

SULZER

Mixing solutions

Flow boosters type ABS SB



Main industries and applications

The flow booster type ABS SB is a good choice for gently circulating and mixing fluids in sewage treatment plants and industrial areas. It is suitable for all low-speed wastewater mixing and circulating applications, including:

- Equalization of sewage
- Biological process (aerobic, anoxic and anaerobic)
- Selector (contact zone)
- Hazardous locations: Certification for ATEX (Ex II 2G Ex h db IIB T4 Gb) available as an option



Proven design for sustainable operation

The motors in the flow booster SB series are asynchronous electrical motors with a power range from 1.4 to 4.6 kW. This proven technology has been a successful part of our flow boosters for more than two decades.

Operating at low speed, the highly efficient propellers reduce the energy costs significantly compared with conventional high speed mixers. The short mixing times are achievable due to the extensive mixing capacity of the SB series.

The connection to the vibration-absorbing concrete pedestal is made with an innovative coupling system, allowing the unit to be raised and lowered for inspection even in filled tanks, giving high reliability. The smart coupling design always keeps the flow booster SB in the correct position, even in turbulent environments and allows visual inspection during operation.

The 2-blade mono-cast propellers are packed separately for safe transportation and easy mounting at site. No additional adjustment is needed for setting up the SB before start up.



Features and benefits

1 Water pressure-tight encapsulated three-phase motor

- Maximum protection and performance stability (protection type IP 68, stator insulation class F (155°C))
- Dynamically balanced motor shaft and rotor reduce vibrations and extend the life of the motor
- Economical and reliable design

2 Helical gearbox, 2/3-stage

- Allows numerous ratios via fatigue-strength helical gears
- Calculated lifetime of more than 100'000 hours for the oil-lubricated bearings
- Compact and lightweight drives

3 Mono-cast propeller (except SB 900/ 1200 series)

- For effective mixing and vibration-free operation
- Reduces strain on the drive unit through extreme smoothness and vibration damping – the result of highly elastic design and geometry
- Produces high thrust and high flow capacity in an axial direction with performance-optimized 2- and 3-blade designs
- Self-cleans effectively due to optimized blade profile and special curved propeller edge
- Reducing the risk of accumulation of fibrous material, the dynamical balanced rotating assembly will always run smoothly extending the bearing lifetime

4 Patented concrete pedestal with heavy-duty, fully lockable coupling device

- Eliminates turbulences with its streamlined shape and thus improves propeller efficiency
- Suppresses all damaging vibration through its mass and material characteristics
- Resists corrosion and provides a robust, reliable connection to the tank floor
- Allows raising and lowering of the unit for inspection – even in filled tanks

5 TCS (Thermo Control System) with bimetallic contacts as thermal sensors

- Provides a warning or switches off the motor automatically before the permissible temperature limit is exceeded, whether due to high-temperature medium or another problem source

6 DI system with sensors in the junction box and motor

- Provides a warning before water is able to enter the motor or unit

7 Solids deflection ring

- Protects the mechanical seal from damage due to the ingress of solids or fibrous matter



Fully-lockable coupling system

The coupling system is a major technical innovation in the development of easy disconnection systems. Liquid flow, regardless of being laminar or turbulent, causes vibrations which effects submersible mixers especially with large propellers. In addition to impulse forces and any intrinsic vibrations of the units themselves, these forces must be absorbed by the coupling device so that quick disconnection systems can function in a secure and reliable manner.

A vibration-free attachment is a major requirement for reliable running and long operating life of the mixers and installation system. Amply designed three-dimensional support of the coupling element ensure its reliable seating.

Vibration-absorbing concrete pedestal

The concrete pedestal establishes the necessary vibration absorbing connection between machine and built structures. This invention has an abundance of advantages that make the flow booster a comprehensive solution:

- The flow favoring drop shape avoids turbulence and therefore improves the efficiency of the propeller.
- The mass and the material characteristics suppress all damaging vibrations.
- Corrosion resistance and a fluent connection with the tank floor ensure the highest level of security and long operation life.



Specifications

Materials

Part	Material
Motor housing	EN-GJS-400-18 / ASTM A 536, 60-40-18
Motor shaft / propeller shaft	1.0060, ASTM, AISI A276 Gr.65 / 1.7225 fully encapsulated (42CrMo4)
Propeller	Reinforced solid polyurethane (SB 1200 composite, fiberglass, resin) (SB 900 1.4571 – AISI 316)
Coupling bracket	1.4408 / ASTM / AISI CF – 8M

Operating data

	50 Hz	60 Hz
Propeller diameter	900 to 2'500 mm	900 to 2'500 mm 35 to 98 in.
Motor power	up to 4.5 kW	up to 4.6 kW up to 6.2 hp
Motor efficiency	up to 81%	up to 81.6%
Mixing flow	up to 4.3 m ³ /s	up to 4.2 m ³ /s up to 66'600 Usgpm



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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