Galvanised earth rod (S275 steel with hot-dip galvanised coating)



The KALOT Group galvanised earth rod is a one-piece earth electrode with a solid steel core and a hot-dip galvanised (zinc) coating 50 to 70 microns thick. One end is pointed so it enters the soil easily, and the other is flat for driving with a driving cap. The steel core is stiff and drives well, and the zinc coating protects the steel in the soil. This earth rod has the lowest metal value of all our earth rods and suits earthing networks in which every component is galvanised steel: towers, masts, fences and galvanised steel structures, and temporary site earthing.

- S275 steel core with a 50 to 70 micron hot-dip galvanised coating
- Diameters of 16 and 20; lengths of 1500 and 2000 mm
- One pointed end, one flat end; direct driving or borehole installation with GIM
- The lowest metal value among KALOT earth rods

Technical specifications

Product type	One-piece solid steel earth rod (earth electrode) with a hot-dip galvanised coating
Material	Solid S275 steel core with a zinc coating
Coating	Hot-dip galvanised, 50 to 70 microns thick
Diameter D	16 and 20 mm
Length L	1500 and 2000 mm
Ends	One conical pointed end with a 20 mm tip length, the other end flat; no thread
Weight of a 1500 length	2.38 kg (16 diameter) and 3.71 kg (20 diameter)
Electrode arrangement	One piece; for lower resistance, several parallel earth rods at a spacing of at least their length, connected with a galvanised conductor
Installation method	Direct driving; in rocky or high-resistivity soil, borehole installation with GIM ground improvement material
Driving tools	Sledgehammer or power hammer, with a driving cap on the flat end; we make the cap on request
Conductor connection	Galvanised conductors and clamps only: galvanised U clamp (both diameters) and galvanised tape-to-earth rod clamp (16 diameter)
Design basis	diameter and coating thickness based on the requirements of IEC 60364-5-54 and Part 13 of the Iranian National Building Regulations
Order code	GVER 1615, GVER 1620, GVER 2015 and GVER 2020

Models, order codes and weight

Order code	Diameter D (mm)	Length L (mm)	Tip length P (mm)	Weight (kg)
GVER 1615	16	1500	20	2.38
GVER 1620	16	2000	20	3.18
GVER 2015	20	1500	20	3.71
GVER 2020	20	2000	20	4.95

The galvanised earth rod is one piece: a pointed bottom end with tip length P and a flat top end, with no thread. L is the overall length and D the earth rod diameter. The hot-dip galvanised coating is 50 to 70 microns, and weights are given for a 60 micron coating. We keep improving our products; please confirm final dimensions with our specialists before you buy.

Construction: steel core, zinc coating, pointed end and flat end

This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

Dimensional drawing

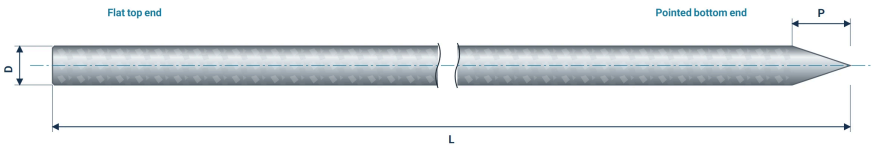
Galvanised earth rod dimensional drawing

One end pointed, the other flat; 16 and 20 diameter, 1500 and 2000 mm long

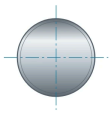
GALVANIZED STEEL EARTH ROD · GVER · HOT-DIP 50–70 µm · Ø16 · Ø20
KALOT GROUP · TECHNICAL ILLUSTRATION · NOT TO SCALE

One-piece earth rod

One end pointed, the other flat, unthreaded



Order code	D (mm)	L (mm)	P (mm)	Weight (kg)
GVER 1615	16	1500	20	2.38
GVER 1620	16	2000	20	3.18
GVER 2015	20	1500	20	3.71
GVER 2020	20	2000	20	4.95



Flat end view

Material: S275 steel, hot-dip galvanised

Coating: hot-dip galvanised, 50 to 70 microns

Diameter: 16 and 20 mm

Length: 1500 and 2000 mm

Point length P: 20 mm

Construction: one piece, unthreaded

Conductor connection: galvanised conductors and clamps only

Dimensions in mm.
We keep improving our products; please confirm final dimensions with our experts.

This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

گروه کالوت
KALOT GROUP
Protect Today For Tomorrow
Since: 1972 تاسیس: ۱۳۵۱
www.kalot.ir · Tel +98 21 2268 8852

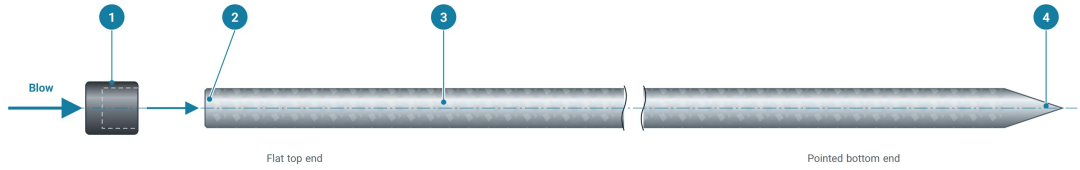
The full print-quality version of this drawing (PDF) can be downloaded from the product page at www.kalot.ir.

Exploded view

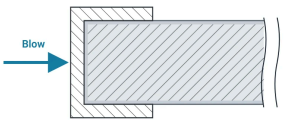
Driving cap and galvanised earth rod

Driving cap on the flat top of the one-piece earth rod

GALVANIZED STEEL EARTH ROD · GVER · HOT-DIP 50–70 µm · Ø16 · Ø20
KALOT GROUP · TECHNICAL ILLUSTRATION · NOT TO SCALE



Cap on the flat top (section)

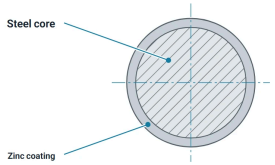


Blows land on the cap, not on the earth rod top

Inside the earth pit, where the conductor is clamped — **Flat top end** 2

Opens the way through the soil — **Pointed end** 4

Zinc coating over the whole surface



On request; protects the flat top during driving — **Driving cap** 1

One piece, unthreaded — **Galvanised steel body** 3

Dimensions in mm.
We keep improving our products; please confirm final dimensions with our experts.

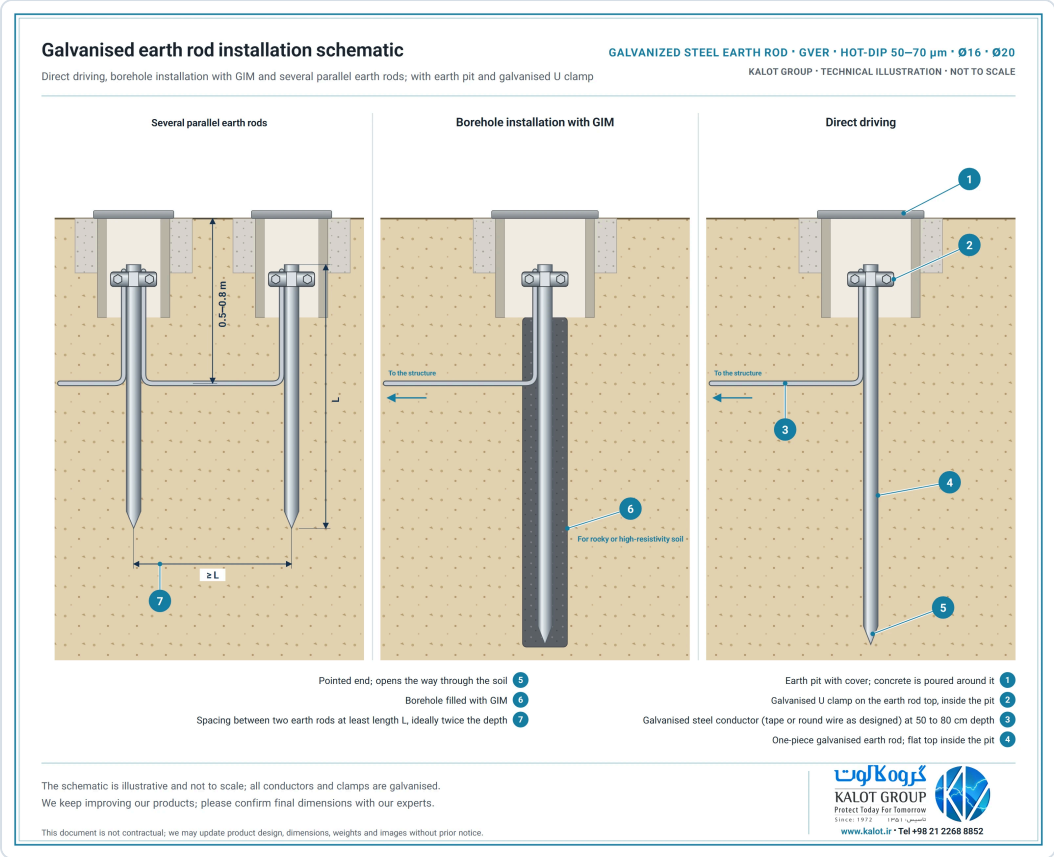
This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

گروه کالوت
KALOT GROUP
Protect Today For Tomorrow
Since: 1972 تاسیس: ۱۳۵۱
www.kalot.ir · Tel +98 21 2268 8852

The full print-quality version of this drawing (PDF) can be downloaded from the product page at www.kalot.ir.

This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

Execution schematic: direct driving, borehole with GIM and several parallel earth rods



The full print-quality version of this drawing (PDF) can be downloaded from the product page at www.kalot.ir.

How to install and drive the galvanised earth rod

۱. Check the soil resistivity and the electrode location; moist soil away from waste, fertiliser and chemicals is best. Mark the routes of underground services and dig the earth pit hole with enough room for concrete around it.

۲. Place the driving cap on the flat end and set the earth rod vertical, pointed end down, using a level or plumb line.

۳. Using a sledgehammer or a power hammer, strike even, light, axial blows until the top of the earth rod is inside the earth pit and at least 20 cm above its floor; if the earth rod tilts, stop and straighten it. In rocky or high-resistivity soil, drill a borehole, set the earth rod in its centre and fill around it with GIM ground improvement material.

۴. Remove the cap. If the zinc coating on the top of the earth rod has been damaged, repair it with zinc-rich paint.

۵. Measure the electrode resistance. If it is above the required value, drive another earth rod at a spacing of at least its length. Topic 13 gives the optimum spacing as at least twice the electrode depth.

۶. Connect the earth rods with bare galvanised steel conductor at a depth of 50 to 80 cm in the soil; IEC 60364-5-54 and Part 13 require, for a buried conductor, tape of at least 90 mm² and 3 mm thick (for example 30×3) or round wire of at least 10 mm, and the design sets the final size.

۷. Inside the earth pit, fix the galvanised conductor to the top of the earth rod with a galvanised U clamp (both diameters) or a galvanised tape-to-earth rod clamp (Ø16), and tighten the nuts to the manufacturer's instructions. Do not use copper or brass conductors or clamps.

۸. Set the earth inspection pit in place and pour concrete around it; the connection inside the pit stays dry and accessible for inspection. Record the measured value, with the date, in the earthing system file.

Measurement and inspection

After installation, measure the electrode resistance by the fall-of-potential method (62 percent) and record the result with the date, season and soil moisture in the earthing system file. During periodic inspections inside the earth pit, check the clamp tightness, the

This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

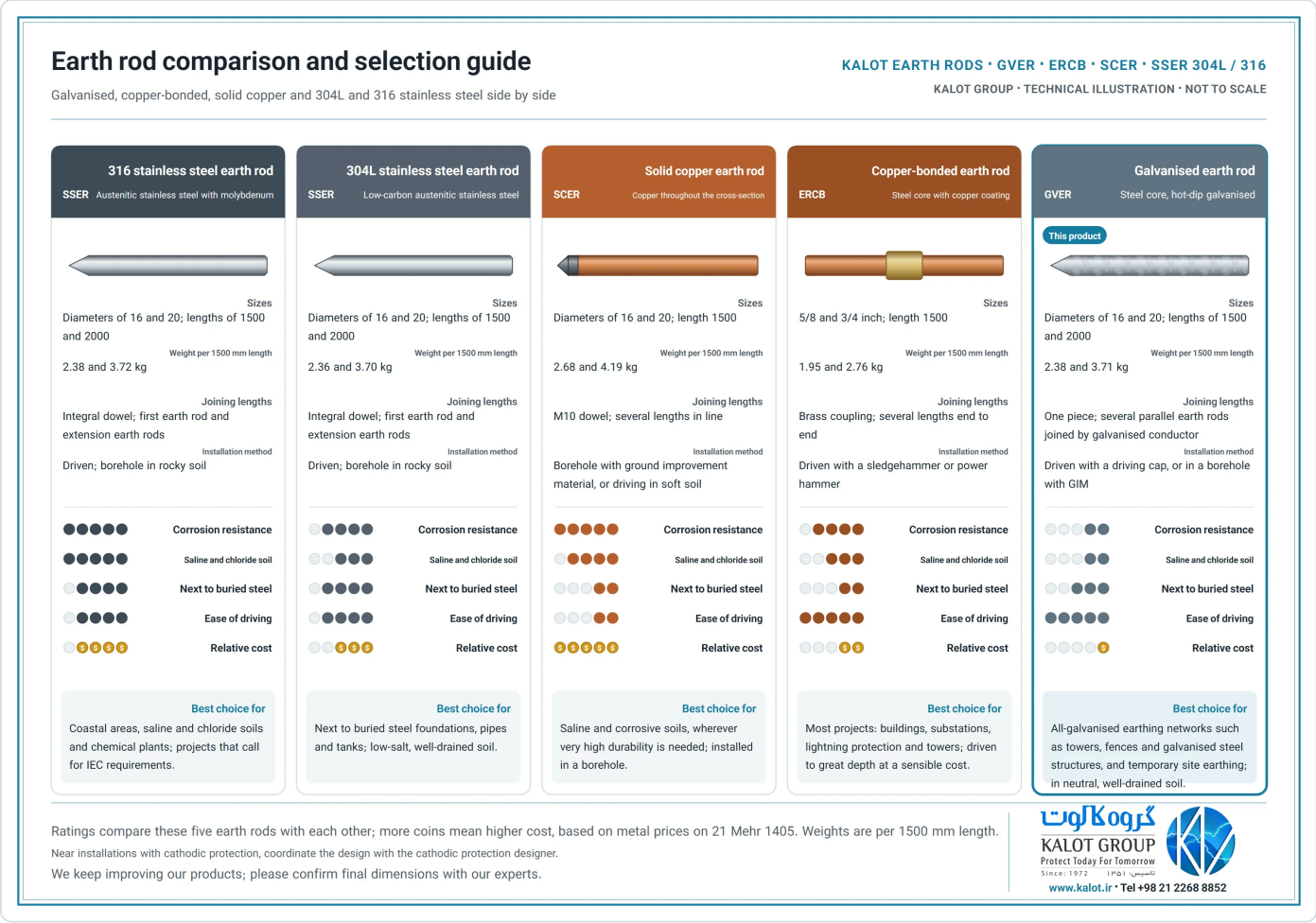
Technical and financial comparison table of KALOT earth rods

Feature	Galvanised	Copper-bonded	Solid copper	Stainless steel 304L	Stainless steel 316
Material	S275 steel core with hot-dip galvanised coating (50 to 70 microns)	Steel core with copper coating (at least 0.25 mm)	Copper throughout the cross-section	Low-carbon austenitic stainless steel (18% chromium, 8% nickel)	Austenitic stainless steel with molybdenum (10% nickel, 2% molybdenum)
KALOT sizes	Diameters of 16 and 20; lengths of 1500 and 2000	5/8 and 3/4 inch; length 1500	Diameters of 16 and 20; length 1500	Diameters of 16 and 20; lengths of 1500 and 2000	Diameters of 16 and 20; lengths of 1500 and 2000
Weight per 1500 length (kg)	2.38 and 3.71	1.95 and 2.76	2.68 and 4.19	2.36 and 3.70	2.38 and 3.72
Joining lengths	One piece, no thread; several parallel earth rods with a galvanised conductor	Brass coupling; several lengths end to end	earth rod dowel M10; several lengths in line	Integral dowel; first earth rod and extension earth rods	Integral dowel; first earth rod and extension earth rods
Installation method	Direct driving with a driving cap, or a borehole with ground improvement material	Driving to great depth	Borehole with ground improvement material, or driving in soft soil	Driving; in rocky soil, a borehole with ground improvement material	Driving; in rocky soil, a borehole with ground improvement material
minimum diameter per IEC 62305-3 (mm)	14	14 (with 0.25 mm coating)	15	15	15
tensile strength per IEC 62561-2:2018 (N/mm²)	350 to 770	350 to 770	200 to 450	350 to 770	350 to 770
maximum electrical resistivity per IEC 62561-2:2018 (μΩ·m)	0.25	0.25	0.018	0.80	0.80
Corrosion resistance	Moderate; the zinc coating is gradually consumed	Good, as long as the coating is intact	Very good	Good	Very good
Saline and chloride soil	Poor to moderate	Medium	Good	Moderate; pitting corrosion is possible	Very good
Acidic and organic soil	Poor	Medium	Medium	Good	Good
Beside buried steel and cathodic protection	Compatible, with faster consumption of the zinc coating; not when connected to foundation reinforcing bars	With caution	With caution	More suitable than copper; in coordination with the designer	More suitable than copper; in coordination with the designer
Ease of driving	Very good	Very good	Limited	Good	Good
Raw metal value per 1500 length (US dollars)	1.2 and 1.8	3.0 and 3.8	39.7 and 62.1	5.2 and 8.1	10.3 and 16.1
Metal value index (copper-bonded = 1)	0.4 to 0.5	1	13 to 16	1.7 to 2.1	3.4 to 4.2
Cost rank (1 = lowest)	1	2	5	3	4
Recommended use	All-galvanised earthing networks: towers, fences and galvanised steel structures; temporary site earthing; neutral, well-drained soil	Most projects: buildings, substations, lightning protection and towers	Saline and corrosive soils; high fault current	Beside foundations and steel pipes and tanks; low-salt, well-drained soil	Coastal areas, chloride soil, chemical industries; projects that call for IEC requirements

This table was prepared on 21 Mehr 1405. The metal value is calculated from the official London Metal Exchange (LME) prices for copper, nickel and zinc and global market reference prices for steel, chromium and molybdenum on the same days, and from the weight of each length; it changes as metal prices change. The selling price also includes manufacturing cost. Weights are for the smaller and larger size of each type. Earth resistance is set by the soil and the electrode length, not by its material; choose the material based on the soil, the surrounding metal structures and the installation method. To learn more, see Choosing the right material for an earth electrode and Calculating earth termination resistance.

This document is not contractual; we may update product design, dimensions, weights and images without prior notice.

Comparison and selection guide



The full print-quality version of this drawing (PDF) can be downloaded from the product page at www.kalot.ir.

Selection and enquiries

To ask for a price on the galvanised earth rod, send our specialists the order code or the diameter (16 or 20 mm), length (1500 or 2000 mm), quantity and the accessories you need (driving cap, galvanised U clamp, galvanised round wire, GIM ground improvement material and earth inspection pit). If you also tell us the soil type and the surrounding metal structures, our specialists at KALOT Group will help you choose the right material and size of earth rod.