







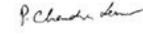

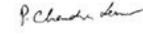

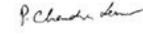
TD-106-1 Rev No. 00	Form No.	 <b>HYDERABAD</b>	<b>PRODUCT STANDARD</b> <b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b> <b>HYDERABAD</b>		<b>PY51505</b> Rev No. 01 Page 1 of 4
<b>COPYRIGHT AND CONFIDENTIAL</b> The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.		<h1 style="text-align: center;">SPECIFICATION FOR DELUGE VALVE LOCAL CONTROL PANEL (DVLCP)</h1>			
Ref. Doc		<b>Revisions :</b>  <b>Refer to record of revisions :</b>	<b>Prepared:</b> -sd- ARAVIND	<b>Approved:</b> -sd- PCS	<b>Date:</b> 02-01-2019

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	<b>2.0 GENERAL DESIGN AND CONSTRUCTION</b> Please refer Annexure – 1 for DATA SHEET and SCHEME. A Design ambient temperature of 50 deg. C shall be considered																							
	<b>3.0 INSPECTION &amp; TESTING</b> <table border="1"> <tr> <td>3.1</td> <td>Dimensional, Visual Test</td> <td>100% review &amp; 10% witness with random selection</td> </tr> <tr> <td>3.2</td> <td>Ingress protection</td> <td>100% Type test Certificate review</td> </tr> <tr> <td>3.3</td> <td>Continuity Test</td> <td>Type of Check – Functional, 100% review</td> </tr> <tr> <td>3.4</td> <td>Functional Test</td> <td>100% review &amp; 10% witness with random selection</td> </tr> <tr> <td>3.5</td> <td>Check arrangement for Components and mounting, Rating, make etc.,</td> <td>100% review &amp; 10% witness with random selection</td> </tr> <tr> <td>3.6</td> <td>IR test before and after HV test</td> <td>Type of Check – Measurement, 100% review &amp; 10% witness</td> </tr> <tr> <td>3.7</td> <td>HV Test</td> <td>Type of Check – Measurement, 100% review &amp; 10% witness</td> </tr> </table>			3.1	Dimensional, Visual Test	100% review & 10% witness with random selection	3.2	Ingress protection	100% Type test Certificate review	3.3	Continuity Test	Type of Check – Functional, 100% review	3.4	Functional Test	100% review & 10% witness with random selection	3.5	Check arrangement for Components and mounting, Rating, make etc.,	100% review & 10% witness with random selection	3.6	IR test before and after HV test	Type of Check – Measurement, 100% review & 10% witness	3.7	HV Test	Type of Check – Measurement, 100% review & 10% witness
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For further details refer Annexure – 6 for QAP.																								
<b>4.0 DOCUMENTATION</b> 4.1 <u>Documents to be submitted along with the technical bid:</u> a) Deviation format (Annexure-4) b) Un-priced Price schedule as per Price format (Annexure-3) c) Check List (Annexure – 2) 4.2 <u>Documents after placement of order:</u> The vendor shall submit soft copies of the following documents within 2 weeks after placement of order for approval. a) GA & Wiring drawings indicating mounting details, weight etc. b) Bill of material of each DVLCP indicating make and model number of each component c) QAP BHEL shall provide comments/ approval within 15 days of receipt of drawings. Vendor shall incorporate comments, if any and submit revised drawings within 7 days. <i>Vendor is responsible for completion of approval cycle and minimizing number of revisions.</i>																								
<b>5.0 PACKING AND DISPATCH</b> 5.1 For road/rail packing, the equipment shall be properly packed for the selected mode of transportation, i.e. by ship/rail/trailer. Each DVLCP shall be wrapped individually in a bubbled polythene sheet and packed in thermo box. Such boxes shall be packed in suitable corrugated boxes with adequate cushioning material to withstand normal transit risks as well as heavy tropical rain. For ease of handling during transportation, sizeable quantity of corrugated boxes shall stacked on wooden/plastic/molded pallet and shall be covered with plastic sheet and overall PVC striped. Special notation such as 'Fragile', 'This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'P.O. no.' etc. shall be clearly marked on the packages																								
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Ref. Doc							

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## ANNEXURE-1

### GENERAL

1.	MOUNTING LOCATION	INDOOR
2.	TYPE OF PANEL	SINGLE FRONT & NON COMPARTAMENTALIZED
3.	TYPE OF PANEL MOUNTING	WALL MOUNTING
4.	AREA CLASSIFICATION	SAFE AREA, WEATHER PROOF
5.	IP CLASS OF PANEL	IP – 55 WITH CANOPY
6.	COLOR SHADE	LIGHT GREY, RAL 7035
7.	THICKNESS OF PAINT	MINIMUM 60 MICRON
8.	TERMINALS	SUITABLE FOR 2.5 SQMM CABLE

### MECHANICAL CONSTRUCTION:

SL.NO.	ITEM	MATERIAL , THICKNESS & OTHER REQUIREMENTS
1.	SHEET SIZE ( REAR)	MINIMUM 2.5 MM & CRCA SHEET
2.	SHEET SIZE ( FRONT DOOR)	MINIMUM 2.5 MM & CRCA SHEET & IP LOCK
3.	SHEET SIZE (TOP & SIDE)	MINIMUM 2.5 MM & CRCA SHEET
4.	GLAND PLATE	3.0 MM & CRCA SHEET (REMOVABLE)
5.	MOUNTING PLATE	2.5 MM & CRCA SHEET
6.	CANOPY	2.0 MM & CRCA SHEET
7.	CABLE ENTRY	BOTTOM
8.	COVER FOR PUSH BUTTON	TRANSPARENT FLAP/COVER
9.	GASKET	NEOPRENE
10.	CABLE LUGS	TINNED COPPER
11.	CABLE GLANDS	DOUBLE COMPRESSION TYPE NICKEL PLATED BRASS
12.	TAG PLATE	BLACK PVC SHEET & WHITE ENGRAVING

### Note:

- 1) ALL THE COMPONENTS IN DVLCP SHALL BE MOUNTED IN BACK PLANE.
- 2) 200 x 200 MM MOUNTING PLATE SHALL BE MADE AVAILABLE INSIDE DVLCP FOR MOUNTING THE MODULES INSIDE DVLCP.
- 3) NAME ON TAG PLATE SHALL BE GIVEN DURING DETAILED ENGINEERING.
- 4) ALL THE EQUIPMENT SHALL BE OF REPUTED MAKE.
- 5) BIDDER TO PROVIDE 8 NOS CABLE GLANDS I.E, 2 NOS FOR POWER CABLES (2C X 2.5 SQMM) AND 6 NOS FOR LOOP CABLE (1P X 1.5 SQMM) FOR 950 NOS OF DVLCP OUT OF 1100 NOS
- 6) BIDDER TO PROVIDE 8 NOS CABLE GLANDS I.E, 2 NOS FOR MICA POWER CABLES (3C X 2.5 SQMM) AND 6 NOS FOR MICA LOOP CABLE (2C X 1.5 SQMM) FOR 150 NOS OF DVLCP OUT OF 1100 NOS

### WIRING:

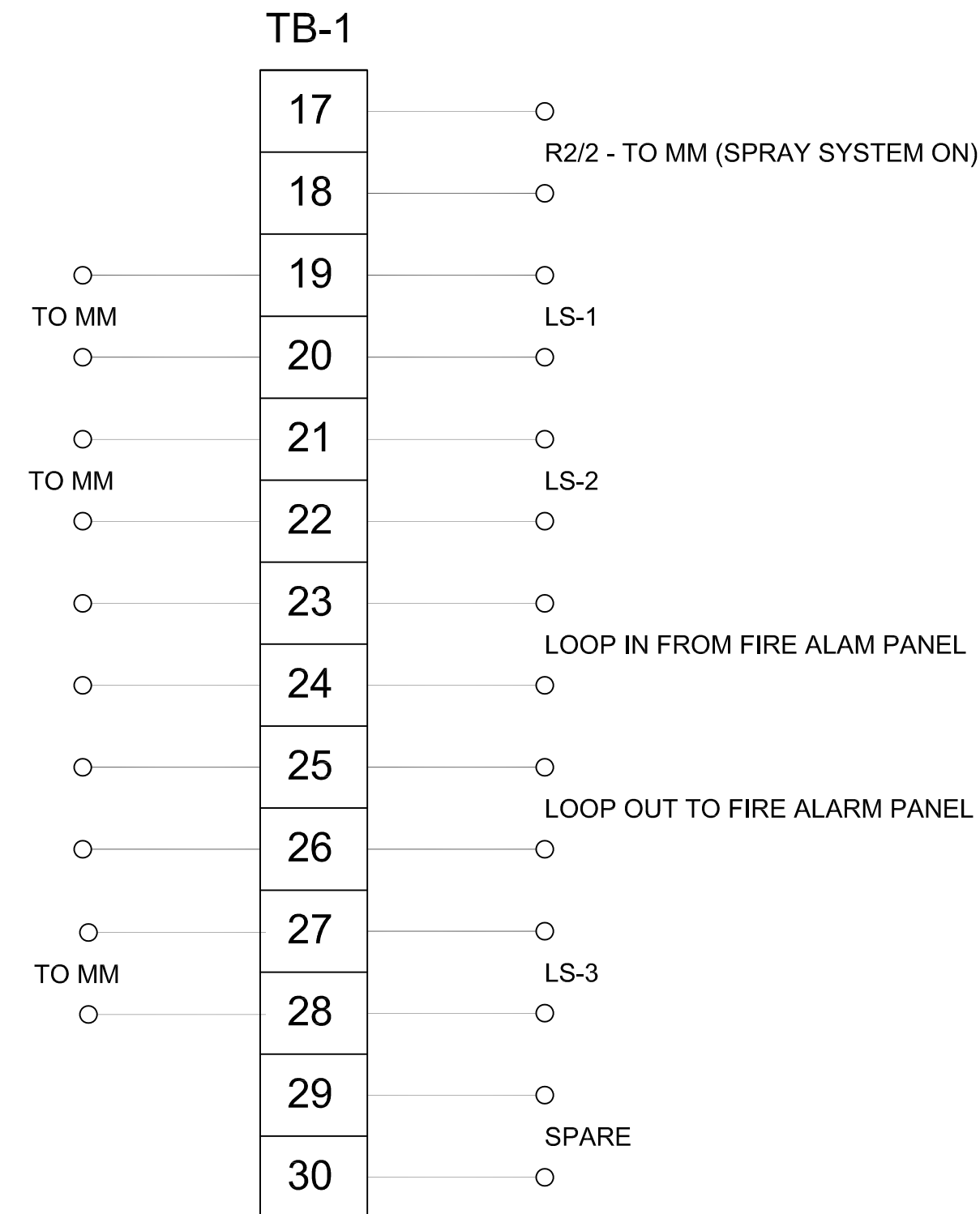
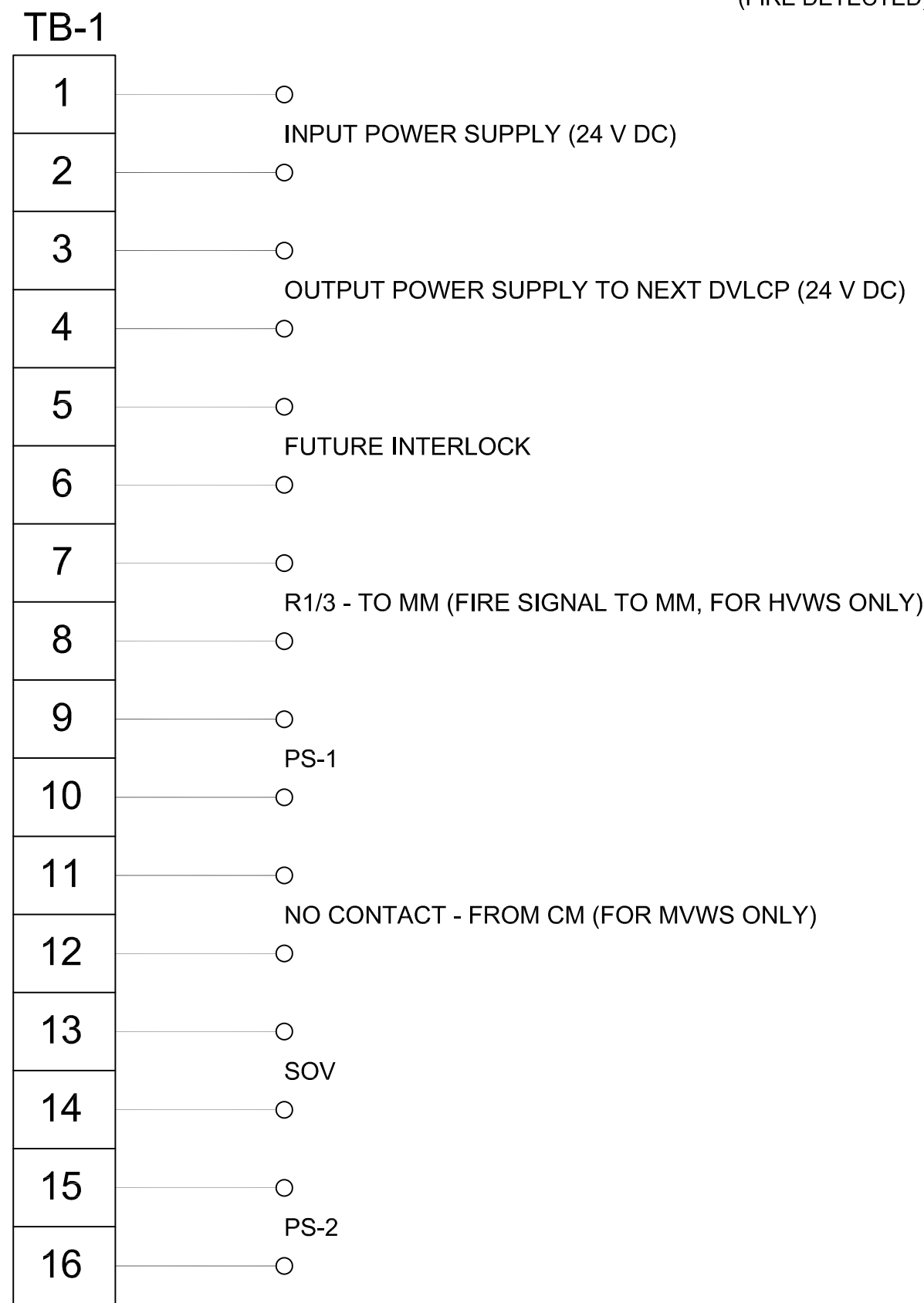
1.	TYPE	PVC INSULATED, 1.5 SQMM CU CONDUCTOR, FLEXIBLE CABLE, 660 V GRADE
2.	SIZE	1.5 SQMM
3.	COLOUR	( + ) RED, ( - ) BLACK

### OTHERS:

DVLCP MOUNTING ACCESSORIES SHALL BE SUPPLIED ALONG WITH THE PANEL

INVENTORY NO	SIGN. AND DATE	REF. DRG. NO.	COMPUTER FILE NAME
			13831600052-S00-R00

GENERAL DIMENSIONAL LIMITS, FITS &amp; TOLERANCES AS PER HY0230261



R - RELAY

PB - MUSHROOM HEAD PUSH BUTTON (STAY PUT & SPRING RETURN)

PS-1 - PRESSURE SWITCH IN DETECTION LINE

PS-2 - PRESSURE SWITCH IN DISCHARGE LINE

SOV - SOLENOID OPERATED VALVE


LS-1 - LIMIT SWITCH IN UPSTREAM GATE VALVE

LS-2 - LIMIT SWITCH IN DOWNSTREAM GATE VALVE

MM - MONITOR (INPUT) MODULE

CM - CONTROL (OUTPUT) MODULE


LS-3 - LIMIT SWITCH FOR BUTTERFLY GATE VALVE


REV.	DATE	ALTERED	REV.	DATE	ALTERED	DEPT. PED	UNTOOL GR	DIMS. 9/4/1		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
		CHD/APPD			CHD/APPD	CODE 450				N.T.S	N.A.	N.A.	N.A.	N.A.
ZONE			ZONE			TITLE					CARD CODE	BHEL DRG. NO.		REV.
						SCHEME OF DVLCP					NA	CUST. DRG. NO.		00
												SHT. No 02	No. OF SHT. 02	SIZE - A4





**ANNEXURE - 02****CHECK LIST FOR OFFER SUBMISSION****Enquiry No. / Date :****Name of the Bidder :****Project Name :****Item Description :**


<b>SL No</b>	<b>Description</b>	<b>Bidder's Confirmation</b>
1	Bidder to confirm to the scope of supply and scope of services as per BHEL spec: PY51505, Rev- 01	
2	Bidder to quote as per BHEL price format only. Bidder to attached unpriced bid format by indicating "QUOTED" against each item in the technical offer (Annexure - 3)	
3	<p>In case of deviation, vendor to confirm that these are technically not feasible deviations and same are submitted in BHEL format (Annexure - 4)</p> <p>In case technically feasible deviations are proposed by the bidder and subsequently withdrawn, no commercial implications can be claimed by the bidder</p> <p>In case of no deviations, bidder shall submit the deviation format (Annexure - 4) indicating that there is "No Deviation".</p>	
4	It shall be bidder's responsibility to get all his queries and deviations addressed by the purchaser during the pre-bid stage itself. No queries / deviations shall be accepted by purchaser from the bidder after the closure of pre-bid.	
5	Bidder to agree that Bill of materials / list of equipment furnished in the offer is only for information; Vendor shall supply all the material to meet the performance, sizing & technical requirement as per specification & its Annexures, scope matrix etc.	
6	All the equipments / items supplied by bidder are having valid statutory approval certificates and same will be produced at any stage of contract execution to BHEL. The same were eligible to take local statutory regulatory body approval during commissioning of the system.	


		<u>Price Bid format</u> <u>[Main Supply]</u>				Annexure -[3] of PY51505	
		<u>DELUGE VALVE LOCAL CONTROL PANEL</u>				Rev 01	
		Framework agreement for Supply of DVLCPs for various Projects					
S. No	Material Code	Item Description	Quantity [I]	UNITs	Unit Rate (Rs. ) [II]	TOTAL PRICE (Rs.) [I*II]	REMARKS
[A]	MAIN SUPPLY						
	PY9751505011	SUPPLY OF DELUGE VALVE LOCAL CONTROL PANELS	1100	EA			
MAIN SUPPLY Total prices (Rs.) ::							

	<a href="#">Price Bid format</a> <a href="#">[Main Supply]</a>		Annexure -[3] of PY51505	
	<a href="#">DELUGE VALVE LOCAL CONTROL PANEL</a>		Rev 00	
	Project: Various Projects Framework Agreement			
BHEL ENQUIRY NO :		Vendor Offer ref no:		
Ref. date:		Ref. date:		
NOTES ::				
1	This document details the price schedule format for the enquiry. <b>No other format will be entertained.</b> Applicable taxes and duties shall be indicated separately in commercial offer.			
2	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.			
3	<b>Bidders shall be evaluated on overall L1 basis.</b>			
4	For addition/reduction of quantity, unit rate quoted in the present offer shall be considered during order execution and shall be valid up to execution of the contract to the extent of + 10%, - 20% of overall 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 as required for this purpose also shall be included in the unit rate of main items.			
5	Billing will be as per BOM of actual supplied main equipment (including accessories & services) & spares.			
6	NIL			
7	NIL			
8	NIL			
9	NIL			
10	NIL			
11	This list is indicative. Vendor has to include and quote unit rates for all items which are figuring in main supply & mandatory spares. Your offer will NOT be evaluated without unit rates.			

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Ref. Doc																											

TD-201 Rev No. 00	Form No.		<b>PRODUCT STANDARD</b> PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	<b>Annexure-5</b> Rev No. 00 Page 1 of 3
<div data-bbox="170 940 203 1291"><b>COPYRIGHT AND CONFIDENTIAL</b></div> <div data-bbox="203 646 259 1585">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.</div> <div data-bbox="592 367 1161 415"><b>QAP GUIDELINES &amp; FORMAT</b></div> <div data-bbox="630 508 1128 556">(Annexure-5 TO SPECIFICATION)</div> <div data-bbox="300 646 1445 724">The QAP format and Guidelines for filling up the format shall be used by vendor for preparation and submission of QAP after order placement.</div>				

Form No.	 HYDERABAD	<b>PRODUCT STANDARD</b> PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	<b>Annexure-5</b> Rev No. 00 Page 2 of 3
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 style="text-align: center;"><b><u>GUIDELINES TO VENDORS FOR PREPARATION OF QUALITY ASSURANCE PLAN</u></b></p> <ol style="list-style-type: none"> <li>1. QAP shall be made in landscape mode on A4 size paper as per the format enclosed. Font size shall be minimum 10.</li> <li>2. Each page of QAP shall contain the following information.           <ol style="list-style-type: none"> <li>a) Vendor's name &amp; address.</li> <li>b) Customer: BHEL, Hyderabad.</li> <li>c) Project.</li> <li>d) BHEL Product Standard Number/revision number as referred in P.O.</li> <li>e) BHEL Purchase Order Number &amp; Date.</li> <li>f) Product as per P.O. description.</li> <li>g) QAP Number (unique and shall not repeat)/revision number/date.</li> <li>h) Page number and number of pages</li> </ol> </li> <li>3. QAP shall contain four parts / stages as follows.           <ol style="list-style-type: none"> <li>a) Raw materials and bought out items.</li> <li>b) In process Control / Inspection.</li> <li>c) Final assembly, Inspection &amp; Testing.</li> <li>d) Painting, preservation &amp; packing.</li> </ol> </li> <li>4. Under 'Component', indicate name of the component (say casing, rotor, pressure gauge, etc).</li> <li>5. Under 'Characteristics', indicate appropriately (say chemical analysis, mechanical properties, NDT (UT,DP etc.), hydrostatic test, calibration check etc.)</li> <li>6. Under 'Class', indicate minor, major or critical depending on the importance of characteristic.</li> <li>7. Under 'Type of check', indicate appropriately (say chemical, mechanical, UT, DP etc.)</li> <li>8. Under 'Quantum of check', indicate appropriately (say 100%, 10%, sample, per melt, per heat, all pieces etc.)</li> <li>9. Under 'Reference document' and 'Acceptance norms', appropriate National &amp; International standards, BHEL standards, approved drawing references etc. should be indicated. It is not correct to mention as "Vendor's internal standards or Vendor's standard practice etc.". If vendors' internal standards are referred, same shall be in line with BHEL Spec. indicated in the P.O. These may require review &amp; approval by our Engineering dept.</li> <li>10. Under 'Format of record', indicate appropriately supplier's test certificate, calibration certificate, lab report, inspection report etc.</li> </ol>	
	Ref. Doc		



Form No.	 HYDERABAD	<div style="text-align: center;"> <b>PRODUCT STANDARD</b>  PROJECT ENGINEERING &amp; SYSTEMS DIVISION  HYDERABAD </div>	<div style="border: 1px solid black; padding: 2px;">Annexure-5</div> <div style="border: 1px solid black; padding: 2px;">Rev No. 00</div> <div style="border: 1px solid black; padding: 2px;">Page 3 of 3</div>
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>COPYRIGHT AND CONFIDENTIAL</b>  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. </div>	<div style="margin-top: 20px;"> 11. Please refer 'Agency' in QAP format.  Under P: Perform, W: Witness, V: Verify  Indicate against each characteristic 1: (BHEL CQS/Nominated inspection agency), OR  2: (Vendor / Sub vendor)  Note: Performing agency is normally vendor or his sub vendor (Legend 2). Where  witness points are indicated in specification, P.O., Drawing etc., for such operations,  under Witness (W) column use 1. Under 'Verify' column, use code1. </div> <div style="margin-top: 20px;"> 12. Under 'D' please put ( <input type="checkbox"/> Tick) against each characteristic where vendor proposes to  submit test certificate/report etc. OR as required as per BHEL Specification. </div> <div style="margin-top: 20px;"> 13. Vendor's signature &amp; stamp should be available on each page of QAP. </div> <div style="margin-top: 20px;"> 14. Vendor should read the BHEL Product Standard thoroughly and QAP should be made  only inline and relevant to the Specification &amp; Approved Drawings. </div> <div style="margin-top: 20px;"> 15.The following operations/characteristics/check points may be included (AS  APPROPRIATE)  a) Visual check  b) Dimensional check  c) Mechanical and Chemical properties.  d) Surface preparation before painting (by chemical cleaning, sand blasting, shot blasting  etc. as the case may be.)  e) Painting check for shade, Dry Film Thickness (DFT), Adhesion/ peel off test etc.  f) Check for correctness for all components mounted as per General arrangement  Drawing, Bill Of Materials (BOM), etc. for range, rating, make, color, size, location  as per GA, quantity, label description including tag nos., annunciator facia, loose  components, accessories, spares etc.  g) Verification of test certificate for protection class for the enclosures.  h) Mechanical functioning of switches.  i) Continuity of earthing and provision of earth points.  j) Colour coding of wiring, size, tightness &amp; dressing of wiring.  k) Review of test certificates of assembled items, raw materials, internal test reports etc.  l) Witness of functional checks, which may include mechanical run &amp; electrical run,  H.V.test, IR measurement, Electrical and Mechanical tests etc.  m) PQR, WPS, Welder Qualification Record, welding records (fit up, DP) etc.  n) Material identification ( for punch marks of serial numbers, Heat No, Melt No,  Inspector's stamp etc.)  o) Hydraulic Pressure Test, Pneumatic Pressure Test, Liquid Penetration Examination and  other Non Destructive Tests.  p) Tests on Galvanised items (Visual, Hammer Test, Knife Test, Thickness, Pierce Test  (Copper sulphate test), Hydrogen evaluation test, Stripping test (for Mass of Zinc  coating)  q) All tests as per BHEL Product Standard &amp; approved drawings including Type tests and  Routine tests on individual items and on System as a whole.  r) Packing and Preservation. </div>		
	Ref. Doc	16. <b><u>QAP Format enclosed.</u></b>	

VENDOR'S NAME & ADDRESS:			<b>MANUFACTURING QUALITY PLAN</b>						QP. NO.:				
			CUSTOMER: BHEL, HYDERABAD – 32.			BHEL P.O.NO.:			REV NO:		DATE:		
			PROJECT:			P.O.DATE:			PAGE 1 OF 1				
PRODUCT:			BHEL SPEC:			REV:							
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	<b>RAW MATERIALS &amp; BOUGHT OUT ITEMS</b>												
2.0	<b>INPROCESS INSPECTION</b>												
3.0	<b>FINAL INSPECTION &amp; TESTING</b>												
4.0	<b>PRESERVATION &amp; PACKING</b>												

**VENDOR TO NOTE:** THIS FORMAT IS IN MICROSOFT WORD. HEADER & FOOTER SHALL BE AVAILABLE IN EACH PAGE OF QP. QP SHALL BE IN LANDSCAPE & A4 SIZE ONLY. FONT SIZE SHALL BE MIN 10. VENDOR SHALL SIGN & STAMP IN EACH PAGE OF QP. LOI REF. & DATE ARE NOT ACCEPTABLE. P.O.NO. & DATE SHALL BE INDICATED. QP NO. SHOULD BE UNIQUE AND SHALL NOT REPEAT. ALL THE TESTS / CHECKS INDICATED IN THE BHEL SPEC. SHALL BE INDICATED IN THE QP.

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL CQS (OR BHEL NOMINATED INSPECTION AGENCY) & 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.	PREPARED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	CUSTOMER'S SIGNATURE & STAMP



FORMAT No.: PESDOS/SOP R00  	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b> RAMACHANDRAPURAM - 502032			QP No.: SQP/EP/032	
				Rev. No. : 00	
				Page : 1 of 4	
<p><b>STANDARD QUALITY PLAN</b></p> <p><b>For</b></p> <p><b>CONTROL PANEL</b></p>					
<b>QUALITY SERVICES DEPARTMENT</b>					
<b>Prepared by</b>		<b>Checked by</b>		<b>Approved by</b>	
<b>Suvendu Kumar Sethy</b>		<b>K Panchala Prasad</b>		<b>V V N Raju</b>	
				<b>Rev. No.</b>	<b>Date:</b>
				00	27.11.2014

VENDOR'S NAME & ADDRESS:			TYPICAL MANUFACTURING QUALITY PLAN						QP. NO.:				
									REV NO:		DATE:		
			CUSTOMER: PROJECT: PRODUCT:			BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV:			PAGE 2 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	

1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
	CASTING	VERIFICATION OF MATERIAL OF CONSTRUCTION	MAJOR	CHEMICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
	READYMADE COMPONENTS LIKE PB ELEMENT, SELECTOR SWITCH,METER & TERMINAL CONNECTORS etc.	RATING,FUNCTIONAL,HIGH VOLTAGE ,INSULATION RESISTANCE TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
	GASKET & HARDWARE	DIMENSIONS	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
2.0	INPROCESS INSPECTION												
	MACHINING	DIMENSIONS	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
		CABLE ENTRY	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
	PAINTING	SHADE	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
3.0	FINAL INSPECTION & TESTING												
	ACCEPTANCE TEST	OVERAL DIMENSION	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICAT REVIEW. INDICATE 1 FOR BHEL / 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.

VENDOR'S NAME & ADDRESS:		TYPICAL MANUFACTURING QUALITY PLAN							QP. NO.:				
		CUSTOMER: PROJECT: PRODUCT:				BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV NO:		DATE:		
									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	
		CABLE ENTRY	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		CHECK FOR JOINTS,SURFACE & GAP/CLEARANCE	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		TERMINAL ARRANGEMENT	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		LOCATION OF COMPONENTS(ASS EMBLY)	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		PAINT SHADE,PAINT THICKNESS & FINISHING	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		DIELECTRIC TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		INSULATION RESISTANCE TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		PRESSURE TEST	MAJOR	PRESSURE TEST	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		BOM CHECK	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
	TYPE TEST	DEGREE OF PROTECTION TEST OF ENCLOSURE	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2		1		

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / 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.

VENDOR'S NAME & ADDRESS:			<b>TYPICAL MANUFACTURING QUALITY PLAN</b>							QP. NO.:			
			CUSTOMER: PROJECT: PRODUCT:				BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV NO:		DATE:	
										PAGE 4 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	
		FLAME PROOFNESS OF ENCLOSURE	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
	STATUTORY APPROVAL	CCOE/PESO APPROVALS	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
		BIS LICENCE FOR FLAMEPROOF EQUIP.	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
<b>4.0</b>	<b>PRESERVATION &amp; PACKING</b>												
		PACKING	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
		PACKING LIST	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	

**Notes:-**

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. All type test reports submitted shall not be older than 5 years from the date of purchase order.
4. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.
5. The applicability of End Customer's scope of Inspection (Legend-'3') will be communicated by BHEL during execution stage.


**Abbreviations:-**

MTC – Material Test certificate  
IR - Inspection Report

TC – Test Certificate

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / 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.

## ANNEXURE-7

TD-106-2	Rev.No. 5 Form No.		<b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b> <b>BHEL, HYDERABAD –32.</b>	PESD/HYD-776
				Rev No.: <b>00</b>
				Page 1 of 1

<p style="text-align: center;"><b>COPYRIGHT AND CONFIDENTIAL</b></p> <p>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED .</p> <p>It must not be used directly or indirectly in any way detrimental to the interest of the company.</p>		<p style="text-align: center;"><u>PRE-BID QUERRIES FROM SPECIFICATION</u></p> <p>If the proposal submitted has got any Queries from the technical stipulations in the bidding document, the Bidder shall tabulate below the full particulars of such Queries and shall sign below. Additional sheets may be enclosed, if necessary. Queries are to be furnished with mention of specific clause numbers. Technical and commercial Queries to scope of supply and services shall be indicated separately.</p> <table border="1" data-bbox="292 714 1469 1396"> <thead> <tr> <th data-bbox="292 714 527 787">SL.No.</th><th data-bbox="527 714 852 787">Clause No.</th><th data-bbox="852 714 1226 787">Description as per specification</th><th data-bbox="1226 714 1469 787">Queries by Bidder</th></tr> </thead> <tbody> <tr> <td data-bbox="292 787 527 1396" style="height: 250px;"></td><td data-bbox="527 787 852 1396"></td><td data-bbox="852 787 1226 1396"></td><td data-bbox="1226 787 1469 1396"></td></tr> </tbody> </table> <p>We confirm that all the Pre-Bid Queries to the Technical Specification, Job Specification and enclosures including reference documents attached are listed in this Annexure only. No other Pre-Bid Queries even if mentioned elsewhere shall be considered for any technical/ commercial evaluation or for ordering.</p> <p>Bidder's Signature.....</p> <p>Date:.....</p>	SL.No.	Clause No.	Description as per specification	Queries by Bidder				
SL.No.	Clause No.	Description as per specification	Queries by Bidder							



# ANNEXURE-8

## BILL OF MATERIALS

(SUB-VENDOR PACKAGES)

(NOTE: ASSEMBLED UNITS AND ALL LOOSE DESPATCHABLE ITEMS IDENTIFIED IN THIS BOM)

<b>System Name</b>		<b>Supplier:</b>	<b>Project:</b>			<b>Supplier Doc. No.</b>		
			<b>Supplied Job No.</b>	<b>BHEL P.O.No.</b>	<b>Rev. No.</b>		<b>sh.</b>	<b>of</b>
				Date		Date	<b>1</b>	
Item Despatch Tag-No.	Ref. Drg. No.	Item No.	Item Description	Qty. (Nos./mts)	Wt (Kg)	Despatch Details		Remarks
						Packing box	LR No.	Date
	Rev.	Rev.	Prepared By:		Approved By:		<b>Supplier Doc. No.:</b>	
					(xxx)			
			Sign :		Sign :			
			Date :		Date :			

FORMAT No.: PESDQSOP R00  	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b> RAMACHANDRAPURAM - 502032			QP No.: SQP/EP/032	
				Rev. No. : 00	
				Page : 1 of 4	
<p><b>STANDARD QUALITY PLAN</b></p> <p><b>For</b></p> <p><b>CONTROL PANEL</b></p>					
<b>QUALITY SERVICES DEPARTMENT</b>					
<b>Prepared by</b>		<b>Checked by</b>		<b>Approved by</b>	
<b>Suvendu Kumar Sethy</b>		<b>K Panchala Prasad</b>		<b>V V N Raju</b>	
				<b>Rev. No.</b>	<b>Date:</b>
				00	27.11.2014

VENDOR'S NAME & ADDRESS:			TYPICAL MANUFACTURING QUALITY PLAN						QP. NO.:				
									REV NO:		DATE:		
			CUSTOMER: PROJECT: PRODUCT:			BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV:			PAGE 2 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	

1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
	CASTING	VERIFICATION OF MATERIAL OF CONSTRUCTION	MAJOR	CHEMICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
	READYMADE COMPONENTS LIKE PB ELEMENT, SELECTOR SWITCH,METER & TERMINAL CONNECTORS etc.	RATING,FUNCTIONAL,HIGH VOLTAGE ,INSULATION RESISTANCE TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
	GASKET & HARDWARE	DIMENSIONS	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	MTC/IR/TC	√	2		1		
2.0	INPROCESS INSPECTION												
	MACHINING	DIMENSIONS	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
		CABLE ENTRY	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
	PAINTING	SHADE	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC		2		1		
3.0	FINAL INSPECTION & TESTING												
	ACCEPTANCE TEST	OVERAL DIMENSION	MAJOR	MEASUREMENT	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICAT REVIEW. INDICATE 1 FOR BHEL / 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.



VENDOR'S NAME & ADDRESS:		TYPICAL MANUFACTURING QUALITY PLAN							QP. NO.:				
		CUSTOMER: PROJECT: PRODUCT:				BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV NO:		DATE:		
									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	
		CABLE ENTRY	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		CHECK FOR JOINTS,SURFACE & GAP/CLEARANCE	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		TERMINAL ARRANGEMENT	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		LOCATION OF COMPONENTS(ASS EMBLY)	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		PAINT SHADE,PAINT THICKNESS & FINISHING	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		DIELECTRIC TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		INSULATION RESISTANCE TEST	MAJOR	ELECTRICAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		PRESSURE TEST	MAJOR	PRESSURE TEST	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
		BOM CHECK	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2	1			
	TYPE TEST	DEGREE OF PROTECTION TEST OF ENCLOSURE	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2		1		

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / 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.

VENDOR'S NAME & ADDRESS:			<b>TYPICAL MANUFACTURING QUALITY PLAN</b>							QP. NO.:			
			CUSTOMER: PROJECT: PRODUCT:				BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV NO:		DATE:	
										PAGE 4 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	
		FLAME PROOFNESS OF ENCLOSURE	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
	STATUTORY APPROVAL	CCOE/PESO APPROVALS	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
		BIS LICENCE FOR FLAMEPROOF EQUIP.	MAJOR	ELECTRICAL	---	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
<b>4.0</b>	<b>PRESERVATION &amp; PACKING</b>												
		PACKING	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	
		PACKING LIST	MAJOR	VISUAL	100%	AS PER BHEL SPEC. /APPD. DRG. /APPD. DATA SHEET	IR/TC	√	2			1	

**Notes:-**

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. All type test reports submitted shall not be older than 5 years from the date of purchase order.
4. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.
5. The applicability of End Customer's scope of Inspection (Legend-'3') will be communicated by BHEL during execution stage.

**Abbreviations:-**

MTC – Material Test certificate  
IR - Inspection Report

TC – Test Certificate

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / 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.



**BHARAT HEAVY ELECTRICALS LIMITED**  
**RAMACHANDRAPURAM:: HYDERABAD – 502032**  
**PROJECT ENGINEERING & SYSTEMS DIVISION**  
**QUALITY & BUSINESS EXCELLANCE DEPARTMENT**  
**Format for inspection call**

Ref: BHEL/PESD/QS/CQIR-Inspection Call/01

Dt: 20.07.2020

Due to unavailability of all BHEL/Customer approved documents TPIAs visits are wasting .To avoid this it is mandatory to vendor to arrange all the approved reference documents and then only raise the inspection call in portal. Vendor has to fill the below details and upload this documents in portal while raising the inspection call.

Sr.No	Approved Documents	Approved Documents date
	Approved QAP No with revision	
	Approved Drawing No with revision	
	Approved Data Sheet No with revision	
	Purchase specification	
	Purchase Order/BBU	

**Note:** While raising inspection call vendor has to take care of below points.

1. **Purchasing Unit:** Purchasing Unit should be PE & SD.
2. **Joint Inspection:** Joint inspection means where BHEL and BHEL client both are jointly attending the inspection.
3. **CQ Center:** CQ center is a TPIA (We are having two TPIA, TUV and BVI) operating region, suppose inspection is in Mumbai than CQ center will be either of TUV Mumbai/BVI Mumbai.

Vendor Signature

**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
<b>A. Item Description:</b>					
<b>B. Item Description:</b>					
<b>C. Item Description:</b>					
<b>D. Item Description:</b>					
<b>E. Item Description:</b>					


**SUPPLIER / VENDOR SIGNATURE WITH SEAL****BHEL/ BHEL's TPIA SIGNATURE WITH SEAL****Dt:****Dt:**

TD-201 Rev No. 00	Form No.	 HYDERABAD	<b>PRODUCT STANDARD</b> PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	ANNEXURE Rev No. 00 Page 1 of 3
<div><div><div><b>COPYRIGHT AND CONFIDENTIAL</b> 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.</div></div><div><div><div><h1>QAP GUIDELINES &amp; FORMAT</h1><div>( ANNEXURE )</div><p>The QAP format and guidelines for filling up the format shall be used by vendor for preparation and submission of QAP after order placement.</p><p><b>Note :</b></p><div><div>1. Typical /Indicative /Standard QAP(s) for equipment /package attached is reference document and to use by successful bidder in future for preparation and submission of QAP for BHEL /CUSTOMER approval.</div><div>2. No deviation to reference document is acceptable.</div></div></div></div></div></div>				

Form No.	 HYDERABAD	<b>PRODUCT STANDARD</b> PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	ANNEXURE
			Rev No. 00
			Page 2 of 3
<p style="text-align: center;"><b><u>GUIDELINES TO VENDORS FOR PREPARATION OF QUALITY ASSURANCE PLAN</u></b></p> <ol style="list-style-type: none"> <li>QAP shall be made in landscape mode on A4 size paper as per the format enclosed. Font size shall be minimum 10.</li> <li>Each page of QAP shall contain the following information.           <ol style="list-style-type: none"> <li>Vendor's name &amp; address.</li> <li>Customer: BHEL, Hyderabad.</li> <li>Project.</li> <li>BHEL Product Standard Number/revision number as referred in P.O.</li> <li>BHEL Purchase Order Number &amp; Date.</li> <li>Product as per P.O. description.</li> <li>QAP Number (unique and shall not repeat)/revision number/date.</li> <li>Page number and number of pages</li> </ol> </li> <li>QAP shall contain four parts / stages as follows.           <ol style="list-style-type: none"> <li>Raw materials and bought out items.</li> <li>In process Control / Inspection.</li> <li>Final assembly, Inspection &amp; Testing.</li> <li>Painting, preservation &amp; packing.</li> </ol> </li> <li>Under 'Component', indicate name of the component (say casing, rotor, pressure gauge, etc).</li> <li>Under 'Characteristics', indicate appropriately (say chemical analysis, mechanical properties, NDT (UT,DP etc.), hydrostatic test, calibration check etc.)</li> <li>Under 'Class', indicate minor, major or critical depending on the importance of characteristic.</li> <li>Under 'Type of check', indicate appropriately (say chemical, mechanical, UT, DP etc.)</li> <li>Under 'Quantum of check', indicate appropriately (say 100%, 10%, sample, per melt, per heat, all pieces etc.)</li> <li>Under 'Reference document' and 'Acceptance norms', appropriate National &amp; International standards, BHEL standards, approved drawing references etc. should be indicated. It is not correct to mention as "Vendor's internal standards or Vendor's standard practice etc.". If vendors' internal standards are referred, same shall be in line with BHEL Spec. indicated in the P.O. These may require review &amp; approval by our Engineering dept.</li> <li>Under 'Format of record', indicate appropriately supplier's test certificate, calibration certificate, lab report, inspection report etc.</li> <li>Please refer 'Agency' in QAP format.            Under P: Perform, W: Witness, V: Verify            Indicate against each characteristic 1: (BHEL CQS/Nominated inspection agency), OR            2: (Vendor / Sub vendor)</li> </ol>			
Ref. Doc			

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	Form No.	 HYDERABAD	<p align="center"><b>PRODUCT STANDARD</b></p> <p align="center">PROJECT ENGINEERING &amp; SYSTEMS DIVISION HYDERABAD</p>	ANNEXURE
		Rev No. 00		
		Page 3 of 3		
<p align="center"><b>COPYRIGHT AND CONFIDENTIAL</b></p> <p align="center">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>Note: Performing agency is normally vendor or his sub vendor (Legend 2). Where witness points are indicated in specification, P.O., Drawing etc., for such operations, under Witness (W) column use 1. Under 'Verify' column, use code1.</p> <p>12. Under 'D' please put ( <input type="checkbox"/> Tick) against each characteristic where vendor proposes to submit test certificate/report etc. OR as required as per BHEL Specification.</p> <p>13. Vendor's signature &amp; stamp should be available on each page of QAP.</p> <p>14. Vendor should read the BHEL Product Standard thoroughly and QAP should be made only inline and relevant to the Specification &amp; Approved Drawings.</p> <p>15.The following operations/characteristics/check points may be included (AS APPROPRIATE)</p> <ul style="list-style-type: none"> <li>a) Visual check</li> <li>b) Dimensional check</li> <li>c) Mechanical and Chemical properties.</li> <li>d) Surface preparation before painting (by chemical cleaning, sand blasting, shot blasting etc. as the case may be.)</li> <li>e) Painting check for shade, Dry Film Thickness (DFT), Adhesion/ peel off test etc.</li> <li>f) Check for correctness for all components mounted as per General arrangement Drawing, Bill Of Materials (BOM), etc. for range, rating, make, color, size, location as per GA, quantity, label description including tag nos., annunciator facia, loose components, accessories, spares etc.</li> <li>g) Verification of test certificate for protection class for the enclosures.</li> <li>h) Mechanical functioning of switches.</li> <li>i) Continuity of earthing and provision of earth points.</li> <li>j) Colour coding of wiring, size, tightness &amp; dressing of wiring.</li> <li>k) Review of test certificates of assembled items, raw materials, internal test reports etc.</li> <li>l) Witness of functional checks, which may include mechanical run &amp; electrical run, H.V.test, IR measurement, Electrical and Mechanical tests etc.</li> <li>m) PQR, WPS, Welder Qualification Record, welding records (fit up, DP) etc.</li> <li>n) Material identification ( for punch marks of serial numbers, Heat No, Melt No, Inspector's stamp etc.)</li> <li>o) Hydraulic Pressure Test, Pneumatic Pressure Test, Liquid Penetration Examination and other Non Destructive Tests.</li> <li>p) Tests on Galvanised items (Visual, Hammer Test, Knife Test, Thickness, Pierce Test (Copper sulphate test), Hydrogen evaluation test, Stripping test (for Mass of Zinc coating)</li> <li>q) All tests as per BHEL Product Standard &amp; approved drawings including Type tests and Routine tests on individual items and on System as a whole.</li> <li>r) Packing and Preservation.</li> </ul> <p>16. <b>QAP Format enclosed.</b></p> <p>17. <b>Typical Manufacturing QAP is attached.</b></p>		
		Ref. Doc		

VENDOR'S NAME & ADDRESS:			<b>MANUFACTURING QUALITY PLAN</b>						QP. NO.:				
									REV NO:		DATE:		
			CUSTOMER: BHEL, HYDERABAD – 32. PROJECT: PRODUCT:			BHEL P.O.NO.: P.O.DATE: BHEL SPEC:			REV:			PAGE 1 OF 1	
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P W V			REMARKS
1.0	<b>RAW MATERIALS &amp; BOUGHT OUT ITEMS</b>												
2.0	<b>INPROCESS INSPECTION</b>												
3.0	<b>FINAL INSPECTION &amp; TESTING</b>												
4.0	<b>PRESERVATION &amp; PACKING</b>												

**VENDOR TO NOTE:** THIS FORMAT IS IN MICROSOFT WORD. HEADER & FOOTER SHALL BE AVAILABLE IN EACH PAGE OF QP. QP SHALL BE IN LANDSCAPE & A4 SIZE ONLY. FONT SIZE SHALL BE MIN 10. VENDOR SHALL SIGN & STAMP IN EACH PAGE OF QP. LOI REF. & DATE ARE NOT ACCEPTABLE. P.O.NO. & DATE SHALL BE INDICATED. QP NO. SHOULD BE UNIQUE AND SHALL NOT REPEAT. ALL THE TESTS / CHECKS INDICATED IN THE BHEL SPEC. SHALL BE INDICATED IN THE QP.

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL CQS (OR BHEL NOMINATED INSPECTION AGENCY) & 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.	PREPARED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	CUSTOMER'S SIGNATURE & STAMP