Inoxthal Wires for Conveyor Belts, Baskets and High Temperature Applications

Wire mesh conveyor belts and baskets are commonly used in heat treatment furnaces, requiring the use of heat resistant stainless steels or alloys containing over 60% of nickel. The latter are not classed as stainless steels but we can supply them and our technical and commercial staff can provide full information (1).

(1) Nikrothal® alloys

Grades and chemical analyses

Grade	W.Nr	C max	Mn max	P max	S max	Si max	Cr	Ni
Inoxthal® 310	1.4845	0.25	2	0.045	0.030	1.50	24-26	19-22
Inoxthal® 314	1.4841	0.10	2	0.040	0.010	2-3	23-26	19-22
Inoxthal® 330	1.4864	0.08	2	0.035	0.010	1.65 - 2.5	18 - 21	34-37

Size range

Diameters of 0.20 to 8.00 mm.

Dimensional tolerances

Standard tolerances as per table in DIN 4186.

Wires to special tolerances can be supplied to order.

Surface finishes

Shiny bright (all diameters)

Matt (diameters over 0.80 mm)

High temperature properties and characteristics

The table below shows the maximum operating temperatures for these materials. These values apply to wires with diameters of at least 3.00 mm. For smaller wires they might be excessive and should be treated with particular caution.

If grades 310 and 314 spend long enough periods in the temperature range 500-850°C, they may undergo precipitation of the socalled sigma phase, thereby rendering the material hard and brittle.

In that temperature range it is preferable to use grade 330 or high nickel content alloys.

High silicon contents appreciably shorten the time to sigma phase precipitation.

In atmospheres containing sulphurous gases it is preferable to use the lower nickel content grades.

Stainless steels subject to tensile stress at temperatures over 500°C are liable to creep, i.e. to undergo plastic deformation to an extent that depends both on the load applied and on how long a time it is applied.

Creep strength is therefore expressed in terms either of the load value that causes rupture within a certain time or the load value that causes a given amount of deformation within a predetermined time.

The tables below give some values that illustrate the high temperature characteristics of the grades most commonly used.

Grade	Maximum Operating Temperature (°C)	
	Continuous duty	Intermittent duty
Inoxthal® 310	1080	1000
Inoxthal® 314	1100	1020
Inoxthal® 330	1150	1070

Load (N/mm^2) that causes rupture within 1000 hours

Grade	Temperature (°C)			
	730	870	980	1090
Inoxthal® 310	62	27	14	7
Inoxthal® 314	40	20	11	7
Inoxthal® 330	58	20	10	n.a.

Load (N/mm^2) that causes rupture within 10.000 hours

Grade	Temperature (°C)			
	730	870	980	1090
Inoxthal® 310	40	17	9	5
Inoxthal® 314	19	13	7	5
Inoxthal® 330	34	18	8	6

Delivery form

The following tables show the dimensions and approximate weights of coils. Other delivery forms are also possible but must be checked with our technicians to see whether it is possible to meet the requirements on the basis of the diameter and mechanical characteristics of the wire.

Annealed Wire

Wire diameter (mm)	Approx. coil dimensions		
	Outside dia. (mm)	Inside dia. (mm)	Weight (kg)
0.70 - 1.40	430	300	40 - 50
1.50 - 1.90	580	450	70 - 80
2.00 - 5.00	680	550	90 - 120

"1/2 hard", "1/4 hard" and "Skin-passed" Wire

Wire diameter (mm)	Approx. coil dimensions		
	Outside dia. (mm)	Inside dia. (mm)	Weight (kg)
0.80 - 1.40	470	300	40 - 50
1.50 - 8.00	720	500	100 - 200

KANTHAL

Società Italiana Kanthal S.p.A
Tel. +39 (0) 2-66049177, Telex 330024
Fax +39 (0) 2-6123394, Cable: Kantit - Cinisello
Via L.B. Alberti, 49, 20092 Cinisello Balsamo (Mi) Italy
PO Box 147 Cinisello
A Sandvik Company

5-C-2-3 3.98 2500 Mediaidé 267 / Primatryck