

Single- and Multi-zone IRTC boxes

Ecotemp

Single- and Multi-zone IRTC* boxes with remote digital controllers for cooling and heating vibrator and fountain rollers in offset printing units.



Small and Compact

Outside measurement of 60x68x40 cm (24"x27"x16") with one or more independent temperature circuits per box

Modular installation

Horizontal or vertical configurations for minimal footprint and space requirement

Powerful

Improved temperature stability with large heat exchangers and powerful in-line heaters

Accurate

Digital remote controllers for accurate reaction from PT 100 sensors

User friendly

Simple operation of one individual controller per temperature circuit

Environmental friendly

Improved cooling efficiency through the use of normal water

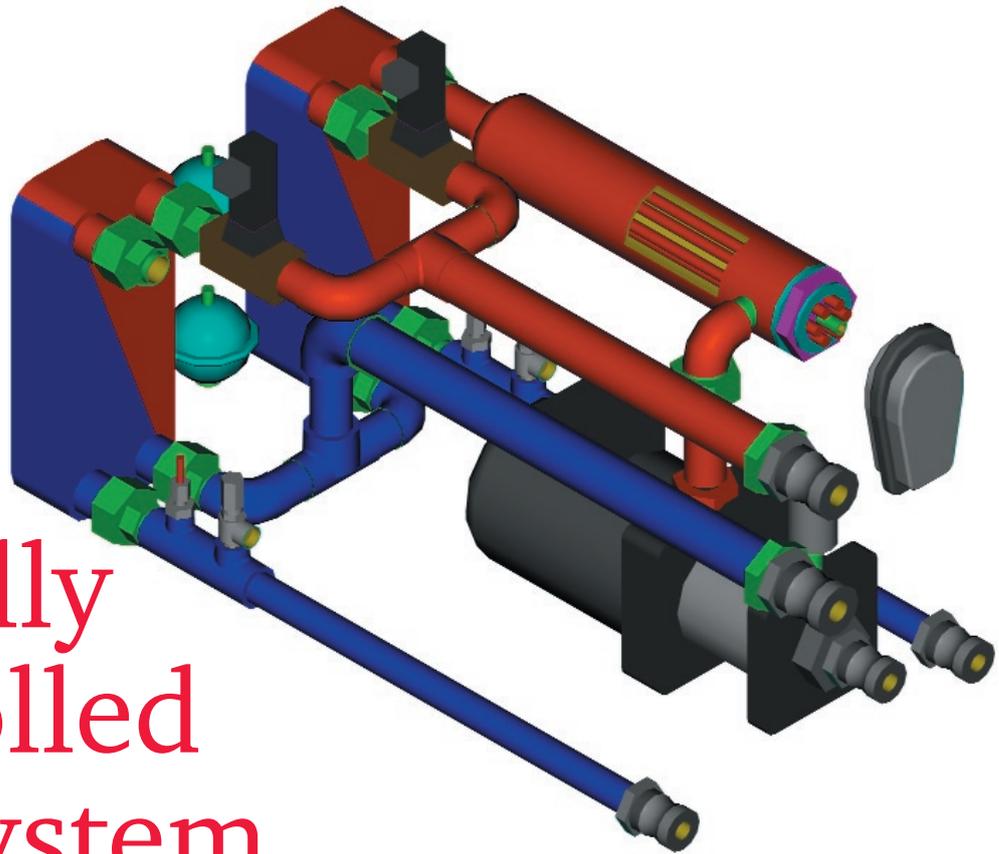
No contamination of press rollers

Sealed temperature circuits between press and the IRTC box eliminates outside contamination of the water through the press roller

Easy installation and service

Quick clamp fittings on water tubes and quick plugs on wires facilitates installation

Digitally controlled IRTC system



Ecotemp IRTC boxes maintain a uniform temperature in one or more offset printing units (multi- or single-zone control) with an accurate digital temperature control of the closed water circuit to the vibrator and/or fountain rollers. APT 100 sensor in the water circuit transmits the temperature readings to the remote digital temperature controller, which immediately computes all information about variations in the heat generation into appropriate heating or cooling.

Ecotemp IRTC boxes are compact 60x68x40 cm (24"x27"x16") and modular with one or more circuits per box. Multi-zone boxes are installed next to each other (under the catwalk if possible) or on top of each other in an IRTC tower with the market's smallest footprint.

An Ecotemp multi-zone system (independent control of each unit in a multi-color press) has a 3 kW electrical in-line heater and a 12 kW plate heat exchanger (cooled by an external cooler ($\Delta T=4.0C^{\circ}/7.2F^{\circ}$) in each temperature circuit. This is sufficient to cool a 64" (110x162 cm) printing unit at 13,000 iph in waterless offset. Ecotemp is available with up to 4 independent temperature zones. The single-zone system

(central control of all units in a multi-color press) has a 9 kW in-line heater and a 48 kW ($\Delta T=4.0C^{\circ}/7.2F^{\circ}$) plate heat exchanger, sufficient to cool an 8-color 64" press at 13,000 iph or a 12-color 41" (72x105 cm) press at 16,000 iph in wet offset. (Multi-zone systems are recommended for both wet and waterless offset, while single-zone systems are not recommended for waterless offset).

All Ecotemp boxes have sturdy frames of eloxided light alloy with side and top plates of polished stainless steel. All electrical parts are installed in a closed stainless steel cabinet. Pumps, plate heat exchangers and the electrical cabinet are installed on a light alloy bottom plate, which is easily taken out of the frame for service even if several boxes are installed on top of each other.

The modular concept makes it possible to control the market's biggest and fastest presses with the maximum number of printing units in single- or dual-zone versions and the widest presses with up to 4 units in a multi-zone configuration. (For more than 4 units, a Digitemp configuration with colour touch screen is recommended).

Ecotemp IRTC boxes are cooled by external Aquacool coolers (or alternative

cooling sources). A significant number of presses with Ecotemp IRTC boxes can be connected to the same central cooling system, as long as the total cooling capacity is sufficient. Aquacool Jumbo 145 has a maximum capacity of 145kWatt, which corresponds to 6 6-color 41" presses.

All Ecotemp IRTC boxes are operated with remote digital controllers installed close to the delivery or the remote press control console. The installation of the Ecotemp system is easy. The water tubes have quick clamps, and each box has only one power cord. Each box has communication and power cables to the remote digital controllers.



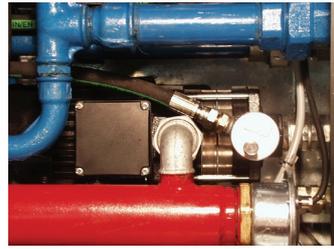
Ecotemp IRTC box and 4-unit remote controller

Special Ecotemp Features



Compact electronic controls

All electrical parts are in a compact stainless steel cabinet on the Ecotemp platform. This is a very compact design, which makes installation easy. A PT-100 sensor in each water circuit constantly feeds the remote digital controller with actual temperature information. This concept gives a fast and accurate temperature adjustment.



Closed, small water circuit

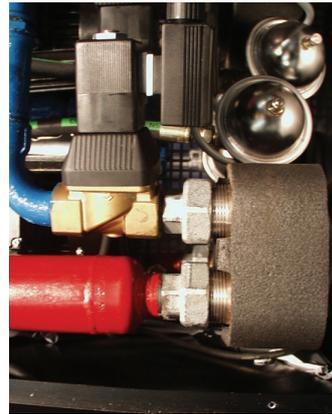
The Ecotemp plate heat exchanger, in-line heater and pump together with the tubes and rollers in the printing unit makes a closed circuit, where a minimal quantity of water circulates. No tanks are used and there is no connection to the outside cooler. The small quantity of water (about 15 liters/4 gallons) is the key to quick reactions to temperature changes, which is the key to a uniform plate surface temperature. Because of the closed water circuit, the water running through the rollers is never in contact with the water from the cooler or exposed to the outside air. This makes for a closed cooling circuit under pressure (3 bars/42 psi) with a higher cooling capacity and a longer lifetime without contamination. Each circuit has its own expansion box, air bleeding valve and pressure valve.

2 independent temperature set points

The digital controller has 2 independent temperature set points: A) idling (water temperature) and B) printing (water temperature) This unique feature is designed to match the heat generation in offset presses and maintain a consistent temperature – and printing quality – during both make-ready and printing. In impression-off the ink rollers are separated without roller friction and heat generation. In impression-on the friction of the ink rollers generates heat, and the water must be colder to keep the same roller surface temperature. (The heat generation in a printing unit is proportional to a mix of the printing speed, type of ink and ink coverage. It fluctuates from job to job. This is the reason why multi-zone systems are such a good idea).

Strong circulation pump with constant, high flow speed

A powerful Grundfos pump circulates all the water in a closed temperature circuit with a constant, high flow speed in less than 20 seconds. This gives the fastest reaction to variations in heat generation. The constant and fast circulation also secures a minimal temperature difference across the rollers (and sheets), because the difference between the roller inlet- and outlet temperatures (ΔT) is minimal in opposition to systems, which adjust the cooling capacity by adjusting the flow rate of cold water to each unit.



Heat exchanger with modulating proportional valve

An accurate modulating, proportional solenoid valve adjusts the exact amount of cooling water into the plate heat exchanger. This sophisticated valve constantly bleeds more or less cooling water carefully into the heat exchanger based on a signal from the digital controller. Its quick, but soft open/close function also prevents water shocks in the heat exchanger. (Having a total separation between the press and the external cooling circuit efficiently eliminates any water shocks in the press and its sensitive rotary joints). A large heat exchanger and a modulating, proportional cooling valve gives a high cooling capacity and a quick reaction to changes in heat generation, and at the same time a more accurate response to even minimal variations in heat generation.



Remote digital controller cabinet

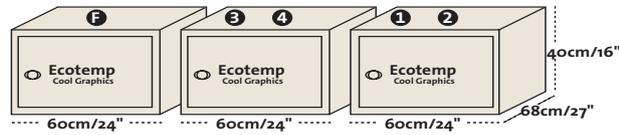
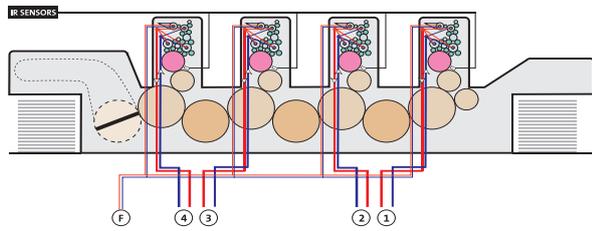
Ecotemp is controlled via one digital controller per printing unit in a remote cabinet installed close to the delivery or press control console. Each digital controller has an on/off switch and shows:

- 1) Idling: The actual temperature and set point for a unit during idling. Set point adjustment is possible.
- 2) Printing: The actual temperature and set point for a unit during printing. Set point adjustment is possible.
- 3) A check function makes it possible to adjust the printing set point during idling.



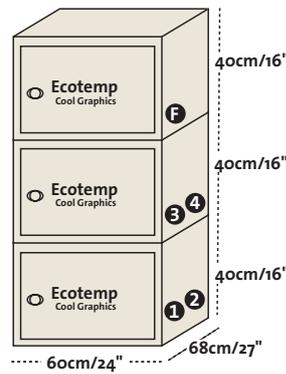
Quick tube and wire fittings

All tubes are fitted with quick clamps. Each Ecotemp has only one power cord and a communication cable with quick plugs to the remote digital controller cabinet. With the automatic air bleeding valves, the closed water circuit between the press and heat exchanger is automatically cleaned for air.



Horizontal installation

1, 2, 3, 4: Vibrator Rollers
F: Fountain Rollers



Vertical installation

Ecotemp technical specifications

Technical specifications per circuit

Multi-zone boxes

Single-zone boxes

Cooling by a plate heat exchanger and heating by in-line heating element.		yes	yes
Cooling adjustment by digital controlled modulating proportional solenoid valve.		yes	yes
Communication cable to remote digital controller cabinet		yes	yes
Waterless offset Cooling capacity ($\Delta T=2,0C/3,6F^{\circ}$)	kWatt/BTU	6/20,490	24/81,960
Wet offset Cooling capacity ($\Delta T=4,0C/7,2F^{\circ}$)	kWatt/BTU	12/40,980	48/163,920
Heating Capacity	kWatt/BTU	3/10,245	9/30,735
Pump Type	Grundfos	CH 2-30	CH 12-30
Pump Capacity	Liters/GallonsHour	3.500/925	15,000/3,965
Pump pressure	Bars/psi	3/42	3/42
Circulation media		Water	Water
Rust prohibitor:		Glycol	Glycol
Quick clamps to press		3/4"	5/4"
Quick clamps to cooler		5/4"	5/4"
Power source	Volts	3x400/3x220	3x400/3x220
Power source	Hz	50/60	50/60
Power consumption:	kWatt/HP	10/14 (2 circuits)	12/16
Load connection	Amps	16 (2 circuits)	16
Front	cm/inches	60/24	60/24
Depth	cm/inches	68/27	68/27
Height without wheels	cm/inches	40/16	40/16
Weight	kg/pounds	60/132	50/110



Cool Graphics is a Danish company, which develops and manufactures dampening water premixers, ink roller temperature control systems and other ancillary equipment for offset presses to improve press performance, productivity and impact on the environment.

Cool Graphics markets and services its products in Europe through Royse Europe ApS, which is a joint venture between Royse Manufacturing Company and Cool Graphics ApS. In the USA Cool Graphics' products are marketed and serviced through Royse Manufacturing Company in Dallas, Texas, USA. In Japan and the Far East, Cosmotech Co. Ltd. represents both Royse Manufacturing Company and Cool Graphics.

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Royse's dampening water circulators (DWC) with individual and central tank configurations. Available with Classic supply pumps with return suction or with the new Clearwater technology with pre-filtration tanks



CG-Combi combination systems with Royse's DWCs and Cool Graphics IRTC systems. Available in small (S), medium (M) and large (L) sizes with Classic or Clearwater pumping/filtration configurations. Available for most sheet- and web fed presses.



Royse coater circulators for 1) water based coatings 2) UV coatings 3) water based & UV coatings



Aquacool Compact and Jumbo central water coolers



Eco- and Digimix premixer systems use accurate doser pumps and a premixer tank to prepare highly consistent dampening water.