

Saving energy with HOMAG innovations

Ultra-efficient extraction system saves up to 50% extraction output

Woodworking shops are made instantly recognizable from a distance by their large extraction systems and chip silos. Requiring a considerable input of energy, these essential systems also make themselves felt as a major cost factor. As innovation market leader and a supplier of custom-tailored systems and machines designed to maximize productivity, it was only logical for the HOMAG Group to come up with an extraction system which is not only highly efficient in terms of production but which leads the field in terms of its energy efficiency too.

Energy and resource efficiency in production processes

Extraction output can be slashed by up to 50% through the introduction of process-controlled metering of extraction speeds.

In the conventional extraction system used at the HOMAG machine, all the dust extraction units are operated directly by the extraction system without the use of controlled slide valves at a constant target vacuum of 2500 Pascal and at the maximum volumetric flow setting practically throughout the entire process.

In the newly developed extraction system developed jointly by HOMAG and Nestro and presented at the LIGNA, each dust extraction unit which is not required for every operating mode is fitted with its own slide valve which is actuated by the machine's control system. Depending on the operating status, the slide valve is opened or closed. This allows the total volumetric flow to be substantially reduced without compromising extraction quality.

The extraction system also works with different vacuum levels adjusted to

the specific needs of each individual unit. At the LIGNA, a double-sided machine was presented “in operation” and comparative measurements taken at a conventional system and at the new controlled extraction system.

For this presentation, two different vacuum levels were used: 1500 Pascal in the hogging area and 2500 Pascal in the finish processing section.

The machine was run with a vacuum of 1500 Pascal generated by the extractor system, with the pressure differential increase to 2500 Pascal for the finish processing section generated by a booster fan.

The amount of energy was consequently reduced in two ways: Firstly by closing the dust covers currently not required for the processing operation by means of a shut-off valve, and secondly by reducing the vacuum produced to the volume actually required and raising it only where needed. A smaller volumetric flow and lower vacuum levels add up to a substantial reduction in overall energy requirement.

This system was presented live at the LIGNA by HOMAG and demonstrated complete with comparative measurements as just one of over 100 different measures designed to increase resource efficiency. The result was a 34% saving as against extraction using “conventional” systems with a constant vacuum of 2500 Pa. Taken over the year, this adds up to a total saving of over 40,000 kWh.

The slide valve control and vacuum regulation system used ensures the need-driven connection and disconnection of extraction ports depending on the specific workpiece processing operation. Depending on the machine and product being manufactured, and where a corresponding number of tools and units are fitted, for instance standard and uni trimming tools, snipping units, double hogs and trimming various profiles and formats, savings in the order of 50 % are easily achievable.

At the same time, the reduced extraction volume means that less hot air is blown “out of the window”, so substantially reducing the consumption of heating energy. Ideally, a return feed system for the extracted air should be installed to make optimum use of the heat recovery.

Added to this is the use of selective chip flow control with internal extraction tools – known as the I system – for further savings of up to 30% from the cost of chip extraction.

The wide-ranging machine portfolio offered by the HOMAG Group and its cooperation with experience partner companies have culminated in optimized processes with an impressive track record in terms of economy. The optimization of extraction systems and the utilization of waste heat both offer major additional potential for savings on the factory floor.

The application of innovative engineering developments has made an important contribution to the sparing use of resources and the reduction of manufacturing costs.

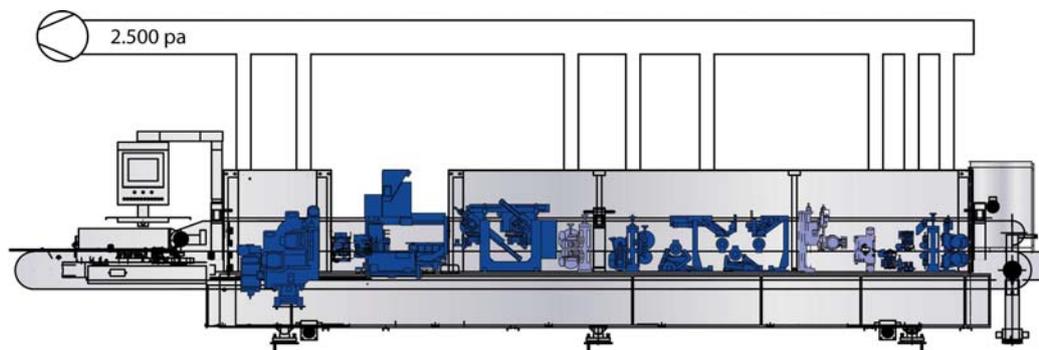


Fig. 1: Machine with conventional extraction system (one pressure level)

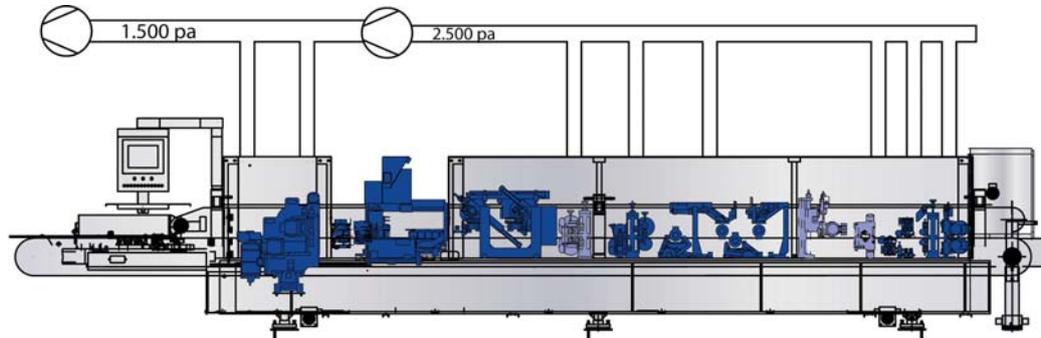


Fig. 2: Machine with new extraction system (two pressure levels)

For more information, contact

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