Stainless steel earth tape (stainless steel tape) for earthing and lightning protection



KALOT Group's stainless steel earth tape is a flat stainless steel conductor for down conductors and roof networks, and for foundation earthing, concrete-to-soil transitions and earth rings. We supply this tape in two sizes: 25 × 2 in 304L for air, and 35 × 3 in 316L with at least 2% molybdenum for soil and corrosive locations. Stainless steel tape has no coating that can be damaged, and it can also be used in air next to aluminium, zinc and galvanised parts.

- 25 × 2 in 304L for down conductors and roof networks
- 35 × 3 in 316L for foundation earthing, soil and corrosive locations
- Uncoated: nothing to wear away
- Supplied in coils

Technical specifications

Product type	Austenitic stainless steel flat conductor (stainless steel tape) for lightning protection and earthing
Material and grade	Stainless steel; 25 × 2 in 304L and 35 × 3 in 316L with at least 2% molybdenum
Dimensions (width × thickness)	25 × 2 and 35 × 3 mm
Cross-section	50 and 105 mm²
Weight per metre	0.395 kg (25 × 2) and 0.829 kg (35 × 3)
Reference standard	ASTM A240
Supply form	Roll
Order code	SST 252 and SST 353
Connections	KALOT stainless steel and brass clamps in air; buried connections welded and covered
Main application	25 × 2 (304L): down conductors and roof networks; 35 × 3 (316L): foundation earthing, concrete-to-soil transitions, earth rings and corrosive locations

Stainless steel earth tape table: code, dimensions, grade and weight per metre

Order code	Width × thickness (mm)	Cross-section (mm²)	Weight per metre (kg)	Grade
SST 252	25 × 2	50	0.395	304L
SST 353	35 × 3	105	0.829	316L

We give tape dimensions as “width × thickness”; in the market the same size is also stated as “thickness by width”, for example 25 × 2 tape as “2 by 25 tape”. We supply stainless steel tape in coils. Our products are continually improved; please confirm the final specifications with our experts before you buy.

Structure of stainless steel tape: 304L and 316L

Stainless steel tape is a solid flat conductor of austenitic (chromium-nickel) stainless steel with no coating, so there is nothing on it to wear away over time or when it is cut or drilled. 304L is for air, and 316L, with at least 2% molybdenum, is for soil, concrete and corrosive locations. The L stands for low carbon; this steel stays resistant to intergranular corrosion even at welds. We supply the tape in coils.

Dimensions, rolls and code table

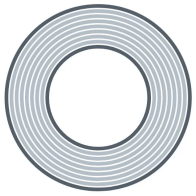
Dimensions, coil and code table of stainless steel tape

25 × 2 in 304L and 35 × 3 in 316L

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Roll



Stainless steel strap



Material: austenitic stainless steel

304L: for air; down conductors and roof network

316L: for soil and concrete; at least 2% molybdenum

W: tape width

T: tape thickness

Supplied in: coils

Stainless steel strap

Order code	W × T (mm)	S (mm²)	kg/m	Grade
SST 252	25 × 2	50	0.395	304L
SST 353	35 × 3	105	0.829	316L

Figures are illustrative and not to scale.

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

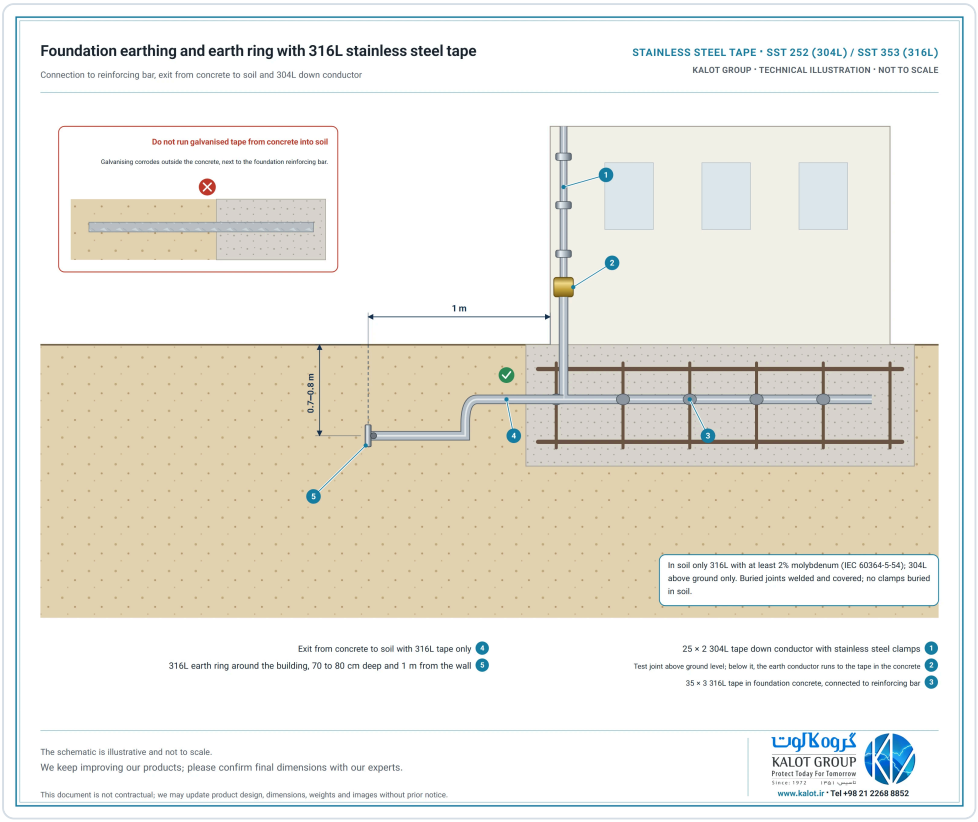
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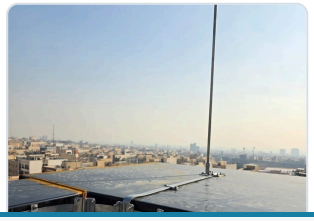
Schematic of foundation earthing and an earth ring with 316L tape



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Applications of stainless steel tape in earthing and lightning protection

- Down conductors: 25 × 2 tape in 304L on walls and columns, with two-piece stainless steel clamps or STS one-piece stainless steel clamps, and a brass test joint above ground level. To learn about the components, see Lightning protection systems and their components.
- Roof networks: on parapets and roofs, with brass square four-way clamps at crossings and two-way tape-to-tape clamps at in-line joints.
- Next to aluminium, zinc and galvanised parts: on roofs and metal facades and next to gutters, railings and aluminium and galvanised sheet, where copper is not used. Make connections to aluminium or galvanised parts only in air, for example with the BBCS tape-to-metal plate bonding clamp, and apply an anti-corrosion coating over the joint.
- Foundation earthing and concrete-to-soil transitions: 35 × 3 tape in 316L is connected directly to the reinforcement inside the foundation concrete and runs from the concrete into the soil; for foundation earthing, see Earthing systems based on foundation earthing.
- Earth rings and corrosive soil: an earth ring around the building with 35 × 3 tape in 316L, especially next to reinforced concrete foundations and in coastal areas. In saline soil, chlorides also increase the corrosion of stainless steel; there, use only 316L and make the joints welded and covered. With grade 316 stainless steel earth rods, this tape forms a single-material system.
- Masts and air rod tubes: fix the tape to masts and tubes with stainless steel hose clamps.



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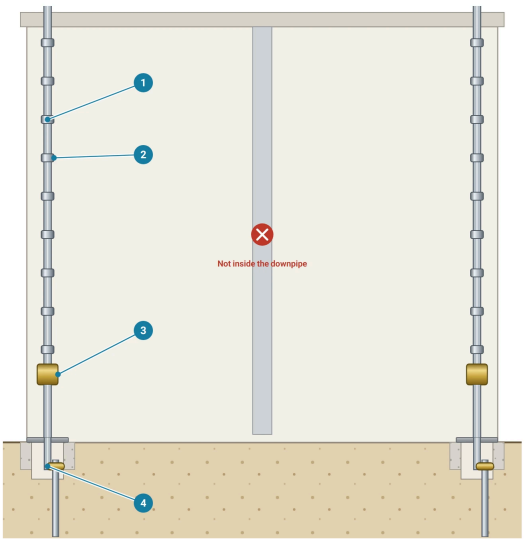
Roof mesh and down conductor schematic

Roof network and down conductor with stainless steel tape

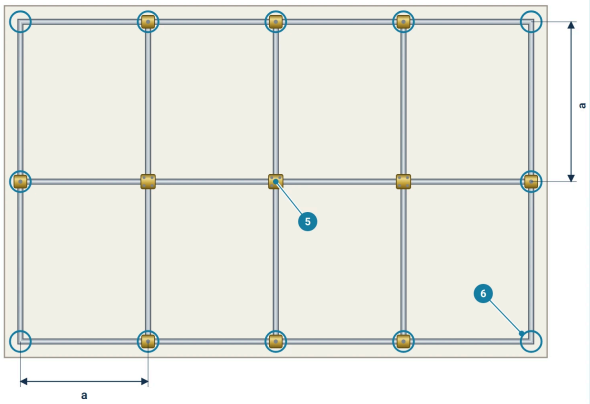
Elevation and roof plan, with protection class table

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Elevation: down conductor to the measuring point



Roof plan: air-termination mesh



Protection class	Roof mesh size (m)	Down conductor spacing (m)
I	5 × 5	10
II	10 × 10	10
III	15 × 15	15
IV	20 × 20	20

From the IEC 62305-3:2010 tables; the design sets the final size.
In the plan, down conductor spacing is drawn equal to the mesh size.

1. 25 × 2 stainless steel tape down conductor from the building corner
2. Stainless steel wall clamp every 1 m on vertical runs up to 20 m
3. Brass disconnector above ground level
4. Below the test joint: earth conductor to the earth pit and grade 316 stainless steel earth rod
5. Square four-way clamp at crossings and T joints
6. Down conductors at the corners and at the table spacing around the building

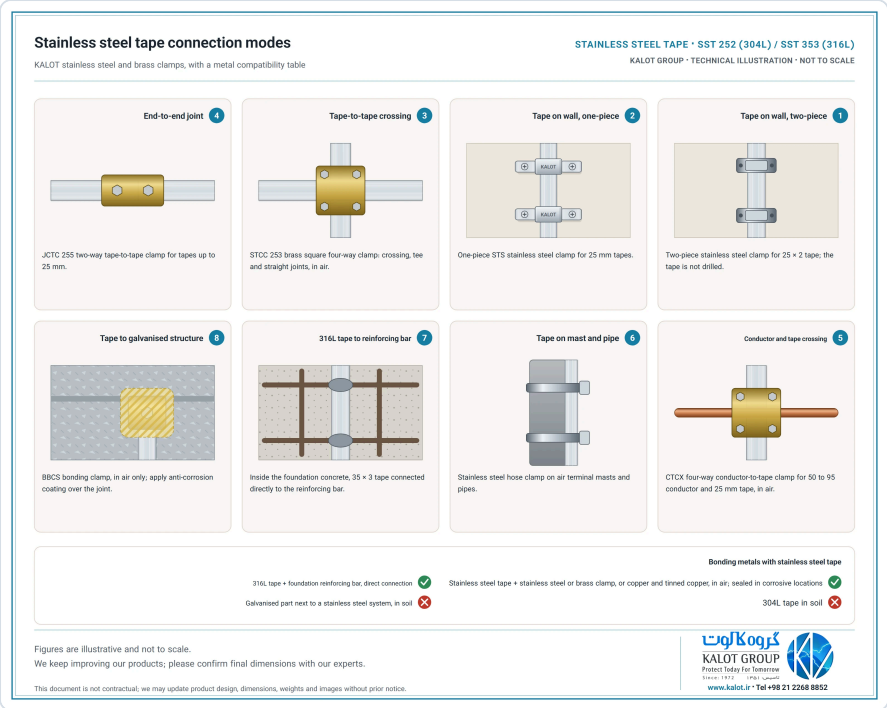
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Connection modes



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Stainless steel tape installation steps

۱. Choose the size and grade by location: 25 × 2 in 304L for air and 35 × 3 in 316L for soil and concrete.

۲. Unroll the tape without twisting or folding it, and make the bends gentle. Cut the tape with a tool that has not touched ordinary steel, so that no filings stay on the tape.

۳. Wall fixing: fix 25 × 2 tape with two-piece stainless steel clamps or STS one-piece stainless steel clamps, and do not drill the tape to install it. IEC 62305-3 recommends a fixing interval of 1 m on vertical runs up to 20 m high and on horizontal surfaces, and 0.5 m on horizontal runs on walls and on vertical runs above 20 m; for ESE air terminals, NF C 17-102 requires three clamps per metre.

۴. Stainless steel expands with heat (1.6 mm per metre for every 100 °C). On long roof runs, fit an expansion piece every 10 m on soft coverings such as bituminous membrane and every 15 m on hard surfaces. A hand-made bend is not enough for this.

۵. Join crossings and T joints with square four-way clamps, and in-line joints with two-way tape-to-tape clamps.

۶. Fit a brass test joint on every down conductor above ground level, one that opens only with a tool.

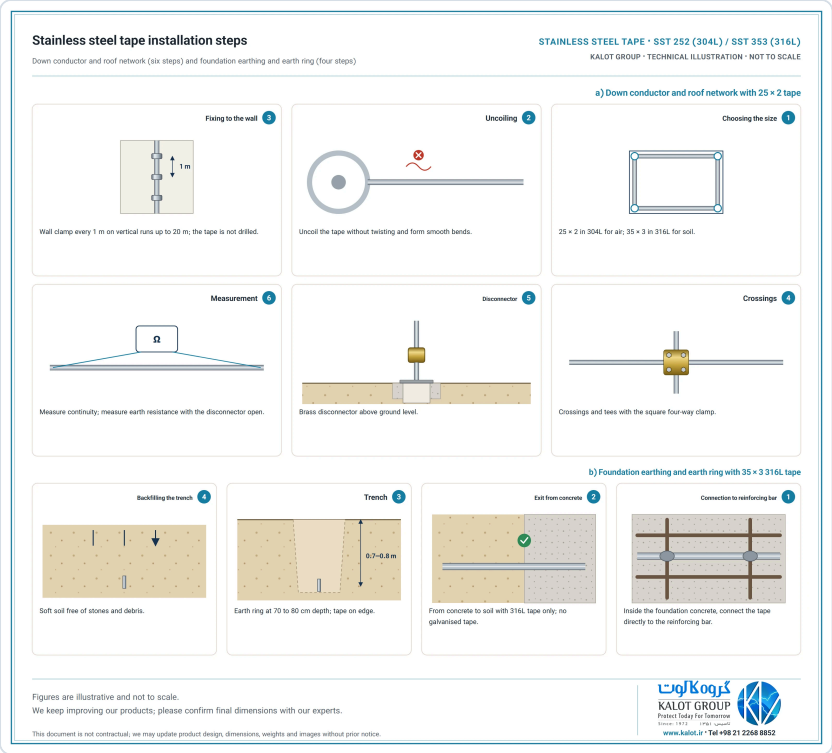
۷. Foundation earthing: connect 35 × 3 tape in 316L directly to the reinforcement inside the foundation concrete; to weld it to the reinforcement, get the structural designer's approval and make the weld at least 50 mm long. Then bring the tape out of the concrete into the soil.

۸. Dig the ring earth trench 70 to 80 cm deep and 1 m from the outer walls; in cold regions, lay the tape below the frost depth. IEC 62305-3 requires the ring earth at least 0.5 m below ground and 1 m from the outer walls; Part 13 places horizontal electrodes 0.5 to 0.8 m deep, and the earthing system installation guideline requires a depth of at least 0.7 m. Lay the tape on edge in the trench and backfill with soft soil free of stones and debris.

۹. Weld buried joints and coat the weld with anti-corrosion protection; do not bury clamps in soil. Never join stainless steel to another metal in soil: make that joint inside the earth pit or above ground.

۱۰. After installation, measure the continuity of the route and test the earth resistance with the disconnector open. Record the result with the date in the earthing system file.

Steps



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Stainless steel, copper or galvanised tape? Choosing by installation location

Installation location	Our recommendation	Note
Down conductors and roof grids	Stainless steel tape 25 × 2 (304L) or copper tape	Stainless steel where you do not want copper
Next to aluminium, zinc and galvanised parts, in air	Stainless steel tape or tinned copper tape	Connect only in air and covered; tinned tape below the galvanised or aluminium part
Foundation earthing and the concrete to soil passage	35 × 3 stainless steel tape (316L)	Galvanised tape does not pass from concrete into soil
Earth ring in normal soil	Copper tape or 35 × 3 stainless steel tape (316L)	No 304L in soil
Saline soil and coastal and industrial areas	35 × 3 stainless steel tape (316L)	Chloride increases corrosion; no 304L; connections welded or sealed
Substation earthing grid and high fault current	Copper tape	The resistivity of stainless steel is more than 40 times that of copper
All-galvanised system	Galvanised tape	In soil, do not connect galvanised to stainless steel

The rules in this table are taken from IEC 62561-2:2018, IEC 62305-3:2010, IEC 60364-5-54:2011 and Part 13 of the Iranian National Building Regulations; the final size is set by the design and the fault current calculation. For conductor materials, see the earth electrode materials.

Choosing stainless steel tape and asking for a price

To ask for a stainless steel tape price, send our specialists the size, grade (304L or 316L), length, application (down conductor, roof network, foundation earthing or earth ring) and the clamps and accessories you need (stainless steel wall clamp, four-way clamp, disconnector, hose clamp, stainless steel earth rod and earth pit). If you also send the earthing drawing or lightning protection design of the project, our specialists at KALOT Group will give you a list of tape and accessories with the current price.