SIMPLEX-COMPACT Retractable Fin Stabilizer Type S



Blohm + Voss Industries





Blohm + Voss Industries GmbH is located in the port of Hamburg. Our technical solutions and innovations have attained a worldwide reputation under the trade name Simplex-Compact. Based on our expertise in the engineering and shipbuilding fields we have achieved a position as a market leader in numerous sectors for ship products, and are known for high standards of quality and reliability. The development and production of retractable fin stabilizers started already in the early 1950s. Since then Blohm + Voss Industries GmbH has supplied more than 580 fin stabilizers all over the world.

Our Simplex-Compact retractable fin stabilizers represent an optimal solution for a wide range of commercial vessels, such as cruise ships, ferries, yachts and special purpose vessels. Various coast guard authorities have also discovered the advantages of our retractable UHL fin design which easily meets their high stabilizing performance needs at low speeds, for instance during helicopter operations.

Significant Characteristics



Patented Anti-Vortex-Tip Fairings

All Simplex-Compact fins are equipped with Anti-Vortex-Tip fairings to prevent energy dissipating through cavitation.

Benefits:

- increased lift
- smaller fin area required
- Iow drag
- fuel saving.

Flow-Off Recess

Low cavitation and minimal flow resistance are obtained through flow-off recesses at the fin boxes.

Tail Fin

A synchronously actuated tail fin increases the lift by up to 30 % compared to a one-piece fin.

Accumulator Supported Hydraulic System

The hydraulic power units are supported by accumulators to reduce size of motors and pumps.

Benefits:

- demand on electrical current is reduced
- peak load on the power supply is lowered
- noise level is decreased
- dynamic system
 - response is increased.

Rotary Vane Actuators

By using a rotary vane actuator the torque is transmitted completely free of unbalanced forces on the fin, thereby avoiding additional loads on the bearings and ensuring high fin movement precision.

The rotary vane actuators are of an extremely compact design, powerful and highly reliable, ensuring that no moving parts are exposed to external dirt or pollution.

Simplex-Compact fin stabilizers fulfil all relevant regulations from the classification societies and are SOLAS compliant as well as with the MARPOL 73/78 convention specifications.



Our technical innovations and services have kept us at the forefront of marine equipment supply. For many decades leading shipping companies have relied on our experience as the technological market leader for marine components. In order to satisfy our customers' specific requirements, our wide range of products and systems ensure safe, clean and efficient operations on many different types of ships.

Milestones

- **1954:** Development of retractable fin stabilizers
- **1961:** Installation of the first retractable fin stabilizer
- **1972:** Installation of the first non-retractable fin stabilizer
- **1983:** 2nd generation retractable fin stabilizer, Type SK

- **1991:** Anti-Vortex-Tip fairings
- 1995: Flow-off recess
- 1996: 3rd generation
- retractable fin stabilizer, Type S 1998: First digital stabilizer
- control system 2001: Retractable UHL Fin
- 2007: 2nd generation of
- non-retractable fin stabilizer, Type F
- 2007: Proprietary adaptive control system
- 2008: Retractable zero speed stabilizer, Type Z
- 2011: Non-retractable zero speed stabilizer, Type FZ

<u>Ultra High Lift - UHL Fin</u>

As the name indicates, the UHL fin has been especially developed to increase the effective lift. Due to the internationally patented, specially designed tail flap, roll reduction efficiency is increased by up to 15 % in comparison to the Type S fin without increasing the nominal fin area.

The UHL fin represents an optimal solution for:

- coast guard vessels
- special purpose vessels
- ships with low to medium service speed with a high roll reduction requirement.

Type Z

Our successful range of retractable stabilizers is also available as zero speed version for yachts and cruise liners which require high performance both underway and at anchor.



Blohm + Voss Industries' fin stabilizers are operated by a state-of-the-art automatic control system which ensures:

- easy operation and monitoring,
- high reliability and availability
- low installation efforts.

Each fin drive unit is controlled by a local Fin Control Cabinet (FCC) which is equipped with supervising devices, motor contactors and power supply. This system concept offers a flexible layout for two- and four-fin configurations.

Wear and Shock Resistant Sensors

The roll motion of the vessel is continuously detected by highly shock and wear resistant roll motion sensors. The programmable logic control algorithms compute the roll state of the vessel from the sensor data. A fully adaptive control scheme continuously adjusts the fin angle according to the current roll motion behaviour of the vessel and the speed signal from the LOG with respect to dynamic roll motion as well as to heeling and swell.

Easy Operation

Only simple Start or Stop commands from the bridge control panel are necessary to activate automated start and shut down sequences. Since the control system operates fully adaptively to the ship speed, sea state and roll motion behaviour of the vessel, there is no need for any manual settings. For manual control, during inspections or any intermediate maintenance, operation and service switches are located at each fin control cabinets.

Customized Mode Selection

Blohm + Voss Industries' control system design enables single fin operation or standard twin fin operation. Depending on the various sea conditions the ship's crew may select to prioritize maximum performance or best fuel economy.

Simplex-Compact Adaptive Control requires only local control cabinets besides the control panels at the bridge and in the ECR. A central control unit or cabinet is not necessary.

Touch Control Panel

The ECR control panel is designed as a touch control panel, providing identical control functions to the bridge control panel as well as additional status, alarm and service information for best operational comfort and information. The touch panel can be set to passive mode to prevent the stabilizers from being started unintentionally.

Dimension Table





		S100	S200	S300	S400	S500	S600	S700	S800
Fin Area [m ²]		1,20 - 1,80	2,00 - 2,70	3,00 - 4,20	4,80 - 6,80	6,50 - 9,30	8,00 - 12,00	12,50 - 16,00	16,30 - 20,00
Α	[m]	1,55 - 2,00	2,00 - 2,70	2,44 - 3,41	3,10 - 4,35	3,60 - 5,15	4,00 - 5,90	5,00 - 6,40	5,70 - 7,01
В	[m]	0,60	0,71	0,95	0,99	1,20	1,33	1,60	1,88
С	[m]	0,50	0,53	0,58	0,69	0,80	0,86	1,01	1,20
D	[m]	0,78	0,52	0,96	1,22	1,40	1,54	1,70	1,90
E	[m]	0,62	0,62	0,73	0,73	0,73	0,73	0,89	0,93
Fmin	[m]	3,00 - 3,40	3,50 - 4,30	4,30 - 5,20	5,00 - 6,30	5,90 - 7,50	6,50 - 8,40	7,90 - 9,30	9,10 - 10,50
α	[DEG]	15 - 30	15 - 30	15 - 30	15 - 30	15 - 30	15 - 30	15 - 30	15 - 30

References



"Seefalke" **BVI Serial Numbers:** S100-436-99 S100-545-08 S100-546-08 Shipyard: Peenewerft, Germany Owner: BLE (German Federal Coast Guard)



"Eclipse" BVI Serial Number: S500-532-06 Shipyard: Blohm+Voss, Germany



BVI Serial Number: S200-501-03 Shipyard: Kusch Yachtagentur, Germany



"Baltic Princess" and sister **BVI Serial Numbers:** S600-537-07 S600-547-08 Shipyard: STX Finland Oy Owner: AS Tallink Grupp





Retrofit "Nordkapp-klassen" **BVI Serial Numbers:** S300-525-06 S300-526-06 S300-527-06 Shipyard: Fiskerstrand Verft, Norway Owner: Norwegian Coast Guard





Complete "AIDA" Fleet **BVI Serial Numbers:** S700-518-05 S700-519-07 S700-531-06 S700-548-08 S700-565-09 S700-566-10 S700-580-11 Shipyard: Meyer Werft, Germany Owner: AIDA Cruises

"Oasis" Class **BVI Serial Numbers:** S800-542-07 S800-555-08 Shipyard: STX Finland Oy Owner: Royal Caribbean Cruises Ltd.



Blohm + Voss Industries GmbH

P.O. Box 11 22 89 20422 Hamburg, Germany Phone: + 49 40 3011 - 2646 Fax: + 49 40 3011 - 1950 E-Mail: sales@bv-industries.com Internet: www.bv-industries.com Copyright pictures: BVI, shipyards and owners mentioned, Stephan Giesen, Ralf Niemzig, Heribert Schindler

4. Issue 7.2012