

COLD-ROLLED STEEL FOR WHITE GOODS

MAIN PARAMETERS

Rolled product thickness	0.40–2.5 mm
Rolled product width	900–1,800 mm
Coil inner diameter	600 ± 10, 500 ± 10 mm
Weight of commercial coils	5–30 t
Sheet length	1,500–3,500 mm
Weight of sheet bundles	up to 10 t
Rolled product width after slitting	100–1,850 mm
Inner diameter of coils after slitting	600 ± 10, 500 ± 10 mm

Depending on the product type, minimum dimensional tolerances are equivalent to 1/2 or 2/3 of ASTM A 568/EN 10131. Non-flatness of rolled sheets conforms to standard tolerances as per EN 10131.

Rolled products with other specified requirements, including for thickness/width ratio, are available upon request.

TOLERANCES FOR DIMENSIONS AND SHAPE OF ROLLED PRODUCTS

Standard for specification	GOST 9045 GOST 16523	EN 10130	ASTM A 1008 (ASTM A 620)
Standard for product mix, geometrical dimensions and tolerances	GOST 19904	EN 10131	ASTM A 568

ROLLED STEEL FOR COLD STAMPING

MECHANICAL PROPERTIES (ONLY FOR TEMPERED PRODUCTS)

Steel grade, drawability	Standard	Tensile strength, N/mm ²	Yield strength, N/mm ²	Relative elongation L = 80 mm, %	Plastic strain ratio r ₉₀	Mechanical hardening index n ₉₀
DC01	EN 10130	270–410	≤ 280	≥ 28		
DC03	EN 10130	270–370	≤ 240	≥ 34	≥ 1.3	
DC04	EN 10130	270–350	≤ 210	≥ 38	≥ 1.6	≥ 0.180

- ¹ If thickness is > 0.5 and ≤ 0.7 mm, the yield strength value increases by 20 N/mm². For thicknesses ≤ 0.5 mm, the yield strength value increases by 40 N/mm².
- ² The values of parameters r₉₀ and n₉₀, or r and n apply products with a thickness ≥ 0.5 mm.
- ³ If thickness is > 2 mm, the value of r₉₀ or r decreases by 0.2.
- ⁴ Unless otherwise specified during inquiry and order placement, the products may be supplied as alloyed steels (for example, with boron or titanium).
- ⁵ For design purposes, the lower yield strength limit can be assumed to be 140 N/mm².
- ⁶ For thickness > 0.5 and ≤ 0.7 mm, the minimum value of elongation decreases by 2 units. For thickness 0.5 mm, the minimum value decreases by 4 units.

Mechanical properties can be customized upon request.

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

● DC01

Thickness, mm	Strip width, mm				
	900	1,420	1,530	1,680	1,800
0.40–0.46					
0.47–0.69					
0.70–0.79					
0.80–2.50					

● DC04

Thickness, mm	Strip width, mm					
	900	1,420	1,500	1,600	1,700	1,800
0.40–0.46						
0.47–0.69						
0.70–0.79						
0.80–2.50						

● DC03

Thickness, mm	Strip width, mm					
	900	1,420	1,500	1,600	1,700	1,800
0.40–0.46						
0.47–0.69						
0.70–0.79						
0.80–2.50						

Rolled products with other product mix requirements, including for thickness/width ratio, can be customized upon additional approval.

At the customer's request, rolled products can be manufactured with additional limitations by the lower yield strength limit: 180 MPa, 200 MPa, 210 MPa, 220 MPa, and 240 MPa.

ROLLED STEEL FROM MICROALLOYED STEELS FOR ENAMELING AND STAMPING

MECHANICAL PROPERTIES

Steel grade	Standard	Tensile strength, N/mm ²	Yield strength, N/mm ²	Relative elongation*, %
DC01EK	EN 10209	270-390	≤ 270	≥ 30
DC04EK		270-350	≤ 220	≥ 36

* For thicknesses > 0.5 and ≤ 0.7 mm, the relative elongation values may be reduced by 2%.

- ¹ Mechanical properties apply only to tempered products.
- ² If thickness is > 0.5 and ≤ 0.7 mm, the yield strength value increases by 20 N/mm². For thicknesses ≤ 0.5 mm, the yield strength value increases by 40 N/mm².
- ³ For design purposes, the lower yield strength limit can be assumed to be 140 N/mm².
- ⁴ For thickness > 0.5 and ≤ 0.7 mm, the minimum value of elongation decreases by 2 units. For thickness 0.5 mm, the minimum value decreases by 4 units.
- ⁵ Upon request, rolled products of DC04EK grade can be supplied with a maximum yield strength of 210 N/mm² and a minimum relative elongation of 38% with a thickness of 0.7-1.5 mm. The manufacturer shall select the surface roughness within the normal roughness range.

Mechanical properties can be customized upon request.

Microalloying provides enhanced resistance to the "fishscale" defect in steels for enameling.

THICKNESS/WIDTH RATIO FOR ROLLED PRODUCTS

● DC01EK, DC04EK

Thickness, mm	Strip width, mm				
	900	1,420	1,530	1,680	1,800
0.40-0.46					
0.47-0.69					
0.70-0.79					
0.80-2.50					

PACKING CHARTS

Chart No. 05

No.	Description
1.2	Polyester packing strap
1.3	Steel baling strap
2	Strapping seal
14	Protective steel box
15	Protective angle for pack corners
16	Standard timber pallet
16.4*	Double pallet for forklift
19	Label (shipping)

* Not visualized.

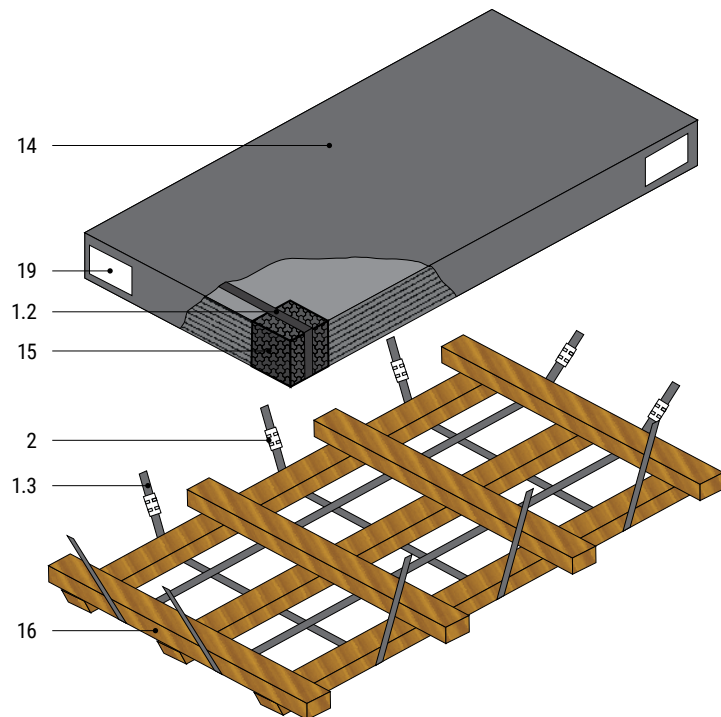


Chart No. 05-1

No.	Description
1.2	Polyester packing strap
1.3	Steel baling strap
2	Strapping seal
5	Multilayer anticorrosive material
10.3	Protective sheet
13	Protective steel angle
15	Protective angle for pack corners
16	Standard timber pallet
16.4*	Double pallet for forklift
19	Label (shipping)

* Not visualized.

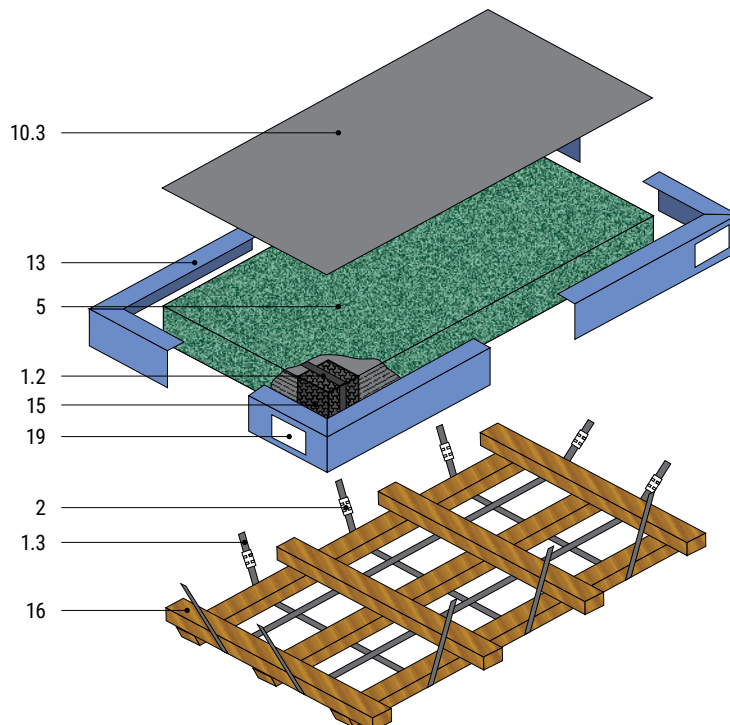


Chart No. 06

No.	Description
1.2	Polyester packing strap
1.3	Steel baling strap
2	Steel strapping seal
3	Adhesive tape 50 mm
5	Multilayer anticorrosive material
10.2*	Packing plastic sheet
10.3*	Protective steel sheet
13*	Protective steel angle
14	Protective steel box
15	Protective angle for pack corners
15.1*	L-shaped protective angle for pack ends
16	Standard timber pallet
16.4**	Double pallet for forklift
19	Label (shipping)

* Option instead of the steel box (not visualized).
Interchangeable packing elements shall be selected
by the manufacturer.

** Not visualized.

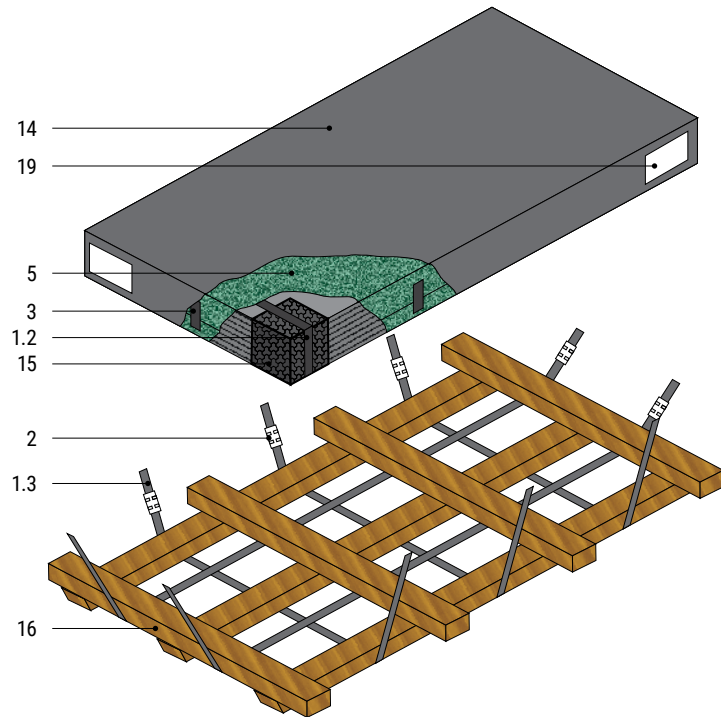


Chart No. 07

No.	Description
1.1	Steel baling strap
1.2	Polyester packing strap
2	Steel strapping seal
3	Adhesive tape 50 mm
5	Multilayer anticorrosive material
6	Polyethylene film
10.3	Protective steel sheet
13	Protective steel angle
16.1	International timber pallet
16.4*	Double pallet for forklift
19	Label (shipping)

* Not visualized.

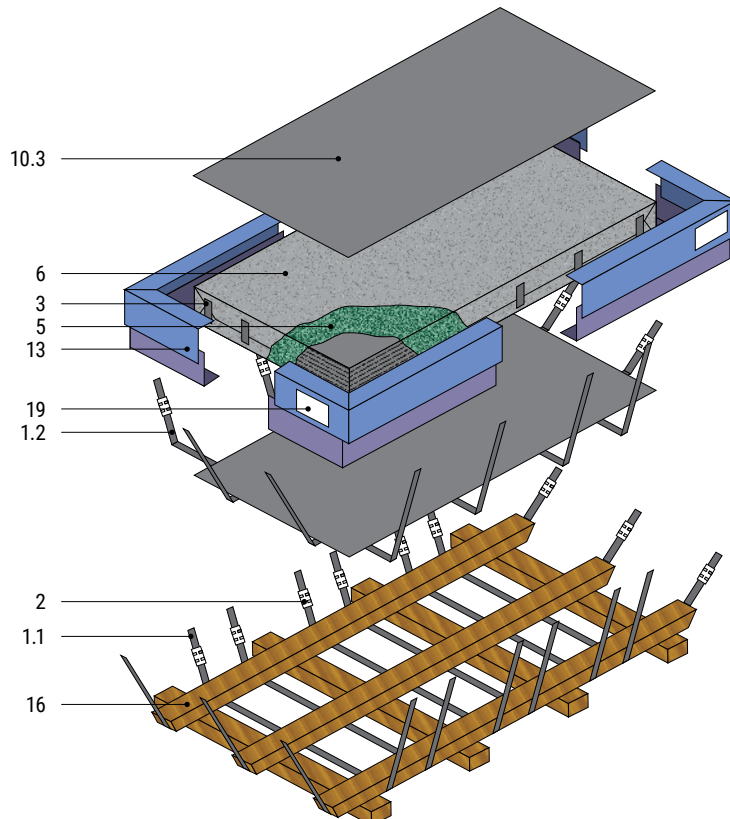


Chart No. 10, No. 10-1

No.	Description
1	Polyester packing strap
1.4	Steel baling strap
3	Adhesive tape 50 mm
5	Multilayer anticorrosive material
6	Polyethylene film
7	Protective cardboard angle
8	Plastic insert
8.1	Plastic shell
9*	Cardboard sleeve
10	External packing sheet
10.1	Internal packing sheet
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)

* For Packing Chart No. 10-1.

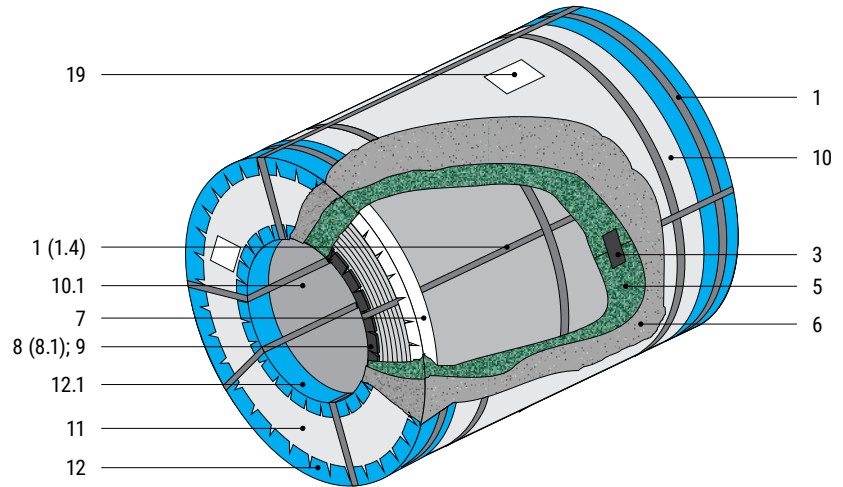


Chart No. 11, No. 11-1

No.	Description
1	Polyester packing strap
1.4	Steel baling strap
3	Adhesive tape 50 mm
3.1	Adhesive tape 100 mm
5	Multilayer anticorrosive material
6	Polyethylene film
7	Protective angle 60 × 60 mm
7.1*	Protective angle 120 × 80 mm
8	Plastic insert
8.1	Plastic shell
9**	Cardboard sleeve
10	External packing sheet
10.1	Internal packing sheet
10.5	Protective sheet for strap bundles
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)

* To be installed if steel end covers are used.

** For Packing Chart No. 11-1.

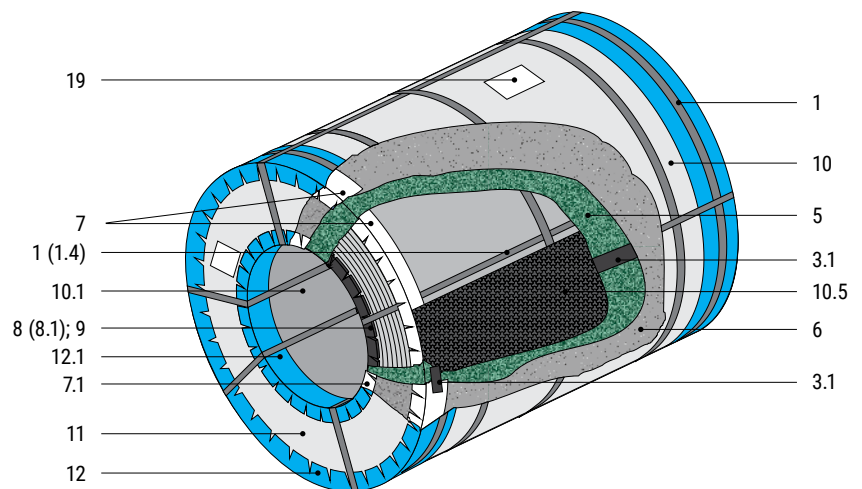


Chart No. 11K, No.11-1K

No.	Description
1	Polyester packing strap
1.4	Steel baling strap
3	Adhesive tape 50 mm
5	Multilayer anticorrosive material
8	Plastic insert
8.1	Plastic shell
9*	Cardboard sleeve
10	External packing sheet
10.1	Internal packing sheet
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)

* For Packing Chart No. 11-1K.

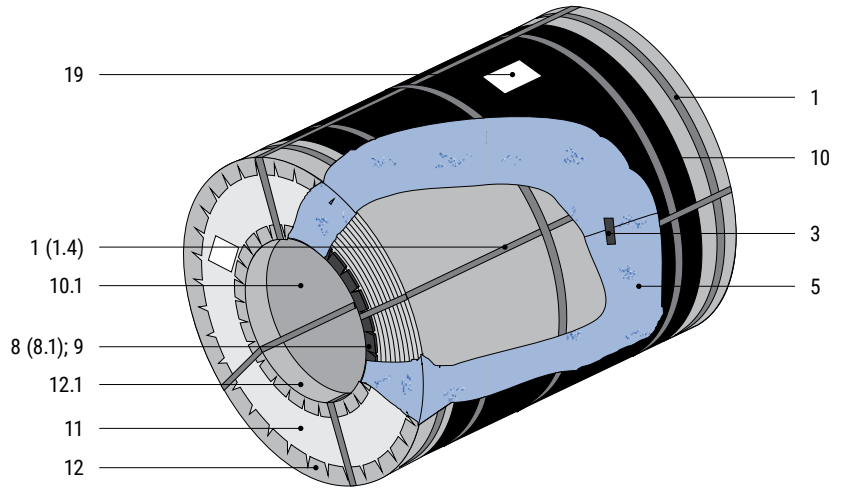


Chart No. 12, No. 12-1

No.	Description
1	Polyester packing strap
1.4	Steel baling strap
3	Adhesive tape 50 mm
3.1	Adhesive tape 100 mm
5	Multilayer anticorrosive material
6	Polyethylene film
7	Protective angle 60 × 60 mm
7.1	Protective angle 120 × 80 mm
8	Plastic insert
9*	Cardboard sleeve
10	External packing sheet
10.1	Internal packing sheet
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)

* For Packing Chart No. 12-1.

