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## HARBOUR TUGS

Tug TSHT 3611

Tug TSHT 5422

[www.sym-naval.com](http://www.sym-naval.com)



PORT VESSEL NEWBUILDING

**SYM**  
NAVAL

## TUGS

TSHT 3611 Y 5422

Port support vessels

SYM Naval's TSHT 3611 and 5422 harbour tugs are vessels fully adapted to the operational needs of shipowners and the requirements of international port authorities. With a length of 16 and 18 meters and a bollard pull of up to 11 and 22 tons respectively, the TSHT series tugs are capable of handling the most demanding port tasks.

Both models are equipped with Doosan engines that offer a total power of 960 and 1,600 horsepower, while their top speeds reach 11 knots. The compact design of these tugs facilitates high maneuverability and stability, a fact that makes them ideal port vessels to offer support to the different maneuvers that other vessels or floating devices must carry out inside the port.

SPANISH FLAG

GROUP III, S CLASS



Harbour tugs TSHT 3611 y 5422

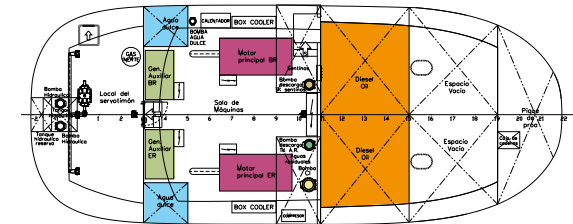


**A compact and powerful design** Harbour tugs with high maneuverability and stability



## HARBOUR TUGS

General scheme



	TSHT 3611	TSHT 5422
<b>DIESEL OIL</b>	14 m <sup>3</sup>	18 m <sup>3</sup>
<b>ENGINES</b>	2 x DOOSAN V158TIH	2 x DOOSAN 4V222TIH
<b>AUXILIARY GENERATORS</b>	JOHN DEERE 2 x 380V 50Hz de 32 kW	
<b>FRESH WATER TANKS</b>	4,60 m <sup>3</sup>	6 m <sup>3</sup>
<b>BILGE PUMP</b>	LIVERANI 3700	
<b>WASTE WATER DISCHARGE PUMP</b>	FEIT VA-40B - ELECTRIC	
<b>FIRE PUMP</b>	FEIT AT 6-1 - ELECTRIC - SELF-PRIMING	

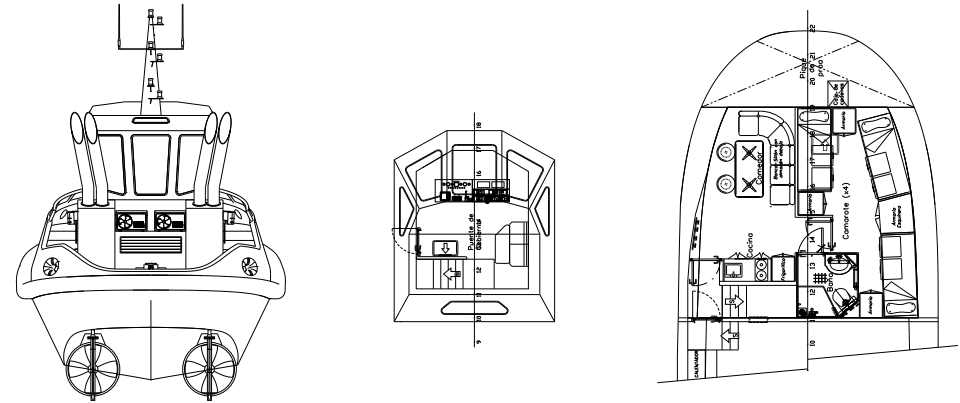
The **TSHT 3611** harbour tug is the most compact model ever built by SYM Naval. It broadly meets the demands of the tasks of supporting the maneuverability of medium ships and emergency or relief tasks.

More powerful and with greater capacities for fuel and fresh water tanks, the **TSHT 5422** is a port support tug with enough space for a crew of up to 4 people.

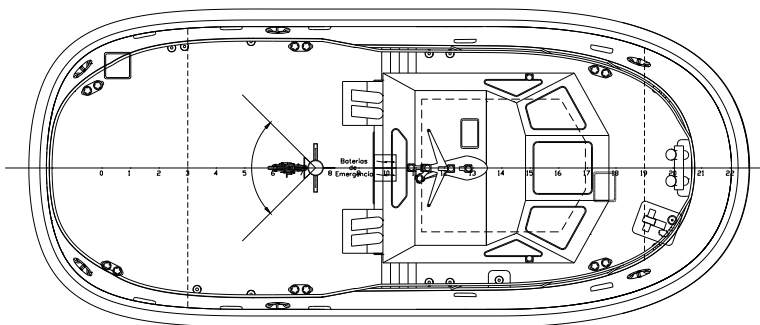
## TSHT 3611 TUG

### General layout

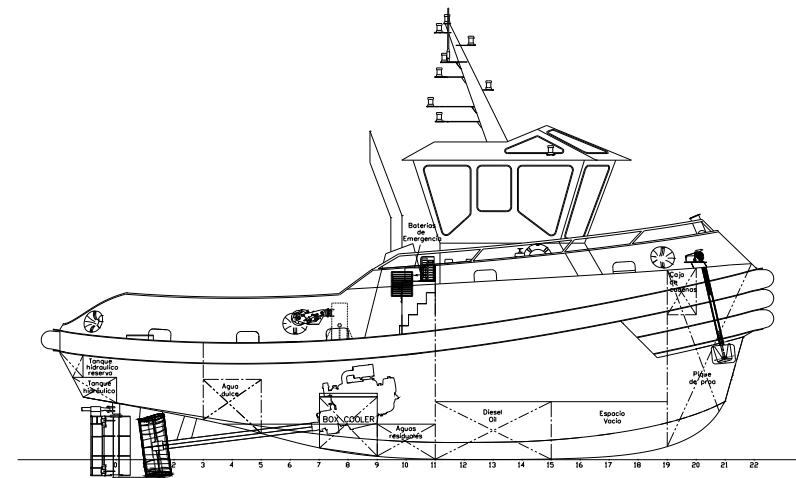
The **TSHT 3611** harbour tug is a compact design support vessel measuring 16 meters in length and 6 meters in beam. It has a bollard pull force of 11 tons, two 480 hp engines and two 1,200 mm diameter propellers in the nozzle.



**COMPACT.** Designed to withstand the most demanding port support tasks.



**DIMENSIONS.** The TSHT 3611 model is 16 m long and 6 m wide.

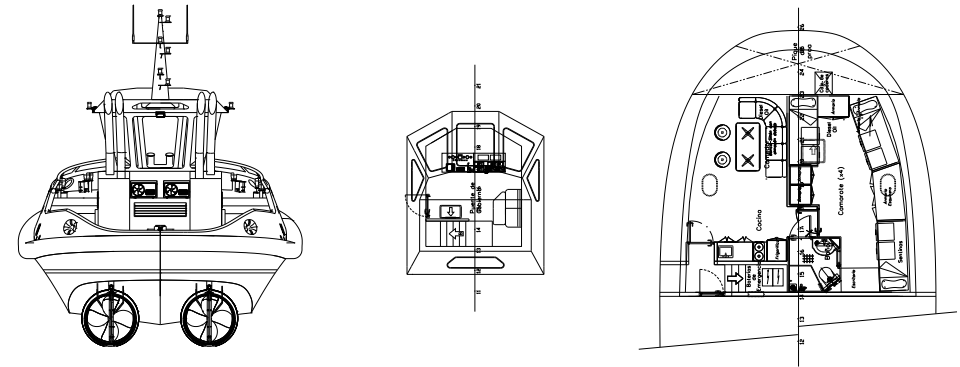


**LOADING CAPACITY.** Up to 14 m<sup>2</sup> of fuel and 1.32 m<sup>3</sup> of waste water.

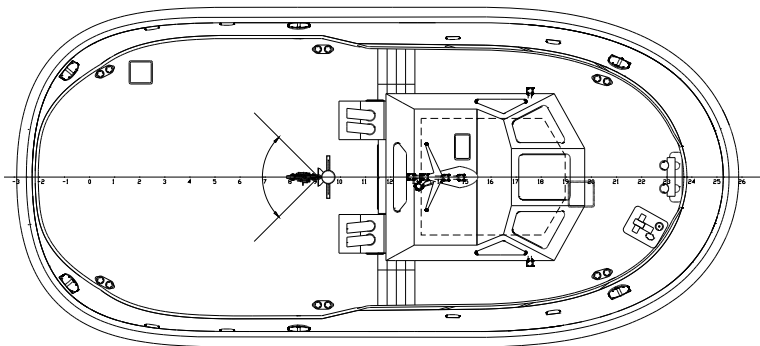
## TSHT 5422 TUG

### General layout

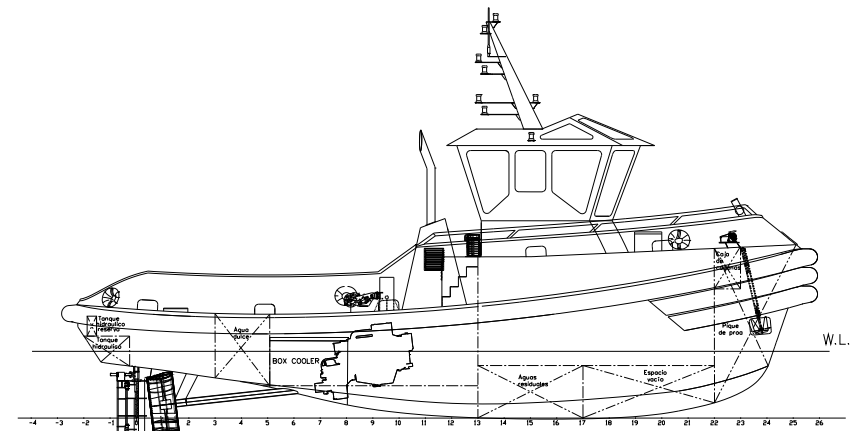
The **TSHT 5422** model, with its 18 meters in length, 8 meters in beam and its 2 x 800 hp engines, is the ideal port vessel to offer support to the maneuvering of large ships thanks to its bollard pull of up to 22 tons.



**STURDY.** 22-ton bollard pull.



**DIMENSIONS.** The TSHT 5422 model is 18 m long and 8 m wide.



**LOADING CAPACITY.** Up to 18 m<sup>3</sup> of fuel and 1.32 m<sup>3</sup> of waste water.

## HARBOUR TUGS

Port support vessels

### MANEUVERABILITY.

At the lowest cost thanks to a suitable design.



### RELIABILITY.

High-quality materials and components.



### CUSTOMIZATION.

Criteria and participation of the shipowner.



### ECONOMY.

The best value on the market.



## Technical specifications

### TSHT 3611

### TSHT 5422

DIMENSIONS		
LOA	16 m	18 m
BEAM	6 m	8 m
DEPTH	2,75 m	2,75 m
DRAUGHT	1,85 m	1,75 m
OPERATIONAL CHARACTERISTICS		
BOLLARD PULL	11 ton	22 ton
SPEED	11 kn	9,5 kn
CAPACITY		
HYDRAULIC OIL	0,4 m <sup>3</sup>	0,4 m <sup>3</sup>
SEWAGE WATER	1,32 m <sup>3</sup>	1,32 m <sup>3</sup>
BILGE	1,32 m <sup>3</sup>	1,32 m <sup>3</sup>
FRESH WATER - PORT	4,60 m <sup>3</sup>	6 m <sup>3</sup>
FUEL	14 m <sup>3</sup>	18 m <sup>3</sup>
PROPULSION AND CONTROL SYSTEM		
MAIN ENGINES	2xDOOSAN V158TIH	2xDOOSAN 4V222TIH
TOTAL POWER	2x480HP	2x800HP
REDUCTION GEARBOX	DMT	DMT
PROPELLER	2x1200mm	2x1400mm
STEERING GEAR	High performance flap rudder	High performance flap rudder
COMMUNICATION AND NAVIGATION SYSTEM		
VHF DSC	ICOMI IC-M411	ICOMI IC-M411
AIS	ICOM MA-500TR	ICOM MA-500TR
VHF PORTABLE	EMTEL HT649	EMTEL HT649
PLOTTER - SOUNDER	FCV 627	FCV 627
ANTENNAS	Glomex RA112	Glomex RA112
GPS ANTENNA	SPO 507 M	SPO 507 M
RADAR	SIMRAD HALO 20	SIMRAD HALO 20
DECK LAYOUT		
ANCHOR	1x90kg	1x90kg
ANCHOR WINCH	DZC 1201	DZC 1201
TOWING HOOK	SWL 15 tn	SWL 30 tn
AUXILIARY EQUIPMENT		
GENERATORS	2 x John Deere - 3029TFG20	2 x John Deere - 3029TFG20
GENERATORS POWER	59 CV (44kW) at 1.800 rpm	59 CV (44kW) at 1.800 rpm
BILGE PUMPS	LIVERANNI 3700	LIVERANNI 3700
FIRE PUMP	FEIT AT6	FEIT AT6
WASTE WATER PUMP	FEIT 40VA	FEIT 40VA
FRESH WATER PUMP	FEIT AM990	FEIT AM990
REFRIGERATION SYSTEM	4xBOX COOLERS	4xBOX COOLERS
AIR COMPRESSOR	FIAC SUPER SILENT 59	FIAC SUPER SILENT 59
ACCOMMODATION		

The vessel is equipped with a cabin for 4 pax, 1 kitchen/dining room with sofa and table + 1 full bathroom.

## Details and equipment



**BRIDGE.** Control desk adapted to the operational needs of the crew operating the ship.



**ENGINE ROOM.** Ample work space for the crew.



**INTERIOR.** Equipped to work under the demands of port support tasks.



**COMFORT.** Cabin for 4 people and kitchen/dining room.





01 NAVAL  
ENGINEERING OFFICE

A **technical department** capable of managing the demanding requirements of shipowners with the highest quality from the beginning to the end of the project.



02 QUALITY  
CONTROL

**Shipbuilding in steel and aluminum.** We design and build custom vessels. IACS classified vessels.



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ASSISTANCE

**Sailing, in port and in dry dock.** Maintenance and repair service for vessels in dry dock in the Caribbean area. Worldwide coverage via riding squads.



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PROJECTS

**Analysis of technical needs** of each client for the construction of customized vessels. Seriousness and commitment assumed in all our projects.



05 MORE THAN 25 YEARS  
OF EXPERIENCE

A **team made up of professional naval engineers**, project managers and technical staff that work in sync to develop the different phases of a project.



06 COMMITMENT TO  
THE ENVIRONMENT

We are **ISO 14001 certified**, a guarantee of our clear commitment to the environment which, in turn, obliges us to maintain the highest environmental standards in all our operations and facilities.



SYM Naval is **ISO 14001 certified**, a guarantee of its clear commitment to the environment.



SYM Naval has the **international ISO 45001 certification** for Occupational Health and Safety Management Systems (OSH), which guarantees that their jobs are safe and healthy, preventing accidents and occupational health problems.



SYM Naval is **ISO 9001 certified**, a guarantee that its processes conform to the highest standards in ship construction, conversion and repair.



SYM Naval contributes to carrying out maintenance, reforestation, cleaning and environmental protection actions, defining specific action plans with the responsible authorities.

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**Barcelona · Miami · Santo Domingo**

Muelle Comercial s/n,  
Puerto de Vilanova i La Geltrú  
08800 Barcelona, Spain

+34 934 910 450  
info@sym-naval.com

**[www.sym-naval.com](http://www.sym-naval.com)**

