

# ESE lightning Arrester, Chemical Earthing and Conventional Lightning Arrester

(Technologies for Complete Lightning and Earthing System)



Earthing



Lightning

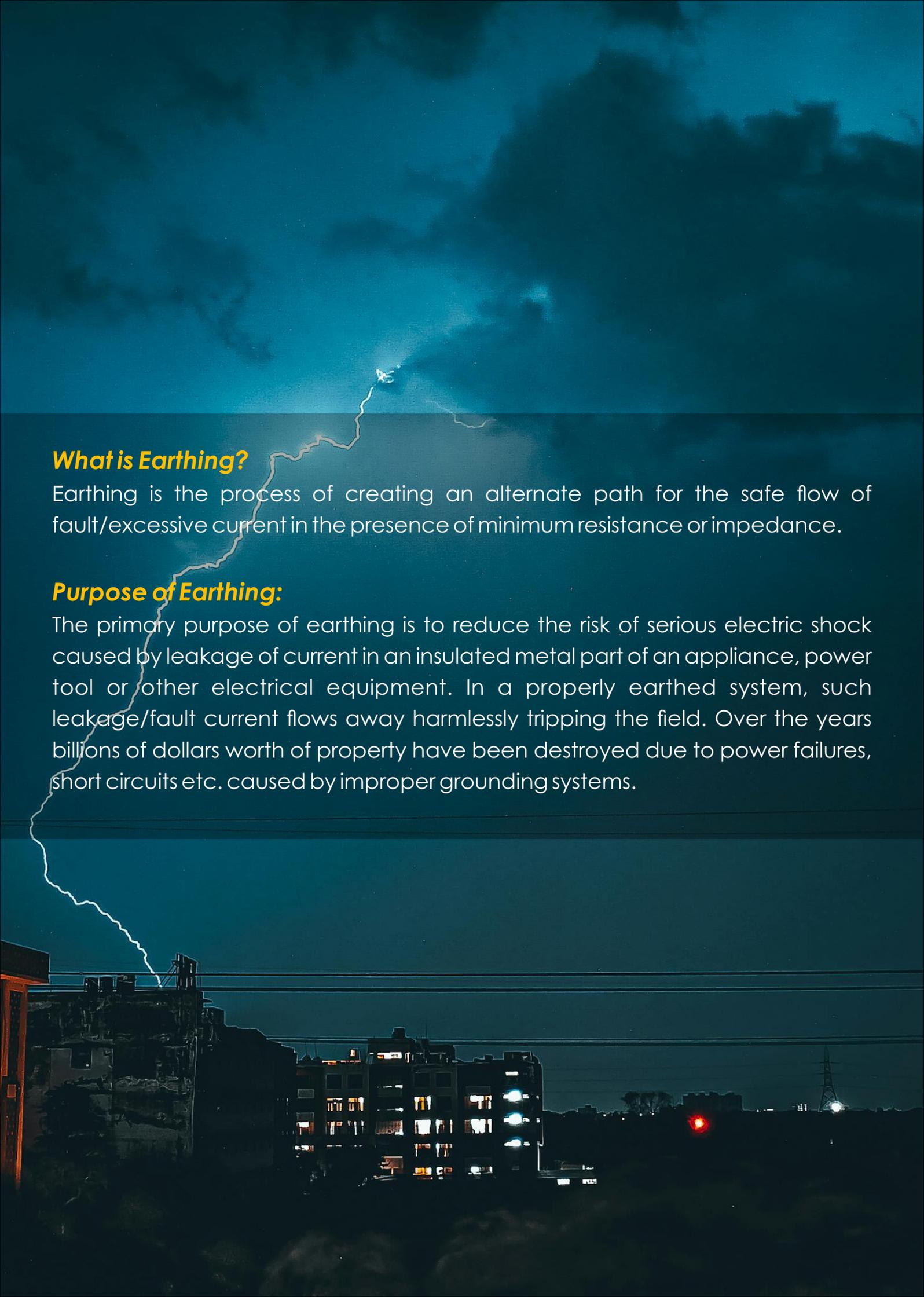


Earthing Chemical



**TRUE POWER LTD.**

An ISO 9001:2015 Certified Company



## **What is Earthing?**

Earthing is the process of creating an alternate path for the safe flow of fault/excessive current in the presence of minimum resistance or impedance.

## **Purpose of Earthing:**

The primary purpose of earthing is to reduce the risk of serious electric shock caused by leakage of current in an insulated metal part of an appliance, power tool or other electrical equipment. In a properly earthed system, such leakage/fault current flows away harmlessly tripping the field. Over the years billions of dollars worth of property have been destroyed due to power failures, short circuits etc. caused by improper grounding systems.

*I have the honor of serving as the Managing Director of our esteemed company **True Power Ltd. Established in 2008**, we are an ISO certified electrical manufacturer and comprehensive solution provider with **3 world class manufacturing setups**, 8 exciting product verticals (Chemical Earthing, Lightning Arrester, Solar Panel, Solar Panel, Transformer, Wire & Cable, HDG Mounting Structure for SPD and Conductor).*



*MD Desk*

*Having 10,000+ distributors, 25 service centres, 500 on-roll employees and 300 contractual staff has an International presence cutting geographies in Middle East, Africa, Nepal and Bangladesh, and has a wide presence across PAN India from Ladakh to Kanyakumari and from Kutch to Arunachal Pradesh. With our extensive coverage throughout India, we are able to deliver outstanding product services and guarantee customer satisfaction. We sincerely appreciate your decision to choose us as your reliable partner for all your electrical requirements. Thinking of your Safety and Health is our first priority. At the moment we are taking all recommended precautions to make sure we're doing everything to keep our community and country safe.*

*We provide customized, value-added, fit-in-budget solutions for Chemical Earthing, Lightning Protection, and Solar Power for diversified needs, and all scales of projects, from small residences to large palatial bungalows, from Government installations to high-rise towers, from airports to hospitals, from small manufacturing setups to world-class automatic large processing plants with microprocessors and microcontrollers based latest CNC machines.*

A handwritten signature in blue ink, appearing to read 'Hari Om Tiwari', written over a circular stamp.

(Managing Director)

PRODUCT CODE:  
GI-E-001

# 1-TP GI EARTHING ELECTRODE (STRIP IN PIPE)

Model	Length (Mtr)	Terminal Size	Inner Strip	Outer Pipe Diameter(min) mm
40 MTPG	1,2&3	40X6	25X3	48
50 MTPG	1,2&3	40X6	25X3	58
80 MTPG	1,2&3	50X6	25X3	88

- Hot dip galvanized for corrosion protection
- Designed for fast fault current dissipation
- Low maintenance on site
- Easy & Fast installation on site.
- The correct balance is where the soil pH is between 5.5 and 7.5, so every effort should be taken to check soil pH levels regularly
- Moisture booster chemical bags provided for low earth resistance

PRODUCT CODE:  
CT-E-005

# 2-TP COPPER TERMINAL EARTHING ELECTRODE

Model	Length (Mtr)	Terminal Size	Inner Strip	Outer Pipe Diameter(min) mm
40 MTPCT	1,2&3	40X6	25X3	48
50 MTPCT	1,2&3	40X6	25X3	58
80 MTPCT	1,2&3	50X6	25X3	88

- Hot dip galvanized for corrosion protection
- Designed for fast fault current dissipation
- Low maintenance on site
- Easy & Fast installation on site.
- The correct balance is where the soil pH is between 5.5 and 7.5, so every effort should be taken to check soil pH levels regularly
- Moisture booster chemical bags provided for low earth resistance

PRODUCT CODE:  
CE-E-003

## 3-TP PURE COPPER EARTHING ELECTRODE

Model	Length (Mtr)	Terminal Size	Inner Strip	Outer Pipe Diameter(min)
40 MTPPC	1,2&3	40X6	25X3	40
50 MTPPC	1,2&3	40X6	25X3	50
80 MTPPC	1,2&3	50X6	25X3	80

- Used 99.9% copper for long life.
- Designed for fast fault current dissipation.
- Low maintenance on site.
- Easy & Fast installation on site.
- The correct balance is where the soil pH is between 5.5 and 7.5, so every effort should be taken to check soil pH levels regularly
- Moisture booster chemical bags provided for low earth resistance.



PRODUCT CODE:  
BC-E-002

## 4-TP COPPER BONDED EARTHING ELECTRODE

Model	Length (Mtr)	Terminal Size	Inner Strip	Outer Pipe Diameter(min) mm
40 MTPCB	1,2&3	40X6	25X3	48
50 MTPCB	1,2&3	40X6	25X3	58
80 MTPCB	1,2&3	50X6	25X3	88

- Long Life.
- Enhance Conductivity.
- The correct balance is where the soil pH is between 5.5 and 7.5, so every effort should be taken to check soil pH levels regularly
- Tested from NABL & CPRI lab.



PRODUCT CODE:  
GI-PIP-E-006

# 5-TP GI PIPE IN PIPE EARTHING ELECTRODE

Model	Length (Mtr)	Terminal Size	Inner Pipe	Outer Pipe Diameter(min) mm
40 MTPPG	1,2&3	40X6	20	48
50 MTPPG	1,2&3	40X6	25	58
80 MTPPG	1,2&3	50X6	40	88

- Hot dip galvanized for corrosion protection
- Designed for fast fault current dissipation
- Low maintenance on site
- Easy & Fast installation on site.
- The correct balance is where the soil pH is between 5.5 and 7.5, so every effort should be taken to check soil pH levels regularly
- Moisture booster chemical bags provided for low earth resistance



PRODUCT CODE:  
PC-008

# 6-TP PVC Earth Pit Cover, Cast Iron Earth Pit Cover For Earthing



PVC Earth Pit Cover					
Model	At Top	At Bottom	Height	Load Capacity	Weight
MTPBG	310	250	260	5000	0.970gm
MTPSM	215	165	210	3000	0.390gm
MTPQR	250	300	260	4000	1.800gm
Cast Iron Earth Pit Cover					
Model	Height	Width	Weight		
MTPCI1	450	450	7.160gm		
MTPCI2	300	300	3.310gm		

- Factory-built access ports on two sides for easy wire/strip access.
- Green top cap blends with the environment.
- Made from durable polyethylene for longevity.
- Guarantees long-term use.
- Resistant materials ensure durability in tough conditions.

PRODUCT CODE:  
BF-C-007

# 7-TP BACKFILL COMPOUND

Quantity		No. Of Bags
25 kg.		1
15 kg.		1
5 kg.		1
Backfill Compound Type		
Marconite base	Silica Base	Bentonite Base

- Non toxic content
- Resistivity less than 0.2 ohm-water
- Its maintain conductivity without continuous presence of Maintenance
- Tested from NABL accredited lab



PRODUCT CODE:  
CSC-LA-010

# 8-TP COPPER SPIKE/COPPER LIGHTNING ARRESTER

Diameter	Length
16mm (Solid Rod)	1 mtr, 2 mtr, 3 mtr
25mm (Hollow Pipe)	1 mtr, 2 mtr, 3 mtr

- Standard : IEC - 62305 Part III
- Material : Copper / Copper Bonded / GI
- Technology : Conventional Type LA As Per IES 62305 Part III



PRODUCTS

PRODUCT CODE:  
COST IRON-009

# 9-TP CAST IRON EARTHING PIPES

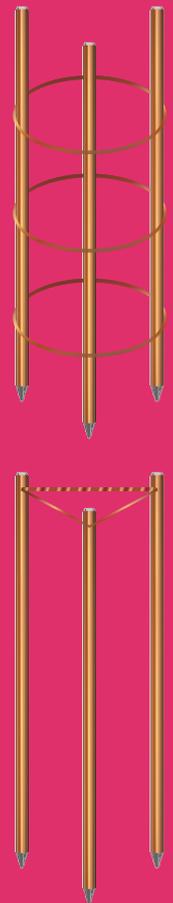
MODEL	Length of Electrode (in Meter)	CONNECTION TERMINAL SIZE (MM)	Funnel Size
80 MTPCIEP	1, 2 & 3	300X50X6	100
100 MTPCIEP	1, 2 & 3	350X50X6	100

PRODUCT CODE:  
TRIPOLAR E-010

# 10-TP TRIPOLAR & TRIPOD ELECTRODE

MODEL	LENGTH, Mtr	INTER CONNECTION STRIPE	OUTER ROD DIA (min) mm
MTPTP	1, 2&3	25X3	17.2
MTPTP	1, 2&3	25X3	17.2

- Copper Bonded With A Coating Thickness Of 250+ Microns.
- Provides High Electrical Conductivity And Anti-Corrosion Properties.
- Lowest Resistance Values Even With A Single Earth Pit.
- Greater Safety And More Reliability.
- Maintenance Free , Easy Installation, Long Service Life.
- An Exceptional Earthing System Suitable For All Types Of Soil.



PRODUCT CODE  
ESE-LA-009

# 12-ESE

Level of protection	I (r= 20 m)			II (r= 30 m)			III (r= 45 m)			IV (r= 60 m)		
	ATS 30	ATS 45	ATS 60	ATS 30	ATS 45	ATS 60	ATS 30	ATS 45	ATS 60	ATS 30	ATS 45	ATS 60
h (m)	Radius of protection Rp (m)											
2	19	25	31	22	28	35	25	32	39	28	36	43
3	29	38	47	33	42	52	38	48	58	43	57	64
4	38	51	63	44	57	69	51	65	78	57	72	85
5	48	63	79	55	71	86	63	81	97	71	89	107
6	48	63	79	55	71	87	64	81	97	72	90	107
8	49	64	79	56	72	87	65	82	98	73	91	108
10	49	64	79	57	72	88	66	83	99	75	92	109
15	50	65	80	58	73	89	69	85	101	78	95	111
20	50	65	80	59	74	89	71	86	102	81	97	113
45	43	65	76	58	75	89	75	90	105	89	104	119
50	40	65	74	57	75	88	75	90	105	89	104	120
55	36	65	72	55	75	86	74	90	105	90	105	120
65	30	65	69	52	75	85	73	90	104	90	105	120



During a storm, when propagation field conditions are favorable, an ATS (Truepower) ESE air terminal will generate upward leader. This upward leader from the airterminal tip propagates towards the downward leader from the cloud at an average speed of 1-2 m/μs.

This emission of an early streamer to a lightning event delivers a beneficial triggering time compared to a single rod air terminal exposed to the same conditions. The beneficial triggering time is determined as the average time gained at the moment of sparkover, with efficiency confirmed by high-voltage laboratory testing from international acclaimed lab. All ESE tests are defined in Annex C of the French standard NF C 17-102 (2011 Version).

The radius of protection Rp of an ATS is given by French standard NF C 17-102 (September 2011 edition).

It depends on the ESEAT efficiency ΔT of the ATS measured in the high voltage laboratory, on the levels of protection I, II, III or IV calculated according to the lightning risk assessment guides or standards (NF C 17-102 annex A and on the height h of the lightning air terminal over the area to be protected (minimum height = 2 m).

The protection radius is calculated according to Annex C in French standard NF C 17-102. For ATS -3 limiting the value of ΔT used in the protection radius calculations to 60 μs (limited 60 μs in accordance with the paragraph 5.2.2 of the NF C 17-102 standard).

## Protection Calculation

The protection radius of Protector is calculated by the standard formula given in the French Standard NFC 17-102 (Sept. 2011). The formulation is based on the lightning conductor triggering advance (ΔT), Installation height (h) and the triggering distance (ΔL).

$$R_p(h) = \sqrt{2rh - h^2} + \Delta(2r + \Delta) \text{ for } h \geq 5 \text{ m}$$

And

$$R_p = h \times R_{p5} / 5 \text{ for } 2 \leq h < 5 \text{ m}$$

Where h = ESE height relative

To the area being protected (m)

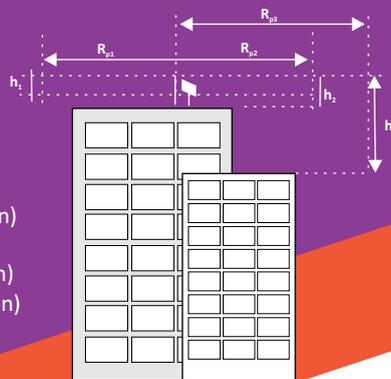
R<sub>p5</sub> = value of R<sub>p</sub> from Eqn. (1) when h = 5m

r = 20 m for protection level I (Very High Protection)

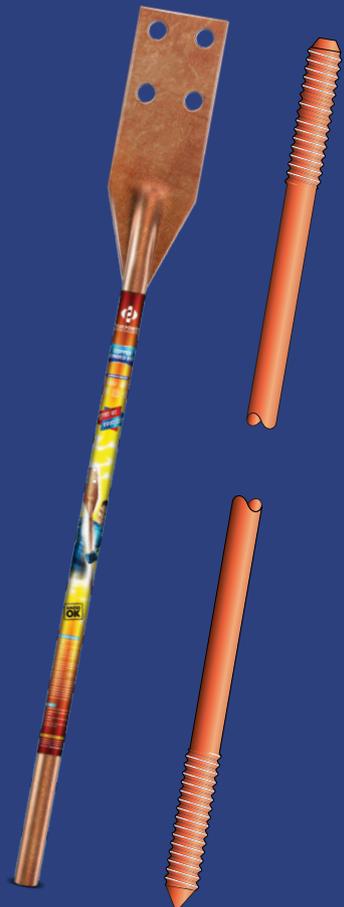
30 m for protection level II (High Protection)

45 m for protection level III (Medium Protection)

60 m for protection level IV (Standard Protection)



# 11-TP Solid Copper and Copper Bonded Earth Rod



Part No.	Diameter (mm)	Length (mm)	Weight each (kg)
<b>Solid Copper Rod</b>			
Tp010	∅ 15	1200	1.88
Tp011	∅ 15	1500	2.35
Tp012	∅ 15	3000	4.70
Tp014	∅ 19	1200	3.05
Tp015	∅ 20	1200	3.34
Tp016	∅ 20	1500	4.18
Tp017	∅ 20	3000	8.36
<b>Solid Copper Kit</b>			
Tp010-Kit	∅ 15	8 ft (2440 mm)	3.82
Tp015-Kit	∅ 20	8 ft (2440 mm)	6.79
Part No.	Diameter (mm)	Length (mm)	Copper Bonding
<b>Copper Bonded Rod</b>			
TP 14.2/1 CBR	14.2	1000	250 Micron
TP 14.2/2 CBR	14.2	2000	250 Micron
TP 14.2/3 CBR	14.2	3000	250 Micron
TP 17.2/1 CBR	17.2	1000	250 Micron
TP 17.2/2 CBR	17.2	2000	250 Micron
TP 17.2/3 CBR	17.2	3000	250 Micron
TP 23.2/2 CBR	23.2	2000	250 Micron
TP 23.2/3 CBR	23.2	3000	250 Micron
TP 25/2 CBR	25	2000	250 Micron
TP 25/3 CBR	25	3000	250 Micron

- To control, Radio Frequency (rf) Emissions and Electromagnetic Interference.
- To provide a stable Potential difference for the accuracy of Instruments.
- To provide a Safe Discharge path for Short circuits and Lightning Strikes.
- Grounding helps protect electrical and electronic equipment from voltage and lightning strikes.
- This is particularly important in sensitive electronic circuits and communication systems.
- This helps protect people from electric shock hazards.

**TRUE POWER LTD. HEAD OFFICE ADDRESS**

<b>LUCKNOW</b>	<b>D - 370, VIBHUTI KHAND, GOMTI NAGAR, LUCKNOW - 206010</b>
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**TRUE POWER LTD. BRANCH OFFICE ADDRESS**

<b>BELGAUM</b>	SHOP No-3 OPPOSITE SAI BHAVAN MANGAL KARYALA OLD P.B ROAD KHASBAG BELGAUM-590003
<b>LUDHIANA</b>	292 IND. AREA-A, NEAR CHEEMA CHOWK LUDHIANA-141003
<b>RANCHI</b>	HI-29 , HARMU HOSING COLONY, NEAR AASTHA CLINIC, HARMU , RANCHI
<b>PUNE</b>	ANKUR CHAMBERS, S NO 606, 2ND FLOOR OFFICE NO 15 BUDHWAR PETH, PUNE - 411002
<b>JAIPUR</b>	S/31, 2END FLOOR ALANKAR PLAZZA VIDHYADHAR NAGAR JAIPUR
<b>KOLKATA</b>	SHANPUKUR, CHATTA KALIKAPUR, KOLKATA -700140
<b>HYDERABAD</b>	LGF-16, 91, BHUVANA TOWERS, S.D ROAD, SECUNARABAD, HYDERABAD, TELANGANA 500003
<b>AHMEDABAD</b>	7 & 34: SHREEJI ESTATE, NAROL SARKHEJ ROAD, NEAR ASOPALAV HOTEL NAROL, AHMEDABAD - 382405
<b>GUWAHATI</b>	BALIRAM RAJBANSI PATH, IN FRONT OF MARYA KIDS SCHOOL, NEAR EBC CHURCH, GAURCHAK, GUWAHATI-781035
<b>BEGALURU</b>	UGAM RAJ BHAWARLAL, 4/1 SOUTH PARK ROAD, SHESHADRIPURAM BENGALURU-560020
<b>PATNA</b>	E 25 PC COLONY MALAHI PAKRI, KANKARBAGH, NEAR EASDAY SHOPPING STORE PATNA - 800020
<b>RAIPUR</b>	NEAR INDIAN OIL PETROL PUMP, RING ROAD NO 3,VIDHAN SABHA ROAD, SANKRI, RAIPUR - 49311
<b>DELHI NCR</b>	D - 242, SEC. 63 , NEAR DAINIK JAGRAN OFFICE, NOIDA PIN CODE - 201301
<b>BHUBANESWAR</b>	C 61 LINGRAJ VIHAR POKHARIPUT, BHUBANESWAR ODISHA - 751020
<b>CHENNAI</b>	NEW No 42, OLD No 9,SHOP No 26,2ND FLOOR , GEE GEE COMPLEX ,ANNA SALAI, MOUNT ROAD, CHENNAI, TAMIL NADU – 600 002
<b>DEHRADUN</b>	SHIV SHAKTI BAWAN KUNJ VIHAR HARIDWAR KARGI CHOWK BYPASS DEHRADUN
<b>SILIGURI</b>	SUNNY TOWER, NEAR M BAZAR SEVOKE ROAD SILIGURI - 734001

**TRUE POWER LTD. FACTORY OFFICE ADDRESS**

<b>LUCKNOW</b>	<b>KHASRA No.1364, AMARSANDA, KURSI ROAD TEHSIL- FATEHPUR DISTT- BARABANKI PIN CODE- 225302</b>
<b>HYDERABAD</b>	<b>662/1 PANDURANGAREDDY GODOWNS, KISTAPUR VILLAGE, MEDCHAL - MALKAJGIRI DIST - HYDERABAD - 501401</b>
<b>KOLKATA</b>	<b>SHANPUKUR, CHATTA KALIKAPUR, KOLKATA -700140</b>



**Middle East & Africa (HQ):**  
 The Greens, The Onyx Tower 2, Office 907 - Dubai, UAE

## Our Major Client



## Public Sector Client



## Approval by



## Approved by



## Who all are our Customers?

Hospitals with Vast ICUs and Research Centers, railway, datacenter, Residential buildings/other structures and High rise Towers, Schools and Educational Institutions, Petrochemical and Oil Industries, Telecom Towers & other Communication Infrastructures, Substations and Power Generation Systems, Solar Systems and EV Charging plants, Govt. Structures/offices and Military Installations, etc.

**All who have concerns about life and property are our customers.**





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