



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx CNEX 19.0019X**

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Certificate history:

Status: **Current**

Issue No: 7

[Issue 6 \(2024-05-30\)](#)

[Issue 5 \(2024-01-04\)](#)

[Issue 4 \(2022-09-30\)](#)

[Issue 3 \(2020-11-30\)](#)

[Issue 2 \(2020-07-07\)](#)

[Issue 1 \(2020-07-03\)](#)

[Issue 0 \(2020-03-30\)](#)

Date of Issue: 2025-01-14

Applicant: **Svend Hoyer A/S**
Over Hadstenvvej 42
DK-8370 Hadsten
Denmark

Equipment: **Explosion proof three-phase induction motors Model HMCX-80-355**

Optional accessory:

Type of Protection: **db, db eb, tb, tc**

Marking: Ex db eb IIB/IIC T4/T5 Gb

Ex db IIB/IIC T4/T5 Gb

Ex tb IIB/IIC T130°C Db

Ex tc IIB/IIC T130°C Dc

Approved for issue on behalf of the IECEx
Certification Body:

Hou Yandong

Position:

Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

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CNEX-Global B.V.
Utrechtseweg 310-B42,
6812 AR ARNHEM
Netherlands





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Date of issue: 2025-01-14

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Manufacturer: **Svend Hoyer A/S**
Over Hadstenvej 42
DK-8370 Hadsten
Denmark

Manufacturing locations: **Svend Hoyer Power Transmission (Ningbo) Co., Ltd**
No.1 Building 8, No.338, Anju Road,
Beilun District
No 1-1, Building 5, No. 338, Anju
Road, Beilun District
Ningbo, Zhejiang 315822
China

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

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

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with 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 Reports:

NL/CNEX/ExTR19.0019/00
NL/CNEX/ExTR19.0019/03
NL/CNEX/ExTR19.0019/06

NL/CNEX/ExTR19.0019/01
NL/CNEX/ExTR19.0019/04
NL/CNEX/ExTR19.0019/07

NL/CNEX/ExTR19.0019/02
NL/CNEX/ExTR19.0019/05

Quality Assessment Reports:

IT/CES/QAR14.0004/06
NL/CNEX/QAR20.0004/02

NL/CNEX/QAR20.0004/00

NL/CNEX/QAR20.0004/01



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Explosion proof three-phase induction motors model HMCX-80-355, with self-ventilated, squirrel-cage rotor and seated with ball bearings or roller bearings. The enclosure of the motor and terminal box is made in cast iron. The enclosure of the motor is constructed in type of protection flameproof enclosure 'db' for explosive gas atmospheres. The terminal box can be constructed in type of explosion protection 'db' or 'eb', for explosive gas atmospheres. The motor enclosure and terminal box can also be constructed in type of explosion protection 'tb' or 'tc', for use in explosive dust environments. The motors can be operated direct-on-line (DOL), or with variable speed converters (VSD), see details below and in the instruction manual. For VSD the max speed is 5400 rpm.

For nomenclature and further details, see the Annex to this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The ambient temperature range for DOL operation is limited to -40 °C ... +60 °C.

The ambient temperature range for VSD operations is limited to -40 °C ... +50 °C (for frame sizes 80-315) and to -40 °C ... +45 °C (for frame size 355)

The ambient temperature range for special size HMCX-280M-2 (105kW, 440V, 60Hz), is limited to -40 °C ... +50 °C.

The ambient temperature range for special size HMCX-315L2-4 (250kW, 440V, 60Hz), is limited to -40 °C ... +50 °C.

The ambient temperature range -40 °C ... +45 °C with temperature class T5 is applicable (for DOL operation only) for sizes HMCX-90S, HMCX-90L, HMCX-100L1, HMCX-112M and HMCX-160M. (see also Annex)

For repair of the flameproof joints due regard must be given to the structural specifications provided by the manufacturer. Repair in compliance with the values in Tables 1 and 2 of IEC 60079-1 is not allowed.

All electrical connections shall be tightened with the tightening torques specified in the manufacturer's instructions.

For VSD operation and for duty types other than S1, the motor temperature shall be monitored by the resistance thermometers, or PTC-thermistors, in the stator windings. These devices have to be connected to suitable tripping units that have been functionally tested for this purpose.

For VSD operation, the manufacturer's instructions for machine fed from converters have to be respected.

For VSD operation, the motor was tested with converter power source, with the following specifications:

- switching frequency: ≥ 2000 Hz
- inverter output du/dt : ≤ 1500 V/ μ s

Use fasteners with a minimum yield stress of 640 N/mm².



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Changes for issue 7:

Added a power increase to 355kW max for HMCX-355, with terminal box on the NDE, with sea wave proof fan cover structure.



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Additional information:

The enclosure of the explosion proof three-phase induction motors model HMCX-80-355, successfully passed the tests for the Ingress Protection level IP66 to IEC 60529. The IP degree can be specified as IP55/IP56/IP65/IP66, depending on motor variation and client request.

Annex:

[P24089IA-CCA certificate IECEx CNEX19.0019X issue 7 Annex.pdf](#)

Annex to Certificate IECEx CNEX 19.0019X Issue 7

Equipment or Protective System: **Explosion proof three-phase induction motors
Model HMCX-80-355**

Applicant: **Svend Hoyer A/S**

Address: **Over Hadstenvej 42, DK-8370 Hadsten, Denmark**

Nomenclature for motor model HMCX-315ab-c

HM	-	Hoyer Motor
C	-	Cast Iron
X	-	Explosion proof
315	-	shaft height (80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355)
a	-	Frame length: M = medium frame, L = long frame, S = short frame
b	-	Core length: 1 = short core, 2 = long core
c	-	Number of poles: 2, 4, 6, 8, 10, 12, 14, 16

The motor models that are covered by this certificate are detailed in Annex A of this certificate and in the Test Report Cover document. (ref. **P24089IA-CS**).

Temperature class:

The assigned temperature class is T4, unless specified otherwise in Annex A.

Electrical Data:

Rated power: 0.37~375kW

For rated power, frequency and ambient temperature range per motor model, see Annex A.

Rated voltages for power ≤3kW:

200V, 220V, 230V, 240V, 290V, 380V, 400V, 415V, 440V, 460V, 480V, 500V, 525V, 550V, 575V, 660V, 690V, 220/380V, 230/400V, 240/415V, 380/660V, 400/690V, 50/60Hz

Rated voltages for power >3kW and frame size 112-280:

230V, 290V, 380V, 400V, 415V, 440V, 460V, 480V, 500V, 525V, 550V, 575V, 660V, 690V, 380/660V, 400/690V, 50/60Hz

Rated voltages for power >3kW and frame size 315-355:

230V, 290V, 380V, 400V, 415V, 440V, 460V, 480V, 500V, 525V, 550V, 575V, 660V, 690V, 720V, 1000V, 1140V, 380/660V, 400/690V, 415/720V, 550/950V, 660/1140V, 50Hz/60Hz

Certification Body: CNEX-Global B.V., Utrechtseweg 310-B42, 6812 AR, Arnhem, the Netherlands

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Note: The motors are originally designed for 400V AC, 50 Hz. When used with 60Hz and voltages different from 400V, the rated power can be multiplied by the following factor:

Rated voltage (V)	380	400	415	440	460	480
Rated power	1	1	1.05	1.1	1.15	1.2

See Annex A and the Test Report Cover Sheet (ref. **P24089IA-CS**), for the electrical data per motor model.

Descriptive Documents:

Detailed in the Test Report Cover document. (ref. **P24089IA-CS**).

Mounting Instructions:

See manufacturer's instructions.

Installation Instructions:

All cable entry devices and blanking elements shall be certified to valid standards for use in explosive gas or dust atmospheres (as applicable), with the same IP rating as the motor, suitable for the conditions of use and correctly installed.

All parts installed in the Ex e terminal box shall be certified to valid standards for use in explosive gas atmospheres, suitable for the conditions of use and correctly installed.

Unused apertures shall be closed with suitable certified blanking elements. See manufacturer's instructions.

Routine tests:

Routine overpressure tests on enclosure parts are detailed in the Test Report Cover Sheet. (ref. **P24089IA-CS**).

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Annex A. Overview of motor specifications per motor model covered by this certificate

Frame size	No. of poles	Power [kW]	Frequency [Hz]	Model numbers	Ambient temperature range (°C)
80	2	0.75	50/60	HMCX-80M1-2	1
	2	1.1	50/60	HMCX-80M2-2	1
	4	0.55	50/60	HMCX-80M1-4	1
	4	0.75	50/60	HMCX-80M2-4	1
	6	0.37	50/60	HMCX-80M1-6	1
	6	0.55	50/60	HMCX-80M2-6	1
90	2	1.5	50/60	HMCX-90S-2	2
	2	2.2	50/60	HMCX-90L-2	2
	4	1.1	50/60	HMCX-90S-4	1
	4	1.5	50/60	HMCX-90L-4	1
	6	0.75	50/60	HMCX-90S-6	1
	6	1.1	50/60	HMCX-90L-6	1
100	2	3	50/60	HMCX-100L-2	1
	4	2.2	50/60	HMCX-100L1-4	2
	4	3	50/60	HMCX-100L2-4	1
	6	1.5	50/60	HMCX-100L-6	1
	8	0.75	50/60	HMCX-100L1-8	1
	8	1.1	50/60	HMCX-100L2-8	1
112	2	4	50/60	HMCX-112M-2	2
	4	4	50/60	HMCX-112M-4	1
	6	2.2	50/60	HMCX-112M-6	1
	8	1.5	50/60	HMCX-112M-8	1
132	2	5.5	50/60	HMCX-132S1-2	1
	2	7.5	50/60	HMCX-132S2-2	1
	4	5.5	50/60	HMCX-132S-4	1
	4	7.5	50/60	HMCX-132M-4	1
	6	3	50/60	HMCX-132S-6	1
	6	4	50/60	HMCX-132M1-6	1
	6	5.5	50/60	HMCX-132M2-6	1
	8	2.2	50/60	HMCX-132S-8	1
	8	3	50/60	HMCX-132M-8	1
160	2	11	50/60	HMCX-160M1-2	1
	2	15	50/60	HMCX-160M2-2	1
	2	18.5	50/60	HMCX-160L-2	1
	4	11	50/60	HMCX-160M-4	2
	4	15	50/60	HMCX-160L-4	1
	6	7.5	50/60	HMCX-160M-6	1

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	6	11	50/60	HMCX-160L-6	1
	8	4	50/60	HMCX-160M1-8	1
	8	5.5	50/60	HMCX-160M2-8	1
	8	7.5	50/60	HMCX-160L-8	1
180	2	22	50/60	HMCX-180M-2	1
	4	18.5	50/60	HMCX-180M-4	1
	4	22	50/60	HMCX-180L-4	1
	6	15	50/60	HMCX-180L-6	1
	8	11	50/60	HMCX-180L-8	1
200	2	30	50/60	HMCX-200L1-2	1
	2	37	50/60	HMCX-200L2-2	1
	4	30	50/60	HMCX-200L-4	1
	6	18.5	50/60	HMCX-200L1-6	1
	6	22	50/60	HMCX-200L2-6	1
	8	15	50/60	HMCX-200L-8	1
225	2	45	50/60	HMCX-225M-2	1
	4	37	50/60	HMCX-225S-4	1
	4	45	50/60	HMCX-225M-4	1
	6	30	50/60	HMCX-225M-6	1
	8	18.5	50/60	HMCX-225S-8	1
	8	22	50/60	HMCX-225M-8	1
	10	15	50/60	HMCX-225S-10	1
	10	18.5	50/60	HMCX-225M-10	1
250	2	55	50/60	HMCX-250M-2	1
	4	55	50/60	HMCX-250M-4	1
	6	37	50/60	HMCX-250M-6	1
	8	30	50/60	HMCX-250M-8	1
	10	22	50/60	HMCX-250M-10	1
	12	18.5	50/60	HMCX-250M-12	1
280	2	75	50/60	HMCX-280S-2	1
	2	90	50/60	HMCX-280M-2	1
	2	105	60	HMCX-280M-2	5
	4	75	50/60	HMCX-280S-4	1
	4	90	50/60	HMCX-280M-4	1
	6	45	50/60	HMCX-280S-6	1
	6	55	50/60	HMCX-280M-6	1
	8	37	50/60	HMCX-280S-8	1
	8	45	50/60	HMCX-280M-8	1
	10	30	50/60	HMCX-280S-10	1
	10	37	50/60	HMCX-280M-10	1

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	12	22	50/60	HMCX-280S-12	1
	12	30	50/60	HMCX-280M-12	1
	14	18.5	50/60	HMCX-280S-14	1
	14	22	50/60	HMCX-280M-14	1
315	2	110	50/60	HMCX-315S-2	3
	2	132	50/60	HMCX-315M-2	3
	2	160	50/60	HMCX-315L1-2	3
	2	185	50/60	HMCX-315L-2	3
	2	200	50/60	HMCX-315L2-2	3
	4	110	50/60	HMCX-315S-4	3
	4	132	50/60	HMCX-315M-4	3
	4	160	50/60	HMCX-315L1-4	3
	4	185	50/60	HMCX-315L-4	3
	4	200	50/60	HMCX-315L2-4	3
	4	250	60	HMCX-315L2-4	5
	6	75	50/60	HMCX-315S-6	3
	6	90	50/60	HMCX-315M-6	3
	6	110	50/60	HMCX-315L1-6	3
	6	132	50/60	HMCX-315L2-6	3
	8	55	50/60	HMCX-315S-8	3
	8	75	50/60	HMCX-315M-8	3
	8	90	50/60	HMCX-315L1-8	3
	8	110	50/60	HMCX-315L2-8	3
	10	45	50/60	HMCX-315S-10	3
	10	55	50/60	HMCX-315M-10	3
	10	75	50/60	HMCX-315L1-10	3
	10	90	50/60	HMCX-315L2-10	3
	12	37	50/60	HMCX-315S-12	3
	12	45	50/60	HMCX-315M-12	3
	12	55	50/60	HMCX-315L1-12	3
	12	75	50/60	HMCX-315L2-12	3
	14	30	50/60	HMCX-315S-14	3
	14	37	50/60	HMCX-315M-14	3
	14	45	50/60	HMCX-315L1-14	3
	14	55	50/60	HMCX-315L2-14	3
	16	22	50/60	HMCX-315S-16	3
	16	30	50/60	HMCX-315M-16	3
	16	37	50/60	HMCX-315L1-16	3
	16	45	50/60	HMCX-315L2-16	3
355	2	185	50/60	HMCX-355S1-2	4/6

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2	200	50/60	HMCX-355S2-2	4/6
2	220	50/60	HMCX-355M1-2	4/6
2	250	50/60	HMCX-355M2-2	4/6
2	280	50/60	HMCX-355L1-2	4/6
2	315	50/60	HMCX-355L2-2	4/6
2	355	50/60	HMCX-355LX1-2	4/6
2	375	50/60	HMCX-355LX2-2	4
4	185	50/60	HMCX-355S1-4	4/6
4	200	50/60	HMCX-355S2-4	4/6
4	220	50/60	HMCX-355M1-4	4/6
4	250	50/60	HMCX-355M2-4	4/6
4	280	50/60	HMCX-355L1-4	4/6
4	315	50/60	HMCX-355L2-4	4/6
4	355	50/60	HMCX-355LX1-4	4/6
4	375	50/60	HMCX-355LX2-4	4
6	160	50/60	HMCX-355S-6	4/6
6	185	50/60	HMCX-355M1-6	4/6
6	200	50/60	HMCX-355M2-6	4/6
6	220	50/60	HMCX-355L1-6	4/6
6	250	50/60	HMCX-355L2-6	4/6
6	280	50/60	HMCX-355LX1-6	4/6
6	315	50/60	HMCX-355LX2-6	4/6
8	132	50/60	HMCX-355S-8	4/6
8	160	50/60	HMCX-355M-8	4/6
8	185	50/60	HMCX-355L1-8	4/6
8	200	50/60	HMCX-355L2-8	4/6
8	220	50/60	HMCX-355LX1-8	4/6
8	250	50/60	HMCX-355LX2-8	4/6
10	90	50/60	HMCX-355S-10	4/6
10	110	50/60	HMCX-355M1-10	4/6
10	132	50/60	HMCX-355M2-10	4/6
10	160	50/60	HMCX-355L1-10	4/6
10	185	50/60	HMCX-355L2-10	4/6
10	200	50/60	HMCX-355LX1-10	4/6
12	75	50/60	HMCX-355S-12	4/6
12	90	50/60	HMCX-355M1-12	4/6
12	110	50/60	HMCX-355M2-12	4/6
12	132	50/60	HMCX-355L1-12	4/6
12	160	50/60	HMCX-355L2-12	4/6
12	185	50/60	HMCX-355LX1-12	4/6

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14	75	50/60	HMCX-355S-14	4/6
14	90	50/60	HMCX-355M1-14	4/6
14	110	50/60	HMCX-355M2-14	4/6
14	132	50/60	HMCX-355L-14	4/6
14	160	50/60	HMCX-355LX1-14	4/6
16	55	50/60	HMCX-355S-16	4/6
16	75	50/60	HMCX-355M1-16	4/6
16	90	50/60	HMCX-355M2-16	4/6
16	110	50/60	HMCX-355L-16	4/6
16	132	50/60	HMCX-355LX1-16	4/6

Ambient temperature range:

1 = -40 °C to +60 °C (DOL), -40 °C to +50 °C (VSD)

2 = -40 °C to +60 °C (DOL), -40 °C to +50 °C (VSD), -40 °C to +45 °C (DOL T5)

3 = -40 °C to +60 °C (DOL), -40 °C to +50 °C (VSD)

4 = -40 °C to +60 °C (DOL), -40 °C to +45 °C (VSD)

5 = -40 °C to +50 °C (DOL)

6 = -40 °C to +50 °C (DOL), -40 °C to +45 °C (VSD) (only for sea wave cover applications)

Important Notes:

The above stated powers are the maximum power per motor mode. Lower powers per motor model are covered by this certificate. The power varies with the applied frequency.

Special motor options added to this certification:

Special motor option 1:

Frame is installed backwards (terminal box located on the non-drive end), (V1), and adding a sea wave proof fan cover for frame sizes 315, 280 and 200. The rated ambient temperature range is then changed as follows:

Type	Frame size	Pole number	Output	Operation	Ambient temp. range
HMCX	200	2,4,6,8,	See first table above	DOL	-40°C to +60°C
HMCX	200			VSD	-40°C to +50°C
HMCX	280	4	104 kW (at 440 V)	DOL 60Hz	-40°C to +60°C
				VSD 6Hz~100Hz	-40°C to +50°C
HMCX	280	2,4,6,8,10,12, 14	See first table above	DOL	-40°C to +60°C
HMCX	280			VSD	-40°C to +50°C
HMCX	315	2,4,6,8,10,12, 14,16	See first table above	DOL	-40°C to +60°C
HMCX	315			VSD	-40°C to +50°C

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Ex code:

Frame size 200 : Ex db eb IIB/IIC T4 Gb

Frame size 280, 315 : Ex db eb IIC T4 Gb

Special motor option 2:

Temperature class T5 is allowed for the following models, under the below specified conditions:

Type	Frame size	Pole number	Output	Operation	Ambient temp. range
HMCX	90S	2	1.5kW	DOL	-40°C ~ +45°C
HMCX	90L	2	2.2kW	DOL	-40°C ~ +45°C
HMCX	100L1	4	2.2kW	DOL	-40°C ~ +45°C
HMCX	112M	2	4kW	DOL	-40°C ~ +45°C
HMCX	160M	4	11kW	DOL	-40°C ~ +45°C

Special motor option 3:

Addition of sea wave proof fan cover for type:

Type	Frame	Poles	Output	Operation	Ambient temp. range
HMCX	160	2,4,6,8,	See first table above	DOL	-40°C ~ +60°C
				VFD 5H...75Hz; 6Hz...80Hz;	-40°C ~ +50°C
HMCX	355M1	4	220kW	DOL	-40°C ~ +50°C

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