

Next Generation UV LED Technology



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...engineering UV

GEW at a glance

Founded 1991

100% family owned

Offices: UK, DE, USA

Three UK factories

>2500 LED lamps per year

>6000 UV units per year

>32,000 UV systems installed
worldwide

GEW...engineering UV



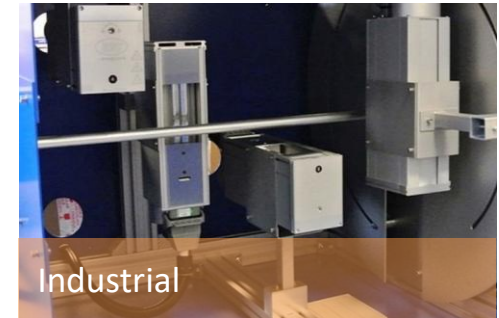
Sheetfed



Narrow web



Wide web



Industrial



Special applications



Digital

Production Sites

Production Sites in the UK



Crawley HQ & Production Site 1



Production Site 2



Production Site 3

G.E.W. (EC) Limited
Crompton Way
Crawley
West Sussex RH10 9QR
United Kingdom
T: +44 (0) 1737 824 500

GEW, Inc.
Unit X, 11941 Abbey Road
North Royalton
Ohio 44133
USA
T: +1 440 237 4439

GEW D-A-CH GmbH
Deutschland
Nelkenstraße 2
D-72669 Unterensingen
Germany
T: +49 7022 3039769



Business Units

Printing:



- Narrow web printing and finishing
- Sheetfed printing
- Wide web printing
- Metal decorating
- Newspaper printing



Business Units

Converting:

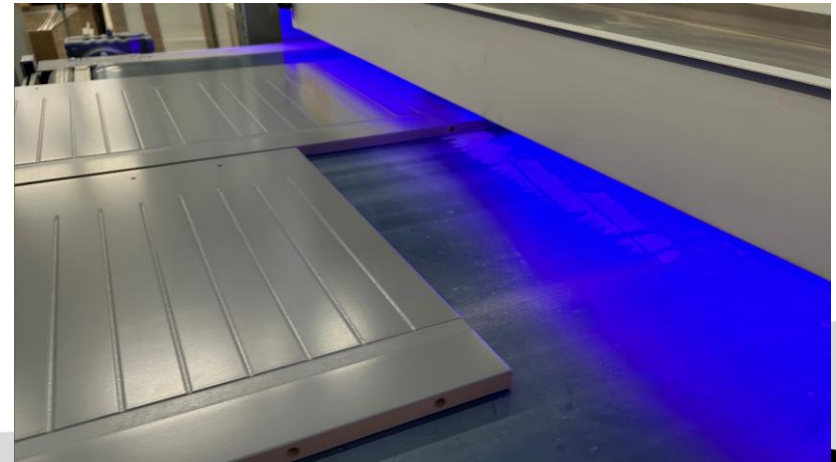
- Web coating/converting
- Hot melt adhesives
- Siliconisation



Business Units

Wood coating:

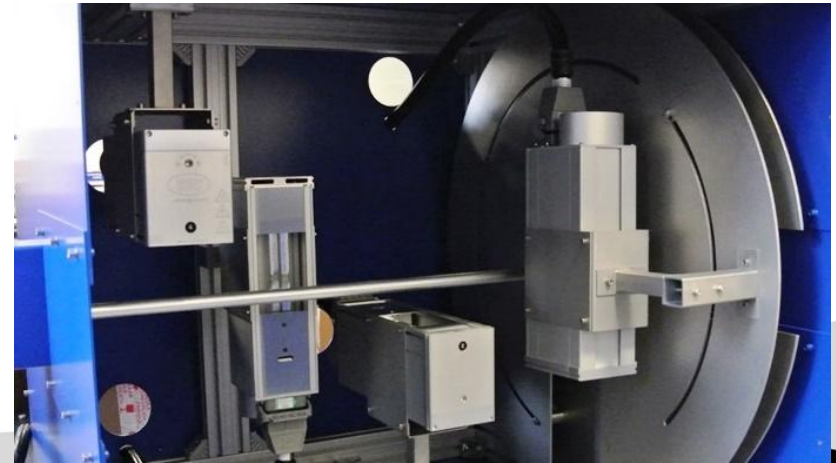
- Roller coating
- Spray coating



Business Units

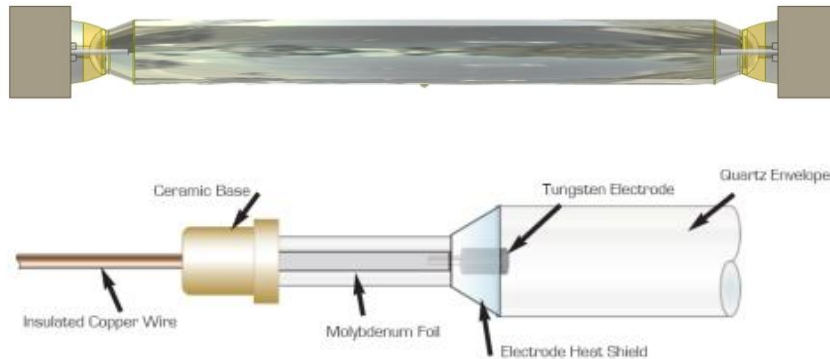
Industrial:

- Extruded film | Automotive
- Medical | Coil/metal
- Display | Electronics
- Composites



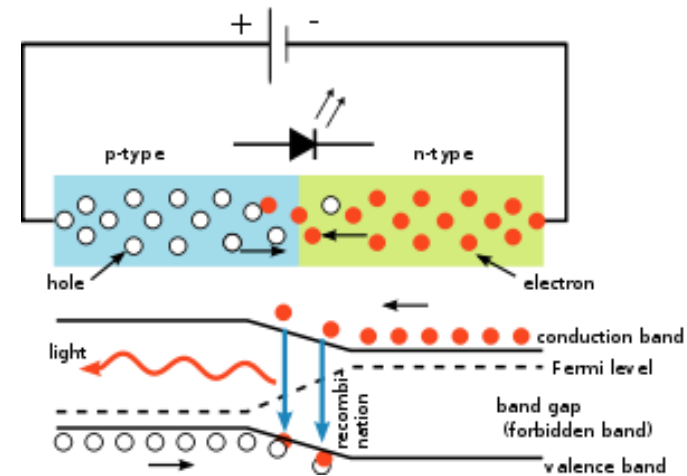
Technology Comparison

Arc Lamp



- Arc Ionisation @ High Voltage
- Heat vaporises Hg (run in)
- High T Hg emits UV & visible light

LED

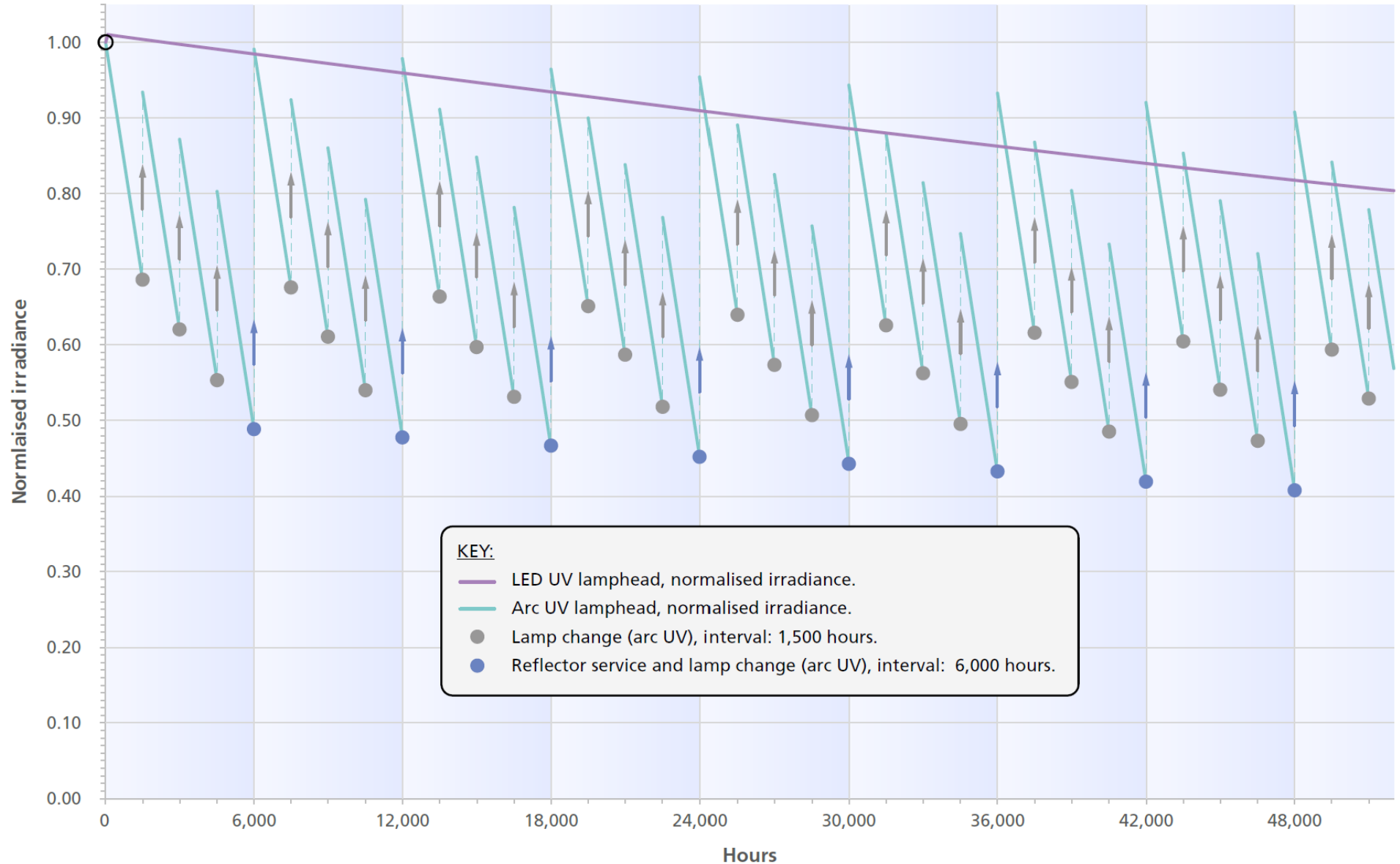


- Sandwich of two doped semiconductors
- Applied V forces electrons across potential gap emitting light
- Band gap determines λ

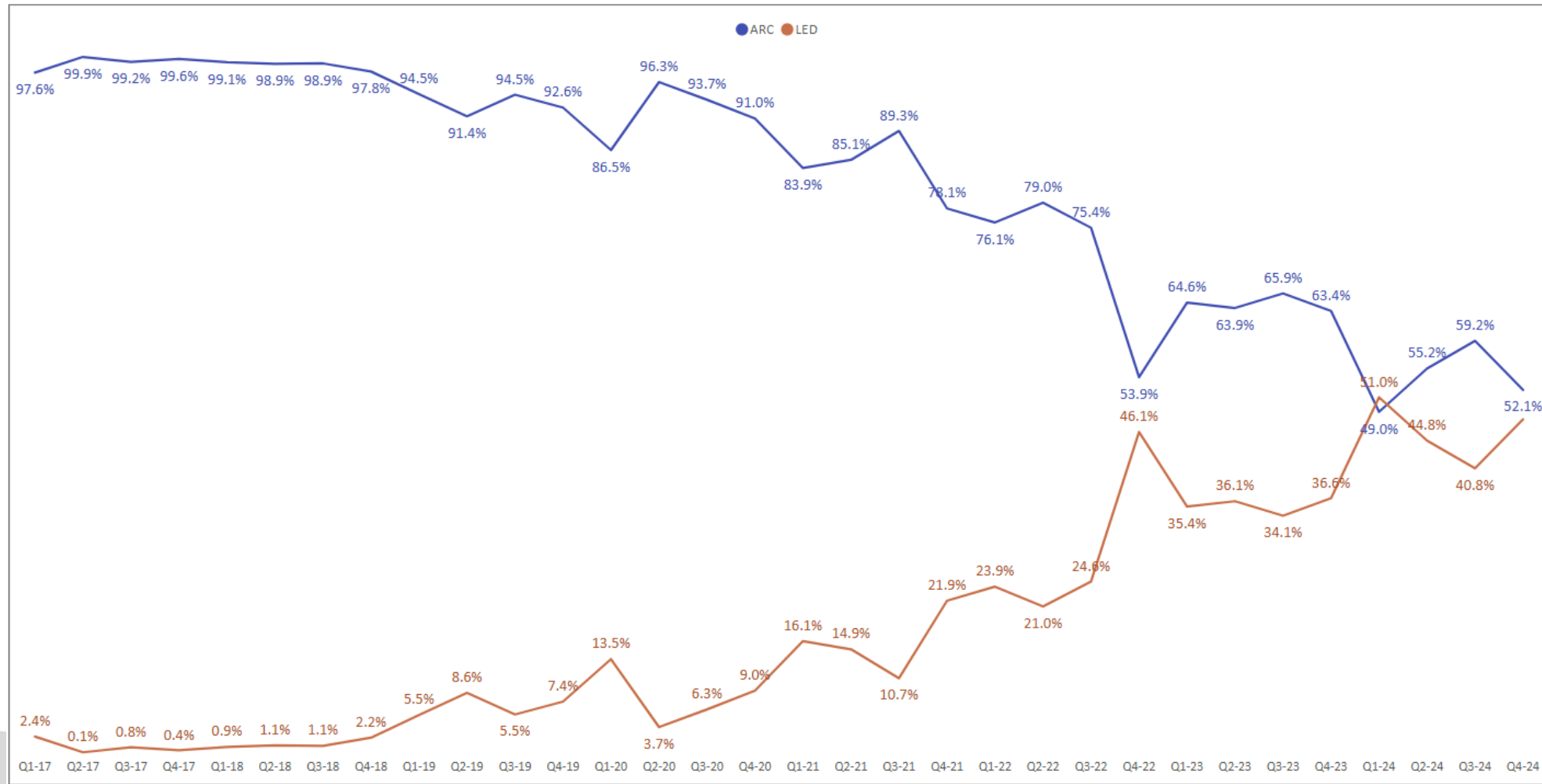


Process Reliability

A step change in process reliability
LED output is stable & predictable – therefore UV curing is stable & predictable



LED adoption at GEW



AeroLED2



Aero LED[®]2

Air-cooled UV LED Curing System

AeroLED2



+
30% Electrical Power*

+
30% UV Dose*

+
40% UV Irradiance*

Specification Highlights

Specification

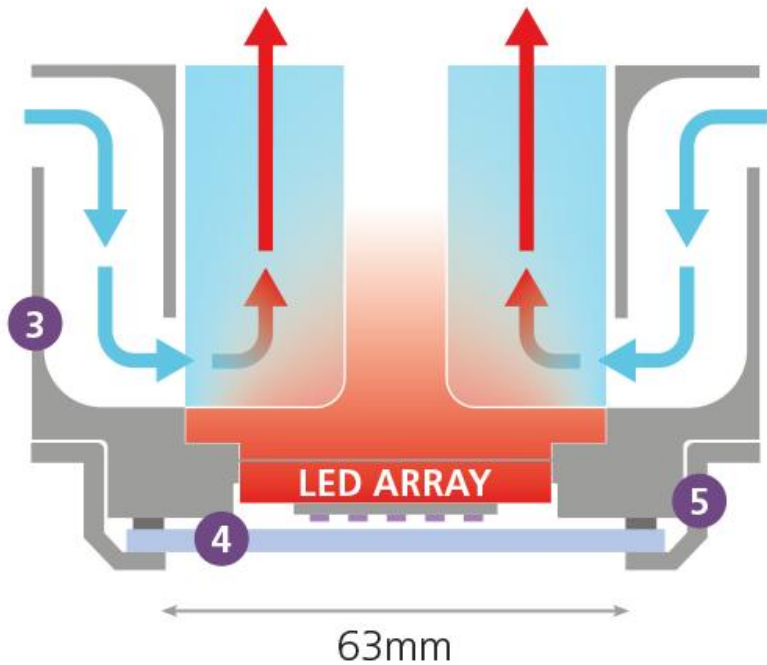
Max electrical power	70W / cm
Wavelength	395nm*
Irradiance at window	26W / cm ²
Typical dose @ 100m / min	170mJ / cm ² **
Max length	70cm
Standard cross section	110mm W x 190mm H
Cooling	Air
Standard max operating temp	35°C (95°F)
Standard max humidity	Non-condensing
Expected diode lifetime	>30,000 hours

* 365nm, 385nm & 405nm available upon request.

** Measured with an EIT LEDMAP with L395 (370 - 422nm) responsivity.

- Same power as LeoLED (70W/cm)
 - Expect to make LeoLED almost obsolete in NW
- Increase length up to 70cm (26")
 - Mid web market can go air cooled LED
- Higher Irradiance → 26W/cm²
 - Better curing for same dose

Design Highlights



- Bigger window → more dose
 - More light extraction
- LEDs closer to window → more irradiance
- Modules 50mm wide (cf. 25mm)
 - Same LEDs as v1
- Solid state cooling → better cooling → higher power & more reliable
- Same chassis LeoLED2/AeroLED2
- Heatsinks discrete from chassis → easier maintenance

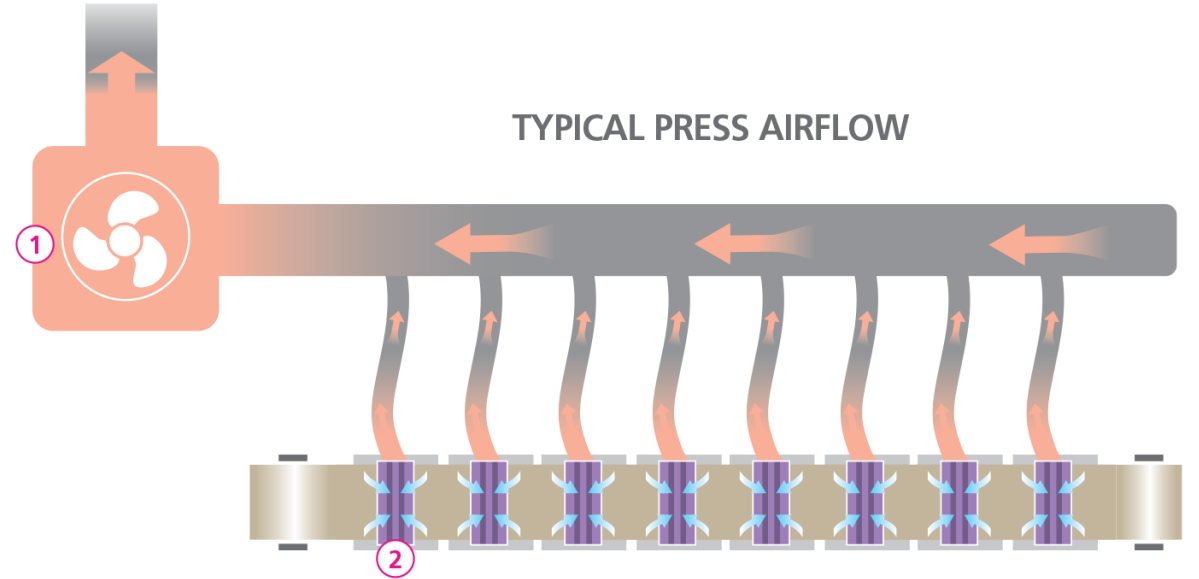
AeroLED2 Renderings





Fully air cooled from single remote fan

- Quiet and reliable operation with no integrated fans or electronics in lamp
- No heat or air movement exhausted onto the press
- No filters make life simple and easy
- Waste heat and air can be ducted out as typical with UV systems
- No chillers up to 70cm





Still ArcLED Compatible



Patented
Interchangeable
Technology

- Customers need and demand a press with arc lamp AND LED capability
- GEW's AeroLED2 maintains this
- GEW patented ArcLED in 2016.





Online energy saving calculator

www.gewuv.com/roi_calculator

Country & currency

Country

United States

Currency

USD \$

Suggested energy price for your country

0.35

REQUIRED: enter your energy price (kWh)*

0.25

System parameters

Number of lampheads*

8

Lamp Length*

47cm

Arc Power

140W/cm

LED system for comparison*

AeroLED

Operating parameters

Total days of operation in a 365 day year*

312

Average number of shifts per day*

2

Average hours per shift*

9

What is your duty cycle?*

60%

Arc / AeroLED Annual Operating Cost Comparison Table

PARAMETERS	SAVINGS ON AEROLED UPGRADE	MEASUREMENT
Energy use	160,400	kWh
Operating cost	50,600	USD \$
CO2 usage	54	Tonnes

If you wish to receive your own personalised Operating Cost Comparison, then click the button at the bottom of the page to contact our team:

Get your Operating Cost Comparison



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Upgrade to UV LED
in under an hour



Retrofit a whole press in less than 1 hour!

RETROFIT YOUR PRESS with **UV LED** in less than one day

IF YOU HAVE
any of the
list below

You will need these
AeroLED2 system components:

	AeroLED2 Lamphead	RHINO/RLT & HMI	Fan & Ducting	Shielding
E2C & RHINO/RLT system	✓	✗	✗	✗
E2C & eBrick system	✓	✓	✗	✗
Any other system	✓	✓	✓	✓

For GEW RHINO and RLT users, UV curing systems can be upgraded to AeroLED2 with minimal downtime by simply replacing the cassettes and running a software upgrade.

You can be working with LED in a few hours, without needing assistance from a GEW technician.

LeoLED2

Leo  LED[®]2

AeroLED2



+
55% Electrical Power*

+
50% UV Dose*

+
45% UV Irradiance*

Specification Highlights

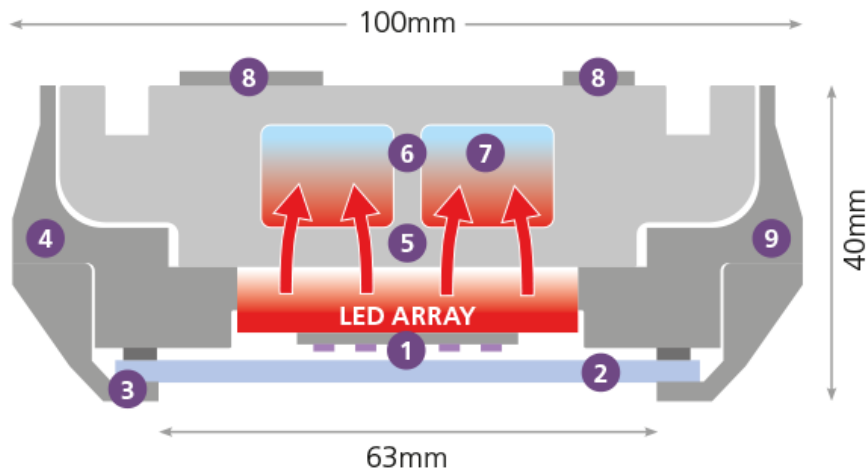
Specification	Option 1	Option 2
Max electrical power	88W / cm	140W / cm
Wavelength	395nm*	395nm only
Irradiance at window	32W / cm ²	44W / cm ²
Typical dose @ 100m / min	200mJ / cm ² **	300mJ / cm ² **
Max length	240cm	
Cross section (LeoLED2 Cassette)	110mm W x 190mm H	
Cross section (LeoLED2 Standard)	100mm W x 40mm H	
Cooling	Water	
Standard max operating temp	40°C (104°F)	
Expected diode lifetime	40,000 hours	
Max humidity	Non-condensing	

* 365nm, 385nm & 405nm available upon request.

** Measured with an EIT LEDMAP with L395 (370 - 422nm) responsivity.

- Introducing 2 Power levels:
 - 88W/cm → backward compatible with LeoLED
 - Available in all wavelengths
 - Same dose as LeoLED, slightly higher irradiance
 - N.B. in NW → 25% dose increase (70 → 88W/cm)
 - 140W/cm: +50% dose
 - 48 → 80 LEDs per inch
 - Sheetfed, digital EOP, SUV etc
 - Only available 395nm
 - N.B. maximum length on PS changes

Design Highlights



- Bigger window → more dose
 - More light extraction
- LEDs closer to window → more irradiance
- Modules 50mm wide (cf. 25mm)
 - Same LEDs as v1
- Solid state cooling → better cooling → higher power & more reliable
- Same chassis LeoLED2/AeroLED2

Design Highlights

LeoLED2 Standard



- For LED-only positions
- For tight spaces/machines e.g. perfecting positions in SF and/or retrofit of ID positions

LeoLED2 Cassette



- For ArcLED interchangeability
- More ergonomic, easier to maintain
- Default format if space allows

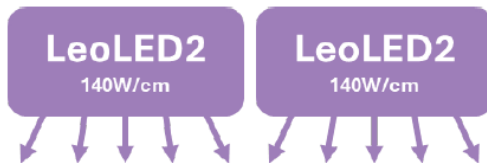
LeoLED[®] 2 – High performance LED



Standard performance interdeck



Standard performance EOP
V high speed perfecting



V High speed printing & coating



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Expected diode lifetime	40,000 hours	
Max humidity	Non-condensing	

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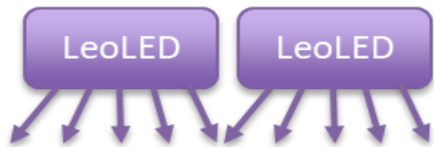
** Measured with an EIT LEDMAP with L395 (370 - 422nm) responsivity.

LeoLED[®] 2 – High performance LED

(Higher Temp cooling)



All interdecks



High speed End of Press
printing and varnishing

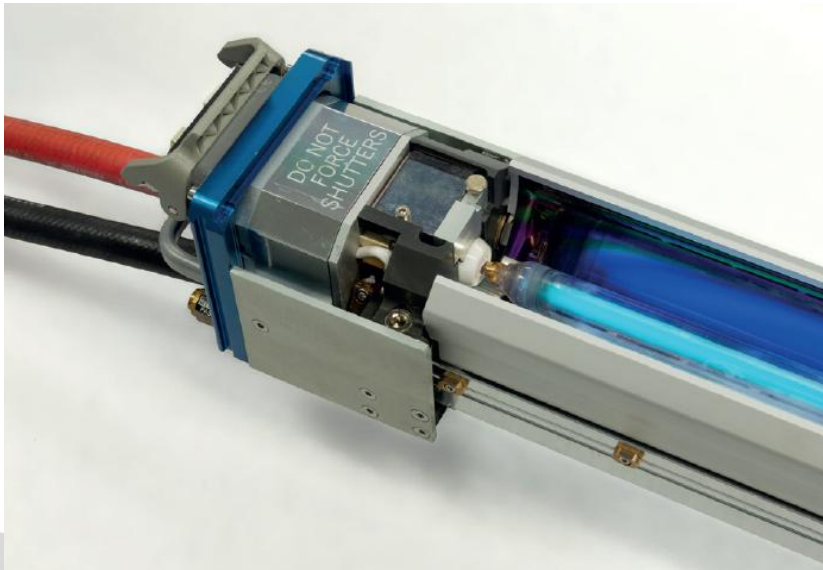


LeoLED2 Specification

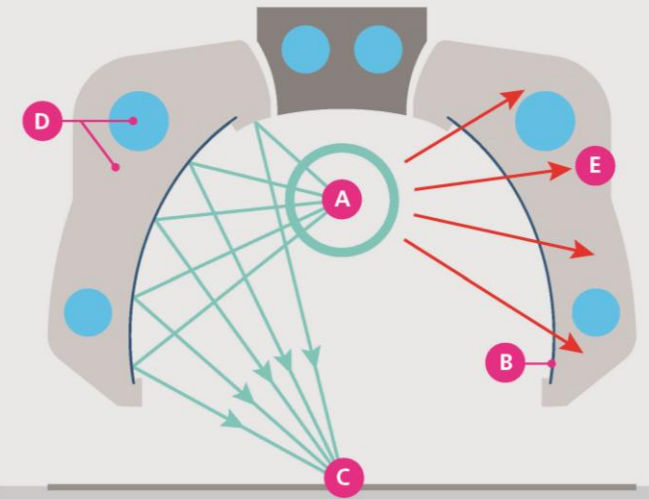
Max electrical power	112W/cm
Wavelength	395nm
Irradiance at window	37W/cm ²
Typical dose @ 100m/min	250mJ/cm ² *
Cooling	Water
Cooling water max temp	45°C (113°F)
Max humidity	Non-condensing

E4C[®] - Compact high performance

E4C UV Lamphead with power up to 220W/cm

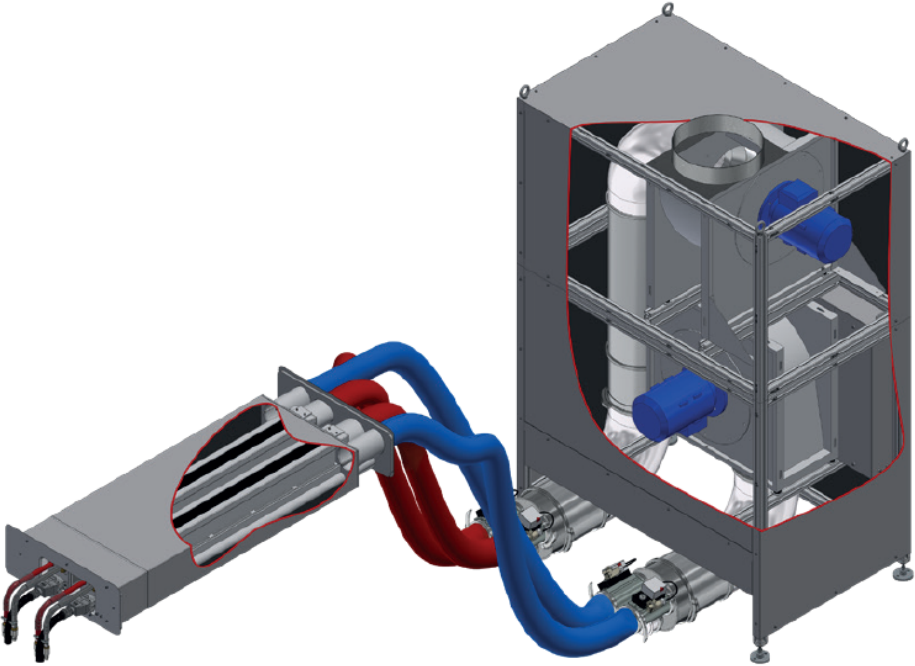
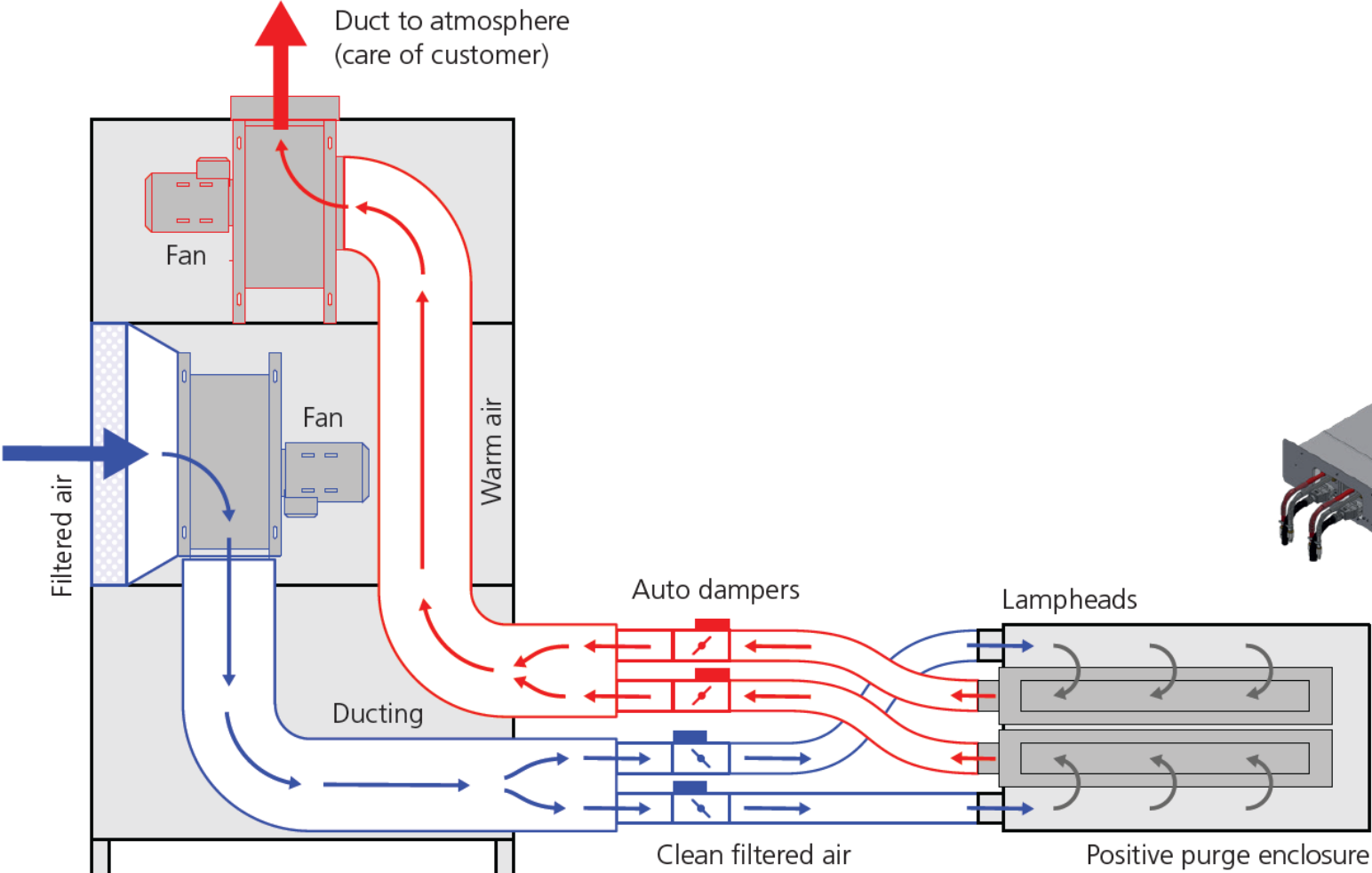


E4C UV Lamphead



- A High output lamp
- B Minimal loss reflector
- C Optically tuned UV radiation profile
- D Water-cooled reflector
- E Absorbed heat

Air Cooling - Positive Purge



Still ArcLED Compatible



Patented
Interchangeable
Technology

- Customers need and demand a press with arc lamp AND LED capability
- GEW's LeoLED2 maintains this. Most easily compatible with E4C arc lamps
- GEW patented ArcLED in 2016.





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ArcLED cassette changeover (Sheetfed Presses)

ArcLED®



Water Cooling

- WW-heat exchanger

Chiller



GEW Air Blast Cooler Introduction

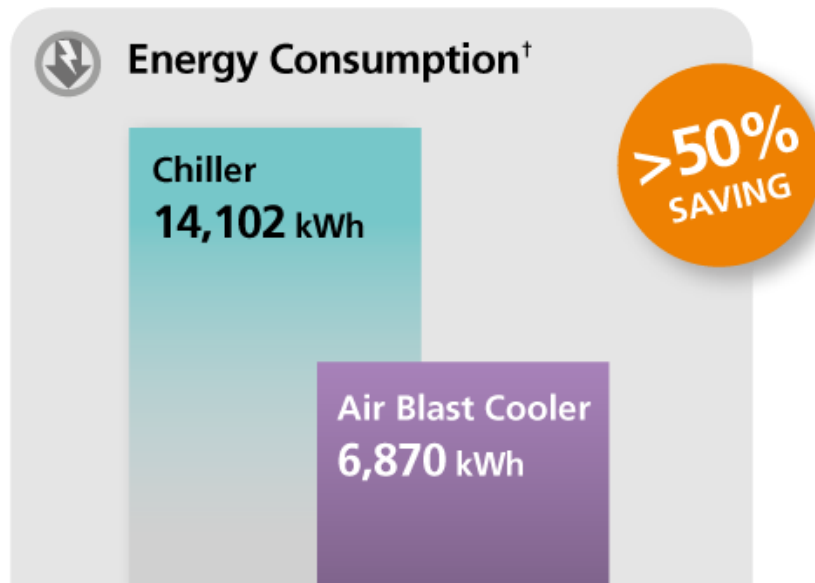


20kW cooling capacity

38kW cooling capacity

56kW cooling capacity

GEW Air Blast Cooler Benefits



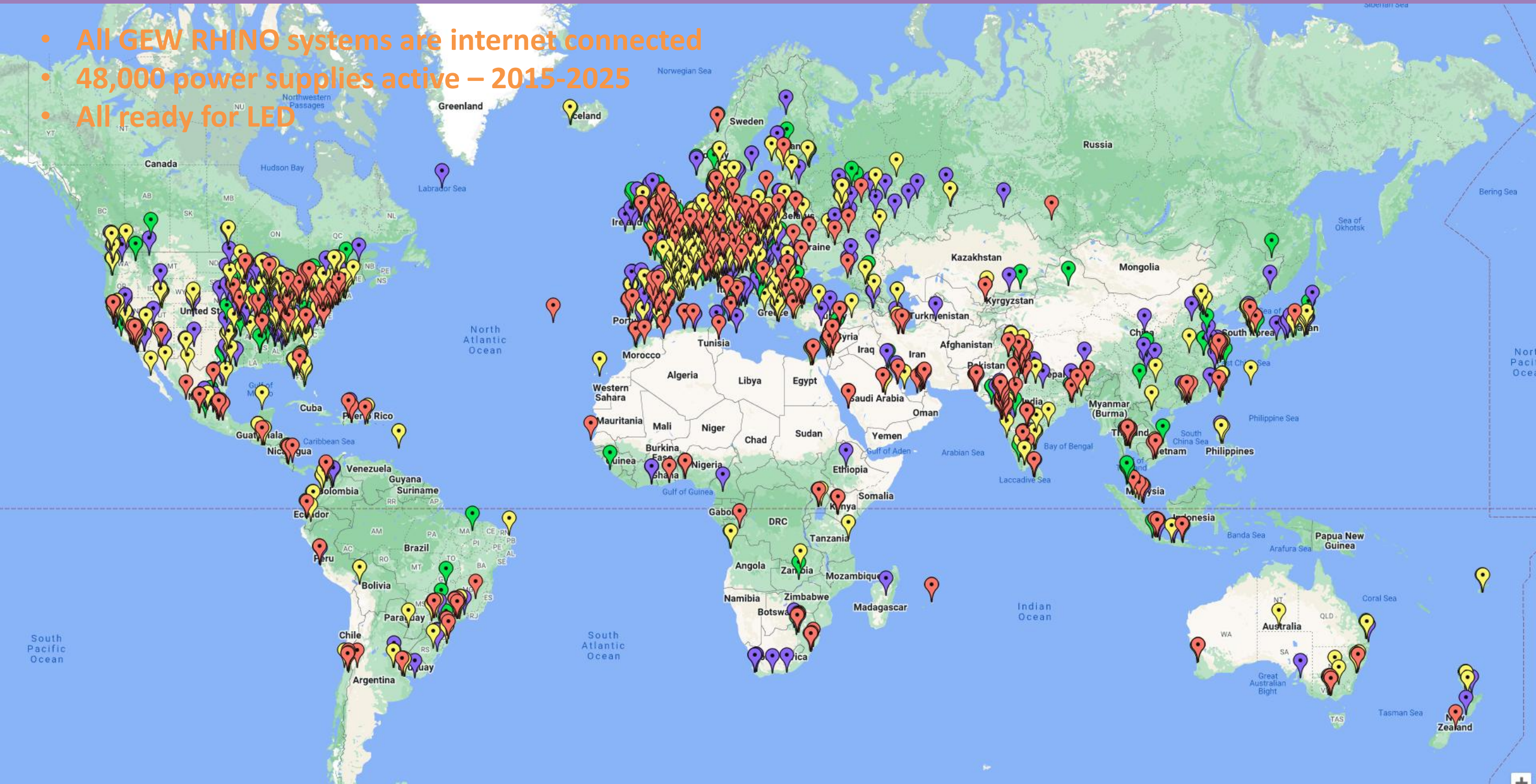
[†] Operating parameters: Figures are based on one shift of 8 hours, 260 days per year, and a 60% duty cycle. Chiller power = 6.8kW, Air Blast Cooler power = 3.4kW.

Category	Cooling Capacity (kW)	Current (A)	kVA
Chiller	31.9	32	23
Chiller	70	63	44
Air Blast Cooler	20	6	4
Air Blast Cooler	38	8	6
Air Blast Cooler	56	10	8

- No refrigerant
 - F Gas regulation
- Over 50% reduction in energy use
 - Chiller 32kW = 400V 50Hz 32A → 14.1kW
 - Air Blast Cooler 38kW = 400V 50Hz 12A → 6.9kW
- Low install power (kVA)
- GEW maintenance
 - The stock parts
 - Servicing
- Scalability
 - Buy Master now, expand with Slaves later

RHINO ArcLED[®] - Control

- All GEW RHINO systems are internet connected
- 48,000 power supplies active – 2015-2025
- All ready for LED



Remote Monitoring – live example

S17911 Reporting Graph 2020-09-29 (Tue)

Home / Systems / S17911 / Reporting / Graph

S17911 (LW2-20-2/LW2-75-2)
Martin One Source / Graphco



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Dashboard

Systems

System S17911

System Details

Remote Reporting

System Settings

Documentation

System Reports

System Analysis

Power Supplies

Cassettes

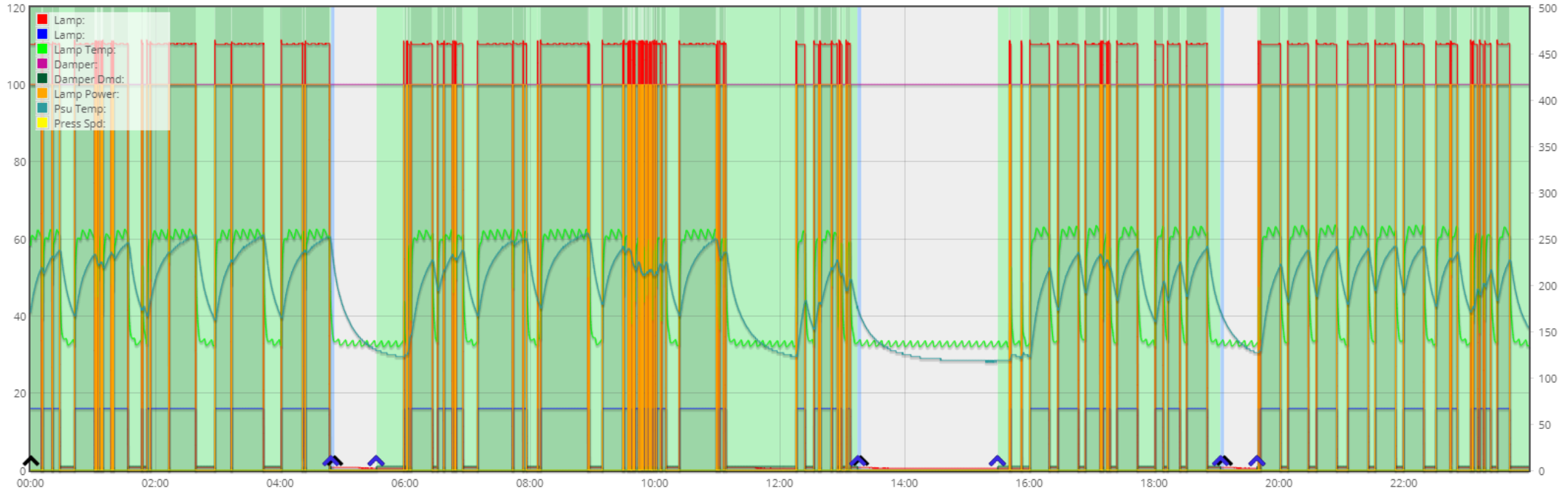
Peripherals

Global Analysis

Templates

← Previous Day Today Next Day → Log Alerts Comparison 🔍 📄

1 2 3 4 HMI Lamp PSU Mains Manifold Custom



Lamp Series

- Lamp Power
- Lamp Voltage
- Lamp Current
- PT100 Temp
- Damper Position
- Damper Demand
- Press Speed
- Shutter Position

PSU Series

- PSU Temperature
- Master Temperature
- Slave 1 Temperature
- Slave 2 Temperature
- PSU Efficiency
- CPU Temperature

Mains Series

- Phase A-B Voltage
- Phase B-C Voltage
- Phase C-A Voltage
- Phase A Current
- Phase B Current
- Phase C Current

Other Series

- Manifold Temperature
- Manifold Flow Rate
- Chiller Status

Settings

- Data Logger
- Show Data Points

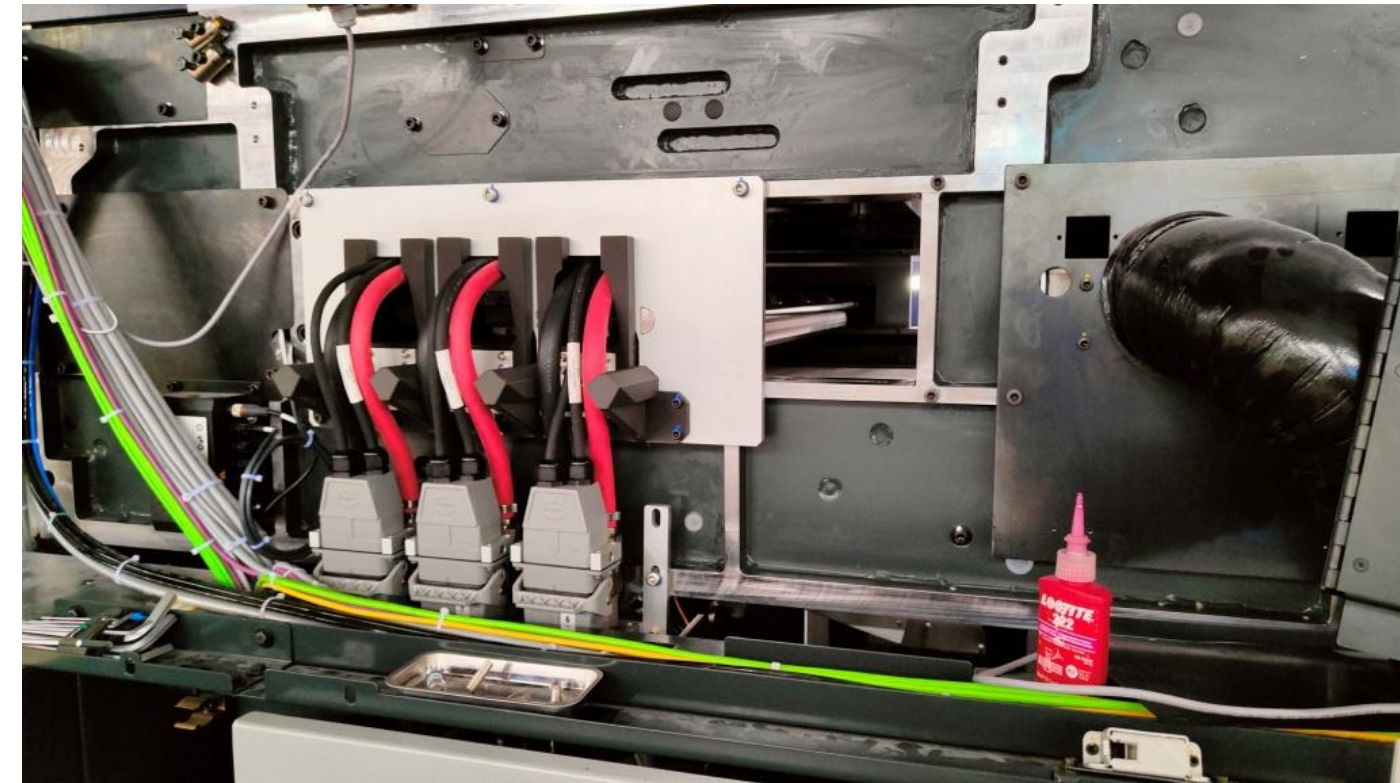
Installation examples



Integration on Komori G40/GX40 Advance



Integration on Koenig & Bauer R105

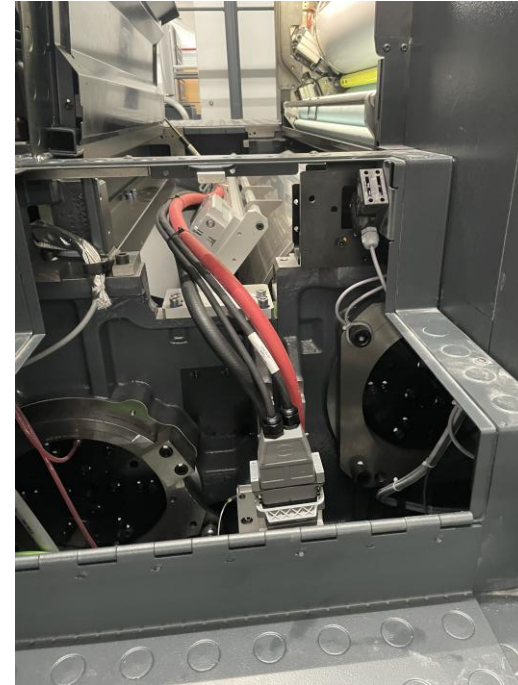


LeoLED end of press
installation

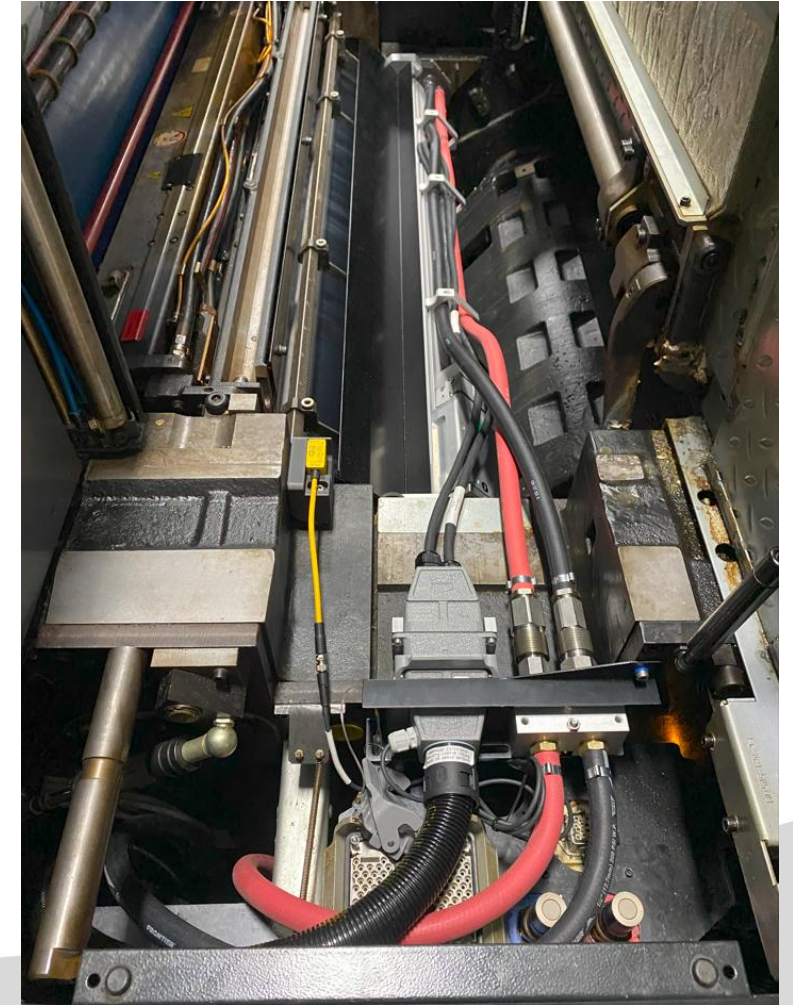
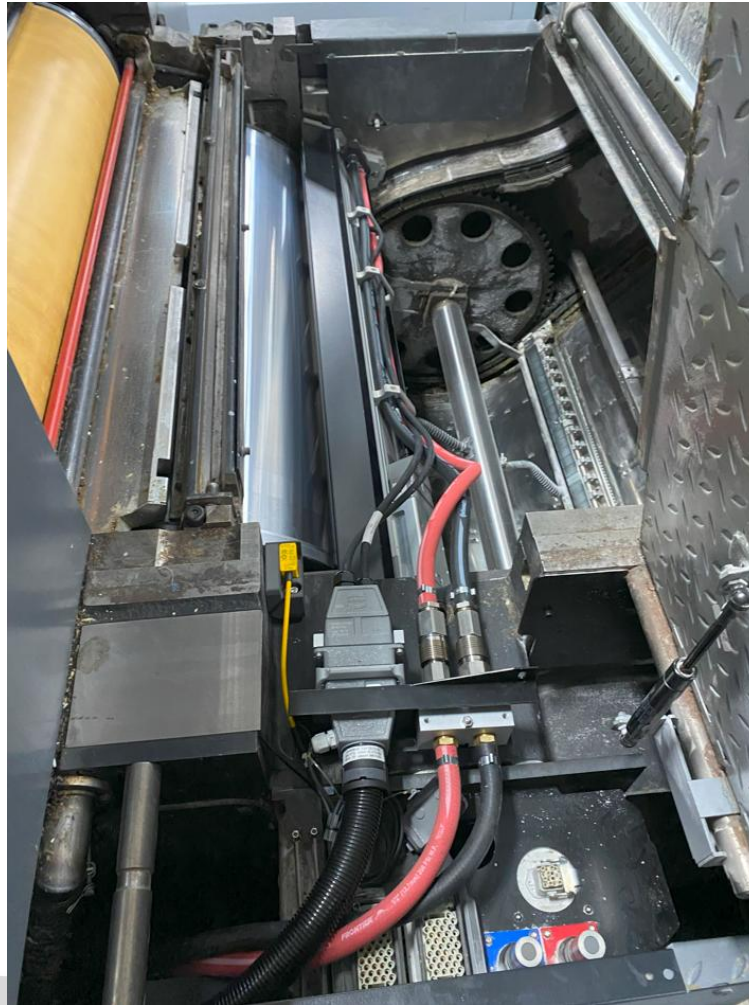
Installation example Koenig & Bauer



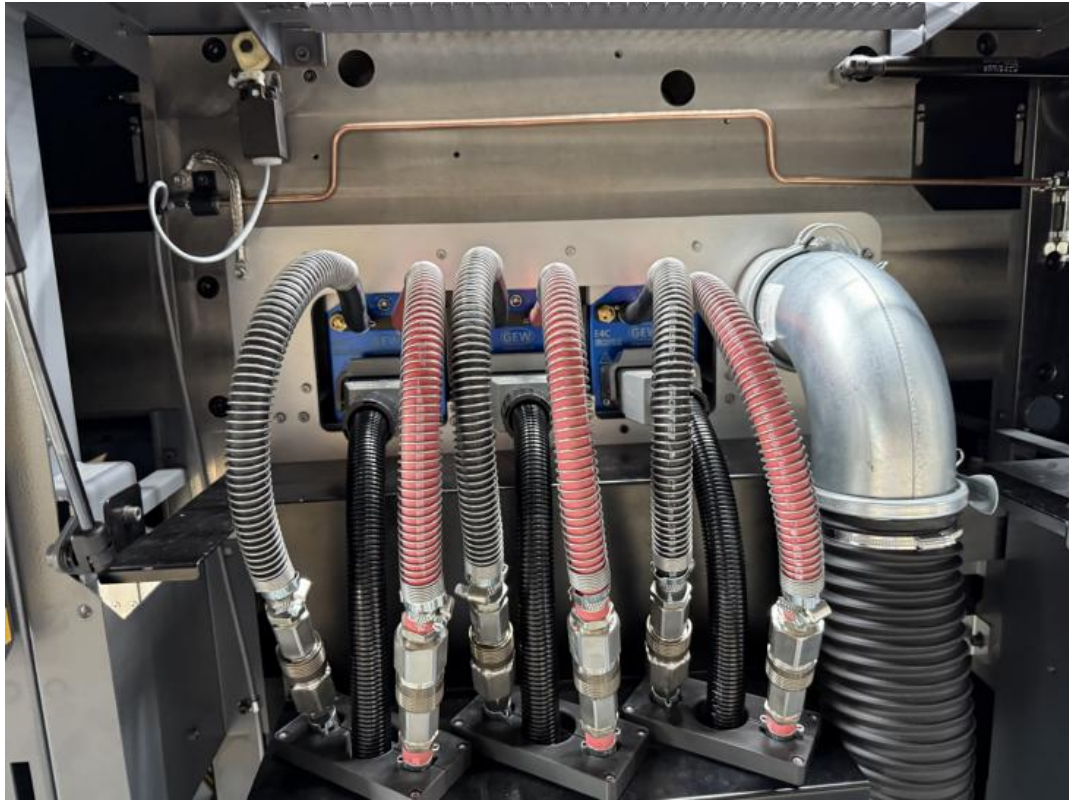
LeoLED Interdeck installation



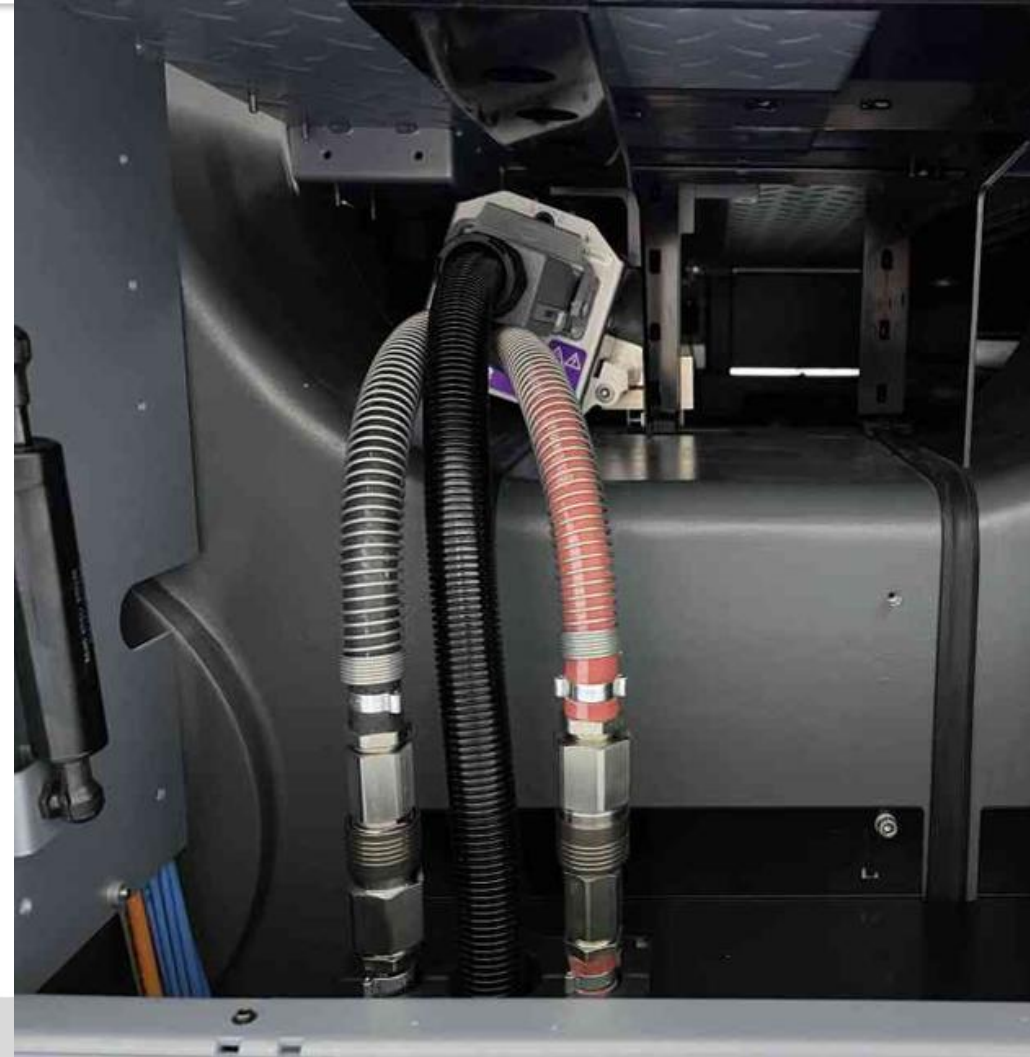
Heidelberg XL106-6LX



Example EOP integration: Heidelberg CX104



Example ID integration: Heidelberg CX104



Still easy retrofits



UPGRADE to LED NOW...

For GEW RHINO and RLT users, UV curing systems can be upgraded to LED UV by simply adding a LeoLED cassette and a chiller unit.

GEW UV LED SYSTEMS OFFER THE MOST AFFORDABLE ROUTE TO LED PRINTING

Thank you!
www.gewuv.com



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