AXIS™

TESTED PRODUCTS
EFFICIENT SERVICE
TRUSTED BRAND

the
Solution
you can trust

Internationaly Certified Products

Earthing Material

AXIS ELECTRICAL COMPONENTS (INDIA) PVT. LTD. is an ISO 9001:2015 company engaged in manufacturing and exporting a wide range of electrical components and parts to over 80 countries worldwide over a period of 25+ years.

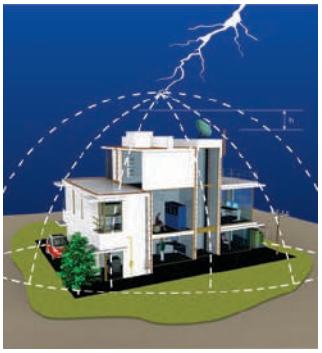
With the initiation of the 'Made in India' concept, we provide you with CPRI tested ESE, Surge Counter, Earthing & UL tested copper bonded rod. The products manufactured by Axis follow widely accepted International standards like:

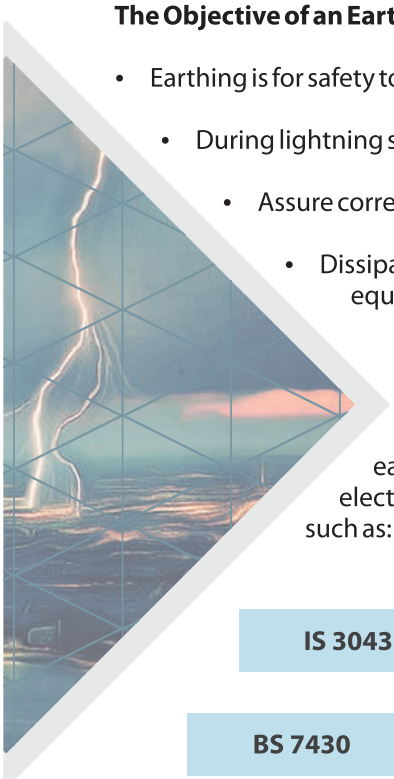
Earthing refers to connecting equipment or metallic parts which do not carry current under normal conditions to the earth using Earth Electrodes. At the time of a fault, very high levels of current will flow through the system. As a result, a potential difference is produced between the external metallic parts of the system and the ground.

Due to this change in the potential, if a person comes in the contact with the system the current would flow through them instead and cause an electric shock. Thus, non-current carrying metallic parts are connected to the earth so that these kinds of fault currents can flow safely to the ground.

The Objective of an Earthing System is:

- Earthing is for safety to the personnel and equipment in the electrical network.
- During lightning strikes, it will divert high potential lightning to earth.
- Assure correct operation of the equipment and devices.
- Dissipation of the fault current into the earth and protect the equipment.





Axis has been supplying a wide range of quality products for Earthing Protection. Our earthing protection products are designed to protect structures and systems against electric shock. The products are designed, manufactured, and tested as defined in standards such as:

IS 3043	IEEE 80	UL 467
BS 7430	IEC 62561- 2 & 7	IS IEC 62305

For more information, Please visit our website

www.axis-india.com

BS 7430:

Code of Practice for protective earthing of electrical installations.

This Standard primarily provides recommendations and guidance on meeting requirements for earthing of electrical installation. Our earthing software takes the general formula and guidelines into consideration and helps design the system and arrive at the final quantum of earthing components.

The earthing of system or installation is generally provided for reason of Safety. Also this standard is applicable only for land-based installations in and around buildings.

Types of Electrode and their resistance calculations.

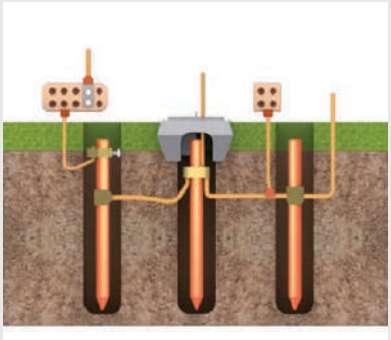
An earthing system should be of the highest integrity and of Robust construction to ensure that it remains safe and not endanger the health and safety of persons or their surroundings.

Formulae given for below different types of configuration are all based on homogeneous soil conditions, so in most practical situations only give a reasonable idea of problems.

01. Rod electrode
02. Plate electrode
03. Parallel connection of aligned rods
04. Strip or round conductor electrode
05. Three rods at vertices of an equilateral triangle
06. 3 strips set at a right angle to each other meeting at one corner
07. 3 strips set at 120° meeting at start point all over the equal length
08. 4 strips set in cruciform
09. Earth electrode in a rectangular plan
10. Mesh
11. Resistance of electrode enhanced in low resistivity material

IS 3043:

Code of practice for Earthing



This code of practice is intended to serve as a consolidated guide to all those who are concerned with design, installation and maintenance of electrical systems and apparatus.

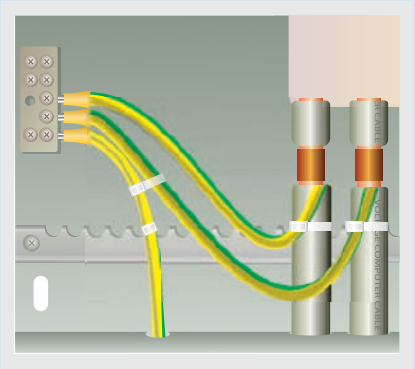
The subject of earthing covers the problem relating to the conduction of electricity through the earth.

Protection against shock in - direct and indirect contact can be achieved in several measures.

Detail description has mentioned System earthing and equipment earthing.

UL 467:

Standard for Safety- Grounding and Bonding equipment



UL 467 applies to the following grounding and bonding equipment:

1. Grounding clamps, bonding devices, grounding bushings.

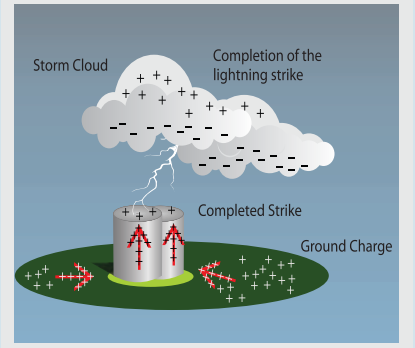
2. Grounding conductors used in electrical power system, noncurrent carrying metal parts, armored grounding wires.

3. Grounding electrodes used in telecommunication systems such as telephone, radio, CATV, Network power broadband.

4. Hospital grounding jacks and mating grounding cord assemblies.

IEC 62305-3:

Protection against lightning - Part 3: Physical damage to structure and life hazard

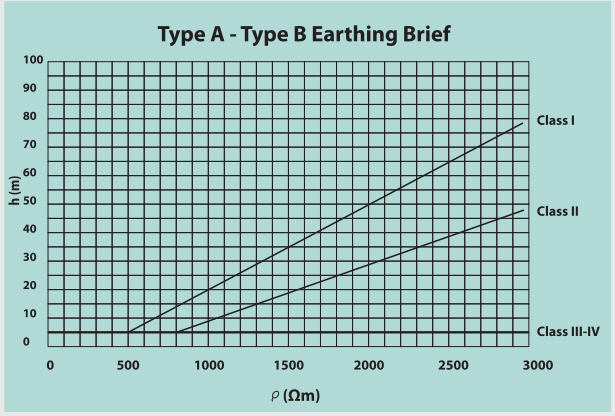


This standard deals with dispersion of lightning current into the ground, whilst minimizing any potential dangerous overvoltages, shape and dimensions of the earth termination system are important criteria.

In general low earthing resistance is recommended.

This earth termination system is divided into 2 arrangements: Type 'A' and Type 'B'.

Type A arrangement comprise of Vertical or a Horizontal earth electrode, install outside structure , where type B arrangement comprises either a Ring conductor external to the structure or foundation earth electrode forming a closed loop.



Axis electrical components considers the ExLPS requirement along with the other earthing standards and provide a comprehensive design based solution towards the earthing system and components backed up by the necessary calculations.

IEEE 80

IEEE guide for safety in AC substation grounding

This guide is primarily concerned with outdoor ac substation, either conventional or gas-insulated. Distribution, transmission and generating plant substations are included. With proper caution, the methods described herein are also applicable to indoor portions of such substations, or to substations that are wholly indoors.

The specific purposes of this guide is to:

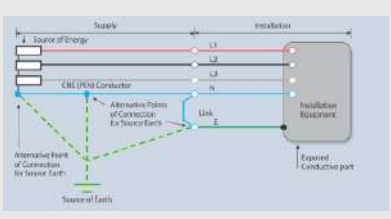
1. Establish, as a basis for design, the safe limits of potential differences that can exist in a substation under fault conditions between points that can be contacted by the human body
2. Review substation grounding practices with special reference to safety, and develop criteria for a safe design.
3. Provide a procedure for the design of practical grounding systems, based on these criteria.
4. Develop analytical methods as an aid in the understanding and solution of typical gradient problems.

In principle, a safe grounding design has the following two objectives:

1. To provide means to carry electric currents into the earth under normal and fault conditions without exceeding any operation and equipment limits or adversely affecting continuity of service.

2. To assume that a person in the vicinity of grounded facilities is not exposed to the dangers of critical electric shock.

IS 3043



This code of practice gives guidance on the methods that may be adopted to earth an electrical system for the purpose of limiting the potential (with respect to the general mass of the earth) of current carrying conductors forming part of the system, that is, system earthing and non-current carrying metal work association with equipment, apparatus and appliance connected to the system (that is, equipment earthing).

This code applies only to land based installations and it does not apply to ships, aircrafts or offshore installations.

It is also recognised that, in practice, a system may be an admixture of type for the purposes of this code, earthing systems are designated as follows:

Continued .....

IS 3043

1. TN-S System (for 240 V single phase domestic/commercial supply) - Systems where there are separate neutral and protective conductors throughout the system. A system where the metallic path between the installation and the source of energy is the sheath and armouring of the supply cable.

2. Indian TN-S System (for 415 V three phase domestic commercial supply) - An independent earth electrode within the consumer's premises is necessary.

3. Indian TN-C System - The neutral and protective functions are combined in a single conductor throughout the system (for example earthed concentric wiring).

4. TN-C-S System - The neutral and protection functions are combined in a single conductor but only in part of the system.

5. T-TN-S System (for 6*6/11 kV three phase bulk supply) - The consumer installation, a TN - S system receiving power at a captive substation through a delta connected transformer primary.

6. TT System (for 415V three-phase industrial supply)- In this type of Earthing System, connection to the supply source is directly connected to earth & load end or installation metalwork is also directly connected to the earth.

7. IT System - The distributor system does not have any connections to earth or it has only a high impedance connection. The basic feature of IT earthing system is that in the event of a fault between phases and earth, the system can continue to operate without interruption

Copper Bonded Earth Rods (Unthreaded)

AXIS Copper Bonded Earth Rods have a core of high tensile low carbon steel with each rod made by molecularly bonding 99.9% Pure Electrolytic Copper. These rods are tested in accordance to UL 467 and IEC 62561-2 Standard.

Ground Rod Data			E-Code
Rod Dia (mm)	Thread Size (Inch)	Total Length (mm)	
12.7	9/16"	2400	CBR1424PUL
12.7	9/16"	3000	CBR1430PUL
12.7	9/16"	3600	CBR1436PUL
14.2	5/8"	2400	CBR1624PUL
14.2	5/8"	3000	CBR1630PUL
14.2	5/8"	3600	CBR1636PUL
16	5/8"	2400	CBR1824PUL
16	5/8"	3000	CBR1830PUL
16	5/8"	3600	CBR1836PUL
17.2	3/4"	2400	CBR2024PUL
17.2	3/4"	3000	CBR2030PUL
17.2	3/4"	3600	CBR2036PUL
19	3/4"	2400	CBR2224PUL
19	3/4"	3000	CBR2230PUL
19	3/4"	3600	CBR2236PUL
25	1"	2400	CBR2524PUL
25	1"	3000	CBR2530PUL
25	1"	3600	CBR2536PUL

Rod To Tape Clamp - Type 'A'

Material : High Grade Copper Alloy
Bolt : Stainless Steel - SS304

Rod Dia mm	Tape Size (W x T) mm	E-Code
9.5 to 12.5	20 x 2	RTC0920A
	25 x 3	RTC0925A
14.2 to 16	25 x 3	RTC1625A
	30 x 3	RTC1630A
	50 x 6	RTC2050A
17.2 to 20	25 x 3	RTC1625A
	30 x 3	RTC1630A
	50 x 6	RTC2050A
20 to 25	30 x 3	RTC2030A
	50 x 6	RTC2050A

NOTE : OTHER SIZES AVAILABLE ON REQUEST

Light Weight Plastic Earth Pit

Size	E-Code
245 x 245	EPP2424

Size	E-Code
300 x 300	EPP3030

Size	E-Code
500 x 500	EPP5050

Earth Enhancing Compound

Standard Pack Size: 25kgs

Other Pack Sizes also available: 5Kgs, 10kgs, 15Kgs and 20kgs

G.I Strip

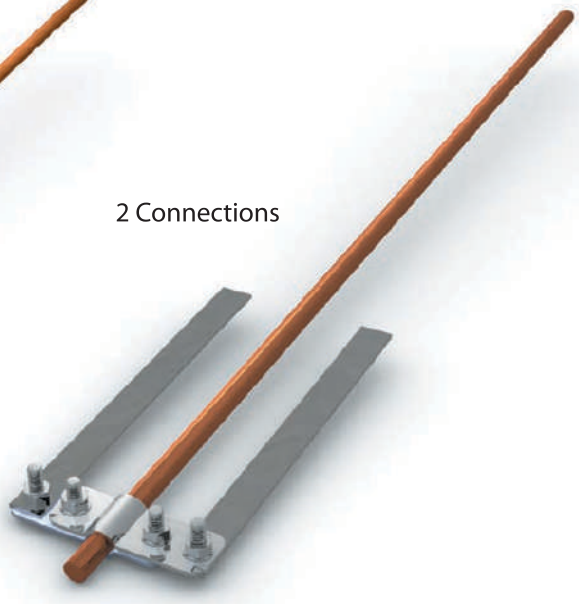
E-CODE	STRIP SIZE
BGT02503	25 x 3
BGT02505	25 x 5
BGT02506	25 x 6
BGT03205	32 x 5
BGT03206	32 x 6
BGT04003	40 x 3
BGT04005	40 x 5
BGT04006	40 x 6
BGT05005	50 x 5
BGT05006	50 x 6

Material : Mild Steel
Finish : Hot Deep Galvanized as per ISO-1461
Standard : IEC 62561-2

Connection Bracket

1 Connection

2 Connections



Size	145mm x 40mm
Material	Stainless Steel
Clamping range	Flat : 40 mm
Type for earth rods	Ø14 - Ø20 mm
Fasteners	Stainless Steel - M10
Standard	EN 62561-1

The products are warranted against manufactured defect for 5 yrs and for the project supply, standard product warranty 18 months from the date of supply and 12 months from the date of installation whichever is earlier shall apply.

The product needs to be stored in safe, dry and secured place and the manufacturers storage instructions to be followed.

Certifications and Test Reports

UL Certification

Appliance Wiring Material

UL Certificate

Certificate of Compliance

SIRIM QAS - Test Report

IEC 62581-2: 2012

SPECTRO - Test Report

Bend & Adherence
(Earth Rods)

SPECTRO - Test Report

Coating Thickness Test
(Earth Rods)

SPECTRO - Test Report

Chemical Composition test
(Earth Enhancing Compound)

CPRI -Test Report

Bend & Adherence
(Earth Rods)

Other Test Reports

SPECTRO Analytical Labs Limited

Earth Rods

- Environment Test
- Mechanical Test
- Resistivity Test

Earth Enhancing Compound

- Resistivity Test
- Resistance Test
- Leaching Test
- Sulpher Determination Test

AXIS ELECTRICAL COMPONENTS (I) P. LTD.

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