A MIRROR FINISH LIKE NO OTHER

100 %

ECONOMIC · INNOVATIVE · HIGH QUALITY

EFFICIENT · POWERFUL · SAFE
UV DRYER BY DUO-TECHNIK

WE CREATE SOLUTIONS

DUO-TECHNIK
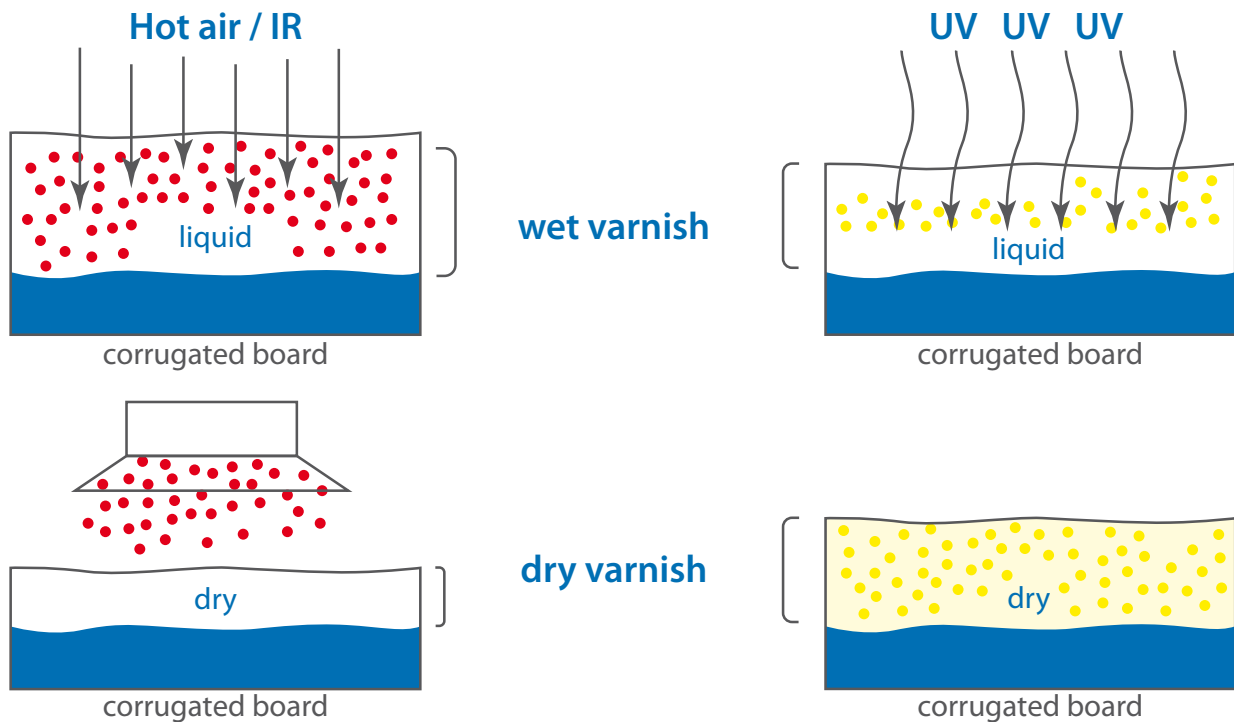PRODUCTS FOR PRINT

UV COATING CURING BY DUO-TECHNIK

The coating curing process uses ULTRA-VIOLET light energy from the visible spectrum in wave lengths from 200 to 480 nm. UV energy "cures" inks and varnishes in a fraction of a second. A UV curing system consists essentially of the following components:

- UV lamps
- Reflectors
- Lamp housings
- Cooling systems
- Intelligent operating and control systems
- Additional options can also be added as desired

Duo-Technik manufactures to the highest quality standards:

- With precise production of individual components
- Meticulous calibration of the UV units
- Seamless integration of the UV system into the production process

// UV varnishes and inks are hardened (cured) and not dried

Hot air / IR

liquid

corrugated board

wet varnish

UV UV UV

liquid

corrugated board

dry

corrugated board

dry varnish

dry

corrugated board

// **With conventional drying, the liquid in the coating is evaporated by warm air or infrared energy. The dry film thickness is thinner than the wet coating thickness.**

// **Ultraviolet curing is a photochemical process using high-intensity UV light to instantly cure or "harden" inks and coatings. The actual coating thickness remains unchanged.**

// Innovative & user friendly

The BLK®-6 is a newly developed UV drying system designed to meet the highest of industrial requirements. When compared to conventional UV systems, remarkable progress has been made in drying performance of the BLK®-6 without having to increase the UV lamp output. This means greater productivity with reduced operating costs.

1

URS® Inlay Technology

The new URS® reflectors have been optimised using the latest raytracing software – the UV yield on the substrate has increased while maintaining the same lamp output. The URS® Inlay Technology facilitates a quick change of the reflectors and thus reduces maintenance times to a minimum.

2

UV Online Sensor

The UV Online Sensor has made it possible for the first time to measure the UV radiation efficiency of a UV system online and check it when required in the operating display. It is directly integrated into the reflector surface and ensures a particularly efficient production.

3

Optimum Heat Management

Any heat introduced to the process is efficiently dissipated by the water cooling of the reflectors and the housing. The thermal load on the web is further reduced thanks to a water-cooled undershielding or cooling cylinder.

4

FLC® Fast Lamp Change

The cordless FLC® UV Lamp System facilitates a quick and easy change of the lamps. The UV lamp can be removed simply from the lamp unit by hand. Changing the lamps is possible within seconds, meaning several hours of additional machine availability throughout the year. The cleaning of the lamps is also a trouble-free procedure.

5

IPS® Control Generation and ELC® Power Supply Device

The intelligent IPS® Control System allows for a variety of additional functions, such as our Remote Service. With our space-saving ELC® Power Supply Devices, UV systems can be operated efficiently, reliably and flexibly.

6
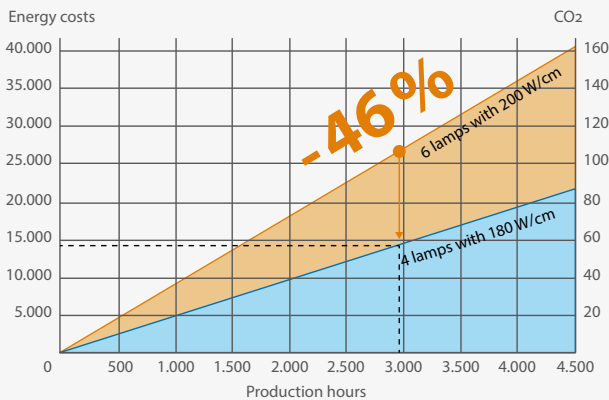
Design and functionality

The BLK®-6 combines a water-cooled support and reflector profile. The solid cross-section allows for lamp lengths of up to 2,300 mm. Due to its extremely compact form, the UV system can be individually integrated into the machine.

## e³ = energy efficient equipment

The diagram shows the energy costs and CO_2 emission (according to German Energy Mix) in relation to the connected electrical power, together with the potential settings to be made by using newest UV technology - based on the total UV system per annum.

Energy costs

-46 %

6 lamps with 200 W/cm

4 lamps with 180 W/cm

40.000 — 160
35.000 — 140
30.000 — 120
25.000 — 100
20.000 — 80
15.000 — 60
10.000 — 40
5.000 — 20

CO_2

0   500   1.000   1.500   2.000   2.500   3.000   3.500   4.000   4.500

Production hours

Energy-minimized UV printing

There are two significant factors involved in increasing efficiency: The use of optimized components and their perfect coordination with each other. All the important components of the BLK®-6, such as the reflectors, lamps and electronic parts are developed together with our partner IST-Metz in-house. Using ray tracing technology, we optimize our systems in terms of UV output and IR radiation. With high efficiency and low output in standby operation, energy consumption is noticeably reduced – a further contribution towards saving costs. The new BLK®-6 taps the full potential for saving energy costs, without compromising on quality or production speed.

The BLK®-6 has been graded as particularly energy-efficient by the German Professional Association for Printing and Paper Processing and therefore bears the label "energy-mini-mized UV printing". Furthermore, as a world-first in its class, the BLK®-6 has received the "DGUV Test" seal of approval (previously the GS Mark). The seal is a valid and legal-ly regulated test symbol for product safety that is reco-gnized throughout Europe.
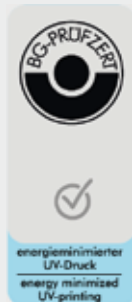
URS® Inlay Reflectors

With more than 60 different metal oxide layers, the cold mirror reflector forms the heart of every UV system. The geometry of the URS® Inlay Reflectors for the BLK®-6 has been further optimized, enabling a max. of UV yield. These highly resistant reflectors boast an extremely long service life and optimum temperature management. The reflectors are easily accessible at all times for maintenance work, with the "inlay concept" allowing their fast and convenient replacement
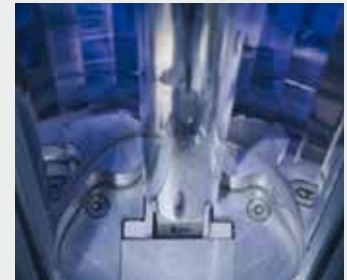
Functionality: URS® Inlay Reflector Technology

Water cooling
UV Online Sensor
URS® coating
UV lamp
URS® reflector
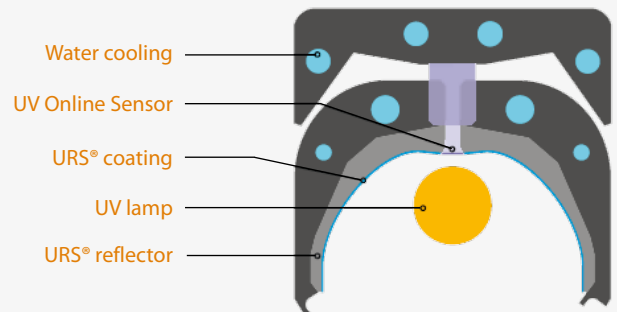
UV online sensor

BLK®-6 UV systems are equip-ped, as a standard, with a UV Online Sensor. This has made it possible for the first time to measure the UV radiated power of a UV system online. The miniaturized sensor is integrated into the reflector surface and directly connected to the system control. The system performance is shown in the unit operator display. A visual traffic light signal shows when the lamp or reflector needs to be clea-ned or even replaced. It is thus possible for the operator to intervene before there is any negative influence on the drying performance.

- Measurement of lamp and reflector
- Description of system performance
- Warning of decreasing UV power
- No additional measurement devices or interfaces required