

# STP

## SCHOTTEL Twin Propeller



Application-oriented  
propulsion systems



**SCHOTTEL**

# The SCHOTTEL Twin Propeller – the superior propulsion system for all ships in the medium speed range

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.

This equally simple and effective principle also 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 housing 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 is ideally suited as a propulsion system for all ships in the medium speed range with application-related higher propeller loads. This is because the Twin Propeller technology reduces the load acting on each individual propeller by distributing the propeller load over two propellers, thereby increasing the efficiency. Further positive results are possible by optimizing hull forms and arrangements. Total improvements up to 26% have already been reached. The noise and vibration level are also significantly reduced.

#### The hydrodynamic principle:

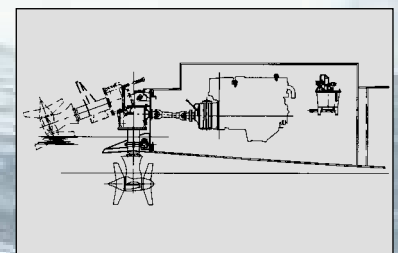
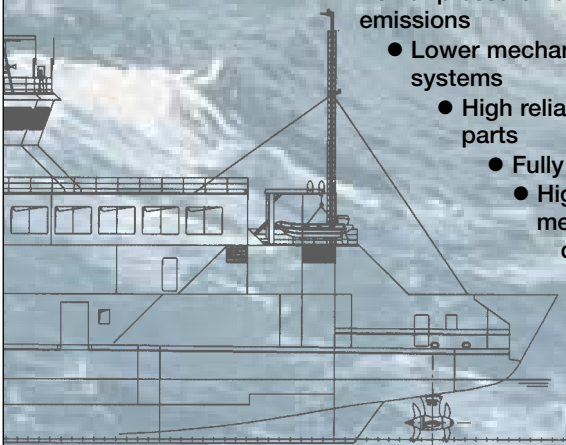
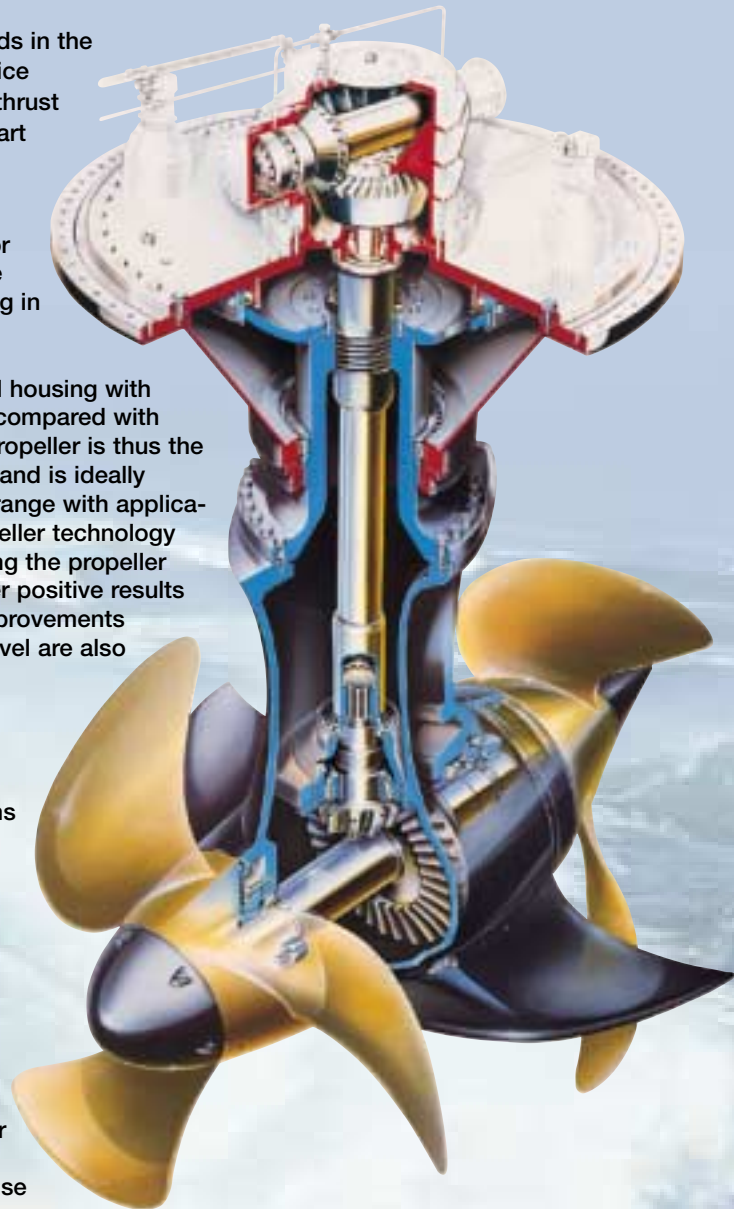
- Distribution of the power to 2 propellers → low (approx. 50%) propeller load
- Recovery of the rotational losses of the front propeller by means of the integrated diffuser system consisting of shaft and fins
- Most favourable form of housing

#### The mechanical principle:

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

#### The result:

- 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 load of the propellers
  - Lower pressure fluctuations and noise emissions
  - Lower mechanical losses than other 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 28 knots
    - Particularly suitable for installations permitting only limited propeller diameters (restricted draught or required tip clearance)



Transom installation



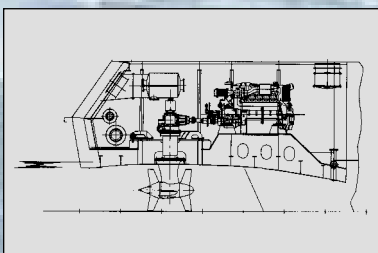
## Steering and control systems



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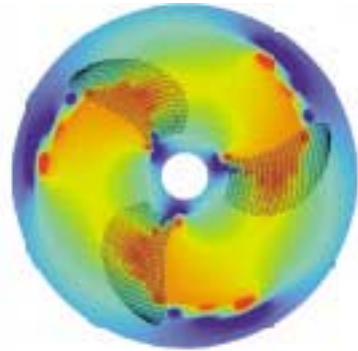
## Quality

The application of CAD in development and design, the implementation of advanced manufacturing technologies, the use of high-grade materials, skilful assembly and professional installation on site are the major foundations for the top quality of our products. This is impressively confirmed by the certification of our quality management system according to DIN EN ISO 9001 by American Bureau of Shipping, Bureau Veritas, Det Norske Veritas and Germanischer Lloyd.

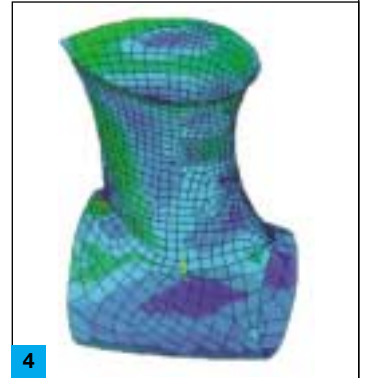


Well installation

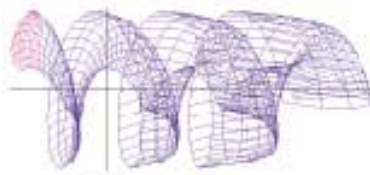
## Research and Development



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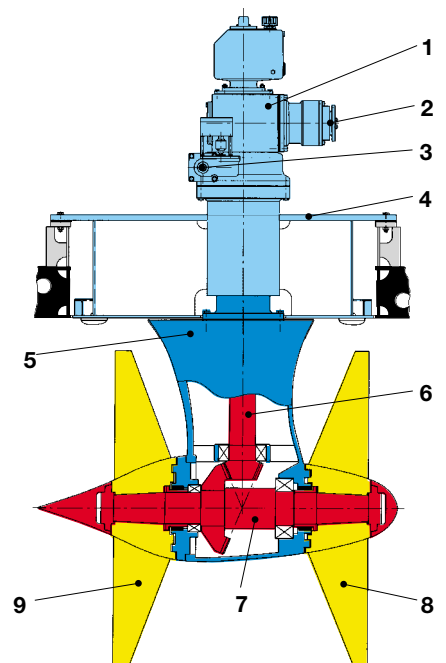


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- 1 Our tailored steering and control systems have been service-proven and type-tested for decades.
- 2 Calculation of a speed field for rating the Twin Propeller
- 3 Vortex street of the front propeller
- 4 Existing Twin Propeller models are optimized and new types developed using state-of-the-art calculation methods.
- 5 Developed in intensive cooperation with internationally renowned research institutes, the hydrodynamic design of our systems is acknowledged throughout the industry as trend-setting.



- 1 Upper gearbox
- 2 Power input
- 3 Steering gear
- 4 Well
- 5 Lower gearbox
- 6 Input shaft
- 7 Propeller shaft
- 8 Front propeller
- 9 Rear propeller

## Installation variants

# Passenger vessels

## Ferries

STP 1010



Double-ended LNG ferry ("Ship of the Year 2000" in Norway) · 2 x STP 1010 (1000 kW each)  
 Shipyard: Shipyard Langsten Slip & Båtbyggeri AS, Norway · Owner: Møre og Romsdal Fylkesbåtar AS (MRF), Norway

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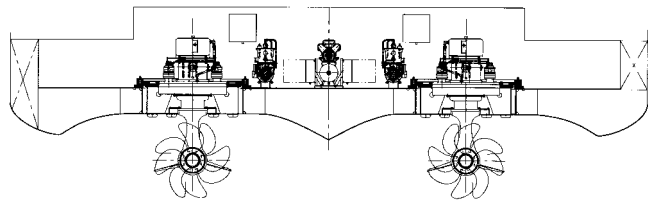
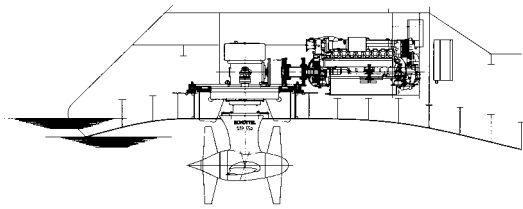
Passenger vessel · 2 x STP 200 (320 kW each)  
 Shipyard: Bodan-Werft, Germany · Owner: Schweizerische  
 Schifffahrtsgesellschaft Untersee und Rhein, Switzerland



River cruising vessel, 1 x STP 200 (280 kW)  
 2 x SPJ 82 (260 kW each), 1 x SPJ 57 (200 kW)  
 Shipyard: Scheepswerf Peters BV, The Netherlands  
 Owner: Conti Verwaltungsgesellschaft mbH, Germany /  
 Hapag-Lloyd AG, Germany



River cruising vessel · 2 x STP 550 (800 kW each), 1 x SPJ 57 (220 kW)  
 Shipyard: Neptun Reparaturwerft GmbH, Germany  
 Owner: Seetours (German Branch of P & O Princess Cruises International Ltd.), Germany



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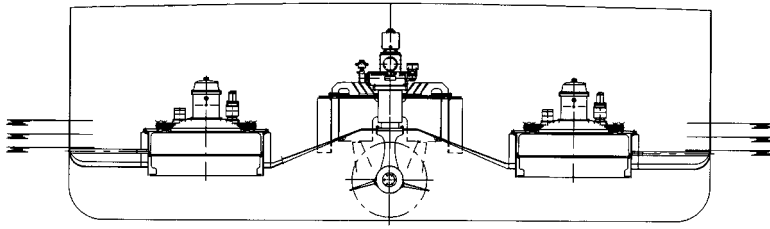
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- 1** Passenger vessel,  
2 x STP 200 (368 kW each),  
1 x STT 110 LK (210 kW)  
Shipyard: Lux-Werft, Germany  
Owner: Rederij Eureka Deventer BV,  
The Netherlands
- 2** Double-ended ferry,  
2 x STP 1010 (740 kW each)  
Shipyard: Vågverket, Tenø, Sweden  
Owner: Vågverket, Vaxholm, Sweden
- 3** Double-ended ferry,  
2 x STP 330 (500 kW each)  
Shipyard: Rosetti Marino Spa, Italy  
Owner: Navigazione Laghi, Italy
- 4** Double-ended ferry,  
2 x STP 330 (375 kW each)  
Shipyard: Morsø Værft AS, Denmark  
Owner: Scandlines, Denmark

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STP 330





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**1** Passenger vessel, 2 x STP 110 (175 kW each),  
1 x SRP 100 (90 kW)  
Shipyard: Chantiers de la Haute-Seine, France  
Owner: Compagnie des Bateaux Mouche,  
France

**2** Research vessel,  
2 x STP 200 (300 kW each)  
Shipyard: Damen Shipyards, Yard Gdansk,  
Poland  
Owner: Maritime Institute, Poland

**3** Multi purpose launch  
2 x STP 200 (330 kW each)  
Shipyard: Corporated Consultancy  
& Engineering Enterprise PVT. LTD., India  
Owner: Calcutta Port Trust, India

**4** Oceanographic research catamarans,  
Each vessel 2 x STP 330 (340 kW each)  
Shipyard: Intermarine, Italy  
Owner: Italian Navy

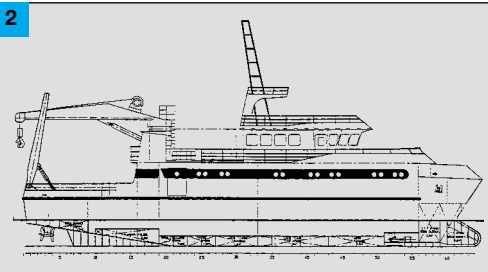
**5** Seismographic research vessel,  
2 x STP 200 (275 kW each)  
Shipyard: Deutsche Binnenwerften GmbH,  
Germany  
Owner: Wasser- und Schifffahrtsamt  
Tönning, Germany

**6** Offshore supply vessel,  
2 x STP 1010 (950 kW each)  
Shipyard: Astilleros Balenciaga, S.A., Spain  
Owner: Khalifa A. Algoisaibi, Saudi Arabia

**7** Passenger vessel, 1 x STP 110 (80 kW)  
Shipyard: Intermarine, Italy  
Owner: ACTV, Italy

**8** 37 m motor yacht,  
2 x STP 200 (317 kW each)  
Shipyard: Heesen Shipyards BV,  
The Netherlands  
Owner: Private owner

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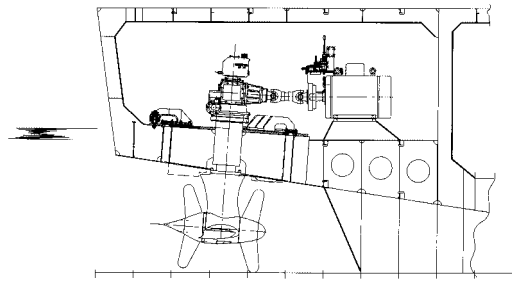
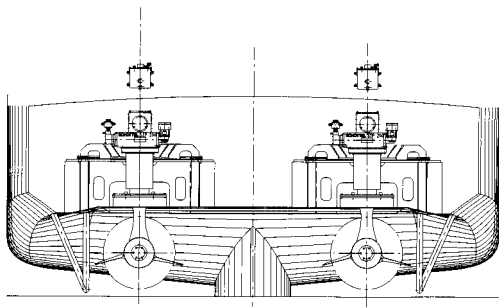
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### Standard types

Specification is subject to change without notice. Status: August 2002.



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| Type     | Rating* | Input power max. [kW] | Input speed [rpm]       | Propeller Ø [mm] | Weight [kg]** |
|----------|---------|-----------------------|-------------------------|------------------|---------------|
| STP 110  | A       | 195                   | 2100                    | 800              | 1100          |
|          | B       | 230                   |                         |                  |               |
|          | C       | 260                   |                         |                  |               |
| STP 200  | A       | 310                   | 1800/2100               | 1100             | 2600          |
|          | B       | 370                   |                         |                  |               |
|          | C       | 410                   |                         |                  |               |
| STP 330  | A       | 470                   | 1800                    | 1300             | 4300          |
|          | B       | 550                   |                         |                  |               |
|          | C       | 620                   |                         |                  |               |
| STP 440  | A       | 650                   | 1600/1800               | 1400             | 7500          |
|          | B       | 780                   |                         |                  |               |
|          | C       | 870                   |                         |                  |               |
| STP 550  | A       | 750                   | 1000/1600/1800          | 1600             | 10700         |
|          | B       | 920                   |                         |                  |               |
|          | C       | 1000                  |                         |                  |               |
| STP 1010 | A       | 1040                  | 750/1000/1200/1600/1800 | 2000             | 18000         |
|          | B       | 1250                  |                         |                  |               |
|          | C       | 1380                  |                         |                  |               |
| STP 1212 | A       | 1380                  | 750/1000/1200/1600/1800 | 2200             | 20400         |
|          | B       | 1650                  |                         |                  |               |
|          | C       | 1800                  |                         |                  |               |
| STP 1515 | A       | 1750                  | 1000/1600               | 2500             | 27000         |
|          | B       | 2100                  |                         |                  |               |
|          | C       | 2300                  |                         |                  |               |
| STP 2020 | A       | 2200                  | 1000/1200               | 2600             | 34000         |
|          | B       | 2600                  |                         |                  |               |
|          | C       | 2900                  |                         |                  |               |
| STP 3030 | A       | 2850                  | 750-1200                | 3300             | 55000         |
|          | B       | 3400                  |                         |                  |               |
|          | C       | 3600                  |                         |                  |               |
| STP 4040 | A       | 3350                  | 750-1200                | 3600             | 82000         |
|          | B       | 4000                  |                         |                  |               |
|          | C       | 4450                  |                         |                  |               |

\* Rating A Full power continuous rating 24 hours service  
 Rating B Intermittent service with occasional full load  
 Rating C Auxiliary installations

\*\* Weight only STP, well installation, with propellers and oil at PAL min.

# SCHOTTEL for the Shipping World

- Constant customer support
- Professional commissioning world-wide
- Preventive maintenance and repairs
- State-of-the-art modernizations
- Reconditioned second-hand units
- Close-knit sales and service network



Our product information provides you with explanations and data for planning plants incorporating units from our current programme. On account of the modifications associated with upgrading, the contents of a specific edition will remain valid for a limited time only. Binding for the application concerned are the data given in our tender specification.

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*Innovators in steerable propulsion*

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