How to Manage Clothing to Optimize Machine Performance

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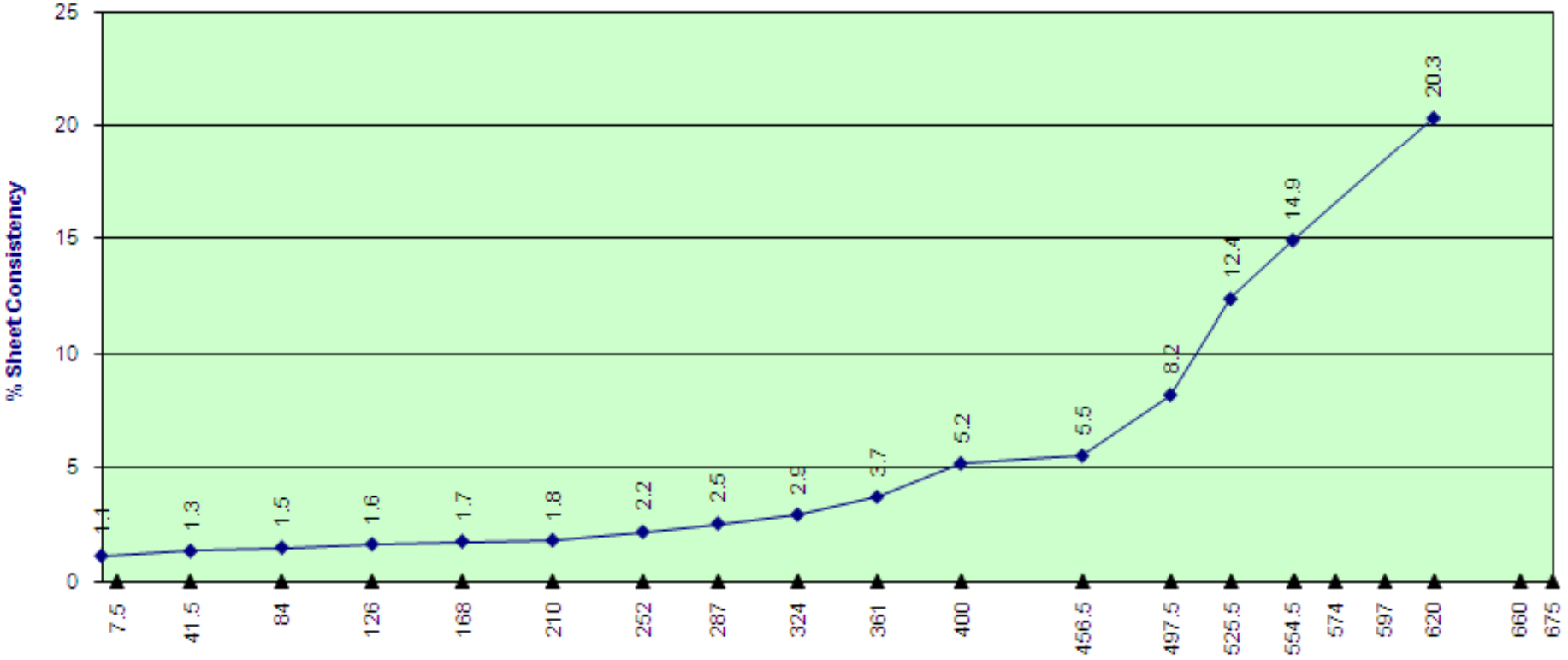
RETHINK PAPER:
Lean and Green

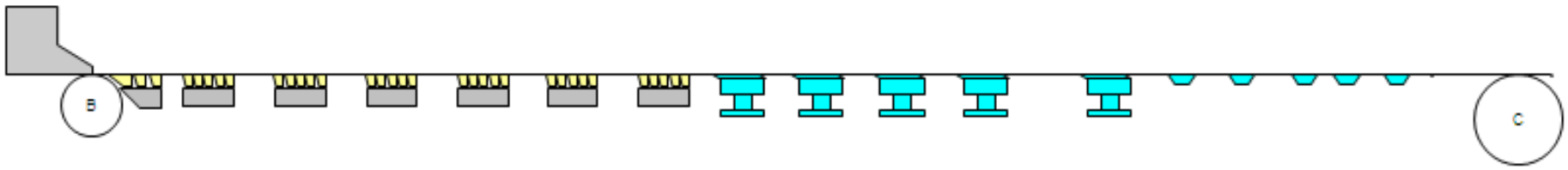
“How to Manage Clothing to Optimize Machine Performance”

Chose the fabrics that have been developed to optimize your machine.

- Forming- drainage profile for formation and off couch solids
- Pressing –void volume and void retention for solids, sheet handling and desired sheet properties throughout run cycle
- Dryer –sheet handling and contamination management to allow proper heat transfer throughout life of fabric.

Drainage Profile

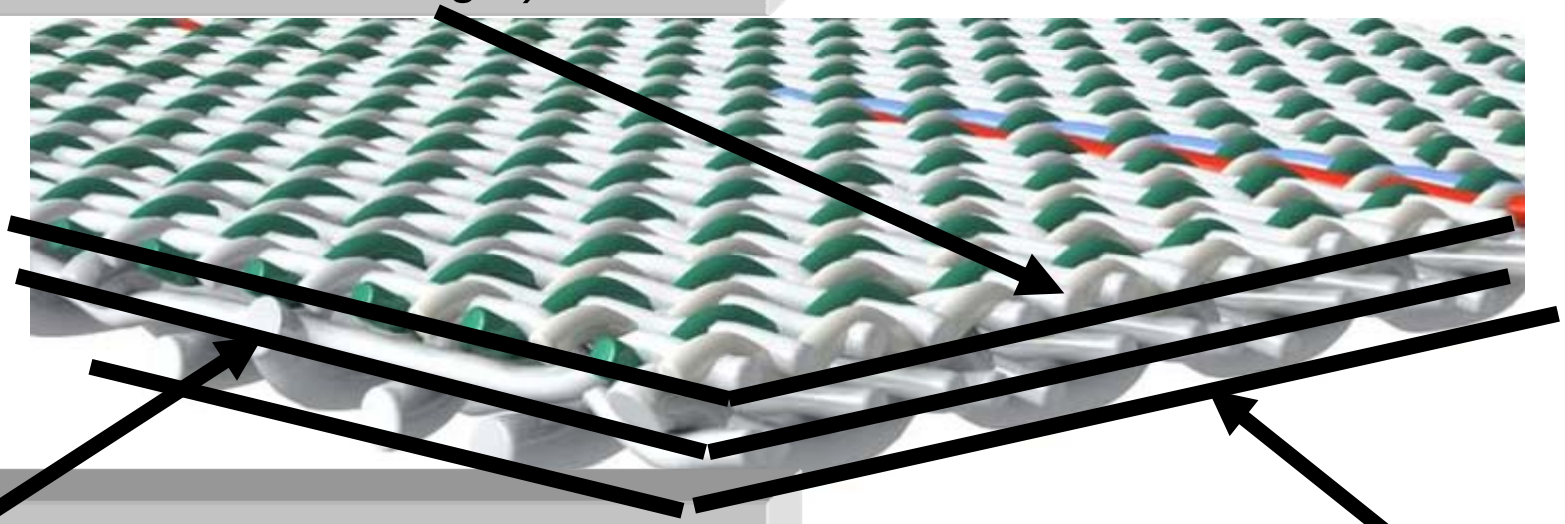




Top Surface Plane:

Designed to optimize sheet quality (% drainage area, Fiber Support Index, frame length)

EDPs (engineered drainage planes)



Center Plane: Engineered to control impingement pressures by having a Center Plane Resistance™ for Float Forming™ in which the required resistance to flow (back pressure) can be engineered to limit fiber embedment:

Bottom Surface plane:

Designed for stability and life potential while maintaining the desired openness

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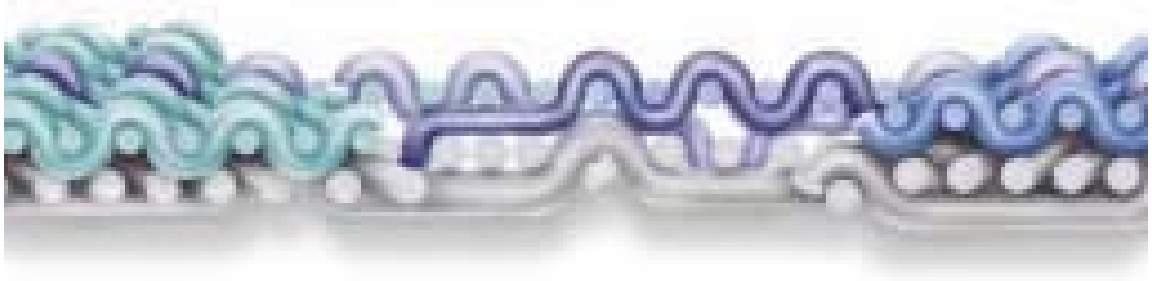
Concept 1: Fine Mesh SSB (100 X 100)

Established philosophy of increase FSI / support points produces a better draining sheet with superior properties.



Higher fiber support

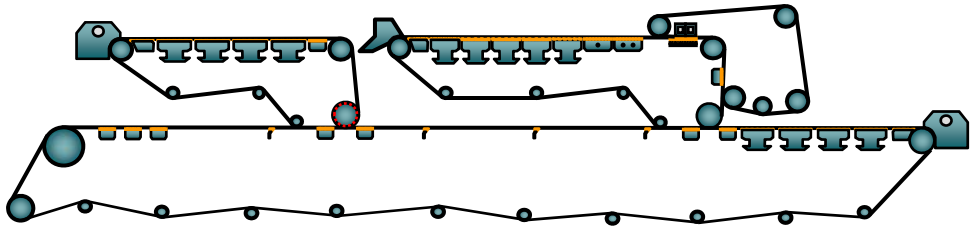
Higher mechanical retention of fines, fillers & fibers

Less retention aid usage

Improved formation & improved sheet quality and strength properties

The key to stability in ultra- fine mesh structures is the use of an "Engineered Polymer"
25% Increase in Filament Elastic Modulus compared to standard Polyester !!!

Case Study
Bleached Board

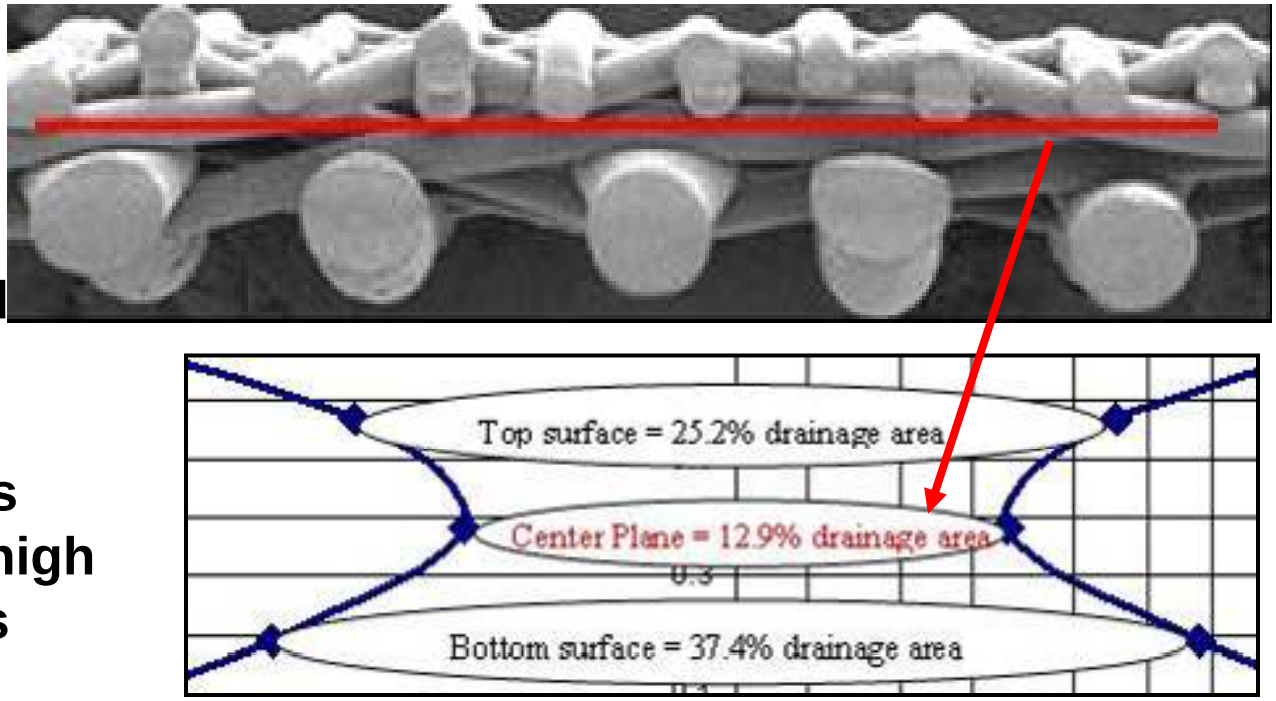


- CenTec was used to replace a high CD count SSB (146x180) on the base position
- Results:
  - 50% decrease in Retention Aid usage!
  - .5 to 1 Parker Print Smoothness improvement!
  - 15 pt Sheffield Smoothness improvement!
  - The machine is running cleaner!
  - Creates the opportunity to reduce coating usage which would save between $250K and $500K a year!

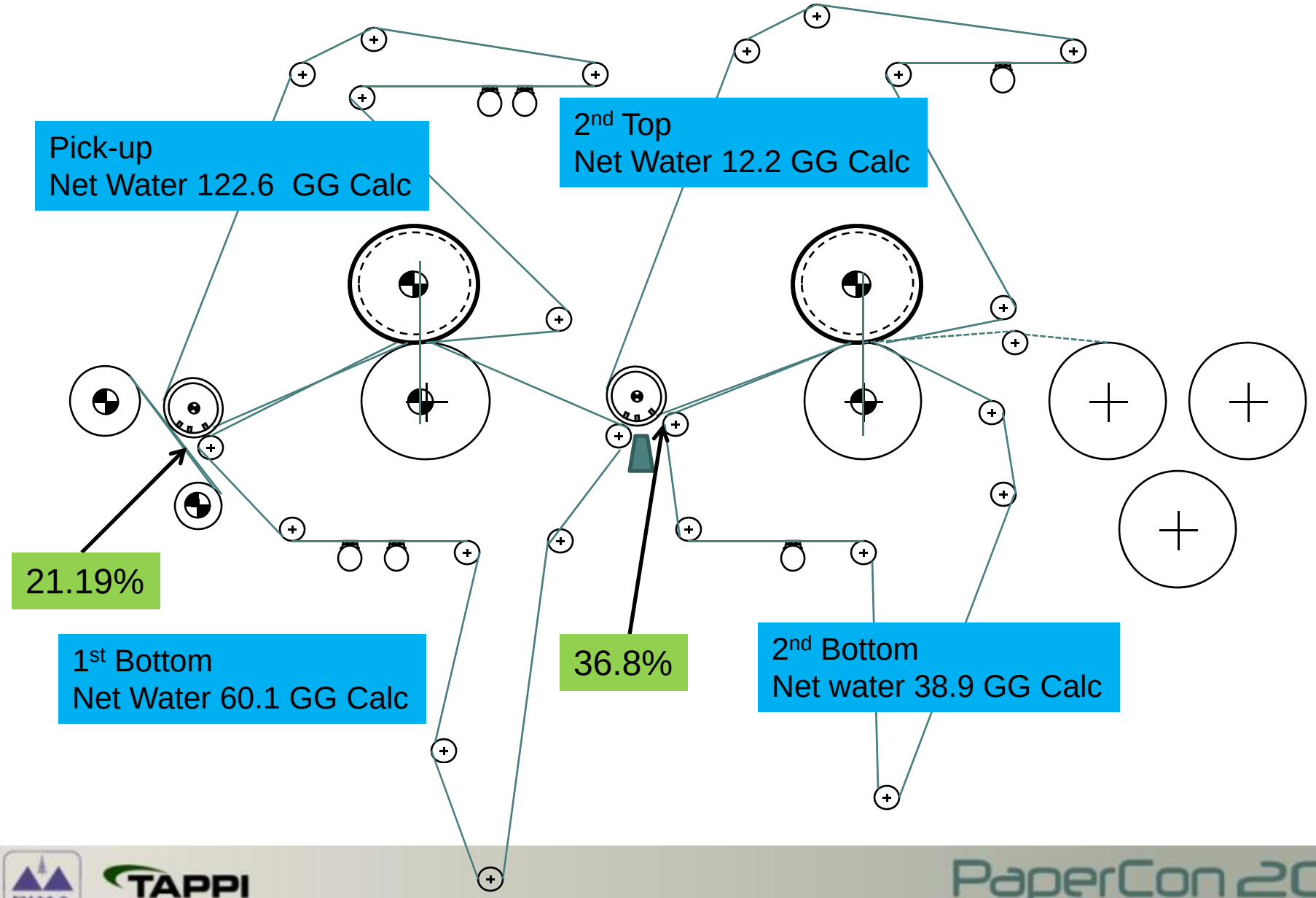
Concept 2 - Warp Integrated Triple Layer **with CPR(center plan resistance)**

- The machine direction tied forming fabric structure is constructed by integrating all the warp yarns into both the top and bottom surfaces.

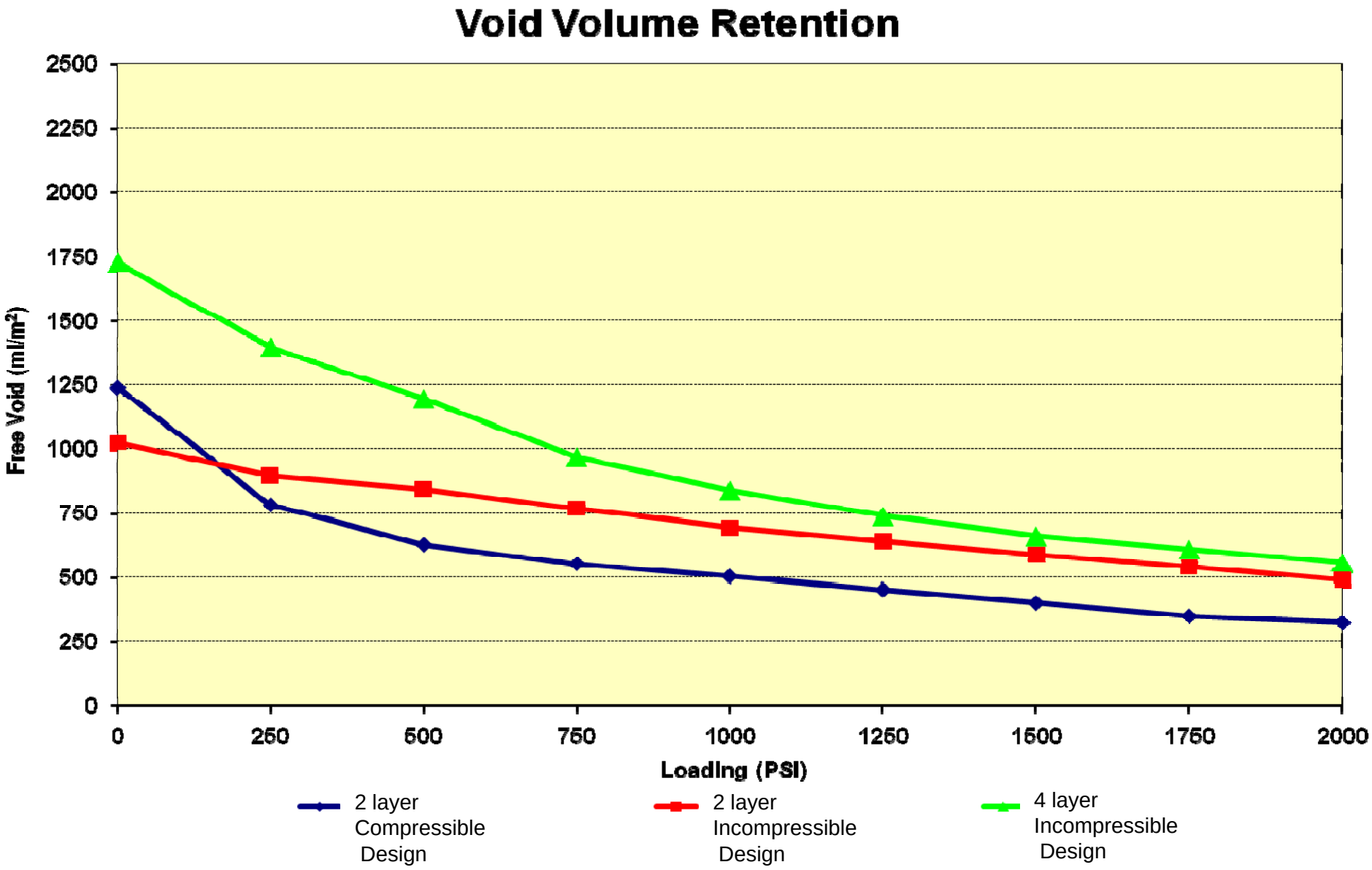
The design benefit is that a center plane can be "engineered" to provide a controlled resistance to the very high impingement velocities and volumes found on the modern high speed paper machines (Float Forming™).



Press Water Balance



Void Volume Under Load

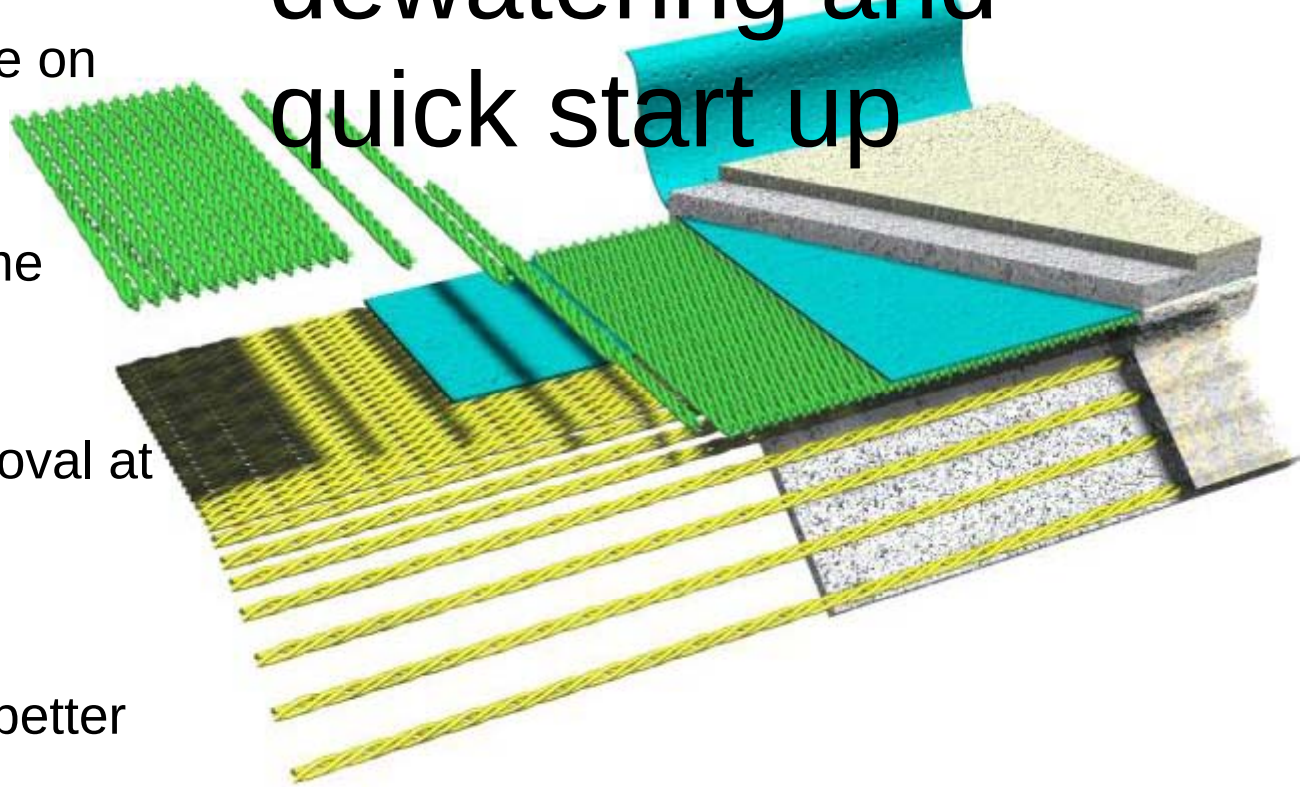


Non-Woven Technology: Non Woven bases

Non-woven yarn array allows higher mesh counts and lower compressed void

- Reduces dependence on vacuum
  - Energy savings
- Reduces Break-in time
  - Energy or increased productivity
- Facilitates water removal at nip
  - Energy or increased productivity
- High mesh provides better sheet support
  - Printability/Bulk

Thin for nip dewatering and quick start up



Press Felts
Laminated Single Seam High Void Fabric

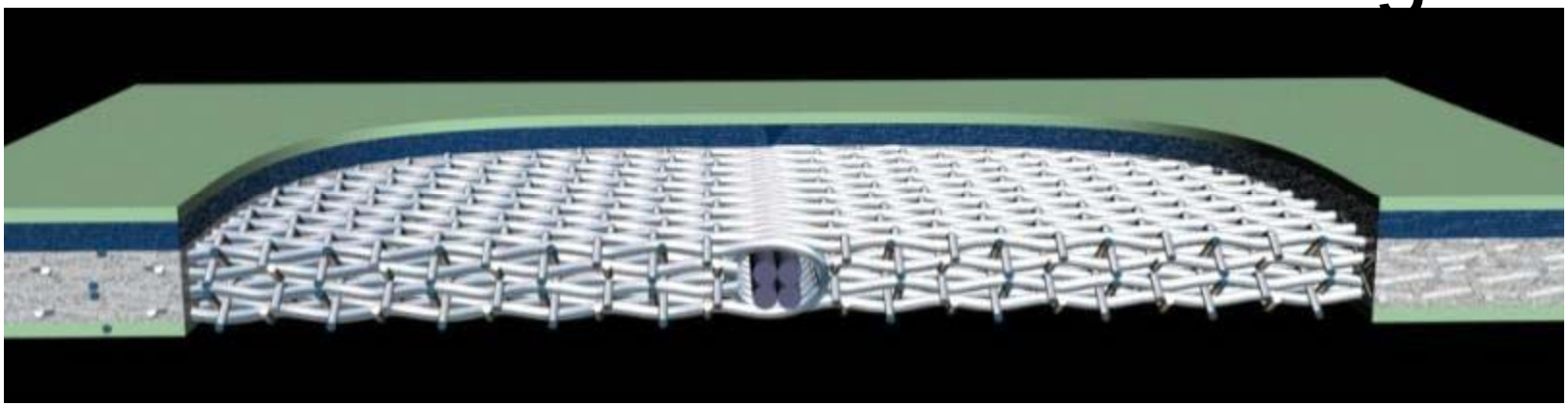
- Increased water removal
  - Reduced steam consumption
- Improved seam durability
  - Reduced seam mark
- Increased smoothness

Save Energy

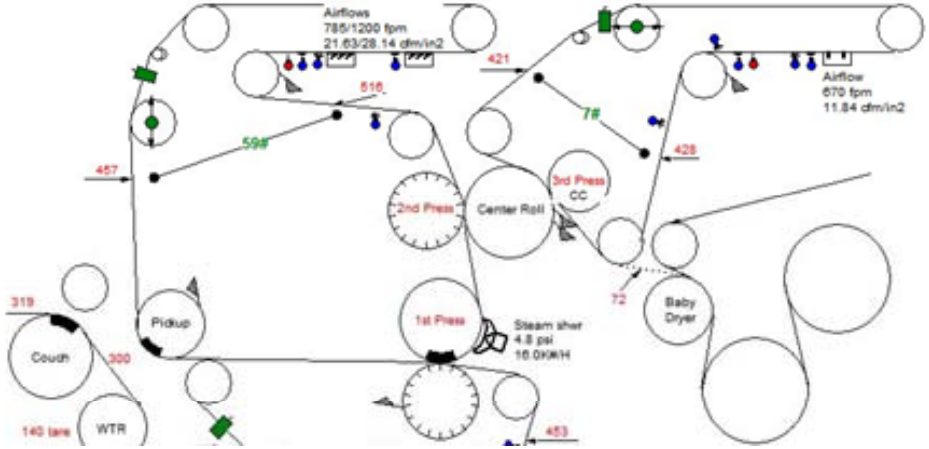
Increase Life

Improve Sheet Properties

Thick for maximum uhle dewatering and long life

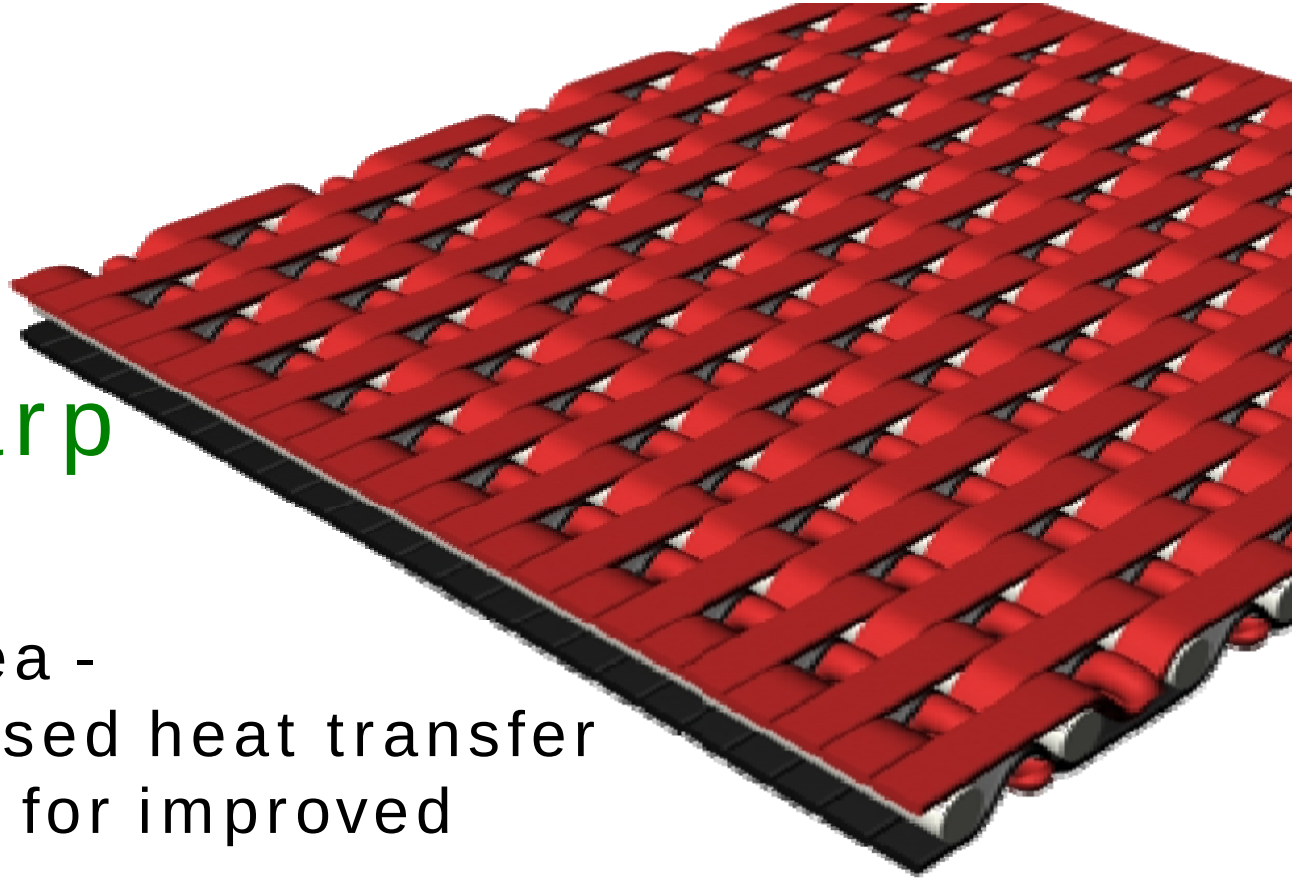


AccuFlow™ Case study

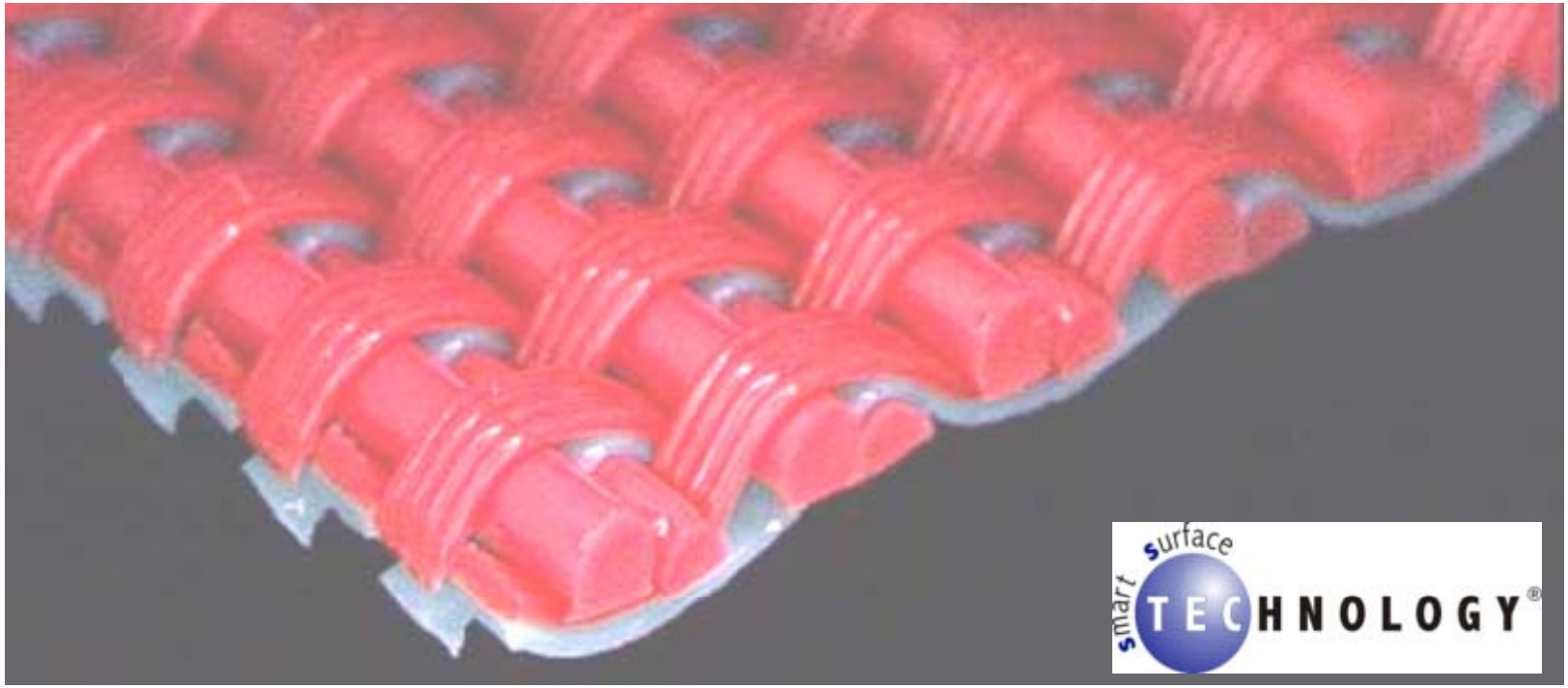


Position:	Pickup and 1st Bottom	Grade:	Linerboard- (23-42#)
Speed:	2500 fpm		
Trial Objective:	Improve drying, reduce filling, eliminate center/return roll build –up		
Current Product:	Pickup: competitive 3 layer seamed- 1st Bottom: competitive 2 layer seamed		
Install Date:	6/30/2010	Life:	63 days
Comments:	-Set 4 new all time production records- 2 monthly, 2 daily -Uhle box vacuums remain low, even with broken HPS on PU -No center roll picking and reduced build-up on outside return roll -Reduced filling on 1st Unirun dryer felt		

Dryer Felts- Flat Yarn Stacked Warp Platform



- High contact area - providing increased heat transfer
- Low air carrying for improved sheet control
- Increased abrasion resistance for longer life
- Two layer MD construction provides resistance to damage



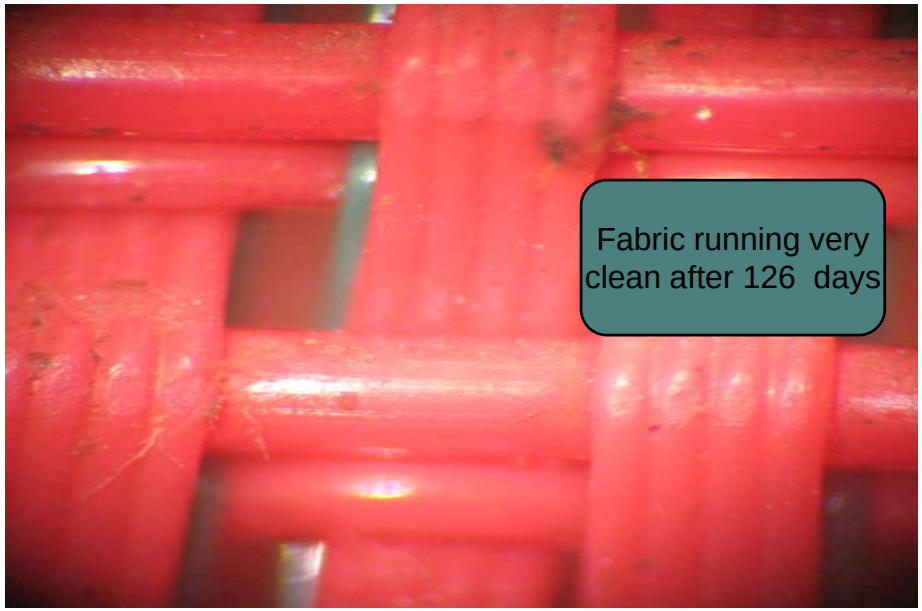
- Smart surface technology designed with a structured fabric surface for ideal contamination management through longitudinal grooves and a high number of small contact points
- 25% higher number of contact points
- Very easy to clean
- Maintains 2 separate warp systems for improved security
- Low caliper … 0.061” (1.55 mm)
- Perm offering 100-350 cfm

Trial Success!

Position: 2nd Bottom

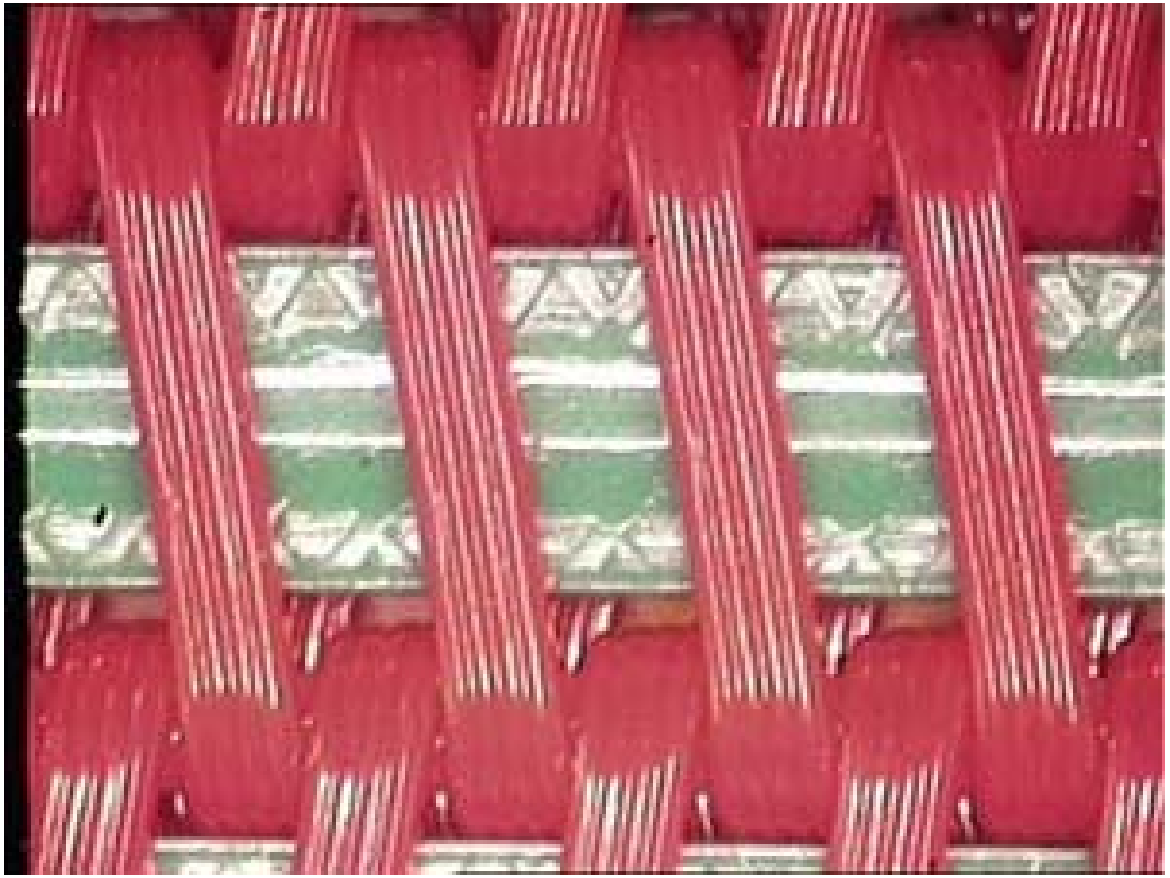
Grade: Coated Free

Speed: 2,500 ft/min



The Story:

This is a contamination prone position where the sheet develops dull spots requiring a shut down to wash the fabric to remove .5mm size particulates that cause the spots. After a 379 day run, the permeability was virtually the same as new and the CleanTec had **no particulate build up**, **no issue with dull spots**, and **cleaning frequency was reduced**.



- Structured surface for improved contamination management
- Excellent Abrasion Resistance
- Excellent Edge Wear Resistance
- No Seam or Weaveback Area to wear or mark
- Ability to repair (remove) damaged areas
- Low permeability for single tier positions -110 CFM and higher

So How Do You Manage Clothing to Optimize Machine Performance

- Understand your goals for a particular section
- Understand the design characteristics
- Understand the design benefits

- Clothing suppliers have developed products with optimizing your machine in mind. Work together to chose the correct designs.

THANK YOU