UV-Exposure Station

ssr BS 2-207 / conveyor

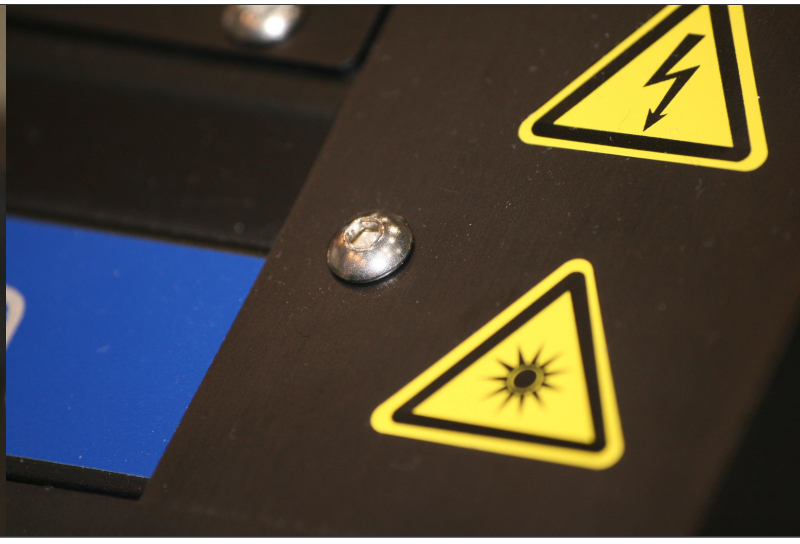
ssr engineering gmbh

ssr engineering gmbh of Lippstadt, Germany offers state-of-the-art **UV-system solutions** providing pure UV radiation of highest precision. Our technologically sophisticated high performance UV-systems fulfill all requirements in terms of reliability, process and ecological sustainability.

ssr engineering **BS 2-207 - Series Exposure Stations** are suitable for industrial applications and laboratory use.

ssr BS 2-207 Exposure Station

ssr engineering offers a very **versatile laboratory exposure station** for the most appropriate process evaluation. The exposure can be defined on basis of the parameters exposure time, radiation intensity and **required UV dosage** and is precisely controlled by an internal PLC.

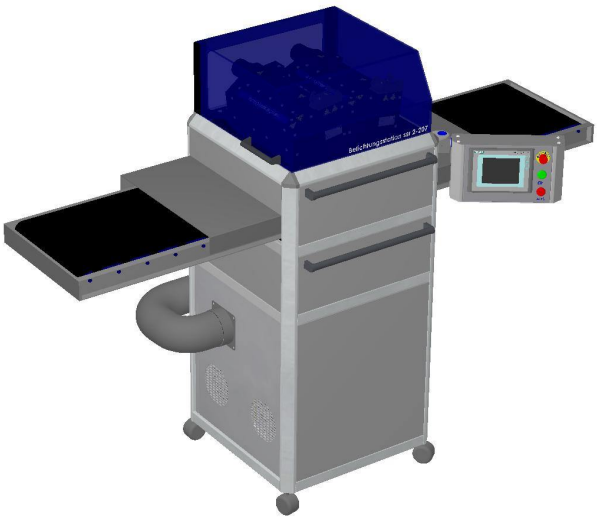


All exposure processes can be easily defined by UV dosage and intensity with highest reproducibility. No circuitous specifications by speed, distance and W/cm required.

This revolutionary system solution is an „UV-machine“ par excellence, containing all high-tech product features. State-of-the-art UV-system technology, solid-state power supply units, step less power control, touch panel operation, integrated safety monitoring, integrated UV-sensors and network interface.

Significant results for all industrial UV-curing processes enabling an easy transfer from laboratory to production scale. Integrated sensors are monitoring the exposure intensity and ensure thereby an absolutely reproducible UV exposure on the substrates. Designed as stand-alone unit, the system contains all necessary safety features. Its touch screen operator panel offers a maximum ease of use. The system contains an internal blower for sufficient air cooling. External water cooling is also required.

The UV-exposure station "**ssr 2-207**" presents a unique operational concept in UV curing technology. Controlled by an internal PLC, all relevant process parameters such as curing power and curing time, are defined via the **Siemens TP 277** Touch Panel. Its intuitionally surface is easy to use and offers a perfect outline of all operation modes. All process data are stored internally and are transferred as „*.csv"-log to a connected network PC.

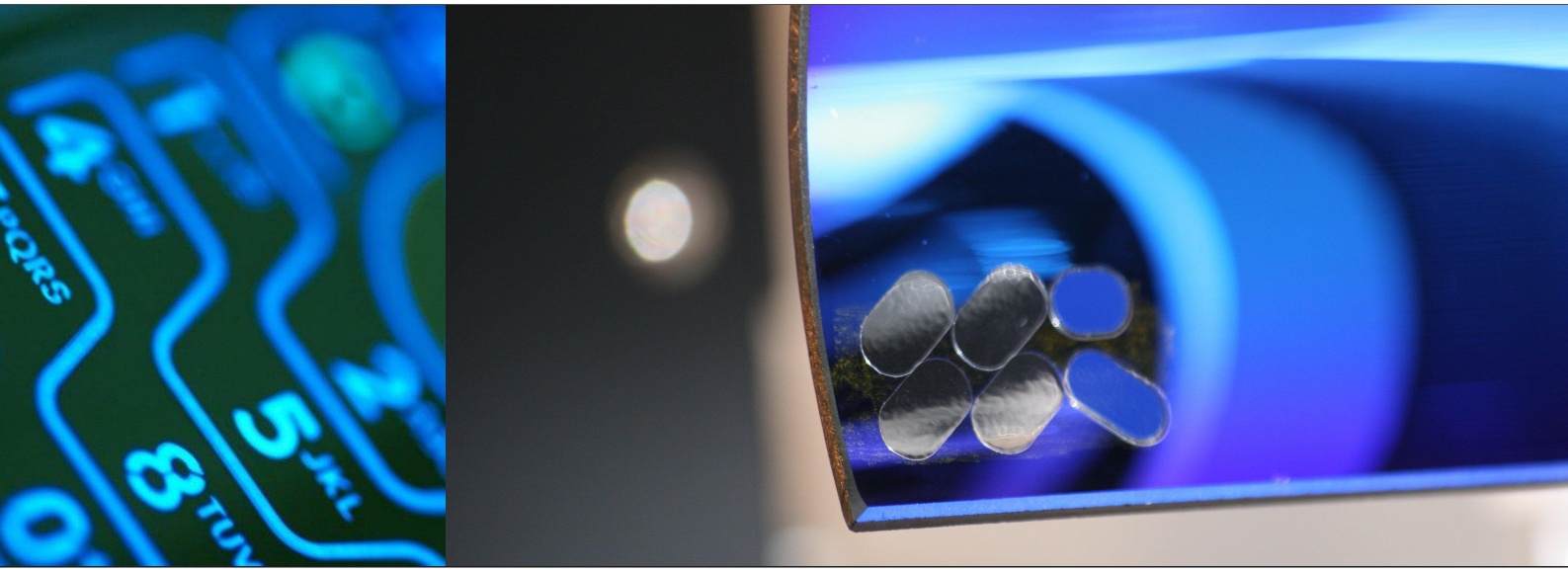


ssr BS 2-207 conveyor

ssr BS 2-207

Based on the cutting edge **evo 7 – series** UV curing systems, no relative movement between substrate and light source is required. The ultra high homogeneous exposure within the exposure area of the device, guarantees a reliable and reproducible curing process. The „**conveyor**"-version of this unit is designed for continuously exposure processes and for inline production.

The UV-systems of the ssr evo 7-series guarantee a photochemical polymerization free from harmful radiation heat. By use of the “Selective Lambda Technology", virtually no IR radiation is exposed to the substrates. This enables long exposure times without reaching the critical temperature of the substrates.
The Selective Lambda Technology “SLT” offers a very pure process radiation in the UV and UV-Vis spectral area and thus providing a curing process with minimal thermal stress. As a result, the effective UV dose can be increased up to 500%.



Special features:

All **ssr BS 2-207 Exposure Stations** offers best-in-class performance and unique product features.

pure UV
no IR radiation on the substrates

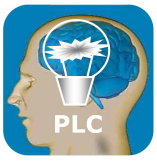
cool UV
low substrate temperatures

shutter
mechanical Shutter-system 0.15 sek.

static
homogeneity ±5% within exposure area

speed
conveyor belt for continuous exposure

lamp X
quick SSR lamp change

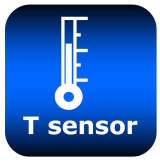


PLC
internal control and safety system

touch panel
operation by Siemens TP 277 Touch Panel

interface
Ethernet connection for network PC

protocol
log-file transferred to network-PC

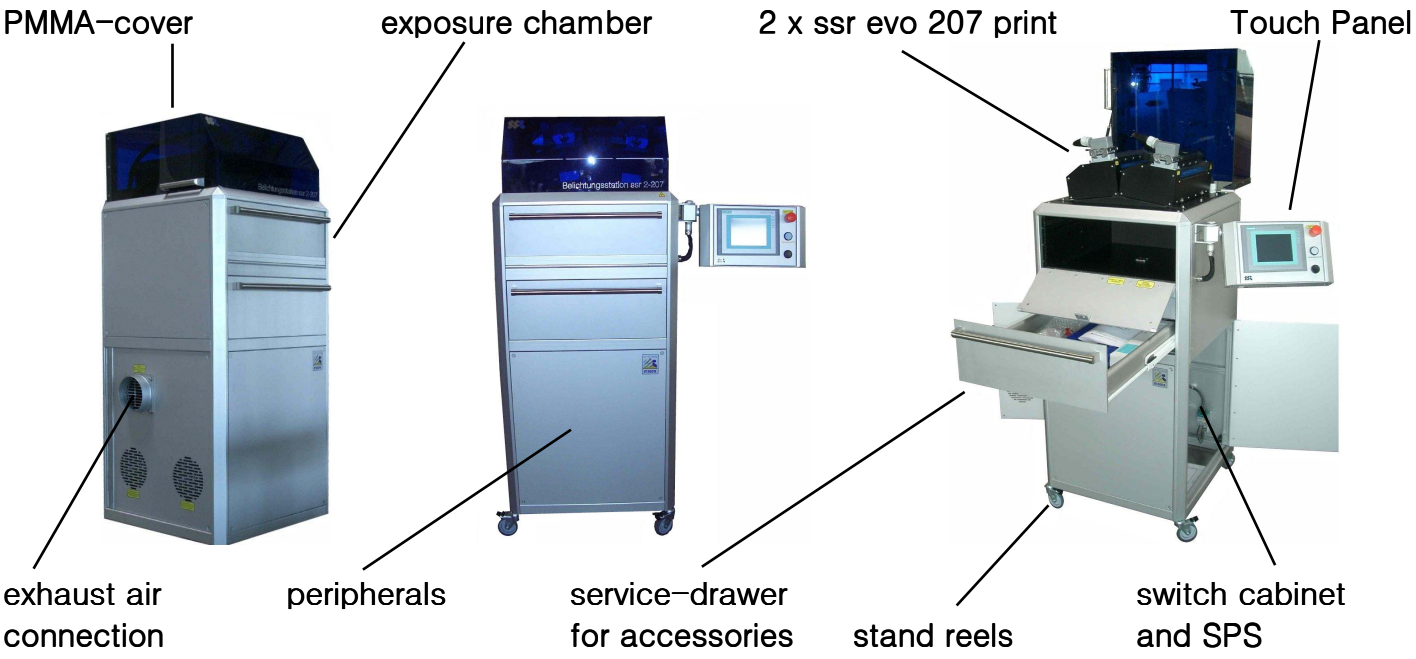


T sensor
temperature safety switch

air sensor
cooling air safety switch

System outline

Ergonomics and ease of use were central development objectives for this new exposure station. The UV-systems are insulated by a safety monitored PMMA-cover. All integrated peripherals and electric control cabinet are easily accessible and easy to maintain.
An additional self-closing drawer runner is integrated to hold accessories and documentation.



Safety and closure of the exposure chamber is monitored during operation. A tumbler secures the flap gate against not authorised access. Cooling and safety of the UV-systems and the entire exposure station are monitored by internal sensors.

The comprehensive accessories of this device contains for example a sample drawer with marked exposure area, an optional inertisation chamber with control unit and oxygen measurement, external cooling unit, standard and special UV lamps, tools and a complete technical documentation.

As a matter of course these exposure stations comply to start-of-the-art technological standards and fulfil all safety requirements. All ssr products are quality made in Germany carrying the CE-marking.

Application technology

As a world novelty, the **ssr BS 2-207 Exposure Station** offers systematically evaluations of UV chemistry and UV-curing processes directly related to industrial production and empiric data acquisition in parallel. By use of fully integrated UV measurement, this equipment is a UV-curing and analysis device at the same time.

- compact UV-Exposure Station for laboratories and production
- power control from 10 – 100 % step less
- mechanical Shutter for precise exposure control
- reproducible exposure programs
- homogeneously exposure of substrates & parts
- dosage driven exposure
- internal cooling monitoring
- Ethernet interface for data transfer to a connected network PC
- inertisation of substrates possible
- customised versions on request

Typical applications:

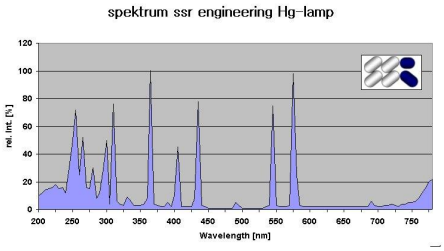
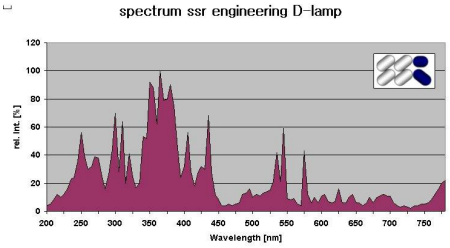
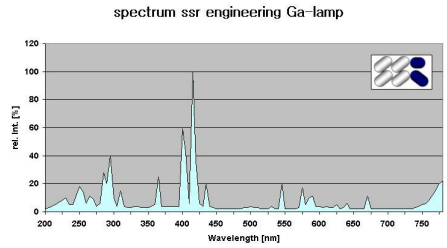
- curing and polymerisation of lacquers, inks, resins and other coatings
- precise evaluation and development of UV-chemistry and -processes
- exposure for chemical und biological applications
- verification of exposure data for preparation of data sheets
- material science and analysis of UV-resistance
- low to ultra high UV-dose within the spectral- and measurement areas:

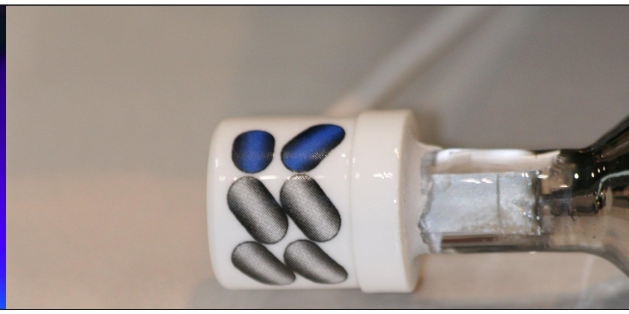
UV-A	315 – 395 nm
UV-B	280 – 315 nm
UV-C	200 – 280 nm
UV-Vis	395 – 445 nm

UV-dosage, UV-intensity and lamp type of each exposure are defined and shown at the Touch Panel. These data are automatically sent via Ethernet interface to a connected network PC to be directly available in your computing system for further processing. No need to take additional readings and notes.

UV-lamps

The use of different UV lamps guaranties ideal properties of your process light, matching virtually all process requirements. Besides the ssr standard UV lamps, a wide range of different special doped lamps are available on request.

Hg spectrum	D spectrum	Ga spectrum
ssr 200 Hg 200 OE 400 – 6 kW max ssr 200 Hg 200 OE 260 – 4 kW max	ssr 200 D 200 OE 400 – 6 kW max ssr 200 D 200 OE 260 – 4 kW max	ssr 200 Ga 200 OE 400 – 6 kW max ssr 200 Ga 200 OE 260 – 4 kW max
		
transparent & thin coatings, varnishes & clear coatings	bonding processes, highly pig-mented systems and thick coatings	thick varnishes, pigmented systems and special applications



UV dosage

The integrated PLC and the fast control of the pneumatically driven Shutter system enables exposure times from 0.3 to 120 sec. Due to the step less power control and the use of different UV lamps, effective UV dosages between 10 up to 120 000 mJ/cm² can be achieved.

All relevant exposure data, dosage, intensity, electrical power and UV lamp type are logged by an exposure protocol, displayed on the Touch Panel and are sent as “csv-file” via Ethernet interface to a connected network PC.

Technical data

Exposure Station ssr BS 2-207 / 2-207 conveyor		
Version	Standard	Conveyor
Radiation width	–	200 mm
Exposure area	200 x 300 mm²	200 x 300 mm²
Cooling concept	Air & Water combined	
Electrical data		
Electrical power	2 x 6000 W	2 x 6000 W
Specifically electrical power	600 W/cm	600 W/cm
Power supply units		
BLP 59, 3~400 V, PE	6 kW	6 kW
Connected load	ca. 16 kW	ca. 16 kW
Electric supply	3~400 V, N, PE	3~400 V, N, PE
Cooling air supply (exhaust)		
Cooling air	ca. 300 m³/h	ca. 300 m³/h
Tube connection	Ø 120 mm	Ø 120 mm
Exhaust pressure	– 500 Pa	– 500 Pa
Surrounding temperature	25 °C	25 °C
Cooling water supply		
Cooling water	6 – 8 l/min	6 – 8 l/min
max. supply temperature	25 °C	25 °C
Pressure drop	ca. 1,5 bar	ca. 1,5 bar
Temperature switching point	ca. 55 °C	ca. 55 °C
Data connection		
Ethernet 8P8C (RJ-45)		
Measures and weight		
Measures D x W x H [mm³]	600 x 600 x 1470	600 x 600 x 1470
Weight	150 kg	150 kg
Additional system specifications		
Exposure method	statical	statical/contin.
Exposure time/Conveyor speed	0,3 – 120 sec	0,5 – 20 m/min
Compressed air supply	4-6 bar	4-6 bar
Process light	SLT	SLT / dr
Exposure protocol	csv	–

ssr engineering gmbh
Hansastr. 1
D-59557 Lippstadt – Germany

phone: +49.(0)2941/2848-555
fax: +49.(0)2941/2848-566
mailto: contact@ssr-engineering.de

www.ssr-engineering.de