

**DELO**

LED AREA LAMPS  
DELOLUX 20 series



# DELOLUX 20 LED area lamps

Highly flexible module design  
allowing adhesive areas to be  
cured in seconds

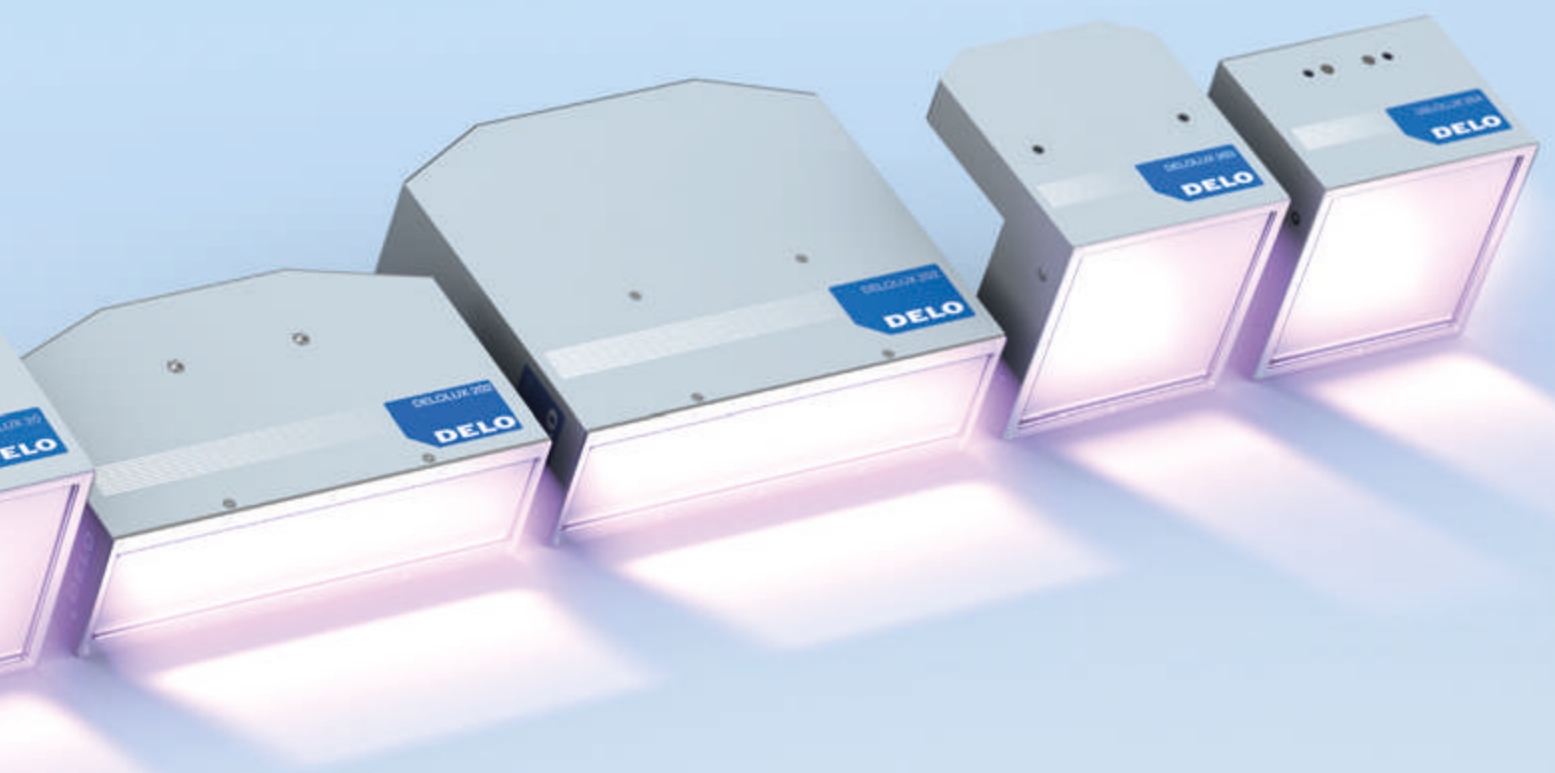
The DELOLUX 20, DELOLUX 202 and DELOLUX 203 LED area lamps enable super-fast and reliable curing of large adhesive areas, and with a useful life of over 20,000 hours. At the same time, the lamps can be individually adapted to suit your production conditions. Thanks to their compact design, several lamp heads can be arrayed, enabling homogeneous, short-distance irradiation of differently sized areas. In the case of DELOLUX 203, the cooling module can be chosen depending on the requirements.

The most powerful of these area lamps can be operated at intensities as high as over 4,000 mW / cm<sup>2</sup>. An intelligent control system and cool light source ensure consistent process parameters during operation. They compensate for heat produced by LEDs while preventing a consequential drop in intensity.

The base units of the DELOLUX pilot Ax series are used to control and power the lamps. The plug & play base units can be easily integrated into any production line and allow simultaneous operation of up to four lamp heads.



Discuss your project and your requirements  
with our experts:  
[equipment-experts@DELO.de](mailto:equipment-experts@DELO.de)



## Your benefits at a glance:



› Shortest cycle times thanks to highest intensities



› High process reliability thanks to homogeneity and stable intensities



› Long lamp head lifetime of > 20,000 hours

# Overview

## Lamp heads and intensities

Figures                      Light exit area                      Wavelength | Intensity | Working distance                      Cooling

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### DELOLUX 20 A1 & A2



100 mm × 100 mm



A1: 365 nm |  $\geq 600 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 1,000 \text{ mW/cm}^2$  | 2 mm  
460 nm |  $\geq 800 \text{ mW/cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm  
460 nm |  $\geq 1,600 \text{ mW/cm}^2$  | 2 mm



### DELOLUX 20 A4



100 mm × 100 mm



A4: 365 nm |  $\geq 2,400 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 4,000 \text{ mW/cm}^2$  | 2 mm

Mixed-wavelength head 365 & 400 nm:  
365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm



### DELOLUX 202 A1 & A2



202 mm × 49 mm



A1: 365 nm |  $\geq 600 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 1,000 \text{ mW/cm}^2$  | 2 mm  
460 nm |  $\geq 800 \text{ mW/cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm  
460 nm |  $\geq 1,600 \text{ mW/cm}^2$  | 2 mm



Figures

Light exit area

Wavelength | Intensity | Working distance

Cooling

## DELOLUX 202 A4



202 mm × 49 mm



A4: 365 nm |  $\geq 2,400 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 4,000 \text{ mW/cm}^2$  | 2 mm

Mixed-wavelength head 365 & 400 nm:  
365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm



## DELOLUX 203 A1 & A2



100 mm × 100 mm



A1: 365 nm |  $\geq 600 \text{ mW/cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm



## DELOLUX 204 A4



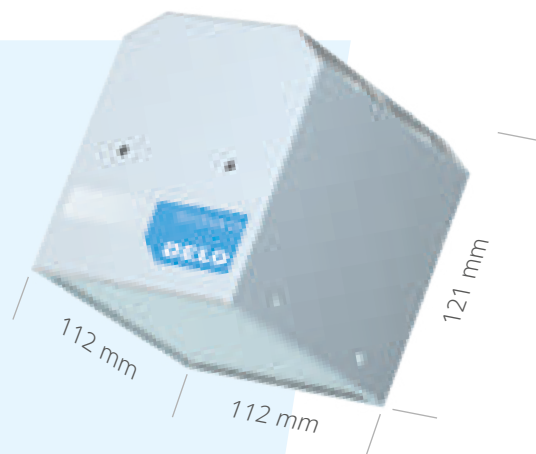
100 mm × 100 mm



Mixed-wavelength head 365 & 400 nm:  
365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm



# DELOLUX 20 A1 DELOLUX 20 A2



The classic, air-cooled DELOLUX 20 A1 and A2 models with intensities of **up to 2,000 mW / cm<sup>2</sup>** can be easily combined in order to save space and adapt them optimally to different irradiation requirements.

### Wavelength | Typical intensity | Working distance

A1: 365 nm |  $\geq 600 \text{ mW / cm}^2$  | 2 mm  
 400 nm |  $\geq 1,000 \text{ mW / cm}^2$  | 2 mm  
 460 nm |  $\geq 800 \text{ mW / cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW / cm}^2$  | 2 mm  
 400 nm |  $\geq 2,000 \text{ mW / cm}^2$  | 2 mm  
 460 nm |  $\geq 1,600 \text{ mW / cm}^2$  | 2 mm



Light exit area:  
100 mm × 100 mm



Cooling mechanism:  
Active air cooling

DELOLUX 20 A1	365 nm	400 nm	460 nm
Article number	9520333	9520334	9520303

DELOLUX 20 A2	365 nm	400 nm	460 nm
Article number	9520315	9520316	9520317



Reliable curing of additive balancing compounds in the fan impeller

# DELOLUX 20 A4



The air-cooled DELOLUX 20 A4 offers particularly high intensities of **more than 4,000 mW/cm<sup>2</sup>**, while providing the same light exit area and being as versatile in combination as the A1 and A2 models.

## Wavelength | Typical intensity | Working distance

365 nm |  $\geq 2,400 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 4,000 \text{ mW/cm}^2$  | 2 mm

Type with mixed wavelengths 365 & 400 nm:

365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm  
400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm



Light exit area:  
100 mm × 100 mm



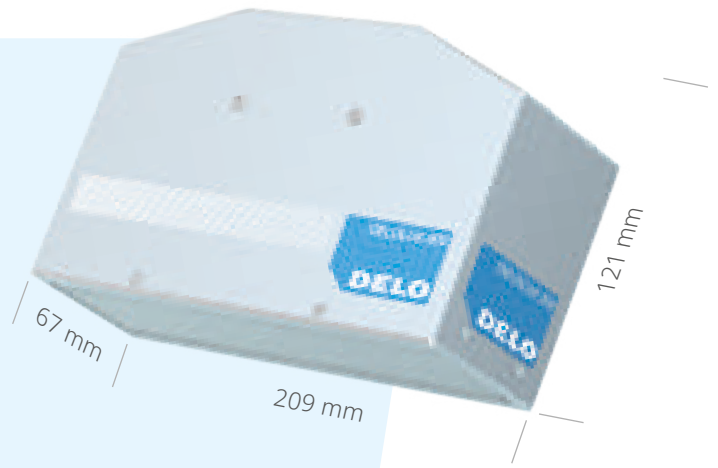
Cooling mechanism:  
Active air cooling

DELOLUX 20 A4	365 nm	400 nm	365 nm / 400 nm
Article number	9520322	9520323	9520307



High-intensity irradiation for bonding optical elements in picture generation units (PGU)

# DELOLUX 202 A1 DELOLUX 202 A2



The air-cooled DELOLUX 202 models with intensities of **up to 2,000 mW / cm<sup>2</sup>** incorporate all the advantages of the classic DELOLUX 20 but have an elongated shape that allows the light exit area to be optimally adapted to elongated component geometries.

### Wavelength | Typical intensity | Working distance

A1: 365 nm |  $\geq 600 \text{ mW / cm}^2$  | 2 mm  
 400 nm |  $\geq 1,000 \text{ mW / cm}^2$  | 2 mm  
 460 nm |  $\geq 800 \text{ mW / cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW / cm}^2$  | 2 mm  
 400 nm |  $\geq 2,000 \text{ mW / cm}^2$  | 2 mm  
 460 nm |  $\geq 1,600 \text{ mW / cm}^2$  | 2 mm

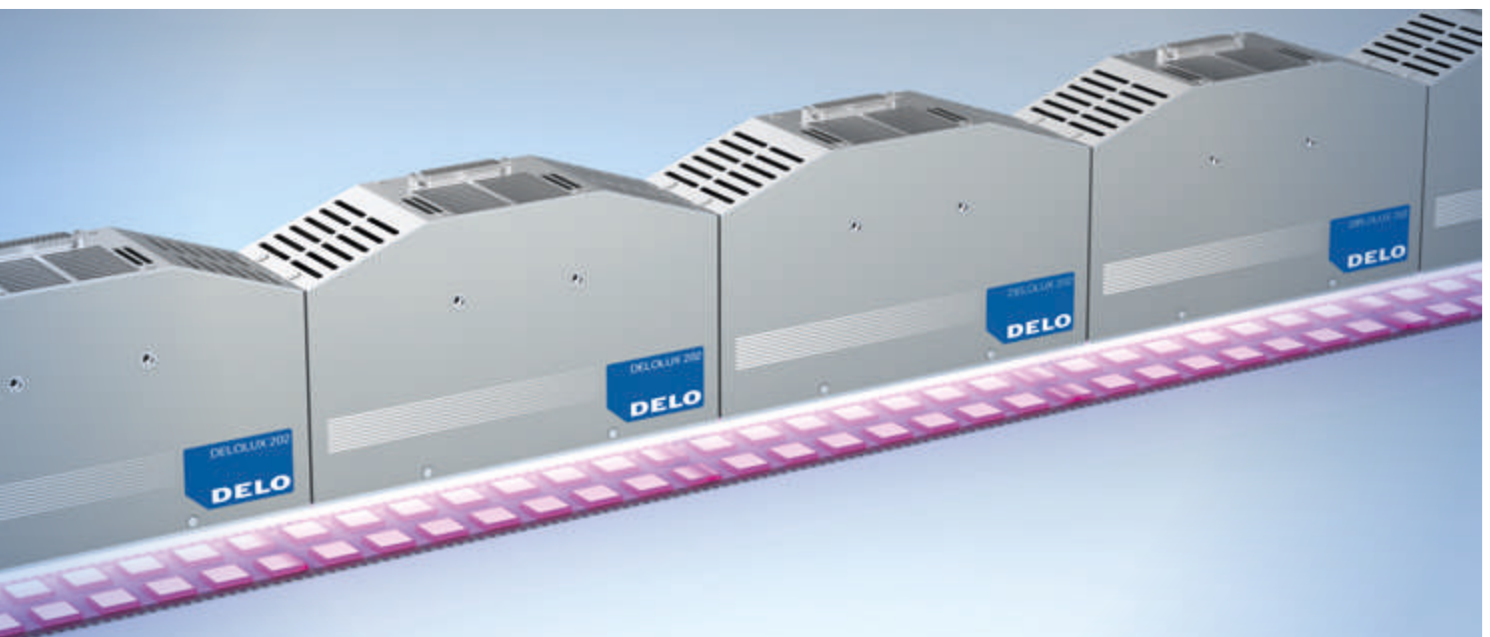
 Light exit area:  
 202 mm × 49 mm



**Cooling mechanism:**  
 Active air cooling

DELOLUX 202 A1	365 nm	400 nm	460 nm
Article number	9520298	9520277	9520305

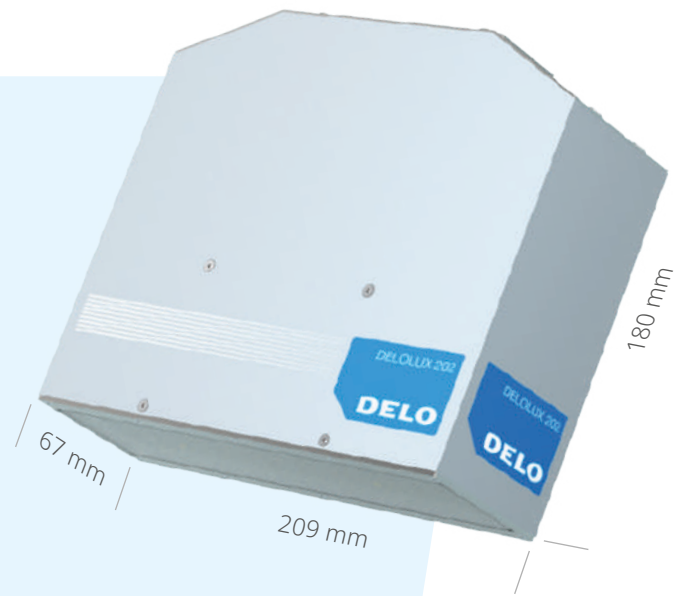
DELOLUX 202 A2	365 nm	400 nm	460 nm
Article number	9520299	9520278	9520306



Optimized irradiation path for high output in smart card applications



# DELOLUX 202 A4



The air-cooled DELOLUX 202 A4 offers particularly high intensities of more than 4,000 mW / cm<sup>2</sup> while providing the same light exit area and being as versatile when combined as the A1 and A2 models.

## Wavelength | Typical intensity | Working distance

365 nm |  $\geq 2,400$  mW / cm<sup>2</sup> | 2 mm  
 400 nm |  $\geq 4,000$  mW / cm<sup>2</sup> | 2 mm

Type with mixed wavelengths of 365 & 400 nm:

365 nm |  $\geq 1,200$  mW / cm<sup>2</sup> | 2 mm  
 400 nm |  $\geq 2,000$  mW / cm<sup>2</sup> | 2 mm



Light exit area:  
 202 mm × 49 mm



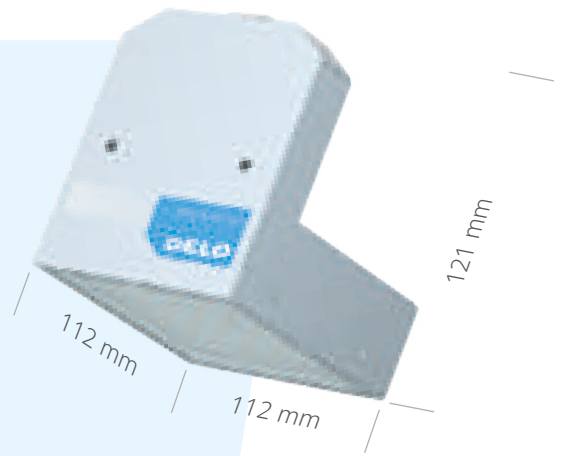
Cooling mechanism:  
 Active air cooling

DELOLUX 202 A4	365 nm	400 nm	365 nm / 400 nm
Article number	9520330	9520331	9520332



High-intensity exposure for board coating

# DELOLUX 203 A1 DELOLUX 203 A2



DELOLUX 203 with intensities of **up to 1,200 mW/cm<sup>2</sup>** is based on the DELOLUX 20 type and offers the possibility to use either passive air cooling or external water cooling. This makes it suitable for use in clean rooms or in an environment where disturbing effects, such as noise or vibration, have to be avoided.

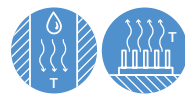
**Wavelength | Typical intensity | Working distance**

A1: 365 nm |  $\geq 600 \text{ mW/cm}^2$  | 2 mm

A2: 365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm



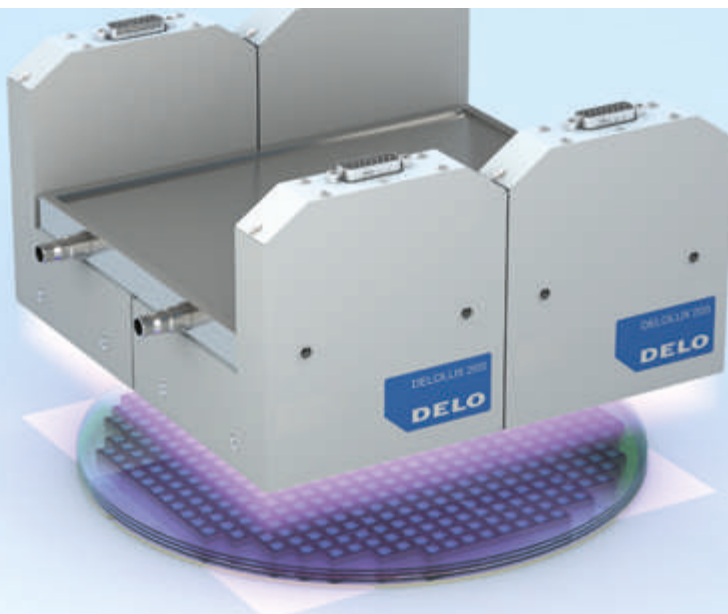
**Light exit area:**  
100 mm × 100 mm



**Cooling mechanism:**  
External cooling profile (liquid or passive)

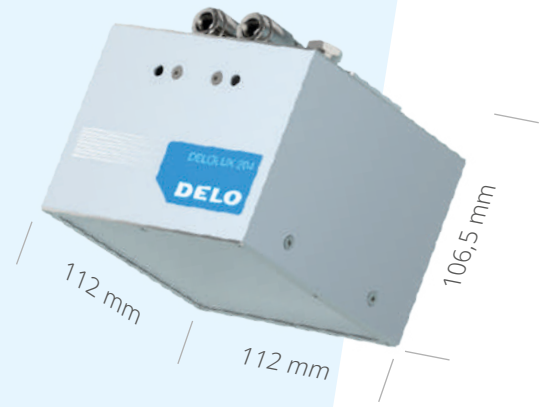
DELOLUX 203 A1	365 nm
Article number	9520318

DELOLUX 203 A2	365 nm
Article number	9520319



Cleanroom-compatible lamp head with homogeneous intensity distribution for wafer exposure

# DELOLUX 204 A4



The DELOLUX 204 is based on the DELOLUX 20 A4 mixed-wavelength lamp head and offers the option of operating it with an integrated water-cooling profile. This makes it suitable for use in clean rooms or in an environment where disruptions such as noise or vibration must be avoided.

## Wavelength | Typical intensity | Working distance

Type with mixed wavelengths of 365 & 400 nm:

365 nm |  $\geq 1,200 \text{ mW/cm}^2$  | 2 mm

400 nm |  $\geq 2,000 \text{ mW/cm}^2$  | 2 mm



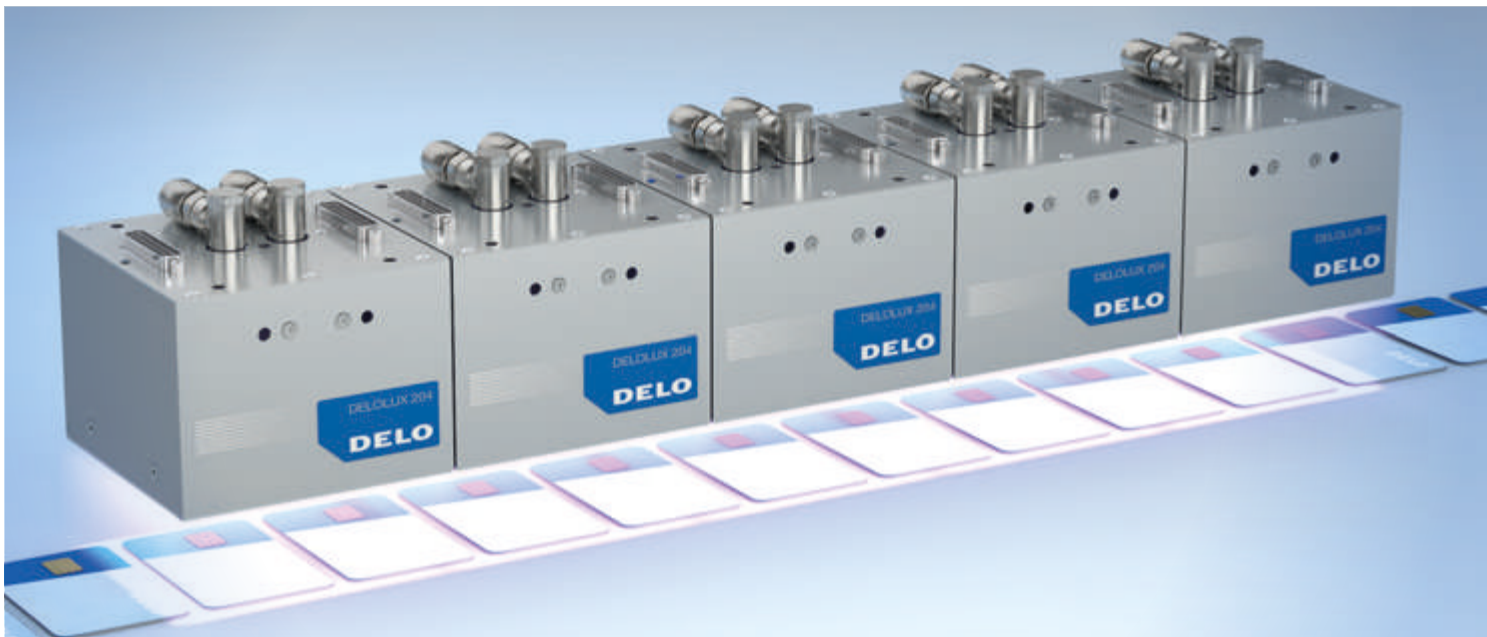
Light exit area:  
100 mm × 100 mm



Cooling mechanism:  
Integrated water cooling

DELOLUX 204 A4	365 nm / 400 nm
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Article number	9520328
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Exposure in cleanroom environment for laminating items such as ID cards

# Overview

## Cooling mechanisms



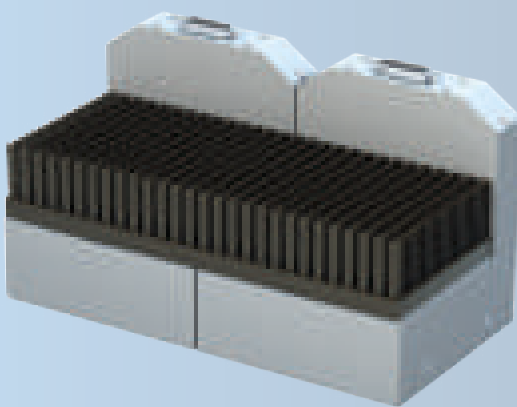
### Air cooling

- › Fully automatically controlled

**Benefits:**

- › No additional components required
- › Suitable for high cooling capacities
- › Controllable fan for optimal thermal management

Integrated axial fan found in DELOLUX 20 and DELOLUX 202



### Passive cooling

- › Suitable for use with lamp head at low-intensity projections
- › Full-surface connection to a heat sink is mandatory

**Benefits:**

- › No noise or vibrations
- › The machine base can often be used as a heat dissipator, providing a convenience factor

Suitable for use in DELOLUX 203



## Water cooling with an external cooling profile

**Benefits:**

- › Individually customizable cooling profiles
- › Suitable for clean rooms
- › No vibrations, low noise
- › Suitable for highest cooling capacities

Suitable for use in DELOLUX 203



## Water cooling with an integrated cooling profile

**Benefits:**

- › Suitable for clean rooms
- › No vibrations, low noise
- › Suitable for high cooling capacities

Integrated water cooling profile in DELOLUX 204

# DELOLUX pilot Ax

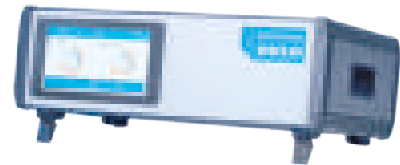
## Efficient control via PROFINET

For reliable control and power supply of the LED area lamps, you can choose between three powerful models: The two DELOLUX pilot Axi models are designed for integration into PLC-operated process systems and can supply up to two lamp heads independently of each other. The PROFINET device can also be used to send more detailed information to the higher-level PLC for quality assurance and process data acquisition. Thanks to the very fast reaction and response times, it is ideal for Industry 4.0.

With DELOLUX pilot AxT, up to four lamp heads can be individually parameterized and operated, via PLC or manually using the 7" touch screen. Thanks to the integrated power supply, it can also operate autonomously, for example in laboratory or test environments. The compact devices are designed for integration into systems with limited installation space. To ensure high process reliability, the base unit automatically keeps the lamp intensity at a constant value.



DELOLUX pilot Axi  
DELOLUX pilot Axi PROFINET



DELOLUX pilot AxT

<b>Power consumption</b>	A1i / A1i PROFINET: 400 W A2i / A2i PROFINET: 800 W	A1T: 515 W    A3T: 1,140 W A2T: 825 W    A4T: 1,450 W
<b>Power specification</b>	15 % to 100 % (increment 0.1 %)	15 % to 100 % (increment 0.1 %)
<b>Irradiation time</b>	0.1 s to ∞ s	0.1 s to ∞ s
<b>Weight</b>	A1i / A1i PROFINET: 5.0 kg A2i / A2i PROFINET: 7.3 kg	A1T: 5.7 kg    A3T: 10.1 kg A2T: 7.9 kg    A4T: 12.3 kg
<b>Article number</b>	DELOLUX pilot A1i: 9520300 DELOLUX pilot A1i PROFINET: 9520308 DELOLUX pilot A2i: 9520301 DELOLUX pilot A2i PROFINET: 9520309	DELOLUX pilot A1T: 9520271 DELOLUX pilot A2T: 9520272 DELOLUX pilot A3T: 9520273 DELOLUX pilot A4T: 9520274



Example lamp setup with DELOLUX 20 A2, DELOLUX 202 A2, DELOLUX pilot A4T

# DELOLUXcontrol

The DELOLUXcontrol measuring device can be used to detect changes in light intensity that may result from aging, contamination, or changed distances between the lamp heads. It can be equipped and operated with various detector heads. The EEPROM technology used eliminates the need for additional, regular calibration of the display units with the detector heads. This allows detector heads and display units to be replaced or expanded quickly and easily.



	Display unit		Detector head	
<b>Article</b>	DELOLUXcontrol without detector head	DELOLUXcontrol RS232 without detector head	DELOLUXcontrol 9 mm LED detector head	DELOLUXcontrol 1 mm LED detector head
<b>Features</b>	Output of intensity, dose, max. value (peak intensity)	Integration into PLC environment via RS232 connector	Diameter of detection area 9 mm	Diameter of detection area 1 mm
<b>Article number</b>	9520340	9520345	9520341	9520342

## Plug and Play



DELOLUX lamps and their matching base units can be integrated into production lines via plug & play. Immediately after connection, the base unit automatically outputs all important information about the plugged light source, without the need for manual configuration in advance. The devices are ready for use within a few minutes.



## Highest quality

All DELO devices are “made in Windach”. To ensure highest product quality, we unite development, production, technical testing, and support (e. g. also process simulations) at our headquarters. However, wherever you are, our sales engineers are there to support you – worldwide from our subsidiaries, representative offices, and distributors.

# DELO

## DELO Industrial Adhesives

China | Germany HQ | France | Italy | Japan | Korea  
Malaysia | Singapore | Thailand | Czech Republic | USA

The technical data is for informational purposes only. Specific values can be found in the user manual. It is the user's responsibility to test the suitability of the device for the intended purpose by considering all specific requirements. If you need support in using the devices, please feel free to ask your contacts in our Engineering Department.

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