

**Bharat Heavy Electricals Ltd.,**  
(A Government of India undertaking)  
**Electronics Division**  
PB No.2606, Mysore Road, Bangalore-560026, India

**E-Tender**


The Quotations are invited under two part bid system for supply of 10 sqmm Cu EBXL XLPO cable at GNFC 10 MW and GSFC 10MW Solar PV project.

Tender is procured through e-procurement route. Kindly refer website <https://bhel.abcprocure.com/EPROC/> for details.

<b>RFQ NO and date</b>	AKPBOS0015 dated 07.10.2020 ( e-tender)
<b>RFQ due date &amp; time</b>	15.10.2020 up to 13.00 hrs (IST)
<b>Date, Time &amp; Venue of Part-I Bid Opening</b>	15.10.2020 up to 13.30 hrs (IST)
<b>Date, Time &amp; Venue of Price Bid opening</b>	Will be intimated later for technically accepted vendors
<b>Address for Commercial Communication &amp; Contact Person in BHEL (MM dept)</b>	Mr. Srinivas Anakapalli (09916999898)/ Mr. Vivek Kumar Yadav (09449039232), SC&PV MM Department, BHEL Electronics Division, PB NO 2606, Mysore road, Bangalore-560 026. INDIA Email: <a href="mailto:srinivasa.a@bhel.in">srinivasa.a@bhel.in</a> , <a href="mailto:vivekyadav@bhel.in">vivekyadav@bhel.in</a> Telephone number: +91 80 26998824, +91 80 26998237
<b>Address for Technical Communication &amp; Contact Person in BHEL with CC to MM dept</b>	Mr SHEETAL PRASAD (9739913232) Dy Manager SC&PV ENGINEERING Department, BHEL Electronics Division, PB NO 2606, Mysuru road, Bengaluru-560 026. INDIA Email: <a href="mailto:sheetalprasad@bhel.in">sheetalprasad@bhel.in</a> Telephone number: +91 80 26999551

Any Deviations from or additions to the "General Conditions of Contract" or "Special Conditions of Contract" require BHEL's express written consent. The General Terms of Business or Sale of the Bidder shall not apply to this tender.

## REQUEST FOR QUOTATION

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	RFQ NUMBER: <b>AKPBOS0015</b>  RFQ DATE : 07.10.2020	Due Date/Day: 15.10.2020 THU Time : 13:00 HRS
MMI:PU:RF:003			
(address for communication) :		(for all correspondence)	
		Purchase Executive : SRINIVAS ANAKAPALL Phone : 080 26998824 Fax : E-mail: srinivasa.a@bhel.in	

SI No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	PS0679073531 10 sqmm Cu EBXL XLPO - Black * HSN/SAC : 8544 Test Certificate	6,000	M	1,500 4,500	16.11.2020 16.11.2020
2	PS0679073540 10 sqmm Cu EBXL XLPO Black with Red line * HSN/SAC : 8544 Test Certificate	6,000	M	1,500 4,500	16.11.2020 16.11.2020

Total Number of Items - 2

1.  
2.

### TWO PART BID

**NOTES:**

1. This RFQ is governed by:
- a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <http://edn.bhel.com> (**RFQ-PO Terms & Conditions**)
  - b) Any other specific Terms and Conditions mentioned.
- \* The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

SRINIVAS ANAKAPALL  
Semiconductors & Pho


**Quantity distribution of RFQ AKPBOS0015 for supply of 10 sqmm Cu EBXL XLPO cable at GNFC 10 MW and GSFC 10MW Solar PV project.**

Total quantity of 12000 MTR cable is to be sent to 02 sites as detailed below:

<b>Material Code</b>	<b>Material Description</b>	<b>QTY(MTR)</b>	<b>Site</b>
PS0679073531	10 sqmm Cu EBXL XLPO - Black	4500	GNFC 10MW SPV site
PS0679073540	10 sqmm Cu EBXL XLPO Black with Red line	4500	GNFC 10MW SPV site
PS0679073531	10 sqmm Cu EBXL XLPO - Black	1500	GSFC 10MW SPV site
PS0679073540	10 sqmm Cu EBXL XLPO Black with Red line	1500	GSFC 10MW SPV site

NO splitting between vendors is applicable.

Any changes in splitting ratio based on the MSE act /Make in India policy or due to any other reason, same will be applicable as per extant government guidelines.



	Purchase specification, Group: Photovoltaics 1 core x 10 sq-mm Cu, EBXL XLPO insulated and Sheathed Solar cable	PS-439-1194
		REV NO: 00
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It must not be used directly or indirectly in anyway detrimental to the interest to the  
company**

**Technical specification**

**For  
Supply of 1 core x 10 sq-mm Cu, EBXL  
XLPO insulated and Sheathed Solar cables**


Revision details :R 00	Prepared  Varun Jain	Approved  Prachi Rao V	Date 13 -04-2018
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	Purchase specification, Group: Photovoltaics 1 core x 10 sq-mm Cu, EBXL XLPO insulated and Sheathed Solar cable	PS-439-1194
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This technical specification provides BHEL's requirement for supply of 1CX10 sq-mm cables for the solar photovoltaic (SPV) projects.

#### A. Technical specification

#	Particular	BHEL specification
1.0	Item description	Cable, 1 core x 10 sq-mm, 1.8 KV DC (maximum), Annealed tinned copper conductor, EBXL XLPO Insulated and Sheathed Solar Photovoltaic Cable.
2.0	Application	Suitable for use in outdoor application for interconnection of solar photovoltaic (SPV) modules in SPV power plants.
3.0	Applicable standard	EN 50618
4.0	Voltage grade	Maximum permissible voltage = 1800 V DC (conductor – conductor, non-earthed system, circuit not under load)
5.0	Type of cable	H1Z2Z2-K
<b>6.0</b>	<b>Conductor</b>	
a)	Material	Flexible Annealed tinned copper conductor as per class 5 of IEC 60228
b)	Cross sectional area (Nominal)	10 sq-mm
c)	Maximum diameter of wires in the conductor	For 10 sq-mm: 0.31 mm
d)	Maximum conductor resistance at 20 °C (DC)	For 6 sq-mm: 1.95 Ohm per Km
e)	Current Carrying Capacity	As per EN 50618
<b>7.0</b>	<b>Insulation</b>	
a)	Material	Electron beam cross link (EBXL) Cross-Linked Polyolefin (XLPO)
b)	Minimum insulation thickness	0.7 mm
c)	Max. conductor temperature	120°C – Normal continuous operation 250°C – Short circuit condition for 5 seconds
<b>8.0</b>	Insulation color for identification	Natural or as per manufacturer's standard.
<b>9.0</b>	<b>Outer Sheath</b>	
a)	Material	Electron beam cross link (EBXL) Cross-Linked Polyolefin (XLPO)
b)	Minimum Thickness of outer sheath	0.8 mm
c)	Colour of outer sheath	Black or Black with red lining, quantity as per individual item requirement of BHEL
d)	Overall diameter of cable	Vendor shall indicate actual dimension, tolerance for 10 sq-mm cable.

	Purchase specification, Group: Photovoltaics 1 core x 10 sq-mm Cu, EBXL XLPO insulated and Sheathed Solar cable	PS-439-1194
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<b>10.0</b>	<b>Minimum bending radius</b>	Vendor shall indicate the same with applicable standard for 10 sq-mm cable.
<b>11.0</b>	<b>Type Tests</b>	<p style="text-align: center;">As per EN 50618  Type test certificate issued from NABL accredited laboratories to be submitted by the vendor along with the technical offer.</p>
a)	Electrical Tests	
b)	Constructional and dimensional tests	
c)	Pressure test at high temperature at complete cable	
d)	Damp heat test	
e)	Resistance against acid & alkaline solution	
f)	Test of influence	
g)	Cold impact test at -40°C	
h)	Cold bending test	
i)	Ozone resistance test	
j)	Weathering/ UV-resistance test	
k)	Dynamic penetration test	
l)	Notch propagation test	
m)	Shrinkage test	
n)	Test under fire condition	
<b>12.0</b>	<b>Routine Tests</b>	
a)	High voltage Test	As per EN 50618
b)	Conductor resistance test	As per EN/IEC 60228
c)	Check for absence of faults on the insulation (or on completed cable)	As per EN 50618
<b>13.0</b>	<b>Acceptance Tests</b>	
a)	Conductor resistance test	As per EN/ IEC 60228
b)	High voltage Test	As per EN 50618
c)	Insulation resistance test	As per EN 50618
d)	Annealing test	As per EN/ IEC 60228
e)	Thickness of insulation & sheath	As per EN 50618
f)	Hot set test	As per EN 50618
g)	Tensile and elongation at break test for insulation & sheath	As per IEC-60332-1, IEC-60754-1, ASTM D-2843, EN 50618
h)	Flame retardance test	As per EN 50618
i)	Ageing Test	As per EN 50618
j)	Outer finish check	Manufacturers standard
<b>14.0</b>	<b>Pre-dispatch inspection at Vendor works</b>	Prior to dispatch of the item, vendor shall provide inspection call to BHEL to witness the acceptance tests as per clause 12.0 and 13.0 as above.
<b>15.0</b>	<b>Manufacturing Quality Plan / Quality Assurance Plan</b>	Vendor shall submit Manufacturing Quality Plan for BHEL/BHEL-customer approval within 1 week of placement of Order.

	Purchase specification, Group: Photovoltaics 1 core x 10 sq-mm Cu, EBXL XLPO insulated and Sheathed Solar cable	PS-439-1194
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16.0	<b>Test certificate</b>	Three copies of test certificate shall be supplied with BHEL PO number and date, BHEL specification number, Cable description, Manufacturer name, Part number, Size & Length of the cable, Batch / Lot number. Test certificate shall contain test description, measured values of dimensions and cable properties, and acceptance limits.
17.0	<b>Cable identification</b>	Printing/embossing shall be done on outer sheath with following information throughout the length of the cable: Manufacturer name, brand name or trade mark, Cable size, Voltage grade and sequential marking of the length of cable. The printing/embossing shall be at an interval of 1 meter. Extrusion lot no. shall be printed/embossed on the outer sheath at least every 5 m of the cable length.
18.0	<b>Packing and marking</b>	
a)	Packing	Both the ends of the cables shall be properly sealed with heat shrinkable PVC/ rubber caps secured by 'U' nails so as to eliminate ingress of water during transportation, storage and erection. Alternatively, supplier can do alternative packaging of whole Drum/Spool to eliminate ingress of water during transportation, storage and erection. Wood preservative anti-termite treatment shall be applied to the entire drum.
b)	Drum	Drum shall be as per IS:10418-1972 or equivalent, with suitable size.
c)	Marking on the drum	Each drum shall be marked with following information: BHEL PO number and date, Cable description, Manufacturer name, Part number, Size & Length of the cable, Cable code, Voltage grade, Approx gross mass, Year of manufacture.
d)	Cable length in each drum	1000 or 2000 meter +/- 5 %

**B. Documents to be submitted along with offer without which offer is likely to be rejected.**

1. Type test certificate as per EN 50618 issued from NABL accredited laboratories.
2. Filled in values/details wherever the same is asked for in BHEL technical specifications.
3. Vendor has to enclose the deviation sheet clause wise separately in case any deviations are sought by the vendor. Absence of any deviation sheet shall be taken as compliance of BHEL specification in total without any deviation.

**C. Documents to be submitted within 1 week after receipt of Purchase order for approval**

1. Technical datasheet of the cable with cable cross section sketch.
2. Manufacturing Quality Plan (MQP) indicating all tests/checks regarding raw material, in-process and final product as per relevant standards, as called in this document and any other relevant standards shall be submitted to BHEL/BHEL's customer for approval.



ಭಾರತ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್  
**भारत हेवी इलेक्ट्रिकल्स लिमिटेड**



**Bharat Heavy Electricals Limited**  
 (A Government of India Undertaking)

**ELECTRONICS DIVISION**

P. B. No. 2606, Mysore Road, Bengaluru - 560 026

SCPV: BOS: ITB-Rev 05

**INSTRUCTIONS TO BIDDERS**

**Bidder is requested to read the instructions carefully and submit their quotation taking into consideration of all the points:**

**A. GENERAL INSTRUCTIONS:**

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: SCPV:BOS:ITB-Rev 05), General Conditions of Contract (document reference: SCPV: BOS: GCC-Rev 04) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the "General Conditions of Contract" or "Special Conditions of Contract" require BHEL's express written consent. ***The general terms of business or sale of the Bidder shall not apply to this tender.***
3. Bidders (Also includes Term Suppliers / Contractors, wherever used in this document) are instructed to Quote their most competitive price and best delivery etc. in the Offer. Prices should be indicated in both figures & words (Please also refer Section-12, under Section-B).
4. Regret letter (either through post or by mail or by EPS) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. Supplier shall be liable for removal as a registered vendor of BHEL when the supplier fails to quote against four consecutive tender enquiries for the same item or all enquiries in last two years for the same item, whichever is earlier.
5. Procurement directly from the manufacturers is preferred. However, if the OEM/ Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. Agent/Representative authorized by the OEM/Principal in turn cannot further sub authorize any other firm for submitting the offer or for placement of order.

In case bids are received from the manufacturer/ supplier and his agent, bid received from the agent shall be ignored.

6. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
7. If an Indian representative/associate/liaison office quotes on behalf of a foreign based



bidder, such representative shall furnish the following documents:

- (a) Authorization letter to quote and negotiate on behalf of such foreign-based bidder. (Annexure- AF)
- (b) Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
- (c) Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages/damages/replacement/repair of imported scope till the Equipment/System is commissioned and handed over to customer will be the sole responsibility of the Indian representative/associates/agent/liaison office.
- (d) Refer **Annexure I** on “Guidelines for Indian Agents”.
- (e) In case, The Principal manufacturer decides not to quote directly to BHEL and authorized his representative to quote, the format attached as per annexure duly signed and sealed by authorized signatory and the same shall be attached along with offer.

8. (A) In case it is specified in the SCC as the terms of delivery DDP (delivery duty paid) , FOR destination to site, door delivery at site which means material cost, insurance, customs duty, safe guard duty (SGD) or any other taxes, duties, levies etc air freight sea freight customs handling charges inland transport from port to destination to vendor account.

(B) In case of imported scope of supply, (Not Covered in clause 8 A) customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport /Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges due to incomplete or missing documentation will be to supplier’s account. All offers for imported scope of supply by air, must be made from any of the gateway ports (within the country) indicated (Refer Annexure II).

9. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: [http://www.bhel.com/vender\\_registration/vender.php](http://www.bhel.com/vender_registration/vender.php)
10. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices/misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike/lockout for a long period. Bidder may refer “Guidelines for Suspension of Business Dealings with Suppliers/ Contractors” available on [www.bhel.com](http://www.bhel.com) for more details.
11. The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention

Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to your notice.

12. Offers to be submitted in English Language only.
13. For this procurement, the local content to categorize a supplier as a Class-I local supplier/ Class-II local supplier/ Non-local supplier and purchase preference to Class-I local supplier, is as defined in Public procurement (Preference to Make in India), Order 2017 dated **16.09.2020** issued by DPIIT. In case of subsequent Orders issued by the Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of price bid/s against this NIT.

Any Indian Bidder intending to avail the benefits shall submit the requisite documents as per the aforesaid orders. The self declaration for Make in India or CA certificate for Make in India as per Annexure S/CA to be attached with the offer.

14. The Bidder shall mandatorily submit Declaration as mentioned below, under Rule 144(xi) of General Financial Rules, 2017 amendment dt 23.07.2020 issued by Ministry of Finance, Govt. of India. The declaration to be submitted on Company Letter head duly signed and sealed by authorised signatory, for ascertaining the eligibility of offer in the tender.

“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered.”

(Where applicable, evidence of valid registration by the Competent Authority shall be attached).

The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

Refer Annexure-X for ‘Restrictions under Rule 144(Xi) of General Financial Rules,2017 amendment dt: 23.07.2020’.

## **B. GUIDELINES FOR PREPARATION OF OFFER:**

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
  - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
  - **TWO PART BID:** Unpriced offer i.e. “Techno-commercial Bid” with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the “Price Bid” without the prices** should be enclosed in one cover and the cover must be super scribed **“Techno-commercial offer)** and Priced offer i.e.