DELO

DELOLUX 80
LED Curing Lamp

High-intensity DELOLUX 80
LED light source and
DELO-UNIPRO control unit

DELOLUX 80

DELOLUX 80:
Intensity, directly at chip:
365 nm: **75,000 mW / cm²**
400 nm: **85,000 mW / cm²**
460 nm: **54,000 mW / cm²**

LED curing lamps for optimized production processes

Short cycle times and fast, reliable series production processes are key criteria in industrial manufacturing. LED is today's leading adhesives curing lamp technology, with definite advantages over classic discharge lamps. LEDs ensure a curing process that is optimally adapted to the adhesive used, and they have a significantly longer lifetime than discharge lamps.

The lifetime of a conventional mercury discharge lamp is approx. 1,000 hours, while the achievable service life of an LED can exceed 20,000 hours.

Another benefit is the fact that the emission spectrum can be adapted to the specific adhesive allowing optimum curing. The long lifetime of LEDs and their low energy consumption help make production processes highly cost-efficient.

DELO has managed to adapt this LED technology to create the ideal answer to bonding requirements. The newly developed DELOLUX 80 lamp enables fast curing of light- and UV-curing adhesives, while ensuring reliable processes.

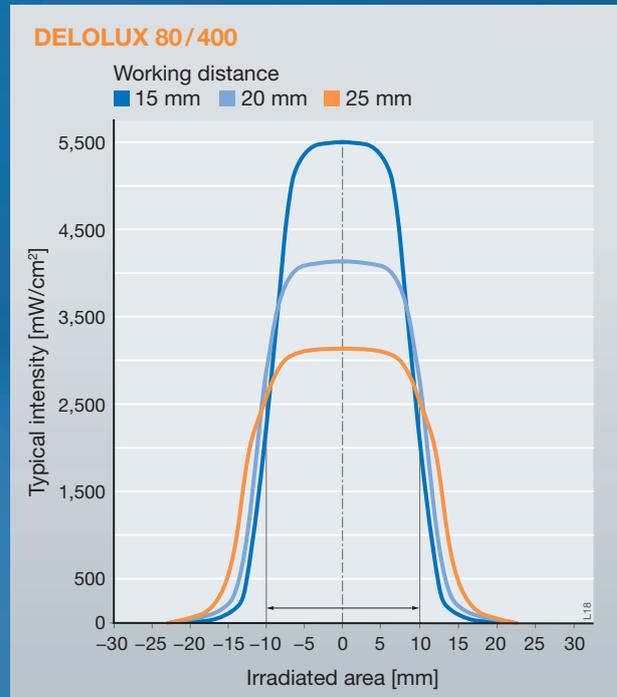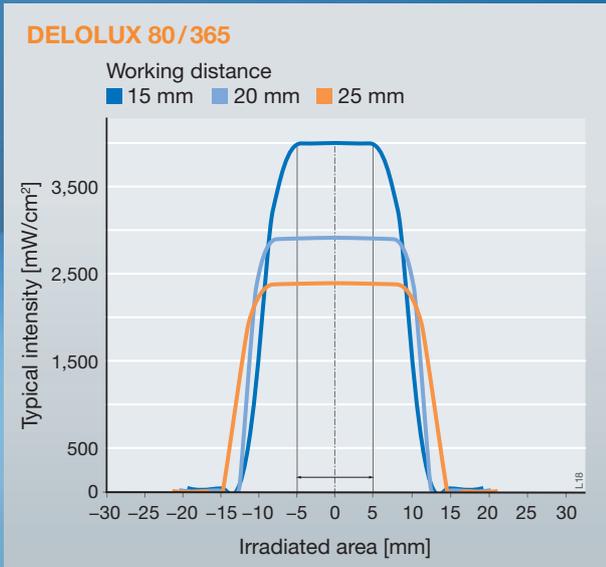## LED modules with Coldguide™ for constant light intensity and long lifetime

For constant light intensity and long lifetime, LED modules require permanent and controlled temperatures. The diodes of DELOLUX 80 are cooled by a specially developed liquid cooling system called Coldguide™. The system is closed and continuously monitored. This new technology gives substantially longer lifetime and much higher light intensity than it is possible with conventional air-cooled LED modules.

Unlike air-cooled LEDs, liquid-cooled LEDs reach full power directly after switched on. They deliver constant light intensity at a steady temperature of the LEDs.

LEDs cooled by Coldguide™ cannot get contaminated by cooling air, which would affect the bonding process. The closed Coldguide™ cooling circuit is absolutely maintenance-free.

DELO supplies the most compact curing lamps on the market.

DELOLUX 80 / 365

Working distance
■ 15 mm ■ 20 mm ■ 25 mm

Typical intensity [mW/cm²]

3,500
2,500
1,500
500
0

−30 −25 −20 −15 −10 −5 0 5 10 15 20 25 30

Irradiated area [mm]

L18

DELOLUX 80 / 400

Working distance
■ 15 mm ■ 20 mm ■ 25 mm

Typical intensity [mW/cm²]

5,500
4,500
3,500
2,500
1,500
500
0

−30 −25 −20 −15 −10 −5 0 5 10 15 20 25 30

Irradiated area [mm]

L18

Light intensity distribution in dependence of the distance between lamp head and bonding area

High brightness

Optimized emission spectra and very easy handling

High degree of flexibility for integration into production systems
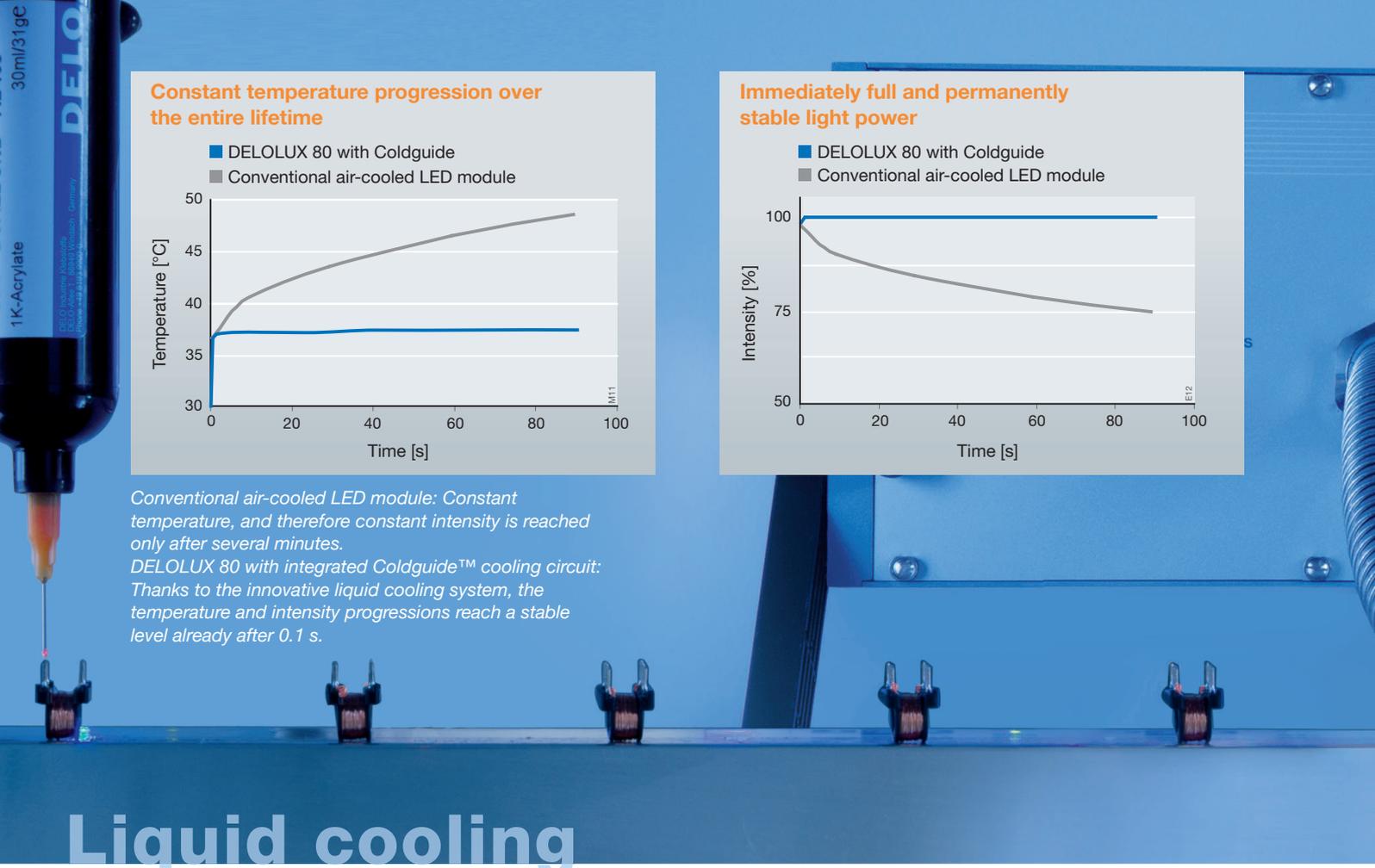
Lamp distance: 15 – 25 mm
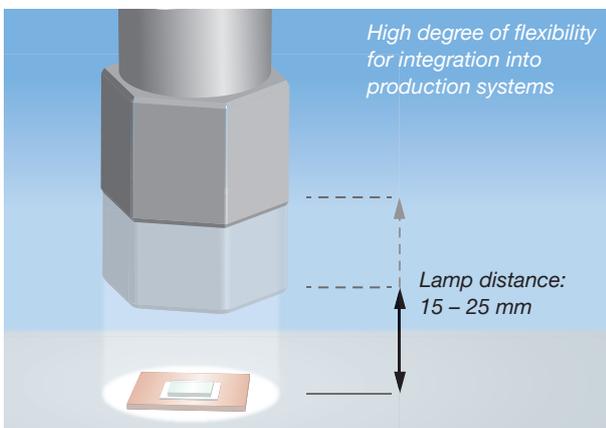
The unique optical system and the complex technology behind it allowed DELO to perfectly adjust the LED light beams of DELOLUX 80 to a working distance of 15 to 25 mm. This has the effect of much higher energy yield and a light intensity that is unique in its homogeneity over the entire irradiated area.
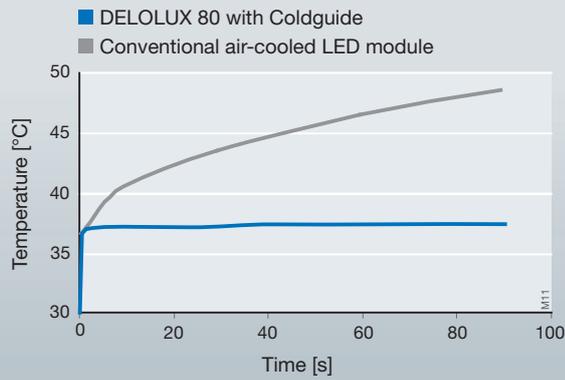
Thanks to this high brightness, DELOLUX 80 offers unique flexibility in integrating the lamps into production systems. Cycle times in the production process can again be reduced to a significant extent due to the increased light power provided by the lamp's high brightness.

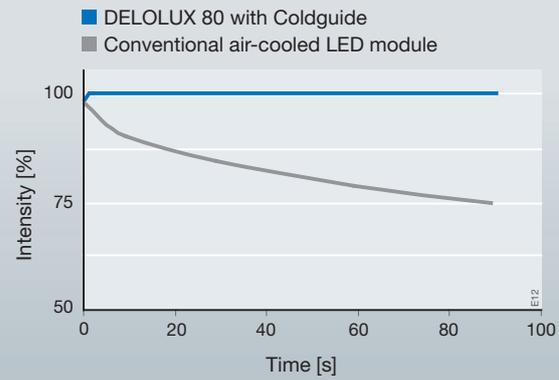## Innovative optics for maximum intensity and homogeneity

DELOLUX 80:
➔ *Maximum intensity and homogeneity at the component*

DELOLUX 80

Other LED lamps:
➔ *Low intensity and diffuse illumination at the component*

0 mm

15 mm

25 mm
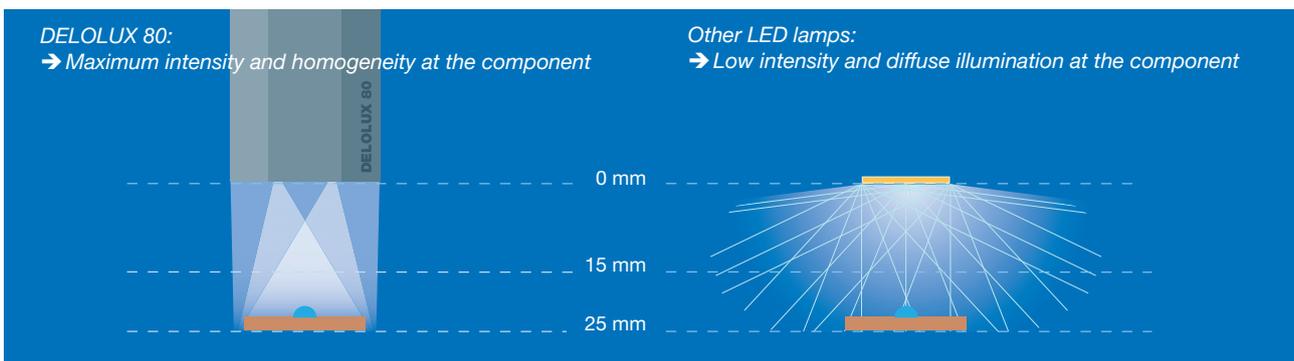
Constant temperature progression over the entire lifetime

■ DELOLUX 80 with Coldguide
■ Conventional air-cooled LED module

(graph: Temperature [°C] vs Time [s], y-axis 30–50, x-axis 0–100)

Immediately full and permanently stable light power

■ DELOLUX 80 with Coldguide
■ Conventional air-cooled LED module

(graph: Intensity [%] vs Time [s], y-axis 50–100, x-axis 0–100)

Conventional air-cooled LED module: Constant temperature, and therefore constant intensity is reached only after several minutes.
DELOLUX 80 with integrated Coldguide™ cooling circuit: Thanks to the innovative liquid cooling system, the temperature and intensity progressions reach a stable level already after 0.1 s.

Liquid cooling

Compact design for easy integration into the production system

The unique liquid cooling system offers another benefit: the lamp head was designed to be extremely compact. It is only insignificantly larger than the light exit area per se.

As a result, DELOLUX 80 is easy to integrate into production systems even under extremely cramped conditions of installation.

DELOLUX – a perfect match

DELOLUX 80 features an emission spectrum adapted specifically to all photoinitiated-curing DELO adhesives. This enables perfect curing. The design of the lamp head

is uniform and innovative. As a result, the lamp offers high brightness for wavelengths of 365 nm and 400 nm. In the new version, the irradiated area is even doubled.

DELOLUX 80	Typical application areas
DELOLUX 80 / 365	
▪ Extremely fast curing of UV-curing adhesives	Short cycle times, high output
▪ Multi-purpose	→ Bonding of miniloudspeaker membranes
	→ Fast fixing of adjusted components
DELOLUX 80 / 400	
▪ Fast curing of UV- and light-curing adhesives	Thicker adhesive layers
▪ Good transmission of adhesives and plastics	→ Casting of pins
▪ Very good deep curing	→ Sealing of housings

Benefits overview

Application-related benefits

- Full and stable light power directly after switched on
- Homogeneous light power and temperature distribution of the entire irradiated area
- Adhesive curing in just seconds

- Fast, reliable serial processes
- Much higher energy efficiency than discharge lamps
- Stable parameters over the time

Cost benefits

- 20 times longer lifetime can be achieved by LEDs

- Low operating costs (lower power consumption, lower costs for maintenance and spare parts)

Benefits in the production process

- Unique flexibility to install the lamp head in any position relative to the component
- Easy-to-install lamp head with flexible, robust conduit
- Easy to integrate into production systems thanks to compact design
- Tight packing of several lamp heads is possible
- Short cycle times

- Easy integration of the lamps into production processes
- Continuous intensity setting (no mechanical shutter required)
- Ultimate process reliability
- High occupational safety
- Non-intermittent irradiation is possible
- Closed, maintenance-free system

Curing lamps for various photoinitiated-curing adhesives:

	DELOLUX 80			Min. irradiation time [s][1]	
	365	400	460		
DELO PHOTOBOND				DELO Standard 43	**Typical application**
4436	+	++	–	4	Multi-purpose adhesive
4442	*	++	–	5	Sealing
4494	+	++	–	5	Multi-purpose adhesive; good for glass, metal, plastic
4496	+	++	*	18	Sealing
4497	+	++	–	3	Multi-purpose adhesive
AD494	+	++	–	14	Multi-purpose adhesive
GB310	++	–	–	5	Glass showcases, glass furniture, spot bonding
GB345	++	–	–	5	Glass showcases, glass furniture, hinges
PB437	+	++	–	1	Multi-purpose adhesive for glass, metal, plastic
DELO KATIOBOND				DELO Standard 37 [2]	
4552	+	+	++	12	Bonding, sealing
4578	+	+	++	12	Bonding, sealing
4594	+	+	++	14	Bonding, sealing
45952	+	+	++	20	Bonding, sealing
KB554	+	+	++	21	Bonding, sealing
GE680	++	–	–	4	Casting, coating
OB642	++	+	–	6	Bonding, sealing

++ Excellent adhesive – lamp combination
+   Suitable adhesive – lamp combination
–   Curing not possible
*   Might be beneficial in special applications

[1] At open adhesive drop; adhesive-specific adjustment of intensity and wavelength with ideal lamp; longer irradiation times might be beneficial in special applications
[2] Irradiation with 200 mW/cm²

LED lamps	Dimensions of Coldguide™	Light exit area	Article number
DELOLUX 80/365 High brightness			95 202 08
DELOLUX 80/400 High brightness		dia. 23.0 mm	95 202 06
DELOLUX 80/460		dia. 16.9 mm	95 202 07

All components are subjected to intensive internal quality control for permanently safe operation.

Optimized for increased process reliability

DELO-UNIPRO Light control unit
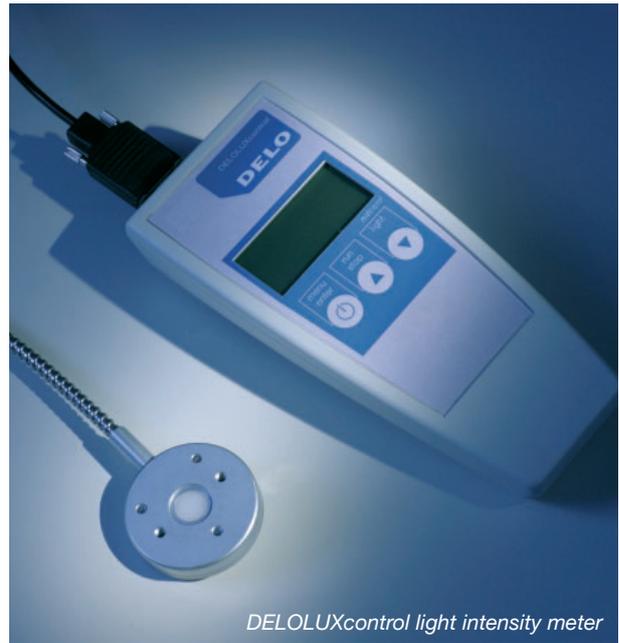
DELOLUXcontrol light intensity meter

Easy control: DELO-UNIPRO

In order to be able to meet customer-specific demands, the control concept of DELOLUX 80 is modular. Up to four DELOLUX 80 lamps can be independently controlled with the external DELO-UNIPRO control unit.
Irradiation time and intensity can be individually set for each lamp.

In addition, the status of all monitored lamp functions is displayed on the DELO-UNIPRO control unit – or alternatively via PLC. The control unit is also available as the DELO-UNIPRO Light version which – as the name suggests – is a "light" version with just the core functions.

Easy measurement: DELOLUXcontrol

Intensity measurements at regular intervals provide the customer with process reliability when operating DELOLUX lamps. Contaminations and slight distance changes, which might impair the intensity of the optical systems, are detected during checks with the light intensity meter.

DELOLUXcontrol optimally supports the users in their processes. The device can be equipped and operated with disparate detector heads.

MADE IN GERMANY

All DELO products are developed and produced in Germany, ensuring the highest quality of design and manufacture.

Parameters	DELO-UNIPRO	DELO-UNIPRO Light
Core functions (irradiation time, intensity)	✓	✓
Controllable DELOLUX 80	4	1
Status and error display	✓	–

Accessories	Article no.
DELOLUXcontrol light intensity meter without detector head; for area lamps and light guide lamps with intensities up to 99,999 mW/cm^2	95 201 08
DELOLUXcontrol LED detector head, 9 mm	95 201 04
DELO-RACK, housing for DELOLUX 80 and DELO-UNIPRO	95 200 13
DELO-UNIPRO, control unit for DELOLUX 80	95 200 01
UV safety glasses	95 200 48

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