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Tashi InfoComm Limited

TASHI INFOCOMM LIMITED

BIDDING DOCUMENT FOR SUPPLY OF

"POWER & UTILITY EQUIPMENT_NETWORK EXPANSION"

Reference No: TICL/PRO-08/2021/ 735

Date: 30 / April / 2021



Address: P.O Box # 1502, Norzin Lam, Thimphu: Bhutan
Phone: +975 77889977 website: www.tashicell.com



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Tashi InfoComm Limited

**SECTION-I
INVITATION OF BIDS FOR SUPPLY OF**

“Power and Utility Equipment_Network Expansion”

1. Tashi InfoComm Limited hereinafter referred to as “**Purchaser**” invites sealed bids from eligible Bidders for the supply of Power and Utility Equipment for the Network Expansion.
2. Interested eligible bidder(s) may obtain further information on the bid directly from our website- www.tashicell.com or Procurement & Inventory Section, Norzin Lam, Post Box No. 1502, Thimphu, Bhutan. Contact Procurement & Inventory Section at the given contact details during office hours Only.
3. The Purchaser shall not be responsible for any costs or expenses incurred by the Bidder(s) in connection with the preparation or delivery of Bids.
4. All Bidders/Representatives of the Bidders may be present during the Opening of the Bidding Documents. However, should follow the necessary COVID-19 protocol.
5. All correspondences with regard to the Bidding Documents shall be made in writing or email to the following address. Telephone enquires shall not be accepted.

Address for communication/contact.

Procurement & Inventory Section,
Tashi InfoComm Limited,
Norzin Lam, Post Box No-1502,
Thimphu, Bhutan.

Email: manager.procurement@tashicell.com/procurement@tashicell.com/procurement.finance@tashicell.com



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SECTION-II
INSTRUCTION TO BIDDERS

A. GENERAL

1. Scope of Bid:

- 1.1. The scope of Bid shall be the supply of Power and Utility Equipment for the Network Expansion.
- 1.2. All the Bids are to be completed and submitted to the Purchaser in accordance with the Instruction to Bidders.

2. Eligibility:

- 2.1. The invitation for Bid is open to all the interested licensed national and global suppliers but has not been blacklisted by any organization/Agency/companies.

3. Cost of Bidding:

- 3.1. The Bidder(s) shall bear all costs associated with the preparation and delivery of its Bids, and the Purchaser shall in no case be responsible or liable for those costs.

4. Bidding Documents:

- 4.1. The Goods/Services required Bidding procedures and terms & conditions are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding Document includes:
 - a) Instructions to Bidders
 - b) General Terms & Conditions
 - c) Detail list of Goods/ and or Services to be supplied along with detailed specifications.
- 4.2. The Bidder(s) are expected to examine the Bidding Document, including all Instructions, Forms, Terms, and Specifications. Failure to furnish all information required by the Bidding Document or submission of a Bid not substantially responsive to the Bidding Document in every respect will result in rejection of the Bid.

5. Bid Prices:

- 5.1. The Bidder(s) shall complete the appropriate Price Schedule included herein, stating unit prices, extended amount and the expected countries of origin of the Goods to be supplied, if applicable
- 5.2. Prices quoted by the Bidders shall remain fixed and valid for the period stated in **Section-II, Clause 6** of the Bidding Document, and will not be subject to variation on any account.
- 5.3. The bid Currency shall be Ngultrum (Nu) for this bidding document. Except for third country bidder(s), the bidder(s) from the rest of the countries are not allowed to quote in US dollars.





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The third country bidder(s) who quoted in US Dollar shall be converted into Ngultrum at the prevailing exchange rate (Selling TT rate of any financial institution) as on the date of tender opening for evaluation purpose.

5.4. Trade Terms shall be:

Unless otherwise stated, the following shall be the trade terms for this bidding document:

- a) For Local & Indian Bidder(s): CIF, TICL Warehouse, Phuentsholing, Bhutan
- b) For Third Country Bidder: CIF, Kolkata, India.

6. Bid Validity:

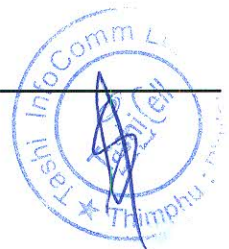
- 6.1. The Bids shall be valid for 12months from the date of Bid Submission.

7. Taxes/Duties & other levies:

- 7.1. Unless otherwise stated, the applicable taxes/duties/any other levy both within and outside Bhutan shall be under the scope of the Bidder.
- 7.2. The third country bidder(s) or bidder(s) from India may exclude applicable taxes/duties while submitting the bid. The applicable taxes including customs clearance within Bhutan shall be under the scope of the Purchaser. However, applicable taxes/duties, etc shall be factored in during the time of evaluation to determine the final landing cost.

8. Evaluation:

- 8.1. The purchaser shall evaluate the quotations based on specifications given in the bidding document to ascertain the lowest evaluated bidder(s).
- 8.2. The evaluation shall not only be based on the quoted rates but the specifications and complete datasheet of the Power and utility equipment against the purchaser's requirement.
- 8.3. The Evaluation Team & Management Tender Committee's evaluation decision shall be final and binding, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform and explain the affected Bidder or Bidders on the grounds of the evaluation team & Management Tender Committee's evaluation decisions and reports. In addition, the performance of previous tenders with the Purchaser, if any shall also be factored in during the time of evaluation.
- 8.4. The lowest quoted unit rates alone do not guarantee the award of contract/purchase order.
- 8.5. The evaluation shall be based on the respective line-item basis. The bid shall not be considered as a "single package".





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9. Award of Purchase Order/Contract:

- 9.1. The Purchaser shall award the PO or supply contract to the Lowest Evaluated bidder(s) for the respective line-item(s).

10. Delivery:

- 10.1. Delivery should be completed as per the given schedule:
- a) Within 45-60 days from the date of confirmed PO depending on the nature of the items(s) awarded to the respective successful bidder(s).
 - b) The detailed terms & conditions shall be mentioned in the confirmed Purchase Order/Supply Contract.
- 10.2. The purchaser (TICL) may provide delivery time extension beyond the actual delivery date taking into account the actual need-by-day and project schedule of TICL. However, subject to the approval of the Management Tender Committee after levying the Liquidity Damaged (LD) Penalty.
- 10.3. The Time Extension request/provided may not exceed 15 days at the maximum OR depend on the approval granted by the Management Tender Committee of the purchaser. The supplier has to send an email/in writing requesting a time extension with genuine reasons (along with supporting documentation).

11. Inspection of Goods:

- 11.1. The goods are subject to Physical Inspection upon delivery at TICL Warehouse and testing & commissioning in due course of time. The Goods found to be faulty, DOA, not meeting specifications/requirement of TICL after the final inspection, installation, and testing shall be rejected at the cost of the bidder.

12. Warranty (If applicable):

- 12.1. The Warranty shall be a minimum of 12 months from the date of delivery OR standard manufacturer's warranty, whichever is longer.

13. Payment:

- 13.1. The Payment shall be made 100% against delivery within 7 working days from the date of receiving of the Bill/Invoice.
- 13.2. Advance payment up to a maximum of 30% of the total PO value may be released at Purchaser's discretion against furnishing equivalent amount of bank guarantee for the advance payment valid 3-6 months beyond the delivery deadline.

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14. TDS/FCT:

- 14.1. TDS (Tax Deduction at Source) and or FCT (Foreign Contract Tax) shall be deducted as per the existing Rules and Regulations of the Department of Revenue & Customs, Bhutan (wherever applicable).

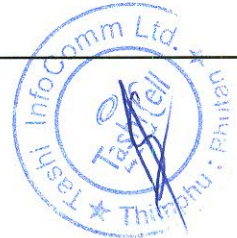
15. EMD (Earnest Money Deposit):

- 15.1. The bidder should submit **not less than 2% of the total quoted value** as part of the EMD along with the quotation in the form of Demand Draft or Bank Guarantee from any of the financial institutions located in Bhutan. The bidder(s) other than Bhutanese national can furnish EMD from the financial institutions in their respective countries OR from any of the Bhutanese Financial Institutions. The EMD may be directly deposited into the Purchaser's bank account (please contact the purchase requesting bank details via email).
- 15.2. The bidder(s) failing to submit the EMD as per the requirement shall result in the rejection/cancellation of their bid.
- 15.3. The EMD shall be valid for 30 days beyond the submission/submission deadline of the bidding document. The EMD should be drawn in favor of **"Tashi InfoComm Ltd., Norzin Lam, Thimphu, Bhutan"**.
- 15.4. EMD of unsuccessful bidder(s) shall be returned promptly after the finalization of the quotation.
- 15.5. EMD shall be forfeited if:
a) A bidder withdraws its bids prior to the finalization of the bids in every respect.
b) The successful bidder fails to submit Performance Security as per the terms specified in the bidding document.
- 15.6. EMD of the successful bidder shall be returned promptly upon submission of Performance Security.

16. Performance Security:

- 16.1. The successful bidder should submit not less than 10% of the total PO/contract value as Performance Security within 1 week from the date of PO/signing of the supply contract.
- 16.2. Performance Security shall be drawn in favor of **"Tashi InfoComm Ltd, Thimphu"** in the form of Demand Draft or Bank Guarantee or can be deposited directly into the purchaser's bank account(contact purchaser via email requesting bank details).
- 16.3. Performance Security shall be valid for the period of **1 YEAR** from the date of Purchase Order/Supply Contract.

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- 16.4. If the successful bidder fails to submit the performance security within 1 week, the EMD shall be forfeited and the purchase order shall stand canceled and awarded to the second-lowest evaluated bidder.
- 16.5. Performance Security shall be returned within 1 week from the date of successful completion of all obligations under the issued Purchase Orders or signed supply contract.
- 16.6. Performance Security shall be forfeited if:
- a) The successful bidder fails to execute the supplies/works as per the terms and conditions stated in the purchase order in any manner deemed unsatisfactory by the purchaser (TICL) or the end-user(s).
 - b) The successful bidder fails to deliver the goods on the given deadline and is not recommended by the end-user(s) for a time extension or replacement.
 - c) The goods supplied do not conform to the specifications/brands/requirements, etc stated in the purchase order/BOM.

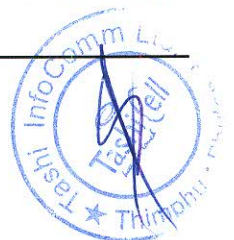
17. Liquidity Damage (LD) Penalty:

- 17.1. The LD penalty shall be charged at 0.01% per day up to a maximum of 10% of the total PO value should the supplier fail to deliver on the specified deadline.

18. The purchaser Right:

- 18.1. The Purchaser reserves the following rights without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform and explain the affected Bidder or Bidders on the grounds of the Purchaser's action:
- a) The right to accept or reject any Bid and reject all the Bids at any time prior to issuance of Award Notification and or Purchase Order.
 - b) The right at the time of award of the purchase order to increase or decrease the quantity of Goods specified in the Bidding Document, without any changes in the price or other terms & conditions.
 - c) The right to reject all or in part, the item supplied during the time of physical inspection/testing or found to be non-standard/non-specific/unreliable in terms of quality/not meeting specification.
 - d) The right to direct negotiation, call quotations and receives the same via email from the manufacturers; authorized distributors; authorized dealers; frequent supplier(s) of similar goods in Bhutan/India/China/Other countries to compare the rates with those offered by the vendors through this Bidding Document. If need be, to procure directly. The Purchaser also reserves the right to negotiate with the lowest evaluated bidder(s) or all of the bidders at any time prior to award of Purchase Order/Signing of Supply Contract.

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18.2. Should the selected Bidder(s) fails to supply full order quantity within the given deadline, the purchaser reserves the right to cancel the quantities not supplied and place an order to the Second Lowest Evaluated Bidder. In such a case, the Purchaser shall recover as part of Liquidated Damages, the difference amount between purchase order rate and the actual rate paid to the second-lowest evaluated bidder for the quantities not supplied. The amounts shall be either adjusted from the Performance Security or bill/invoice amount of the supplied quantity.

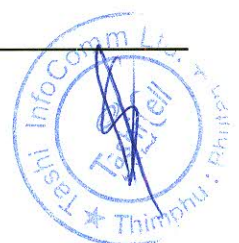
19. Force majeure:

- 19.1. Force Majeure shall mean such unforeseeable occurrences beyond the control of the Purchaser and Bidder which occur after the date of issuance of Purchase Order or signing of Supply Contract and which were not reasonably foreseeable at the time of issuance of Purchase Order or signing of Supply Contract and which effects are not capable of being overcome without the unreasonable expense and/or loss of time to the Purchaser and the Bidder concerned, including, provided that the aforementioned conditions are met, but not limited to:
- i) Natural catastrophes, earthquakes
 - ii) Strikes and blockages
 - iii) War or war-like conditions, mobilizations, revolutions or riots, the act of Public enemy, sabotage, terrorism.
 - iv) Restriction by or actions, omissions, or interventions from Public Authorities (including but not limited to changes in laws, regulations or import/export, security restrictions).
 - v) The Party who wishes to plead Force Majeure shall inform the other party of the First party's perception of the effects of such force majeure on the fulfillment of issued purchase order/signed Supply Contract. Should any event of force majeure cause an increase in the time required for the performance of any part of the purchase order/signed Supply Contract, an equivalent adjustment shall be made in the time required for performance.

However, if the force majeure situation continues for more than two months, the purchaser and bidder shall decide whether the contract should be terminated.

20. Termination:

- 20.1. In the event of any failure by the Bidder to perform any of its obligations under the issued purchase order or signed Supply Contract or upon unsatisfactory performance, the purchaser shall terminate the purchase order or signed Supply Contract by giving a prior written notice of Fifteen (15) days, without any obligation to the Bidder. However, the purchaser shall pay the actual due amount for the quantity supplied and accepted by the Purchaser to Bidder on termination of the issued purchase order or signed Supply Contract.





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21. Indemnity:

- 21.1. The bidder(s) shall comply with all the laws in force in Bhutan and outside. The laws will include all national, provincial, municipal, or other laws that affect the performance of the issued purchase orders or signed Supply Contracts and bind upon the Bidder(s). The Bidder(s) shall indemnify and hold harmless the Purchaser for and against any and all liabilities, damages, claims, fines, penalties, and expenses of whatever the nature arising or resulting from the violation of such laws by the Bidder(s).

22. Dispute Settlement:

- 22.1. If any dispute should arise in connection to the issued purchase order or signed Supply Contract, the Parties shall try to settle any such dispute through good faith and negotiations including escalation to senior Management where each party deems it appropriate. If negotiations fail, the matter shall be referred to the Court of Law.

23. Governing Law and Jurisdiction:

- 23.1. The terms and conditions in this Bidding Document or issued Purchase Order or signed Supply Contract shall be read and construed in accordance with the laws of the Kingdom of Bhutan and the District Court of Thimphu, Bhutan shall have jurisdiction over any disputes arising out of the Contract.

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SECTION-III

GENERAL TERMS & CONDITIONS:

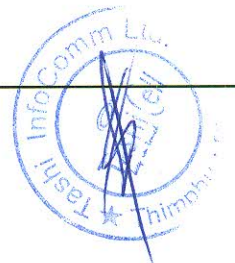
In this Bidding Document, the following terms shall be interpreted as indicated below:

"The Bid" means the proposal submitted by the Bidder

"The Purchaser" means the organization purchasing the Goods. In this case, M/s. Tashi InfoComm Limited (TICL).

"Day" means a calendar day.

- 1. Bid Submission:** The Bids should be submitted in a sealed envelope (Single Envelope Method- **copy not required**) addressed to **"Manager, Procurement & Inventory Section, TICL** against Reference No. TICL/PRO-08/2021/ dated 30-APRIL-21 ".
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- 2. Bid Submission:** 12-May-2021 (Bhutan Standard Time); 11:00 AM
- 3. Bid Opening Time:** 2:30 PM DATED 12-MAY-2021 at TICL conference hall. Interested Bidder(s) may attend the bid opening on the given deadline and place.
- 4.** Bidding Document received after the deadline (time & date of submission) shall not be accepted and opened during the bid opening. The quotations shall automatically stand as "Rejected".
- 5.** The Purchaser shall not be responsible for any damages, losses, breakages, or shortages of any items while in transit for delivery of Goods to TICL Store/warehouse.
- 6.** The Bidder should enclose a Xerox copy of valid Trade License, Tax clearance, Power of Attorney, and other relevant documents.
- 7. Clarification on Bidding Document:** The bidder(s) are expected to examine the Terms and Conditions stated in the Bidding Document, Bill of Materials, Specifications, Drawings, etc furnished along with the Bidding Document. Once the bids are submitted by the bidder(s), It shall mean:
 - a)** The bidder(s) have examined, read, and accepted all the terms and conditions stated in the Bidding Document, the specifications of the goods/services, Drawings/Designs, etc furnished in the Bidding Document. Thereafter, no grievance, complaints, etc (whatsoever nature may be) shall be accepted.
 - b)** The bidder(s) can seek clarification (through email/in writing) with regard to the terms & conditions of the Bidding Document, the specifications of the goods/services, Drawings/Designs, etc furnished in the Bidding Document before the submission of the Bids.

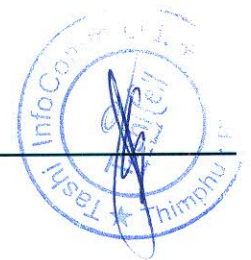




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- c) Clarification can be sought through email or in writing to any of the given officials during office hours. Email ID: manager.procurement@tashicell.com OR procurement.finance@tashicell.com OR procurement@tashicell.com. Address: Manager, Procurement & Inventory Section, Tashi InfoComm Ltd., Norzin Lam, Post Box No. 1502, Thimphu, Bhutan.
8. The Bids not substantially responsive to the Bidding Document in every respect will result in rejection of the Bids.
9. For any complaints or grievances, the bidder(s) may write directly to the Management Tender Committee of the Purchaser through email. The Email ID is procurement@tashicell.com.
10. Product samples, catalog/brochures containing details technical and functional specifications shall be submitted along with the Bids wherever applicable. Failing which, shall result in rejection of the Bidding Document.
11. The decision of the Corporate/Management Tender Committee shall be final and binding.





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SECTION-IV

The complete **Bill of Materials (BOM)** is as stated in **Appendix I**. The Bids should be submitted in the below format in your company Quotation Form.

Appendix-I:

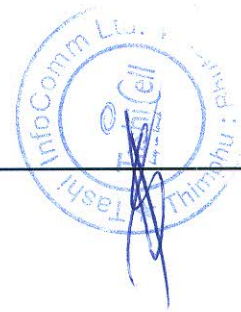
S/L	Description	UoM	Qty	Unit Rate	Amount
1.	1. Detail as given in Appendix-I				

Total

Note:

1. Please attached details of the technical and functional specification along with the Bidding Document. Failing to do so, will result in the rejection of your bidding document.
2. Mention the Country of origin of goods in the bidding document.

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Appendix-I: BOM & Price Schedule
BOM_Power Utilities_Network Expansion

S/L	Description/Specification	UoM	Qty	Remark	Rate	Amount
1	I-Hook (m16). Made of galvanized steel designed for main and service clamp. Fixed length by welded, flat or bended washers.	Nos	461	Prefered brands: Ensto Pvt Ltd/Sicame India Pvt Ltd/Raychem RPG (P) Ltd/other BPC		
2	Suspension clamp for ABC bundle conductor line. Clamp for hanging ABC Cable size 2x (50-150) sq.mm.	Nos	252	Prefered brands: Ensto Pvt Ltd/Sicame India Pvt Ltd/Raychem RPG (P) Ltd/other BPC		
3	Dead End Clamp/Low voltage tension clamp. Designed to anchor self supporting LV ABC line from 2 cores of airdac cable. Cable size= 2*(50-150) sq.mm. The item should have the pull out tension of not less than 16KN.	Nos	140	Prefered brands: Ensto Pvt Ltd/Sicame India Pvt Ltd/Raychem RPG (P) Ltd/other BPC approved brands.		
4	7.5mtr GI Steel Tubular Pole with 3 18mm Dia holes	Nos	365	As per BPC approved standard/quality		
5	Stay Set to support electric pole, galvanized (should include Anchor Plate, Anchor Rod, Turn Buckle Bow, Eye Bolt Rod)	Nos	97	As per BPC approved standard/quality		
6	7/8 SGW, GI Stay wire	Mtrs	970	As per BPC approved standard/quality		
7	Insulation Piercing Connector (IPC), ABC94011, Main 16-95sq.mm, Tap 16-95 sq.mm, Torque 15Nm, Bolt/No=1xM8, Bolt/Spanner size (mm)=13.	Nos	280	As per BPC approved standard/quality		
8	1.1KV, Unarmored, inner shealthed, 2x50sq.mm Aluminuim ABC Cable, without messenger wire. XLPE isnuation, nominal thickness of 1.4mm, Nos of strand 6, minimum inner shealth thickness 0.30mm, nominal outer shealth thickness 2.0mm. Should have UV Weather Test, User Certificate and other necessary test reports. Each Drum: 500mtrs.	Mtrs	18000	Prefered brands: Havells/Polycabl/System/other BPC approved brands.		
9	UG Cable 35sq.mm, Armored, Aluminuim Core. Should have UV Weather Test, User Certificate and other necessary test reports. Each Drum: 500mtrs.	Mtrs	3000	Prefered brands: Havells/Polycabl/System/other BPC approved		
				Total In Nu.		





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Tashi InfoComm Limited



Date: 20/4/2021

PURCHASE REQUISITION

Applicant Tshering Dorji Budget (name): Power System

Designation: Technical Officer Budget (code): 31956

Department: Strategic Planning and Projects Department

Region : Thimphu

Kindly arrange to procure below mentioned Goods or Services 30th July, 2021.

S/L	Description	UoM	Qty	Remark
1	I-Hook (m16). Made of galvanized steel designed for main and service clamp. Fixed length by welded, flat or bended washers. Brand Preferable : Ensto Private Limited/Sicame India Private Limited/Raychem RPG(P) Ltd. India	Nos	461	Network Expansion
2	Suspension clamp for ABC bundle conductor line. Clamp for hanging ABC cable. Cable size 2x (50-150)sq mm Brand Preferable : Ensto Private Limited/Sicame India Private Limited/Raychem RPG(P) Ltd. India	Nos	252	
3	Dead End Clamp/Low voltage tension clamp. Designed to anchor self supporting LV ABC lines from 2 cores of airdac cable. Cable size=2*(50*150)sq.mm. The item should have the pull out tension of not less than 16KN Brand Preferable : Ensto Private Limited/Sicame India Private Limited/Raychem RPG(P) Ltd. India	Nos	140	
4	7.5m GI Steel Tubular Pole with 3 18mm dia holes	Nos	365	
5	Stay Set to support electric Pole, Galvanized (Should include Anchor Plate, Anchor Rod, Turn Buckle Bow, Eye Bolt Rod)	Nos	97	
6	7/8 SWG, GI Stay Wire	Metres	970	
7	Insulation Piercing Connector (IPC), ABC94011, Main 16-95 sq. mm, Tap 16-95 sq.mm, Torque 15Nm, Bolt/No=1xM8, Bolt/Spanner size(mm)=13	Nos	280	

23/04/21 \$



བགྲིས་བཅད་དོན་བརྒྱད་འབྲེལ་ཚད་འཛིན།

Tashi InfoComm Limited



Mode of Tender:

☐ Open Tender ☐ Limited Tender ☐ Direct Contracting ☐ Limited Inquiry ☐ Spot
Quotation
☐ Direct Work ☒ Repeat Order

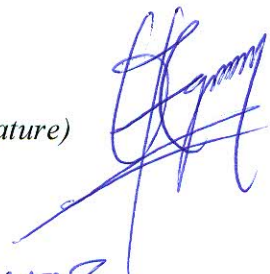
Justification:


(Applicant Sign & name)
TSHERING DORJI
SPD

To be used by Approving Authority:

Comment:

Approved By:

(signature) 

Name: Jamyang

Designation: GM, SPD

Date: 20 / 04 / 21

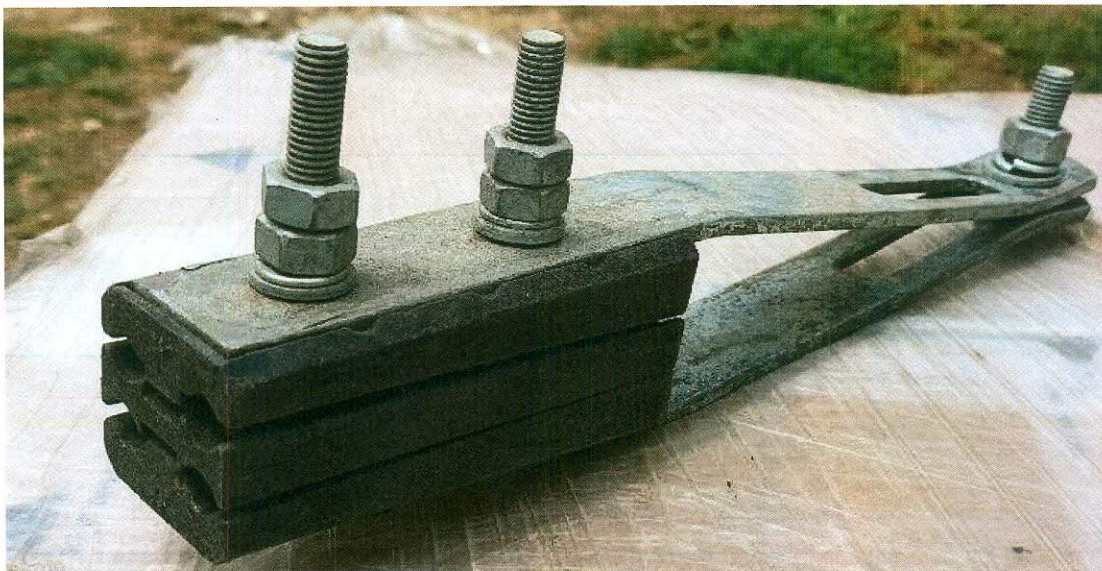
1. I-Hook



2. Suspension Clamp



3. Dead End Clamp



4. Stay Set to support electric Pole

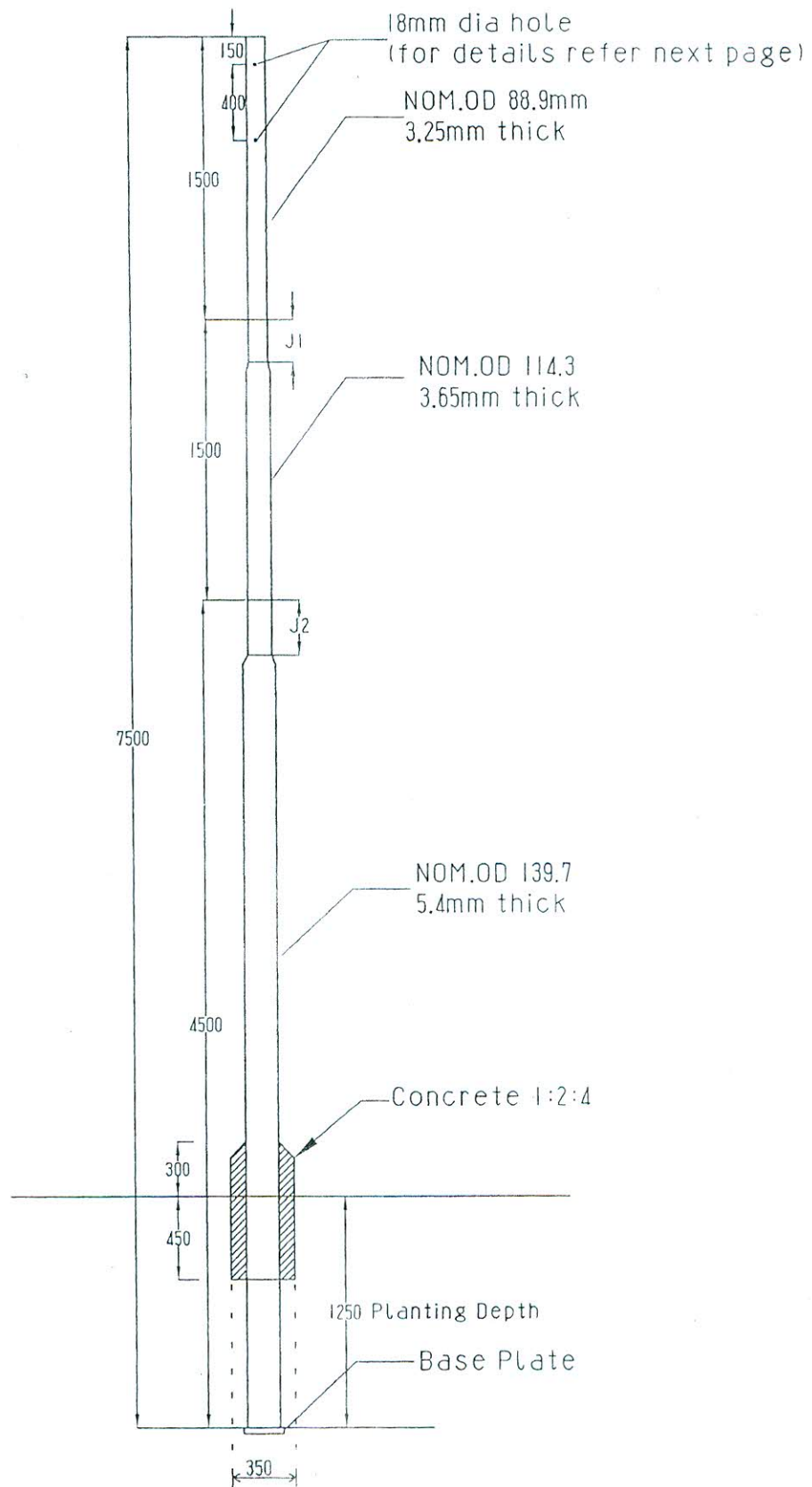


5. 7/8 SWG, GI Stay Wire




6. Insulation Piercing Connector (IPC)

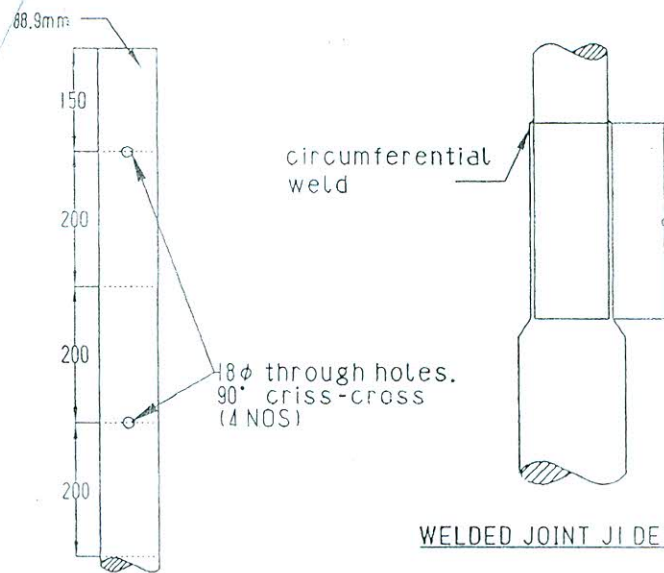




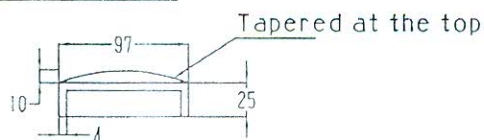
NOTES

1. DIMENSIONS AS SHOWN ARE IN MM.
2. SPECIFICATIONS AS PER IS:2713 (PART I TO III : 1980)
3. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE

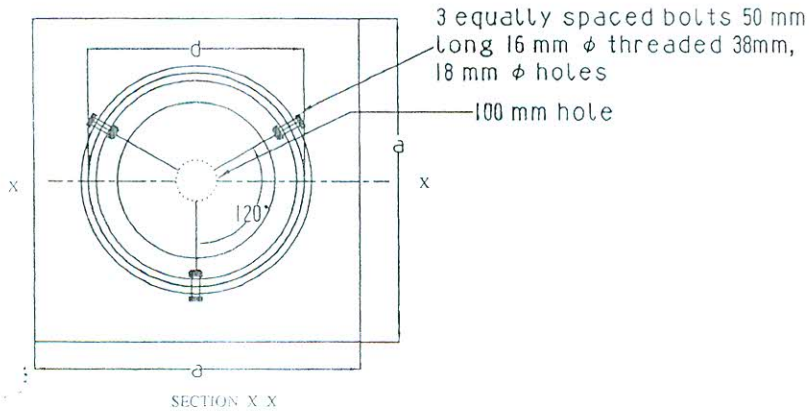
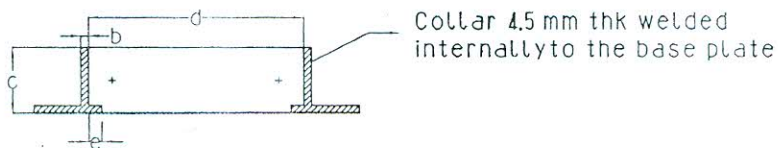
 BHUTAN POWER CORPORATION LIMITED			ENGINEERING DESIGN & CONTRACTS DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD 7.5 METERS STEEL TUBULAR POLE ASSEMBLY DETAILS	
SIGNED BY	NAME	DATE	DRAWING NO. BPC/DDCS/2012/1A	REVISION 2012
CHECKED BY				
PROVED BY				



POLE TOP DETAILS

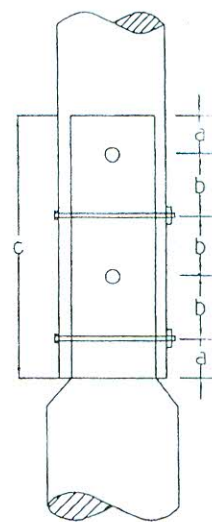


POLE CAP DETAILS (WELDED TO THE POLE)



DETAILS OF MS BASE PLATE (Seperately packed)

BOLTED JOINT J2 DETAILS



Pole Type			7.5 M (4-SP-9)
Length		mm	7500
Top Segment	OD	mm	88.9
	Thickness	mm	3.25
	Length	mm	1500
Middle Segment	OD	mm	114.3
	Thickness	mm	3.65
	Length	mm	1500
Bottom Segment	OD	mm	139.7
	Thickness	mm	5.4
	Length	mm	4500
Joint J1	Welded Joint		
	d	mm	230
Joint J2	a	mm	45
	b	mm	70
	c	mm	300
	BL	mm	160
Planting Depth		mm	1250
Base plate details	a	mm	220
	b	mm	4.5
	c	mm	70
	d	mm	139.7
	e	mm	10

NOTES

DIMENSIONS AS SHOWN ARE IN MM.

DRAWING NOT TO SCALE.

SPECIFICATIONS AS PER IS:2713 (PART I TO III : 1980)

POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



BHUTAN POWER
CORPORATION LIMITED

ENGINEERING DESIGN & CONTRACTS DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

7.5 METERS STEEL TUBULAR POLE ASSEMBLY DETAILS

	NAME	DATE
DRAWN BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC/DDCS/2012/1B

REVISION
2012



བགྲིས་བརྒྱ་དོན་བརྒྱུད་འབྲེལ་ཚད་འཛིན།

Tashi InfoComm Limited



Date: 20/4/2021

PURCHASE REQUISITION

Applicant: Tshering Dorji

Budget (name): Power System

Designation: Technical Officer

Budget (code):31956

Department: Strategic Planning and Project Department

Region :Thimphu

Kindly arrange to procure below mentioned Goods or Services before 30th July 2021

S/L	Description	UoM	Qty	Remark
1	1.1KV, Unarmoured, inner sheathed, 2x50sqmm aluminium ABC cables, without messenger wire, XLPE insulation, nominal thickness of 1.4mm, Nos of strand 6, minimum inner sheath thickness 0.30mm, nominal outer sheath thickness 2.0mm Brand-Havells/Polycap/System. Each drum should consist of 500m each.	Metres	18000	ABC Cable and UG Cable should be delivered with UV Weather test, user certificates and other necessary tests
2	UG Cable, 35 sq mm, Armored, Aluminium Core, Brand-Havells/Polycap/System. Each drum should consist of 500m each	Metres	3000	

Mode of Tender:

☒ Open Tender ☐ Limited Tender ☐ Direct Contracting ☐ Limited Inquiry ☐ Spot Quotation
☐ Direct Work ☐ Repeat Order

Justification:

23/04/21



བགྲིས་བཅད་དོན་བརྒྱད་འབྲེལ་ཚད་འཛིན།

Tashi InfoComm Limited




(Applicant Sign & name)
: TSHERING DORJI
SPD

To be used by Approving Authority:

Comment:


Approved By:

(signature)

Name:-----

Designation-----

Date-----


Janyang
GM, SPD
20 / 04 / 2021

able - 13

TECHNICAL DETAILS FOR HAVELLS 1.1 KV

NGLE CORE, ALUMINIUM/COPPER CONDUCTOR, XLPE INSULATED, UN-ARMoured CABLES

Ref Specification : IS 7098 Part-1

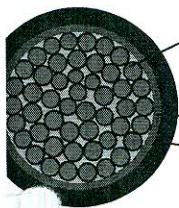
Cable Code : A2XY/2XY

Physical Parameters

Size Cross Sectional Area)	Minimum No. of Strand in Conductor		Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Approx. Overall Dia of Cable	Approx. Weight of Cable	
	Aluminium	Copper				With Al'm Cond.	With Cu Cond.
						A2XY	2XY
Sqmm	No's	No's	mm	mm	mm	Kg/Km	Kg/Km
4	1/3	1/3	0.70	1.80	7	70	90
6	1/3	1/3	0.70	1.80	8	80	110
10	1/7	6	0.70	1.80	9	90	160
16	6	6	0.70	1.80	10	130	250
25	6	6	0.90	1.80	11	150	350
35	6	6	0.90	1.80	12	200	400
✓50	6	6	1.00	1.80	14	250	550
70	12	12	1.10	1.80	16	350	750
95	15	15	1.10	1.80	18	450	1000
120	15	18	1.20	1.80	19	500	1250
150	15	18	1.40	2.00	21	650	1500
185	30	30	1.60	2.00	24	800	1850
240	30	34	1.70	2.00	26	950	2400
300	30	34	1.80	2.00	29	1150	2950
400	53	53	2.00	2.20	33	1500	3750
500	53	53	2.20	2.20	36	1850	4750
630	53	53	2.40	2.20	40	2350	6100
800	53	53	2.60	2.40	44	2900	7750
1000	53	53	2.80	2.60	48	3600	9650

ulated Approx. Weight of Cable are only for the purpose of guideline for transportation, loading & unloading purpose.
Refer page no. 55 for normal delivery lengths & packing details.

Cross-sectional view



1 Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130

Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
16 Sq.mm and above - Stranded Compacted Circular

For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm and above - Stranded Compacted Circular

2 Insulation Material : XLPE (Cross linked polyethylene); Colour : Natural

3 Outer Sheath : PVC Type ST-2 as per IS: 5831; Options : FR Type/FRLS Type

Colour of Outer Sheath : Black or any other Colour as per requirement

Electrical Parameters

Size Cross Sectional Area)	Max. Conductor D.C. Resistance at 20 °C		Approx. Conductor A.C. Resistance at 90 °C		Reactance of Cable at 50 Hz (Approx.)	Capacitance of Cable (Approx.)	Normal Current Rating						Short Circuit Current Rating for 1 Second Duration	
	Aluminium	Copper	Aluminium	Copper			For Aluminium Conductor			For Copper Conductor				
							Ground	Duct	Air	Ground	Duct	Air	Aluminium	Copper
sqmm	Ohm/Km	Ohm/Km	Ohm/Km	Ohm/Km	Ohm/Km	µF/Km	Amps	Amps	Amps	Amps	Amps	Amps	K.amps	K.amps
4	7.41	4.61	9.48	5.90	0.136	0.29	—	—	—	48	47	45	0.376	0.572
6	4.61	3.08	5.90	3.94	0.128	0.34	48	45	45	60	59	57	0.564	0.858
10	3.08	1.83	3.94	2.34	0.118	0.42	62	62	61	80	78	77	0.940	1.43
16	1.91	1.15	2.44	1.47	0.108	0.50	81	80	83	104	102	106	1.50	2.28
25	1.20	0.727	1.54	0.931	0.102	0.52	99	90	115	130	115	145	2.35	3.57
35	0.868	0.524	1.11	0.671	0.097	0.60	117	110	135	155	140	175	3.29	5.00
50	0.641	0.387	0.820	0.495	0.092	0.63	138	125	170	185	165	215	4.70	7.15
70	0.443	0.268	0.567	0.343	0.088	0.68	168	155	210	225	200	270	6.58	10.01
95	0.320	0.193	0.411	0.248	0.085	0.79	204	185	255	265	235	330	8.93	13.59
120	0.253	0.153	0.325	0.197	0.082	0.79	230	210	300	300	265	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.082	0.79	265	230	342	335	300	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.082	0.79	295	260	385	380	335	495	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.079	0.84	340	300	450	435	385	590	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.078	0.86	390	335	519	490	430	670	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.077	0.88	450	380	605	550	480	780	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.076	0.90	500	430	700	610	530	900	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.075	0.94	555	485	809	680	590	1020	59.22	90.09
800	0.0367	0.0221	0.0530	0.0319	0.075	0.97	625	530	935	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.068	1.01	690	570	1065	780	660	1250	94.00	143.00

Table - 19

TECHNICAL DETAILS FOR HAVELLS 1.1 KV

TWO CORE, ALUMINIUM/COPPER CONDUCTOR, XLPE INSULATED, ARMoured CABLES

Ref Specification : IS 7098 Part-1

Cable Code : A2XFY/2XFY, A2XWY/2XWY

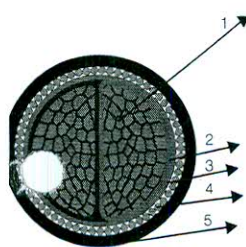
Physical Parameters

Size (Cross Sectional Area)	Minimum No. of Strand in Conductor		Nominal Insulation Thickness	Minimum Inner Sheath Thickness	Flat Strip Armoured (A2XFY/2XFY)					Round Wire Armoured (A2XWY/2XWY)				
					Nominal Armour Strip Dimension	Minimum Outer Sheath Thickness	Approx. Overall Dia of Cable	Approx. Weight of Cable		Nominal Dia of Armor Wire	Minimum Outer Sheath Thickness	Approx. Overall Dia of Cable	Approx. Weight of Cable	
	With Al'm Cond.	With Cu Cond.						With Al'm Cond.	With Cu Cond.					
	Aluminium	Copper						A2XFY	2XFY				A2XWY	2XWY
Sqmm	No's	No's	mm	mm	mm	mm	mm	Kg/Km	Kg/Km	mm	mm	mm	Kg/Km	Kg/Km
4	1/3	1/3	0.70	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	370	470
6	1/3	1/3	0.70	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	460	550
10	1/7	6	0.70	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	530	700
16	6	6	0.70	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.40	17	550	750
25	6	6	0.90	0.30	4 X 0.80	1.40	18	550	850.0	1.60	1.40	20	750	1050
	6	6	0.90	0.30	4 X 0.80	1.40	20	650	1050.0	1.60	1.40	21	850	1250
	6	6	1.00	0.30	4 X 0.80	1.40	22	750	1350.0	1.60	1.40	23	1000	1550
70	12	12	1.10	0.30	4 X 0.80	1.56	25	1000	1800.0	1.60	1.56	26	1250	2050
95	15	15	1.10	0.40	4 X 0.80	1.56	27	1250	2350.0	2.00	1.56	30	1700	2800
120	15	18	1.20	0.40	4 X 0.80	1.56	30	1450	2850.0	2.00	1.56	32	1950	3350
150	15	18	1.40	0.40	4 X 0.80	1.72	32	1700	3450.0	2.00	1.72	35	2250	4000
185	30	30	1.60	0.50	4 X 0.80	1.72	35	2050	4200.0	2.00	1.88	38	2700	4850
240	30	34	1.70	0.50	4 X 0.80	1.88	40	2550	5400.0	2.50	2.04	44	3550	6350
300	30	34	1.80	0.60	4 X 0.80	2.04	43	3000	6550.0	2.50	2.20	47	4100	7650
400	53	53	2.00	0.60	4 X 0.80	2.36	49	4000	8300.0	2.50	2.36	52	4950	9500
500	53	53	2.20	0.70	4 X 0.80	2.52	54	4650	10450.0	3.15	2.68	59	6500	12300
630	53	53	2.40	0.70	4 X 0.80	2.68	60	5700	13200.0	3.15	2.84	64	7800	15350

Tabulated Approx. Weight of Cable are only for the purpose of guideline for transportation, loading & unloading purpose.

* Refer page no. 55 for normal delivery lengths & packing details.

Cross-sectional view



Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130

Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,

16 Sq.mm and above - Stranded Compacted Shaped

For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,

16 Sq.mm and above - Stranded Compacted Shaped

Insulation Material : XLPE (Cross linked polyethylene); Colour : Red & Black

Inner Sheath : PVC Type ST-2 as per IS: 5831; Options : FR Type/FRLS Type

Armouring : Single Layer of Galvanized Steel Round Wire / Flat Strip

Outer Sheath : PVC Type ST-2 as per IS: 5831; Options : FR Type/FRLS Type

Colour of Outer Sheath : Black or any other Colour as per requirement

Electrical Parameters

Size (Cross Sectional Area)	Max. Conductor D.C. Resistance at 20 °C		Approx. Conductor A.C. Resistance at 90 °C		Reactance of Cable at 50 Hz (Approx.)	Capacitance of Cable (Approx.)	Normal Current Rating						Short Circuit Current Rating for 1 Second Duration	
	Aluminium	Copper	Aluminium	Copper			For Aluminium Conductor			For Copper Conductor			Aluminium	Copper
							Ground	Duct	Air	Ground	Duct	Air		
Sqmm	Ohm/Km	Ohm/Km	Ohm/Km	Ohm/Km	Ohm/Km	µF/Km	Amps	Amps	Amps	Amps	Amps	Amps	K.amps	K.amps
4	7.41	4.61	9.48	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.43
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.1
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0460	0.0282	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

**TABLE-3 "POLYCAB" TWO CORE ALUMINIUM CONDUCTOR, XLPE INSULATED,
UNARMoured & ARMoured CABLE CONFORMING TO IS 7098 PART-1**



POLYCAB
Connection Zindagi Ka

650/1100 VOLTS

WEIGHT & DIMENSIONS

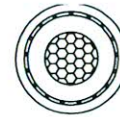
Nominal Size of Conductor	Form of Conductor Circular Shaped	Nominal Thickness of XLPE Insulation For U/A	Minimum Thickness of PVC Inner Sheath	Unarmoured Cable			Formed Wire / Strip Armoured Cable				Round Wire Armoured Cable				Current Rating *		*Normal Delivery Length
				Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Aluminium Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Aluminium Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground	In Air	
Sq.mm	mm	mm	mm	mm	mm	Kgs./Km	mm	mm	mm	Kgs./Km	mm	mm	mm	Kgs./Km	Amps.	Amps.	Mtrs.
4	Solid	0.70	0.30	1.80	12.50	140	-NA-	-NA-	-NA-	-NA-	1.40	1.24	14.50	375	42	38	1000
4	Stranded	0.70	0.30	1.80	13	150	-NA-	-NA-	-NA-	-NA-	1.40	1.24	15.00	403	42	38	1000
6	Solid	0.70	0.30	1.80	13.50	170	-NA-	-NA-	-NA-	-NA-	1.40	1.24	15.50	437	55	50	1000
6	Stranded	0.70	0.30	1.80	14	180	-NA-	-NA-	-NA-	-NA-	1.40	1.24	16.50	465	55	50	1000
10	Solid	0.70	0.30	1.80	15	205	-NA-	-NA-	-NA-	-NA-	1.40	1.24	16	503	68	64	1000
10	Stranded	0.70	0.30	1.80	16	225	-NA-	-NA-	-NA-	-NA-	1.40	1.24	18	551	68	64	1000
16	Stranded	0.70	0.30	1.80	14	225	-NA-	-NA-	-NA-	-NA-	1.40	1.40	17	480.16	89	83	1000
25	Stranded	0.90	0.30	2	17	330	4 x 0.80	1.40	18.50	509.13	1.60	1.40	20	671.84	114	109	1000
✓ 35	Stranded	0.90	0.30	2	19	410	4 x 0.80	1.40	20	605.51	1.60	1.40	22	775.55	136	133	1000
50	Stranded	1	0.30	2	21	510	4 x 0.80	1.40	22.50	753.28	1.60	1.40	24	937.97	161	162	1000
70	Stranded	1.10	0.30	2	23	675	4 x 0.80	1.56	22.50	989	1.60	1.56	27	1186.85	197	204	1000
95	Stranded	1.10	0.40	2.20	26.50	893	4 x 0.80	1.56	28	1204.30	2	1.56	28.68	1572.78	235	251	1000
120	Stranded	1.20	0.40	2.20	28.50	1050	4 x 0.80	1.56	30.50	1408.20	2	1.56	33	1849.49	266	287	500
150	Stranded	1.40	0.40	2.20	32	1215	4 x 0.80	1.72	31.79	1690.20	2	1.72	36	2182.96	296	328	500
185	Stranded	1.60	0.50	2.40	35.50	1510	4 x 0.80	1.72	34.95	2004.00	2	1.88	37.70	2597.60	335	379	500
240	Stranded	1.70	0.50	2.60	39.50	1900	4 x 0.80	1.88	38.69	2480.00	2.50	2.04	45	3418.52	385	448	500
300	Stranded	1.80	0.60	2.80	43.50	2360	4 x 0.80	2.04	42.53	2964.00	2.50	2.20	46.22	4019.07	432	513	500
400	Stranded	2	0.60	3	49	3100	4 x 0.80	2.36	48.24	3676.00	2.50	2.36	51.61	4854.00	487	593	500
500	Stranded	2.20	0.70	3.40	55.50	4000	4 x 0.80	2.52	56.50	4599.00	3.15	2.68	61.50	6517.00	548	683	500
630	Stranded	2.40	0.70	3.60	61.50	4997	4 x 0.80	2.68	62.50	5662.00	3.15	2.84	67.50	7790.00	612	784	500

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$. Length more than normal as per customer request.

**Weight, Dimension Data &
Current Carrying Capacity of Cables**

TABLE-I "POLYCAB" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED
UNARMOURED & ARMoured CABLE CONFORMING TO IS 7098 PART-1



POLYCAB
Connection Zindagi Ka

50/1100 VOLTS

WEIGHT & DIMENSIONS

Nominal Size of Conductor	Form of Conductor Circular	Nominal Thickness of XLPE Insulation For U/A	Minimum Thickness of PVC Inner Sheath	Unarmoured Cable			Nominal Thickness of XLPE Insulation for Armoured Cable	Formed Wire / Strip Armoured Cable				Round Wire Armoured Cable				Current Rating.*		*Normal Delivery Length
				Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable		Nominal Dimension of Aluminium Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Aluminium Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground	In Air	
Sq.mm	mm	mm	mm	mm	mm	Kgs./Km	mm	mm	mm	mm	Kgs./Km	mm	mm	mm	Kgs./Km	Amps.	Amps.	Mtrs.
4	Solid	0.70	-NA-	1.80	7.50	60	-	-	-	-	-	-	-	-	-	43	38	1000
4	Stranded	0.70	-NA-	1.80	8	65	-	-	-	-	-	-	-	-	-	43	38	1000
6	Solid	0.70	-NA-	1.80	8	70	-	-	-	-	-	-	-	-	-	55	50	1000
6	Stranded	0.70	-NA-	1.80	8.50	75	-	-	-	-	-	-	-	-	-	55	50	1000
10	Solid	0.70	-NA-	1.80	9	80	1	-	-	-	-	-	-	-	-	69	64	1000
10	Stranded	0.70	-NA-	1.80	9.50	90	1	-	-	-	-	-	-	-	-	69	64	1000
16	Stranded	0.70	-NA-	1.80	10	115	1	-	-	-	-	1.40	1.24	12.5	190	89	84	1000
25	Stranded	0.90	-NA-	1.80	12	155	1.20	-	-	-	-	1.40	1.24	14	247	115	112	1000
35	Stranded	0.90	-NA-	1.80	13	180	1.20	-	-	-	-	1.40	1.24	15	290	137	137	1000
50	Stranded	1	-NA-	1.80	14	240	1.30	-	-	-	-	1.40	1.24	16.5	342	161	165	1000
70	Stranded	1.10	-NA-	1.80	15.5	310	1.40	-	-	-	-	1.40	1.24	18.5	428	198	209	1000
95	Stranded	1.10	-NA-	1.80	17.50	385	1.40	4 x 0.80	1.40	18.60	494.00	1.60	1.40	20.20	560	243	264	1000
120	Stranded	1.20	-NA-	1.80	19.5	470	1.50	4 x 0.80	1.40	20.40	589.00	1.60	1.40	22.50	665	276	308	1000
150	Stranded	1.40	-NA-	2	21.50	600	1.70	4 x 0.80	1.40	22.5	694.00	1.60	1.40	24.0	779	308	350	1000
185	Stranded	1.60	-NA-	2	23.50	710	1.90	4 x 0.80	1.40	24.5	827.00	1.60	1.40	26.50	921	349	406	1000
240	Stranded	1.70	-NA-	2	26	900	2	4 x 0.80	1.40	26.60	1026	1.60	1.40	29	1121	404	480	1000
300	Stranded	1.80	-NA-	2	28.50	1158	2.10	4 x 0.80	1.56	29.60	1235	1.60	1.56	31.50	1349	454	551	1000
400	Stranded	2	-NA-	2.20	31.5	1385	2.40	4 x 0.80	1.56	33.00	1548.5	2	1.56	35.50	1739	518	647	500
500	Stranded	2.20	-NA-	2.20	35.5	1650	2.60	4 x 0.80	1.56	36.70	1909.5	2	1.56	39.50	2128	588	751	500
630	Stranded	2.40	-NA-	2.20	39.5	2100	2.80	4 x 0.80	1.72	40.50	2413	2	1.72	43	2660	663	868	500
800	Stranded	2.60	-NA-	2.40	44.50	2730	3.10	4 x 0.80	1.72	46.00	2992.5	2	1.88	47.90	3296.5	740	992	500
1000	Stranded	2.80	-NA-	2.60	48.50	3350	3.30	4 x 0.80	1.88	50.00	3667	2.50	2.04	54.37	4142	812	1117	500

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ±5%. Length more than normal as per customer request.

**Weight, Dimension Data &
Current Carrying Capacity of Cables**