

SULZER

Mixing solutions

Scaba STA vertical agitator

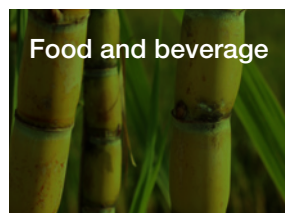
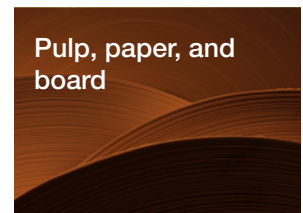
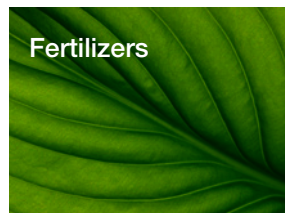
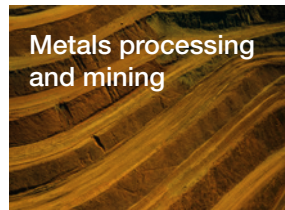


Versatile agitation solutions for your industry

Sulzer is a trusted partner for industries worldwide, providing innovative agitation solutions that optimize processes and improve performance. Our extensive experience, gained through thousands of installations, allows us to understand the unique challenges you face and deliver tailored solutions.

A high-quality agitator is defined not only by its smart, service-friendly construction, but also by its ability to deliver efficient process performance while minimizing power consumption. Because tank geometries and process requirements vary widely, a versatile agitator must offer a flexible design with a broad range of configurations and efficient hydraulics.

The Scaba STA vertical agitator is engineered for flexibility, adapting to a wide range of tank geometries, process needs, and industry-specific requirements.



Designed for superior performance and value for your operations' benefit

Process expertise

Unmatched application know-how

Benefit from our extensive experience across diverse industries, ensuring optimal mixing solutions tailored to your specific needs.

Precise agitation control

Our Degree of Agitation (DA) selection method guarantees the right agitation level for your process, maximizing efficiency and product quality.

Proven performance

Benefit from a proven track record with thousands of successful installations worldwide.

Energy efficiency

Reduce energy costs

High-efficiency hydrofoil propellers and precise agitation control minimize power usage, reducing your operating expenses.

Optimize your process

Achieve the perfect balance of mixing intensity and power consumption.

Reliability and durability

Built to last

Robust design and rigorous mechanical integrity calculations ensure long-lasting performance and minimize downtime.

Application-specific design

Our agitators are engineered to withstand demanding conditions, including emptying and filling cycles and side-current forces.

Service and support

Global support network

Benefit from our worldwide network of service professionals, providing expert assistance and rapid response.

Simplified maintenance

Modularized design and readily available spare parts minimize downtime and simplify maintenance.

Engineered for excellence

1 High-efficiency hydrofoil propellers reduce power consumption and operating costs while achieving superior mixing performance.

2 Smooth impeller design minimizes shear forces and wear, making it ideal for sensitive applications and extending the lifespan of the agitator.

3 Wide range of impellers, with different types and sizes, ensures the perfect impeller selection for your specific application, optimizing mixing efficiency and results.

4 Robust gearbox with high service factor that provides reliable operation and long-term durability, even under demanding conditions.

5 Rigid output shaft ensures stable and efficient power transmission, contributing to overall reliability.

6 Configured for high reliability, with all individual components mechanically evaluated for the specific application using methods based on the Finite Element Method (FEM).

7 Well-known global gearbox brands, with local support, ensure quick service and minimal downtime.

8 Bottom bearing as an option provides additional shaft stability, especially in demanding applications.

9 Wide range of materials of construction allows for customization to suit a variety of process fluids and operating environments, ensuring corrosion resistance and long-term performance.

10 Agitator flange connection according to metric or ASME standard ensures compatibility with existing infrastructure and simplifies installation.

11 Cost-effective lip seal as an option protects the agitator from contamination and extends its lifespan.



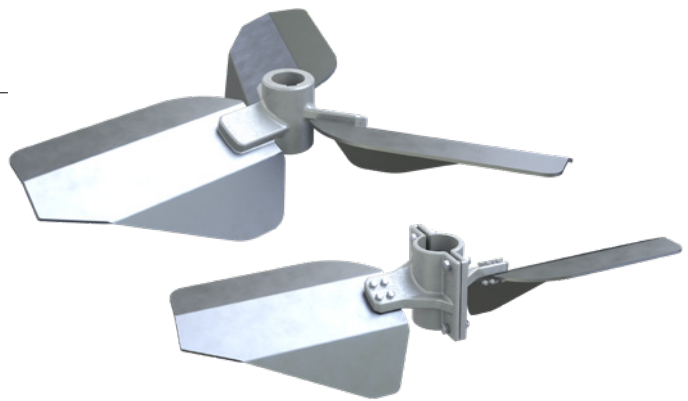
Choose the right propeller for optimal performance

Sulzer offers a comprehensive range of high-efficiency hydrofoil propellers, engineered to deliver superior mixing performance across a wide variety of applications. Our propellers are developed using advanced Computational Fluid Dynamics (CFD) simulations and rigorous testing, ensuring optimal results.

All Sulzer hydrofoil propellers feature a smooth design to minimize shear forces, making them ideal for sensitive processes like flocculation and Moving Bed Biofilm Reactor (MBBR) and extending the lifespan of the agitator.

Scaba GP hydrofoil propeller

- 2-bladed or 3-bladed design
- Ideal for viscous liquids, thick suspensions, slurries, and large pumping capacities
- Provides efficient mixing in challenging media
- Available in diameters from 400 to 2'250 mm (16 to 88 in.)



Scaba NP hydrofoil propeller

- 2-bladed or 3-bladed design
- Optimized for liquids with low viscosity, light suspensions, and slurries
- Ensures thorough mixing in less viscous fluids
- Available in diameters from 600 to 3'000 mm (24 to 118 in.)



EX3 hydrofoil propeller

- Designed for very high pumping capacities and high agitation intensity, suitable for viscous liquids, slurries, and suspensions
- Delivers high-performance mixing power for demanding applications
- Available in diameters from 800 to 1'300 mm (32 to 52 in.)



Unleash the power of versatile performance

The Scaba STA vertical agitator is engineered to excel in a wide range of applications and media types. Its robust design and flexible configuration ensure optimal performance, regardless of the challenge.

- Water, wastewater, and other water-like media
- Viscous liquids
- Non-Newtonian liquids
- Organic sludge (e.g. from wastewater processes)
- Inorganic sludge (e.g. mineral slurries)
- Mineral suspensions
- Chemicals
- Paper pulp



The adaptable design of Scaba STA allows us to tailor the agitator to your specific needs

Standard performance data

	SI units	US units
Temperature	up to 120°C	up to 248°F
Power	0.25 to 55 kW	0.35 to 75 hp
Impeller diameter	400 to 3'000 mm	16 to 118 in.
Shaft length up to 6 shaft steps	max. 30 m	max 100 ft.
Shaft type	Solid or pipe shafts	
Gearbox type	Parallel shaft drive with hollow shaft	
Motor options	Gearmotor or gearbox with motor adapter (IEC or NEMA)	

Performance data as standard, with extended options available.

Customize your Scaba STA

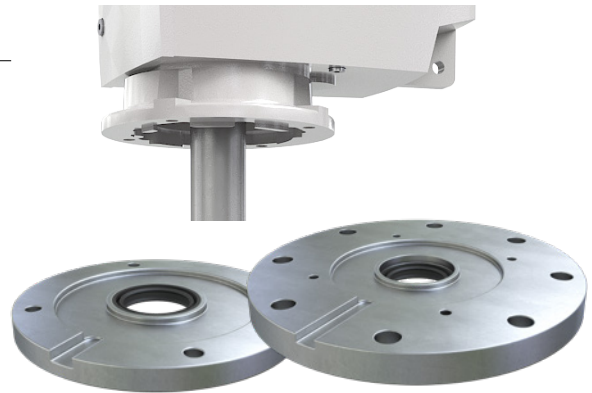
Enhance the performance and adaptability of your Scaba STA vertical agitator with our comprehensive range of accessories. We offer a variety of options to meet your specific application needs.

Flanges

Choose from various flange types to ensure compatibility with your existing infrastructure.

- No additional flange, metric IEC flange
- Metric IEC flange, prepared for lip seals
- ASME flange, prepared for lip seals

Ensures a secure and reliable connection to your tank.



Lip seals

Cost-effective seals designed for small over-pressures or under-pressures.

- Suitable for flanges in metric IEC and US ASME standards.

Protect the agitator drive unit from steam, fumes, dust, and liquids, extending its lifespan and minimizing maintenance.



Bottom bearings

Provide additional shaft stability and reduce investment costs. Two standard types available:

- Open: The agitated media lubricates the bottom bearing.
- Flushed: Water or other lubrication media lubricates the bottom bearing and keeps it free from wearing particles.

Enhance the stability of long shafts and improve overall performance, especially in applications with particulate matter.



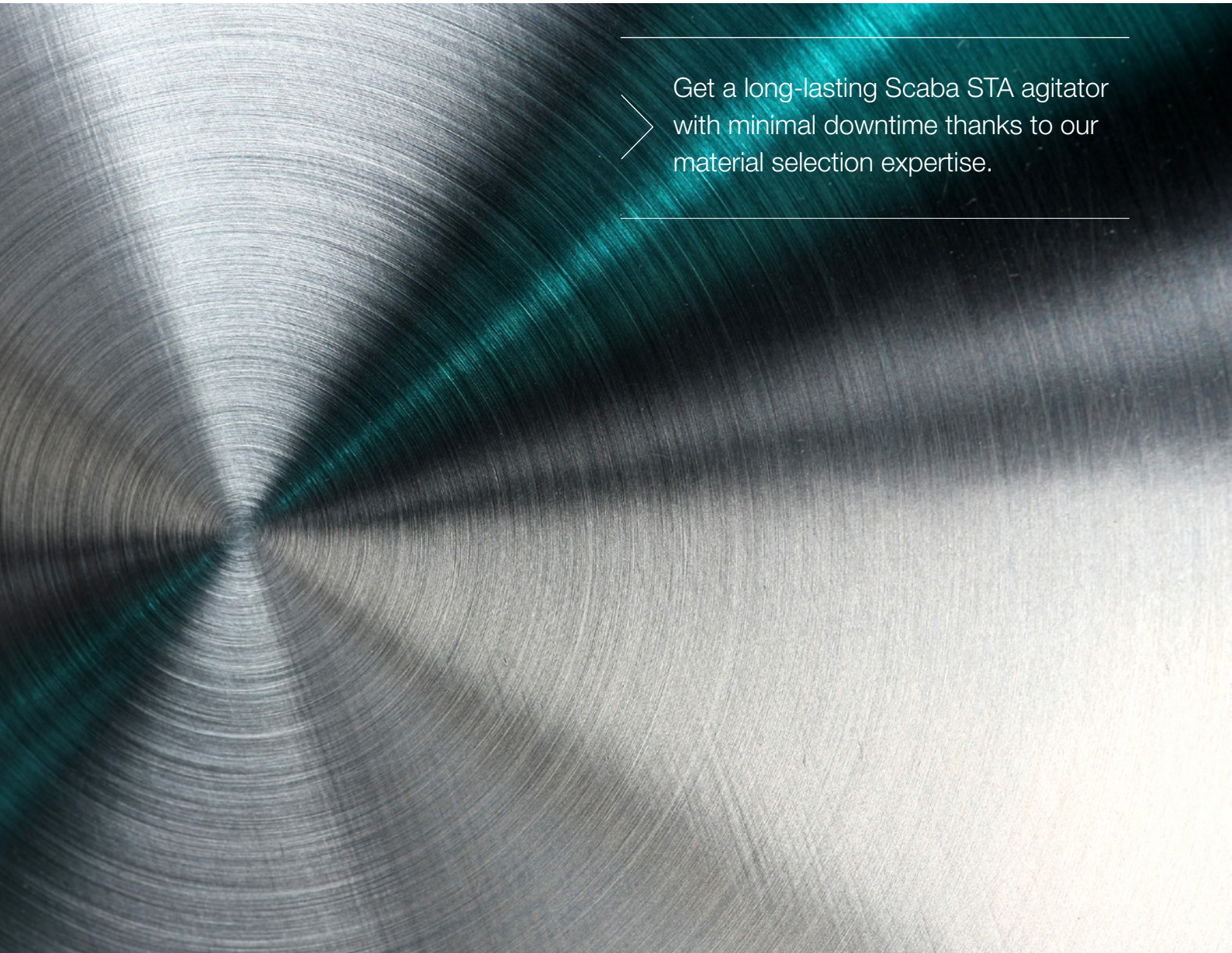
Built to last

Right materials are crucial for ensuring the longevity and reliability of your agitator. We offer a range of high-quality materials to meet the specific demands of your application.

Standard materials of construction*

Austenitic 304SS	Excellent corrosion resistance in a wide range of environments
Austenitic 316SS	Superior corrosion resistance, particularly in chloride-containing environments
Super duplex (2507)	Exceptional strength and corrosion resistance, ideal for harsh environments

*Other materials are available upon request. Contact us to discuss your specific material requirements.



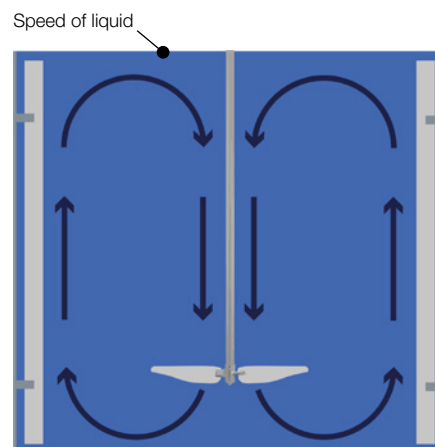
Get a long-lasting Scaba STA agitator with minimal downtime thanks to our material selection expertise.

Precision mixing

At Sulzer, we understand that achieving optimal mixing results requires more than just a powerful agitator. That is why we utilize the Degree of Agitation (DA) method, a proven design approach that ensures precise and efficient mixing for your specific process.

What is Degree of Agitation?

The Degree of Agitation is based on the liquid velocity at the surface of the tank. By carefully controlling the liquid velocity, we can tailor the mixing intensity to your exact needs, optimizing performance and minimizing energy consumption.



DA	Relative power	Description	Process	Surface velocity	m/s
1	1	Very mild	Flocculation Anaerobic digester Flotation	Almost invisible	0.04
2	3	Mild	Flocculation Homogenization Flotation	Weak	0.08
3	20	Medium	Homogenization (storage)	Visible	0.12
4	40	Good	Blending Heat transfer Suspending (light) Dissolving	Good	0.16
6	160	Strong	Blending Suspending (medium) Dissolving	Strong	0.24
10	700	Violent	Leaching Suspending (heavy) Dissolving	Violent	0.4

Benefits of using Degree of Agitation

Optimized efficiency

Achieve the perfect balance of mixing intensity and energy usage.

Lower operating costs

Minimize power consumption to reduce expenses.

Consistent quality

Maintain product quality through uniform mixing.

Versatile application

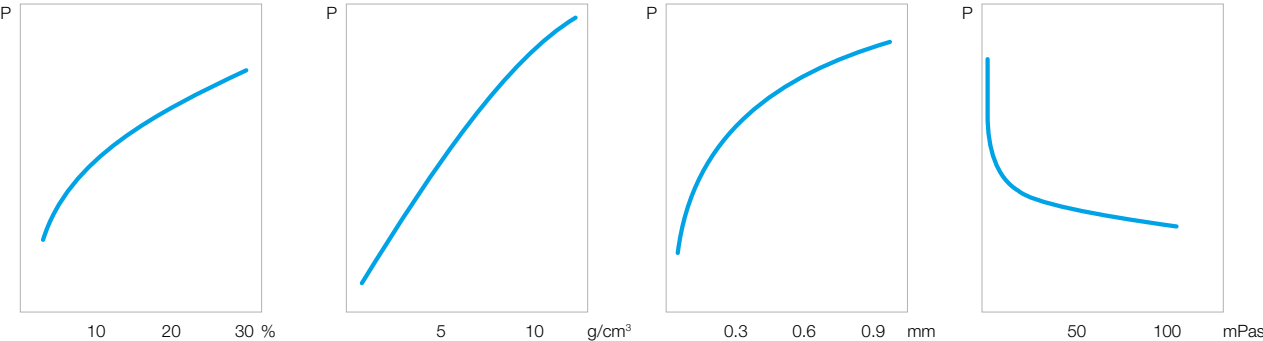
Suitable for diverse processes, rheologies, and tank configurations.

Mastering suspensions

Effective suspension is critical for many industrial processes. At Sulzer, we have the expertise to design agitator systems that ensure uniform particle distribution and optimal performance.

Understanding suspensions

To suspend particles, the upgoing flow velocity created by the agitator must exceed the particle settling velocity. The required power depends on several factors:



Dry solids content
Higher solids content increases power demand.

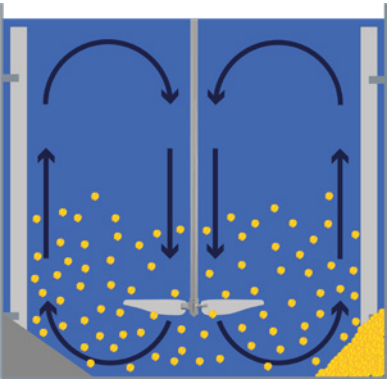
Particle density
Higher particle density increases power demand.

Particle diameter
Larger particle size leads to higher settling velocity and higher power demand.

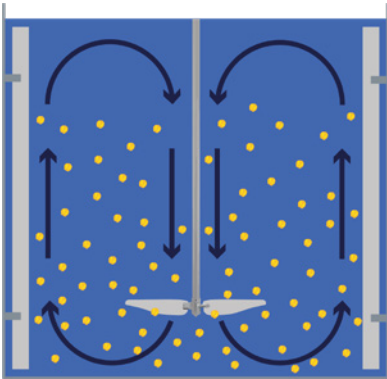
Liquid viscosity
Higher liquid viscosity reduces settling velocity and power demand.

Suspension grades

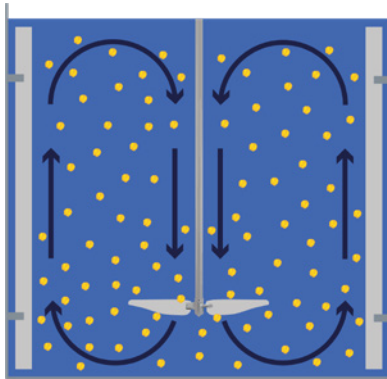
Suspension processes are categorized into three grades, each with specific characteristics. Our expertise in suspension processes ensures that you achieve the desired level of homogeneity with optimal energy efficiency. When the solids content reaches about 50%, the mixture becomes a slurry, which allows for lower power consumption.



Grade 1: On-bottom motion
Particles are in motion on the bottom, with no stagnant zones. Homogeneity is approximately 30%.



Grade 2: Complete off-bottom suspension
Particles are fully suspended throughout the tank. Homogeneity is 40-60%. Requires significantly more power than Grade 1.



Grade 3: Uniform suspension
Achieves a high degree of homogeneity (80-90%). Requires significantly more power than Grade 2.

Seamless installation, reliable service

We understand that minimizing downtime and ensuring smooth operation are critical to your success. That is why the Scaba STA vertical agitator is designed for easy installation and backed by a global service network.

Enjoy reduced downtime and maximize your operational efficiency with our easy-to-install agitators and comprehensive service support.

Easy maintenance

Designed for easy access, maintenance, and adaptability to various conditions.

Simplified installation

Standardized components and a flexible design streamline the installation process.

Compatibility

Metric IEC or NEMA flange ensures compatibility with existing infrastructure.

Blade design

Bolted and clamped blade options provide easy access and flexibility.

Reduced downtime

Modular design minimizes spare parts and lead times.

Global support

Benefit from a worldwide network of service professionals for expert assistance and rapid response.

Local support

Well-known global gearbox brands ensure local support.

Expert service

Sulzer's global presence ensures nearby support and service.

Unlock the full potential of your equipment

With 190 years of engineering expertise and operations in over 160 countries, we stand as your services partner. Sulzer is with you every step of the way from workshop repairs, field services, customer service agreements, and original spare parts to digital services ensuring the continuous quality you initially invested in. We are your long-term partner in performance.



Contact us today: go.sulzer.com/flow-solution-services

The Sulzer Flow division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.

The Flow division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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