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COLD ROLLED (POLISHED) STRIPS/SHEETS

EN 10130 / EN 10268 / EN 10209

Cold rolled steels are the result of a process of continuous thickness reduction, which implies the need for subsequent heat treatments, in order to restore and standardize the mechanical properties desired for the product.

This type of sheet is preferred whenever the deformation and ductility properties of the material are important or whenever a specific low roughness surface finish is required (as in chrome--plating or electroplating processes).

Its use is required in multiple fields of application, particularly in manufacturing, due to its high versatility: the automotive industry, metal furniture manufacturing, home appliances, among others.

DIMENSIONAL PROPERTIES

Width tolerances for shapes and wide strips

Nominal width (mm)	**Normal tolerances** (mm)		**Tight tolerances (S)** (mm)	
	Lower	Higher	Lower	Higher
≤ 1200	0	+ 4	0	+ 2
> 1200 ≤ 1500	0	+ 5	0	+ 2
> 1500	0	+ 6	0	+ 3

DIMENSIONAL PROPERTIES

Thickness tolerance

Nominal thickness (mm)	**Tolerances for a nominal width** (mm)			**Tight tolerances (S) for a nominal width** (mm)		
	≤ 1200	> 1200 ≤ 1500	> 1500	≤ 1200	> 1200 ≤ 1500	> 1500
≥ 0,35 ≤ 0,40	± 0,04	± 0,05	-	± 0,025	± 0,035	-
> 0,40 ≤ 0,60	± 0,05	± 0,06	± 0,07	± 0,035	± 0,045	± 0,05
> 0,60 ≤ 0,80	± 0,06	± 0,07	± 0,08	± 0,040	± 0,050	± 0,05
> 0,80 ≤ 1,00	± 0,07	± 0,08	± 0,09	± 0,045	± 0,060	± 0,06
> 1,00 ≤ 01,20	± 0,08	± 0,09	± 0,10	± 0,055	± 0,070	± 0,07
> 1,20 ≤ 1,60	± 0,10	± 0,11	± 0,11	± 0,070	± 0,080	± 0,08
> 1,60 ≤ 2,00	± 0,12	± 0,13	± 0,13	± 0,080	± 0,090	± 0,09
> 2,00 ≤ 2,50	± 0,14	± 0,15	± 0,15	± 0,100	± 0,110	± 0,11
> 2,50 ≤ 3,00	± 0,16	± 0,17	± 0,17	± 0,110	± 0,120	± 0,12

Length tolerances

Length (mm)	**Normal tolerance** (mm)		**Tight tolerance (S)** (mm)	
	Lower	Higher	Lower	Higher
< 2000	0	6	0	3
≥ 2000	0	0,3% of the length	0	0,15% of the length

Flatness tolerances of low carbon steel sheets

Tolerance Grade	**Nominal width** (mm)	**Nominal thickness** (mm)		
	≤ 1200	< 0,7	≥ 0,7 < 1,2	≥ 1,2
Normal	≥ 600 < 1200	12	10	8
	≥ 1200 < 1500	15	12	10
	≥ 1500	19	17	15
Tight (FS)	≥ 600 < 1200	5	4	3
	≥ 1200 < 1500	6	5	4
	≥ 1500	8	7	6

TABLE OF DIMENSIONS

Thickness (mm)	**Width** (mm)								
	1000			**1250**			**1500**		
	Sheets (kg)	Units p/ Bundle	Bundle (kg)	Sheets (kg)	Units p/ Bundle	Bundle (kg)	Sheets (kg)	Units p/ Bundle	Bundle (kg)
0,5	7,85	320	2512	12,27	205	2514	17,66	140	2473
0,6	9,42	270	2543	14,72	180	2649	21,2	120	2543
0,8	12,56	200	2512	19,63	130	2551	28,26	90	2543
1	15,7	165	2591	24,53	105	2576	35,33	75	2649
1,25	19,63	125	2453	30,66	85	2606	44,16	60	2649
1,5	23,55	110	2591	36,8	70	2576	52,99	50	2649
2	31,4	80	2512	49,06	50	2453	70,65	35	2473
2,5	39,25	60	2355	61,33	41	2514	88,31	30	2649
3	47,1	55	2591	73,59	34	2502	105,98	25	2649
Length ref. (mm)	2000			2500			3000		

STEEL GRADES

Steel Grade	**Coating type**	**Chemical properties** Nominal thicknesses % by mass				**Mechanical properties**				
						R_e (MPa) [a] máx.	R_m (MPa)	A_{80} [c] %	r_{90} [d] [e] mín.	n_{90} [d] mín.
		C % máx.	Mn % máx.	P % máx.	S % máx.					
DC01	+ ZE	0,12	0,60	0,045	0,045	-/280 [b]	270-410	28	-	-
DC03	+ ZE	0,10	0,45	0,035	0,035	-/240 [b]	270-370	34	1,3	-
DC04	+ ZE	0,08	0,40	0,030	0,030	-/220 [b]	270-350	37	1,6	0,17
DC05	+ ZE	0,06	0,35	0,025	0,025	-/200 [b]	270-330	38	1,9	0,19
DC06	+ ZE	0,02	0,25	0,020	0,020	-/180 [g]	270-350	41	2,1	0,21
DC07	+ ZE	0,22	0,20	0,020	0,020	-/180 [g]	250-310	43	2,5	0,22

[a] The yield strength values are the conventional 0.2% proportionality limit for products that do not have an elongation effect and the lower elongation limit (ReL) for others. In cases where the thickness is less than or equal to 0.7 mm, but greater than 0.5 mm, the maximum yield strength value is increased by 20 N/mm2. For thicknesses of 0.5 mm or less, the maximum yield strength value is increased by 40 MPa.

[b] For calculation purposes, the lower Re limit for grades DC01, DC03, DC04 and DC05 can be equal to 140 MPa.

[c] In cases where the thickness is less than or equal to 0.7 mm but greater than 0.5 mm, the minimum value for elongation after breakage is decreased by 2 units. For thicknesses of 0.5 mm or less, the minimum value for elongation after breakage is decreased by 4 units.

[d] The r90 and n90 values are only applicable for thicknesses greater than or equal to 0.5 mm.

[e] In cases where the thickness is greater than 2 mm, the r90 value is decreased by 0.2.

[g] 30 MPa for grade DC06 and 110 MPa for grade DC07.

Steel Grade	Chemical properties Nominal thicknesses % by mass								Mechanical properties $R_{p0,2}$		R_m		A_{80}	
	C % máx.	Si % máx.	Mn % máx.	P % máx.	S % máx.	Al_{total} % mín.	Ti % máx.	Nb % máx.	% t	% l	% t	% l	% t [a)]	% l
HC260LA	0,10	0,50	1,0	0,030	0,025	0,015	0,15	0,09	260-330	240-310	350-430	340-420	26	27
HC300LA	0,12	0,50	1,4	0,030	0,025	0,015	0,15	0,09	300-380	280-360	380-480	370-470	23	24
HC340LA	0,12	0,50	1,5	0,030	0,025	0,015	0,15	0,09	340-420	320-410	410-510	400-500	21	22
HC380LA	0,12	0,50	1,6	0,030	0,025	0,015	0,15	0,09	380-480	350-450	440-580	430-550	19	20
HC420LA	0,14	0,50	1,6	0,030	0,025	0,015	0,15	0,09	420-520	390-500	470-600	460-580	17	18
HC460LA	0,14	0,60	1,8	0,030	0,025	0,015	0,15	0,09	460-580	420-560	510-660	480-630	13	14
HC500LA	0,14	0,60	1,8	0,030	0,025	0,015	0,15	0,09	500-620	460-600	550-710	520-690	12	13

[a)] When the thickness is less than or equal to 0.7 mm and greater than 0.5 mm, the minimum value for elongation is reduced by 2 units. For a thickness less than or equal to 0.5 mm, the minimum value is reduced by 4 units.

Steel Grade	Chemical properties Nominal thicknesses % by mass				Mechanical properties R_e (1,2) % máx.	R_m % máx.	A_{80} % mín.
	C % máx.	Mn % máx.	P % máx.	S % máx.			
DC01EK	0,09	0,50	0,03	0,05	270	270-390	30
DC07EK	0,08	0,40	0,03	0,05	220	270-350	38

1. For a thickness of 0.5 mm < t < 0.7 mm the maximum yield strength value is increased by 20 N/mm², and the minimum elongation after fracture is decreased by 2%.

2. For a thickness of < t < 0.5 mm the maximum yield strength value is increased by 40 N/mm² and the minimum elongation after fracture is decreased by 4%.

SUPPLY CONDITIONS

PACKAGING

The material is available in strips/coils, strapped with bands of steel and, in the case of shaped sheets, in bundles wrapped in protective film. To facilitate the handling of bundles (loading/unloading), they are supported by wooden beams.

LABELING

Each strip/coil/bundle is supplied with a label, ensuring proper identification of the product and its traceability.

CERTIFICATE

Each order will be accompanied by the corresponding inspection certificate according to EN 10204, in accordance with the product's applicable standard.

SUPPLY OPTIONS

SPECIAL TOLERANCES

THICKNESS, LENGTH AND WIDTH:

This product is supplied with thickness, width, and length tolerances (in the case of shaped sheets) in accordance with the applicable standard. Special tolerances may be available upon request. Edge trimming possible.

STEEL GRADES:

The possibility of supplying other steel grades not mentioned above can be evaluated upon request.

WRAPPING AND PACKAGING

The strips/coils/bundles can be configured according to the client's specifications, as requested at the time of the inquiry/order. Possibility of using packaging with anticorrosion protection (VCI).

COATINGS AND SURFACE TREATMENTS

The products are supplied in accordance with the applicable standards, with the possibility of additional treatments/coatings as previously requested at the time of the inquiry/order, under the customer's responsibility.

LABORATORY TESTS

Possibility of requesting specific laboratory tests, not foreseen in the applicable standard (anisotropy, salt fog, metallography, thickness elongation, among others)

APPLICATION AREAS

INDUSTRY

ENGINEERING
AND ARCHITECTURE