

Format for Commercial Pre-Bid Queries

Tender No

TPCODL/P&S/1000000081/2021-22


TPCODL/P&S/1000000084/2021-22

Package Name

AB SWITCH- 33KV (200 AMP AND 400 AMP) & 11KV (200 AMP AND 400 AMP)

Sr. No.	Detailed Reference to Tata Power Tender Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
1	2	3	4	5
1	PAGE NO- 91, TECHNICAL SPECIFICATION, CLAUSE NO. 5.0 GENERAL CONSTRUCTION, POINT NO- 4	The current carrying connectors should be two-bolt type having nuts and bolts, with spring washer and plane washer.	Previously we have already supplied the material as per GRIDCO specification which consists 120 x 50 x 8 Fixed connector with movable connector 100 x 50 x 8 Copper connector & it has been approved in Rites Inspection also. Kindly consider the same.	Submit your drawing along with CPRI /ERDA type test report of the same model for review.
2	PAGE NO- 91, TECHNICAL SPECIFICATION , CLAUSE NO. 4.0 GENERALTECHNICAL REQUIREMENT, POINT NO- 35	Operating Down Pipe , B Class - 32mm Dia & 7 Mtr Long	Ideal Pipe size recommended is 6 Mtr. If extra 1 Mtr will be joint it will reduce the pressure which can be difficult for operation. Previously we have also supplied material of same size. We have also observed the same conflict in TPCODL Choudwar stores as one of the suppliers have supplied the 7 mtr size & operation team have objected the material for improper functioning. Kindly Consider & confirm.	Pipe shall be B Class - 32mm Dia NB & 7 Mtr Long without any joints.
3	PAGE NO- 106, DOCUMENT TITLE- SPECIFICATION FOR 200AMP & 400AMP ,11KV AB SWITCH CLAUSE NO. 5.0 GENERAL CONSTRUCTION, POINT NO- 4,	The current carrying connectors should be two-bolt type having nuts and bolts, with spring washer and plane washer.	Previously we have already supplied the material as per GRIDCO specification which consists for 11KV 400AMP AB SWITCH 120 x 50 x 8 Fixed connector with movable connector 80 x 50 x 8 Copper connector & for 11KV 200AMP AB SWITCH 110 x 50 x 6 Fixed connector with movable connector 80 x 50 x 6 Copper connector & it has been approved in Rites Inspection also. Kindly consider the same.	Submit your drawing along with CPRI /ERDA type test report for review.
4	PAGE NO- 106, DOCUMENT TITLE- SPECIFICATION FOR 200AMP & 400AMP ,CLAUSE NO. 4.0 GENERALTECHNICAL REQUIREMENT, POINT NO- 28	Operating Down Pipe , B Class - 32mm Dia & 7 Mtr Long	Ideal Pipe size recommended is 6 Mtr. If extra 1 Mtr will be joint it will reduce the pressure which can be difficult for operation. Previously we have also supplied material of same size. We have also observed the same conflict in TPCODL Choudwar stores as one of the suppliers have supplied the 7 mtr size & operation team have objected the material for improper functioning. Kindly Consider & confirm.	Pipe shall be B Class - 32mm Dia NB & 7 Mtr Long without any joints.
5			Kindly provide 33KV 200AMP GTP which has not mentioned in Tender Document.	Only 33 KV 400 A AB Switch is required.
6			Kindly provide 33KV 200AMP/ 400AMP & 11KV 200AMP/400AMP Drawing which has not mentioned in Tender Document.	Bidder to submit their own drawings of AB switch designed according to GTP provided and IS 9920.


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7	T.S. 4.0.35- 33KV 200A & 400A AB Switch:-		You have mentioned operating down pipe 'B' class 32 mm diaBut standard length of pipe is 6 mtr. long. 7 mtr long	Pipe shall be B Class - 32mm Dia NB & 7 Mtr Long without any joints.
8	T.S. 5.0.2- 33KV 200A & 400A AB Switch:-		You have mentioned cantilever type operating mechanism. But in horizontal type installation it cannot be possible. Though your specification are of horizontal type	AB switches shall be Horizontal rotating type with 2 polymeric post insulators per phase (for both 33 & 11 KV) (Horizontal mounting)

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	TECHNICAL BOOKLET		
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Document No.	TPCODL-ENGG. -001	Issue Date: 05.07.2021	
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Prepared by: Engineering Department	Reviewed By: Phiroj Uttaray Khajan C. Bhardwaj	Approved By: Pourush Garg	Issued By: Praveen Verma


28.0 11 KV 3 POLE AB SWITCH (400AMP) FOR LINE AND 11 KV 3 POLE AB SWITCH (200AMP)

GENERAL TECHNICAL PARTICULARS

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE	
		400 Amps AB Switch	200 Amps AB Switch
1	Rating of AB Switch	400 Amps AB Switch	200 Amps AB Switch
1.a	Reference standards (latest amend.)	IS 9920, IEC 129, IEC 61109, IS 1239	
2	Installation	Outdoor	Outdoor
3	Suitable for Mounting	Horizontal Rotating Type	
4	Type	3 Pole	3 Pole
5	Service Voltage	11 kV	11 kV
6	Rated Voltage	12 kV	12 kV
7	Rated Frequency	50 Hz	50 Hz
8	Current Carrying Capacity	400 Amps	200 Amps
9	Rated short time current	16 kA for 1sec	16 kA for 1sec
10	Rated peak withstand current	40 kA	40 kA
11	Rated main active load breaking capacity	10 Amp	10 Amp
12	Rated line charging breaking capacity	2.5A	2.5A
13	Rated Transformer off load breaking Capacity	6.3A	6.3A
14	One minute power frequency withstand voltage Dry	35kV RMS	35kV RMS
15	One minute power frequency withstand voltage Wet	35kV RMS	35kV RMS
16	Dry flashover Voltage	55kV	55kV
17	Power Frequency puncture withstand voltage	1.3 times of actual dry flashover Voltage	
18	Visible Discharge Voltage	9kV RMS	
19	1 Minute Power Frequency withstand voltage between pole and earth	28kV	28kV
20	1 Minute Power frequency withstand voltage across the isolation distance	32kV	32kV
21	Impulse withstand voltage for positive and negative polarity (1.2 / 50) micro second wave)		
a	Across Isolating distance	85kV Peak	85kV Peak
b	To earth and between poles	75kV Peak	75kV Peak
22	No. of Post Per Pole (Polymeric, IEC 61109)	2	2
23	Total No. of post	6	6
24	Minimum Creepage Distance	320 mm	320mm
25	Phase to Phase Clearance	760mm	760mm

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SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE	
26	Isolation Distance in switch open condition	380mm	380 mm
27	Vertical clearance from Top of Insulator cap to mounting channel	254mm (min)	254mm (min)
28	Copper contacts Temp in Air should not exceed	65Degree	65 Degree
29	Size of fixed contacts (Copper Type Electrolytic with silver plated)	80mmx50mmx8mm	70mmx35mmx6mm
30	Size of Moving contacts (Copper Type Electrolytic with silver plated)	220mmx50mmx8mm	220mmx35mmx6mm
31	Moving Contact supporting Angle	50mmx50mmx5mm	45mmx45mmx5mm
32	Size of rods used for arcing horns	10 mm	10 mm
33	Insulation for tinned Copper braid/rope	Polyolefin, (RSFR-H) type	Polyolefin, (RSFR-H) type
34	Copper Flexible BRAIDED Tape - 320mm Long, Tined plated with Brass Nut, bolt & Washers	450gm /Mtr	450gm /Mtr
35	Minimum size*Length of Coupling Hot Dip GI Solid Rod for Phase coupling pipe, B Class	25mm Dia & 1800 mm long	25mm Dia & 1800mm long
36	Operating Down Pipe, B class (IS 1239-68)	32mm Dia & 7Mtr Long (one piece)	32mm Dia & 7Mtr Long (one piece)
37	Temperature Rise Limit (w.r.t ambient temp) - Tinned Copper contacts - Terminals - Metal Parts	50°C 40°C 40°C	50°C 40°C 40°C
38	Bearings	4 nos. self-lubricating bearing to be provided with grease nipple including 4 th bearing being a thrust bearing.	
39	Locking arrangement	Provision for pad locking at both 'ON' & 'OFF' Position	
40	Earth Terminal	M12 Bolts with nuts and flat washer shall be provided at base channel as earthing Terminal.	
41	'T' Connection	The T connection provided on the channel having 'moving contact' shall be G.I Nut & bolt at the bottom end to facilitate replacement of this unit only during requirements & avoid entire change of arm.	
42	'I' bolt	The I bolt shall be longer with 75 mm thread.	
43	Mounting Channel HDG 86 microns	75x40x4.8 mm Length 480 mm min. (C/C slotted hole 18x 36 mm- 250mm)	
44	Connectors	Connectors shall be of hard drawn electrolytic copper or brass. The connector should be of 4 bolted type and suitable for 80- 100 sqmm AAAC conductor. Or SOCKET: Two no. of bimetallic copper sockets shall	

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SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
		be used at both ends suitable for 80-100 sqmm AAAC conductor.
45	Marking/Engraving	TPCODL, Serial No., Manufacture's name or trademark, Month & Year of Manufacturing.

TYPE TEST REPORT

Bidder shall furnish the type test report of **AB Switch** for the tests as mentioned below and as per reference standards. Complete set of Type Tests shall be conducted at certified test laboratories, which are CPRI / ERDA only. **Type test should have been conducted in certified test laboratories during the period not exceeding 5 years from the date of Permission.**

- a. Test for Temperature rise as per IS 9920-part 4 cl.3.2.
- b. Test to verify the insulation level including withstand test at power frequency voltages on auxiliary equipment test as per IS 9920 part4 cl. 3.1.
- c. Test to prove satisfactory operation and mechanical endurance as per IS 9920 part4 cl.3.5.
- d. Making and braking test as per IS 9920 part4 cl.3.3.
- e. Test to prove the capability of the switch to carry the rated peak withstand current and rate short circuit current as per IS 9920 part4 cl.3.4.
- f. Test to prove satisfactory operation under ice conditions as per IS 9920 part4 Cl.3.6.
- g. Impulse voltage dry test
- h. Power frequency voltage dry test
- i. Power frequency voltage wet test
- j. Temperature of resistance.
- k. Measurement of resistance.
- l. Test to prove the capability of carrying the rated peak short circuit current and the rated short time current.
- m. Mainly active load breaking capacity test.
- n. Transformer off-load breaking test.
- o. Line charging breaking capacity test.
- p. Operation tests.
- q. Mechanical endurance test.
- r. Mechanical strength test for the post insulator as per IS-2544/1973.
- s. Test for galvanization of metal (ferrous) parts as perm IS-2633/1973.

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26.0 33 KV 3 POLE AB SWITCH (400AMP)

GENERAL TECHNICAL PARTICULARS

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Rating of AB Switch	400 Amps AB Switch
1.a	Reference standards (latest amend.)	IS 9920, IEC 129, IEC 61109, IS 1239
2	Installation	Outdoor
3	Suitable for Mounting	Horizontal Rotating Type
4	Type	3 Pole
5	Service Voltage	33 kV
6	Rated Voltage	36 kV
7	Rated Frequency	50 Hz
8	Current Carrying Capacity	400 Amps
9	Rated short time current	16 kA for 1sec
10	Rated peak withstand current	40 kA
11	Rated Short circuit making capacity	25 KA RMS
12	Rated Cable Charging breaking capacity	40 KA RMS
13	Rated line charging breaking capacity	5.3 A RMS
14	Rated Transformer off load breaking Capacity	16 A RMS
15	One-minute power frequency with stand voltage Dry	95 KV RMS
16	One-minute power frequency withstand voltage Wet	75 KV RMS
17	Power Frequency puncture withstand voltage	1.3 times of actual dry flashover voltage
A	Visible Discharge Voltage	27 KV RMS
B	Dry flashover Voltage	95 kV
18	Power Frequency withstand voltage between pole and earth	70 KV RMS
19	Power frequency withstand voltage across the isolation distance	80 KV RMS
20	Impulse with stand voltage for positive and negative polarity (1.2 / 50) micro second wave)	
A	Across Isolating distance	195 KV Peak
B	To earth and between poles	170 KV Peak
21	No. of Post Per Phase (Polymeric, IEC 61109)	To be provided by bidder
22	Total No. of post	To be provided by bidder
23	Minimum Creepage Distance	900 mm (one post)
24	Phase to Phase Clearance	1200 mm
25	Isolation Distance in switch open condition	640 mm

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SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
26	Vertical clearance from Top of Insulator cap to mounting channel	508 mm (Minimum)
27	Copper contacts Temp in Air should not exceed	65 Degree
28	Size of fixed contacts (Copper Type Electrolytic with silver plated)	80mmx50mmx8mm Jaw assemblies are to be bolted through stainless steel flat and spring washer (Min 6 nos. of spring to be used on each post).
29	Size of Moving contacts (Copper Type Electrolytic with silver plated)	250mmx50mmx8mm (a Min deposit of 10 micron of Silver on copper contact)
30	Moving Contact supporting Angle	50mmx50mmx6mm
31	Size of rods used for arcing horns	10 mm
32	Insulation for tinned Copper braid/rope	Polyolefin, (RSFR-H) type
33	Copper Flexible BRAIDED Tape - 320mm Long, Tined plated with Brass Nut, bolt & Washers both end shall be crimped with copper socket through brass bolts and nuts	450gm /Mtr
34	Minimum size*Length of Coupling Hot Dip GI Solid Rod for Phase coupling pipe, B Class	25mm Dia & 2500mm long
35	Operating Down Pipe, B Class (IS 1239-68)	32mm Dia & 7 Mtr Long (one piece)
36	Temperature Rise Limit (w.r.t ambient temp) - Tinned Copper contacts - Terminals - Metal Parts	50°C 40°C 40°C
37	Arching Horns	8 mm dia GI rod
38	Locking Arrangement	Provision for pad locking at both 'ON' & 'OFF' position
39	Earth Terminal	M12 Bolts with nuts and flat washer shall be provided at base channel as earthing Terminal.
40	'T' Connection	The T connection provided on the channel having 'moving contact' shall be G.I Nut & bolt at the bottom end to facilitate replacement of this unit only during requirements & avoid entire change of arm.
41	'I' bolt	The I bolt shall be longer with 75 mm thread.
42	Supporting Channel	100x50x6 mm hot dip galvanized channel (C/C slotted 18x36 hole 250 mm) Min. 760 mm length
43	Connectors	Connectors shall be of hard drawn electrolytic copper or brass. The connector should be of 4 bolted type and suitable for 80- 100 sqmm AAC conductor.

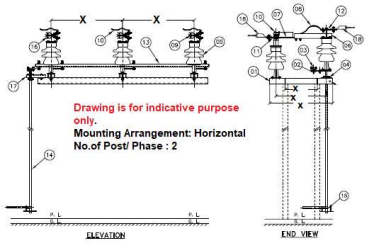
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SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
		SOCKET: Two no. of bimetallic copper sockets shall be used at both ends suitable for 80-100 sqmm AAC conductor.
44	Bearing	4 nos. self-lubricating bearing to be provided with grease nipple including 4 th bearing being a thrust bearing.
45	Marking/Engraving	TPCODL, Serial No., Manufacture's name or trademark, Month & Year of Manufacturing.

TYPE TEST REPORT

Bidder shall furnish the type test report of **AB Switch** for the tests as mentioned below and as per reference standards. Complete set of Type Tests shall be conducted at certified test laboratories, which are CPRI / ERDA only. **Type test should have been conducted in certified test laboratories during the period not exceeding 5 years from the date of Permission.**

- a) Test for Temperature rise as per IS 9920-part 4 cl.3.2.
- b) Test to verify the insulation level including withstand test at power frequency voltages on auxiliary equipment test as per IS 9920 part4 cl. 3.1.
- c) Test to prove satisfactory operation and mechanical endurance as per IS 9920 part4 cl.3.5.
- d) Making and braking test as per IS 9920 part4 cl.3.3.
- e) Test to prove the capability of the switch to carry the rated peak withstand current and rate short circuit current as per IS 9920 part4 cl.3.4.
- f) Test to prove satisfactory operation under ice conditions as per IS 9920 part4 Cl.3.6.
- g) Impulse voltage dry test
- h) Power frequency voltage dry test
- i) Power frequency voltage wet test
- j) Temperature of resistance.
- k) Measurement of resistance.
- l) Test to prove the capability of carrying the rated peak short circuit current and the rated short time current.
- m) Mainly active load breaking capacity test.
- n) Transformer off-load breaking test.
- o) Line charging breaking capacity test.
- p) Operation tests.
- q) Mechanical endurance test.
- r) Mechanical strength test for the post insulator as per IS-2544/1973.
- s) Test for galvanization of metal (ferrous) parts as perm IS-2633/1973.



Drawing is for indicative purpose only.
 Mounting Arrangement: Horizontal
 No.of Post/ Phase : 2

Horizontal Rotating Type AB switch