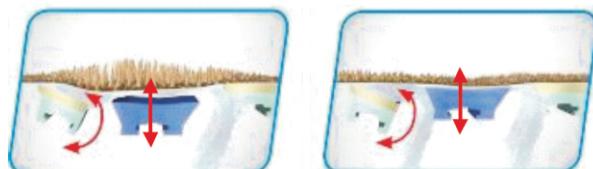




iTABLE® –SYSTEM SOLUTIONS by IBS PPG

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The simplest definition of intelligence is “to understand.” For your benefit we at IBS have made a significant investment in brainpower and research to improve our understanding of how the headbox and fourdrinier table work together to affect paper properties such as formation and strength. It is this understanding that has led to several recent successful table rebuilds and the development of our new iTABLE® fourdrinier forming technology.

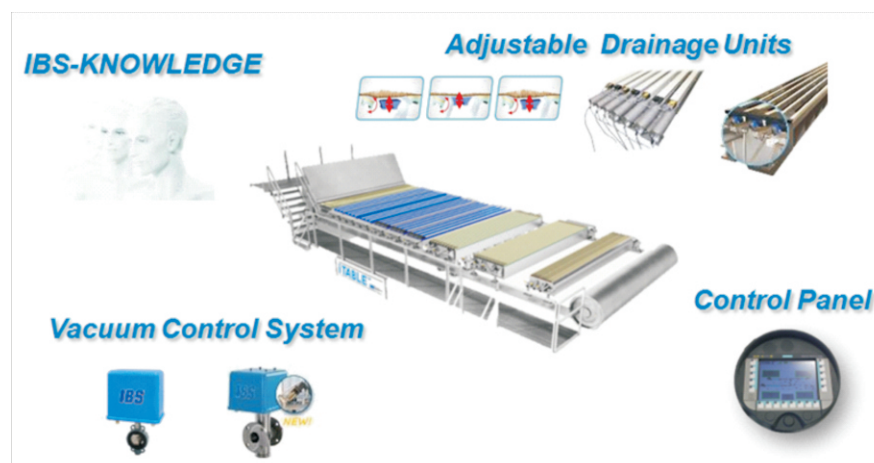


High frequency design produces fine microturbulence for the highest levels of localized shear.

iTABLE®–Control of Drainage and Stock Activity During the Entire Sheet Forming Process. The iTABLE® is the first completely adjustable fourdrinier sheet forming zone. Unlike conventional systems, it provides control of drainage and stock activity from the headbox all the way to the end of the sheet forming zone where fiber mobility ceases. Drainage and stock activity control is accomplished through adjustable angle and height foil blades that dewater through gravity and applied vacuum. The foil blade spacing and design is such that extremely high pulse frequencies are achieved. This results in very fine microturbulence for the highest levels of shear and fiber mobility during the sheet forming process.

iTABLE® system concept

The iTABLE® concept is not only hardware, it is a bundling of experienced papermaker-knowledge and IBS components to an innovative SYSTEM.

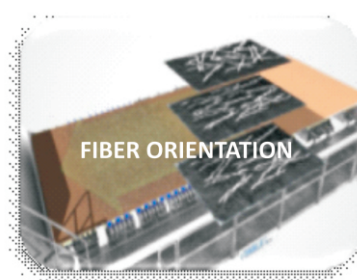
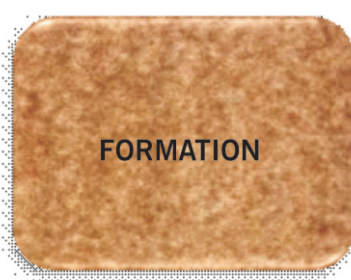


iTABLE® allows the Optimization and Control of :

Drainage Lower Headbox Consistencies, Increased Refining Capacity, Better Formation, Lower MD/CD Tensile Ratios, Reduced Sheet Sealing, Reduced Crushing in Press

Formation More Uniform Sheet, Better Retention, Better CD Profiles, Denser Sheet, Improved drying efficiency, Improved Smoothness

Fiber Orientation Higher MD/CD Tensile, Lower MD/CD Tensile, Increased SCT/ RCT, Increased Burst, Increased Concora (CMT)



Project approach for **iTABLE®** :

1. Mill submits preliminary machine datas and objectives - (to determine project potential)
2. IBS Engineering study - incl. analysis of dewatering, formation, vacuum, etc.
3. IBS Proposal - incl. technological and commercial offer, Performance guarantee, ROI calculation,
4. Installation and Optimization

iTABLE® – On-site Optimization and Easy Adjustment Create the Recipes for Success

After start-up, our experts will work with your operators to find the optimal headbox and iTABLE settings for each basis weight. From here, standard Grade Recipes are generated to simplify operator adjustments. Operators are required to make only three adjustments to the iTABLE, foil angle, foil height and vacuum level. Complete adjustment takes approximately 5 minutes due to our high speed adjustment mechanism. However, fully automatic adjustment through the DCS is available (iTABLE Auto). With this system, the desired grade is selected and the iTABLE automatically adjusts within seconds.

Proven results:

- Paper formation: 10 to 15%
- Basis weight reduction: 1 to 5%
- PM Speed increase: 5 to 10%
- Paper strength improvement: 5 to 15%
- Chemical costs savings: 5 to 10 €/ton
- Steam reduction: 3 to 5%

Paper Grade	Machine Operation			Paper Properties					
	Drainage	Fiber Usage	Machine Speed	Formation	Printability	Ring Crush	Mullen	Concora	STFI
Linerboard	↑↑↑	↓↑↓	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑		↑↑↑
Corrugating Medium	↑↑↑	↓↑	↑↑↑	↑↑↑		↑↑↑		↑↑↑	↑↑↑
Bleached Board	↑↑↑	↓	↑↑	↑↑↑	↑↑↑				
Fine Paper	↑↑↑	↓	↑	↑↑↑	↑↑		↑↑		

iTABLE® References:

Status October 2016: 73 worldwide iTable installations

e.g. 29 on US Market; 24 on European Market; 8 on Asian Market

Some of the success story:

1-Layer Fourdrinier, Suprakraft :

The main goal of the rebuild was a saving of minimum 8% expensive long fibers (HWP) at steady strength values. After commissioning and several optimization steps, a final warranty run in February 2015 was successfully completed. The by the customer required and in a contract fixed savings of long fibers was achieved with the iTABLE concept.

3-Layer Fourdrinier, Linerboard :

The mill recently rebuilt Paper Machine 12 with the iTABLE technology. This resulted in up to 16% increase in Burst index and increase of other paper strength properties like formation (up to 30%), RCT (up to 20%) and folding endurance (up to 50%). Additionally the machine runability and an average speed increase of 3% were reached.

2-Layer Fourdrinier, Testliner :

Target at this iTABLE rebuilt 2015 was to improve the SCT in cross machine direction. The used furnish at PM1 is 100% OCC. The required guarantees were a 6% improvement of the SCT value by keeping other paper strength properties. The guarantees were reached and accepted by the customer after 2 optimization weeks.

1-Layer Fourdrinier, Linerboard :

Linerboard Mill recently rebuilt Paper Machine 1 with the iTable technology. This resulted in a 5.3% reduction in basis weight, this means 5.3% savings of fiber-costs (with same or better paper properties), 5.7% increase in machine speed and 18.7% increase in CD SCT on their 170g/m² High Performance Linerboard Grade.

Immediately following this successful start-up, the mill awarded the rebuild of their Paper Machine 2 to IBS. This machine produces both Linerboard and Corrugating Medium