delta.line

OFFSET-TECHNOLOGY FOR PROFESSIONALS

powerful dampening solution circulation and ink unit temperature control for web offset printing applications
delta.line

dampening solution circulation
and ink unit temperature control

Printing companies throughout the
world benefit from the delta.line units
that incorporate the experience of more
than 2,500 successful installations
under various conditions.

The powerful and reliable delta.line
dampening solution circulators and ink
unit temperature control units are
specifically designed to be used with
contemporary web offset applications.

The proven technology meets the most
exacting demands.

A wide range of options ensure that the
unit can be configured to meet your
specific requirements.

The easily understood control system
multicom, with touch screen display
gives the user full control over critical
process parameters.

delta.d - powerful dampening solution circulation
delta.t - precise ink unit temperature control
delta.c - compact combination unit

delta.d units are equipped with a cooling system, a pump system and softflow
filtration. Alcohol and additive dosing systems as well as conductivity and pH measure-
ment systems are optional.

Constant ink unit temperature control is a basic requirement for continuous high
quality print production. The delta.t ink temperature control units supply the ink unit
rollers with temperature-controlled water, to keep them at a constant temperature.
These units are available as single or double-circuit units for separate control of the
distributors and ductor rollers. delta.k units without heating are available for other
cooling applications, such as chill rolls, oil cooling etc.

Combining dampening solution circulator and ink unit temperature control in a single
unit saves space and costs without compromising on quality.
All delta-line units are equipped with the technotrans multiCom microprocessor control system. The display is intuitive to use and offers the following features:

- 5.7" colour touch screen display
- Clear operational visuals pinpointing setpoints and actual values at a glance
- Easy adjustment of setpoints and parameters within input fields on the operating screen
- Detailed information on the status of the main unit functions
- Trends display giving operating process parameters in chronological order
- Function display menu for individual system components for a customised unit configuration
- Fault message storage
- Online help

The self-explanatory menu system offers a perfect overview of all system functions and parameters.

The trend display and the visualisation of all operating parameters such as temperature, IPA concentration, conductivity and pH etc., are important in offset printing and provide a highly useful tool for evaluating process stability.

Unlike standard measurement data displays, which only provide an inside of the current situation at any given moment, the trend display enables the user to look back in time and evaluate past changes in a simple and sure way.

A regular and preventative system check can be carried out online with ease using technotrans’ remote diagnosis feature. This is based on an Internet connection and on request via a VPN-tunnel. The unit can be hooked-up permanently or on an ad hoc basis.

The status of individual units is continuously monitored. These protocols are available by read-out either via remote diagnostics or Internet. The experts from the technotrans service team will recognise possible reasons for an error early on and advise on how to continue with normal operation.

The machine availability is considerably increased. The fact that the remote diagnosis can be carried out without interrupting operation makes the unit even more efficient.

If an error occurs the remote diagnosis allows a quick and precise analysis of the complete system status.

Then the quickest way to remedy a malfunction is for a technotrans service technician to access the unit via the Internet and help the operators deal with the problem.
The *delta.d* dampening solution circulators stand out because of their clear, space-saving and service-friendly design. Arranged in a sturdy, crane-transportable unit cabinet with good access to operational controls, they are easy to handle.

### Advantages at a glance:
- minimal disposal levels
- easy to service and operator-friendly
- robust stainless steel coaxial evaporator
- precise dampening solution temperature
- powerful pump system
- integrated softflow filter system

### Refrigeration technology
As standard, the dampening solution is cooled by:
- integrated, water-cooled refrigeration unit with efficient Scroll compressors
- dampening solution resistant and robust stainless steel coaxial evaporator
- a capacity control system to achieve a constant dampening solution temperature within very narrow limits

The refrigeration systems of the *delta.d* 450/550 units are designed as 2-circuit systems and therefore offer very high operational safety. In the unlikely event of a failure of one of the units, the other unit can be used as a back-up. Optionally split versions with an air-cooled condenser for outdoor installation or units with a cold water/dampening solution heat exchanger are available.

*delta.d* line units are equipped with an electronic water cooling monitoring system. This feature informs the press operator of any problems before the entire system is shut down.
**delta.d eco**

energy-efficient dampening solution circulators

**delta.d eco** is the first highly economical dampening solution circulator made available for web offset printing applications that meets all the requirements for cost-efficient and process-controlled production.

State-of-the-art technology maximises the savings potential without compromising performance of operating safety.

On many refrigeration systems including those for print applications, the load will vary widely, making the use of compressor capacity control necessary.

Traditional capacity control is done using variable speed drives, unloaders, hot gas bypass or paralleling. Some of these solutions have intrinsic problems.

They are often complicated, making them unreliable. Some require a high level of technical skills or an unaffordable first initial capital investment.

The operating behaviour of the digital scroll ensures improved control accuracy of the dampening solution temperature and supports the reduction of dampening solution volumes in the system.

The digital modulation is based on a simple mechanism. Capacity control is achieved by separating the scroll sets axially over a short period of time. It is a simple mechanical solution ensuring precise temperature control and system efficiency.

**Digital Scroll Technology**

The new refrigerator with Digital Scroll compressor regulates the refrigeration capacity as required, by pulse width modulation.

![Approx. 1.2 mm offset](image)

**Advantages at a glance:**

- Energy costs are reduced on average up to approx. 25%
- Increased level of operational safety
- Improved temperature control accuracy
- Reduced service and maintenance costs

**Energy consumption depending on refrigeration capacity**

Digital Scroll technology provides continuous modulation from 10% to 100% with no adverse optional impact on a standard version. Compressor cycling is reduced to a minimum, ensuring optimum system efficiency and longer life expectancy of the equipment.

- Power consumption decreases in proportion to the required cooling capacity
- Reduces the annual compressor energy costs by up to 25%, depending on model, kind of operation and the load levels
- Ensures an even higher control accuracy of the dampening solution temperature
- The process does not affect the stability or speed of the press
Features, which have been standard on sheetfed offset presses for many years are now also incorporated in the delta.c for web offset printing.

delta.c combination units combine the functions and features of delta.d dampening solution units and delta.t ink unit temperature control units in a single unit. Combined, compact and powerful.

All delta.c units are equipped with a water-cooled refrigeration unit for dampening solution cooling and a stainless steel plate heat exchanger for ink unit temperature control (patented system).

Advantages at a glance:
• space saving and powerful solution
• quick and easy installation due to reduced number of supply connections
• only one data interface necessary
• no compromise in terms of quality and reliability

The ink unit temperature control system can be equipped with one or two temperature circuits for separate control to achieve different temperature levels for the ink ductors and ink oscillating rollers.

the pre-filtration system
Depending on specifications, requirements and installation circumstances there are different methods of filtration.

increased filter life and exchange intervals
**delta.line**

configuration options

With regard to the measuring, control and mixing technology the delta.d as well as the delta.c can optionally be equipped with various components that offer different performance ratings (depending on requirements).

**fluidos**
- no electrical power required
- robust and maintenance-free
- additives dosed proportionally to amount of water
- double fluidos for dosing a further additive

**digidos.p**
- reproducible accuracy of 0.1 vol.%
- set point value adjustable via multicom or control console
- consumption monitoring and data logging of water and additives
- high operational reliability, free of elastomer

**alcocontrol**
- proven and robust design
- density measurement through float system
- permanent data logging via inductive sensor
- fully automated IPA control and empty alarm

**alcosmart AZR**
- IR measurement in gas phase
- unaffected by contamination or additives
- automatic zero calibration ensures low maintenance
- IPA control range from 0–15 vol.%, accuracy 0.5 vol.%

**Conductivity and pH measurement**
Inductive pH measurement with an accuracy of +/- 50 μS takes place within a range of 100–5000 μS. The calibration-free conductivity probe requires minimal maintenance.

To optimise process control, measuring is possible:
- at the water inlet
- after additives are dosed
- within the printing press cycle

pH measurement is an instrument that indicates incorrect additive dosage or contaminants from the printing process, such as ink, paper, or washing agents.

**Power drain**
To make cleaning the unit and changing the dampening solution easier, delta.d units can be equipped with a pump to rapidly and completely drain the tank content into an external vessel.

**Warm water washing device**
used to clean the unit or the entire system with fresh water of about 60°C/140°F (more info on the left).

- Only for use on alcohol-free systems for safety reasons!

---

**additive
dosing systems**

**ipa-measurement and control technology**

Warm water washing device reduces biological contamination

Efficient cleaning of units and alcohol-free dampening solution systems are supported by the integrated warm water washing device of the delta.d. It cleans the unit or the entire system with fresh water or warm dampening solution of about 60°C/140°F.

Warm water loosens the typical ink and paper residues much better than cold water, reducing biological contamination and minimises cleaning requirements.

All in all this reduces interferences and increases system uptime.
stabilizing processes - cutting costs

band filter - larger filter area, higher flow rate

Advantages at a glance:
• high filtration quality
• increased dampening solution service life
• reduced filter material consumption and filter costs
• reduced disposal costs
• reduced cleaning required for the dampening solution system
• easy handling thanks to automatic filter fabric feed system
• improved dampening solution quality leads to more stable printing process

filtration capacity is adapted to the printing press

small tank, big value

hydroflow dampening solution fine filtration

Web offset production is sensitive to changes in the printing process and so having up-to-date and economically efficient technology is vital. Dampening solution filtration is an absolute must for those wanting to achieve complete process stability, cut costs and relieve the burden on the environment.

Following extensive trials and field tests, technotrans has introduced the band filter system for web offset printing. The hydroflow is a ring band filter that offers a number of advantages compared to other pre-filter systems.

Used as a pre-filter stage in the return flow from the printing units, the hydroflow enables the separation of all coarse dirt particles even when inexpensive filtering materials are used. This way significant quantities of dirt are removed. The downstream main filtering stage in the dampening solution circulation can then be equipped with a finer filter to remove smaller particles. The result is improved filtration and better filter life; a cost-effective solution.

When using the hydroflow ring band filter on a rotary press, pre-filter container with filter mats, which are normally used in heatset printing, are no longer necessary. A central pump tank feeds the contaminated dampening solution from the press to the band filter. If the level difference is great enough, e.g. in the case of rotary presses for newspaper printing, the hydroflow can be directly integrated in the return flow coming from the dampening solution pans without an additional pump tank.

Pre-filter separation

Small tank - big impact
Heterogeneous oil slicks and ink deposits will be skimmed off, before the mixture is pumped into the preparation system. In this way larger contamination particles are brought directly to the filtration and do not reach the dampening solution preparation tank.
Dampening solution is subject to massive contamination, especially in heatset web offset printing applications. Solid paper particles and small oil deposits adversely affect the entire dampening solution circuit and negatively influence the printing process. Productivity and process stability suffer notably as a result. Filtration with consumables such as filter bags, often has a limited cleaning effect and leads to increased operating costs.

With spinclean.d printing companies use an innovative and unique solution without filters or other consumables. The mix of dampening solution and contaminants from the return flow of the press is collected in an intermediate tank. Here the difference in density between water, as the main component, and the contaminants, consisting of oil sludge and solids, is used for an initial separation process. The dampening solution that has been retrieved in this step is then fed back to circulation.

At the same time contaminants floating on the surface of the intermediate tank are skimmed off and fed directly to the spin clean.d. Here the centrifugal force provides an ideal cleaning process. The separated contaminants are periodically discharged from the separator into a sedimentation tank.

Advantages at a glance:
• high throughput capacity, ideal for large volume contamination
• no consumables required due to centrifugal force
• elimination of filter material reduces operating costs
• efficient and continuous bypass cleaning keeps the dampening solution clean and reduces maintenance costs
• clean dampening solution circuit increases machine availability and improves print quality

The centrifuge separates dirt load in the dampening solution with a centrifugal force of more than 5000g.

Process engineering with pre-filter tank separation:
A contaminated dampening solution from press
B oily residue
C skimmer
D filtration unit bypass circuit with filter mat or hydroflow or spin clean.d
E to dampening circulator
Apart from a state-of-the-art dampening solution circulation system, a high-performance ink unit temperature control system is also part of the standard equipment of today’s web presses. Stable continuous printing at high press speeds can only be realised with targeted heat dissipation from the ink unit.

The technotrans delta.t unit gives printers the technology that will support the efficient management of ink unit temperatures to improve process control and stability.

The temperature of the water returning from the ink units is the standard control variable, as this can be measured in a particularly easy and efficient manner.

It is optionally possible to use the press speed as a reference variable or to supply an IR temperature sensor for a direct measurement of the roller surface temperature.

**2-circuit temperature control units**

In general, the heat generated in the ink unit increases more than proportionally when the press speed increases, and the increase in heat generated is more intense on the oscillating rollers than on the ductor rollers.

The use of a 2-circuit system ensures constant temperature conditions on the ductors and oscillating rollers, regardless of the press speed. This technology creates optimum conditions for constant, high-quality printing results.

**Advantages at a glance:**
- intelligent, high-quality control systems ensure a constant temperature of the ink units
- cooling and heating are standard functions
- cooling with a stainless steel plate heat exchanger for easy connection to an external cooling system prevents contamination and corrosion
- electric heater pre-heats the system prior to the start of production and reduces waste copies
- high level of operational safety thanks to industrial high-performance pumps
- quick and easy installation
- space-saving cabinet design

The delta.z is the ideal solution for applications requiring more than two temperature control circuits.