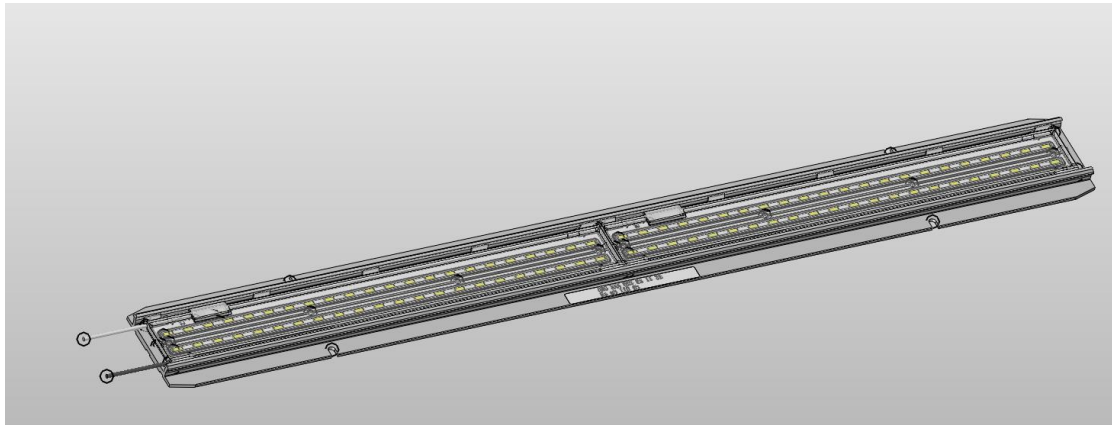


# TECHNICAL DATA

## ARC BG5

### LED MODULE FOR Ex-ENVIRONMENT



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Rev 10  
Date: 05.07.2021

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## 1 General

These operating instructions apply to the products listed under 3.1.  
Barel reserves the right to change technical specifications without further notice.  
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### 1.1 Manufacturer

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www.barel.no  
E-Mail: [sales@barel.no](mailto:sales@barel.no)

### 1.2 Applications

The ARC LED MODULE is designed to replace fluorescent lamps in Ex e luminaires. State of the art LED technology is utilized to increase efficiency and cold-area performance over fluorescent solutions. The LED system is suitable for installation in Ex e enclosures, together with a suitable LED driver like the Barel HFX or HFXE LED. This luminaire is suitable for use in explosive gas atmospheres like:

- Oil Industry                      On- & Off-shore Installations, Gas Stations, Fuel Reservoirs, Oil Tankers
- Chemical Industry              Production Plants

## 2 Approvals

Approvals:

- QAN/QAR    0470 Nemko 01ATEX452Q/NO/NEM/QAR08.0001/04
- Ex protection Code                              Ex II 2 G Ex mb IIC
- IECEX Certificate:                                IECEX EXV 19.0027U
- ATEX no.    Ex Veritas 19 ATEX 0478U

According to directives and standards listed:

*ATEX Directive 2014/34/EU*

EN 60079-0:2018 Explosive atmospheres -- Part 0: Equipment - General requirements  
EN 60079-18:2015/A1:2017 Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"

*IECEX Scheme*

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements  
IEC 60079-18:2014/AMD1:2017 Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"  
IEC 60079-28:2015 Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

*Low Voltage Directive 2014/35/EU*

EN 62031:2008 LED modules for general lighting - Safety specifications

*RoHS Directive 2011/65/EU*

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

### 3 Technical data

#### 3.1 Product range

Barel art	Name	Length mm	Color temp CRI80	Input rating DC	Total lumen output (Calc)	Ta
650383	ARC BG5 300 830	290	3000K	370mA/32V	1824	-40 to +76° C
650384	ARC BG5 300 840	290	4000K		1903	
650385	ARC BG5 300 850	290	5000K		1913	
650386	ARC BG5 300 857	290	5700K		1936	
650683	ARC BG5 600 830	574	3000K	370mA/64V	3649	
650684	ARC BG5 600 840	574	4000K		3805	
650685	ARC BG5 600 850	574	5000K		3829	
650686	ARC BG5 600 857	574	5700K		3873	
651283	ARC BG5 1200 830	1134	3000K	370mA/128 V	7298	
651284	ARC BG5 1200 840	1134	4000K		7611	
651285	ARC BG5 1200 850	1134	5000K		7656	
651286	ARC BG5 1200 857	1134	5700K		7745	
651283HF	ARC BG5 1200 830 HF	1134	3000K	550mA/128 V	10735	-40 to +66° C
651284HF	ARC BG5 1200 840 HF	1134	4000K		11208	
651285HF	ARC BG5 1200 850 HF	1134	5000K		11276	
651286HF	ARC BG5 1200 857 HF	1134	5700K		11343	
651583	ARC BG5 1500 830	1412	3000K	370mA/160 V	9122	-40 to +76° C
651584	ARC BG5 1500 840	1412	4000K		9514	
651585	ARC BG5 1500 850	1412	5000K		9569	
651586	ARC BG5 1500 857	1412	5700K		9682	
651583HF	ARC BG5 1500 830 HF	1412	3000K	550mA/160 V	13419	-40 to +66° C
651584HF	ARC BG5 1500 840 HF	1412	4000K		14010	
651585HF	ARC BG5 1500 850 HF	1412	5000K		14095	
651586HF	ARC BG5 1500 857 HF	1412	5700K		14179	

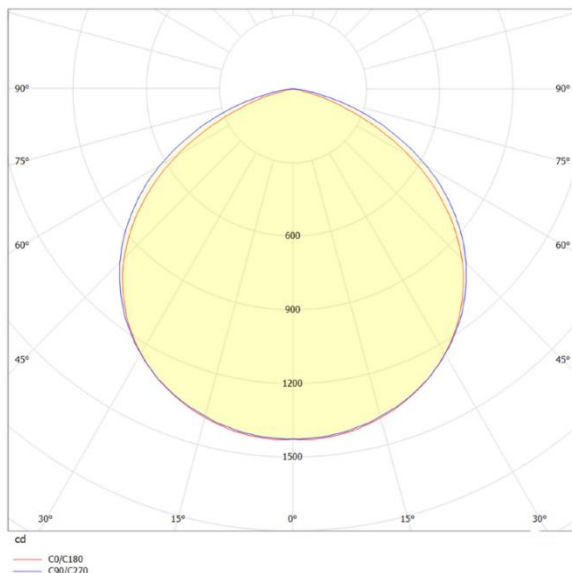
General tolerance +/- 10%.

Within 3-step MacAdam.

Photometric measurements must be done in final application.

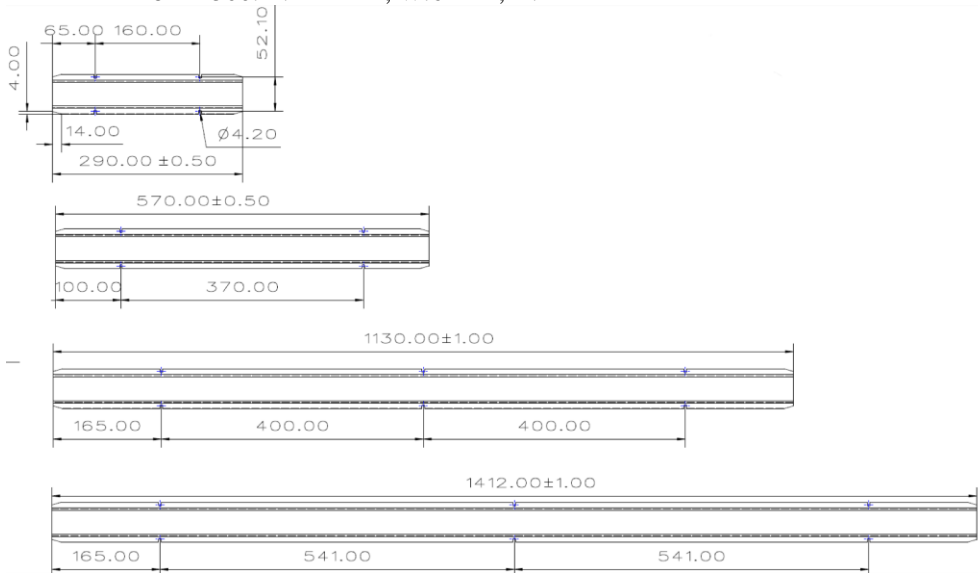
#### 3.2 Polar diagram

Luminous intensity distribution (polar)



### **3.3 Mechanical data:**

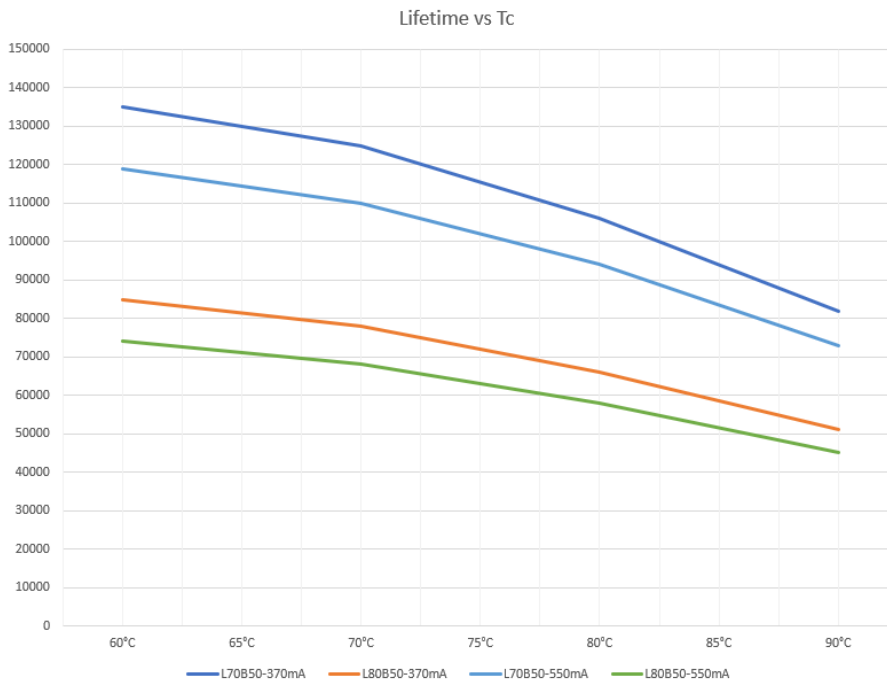
- Aluminium profile to be fastened with screws or other suitable means.
- Dimensions:
  - 300: L:290mm, W:61mm, H:11mm
  - 600: L:570mm, W:61mm, H:11mm
  - 1200: L:1130mm, W:61mm, H:11mm
  - 1500: L:1412mm, W:61mm, H:11mm



### **3.4 Optical data:**

- Light output and performance to be tested in actual application.
- Separate diffuser could be used for glare reduction and light pattern shaping. (available as kit)

### **3.5 Expected lifetime:**



## **4 Installation**

These components do not cause harm or injury when used as specified in these instructions. If this equipment is not utilized in a manner specified by the manufacturer, the protection by the equipment may be impaired. Wire length:

- ARC 300: wires L=150mm
- ARC 600: wires L=350mm
- ARC 1200: wires L=850mm
- ARC 1500: wires L=1150mm

Do not energize circuit before all components and LED module are connected properly.

In case of no function or malfunction: first de-energize the circuit. Disconnect mains and battery supply before LED module is disconnected.

The LED module must be connected to correct polarity.

Second layer of wire insulation should be considered depending on installation class.

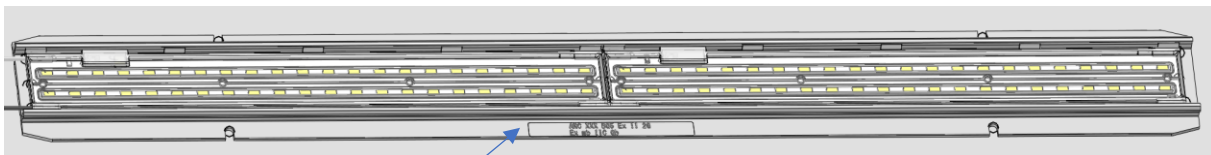
Wires should be secured and protected from damage in installation. Barel recommends ferrule on wire end.

### **4.1 Temperature:**

Limiting temperature “Ta/T ambient” is the temperature of the air in the immediate vicinity of the component. (IEC 60079-0:2017 Cl 3.1) ARC BG5 is suitable for use in ambient temperature range from -40°C to +76°C for 370mA, or +66°C for 550mA version.

The Tc temperature is directly related to the Tj of the LED – and is used as reference for lifetime calculations. Tc is to be measured on the side of the aluminum profile – next to the marking label.

- The Tc should not exceed 85°C in normal operation.
- The internal – non-resettable- thermal fuse will limit the maximum surface temperature to not exceed 100°C under fault conditions.



Tc to be measured on edge of profile – next to marking label.

### **4.2 Schedule of limitations:**

The ARC BG5 is an updated version of BG4, to include improved design of aluminium profile and assembly, including new versions 300 and 1500.

- When the ARC BG4 or BG5 LED Modules and VSI LED Status Indicator are installed in an enclosure it must comply with the requirements of EN/IEC 60079-0 for a minimum rating of IP54.
- The ARC LED modules must be connected to a suitable constant current LED driver with a minimum rated breaking capacity of 1500A such as the Barel HFX/E LED, note that an external protective device can be used for this purpose.
- The ARC BG5 and VSI indicators have a Service Temperature (Ts) range of -40°C to +95°C and must not be subjected to temperatures, internal ambient air temperatures around the component when incorporated into the end use product, of less than -40°C or greater than 76°C for the 370mA rated model types and less than -40°C or greater than 66°C for the 550mA rated versions.
- The embedded thermal fuses in ARC LED modules will limit the maximum surface temperature to not exceed 100°C under fault conditions.

### **4.3 Electrical connection**

Connect wires to suitable constant current LED driver. White + and black -.  
LED-driver must be de-energized before connection or disconnection of LED module.

**Do not connect or disconnect when circuit is energized.**

### **4.4 Marking**

Example:

650684 ARC BG5 600 840, 3800lm, 370mA/64V, Ts -40 to +95°C  
0470 (Ex) II 2G Ex mb IIC Gb ExV 19ATEX0478U IECEx EXV19.0027U  
BAREL AS, Havneveien 8, Kirkenes, Norway SSSWWYY

### **4.5 ESD:**

ESD (Electrostatic Discharge) protective measures should be considered during installation. Connection wires should not meet charged objects before properly connected to HFX/HFXE LED driver.

## **5 What to do if...**

No light when first connected to the mains:

- Make sure all components are the correct type and suitable for LED module/driver type, mains supply voltage and frequency range.
- Make sure all connections are correct.
- Allow a reset of LED driver.
- Do not attempt to open or repair these units. ARC should be replaced in case of failure – to avoid premature failure of the other component.

If problems with conducted emission during EMC measurements, contact Barel for assistance.

Important issues are:

Keep all wires short.

Separate LED module wires from mains supply wires