

VENTURI BLOW BOX FOR PRESS FELTS

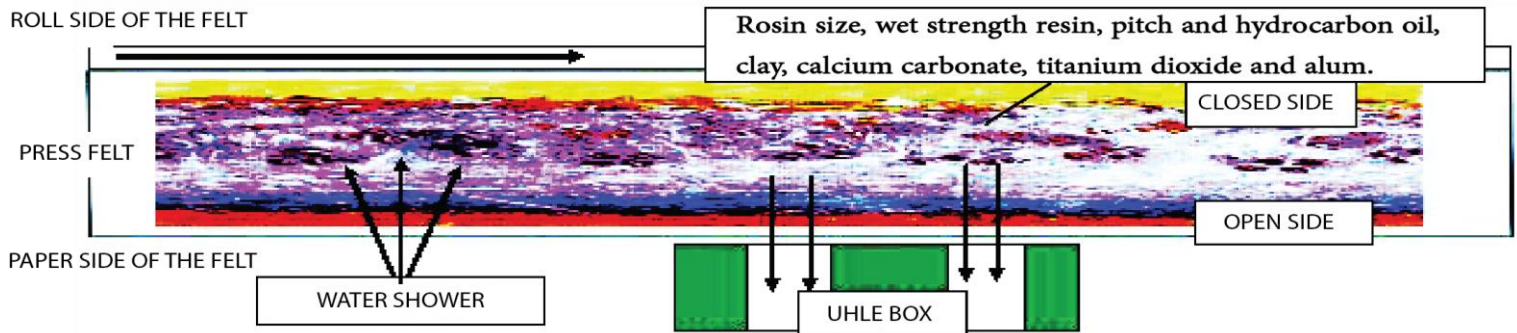
A New Look at Dewatering Performance

Breakthrough technology: conditioning of the entire press felt structure

In order to remove water from the sheet in the press section, water must flow easily into and through the press felt. In addition, the paper's moisture profile after the press is directly proportional to the moisture profile of felt. To ensure good dewatering it is necessary to open the felt on two sides and throughout its structure.

To meet the ever-increasing demands, Venturi Paper has developed and implemented an original method of felt conditioning. The main feature of this technology is a very significant improvement in the efficiency of the press section and especially correction of the dryness profile.

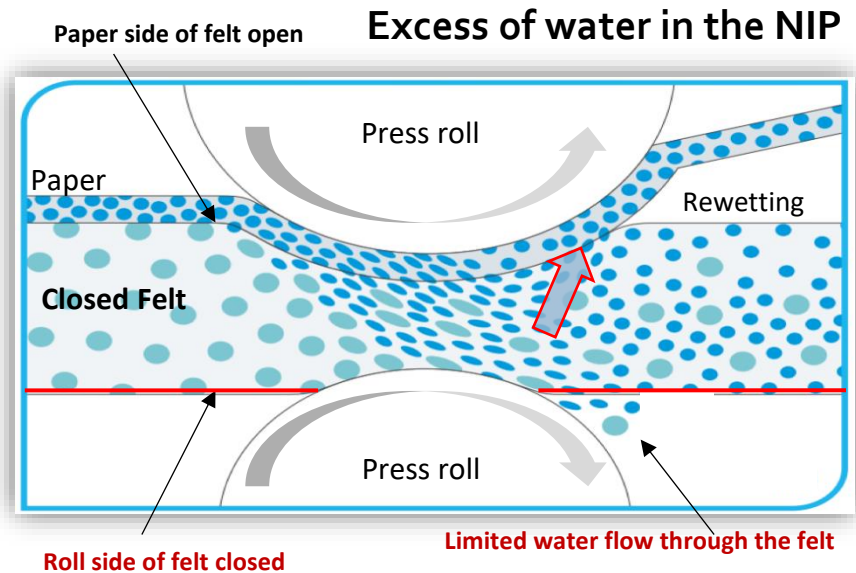
Why the press section does not work properly?



The problem concerns most contemporary machines. Felt conditioning systems remain unchanged for years while the paper machines increase their speed. **Water shower penetrates the felt only from one side** leaving the other side closed, resulting in low air/water flow and low void volume.

Problem

Felts characterize in limited permeability. Conditioning and dewatering is limited, resulting in not enough water transported through the felts from NIP. The process of drying paper requires increased amount of steam.



CD Paper Moisture before Venturi - profile of the felt and paper sheet is unstable.

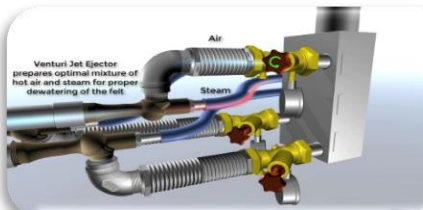


SOLUTION: Venturi blow box above the uhle box

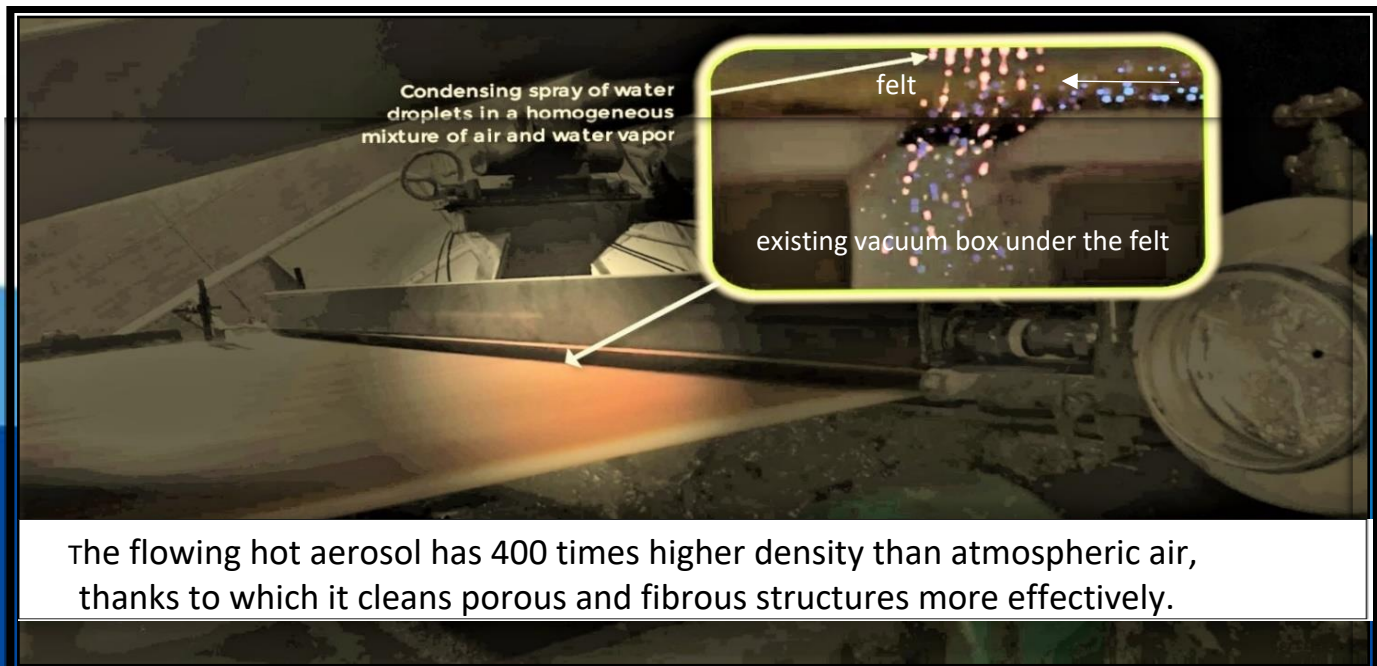


Solution

Venturi technology uses a stream of water microdroplets in the form of hot aerosol flowing through the felt.



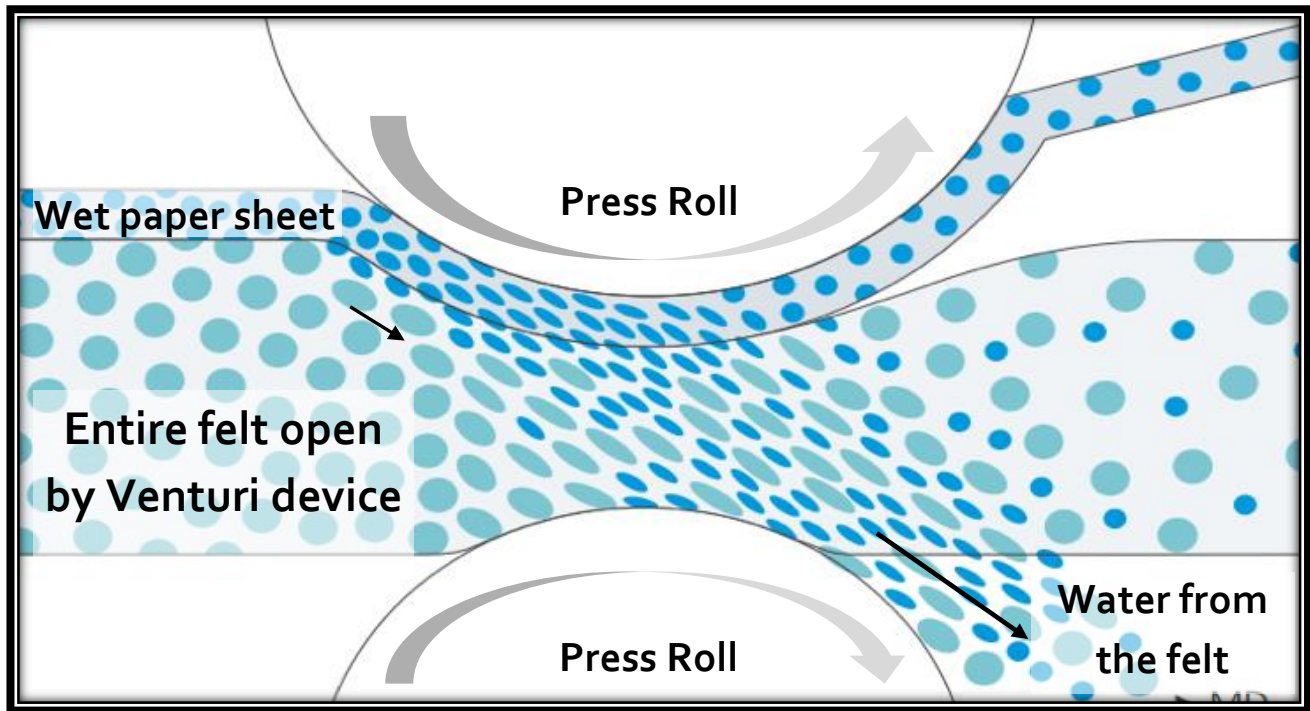
Specific parameters of this aerosol are obtained at jet ejector station using low-pressure steam.



The flowing hot aerosol has 400 times higher density than atmospheric air, thanks to which it cleans porous and fibrous structures more effectively.

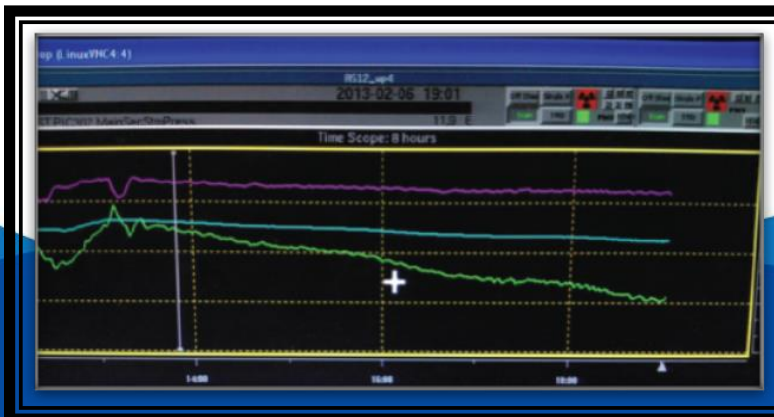
Venturi impact No. 1: open felt = proper dewatering

Result No.1



Optimal water flow through the felt guarantees proper NIP and Uhle dewatering

Dropped steam pressure to the dryer



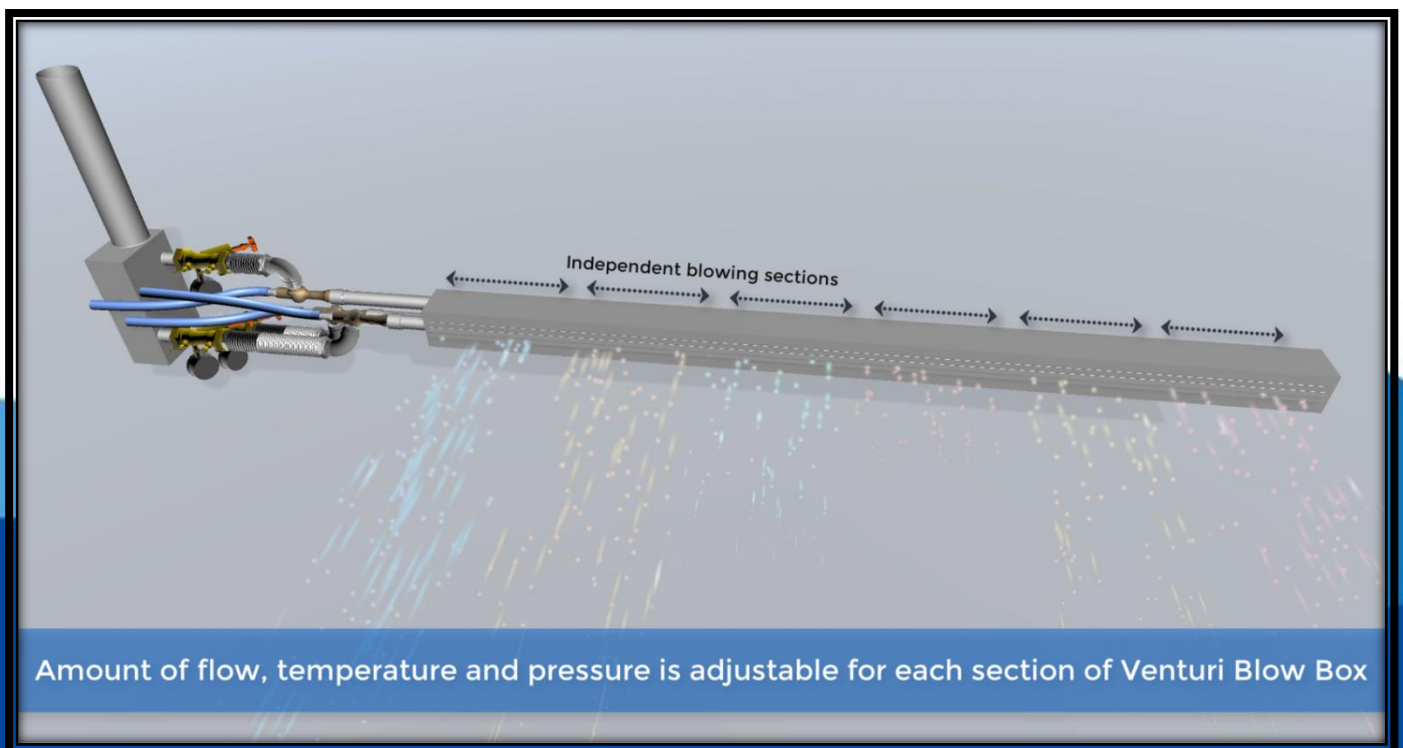
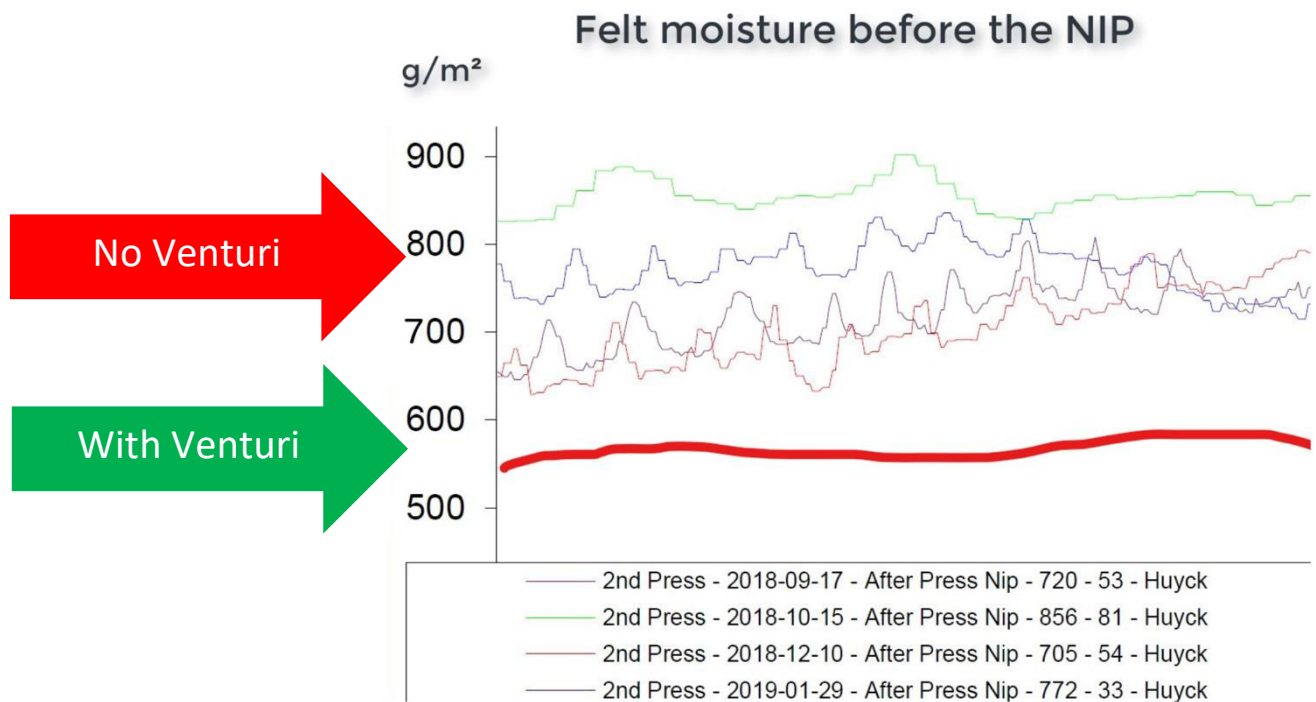
More stable CD moisture profile



RESULT: Improvement of paper dryness min 2% after press

Venturi impact No. 2: stable moisture profile

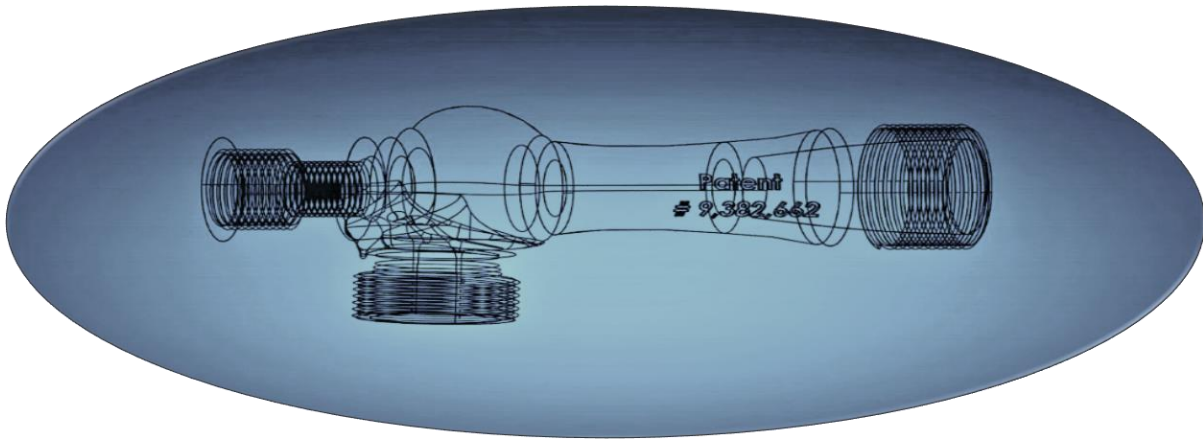
Result No. 2



RESULT: Stable moisture profile of the felt and paper

Individual design for each paper machine

Summary



The key elements of Venturi Unit are Jet Ejectors. The operating parameters of these devices must be adjusted to the conditions of the specific paper machine. Therefore, each Venturi's Jet Ejector is designed and made individually by the binder jetting 3d printing method

Mr. Scott Igoe, VP of American Eagle Paper Mill, Tyrone, PA, USA:

It's thanks to the optimal vacuum level in the uhle box, the perfect temperature and intensified permeability that we are able to accomplish increased dewatering in the press sections. As a result of Venturi Units, we are capable of speeding up paper machine #3 while reducing production costs by 8%

Reducing consumption of 1t steam/h saves 324.000 EUR/year and reduce emissions by 2.000 tons of CO₂ / year



https://youtu.be/QFYtyjzS_50



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