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ABS flow booster SB 900

The compact ABS flow boosters have been designed for a wide range of applications. The units are suitable to achieve flow pattern in large tanks and open waters for mixing and stirring applications.

Construction
The ABS flow booster SB is designed as a compact, water pressure-tight unit including propeller and integrally lockable coupling system. The flow boosters are available in the material version:
Cast iron (EC)

Motor
Squirrel cage, 3-phase, 4-pole 50 Hz,
insulation class F (155 °C), max. submergence 20 m.

Propeller
Technically optimized, axially operating 3-blade propellers with very good self-cleaning effect for vibration-free operation. The propellers are designed to achieve high thrusts and therefore a high flow capacity in axial direction.

Solids deflection ring
The patented solids deflection ring protects the mechanical seal from damage by ingress of solids or fibrous matter.

Bearings
All bearings are lubricated-for-life and maintenance-free, with a calculated life time of more than 100,000 h.

Gearbox
Robust fatigue strength gearbox of high efficiency and very long operating life, oil lubricated.

Shaft sealing
Motor side dual radial seal, medium side silicon carbide mechanical seal independent of direction of rotation. O-Rings / lip seals: NBR.

Seal monitoring
DI-system with a sensor in the junction box.

Temperature monitoring
TCS-Thermo-Control-System with bimetallic contacts as thermal sensors in every phase of the stator give a timely warning or switch off the motor automatically before the permissible temperature limit e.g. due to overloading, high temperatured medium, or other problem sources, has been exceeded.

Cable
10 m sewage resistant CSM material. Type: H07RN.

Options
Explosion-proof version, seals in viton, cable protection sleeve, PTC or PT 100 in the stator.

Weight: 147 kg.

50 Hz

Motor data

Motor	A 14/4	A 30/4
Rated power (kW)	1.4	3.0
Rated current at 400 V (A)	2.94	6.5
Motor efficiency (%)	78.3	80.9
Power factor	0.88	0.82
Speed (min^{-1})	79	102 - 113

Flow booster performance table

Hydraulic No.	Propeller dia. in mm	Mixer power PP in kW	Motor kW
931	900	0.6	1.4
932	900	1.2	3.0
933	900	1.5	3.0

Material

Part	Cast iron version
Motor housing	EN1563; EN-GJS-400-18 (GGG-40)
Motor shaft	1.0060 (St 60-2)
Propeller shaft	1.7225 fully encapsulated (42CrMo4)
Propeller	DIN 17 440; 1.4571
Coupling bracket	DIN 17 445; 1.4408 (CF-8M)
Fasteners	1.4401 (AISI 316)

Optimizing special design

ABS has relied on the well-established special design for the propellers, giving a self-cleaning effect. An advanced special design was combined with propeller blades shaped for optimal flow properties. These properties make the propeller insensitive to turbulance or uneven flow.

The propeller design guarantees an optimum effectiveness not only at specifically chosen performance levels, but throughout the power and diameter range. Due to the new manufacturing method of large propellers, which allows the propeller production in one piece, an optimum stress pattern in the propeller and the best possible precision is achieved. This allows vibration-free operation.

New coupling system

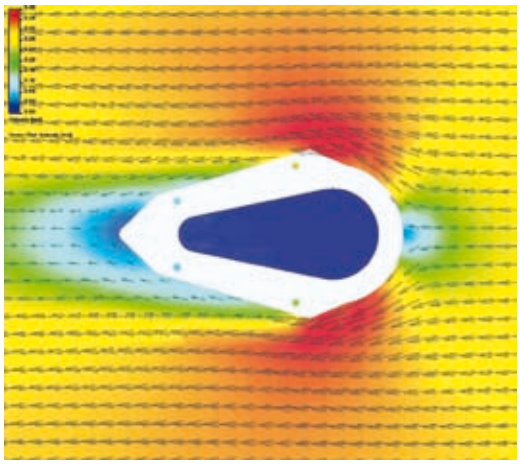
The patented ABS coupling system for submersible mixers is a major technical innovation in the development of easy disconnection systems. Liquid flow, regardless of being laminar or turbulent, causes vibrations which effects submersible mixers especially with large propellers. In addition to impulse 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. With the new ABS flow booster SB an innovative product assuring trouble-free operation is offered.

Innovative concrete base

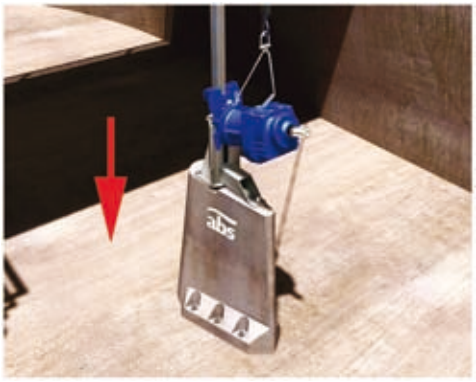
The ABS concrete base finally establishes the necessary vibration absorbing connection between machine and built structures. This invention has an abundance of advantages that make the flow booster a really comprehensive solution:

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



Computational fluid dynamics

Functioning



Lowering

Coupling

Locking (inside view)

ABS flow booster SB 1200 KA

50 Hz

The special flow booster SB-KA has been developed to meet the specific requirements of those treatment processes in which the biomass is not freely floating in the wastewater as "flakes", but builds a "bio film" that is bound to the surface by bio film carriers.

Construction
The SB-KA is designed as a compact, water pressure-tight unit including propeller and integrally casted installation bracket for the attachment on the square guide tube. A special bracket which enables a simple, clearance free and cost-effective installation in every required alignment is available as these treatment processes require that the units are installed in a severe downward slope close to the surface. The flow boosters are available in the standard material version: **CR = stainless steel version**

Motor
Squirrel cage, 3-phase, 8-pole 50 Hz,
insulation class F (155 °C), max. submergence 20 m.

Propeller
Technically optimized, axially operating 3-blade propellers with very good self-cleaning effect for vibration-free operation. The propellers are designed to achieve high thrusts and therefore a high flow capacity in axial direction. Smooth rounded propeller front edge to reduce friction losses.

Solids deflection ring
The patented solids deflection ring protects the mechanical seal from damage by ingress of solids or fibrous matter and penetration of plastic carrier in the hub is effectively avoided.

Bearings
All bearings are lubricated-for-life and maintenance-free, with a calculated life time of more than 100,000 h.

Gearbox: High efficiency planetary gearbox, fatigue strength with a calculated life time more than 100,000 h.

Shaft sealing: Mechanical seal: Silicon carbide / Silicon carbide. O-Rings / lip seals: NBR.

Seal monitoring: DI-system with a sensor in the junction box.
Temperature monitoring: TCS-Thermo-Control-System with thermal sensors in the stator which open at 140 °C.

Cable: 10 m sewage resistant CSM material. Type: H07RN.

Options: Seals in viton, cable protection sleeve, PTC or PT 100 in the stator.
Accessories: Lifting bracket, vertical angle adjustment, flush system for the mechanical seal.

Weight: 176/179 kg.

Motor data

Motor	A 30/8	A 40/8
Rated power (kW)	3.0	4.0
Rated current at 400 V (A)	9.3	10.9
Speed (min^{-1})	100*	100*
Motor efficiency (%)	72	71
Power factor	0.65	0.74

* = gear ratio i = 7

Flow booster performance table

Hydraulic No.	Mixer power P_p in kW	Motor kW
1236	1.4	3.0
1237	2.6	4.0

Materials

Part	CR (stainless steel)
Motor housing	1.4571 (AISI 316 Ti)
Sliding bracket	1.4408 / polyamide (CF-8M)
Motor shaft/Propeller shaft	St 60/EN-GJS-600-3
Propeller	1.4571 (AISI 316 Ti)
Fasteners	1.4401 (AISI 316)

ABS flow booster SB 1200

50 Hz

The compact ABS flow boosters have been designed for a wide range of applications. The units are suitable to achieve flow pattern in large tanks and open waters for mixing and stirring applications.

Construction
The ABS flow booster SB is designed as a compact, water pressure-tight unit including propeller and integrally lockable coupling system. The flow boosters are available in the material version:
Cast iron (EC)

Motor
Squirrel cage, 3-phase, 4-pole 50 Hz,
insulation class F (155 °C), max. submergence 20 m.

Propeller
Technically optimized, axially operating 2-blade propellers with very good self-cleaning effect for vibration-free operation. The propellers are designed to achieve high thrusts and therefore a high flow capacity in axial direction.

Solids deflection ring
The patented solids deflection ring protects the mechanical seal from damage by ingress of solids or fibrous matter.

Bearings
All bearings are lubricated-for-life and maintenance-free, with a calculated life time of more than 100,000 h.

Gearbox
Robust fatigue strength gearbox of high efficiency and very long operating life, oil lubricated.

Shaft sealing
Motor side dual radial seal, medium side silicon carbide mechanical seal independent of direction of rotation. O-Rings / lip seals: NBR.

Seal monitoring
DI-system with a sensor in the junction box.

Temperature monitoring
TCS-Thermo-Control-System with bimetallic contacts as thermal sensors in every phase of the stator give a timely warning or switch off the motor automatically before the permissible temperature limit e.g. due to overloading, high temperatured medium, or other problem sources, has been exceeded.

Cable
10 m sewage resistant CSM material. Type: H07RN.

Options
Explosion-proof version, seals in viton, cable protection sleeve, PTC or PT 100 in the stator.

Weight: 131 kg.

Motor data

Motor	A 30/4	A 40/4
Rated power (kW)	3.0	4.0
Rated current at 400 V (A)	6.5	9.0
Motor efficiency (%)	80.9	77.7
Power factor	0.82	0.83
Speed (min^{-1})	79 - 88	102

Flow booster performance table

Hydraulic No.	Propeller dia. in mm	Mixer power P_P in kW	Motor kW
1221	1200	1.6	3.0
1222	1200	2.0	3.0
1223	1200	3.0	4.0

Material

Part	Cast iron version
Motor housing	EN1563; EN-GJS-400-18 (GGG-40)
Motor shaft	1.0060 (St 60-2)
Propeller shaft	1.7225 fully encapsulated (42CrMo4)
Propeller	Reinforced fibre glass
Coupling bracket	DIN 17 445; 1.4408 (CF-8M)
Fasteners	1.4401 (AISI 316)

Optimizing special design

ABS has relied on the well-established special design for the propellers, giving a self-cleaning effect. An advanced special design was combined with propeller blades shaped for optimal flow properties. These properties make the propeller insensitive to turbulance or uneven flow.

The propeller design guarantees an optimum effectiveness not only at specifically chosen performance levels, but throughout the power and diameter range. Due to the new manufacturing method of large propellers, which allows the propeller production in one piece, an optimum stress pattern in the propeller and the best possible precision is achieved. This allows vibration-free operation.

New coupling system

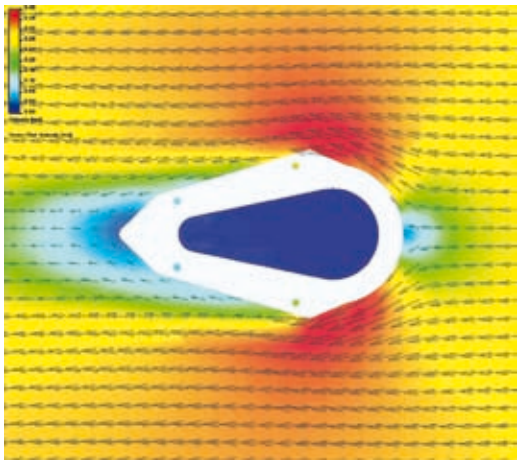
The patented ABS coupling system for submersible mixers is a major technical innovation in the development of easy disconnection systems. Liquid flow, regardless of being laminar or turbulent, causes vibrations which effects submersible mixers especially with large propellers. In addition to impulse 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. With the new ABS flow booster SB an innovative product assuring trouble-free operation is offered.

Innovative concrete base

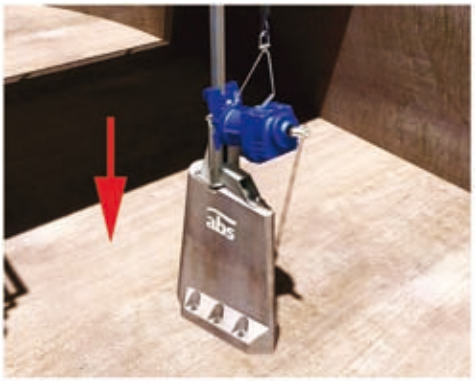
The ABS concrete base finally establishes the necessary vibration absorbing connection between machine and built structures. This invention has an abundance of advantages that make the flow booster a really comprehensive solution.

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



Computational fluid dynamics

Functioning



Lowering

Coupling

Locking (inside view)

ABS flow booster SB 1600 to SB 2500

50 Hz

The compact ABS flow boosters have been designed for a wide range of applications. The units are suitable to achieve flow pattern in large tanks and open waters for mixing and stirring applications.

Construction
The ABS flow booster SB is designed as a compact, water pressure-tight unit including propeller and integrally lockable coupling system. The flow boosters are available in the material version:
Cast iron (EC)

Motor: Squirrel cage, 3-phase, 4-pole 50 Hz,
insulation class F (155 °C), max. submergence 20 m.

Propeller: Technically optimized, axially operating 2-blade propellers with very good self-cleaning effect for vibration-free operation. The propellers are designed to achieve high thrusts and therefore a high flow capacity in axial direction.

Solids deflection ring: The patented solids deflection ring protects the mechanical seal from damage by ingress of solids or fibrous matter.

Bearings: All bearings are lubricated-for-life and maintenance-free, with a calculated life time of more than 100,000 h.

Gearbox: Robust fatigue strength gearbox of high efficiency and very long operating life, oil lubricated.

Shaft sealing: Motor side dual radial seal, medium side silicon carbide mechanical seal independent of direction of rotation. O-Rings / lip seals: NBR.

Seal monitoring: DI-system with a sensor in the junction box.

Temperature monitoring: TCS-Thermo-Control-System with bimetallic contacts as thermal sensors in every phase of the stator give a timely warning or switch off the motor automatically before the permissible temperature limit e.g. due to overloading, high temperatured medium, or other problem sources, has been exceeded.

Cable: 10 m sewage resistant CSM material. Type: H07RN.
Options: Explosion-proof version, seals in viton, cable protection sleeve, PTC or PT 100 in the stator.

Weight: 150 kg (SB 1600), 153 kg (SB 1800), 156 kg (SB 2000), 160 kg (SB 2200), 168 kg (SB 2500).

Flow booster performance table

Hydraulic No.	Propeller dia. in mm	Mixer power P_P in kW	Motor kW
1621	1600	0.7	1.4
1622	1600	1.1	1.4
1623	1600	2.1	3.0
1624	1600	2.6	3.0
1821	1800	0.8	1.4
1822	1800	1.1	1.4
1823	1800	1.4	3.0
1824	1800	2.7	3.0
1825	1800	3.5	4.0
2021	2000	1.1	1.4
2022	2000	1.6	3.0
2023	2000	2.0	3.0
2024	2000	3.1	4.0
2025	2000	3.8	4.0
2221	2200	1.1	1.4
2222	2200	1.6	3.0
2223	2200	2.2	3.0
2224	2200	3.7	4.0
2521	2500	1.4	3.0
2522	2500	1.7	3.0
2523	2500	2.1	3.0
2524	2500	2.7	3.0
2525	2500	4.1	4.5

Material

Part	Cast iron version
Motor housing	EN1563; EN-GJS-400-18 (GGG-40)
Motor shaft	1.0060 (St 60-2)
Propeller shaft	1.7225 fully encapsulated (42CrMo4)
Propeller	Reinforced solid PUR
Coupling bracket	DIN 17 445; 1.4408 (CF-8M)
Fasteners	1.4401 (AISI 316)

Motor data

Motor	A 14/4	A 30/4	A 40/4	A 45/4
Rated power (kW)	1.4	3.0	4.0	4.5
Rated current at 400 V (A)	2.94	6.5	9.0	10.0
Motor efficiency (%)	78.3	80.9	77.7	76.6
Power factor	0.88	0.82	0.83	0.85
Speed (min^{-1})	36 - 48	36 - 63	56 - 63	56 - 79

Optimizing special design

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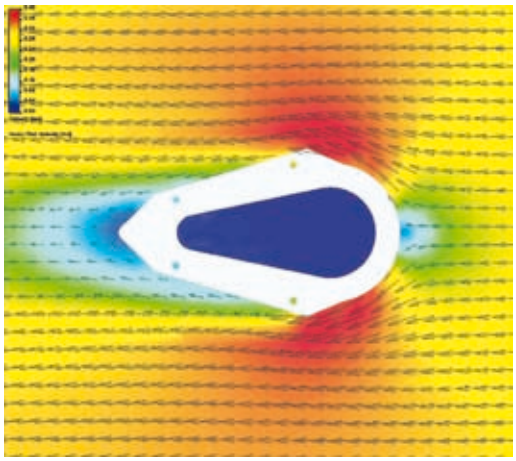
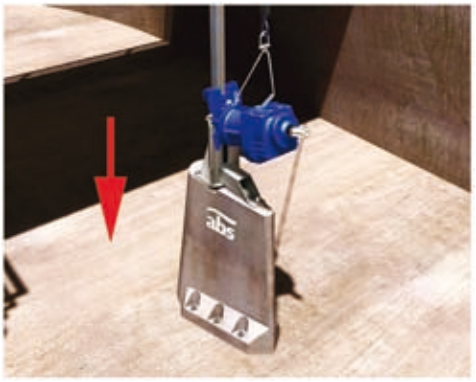


Computational fluid dynamics

Functioning



Lowering

Coupling

Locking (inside view)