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TECHNICAL CHARACTERISTICS AND REFERENCE STANDARDS

ZINTEK® IN THE BUILDING INDUSTRY

The use of rolled zinc sections in the building industry has a very long tradition which makes it the most popular non-ferrous material in Europe for roofing and cladding. With its rolled sections branded zintek®, Simar offers an interesting combination of technical and aesthetic performances valuable in functional and economic terms.

Zintek® is a top material for

- Environmental cross-compliance.
- Cost reduction in comparison with non-ferrous metals used in similar applications.
- No maintenance is needed.
- Durability over time.
- Pleasant appearance.

Its chemical-physical properties allow for optimum workability and weldability.

Resistance to weather corrosion implies no maintenance and restoration costs, and enhances the design of buildings in various contexts.

Physical and Mechanical Properties

Description	Unit of measurement	Value
Density	Kg/dm ³	7,14
Melting point	°C	419
Specific heat at 20°C	kJ/kg°C	0,401
Thermal conductivity at 20°C	W/m K	109
Electrical conductivity at 20°C	m/ohm mm ²	17
Coefficient of thermal expansion lengthwise to lamination	mm/m °C	0,022
Coefficient of thermal expansion transversal to lamination	mm/m °C	0,017
Recrystallization limits	°C	> 300
Modulus of elasticity	N/mm ²	> 80000
Erichsen drawing	mm	7 – 9
Length tolerances at 180° 20°C	n°	3 minimo
Width tolerances at 180° 20°C	n°	5 minimo
Camber tolerances	%	40 – 55
Nonmagnetic		
Fireproof		

Zintek® is a very high quality zinc-copper-titanium alloy. It fully complies with European standard EN 988 "Specifications for zinc and zinc alloy rolled flat products for building". It specifies the requirements for zinc-copper-titanium rolled flat products used in buildings supplied in coils, sheets or strips.

According to European norm EN 1179, the alloy is to be produced from 99.995 zinc (Z1 quality) with the addition of appropriate alloying elements.

The alloy components enhance the rolled zinc section properties:

- Titanium increases the resistance to permanent strain over time;
- Copper increases the material tensile strength.

The combination of both reduces the alloy coefficient of expansion.

zintek® standard: UNI EN 988

a) – composition in percentage values

Element	Min.	Max.
Cu	0,080	1,000
Ti	0,060	0,200
Al	-----	0,015
Zn(1)	resto	resto

(1) Z1 quality Zinc (See table UNI EN 1179)

zintek® standard: UNI EN 988

b) – mechanical properties

Unit load yield strength	0,2%	100 min
	Rp 0,2 N/mm ²	
Tensile strength	Rm	150 min
	N/mm ²	
Ultimate percent elongation	A50mm	35 min
	%	
Yield value percent elongation	%	0,1 max
Minimum hardness	HV	45



FEATURES OF SUPPLIED PRODUCTS

Coils

Rolled sections with internal diameter of 508 mm (on cardboard core with or without protective layer), suitably wrapped, are placed on wooden pallets to facilitate movements throughout the handling process

Plates and strips

Plates and strips are cut into perfectly flat sheets and strapped to wooden pallets, protected by waterproof paper on the underside and cardboard on top.

Available thickness

0.60 – 0.65 – 0.70 – 0.80 – 1.00 mm
Different thickness sizes can be manufactured upon request.

Available widths

between 100 mm and 1000 mm
items with smaller or larger widths may be manufactured upon request up to a maximum width of 1150 mm.

Available lengths

Plates come in standard sizes of 1000 X 2000/3000 mm;
different sizes plates must be specifically requested.

Weight

Coil: weight varies according to width. Maximum weight is approximately 7000 kg for mother coils.
Sheets: from 500-1.000-1.500-2.000 kg

Tolerances

Thickness: maximum yield from nominal thickness ordered shall not exceed +/- 0.03.

Width

Maximum yield from nominal width ordered shall not exceed 0/+ 2 mm. Minimum nominal width is 100 mm; maximum nominal width is 1000 mm.

Length

Maximum yield from nominal length of sheet or strip ordered shall not exceed 0/+ 10 mm. Recommended length values are 2000 mm and 3000 mm.

Rectilinear yield

Rectilinear yield shall not exceed 1.5 mm/m.

Plane yield

Plane yield shall not exceed 2 m

SURFACE APPEARANCE

The natural look of zintek® is a rolling-produced grayish colour, consistent and shiny. Atmospheric agents cause the surface to oxidize naturally, creating a protective layer stable over time. This natural ageing process creates a pleasant slightly gray weathered look. The oxidation process may change the surface colour unevenly, creating different gray shades. However, it is only a transitory process ending with a beautiful and uniform colour all over the surface.

The natural look can be adjusted through specific surface treatment.

Mass specifications

Nominal thickness mm	Approximate mass Kg/m ²
0,60	4,3
0,65	4,7
0,70	5,0
0,80	5,8
1,00	7,2

REACTIVITY TO ATMOSPHERIC AGENTS AND CORROSION PROTECTION

The protective layer which is a direct consequence of the exposure of zinc to oxygen and water is a basic zinc carbonate layer which preserves the metal. This process occurs naturally and is the reason for the longevity of zinc.

Environment durability

Environment	Durability
Rural	Over 100 years
Urban Industrial	60 years
Industrial agglomeration	40 years
Marine	40 to 60 years

REACTIVITY TO TEMPERATURE VARIATIONS

Temperature variations have no influence whatsoever over rolled sections after the processing and laying phases. Rolled sections are best processed at temperatures below 10 °C (50 °F). It is good practice to begin work after having brought the temperature of the rolled sections at the minimum value as specified above. As far as winter projects are concerned, it is advisable to comply with good practices, i.e. to use a workshop for the fabrication of items, as thermal conditions are better inside. For any on-site fabrications, rolled sections may be preheated through hot-air ventilation. Its melting point is approximately 419 °C (786 °F) and its recrystallization limit, which is very important for the soldering process, equals 300 °C (572 °F). Fireproof and resistant to ultraviolet light, the material is totally unaffected by wind erosion.

ZINTEK® INSTALLATION

Details for installation can be found in the handbook *Development in Architecture*.

Furthermore, estimated costs and applications are included in the online specifications, available at www.zintek.it.