

**WESTERN ELECTRICITY SUPPLY COMPANY OF ORISSA, WESCO**

<b>GUARANTEED TECHNICAL PARTICULARS</b>		1 of 2
Sl. No.	Particulars	<b>REQUIREMENTS</b> 11 Kv, 200 Amps, A.B Switches.
1	<b>Maker's name and Country of origin.</b>	
2	Type of Switches	Rotating type only.
3	Suitable for mounting.	Horizontal only.
4	Number of support post Insulator per phase	2 Nos. 12 Kv post Insulators as per IS : 2544/1973.
5	<b>POST INSULATOR</b>	
(a)	Maker's name and Country of origin.	<b>Reputed make. All the post insulators provided shall be of same make.</b>
(b)	Type of Cementing.	Original Cementing only.
(c)	One minute power frequency withstand voltage	35 Kv (rms)
(d)	One minute power frequency withstand voltage wet.	35 Kv (rms)
(e)	Visible Discharge voltage.	9 Kv (rms)
(f)	Dry flash over voltage.	85 Kv.
(g)	Power frequency puncture withstand voltage.	1.3 times of actual dry flash over voltage.
(h)	Creepage distance.	230 mm. However, the actual creepage distance for which type test has been conducted is to be supplied.
6	Impulse withstand voltage for positive and negative polarity(1.2/50 microsecond wave)	
(a)	Across the Terminals of open switch.	85 Kv (Peak)
(b)	To earth and between pole.	75 Kv (Peak)
7	<u>Rated one minute power frequency withstand voltage.</u>	
(a)	Across the Isolating distance.	32 Kv (rms)
(b)	To earth and between poles	28 Kv (rms)
8	Rated normal current and rated frequency.	200 Amps. 50 Hz.
9	Rated short circuit making capacity.	25 KA (Peak)
10	Rated short time current.	20 KA (rms)
11	Rated peak withstand current.	50 KA (Peak)
12	Minimum clearance between adjacent phases.	
(a)	Switch closed (Centre to Centre)	760 mm
(b)	Switch opened (Centre of post Insulator to the edge of the blade)	380 mm
13	<b>TEMPERATURE RISE.</b>	
	The temperatyure rise should not exceed to maximum limit as specified below at an ambient temperature not exceeding 40°C.	65°C
	Copper contacts silver faced terminal of switch intended to be conducted to external conductor by bolts or screws at an ambient temperature should not exceed	50°C
14	Vertical clearance from the top of Insulator cap to mounting channel	254 mm
15	Type of Contact	(a) Self-aligned, high pressure jaw type fix contacts of electrolytic copper of size 70 x 35 x 6 mm duely silver plated. Each contact should be rivetted with three nos. copper rivets with a bunch ( minimum 3 mm thick) consisting of copper foils may vary from 0.15 mm to 0.25 mm ( total thickness of copper foil per jaw shall be 6 mm). Jaw assemblies are to be bolted through <b>brass</b> bolts and nuts with <b>brass</b> flat and  (b) Solid rectangular blade type moving contact of electrolytic copper size 220 mm x 35 mm x 6 mm duely silver  © Pressure springs to be used in Jaw contacts should be phosphorous bronze having 8 nos. of turns x 28 mm height x 14.4 mm dia. With 14 SWG wire (Minimum 6 nos. spring shall be used)

**WESTERN ELECTRICITY SUPPLY COMPANY OF ORISSA, WESCO**

16	Terminal Connector.	Terminal connector for both movable and fixed should be of copper casting (minimum 95 % copper composition). The fixed connector shall be of size (65 x 35) x 6 mm and the size of the movable connector (65 x 35) x (65 x 35) x 6mm with machine finishing duely silver plated with 2 nos. 12mm dia. hole with suitable <b>brass bolts and double nuts with brass flat washers</b> and 2 nos. solderless bimettalic sockets per each connector suitable upto 55 mm <sup>2</sup> conductor. The sockets shall be preferably of "USHA MARTIN" make.														
17	Moving Contact supporting angle.	Movable contact is to be supported by G.I Angle of size 45 x 45 x 5mm on each phase and the moving contact are to be bolted through 2 nos. stainless flat and spring washers suitably.														
18	Galvanisation	<b>(a) Iron parts shall be hot-dipped galvanised as per IS : 2629/1985 (1 st Revision), (Amendment-2).</b> <b>(b) The G.I Pipe shall be galvanised as per IS : 4736/1968 (1 st Revision),(Amendment-1) for Hot-dipped Zinc Coating on M.S Tubes.</b>														
19	Details of phase															
	(a) Coupling Rod.	25mm nominal bore G.I Pipe medium gauge.														
	(b) Operating Rod.	32mm nominal bore G.I Pipe medium gauge. Single length 6 mtrs. The detail dimensions of the G.I Pipe as mentioned below :														
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	© Arcing Horn.	(a) 8mm dia G.I Rod with spring-assisted operation.														
		<b>(b) The G.I Rod shall be galvanised as per IS : 4736/1968 (1 st Revision),(Amendment-1) for Hot-dipped Zinc Coating on M.S Tubes.</b>														
	<b>(d) Bearing System.</b>	<b>One bearing shall be provided near the Base Channel to assist in operation.</b>														
	(e) Force of fixed contact spring.	50 75 lbs.														
	(f) Copper braided flexible tapes.	320mm length of flexible electrolytic copper tape or braided chord with tin coated having minimum weight 450 gms/mtr. And both ends shall be cripped with copper sockets through brass bolts and nuts with brass flat washers. Two nos. of suitable copper sockets shall be used at both ends. The socket should be preferably of "DOWEL" make(catalogue o CUS/48) or equivalent USHA MARTIN make. The minimum no. of flexible wires should be 1536 of 36 SWG for each														
	(g) Quick break Device.	Lever Mechanism.														
	(h) Bearings.	4 nos. self lubricating bearings to be provided with grease nipple including 4th bearing being a thrust bearing.														
	(i) Locking Arrangement.	Pad locker and key arrangement at both "ON" and "OFF" position.														
	(j) Earth Terminal.	To be provided at base channel.														
	<b>(k) 'T' Connection.</b>	<b>The 'T' Connection provided on the channel having 'Moving Contact' shall be of G.I Nut &amp; Bolt at the bottom end to facilitate replacement of this unit only during requirement &amp; avoid entire change of the arm.</b>														
	<b>(l)</b>	<b>The 'I-Bolt' shall be longer with 75 mm thread.</b>														
20	Supporting Channel.	75 x 40 mm M.S Channel hot-dipped galvanised.														
21	Weight of each pole complete.	20 Kgs. Approximately.														

N.B :-	I) Ferrous parts shall be duely galvaised as per IS:2629/1985 (1 st Revision), (Amendment-2) and non-ferrous parts shall be silver plated..
	II) The G.I Pipes & Rods shall be galvanised as per IS : 4736/1968 (1 st Revision),(Amendment-1) for Hot-dipped Zinc Coating on M.S Tubes.
	III) Certificate from a Government approved laboratory regarding composition of copper in electrolytic copper casting of materials should be submitted during inspection of materials at the cost of the tenderer.
	IV) Items not covered in the G.T.P, but relevant in Design, manufacturing, quality control & testing of materials shall be governed by the relevant IS with latest Amendments.

**WESTERN ELECTRICITY SUPPLY COMPANY OF ORISSA, WESCO**

<b>Sl. No.</b>	<b>Particulars</b>	<b>REQUIREMENTS</b> <b>33 Kv, 400 Amps, A.B Switches.</b>
1	<b>Maker's name and Country of origin.</b>	
2	Type of Switches	Rotating type only.
3	Suitable for mounting.	Horizontal only.
4	Number of support post Insulator per phase	4 Nos. 22 Kv/24 Kv post Insulators per phase as per IS : 2544/1973.
5	<b>POST INSULATOR</b>	
(a)	Maker's name and Country of origin.	<b>Reputed make, All the post insulators provided shall be of same make.</b>
(b)	Type of Cementing.	Original Cementing only.
(c)	One minute power frequency withstand voltage dry.	95 Kv (rms)
(d)	One minute power frequency withstand voltage wet.	75 Kv (rms)
(e)	Visible Discharge voltage.	27 Kv (rms)
(f)	Dry flash over voltage.	95 Kv.
(g)	Power frequency puncture withstand voltage.	1.3 times of actual dry flash over voltage.
(h)	Impulse withstand voltage (Switch in position)	170 Kv (Peak)
(i)	Creepage distance.	430 mm. However, the actual creepage distance for which type test has been conducted is to be supplied.
6	Impulse withstand voltage for positive & negative polarity (1.2/50 micro second wave)	
(a)	Across the Isolating distance.	195 Kv (Peak)
(b)	To earth and between poles	170 Kv (Peak)
7	<b>Rated one minute power frequency withstand voltage.</b>	
(a)	Across the Isolating distance.	80 Kv (rms)
(b)	To earth and between poles	70 Kv (rms)
8	Rated normal current and rated frequency.	400 Amps. 50 Hz.
9	Rated short time current.	16 KA (rms)
10	Rated peak withstand current.	40 KA (Peak)
11	Rated transformer off load breaking capacity.	6.3 A (rms)
12	Rated line charging breaking capacity.	6.3 A (rms)
13	Rated cable charging breaking capacity.	16 A (rms)
14	Minimum clearance between adjacent phases.	
(a)	Switch closed (Centre to Centre)	1200 mm
(b)	Switch opened (Centre of post Insulator to the edge of the blade)	640 mm
15	<b>TEMPERATURE RISE.</b>	
	The temperature rise should not exceed to maximum limit as specified below at an ambient temperature not exceeding 40°C.	65°C
	Copper contacts silver faced terminal of switch intended to be conducted to external conductor by bolts or screws at an ambient temperature should not exceed	50°C
16	Vertical clearance from the top of Insulator cap to mounting channel	508 mm. Minimum.
17	Type of Contact	(a) Self-aligned, high pressure jaw type fix contacts of electrolytic copper of size 80 x 50 x 8 mm duely silver plated. Each contact should be rivetted with three nos. copper rivets with a bunch ( minimum 3 mm thick) consisting of copper foils may vary from 0.15 mm to 0.25 mm ( total thickness of copper foil per jaw shall be 6 mm). Jaw assemblies are to be bolted through <b>brass</b> bolts and nuts with <b>brass</b> flat and  (b) Solid rectangular blade type moving contact of electrolytic copper size 220 mm x 50 mm x 8 mm duely silver plated.  © Pressure springs to be used in Jaw contacts should be phosphorous bronze having 8 nos. of turns x 28 mm height x 14.4 mm dia. With 14 SWG wire (Minimum 6 nos. spring shall be used)

**WESTERN ELECTRICITY SUPPLY COMPANY OF ORISSA, WESCO**

18	Terminal Connector.	Terminal connector for both movable and fixed should be of copper casting (minimum 95 % copper composition). The fixed connector shall be of size (80 x 50) x 8 mm and the size of the movable connector (80 x 50) x (80 x 50) x 8mm with machine finishing duely silver plated with 2 nos. 12mm dia. hole with suitable brass bolts and double nuts with <b>brass</b> flat washers and 2 nos. solerless bimettalic sockets per each connector suitable upto 80 mm <sup>2</sup> conductor. The sockets shall be preferably of "USHA MARTIN" make.														
19	Moving Contact supporting angle.	Movable contact is to be supported by G.I Angle of size 50 x 50 x 5mm on each phase and the moving contact are to be bolted through 2 nos. stainless flat and spring washers suitably.														
20	Galvanisation	<b>(a) Iron parts shall be hot-dipped galvanised as per IS : 2629/1985 (1 st Revision), (Amendment-2).</b> <b>(b) The G.I Pipe shall be galvanised as per IS : 4736/1968 (1 st Revision),(Amendment-1) for Hot-dipped Zinc Coating on M.S Tubes.</b>														
21	Details of phase															
	(a) Coupling Rod.	25mm nominal bore G.I Pipe medium gauge.														
	(b) Operating Rod.	32mm nominal bore G.I Pipe medium gauge. Single length 6 mtrs. The detail dimensions of the G.I Pipe as mentioned below :														
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	<b>(d) Bearing System.</b>	<b>One bearing shall be provided near the Base Channel to assist in operation.</b>														
	(e) Force of fixed contact spring.	50-75 lb.														
	(f) Copper braided flexible tapes.	320mm length of flexible electrolytic copper tape or braided chord with tin coated having minimum weight 450 gms/mtr. And both ends shall be crippled with copper sockets through brass bolts and nuts with brass flat washers. Two nos. of suitable copper sockets shall be used at both ends. The socket should be preferably of "DOWEL" make(catalogue o CUS/48) or equivalent USHA MARTIN make. The minimum no. of flexible wires should be 1536 of 36 SWG for each flexible chord.														
	(g) Quick break Device.	Lever Mechanism.														
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	<b>(l)</b>	<b>The 'I-Bolt' shall be longer with 75 mm thread.</b>														
22	Supporting Channel.	75 x 40 mm M.S Channel hot-dipped galvanised.														
23	Weight of each pole complete.	50 Kgs. Approximately.														

**N.B :- I) Ferrous parts shall be duely galvaised as per IS:2629/1985 (1 st Revision), (Amendment-2) and non-**

**II) The G.I Pipes & Rods shall be galvanised as per IS : 4736/1968 (1 st Revision),(Amendment-1) for Hot-dipped Zinc Coating on M.S Tubes.**

**III) Certificate from a Government approved laboratory regarding composition of copper in electrolytic**

**IV) Items not covered in the G.T.P, but relevant in Design, manufacturing, quality control & testing of materials shall be governed by the relevant IS with latest Amendments.**

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<b>Sl. No.</b>	<b>Particulars</b>	<b>11 Kv, 400 Amps, A.B Switches.</b>
1	Maker's name and Country of origin.	
2	Type of Switches	Rotating type only.
3	Suitable for mounting.	Horizontal only.
4	Number of support post Insulator per phase	2 Nos. 12 Kv post Insulators as per IS : 2544/1973.
5	POST INSULATOR	
(a)	Maker's name and Country of origin.	<b>Reputed make, All the post insulators provided shall be of same make.</b>
(b)	Type of Cementing.	Original Cementing only.
(c)	One minute power frequency withstand voltage dry	35 Kv (rms)
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(h)	Creepage distance.	330 mm. However, the actual creepage distance for which type test has been conducted is to be supplied.
6	Impulse withstand voltage for positive and negative polarity(1.2/50 microsecond wave)	
(a)	Across the Terminals of open switch.	85 Kv (Peak)
(b)	To earth and between pole.	75 Kv (Peak)
7	Rated one minute power frequency withstand voltage.	
(a)	Across the Isolating distance.	32 Kv (rms)
(b)	To earth and between poles	28 Kv (rms)
8	Rated normal current and rated frequency.	400 Amps. 50 Hz.
9	Rated short circuit making capacity.	25 KA (Peak)
10	Rated short time current.	16 KA (rms)
11	Rated peak withstand current.	40 KA (Peak)
12	Rated mainly active load breaking capacity.	10 A
13	Rated transformer off load breaking capacity.	6.3 A (rms)
14	Rated line charging breaking capacity.	2.5 A (rms)
15	Rated cable charging breaking capacity.	10 A (rms)
16	Minimum clearance between adjacent phases.	
(a)	Switch closed (Centre to Centre)	760 mm
(b)	Switch opened (Centre of post Insulator to the edge)	380 mm
17	TEMPERATURE RISE.	
	The temperatyure rise should not exceed to maximum limit as specified below at an ambient temperature not exceeding 400C.	650C
	Copper contacts silver faced terminal of switch intended to be conducted to external conductor by bolts or screws at an ambient temperature should not exceed	500C
18	Vertical clearance from the top of Insulator cap to mounting channel	254 mm
19	Type of Contact	(a) Self-aligned, high pressure jaw type fix contacts of electrolytic copper of size 80 x 50 x 8 mm duely silver plated. Each contact should be rivetted with three nos. copper rivets with a bunch ( minimum 3 mm thick) consisting of copper foils may vary from 0.15 mm to 0.25 mm ( total thickness of copper foil per jaw shall be 6 mm). Jaw assemblies are to be bolted through brass bolts and nuts with brass flat and spring washer.  (b) Solid rectangular blade type moving contact of electrolytic copper size 220 mm x 50 mm x 8 mm duely silver plated.  © Pressure springs to be used in Jaw contacts should be phosphorous bronze having 8 nos. of turns x 28 mm height x 14.4 mm dia. With 14 SWG wire (Minimum 6 nos. spring shall be used)

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