



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

Certificate No.:	IECEX PRE 14.0039U	Issue No: 3	<u>Certificate history:</u>
Status:	Current	Page 1 of 4	Issue No. 3 (2017-01-31)
Date of Issue:	2017-01-31		Issue No. 2 (2015-10-26)
Applicant:	Barel AS Havnveien 8 9917 Kirkenes Norway		Issue No. 1 (2015-04-24)
Equipment:	Electronic ballasts		Issue No. 0 (2014-10-29)
<i>Optional accessory:</i>			
Type of Protection:	Encapsulated and Increased safety		
Marking:	Ex eb mb IIC T4		

Approved for issue on behalf of the IECEx
Certification Body:

Bjørn Spongsveen

Position:

Certification Manager

Signature:
(for printed version)

Date:

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](http://www.iecex.com).

Certificate issued by:

DNV Nemko Presafe AS
Gautadalleen 30
P.O.Box 73 Blindern
0314 Oslo
Norway





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Manufacturer: **Barel AS**
Havnveien 8
9917 Kirkenes
Norway

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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-18 : 2014 Edition:4.0	Explosive atmospheres – Part 18: Equipment protection by encapsulation “m”
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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:

[NO/PRE/ExTR14.0034/00](#)
[NO/PRE/ExTR14.0034/03](#)

[NO/PRE/ExTR14.0034/01](#)

[NO/PRE/ExTR14.0034/02](#)

Quality Assessment Report:

[NO/NEM/QAR08.0001/04](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

This certificate covers Barel AS electronic ballasts for fluorescent and LED lamps. It is certified as Ex components and includes two different versions, HFX and HFXE. HFX contains the electronic ballasts circuit and HFXE contains the same circuit as HFX but in addition includes Emergency Inverter for connection to 4, 6 or 7 Ni-Cd cells, 4.8V, 7.2V or 8.4V, 4Ah. The circuit is totally encapsulated and comply with the requirements in IEC 60079-18, "Ex mb". The electronic ballast comply with applicable requirements in IEC 60079-7, "Ex eb", 6.3.2 and the external connections comply with field and factory connections requirements of IEC 60079-7, "Ex eb", Cl. 4.2.

HFX: Encapsulated electronic ballast for fluorescent light and LED lamps.

HFXE: Encapsulated electronic ballast for fluorescent light and LED lamps with emergency inverter.

For electrical data and Schedule of limitations see Annex to IECEx PRE 14.0039U.

CONDITIONS OF CERTIFICATION: NO



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 3: New version of HFX/HFXE LED with lower output current to the LED module, 200mA for 11951 and 12951 and 200-370mA for 11949-XXX and 12949-XXX.

New circuit for lower and better control of charge current/voltage of HFXE 11951 and 11949-XXX.

Issue 2: Added HFX and HFXE 1-2x58W T8 ballast and the ability to use the HFX and HFXE 18W and 36W T8 ballast towards 1 fluorescent tubular lamp as well as two, HFX 1-2x18W and 1-2x36W.

Issue 1: Added HFX and HFXE LED, voltage supply for HFX 18 T8, HFXE 18 T8 was changed from 110VDC to 220VDC on manufacturers request, Tc point changed on HFX and HFXE T8 from 87°C to 85°C. The certificate was also updated to latest IEC 60079-18:2014 standard.

Annex:

[Annex to IECEx PRE 14.0039U Issue 3.pdf](#)

Annex to the certificate: IECEx PRE 14.0039U Issue 3

Type Identification and electrical data

Model	Art	Lamp power	Input Voltage AC 50/60Hz	Input Voltage DC	Input Current	PF	TC
HFX 18 T8	12918	1-2x18W T8	110-254VAC	220-250VDC	0,13-0,32A	0,95	+85°C
HFX 36 T8	12936	1-2x36W T8	110-254VAC	220-250VDC	0,28-0,59A	0,98	+85°C
HFX 58 T8	12958	1-2x58W T8	220-254VAC	220-250VDC	0,23-0,57A	0,98	+85°C
HFX LED	12949	LED 25-50W, 370mA	110-254VAC	220-250VDC	0,11-0,55A	0,92-0,96	+80°C
HFX LED	12949-XXX*	LED 12,5-50W, *200-370mA	110-254VAC	220-250VDC	0,06-0,55A	0,92-0,96	+80°C
HFX LED	12951	LED 12,5-25W, 200mA	110-254VAC	220-250VDC	0,06-0,28A	0,92-0,96	+80°C

Model	Art	Lamp power	Input Voltage AC 50/60Hz	Input Voltage DC	Input Current	PF	TC	Battery
HFXE 18 T8	11918	1-2x18W T8	110-254VAC	220-250VDC	0,13-0,32A	0,95	+85°C	4,8V or 8,4V, 4Ah, 4or7xNi-Cd.
HFXE 36 T8	11936	1-2x36W T8	110-254VAC	220-250VDC	0,28-0,59A	0,95	+85°C	4,8V or 8,4V, 4Ah, 4or7xNi-Cd.
HFXE 58 T8	11958	1-2x58W T8	220-254VAC	220-250VDC	0,23-0,57A	0,95	+85°C	8,4V, 4Ah, 7xNi-Cd.
HFXE LED	11949	LED 25-50W, 370mA	110-254VAC	220-250VDC	0,11-0,55A	0,90-0,95	+80°C	4,8V, 4Ah, 4xNi-Cd.
HFXE LED	11949-XXX*	LED 12,5-50W, *200-370mA	110-254VAC	220-250VDC	0,06-0,55A	0,90-0,95	+80°C	7,2V, 4Ah, 6xNi-Cd.
HFXE LED	11951	LED 12,5-25W, 200mA	110-254VAC	220-250VDC	0,06-0,28A	0,90-0,95	+80°C	4,8V, 4Ah, 4xNi-Cd.

Routine Test:

- Visual inspection according to clause 9.1 of EN 60079-18
- Dielectric strength test according to clause 9.2 of EN 60079-18, at minimum 1608VAC r.m.s. for HFX and HFXE T8 and 1508VAC r.m.s. for HFX and HFXE LED

Schedule of Limitations:

- The temperature of the TC point must not be exceeded
- The minimum operating temperature of the
 - o HFX and HFXE T8 ballasts is -30°C
 - o HFX LED ballast is -42°C
 - o HFXE LED ballast is -52°C
- The HFX and HFXE LED have an output rating of 50-130V and 200-370mA. The current is limited to 850mA and breaking capacity of 1500A and has been tested together with Barel ARC LED 600 and 1200, certified Presafe 15 ATEX 6296U and IECEx PRE 15.0014U.
- Charging current = 220mA, 80mA permanent for HFXE T8 and HFXE LED type 11949. 200mA for 11949-XXX and 11951.
- With one fault condition of the charging system, the charging power is limited to 2W by a transformer and the current is limited to 300mA for HFXE T8 and HFXE LED type 11949. 200mA for 11949-XXX and 11951.
- Discharge current = 0.5A - 1.75A.
- Discharge cut-off voltage = 1.0V/cell i.e. 4.0V for 4.8V battery, 6.0V for 7.2V and 7.2V for 8.4V battery.
- The fault current on the battery input is limited to 6.8A.
- HFX, HFXE T8 have an enhanced voltage according to Cl. 5.3.7.5 of IEC 60079-7, 304Vrms.
- The indicator LED outputs has the following nominal ratings: 3V, 14mA and is limited to 5.4V and 18.3mA.
- The ballast shall be mounted inside an Ex e luminaire and not directly exposed to light.

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Annex to the certificate: IECEx PRE 14.0039U Issue 3

- The terminal has a rating of 450V, Torque 0.5Nm and capacity on the screw side of one conductor with dimensions 1.0 - 2.5mm² rigid or flex.