Galvanised steel round wire for foundation earthing and lightning protection



KALOT Group galvanised earth wire, also called round wire on the market, is a 10 mm solid round steel conductor with a hot-dip galvanised coating. We use it mostly for foundation earthing: before the concrete is poured, the wire is laid as a closed ring on the foundation reinforcement and clamped to the bars, so that together with the continuous foundation reinforcement it forms the building's earth electrode and reaches the main earthing terminal. The same wire serves as down conductor and roof mesh conductor in lightning protection systems, and is also used for earth rings and for bonding structures and metal parts.

- Round steel conductor, 10 mm, 78 mm², with a 70 micron hot-dip galvanised coating
- Foundation electrode and reinforcement bonding, installed before the concrete pour
- Down conductor and roof mesh of the lightning protection system
- Same material as KALOT galvanised clamps and earth rods; supplied in coils

Technical specifications

Product type	Solid round steel conductor with galvanised coating (round wire)
Material	Steel with hot-dip galvanised coating
Coating thickness	70 microns
Diameter D	10 mm; 12 mm on request
Cross-section	78 mm² (diameter 10) and 113 mm² (diameter 12)
Weight per metre	0.63 kg (diameter 10) and 0.91 kg (diameter 12)
Supply form	Coils of about 37 kg; nearly 58 m of 10 mm wire
Order code	RWG 010; RWG 012 On request
Matching clamps	Wire-to-reinforcing bar clamp, cross clamp, U clamp, foundation earthing and bonding clamp, tape-to-wire clamp and galvanised one-hole clip
Main application	Foundation earthing; earth ring; down conductor and roof mesh; bonding
Design basis	10 mm diameter based on the requirements of IEC 60364-5-54, IEC 62305-3:2010 and Part 13 of the Iranian National Building Regulations

Galvanised wire codes, dimensions and weight

Order code	Diameter D (mm)	Cross-section (mm²)	Weight per metre (kg)	Supply
RWG 010	10	78	0.63	Always available
RWG 012	12	113	0.91	On request

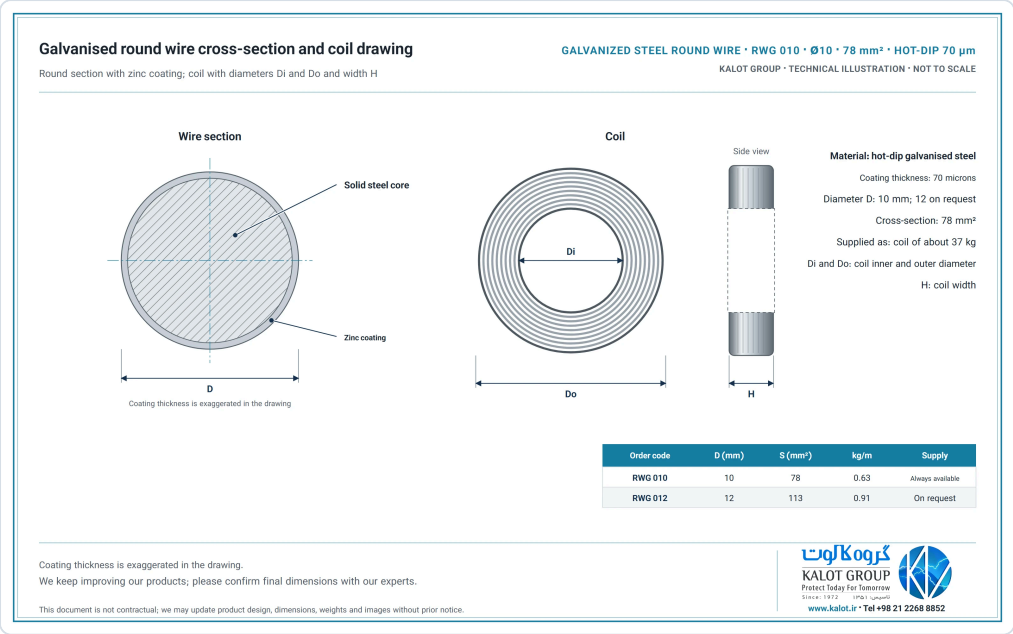
Galvanised wire is supplied in coils of about 37 kg, and D is the diameter of its steel core. The weight per metre is calculated for steel wire with a 70 micron hot-dip galvanised coating. Our products are continually improved; please confirm final specifications with our specialists before purchase.

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

Galvanised wire: construction and supply form

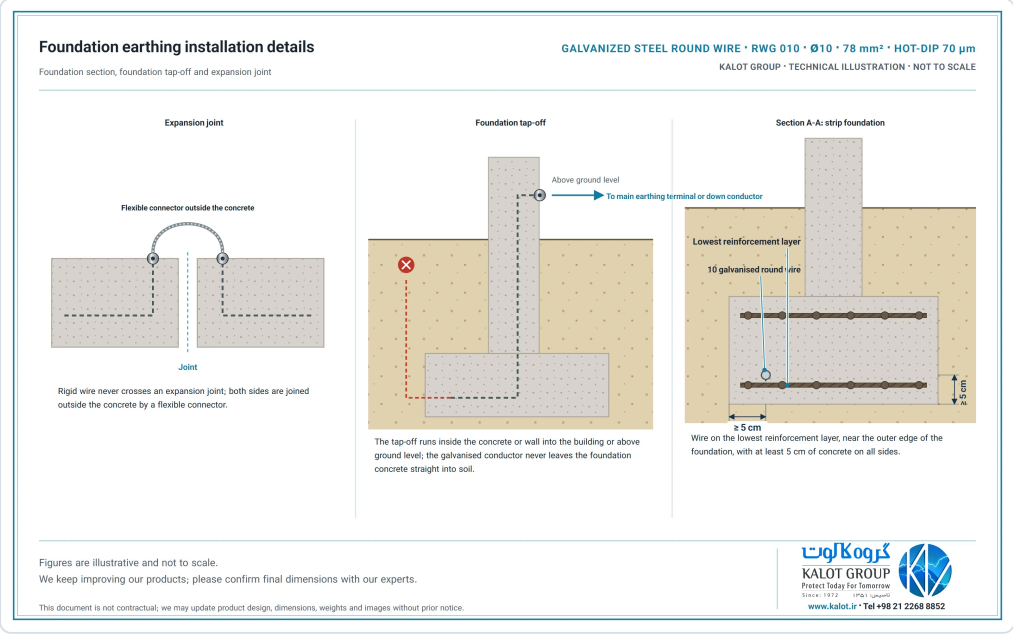
KALOT galvanised wire is a solid round conductor: a 10 mm steel core with a 78 mm² cross-section and a 70 micron hot-dip galvanised coating that protects the steel against corrosion. The wire is supplied in coils of about 37 kg (close to 58 m) and is uncoiled, straightened and cut to length on site; touch up cut ends with zinc-rich paint. The round section needs no particular orientation in concrete and sits in the saddle of our galvanised clamps. We also supply 12 mm diameter on request.

Section and coil drawing



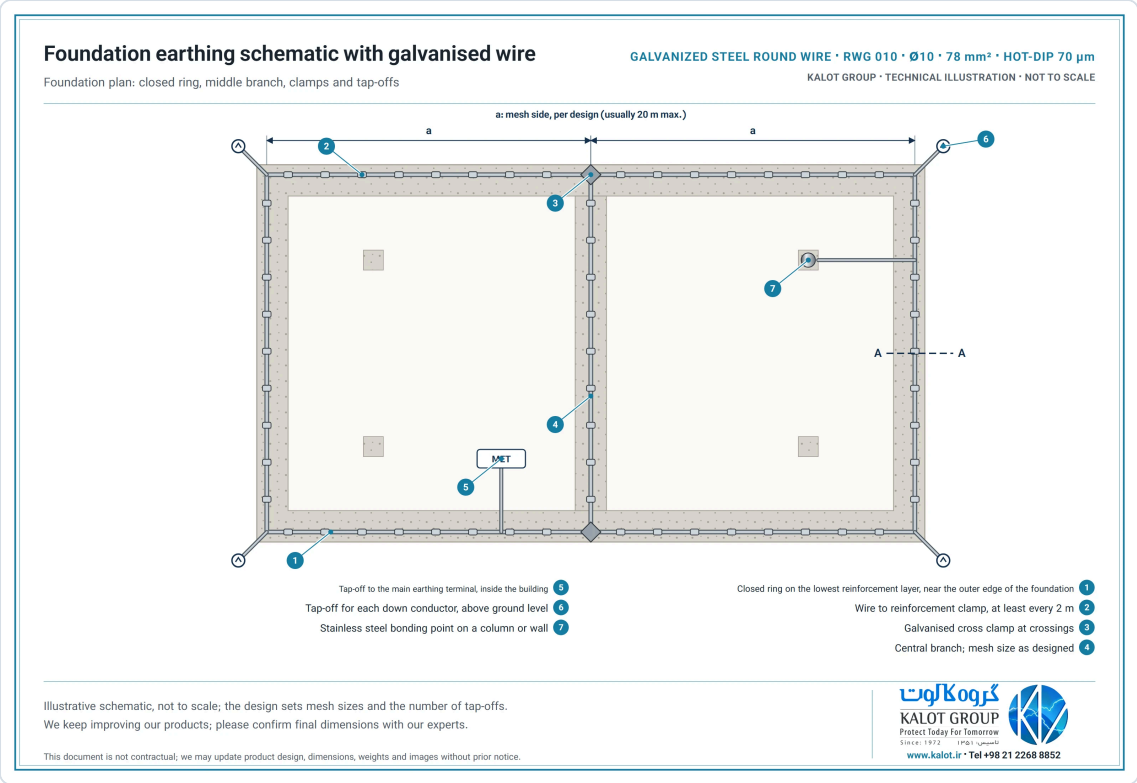
The full print-quality version of this drawing (PDF) can be downloaded from the product page at www.kalot.ir.

Foundation earthing installation details



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Foundation earthing schematic

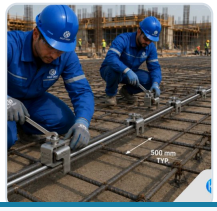


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Uses of galvanised wire in earthing and lightning protection

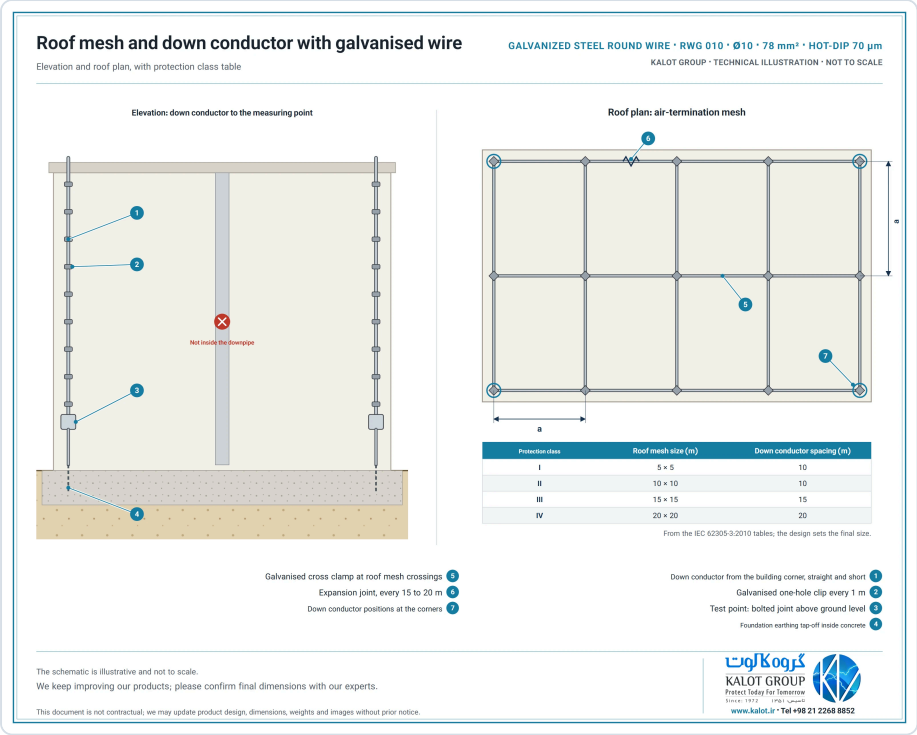
- Foundation earthing: a closed ring on the foundation reinforcement, clamped to the bars at least every 2 m; the wire and the continuous foundation reinforcement together form the building's earth electrode. In large foundations, intermediate runs divide the ring into meshes whose size is set by the design. For details, see Foundation earthing systems.
- Foundation outlets and earthing conductor: carrying the foundation electrode to the main earthing terminal, to the connection point of each down conductor and to the technical rooms; inside concrete or walls up into the building or above ground level, and to a stainless steel bonding point in a wall or column.
- Earth ring in soil: a closed ring 50 to 80 cm deep around towers and structures without a foundation electrode, together with galvanised earth rods.
- Down conductor: on the wall or inside walls and concrete columns, straight and short from the roof mesh to the earth connection point; never inside a gutter or rainwater pipe.
- Air termination conductor and roof mesh: a conductor mesh on the roof edges, corners and ridge, with mesh sizes set by the protection class; for an overview of the system components, see The lightning protection system and its components.
- Bonding: connecting structures and metal parts, such as steel frames and antenna masts, to the bonding bar and the earthing system; see Bonding and equipotential bonding.
- All-galvanised earthing systems: connecting the galvanised earth rod inside the earth pit, and the riser conductor up to towers, galvanised steel structures and solar panel mounting structures.



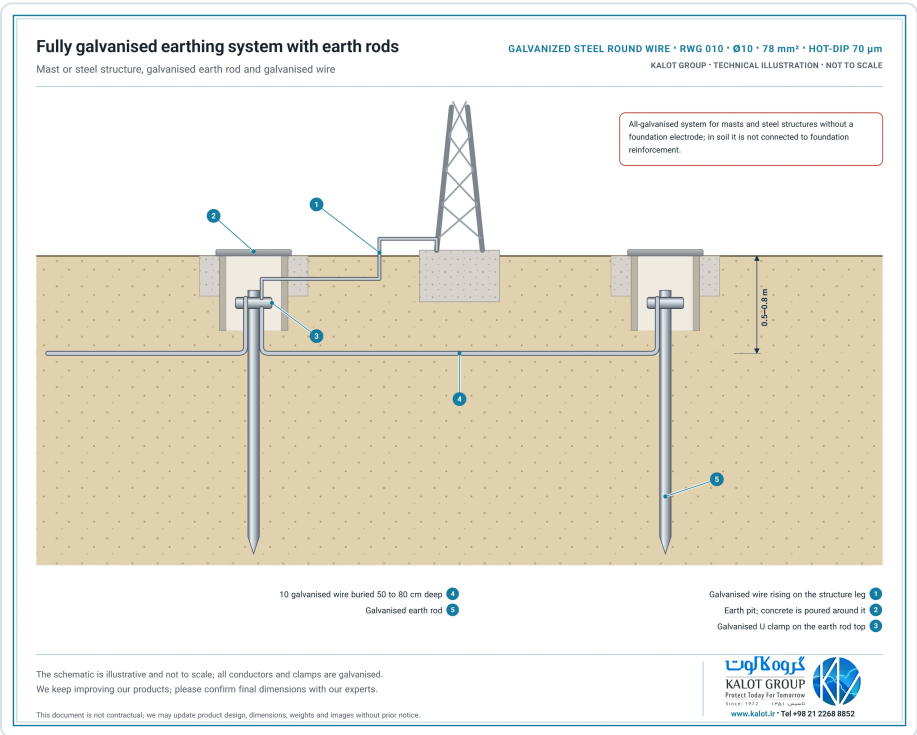


Roof mesh and down conductor schematic



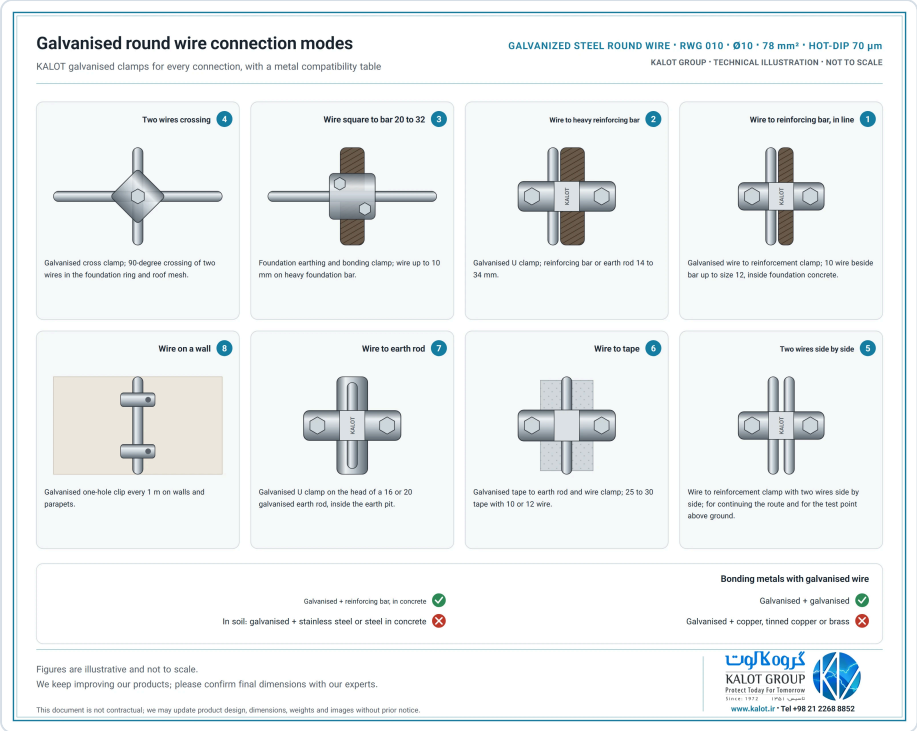
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Galvanised earthing system schematic



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Connection modes



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Galvanised wire installation steps

۱. Take the route of the ring, the intermediate branches and the tail positions from the earthing drawing: a tail for the main earthing terminal, for the connection point of each down conductor and for technical rooms.

۲. Uncoil and straighten the wire, then run it as a closed ring on the lowest reinforcement layer, along the outer edge of the foundation. In large foundations, divide the ring with intermediate branches into meshes whose size is set by the design.

۳. Clamp the wire to the reinforcing bar at least every 2 m: bars up to size 12 with the clamp for connecting galvanised round wire to reinforcing bar, and larger bars with a galvanised U clamp or the foundation earthing and bonding clamp. Tighten the nuts to the manufacturer's instructions.

۴. Fix wire crossings and extensions with a galvanised cross clamp, or with the wire-to-reinforcement clamp holding two wires side by side. Twisting tie wire alone is not a protective connection; welding only with the structural designer's approval and with the zinc coating restored.

۵. Allow at least 5 cm of concrete around the wire everywhere. Do not take the wire rigidly across a foundation expansion joint; connect the two sides of the joint outside the concrete with a flexible link.

۶. Bring the outlets up inside concrete or walls into the building or above ground level; galvanised wire must not pass straight from concrete into soil. For a fixed connection point on a wall or column, fit a stainless steel bonding point. Leave the outlet ends long and marked so they are not cut during the works.

۷. Before the concrete pour, measure the electrical continuity of the ring and tails, and record the route, clamps and tails with drawings and photos.

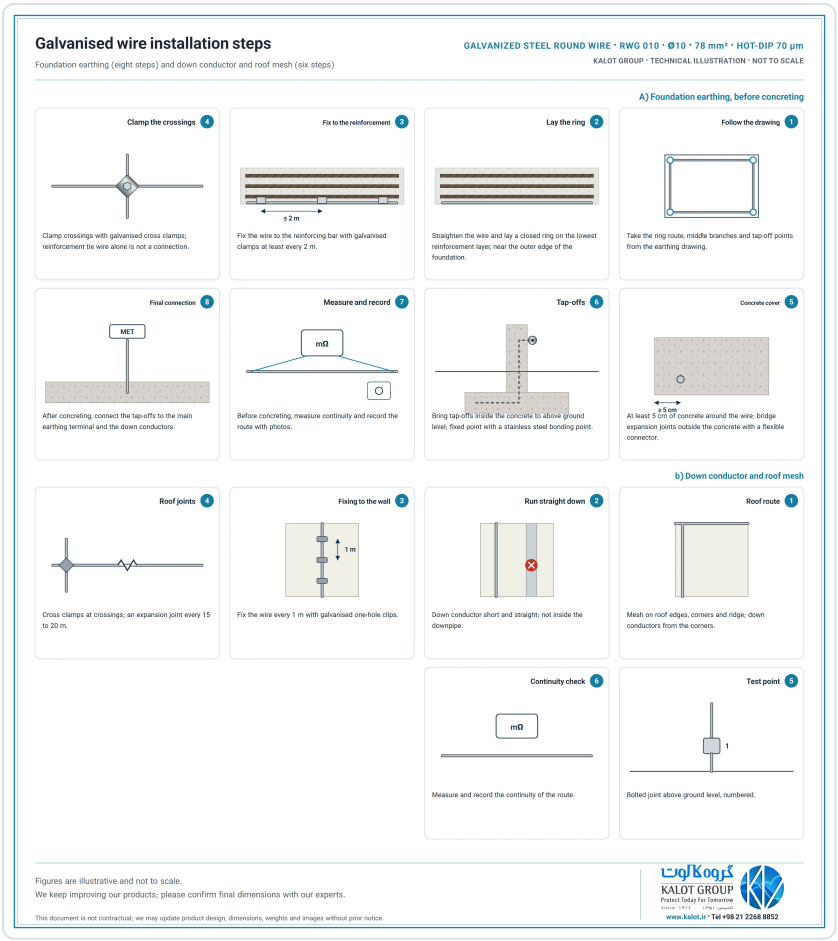
۸. After the pour, connect the tails to the main earthing terminal and to the down conductor connection points, measure the earth resistance and record the result with the date.

۹. Roof mesh and down conductors: take the roof mesh route along the roof edges, corners and ridge, and the down conductors from the building corners, spaced as the protection class requires, from the drawings.

۱۰. Straighten the wire and bring the down conductor down straight, by the shortest route and without loops; do not place it inside a gutter or rainwater pipe.

۱۱. Fix the wire to walls and parapets every 1 m with galvanised one-hole clips.

Steps



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Choosing the conductor by its role in the design

Conductor role	Installation location	Minimum hot-dip galvanised steel size in the standards	Our recommendation
Air termination conductor and roof mesh	On the roof	Round wire, 50 mm² (8 mm diameter)	Galvanised round wire RWG 010
Down conductor	On the wall, or inside the wall and column	Round wire, 50 mm² (8 mm diameter)	RWG 010
Bonding conductor and earthing conductor	In concrete and in air	Steel, 50 mm²	RWG 010
Foundation electrode (ring in concrete, with or without reinforcement, and its tails)	In concrete	Round wire of 10 mm diameter, or 75 mm² tape, 3 mm thick	RWG 010
Buried conductor and earth ring in soil	Soil, 50 to 80 cm deep	Round wire of 10 mm diameter, or 90 mm² tape, 3 mm thick	RWG 010, around structures without a foundation electrode

Sizes from IEC 62305-3:2010, IEC 60364-5-54 and Part 13 of the National Building Regulations; the design sets the final size of each conductor. For conductor and electrode materials, see Earth electrode materials.

Choosing galvanised wire and requesting a price

For a galvanised wire quotation, send our specialists the diameter (10 mm, code RWG 010; or 12 mm on request), the length or number of coils (each coil about 37 kg), the application (foundation earthing, earth ring, down conductor, roof mesh or an earthing system with galvanised earth rods) and the clamps you need. If you also send the project's foundation earthing drawing or lightning protection design, our specialists at KALOT Group will send you a list of wire, clamps and accessories with prices.