

LIBERTY CZĘSTOCHOWA



Heavy Plates

www.libertysteelgroup.com



MEMBER OF



About Częstochowa

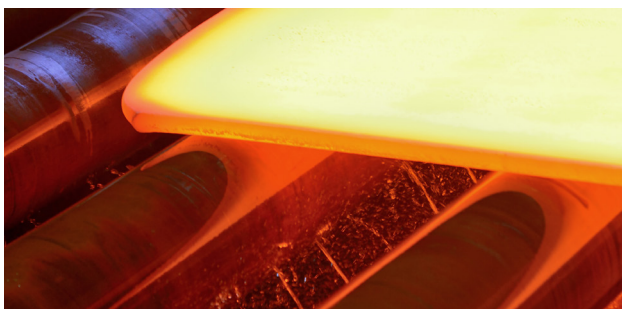
LIBERTY CZĘSTOCHOWA started in 1896. It's a company which for years has been the biggest corporation and the major employer in the region. It had a huge influence on social and economic life of Częstochowa which was strictly connected with the development of the town. For the period of 120 years of its existence it

has produced over 45 million tones of steel. Currently the leading products of the mill are thick sheets for machine-building, shipbuilding, construction, mining and energy industries.

The advantages of the Liberty Częstochowa Mill are experience and professional staff together with the benefits coming from:

Steelwork

Possessing its own scrap yard and equipped with an electric furnace, continuous steel casting line and vacuum installations that enable the production of high quality steel.



Heavy Plate Mill

The mills covers an area of over 20 hectares, in which sheets of various grades (from 5 to 120 mm thick) are produced, including special sheets.

Prefabrication Department

Manufacturing prefabricated elements from sheet metal, elements of wind towers, construction machinery and large tank housing.



Quality Control

Applications	Steel Grades
Integrated Management System	<ul style="list-style-type: none"> • Quality Management System ISO 9001 • Environmental Management System ISO 14001 • Occupational Health and Safety Management System PN-N-18001 • Energy Management System ISO 50001 • Laboratory Management System ISO/IEC 17025
Other Regulations	<ul style="list-style-type: none"> • Factory Control of Structural Steel Plates Production according to 305/2011 / EU Regulation (CPR) and standards EN 10025-1 to EN 10025-6 • Factory Production Control of Assembly Elements and Sets according to harmonized standard EN 1090 -1 • Welding Production according to ISO 3834-2
Plates Production Certificates	<ul style="list-style-type: none"> • Shipbuilding plates (ABS, BV, DNV-GL, LR, RINA, RMRS, PRS) • Structural steel plates (CPR 305/2011/UE) • Boiler plates (PED 2014/68/UE and AD 2000 – Merkblatt WO) • DBS 918002-02(HPQ)
Authority of the Technical Inspection Office	<ul style="list-style-type: none"> • Permission to produce steel sheets • Permission to manufacture assembly elements for pressure and non-pressure equipment
Internal Laboratories Services:	<ul style="list-style-type: none"> • Testing the chemical composition of steel, input and post-production materials • Studies on the radioactive activity of steel and powders • Metallographic testing of ingots and sheets • Testing of mechanical properties of sheets and welded joints • Non-destructive testing of metal products and welded joints (VT,UT,MT and PT) • Measurement of hardness of metal products • Macroscopic and microscopic metallographic tests
Authorisation of Laboratories	<ul style="list-style-type: none"> • Accreditation of the Polish Center for Accreditation No. AB 1038 • Recognition of laboratories by the Office of Technical Inspection • Recognition of laboratories by TÜV-SÜD

Laboratories also offer the above-mentioned tests to external entities.



Grades and standards

Non Alloy Structural Steel Plates

EN 10025-2

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
S235JR	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	235	360-510	24	20	27
S235JO		235	360-510	24	0	27
S235J2		235	360-510	24	-20	27
S275JR		275	410-560	21	20	27
S275JO		275	410-560	21	0	27
S275J2		275	410-560	21	-20	27
S355JR		355	470-630	20	20	27
S355JO		355	470-630	20	0	27
S355J2		355	470-630	20	-20	27
S355K2		355	470-630	20	-20	40

Fine Grained Structural Steel Plates After Thermo Mechanical Rolling

EN 10025-4

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
S275M	8 ÷ 63 x 1500 ÷ 3000 x 4000 ÷ 18000	275	370 - 530	24	-20	40
S275ML					-50	27
S355M	8 ÷ 63 x 1500 ÷ 3000 x 4000 ÷ 18000	355	470 - 630	22	20	40
S355ML					-50	40
S420M	8 ÷ 63 x 1500 ÷ 3000 x 4000 ÷ 18000	420	520 - 680	19	-20	40
S420ML					-50	27
S460M	8 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 18000	460	540-720	17	-20	40
S460ML					-50	27
S500M	8 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 18000	500	580-760	15	-20	40
S500ML					-50	27



Grades and standards

Low Alloy Weather Resistant Steel Plates

EN 10025-5

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
S235J0W	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	235	360 - 510	24	0	27
S235J2W					-20	27
S355J0WP	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	355	470 - 630	20	0	27
S355J2WP					-20	27
S355J0W	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	355	470 - 630	20	0	27
S355J2W					-20	27
S355K2W					-20	40
S420J0W	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	420	500 - 660	17	0	2
S420J2W					-20	27
S420K2W					-20	40
S420J4W					-40	27
S420J5W					-50	27
S460J0W	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	460	530 - 710	15	0	27
S460J2W					-20	27
S460K2W					-20	40
S460J4W					-40	27
S460J5W					-50	27



Fine Grained Structural Steel Plates

EN 10025-3

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
S275N	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	275	370 - 510	24	-20	40
S275NL					-50	27
S355N		355	470 - 630	22	-20	40
S355NL					-50	27
S420N		420	520 - 680	19	-20	40
S420NL					-50	27
S460N		460	540 - 720	17	-20	40
S460NL					-50	27

Grades and standards continued...

Thermally Treated Structural Steel Plates

PN-EN 10025-6

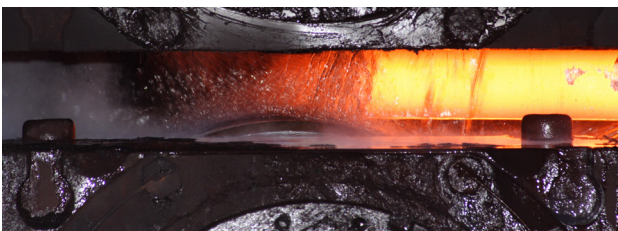
Structural heavy plates of low-carbon Cr-Ni-Mo steel, with microelements V and B, thermally treated and with high strength properties are used for building machines and devices operated in heavy-load conditions, mainly mobile cranes, road-making machines and mining devices.

Chemical Composition of Steel [%]

C Max	Mn Max	Si Max	P Max	S Max	Cr Max	Ni Max	Mo Max	CEV
0.20	1.70	0.80	0.020	0.010	1.50	4.00	0.70	0.47-0.85

Mechanical Properties

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
S460Q	8 ÷ 120 x 1500 ÷ 3000 x 4000 x 18000	460	550 - 720	17	-20	30
S460QL					-40	30
S460QL1					-60	30
S500Q		500	590 - 770	17	-20	30
S500QL					-40	30
S500QL1					-60	30
S550Q		550	640 - 820	16	-20	30
S550QL					-40	30
S550QL1					-60	30
S620Q		620	700 - 890	15	-20	30
S620QL					-40	30
S620QL1					-60	30
S690Q		690	770 - 940	14	-20	30
S690QL					-40	30
S690QL1					-60	30
S890Q	8 ÷ 100 x 1500 ÷ 3000 x 4000 x 18000	89	940 - 1100	11	-20	30
S890QL					-40	30
S890QL1					-60	30
S960Q	10 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 14000	960	980 - 1150	10	-20	30
S960QL					-40	30
S960QL1					-60	30



Grades and standards continued...

High Strength Structural Steel Plates (Rm=630-725 MPa) For Pressure Vessel Structures

ZN-S-03:2019

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
HC460/630N	7 ÷ 18 x 1500 ÷ 3000 x 4000 ÷ 14000	460	630 - 725	17	-20	35
HC460/630NL1					-40	27

Spring Steel Heavy Plates

PH-74/H-84032

Steel Grade	Dimensional Range [mm]	HBW Surface Hardness Max	Delivery Status	
65G	10 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	260	after rolling	
		241	after normalisation	
At customer's request possible tensile tests for normalised plates (Reference values in the table below)				
Dimensional Range [mm]		Re min. [Mpa]	Rm [Mpa]	Elongation min. [%]
10 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000		400	750	10

Non-Alloy Structural Steel Heavy Plates

ASTM-A283

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation min. [%] na 200 mm	Elongation min. [%] na 50 mm
A283 Grade C	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	205	380 - 515	22	25
A283 Grade D		230	415 - 550	20	23

C-MN Steel Plates Used in Ambient Temperature

ASTM-A573

Steel Grade	Dimensional Range [mm]	RP0,2 min. [MPa]	Rm [MPa]	Elongation, min. [%]	
				for 200 mm	for 50 mm
A285Gr.A	6 ÷ 70 x 1500 ÷ 3000 x 4000 ÷ 18000	165	310 - 450	27	30
A285Gr.B		185	345 - 485	25	28
A285Gr.C		205	380 - 515	23	27

Grades and standards continued...

HSLA Structural Steel Plates

ASTM-A572

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation min. [%]	
				na 200 mm	na 50 mm
A572 Gr. 42	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	290	415	20	24
A572 Gr. 50		345	450	18	21
A572 Gr. 55		380	485	17	20
A572 Gr. 60		415	520	16	18
A572 Gr. 65		450	550	15	17

Low-Alloy Structural Steel Heavy Plates

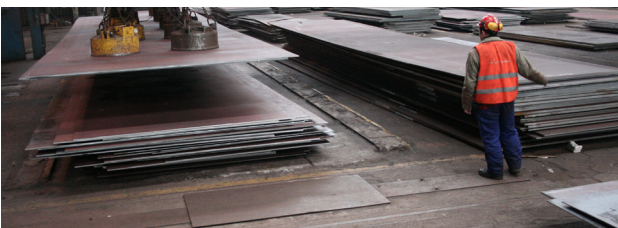
ASTM-A709

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation min. [%]	
				na 200 mm	na 50 mm
A709 GR 50 W	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	345	min. 485	18	21
A709 GR 70 W *		485	585 - 760	-	19
A709 GR 100 W *		690	760 - 895	-	18

Heat Treated Alloy Steel Heavy Plates Suitable for Welding

ASTM-A514

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation 50 min. [%]
A514GRB	8 ÷ 32 x 1500 ÷ 3000 x 4000 ÷ 14000	690	760 - 895	18
A514GRH	8 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 14000	690	760 - 895	18
A514GRF	8 ÷ 65 x 1500 ÷ 3000 x 4000 ÷ 14000	690	760 - 895	18



Grades and standards continued...

High Strength Low Alloy Structural Steel

ASTM-A588

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation min. [%] na 50 mm
A588GRB	6 ÷ 120 x 1500 ÷ 3000 x 4000 ÷ 18000	345	4854	21

Non Alloy Steel Plates for Pressure Vessels

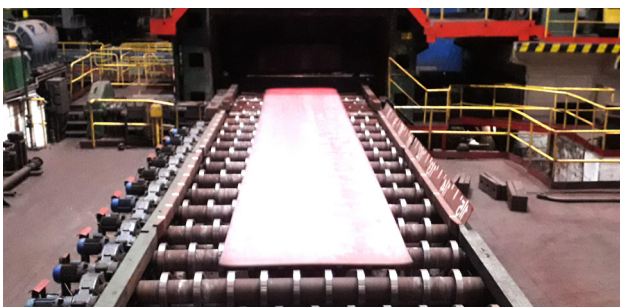
EN 10028-2

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
P235GH	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	235	360 - 480	24	-20	27
P265GH		265	410 - 530	22	-20	27
P295GH		295	460 - 580	21	-20	27
P355GH		355	510 - 650	20	-20	27

Alloy Steel Plates for Pressure Vessels

EN 10028-2

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
16Mo3	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	275	440 - 590	22	+20	31
13CrMo4-5	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	300	450 - 600	19	+20	31
10CrMo9-10	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	310	480 - 630	18	+20	31



Grades and standards continued...

Fine Grained Heavy Plates for Pressure Devices

EN 10028-3

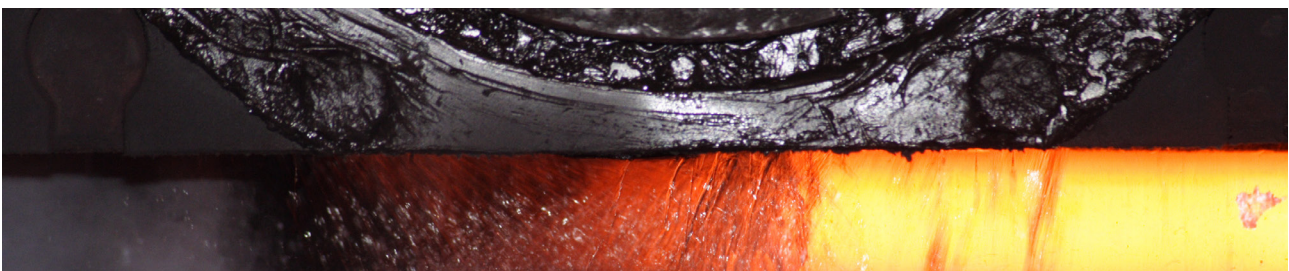
Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
P275NH	6 ÷ 110 x 1500 ÷ 3000 x 4000 ÷ 18000	275	390 - 510	24	-20	30
P275NL1		275	390 - 510	24	-40	27
P275NL2		275	390 - 510	24	-50	27
P355N		355	490 - 630	22	-20	30
P355NH		355	490 - 630	22	-40	30
P355NL1		355	490 - 630	22	-50	27
P355NL2		355	490 - 630	22	-20	27
P460NH	6 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	460	590 - 730	17	-40	30
P460NL1		460	590 - 730	17	-50	27
P460NL2		460	590 - 730	17	-50	27

*in thickness from 6 to 15mm, sheet length up to 14,000mm

Thermomechanically Rolled Fine Grained Structural Steel Plates for Pressure Vessels

EN 10028-5

Steel Grade	Dimensional Range [mm]	Re min. [Mpa]	Rm [Mpa]	Elongation A5 min. [%]	KV min	
					[°C]	[J]
P355M	8 ÷ 63 x 1500 ÷ 3000 x 4000 ÷ 18000	355	450 - 610	22	-20	27
P355ML1					-40	27
P355ML2					-50	27
P420M		420	500 - 600	19	-20	27
P420ML1					-40	27
P420ML2					-50	27
P460M	8 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 18000	460	530 - 720	17	-20	27
P460ML1					-40	27
P460ML2					-50	27



Grades and standards continued...

Heat Treated Heavy Plates for Pressure Vessels

EN 10028-6

Steel Grade	Dimensional Range [mm]	Reinin. [MPa]	Rm [MPa]	Elongation A5 min. [%]	KV min.	
					[°C]	[J]
P355Q	8 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 14000	355	490 - 630	22	-20	27
P355QH					-20	27
P355QL1					-40	27
P355QL2					-60	27
P460Q		460	550 - 720	19	-20	27
P460QH					-20	27
P460QL1					-40	27
P460QL2					-60	27
P500Q		500	590 - 770	17	-20	27
P500QH					-20	27
P500QL1					-40	27
P500QL2					-60	27
P690Q		690	770 - 940	14	-20	27
P690QH					-20	27
P690QL1					-40	27
P690QL2					-60	27

Molybdenum Alloy Heavy Plates for Boilers and Pressure Vessels

ASTM-A204

Steel Grade	Dimensional Range [mm]	Reinin. [MPa]	Rm [MPa]	Elongation min. [%]	
				for 200 mm	for 50 mm
A204 Gr.A	6 ÷ 75 x 1500 ÷ 3000 x4000 ÷ 18000	255	450-585	19	23
A204 Gr.B		275	485-620	17	21
A204 Gr.C		295	515-655	16	20

High Strength Carbon Steel Heavy Plates for Pressure Vessels for Moderate and Lower Temperature Service

ASTM-A612

Steel Grade	Dimensional Range [mm]	Reinin. [MPa]	Rm [MPa]	Elongation min. [%]	
				for 200 mm	for 50 mm
A612	6 ÷ 12.5 x 1500 ÷ 3000 x 4000 ÷ 18000	345	570 - 725	16	22
	above 12.5 ÷ 25 x 1500 ÷ 3000 x 4000 ÷ 18000	345	560 - 695	16	22

Grades and standards continued...

C-MN-SI Heat Treated Steel Plates for Pressure Vessels

ASTM-A537

Steel Grade	Dimensional Range [mm]	RP0,2 min. [MPa]	Rm [MPa]	Elongation min. [%] for 50 mm
A537 Class 1	6 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 18000	345	485 - 620	22
A537 Class 2	8 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 14000	415	550 - 690	22
A537 Class 3		380	550 - 690	22

Carbon Steel Pressure Plates with Low and Medium Tensile Strength

ASTM-A285

Steel Grade	Dimensional Range [mm]	RP0,2 min. [MPa]	Rm [MPa]	Elongation, min. [%]	
				for 200 mm	for 50 mm
A285Gr.A	6 ÷ 70 x 1500 ÷ 3000 x 4000 ÷ 18000	165	310 - 450	27	30
A285Gr.B		185	345 - 485	25	28
A285Gr.C		205	380 - 515	23	27

Heavy Plates for Pressure Vessels for Moderate and Lower Temperature Services

ASTM-A516

Steel Grade	Dimensional Range [mm]	RP0,2 min. [MPa]	Rm [MPa]	Elongation, min. [%]	
				for 200 mm	for 50 mm
A516 Gr. 60	6 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 18000	220	415 - 550	21	25
A516 Gr. 65		240	450 - 585	19	23
A516 Gr. 70		260	485 - 620	17	21



Grades and standards continued...

C-MN-SI Steel Heavy Plates for Pressure Vessels

ASTM-A662

Steel Grade	Dimensional Range [mm]	RP _{0,2} min. [MPa]	R _m [MPa]	Elongation, min. [%]	
				for 200 mm	for 50 mm
A662 Gr. A	6 ÷ 50 x 1500 ÷ 3000 x 4000 ÷ 18000	275	400 - 540	20	23
A662 Gr. B		275	450 - 585	20	23
A662 Gr. C		295	485 - 620	18	22

CR-MO Alloy Steel Plates for Pressure Vessels

ASTM-A387

Steel Grade	Dimensional Range [mm]	RP _{0,2} min. [MPa]	R _m [MPa]	Elongation, min. [%]	
				for 50 mm	for 200 mm
A387 Grade 11 cl1	6 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 14000	240	415 - 585	22	19
A387 Grade 11 cl2		310	515 - 690	22	18
A387 Grade 12 cl1		230	380 - 550	22	18
A387 Grade 12 cl2		275	450 - 585	22	19
A387 Grade 22 cl1		205	415 - 585	18	-
A387 Grade 22 cl2		310	515 - 690	18	-

Heat Treated High Strength Alloy Steel Plates for Pressure Vessels

ASTM-A517

Steel Grade	Dimensional Range [mm]	RP _{0,2} min. [MPa]	R _m [MPa]	Elongation, min. [%] for 50 mm
A517 Gr. B	6 ÷ 32 x 1500 ÷ 3000 x 4000 ÷ 14000	690	795 - 930	16
A517 Gr. E	6 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 14000	690	795 - 930	16
A517 Gr. F	6 ÷ 65 x 1500 ÷ 3000 x 4000 ÷ 14000	690	795 - 930	16

Grades and standards continued...

Sheet Plates for Welded Large Diameter Line Pipes

Low-carbon steel C-Mn microelements Nb, V, Ti after vacuum degassing process with modification of sulphide and oxide inclusions with cored wires.

Standard API 5L	Standard EN 10208-2	Rt 0,5 min. [MPa]
A	-	210
B	L245MB	245
X42	L290MB	290
X46	-	320
X52	L360MB	360
X56	-	390
X60	L415MB	415
X65	L450MB	450
X70	L485MB	485

Strength categories : K42 – K60, acc. to Russian Standards:

T Y 14-1-4627-96

T Y 14-1-5511-2005

T T 14-158-161-TCZP-2005

T Y 14-1-3636-96

T Y 14-1-1950-2004

Dimensions and admissions acc.: EN 10029, ASTM A6, ASTM A20, Г О С Т 19903 or customer's demands

Heavy Plates for Offshore Structures

EN 10225

Steel Grade	Thickness Range [mm]	ReH min. [MPa]	Rm [MPa]	Elongation A5 min. [%]	Impact Energy KV	
					[°C]	[J]
S355G2+N	6 ÷ 20 max	355	470÷630	22	-20	50
S355G3+N	6 ÷ 40 max	355	470÷630	22	-40	50
S355G5+M	8 ÷ 20 max	355	470÷610	22	-20	50
S355G6+M	8 ÷ 40 max	355	470÷610	22	-40	50
S355G7+M	8 ÷ 40 max	355	470÷630	22	-40	50
S355G7+N	6 ÷ 40 max	355	470÷630	22	-40	50
S355G8+M	8 ÷ 40 max	355	470÷630	22	-40	50
S355G8+N	6 ÷ 40 max	355	470÷630	22	-40	50
S355G9+N	6 ÷ 40 max	355	470÷630	22	-40	50
S355G9+M	8 ÷ 40 max	355	470÷630	22	-40	50
S355G10+N	6 ÷ 40 max	355	470÷630	22	-40	50
S355G10+M	8 ÷ 40 max	355	470÷630	22	-40	50
S420G1+QT	8 ÷ 40 max	420	500÷660	19	-40	60
S420G1+M	8 ÷ 40 max	420	500÷660	19	-40	60
S420G2+QT	8 ÷ 40 max	420	500÷660	19	-40	60
S420G2+M	8 ÷ 40 max	420	500÷660	19	-40	60

Grades and standards continued...

Shipbuilding Structural Plates

Production Range

Classification Society	Yield Strength Class	Dimensional Range [mm]		
		Thickness	Width	Length
Bureau Veritas	235, 315, 355	Jun-75	1500 - 3300	4000 - 18000
American Bureau of Shipping	235	Jun-51		
	315, 355	Jun-75		
DNV GL 1)	235, 315, 355	Jun-75		
Lloyd's Register of Shipping	235, 315, 355	Jun-75		
RINA S.p.A.	235, 315, 355	Jun-75		
Polish Ship Register	235, 315, 355	Jun-75		
Russian Maritime Register of Shipping	235, 315, 355	Jun-75		
	315, 355, 390	8 - 100 2)		
	500	6 - 70 2),3)		

1) DNV or GL certification possible at Customer's request 2) after heat treatment 3) F500W approval up to 40 mm

Mechanical Properties

Remin. [MPa]	Rm [MPa]	Impact Energy KV, min.		Classification Societies				
		[°C]	[J]	ABS	VL*	BV	LRS	PRS
Carbon steel								
235	400 - 520	-	-	A	VL A	A	A	A
235	400 - 520	0	27	B	VL B	B	B	B
235	400 - 520	-20	27	D	VL D	D	D	D
235	400 - 520	-40	27	E	VL E	E	E	E
Low-alloy steels with increased strength								
315	440 - 570	0	31	AH 32	VL A 32	AH 32	AH 32	AH 32
315	440 - 590	-20	31	DH 32	VL D 32	DH 32	DH 32	DH 32
315	440 - 590	-40	31	EH 32	VL E 32	EH 32	EH 32	EH 32
355	490 - 630	0	34	AH 36	VL A 36	AH 36	AH 36	AH 36
355	490 - 630	-20	34	DH 36	VL D 36	DH 36	DH 36	DH 36
355	490 - 630	-40	34	EH 36	VL E 36	EH 36	EH 36	EH 36

* DNV or GL certification possible at Customer's request



Grades and standards continued...

Russian Maritime Register of Shipping

Steel Grade	Remin. [MPa]	Rm [MPa]	Impact Energy KV, min.	
			[°C]	[J]
Carbon steel				
A	235	400 – 520	-	-
B			0	27
D			-20	27
E			-40	27
Low-alloy steels with increased strength				
A32	315	440 – 570	0	31
D32			-20	31
E32			-40	31
A36	355	490 – 630	0	34
D36			-20	34
E36			-40	34
A36W			0	50
D36W			-20	50
E36W			-40	50
A40	390	510 – 660	0	50
D40			-20	50
E40			-40	50
A40W			0	50
D40W			-20	50
E40W			-40	50
D500W	500	610 – 770	-20	80
E500W			-40	80
F500W			-60	80

Abrasion Resistant Heavy Plates

ZN-S-02-2019

Steel Grade	Thickness Range [mm]	Surface Hardness HBW
HARTPLAST 300	6 ÷ 50 max	Min . 270
HARTPLAST 400	10 ÷ 60	370 – 430
HARTPLAST 450		410 – 490
HARTPLAST 500		450 – 540
HARTPLAST 500 PREMIUM	10 ÷ 40	490 – 540

For plates in grade HARTPLAST400 following additional tests are available:

- bending test;
- mechanical properties;

Dimensions range and other parameters are specified in relevant material data sheets.

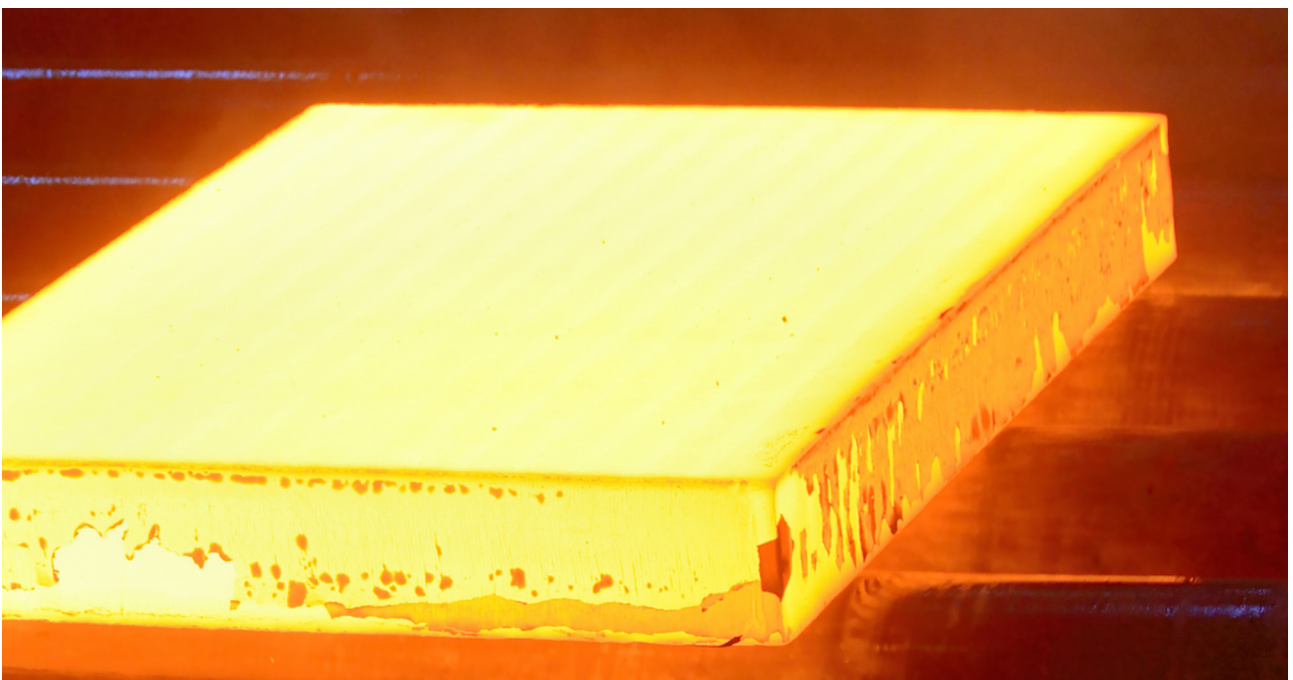
Grades and standards continued...

Heat Treated Non-Alloy Steel Plates

EN 10083-2

Mechanical Properties in Normalised Condition (+N)

Steel Grade	Dimensional Range [mm]	ReH min. [MPa]	Rm min. [MPa]	Elongation A5 min. [%]	Maximum Hardness after HBW Rolling Max
C35	10 ÷ 100 x 1500 ÷ 3000 x 4000 ÷ 18000	300	550	18	255
C35E					
C35R					
C40		320	580	16	255
C40E					
C40R					
C45		340	620	14	255
C45E					
C45R					
C55		370	680	11	255
C55E					
C55R					
C60		380	710	10	255
C60E					
C60R					



Grades and standards continued...

Alloy Heavy Plates Operated in Elevated Temperature

EN 10083-3

Steel Grade	Dimensional Range [mm]	HBW Max	
		after rolling	after normalisation
42CrMo4	8 ÷ 80 x 1500 ÷ 3000 x 4000 ÷ 18000	255	241
41Cr4	8 ÷ 80 x 1500 ÷ 3000 x 4000 ÷ 18000	255	241
27MnCrB-5	6 ÷ 75 x 1500 ÷ 300 x 4000 ÷ 18000	resulting value	↔

Special Plates

PN-EN 10084

Steel Grade	Dimensional Range [mm]	HBW Max
C10E	8 ÷ 15 x 1500 ÷ 3000 x 4000 ÷ 18000	140
16MnCr5	6 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 18000	207
20MnCr5	6 ÷ 75 x 1500 ÷ 3000 x 4000 ÷ 18000	255

Steel Plates with High Yield Strength for Cold Working - Thermomechanical Rolling

PN-EN 10149-2

Strip Dimensions [mm]		Dimensional Tolerances
Thickness	6+100	PN-H-92200, EN 10029, DIN 1543
Width	Min. 100	± 1,5 mm
Length	Max 16,000	± 3,0 mm

Steel Plates with High Yield Strength for Cold Working - Normalisation or Normalised Rolling

PN-EN 10149-2

Steel Grade	Dimensional Range [mm]	Reh min. [Mpa]	Rm min. [Mpa]	Elongation A ₅ min. [%]
S260NC	8 ÷ 20 x 1500 ÷ 3000 x 4000 ÷ 18000	260	370-490	30
S315NC		315	430-550	27
S355NC		355	470-610	25
S420NC		420	530-670	23

Certificates



Notified body No1697
Bureau Veritas Latvia
 17a Dunties street, Riga, LV-1005, Latvia



ANNEX TO CERTIFICATE: 1697-CPR-17/082

Date: 08/01/2021

CERTIFICATE OF CONFORMITY OF THE FACTORY PRODUCTION CONTROL

1697 – CPR – 17/082

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

hot rolled plates of structural steel grades
 (characteristics are detailed in the attached annex)

placed on the market under the name or trade mark of

**LIBERTY CZĘSTOCHOWA SPÓŁKA Z OGRANICZONĄ
 ODPOWIEDZIALNOŚCIĄ**

Al. Ujazdowskie 41, 00-540 Warszawa, Poland
 and produced in the manufacturing plant

ODDZIAŁ W CZĘSTOCHOWIE
 Ul. Kucelińska 22, 42-207 Częstochowa, Poland

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

**EN 10025-1:2004 Hot rolled products of structural steels
 Part 1: General technical delivery conditions**

under system 2+ are applied and that

the factory production control is assessed to be in conformity with the applicable requirements.

This certificate was first issued on 15/11/2008 and will remain valid until 13/05/2021 as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body.

To check the validity date of this certificate, please call +371 67323246.

Annex to certificate on 1 (one) page is integral part of this certificate.

Further clarification regarding the scope of this certificate and the applicability of the system requirements may be obtained by consulting to Bureau Veritas Latvia.

Certificate issued: Riga, 08/01/2021

Version: 4

Certificate validity: 13/05/2021

Bureau Veritas Latvia Ltd
 Member of the board

Iveta Lazdija

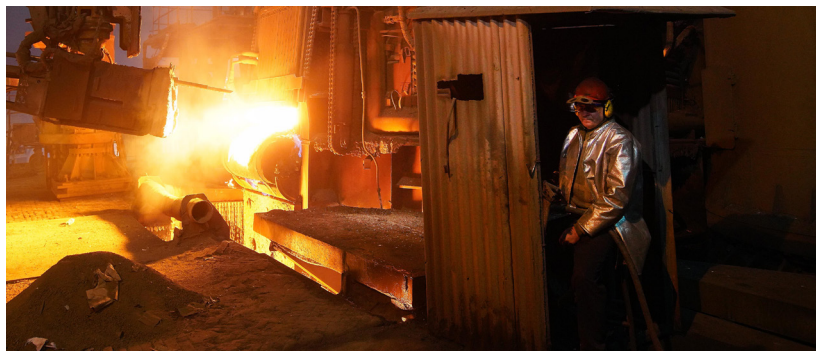


STANDARD	GRADE	THICKNESS (mm)
EN 10025-2, Hot rolled products of structural steels – Part 2: Technical delivery conditions for non-alloy structural steels	S235JR, S235J0, S235J2, S275JR, S275J0, S275J2, S355JR, S355J0, S355J2, S355K2	5 - 150
EN 10025-3 Hot rolled products of structural steels - Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels	S275N, S275NL, S355N, S355NL, S420N, S420NL, S460N, S460NL	5 - 100
EN 10025-4 Hot rolled products of structural steels - Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels	S275M, S275ML, S355M, S355ML, S420M, S420ML, S460M, S460ML	16 - 63
EN 10025-5 Hot rolled products of structural steels - Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance	S235J0W, S235J2W, S355J0WP, S355J2WP, S355K2W	5 - 40
EN 10025-6 Hot rolled products of structural steels - Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition	S460Q, S460QL, S460QL1, S500Q, S500QL, S500QL1, S550Q, S550QL, S550QL1, S620Q, S620QL, S620QL1, S690Q, S690QL, S690QL1	5 - 100

Bureau Veritas Latvia Ltd
 Member of the board
 Dunties street 17a, Riga, LV-1005, Latvia



Iveta Lazdija



Contact with the mill

Europe

Liberty Częstochowa

Liberty Częstochowa Sp. z o.o.

Oddział w Częstochowie

ul. Kucelińska 22

42-207 Częstochowa, Poland

E: czestochowa@libertysteelgroup.com

T: +48 343 238 133

For further information visit www.libertysteelgroup.com

