

## FULL TECHNICAL SPECIFICATION required by the contracting authority

### Port tugboat-pusher

A port tugboat-pusher (the tug) is required, intended for maneuvering other vessels or floating units by towing/propelling methods in the Giurgiulesti Port Complex aquatorium and on the maritime sector of the Danube River.

The tug will be used for harbor towing maneuvers of seagoing vessels (up to 15,000 GRT), mixed (river-sea) and inland waterway vessels.

The tug must also be equipped and able to perform other activities as needed, such as rescue, fire-fighting and ice-breaking.

The tug must have high maneuverability, be capable of towing in any direction, provide excellent visibility from the wheelhouse and be stable in wave conditions, towing line pull and sharp turns.

The bidders proposing the harbor tug-harbor tug must present in their bids the following characteristics as mentioned below.

<b>1</b>	<b>General provisions</b>										
	<p>The port tugboat-pusher shall be intended for carrying out towing/towage operations of sea and river vessels in the Giurgiulesti Port Complex. Working temperature range from -30 to +50°C. The tug must be maintained by a crew of 3 persons, be reliable, simple to service, with easy accessibility to all equipment, parts and assemblies.</p>										
<b>2</b>	<b>Manufacturing</b>										
	<p>The proposed tug should preferably be a new tug, but tugs up to 20 years old are also acceptable, provided the last dry-dock survey is no later than 2022. The tug must have ice class as assigned by one of the EU recognized classification societies, capable of breaking ice with a minimum thickness of 20 cm.</p>										
<b>3</b>	<b>Standards</b>										
	<p>The tug must be built in accordance with the rules for the classification and construction of ships of a classification society recognized by the European Commission, and the requirements of the ES-TRIN standard must be taken into account. The class of the tug must be established by a classification society recognized by the European Commission.</p>										
<b>4</b>	<b>Units of measurement</b>										
	<p>All data and information must be presented in the metric system of measurement (SI).</p>										
<b>5</b>	<b>List of requirements</b>										
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 10%;"></th> <th style="text-align: center;"><i>Required specifications</i></th> </tr> </thead> <tbody> <tr style="background-color: #4f81bd; color: white;"> <td style="text-align: center;"><b>5.1.</b></td> <td style="text-align: center;"><b>General indicators:</b></td> </tr> <tr> <td></td> <td style="text-align: center;">Port tugboat-pusher</td> </tr> <tr> <td style="text-align: center;">5.1.1</td> <td> <p><b>Hull</b></p> <ul style="list-style-type: none"> <li>Metal;</li> <li>Class "ice" required for breaking ice with a minimum thickness of 20 cm ("ICE" class, according to the class assigned by the classification society recognized by the European Commission);</li> <li>Ice-adapted propulsion;</li> <li>A fortified prow for pushing ships;</li> <li>Wider fore and aft gaiters (a minimum width is preferable)</li> </ul> </td> </tr> <tr> <td style="text-align: center;">5.1.2</td> <td><b>Motorization</b></td> </tr> </tbody> </table>		<i>Required specifications</i>	<b>5.1.</b>	<b>General indicators:</b>		Port tugboat-pusher	5.1.1	<p><b>Hull</b></p> <ul style="list-style-type: none"> <li>Metal;</li> <li>Class "ice" required for breaking ice with a minimum thickness of 20 cm ("ICE" class, according to the class assigned by the classification society recognized by the European Commission);</li> <li>Ice-adapted propulsion;</li> <li>A fortified prow for pushing ships;</li> <li>Wider fore and aft gaiters (a minimum width is preferable)</li> </ul>	5.1.2	<b>Motorization</b>
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5.1.2	<b>Motorization</b>										

	<ul style="list-style-type: none"> <li>• number of engines - 2 (two);</li> <li>• fuel type - diesel;</li> <li>• total engine power - not less than 1200 hp;</li> <li>• engine manufacturer (preferably EU, US, Japan, UK: e.g. Caterpillar; Volvo Penta), or similar, world-renowned, and long experience in the production of Diesel Marine Engines.</li> <li>• The tug must have class of automation that does not require continuous supervision of the machinery space - UMS (Unattended Machinery Space)</li> <li>• Operating regime - long time operation at full power (heavyduty. "1" or "A" depending on the manufacturer), which means 100% of the time at full power, in the worst case 80% of the time at full power.</li> </ul>
5.1.3	<b>Propulsion system</b> <ul style="list-style-type: none"> <li>• number of thrusters - 2 (two) located aft.</li> <li>• type of thrusters - omnidirectional (Azimuth Stern Drive Tug ASD)</li> <li>• Thrusters shall not exceed the lowest point of the tug (keel), and shall be immersed to the minimum draft of the tug.</li> <li>• Transmission (mechanical, electrical, hydraulic)</li> </ul>
5.1.4	<b>Maximum speed 10 - 14 knots</b>
5.1.5	Presence of at least one diesel generator on board. Total electrical power (380 V; 50 Hz; 1x30 kW)
5.1.6	<b>Steering system:</b> <ul style="list-style-type: none"> <li>• The tug shall be equipped with active steering means, e.g.: rudder-propeller with independently steerable propeller nozzles</li> <li>• Emergency steering post.</li> </ul>
5.1.7	<b>Trailer hitch</b> <ul style="list-style-type: none"> <li>• Drawbar - between 16 and 30 tons</li> <li>• With release mechanism from the tug's tiller by the captain and automatic release on reaching maximum tension.</li> </ul>
5.1.8	<b>Aft towing, and bow pushing/towing devices</b> <ul style="list-style-type: none"> <li>• Minimum of 2 automatic trailer winches with approximately 30 tons each.</li> <li>• Trailer floors (vegetable or synthetic)</li> <li>• Vessel pushing coupling system</li> <li>• Trailer slugs (SWL-16 to 30)</li> <li>• Guide rails/limiters for trailer hitches</li> <li>• Towbars</li> </ul>
	<b>Tug dimensions</b>
5.1.9	Length: 18 - 25 m
5.1.10	Width: 5 - 9 m
5.1.11	Board height within: 3.5 - 4.5 m
5.1.12	Maximum draught between: 1.9 - 2.4 m
5.1.13	<b>Bridge (wheelhouse)</b> <ul style="list-style-type: none"> <li>• The wheelhouse must be of the enclosed type and offer 360° freedom of movement and visibility, as well as low noise level and must have air heating and air conditioning.</li> <li>• Provide a good vertical visibility of about 450 up, and down sufficient for sighting bow and stern winches and gunwales.</li> <li>• The wheelhouse must be equipped with: <ul style="list-style-type: none"> <li>- Radar</li> <li>- ECDIS (Electronic Chart Display and Information System)</li> <li>- AIS (Automatic Identification System)</li> <li>- Two stationary radios operating independently of each other</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Rate of turn indicator connected to the radar repeater</li> <li>- Ultrasound probe repeater</li> <li>- Loch</li> <li>- Marking dangerous depth</li> <li>- Propulsion remote control system</li> <li>- Audible signaling system</li> <li>- Control with windscreen wipers/window wiper and washer system</li> <li>- Wheelhouse lighting equipment</li> <li>- Hydrometeorological information visualization block</li> <li>- View engine functionality information block</li> <li>- Block visualization of the functionality of the main systems of the tug including navigation lights.</li> </ul> <ul style="list-style-type: none"> <li>• Equipped with international communication signals according to the Rules of Navigation on the Danube or the COLREG Convention</li> </ul>
5.1.14	<p><b>Fire extinguishing systems</b></p> <ul style="list-style-type: none"> <li>• Fire pumps</li> <li>• Hydrants, hoses and nozzles</li> <li>• International connection</li> <li>• Fire extinguishers</li> <li>• Tool panels</li> </ul>
5.1.15	Stability must meet the requirements of the classification society recognized by the EU
5.1.16	<p>Maritime <b>radionavigation and radiocommunication systems</b> for the "A1" area as defined by SOLAS and inland navigation.</p> <ul style="list-style-type: none"> <li>• Rate of turn indicator connected to the radar repeater</li> <li>• Magnetic road compass at main control post</li> <li>• Hand probe</li> <li>• Prismatic binoculars</li> <li>• Aneroid barometer</li> <li>• Inclinator</li> <li>• Inland AIS (Inland Automatic Identification System)</li> <li>• GPS (Global Positioning System)</li> <li>• Inland ECDIS (Inland Electronic Chart Display and Information System)</li> <li>• Radar transponder</li> <li>• Means to visualize navigation information (multifunction display)</li> <li>• Indicators of the position of the system of steering/propulsion</li> <li>• All navigation systems shall be powered from the base power supply and the emergency back-up power supply (rectifier-charger)</li> <li>• The tug must be provided with uninterruptible power supply, and shore power supply.</li> <li>• Radionavigation equipment must be in a configuration that allows efficient use of the systems (antennas, receivers, indicators, transmitters, etc.)</li> <li>• The equipping with radio navigation equipment must be carried out also taking into account the issue of access to service and repair centers in the region (Republic of Moldova, Romania, Bulgaria, Turkey)</li> <li>• DSC encoder - 1</li> <li>• DSC watch receiver - 1</li> <li>• Automatic Transmitter Identification System - ATIS</li> <li>• NAVTEX (NAVigational TELeX)</li> <li>• COSPAS-SARSAT EPIRB - 1</li> <li>• Parachute rockets - 12</li> <li>• Hand fuse - 6</li> <li>• Floating smoke signals - 2</li> </ul>

5.1.17	<b>Fuel tanks</b> Volume not less than 10 tons International bunkering connection.
5.1.18	<b>Drinking water tank</b> Volume approx. 2 - 3 tons
5.1.19	The tug must be equipped with facilities for crew work and rest <ul style="list-style-type: none"> <li>• Cabins - minimum 3</li> <li>• Cambuză - equipped.</li> <li>• Sanitary block (shower/toilet)</li> </ul>
5.1.20	<b>Anchoring systems</b> The tug must have two anchors
	<b>Means of rescue</b>
5.1.21	As required by the classification society recognized by the European Commission.
5.1.22	<ul style="list-style-type: none"> <li>• Life jackets - 6 pcs</li> <li>• Lifebuoys with fula - 4 pcs</li> </ul>
	<b>Signaling</b>
5.1.23	The tug must be fitted with signaling systems in accordance with the provisions of the COLREG Convention
5.1.24	The tug must be equipped with ship vitality combat facilities and systems in accordance with the requirements of the classification society recognized by the EU
5.1.25	The tug shall be fitted with water drainage systems from its compartments in accordance with the requirements of the classification society recognized by the EU
5.1.26	Tug preferably equipped with ballast system
<b>5.2.</b>	<b>Technical documentation</b>
5.2.1	Operating instructions for on-board systems/equipment/installations - in Romanian or Russian and English.
5.2.2	Valid certificates (issued by the flag state, and those issued by an EU recognized classification society)
5.2.3	Valid certificates issued by EU recognized classification society
5.2.4	The ship design which will include at least: <ul style="list-style-type: none"> <li>• Information on the hull (hull frame, rigging, materials used, their information and characteristics, etc.);</li> <li>• Technical information on the systems on board;</li> <li>• Technical information on the installations on board the vessel;</li> <li>• Ship stability information;</li> <li>• Information on tests applicable to a tug and their results</li> <li>• detailed description (technical specifications of on-board devices, installations, mechanisms and systems, electrical equipment);</li> <li>• general plan;</li> <li>• Master couple section plan with most typical structural cross sections;</li> <li>• design profile;</li> <li>• shape plan;</li> <li>• deck plane and bulkhead plane;</li> <li>• afterpic plane, rudder and rudder axis;</li> <li>• layout of fire-fighting installations, fire extinguishing systems and fire-fighting equipment;</li> <li>• general arrangement plan of the machinery, boilers and equipment in machinery and boiler spaces and spaces with emergency source of emergency power indicating escape routes;</li> </ul>

	<ul style="list-style-type: none"> <li>• diagram of the shaft line to the propulsion plant and of the arrangement of the piston tube;</li> <li>• on-board piping diagram;</li> <li>• the electrical circuit diagram and the circuit diagrams of the main switchboards and emergency switchboards.</li> </ul>
5.2.5	<p>The ship's survey certificates from the classification society recognized by the EU.</p> <ol style="list-style-type: none"> <li>1. Latest Class Certificate and Ship Certificate;</li> <li>2. Reports on examinations taken, and the last class renewal examination;</li> <li>3. For vessels not older than 20 years - Dry Dock Report not later than 2022.</li> </ol>
<b>5.3.</b>	<b>Advisory service</b>
5.3.1	Provide contact details of responsible persons who can provide advice on specific aspects of tug operation
5.3.2	
5.3.4	
<b>5.4.</b>	<b>Guarantee</b>
5.4.1	<p>Minimum 48 months warranty for equipment and installations. Warranty for the tug body and main engines for at least 60 months.</p>
5.4.2	Complaint response within the warranty period - no more than 48 hours after receipt of the complaint.
<b>5.5.</b>	<b>Instructaj</b>
5.5.1	<p>Training is conducted in Russian or Romanian.</p> <p>Training on familiarization with all the tug's functionalities for 4 persons who will take over the command and operation of the tug (crew members) The program must include:</p> <p><i>Theoretical training (minimum 24 working hours):</i></p> <ul style="list-style-type: none"> <li>• Material part of the tug (purpose, technical characteristics, on-board devices, instructions for use, preparation for work, adjustment, checking of technical condition, operating procedure, maintenance, possible faults and methods of their elimination).</li> <li>• Work protection requirements, safety measures.</li> </ul> <p><i>Practical training (24 hours per crew member):</i></p> <ul style="list-style-type: none"> <li>• Preparation for work, work sequencing, faults and how to eliminate them, maintenance.</li> <li>• Performing exercise maneuvers</li> </ul> <p>Training venue - Giurgiulesti Port Complex Aquarium.</p>
5.5.2	At the end of the training specified in point 5.5.1, a certificate of receipt of training services shall be signed.
<b>5.6.</b>	<b>Commissioning</b>
5.6.1	<p>Testing of the tug shall be carried out at the place of its deployment by the buyer's representatives.</p> <ul style="list-style-type: none"> <li>• The travel expenses of the buyer's representatives shall be borne by the buyer</li> </ul>
5.6.2	<p>Tug delivery</p> <ul style="list-style-type: none"> <li>• shall be made by the seller, within 15 days from the moment of registration of the contract at the State Treasury, but no later than 20.12.2024</li> <li>• To be made by the seller</li> <li>• Delivery costs are borne by the seller</li> <li>• Place of delivery is Giurgiulesti Port Complex (Republic of Moldova)</li> </ul>

	<ul style="list-style-type: none"> <li>• The Vendor shall ensure that the tugboat is supplemented with a qualified crew, necessary for the delivery (single voyage) from the place of its displacement to the Giurgiulesti Port Complex. The expenses related to the mentioned crew shall be borne by the Seller.</li> <li>• The seller shall provide all necessary documentation for the single voyage. The costs for finalizing the documentation and preparing the tug for the single voyage shall be borne by the seller.</li> </ul>
5.10.2	Reception of the tug by the buyer after delivery in working order, will be carried out in Giurgiulesti Port Complex (Republic of Moldova), according to the act of receipt-delivery signed by the parties.