

Installation and Operating Instructions for LED-Lights

- for authorized specialists only
- for all types of MADER LED-Lights



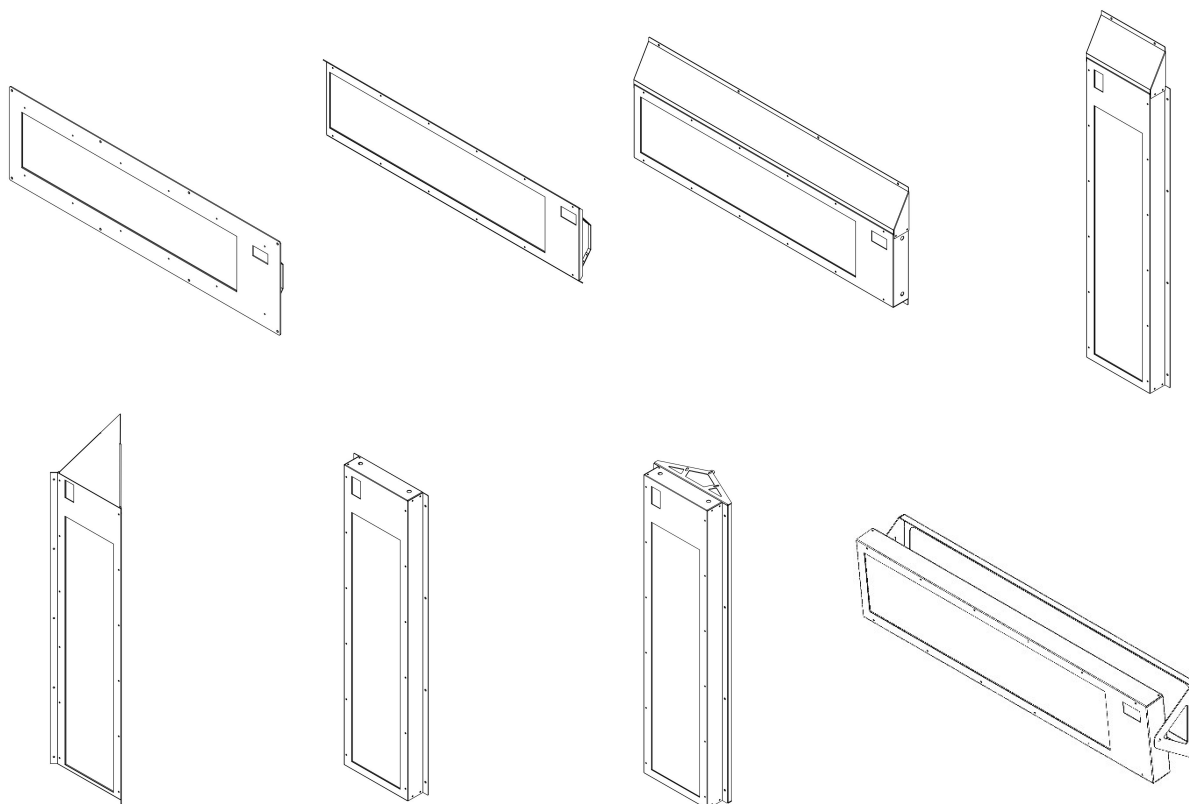
Contact:

MADER Hamburg GmbH
Adlerhorst 17
22459 Hamburg

Tel: +49 (0)40 / 411 88 38-0
info@mader.hamburg
www.mader.hamburg

Content	page
Table of contents	3
I Types	4
II EU-Declaration of Conformity	5
1 General Information	6
1.1 This Manual	
1.2 Warranty and Liability	
2 Safety Instructions	6
2.1 Genral Information	
2.2 Fuse and Leakage Current	
3 General Notes	6
3.1 General Information	
3.2 Behaviour at idle	
3.3 Overtemperature protection	
3.4 Overload Protection	
3.5 Moisture and Temperature	
3.6 Lifespan	
4 Technical Description	8
5 Maintenance / Cleaning	8
6 Type Label	8
7 Electrical connection	9
8 Specifications	10
9 Dimension	11
9.1 Typ WEL (46001)	11
9.2 Typ SEL45 (46003)	12
9.3 Typ WAL - horizontal - (46004)	13
9.4 Typ WAL - vertical - (46005)	14
9.5 Typ WAL - surface-mounted corner - (46006)	15
9.6 Typ WAL - surface-mounted ceiling - (46007)	16
9.7 Typ DAL - pendant light - (46009)	17
9.8 Typ WAL - pivotable light - (46010)	18

I Types



46001	LED-WEL	- build-in wall light
46003	LED-SEL	- build-in diagonal light 45°
46004	LED-WAL-W	- wall surface-mounted horizontal light
46005	LED-WAL-S	- wall surface-mounted vertical light
46006	LED-WAL-E	- wall surface-mounted corner light
46007	LED-WAL-D	- wall surface-mounted ceiling light
46009	LED-DAL	- pendant light
46010	LED-WAL-R	- pivotable light

Protection class:

	II 3G Ex ec IIC T4 Gc	(zone 2)
	II 3D Ex tc IIIC T60°C Dc	(zone 22)

Admissible ambient temperature: -25°C to +55°C
+80°C in de-energised state

Protection class according to DIN EN 60529: IP 65



Connection only by qualified personnel.
Observe local protective measures.

EU-Declaration of Conformity



According to ATEX directive 2014/34/EU

Company: MADER Hamburg GmbH
 Address: Adlerhorst 17, 22459 Hamburg
 Phone: +49 (0)40 / 411 88 38 -0
 Fax: +49 (0)40 / 411 88 38 -11
 Mail: info@mader.hamburg
 Internet: www.mader.hamburg

We hereby declare that, when operated in potentially explosive atmospheres, the lights comply with the relevant and essential health and safety requirements of ATEX Directive 2014/34/EU due to their design and construction, as well as the form in which we have placed them on the market.

This declaration loses its validity if the luminaire is changed without our consent.

Light's data	Article Number	Designation	Description
	46001	LED-WEL	Build-in wall light
	46003	LED-SEL	Built-in diagonal light
	46004-46010	WAL/DAL	Wall-mounted light lights for various installation positions

Description:	Device Group	Category	Ignition protection class	Ex Group	Temperature class
	II	3G	ec	IIC	T4
	II	3D	tc	IIIC	T60°C

Relevant EG-Directives: IEC 60079-15
 ATEX-Directive: 2014/34/EU
 Low Voltage Directive 2014/35/EU
 Electromagnetic Compatibility: 2014/30/EU

02.02.2022

(Date and Signature)



Uwe Sieg (Managing Director)

(Identification of the signatory)

1 General Information

1.1 This Manual

- is an integral part of the device and must be kept at the place of use at all times.
- contains the most important notes for safe operation.
- must be observed by all persons who work on the device.
-

1.2 Warranty and Liability

Warranty and liability claims for persons and material damage are excluded if they arise from one or more of the following causes:

- Incorrect or improper use of the device
- Operating the device if it has obvious defects
- Disregarding the operating instructions
- Unauthorized structural changes to the device
- Installation of additional components which have not been jointly tested with the device
- Unauthorized alteration of the device
- Carrying out improper repairs
- Force majeure
- Damages from further use despite the occurrence of a defect
- Failure to use original parts

2 Safety Instructions

2.1 Genral Information

- Failure to observe the instructions may result in damage to the device, fire or other hazards
- Work on the device, such as the replacement of the LED boards, is carried out exclusively by the manufacturer and is otherwise prohibited

2.2 Fuse and Leakage Current

- | | |
|---------------------------------------|--------------------------|
| - Recommended Fuses | Type B 16A or Type C 16A |
| - (maximum of 20 Lights per Fuse16 A) | |
| - Max. Input power | 70 watts |
| - Leakage Current (230 V, 50 Hz) | < 700 μ A |
| - Starting Current (Peak / Duration) | 26 A / 264 μ s |
| - Maximum operating temperature | < +55°C |
| - Maximum temperature switched off | < +80°C |
| - Current consumption (230 V, 50 Hz) | 241–293 mA |

3 General Notes

3.1 General Information

An LED as a light source generates flicker-free and almost natural light through a semi-organic diode. The luminaire is hum-free and achieves high energy savings through low standby losses and high efficiency.

The average lifetime of the illuminants is specified by the manufacturer of the LED-SMD as > 100,000 hours and the power supply also has a guaranteed lifetime of up to 100,000 hours according to the manufacturer.

In the 2-shift operation of a painting plant this corresponds to approx. 16.7 years.

3.2 Behaviour at idle

The LED driver is not damaged in idle mode. The LED output is deactivated and is therefore voltage-free. If an LED load is connected, the device must first be restarted before the LED output is activated.

3.3 Overtemperature protection

To protect the LED driver from short-term thermal overload, the output current of the LED is reduced when the limit temperature is exceeded. The temperature protection is activated via tc max.

The activation temperature varies depending on the LED load. In DC mode, this function is deactivated in order to fulfil the emergency lighting requirement.

3.4 Overload Protection

The LED driver switches off the LED output if the output voltage range is exceeded. The LED output is only reactivated after the device has been restarted. The restart can be done either via mains reset or via the interface (DALI, DSI, switchDIM, ready2mains).

3.5 Moisture and Temperature

The LED luminaires are less susceptible to moisture failure than conventional neon luminaires with electronic ballasts.

The air humidity should be between 5 % and max. 85 %, non-condensing (max. 56 days/year at 85 %).

Cold environments are normally no problem for LED luminaires, but it should be noted that due to heat loss the lamps have a slightly lower lumen flux. This is not visually noticeable in practice.

If the ambient temperature is permanently raised to > 55°C, the service life of the components is reduced. However, they can easily be used when switched off, e.g. in drying mode at temperatures >80°.

3.6 Lifespan

The service life of the LED luminaires depends on the ambient temperature and the quality of the mains supply.

The service life of the LED luminaires (average service life 100,000h) is shortened if the ambient temperature exceeds the specified TA value (+55 °C) during operation. This can lead to destruction of the lamps.

4 Technical Description

- Our luminaires are a stationary lighting system for uniform and low-shadow illumination of a painting workplace.
- The luminaires were designed for use in Ex Zone 2 (II 3G ec T4 Gc).
- Plug-in/screw connections comply with protection class IP68 and can be used within Ex areas.
- The luminaires are not designed for operation outdoors or in high humidity or for an ambient temperature higher than +55 °C. The luminaires are designed for use in hazardous areas.
- The luminaires must always be supplied with the mains voltage indicated on the nameplate

5 Maintenance / Cleaning

- The luminaires are designed for use in paint booths and rooms. Contamination can be removed with solvent-based, non-aggressive cleaners.
- The seals must not be brought into contact with cleaning detergents.
- Ensure that all connections are properly connected and the cover and gaskets are not damaged.
- The lamp must not be connected to power during cleaning.

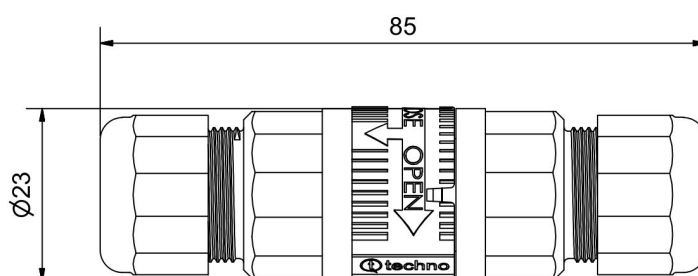
6 Type Label:



(example)

7 Electrical connection

- The built-in diagonal light (46003) are through-wired via IP68-protected plug connections (see figure below). The resulting light strips can be connected in various lengths using our separately available supply and connection cables.
- The round plug connectors are seal-protected and are screwed together without tools.
- The lighting system must also be disconnected from the power supply during maintenance work on cables and connectors.
- Disconnecting the plug connectors or connecting the LED lights during operation is not permitted.
- When connecting to the mains, it is imperative that the polarity of recessed wall and surface wall lights is correct.
- The WEL recessed wall luminaires and the WAL surface mounted wall luminaires are fitted with a 5m connection cable which has an open strand end to make the installation of these luminaires easier: There is no need to feed the plug through walls or sandwich elements.
- For good EMC performance, the LED wiring should be kept as short as possible.
- If several luminaires of type WEL are to be connected in series, the assignment at the supply point must be the same for all connected luminaires. Incorrect assignment can lead to destruction of the internal switching power supplies.



8 Specifications LED-Light

The luminaires are designed for use in hazardous areas.		
Article Number	46001 / 46001-D	Built-in wall light
	46003	Built-in diagonal light 45°
	46004-46010	Wall surface-mounted (various types)
Designation	A pleasant and more uniform illumination of workpieces without sharp light shadows	
Casing	All luminaires are equipped with two reflective foils in the lamp body.	
Description	Full-surface double glare protection	
Protection class (ATEX)	Ex II 3G Ex ec IIC T4 Gc (zone 2) Ex II 3D Ex tc IIIC T60°C Dc (zone 22)	

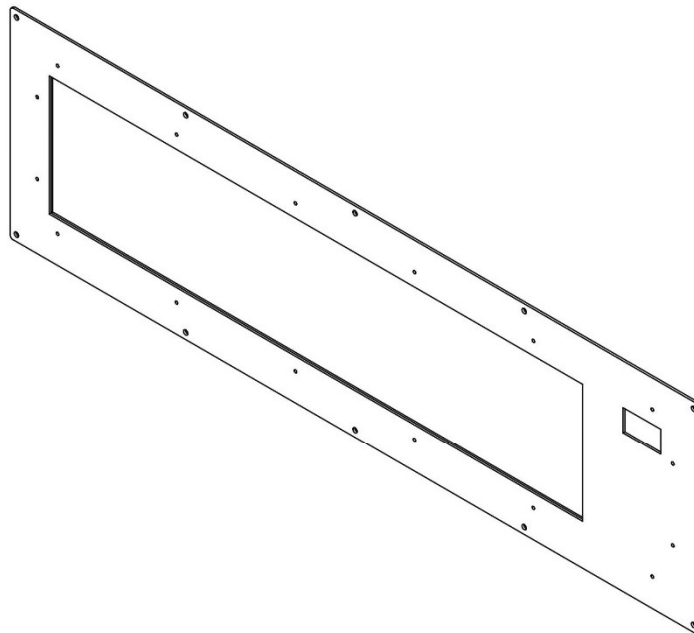
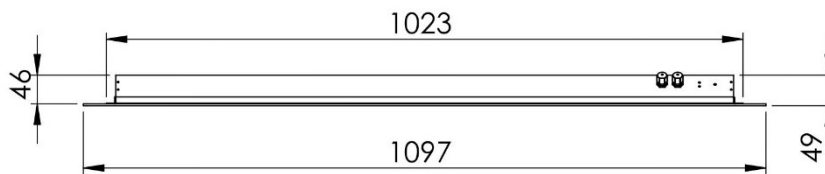
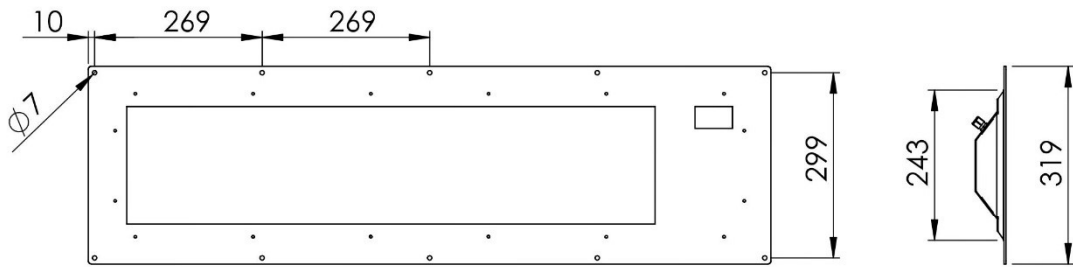
Dimension and Weight		
Dimension	see separate datasheet	
Weight	Art. No. 46001	4,8 kg
	Art. No. 46003	4,5 kg
	Art. No. 46004	4,7 kg
	Art. No. 46005	4,6 kg
	Art. No. 46007	4,6 kg
	Art. No. 46009	4,8 kg

Specifications		
Operation voltage	110 - 240	V
	50-60	Hz
Power maximum	60	W
Optical Efficiency (LED)	150	lm/W
Color Temperature	5000 - 5200	k
Color Rendering Index (Ra)	>90	CRI
Beam Angle (LED)	120	°
Lifespan (approx.)	100.000	h
Type of LED	LM561B+	(LM-80 certified)
Ambient Temperature (in use)	-25 bis 55	°C
Ambient Temperature (de-energised state)	max. 80	°C

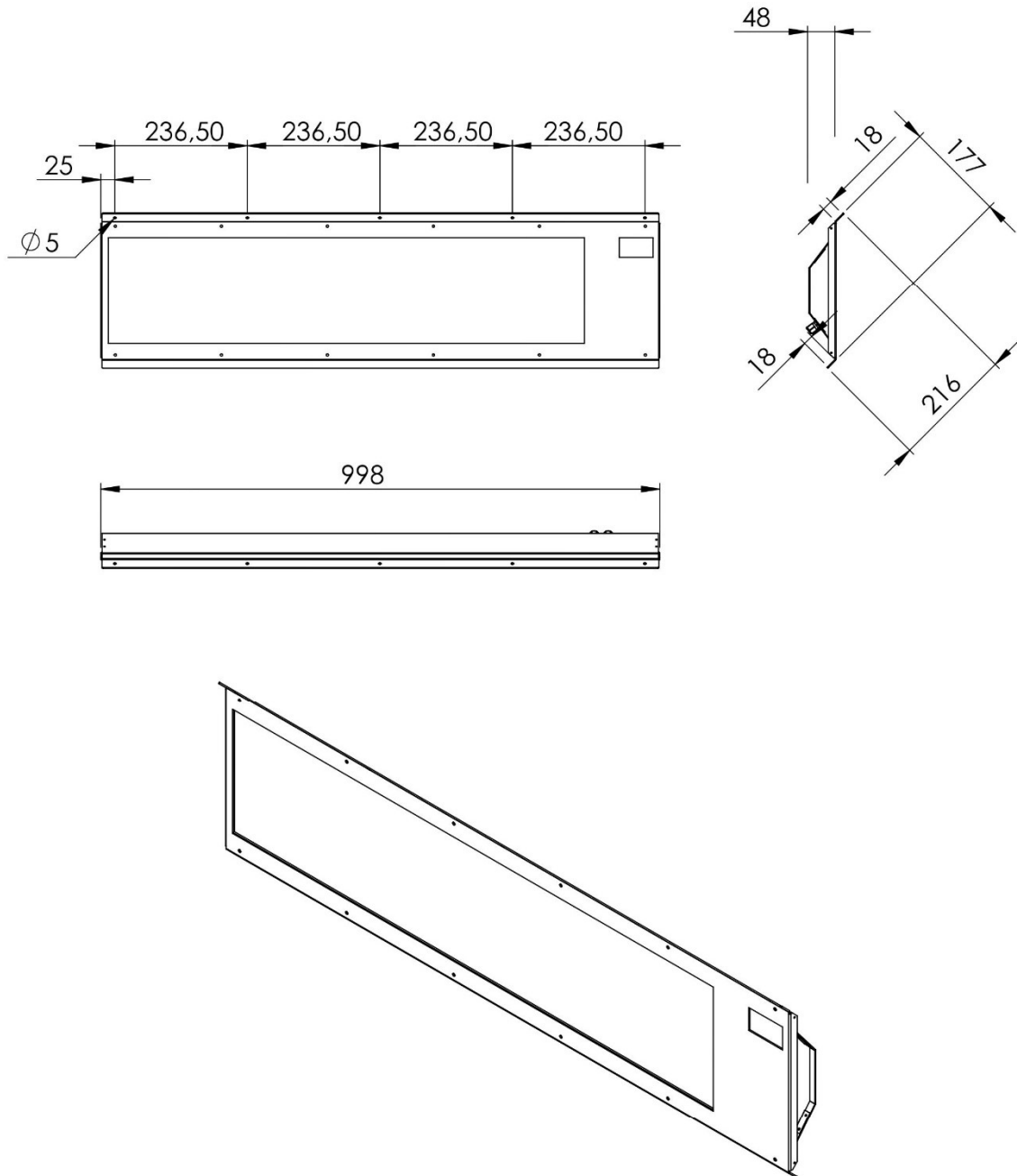
Electrical connection	
Built-in diagonal light 45° Art. No. 46003 Built-in wall light Art. No. 46001-D	The built-in diagonal (46003) and built in wall (46001-D) lights are through-wired via IP68-protected plug connections. The resulting light strips can be connected in various lengths using our separately available supply and connection cables.
Built-in wall and wall surface-mounted Art. No. 46001 und 46004-10	The WEL recessed wall luminaires and the WAL surface mounted wall luminaires are fitted with a 5m connection cable which has an open strandend to make the installation of these luminaires easier: There is no need to feed the plug through walls or sandwich elements.
recommended fuses (maximum of 20 lights per fuse 16 A)	Type B 16A

9 Dimension

9.1 Typ WEL (46001)

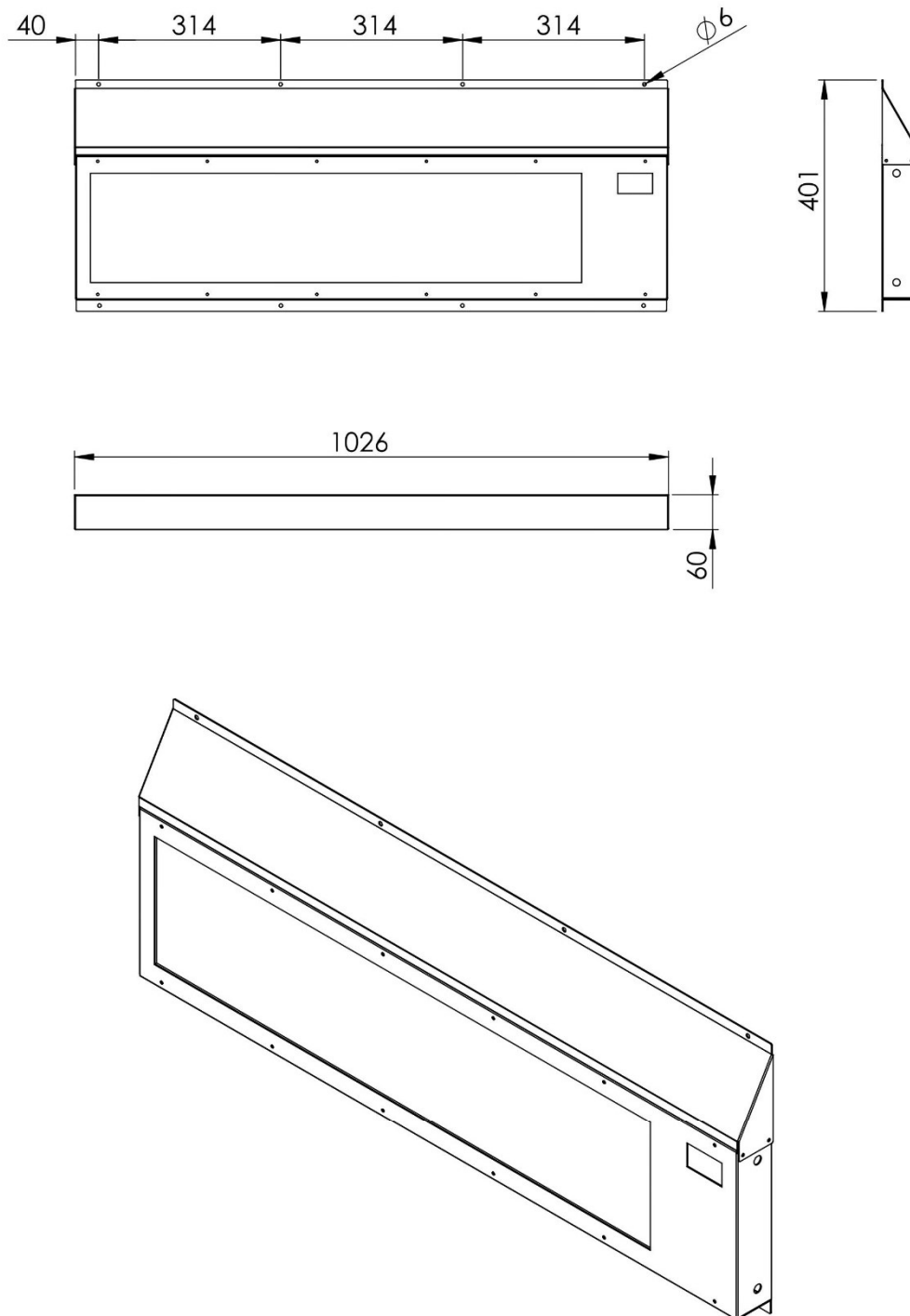


9.2 Typ SEL45 (46003)

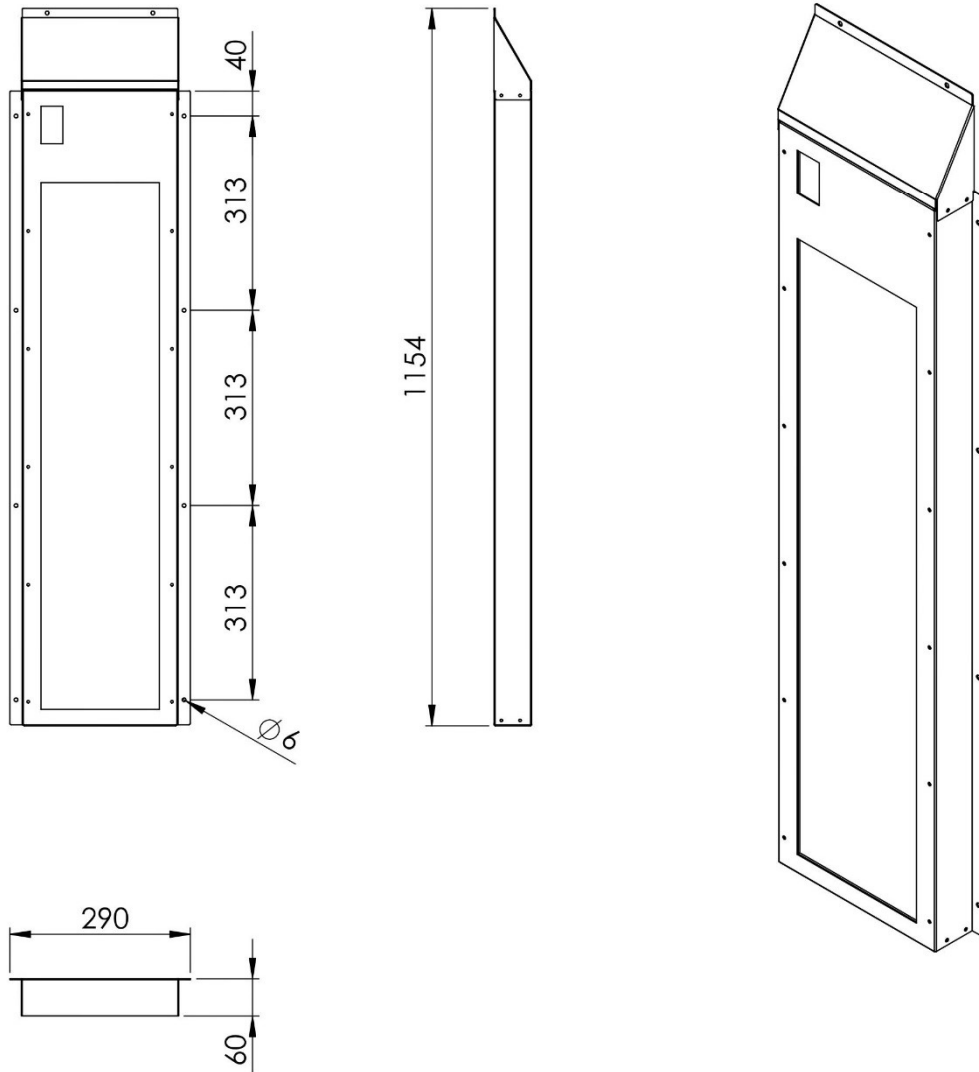


Hinweis: zur Montage der Leuchte wird ein entsprechender Auflagewinkel benötigt, dieser befindet sich nicht im Lieferumfang

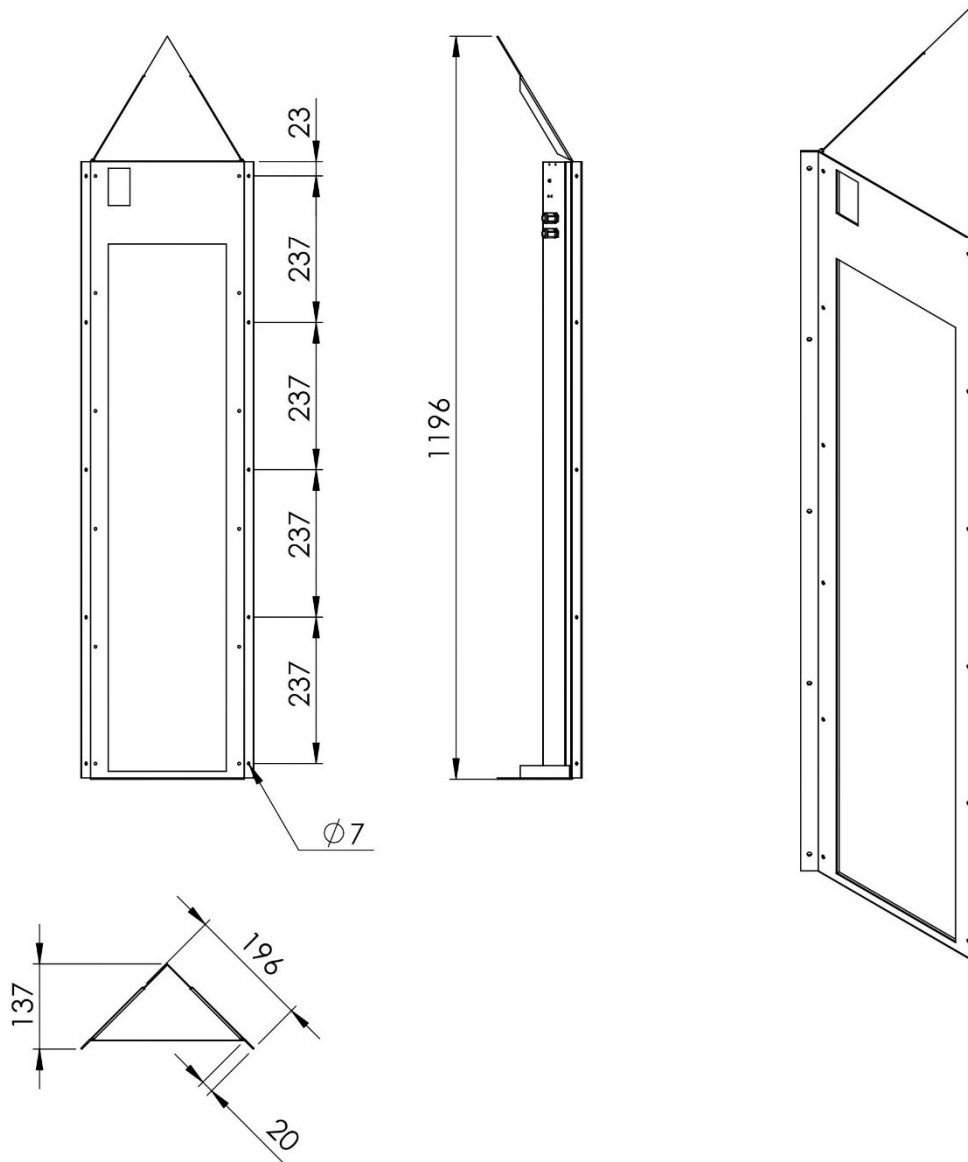
9.3 Typ WAL - horizontal - (46004)



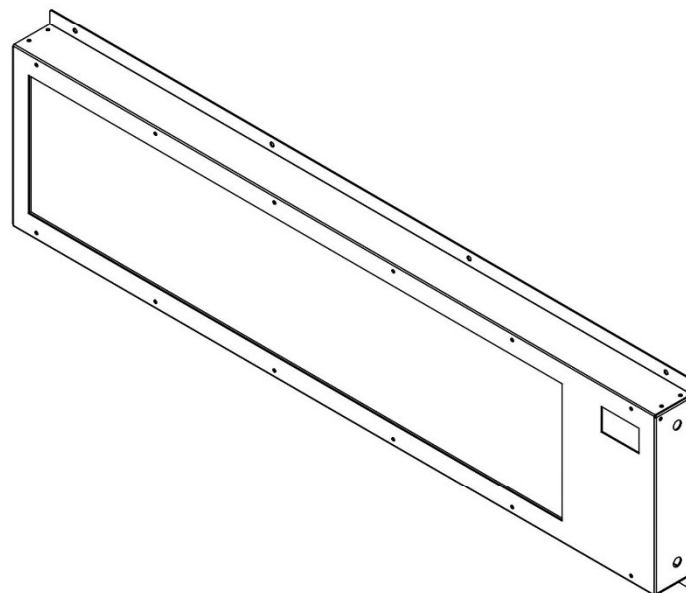
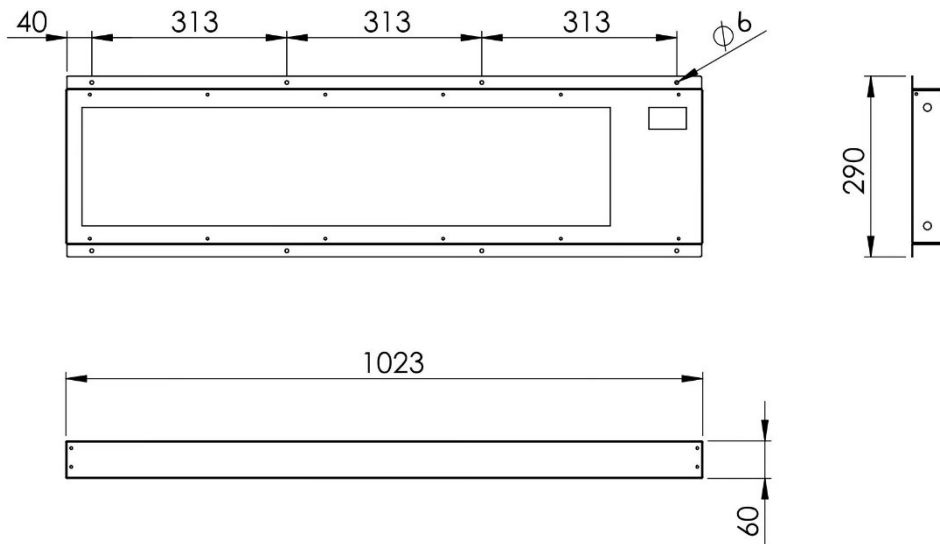
9.4 Typ WAL - vertical - (46005)



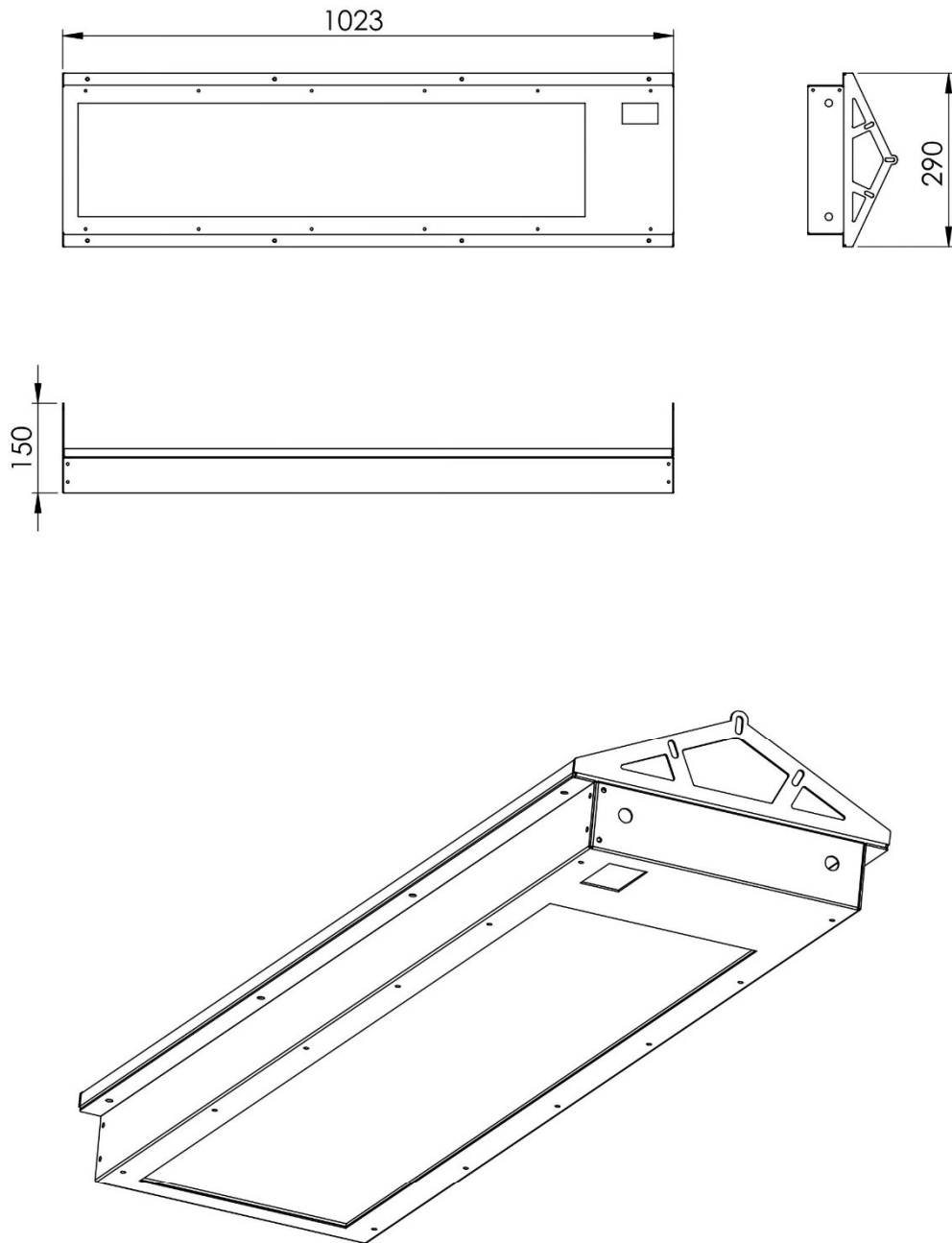
9.5 Typ WAL - surface-mounted corner - (46006)



9.6 Typ WAL - surface-mounted ceiling - (46007)



9.7 Typ DAL - pendant light - (46009)



9.8 Typ WAL - pivotable light - (46010)

