DOX Electrostat

Electrostatic Spray System

The use of fast running web offset printing machines has brought about a number of problems which show up in the printed product such as breaking of the fold and breaking of glue or staple bound products, wavy and uneven sheets. The problems are mainly caused by an insufficient moisture content of the paper during the printing process and also by the increase in the web offset printing capacity, the increased printing speed, and higher thermal stress caused by higher temperatures in the drying process. In addition, the growing demand for LWC-papers and uncoated grades with higher qualities requires remoisturizing after printing.

Advanced Electrostatic Spray System
DOX Electrostat Description

The DOX electrostatic spray system is installed to eliminate these problems. Papers delivered with a relative moisture content of 40 - 45% are dried to a relative moisture content of 1 - 2% in the heatset dryer. The DOX Electrostat is able to remoisture the papers up to a relative moisture content of 40 - 45% required by the printers.

The function of electrostatic remoisturizing is based on the effect of spraying very small water particles (micro drops) in a high-voltage field up to 160 kV. Due to the high electrostatic loading the micro drops are charged and accelerated without loss toward the paper web. The sheet absorbs the spray mist very quickly and the micro drops penetrate through the paper pores into the fibres.

The DOX Electrostat consists of a high-voltage frame, spray beams, a counter roller and a complete PLC control unit. It uses the method of indirect charging which means that the nozzle bar itself is not electrically charged. The flow rates for each nozzle are controlled from the control cabinet. The water particles are sprayed by the grounded nozzle damper into the high-voltage frame. Only in this frame are the water particles charged and accelerated towards the paper web. The water particles, besides being charged within the high-voltage field, are broken down in size and at the same time accelerated at high speed towards the paper web.

The spray density in an electrostatic moisturizing system amounts to 150 - 200 particles per measured unit whereas a density of only 25 - 50 particles p.u. can be obtained in conventional moisturizing systems. Particle size in the electrostatic moisturizing system is approx. 5 microns.

The DOX Electrostat can be installed in web offset machines, paperback Printing Presses and special converting machines to solve the problems described.

Benefits for the Paper Industry

- Elimination of electrostatic charge
- Increase in moisture up to 40 - 55% rel.
- No paper breaks caused by dryness of paper
- No waves in printed products
- Higher printing quality
- Improved runability and printability

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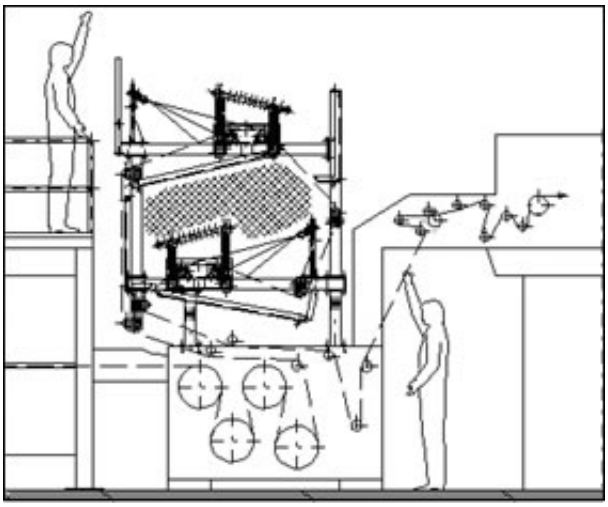
Technical Features

- Two-stage nozzles
- Applies a highly atomized, low pressure spray mist into the high-voltage field. Due to the high loading and high speed of the particles to the paper web the sheet absorbs the spray mist very quickly

Technical Specifications

- Nozzle damping units to spray very fine mist
- High-voltage fields for electrostatically charging the small water particles which are accelerated at high speed towards the paper web
- High-voltage generator for 160 kV
- Automatic moisture control system (PLC functionalities)
- Moisture increase up to 45 - 50% rel. Moisture



Advanced Electrostatic Spray System Layout

Options

- One or double side moistening of the printed sheet
- Dosing pump to spray special emulsion for better moisture absorption
- Separate key board with display
- Integrated control system with PLC (Allen Bradley or Siemens S7)

DOX Family

DOX Electrostat

DOX RotoClean/S

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