

Dual-Dry® RTO

Dryer with integrated regenerative oxidiser

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Durability, Reliability & low Maintenance

RTO systems are known for their durability and robustness. The oxidiser module uses a temperature stable ceramic media and proven switching valves. Other features include a single burner only used for heat-up which is designed for machine lifetime, a new robust rod style retraction system, along with easy maintenance access. Construction features advanced metallurgy and rugged manufacturing to ensure years of dependable operation.

Mechanical and process design insures operation above the dew point of the solvent and avoids condensate and tar build-up inside the dryer. Individual paper screens between the air bars in the conditioning zone prevent from fan and air bar plugging with paper.

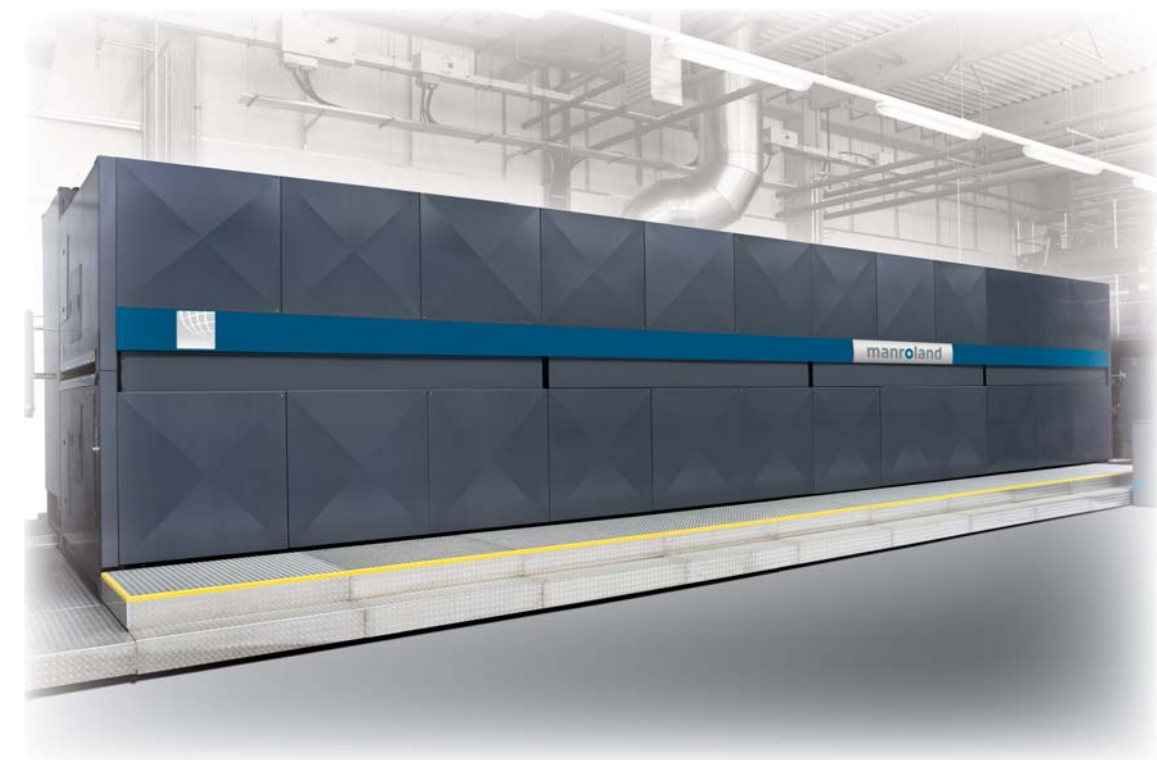
Low cost transport & Simple installation

With growing web width the physical size and weight of the dryer increases to a point where transport cost, transport permissions become a real issue. On the other hand a mechanical installation at the printing plant is not desirable for cost and time reasons. By splitting dryer and oxidizer into two compact units of about the same weight the new Dual-Dry RTO becomes easily transportable, even up to 2860 mm web width. The dryer connects to the oxidizer at only three points and is designed to keep installation time very short. All fans are remain on the dryer and do not need to be removed for transport.

Standard features for Dual-Dry® RTO Europe

| | |
|--------------------------|--|
| Maximum web speed | 18 m/s (3550 fpm) |
| Maximum paper web widths | 1474, 2060, 2380, 2860 mm |
| Dryer length | 15,7 or 17,5 m |
| Max ink coverage | Standard 3,5 g/m ² (up to 4,5 g/m ² on option) |
| Standard paper weight | 30 – 150 g/m ² (27- 250 g/m ² on option) |
| Configurations | Horizontal, single or double web |
| Web direction | Left hand or right hand configuration |
| VOC pollution control | Regenerative Thermal Oxidiser complies with and exceeds EC regulations |
| Burner, versions | Natural gas, others upon request |
| Primary heat exchanger | Horizontal bed ceramic monolith, nominal efficiency 95% |
| Clean gas values | CnHm < 20 mg/Nm ³ , CO < 50 mg/Nm ³ , NOx < 50 mg/Nm ³ |
| Air nozzles | Patented Dual-Dry air bars |
| Control | PLC with modem, X-View, X- Recorder and X-Counter software (gas meter on option) Internal pyrometer (IR) at end of first zone Automatic temperature profile control to all zones function of paper grade LEL exhaust control Blanket wash interface |
| Doors | Vertical automatic web-up doors |
| Electrical power | 400V/50Hz. Soft start motors. (Frequency controlled on option) |
| Fans | Plug type for supply, and integrated exhaust |
| Norms and safety | Conforms to all EC standards Pressure relief load surfaces, redundant controls |

High performance commercial printing

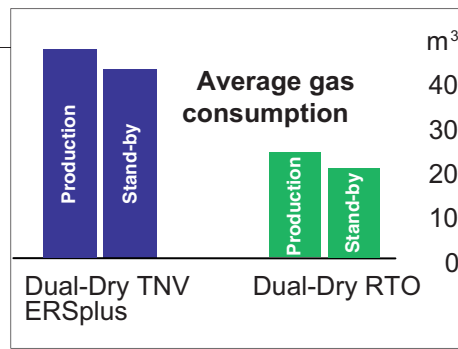


Continuously increasing energy prices and higher environmental requirements in combination with wider and faster webs demand different technology for profitable operation of modern high volume offset heatset presses. Since the 1990's independent regenerative pollution control systems have replaced recuperative technology in web offset printing. At the same time dryers with integrated oxidiser were developed for many applications. MEGTEC combined both industry trends in the Dual-Dry RTO. The Dual-Dry RTO completely redefines the standards for heatset performance in energy consumption, environmental footprint, product quality and lifetime operating costs.

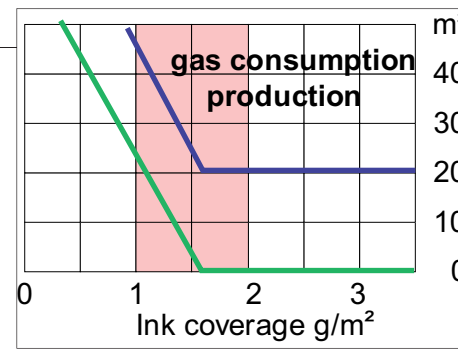
The bottom line is process knowledge

Dual-Dry® RTO

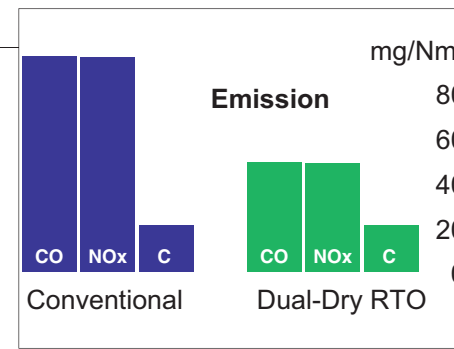
Dryer with integrated regenerative oxidiser



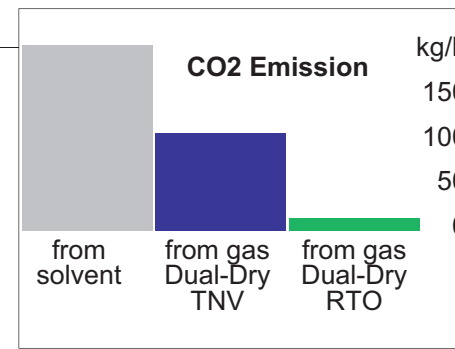
Dual-Dry RTO
The world's most economic dryer: In average gas consumption reduced by 50% compared to best in market systems.



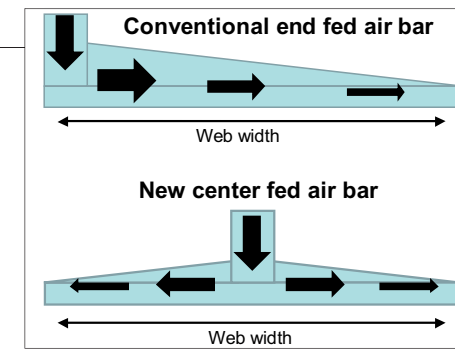
Autothermal run (Zero gas consumption) for many production conditions.



The world most environmentally friendly dryer: RTO technology guaranteed CO and NOx emissions are reduced by 50%



Lowest CO2 emission of all heatset drying systems



New center fed air bar: Better flow evenness at lower pressure drop at wide webs



Easy Transport & Installation: 2 pieces, smaller trucks, lower transport cost & simplified transport permission

Performance benefits of Dual-Dry® RTO

- Patented integrated regenerative oxidiser for VOC environmental compliance
- Lowest lifetime operating costs
- Ultra low electricity and gas consumption (95% efficiency heat exchanger)
- Lowest CO, NOx and CO2 emissions
- Low make ready and running waste
- Centre fed Dual-Dry® system for high web stability without web touching
- Superior 3 zone drying process
- Hot air intake to all process zones
- Multi stage conditioning zone
- Automatic paper temperature profiles depending on paper grade
- Simple operation eliminates operator errors
- No condensate formation in the dryer, marking on chills or folder
- Easy to use automatic process control
- PLC with diagnostic assistance and modem
- Exhaust flow controlled to LEL
- Extreme durability, high reliability & low maintenance
- Burner designed for lifetime
- Easy transport and installation

Ultra low energy consumption

By the integration of regenerative thermal oxidation (RTO) for air pollution compliance with an ultra high 95% efficiency heat exchanger, the Dual-Dry RTO is the most fuel efficient print dryer in the world. Under many production conditions the RTO supplies all the energy required for both oxidation and drying leading to zero fuel consumption. In average production conditions the Dual-Dry RTO reduces gas consumption by 50% compared to the best in market recuperative systems

Ultra low emissions

With RTO technology Ink solvent is burned at a combustion temperature about 100°C above the temperature required by recuperative systems. Result is a reduction of NOx and CO guaranteed emissions by 50% without negative impact on the lifetime of the oxidizer. CO2 emissions, a direct consequence of the heatset process itself, and the gas consumption are reduced under all printing conditions as well and make the Dual-Dry RTO the most environmental dryer in the world.

Low Lifetime operating cost

Low lifetime operating costs are the key to minimum production cost and profitable operation. This requires low energy consumption but as well durability, reliability and low maintenance cost and no production down time due to cleaning over the entire lifetime of the press

Unique at MEGTEC : RTO pollution control

Regenerative Thermal Oxidisers (RTO) use ceramic stoneware as a heat exchange media to absorb heat. The media is arranged in two beds within the oxidiser. The solvent laden air stream passes through the first bed into a combustion zone where it is heated to oxidation temperatures. Energy is released during the process. The air stream then passes through the second media bed which "stores" energy from the hot air stream. After a specific period of time, the airflow direction is reversed and the second bed heats the incoming air stream while the first bed stores energy. Constant cycling between the beds ensures complete oxidation. Regenerative thermal oxidation is the most energy efficient emission control technology available with zero fuel consumption under many operating conditions.

Exceptional web stability

The production of high quality printed products on high performance presses requires an extraordinarily stable web under all printing conditions without web shift and without marking, even with heavy ink coverage on light weight papers at low web tension. The right air bar and air flow technology make the difference and require a lot of know how in web drying. MEGTEC's Dual-Dry air bar system with centre fed headers are the top technology to ensure optimum web handling, high heat transfer and low electrical consumption

Dual-Dry® air bar system

The combination of heat transfer and web support functions in a single nozzle design will always be a compromise. MEGTEC's innovation has been to separate these two functions into separate air bars. The patented Dual-Dry air nozzle system demonstrates a significant advance in performance. The Dual-Dry system uses a combination of hole air bars to deliver high heat transfer and Hi-Float® air bars to provide optimum web support. The system creates a slight sine wave in the web to inhibit edge curl, flutter or web touching and it provides a flatter web path for high lateral web stability.

Centre fed air bars

Ultra wide webs require different means in air bar and header design. With increased web width end-fed air bar systems come to limits in terms of across the web pressure profile and pressure drop resulting in high electrical energy consumption and poor web handling. Instead of feeding the air from one side into the air bar the Dual-Dry RTO is using centre fed air bars reducing the flow inside the air bar by 50%. Result is a very even pressure over the air bar combined with lower electrical consumption to allow a perfect web transport in combination with the Dual-Dry air bar system.

Superior drying performance

High product quality under all printing conditions is required to operate a high performance press with profitability. The new Dual-Dry RTO integrates all experience, know how and process knowledge MEGTEC's engineers collected on the world's fastest offset presses around the world with all different paper and conditions and printing practise. Result is a perfect combination of zone split, hot air supply and temperature control to prevent product waste due to marking, speed reduction due to condensate creation, insufficient drying and dryer smoking.

Optimised 3-zone concept

The Dual-Dry RTO dryer uses the three zone process concept, heat-up, drying and conditioning. Controlled air temperature in all process zones in combination with optimum zone length ensure to reach all required paper temperatures. This is essential to attain peak process efficiency and flexibility for all speeds and papers.

Multi stage conditioning zone

The Dual-Dry RTO has a fully temperature controlled multi-stage conditioning zone for optimum temperature reduction to avoid chill roll condensate and smoking without condensate formation inside the dryer. Patented seal bars at the entry minimise solvent migration into this zone where extraction of residual solvent continues as the paper temperature is reduced (web exit temperature is 90-125°C).

Automatic paper profiles

Each paper grade has its own drying characteristics. Traditionally only the web set point temperature has been adjusted to each paper grade. However MEGTEC's research and field testing shows that drying performance increases when each dryer zone is profiled in combination with each other zone. The unique MEGTEC™ automatic paper temperature control features an internal pyrometer at the end of the first zone. The PLC optimises temperature profiles in all zones to match changing printing conditions (press speed, dampening, paper weight and grade). This easy to use system requires only adjustment for ink coverage, and thereby eliminates operator errors, allows faster make ready, ensures consistent print quality, reduces paper waste and energy consumption.

Communication and control

The Siemens S7 PLC provides communication and interface with the press control system. The user friendly operator interface displays operating status and provides fault diagnosis. A modem is standard for remote troubleshooting and a weekly monitoring monitoring service is available for diagnosis and preventative maintenance. The Dual-Dry RTO comes with the X-Counter software and on optional with a gas-meter to track energy consumption.