

INSTALLATION MANUAL

Morpheus 28 VDC

Logo LED Light

AVE-LGDC-IM

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Part 0 Document Administration

0.1 Document Approval

This document has been established in accordance with an alternative procedure to DOA approved under EASA AP429.

This installation manual is applicable for following part numbers:

- **Morpheus™ 28 VDC** AVE-LGA1WCNUB-10C


 Compiled by: _____ 31 August 2021
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 Approved by: _____ 31 August 2021
 Georg Hartl
 Head of DO, Aveo Engineering Group, s.r.o.

0.2 Amendment Record Procedure

The master copy of this document shall be kept electronically as a read only document under the control of Aveo Engineering Group, s.r.o. as Master Copy.

ALL amendments to this manual will initiate a raise of issue.

The original issue will be identified by "01", and subsequent issues will be numbered sequentially from 02 to 99 in Table 01 - **Issue No.** column.

ALL issues of this document will be approved by Head of DO.

Issue No.	Details	Date of issue	Effected Pages
01	Initial Issue	31 Aug 2021	ALL

Table 01: Record of Document Amendments

0.3 Effected Pages Procedure

ALL pages affected by ANY raise of issue of this manual will be listed in Table 01 - ***Effected Pages*** Column.

The reason(s) for **EACH** raise of issue and the description of respective change will be provided in Table 01 - ***Details*** Column.

Changes from the previous issue are shown as follows:

- a) new text is highlighted with yellow shading: **new**
- b) deleted text is shown with yellow shading and a strike through: ~~**deleted**~~

Part 1 Installation data

1.1 Product info

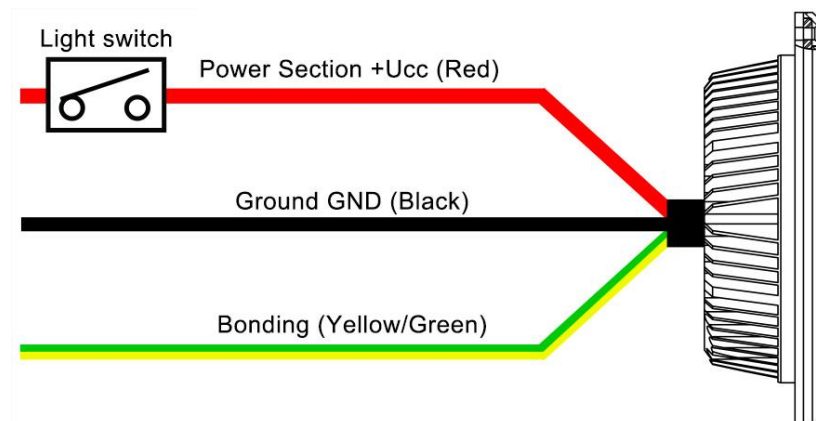
The Morpheus™ logo light is a high powered LED light use in GA and transport category aircraft. It has been designed to be lightweight and with a low power draw to meet the highest requirements of all certified aircraft.

- **Morpheus™ 28 VDC** PN: AVE-LGA1WCNUB-10C

1.2 Operating Instructions

When installed on the aircraft, using the aircraft's power (28 VDC), the light will be at its maximum intensity. *Operating Voltage range is 18 – 36 V DC.*

1.3 Installation Schematic / Wiring Diagram



1.4 Control & Power Input

- Red (AWG 20)** - Power Input 28 VDC
- Black (AWG 20)** - Power Return – Ground
- Green/Yellow (AWG 20)** - Case

1.5 Technical Specification

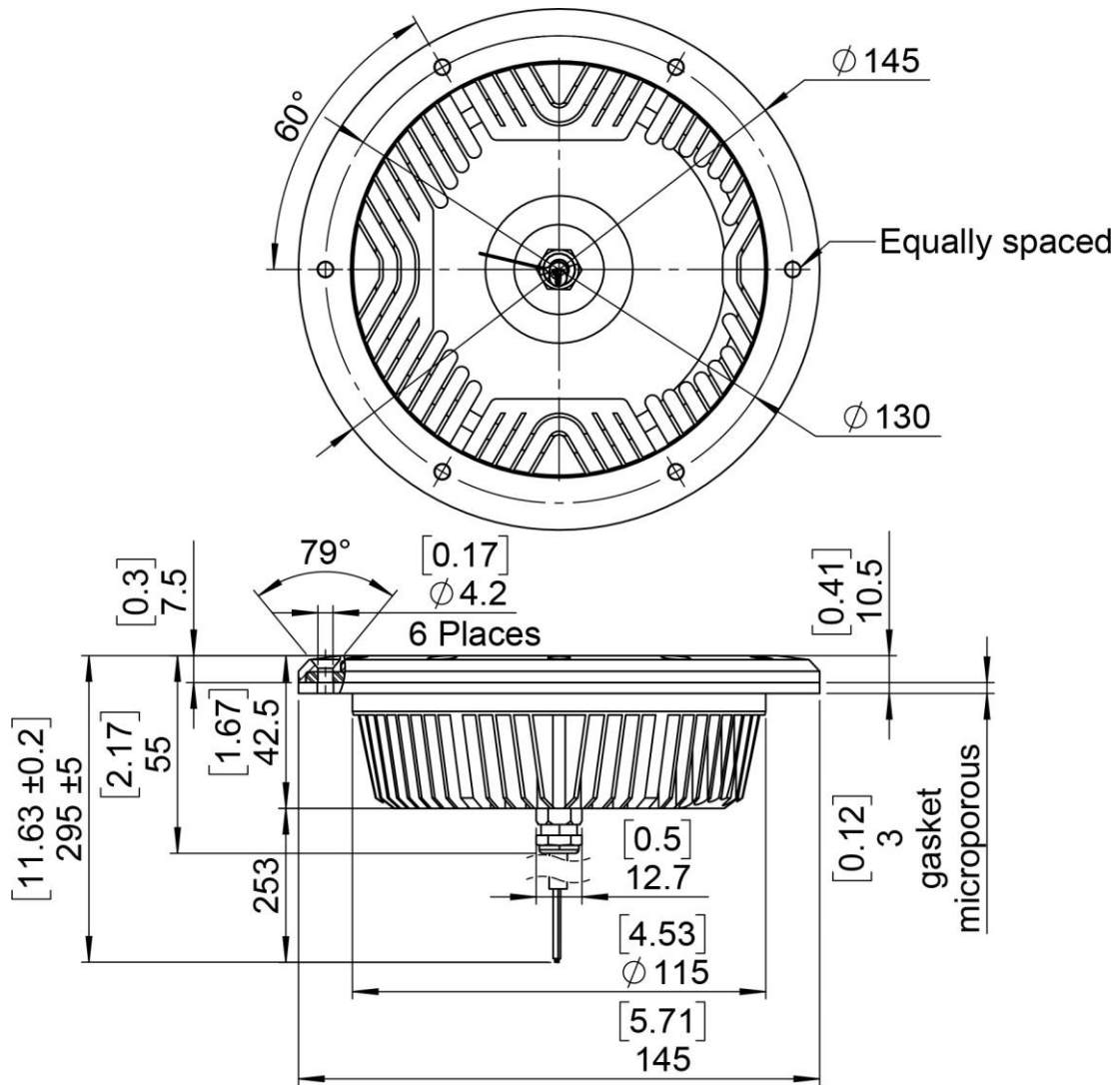
- Operating voltage range:** 18-36 VDC
- Dimensions:** see section 1.6 Technical Drawing
- Ambient temperature:** -55°C..+85°C / -67°F..+185°F
- Overheat protection:** +85°C / +185°F
- Input Current:** 1.2 A @ 28VDC

Input Power: 33.5 W @ 28VDC
Waterproof

Device RTCA/DO160 qualified:

Environment	Section	Category
Temperature / Altitude	4	C2
Temperature Variation	5	A
Humidity	6	C
Operational Shock and Crash Safety	7	B
Vibration	8	R, Curve G
Explosive Atmosphere	9	A
Waterproofness	10	S
Fluids Susceptibility	11	F
Sand and Dust	12	D
Fungus	13	F
Salt Spray	14	S
Magnetics Effects	15	A
Power Input	16	BRX
Voltage Spike	17	A
Audio Freq. Conducted Susceptibility	18	Z
Induced Signal Susceptibility	19	ZCX
Radiated and Conducted Susceptibility	20	TT
Radiated and Conducted Emissions	21	H
Icing	24	A

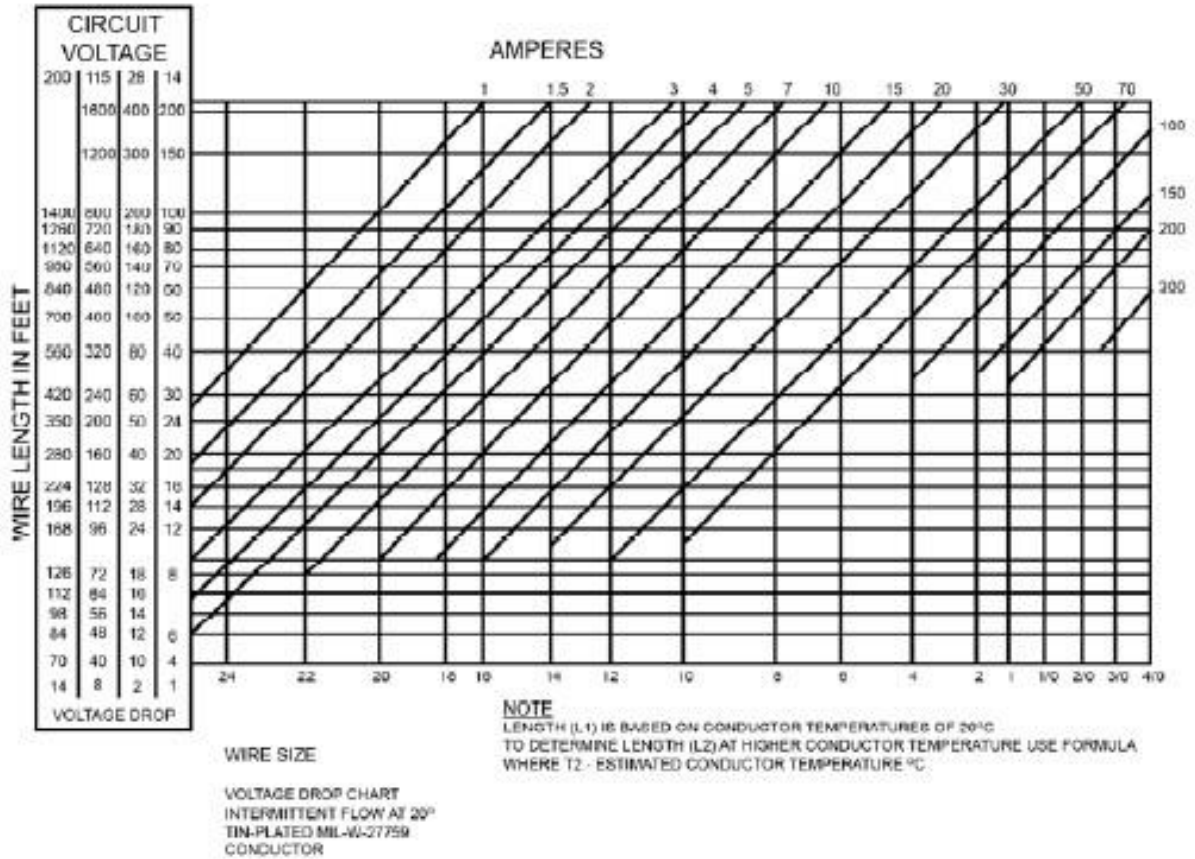
1.6 Technical Drawing



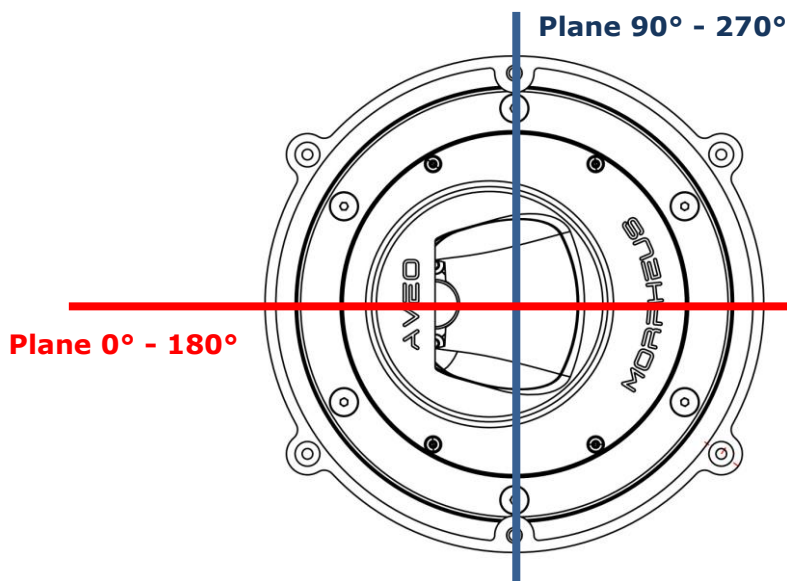
Dimensions are in millimeters / [inches]

1.7 Wiring Chart

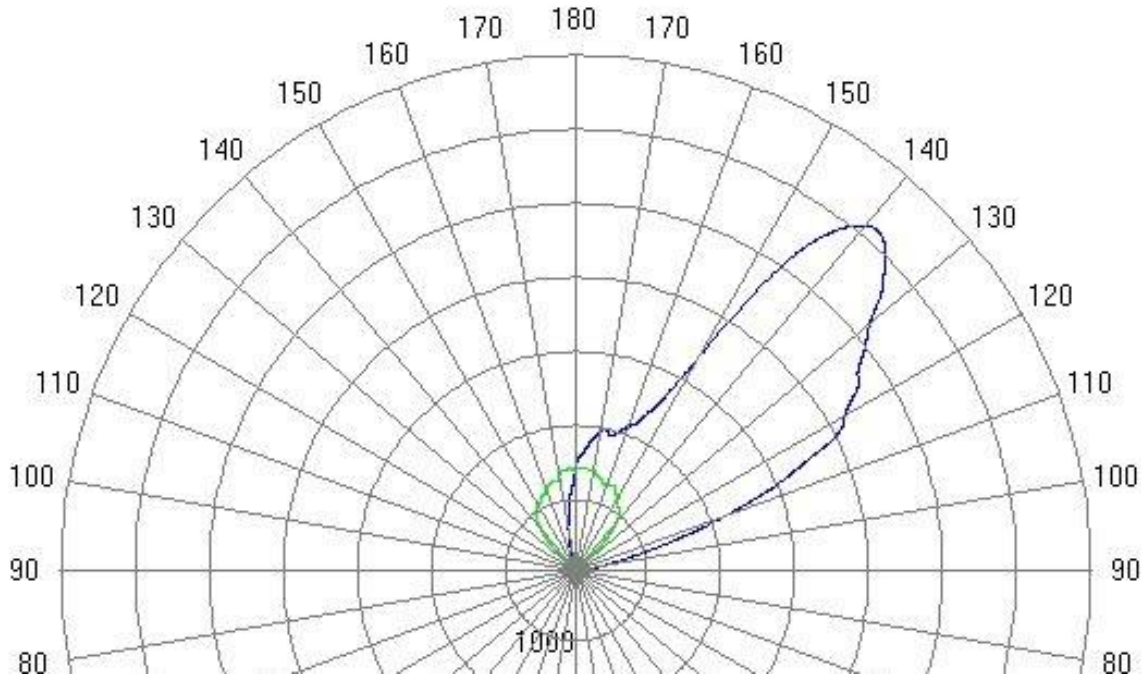
Use diagram below defining the wiring size depending on the current and the wire length. Make sure you add up the current for all connected lights. If current is not given, then divide the power by the voltage.



1.8 Optic Simulation

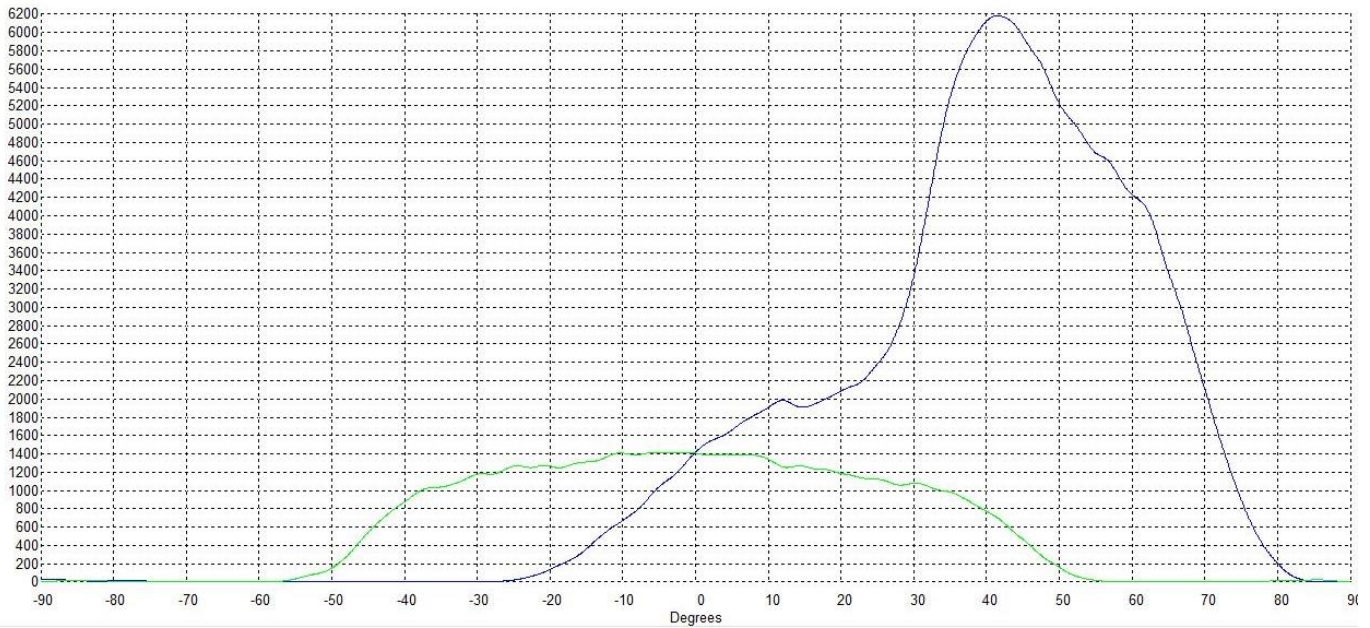


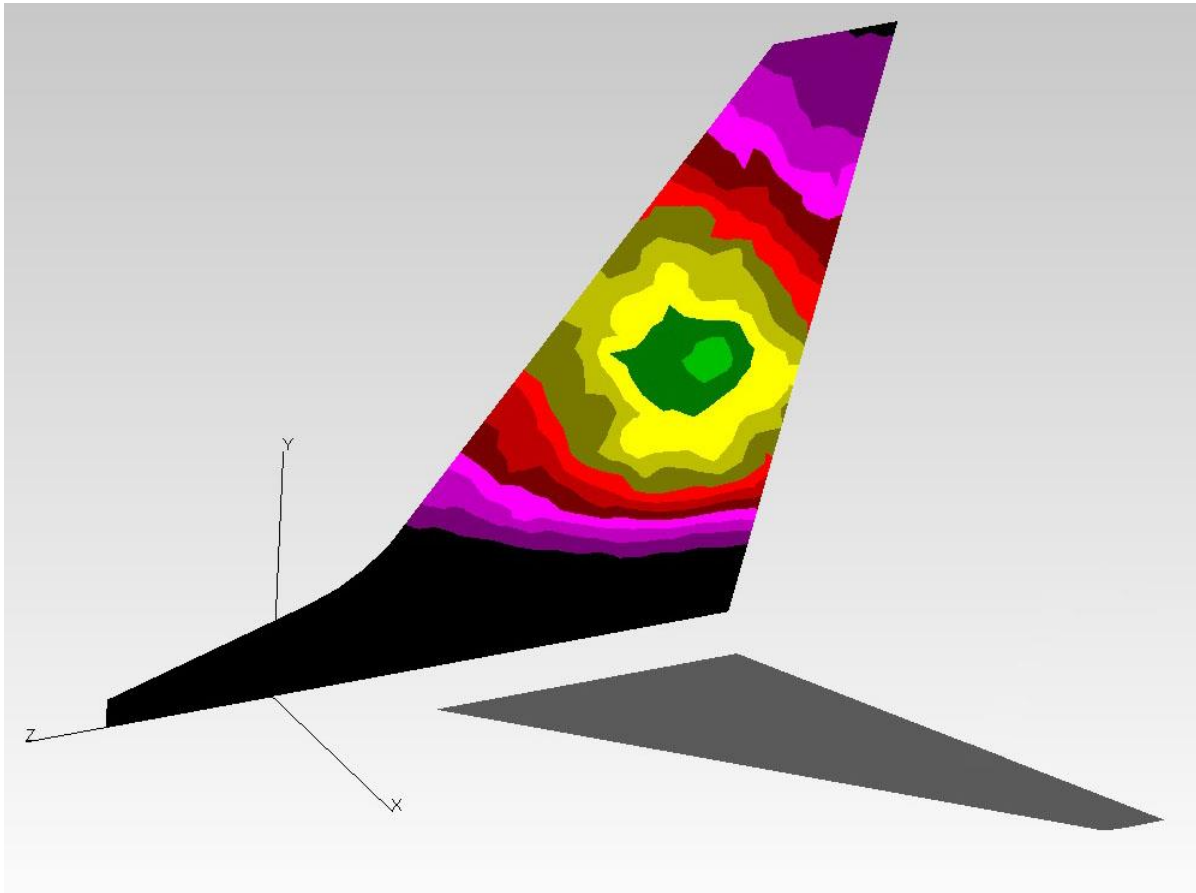
Polar Candela Distribution Plot



Plane 90° - 270° ——
Plane 0° - 180° ——

Rectangular Candela Distribution Plot





1.9 Equipment Limitation

Morpheus™28 VDC should only be powered by 18-36 V DC.

1.10 Care and Cleaning of Lights

Aveo Engineering Aviation Lights are factory polished and delivered as ready to install on the aircraft.

If the lights need a deeper cleaning, they should be polished with a quality lamb's wool sheet that is suitable also for deeper polishing. Under no circumstances should any petroleum based product be used to clean the lights.

1.11 Testing of the light before installation

All Aveo Aviation lights undergo rigorous testing prior to being released from our engineering manufacturing department. This testing involves a burn-in time as well as other function testing. No light is released for sale without undergoing this extensive operational testing.

When you receive the **Morpheus™28VDC** light, and wish to test the function of the light prior to installation on your aircraft, please note the following:

1. Please review the written information that is enclosed in the packaging. Warranty information as well as a cautionary note about power supply removal is enclosed with each package.
2. Remove the light from the package. Note that there are three wires:

RED	28 VDC
BLACK	Ground
GREEN/YELLOW	Case
3. Testing of the function of the light can be done with a regular 18-36 V DC power supply (not a battery charger). Connect the black wire to the ground (negative) leads of a power supply, and then connect the red wire to the positive (+) leads on the power supply. The logo light should start lighting. When installed on the aircraft, using the aircraft's power (28 V DC), the light will be at its maximum intensity. After testing, the light can be installed on the aircraft.

IMPORTANT NOTES:

1. Under no circumstances should any power supply other than a 18-36 V DC be used to test the light. Do not use: Battery chargers, battery back-up power devices, or other bench avionics testing methods to test the aviation light. The light is functional between 18 and 36 Volts. Use of a battery charger or other power unit to test the light will void the warranty and may damage the light.

If you have any questions about the installation of the lights, please refer to our web site: www.aveoengineering.com

1.12 Notes on Installation

Spread the tightening forces evenly around the mounting hole. Stainless steel screw is recommended. Length depends upon placement location on aircraft.

1.13 Continued Airworthiness Information

Circuit/Wiring Protection

Each Morpheus series light features a **Negative Temperature Coefficient** (NTC) circuit that limits internal temperatures by attenuating operating current (with a corresponding reduction of brightness) when internal temperatures reach a certain threshold. This proprietary circuitry serves to protect the light itself, and associated aircraft wiring, against a thermal runaway condition.

Periodic Inspection Procedure

The Morpheus light is maintenance free. Periodical checks that the light is functioning are to be done as required by the aircraft documentation. The light only contains one LED so the light is either fully operative or not. The problematic of loss in intensity by partially failing LED is therefore not applicable.

1.14 RoHS Compliance Statement

Scope

This statement clarifies Aveo Engineering's compliance with European Union Directive 2015/863/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("RoHS") that took effect on June 4, 2015. The RoHS Directive restricts the sale of electronic equipment containing certain hazardous substances in the European Union including:

Cadmium(Cd): 0.01%
 Mercury: 0.1%
 Lead(Pb) : 0.1%
 Hexavalent chromium (Cr6+) : 0.1%
 Polybrominated biphenyls (PBB): 0.1 %;
 Polybrominated diphenyl ethers (PBDE): 0.1 %
 Bis(2-Ethylhexyl) phthalate (DEHP): 0.1% (added in 2015);
 Benzyl butyl phthalate (BBP): 0.1% (added in 2015);
 Dibutyl phthalate (DBP): 0.1% (added in 2015);
 Diisobutyl phthalate (DIBP): 0.1% (added in 2015)

Compliance

Aveo Engineering certifies that all products sourced from manufacturing facilities comply with the environmental standards set forth by the Directive 2015/863/EU, recast amendment of RoHS Directive 2011/65/EU Article (4), and do not contain any of the above-mentioned, 10 hazardous substances above the specified limits. All products manufactured by Aveo Engineering are RoHS-compliant. With regards to RoHS-2 CE marking, product packaging is labeled attesting conformity if required.

References

Directive 2015/863/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

1.15 EU REACH Regulation (EC) No. 1907/2006

Aveo Engineering declares that no chemicals are produced and that none of the chemicals used during the production process or needed for the product maintenance or service, is listed on the current European Chemicals Agency's Candidate list of Substances of Very High Concern for Authorization.