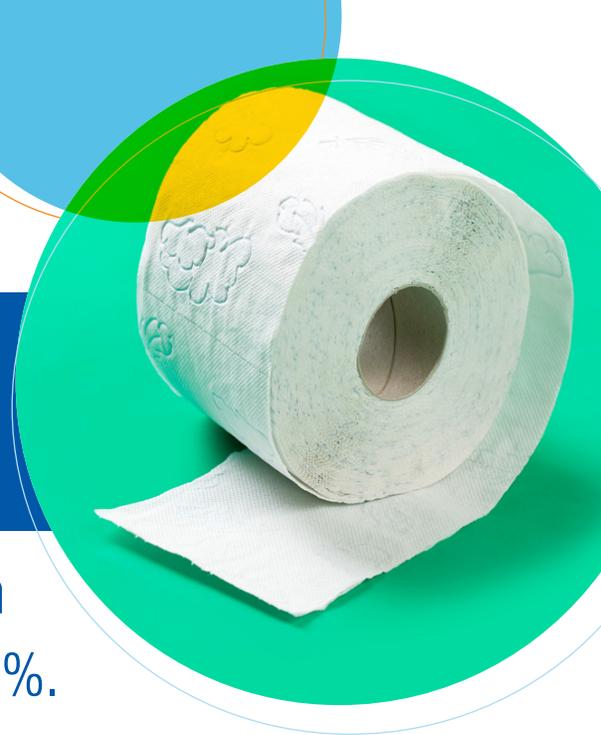




TISSUE AND TOWEL

Tissue and Towel Laminating



Optimize your laminating application with potential OEE improvements of nearly 20%.

Challenges with the laminating application – such as poor bonds, wrap-ups, build-up, difficulties in troubleshooting, and the inability to obtain desired speeds – can negatively impact overall equipment effectiveness (OEE).

H.B. Fuller laminating adhesives are specifically designed to meet the challenges of today's tissue and towel converting applications. Our robust solutions work on conventional and structured sheets, even with a low percentage of emboss pattern. We have successfully delivered improvements on the key criteria of OEE: availability, performance, and quality. This has been achieved by enabling higher speeds, improving bond performance, and reducing unscheduled downtime.

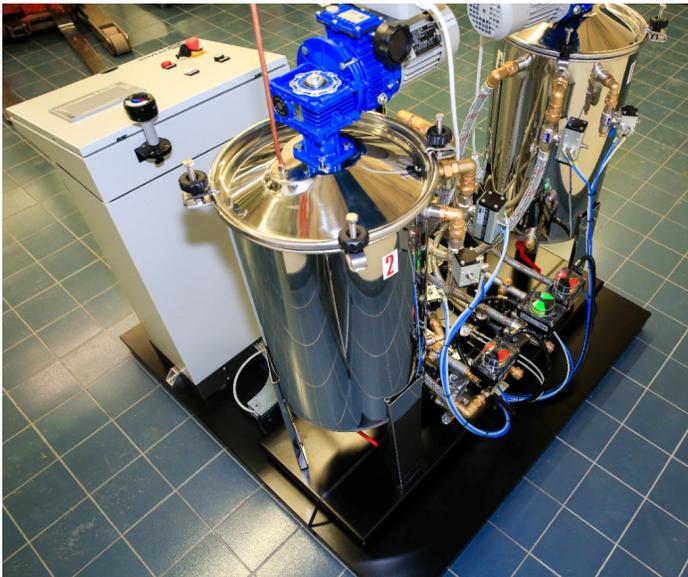
Another solution benefit is the ability to set up the laminating deck in a more “machine-friendly” way, which promotes longer roller life, a greater degree of adjustability, less build-up, and fewer wrap-ups. Often these benefits can be achieved with lower applied solids for a cost-in-use savings. We also offer our solutions with a UV indicator for more effective setup and troubleshooting. Lastly, further consistency and productivity are possible when coupled with our Auto-Dilution System (ADS). This system will continuously and automatically make-down adhesive and can be tied into the run tank level control on the rewinder. It even has the ability to incorporate a third component, like ink, which addresses a number of issues associated with that process.

Features	Benefits
Our laminating adhesive solutions are available in ready-to-run and concentrated versions.	Allows for a more user-friendly laminating deck setup which promotes longer roller life, a greater degree of adjustability, less build-up, and fewer wrap-ups, yielding higher OEE.
Our laminating solutions are available in UV and non-UV versions.	Increased line speeds, over 20% increases have been achieved.
The ADS is available with the option to incorporate a third component, like dye.	Lower applied solids and application rates will generate a cost savings.
The ADS has the capability to supply multiple lines.	Works with all substrates and equipment.
The ADS has options for an Allen-Bradley control/HMI and a high capacity pump.	The ADS has a high degree of accuracy and consistency to aid in increased productivity/OEE.

Product Name	Solids	Highlights
TT3005	3-15%	High performance product for almost every tissue and towel application. Available in Ready-to-Run, 13%, 15% solids, as well as UV versions.
TT3031	14%	Designed for extreme dust conditions where buildup issues are a concern.
TT3008	8%	Ultimate bond performance. Designed as a Ready-to-Run and can also be diluted. UV version is available.

AUTO-DILUTION SYSTEM

The ADS has a high degree of accuracy and consistency, to aid in higher productivity/OEE. The automated process delivers a continual supply of diluted adhesive, up to 480 kgs per hour, freeing up operator time. Plus, the diluted adhesive is constantly agitated in the tank, so there is no need to worry about the risk of separation. The system can store up to six preset dilution levels, based on the solid content of the adhesive. The system utilizes four weighing scales under each plate to ensure consistency.



ABOUT H.B. FULLER

Since 1887, H.B. Fuller has been a leading global adhesives provider focusing on perfecting adhesives, sealants and other specialty chemical products to improve products and lives. With fiscal 2018 net revenue of over \$3 billion, H.B. Fuller's commitment to innovation brings together people, products and processes that answer and solve some of the world's biggest challenges. Our reliable, responsive service creates lasting, rewarding connections with customers in electronics, disposable hygiene, medical, transportation, aerospace, clean energy, packaging, construction, woodworking, general industries and other consumer businesses. And, our promise to our people connects them with opportunities to innovate and thrive. For more information, visit us at hbfuller.com.



For more information about our company, visit www.hbfuller.com.

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IMPORTANT: The information contained herein is believed to be correct to the best of our knowledge. However the recommendations and suggestions herein are made without guarantee or representation as to results. It is the purchaser's responsibility to test and determine the suitability of the product for the purchaser's intended use and purpose. Purchaser assumes all risk and liability whatsoever regarding such suitability. Any product samples provided for testing are provided in accordance with standard limited warranties as stated on our technical data sheets.

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OEE Improvement Per Line
Towel Laminating Example*
Highlights of Key Benefit Areas

	Units	Competition	H.B. Fuller	Savings and Gains
Adhesive usage				
Targeted solids in use		5.5	5	
Percent mileage advantage by H.B. Fuller	%		9.09%	
Pounds of adhesive purchased per line	lbs	300,000	272,727	
Annual adhesive spend per line	\$	\$117,000	\$106,364	
Annual adhesive savings per line by H.B. Fuller				\$10,636
Downtime				
Downtime	hours/week	1.75	1	
Percent Reduction in Downtime per line	%		42.9%	
Downtime cost per hour	\$/hr	\$2,500	\$2,500	
Annual downtime cost per line	\$	\$227,500	\$130,000	
Annual downtime cost reduction per line by H.B. Fuller				\$97,500
Line Speed improvements				
Line speed	ft/min	1550	1900	
Percent Improvement in line speed by H.B. Fuller	%		22.58%	
Net production increase in cases per day per line				3000

- Speed increase yielding 3000+ extra cases/day
- OEE increase was ~20%

*Results may vary