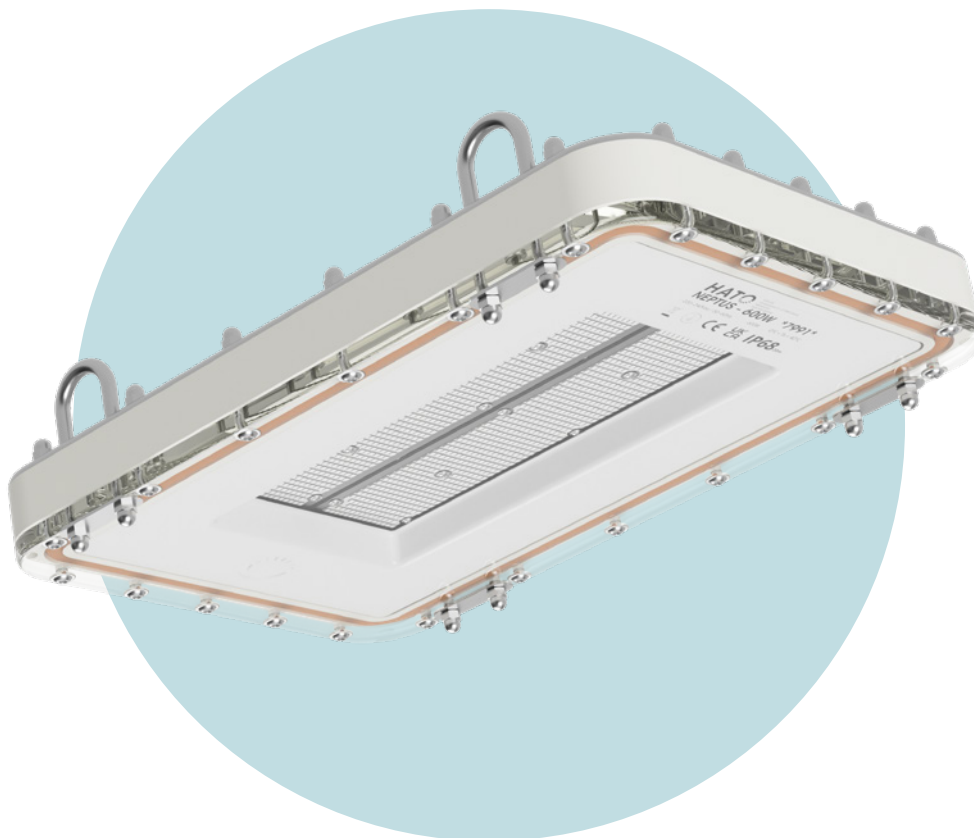


Installation Instruction

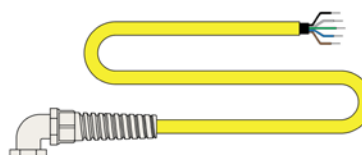
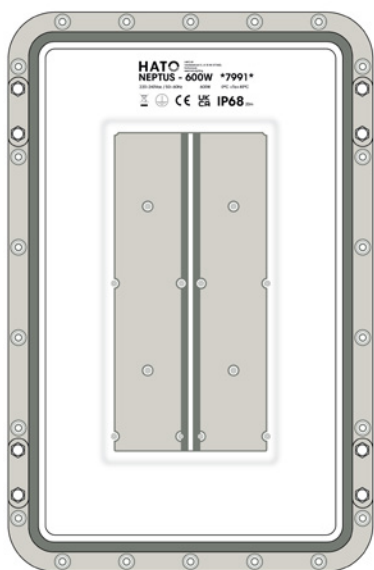
NEPTUS



Package content

NEPTUS 300W or 600W Luminaire

NEPTUS Cable



50 meter PUR cable h07BQ-F 3g1,5
OEM: LAPP ÖLFLEX® 550 P - 00136233



NEPTUS

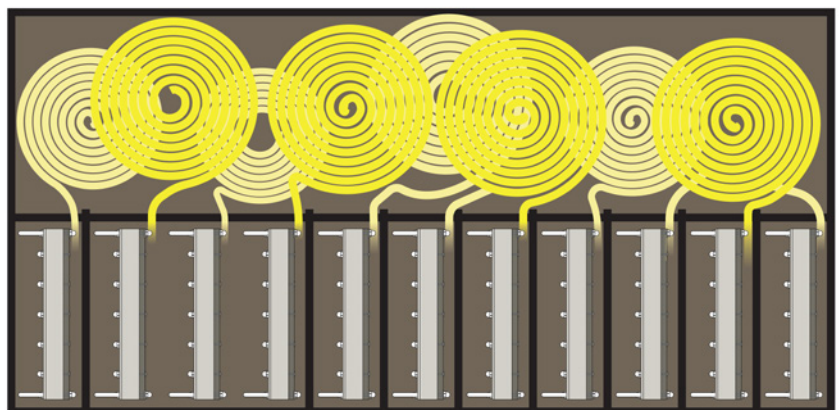


WARNING:

NEPTUS lamps are designed to be used submerged.
Do not turn the lamps on above water!

NEPTUS Packaging

NEPTUS is delivered in a wooden packaging reusable for lamp storage and recyclable if not needed



NEPTUS

Power distribution box contents

6 luminaires is typical in a typical 160m circumference (50m diameter) seacage

3 phase circuit breaker for incoming power line (follow local regulations)

1 circuit breakers for outgoing connections to each luminaire: 6 circuit breakers for the shown example (advised minimum 6B type).

- 1 input for DALI cable via cable gland
- 5 terminals for connecting the luminaires (Pe, Phase, Neutral, DALI+, DALI-)

Power distribution to the cage

Power distribution from land or generator should be designed per site by a trained professional that knows local laws and regulations for industrial electrical installation.

Price will vary depending on distances, amount of tanks/modules, topology, user requirements, other equipment installed, etc.

Power distribution at cage

Typically power distribution boxes are needed when installing luminaires.

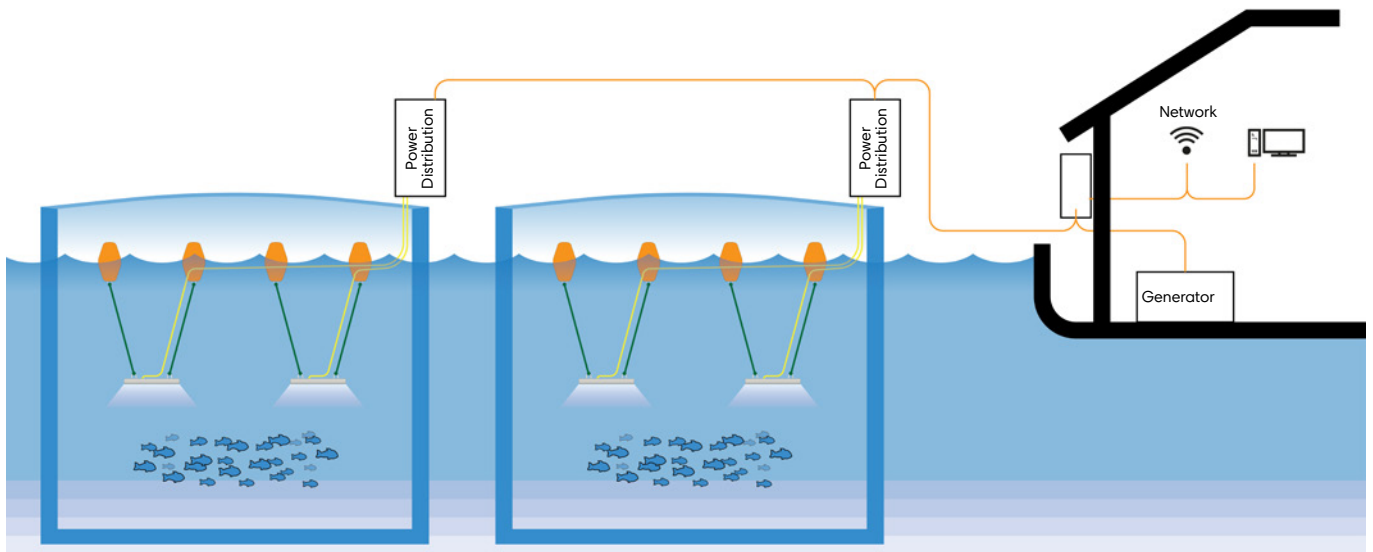
Number luminaires per cage depends on installation:

Polar circles (50m diameter):

1 distribution box per cage, for 6 luminaires

Modules:

1 power distribution box with 8 positions for 2 cages (4 lums per cage) - Can vary per installation.



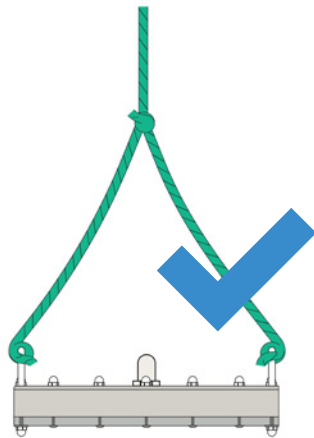
Typical Installation example



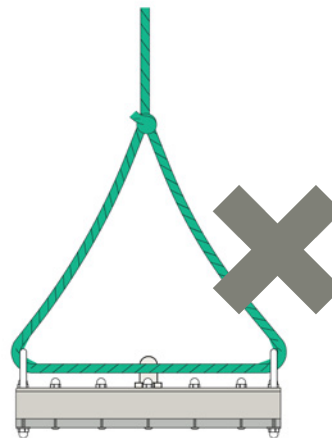
NEPTUS

Rope

Typical ropes used:
Green polypropylene 3-stand, 10-16mm



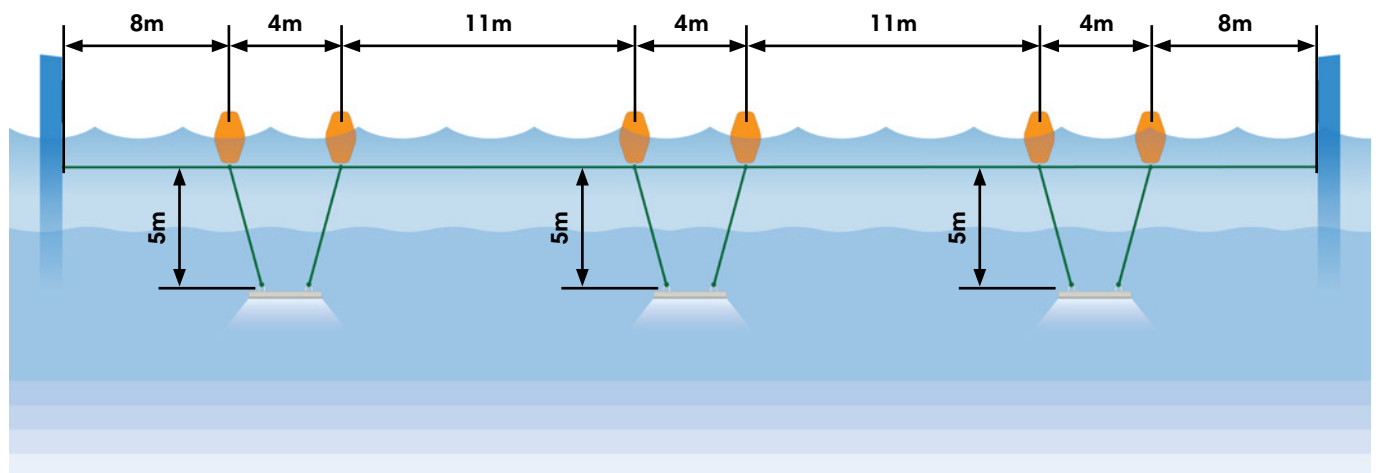
Luminaire will stay horizontal



Luminaire will move and tilt vertically

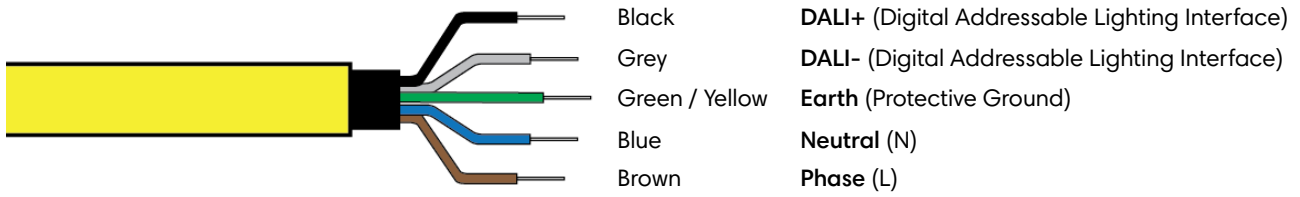
Typical installation with 6 luminaires in a cage uses 280m rope in total (2 trains of 140m):

- 1 long rope ~ 80m (50m side to side + slack + knots)
- 6 ropes to luminaires and buoys ~ 10m (incl. knots, slack and buoy)



NEPTUS

Connections

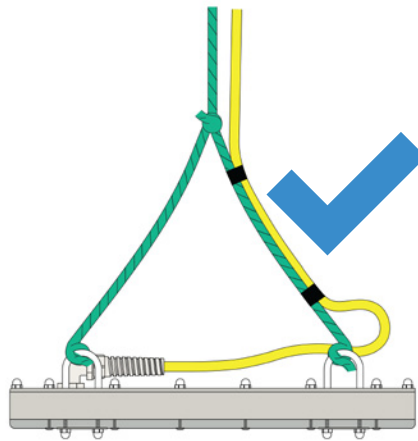


DALI wires (grey and black) carry the control signal.

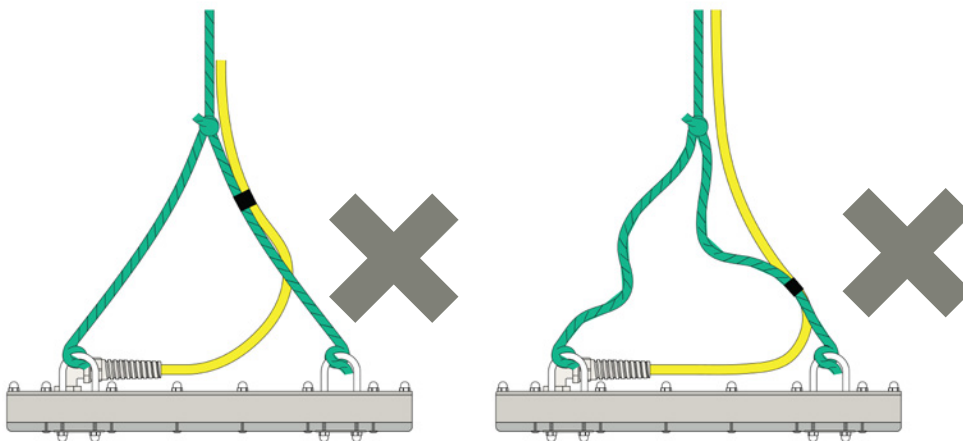
Most modern DALI devices are not polarity-sensitive, but it's good practice to keep black as DALI+ and grey as DALI-.

The DALI bus can be up to 300 meters long and should follow DALI wiring standards.

Cable positioning



No force on cable when stretched



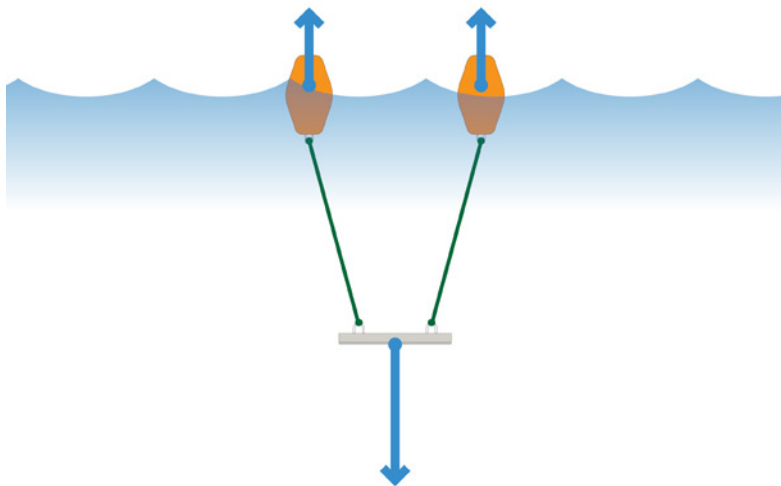
Force on cable when stretched



NEPTUS

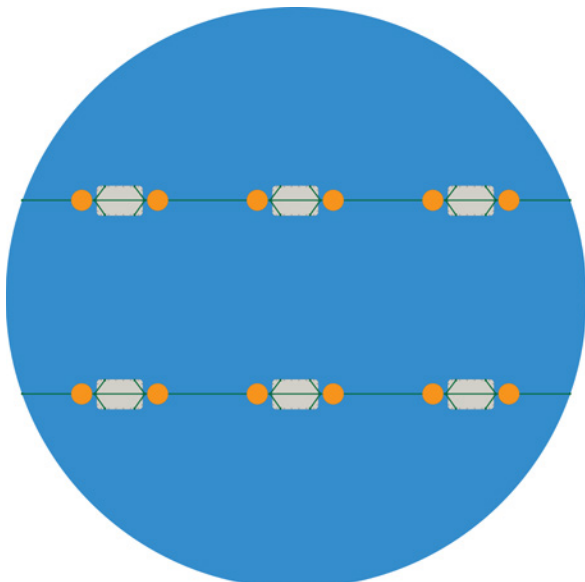
Buoys

2 buoys are required per luminaire.
Use following table to determine the weight:

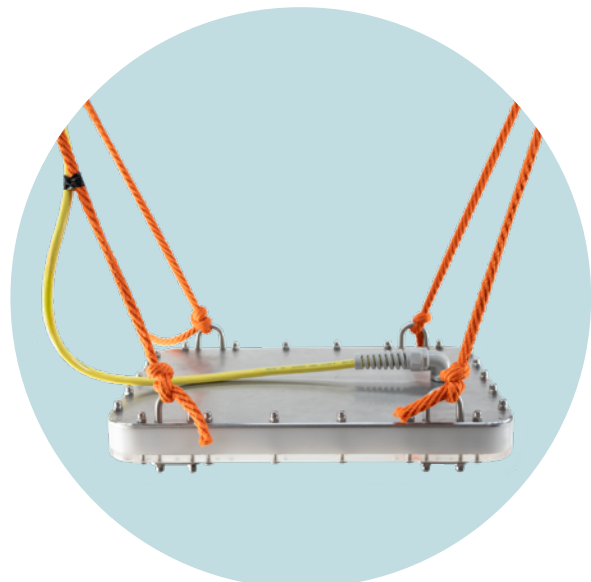


$$\uparrow + \uparrow = \downarrow + 0.5\text{Kg}$$

	Weight under water	Buoys
600W	~6.5Kg	2 x 4Kg
300W	~6.0Kg	2 x 4Kg



General distribution
Upper view



Proper NEPTUS attachment



NEPTUS

Operational Safety

This product operates at 230V AC and is designed for underwater use. The combination of high voltage and water presents a significant safety hazard if not properly managed. All testing and operation must ensure that electrical insulation is intact and verified through insulation resistance testing. Proper grounding of all metallic parts is mandatory to prevent electric shock in case of insulation failure. Protective measures such as waterproof connectors, and sealed enclosures must be used at all times. During testing, ensure that all personnel are trained and that test setups are equipped with emergency shutoff mechanisms. Never operate the lamp outside of its rated conditions or with compromised seals.



Risk assessment on escapes

Risk matrix – Risk of escapes Point

Point	Danger	Reason for danger	Likelihood	Consequences	Risk	Measure
1	Chafing on net	Two fixing ropes loosen and the luminaire in the net	1	4	4	Correct fixing and inspection. The luminaire made to hang free at the desired depth. The luminaire does not have sharp edges.
2	Tearing of net	Damage to the luminaire exposes sharp edges that come into contact with the net	1	4	4	Correct fixing and inspection with underwater camera
3	Can fall into the net, be hanging against the net	Failure in hanging ropes	1	4	4	Inspection with underwater camera or after installation
4	Deformation of main component	Too heavy load on the handrail if the luminaires hooks into other components	1	4	4	Inspection with underwater camera
5	Secondary damage to main component	-	0	0	0	
6	Short circuit and fire (net and float collar)	water ingress or electronic failure	1	2	2	use of proper circuit breakers per luminaire in the power box
7	Water intrusion (power cabinet for components)	water ingress or electronic failure	1	2	2	use of proper circuit breakers per luminaire in the power box
8	Icing hazard	Icing on ropes causes them to loosen or overload the handrail.	1	4	4	Breaking/melting of ice.
9	Corrosion, loss of initial strength	Negligible weakening in components due to corrosion will lead to shorter product lifetime	1	4	4	Inspection
10	Production defects, fatigue	Production defects can cause breakage in special cases.	1	4	4	Inspection
11	Different practices for installation and operation	Increases likelihood of the dangers mentioned above	3	3	9	Good user manual. Offer assistance with installation.
12	Not notice / not notify about the accident	Increases likelihood of the dangers mentioned above.	3	3	9	Good user manual. Offer assistance with installation.



NEPTUS

Norms and Regulations

NEPTUS luminaires comply to the following norms and regulations:

EU Directives:

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- RoHS Directive 2011/65/EU with amendment 2015/863/EU

The following harmonized standards have been applied:

- EN IEC 60598-1:2025
- EN IEC 60598-2-1:2021
- EN IEC 62493:2015/A1:2022
- EN 55015:2019 + A11:2020
- EN IEC 61547:2023
- EN IEC 61000-3-2:2019/A1:2021
- EN 61000-3-3:2013/A2:2021/AC:2022

IEC:

- Electrical safety standards
- IEC 60598-1:2024
- IEC 60598-2-1:2020

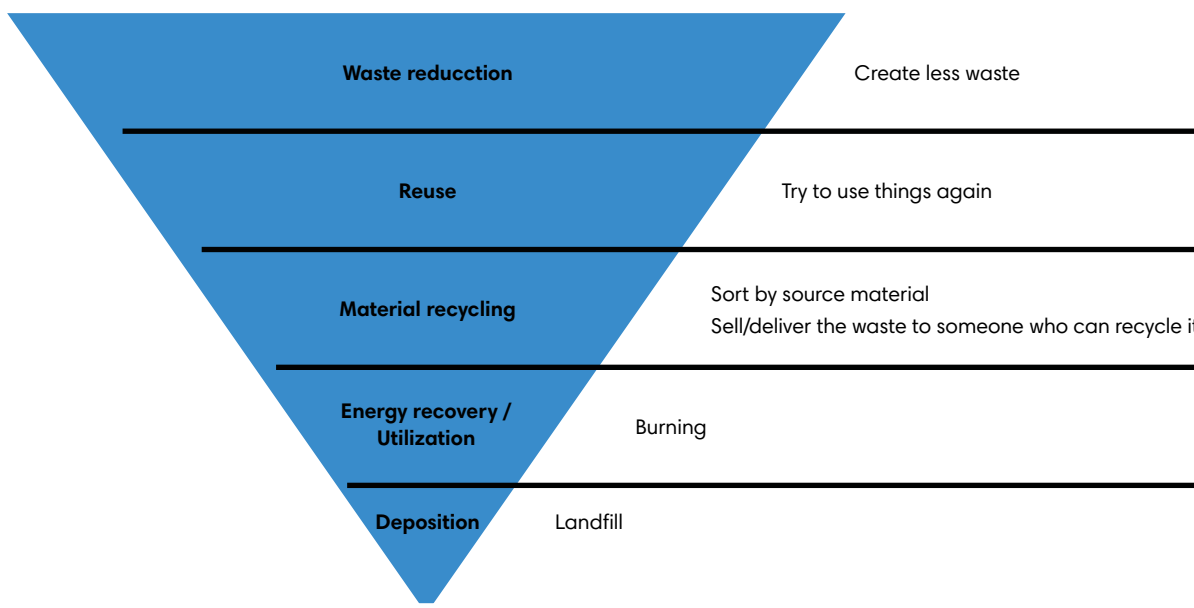
As manufacturer we have taken Norwegian standards NYTEK23 and NS 9415:2021+AC:2024 into account during development and production.

Main aspects:

- Design optimized to minimize chance of damaging nets or other main equipment
- Determined needed buoyancy & installation instructions
- Deliver products in appropriate packaging
- Making sure all required documentation is available

Disposal

We refer to the waste pyramid as a general guideline for disposal of our products. The equipment falls under the category electrical equipment and is able to be largely recycled. Follow local instructions for this.



NEPTUS

EN

General safety notes 230VAC luminaire

Read and follow all instructions

1. Failure to follow warnings and installation instructions can cause serious personal injury or damage the installation.
2. Installation must be in accordance with latest electrical regulations and national requirements.
3. Turn off electrical power before installing or servicing the luminaire in any way.
4. Broken or damaged luminaires must be removed immediately.
5. The person responsible for any modification to luminaire shall be considered the manufacturer.
6. HATO bears no liability for damage caused by inappropriate use or application.
7. To reduce the risk of fire and overheating, make sure all connections are made according to standard regulations and installation instructions.
8. To reduce the risk of fire and burns do not install this luminaire where the exposed bare conductor can contact any conductive material.
9. Do not install any luminaire closer than 15 cm from any combustible materials or a heat source.
10. Only clean this luminaire with water.
11. If not provided: please note that the maximum powercable length is determined by the automatic circuit breaker.

NO

Generelle sikkerhetsforskrifter for 230 VAC-armatur

Les alle instruksjoner og følg dem

1. Manglende overholdelse av advarsler og installasjonsinstruksjoner kan føre til alvorlig personskade eller skade på installasjonen.
2. Installasjonen må utføres i samsvar med gjeldende elektriske forskrifter og nasjonale krav.
3. Slå av strømmen før du installerer eller utfører service på armaturen på noen måte.
4. Ødelagte eller skadede armaturer må fjernes umiddelbart.
5. Personen som er ansvarlig for enhver modifikasjon av armaturen skal anses som produsenten.
6. HATO påtar seg intet ansvar for skade forårsaket av feil bruk eller anvendelse.
7. For å redusere risikoen for brann og overoppheting, sørg for at alle tilkoblinger er utført i henhold til standard forskrifter og installasjonsinstruksjoner.
8. For å redusere risikoen for brann og forbrenning, ikke installer denne armaturen der eksponert, uisolert leder kan komme i kontakt med ledende materiale.
9. Ikke installer noen armatur nærmere enn 15 cm fra brennbare materialer eller varmekilder.
10. Rengjør kun denne armaturen med vann.
11. Hvis ikke oppgitt: Vennligst merk at maksimal lengde på strømkabelen bestemmes av den automatiske sikringsbryteren.

ES

Indicaciones generales de seguridad para luminaria de 230VAC

Lea y siga todas las instrucciones

1. El incumplimiento de las advertencias e instrucciones de instalación puede causar lesiones graves o dañar la instalación.
2. La instalación debe realizarse conforme a las últimas normativas eléctricas y requisitos nacionales.
3. Desconecte la alimentación eléctrica antes de instalar o realizar cualquier mantenimiento en la luminaria.
4. Las luminarias rotas o dañadas deben retirarse inmediatamente.
5. La persona responsable de cualquier modificación en la luminaria será considerada el fabricante.
6. HATO no asume ninguna responsabilidad por daños causados por uso o aplicación inadecuada.
7. Para reducir el riesgo de incendio y sobrecalentamiento, asegúrese de que todas las conexiones se realicen conforme a las normativas y a las instrucciones de instalación.
8. Para reducir el riesgo de incendio y quemaduras, no instale esta luminaria donde un conductor desnudo expuesto pueda entrar en contacto con material conductor.
9. No instale ninguna luminaria a menos de 15 cm de materiales combustibles o de una fuente de calor.
10. Limpie esta luminaria únicamente con agua.
11. Si no se indica: tenga en cuenta que la longitud máxima del cable de alimentación está determinada por el interruptor automático.



NEPTUS

IS

Almennar öryggisreglur 230VAC-ljós

Lestu og fylgdu öllum leiðbeiningum.

1. Ef ekki er fylgt viðvörðunum og uppsetningarleiðbeiningum getur það valdið alvarlegum meiðslum eða skemmt uppsetninguna.
2. Uppsetning verður að vera í samræmi við nýjustu rafmagnsreglur og landskröfur.
3. Slökktu á rafmagni áður en ljósið er sett upp eða þjónustað á nokkurn hátt.
4. Brotin eða skemmd ljós skulu fjarlægð strax.
5. Sá sem ber ábyrgð á breytingum á ljósinu telst framleiðandi.
6. HATO ber enga ábyrgð á tjóni sem stafar af rangri notkun eða beitingu.
7. Til að draga úr hættu á eldi og ofhitnun, vertu viss um að allar tengingar séu gerðar samkvæmt reglugerðum og uppsetningarleiðbeiningum.
8. Til að draga úr hættu á eldi og bruna, ekki setja ljósið þar sem óeinangraður leiðari getur snert leiðandi efni.
9. Ekki setja neitt ljós nær en 15 cm frá eldfimur efnunum eða hitagjafa.
10. Hreinsaðu þetta ljós aðeins með vatni.
11. Ef ekki er tilgreint: Athugaðu að hámarks lengd rafmagnssnúru er ákvörðuð af sjálfvirkum öryggisrofa.

DE

Allgemeine Sicherheitsanweisungen 230VAC-Leuchte

Alle Anweisungen lesen und befolgen

1. Das Nichtbefolgen von Warnhinweisen und Installationsanweisungen kann zu schweren Verletzungen oder Schäden an der Installation führen.
2. Die Installation muss gemäß den aktuellen elektrischen Vorschriften und nationalen Anforderungen erfolgen.
3. Schalten Sie die Stromversorgung aus, bevor Sie die Leuchte installieren oder warten.
4. Beschädigte oder defekte Leuchten müssen sofort entfernt werden.
5. Die Person, die Änderungen an der Leuchte vornimmt, gilt als Hersteller.
6. HATO übernimmt keine Haftung für Schäden, die durch unsachgemäße Verwendung oder Anwendung entstehen.
7. Um das Risiko von Brand und Überhitzung zu verringern, stellen Sie sicher, dass alle Anschlüsse gemäß den Vorschriften und Installationsanweisungen ausgeführt werden.
8. Um das Risiko von Brand und Verbrennungen zu verringern, installieren Sie diese Leuchte nicht dort, wo ein freiliegender Leiter mit leitfähigem Material in Berührung kommen kann.
9. Installieren Sie keine Leuchte näher als 15 cm von brennbaren Materialien oder einer Wärmequelle.
10. Reinigen Sie diese Leuchte nur mit Wasser.
11. Falls nicht angegeben: Bitte beachten Sie, dass die maximale Länge des Stromkabels durch den automatischen Schutzschalter bestimmt wird.

CN

230VAC 灯具一般安全注意事项

请阅读并遵循以下说明

1. 未遵守警告和安装说明可能导致严重人身伤害或损坏安装。
安装必须符合最新的电气法规和国家要求。
在安装或维护灯具之前，请切断电源。
损坏或破损的灯具必须立即拆除。
对灯具进行任何修改的人将被视为制造商。
HATO 对因不当使用或应用造成的损害不承担任何责任。
为降低火灾和过热风险，请确保所有连接均符合标准法规和安装说明。
为降低火灾和灼伤风险，请勿在裸露导体可能接触导电材料的地方安装此灯具。
请勿将任何灯具安装在距离可燃材料或热源少于15厘米的位置。
仅使用清水清洁此灯具。
如果未提供：请注意，电源线的最大长度由自动断路器决定。

