


## Safety instructions



### **DANGER**

#### **Danger caused by wrong mounting or handling!**

Wrong mounting or handling of this unit can result in serious injuries or death.

- First read these instructions and, where appropriate, any other instructions and information attached to the unit! 
- Please observe the warnings and notes included in the instructions and attached to the unit!

### **DANGER**

This symbol identifies items that may directly result in serious injuries or death in case of non-observance or wrong handling.

### **WARNING**

This symbol identifies items that may result in serious injuries or death in case of non-observance or wrong handling.

### **CAUTION**

This symbol identifies items that may result in injuries or material damage in case of non-observance or wrong handling.

### **NOTICE**

This symbol identifies items that may result in material damage in case of non-observance or wrong handling.

## Safety instructions



### **DANGER**

#### **Explosion hazard!**

Operating the light in rooms subject to explosion hazards can trigger an explosion.

- Operate in rooms not subject to explosion hazards only!

### **WARNING**

#### **Danger due to electrical shock upon contact!**


Maintenance or repair work carried out incorrectly may result in serious injuries or death.

- Disconnect the light from the mains before carrying out any maintenance or repair work!
- Maintenance and repair work must be carried out by a skilled electrician only!
- Only parts released by the manufacturer may be used as spare parts!

### **NOTICE**

#### **Damage caused by wrong mains voltage!**

A wrong mains voltage can result in damaging or destroying the lamp.

- Operate units of protection class III with safety extra low voltage (SELV) only! 
- Connection only by a skilled electrician!
- Before putting the light into operation, the user has to check whether the mains voltage is identical with the rated voltage specified on the rating plate.

## Safety instructions



### **WARNING**

#### **Risk of blinding!**

Looking directly into the light source may cause temporarily impaired vision and afterimages. This may result in irritations, inconveniences, impairments or even accidents.

- Looking directly into the light source must be avoided.
- Position light in such a way that looking directly into the light source is avoided.

### **NOTICE**

#### **Damage caused by the incident laser beam!**

Direct or indirect incidence of a laser beam may result in the destruction of the LED.

- Use the light only outside the range of action of high-performance lasers (e.g. cutting laser, welding laser).

## Description

# MACH LED PRO

The **MACH LED PRO** supplements the **Waldmann** product range of LED machine lights. To extend the range of LED lights for the immediate machining area (e.g. **SPOT LED**), which is already offered by **Waldmann**, the new light series **MACH LED PRO** was developed.

With the **MACH LED PRO** series, **Waldmann** creates a new light series especially for use on machine tools and machining centres. The extremely flat design allows the customer a better use of the working area without renouncing the usual great lighting power of the **Waldmann** machine lights.

Depending on where the light is attached, it can be used either for the basic illumination of the machine or for the illumination of the direct machining area. Its range of use is additionally extended by a selection between lights with or without optics.

The use of light emitting diodes (LED) instead of halogen lights allows a significantly higher service life to be achieved. This results in fewer machine downtimes as a result of maintenance work.

**MACH LED PRO** lights from **Waldmann** are available as mounted lights or as build-in lights with one or more LEDs. Our range includes lights for different supply voltages.

A housing made of anodised aluminium and a protective safety glass pane are resistant to hot and sharp-edged chips. The housing is water-proof and resistant to coolants and lubricants.

MUAL = Light for mounting on machines

MUEL = Light to be built into machines

## Designated use



### Intended purpose:

Machine light - light to be mounted on/built into machines.

### Place of use:

Exclusively suited for rooms not subject to explosion hazards.

The ambient temperature  $T_{Amax}$  must not exceed 40°C.

Not for use in the range of action of high-performance lasers.

### Operating mode:

The light is designed for continuous operation.

## Abbreviations and symbols



Safety or warning information!



Important information!



Unit corresponds to international protection class III (Operation with safety extra low voltage (SELV))



Functional earth



Observe the disposal instructions!



The light is suitable for mounting on normally inflammable surfaces

**LED** light emitting diode



VDE approval



ENEC approval



SEV approval



CE Conformity mark

 **The manufacturer cannot be held liable for damage caused by using the unit for purposes contrary to the designated use or by ignoring safety instructions and warnings.**

## Mounting



### CAUTION

#### **Danger due to insufficient fastening!**

When mounted incorrectly, the light may fall down.

- The light must be mounted in a stable position on the mounting surface by means of screws or other suitable adapter units!
- When using mounting elements which have not been proposed by the manufacturer, the user has to verify their reliability!
- The light may only be mounted on a surface suitable for mounting!
- Mounting by a skilled electrician only!

### NOTICE

#### **Damage caused by the incident laser beam!**

Direct or indirect incidence of a laser beam may result in the destruction of the LED.

- Use the light only outside the range of action of high-performance lasers (e.g. cutting laser, welding laser).

### Installation dimensions

The hole pattern for the mounted light MUAL can be found in the drawing Fig. 51 on page 30.

The required installation dimensions for the build-in light MUEL are indicated in the drawing Fig. 52 on page 31.



#### **Note:**

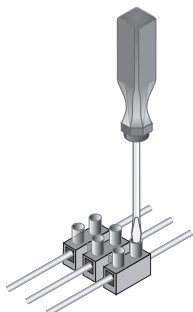
For special models, the hole pattern can differ from the standard hole pattern.

### Fastening

When mounting the light, tighten the screws only slightly at all fixing points.

When finally fastening the light, tighten alternately the screws from the top left towards the bottom right and from the top right towards the bottom left.

## Connection



### NOTICE

#### Damage caused by wrong mains voltage!

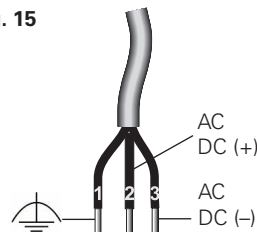
A wrong mains voltage might damage or destroy the light.

- The connection must be made by a skilled electrician only!
- Before putting the light into operation, the user has to check whether the mains voltage is identical to the rated voltage specified on the rating plate!
- The light has to be connected according to the applicable regulations for installation.

### Connection

The light is supplied with free strand ends for connection to safety extra low voltage (SELV).

Fig. 15



#### Note for DC version:

The light is protected against polarity reversal. This function is guaranteed even when wires 2 and 3 are swapped.

#### Important information!

#### Malfunction due to missing functional earth!

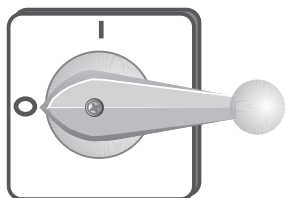
When the functional earth is missing, the current EMC requirements cannot be met.

- Make sure that the light housing is connected to functional earth!

#### Note:

The connection to the functional earth can be effected via wire 1 of the connecting line or via an electric connection between the system housing and the light housing.

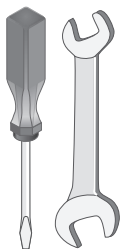
## Operation



### **Switching the light on and off**

The standard equipment of the light does not include a switch of its own. It is switched on/off via external circuit elements or connectors.

## Maintenance and repair



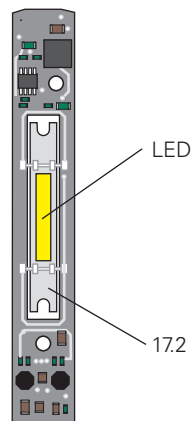
### **WARNING**

#### **Danger due to electrical shock upon contact!**


Maintenance or repair work carried out incorrectly may result in serious injuries or death.

- Disconnect the light from the mains before carrying out any maintenance or repair work!
- Maintenance and repair work must be carried out by a skilled electrician only!
- Only parts released by the manufacturer may be used as spare parts!

Fig. 17



#### **Defective light source**

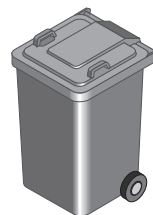
 The light is equipped with light-emitting diodes (LEDs). The useful life of LEDs exceeds by far that of conventional lamps (e.g. light bulbs). Therefore, a replacement of the light source is rarely necessary.

If nevertheless the LED should break down, the light must be checked at the manufacturer's and repaired, if necessary. **To this end, the complete light should be sent to the manufacturer.**

**Care****NOTICE****Risk of damage through wrong care!**

Wrong care may destroy the unit.

- Clean the transparent cover at regular intervals!
- Clean the light parts only with a cloth impregnated with a standard household cleaning agent!
- Make sure the agents used are compatible with paints and plastics!

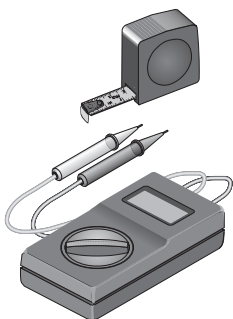
**Disposal****NOTICE****Environmental hazard!**

Wrong disposal endangers our environment.

- Return the unit at the end of its useful life to the available recycling systems!



## Technical data



### General:

Protection class III  
 Protection type IP67  
 Operating mode: Continuous operation

Technical safety check according to EN 60598-1

Rating according to DIN 60825-1 and VDE 0837 Laser class 1

### Dimensions:

Type MU(A,E)L ...

... 1 S approx. 220 x 74 x 22,5 mm  
 ... 2 S approx. 395 x 74 x 22,5 mm  
 ... 3 S approx. 570 x 74 x 22,5 mm  
 ... 4 S approx. 745 x 74 x 22,5 mm

Connecting cable approx. 3000 mm

### Electrical values:

Nominal voltage 20-28 V DC  
 or 20-28 V AC  
 Current consumption per LED approx. 700 mA

Power consumption

MU(A,E)L 1 S approx. 6 W  
 MU(A,E)L 2 S approx. 12 W  
 MU(A,E)L 3 S approx. 18 W  
 MU(A,E)L 4 S approx. 24 W

## NOTICE

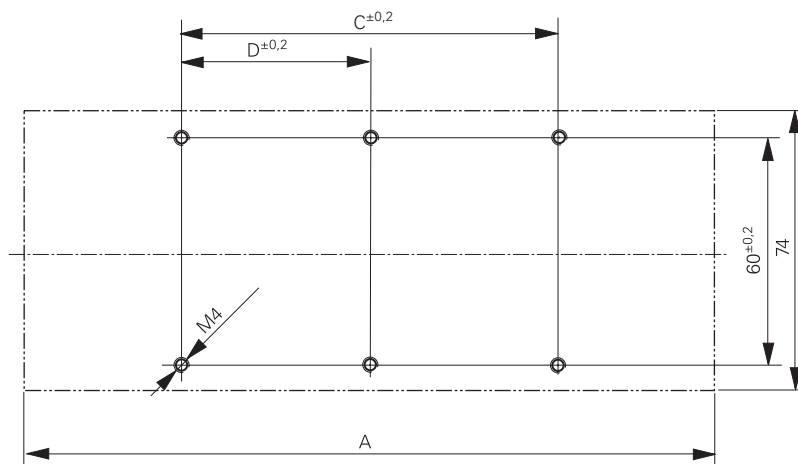
### Risk of damage due to differences from the standard design.

If required, this series of units will be supplemented by further variants. The technical data may therefore be subject to modifications.

- Always observe the data and symbols given on the rating plate!

Appendix

**Fig. 51**  
**MUAL (1,2,3,4) S**  
 Hole pattern



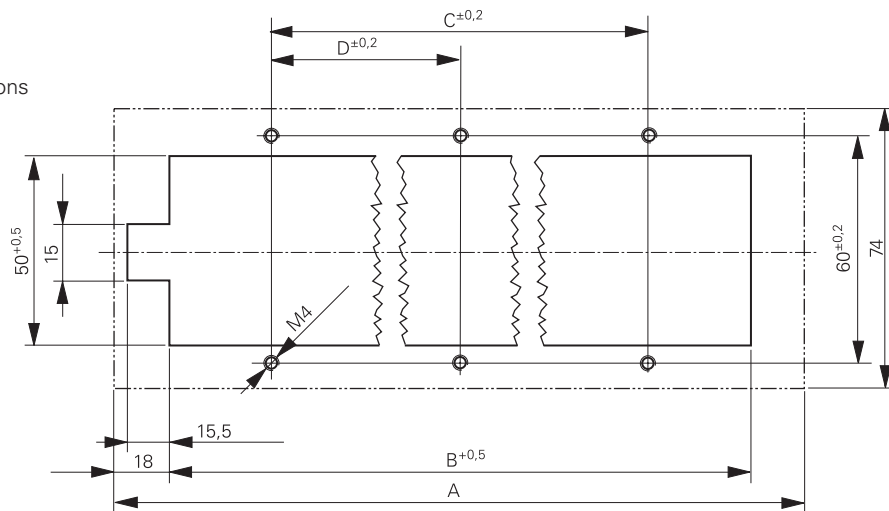
Light	A	B	C	D
MUAL 1 S	220	---	125	---
MUAL 2 S	395	---	250	---
MUAL 3 S	570	---	400	200
MUAL 4 S	745	---	500	250

Appendix

**Fig. 52**

**MUEL (1,2,3,4) S**

Installation dimensions



Light	A	B	C	D
MUEL 1 S	220	184	125	---
MUEL 2 S	395	359	250	---
MUEL 3 S	570	534	400	200
MUEL 4 S	745	709	500	250