

Detailed Specification

Enquiry:MM/172/G30352

Contact Details

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Please submit your offer for supply of the following items as per the instructions, technical specifications and other terms and conditions specified herein/ attached.

Note:

1. The delivery period mentioned in the BoQ is our indicative requirement. You may offer your earliest delivery period.

Please refer our above referred enquiry number in all correspondence.

SL No.	Material Code	Detailed Specification/s	Quantity	Unit of Measure
1	673511400	11KV/11KV, 3CX400SQ.MM, ARMoured ALUMINIUM CABLE CONFIRMING TO ATTACHED TPS NO. CD-CABLE-11KV-1	6000	Meter

SPECIAL CONDITIONS

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1. Offer shall be as per the Detailed specification document and TPS provided.
2. Routine & acceptance tests shall be performed at OEM's Factory in the presence of FACT's representative and test reports shall be submitted. PDI is required.

TECHNICAL PROCUREMENT SPECIFICATION

TPS NO : CD-CABLE-11KV-1
ORIGINATING DEPT : ELECTRICAL
CLIENT : M/s. FACT-CD
LOCATION : AMBALAMEDU,KOCHI
PURCHASER : M/s. FACT-CD
ITEM : 11KV/11KV, 3CX400SQ.MM, ARMOURED ALUMINIUM CABLE

0	23.08.2024	Original Issue	JJM	SR	BKN
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED

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TECHNICAL PROCUREMENT SPECIFICATION	ATTACHMENTS	CD-CABLE-11KV-1-ATT	
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<u>Sl. No.</u>	<u>Tag</u>	<u>Description</u>	<u>No. of pages</u>
1	CD-CABLE-11KV-1-ES	Engineering specification	2
2	CD-CABLE-11KV-1-DS	Data sheet	2
3	CD-CABLE-11KV-1-TP	Technical particulars	2
4	CD-CABLE-11KV-1-SIT	Scope of inspection and tests	2

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ENGINEERING SPECIFICATION	11KV/11KV, 3CX400SQ.MM, ARMoured ALUMINIUM CABLE	CD-CABLE-11KV-1-ES	
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1.0.0 SCOPE OF WORK

1.1.0 This specification covers design, engineering, manufacturing, shop testing, inspection, packing and delivery to site of 11KV/11KV, 3 core, 400 Sq.mm, XLPE insulated, Armoured, Aluminium cable.

2.0.0 REFERENCES

2.1.0 The following documents shall be read in conjunction with this specification.

2.1.2 Data sheet of 11KV/11KV cable (Tag no. CD-CABLE-11KV-1-DS).

2.1.3 Technical particulars of 11KV/11KV cable (Tag no. CD-CABLE-11KV-1-TP).

3.0.0 STANDARDS

3.1.0 Cables shall comply with the requirements laid down in the latest issues of following standards wherever applicable along with other related standards

IS 7098 (Part II)	Cross-linked Polyethylene Insulated PVC Sheathed Cables
IS: 5831	PVC insulation and sheath of Electric Cables.
IS:8130	Conductors for insulated Electric cables and flexible cords.
IS: 10418	Drums for Electric Cables
IS:3975	Mild steel wires strips and tapes for armouring of cables.
IS: 10810	Methods of test for cables
IS:209	Zinc ingot

4.0.0 GENERAL CONSTRUCTIONAL REQUIREMENTS

4.1.0 The conductors shall be class 2, stranded, circular, compacted, high conductivity annealed, H4 grade plain aluminium complying with IS 8130 standards.

4.2.0 Conductor screening shall be provided over the conductor by extrusion of non-metallic semiconducting compound.

4.3.0 The non-metallic semi-conducting compound shall be suitable for the operating temperature of the cable and compatible with the insulating material.

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4.4.0 The insulation shall be of cross linked polyethylene conforming to IS 7098 (Part II) standard.

4.5.0 The insulation screening shall be provided with non-metallic semi-conducting compound in combination with copper tape.

4.6.0 Inner sheath shall be of Extruded PVC, Type ST-2 as per IS:5381 standard.

4.7.0 Armouring shall be applied over the inner sheath by galvanized round steel wires as per IS:3975 standard.

4.8.0 The outer sheath shall be of polyvinyl chloride (PVC) conforming to the requirements of Type ST 2 of IS 5831.

4.9.0 Outer sheath shall be black in colour and minimum oxygen index shall be 29 at 27±2°C. Suitable chemicals shall be added into PVC compound of the outer sheath to protect the cable against pest and rodent attack.

4.10.0 The cable shall be of category C2 (FR-LSH) as per IS 7098 (Part II) standard.

4.11.0 Sequential marking of the length of the cable in meters shall be provided on outer sheath at every one meter interval. This embossing/engraving shall be legible and indelible.

5.0.0 PACKING AND MARKING

5.1.0 The cable shall be wound on a drum either wooden or steel and packed.

5.2.0 Construction of cable drum shall be as per IS 10418 standards.

5.3.0 Cable drums are proposed to be stored in the open store yard where it will be exposed to rain, sun and other climatic variations. The wooden/steel drums shall not deteriorate and collapse during the storage for at least two years.

5.4.0 The ends of the cable shall be sealed by of non-hygroscopic sealing material to avoid ingress of water during transportation and storage.

5.5.0 The cable shall carry the following information either stenciled on the drum or contained in a label attached to it: a) Reference Indian Standard; b) Manufacturer's name or trade-mark; c) Type of cable and voltage grade; d) Number of cores; e) Nominal cross-sectional area of conductor; f) Cable code; g) Length of cable on the drum; h) Number of lengths on the drum (if more than one); j) Direction of rotation of drum (by means of an arrow); k) Gross mass; m) Country of manufacture; and n) Year of manufacture; o) BIS Certification Marking.

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DATA SHEET	11KV/11KV, 3CX400SQ.MM, ARMOURED ALUMINIUM CABLE	CD-CABLE-11KV-1-DS	
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1.0	Service conditions	
	a) Altitude	< 1000m above mean sea level
	b) Humidity	Min 64%
	c) Humidity	Max. 93%
	d) Humidity design	100% at 400C
	e) Ambient temperature $^{\circ}$ C -Min.	19.2
	f) Ambient temperature $^{\circ}$ C -Max.	35
	g) Ambient temperature $^{\circ}$ C -Design	50
	h) Rain fall – Max. Record in an hour	40mm
	i) Rain –fall Max record in 24 Hours	169.5mm
	j) Environment	Highly corrosive industrial area, Presence of SO2 and other corrosive gases and chemical dusts, which can form conductive tracks.
	k) Wind velocity for structural design	124 km/h
	l) Seismic factor for design	Within seismic Zone 3 as per IS 1893
2.0	Cable Rating	
	a) Voltage grade	11KV/11KV
	b) No. of cores	3
	c) Core identification	Red, Yellow, Blue coloured strips/tapes applied on the cores.
	d) Conductor cross section area	400Sq.mm
	e) Conductor material	H4 grade Aluminium
	f) Insulation material	XLPE
	g) Inner sheath	Extruded PVC, Type ST-2
	h) Armour type	Galvanized round steel wires
	i) Outer sheath material	Extruded PVC, Type ST-2
	j) Outer sheath colour	Black
	k) Reference standards	IS 7098 (Part II)
	l) Cable category	Class C2 (FR-LSH)
	m) Cable marking	Required at an interval of 1 meter.

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TECHNICAL PARTICULARS	11KV/11KV, 3CX400SQ.MM, ARMOURED ALUMINIUM CABLE	CD-CABLE-11KV-1-TP	
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Vendor shall submit duly filled and signed Technical Particulars at the time of offer.

1.0	Name manufacturer	
2.0	Country of origin	
3.0	Cable Type/Code	
4.0	Standards applicable	
5.0	Voltage grade	
6.0	No. of cores	
7.0	Core identification	
8.0	Conductor cross section area	
9.0	Conductor material	
10.0	Minimum number of strands	
11.0	Conductor temperature	
11.1	Rated	
11.2	During Short circuited	
12.0	Conductor screen material	
13.0	Conductor screen thickness	
14.0	Insulation material	
15.0	Nominal Thickness of Insulation	
16.0	Insulation screening material	
17.0	Insulation screening thickness	
18.0	Inner sheath material	
19.0	Inner sheath material thickness	
20.0	Inner sheath colour	
21.0	Armour type	
22.0	Armour material	
23.0	Armour thickness	
24.0	Outer sheath material	
25.0	Outer sheath material thickness	
26.0	Outer sheath colour	
27.0	Max.D.C.resistance at 20deg.c	
28.0	A.C. resistance at 90 deg C	
29.0	Overall diameter of cable (mm)	
30.0	Weight of cable / km	

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SCOPE OF INSPECTION AND TESTS	11KV/11KV, 3CX400SQ.MM, ARMOURED ALUMINIUM CABLE	CD-CABLE-11KV-1-SIT	
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The following inspection and test shall be conducted and records submitted.

Sl. No.	Description	Ins./Test Required	Witness Required	Remarks
1.0	Physical verification for conformity with P.O. specifications.	Required	Required	
2.0	Routine tests			
2.1	Conductor resistance test	Required	Required	
2.2	High voltage test	Required	Required	
2.3	Partial discharge test on full drum length	Required	Required	
3.0	Type tests	Test reports shall be furnished		
3.1	Tensile test			
3.2	Wrapping test			
3.3	Conductor resistance test			
3.4	Test for armour wires or strips			
3.5	Test for thickness of insulation and sheath			
3.6	Physical test for insulation			
3.7	Physical test for outer sheath			
3.8	Bleeding and glooming test			
3.9	Partial discharge test			
3.10	Bending test			
3.11	Dielectric power factor test			
3.12	Flammability test			
3.13	Insulation resistance (volume resistivity) test			
3.14	Heating cycle test			
3.15	Impulse with stand test			
3.16	High voltage test (water immersion test)			

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PRE-QUALIFICATION CRITERIA

TENDER No. MM/172/G30351 Dated 02-11-2024

SI No	Pre-Qualification Criteria (PQC) Conditions	Documents to be submitted along with bid	Remarks	Bidders compliance
1	The Bidder shall be the manufacturer of 11 kV / 11kV cables or their authorized dealer /distributor/channel partner.	Self Declaration by the manufacturer with details of manufacturing facility and contact number. OR In the case of dealer/distributor/channel partner , tender specific authorisation letter from the manufacturer to certify the competency of the vendor to quote on their behalf shall be submitted along with details of manufacturing facility of OEM and contact number	Relevant documents required	
2	The OEM of the cable shall have NABL accredited testing facility.	Certificate of accreditation issued by NABL shall be submitted.	Relevant documents required	
3	The bidder or manufacturer shall be in the business of supply of 11 kV/ 11k V cables for more than 5 years, as on the date of enquiry.	Copies of relevant purchase order copies/ other documents to prove this.	Relevant documents required	
4	Experience of having successfully completed the supply 11 kV / 11Kv cables during the last 7 years , as on the date of enquiry which shall be either of the following. a) 3 completed works with value not less than Rs. 60,00,000 each. b) 2 completed works with value not less than Rs. 75,00,000 each. c) 1 completed work with value not less than Rs. 1,20,00,000	Copies of relevant purchase order/ work order and proof of successful commissioning such as Commissioning Report, Completion Certificate , etc. issued/ countersigned by the customer.		
5	a) Average annual turnover of the bidder for the last three financial years ending on 31-03-2023 shall be at least Rs.288 /- Lakhs or above and b) Annual turnover for each year shall be at least Rs. 43 /- lakhs or above during the last three financial years ending on 31-03-2023	Self-attested copies of audited financial statements (Profit & Loss Account and Balance Sheet) for the last three financial years ending on 31-03-2023.	Relevant documents required	

NOTE: -

- 1) FACT shall have the liberty to verify the data submitted by the contractor by inspecting the workshop and contacting with their various customers.
- 2) Only technically and commercially pre qualified bidders shall be considered for price bid opening and further evaluation.
- 3) Copies of all the above documents shall be duly attested by the bidder.

COMPLIANCE STATEMENT

Sl. No.	Terms	Bidder confirmation
1	Offer shall be as per the Detailed specification document and TPS provided.	
2	Routine & acceptance tests shall be performed at OEM's Factory in the presence of FACT's representative and test reports shall be submitted. PDI is required.	
3	Please mention shortest possible delivery period.	
4	Please confirm : Price Basis – FOR FACT Stores (as per Gem T & C)	
5	Please confirm : Taxes and Duties - The Price offered in GEM is all inclusive of TAX. (as per Gem T & C)	
6	Please confirm : Payment Terms : 100% payment will be released within 10 days of the issue of consignee receipt-cum-acceptance certificate (CRAC) and on-line submission of bills as per GEM terms and conditions. (as per Gem T & C)	
7	Please confirm : Liquidated Damages: As per GeM – “@ 0.5% of the contract value of delayed quantity per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value of delayed quantity without any controversy/dispute of any sort whatsoever”(as per GeM T & C)	

Note : All the above columns shall be filled properly, without leaving blanks. Please upload / return this document duly filled-in, along with your bid.