resetting.

An installation manual is provided specifying the power supply requirements, the PWM controller output and performance characteristics required, the resolver ratings, thermostat ratings and connections and the motor performance curves when held within the specified limits of operation.

Please see Annex for additional information.

### SPECIFIC CONDITIONS OF USE: YES as shown below:

- Motors manufactured with permanently connected unterminated conductors and therefore marked with X to indicate the need for appropriate protection of the free end of the conductors. The supplied lead seal is not sufficient for the protection method. An IECEx conduit fitting with an integral seal complying with the requirements of IEC 60079-0, Ed. 6 and IEC 60079-31, Ed. 2 must be supplied by the end user.
- Ambient range is -25°C to +40°C for all applicable motor models.
- The motors must be excited with 3-phase sinusoidal currents in proper relationship to the motor's generated voltage of back electromotive force at each rotor position. A pulse-width-modulated (PWM) current amplitude, frequency and phase for operation of the rotor within its specification. The PWM switching frequency is specified at a minimum of 3 kHz.

### Annex:

[Annex to IECEx UL 17 0076X Issue 0.pdf](#)



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## TYPE DESIGNATION

M4    3    2    =    N    N    N    0    =    B    G    0    8    1A  
I    II    III       IV    V    VI    VII       VIII    IX    X    XI    XII

### **I – Basic Designation**

M4 – Square motor

### **II – Motor Frame**

Given as 3, 4, or 6

### **III – Number of magnets (stack length)**

Given as 1, 2, 3, 4, or 5

### **IV – Designation of speed**

Given as a letter

### **V – Output Shaft and Flange Dimensions**

Given as a letter

### **VI – Magnet Material**

Given as a letter

### **VII – Brake**

Given as a letter; 0 (zero) designates without brake

### **VIII – Explosion Protected by Dust protected Enclosure and Winding Voltage**

Given as B or C

### **IX – Feedback Device**

Given as a letter or number; 0 (zero) designates without feedback device

### **X – Secondary Feedback Device**

Given as a letter; 0 (zero) designates without feedback device

### **XI – Connection method**

Given as a letter or number

### **XII – (Optional) Factory Assigned Options**

Two characters, given as a combination of letters or numbers



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## PARAMETERS RELATING TO THE SAFETY

M43: 230 or 460V, 5.7A, Continuous Duty or 5 seconds on 55 seconds off

M44: 230 or 460V, 8.7A, Continuous Duty or 5 seconds on 55 seconds off

M46: 230 or 460V, 23.5A, Continuous Duty or 5 seconds on 55 seconds off

## MARKING

		ELWOOD CORPORATION Racine, Wisconsin USA 1-800-558-9489 www.elwood.com	
Specially Motor for Hazardous Locations LISTED E149083	<input type="checkbox"/>	0081 II 2 D DEMKO 17 ATEX 1923X Ex tb IIIC T135°C Db IP6X IECEX UL 17.0076X	<input type="checkbox"/>
Class II, Groups E, F & G See Install./Oper. Manuals			
Model No.		S.N.	
Rated:	HP, kW, A, RPM	Rated:	HP, kW, A, RPM
Stall:	Lb.in., Nm, A, $\frac{3}{VRMS}$	Stall:	Lb.in., Nm, A, $\frac{3}{VRMS}$
Rated Freq:	Hz. Freq. Range: 0 to Hz.	Rated Freq:	Hz. Freq. Range: 0 to Hz.
Rated Amb:	40 °C Oper. Temp: °C,	Rated Amb:	40 °C Oper. Temp: °C,
PERM. LUBRICATED BALL BEARINGS	CONTINUOUS DUTY CYCLE	IP	Ins.Cl: H Temp. Limited
Permanent Magnet AC Servo Motor		Permanent Magnet AC Servo Motor	