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
- low 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 fulfill 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
2011: Proprietary adaptive control system

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.
Simplex-Compact Adaptive Control

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

<table>
<thead>
<tr>
<th></th>
<th>S100</th>
<th>S200</th>
<th>S300</th>
<th>S400</th>
<th>S500</th>
<th>S600</th>
<th>S700</th>
<th>S800</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fin Area [m²]</strong></td>
<td>1.20 - 1.80</td>
<td>2.00 - 2.70</td>
<td>3.00 - 4.20</td>
<td>4.80 - 6.80</td>
<td>6.50 - 9.30</td>
<td>8.00 - 12.00</td>
<td>12.50 - 16.00</td>
<td>16.30 - 20.00</td>
</tr>
<tr>
<td><strong>A [m]</strong></td>
<td>1.55 - 2.00</td>
<td>2.00 - 2.70</td>
<td>2.44 - 3.41</td>
<td>3.10 - 4.35</td>
<td>3.60 - 5.15</td>
<td>4.00 - 5.90</td>
<td>5.00 - 6.40</td>
<td>5.70 - 7.01</td>
</tr>
<tr>
<td><strong>B [m]</strong></td>
<td>0.60</td>
<td>0.71</td>
<td>0.95</td>
<td>0.99</td>
<td>1.20</td>
<td>1.33</td>
<td>1.60</td>
<td>1.88</td>
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<tr>
<td><strong>C [m]</strong></td>
<td>0.50</td>
<td>0.53</td>
<td>0.58</td>
<td>0.69</td>
<td>0.80</td>
<td>0.86</td>
<td>1.01</td>
<td>1.20</td>
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<tr>
<td><strong>D [m]</strong></td>
<td>0.78</td>
<td>0.52</td>
<td>0.96</td>
<td>1.22</td>
<td>1.40</td>
<td>1.54</td>
<td>1.70</td>
<td>1.90</td>
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<tr>
<td><strong>E [m]</strong></td>
<td>0.62</td>
<td>0.62</td>
<td>0.73</td>
<td>0.73</td>
<td>0.73</td>
<td>0.73</td>
<td>0.89</td>
<td>0.93</td>
</tr>
<tr>
<td><strong>Fmin [m]</strong></td>
<td>3.00 - 3.40</td>
<td>3.50 - 4.30</td>
<td>4.30 - 5.20</td>
<td>5.00 - 6.30</td>
<td>5.90 - 7.50</td>
<td>6.50 - 8.40</td>
<td>7.90 - 9.30</td>
<td>9.10 - 10.50</td>
</tr>
</tbody>
</table>
References

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

“White Rose of Drachs”
BVI Serial Number:
S200-501-03
Shipyard: Kusch Yachtagentur, Germany

“Eclipse”
BVI Serial Number:
S500-532-06
Shipyard: Blohm+Voss, 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

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

„Forza“ and sisters
BVI Serial Numbers:
S400-521-05
S400-522-06
S400-523-06
S400-524-07
S400-550-08
S400-551-08
S400-552-08
S400-553-09
Shipyard: Nuovi Cantieri Apuani, Italy
Owners: Grimaldi Holding, GRANNAV, Attica Group and DFDS

Complete “AIDA” Fleet
BVI Serial Numbers:
S700-518-05
S700-519-07
S700-531-06
S700-548-08
S700-556-09
S700-566-10
S700-580-11
Shipyard: Meyer Werft, Germany
Owner: AIDA Cruises