

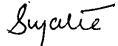
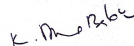





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Specification for <u>Hookup Material Package</u>						
<p>1. SCOPE This technical specification covers the Design, Engineering, Manufacturing, testing at vendor works, inspection by purchaser, packing and transportation to site of instrument Hookup materials like Seamless pipes/Tubes, Pipe fittings, Tube fittings, Valves, etc.</p> <p>2. SCOPE of SUPPLY – As per Bill of Material [BOM] mentioned in this specification.</p> <p>3. INSTRUCTIONS TO BIDDERS</p> <p>3.1 Bidders are advised to contact BHEL for essential technical queries in writing within one week of issue of Enquiry. In the event of any conflict between these specifications, data sheets, related standards, codes etc. the vendor shall refer the matter to the purchaser for clarifications before bid submission and the decision of Purchaser shall be final & binding on Bidder, without any cost & delivery implications. In the event of conflict, most stringent requirements shall be followed in general.</p> <p>3.2 Offers with incomplete information will not be considered for evaluation, and are likely to be rejected outright without any further interaction with the Bidder.</p> <p>3.3 Any technical features [over & above BHEL enquiry specification requirements] proposed by Bidder will not be given preference for the purpose of evaluation.</p> <p>3.4 Bidder shall submit the “Duly filled & Signed copy of Check list” compulsorily along with technical offer without which offer is liable for rejection without any further interaction with the Bidder</p> <p>4. ORDER EXECUTION PHILOSOPHY</p> <p>4.1 BOM listed in this specification along with their technical description, MOC, size, quantity and make requirement, etc.</p> <p>4.2 Vendor to consider all the material in their scope of supply. No deviation is acceptable.</p> <p>4.3 Vendor shall supply all the material listed in BOM table in LOOSE in fully packed condition (preferably wooden box). Assembling/welding of BOM is not in vendor scope.</p> <p>4.4 However, vendor to ensure that end connection & thickness of each item matching to the item connected to it.</p> <p>4.5 Vendor shall follow the latest version of referred standards.</p> <p>5. SUB VENDOR LIST – Bidder shall strictly follow the make mentioned in Bill of Material [BOM]. No deviation is acceptable on makes / vendor list.</p>						
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Revisions: Refer to record of revisions		Prepared By:  T.Subrahmanayam	Checked By :  Sujatha Sapavat	Approved :  K. Anand Babu	Date : 10.06.2022	

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<p>6. CHECK LIST (To be filled by BIDDER and submitted along with Technical offer is compulsorily)</p> <p>Vendor shall submit the following documents mandatorily as part of COMPLTE technical offer.</p> <p>Enquiry No. / Date : _____</p> <p>Name of the Bidder : _____</p> <p>Project Name : _____</p> <p>Item Description : _____</p>																																
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7.5 ANCHOR BOLT shall be made from Mild Steel material with Total Length =160mm; Threaded length = 25mm; Thread size = M10; Supply quantity: As per various schemes & enquiry.																								
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7.8 SEAMLESS TUBES

S.No.	Description	Requirement
1.	Application	Seamless, hot finished or cold drawn tube of SS 316L material as per ASTM A 269 & ASTM A 213 (IBR service)
2.	Tube Hardness	Up to 200HV & 90 HRB
3.	Size	As per BOM mentioned in various schemes
4.	Shipping Length	6 meters

7.9 TUBE FITTINGS [Female Connector / Male connector / Tube union / Tube cap /Union TEE/ Manifolds]

S.No.	Description	Requirement
1.	Application	Shall be designed suitable for pressure class 6000lbs
2.	End connections	As per FABRICATION Drawings
3.	Material	SS 316
4.	Dimensions	As per FABRICATION Drawings

7.10 NEEDLE VALVE

S.No.	Description	Requirement
1.	Application	NEEDLE VALVE suitable for pressure class 6000lbs
2.	Max. working pressure & temp	40Kg/cm ² (g) & 300 Deg C
3.	Type	Integral Bonnet Bar stock valve
4.	Orifice Size	3.2 mm for 1/4" valve ; 6.4 mm for 1/2" valve
5.	Material	SS 316

7.11 GLOBE VALVE

S.No.	Description	Requirement
1.	Manufacturing standard	BS 5352 – for pr. class 800, 1500 & 2500
2.	Material Grade standard	ASME: SA105 – For CS ASME: SA182 – For AS & SS
3.	End Connections	SW ends : ANSI B 16.11 BW ends : ANSI B 16.25
4.	Body	Forged, Leakage class-IV
5.	Dimensions	As per applicable Standard


7.12 FLANGE

S.No.	Description	Requirement
1.	Manufacturing standard	ANSI B16.5 – for pr. class 800, 1500 & 2500
2.	Material Grade standard	ASME: SA105 – For CS ASME: SA182 – For AS & SS
3.	Edge Preparation	As per ANSI B16.5
4.	Body	Forged
5.	Dimensions	As per applicable Standard

7.13 GASKET, STUD, BOLTS & NUTS

S.No.	Description	Requirement
1.	Gasket Body	Non-Asbestos MSW (SS304) + Graphite
2.	Stud & Material	A193 Gr. B7
3.	Nuts Material	A194 Gr. 2H
4.	Dimensions	Suitable to applicable Flange Sizes

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8. INSPECTION & TESTING

HOOKUP materials shall be subjected to inspection and testing at vendor works by BHEL/Third party Inspector (TPI). Test procedure shall include but not be limited to the following. All the tests being conducted shall be clearly brought out in the Quality Assurance Plan (QAP) by Vendor.

S. No	Test	For	Reference	Scope of inspection
1.	BOM Check	All items	As per P.O. quantity	100% Witness
2.	Visual check	All items	As per P.O. quantity	Witness for 5% qty of each size & type
3.	Dimensional checks	All items	As per approved drawings	Witness for 5% qty of each size & type
4.	IBR test form IIIC	Not applicable		100% Certificate review
5.	Thickness test	All items	As per applicable standard	5% Witness for each size & type
6.	PMI Test	SS & AS materials	As per applicable standard	100% certificate review & 5% random witness
7.	Hydraulic test	Manifolds, Condensate Chamber and Valve's body & seat	As per applicable standard	100% certificate review & 5% random witness
8.	Leakage test for seat	All Valves	As per applicable standard	100% certificate review
9.	Bend test	Tubes	As per IS-2329	Sample quantity as recommended by manufacturer
10.	Material test	All items (Chemical & Mechanical properties)	As per applicable standard	100% certificate review
11.	Radiography test	For Weld joints	As per applicable standard	100% certificate review
12.	Liquid penetration test	At knuckle of Elbows, Reducers & neck portions of Tee	As per applicable standard	100% certificate review
13.	Magnetic Particle Test	All Fillet joints	As per applicable standard	100% certificate review
14.	Heat treatment	Forged items	As per applicable standard	100% certificate review
15.	Workmanship, finish, markings	All items	-	100%, witness
16.	Preservation & packing	All items	-	100% review

9. DOCUMENTATION

9.1 **Information** to be included with offer

Vendor shall make the offer in detail, with respect to every item of the Purchaser's specifications. Any offer not conforming to this shall be summarily rejected.


- a) Duly filled & Signed copy of Check list (To be submitted compulsorily without fail)
- b) Deviation list, if any (as per "No deviation format" given in this specification). If there are no deviations, bidders shall submit "Deviation format" by mentioning deviations "Nil". (To be submitted compulsorily without fail)
- c) Unpriced price schedule (To be submitted compulsorily without fail)
- d) Copy of BHEL specification duly stamped & signed by vendor as a total compliance
- e) Bill of materials (only for information)


9.2 Documentation submission within 2 weeks of placement of LOI (for approval by BHEL and / or BHEL's customer in 4 sets)


- a) Bill of material scheme wise
- b) **Comprehensive Bill of material along with heat code/numbers**
- c) Comprehensive Quality Assurance plan.
- d) Packing List (To be submitted compulsorily without fail)



Notes::

- a) All vendor documents of Hookup package and its sub-items shall be submitted to Customer / Consultant for approval during order execution (if applicable). Any comment furnished by Customer / Consultant / BHEL shall be taken care by vendor during ordering execution.
- b) Further BHEL will provide comments on vendor submitted document within 07 working days for revision & resubmission. Vendor shall follow up with BHEL for non-receipt of comments/approvals.

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<p>COPYRIGHT AND CONFIDENTIAL</p> <p>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.</p>	<p>c) Revised drawings / Documents shall be submitted by Bidder in 07 days of receipt of comments / observations from BHEL. BHEL shall revert within 7 days on receipt of these revised documents / drawings from vendor for approvals.</p> <p>d) All the approvals required for manufacturing shall be completed within 2 months from P.O to meet the P.O delivery schedule. Accordingly vendor shall ensure the submission of approval category documents (which are required for manufacturing) and obtain their approvals.</p> <p>e) Vendor shall obtain final approvals on all technical + quality aspect documents before inspection dates.</p> <p>f) It is vendor's responsibility to obtain approvals from BHEL as earliest as possible to meet PO delivery schedules. Accordingly vendor to plan and execute the supplies in time.</p>								
	<p>9.3 Documents to be submitted during final shop testing & before equipment dispatch. (10 sets + 2 CD ROM)</p> <p>(Note: 2 sets to be included with item dispatch and balance to BHEL purchase department and submission of these documents is commercially linked)</p> <p>a) All documents approved by BHEL.</p> <p>b) Material test certificates. In case of pipes made from plates, Test certificates as per pipe standard ANSI B36.10 shall be submitted with plate material</p> <p>c) Inspection report</p> <p>d) Guarantee and all test certificates</p>								
<p>10. MARKING</p>									
<p>10.1 Each packing shall be marked as (Font Size: as visible with naked eye)</p> <table border="0"> <tr> <td>a) Size,</td> <td>b) Pressure class,</td> </tr> <tr> <td>c) Material of Construction,</td> <td>d) End Connections,</td> </tr> <tr> <td>e) Heat number/code,</td> <td>f) Material code.</td> </tr> </table>				a) Size,	b) Pressure class,	c) Material of Construction,	d) End Connections,	e) Heat number/code,	f) Material code.
a) Size,	b) Pressure class,								
c) Material of Construction,	d) End Connections,								
e) Heat number/code,	f) Material code.								
<p>10.2 Each Item shall be marked with following details (Font size:8MM)</p> <ol style="list-style-type: none"> 1) Position No (as per various schemes) 2) Item Name, Material of construction, Size, End connection, pressure class 3) BHEL PO Number, <p>If space is constraint on the item to be marked, vendor shall provide additional tag plate wired to the each item.</p>									
<p>11. PACKING</p>									
<p>11.1 Before packing of the material all the tube, tube fittings, Pipe and pipe fitting material shall be dried, cleaned, and entire surface shall be well covered with good quality rust preventive material that will become fluid and run off at 65 Deg C. Pipe threads shall be protected with suitable grease. Openings of the supplied material shall be covered with plastic make dummy plugs to avoid any entry of foreign material.</p>									
<p>11.2 BOM listed in each scheme shall be packed material code wise on ONE packing box except pipes/tubes.</p>									
<p>11.3 Packing of pipes / tubes shall be as per vendor practice.</p>									
<p>11.4 Material shall be packed properly to protect from mechanical damage during transportation and storage for long time. The packing shall be in accomplished with acceptable commercial practices for domestic applications.</p>									
<p>11.5 However, for foreign shipments packing shall be Sea-worthy or Air-Transportation packing shall be done as per latest revision of AA0490004 and type of packing applicable for Hookup materials is "CQ". This specification shall be obtained by vendor on request.</p>									
<p>11.6 All items shall be marked (stamped/etched) in accordance with the applicable code/standard/specification. In addition, the item code, if available, shall also be marked.</p>									
<p>11.7 For ease of identification, the color of painted strip (wherever required) shall be as per the applicable standard.</p>									

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			PY56643	
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<div style="display: flex;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); padding-right: 10px;"> <p>COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.</p> </div> <div> <p>11.8 Part number/Dispatch link-up of all the equipment's/items supplied and also their co-relation with system/drawing/approved BOQ.</p> <p>11.9 Paint or ink for marking shall not contain any harmful metal or metal salts which can cause corrosive attack either ordinarily or in service. Special items/smaller items shall have attached corrosion resistant tag providing salient features.</p> <p>11.10 The equipment shall be transported to site by the vendor in fully assembled condition. However, in case some components are liable to be damaged during transit, the same shall be dismantled and supplied separately, to be reassembled at site the vendor. Assembly of the item supplied loose at site and repairing of any item damaged during transport shall be in the vendor's scope. The vendor shall send each consignment to site with a detailed packing list.</p> <p>11.11 All the equipment shall be divided into several sections for protection and ease of handling during transportation. The equipment shall be properly packed for transportation by ship/rail or trailer. The equipment shall be wrapped in polythene sheets before being placed in crates/cases to prevent damage to the finish. Crates/cases shall have skid bottom for handling.</p> <p>11.12 Special notations such as 'Fragile', 'This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO Nos.' etc. shall be clearly marked on the package together with other details as per purchaser order.</p> <p>11.13 The equipment/items may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains/high ambient temperature, unless otherwise agreed.</p> <p>11.14 The following minimum packing procedures shall be followed:-</p> <ol style="list-style-type: none"> a) All items shall be dry, clean and free from moisture, dirt and loose foreign material of all kinds. b) All items shall be protected from rust, corrosion, and mechanical damage during transportation and handling. c) Each variety and size of item shall be supplied in separate packaging marked with the purchase order no., item code (if available), and the salient specifications. d) All electrical, instrumentation etc., shall be properly packed to prevent damage during transport, storage, handling at site. e) All the items which the Bidders considered liable to be damaged during shipment or storage, shall be packaged for separate shipment. If instruments are removed from the panel, they and their connection shall be suitably tagged to ensure simple re installation at the job site. Each instrument shall be sealed in plastic bags containing moisture absorbing dessicants. f) It shall be bidder's sole responsibility to protect all the material during period of dispatch, storage and erection against corrosion, incidental damage due to vermin, sunlight, rain, high temperature, humid atmosphere, rough handling in transit and including delays in transit. g) Mandatory Spare parts shall be packaged separately and clearly marked as 'Mandatory Spares'. h) Commissioning spares, Tools & tackles to be packed separately & suitably tagged. <p>11.15 <i>If mandatory spare items are ordered, same shall be sent in pre-decided lots in containers /secure boxes distinctly marked in Red color with boldly written "S" mark on each face of the containers /secure boxes</i></p> <p>11.16 <i>Loose vendor items sent by vendor to sites shall be quantified/numbered/tagged and not merely mentioned as ONE lot of loose items.</i></p> </div> </div>				

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RECORD OF REVISIONS					
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.	Rev. No.	Date	Revision Details	Revised By	Approved By
	00	30.09.2022	Original issue	-----	K. Anand Babu <i>K. Anand Babu</i>

 		BOM Cum Price Bid format (Material Code PY9756643005)			Annexure -[A] of PY56643	
		Hookup Package			Rev.00	
Project ::APGCL NAMRUP RESTORATION PROJECT						
S.No.	Item	Total Quantity [I]	Units	Unit Rate (Rs.) [II]	TOTAL PRICE (Rs.) [I*II]	Bidder confirmation
1	NIPPLE ,SS, 1/2", BWXNPTM , L=100mm, SCH80S, IBR	70	No's			
2	NIPPLE, SS, 1/2", SCH 160S, L-100mm, NPT & BW ENDS, IBR	20	Nos			
3	FEMALE CONNECTOR, SS, 1/4", NPT	20	Nos			
4	FEMALE CONNECTOR, SS, 1/2", NPT-F, CL 6000	20	Nos			
5	MALE CONNECTOR, SS, 1/2", NPT	35	Nos			
6	MALE CONNECTOR, SS, 1/4"X6mm, NPTxOD	20	Nos			
7	3-piece Union, 3-piece Union, SS 316, 1/2" NPT(M) x 1/2" NPT(F), CL3000	10	Nos			
8	TUBE, SS, 12.7mm x THK 1.27 mm	30	Meters			
9	NIPPLE, AS, 1/2" SCH 160S, L-100mm, NPT & BW ENDS, IBR	35	Nos			
10	COND CHAMBR, AS F22, CL 6000 BW, IBR	20	No's			
11	TUBE UNION, SS, 1/2" OD, CL3000	10	No's			
12	TUBE UNION, SS, 1/4" OD, CL3000	20	No's			

Total Prices (in Rs.) ::

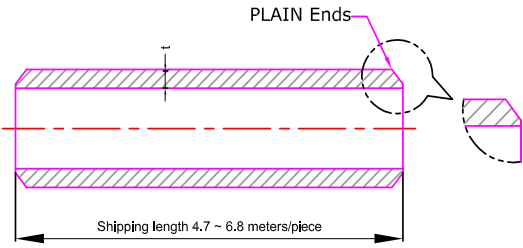
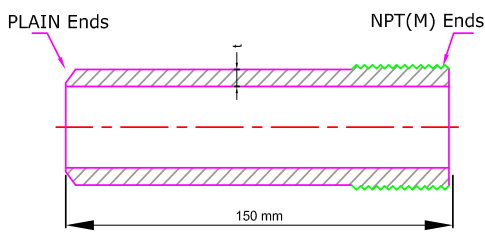
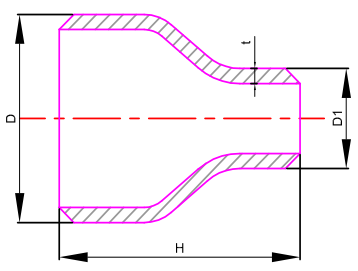
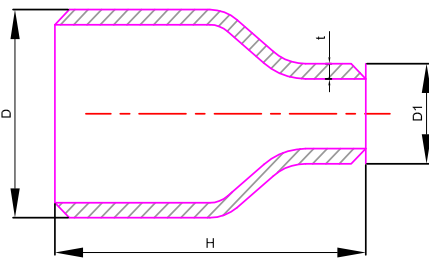
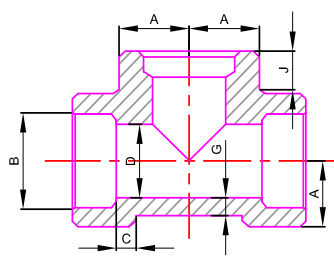
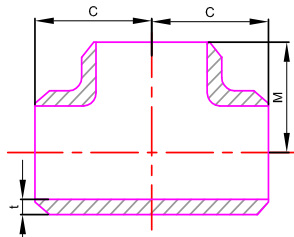
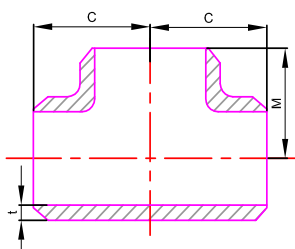
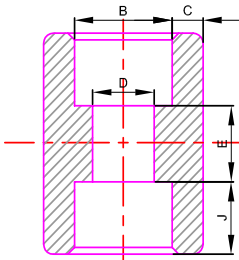
NOTES ::

- This document details the price schedule format for the enquiry. No other format will be entertained. Applicable taxes and duties shall be indicated separately in commercial offer.
- Duly signed & stamped un-priced price schedule format shall be submitted by vendor in the technical offer as a token of concurrence that price schedule would be submitted in this format. Any tampering / modification / additions, etc. are NOT allowed and not considered binding and is liable for rejection of the offer.
- Bidders shall be evaluated on overall L1 basis.
- For addition/reduction of quantity, unit rate quoted in the present offer shall be considered during ordering and shall be valid up to execution of the contract to the extent of +10% and -30% of order Value. These would include the cost up to engineering, installation of the item, wiring up in the panel and seamless integration with main system at works/site without any cost implications. All accessories required for this purpose shall be included in the price quoted.
- Billing will be as per BOM of actual supplied main equipment & spares.
- Unit Rates of the individual package items shall be derived by multiplying the "Unit Price Fixing Factor" with the Lumpsum Price quoted. Unit Rates of the Individual items thus arrived, shall be binding on the bidder, in case of any repeat order/Ammendment of order as per BHEL policies. Observations / Objections, if any, of the Bidder, to the "Unit Price Fixing Factor" shall be brought to the notice of BHEL, during Pre-Bid Stage. No Observations / Objections shall be entertained after the Techno-Commercial Bid is opened.

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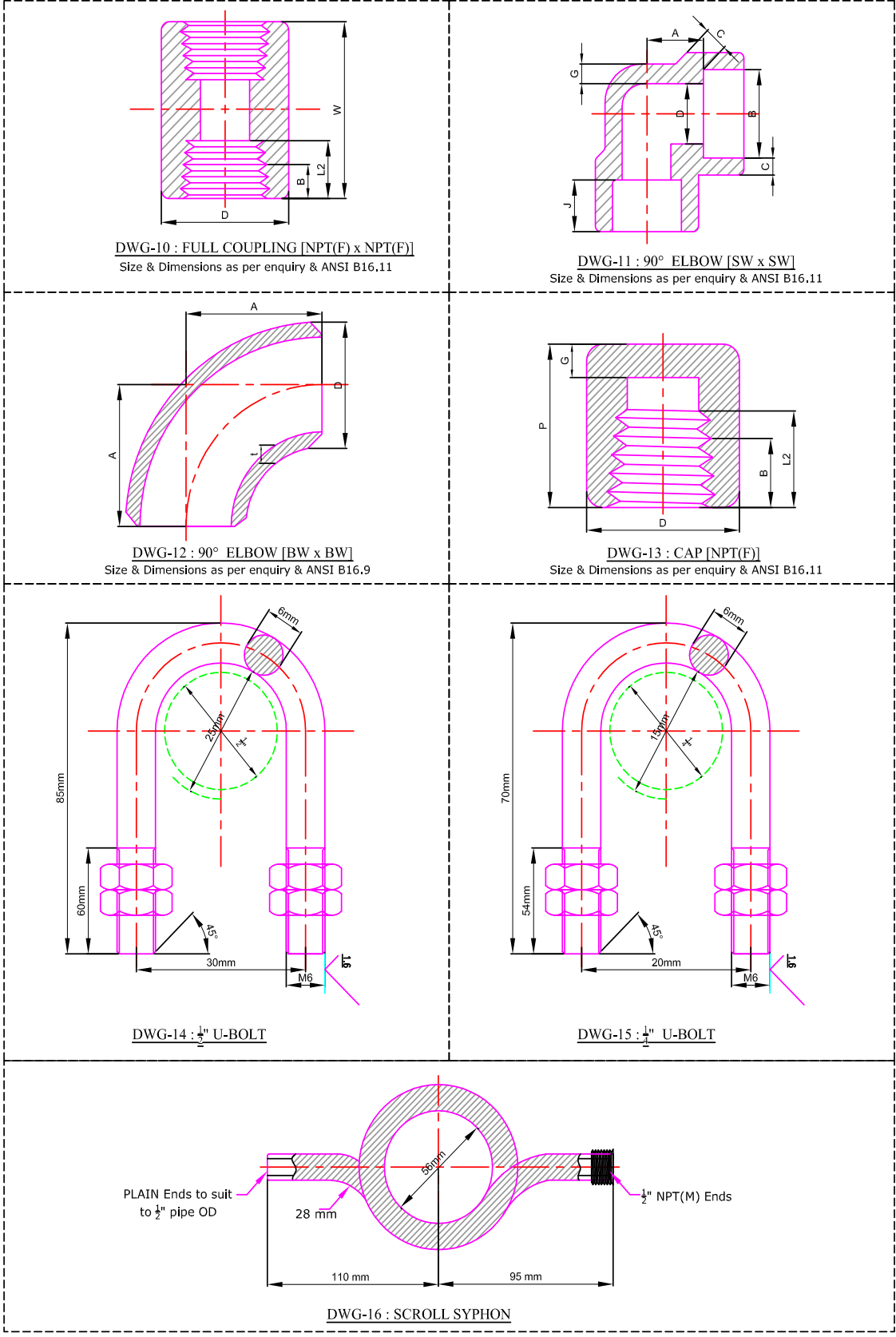
FABRICATION DRAWINGS

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 <p style="text-align: center;">DWG-1 :SEAMLESS PIPE</p>	 <p style="text-align: center;">DWG-2 : NIPPLE [PL x NPT(M)]</p>
 <p style="text-align: center;">DWG-3 :CONCENTRIC REDUCER [PL x PL] Size & Dimensions as per enquiry & ANSI B16.9</p>	 <p style="text-align: center;">DWG-4 :SWAGE NIPPLY [PL x PL] Size & Dimensions as per enquiry & MSS SP-95</p>
 <p style="text-align: center;">DWG-5 : EQUAL TEE [SW x SW] Size & Dimensions as per enquiry & ANSI B16.11</p>	 <p style="text-align: center;">DWG-6 : EQUAL TEE [BW x BW] Size & Dimensions as per enquiry & ANSI B16.9</p>
 <p style="text-align: center;">DWG-7 : UNEQUAL TEE [1" BW x 1" BW x 1/2" BW] Size & Dimensions as per enquiry & ANSI B16.9</p>	 <p style="text-align: center;">DWG-8 : FULL COUPLING [SW x SW] Size & Dimensions as per enquiry & ANSI B16.11</p>

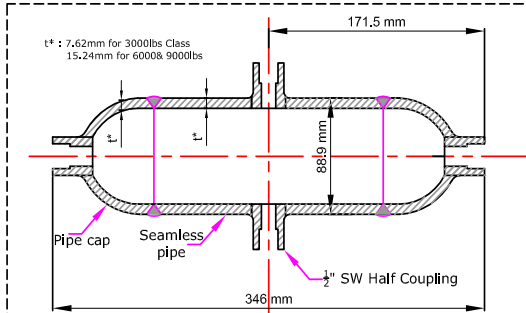
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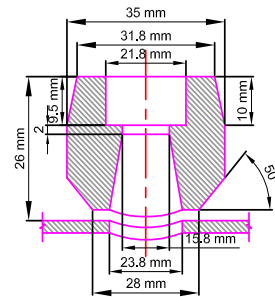


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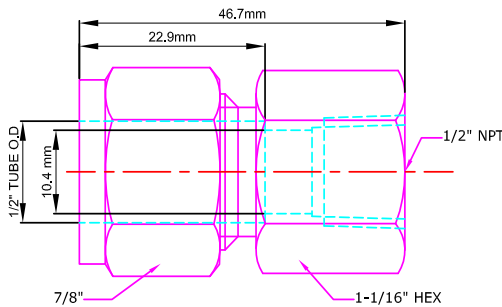
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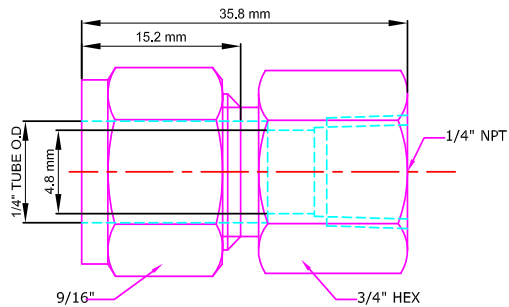
DWG-17: CONDENSATE POT



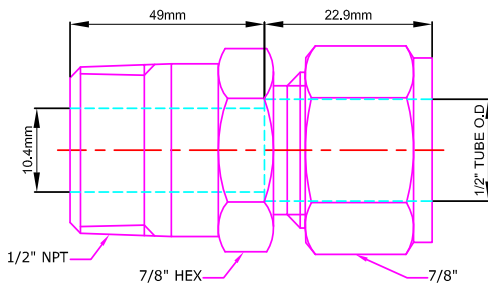
DWG-18: VERTICAL INSERT



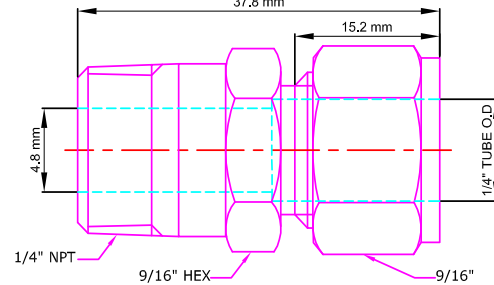
DWG-19: FEMALE CONNECTOR $\frac{1}{2}$ " OD x $\frac{1}{2}$ " NPT(F)



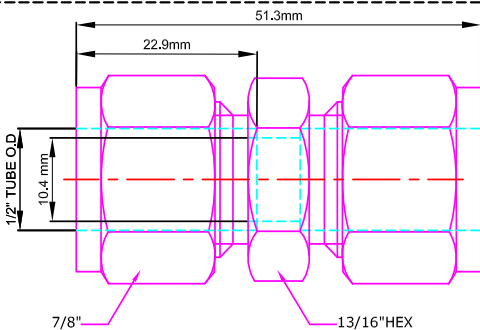
DWG-20: FEMALE CONNECTOR $\frac{1}{4}$ " OD x $\frac{1}{4}$ " NPT(F)



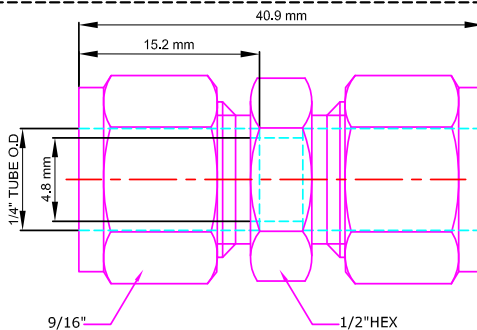
DWG-21: MALE CONNECTOR $\frac{1}{2}$ " NPT(M) x $\frac{1}{2}$ " OD



DWG-22: MALE CONNECTOR $\frac{1}{4}$ " NPT(M) x $\frac{1}{4}$ " OD



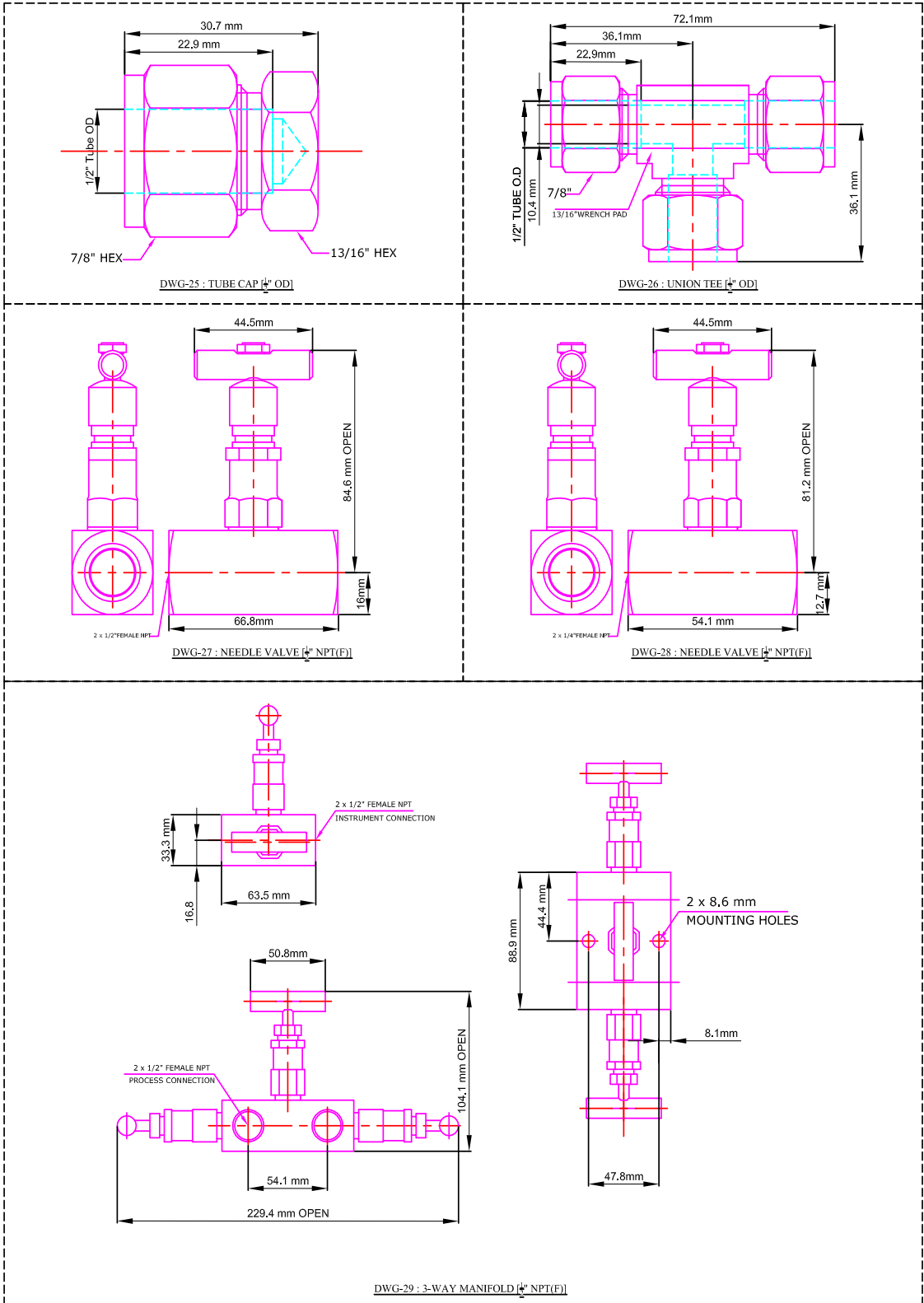
DWG-23: TUBE UNION $\frac{1}{2}$ " OD x $\frac{1}{2}$ " OD



DWG-24: TUBE UNION $\frac{1}{4}$ " OD x $\frac{1}{4}$ " OD

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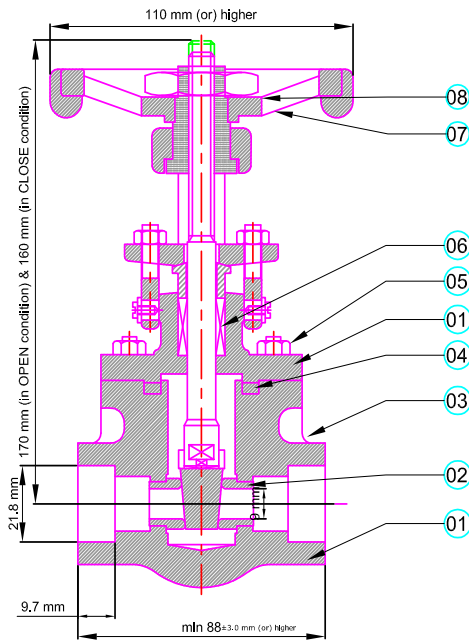
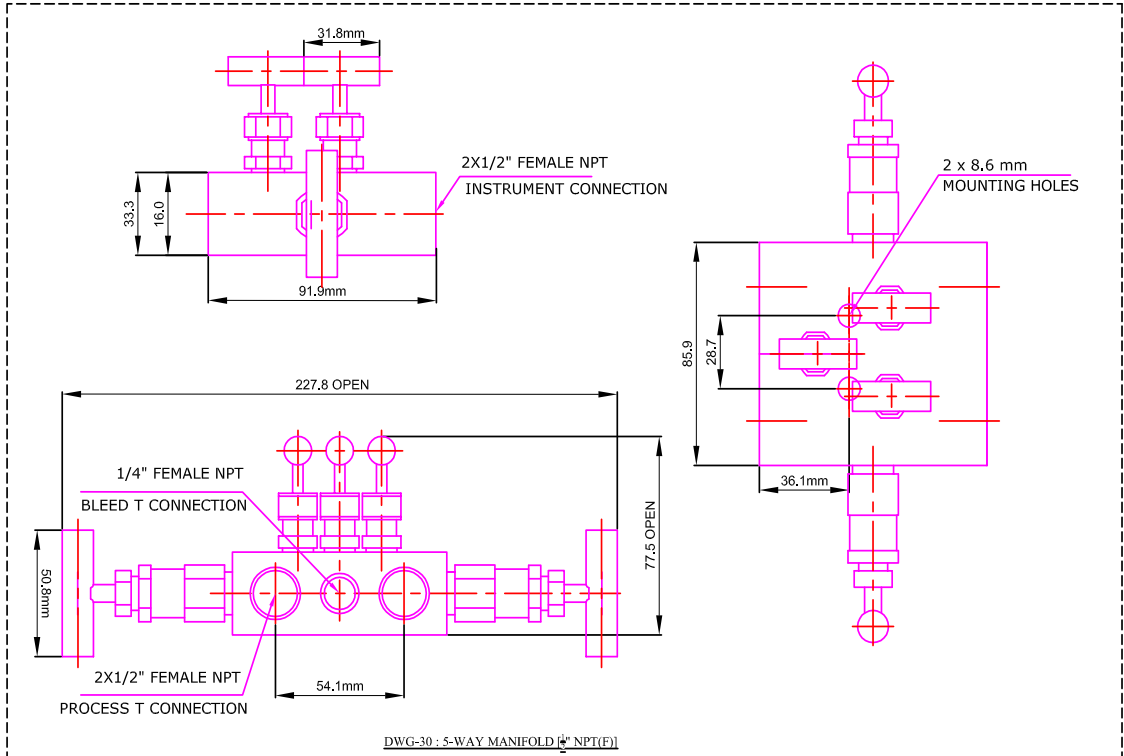
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PRODUCT STANDARD
 PROJECT ENGINEERING & SYSTEMS DIVISION
 HYDERABAD

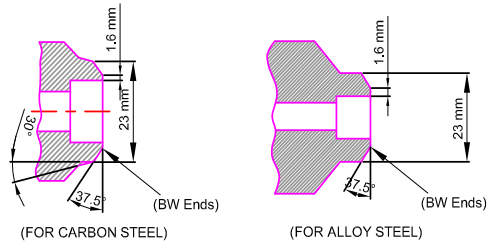
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MATERIAL OF CONSTRUCTION		
PART NO.	PART NAME	MATERIAL
01	VALVE BODY, BONNET & YOKE	As per various schemes
02	SEAT RING	STELLITE ON SS
03	SPNDLE	13% cr SS
04	GASKET	SPW SS + GRAPHITE
05	STUD/NUT	A 193 Gr.B7 / A 194 Gr.2H
06	GLAND PACKING	GRAPHITE
07	HAND WHEEL	SS IRON
08	NAME PLATE	STAINLESS STEEL



APPLICABLE STANDARDS	
DESIGN STD.	API 602 / BS 5352 / BS 5253
TESTING STD.	API 598
SOCKET WELD ENDS	ANSI B 16.11
BUTT WELD ENDS	ANSI B16.25

		PROJECT ENGINEERING & SYSTEMS DIVISION RC PURAM, HYDERABAD. QUALITY & BUSINESS EXCELLENCE					
INSPECTION / TC REVIEW FORMAT							
1	Vendor's Name:		5	Applicable BHEL Spec No:			
2	Project:		6	Approved Drawing No:			
3	PO No:		7	Approved Data Sheet No:			
4	Item Description:		8	Approved QAP No:			
OFFER LIST							
S.No	BBU/ PO Sr. No.	Item Description	Total Qty as per PO/BBU	Qty. already accepted	Qty offered for TC review	Cumulative Qty	Balance Qty
A							
B							
C							
D							
TC REVIEW REQUISITION							
BBU / PO Sr. No.	QAP Clause No.	Format of Record	Certificate No. & Date		Page No.	REMARKS	
A. Item Description:							
B. Item Description:							
C. Item Description:							
D. Item Description:							
E. Item Description:							

SUPPLIER / VENDOR SIGNATURE WITH SEAL

BHEL/ BHEL's TPIA SIGNATURE WITH SEAL

Dt:

Dt:

Format No: PESD/QA/10, Rev: 00

TYPICAL MANUFACTURING QUALITY PLAN											
VENDOR'S NAME & ADDRESS:		CUSTOMER: BHEL HYDERABAD			BHEL PO NO:			M.Q.P. NO.: PESD/QA/CP/009			
PROJECT: INSTRUMENT HOOK UP PACKAGE		PROJECT: INSTRUMENT HOOK UP PACKAGE			PO DATE:			REV No:00			
PRODUCT: INSTRUMENT HOOK UP PACKAGE		PRODUCT: INSTRUMENT HOOK UP PACKAGE			BHEL SPEC: REV:00			DATE:06.12.2016			
								PAGE 1 OF 4			
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*D	AGENCY	REMARKS
									P	W	V
FINAL INSPECTION & TESTING											
1.0	ALL ITEMS	CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEMICAL & MECHANICAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	RMTC	✓	2	1
2.0	VALVES	VISUAL CHECK, BOM CHECK, GA	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1
		DIMENSIONAL CHECK	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1
		HYDRO TEST AND TESTS AS PER SPEC	MAJOR	TEST	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	TC	✓	2	1
3.0	PIPE & PIPE FITTINGS	VISUAL CHECK, BOM CHECK, GA	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1
LEGEND: P: PERFORM, W: WITNESS, V: TC REVIEW. INDICATE 1 FOR BHEL QOS/BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.										APPROVED BY N.A. CUSTOMER'S SIGNATURE & STAMP (IF APPLICABLE)	
							APPROVED BY BHEL QA SIGNATURE & STAMP		APPROVED BY BHEL QA SIGNATURE & STAMP		

TYPICAL MANUFACTURING QUALITY PLAN												
VENDOR'S NAME & ADDRESS:		CUSTOMER: BHEL HYDERABAD				BHEL PO NO: _____						
PROJECT: _____		PROJECT: INSTRUMENT HOOK UP PACKAGE				PO DATE: _____						
PRODUCT: _____		PRODUCT: INSTRUMENT HOOK UP PACKAGE				BHEL SPEC: REV:00						
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*D	AGENCY	REMARKS	
									P	W	V	
		DIMENSIONAL CHECK	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	5% witness by 1
		HYDRO TEST AND TESTS AS PER SPEC	MAJOR	TEST	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	TC	✓	2	1	5% witness by 1
4.0	TUBE & TUBE FITTINGS	VISUAL CHECK, BOM CHECK, GA	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	
		DIMENSIONAL CHECK	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	5% witness by 1
		HYDRO TEST AND TESTS AS PER SPEC	MAJOR	TEST	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	TC	✓	2	1	5% witness by 1

LEGEND: P: PERFORM, W: WITNESS, V: TC REVIEW. INDICATE 1 FOR BHEL CQS /BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY	APPROVED BY
	VENDOR'S QA SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP

TYPICAL MANUFACTURING QUALITY PLAN												
VENDOR'S NAME & ADDRESS:		CUSTOMER: BHEL HYDERABAD				BHEL PO NO.:				MQP. NO.: PESD/QA/CP/009		
PROJECT: INSTRUMENT HOOK UP PACKAGE		PROJECT: INSTRUMENT HOOK UP PACKAGE				PO DATE:				DATE:06.12.2016		
PRODUCT: INSTRUMENT HOOK UP PACKAGE		PRODUCT: INSTRUMENT HOOK UP PACKAGE				BHEL SPEC: REV:00				PAGE 3 OF 4		
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*D	AGENCY	REMARKS	
									P	W	V	
5.0	INSTRUMENT MOUNTING HARDWARE	VISUAL CHECK, BOM CHECK, GA	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	
		DIMENSIONAL CHECK	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	5% witness by 1
		HYDRO TEST AND TESTS AS PER SPEC	MAJOR	TEST	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	TC	✓	2	1	5% witness by 1
6.0	CONDENSATE CHAMBER	VISUAL CHECK, BOM CHECK, GA	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	
		DIMENSIONAL CHECK	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	IR	✓	2	1	5% witness by 1

LEGEND: P: PERFORM, W: WITNESS, V: TC REVIEW. INDICATE 1 FOR BHEL QOS /BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY	APPROVED BY
	VENDOR'S QA SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP

TYPICAL MANUFACTURING QUALITY PLAN												
VENDOR'S NAME & ADDRESS:		CUSTOMER: BHEL HYDERABAD			BHEL PO NO:			MQP. NO.: PESD/QA/CP/009				
PROJECT:		PROJECT: INSTRUMENT HOOK UP PACKAGE			PO DATE:			REV No:00				
PRODUCT: INSTRUMENT HOOK UP PACKAGE		PRODUCT: INSTRUMENT HOOK UP PACKAGE			BHEL SPEC: REV:00			DATE:06.12.2016				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*D	AGENCY	REMARKS	
									P	W	V	
		HYDRO TEST AND TESTS AS PER SPEC	MAJOR	TEST	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	TC	√	2	1	5% witness by 1
		PRESERVATION & PACKING										
		PACKING* (Soundness)	MAJOR	VISUAL	100%	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	BHEL SPEC./ APPD DRAWING/ APPD DATASHEET	REPORT/ PACKING LIST	√	2	1	

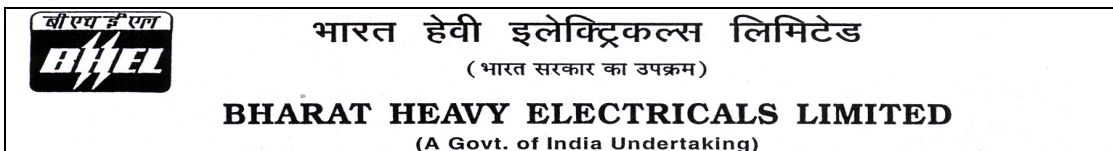
Notes:-

- This MQP should be read along with specification (latest revision as per PO), approved drawings & approved datasheet.
- Drawing/datasheet shall prevail over quality plan for contradiction if any.
- All type test reports submitted shall not be older than 5 yrs from the date of purchase order.
- Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.

Abbreviations:-

MTC – Material Test certificate
 IBR – Indian Boiler Regulations
 DFT – Dry Film Thickness
 PMI – Positive Material Identification
 AS – Alloy Steel
 SS – Stainless Steel
 TC – Test Certificate
 IR – Inspection report

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	VENDOR'S QA SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	CUSTOMER'S SIGNATURE & STAMP (IF APPLICABLE)
			N.A.



Bidder shall comply the following points.

1.0	Technical Pre-qualification Criteria
a	The bidder should have Designed, Tested & Supplied Hookup within the period not exceeding Five (5) years reckoned from bid submission date in any one of the captive power plant applications / hydrocarbon industries like Refinery, Petrochemical and gas processing plants under similar process conditions.
b	The bidder should have executed at least Two (2) jobs in last 7 years for establishment of business continuity.

2.0	Following Documents / Information to be submitted in support of Technical Pre-Qualification Criteria above
a	Bidder shall provide the following documents in support of s.no. 1.0 (a) above (1) Purchase Order details (2) Invoice/End user Approved drawings / documents which indicates Make, model, application, etc (OR) any other document which provides the above details
b	Bidder shall provide the following documents in support of s.no. 1.0 (b) above (1) Purchase Order details (2) LR copies / invoices

ENGG-C&I / PROJECT ENGINEERING & SYSTEMS DIVISION
BHEL, RAMACHANDRAPURAM, HYDERABAD