

The World Leader in Pumping and Mixing Solutions for the Pulp and Paper Industry





SULZER

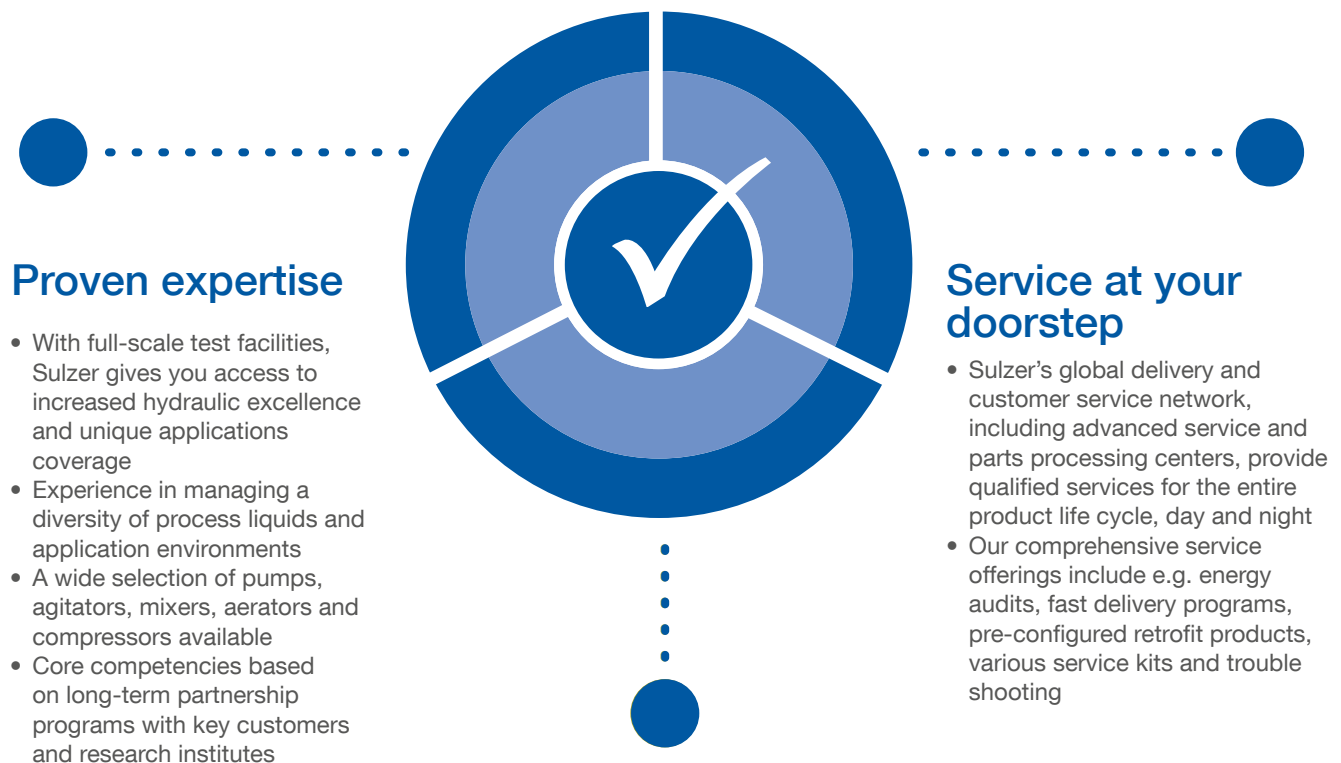
SULZER PUMPS FINLAND OY
KARTHULA PUMP FACTORY
FINLAND 01 KAHULA
MADE IN FINLAND | 2013

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The Sulzer Advantage

Technology leadership

Sulzer, with 180 years of experience and expertise, is a world leader in the pulp and paper industry. Our know-how and competitiveness is based on close cooperation with the world's leading pulp and paper producers, machinery suppliers and engineering companies.



Proven expertise

- With full-scale test facilities, Sulzer gives you access to increased hydraulic excellence and unique applications coverage
- Experience in managing a diversity of process liquids and application environments
- A wide selection of pumps, agitators, mixers, aerators and compressors available
- Core competencies based on long-term partnership programs with key customers and research institutes

Service at your doorstep

- Sulzer's global delivery and customer service network, including advanced service and parts processing centers, provide qualified services for the entire product life cycle, day and night
- Our comprehensive service offerings include e.g. energy audits, fast delivery programs, pre-configured retrofit products, various service kits and trouble shooting

Value you can count on

- Customized solutions for your process improvements
- New solutions for your future applications
- Energy-efficient products with low life cycle costs and a lighter environmental footprint
- Regular mill surveys and energy audits that can maximize the performance and reliability of your existing and planned processes

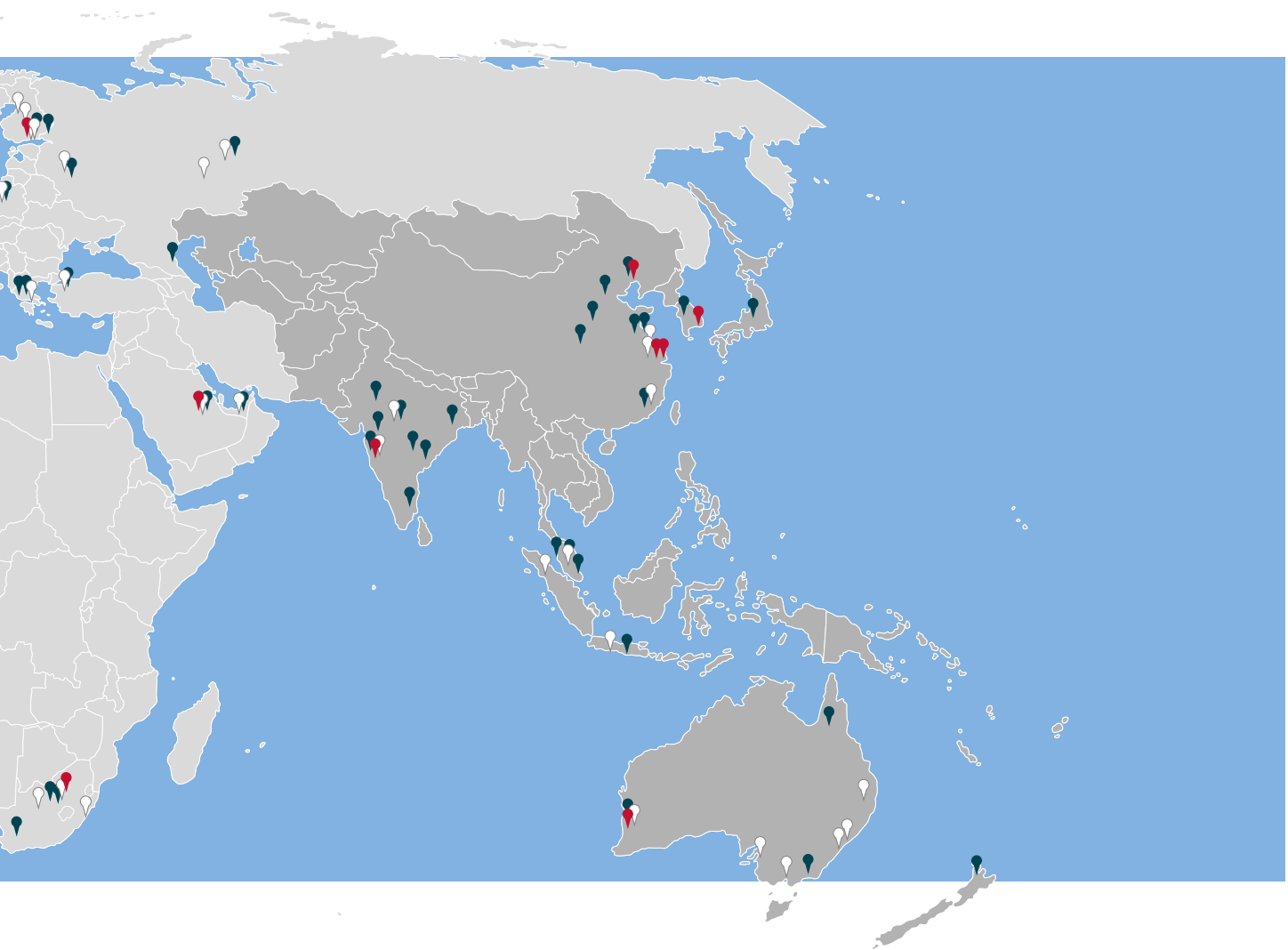
Our Organization Spans Across the Globe



Wherever you are, Sulzer is close by to bring you the best in pumping and mixing technology, expertise and services. With our large global presence, we have the well-placed sales, customer care and delivery network to stay close to you, Sulzer is your best partner to achieve all your performance, reliability, safety and sustainability goals.

Sulzer's global delivery and customer service network, including advanced service center and parts processing center network, provide qualified services for the entire product life cycle. We are well known for state-of-the-art products, performance, reliability, and energy-efficient solutions. Our customers benefit from our intensive research and development in fluid dynamics, process-oriented products and special materials.

All Sulzer manufacturing plants have advanced testing facilities, capable of demonstrating pump performance and proving the ancillary equipment to ensure smooth commissioning and start-up.

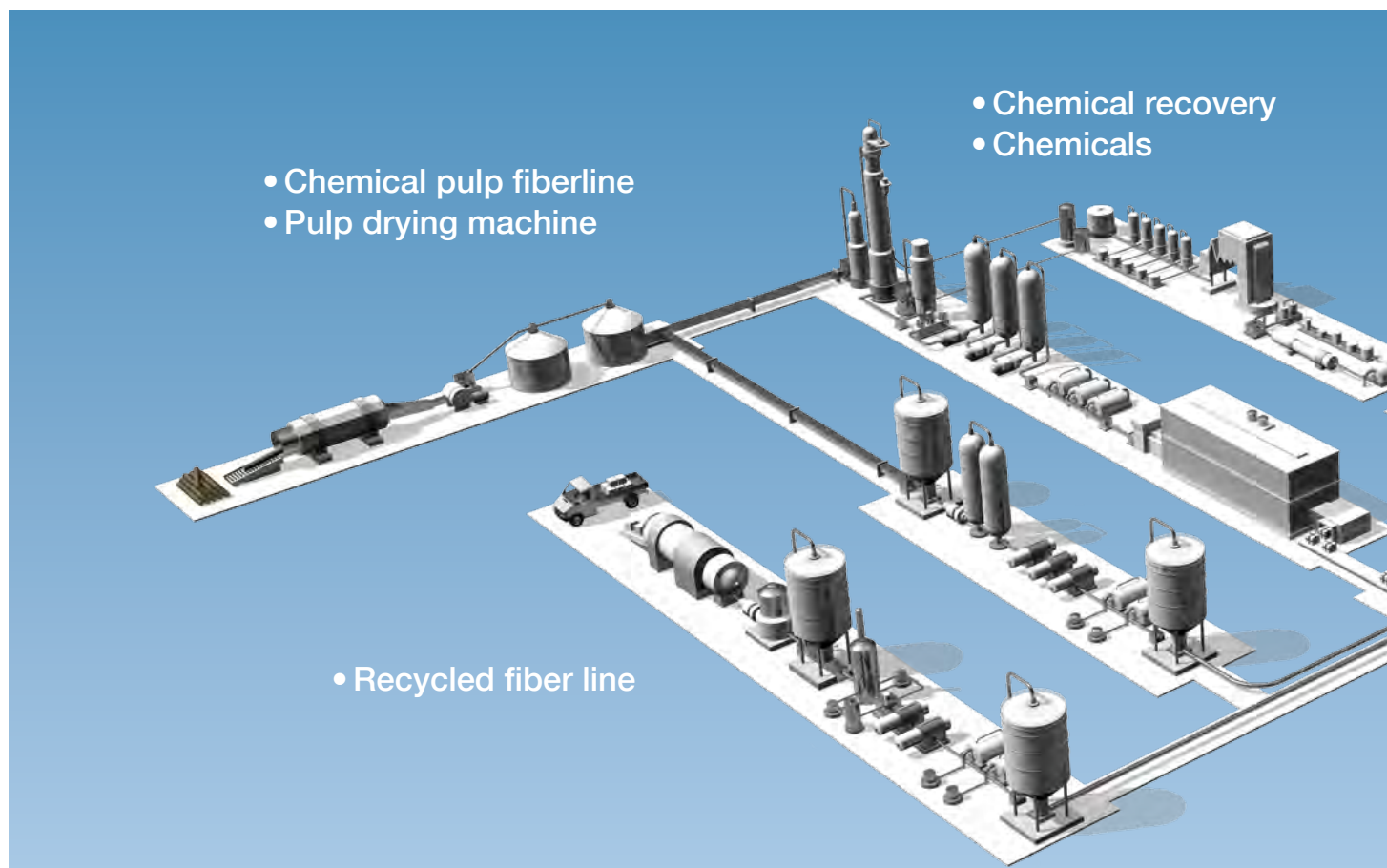


Quality and sustainability

We are committed to providing our customers with the best products at the highest quality standards in the industry. At all our locations worldwide, we implement certified management systems, according to ISO 9001 (Quality), ISO 14001 (Environment) and OHSAS 18001 (Health and Safety) as an effective way to sustain the continuous improvement of our processes and products. Some of our locations have specific certificates such as ATEX IECEx03.

Sulzer Innovations for Pulp and Paper

The R&D work at Sulzer has resulted in many pump, mixer and agitator innovations for the pulp and paper industry. Over the decades, this continuous search for better pumping and mixing solutions has lengthened service intervals and prolonged pump life times in various applications. We are the forerunner in stock pumping and mixing over the whole consistency range from 0 to 18%.



Sulzer innovations for pulp and paper

- | | | | |
|--------------------|---|-------------|--|
| 1974 | ● KEST STOCK/PROCESS PUMP | 1991 | ● ZPP LOW-PULSE HEADBOX FEED PUMP |
| 1980 | ● MEDIUM CONSISTENCY MC® PUMPING TECHNOLOGY | 1992 | ● SALOMIX® SL SIDE ENTRY AGITATOR FAMILY |
| 1982 | ● DE STOCK/PROCESS PUMP | 1993 | ● AHLMIX™, THE 2ND GENERATION CHEMICAL AND STEAM MIXER |
| 1987 | ● AHLSTAR™ STOCK/PROCESS PUMP, AHLMIX™ CHEMICAL MIXER, MC® FLOW DISCHARGER | 1995 | ● AHLSTAR™ ASP SELF-PRIMING GAS REMOVAL PUMP |
| 1988 – 1990 | ● MCA, MCV; THE 2ND GENERATION MC® PUMPING SYSTEMS WITH EXTERNAL & INTERNAL DEGASSING | 1996 | ● AHLMIX™ FS, GAS MIXING CONCEPT |
| | | 1999 | ● SALOMIX® TES TOP ENTRY SPREADER |

- Water supply
- Water and effluent treatment

• Power plant

• Coating and finishing

• Mechanical pulp line

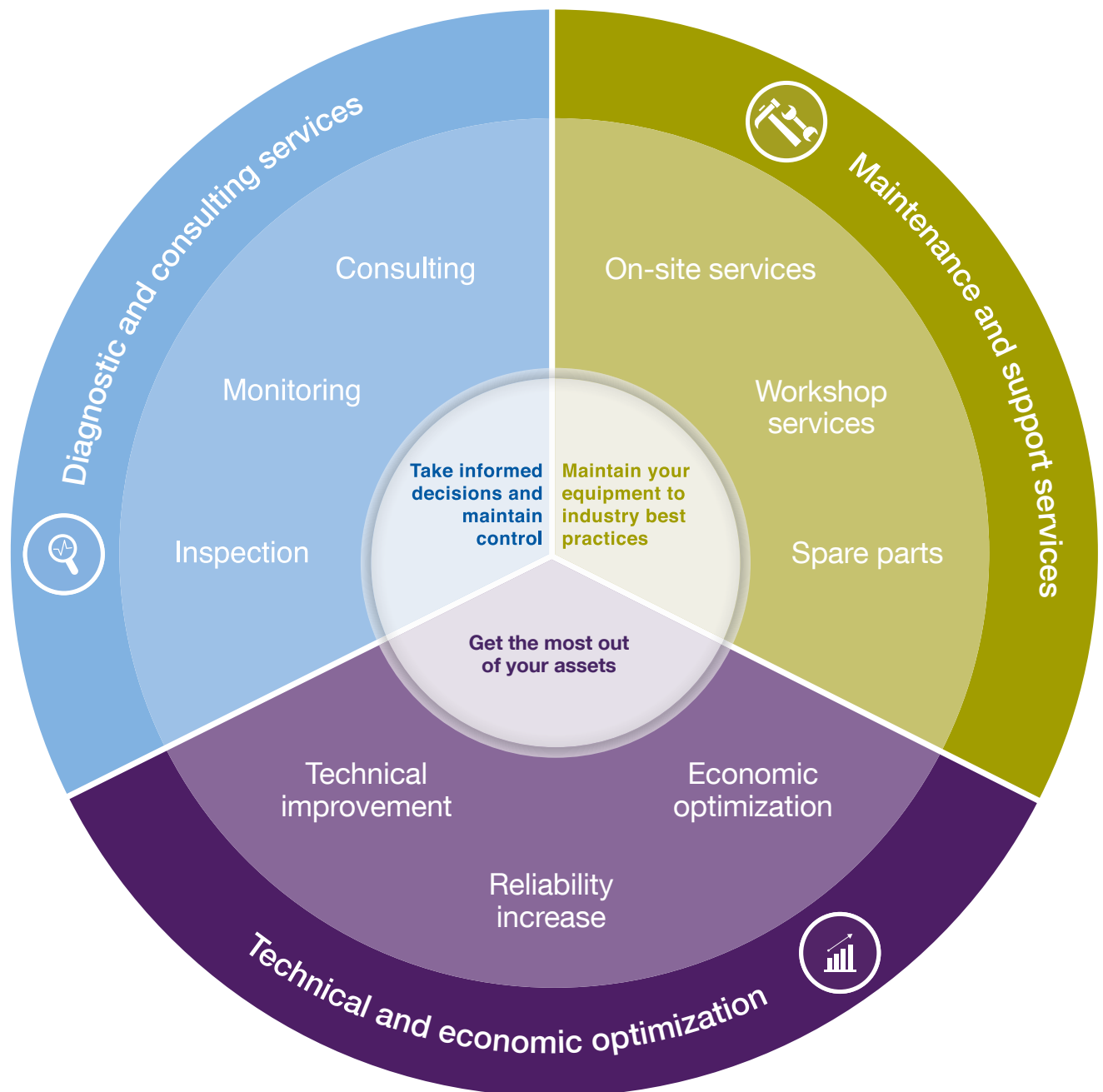
• Stock preparation and paper/board machines

- 2000** ● SALOMIX® GLI BOTTOM ZONE MIXING AND DILUTION ARRANGEMENT
- 2000 – 2001** ● MCE™, THE 3RD GENERATION MC® PUMPING SYSTEM PRODUCTS
- 2004** ● THE FLUIDER™ STOCK PUMPING CONCEPT
- 2005** ● NEW AHLSTAR PROCESS PUMPS
- 2006** ● MBN MULTISTAGE RING SECTION PUMP
- 2009** ● SX CHEMICAL MIXER

- 2009** ● NEW PRODUCT SIZES AND HIGHER CAPACITIES FOR AHLSTAR, MCE, KCE AND MBN PUMPS
- 2011** ● NEW, LARGE-SIZE, HIGH-EFFICIENCY AHLSTAR PROCESS PUMPS
- 2011** ● EXPANDED PRODUCT PORTFOLIO THROUGH CARDO FLOW SOLUTIONS ACQUISITION AND SCANPUMP INTEGRATION
- 2012** ● AHLSTAR PROCESS PUMPS INTEGRATION
- 2013** ● AHLSTAR CLOSE COUPLED PROCESS PUMPS

Your Ideal Service Partner

Our expertise and commitment always deliver reliability, responsiveness, rapid turn-around and innovative solutions



Our Comprehensive Product Portfolio

Sulzer pumps and mixers are famous for their innovative and sturdy design. We make standardized products for all normal applications and specialty products for applications with special requirements.

Product technology	Product type	Wood yard	Fiberline	Recovery	Recycled fiber	Mechanical pulping	Stock preparation / paper & board machine	Water and effluent treatment	Power-plant
Single stage pumps	AHLSTAR A range	✓	✓	✓	✓	✓	✓	✓	✓
	AHLSTAR N range	✓	✓	✓	✓	✓	✓	✓	
	AHLSTAR W range	✓	✓	✓	✓	✓	✓	✓	✓
	AHLSTAR E range		✓	✓					✓
	AHLSTAR CC	✓	✓	✓	✓	✓	✓	✓	✓
Double suction pumps	ZPP/Z22						✓	✓	✓
	SM/SMN range						✓	✓	
Two stage pumps	LSP/LST		✓	✓					
Multistage ring section pumps	MBN		✓	✓	✓	✓	✓	✓	✓
	M range			✓					✓
Vertical pumps	NVP/NVT, NKP/NKT	✓	✓	✓	✓	✓	✓	✓	
	WKP/WKT	✓	✓	✓	✓	✓	✓	✓	
	Vertical wet pit pumps							✓	✓
MC® products	MC® pumping system		✓		✓	✓	✓		
	SX chemical mixer		✓		✓	✓	✓		
	MC® discharge scraper		✓		✓	✓	✓		
	MC® discharger		✓		✓	✓	✓		
Agitators and tower management system equipment	SALOMIX® TES, GLI, VULCA		✓		✓	✓	✓		
	SALOMIX® SL/ST, Scaba side-mounted	✓	✓	✓	✓	✓	✓	✓	
	SALOMIX® L range, Scaba top-mounted	✓	✓	✓	✓	✓	✓	✓	
Submersible pumps	XFP range	✓	✓	✓	✓	✓	✓	✓	
Compressors	HST range							✓	
Submersible aerators	OKI range							✓	
Submersible mixers	XRW range							✓	

AHLSTAR – The Answer to Your Process Needs

Designed especially for the pulp and paper industry, every AHLSTAR pump is tailor-made to ensure process reliability, high efficiency and low operating costs. The AHLSTAR range includes also the total pumping concept for air and gas containing liquids with stock pumping (A), Non-glogging (N) and wear-resistant (W) pumping hydraulics.

KEY CUSTOMER BENEFITS

- AHLSTAR pumps save energy, sealing water and environment
- Designed to meet the EN ISO 5199 reliability standard, these pumps also comply to EN 22858 (ISO 2858) standard
- The modular interchangeability of parts and components enables low spare parts inventory
- The pump range offers the lowest total cost shaft seal concept, with dynamic seal, mechanical seals and packing
- Every AHLSTAR is designed for fast and easy installation, maintenance and service

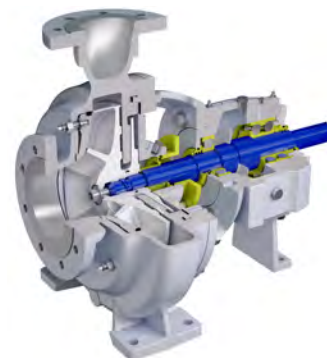
AHLSTAR A

KEY CHARACTERISTICS

Capacities	11,000 m ³ /h / 48,400 USgpm
Heads	160 m / 525 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	180°C / 355°F

APPLICATIONS

- For stocks up to 8%, liquors, water, chemicals, white water, condensate



AHLSTAR N

KEY CHARACTERISTICS

Capacities	2,000 m ³ /h / 8,800 USgpm
Heads	90 m / 295 ft
Pressures	16 bar / 230 psi, depending on material and size
Temperatures	180°C / 355°F

APPLICATIONS

- For applications where normal stock pumps cannot handle liquids due to plugging or abrasive wear
- Suitable for unsorted stocks up to 8%, slurries, rejects, waste water, chips, or other liquids containing large solids and other particles



AHLSTAR W

KEY CHARACTERISTICS

Capacities	7,000 m ³ /h / 31,000 USgpm
Heads	110 m / 360 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	180°C / 355°F

APPLICATIONS

- For the most abrasive and erosive pumping applications, such as lime milk and mud, and coating pigments
- Specially designed wear-resistant pumping hydraulics (W) with wear-resistant materials deliver six to eight times longer life time than conventional pumps



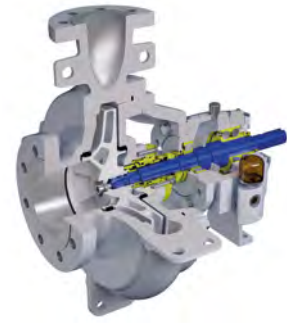
AHLSTAR E

KEY CHARACTERISTICS

Capacities	6,000 m ³ /h / 24,000 USgpm
Heads	160 m / 525 ft
Pressures	25 bar / 360 psi, depending on material and size
Temperatures	210°C / 410°F

APPLICATIONS

- Developed especially for pumping hot liquors such as in continuous and batch digesters (E hydraulics). Centerline supported design prohibits heat and pressure shock distortions



AHLSTAR CLOSE COUPLED

KEY CUSTOMER BENEFITS

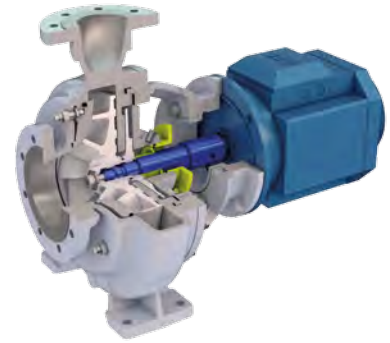
- The close coupled design with standard flange or flange/feet type electric motors makes installation quick and easy, thus reducing the total installation costs

KEY CHARACTERISTICS

Capacities	600 m ³ /h / 2,600 USgpm
Heads	160 m / 525 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	130°C / 266°F

APPLICATIONS

- For clean and slightly contaminated liquids, viscous liquids, fibrous slurries, liquids containing large solids, and liquids with high gas content up to 70 %



AHLSTAR A, N AND W DEGASSING UNITS FOR STABILITY AND RELIABILITY

KEY CUSTOMER BENEFITS

- AHLSTAR A, N and W type pumps can be fitted with self-priming or degassing units, to enable the pump to be started fast and reliably with an empty inlet pipe and to allow it to pump liquids with high gas content
- AHLSTAR pump with self-priming unit, such as LM or S liquid ring pumps and the GM, GS or R gas separator units, stabilize the pumping of liquids containing up to 40% weakly bonded gases or up to 70% strongly bonded gases
- The difference in pressure between the pump inlet and the degassing unit outlet or the internal liquid ring pump eliminates gas bubbles from the impeller and thus stabilizes the system and significantly increases pump efficiency

APPLICATIONS

- Applications with high gas containing clean or slightly contaminated liquids, viscous liquids, fibrous slurries, non-fibrous slurries, liquids containing large solids
- Degassing in high and low inlet head applications (1)
- Degassing in negative inlet head applications (2)
- Self-priming applications replacing complicate, weak and more maintenance requiring submersible and expensive vertical pumps (2)
- Replacing complicate, expensive and high building requiring classic barometric leg systems e.g. water separator and filter applications (3)



Pumps for Your Most Critical Applications and Demanding Processes

The Sulzer product range includes several pump types designed for applications with special requirements in various pulp and paper mill processes. As the entire paper machine production passes through the headbox feed pump, it is one of the most critical pumps in the mill.

ZPP/Z22 HEADBOX FEED PUMP

KEY CUSTOMER BENEFITS

- Designed especially for today's high-speed paper and board machines requiring minimum pulsation, absolute reliability and high efficiency
- Precision castings from our own foundry are a key factor in fulfilling the low pulsation requirements
- High-quality surface finishing eliminates fiber hang-up or build-up of deposits
- Proven reliability with various paper grades in most world-record paper and board machines

KEY CHARACTERISTICS

Capacities	30,000 m ³ /h / 130,000 USgpm
Heads	220 m / 720 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	140°C / 280°F

APPLICATIONS

- For applications with special requirements in various pulp and paper mill processes



AHLSTAR A PROCESS PUMPS FOR HEADBOX APPLICATION

KEY CUSTOMER BENEFITS

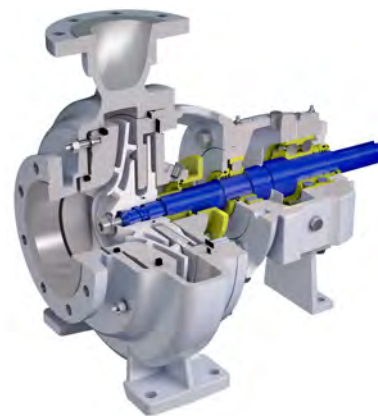
- Especially well-suited for the latest high-speed paper and board machines requiring minimum pulsation, absolute reliability and high efficiency

KEY CHARACTERISTICS

Capacities	11,000 m ³ /h / 48,400 USgpm
Heads	160 m / 525 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	180°C / 355°F

APPLICATIONS

- For applications with special requirements in various pulp and paper mill processes



LSP/LST TWO-STAGE LOW SPEED HIGH PRESSURE PUMP

KEY CUSTOMER BENEFITS

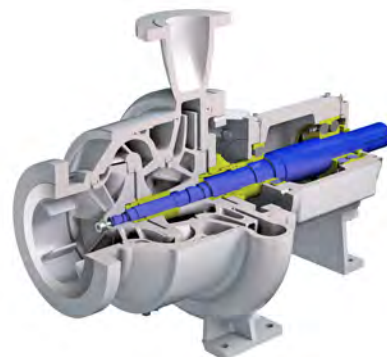
- A two-stage pump with back pull-out design for easy maintenance
- Special hydraulics with low NPSHr value

KEY CHARACTERISTICS

Capacities	1,100 m ³ /h / 4,760 USgpm
Heads	230 m / 750 ft
Pressures	25 bar / 360 psi
Temperatures	180°C / 355°F

APPLICATIONS

- For pumping make-up and wash liquor in continuous digester service



MBN MULTISTAGE RING SECTION PUMP

KEY CUSTOMER BENEFITS

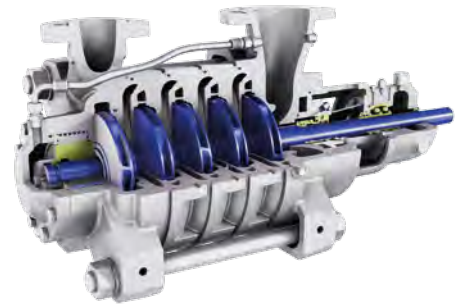
- Features our innovative polygon fit between impellers—no keys needed
- Maintenance-free dynamic seal, mechanical seals and gland packing are available for shaft sealing
- Easy to maintain – needing only one roller bearing unit and one shaft seal

KEY CHARACTERISTICS

Capacities	700 m ³ /h / 3,080 USgpm
Heads	900 m / 2,950 ft
Pressures	100 bar / 1,450 psi
Temperatures	180°C / 355°F

APPLICATIONS

- For clean or slightly contaminated liquids in shower water, sealing water, boiler feed water applications, where a high pressure/high head is needed



MC/MD HIGH-PRESSURE MULTISTAGE PUMP

KEY CUSTOMER BENEFITS

- High efficiency and wide hydraulic coverage
- Special hydraulics with low NPSHr value provide cavitation-free functioning and low noise level
- PERMAVOR® lift off device for extended service life

KEY CHARACTERISTICS

Capacities	1,000 m ³ /h / 5,000 USgpm
Heads	2,400 m / 8,200 ft
Pressures	330 bar / 4,790 psi
Temperatures	210°C / 410°F

APPLICATIONS

- For clean liquids in recovery boiler feed applications



Vertical Pumps

KEY CUSTOMER BENEFITS

- Exceeds requirements of international ISO 5199 standard
- Unique, patented and superior design features minimize life-cycle costs
- Suitable for all types of severe applications in seal pits and floor channels

NKP/NKT AND WKP/WKT NON-CLOGGING CANTILEVER PUMPS

KEY CHARACTERISTICS

Capacities	430 m ³ /h / 1,900 USgpm
Heads	60 m / 200 ft
Pressures	10 bar / 150 psi, depending on material and size
Temperatures	95°C / 205°F

APPLICATIONS

- For waste stock, slurries and waste water containing large solid particles



NVP/NVT NON-CLOGGING VERTICAL PUMP

KEY CHARACTERISTICS

Capacities	1,200 m ³ /h / 5,400 USgpm
Heads	85 m / 280 ft
Pressures	10 bar / 150 psi, depending on material and size
Temperatures	95°C / 205°F

APPLICATIONS

- For waste stock, slurries and waste water containing large solid particles

Rely on the Pioneers in the Medium Consistency (MC[®]) Technology

Sulzer's MCE™ pumping systems for medium consistency (MC[®]) stock have proven to be the most reliable solution in the pulp and paper industry. Sulzer utilizes application-related Fluider™ technology when selecting pumping solutions for pulp and paper mills.

THE FLUIDER™ TECHNOLOGY INCLUDE PROVEN PATENTED STOCK PUMPING RANGES:

- MCE™ Pumping Systems
- LCE™ Pumping Systems
- KCE™ Pumping Systems

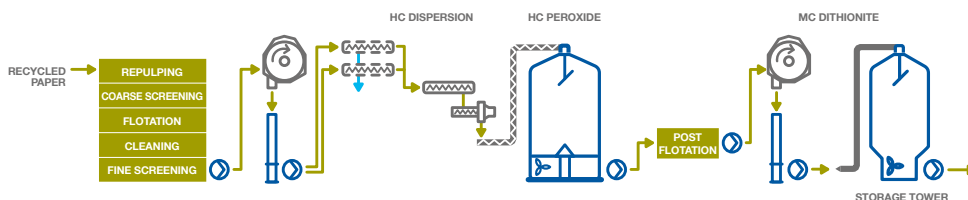
KEY CUSTOMER BENEFITS

- Highest efficiency, reducing power consumption and installation costs
- Correct fluidization prevents fiber over-treatment
- Degassing alternatives include a built-in degassing system, a separate external MDS degassing system, and degassing without a vacuum pump
- High-temperature pumping
- Low and high inlet level pumping
- One-drive unit system in most applications
- Proven long-life mechanical design

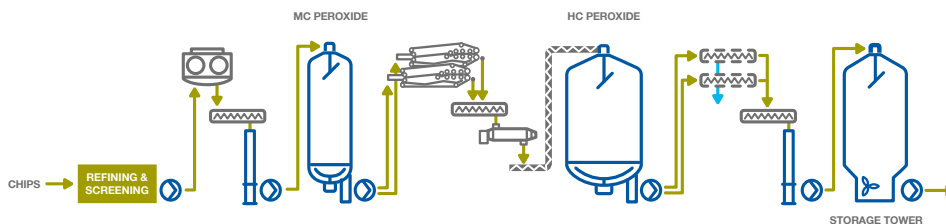
KEY CHARACTERISTICS

Heads up to 250 m / 820 ft
 From 20 to 9,000 ADMT/d
 Consistency range 6 - 18%

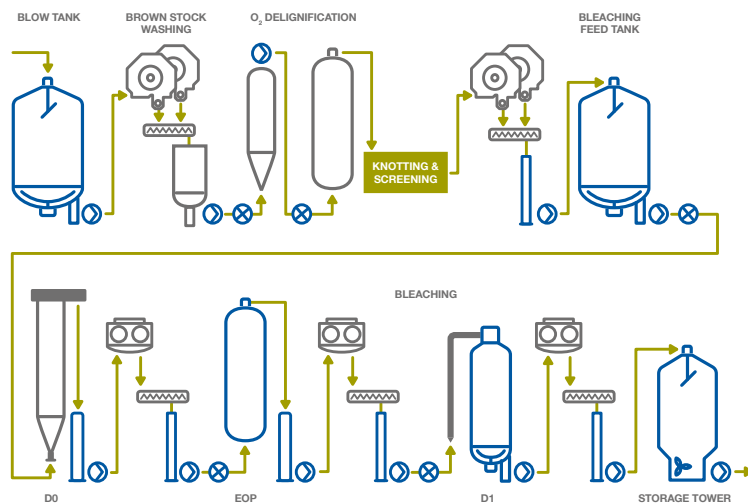
RECYCLED FIBER LINE



MECHANICAL PULP LINE



KRAFT PULP BLEACHING LINE



MCE™ PUMPING SYSTEM



APPLICATIONS

- The most advanced patented MC® pumping technology for all pulp and paper mill applications

LCET™ PUMPING SYSTEM



APPLICATIONS

- The most efficient pumping technology for recycled fiber and mechanical pulp line applications

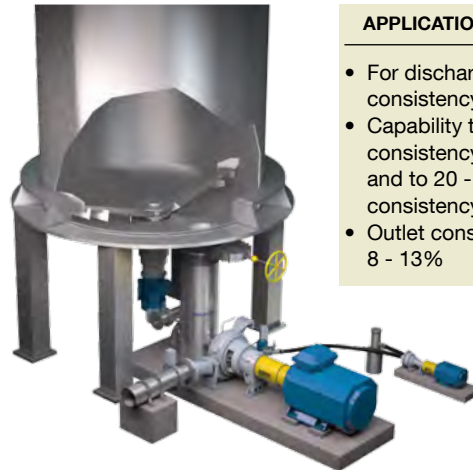
KCE™ PUMPING SYSTEM



APPLICATIONS

- The most efficient pumping technology for all pulp and paper mill applications when feeding press washers in the Semi-MC™ (intermediate consistency) range and high volume flows

MC® DISCHARGE SCRAPER AND THE TOWER DISCHARGE PUMPING



APPLICATIONS

- For discharging high consistency towers
- Capability to 13% tower consistency without dilution, and to 20 - 35% tower consistency with dilution
- Outlet consistency typically 8 - 13%

SX CHEMICAL MIXER



APPLICATIONS

- For mixing both gaseous and liquid bleaching chemicals as well as steam into the paper stock

MC® DISCHARGER



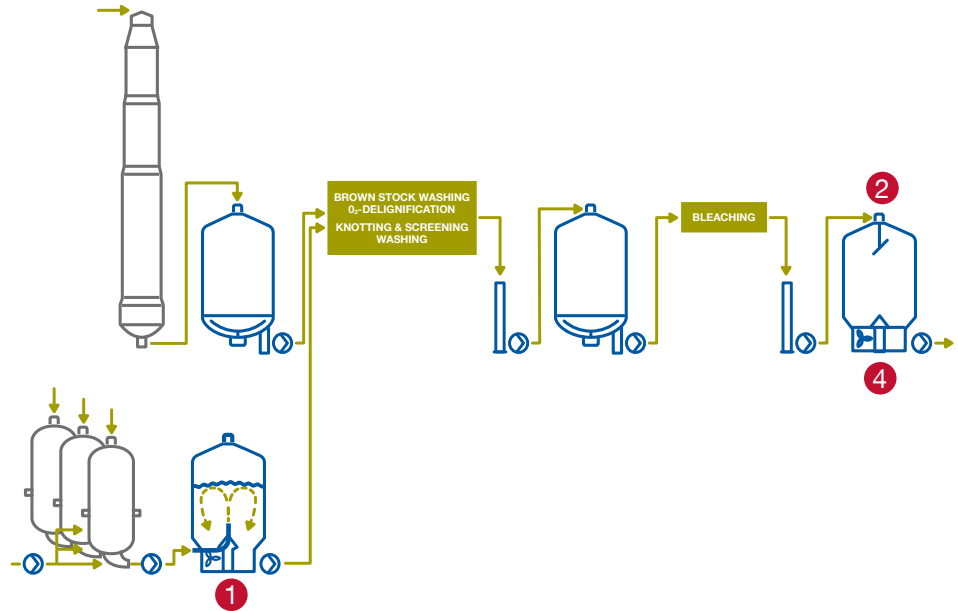
APPLICATIONS

- For dividing and controlling high-consistency stock flow and for discharging towers or reactors
- For removing gas from the process

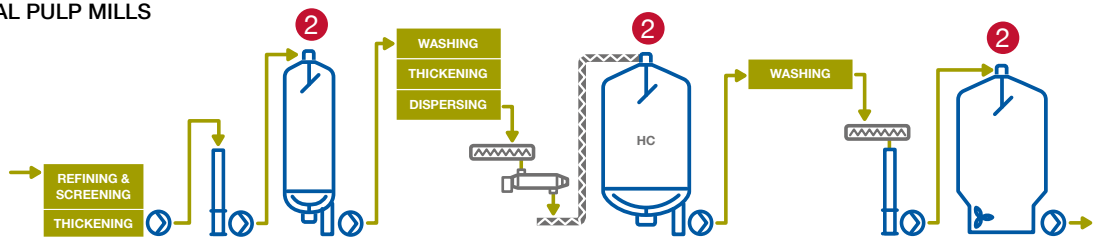
Sulzer TMS – The Tower Management System for the Pulp and Paper Industry

Sulzer has a unique knowledge of the pulp and paper industry's agitation processes and requirements. With more than 30 years experience in in this industry, we can help you succeed in today's most challenging mixing tasks.

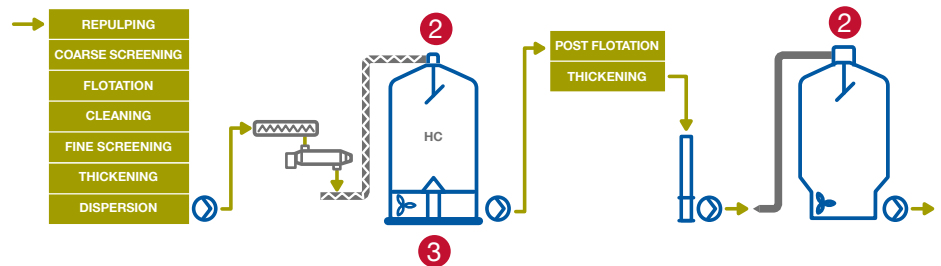
TMS IN CHEMICAL PULP MILLS



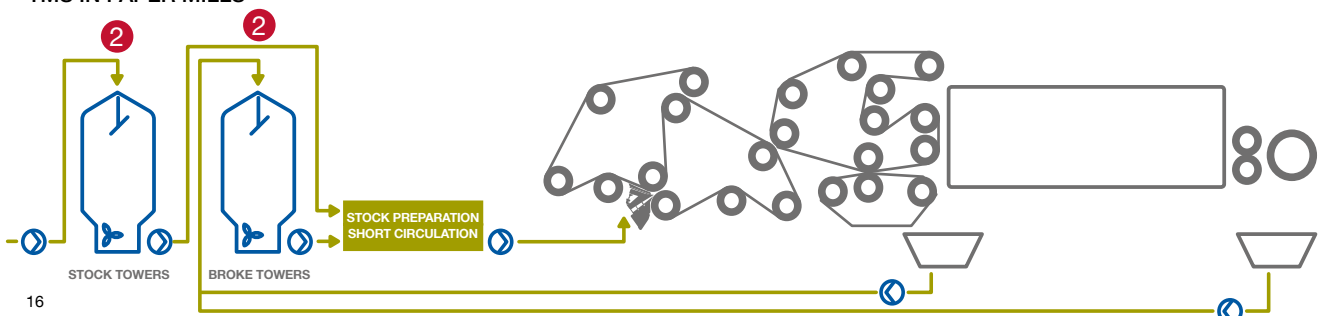
TMS IN MECHANICAL PULP MILLS



TMS IN RECYCLED FIBER LINES



TMS IN PAPER MILLS



SALOMIX® VULCA*

VULCA is a tower bottom center fillet pillar.

KEY CUSTOMER BENEFITS

- While VULCA stands at the tower bottom, filling and pumping stock through VULCA saves pumping energy, boosts bottom zone mixing, and prevents the mixing of air into the stock at low stock levels



SALOMIX® TES TOP ENTRY SPREADER*

TES spreads stock evenly on the top surface to control the flow in the upper, high-consistency part of the tower. The quality of the discharged stock remains good.

KEY CUSTOMER BENEFITS

- Creates a uniform continuous downflow, with no stagnant zones
- Variable rotating speed always spreads a fresh top layer of stock, regardless of the surface level
- Prevents channelling and air entrainment into the stock



SALOMIX® GLI*

GLI is a special center fillet located at the bottom of the storage tower.

KEY CUSTOMER BENEFITS

- Enables trouble-free operation of high-consistency storage and bleaching towers with a large bottom zone using several agitators
- Ensures effective mixing, and dilution is intensified by baffles
- Creates a well controlled mixing/dilution zone to the tower bottom
- Separates effectively the storage zone and the active mixing and dilution zone of the tower, thus giving a powerful tool to ensure even discharge consistency and good operation of the tower



SALOMIX® TES Top Entry Spreader – Solving Your Storage Tower Problems

TES spreads stock evenly on the top surface to control the flow in the upper medium- or high-consistency part of the tower. The quality of the discharged stock remains good.

SALOMIX® TOP ENTRY SPREADER

KEY CUSTOMER BENEFITS

- Creates a uniform continuous downflow, with no stagnant zones
- Variable rotating speed always spreads a fresh top layer of stock, regardless of the surface level
- Prevents channelling and air entrainment into the stock

CUSTOMER CASE: TES SOLVES RETENTION TIME PROBLEM

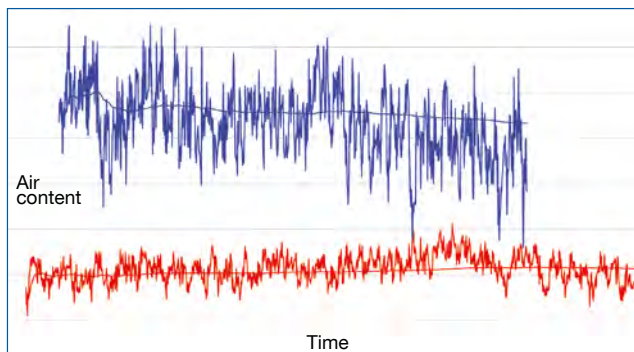
A customer's 2,000 m³ / 70,600 ft³ storage tower, with an upper diameter of 12 m / 39 ft and a bottom diameter 6.5 m / 21 ft, was operating at less than half its theoretical retention time or four hours for a full stock level.

Test run results show how TES corrected the tower operations to achieve the correct retention time:

Tower level	89%	59%
Measured average retention time	4 h 10 min	2 h 10 min
Theoretical retention time	4 h 24 min	2 h 16 min

CUSTOMER CASE: TES SOLVES ENTRAINED AIR PROBLEM

The air content of pulp in the customer's storage tower was fluctuating badly and averaging 6% (blue curve in the figure). After installing TES, the air content decreased to 2% and the variation was markedly reduced, as shown by the red curve.



Effective Agitation in the Pulp and Paper Industry

Sulzer agitators are designed for the demanding agitation applications in the pulp and paper industry. From the fiberline to the wastewater treatment you will find reliable Sulzer agitators handling the agitation requirements. But this without the input of too much power, to save energy costs for our customers.

Agitation of pulp is a demanding process. There are several factors that effect on agitator selection:

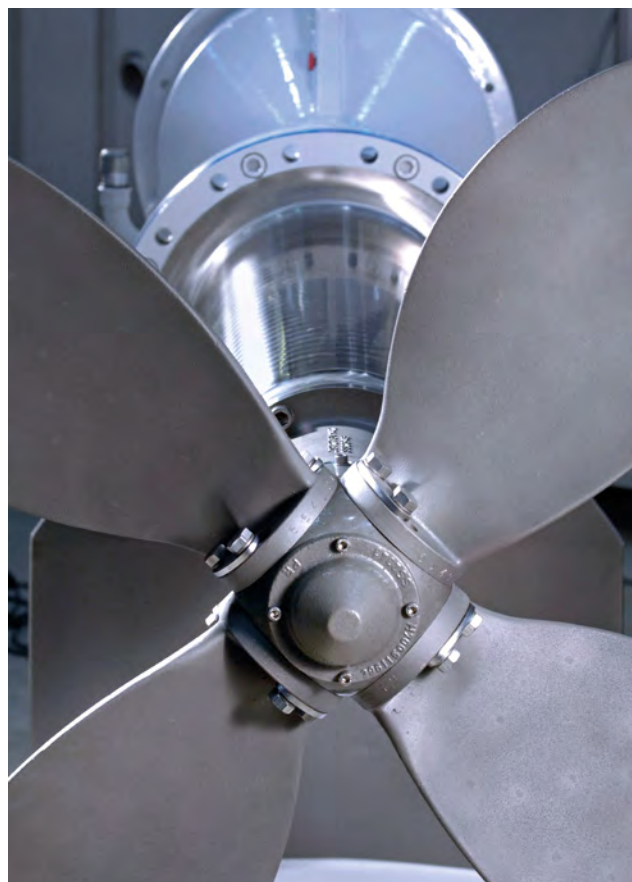
- Type of wood used for the pulp
- Pulping process
- Consistency
- Other pulp properties
- Shape of the agitated chest
- Production rate of the mill

Agitation is also needed in the coating kitchen, where fillers, pigments and other additives are produced and stored. Here you can select a vertical agitator from Sulzer, especially designed for the fluid properties and required level of agitation.

Sulzer has also developed suitable agitators for several demanding agitation processes in the evaporations and chemical recovery plants on including:

- Mixing of ash into thick black liquor
- Dissolving of smelt from the recovery boiler into weak white liquor

Sulzer also has agitators designed for treatment of wastewater from pulp and paper mills. For coagulation, flocculation and other agitation processes Sulzer can provide high efficiency, low power agitators to handle all agitation requirements in the wastewater treatment plant.



SALOMIX® and Scaba Mixing Technology Products for a More Reliable and Efficient Process

Sulzer SALOMIX® and Scaba mixing and agitation technology offers a wide range of products for pulp and paper applications. Side-mounted horizontal and top-mounted vertical agitators guarantee effective agitating processes.

SALOMIX® side-mounted gear or belt driven propeller agitators

KEY CUSTOMER BENEFITS

- High efficiency results in energy savings and improved agitation
- Cast, four-bladed, adjustable propeller blades give accurate power control
- Conical body shape supports the propeller and ensures vibration free operation
- Unique solutions

SALOMIX® SLF/STF GEAR DRIVE

KEY CHARACTERISTICS

Maximum agitated consistency	Up to 6%
Propeller diameters	800, 1,000 and 1,250 mm / 30, 40 and 50 in
Power	7.5 to 55 kW / 10 to 75 hp

APPLICATIONS

- For all stock agitating processes



SALOMIX® SLG/SLT GEAR DRIVE

KEY CHARACTERISTICS

Maximum agitated consistency	Up to 6%
Propeller diameters	500 to 1,700 mm / 20 to 65 in
Power	5.5 to 90 kW / 7.5 to 120 hp

APPLICATIONS

- For all stock agitating processes



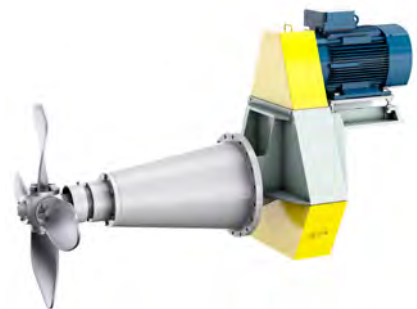
SALOMIX® SLB/SLH, STB BELT DRIVE

KEY CHARACTERISTICS

Maximum agitated consistency	Up to 6%
Propeller diameters	500 to 1,700 mm / 20 to 65 in
Power	5.5 to 90 kW / 7.5 to 120 hp

APPLICATIONS

- For all stock agitating processes
- SLH for green liquor dissolving tank



SALOMIX® SLR/STR

KEY CHARACTERISTICS

Maximum agitated consistency	Up to 6%
Propeller diameters	315 to 800 mm / 12 to 30 in
Power	2.2 to 11 kW / 3 to 15 hp

APPLICATIONS

- For white water tanks and smaller stock tanks



SCABA SIDE-MOUNTED BELT DRIVEN PROPELLER AGITATOR

KEY CUSTOMER BENEFITS

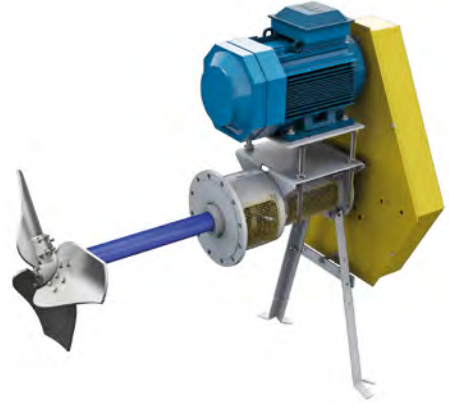
- Sturdy construction with rigid shaft and bearings
- High efficiency results in energy savings and improved agitation
- High flow SHP1 and SHP18 propellers are used to generate good axial flow
- Both mechanical seals and stuffing box alternatives
- Possibility to change seal without emptying the tank with stuffing box

KEY CHARACTERISTICS

Stock consistency	Up to 6%
Agitated volume	735 up to 1,450 mm / 29 up to 57 in
Power	2.2 up to 200 kW / 3 up to 270 hp

APPLICATIONS

- For all stock agitating processes



SALOMIX® L TOP-MOUNTED GEAR OR BELT DRIVEN AGITATOR

The L series covers gear or belt driven agitators mounted vertically on the tank top or bottom flange.

KEY CUSTOMER BENEFITS

- Versatile impeller options meet any process needs in compliance with the rheology of the mixed fluid
- Maximum modular component flexibility
- Applicable for tanks from 1 to 2,500 m³ / 88,285 ft³

KEY CHARACTERISTICS

Impeller diameter	Up to 8,000 mm / 316 in
Shaft length	Up to 30 m / 100 ft
Power	Up to 450 kW / 600 hp

APPLICATIONS

- For storage towers, dissolvers, reactors, and production vessels



SCABA TOP-MOUNTED GEAR OR BELT DRIVEN AGITATOR

The top-mounted series covers gear or belt driven agitators mounted vertically on the tank top or bottom flange.

KEY CUSTOMER BENEFITS

- Dry installed agitators rely on a deep process knowledge, which enable us to tailor-make the agitators to meet your specific need. This ensures the required process result with a minimum energy input
- Versatile impeller options
- High efficiency SHP propellers
- Good axial flow

KEY CHARACTERISTICS

Impeller diameter	Up to 8,000 mm / 316 in
Shaft length	Up to 30 m / 100 ft
Power	Up to 450 kW / 335 hp

APPLICATIONS

- For storage towers, dissolvers, reactors, and production vessels
- Wastewater treatment



Meeting Today's Challenges within Wastewater Treatment

Growing environmental awareness and increasing demands on wastewater gives higher requirements on the effluent treatment. Many pulp and paper mills are now leading the way of applying groundbreaking technologies and bringing significant environmental and economical benefits.

Requirements of the wastewater industry are very different depending on the process, and the composition from a bleached pulp line will be very different from a fine paper mill, a tissue machine or what comes from a mechanical fiber line – both regarding amount of fibers and suspended solids, oxygen requirement in the aeration process or the seasonal changes.

Sulzer has a deep knowledge in wastewater treatment and when combining the product range of process pumps with agitators, submersible pumps and mixers, aerators and compressors we can offer you great options for energy efficient solutions for now – and for your future operation.

In addition to the AHLSTAR range, Sulzer also offers the following dedicated products to perfectly meet your various water and wastewater treatment application needs:

SUBMERSIBLE SEWAGE PUMP TYPE ABS XFP

KEY CUSTOMER BENEFITS

- Significant energy savings with high efficiency hydraulics and IE3 motor
- Long term reliability with rigid shaft and bearing lifetime 100,000 h
- Impellers designed specifically for wastewater and optimized for rag handling
- Minimum 75 mm free solids passage
- Submersed or dry installed
- Sizes up to DN600 and 350 kW

KEY CHARACTERISTICS

Capacities	7,200 m ³ /h / 22,220 USgpm
Head	78 m / 360 ft
Temperature	40°C / 104°F

APPLICATIONS

- Raw water intake, wastewater treatment plant, wastewater with large solids, various pumping stations of all sizes



AHLSTAR A, N AND W SELF-PRIMING GAS REMOVAL PUMPS

KEY CUSTOMER BENEFITS

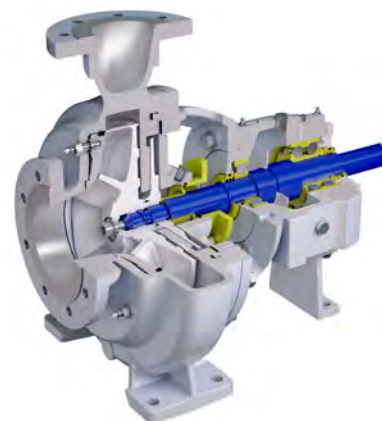
- Versatile, reliable, high-efficiency hydraulics and material options
- Quick and easy installation, safe operation, easy maintenance and service
- No plugging
- Innovative and reliable degassing and self-priming units

KEY CHARACTERISTICS

Capacities	11,000 m ³ /h / 48,400 USgpm
Heads	160 m / 525 ft
Pressures	16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	180°C / 355°F

APPLICATIONS

- Self-priming pumps or for pumping all kind of liquids with high gas content, such as various type of sludge



TURBOCOMPRESSOR TYPE ABS HST

KEY CUSTOMER BENEFITS

- Ensures that you get the highest efficiency for your biological treatment
- No wear due to the magnetic bearings
- Lubrication free
- Easy installation by integral design
- Low noise level: no need for additional soundproofing
- Flow control by integrated variable frequency drive

KEY CHARACTERISTICS

Air flow	700 – 16,000 Nm ³ /h / 25,000 – 560,000 ft ³ /h
Pressure range	30 – 125 kPa / 4 – 18 PSIG

APPLICATIONS

- Aeration for treatment of industrial wastewater



SUBMERSIBLE AERATOR MIXER TYPE ABS OKI

The submersible aerator mixer, together with the high-speed turbo blower, is the key to solving many aeration problems in industrial applications. This freestanding unit is simple to position at the bottom of the tank, and can run as either an aerator or a mixer.

KEY CUSTOMER BENEFITS

- High process efficiency
- Designed for non-clogging operation
- Liftable and selfstanding, making it easy to change of the plant configuration –no need to empty the tank
- Can run as an aerator and/or mixer according to process requirements

KEY CHARACTERISTICS

Oxygen transfer	Up to 405 kg O ₂ /h / up to 890 lb O ₂ /h
Motor range	3 – 37 kW

APPLICATIONS

- For aeration processes, in the pulp and paper industry



SCABA TOP-MOUNTED GEAR OR BELT DRIVEN AGITATOR

The top-mounted series covers gear or belt driven agitators mounted vertically on the tank top or bottom flange.

KEY CUSTOMER BENEFITS

- Dry installed agitators rely on a deep process knowledge, which enable us to customize the agitators to meet your specific need. This ensures the required process result with a minimum energy input
- Versatile impeller options
- High efficiency SHP propellers
- Good axial flow

KEY CHARACTERISTICS

Impeller diameter	Up to 6,000 mm / 236 in
Shaft length	Up to 30 m / 100 ft
Power	Up to 450 kW / 335 hp

APPLICATIONS

- Flocculation, flash mixer, neutralization, sludge tanks, chemical storage, anaerobic digester etc.



SUBMERSIBLE MIXER TYPE ABS XRW AND FLOW BOOSTER TYPE ABS XSB

KEY CUSTOMER BENEFITS

- Energy efficient design, such as IE3 motors, high efficiency propellers and slow running design
- Self-cleaning propellers provides vibration-free operation
- Robust construction guarantee superior reliability and long operating life

KEY CHARACTERISTICS

Propeller diameter	210 to 2,750 mm / 8,3 in to 9 ft
Operational speed	High – Medium – Medium Low and Low speed

APPLICATIONS

- For all sizes of treatment plants



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