MAGHREB STEEL

L’acier au cœur de l’industrie

MASTER CATALOGUE STEEL
STEEL FLAT SOLUTIONS
HOT ROLLING

www.maghrebsteel.ma


MAGHREB STEEL

About Us

Maghreb Steel is the special one producer steel flat of Morocco. Initially specializing in the manufacture of steel tubes, Maghreb Steel has become, through large investments, a key player in the Moroccan steel sector.

Vision and mission

We aim for excellence through the constant search for performance and the mobilization of collective intelligence.We carry out our mission transparently and with rigor.

Values

- Responsibility
- Respect
- collective intelligence
- Transparency
- Engagement
- Equity

New technologies

There technology EAF (Ovens has arc electric) used in steelworks for recycling scrap metal (waste)

2022

Launch of fire-resistant PIR sandwich panels

The international market

It exports its know-how in flat steel to the four corners of the world, with an export turnover exceeding 30%

Our products

A diversified product range

Quality

Our certificates products are compliant has there documentation international, that this either At regarding analyses, technical aspects or product sheets.

Certificats

Certificate Name	Inspection Type
ISO 9001	Quality management systems
ISO 14001	Environmental management system
ISO 45001	Occupational health and safety management system.
CE	Flat products
NM	Moroccan standard for flat steel products

Maghreb Steel has an integrated management system (IMS) covering quality management, environmental protection and occupational health and safety.
All areas are monitored regularly through internal and external audits.Maghreb Steel is certified in many areas ISO 9001, ISO 14001, ISO 45001, CE, NM.

Contents

CONSTRUCTION STEEL

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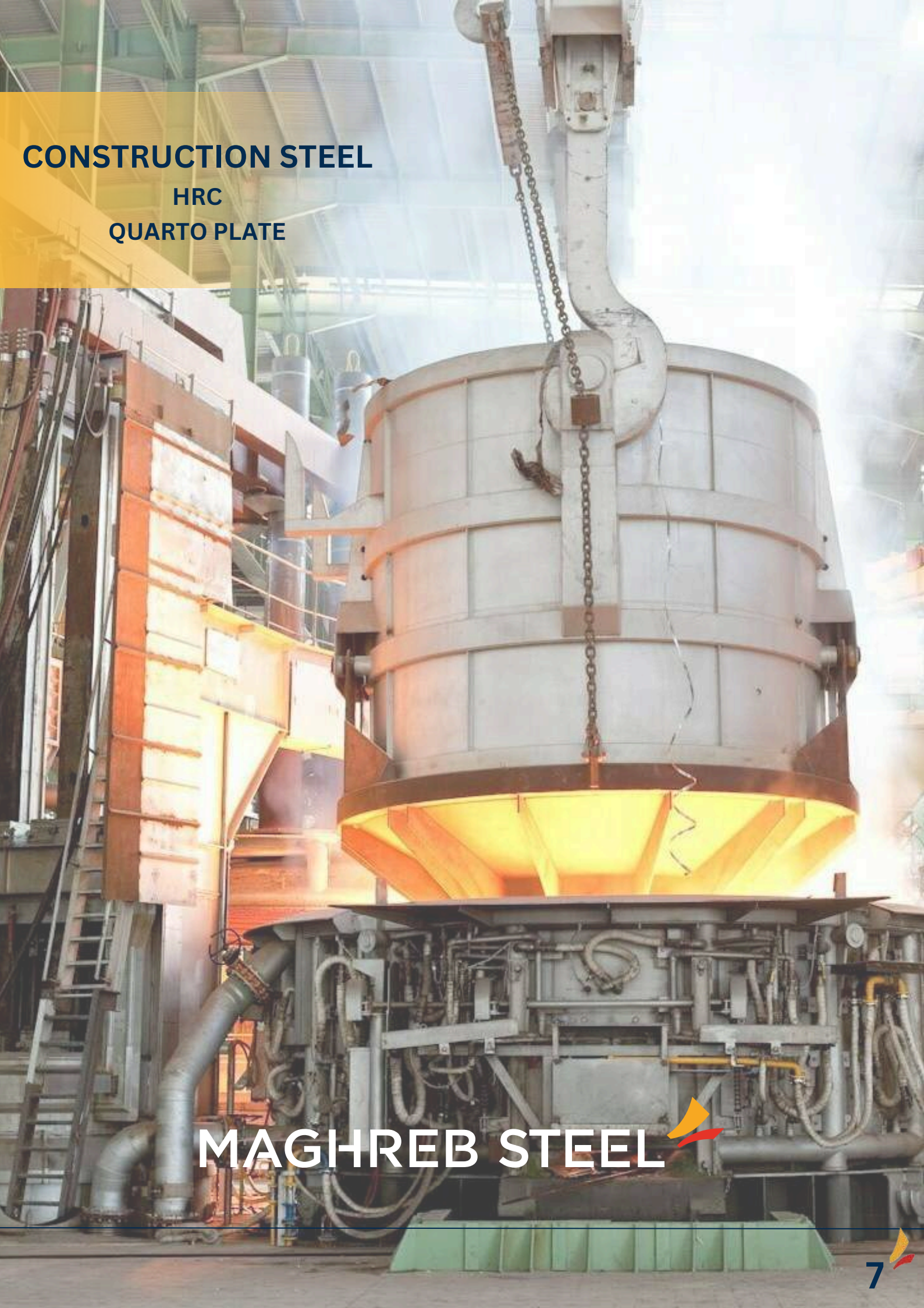
QUARTO PLATE



MAGHREB STEEL

CONSTRUCTION STEEL

Structural steels are carbon and manganese steels having a guaranteed minimum level of strength (yield strength and tensile strength) and satisfactory ductility.

Scope	Standards	Grade	delivery status
The steels of construction can be used In there most sectors of the building and mechanical engineering industry such as construction elements.containers.tanks and profiles.	EN 10025-2	S235 (JR. J0. J2) S275 (JR. J0. J2) S355 (JR. J0. J2. K2)	"+AR" without special rolling and/or heat treatment conditions "+N": Normalizing Rolling. • The products can be delivered type 3.1/2.2 or 2.2cc or in accordance with EN 10204
	ASTMA36/ A36M	A36	
	ASTM A283/A283M	A283 grade A grade B grade C grade D	

ADDITIONAL OPTIONS:

The following information must be specified at the time of ordering:

- Quantity to be delivered.
- Product designation.nominal dimensions.reference standards (technical delivery conditions and tolerances on dimensions and shape) and/or any other specific customer requirements.
- Type of inspection certificate
- Any additional requirements in terms of controls.tests and control documents.
- Need for "Charpy" impact bending test for JR quality grades.grade A36 and grades A283
- Issuance of a CE marking.NM marking
- All customer-specific options relating to EN 10025-2 & ASTM A36/A36M & ASTM A283/A283Mstandards A283/A283M.If the customer does not give any indication as to the execution of one of these options from the EN 10025-2 standard,

MAGHREB STEEL delivers its products according to the basic specifications.

CHEMICAL COMPOSITION EN10025-2

Grade	%max								
	C			Si	Mn	P	S	N	Cu
	<16	16<ep<40	>40						
S235JR	0.17	0.17	0.20	-	1.4	0.035	0.035	0.012	0.55
	0.17	0.17	0.17	-	1.4	0.030	0.030	0.012	0.55
	0.17	0.17	0.17	-	1.4	0.025	0.025	-	0.55
S275JR	0.21	0.21	0.22	-	1.5	0.035	0.035	0.012	0.55
	0.18	0.18	0.18	-	1.5	0.030	0.030	0.012	0.55
	0.18	0.18	0.18	-	1.5	0.025	0.025	-	0.55
S355JR	0.24	0.24	0.24	0.55	1.6	0.035	0.035	0.012	0.55
	0.20	0.20	0.22	0.55	1.6	0.030	0.030	0.012	0.55
	0.20	0.20	0.22	0.55	1.6	0.025	0.025	-	0.55

CHEMICAL COMPOSITION ASTM A36/A36M

Grade	Tolérance	Epaisseurs	% Max					
			C	Si	Mn	P	S	Cu
A36	min	-	0.25	-	-	-	-	-
	max	20	-	0.4	-	0.04	0.05	0.2*
	min	20.1	0.25	-	0.8	-	-	-
	max	40	-	0.4	1.2	0.04	0.05	0.2*
	min	40.1	0.26	-	0.8	-	-	-
	max	65	-	0.4	1.2	0.04	0.05	0.2*
	min	65.1	0.27	-	0.85	-	-	-
	max	100	-	0.4	1.2	0.04	0.05	0.2*

CHEMICAL COMPOSITION ASTM A283/A283M

Grades	Tolérance	Epaisseurs	% Max					
			C	Si	Mn	P	S	Cu
A283GrA	min	-	-	-	-	-	-	-
	max	40	0.14	0.4	0.9	0.035	0.04	0.2*
	min	40.1	-	0.15	-	-	-	-
	max	-	0.14	0.4	0.9	0.035	0.04	0.2*
A283GrB	min	-	-	-	-	-	-	-
	max	40	0.17	0.4	0.9	0.035	0.04	0.2*
	min	40.1		0.15	-	-	-	-
	max	-	0.17	0.4	0.9	0.035	0.04	0.2*
A283GrC	min	-	-	-	-	-	-	-
	max	40	0.24	0.4	0.9	0.035	0.04	0.2*
	min	40.1	-	0.15	-	-	-	-
	max	-	0.24	0.4	0.9	0.035	0.04	0.2*
A283GrD	min	-	-	-	-	-	-	-
	max	40	0.27	0.4	0.9	0.035	0.04	0.2*
	min	40.1	-	0.15	-	-	-	-
	max	-	0.27	0.4	0.9	0.035	0.04	0.2*

MECHANICAL CHARACTERISTICS/ EN 10025-2

Grade	Limite d'élasticité minimale Rp (N/mm²)				Résistance à la traction Rm (N/mm²)		A80% min					A5.65% min		
	≤16	16 <e≤ 40	40 <e ≤ 63	63 <e ≤ 80	<3	3 ≤ e ≤100	≤1	1 <e≤ 1.5	1.5 <e≤ 2	2 <e≤ 2.5	2.5 <e≤ 3	3 ≤e≤ 40	40 <e≤ 63	63 <e≤ 100
S235JR S235J0 S235J2	235	225	215	215	360 - 510	360 - 510	15	16	17	18	19	24	23	22
S275JR S275J0 S275J2	275	265	255	245	430 - 580	410 - 560	13	14	15	16	17	21	20	19
S355JR S355J0 S355J2	355	345	335	325	510 - 680	470 - 630	12	13	14	15	16	20	19	18

MECHANICAL CHARACTERISTICS/ASTM A36/A36M

Grade	Epaisseurs	Rp	Rm	A%
A36	5<EP≤60	≤ 250	400-550	⩾20

MECHANICAL CHARACTERISTICS/ ASTM A283/A283M

Grades	Tolérance	Rp	Rm	A% 200mm	A% 50mm
A283GrA	min	165	310	27	30
	max	-	415	-	-
A283GrB	min	185	345	25	28
	max	-	450	-	-
A283GrC	min	205	380	22	25
	max	-	515	-	-
A283GrD	min	230	415	20	23
	max	-	550	-	-

DIMENSIONAL MAPPING

EN 10025-2	Largeurs	Epaisseurs																
		5	6	8	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
S235 JR/J0/J2 + AR	1500		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2000		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2500		■	■	■	■	■	■	■	■	■	■	■	■	■				
S275 JR/J0/J2 + AR	1500		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2000		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2500		■	■	■	■	■	■	■	■	■	■	■	■	■				
S355 JR/J0/J2 + AR	1500		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2000		■	■	■	■	■	■	■	■	■	■	■	■	■				
	2500		■	■	■	■	■	■	■	■	■	■	■	■	■				
S235 JR/J0/J2 + N	1500		■	■	■	■	■	■	■	■	■								
	2000		■	■	■	■	■	■	■	■	■								
	2500		■	■	■	■	■	■	■	■	■								
S275 JR/J0/J2 + N	1500		■	■	■	■	■	■	■	■	■								
	2000		■	■	■	■	■	■	■	■	■								
	2500		■	■	■	■	■	■	■	■	■								
S355 JR/J0/J2 + N	1500		■	■	■	■	■	■	■	■	■								
	2000		■	■	■	■	■	■	■	■	■								
	2500		■	■	■	■	■	■	■	■	■								

ASTM A36	Largeurs	Epaisseurs																	
		5	6	8	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
A36	1500		■	■	■	■	■	■	■	■	■								
	2000		■	■	■	■	■	■	■	■	■								
	2500		■	■	■	■	■	■	■	■	■								

ASTM A283	Largeurs	Epaisseurs																	
		5	6	8	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
A283 GrB	1500																		
	2000																		
	2500																		
A283 GrB	1500																		
	2000																		
	2500																		
A283 GrC	1500																		
	2000																		
	2500																		
A283 GrD	1500																		
	2000																		
	2500																		

DIMENSIONAL MAPPING

EN 10025-2	S235JR/J0/J2 +AR			S275JR/J0/J2 +AR			S355JR/J0/J2 +AR			S275JR/J0/J2 +N			S275JR/J0/J2 +N			S275JR/J0/J2 +N		
Epaisseurs	1000	1250	1500	1000	1250	1500	1000	1250	1500	1000	1250	1500	1000	1250	1500	1000	1250	1500
1.5																		
1.6	■	■																
1.7	■	■																
1.8	■	■		■	■		■	■										
1.9	■	■		■	■		■	■										
2	■	■		■	■		■	■		■	■		■	■		■	■	
2.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
3	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
3.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
4	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
4.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
5.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
6	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
6.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
7	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
7.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
8	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
8.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
9	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
9.5	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
10	■	■	■	■	■	■	■	■	■	■	■		■	■		■	■	
11	■	■	■	■	■	■	■	■	■									
12	■	■	■	■	■	■	■	■	■									
13	■	■	■	■	■	■	■	■	■									
14	■	■	■	■	■	■	■	■	■									
15	■	■	■	■	■	■	■	■	■									
16	■	■	■	■	■	■	■	■	■									
17	■	■	■	■	■	■	■	■	■									
18	■	■	■	■	■	■	■	■	■									
19	■	■	■	■	■	■	■	■	■									
20	■	■	■	■	■	■	■	■	■									
21																		
22																		
23																		
24																		

CHEMICAL COMPOSITION / EN 10025-2:

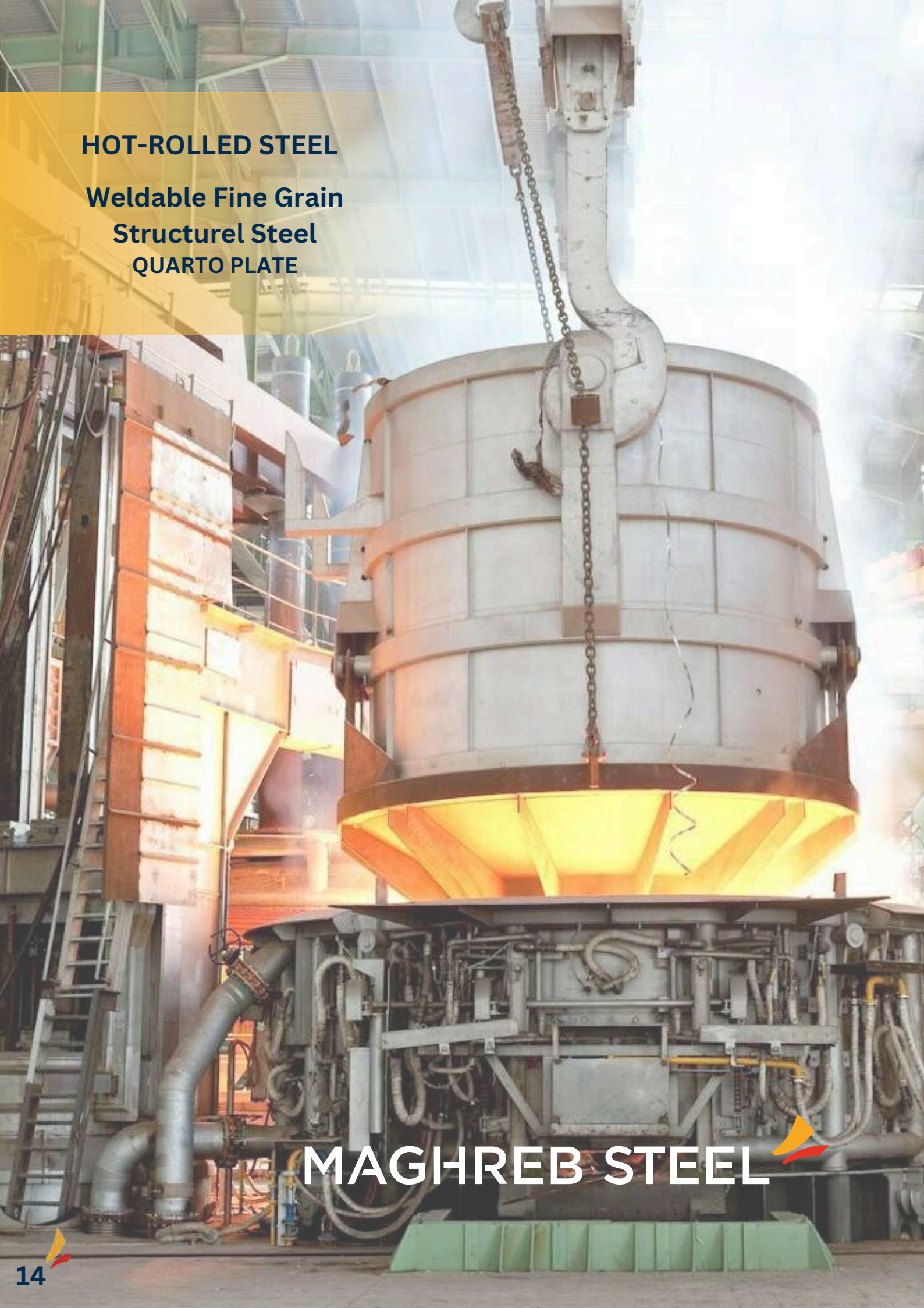
	% Max							
	C	Si	Mn	P	S	N	Cu	Ceq
S275J2	0.18	_	1.50	0.025	0.025	_	0.55	0.40

MECHANICAL PROPERTIES / EN 10025-2:

	Limite d'élasticité minimale Rp (MPa)			Résistance à la traction Rm (MPa)	Allongement A% min	°C	Enérgie de rupture KV (j) min
	t≤16	>16 ≤ 40	>40 ≤60	3≤t ≤60	3< t ≤ 60		
S275J2	275	265	255	410 -560	21	20	27

DIMENSIONS:

S275 J2 + AR				
	Largeur			
	1000	1500	2000	2500
5 (*)				
6 (*)				
8 (*)				
10				
15				
20				
25				
30				
35				
40				
45				
50				
55				
60				
65				
70				
75				
80				



HOT-ROLLED STEEL

Weldable Fine Grain Structurel Steel

QUARTO PLATE

MAGHREB STEEL

Weldable Fine Grain Structurel Steel

Fine-grained structural steels are characterized by higher resilience which gives them better processing properties.This range of steels are the result of a heat treatment called “normalization” which makes it possible to obtain a regular and fine ferrite-pearlite microstructure in the steel.

Scope	Standards	Grade	delivery status
These qualities steel are destinies in particular has employment in the elements highly requested of the constructions welded such as bridges, discharge valves, storage tanks, water supply tanks, etc., for service at ambient and low temperatures.	EN 10025-3	S275N S355N	“N”: Normalizing Rolling with treatment of standardization • Products can be delivered with certificates type 3.1/2.2 or 2.2cc in accordance with EN 10204

ADDITIONAL OPTIONS:

The information following must be specified at moment of there order:

- Quantity to be delivered.
- Product designation, nominal dimensions, reference standards (technical delivery conditions and tolerances on dimensions and shape) and/or any other specific customer requirements.
- Type of inspection certificate.
- Any additional requirements in terms of controls, tests and control documents.
- Issuance of a CE marking. NM marking
- All customer-specific options relating to EN 10025-3 standards
- If the customer does not give any indication as to the execution of one of these options from the EN 10025-3 standard,

MAGHREB STEEL delivers its products according to basic specifications.

Chemical composition EN 10025-3

GRADE	VALEUR	%max													
		C	Mn	Si	P	S	Al t	N	Nb	Ti	V	Cr	Cu	Mo	Ni
S275N	min	-	0,45	-	-	-	0,015	-	-	-	-	-	-	-	-
	max	0,20	1,6	0,45	0,035	0,030	-	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S275NL	min	-	0,45	-	-	-	0,015		-	-	-	-	-	-	-
	max	0,18	1,6	0,45	0,030	0,025	0,015	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S355N	min	-	0,85	-	-	-	-	-	-	-	-	-	-	-	-
	max	0,22	1,75	0,55	0,035	0,030	0,015	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S355NL	min	-	0,85	-	-	-	0,015	-	-	-	-	-	-	-	-
	max	0,20	1,75	0,55	0,030	0,025	-	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S420N	min	-	0,95	-	-	-	0,015		-	-	-	-	-	-	-
	max	0,22	1,8	0,65	0,035	0,030	0,015	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S420NL	min	-	0,95	-	-	-	-	-	-	-	-	-	-	-	-
	max	0,22	1,8	0,65	0,030	0,025	0,015	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S460N	min	-	0,95	-			0,015	-	-	-	-	-	-	-	-
	max	0,22	1,8	0,65	0,035	0,030	-	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017
S460NL	min	-	0,95	-	-	-	0,015	-	-	-	-	-	-	-	-
	max	0,22	1,8	0,65	0,030	0,025	-	0,017	0,06	0,06	0,06	0,35	0,6	0,13	0,017

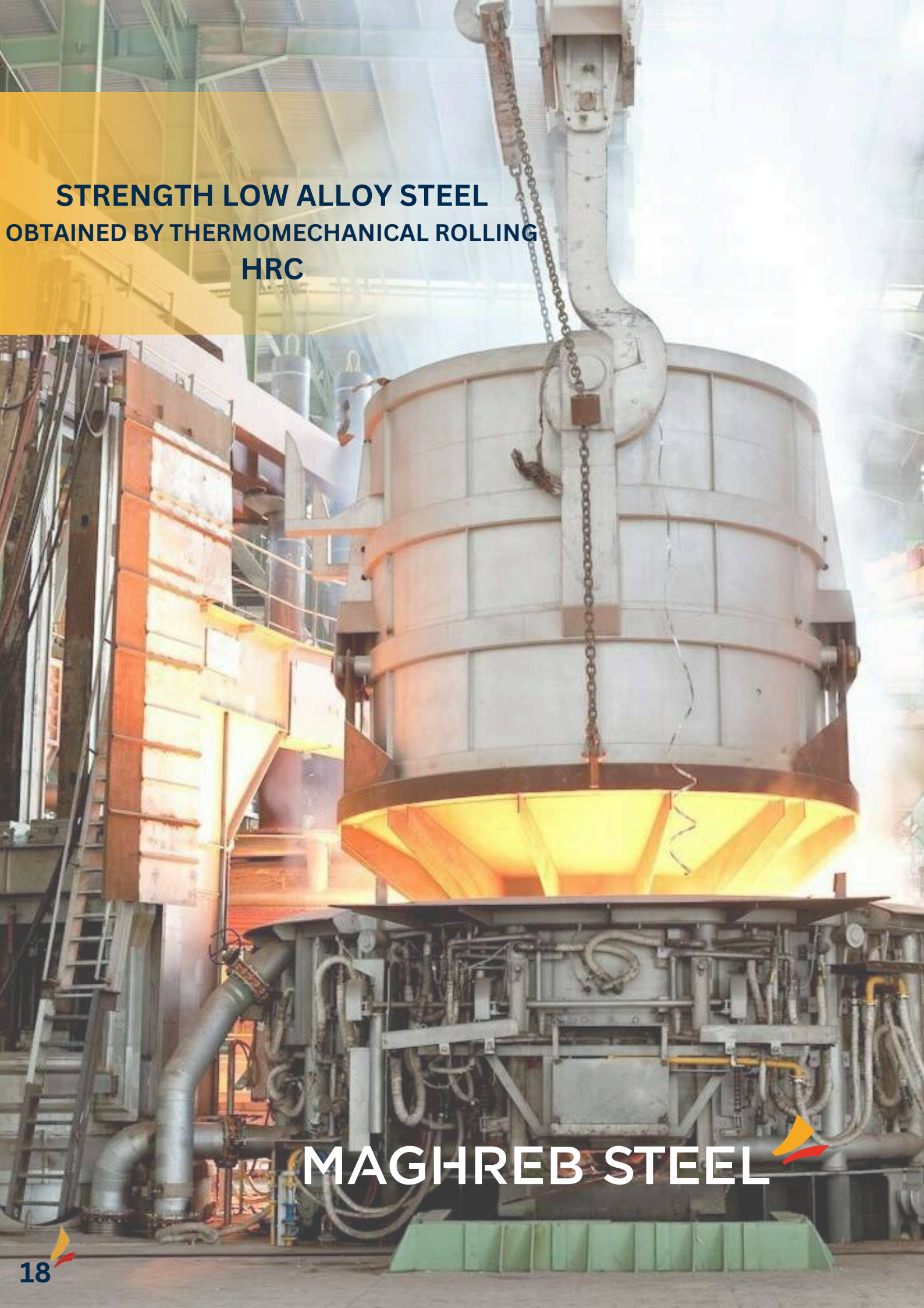
Mechanical characteristic EN 10025-3

GRADE	Valeur	Rp				Rm				A%					
		<=16	16<ep<=40	40<ep<=50	40<ep<=63	ep<3	3<=ep<=40	40<=ep<=50	50<ep<=63	1.5<ep<=2	2<ep<=2.5	2.5<ep<3	3<=ep<=16	16<ep<=40	40<ep<=63
S275N	min	275	265	-	255	370	370	370	370	24	24	24	24	24	24
	max	-	-	-	-	510	510	510	510	-	-	-	-	-	-
S275NL	min	275	265	-	255	370	370	370	370	24	24	24	24	24	24
	max	-	-	-	-	510	510	510	510	-	-	-	-	-	-
S355N	min	355	345	-	335	470	470	470	470	22	22	22	22	22	22
	max	-	-	-	-	630	630	630	630	-	-	-	-	-	-
S355NL	min	355	345	-	335	470	470	470	470	22	22	22	22	22	22
	max	-	-	-	-	630	630	630	630	-	-	-	-	-	-
S420N	min	420	400	-	390	520	520	520	520	19	19	19	19	19	19
	max	-	-	-	-	680	680	680	680	-	-	-	-	-	-
S420NL	min	420	400	-	390	520	520	520	520	19	19	19	19	19	19
	max	-	-	-	-	680	680	680	680	-	-	-	-	-	-
S460N	min	460	440	-	430	540	540	540	540	17	17	17	17	17	17
	max	-	-	-	-	720	720	720	720	-	-	-	-	-	-
S460NL	min	460	440	-	430	540	540	540	540	17	17	17	17	17	17
	max	-	-	-	-	720	720	720	720	-	-	-	-	-	-

DIMENSIONAL MAPPING:

	Largeurs	Epaisseurs																
		5	6	8	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
S275N	1500																		
	2000		■	■	■	■	■	■	■	■	■								
	2500																		
S275NL	1500																		
	2000																		
	2500																		
S355N	1500																		
	2000		■	■	■	■	■	■	■	■	■								
	2500																		
S355NL	1500																		
	2000																		
	2500																		
S420N	1500																		
	2000																		
	2500																		
S420NL	1500																		
	2000																		
	2500																		
S460N	1500																		
	2000																		
	2500																		
S460NL	1500																		
	2000																		
	2500																		

STRENGTH LOW ALLOY STEEL
OBTAINED BY THERMOMECHANICAL ROLLING
HRC



MAGHREB STEEL

STRENGTH LOW ALLOY STEEL

High-strength steels are hot-rolled, high-strength, low-alloy steels.This range of steel is characterized by its excellent strength, resilience and fatigue resistance with good formability and weldability.

Scope	Standards	Grade	Delivery Status
These qualities steel are widely used for applications where light weight and high strength are essential factors..These applications include automotive seat components, truck and trailer components, tow hooks, industrial silos, as well as agricultural, lifting and earthmoving machinery	EN 10149-2	S315MC S355MC S420MC	“MC” Products delivered in the thermomechanical rolling state Products can be delivered with certificates type 3.1/2.2 or 2.2cc in accordance with EN 10204

ADDITIONAL OPTIONS:

The following information must be specified at the time of order :

- Quantity to be delivered.
- Product designation.nominal dimensions.reference standards (technical delivery conditions and tolerances on dimensions and form) and/or any other specific customer requirements.
- Type of inspection certificate
- Any additional requirements in terms of controls, tests and control documents.
- All customer-specific options relating to standard EN 10149-2/

EN 10149-1 If the customer gives no indication as to the execution of one of these options from the EN 10149-2 standard,

MAGHREB STEEL delivers its products according to basic specifications.

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CHEMICAL COMPOSITION EN 10149-2:

Grade	%Max										
	C	Mn	Si	P	S	Al	Nb	V	Ti	Mo	B
S315MC	0,12	1,30	0,50	0,025	0,20	0,015	0,090	0,20	0,15	-	-
S355MC	0,12	1,50	0,50	0,025	0,20	0,015	0,090	0,20	0,15	-	-
S420MC	0,12	1,60	0,50	0,025	0,015	0,015	0,090	0,20	0,15	-	-
S460MC	0,12	1,60	0,50	0,025	0,015	0,015	0,090	0,20	0,15	-	-
S500MC	0,12	1,70	0,50	0,025	0,015	0,015	0,090	0,20	0,15	-	-
S550MC	0,12	1,80	0,50	0,025	0,015	0,015	0,090	0,20	0,15	-	-
S600MC	0,12	1,90	0,50	0,025	0,015	0,015	0,090	0,20	0,22	0,50	0,005
S650MC	0,12	2,00	0,60	0,025	0,015	0,015	0,090	0,20	0,22	0,50	0,005
S700MC	0,12	2,10	0,60	0,025	0,015	0,015	0,090	0,20	0,22	0,50	0,005
S9OOMC	0,20	2,20	0,60	0,025	0,015	0,015	0,090	0,20	0,22	1,00	0,005
S960MC	0,20	2,20	0,60	0,025	0,015	0,015	0,090	0,20	0,22	1,00	0,005

MECHANICAL CHARACTERISTIC/ EN 10149-2:

Nuance	Direction	Epaisseur (mm)	Re (Mpa)	Rm (Mpa)	A80 (%)	A5,65√S0 (%)
S315MC	L	< 3	≥ 315	390 - 510	≥ 20	-
		≥ 3			-	≥ 24
S355MC	L	< 3	≥ 355	430 - 550	≥ 19	-
		≥ 3			-	≥ 23
S420MC	L	< 3	≥ 420	480 - 620	≥ 16	-
		≥ 3			-	≥ 19
S460MC	L	< 3	≥ 460	520 - 670	≥ 14	-
		≥ 3			-	≥ 17
S500MC	L	< 3	≥ 500	550 - 700	≥ 12	-
		≥ 3			-	≥ 14
S550MC	L	< 3	≥ 550	600 - 760	≥ 12	-
		≥ 3			-	≥ 14
S600MC	L	< 3	≥ 600	650 - 820	≥ 11	-
		≥ 3			-	≥ 13
S650MC	L	< 3	≥ 650	700 - 880	≥ 10	-
		≥ 3			-	-
		> 8	≥ 630		-	≥ 12
S700MC	L	< 3	≥ 700	750 - 950	≥ 10	-
		≥ 3			-	≥ 12
		> 8	≥ 680		-	
S9OOMC	L	< 3	≥ 900	930 - 1200	≥ 7	-
		≥ 3			-	≥ 8
S960MC	L	< 3	≥ 960	980 - 1250	≥ 6	-
		≥ 3			-	≥ 7

DIMENSIONAL MAPPING:

Grade	Largeurs	Epaisseurs																												
		1.5	1.6	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	11	12	13	14	15	16	17	18	19	20
S315MC	1000																													
	1250																													
	1500																													
S355MC	1000																													
	1250																													
	1500																													
S420MC	1000																													
	1250																													
	1500																													
S460MC	1000																													
	1250																													
	1500																													
S500MC	1000																													
	1250																													
	1500																													
S550MC	1000																													
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S600MC	1000																													
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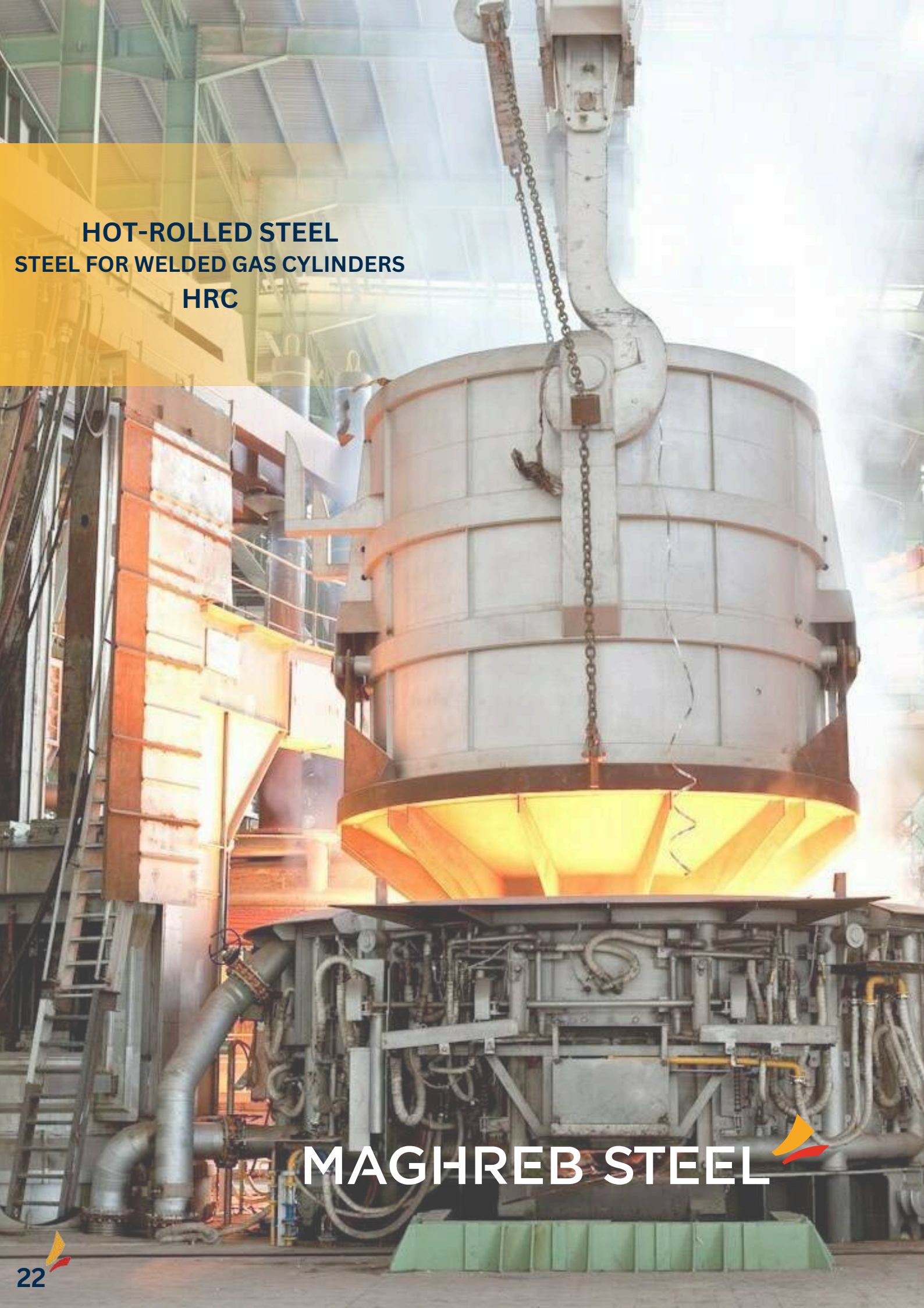
S700MC	1000																													
	1250																													
	1500																													
S900MC	1000																													
	1250																													
	1500																													
S960MC	1000																													
	1250																													
	1500																													

HOT-ROLLED STEEL
STEEL FOR WELDED GAS CYLINDERS
HRC



MAGHREB STEEL

STEELS FOR WELDED GAS CYLINDERS

Steels for welded gas cylinders are characterized by the consistency of their level of resistance.even after heat treatment.which guarantees their safety.These grades exhibit good weldability and high resilience and strength values.They are suitable for deep drawing and non-aging.

Scope	Standards	Grade	Delivery status
These steels are used for the manufacture of gas cylinders using the following process: cold stamping of the bottom and neck of the cylinder, under-flux welding, normalization heat treatment.	EN 10120	P245NB P265NB P310NB P355NB	«+AR» without conditions particular of rolling and/or heat treatment. • Surface condition: hot rolled (black sheet) or pickled. • Products can be delivered with certaficates type 3.1/2.2 or 2.2cc in accordance with EN 10204

ADDITIONAL OPTIONS:

The following information must be specified at the time of ordering:

- Quantity to be delivered.
- Product designation.nominal dimensions.reference standards (technical delivery conditions and tolerances on dimensions and shape) and/or any specific customer requirements.
- Any additional requirements in terms of controls.tests and control documents.
- All customer-specific options relating to the EN 10120 standard. If the customer does not give any indication as to the execution of one of these options from the EN 10120 standard,

MAGHREB STEEL delivers its products according to the basic specifications.

CHEMICAL COMPOSITION / EN 10120

	≤ C (%)	≤ Si (%)	≥ Mn (%)	≤ P (%)	≤ S (%)	≥ Al_{tot} (%)	≤ Nb (%)	≤ Nb (%)
P245NB	0.16	0.25	0.30	0.025	0.015	0.020	0.050	0.030
P265NB	0.19	0.25	0.40	0.025	0.015	0.020	0.050	0.030
P310NB	0.20	0.25	0.70	0.025	0.015	0.020	0.050	0.030
P355NB	0.20	0.25	0.70	0.025	0.015	0.020	0.050	0.030

MECHANICAL CHARACTERISTIC / EN 10120

	Épaisseur (mm)	Rp (Mpa)	R_m (Mpa)	A (%)	
P245NB	1.50 - 2.99	≥ 245	360 - 450	≥ 26	-
	3.00 - 4.50			-	≥ 34
P265NB	1.50 - 2.99	≥ 265	410 - 500	≥ 24	-
	3.00 - 4.50			-	≥ 32
P310NB	1.50 - 2.99	≥ 310	460 - 550	≥ 21	-
	3.00 - 4.50			-	≥ 28
P355NB	1.50 - 2.99	≥ 310	510 - 620	≥ 19	-
	3.00 - 4.50			-	≥ 24

Equivalent grades

	NF A 36-211 : 1990	JIS G3116	Anciens noms de marques
P245NB	BS1 *	SG 255 *	BZ 37 *
P265NB	BS2 *	SG 295 *	BZ 42 *
P310NB	BS3 *	SG 325 *	-
P355NB	BS4 *	SG 365 *	-

Dimensional mapping:

Epaisseur	P245NB Largeur		
	1000	1150	1500
1.5			
1.6			
1.7			
1.8			
1.9			
2	■	■	
2.1	■	■	
2.2	■	■	
2.3	■	■	
2.4	■	■	
2.5	■	■	
2.6	■	■	
2.7	■	■	
2.8	■	■	
2.9	■	■	
3	■	■	
3.1	■	■	
3.2	■	■	
3.3	■	■	
3.35	■	■	
3.4	■	■	
3.5	■	■	
3.6	■	■	
3.7	■	■	
3.8	■	■	
3.9	■	■	
3.95	■	■	
4	■	■	
4.5			
5			
5.5			
6			

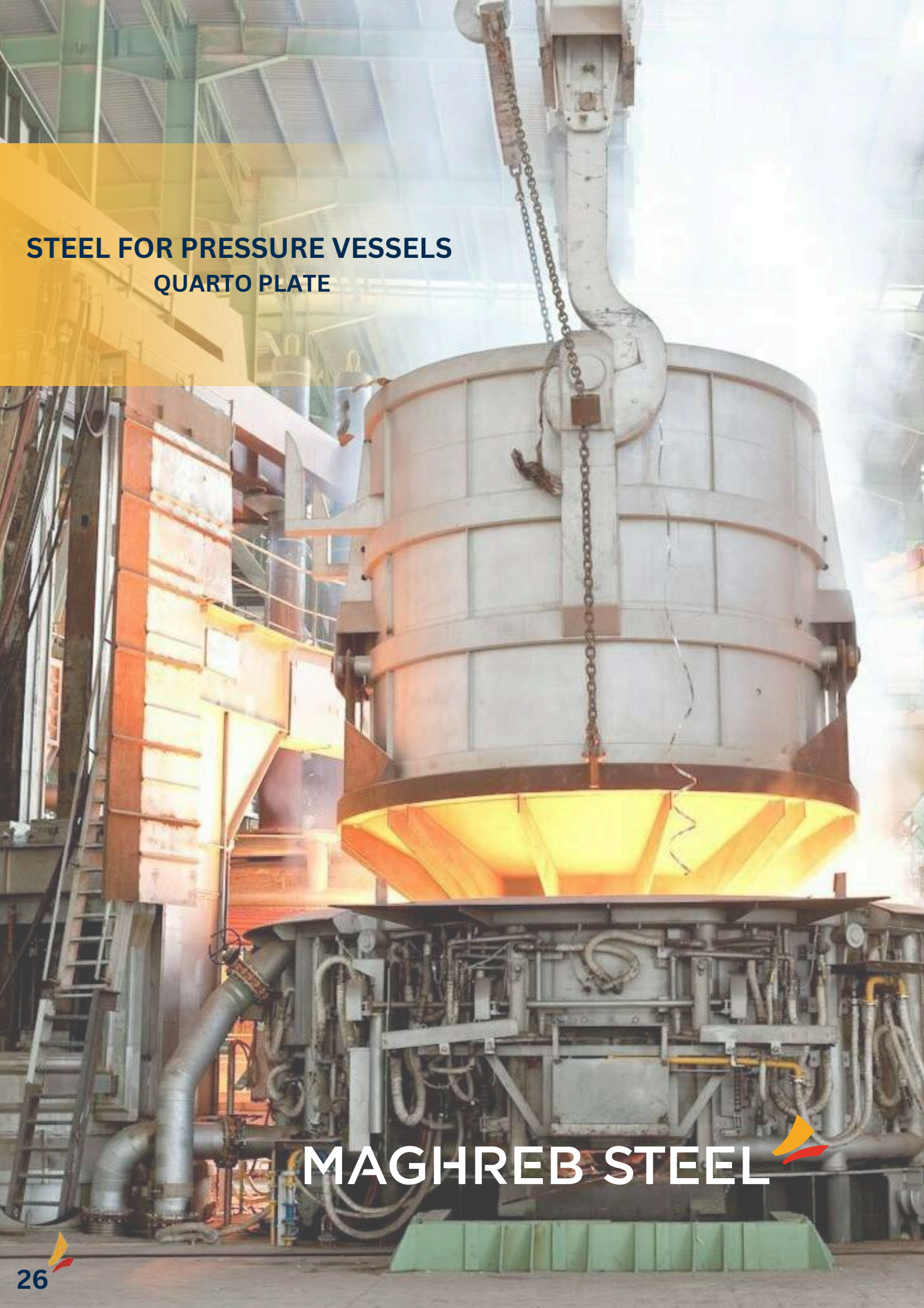
Epaisseur	P265NB Largeur		
	1000	1150	1500
1.5			
1.6			
1.7			
1.8			
1.9			
2	■	■	
2.1	■	■	
2.2	■	■	
2.3	■	■	
2.4	■	■	
2.5	■	■	
2.6	■	■	
2.7	■	■	
2.8	■	■	
2.9	■	■	
3	■	■	
3.1	■	■	
3.2	■	■	
3.3	■	■	
3.35	■	■	
3.4	■	■	
3.5	■	■	
3.6	■	■	
3.7	■	■	
3.8	■	■	
3.9	■	■	
3.95	■	■	
4	■	■	
4.5			
5			
5.5			
6			

Epaisseur	P310NB Largeur		
	1000	1150	1500
1.5			
1.6			
1.7			
1.8			
1.9			
2	■	■	
2.1	■	■	
2.2	■	■	
2.3	■	■	
2.4	■	■	
2.5	■	■	
2.6	■	■	
2.7	■	■	
2.8	■	■	
2.9	■	■	
3	■	■	
3.1	■	■	
3.2	■	■	
3.3	■	■	
3.35	■	■	
3.4	■	■	
3.5	■	■	
3.6	■	■	
3.7	■	■	
3.8	■	■	
3.9	■	■	
3.95	■	■	
4	■	■	
4.5			
5			
5.5			
6			

Epaisseur	P355NB Largeur		
	1000	1150	1500
1.5			
1.6			
1.7			
1.8			
1.9			
2	■	■	
2.1	■	■	
2.2	■	■	
2.3	■	■	
2.4	■	■	
2.5	■	■	
2.6	■	■	
2.7	■	■	
2.8	■	■	
2.9	■	■	
3	■	■	
3.1	■	■	
3.2	■	■	
3.3	■	■	
3.35	■	■	
3.4	■	■	
3.5	■	■	
3.6	■	■	
3.7	■	■	
3.8	■	■	
3.9	■	■	
3.95	■	■	
4	■	■	
4.5			
5			
5.5			
6			

STEEL FOR PRESSURE VESSELS

QUARTO PLATE



MAGHREB STEEL

STEEL FOR PRESSURE VESSELS

Pressure vessel steels are distinguished from carbon and manganese structural steels by their high pressure resistance at all temperatures (ambient, low or high).They have good weldability and high resilience.

Scope	Standards	Grade	Delivery status
These steels are adapted at forming mechanical and at welding.They are suitable at annealed normalizing or at annealed of relaxation who neutralize the hardening consecutive at welding. They are used basically for there manufacturing of boilers. of pressure or steam pipework, thermal devices and heat recovery systems.	EN 10028-2	P235GH P265GH P295GH P355GH	"+AR" without special rolling and/or heat treatment conditions "+N" Normalizing Rolling with treatment of standardization • Products can be delivered with certificates type 3.1/2.2 or 2.2cc in accordance with EN 10204
	ASTM A516/A516M	A516Gr55 A516Gr60 A516Gr65 A516Gr70	

ADDITIONAL OPTIONS:

The following information must be specified at the time of ordering:
- Quantity to be delivered.
- Designation of product, dimensions nominal, standards of reference (technical delivery conditions and tolerances on dimensions and shape) and/or any other specific customer requirements.
- Any additional requirements in terms of controls, tests and control documents.
- Need for "Charpy" impact bending test for A516 quality grades.
- All customer-specific options relating to EN 10028-2 or ATSM516/A516M.

If the customer does not give any indication as to the execution of one of these options from standard EN 10028-2 & ASTM A516/A516M, MAGHREB STEEL delivers its products according to the basic specifications.

CHEMICAL COMPOSITION / EN 10028-2

Grades	Tolérance	%C	%Si	%Mn	%P	%S	%Al	%N	%Cr	%Cu	%Mo	%Nb	%Ni	%Ti	%V	Cr+Cu+Mo+Ni
P235GH	min	-	-	0.6	-	-	0.02	-	-	-	-	-	-	-	-	-
	max	0.16	0.35	1.2	0.025	0.01	-	0.012	0.3	0.3	0.08	0.02	0.3	0.03	0.02	0.7
P265GH	min	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-
	max	0.2	0.4	1.4	0.025	0.01	-	0.012	0.3	0.3	0.08	0.02	0.3	0.03	0.02	0.7
P295GH	min	0.08	-	0.9	-	-	0.02	-	-	-	-	-	-	-	-	-
	max	0.2	0.4	1.5	0.025	0.01	-	0.012	0.3	0.3	0.08	0.02	0.3	0.03	0.02	0.7
P355GH	min	0.1	-	1.1	-	-	0.02	-	-	-	-	-	-	-	-	-
	max	0.22	0.6	1.7	0.025	0.01	-	0.012	0.3	0.3	0.08	0.02	0.3	0.03	0.02	0.7

COMPOSITION CHIMIQUE / ASTM A516/ A516M

Grades	Tolérance	Epaisseur	%C	%Si	%Mn	%P	%S
A516Gr55	min	-	-	0.15	0.6	-	-
	max	12.5	0.18	0.4	0.9	0.035	0.035
	min	12.51	-	0.15	0.6	-	-
	max	50	0.20	0.4	1.2	0.035	0.035
	min	51	-	0.15	0.6	-	-
	max	100	0.22	0.4	1.2	0.035	0.035
A516Gr60	min	-	-	0.15	0.6	-	-
	max	12.5	0.21	0.4	0.9	0.035	0.035
	min	12.51	-	0.15	0.85	-	-
	max	50	0.23	0.4	1.20	0.035	0.035
	min	51	-	0.15	0.85	-	-
	max	100	0.25	0.4	1.20	0.035	0.035
A516Gr65	min	-	-	0.15	0.85	-	-
	max	12.5	0.24	0.4	1.2	0.035	0.035
	min	12.51	-	0.15	0.85	-	-
	max	50	0.26	0.4	1.2	0.035	0.035
	min	51	-	0.15	0.85	-	-
	max	100	0.28	0.4	1.2	0.035	0.035
A516Gr70	min	-	-	0.15	0.85	-	-
	max	12.5	0.27	0.4	1.2	0.035	0.035
	min	12.51	-	0.15	0.85	-	-
	max	50	0.28	0.4	1.2	0.035	0.035
	min	51	-	0.15	0.85	-	-
	max	100	0.30	0.4	1.2	0.035	0.035

CHEMICAL COMPOSITION / ASTM A516/ A516M

Grades	Tolérance	Epaisseur	Rp	Rm	A%	KJ		
P235GH	min	-	235	360	24	27	34	40
	max	16	-	480	-	-	-	-
	min	16.1	225	360	24	27	34	40
	max	40	-	480	-	-	-	-
	min	40.1	215	360	24	27	34	40
	max	60	-	480	-	-	-	-
	min	60.1	200		24	27	34	40
	max	100	-		-	-	-	-
P265GH	min	-	265	410	22	27	34	40
	max	16	-	530	-	-	-	-
	min	16.1	255	410	22	27	34	40
	max	40	-	530	-	-	-	-
	min	40.1	245	410	22	27	34	40
	max	60	-	530	-	-	-	-
	min	60.1	215	410	22	27	34	40
	max	100	-	530	-	-	-	-
P295GH	min	-	295	460	21	27	34	40
	max	16	-	580	-	-	-	-
	min	16.1	290	460	21	27	34	40
	max	40	-	580	-	-	-	-
	min	40.1	285	460	21	27	34	40
	max	60	-	580	-	-	-	-
	min	60.1	260	460	21	27	34	40
	max	100	-	580	-	-	-	-
P355GH	min	-	355	510	20	27	34	40
	max	16	-	650	-	-	-	-
	min	16.1	345	510	20	27	34	40
	max	40	-	650	-	-	-	-
	min	40.1	315	510	20	27	34	40
	max	60	-	650	-	-	-	-
	min	60.1	295	490	20	27	34	40
	max	100	-	630	-	-	-	-

MECHANICAL CHARACTERISTIC / EN 10028-2

Grades	Tolérance	Rp	Rm	A%	
A516Gr55	min	205	380	23	27
	max	-	515	-	-
A516Gr60	min	220	415	21	25
	max	-	550	-	
A516Gr65	min	240	450	19	23
	max	-	585	-	
A516Gr70	min	260	485	17	21
	max	-	620	-	-

DIMENSIONAL MAPPING:

Epaisseur	P235GH +AR/+N Largeur 1500	2000	2500	P265GH +AR/+N Largeur 1500	2000	2500	P295 GH +AR/+N Largeur 1500	2000	2500
5									
6									
8									
10									
15									
20									
25									
30									
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									

Epaisseur	A516 Gr55 +AR/+N Largeur 1500	2000	2500	A516 Gr60 +AR/+N Largeur 1500	2000	2500	A516 Gr65 +AR/+N Largeur 1500	2000	2500	A516 Gr70 +AR/+N Largeur 1500	2000	2500
5												
6												
8												
10												
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25												
30												
35												
40												
45												
50												
55												
60												
65												
70												
75												
80												

STEELS FOR LASER CUTTING

LASER cutting steels are hot-rolled steels produced in specific qualities.developed for applications using thermal and mechanical cutting equipment (laser, plasma, etc.)

Scope	Standards	Grade	Delivery status
These steels suitable particularly has there production of complex parts or improving productivity when parts are produced on a small scale.	EN 10025-2	S275J2LZ	«+AR» without conditions particular rolling and/or heat treatment.

ADDITIONAL OPTIONS:

The information following must be specified at moment of there order: - Quantity to be delivered.

- Product designation nominal dimensions.reference standards (technical delivery conditions and tolerances on dimensions and shape) and/or any other specific customer requirements.
- Type of inspection certificate
- Any additional requirements in terms of inspections.tests and control documents.
- Need for “Charpy” impact bending test for JR quality grades.
- Issuance of a CE marking.NM marking
- All customer-specific options relating to the EN 10025-2 standard.If the customer does not give any indication as to the execution of one of these options from the EN 10025-2 standard,

MAGHREB STEEL delivers its products according to the basic specifications.

CHEMICAL COMPOSITION / EN 10025-2

	% Max							
	C	Si	Mn	P	S	N	Cu	Ceq
S275J2	0.18	_	1.50	0.025	0.025	_	0.55	0.40

MECHANICAL PROPERTY / EN 10025-2:

	Limite d'élasticité minimale Rp (MPa)			Résistance à la traction Rm (MPa)	Allongement A% min	°C	Enérgie de rupture KV (j) min
	t≤16	>16 ≤ 40	>40 ≤60	3≤t ≤60	3< t ≤ 60		
S275J2	275	265	255	410 -560	21	20	27

DIMENSIONS:

S275 J2 + AR				
	Largeur			
	1000	1500	2000	2500
5 (*)				
6 (*)				
8 (*)				
10				
15				
20				
25				
30				
35				
40				
45				
50				
55				
60				
65				
70				
75				
80				

MAGHREB


STEEL

MAGHREB STEEL

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IMANOR CERTIFICATION

afnor CERTIFICATION

NM ISO 9001 v 2008
NM ISO 45001 v 2007
NM ISO 14001 v 2004