



Ref. Enquiry No.: PE/PG/RTC/E-6390/2019

Dated: 21/02/2020

TENDER ENQUIRY THROUGH E-PROCUREMENT

DUE DATE
02/03/2020
BY 02:00PM

SUBJECT: TENDER ENQUIRY FOR RATE CONTRACT OF BALL VALVES AS PER TECHNICAL SPECIFICATION NO. PE-TS-020-100-M004

OUR REF: TENDER ENQUIRY NO: PE/PG/RTC/E-6390/2019, DTD-21/02/2020

Dear Sir/ Ma'am,

We are pleased to invite your offer for subject package in two parts strictly as per "Instructions to Bidders" mentioned at page no. 1 to 15 of GCC Rev. 07. Please upload your best quotation/ offer on <https://bhel.abcpocure.com> for the requirement strictly as per schedule of price format before above mentioned due date & time. The details of the tender enquiry are as mentioned below:

Sl. No	Description for which Rate Contract is desired	Tentative Quantity	Delivery required
1	BALL VALVES - Refer Technical Specification no. PE-TS-020-100-M004 for detailed description.	As per BOQ cum price schedule in Annexure-I, cumulative for the Prospective Projects as per Annexure-III	"Within Four (04) months, from date of CAT-1 approval of Primary drawing/documents, subjected to drawing/document submission/re-submission schedule as stipulated, in case of any delay in submission/re-submission of Primary drawing/documents, then same shall be reduced from the given delivery period. Delay in BHEL's comments/approval beyond 18 days shall also be considered for delay analysis." List of drawings & schedule shall be as per below.

List of Drawing shall be as follows:

BHEL Drawing No	Drawing Title	Primary/ Secondary
PE-V0-XXX-100-M051	GA DRG FOR BALL VALVES	Primary
PE-QP-XXX-100-M006	QP FOR BALL VALVES	Primary
PE-V0-XXX-100-M052	Torque and force calculations (as applicable)	Primary
PE-V0-XXX-100-M053	Gear box POD test procedure / test report / certificates for earlier conducted tests	Secondary

Drg. Sch. for Vendors: R-0 within 14 days from PO & subsequent revisions incorporating all the BHEL comments within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt.

Note:

a. The end period specified is for completion of the deliveries. Deliveries to start progressively so as to meet the completion schedule.

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- b. The delivery conditions specified are for contractual LD purposes, however BHEL may ask for early deliveries without any compensation thereof.
- c. Non-applicable drawings shall be decided during execution of the package.
- d. Wherever schedule of drawings/documents submission / re-submission is stipulated in the Technical Specifications, same shall be superseded by delivery specified in NIT.

Your best quotation/offer for the above requirement, in line with our terms and conditions, should be submitted online via e-procurement system. It shall be the responsibility of the bidder to ensure that the Tender is submitted on or before the due date by 2 p.m. Part-I bids shall be opened at 3 p.m. on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Note: -

1. Please note that Part Supplies offered for tender BOQ shall disqualify the bidder's offer.
2. Documents and Credential as per Technical PQR, Techno Commercial Bids should be uploaded on the e-procurement portal.

Please refer GCC Rev-07, which is available on <https://www.bhelpem.com/Documents/GCC/GCCRev07.pdf>. You are requested to kindly download the same.

1. Rate contract, on firm price basis, is proposed for 2 years from placement of Rate Contract PO with a provision for further extension after review on mutual consent.
Rate contract is proposed to be done with 2 vendors in ratio of 70:30 value wise at L1 FOR site price for this package on same rates and terms & conditions. Splitting of RC among 2 vendors may be changed during project ordering process if any vendor in RC is not approved by customer (i.e. BHEL may place order on any of the vendor in RC up to total applicable RC value in case of non-availability of customer approval for other vendor in RC). However, order for a project shall not be split.
2. Price break-up of L1 vendor shall be counter offered for acceptance to all bidders who participated in Price Bid Opening/RA for 30% value and in case acceptance of counter offer received from more than one vendor then **acceptance shall be considered as per FINAL Price Bid Opening / Reverse Auction Ranking (as applicable)**. If none accepts L1 price break-up, RC shall be done with L1 vendor for 100% value.
3. Quantity is divisible & hence in line with cl. no. 3 (b) of make in India Circular ref: No. P-45021/2/2017-PP (BE-II) dtd 28/05/18 issued by Ministry of Commerce and Industry, Govt. of India, If L 1 bid is not from a local supplier, 50% of the order quantity shall be awarded to L 1. Thereafter, the lowest bidder among the local suppliers, will be invited to match the L 1 price for the remaining 50% quantity subject to the local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such local supplier subject to matching the L 1 price. In case such lowest eligible local supplier fails to match the L 1 price or accepts less than the offered quantity, the next higher local supplier within the margin of purchase preference shall be invited to match the L 1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on local suppliers, then such balance quantity may also be ordered on the L 1 bidder.
In such case further counter-offering for 70:30 as mentioned at point no. 2 shall not be applicable. However, if L1 bid is from local supplier or local supplier is not in the range of margin of purchase preference then further counter-offering for 70:30 shall be applicable as mentioned at point no. 2.

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4. As per make in India Circular ref: No. P-45021/2/2017-PP (BE-II) dtd 28/05/18, the Margin of Purchase Preference shall be 20%.
5. For Ball Valves package, the Local content shall be 81%. Standard Performa for self-certification of local content by bidders enclosed with NIT & same shall be submitted along with your offer.
6. This item falls under the list of items defined in Para 3 of Ministry of Finance guideline dtd 20-09-2016 (procurement of items related to public safety, health, critical security operations and equipments etc) & hence criteria of prior experience/turnover shall be same for all the bidders including start-up/MSME.
7. Rate Contract is proposed to be finalized on total lump sum basis. However, there is % allocation weightage against BOQ quantity of each item which shall be used for arriving at price break up and same will also ensure that item rates of L1 bidder will be lowest for each items compared with other bidders' rate.
8. Bidders to note the following:-
 - i. Evaluation is proposed on Ex Works + Freight basis.
 - ii. Bidder to give single % of freight charges considering anywhere in India in the freight column. Bidders have to give same % of freight for each line item.
 - iii. Bidders to mention applicable GST rate on (total Ex. works + freight) in the specified cells of price schedule. However, may please note that GST shall not be considered in evaluation.
 - iv. Though evaluation is proposed on Ex Works + Freight, but there is % allocation weightage against BOQ quantity of each item which shall be used for arriving at price break up. Bidders need to give only their total ex works price for given BOQ at the specific cells that has been kept opened in the price schedule available in the e-procurement portal (Grand Total ex works price). Price mentioned anywhere else in BOQ or price uploaded anywhere else in the e-procurement portal shall not be taken in cognizance.
 - v. Rest of the prices shall be derived by BHEL in line with allocation fixed for each item. There is formula applied in price schedule form available in e-procurement portal. As soon as bidder fills the cells for Total Ex works, freight percentage and GST percentage, rest values for e.g. unit ex works – item wise, total ex works – item wise, FOR site price – item wise will filled automatically. Bidders can also validate and cross check the same by using Check Formula button.
 - vi. For better clarity to the bidders where value is to be filled is kept open in price form at e-procurement portal and for other columns it will be locked which denotes shall be derived by BHEL as per allocation fixed against each item.
 - vii. HSN Code has been mentioned in Price Schedule.
 - viii. Incomplete offer shall be summarily rejected.
 - ix. Pre-Qualifying Requirements (PQR): All the bidders (registered/ non-registered) will be asked to submit documents fulfilling PQR (technical & financial) requirements along with the bid & their further evaluation shall be done accordingly.
 - x. Bidders to note that their bid shall be conditional subject to qualify PQR (technical) by registered vendors & non-registered vendors have to qualify PQR (technical) & get registered with PEM for the package.
 - xi. CIF is not applicable for the package.
 - xii. Quantity variation for the package is +30%.

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TERMS AND CONDITIONS:

- Procurement of the subject package shall be done through e-procurement.
- Enquiry No., due date etc. must be legibly super scribed on the offers as per "Instructions to Bidders" mentioned at page no. 1 to 15 of GCC Rev. 07.
- Offers should be uploaded in two parts online at <https://bhel.abcpocure.com> as follows:
 - Part-I Bid: - Documents and Credential as per Technical PQR and Techno-Commercial offer (along with un-priced copy of un-priced bid and un-priced schedule of Technical-Commercial Deviation).
 - Part II Bid: - Bidders need to give only their total ex works price for given BOQ at the specific cells that has been kept opened in the price schedule available in the e-procurement portal (Grand Total ex works price). Price mentioned anywhere else in BOQ or price uploaded anywhere else in the e-procurement portal shall not be taken in cognizance.
- Bidder to note that this is a conditional Tender enquiry and the price bid (Part-II) opening/RA participation shall be subject to following condition:
 - Techno-commercial qualification/recommendation of bidder by the BHEL-PEM
- Terms and conditions: -
 - Part I bid will be opened on date & time mentioned in the NIT or subsequent corrigenda/amendments, if any.
 - Techno-commercial offer of only those bidders shall be evaluated who will meet the Technical pre-qualifying requirement of the tender.
- Bidders shall submit their offers meeting the requirements of the following tender documents and other Terms and Conditions included in this Enquiry Letter:
 - ANNEXURE-I of GCC Rev. 07:** Letter to be furnished by the Bidders.
 - ANNEXURE-II: DEVIATION SHEET (COST OF WITHDRAWAL)** - To be furnished by the Bidders (in e-procurement template only).All the above Tender Documents shall automatically become a part of the Order/Contract after its finalisation.
- Vendors shall quote in accordance with the requirements mentioned in the tender documents. In case of deviations (Technical/ Commercial), the same shall be highlighted separately giving Clause references along with the Cost of withdrawal of Deviations as per Annexure-II to GCC Rev 07 of "DEVIATION SHEET (COST OF WITHDRAWAL)" along with reasons for taking such deviations
Bidder to note all the points mentioned in "Notes" of Annexure-II to GCC Rev 07.
- Please note the following:**
 - Price format is enclosed for compliance.
 - SCC enclosed for compliance.

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c. GCC Rev-07 enclosed for compliance.

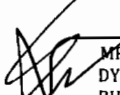
d. GCC Rev-07 is available on <https://www.bhelpem.com/Documents/GCC/GCCRev07.pdf>. You are requested to kindly download the same.

9. Tenders shall be submitted strictly in accordance with the requirements of the above tender documents.
10. Standard pre-printed terms & conditions of the tenderers shall not be considered valid.
11. Validity of offer shall be as per **Clause No. 7.0, "Instructions to Bidders" of GCC Rev 07.**
12. Unsolicited fresh/revised Price Bids shall not be entertained.
13. 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.
14. Late tenders will be rejected.
15. Tenders and all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Mr. I P SINGH, DGM/CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
Kind Attn: I P SINGH/ CMM
E-MAIL: indra.pal.singh@bhel.in
Ph. No. 0120-4368749, 9818989654

Mr. N C SHARMA, DY MGR/CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
Kind Attn: N C SHARMA/ CMM
E-MAIL: ncsharma@bhel.in
Ph. No. 0120-4213591, 9911170053

16. **PRE-QUALIFICATION REQUIREMENT:** - 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 the bid documents else their bid may not be considered for evaluation"**
Procurement directly from the manufacturers/suppliers shall be preferred. However, if the OEM/ Principal insists on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/supplier or the manufacturer/ supplier could bid directly but not both. In case bids are received from both the manufacturer/supplier and the agent, bid received from the agent shall be ignored.
17. Bidder has to submit "NO DEVIATION CERTIFICATE FOR COMMERCIAL TERMS AND CONDITIONS AS PER GCC (07), SCC AND NIT". In case of deviations, bidder to clearly mention the same with their techno-commercial offer.
18. All the above Tender Documents shall automatically become a part of the Order/Contract after its finalization.


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19. All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on BHEL websites only (www.bhelpem.com., www.bhel.com & <https://bhel.abcpocure.com> under subject tender reference. Bidders are requested to visit our websites from time to time to keep themselves updated. **Bidders may go through the Sellers' manual & Help documents provided on E-Procurement Portal website & obtain required Digital Signature Certificate (Class-III) for participating in the subject Tender.**
20. Inspection shall be done by BHEL/ END CUSTOMER/Third party Agency (finalized by BHEL).
21. Delivery terms for dispatches shall be FOR Dispatch Station.
22. This enquiry is subject to Conditions/ limits if any imposed in PMD / Vendor registration.
23. Non- registered bidder to submit the credentials required for Registration in BHEL PEM: -
"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 <https://supplier.bhel.in/>. 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."
24. 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.
25. 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 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.
Link for Detailed guidelines of reverse auction 2016 to be followed as:
http://www.bhel.com/vender_registration/pdf/Guidelines%20for%20Reverse%20Auction-2016.pdf
IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION
"The Bidders have to quote the Single Price (i.e. Total Ex-works + Freight) (excl. GST) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, Freight as applicable, including loading (if any). De-loading (if any) shall be done in line with NIT terms".
26. If any bidder has mentioned the term Not Applicable / Not required / Not Quoted in BHEL price format. The bidder needs to substantiate the same. If the same item will be required in future for the system same will be supplied free of cost.

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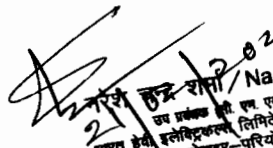
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27. L1 bidder will have to submit Bank Guarantee for each POs (irrespective of value) which will be placed under the Rate Contract finalised through this tender considering RC as original contract as per format mentioned in Annexure-III of GCC Rev 07
28. All other terms and conditions shall be as per GCC Rev 07 and Special Conditions of Rate Contract as per attached Annexure-II.

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


21/02/2020
N C Sharma / Naresh Chandra Sharma
Dy. Manager (C.M.M.)
Bharat Heavy Electricals Limited / Bharat Heavy Electricals Ltd.
Power Project Engineering Institute / प्रबन्धन
विद्यालय-परियोजना अभियंता प्रबंधन
N C Sharma / Dy. Manager (C.M.M.)
(Name & Signature of Official)
PLOT NO. 25, SECTOR - 16A, NOIDA (UP)
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Enclosure:

1. Enquiry Terms & Conditions
2. BOQ-cum-Price Schedule- Annexure I
3. RC-SCC – ANNEXURE II
4. Prospective Project List – Annexure III
5. Technical PQR-Annexure-IV
6. Technical Specifications

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PRICE SCHEDULE FOR BALL VALVES

NAME OF VENDOR:

NAME OF VENDOR-																						
SL. NO.	TYPE OF VALVE	SIZE mm (NB)	OPERATION	DESIGN		SERVICE	RATING, DESIGN & TESTING CODE	BODY MATERIAL	TRIM MATERIAL	END CONN	SPECIAL FEATURES	MATCHING PIPE OD x THK		HSN CODE	UOM	QTY	UNIT EX-WORKS PRICE (DULY PACKED) (INR)	TOTAL EX-WORKS PRICE (DULY PACKED) (INR)	FREIGHT & INSURANCE WITHOUT GST @ - % OF TOTAL EX WORKS (INR)	APPLICABLE GST RATE @ - % ON (TOTAL EX WORKS + FREIGHT) (INR)	TOTAL F.O.R SITE PRICE (INR)	
				TEMP (DEG C)	PRESSURE (KG/CM2.G)							MM	MM									
1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17=(16/16)	18	19	20	21	22
A MAIN VALVES WITHOUT COMMISSIONING SPARES																						
A.1	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	15	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	21.3	3.2	6481	Nos.	181	Derived	2.229	0.03229 *X		Derived	
A.2	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	25	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	33.4	4.0	6481	Nos.	180	Derived	4.800	0.048 *X		Derived	
A.3	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	50	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	60.6	4.0	6481	Nos.	45	Derived	3.797	0.03797 *X		Derived	
A.4	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	80	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	86.9	4.8	6481	Nos.	14	Derived	1.881	0.01881 *X		Derived	
A.5	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	100	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	115	5.4	6481	Nos.	28	Derived	8.882	0.08882 *X		Derived	
A.6	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	150	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	166.5	5.4	6481	Nos.	12	Derived	6.291	0.03291 *X		Derived	
A.7	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER B 16.5 PARALLEL	HOT DIP GALVANIZED	21.8	3.2	6481	Nos.	147	Derived	1.081	0.01081 *X		Derived	
A.8	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER B 16.5 PARALLEL	HOT DIP GALVANIZED	34.2	4.0	6481	Nos.	157	Derived	1.377	0.01377 *X		Derived	
A.9	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER B 16.5 PARALLEL	HOT DIP GALVANIZED	48.8	4.0	6481	Nos.	4	Derived	0.090	0.0009 *X		Derived	
A.10	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER B 16.5 PARALLEL	HOT DIP GALVANIZED	60.6	4.5	6481	Nos.	30	Derived	0.944	0.00944 *X		Derived	
A.11	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	80	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	86.5	4.8	6481	Nos.	8	Derived	0.466	0.00466 *X		Derived	
A.12	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	100	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	115.0	5.4	6481	Nos.	15	Derived	1.381	0.01381 *X		Derived	
A.13	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	150	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	166.5	5.4	6481	Nos.	42	Derived	8.310	0.0831 *X		Derived	
A.14	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	200	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	218.1	8.3	6481	Nos.	122	Derived	48.474	0.48474 *X		Derived	
A.15	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std for GM BALL VALVES	GM AS PER BS 316 Gr. LTB2	GM AS PER BS 316 Gr. LTB2	SCREWED AS PER B 16.5 PARALLEL	-	21.8	3.2	6481	Nos.	562	Derived	2.528	0.02528 *X		Derived	
A.16	BALL-MAIN VALVES WITHOUT COMMISSIONING SPARES	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std for GM BALL VALVES	GM AS PER BS 316 Gr. LTB2	GM AS PER BS 316 Gr. LTB2	SCREWED AS PER B 16.5 PARALLEL	-	34.2	4.0	6481	Nos.	442	Derived	4.214	0.04214 *X		Derived	

A.17	BALL-MAN VALVES WITHOUT SPARES	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292 Manufacturer's Std for GM BALL VALVES	GM AS PER BS 316 G/LT82	GM AS PER BS 316 G/LT82	SCREWED AS PER BS 554 FEMALE PARALLEL	-	48.8	4.0	8481	Not	4	Derived	0.123	0.00123% %
A.18	BALL-MAN VALVES COMMISSIONING SPARES	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292 Manufacturer's Std for GM BALL VALVES	GM AS PER BS 316 G/LT82	GM AS PER BS 316 G/LT82	SCREWED AS PER BS 554 FEMALE PARALLEL	-	60.8	4.5	8481	Not	104	Derived	5.013	0.00513% %
B	COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)																		
B.1	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	15	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	21.3	3.2	8481	SETS	18	Derived	0.034	0.00034% %
B.2	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	25	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	33.4	4.0	8481	SETS	19	Derived	0.054	0.00054% %
B.3	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	50	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	60.8	4.0	8481	SETS	5	Derived	0.048	0.00048% %
B.4	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	60	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	88.9	4.8	8481	SETS	4	Derived	0.048	0.00048% %
B.5	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	100	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	115	5.4	8481	SETS	3	Derived	0.039	0.00039% %
B.6	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	150	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	166.5	5.4	8481	SETS	4	Derived	0.039	0.00039% %
B.7	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER BS 554 FEMALE PARALLEL	HOT DIP GALVANIZED	21.8	3.2	8481	SETS	14	Derived	0.028	0.00028% %
B.8	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER BS 554 FEMALE PARALLEL	HOT DIP GALVANIZED	34.2	4.0	8481	SETS	15	Derived	0.043	0.00043% %
B.9	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER BS 554 FEMALE PARALLEL	HOT DIP GALVANIZED	48.8	4.0	8481	SETS	2	Derived	0.018	0.00018% %
B.10	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER BS 554 FEMALE PARALLEL	HOT DIP GALVANIZED	60.8	4.5	8481	SETS	3	Derived	0.028	0.00028% %
B.11	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, STEM WASHER, STEM SEAL)	80	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	88.5	4.8	8481	SETS	2	Derived	0.022	0.00022% %

% TO BE QUOTED

% TO BE QUOTED

B.12	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	100	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	115.0	5.4	8481	SETS	4	Derived	0.002	0.000827X	Derived			Derived
B.13	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	150	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	106.5	5.4	8481	SETS	8	Derived	0.116	0.001167X	Derived			Derived
B.14	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	200	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED + GEAR OPERATED	218.1	6.3	8481	SETS	13	Derived	0.212	0.002127X	Derived			Derived
B.15	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 316 G.LT82	GM AS PER IS 316 G.LT82	SCREWED AS PER ASME B 16.5 FEMALE PARALLEL	-	21.8	3.2	8481	SETS	54	Derived	0.102	0.001027X	Derived			Derived
B.16	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 316 G.LT82	GM AS PER IS 316 G.LT82	SCREWED AS PER ASME B 16.5 FEMALE PARALLEL	-	34.2	4.0	8481	SETS	43	Derived	0.133	0.001337X	Derived			Derived
B.17	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 316 G.LT82	GM AS PER IS 316 G.LT82	SCREWED AS PER ASME B 16.5 FEMALE PARALLEL	-	46.8	4.0	8481	SETS	2	Derived	0.018	0.000187X	Derived			Derived
B.18	BALL VALVE COMMISSIONING SPARES (1 SET CONSISTS OF BODY SEAL, WASHER, STEM SEAL)	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 316 G.LT82	GM AS PER IS 316 G.LT82	SCREWED AS PER ASME B 16.5 FEMALE PARALLEL	-	60.8	4.5	8481	SETS	11	Derived	0.108	0.001087X	Derived			Derived
C	GRAND TOTAL :																			100.000	TO BE QUOTED IN RS X	Derived	Derived = Rs Y

NOTES:
1. GEAR BOX POO TEST: IF ALREADY CARRIED OUT BY BIDDER FOR IDENTICAL MODEL/TYPE/ATING OF GEAR BOX WITHIN THE LAST 5 YEARS FROM PLACEMENT OF PROJECT SPECIFIC PURCHASE ORDER BASED ON FRAMEWORK AGREEMENT, SHALL BE CONSIDERED. IF FOUND SATISFACTORY BY BHEL/CUSTOMER.
2. GEAR BOX POO TEST: IF REQUIRED, AS PER TECHNICAL SPECIFICATION, THEN THE CHARGES FOR THE SAME SHALL BE INCLUDED IN THE UNIT QUOTED PRICES OF MAIN VALVES. BIDDER SHALL NOT INDICATE THESE CHARGES AS A SEPARATE HEAD IN THE PRICE BIDS.
3. COMMISSIONING SPARES FOR BALL VALVES-ONE SET CONSISTS OF BODY SEAL, STEM WASHER & STEM SEAL.
4. FOR MATERIAL OF CONSTRUCTION REFER SHEET 2 OF 2.
5. BIDDER TO QUOTE TOTAL EX WORKS PRICE OF THE BALL VALVES. BIDDER TO QUOTE TOTAL EX WORKS PRICE OF THE BALL VALVES. BIDDER TO QUOTE TOTAL EX WORKS PRICE OF THE BALL VALVES. BIDDER TO QUOTE TOTAL EX WORKS PRICE OF THE BALL VALVES. BIDDER TO QUOTE TOTAL EX WORKS PRICE OF THE BALL VALVES.
6. Bidder to note that evaluation shall be on Grand Total Ex works price + Freight charges, however, Bidder to quote grand total Ex works of the BALL VALVES mentioned at A to B (Rs X) only as per the BOQ above. The item wise break up of Ex works prices (unit as well as total) for all the items in the BOQ shall be derived as per the formulae indicated above by BHEL. Indigenous bidder also need to indicate taxes percentage in the respective column and single freight percentage of Ex works value considering delivery anywhere in India in the freight column.
7. Value is to be filled only where "to be quoted" is mentioned and for other columns where "derived" is mentioned same shall be derived by BHEL as per % allocation fixed against each item.
8. Bidder to note that grand total price (Ex works + Freight) indicated above at S1 no-C shall be considered for evaluation and hence should be complete in all respect for the full scope defined and considering all terms and conditions agreed.
ABBREVIATIONS: A - INSTRUMENT AIR, SA - SERVICE AIR, MAN - MANUAL



BHEL / PEM / CMM
SPECIAL CONDITIONS OF RATE CONTRACT

ANNEXURE- II: SPECIAL CONDITION OF RATE CONTRACT FOR BALL VALVES

Enquiry Ref: PE/PG/RTC/E-6390/2019, DTD-21/02/2020

1. BHEL/PEM intends to enter into Rate Contract for supply of the tendered items for a period of two years. The Rate Contract shall come into force from the date of issue of Purchase order for Rate Contract. Validity for ordering shall be two years from the purchase order for Rate Contract.
2. Details of consignee and project site information for dispatch of material shall be intimated at the time of placement of PO for specific project after finalization of RC.
3. Transit Insurance is in BHEL scope.
4. The items will be required against respective projects. Exact quantities and Project information shall be intimated while placing order for a specific project based on the Rate Contract.
5. The prices shall remain firm (except for those items in which PVC is applicable as per NIT) during the period of two years with a provision for further extension after review on mutual consent.
6. 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.

Vendor shall give inspection call on BHEL-CQS web site to applicable inspection agency with a copy of inspection call to BHEL-PEM for arranging Customer participation (if applicable) in inspection / Joint inspection on the proposed date with an advance notice of 15 working days. Inspection charges shall be paid by BHEL-PEM.

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.

7. Mode of dispatch shall be by road through Schedule Bank/BHEL (PEM) approved transporters.
8. Other terms and conditions shall be as per Standard Technical specification no, GCC Rev 07 & Enquiry letter.
9. This enquiry is subject to Conditions/ limits if any imposed in PMD/ Vendor registration.
10. Tentative quantity is given in enquiry.
11. Bidders to submit offer for RC of said items ONLINE via e-Procurement System only. Bidder to upload tender documents complete 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.
12. 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.

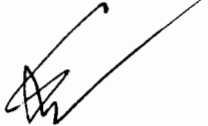
**ANNEX-III: Enq. Ref: PE/PG/RTC/E-6390/2019, DTD-
21/02/2020**

TENTATIVE PROJECT LIST

SL NO.	TENTATIVE PROJECT LIST
1	Panki (1x660 MW)
2	Bhusawal (1x660 MW)
3	Patratu (3x800 MW)
4	Sagardighi (1x660 MW)
5	Khurja (2X660 MW)
6	Talcher (2x660 MW)

Note-

Project list is indicative only, BHEL may ask for delivery anywhere in India for any of the project added in the prospective project/ existing projects during RC period.





PRE - QUALIFYING REQUIREMENTS

DOCUMENT No.: PE-TS-020-000-M059

REVISION No.: 00 DATE: 04.02.2020

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Project: FRAMEWORK AGREEMENT

Package: Ball Valves

CRITERIA FOR EVALUATION (TECHNICAL / FINANCIAL):**1. Technical Pre-Qualifying Requirements:**

1.1 The bidder should have designed, in-house manufactured, tested, inspected and supplied Ball Valves (as mentioned below) for use in a power plant or for similar application.

Category-A: Minimum size of 50NB with FCS/FSS/FAS with #800 or Gun metal with #PN 16.0 for use in a power plant or similar application.

Category-B: Minimum size of 150NB with CCS/CSS/CAS with min. #150 for use in a power plant or similar application.

Bidder to fulfill the PQR of both the categories individually.

1.2 The item(s) mentioned in point 1.1 should have performed successfully in similar installations for at least one year. To establish meeting this requirement, the bidder shall conform to any one of the following clauses:

- (i) Execution of two purchase orders for different End-users with the item(s) performing successfully for one (1) year from date of commissioning to the date of bid submission as defined in Notice Inviting Tender (NIT) by BHEL. Different projects of a customer shall be considered as different End-users.
- (ii) Minimum one (1) repeat contract from two (2) different Purchasers (i.e. 2 no. of Purchase orders from each purchaser). A contract shall be considered as repeat, when the second contract is given by the same purchaser after lapse of minimum one (1) year from supply completion of first contract.
- (iii) Execution of one (1) purchase order as per sl. no. (i) above from one End-user and one (1) repeat contract from another Purchaser as per sl. no. (ii) above.
- (iv) Three (3) repeat contracts from one (1) Purchaser. Second and third repeat contract shall be after lapse of minimum one (1) & two (2) years respectively from supply completion of first contract.

1.3 The bidder to furnish the following documents, as applicable, in support of the above:

- a) For point 1.2(i): Performance certificates from End-user (duly signed & dated) specifying that the product is performing successfully for one (1) year from date of commissioning along with correlated purchase order(s).
- b) For point 1.2 (ii) & (iv): Purchase Order(s), Material Dispatch Clearance Certificate (MDCC)/ Material Receipt Certificate (MRC)/Lorry Receipt (LR)/ Supply Invoice.

1.4 In addition to above, bidder should have the following facilities for different material & sizes as per BHEL requirement as mentioned in Data Sheet-A of Technical Specification:

- a) Capability of designing and manufacturing of the item(s).



PRE - QUALIFYING REQUIREMENTS

DOCUMENT No.: PE-TS-020-000-M059

REVISION No.: 00 DATE: 04.02.2020

SHEET 2 of 3

- b) In-house testing facilities for carrying out tests as per relevant standards & Quality plan. In case, the in-house testing facilities are not available, then bidder shall furnish undertaking that test(s) will be carried out from govt. approved lab or test house recognized by reputed customers.

Bidder to submit supporting documents (Purchase Order (s)/ Certificate indicating capacity and details/ undertaking of manufacturing & testing facilities) for point (a) & (b) above.

- 1.5 To establish business continuity, bidder is required to submit at least two (2) Purchase order with min. size of ball valve as specified below in last 3 (three) years prior to the date of bid submission as defined by BHEL-PEM in NIT for each category.

Category-A: Minimum size of 15NB.

Category-B: Minimum size of 65NB.

- 2.0 Bidder to also comply with below mentioned general points:

- 2.1 Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/ Indian subsidiaries shall be evaluated as follows:

- a) If bidder happens to be an Indian subsidiaries of foreign OEM, then the credentials of the foreign OEM can also be considered for meeting PQR.
- b) If bidder happens to be the Joint Venture Company, then the credentials of any of JV partners can be also considered for meeting PQR.
- c) If bidder happens to be the having valid collaboration agreement/ MOU/ licensing agreement with some other company, then the credentials of collaborator/ MOU partner/ licensing company can also be considered for meeting PQR.

Note: If bidder(s) qualifies on the basis of credentials of his principal/ JV partner/ Collaborator/ joint bidder etc., then the principal/ JV partner/ Collaborator/ MOU partner/ joint bidder shall be responsible for overall design vetting and warranty/ guarantee of the package. The scope matrix clearly defining their respective roles including design vetting, manufacturing of critical component, E&C etc. and warranty/ guarantee shall be submitted along with the offer.

- 2.2 Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of contract(s).
- 2.3 Consideration of offer shall be subject to customer's approval of bidders, if applicable.
- 2.4 Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
- 2.5 Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.



PRE - QUALIFYING REQUIREMENTS

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REVISION No.: 00 DATE: 04.02.2020

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- 2.6 After satisfactory fulfillment of all the above criteria/requirement, offer shall be considered for further evaluation as per NIT and all the other items of the tender.
- 2.7 Bidder to ensure that Third Party/customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document/ certificate issuing authority such as name & designation of issuing authority and its organization contact number and email-id etc. In case the same found not available, purchaser has right to reject such document from evaluation.

On Letter head of Company

Ref.....

Date.....

To,

Bharat Heavy Electricals Limited

PEM, PPEI Building, Plot No 25,

Sector -16A, Noida (U.P)-201301

Subject: - Certification regarding local content

Reference: Tender Enquiry No-.....

Name of Package:

Dear Sir,

We hereby certify that items offered by us of(package name).....for.....(Project Name/Rate contract)..... has local content of -----% and meets the requirement of minimum local content in line with Cl. No.....of NIT No.....dated.....and the Public Procurement (Preference to Make in India), Order 2017 dated-15.06.2017, 28.05.2018 & 29.05.2019.

We further confirms that details of location at which the local value addition is made will be our registered works at(address of the works)

Yours very truly

..... (authorized signatory of company)

..... (firm name)

authorized signatory
of company

FRAMEWORK AGREEMENT

TECHNICAL SPECIFICATION FOR BALL VALVES

**SPECIFICATION NO. PE-TS-020-100-M004
REV. No.: 00**



**BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, INDIA**

	TECHNICAL SPECIFICATION BALL VALVES FRAMEWORK AGREEMENT	SPECIFICATION NO. PE-TS-020-100-M004
		REV. No.: 00
		DATE: 24.01.2020
		SHEET 1 OF 1

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2.	SECTION-II	i) DATA SHEET-A	3
		ii) QUALITY PLAN	4
		iii) COMPLIANCE SHEET	1

	TECHNICAL SPECIFICATION BALL VALVES FRAMEWORK AGREEMENT		SPECIFICATION NO. PE-TS-020-100-M004
			SECTION: I
	REV. NO.: 00		DATE: 24.01.2020
	SHEET 1 OF 1		

SECTION-I

SPECIFIC TECHNICAL REQUIREMENTS

	SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES FRAMEWORK AGREEMENT	SPECIFICATION NO: PE-TS-020-100-M004
		SECTION : I
		REV. No.: 00
		DATE: 24.01.2020
		SHEET 1 OF 5

1. GENERAL

- 1.1 The valves shall meet the technical requirements and conform to the requirements of Section-I and Data sheet-A of Section-II. However, in the event of contradictions between Section-I & Section-II/Data Sheet-A, Data Sheet-A will prevail.
- 1.2 The technical requirements for valves shall, in general, be as per the attached Data Sheet A of Section-II.

2. SCOPE OF SUPPLY

- 2.1 The valves complete with all accessories shall be supplied as per Data sheet-A of Section-II. For detail refer the same.
- 2.2 Commissioning spares.
- 2.3 Mandatory spares as applicable depending upon the project requirement.

3. CODES AND STANDARDS

- 3.1 The design, materials, construction features, manufacture, inspection and testing of valves shall conform to the latest applicable codes and standards.
- 3.2 The valves covered under this specification shall be designed and tested as per BSEN ISO 17292 (replaces BS: 5351).
- 3.3 In case of any conflict between the above codes/ standards and this specification, the latter shall prevail and in case of any further conflict in the matter, the interpretation of the specification by the Engineer shall be final and binding.

4. DESIGN REQUIREMENTS

- 4.1 These valves shall be used for non-corrosive media like compressed air systems (i.e. service air, instrument air etc.) and shall be of non-fire safe design.
- 4.2 Valves shall be selected in the appropriate rating based on the pressure/temperature conditions and service media mentioned in Data sheet-A of Section-II.
- 4.3 Valves with screwed/ socket welding ends up to size of 50NB shall be in 3-piece/ 2-piece construction and valves of size 65NB and above with flanged/butt welding ends shall be short body design and in 3-piece/ 2-piece construction.

5. MATERIALS

- 5.1 The materials of construction of main parts of Ball valves shall be as specified in Data Sheet-A.
- 5.2 The materials of construction of the remaining parts shall be as per the relevant standard governing the valves. These materials shall be subjected to approval.
- 5.3 Material used in manufacture of valve shall be of tested quality.

6. CONSTRUCTION FEATURES

- 6.1 All valves with screwed ends shall have screwed female parallel pipe threads as per IS: 554/ASME B 1.20.1.
- 6.2 All valves with flanged ends shall have raised face flanges and drilling details as per ANSI B16.5.



SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES

FRAMEWORK AGREEMENT

SPECIFICATION NO: PE-TS-020-100-M004

SECTION : I

REV. No.: 00

DATE: 24.01.2020

SHEET 2 OF 5

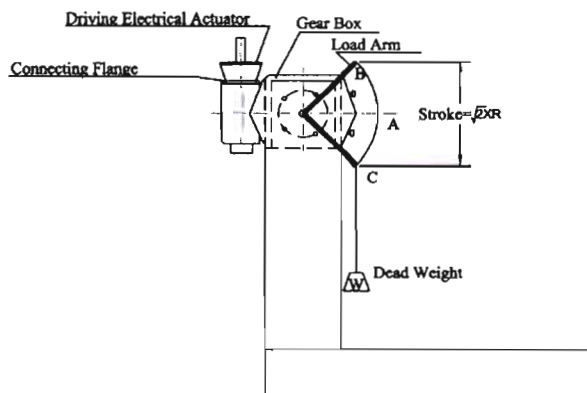
6.3 Valves with socket welded and butt welded ends shall have extended pieces. These extended pieces shall be connected through screwed ends on one side and the other end will be suited to match the pipe depending on the type of end details i.e. socket/butt welds ends. Socket weld ends and Butt weld ends shall be as per ASME B16.11 and ASME B16.25 respectively.

6.4 Valves of size 200 NB & above shall be gear operated.

6.5 Gear box POD Test:

- a. Gear box POD test shall be done as per the procedure described below or as per the procedure agreed between BHEL/Customer & vendor. In case, the Gear box POD test has been done earlier (within the last 5 years from placement of project specific Purchase Order based on Framework Agreement), Test report/certificate of POD test for identical model/ type/rating of gear box is required to be submitted for review by BHEL/customer. These tests should have been conducted at an independent laboratory or should have been witnessed by reputed customers like NTPC etc. or third party inspection agency like LLOYDS, TUV, DNV etc. If found satisfactory, Gear Box POD test need not be done.

Gear box POD Test shall be carried out only at full rated torque of gear box, throughout the full cycle of testing i.e. at no point during each full cycle of testing; the applied torque should be less than the full rated torque of Gear Box. Refer suggestive Fig.1 below for Gear Box POD test set up. Dead weight and length of arm shall be so selected that the torque generated at point "C" and "B" shall in no case be less than the full rated torque of the gear box.



TEST SET UP

FIG. 1

- b. Gear box POD test, if required, then the charges for the same shall be deemed to be included in the unit quoted prices of main valves. Bidder shall not indicate these charges as a separate head in the price bids. If POD test for gear box are required to be carried out, then the vendor shall do so at his own cost. No extra charge on this account will be admissible to the vendors.
- 6.6 Body seats shall be of renewable type and shall be of moulded PTFE completely contained and shall provide leak tightness in either direction and be suitable for service temperatures.
- 6.7 All the valves shall be provided with integral stop on body limiting quarter turn operation.
- 6.8 All the ball valves shall be of tight shut off type and the lever shall be designed such that lever is parallel to the flow direction when the valve is in open position.
- 6.9 All the ball valves fitted with a steel lever shall be closed by turning the lever in the clockwise direction. The direction of closing the valve and "Shut" position shall be marked on the valves. The lever shall have plastic covering. For gear operated valves the hand wheel shall clearly marked Open & Shut with arrows indicating the direction of rotation which they refer. Valves shall be closed by rotating the hand wheel in the clock wise direction when looking at the face of the hand wheel.

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- 6.10 Each lever / hand wheel of the valve shall be fitted with a circular/ rectangular nameplate of SS material indicating the purchaser's Valve Tag No. and service description.

7. MANUFACTURE OF VALVES

- 7.1 Valve castings shall be procured from foundries observing strict quality control and approved by reputed customers.
- 7.2 Particular care shall be taken to ensure that all foundry sand and loose material is properly removed from castings by fettling before the valve's manufacture is started.

8. QUALITY ASSURANCE, TESTING & INSPECTION

- 8.1 The items covered under this contract shall be subjected to inspection, testing and quality surveillance. The Inspection Agency shall, at all reasonable times have access to Vendor's works, Quality Control records and all facilities as reasonably required for carrying out the inspection and testing efficiently, and these shall be provided by the vendor free of cost.
- 8.2 The Quality Plan enclosed with this specification specify minimum quality control requirement. During contract stage, vendor shall furnish this Quality Plan duly signed & stamped for BHEL approval. Quality plans shall be approved by BHEL and customer. All inspection and testing shall be carried out by BHEL/ BHEL representative and customer (as applicable). In case inspection is by both BHEL and their customer, then the inspection can be carried out jointly or separately, which will be informed later. In case of the foreign bidder, inspection shall be carried out by reputed third party.
- 8.3 The charges for third party inspection (Lloyds, TUV or equivalent) for foreign bidders shall be included in the base price of the item by the bidder. This third party agency shall be approved by BHEL.
- 8.4 The minimum NDT/testing and inspection requirements for valve shall be as per the attached Quality Plan. However, in case of order, final inspection and testing shall be carried out as per the final approved quality plan without any price implications.

Note: There may be minor changes in quality plan depending on customer/consultant comments which will have to be accommodated by vendor at no extra cost.

- 8.5 Carbon steel valves shall be hydraulically tested for leak tightness before galvanizing the valve body and end pieces (pressure parts) also.
- 8.6 Hydrostatic/Air Tests:
- All the valves shall be tested hydraulically for strength and tightness of seats at the pressures as mentioned in BSEN ISO 17292.
 - No leakage shall be allowed for hydraulic tests and zero leakage shall be allowed for pneumatic tests as mentioned in BSEN ISO 17292, for the valves covered under this specification.
- 8.7 Dimensional and functional checks shall be carried out.

9. GALVANIZING REQUIREMENT (FOR CARBON STEEL):

Carbon steel valve bodies and all other carbon steel valve parts including handle lever & lever adopter shall be degreased, thoroughly cleaned, pickled & rinsed as specified in IS: 2629. Then all these carbon steel body valves & parts shall be hot dip galvanized as per IS: 2629. The minimum thickness of galvanizing shall be 50 microns. However, there may be variation in minimum thickness of galvanizing based on project specific requirement, which shall be informed project wise. Bidder to provide the same without any price implication.

10. CLEANING, PROTECTION AND PACKING FOR DESPATCH:

- 10.1 Each valve shall be drained, cleaned, prepared and suitably protected in such a way so as to minimize the possibility of damage and deterioration during transit and storage.

	SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES FRAMEWORK AGREEMENT	SPECIFICATION NO: PE-TS-020-100-M004
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- 10.2 The valve shall be dispatched in total assembled form.
- 10.3 Body ends shall be suitably sealed to protect them against damage during transit and storage.
- 10.4 Valves with screwed and socket welding ends shall be protected by means of polythene caps/ rubber and protectors to prevent damage of ends & also to avoid foreign material entering the valve while shipment & storage.
- 10.5 A thin sheet steel circular blanking plate of a diameter 6mm less than the bolt holes inner P.C.D. shall be firmly fixed to the flange faces by the application of adhesive after first ensuring that the flanges faces have been thoroughly degreased. A thin coat of adhesive shall be applied to the flange face and the blanking plate and then allowed to dry for 15-20 minutes. The coated face of the blanking plate should then be offered up to the face of the flange taking care that the plate is concentric with the flange. Firm pressure shall be applied to ensure intimate contact between plate and flange. A wooden blank should then be bolted to the flange using a minimum of 4 bolts.
- 10.6 Valve Tag Nos. shall be incorporated in all the dispatch documents.
- 10.7 Proper care shall be taken to avoid damage to the painted surface during transit.
- 10.8 All the valves shall be packed suitably in wooden cases in order to avoid damage during transit and also during storage at site in tropical climate conditions for a period of 15-18 months.
- 10.9 Vendor to provide the following:
- Photographs (soft) of valves duly placed inside the wooden box just before final packing.
 - Photographs (soft) of the wooden box in which the valves have been finally packed just before dispatch.
- Clearance for dispatch of valves will be given only after receiving the photos of valves in satisfactory condition as mentioned in the conditions stated above.

11. SPARES

Order for the spares may be placed simultaneously or otherwise at the option of purchaser.

12. DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

Bidder shall submit the following documents duly filled, signed and stamped along with the bid:

- a) Compliance sheet
- b) Documents as per the list indicated in the NIT.

The above are the only documents which will be used for technical evaluation unless other documents are asked for during technical clarifications. Any other technical document enclosed with the bid shall be ignored for the purpose of technical evaluation. All other documents attached with the specification are for information of the vendor and no comments shall be marked on these.

13. DOCUMENTS TO BE SUBMITTED AFTER AWARD OF PROJECT SPECIFIC POs BASED ON FRAMEWORK AGREEMENT:

13.1 Category-A:

- a. GA Drawing indicating complete cross sectional arrangement of valve, binding dimensions, dismantling clearances, weight and Bill of Material incorporating all material of construction (MOC) of various parts & relevant standard to which MOC confirms to.
- b. Quality plan duly signed and stamped.
- c. Torque & force calculations as per BSEN ISO 17292 for 200NB size valves.

	SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES FRAMEWORK AGREEMENT	SPECIFICATION NO: PE-TS-020-100-M004
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Submission/Resubmission of above documents for project specific POs shall be considered for delay analysis by BHEL.

13.2 Category-B:

- a. Gear box POD test procedure or test report/certificate for earlier conducted test in line with clause no. 6.5 of Technical specification.

Approval on Gear box POD test procedure shall be obtained before final inspection.

14. EXCLUSIONS:

The following are excluded from the bidder's scope:

- a. Counter flanges and their nuts and bolts.
- b. Erection & Commissioning of equipment at site.

	TECHNICAL SPECIFICATION BALL VALVES FRAMEWORK AGREEMENT		SPECIFICATION No.: PE-TS-020-100-M004	
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SECTION-II

- DATA SHEET – A
- QUALITY PLAN
- COMPLIANCE SHEET



DATA SHEET- A
BALL VALVES
FRAMEWORK AGREEMENT

SPECIFICATION NO.: PE-TS-020-100-M004

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1	2	3	4	5		6	7	8	9	10	11	12		13	14		
SL. NO.	TYPE OF VALVE	SIZE mm (NB)	OPERATION	DESIGN		SERVICE	RATING, DESIGN & TESTING CODE	BODY MATERIAL	TRIM MATERIAL	END CONN	SPECIAL FEATURES	MATCHING PIPE OD x THK		MAIN VALVES QTY WITHOUT COMMISSIONING SPARES	COMMISSIONING SPARES (SETS)		
				PRESSURE KG/CM2(G)	TEMP (DEG °C)							MM	MM		Nos.	BODY SEAL	STEM WASHER
1	Ball	15	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	21.3	3.2	181	18	18	18
2	Ball	25	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	33.4	4.0	180	19	19	19
3	Ball	50	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	60.8	4.0	45	5	5	5
4	Ball	80	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	88.9	4.8	14	4	4	4
5	Ball	100	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	115	5.4	28	3	3	3
6	Ball	150	MAN	8-8.5	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	166.5	5.4	12	4	4	4
7	BALL	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER IS-554 FEMALE PARALLEL	HOT DIP GALVANIZED	21.8	3.2	147	14	14	14
8	BALL	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER IS-554 FEMALE PARALLEL	HOT DIP GALVANIZED	34.2	4.0	157	15	15	15
9	BALL	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER IS-554 FEMALE PARALLEL	HOT DIP GALVANIZED	48.8	4.0	4	2	2	2
10	BALL	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 800 OF ISO 17292	FORGED CARBON STEEL AS PER ASTM A105	SS 316	SCREWED AS PER IS-554 FEMALE PARALLEL	HOT DIP GALVANIZED	60.8	4.5	30	3	3	3
11	BALL	80	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	89.5	4.8	8	2	2	2
12	BALL	100	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	115.0	5.4	15	4	4	4
13	BALL	150	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED	166.5	5.4	42	8	8	8
14	BALL	200	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL 150 OF ISO 17292	CAST CARBON STEEL AS PER ASTM A216 Gr. WCB	SS 316	FLANGED AS PER ASME B 16.5 R/F	HOT DIP GALVANIZED + GEAR OPERATED	219.1	6.3	122	13	13	13
15	BALL	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 318 Gr.LTB2	GM AS PER IS 318 Gr.LTB2	SCREWED AS PER IS-554 FEMALE PARALLEL	-	21.8	3.2	562	54	54	54
16	BALL	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 318 Gr.LTB2	GM AS PER IS 318 Gr.LTB2	SCREWED AS PER IS-554 FEMALE PARALLEL	-	34.2	4.0	442	43	43	43
17	BALL	40	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 318 Gr.LTB2	GM AS PER IS 318 Gr.LTB2	SCREWED AS PER IS-554 FEMALE PARALLEL	-	48.8	4.0	4	2	2	2
18	BALL	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	PN 16 AS PER BS EN ISO 17292/ Manufacturer's Std. for GM BALL VALVES	GM AS PER IS 318 Gr.LTB2	GM AS PER IS 318 Gr.LTB2	SCREWED AS PER IS-554 FEMALE PARALLEL	-	60.8	4.5	104	11	11	11
												TOTAL	2097	224	224	224	224

NOTES:-

- GEAR BOX POD TEST, IF ALREADY CARRIED OUT BY BIDDER FOR IDENTICAL MODEL/TYPE/RATING OF GEAR BOX WITHIN THE LAST 5 YEARS FROM PLACEMENT OF PROJECT SPECIFIC PURCHASE ORDER BASED ON FRAMEWORK AGREEMENT, SHALL BE CONSIDERED, IF FOUND SATISFACTORY BY BHEL/CUSTOMER.
- GEAR BOX POD TEST, IF REQUIRED, AS PER TECHNICAL SPECIFICATION, THEN THE CHARGES FOR THE SAME SHALL BE INCLUDED IN THE UNIT QUOTED PRICES OF MAIN VALVES. BIDDER SHALL NOT INDICATE THESE CHARGES AS A SEPARATE HEAD IN THE PRICE BIDS.
- COMMISSIONING SPARES FOR BALL VALVES:- ONE SET CONSISTS OF BODY SEAL, STEM WASHER & STEM SEAL.
- FOR MATERIAL OF CONSTRUCTION REFER SHEET 2 OF 2.
- MAIN VALVE PRICES SHALL BE EXCLUSIVE OF COST OF COMMISSIONING SPARES PRICES.
- BIDDER IS REQUIRED TO QUOTE UNIT PRICE OF EACH ITEM UNDER COMMISSIONING SPARES SEPARATELY & INDIVIDUALLY I.E. PRICES OF ALL COMMISSIONING SPARES SHALL NOT BE CLUBBED/ INCLUDED IN THE UNIT PRICE OF MAIN VALVES.

ABBREVIATIONS: IA - INSTRUMENT AIR, SA - SERVICE AIR, MAN - MANUAL

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Materials of Construction

SL. No.	PART NAME	MATERIAL (STAINLESS STEEL BODY)	MATERIAL (CARBON STEEL BODY)	MATERIAL (GUN METAL BODY)
1	BODY AND END PIECES	FORGED STAINLESS STEEL AS PER ASTM A 182 Gr. F304 (UPTO 50 NB) CAST STAINLESS STEEL AS PER ASTM A 351 Gr. CF8M (ABOVE 50 NB)	FORGED CARBON STEEL AS PER ASTM A 105 (UPTO 50 NB) (HOT DIP GALVANISED) CAST CARBON STEEL AS PER ASTM A 216 Gr. WCB (ABOVE 50 NB) (HOT DIP GALVANISED)	GUN METAL AS PER IS:318 Gr. LTB2
2	BALL, STEM AND GLAND	STAINLESS STEEL AS PER AISI 316 (BALL MIRROR FINISH)	STAINLESS STEEL AS PER AISI 316 (BALL MIRROR FINISH)	GUN METAL AS PER IS:318 Gr. LTB2, IS:320 HT2 (STEM)
3	SEAT RING	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)
4	BODY SEAL, STEM SEAL AND GLAND PACKING	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)
5	BODY STUD	AISI 316	AISI 316	AISI 316
6	BODY NUT	AISI 316	AISI 316	AISI 316
7	GLAND NUT	AISI 316	AISI 316	AISI 316
8	LEVER	AISI 316 WITH PLASTIC SLEEVE GRIP	CARBON STEEL (HOT DIP GALVANISED) WITH PLASTIC SLEEVE GRIP	CARBON STEEL (HOT DIP GALVANISED) WITH PLASTIC SLEEVE GRIP
9	LEVER ADOPTER	AISI 316	CARBON STEEL (HOT DIP GALVANISED)	CARBON STEEL (HOT DIP GALVANISED)
10	STOPPER PIN	AISI 316	AISI 316	AISI 316
11	STEM WASHERS	SPRING STEEL	SPRING STEEL	SPRING STEEL
12	NAME PLATE (FOR VALVE TAG No.)	SS 316 (2 MM THICK)	SS 316 (2 MM THICK)	SS 316 (2 MM THICK)
13	GEAR BOX	NOT APPLICABLE	APPLICABLE	NOT APPLICABLE
13.1	MAIN HOUSING/ COVER (TOTALLY ENCLOSED CONSTRUCTION)		CAST IRON IS:210 GR. FG 220/260	
13.2	INPUT SHAFT		13% CR SS/ EN8 (~200 BN)	



**DATA SHEET-A
BALL VALVES
FRAMEWORK AGREEMENT**

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SECTION: II

REV. No.: 00

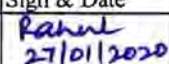
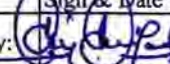
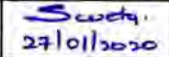
DATE: 24.01.2020

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13.3	WORM		EN8 (~200 BN)	
13.4	WORM WHEEL		DUCTILE IRON/S.G. IRON	
13.5	HAND WHEEL		MALLEABLE IRON	
14	PAINTING	NO PAINTING NEEDS TO BE DONE AS ALL PARTS OF STAINLESS STEEL.	NO PAINTING NEEDS TO BE DONE ON VALVES AS ALL PARTS OF THE VALVES ARE GALVANISED. HOWEVER, GEARBOX SHALL BE SUITABLY PAINTED TO PREVENT CORROSION.	NO PAINTING REQUIRED

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-020-100-M004		DATE: 24.01.2020	
			CUSTOMER :					QP NO.: PE-QP-020-100-M006		DATE: 27.01.2020	
			PROJECT: FRAMEWORK AGREEMENT					PO NO.: LATER		DATE:	
			ITEM: GM BALL VALVES (SIZE 15 TO 50NB/ PN16), FSS/FCS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS/CCS (SIZE 65 TO 200 NB/ CLASS 150)			SYSTEM: L.P. VALVES		SECTION: II		SHEET 1 OF 4	
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
1	2	3	4	5	6	7	8	9	* D	** M C N	
					M C/N						

1.0 MATERIALS													
1.1	BODY, END PIECES BALL, SPINDLE, GLAND, LEVER, FASTENERS	1. PHYSICAL, CHEMICAL PROPS.	MA	PHYSICAL, CHEM. TESTING	ONE PER BATCH/ LOT/ HEAT	APPD. DRG. / REL. STD.	APPD. DRG./ REL. STD.	MILL T.C.	✓	P/W	V	-	CORRELATION REQD. FOR BODY & END PIECES W.R.T. HEAT Nos.
		2. HEAT TREATMENT	CR	REVIEW OF H.T. RECORDS	100%	-DO-	-DO-	H.T. INTERNAL INSPN. RECORDS	✓	P/W	V	-	
		3. SURFACE DEFECTS	MA	VISUAL	100%	MSS-SP-55	FREE FROM DEFECTS	INSPN. REPORT	✓	P/W	V	-	
1.2	BODY, END PIECES	1. SURFACE DEFECTS	CR	PENETRANT TEST	100%	ASTM E 165	ANSI B 16.34	TEST REPORT	✓	P/W	V	-	APPLICABLE ONLY FOR SS CASTINGS.
1.3	GEAR BOX												
1.3.1	GEAR, WORM GEAR & SHAFT	1. PHYSICAL, CHEMICAL PROPS.	MA	PHYSICAL, CHEM. TESTING	ONE PER BATCH	REL. STD./ DATA SHEET/ MFG. DRG.	REL. STD./ DATA SHEET/ MFG. DRG.	T.C.	✓	P/W	V	V	
		2. HARDNESS	MA	MEASUREMENT	100%	REL. STD./ DATA SHEET/ MFG. DRG.	REL. STD./ DATA SHEET/ MFG. DRG.	T.C.	✓	P/W	V	V	
1.3.2	GEAR BOX ASSEMBLY	1. APPEARANCE	MA	VISUAL	100%	DRG./DATA SHEET	DRG./DATA SHEET	INSPN. REPORT	✓	P/W	V	V	
		2. PERFORMANCE	MA	OPERATION TEST	100%	DRG./DATA SHEET	DRG./DATA SHEET	SUPPLIER T.C.	✓	P/W	V	V	
		3. DIMENSIONS	MA	MEASUREMENT	100%	REL STD./ DATA SHEET/ MFG. DRG.	REL STD./ DATA SHEET/ MFG. DRG.	INSPN. REPORT	✓	P/W	V	V	
1.3.3	DESIGN VERIFICATION OF GEAR BOX	1. TORQUE CAPABILITY	MA	TESTING (TORQUE AT TWICE OF RATED TORQUE OF GEAR BOX)	ONE/ TYPE/MODEL/ RATED TORQUE	APPROVED PROCEDURE	APPROVED PROCEDURE	T.C.	✓	P/W	V	V	REFER NOTE No. 1

BHEL			
ENGINEERING		QUALITY	
Sign & Date	Name	Sign & Date	Name
Prepared by:  27/01/2020	Rahul Kadam	Checked by:  27/01/2020	Krishna Kumar
Reviewed by:  27/01/2020	Sweta Singh	Reviewed by:  27/01/2020	Ritesh Kumar Jaiswal

BIDDER/ SUPPLIER	
Sign & Date	
Seal	

FOR CUSTOMER REVIEW & APPROVAL			
Doc No:			
	Sign & Date	Name	Seal
Reviewed by:			
Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN						SPEC. NO.: PE-TS-020-100-M004		DATE: 24.01.2020			
			CUSTOMER :						QP NO.: PE-QP-020-100-M006		DATE: 27.01.2020			
			PROJECT: FRAMEWORK AGREEMENT						PO NO.: LATER		DATE:			
			ITEM: GM BALL VALVES (SIZE 15 TO 50NB/ PN16), FSS/FCS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS/CCS (SIZE 65 TO 200 NB/ CLASS 150)				SYSTEM: L.P. VALVES		SECTION: II		SHEET 2 OF 4			
			SL NO.		COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	
1	2	3	4	5	6		7	8	9	*	**			
					M	C/N				D	M	C	N	

		2. GEAR BOX P.O.D. (LIFE CYCLE TEST)	MA	CYCLE TESTING	ONE/ TYPE/MODEL/ RATED TORQUE		APPROVED PROCEDURE	APPROVED PROCEDURE	T.C.	√	P/W	V	V	REFER NOTE No. 1
2.0	IN PROCESS INSPECTION													
2.1	MACHINING OF ALL COMPONENTS	1. DIMENSIONS	MA	MEASUREMENT	100%		MFG. DRG.	MFG. DRG.	LOG BOOK	-	P/W	-	-	
		2. SURFACE FINISH	MA	VISUAL	100%		MFG. DRG.	MFG. DRG.	LOG BOOK	-	P/W	-	-	
		3. HARDNESS (FOR BALL AND SPINDLE)	MA	HARDNESS TESTING	100%		APPD. DRG. / REL. STD.	APPD. DRG. / REL. STD.	T.C.	√	P/W	V	V	
		4. SURFACE DEFECTS	CR	PENETRANT TEST	100%		ASTM E 165	ANSI B16.34	T.C.	√	P/W	V	-	FOR BALL, SPINDLE SEATS & MACHINED SURFACES.
3.0	BEFORE GALVANISING - SHELL TEST FOR PRESSURE PARTS (FOR CS VALVES ONLY)													
3.1	BODY, END PIECES (PRESSURE PARTS)	LEAK TIGHTNESS	CR	HYDRAULIC TEST	100%		APPD. DRG.	NO LEAKAGE	T.C.	√	P/W	V	-	
4.0	HOT DIP GALVANIZING OF CARBON STEEL BODY, END PIECES AND ALL OTHER CARBON STEEL VALVE PARTS	1. FREEDOM FROM SURFACE DEFECTS	MA	VISUAL	100%		IS:2629	IS:2629	INSPN REPORT	√	P/W	V	-	
		2. UNIFORMITY IN THICKNESS	MA	THICKNESS	VALVE BODY AT RANDOM		IS:2629	IS:2629	INSPN REPORT	√	P/W	V	V	THICKNESS 50 MICRONS (MIN.) TO BE CHECKED WITH ELCOMETER ##
		3. ADHESION	MA	KNIFE TEST	-DO-		IS:2629	IS:2629	INSPN REPORT	√	P/W	V	V	
5.0	ASSEMBLY OF ALL VALVE													
5.1	BALL AND SEAT	MIRROR FINISH (BALL)	CR	BUFFING/ GRINDING/ MACHINING	100%		THE SURFACE SHALL BE SMOOTH AND SHALL HAVE UNIFORM CONTACT WITH SOFT SEAT		LOG BOOK	√	P/W	V	V	
6.0	FINAL TESTING													
6.1	ASSEMBLY	1. DIMENSIONS	MA	MEASUREMENT	100%	10% #	APPD. DRG.	APPD. DRG.	INSPN. REPORT	√	P/W	W	W	

BHEL				BIDDER/ SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING		QUALITY		Sign & Date		Doc No:			
	Sign & Date	Name		Sign & Date	Name		Sign & Date	Name	Seal
Prepared by:	Rahul	Rahul Kadam	Checked by:	Yadav	Krishna Kumar		Reviewed by:		
Reviewed by:	Sweta	Sweta Singh	Reviewed by:	Jaiswal	Ritesh Kumar		Approved by:		

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN						SPEC. NO.: PE-TS-020-100-M004		DATE: 24.01.2020		
			CUSTOMER :						QP NO.: PE-QP-020-100-M006		DATE: 27.01.2020		
			PROJECT: FRAMEWORK AGREEMENT						PO NO.: LATER		DATE:		
			ITEM: GM BALL VALVES (SIZE 15 TO 50NB/ PN16), FSS/FCS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS/CCS (SIZE 65 TO 200 NB/ CLASS 150)				SYSTEM: L.P. VALVES		SECTION: II		SHEET 3 OF 4		
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS
1	2	3	4	5	6		7	8	9	* D	**		
					M	C/N					M	C	

		2. OPENING/ CLOSING	MA	OPERATION	100%	10% #	SMOOTH OPERATION OF VALVE	SMOOTH OPERATION OF VALVE	-DO-	√	P/W	W	W	
			MA	TORQUE TESTING	100%	10% #	TORQUE CALCULATIONS	TORQUE WITHIN CALCULATED VALUE	-DO-	√	P/W	W	W	For 200NB size valve
		3. APPEARANCE: WORKMANSHIP, ORIENTATION, MARKING, TAG No.	MA	VISUAL	100%	10% #	APPD. DRG.	APPD. DRG.	INSPN. REPORT	√	P/W	W	W	
6.2	BODY	1. LEAK TIGHTNESS	CR	HYDRAULIC TEST	100%	10% #	APPD. DRG.	NO LEAKAGE	T.C.	√	P/W	W	W	
6.3	SEAT	1. LEAK TIGHTNESS	CR	-DO-	100%	10% #	-DO-	-DO-	-DO-	√	P/W	W	W	
		2. LEAK TIGHTNESS	CR	PNEUMATIC TEST	100%	10% #	-DO-	REL. STD.	-DO-	√	P/W	W	W	
6.4	COMMISSIONING SPARES	WORKMANSHIP & SUITABILITY	MA	VISUAL	100%	100%	-DO-	APPD. DRG.	INSPN. REPORT	√	P/W	W	-	
7.0	PACKING IN WOODEN CASES AND MARKING	SOUNDNESS OF PACKING	MA	VISUAL	100%		APPD. DRG.	APPD. DRG.	SOFT COPY OF PHOTOGRAPHS	-	P	V	-	Vendor to provide the following to BHEL-PEM for verification: a) Photographs of valves duly placed inside the wooden box just before final packing. b) Photographs of the wooden box in which valves have been finally packed just before dispatch. Clearance for dispatch

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Prepared by:	Rahul 27/01/2020	Rahul Kadam	Checked by:	Krishna Kumar 27/01/2020	Krishna Kumar
Reviewed by:	Sweta 27/01/2020	Sweta Singhal	Reviewed by:	Ritesh Kumar 27/01/2020	Ritesh Kumar

BIDDER/ SUPPLIER	
Sign & Date	
Seal	

FOR CUSTOMER REVIEW & APPROVAL			
Doc No:			
	Sign & Date	Name	Seal
Reviewed by:			
Approved by:			

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		QUALITY PLAN					SPEC. NO.: PE-TS-020-100-M004		DATE: 24.01.2020	
			CUSTOMER :					QP NO.: PE-QP-020-100-M006		DATE: 27.01.2020	
			PROJECT: FRAMEWORK AGREEMENT					PO NO.: LATER		DATE:	
			ITEM: GM BALL VALVES (SIZE 15 TO 50NB/ PN16), FSS/FCS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS/CCS (SIZE 65 TO 200 NB/ CLASS 150)			SYSTEM: L.P. VALVES		SECTION: II		SHEET 4 OF 4	
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
1	2	3	4	5	6	7	8	9	* D	** M C N	
					M C/N						

												of valves will be given only after receipt of the photos of valves in satisfactory condition as mentioned above.
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NOTE:

1. REVIEW/ VERIFICATION OF TEST REPORT/CERTIFICATE, IN CASE THESE TESTS HAVE BEEN CARRIED OUT EARLIER (WITHIN THE LAST 5 YEARS FROM PLACEMENT OF PROJECT SPECIFIC PO, BASED ON FRAMEWORK AGREEMENT) ON THE IDENTICAL MODEL/TYPE/RATING OF GEAR BOX, AT AN INDEPENDENT LABORATORY OR WITNESSED BY REPUTED CUSTOMER LIKE NTPC ETC. OR THIRD PARTY INSPECTION AGENCY LIKE LLOYDS, TUV, DNV ETC. IF THE ABOVE TEST REPORTS/CERTIFICATES ARE NOT AVAILABLE OR NOT FOUND SATISFACTORY BY BHEL/CUSTOMER, THEN THE REQUIRED TYPE TESTS TO BE CARRIED OUT BY THE VENDOR ON GEAR BOX WITHOUT ANY COMMERCIAL IMPLICATIONS AT HIS OWN COST & WITNESSED BY BHEL/CUSTOMER.
2. BHEL RESERVES THE RIGHT FOR CONDUCTING REPEAT TEST, IF REQUIRED.

The extent of check to be witnessed is 10% or min. 2nos. at random by BHEL/CUSTOMER & 100% by vendor for each size, type & rating of valve for project specific PO quantity.

Minimum thickness of galvanizing may vary based on project specific requirement, which shall be informed project wise.

LEGENDS:

*RECORDS, INDENTIFIED WITH "TICK"(✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION,
 ** M: SUPPLIER/ MANUFACTURER/ SUB-SUPPLIER, C: MAIN SUPPLIER (BHEL)/ THIRD PARTY INSPECTION AGENCY, N: CUSTOMER,
 P: PERFORM, W: WITNESS, V: VERIFICATION, AS APPROPRIATE
 MA: MAJOR, MI: MINOR, CR: CRITICAL

BHEL				BIDDER/ SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING		QUALITY		Sign & Date		Doc No:			
Sign & Date	Name	Sign & Date	Name	Seal			Sign & Date	Name	Seal
Prepared by: <i>Rahul</i> 27/01/2020	Rahul Kadam	Checked by: <i>Krishna Kumar</i> 27/01/2020	Krishna Kumar						
Reviewed by: <i>Sweta</i> 27/01/2020	Sweta Singhal	Reviewed by: <i>Ritesh Kumar</i> 27/01/2020	Ritesh Kumar						
			Jaiswal						
						Approved by:			

	COMPLIANCE SHEET BALL VALVES FRAMEWORK AGREEMENT		SPECIFICATION NO. PE-TS-020-100-M004	
			SECTION : II	
	REV. NO.: 00		DATE: 24.01.2020	
	SHEET 1 OF 1			

I hereby comply/not comply (*) to all the requirements of this technical specification in totality.

* In case the bidder does not comply to the technical specification, the deviations shall be explicitly listed in the technical deviation sheet of GCC. Deviations listed in technical deviation sheet shall only be considered.

Name of Bidder / Authorized Representative: -

Designation: -

Signature: -

Company Seal: -

Date: -
