



**COLUMBUS
STAINLESS**

[Pty] Ltd

A Subsidiary of ACERINOX, S.A.

Title: CARBON STEEL PRODUCT CATALOGUE	Document No: TCS-EDP-005
Implementation Date: 19 November 2025	Revision: 3

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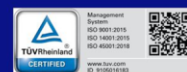


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1 **HOT ROLLED COIL PRODUCTS**

1.1 **Low carbon grades**

Table 1: Low carbon grades

Classification	Internal Types			External Types	Galvanisable
	General	ACX	Columbus	Common or AISI	
Commercial quality	CQ	C030	10802	Commercial quality	NO
Low carbon steel	1008 (Si≤0.04%)	C033	10800	SAE 1008	YES
	1008 (Si=0.15-0.25%)	C034	10801		

1.1.1 Low carbon grades product range (coil form)

Table 2: Standard Hot Rolled gauges in metric dimensions. Gauges not specified can be enquired.

Metric gauge (mm)	Form
1.9 to ≤ 16	Coil

Table 3: Standard widths in metric dimensions. Widths not specified can be enquired.

Metric width (mm)	Form
945 to ≤ 1575	Coil

1.1.2 Low carbon grades – Gauge tolerance

Gauge tolerances on coils are according to EN 10051 specification category A. The default aim ranges are as per Table 4. Tolerance can be split in any way within the mill's best range and should be negotiated with order placement.

Table 4: Low carbon grades gauge tolerance

Nominal Gauge (mm)	Mill's Best (mm)	Normal (mm)						Positive (mm)	
		Width ≤ 1200mm		1200mm < Width ≤ 1500mm		Width > 1500mm			
		-	+	-	+	-	+	-	+
≥1.9 to 2.0	0.29	0.17	0.12	0.19	0.1	0.21	0.08	0.00	0.29
>2.0 to 2.5	0.29	0.18	0.11	0.21	0.08	0.23	0.06	0.00	0.29
>2.5 to 3.0	0.29	0.20	0.09	0.22	0.07	0.24	0.05	0.00	0.29
>3.0 to 3.5	0.31	0.22	0.09	0.24	0.07	0.26	0.05	0.00	0.31
>3.5 to 4.0	0.33	0.22	0.11	0.24	0.09	0.26	0.07	0.00	0.33
>4.0 to 4.5	0.35	0.24	0.11	0.26	0.09	0.28	0.07	0.00	0.35
>4.5 to 5.0	0.36	0.24	0.12	0.26	0.1	0.28	0.08	0.00	0.36
>5.0 to 6.0	0.4	0.26	0.14	0.28	0.12	0.29	0.11	0.00	0.40
>6.0 to 8.0	0.48	0.29	0.19	0.30	0.18	0.31	0.17	0.00	0.48
>8.0 to 10.0	0.55	0.32	0.23	0.33	0.22	0.34	0.21	0.00	0.55
>10.0 to 12.0	0.63	0.35	0.28	0.36	0.27	0.37	0.26	0.00	0.63
>12.0 to 12.5	0.7	0.35	0.35	0.36	0.34	0.37	0.33	0.00	0.70
>12.5 to 14.0	0.7	0.37	0.33	0.38	0.32	0.40	0.3	0.00	0.70
>14.0 to 15.0	0.74	0.37	0.37	0.38	0.36	0.40	0.34	0.00	0.74
>15.0 to 16.0	0.78	0.40	0.38	0.42	0.36	0.45	0.33	0.00	0.78

1.2 Structural grades

Table 5: Structural grades

Classification	Internal Types			Specification	Galvanisable
	General	ACX	Columbus		YES / NO
Structural grades	S355JR+AR	C037	13600	EN 10025-2 S355JR+AR	YES
	S355J0+AR	C038	13600	EN 10025-2 S355J0+AR	YES
	S355J2+AR	C062	13600	EN 10025-2 S355J2+AR	YES
	S355N ¹	C063	13600	EN 10025-3 S355N	YES

Notes:

1. S355N (normalized rolled) material is in development (gauges 8mm to 20mm). Orders can be placed on request.

1.2.1 Structural grades product range (coil form)

Table 6: Standard Hot Rolled gauges in metric dimensions. Gauges not specified can be enquired.

Metric gauge (mm)	Form
1.9 to ≤ 16	Coil

Table 7: Standard widths in metric dimensions. Widths not specified can be enquired.

Metric width (mm)	Form
45 to ≤ 1575	Coil

1.2.2 Structural grades – Gauge tolerance

Gauge tolerances on coils are according to EN 10051 specification category B. The default aim ranges are as per Table 8. Tolerance can be split in any way within the mill's best range and should be negotiated with order placement.

Table 8: Structural grades gauge tolerance

Nominal Gauge (mm)	Mill's Best (mm)	Normal (mm)						Positive (mm)	
		Width ≤ 1200mm		1200mm < Width ≤ 1500mm		Width > 1500mm			
		-	+	-	+	-	+	-	+
≥1.9 to 2.0	0.29	0.20	0.09	0.22	0.07	0.24	0.05	0.00	0.29
>2.0 to 2.5	0.29	0.21	0.08	0.24	0.05	0.26	0.03	0.00	0.29
>2.5 to 3.0	0.29	0.23	0.06	0.25	0.04	0.28	0.01	0.00	0.29
>3.0 to 3.5	0.31	0.25	0.06	0.28	0.03	0.30	0.01	0.00	0.31
>3.5 to 4.0	0.33	0.25	0.08	0.28	0.05	0.30	0.03	0.00	0.33
>4.0 to 4.5	0.35	0.28	0.07	0.30	0.05	0.32	0.03	0.00	0.35
>4.5 to 5.0	0.36	0.28	0.08	0.30	0.06	0.32	0.04	0.00	0.36
>5.0 to 6.0	0.40	0.30	0.10	0.32	0.08	0.33	0.07	0.00	0.40
>6.0 to 8.0	0.48	0.33	0.15	0.35	0.13	0.36	0.12	0.00	0.48
>8.0 to 10.0	0.55	0.37	0.18	0.38	0.17	0.39	0.16	0.00	0.55
>10.0 to 12.0	0.63	0.40	0.23	0.41	0.22	0.43	0.20	0.00	0.63
>12.0 to 12.5	0.70	0.40	0.30	0.41	0.29	0.43	0.27	0.00	0.70
>12.5 to 14.0	0.70	0.43	0.27	0.44	0.26	0.46	0.24	0.00	0.70
>14.0 to 15.0	0.74	0.43	0.31	0.44	0.30	0.46	0.28	0.00	0.74
>15.0 to 16.0	0.78	0.46	0.32	0.48	0.30	0.52	0.26	0.00	0.78

1.3 Cold forming grades

Table 9: Cold forming grades

Classification	Internal Types			Specification	Galvanisable
	General	ACX	Columbus		YES / NO
Cold forming grades	S355MC ¹	C040	13600	EN10149-2-S355MC	YES
	S420MC	C051	13800	EN10149-2-S420MC	YES
	S460MC	C052	13700	EN10149-2-S460MC	YES
	S500MC	C053	13700	EN10149-2-S500MC	YES
	S550MC ²	C055	13700	EN10149-2-S550MC	YES

Note:

1. S355MC material is in development. Orders can be placed on request.
2. S550MC material is in development. Orders can be placed on request.

1.3.1 Cold forming grades product range (coil form)

Table 10: Standard Hot Rolled gauges in metric dimensions. Gauges not specified can be enquired.

Metric gauge (mm)	Form
2.5 to ≤ 5	Coil

Table 11: Standard widths in metric dimensions. Widths not specified can be enquired.

Metric width (mm)	Form
945 to ≤ 1575	Coil

1.3.2 Cold forming grades – Gauge tolerance

Gauge tolerances on coils are according to EN 10051 specification category C. The default aim ranges are as per Table 12. Tolerance can be split in any way within the mill's best range and should be negotiated with order placement.

Table 12: Cold forming grades gauge tolerance

Nominal Gauge (mm)	Mill's Best (mm)	Normal (mm)						Positive (mm)	
		Width ≤ 1200		1200mm < Width ≤ 1500mm		Width > 1500mm			
		-	+	-	+	-	+	-	+
≥2.5 to 3.0	0.29	0.28	0.01	0.31	-0.02	0.34	-0.05	0.00	0.29
>3.0 to 3.5	0.31	0.31	0.00	0.34	-0.03	0.36	-0.05	0.00	0.31
>3.5 to 4.0	0.33	0.31	0.02	0.34	-0.01	0.36	-0.03	0.00	0.33
>4.0 to 4.5	0.35	0.34	0.01	0.36	-0.01	0.39	-0.04	0.00	0.35
>4.5 to 5.0	0.36	0.34	0.02	0.36	0.00	0.39	-0.03	0.00	0.36

1.4 Tube and pipe grades

Table 13: Tube and pipe grades

Classification	Internal Types			Specification	Galvanisable
	General	ACX	Columbus		YES / NO
Tube and pipe grades	S355M ¹	C041	13600	EN 10219-1-S355M	YES
	API X42 PSL 1 ¹	C042	13600	API X42 PSL 1	YES
	API 5L X52 PSL 1 ¹	C043	13600	API 5L X52 PSL 1	YES
	API 5L X60 PSL 1 ²	C044	13800	API 5L X60 PSL 1	YES
	API 5L X80 PSL 1 ²	C045	13700	API 5L X80 PSL 1	YES
	API 5L L245 / B PSL1	C050	10800	API 5L L245 GR B PSL1	YES

Note:

1. S355M, S355MLosi, API X42 PSL 1 and API 5L X52 PSL 1 material can only be produced for gauges 2.5mm to 16mm
2. API 5L X60 PSL 1 and API 5L X80 PSL 1 material is in development. Orders can be placed on request.

1.4.1 Tube and pipe grades product range (coil form)

Table 14: Standard Hot Rolled gauges in metric dimensions. Gauges not specified can be enquired.

Metric gauge (mm)	Form
1.9 to ≤ 16	Coil

Note:

1. S355M can only be produced for gauges 2.5mm to 16mm

Table 15: Standard widths in metric dimensions. Widths not specified can be enquired.

Metric width (mm)	Form
945 to ≤ 1575	Coil

1.4.2 Tube and pipe grades – Gauge tolerance

Gauge tolerances on coils are according to EN 10051 specification category B. The default aim ranges are as per Table 16. Tolerance can be split in any way within the mill's best range and should be negotiated with order placement.

Table 16: Tube and pipe grades gauge tolerance

Nominal Gauge (mm)	Mill's Best (mm)	Normal (mm)						Positive (mm)	
		Width ≤ 1200		1200mm < Width ≤ 1500mm		Width > 1500mm			
		-	+	-	+	-	+	-	+
≥1.9 to 2.0	0.29	0.20	0.09	0.22	0.07	0.24	0.05	0.00	0.29
>2.0 to 2.5	0.29	0.21	0.08	0.24	0.05	0.26	0.03	0.00	0.29
>2.5 to 3.0	0.29	0.23	0.06	0.25	0.04	0.28	0.01	0.00	0.29
>3.0 to 3.5	0.31	0.25	0.06	0.28	0.03	0.30	0.01	0.00	0.31
>3.5 to 4.0	0.33	0.25	0.08	0.28	0.05	0.30	0.03	0.00	0.33
>4.0 to 4.5	0.35	0.28	0.07	0.30	0.05	0.32	0.03	0.00	0.35
>4.5 to 5.0	0.36	0.28	0.08	0.30	0.06	0.32	0.04	0.00	0.36
>5.0 to 6.0	0.40	0.30	0.10	0.32	0.08	0.33	0.07	0.00	0.40
>6.0 to 8.0	0.48	0.33	0.15	0.35	0.13	0.36	0.12	0.00	0.48
>8.0 to 10.0	0.55	0.37	0.18	0.38	0.17	0.39	0.16	0.00	0.55
>10.0 to 12.0	0.63	0.40	0.23	0.41	0.22	0.43	0.20	0.00	0.63
>12.0 to 12.5	0.70	0.40	0.30	0.41	0.29	0.43	0.27	0.00	0.70
>12.5 to 14.0	0.70	0.43	0.27	0.44	0.26	0.46	0.24	0.00	0.70
>14.0 to 15.0	0.74	0.43	0.31	0.44	0.30	0.46	0.28	0.00	0.74
>15.0 to 16.0	0.78	0.46	0.32	0.48	0.30	0.52	0.26	0.00	0.78

Note:

1. Tolerance can be split in any way within the mill's best range

2 PLATE MATERIAL

Table 17: Plate material grades

Classification	Internal Types			External Types	Galvanisable
	General	ACX	Columbus	Common or AISI	YES / NO
Commercial quality	CQ	C030	10802	Commercial quality	NO
Low carbon steel	SAE 1008	C033	10800	SAE 1008	YES
		C034	10801		
Structural grade	S235 JR+AR	C035	10800	EN 10025-2-S235 JR+AR	YES
	S275 JR+AR	C036	10800	EN 10025-2-S275 JR+AR	YES
	S355 JR+AR	C037	13600	EN 10025-2-S355 JR+AR	YES
	S355 J0+AR	C038	13600	EN 10025-2-S355 J0+AR	YES
	S355 J2+AR	C063	13600	EN 10025-2-S355 J2+AR	YES
Hard wearing plate	HDP200	C056	15000	HARDWEARING PLATE 200	NO

2.1 Plate material product range

Table 18: Standard Hot Rolled gauges in metric dimensions. Gauges not specified can be enquired.

Metric gauge (mm)	Form
8 to ≤ 30	Plate

Note:

1. Larger gauges (>30mm) can be ordered on request.

Table 19: Standard widths in metric dimensions. Widths not specified can be enquired.

Metric width (mm)	Form
945 to ≤ 1575	Plate

All the plate material grades listed in Table 17 are available in the following plate dimensions (see Table 20). Gauges, widths and lengths not specified are available on request.

Table 20: Plate dimensions (Std = Standard).

Form	Width	All widths (see Table 19)	
	Plate length	2000 - 6000 mm	8000 mm
	Gauge		
Plate	8mm	Std	Std
	10mm	Std	Std
	12mm	Std	Std
	16mm	Std	Std
	18mm	Std	Std
	20mm	Std	-
	25mm	Std	-
	30mm	Std	-

Note:

1. Max plate piece mass is 5 ton

2.2 2.2 Plate material – Gauge tolerance

Gauge tolerances on plates are according to EN 10029 specification Class. Other classes may be available on request as per EN 10029 and should be negotiated with order placement. If negative tolerances are required please consult the relevant dimensional specification.

Table 21: Plate material grades gauge tolerance

Nominal Gauge (mm)	Mill's Best (mm)	Class B	
		Lower	Upper
≥ 8 to 10	0.55	-0.3	+1.1
>10 to 12	0.63	-0.3	+1.1
>12 to 14	0.70	-0.3	+1.1
>14 to 15	0.74	-0.3	+1.1
>15 to 16	0.78	-0.3	+1.3
>16 to 18	0.85	-0.3	+1.3
>18 to 20	0.93	-0.3	+1.3
>20 to 22	1.00	-0.3	+1.3
>22 to 25	1.11	-0.3	+1.3
≥25 to 28	1.23	-0.3	+1.7
>28 to 30	1.30	-0.3	+1.7

Note:

1. Tolerance can be split in any way within the mill's best range

3 CHEMICAL COMPOSITIONS

Table 22 specifies the types available with general chemistry limits based on the tightest limits for the most common certifications, typically; API, SAE, EN and Columbus Stainless mill specification. For actual limits consult the applicable specification.

Table 22: Standard certification grades and chemical composition

Specification	Type			Composition ¹																		
	Columbus	ACX	General	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	B	V	Nb	Ti	Al	N	NbV	NbVTi	CrCuMo	CEV
Commercial Quality	10802	C030	CQ	0.25	1.60	0.55	0.035	0.035	0.55	0.50	0.50	0.20	-	-	-	-	-	-	-	-	-	-
SAE J403	10800	C033	1008 S<=0.04	0.10	0.50	0.04	0.03	0.035	0.35	0.25	0.40	0.06	-	-	-	-	-	-	-	-	-	-
	10801	C032	1008 Si=0.15-0.25	0.10	0.50	0.15-0.25	0.03	0.035	0.35	0.25	0.40	0.06	-	-	-	-	-	-	-	-	-	-
API 5L	13600	C043	X52 PSL - 1	0.26	1.50 ²	-	0.03	0.03	0.50	0.50	0.50	0.15	0.001	-	-	-	-	-	-	0.15	-	-
		C042	X42 PSL - 1	0.26	1.50 ²	-	0.03	0.03	0.50	0.50	0.50	0.15	0.001	-	-	-	-	-	-	0.15	-	-
		C046	L245/B ²	0.24	1.50 ²	-	0.03	0.03	0.50	0.50	0.50	0.15	0.001	-	-	-	-	-	0.06	0.15	-	-
	13700	C044	X60 PSL - 1	On request																		
		C045	X80 PSL - 1	On request																		
EN 10219-1	13600	C041	S355M	0.14	1.50	0.50	0.035	0.03	-	0.30	-	0.20	-	0.10	0.05	0.05	-	0.02	-	-	0.60	0.39
EN 10025-3	13600	C062	S355N	0.14	1.50	0.50	0.035	0.03	-	0.30	-	0.20	-	0.10	0.05	0.05	-	0.02	-	-	0.60	0.39
EN 10025-2	13600	C037	S355JR+AR	0.24	1.60	0.55	0.035	0.035	0.55	0.42	0.29	0.11	-	-	-	0.05	≥0.02	-	-	-	-	-
		C063	S355J2+AR	0.22	1.60	0.55	0.025	0.025	0.55	0.42	0.29	0.11	-	-	-	0.05	≥0.02	-	-	-	-	-
		C038	S355J0+AR	0.22	1.60	0.55	0.03	0.03	0.55	0.42	0.29	0.11	-	-	-	0.05	≥0.02	-	-	-	-	-
Columbus Specification	15000	C056	HDP200	0.55	1.00	0.15-0.35	0.05	0.05	-	-	-	-	-	-	-	-	≥0.02	0.02	-	-	-	-
EN 10149-2	13800	C051	S420MC	0.12	1.50	0.50	0.025	0.03	-	0.30	-	0.20	-	0.10	0.05	0.05	-	-	-	0.220	-	-
	13700	C053	S500MC	On request																		
		C053	S550MC	On request																		

Notes:

1. Compositions are maximum values, unless otherwise stated. Balance is iron.
2. Due to lower concentration of carbon. See API 5L.

4 DELIVERY CONDITIONS

4.1 Certification

Regardless of the specification and tolerances required by the customer, all certificates are issued as inspection certificate 3.1 as defined in EN 10204.

Apart from the single certified grades specified in Table 22, multiple and dual certifications in Table 23 are also available and should be stated with order placement.

Table 23: Multiple certifications

ACX Code	Certification				
C047	EN 10219-1 S355M	API 5L X42 PSL-1			
C048	EN 10219-1 S355M	API 5L X52 PSL-1			
C049	EN 10219-1 S355M	API 5L X52 PSL-1	API 5L X42 PSL-1	API 5L L245/B	
C050	EN 10219-1 S355M	API 5L L245/B			
C058	EN 10025-2 S355JR+AR	EN 10025-2 S355J0+AR			

4.2 Tolerances

Gauge tolerances as guaranteed to the API 5L, ASTM and EN tolerances. Other material tolerances are guaranteed to the ASTM and EN tolerances listed in Table 24. Any special customer requirements should be agreed upon order placement.

Table 24: Tolerances according to the specifications

Product Group	Specification
Hot rolled coil and plates cut from coils	ASTM A568M and EN 10051
Plates	EN 10029 and EN 10051

4.2.1 Width Tolerances

All material is supplied with a mill edge in the untrimmed condition. Trimmed material is available upon request.

4.2.1.1 Hot Rolled Untrimmed Width Tolerances

Hot rolled coil and plates cut from coil material is produced to the aim width tolerances in Table 25. Tighter tolerances should be negotiated with order placement.

Table 25: Untrimmed width tolerances

Specification	Gauge Min (mm)	Gauge Max (mm)	Width Min (mm)	Width Max (mm)	Negative (mm)	Positive (mm) ¹
EN 10051	1.9	30	945	≤ 1575	0	20
ASTM A568M	1.9	< 6	945	≤ 1200	0	28
	1.9	< 6	1200	≤ 1500	0	38
	1.9	< 6	1500	≤ 1575	0	45

Note:

1. Due to flare the head and tail ends of the coil may exceed these positive values

4.2.1.2 Hot Rolled Trimmed Width Tolerances

Trimming options on coil and plate are available upon request. Trimmed hot rolled coil and plate material are produced to the aim width tolerances in Table 26. Tighter tolerances should be negotiated with order placement.

Table 26: Trimmed width tolerances according to specification

Specification	Gauge Min (mm)	Gauge Max (mm)	Width Min (mm)	Width Max (mm)	Negative (mm)	Positive (mm)
EN 10051	1.9	30	945	≤ 1200	0	3
	1.9	30	1200	≤ 1575	0	5
ASTM A568M	1.9	< 6	945	≤ 1200	0	5
	1.9	< 6	1200	≤ 1500	0	6
	1.9	< 6	1500	≤ 1575	0	8
EN 10029	8	< 30	-	-	0	20

4.2.2 Length Tolerances

4.2.2.1 Plate Length Tolerance

Plate material is produced to the aim length tolerances in Table 27.

Table 27: Plate length tolerance

Specification	Length (mm)	Negative (mm)	Positive (mm)
EN 10051	2500 to < 8000	0	0.005 x (Plate Length)
EN 10029	2500 to < 4000	0	20
	≤ 4000 to < 6000	0	30
	≤ 6000 to < 8000	0	40
ASTM A568M	2500 to < 3000	0	20
	≤ 3000 to < 4000	0	25
	≤ 4000 to < 5000	0	35
	≤ 5000 to < 6000	0	40
	≤ 5000 to < 8000	0	45

4.2.3 Flatness Tolerances

Table 28 applies to plates and plates cut from coils, sold by Columbus Stainless, as per EN 10029 and EN 10051 for all types listed in Table 22. For plate dimensions not covered in Table 27, please inquire regarding flatness. Requirements for coil flatness shall be agreed at the time of order. Adequate flattening equipment at the customer is assumed when coils are cut into plates.

Table 28: For supplied plates cut from coil by Columbus. As per EN 10029 and EN 10051

Specification	Specified minimum yield strength	Width (mm)	Length (mm)	Gauge (mm)	Flatness (mm)
EN 10029	Re ≤ 460 MPa	-	1000	8 ≤ to < 15	7
				15 ≤ to < 25	7
				25 ≤ to < 30	6
			2000	8 ≤ to < 15	11
				15 ≤ to < 25	10
				25 ≤ to < 30	9
	Re > 460 MPa	-	1000	8 ≤ to < 15	10
				15 ≤ to < 25	10
				25 ≤ to < 40	9
				40 ≤ to < 55	8
			2000	8 ≤ to < 15	14
				15 ≤ to < 25	13
EN 10051	Re ≤ 300 MPa	≤ 1200	-	8 to ≤ 25	15
		1200 < width ≤ 1500			18
		> 1500			23
	300 MPa < Re ≤ 900 MPa	≤ 1200	-	≤ 25	18
		1200 < width ≤ 1500			23
		> 1500			28

4.2.4 Out-of-square tolerance

As per ASTM A568M for all types listed in Table 22: Out-of-square is the greatest deviation of an end edge from a straight line at right angle to a side and touching one corner. It is also obtained by measuring the difference between the diagonals of the cut length. The out-of-square deviation is one half of that difference. The tolerance for all thicknesses and all sizes is 1.0 mm/100 mm of width or fraction thereof.

4.3 Testing and Releasing

Material will be tested in accordance with the requested certifications. Additional test requirements and exceptions need to be specified and negotiated with order acceptance.

4.4 Coil Diameter

Inner diameter: Mill Edge Black Hot Band: 762 mm (30") or 610 mm (24") at Mill's option.

Outer Diameter: Mill Edge Coils - Maximum of 2 100 mm

4.5 Marking

In Section 7 the standard markings are defined. Detailed requirements must be noted on order placement.

4.5.1 HR and HRA Coils

Coils are identified by being marked on the outer wrap with gauge, type and MPO (coil) number, as well as a case label. Figure 1 is an example of a typical case label. The part number will only be displayed if supplied and captured on the Columbus system. If required, additional information can be added as text or in a barcode.

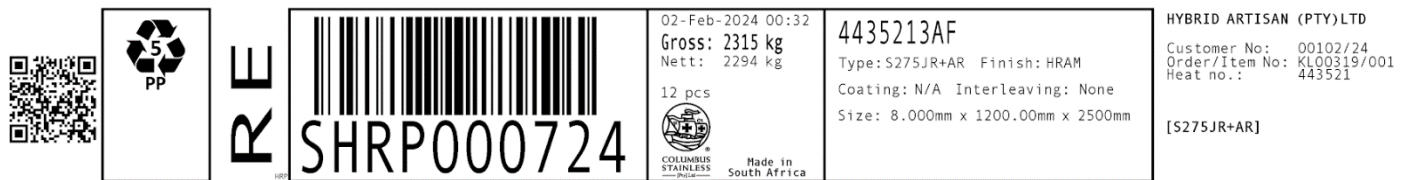


Figure 1: Example of case marking

4.5.2 Plates

Plate materials are continuously line marked with white paint on the top with MPO (coil) number, type, gauge, dimensions, finish and specification, unless otherwise specified. Alternative requirements must be noted on order placement.

4.6 End Use

Products are produced to suit customers' end use as much as possible. It is essential therefore when ordering that the end use is stated. Customers are encouraged to consult with Columbus Stainless' Technical Customer Services Department to obtain the material which best suits their purpose. Should no end use be supplied any claims relating to the material will be handled accordingly.

4.7 Pack Mass

Delivery tolerances are $\pm 10\%$ on order mass.

4.7.1 Typical Coil Mass

The maximum length of a slab is 11.95 m due to the size of the reheat furnace. Since the thickness of the slab is fixed, the mass of the slab is therefore determined by the width. It is given by the factor of 18.8kg/mm width (i.e. a 1000 mm wide slab will be 18 800 kg, and 1500 mm slab will be 22 500 kg). Orders for the product of a slab as a minimum must consider this. Orders for coils bigger than a single coil must also be optimised to multiples of a single coil.

Take note that the minimum pack mass per coil is ± 10 tons at Mill's option.

Table 29: Coil typical pack mass examples

No of Coils Ordered	Mass (t)					
	½	1	2	3	4	5
Width						
1000	± 10	19	34	49	66	83
1500	± 12	23	50	73	95	118

4.7.2 Plate Pack Mass

Maximum plate pack mass: The maximum pack mass depends on the skid carrying capacity, which is dependent on the gauge and case length.

Table 30: Plate typical pack mass examples

Skid length (mm)

Gauge (mm)	≤2800	> 2800 to ≤ 4000	> 4000 to ≤ 6200	> 6200
2.5 to 3	4000kg	3000kg	3000kg	-
> 3 to < 30	4000kg	4000kg	3000kg	5000kg

4.8 Packing

Packing is suitable for rail and road transport. For sea transport please enquire about packing.

4.8.1 Coils

Coil axis is horizontal. Coil is without packing material and strapping is with suitable steel strapping (see Figures 2 and 3). Strapping will depend on domestic or export locations. The coil is labelled with two bar code labels, one on either side of the coil.



Figure 2: Domestic strapping



Figure 3: Export strapping

4.8.2 Plates

Plates are packed with suitable steel strapping and separated by wood dunnage for stacking purposes (see Figure 4).

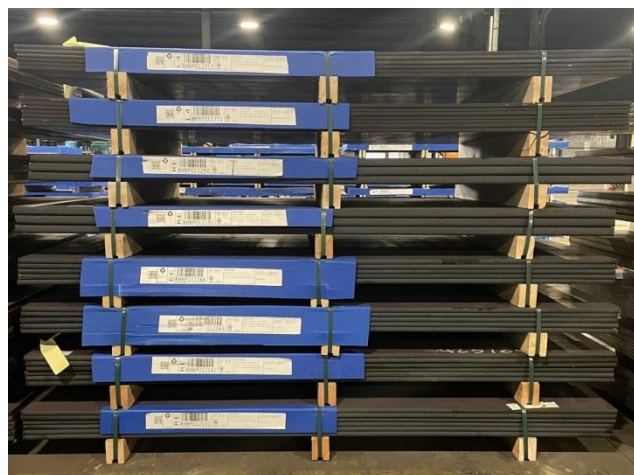


Figure 4: Plate packing

4.9 Plate Pack Mass

Maximum plate pack mass: The maximum pack mass depends on the skid carrying capacity, which is dependent on the gauge and case length.

Table 31: Plate typical pack mass examples

Gauge (mm)	Skid length (mm)			
	≤2800	> 2800 to ≤ 4000	> 4000 to ≤ 6200	> 6200
2.5 to 3	4000kg	3000kg	3000kg	-
> 3 to < 30	4000kg	4000kg	3000kg	5000kg

5 ADDITIONAL ORDER REQUIREMENTS

In order to ensure accurate product definition and manufacturing the minimum requirements specified by the various standards should be supplied. Any additional requirements should also be given to ensure the accuracy of the final product. The information can be supplied via a customer's technical product/delivery specification, on the purchase order or using the Product Specification Sheet in [Annexure A](#).

Minimum information required:

- Steel/Alloy type
- Specification and grade, including multiple and dual certification
- Product form
- Finish and/or condition
- Edge condition
- Dimensions
- Certification requirements
- Pack mass limits

Optional information:

- Dimensional tolerance and delivery condition standard, if not specified by the required standards and any special tolerances in the standard
- Packing and delivery requirements
- Special marking requirements
- Chemical exceptions
- Mechanical exceptions
- Any other special requirements not covered above

Table 32 gives the default rules that will apply, unless deviations from the standard method are specified with order placement.

Table 32: Order specific enquiries

Description	Standard	Specify on order if requirements deviate from the standard
Gauge tolerances	Normal or positive as per section 4.2	Alternative requirements should be communicated on order placement
Width tolerances	Tightest limits are assumed as per section 4.2.1	Alternative requirements should be communicated on order placement
Flatness tolerances for purchased plates and plates cut from coils	Tightest limits are assumed as per section 4.2.3 (As per EN 10029 and EN 10051). For plate dimensions not covered in Table 25, please inquire regarding flatness.	Alternative requirements should be communicated on order placement
Flatness tolerances for coils	Adequate flattening equipment at the customer is assumed when coils are cut into plates.	Requirements for coil flatness shall be agreed at the time of order.
Coil inner diameter	762mm or 610mm at Mills option as per section 4.4	Alternative requirements should be communicated on order placement
Marking	See section 4.5. Take note that we use white paint.	Specify any additional markings. It can be added as text or in a barcode.
Pack mass	Minimum pack mass per coil is ±10 ton as per section 4.7	Alternative requirements should be communicated on order placement

6 SUMMARY OF CHANGES

Revision	Detail of Change
0	Created
1	Fixed table format
2	Including newly developed steel grades (S420MC, S460MC, S500MC, S550MC, HDP200) Sorted products in different categories (low carbon grades, structural grades, cold forming grades, pipe and tube grades and plate material).
3	Fixed scope: Removed cold rolled coil and plate description

7 DOCUMENT APPROVAL

	Job Title	Co No
Prepared by	Engineer	13304
Checked by	Engineer TCS & TCC	5736
	Snr Engineer TCS	1306
	Manager: Technical Customer Services	1885
Approved by	Business Unit Manager: Technical	8412
	Chief Operations Officer	5565



Annexure A
Product Specification Sheet

Mandatory	Optional	
Steel/Alloy Type:	Additional Specifications and Certifications: (Additional dual and multiple certifications required)	
Specification ¹ :		
Grade:		
Form:	Dimensional Tolerances and Delivery Conditions: (other than required by specification)	
Finish / Condition:		
Edge Condition: ☐ Trimmed ☐ Mill Edge	Special Tolerance Requirements: (other than default)	
Thickness:		
Width:	Special Packing and Delivery:	
Length:		
Certificate ² : ☐ 3.1 or ☐ 3.2	Special Marking:	
Other:		
Pack Mass Limits		
	Chemical Exceptions:	
	Mechanical Exceptions:	
	Any Special Requirements:	

Notes:

1. Default is current revision unless specified
2. Default certificate type is 3.1 according to EN 10204