WOOLLARD & HENRY

PRODUCT SHEET

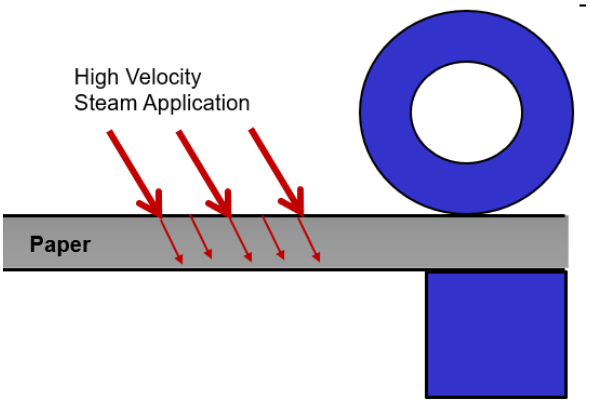
AccuSteam

The Woollard & Henry AccuSteam is a tried and tested steambox system improving the papermaking process to control moisture profile and remoisturization of the sheet. Impressive improvements in production speeds, energy savings and moisture profile control.

There are two main applications for AccuSteam Steamboxes

1. Installation at the wet end of a paper machine

- AccuSteam installed on the wire to support and control the de-watering process of the vacuum boxes
- AccuSteam installed in the Press Section in front of the First or Second Press to support and control the de-watering process of the Press nip
- The condensation process causes heat and energy transfer **into** the paper with a temperature increase of 10 - 25 °C. Raising the web temperature lowers the fluid viscosity and surface tension; The dewatering process done by vacuum box(es) or Press nip is easier and more effective



Paper web has an open surface of 80% water, 20 % fiber.
The condensation process causes heat and energy transfer **into** the paper with a temperature increase of 10 - 25 °C

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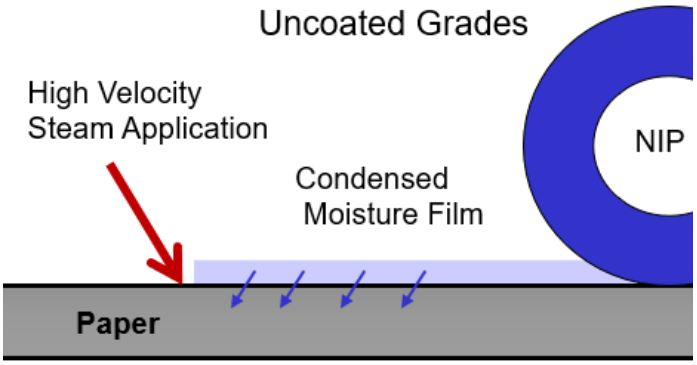
Benefit and Results Wet End Application

- Increasing sheet temperature of 10 – 15 °C will improve sheet dryness by approx. 1% for a stock temperature of ≤ 45°C before the AccuSteam unit
- Installations before the 1st Press nip will result in dryness increase of up to 1.5 - 3% after the Press Section
- 1% dryness yields a 3 – 5% increase in production or a comparable saving in energy consumption in drying
- Improvement of the dewatering process by zones in CD direction ⇒ moisture profile control
- CD moisture 2-sigma improvement up to 50 %
- Reduction of Press nip loads

2. Installation at Calender or Converting Machines

- AccuSteam installed direct in front of a Calender nip to improve and control the gloss or smoothness
- AccuSteam installed in front of a winder or after a coater unit to raise and control the sheet moisture to control the de-curling by re-moisturing the sheet
- The steam application can be compared with the "steam iron" procedure Steam condenses on the surface.
- The condensation process cause a heat and energy transfer to the paper with a temperature increase of 15-25°C
- A moisture film on the surface occurs
- Condensed moisture film stays on the sheet surface and re-moisturizes the surface layer



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Benefit and Results Dry End Application

- Smoothness improvement of up to 15-20 %
- Gloss improvement of up to 10-15 % on newsprint
- Reduction of two sideness
- Increase of printability
- CD Control 2-sigma (Gloss/Smoothness) improvement of up to 50 %
- Reduction of Calender nip loads
- Re-moisturizing of the paper per Position by 2-3 %
- Curl Control
- Surface improvement for coating an converting processes
- Smoothness, Gloss, Moisture and Curl Control by zones in CD direction

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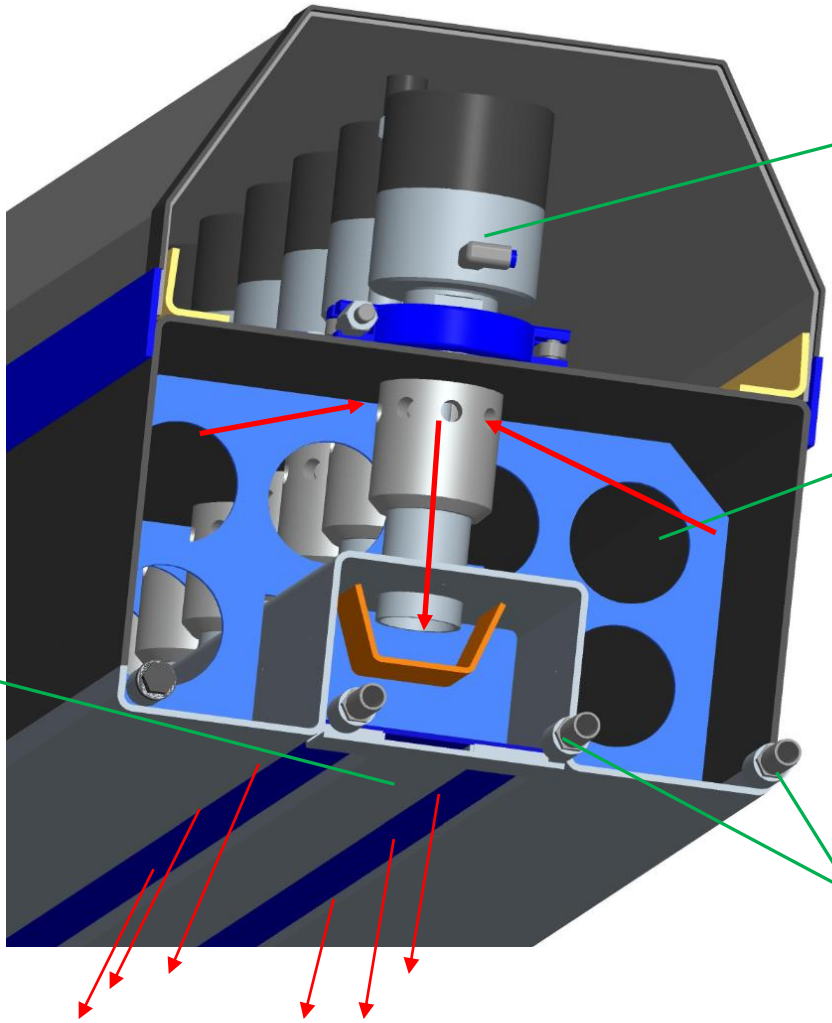
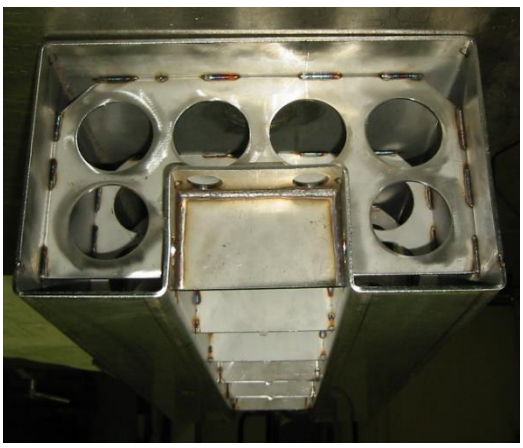
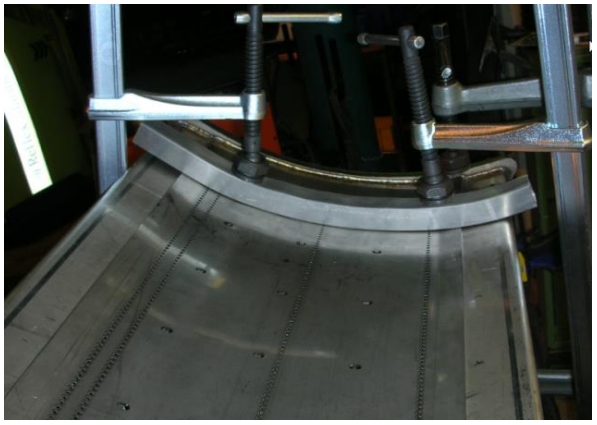
AccuSteam – Cross Section







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AccuSteam – System Overview

1. Steam shower (with suction hood as an option)
Zone control valves allow an individually controlled application of steam in cross machine direction (CD). A heated diffuser plate ensures non-dripping operation. The suction hood is heated to avoid waterdrops and is installed over the AccuSteam.

2. Steam supply
Contains pressure control loops, gate valves, strainers, condensate traps and safety valves for the heating of the equipment and the application of steam with the steamshowers. The AccuSteam units are connected to the steam supply with flexible hoses.

3. Control Station
Various options from complete PLC cabinet with independent Operator Station to integration into existing QCS/DCS-Systems. Various connections possibilities with most of the common link protocols available.
We also offer manual control systems for basic systems where no high integration is necessary.

4. Pneumatic Terminal
contains the connectors for instrument air tubes for the zone control valves

5. Suction Fan
The suction fan removes appearing vapour to avoid waterdrops. The flow can be controlled by four throttle valves installed at the collector pipe.

Try before you buy:
We are so confident of the production and commercial benefits or our AccuShower range that we now offer trial units to assess accurate quality improvement and ROI figures

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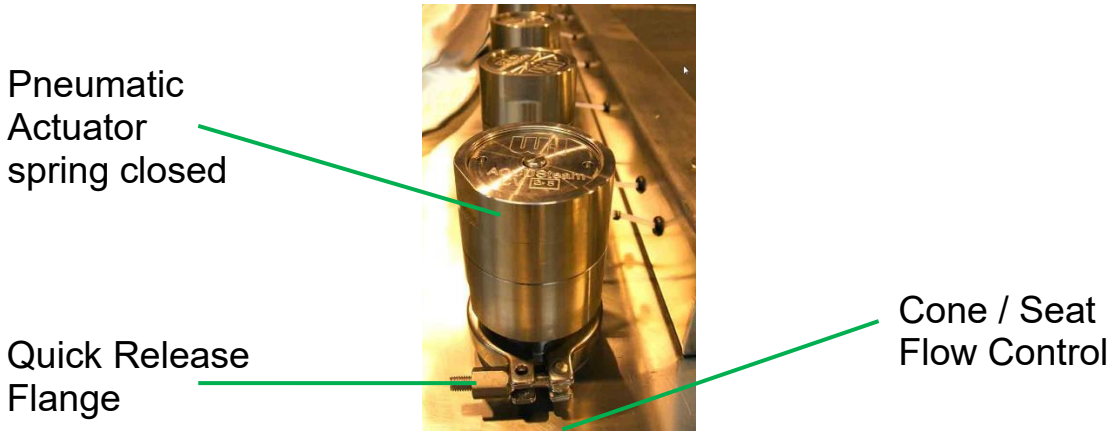
AccuSteam – System Components

Zone Control Valve

All Zone control valves are made out of stainless steel



Steam supply

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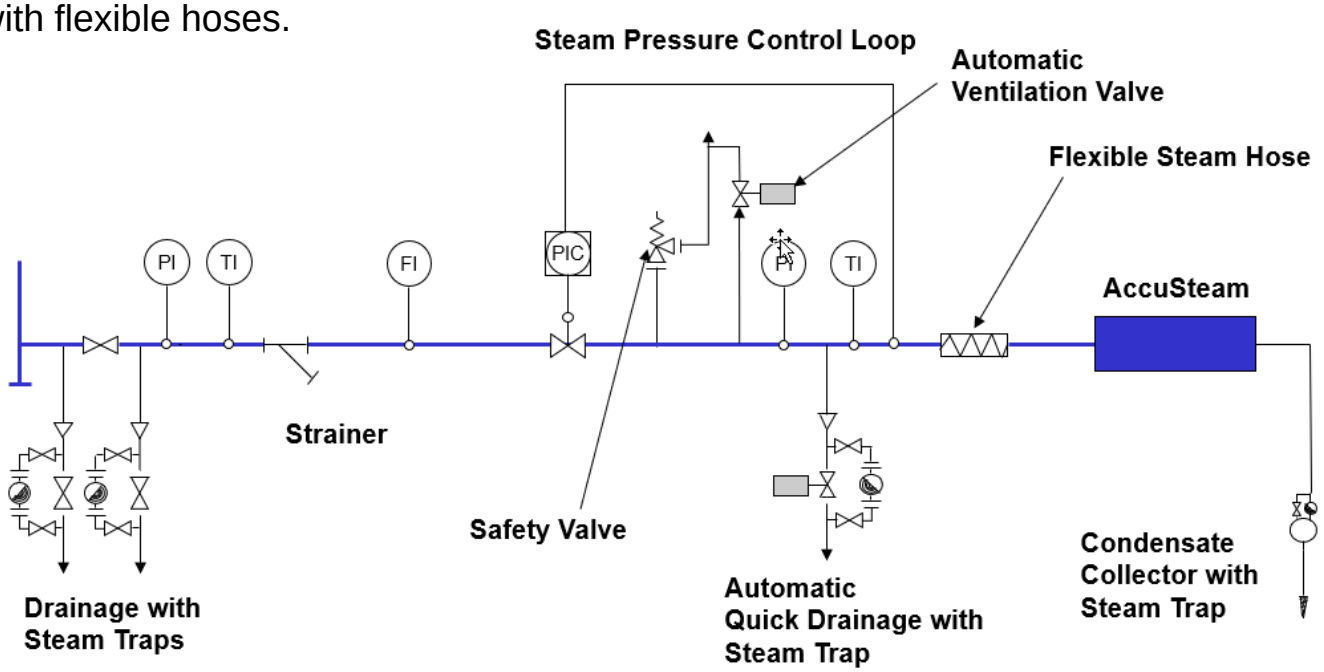

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AccuSteam - Control

The Woollard & Henry AccuSteam is controlled by W&H Control Cabinet containing all necessary Hard- and Software. We open to connect and implement our solutionin any existing QCS / DCS installation

Standard Rittal Cabinet
Divided in an electronic and pneumatic part

Left Side
Pneumatic parts

Right Side
Electronic Part
Siemens Hardware

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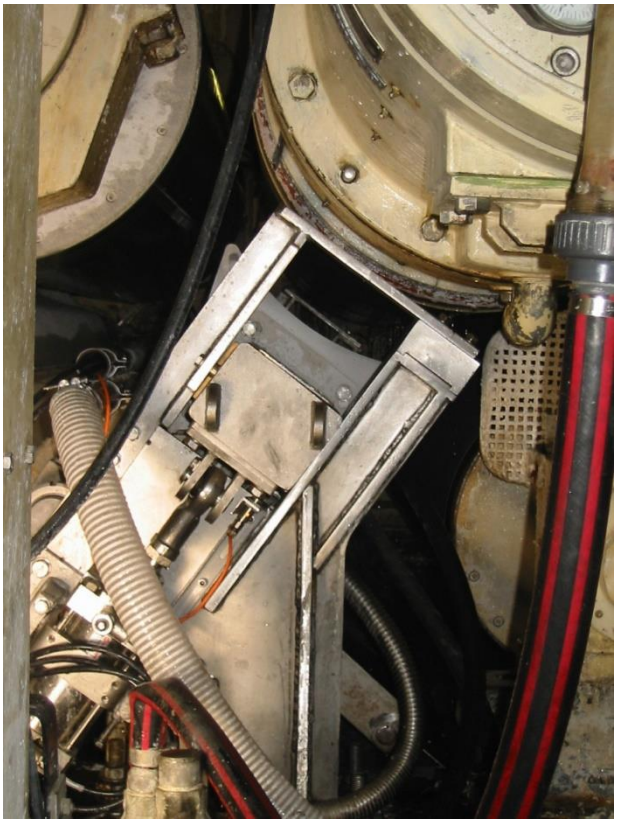
AccuSteam Press Installation



Installation Press Section 1st Nip

Production Data

Width: 2500 mm, 400 – 600 m/min , 50 – 100 g/m2 special Fine paper

Dryness increase of up to 1.5, speed up 8%

Steam consumption 0,06 – 0,08 kg steam / kg paper

Steam consumption of the whole production decrease

by 0,04 kg steam / kg paper

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AccuSteam Press Installation

Replacement of old ABB and VIB
Steambox in Press Sections
with reusing the Retraction unit
and Steam supply
Rebuild of Control cabinet

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AccuSteam Installation before Calender

Two Side AccuSteam
Production Data
Width: 2800 mm,
400 – 600 m/min ,
60– 85 g/m2 Decor paper
Smoothness
increase from 100
to 240 Bekk

AccuSteam inside
the Calender
Production Data
Width:3200 mm,
500 – 800 m/min ,
60– 85 g/m2 Decor paper
Smoothness
increase from 160
to 230 Bekk

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AccuSteam Installation Tissue Machine

AccuSteam

Retraction Unit

Production Data

Width: 2460 mm, up to 1000 m/min ,

20g/m2 Tissue

Installations before 1st Press under Yankee Cylinder

Dryness increase of up to 2.5 %, speed up 15 %

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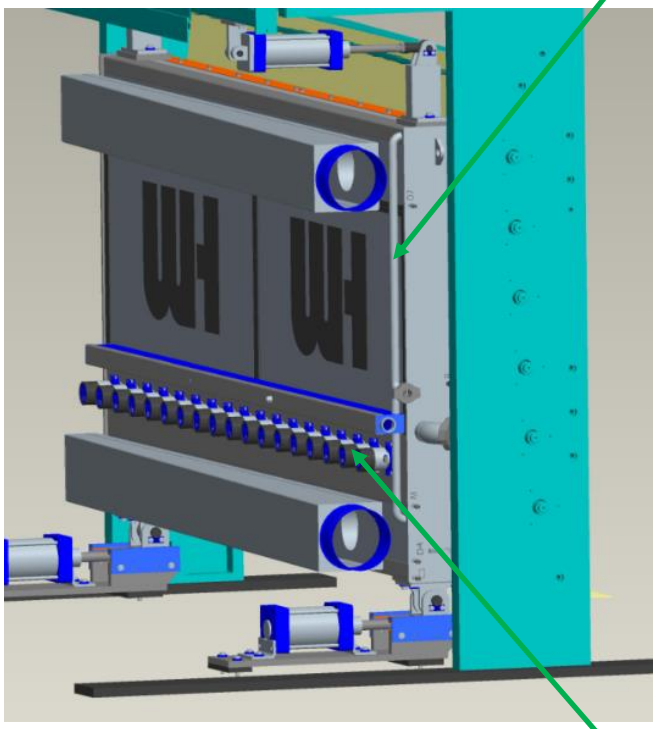
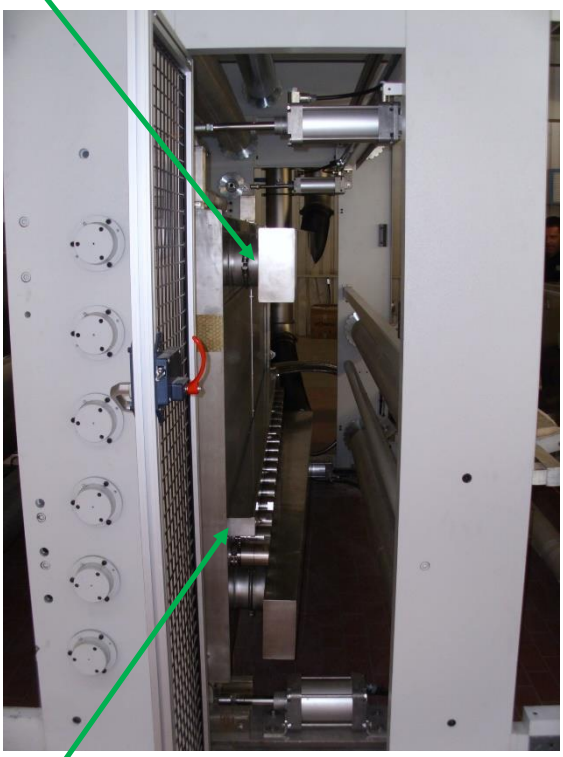
AccuSteam Converting Curl Control

Suction Unit
And Dwell
Zone





AccuSteam

2-3 % Moisture Increase
Minimize the Curl Effect after
Coating Process