CET LIGHTED WINDSOCK

FOR HELIDECKS, AIRPORTS AND PLANTS SAFETY

CET-TECHNOLOGY

ICAO Annex 14 Vol. II Heliports
ICAO Annex 14 Vol. I Visual Aids
FAA AC 150 / 5345 - 27E
EASA - Heliport Windsock Visual Aids

CE ICAO FAA EASA

VDGLAB s.r.l. - Via Balicco, 67 - 23900 Lecco (LC) - Italy

rev_211111

MAV - CET LIGHTED WINDSOCK

REGULATIONS

The aviation standards ICAO, EASA and FAA require, for any airfield, one or more windsocks to provide pilots with information about wind intensity and direction.

The windsock must be clearly visible at a distance of 200-300 m and for this reason its size and colour must be carefully chosen, so that it can be well distinguished in the surrounding area.

Specifications also require that Windsock must be able to withstand winds of up to 140 km / h and if night operations are done at the airfield, the Windsock must be illuminated.

OUR SOLUTION

LUXSOLAR given the importance of this device, has developed and patented a LED illuminated windsock, low-power and compliant to major aviation standards. It is composed of two parts: a fixed support, anchored to the ground, and a mobile basket with light fabric sock that swells under the action of the wind. Additionally the sock is internally illuminated by a high efficiency LED source and signalling purpose is satisfied by an AWL (Aircraft Warning Light), installed on the basket top.

The real innovation, that sets LUXSOLAR Windsock as the most technologically advanced product available on the market and the first one of this kind is the **CET (Contactless Energy Transmission) system** that allows wireless energy transmission from the fixed part (support) of the windsock to the mobile part (basket and its light sources).

THE CET SYSTEM (Contactless Energy Transmission)

The power supply of the internal light of the windsock and of the AWL is made with a cutting-edge **CET system,** allowing wireless energy transmission from the fixed part of the windsock to the mobile part.

MADE IN ITALY

LOW POWER CONSUPTION

WEATHERING RESISTANCE

PATENTED

CE ICAO FAA EASA

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627

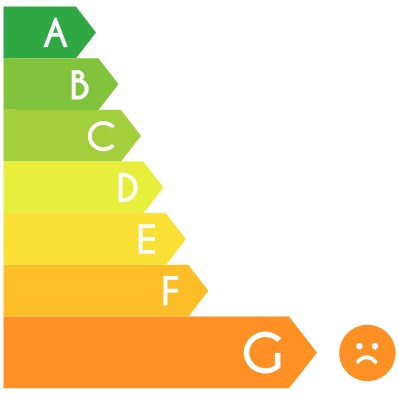
TYPES OF VDGLAB WINDSOCK

I) Unlighted:

The unlighted windsock is suitable for day use in contexts such as small heliports, ski-lifts, private structures, etc.
This is a cost-effective, simple and versatile solution, though having the typical high-quality levels of our windsocks.

II) Style I-A – externally lighted:

External Lighting with projectors placed over the windsock, in a way that the sock is lighted in all positions it is.
This solution has a negative visual impact and consumes a lot of power, having to illuminate an area around the pole of about 8m.

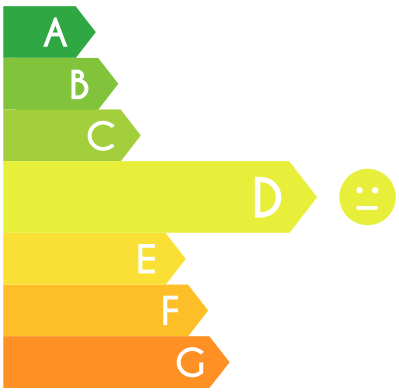


CE ICAO FAA EASA

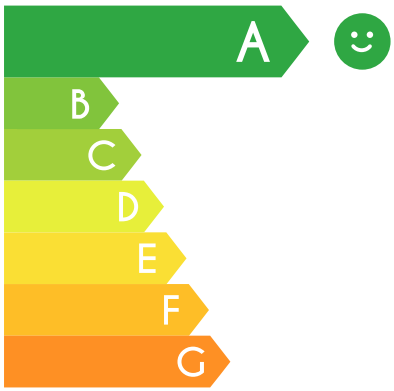
III) Style I-B – internally lighted:

There are several solutions for internal lighting:

1.III) Internal lighting with fixed lamps and reflectors that chases the windsock.
In this solution, the presence of a reflector at the sock's inlet obstructs the passage of the wind, necessary to inflate the sock. The problem is particularly evident in medium and small- sized windsocks.



2.III) Windsock Lighting with LED lamps placed inside the sock.
This solution has the advantage to illuminate only the sock from the inside, avoiding unnecessary energy consumption. The lamp illuminating the sock from the inside rotates along with the basket under the action of the wind. The power is transferred from the fixed part, anchored to the ground, to the mobile basket that turns random chasing the wind.
Questa soluzione offre il minimo ostacolo all'ingresso dell'aria, permettendo un ottimale rigonfiamento della calza.



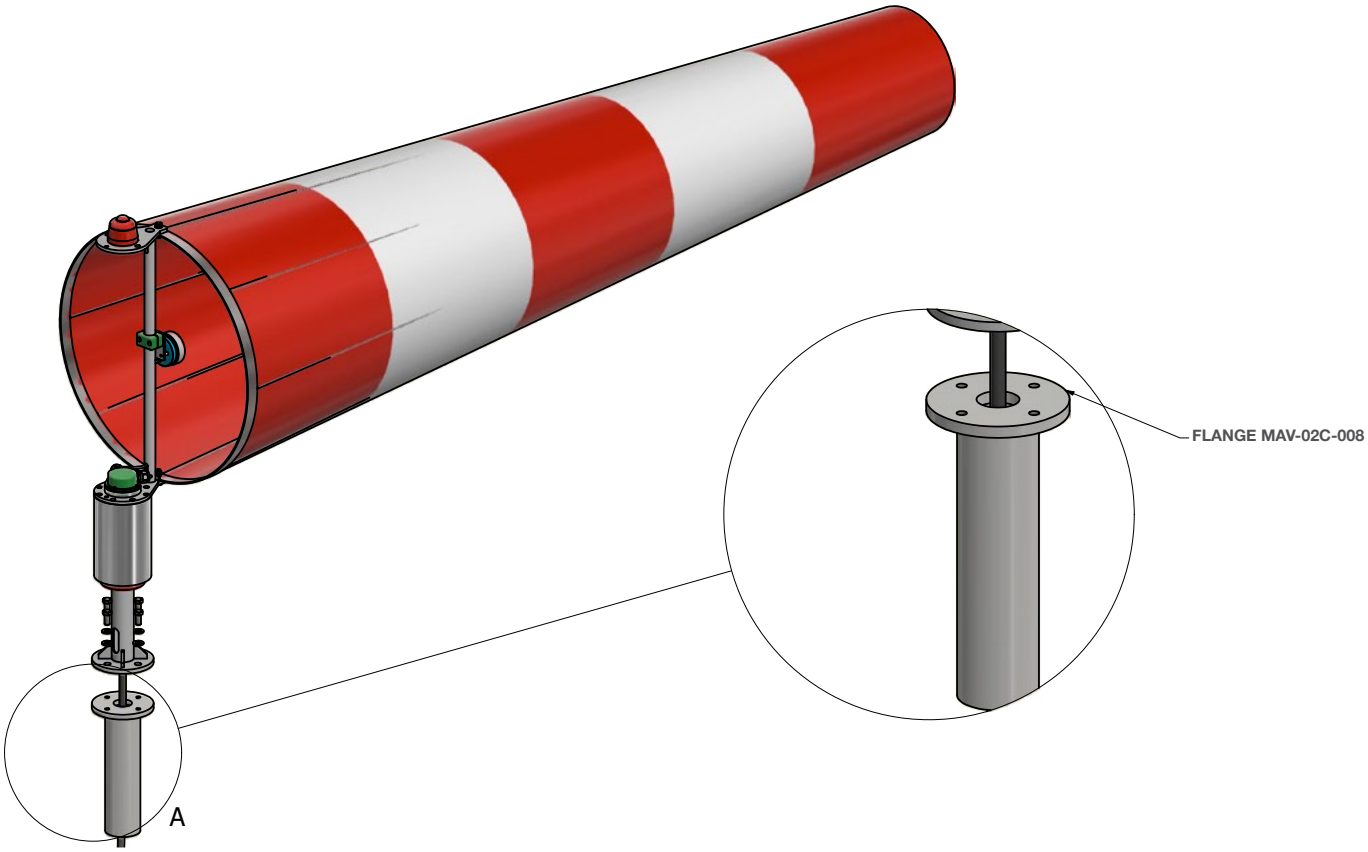
CE ICAO FAA EASA

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627

HIGHLIGHTS

The **CET WINDSOCK** stands out for its innovative technology, patented and entirely developed in Italy.

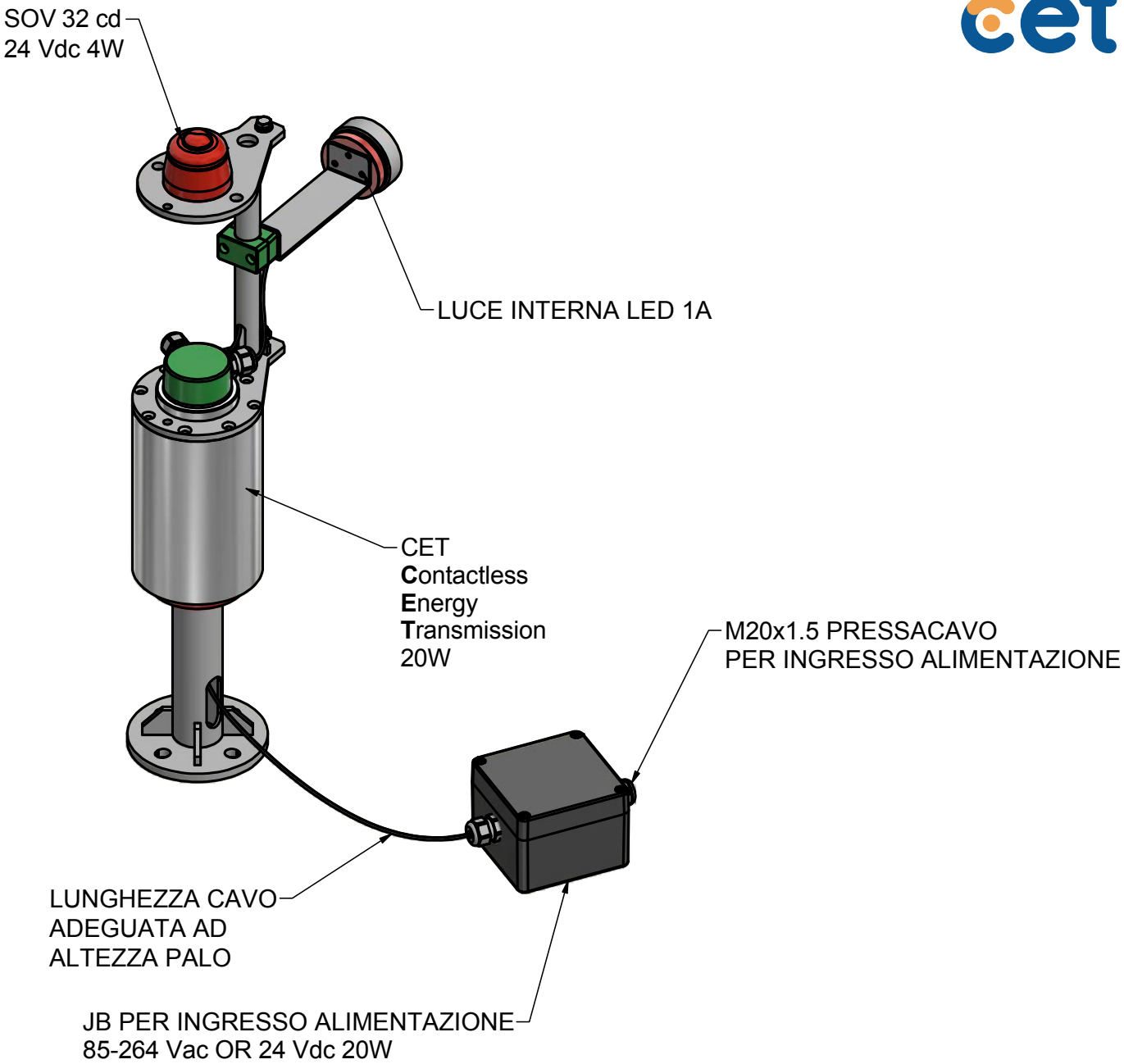
1. CET CONTACTLESS ENERGY TRANSMISSION
2. INTERNAL LED LIGHTING
3. AIRCRAFT WARNING LIGHT
4. LUXSOLAR CLOUD MONITORIG SYSTEM
5. SUPPORT STRUCTURE IN SEVERAL CONFIGURATIONS
6. SOCK TYPE



CE ICAO FAA EASA

1. CET CONTACTLESS ENERGY TRANSMISSION

A power supply of the windsock through traditional cabling represents an obstacle and a danger because of the possible twists of electrical conductors. The innovative **Contactless Energy Transmission - CET** introduces a new way to power supply windsocks. Thanks to bearings, the device can rotate freely, according to the wind flow.



CE ICAO FAA EASA

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627

THE MAIN ELEMENTS OF CET WINDSOCK

- Supporting structure made with materials that guarantee mechanical and weather resistance for the required application: **durability over time.**
- Bearings for the windsock's free movement that do not require lubrication and that guarantee the necessary sensitivity to changes in wind direction: **accuracy in the indication of wind direction.**
- Wireless power transmission made from robust low-energy consumption electronics: **high transmission efficiency and low energy consumption.**
- LED lamp for internal lighting of the sock: **compact size, high luminous efficiency, low consumption and long life.**
- Powerful and ultra-compact AWL (Aircraft Warning Light) with 10 or 32 cd emission: **ICAO, FAA, EASA compliant.**
- Connection flange to the structure anchored to the ground with 4 M12 bolts: **simple and safe.**

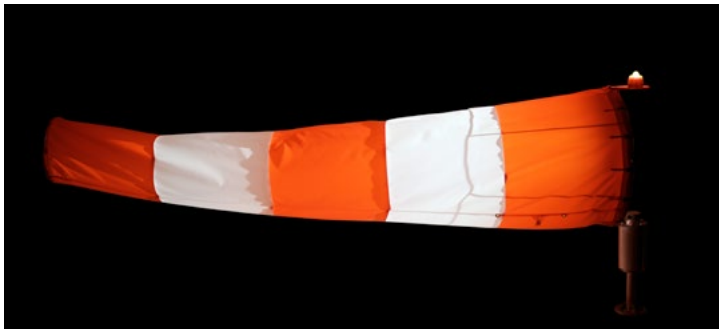
2. INTERNAL LED LIGHTING

The internal lighting of the windsock is made with an extremely compact and low-energy LED lamp.

Thanks to the combination of LED, special lenses and dedicated electronics, the distribution of light in the sock is optimal, and compliant with aviation standards. The lamp does is not an obstacle to the passage of wind in the windsock.

Daytime windsock

Night-time Windsock



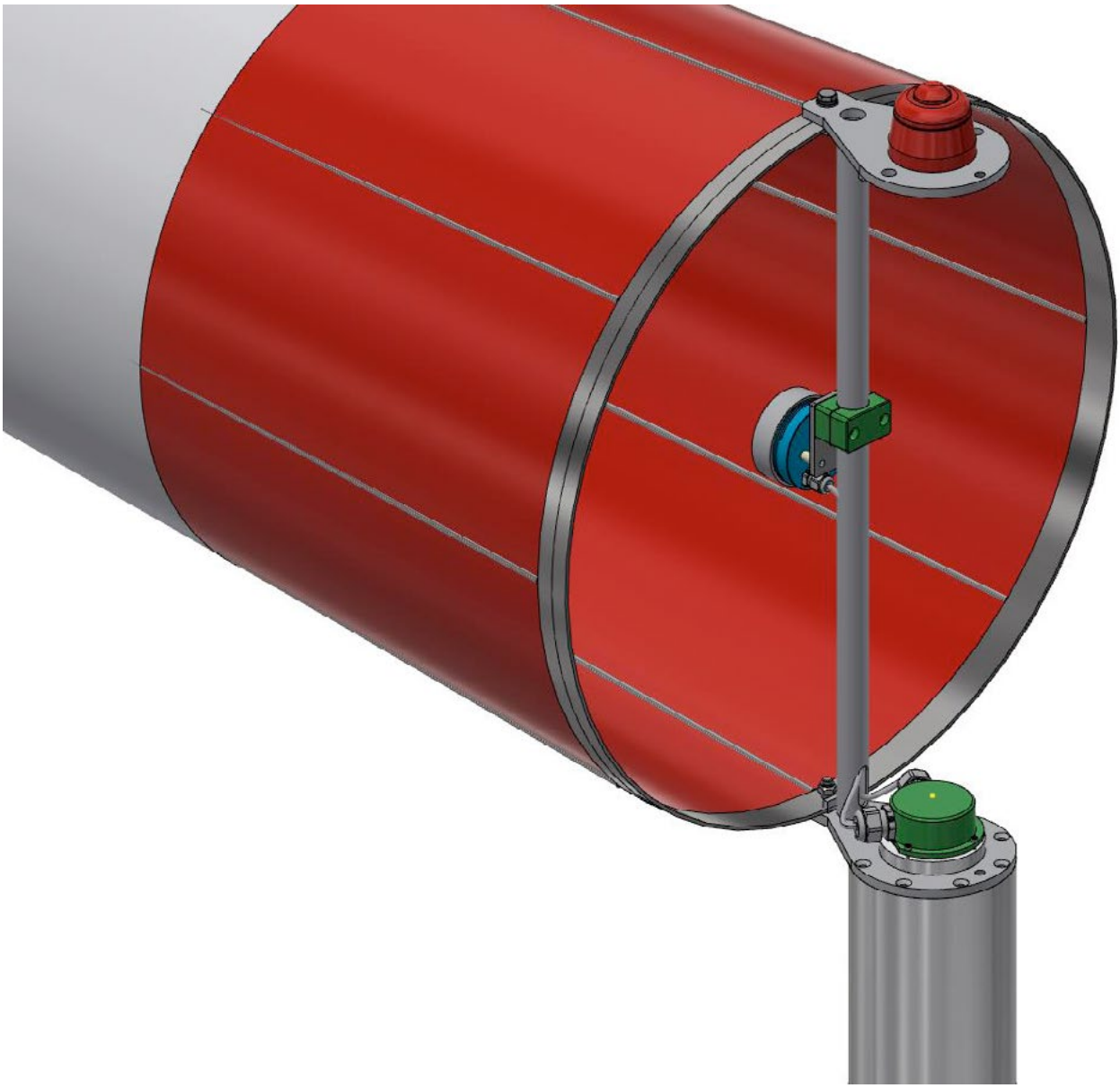
CE ICAO FAA EASA

3. AWL – AIRCRAFT WARNING LIGHT

Any object that is near the runways must be correctly marked as an obstacle to flight, with specific Aircraft Warning Lights (AWL) in order to avoid any impact in the approach, landing or take-off phases at night.

On the highest point of the windsock basket, , we have set an ultra-compact warning light LIOL-A (10 cd) or LIOL-B (32 cd).

The power supply to the lamp, as well as the internal light of the sock, is guaranteed by a **CET** device.
The warning light's driver can be set to obtain 10 cd (LIOL A) or 32cd (LIOL B). The **CET system** adjusts automatically to output the required power.



CE ICAO FAA EASA

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627

4. LUXSOLAR CLOUD MONITORING SYSTEM

Managers of AWL systems know well that the inspection and maintenance is a strategic activity requiring time and resources. LUXSOLAR CLOUD MONITORING SYSTEM, through its integrated monitoring device exploiting UNB (Ultra Narrow Band) technology. The user will receive dedicated credentials to access to a Web app for real-time monitoring of the AWL's operating status. It will be also possible to access recordings of each lamps' activity history.

LUXSOLAR CLOUD MONITORING SYSTEM is already successfully operational at Milano Malpensa and Linate Airports.

Our AWL has many built-in functions in addition to monitoring, such as the twilight sensor for automatic ignition and redundancy (primary lamp + back up lamp) integrated in the lamp's body.

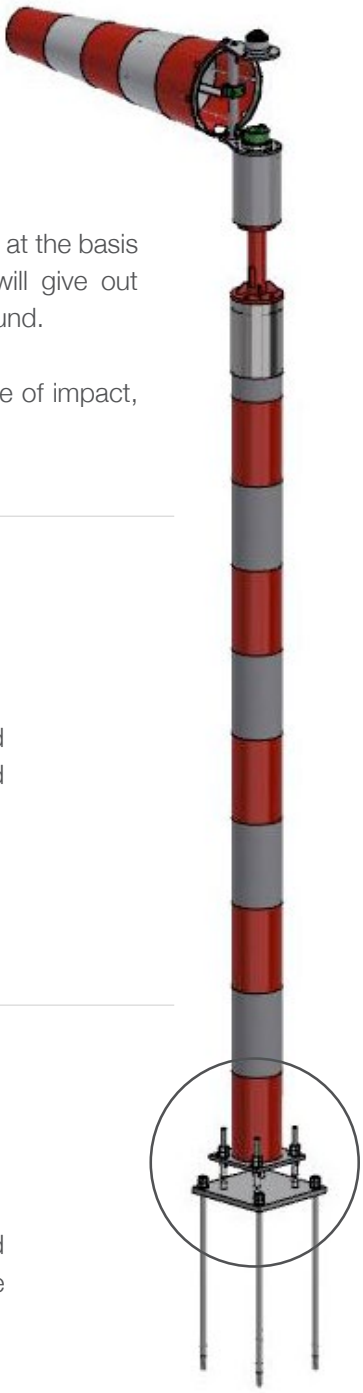
Scan the QR code for more details:

CE ICAO FAA EASA

5. SUPPORT STRUCTURE

We offer different types of supporting structure for the windsock, on the basis of the system's application or upon the customer's specific request.
For installations near aircrafts landing areas, the standards require that windsock are frangible and breakable. In the event of an impact, the structure must yield instantaneously, in a way that the part left standing does not cause problems to other vehicles approaching the area.

The supporting structure can be supplied:



1) Frangible

Frangibility can be guaranteed by means of:

- 4 specially design frangible bolts are installed at the basis of the structure. In case of impact, they will give out bringing the entire structure down to the ground.
- Use of GRP (glass reinforced plastic): in case of impact, the pole will shatter in pieces.

2) Collapsible

The structure can be can be overturned at ground level by means of a hinge for maintenance and checks.

3) Frangible + Collapsible

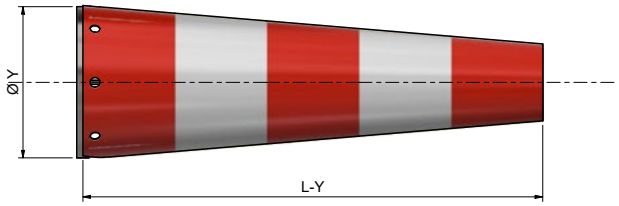
Commbination of hinge, frangible bolts and GRP pole, implementing the global safety of the system.

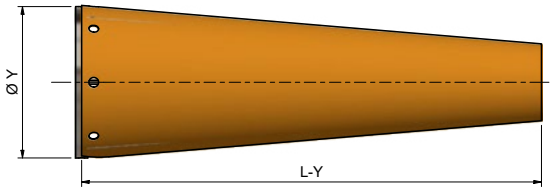
CE ICAO FAA EASA

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627

6. TYPE OF SOCK

The choice of the sock is essential for the duration of the entire system and the global reduction of maintenance, with consequent decrease in management costs.





The regulations do not generally specify the type of material to be used for the windsock, but only the requirements to be met (resistance to atmospheric agents, clearly visible colours, etc.).

On the basis of the required application, we have developed two solutions for the windsock:

- **100% Nylon Windsock,** with PU treatment, water repellent and resistant. This solution is particularly suitable in applications where the sock must be illuminated, thanks to the brilliance (photosensitivity) of the fabric lighted from the inside of the sock. Colour fastness up to 1 year in STD conditions.
- **100% Polyester Windsock,** with outdoor treatment and resistance of colour to UV-A tested and certified for more than 5 years. This solution is particularly suitable for applications where very good colour fastness is more important than a high level internal illumination.

The windsock is available at the following colours:

White Red Orange White&Red

The windsock's fabric must satisfy the following requirements:

- Visibility and minimum alteration of colours over time
- Mechanical resistance to wind and tear
- Water resistance
- UV rays' resistance

Per Superior quality of the socks is guaranteed thanks to our system to test the fastness of colour by means of UV light generator with continuous operation. To find an equivalence between the emission values of the generator and the real solar radiation, the UV Index geographical reference data were taken into consideration; specifically, 103 hours of continuous radiation correspond to one year of sun exposure in the city of Rome.

CE ICAO FAA EASA

CET WINDSOCK – WHO WE ARE

VDGLAB SRL

VDGLab is a young and dynamic start-up, thanks to the passion and dedication of our founder (Vincenzo Di Giovine) in turning solid business ideas into innovative products.

Our **MISSION** is to design and realize the ideas of our customers thanks to the know-how of our Engineers, expert in the lighting, electrical, electronic and optical fields. Our aim is to achieve breakthrough solutions that respect the environment through the application of technologies and more efficient materials and following the principles of lean thinking, design-to cost, co-design and design tools. Design, passion and high quality are our strong key rules that allow itself to satisfy the increasing customisation required by the market and to create **MADE IN ITALY** products, manufactured and assembled in our workshop in Lecco (Italy). After the production process, the products designed by **VDGLab** have to undergo rigorous testing in our laboratory equipped with advanced tools.

Discover the whole line of TLOF HELIPORT LIGHTS

INSET TLOF is a warning light system for heliports in which night operations are carried out. Available in CET version.

VDGLab is active partner of I-LABEL project

VDGLab won HUB Research and Innovation contest for designing smart labels. I-Labels are able to change shown message reacting to external stimulus.

VDGLab developed an innoavtive system for generating smart UV pulses. UV pulses automatically adjust duration and intensity on print dimensione, so decreasing energetic consumption.

Scansiona per sapere di più su **I-LABEL**

REALIZZATO CON IL SOSTEGNO DI

UNIONE EUROPEA
fondo europeo di sviluppo regionale

Regione Lombardia

fesr

POR FESR 2014-2020 / INNOVAZIONE E COMPETITIVITÀ

VDGLAB s.r.l. - Via Balicco, 67 - 23900 Lecco (LC) - Italy

rev_211111

Drawings and photos are for informational purposes only and can change without notice.
www.vdglab.com - info@vdglab.com - Ph. +39 03411716627