



KHULNA SHIPYARD LIMITED

BANGLADESH NAVY, KHULNA

PHONE NO: PABX 02-47772003

E-mail: oiccomf.ksy@gmail.com, Web: www.khulnashipyard.gov.bd

IMPORTANT POINT

1. **TENDER NO: BABE(F)–337/Pour Epoxy Resin Chock etc./25-26 Date: 17/03/2026**
2. **DUE FOR OPENING ON: 13 April 2026.**
3. **PRICE OF TENDER DOCUMENT: 2,000.00 (Tk. Two Thousand) Non-refundable.**
4. **NAME OF THE COMMODITY:**
 - i) Exhaust Silencer as per Annex B.
 - ii) Chilled Water Line Pipe & Fittings Materials as per Annex C.
 - iii) Remotely Controlled Search Light as per Annex D.
 - iv) Pour Epoxy Resin Chock with Hardener as per Annex E.
 - v) Various Valve as per Annex F.
5. **SOURCE OF FINANCE:** Khulna Shipyard Limited
6. **TERMS OF SUPPLY:** CFR Chattogram Sea Port.
7. **PRICE:**
 - i) FOB and Ocean freight should be shown separately.
 - ii) Freight should be shown/endorsed on Bill of Lading.
 - iii) Freight will be paid at actual against Bill of Lading but not exceeding the amount shown in quotation/offer.
 - iv) Khulna Shipyard will process all customs formalities with related duties and taxes.
8. **SHIPMENT:** 45 Days from the date of letter of credit (LC).
9. **TENDER SHOULD REMAIN VALID:** 60 Days from the opening date of Tender.
10. **THE TENDER DOCUMENTS MUST BE REQUIRED WITH SEAL AND SIGN THEREOF ON EACH PAGE:**

The Khulna Shipyard Ltd., Khulna invites quotation by **Single envelop** from Manufacturers / Principal Suppliers for supply of the item(s) described in the attached sheet schedule (Annex-B, C, D & E) on firm CFR Chattogram. Quotations will be received by this office up to **11-15 A.M.** and will be opened **11-30 A.M.** in public on the date specified above.
11. **AMENDMENTS TO TENDER DOCUMENTS:**
 - a. At any time prior to deadline for submission of bids the purchaser may, for any reason, whether of its own initiative or in response to a clarification requested by a prospective bidder, modify the Tender documents by the amendment(s).
 - b. The amendment(s) will be notified in writing by letter / email / **KSY website** or by cable to all prospective bidders who have received Tender documents and the same will be binding on them (**For updated information suppliers should follow the KSY Website**).
 - c. In order to allow the prospective bidders reasonable time to take the amendment into account in preparing their bids, the purchaser may at its sole discretion extend the deadline for submission of bids.

PREPARATION AND SUBMISSION OF TENDER

12. **GENERAL:**
 - a. Tenders are to be dropped in the tender box provided for the purpose at the office of Khulna Shipyard Ltd., Khulna.

b. Tender number and opening date as above should be written on the envelope. The envelope containing quotation should be sealed and addressed as follows:-

- i. CONSIGNEE : **THE MANAGING DIRECTOR
KHULNA SHIPYARD LIMITED
BANGLADESH NAVY
KHULNA – 9201, BANGLADESH
BIN: 000400834-0801**
- ii. NOTIFYING PARTY : **COMMANDING OFFICER
NAVAL STORES DEPOT,
NEW MOORING, CHATTOGRAM, BANGLADESH.
BIN: 002349278-0503**

Tender number and opening date as above should be written on the envelope.

c. Tender may be put into the Tender Box kept for this purpose at the above address, but care must be taken to ensure that it reaches this office on the date and time fixed. Late Tenders will not be considered. Suppliers may also post the tenders to the **MANAGING DIRECTOR, KHULNA SHIPYARD LIMITED, BANGLADESH NAVY, KHULNA-9201, BANGLADESH**, so, as to reach him on due date and time. No responsibility will be accepted by buyer for late receipt.

d. The Manufacturers / Principal Suppliers may quote in their own letter head, but it is essential that the tender schedule is also completed and returned, along with original money receipt to the buyer. If the schedule is not accordingly returned the quotation may not be considered

e. Tenderers may quote price Bangladesh Taka/ US Dollar / in any International trading currency.

f. Tenderers should be confirmed their credit report issued from Tenderers banks and this credit report should be enclosed in the original Tender / quotation otherwise LC opening bank should be arranged to collect this credit report and necessary cost in this respect will be realized from the supplier during LC opening.

g. Tenders should enclose with the quotation the Original Proforma Invoice of their Principal and the Proforma should be based on CFR.

h. Quotation should be strictly in accordance with the following:

- (1) Accounting unit prescribed in the Tender enquiry.
- (2) Terms of delivery and place of delivery as specified in the Tender enquiry.

i. The name of the manufacturers, principal suppliers and country/countries of origin with port of shipment proposed should invariably be indicated.

j. Tenderers must submit with the quotation the Original Proforma Invoice of their Principals and the Proforma Invoice shall clearly indicate detail technical specification, the percentage of commission, if any, included in Material Price for the local agent. Commission payable to the local agent by the foreign supplier will be deducted and paid to local agent in equivalent Local currency at the exchange rate on the purchase order date (bank BC selling rate).

k. No claims on the ground of typographical errors in calculating prices would be entertained later and the Tendering firms would be asked under points of penalty and disciplinary action to supply at price they have originally quoted.

l. Supplier must quote the offer as per schedule given in Annex A's list/ table as package wise to this document and incomplete or partial offer of any package may be treated as non-complied/ non-responsive.

m. KSY reserve the right to purchase partially or full quantity of the quoted goods.

n. Local Agent/ supplier should also submit along with the tender valid Indenting agent registration certificate issued by the Bangladesh Indenting Agent Association (BIAA), Trade license, and TIN certificate. In absence of original certificate attested Photostat copy by first class officer may serve.

13. **CONTRACT.** The terms and conditions of the Tender document shall form an integral part of the contract/purchase order document. The Tenderer is requested to check this set of Tender documents in order to ensure proper compliance and the "Form of Acknowledgement" along with the "Certificate as to **Corporate Principal**", where applicable, duly filled in be returned along with the **Tender**.

14. **BID LANGUAGE.** The bid's, all correspondences and documents relating thereto exchanged between the bidders and the purchaser shall be written in English Language.

15. **TERMS OF PAYMENT:**

i. LC for full purchase amount will be opened by Khulna Shipyard Limited in favour of the principal supplier under the following payment terms where the **LC commission charge 0.30% (per quarter) of the total LC Value equivalent of BDT taka** including related VAT & others will be borne by foreign principal/ local agent (supplier) at LC opening that will be included of quotation.

a. **80%** of total CFR value will be paid on delivery of the items described under the scope of supply and on production of following shipping documents :

- (1) Complete set of original 'Clean on Board' Bill of Lading (Master Bill)/ mentioning the amount of freight on Bill of Lading,
- (2) Supplier's invoice signed in ink,
- (3) Certificate of standard test,
- (4) Fax/E-mail/Swift advice for insurance cover,
- (5) Certificate of origin,
- (6) Authorization certificate,
- (7) Certificate showing that the material has been shipped in a non-Israel vessel,
- (8) Undertaking regarding supply/ re-placement of short supplied and defective materials on free of cost demanded by the buyer.

b. Remaining **20%** of LC amount will be paid after receiving the material at KSY site with satisfactory acceptance that will be generated by user end & supplier representative or satisfactory Material Quality Inspection note that will be generated by KSY.

ii. Bank charges in Bangladesh for opening of LC shall be borne by the supplier. Any Bank charges for revalidation or amendment of the LC on the request of the supplier shall be exclusively borne by the beneficiaries and not by the Khulna Shipyard Ltd. Confirmation of letter of credit by foreign bank will not be entertained or if applicable that will be borne by the supplier.

iii. Bank charges for withdrawal against LC established by buyer will be borne by the beneficiary/ Supplier.

iv. The beneficiary/ Supplier will have to bear the following foreign bank charges: -

- (1) Negotiation commission.
- (2) Payment & Discrepancy commission.
- (3) Postage & Cable charges.
- (4) LC confirmation charges / additional (ADD) confirmation charges.
- (5) LC amendment commission/ LC extension commission.
- (6) LC cancellation charges.
- (7) LC confirmation charges (if any).

16. **PACKING AND MARKING:**

a. The seller shall be responsible for proper sea worthy packing and marking the goods for shipment by rail, road and sea. Goods shall be assembled to the maximum extent practical prior to shipment. Goods shall be packed so as to withstand usually rough handling and ensure delivery without loss or damage.

b. Each packet/ Bundle must have the following information printed in BOLD LETTERS on the outside

- (1) Name of the consignee and Destination,
- (2) Letter of credit number,

- (3) Gross and net weight,
- (4) Serial number of Bundle and,
- (5) Name and address of the seller,

N.B:- Non-negotiable copies of shipping documents will be sent in advance by email (oiiccomf.ksy@gmail.com) before getting original and original shipping documents will be delivered in the LC opening Bank before 10 days arrival of ship at port. In the event of any delay in dispatch of the shipping documents or above state or their incorrect preparation or submission of wrong IGM, the supplier shall be responsible for any demurrage, extra handling charges or any other expense arising there from.

17. **QUANTITY:**

- a. Check of quality, quantity and condition of goods at the discharging port/ place i.e. chattogram will be carried out by the buyer if required, it will be at their cost.
- b. The quotation must be based on firm prices for individual items as per Annex-A. Average prices should not be quoted.
- c. The approximate weight of each Packet/ Bundle should be shown separately on quotation.
- d. The Khulna Shipyard Ltd., reserves the right of awarding contracts for individual technically acceptable items on the lowest acceptable prices. Firms quoting on an average basis for joint items do so at their own risk. The Khulna Shipyard Ltd., will not make any allowances for this action of the Tendering firms when awarding contracts for individual items which if and when refused by Tendering firms any lead to disciplinary action.

SPECIAL CLAUSES

18. **JOINT INSPECTION:** The Materials/items will be checked (quality, quantity, condition of goods) and mustered by supplier representative and KSY representative after arrival the items at KSY.

If any defective or 2nd hand item is found during the joint mustering at KSY, the defective or 2nd hand item will not be acceptable. Supplier shall undertake the full responsibility to supply and replace the defective or 2nd hand item by new one.

19. **LATE SHIPMENT/DELIVERY AND LIQUIDATED DAMAGES:** Late shipment/ delivery will not be accepted. However with reasonable cause, if KSY agrees for late Shipment/ Delivery, in that case followings will be imposed:

- a. On genuine reasons / grounds beyond the control of the suppliers / contractor, extension of delivery period may, however, be granted by the Purchase Approving Authority (KSY) without realization of any liquidated damage provided validity of their performance guarantee covers such extension.
- b. Liquidity damage equivalent to half percent per week or part thereof on the value of the undelivered goods will be realized from the supplier/contractor.
- c. In specific cases, where delay in shipment is likely to cause dislocation of work or financial loss, or related to the delivery of ships/ handed over of construction work, a higher rate of liquidity damage from 05% to 10% (as decided by KSY) per week or part thereof on the value of the undelivered goods will be charged.
- d. In case of delay in shipment beyond approved timeframe as stated in Clause no. 8, this schedule will be treated as cancelled and the full Performance Guarantee shall also be forfeited as a consequential effect.
- e. Minimum 14 days free time for container shipment at destination port must allow for each shipment.

20. **TERMINATION OF CONTRACT:**

- a. At any time during the period of this contract, the Purchaser shall have the right to cancel contract under following reasons:
 - (1) If the supplier fails to supply the contracted item as per specification given in the purchase order/contract of the contracted item being rejected by the competent technical authority.

(2) If the supplier fails to deliver the contracted item within the date specified in the purchase order/contract or any extensions thereof.

(3) In the event of breach of any contractual obligations given in the terms and conditions of the purchase order/contract.

b. Moreover, in case of termination of contract as under this clause the Purchaser shall have the right to decide taking appropriate punitive action against the supplier as deemed suitable by the KSY authority.

c. Should the suppliers be adjudged insolvent, the buyer shall have the power to terminate the contract.

d. Decisions under this clause SHALL not be subject to arbitration.

21. **INSURANCE.** After shipment to the destination upto buyers premises (Khulna Shipyard Ltd.), marine insurance of the consignment will be arranged by buyer but considering **insurance charge 0.30% of the total LC Value equivalent of BDT** including VAT, Stamp & all related charge will be paid by foreign principal/ local agent (supplier) at LC opening. Quotation should, therefore, be included with the insurance charges.

22. **EARNEST MONEY.** All bidders must submit earnest money BDT 2,00,000.00 (Two Lac) or equivalent US Dollar / in any International trading currency favoring Khulna Shipyard Ltd.(KSY). Khulna, in the form of Bank Draft / Pay Order / Bank Guarantee which will be issued by any scheduled bank of Bangladesh. In case bank guarantee is submitted, the same should remain valid for 180 days from the date of opening of the Tender. Neither any inland cheque for a cheque /guarantee issue by Bank of foreign countries will be entertained. Earnest money is liable to forfeiture if the bidder for any reason whatsoever withdraws or modifies its Tender; or violates the terms after opening of the Tender and before expiry of the validity of the Tender; or fails to furnish the required performance bond within the stipulated time after issuance of letter of intent. Bid bond/earnest money of unsuccessful Tenderer would be returned once a decision of the Tender is made. A Tender not accompanied by earnest money/bid bond would be rejected as non-responsive. Bid bond of the successful bidder shall be returned after furnishing performance bond. A specimen copy of bid bond is enclosed herewith as Annex-D.

23. **PERFORMANCE BOND.** The successful Tenderer will be required to furnish performance bond to the extent 10% of the total CFR value either in the form of pay order or bank guarantee from any scheduled bank of Bangladesh for the satisfactory execution of the order. The submitted bank guarantee must remain valid 06 (Six) months beyond the day of shipment. Performance bond must be furnished within 10 (Ten) day's from the date of letter of intent. It will be liable for forfeiture if the supplier fails to supply the goods within the specified time or commits any breach of contract. The Performance Guarantee will be released after satisfactory inspection (quantity, quality and weight), test-trial and acceptance by Khulna Shipyard Limited Quality Control committee and in presence of supplier's representative at Khulna Shipyard Premises. The buyer shall have the right to forfeit the performance guarantee for failure of the supplier in fulfilling the terms and conditions of this contract partially or wholly, besides taking any other action against the supplier that may be warranted. A specimen copy of performance bond is enclosed herewith as Annex-E.

24. **WARRANTY.** Supplier shall undertake the full responsibility to rectify any defect of supplied items free of charges under warranty period. To rectify/ replace any such defective item, provided that the defects are appeared / discovered during the period of 12 months after acceptance. Warranty repair/ replacement shall be accomplished within 03 months of notification of the relevant defect. Otherwise warranty will be extended by non-operational period of the item.

25. **GUARANTEE FOR WARRANTY.** Supplier shall furnish to KSY a guarantee for warranty for an amount equivalent to 05% (five percent) of the total contract price from any scheduled bank situated in Bangladesh. The buyer shall have the right to forfeit the performance guarantee for failure of the supplier in fulfilling the terms and conditions of this contract partially

or wholly, besides taking any other action against the supplier that may be warranted. It will be released after completion of warranty period

26. **INDEMNITY.** The supplier has to indemnify the buyer against all claims which may be made in respect of the stores for infringement of any right protected by patent, registration of design etc and shall take all risk of accidents or damage which may cause or failure of the supply from whatever cause arising and take entire responsibility for the sufficiency of the means used by the supplier for the fulfillment of the contract.

27. **INCREASE OR DECREASE IN QUANTITY OF CONTRACT:** The buyer reserves the right at the time of award of contract, with no adjustment in unit price (bid), to increase or decrease the quantity Tendered. The buyer also reserves the right to accept or reject any or all the Tenders or to waive any informality, minor deviation or omission.

Award would be made to the bidder whose responsive bid determined to be the lowest evaluated bid and who meets the specification and other terms and conditions of the Tender document.

28. **COMPLIANCE STATEMENT.** A compliance statement considering all clauses of Technical and Financial (as per ANNEX-A including relevant information a tabular format) fulfilling all the given requirement of the specifications is to be submitted for evaluation of the Tenders. Stating mere 'Yes', 'No' "Complied" will not suffice and detailed description/ information as required is to be given. An incomplete compliance statement may attribute to cancellation of the Tender. If any clause of this specification does not commensurate with tender, the deviation has to be spelt out clearly and reasonably. **Information/ document/ certificate/ data shared by the bidder must be genuine which can be cross-checked through authentic website information.** Before giving purchase order, KSY may ask any type of technical, financial, administrative queries to the tender. Tender will provide all information/ document/ data to comply KSY's requirement immediately.

29. **DISQUALIFICATION OF TENDER:**

a. Any addition or alteration to the specification or rate quoted by a firm in the Tender after not only be ignored but should also render the firms liable to disqualification.

b. Any Tender received late and not strictly confirming to the terms and conditions prescribed in this Tender documents not accompanied with the requisite earnest money and the money receipt of Tender price and registration certificate may be liable for rejection.

30. **TAXES, DUTIES AND DELAY DOCUMENTS:**

a) All Customs duties, taxes and other charges (C&F charge, port charge etc. except dumping charge (Cargo/ Barge/ Truck/ Trailer loaded from mother vessel)) levied on the goods by authorities in buyer's country shall be borne by the buyer and shall not be included in the bid price.

b) Charges of such nature in seller's country or in any country other than the buyer's country shall be borne by the sellers.

c) In the event of any delay in dispatch of the shipping documents or their incorrect preparation, the supplier shall be responsible for any demurrage, extra handling charges or any other expense arising there from.

31. **BREACH OF CONTRACT.** On any breach of contract by the seller, the buyer may recover the actual loss suffered and the amount may be realized by encashing the performance guarantee.

32. **APPLICABLE LAW.** The purchase order shall be interpreted in accordance with the law of the buyer's country.

33. **FORCE MAJEURE.** Should any circumstance arise preventing either contracting party from wholly or partly carrying its obligations under the present contract, namely Natural Calamity, Strike, Riots, firm acts and elements of War, Military Operation of any, Nature, Block

ads and any unforeseen event which is beyond human control the period stipulated for the performance of this contract shall be extended or as long as the circumstances prevail. Provided that in the event of these circumstances continuing for more than thirty days, either party shall have to refuse to fulfill its obligations under this contract and in such case neither party shall be entitled to indemnification of any losses it may sustain.

The party unable to carry out its obligation under this contract shall immediately advise the other party of the commencement and the termination of circumstances preventing the performance of the contract. A certificate issued by the Chamber of Commerce of the sellers of the buyers' country shall be sufficient proof of the existence and duration of such circumstances.

34. **ARBITRATION.** In the event of any dispute or difference arising out of the terms and conditions as specified above, the same shall be referred to the award of a sole Arbitrator appointed by the parties on mutual agreement, failing which it shall be referred to the award of the two Arbitrators, from each side (buyer and seller), or in the case of disagreement between the two arbitrators to the award of an umpire to be appointed by the two arbitrator in writing before proceeded on the reference of the decision of the sole arbitrator or of the two arbitrator in the writing before proceeded on the reference of the decision of the sole arbitrator or of the two Arbitrators or the umpire as the case may be shall be final, conclusive and binding upon the parties. The provisions of the arbitration Act 2001 and rules there under and any statutory modification there of shall deem to apply to the said arbitration. The place of arbitration shall be Dhaka, Bangladesh any statutory modification enactment thereof for the time being in force in Bangladesh shall apply to the arbitration proceeding.

The above terms and conditions are not absolute, the Khulna Shipyard Ltd., Bangladesh Navy, reserves the right to incorporate additional terms and conditions, if necessary. The Khulna Shipyard Ltd., BN also is not bound to accept the lowest Tender and reserves the right to cancel the tender, reject any or all Tenders without assigning any reason whatsoever.

Yours faithfully



SK. SHAH MOSIUR RAHOMAN
Manager Purchase
For Managing Director

Enclosure:

- | | | |
|----|---|------------|
| A. | Format of Price Schedule (Annex - A) | - 01 Page |
| B. | Technical Specification (Annex – B, C, D, E & F) | - 06 Pages |
| C. | Drawing | - 03 Pages |
| D. | Format of Bank Guarantee in Lieu of Earnest Money (Annex-G) | - 01 Page |
| E. | Format of Performance Bank Guarantee (Annex-H) | - 01 Page |



KHULNA SHIPYARD LTD

BANGLADESH NAVY, KHULNA

PHONE NO: PABX 02-477720003

E-mail: oiocomf.ksy@gmail.com, Web: www.khulnashipyard.com

ANNEX-A

TENDER NO: BABE(F)-337/Pour Epoxy Resin Chock etc./25-26 Date: 17/03/2026

TENDER OPENING DATE: 13 April 2026 AT 1130 AM HOURS

The Complete Item:

Sr No	DESCRIPTION OF ITEM (As per Annex)	Quantity	Price Per Itemize	Freight Per Itemize	Total CFR Price
1	Exhaust Silencer as per Annex B.	Itemize			
2.	Chilled Water Line Pipe & Fittings Materials as per Annex C.	Itemize			
3.	Remotely Controlled Search Light as per Annex D.	Itemize			
4.	Pour Epoxy Resin Chock with Hardener as per Annex E.	Itemize			
5.	Various Valve as per Annex F.	Itemize			

N.B:

- i. Supplier must quote the offer according to the above list/ table as package wise and incomplete or partial offer of any package may be treated as non-complied/ non-responsive.**
- ii. Supplier must follow commercial & Financial Terms that are integrated at schedule.**
- iii. As per schedule given in Annex A's list/ table as package wise, the financial offer must be quoted identically.**

Yours quotation No.

Signature, Name and address of the tenderer:

Date:

Terms of delivery:

Telephone No:

Annex-B

Exhaust Silencer Technical Specification for 2x Tug Boat

Sl. No.	Description of Material	Quantity	Remarks
1.	Exhaust Silencer for 250kW Cummins Marine Generator Engine Model: QSM11-DM Silencer Outer Diameter: 300 mm Silencer total length: 1300 mm Silencer Inlet & Outlet Size: 125 NB Acoustic Material: Rockwool Silencer Orientation: Horizontal Silencer Inlet & Outlet Orientation: Axial Inlet & Axial Outlet Year of manufacturing: 2025 or later Country of origin: China/ India Country of Manufacturer: China/ India	04 Nos.	
2.	Exhaust Silencer for 80kW Cummins Marine Generator Engine Model: 6BT5.9-DM Silencer Outer Diameter: 219 mm Silencer total length: 950 mm Silencer Inlet & Outlet Size: 80 NB Acoustic Material: Rockwool Silencer Orientation: Horizontal Silencer Inlet & Outlet Orientation: Axial Inlet & Axial Outlet Year of manufacturing: 2025 or later Country of origin: China/ India Country of Manufacturer: China/ India	02 Nos.	

CHILLED WATER LINE PIPE & FITTINGS MATERIALS (2 NOS. VESSEL)

SI.	Description	Qty.	Unit	Remarks
01	Ø2.5" Copper Pipe, Thk: 2.5–3.0mm	210	R. M	
	1.1 Ø2.5" Expansion Joint/ Rubber Bellows with SS Flange	08	Nos.	
	1.2 Ø2.5" Copper Collar with Flange	40	Nos.	
	1.3 Ø2.5" Ball Valve (Thread Type) Material: SS/ Brass	36	Nos.	
	1.4 Ø2.5" Check Valve (Flange Type) Material: SS/ Brass	04	Nos.	
	1.5 Ø2.5" Y Strainer (Thread Type) Material: SS/ Brass	06	Nos.	
	1.6 Ø2.5" Copper 90° Elbow, Thk: 2.5–3.0mm	88	Nos.	
	1.7 Ø2.5" Copper 45° Elbow, Thk: 2.5–3.0mm	12	Nos.	
	1.8 Ø2.5" Copper Tee, Thk: 2.5–3.0mm	64	Nos.	
	1.9 Ø2.5" Copper Cap, Thk: 2.5–3.0mm	08	Nos.	
	1.10 Ø2.5" Copper Socket, Thk: 2.5–3.0mm	12	Nos.	
02	2.1 Ø2" Copper 90° Elbow, Thk: 3.0mm	04	Nos.	
	2.2 Ø2" Copper 45° Elbow, Thk: 3.0mm	04	Nos.	
	2.3 Ø2" Copper Tee, Thk: 3.0mm	04	Nos.	
	2.4 Ø2" Copper Socket, Thk: 3.0mm	04	Nos.	
03	3.1 Ø1-1/2" SS Ball Valve (Thread Type)	10	Nos.	
	3.2 Ø1-1/2" Copper 90° Elbow, Thk: 2.5mm	08	Nos.	
	3.3 Ø1-1/2" Copper 45° Elbow, Thk: 2.5mm	04	Nos.	
	3.4 Ø1-1/2" Copper Tee, Thk: 2.5mm	06	Nos.	
04	Ø1-1/4" Copper Pipe, Thk: 1.5-2.0mm	21	R. M	
	4.1 Ø1-1/4" Expansion Joint/ Rubber Bellows with SS Flange	04	Nos.	
	4.2 Ø1-1/4" Copper Collar, Thk: 1.5-2.0mm	08	Nos.	
	4.3 Ø1-1/4" Copper Tee, Thk: 1.5-2.0mm	08	Nos.	
	4.4 Ø1-1/4" Copper 90° Elbow, Thk: 1.5-2.0mm	20	Nos.	
	4.5 Ø1-1/4" Copper 45° Elbow, Thk: 1.5-2.0mm	08	Nos.	
05	Ø1" Copper Pipe, Thk: 1.5-2.0 mm	81	R. M	
	5.1 Ø1" Copper 90° Elbow, Thk: 1.5-2.0 mm	28	Nos.	
	5.2 Ø1" Copper 45° Elbow, Thk: 1.5-2.0 mm	12	Nos.	
	5.3 Ø1" Copper Tee, Thk: 1.5-2.0 mm	16	Nos.	
	5.4 Ø1" Copper Cap, Thk: 1.5-2.0 mm	04	Nos.	
	5.5 Ø1" Copper Socket, Thk: 1.5-2.0 mm	05	Nos.	
06	Ø3/4" Copper Pipe, Thk: 1.5 mm	87	R. M	
	6.1 Ø3/4" Copper 90° Elbow, Thk: 1.5 mm	100	Nos.	
	6.2 Ø3/4" Copper 45° Elbow, Thk: 1.5 mm	80	Nos.	
	6.3 Ø3/4" Copper Socket, Thk: 1.5 mm	24	Nos.	
	6.4 Ø3/4" Brass Hose Nipple, Thk: 1.5 mm	144	Nos.	
	6.5 Ø3/4" Brass Male Valve Adapter	76	Nos.	
	6.6 Ø3/4" SS Ball Valve (Thread Type)	76	Nos.	
	6.7 Ø3/4" Flexible Nylon Hose (Heavy Type)	60	Meter	
07	Copper Reducer Ø2-1/2" - Ø2", Thk: 2.5 – 3.0 mm	04	Nos.	
08	Copper Reducer Ø2-1/2" - Ø1", Thk: 2.5 – 3.0 mm	16	Nos.	
09	Copper Reducer Ø2-1/2" - Ø3/4", Thk: 2.5 – 3.0 mm	40	Nos.	

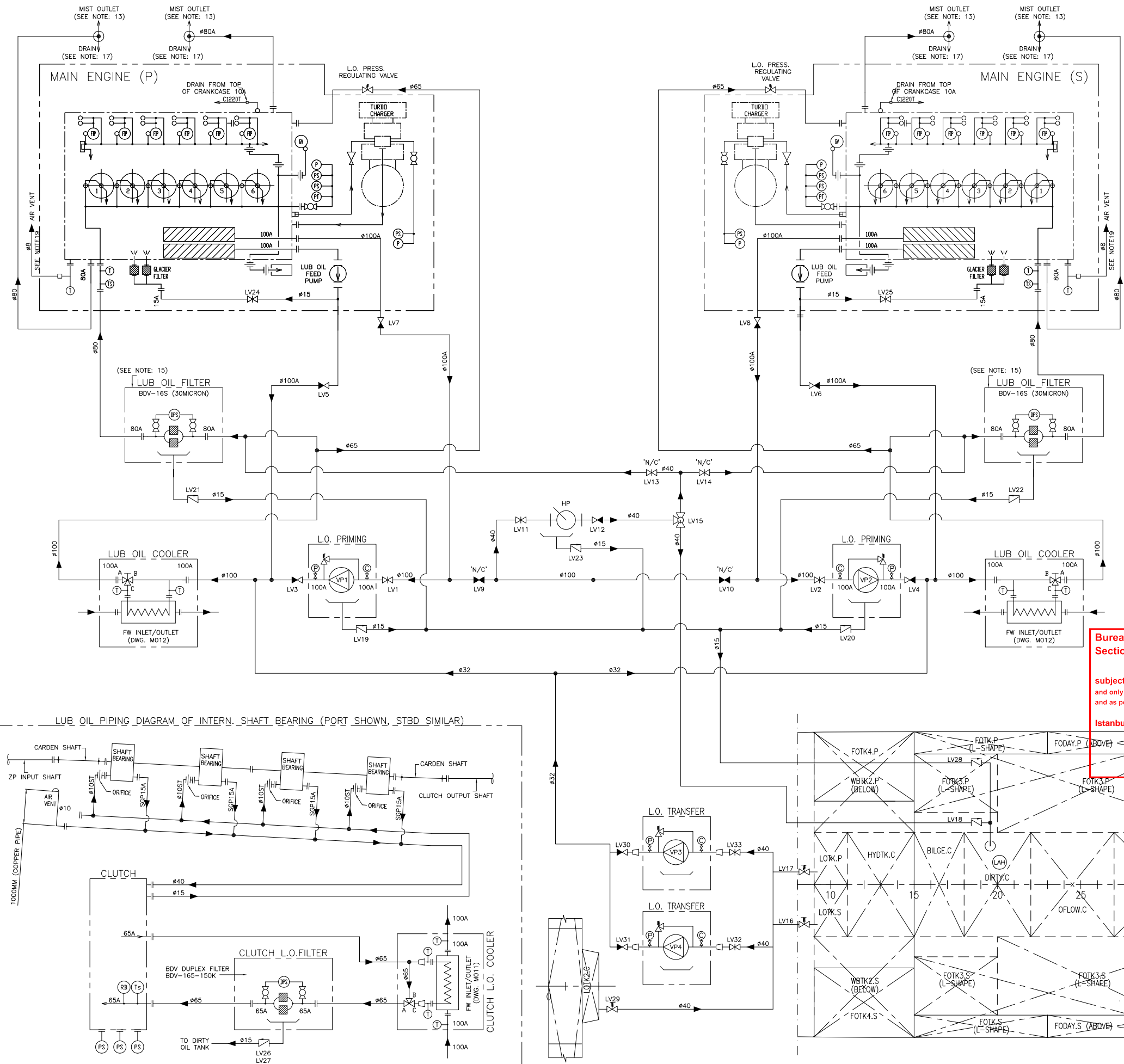
Sl.	Description	Qty.	Unit	Remarks
10	Copper Reducer Ø2" - Ø1-1/2", Thk: 3.0 mm	04	Nos.	
11	Copper Reducer Ø2" - Ø1-1/4", Thk: 3.0 mm	04	Nos.	
12	Copper Reducer Ø1-1/2"-Ø1-1/4", Thk: 2.5 mm	04	Nos.	
13	Copper Reducer Ø1-1/4" - Ø3/4", Thk: 1.5-2.0mm	12	Nos.	
14	Copper Reducer Ø1" - Ø3/4", Thk: 1.5-2.0mm	24	Nos.	
15	Ø1/2" SS Ball Valve (Thread Type)	30	Nos.	
16	Water Pressure Gauge Connection dia: Ø1/2", Dial Dia: 100 mm	12	Nos.	
17	3-Way Modulating Valve with Actuator For AHU, Size: 1 1/2"	02	Nos.	
18	Ø1.5" Jubilee clamp	200	Pcs.	
19	SS Jubilee Clamp (Ø100mm)	300	Pcs.	
20	Heat Proof Synthetic Fiber Cloth	300	Sq. M	
21	Synthetic Rubber Adhesive	80	Liter	
22	Ø21/2" GI Pipe, Thk: 3.2 - 3.6 mm	48	Meter	
	22.1 Ø21/2" Rubber Expansion Joint/ Bellows (Clamp Type) with clamps	08	Pcs.	
	22.2 Ø2-1/2" SS SDNR Valve (Flange Type)	06	Nos.	
	22.3 Ø2-1/2" SS Sea Water Strainer	02	Nos.	
23	Air Grill (Round), Ø100mm.	124	Pcs.	
24	Return Air Grill With Filter Face Size (600 X 300) mm	36	Pcs.	
25	Ø100mm Duct Nipple, Material: Aluminum	124	Pcs.	
26	FCU Hanging Materials:			
	26.1 Ø3/4" MS Rod	320	Kg	(140 Meter)
	26.2 Ø3/4" Nut	21	Kg.	(300 Pcs)
	26.3 Ø3/4" Washer	300	Pcs.	
	26.4 Vibration Isolator, Type: Spring Loaded (As per sample)	144	Pcs.	
27	Rectangular Duct Materials:			
	27.1 GI/GP Sheet, Gauge: 24, Size: 8' x 4'	133	Sq. M	(1440 Sq. Ft.)
	27.2 4-way Air Supply Grill Face Size: 150 X 150 mm	32	Pcs.	
	27.3 Volume Control Damper (Manual) (As per sample)	38	Pcs	
	27.4 Air Inlet Flap (As per sample) Material: Aluminum	02	Pcs.	
28	Refrigerant Compressor Oil, Grade: POE-46	40	Liter	
29	Refrigerant 407c	10	No	(Cylinder)
30	Glycol USP	800	Liter	
31	Aluminum Foil Tape, Size: 2"	30	Pcs.	
32	Liquid PU/ Insulation Foam	16	No	(Cylinder)
33	GI Nut-Bolt, Size: 40x8mm	1000	Pcs.	
34	Silicon Sealant	60	Pcs.	

Search Light Technical Specification for 2x70 Ton Tug Boat

- 1. Equipment: REMOTELY CONTROLLED SEARCH LIGHT**
- 2. Brand:** Carlisle & Finch Co/ JLUX/ Total Marine/ Merlin/ Francis or equivalent (To be mentioned)
- 3. Model:** To be mentioned
- 4. Quantity: 04 sets**
- 5. Supply Voltage:** 220 V \pm 10%, AC, 50 Hz, single phase
- 6. Power:** 2000 W
- 7. Beam Intensity:** 177 Million Candela (Beam Candle Power)
- 8. Light Type:** Incandescent
- 9. Light Output / Illumination:** To be mentioned
- 10. Beam Angle:** To be mentioned (For long-distance searching)
- 11. Effective Range:** Minimum \geq 5 nautical miles
- 21. Light Color Temperature:** To be mentioned
- 32. Rotation & Movement:**
 - a. **Axes:** 4-axis control
 - b. **Horizontal Rotation:** 360° continuous
 - c. **Vertical Rotation:** \pm 45° or equivalent
 - d. **Rotation Speed:** 0–30°/sec or batter (Fast and slow both option will be provided)
 - e. **Position Holding:** Brake mechanism to maintain beam position in rough sea
- 14. Control Panel:**
 - a. Console-mounted control box on bridge
 - b. 4-axis joystick for full movement control
 - c. Dedicated ON/OFF push button
 - d. Power ON and Lamp Failure indicators
 - e. Control cable: \geq 10 m, marine-grade, hardwired
- 15. IP & Protection Rating:** IP 56 minimum (Protected against dust and powerful water jets)
- 16. Mounting:** Swivel mounting type
- 17. Certification & Standards:**
 - a. Manufacturer test certificate to be provided
 - b. BV Class Approval certificate for marine use
- 18. Documentation & Support:**
 - a. Operation & Maintenance manual (English)
 - b. Wiring diagram & control schematics
- 19. Warranty:** Minimum 12 months from the date of commissioning
- 20. Country of Origin:** Malaysia/ Singapore/EU/UK/USA or Equivalent (To be mentioned)
- 21. Country of Manufacturer:** To be mentioned

ChockFast Technical Specification for 2x70 Ton Tug Boat

1. **Equipment Name:** Pour Epoxy Resin Chock with Hardener
2. **Purpose:** To adjust the height and installation and alignment marine propulsion system like engine, gearbox, pump etc.
3. **Brand:** To be mentioned
4. **Quantity/ Weight:** 149 Kg (20 pot Resin of 6.95 kg each pot and 20 pot Hardener of 0.5 kg each pot)
5. **ChockFast Thickness:** Must be support a range of 12 -100 mm
6. **Specific Gravity:** 1.58 cm³/gm
7. **Compressive Strength:** Greater than 130 Mpa
8. **Tensile Strength:** Greater than 32 Mpa
9. **Color:** Orange
10. **Ambient Temperature:** Must be rated for 45°C Ambient / 80°C Machinery temp
11. **Surface of application:** Mild Steel
12. **Necessary Accessories:** Sealing agents, damming materials, and release agents for the pouring process to be supplied
13. **Hardness-Barcol:** 35 minimum (Initial) / 40+ (Fully Cured)
14. **Cure Time:** To be mentioned
15. **Manufacturing Country:** To be mentioned
16. **Manufacturing Year:** 2024 or Later
17. **Application Procedure/ Instruction:** To be supplied in English language
18. **Classification Certificate:** BV/ LR/ CSS/ ABS or any other IACS Class
19. **Self-Life:** Minimum 02 Year
20. **Warranty:** 02 Year or OEM Policy
21. **Test-Trial:** Test-Trial will be held by KSY, but supervision work to be supplied



MATERIAL LIST						
SYMBOL	DESCRIPTION	MATERIAL	SIZE	VALVE NO	QTY	REMARKS
DK	5K GATE	C.I. BODY BRONZE TRIM	Ø100	LV1, 2	2	
	5K GATE	BRONZE BODY BRONZE TRIM	Ø40	LV11, 13, 14, 32, 33	5	
DK	5K SDNR	C.I. BODY BRONZE TRIM	Ø100	LV3, 4, 5, 6, 7	6	
	5K SDNR	BRONZE BODY BRONZE TRIM	Ø40	LV12	1	
		BRONZE BODY BRONZE TRIM	Ø32	LV30, 31	2	
DK	5K CHECK	BRONZE BODY BRONZE TRIM	Ø40	LV18	1	
	5K CHECK SCREWED END	BRONZE BODY BRONZE TRIM	Ø15	LV19, 20, 21, 22, 23, LV26, 27, 28	8	
DK	5K 3-WAY COCK L-PORT	BRONZE BODY BRONZE TRIM	Ø40	LV15	1	
DK	5K QUICK-CLOSING	C.S. BODY BRONZE TRIM	Ø40	LV16, 17	2	WIRE-PULL TYPE
DK	5K STOP VALVE (NORMAL CLOSE)	C.I. BODY BRONZE TRIM	Ø100	LV9, 10	2	
CG	COMPOUND GAUGE WITH STOP COCK (-1 TO +1 BAR)		Ø15		2	
CG	PRESSURE GAUGE WITH STOP COCK (0 TO 10 BAR)		Ø15		2	
CG	LEVEL GAUGE FLAT GLASS TYPE				1	CLASS APPROVED TYPE

MACHINERY LIST (VENDOR'S)			
SYMBOL	EQUIPMENT NAME	SPECIFICATION	REMARKS
VP1 VP2	M/E PRIMING LUB OIL PUMP	35 m ³ /hr x 0.68 MPa	AS PER MAKER STANDARD

MACHINERY LIST			
SYMBOL	EQUIPMENT NAME	SPECIFICATION	REMARKS
HP	LUB OIL HAND P/P	50 LPM	SEMI ROTARY HAND PUMP
VP3 VP4	LO TRANSFER PUMP	6 m ³ /hr x 3 bar	YARD'S SUPPLY MOTOR 2.1 KW

PIPER LEGENDS:
 LEVEL ALARM HIGH (LAH)
 LEVEL SWITCH/WARNING (LS)
 NORMALLY CLOSED 'N/C'

Bureau Veritas Marine & Offshore
Section 42215N/42216P
REVIEWED
 subject to comments
 and only for parts concerning Classification,
 and as per contract.
 Istanbul, 17-Jan-2023
 [Electronic document]
 The plan approval office

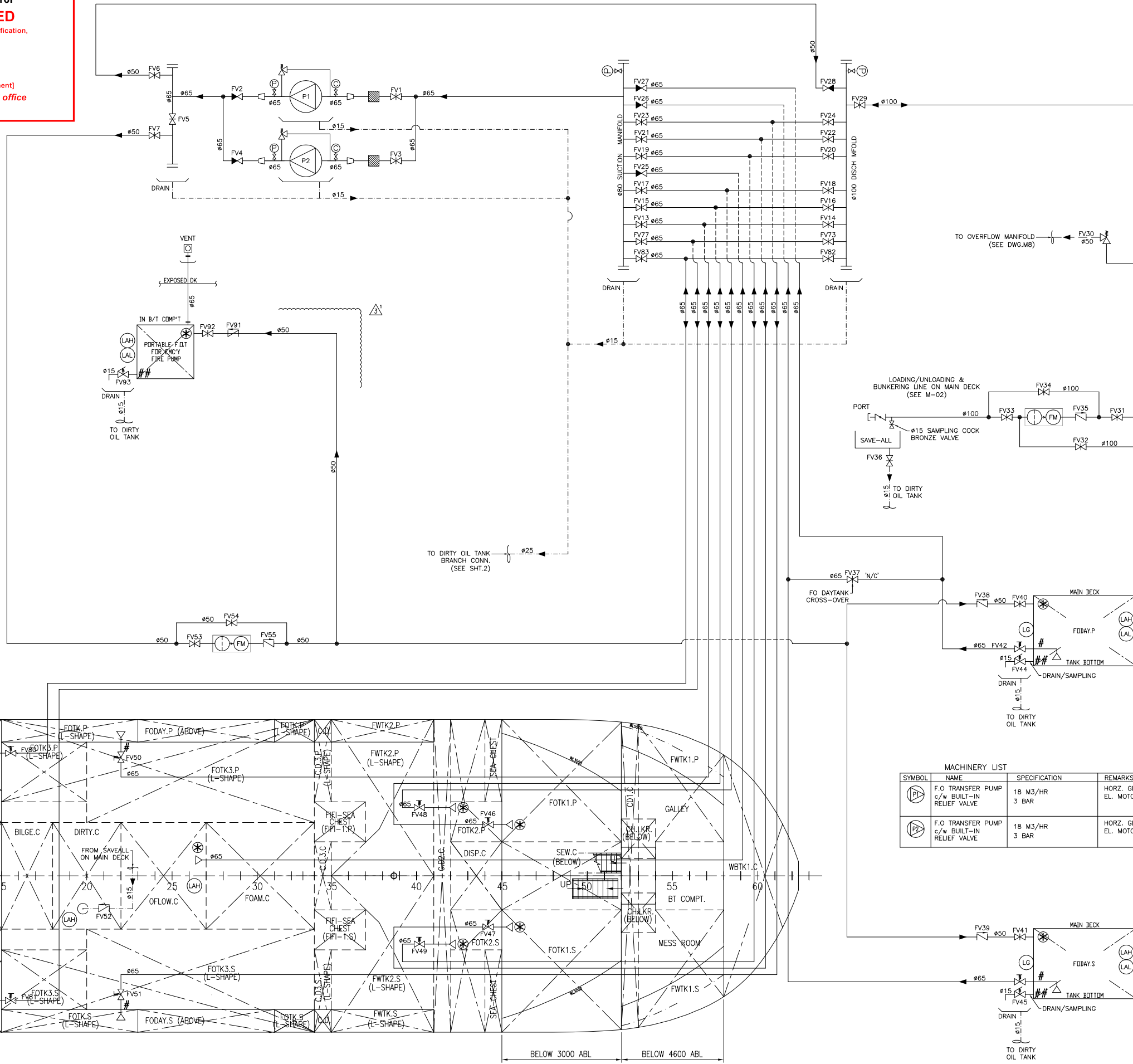
See comments in VPM

- NOTES:**
- ALL PIPES TO BE SCH80 BLACK SMLS STEEL ASTM GRADE 106 B, UNLESS OTHERWISE STATED.
 - ALL JIS/DIN FLANGE TO BE BORED TO SUIT ASTM GRADE 106 B PIPE.
 - SYSTEM SHALL COMPLY WITH STATUTORY AND CLASS REQUIREMENT.
 - SYSTEM SCHEMATIC SHOWN. ACTUAL LOCATION AND PIPE ROUTING TO BE DECIDED AT SITE.
 - WHERE PIPES PASSING THROUGH BHDS, DECKS AND TANK TOP, WATER-TIGHT INTERGRITY TO BE MAINTAINED AND SUITABLE REINFORCEMENT TO BE ADDED TO THE STRUCTURE.
 - SYSTEM TEST PRESSURE = 1.5 TIMES THE WORKING PRESSURE.
 - QUICK-CLOSING VALVE TO BE OPERATED FROM OUTSIDE THE ENGINE ROOM.
 - VALVE IN OIL TANK TO BE SECURED DIRECTLY TO THE TANK.
 - THE POWER SUPPLY TO ALL INDEPENDENTLY DRIVEN OIL PUMPS IS TO BE CAPABLE OF BEING STOPPED FROM OUTSIDE THE SPACE CONTAINING THE PUMPS.
 - [BOX] DENOTES EQUIPMENT SUPPLIED BY VENDOR.
 - YARD TO GET APPROVAL OF THIS DRAWING FROM MAIN ENGINE MAKER.
 - ALL PIPES TO BE PICKLED AND FLUSHED.
 - THE MIST OUTLET TO BE LEAD OUTSIDE ENGINE ROOM, ABOVE THE WEATHER DECK.
 - THE FILTERS IN THE LUBRICATING SUPPLY TO THE MAIN ENGINE ARE TO BE CAPABLE OF BEING CLEANED WITHOUT STOPPING OR REDUCING THE SUPPLY OF FILTERED OIL TO THE ENGINE.
 - ALL LUB OIL PIPING SHALL BE FLUSHED WITH SYSTEM OIL AFTER INSTALLATION FOR SUFFICIENT PERIOD OF TIME.
 - CRANKCASE VENT PIPES ARE TO BE AS SMALL AS PRACTICABLE TO MINIMISE THE INRUSH OF AIR IN THE EVENT OF AN EXPLOSION AND TO BE LED TO SAFE POSITION.
 - A FUNNEL IS TO BE PROVIDED UNDER THE MIST TRAP'S DRAIN VALVE IN ORDER TO PREVENT INADVERTENTLY LEFT THE DRAIN VALVE OPEN.
 - 8MM AIR VENT PIPE TO BE LED TO A SAFE LOCATION TO THE ATTENDING SURVEYOR'S SATISFACTION.
 - LUB OIL PRIMING PUMP RELIEF VALVE SET PRESSURE 0.73MPa.
 - PARTS OF LUBE OIL SYSTEM UNDER PRESSURE EXCEEDING 0.18 MPa SUCH AS PUMP, FILTERS AND HEATERS ARE NOT TO BE SITUATED WHERE SPILLAGE OR LEAKAGE HEREFROM CAN CONSTITUTE A HAZARD BY FALLING IN HOT SURFACE, ELECTRICAL EQUIPMENT, AIR INTAKES AND OTHER SOURCE OF IGNITION (PT.C, CH.1, SEC.10-5.10.3.2).
 - VALVES ARE TO BE CAPABLE OF BEING OPERATED FROM READILY ACCESSIBLE POSITION FROM ABOVE THE WORKING PLATFORM (PT.C, CH.1, SEC.10-5.10.6).
 - AUTO RESTART OF ARRANGEMENT ARE TO COMPLY WITH PT.F, CH.3, SEC.1-48
 - THE MONITORING AND CONTROL ARRANGEMENTS ARE TO COMPLY WITH PT.F, CH.3, SEC.1, TABLE 3 & TABLE 21

REV	DESCRIPTION OF ALTERATION	DATE	BY	REV	DESCRIPTION OF ALTERATION	DATE	BY
1	UPDATED AS PER DESIGN PROGRESS	20 DEC '22	NAV				
2	REVIEWED BY CLASS VIDE ITB-TPO/2022/001598/SYL	20 DEC '22	NAV				
3	DATED 9 JUNE 2022						

DATE	BY	DESCRIPTION

DRAWN : NIS	SCALE : 1:75	PROJECT : 70T BOLLARD PULL TUG	DESIGNER : NAVARATNA PTE LTD
CHECKED : NAV	CLIENT'S HULL NO. : NB786 & NB787	TITLE : SHIP'S LUB OIL SYS. SCH.	NAVAL ARCHITECTS, MARINE ENGINEERS & MARINE SURVEYORS.
DATE : 31 MARCH 2022		BUILDER : KHULNA SHIPYARD LIMITED, BANGLADESH	540 SIMS AVENUE TEL: +65 67412220 #02-04 SIMS AVE CENTRE FAX: +65 67412119 SINGAPORE 347003 E-mail: NPI@navarata.com or navarata@gmail.com
APPROVED BY CLASS DATED : 09.06.22		OWNER : PAYRA PORT AUTHORITY, BANGLADESH	DRG. NO. : 01/22-M05 (SHT 1 OF 1)
APPROVED BY OWNER DATED :			REV : 1



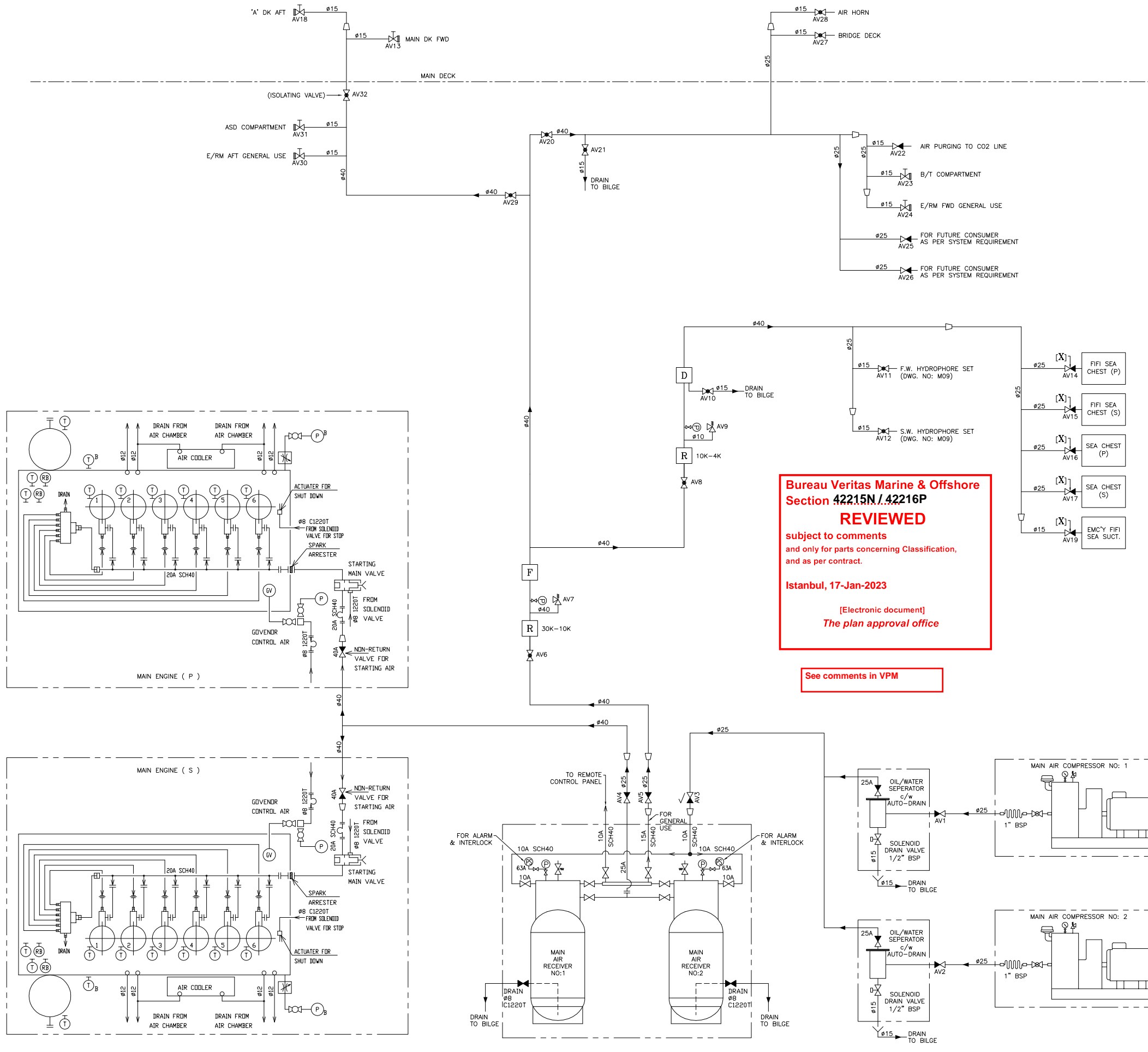
MATERIAL LIST (M-07 & M-08)						
SYMBOL	DESCRIPTION	MATERIAL	SIZE	VALVE NO	QTY	REMARKS
DK	5K GATE	CAST IRON	Ø100	FV29, 31, 32, 33, 34	5	
			Ø65	FV1, 3, 5, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 37, 73, 77, 82, 83	20	
	5K GATE	BRONZE	Ø25	FV66, 67	2	
			Ø20	FV74, 75	2	FV70 DELETED
	5K SNDR	CAST IRON	Ø15	FV36, 72	2	
			Ø65	FV2, 4, 25, 26, 27	5	FV9, 10 DELETED
	5K SNDR	BRONZE	Ø25	FV58, 62, 63	3	
			Ø15	-	2	FV8 DELETED
	5K CHECK	CAST IRON	Ø100	FV35, 57	2	
			Ø25	FV38, 39, 55, 91	4	
5K CHECK	BRONZE	Ø25	FV56	1		
		Ø15	FV52, 76, 78, 79, 95	5	FV71 DELETED	
5K QUICK-CLOSING	CAST STEEL	Ø65	FV42, 43, 46, 47, 48, 49, 50, 51, 80, 81	10		
		Ø40	FV64, 65	2		
		Ø25	FV94	1		
						WIRE PULL TYPE
	PRESSURE RELIEF VALVE	CAST IRON	Ø50	FV30	1	SET PRESS = 5K
	5K SAFETY VALVE	BRONZE	Ø15	FV68, 69	2	SET PRESS = 0.15-0.2 MPa (W/E MAKER SUPPLY)
	5K SELF-CLOSING	BRONZE	Ø15	FV44, 45, 84, 85, 86, 87, 88, 89	8	
	COMPOUND GAUGE WITH STOP COCK (-1 TO +1 BAR)		Ø15			
	PRESSURE GAUGE WITH STOP COCK (0 TO 10 BAR)		Ø15			
	BELLMOUTH	MILD STEEL	Ø65		9	
	STRAINER	CJ BODY	Ø65		2	
	LEVEL GAUGE FLAT GLASS TYPE				2	CLASS TYPE APPROVED (SEE M-02)
	FLOW METER c/w STRAINER	CJ BODY	Ø100		1	
					1	

- NOTES:**
- ALL PIPES TO BE SCH80 BLACK SMLS STEEL ASTM GRADE 106 B, UNLESS OTHERWISE STATED.
 - ALL JIS/DIN FLANGE TO BE BORED TO SUIT ASTM GRADE 106 B PIPE.
 - SYSTEM SHOULD COMPLY WITH STATUTORY AND CLASS REQUIREMENT.
 - SYSTEM SCHEMATIC SHOWN. ACTUAL LOCATION AND PIPE ROUTING TO BE DECIDED AT SITE.
 - WHERE PIPES PASSING THROUGH BHDS, DECKS AND TANK TOP, WATER-TIGHT INTERGRITY TO BE MAINTAINED AND SUITABLE REINFORCEMENT TO BE ADDED TO THE STRUCTURE.
 - SYSTEM TEST PRESSURE = 1.5 TIMES THE WORKING PRESSURE.
 - DRIP TRAY OF 150mm HEIGHT TO BE FITTED IN WAY OF PUMPS, MANIFOLDS AND BULKHEAD VALVES. OIL-TIGHT DRIP TRAYS OF SAMPLE SIZE HAVING SUITABLE DRAINAGE ARRANGEMENT ARE TO BE PROVIDED.
 - QUICK-CLOSING VALVES TO BE OPERATED FROM OUTSIDE THE ENGINE ROOM.
 - FILLING LINES ARE TO REACH THE BOTTOM OF THE TANK WITH PADS.
 - VALVES ON OIL TANKS ARE TO BE SECURED DIRECTLY TO THE TANK.
 - TWO OR MORE FILTERS ARE TO BE FITTED IN THE FUEL OIL SUPPLY LINE TO THE MAIN ENGINE AND AUXILIARY ENGINE, AND THE ARRANGEMENT ARE TO BE SUCH THAT ANY FILTER CAN BE CLEANED WITHOUT INTERRUPTING THE SUPPLY OF FILTERED FUEL OIL TO THE ENGINE.
 - [BOX] DENOTE EQUIPMENTS SUPPLIED BY VENDOR AND SYSTEM SUBJECT TO CHANGE.
 - YARD TO GET APPROVAL OF THIS DRAWING FROM MAIN ENGINE / GENERATOR / F.O. PURIFIER MANUFACTURER.
 - THE FLASH POINT OF THE OIL FUEL IS TO BE MORE THAN 60°C.
 - THE POWER SUPPLY TO ALL INDEPENDENTLY DRIVEN OIL PUMPS IS TO BE CAPABLE OF BEING STOPPED FROM OUTSIDE THE SPACE CONTAINING THE PUMPS.
 - FLEXIBLE HOSES IN MACHINERY SPACES INTENDED FOR USE IN SYSTEMS CONTAINING FLAMMABLE LIQUIDS ARE TO BE TYPE APPROVE BY THE SOCIETY.
 - ALL PIPES TO BE PICKLED AND FLUSHED.
 - PURIFIER IS TO BE PROVIDED WITH REMOTE MEANS OF SHUT-DOWN OUTSIDE THE ENGINE ROOM.
 - FUEL OIL PIPELINE SHOULD NOT PASS THROUGH FRESHWATER TANK.
 - REMOTE VALVES AND COCKS ARE ALSO TO INCLUDE LOCAL CONTROL AND INDICATORS ARE TO BE PROVIDED ON THE REMOTE AND LOCAL CONTROLS TO SHOW WHETHER THEY ARE OPEN OR SHUT.
 - WHERE FO PIPES ARE PASSING THROUGH BALLAST TANK, THEY SHOULD NOT HAVE ANY FLANGES INSIDE THE TANK AND TO BE OF SCH160 TYPE.
 - PARTS OF FLAMMABLE OIL SYSTEM UNDER PRESSURE EXCEEDING 0.18 MPa SUCH AS PUMPS, FILTERS AND HEATERS ARE NOT TO BE SITUATED WHERE SPLASHAGE OR LEAKAGE HEREFROM CAN CONSTITUTE A HAZARD BY FALLING ON HOT SURFACE, ELECTRICAL EQUIPMENT, AIR INTAKE AND OTHER SOURCE OF IGNITION (NR467, PT. C, CH. 1, SEC. 20-5.10.3.C)
 - LEVEL GAUGE TO BE OF TYPE APPROVED BY THE SOCIETY. FLAT GLASS TYPE WITH SELF CLOSING VALVE TO BE USED. THEIR GLASSES ARE TO BE MADE OF HEAT-RESISTANT MATERIAL AND EFFICIENTLY PROTECTED AGAINST SHOCKS (NR467, PT. C, CH.1, SEC.10, [2.9.2])
 - VALVES ARE TO BE CAPABLE OF BEING OPERATED FROM READILY ACCESSIBLE POSITION FROM ABOVE THE WORKING PLATFORM (NR467, PT. C, CH.1, SEC.10-5.10.6)
 - THE MEANS SHALL BE PROVIDED FOR THE FILLING LINES TO PREVENT OF POSSIBLE OVERPRESSURE DURING THE BUNKERING OPERATION, WHICH COULD BE CAUSED BY PUMPS FROM OUTBOARD FILLING STATION. FOR THAT PURPOSE A WARNING LABEL, MAY BE ACCEPTED WITH CLEARLY DECLARED DESIGN PRESSURE OF THE FILLING LINES AND THE LOCAL PRESSURE GAUGE FITTED IN VICINITY OF THE FILLING CONNECTION (NR467, PT. C, CH.1, SEC.10, [11.4.2.A])

MACHINERY LIST			
SYMBOL	NAME	SPECIFICATION	REMARKS
(P1)	F.O TRANSFER PUMP c/w BUILT-IN RELIEF VALVE	18 M3/HR 3 BAR	HORZ. GEAR PUMP EL. MOTOR (5.3 kW)
(P2)	F.O TRANSFER PUMP c/w BUILT-IN RELIEF VALVE	18 M3/HR 3 BAR	HORZ. GEAR PUMP EL. MOTOR (5.3 kW)

REV	DESCRIPTION OF ALTERATION	DATE	BY	REV	DESCRIPTION OF ALTERATION	DATE	BY
2	REVIEWED BY CLASS VIDE TPO/2022/002304/SYL, DATED 31 AUG '22	20 DEC '22	NAV				
1	AMMENDED AS PER ENGINE MAKER DRAWING	20 DEC '22	NAV				
1	AMMENDED AS PER DESIGN PROGRESS	12 JULY '22	NAV				
1	REVIEWED BY CLASS VIDE ITB-TPO/2022/001598/SYL	12 JULY '22	NAV				
	DATED 9 JUNE 2022			3	UPDATED AS PER CLASS COMMENT (LP01952254)	2 MAR '23	NAV

DRAWN : NTS	SCALE : NTS	PROJECT : 70T BOLLARD PULL TUG	DESIGNER : NAVARAJA PTE LTD
CHECKED : NAV	CLIENT'S HULL NO. : NB786 & NB787	TITLE : SHIP'S FUEL OIL (TRANSFER & FILLING) SCH.	NAVAL ARCHITECTS, MARINE ENGINEERS & MARINE SURVEYORS.
DATE : 14 APRIL 2022		BUILDER : KHULNA SHIPYARD LIMITED, BANGLADESH	540 SIMS AVENUE TEL: +65 67412220 #02-04 SIMS AVE CENTRE FAX: +65 67412719 SINGAPORE 387603 E-mail: NPA@navrajapte.com or navrajatik@gmail.com
APPROVED BY CLASS DATED : 30.05.22 / 31.08.22		OWNER : PAYRA PORT AUTHORITY, BANGLADESH	DRG. NO. : 01/22-M07 (SHT 1 OF 1)
APPROVED BY OWNER DATED :			REV : 3



MATERIAL LIST							
SYMBOL	DESCRIPTION	MATERIAL	PRESS. RATING	SIZE	VALVE NO	QTY	REMARKS
GV	GLOBE VALVE	FORGED STEEL ST. ST. TRIM	30K	ø40	AV6	1	
	GLOBE VALVE	BRONZE BODY BRONZE TRIM	10K	ø40	AV8, 20, 29, 32	4	
SDNR	SDNR VALVE	FORGED STEEL ST. ST. TRIM	30K	ø25	AV1, 2, 3, 4, 5	5	
				ø25	AV14, 15, 16, 17, 25	6	
				ø15	AV19, 22	2	
G	GLOBE VALVE c/w HOSE CONNECTOR	BRONZE BODY BRONZE TRIM	10K	ø15	AV13, 18, 23, 24, 30, AV31	6	
				ø10	AV9	1	SET PRESS = 10K
AR	ANGLE RELIEF VALVE	FORGED STEEL ST. ST. TRIM	10K	ø40	AV7	1	SET PRESS = 10K
P	PRESS. GAUGE c/w STOP COCK					2	0-12K
R	PRESSURE REDUCER					2	DUPLX TYPE
D	DRYER / DEHYDRATOR					1	DUPLX TYPE
F	AIR FILTER					1	DUPLX TYPE

MACHINERY LIST			
EQUIPMENT NAME	SPECIFICATION	QTY	REMARKS
MAIN AIR COMPRESSOR NO.1 & NO.2	25 M3/HR x 30 BAR	2	
MAIN AIR RECEIVER NO.1 & NO.2	TANK: 200 LTR x 30 BAR	2	

Bureau Veritas Marine & Offshore
Section 42215N / 42216P
REVIEWED
 subject to comments
 and only for parts concerning Classification,
 and as per contract.
 Istanbul, 17-Jan-2023
 (Electronic document)
 The plan approval office

See comments in VPM

- NOTES:**
- ALL PIPES TO BE SCH40 BLACK SMLS STEEL ASTM GRADE 106 B, UNLESS OTHERWISE STATED. CONTROL AIR PIPING TO BE COPPER/BRASS/STAINLESS STEEL.
 - ALL JIS/DIN FLANGE TO BE BORED TO SUIT ASTM GRADE 106 B PIPE.
 - SYSTEM SHOULD COMPLY WITH STATUTORY AND CLASS REQUIREMENT.
 - SYSTEM SCHEMATIC SHOWN. ACTUAL LOCATION AND PIPE ROUTING TO BE DECIDED AT SITE.
 - WHERE PIPES PASSING THROUGH BHDS, DECKS AND TANK TOP, WATER-TIGHT INTERGRITY TO BE MAINTAINED AND SUITABLE REINFORCEMENT TO BE ADDED TO THE STRUCTURE.
 - SYSTEM TEST PRESSURE = 1.5 TIMES THE WORKING PRESSURE.
 - HOSES ARE TO HAVE A BURST PRESSURE OF AT LEAST 4 TIMES THE RELIEF VALVE SETTINGS AND ALSO ABLE TO BE FITTED WITH FACTORY ASSEMBLED END-FITTINGS, IN ACCORDANCE WITH CLASS RULE.
 - [BOX] DENOTES EQUIPMENTS SUPPLIED BY VENDORS, SUBJECT TO CHANGE.
 - YARD TO GET APPROVAL OF THIS DRAWING FROM MAIN ENGINE, GENERATOR, AIR COMPRESSOR AND AIR RECEIVER MANUFACTURER.
 - ALL PIPES TO BE PICKLED.
 - AIR COMPRESSORS AND RECEIVERS ARE TO BE CONSTRUCTED UNDER CLASSIFICATION SURVEY.
 - FITTINGS MARKED WITH [X] TO HAVE CLASS CERTIFICATE & ALL OTHER FITTINGS NEED NOT TO BE APPROVED TYPE BUT TO OWNER'S SATISFACTION.
 - DEADSHIP STARTING ARRANGEMENT IS TO BE PROVIDED FOR ONE OF THE GENERATOR.
 - FLEXIBLE HOSES ARE TO BE TYPE APPROVED BY THE SOCIETY
 - DETAILS OR APPROVAL REFERENCE OF AIR RECEIVER SHOULD BE SUBMITTED BY ENGINE MAKER TO SOCIETY
 - FOR INITIAL CHARGE OF AIR RECEIVERS WITHOUT THE AID OF A POWER SOURCE OUTSIDE THE SHIP, PLEASE REFER TO 01/22-M17 (DEAD SHIP STARTING METHODOLOGY)
 - CONTROL AIR SYSTEM SHOULD BE SUBMITTED BY ENGINE MAKER TO SOCIETY
 - CAPACITIES OF AIR COMPRESSORS AND AIR RECEIVERS ARE TO COMPLY WITH NR467, PT.C, CH.1, SEC.10, [17.3.2.A] & [17.3.3.B]. SHOULD BE SUBMITTED BY ENGINE MAKER TO SOCIETY
 - AUTOMATIC PRESSURE CONTROL IS TO BE PROVIDED FOR MAINTAINING THE AIR PRESSURE IN THE AIR RECEIVERS WITHIN THE REQUIRED LIMIT (NR467, PT.C, CH.1, SEC.10, [17.6.2]) (PLEASE REFER TO POINT NO.17 ABOVE)
 - THE ARRANGEMENTS FOR BRINGING MAIN AND AUXILIARY MACHINERY INTO OPERATION ARE TO HAVE CAPACITY SUCH THAT THE STARTING ENERGY AND ANY POWER SUPPLIES FOR ENGINE OPERATION ARE AVAILABLE WITHIN 30 MINUTES OF A DEAD SHIP CONDITION (NR467, PT.C, CH.1, SEC.10, [17.2.2.C]). PLEASE REFER TO 01/22-M18 (DEAD SHIP STARTING METHODOLOGY)

REV	DESCRIPTION OF ALTERATION	DATE	BY	REV	DESCRIPTION OF ALTERATION	DATE	BY
1	REVIEWED BY CLASS (LP02040707, LP02040708, LP02040710, LP02040711, LP02040712, LP02040713, LP02040714), DATED 9 DEC 2022	20 DEC '22	NAV				

DRAWN : NTS	SCALE : NTS	PROJECT : 70T BOLLARD PULL TUG	DESIGNER : NAVNAUTIX PTE LTD
CHECKED : NAV	CLIENT'S HULL NO. : NB786 & NB787	TITLE : COMPRESSED AIR SCH.	NAVAL ARCHITECTS, MARINE ENGINEERS & MARINE SURVEYORS.
DATE : 27 OCT 2022		BUILDER : KHULNA SHIPYARD LIMITED, BANGLADESH	540 SIMS AVENUE TEL: +65 67412220
APPROVED BY CLASS DATED : 09.12.22		OWNER : PAYRA PORT AUTHORITY, BANGLADESH	#02-04 SIMS AVE CENTRE FAX: +65 67412119
APPROVED BY OWNER DATED :			SINGAPORE 387003 E-mail: NPL@navnautix.com or navnautix@gmail.com

DRG. NO. : 01/22-M11 (SHT 1 OF 1)	REV : 1
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VARIOUS VALVE FOR 2X70 TON BP TUG BOAT FOR PPA

SN	Material Description	Qty. for 2 boats	Remarks
1.	5K DN-15 SDNR Valve (F/T), Material: Bronze Certificate: MTC	08 Nos.	
2.	5K DN-15 SDNR Valve (F/T), Material: Bronze Pressure Rating 10K, Certificate: BV	04 Nos.	
3.	5K DN-20 SDNR Valve (F/T), Material: Bronze Certificate: MTC	08 Nos.	
4.	5K DN-25 SDNR Valve (F/T), Material: Bronze Certificate: MTC	10 Nos.	
5.	5K DN-25 SDNR Valve (F/T), Material: Bronze Pressure Rating 30K, Certificate: MTC	10 Nos.	
6.	5K DN-25 SDNR Valve (F/T), Material: Bronze Pressure Rating 10K, Certificate: BV	12 Nos.	
7.	5K DN-32 SDNR Valve (F/T), Material: Bronze Certificate: MTC	10 Nos.	
8.	5K DN-40 SDNR Valve (F/T), Material: Bronze Certificate: BV	18 Nos.	
9.	5K DN-15 Gate Valve (F/T), Material: Bronze Certificate: MTC	14 Nos.	
10.	5K DN-20 Gate Valve (F/T), Material: Bronze Certificate: MTC	06 Nos.	
11.	5K DN-25 Gate Valve (F/T), Material: Bronze Certificate: MTC	08 Nos.	
12.	5K DN-32 Gate Valve (F/T), Material: Bronze Certificate: MTC	08 Nos.	
13.	5K DN-40 Gate Valve (F/T), Material: Bronze Certificate: MTC	36 Nos.	
14.	5K DN-15 Check Valve (F/T), Material: Bronze Certificate: MTC	10 Nos.	
15.	5K DN-20 Check Valve (F/T), Material: Bronze Certificate: MTC	02 Nos.	
16.	5K DN-25 Check Valve (F/T), Material: Bronze Certificate: MTC	04 Nos.	
17.	5K DN-40 Check Valve (F/T), Material: Bronze Certificate: MTC	12 Nos.	
18.	5K DN-15 Globe Valve (F/T), Material: Bronze Pressure Rating 10K, Certificate: MTC	16 Nos.	
19.	5K DN-40 Globe Valve (F/T), Material: Bronze Pressure Rating 10K, Certificate: MTC	08 Nos.	
20.	5K DN-40 Globe Valve (F/T), Material: Bronze Pressure Rating 30K, Certificate: MTC	02 Nos.	
21.	5K DN-40 Globe Valve (F/T), Material: Bronze Certificate: MTC	04 Nos.	
22.	5K DN-40 Angle Relief Valve (F/T), Material: Bronze Pressure Rating 10K, Certificate: MTC	02 Nos.	
23.	5K DN-10 Angle Relief Valve (F/T), Material: Bronze Pressure Rating 7K, Certificate: MTC	02 Nos.	
24.	5K DN-40 Self Closing Valve (F/T), Material: Bronze Certificate: MTC	06 Nos.	
25.	5K DN-15 Self Closing Valve (F/T), Material: Bronze Certificate: MTC	16 Nos.	
26.	5K DN-40 Quick Closing Valve (F/T), Material: Bronze Certificate: MTC	18 Nos.	
27.	5K DN-25 Quick Closing Valve (F/T), Material: Bronze Certificate: MTC	02 Nos.	

SN	Material Description	Qty. for 2 boats	Remarks
28.	DN-15 Check Screwed End (F/T), Certificate: MTC	16 Nos.	
29.	DN-40 3-Way Cock (L Port) (F/T), Material: Bronze, Certificate: MTC	02 Nos.	
30.	5K DN-15 Safety Valve (F/T), Material: Bronze Certificate: MTC	04 Nos.	
31.	Pressure Reducer (F/T), 30k-10k, Certificate: MTC	02 Nos.	As per attached dwg. No. 01/22-M11 (rev-1)
32.	Pressure Reducer (F/T), 10k-4k, Certificate: MTC	02 Nos.	
33.	Dryer/ Dehydrator (as per drawing), Certificate: MTC	02 Nos.	
34.	Air Filter (as per drawing), Certificate: MTC	02 Nos.	
35.	DN-40 Strainer, Body Mat: CI, Internal Mat: SS Certificate: MTC	02 Nos.	
36.	DN-32 Strainer, Body Mat: CI, Internal Mat: SS Certificate: MTC	02 Nos.	
37.	DN-25 Strainer, Body Mat: CI, Internal Mat: SS Certificate: MTC	02 Nos.	
38.	DN-32 Bell mouth, Material: MS, Certificate: MTC	02 Nos.	
39.	DN-25 Bell mouth, Material: MS, Certificate: MTC	02 Nos.	
40.	DN-40 Mud Box, Material: GI, Certificate: MTC	10 Nos.	
41.	DN-40 Rose Box, Material: GI, Certificate: MTC	04 Nos.	
42.	DN-15 Compound Gauge with Stop Cock (-1 to +1 Bar) Certificate: MTC	04 Nos.	
43.	DN-15 Pressure Gauge with Stop Cock (0 to 10 Bar) Certificate: MTC	04 Nos.	
44.	DN-10 Pressure Gauge c/w Stop Cock, Certificate: MTC	04 Nos.	
45.	DN-40 Flow Meter c/w Strainer, Certificate: MTC	02 Nos.	
46.	DN-15 Globe Valve c/w Hose Connector, Material: Bronze, Pressure Rating 10K, Certificate: MTC	12 Nos.	

PERFORMANCE BANK GUARANTEE

Managing Director
Khulna Shipyard Limited
Bangladesh Navy
Khulna, Bangladesh

Bank Guarantee No.....
Dated:
For (Mention amount)

Dear Sirs,

Whereas Khulna Shipyard Ltd., Bangladesh Navy, Khulna hereinafter referred to as the buyers proposed to enter into a contract through a Letter of Intent hereinafter called the contract with (name of the sellers) of hereinafter referred to as the sellers for the supply of (described supplies) in accordance with the terms and conditions of the contract. And whereas the sellers have requested us (name of bank) to issue a guarantee for an amount of US\$ / £ / EURO / TK..... being 10% of the CFR value of the supplies.

In consideration aforesaid (name of bank) hereby undertake and guarantee due observance and performance of the terms and conditions of the contract by the sellers and us unconditionally and absolutely bind ourselves.

To make payment on demand, without demur and without reference to the sellers, of US\$ / £ / EURO / TK..... to the buyers or as directed by the buyers in writing, if the sellers shall fail to perform the contract or fulfill the terms and conditions thereof.

To keep guarantee valid and in force for 06 (Six) months beyond the day of shipment but extendable if so required by the buyers.

The guarantee is unconditional and it is expressly understood that the buyers shall be sole judge for deciding whether the sellers have performed the contract and fulfilled the terms and conditions thereof.

It is specifically stipulated and understood by us (name of bank) that any grant of time or indulgence to the sellers without reference to us shall not in any manner tend to absolve us from our liability to make payment as stipulated above under this guarantee.

Our commitment under this guarantee is limited to an amount of US\$ / £ / EURO / TK..... only.

Yours faithfully

..... Bank

(Seal of the Bank)