Sustainability Key Performance Indicators

Social

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Product design and development a. Test and assessments	qualitative		Necessary safety tests and the corresponding documentation are implemented via internal ERP systems in line with Voith Quality Specifications (VQS). These include the technical specifications, the test specifications, and the quality assurance agreement for products and product groups. Mandatory tests (e.g. dimensional, magnetic particle, dye penetrant, or ultrasonic tests) are used to fundamentally test possible impacts on the environment, health, and safety. These tests are carried out on the basis of clearly defined specifications and checklists. Various tools are used to continuously improve processes, such as Ishikawa analyses, FMEA, and A3 or 8D reports. Since mid-2022 we have also applied the Design Review Based on Failure Mode (DRBFM) method, describing and logging it in the stage-gate development process and the correspondingly adjusted work instructions.	A.2.2.2.2.1.a	
Product design and development a. Coverage of Test and assessments	quantitative	%	There is a clear commitment to develop and manufacture only safe products. Mandatory deliveries defined in our PDP process for every Gate Meeting ensure that this is achieved. Coverage: 100% of relevant products.	A.2.2.2.2.1.a	
Customer support and protection: a. Safety data sheets	qualitative		Complete protection along the value chain: The entire internal value chain is protected by certified product development, comprehensive safety measures and compliance with standards such as IEC 62443, ISO 27001, and General Data Protection Regulation (GDPR). Specially trained employees perform risk assessments as early as the product development stage. Virtual walk-throughs are carried out on detailed 3D designs to uncover any safety deficiencies. Standard products and components are tested as prototypes in industrial applications before being launched on the market as part of the stage-gate process. For example, all roll covers and QualiFlex press sleeves under development undergo extensive service life and load tests which are documented in the PDP process. In addition to verifying performance, the focus is on safe operation. The necessary validations are carried out as part of internal and factory assembly and commissioning. Independent quality experts are core members of the project teams, providing quality assurance from receipt of order through to customer handover.	A.2.2.2.2.2.a	
Customer support and protection: a. Coverage of Safety data sheets	quantitative	%	Coverage: 100%	A.2.2.2.2.2.a	
Customer support and protection: b. Customer training and counselling	qualitative		Voith Paper conducts required training directly at the paper machines during scheduled service visits. These training sessions have proven to	A.2.2.2.2.2.b	

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			be particularly effective as they take place directly where the product is used. Furthermore, Voith Paper customers have access to experts for questions and joint problem solving via the OnPerformance.Lab and other remote connections. The solutions from our digital portfolio (OnCumulus, OnView, OnEfficiency) always include service delivery through the OnPerformance.Lab to ensure the best possible results.		
Customer support and protection: b. Coverage of Customer training and counselling	quantitative	%	Coverage: 100%	A.2.2.2.2.2.b	
Customer support and protection: c. Monitoring of products during use phase	quantitative		During the use phase, the continued safe operation of systems is ensured by a standardized product monitoring process, which is clearly defined in process and work instructions. It not only relates to Voith products available in the market but also includes products from competitors.	A.2.2.2.2.2.c	
Customer support and protection: c. Coverage of Monitoring of products during use phase	quantitative	%	Coverage: 100%	A.2.2.2.2.2.c	

Environmental

Life cycle assessments: a. Assessed aspects:	qualitative		We mainly supply components that, as part of an overall system, have differing energy and material footprints. We use a range of instruments to gain an even more detailed understanding of our products' energy and raw material efficiency and thus enable optimum resource utilization in the use phase. In the case of products, we sometimes work with Life Cycle Assessments (LCA) in accordance with DIN ISO 14040 and 14044 (are used to analyze the potential environmental impact of a product system over its full lifecycle), and with Product Carbon Footprint (PCF) calculations in accordance with ISO 14067. Life cycle assessments cover the following aspects: energy and raw material efficiency, Product Carbon Footprint (PCF) calculations / GHG emissions, hazardous substances (carcinogenic, non-carcinogenic, and ecotoxicity), substances in the REACH Regulation, and use of energy, and water.	B.2.2.1.1.a	
Life cycle assessments: b. Life cycle phases	qualitative		The life cycle assessment covers the following phases: raw material extraction, production and processing, transport, use, end-of-life. We mainly supply components that, as part of an overall system, have differing energy and material footprints. We use a range of instruments to gain an even more detailed understanding of our products' energy and raw material efficiency and thus enable optimum resource utilization in the use phase. In the case of products, we also apply Life Cycle Assessments (LCA) in accordance with DIN ISO 14040 and 14044 (used to analyze the potential environmental impact of a product system over its full lifecycle), and Product Carbon Footprint (PCF) calculations in accordance with ISO 14067.	B.2.2.1.1.b	

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			Depending on product type and project objective, LCAs/PCFs are calculated within two different system boundaries. For the first of these, LCAs/PCFs are calculated for the cradle-to-gate system boundary, i.e. from raw material extraction to the factory gate. Our customers can then use the results of these calculations for their own analysis. For the second, LCAs/PCFs are generated in the cradle-to-grave system boundary, i.e. from raw material extraction to their ultimate disposal. These calculations are primarily used internally in product development and comprise the five phases of the product lifecycle: raw material extraction, production and processing, transport, use, end-of-life.		
Life cycle assessments: c. International standards	qualitative		Life cycle assessments are carried out in accordance with ISO 14040/14044/14067. In the case of products, we also use Life Cycle Assessments (LCA) in accordance with DIN ISO 14040 and 14044 (used to analyze the potential environmental impact of a product system over its full lifecycle), and Product Carbon Footprint (PCF) calculations in accordance with ISO 14067.	B.2.2.1.1.c	
Life cycle assessments: d. Publication of results	qualitative		Depending on product type and project objective, LCAs/PCFs are calculated within two different system boundaries. For the first of these, LCAs/PCFs are calculated for the cradle-to-gate system boundary, i.e. from raw material extraction to the factory gate. Our customers can then use the results of these calculations for their own analyses.	B.2.2.1.1.d	
Extension of useful product life: a. Longevity b. Repairability c. Upgradeability	qualitative		In conjunction with our Group Divisions' assessments and evaluations, we define the main areas of action for our company regarding product responsibility as follows: • Quality and reliability of products and services • Maximum product safety • Product longevity • Resource efficiency of products • Minimizing environmental impact of products The machines and systems of the Voith Paper Group Division are designed for a particularly long service life. Our machines run for over 20 years and can always be brought back to state of the art through small and large rebuilds. This allows us to easily extend their service life by further decades. In the context of the circular economy, it is essential to ensure our plants can be repaired and upgraded to keep them running safely and efficiently for decades. Together with our customers, we ensure that optimum operating conditions are in place during plant installation. Special service audits provide the opportunity to check, recondition, and repair individual machine components or whole production sections as needed. For example, build-up welding of rotors for stock preparation machines can be used to improve operating conditions, also in terms of energy and raw material consumption. Regular maintenance and appropriate documentation deliver an overview of a machine's condition and thus contribute to the optimum operation and improved service life of the plant. Through mechanical repairs and upgrades to the rolls, either in our workshops or at our customer's location, we significantly extend the service life of the rolls in paper machines. This service is increasingly in demand, which will allow this segment of our business to keep growing. For our wear parts like roll covers, which cover a steel roll with a functional surface, we developed and sell procedures to only replace the worn part of the roll to minimize ecological and economical impact. Given that Voith Paper operates in the large-scale plant business, characterized by high capital expenditures, our machines are designed to be operated for decades before a completely new plant is purchased.	B.2.2.1.2.a B.2.2.1.2.b B.2.2.1.2.c	

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			Therefore, we design our machines to allow modifications at any time before the entire plant is replaced. By using the latest technology in these modifications, the machine receives an upgrade, ensuring 'upgradability'. Voith Paper has even dedicated a specific business case towards this upgradability: Rebuilds, focusing on upgrading smaller or larger sections within a paper machine, detached from the overall system. For our wear parts like roll covers, which cover a steel roll with a functional surface, we developed and introduced procedures which upgrade the product (e.g. regarding functionality and lifetime) with only replacing a small part of the roll to minimize ecological and economical impact.		
Extension of useful product life: d. Recyclability	qualitative		Successful recycling: At the same time, we are working hard on increasing the recyclability of wear parts. One example of this is the production of our QualiFlex press sleeves: The manufacture of these press sleeves requires a surface treatment, which generates production waste that was previously incinerated. To promote the circular economy in our production processes, we contracted a recycling partner in the fall of 2022 to collect the manufacturing waste and deliver it back to the material supplier. There, 100 % of the material is recycled in a chemical process and returns to the material cycle. This process lets us recycle around 5 tons of material per month. Under the catchphrase “Design for Recycling”, press felt production at two press felt plants has already been adapted so that the felts and production waste can be recycled. As a result, production waste in the order of 100 – 200 tons per annum will be fed back into the recycling process in the future. The first monofilaments made from recycled polyamide material have already been developed and successfully employed in the first test felts. We have successfully proved recyclability of press felts products by conducting recyclability studies with various recycling companies. Together with our customers we are collecting used products for recycling. (Press release closed material loop)	B.2.2.1.2.d	
Material efficiency of products a. Company position	qualitative		At Voith, material efficiency is a fundamental principle that underpins all our efforts in product development and manufacturing. Beyond our commitments to decarbonization and digitalization, we are dedicated to the principle of the circular economy. We aim to drive innovations that help close cycles in our industries and promote circularity, including within our own production processes. In conjunction with our Group Divisions' assessments and evaluations, we have defined the key areas of action for our company regarding product responsibility. These areas include quality and reliability of products and services, maximum product safety, product longevity, resource efficiency, and minimizing environmental impact. Voith Paper has enjoyed many decades of market success with recycling technologies for wastepaper as a raw material for paper production, for wastewater, and for rejects. Today, the Group Division leads the market in feedstock preparation solutions and generates most of its sales with paper production plants that process recovered paper. In the stock preparation area, paper recycling plants account for almost all sales. The paper value chain is extremely stable and offers a high recycling rate of around 60 % worldwide and as high as 74.4 %* in Europe. We are engaged in developing optimized technologies for stock preparation to further increase this percentage and continue to	B.2.2.2.2.a	OnEfficiency.Strenght

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			close the loop. This involves developing additional process steps and adapting processes to safeguard the use of recycled paper in paper production. A particular challenge for recyclability is the loss of large quantities of graphic paper used in printing newspapers and magazines, for example. We are working on new solutions to improve resource and material efficiency to offset the resulting lower strength potential of the wastepaper mix and contribute to maintaining the recycling loop. This includes hard nip sizing where less starch is applied, leading to savings in raw material usage and less drying energy. The completely new starch application process required to achieve this is currently being developed in cooperation with a pilot customer and is already showing promising results. Furthermore, the digitization module OnEfficiency.Strength allows a significant reduction in the quantity of starch required to achieve the target strength of the paper. Over 20 installations are now in use worldwide, achieving savings of around 36,000 metric tons of starch and 300,000 MWh of drying energy per annum. Voith Paper is a member of the industry consortium 4evergreen alliance consisting of more than 100 well-known companies operating throughout the entire fiber-based packaging value chain. The initiative aims to increase the recycling rate of fiber-based packaging from 82 % to over 90 % by 2030, and to reduce carbon emissions in the packaging lifecycle. Following initial laboratory tests on the pulping capacity of various barrier papers in the 2021/22 fiscal year, pilot tests have now been conducted at the Voith Fiber Technology Center in close cooperation with the 4evergreen industry consortium for papers that are particularly difficult to pulp. As a result, new pulping processes will be evaluated in the overall process of wastepaper preparation, including sorting and fiber treatment.		
Material efficiency of products a. Coverage of company position	quantitative	%	There is a clear commitment to develop and manufacture material-efficient products. Coverage: 100% of relevant products. All newly developed products, whether incremental or disruptive, adhere to the principles of material and energy efficiency. This approach is driven not only by sustainability but also by economic considerations, leading to significant cost savings for customers. The paper industry, however, is characterized by high capital expenditures and long lifespans of the machinery and equipment used in paper mills. As a result, companies are cautious with their investments, leading to slower industry changes. Systems operate for decades before being replaced by newer technologies, although smaller conversions, especially those with high energy-saving potential, are implemented earlier. This longevity means that technological upgrades and shifts in production processes happen gradually.	B.2.2.2.2.a	Voith Statement Sustainability EN
Material efficiency of products b. Targets	qualitative		Voith Paper has set ambitious goals for the future of paper production: 1. 100 % emission-free paper production by 2030 using energy-optimized products, digital solutions, renewable power, and innovative solutions 2. 90 % freshwater savings through a completely new paper production process using disruptive technologies by 2030 3. 90 % recycling rate with new fiber streams by 2030 At Voith, material efficiency is a fundamental principle that underpins all our efforts in product development and manufacturing. Beyond our commitments to decarbonization and digitalization, we are dedicated to	B.2.2.2.2.b	

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			the principle of the circular economy. We aim to drive innovations that help close cycles in our industries and promote circularity, including within our own production processes.		
Material efficiency of products c. Measures and reporting on progress	qualitative		For example, a newly developed sensor has made it possible to quantify agglomerated and finely distributed adhesive contaminants (e.g. stickies) in the water circuits and to keep them below a critical level by automatically adjusting the reject rate in fine-screening and stabilizing production operations. As a result, fiber losses have already been minimized in three pilot installations in production plants. Following extensive fluid mechanics tests in our pilot plants and by using 3D printing in production, we were able to completely redesign key functional components of the EdgeSaver. This has significantly expanded its range of applications to save fibers and energy for even more customers. Eight installations have already been sold. Sustainability impact: improved resource and material efficiency. Further success cases with quantitative savings for entire paper portfolio can be viewed on Voith Paper Website	B.2.2.2.2.c	
Material efficiency of products c. Coverage of measures and reporting on progress	quantitative	%	There is a clear commitment to develop and manufacture material-efficient products. Coverage: 100% of relevant products. All newly developed products, whether incremental or disruptive, adhere to the principles of material and energy efficiency. This approach is driven not only by sustainability but also by economic considerations, leading to significant cost savings for customers. The paper industry, however, is characterized by high capital expenditures and long lifespans of the machinery and equipment used in paper mills. As a result, companies are cautious with their investments, leading to slower industry changes. Systems operate for decades before being replaced by newer technologies, although smaller conversions, especially those with high energy-saving potential, are implemented earlier. This longevity means that technological upgrades and shifts in production processes happen gradually.	B.2.2.2.2.c	Voith Statement Sustainability EN
Substances of concern contained in products Ban on substances of concern in products	qualitative		All Voith Group Divisions comply with the relevant rules and regulations for the handling of substances classified as hazardous and dangerous under the REACH Regulation and excluding them from further use. Voith Paper: The REACH Regulation is also decisive for Voith Paper. None of the free chemical substances contained on the REACH (Annex XIV) list enter the market in our products in the EMEA region. When new substances are added to the list, Voith Paper reviews their use and, where necessary, identifies a harmless substitute that is then tested and introduced. When developing new products, it is crucial that they not only meet market requirements but are also safe in terms of environmental and health protection. The Voith Product Development Process (stage-gate process) guarantees that all product developments undergo HSE testing. Specifically, 2 – 5 test dates are set for the gate meetings, in which potential environmental hazards of the product are also considered. Open points in HSE are exclusion criteria for moving the project to the next stage. In light of the recent tightening of regulations on per- and polyfluoroalkyl substances (PFAS), Voith has proactively begun researching alternative materials. Our intensified efforts are particularly concentrated on developing new coatings for various rolls used in paper manufacturing.	B.2.2.3.2.1.	

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Substances of concern contained in products Coverage of ban on substances of concern in products	quantitative	%	Voith Paper is firmly committed to ensuring that none of its products enter the market containing free chemical substances regulated under REACH. This commitment is upheld through a mandatory check at the very early stages of Voith's Product Development Process (PDP). If there are any unresolved Health, Safety, and Environmental (HSE) concerns, including substances banned due to safety issues, the product cannot proceed to further development. Coverage: 100% of relevant products.	B.2.2.3.2.1.	
Strategy to optimize energy efficiency of products a. Company position	qualitative		Voith intends to contribute to decarbonization and to achieving the goals of the Paris Agreement. To this end, Voith Paper is focusing on developing new solutions for relevant sub-processes in paper production to make more efficient use of renewable energies, thereby increasing process efficiency and energy recovery. Examples: • Voith Paper and Koehler development partnership focusing on decarbonization • Voith's use of anaerobic reactors to purify water and generate biogas, which reduces the proportion of fossil fuels and contributes to the decarbonization of paper production.	B.2.2.4.1.a	Development Partnership Voith Paper & Koehler
Strategy to optimize energy efficiency of products a. Coverage of company position	quantitative	%	There is a clear commitment to develop and manufacture energy-efficient products. Coverage: 100% of relevant products. All newly developed products, whether incremental or disruptive, adhere to the principles of material and energy efficiency. This approach is driven not only by sustainability but also by economic considerations, leading to significant cost savings for customers. The paper industry, however, is characterized by high capital expenditures and long lifespans of the machinery and equipment used in paper mills. As a result, companies are cautious with their investments, leading to slower industry changes. Systems operate for decades before being replaced by newer technologies, although smaller conversions, especially those with high energy-saving potential, are implemented earlier. This longevity means that technological upgrades and shifts in production processes happen gradually.	B.2.2.4.1.a	
Strategy to optimize energy efficiency of products b. Quantitative targets	qualitative		Voith Paper has set ambitious targets for 2030: • 100% emission-free paper production through energy-optimized products, digitalization, renewable energy, and innovation. • 90% freshwater savings via disruptive technologies and a new production process. • 90% recycling rate using new fiber streams. To achieve this, Voith focuses on four strategic areas: 1. Process Optimization – *20% CO_2 reduction potential* Continuous product and technology improvements reduce energy use. For example, a new industrial cleaner design cuts energy by 30% and boosts throughput. Replacing older models has saved ~10,000 MWh/year. *2.* Digital Solutions – *10% CO_2 reduction potential* AI-based process controls and energy visualization tools enhance operational efficiency and enable energy-optimized production. 3. Pioneering Innovations – *50% CO_2 reduction potential* Voith co-leads the Model Paper Mill Consortium in	B.2.2.4.1.b	

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			Germany, developing emission-free production methods. Projects include a digital twin for energy control and a new process with Essity that cuts water use by 95% and energy by 40%, potentially achieving zero emissions with green electricity. 4. **Renewable Energy & Storage** – *Full CO_2 elimination potential* Integration of hydrogen, biogas, and green electricity, along with heat recovery and anaerobic wastewater treatment, supports decarbonization. One customer reduced fossil fuel use by 10% using biogas. Energy storage further stabilizes renewable energy use.		
Strategy to optimize energy efficiency of products c. Measures and reporting on progress	qualitative		Increasing energy efficiency is a core element of our incremental development and a key differentiator for Voith Paper. Sustainability and efficiency are firmly embedded in our strategy as two of the three main differentiation criteria. Voith Paper: "Innovative pulping process: This new paper pulping concept enables a significantly more energy-efficient pulping of wastepaper (-30 %). Following the successful operation of a pilot plant for internal waste processing at the customer's site since February 2022, multiple trials lasting several days were carried out using corrugated cardboard packaging as a raw material. The technology was further optimized with the aim of ensuring continuous operation. Sustainability impacts: improved energy efficiency Forming fabrics were developed to reduce the load absorption in the former. As a result of the completed field test phase, nine out of ten fabrics showed lower energy absorption in the forming section. Field tests to reduce load absorption were completed in the previous fiscal year and showed that the use of the innovative material allows a targeted release of water for improved lubrication. The resulting optimized friction conditions reduce the load absorption in the former. Sustainability impacts: improved energy efficiency	B.2.2.4.1.c	Voith Paper "Papermaking for Life" campaign
Strategy to optimize energy efficiency of products c. Coverage of measures and reporting on progress	quantitative	%	There is a clear commitment to develop and manufacture energy-efficient products. Coverage: 100% of relevant products. All newly developed products, whether incremental or disruptive, adhere to the principles of material and energy efficiency. This approach is driven not only by sustainability but also by economic considerations, leading to significant cost savings for customers. The paper industry, however, is characterized by high capital expenditures and long lifespans of the machinery and equipment used in paper mills. As a result, companies are cautious with their investments, leading to slower industry changes. Systems operate for decades before being replaced by newer technologies, although smaller conversions, especially those with high energy-saving potential, are implemented earlier. This longevity means that technological upgrades and shifts in production processes happen gradually.	B.2.2.4.1.c	