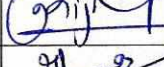
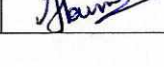


 An ISO 9001:2015 Company	MANDATORY TECHNICAL PRE-QUALIFICATION REQUIREMENTS (PQR) FOR VENDORS	PQR/ISE/HW28198/EOI/2019/32
	INSULATION SYSTEMS ENGINEERING	Rev. No.: 00
	Technical PQR for Issuing EOI for Procurement of Double Glass Covered, Epoxy Varnish Bonded Rectangular Copper Conductors to HW28198 (Temperature Index 155°C)	Rev. Dt.: 15/06/2019
		Sht. 1 of 4 shts.

Cl. No	Description	Vendor to comment	
		Complied	Relevant supporting documents to be submitted
1.	Only Original manufacturers should submit their offers. Traders / agents are not acceptable and their offers will be rejected.	Yes/No	Certificate/ documentary evidence of being Original manufacturer of this item
2	Insulated copper conductor should be as per specification no. HW28198.	Yes/No	No Deviation is Acceptable. Clause by clause acceptance or signed & stamped copy of spec HW28198 to be submitted.
3	Source of raw material 1. Use of virgin copper (ETP grade) from any of the BHEL approved sources only as per Annexure-1 2. Use of other raw materials only from reputed national/ international brands	Yes/No	Make & grade of raw material to be provided along with documentary proof of source (PO/ invoice etc.) Confirmation for the same to be provided.
4.	The company should be ISO 9001 certified.	Yes/No	Valid certificate to be submitted
5.	Vendor must have adequate in-house plant and machinery, required to manufacture the above item.	Yes/No	Detailed Organization chart and plant & machinery facility available, for manufacturing the said item, at manufacturer's works to be provided as per suggested format Annexure-2 & Annexure-3. Photographs of manufacturing facilities may also be submitted, if required (Not mandatory).

Distribution:	Date of Rev. 00: 15/06/2019	Name	Signature
CIM CMM HGE QFD ISE	Prepared by	Abha Otti	
	Checked by	Nidhi Gupta/ Bishwanath Oraon	
	Approved by	Anirudha Tijare	
	Issued by	Gautam Kumar	
BHEL, BHOPAL			

 An ISO 9001:2015 Company	MANDATORY TECHNICAL PRE-QUALIFICATION REQUIREMENTS (PQR)		PQR/ISE/HW28198/EOI/2019/32
	INSULATION SYSTEMS ENGINEERING		Rev. No.: 00
	Technical PQR for Issuing EOI for Procurement of Double Glass Covered, Epoxy Varnish Bonded Rectangular Copper Conductors to HW28198 (Temperature Index 155°C)		Rev. Dt.: 15/06/2019 Sht. 2 of 4 shts.

Sl. No	Description	Vendor to comment	
		Complied	Relevant supporting documents to be submitted
6.	All testing facilities required to test the material as per specification HW28198 should be available with the firm either in-house or outsourced. The outsourced testing facilities should be duly calibrated and traceable along with accreditation to either NABL or equivalent international accreditation agency.	Yes/No	Details of testing facility used for testing above item along with List of outsourced facilities (if used), to be provided as per the suggested format of Annexure-4. Proof of NABL/ equivalent inter-national agency accreditation of outsourced facilities to be submitted. NABL or equivalent international agency accreditation Lab calibration certificate used for testing of this item to be submitted to BHEL along with dispatch documents in case PO is placed on the vendor
7.	Production capacity of the firm for this material per month/ annum: The firm should have minimum manufacturing capacity of 100 tons per annum and peak production capacity of 15 tons per month for this conductor.	Yes/No	Confirmation to be provided

BHEL, BHOPAL			
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 An ISO 9001:2015 Company	MANDATORY TECHNICAL PRE-QUALIFICATION REQUIREMENTS (PQR)		PQR/ISE/HW28198/EOI/2019/32
	INSULATION SYSTEMS ENGINEERING		Rev. No.: 00
	Technical PQR for Issuing EOI for Procurement of Double Glass Covered, Epoxy Varnish Bonded Rectangular Copper Conductors to HW28198 (Temperature Index 155°C)		Rev. Dt.: 15/06/2019
			Sht. 3 of 4 shts.

Cl. No	Description	Vendor to comment	
		Complied	Relevant supporting documents to be submitted
8.	The company should have an experience of supplying at least 3 PO of DGL rectangular copper in last 7 years with atleast 2.0 T per PO and out of above atleast 1 PO should be during last 2 years (copper size should be in the range as specified in HW28198). Experience of BHEL Hyderabad standard HY28599, BHEL Bhopal standard AA28113 and any other equivalent national/ international standard for varnish bonded DGL copper of temp. Index 155°C shall also be acceptable,	Yes/No	➤ Documentary proof (POs & their invoices etc.) of supply by the vendor ➤ Decision regarding the sufficiency of documents to prove supply experience rests with BHEL
9.	Vendor to furnish QAP that shall be followed during manufacturing of insulated copper conductor as per spec HW28198 (QAP as per Annexure-5)	Yes/No	QAP duly filled and signed
10.	Manufacturing facilities assessment may be carried out by BHEL at supplier's works if required. Vendor to confirm the same.	Yes/No	Confirmation to be submitted
11.	Vendors who qualify the above mentioned points 1-10 shall submit a 20 m long free sample of conductor to spec. HW28198 for technical evaluation at BHEL. The size (width & depth) will be informed by BHEL during sample submission & it will fall within Table-1 of IEC-60317-0-4	Yes/No	Confirmation to be submitted

Non-Qualifying information to be submitted by the vendor

1.	Whether the vendor is registered with BHEL Bhopal or any other unit of BHEL?	Yes/No	If yes, the name of BHEL unit along with the list of items for which registered is to be submitted.
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BHEL, BHOPAL

 An ISO 9001:2015 Company	MANDATORY TECHNICAL PRE-QUALIFICATION REQUIREMENTS (PQR)	PQR/ISE/HW28198/EOI/2019/32
	INSULATION SYSTEMS ENGINEERING	Rev. No.: 00
	Technical PQR for Issuing EOI for Procurement of Double Glass Covered, Epoxy Varnish Bonded Rectangular Copper Conductors to HW28198 (Temperature Index 155°C)	Rev. Dt.: 15/06/2019
		Sht. 4 of 4 shts.

Note:

1. Compliance of above Technical PQR is mandatory. In absence of compliance of above, vendor’s offer is liable to be rejected.
2. Vendors who successfully qualify in the PQR will have to get themselves registered in BHEL, Bhopal if not already registered as per BHEL’s vendor assessment and registration procedure.

Vendors who successfully meet all the above mandatory PQR requirements will be considered for trial/ development order/s for small quantities/ addition in vendor directory as decided by BHEL.

BHEL reserves the right to verify the information submitted by the vendor. In case the information submitted is found false or incorrect, the offer will be rejected and the vendor is liable to be blacklisted.

REVISION DETAILS

First issue

BHEL, BHOPAL

ANNEXURE -1

Page 1 of 1

BHEL APPROVED SOURCES

Sl. No	Material	BHEL Approved sources
1.	BHEL approved sources for copper (raw material) to be used for making rectangular copper wire as per HW28198 Rev. 02	M/s Hindustan Copper Ltd.
		M/s Hindalco Industries Ltd.
		M/s Vedanta (SESA Sterlite Limited)

“Name of the firm”

1.0 ORGANISATION CHART

“Name of the firm”**ANNEXURE -2**

Page 2 of 2

2.0 QUALIFICATION / EXPERIENCE OF PERSONNEL

Qualification of key personnel and the officials deployed

SL No	Name	Designation	Technical qualification	Experience	Responsibility

PREPARED BY

APPROVED BY

“Name of the firm”

PQR/ISE/HW28198/EOI/2019/32

ANNEXURE-3

Page 1 of 1

1.0 AVAILABILITY OF MACHINERY & PLANTS (M&P) WITH THE FIRM

Sl. No.	Details of the M&P						
	Name of M&P	Model	Make	Machine No.	Year of Built	Range /Capacity	Proof of owner ship

PREPARED BY	APPROVED BY
Name & Signature	Name & Signature

“Name of the firm”

PQR/ISE/HW28198/EOI/2019/32

ANNEXURE- 4

Page 1 of 1

1.0 AVAILABILITY OF TESTING FACILITIES WITH THE FIRM

Sl. No.	Details of the TESTING FACILITIES						
	Name of TESTING FACILITY	Model	Make	Machine No.	Year of Built	Range /Capacity	Proof of owner ship

PREPARED BY	APPROVED BY
Name & Signature	Name & Signature



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR : DOUBLE GLASS COVERED, EPOXY VARNISH BONDED RECTANGULAR COPPER CONDUCTOR TO HW28198

QA PLAN NO : QA/HG/571 DT. 22-04-2019, REV-00

SHEET 1 OF 1

SL. NO.	COMPONENT / OPERATION	CHARACTERISTICS	CLASS	TYPE	QUANTUM OF CHECK	REF. DOC.	RECORD FORMAT	AGENCY		REMARKS
								PERFORM	WITNESS	
1	Raw material	ETP grade annealed copper	Major	Review	100%	AA12024 & Annexure-A	TC	Sub supplier	-	Record review by BHEL/TPI
2	Chemical composition	Composition of copper	Major	Review	100%	As per HW 28198	TC	Sub supplier	-	Record review by BHEL/TPI
3	Bare Conductor	Witnessing test for								
		i) Visual ,Dimension and Tolerance	Major	Physical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	There should be no sharp rough and projected edges
		ii) Radius of corners	Major	Physical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		iii) Tensile Strength & Elongation	Major	Mechanical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		iv) Hardness (Vickers)	Major	Mechanical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		v) Electrical resistivity (On actual conductor)	Major	Electrical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
4	Glass Covered Varnish Bonded Conductor	i) Visual and Dimension	Major	Check	Random	As per HW 28198	TC	Supplier	BHEL /TPI	There should be no tackiness, resin lumps on the insulated conductor surface. Glass lapping should be smooth and uniform with no visibility of copper
		ii) Abrasion test	Major	Mechanical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		iii) Flexibility test	Major	Mechanical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		iv) Adherence test	Major	Physical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		v) Cure test	Major	Process	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		vi a) Breakdown voltage test at room temperature	Major	Electrical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	
		vi b) Breakdown voltage test at elevated temperature	Major	Electrical	Sample	As per HW 28198	TC	Supplier	BHEL /TPI	

Certification :- Supplier shall furnish 5 copies of test certificates only countersigned by BHEL/TPI for the above records.

Author
22/4/19
PREPARED BY

Checked
22/4/2019
CHECKED BY

APPROVED BY
22/4/2019
22-04-19

ANNEXURE-A**To HW 28198****Rev-00 dated 22/04/2019****LIST OF BHEL APPROVED SOURCES
FOR RAW MATERIAL (COPPER)**

Sl. No	Material	BHEL Approved sources
1.	BHEL approved sources for copper (raw material) to be used for making insulated rectangular copper wire as per HW28198 Rev-02	M/s Hindustan Copper Ltd.
		M/s Hindalco Industries Ltd.
		M/s SESA Sterlite Limited (Vedanta)

A.K. Puro
A.K. Puro

Nidhi
22/4/2019
Nidhi Gupta
DGM/ISE

G. Dixit
22/4/2019

A. Dixit
22-04-19
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