

**STT** The SCHOTTEL Transverse Thruster

# Dependable Assistant



*Innovators in propulsion technology*



# STT The SCHOTTEL Transverse Thruster



*Yacht TRIPLE 7, built at Nobiskrug, Germany  
equipped with 1 x STT 170 T (200 kW)*

**Tunnel thrusters are used as auxiliary propulsion units either in the bow or stern of vessels. This considerably improves manoeuvrability. They can be used for light-duty service, such as harbour manoeuvring, with only a few hours of operation per year, up to heavy off-shore service all year round, including dynamic positioning.**

Depending on this and the vessel's geometry, SCHOTTEL specifies the mechanical components and designs the propellers of every SCHOTTEL Transverse Thruster STT individually. In this way, performance is optimized and the unit meets the client's requirements.

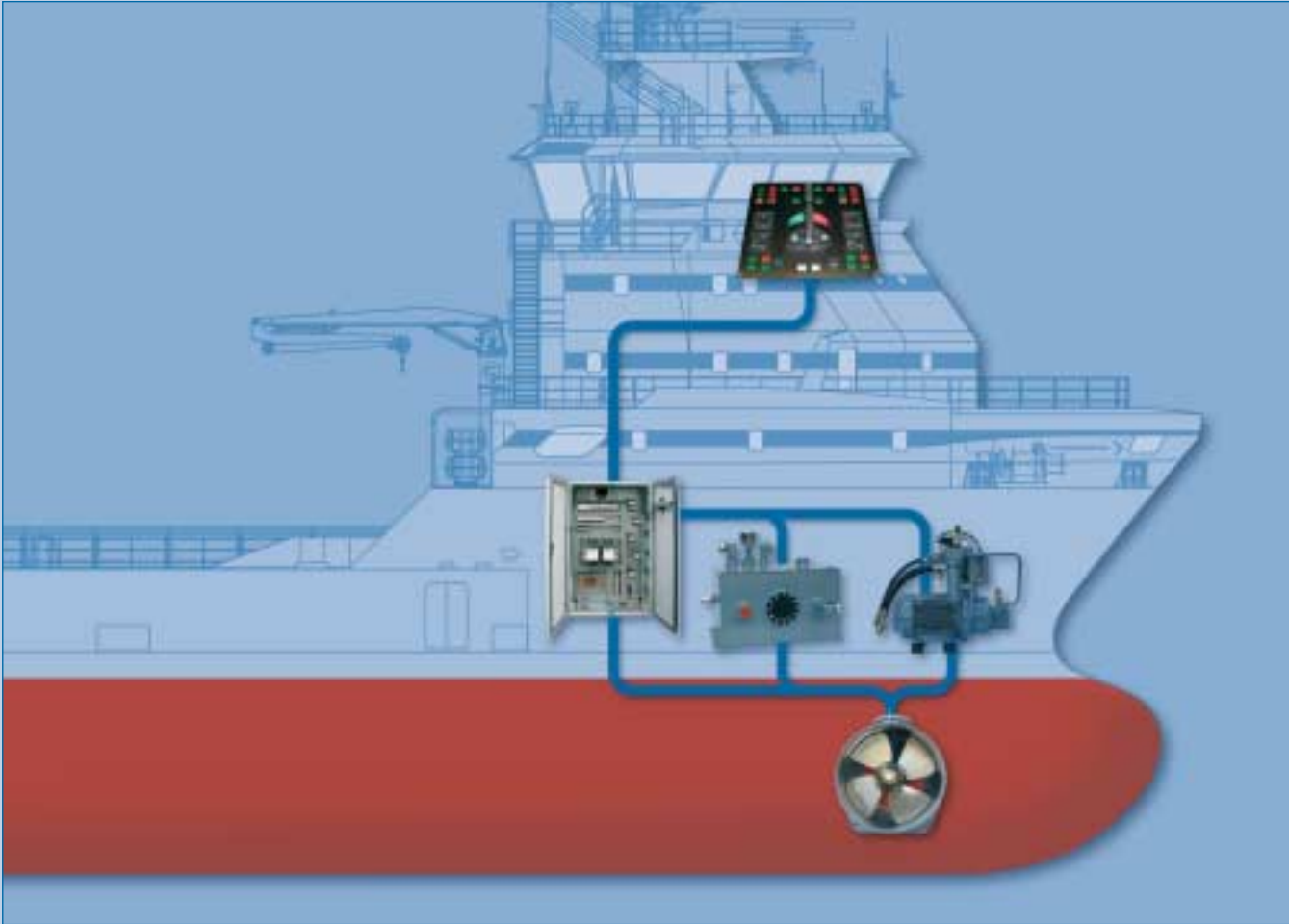
Essentially, the thrusters can be diesel-powered, or driven hydraulically or electrically. Electric prime movers can be included in the SCHOTTEL scope of supply. The thruster accepts either horizontal or vertical drive applications, thus optimizing prime mover location and allowing economical, space-saving installation. Being an L-drive thruster, the power is transmitted to the propeller via a single pair of bevel gears. Thrust direction is reversed through an intermediate reverse gear in diesel applications, or by reversing the electric or hydraulic motor direction. Instead of fixed-pitch thrusters, controllable-pitch units are available for our STT 1- 4. They are installed in the same way as fixed-pitch thrusters; however, for diesel drive the reverse gear is not required.

The SCHOTTEL tradition of precise engineering with over 50 years of experience, combined with high quality and workmanship, has given rise to an outstanding record of reliability and operational efficiency and has established SCHOTTEL thrusters as the standard of excellence in the shipping industry. For almost 10 years, SCHOTTEL has been producing tunnel thrusters at SCHOTTEL Suzhou in China. The manufacturing processes and the quality are closely monitored by German engineers in China and Germany. The growing demand leading to the creation of additional production capacity confirms that the concept was the right idea.

Excellent gear housing protection is achieved by sandblasting and coating the lower gearboxes with BELZONA 1321 (Ceramic S-metal), which is extremely resistant against abrasion, cavitation and electrolytic corrosion. Due to the high manufacturing quality and the use of reinforcing rings around the tunnel and appropriate material thicknesses, the gap between tunnel and propeller can be minimized, thus improving the overall efficiency of the bow thruster.

All SCHOTTEL Transverse Thrusters are equipped with a stainless steel wearing ring in the path of the propeller. This reduces wear and tear and therefore improves durability. Additionally, the tunnel is stiffened in order to reduce vibration and noise.





*The SCHOTTEL Transverse Thruster, incl. oil header tank, hydraulic unit, switch box and panel (STT here in CP configuration), provides an efficient and economical solution for simple manoeuvring in harbours as well as heavy-duty service in offshore vessels.*



SCHOTTEL Transverse Thrusters are designed to meet the specific demands of operators, yards and owners. The main advantages are:

- Compact design
- Optimized power ranges from intermittent to heavy-duty
- Well adjusted reduction ratios for a number of different common drive speeds
- Introduction of new technologies, such as sealing and lubrication systems
- Additional supporting ribs and rings



*German know-how manufactured in China – our production standards determine our quality worldwide. Unit no. 1000 was proudly presented in Suzhou.*



# STT The SCHOTTEL Transverse Thruster



STT with electric motor

## Main data

Type	Pmax (kW)	n (r.p.m.)	Frequency of board net (Hz)	Gear reduction	Tunnel diameter (mm)	Propeller diameter (mm)	Tunnel wall thickness (mm)	Tunnel length (mm)	Approx. weight (kg)**	Basic dimensions without prime mover A/B (mm)
<b>Standard operation with FP propeller and electric prime mover*</b>										
STT 110	200	1470	50	1.86	815	790	15	1000	890	1045/1363.5
STT 110	200	1170	60	1.86	815	790	15	1000	890	1045/1363.5
STT 170T	315	1770	60	2.7	1015	990	20	1500	1680	1295/1605.5
STT 170T	315	1470	50	2.7	1015	990	20	1500	1680	1295/1605.5
STT 170	350	1770	60	3.07	1115	1090	20	1500	1730	1355/1635.5
STT 170	350	1470	50	2.7	1115	1090	20	1500	1730	1355/1635.5
STT 170	280	1170	60	2.7	1115	1090	20	1500	1730	1355/1635.5
STT 1	530	1470	50	3.07	1265	1240	20	1500	3000	1545/1890.5
STT 1	530	1770	60	3.62	1265	1240	20	1500	3000	1545/1890.5
<b>Standard operation with CP propeller and electric prime mover*</b>										
STT 1	600	1470	50	3.07	1315	1290	20	1700	3500	1610/1923
STT 1	600	1770	60	3.62	1315	1290	20	1700	3500	1610/1923
STT 2	850	1470	50	3.73	1580	1540	20	2000	4600	1920/2214
STT 2	850	1770	60	4.27	1580	1540	20	2000	4600	1920/2214
STT 3	1100	1470	50	4.08	1780	1740	20	2100	6500	2120/2470
STT 3	1100	1770	60	4.77	1780	1740	20	2100	6500	2120/2470
STT 4	1400	1170	60	3.79	2030	1990	25	2280	9500	2080/2715
STT 4	1400	1470	50	4.54	2030	1990	25	2280	9500	2080/2715

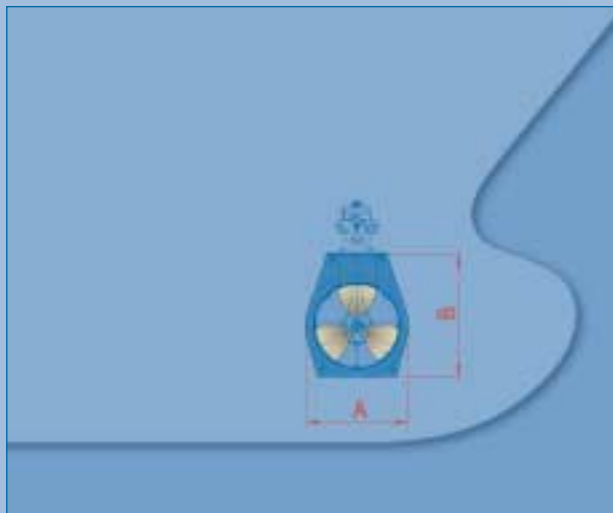
\* For continuous duty, diesel as prime mover and/or DNV, power reduction is necessary.

\*\* Weight for STT only (without prime mover)

STT 2-4 also available as FP units

Specification is subject to change without notice. Status: September 2007





*STT with hydraulic motor*



*STT with diesel engine*



*SCHOTTEL Transverse Thrusters have proved their reliability and durability in vessels of all shapes and sizes.*



# STT The SCHOTTEL Transverse Thruster



*The optional resilient mounting of the SCHOTTEL Transverse Thruster reduces noise generation.*

If required SCHOTTEL can provide a PLC based CP transverse thruster control with the following additional features:

- Built-in web server with access to web browser
- Fault and process value monitoring with trend views for effective fault analysis
- Automatic nominal load regulation depending on the actual operation conditions
- Interface to integrated bridge

## Main data

Type	STT 1	STT 2	STT 3	STT 4				
<b>Heavy DP operation with CP propeller and electric prime mover*</b>								
P (kW) max	430	450	610	635	790	825	1060	1000
n (r.p.m.)	1170	1470	1170	1470	1170	1470	980	1170
Frequency of board net (Hz)	60	50	60	50	60	50	50	60
Dprop (m)	1.29	1.29	1.54	1.54	1.74	1.74	1.99	1.99
Max tip speed (m/s)	25.7	27.5	25.3	27.7	26.1	28.1	27.0	26.9
Propeller load (kW/sqm)	329	344	327	341	332	347	341	322

\* For FP propeller, diesel as prime mover and/or DNV power reduction is necessary.  
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In order to reduce the noise level, SCHOTTEL has designed special forward skew CP propeller blades which are individually engineered for specific customer applications. As a special configuration, SCHOTTEL thrusters can also be resiliently mounted.

The thrusters are suitable for heavy-duty operation in offshore service and for yachts. Therefore the units are oversized and the propeller tip speed is reduced. In this way, the propeller load is also reduced. These measures lead to increased durability of the thruster seals, bearings, propeller hub and blades. Moreover, noise is reduced, since the propeller blade speed is the main source of structurally borne noise. Furthermore, the frictional losses of the propeller blades in water are considerably reduced at reduced blade tip speed. As standard, a stainless steel ring is welded into the tunnel, near the propeller, to prevent wear of the tunnel.

The electrical system for the propeller pitch control of the thrusters can be adapted to several networks. Switch boxes can be optionally equipped with common DP or other interfaces. This serves to meet the demands of offshore fleet operators.

### Professional partnership – throughout the vessel's life

As a SCHOTTEL customer you will experience individual, prompt and extensive assistance throughout all stages of a project, from planning and commissioning through to operation and preventive maintenance. Spare parts are supplied at short notice and, where required, accompanied by highly qualified engineers. We are proud of our reputation for first class service and endeavour to maintain it worldwide.





*Whether in mega-yachts or offshore vessels – the STT excels as a dependable assistant.*



# STT The SCHOTTEL Transverse Thruster

## Professional Partnership – Throughout the Vessel's Life

*Certified Quality (DIN EN ISO 9001:2000)*

*Constant customer support*

*Professional commissioning worldwide*

*Preventive maintenance and repairs*

*State-of-the-art modernizations*

*Reconditioned second-hand units*

*Close-knit sales and service network*

VPR-202/07 e · Printed in the Federal Republic of Germany



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