



Power and reliability with KAESER rotary blowers

Air Mail

Unlike an equipment supplier, a genuine system provider delivers customer specific solutions tailored to requirement, as our example from Virginia, USA, illustrates.

Every month, Richmond based Colortree of Virginia Inc. produces approximately 100 million envelopes for direct marketing offers, designed and manufactured to customer specification. The company processes, on average, US \$ 8 million worth of paper per month which is printed, cut, folded and packed by an assortment of impressive machinery in a 7000m² production hall.

A walk through the production hall reveals a vast array of envelopes of different designs and colours at various stages of the production process, whether they be four or five colour, self-adhesive, gummed or with or without window. The folding process takes place seven days a week, 24 hours a day, whilst other production lines operate five days a week. All processes are optimised to fulfil the needs of the fast paced direct marketing industry at short notice.

As with almost every paper processing company, Colortree requires sufficient vacuum capacity to reli-

ably handle paper at high speed. "Vacuum was a real problem for 14 years!" explained Colortree's Patrick Fitzpatrick, responsible for plant and sequence control, "Vacuum was always at the very top of the machine operators' and service personnel's fault lists".

The steady growth of the company over the last 15 years was mirrored by an increase in the variety of its installed vacuum systems. With every installation of new processing machinery came installation of new vacuum equipment. This resulted in a mishmash of various blowers, piston compressors, spiral pumps etc. which had to run flat-out just to maintain sufficient vacuum. "Each time we started a production machine or changed a procedure, someone from the maintenance team would have to go to the applicable installation and manually switch the relevant vacuum pump on or off. That also led to less than perfect continuous vacuum levels," remembered Fitzpatrick, "these deficiencies not only impacted on our productivity but also affected our ability to fulfil customer wishes". Noise was another issue. Some vacuum pumps were so loud that a

sound-proof wall had to be installed to enable them to be centrally located in the production hall and the noise level in the blower room sometimes reached in excess of 115 dB(A).

The Search for a Solution

After discussion with an independent Production Installation Engineer, several possible solutions to these problems were found. Fitzpatrick considered the pros and cons of liquid ring vacuum pumps, rotary screw vacuum compressors and vacuum rotary blowers. He also looked at the possible effects on operating procedure. Colortree finally decided on a solution which, to date, is unique: The company selected an installation supplied by KAESER KOMPRESSOREN in Fredericksburg, Virginia, comprising four ambient air-cooled rotary blowers equipped with highly efficient Omega Profile rotors. "This option offered more vacuum with less machinery", explained Fitzpatrick, "and we are not disappointed with our decision. The performance of the KAESER system has added a completely new dimension to our entire production facility".

Several reasons influenced the decision to select KAESER vacuum blowers: they are reliable, simple to maintain and exhaust air is oil-free. Furthermore, the units are air-cooled which eliminates the considerable added expense and investment associated with water-cooled systems. However, the best aspect is the excellent vacuum performance of up to 914 mbar.

Increased System Flexibility

KAESER's engineers worked in close co-operation with Colortree to deliver an individually tailored turn-key vacuum system managed by a centralised controller. Equipped with 150 kW motors, sound-proofing & damping, filters and fittings, the four vacuum blower units are designed to operate in close proximity to the working environment. All KAESER vacuum pumps are fitted with automatically operated shut-off and control valves as well as exhaust silencers. In combination with the voltage regulated soft-start feature, this valve arrangement ensures start-up currents of only 250 percent (maximum) of the full-load, which contrasts sharply to the 1300 percent for full-voltage start-up. This system increases the number of operating cycles per hour and enables the whole system to adapt more flexibly to fluctuating demand. Flexibility is further enhanced as one of the four blower units is equipped with a frequency control drive. Starting with the frequency

Ambient air cooled blower configuration for Colortree



More Vacuum, Lower Costs, Less Noise

According to Fitzpatrick, one of the most significant improvements the system has brought about is the increase in envelope folding

controlled unit, the specially programmed controller is able to switch the blowers on or off as demand dictates, keeps costly idling phases to an absolute minimum and maintains a constant vacuum within a narrow spread of approx. ±65 mbar.

The new vacuum installation was specially designed and finely tuned to meet Colortree's exact requirements. Therefore it is no surprise that Fitzpatrick and the Colortree management team are more than

satisfied with their new system: "We finally have excellent vacuum capacity and even have reserve. Thanks to our new KAESER system, we've already been able to install a new high speed envelope processing machine without it resulting in a vacuum shortfall." As yet, not a single machine operator has complained of vacuum problems and "that" says Fitzpatrick "I still think is a miracle".



Four KAESER blowers provide outstanding vacuum performance

is now immediately blown away and collected in the filters, which has led to a dramatic reduction in downtime.

Highlighting the valuable role that qualified, experienced compressed air experts play, the system at Colortree is, up till now, the only one of its kind the world and demonstrates how advanced technology can be used to solve long standing problems. Furthermore, it is an illustration of how a compressor or blower manufacturer is not just committed to selling its machines, but is also dedicated to delivering complete tailored systems through close co-operation with the customer.

Author: Klaus Dieter Bätz
Contact: klaus-dieter.baetz@kaeser.com

A US envelope manufacturer specifies KAESER blowers to solve its vacuum problems



Angela Kelly of KAESER USA and Colortree's Patrick Fitzpatrick