

STEELS FOR PRESSURE EQUIPMENT STRIPS/SHEETS

EN 10028-2

Pressure equipment is a key part of many industries, from petrochemicals to energy production.

In all cases, the design and construction of this equipment must be in accordance with PED (Pressure Equipment Directive) regulations, which guide its applicability and specifics.

These steels are designed for the construction of pressure equipment at high temperatures, and their main characteristics are performance versatility, good weldability, and high strength.

Produced according to standard EN-10028-2, steels for pressure equipment are used in the manufacturing of pressure vessels, steam boiler parts, pressure tubes and compressors, among others.

DIMENSIONAL PROPERTIES

Sheet width tolerances

Nominal width (mm)	Raw edge tolerance (mm)		Trimmed edge tolerances (mm)	
	Lower	Higher	Lower	Higher
≤ 1200	0	+ 20	0	+ 3
> 1200 ≤ 1500	0	+ 20	0	+ 5
> 1500	0	+ 25	0	+ 6

DIMENSIONAL PROPERTIES

Thickness tolerance

Nominal thickness (mm)	Tolerances for nominal width (mm)			
	≤ 1200	> 1200 ≤ 1500	> 1500 ≤ 1800	> 1800
≤ 2,00	± 0,17	± 0,19	± 0,21	-
> 2,00 ≤ 2,50	± 0,18	± 0,21	± 0,23	± 0,25
> 2,50 ≤ 3,00	± 0,20	± 0,22	± 0,24	± 0,26
> 3,00 ≤ 4,00	± 0,22	± 0,24	± 0,26	± 0,27
> 4,00 ≤ 5,00	± 0,24	± 0,26	± 0,28	± 0,29
> 5,00 ≤ 6,00	± 0,26	± 0,28	± 0,29	± 0,31
> 6,00 ≤ 8,00	± 0,29	± 0,30	± 0,31	± 0,35
> 8,00 ≤ 10,00	± 0,32	± 0,33	± 0,34	± 0,40
> 10,00 ≤ 12,50	± 0,35	± 0,36	± 0,37	± 0,43

Length tolerances

Length (mm)	Normal tolerance (mm)	
	Lower	Higher
< 2000	0	+10
≥ 2000 < 8000	0	0,5% of the length
≥ 8000	0	+40

Flatness tolerances of low carbon steel sheets

Nominal thickness (mm)	Nominal width (mm)	Flatness tolerance (mm)	Special tolerances (mm)
≤ 2,00	≤ 1200	18	9
	> 1200 ≤ 1500	20	10
	> 1500	25	13
> 2,00 ≤ 25	≤ 1200	15	8
	> 1200 ≤ 1500	18	9
	> 1500	23	12

TABLE OF DIMENSIONS

Thickness (mm)	Width (mm)											
	1000			1250			1500			2000		
	Sheets (kg)	Units p/ Bundle	Bundle (kg)	Sheets (kg)	Units p/ Bundle	Bundle (kg)	Sheets (kg)	Units p/ Bundle	Bundle (kg)	Sheets (kg)	Units p/ Bundle	Bundle (kg)
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			
2,3	36,11	70	2528	56,42	40	2257	81,25	30	2437			
2,5	39,25	64	2512	61,33	40	2453	88,31	30	2649			
3	47,1	55	2591	73,59	34	2502	105,98	25	2649	188,4	13	2449
4	62,8	40	2512	98,13	26	2551	141,3	18	2543	251,2	10	2512
5	78,5	32	2512	122,66	21	2576	176,63	14	2473	314	8	2512
6	94,2	27	2543	147,19	17	2502	211,95	12	2543	376,8	7	2638
8	125,6	20	2512	196,25	13	2551	282,6	10	2826	502,4	5	2512
10	157	16	2512	245,31	10	2453	353,25	8	2826	628	4	2512
12	188,4	14	2638	294,38	9	2649	423,9	6	2543	753,6	3	2261
Length ref. (mm)	2000			2500			3000			4000		

STEEL GRADES

Steel Grade	Chemical properties															
	Nominal thicknesses < 40mm % by mass															
	C %	Si %	Mn %	P %	S %	Al _{total} %	N %	Cr %	Cu %	Mo %	Nb %	Ni %	Ti %	V %	Cr+Cu+Mo+Ni %	CEV %
	máx.	máx.		máx.	máx.	mín.	máx.	máx.	máx.	máx.	máx.	máx.	máx.	máx.	máx.	máx.
P235GH	≤ 0,16	0,35	0,60 ^{a)} -1,20	0,025	0,015	0,020	0,012 ^{b)}	0,30	0,30	0,08	0,020	0,30	0,30	0,02	0,70	0,48
P265GH	≤ 0,20	0,40	0,80 ^{a)} -1,40	0,025	0,015	0,020	0,012 ^{b)}	0,30	0,30	0,08	0,020	0,30	0,30	0,02	0,70	0,55
P295GH	0,08-0,20	0,40	0,60 ^{a)} -1,22	0,025	0,015	0,020	0,012 ^{b)}	0,30	0,30	0,08	0,020	0,30	0,30	0,02	0,70	0,52
P355GH	0,10-0,22	0,60	0,60 ^{a)} -1,23	0,025	0,015	0,020	0,012 ^{b)}	0,30	0,30	0,08	0,020	0,30	0,30	0,02	0,70	0,54

^{a)} For product thicknesses < 6 mm, a minimum manganese content of 0.20% below the specified is allowed.

^{b)} N/Al ratio ≥ 2 is applicable

Steel Grade	Mechanical properties		
	R _{sh} (mín.) (MPa) Thickness (mm)	R _m (MPa)	A % (mín)
	≤ 16		
P235GH	235	360-480	24
P265GH	265	410-530	22
P295GH	295	460-580	21
P355GH	355	510-650	20

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



ENERGY



ENGINEERING
AND ARCHITECTURE