DETAILS OF ACCEPTANCE OF NECESSITY (AON) FOR ACQUISITION 09 X 25T BOLLARD PULL TUGS

1. Acceptance of Necessity (AoN) has been accorded on 26 May 26 for acquisition of 09 x 25T BP Tug (in accordance with Section 'B', Chapter XII of DAP-2020) under Buy (Indian-IDDM) scheme, with Indigenous Content (IC) as follows:-

1.1 Buy (Indian-IDDM) with IC $\geq$ 70% iaw Section 'B' of Chapter XII of DAP-20.

1.2 IC on account of Material/ Components/ Software manufactured in India $\geq$ 50% of overall IC.

2. Technical Specifications of the project are placed at **Appendix 'A'**. RFP for the acquisition would be issued at a later stage.

3. Vendors desirous of participating in the approved acquisition scheme related to procurement of 09 x 25T BP Tug may submit their willingness to the following address :-

Commodore (Ship Production)
Directorate of Ship Production
Naval Headquarters, Ministry of Defence,
Room No. E-201, 2nd Floor,
East Wing, Nausena Bhawan,
Delhi Cantt, New Delhi - 110010
Tele : 011-20896998
E-mail : dsp@navy.gov.in

TECHNICAL SPECIFICATIONS FOR CONSTRUCTION OF 09 X 25 TON BOLLARD PULL TUGS

	SECTION A - GENERAL	
1.	**Aim**	To lay down the staff requirements for 25 Ton Bollard Pull Tug, to meet the Indian Navy Requirements.
2.	**Function**	The tug should be capable of :- (a) Assisting ships and submarines and dumb barges in berthing, unearthing, turning and manoeuvring in confined waters/ harbours. (b) Undertaking cold move of ships and, submarines under refit/ Maintenance within port limits. (c) Providing assistance for dry docking /undocking ships and to assist movements in/ out of the tidal basin. (d) Moving non/ self-propelled vessels such as ammunition/ water/ fuel barges within port limits. (e) Assisting ships during inclement/ rough weather to prevent accidental damage within port limits. (f) Providing afloat fire fighting cover/ assistance to ships alongside/ at anchorage. (g) Providing towing assistance to warship.
3.	**General Remarks**	(a) The tug will be manned and operated by qualified civilian crew. (b) The crew and tug should be able to provide assistance to ships inside port limits for berthing/ unberthing of ships. (c) The tugs may be deployed beyond port limits, after suitably augmenting the crew, as required, for specific duties such as salvage and search &rescue missions, etc. (d) It should have an expected life of 30 years. (e) The Tug maintenance should be carried at as per Classification Society rules.
4.	**Speed**	(a) Maximum: 12 Kn (at 85% MCR of Main Engine). (b) Sustained: 10 Kn

<table>
<tr><td>5.</td><td>Range</td><td>500 nm with 25% fuel as reserve at sustained speed.</td></tr>
<tr><td>6.</td><td>Endurance</td><td>96 hours, at Sustained Speed.</td></tr>
<tr><td>7.</td><td>Sea State</td><td>The tug should be able to carry out its functional role up to sea state 4 and operate up to sea-state 5 and survivable as per approved class/ IMO norms.</td></tr>
<tr><td>8.</td><td>Crew</td><td>One Master, One Engineer and 11 Crew.</td></tr>
<tr><td>9.</td><td>Enviromental Conditions</td><td>All equipment should be marinised and capable of performing under the following ambient conditions:-

<table><tr><th>Ser</th><th>Description</th><th>Temperature</th></tr><tr><td>(a)</td><td>Ambient Air Temperature</td><td>upto 45°C</td></tr><tr><td>(b)</td><td>Average Machinery Space Temperature</td><td>up to 55°C</td></tr><tr><td>(c)</td><td>Sea Water Temperature</td><td>up to 35°C</td></tr><tr><td>(d)</td><td>Relative Humidity</td><td>100% condensation at 35°C</td></tr></table></td></tr>
<tr><td>10.</td><td>Static Bollard Pull</td><td>Not less than 25 Tons at 85% MCR of engines.</td></tr>
<tr><td>11.</td><td>Dimensions</td><td>As per design approved by Classification Society rules.</td></tr>
<tr><td>12.</td><td>Propulsion</td><td>The tug should have SRP (steerable Rudder Propeller)/ Azimuthing Thruster type propulsion system.</td></tr>
<tr><td>13.</td><td>Ergonomics</td><td>Latest design concepts for tugs, with respect to Ergonomics/ functional aspects and crew comfort are to be adopted as per the Classification Society rules.</td></tr>
<tr><td>14.</td><td>Ammunition Stowage</td><td>(a) One RU locker for stowage of 24 scare charges/ grenades as per NMER art 5115.

(b) One RU locker on bridge for stowage of pyro-techniques (10 flares and 12 rounds of very's pistol).

(c) One additional RU ammunition locker be provided for stowage of 04 H2A boxes for LMG/ MMG.

(d) 02 LMG/ MMG posts is to be provided for FPM.</td></tr>
<tr><td>15.</td><td>Towing Capability</td><td>The tug should be equipped to manoeuvre, tow, push and pull Ships (including Aircraft Carrier)/ submarines (from forward/ aft and alongside (port/ Stbd) in the IN inventory within port limits. The height of towing bollards should be adequate so that the ropes do not slip out of the bollards.</td></tr>
<tr><td>16.</td><td>Towing Equipment</td><td>A towing hook (with local and remote release mechanism) and adequate numbers of towing bollards (with ballard collars & pins), having safe working load of 25 tons are to be provided for towing ships/ submarines alongside and pushing/ pulling from forward/ aft (side of the tug). Adequate numbers of cleats be provided for towing of pontoons/ catamarans etc. alongside. A spare towing hook is also to be provided with the tug.</td></tr>
<tr><td>17.</td><td>Winch.</td><td>As per Classification Society rules</td></tr>
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SECTION B - NAVIGATION		
18.	**Bridge**	The bridge should have large inclining windows for all around vision visibility to assist manoeuvring alongside. All front windows should have clear view screen mechanism and other windows should have either clear view screen mechanism or marinised windows wipers.
19.	**Magnetic Compass**	One class approved Magnetic Compass is to be provided on the bridge. In addition, one Boat Compass to be provided.
20.	**Navigation Equipment**	Following Class approved Navigational Aids to be provided:- (a) Two GPS (b) One AIS (c) One Nav Radar
21.	**Echo Sounder**	One class approved Echo Sounder with interface printer to be provided.
22.	**Fog Horn**	Two class approved Electric Fog Horns are to be provided on top of the Wheel House with local operating controls and provision for remote operations from the Bridge.
23.	**Electric Horn**	Class approved Electric Horn to be positioned, with operating controls on the Bridge.
24.	**Nav Light**	As per International Regulations for Prevention of Collision at Sea (IRPCS) - 1972. Battery and backup supply is to be provided for the Navigation Lights.
SECTION C - COMMUNICATIONS		
25.	**Communication**	Following Class approved communication facilities are to be provided: - (a) VHF MMB TXIRX with DSC - Two (b) VHF hand held Radio sets MOTOROBO XIRP8668i - Five (c) SART TBR - 600 (OEM M/s Thrane & Thrane) - One (d) EPRIB 406 MHZ (OEM M/s Thrane & Thrane) - One (e) Megaphone - Two (One at Bridge Top and one at Mast). (f) 5" Hand Signalling Lantern with stowage box - One

		(g) Portable Loud hailers - Two (h) Call up Bells - As required (j) Sound Power Telephone - As required (k) Class approved Internal Communication System - One
SECTION D - HULL, MACHINERY FIRE FIGHTING AND DAMAGE CONTROL		
26.	**Build Specification**	The Tug should be built to NHQ approved Classification Society standards (ABS/ BV/ DNV/ IRS/ LR/ RINA/ Class NK). The Seller is to provide a certificate from the nominated Class Society that the Tug has been built to approved Class Notations and the vessel (design and build) complies with all aspects of the Built Specifications. The Seller shall therefore share a copy of GLS/ Build Specifications with the nominated Class society and finalise the contract with Class accordingly. All Hull equipment being procured to meet the relevant specifications under inspection/ certification by Classification Society
27.	**Hull Material**	The Tug is to be built of Class approved steel suitable for the type and function of the Tug.
28.	**Stability**	Should be design to have intact and damage stability as per the Classification Society rules.
29.	**U/W Hull Protection**	Class approved Cathodic Protection through Sacrificial Anodes is to be provided.
30.	**Paint Scheme**	Suitable Class approved marine grade paint scheme is to be applied on surfaces. Surface preparation, paint application, curing time etc. are to be ensured to the satisfaction of Paint OEM and Classification Society.
31.	**Deck Covering**	Suitable Class approved Epoxy Deck covering is to be applied in the relevant internal compartments (wet spaces, main alleyways, crew compartments and bridge).
32.	**Mast**	A motorized foldable fixed mast to carry navigational lights, antenna and flags is to be provided.
33.	**Main and Auxiliary Machinery**	(a) The tug should be fitted with Azimuth Thruster/ Steerable Rudder Propeller (SRP) to meet the specified speed and endurance requirement. It should meet the IMO/ MARPOL requirements. (b) Two marine engines capable of meeting the power requirements at 85% MCR are to be provided. (c) All bilges are to be clearly accessible.

		(d) The shipping/ unshipping route each machinery and system is to be clearly marked. (e) The funnels should be as small as possible and arranged in a slope, to minimise dead angles
34.	**Portable Pumps**	Following portable pumps are to be provided :- (a) 4 x 20 TPH and 2 x 40 TPH MD submersible pumps. (b) 1 x 100 TPH dewatering pump. (c) 1 x 100 TPH salvage pump for dewatering other ship. (d) 1 x 37 TPH (or higher) DD non-submersible pump be provided.
35.	**Auxiliaries**	Auxiliary machinery is to be provided, as per Classification Society rules capable of unrestricted operation, under the environmental conditions specified.
36.	**Fuel/ Oil**	Capacities of fuel and oil should be commensurate with the endurance of the Tug. Adequate stowage tanks/ space is to be provided for fuel and lubricants. The Tug should be provided with primary and alternate arrangements to receive fuel/ lubricants from shore to harbour.
37.	**Fresh Water**	Minimum 12 tons of water stowage capacity is to be provided.
38.	**BASCCA (EE)**	Provision is to be made for BASCCA(EE) sets for the complete crew along with suitable arrangements.
39.	**Oil Water Separator**	One in number Oil Water Separator of suitable capacity complying with MARPOL requirements, is to be provided.
40.	**Sewage Treatment Plant**	One IMP/ MARPOL approved electro-catalytic/ biological STP of adequate facility with H_2S sensors (MCR and bridge) and sufficient ventilation arrangement of the compartment be provided.
41.	**Fire Fighting**	The following fire fighting appliances should be positioned and are to be procured from vendors approved by Classification Society:- (a) Fire fighting appliances to be provided as per the regulations of Classification Society. Lockers to be provided for stowage of the items. (b) Fixed Fire fighting system of Machinery Spaces through Indigenous Fire fighting system to meet Classification Society requirement. (c) A fireman ring, below Number 1 deck, with adequate sea water pressure, is to be provided to meet the requirements of fire fighting as per Classification Society

		requirements. (d) Portable fire fighting and damage control equipment are to be provided as per Specifications provided by Classification Society. (e) Fire Hydrants are to be of Double Lug meeting Classification Society requirements.
	SECTION E - ELECTRICAL	
42.	**Power Generation and Distribution System**	The following electrical equipment and fittings are to be Provided. (a) **Generators**. The Tug is to be provided with suitable number of DGs with electrical load satisfactorily under various conditions. The DG is to be chosen from the standard range of approved DGs as approved by the Classification Society rules. (b) **Power Supply**. Suitably rated power supplies conforming to latest Classification Society regulations according to the load requirements of the Tug (and load chart calculations), with adequate levels of redundancies as per Class Specifications is to be provided. 230 V AC, 50 Hz, 1 Phase, 4 wire supply system derived from the primary supply (obtained through secondary star connected transformer) with earthing of neutral to vessel's hull for domestic and COTS equipment is to be provided. (c) **Lighting**. The following general lighting and fittings are to be provided :- (i) The Tug's lighting supply would be 230V, 50Hz, 1Ph and the entire vessel would be fitted with LED light fittings conforming to latest Classifications Society rules/ specifications and standards for marine use. (ii) Navigation lights should conform to latest Classification Society regulations. Two in number 1000W search lights without shutters are to be fitted on wheel house top. Arrangements are to be provided to control these lights from Wheel House. (iii) Adequate number of flood lights of 200 watts are to be provided at suitable positions, duly complying to Class specifications. (iv) Emergency lights fittings of 24V complying to with Class specifications are to be supplied in each

		compartment. (v) Adequate number of hand-held lamps with suitable length of flexible cable complying to Class specifications to be provided. (d) **Main Switch Board**. The Main Switch Board/ Distribution Panels should be confirm to class specifications. (e) **Shore Supply Arrangements**. Suitable water tight shore supply connection box (with enclosure protection IP 57 or higher) conforming to latest Classifications Society rules/ specifications and standards for marine use should be fitted. (f) **Batteries**. Adequate number of maintenance free batteries of contemporary technology, with suitable charging arrangement conforming to Classification Society rules are to be provided. (g) **Motors, Starters and Control Panels**. All motors, starters and control panel should conform to classification rules suitable for marine use and procured from Class approved list of reputed vendors. (h) **Cables**. Cables for all lighting, power, shore supply and equipment is to be approved by the Classification Society. (j) **Transformers and Rectifiers**. Transformers and rectifiers, confirming to Class specifications. (k) All electrical equipment/ machinery and fittings are to be selected from the standard range and sourced from Class approved list of reputed vendors. (l) **Electrical cables**. Rating of electric cables shall be based on an ambient temperature of 55°C for all spaces. (m) All the electric equipment shall be capable of continuous operation when fitted at any direction up to an angle of 35 degree from vertical plane passing through the center line of the equipment. (n) **Window Wipers**. Class approved Window Wipers is to be provisioned. (p) **Cabin Fan**. Class approved Industrial fans with metal casing operating on 230 V AC are to be provided

		in accommodation spaces, offices and manned stores/ space. (p) **HV Mats**. Class approved High voltage insulated synthetic mats are to be used in Switchboards, Convertor Rooms, Equipment Rooms, Battery Compartments. (q) **Galley Power Supply Isolating Switch**. To ensure safety of galley spaces, galley equipment are required to be controlled by a single isolating switch, which is to be located at a readily accessible position outside the galley, adjacent to the main entrance. The same should be complying to Class Society rules.
43.	**Controls**	Use of COTS components in basic machinery control on the bridge is to be provided.
44.	**Ventilation**	(a) Adequate forced ventilation should be provided in the machinery spaces, accommodation and in the Bridge/ heel house. (b) Engine Room to have forced supply and exhaust ventilation. (c) WCs, Galleys and Showers should have forced exhaust and forced supply. Exhaust is to be of double the capacity of supply related ventilation.
SECTION F - ACCOMMODATION AND HABITABILITY		
45.	**Accommodation**	Following accommodation and associated facilities are to be provided:- (a) Two cabins with attached WC and bath are to be provided for the Master and the Engineer. (b) Suitable number of bunks are to be provided for Crew as per Classification Society rules. (c) Two sets of Separate WCs and Showers for the Crew are to be provided. (d) Split ACs for Crew Accommodation and Wheel House.
46.	**Galley**	(a) A common Galley for Master, Engineer and Crew is to be provided as per Classification Society rules. (b) A Dining Hall with adequate seating arrangement is to be provided as per Classification Society rules. Separate enclosures for Master & Engineer and Crew to be catered. (c) The Galley should be modular and equipped with modern equipment. These should include the following:-

		(i) Electric Cooking Range with Two Hot Plates (of 5 kw each) (ii) Oven (of 3 kw) (iii) Frost Free Refrigerator of 350 Lts (iv) Electric Kettle (v) Hot Case (vi) Hot water Geyser/ Boiler (vii) Water Cooler with Aquaguard Type Water purification system. (viii) Stainless steel sink with a fresh water nickel silver tap with splash back and drain board. (ix) SS rack type shelves mounted above serving hatch on the bulkhead common with the dining hall. (x) One salt water tap is to be provided 500 mm above the deck, with a sill around, to restrict water splash. (d) One wire mesh locker for storage of potato and onions on upper deck. (e) One provision store room and a stainless steel top table, with a large provision cupboard and metal drawers under.
47.	**Medical Facilities**	First aid boxes one each in the Crew Mess, Bridge, Engine Room and Masters' cabin to be provided.
48.	**Recreational facilities**	Three smart colour LED TVs (one each for Master, Engineer and for the Crew) and SRE to be provided.
	SECTION G - SEAMANSHIP, LIFE SAVING AND SAFETY EQUIPMENT	
49.	**Seamanship Fittings**	(a) **Anchor and Chain Cable**. As per Classification Society rules. (b) **Anchor windlass**. As per Classification Society rules. (c) **Mooring Towing and Berthing Gears**. As per Classification Society rules. (d) **Awnings**. Awning for all the exposed decks are to be provided. Arrangements for fitment of

		stanchions to be accordingly made on deck. (e) **Guard Rails.** Suitable guard rails form safety of personnel, are to be fitted all around the Yardcraft. (f) **Brow.** Brow to be provided of suitable length.
50.	**Life Saving**	(a) One Gemini (with OBM) with suitable lowering and hoisting arrangements, viz, Electric operated Single Arm Davit of SWL 500 Kgs is to be provided. (b) **Life Rafts.** 02 x 20 men life rafts. (c) **Life jackets.** Life jackets for 100% crew plus 10%. (d) **Safety Equipment.** To be provided as per Classification Society rules.
SECTION K - MISCELLANEOUS		
51.	**Documentation**	Complete inventory of spares and the relevant documentation of equipment and machinery to be provided. As fitted drawings, maintenance, repairs and refit documents, Catalogue of spares/ D-787 for OBS and B&D inventory and Passports for all the machinery are to be provided, along with the Tug. A detailed Engineering Maintenance Schedule (Equipment and Systems) should be prepared and submitted four months prior to commissioning. The final revised Maintenance Schedule is to be available at time of Commissioning of the Tug. The documentation is to be provided in IETM level II format.
52.	**Test Equipment**	Test equipment *iaw* Classification Society rules.
53.	**Onboard and Outfit Spares**	The maintenance tools, test equipment and software (as applicable) used for onboard repair/ maintenance would be supplied by the vendor as part of OBS. The OBS supplied must cater for break down maintenance, routines falling due within two years after delivery of the Tug. The OBS has to be recommended based on the likely consumption rate of the spares and on the exploitation pattern of the system/ equipment. The spares are to be supplied in a standard metal boxes, duly preserved for long term duration of at least two years.
54.	**AMC**	All COTS equipment should be provided with at least five years AMC.
55.	**B & D Spares**	The vendor should forward recommended list of B&D Spares for the equipment/ system to sustain five years of exploitation. The B&D spares list should comprise long lead time spares, spares required as insurance spares and OBS replenishment for a period of five years post induction of the Tug.

56.	**Life Term Product Support**	The shipyard is to submit a scheme to provide product support for a minimum period of 20 years to be reckoned from the date of delivery of the last tug. This could be in the form of a contractual commitment from various equipment suppliers. In case any equipment is likely to become obsolete, the manufacturer should be committed to give a requirement of 'Life Time Buy' of spares. The maker should also ensure the supply of these items prior to discontinuation of the production facilities.
57.	**Spares and Support Requirement**	Requirement of OBS for two years, B&D spares for five years as well as requirement of AMC for COTS equipment (option to be availed by Buyer) for five years be included.
58.	**Pest Control**	Latest anti-rodent/ anti-cockroach/ anti-flies & mosquito repellent devices to be provided in all accommodation areas, dining halls, galley and store rooms. These compartments should also be provided with anti-rodent paint scheme.
59.	**Weather Covers**	Two sets of light weight waterproof PVC coated nylon fabric shall be supplied for all weather deck fittings, opening and machinery / items
60.	**Facilities for Overseeing Team**	Necessary furnished air-conditioned office spaces with associated office support arrangements and transport shall be provided to the overseer and representative of the Buyer till completion of all Contractual liabilities/ obligations.
61.	**Training**	Training is to be imparted to the crew of the Vessel and maintainers by the OEM/ OEM reps/ seller, for the operation and maintenance of machinery and equipment installed onboard.
62.	**Project Monitoring**	The latest techniques of Project Monitoring are to be employed by the Seller to ensure phased and planned construction of the tug. The plan and progress of the project including all the correspondences, drawings and documentation shall be available online for exchange. A comprehensive application for exchange of information with all agencies like NHQ, Seller/ Shipyards, Overseeing team etc., shall be made available by the Seller.
63.	**Noise and Vibration**	Noise and Vibration standards are to be met as per Classification Society rules and standards.