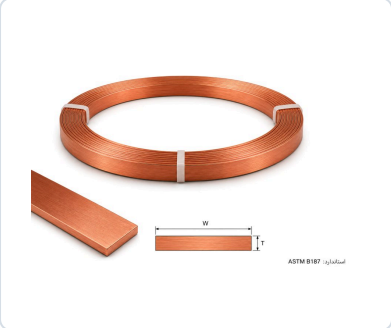
Copper tape (bare copper earth tape) for earthing and lightning protection



KALOT Group copper tape is a bare, flat copper conductor. In lightning protection it serves as a down conductor and roof network; in earthing, as an earth ring and earth grid, an earthing conductor and a bonding conductor. We supply it in ten sizes, from 20 × 3 to 60 × 5 mm, in rolls. Copper tape sits flat on walls and parapets, offers more contact area with the soil than a round conductor of the same cross-section, and forms one integrated system with KALOT brass clamps and exothermic welding.

- Flat bare copper conductor, ten sizes from 20 × 3 to 60 × 5
- Down conductors and roof meshes, earth rings and grids, bonding
- KALOT brass clamps and exothermic welding for the joints
- Supplied in rolls, to the length you order

Technical specifications

Product type	Flat bare copper conductor (copper tape) for earthing, lightning protection and bonding
Material	Copper, bare
Dimensions (width × thickness)	From 20 × 3 to 60 × 5 mm, in ten sizes
Cross-section	From 60 to 300 mm²
Weight per metre	From 0.53 kg (20 × 3 and 30 × 2) to 2.67 kg (60 × 5); 25 × 3: 0.67 kg
Reference standard	ASTM B187
Supply form	Roll, to the length you order
Order code	BCT 203–605
Connections	KALOT brass clamps and exothermic welding; nuts and bolts on bars
Compatibility	With copper, tinned copper and brass; no galvanised parts in soil
Main application	Down conductors and roof meshes, earth rings and grids, earthing conductors up to the pit bar, bonding

We give tape dimensions as 'width × thickness'; in the market the same size is also called 'thickness by width', so 25 × 3 tape, for example, is known as '3 by 25 tape'. The weight per metre is the cross-section multiplied by the density of copper. We supply copper tape in rolls, cut to the length ordered. Our products are continuously improved; please confirm the final specifications with our experts before purchase.

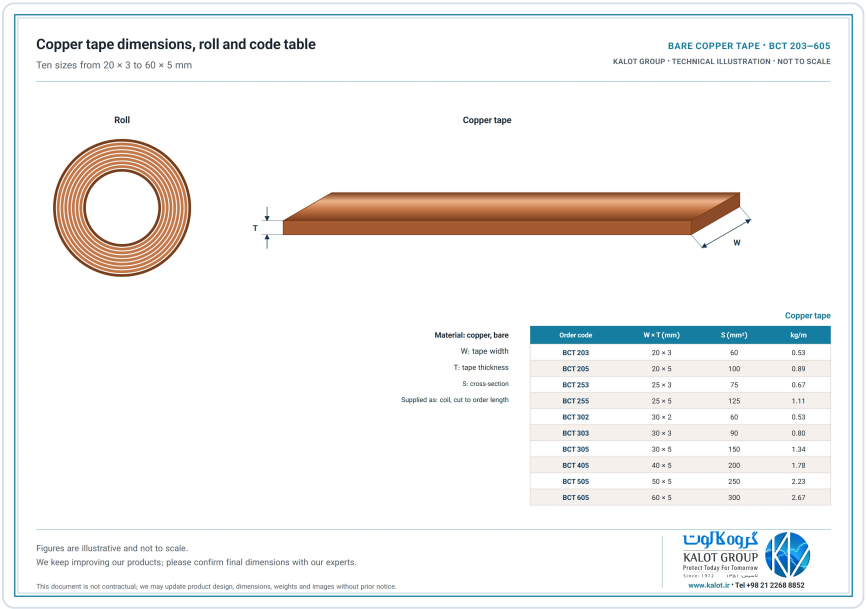
Copper tape table: code, dimensions and weight per metre

Order code	Width × thickness (mm)	Cross-section (mm²)	Weight per metre (kg)
BCT 203	20 × 3	60	0.53
BCT 205	20 × 5	100	0.89
BCT 253	25 × 3	75	0.67
BCT 255	25 × 5	125	1.11
BCT 302	30 × 2	60	0.53
BCT 303	30 × 3	90	0.80
BCT 305	30 × 5	150	1.34
BCT 405	40 × 5	200	1.78
BCT 505	50 × 5	250	2.23
BCT 605	60 × 5	300	2.67

Structure and supply form of copper tape

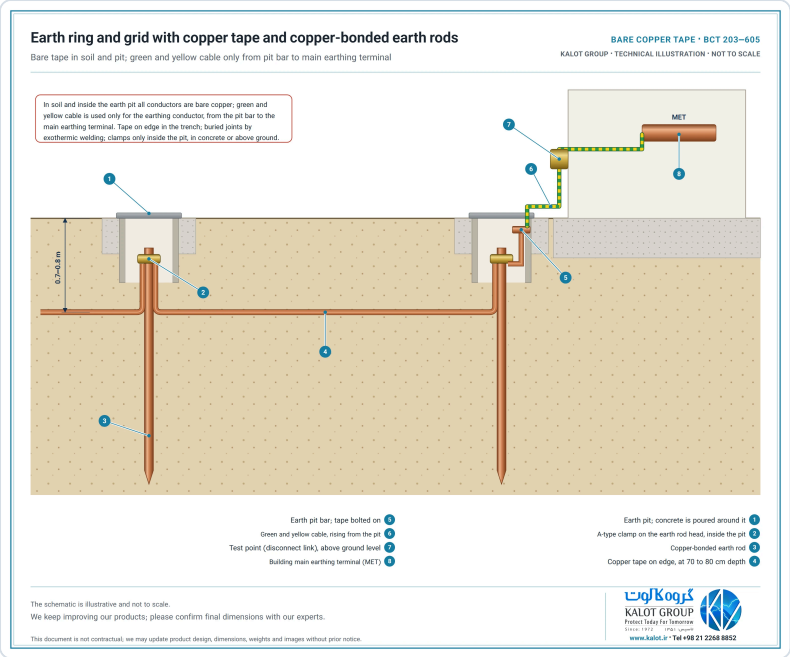
Copper tape is a flat, solid copper conductor: its cross-section is a rectangle of width W and thickness T, and it comes in ten sizes, from 20 × 3 to 60 × 5 mm. We supply the tape in rolls, cut to the length ordered, so long runs can be installed without joints. For rigid connections and busbars, copper busbar is used; where copper meets galvanised steel or aluminium in air, tinned copper tape; and for bonding panel doors and moving parts, flexible bonding tape.

Dimensions, rolls and code table



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

Earth ring and earth grid schematic



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Applications of copper tape in earthing and lightning protection

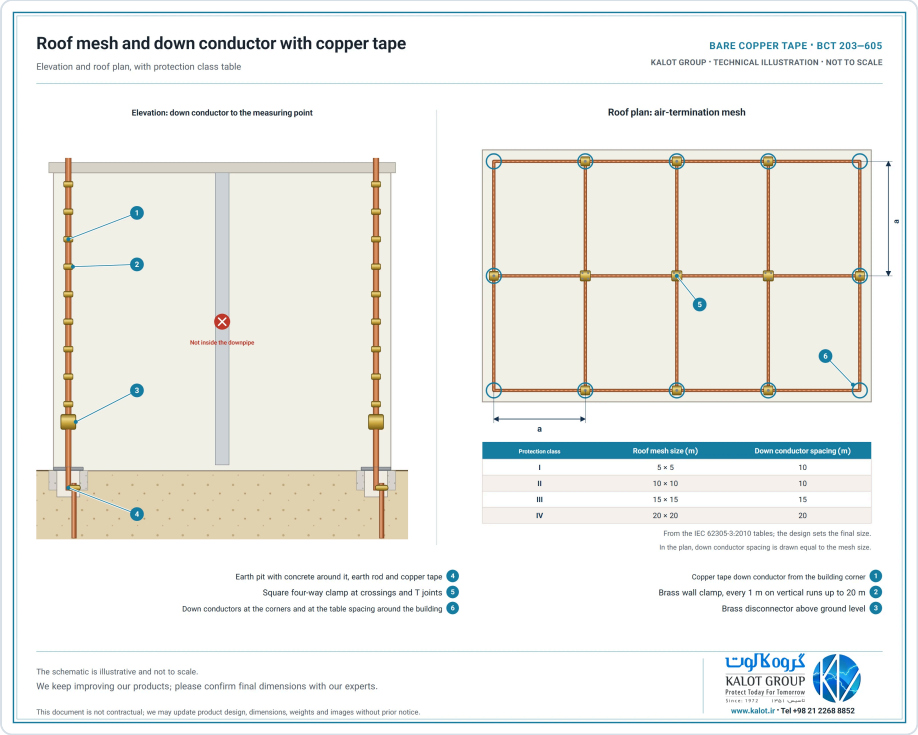
- Down conductor: on walls and columns, with a two-piece brass wall clamp or a stand-off base BPH 76; with a brass disconnector SKADL 100 (for 25 × 3 tape) or a two-way conductor-to-tape clamp (for 30 × 3 tape) above ground level for measurement. For an introduction to the components, see Lightning protection system and its components.
- Roof network: the air termination conductor network on the roof and parapet, with square four-way clamps at crossings and brass couplings to connect to the air rods.
- Earth ring and horizontal electrode: tape laid on edge in a trench 70 to 80 cm deep, 1 m from the outer walls; buried crossings and branches made by exothermic welding.
- Earth rod connection: inside the inspection pit, with an A-type clamp on the head of a copper-bonded earth rod or copper earth rod, or with a U clamp for vertical tape (25 mm tape); concrete is poured around the pit.
- Foundation earthing: copper tape can be laid on edge inside the foundation concrete, with at least 5 cm of concrete cover, and connected to the reinforcement; see Earthing system based on foundation earthing.
- Bonding: connect steel structures and plates with the tape-to-metal plate bonding clamp (25 × 3 tape), pipes with the one-piece and two-piece tape-to-pipe bonding clamps (tape up to 26 mm wide), and busbars with nuts and bolts. Make connections to steel and galvanised structures or pipes only in air and above ground level, use tinned tape or brass clamps, cover the joint with an anti-corrosion coating, and do not run copper tape above galvanised parts; see Bonding and equipotential bonding.
- Inspection pit bar and earth bar: bolt the tape onto the inspection pit bar or the earth bar, each conductor on its own hole. The bolt diameter should not exceed one third of the tape width (BS 7430): an M8 bolt for 25 mm tape and an M10 bolt for 30 mm tape, with a wide flat washer on the bar. From the inspection pit bar upwards, green and yellow earth cable is used.





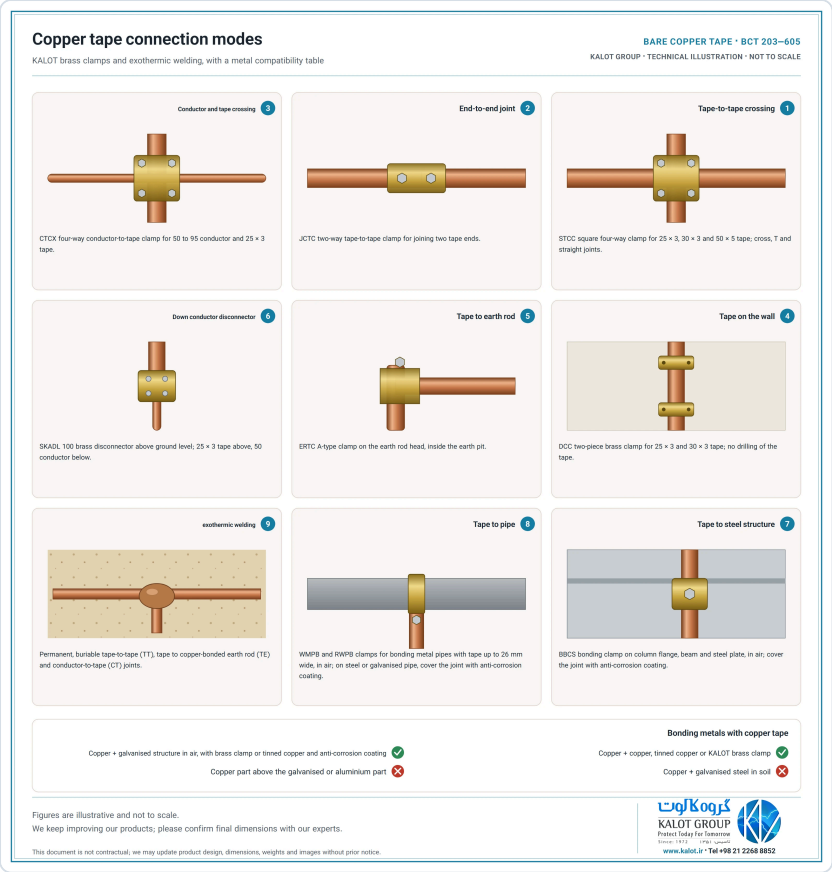
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Roof mesh and down conductor schematic



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Connection modes



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Copper tape installation steps

۱. Take the earth ring route, the positions of the earth rods and pits, and the routes of the down conductors and roof mesh from the drawing, and choose the tape size according to its role and the fault current.

۲. Dig the trench 70 to 80 cm deep; in cold regions, lay the tape below the frost depth. IEC 62305-3 requires the earth ring at least 0.5 m below ground and 1 m from the outer walls; Topic 13 requires the horizontal electrode at a depth of 0.5 to 0.8 m, and the earthing system installation guideline at least 0.7 m.

۳. Unroll the tape without twisting or folding it and lay it on edge in the trench. Make bends smooth, using a tape bender, and do not hammer the tape.

۴. Drive the earth rods at each inspection pit location: copper-bonded earth rods or copper earth rods.

۵. Inside the inspection pit, fix the tape to the head of the earth rod with an A-type clamp and bolt it to the inspection pit bar (an M8 bolt for 25 mm tape and an M10 bolt for 30 mm tape, with a wide flat washer); pour concrete around the inspection pit. Tighten the nuts as set out in that clamp's installation instructions.

۶. Make crossings and branches that will be buried in soil by exothermic welding; do not bury clamps in soil.

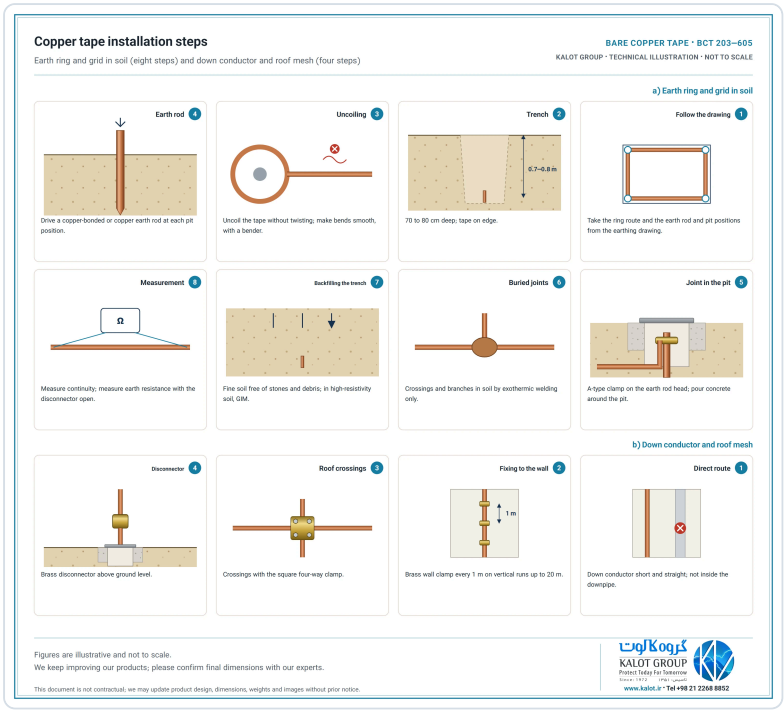
۷. Backfill the trench with soft, moist soil free of stones and debris, and compact it; in high-resistivity soil, surround the tape with GIM ground improvement material.

۸. From the inspection pit bar up to the main earth bar, use green and yellow earth cable.

۹. Down conductor and roof network: run the down conductor straight down by the shortest route, and do not place it inside a gutter or rainwater pipe. IEC 62305-3 recommends fixing the tape every 1 m on vertical runs up to 20 m high, on horizontal roof surfaces and on parapets, and every 0.5 m on horizontal runs across vertical wall faces and on vertical runs above 20 m; fix the tape with brass wall clamps, and do not drill the tape to mount it on the wall.

۱۰. Join roof network crossings with square four-way clamps and in-line joints with two-way tape-to-tape clamps; on each

Steps



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Choosing the copper tape size according to its role in the design

Tape role	Installation location	Minimum size in the standards	Our recommendation
Down conductors and roof grids	On the building	50 mm²; recommended thickness 2 mm	BCT 253; or BCT 303
Earth ring and horizontal electrode	Soil, 70 to 80 cm deep	50 mm², 2 mm thick; BS 7430: 3 mm thick	BCT 253, BCT 303 or larger (3 mm thick or more)
Earthing conductor up to the pit bar	Soil and earth pit	Electrode size	Same size as the earth ring tape
Substation and power plant earth grids	Soil	Based on the fault current	BCT 305 to BCT 605
Bonding bars and structures to the earthing system	Inside and on the building (not in soil)	16 mm² copper (lightning bonding, IEC 62305-3)	BCT 203 and larger
Foundation earthing	Inside foundation concrete	50 mm², 2 mm thick	BCT 253 or BCT 303

Sizes from IEC 62561-2:2018, IEC 62305-3:2010, IEC 60364-5-54:2011, Topic 13 of the National Building Regulations, the guideline for installing earthing systems in buildings and BS 7430:2011 ; the final size is set by the design and the fault current calculation. For conductor and electrode materials, see Earth electrode materials.

Choosing copper tape and requesting a price

To request a copper tape price, send our specialists the size (width × thickness), length, application (down conductor, roof mesh, earth ring or bonding) and the clamps and accessories you need (wall clamp, four-way clamp, disconnector, earth rod clamp, structure and pipe clamp, exothermic welding mould, earth pit and green and yellow earth cable). If you also send the project's earthing drawing or lightning protection design, our specialists at KALOT Group will give you the list of tape and accessories with the current price.