

EU-TYPE EXAMINATION CERTIFICATE



- [1]
- [2] **Equipment or Protective System intended for use
in Potentially Explosive Atmospheres
Directive 2014/34/EU**
- [3] EU-Type Examination Certificate Number: **DEMKO 16 ATEX 1817X Rev. 1**
- [4] Product: **M43X-XXXX-8XXX, M43X-XXXX-9XXX, M44X-XXXX-8XXX, M44X-XXXX-9XXX, M46X-XXXX-8XXX,
M46X-XXXX-9XXX Servo Motors**
- [5] Manufacturer: **Elwood Corp.**
- [6] Address: **2701 N. Green Bay Road, Racine, WI 53154 USA**
- [7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- [8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. **4787948191-16ATEX1817X**
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013 EN 60079-1:2014
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.
- [11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.
- [12] The marking of the product shall include the following:

II 2 G Ex db IIB T3 Gb

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2017-01-31
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Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com



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Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 16 ATEX 1817X Rev. 1

Description of Product

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.

<u>M4</u>	<u>3</u>	<u>2</u>	=	<u>N</u>	<u>N</u>	<u>N</u>	<u>0</u>	=	<u>8</u>	<u>G</u>	<u>0</u>	<u>8</u>	<u>1A</u>
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 Flameproof Enclosure and Winding Voltage

Given as 8, or 9

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

Temperature range

The ambient temperature range is -20 °C to +40 °C.

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Schedule

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Electrical data

M43, M44, and M46 servo motors vital rated values:

	M43	M44	M46
Max Continuous HP	1.29	2.21	5.11
Max. rated rpm at continuous operation	5500	5000	3500
Voltage rating, V	230 or 460	230 or 460	230 or 460
Max. current, continuous, A	5.7	8.7	23.6
Duty rating	continuous	continuous or 5 seconds on 55 seconds off	continuous

Routine tests

Routine tests according to EN 60079-1 cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

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Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

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Specific conditions of use:

- 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 ATEX conduit fitting with an integral seal complying with the requirements of EN 60079-0:2012+A11: 2013 and EN 60079-1:2014 must be supplied by the end user.
- If replacement of screws and/or locknuts that secure the front end bell to the stator assembly is necessary, they must be replaced with screws and locknuts having the following dimensions and minimum tensile strength.

Model No.	Dimension, screws	Material	Tensile Strength	Dimensions, nuts	Material	Tensile Strength
M43X	M4 x 0.7 x 16	Steel	174 KSI	M5	Steel	116 KSI
M44X	M5 x 0.8 x 16	Steel	174 KSI	M5	Steel	116 KSI
M46X	M5 x 0.8 x 25	Steel	174 KSI	M5	Steel	116 KSI

- If replacement of the tie bolts that secure the rear end bell and the motor cover to the stator assembly is necessary, they must be replaced with M5 x 0.8-6g tie bolts. The bolts must be made of steel and have a minimum tensile strength of 58 KSI.
- If replacement of lock nuts is necessary, they must be replaced with M5 x 0.8-6H lock nuts. The lock nuts must be made of steel and have a minimum tensile strength of 116 KSI.
- 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.
- Flameproof joints are not intended to be repaired, contact Elwood Corp. for information.


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Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information



The trademark  will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.