



LED pendant light fitting, PESO version

Series 6057/21

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1 General information

1.1 Manufacturer

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1.2 Information regarding the operating instructions

ID no.: 288828 / 605760300010
Publication code: 2023-01-09·BA00·III·en·01

The original instructions are the English edition.
They are legally binding in all legal affairs.

1.3 Further documents

- Data sheet
- For documents in other languages, see r-stahl.com.

1.4 Conformity with standards and regulations

For other certificates contact your local sales office at R. STAHL.

2 Explanation of symbols

2.1 Symbols used in these operating instructions

Symbol	Meaning
	Tips and recommendations on the use of the device
	General danger
	Danger due to explosive atmosphere
	Danger due to live components
	Risk of damage to the eyes caused by optical radiation.

2.2 Warning notes

Warning notes must be observed under all circumstances, in order to minimise the risk resulting from design engineering and operation. The warning notes have the following structure:

- Signalling word: DANGER, WARNING, CAUTION, NOTICE
- Type and source of danger/damage
- Consequences of danger
- Taking countermeasures to avoid the danger or damage

	DANGER
	Danger to persons Non-compliance with the instruction results in severe or fatal injuries to persons.
	WARNING
	Danger to persons Non-compliance with the instruction can result in severe or fatal injuries to persons.
	CAUTION
	Danger to persons Non-compliance with the instruction can result in light injuries to persons.
NOTICE	
Avoiding material damage Non-compliance with these instructions can result in material damage to the device and/or its surroundings.	

2.3 Symbols on the device

Symbol	Meaning
PESO	Device certified for hazardous areas according to the marking.

3 Safety notes

3.1 Operating instructions storage

- Carefully read the operating instructions.
- Store the operating instructions at the mounting location of the device.
- Observe applicable documents and operating instructions of the devices to be connected.

3.2 Safe use

Before installation

- Read and observe the safety notes in these operating instructions!
- Ensure that the contents of these operating instructions are fully understood by the personnel in charge.
- Use the device in accordance with its intended and approved purpose only.
- Always consult R. STAHL if using the device under operating conditions which are not covered by the technical data.
- We cannot be held liable for damage to the device caused by incorrect or unauthorised use or non-compliance with these operating instructions.
- Only use the device in hazardous areas for which it is approved.

For mounting and installation

- Observe national mounting and installation regulations (e.g. IS 16724/IEC 60079-14).
- Observe national safety and accident prevention regulations.
- During installation and operation, observe the information (characteristic values and rated operating conditions) on the rating, data and information plates located on the device.
- Before installation, make sure that the device is not damaged.
- Do not open the device if an explosive atmosphere is present.
- Observe the degree of protection (cable entry) (see "Technical data" chapter).
- Switch the device off so that it is de-energised before opening it.
- Mount, install and operate the device so that it is protected against external heat sources and/or direct sunlight.
- Ensure that the device cannot become electrostatically charged.
- Do not install the device within arm's reach.

Maintenance, repair, commissioning



- Before commissioning, make sure that the device is not damaged.
- Work on the device, such as installation, maintenance, overhaul, repair, may only be carried out by appropriately authorised and trained personnel.
- Only perform the maintenance work and repairs described in these operating instructions.

3.3 Intended use


The luminaire is equipment

- for lighting areas, work spaces and objects
- that can be used indoors and outdoors
- for stationary mounting
- for use in Zones 1, 21, 2, 22 and in the safe area

3.4 Modifications and alterations

	DANGER
	<p>Explosion hazard due to modifications and alterations to the device! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Do not modify or change the device.
	<p>No liability or warranty for damage resulting from modifications and alterations.</p>

4 Function and device design

	DANGER
	<p>Explosion hazard due to improper use! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Use the device only according to the operating conditions described in these operating instructions. • Use the device only for the intended purpose specified in these operating instructions.

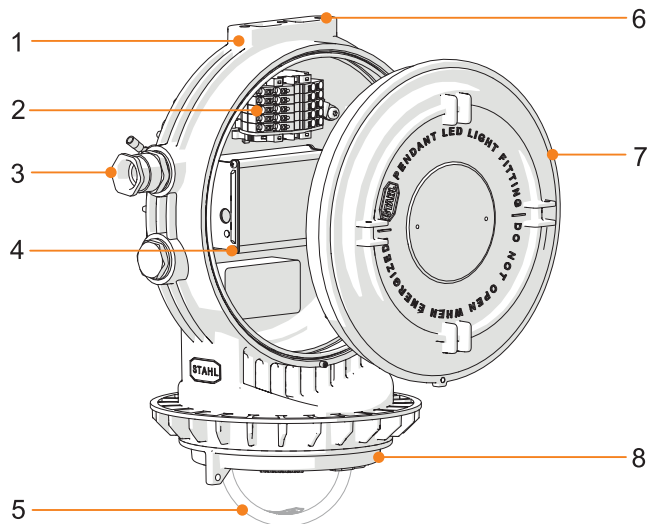
4.1 Function

Application range

The luminaire 6057/2 is equipment used for lighting areas, work equipment and objects. It can be used indoors and outdoors.

The luminaire is approved for use in hazardous areas of Zones 1, 2, 21 and 22.

4.2 Device design



1	Enclosure	5	Glass
2	Terminal block	6	M8 screw holes
3	Cable entry	7	Covering
4	Control gear	8	Glass cover

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5 Technical data

Explosion protection

PESO

Gas and dust	KLPL/Ex/21-032X Ex db IIC T6 ... T4 Gb Ex tb IIIC T85 °C ... T106 °C Db
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Certifications and certificates

Certifications	PESO
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Technical data

Electrical data

Rated operational voltage	AC: 220 to 240 V ±10% 50/60 Hz					
Rated operational current	Variant					
	6057/21..-2..-....-...-...	25 W	45 W	65 W	80 W	
	230 V AC	≤ 0.130 A	≤ 0.210 A	≤ 0.288 A	≤ 0.363 A	
Start-up current	Variant	Power [W]	Start-up current			
	6057/21.2-1..-....-...-...	25	$I_{peak} = \leq 16 \text{ A}; \Delta t = 100 \mu\text{s}$			
	6057/21.4-1..-....-...-...	45	$I_{peak} = \leq 16 \text{ A}; \Delta t = 100 \mu\text{s}$			
	6057/21.6-1..-....-...-...	65	$I_{peak} = \leq 16 \text{ A}; \Delta t = 100 \mu\text{s}$			
	6057/21.8-2..-....-...-...	80	$I_{peak} = \leq 64 \text{ A}; \Delta t = 108 \mu\text{s}$			
	Maximum number of luminaires per miniature circuit breaker at 230 V:					
	Variant	Type	10 A	16 A	20 A	25 A
	6057/21.2-1..-....-...-...	B	56	67	83	104
		C	83	100	125	156
	6057/21.4-1..-....-...-...	B	40	48	60	75
		C	60	72	90	113
	6057/21.6-1..-....-...-...	B	29	34	43	54
		C	43	51	64	88
	6057/21.8-2..-....-...-...	B	11	18	23	29
		C	13	22	27	34
Power factor	$\cos \phi \geq 0.96$					
THD	25 W	45 W	65 W	80 W		
	< 11%	< 10%	< 10%	< 10%		

Technical data

Surge protection	Internal surge protection:		
	L - N	4 kV	
	L - PE	4 kV	
	N - PE	4 kV	
	Optional surge protection:		
	L - N	20 kV (Short-circuit peak current 10 kA)	
Class	L - PE	20 kV (Short-circuit peak current 1.67 kA tested with 20 Ω)	
	N - PE	20 kV (Short-circuit peak current 1.67 kA tested with 20 Ω)	
	I (with internal PE connection)		

Luminous characteristics

 Colour rendering $R_a: \geq 80$
Variants^{*)}

6057/.1...-...-1...-...	25 W	45 W	65 W	80 W
Power consumption [W]	27.8	44.5	60.7	77.4
Colour rendering [CRI]	80	80	80	80
Luminous flux [lm]	3123	5075	6462	8101
Luminaire efficacy [lm/W]	116	114	107	105

^{*)} Values apply to $T_a = +25\text{ °C}$.

^{*)} Values apply to colour temperature: 5,000 K, 5,700 K and 6,500 K.

Ambient conditions

Functional ambient temperature range	-20 to +50 °C (+60 °C optional on request)			
Storage temperature	-20 to +60 °C			
Temperature class, max. surface temperature	Electrical power [W]	max. surface temperature		
		T6 / T85 °C	T5 / T100 °C	T4 / T106 °C
	25	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$	–	–
	45	$-20\text{ °C} \leq T_a \leq +50\text{ °C}$	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$	–
	65 / 80	–	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$
Requirements for conductor and cable gland	25 W	45 W	65 W	80 W
	$\geq 75\text{ °C}$	$\geq 80\text{ °C}$	$\geq 90\text{ °C}$	$\geq 90\text{ °C}$

Technical data

Service life

LED		25 W	45 W	65 W	80 W
	$L_{70}B_{10}$ at $T_a = 50\text{ °C}$	100,000 h	100,000 h	100,000 h	80,000 h
	L_xB_y At the end of the service life:				
	<ul style="list-style-type: none"> Luminous flux declines to "x" percent up to "y" percent of all luminaires do not reach "x" 				
Control gear		25 W	45 W	65 W	80 W
	C_{10} at $T_a = 50\text{ °C}$ C_{10} = failure rate 10 %	50,000 h	50,000 h	40,000 h	50,000 h

Mechanical data

Degree of protection	IP66/IP67
Impact strength (IK code)	IK10
Material	
Enclosure	Aluminium
Enclosure colours	Light grey, RAL 7035, powder-coated
Seal	Silicone
Luminaire cover	Reinforced glass (dome)
Luminaire cover/ enclosure lock mounting	Thread

Mounting/installation



Cable entry	Variant	Cable entry type/size (2 x entries)
	6057/211.-...-1.-...-...	M20
	6057/211.-...-2.-...-...	M25
	6057/211.-...-3.-...-...	1/2" NPT
	6057/211.-...-4.-...-...	3/4" NPT
Cable gland	Plug and cable gland are available separately	
Connectivity	Spring clamp terminals 3-pole: L, N, PE Clamping range: Standard: 1 x 1.5 to 4 mm ² (solid and finely stranded) Optional: 1 x 1.5 to 6 mm ² (solid and finely stranded with core end sleeves) (2 free clamping units per pole available)	
Through wiring	Max. 3 x 10 A	

For further technical data, see r-stahl.com.

6 Transport and storage

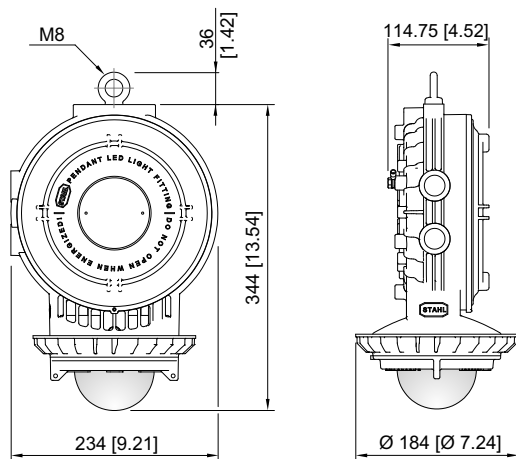
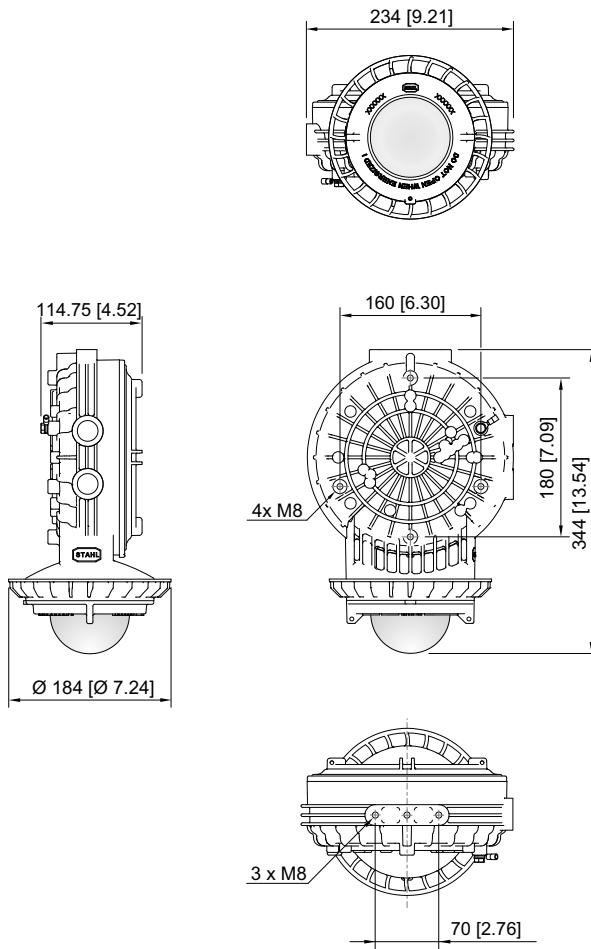
- Transport and store the device only in the original packaging.
- Store the device in a dry place (no condensation) free of vibrations.
- Do not drop the device.

7 Mounting and installation

	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to electrostatic discharge! Non-compliance results in severe or fatal injuries.</p> <p>Do not use the device in strong charge-generating environments!</p> <p>The following processes/activities should be avoided:</p> <ul style="list-style-type: none"> • Accidental friction • Particle flows
	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to incorrect installation of the device! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Carry out installation strictly according to the instructions and national safety and accident prevention regulations to maintain explosion protection. • Select and install the electrical device so that explosion protection is not affected due to external influences, i.e. pressure conditions, chemical, mechanical, thermal and electrical influences such as vibration, humidity and corrosion (see IS 16724/IEC 60079-14). • The device must only be installed by trained qualified personnel who are familiar with the relevant standards.
<p style="text-align: center;">NOTICE</p> <p>Malfunction or device damage caused by condensation. Non-compliance may lead to material damage!</p> <ul style="list-style-type: none"> • Operate the luminaire continuously or periodically over extended periods of time. • Avoid thermal bridges, use suitable installation accessories. 	

7.1 Dimensions/fastening dimensions

Dimensional drawings (all dimensions in mm [inch]) – Subject to change

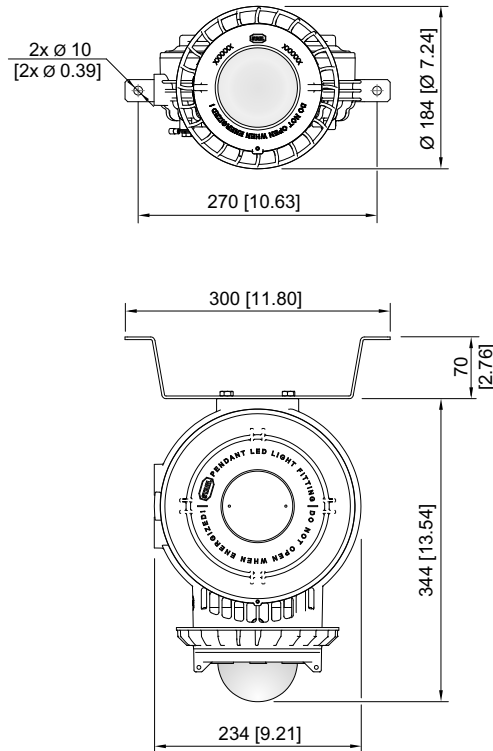


With ring eyes

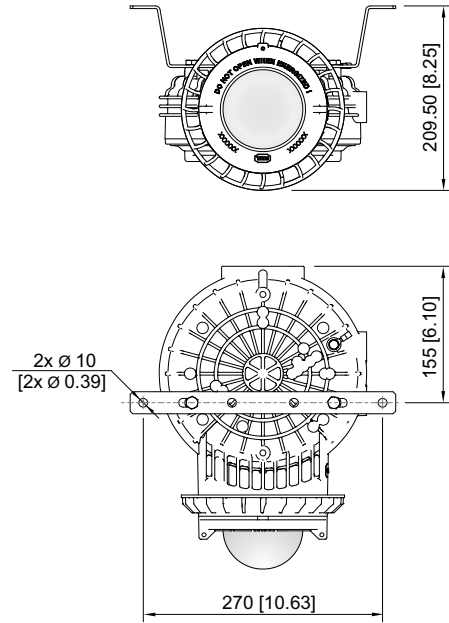
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Dimensional drawings (all dimensions in mm [inch]) – Subject to change

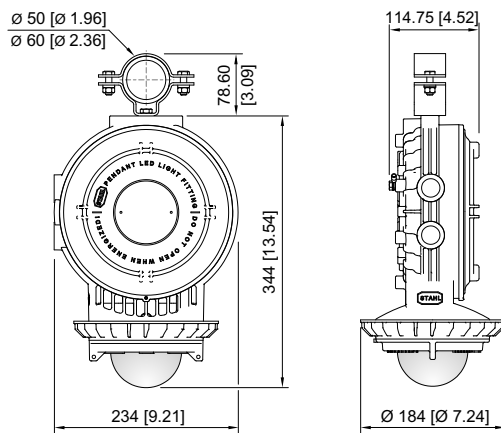


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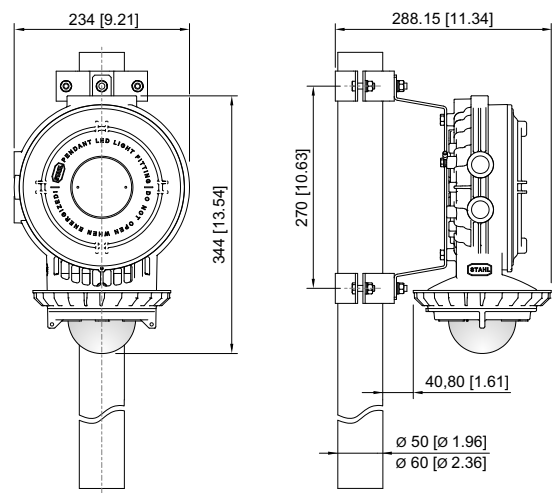
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With ceiling mount bracket



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With wall bracket






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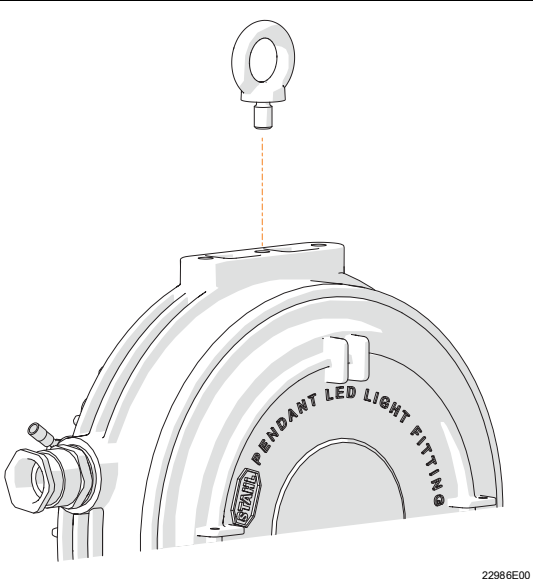
With pipe mounting (horizontal)

With pipe mounting (vertical)

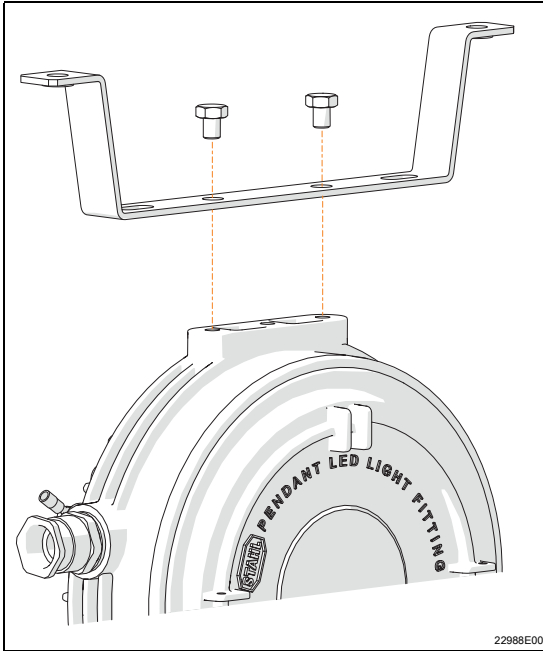
7.2 Mounting/dismounting, operating position

	DANGER
	<p>Explosion hazard due to impermissible heating! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Avoid external heat sources – comply with the ambient temperature range (risk of change of temperature class or change of maximum permissible surface temperature). • Do not exceed the maximum ambient temperature due to external heat sources (premature failure of equipment).
	DANGER
	<p>Explosion hazard due to hot built-in components! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Only open the enclosure in switched-off state. • The device must be allowed to cool down for at least 15 minutes before opening it in explosive atmospheres.
	CAUTION
	<p>Risk of damage to the eyes caused by optical radiation! Non-compliance can result in minor injuries!</p> <ul style="list-style-type: none"> • Maintain a minimum distance between the luminaire and the viewer's eyes of at least 1.6 m.

7.2.1 Mounting ring eyes

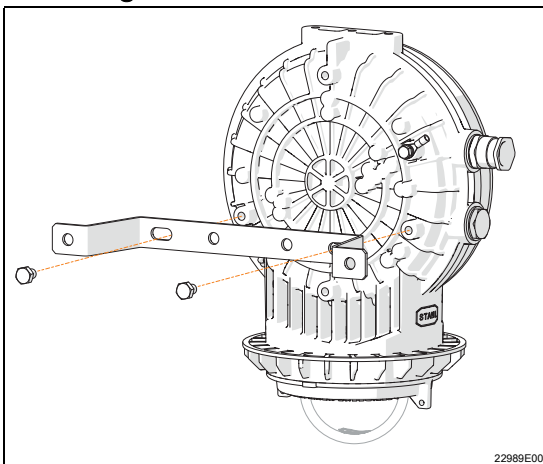
	<ul style="list-style-type: none"> • Screw the ring eyes into the intended threaded holes. The ring eyes can be used to suspend the luminaire. • 3 x M8 on the top can be used for anti-fall protection with safety chain for wall and pipe mounting. • 4 x M8 on the side of the mounting holes can be used for anti-fall protection with safety chain for ring bolt and ceiling mounting.
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7.2.2 Mounting the ceiling mount bracket



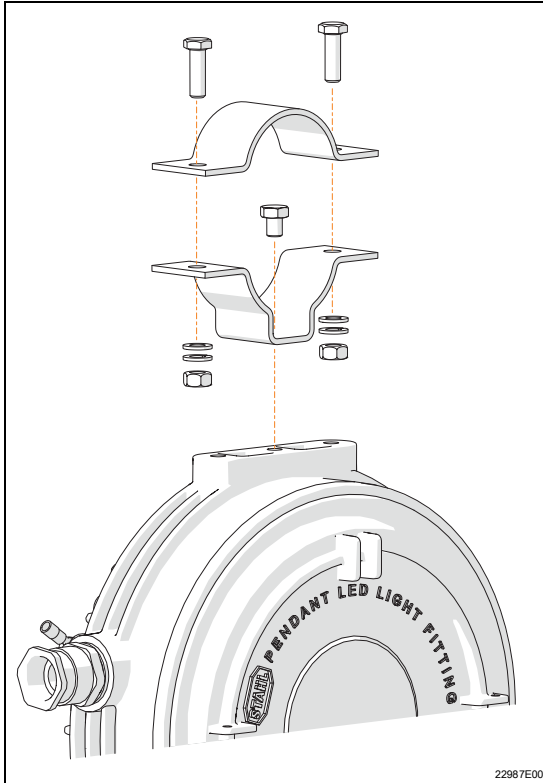
- Screw the mounting bracket into the intended threaded holes. The mounting bracket can be used to suspend the luminaire from the ceiling.

7.2.3 Mounting the wall bracket



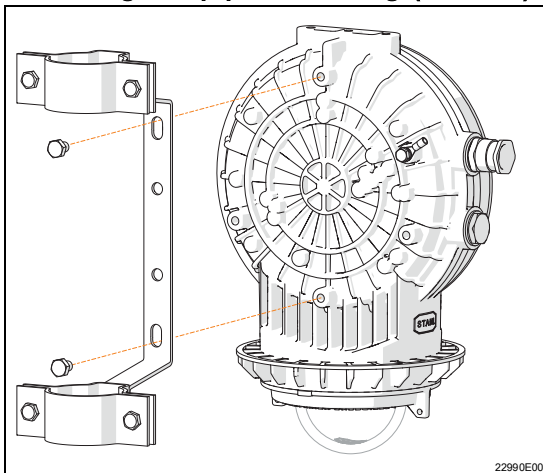
- Screw the mounting bracket into the intended threaded holes. The mounting bracket can be used to fasten the luminaire on walls.

7.2.4 Mounting the pipe mounting (horizontal)



- Screw the pipe clamp into the intended threaded holes.


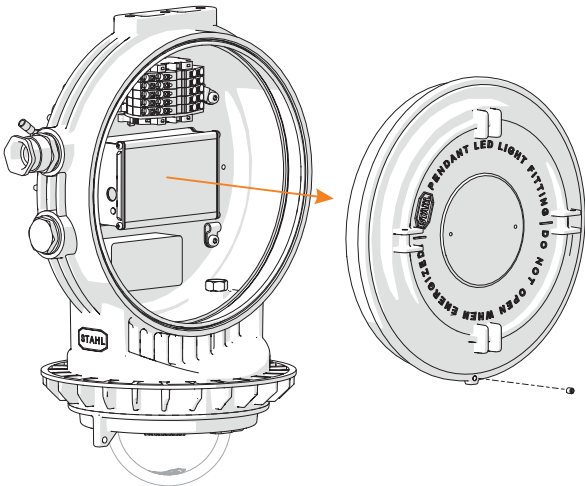
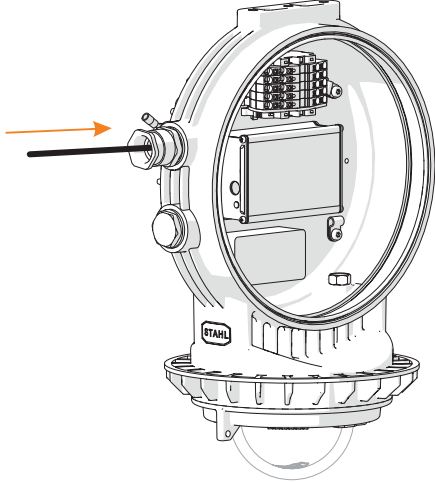
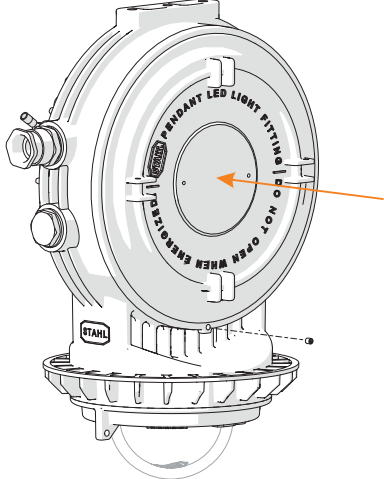
7.2.5 Mounting the pipe mounting (vertical)




- Screw the pipe clamp into the intended threaded holes.

7.3 Installation

7.3.1 Opening and closing the enclosure

	<p style="text-align: center;">DANGER</p> <p>Risk of electric shock due to improper opening! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Only open luminaires in a de-energised state.
 <p style="text-align: right;"><small>22981E00</small></p>	<p>Opening:</p> <ul style="list-style-type: none"> • Carefully loosen the cover and set it to one side.
 <p style="text-align: right;"><small>22984E00</small></p>	<ul style="list-style-type: none"> • Insert the conductor and connect it to the luminaire (electrical connections, see chapter 7.3.2; cable entries, see chapter 7.3.3)
 <p style="text-align: right;"><small>22982E00</small></p>	<p>Proceed in reverse order to close:</p> <ul style="list-style-type: none"> • Place the cover back on the luminaire and secure it.

7.3.2 Electrical connections

	DANGER
	<p>Explosion hazard due to faulty installation! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Only use conductors provided by the manufacturer for explosive areas. • Make sure that the IP protection is preserved after installation. • Adhere to the relevant conductor cross-section: <ul style="list-style-type: none"> • Standard: 1.5 to 4 mm² (solid and finely stranded) • Optional: 1.5 to 6 mm² (solid and finely stranded with core end sleeves)

Mains connection

Observe the maximum clamping possibility of the connection terminals (see chapter "Technical data").

Observe the following when connecting to the mains connection:

- Clamping must be carried out precisely!
- Do not clamp any part of the conductor insulation!
- Do not mix up the conductors.
- Observe the technical regulations when connecting the conductor.
- Clamp the conductor firmly.

Connection terminals

Clamping range:

Standard: 1 x 1.5 to 4 mm² (solid and finely stranded)

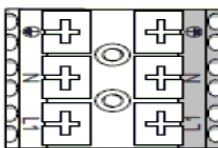
Optional: 1 x 1.5 to 6 mm² (solid and finely stranded with core end sleeves)


(2 free clamping units per pole available)

Stripping length:

10 to 11 mm

Standard:




- L1 = phase
- N = neutral conductor
-  = protective conductor

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7.3.3 Cable entries

The standard luminaire is delivered with 2 cable entries.
Luminaires with installed cable entries and stopping plugs.


Luminaires with cable entries and stopping plugs which are not supplied by R. STAHL

	DANGER
	<p>Explosion hazard due to impermissible cable entries and stopping plugs! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Use cable entries and stopping plugs which have been separately tested and certified according which comply with the standard version stated in the certificate of the luminaire.

Please observe the following:

- the required dust resistance!
- the required type of protection!
- the required temperature resistance!
- the IP degree of protection according to the rating plate!
- the operating instructions of the cable entries and stopping plugs!
- the required tightening torques!
- the area for the permissible conductor diameter!
- insert the metal cable entries and/or stopping plugs into the PE!
- use barrier glands for conductor lengths less than 3 m!



8 Commissioning

	DANGER
	<p>Explosion hazard due to incorrect installation! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Check the device for proper installation before commissioning. • Comply with national regulations.
NOTICE	
<p>Malfunction or device damage caused by condensation. Non-compliance may lead to material damage!</p> <ul style="list-style-type: none"> • Operate the luminaire continuously or periodically over extended periods of time. • Avoid thermal bridges, use suitable installation accessories. 	

Before commissioning, ensure the following:


- Check the mounting and installation.
- Check the device for damage.
- Remove any foreign objects.
- If necessary, clean the connection chamber.
- Monitor whether the electrical lines have been inserted correctly.
- Monitor whether all screws and nuts have been tightened securely.
- Monitor whether all drilled holes are closed.
- Monitor whether all cable entries and stopping plugs have been tightened securely.
- Monitor whether all conductors have been clamped firmly.
- Monitor whether the line voltage and the rated operational voltage are consistent.
- Monitor whether the permissible conductor diameters for the corresponding cable entries have been used.
- Monitor whether the device is closed according to regulations.

9 Maintenance, overhaul, repair

	<p style="text-align: center;">CAUTION</p> <p>Risk of electric shock or malfunction of the device due to unauthorised work! Non-compliance can result in minor injuries!</p> <ul style="list-style-type: none"> • Switch off the voltage supply before working on the device. • Work performed on the device must only be carried out by authorised and appropriately trained qualified electricians.
	<p style="text-align: center;">WARNING</p> <p>Risk of burns due to hot surfaces! Non-compliance can result in severe injuries and material damage.</p> <ul style="list-style-type: none"> • Allow the enclosure, the protective glass and the lamp to cool down for approx. 15 min before touching them.

9.1 Maintenance and overhaul


- Consult the relevant national regulations to determine the type and extent of inspections.
- Tailor inspection intervals to the operating conditions.
- Perform maintenance and repair work in accordance with IS/IEC 60079-17 and IS/IEC 60079-19.

	<p>Observe the relevant national regulations in the country of use.</p>
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During maintenance/overhaul of the device, the following points must be checked:

- Proper function of glass dome and enclosure,
- Condition of the connection lines,
- Connection of the protective conductor and equipotential bonding,
- Proper function and secure fit of cable entries,
- Seals within the cable entries,
- Cleanliness and proper function of the enclosure interiors (Ex d),
- Secure fit of the suspension mounting screws,
- Good visual condition of the flameproof joint (dirt or damage),
- Whether the permissible temperatures are complied with (according to IS/IEC 60079),
- Whether the device is used as intended and functions properly.

9.2 Repairs


	DANGER
	<p>Explosion hazard due to improper repair! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> Repair work on the devices must be performed only by R. STAHL.

9.3 Returning the device

- Only return or package the devices after consulting R. STAHL!
Contact the responsible representative from R. STAHL.

R. STAHL's customer service is available to handle returns if repair or service is required.

10 Cleaning

	DANGER
	<p>Explosion hazard due to heavy deposits of combustible dusts! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> Remove deposits of combustible dusts through regular cleaning according to IS/IEC 60079-10-2 and IS 16724/IEC 60079-14.


- Devices located in hazardous areas may only be cleaned with a damp cloth to avoid electrostatic charge.
- When cleaning with a damp cloth, use water or mild, non-abrasive, non-scratching cleaning agents.
- Do not use abrasive cleaning agents or solvents.

11 Disposal

- Observe national, local and statutory regulations regarding disposal.
- Separate materials for recycling.
- Ensure environmentally friendly disposal of all components according to statutory regulations.

12 Accessories and spare parts

NOTICE	
<p>Malfunction or damage to the device due to the use of non-original components. Non-compliance may lead to material damage!</p> <ul style="list-style-type: none"> Use only original accessories and spare parts from R. STAHL. 	

	<p>For accessories and spare parts, see the data sheet on our homepage r-stahl.com.</p>
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