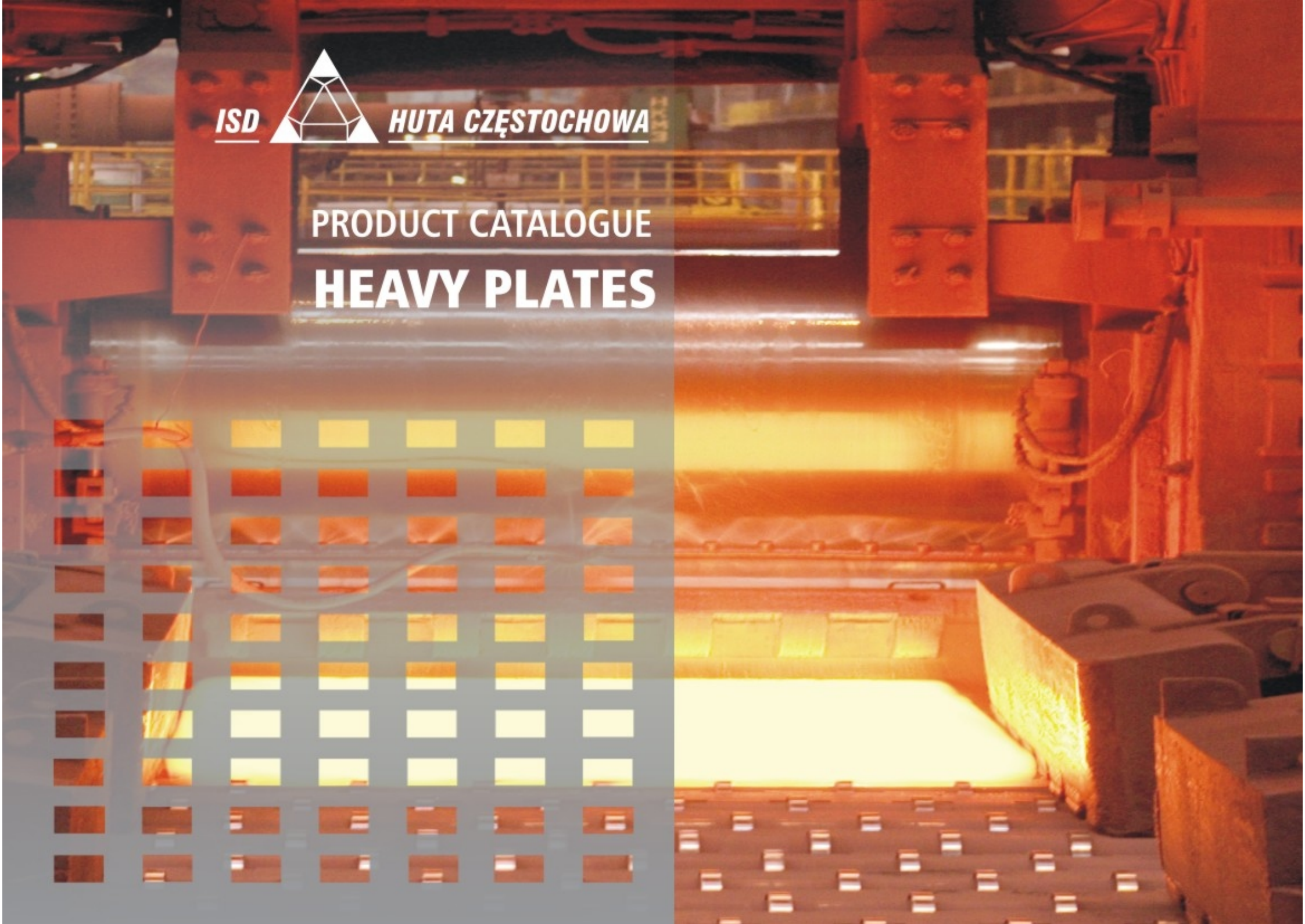


ISD HUTA CZĘSTOCHOWA

PRODUCT CATALOGUE

HEAVY PLATES



PAST, PRESENT and FUTURE

"It has been since the first century,
iron was at the beginning of every household"

Walenty Rożdzieński
Officina ferraria, Kraków 1612

More than 3000 years ago,
people learned how to smelt iron.
It was a milestone in the develop-
ment of our civilization.
Today after centuries of improving
production, there are several
hundred grades of different steels.
Modern steels are the most
innovative materials of new
technologies.
Nevertheless, steel has remained
the same phenomenon as it was
in the moment of its birth
- a brilliant discovery and
an irreplaceable material.

Steel is not only an element of our tradition and our presence but also an important part of the centuries ahead. That is why, every year more than one billion tonnes of steel is produced. It accounts for 93 per cent of all metals produced all over the world. Needles and super-tankers; razor blades and tanks; pen nibs and wind power plants; nails, pipes, bridges, drilling platforms, cranes, building machines, turbines...
Steel is able to be turned into each of these. No other material is so diversified and versatile.
Steel is resistant and flexible at once. Tough, malleable and resilient. Solid, low-cost and permanent.
Not without reason, we say that somebody is as hard as steel or that somebody has nerves of steel.
This simple iron alloy with carbon and other chemical elements is the symbol of strength, determination, energy and confidence.

In Częstochowa we have been dealing with the steel processing for almost 110 years. At the same time we produced over 50 mln tonnes of steel, which was mainly turned into heavy plates, tubes and pipes or earlier also into rails, wires, nails, rods.
Since 2005 Huta Częstochowa belongs to the Industrial Union of Donbass and it is named as ISD Huta Częstochowa Ltd.



TOWARDS MODERNITY

We have the experience, the knowledge and skills that allow to produce economically high-quality products in environmentally friendly way.
During the modernization we use projects and solutions of leading world companies:

There is nothing more stable...than changes. Our history is the best proof of that.
One thing is certain - we were always implementing new technologies that assure the highest quality of our products.

SCANDINAVIAN LANCERS - ladle furnace

VOEST-ALPINE INDUSTRIEANLAGENBAU - continuous casting machine

VITKOVICE HEAVY MACHINERY - system of vacuum degassing and vacuum-oxygen decarburization VD/VOD

DAVY-CLECIM - modernization of finishing mill stand

BOC GASES - cryogenic oxygen plant

DANIELI CENTRO MET - electric arc furnace KONEL®

BSE, Siemens-VAI, LOI, GIETRAD, NDT, TAMINI - investments and modernizations in Steel Plant and Plate Mill

The high-quality level of our work and manufactured products is supported by the Quality Management System based on following standard ISO 9001:2000 and it is certified by the BUREAU VERITAS CERTIFICATION (*N° PL9000024*).
The respective certificates of: ABS, DNV, GL, LR, PRS, BV, RINA, TDT, TÜV, DB, UDT, TRANSSERT provide the quality guarantee of our products.
Our laboratories are certified by BUREAU VERITAS in accordance with EN ISO/IEC 17025:2005; they have the 2nd degree certificate granted by UDT. Moreover the Central Laboratory complies the requirements of the standard PN-EN-ISO 45001, concerning criteria, requirements, activities and laboratories competence and gained the Approval Certificate of the Polish Ship Register.
The full list of certificates is available on www.isd-hcz.com.pl



INTEGRATED MANAGEMENT SYSTEM

CERTIFICATE ISO 9001:2000

BUREAU VERITAS
Certification

Certificate

Awarded to

ISD HUTA CZĘSTOCHOWA Sp. z o.o.
ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARDS

ISO 9001:2000

SCOPE OF SUPPLY

Design and production of:
- steel ingots, which are designed for plates, rolling stock, pressure equipment and seamless pipes,
- plates and heavy plates in the as-rolled and a heat-treated condition: structural plates of normal, increased and high strength steel, weather resistant plates, abrasion resistant plates, ship plates, boiler plates, plates for pressure vessels, plates for welded line pipes, plates for rolling stock,
- pipes in the as-rolled and a heat-treated condition: oil country tubular goods (threaded & coupled casing, socketed casing, couplings for casing), structural pipes of normal, increased and high strength steel, ship pipes, boiler pipes, line pipes for oil and gas transportation, anticorrosive coated pipes, abrasion resistant pipes, and pipes for general purposes.

Original Approval Date: **24 May 1996**
Approval Date: **9 February 2009**

Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: **8 February 2012**

To check this certificate validity please call: +48 58 666 30 20
Further clarification regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Issue Date: 9 February 2009

Certificate Number: **PL9000024**

Naumowicz Marta

UKAS

008



INTEGRATED MANAGEMENT SYSTEM

CERTIFICATES ISO 14001:2004 and PN-N 18001:2004

BUREAU VERITAS Certification

Certificate

Awarded to

ISD HUTA CZĘSTOCHOWA Sp. z o.o.

ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARDS

ISO 14001:2004

SCOPE OF SUPPLY

Design and production of:
- steel ingots, which are designed for plates, rolling stock, pressure equipment and seamless pipes,
- plates and heavy plates in the as-rolled and a heat-treated condition: structural plates of normal, increased and high strength steel, weather resistant plates, abrasion resistant plates, ship plates, boiler plates, plates for pressure vessels, plates for welded line pipes, plates for rolling stock,
- pipes in the as-rolled and a heat-treated condition: oil country tubular goods (threaded & coupled casing, socketed casing, couplings for casing), structural pipes of normal, increased and high strength steel, ship pipes, boiler pipes, line pipes for oil and gas transportation, anticorrosive coated pipes, abrasion resistant pipes, and pipes for general purposes.

Original Approval Date: **14 December 2005**
Approval Date: **9 February 2009**

Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: **8 February 2012**

To check this certificate validity please call: +48 58 666 30 20
Further clarification regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.

Issue Date: 9 February 2009

Certificate Number: **PL9000025**

Naumowicz Marta

UKAS MANAGEMENT

008

BUREAU VERITAS Certification

Certificate

Awarded to

ISD HUTA CZĘSTOCHOWA Sp. z o.o.

ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARDS

PN-N 18001:2004

SCOPE OF SUPPLY

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- steel ingots, which are designed for plates, rolling stock, pressure equipment and seamless pipes,
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Original Approval Date: **14 December 2005**
Approval Date: **9 February 2009**

Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: **8 February 2012**

To check this certificate validity please call: +48 58 666 30 20
Further clarification regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.

Issue Date: 9 February 2009

Certificate Number: **PL9000023**

Naumowicz Marta

PCA

AC 081
BHP



ISD Huta Częstochowa - from the inside

STEEL PLANT

A modern production line enables production of many high-quality steel grades. Steel is smelted in the electric arc furnace KONEL® and subsequently homogenized, refined in the ladle furnace and finally vacuum degassed into vacuum tank degasser.
We smelt lots of high-quality steel grades using pig iron, steel scraps, ferroalloys and additives. Steel is casted in slabs and blooms, next it is processed into heavy plates and seamless pipes and tubes.

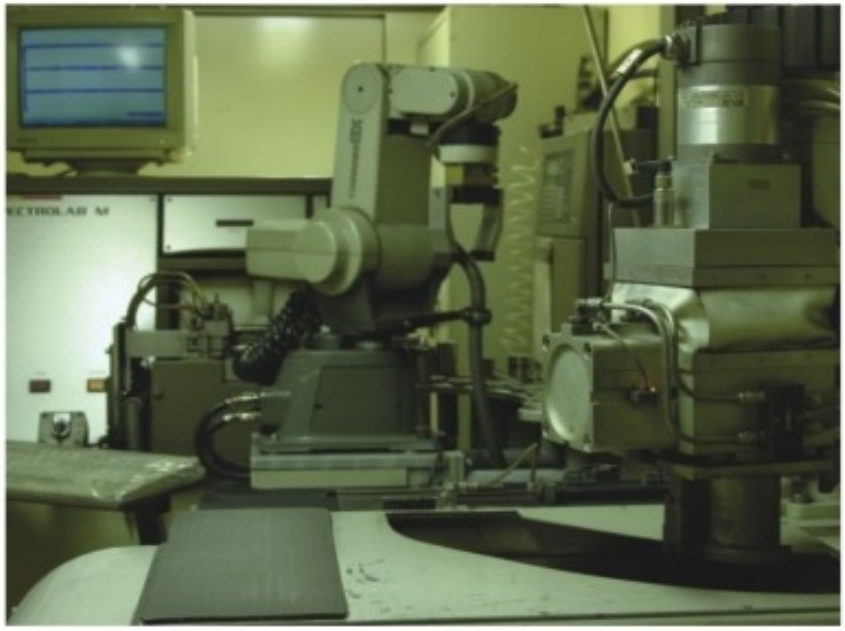


Ladle with liquid steel in the vacuum tank VTD

QUALITY CONTROL LABORATORIES

Each stage of our iron making and plate production is regulated by the quality assurance programme, consisting of the quality planning, control and inspections.
All intermediate and final products are subjected to numerous technological, mechanical checks, as well as metallographic and chemical tests.
All operations use the most up-to-date testing methods and modern laboratory equipment.

(Full offer of laboratory services at the page 33)



Container Spectrometric Laboratory of chemical steel analysis



STEEL



STEELMAKING PROCESS

- Electric arc furnace based on DANARC SYSTEM
- **SECONDARY METALLURGY**
  - ladle furnace with 100 t capacity
  - vacuum degassing and vacuum oxygen decarburization facility (VD/VOD)
- CONTINUOUS CASTING MACHINE with straight, removable moulds give possibility to cast slabs or blooms in the following dimensions:

  slabs: one strand in thickness 150, 225 or 250 mm and width 1100 ÷ 2000 mm
  blooms: three square strands 280 x 280 mm

PRODUCTS MIX

- carbon and C-Mn microalloyed steels
- shipbuilding and offshore steels
- carbon and low-alloy boiler steels
- pressure vessel steels
- abrasion resistant steels
- weather resistant steels
- structural fine-grained Q & T steels

STEEL QUALITY PARAMETERS

- The possibility of limitation of S to max. 0,002%
- The possibility of limitation of H_2 to max. 0,00015% (1,5 ppm.)
- Internal quality of steel products is controlled acc. to: SEL 072, PN-EN 10160, ASTM-A435, ASTM-SA435, ASTM-A578, ASTM-SA578, BS 5996, ISO 12074, GOST 22727 and other standards based on a customer's request.



HEAVY PLATES

PLATE MILL

This is our biggest department. Here, in a reversing four-high mill we produce from concast slabs our flagship product - heavy plates.
Technical solutions used in the plate mill enable producing many categories of steel plates with various properties and applications.
Plates are delivered as rolled AR, controlled rolled CR (normalized rolled NR), thermo-mechanically rolled TM and quenched & tempered Q&T.
Two independent shearing lines allow cutting the plates in customized dimensions required for specific projects or individual requirements of our Clients.

- FOUNDING YEAR/MODERNIZATION
  1973/1978/1996/2008
- PRODUCTION CAPACITY
  1 200 000 t/y
- Type: 2-stand quarto reversing plate mill
- EQUIPMENT
  - pusher furnaces for slabs heating
  - 2-high vertical edger ϕ 900/1000 mm
  - 4-high roughing stand ϕ 1100/1800x3600 mm
  - 4-high finishing mill ϕ 1000/1800x3600 mm
    equipped with hydraulic automatic gauge control system (HAGC)
    and roll bending system (WRB)
  - MULPIC technology for Accelerated Controlled Cooling ACC and Direct Quenching DQ
  - roller hearth normalizing furnace
  - two shearing lines
  - heat treatment department:
    roller hearth austenitizing furnace
    hardening/quenching water press
    tempering furnace
    three boogie-hearth furnaces and quenching tank for normalizing, quenching and tempering heavy plates with thickness up to 150 mm
  - shot-blasting and priming facilities (two separate lines with capacity of 20 kT per month)
- QUALITY MANAGEMENT SYSTEM
  - QMS acc. to ISO 9001:2000 Standard is supported by the computer assurance system of rolling management processes and the quality control system of heavy plates.



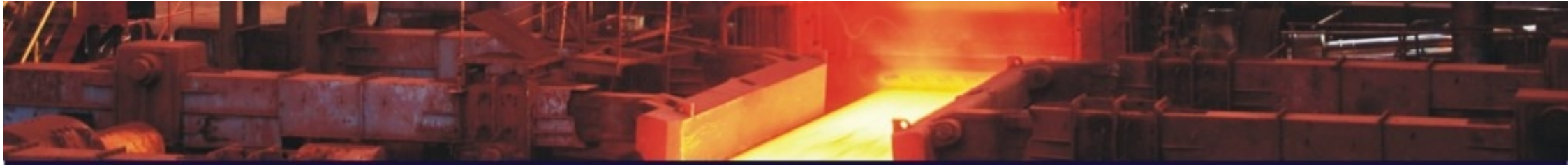
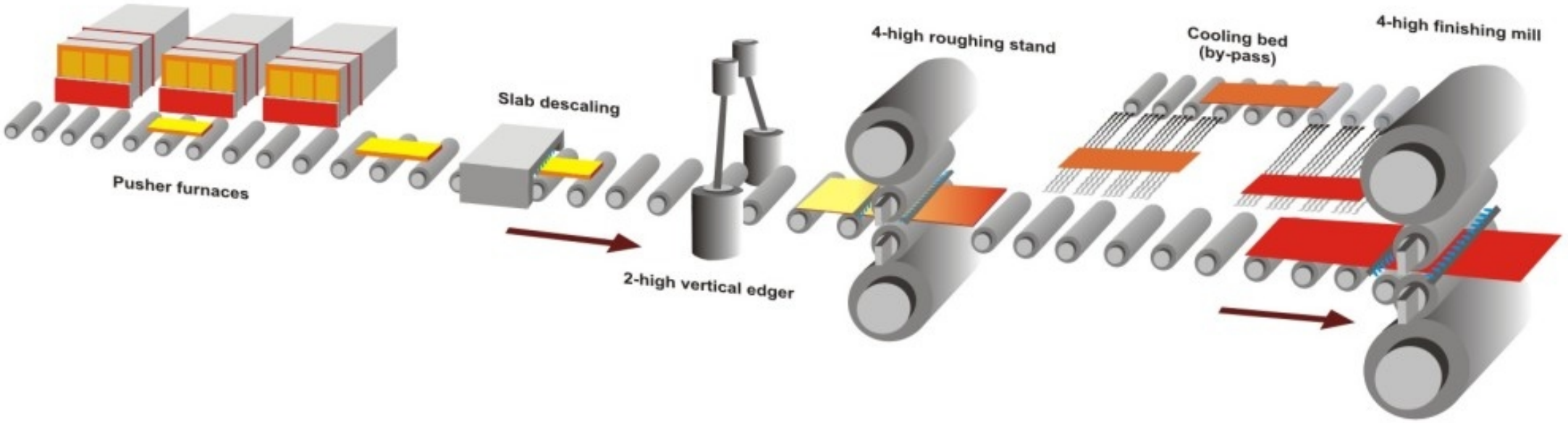


PLATE MILL - ROLLING LINE





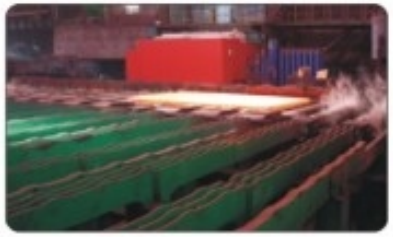
Three pusher furnaces



Slab descaling
2-high vertical edger



4-high roughing stand



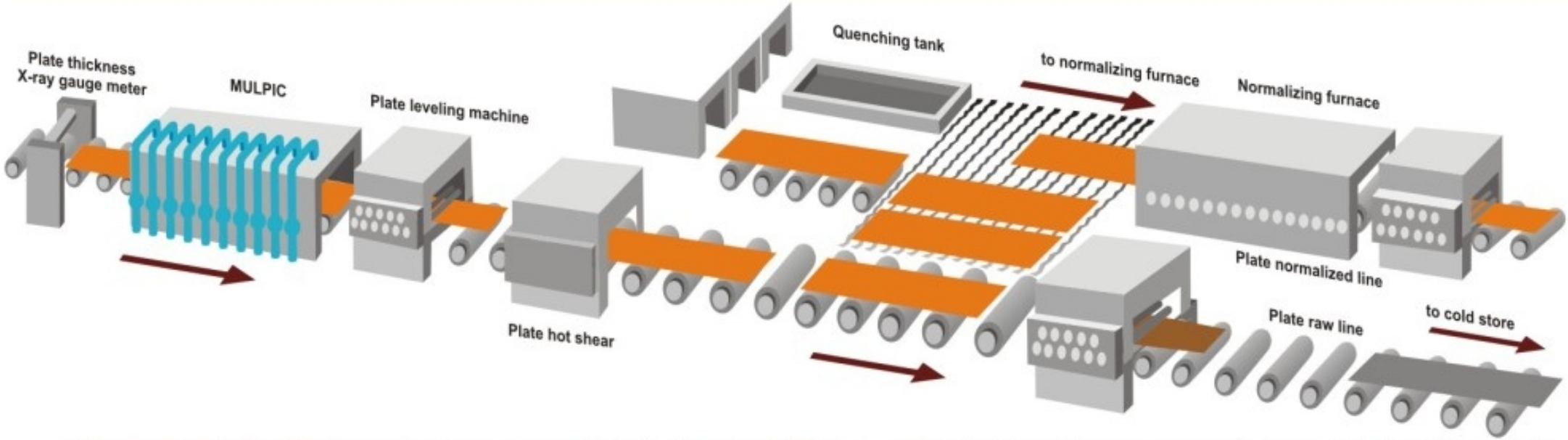
Cooling bed
(by-pass)



4-high finishing mill



PLATE MILL - HOT FINISHING COURSE





MULPIC
(ACC + DQ)



Plate leveling machine
Plate hot shear



Three boogie-hearth furnaces



Normalizing furnace



Cooling bed



HEAVY PLATES - PRODUCTION RANGE

plate dimensions [mm]			dimension tolerances
thickness	width	length	
6 ÷ 70 [150]	1500 ÷ 3300	2000 ÷ 12000 [18000]	EN 10029 DIN 1543 ASTM A6 ASTM A20

[] - permissible plate dimensions are separately agreed with manufacturers

Notice: All plates are available in max. weight of single plate of 10 t.
Plates in commercial grades are offered in max. weight of 12,5 or 14,5 t but it must be agreed.

PLATES with MECHANICALLY CUT EDGES

plate thickness [mm]	plate width [mm]							
	1500	1750	2000	2250	2500	2750	3000	3300
	maximum plate length [mm]							
6					6 X 2600			
7						7 X 2800		
8							8 X 3000	
9								
10								
11								
12								12 X 3300
13								
14								
15								
16								
17								
18								
19				12 - 18 m				
20								
21								
22								
23								
24								
25								
26								
27								
28								
29				12 m				
30								
32								
34								
36								
38								11,0
40						11,8		10,0
50								9,0



PRODUCTION RANGE for HEAVY PLATES with THICKNESS OVER 40mm and FLAME CUT EDGES

plate thickness [mm]	plate width [mm]								
	1000	1250	1500	1750	2000	2250	2500	2750	3000
	plate length [m.]								
45	11,7	9,3	15,0	13,3	11,7	10,4	9,3	8,5	7,8
50	10,5	8,4	13,5	12,0	10,5	9,3	8,4	7,6	7,0
55	9,5	7,6	12,2	11,0	9,5	8,5	7,6	6,9	6,4
60	8,7	7,0	11,0	10,0	8,7	7,8	7,0	6,4	5,8
65	8,0	6,5	10,0	9,2	8,0	7,2	6,5	5,9	5,4
70	7,5	6,0	9,0	8,6	7,5	6,7	6,0	5,4	5,0

SHAPE and DIMENSION TOLERANCES — Acc. to EN 10029

nominal thickness [mm]	permissible nominal thickness deviation [mm]				max. permissble deviation for individual plate thickness at nominal width [mm]			
	class A	class B	class C	class D	1000<2000	2000<2500	2500<3000	3000 3100
6 ÷<8	-0,4 +1,1	-0,3 +1,2	0 +1,5	-0,75+0,75	0,9	0,9	1,0	1,0
8 ÷<15	-0,5 +1,2	-0,3 +1,4	0 +1,7	-0,85+0,85	0,9	1,0	1,0	1,1
15 ÷<25	-0,6 +1,3	-0,3 +1,6	0 +1,9	-0,95+0,95	1,0	1,1	1,2	1,2
25 ÷<40	-0,8 +1,4	-0,3 +1,9	0 +2,2	-1,1+1,1	1,1	1,2	1,2	1,3
40 ÷≤70	-1,0 +1,8	-0,3 +2,5	0 +2,8	-1,4+1,4	1,2	1,3	1,4	1,4

nominal width [mm]		permissible deviation [mm]	
>1 000	<2 000	0	+20
2 000	<3 000	0	+25
3 000	3 300	0	+30

nominal length [mm]		permissible deviation [mm]	
2 000	<4 000	0	+20
4 000	<6 000	0	+30
6 000	<8 000	0	+40
8 000	<10 000	0	+50
10 000	18 000	0	+75

NORMAL and SPECIAL TOLERANCES of FLATNESS, Class N & Class S — acc. to EN 10029

Class N

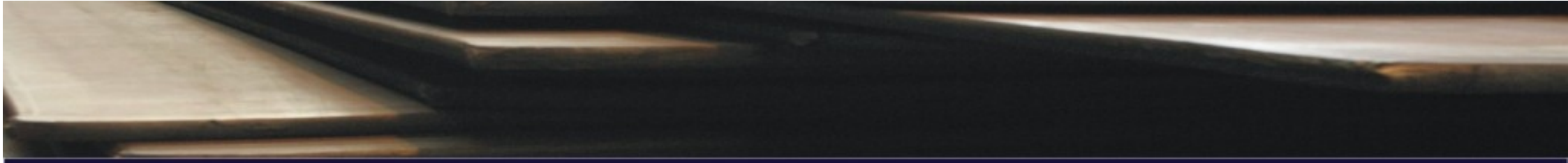
plate thickness [mm]	steel type L, measurement length [mm] 1000	steel type L, measurement length [mm] 2000	steel type H, measurement length [mm] 1000	steel type H, measurement length [mm] 2000
6 ÷<8	8	12	11	15
8 ÷<15	7	11	10	14
15 ÷<25	7	10	10	13
25 ÷<40	6	9	9	12
40 or more	5	8	8	11

Steel type L: Products with the minimal yield strength **R_min ≤ 460 MPa** with the excepted of hardened or thermally treated products

Class S

plate width [mm]	plate thickness [mm]	steel type L, measurement length [mm] 1000	steel type L, measurement length [mm] 2000	steel type H, measurement length [mm] 1000	steel type H, measurement length [mm] 2000
<2750	6 ÷<8	4	8	It shall be agree when ordering	
	8 ÷≤250	3	6		
≥2750	6 ÷<8	5	10		
	8 ÷≤250	3	6		

Steel type S: Products with the minimal yield strength **R_min > 460 MPa** and **< 700 MPa** and hardened or thermally treated products from all steel grades



STRUCTURAL STEEL PLATES

NON-ALLOY STRUCTURAL STEEL PLATES EN 10025-2:2004

steel grade	material number	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	$KV_{min.}$	
					°C	J
S235JR	1.0038	235	360-510	24	20	27
S235JO	1.0114	235	360-510	24	0	27
S235J2	1.0117	235	360-510	24	-20	27
S275JR	1.0044	275	410-560	20	20	27
S275JO	1.0143	275	410-560	20	0	27
S275J2	1.0145	275	410-560	20	-20	27
S355JR	1.0045	355	470-630	20	20	27
S355JO	1.0553	355	470-630	20	0	27
S355J2	1.0577	355	470-630	20	-20	27
S355K2	1.0596	355	470-630	20	-20	40

NON-ALLOY STRUCTURAL STEEL PLATES ASTM-A283

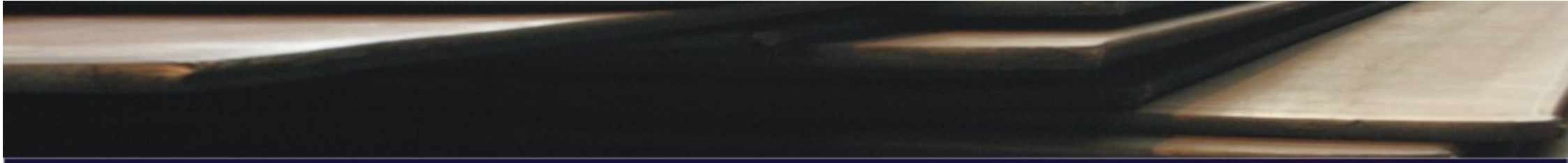
steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]
			in 200 mm
Grade A	165	310 - 415	27
Grade B	185	345 - 450	25
Grade C	205	380 - 515	22
Grade D	230	415 - 550	20

C-Mn STEEL PLATES OPERATED in AMBIENT TEMPERATURE ASTM-A573

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	
			in 200 mm	in 50 mm
A573 Gr.65	240	450-530	20	23
A573 Gr.70	290	485-620	18	21

DIMENSIONAL RANGE

steel grade	dimensional range [mm]		
	thickness	width	length
S235JR - S355J2+N S355K2+N - S355K2W	6 - 120	1500 - 3310	4000 - 18000



NON-ALLOY STRUCTURAL STEEL PLATES DIN 17100

steel grade	material number	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	$KV_{min.}$	
					°C	J
St 37-2	1.0037	235	340-470	24	+20	27
RSt 37-2	1.0038	235	340-470	24	+20	27
St 37-3U	1.0116	235	340-470	24	0	27
St 37-3N	1.0116	235	340-470	24	-20	27
St 44-2	1.0044	275	410-540	20	+20	27
St 44-3U	1.0144	275	410-540	20	0	27
St 44-3N	1.0144	275	410-540	20	-20	27
St 52-3U	1.0570	355	490-630	20	0	27
St 52-3N	1.0570	355	490-630	20	-20	27

HSLA STEEL PLATES ASTM-A572

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	
			in 200 mm	in 50 mm
A572 Gr.42	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



SHIPBUILDING PLATES

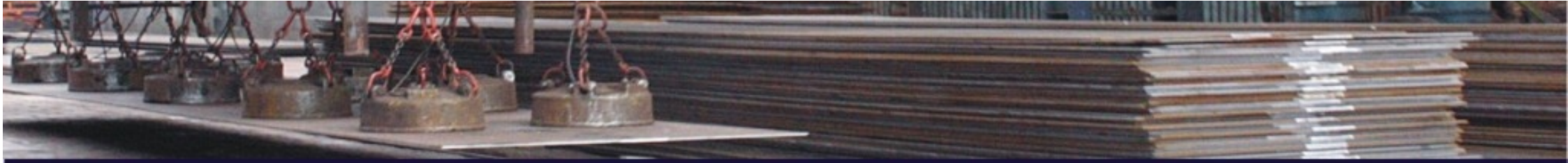
MECHANICAL PROPERTIES

Re, min. [MPa]	Rm [MPa]	impact work KV, min.		classification societies					
		°C	J	ABS	DNV	GL	BV	LRS	PRS
					carbon steel				
235	400-520	-	-	A	NVA	GL-A	A	A	A
235	400-520	0	27	B	NVB	GL-B	B	B	B
235	400-520	-20	27	D	NVD	GL-D	D	D	D
235	400-520	-40	27	E	NVE	GL-E	E	E	E
					HSLA steel				
315	440-570	0	31	AH 32	NVA 32	GL-A 32	AH 32	AH 32	AH 32
315	440-570	-20	31	DH 32	NVD 32	GL-D 32	DH 32	DH 32	DH 32
315	440-570	-40	31	EH 32	NVE 32	GL-E 32	EH 32	EH 32	EH 32
355	490-620	0	34	AH 36	NVA 36*	GL-A 36	AH 36	AH 36	AH 36
355	490-620	-20	34	DH 36	NVD 36*	GL-D 36	DH 36	DH 36	DH 36
355	490-620	-40	34	EH 36	NVE 36*	GL-E 36	EH 36	EH 36	EH 36

* for DNV R_{eH}=470-620 MPa

PRODUCTION RANGE

classification society	yield strength class	dimensional range [mm]		
		thickness	width	length
Bureau Veritas	235, 315, 355	6-50	1500 - 3300	4000 - 18000
American Bureau of Shipping	235	6-51		
	315, 355	6-60		
Det Norske Veritas	235, 315, 355	6-50		
Germanischer Lloyd	235, 315, 355	6-50		
Lloyd's Register of Shipping	235, 315, 355	6-50		
RINA S.p.A.	235	6-51		
	315, 355	6-60		
Polish Ship Register	235, 315, 355	6-50		



HEAVY PLATES for THE OFFSHORE STRUCTURES acc. to DNV-OS-B101

Re, min. [MPa]	Rm [MPa]	Specimen Z	Impact work min.(longitudinal) °C	J	Steel grade	Delivery condition	Dimensional range [mm]
			NORMAL STRENGTH				
235	400-520		-	-	NV A	AR	6 ÷ 50 x 1500 ÷ 3300 x 4000 ÷ 18000
			0	27	NV B	AR	
			-20	27	NV D	N	
			-40	27	NV E	N	
			HIGH STRENGTH - NORMAL WELDABILITY				
315	440-590		0	31	NV B32	N	
			-20	31	NV D32	N	
			-40	31	NV E32	N	
355	490-620		0	34	NV B36	N	
			-20	34	NV D36	N	
			-40	34	NV E36	N	
			HIGH STRENGTH - IMPROVED WELDABILITY Impact strength min.(transverse)				
315	440-590	35	0	44	NV AW32	TM	6 ÷ 40 x 1500 ÷ 3300 x 4000 ÷ 18000
			-20	44	NV DW32	TM	
			-40	44	NV EW32	TM	
355	490-620	35	0	50	NV AW36	TM	
			-20	50	NV DW36	TM	
			-40	50	NV EW36	TM	

FINE-GRAINED STRUCTURAL STEEL PLATES for PRESSURE VESSELS EN 10025-3:2004

steel grade	dimensional range [mm]	Re, min. [MPa]	Rm [MPa]	elongation A_5 min. [%]	carbon equivalent max. %
S275N S275NL	6 ÷ 120 x 1500 ÷ 3050 x 4000 ÷ 18000	275	370 ÷ 510	24	0,40
S355N S355NL		355	470 ÷ 630	22	0,43
S420N S420NL		420	520 ÷ 680	19	0,48
S460N S460NL		460	540 ÷ 720	17	-

IMPACT TESTS

steel grade	impact strength KV_{min} [J] for test temperature in °C						
	+20	0	-10	-20	-30	-40	-50
S275N; S355N; S420N; S460N	55	47	43	40	-	-	-
S275NL; S355NL; S420NL; S460NL	63	55	51	47	40	31	27



HEAVY PLATES OPERATED in ELEVATED TEMPERATURES

NON-ALLOY STEEL PLATES FOR PRESSURE DEVICES EN 10028-2

steel grade	dimensional range [mm]	Re, min. [MPa]	Rm [MPa]	elongation A_5 min. %	$KV_{min.}$ °C	$KV_{min.}$ J
P235GH	8 - 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 DEVICES EN 10028-2

steel grade	material number	Re, min. [MPa]	Rm [MPa]	elongation A_5 min. %	$KV_{min.}$ °C	$KV_{min.}$ J
16 Mo 3	1.5415	275	440-590	22	+20	31
13CrMo4-5	1.7335	300	450-600	19	+20	31
10CrMo9-10	1.7380	310	480-630	18	+20	31

NORMALIZED FINE-GRAINED STEEL PLATES EN 10028-3

steel grade	dimensional range [mm]	Re, min. [MPa]	Rm [MPa]	elongation A_5 min. %	KV_{min} [J] /longitudinal/ for test temperature in [°C] -50	-40	-20	0	+20
P275NH	8 - 100 x 1500 - 3300 x 4000 - 18000	275	390-510	24	-	-	45	65	75
P275NL1		275	390-510	24	30	40	50	70	80
P275NL2		275	390-510	24	42	45	55	75	85
P355N		355	490-630	22	-	-	45	65	75
P355NH		355	490-630	22	-	-	45	65	75
P355NL1		355	490-630	22	30	40	50	70	80
P355NL2		355	490-630	22	42	45	55	75	85
P460NH		460	570-720	17	-	-	45	65	75
P460NL1		460	570-720	17	30	40	50	70	80
P460NL2		460	570-720	17	42	45	55	75	85



HEAVY PLATES OPERATED in ELEVATED TEMPERATURES

ALLOY-MOLYBDENUM STEEL PLATES for BOILERS and PRESSURE VESSELS
ASTM-A204

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	
			in 200 mm	in 50 mm
A204 Gr.A	255	450-585	19	23
A204 Gr.B	275	485-620	17	21
A204 Gr.C	295	515-655	16	20

HIGH STRENGTH STEEL PLATES for PRESSURE VESSELS OPERATED in LOW and MODERATE TEMPERATURES ASTM-A612

steel grade	plate thickness [mm]	Re, min. [MPa]	Rm [MPa]	elongation min. [%]		impact strength KV_{min}	
				in 200 mm	in 50 mm	°C	J
A612	6-12,5	345	570-725	16	22	-46	27
	over 12,5-25	345	560-695	16	22	-46	27

C-Mn-Si HEAT TREATED STEEL PLATES for PRESSURE VESSELS
ASTM-A537

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]		impact strength KV_{min}	
			in 200 mm	in 50 mm	°C	J
A537 Class 1	345	485-620	18	-	-62	20
A537 Class 2	415	550-690	-	22	-68	27
A537 Class 3	380	550-690	-	22	-	-



HEAVY PLATES for PRESSURE VESSELS OPERATED in LOW and MODERATE WORKING TEMPERATURES

CARBON STEEL PLATES ASTM-A516

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]		impact strength KV min.	
			in 200 mm	in 50 mm	°C	J
A516 Gr.60	220	415-550	21	25	-51	18
A516 Gr.65	240	450-585	19	23	-51	18
A516 Gr.70	260	485-620	17	21	-46	20

C-Mn STEEL PLATES ASTM-A662

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%] in 200 mm
A662 Gr.A	275	400-540	20
A662 Gr.B	275	450-585	20
A662 Gr.C	295	485-620	18

Cr-Mo ALLOY STEEL PLATES for PRESSURE VESSELS ASTM-A387

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%] in 50 mm
grade 5 cl1	205	415 - 585	18
grade 5 cl2	310	515 - 690	18
grade 11 cl1	240	415 - 585	19
grade 11 cl2	310	515 - 690	22
grade 12 cl1	230	380 - 550	22
grade 12 cl2	275	450 - 585	22
grade 22 cl1	205	415 - 585	18
grade 22 cl2	310	515 - 690	18

HEAT TREATED HIGH STRENGTH ALLOY STEEL PLATES ASTM-A517

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%] in 50 mm
A517 Gr.B	690	795 - 930	16
A517 Gr.F	690	795 - 930	16

Impact strength for the above-mentioned grades acc. to ASTM-A20

HEAT TREATED NON-ALLOY STEEL PLATES EN 10083-2

C35, C35E, C35R
C40, C40E, C40R
C45, C45E, C45R
C55, C55E, C55R
C60, C60E, C60R

Plates are delivered after rolling processes.
There are an opportunity to make samples after the normalization or heat treatment processes.
For customer wishes, plates may be delivered after the normalization or heat treatment processes.



THERMOMECHANICALLY ROLLED FINE-GRAINED STRUCTURAL STEEL PLATES for PRESSURE VESSELS

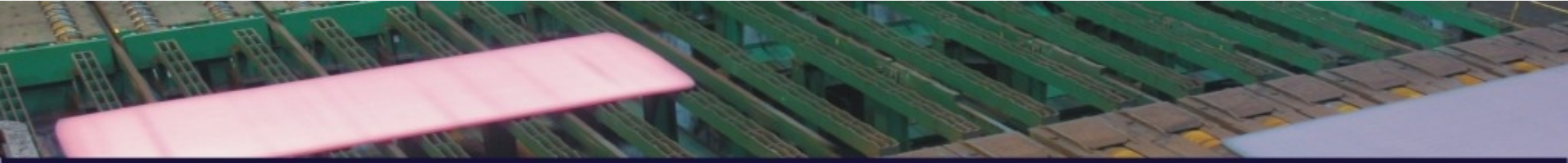
steel grade	standard	plate thickness [mm]	Re, min. [MPa]	Rm [MPa]	elongation A, min. %	impact strength KV [°C]	impact strength KV [J]$_{min.}$
S275M S275ML	EN 10025-4:2004	10 - 70	275	370-510	24	-20 -50	40 27
S355M S355ML		10 - 70	355	470-630	22	-20 -50	40 27
S420M S420ML		10 - 70	420	520-680	19	-20 -50	40 27
S460M S460ML		10 - 50	460	540-720	17	-20 -50	40 27

THERMOMECHANICALLY ROLLED FINE-GRAINED STRUCTURAL STEEL PLATES FOR PRESSURE VESSELS EN 10028-5:2003

steel grade	plate thickness [mm]	Re, min. [MPa]	Rm [MPa]	elongation A, min. [%]	impact strength KV [°C]	impact strength KV [J]$_{min.}$
P355M P355ML1 P355ML2	10 - 70	355	450 - 610	22	-20 -40 -50	27 27 27
P420M P420ML1 P420ML2	10 - 70	420	500 - 660	19	-20 -40 -50	27 27 27
P460M P460ML1 P460ML2	10 - 50	460	530 - 720	17	-20 -40 -50	27 27 27

DIMENSIONAL RANGE

	plate width [mm]						
plate thickness [mm]	1750	2000	2250	2500	2750	3000	> 3000 (max 3320)
10	X	X	X	X	X	X	
40	X	X	X	X	X	X	
45	X	X	X	X	X	X	
50	X	X	X	X	X	X	
55	X	X	X	X	X	X	
60	X	X	X	X	X	X	
65	X	X	X	X			
70	X	X	X	X			



STRUCTURAL STEEL PLATES S500Q - S960QL

ACC. TO PN-EN 10025-6:2004

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

CHEMICAL COMPOSITION [%]

C max	Mn max	Si max	P max	S max	Cr max	Ni max	Mo max	CEV
0,20	1,50	0,40	0,020	0,010	0,70	2,00	0,60	0,47 - 0,65

MECHANICAL PROPERTIES

steel grade	Re, min. [MPa]	Rm [MPa]	elongation A, min., [%]	KV, min (longitudinal) [J] 0°C	-20°C	-40°C	-60°C
S500Q	500	590-770	17	35	30	27	
S690Q	690	770-940	14		30		
S690QL	690	770-940	14			30	
S690QL1	690	770-940	14				30
S890QL	890	940-1100	11	50	40	30	
S960QL	960	980-1150	10	50(35)	40(30)	30(27)	

( ) - KV value for transverse impact test

DIMENSIONAL RANGE

steel grade	dimensional range [mm] thickness	width max
S690QL	8 ÷ 16 ; >40 ÷ 50	2500
	>16 ÷ 40	3000
	>50 ÷ 100	2250
	>100 ÷ 150	2000
S890QL	8 ÷ 16 ; >40 ÷ 50	2500
	>16 ÷ 40	3000
	>50 ÷ 100	2250
S960QL	8 ÷ 16 ; >40 ÷ 50	2500
	>16 ÷ 40	3000

HIGH STRENGTH STRUCTURAL STEEL PLATES, HEAT TREATED ATSM-A514

steel grade	Re, min. [MPa]	Rm [MPa]	elongation in 50mm, min. [%]
A514 Gr B	690	760 ÷ 895	18
A514 Gr F	690	760 ÷ 895	18
A514 Gr E	690	760 ÷ 895	18
A514 Gr Q	690	760 ÷ 895	18



PLATES for LARGE DIAMETER LONGITUDINALLY WELDED PIPES

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

THE COMPARISON OF STEEL GRADES AND STRENGTH CATEGORIES

Standard API 5L	Standard EN 10208-2	Russian standards and Technical Delivery Conditions	Re, min. [MPa]	Rm [MPa]	elongation A_5 min., [%]	CEV max
B	L245MB	K42	241-448	414-758	22	0,40
X42	L290MB	-	290-496	414-758	21	0,40
X46	-	-	317-524	434-758	20	0,41
X52	L360MB	K50	359-531	455-758	20	0,41
X56	-	K52	386-544	490-758	18	0,42
X60	L415MB	K55	414-565	517-758	18	0,42
X65	L450MB	K56	448-600	531-758	18	0,43
X70	L485MB	K60	483-621	565-758	18	0,43
X80	L555MB	-	555-705	625-825	18	0,43

- Strength categories: K42 - K60, acc. to:
  - **ТУ 14-1-4627-96**
  - **ТУ 14-1-5511-2005**
  - **ТТ 14-158-161-ТИИ3-2005**
  - **ТУ 14-1-3636-96**
  - **ТУ 14-1-1950-2004**
- Dimensions and admissions acc. to EN 10029, DIN 1543, ASTM A6, ASTM A20, ГОСТ 19903- or customer's demands
- Dimensional range: 8 - 40 x 1500 - 3310 x 6000 - 18000 mm

MANUFACTURING PROCESS

- Electric Arc Furnace
- Ladle Furnace
- Vacuum Treatment
- Continuous Casting with Soft Reduction
- Thermomechanical rolling using cooling bed (by-pass) before finishing rolling
- Accelerated Cooling using MULPIC

STEEL QUALITY PARAMETERS

Possibility of limitation:
C_{max} = 0,08%, P_{max} = 0,015%, S_{max} = 0,002%
Possibility of hydrogen content limitation up to 1,5 ppm

WE ASSURE QUALITY OF CUT PLATES:

Variations in width: -0/+5mm
The edge camber shall not exceed 0,6 mm/ 1 meter of plate length
Achievable diagonal difference - 5 mm

TESTS

Ultrasonic testing
Mechanical testing
Grain size
Hydrogen Induced Cracking (HIC)
- acc. to NACE TM 0284

Drop Weight Tear Test (DWTT)
Sulphide Stress Cracking (SSC)
- acc. to NACE TM 0175 or others, to be agreed



WEATHER RESISTANT STEEL PLATES

LOW-ALLOY WEATHER RESISTANT STEEL PLATES EN 10025-5:2004

steel grade	dimensional range [mm]	Re, min. [MPa]	Rm [MPa]	elongation A_5 min. %	impact strength KV_{min}	
					°C	J
S 235 JOW	6 - 100 x 1500 - 3300 x 4000 - 18000	235	360-510	24	0	27
S 235 J2W		235	360-510	24	-20	27
S 355 JOWP		355	470-630	20	0	27
S 355 J2WP		355	470-630	20	-20	27
S 355 JOW		355	470-630	20	0	27
S 355 J2W		355	470-630	20	-20	27
S 355 K2W		355	470-630	20	-20	40

ALLOY WEATHER RESISTANT STEEL PLATES ASTM-A709

steel grade	Re, min. [MPa]	Rm [MPa]	elongation min. [%]	
			in 200 mm	in 50 mm
50 W	345	min. 485	18	21
70 W [1)]	485	585-760	-	19
100 W [1)]	690	760-895	-	18

[1)] heat treated condition



ABRASION RESISTANT PLATES, GRADE: HARTPLAST 400
acc. to ZN-HCz-B/01:2005

PLATE NOMINAL DIMENSIONS

HARTPLAST 400	plate thickness [mm]		
	10 ÷ 19	>19 ÷ 40	>40 ÷ 50
max width [mm]	2250	2750	2500
plate length [mm]	4000 - 8000		
permissible dimension deviations	acc. to EN 10029, class A		
flatness: for thickness t≤16mm - max 15mm/1m; for thickness t>16mm acc.to EN 10029:1991 Class N for state H			
ultrasonic testing for every plate	acc. to EN 10025-1		

CHEMICAL COMPOSITION

contents [%]						CEV / CET max %
C max.	Mn max.	Si max.	Cr max.	Mo max.	B max.	for plate thickness [mm] up to 19 over 19 up to 50 / up to 19 over 19 up to 50
0,18	1,60	0,40	0,50	0,40	0,002	0,45 / 0,60 — 0,31 / 0,38

$$CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Cu+Ni}{15}$$

$$CET = C + \frac{Mn+Mo}{10} + \frac{Cr+Cu}{20} + \frac{Ni}{40}$$

MECHANICAL PROPERTIES CONDITION after HARDENING and STRESS RELIEVING

surface hardness HB	$Re^{1)}$, min. [MPa]	$Rm^{1)}$ [MPa]	$A_5^{1)3)}$ min. %	$KV_{min.}$ J$^{2)}$ in -40°C	
				average value of 3 specimens	value for individual specimen
360 up to 440	900	1100	10	20	15

1) Transverse specimen,
2) Longitudinal specimen,
3) Provided that remaining requirements (HB, $R_{p0,2}$, R_m, KV $_{-40°C}$)are met fulfilled

BENDING TEST

bending direction towards rolling direction	recommended minimal inside bending radius	recommended minimal distance between bending rolls
perpendicular direction	3 x t	8,5 x t
parallel direction	4 x t	10 x t

t - plate thickness, bending angle 90°



ABRASION RESISTANT PLATES, GRADE: HARTPLAST 500
acc. to ZN-HCz-B/03:2000

PLATE NOMINAL DIMENSIONS

HARTPLAST 500	plate thickness [mm]	
	10 ÷ 19	>19 ÷ 40
max width [mm]	2250	2750
plate length [mm]		4000 - 8000
permissible dimension deviations		acc. to EN 10029, class A
flatness: for thickness t≤16mm - max 15mm/1m; for thickness t>16mm - max 8 mm/1m; acc. to EN 10029, Class N for state H		
ultrasonic testing for every plate		acc. to EN 10025-1

CHEMICAL COMPOSITION

contents [%]						CEV max %	
						for plate thickness [mm]	
C max.	Mn max.	Si max.	Cr max.	Mo max.	B max.	up to 19	over 19 up to 40
0,28	1,30	0,50	0,70	0,30	0,002	0,60	0,65

$$CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Cu+Ni}{15}$$

MECHANICAL PROPERTIES CONDITION after HARDENING and STRESS RELIEVING

Surface hardness HB	$Re_{0,2}$ [1], min. [MPa]	Rm [1] [MPa]	A_5 [1] min. %
450 ÷ 560	1100	1400	8

[1] The typical values for 20 mm plate thickness, transverse test pieces



ULTRASONIC CONTROL OF HEAVY PLATES

- HEAVY PLATES PRODUCED IN ISD HUTA CZĘSTOCHOWA CAN BE TESTED ACCORDING TO THE FOLLOWING STANDARDS: SEL 072, PN-EN 10160, ASTM-A435, ASTM-SA435, ASTM-A578, ASTM-SA578, BS 5996, ISO 12074, GOST 22727
- TESTED PLATES ARE CLASSIFIED ACCORDING TO INNER DEFECT DIMENSION AND FREQUENCY OF ITS OCCURRENCE, ACCORDING TO THE FOLLOWING CRITERIA:

THE ACCEPTANCE CRITERIA DURING THE ULTRASONIC TESTING OF PLATES SURFACE acc. to SEL 072

Quality class	Thickness range [mm]	Discontinuities [cm²]		The acceptable number of discontinuities	
		min.	max	Locally surface area 1 m²	On the hole surface surface area 1 m²
0*1	6 ÷ 150	0,5	(n.a)	0	0
1	6 ÷ 150	0,5	1	up to 4	up to 2
2	6 ÷ 150	0,5	1	up to 30	up to 15
3	6 ÷ 150	1	10	up to 10	up to 5
4	6 ÷ 150	1	10	up to 50	up to 30
5	6 ÷ 150	10	100	up to 1	up to 1 on 2 m²
6	6 ÷ 150	10	100	up to 5	up to 3 on 2 m²

*1 - The class 0 concerns only the special arrangements, for the specified width of the surfaces

THE ACCEPTANCE CRITERIA DURING THE ULTRASONIC TESTING OF PLATES EDGES acc. to SEL 072

Quality class	Thickness range [mm]	Discontinuities [cm²]		The maximum permissible length of the discontinuities, required the consideration of the plate parallel edge defects	Acceptable quantity of discontinuities (up to 1 m)
		min.	max		
0*1	6 ÷ 150	0,5	(n.a)	(n.a)	0
1	6 ÷ 150	0,5	1	4	up to 2
2	6 ÷ 150	0,5	1	4	up to 5
3	6 ÷ 150	1	10	4	up to 3
4	6 ÷ 150	1	10	4	up to 5

*1 - The class 0 concerns only special arrangements, for the specified edge-zones



ULTRASONIC CONTROL OF HEAVY PLATES acc. to PN-EN 10160

The PN-EN 10160 standard describes the method of plates ultrasonic testing, using the single and double heads in order to detect internal discontinuities and has an application for plates with its thickness 6 - 200 mm for the four quantity classes of the plates body (S_0, S_1, S_2 and S_3) and five quantity classes of plates edges (E_0, E_1, E_2, E_3 and E_4). The test of plates head, taking into account S_0 i S_1 classes, includes searching the plates surface along the network which consists of squares with a side=200 mm and 100 mm for classes S_2 and S_3. The width of tested edges depends on the plates thickness: 6 ≤ th. <50 mm - width. 50 mm, 50 ≤th. <100 mm - width 75 mm, 100 ≤ th.≤200 mm - width 100 mm.
The testing of plates body with the thickness lower than 60 mm is carred out by using double ultrasonic heads.
Tests are carried out using NDT machine with the electronic registration in the automatic mode or by using a manual detector.
Hereunder, we present the acceptance criteria for the plates 6 ÷ 150 mm thick.

THE ACCEPTANCE CRITERIA DURING THE PLATES BODY TESTING

Quantity class	Thickness range mm	Unacceptable isolation of discontinuity mm^2	Acceptable discontinuities	
			The surface area of discontinuity mm^2	Maximum density (not higher than...)
S_0	6 ÷ 150	S >5000	1000 < S ≤ 5000	20 within the square 1m x 1m maximally surrounded with discontinuity
S_1	6 ÷ 150	S >1000	100 < S ≤ 1000	15 within the square 1m x 1m maximally surrounded with discontinuity
S_2	6 ÷ 150	S >100	50 < S ≤ 100	10 within the square 1m x 1m maximally surrounded with discontinuity
S_3	6 ÷ 150	S >50	20 < S ≤ 50	10 within the square 1m x 1m maximally surrounded with discontinuity

THE ACCEPTANCE CRITERIA DURING THE PLATE EDGES TESTING

Quantity class	Thickness range mm	Acceptable dimensions of isolated discontinuity		The last dimension of discontinuity (taken into account) L_{max} mm	The acceptable quantity of discontinuities, lower than maximum surface area S_{max} and longer than L_{max} for one meter length
		Dimension L_{max} mm	Surface area S_{max} mm^2		
E_0	6 ÷ 150	100	2 000	50	6
E_1	6 ÷ 150	50	1 000	25	5
E_2	6 ÷ 150	40	500	20	4
E_3	6 ÷ 150	30	100	15	3
E_4	6 ÷ 150	20	50	10	2



SHOT-BLASTED AND PAINTED HEAVY PLATES

plate dimensional range [mm]		
thickness	width	length
6-50 mm	700-3 000 mm	2 000-14 000 (16 000) mm

SHOT BLASTING

- SHOT BLASTING FROM BOTH SIDES OF PLATES IS CARRIED OUT USING MACHINE GW 3300-625
- STANDARD SHOT BLASTING OF PLATE SURFACES cl. Sa 2,5 acc. to ISO 8501-1 (cl. Sa 3 - on request)

PAINTING

- Plates after shot blasting process are one- or two-sided painted by primers:
  - epoxide primers, standard color - red
  - shopprimer, standard color - grey
- The thickness of painted layer: 15 - 20 μm

USED (RECOMMENDED) PRIMERS

Kinds of priming paints	Name	Producer
Silicate-zinc	Hempel's Shopprimer ZS 1589	HEMPEL - Denmark
	Sigmaweld MC 7177	SIGMA - Holland
Epoxide	Hempel's Shopprimer E 15282	HEMPEL - Denmark
	Sigmaweld EP	SIGMA - Holland

For customers special wish we use primers of other producers

THE ADVANTAGES OF SHOT-BLASTED AND PRIMED PLATES:

- Corrosion protection guaranteed for six-month period
- Facilitation in further processing (flame cutting, welding, bending, etc.)
- Easier visual surface inspection
- Easier and more effective further final painting
- Visual & aesthetic effects



CERTIFICATES

Approval of Material Manufacturers
Zulassung von Werkstoffherstellern

Germanischer Lloyd

This is to certify that the works of
Hiermit wird bescheinigt, dass die Firma

ISD HUTA CZESTOCHOWA SP. Z O.O.
UL. KUCELINSKA 22

42-207 CZESTOCHOWA
POLAND

has been subjected to an approval test in accordance with the Society's Rules with satisfactory results and is approved for the manufacture of the following products:
einer Zulassungsprüfung nach den Vorschriften des Germanischer Lloyd unterzogen wurde und für die Herstellung folgender Erzeugnisse zugelassen ist:

Steel plates
in

-normal and higher strength hull structural steels
-unalloyed steels for welded structure

in accordance with the Rules of Germanischer Lloyd for
Metallic Materials Chapter 2, Section 1, B. and C.

This approval is granted provided that all products intended to be used for the construction of ships or installations classed with Germanischer Lloyd comply in every respect with the Society's Rules and Requirements.
Die Zulassung erfolgt unter der Voraussetzung, dass alle Erzeugnisse, die zum Bau von Schiffen und Anlagen mit Klasse des Germanischer Lloyd bestimmt sind, die Vorschriften des Germanischer Lloyd in jeder Hinsicht erfüllen.

Certificate of approval No. VdZ 1730 HH
Zulassungsbescheinigung Nr.

This Certificate is valid until: 2009-04-30
Diese Bescheinigung ist gültig bis:

Part of the approval is our letter of approval ref. no. 085804-07 of 2007-07-11.
Bestandteil der Zulassung ist das Zulassungsschreiben, Tgb.-Nr. 085804-07 vom 2007-07-11

Hamburg, 2007-07-11

Germanischer Lloyd

Daniel Engel

Sven Fuhs

DNV

DET NORSKE VERITAS
APPROVAL OF MANUFACTURER
CERTIFICATE

CERTIFICATE NO. AMM-3244

This is to certify that

ISD Huta Czestochowa Sp.z o.o
CZESTOCHOWA, Poland

is an approved manufacturer of
Steelmaking and Rolled Steel Products

in accordance with
Det Norske Veritas' Rules for Classification Pt. 2

and the following particulars:

Product	Plates
Grade(s)	Hull structural steels, see page 2 Low temperature steel, see page 2
Steelmaking	Electric Arc Furnace, Continuous Casting
Deoxidation	Killed
Fine grain elements	See page 2
Delivery conditions	See page 2
Max. thickness	See page 2

Place and date
Høvik, 2007-08-08
for DET NORSKE VERITAS AS

Hanne Anita Hjerpetjørn
Head of Section

Local Office
DNV Katowice

This Certificate is valid until
2011-06-30

Isak Andersen
Surveyor

DET NORSKE VERITAS AS · VERITASVEIEN 1, 1322 HØVIK, NORWAY · TEL: (+47) 67 57 99 00 · FAX: (+47) 67 57 99 11
Form No.: 20.90a Issue: January 98 Page 1 of 2

Certificate No : MDOU/0713/0008/1

ISD HUTA CZESTOCHOWA sp. z o.o.
ul. Kucelinska 22
42-200 Czestochowa
Poland

has been approved as a manufacturer in accordance with the requirements of Lloyd's Register for :-

Steelmaking and Plates

This approval is subject to compliance with the Rules for the Manufacture, Testing and Certification of Materials. The full details of the processes and grades to which this approval applies are given in the Appendix of this certificate.

Lloyd's Register is to be notified of any change that may affect the validity of this Certificate.

This Certificate is issued to the above manufacturer and is valid until the date given below.

Valid Until : 08 April 2009
Date of Issue : 30 November 2006

J R Coupland
Lead Specialist at Lloyd's Register EMEA
A member of the Lloyd's Register Group

Lloyd's Register



CERTIFICATES

BUREAU VERITAS
Certification

CERTIFICATE OF FACTORY PRODUCTION CONTROL

Certificate number: 9000021-1039-B

In application of the Annex III item 2(B) of the Royal Decree 1630/1992, relative to compliance Directive 89/106/EEC of the Council of European Communities of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to the construction products (Construction Products Directive – CPD 89/106/EEC), amended by the Directive 93/68/EEC of the Council of European, Communities of 22 July 1993, it has been stated that hot rolled products of structural steel designated as:

Products (Steel grades and qualities):

STANDARD	TYPE AND GRADE	SECTIONS	THICKNESS in mm
EN 10025-2:2004. Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels.	S235JR, S235J0, S235J2, S275JR, S355JR, S355J0, S355J0 and S355K2	Plates	From 6 to 63
EN 10025-3:2004. Hot rolled products of structural steels - Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels.	S275N, S275NL, S355N and S355NL	Plates	From 6 to 63
EN 10025-5:2004. Hot rolled products of structural steels - Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance.	S355J2W	Plates	From 6 to 40
EN 10025-6:2004. 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.	S500Q, S690Q, S690QL and S690QL1	Plates	From 6 to 50

Manufactured by: ISD HUTA CZESTOCHOWA Sp.z o.o.

In the factory: Ul. Kucelińska 22, 42-207 CZESTOCHOWA POLAND

Is submitted by the manufacturer to the initial type testing of the product and a factory production control and that the notified body Bureau Veritas Certification S.A., has performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control established in the standard EN 10025-1: 2004 "Hot rolled products of structural steel. Part 1: General technical delivery conditions".

This certificate attests that all provisions concerning the attestation of factory production control described in Annex ZA of standard EN 10025-1: 2004 "Hot rolled products of structural steel. Part 1: General technical delivery conditions" were applied.

This certificate remains valid as long as the conditions laid down in the harmonised standard EN 10025-1: 2004 or the manufacturing conditions in the factory or the FPC itself are not modified significantly until 15-11-2011.

Place a date of initial issuing: Madrid 15-11-2006

Signed by:
Enrique Quintero Martín
General Manager

Bureau Veritas Certification
C/ Valportillo Primera, nº 22-24
Pol. Ind. de la Granja 28108, Alcobendas - Madrid
Notified Body 1039

American Bureau of Shipping

Certificate No:
GW857844-X

Effective Date
10 January 2008

Steel Mill Approval Certificate

THIS IS TO CERTIFY THAT

ISD HUTA CZESTOCHOWA Sp. z o.o.
Czestochowa, Poland

IS CONSIDERED TO BE IN COMPLIANCE WITH THE ABS RULES ON STEEL MILL APPROVAL PROGRAM. IN TESTIMONY THEREOF, THIS CERTIFICATE IS ISSUED UNDER THE EVIDENCES OF ABS EUROPE, GLIWICE PORT OFFICE REPORT NO: GW857844 DATED 13 JULY 2007.

*THIS CERTIFICATE COVERS ABS APPROVED GRADES/THICKNESSES OF STEEL MILL PRODUCTS AS PER THE APPROVAL LETTER APPENDED TO THIS CERTIFICATE, AND/OR, AS UPDATE FROM TIME TO TIME ON THE ABS WEBSITE: **WWW.EAGLE.ORG**, **UNDER ABS APPROVED STEEL MILLS LIST**. THIS CERTIFICATE IS VALID UP TO 31 DECEMBER 20013 SUBJECT TO RENEWAL ON/BEFORE THE EXPIRATION DATE.*

MMPS No. 5655
O2E Task No: 292883

Janusz Czachowski, Surveyor
Gliwice, Poland

Note: This certificate evidences compliance with one or more of the Rules, guides, standards or criteria of American Bureau of Shipping and is issued solely for the Bureau, its committees, its clients or other authorized entities. The certificate is governed by the **terms and conditions** of the steel mill approval letter and by the Rules and Standards of American Bureau of Shipping who shall remain the sole judge there of.

CERTIFICATE OF APPROVAL OF MANUFACTURERS OF MATERIALS
No. FAB088507XP

This is to certify that the manufacture of the product identified below is in compliance with the applicable requirements of the RINA Rules for the Approval of Manufacturers of Materials.

Description	Hull steel plates
Type	Grades A-B-D-E-AH32-DH32-EH32-AH36-DH36-EH36
Manufacturer	ISD HUTA CZESTOCIBOWA SP. Z O.O.
Place of manufacture	UL. KUCELINSKA 22 42-207 CZESTOCHOWA POLAND
Reference standards	Rina Rules for the approval of manufacturers of materials

Issued in Copenhagen *on* January 24, 2008. *This Certificate is valid until* September 9, 2012.

RINA
Pino Spadafora

This certificate consists of this page and 1 enclosure.



CERTIFICATES



Mobility Networks Logistics

DB

Lieferantenbewertung

Der Lieferant

ISD Huta Czestochowa Spolka sp.z.o.o.
ul. Kucelinska 22
PL 42-207 Czestochowa

erhält für das Produktspektrum

Walzprodukte nach DBS 918002-02

das Zertifikat, dass er die Soll-Anforderungen der Deutschen Bahn AG an die Qualitätsfähigkeit erfüllt hat. Der Lieferant wird somit als

Q1-Lieferant

bewertet.

Dieses Zertifikat ist gültig bis

17.07.2010

Berlin, den 05.05.2009

Deutsche Bahn AG
Qualitätssicherung Beschaffung
System Fahrweg

i.V. Göhler

i.V. Voigtländer



TÜV CERT

TÜVRheinland®
Precisely Right.

CERTYFIKAT

System Zapewnienia Jakości wytwórcy materiału
według Dyrektywy 97/23/WE

Numer certyfikatu: 01 202 PL/Q-04 0004

Nazwa i adres wytwórcy: **ISD HUTA CZĘSTOCHOWA Sp. z o.o.**
ul. Kucelińska 22
PL 42-207 Częstochowa
Polska

Zaświadcza się, że wytwórca wdrożył i stosuje System Zapewnienia J
został poddany stosownej kontroli zgodnie z Dyrektywą 97/23/WE, Zało
odniesieniu do materiałów wymienionych w zakresie obowiązywania.

Badano zgodnie z Dyrektywą 97/23/WE: System Zapewnienia Jakości wg EN 764-5, Ko
Merkblatt W 0

Numer raportu z audytu: PL/Q-04 0004

Zakres obowiązywania: Wytwarzanie blach grubych walcowanych na g

Zakład produkcyjny: **ISD HUTA CZĘSTOCHOWA Sp. z o.o.**
ul. Kucelińska 22
PL 42-207 Częstochowa
Polska

Ważny do: Październik 2010

Kalonia, 22 października 2007



СИСТЕМА ДОБРОВОЛЬНОЙ СЕРТИФИКАЦИИ
«ТРАНСЦЕРТ»

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ RU.E102.3ML0919.00027

Орган по сертификации
Центр сертификации «ЦС «ЕЭС»
и испытательный аналитический центр

Удостоверяет, что

НСД Хута Ченстохова
общество с ограниченной ответственностью
(ISD Huta Częstochowa
spółka z ograniczoną odpowiedzialnością)

ул. Кучелинская 22, 42-207 Ченстохова, Польша
ul. Kucelińska 22, 42-207 Częstochowa, Poland

применяет
систему менеджмента качества, соответствующую требованиям
ГОСТ Р ИСО 9001-2001,
применительно к продукции, указанной в Приложении 1 к настоящему
Сертификату соответствия

Действителен до «19» ноября 2010 г.

Дополнительная информация: Приложения 1 и 2.

Выпуск сертификата на применение Знака соответствия

Руководитель органа: В.В. Иванов

Руководитель ИАЦ: В.А. Лапшов

«19» ноября 2007 г.



URZĄD DOZORU TECHNICZNEGO

CERTYFIKAT

Stwierdza się, że

ISD HUTA CZĘSTOCHOWA SP. Z O.O.
ZAKŁAD WALCOWNIA BLACH GRUBYCH
ul. KUCELIŃSKA 22, 42-207 CZĘSTOCHOWA

posiada uprawnienie do wytwarzania

BLACH STALOWYCH

Szczegółowy zakres i warunki uprawnienia określone są w załączniku do decyzji uprawniającej.

Uprawnienie nadano w dniu: **09.06.2008r.**

Zarejestrowano pod nr: **31-04-513-08**

Z up. Prezesa UDT



QUALITY

INSPECTION DOCUMENTS, CERTIFICATES

- **INSPECTION DOCUMENTS ARE ISSUED ACCORDING TO THE FOLLOWING RULES AND STANDARDS:**
  - PN-EN 10204:2005 Metallic Products - Types of inspection documentation
  - Rules and Regulations of Classification Societies
  - Rules and Regulations TÜV
- **CERTIFICATES**

Germanischer Lloyd

ABS

Acc. to Directive 97/23/WG - DGR 97/23/EG (pressure devices)

steel grade	standard	plate thickness range [mm]	Regulations and standards order
RSt37-2	DIN 17100	6 - 63	AD - W1, TRB 100
S235JRG2, S235J2G3, S275JR, S355J2G3	EN 10025	6 - 63	AD - W1, TRB 100
S235JRG2, S235J2G3, S275JR, S355J2G3	EN 10025	6 - 63	AD 2000-W1
S235JR, S235JO, S235J2, S275JR, S275JO, S275J2, S355JR, S355JO, S355J2	EN 10025:2004	6 - 63	AD 2000-W1
P265GH	EN 10028-2	6 - 50	AD 2000-W1
P295GH, P355GH	EN 10028-2	6 - 30	AD 2000-W1
16Mo3	EN 10028-2	6 - 30	AD 2000-W1
P355N, P355NH	EN 10028-3	6 - 30	AD 2000-W1
St52-3	DIN 17100	6 - 50	AD - W1, TRB 100
HII	DIN 17155	6 - 50	AD - W1, TRB 100

Acc. to Directive 93/68/EWG - CPD 89/106/EWG (construction products)

steel grade	standard	plate thickness range [mm]	Regulations and standards order
S235JR, S235JO, S235J2, S275JR S355JR, S355JO, S355J2, S355K2	EN 10025-2:2004	6 - 63	EN 10025-1:2004, EN 10029
S275N, S275NL, S355N, S355NL	EN 10025-3:2004	6 - 63	EN 10025-1:2004, EN 10029
S355J2W	EN 10025-5:2004	6 - 40	EN 10025-1:2004, EN 10029
S500Q, S690Q, S690QL, S690QL1	EN 10025-6:2004	6 - 50	EN 10025-1:2004, EN 10029



SUMMARY OF INSPECTION DOCUMENTS ACC. TO PN-EN 10204:2005

Reference	Designation of the document type	Document content	Document validated by
Type 2.1	Declaration of compliance with the order	Statement of compliance with the order	The manufacturer
Type 2.2	Test report	Statement of compliance with the order, with indication of results of non-specific inspection	The manufacturer
Type 3.1	Inspection certificate 3.1	Statement of compliance with the order, with indication of results of specific inspection	The manufacturer's authorized inspection representative independent of the manufacturing department
Type 3.2	Inspection certificate 3.2	Statement of compliance with the order, with indication of results of specific inspection	The manufacturer's authorized inspection representative independent of the manufacturing department and either the purchser's authorized inspection representative or the inspector designated by the official regulations



LABORATORIES of ISD HUTA CZĘSTOCHOWA

TESTING LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-01

- Tensile test of metallurgical products
- Tensile test of welded joints
- Impact test of metallurgical products and welded joints
- Bend test of metallurgical products and welded joints
- Brinell and Rockwell hardness test
- Manipulating test of tubes (Bend test, Flattening test, Drift-expanding test, Flanging test, Ring-expanding test)
- Testing the deformation properties perpendicular to the surface (metallurgical products testing)
- Drop weight tear test (DWTT) of metallurgical products

NON-DESTRUCTIVE TESTING LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-02

- Ultrasonic testing of metallurgical products
- Ultrasonic testing of welded joints
- Ultrasonic thickness measurement
- Penetrant testing
- Magnetic particle examination
- Radiographic examination
- Visual examination

SPECTROMETRIC LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-03

- Spectrometric analysis of the steel
- Determination of the carbon and sulphur contens
- Determination of the nitrogen and oxygen contens
- Radioactive testing of steel and dust

METALLOGRAPHIC LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-06

Macrostructure testing of steel products:

- Baumann method
- Macroetching testing
- Evaluation of steel products for hydrogen resistance - induced Hydrogen Induced Cracking (HIC)
- Testing of Metals for Resistance to Sulphide Stress Cracking (SSC) in Hydrogen Sulphide (H_2S) Environments

Microstructure testing:

- Steel microstructure estimation and grain size
- The test of metallurgical cleanness
- The test of steel structure passivity
- The test of welded joints

SPECIAL ANALYSIS LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-04

Chemical analysis of:

- Steel, cast iron, pig iron, ferroalloys, slags, dusts, refractories, fluxes, foaming agents, carburizators coke, coal, metal alloys, ashes, industrial water and sewage

LENGTH AND ANGLE LABORATORY

acc. to EN ISO/IEC 17025:2005 Certificat N° 1072PLO08-07

- Calibrations of instruments for length and angle measurement

CERTIFICATES of LABORATORIES - acc. to EN ISO/IEC 17025:2005



APPROVAL CERTIFICATE OF TESTING LABORATORY
AWARDED TO

LABORATORIUM BADAŃ MENIBZCZĄCYCH
(Non Destructive Tests Laboratory)
ISD HUTA CZĘSTOCHOWA Sp. z o.o.
ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

N° 1072PLOD8-02

EN ISO/IEC 17025:2005

SCOPE OF TESTS

Ultrasonic testing of metallurgical products
Ultrasonic examination of welded joints
Ultrasonic thickness measurement
Penetrant testing
Magnetic particle examination
Radiographic examination
Visual examination



APPROVAL CERTIFICATE OF TESTING LABORATORY
AWARDED TO

LABORATORIUM METALOGRAFICZNE
(Metallographic Laboratory)
ISD HUTA CZĘSTOCHOWA Sp. z o.o.
ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

N° 1072PLOD8-05

EN ISO/IEC 17025:2005

SCOPE OF TESTS

Macrostructure testing of steel products:
- Baumann method
- Macroetching testing
- Testing (evaluation) of resistance of steel products to hydrogen induced cracking
- Testing of Metals for Resistance to Sulfide Stress Cracking in Hydrogen Sulfide (H2S) Environments.



APPROVAL CERTIFICATE OF TESTING LABORATORY
AWARDED TO

LABORATORIUM BADAŃ WYTRZYMAŁOŚCIOWYCH
(Testing Laboratory)
ISD HUTA CZĘSTOCHOWA Sp. z o.o.
ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

N° 1072PLOD8-01

EN ISO/IEC 17025:2005

SCOPE OF TESTS

Tensile test of metallurgical products,
Tensile test of welded joints
Impact test of metallurgical products
Impact test of welded joints
Bend test of metallurgical products
Bend test of welded joints
Rockwell hardness test
Brinell hardness test
Manipulating test of tubes (Bend test, Flattening test, Drift-expanding test, Flanging test, Ring-expanding test)
Testing of deformation properties perpendicular to the surface (test of metallurgical products)
Drop weight tear test of metallurgical products.



APPROVAL CERTIFICATE OF TESTING LABORATORY
AWARDED TO

LABORATORIUM SPEKTROMETRYCZNE
(Spectrometric Laboratory)
ISD HUTA CZĘSTOCHOWA Sp. z o.o.
ul. Kucelińska 22, 42-207 CZĘSTOCHOWA
POLAND

N° 1072PLOD8-03

EN ISO/IEC 17025:2005

SCOPE OF TESTS

Spectrometric emission analysis of the steel
Determination of the carbon and sulfur content in steel
Determination of the nitrogen and oxygen content in steel
Radioactivity testing of steel and steel



WELCOME TO PARTNERSHIP

Domestic sales:

ISD Trade Sp. z o.o., S.k.

9. Naruszewicza St., 02-627 Warszawa

phone.: +48 22 483 08 18
phone.: +48 22 483 08 80

fax: +48 22 483 08 78
fax: +48 22 483 08 90

e-mail: info@isd-trade.com
mbors@isd-trade.com
lkukula@isd-trade.com

Hot rolled plates are sold by:

DUFERCO SA

Via Bagutti 9, CH-6900 Lugano
SWITZERLAND

phone.: +41 91 911 58 79
phone.: +41 91 911 58 50
fax: +41 91 822 59 41

www.duferco.com