

Advantage™ NTT® Technology

The new standard in premium quality tissue making



Designed for maximum flexibility

Valmet's revolutionary Advantage NTT technology offers high tissue bulk and softness properties while at the same time providing additional energy savings when compared with conventional or structured tissue grades. The high bulk can also mean significant fiber savings.

Main features



FLEXIBILITY

The Advantage NTT technology allows for unlimited possibilities for product variations. Fast changes from plain to textured tissue are possible for highest production flexibility.



QUALITY

Tissue producers can expect premium paper quality
Low basis weight and high bulk with proven high level of softness



SAVINGS

High capacity and efficiency can result in significant savings
in energy and fiber



The best of both worlds

The NTT machine can operate in two different modes: textured mode producing high bulk and high quality tissue, and plain mode making similar products as conventional machines but at lower energy consumption. Quick changeover of the NTT machine is important for tissue producers building a market for high-bulk products as well as for those producing conventional tissue in a very energy-efficient way. The process is ideal for making bath tissue, facial and hand tissues, and kitchen towels. A high production rate of 1800 m/min for textured products and 2000 m/min for conventional products can be achieved.

High-quality products

Advantage NTT technology need not involve calendaring. The increased softness can be achieved by the higher contact area against the Yankee dryer, and it is possible to design the belt having a contact area in the range 40-70%. The higher contact area improves tissue softness as the surface area is exposed to more creping. Numerous panel and Emtech softness analyzer tests have proved that this production line gives a high level of softness.

reduce weight
of finished roll

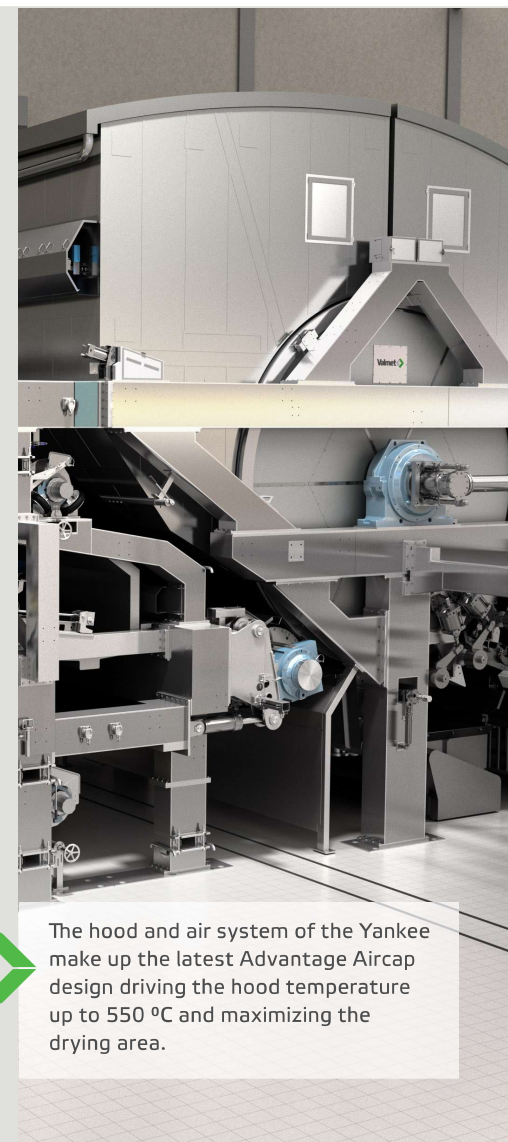
production rate
of 2000 m/min

high level of
softness

The textured mode produces a high stretch, which is a good indicator that the crepe process is working well. High stretch also indicates high softness due to reduced stiffness/ increased drape of the sheet.

Fiber savings in a better product

With the NTT process it is possible to reduce the weight of the finished roll. The 50-80% increased bulk in base sheet makes it possible to maintain the roll diameter and roll firmness, but to have lower sheet count in the roll. The roll weight can thus be reduced by 20-25%. Furthermore, the high bulk can also be used to improve surface softness by calendaring if required, making this feature ideal for the best quality toilet and facial tissue. make up the production line, and our desire to recycle materials and reduce operational costs.



The hood and air system of the Yankee make up the latest Advantage Aircap design driving the hood temperature up to 550 °C and maximizing the drying area.



The NTT production line can be supplied in different machine widths from 2.8 m (NTT 100) up to 5.5 m (NTT 200).

There is no mechanical limitation for supplying wider machines. In the NTT textured mode the estimated maximum machine speed is 1800 m/min. In the conventional mode it is possible to run faster and the machine is designed for 2000 m/min.

The NTT conventional mode will have the highest production capacity of 245 t/day at 100% machine efficiency of 22 g/m² toilet tissue.

Greater production optimization

Valmet can make further contributions to production optimization because we take the complete mill design into account, from raw material intake to reeled product. We have made processing a closed loop where water derived from tissue sheets is returned to stock preparation; where all components are dimensioned to minimize the use of energy and water. Such optimization results from our long experience with the tissue making process, our knowledge on the performance

of independent units that make up the production line, and our desire to recycle materials and reduce operational costs.

Our application expertise is complemented with personnel with a high degree of proficiency in their respective fields who are strongly committed to driving success. They make a difference by being totally engaged in improving all aspects of tissue making and striving to satisfy the individual needs of tissue manufacturers worldwide.

Lower operating costs

When comparing total operating costs in different tissue making machines, Advantage NTT technology is a true winner. In both textured and plain modes, this Valmet technology achieves lower energy consumption, and it enables tissue makers to introduce new high-quality products manufactured in a very cost- and energy-efficient way.

lower energy
consumption

committed to
driving success

High flexibility to meet market demand

The compact NTT tissue machine sections impart the unique qualities on either plain or textured tissue, and increase your machine speed and production capacity

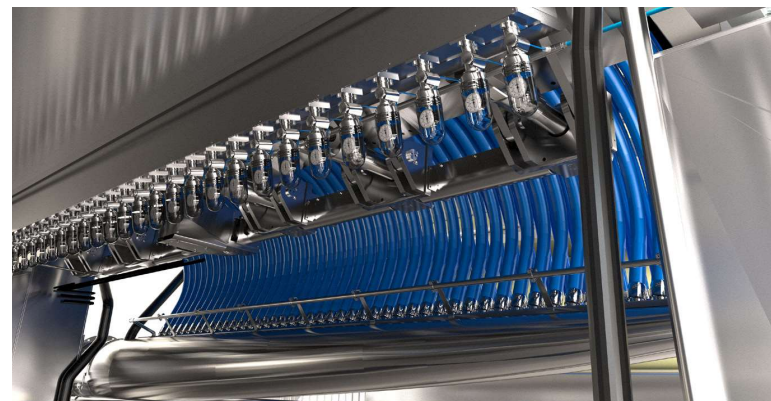
The Advantage NTT technology process is using state-of-the-art and proven machine technology combined with the latest belt technology for paper machine clothing. With the flexibility of belt pattern, the tissue producer now has the possibility of developing new products to meet the constantly changing needs of the market.

Forming section

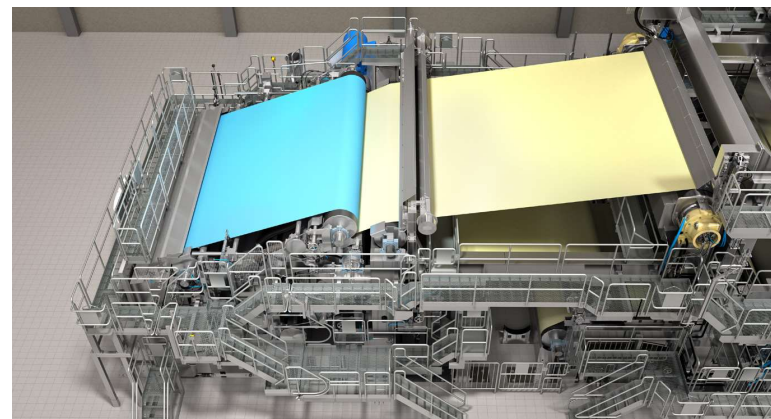
Is in principle an Upside down Crescent former, where the forming is between a felt and a wire, with all the known benefits from this technology, including a sheet with excellent formation from low basis weight products like facial to high basis weight towel. The forming section has only 4 rolls and its water-handling system is of the latest high-velocity design with reduced size of the save-all tray and overall forming section.

The 2-layer OptiFlo II TIS headbox provides the best formation and sheet softness. Its turbulence generator is of the latest hydraulic design and high flow velocities in the nozzle avoid chemical build up. The headbox can be supplied with a dilution system that reduces CD basis weight variations by almost 50%.

[Learn more about the OptiFlo II TIS Headbox](#)



One of the most critical components on a tissue machine is the headbox. A properly functioning headbox enhances tissue makers' ability to produce various tissue grades at the desired level of quality.



The purpose of the tissue machine forming section is to distribute the stock evenly along the entire width of the tissue machine into the gap between the wire and the felt.

> The press section

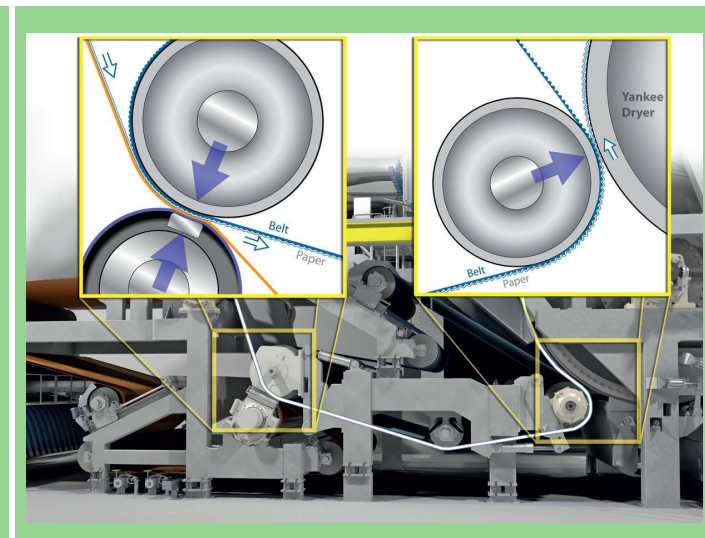
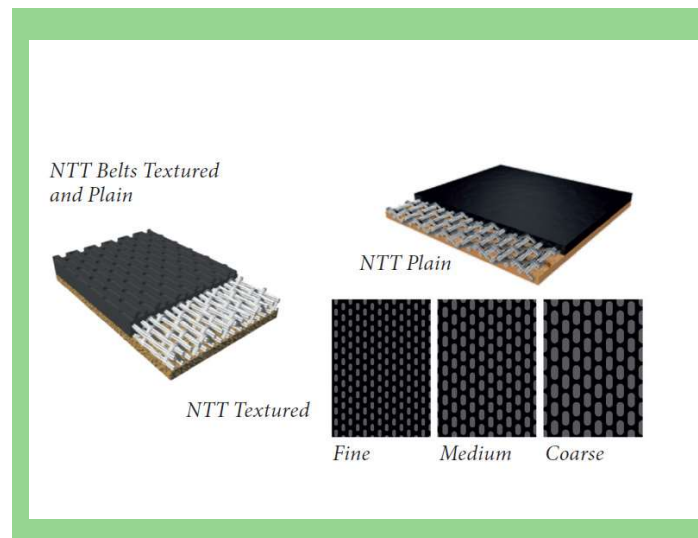
Positioned as a separate unit prior to the Yankee dryer the press section consists of 2 loops, the felt loop and the NTT belt loop. The felt runs through a shoe press nip transferring the sheet to the NTT belt. Simultaneously it acts as press felt receiving the water pressed out from the sheet.

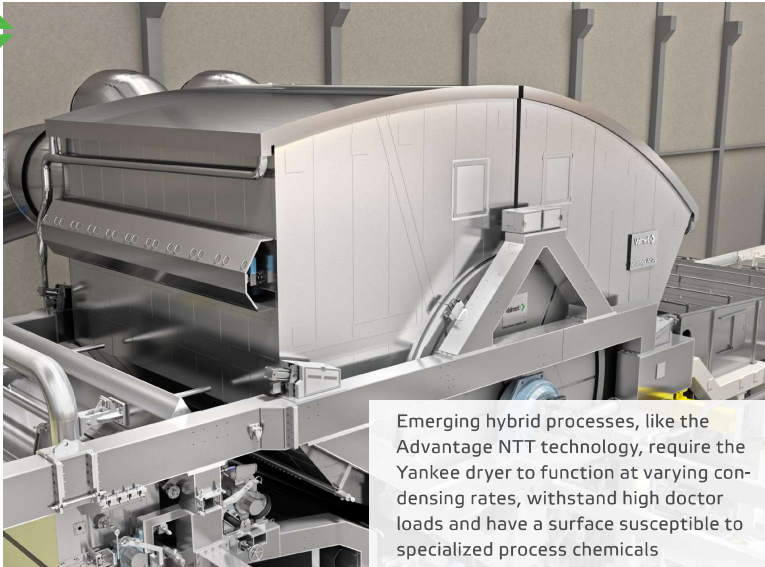
The Symbelt shoe press

The Symbelt shoe press and a counter roll enable a longer dwell time and an increased press impulse compared with a roll press, thereby improving sheet dryness after the press. In the press nip, sheet dryness is increased to 44-47% while the sheet is pressed into the NTT belt structure and creates the texture.

Different belts

Either fine, medium or coarse belts are used to give products the desired textured surface. Alternatively a plain belt can be used. The sheet runs after the Symbelt press to the Yankee and a press roll is only to transfer the sheet to the Yankee at a relative low linear load.





Emerging hybrid processes, like the Advantage NTT technology, require the Yankee dryer to function at varying condensing rates, withstand high doctor loads and have a surface susceptible to specialized process chemicals



The Advantage SoftReel™ B is an innovative winding system that provides producers a competitive edge.

The Yankee section

consists of an 18-foot cast grooved Yankee with insulated heads to minimize thermal losses. The hood and air system make up the latest Advantage Aircap design driving the hood temperature up to 550 °C and maximizing the drying area. The top part of the hood is sloped to reduce dust build-up. Automatic cleaning showers on top of each hood periodically run to keep the roof clean. Three Yankee doctors designed for a higher linear load than conventional machines incorporate a special type of coating and chemicals that withstand the loads of Advantage NTT technology. The advanced coating system consists of a coating shower enclosed in a Glue-box that is designed to capture and handle any coating mist.

[Learn more about the Advantage Yankee Dryer](#)

Advance reeling technology

The Advantage SoftReel is fully automated and highly reliable even at really high speeds. It assures uniform paper quality throughout the roll and provides greater efficiency as it allows larger rolls and less reject at roll changes. The automated process does not normally require any manual roll handling. Web breaks are rare and maintenance costs minimal.

[Learn more about the Advantage Softreel](#)

Excellent dust control

Valmet's dust control concept for all Advantage technologies captures dust where it is created to minimize the risk of fire, provide a healthy work environment and reduce manual cleaning.

Forward to a carbon neutral future

Technology plays a key role in mitigating climate change and global warming in the transition to a carbon neutral economy. This is why Valmet has created an ambitious climate program – Forward to a carbon neutral future. Achieving zero carbon dioxide emissions is possible by eliminating or offsetting carbon dioxide emissions. The climate program includes ambitious CO2 emission reduction targets and concrete actions for the whole value chain, including the supply chain, our own operations, and customers' use of our technologies. These targets will be achieved without emission compensation. Sustainability plays a key role in the innovation process. With our research and technology development work, we aim to ensure an advanced and competitive offering of process technologies, automation and services for our current and future customers, enhance raw material efficiency, and promote the use of renewable raw materials.

[Explore more](#)

A full-scale Technology Center for pilot

At Valmet Technology Center we can offer the opportunity to experiment and develop tissue products and processes without having to put your own production on hold. Should you want to minimize travelling we have the possibility to perform remote pilot trials where we can support you from a distance. In our facility in Karlstad, Sweden we have access a full-sized, flexible pilot machines, a well-equipped and organized laboratory and a unique spectrum of expertise on tissue machines and manufacturing processes. Follow the activities in the trials through live streaming cameras broadcasted on a secured web page and take part of data without delay in common software tools. That's why there's no better environment in which to test your products and processes under strict confidentiality.

[Book your pilot trial today](#)

Achieving zero carbon dioxide emission



The Valmet Technology Center can play an important roll for the development a of sustainable tissue production.

Improve performance with data

Valmet Industrial Internet offers an extensive range of solutions and applications for tissue mills in order to optimize the full scope of the production. The data driven applications and services support you throughout all the phases of the tissue machine's lifecycle. As a start we normally explore the potential of utilizing data through a data discovery process. Then we can evaluate what applications within production capacity, quality, energy efficiency and reliability, are beneficial for your operation. Further, our expertise is easily available for you through the Valmet Performance Centers (VPC). Our specialists have a deep understanding of machinery, processes and automation and with connections and tools, we can offer the needed remote support and guidance without delay from our 8 centers around the worlds.

[Read more about our VII solutions](#)

Remote support without delay

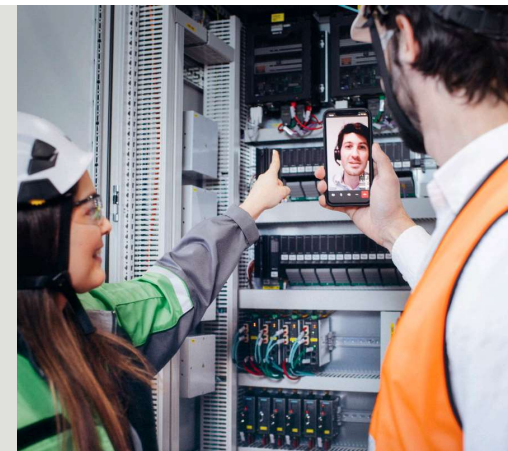
Tailored for stable and productive machine operation

Future automation solutions

As tissue manufacturers look for ways to improve process efficiency and business profitability, they are turning to intelligent automation solutions by Valmet. While automation accounts for just a fraction of the overall mill investment, optimized control ensures that an entire mill performs up to expectations and beyond. Valmet's tissue solutions are tailored for stable and productive machine operation.

Valmet's comprehensive tissue automation concept is designed in close cooperation with the process and machinery experts. Therefore, it addresses many challenges that tissuemakers have to face, such as dealing with the complex chemistry in tissue making, achieving better runnability and higher energy efficiency. Valmet's comprehensive but scalable automation solution is geared towards optimum productivity, energy efficiency, and product quality. Additional, experience has shown that by selecting a single source supplier a faster start-up curves are achieved.

[Explore more about our automation solutions](#)



Valmet Performance Center and the various automation solutions Valmet can provide are instrumental to enhance your tissue production.

➤ Complete mill solutions

When running a project, it's not uncommon to questioning the capability to cover all the needs that might arise. With Valmet, you simply have one selected partner to discuss product related issues with. And the aim is always to deliver the best end results.



Full scope project management

Valmet's standard offering includes coordination of engineering and procurement, manufacturing and pre-assembly, shipping and installation supervision as well as commissioning and start-up. In the extended scope, we also take care of the total project coordination for the complete tissue mill. Given the long experience our customers can feel confident in the way we take on each individual project regardless of size or complexity.



Learning services to enhance productivity

Keeping machines and equipment in good shape is crucial, but it's impossible to achieve this without competent and committed people. With our training programs, the skill level of your machine operators is maximized. Training simulators are useful tools for operators and other mill staff. These highly realistic simulators play vital roles in ensuring successful start-ups and efficient long-term operation of key process and machine modules.



Safety an everyday mindset

Safe working environment and products are essential and considered in every step of Valmet's technology development. All our products and technologies fulfill safety regulations according to requirements in the European directives as well as other specific regulations or requirements agreed with our customers. We provide solutions to establish a safe and healthy working environment that can avoid accidents, improve efficiency and reduce costs.



Sustainability

Valmet believes that technology plays a key role in mitigating climate change and global warming in the transition to a carbon neutral economy. Our climate program includes ambitious CO2 emission reduction targets and concrete actions for the whole value chain, including the supply chain, our own operations, and customers' use of our technologies. These targets will be achieved without emission compensation.

The global leader in tissue making

Valmet is constantly developing product offerings and can present a wide range from small and medium sized machines to large and fast machines as well as re-builds, service and automation.

With our industrial internet solutions, we provide support through the Valmet Performance Centers. The Tissue Technology Center is a unique resource for cultivating and realization of ideas, innovations and verifying new technology or machine configurations.

Our climate program includes ambitious CO2 emission reduction targets and concrete actions for the whole value chain. Safe working environment and products are essential and considered in every step of Valmet's technology development. We strive to ensure that tissue quality, knowledge and process technology, as well as our wide scope of service, continue to drive mutual success.

Over 150 years of experience within the pulp and paper industry has resulted in Valmet becoming the global leader in tissue making.

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