



# All is well that ends well – but how about the dryer?

Things to be considered before you invest into a dryer

## BACKGROUND



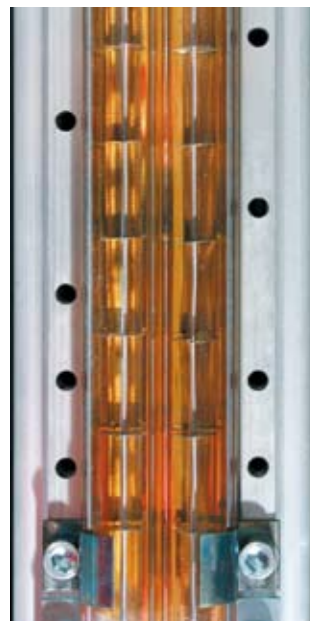
What is the good of high-speed printing and clean

inking if you don't have proper drying at the end? Although ink drying is a central aspect in printing, it tends to be somewhat neglected in the configuration of presses. As a matter of fact, ink drying is getting increasingly important in the choice of a dryer because it has far-reaching impact on quality, economy and ecology. Drying in printing actually means three things: (a) accelerated drying of dispersion coatings and inks by the supply of heat radiation and hot air, (b) supplementary drying of the printed sheet by powder spraying, and (c) hardening of UV coatings with the supply of UV radiation.

Sounds good: Your new sheet-fed offset press does 15,000 sheets/hour, the entire process is completely integrated and controlled from the central control console, you have invested strongly into various printing processes – whether printing inks and coatings or UV coatings, you can do them all and switching is easy. For sophisticated print finishing, you have ... STOP. Are you sure that your new machine can really satisfy all the needs of your printing processes? Do you know the manufacturers behind the built-in drying systems? What follow-up costs are there going to be?

### Staying »cool« in drying

Choosing the right drying system is a complex affair. A good drying system can handle even heavy inking at maximum speed. A good drying system is supported by an efficient cooling system so that both press and substrate stay »cool« while running to full capacity. A good drying system exhibits all its power even with large formats. Last but not least: A good drying system uses no more energy than is actually necessary for the process. But what exactly are the indications of a good drying system?



**Detail of an IR hot air dryer: Cooling by hot air as a side effect, as it were – hot air openings along the IR radiators provide suitable cooling for the even hotter IR radiators.**

### Infrared and hot air

Infrared heat radiation and hot air are usually combined. A drying technology of long standing, certainly, and yet there can be great differences in system efficiency. There is a clever approach that uses the hot air at the drying element itself to cool the even hotter IR radiators as a side effect,

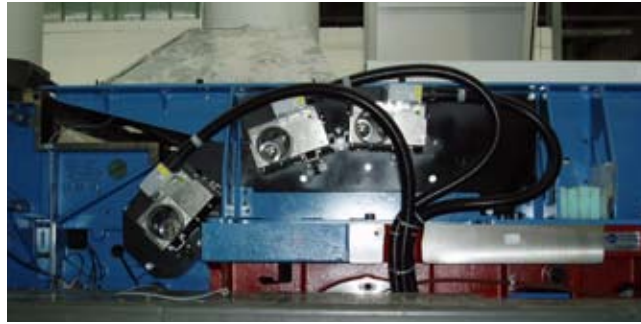
as it were. In fact, lower surface temperatures preserve the full lifetime of the sensitive, mostly gold reflected heat radiators – some cooling is required anyway. It is most efficient, obviously, to generate the hot air where it is used, ideally in the drying element itself, without major transport loss. Draining the humid air requires a powerful exhaust air system – such systems too have their differences in quality. The proportion of IR heat affects the warming up of the press – more IR in combined drying means more cooling is needed and more energy consumption. Hence follows that as much of the drying process as possible should be provided with an efficient hot air system. For one thing, this prevents other components of the press failing through overheating in the surroundings of the drying area.

### Drying with UV

The hardening of UV coatings normally requires a heavy input of energy. Such investment is, however, rewarded with exciting results for a still growing market and general environmental friendliness of UV inks. The quality of UV dryers proves itself not least in



**UV final dryer: Almost invisible when mounted: Interchangeable UV cassettes in the sheet ascent of a KBA 205.**



**IR hot air dryer after the 2nd coating unit of a KBA-205. Energy-saving hot air generation in the drying element itself: Behind the air supply pipe (here still open), note the integrated heating cartridge (4KW Grafix System).**



**Same mounting position, different drying system: In this case, two IR hot air dryers are mounted in the sheet ascent for conventional drying.**

the quality of cooling, usually an air/water combination. Therefore, you should also consider the efficiency of your cooling systems, which are normally placed beside the press and somewhat hidden. UV drying is a hot business that calls for rugged design in the component parts of drying elements, especially with extra-large formats, where the full capacity of drying cassettes is required at a span of more than 2 meters without sagging – that is, excellent cooling technology acting in a very confined space. Since running up UV dryers is harmful to the UV

lamps and both time- and energy-consuming, they are normally operated non-stop. For disruptions of production, it should be possible to operate in a strongly capacity-reduced stand-by mode and to dim the UV lamps using shutters for simple blanket cleaning.

#### **Alternating jobs and cassettes**

Customers alternating between UV and conventional inks should choose interchangeable drying systems: UV and IR hot air-drying cassettes. Plug-type supply connections, if pro-

vided, make it easy to alternate. Therefore, it is worth your while taking a closer look at the »rear end« of your press. It is not without reason that there should be specialised suppliers of drying systems. The quality of a particular offering may only become evident to a second, more critical glance – its consequences will make themselves felt as soon as you start your first difficult print job.

> [www.grafix-online.de](http://www.grafix-online.de)

#### **CHECKLIST**

##### **Brief checklist for choosing a dryer:**

- Choose the appropriate dryer types for your envisaged product portfolio.
- Study the dryer manufacturer's offering for information about their process engineering competence – in the end, configuration and specific application make each press unique.
- Verify the dryer manufacturer's format competence – not everybody is capable of doing larger formats!
- Compare investment and follow-up costs (energy and other consumables).
- Consider the service offering.