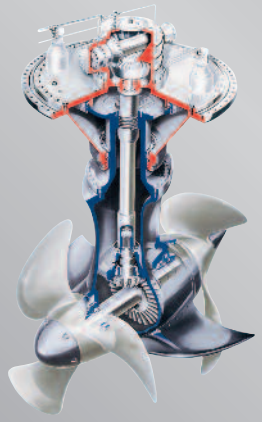
YOUR PROPULSION EXPERTS

SCHOTTEL TWIN PROPELLER

PERFECT PROPULSION



STP · SCHOTTEL TWIN PROPELLER
Increased efficiency with two propellers.

SCHOTTEL TWIN PROPELLER – RUDDERPROPELLER WITH TWO PROPELLERS

The SCHOTTEL Rudderpropeller (SRP) has been setting standards in the field of steerable propulsion systems for decades. Proven in service worldwide, this system converts the engine power into optimum thrust power and also offers the possibility of rotating the underwater part through 360°, thus allowing the full input power to be used for manoeuvring the ship.

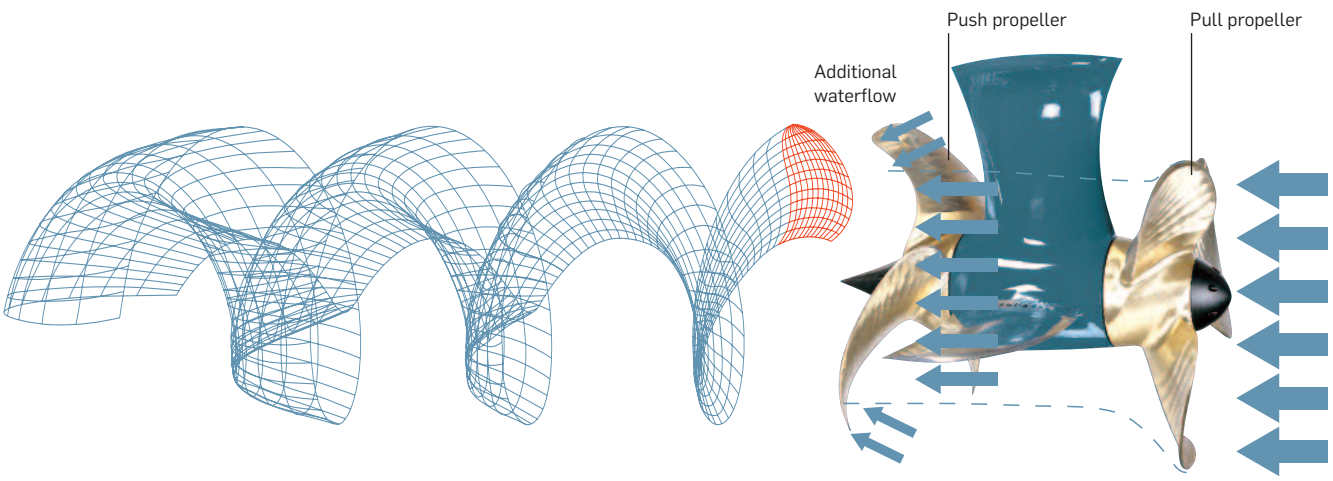
MORE POWER – FOR MEDIUM SPEEDS

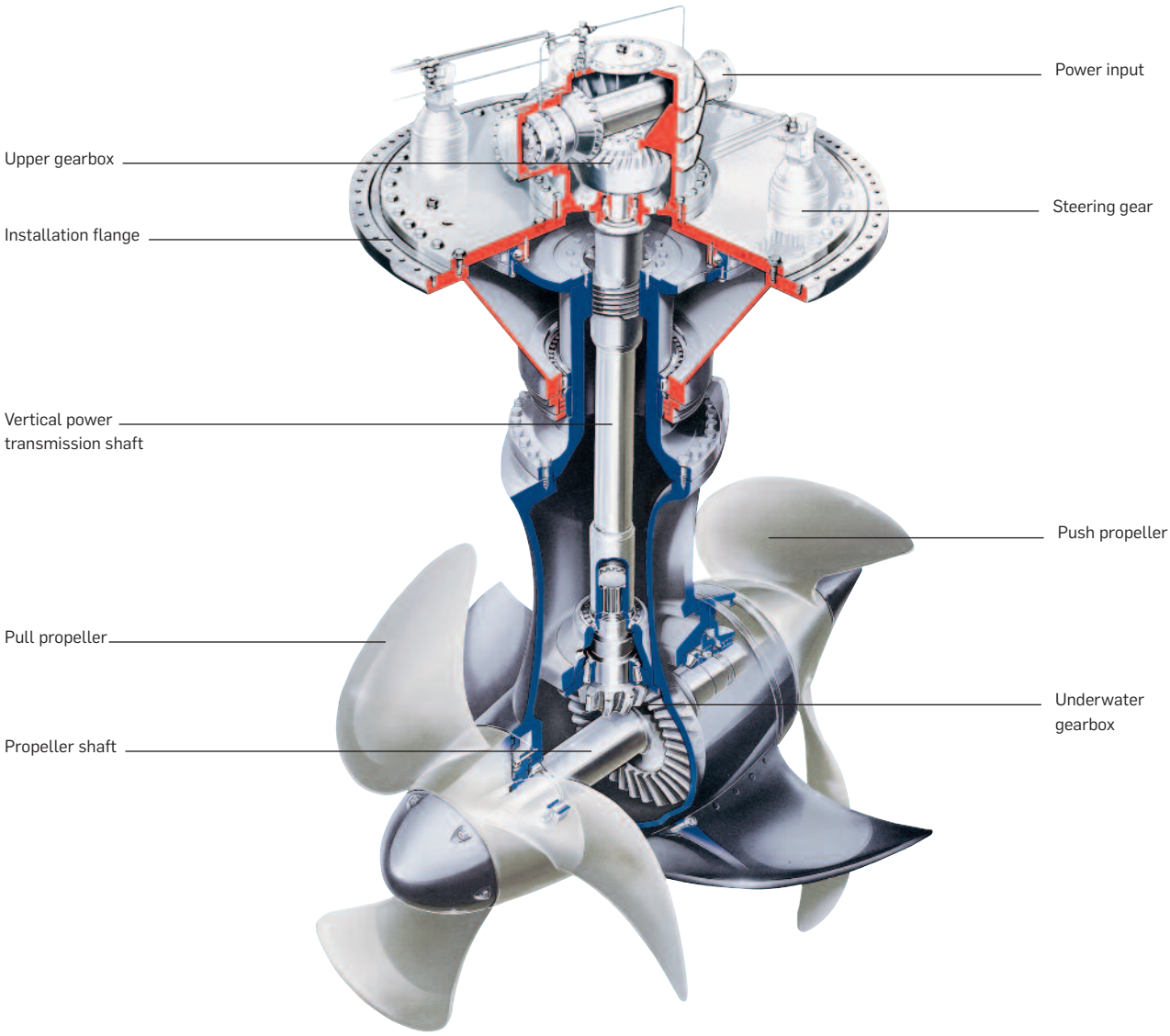
This equally simple and effective principle forms the basis for the SCHOTTEL Twin Propeller (STP). In contrast with the SRP, the SCHOTTEL Twin Propeller is equipped with two propellers rotating in the same direction. The optimum matching of the system components “propellers” and “strut with integrated fins” results in a considerable increase in efficiency as compared with systems incorporating just one propeller. The SCHOTTEL Twin Propeller is thus the successful optimization of the complete Rudderpropeller system and ideally suited as a propulsion system for all ships in the medium speed range with design-related higher propeller loads. This is because the Twin Propeller technology reduces the load acting on each individual propeller by distributing the power over two propellers, thereby increasing the efficiency.

OPERATING PRINCIPLE OF THE STP

The STP is equipped with a pull propeller and a push propeller. Their relative arrangement is such that the vortex street of the front pull propeller passes between the blades of the rear push propeller without impeding it. Contraction of the slip stream in the pull propeller means that more water reaches the push propeller from the sides, which further enhances the performance. Moreover the strut is hydrodynamically optimized and provided with a fin arrangement.

The swirl energy generated in the propeller stream is thus recovered, leading to an increase in efficiency. Additionally, the flow around the fins creates a lift component in the thrust direction, which likewise has a thrust-enhancing effect. The noise and vibration level is significantly reduced, too.





THE HYDRODYNAMIC PRINCIPLE:

- Distribution of the power to 2 propellers results in a low propeller load
- Recovery of the swirl losses of the pull propeller by means of the integrated diffuser system consisting of strut and fins
- Streamlined propeller housing

THE MECHANICAL PRINCIPLE:

- Both propellers on one shaft rotating in the same direction
- Proven power transmission, as there is no additional gearbox
- Only one additional sealing package

ADVANTAGES

- Substantially higher efficiency than Z drives with a single propeller
- Higher power transmission possible than with a single propeller
- Lower risk of cavitation due to the lower propeller load
- Lower pressure fluctuations and noise emissions
- Lower mechanical losses than contrarotating two-propeller systems
- High reliability due to the small number of moving parts
- Fully steerable (360°)
- High variability of the characteristic curve meets a wide range of operational requirements up to speeds of 21 knots
- Particularly suitable for installations permitting only limited propeller diameters (restricted draught or required tip clearance)

MAXIMUM RELIABILITY IN ALL APPLICATIONS

OFFSHORE SUPPORT VESSELS

The STP produces not only higher thrust in open-water service but also higher static thrust than a single open propeller Z-drive and is thus also outstandingly suitable for offshore support vessels with dynamic positioning requirements.

OFFSHORE SUPPORT VESSEL HAVILA BORG
2 x SCHOTTEL Twin Propeller Type STP 1212 (1600 kW each)

FERRIES

The low pressure fluctuations and noise emissions along with the application potential for high open-water speeds make the STP ideal for propelling yachts and passenger vessels of all types.

FERRY SYLT EXPRESS
2 x SCHOTTEL Twin Propeller Type STP 1212 (1650 kW each)

RESEARCH VESSELS

Smooth operation and high manoeuvrability make the STP a suitable means of propulsion for research vessels which have to maintain a predefined course with their measuring equipment. The higher thrust even at lower speeds is also beneficial, as a vessel's resistance is liable to increase especially at slower speeds on account of the towed measuring equipment.

RESEARCH VESSEL HAI YANG LIU HAO
2 x SCHOTTEL Twin Propeller Type STP 1515 (2000 kW each)

RIVER VESSELS

Distribution of the input power over two propellers and the associated reduction of the propeller diameter make the STP the ideal propulsion concept for vessels such as river cruise ships, which have to transmit high power to the water despite their shallow draught.

RIVER CRUISING VESSEL DE ZONNEBLOEM
2 x SCHOTTEL Twin Propeller Type STP 440 (650 kW each)

INSTALLATION IN THE WATER OR DRY-DOCK

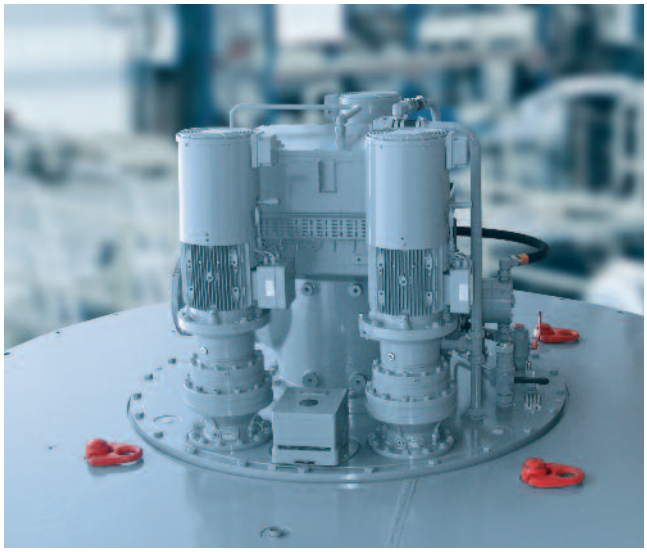
The STP can be installed in a dry-dock from below with the aid of a flange. When installed from below, the STP can be either bolted or welded to the flange.

Installation from above is also possible, thus the unit can be installed even if the vessel is already afloat. This allows maintenance or exchange even if there is no dry-dock available.

STANDBY VESSEL VOS INNOVATOR
2 x SCHOTTEL Twin Propeller Type STP 550 (750 kW each)

ELECTRIC OR HYDRAULIC STEERING

The STP can be supplied with either hydraulic or fully electric steering. A fully electric steering system is advantageous particularly for diesel-electric vessels, as the additional hydraulic pipework of the steering motors is not required in this case.



Fully electric steering

STEERING SYSTEMS – PRECISE AND USER-FRIENDLY

Propulsion systems are only as good as their steering. Optimally adapted data exchange between the different components (propulsion units and joystick or steering console) is therefore top priority. A further priority is a user interface that is as intuitive as possible, enabling safe manoeuvring even with frequent changes of master. Here too, SCHOTTEL steering systems set the course, both literally and figuratively.

In close cooperation, electronics engineers and propulsion specialists develop complete steering and control systems (SST) custom-tailored for every application. Our product range covers everything from simple, manually-operated wheels coupled directly to the propulsion unit, right up to the remote-controlled computerized joystick of the Masterstick system. A joystick is used to control up to ten propulsion units, steering the vessel in the given direction and with the desired rotation.

The different operating and control modes as well as many other options are selected via a steering console. The use of freely programmable microcontroller circuit boards with an integrated field bus and industry-standard interfaces provides a high degree of flexibility and operational reliability. Our systems give the ship's master the optimal "tool" for simple and safe navigation, manoeuvring and positioning of the vessel.

High-performance steering

STANDBY VESSEL VOS INNOVATOR
2 x SCHOTTEL Twin Propeller Type STP 550 (750 kW each)

HOTEL VESSEL A-ROSA AQUA
4 x SCHOTTEL Twin Propeller Type STP 200 (300 kW each)

STANDBY VESSEL OCV ATLANTIS DWELLER
2 x SCHOTTEL Twin Propeller Type STP 1010 (1100 kW each)

FIELD SUPPORT VESSEL VOS SEEKER
2 x SCHOTTEL Twin Propeller Type STP 550 (800 kW each)

PLATFORM SUPPLY VESSEL SEABED VIKING
2 x SCHOTTEL Twin Propeller Type STP 1212 (1600 kW each)

MOTOR YACHT WATERLILY
2 x SCHOTTEL Twin Propeller Type STP 440 (746 kW each)

DOUBLE-ENDED FERRY STAVANGERFJORD
4 x SCHOTTEL Twin Propeller Type STP 1515 (1800 kW each)

DOUBLE-ENDED LNG-FERRY GLUTRA
2 x SCHOTTEL Twin Propeller Type STP 1010 (1000 kW each)

PROFESSIONAL PARTNERSHIP – THROUGHOUT THE VESSEL'S LIFE

As a SCHOTTEL customer, you benefit from individual, in-depth advice and support at all stages of a project, from planning and commissioning through to preventive maintenance.

A dense worldwide service network is ready to offer assistance and ensures the swift supply of spare parts – along with experienced SCHOTTEL technicians if required.

The name of SCHOTTEL traditionally stands for quality in engineering, with over 90 years of experience in design and the precision workmanship of a family-owned enterprise. Our innovative propulsion systems are a byword for reliability and high performance and set standards in global shipping.

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