

# **TENDER ENQUIRY**

**Tender Ref. No: MP1/FABRICATION OF SLUICE VALVE/CMSRU**

Dear Sir,

Tender of DESIGN, FABRICATION, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 4 NOS SLUICE VALVES ON THE INNER COMPARTMENT OF HUGHES DRY DOCK at CMSRU invited through Government procurement portal through **etenders.gov.in**

1. Quotation should be valid for a period of 3 months.
2. Quotation shall be submitted through only **etenders.gov.in**, offers submitted via other platform **not accepted, liable to reject directly.**

**Last Date & Time of Receipt of Tender: 26 December 2022 at 15.00 Hrs IST.**

**Tender Opening date & time: 26 December 2022 at 15.30 Hrs IST.**

**Enclosures to be submitted in technical cover: -**

1. Scope of work
2. Price Bid
3. Un Price Bid
4. Rules & Regulations
5. HSE Guidelines
6. Specific Terms & conditions
7. General Terms & conditions
8. Compliance matrix
9. H&S Contract Guidelines for Subcontract work inside CSL
10. Pre-qualification Criteria.

**In case of technical queries please contact Shri. Gokul R K (Mgr-CMSRU) (Mob No. 7356604569)**

Yours faithfully,

***General Manager (CMSRU)***

**DESIGN, FABRICATION, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 4  
NOS SLUICE VALVES ON THE INNER COMPARTMENT OF HUGHES DRY DOCK ON  
TURNKEY BASIS**

**1. Scope of work**

- a) The inner compartment of Hughes Dry Dock has provision to install sluice valves for enabling partial flooding / de-flooding of the dock along with an intermediate Caisson Gate. Three sluice valves are to be positioned on the dewatering tunnel and one sluice valve to be positioned on the flooding tunnel.
- b) Scope of work involves design of the valve system including wooden paddles, pipelines, electro-hydraulic systems etc., complete, procurement of all materials and equipment, transportation of all items, delivery and off load at CMSRU site including obtaining necessary entry permits from Mumbai Port Trust, transportation of units / components from storage area to erection site, on-site assembly and erection, testing, setting to work, commissioning, approvals from competent authorities, insurance coverage from material dispatch till commissioning of the system and all necessary peripherals inclusive of all necessary temporary works required.
- c) The existing power pack rooms shall be utilized for installation of electro-hydraulic systems. Pipelines shall be routed without affecting the operations of dry dock. Dismantling of existing hydraulic units, pipelines etc., in the power pack room, valves in the intermediate positions of the dry dock and storing at designated places inside the yard is also in the scope of the Contractor.
- d) Overall power rating of the equipment shall be provided by the contractor.
- e) The contractor is responsible for satisfactory performance of the system. All consumables and in-way jobs are in the scope of vendor and shall be undertaken within the quoted cost.
- f) The contractor shall get familiarize with exact scope and quantum of work before quoting for the same. In this regard, contractor shall inspect the existing facility and incorporate all requirements even if not included in this document to ensure satisfactory functioning of the system. Once offer received, it is deemed that the bidder has assessed the exact quantum of work and accepted all terms and condition for the subject work.
- g) Contractor shall demonstrate the operation of entire valve system and shall be proved leak proof.
- h) All raw materials if used in fabrication of sub-assemblies are to be of reputed make and shall be compatible for operation in marine environment.
- i) Approval from third party inspection agency (TPIA) is required to ensure that the Contractor has designed, fabricated, installed and commissioned the systems as per the technical and functional requirements and construction standards. Contractor shall therefore appoint any one of the following inspection agencies as TPIA (IRS/LRS/RINA/ABS).

- j) The cost of inspection and approvals of TPIA shall be borne by the contractor and shall be included in the total cost.
- k) TPIA inspection and certification shall include but not limited to the following stages of the project:
  - (i) Efficacy of design including site inspection
  - (ii) Quality of Fabrication / Construction (QAP to be submitted for acceptance of CMSRU prior manufacturing of item and is to include Material Test Certificates, certification of fabrication team and shop floor test reports) at factory.
  - (iii) Installation and commissioning
- l) Contractor shall submit detailed QAP approved by TPIA to CMSRU.
- m) Guarantee: Two years from the date of satisfactory completion of Job and acceptance of CMSRU Officer in charge at site. Any defect that may arise during the warranty period due to bad workmanship / faulty material used, the contractor shall have to attend the same or replace the material at his own Risk and Cost.

**2. Brief technical specifications**

- a) The specifications given below are indicative and are pertaining to the existing system of valves undertaking similar function. Contractor shall undertake complete design of the system considering that the entire system is required to function in the existing facility of Hughes Dry Dock and structural modifications to HDD is not permissible.

	<b><u>Scope of Work (along with suggested specifications) for Flooding &amp; Dewatering Tunnels</u></b>	<b><u>Qty</u></b>
1.	Hydraulic Cylinder with Manifold block Tube Material grade - ASTM A 106/Gr.B or STS2 Piston rod Material grade - EN 19. Rod hard chrome plating thickness - not less than 60 microns. Seal kit - Merkel/Hallite/Parker. Manifold block with check valve and Pressure relief valve  <b><u>Specifications</u></b> Aluminium Anode : AHW 119 (Net Wt. 10.3 kg) Working pressure : 150 bar (Testing Pressure 225 bar) Cylinder size - 275mm × 125mm x 3020mm for 3 valves - 250mm x 115mm x 2460mm for 1 valve	04 Nos (01 for each valve)

	<b><u>Scope of Work (along with suggested specifications) for Flooding &amp; Dewatering Tunnels</u></b>	<b><u>Qty</u></b>
2.	<p>Lifting beam arrangement including spear rods, cross heads and adapters</p> <p><b><u>Specifications</u></b></p> <p>MS Fabricated Spear Rod. IS 2062 With connecting Pins (EN8).</p> <p>Adaptor for connecting hydraulic cylinder to cross head.</p> <p>Size:- 170mm Dia × 720mm L. Material:- EN8(Hot Dip Galvanised)</p> <p>Cross Head as per drawing/Existing Sample</p> <p>Size :- 7'3" × 1'5" × 1'5" . Material:- Steel Casting. IS 1030 Gr. 2</p>	<p>08 nos (2 nos / valve)</p> <p>04 nos (01 nos / valve)</p> <p>04 nos (01 nos / valve)</p>
2.	<p>Hydraulic Power pack with electrical panel.</p> <p>(a) Power pack for dewatering valves to have 4 valve output manifold (01 spare)</p> <p>(b) Power pack for flooding valve to have 2 valve output manifold (01 spare)</p> <p><b><u>Specifications</u></b></p> <p>Tank Capacity – 750 Lits (SS 304) with MS Stand.</p> <p>Hydraulic pump - 98cc VELJAN/ PARKER.</p> <p>Electric Motor - 3ph., 440 V, 50HP ABB/ Crompton/ Siemens.</p> <p>NG22 Directional/ Valve - Rexroth/ Parker/ Yvken</p> <p>Other accessories like pressure gauge (General/Omicron/Japsin)/ Oil level gauge/ air breather flat switch etc. Electric panel board.</p> <p>Pipeline with hydraulic hoses (Parker/Aeroflex) from cylinder to power pack (approx distance – 30 mtrs), Oil for flushing, testing, commissioning and operation to be provided by vendor.</p>	<p>02 nos (01 - valve 7,8 &amp; 9; 01 - valve 10)</p>
3.	<p>Sluice Paddle as per drawing. Material:- Teak wood with Steel Casting brackets</p>	04 nos
4.	<p>Installation at site and Commissioning of 4 nos sluice Valve</p>	1 work

### 3. Eligibility Criteria

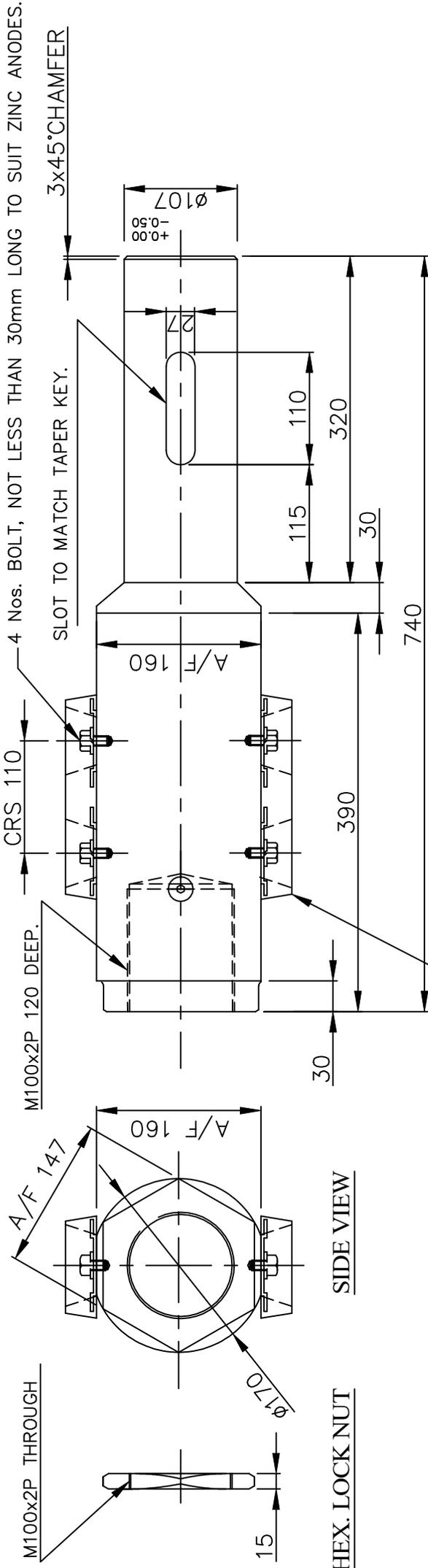
- a) General and Technical Experience
  - (i) The bidder shall have successfully manufactured, supplied, installed, tested and commissioned any valve systems for dry docks, canals, hydro-projects, dams etc. Proof of experience shall be submitted along with the offer.
  - (ii) The bidder shall not be under a declaration of ineligibility issued by Govt. of India / State Govt. / Public Sector Undertakings etc. An undertaking shall be submitted in this regard.
- b) Financial Criteria
  - (i) Average Annual financial turnover during the last 3 years, ending 31st March 2021 should be at least Rs 58 Lakhs.
  - (ii) Experience of having successfully completed similar works during last 7 years ending 31-08-21 should be either of the following:
    - Three similar completed works costing not less Rs 77 Lakhs
    - Two similar completed works costing not less Rs 97 Lakhs
    - One similar completed work costing not less Rs 1.16 Crores
- c) The bidder shall submit relevant documents for verification of technical and financial criteria. Tenders meeting the criteria stipulated above are only eligible and those tenders only shall be considered even for technical evaluation. Offers received without complying the above requirements shall summarily be rejected without any further communication from CMSRU side.

### 4. Special Terms & Conditions

- a) The job is turnkey in nature. All materials required for undertaking the work shall be under the scope of contractor and shall be done within the quoted cost. Any in way jobs associated shall also be undertaken by the contractor within the quoted cost.
- b) **Completion Period:** The work has to be undertaken without affecting the normal operations of the dry dock. The work shall be undertaken in close coordination with CMSRU team. Contractor shall work in multiple shifts and make all necessary arrangements, tools, tackles, rigging items, chain blocks, lifting belts etc., to complete the work within the allotted duration. The work shall be completed within 55 days from issue of PO.
- c) **Guarantee period:** Two years from the date of satisfactory completion of Job and acceptance of CMSRU Officer in charge at site. Any defect that may arise during the guarantee period due to bad workmanship / faulty material used, the contractor shall have to attend the same or replace the material at his own Risk and Cost.
- d) Contractor has to ensure safety of their personnel during the entire period of work. In case of any accidents, CMSRU shall not be responsible for any loss to their workmen and personnel

property. Contractor shall keep CMSRU indemnified in case of any loss/ accident/ injury/death during the execution of the work.

- e) All applicable taxes, duties, transportation and insurance etc. should be included in the rate quoted, unless specified otherwise.
- f) The contractor shall have to provide all the required tools, tackles, testing equipment, machinery, vehicles for transportation, loading, unloading etc for carrying out subject work within the quoted price.
- g) Dock entry permits for movement of man and material in and out of dock shall be arranged by contractor. Necessary recommendations for the dock entry permit will be issued by the CMSRU.
- h) CMSRU safety procedures to be followed for entire period of work by contractor
- i) **Electrical power:** The contractor shall be allowed to tap/use electric power free of cost for subject work, if power supply is available at work site. However, contractor has to take all the safety measures. Work to be handled by competent supervisory staff.
- j) Only best quality materials are to be used. The decision of the CMSRU officer-in-charge will be final and binding on the contractor as regard the quality and suitability of the material. All the old materials removed or replaced should be returned to CMSRU.
- k) The contractor shall get familiarize with exact scope and quantum of work before quoting for the same. Once offer received, it is deemed that the bidder has assessed the exact quantum of work and accepted all terms and condition for the subject work. Work has to be carried out as per the direction of CMSRU officer- in-charge.
- l) **Storage:** CMSRU shall provide storage space at sites if available, free of cost, for the work but the contractor shall satisfy himself as to the suitability of such sites and protection and such provision shall not release the contractor from liability to make good any loss or damage which may hamper such work until the same shall have been taken over.
- m) **PROHIBITION OF CHILDREN'S EMPLOYMENT:** Contractor shall note and follow the Govt. of India Notification of "Prohibition of Children's employment in the schedule occupation and process under the Child Labour (Provision and Regulation) Act, 1986".
- n) **Safety Provision:** Attention is invited regarding safety provisions and adheres to the same while executing the work. In addition to the instructions stipulated therein, contractor should note that it is compulsory that every worker employed by the contractor/successful tenderers shall use PPE while the contract work is in progress, at CMSRU premises / site. The contractor should take necessary safety measures to carry out the job, without causing any accident, and shall not cause any Loss to CMSRU either directly or indirectly. However, if any such incident took place while carrying out the work, loss to the CMSRU properties will be borne by the contractor.



MUMBAI PORT TRUST  
 CHIEF MECH. ENGINEER'S OFFICE

SUBJECT: H.D.D. PUMPING STATION

TITLE:

ADAPTOR FOR OIL HYD.  
 CYLINDER OF SLICES  
 1 TO 4 AND 10 TO 13

DRAWN: SVLONDHE DATE: 24/12/03 SCALE:

DESIGNED BY: CHECKED BY: A.K.SALVE

APPROVED BY: DRG.NO. IDS-6

( R.NAGARAJAN )  
 SUPERINTENDING ENGINEER (M)

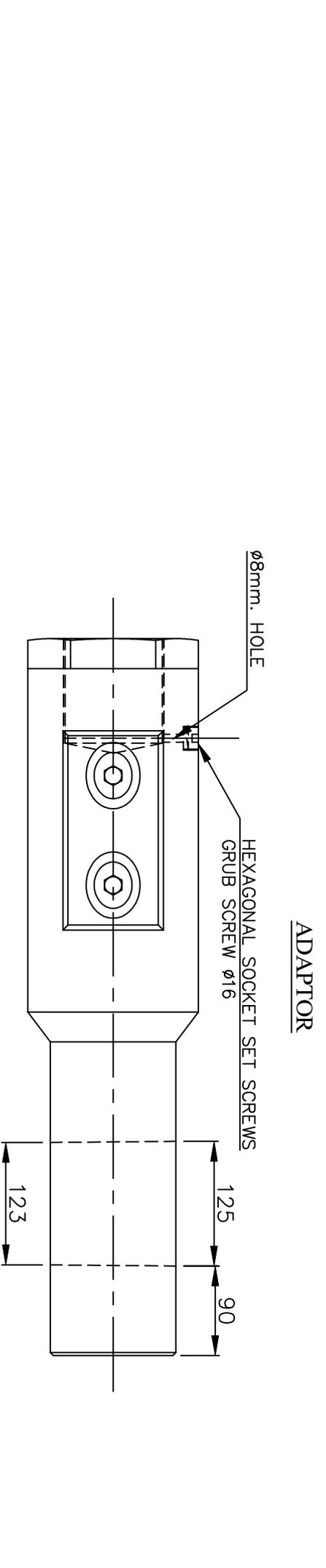
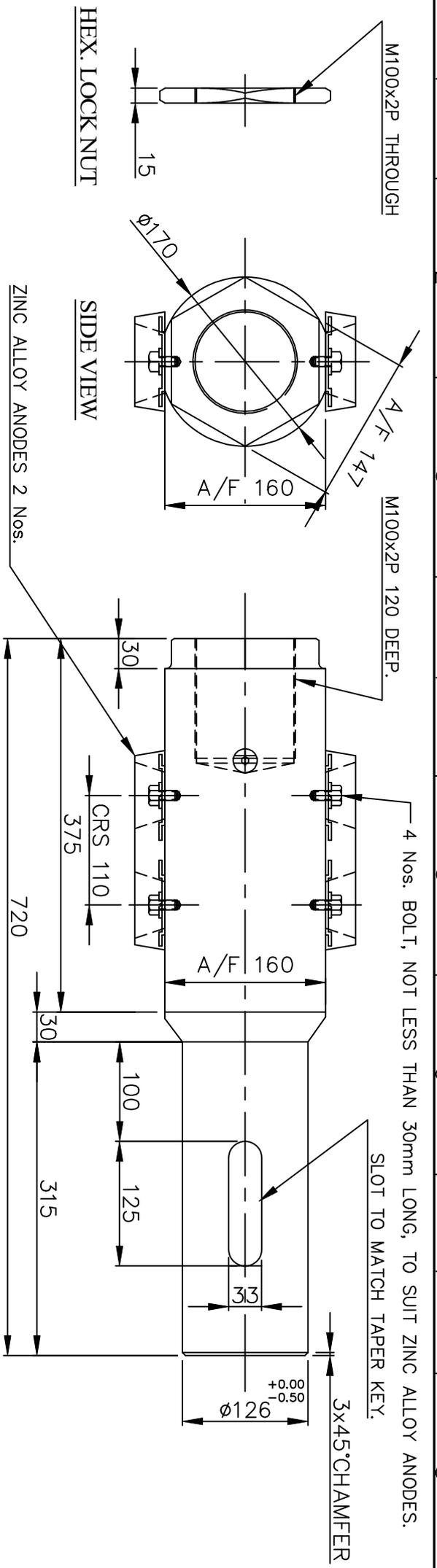
TOP VIEW

- NOTE: -1) ALL THREADS TO BE GREASED.  
 2) PLUG TO BE PUT IN PLACE ONLY AFTER THE VOID IS FULLY FILLED WITH GREASE.  
 3) MATERIAL: EN-8.  
 4) ALL SHARP EDGES TO BE CHAMFERED.  
 5) COMPLETE EXTERNAL SURFACE TO BE DEGREASED AND HOT DIP GALVANISED TO A THICKNESS OF NOT LESS THAN 150 MICRONS.  
 6) 2 Nos. ZINC ALLOY ANODES, MODEL: -ZHB 036 OF 'SARGAM METALS PVT. LTD.' CHENNAI-600089 ARE TO BE BOLTED, AFTER GALVANISING, WITH HOT DIP GALVANISED BOLTS & SPRING WASHERS.

NOTE: -  
 PLEASE CHECK THE  
 MATCHING DIMENSIONS  
 ON THE CROSSHEAD  
 AND HYDRAULIC CYLINDER,  
 BEFORE MANUFACTURE.

REV.	DATE	DESCRIPTION	SIGN.

ALL DIMENSIONS ARE IN MM.



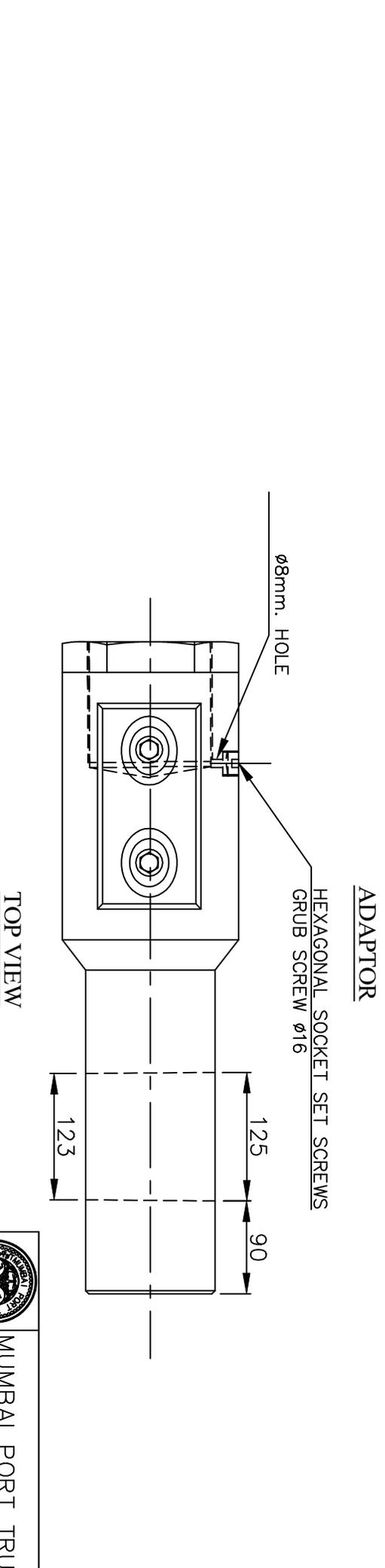
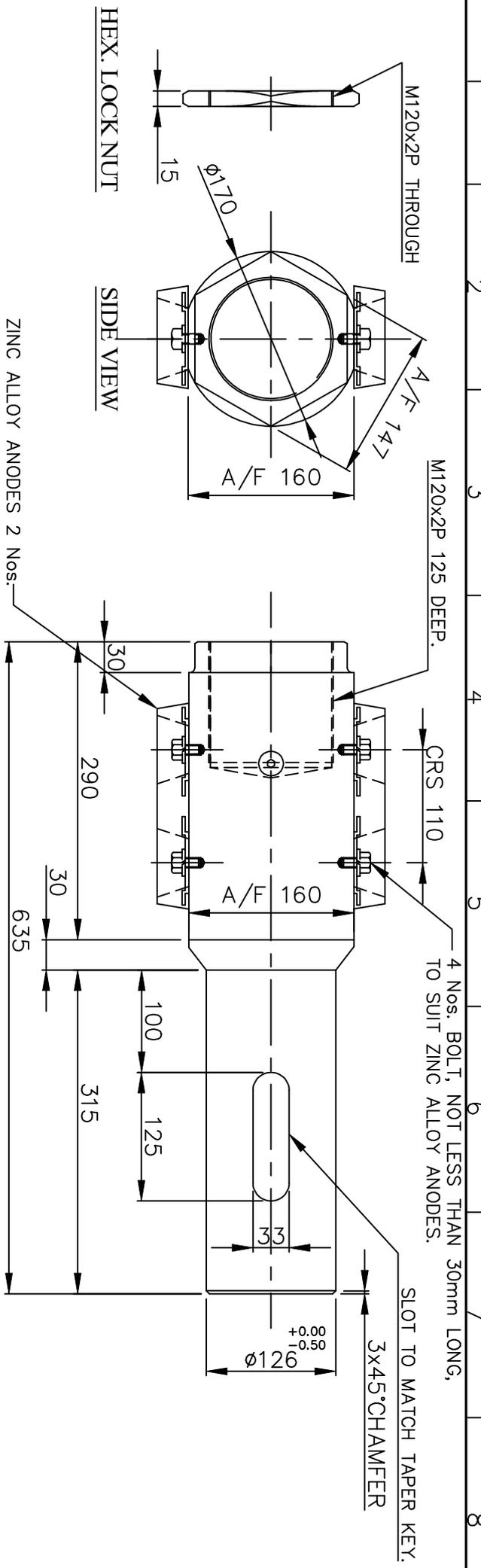
- NOTE:-1) ALL THREADS TO BE GREASED.  
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 6) 2 Nos. ZINC ALLOY ANODES: -ZHB 036 OF 'SARGAM METALS PVT. LTD.', CHENNAI-600089 ARE TO BE BOLTED, AFTER GALVANISING, WITH HOT DIP GALVANISED BOLTS AND SPRING WASHERS.

NOTE:-  
 PLEASE CHECK THE MATCHING DIMENSIONS ON THE CROSSHEAD AND HYDRAULIC CYLINDER, BEFORE MANUFACTURE.

ALL DIMENSIONS ARE IN MM.

REV.	DATE	DESCRIPTION	SIGN.

 <p><b>MUMBAI PORT TRUST</b>          CHIEF MECH. ENGINEER'S OFFICE</p>		SUBJECT: H.D.D. PUMPING STATION TITLE:	
		<p><b>ADAPTOR FOR OIL HYD. CYLINDER OF SLUICE No. 5</b></p>	
DRAWN: SYLONDHE DESIGNED BY:	DATE: 24/12/03 CHECKED BY: AK.SALVE	SCALE:	DRG.NO.
APPROVED BY:		( R.NAGARAJAN ) SUPERINTENDING ENGINEER (M)	
APPROVED BY:		DRG.NO. <b>IDS-7</b>	



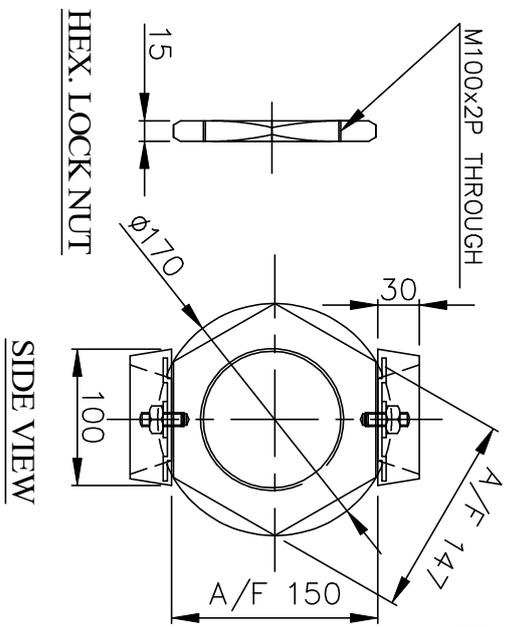
NOTE:-1) ALL THREADS TO BE GREASED.  
 2) PLUG TO BE PUT IN PLACE ONLY AFTER THE VOID IS FULLY FILLED WITH GREASE.  
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 6) 2 Nos. ZINC ALLOY ANODES, MODEL:-ZHB 036 OF 'SARGAM METALS PVT. LTD.' CHENNAI-600089 ARE TO BE BOLTED, AFTER GALVANISING, WITH HOT DIP GALVANISED BOLTS AND SPRING WASHERS.

NOTE:-  
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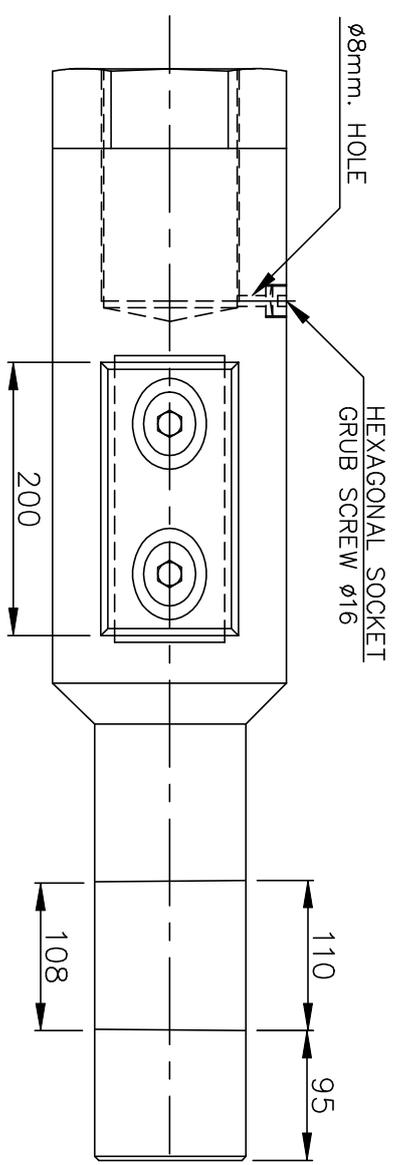
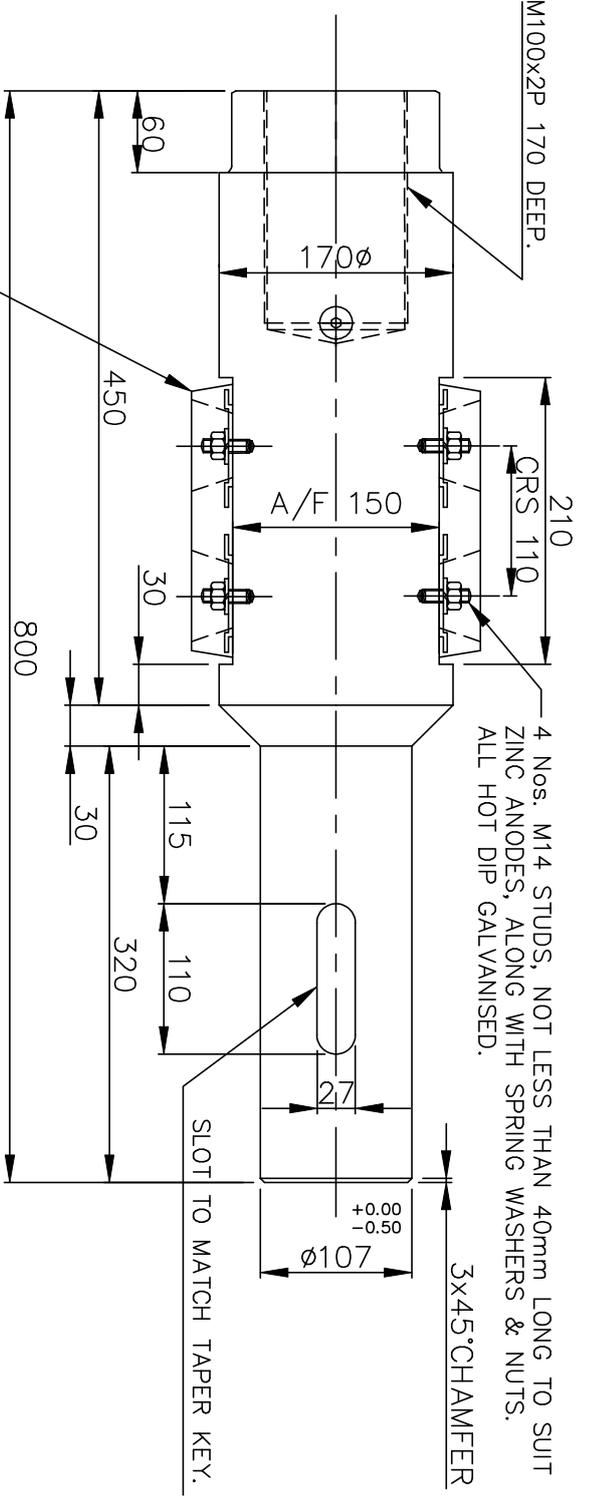
ALL DIMENSIONS ARE IN MM.

		MUMBAI PORT TRUST	
		CHIEF MECH. ENGINEER'S OFFICE	
SUBJECT: H.D.D. PUMPING STATION			
TITLE: ADAPTOR FOR OIL HYD. CYLINDER OF SLICES 6,7,8 & 9			
DRAWN: SYLONDHE	DATE: 10/12/03	SCALE:	
DESIGNED BY:	CHECKED BY: AK.SALVE		
APPROVED BY:			
(R.NAGARAJAN) SUPERINTENDING ENGINEER (M)		DRG.NO.	IDS-5

REV.	DATE	DESCRIPTION	SIGN.



ZINC ALLOY ANODES 2 Nos.



- NOTE:-
- 1) ALL THREADS TO BE GREASED.
  - 2) GRUB SCREW TO BE PUT IN PLACE ONLY AFTER THE VOID IS FULLY FILLED WITH GREASE.
  - 3) MATERIAL: EN-8.
  - 4) ALL SHARP EDGES TO BE CHAMFERED.
  - 5) COMPLETE EXTERNAL SURFACE TO BE DEGREASED AND HOT DIP GALVANISED TO A THICKNESS OF NOT LESS THAN 150 MICRONS.
  - 6) 2 Nos. ZINC ALLOY ANODES, MODEL:-ZHB 036 OF 'SARGAM METALS PVT. LTD.' CHENNAI-600089 ARE TO BE BOLTED, AFTER GALVANISING, WITH HOT DIP GALVANISED NUTS & SPRING WASHERS.
  - 7) LOCK NUT TO BE FULLY TIGHTENED AFTER INSTALLATION

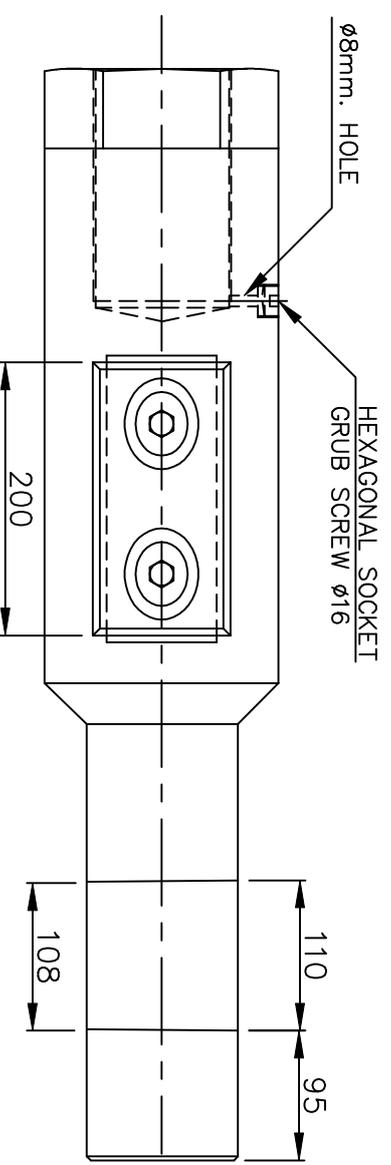
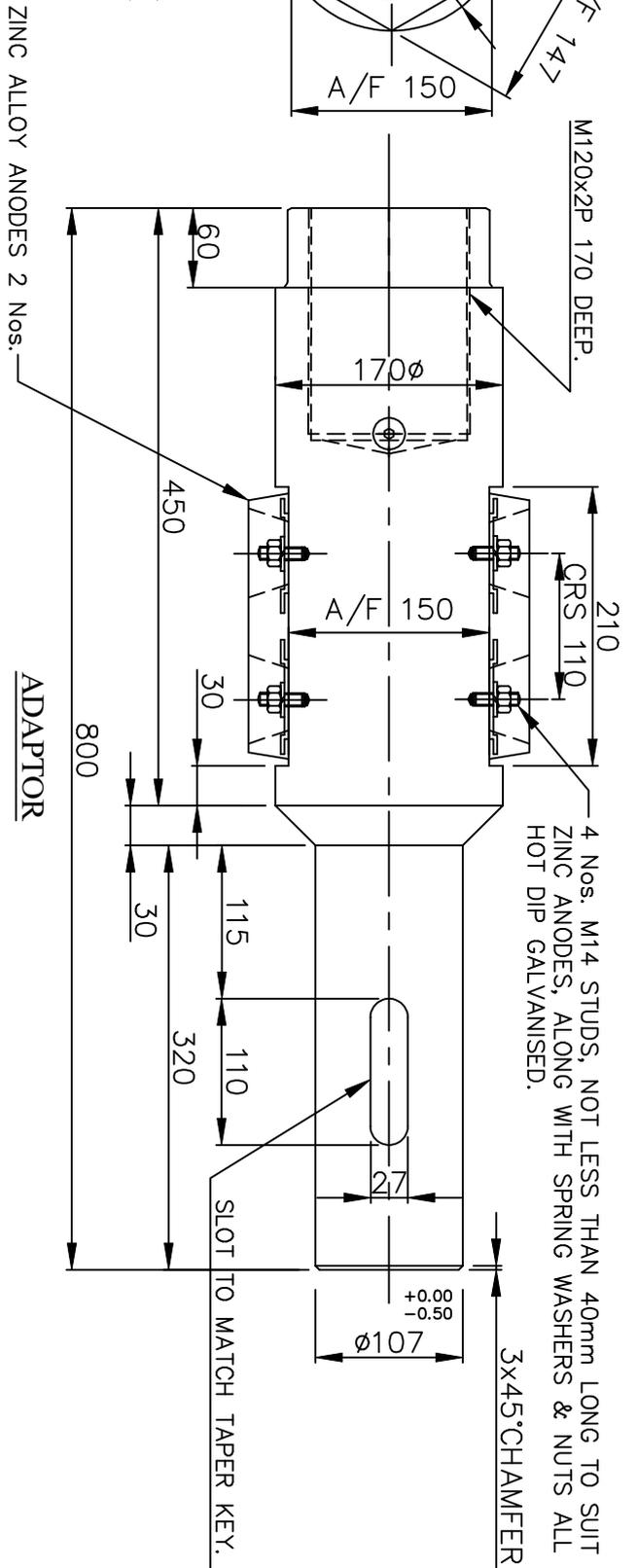
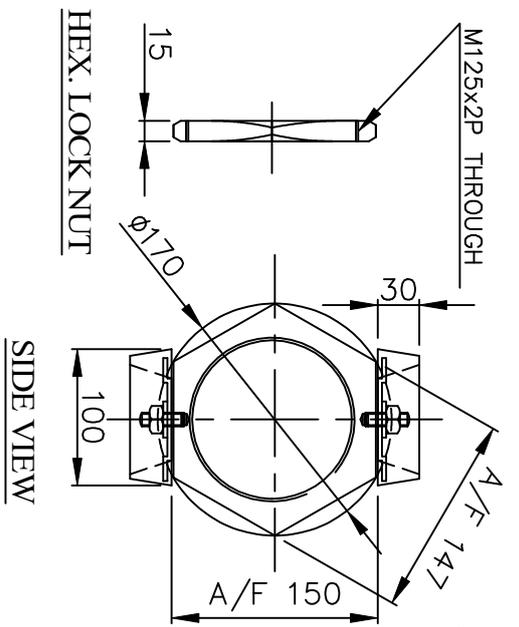
ALL DIMENSIONS ARE IN MM.

NOTE:-

PLEASE CHECK THE MATCHING DIMENSIONS ON THE CROSSHEAD AND HYDRAULIC CYLINDER, BEFORE MANUFACTURE.

REV.	DATE	DESCRIPTION	SIGN.
A	15-6-04	No.13 REMOVED ZINC ANODE DIMENSIONS ADDED.	

		<b>MUMBAI PORT TRUST</b> CHIEF MECH. ENGINEER'S OFFICE	
SUBJECT: H.D.D. PUMPING STATION			
TITLE: <b>ADAPTOR FOR OIL HYD. CYLINDER OF SLICES 1 TO 4 AND 10 TO 12</b>			
DRAWN: SYLONDHE	DATE: 15/06/04	SCALE:	
DESIGNED BY:	CHECKED BY: AK.SALVE	DRG.NO.	
APPROVED BY:			
( R.NAGARAJAN ) SUPERINTENDING ENGINEER (M)		<b>IDS-6A</b>	



TOP VIEW

- NOTE:-
- 1) ALL THREADS TO BE GREASED.
  - 2) GRUB SCREW TO BE PUT IN PLACE ONLY AFTER THE VOID IS FULLY FILLED WITH GREASE.
  - 3) MATERIAL: EN-8.
  - 4) ALL SHARP EDGES TO BE CHAMFERED.
  - 5) COMPLETE EXTERNAL SURFACE TO BE DEGREASED AND HOT DIP GALVANISED TO A THICKNESS OF NOT LESS THAN 150 MICRONS.
  - 6) 2 Nos. ZINC ALLOY ANODES, MODEL:-ZHB 036 OF 'SARGAM METALS PVT. LTD.' CHENNAI-600089 ARE TO BE BOLTED, AFTER GALVANISING, WITH HOT DIP GALVANISED NUTS & SPRING WASHERS.
  - 7) LOCK NUT TO BE FULLY TIGHTENED AFTER INSTALLATION.

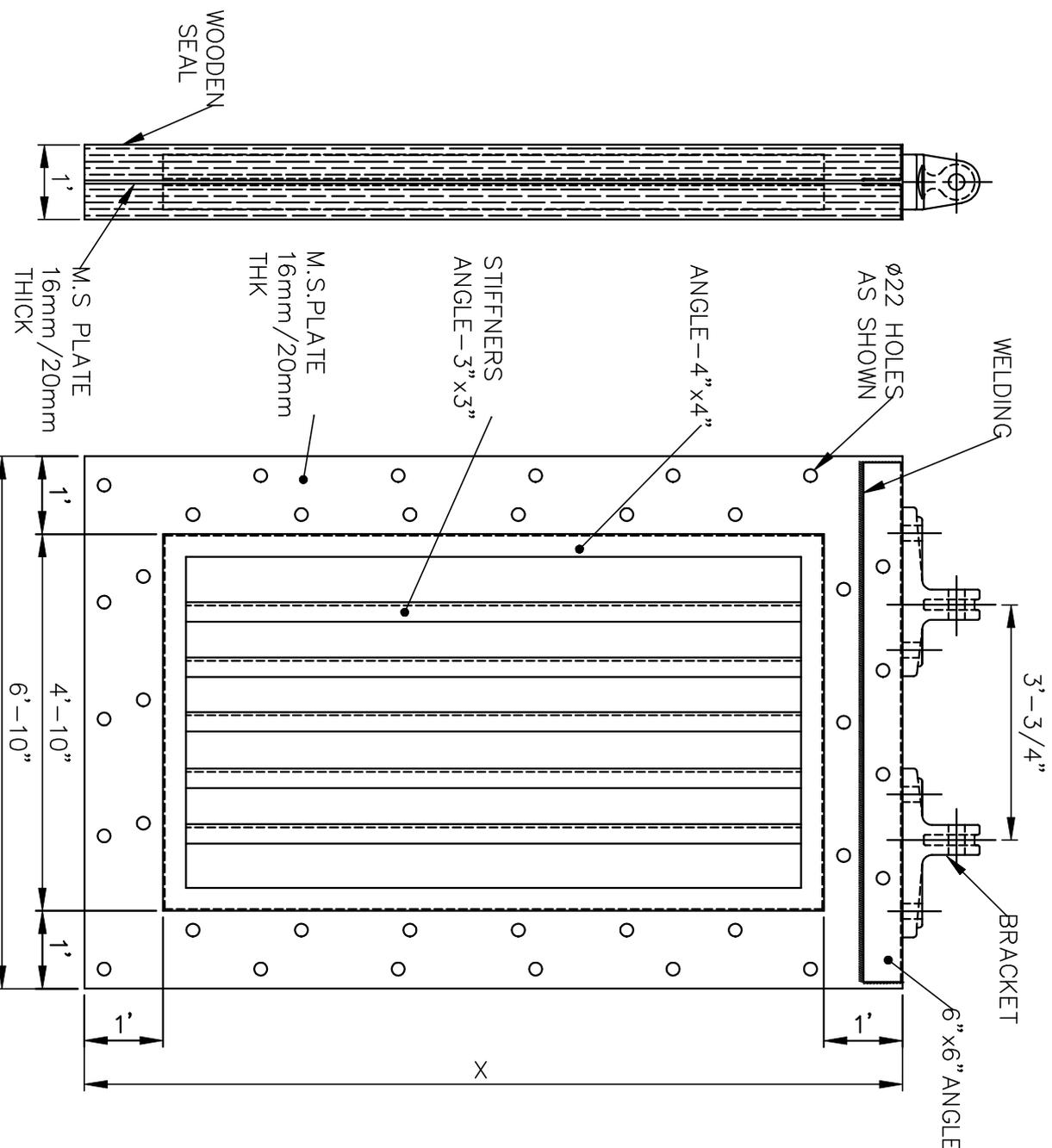
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REV.	DATE	DESCRIPTION	SIGN.

 <p><b>MUMBAI PORT TRUST</b> CHIEF MECH. ENGINEER'S OFFICE</p>		SUBJECT: H.D.D. PUMPING STATION TITLE:	
		ADAPTOR FOR OIL HYD. CYLINDER OF SLUICE 13	
DRAWN: SYLNDHHE DESIGNED BY:	DATE: 15/06/04 CHECKED BY: AK.SALVE	SCALE:	DRG.NO.
APPROVED BY:	(R. NAGARAJAN) SUPERINTENDING ENGINEER (M)	DRG.NO.	<b>IDS-10</b>



SIDE VIEW

FRONT VIEW OF HDD SLUICE PADDLE

- DIM - 'X' 1) 10'-5" FOR SLUICE No.6,7,8,9  
 4 Nos. EACH SLUICE  
 2) 8'-8" FOR SLUICE No.1 TO 5  
 & 10 TO 13  
 9 Nos. FOR EACH SLUICE



MUMBAI PORT TRUST  
 CHIEF MECH. ENGINEERS OFFICE

ISD 9001-2000 PART  
 SUBJECT: HDD PUMPING STATION

TITLE:  
 SLUICE PADDLE FABRICATED OF  
 M.S. PLATE & ANGLE WITH  
 WOODEN SEALS FOR HDD  
 SLUICE

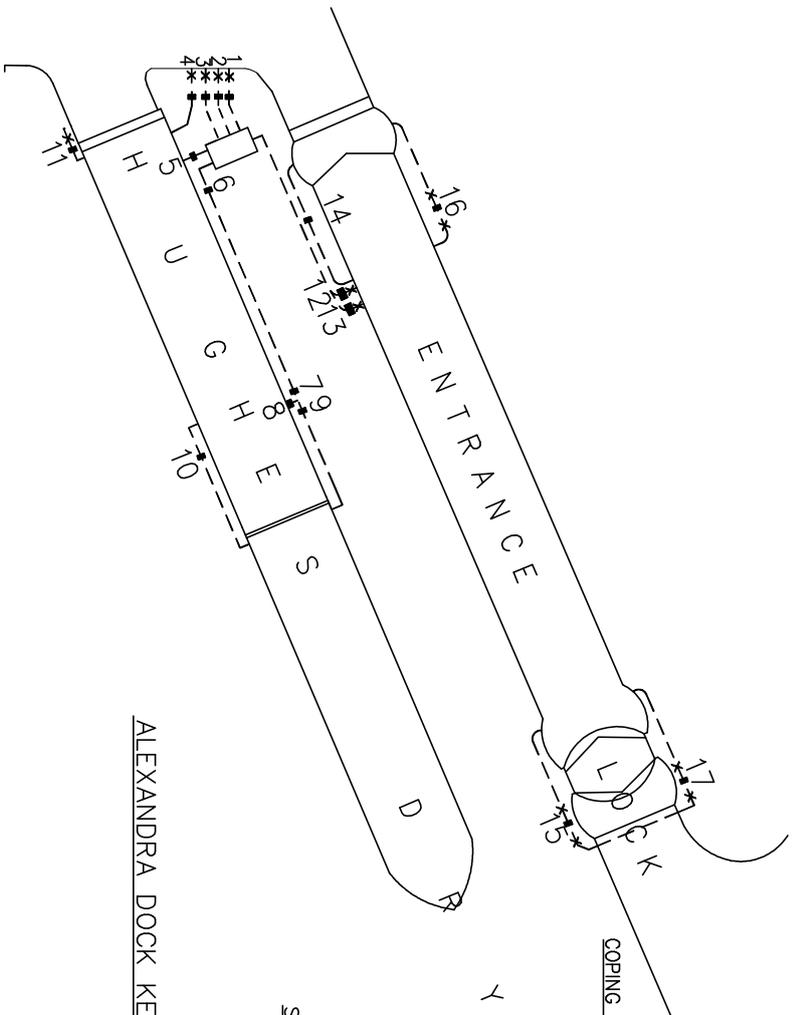
DRAWN: S.V.LONDHE DATE: 16-08-2012 SCALE: N.T.S

DESIGNED BY: CHECKED BY :

APPROVED BY: DRG.NO.

DY. CHIEF MECHANICAL ENGINEER ) IDS-18

REV.	DATE	DESCRIPTION	SIGN.



CULVERT SHOWN THUS K  
 SLUICES SHOWN THUS  $\square$   
 DUMMY PADDLES SHOWN THUS X  
 SIZE 8'-8" x 6'-10" x 1'-0"

SLUICE NO.	TOP F/BOLTS A	BOTTOM F/BOLTS B	BOTTOM F/BOLTS C
1 TO 4	81.375	74.25	72.90
10 TO 17	81.375	74.25	72.85
5	81.375	74.25	72.85
6 TO 9	79.875	70.50	69.05

DETAIL OF SLUICES AROUND H.D.D & ENTRANCE LOCK

SLUICE NO.	CULVERT DEPTH	SPEAR ROD LENGTH BETWEEN PIN	CYLINDER O/D x LENGTH B.F.	PISTON ROD DIA OVER COP - PER LENGTH	PISTON DIA x LENGTH	STROKE	PADDLE	'x' HEAD BRACKET CENTERS
1	38'-3"	19'- $\frac{1}{2}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
2	38'-3"	19'- $\frac{1}{2}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
3	38'-3"	19'- $\frac{1}{2}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
4	43'-9"	24'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
5	54'-6"	34'-11 $\frac{3}{8}$ "	1'-6 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	5 $\frac{1}{4}$ " x 1'-11 $\frac{3}{8}$ "	14" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-4"
6	56'-6"	33'-2 $\frac{3}{8}$ "	1'-8" x 10'-8 $\frac{1}{4}$ "	5 $\frac{1}{4}$ " x 1'-8 $\frac{3}{8}$ "	15 $\frac{1}{4}$ " x 7"	9'-11"	10'-5" x 6'-10" x 1'-0"	3'-4"
7	56'-6"	32'-8 $\frac{3}{8}$ "	1'-8" x 10'-8 $\frac{1}{4}$ "	5 $\frac{1}{4}$ " x 1'-8 $\frac{3}{8}$ "	15 $\frac{1}{4}$ " x 7"	9'-11"	10'-5" x 6'-10" x 1'-0"	3'-4"
8	56'-6"	32'-8 $\frac{3}{8}$ "	1'-8" x 10'-8 $\frac{1}{4}$ "	5 $\frac{1}{4}$ " x 1'-8 $\frac{3}{8}$ "	15 $\frac{1}{4}$ " x 7"	9'-11"	10'-5" x 6'-10" x 1'-0"	3'-4"
9	56'-6"	32'-8 $\frac{3}{8}$ "	1'-8" x 10'-8 $\frac{1}{4}$ "	5 $\frac{1}{4}$ " x 1'-8 $\frac{3}{8}$ "	15 $\frac{1}{4}$ " x 7"	9'-11"	10'-5" x 6'-10" x 1'-0"	3'-4"
10	45'-9"	26'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
11	43'-9"	24'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
12	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
13	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
14	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
15	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
16	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"
17	48'-9"	29'-6 $\frac{1}{4}$ "	1'-5 $\frac{3}{8}$ " x 8'-11 $\frac{1}{4}$ "	4 $\frac{1}{2}$ " x 1'-10 $\frac{3}{8}$ "	13" x 7"	8'-2"	8'-8" x 6'-10" x 1'-0"	3'-0"

TENDER DRAWING



MUMBAI PORT TRUST  
 CHIEF MECH. ENGINEERS OFFICE

SUBJECT: HUGHES DRY DOCK  
 TITLE: ALEXANDRA DOCK KEY PLAN

DRAWN: ASHISH DATE: 10-5-2011 SCALE: N.T.S  
 DESIGNED BY: CHECKED BY:  
 APPROVED BY: DRG. NO. A.D.H.-639  
 SUPERINTENDING ENGINEER (M)

1	2	3	4	5	6	7	8
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PRICE BID							
MP1/FABRICATION OF SLUICE VALVE/CMSRU				ENCL:2			
SL No	DESCRIPTION OF WORK	QTY	UoM	REMARKS	UNIT RATE	TOTAL RATE (QTY X UNIT RATE)	GST (%)
1	Hydraulic Cylinder with Manifold block Tube Material grade - ASTM A 106/Gr.B or STS2 Piston rod Material grade - EN 19. Rod hard chrome plating thickness - not less than 60 microns. Seal kit - Merkel/Hallite/Parker. Manifold block with check valve and Pressure relief valve  Specifications Aluminium Anode : AHW 119 (Net Wt. 10.3 kg) Working pressure : 150 bar (Testing Pressure 225 bar) Cylinder size - 275mm x 125mm x 3020mm for 3 valves - 250mm x 115mm x 2460mm for 1 valve	4	Nos	01 No for each valve	XX	XX	XX
2	Lifting beam arrangement including spear rods, cross heads and adapters						
	<b>Specifications</b> MS Fabricated Spear Rod. IS 2062 With connecting Pins (EN8).	8	Nos	02 Nos for each valve	XX	XX	XX
	Adaptor for connecting hydraulic cylinder to cross head. Size:- 170mm Dia x 720mm L. Material:- EN8(Hot Dip Galvanised)	4	Nos	01 No for each valve	XX	XX	XX
	Cross Head as per drawing/Existing Sample Size :- 7'3" x 1'5" x 1'5" . Material:- Steel Casting. IS 1030 Gr. 2	4	Nos	01 No for each valve	XX	XX	XX
3	Hydraulic Power pack with electrical panel. (a) Power pack for dewatering valves to have 4 valve output manifold (01 spare) (b) Power pack for flooding valve to have 2 valve output manifold (01 spare) <b>Specifications</b> Tank Capacity – 750 Lits (SS 304) with MS Stand. Hydraulic pump - 98cc VELJAN/ PARKER. Electric Motor - 3ph., 440 V, 50HP ABB/ Crompton/ Siemens. NG22 Directional/ Valve - Rexroth/ Parker/ Yvken Other accessories like pressure gauge (General/Omicron/Japsin)/ Oil level gauge/ air breather flat switch etc. Electric panel board. Pipeline with hydraulic hoses (Parker/Aeroflex) from cylinder to power pack (approx distance – 30 mtrs), Oil for flushing, testing, commissioning and operation to be provided by vendor.	2	Nos	01 No for Valve 7,8 &9  01 No for Valve 10	XX	XX	XX
4	Sluice Paddle as per drawing. Material:- Teak wood with Steel Casting brackets	4	Nos		XX	XX	XX
5	Installation at site and Commissioning of 4 nos sluice Valve	1	Job		XX	XX	XX
<b>TOTAL AMOUNT</b>						XX	
<b>GST</b>						XX	
<b>TOTAL AMOUNT INCLUDING GST</b>						XX	

Seal & Sign of Authorised Person

UN-PRICED BID						
MP1/FABRICATION OF SLUICE VALVE/CMSRU					ENCL.3	
Mention( Quoted/Not Quoted)						
SL No	DESCRIPTION OF WORK	QTY	UoM	UNIT RATE (Rs.)	TOTAL RATE (QTY x UNIT RATE) Rs.	GST(%)
1	Hydraulic Cylinder with Manifold block Tube Material grade - ASTMA 106/Gr.B or STS2 Piston rod Material grade - EN 19. Rod hard chrome plating thickness - not less than 60 microns. Seal kit - Merkel/Hallite/Parker. Manifold block with check valve and Pressure relief valve <b>Specifications</b> Aluminium Anode : AHW 119 (Net Wt. 10.3 kg) Working pressure : 150 bar (Testing Pressure 225 bar) Cylinder size - 275mm x 125mm x 3020mm for 3 valves - 250mm x 115mm x 2460mm for 1 valve	4	Nos			
2	Lifting beam arrangement including spear rods, cross heads and adapters <b>Specifications</b> MS Fabricated Spear Rod. IS 2062 With connecting Pins (EN8).	8	Nos			
	Adaptor for connecting hydraulic cylinder to cross head. Size:- 170mm Dia x 720mm L. Material:- EN8(Hot Dip Galvanised)	4	Nos			
	Cross Head as per drawing/Existing Sample Size :- 7'3" x1'5" x1'5" . Material:- Steel Casting. IS 1030 Gr. 2	4	Nos			
3	Hydraulic Power pack with electrical panel. (a) Power pack for dewatering valves to have 4 valve output manifold (01 spare) (b) Power pack for flooding valve to have 2 valve output manifold (01 spare) <b>Specifications</b> Tank Capacity – 750 Lits (SS 304) with MS Stand. Hydraulic pump - 98cc VELJAN/ PARKER. Electric Motor - 3ph., 440 V, 50HP ABB/ Crompton/ Siemens. NG22 Directional/ Valve - Rexroth/ Parker/ Yvken Other accessories like pressure gauge (General/Omicron/Japsin)/ Oil level gauge/ air breather flat switch etc. Electric panel board. Pipeline with hydraulic hoses (Parker/Aeroflex) from cylinder to power pack (approx distance – 30 mtrs), Oil for flushing, testing, commissioning and operation to be provided by vendor.	2	Nos			
4	Sluice Paddle as per drawing. Material:- Teak wood with Steel Casting brackets	4	Nos			
5	Installation at site and Commissioning of 4 nos sluice Valve	1	Job			
TOTAL AMOUNT						
TOTAL AMOUNT INCLUSIVE OF GST						

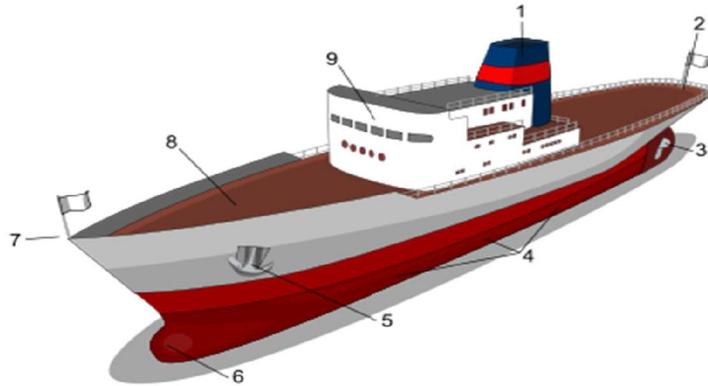
Seal & Sign of Authorised Person

**Rules for engaging contractor's workmen in CSL-MSRU**

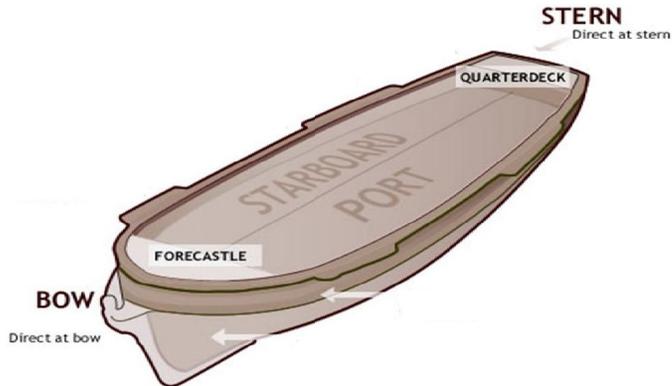
- I) The following labour statutory compliance measures should be followed by contractors working in CSL Mumbai Ship Repair Unit;
1. If the contractor is engaging 10 or above contract workmen, their firm must have independent establishment registration under EPF.
  2. If the contractor is engaging 10 or above contract workmen, their firm must have independent establishment registration under ESI.
  3. If the contractor is engaging less than 10 contract workmen and they are exempted under ESI/EPF, their workmen should be covered under Employee Compensation policy.
  4. The wage payment for workers should be disbursed through bank payment only and contractor have to submit monthly Challan for ESI Remittance ,EPF Remittance and bank statement of wage disbursement along with their monthly bills.
  5. If the contractor is engaging 20 or above contract workmen, they should take the Labour Licence under Contract Labour Contract Act.
- II) The contractor is solely responsible for complying ESI & EPF rules for contract workmen engaged by them for the work.
- III) It is mandatory to submit police clearance from Mumbai Police station to issue gate entry pass. Hence all the workmen belong to other states shall have to take police clearance from their respective home station to submit application form for obtaining police clearance from Mumbai Police Station.
- IV) Employee/worker deputed for the work shall not be over 58 Years of age.

**Seal & Sign of Authorized Person**

**BASIC SHIP TERMINOLGY**



- |   |                           |
|---|---------------------------|
| <b>1. Funnel</b>                                  | <b>6. Bulbous Bow</b>     |
| <b>2. Stern</b>                                   | <b>7. Bow</b>             |
| <b>3. Propeller</b>                               | <b>8. Deck</b>            |
| <b>4. Port Side [Right side "Starboard side"]</b> | <b>9. Super Structure</b> |
| <b>5. Anchor</b>                                  |                           |



# Cochin Shipyard Limited

Mumbai Ship Repair Unit  
QHSE Department



## HSE Hand book

## **Emergency Telephone Numbers**

**022-??????**

### **WHILE MAKE AN EMERGENCY CALL!!!**

Clearly State;

- What type of emergency (eg. Ambulance, fire/rescue etc)
- Where is the emergency ( eg: Repair dock – BY 90 – tank no. 2(p))
- Guide the emergency crew to the location
- Responsible person or supervisor must be with victim



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- 5. WORK AREAS IN CSL-MSRU**
- 6. RESTRICTED ENTRY AREAS IN CSL-MSRU**
- 7. GENERAL SAFETY GUIDELINES**
- 8. HSE GUIDELINES**
- 9. RESPONSIBILITIES OF CONTRACTOR**
- 10. REPORTING OF INCIDENTS**
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- 27. SLIPS, TRIPS AND FALLS**
- 28. FIRE**
- 29. GENERAL PERSONAL FACTORS LEAD AN INCIDENT**
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- 31. WASTE MANAGEMENT**
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- 33. FIRST AID**
- 34. COLOUR CODING WITH TYPES OF SERVICE MANIFLODS/PIPE LINES & ELECTRICAL DISTRIBUTION BOXES**
- 35. CONSEQUENCE MANAGEMENT**
- 36. SAFETY COMMITTEE**
- 37. STEPS TO REDUCE ENVIORNMETAL IMPACTS**

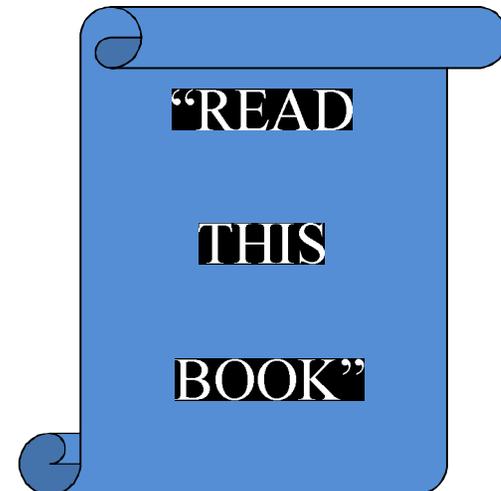
## **1. INTRODUCTION**

Cochin Shipyard Limited – Mumbai Ship Repair Unit (CSL-MSRU) places utmost importance on the safety of its employees on rolls, Partners, subcontractors & their workmen and Owners/ Classification societies and will do its best to provide and maintain a safe and healthy working environment.

The responsibility for safety does not end with the safety personnel. Every employee in the yard from the Managerial Grade down to the Workman level has a definite role to play their work is safe.

This Safety hand book has been compiled by QHSE Department for the use of all personnel working or visiting inside the yard.

This book does not replace the detailed requirements, safety rules in vogue practiced by CSL-MSRU, for further clarification on HSE requirements, QHSE team will guide you to work safely.



## 2. QHSE POLICY



**COCHIN SHIPYARD LIMITED**

**QUALITY, HEALTH, SAFETY AND ENVIRONMENTAL POLICY**

We are committed to provide ship building, ship repair services and training of marine engineers to the total satisfaction of customers. We undertake these in healthy & safe working conditions, an eco friendly environment and ensure continual improvement of management systems performance.

**We endeavour to achieve the above by:-**

- Meeting or exceeding customer requirements.
- Assuring quality of the products and services.
- Developing competent marine engineers.
- Preventing occupational ill health and injuries.
- Ensuring safe work sites.
- Conserving natural resources.
- Preventing / Minimising air, water and land pollution.
- Handling and disposal of hazardous wastes safely.
- Complying with statutory & regulatory and other requirements.
- Developing skills and motivating employees.

March 2016  
Issue & Revision No. A0 2

  
Chairman & Managing Director

## 3. HSE MANAGEMENT SYSTEM IN CSL-MSRU

### 3.1 QHSE Statement

The long-term business success of CSL-MSRU depends on our ability to continuously its performance in providing assured quality of the ship repair services. Enhanced the occupational health of the employees, Environment & safety, by following best practices within the organization and sustained environmental protection for the benefit of the society.

### 3.2 Health & Safety

CSL-MSRU strives to conduct all its activities in such a way as to prevent injuries and ill health to our employees, contractors and visitors. CSL-MSRU record and investigate all the incidents occurring in the work place in order to identify the cause and take necessary measures within the ship yard. CSL-MSRU achieving this by identifying the high risk hazards, eliminating or if not at least reducing the risk involved to acceptable level. CSL-MSRU take necessary measures to educating all people involved in ship repair activities on health and safety practices within the work place and off the job safely.

### 3.3 Environment

CSL-MSRU commitment to the Mother Nature is demonstrated through the ongoing effort to reduce the adverse impact on the environment and reinforcing the positive contribution. This is achieved by identifying the significant environmental aspects related to its activities and products and developing programs and processes to reduce or control them with an aim of protecting the environment.

## 4. SAFETY INDUCTION

All entrants to CSL-MSRU are made aware about basic CSL-MSRU requirements with respect to Health, Safety , Environment & Emergency Response. This training is imparted to all newly inducted CSL-MSRU Employee/ Trainees/ Contractors workmen, who will be engaged in ship repair/ maintenance / construction activities on installations. The individual passes will be issued only

after successful completion the HSE induction training programme.

#### **5. WORK AREAS IN CSL-MSRU**

- a. Dry dock – 305 X 30 X 15 meters
- b. Berth- 5,6,7 & 8 (Indira Dock)
- c. Shops

#### **6. RESTRICTED ENTRY AREAS IN CSL-MSRU**

Due to potential hazards, entry restricted to authorized persons in the following areas.

- a. Substations
- b. Flammable gas storage area
- c. Barricade the locations with warnings as and when required.

#### **7. GENERAL GUIDELINES**

- 1) Every individual is responsible and obliged to "Suraka Keliye Rukem" for the non compliance of 12 Silent Safety Rules published by CSL and this is to be performed as per the guidelines mentioned towards an interdependent safety culture.
- 2) Smoking is strictly prohibited
- 3) Unauthorized use of cameras and mobile phones in CSL-MSRU is forbidden.
- 4) Parking of vehicle is only in approved parking locations.
- 5) Priority is for Material Movement and private vehicles shall make way for material movement.
- 6) The use or possession or influence of non-prescription drugs, alcohol and the abuse of substances is strictly prohibited in CSL-MSRU.
- 7) Speed Limit of vehicle in the yard is 20km/Hr
- 8) Fishing is not permitted in yard
- 9) Everyone should observe and obey regulatory signs.
- 10) Use of mobile phones is strictly prohibited while at work and driving including while cycling.
- 11) Horse play is not entertained in CSL-MSRU. (Example: Direct compressed air or gas on any person)
- 12) Hiring or bringing the materials / equipments / machinery in CSL-MSRU premises to be followed as per the guidelines, Refer entry management system for

Hiring or bringing the materials / equipments / machinery (Annexure 4 - Entry Checklist for equipment and tools)

#### **8. HSE GUIDELINES**

- 1) Usage of Safety Helmet with chin strap, safety shoe and cotton working dress are compulsory at CSL-MSRU work site, in addition suitable PPEs which are job specific are to be used. (refer CSL- PPE'S Matrix)
- 2) Risk assessments of non routine works are to be done before the work is started and control measures identified before commencement of work. These measures are to be approved by CSL-MSRU officer In charge and confirm by QHSE Dept. These control measures are to be communicated to the workers involved through tool box talks. These works to be performed through Job Safety Analysis (JSA)(Refer Annexure 2)
- 3) Workers and supervisors engaged in the works shall be competent.
- 4) Supervisor In charge is to Brief the hazards and preventive measure related to the work to be carried out during daily tool box talks.
- 5) People are to be engaged in work activities preferable in group only. In case a person has to work alone, the same shall be known to at least two persons who are working nearby.
- 6) Using Paint tin, CO<sub>2</sub> welding cable bobbin and oil drums as working platform is strictly prohibited.
- 7) Thinner is not to be store in beverage bottles
- 8) Ensure necessary state of mind (eg: lack of proper sleep) by having rest at periodic intervals during extended working hours especially during night time.

- 9) Adequate precautions should be taken during welding or gas cutting against hazards such as electric shocks, burns, fumes, explosion and arc eyes.
- 10) Adequate ventilation should be provided while working in confined spaces.
- 13) Check and ensure the adjacent areas compartments are free from flammable hazards and suitable protections are taken before commencing hot work.
- 14) Never start hot work - cutting the bottom/side shell of ship from outside to inside.
- 15) During hot work at elevated positions, precautions should be taken to prevent sparks or hot metal slag falling on to the people or material below / nearby and suitable barricade to be done at the ground.
- 16) Industrial Oxygen is not to be used for ventilation purpose.
- 17) Simultaneous operations of Hot work and painting are not to be carried out in the same area.
- 18) Ensure that no hot work should be carried out in the presence of hydrocarbon fumes.
- 19) All electrical equipments including AC welding machine should be properly earthed.
- 20) Ensure that ELCB/RCCB is fitted on all Welding Machines and extension boards.
- 21) Ensure cables have sufficient current carrying capacity that is used for all electrical equipments/tools.
- 22) Voltage Reducing Devices (VRD) (Safety relay) must be fitted on AC welding Machines.
- 23) Never Bypass Safety Relay on AC welding machines
- 24) Electrical extension switch boards are in metallic construction with ELCB/RCCB & individual MCB. Only industrial type plug and socket to be used.
- 25) Only authorized persons are allowed to operate any machine/equipment / Switch boards. Unauthorized operation strictly prohibited. work on yard switch boards only allowed to CSL-MSRU electrical team.
- 26) Never tamper with machine guards.
- 27) Ensured that all portable equipments, welding transformers/rectifiers must be switched off after use.
- 28) 230 V hand lamps are not permitted in the yard. Use 110 V hand lamps in open area and 24 V hand lamps are to be used in confined spaces.

- 29) 24 V Flame proof lamps shall be used inside tanks where while there was hydrocarbon presence and during painting in confined spaces.
- 30) Users are to daily inspect welding cables, cutting hoses and hand tools must be used in the yard.
- 31) All the temporary electrical connection including connection of welding sets, distribution box etc shall be made with the approval of yard electrical safety officer
- 32) Excavated materials should be put away from the edge of the excavated trench to avoid slopping of the excavated materials into the trench.
- 33) Never enter into tanks without permit. Refer Confined space entry procedure.
- 34) People working in tanks or pits must acquaint with the hazard present there and supervisor should advise his employees of the hazards present and precautions that are to be taken.
- 35) Open manholes and places people are liable to fall, those areas must be protected by strong barricade with intermediate railings. Man hole covers should be replaced promptly when work is suspended.
- 36) Jumping from moving vehicle is prohibited. They should wait until the vehicle stop before attempting to enter or leave.
- 37) Any dangerous situation affects the safety of an employee or his fellow employees shall be immediately brought to the notice of site supervisor or reported to CSL-MSRU QHSE team.
- 38) Standing under suspended loads is dangerous and is avoided.
- 39) Compressed air should not be used to clean dust in the clothing.
- 40) Any kind of Gas cylinders (empty/full) should be secured in upright position and away from direct sunlight.
- 41) Air hoses, welding cables, fuel hoses and electric cables should not be allowed to lie across walkways and area they should be suspended from overhead hooks.
- 42) Inflammable liquids must be handled in cans or containers meant for storing it and are to be stored in space having good ventilation. All such containers must be clearly labeled and warnings exhibited visibly.

- 43) Material Handling Equipments to crane tracks through the authorized route only.
- 44) If a threat to any person's life is observed, anybody can clear the threat and wait for authorized rescue persons for further actions. Rescue operations should be done by authorized persons only.
- 45) Everybody should be responsible for housekeeping at their work site.
- 46) Avoid activity/action that leads to air/water/soil pollution.
- 47) All the pressure line joints must be connected with whiplash/whip sock arrestor.
- 48) Gas management for cutting operations to be complied as the procedure (Annexure 3- Gas management Procedure)

## **9. RESPONSIBILITIES OF CONTRACTORS**

- 1) The Contractor before starting any work in the CSL-MSRU premises will be issued with these CSL-MSRU HSE guidelines and firm is expected to give a declaration that he receives one copy of the CSL-MSRU HSE guidelines and will comply with laid therein.
- 2) The contractor should convey the HSE guidelines to his workers and make them aware through tool box talks.
- 3) A responsible safety Incharge is to be designated by the firm for the activities. The details of the safety Incharge shall be communicated to QHSE team. He shall take a lead to ensure safe work environment for their work sites.
- 4) CSL-MSRU reserves its right to suspend work in the event of the contractor not complying with the HSE guidelines with regarding to HSE practices for which no claim of any kind will be entertained.
- 5) To ensure the safe conduct of safety operation a representative of the contractor should maintain appropriate contact with the CSL-MSRU officer-in-charge of the work as may be necessary to acquaint himself with any changed conditions of other matters relating to the HSE performance.
- 6) The contractor shall ensure that all his employees understand their obligations and they follow all CSL-MSRU HSE rules.
- 7) It is the responsibility of the sub-contractor firm to provide their employees with all the necessary PPE'S.

- 8) The contractor is also responsible for controlling the behavior of his personnel and must control their movement to and from the work site.
- 9) The HSE plan of Contractor is detailed in the procedure. (Annexure -5 - Refer HSE Plan of Contractor)
- 10) For further clarifications on HSE matters, Contact CSL-HSE Officer.

## **10. REPORTING OF INCIDENTS**

All **injury incidents** to employees/ trainees/sub-contractors & their workmen/visitors/Ship staff occurring inside CSL-MSRU premises during the duty/after duty hours should be reported by supervisor to project manager. CSL-MSRU personal injury reporting form (CSL / SMS / S&F/ Form 02) to be initiated by the officer in charge of the area and reach to QHSE dept within 24 hrs.

Format of HSE Observations (near miss, property damage, suggestions, violation etc) other than personnel injury incidents shall be available at HSE site cabins/offices.

## **11. PERMIT TO WORK SYSTEMS**

The following activities must not commence unless obtaining issued work permits. (Refer PTW procedure annexure)  
The type of work permits are:

- 1) ON BOARD SHIP
  - a) Hot work (Oxy Acetylene cutting/Welding On Board Ships)
  - b) Painting / Buffing in Confined spaces (Brush/Spray paintings in Tanks/Confined Spaces/other compartments)
  - c) Electrical Shut down (Works on Electrical installation/Equipments)
- 2) INSTALLATIONS
  - a) Work at Height/fragile roof
  - b) Excavation/Trenches Opening (any)
  - c) Excavation/Fuel or electrical trench opening)

### 3) TYPES OF WORK THAT REQUIRE A PTW (STATUTORY)

- a) Radiography (NDT tests using Radioactive materials, Any Expose of radio Active materials)
- b) Electrical Shut Down (Works on Electrical installations/closed proximity of distribution system)

### 4) JSA FOR NON ROUTING WORKS

- a) Chemical cleaning - pipe line, tanks, equipment's and spaces etc.
- b) STP cleaning
- c) Tank testing by filling air(APT)
- d) Pressure testing of AC lines and plants
- e) Charging of Refrigerents
- f) Puff filling
- g) Use of liquid nitrogen
- h) Simultaneous Operations (SIMOPS )
- i) Fumigation
- j) Any Other works directed by the yard QHSE team

(Refer Annexure 2 -JSA)

## 12.PERSONAL PROTECTIVE EQUIPMENTS

Employees are responsible to wear appropriate PPE'S associated with hazards they are exposed to. All PPE'S must comply with approved Indian or international standards e.g: ISI, BS, DIN, ANSI or CE

Basic PPE'S requirement at CSL-MSRU Site.

- 1) Safety Helmet
- 2) Safety Shoes
- 3) Cotton Working dress
- 4) Safety Glasses or face shield or goggles.(appropriate to work)
- 5) Hand gloves appropriate to work should be worn
- 6) While welding PPE's like apron, gauntlet, leg guard, face shield should be worn
- 7) While grinding helmet with face shield should be worn
- 8) For further information refer PPE'S Matrix

## 13.HOUSE KEEPING

Good housekeeping is an important part of HSE management system; it is the responsibility of all personnel to maintain the highest possible standard of housekeeping in their work area.

This can be maintained by:

- a. Ensuring that the work place is tidy before commencing the task and at the end of a work shift or completion of the task.
- b. Ensure obstruction free access to all work places.
- c. All the waste generated during project taken back out from CSL-MSRU premises.

Items shall be stored in such a way that it is easily identifiable and traceable.

- d. Suitable control measures shall be ensured while storing of flammable materials and chemicals.
- e. The MSDS (Material Safety Data Sheet) of each chemical are to be displayed and known to all working there. Appropriate first aid and fire fighting measure are to be kept stand by in case of spillage on people handling it or during any fire.



## 14.WELDING & CUTTING

All welding and cutting operations must be carried out by qualified personnel while working inside the yard. While working onboard the vessel the work should be in accordance with the conditions specified in the work permit. The principal hazards associated with welding and cutting operations are

- Fire
- Explosions
- Burns
- Eye injury
- Respiratory disease.

Additional hazards which may result from arc welding are electric shock, ultra violet radiation.

Whenever, welding or cutting operations are being carried out, flammable materials should be removed from the area, where ever possible, and covered with a wetted fire retardant cloth should be placed in case the flammable materials cannot be removed.

### 14.1 Electric Arc welding

Check equipment thoroughly, all welding cables shall be fully insulated and periodically check for cuts that could accidentally "short" when in contact with an earthed section of any structure. Do not lay cables in water.

When connecting cable lengths together, only approved and insulated connectors shall be used. All cables and connectors must be of adequate current carrying capacity to perform the task.

Avoid lengthy cables if possible and lay between wooden blocks, or cover or hang the cables on hooks or stands to prevent tripping hazard. Only electrode holders specifically designated and fully insulated, and rated to handle the maximum current required by the task, should be used.

The arc produces Ultra-violet (UV) radiation. Exposure of UV radiation leads to reddening of the skin and irritation. The eyes are very sensitive to UV radiation, the effect varying from temporary to permanent damage of the retina.

Ensure VRDs (Safety Relay) & ELCB/RCCB are fitted on the AC welding transformers

All welders must wear the appropriate protective clothing, Gauntlet type welding gloves, leather aprons, leggings and correct shaded filter glass to suit the type of work and also all welding cable must be tested every 6 months.

### 14.2 Cutting Operations

Only proprietary fittings should be used on flexible gas line. Hoses must be fitted to the equipment using crimped fastening by double ear end clip or crimping and **not jubilee clips** which is prohibited by CSL-MSRU. The color code for Oxygen and acetylene hoses are black and red color Respectively. While checking for leaks, only "Soapy water" to be used. Only Acetylene and Oxygen gases are used for cutting operations.

While working with the gas cylinders flash back arrestors must be fitted at regulator and torch end, and non-return valve must be fitted between the hose and cutting equipment while working with the gas cylinders. Suitable ranged and Calibrated pressure gauges shall be fitted on at gas regulator area to check the cylinder and hose side pressure.



All cutting equipment must be removed from the vessels or enclosed spaces to open spaces/weather deck when not in use for a prolonged period of time ie, during breaks or end

of the shift. This will prevent the build-up of gas, if there are any minute leaks.

If the atmosphere becomes oxygen enriched due to leakage, the work area must be purged with fresh air and all clothing/flammable materials must be well ventilated to prevent the risk of spontaneous combustion. Gas hoses shall be disconnected from the manifold/cylinder for the stoppage of work on the day and to be locked at manifold or cylinder side.

All the gas hose must be tested every 6 months. Only oxygen and acetylene gas's are allowed inside the CSL-MSRU premises.

### **14.3 Gas Cylinders**

Before use, all gas cylinders must be fixed and secured in an upright position, and placed at a safe distance from any heat source.

When the cylinders are not in use, the valves must be closed. Prior to fitting the regulator, the valve should be opened slightly to blow away any dust or grit from the valve.

Oxygen regulator valves or fittings should be free of Oil and grease to prevent spontaneous combustion in the case of any oxygen leakage.

Cylinders should be kept and moved in purpose built trolleys, when attempting to move cylinders not mounted on trolleys, the regulators and hose must be detached.

If cylinders are to be lifted by crane, they should be secured in a special carrier. On no account they should be lifted by holding the valve as they are not designed to take the stress and no attempt must be made to lift them with chains, ropes or slings as there are chances for it to slip.

Oxygen cylinders and fuel gas cylinders must be stored well apart, at least 6 meters in open space, to prevent an explosive mixture forming from any leakage.

All fuel gases (Acetylene) whether full or empty, must be stored upright and not in a lying position they should be stored separately.

The cylinders should be shielded from direct sun light, or other heat source, to avoid the buildup of excess internal pressure. Valid certificates of cylinders shall be produced while bringing the cylinders to be yard.

### **15 SURFACE PREPARATION**

Surface preparation includes activities such as buffing, grinding etc. The control measures for these activities are discussed in the power tools section in this book.

Surface preparation is also done by blasting using iron shots, copper slag or high pressured water (hydro blasting). Suitable blasting suites, hoods with coolant tubes shall be used while doing such operation. Barricade with warnings to be erected while blasting operations are being carried out.

### **16 PAINTING**

Smoking or any hot working (welding/gas cutting etc) in the vicinity of painting activity is prohibited. Electrical equipments and fittings in the vicinity should be flame proof. For maintaining the air current, blowers should be used at one end and exhaust blowers at the other end.

While painting inside confined spaces, workers should wear air lines respirators with close fitting rubber masks and the equipments should be of the type that the user himself is able to regulate the air pressure.

A worker inside the confined space should be aided by one helper who could be contacted in case of an emergency through a suitable arrangement.

### **17 WORKING AT HEIGHTS**

A suitable means of access and egress must be provided for all working places which cannot be reached from ground level. All work places that are 2 meters or above and does not have a proper working platform, scaffolding are to be made available. All platform structures / scaffolding shall be only erected, altered or dismantled by the authorized scaffolder. The certified scaffolding will have a green tag near the access and if it is not certified, red tag is placed

near the access. Certification of scaffolding done by QHSE Team. Scaffolding requirements are



**Red Tag**



**Green tag**

The key points to be observed when erecting scaffolding are.

- The ground must be firm enough to carry the weight of the scaffold, and the load the scaffolding will be carrying.
- There should not be any gaps in the working platform
- Hand rails with mid rails at 1 meter and half meter height should be ensured for the working platform
- Access ladders shall be provided to reach the working platform. Access ladders are to be provided zig zag manner if the height is more than 2 meter.
- Toe boards must be provided on the working platform.
- Scaffolding materials must be inspected by CSL-MSRU QHSE team and it shall be made of MS.
- Secondary Platform must be place if the scaffolding height more than 6 meters.
- Scaffolding validity is 15 days from the issue date after 15 days re inspection must be requires.

### **17.1 Full body Harness**

When it is necessary to work in temporary work platform areas where it is liable to fall a full body harness shall be worn. The full body harness should be anchored on a rigid structure, and length of the lanyard should be minimized in such a way that the fall height will be minimal. Anchoring hook shall be of scaffold hook.



### **18 WORKING OVER WATER**

Where work takes place over or near water, the following precautions shall be ensured.

- Suitable hand rails shall be ensured to prevent fall of persons into water also full body harness must be worn
- Safety net shall be used wherever practicable.
- Buoyancy aids shall be made available near the work area.

### **19 CONFINED SPACE**

The term "Confined spaces" covers a great variety of workplaces which have limited access and inadequate ventilation. Confined spaces are therefore potentially dangerous places to work because workers may get trapped in hazardous concentration of toxic or flammable gases or vapors. Daily inspection of confined spaces to be done before commencing the operation on the day or shift and details are available at access of the space. Continuous monitoring of the space is required if situation warrants. (Refer CSL Confined space entry procedure for details)

Confined space is also liable to become deficient in oxygen. Very often the dangerous atmosphere can occur in confined space as a result of the work being done, for instance, welding, painting, and flame-cutting or the use of adhesives and solvents.

The following guidelines to follow while entering into confined spaces.

- Ensure adequate ventilation prior to entry and constant circulation while personnel are inside. Flameproof blowers shall be used where containing hydrocarbons in the spaces.
- Use only 24V hand lamps while working in confined spaces.
- Man Entry and Hot work certificates to be obtained from Petroleum and Safety Organization (PESO) while entry or do hot work in fuel tanks. (Refer CSL Confined space entry procedure)



## 20 HAND TOOLS AND POWER TOOLS

All personnel using hand or power tools shall be made aware of any dangers which may arise during their use. Adequate supervision must be provided to ensure that the use of such tools is correct and safely performed.



### 20.1 Hand tools

Hand tools are among the simplest of our work aids and the hazards associated with them are simple and well understood. Because of this simplicity, the safety precautions associated with them are often ignored or forgotten, to the users subsequent regret.

The main cause of injury is the general misuse of tools, the use of unsuitable or poorly maintained tool and improper storage. Injuries can of course be caused by breakage, it is therefore essential that only tools manufactured from the best materials by reputable tool companies are used. Misuse of tools causes many problems, the use of screwdrivers as chisels, spanners to hammer nails, and pliers to screw up or unscrew nuts are prime examples of this common misuse.



When working at elevated location, all tools should be placed in a tool box to prevent loose tools being dropped from the heights. Where there is a risk of injury from flying objects such as striking two hard surfaces together, e.g. hammer, chisel, punch or similar articles, better to wear an eye protection.

#### 20.1.1 Hammer

The faces of hammers should be kept clean and free from grease, and be of sound condition (not pitted or broken edged) and in good shape (Not mushroomed)  
Wooden shafts must be of the correct size and securely fixed to the hammer head with fitting wedges – They must be kept from oil and grease and undamaged. Crack or split shafts must not be used.

#### 20.1.2 Chisels and punches

There are several types of cold chisels and punches. These must be of good quality materials, properly maintained and inspected, especially for mushrooming of head. All chisels and punches should be dressed frequently to maintain a safe profile.

Cutting edges should be kept sharp to permit accurate working and to avoid the hazards arising from unnecessary hammer striking.

### **20.1.3 Files**

A file must never be used without a correct fitting handle; this is to prevent the tang from causing injury to the hand. Oil must never be applied to files; they must never be struck by other tools as they are brittle and will shatter. To maintain files when clogged with filings clean out the teeth with a file card or fine wire brush.

### **20.1.4 Screw Drivers**

Screwdrivers are probably the most common and abused of all the hand tools. When using a screwdriver, make sure that the blade fits the slot in the screw properly. Too large or too small a blade will damage the screw, and not work efficiently. Screw driver blades must be kept square and have a taper to the end.

The shanks are not designed to withstand twisting strain from pliers or grips, which are often mistakenly applied to obtain additional leverage on a stubborn screw. Never expose the blade to excessive heat as this alters the temper of the steel making it too soft or too brittle for this job.

Do not use screwdrivers as scrapers, chisels or levers and the handles may split if hammered. Serious puncture wounds can be sustained as the result of carrying screwdrivers in the pocket of clothing or coveralls.

### **20.1.5 Hacksaws**

When using hacksaws, select the correct blades for the work to be carried out. Thick materials require coarse blades to allow chippings to escape. Thin hard materials require a fine blade. Always ensure that at least three consecutive teeth are in contact with the work.

The blade should always be correctly tensioned in the frame, taut but not over tensioned. Use a steady, forward cutting

stroke with just sufficient pressure to cut through the material.

After use when the hacksaw is to be stored, the tension on the blade should be released, and re-tensioned before future use.

### **20.1.6 Spanners and wrenches**

Always select a spanner which exactly fits the nut or bolt head, never use packing pieces to make the spanner fit as they may slip, causing injury, and also damage the hexagonal contour of the nut or bolt head.

Open-ended spanners should not be tilted. Ring spanners are probably the strongest if they can be used in a particular situation, less chance of slipping.

Pieces of pipe or similar device must not be placed over the end of spanners as extensions to increase the torque.

When using adjustable wrenches, fit tightly against the faces of the nut or bolt head and apply the torque in the direction of the fixed jaw to prevent the spanner from opening.

Spanners and wrenches should not be exposed to excessive heat, or be ground in order to alter their shape as this may ruin the temper of the working parts.

Periodically inspect all spanners and wrenches for any signs of damage or wear. All worn or damaged tools should be discarded or where necessary, moving parts replaced.

## **20.2 Powered Portable Tools**

The efficient and safe use of all powered tools can come only through proper maintenance and from adequate supervision.

The power from this type of equipment is usually supplied from Compressed air or electricity.

### **20.2.1 Pneumatic Tools**

All compressed air hose must have standard hose couplings, never use jubilee clips or similar fittings. Tools require clean air and correct lubrication for smooth functioning of the same.

### **20.2.2 Electrical Tools**

All electrical hand tools shall be of double insulated and fiber body type. Portable electric power tools must not be used if any defect is suspected or any damage apparent. Repair and routine maintenance shall be carried out by trained and qualified electricians.

Only chuck keys of the correct type shall be used to operate chucks. Operators shall ensure that the key is removed from the chuck before operating the equipment and ideally, clipped to the cable to avoid improvisation.

### **20.2.3 Powdered Disc Grinders**

Powered disc grinders can be air or electrically driven. General operation applies equally to both types. The security of the disc and condition must be checked before attempting to use. Care must be taken to avoid knocking or sudden impact of the disc to prevent damage and possible disintegration of the disc. The RPM of the grinding machine should be lower than the RPM of the grinding disk

Disc that are chipped, out of true or out of adjustment must never be used. Apply the disc to the work piece and do not use excessive pressure. Allow the disc to come a stop before laying the grinder down. Impact protection must be worn.

Sparks from the disc may ignite flammable materials, or cause injury to personnel in the area.

### **20.2.4 Compressed Air**

Extreme caution must be used when using compressed air, as it is delivered at high pressure. Iron dust and rust particles may be present in compressed air. If it enters the body, it can rupture internal organs and cause serious injury and even death.

**Do not** attempt to clean off coveralls or clothing as it can force harmful particles through the skin.

## **21 WORKING ON MACHINE TOOLS AND MACHINERIES**

While working with Machine tools and machineries the following precautions should be taken.

1. Authorized persons should be allowed to use a machine tools and machineries
2. Suitable eye & hand protections shall be worn
3. Ensure sufficient illumination at the point of operation
4. In wood planing machines, Push sticks and push blocks should be used for guiding the wood to the planing machines
5. Stand at a safe distance from the machineries to protect the operator from kick backs, flying materials, moving machinery parts etc.
6. Switch off the machine after use
7. Ensure machinery guards in place
8. Ensure lubrication oil or coolants are not spillover near and on the machines.

## **22 HANDLING ELECTRICITY**

The main hazards in electrical works are electrocution, burns, fire and explosion.

1. All wires must be treated as live wires until it is positively known that they are dead
2. No repairs are to be made to electrical equipments by anyone except qualified authorized electricians.
3. Never use an electric light extension cord unless it has an approved insulated handle and standard lamp guard.
4. All portable equipments must be grounded
5. Always wear rubber gloves when working around circuits of 110 volts or above
6. Do not overload or overuse circuits
7. Before starting any repair works or resuming the supply after the repair on electrical installations, Clearance from proper authority should be taken.

8. Before resuming the power supply it should be ensured that the grounding of the line or equipment at the work spot has been removed and all men are off the line or equipment
9. If any one comes in contact with live wires or cable and becomes unable to release his grip on the wires, do not attempt to pull him off with bare hands. Shut off the current and protect the hands with rubber gloves or if they are not available, use thick fold of dry clothes to cover hands before attempting to release the victim. If wires are directly on top of the victim use a dry stalk to remove them

### 23 MANUAL HANDLING

Manual handling is a process where the person is prime source of power in moving material and equipment. It includes lifting, pilling, pushing, carrying or moving. Correct manual lifting and handling can help prevent strains and backaches. Once your back has been injured, that weakness can remain with you for the rest of your life.

To avoid injury, follow these guidelines:

**Asses the weight** of the load, get help if it is beyond your capacity use mechanical or hydraulic equipment.

**Size up the job** make sure you have a clear path way to where the load is going. Look for nails or splitters and wear gloves where appropriate.

**Adopt the correct stance** stand close to the object with your feet apart, giving a balanced position. One foot advance of the other, pointing in the direction you intend to move.

**Bend your knees** to a crouch position, keeping your chin tucked in and your back straight (not necessarily vertical)

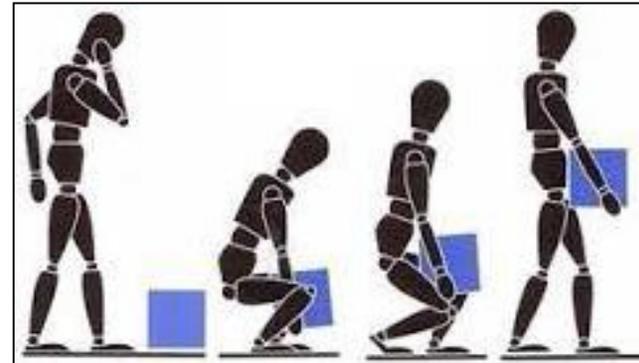
**Take a firm grip** with the palm and roots of the fingers and thumb, keeping your arms as close to the body as

possible. Keep your shoulders level and face the direction of travel.

**Lift with your leg muscles**, not back muscles. Carry out the lifting movements smoothly, do not jerk or twits.

**Utilize body weight** to create momentum and forward with the load.

**Use the reverse procedure when setting down the load.**



### 24 LIFTING OPERATIONS

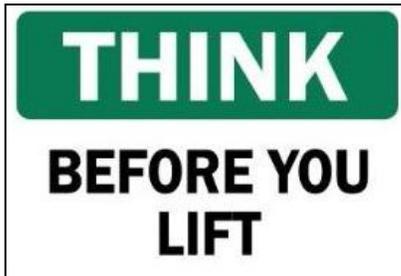
Lifting machineries such as cranes, winches hoists and other lifting tools and tackles include (wire rope sling, web sling, D Shackles, eye bolts chain block etc.) are widely being used in CSL-MSRU.

Lifting must, by its very nature, be regarded as a hazardous operation. The improper usage and inadequate maintenance of lifting tools and machineries may lead to serious consequence to life and property.

**Operational Guide lines are:**

1. Only authorized, competent persons are allowed to operate cranes.

2. Crane operators must only take instruction from designated rigger.
3. At no time should the crane be left unattended, even for short periods, unless all loads have been removed, the power off and brakes are to be applied.
4. Crane and Transporter (Commeto) within CSL-MSRU area must be accompanied by a rigger or banks men, they will guide the movements safely.
5. Do not use rigging and slinging unless you have been trained and instructed to do so.
6. Use correct lifting hooks – fitted with safety latches or shaped to prevent accidental displacement of slings.
7. Position the lifting hook over the load as to prevent the load swinging when it is raised.
8. Do not tie a knot in a chain to make it shorter, or attempt to drag if from under a load.
9. Check wire ropes for kinks, signs of wear and broken wires.
10. All lifting equipment must have valid test certificates issued by competent person.
11. All lifting equipment must be test once in a year.



**Wire rope - Lifting chart**

Wire Rope Diameter		Single leg Sling	Two legged Sling with different included Angles				
Inch	m.m		0°	30°	40°	90°	120°
		Kg.	Kg.	Kg.	Kg.	Kg.	Kg.
5/16	8	530	1060	1040	930	760	530
5/8	9	770	1540	1490	1340	1090	770
	10	900	1800	1750	150	1280	900
7/16	11	1030	2060	2010	1800	1470	1030
	12	1180	2360	2300	2060	1680	1180
1/2	13	1350	2700	2590	2320	1900	1350
9/16	14	1720	3440	3330	2990	2420	1720
	15	1920	3840	3720	3340	2720	1920
5/8	16	2120	4240	4110	3690	3010	2120
11/16	17	2570	5140	4980	4470	3650	2570
	18	2820	5640	5470	4900	4000	2820
3/4	19	3050	6100	5920	5310	4230	3050
13/16	21	3570	7140	6920	6210	5070	3570
7/8	22	4100	8200	7950	7140	5820	4100
	23	4400	8800	8540	7650	6240	4400
15/16	24	4740	9480	9200	8250	6720	4740
1	25	5120	10310	10020	9110	7200	5120
	26	5850	11700	11340	10180	8310	5850
1.1/16	27	6270	12540	12170	10940	8910	6270
1.1/8	29	6770	13510	13140	11800	9610	6770
	30	7790	15540	15100	13540	11050	7790
1.1/4	32	8380	16760	16260	14600	11900	8380
	33	9230	18460	17900	16080	13100	9230
	34	9650	19300	18720	16800	13700	9650
1.3/8	35	10170	20340	19720	17700	14420	10170
	36	10730	21460	20860	18700	15250	10730
	37	11430	22860	22200	19960	16230	11430
1.1/2	38	12100	24200	23440	21000	17200	12100
	39	12780	25560	24800	22200	18150	12780
	40	13470	26940	26160	23440	19100	13470
1.5/8	41	14220	28440	27600	24800	20200	14220
	42	14980	29960	29000	26100	21300	14980
	43	15750	31500	30600	27400	22400	15750
1.3/4	44	16520	33040	32000	28800	23500	16520
	46	17620	35240	34200	30600	25000	17620
1.7/8	48	18970	37940	36800	33000	26950	18970
	51	21520	43040	41700	37400	30600	21520
	53	22870	45740	44400	39800	32500	22870
2.1/8	54	24400	48800	47300	42500	34700	24400
2.1/4	57	27270	54540	52800	47300	38700	27270
	59	28280	56560	54800	49300	40200	28280
2.3/8	61	30320	60640	58800	52800	43200	30320
	63	32520	65040	63100	56600	46200	32520
2.1/2	64	33700	67400	65300	58700	47800	33700
	65	34700	69400	67300	60400	49300	34700
2.5/8	67	37080	74160	71800	64500	52600	37080
	69	39450	78900	76500	68700	56000	39450
2.3/4	70	40820	81640	79200	71000	58000	40820
	71	42000	84000	81500	73100	59600	42000
2.7/8	73	44700	89400	86600	77700	63500	44700
	75	47250	94500	91600	82200	67200	47250
3	76	48600	97200	94200	84500	69000	48600
	77	49800	99600	96600	86700	70700	49800
3.1/8	79	52700	105400	102500	91300	74800	52700
	81	54870	109740	106500	95500	78000	54870
3.1/4	83	56900	113800	110500	99000	80800	56900

**Web sling colour chart**

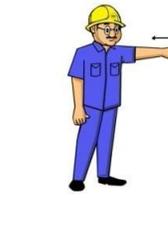
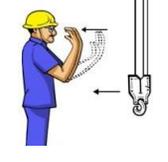
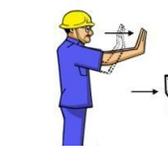
Color	WLL (Straight lift)
Violet	1 ton
Green	2 tons
Yellow	3 tons
Grey	4 tons
Red	5 tons
Brown	6 tons
Blue	8 tons
Orange	10 tons or above

**Web sling lifting chart**

WLL	Lifting method	SWL IN KG WITH ONE WEBBING SLING					SWL IN KG WITH TWO WEBBING SLINGS			
		straight	choke	basket, inclination angle §			angle of inclination §			
				up to §=7°	up to §=7°-45°	from-to §=45°-60°	straight up to §=45°	choke up to §=45°	straight from-to §=45°-60°	choke from-to §=45°-60°
Art. No.	Factor	1.0	0.8	2.0	1.4	1.0	1.4	1.12	1.0	0.8
HFS01	1000kg violet	1000	800	2030	1400	1000	1400	1120	1000	800
HFS02	2000kg green	2000	1600	4030	2800	2000	2800	2240	2000	1600
HFS03	3000kg yellow	3000	2400	6030	4200	3000	4200	3360	3000	2400
HFS04	4000kg grey	4000	3200	8030	5600	4000	5600	4480	4000	3200
HFS05	5000kg red	5000	4000	10030	7000	5000	7000	5600	5000	4000
HFS06	6000kg brown	6000	4800	12030	8400	6000	8400	6720	6000	4800
HFS08	8000kg blue	8000	6400	16030	11200	8000	11200	8960	8000	6400
HFS010	10000kg orange	10000	8000	20030	14000	10000	14000	11200	10000	8000

**25. BASIC RIGGING SIGNALS, TACKLES AND METHODS**

COMMON			
Hoist up		Hoist lower	
Hoist up - slow		Hoist lower - slow	
Stop - motion is finished		DOG everything - pause the motion	
Emergency stop -			

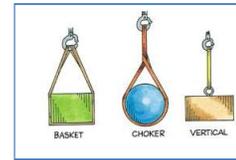
EOT cranes			
Long travel - Right		Long travel - Left	
Cross travel – Towards operator		Cross travel - Away from operator	



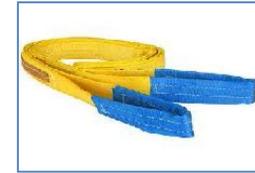
**Bow and D shackle**



**Wire rope slings with thimble**



**Slinging Methods**



**Web sling**

## 26.DOCKING & UNDOCKING

Docking and undocking of the ship is one of the major activities in the yard. The following precautions are to be taken.

1. Docking and Undocking operations should be done only with the guidance of the dock Master, pilots or authorized person from CSL-MSRU.
2. Pre requisite checklist to be filled cleared by CSL-MSRU project manager.
3. Tugs or suitable supports should be ensured
4. Tide level, List and Trim of the vessel level, docking plan and water currents to be taken care of while planning the docking & undocking
5. Gangways shall be placed in a safe manner after the positioning the vessel
6. Good condition of mooring ropes shall be ensured
7. Suitable floating life vest to be worn if any chance of fall into water bodies.
8. Docking and undocking checklist must be followed for each project.

## 27.SLIPS, TRIPS AND FALLS

A large portion of injuries at work are caused by slips, trips and falls. Whether on the same level or from height, fall can occur in all kinds of work places and under a range of different conditions.

Some of the common reasons for Slips, Trips and fall are:

1. Poor flooring
2. Unsuitable foot wear
3. Slippery surfaces
4. Obstruction in walk ways
5. Poor lighting or restricted vision

6. Undue care and attention.

The biggest contribution you can make in preventing such accidents is by keeping your work-area clean, tidy and free from obstructions.

Also:

1. Use proper routes and walkways. Avoid short cuts
2. Make sure that any temporary opening in walkways is secularly fenced off. On completion of work, replace grating and covers securely.
3. Report to your immediate supervisor whether there are damaged or obstructions on floor surfaces, lack of handrails and fencing as well as inadequate illuminated areas
4. Correct use of ladders – firm level surface, secured at the top and extended beyond the step-off point or adequate separate handhold.



## 28.FIRE

### a. Basic chemistry of fire

Any fire, once it starts, will continue to burn as long as there is something to burn and oxygen is present. There must be reasons for a fire to start and the way it burns. There are

reasons for certain substances to be more or less flammable than the others.

### b. The nature of fire(combustion)

The combination of a substance with oxygen is called an oxidation process. It is a chemical process. Energy is given off during this process, usually in the form of heat. The oxidation process in case of a fire or combustion is rapid. The burning substance combines with oxygen at a very fast and high rate. Production of energy in the form, of heat and light is rapid, so we can feel the heat and see the light as flames.

### c. Elements of fire

The essential requirements of a sustainable fire (combustion) are the presence of three elements, i.e. FUEL, HEAT and supply of free OXYGEN, usually in air (formation of fire triangle).

### 28.1 Fire Prevention

Prevention is the best form of defense. Fires can be prevented by following some simple rules.

1. **Don't** let rubbish or items accumulate in one area, especially under stairs.
2. **Don't** overload electrical outlet sockets
3. **Don't** use make shift wiring extensions
4. Hot works carried out onboard vessel only through Permit To Work.
5. Lighting of incense and candle is not allowed inside your room.
6. **Don't** store any flammable items inside the room unless it is meant for.
7. **Don't** hang clothes to electrical equipments such as fans, AC and in the corridors. Always keep Entry/exit clear.
8. Suitably designed equipment and its installation (intrinsic safety).
9. Inspection and maintenance of equipment and electric circuits.
10. Maintaining and properly using portable equipment and flexible cables.
11. Adopting safe working practices and procedures

## 28.2 Discovery of fire

On discovering of fire, your prompt action could save lives:

- Warn all personal in the area by fire, fire, fire
- Use first aid fire fighting appliances in that area.
- If it is not possible, call CSL-MSRU fire service.

**Remember: - Firefighting equipment must not be tampered with and must be kept clear of all all obstruction**

## 29.GENERAL PERSONAL FACTORS LEAD AN INCIDENT

The following personal factors are to be taken care of and they should be more vigilant while on duty, otherwise it may lead to incidents.

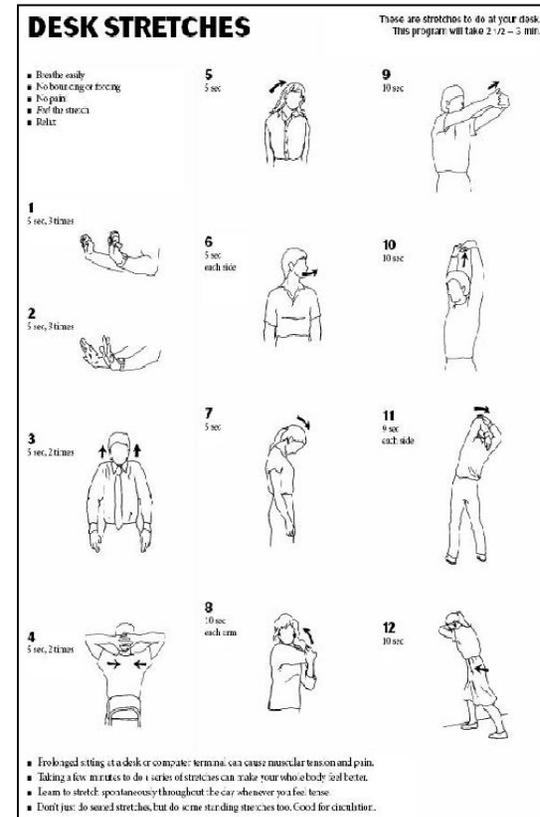
1. Ensure sound sleep.
2. Eat sufficient breakfast.
3. Avoid over eating
4. Sickness suffered by any family member or near & dear ones(Frustration)
5. Acute financial crisis
6. Quarrel with others (Emotional disturbance)
7. Over confidence
8. Influence of medications
9. Fatigue due to lack of rest

## 30.OFFICE SAFETY

1. Don't stand and talk in front of closed doors which may open suddenly.
2. Walk cautiously around blind corners
3. Sit squarely on office chairs, and not on the edge of them.
4. Running at any time in an office may result in injury from slipping, tripping or collision. Avoid running in offices.
5. Walk slowly and cautiously up and down stairs. Use hand rail where possible.

6. The gummed strips on envelopes should not be moistened with tongue.
7. Office employees wearing high heeled shoes shall exercise extra caution to prevent falls.
8. Don't use lift in case of fire.
9. While lift break down, shout for help or make call to CSL-MSRU Emergency number for help

## Desk stretch exercise for continuous use of computers



## 31.WASTE MANAGEMENT

A waste is a material which is discarded or intended to be discarded.

### **Waste identification and classification**

Type of Wastes are classified in CSL-MSRU activities

1. Waste Oil/Oil Sludge
2. Oil soaked cotton waste
3. Used copper slag
4. Empty paint drums
5. Zinc Anodes
6. Used Batteries
7. Electronic Waste
8. Steel Scrap
9. Industrial Waste
10. Cut Cable

### **Waste disposal policy**

1. No dumping of items in the yard premises and same shall be taken out from the yard as per the QHSE requirement.
2. Respected vendor /agency is the responsible to dispose the waste according to state statutory requirements.

## **32.OCCUPATIONAL HEALTH**

Occupational health deals with man (both physically and mentally) in relation to his work and work environment. The employees are exposed to various levels of health hazards, life style diseases and the various physical and chemical hazards. Proper awareness about the health hazards is a required for an employee to lead a healthy life

The various measures to be taken for reducing Health hazards are:

1. Employees who are involved in handling hazardous chemical, gases and other substances should be made aware about its

health hazards and the precautions to be taken in handling these hazards.

2. The MSDS of the chemical being handled should be made available to the workers.
3. Statutory Periodical health checkups should be done by the company
4. Non statutory health check up should be done at least once in two years in order to detect Life style diseases such as High Cholesterol, Diabetics, Blood pressure, allergies to any chemical or substances etc
5. Employees should maintain all his medical records and should be made available in case of an emergency.
6. Stress of employees that is either job related or caused by various personal factors also can lead to accidents and subject the victim to various diseases.

## **33.FIRST AID**

First aid is the immediate emergency care / treatment given to the victim of an accident or sudden illness, till medical aid is available.

### **Aims of first aid**

- a) To preserve / save life
- b) To prevent further injury & worsening of casualty's condition
- c) To promote recovery

### **Ten Commandments for first aiders**

1. reach the accident spot quickly
2. be calm and speedy
3. ensure safety of the place
4. look for life threatening conditions first
5. give FA in the order of priority
6. reassure the casualty if conscious
7. clear the crowd
8. do not leave the casualty alone
9. arrange for safe transport
10. do not attempt too much / do no harm

**Look for condition of the victim in the following order**

1. is the victim conscious
2. is the victim breathing
3. is there severe bleeding
4. is the victim in shock
5. is the victim in pain

**33.1. Control of bleeding**

1. Apply direct pressure over the wound
2. Cover wound with sterile dressing and bandage firmly
3. Raise the injured part above level of heart
4. Apply pressure over pressure points
5. Immobilize the injured part
6. Look for signs of shock
7. Send to hospital in lying down position

**33.2 Fracture**

Suspect fracture when there is tenderness, swelling, deformity, abnormal movements etc.

1. Control any bleeding and cover any wounds
2. Do not move the casualty unless life is endangered
3. Immobilize the injured area as well as the joints above and below using suitable splints
4. Call for ambulance to send to hospital

**33.3 Burns**

1. If clothing on fire—stop, drop and roll
2. Cool the burnt area by holding under cold running water for at least 10 minutes
3. Do not apply ointments, oils or any other substance
4. Cover the wound with sterile non-sticky dressing
5. Call for ambulance

**33.4 Eye injuries**

1. Removal of foreign body should not be attempted
2. Do not apply ointment or oil
3. Apply sterile pad and loose bandage
4. Send to hospital

**33. 5 Chemical burns of the eye**

1. Immediate washing of the eye with clean water continuously for at least 20 minutes
2. Apply sterile pad and bandage
3. Send to hospital.

**33.6. Suffocation**

1. Remove the casualty from the site of accident to safe area to get fresh air
2. Clear the airway
3. Restore breathing by artificial respiration
4. Send to hospital

**33.7 Electric shock**

1. do not touch the casualty while he is still in contact with live source
2. switch off the power immediately
3. do not attempt first aid until the contact has been broken
4. check response and breathing
5. give cardiopulmonary resuscitation(CPR) if the casualty is unconscious and is not breathing

**33.8 Unconsciousness**

1. Check response
2. If no response look for breathing
3. Start giving CPR if unresponsive and is not breathing
4. If breathing is normal , keep the casualty in recovery position till he gets medical attention

**33.9 Chest pain**

1. If casualty is conscious, keep him in half sitting position and advise to take rest
2. If unconscious, check D.R.A.B.C (Dangerous, Response, Airway, Breathing and Circulation) and start giving CPR if necessary  
Call for ambulance and continue CPR till he gets medical help or show signs of life.

**33. 10 Cardiopulmonary Resuscitation (CPR)**

CPR is the emergency first aid procedure done when the casualty is unconscious and not breathing.

CPR maintains flow of oxygenated blood to the brain and the heart, thereby delay tissue damage, so that more definite treatment will be effective

If you see a motionless person, follow the steps below

1. Assess the area for any safety hazards before proceeding
2. Check the response by shaking the shoulders and calling loudly
3. If there is no response, open the airway by head tilt and chin lift
4. Check for breathing by looking rise and fall of chest wall for 5 to 10 seconds
5. If there is no breathing start giving CPR

CPR consists of artificial circulation & artificial respiration given at regular sequence. CPR is effect only if performed within 4-5minutes of the stoppage of blood flow. CPR sequence of steps is now

## C-A-B

**C**- Chest compression

**A**- Airway

**B**- Breathing

### **Chest compression**

1. Place the heel of one hand at the centre of lower part of chest and place the other hand on top of the first.
2. Begin chest compression – push hard and push fast
3. The rate of compression should be at least 100 per minute.
4. Depress the chest at least 2 inches(5 cms) and allow full recoil of chest wall before next compression
5. Give 30 compressions at one stretch
- 6.

### **Air way opening**

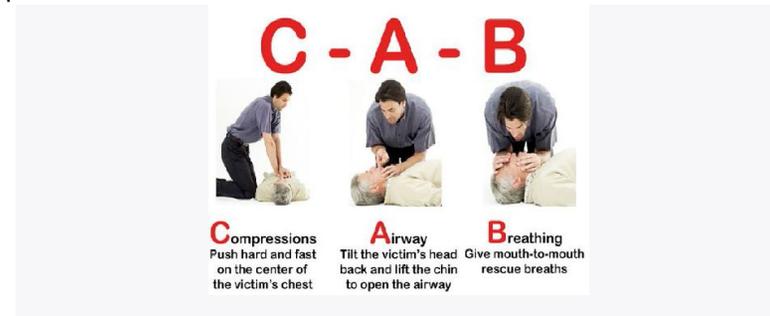
1. Open airway by head tilt and chin lift
2. Check breathing by watching rise and fall of chest wall for 5 to 10 seconds.

### **Breathing**

1. If the casualty is not breathing, give two rescue breaths in two seconds.

2. Continue CPR by giving 30 chest compressions followed by 2 rescue breaths

Continue CPR until there are signs of life or until emergency medical personnel take over



## 34.COLOUR CODING WITH TYPES OF SERVICE MANIFOLDS/PIPE LINES & ELECTRICAL DISTRIBUTION BOXES

### **CONSEQUENCE MANAGEMENT**

The purpose of consequent Management is to provide a fair and consistent approach to dealing with every ones conduct, behavior and/or performance falls below acceptable standards or regulatory requirements. It will apply whose conduct, behavior and/or performance falls below acceptable standards or regulatory requirements will be subject to corrective action.

Everyone is expected to conduct themselves in a manner which conforms to HSE standards of workplace behavior and conduct. When a violation of an established standard occurs, cases will be investigated thoroughly and disciplinary action will be administered on the merits of each case.

## 35. SAFETY REVIEW MEETING

Safety review meeting conducted every month to address any deficiencies and improvement opportunities in the system are being discussed in a constructive manner and necessary measures needed to improve it.



This meeting will be chaired by unit head, execution and QHSE team will be part of the meeting. Secretary of the meeting is a from QHSE team.

### **36.STEPS TO REDUCE ENVIRONMENTAL IMPACTS**

- Continual Improvisation of the system to reduce the use of natural resource (Eg: Electricity, water, paper) in CSL-MSRU.
- Continual Improvisation of the system to reduce the pollution resource (Eg: air, water and soil) in CSL-MSRU.
- Promotion of use of environment friendly materials in CSL-MSRU.
- Action to reduce any leakage of water in CSL-MSRU. If water leakage is observed in your area, report immediately.
- Avoid Improvised connections and use of standard leak proof couplings for getting water.
- Electrical equipments to be switched off when it is not use.
- Promote the use of one side paper in offices.
- Avoid dumping oil or paint sludge directly in sea water.
- Paint drums, oil drums, blasting materials etc. are to the taken away from the dock floor before flooding the dock and area will be cleaned.



## 12 SALIENT SAFETY RULES



DISCUSS WORK RELATED SAFE OPERATING PROCEDURES IN DAILY TOOL BOX MEETING (TBM)

COMPLY WITH PERMIT TO WORK PROCEDURE



PUT UP APPROPRIATE WARNING / CAUTION BOARD IN YOUR WORK PLACE TO NOTIFY UNSAFE CONDITION TO FELLOW WORKERS

MAINTAIN CLEAR & SAFE ACCESS TO WORK PLACE



USE CERTIFIED SCAFFOLDING

SECURE FULL BODY HARNESS WHEN WORKING AT HEIGHT



OBTAIN DAILY SAFE ENTRY PERMIT BEFORE ENTERING CONFINED SPACE & COMPLY GAS MANAGEMENT

USE ELECTRICAL EXTENSION BOARDS WITH ELCB



USE TESTED & CERTIFIED LIFTING TOOL & TACKLES, GAS HOSES AND ELECTRICALLY OPERATED TOOLS

PROTECT YOURSELF BY WEARING APPROPRIATE PPE'S AT WORK



GOOD HOUSEKEEPING PROMOTES QUALITY, PRODUCTIVITY AND HEALTH, SAFETY & ENVIRONMENT



PROTECTIVE CLOTHING

SAFETY SHOES

DON'T LEAVE LOOSE MATERIALS AT WORK SPOT WHERE LIKELY TO FALL & DON'T STAND UNDER SUSPENDED LOADS



DON'T CARRY OUT HOT WORK AND PAINTING WORK SIMULTANEOUSLY

DO NOT USE MOBILE PHONES WHILE DRIVING OR CARRYING OUT WORK ACTIVITY



The 12 Salient Safety Rules are the fundamental safety standards expected from everyone in CSL rolls, Partners, Subcontractors & their workmen and Owners/Classification societies to comply with, at all times

When work does not comply with 12 Salient Safety Rules:-

Every individual is responsible and obliged to request for

“सुरक्षा केलिए रुकें”

### “WHAT TO DO” FLOW CHART

Observation of Non-Compliance  
[Violation of 12 Salient Safety Rules]

Request for “सुरक्षा केलिए रुकें”  
[Intervention to “STOP” the Immediate Danger]

Do a Safety Conversation  
[Gentle Re affirmation]

Restart after Corrective actions  
[Corrective actions to be verified]

Safety & Fire Services Department



**"Protect our earth"**

**"They are waiting you at home"**

Paste your family photo here

## Special Terms & Conditions

1. The contractor shall quote in the price bid format only and submit along with signed copy of agreed terms and conditions.
2. Period of contract:
  - Dummy paddles shall be fabricated and supplied at CMSRU stores within 25 days from issue of PO
  - Sluice paddles shall be fabricated and supplied at CMSRU stores within 45 days from issue of PO
3. **Offer Validity:** The offer should be valid for a minimum period of three months of date of submission of offer.
4. L1 bidder will be identified based on the item wise lowest of total. Final selection of L1 vendors may CMSRU decision.
5. **Guarantee period:** The equipment supplied shall be guaranteed for satisfactory performance for 12 months from the date of commissioning or 18 months from the date of delivery of items whichever is earlier against faulty design, defective materials and bad workmanship. Supplier should supply and install free of cost immediately any part found to be defective for the above reasons within the guarantee period. The Service shall be guaranteed for a minimum period of 06 months from the date of successful commissioning.
6. **Delivery address:** COCHIN SHIPYARD LIMITED, CSL- Mumbai Ship Repair Unit (CMSRU), Hughes Dry Dock Office Building, Yellow gate, Shoorji Vallabhdas Road, Fort, Mumbai, Maharashtra-400001. Contact details: Loganathan.M, Manager, 8129600937
7. **Terms of Payment:** 100% payment within 30 days will be released against work order after completion of the entire scope of work mentioned in the respective work order to the full satisfaction and acceptance of the Officer-in-charge of CMSRU and on furnishing bill in triplicate.
8. The work is turnkey in nature. All materials required for undertaking the work to be arranged by the contractor within quoted cost.
9. Fabrication of paddle shall be as per the drawing and shall not have any deviations in the dimensions.
10. Firm shall submit detailed plan of action for execution of the work. Fabrication of paddle shall be inspected by CMSRU representatives, if required.

11. Firm shall submit the details of all materials used for fabrication for review and approval of CMSRU.
12. Firm shall have all required infrastructure, tools, equipment etc., for undertaking fabrication works.
13. Bidders are expected to inspect the site to know the nature of work and site conditions with prior intimation to Officer-in-charge. Old paddles are available at site which shall be inspected for reference. The new sluice paddles manufactured shall be completely suitable for installation in the respective sluice systems.
14. Marine grade paint scheme shall be applied to all metal parts of the paddle. Paint scheme shall be submitted to CMSRU for review.
15. **Work Experience:** The bidder must have the work experience for executing similar type / nature of work during the last 3 (three) preceding years preferably for public sector undertaking / Government establishment or reputed private establishment. Proof of the satisfactory performance from the previous employer to be provided.
16. **Pre-Qualification Criteria:**
  - i) Average Annual financial turnover during the last 3 years, ending 31st March 2021 of the previous financial year should be at least 58 lakhs.
  - ii) Experience of having successfully completed similar works during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following,  
Three similar completed works costing not less than the amount equal to 77 lakhs.  
Or  
Two similar completed works costing not less than the amount equal to 97 lakhs.  
Or  
One similar completed works costing not less than the amount equal to 1.16 Crores.

Similar work means firm should have experience in any type of heavy fabrication works in a reputed organization. Work orders to be attached for verification process.
17. **Liquidate Damages:** LD at the rate of 0.5 % of the contract value per week or part thereof subject to a maximum ceiling of 10 % of the contract value, will be deducted from the contractor's bill, in the event of failure of the contractor to complete the work within the stipulated completion period or by the expiry of any extension period granted by CMSRU.
18. **Bank Guarantee:** The successful bidder shall agree for 3% of total order value (excluding taxes and duties) as Bank guarantee towards the Guarantee clause. The Bank Guarantee as above should be initially valid till 90 days after completion of supplies (within the validity of initial BG) to cover the guarantee period mutually agreed plus 90 days.

19. Freight: Quotation should be door delivery at CMSRU with inclusive of freight/packing and forwarding cost as per the price bid format
20. Firms shall mention their PAN No., GSTIN No , EPF No. & ESIC/E.C No in the offer.
21. Indemnity: Notwithstanding that all reasonable and proper precautions may have been taken by the contractor at all times during the progress of the work, the contractor shall nevertheless be wholly responsible for all damages, whether to the works themselves or to any other property or to the lives or persons or property of others during the progress of the works and period of maintenance.
22. All applicable taxes, duties, transportation, loading, unloading and port clearance etc. should be included in the rate quoted, unless specified otherwise.
23. The contractor shall have to provide all the required tools, tackles, testing equipment, machinery, vehicles for transportation, loading, unloading etc for carrying out subject work within the quoted price.
24. Dock entry permits for movement of man and material in and out of dock shall be arranged by contractor. Necessary recommendations for the dock entry permit will be issued by the CMSRU.
25. CSL safety procedures to be followed for entire period of work by contractor.
26. Electrical power: The contractor shall be allowed to tap/use electric power free of cost for subject work, if power supply is available at work site. However, contractor has to take all the safety measures.
27. The supplier shall get familiarize with exact scope and quantum of work before quoting for the same. Once offer received, it is deemed that the bidder has assessed the exact quantum of work and accepted all terms and condition for the subject work. Supply has to be carried out as per the direction of CSL officer- in-charge.
28. Inspection: Raw material shall be presented for inspection, CMSRU/CSL representative will verify prior to commencement of fabrication. Fabricated item shall be also being presented for further inspection prior to painting and before dispatch. Final and receipt inspection at shipyard of the items will be carried out as per direction of CSL/CMSRU.
29. Storage: CMSRU shall provide storage space at sites if available, free of cost, for the work but the contractor shall satisfy himself as to the suitability of such sites and protection and such provision shall not release the contractor from liability to make good any loss or damage which may hamper such work until the same shall have been taken over.

30. PROHIBITION OF CHILDREN'S EMPLOYMENT: Contractor shall note and follow the Govt. of India Notification of `Prohibition of Children's employment in the schedule occupation and process under the Child Labour (Provision and Regulation) Act, 1986".
31. Safety Provision: Attention is invited regarding safety provisions and adheres to the same while executing the work. In addition to the instructions stipulated therein, contractor should note that it is compulsory that every worker employed by the contractor/successful tenderers shall use PPE while the contract work is in progress, at CMSRU premises / site. The contractor should take necessary safety measures to carry out the job, without causing any accident, and shall not cause any Loss to CMSRU either directly or indirectly. However, if any such incident took place while carrying out the work, loss to the CMSRU properties will be borne by the contractor.
32. Contractor shall arrange transportation, loading and unloading etc. for carrying out the job.
33. Only best quality materials are to be used. The decision of the CSL officer-in-charge will be final and binding on the contractor as regard the quality and suitability of the material.
34. All necessary care shall be taken by the supplier for shifting the materials.
35. All the items against this enquiry shall be accepted after inspection only. Inspection shall be done at CMSRU. The materials supplied shall be free from defects.
36. Vendors are requested to quote the size as per enquiry only. Variation in the Quoted size/other than our spec or beyond allowable tolerance may lead to rejection of the offer without prior notice.
37. In case of rejection, the rejected item shall be taken back by the supplier from CMSRU site and replace the same with new without any additional cost. The replacement has to be completed within 3 days from the date of intimation.
38. Contractor has to ensure safety of their personnel during the entire period of work. In case of any accidents, CMSRU shall not be responsible for any loss to their workmen and personnel property. Contractor shall keep CMSRU indemnified in case of any loss/ accident/ injury/death during the execution of the work.
39. I/we hereby give an undertaking that I/we understood the terms and conditions mentioned in the subject enquiry and I/ we are ready to adhere to the terms and conditions of the subject work.

Contractor's Seal & Signature

## **General Terms and Conditions**

1. Tenderers are to carefully go through the terms and conditions and the techno commercial specification of the items for which offers are called for. Deviations, if any, shall be separately listed and specifically brought out in the offer. CSL reserves the right to accept / reject the deviations.
2. Corrections and additions, if any, must be attested. Incomplete/ ambiguous offers are likely to be rejected.
3. Indigenous tenderers should quote prices for delivery of materials at CSL/CMSRU stores
4. Prices should be valid for acceptance for a period of three months (03 months) from the date of opening of tender.
5. No enhancement of rate for whatever cause will be allowed once the offer is accepted and an order is placed. Withdrawal of the quotation after it is accepted or failure to make the supply within the stipulated delivery period will entail cancellation of the order and forfeiture of Earnest Money Deposit/Security deposit, if any and/or risk purchase.
6. Taxes and duties, if any, payable extra are to be indicated in the price part for single bid and in techno-commercial part for two bid.
7. Delivery term and delivery time / work completion time required for completing the job scope should be indicated in the offer.
8. CSL/CMSRU terms of payment is 100% payment after delivery of items and in case of service after satisfactory completion of job, within 30 days from the date of submission of Invoice along with all mandatory documents.
9. The firm/ bidder winning the contract shall sign an agreement with Cochin Shipyard Ltd for "Fall clause". Accordingly, during the contract period, the firm / bidder cannot offer the item/s to anyone else at rates lower than the rates quoted, or the same lowest rate shall be applicable to the contract with CSL/CMSRU
10. Manufacturer's name, their trademark and brand, if any, should invariably be mentioned and illustrative leaflets giving technical particulars etc., should be attached to the offer.
11. Materials supplied shall be new and unused and shall confirm to CSL/CMSRU specifications and drawings.
12. Products supplied shall be nontoxic and harmless to health. In the case of toxic materials, Material Safety Data Sheet may be furnished along with the material.
13. Samples are to be supplied free of cost in the event of requirement by CSL/CMSRU. The detailed working drawing, if called for, is also to be furnished for approval before commencement of manufacture.
14. The quantities in each item to be purchased may vary according to actual requirement at the time of placing orders.
15. Force Majeure condition: Should failure in performance of the contract or part thereof arise from war insurrection, restraint imposed by Government, Act of Legislature or other Statutory Authority or illegal strike, riot, legal lock-out, flood, fire, explosion, act of God or any inevitable or unforeseen event beyond human control which may be construed as reasonable ground for an extension of time, CSL/CMSRU may allow such additional time as is mutually agreed, to be justified by the circumstances of the case. The occurrence/ cessation of force majeure situation is to be informed with documentary evidence within 15 days from the date of occurrence/cessation.

16. LD Clause: In case of delay in supply of ordered materials / delay in completion of work beyond the stipulated delivery / completion period which is not attributable to CSL, vendor is to pay liquidated damages (and not by way of penalty) a sum equivalent to ½%(half percent) per week or part of the week of the order value (basic price) in the case of machinery/equipment and of the value of materials / services delayed in the case of all other items/services subject to a maximum of 10% of the order value (basic price). For service orders, completion date as confirmed by the executing officer shall be reckoned for LD calculation.
17. Risk Purchase: If the supplier fails to supply the items ordered/complete the job scope within the delivery/completions date or violate any of the terms and conditions of the contract, CSL/CMSRU shall have the following rights.
  - (1) To terminate the contract with 15 days' notice forfeiting the security deposit.
  - (2) To initiate alternate procurement action at the risk and cost of the vendor.
18. Guarantee: The equipment supplied shall be guaranteed for satisfactory performance for 12 months from the date of commissioning or 18 months from the date of delivery of items whichever is earlier against faulty design, defective materials and bad workmanship. Supplier should supply and install free of cost immediately any part found to be defective for the above reasons within the guarantee period. The Services shall be guaranteed for a minimum period of 06 months from the date of successful commissioning/final acceptance.
19. Suppliers are generally allowed to depute their authorized representative to be present at the time of opening of the price bid. However this will be subject to the discretion/SOP of CSL, in view of the restrictions imposed by Govt/local body/CSL due to Covid-19 outbreak. At present, in view of COVID-19 pandemic, Vendors are not allowed inside CSL to attend opening of the price bid.
20. Cochin shipyard Ltd prefers to deal directly with the supplier. However, if the supplier appoints an Indian agent to deal with Cochin shipyard Ltd., the agency commission payable by the supplier to such an agency shall be intimated. If manufacturers affect the supply through agents only, authorization in writing from manufacturers in favour of the agent for supply to CSL shall be furnished. In case where an agent participates a tender on behalf of a foreign manufacturer Indian agent should submit specific authorization from the authorized person of foreign manufacturer. In a tender, either the Indian agent on behalf of the principal/ OEM or principal/ OEM itself can bid but both cannot bid simultaneously for the same item/ product in the same tender. If an agent submits bid on behalf of principal/ OEM, the same agent shall not submit a bid on behalf of another principal/ OEM in the same tender for the same item/product. Indian agents cannot represent more than one firm or quote on their behalf for any particular tender. Clarifications, either technical or commercial, should be submitted to points specially asked for only. The opportunity so given should not be used for correcting/changing/amending the data/conditions already submitted with the tender.
21. Jurisdiction: All questions, disputes or difference arising under, out of, or in connection with contracts shall be subject to the exclusive jurisdiction of the Courts at Ernakulum, Kerala, India.

22. In case advance payment is sought, interest at prime lending rates prevailing in India will be charged. In addition, a Bank Guarantee in the CSL format equivalent to advance amount is to be executed to cover the period till the advance payment is adjusted. Normally Advance payments are not encouraged.
23. Conditional discounts, if any, will not be reckoned for tender evaluation/ comparison purposes. However the same will be considered while placement of purchase order if the firm turns out to be L1.
24. After submission of tender, no unsolicited correspondence will be entertained.
25. Cochin Shipyard Limited does not bind itself to accept the lowest or any tender but reserves to itself the right to reject any or all or a part of any tender at its discretion.
26. Deviations, if any, in the offer submitted from that of the tender enquiry in any form, should be clearly furnished in a separate document titled as "List of Deviations", failing which it will be presumed that all the terms and conditions are acceptable.
27. Public Procurement Policy initiatives of Govt. of India, pertaining to MSME's, startup etc as per CSL website ([www.cochinshipyard.in](http://www.cochinshipyard.in)) shall be applicable for this tender.
28. Vendor is solely responsible for the safety of its personnel inside CSL. Service provider will be responsible for the safety of personnel engaged and shall adopt all safety measures to comply with safety regulations in force in CSL. Service representative working onboard should maintain proper dress code as per CSL standards. They shall submit electronic challan remittance copy of ESI&EPF details of their employees and employee compensation policy details for employees not falling under ESI limit during the submission of invoice, documents supporting for facilitating gate access. They are bound to follow safety guidelines applicable in CSL like safe usage of tools & tackles, electrical safety guidelines, gas management system etc. Scrap management system & disposal of hazardous chemicals used to dispose by contractor itself on his own responsibility. Work place hygiene to be ensured by contractor itself.
29. Asbestos should not be part of any material /packing material supplied to CSL.
30. Shall abide by CSL rules for entry and exit of man and materials. Vendor and personnel will comply with: (1) all procedures and policies provided by CSL, including CSL's, environmental, health, safety, and security procedures, and related management systems when performing services at CSL facilities.
31. Service provider will have to abide by the various laws & regulations such as Contract Labour Regulation (Abolition) Act, ESI Act 1948, EPF Act 1952 etc as applicable.  
In case your employees are already covered under EPF/ESI scheme, their respective account numbers are to be furnished along with copy of challans as proof for remittance of ESI & EPF. If any employee is exempted from ESI, valid proof for the same also shall be submitted before commencement of work. Labor deputed for the work shall not have crossed over 60 years. Submission of above documents is statutory for issue of entry passes for working inside CSL. This is also required for releasing the payment since CSL site is permanently covered under above noted regulations. The certificate of compliance from Contractor as per attached format shall also be filled and submitted along with submission of bills for payment. Bills without duly certified "certificate of compliance from Contractor" shall not be passed for payment. (Form for Compliance of Provisions of various labour Enactments attached as Enclosure - 4)
32. Vendor will package products according to instructions of CSL provided in the purchase order, and if nothing is provided, then according to good commercial practice to ensure safe arrival of the products. Avoid plastic materials for packing to the extent possible.

Packing material shall be ecofriendly. Vendor should follow the statutory requirements of the products offered. In case of chemicals and toxic materials being supplied, vendor should furnish material safety data sheet (MSDS) compulsorily along with the material.

33. Acknowledge the receipt and acceptance of purchase order/Work order by signing and returning a copy of the same within three days of receipt of the same. If the acknowledgement is not received, it will be presumed as accepted.
34. Subcontracting to other vendors shall be only after written intimation and approval of competent CSL authorities. Vendor shall not delegate or subcontract any of its obligations under the agreement without CSL's written consent. Vendor will remain liable for all subcontracted obligations and all acts or omissions of its subcontractors.
35. The procedures of work, standard operating procedures of work including documents like welding procedure specifications developed by CSL are intellectual property of CSL. Vendors shall not use or copy the procedure in any format without the written consent of competent authorities of CSL.
36. Vendors shall take back rejected products, if any, and immediately supply new product/rectified product at vendor's expense, including all freight costs.
37. For product that is discovered defective during the warranty period, vendor will, at vendor's expense replace or repair defective product and re-deliver such repaired or replaced product to CSL within a commercially reasonable timeframe agreed by CSL.
38. Except as specifically stated in the purchase order, vendor will be responsible for all costs incurred in connection with providing the services, including personnel's expenses.
39. CSL is not obligated to pay any invoice submitted 180 days or more after a product is shipped or services are completed.
40. Vendor shall return the CSL resources to CSL immediately after provision of all deliverables and services or any termination of the agreement.
41. Vendor warrants that the products and services will comply with their specifications and will be of good quality acceptable to CSL/ship and must be fit for any purpose made known to vendor.
42. Vendor warrants that the products will be new, unused, and not refurbished at the time of delivery, and will be safe for normal use and free from defects in design, materials, and workmanship during the warranty period.
43. Vendor warrants that for software provided by vendor, (1) there is no open source software in the products (or any other items provided by vendor), unless vendor has notified CSL in writing before delivery and CSL has consented in writing to accepting this open source software, and (2) the software will not damage, interfere with, or permit unauthorized access to any other existing products or systems on which it is installed or any information residing on those products or systems.
44. Vendor and personnel will (1) keep confidential the terms of the agreement and all non-public and proprietary CSL information, and will only use such information to provide products and services under the agreement, and will not disclose such information except to the extent required by law after giving reasonable notice to CSL, if permitted by law; and (2) not use in providing products or services or disclose to CSL any materials or documents of another party considered confidential or proprietary unless it has obtained written authorization from that party and CSL.
45. Vendor will indemnify CSL and its affiliates, directors, officers, and employees against all liabilities, damages, losses, costs, fees (including legal fees), and expenses relating to any allegation or third-party legal proceeding (including action by a government authority) to

- the extent arising from an allegation that use, possession, or sale of the products or services violates or infringes a third party's rights, including intellectual property rights; or an allegation that any personnel are entitled to employee compensation, benefits, or other rights or transfer law rights, except to the extent caused by CSL's unlawful acts or omissions.
46. No enhancement of rate for whatever cause will be allowed once the offer is accepted and an order is placed. Withdrawal of the quotation after it is accepted or failure to make the supply within the stipulated delivery period will entail cancellation of the order and forfeiture of earnest money deposit/security deposit, if any and/or enforcement of risk purchase clause.
  47. List of deviations from the general terms and conditions shall be submitted and the same shall be mutually acceptable. In the event of no deviation list submitted by the vendor, it is presumed that all conditions are accepted by the vendor.
  48. All certificates called for in order specification must be sent to CSL at the time of delivery of items all the material supplied must satisfy CSL quality requirements.
  49. Invoice:
    - (i) All invoices must be sent to CSL on delivery of items /work completion as per the order terms
    - (ii) Purchase order number and date and dispatch particulars should be clearly mentioned in the invoice.
    - (iii) Wherever payments are authorized through bank, copy of the invoice should be forwarded directly to CSL under intimation so as to facilitate release of document in time. All bank charges will be to vendor's account.
    - (iv) When the payment is in installments, separate invoice is required for each payment.
    - (v) 100% payment will be made against your invoice on satisfactory completion of the work.

The documents for releasing payment - original invoice with service report duly signed by vessel owner and CSL officer-in-charge along with documentary proof of expenses after satisfactory completion of work.

50. "In case imported items are part of the items required for the job Customs duty exemption can be availed by CSL if order for these imported items is placed on high sea sales basis by CSL or direct import order on bidder's principals for import items by CSL. In case of import orders/ high sea sales, the offer has to be on CFR basis to the nearest airport/as mentioned in the enquiry.  
The customs clearance, DO charges payment and IGST payment against bill of entry shall be done by CSL.  
In case of direct import orders by CSL, copy of Airway bill, foreign currency invoice and packing list would be required. In case of High Sea Sale, HSS agreement and INR invoice in addition to copy of Airway bill, foreign currency invoice and packing list shall also be required.  
The copy of all documents to be forwarded to CSL by email at least two days prior to arrival of the consignment at Airport for CSL to arrange the Customs exemption documents and file Bill of entry prior/ latest on date of arrival of the consignment itself. In case of any delay in receipt of documents, the bill of entry late filing fine shall be adjusted from the vendors payment."

Tender conditions for Restriction of bidders sharing land border with India is attached below and certificate as required in the below conditions to be submitted along with tender documents.

<b>Tender conditions for Restriction of bidders sharing land border with India vide Office memorandum dt 23.7.2020 Order - Public Procurement no 1 dt 23.7.2020, Order no 2 dt 23.7.2020 and Order no 3 dt 24.7.2020</b>	
<b>A</b>	<b>Requirement of registration</b>
<b>1</b>	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with competent authority as per C below. In works contracts, including turkey contracts, contractors shall not be allowed to sub contract works to any contractor from a country which shares a land border with India unless such contractor is registered with Competent authority. Relevant certificate to be submitted by bidder from a country which shares land border with India except for bidders to which Govt of India has extended lines of Credit or in which Govt of India has development projects, along with the offer as proof of registration with competent authority, failing which the offer will not be considered. A certificate is to be submitted by the bidder for compliance with the order referred above along with tender documents for consideration of offer (Wordings are as per Clause below). If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.
<b>2</b>	Wordings of certificate to be submitted along with tender documents
	I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India. I hereby certify that this bidder is not from such a country or, if from such a country, has been registered with the competent authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. (Evidence of valid registration by the competent authority shall be attached wherever applicable).
<b>2</b>	Wordings of certificate to be submitted along with tender documents for Works involving possibility of subcontracting
	I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on subcontracting to contractors from such countries. I certify that this bidder is not from such a country or if from such a country has been registered with the competent authority and will not subcontract any work to a contractor from such countries unless such contractor is registered with the competent authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered (Evidence of valid registration by the competent authority shall be attached wherever applicable)
<b>B</b>	<b>Validity of registration</b>
<b>1</b>	Registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder is validly registered at the time of acceptance /order placement, registration shall not be a relevant consideration during contract execution.
<b>C</b>	<b>Competent authority and Procedure for registration</b>

**Enclosure - 7**

<b>1</b>	The competent authority for the purpose of registration under the order shall be Registration committee constituted by the Department of Promotion of Industry and Internal Trade (DPIIT). Details of the committee and procedure for registration and restrictions shall be as per Ann I of the Order - Public Procurement no 1 dt 23.7.2020 issued by Ministry of Finance, department of Expenditure.
<b>D</b>	<b>Definition of Bidder and Bidder from a country sharing land border with India</b>
<b>1</b>	Bidder is defined as any person or firm or company including any, member of a consortium or joint venture, every artificial, juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.
<b>2</b>	"Bidder from a country which shares a land border with India" for the purpose of this Order means:- a) An entity incorporated, established or registered in such a country; or b) A subsidiary of an entity incorporated, established or registered in such a country; or c) An entity substantially controlled through entities incorporated, established or registered in such a country; or d) An entity whose beneficial owner is situated in such a country; or e) An Indian (or other) agent of such an entity; or f) A natural person who is a citizen of such a country; or g) A constitution or joint venture where any member of the consortium or joint venture falls under any of the above.
<b>3</b>	<b>Type of business entity</b> (Private Limited Company/ Public Limited Company/ Sole Proprietorship/ One Person Company/ Partnership/ Limited Liability Partnership/ Joint Venture/ Trust/ NGO) In case of incorporated entity - to attach certificate of incorporation
	<b>Beneficial Owners</b> - as defined in the Department of Expenditure Order (Public Procurement No.1) issued vide No. F.No.6/18/2019-PPD dated 23 <sup>rd</sup> July, 2020. Details of all beneficial owners having entitlement of more than 01% of shares or capital or profit to be given, in the format as given in Annexure-I duly certified by practicing Chartered Account in India.

51. Following are the Tender Conditions Preference to Make in India

<b>Tender condition - Preference to Make in India</b>	
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**Enclosure - 7**

A	Purchase preference in accordance with Public procurement (Preference to Make in India Order - 2017) Order from Department of Promotion of Industry and Internal Trade P - 45021 /2/2017/-B.E -II dt ,4.6.2020 and as amended from time to time shall be applicable as per below	
1	In the procurement of all goods/services/works in respect of which there is sufficient local capacity/local competition, only Class I Local suppliers shall be eligible to bid irrespective of purchase value	
2	In the procurement of all goods/services /works which are not covered as above and with estimated value of purchase less than Rs 200.0 Crores, only Class I local suppliers along with Class II local suppliers shall be eligible to bid.	
	<b>Purchase preferences for Class I local suppliers</b>	
B	In the procurement of goods/works covered under 2 above and which are divisible in nature, Class I local supplier shall be eligible for Purchase preference over Class II/Non local supplier as per following	
1	If L1 bid is not a Class I local supplier, 50% of the order quantity shall be awarded to L1. Thereafter the lowest bidder among Class I local supplier will be invited to match the L1 price for the remaining 50% quantity subject to Class I local supplier quoted price falling within 20% margin. Contract for that quantity shall be awarded to such Class I local supplier subject to matching L1 price. In case such lowest eligible Class I local supplier fails to match L1 price or accept less than offered quantity, next higher Class I local supplier within 20% margin shall be invited to match the L1 price for the remaining qty and so on. If some quantity is left uncovered on Class I local supplier, such balance quantity shall be ordered on L1 bidder.	
2	For procurements that are not divisible in nature and in procurement of services evaluated on price alone, Class I local supplier shall get purchase preference over Class II/Non local supplier as per below	
3	If L1 is not a Class I local supplier, lowest bidder among Class I local supplier will be invited to match L1 price subject to Class I local supplier quoted price falling within 20% of L1 price and contract will be awarded to such Class I local supplier, subject to matching L1 price. In case such lowest eligible Class I local supplier fails to match L1 price, procedure same as para 3 above will be opted. In case none of Class I local suppliers within 20% margin matches L1 price, contract shall be awarded to L1 bidder. The purchase preference as above will be only for Class I local supplier and Class II local supplier will not be eligible for any Purchase preference	

**Enclosure - 7**

<b>C</b>	Local content requirement to categories a supplier as Class I/Class II /Non local supplier shall be as per below. Definition of local content shall be as per order dt 4.6.2020 ie amount of value added in India which shall be the total value of the item procured (excluding net domestic indirect taxes) minus the value of import content in the item (including all customs duties) as a proportion of total value in percentage.	
1	Class I -Local content equal to or greater than 50%	
2	Class II-Local content greater than 20%, less than 50%	
3	Non local -Local content less than 20%	
<b>D</b>	<b>Declaration of local content</b>	
1	Class I local supplier /Class II local supplier at the time of tender shall indicate % of local content and provide self certification that offered item shall meet the local content requirement for ClassI/Class II as applicable including details of locations at which local value addition is made.	
2	In case of procurement for a value in excess of Rs 10.0 Crores Class I/Class II local supplier is to provide a certificate from statutory auditor/cost auditor(for companies) /practicing cost accountant/Chartered accountant (suppliers other than companies) indicating % of local content	
3	Verification of the Certificates issued by the bidder shall be carried out by CSL on random basis. False declarations will attract actions as stipulated in the order referred, including other actions as permissible by law.	
4	Exemption is applicable from provisions of order for purchases with estimated values less than Rs 5.0 lakhs	
5	Notwithstanding above, exemptions for meeting local content as per relevant Clause of order dt 4.6.2020 and as amended from time to time shall apply.	

**52. ARBITRATION :**

1. Any disputes arising the currency of the contract shall, in the first instance be settled by mutual discussions and negotiations. The results of such resolution of dispute shall be incorporated as an amendment to the contract, failing which the parties can resort to arbitration.

2. If any dispute, disagreement or question arising out of or relating to or in consequence of the contract, or to its fulfillment, or the validity of enforcement thereof, cannot be settled mutually or the settlement of which is not herein specifically provided for, then the dispute

shall within thirty days from the date either party informs the other in writing that such disputes, disagreement exists, be referred to arbitration. The arbitrators shall be appointed and the arbitration proceedings shall be conducted in accordance with and subject to the Arbitration and Conciliation Act, 1996 (No. 26 of 1996) as amended from time to time and the decision of the Arbitrators shall be final and binding on the parties hereto. The arbitration will be done by a Board comprising one officer nominated by each party, and a mutually agreed Umpire. Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration shall be shared equally by the parties unless the award provides otherwise. The enforcement of the award shall be governed by the rules and procedures in force in the State in which it is to be executed. Performance under this Contract shall however, continue during arbitration proceedings and no payment due or payable by the parties hereto shall be withheld unless any such payment is or forms a part of the subject matter of arbitration proceedings.

3. In case of disputes, the same will be subjected to the jurisdiction of courts at Ernakulam, Kerala, India only.



**COMPLIANCE MATRIX****(TO BE SUBMITTED WITH THE "Technical" BID)**

<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>REMARK</b>
1.	ACCEPT THE ENTIRE SCOPE OF WORK AS PER ENQUIRY	YES / NO
2.	IF THE ANSWER TO QUESTION 1 ABOVE IS NO, PLEASE LIST THE SPECIFIC JOBS NOT BEING UNDERTAKEN AS A DEVIATIONS LIST AND ATTACH WITH THIS MATRIX.	LIST OF DEVIATIONS FROM SCOPE OF WORK ATTACHED/ NOT ATTACHED
3.	ACCEPT THE GENERAL TERMS AND CONDITIONS AND TENDER TERMS & CONDITIONS INDICATED IN THE ENQUIRY.	YES / NO
4.	IF THE ANSWER TO QUESTION 3 ABOVE IS NO, LIST THE DEVIATIONS AND ATTACH WITH THIS MATRIX.	LIST OF DEVIATIONS FROM GTC.
5.	PAYMENT TERMS AS INDICATED IN ENQUIRY IS ACCEPTABLE.	YES / NO

(Signature of the Contractor)

Seal of the firm.

**Health, Safety & Environment Contract Guidelines for OEMs /Turnkey jobs / Sub contract works**  
**inside CSL**

**Encl: 9**

## **Introduction**

CSL is the largest public sector shipyard in India in terms of dock capacity, and caters to clients engaged in the defence sector in India and clients engaged in the commercial sector worldwide.

CSL is committed to provide safe and healthy work environment for the prevention of work- related injury and ill health by following the best practices in safety. CSL is certified Occupational Health and Safety Management System and Environmental Management system under ISO standards/international standard.

Many of the works of CSL at various sites are executed by the sub-contractors. During these works, sub-contractors personnel are likely to be exposed to different types of hazards. Similarly, unsafe acts of contractors personnel may create hazards for CSL staff or workmen of other contractors working at the site. Such unsafe acts may also pose danger to the existing installations and even to members of public.

CSL ensures that the requirements of its HSE Management System are conveyed by contractors and their workers. This guide is prepared to facilitate safe working during execution of contract works. The General guide lines and HSE requirements are given below for compliance in CSL.

### **I. General guidelines**

1. OEMs/Turnkey jobs /Contractors are selected to work inside the CSL based on their track record.
2. Along with the contract order/Registration, a copy of the HSE Safety Handbook (CSL/ QMS/S&F/SOP 02) of CSL is given to all contractors. The details of all HSE requirements to be followed in CSL for the various types of work are detailed in the hand book. The OEMs/Turnkey jobs /Contractors shall go through all the details and strictly follow the relevant HSE guidelines for their work. In case of any doubt the same shall be clarified from Chief Safety Officer (CSO). Being ignorant of these HSE requirements will not be treated as an excuse for any HSE violations during course of work.
3. OEMs/Turnkey jobs /Contractors workmen are given a multilingual HSE induction and Emergency Response training. The individual passes for contractors and their workers are issued only after successful completion of this training. The passes are revalidated every year after successful completion of refresher training. Training requirements of other roles of the subcontractor's staff shall be complied as per the CSL requirements time to time.
4. Before start of any work, the CSL officer in charge explains the scope of work and the safety precautions, hazards, PPE usage as per PPE matrix of CSL, Work Instructions, SOPs, Emergency responses to the contractor and his workers. Only trained worker with necessary skills are allowed to work as per the requirement. Necessary PPEs for the work are to be arranged by the contractor.
5. Workmen shall have Cotton coverall with identifiable logo on the dress. Supervisors, fire watch man if required, safety staff and other workforce shall be deployed as per CSL guide lines.
6. The site work supervisor of the OEMs/Turnkey jobs /Contractors shall be ensured that works are being carried out by CSL HSE requirements on daily basis and till the completion of works. The safe start and safe end requirements shall be verified by the site work supervisor on daily basis.
7. OEMs/Turnkey jobs /Contractors HSE performance will be evaluated on HSE matters as per the CSL policies time to time.
8. During the course of work if any HSE violation is noticed the same is dealt as per the Rewards and Reprimand (R&R) Policy of CSL.

### **II. HSE requirements**

1. The OEMs/Turnkey jobs /Contractors shall take all safety precautions during the execution of awarded work and shall maintain and leave the site safe at all times. At the end of each working day and at all times when the work is temporarily suspended, he shall ensure that all materials,

- equipment and facilities will not, cause damage to existing property, personal injury or interfere with the other works of the project or Station.
2. The OEMs/Turnkey jobs /Contractors shall provide and maintain all type of lights, guards, fencing, warning signs, caution boards and other safety measures for vigilance as and where necessary or as required by the CSL officer-in-charge or Safety staff. The caution boards shall also have appropriate symbols.
  3. Where Permit to work (PTW) is required, the work has not started without obtaining the necessary permit and the PTW requirements are followed strictly throughout the work.
  4. For Project specific or non-routine work on the existing installations, separate Job Safety Assessment (JSA) is to be prepared by the contractor, cleared by the Dept in charge and approval obtained from CSO before start of work.
  5. A separate HSE plan will be required for the new projects in the yard or any turnkey projects. It shall be in line with CSL HSE requirements and same shall be routed through respective S&F dept and approved by respective HOD.
  6. OEMs/Turnkey jobs /Contractors shall hold toolbox talks with his workers on daily basis to convey matters regarding the Safety aspects of the work.
  7. The OEMs/Turnkey jobs /Contractors shall plan his operations so as to avoid interference with other Departmental works and other Sub-Contractors at the site. In case of any interference, requires, coordination shall be sought by the contractor from the Department for safe and smooth execution of work. This shall be done through CSL executing officer.
  8. The OEMs/Turnkey jobs /Contractors shall at all times keep their work spot, site office and surroundings clean and tidy from rubbish, scrap, surplus materials and unwanted tools and equipment. Welding cables, hoses and electrical cables shall be so routed as to allow safe way to all concerned.
  9. All waste generated in course of the work shall be segregated as per the yard requirements and shall be disposed at the respective collection pallets / points of the work areas as the case may be. Any kind of pollution made by the subcontractor shall attract the reprimand proceedings.
  10. All necessary precautions shall be taken to prevent outbreak of fires at the work site. Adequate provisions shall be made to prevent the possibility of fires and ensure the availability of fire extinguishers at site.
  11. The OEMs/Turnkey jobs /Contractors shall be held responsible for non-compliance of any of the safety measures and delays, implications, injuries, fatalities and compensation arising out of such situations of incidents including statutory obligations.

**PRE- QUALIFICATION CRITERIA****1. Technical Criteria**

## a) General and Technical Experience

(i). The bidder shall have successfully manufactured, supplied, installed, tested and commissioned any valve systems for dry docks, canals, hydro-projects, dams etc. Proof of experience shall be submitted along with the offer.

(ii). The bidder shall not be under a declaration of ineligibility issued by Govt. of India / State Govt. / Public Sector Undertakings etc. An undertaking shall be submitted in this regard

**2. Financial Criteria**

(i). Average Annual financial turnover during the last 3 years, ending 31st March 2021 should be at least Rs 58 Lakhs.

(ii). Experience of having successfully completed similar works during last 7 years ending 31-08-21 should be either of the following:

- Three similar completed works costing not less Rs 77 Lakhs
- Two similar completed works costing not less Rs 97 Lakhs
- One similar completed work costing not less Rs 1.16 Crores

3. The bidder shall submit relevant documents for verification of technical and financial criteria. Tenders meeting the criteria stipulated above are only eligible and those tenders only shall be considered even for technical evaluation. Offers received without complying the above requirements shall summarily be rejected without any further communication from CMSRU side.