

**Dampening solution cleaning and filtration**  
**An important step towards process optimisation in offset printing**

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Process stability and constant quality in offset printing both depend to a considerable extent on the quality of the dampening solution. An additional economic factor is that the effort involved in keeping the quality high should be minimal.

The dampening solution is affected by various influences during printing; it is contaminated by ink particles, paper coating, powder, paper dust, and other substances that are separated from the printing substrate. As a result, the entire dampening solution circuit will be contaminated quite quickly, resulting in extensive maintenance. In addition, expensive additives must be replaced and reconditioned. Moreover, if the printing is aiming at reducing IPA levels or is using special printing methods (e.g. opaque white or metallic colours, change-over between conventional printing and UV printing or between paper and cardboard with a high discharge of coating particles etc) it is hard to retain process stability without efficient filtration of the dampening solution.

*sofflow replacing the filter mat*

With the sofflow filter bag that replaces the filter mat in the tank of the dampening solution recycling unit, technotrans took a giant leap forward in efficiency. The combination of filter material that was specifically developed for dampening solutions and a particularly large filter surface - up to 300% compared to filter mats - leads to a considerable increase in performance without requiring any additional space.

However technotrans, which is the leading offset printing systems supplier with sales and service bases worldwide, has gone even further. It has implemented an in-house filtration competence team that has

developed a whole range of different filtration solutions for sheetfed and web offset applications as well as for newspaper printing.

*beta.f extends lifetime of dampening solution up to eight times*

The beta.f dampening solution fine filtration system reduces the contamination of the dampening solution during the printing process to a considerable extent. It can be integrated particularly easily into the bypass to the dampening solution circulator or retrofitted to already existing systems. beta.f then cleans the solution in a pre-filter and subsequently in a main filter for deep filtration. The dampening solution circuit remains perfectly clean and decontaminated at all times - from the tank to the trays of the printing units. The need for maintenance along with cleaning or dampening solution replacements is considerably reduced thanks to this powerful filtration method. Printing companies that previously had to clean and maintain their systems every 6 to 8 weeks in the past now report that they are able to extend these intervals up to 8 or even 12 months with a technotrans' beta.f system.

*Solutions for the small-format sheetfed offset*

The huge success of the beta.f system, that was originally designed for medium to large-format sheetfed offset presses, has motivated technotrans to adapt a solution especially for small-format sheetfed offset presses. This new solution is available under the name alpha.f. With the introduction of the starter solution basic.f technotrans has come full circle with an even more compact solution that still achieves respectable results.

*Full range of solutions also for web- and newspaper offset printing*

For web offset printing, technotrans offers the proven and reliable hydroflow filter system. It is a ring band filter that is used as a pre-filter in the dampening solution return flow from the printing units. Even if inexpensive filter material is used, hydroflow is able to filter out all coarse dirt particles. As a result, the system is able to eliminate a considerable amount of the overall dirt load. The subsequent main filter stage of the dampening solution circulator can therefore be equipped with a finer filter for smaller particles. The result is an improved filtration performance, a longer service life for the filter, and reasonable costs. Last but not least, the hydroflow system with its automatic filter fabric feed system is particularly easy to use.

Among other interesting innovations that were developed by the German filtration experts is the spinclean.d system for web offset printing. This solution is particularly impressive because it does not require any filter material at all. A rotating centrifuge makes use of the difference in the density of water as the main component and the dirt load consisting of oil sludge and solid matter. The separated dampening solution can then be returned to the circuit. The dirt load, on the other hand, remains in the plate-type drum that is automatically emptied into a sedimentation tank. The compressed paper and ink sludge residues are then removed from the tank at easily manageable intervals with the aid of an integrated pump. The spinclean.d also operates in the bypass to the dampening solution circulator and can be retrofitted at any time.

The latest filtration innovation made by technotrans for newspaper printing companies is the new delta.f unit that was presented to the public for the first time at IfraExpo 2007. The contaminated return flow from the spray dampening units usually flows directly into a disposal system. The delta.f unit, however, collects these liquids, cleans them, and feeds them back into the process. This drip and reflow water flows directly - without any intermediate storage - into the work tank of the delta.f unit. It is there that the solid particles and oils are removed from the liquid via microfiltration using a special ceramic membrane and immediately fed back to the printing process. Unlike traditional systems, the delta.f unit does not require an intermediate tank. This means that it is not necessary to store the dampening solution, which in effect means that this direct process avoids the development of germs. The cleaning process is fully automatic and simultaneous to the printing process, which remains completely unaffected by it. The delta.f also does not need any consumables. 99% of the dampening solution that returns from the circuit is cleaned and fed back into the system. As a result, the disposal costs and the need for fresh additives can be drastically reduced. This cross-flow filtration system can also easily be retrofitted at any time to the existent system.

In terms of research and development, the filtration competence team of technotrans makes use of common issues and solutions across all offset printing applications. The overall expertise in various processes and methods has great potential for further innovation in future. The technological performance package is supported by a global network of sales and service operations.

technotrans at the drupa trade fair in Düsseldorf, May 29 to June 11,  
Hall 16 / Stand A45.

## Captions

beta.f\_bypassConnection\_ill.jpg

The beta.f bypass principle ensures stable production conditions.

beta.f\_CabinetFrontOpen\_pic.jpg

With its two-step filtration method beta.f contributes to perfectly clean and decontaminated dampening solution cycle.

ttDeltaFKompl.jpg

Cross flow filtration delta.f for newspaper printing with ceramic membrane.

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