

Instructions for Safe Use

CENTAURSLAM[®] **HORNET**

(Certification N:o VTT 08 ATEX 066)

Thank you for choosing CentaurSlam Hornet[®] –portable work light for your job site. Purpose of this manual is to provide you all the necessary safety and product information to conduct your job conveniently and without any risks for health and safety.



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1. Introduction to CentaurSlam® Hornet

(Certification N:o VTT 08 ATEX 066)

This instruction manual guides you through the process of selecting and adopting CentaurSlam® Hornet work light at your work site. The manual regards the following CentaurSlam® Hornet types:

1.1 Technical data

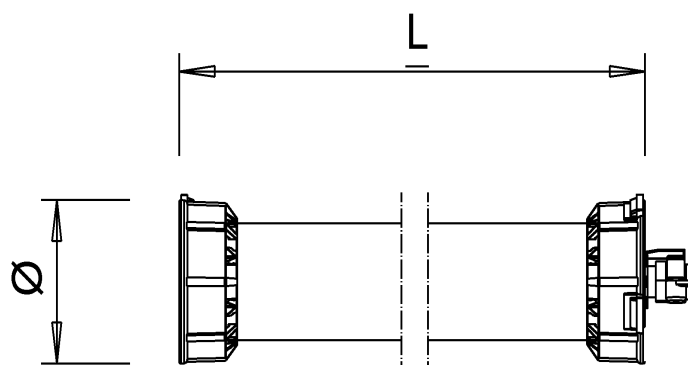
CentaurSlam® Hornet 1x18W (later CSH118)

CentaurSlam® Hornet 1x36W (later CSH136)

CentaurSlam® Hornet 2x36W (later CSH236)

CentaurSlam® Hornet Linear 2x36W (later CSHL236)

Product model	Dimensions / mm	
	L	Ø
CentaurSlam® Hornet 1x18W	335	115
CentaurSlam® Hornet 1x36W A	535	115
CentaurSlam® Hornet 1x36W C	575	115
CentaurSlam® Hornet 2x36W	865	115
CentaurSlam® Hornet Linear 2x36W	1020	115



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1.2 Certification of equipment

The CentaurSlam® Hornet-series has been designed, tested and certified (according to ATEX) for portable use. There is no “X” –mark in the certificate for special conditions of safe use of the equipment. The equipment is to used properly and according to its ratings, documentation and local applicable laws. Local, national certificates of these units may exist outside the region of EU.

The aforementioned CentaurSlam® Hornet-types are certified as follows. You may find brief explanation of certificate beneath:

CE₀₅₃₇  **II 2 GD** **Ex emb IIB T3 Gb**
II 2 GD **Ex t IIIC T 90 C Db**
IP 66

CE₀₅₃₇ = Valid production quality system approved and notified by VTT (Finnish Notified Body, listed by EC)



Ex = Certified for explosion hazardous areas

II = Certified for use in areas excluding mines

2 = Equipment category (suitable for Zone 1&21 and Zone 2&22)

G = Certification taking account explosion hazardous GASES

D = Certification taking account explosion hazardous DUSTS

Explanation of marking for explosion hazardous area due to Gases (Ex emb IIB T3 Gb) :

Ex = Certified for use in explosion hazardous areas

e = Explosion protection method increased safety (of certain components)

mb = Explosion protection method encapsulation (encapsulating ignition sources e.g. electronic ballast)

IIB = Equipment group (excluding explosion hazardous areas of IIC gases)

T3 = Maximum inside temperature of the unit is 200 °C (within the ambient temperature range of -20°C - +40°C)

Gb = Explosion Protection Level (EPL) marking for “HIGH” level of protection. Equipment for explosive **GAS** atmospheres, which is not a source of ignition in normal operation or during expected malfunctions.

Explanation of marking for explosion hazardous area due to Dusts (Ex t IIIC T 90 C Db):

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Ex = Certified for use in explosion-hazardous areas

t = Explosion protection method “protection by enclosure”

IIIC = Equipment group for conductive dusts (including IIIA, IIIB and IIIC dusts)

T 90 C = Maximum OUTSIDE surface temperature of the unit is 90 °C (within the ambient temperature range of -20°C - +40°C)

Db = Explosion Protection Level (EPL) marking for “HIGH” level of protection. Equipment for explosive **DUST** atmospheres, which is not a source of ignition in normal operation or during expected malfunctions

1.3 Standard unit construction

The following list familiarizes you with some common unit features important to recognize.

End parts: Flexible, plastic-made end parts ensure shock-absorbing and harmless contact to sensitive and hard surface in case the luminary drops to the ground even from high position. Light construction affects the total weight of the unit itself.

Transparent PC –tube: Polycarbonate tube, being durable, flexible and lightweight plastic, brings advantage for use. Unique antistatic treatment allows the use of PC in explosion hazardous areas.

Aluminium frame: Nearly all CentaurSlam® Hornet–units are based on use of solid but flexible aluminium frame. Components are tightened with screws on it, making the unit tough and durable in severe conditions. Moreover, the frame derives excessive heat out from the luminary thereby extending lifetime of the unit.

Electronic ballast: The ballasts are independent from each others (CSH236 and CSHL236). Under failure of one ballast, the other still continues operating. Low-voltage protection (smart-feature) brings reliability and convenience for use, especially when operating with transformers or with long cables.

Compact fluorescent lamp (CFL): CFL are standard types but undergo special spark-prevention process (encapsulation) in the factory. They also have a component certificate. Light colour is cool-white and colour temperature 4000 K – not blinding the user’s eyes but bringing appropriate help for the user to complete his job.

Cable: Standard cable of the CentaurSlam® Hornet–series is H07BQ-F. This cable has polyurethane (PUR) outer sleeve. PUR withstands well chemicals as well mechanical wearing.

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However, the user has an option to specify cable type in accordance with work site requirements of own.

Socket: Optional in-built sockets (receptacles) for linking the CentaurSlam® Hornet units in series (apart from CSH118)

Other common accessories (optional):

Antistatic protective film for PC tube against chemical splashes and other substances
Adjustable hanging straps for light fixing.

To view options on accessories, please visit <http://www.centaurea.fi> for further study or call/fax +358 6 4212 400 / +358 6 4140 631.

1.4 Quality guaranteed

1.4.1 General

The CentaurSlam® Hornet-series is designed, certified, manufactured and tested under ISO 9001:2000 quality system as well as additional requirements of the Directive 94/9/EC (ATEX). The CentaurSlam® Hornet-series is designed and tested according to the latest directives and standards. The referred directives and standards of the production date in case are stated on the Declaration of Conformity included in the delivery.

1.4.2 Individual testing reports

Each CentaurSlam®-unit has its own individual serial number and is provided with an original, individual testing report when leaving the factory. The year of manufacture is specified on the type label of the equipment. Following tests have been done for CentaurSlam® Hornet-units according to standards relating to portable luminaries for explosion hazardous area. The Declaration of Conformity is specifying the relevant standards. The testing report which is included in the delivery specifies the results of the factory tests for that particular unit. The testing report typically specifies the following tests:

PE –resistance test

The purpose of this test is to measure persistence of earth conductor.

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Vital test for electrical safety as well as explosion safety because of e.g static electricity control. The test current is 10 A (current) and the overall resistance should not exceed 0,5 ohm.

High voltage test (electrical strength)

The purpose of this test is to measure leakage current through insulation. Vital test for revealing broken components or similar failures which can not be identified visually.

Testing voltage applied is 2130VDC. Maximum leakage current is 5mA.

Test of expected use of equipment

The luminaire is subjected to shaking and vibration – to see that all the internal wires are properly attached and components are not loose.

Operational test of luminaire and accessories

The unit is plugged-in and checked that it is working properly after all accomplished tests above.

Visual inspection

A final check to see everything is fine (screws attached properly, wires connected and required markings attached).

2. Prior to use

2.1 Selection of right equipment

You need to be sure that the equipment you intend to take into explosion-hazardous area matches up with the zone classification and other safety requirements related. At least the following points should be notified prior to use:

2.1.1 Intended purpose of equipment

Please keep in mind what the actual application of equipment is. For example in case the equipment is to be moved when connected to the supply it needs to be designed for that purpose. If the certification is mentioning “portable” it means that the equipment is suitable and tested for portable use. If the certification does not mention portable it means that the equipment shall not be moved when it is in operation (reliable fixing of equipment).

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CentaurSlam® -units are designed and tested for portable use.**2.1.2 Application of use (Zone XX) in accordance with equipment category**

Operator has the best knowledge of area classification at his site. To help the operators' selection of equipment the certification is describing the equipment category. For explosion hazardous areas there are three equipment categories. CentaurSlam® -units mentioned in this instruction fall into Category 2 equipment.

Category 1 product is suitable for use in Zones 0, 1 and 2 / (20, 21 and 22)

Category 2 product is suitable for use in Zones 1 and 2 / 21 and 22

Category 3 product is suitable for use in Zones 2 / (22)

2.1.3 Explosion group (IIA, IIB or IIC) in accordance with Equipment group (IIA, IIB or IIC)

This information is vital because the substances require different amount of energy to be ignited. Safety requirements for equipment are not the same for different substances (e.g. static electricity requirements). Therefore making the selection easier the gases are divided to three different groups (IIA, IIB and IIC). Further information about the substances can be found from EN 60079-20 (Data for flammable gases and vapours, relating to the use of electrical apparatus).

CentaurSlam® -units mentioned in this instruction are Equipment **group IIB.**

2.1.4 Temperature class of the equipment

Please observe the Ignition Temperature (IT) of the substance creating the explosion hazard at your site. Select the equipment based on IT of the substance. The temperature of the equipment must be lower than IT. The highest temperature of the equipment is specified by using Temperature Classes T1 to T6.

Example:

Petroleum ignition temperature is approximately 250 Celsius → Maximum allowed temperature class of the equipment is T3 (< 200° C)

CentaurSlam® -units mentioned in this instruction are Temperature Class T3 (GASES)

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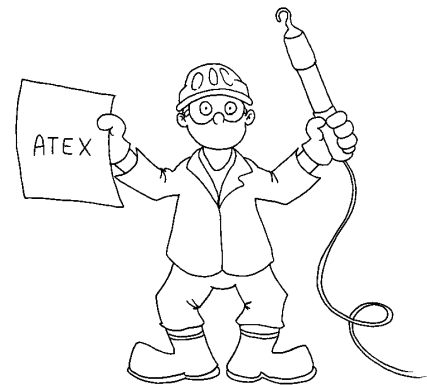
CentaurSlam® -units mentioned in this instruction maximum surface temperature of 90°C (DUSTS)

2.1.5 Environmental criteria

Please observe the ambient temperature of the application in use because certification is valid for temperatures between – 20°C --- + 40°C. Some CentaurSlam® HORNET luminaries are certified for temperatures between – 40°C --- + 40°C. Please see type label of the product for further data. If the equipment is used in other temperatures than mentioned the safety can not be guaranteed.

Selection and use of equipment is always under the responsibility of the operator. Please note that all of the aforementioned criteria are to be fulfilled when selecting the equipment.

Please do not take any unnecessary risks.



3. Operating instructions

3.1 Personnel

The use of the equipment is to be controlled and accepted by the operator. The personnel using the unit have to be authorized by the operator or his representative. In case of further training of using the equipment please contact the local supplier of this equipment.

3.2 Visual Inspection of CentaurSlam® Hornet

As for all equipment to be used inside explosion hazardous area it is recommended that before taking the unit into Ex –area, a visual re-inspection on the unit was taken and an analysis made that the unit is un-damaged (e.g. any part or wires are loose damaged or disconnected)

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In case faults or defects on the unit are noticed, it is prohibited to take such a unit into Ex –area until corrective actions have been made.

3.3 Special Attention on 2-pole use (24 V or 42 V)

Certain CentaurSlam® Hornet -units are designed to be used together with step-down transformers. Using CentaurSlam® Hornet -unit with transformers of 2-pole socket outlets (without earthing / bonding) imposes certain extra requirements for the unit itself. All the external metal and aluminium parts of the CentaurSlam® Hornet are replaced by the manufacturer with plastic parts or equipped with plastic covers in order to avoid electrostatic charging and a consequent risk of explosion. This process can only be done by manufacturer because the certification of the product.

Please inform us about your requirement for 2-pole use when placing the order. Products originally manufactured for 3-pole use can not be modified later for 2-pole use.

Note! Lack of equipotential bonding may cause danger in Ex –area, therefore please pay special attention to all installations of yours involving metallic parts. Static charging is especially noted on standards referring to installations in explosion hazardous areas (e.g. EN 60079-14).

3.4 Connection to the supply

It is recommended that the unit is first connected to the mains / transformer before entering the explosion-hazardous area. Potential equalization should be arranged by the operator prior entering explosion hazardous area.

CentaurSlam® Hornet-units with 2-pole supply (without bonding connection) can be taken to explosion hazardous area without connecting it to the supply first.

3.4.1 Requirements for supply (electricity)

The following main requirements should be taken into account:

Supply voltage: Variation may be maximum +/- 6% from the value stated in the unit type label.

Current: Maximum current of the system is 16 A.

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Frequency: Standard 50 Hz if not otherwise stated in the type label.

Fuse protection: The supply has a fuse with a breaking capacity of at least 1500 A

Please observe the type label for further data.

3.5 Adding accessories to CentaurSlam® Hornet

Centaurea provides a number of different accessories but in case you afterwards want to add accessories of your own for the CentaurSlam® Hornet –unit, please note the following points:

1. The user is fully responsible for the use of the equipment including service and maintenance
2. In case of adding accessories the following is mandatory
 - a. The construction of the certified unit shall not change
 - b. The IP –class of the unit shall not decrease
3. The static electricity is taken account (e.g. electrostatic bonding)



In case you do not want to do your own risk assessment for the accessories please view the whole range of accessories at <http://www.centaurea.fi>

3.6 Linking in Series

Certain CentaurSlam® Hornet-units may be equipped with Ex –certified socket in the factory. Sockets are considered as one option so they are added to the unit upon customer's special request.

In-built sockets are recommended when the illuminated area is notably large, complex or not enough wiring points are available. Linking the units in series save time, amount of cable and provide an opportunity to build a chain of lights to provide enough illumination in the darkness.

When linking CentaurSlam® Hornet –lights together, please take the following steps:

- 1) If using transformer, ensure its condition and capability to supply correct amount of voltage and current
- 2) Connect the first unit outside the Ex –area
- 3) Then connect the other luminaries to each other one by one

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- 4) The in-built socket is only for chaining CentaurSlam® Hornet units.
- 5) Fix them with accessories you have selected
- 6) Take the chain into Ex –area

Amount of lights which may be connected with each other depends on the supply voltage. Here you may see general guide-lines for linking with 5 m 3x1.5mm² (or 3x2.5mm²) cable each:

Supply voltage	Recommended max. load	Type of luminaire	Number of luminaires in series
230 V	2000 W	CSH236 (72 W)	27
110 V	1000 W	CSH236 (72 W)	13
42 V	500 W	CSH236 (72 W)	6
24 V	290 W	CSH236 (72 W)	4

The CentaurSlam® Hornet ballast protects itself against excessive voltage drops (numerous linking) by switching itself off. If too many units are connected to the chain, some units of the chain will switch off. You may start up by unplugging the last units on the line.

Voltage peaks are more harmful and may damage the ballast permanently when subjected to excessive peaks continuously.

If fluorescent tubes are flickering when the units are chained up, it may be due to excessive linking. This may shorten notably the lifetime of fluorescent tube. Unplug the last unit on the line to ensure proper function of the unit.

4. Inspection & Maintenance

4.1 After Use

Take the following steps after the CentaurSlam® Hornet –unit has been taken out from Ex –area:

- 1) Clean the unit with a damp cloth (do not use detergents or solvents)
- 2) Change the anti-static film if only little light comes through it or it is damaged
- 3) Have a visual check on the unit (condition of cable, PC –tube, tightness of parts)
- 4) Let the unit dry in open air

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4.2 Maintenance

The following procedure should be taken in case the CentaurSlam® Hornet unit needs to be repaired:

- 1) Maintenance may be carried out only outside Ex –area
- 2) Person responsible for maintenance should have been trained the basics of explosion-protection as well electricity
- 3) Only original spare parts from the manufacturer should be used. Please note that there are no components in this unit which can be repaired by using glue, silicone or any other similar method.
- 4) The green colour on transparent parts of CentaurSlam® Hornet may be damaged because of external affects like solvents or chemicals or mechanical stress. In case the green colour has disappeared in one area greater than 100 cm² the part has to be changed. The surface resistance of the transparent parts has to be between 1 MΩ - 1 GΩ.
- 5) Maintenance instructions with exploded-view diagram and spare parts list are available at your local distributor and the manufacturer. Please, when requesting maintenance instructions with exploded-view diagrams, include the model and serial number of the product.

4.3 Testing

Tests are to be done according to EN 60079-19 until returning the repaired unit back to operation. Below mentioned tests shall be done in addition to the tests specified in EN 60079-19

- PE –resistance test
- High-voltage test (500 VDC between Phase& Neutral against P/E conductor)
- Operational test
- Test of expected use (vibrations, shaking)

Proper testing ensure safe operation of repaired equipment.

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4.4 Repair report

The operator is responsible for keeping up to date record of the condition of his equipment (EN 60079-14). Ensuring the availability of this important information each repair procedure should be written down in repair report according to EN 60079-19.

This report should reveal at least:

- Person who conducted the maintenance
- Date of maintenance
- Procedure of maintenance
- Signature of person responsible accepting the maintenance

4.6 More information about the use of Electrical Apparatus for Explosive Gas Atmospheres

Please observe the requirements of the valid standards of the day. Please study at least the following standards:

EN 60079-14 (Electrical installations in hazardous areas)

EN 60079-10 (Classification of hazardous areas)

EN 60079-17 (Inspection and maintenance of electrical installations in hazardous areas)

EN 60079-19 (Repair and overhaul for apparatus used in potentially explosive atmospheres)

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Helpdesk

Under any doubt or question, please contact your local distributor or the manufacturer.

Contact details:

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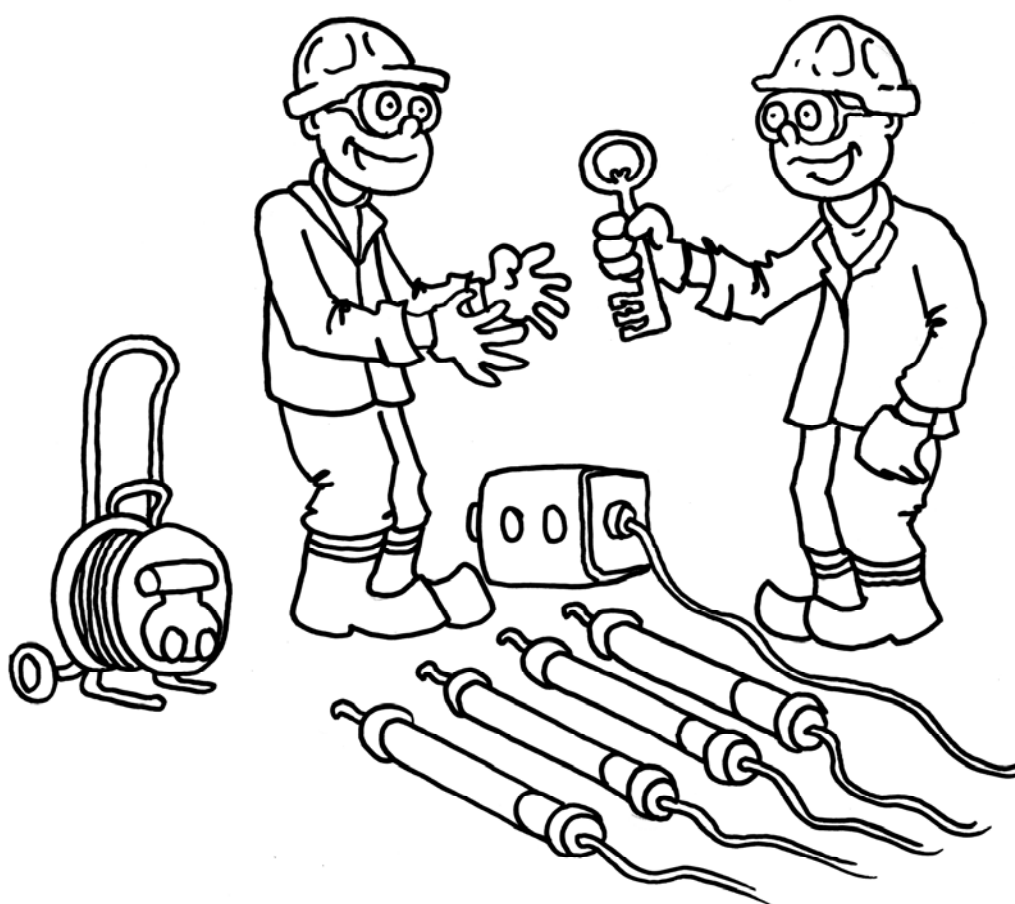
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