

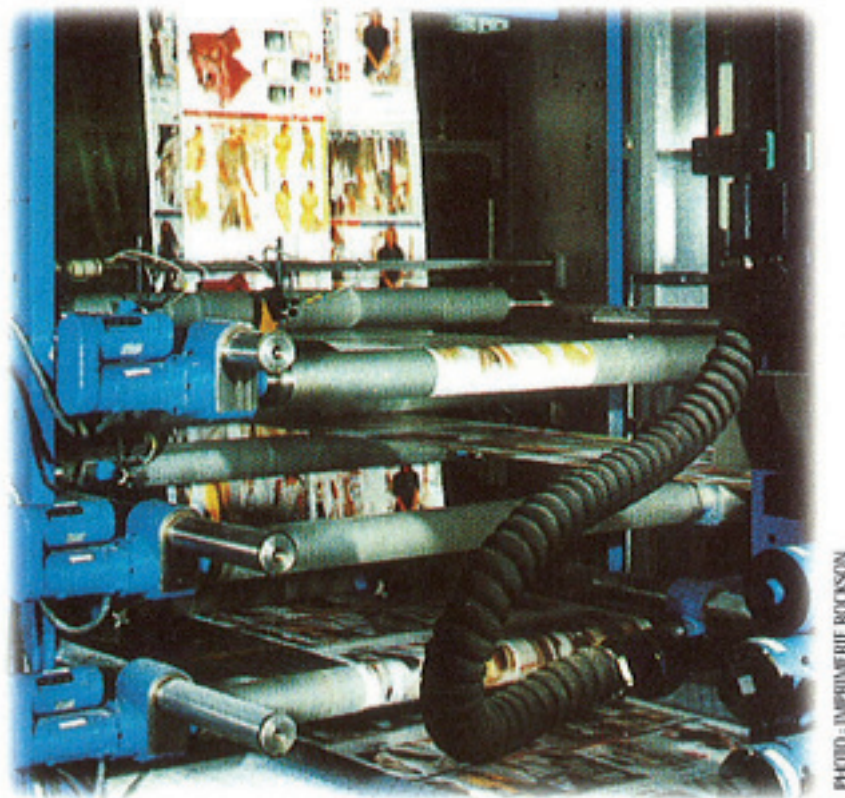
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No. 96
Pollution prevention case studies

Purifier treatment of emissions from rotary offset presses

Company	Rockson.
Industrial sector	Printing (magazines and catalogues).
Environmental considerations	On completion of the printing process, the atmospheric emissions produced by ink drying on rotary offset presses have to be treated. More specifically, Volatile Organic Compounds (VOCs) have to be incinerated before they can reach the open air.
Background	<p>Rockson annually produces the equivalent of 237 million machine revolutions. It has an annual turnover of €18.5 million and just under a hundred employees.</p> <p>Previously, treatment of the ink on the rotary presses was performed by a recovery purifier connected to 3 rotary presses. With this method, the polluted air entering the system was warmed by the cleaned air, via a heat exchanger. Nevertheless, one problem with this system was that air filtering operations produced a certain amount of residual heat which went unused.</p> <p>Faced with increasing production load, it was time for the company to modernise, and it decided to totally renew its rotary plant. This involved rethinking the filter system, whose treatment capacity was no longer sufficient to cope with new production requirements.</p>
Summary of actions	<p>After conducting an assessment of its cleaning and filtering system, the company decided to invest in a more advanced system operating on the regeneration principle. With the new system, the polluted air entering the purifier is warmed on a ceramic bed, while clean outgoing air heats a second ceramic bed; the air flow is then reversed, harnessing the energy accumulated in the second bed. The purifier is connected to 3 rotary presses. It has a treatment capacity of 90,000 Nm³/hour.</p> <p>A number of precautions were taken for the installation of the equipment:</p> <ul style="list-style-type: none"> • 3 months' testing of the purifier. • A puff-cleaner was installed to collect peak VOCs during inversion of the air flow in the purifier.

Photo



Balances

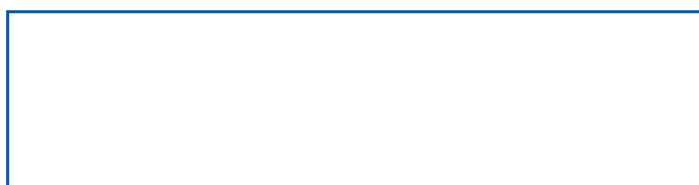
	New process
Annual equipment balance	Gas consumption: Before: 10,775 MWh/year (830 toe) After: 6,160 MWh/year (474 toe)
	Energy savings: 4,615 MWh/year (356 toe) (42% of energy savings directly derive from the installation of the new purifier)
Economic balance	Direct financial gain (linked to energy savings): 63,269 €/year
Total investment	€91,447 (considering only the additional cost of a regeneration purifier relative to a recovery purifier) 457,359 € for the operation as a whole
Payback period	1.5 years relative to additional cost

Conclusions

Before undertaking this operation, Rockson was sceptical about the energy savings to be gained from the regeneration system. As it turned out, however, real savings have far exceeded expectations. And the company is now well in advance of environmental regulations, which is clearly an advantage as these regulations look set to become stricter and stricter.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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