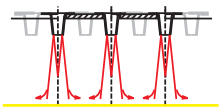
SPS® TURBOSTAR-S

Modular High Speed Jet Drying and UV Curing Technology



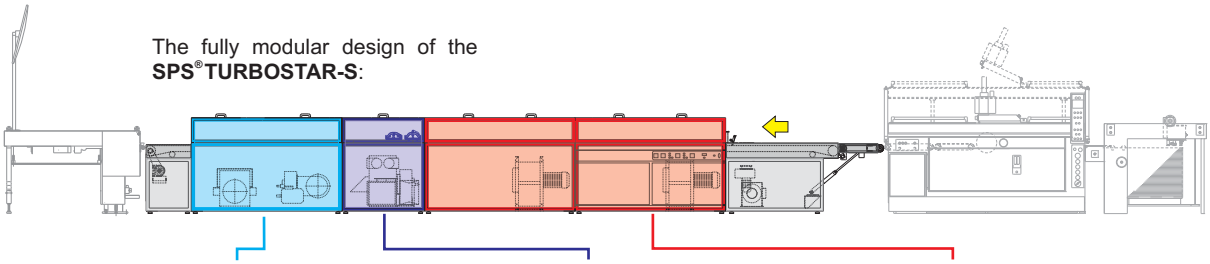
Energy to combine in the **SPS® TURBOSTAR-S**:

heat on demand, UV light to cure, and powerful air.

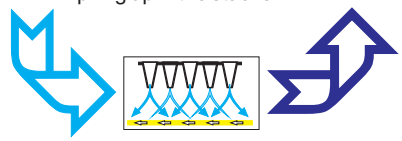
The highly modular design of the **SPS® TURBOSTAR-S** dryer series matches with the requirements of the most demanding graphic and industrial screen printing jobs. Hot-air jet sections for physical drying of solvent based inks and radiation modules to cure UV media perfectly cope with the capacity of the fastest SPS® cylinder presses.

This way, customized line combinations can be configured to cover the full range of possible screen printing applications.

The fully modular design of the **SPS® TURBOSTAR-S**:



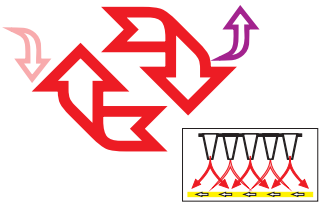
Separated ***cooling*** section:
As in all dryer sections enforced air flow is through jet hoods. For optimum drying efficiency chilled air, fed through the optional **SPS® FRIGOPACK S** water / air heat exchanger, reduces the sheet temperature and ensures safe piling up in the stacker.



The optional ***transit*** section:
In the physical drying mode of a multi-functional dryer line, used for solvent-based inks and varnishes, the intermediate cooling provided by the transition module is used to smoothly lower the substrate surface temperature and tension as well as to thermally separate the heating and active cooling zones. This way, thermal stress on the substrate is avoided - and loss of energy is minimized.
For usage in the UV curing mode, the transit section is equipped with two UV lamps.

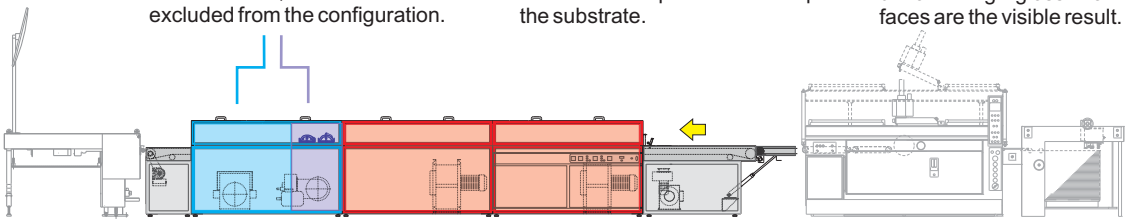
With the UV lamps engaged, the jet air modules behind the radiators reduce the temperature build-up on the substrate.

Leading ***heating*** sections:
A high re-circulated air volume, provides the energy for solvent evaporation. Air extraction and fresh air supply are perfectly balanced and monitored.

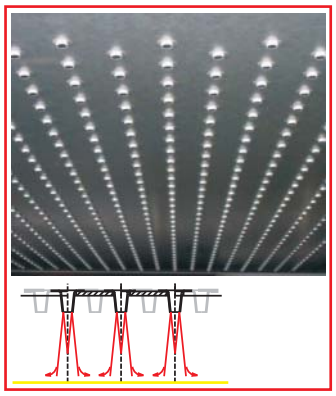


Combined ***UV-cooling*** section:
Especially for use with graphic finishing & added value printing the UV lamps can be embedded in the hoods of the cooling section. This way, a compact design on confined space joins with highest versatility for varying job profiles.
Combination with active air cooling is a recommended option to further increase stacking safety.
In this version, the transit section is excluded from the configuration.

With UV varnishing jobs being processed in the combination dryer, forerunning sheet transportation through the now disengaged heating sections provides the desired varnish flow-out before the UV curing lamps are reached. On request IR radiators are integrated in a heating section to further lower the medium viscosity.
After passing the UV lamps, uniform high-gloss varnish surfaces are the visible result.



The powerful ***jet speed*** system of the **SPS® TURBOSTAR-S**:
All section hoods are equipped with nozzle plates, holding air guides in exactly calculated shape and position. The passing air flow is accelerated and focused over the substrate surface. This way, an optimum energy transmission at a low operating temperature level is achieved, supporting thermal treatment with kinetic force in a balanced system.

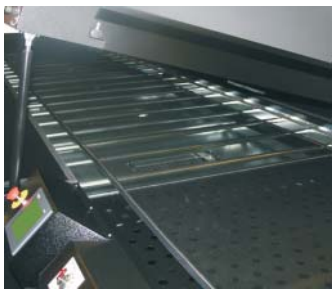


In each section of the heating zone, the set temperature is electronically monitored and regulated. The controllers used keep the set value within close tolerances and thus maintain constant thermal conditions around the substrate during the printing job.

Maximum dimensional sheet stability and tight fit are achieved under recirculating air.

Easy-to-maintain indirectly driven heavy-duty fans deliver high air volumes with turbo pressure in all sections.

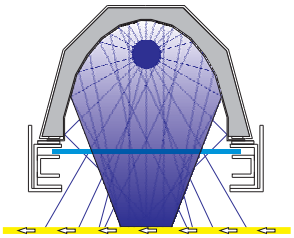
Perfect sheet hold-down over the complete conveyor belt length is achieved by providing adjustable vacuum in the infeed module and maintaining a balanced negative pressure difference in the sections. Large and small sheets, heavy and light-weight substrates are safely guided in prefect line to the stacker end, preventing infeed jams.
Raising of the dryer hoods for inspection during the run and service work is pneumatic.



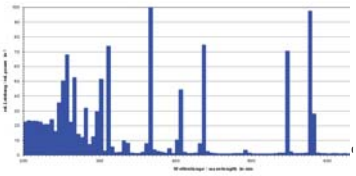
In the section equipped with UV lamps vacuum plates under the radiator assemblies are installed for additional sheet hold-down.

In the air hood of the dryer ***UV-cooling*** or ***transit*** section two radiator modules **SPS® UVi** with spectrally optimized linear power output can be integrated. The close arrangement of UV reflectors and jet cooling segments warrants a low substrate temperature build-up.
Enhanced conveyor vacuum under the reflectors ensures perfect sheet hold-down. Press controlled UV power variation (pre-set output / stand-by) is a feature within the SPS® ***synchroline*** option.

The extended conveyor infeed can be equipped with an additional on-demand UV module for instant curing of high ink deposits or with a medium-wave IR radiation unit to improve the flow-out of UV varnishes.

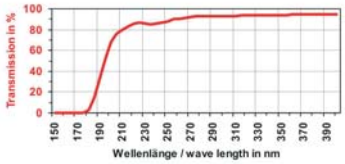


UV radiator / reflector assembly with quartz filter ...



... and spectrum of the ***Hg*** UV bulb (***Ga*** doped versions as option).

Air cooled quartz glass filters under the UV reflector casings reduce the unwanted IR portion within the spectral emission. Due to optimized physical filter properties, the UV radiation passes through. The filter also protects the UV source from dust and contact with the substrate.



The mobile SPS® UV DISC measures the realtive UV energy dose [mJ/cm²] to ensure consistent quality.

Most up-to-date components manufacturing and metal sheet processing techniques, employment of advanced CNC controlled machine tools and laser-cutting equipment for steel plate sizing and forming set the benchmark for product quality, keeping the high tolerance standards.

The result does not only satisfy aesthetic demands; the achieved manufacturing precision also warrants reliability in drying & curing applications, keeping all parameters set by the operator within the closest possible bandwidth.

SPS® TURBOSTAR-S

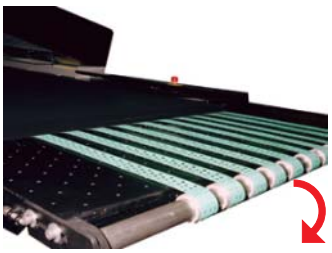
EQUIPMENT	Standard / Option	TS-S M1	TS-S M2
Standard conveyor belt width [mm] [in.]		**900 35**	**1200 47**
modular configuration: ***heating***, ***transit***, ***cooling***, ***IR***, ***UV***		■	■
jet speed system in all sections: nozzles plates for guided air acceleration		■	■
infeed segment with hold-down vacuum, adjustable by fan motor control. 1500 mm / 4'11"		■	■
fold-down belt to open passage between dryer infeed and press delivery		○	○
SPS® ***synchroline:*** link-up with press controls		○	○
SPS® RSS: rejects sheet slector at the conveyor infeed		○	○
additional UV module on infeed: SPS® **UV TOP**; 130 W/cm - **EPC** balance		○	○
configuration with 1 to n ***heating*** sections, 2000 mm / 6' 7" each; room air infeed		■	■
electric heating in the re-circulating air volume: max. 90°C / 195°F		■	■
high temperature version with belt separation: max. 150°C / 300°F		○	○
integration of medium-wave IR radiators in the heating section(s): SPS® **IRi**		○	○
electronic temperature control, separate for each heating section		■	■
air volume regulation in the heating sections (volume profiles)		■	■
configuration with ***transit*** section between the zones, prepared for UV, 1100 mm / 3' 6"		○	○
configuration with ***cooling*** section, prepared for UV, 2000 mm / 6' 7"		○	○
UV units SPS® **UVi** - **2***160 W/cm - integrated in the section; **EPC** balance		○	○
quartz filter panes under the UV lamp / radiator assembly (if UV is included)		■	■
configuration with 1 to n ***cooling*** sections, 2000 mm / 6' 7" each; dedicated air infeed		■	■
water / air heat exchanger of the active cooling unit SPS® **FRIGOPACK S**		○	○
pneumatic hood lift on all sections		■	■
conveyor outlet with frequency controlled belt drive		■	■
PTFE conveyor belt with guided traction, balanced air pressure		■	■
thermal insulation and sound protection in all sections		■	■
stainless steel side paneling on all sections (B side)		■	■
air tube connections on right-hand side (A side)		■	■
SPS® ***serismart*** ™ ***P***: store & auto-set for process parameters		■	■
operator touch panel with all main functions in central B side position (HMI)		■	■
equipment for on-line service data transfer via LAN		■	■

Examples of available **OPTIONS**

SPS® IRi

Medium-wave infra-red radiators, continuously variable, for integration in a heating section: temperature boosters in the heating mode - or lowering of UV varnish viscosity.

Fold-down infeed belt



For make-ready and inspection of the press, the transfer belt between printing machine and dryer can be lowered, opening free passage between the line modules.

SPS® UV TOP

3rd UV lamp on the vacuum infeed: activation on demand for instant pre-curing of 3D relievo coatings immediately behind the printing station.

SPS TechnoScreen GmbH
Kohlenstr. 63
D 42389 Wuppertal
Germany

Fon : +49 (0)202 2658 0
Fax : +49 (0)202 2658 185
eMail : sales@sps-technoscreen.com
: service@sps-technoscreen.com
Internet : www . sps-technoscreen.com