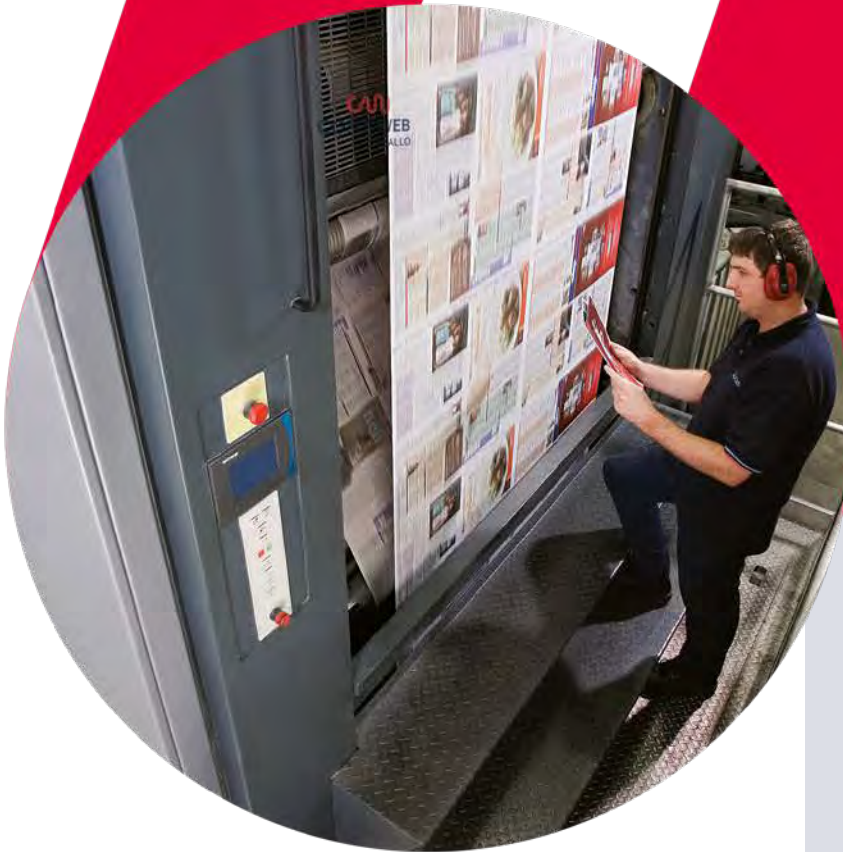




# DRYING & CHILLING



solutions to impress



# Efficient Innovations

Drying is a critical component in heatset web applications, and Contiwab sets the industry standard for quality, efficiency and reliability. Contiwab drying and cooling technologies are designed to optimize the web offset drying process to ensure a perfect final product. Ecoset, Ecocool, Ecotherm and Ecoweb models complement all press systems, including the widest and fastest 80- and 96-page presses. They also enhance presses and press rebuild projects.

## Performance and Efficiency

Contiwab dryers are extremely reliable, delivering superior quality drying ability using low temperatures and high air volumes, which reduce the negative effects of heating the web. Printed products dried with Contiwab's drying and cooling technology exhibit higher gloss, reduced fibre lifting and less corrugation, ensuring printers can meet the quality requirements of their most demanding clients, at lower operational costs.

The Contiwab drying systems are extremely efficient, re-using the heat generated by the afterburner to maintain temperatures, as well as recycling excess solvent vapour as fuel. The natural gas consumption of Contiwab's heatset offset dryers has been reduced to less than 50% of traditional systems, with almost all the energy supply coming from the ink solvents. CO<sub>2</sub> emissions have also been drastically reduced.

Another advantage of the Contiwab drying process is the preservation of web flatness, which improves lateral stability significantly. The unique air supply system, comprising symmetrical double fans, ensures a stable web position and helps to maintain an optimal temperature throughout the drying zones. The result is reduced risk of web breaks, even with narrow or off-centre webs.

## Why choose Contiwab drying systems?

- Maximum quality & productivity
- Efficient drying at lower temperatures
- Fewer web breaks
- Automatic temperature optimization
- Low energy consumption

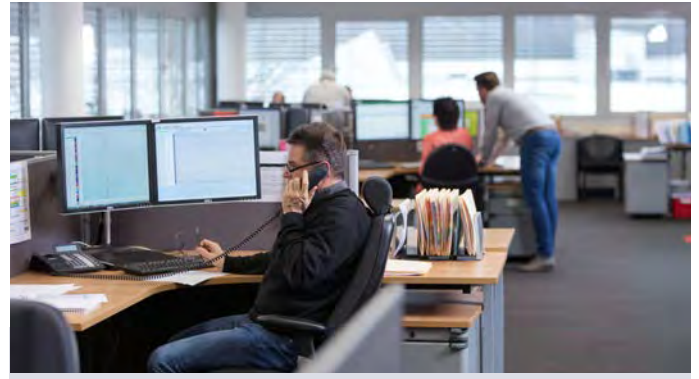


## Easy to Use

Contiweb's dryers combine high performance with simplified operation. Operators simply set the desired web temperature and the dryer will automatically optimize the temperature in the drying zone, according to the stock and ink usage. The web-up process is simple due to the wide access door.

Ecoweb, Ecotherm and most Ecoset / Ecocool dryers are shipped completely assembled to minimize installation time and costs. Ecocool models for wide-web applications may simply require an on-site connection of the dryer and chill sections. Contiweb's complete training and documentation packages facilitate a quick start up.

The proven design of Contiweb's drying systems, together with our 24-hour service supported by remote diagnosis offers exceptional reliability and maximum uptime.



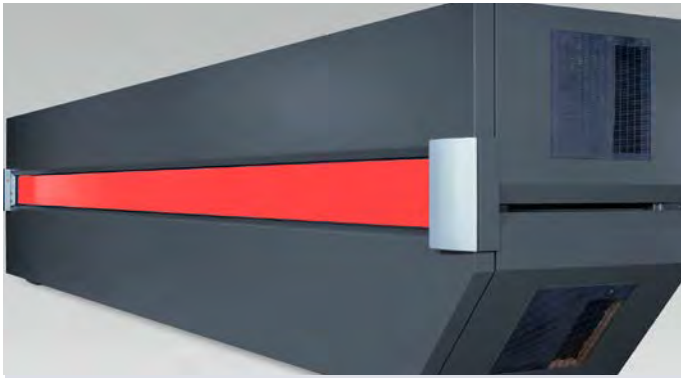
## Additional Features

Our proven technology ensures maximum reliability with Contiweb dryers. Remote diagnostics literally put service capabilities on-call in advance and around the clock, resolving 90 % of all issues without a service visit.

A VPN connection also provides a continuous information stream to audit performance based on original specifications, job parameters and comparative data. This analysis can lead to operational or service recommendations that yield major improvements in energy consumption, up time and print quality. A unique 'Pro Active Remote Service' program is also available to monitor splicers and dryers every 24-hour period. In case of disturbances, an analysis will be sent by e-mail to your operators, as well as the solution to the problem.

Many of the new dryer developments are offered as upgrades to your existing equipment. Extensive experience, proprietary specification data and immediate access to original parts give Contiweb specialists the tools to keep dryers operating in peak condition. Routine maintenance programs and upgrades have a proven record of delivering a strong return on investment. The same is true when Contiweb dryers are integrated in press rebuild projects.





## Ecotherm

**The Contiweb Ecotherm, introduced at drupa 1990, was the world's first heatset web offset dryer with an integrated pollution control system, and continues to be the market leader today.**

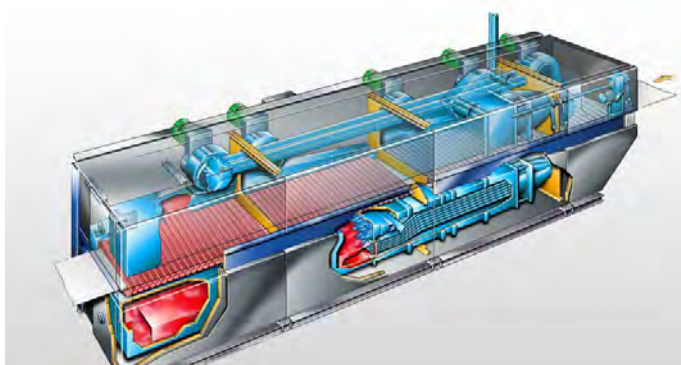
The Ecotherm consistently delivers the maximum quality print finishing due through a high-air volume, low-temperature process which reduces the effects of heat on the web, resulting in reduced fibre lifting, less corrugation and a superior gloss finish. The Ecotherm is also very efficient, featuring a unique air re-circulation system which generates combustion energy from evaporating ink solvents, resulting in significantly reduced gas consumption and carbon emissions.

## Technology

The Ecotherm recycles the energy contained in the ink solvents in the system to fuel combustion and maintain the dryer temperature. At the end of the dryer section, air containing evaporated solvents is fed into the integrated combustion chambers to be incinerated. The cleaned exhaust air is recirculated back into the dryer section, to re-use the existing heat. The integrated afterburner reduces energy consumption by up to 30% compared to a traditional system (depending on ink coverage and speed).

The Ecotherm is the only dryer offering concentration control, which regulates the amount of fresh air in proportion to the measured amount of solvents in the dryer. At production runs with low ink coverage, this patented system allows 30% energy savings.

The specially developed two-phase cooling section, lowers the web temperature by approximately 40°C [104°F].



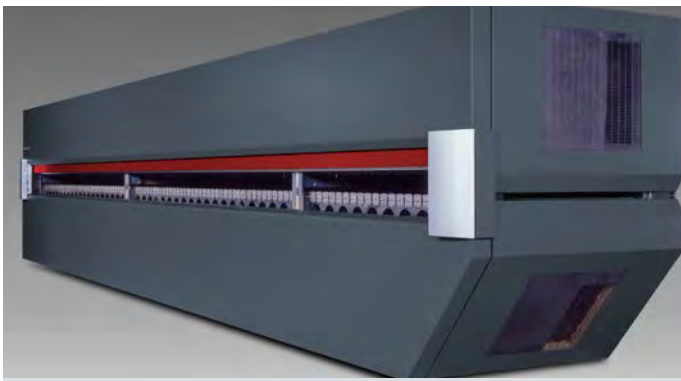
Heat from the web and the last evaporating solvents are returned to the drying section, while exhaust at the dryer outlet is minimised, meaning smoke tunnels are not required, and the energy consumption of the chill roll stand can be decreased.

## Performance

The Ecotherm features a high-volume air bar field which allows drying at low air temperatures. The ideal air temperature for proper drying is created by advanced heat transfer from the many air bars, combined with a large volume of air blown on the web.

The unique air supply system in the Ecotherm also creates optimum stability for the running web. The symmetrical double fan air supply system provides a stable web position, achieved using the patented "crossjet" airbar, with fans and air supply channels positioned on both sides of the web. This produces high air volume yet minimal web disturbance which maintains the flatness of the web, improving productivity and decreasing the risk of web breaks.

The concurrent flow principle of the air system in the Ecotherm ensures that the dryer automatically optimizes the temperature profile in the drying zones. The operator simply sets the desired web temperature and the dryer maintains the correct level of heat. Utilising the heat produced in the combustion chambers also means that the Ecotherm can make a quick and economical restart. When the press stops, the temperature of the circulation air in the Ecotherm is lowered and controlled at approximately 150°C (302°F) to avoid web damage. When the web is restarted, the required energy from the combustion chambers is immediately available. Production can continue immediately, so there is no lengthy dryer start-up and no wasted paper.



## Ecoweb

**The Contiweb Ecoweb was introduced as a new concept in conventional drying technology to meet the requirements of printers with a central pollution control system. The Ecoweb combines the advantages of Contiweb's proven Ecotherm drying technology and the benefits of Contiweb's unparalleled customer support, resulting in maximum reliability.**

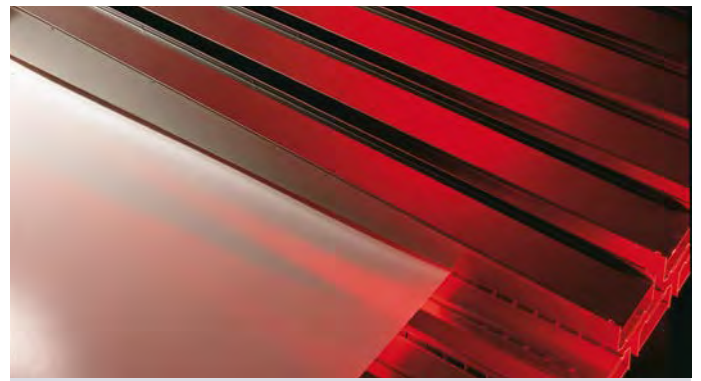
Like the Ecotherm, printed products dried in an Ecoweb display higher gloss, reduced fibre lifting and less corrugation, because the Ecoweb permits drying at low air temperatures. Thanks to these low temperatures, the negative effects of heating the web are kept to a minimum.

The Ecoweb uses 30% less gas than conventional web offset dryer/incinerator combinations, measured in operational mode. These considerable energy savings are attributable to the exhaust control technology, an exclusive Contiweb feature, and additional savings are realised in the energy consumption of the central pollution control unit.

## Lowest Gas Consumption

In the Ecoweb, hot air is produced by two compact burner units, positioned on both sides of the web. The energy to produce heat comes from two sources: the energy supplier and the burning of vaporised solvents absorbed from the printed product. During the drying process, heat evaporates solvents from the printed product. Part of the exhaust air, containing these high energy solvents, is supplied back to the burner units as fuel, thus lowering the gas consumption of the dryer.

Because the exhaust air used as combustion air doesn't need to be incinerated in the central pollution control unit, the gas consumption of the central unit will also be lowered by 30% as compared to competitive dryer/incinerator combinations.



## Superior Quality

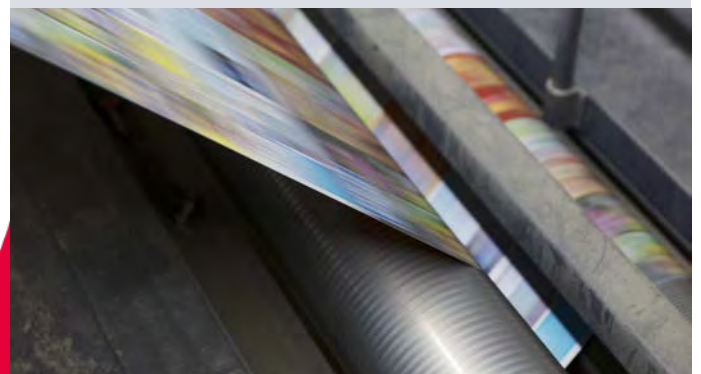
The Ecoweb combines advanced heat transfer from multiple air bars with a large air volume applied to the web, enabling drying at the lowest possible temperature resulting in maximum quality printed web. The high-volume air flow originates from the double fans and supply channels positioned on each side of the web.

The symmetrical double fan air supply system, together with the patented 'crossjet' airbars, placed at close intervals, make the web float straight and smoothly through the dryer and ensure enhanced lateral stability of the web. The results are a higher uptime and a reduced risk of web breaks, even with narrow, off-centre webs.

## Low Operational Costs

The Ecoweb combines superior quality printing with low operational costs:

- Maximum uptime thanks to the use of the reliable Contiweb dryer technology;
- 30% lower energy consumption than conventional dryer/incinerator combinations;
- Quick restart preventing delays and unnecessary paper waste.





## Ecocool/T & Ecaset/T

Small-diameter chill rollers located immediately after the drying section deliver improved print quality and productivity. The Ecocool dryer was the first to feature an integrated chilling section, a configuration designed to eliminate the negative impact of solvent condensate on the web after drying and during chilling.

In systems with independent drying and chilling modules, the heated web releases solvent vapours in the space between the dryer exit and the first chill roller. The emissions form a thin boundary layer that turns into condensate on the chill rollers as the web is cooled. Solvent condensate can inhibit heat transfer in the chilling process and lead to print defects such as streaking and smearing. By removing the space between the dryer and the chill rollers, the Ecocool system eradicates the opportunity for this boundary layer to develop.

### Advanced Chill Roller Design

Innovations in the Ecocool chilling section further enhance print quality. Nine small-diameter rollers turn the web at sharper angles and create greater surface pressure than the larger rollers in traditional chilling modules. This improves heat transfer, suppresses fluting on the outer surface of the rollers and minimizes the opportunity for a solvent boundary layer to form. This eliminates the build-up of solvent condensate on the chill rollers, preventing condensation traces on the printed work. At the same time the web is stretched, stopping wrinkles from forming. Silicone applicators are positioned before the first and second rollers to eliminate damage to the printed product from ink picking.

These design features enhance print quality and they remove the need for a variety of auxiliary products used in traditional chilling systems to clean ink marks and solvent condensate from the chill rollers. Each Ecocool chill roller is concave with a spiral grooved surface to improve web contact and channel away any air that develops between the rollers and the web.

### Why choose Contiweb Ecocool & Ecaset?

- Condensate elimination
- Low gas consumption
- Fewer web breaks
- Superior print quality



## Enhanced Web Control

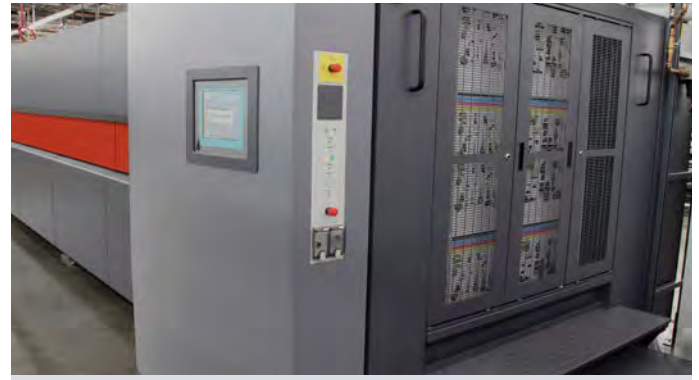
The Ecocool chilling section minimizes web breaks by providing optimum web tension and position throughout the speed range – regardless of paper specifications, ink coverage or web width. The fourth roller is driven with an independent, synchronized A.C. motor. Web tension is measured after the drive roller, before the web leaves the chill section. An optional feature provides an added diagnostic benefit by measuring web tension in the dryer. The first roller also functions as a web guide to adjust for lateral movement of the web in the dryer. Web edge sensors integrated with the control system in a closed-loop configuration guide this first roller, eliminating the need for a separate web guide.

## Ecaset/T

The Ecaset/T with integrated chilling section is a next generation dryer developed from the Ecocool. With Ecaset, Contiweb has pioneered even more efficient use of evaporated solvents within the dryer.

In a standard dryer, where fresh air enters the dryer through the cooling section, a low volume of inlet fresh air causes a higher solvent concentration. Since the air flow is at room temperature when it enters the dryer, the solvent precipitates on the warm frames of the cooling section, which can lead to imperfections in the printed product or even web breaks.

The integration of small diameter chill rollers in the Ecocool was a definitive step towards the elimination of ink deposit on these rollers and the beginning of further optimization of the air flow to the dryer. As a result, the web can now leave the dryer without any problems at hotter temperatures. This means that the cooling section can also operate at a higher temperature. With this flexibility, the inlet air volume can be further reduced by mixing fresh air, via channels, with the heated air and blowing the mixture directly onto the web.



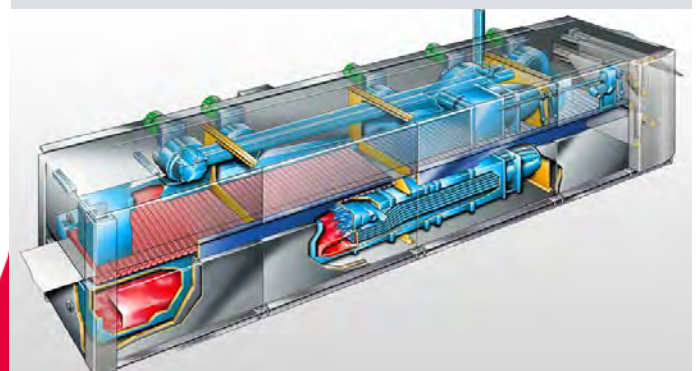
## Solvent Control

Contiweb's experience in the field has revealed that optimizing the afterburning of solvents, by controlling their concentration in the burner chambers, can make additional savings on fuel. The solvent concentration process does not affect drying. During production, the inlet volume is reduced to a minimum of 35%, meaning CO<sub>2</sub> emissions are also reduced. The solvent concentration control makes it possible to safely burn the solvents in the afterburning process.

Even during press wash up, when solvent concentrations are high, the concentration control stays active from a start value of 70% of the air volume, a feature that is unique to Contiweb dryers. This results in consistent superior quality whilst significantly extending the savings on gas, compared to traditional dryers. Though extensive testing, the Ecaset has been proven as the most efficient and lowest gas consuming dryer in the industry.

## Ecocool/W

Ecocool/W dryers are designed for use with a separate afterburner and are a combination of the Ecoweb dryer and chill roller section.



# Contiweb Drying and Chilling Systems

## Features

## Benefits

Integrated afterburner	<ul style="list-style-type: none"><li>• Recirculated heat and solvent vapour</li><li>• Improved efficiency and uptime</li><li>• Low gas consumption</li><li>• Reduced CO<sub>2</sub> emissions</li></ul>
High volume air bars and double fan	<ul style="list-style-type: none"><li>• Drying at lower temperatures to minimize web damage</li><li>• Excellent web stability</li><li>• Superior finished printed product</li></ul>
Solvent concentration control	<ul style="list-style-type: none"><li>• Safe incineration of solvent vapour</li><li>• No vapours in press room</li><li>• Low energy consumption</li><li>• Consistent dryer temperature</li></ul>
Integrated drying and chilling	<ul style="list-style-type: none"><li>• Integration of all functions between press and folder in one system</li><li>• Innovative design offers enhanced print quality</li><li>• Eliminates solvent condensate</li><li>• Eliminates ink picking</li><li>• Reduced footprint</li></ul>
Nine small-diameter chill rollers	<ul style="list-style-type: none"><li>• Tighter web contact</li><li>• Suppress fluting</li><li>• Eliminate solvent condensate</li><li>• Enhanced heat transfer</li><li>• No requirement for chill roll cleaning device</li></ul>
Spiral grooved rollers	<ul style="list-style-type: none"><li>• No boundary layer</li><li>• Better energy transfer</li></ul>
Concave rollers	<ul style="list-style-type: none"><li>• Stretches the web, no folding/creasing</li></ul>
First roller: web guide	<ul style="list-style-type: none"><li>• Enhances web control</li></ul>
Second or third roller: web break detector	<ul style="list-style-type: none"><li>• Eliminates web shift at the exit of the dryer</li></ul>
Fourth roller = A.C. drive	<ul style="list-style-type: none"><li>• Consistent tension control</li><li>• Minimizes web breaks</li></ul>
Upstream silicone applicators	<ul style="list-style-type: none"><li>• Eliminate ink picking</li><li>• No additional silicone applicator required</li></ul>
Integrated remoistening*	<ul style="list-style-type: none"><li>• Improves post press handling</li><li>• Enhances product quality</li><li>• Stand-alone auxiliary system(s) unnecessary</li></ul>
Integrated closed-loop colour*	<ul style="list-style-type: none"><li>• Optimal measurement location</li></ul>
Fresh air through chill section	<ul style="list-style-type: none"><li>• No solvent vapours in press room</li></ul>

\*Optional