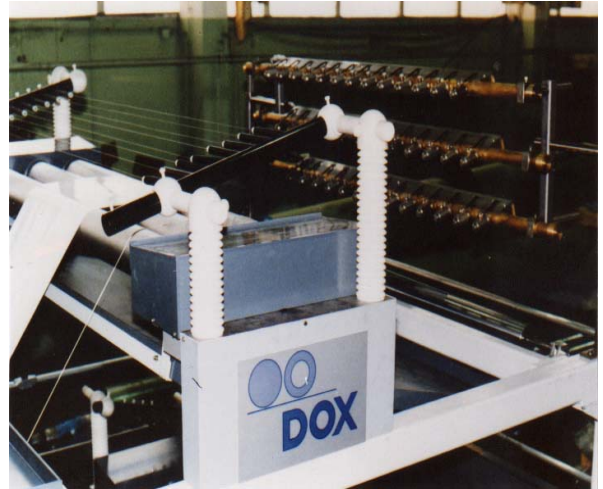


DOX Electrostat

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, furthermore, by the increase in the web offset printing capacity the increased printing speed as well as 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 call for remoisturizing after printing.



Advanced Electrostatic Spray System

DOX Electrostat Description

To eliminate these problems we install the DOX electrostatic spray system. Papers, which were delivered with a rel. moisture content of 40 - 45 %, will be dried down to a rel. moisture content of 1 - 2 % into the heatset dryer. The DOX Electrostat is able to remoisture the papers up to a rel. moisture content of 40 - 45 %, which is required by the printers.

The function of the electrostatic remoisturizing is based on the effect to spray very small water particles (micro drops) in a high voltage field up to 160 kV. Due to the high electrostatic loading the micro drops being charged and accelerate without loss toward the paper web. The sheet will absorb the spray mist very fast 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 loaded. 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 with high speed towards the paper web.

The spray density in an electrostatic moisturizing system amounts to 150 - 200 particles per measured unit whereas in conventional moisturizing systems a density of only 25 - 50 particles p.u. can be obtained. 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 described problems.

Benefits to the Printing Industry

- elimination of electrostatic
- increase of moisture up to 40 - 55 % rel.
- no paper breaks because of dryness of paper
- no waves in printed products
- increase of printing quality
- improving of runability and printability

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 will absorb the spray mist very fast

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 (Alan Bradley or Siemens S7)

Technical Specifications

- nozzle damping units to spray very fine mist
- high voltage fields for electrostatic loading the small water particles which accelerated with 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

DOX Family

DOX Electrostat
DOX RotoClean/S

Advanced Electrostatic Spray System Layout

