



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
PROJECT ENGINEERING MANAGEMENT

Enq No.: PE/PG/RTC/E-5443/2016

Date: 13.01.2017

TENDER ENQUIRY THROUGH E-PROCUREMENT

DUE DATE
FEB, 03, 2017
2.00 P.M.

Subject: Tender Enquiry for Rate Contract of Chain Pulley Block for one year with a provision for further extension after review on mutual consent

Dear Sir,

We are pleased to invite your tender offers for subject package. Please upload your best quotation/ offer in two (2) parts on <https://bheleps.buyjunction.in> for the requirement strictly as per schedule of price format before above mentioned due date & time. The details of the tender enquiry is as mentioned below:

Sl. No	Description for which Rate Contract is desired	Tentative Quantity	Delivery required
1	Chain Pulley Block - Refer Technical specification no PE-TS-RC-563-A101 for detailed description.	As per BOQ cum price schedule in Annexure-I & II) cumulative for the Prospective Projects as per Annexure-IV.	The delivery period for all the items of Chain Pulley Blocks shall be ten (10) Weeks from the date of PO for respective project/requirement under the RC. Other schedules like submission of drawings, approval of drawings, inspection etc. shall be as per the Technical Specification no. PE-TS-RC-563-A101 (Drawings/Documents schedule as per Annex-IV in Section E page 22 of 51) shall be submitted within two week of PO for respective project under RC). Delays due to non-fulfilment of the requirements as specified in the specification shall be to the vendor's account. Vendors shall be informed that delivery period mentioned above is for contractual LD calculation purpose, however in case of exigencies BHEL may ask for early delivery.

Rate contract on firm price basis is proposed for one year from placement of Rate Contract PO with a provision for further extension after review on mutual consent.

Rate contract shall be decided on the basis of Grand Total FOR site price of Total BOQ of different capacity of Chain Pulley Blocks as listed in price format for items at sl. 2.1 to 4.0 (Annexure-I & II), Bidders to quote Ex-work price, ED, CST (not VAT) & Freight charges (Including service tax) as percentage (%) of ex-work prices strictly as per schedule of price format. Further there are some optional items under heading "Additional Prices for Increase in Lift" bidders to submit separate bid for

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PPEI Building,
BHEL House
HRD & ESI Complex,
Plot-25, Sector-16-A NOIDA – 201301

Phone: 0120-4213591
Fax : 0120-4329026
e-mail: ncsharma@bhelpem.co.in

Regd. Office:

Siri Fort
New Delhi - 110049



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these items in the price schedule Annexure-III. The Optional item price shall be opened & overall L1 bidder in items at sl. 2.1 to 4.0 (i.e. in Annex-I & II) have to match the L1 prices of optional category.

Though evaluation is proposed on Grand total FOR SITE (for main supply + Maintenance Tools and Tackles + mandatory spares). But bidder have to ensure the following in their price break-up:

- i) % allocation (of grand total) against each item of main supply as indicated in the price schedule (Annex-I) for given BOQ.
- ii) % allocation (of grand total) for Maintenance Tools and Tackles as given in Price Format Annex-I.
- iii) % allocation for mandatory spares of Grand Total (refer annex-A) & individual item % allocated for Mandatory spares for the same (refer Annex-II).

Mandatory Spare (Annex-II) are proposed to be considered for evaluation, however, bidder to note that ordering of the same is subject to received order of end customer i.e. in case end customer asked for mandatory spares along with main supply item then only order for mandatory spares shall be placed otherwise only main supply shall be taken.

Chain Pulley Blocks of different capacity and lift are required for prospective projects (refer Annex-IV), however bidders will be asked to consider delivery anywhere in India. The quantity can vary from given tentative quantity to as needed during the rate contract period in line with cl. no. 6 of GCC rev-06. Project list is indicative only, BHEL may ask for delivery anywhere in India for any of the project added in the prospective project list during RC period.

Bidders to note that evaluation shall be done on CST basis, however in case, the entire business volume goes to one vendor (or volume of business shared between the vendors in line with enquiry) having manufacturing facility in the same state, then BHEL may do suitable amendment in PO on case to case basis for taking care the provision of VAT in case of project falling in the same State where manufacturing factory of the vendor is also located.

Rate Contract is proposed to be done with 2 vendors in ratio of 60:40 value wise at L1 FOR site price for Chain Pulley Blocks (% of splitting of RC between 2 vendors may be changed during ordering process if L1 bidder is not customer approved); however order for a project shall not be split the same shall be informed to bidders through NIT.

L1 rates shall be counter offered to vendors (L2, L3 & so on) in succession. If none accepts L1 rates, RC shall be done with L1 vendor for 100 % value. Since the rate contract is being proposed on two vendors, vendors shall be asked to quote prices with CST against form C and same state ordering shall not be done to save VAT.

Drawings/ documents, equipment manufacture inspection & dispatch requirement will be as per Technical Specification no. PE-TS-RC-563-A101.

Pre-Qualifying Requirements (PQR): All the bidders (registered/ non-registered) will be asked to submit documents fulfilling PQR requirements (as per enclosed annex-VI) with the bid & their further evaluation shall be done based on qualification in PQR.

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Bidders to note that their bid shall be conditional subject to qualify PQR by registered vendors & non-registered vendors have to qualify PQR & get registered with PEM for the package.

For registration in PEM "Bidders needs to apply & get registered for subject package with PEM before P-2 (price bid opening) & hence you need to apply online for registration on PEM web portal & have to enclose acknowledgement with this effect with the bid documents else your bid will not be considered for evaluation"

Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com → vendor section → Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted.

Bidder are required to give compliance to the technical specification & commercial terms for the tender & hence requested to submit technical & commercial deviation sheet **stating as Nil Deviation** on compliance cum confirmation certificate of technical specification & at Annex-II of GCC rev06 respectively(refer GCC Rev. 06 which is available on <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf> , you are requested to kindly download the same).

Tender Enquiry Terms and Conditions: -

1. Offers should be submitted in two parts online at <https://bheleps.buyjunction.in> as follows:
Part-I: TECHNO-COMMERCIAL BID (along with un-priced copy of Annexure-I, II & Annexure-III)
Part-II: PRICE BID (along with priced copy of Annexure-I, II & Annexure-III)
2. For detailed instructions, please see clause no. 2 of "Instructions to Bidders" of GCC, Rev. 06.
3. No Technical & Commercial deviations are acceptable.
4. Standard pre-printed terms & conditions of the tenderers shall not be considered valid.
5. Bidder to submit complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
6. Unsolicited fresh/ revised price bids shall not be entertained.
7. Tender will be opened at **03.00 PM on 03/02/2017**.
8. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/ all tender(s) in part or full without assigning any reason whatsoever.
9. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/ items with different bidders and also increase or decrease the quantity.
10. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the

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offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com)."

As a reminder to the bidders, system will flash following message (in RED Color) during the course of 'online sealed bid':

"Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL"

Detailed guidelines of **reverse auction 2016** are available in "information section" of www.bhelpem.com, same are applicable for subject tender.

Tenders should be submitted ONLINE via e-Procurement System only, however, all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address :

Mr. N.C Sharma, Sr.ENGR/MM
e-mail : ncsharma@bhelpem.co.in
Ph. No. 0120- 4213591

Mr. I P Singh, Sr. Mgr./ CMM
e-mail: INDRA@bhelpem.co.in
Ph. No. 0120-4368749

However, for **Technical clarifications**, following persons may be contacted:

Mr. BHASKARJIT BARUAH,
Sr.ENGR./MAUX
e-mail: bhaskarjitb@bhelpem.co.in
Ph. No.0120-4213631

Mr LALIT JINDAL, MGR/MAUX
e-mail : lalitjindal@bhelpem.co.in
Ph. No.0120- 4368918

11. Any taxes and duties applicable on the date of bid but not quoted by the bidders shall be to the bidder account.

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12. Delivery terms for dispatches shall be FOR Dispatch Station.
13. CIF is not available for this package.
14. Bidders to submit their offers strictly in line with the enclosed Price Format (Annexure-I & II).
15. This enquiry is subject to Conditions/ limits if any imposed in PMD / Vendor registration.
16. Procurement of the subject package shall be done through e-procurement.
17. All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on EPS website (<https://bheleps.buyjunction.in>), BHEL website (www.bhel.com), BHEL-PEM website (www.bhelpem.com) & CPP Portal. Bidders should regularly visit websites to keep themselves updated.
18. Foreign and indigenous bidders participating through open tender will necessarily have to buy class III DSCs issued by the certifying authorities in India for future tenders. Basic procedure /checklist has been uploaded on www.bhel.com for participating in tender enquires through e-procurement.
19. Bidder to note that all other terms and condition shall be strictly as per NIT, GCC Rev. 06 & SCC. In the event of any contradiction in the terms and conditions mentioned, the order of preference shall be NIT (this letter) / SCC / GCC Rev. 06.

NOTE: In case you are not making an offer against this enquiry, you are requested to send a regret letter so as to reach us on or before the due date.

Thanking you,
Yours faithfully,
For and on behalf of BHEL

N.C Sharma
Sr.ENGR/ MM

नरेश चन्द्र शर्मा / Naresh Chandra Sharma
वरिष्ठ अभियंता (एम.एम.) / Sr. Engineer (MM)
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.
पावर सेक्टर-परियोजना इंजीनियरिंग प्रबंधन
Power Sector-Project Engineering Management
प्लॉट नं.-25, सेक्टर-16ए, नोएडा-201 301
Plot No. 25, Sector-16A Noida-201 301

Enclosures:

- a) NIT (this letter itself)
- b) Technical Specification No. PE-TS-RC-563-A101.
- c) Annexure-I & II: Price Format for Main Supply, Maintenance Tool & Tackles and Mandatory Spares
- d) Annexure-III: Price Format for Optional Items
- e) Annexure-IV: List of prospective projects
- f) Annexure-V: Special Conditions of Rate Contract (SCC).
- g) Annexure-VI: PQR (Pre-qualifying Requirement)

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ANNEXURE-I

PRICE FORMAT-RATE CONTRACT FOR CHAIN PULLEY BLOCKS

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% break-up of each item w.r.t total price
1	2	3	4	5	6	7	8	9	
2	Total lump sum firm price for design, engineering, manufacture, fabrication, assembly, supply, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, mandatory spares alongwith spares for erection, startup and commissioning as required, forwarding, proper packing, shipment and delivery at FOR Site including freight for the following chain pulley blocks. Preparation and submission of drawing / documents & equipment/system guarantee etc. inclusive of all prevailing taxes, duties and other levies for the package specified above, complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification PE-TS-RC-563-A101 with following details:								100.0
2.1	CPB with travelling trolley 1Ton, 6.0 M lift. (non-hazardous area)	43 nos.							3.2
2.2	CPB with travelling trolley 2Ton, 6.0 M lift. (non-hazardous area)	71 nos.							4.0
2.3	CPB with travelling trolley 3Ton, 6.0 M lift. (non-hazardous area)	1 no.							5.5
2.4	CPB with travelling trolley 5Ton, 6.0 M lift. (non-hazardous area)	1 no.							7.5
2.5	CPB without travelling trolley 1Ton, 6.0 M lift. (non-hazardous area)	61 nos.							2.5
2.6	CPB without travelling trolley 2Ton, 6.0 M lift. (non-hazardous area)	98 nos.							3.0
2.7	CPB without travelling trolley 3Ton, 6.0 M lift. (non-hazardous area)	22 nos.							4.2
2.8	CPB without travelling trolley 5Ton, 6.0 M lift. (non-hazardous area)	24 nos.							6.2
2.9	CPB without travelling trolley 8 Ton, 6.0 M lift. (non-hazardous area)	1 no.							9.5
2.10	CPB without travelling trolley 10Ton, 6.0 M lift. (non-hazardous area)	9 nos.							14.0
2.11	CPB with travelling trolley 2Ton, 6.0 M lift. (Hazardous area)	4 nos.							4.6
2.12	CPB with travelling trolley 2Ton, 10.0 M lift. (Hazardous area)	1 no.							5.2
3.0	Lump sum firm price for one set Maintenance Tools and Tackles as per clause no. 4.0, Vol IIB, sec-C of PE-TS-RC-563-A101 suitable for 1T, 2T, 3T, 5T, 8T & 10T capacity CPB	1 set							3.5
4.0	Total for Mandatory Spares (As per Annexure-II)	11 set							27.1 refer note at sl no.5
	Total from 2.1 to 4.0 (should match with value quoted at 2 above)								
Note 1 All CPBs with travelling trolleys shall be suitable for straight as well as curved path with min radius 2m. 2 Mandatory Spare are proposed to be considered for evaluation, however, bidder to note that ordering of the same is subject to ordering for the same from the end customer i.e. in case end customer asks for mandatory spares then only order for mandatory spares shall be placed otherwise only main supply shall be taken. 4 If any of the items of spares/tools & tackles ordered is found to be not applicable during detailed engineering stage/execution stage, the contractor will have to supply alternative items of spares/tools & tackles. The alternative items of spares/tools & tackles are to be mutually agreed between the PURCHASER and VENDOR. 5 % break-up of one set of mandatory spare for each capacity of chain pulley block has been indicated in annexure A 6 Bidders are also required to inform full CST & VAT value in case of BHEL is not able to provide forms to avail concessional taxes (it is for future reference only) 7 Bidder to note that total price indicated above at sl no. 2 shall be considered for evaluation.									
(Bidder's Seal & Sign)									

ANNEXURE-II

PRICE FORMAT-RATE CONTRACT FOR CHAIN PULLEY BLOCKS

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of individual item w.r.t total cost of one set for each model of CPB
1	2	3	4	5	6	7	8	9	
2.0	Mandatory spares as per specification no. PE-TS-RC-563-A10 , items list as indicated in the specification mentioned below:								
3	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-I (1T, 6M CPB with TT, non-hazardous area)								
3.1	Load chain Wheel	1 no							17.75
3.2	Load chain stripping fork	1 no							1.37
3.3	Hand Chain wheel	1 no							20.57
3.4	Ratchet pawl	1 no							2.53
3.5	Locking ratchet wheel	1 no							7.23
3.6	Guide roller	1 no							3.31
3.7	Brake disc	1 no							3.87
3.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.04
3.9	Bearings of each type & size used in trolley wheels.	1 set							3.49
3.10	Load chain (for hoisting)	per metre							5.82
3.11	Hand chain (for hoisting)	per metre							7.56
3.12	Hand chain (for travelling)	per metre							7.56
3.13	Grooved pulley	1 set							8.33
3.14	Pinion	1 set							2.82
3.15	Shaft pin	1set							5.75
3.16	Total(3.1 to 3.15)								100

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of Individual Item w.r.t total cost of one set for each model of CPB
4	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-II (2T, 6M CPB with TT, non-hazardous area)								
4.1	Load chain Wheel	1 no							17.75
4.2	Load chain stripping fork	1 no							1.37
4.3	Hand Chain wheel	1 no							20.57
4.4	Ratchet pawl	1 no							2.53
4.5	Locking ratchet wheel	1 no							7.23
4.6	Guide roller	1 no							3.31
4.7	Brake disc	1 no							3.87
4.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.04
4.9	Bearings of each type & size used in trolley wheels.	1 set							3.49
4.10	Load chain (for hoisting)	per metre							5.82
4.11	Hand chain (for hoisting)	per metre							7.56
4.12	Hand chain (for travelling)	per metre							7.56
4.13	Grooved pulley	1 set							8.33
4.14	Pinion	1 set							2.82
4.15	Shaft pin	1 set							5.75
4.16	Total(4.1 to 4.15)								100
5	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-III (3T, 6M CPB with TT, non-hazardous area)								
5.1	Load chain Wheel	1 no							17.75
5.2	Load chain stripping fork	1 no							1.37
5.3	Hand Chain wheel	1 no							20.57
5.4	Ratchet pawl	1 no							2.53
5.5	Locking ratchet wheel	1 no							7.23
5.6	Guide roller	1 no							3.31
5.7	Brake disc	1 no							3.87
5.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.04
5.9	Bearings of each type & size used in trolley wheels.	1 set							3.49
5.10	Load chain (for hoisting)	per metre							5.82
5.11	Hand chain (for hoisting)	per metre							7.56
5.12	Hand chain (for travelling)	per metre							7.56
5.13	Grooved pulley	1 set							8.33
5.14	Pinion	1 set							2.82
5.15	Shaft pin	1 set							5.75
5.16	Total(5.1 to 5.15)								100

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of individual item w.r.t total cost of one set for each model of CPB
6	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-IV (5T, 6M CPB with TT, non-hazardous area)								
6.1	Load chain Wheel	1 no							17.75
6.2	Load chain stripping fork	1 no							1.37
6.3	Hand Chain wheel	1 no							20.57
6.4	Ratchet pawl	1 no							2.53
6.5	Locking ratchet wheel	1 no							7.23
6.6	Guide roller	1 no							3.31
6.7	Brake disc	1 no							3.87
6.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.04
6.9	Bearings of each type & size used in trolley wheels.	1 set							3.49
6.10	Load chain (for hoisting)	per metre							5.82
6.11	Hand chain (for hoisting)	per metre							7.56
6.12	Hand chain (for travelling)	per metre							7.56
6.13	Grooved pulley	1 set							8.33
6.14	Pinion	1 set							2.82
6.15	Shaft pin	1 set							5.75
6.16	Total(6.1 to 6.15)								100
7	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-V (1T, 6M CPB without TT, non-hazardous area)								
7.1	Load chain Wheel	1 no							20
7.2	Load chain stripping fork	1 no							1.5
7.3	Hand Chain wheel	1 no							22.6
7.4	Ratchet pawl	1 no							3
7.5	Locking ratchet wheel	1 no							8
7.6	Guide roller	1 no							3.7
7.7	Brake disc	1 no							4.5
7.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
7.9	Load chain (for hoisting)	per metre							6.6
7.10	Hand chain (for hoisting)	per metre							8.6
7.11	Grooved pulley	1 set							9.5
7.12	Pinion	1 set							3.2
7.13	Shaft pin	1 set							6.5
7.14	Total(7.1 to 7.13)								100

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of Individual Item w.r.t total cost of one set for each model of CPB
8	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-VI (2T, 6M CPB without TT, non-hazardous area)								
8.1	Load chain Wheel	1 no							20
8.2	Load chain stripping fork	1 no							1.5
8.3	Hand Chain wheel	1 no							22.6
8.4	Ratchet pawl	1 no							3
8.5	Locking ratchet wheel	1 no							8
8.6	Guide roller	1 no							3.7
8.7	Brake disc	1 no							4.5
8.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
8.9	Load chain (for hoisting)	per metre							6.6
8.10	Hand chain (for hoisting)	per metre							8.6
8.11	Grooved pulley	1 set							9.5
8.12	Pinion	1 set							3.2
8.13	Shaft pin	1 set							6.5
8.14	Total(8.1 to 8.13)								100
9	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-VII (3T, 6M CPB without TT, non-hazardous area)								
9.1	Load chain Wheel	1 no							20
9.2	Load chain stripping fork	1 no							1.5
9.3	Hand Chain wheel	1 no							22.6
9.4	Ratchet pawl	1 no							3
9.5	Locking ratchet wheel	1 no							8
9.6	Guide roller	1 no							3.7
9.7	Brake disc	1 no							4.5
9.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
9.9	Load chain (for hoisting)	per metre							6.6
9.10	Hand chain (for hoisting)	per metre							8.6
9.11	Grooved pulley	1 set							9.5
9.12	Pinion	1 set							3.2
9.13	Shaft pin	1 set							6.5
9.14	Total(9.1 to 9.13)								100

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of individual item w.r.t total cost of one set for each model of CPB
10	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-VIII (5T, 6M CPB without TT, non-hazardous area)								
10.1	Load chain Wheel	1 no							20
10.2	Load chain stripping fork	1 no							1.5
10.3	Hand Chain wheel	1 no							22.6
10.4	Ratchet pawl	1 no							3
10.5	Locking ratchet wheel	1 no							8
10.6	Guide roller	1 no							3.7
10.7	Brake disc	1 no							4.5
10.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
10.9	Load chain (for hoisting)	per metre							6.6
10.10	Hand chain (for hoisting)	per metre							8.6
10.11	Grooved pulley	1 set							9.5
10.12	Pinion	1 set							3.2
10.13	Shaft pin	1 set							6.5
10.14	Total(10.1 to 10.13)								100
11	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-IX (8T, 6M CPB without TT, non-hazardous area)								
11.1	Load chain Wheel	1 no							20
11.2	Load chain stripping fork	1 no							1.5
11.3	Hand Chain wheel	1 no							22.6
11.4	Ratchet pawl	1 no							3
11.5	Locking ratchet wheel	1 no							8
11.6	Guide roller	1 no							3.7
11.7	Brake disc	1 no							4.5
11.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
11.9	Load chain (for hoisting)	per metre							6.6
11.10	Hand chain (for hoisting)	per metre							8.6
11.11	Grooved pulley	1 set							9.5
11.12	Pinion	1 set							3.2
11.13	Shaft pin	1 set							6.5
11.14	Total(11.1 to 11.13)								100

S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	% of Individual item w.r.t total cost of one set for each model of CPB
12	MANDATORY SPARES OF CHAIN PULLEY BLOCK FOR Model-X (10T, 6M CPB without TT, non-hazardous area)								
12.1	Load chain Wheel	1 no							20
12.2	Load chain stripping fork	1 no							1.5
12.3	Hand Chain wheel	1 no							22.6
12.4	Ratchet pawl	1 no							3
12.5	Locking ratchet wheel	1 no							8
12.6	Guide roller	1 no							3.7
12.7	Brake disc	1 no							4.5
12.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.3
12.09	Load chain (for hoisting)	per metre							6.6
12.1	Hand chain (for hoisting)	per metre							8.6
12.11	Grooved pulley	1 set							9.5
12.12	Pinion	1 set							3.2
12.13	Shaft pin	1 set							6.5
12.14	Total(12.1 to 12.13)								100
13	MANDATORY SPARES OF CHAIN PULLEY BLOCK COMMON FOR Model-XI & XII (2T, 6M CPB & 2T, 10M with TT for hazardous area)								
13.1	Load chain Wheel	1 no							17.75
13.2	Load chain stripping fork	1 no							1.37
13.3	Hand Chain wheel	1 no							20.57
13.4	Ratchet pawl	1 no							2.53
13.5	Locking ratchet wheel	1 no							7.23
13.6	Guide roller	1 no							3.31
13.7	Brake disc	1 no							3.87
13.8	Bearings of each type & size used in load chain wheels, lifting hook.	1 set							2.04
13.9	Bearings of each type & size used in trolley wheels.	1 set							3.49
13.10	Load chain (for hoisting)	per metre							5.82
13.11	Hand chain (for hoisting)	per metre							7.56
13.12	Hand chain (for travelling)	per metre							7.56
13.13	Grooved pulley	1 set							8.33
13.14	Pinion	1 set							2.82
13.15	Shaft pin	1 set							5.75
13.16	Total(13.1 to 13.15)								100
	GRAND TOTAL[3.16+4.16+5.16+6.16+7.14+8.14+9.14+10.14+11.14+12.14+13.16]								

Note

- The lists of spares indicated are for the type equipment generally used in thermal power plants. If the design or type of equipment proposed by the bidder is different, then the bidder shall suit the spares list according to the type of equipment. However, the numbers or quantity of spares, indicated shall not be reduced.
- All essential spares shall be supplied as per the requirement of the specifications. In case any spare indicated in the specification is not applicable for particular equipment then suitable applicable alternate spare have been offered / shall be supplied without any financial implication.
- Any change or variation in equipment or systems during detailed engineering stage which would cause changes / variations in the essential spares quantity, shall be supplied by Vendor without any commercial implications.
- For quantities indicated in percentage, fractions are to be rounded-off to next higher integer.
- Any item which is "not applicable" in the above list and is found to be "applicable" at a later date shall be supplied by the Vendor without any extra cost.
- If any of the items of spares ordered is found to be not applicable during detailed engineering stage/execution stage, the contractor will have to supply alternative items of spares.
- "One (1) set of each type & size" is defined as 100% requirement for one CPB.

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% break-up of one set of mandatory spare for each capacity of chain pulley block			
Annexure A			
SI no.	Mandatory spares		% of Total BOQ w.r.t spares
1.14.1	CPB with travelling trolley 1Ton, 6.0 M lift.	1 set	6.0
1.14.2	CPB with travelling trolley 2Ton, 6.0 M lift.	1 set	6.0
1.14.3	CPB with travelling trolley 3Ton, 6.0 M lift.	1 set	8.0
1.14.4	CPB with travelling trolley 5Ton, 6.0 M lift.	1 set	11.0
1.14.5	CPB without travelling trolley 1Ton, 6.0 M lift.	1 set	4.0
1.14.6	CPB without travelling trolley 2Ton, 6.0 M lift.	1 set	4.0
1.14.7	CPB without travelling trolley 3Ton, 6.0 M lift.	1 set	6.0
1.14.8	CPB without travelling trolley 5Ton, 6.0 M lift.	1 set	9.0
1.14.9	CPB without travelling trolley 8 Ton, 6.0 M lift.	1 set	14.0
1.14.10	CPB without travelling trolley 10Ton, 6.0 M lift.	1 set	21.0
1.14.11	CPB with travelling trolley 2Ton, 6.0 M lift. (Hz area)	1 set	11.0



ANNEXURE-III									
PRICE FORMAT-RATE CONTRACT FOR CHAIN PULLEY BLOCKS									
S.No	Description of equipment / item	TOTAL TENTATIVE QUANTITY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)	
1	2	3	4	5	6	7	8	9	
2	Additional price for increase in lift:								
2.1	Additional price for increase in lift per meter for load chain upto 5T capacity	Per meter							
2.2	Additional price for increase in lift per meter for load chain above 5T to 10T	Per meter							
2.3	Additional price for increase in lift per meter for hand chain hoisting upto 10T capacity	Per meter							
2.4	Additional price for increase in lift per meter for hand chain travelling upto 10T capacity	Per meter							
	Total:								
Note	Bidders are also required to inform full CST & VAT value in case of BHEL is not able to provide forms to avail concessional taxes (it is for future reference only)								
1	(Bidder's Seal & Sign)								

ANNEX-IV

Sl no.	Prospective Project List
1	4x1000 Pudimadaka(NTPC)
2	1x660 Panki(UPRVUNL)
3	1x660 Bhusawal(MAHAGENCO)
4	4x660 Barethi(NTPC)
5	1x250 Rourkela(NSPCL)
6	2x660 Udangudi(TANGEDCO)
7	Ydadri
8	Bhadradi
9	Ennore
10	North Chennai stage III
11	2x660 Khurja(THDC)
12	1x800 Yeramarus Extn(RPCL)
13	2x800 Udipi(Adani Power)
14	Paraspani
15	Sagardighi 1X660 MW extn
16	Uppur
17	3x800 Patratu(NTPC-JBVNL JV)

ANNEXURE-V- Special Condition of Rate Contract for Chain Pulley Blocks

1. BHEL/PEM intends to enter into Rate Contract for the tendered different capacity and lift initially for a period of one year. The Rate Contract shall come into force from the date of issue of Purchase order for Rate Contract. Validity for ordering shall be one year from the purchase order for Rate Contract.
2. The items will be required against respective projects. Exact quantities and Project name shall be intimated while placing order for a specific project based on the Rate Contract.
3. The units rate for each item should be quoted inclusive of ex-works including packing & forwarding (excepted sea worthy packing) for tendered specifications/sizes as per price schedule format. Other elements of prices such as Excise Duty, Sales Tax, and freight charges (Including service tax) % of Ex-works are also to be indicated. Destination may be anywhere in India as per project requirement.
4. The freight charges shall be paid on percentage on ex-works prices or actual freight charges paid to transporter whichever is lower against production of documentary evidence. Vendor to quote freight charges as percentage (%) of ex-works price for destination anywhere in India.
5. Vendor to note that Excise Duty is payable on self manufacturing item only as per clause no 4.1.2 of GCC Rev 06 & hence for their BOI may quote Excise Duty is inclusive or Nil.
6. The prices shall remain firm during the period of one year.
7. Inspection of materials shall be carried out by BHEL / CQA and or by Customer or by an authorized agency at manufacture's works before dispatch, if required. Dispatch of material to be done, only after receipt of BHEL/Customer MDCC. It is responsibility of vendor to for obtain Material Dispatch Clearance Certificate (MDCC) from BHEL or CUSTOMER as required before dispatch of material.
8. Items have to be manufactured as per specification and supplied strictly in accordance with the approved BHEL / Customer's Drawings & Quality Plan. The items/ test certificate of items, which for any reason are not acceptable to BHEL / Customer, shall be required to be retested. No extra charge shall be payable on those account by BHEL.
9. Mode dispatch shall be by road through Schedule Bank/BHEL (PEM) approved transporters.
10. Other terms and conditions shall be as per Standard Technical specification no. PE-TS-RC-563-A101 & GCC Rev 06, Enquiry letter.
11. Order shall be placed with CST for respective projects keeping FOR site price same, vendors to quote accordingly.
12. This enquiry is subject to Conditions/ limits if any imposed in PMD/ Vendor registration.
13. Tentative quantity is given in enquiry.
14. Bidders to submit offer for RC of said items ONLINE via e-Procurement System only. Complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
15. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL web site <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud as soon as it comes to their notice.



Annex - D

**BHEL-PEM-MAUX
PRE-QUALIFICATION CRITERIA**

	PACKAGE: CHAIN PULLEY BLOCK	PE-PQ-999-563-11000-A-A001	
		DATE	29/04/2016
		REV NO	00

1.0	Supplier should have capabilities for design/ manufacture and having in-house/ out-sourced facility for testing of chain pulley block.
2.0	The supplier has to submit either of following supporting documents meeting above mentioned pre-qualifying requirement a. Copy of minimum one (1) performance certificate in English from end user along with copy of related Purchase Order (PO) or letter of intent (LOI) or letter of award (LOA) or work order (WO) specifying that the product/ equipment is running successfully for one (1) year from date of commissioning meeting the minimum pre-qualifying requirement. OR b. Minimum two PO/ LOI /LOA/ WO placed with a minimum gap of six (6) months from same purchaser meeting the minimum pre-qualifying requirement. OR c. Minimum one PO/ LOI /LOA/ WO after commissioning of first order from same purchaser meeting the minimum pre-qualifying requirement. OR d. In case, vendor has executed contract (s) for BHEL-PEM, internal assessment by BHEL-PEM shall be followed for evaluation for satisfactory performance. For this, vendor to submit the request along-with relevant documents. OR e. Minimum three customer's/ third party's inspection reports/ test certificates/commissioning certificates meeting the minimum pre-qualifying requirement.
3.0	Minimum two (2) nos. Purchase orders, shall be submitted which should not be more than ten (10) years old as on date of bid submission, for establishing continuity in business.
4.0	Indian stockiest/ trader/ distributor/ dealer/ authorized agent/ channel partner/ Indian sales office or subsidiary of principal - with aftersales service agreement with OEM/principal are also acceptable provided OEM/principal meets the minimum pre-qualification criteria stipulated above at pt no 1.
5.0	Credentials for S/G HOT crane shall also be considered for qualification for Chain Pulley Block.

Supplier to comply general points of PQR available at <http://bhelpem.com/vensection/pmd/pmd.aspx> in case supplier is not OEM, the offer shall be evaluated as per point no 1 of general PQR.

**RATE CONTRACT
FOR
CHAIN PULLEY BLOCKS**

TECHNICAL SPECIFICATION

PE-TS-RC-563-A101



**BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR- PROJECT ENGINEERING MANAGEMENT
NOIDA
INDIA**



**TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
CHAIN PULLEY BLOCKS**

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SECTION-A
INTENT OF SPECIFICATION



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SCOPE OF ENQUIRY

- 1.1 The specification is intended to cover design, engineering, manufacturing, inspection and testing, painting, supply/ delivery duly packed at FOR site including maintenance tools & tackles, mandatory spares, all accessories including freight and handing over to the customer in line with drawings/ documents/ test procedures approved by BHEL/ Customer for chain pulley blocks as in different sections / volumes of this specification.
- 1.2 The contractor shall be responsible for providing all material, equipment & services, which are required to fulfil the intent of ensuring operability, maintainability, reliability and complete safety of the complete work covered under this specification, irrespective of whether it has been specifically listed herein or not. **Omission of specific reference to any component / accessory necessary for proper performance of the equipment shall not relieve the contractor of the responsibility of providing such facilities to complete the supply of CHAIN PULLEY BLOCK.**
- 1.3 It is not the intent to specify herein all the details of design and manufacture. However, the equipment shall conform in all respects to high standards of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material which in his judgement is not in full accordance herewith.
- 1.4 The extent of supply under the contract includes all items shown in the drawings, notwithstanding the fact that such items may have been omitted from the specification or schedules. Similarly, the extent of supply also includes all items mentioned in the specification and /or schedules, notwithstanding the fact that such items may have been omitted in the drawing.
- 1.5 The general term and conditions, instructions to tenderer and other attachment referred to elsewhere are made part of the tender specification. The equipment materials and works covered by this specification is subject to compliance to all attachments referred to in the specification. The bidder shall be responsible for and governed by all requirements stipulated herein.
- 1.6 While all efforts have been made to make the specification requirement complete & unambiguous, it shall be bidders' responsibility to ask for missing information , ensure completeness of specification, to bring out any contradictory / conflicting requirement in different sections of the specification and within a section itself to the notice of BHEL and to seek any clarification on specification requirement in the format enclosed under Vol-III of the specification **within 10 days of receipt of tender documents.** In absence of any such clarifications, in case of any contradictory requirement, the more stringent requirement as per interpretation of Purchaser/Customer shall prevail and shall be complied by the bidder without any commercial implication on account of the same. Further in case of any missing information in the specification not brought out by the prospective bidders as part of pre-bid clarification, the same shall be furnished by Purchaser/ Customer as and when brought to their notice either by the bidder or by purchaser/ customer themselves. However, such requirements shall be binding on the successful bidder without any commercial & delivery implication.
- 1.7 The bidder's offer shall not carry any sections like clarification, interpretations and /or assumptions.
- 1.8 Deviations, if any, should be very clearly brought out clause by clause in the enclosed deviation schedule along with cost of withdrawal; otherwise, it will be presumed that the vendor's offer is strictly



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in line with NIT specification. If no cost of withdrawal is given against the deviation, it will be presumed that deviation can be withdrawn without any cost to BHEL/its customer.

- 1.9 In the event of any conflict between the requirements of two clauses of this specification documents or requirements of different codes and standards specified, Section - C shall prevail over section – D, however more stringent requirement as per the interpretation of the owner shall apply.
- 1.10 In case all above requirements are not complied with, the offer may be considered as incomplete and would become liable for rejection.
- 1.11 Unless specified otherwise, all through the specification, the word contractor shall have same meaning as successful bidder /vendor and Customer/ Purchaser/Employer will mean BHEL and /or END CUSTOMER including their consultant as interpreted by BHEL in the relevant context. For details refer the relevant clause in GCC.



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SECTION-B
PROJECT INFORMATION
(PROJECT SPECIFIC)



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SPECIFIC TECHNICAL REQUIREMENT



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1.0 SCOPE OF WORK

- 1.1 The specification is intended to cover design, engineering, manufacture, inspection and testing at vendor's / sub-vendor's works, painting, forwarding, proper packing and shipment and delivery at site as required on FOR site basis, demonstration test at vendor's works (as mentioned elsewhere in the specification) of **CHAIN PULLEY BLOCK** as per details in different sections / volumes of this specification.
- 1.2 The equipment to be furnished by the bidder for the chain pulley blocks of different capacity and lift as specified in price format along with all accessories including mandatory spares (as applicable) and tools and tackles. However, actual requirement of CPBs shall be informed to bidder during project specific enquiry/ PO.
- 1.3 The chain pulley blocks offered shall have technical parameters as per the Data Sheet A enclosed herewith in section –C1A of Vol IIB
- 1.4 Any equipment/accessories not specified herein but required to make the equipment complete and efficient shall also be under bidder's scope of work.

The following shall be in the bidder's scope of work.

- a. Chain pulley blocks with/without traveling trolleys as per price format.
- b. Maintenance Tools and Tackles as given at 4.0
- c. Packaging.
- d. O&M manuals, drawings and documents etc.
- e. Mandatory spares (project specific)
- f. Inspection & testing of Chain Pulley Blocks as per QAP approved by BHEL /Customer during detail engineering. Prime inspection agency shall be BHEL / End Customer. Equipment being supplied shall be strictly in accordance with nomenclature & technical specification.

2.0 TESTING AND INSPECTION

Refer section C1-B, Vol-IIB

3.0 WORKS EXCLUDED

- 3.1 Supply of ISMB/ monorail for traveling trolley of chain pulley blocks.

4.0 MAINTENANCE TOOLS AND TACKLES

A complete unused one set of special purpose maintenance tools & tackles and accessories along with detailed instructions for maintenance and operation shall be supplied. Tools shall be of suitable sizes for maintenance of Chain Pulley Block of each type and capacity. Each tool and wrench shall be stamped so as to be identified easy for its use and size. The tools shall be supplied in steel toolbox and with a copy of instruction manual. The items supplied shall be of the best quality, specially protected against rusting. The following shall be provided as minimum requirement.

- | | |
|-----------------------------------|---|
| i. Adjustable spanner | One (1) |
| ii. Wrench spanner | One (1) |
| iii. Oil gun | One (1) |
| iv. Set of Screw driver | Min 6 nos. (of different sizes suiting various types and capacities of Chain Pulley Blocks) |
| v. 2 lb hammer with wooden handle | One (1) |
| vi. Grease Gun | One (1) |



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Note: All maintenance tools & tackles are to be supplied in a tool box.

Any other item required for maintenance shall also be provided.

5.0 MANDATORY SPARES: -

Refer Annexure II

6.0 DRAWINGS/DESIGN DOCUMENTS FOR SUBMISSION (during detailed engineering)

A. For Approval

- G.A. drawing showing clearances, assembly, cross section details, materials of construction, lifts & approaches etc.
- Quality plan
- Test certificates & reports on various shop tests (For verification only)

For details refer Volume IIB, Annexure IV

7.0 DEVIATIONS

- If the offer submitted has got any deviations from technical specification in the tender document. Bidder shall tabulate the same in the 'Deviation sheet (cost of withdrawal)' format furnishing full particulars of such deviations. Deviations are to be furnished with mention to specific clause numbers notes/ comments e.g. "Refer to forwarding letter" etc. is not acceptable. Cost of withdrawal of deviations to be put against each deviation.
- If there are no deviations from the tender document, bidder shall indicate so in deviation format.
- Reasons/explanations for such deviations shall be furnished.

8.0 DEMONSTRATION TEST

- The chain pulley blocks along with other accessories shall be demonstrated for the rated capacity. Inspection & testing shall be as per section C1-B, Vol- IIB
- The bidder shall have full responsibility for the safe and efficient operation of the chain pulley blocks and traveling trolley with associated accessories as a single unit.
- If the shop performance tests indicate the failure of any of the components to achieve the functional performance, the deficiency shall be made good at bidder's cost.
- Demonstration test shall be carried out each time after the rectification modification is carried out.

9.0 PACKING

Packing shall be for normal environment in wooden box. For seaworthy packing, refer annexure IX of Vol IIB

10.0 SCOPE OF SUPPLY

Sl no.	Details of Works or Equipment/System	Qty. (No.)
1	CPB with travelling trolley 1Ton, 6.0 M lift.	1 no.
2	CPB with travelling trolley 2Ton, 6.0 M lift.	1 no.
3	CPB with travelling trolley 3Ton, 6.0 M lift.	1 no.
4	CPB with travelling trolley 5Ton, 6.0 M lift.	1 no.
5	CPB without travelling trolley 1Ton, 6.0 M lift.	1 no.
6	CPB without travelling trolley 2Ton, 6.0 M lift.	1 no.
7	CPB without travelling trolley 3Ton, 6.0 M lift.	1 no.



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8	CPB without travelling trolley 5Ton, 6.0 M lift.	1 no.
9	CPB without travelling trolley 8 Ton, 6.0 M lift.	1 no.
10	CPB without travelling trolley 10Ton, 6.0 M lift.	1 no.
11	CPB with travelling trolley 2Ton, 6.0 M lift. (Hazardous area)	1 no.
12	CPB with travelling trolley 2Ton, 10.0 M lift. (Hazardous area)	1 no.
13.	Mandatory spares	11 set
14	Maintenance tools & tackles	1 set



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SECTION -C1B

REV 01

DATE OCT 2016

VOLUME - IIB

SECTION – C1-B

QUALITY ASSURANCE



TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
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As per standard quality plan enclosed. Any additional inspection & testing requirement / CHP (customer's hold point) deemed necessary by customer/BHEL during detailed engineering shall also be complied with without any commercial or delivery implication.

Chain pulley block shall be completely assembled at manufacturer's works and minimum following tests shall be conducted at works

- a) Over load test
- b) Rated load test
- c) Other tests as per IS-3832.

The scope of inspection & testing shall include but not limited to the following:

- a) Material identification / co-relation for important items like hook, load chain, hand chain, wheels, ratchet and pawl etc.
- b) Hardness for pawl and ratchet
- c) Dye penetration test/ UT test for hooks
- d) Operational test including operational effort, velocity ratio etc.
- e) Proof load test upto 1.5 times of working load limit.
- f) Dimensional check of hook
- g) Marking

For details, refer standard quality plan enclosed below.

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	MANUFACTURER'S NAME & ADDRESS :	MANUFACTURING QUALITY PLAN ITEM : Chain Pulley Block QP No.: PE-TS-RC-563-A101 REV.: 0, Date.: , PAGE: 2 OF 4	PROJECT : RATE CONTRACT PACKAGE : CHAIN PULLEY BLOCK VOL IIB, SEC C
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Sr. No.	COMPONENT / OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK M C/N	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
1.	2.	3.	4.	5.					M	C	N	
					6.	7.	8.	9.	10.			11.
1.3	RAW MATL. (BAR /FORGING) FOR GEAR/ RATCHET PAWL / RATCHET WHEEL & PLATES FOR FABRICATION	CHEMICAL COMPOSITION MECHANICAL INTERNAL DEFECTS	MA MA MA	Review Review UT	ONE SAMPLE PER HEAT 100%	Material specification as per approved drawings. ASTM A-388 REFER NOTE 1		MFR'S TC IR	✓ ✓ ✓	P P P	V V V	V V V TC or inspection report for components shall be given. For rounds ≥40mm and plates ≥20.
1.4.	LOAD CHAIN WHEELS	- CHEMICAL & MECHANICAL PROPERTIES	MA	CHEMICAL MECHANICAL PROPERTIES	ONE SAMPLE PER LOT	APPD. DRG.	APPD. DRG.	MTC	✓	P	V	V
1.5	BEARINGS	MAKE, TYPE, CATALOGUE NO.	MA	VISUAL	RANDOM	APP DRG / MFR'S CATALOGUE	APP DRG / MFR'S CATALOGUE	IR	✓	P	V	V
1.6	HAND CHAIN WHEEL	CHEMICAL MECHANICAL PROPERTIES	MA	CHEMICAL MECHANICAL PROPERTIES	ONE SAMPLE PER LOT	AS PER DRAWING	AS PER DRAWING	MTC	✓	P	V	V
1.7	HAND CHAIN	GRADE/ DIMENSION	MA	GRADE DIMENSION	100%	AS PER DRAWING	AS PER DRAWING	MTC	✓	P	V	V

MANUFACTURER / CONTRACTOR SUB-CONTRACTOR SIGNATURE	LEGEND: ** M : MANUFACTURER / SUB-SUPPLIER C : BHEL / NOMINATED INSPECTION AGENCY. N : CUSTOMER/ NOMINATED INSPECTION AGENCY. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION	FOR CUSTOMER USE	
		REVIEWED BY	NAME & SIGN OF APPROVING AUTHORITY & SEAL

	MANUFACTURER'S NAME & ADDRESS :	MANUFACTURING QUALITY PLAN ITEM : Chain Pulley Block QP No.: PE-TS-RC-563-A101 REV.:0, Date.: , PAGE: 3 OF 4	PROJECT : RATE CONTRACT PACKAGE : CHAIN PULLEY BLOCK VOL IIB, SEC C
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Sr. No.	COMPONENT / OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
					M C/N				M C N	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.

1.8	TROLLEY GEARS, PINION, WHEELS, AXLE	CHEMICAL & MECHANICAL	MA	LAB ANALYSIS,	100%	APPVD DRGS	APPVD DRGS	IR/TC	✓	P	V	V	
2	IN PROCESS												
2.1	RATCHET PAWL / RATCHET WHEEL	-HARDNESS -SURFACE CRACK	MA MA	HARDNESS DPT	100% 100 %	IS:3832/ APPD DRG. ASTM E165	IS:3832/ APPD. DRG. NO DEFECT	IR IR	✓ ✓	P P	V V	V V	
2.2	GEARS AND PINIONS AFTER MACHINING	HEAT TREATMENT SURFACE HARDNESS SURFACE CRACK DIMENSION	MA MA MA MA	HT CHART HARDNESS DPT FOR SURFACE CRACK MEASURE	100% 10% 100% 10%	IS 1875/IS 4367/IS 3832 --DO-- ASTM E 165	NO DEFECT	IR IR IR IR	✓ ✓ ✓ ✓	P P P P	V V V V	V V V V	
3.0	FINAL INSPECTION												
3.1	COMPLETE ASSEMBLY	OVERALL DIMENSION ENDURANCE TYPE TEST OPERATIONAL PROOF LOAD & LIGHT LOAD TEST HEIGHT OF LIFT	CR MA CR MA	MEASUREMENT TYPE TEST LOAD TEST VISUAL	100 % 1 PER SIZE 100% 100 %	IS:3832 /APPD DRG IS 3832 -DO- -DO-	IS:3832 /APPD DRG IS 3832 -DO- -DO-	IR TC IR IR	✓ ✓ ✓ ✓	P P P P	W V W W	V V V V	

MANUFACTURER / CONTRACTOR SUB-CONTRACTOR SIGNATURE	LEGEND: ** M : MANUFACTURER / SUB-SUPPLIER C : BHEL / NOMINATED INSPECTION AGENCY. N : CUSTOMER/ NOMINATED INSPECTION AGENCY. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION	FOR CUSTOMER USE 	

REVIEWED BY	NAME & SIGN OF APPROVING AUTHORITY & SEAL
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	MANUFACTURER'S NAME & ADDRESS :	MANUFACTURING QUALITY PLAN ITEM : Chain Pulley Block QP No.: PE-TS-RC-563-A101 REV.:0, Date.: , PAGE: 4 OF 4	PROJECT : RATE CONTRACT PACKAGE : CHAIN PULLEY BLOCK VOL IIB, SEC C

Sr. No.	COMPONENT / OPERATION	CHARACTERISTICS	CLAS S	TYPE OF CHECK	QUANTU M OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
					6.					10.			
1.	2.	3.	4.	5.			7.	8.	9.				11.

		SWIVELING OF HOOK	MA	VISUAL	100%	APPROVED DRG	APPROVED DRG	IR	✓	P	W	V	
		EFFORT	MA	PULL ON CHAIN	100%	-DO-	-DO-	IR	✓	P	W	V	
3.2	PAINTING	-CLEANING - SHADE & DFT OF PAINT	MA MI	VISUAL VISUAL	AT RANDOM AT RANDOM	APPROVED DRAWING/ SPECIFICATI ON	APPROVED DRAWING/ SPECIFICATI ON	IR IR		P p	--- W	--- ---	
3.3	NAME PLATE	VERIFICATION	MA	VISUAL	100%			IR		P	V	---	
3.4	PACKING	-VERIFICATION	MI	VISUAL	100%	SPECS.	SPECS.	IR		P	---	---	
3.5	REVIEW OF QA DOCUMENTATION	VERIFICATION	MA	VISUAL	100%	APPD. QP	APPD. QP		✓	V	V	V	

CR – CRITICAL, MA – MAJOR, MI – MINOR

NOTE 1: WHEN BACK WALL ECHO (BWE) IS SET AT 100% OF FULL SCREEN HEIGHT (FSH) IN DEFECT FREE AREA THEN

(A) DEFECT ECHO SHALL NOT EXCEED 20% OF FSH &

(B) BWE SHOULD BE MINIMUM 80% OF FSH IN ANY AREA.

NOTE 2: RECORDS IDENTIFIED WITH TICK SHALL BE ESSENTIALLY INLCUDED IN QA DOCUMENTATION.

	LEGEND:	FOR CUSTOMER USE	
MANUFACTURER / CONTRACTOR	** M : MANUFACTURER / SUB-SUPPLIER		
SUB-CONTRACTOR	C : BHEL / NOMINATED INSPECTION AGENCY.		
SIGNATURE	N : CUSTOMER/ NOMINATED INSPECTION AGENCY.		
	INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION	REVIEWED BY	NAME & SIGN OF APPROVING AUTHORITY & SEAL



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SECTION – C1-C

DATA SHEET- A



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DATA SHEET-A

- 1.00.0 Type : Chain pulley block with/ without travelling trolley
- 2.00.00 Capacity & Lift : As per price format
- 3.00.00 Design : IS: 3832
- 4.00.00 Duty Class as per IS: 3832 : Class –II (Indoor/outdoor as per scope of supply, Non. Hazardous / Hazardous)
- 5.00.00 Hoisting Mechanism
- a) Type : Hand operated gear transmission
- b) Load Chain :
- i) Type : Link type
- ii) Material : As per IS/6216/IS: 3077 / IS3109
- iii) Conforms to (Std./Code): IS: 3077/3109
- c) Hand Chain :
- i) Type : Link type
- ii) Material : Mild steel (grade 30) as per IS 2429 Part I
- d) Load Hook & Hook Block :
- i) Type of load hook : Plain shank- Trapezoidal section
- ii) Load hooks conforms to: IS: 15560
- iii) Type of hook suspension : Swiveling
- iv) Type of make of bearing : Thrust ball bearing of hook suspension
- e) Gears / pinion :
- i) Type : Spur / Helical
- ii) Material : Alloy steel / carbon steel
- iii) Type of bearing used : Antifriction ball bearing / Roller
- f) Sprockets
- i) Type of bearings used : Antifriction ball bearing / Roller
- g) Method of lubrications Used
- i) Bearings : Grease
- ii) Gearing & Pinions : Grease
- iii) Sprockets : Grease
- h) Brakes (Type) : Screw and friction disc type



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j) Effort on hand wheel : Shall not exceed 25 kgf.

6.00.0 Trolley & Bridge Drive

- a) Trolley
- i) Type : Geared (Manually operated)
- ii) Material of frame : Rolled structural steel (IS:2062 Grade A or B)
- b) Drive Chain
- i) Type : Link type
- ii) Material : Steel Gr.30
- c) Trolley Wheel
- i) Number of pairs of wheel in each trolley/bridge : Two/four
- ii) Flange : Single flanged
- iii) Wheel material : As per IS 3832
- iv) Type of bearings need : Antifriction
- d) Gears/ Pinions
- i) Type : Spur / helical
- ii) Material : Alloy/ Carbon steel
- iii) Type of bearings used : Antifriction
- e) Method of lubrication for
- i) Bearings : Grease
- ii) Sprockets : Grease
- f) Load chain wheel
- i) Material : As per IS 3832
- g) Hand chain wheel
- i) Material : As per IS 3832

7.0.0 SPECIFIC REQUIREMENT FOR CHAIN PULLEY BLOCKS FOR HAZARDOUS AREA:

MOC for Ratchet wheel, chain guides and gears: Solid construction in aluminum bronze or phosphor bronze

MOC for hand chain wheel: Solid construction/ rims of aluminum bronze or phosphor bronze

MOC for hand chain wheel guides:- Solid construction in aluminum bronze or phosphor bronze

MOC for Un-geared & geared wheels: HTB2/PB-4 lining on trolley wheels



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ANNEXURES



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ANNEXURE-I
MAKES OF SUB VENDORS ITEMS

Following makes of bought out items shall be considered:

Steel	SAIL/ TISCO/ JINDAL/ ESSAR
Steel Forgings	Chowdhary/Western India Forgings/ Hindustan Steel Forgings/ Ruby Forgings or as approved by BHEL.
Hook	Steel Forgings/ Karachiwala/Smriti/Nasik Forge.
Brakes	OEM

NOTE:

1. THE SUB VENDOR LIST ABOVE IS INDICATIVE ONLY AND IS SUBJECT TO BHEL AND CUSTOMER APPROVAL DURING DETAILED ENGINEERING STAGE WITHOUT ANY COMMERCIAL & DELIVERY IMPLICATION TO BHEL.

BIDDER TO PROPOSE SUB VENDOR WITHIN 4 WEEKS OF PLACEMENT OF LOI. THEREAFTER NO REQUEST FOR ADDITIONAL SUB-VENDOR SHALL BE ENTERTAINED.

2. DEALERS ARE NOT ACCEPTABLE FOR ANY ITEM OF THE PACKAGE. BIDDER SHALL PROCURE ALL ITEMS INCLUDING PLATES, STRUCTURAL, FLANGES; COUNTER FLANGES ETC. FROM APPROVED SUB VENDOR ONLY.
3. THE INSPECTION CATEGORY WILL BE INTIMATED AFTER AWARD OF CONTRACT BY BHEL/CUSTOMER. HOWEVER THE SAME WILL BE ADHERED BY THE BIDDER WITHOUT ANY COMMERCIAL AND DELIVERY IMPLICATION TO BHEL/ CUSTOMER.



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Annexure II

STANDARD MANDATORY SPARES LIST FOR CHAIN PULLEY BLOCK

Sl no.	Item description	Qty
1	Load chain Wheel	1 no
2	Load chain stripping fork	1 no
3	Hand Chain wheel	1 no
4	Ratchet pawl	1 no
5	Locking ratchet wheel	1 no
6	Guide roller	1 no
7	Brake disc	1 no
8	Bearings of each type & size used in load chain wheels	1 set
9	Bearings of each type & size used in load chain lifting hook.	1 set
10	Bearings of each type & size used in trolley wheels.	1 set
11	Load chain (for hoisting)	per metre
12	Hand chain (for hoisting)	per metre
13	Hand chain (for travelling)	per metre
14	Grooved pulley	1 set
15	Pinion	1 set
16	Shaft pin	1 set

Note:

1. "One (1) set of each type & size" is defined as 100% requirement for one CPB for the entire CPBs of similar size & capacity. If two (2) CPBs are of same capacity, the total quantity for both shall be 100% quantity required for CPB.
2. 100% of total population of each type, size and rating is defined as 100% requirement for one CPB.



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Annexure III
PAINTING

Painting of the equipment shall be carried out to protect the same from rusting / corrosion during shipping, long storage at site, erection, and during its normal operation / usage.

Whilst the essential requirements of surface preparation and painting are specified here, these in no way relieve the contractor of his responsibility to carry out his work in accordance with good practices. However, any deviation/modification from the specification shall be referred to the purchaser for approval.

The following specification shall be followed in general for chain pulley block and its accessories. Vendor to note that the same is indicative and specific requirement (including color coding) shall be informed on project to project basis.

- Primary coat : A two pack air drying epoxy polyamide resin based red oxide zinc phosphate. 2 coat. Min DFT, 30 microns per coat.
- Intermediate coat : A two pack air drying high build epoxy resin based paint with MIO. One coat. Minimum DFT, 100 microns per coat
- Finish paint coat : A two pack air drying epoxy polyamide enamel suitably pigmented. Two coat. Minimum DFT, 40 microns per coat.

Total DFT: 240 micron

Note: Hook block shall be painted with golden yellow.



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ANNEXURE – IV

A.0 DRAWINGS/DESIGN DOCUMENTS FOR SUBMISSION (during detailed engineering)

The successful bidder shall submit the following drawings / documents during detail engineering for customer's approval /information:

Sl. No.	BHEL DRG.NO	DRAWING TITLE	REMARKS	SUBMISSION SCHEDULE - WEEK NUMBER FROM DATE OF P.O
1	PE-V0-RC-563-A101	"GA Drawing for Chain Pulley Block with detail BOM with painting details "	For Customer's approval	2
2	PE-V0-RC-563-A102	Manufacturing Quality Plan	For Customer's approval	2
3	PE-V0-RC-563-A104	Erection procedure	For BHEL's approval	4
4	PE-V0-RC-563-A103	O & M Manual	For BHEL's approval	4
5	PE-V0-RC-563-A105	Sea worthy packing(if applicable)	For BHEL's approval	4
6	PE-V0-RC-563-A106	Mandatory spare parts list (if applicable)	For Customer's approval	3

Notes:

BHEL/CUSTOMER SHALL COMMENT /APPROVE THE DRAWINGS WITHIN 15 DAYS OF RECEIPT OF DRAWINGS.
VENDOR SHALL RESUBMIT THE REVISED DRAWINGS WITHIN 7 DAYS OF RECEIPT OF COMMENTS.
INCOMPLETE DRAWINGS/DOCUMENTS SHALL NOT BE TREATED AS SUBMITTED.
MANUFACTURING SHALL BE STARTED ON RECEIPT OF CAT II APPROVED DRAWINGS.

B.0 NO.OF DRAWINGS/DOCUMENTS FOR SUBMISSION (Project specific *)

A.	Drawing for Approval	No. of prints/copies (hard prints)
i.	For approval	8
ii.	For final distribution (after the vendor obtains final approval from the customer).	12
B.	Certificate, reports etc. (Material test, inspection report and all other type of tests etc.)	6
C.	O&M Manual	
i.	Draft for approval	2
ii.	For final distribution	12

Note:

a) The number of prints/hard copies are indicative and may change on project to project basis.

b) Bidder to note that all the drawings and documents shall also be submitted on CD's (compact discs) in following software.



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- I. All the drawings shall be prepared in AutoCAD.
- II. All the documents shall be prepared MS word / EXCEL.
- III. PDF files for all drawings/documents shall also be submitted.

C.0 DOCUMENT MANAGEMENT SYSTEM

1.0 Bidder to note that BHEL reserves the right for drawing/document submission through web based Document Management System. Bidder would be provided access to the DMS for drawing/document approval and adequate training for the same. Detailed methodology would be finalized during the kick-off meeting. Bidder to ensure following at their end.

- Internet explorer version – Minimum Internet Explorer 7.
- Internet speed – 2 mbps (Minimum preferred).
- Pop ups from our external DMS IP (124.124.36.198) should not be blocked.
- Vendor's Internal proxy setting should not block DMS application's link (<http://124.124.36.198/wrenchwebaccess/login.aspx>).



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ANNEXURE -V

Check List for Operation & Maintenance Manual

1	Project name	:
2	Project number	:
3	Package Name	:
4	PO reference	:
5	Document number	:
6	Revision number	:

Sl.no. & Sections	Description	Tick (√)if included in Manual			Remarks
		Yes	No	Not Applicable	
1.	Cover page				
1.1	Project Name				
1.2	Customer/consultant Name				
1.3	Name of Package				
1.4	Supplier details with phone, FAX ,email address , Emergency Contact number				
1.5	Name and sign of prepared by , checked by & approved by				
1.6	Revision history with approval Details				
2.0	Index				
2.1	showing the sections & related page nos All the pages should be numbered section wise				
3.0	Description of Plant/System				
3.1	Description /write up of operating principle of system equipment/ associated sub-systems & accessories/controls system , operating conditions, performance parameters under normal , start up and special cases				
3.2	Equipment list and basic parameter with Tag numbers				
3.3	Data sheets approved by Customer/for information and catalogues provided by original manufacturer				
3.4	Associated other packages and Interface /terminal points				
3.5	P&ID & Process Diagrams				
3.6	GA Layout drawings, As-built drawings , Actual photograph of items/system				



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	(Drawings of A2 & bigger sizes are to be attached in the last)				
3.7	Single line/wiring diagrams				
3.8	Control philosophy /control write-ups				
4.0	Commissioning Activities (if not covered in separate document i.e. erection manual, commissioning manual)				
4.1	Pre-Commissioning Checks				
4.2	handling of items at site				
4.3	Storage at site				
4.4	Unpacking & Installation procedure				
5.0	Operation Guidelines for plant personal/user/operator				
5.1	Interlock & Protection logic along with the limiting values of protection settings for the equipment along with brief philosophy behind the logic, drawings etc. to be provided.				
5.2	Start up, normal operation and shut down procedure for equipments along with the associated systems in step by step mode. Valve sequence chart, step list, interlocks etc. with Equipment isolating procedures to be mentioned.				
5.3	Do's & Don't of the equipments.				
5.4	Safety precautions to be taken during normal operation. Safety symbols, Emergency instructions on total power failure condition/lubrication failure/any other condition				
5.5	Parameters to be monitored with normal values and limiting values				
5.6	Trouble shooting with causes and remedial measures				
5.7	Routine operational checks, recommended logs & records				
5.8	Changeover schedule if more than one auxiliary for the same purpose is given				
5.9	Painting requirement and schedule				
5.10	Inspection, repair , Testing and calibration procedures				
6.0	Maintenance guidelines for plant personal				
6.1	List of Special Tools and Tackles required for Overhaul/Trouble shooting including special testing equipment required for				



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	calibration etc.				
6.2	Stepwise dismantling and re-assembly procedure clearly specifying the tools to be used, checks to be made, records to be maintained, clearances etc. to be mentioned. Tolerances for fitment of various components to be given.				
6.3	Preventive Maintenance & Overhauling schedules linked with running hours/calendar period along with checks to be given				
6.4	Long term maintenance schedules especially for structural, foundations etc.				
6.5	Consumable list along with the estimated quantity required during commissioning, normal running and during maintenance like Preventive Maintenances and Overhaul. Storage/handling requirement of consumables/self-life.				
6.6	List of lubricants with their Indian equivalent, Lubrication Schedule, Quantity required for each equipment for complete replacement is to be given				
6.7	List of vendors & Sub-vendors with their latest addresses, service centres ,Telephone Nos., Fax Nos., Mobile Nos., e-mail IDs etc.				
6.8	List of mandatory and recommended spare parts list				
6.9	Tentative Lead time required for ordering of spares from the equipment supplier				
6.10	Guarantee and warranty clauses				
7.0	Statutory and other specific requirements considerations.				
8.0	List of reference documents				
9.0	Binding as per requirement				

Checked by
Dealing Engineer

Key Resource Person

Section Head



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ANNEXURE –VI

SEAWORTHY PACKING

SEAWORTHY PACKING FOR EXPORT JOBS

REV. 0
DT. 7.12.99

1.0 SCOPE:

For export jobs, sea worthy packing capable of performing all necessary functions like prevention of damage to the contents, sufficient to support frequent handlings and lengthy periods of outdoor storage in adverse weather conditions are required. Workmanship and material used shall be of standard, meeting the technical requirements and in accordance with best commercial export packing practices. Vendor shall be responsible for the packing, however, it shall meet the minimum requirements specified herein. Equivalent or better packing methods may be deployed subject to approval of the purchaser. Vendor shall submit the packing procedure for its equipment for purchaser's approval during detailed engineering.

2.0 TECHNICAL SPECIFICATION OF WOOD:

The wood shall be Fir, Chir, Silver Oak (Grevillea Robusta) or chemically treated mango with moisture content not exceeding 50 %. The wood shall have flexural & compressive strength, stiffness, shock absorption and nail retention properties. The wood shall be free from common defects such as warp, bone, twist, knot, cracks, splits, end splits, bend, visible sign of infection and any kind of decay caused by insects, fungus etc. Surface cracks with a maximum depth of 3 mm are permissible. A continuous crack of any depth all along the length is not allowed.

The wood shall be chemically treated to provide protection against deterioration due to fungi and attack by termites, borers, marine organism and any other kind of infection. It shall be treated only after final processing like cutting, planing, joint grooving etc.

3.0 TYPE, DESIGN & DIMENSION OF WOODEN PACKING CASES:

3.1 PACKING OF EQUIPMENTS:

Various mechanical, electrical and C&I equipment e.g. pumps, motors, equipment skids, heat exchangers, control panels, switch gears, transformers etc. shall be wrapped in weather proof packing and then secured in wooden packing cases. The construction of wooden packing cases shall be as per details given below and also in figures 1 to 11.

3.1.1 BOTTOM FRAME:

The construction of bottom frame shall be as per fig. 2. The No. of slides / runners for bottom frames shall be selected depending upon the weight and overall dimension of the load to be carried. The equipment shall be secured by fixing their base frame/plate with the help of bolt & nuts etc to the bottom frame of the wooden packing cases. The equipment not provided with the base

frame/plate like cylindrical vessels etc. to be secured to the bottom frame of the wooden case with 'C' clamps fabricated from steel channels/angle irons.

3.1.2 TOP FRAME :

The construction of top frame shall be as per fig. 3.

3.1.3 END PANELS :

The dimensions of the end and lateral panels shall be calculated according to overall dimensions of the items to be packed.

Diagonal braces shall be used for packing cases having height exceeding 500 mm. Detail of bracing shall be as per figure 5 to 8.

3.1.4 SLING PLATE :

To facilitate lifting of cases, longitudinal under slide boards shall be fixed. To avoid damage to the box while lifting sling plates shall be provided. Refer fig. 11.

3.1.5 ANGLE IRON CLEATS :

Angle iron cleats shall be used for strengthening the joints as indicated in fig. 10.

3.1.6 OTHER REQUIREMENTS:

- The thickness of planks for top, bottom, side and end panels shall be atleast 25 mm. Planks used for this purpose shall be joined with each other by tongue & groove joint. The groove dimension shall be such that tongue fits tightly into groove to make good joint.
- Runners/slides, traverse bars etc. shall be of single length i.e. without any joint. Planks for sheathing, diagonal bracing etc shall also be of single length upto 2400 mm. For sizes larger than 2400 mm, proper jointing is permitted for planks for sheathing and diagonal bracing.
- Each equipment to be individually covered with double polyethylene petticoat. Sheet thickness of polyethylene sheet shall not be less than 0.175 mm (175 microns). The sealing shall be such so as not to allow moisture inside.
- The inner surface of 4 sides of shooks shall be nailed with bituminised water proof kraft paper. Wherever 2 pieces of kraft paper are used, the joint shall have an overlap of minimum 20mm.
- All the inner sides of the box shall be nailed with bitumen coated hessian polyethylene kraft paper. For top frame it shall project on all side by 100mm

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and shall be nailed on sides. Wherever 2 pieces of kraft paper are used, the joint shall have an overlap of minimum 20mm.

For delicate equipment like control panels, switchgears etc suitable cushioning material like rubberised coir shall be provided on their bottom support. The thickness of coir shall be 50 mm (minimum) and width 100 mm (minimum).

For control panels and switchgears, the gap between the panel and casing shall be filled with rubberised coir with distance between consecutive supports less than 500 mm (ref fig 15). For other equipment suitable support from sides of the casing to be provided.

Switchgear cubicles, control panels and control desks shall be packed and shipped in separate convenient sections. The components e.g. circuit breakers relays and instruments etc. which are removed from panels for shipping purpose shall be separately packed and shipped as per packing instructions in clause 3.2.

Packing case for control panels & switchgear panels shall be finally covered with GI sheet of minimum thickness of 6 mm.

Packing cases shall be bound at edges by nailing MIS clamps/brackets at sufficient intervals. Further, heavier boxes shall be strapped with 'C' clamps (ref fig 4) fabricated from steel channels/angles and lighter boxes shall be strapped with hoop iron strips.

1.7 ALTERNATIVE PACKING CASES FOR CONTROL PANELS AND SWITCHGEARS

If required, for control and switchgear panels, construction of wooden packing cases may be provided as per fig 14 & 15 and as detailed below:

Thickness of planks for all sides, binding and jointing battens shall be atleast 25-mm. Width of planks shall be atleast 125mm and that of binding and jointing planks shall be atleast 100 mm.

Top frame shall be suitable so that it does not collapse due to sandwiching between slings while lifting. Longitudinal and traverse bars for the bottom wooden pallet to be suitably selected.

Diagonal bracings shall be as per clause 3.1.3 and All other requirements shall be as per clauses 3.1.4 to 3.1.6.

1.2 PACKING OF LOOSE ITEMS:

Loose mechanical, electrical and C&I items eg valves, fittings, pressure/temperature gauges/switches, circuit breakers, relays etc shall be individually wrapped using polyethylene sheets/U foam/thermocole sheets/air bubbled sheets depending upon the item and then packed in wooden boxes. The left out spaces and top of the boxes shall be filled with rubberised coir to get

proper cushioning effect. Special attention is to be paid to relays, instruments etc for arresting the movement of their operating mechanisms during transportation.

The construction of wooden packing case shall be as per clause 3.1 retaining its all features concerning strength of box. The construction of wooden packing case for loose electrical and C&I items shall be as per fig. 16.

Inner surface of 6 sides of the box shall be lined with Bitumen coated-hessian polyethylene kraft paper. Rubberised coir of min. 25 mm thickness and 100 mm width shall be nailed to inner surfaces of bottom and 4 sides of the box.

0 MOISTURE ABSORBER:

Silica gel is used for this purpose to protect contents over sufficiently long time from corrosion. Silica gel shall be of indicating type conforming to IS-304-1979 packed in cotton bags placed at different positions inside the packing for absorbing moisture and shall not come into directly contact with the equipment / material inside the package. The quantity of silica gel shall be enough for storage period of one (1) year, however, it shall not be less than 4 gms per litre volume of case subject to minimum of 400 gms per case.

5.0 INDICATION MARKS ON THE BOXES:

Markings shall be provided on the boxes indicating position of boxes for handling, storage and nature of consignment. For guidelines ref fig 16. The ink used for this purpose as well as for marking despatch instruction shall be indelible/nonwashable marking ink.

6.0 DESPATCH DETAILS:

External front and rear sides of the boxes to be planed for writing instructions.

Despatch details such as consignor/consignee address, contract and case details, country of origin, port of delivery, stacking instructions shall be written on one of the side of boxes. An anodised aluminium plate as per details and specifications given in fig 13 shall be provided on one side of the boxes.

One copy of packing slip wrapped in polyethylene bag covered with aluminium packing slip holder to be nailed on the external surface of the box. One more copy of the packing slip wrapped in polyethylene bag to be kept inside the box at the prominent place.

7.0 INSPECTION:

There shall be a Customer Hold Point (CHP) for inspection of final assembly of packing. During above inspection, the records for Chemical Treatment shall be reviewed.

4. CARRIER TRAVERSE BAR
5. INTERMEDIATE VERTICALS
6. DIAGONAL BRACING
7. DRAINAGE HOLES
8. BATTEN
9. SLING PLATE
10. NUT, BOLT, WASHER
11. END TRAVERSE BAR
12. WATER PROOF LINING OF BITUMAMISED PAPER
13. VERTICAL SUPPORTS
14. END SHEATING BOARD
15. SIDE SHEATING BOARD
16. TOP SHEATING BOARD
17. LONGITUDINAL SUPPORT
18. TOP HORIZONTAL BEAM
19. TOP TRAVERSE BARS
20. TOP CORNER STRIPS (FOR STRENGTHENING)
21. OUT SIDE DOCUMENTS CONTAINER.

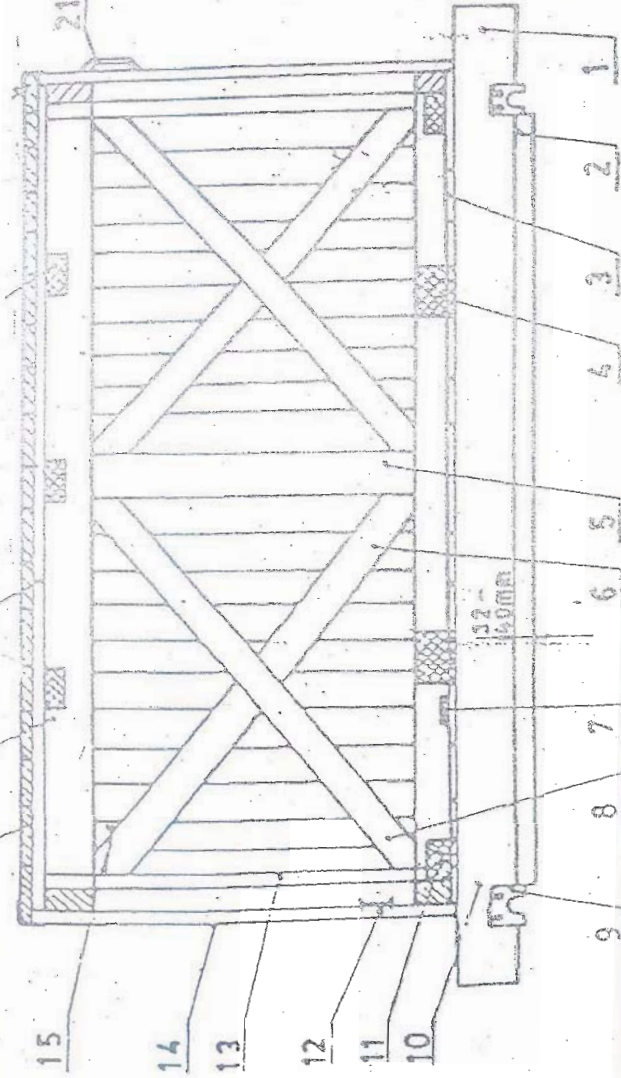


FIG. 1

NOMENCLATURE OF PARTS OF PACKING

CASES

FIG. 1

026

6

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EC-009

BOTTOM FRAME ARRANGEMENTS

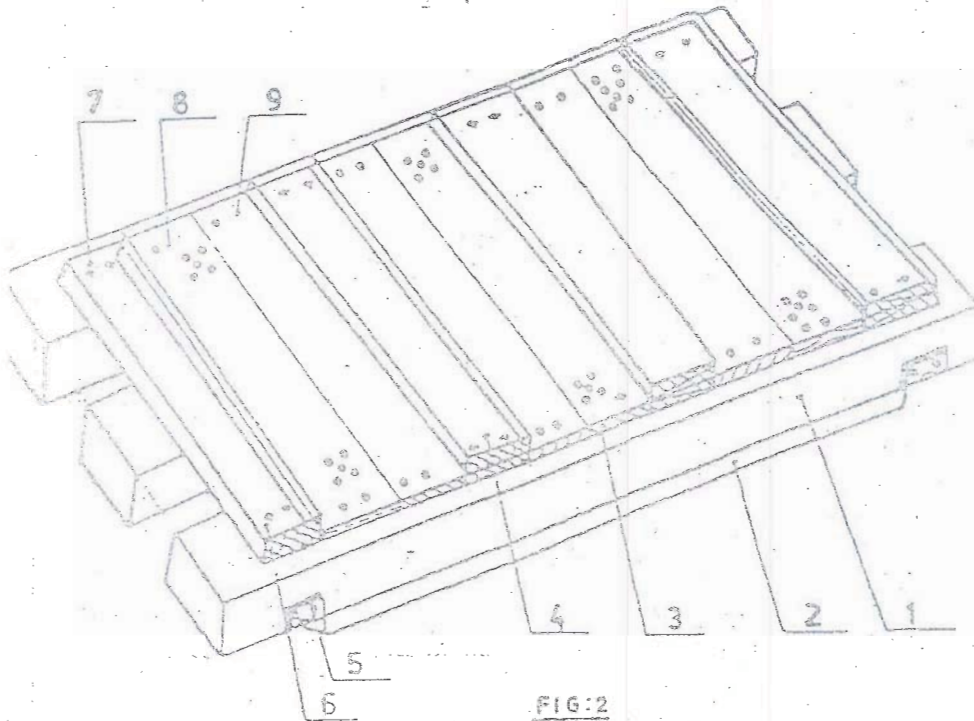


FIG:2

Nos. of slides: Minimum 2 Nos.
 or length more than 1800 mm or
 load more than 1000kg, Nos. of
 slides shall be minimum 3 Nos.
 For dimensions of slides, refer Table 1
 Cross section of end transverse bar; 100 x 100 mm
 (minimum)

1. SLIDE
2. UNDER SLIDE BOARD
3. BOTTOM BOARD
4. CARRIER TAVERSE BAR
5. SLING PLATE
6. TRAVERSE BAR
7. BOLT, NUT & WASHER
8. DRAINAGE HOLES
9. NAILS

027

TOP FRAME ARRANGEMENT

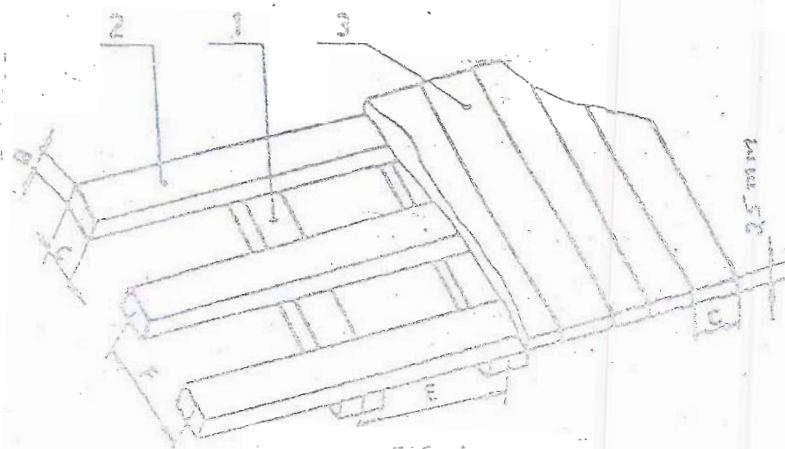
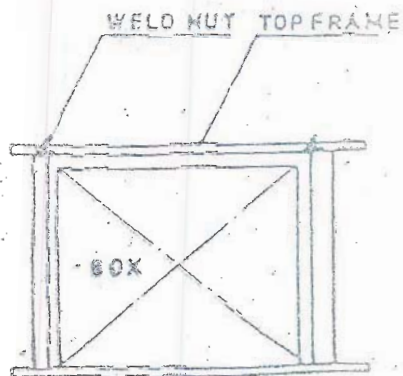
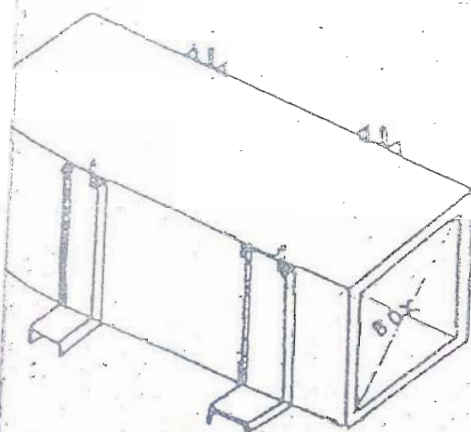


FIG-3

700 to 1000 mm
500 to 900 mm
30x100 mm

- 1 - Transverse Bars
- 2 - Horizontal Bars
- 3 - Top Board

ARRANGEMENT OF C-CLAMPS AROUND CASES



028

ARRANGEMENT OF DIAGONAL BRACING AND HORIZONTAL SUPPORT

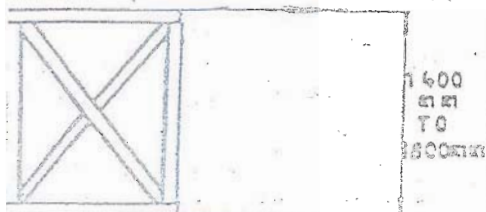


FIG: 6

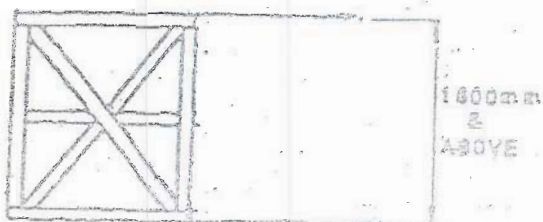


FIG: 8

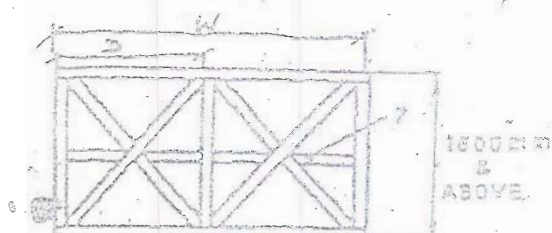


FIG: 9

7- Middle Horizontal Support

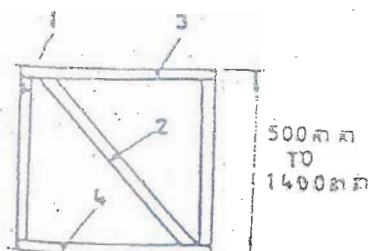


FIG: 5

Vertical Support
Diagonal Bracing
Upper Horizontal Support
Lower Horizontal Support

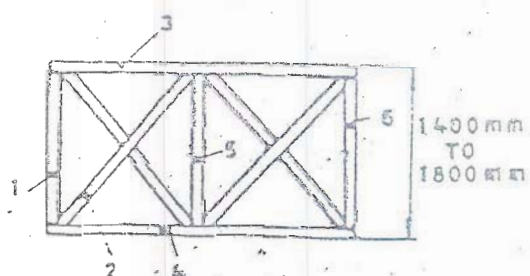


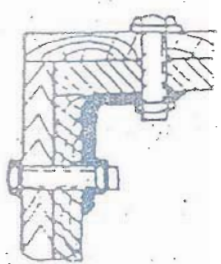
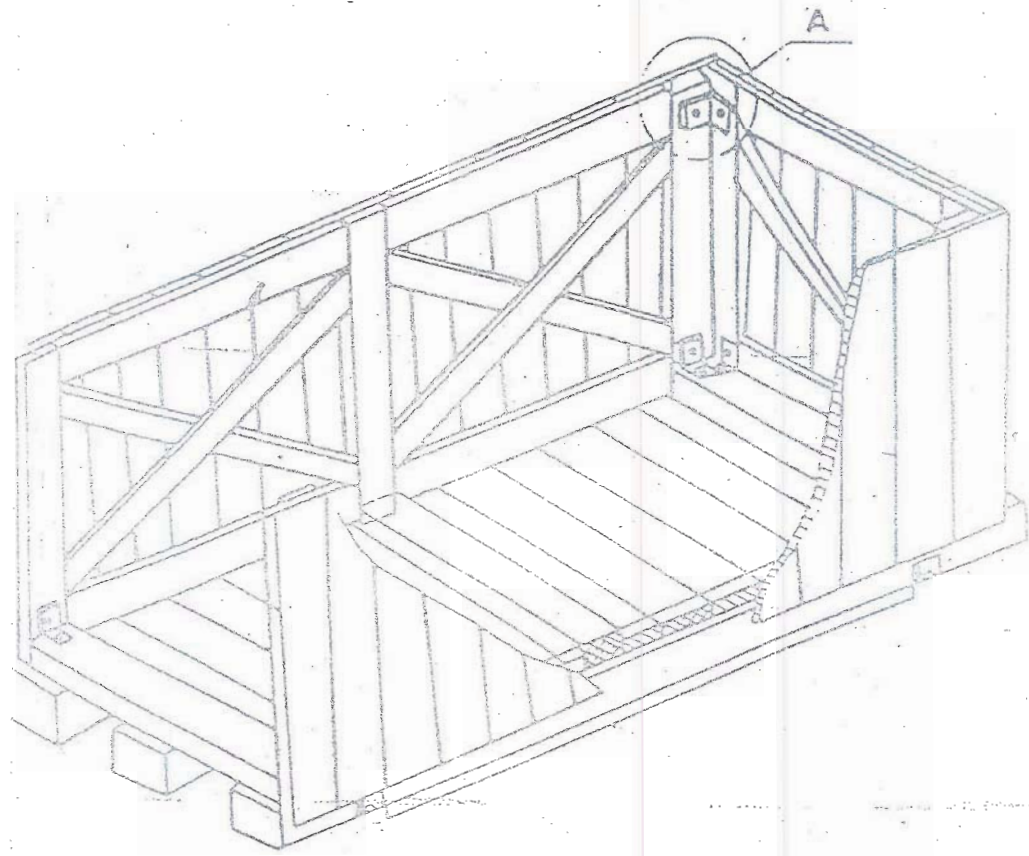
FIG: 7

1, 5, 6 - Vertical Support
2 - Diagonal Bracing
3 - Upper Horizontal Support
4 - Lower Horizontal Support

029

The dimensions of various items shall be as Table-2

ARRANGEMENT OF PACKING CASE



DETAIL-A

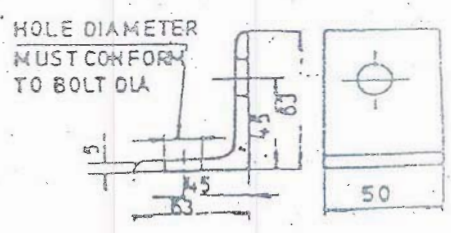
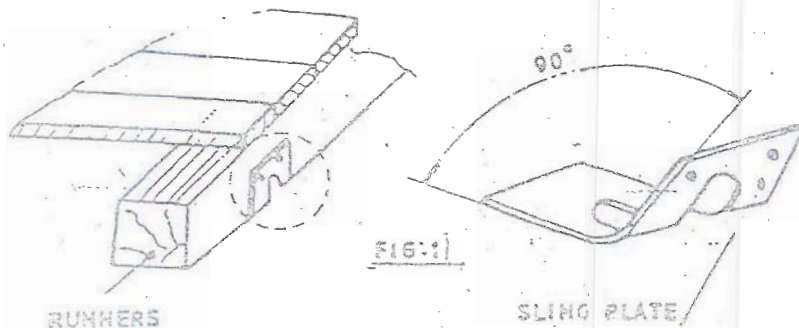


FIG:10

030

ARRANGEMENT OF SLING & PLATE ON CASES



031

10

Table 1

Load	Length of Slides						
	600	800	1000	1200	1300	1500	2000
	Cross Section b x c						
500	50 x 100	50 x 100	50 x 100	50 x 100	75 x 100	75 x 100	100 x 100
800	50 x 100	50 x 100	75 x 100	75 x 100	75 x 100	75 x 100	100 x 100
1000	75 x 100	75 x 100	75 x 100	100 x 100	100 x 100	100 x 110	100 x 150
1500	75 x 100	75 x 100	100 x 100	100 x 100	100 x 100	100 x 150	100 x 150
2000	75 x 100	100 x 100	100 x 100	100 x 150	100 x 150	100 x 150	150 x 150
2500	75 x 100	100 x 100	100 x 150	100 x 150	100 x 150	150 x 150	150 x 150
3000	100 x 100	100 x 150	150 x 150	150 x 150	150 x 150	150 x 150	

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Table 2

End and side PANELS	Width of the panel W	Distance between longitudinal support DIM. 'D'						
		500	800	1000	1200	1400	1600	1800
		Cross section (b : c)						
		Item 1 to 7						
Fig 5	500	30	30	30	30	30	30	30
	to	x	x	x	x	x	x	x
	1200	130	130	130	130	130	130	130
to	1201	30	30	30	30	30	30	30
	to	x	x	x	x	x	x	x
	1600	130	130	130	130	130	130	130
to	1601	30	30	30	30	30	30	30
	to	x	x	x	x	x	x	x
	2000	130	130	130	130	130	130	130
Fig 9	2001	30	30	30	30	30	30	40
	to	x	x	x	x	x	x	x
	3000	130	130	130	130	130	130	150
to	3001	30	30	40	40	40	40	40
	to	x	x	x	x	x	x	x
	4000	130	130	150	150	150	150	150

033

12

13

INDICATION MARKS ON CASES

CL. NO.	INDICATION MARK	MEANING
1		TOP SIDE
2		KEEP AWAY FROM HEAT
3		SLINGING POSITION
4		FRAGILE MATERIAL TO HANDLE WITH CARE
5		CENTRE OF GRAVITY
6		KEEP DRY

FIG. 12

034

BHEL-PEM-DELHI-INDIA	
CONSIGNEE	
MATERIAL	
CUSTOMER REF.	MO. NO.
DISPATCH ADVICE NOTE NO.	CASE NO.
DIMENSIONS(MM) LXBXH	NET WT --KGS
	GROSS WT --KGS
SPECIAL INSTRUCTIONS	HANDLE WITH CARE -- KEEP DRY DO NOT DROP -- DO NOT TILT

FIG-13 MARKING PLATE

51 51

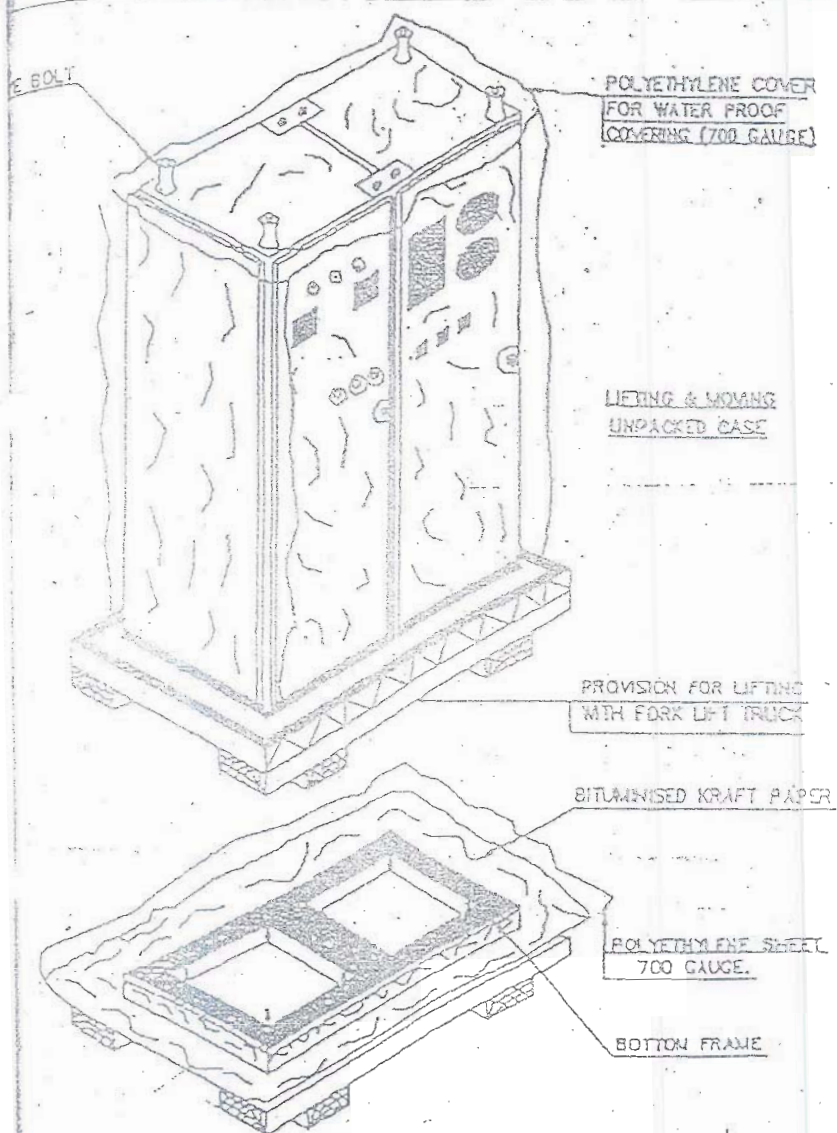


FIGURE-14

036 --

Sheet 16 of 17

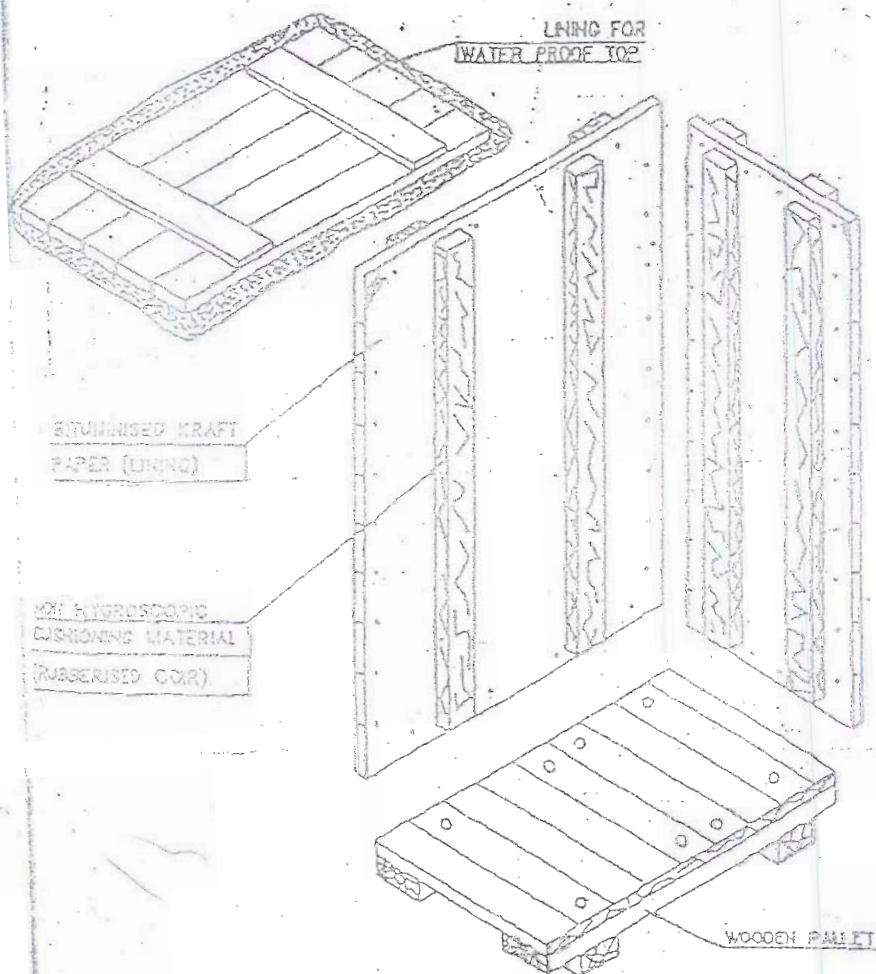


FIGURE-15

037



TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
CHAIN PULLEY BLOCKS

SPECIFICATION NO. PE-TS-RC-563-A101

VOLUME II - B

SECTION -D

REV 01

DATE OCT 2016

SECTION – D

GENERAL TECHNICAL REQUIREMENTS



TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
CHAIN PULLEY BLOCKS

SPECIFICATION NO. PE-TS-RC-563-A101

VOLUME II - B

SECTION -D

REV 01

DATE OCT 2016

GENERAL

This specification covers the design, manufacture, assembly, painting, inspection and testing at manufacturer's works of hand operated chain pulley block.

CODES AND STANDARDS

The design, manufacture, inspection and testing and performance of hand operated chain pulley blocks shall confirm to latest editions of the following standards : -

IS: 3832	Specification for hand operated chain pulley block.
IS 807:1976	Codes of Practice for Design, Manufacture, Erection and Testing (Structural Portion) of cranes and hoists.
IS: 3109(Part II)	Calibrated load chain for pulley blocks and other lifting appliances
IS: 2429(Part I)	Non calibrated hand chain for pulley blocks and other lifting appliances
IS: 4460	Method for rating of machine cut spur and helical gears
IS 3077:2001	Short Link Chain, Calibrated for Chain Pulley Blocks and other Lifting Appliances
IS:15560: 2005	Point Hooks with Shank up to 160 Tonne – Specification
IS: 28	Specification for Phosphor Bronze Ingots and Castings (for hazardous area requirement)
IS: 305	Specification for Aluminum Bronze Ingots and Castings (for hazardous area requirement)

EQUIPMENT

Chain Pulley Block –	The block shall be so designed that all components shall withstand without failure, an application to the block of a load equal to at least four times the working load limit.
Frame-	Frame shall be robust in design and of welded construction .The frame shall be selected in such a way that head room requirement is minimum. Frame shall maintain alignment under all expected conditions of services.
Chain-	The load chain shall be electrically welded, accurately calibrated, and pitched and polished conforming to IS: 6216 Grade 80(T8)/ IS 3109 (Part 2) / IS 3077:2001 i. The load chain shall be electrically welded, accurately calibrated, and pitched and polished conforming to IS 3109 (Part 2)/ IS 3077:2001 ii. The hand chain shall also be electrically welded, pitched and polished and shall conform to IS: 2429 (Part I). The length of chain and link dimension shall be as per IS: 3832.
Hook	The forged hook shall be properly heat treated and so designed that in loaded



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condition, it is free to swivel without twisting the load chain. The hook shall conform to IS: 15560

Reduction Gear-

The reduction gear shall be either spur or worm/ worm wheel type. The spur gear and worm shall be of high grade carbon steel and heat treated. The worm wheel shall be of bronze. A detachable steel cover shall be provided for total enclosure of the gear train and ample lubrication to be provided.

Brakes-

Brakes shall be of screw friction disc type self-actuating or any other superior type. Brake capacity shall be ample and humid atmosphere shall not affect materials used. The brake shall prevent self-lowering of load and arrest and sustain load in all working positions. The load brake shall also allow smooth lowering of the load without serious overheating which may impair working of block

Bearing-

Bearing used shall be as per guidelines laid down in IS: 3832.

Chain Wheels-

The load chain wheel shall be made of heavy duty malleable casting and shall be designed to ensure, effective operation of the chain. Load chain wheels shall be mounted on two ball bearings. Hand chain wheel shall be made from malleable casting/pressed sheet steel. The idler wheel shall be so shaped as to avoid the twisting of the chain during operation. The P.C.D of idler wheels shall be such that the bending action of the link is avoided. The hand chain wheel shall be provided with flanges and designed to ensure effective operation with hand chain.

Trolley

Monorail trolley frame shall be of heavy section rolled steel, held together by bolts. Wheels shall be of high grade cast iron/steel mounted on ball bearings. Axles and shafts shall be of carbon steel, accurately machined and suitably supported. The trolley shall be suitable for variations in I section beams. The trolley shall be geared travel type.

Other components-

All other components of chain pulley block such as anchorage, guide, pawl, stripper etc. shall be designed and provided as per IS: 3832.

The effort required for hoisting and travel shall be as stipulated in IS 3832.



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CHAIN PULLEY BLOCKS

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REV 01

DATE OCT 2016

DRAWINGS / DOCUMENTS TO BE SUBMITTED WITH THE BID:

Bidder shall submit the following drawings / documents along with their bid

- a) Deviation schedule with reference to specific clauses of the specification along with reason for such deviation or No deviation in the deviation sheet "cost of withdrawal" format given in GCC
- b) Copy of pre-bid clarifications, if any, duly signed & stamped before bid opening
- c) Signed/ Stamped copy of Compliance cum Confirmation Certificate (attached in Vol-III)
- d) Un priced copy of price format indicating quoted/ not quoted against each row/column along with cost of withdrawal / price implication format for deviations.

OFFER WILL BE CONSIDERED AS INCOMPLETE IN ABSENCE OF ANY OF ABOVE DOCUMENTS. DOCUMENT OTHER THAN ABOVE, IF ANY, SUBMITTED WITH THE OFFER WILL NOT FORM PART OF CONTRACT AND ACCORDINGLY WILL NOT BE CONSIDERED FOR BID EVALUATION.



TITLE:
**TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
CHAIN PULLEY BLOCKS**

SPEC. NO.: PE-TS-RC-563-A101
VOLUME: III
SECTION:
REV. NO. 01
Date: OCT 2016

COMPLIANCE CUM CONFIRMATION CERTIFICATE

The bidder shall confirm compliance with following by signing/ stamping this compliance certificate (every sheet) and furnish same with the offer.

- a) The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusions other than those mentioned under "exclusion" in section C and those resolved as per 'Schedule of Deviations', if applicable, with regard to same.
- b) There are no other deviations w.r.t. specifications other than those furnished in the 'Schedule of Deviations'. Any other deviation, stated or implied, taken elsewhere in the offer stands withdrawn unless specifically brought out in the 'Schedule of Deviations'.
- c) Bidder shall submit QP in the event of order based on the guidelines given in the specification & QP enclosed therein. QP will be subject to BHEL/ CUSTOMER approval & customer hold points for inspection/ testing shall be marked in the QP at the contract stage. Inspection/ testing shall be witnessed as per same apart from review of various test certificates/ Inspection records etc. This shall be within the contracted price with no extra implications to BHEL after award of the contract.
- d) All drawings/ data-sheets/ calculations etc. submitted along with the offer shall be considered for reference only, same shall be subject to BHEL/ CUSTOMER approval in the event of order.
- e) The offered materials shall be either equivalent or superior to those specified in the specification & shall meet the specified/ intended duty requirements. In case the material specified in the specifications is not compatible for intended duty requirements then same shall be resolved by the bidder with BHEL during the pre - bid discussions, otherwise BHEL/ Customer's decision shall be binding on the bidder whenever the deficiency is pointed out.

For components where materials are not specified, same shall be suitable for intended duty, all materials shall be subject to approval in the event of order.

- f) The commissioning spares shall be supplied on 'As Required Basis' & prices for same included in the base price itself.
- g) All sub vendors shall be subject to BHEL/ CUSTOMER approval in the event of order.
- h) Guarantee for plant /equipment shall be as per relevant clause of GCC /SCC /Other Commercial Terms & Conditions.
- i) In the event of order, all the material required for completing the job at site shall be supplied by the bidder within the ordered price and within purview of the tender specification even if the same are additional to approved billing break up, approved drawing or approved Bill of quantities.
- j) Schedule of drawings submissions, comment incorporations & approval shall be as stipulated in the specifications. The successful bidder shall depute his design personnel to BHEL's/ Customer's/ Consultant's office for across the table resolution of issues and to get documents approved in the stipulated time.
- k) As built drawings shall be submitted as and when required during the project execution.
- l) The bidder has not tempered with this compliance cum confirmation certificate and if at any stage any tempering in the signed copy of this document is noticed then same shall be treated as breach of contract and suitable actions shall be taken against the bidder.



TITLE:

**TECHNICAL SPECIFICATION FOR
RATE CONTRACT OF
CHAIN PULLEY BLOCKS**

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Date: OCT 2016

- m) Regarding commercial documents / deviations, BHEL clarified that commercial documents / deviations shall not be considered during technical evaluation. However if any issue in the commercial documents / deviation related to technical requirements needs to be highlighted and resolve in technical evaluation only.

No aspect of commercial issues needs to be highlighted / resolved in technical evaluation and their offer is strictly in compliance with technical specification. BHEL also clarified to the bidder any technical deviations (e.g. related to MDL, required documentation etc. for completion of the project) raised by them in commercial deviation either explicit or implicit shall be considered null and void even if agreed by BHEL during commercial evaluation stage.

Bidder agreed to confirm and compliance with technical specification and subsequent clarification on bids during pre- award discussion.



TECHNICAL SPECIFICATION FOR RATE CONTRACT OF CHAIN PULLEY BLOCKS

SPECIFICATION NO. PE-TS-RC-563-A101

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REV 01

DATE OCT 2016

PRE-BID CLARIFICATION SCHEDULE

[illegible]

The bidder hereby certifies that above mentioned are the only clarifications required on the technical specification for the subject package.

SIGNATURE: _____

NAME: _____

DESIGNATION: _____

COMPANY: _____

DATE: _____

COMPANY SEAL