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1 TYPES AVAILABLE

Below are the types available with general chemistry limits based on the tightest limits for the most common certifications, typically ASTM, EN and Columbus Stainless mill specification. For actual limits consult the applicable specification.

1.1 Ferritics

Classification	Type		Compositions[1]										
	General	ACX	C	Si	Mn	P	S	N	Cr	Ni	Ti	Nb	Other
Utility Ferritics	3CR12	C211	0.030	1.00	1.50	0.040	0.015	0.030	10.5-12.5	0.30-1.00	4x(C+N) to 0.6	-	-
	3CR12L	C220	0.030	1.00	1.50	0.040	0.015	0.030	10.5-12.5	0.30-1.00	-	-	-
	410S	C420	0.080	1.00	1.00	0.040	0.015	-	12.0-13.5	0.60	-	-	-
Standard Ferritics	40910	C800	0.030	1.00	1.00	0.040	0.015	0.030	10.5-11.7	0.50	6x(C+N) to 0.5	0.1	-
	40920	C801	0.030	1.00	1.00	0.040	0.005	0.030	10.5-11.7	0.50	8x(C+N) & 0.15 to 0.5	0.1	-
	40975	C700	0.030	1.00	1.00	0.040	0.030	0.030	10.5-11.7	0.50-1.00	6x(C+N) to 0.75	-	-
	430	C500	0.08	1.00	1.00	0.040	0.015	-	16.0-18.0	0.75	-	-	-
	430DDQ	C530	0.08	1.00	1.00	0.040	0.015	-	16.0-18.0	-	-	-	Al: 0.30 max
	439Nb	C515	0.05	1.00	1.00	0.040	0.015	-	17.0-17.5	-	4x(C+N)+0.15 to 0.8[2]	0.45	-
	441	C845	0.030	0.75	1.00	0.040	0.015	-	17.5-18.5	-	0.1-0.6	3xC+0.3 to 1.00	-
		C843	0.030	0.75	1.00	0.040	0.015	-	17.5-18.5	-	0.15-0.6	3xC+0.3 to 1.00	-
		C841	0.030	0.75	1.00	0.040	0.015	-	18.0-18.5	-	0.1-0.6	3xC+0.3 to 1.00	-
Moly Ferritics	436	C550	0.08	1.00	1.00	0.040	0.015	0.040	16.0-18.0	-	-	7x(C+N)+0.1 to 0.8	Mo: 0.80-1.25
	43612	C553	0.08	1.00	1.00	0.040	0.015	0.040	16.0-18.0	-	-	7x(C+N)+0.1 to 0.8	Mo: 1.20-1.25
	444	C555	0.025	1.00	1.00	0.040	0.015	0.030	17.5-19.5	0.40	4x(C+N)+0.15 to 0.8[2]	0.32 – 0.4	Mo: 1.80-2.50

Notes

1. *Compositions are maximum values, unless otherwise stated. Balance is iron*
2. *Stabilisation may be by use of titanium or niobium or zirconium. For ASTM A240, Ti+Nb>4(C+N)+0.20. For EN10088-2, according to the atomic mass of these elements and the content of carbon and nitrogen, the equivalence shall be the following: Nb (% by mass) ≡ Zr (% by mass) ≡ 7/4 Ti (% by mass). (i.e. when replacing titanium with niobium nearly double (1.75) the niobium is needed.)*

1.2 Duplexes

Classification	Type		Compositions[1]										
	General	ACX	C	Si	Mn	P	S	N	Cr	Ni	Mo	Cu	PRE[2]
Lean Duplexes	2001	C920	0.030	1.00	4.0-6.0	0.035	0.015	0.05-0.17	19.5-21.5	1.00-3.00	0.60	1.00 max	22.0
	2304	C940	0.030	1.00	2.00	0.035	0.015	0.05-0.20	22.0-24.0	3.5-5.5	0.10-0.60	0.10-0.60	25.0
Standard Duplex	2205	C900	0.030	1.00	2.00	0.035	0.015	0.14-0.20	22.0-23.0	4.5-6.5	2.5-3.5	-	35.0

Notes

1. *Compositions are maximum values, unless otherwise stated. Balance is iron*
2. *PRE is Pitting Resistance Equivalent = Cr + 3.3Mo + 16N*

1.3 Austenitics

Classification	Type		Compositions[1]									
	General	ACX	C	Si	Mn	P	S	N	Cr	Mo	Ni	Others
Cr-Mn-Ni Austenitic	202	C335	0.08	0.75	6.5-8.0	0.045	0.015	0.15	15.0-17.0	-	3.5-5.0	Cu: 2.0 max
Cr-Ni Austenitics	301L/301LN	C115	0.030	1.00	2.00	0.045	0.015	0.07-0.20	16.5-18.0	-	6.0-8.0	-
	1.4318	C111	0.030	1.00	2.00	0.045	0.015	0.10-0.20	16.5-18.5	-	6.0-8.0	-
	304	C120	0.07	0.75	2.00	0.045	0.015	0.10	17.5-19.5 18.0-19.5	-	8.0-10.5	-
	304H		0.04-0.10						18.0-20.0			
	304DQ	C160	0.07	0.75	2.00	0.045	0.015	0.10	18.0-19.5	-	8.5-10.5	-
	304DDQ	C181	0.07	0.75	2.00	0.045	0.015	0.10	18.0-19.5	-	9.0-10.5	-
	304L	C150 C151	0.030	0.75	2.00	0.045	0.015	0.10	17.5-19.5 18.0-19.5	-	8.0-10.5	-
	304LDDQ	C200	0.030	0.75	2.00	0.045	0.015	0.10	18.0-20.0	-	10.0-10.5	-
	321	C315	0.08	0.75	2.00	0.045	0.015	0.10	17.0-19.0	-	9.0-12.0	Ti: 5x(C+N) to 0.7
Cr-Ni-Mo Austentics	316L-1.4404	C240	0.030	0.75	2.00	0.045	0.015	0.10	16.5-18.0	2.00-2.50	10.0-13.0	-
	316L-1.4435	C300	0.030	0.75	2.00	0.045	0.015	0.10	17.0-18.0	2.50-3.00	12.5-13.0	-
	316LN	C320	0.030	0.75	2.00	0.045	0.015	0.12-0.16	16.5-18.0	2.00-2.50	10.0-12.5	-
	316Ti	C280	0.08	0.75	2.00	0.045	0.015	0.10	16.5-18.0	2.00-2.50	10.5-13.5	Ti: 5x(C+N) to 0.7
Heat Resistant Austenitics	309S-1.4833	C340	0.08	0.75	2.00	0.045	0.015	0.11	22.0-24.0	-	12.0-14.0	-
	1.4828 (309Si)	C309	0.20	1.50-2.50	2.00	0.045	0.015	0.11	19.0-21.0	-	11.0-13.0	-
	310S-1.4845	C350	0.04-0.08	0.75	2.00	0.045	0.015	0.11	24.0-26.0	-	19.0-22.0	-

Notes

1. Compositions are maximum values, unless otherwise stated. Balance is iron

1.4 Equivalents

Classification		Internal Types			External Types			
		General	ACX	Columbus	Common or AISI	UNS	EN	SANS
Ferritic	Utility	3CR12	C211	41211	3CR12	S41003 S40977	1.4003	-
		3CR12L	C220	41220	3CR12L			
		410S	C420	41011	410S	S41008		-
	Standard	40910	C800	40962	409	S40910	1.4512	-
			C801	40963				
		40920	C802	40964	409	S40920	1.4512	
		40975	C700	41262	409Ni	S40975	1.4003	-
		430	C500	43012	430	S43000	1.4016	-
		430DDQ	C530	43311	430DDQ			
		439Nb	C515	43911	439Nb	S43932	1.4510	-
		441	C845	44101	441	S43940	1.4509	-
			C843	44103				
			C841	44102				
	Moly	436	C550	43611	436	S43600	1.4526 1.4513	-
		43612	C553	43612				
		444	C555	44411	444	S44400	1.4521	-
Duplex	Lean	2001	C920	22112	2001	S32001	1.4482	-
		2304	C940	23041	2304	S32304	1.4362	-
	Standard	2205	C900	22051	2205	S32205 S31803	1.4462	-
Austenitic	Cr-Mn-Ni	202	C335	20211	CS202	-	-	-
	Cr-Ni	1.4318	C111	30111	-	-	1.4318	-
		301L/301LN	C115	30188	301LN 301L	S30153 S30103	-	-
		304 304H	C120	30431	304 304H	S30400 S30403	1.4301 1.4307	-
		304DQ	C160	30423	304DQ			
		304DDQ	C181	30428	304DDQ			
		304L	C150	30411	-	-	1.4307	-
			C151	30412	304L 304	S30403 S30400	1.4301 1.4306	
		304LDDQ	C200	30442	304LDDQ	S30453 S30451	1.4311	-
		321	C315	32113	321	S32100	1.4541 1.4878	-
	Cr-Ni-Mo	316L	C240	31613	316L 316	S31603 S31600	1.4404 1.4401	1.4402
		316L	C300	31628	-	S31603 S31600	1.4432 1.4435 1.4436	-
		316LN	C320	31619	316LN 316N	S31653 S31651	1.4406	-
		316Ti	C280	31663	316Ti	S31635	1.4571	-
	Heat Resisting	309S-1.4833	C340	30911	309S 309 309H	S30908 S30900 S30909	1.4833 1.4950	-
		1.4828 (309Si)	C309	30921	-	-	1.4828	-
		310S-1.4845	C350	31085	310S 310 310H	S31008 S31000 S31009	1.4845 1.4951	-

2 FINISHES AVAILABLE

Columbus	Acerinox	ASTM/ ASME	EN	Description
Unground	595	-	-	Slabs with no grinding.
Ground	596	-	-	Slabs with grinding.
HR	599	-	1U	Hot rolled (not heat treated, not descaled). Suitable for products which are to be further worked (e.g. re-rolling).
HRA	504	-	1C	Hot rolled and heat treated (not descaled). Suitable for industrial heat resisting and materials handling applications.
No. 1	501	No. 1	1D	Hot rolled, heat treated and descaled. Suitable when smoothness and uniformity of finish are not important.
2D	512	No. 2D	2D	Cold rolled, heat treated and pickled. Dull, smooth finish. Suitable for forming applications.
2B	522	No. 2B	2B	Cold rolled, heat treated and pickled. Bright and smoother finish than 2D (obtained by skin passing or tension levelling).
2E	524	No. 2B	2E	Cold rolled, heat treated and mechanically descaled, may be followed by pickling. Rough and dull finish.
No. 3[2]	531	No. 3	2G	A linearly textured polished finish, one or both sides, typically using 120 grit polishing belts, with a transverse Ra <1.5μm.
No. 4[2]	543 523	No. 4	2G	A linearly textured polished finish, one or both sides, typically using 180 to 240 grit polishing belts, with a transverse Ra <1μm.
SB[2]	551	No. 6	2J	ScotchBrite finish, one or both sides, with a transverse Ra <0.5μm.
SSB[2]	553	-	-	Superior ScotchBrite finish, one or both sides, with a transverse Ra <0.25μm.
BA	571	Bright Annealed Finish	2R	Cold rolled, bright annealed finish, retained by final annealing in a controlled atmosphere furnace (may be skin passed). Smooth, bright, reflective finish.
BE	510	-	-	Columbus 2B cold rolled, but final anneal in a controlled atmosphere furnace.
TR	572 / 573	TR	2H	Finish obtained by Cold Rolled, annealed pickled and Temper Rolled.

Notes

1. *Each type is available in one or more, but not necessarily all of the finishes listed above.*
2. *Material is polished on one or both sides at mill's option. When polished on both sides, the superior finish will be on top. Where polyethylene (PE) coating is specified, this will only be applied to the superior surface. If the bottom requires a specific finish it should be specified with order placement.*

3 DIMENSIONS

3.1 Gauge

3.1.1 Standard Hot Rolled Gauges

Metric Gauges		Imperial Gauges		
mm	Equivalent inch	inch	inch	Equivalent mm
3	0.118	1/8	0.1250	3.18
3.5	0.138	-	-	-
4	0.157	-	-	-
4.5	0.177	-	-	-
5	0.197	3/16	0.1875	4.76
6	0.236	1/4	0.2500	6.35
8	0.315	5/16	0.3125	7.94
10	0.394	3/8	0.3750	9.53
12	0.472	7/16	0.4375	11.11
14	0.551	1/2	0.5000	12.70
15	0.591	-	-	-
16	0.630	5/8	0.6250	15.88
18	0.709	-	-	-
20	0.787	3/4	0.7500	19.05
22	0.866	7/8	0.8750	22.23
25	0.984	1	1.0000	25.40
28	1.102	1 1/8	1.1250	28.58
30	1.181	-	-	-
32	1.260	1 1/4	1.2500	31.75
35	1.378	-	-	-
40	1.575	1 1/2	1.5000	38.10
45	1.772	1 3/4	1.750	44.45
50	1.969	2	2.000	50.80
55	2.165	2 1/4	2.250	57.15
60	2.362	-	-	-
65	2.559	2 1/2	2.500	63.50

Notes:

1. Other gauges are available on request and may be subject to minimum order quantities.

3.1.3 Hot Rolled Gauge Ranges for Coil and Sheet

General Type		Width ≤ 1 400mm			Width > 1 400mm		
		HR[7]	HRA	No. 1	HR[7]	HRA	No. 1
Ferritics	3CR12[4]	-	3 - 8	3 - 8	-	3 - 8	3 - 8
	3CR12L[4]	-	3 - 8	3 - 8	-	3 - 8	3 - 8
	410S	-	-	3 - 6.35	-	-	3 - 6.35
	40910	3 - 6.35	-	3 to 6.35	3 - 6.35	-	3 - 6.35
	40920	3 - 6.35	-	3 to 6.35	3 - 6.35	-	3 - 6.35
	40975		3 - 8	3 - 8	-	3 - 8	3 - 8
	430	3 - 6.35	-	3 - 6.35	3 - 6.35	-	3 - 6.35
	430DDQ	-	-	3 - 6.35	-	-	3 - 6.35
	439Nb	-	-	3.5 - 6.35	-	-	3.5 - 6.35
	441[5]	-	-	3 - 6.35	-	-	3 - 6.35
	436	-	-	3 - 6.35	-	-	3 - 6.35
	43612	-	-	3 - 6.35	-	-	3 - 6.35
	444	-	-	3 - 6.35	-	-	3.5 - 6.35
Duplex	2001	-	-	4 - 6.35	-	-	4 - 6.35
	2304	-	-	4 - 6.35	-	-	4 - 6.35
	2205	-	-	4 - 6.35	-	-	4 - 6.35
Austenitics	202	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	301LN/301L	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	304	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	304H[6]	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	304DQ	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	304DDQ	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	304L	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	304LDDQ	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	321	3 - 16	-	3 - 8	3 - 16	-	3 - 8
	316L-1.4404	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	316L-1.4435	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	316LN	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	316Ti	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	309S-1.4833[6]	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	309S Si-1.4828	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8
	310S-1.4845[6]	3 - 16	-	3 - 8	3.5 - 16	-	3.5 - 8

Notes:

1. *Minimum and maximum gauges might be restricted by specifications*
2. *Maximum gauge for trimmed coil is 8mm*
3. *Negative tolerances are not available on minimum gauges*
4. *Positive tolerances are not available on maximum gauges*
5. *441 only certifiable to ASTM A240*
6. *H-grade equivalents are only available if grain size requirement is wavered*
7. *HR material above maximum up to 12mm is available in coil form with certification to Chemistry only due to sampling constraints*
8. *If actual gauge is above maximum the material may be processed as plate*

3.1.4 Hot Rolled Gauge Ranges for Plate

General Type		Width ≤ 1 400mm			Width > 1 400mm		
		HR	HRA	No. 1	HR	HRA	No. 1
Ferritics	3CR12	-	3 - 35	3 - 35	-	3 - 35	3 - 35
	3CR12L	-	3 - 35	3 - 35	-	3 - 35	3 - 35
	410S	-	-	3 - 20	-	-	3 - 20
	40910[2]	-	-	3 - 16	-	-	3 - 16
	40920[2]	-	-	3 - 16	-	-	3 - 16
	40975	-	3 - 35	3 - 35	-	3 - 35	3 - 35
	430	-	-	3 - 12	-	-	3 - 12
	430DDQ	-	-	3 - 12	-	-	3 - 12
	439Nb	-	-	3 - 12	-	-	3 - 12
	441[2]	-	-	3 - 12	-	-	3 - 12
	436	-	-	3 - 12	-	-	3 - 12
	43612	-	-	3 - 12	-	-	3 - 12
	444	-	-	3 - 12	-	-	3 - 12
Duplex	2001	-	-	4 - 40	-	-	4 - 40
	2304	-	-	4 - 50.8	-	-	4 - 50.8
	2205	-	-	4 - 40	-	-	4 - 40
Austenitics	202	-	-	-	-	-	-
	301LN/301L	-	-	-	-	-	-
	304	-	-	3 - 63.5	-	-	3 - 63.5
	304H	-	-	8 - 63.5	-	-	8 - 63.5
	304DQ	-	-	3 - 63.5	-	-	3 - 63.5
	304DDQ	-	-	3 - 63.5	-	-	3 - 63.5
	304L	-	-	3 - 63.5	-	-	3 - 63.5
	304LDDQ	-	-	3 - 63.5	-	-	3 - 63.5
	321	-	-	3 - 63.5	-	-	3 - 63.5
	316L-1.4404	-	-	3 - 63.5	-	-	3.5 - 63.5
	316L-1.4435	-	-	3 - 63.5	-	-	3.5 - 63.5
	316LN	-	-	3 - 63.5	-	-	3.5 - 63.5
	316Ti	-	-	3 - 63.5	-	-	3.5 - 63.5
	309S-1.4833	-	8 - 50.8	3 - 50	-	8 - 50.8	3.5 - 50
	309S Si-1.4828	-	8 - 50.8	3 - 50	-	8 - 50.8	3.5 - 50
	310S-1.4845	-	8 - 50.8	3 - 50	-	8 - 50.8	3.5 - 50

Notes:

1. Minimum and maximum gauges might be restricted by specifications

2. 409 and 441 only certifiable to ASTM A240

3.1.5 Standard Cold Rolled Gauges

Metric Gauges		Imperial Gauges	
(mm)	Equivalent (in.)	Equivalent (in.)	Equivalent (mm)
0.4	0.0157	-	-
0.5	0.0197	0.018	0.452
0.6	0.0236	0.024	0.597
0.7	0.0276	0.029	0.739
0.8	0.0315	0.032	0.818
0.9	0.0354	0.036	0.902
1.0	0.0394	0.040	1.028
1.2	0.0472	0.048	1.219
1.5	0.0591	0.060	1.511
1.6	0.0630	0.067	1.702
1.8	0.0709	0.075	1.905
2.0	0.0787	0.090	2.286
2.5	0.0984	0.105	2.667
3.0	0.1181	0.120	3.048
3.5	0.1378	0.135	3.429
4.0	0.1575	0.150	3.813
4.5	0.1772	0.165	4.191
5.0	0.1969	0.187	4.760
5.5	0.2165	-	-
6.0	0.2362	-	-

Notes:

1. *Only Metric Gauges are standard.*
2. *Decimal thickness, and not gauge number, should be specified when ordering as recommended in ASTM A480, to prevent any confusion with the various gauge number scales in use.*

3.1.6 Cold Rolled Gauge Ranges for Coil and Sheet

General Type		Width < 1 300mm				Width ≥ 1 300mm	
		2D/2B/2E[4]	BA	BE	Polished	2D/2B/2E[4]	Polished
Ferritics	3CR12[5]	0.5 - 3.5	-	-	-	0.7 - 3.5	-
	3CR12L[5]	0.5 - 3.5	-	-	-	0.7 - 3.5	-
	410S	0.5 3.5	-	-	-	0.7 - 3.5	-
	40910	0.4 - 3	-	-	-	0.7 - 3	-
	40920	0.4 - 3	-	-	-	0.7 - 3	-
	40975	0.5 - 3.5	-	-	-	0.7 - 3.5	-
	430	0.4 - 3	0.4 - 1.6	0.4 - 2.0	0.4 - 3	0.7 - 3	0.7 - 3
	430DDQ	0.4 - 3	0.4 - 1.6	0.4 - 2.0	0.4 - 3	0.7 - 3	0.7 - 3
	439Nb	0.4 - 3	-	-	0.4 - 3	0.7 - 3	0.7 - 3
	441	0.4 - 3	-	0.4 - 1.6	0.4 - 3	0.7 - 3	0.7 - 3
	436	0.4 - 3	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.7 - 3	0.7 - 3
	43612	0.4 - 3	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.7 - 3	0.7 - 3
	444	0.4 - 3	-	0.4 - 1.6	0.4 - 3	0.7 - 3	0.7 - 3
Duplex	2001	0.7 - 3	-	-	-	0.7 - 3	-
	2304	0.7 - 3	-	-	-	0.7 - 3	-
	2205	0.7 - 3	-	-	-	0.7 - 3	-
Austenitics	202	0.4 - 6.35	-	-	0.4 - 3	0.7 - 6.35	0.7 - 3
	301LN	0.5 - 6.35	0.6 - 1.6	0.6 - 1.6	0.6 - 3	1 - 6.35	0.6 - 3
	304	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	304H[6]	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	304DQ	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	304DDQ	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	304L	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	304LDDQ	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.5 - 6.35	0.5 - 3
	321	0.4 - 6.35	-	0.4 - 1.6	-	0.7 - 6.35	-
	316L-1.4404	0.4 - 6.35	0.4 - 1.6	0.4 - 1.6	0.4 - 3	0.7 - 6.35	0.7 - 3
	316L-1.4435	0.4 - 6.35	-	0.4 - 1.6	0.4 - 3	0.7 - 6.35	-
	316LN	1 - 6.35	-	-	-	1.5 - 6.35	-
	316Ti	0.4 - 6.35	-	0.4 - 1.6	-	0.7 - 6.35	-
	309S-1.4833[6,7]	0.4 - 6.35	-	0.4 – 2.0	-	0.7 - 6.35	-
	309S Si-1.4828[7]	0.4 - 6.35	-	0.4 – 2.0	-	0.7 - 6.35	-
	310S-1.4845[6,7]	0.4 - 6.35	-	0.4 - 1.6	-	0.7 - 6.35	-

Notes:

1. *Minimum and maximum gauges might be restricted by specifications*
2. *Gauges other than the ones quoted may be available on enquiry and may be subject to minimum order quantities.*
3. *Gauges less than 0.4mm are only available in the local market.*
4. *Minimum gauge on 2E finish is 0.8mm.*
5. *Roofing quality 3CR12 is available in 0.6mm and 925mm wide, suitable for roofing, cladding, etc.*
6. *H-grade equivalents are only available if grain size requirement is wavered*
7. *Heat resisting grades are only available as BE or 2E. 2B and 2D are only available with the understanding that the surface will be lightly shot blasted.*

3.2 Coil Dimensions

3.2.1 Standard Widths

Trimmed Width
1 000
1 219.2
1 250
1 500
1 524

3.2.2 Slit Widths

Gauge Range (mm)	Minimum Slit Width (mm)
≤0.7	10
>0.7 to 3.0	25
>3.0 to 5.0	35
>5.0 to 6.0	45

3.3 Plate/Sheet Dimensions

3.3.1 Standard Dimensions

Below are the standard sheet and plate dimensions and should be considered along with the possible thicknesses for the particular type.

Width		Length		Length		Length		Length		Length	
(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)
1 000		2 000				3 000		6 000		8 000	
1 219.2	**48**			2 438.4	96	3 048	120	6 096	240	7 315.2	288
1 250				2 500		3 000		6 000		8 000	
1 500						3 000		6 000		8 000	
1 524	**60**					3 048	120	6 096	240	7 315.2	288

Notes:

1. *Other widths and length may be available on request and may be subject to minimum order quantities.*
2. *Plates longer than 6096mm may be plasma cut at mill's option.*

3.3.2 Maximum Sheet and Plate Lengths

Gauge (mm)		Length (mm)[1]	
min	max	Maximum	Exceptions
0.4	2	7 000	
>2	2.5	5 500	
>2.5	6.35	6 700	
>6.35	<8	6 700	6 100 for duplexes 8 000 for ferritics (excluding 3CR12)
8	10	8 000[2]	Duplexes: maximum length is 6 100mm
>10	16	8 000[2]	Duplexes & ferritics: maximum length is 6 100mm
>16	63	8 000	Length is limited by a maximum allowable piece mass of 5 000kg

Notes:

1. *Plates lengths greater than the above may be available on enquiry.*
2. *Maximum length is 6100mm for shear cut edges*

3.3.3 Blank dimensions

Blanks of up to 1 000m long and 750mm wide are possible for material between 0.40 and 2.50 mm thick.

4 DELIVERY CONDITIONS

4.1 Certification

Hot and Cold rolled products can be certified to the most recent, active revision of the following specifications:

- ASTM A240/A240M
- ASME BPVC IIA SA240 / SA240M
- EN 10088-1
- EN 10088-2
- EN 10088-4
- EN 10028-7
- EN 10095
- SANS 50028-7
- IS 6911

Other specifications can be supplied based upon agreement between the customer and Columbus.

Regardless of the specification and tolerances required by the customer, all certificates are issued in terms of EN 10204. The following certificates are available:

EN 10204	Description	Conditions of Issue
3.1	Internal Independent Inspection	Issued unless otherwise specified
3.2	External Independent Inspection	On request to TüV Accreditation

4.1.1 Certification to Pressure Equipment Directive (PED 2014/68/EU)

Certification to PED 2014/68/EU is available on Columbus material produced to EN 10028-7, ASME SA240 and ASTM A240 to accredited dimensions, with the approval of TüV Rheinland. The certificate stating the approved types and dimensions can be downloaded from www.columbusstainless.co.za.

4.1.2 Certification to AD Merkblatt (TüV)

Certain approved steel types manufactured to EN 10028-7 are available for certification to AD 2000 W2 and AD 2000 W10 (TüV certification), with the approval of TüV Rheinland. The certificate stating the approved types can be downloaded from www.columbusstainless.co.za.

4.1.3 Certification to Construction Product Regulation / CE Mark (CPR 305/2011/EU and EN 10088-4)

CE mark certification to EN 10088-4 and CPR 305/2011/EU is available on material up to the maximum gauges specified in the scope of certification, as approved by TüV Rheinland, which can be downloaded from www.columbusstainless.co.za.

4.1.4 IS 6911 Certification

Certification to IS 6911 is available according to the scope of certification, which can be downloaded from www.columbusstainless.co.za.

4.2 Tolerances

Material can be ordered to the tolerances listed below:

Product Group	Specification
All	ASTM A480/ASTM A480M
	ASME SA480/ASME SA480M
	IS 6911
Plate	ISO 18286
	EN 10051
Hot rolled coil and sheet	ISO 9444-2
	EN 10029
Cold rolled coil and sheet	ISO 9445-2

Material tolerances are only guaranteed to the ASTM, ASME, EN, ISO and IS tolerances listed above. Any special customer requirements should be agreed upon order placement.

All gauge measurements are taken 25mm from the edge on trimmed material. On mill edge material, the measurement is taken at least 25mm from the edge, depending on the tolerance specification requirement.

4.2.1 Hot Rolled Gauge Tolerances

Material will be rolled to either of the mill's best aim tolerances listed below, although tolerances are only guaranteed to the tolerance standards listed in 4.2 above. Tolerance outside these standards and the limits below may be available on request.

Nominal Gauge (mm)	Mill's Best Range (mm)	Normal (mm)		Positive (mm)	
		-	+	-	+
3.0	0.29	0.25	0.04	-	-
>3.0 to 3.5	0.31	0.25	0.06	-	-
>3.5 to 4.0	0.33	0.25	0.08	0.00	0.33
>4.0 to 4.5	0.35	0.25	0.10	0.00	0.35
>4.5 to 5.0	0.36	0.25	0.11	0.00	0.36
>5.0 to 6.0	0.40	0.25	0.15	0.00	0.40
>6.0 to 8.0	0.48	0.25	0.23	0.00	0.48
>8.0 to 10	0.55	0.30	0.25	0.00	0.55
>10 to 12	0.63	0.30	0.33	0.00	0.63
>12 to 14	0.70	0.30	0.40	0.00	0.70
>14 to 15	0.74	0.30	0.44	0.00	0.74
>15 to 16	0.78	0.30	0.48	0.00	0.78
>16 to 18	0.85	0.30	0.55	0.00	0.85
>18 to 20	0.93	0.30	0.63	0.00	0.93
>20 to 22	1.00	0.30	0.70	0.00	1.00
>22 to 25	1.11	0.30	0.81	0.00	1.11
>25 to 28	1.23	0.30	0.93	0.00	1.23
>28 to 30	1.30	0.30	1.00	0.00	1.30
>30 to 32	1.38	0.30	1.08	0.00	1.38
>32 to 35	1.49	0.30	1.19	0.00	1.49
>35 to 40	1.68	0.30	1.38	0.00	1.68
>40 to 50	2.05	0.30	1.75	0.00	2.05
> 50 to 60	2.43	0.30	2.13	0.00	2.43

4.2.2 Cold Rolled Gauge Tolerances

Material will be rolled to either of the mill's best aim tolerances listed below, although tolerances are only guaranteed to the tolerance standards listed in 4.2 above. Tolerance outside these standards and the limits below may be available on request. Normal tolerance will be rolled to either the Split or Negative tolerances at mill's option.

Nominal Gauge (mm)	Mill's Best Range (mm)	Split (mm)		Negative (mm)	
		-	+	-	+
≤0.25	0.026	0.013	0.013		
>0.25 to 0.3	0.026	0.013	0.013	0.026	0.000
>0.3 to 0.4	0.030	0.015	0.015	0.030	0.000
>0.4 to 0.45	0.038	0.019	0.019	0.038	0.000
>0.45 to 0.5	0.042	0.021	0.021	0.042	0.000
>0.5 to 0.6	0.046	0.023	0.023	0.046	0.000
>0.6 to 0.7	0.050	0.025	0.025	0.050	0.000
>0.7 to 0.8	0.054	0.027	0.027	0.054	0.000
>0.8 to 0.9	0.058	0.029	0.029	0.058	0.000
>0.9 to 1.0	0.062	0.031	0.031	0.062	0.000
>1.0 to 1.2	0.068	0.034	0.034	0.068	0.000
>1.2 to 1.5	0.078	0.039	0.039	0.078	0.000
>1.5 to 1.6	0.080	0.040	0.040	0.080	0.000
>1.6 to 1.8	0.086	0.043	0.043	0.086	0.000
>1.8 to 2.0	0.090	0.045	0.045	0.090	0.000
>2.0 to 2.5	0.102	0.051	0.051	0.102	0.000
>2.5 to 3.0	0.112	0.056	0.056	0.112	0.000
>3.0 to 3.5	0.122	0.061	0.061	0.122	0.000
>3.5 to 4.0	0.132	0.066	0.066	0.132	0.000
>4.0 to 4.5	0.140	0.070	0.070	0.140	0.000
>4.5 to 5.0	0.148	0.074	0.074	0.148	0.000
>5.0 to 5.5	0.156	0.078	0.078	0.156	0.000
>5.5 to 6.35	0.164	0.082	0.082	0.164	0.000

4.2.3 Plate Trimmed Width Tolerance

Plate material is produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

Specification	Gge Min	Gge Max	Width Min	Width Max	-	+
ASTM A480	-	-	1 000	1 524	0	15
ISO 18286	-	-	600	1 524	0	15
EN 10029	6	40	-	-	0	20
	40.01	75	-	-	0	25

4.2.4 Hot Rolled Trimmed Coil and Sheet Width Tolerance

Hot rolled coil and sheet material are produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

Specification	Gge Min	Gge Max	Width Min	Width Max	-	+
ASTM A480	3	5	600	1 199.9	0	2
			1 200	1 524	0	6
	5.01	8	600	1 199.9	0	4
			1 200	1 524	0	9
ISO 9444-2			600	1 524	0	5
EN 10051			600	1 200	0	3
			1 200.1	1 524	0	5

4.2.5 Cold Rolled Trimmed Coil and Sheet Width Tolerances

Cold rolled coil and sheet material are produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

	Gge Min	Gge Max	Width Min	Width Max	-	+
ASTM A480	0.2	1.5	600.1	1 000	0	1.5
			1 000.1	1 524	0	2.0
	1.51	2.5	600.1	1 000	0	2.0
			1 000.1	1 524	0	2.5
	2.51	3.5	600.1	1 524	0	3.0
	3.51	8	15	1 524	0	4.0
ISO 9445-2	0.2	0.99	15	250	0	0.5
			250.1	599.9	0	0.7
			600	1 000	0	1.5
			1 000.1	1 524	0	2.0
	1.0	1.49	15	250	0	0.7
			250.1	599.9	0	1.0
			600	1 000	0	1.5
			1 000.1	1 524	0	2.0
	1.5	2.49	15	250	0	1.0
			250.1	599.9	0	1.2
			600	1 000	0	2.0
			1 000.1	1 524	0	2.5
	2.5	3.49	15	250	0	1.2
			250.1	599.9	0	1.5
			600	1 524	0	3.0
	3.5	8	15	599.9	0	2.0
			600	1 524	0	4.0

4.2.6 Untrimmed Width Tolerance

Final good width	1 000	1 200	1 220	1 250	1 500	1 524
Untrimmed width	1 045	1 245	1 265	1295	1545	1 569
Min width[1]	1 030	1 230	1 250	1 280	1 530	1 554
Max width[2]	1 060	1 260	1 280	1 310	1 560	1 584

Notes:

1. *Mininmum is wider than nominal due to mill edge defects*
2. *Due to flare the first and last 2.5% may exceed these values*

4.2.7 Slit Coils Width Tolerance

Slit material is produced to the aim width tolerances listed below although tolerances are only guaranteed to the tolerance standards listed in 4.2 above.

Gauge Range (mm)	Slit Width (mm)	Tolerance (mm)
≤1.0	≤300	±0.15
	>300 to 600	±0.25
	>600 to 990	±0.50
>1.0 to 1.75	≤200	±0.15
	>200 to 300	±0.20
	>300 to 600	±0.30
	>600 to 990	±0.50
>1.75 to 3.0	≤100	±0.20
	>100 to 200	±0.25
	>200 to 300	±0.30
	>300 to 600	±0.35
	>600 to 990	±0.50
>3.0 to 6.0	≤200	±0.25
	>200 to 300	±0.35
	>300 to 600	±0.35
	>600 to 990	±0.50

4.2.8 Length Tolerances

4.2.9 Plate Trimmed Length Tolerance

Plate material is produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

Specification	Length Min	Length Max	-	+
ASTM A480 ISO 18286 EN 10029	2 000	3 999.9	0	20
	4 000	5 999.9	0	30
	6 000	7 999.9	0	40
	8 000	8 000	0	50

4.2.10 Hot Rolled Trimmed Coil Length Tolerance

Hot rolled coil and sheet material are produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

Specification	Length Min	Length Max	-	+
ASTM A480	2 000	6 000	0	0.005 x length
ISO 9444-2 EN 10051	2 000	7 000	0	0.005 x length

4.2.11 Cold Rolled Trimmed Sheet Length Tolerances

Cold rolled coil and sheet material are produced to the aim width tolerances below. Tighter tolerances should be negotiated with order placement.

Specification	Length Min	Length Max	-	+
ASTM A480	75	2 000	0	5
ISO 9445-2	2 000.1	7 000	0	0.0025 x length

4.2.12 Blanks

Blanks are produced to ±1.0mm.

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. Rp1.0 might be reported, even if it is not specified, for information. The intergranular corrosion test ASTM A262 Practise E is routinely done on austenitic material from 0.5mm upward and might be reported for information.

On 3.1 and 3.2 certificates the tightest limits among the certifications and exception will be printed.

4.4 Material Quality

4.4.1 Surface Condition

Trimmed coil material is guaranteed with at least 97% of surface as prime. Untrimmed coils may be available on enquiry, with 97% of the surface guaranteed as prime after trimming to final width by the customer.

On plate material, surface reclamation is done in accordance with EN10163-2. Note, Columbus do not perform weld repair on plate material.

4.4.2 Seconds Quality

As part of the normal stainless steel production process, there is some inevitable generation of Seconds quality material. Seconds conform to the ASTM or EN requirements for steel type, gauge, width, finish and mechanical properties. In addition, the coil must be capable of further processing by the customer. Typically, this would mean that the steel has surface defects which can either be polished out or that the defect is relatively isolated and that prime material can be obtained by cutting out the defects. Typical defects that would cause material to be seconds would be skin laminations, stains (or streaks and related defects), scratches, roll marks, indentations, dents, residual scale, etc. Seconds can be untrimmed.

4.4.3 Fourths Quality

Fourths is coil or sheet of Prime or Seconds surface quality. Fourths do not necessarily conform to the ASTM or EN mechanical property requirements. Fourths may include coil ends (which may thus not be properly skin passed or polished). In addition to typical Seconds defects, Fourths can also have edge damage and portions with folds. Coils are supplied with no inner core and thus the inner diameter may be somewhat oval. Fourths can be untrimmed.

4.5 Coil Diameter

4.5.1 Inner Diameter

Mill Edge Black Hot Band

762mm (30") or 610mm (24") at Mill's option.

All Other Coils

All coils will have an internal diameter of 610mm (24"). However, 508mm (20") coils may be available on enquiry.

4.5.2 Outer Diameter

Mill Edge Coils

Maximum of 2 100mm

Trimmed Coils

Maximum of 1 900mm

4.6 Slit Coils

Slit coils are available up to a maximum gauge of 6mm. The maximum slit width is 500mm and can be packed eye to sky, with a maximum pack mass of 5000kg. Widths above 500mm will be handled as coil and packed as eye to wall and the coil height will be less than two times the width.

4.7 Coil Supplied for Cutting to Sheet or Slitting

Coil purchased for the purpose of cutting to sheet or slitting is supplied on the understanding that it is the converter's responsibility to ensure that the facilities utilised are capable of producing material that conforms to the specification to which it is processed.

4.8 Paper Interleaving

Hot rolled products are not paper interleaved.

All 2B, 2D, polished and BA finish products will be paper interleaved unless coated or otherwise agreed.

409, 412, 439 and 441 is usually supplied for tube or coil fed press applications and is therefore not paper interleaved unless otherwise agreed.

Slits are usually supplied without paper interleaving, unless otherwise agreed.

4.9 Polyethylene (PE) Coating

PE coating (formerly PVC coating) is not available on coils with a gauge of less than 0.4mm.

Slit coil products are usually supplied without PE coating, unless otherwise agreed.

The following PE coatings are available and should be specified upon order placement:

Coating	Description	Thickness (µm)
LNC	Novacel Fibre laser Protective Film (Grey)	100
LPF	Polifilm Fibre laser Protective Film (Dark Grey)	100
PVC	PE Black / White Laser Protective Film suitable for CO_2 Lasers.	70/80
PEB	PE Blue Translucent Protective Film	60
P80	PE Blue Translucent Protective Film for DDQ	80
PLD	Low Density, Low Glue PE Protective Film (Transparent)	50
~	No Coating	-

4.10 Marking

4.10.1 Material Marking

Below is the standard marking that will be applied. Detailed requirements must be noted on order placement.

For continuous line marking the material is marked with the incoming ID. If the material is split further additional characters will be added as identification for traceability.

HR and HRA Coils

Coils are stencilled on the outer wrap with gauge, type and MPO (coil) number. If required, labels with order information such as customer's name, destination, type, width, gross and net mass, case no., etc. will be placed on each coil.

No. 1 Coil, Sheet and Plate

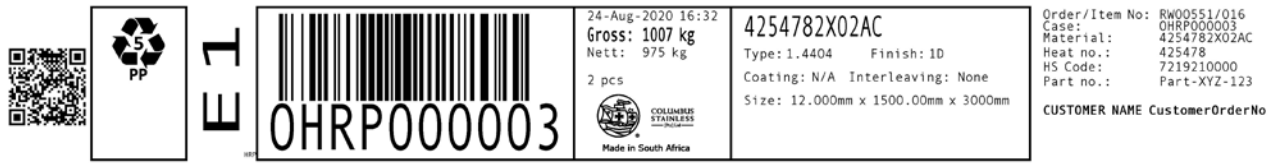
Coil, sheet and plate material are continuously line marked on the top with MPO (coil) number, type, gauge, dimensions, finish and specification, unless otherwise specified. Detailed requirements must be noted on order placement.

Cold rolled

All cold rolled coils and normal sheet will be continuously line marked on the top surface, unless otherwise specified. For BA, BE and polished material, coil will be marked with a sticker at the beginning and end, while for sheets the top sheet will be marked. Coil and sheet will be marked with MPO (coil) number, type, gauge, dimensions, finish and specification, unless otherwise specified.

4.10.2 Case Marking

Below is an example of a typical case label. If required, additional information can be added as text or in a barcode.



4.11 End Use

Products are produced to suit customers' end use as far 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.

4.12 Pack Masses

4.12.1 Coil Mass

Delivery tolerances are ± 10% on order mass.

HR Minimum Coil Mass

The minimum pack mass is 3 500kg.

Typical Coil Mass

The maximum length of a slab is 11.95m 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 19.2kg/mm width (i.e. a 1000mm wide slab will be 19 200 kg, and 1500mm slab will be 29 300kg). The rolled coil yields on average a factor of 17kg/mm width. Orders for 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.

Number of Full Size Coils for Order

Width	Mass (t)				
	1	2	3	4	5
1000	17.0	34	51	68	85
1219	20.7	41	62	83	104
1250	21.3	43	64	85	106
1500	25.5	51	77	103	128
1524	25.9	52	78	104	130

Ideal Pack Mass

For coil material, pack mass needs to be in subdivisions of a single coil. The table below gives the ideal pack mass ranges for the standard width coils, split into n-parts.

Width	Mass (kg)	1	2	3	4	5
1000	**min**	14400	7200	4800	3600	2900
	max	19200	12000	8000	6000	4800
1219	**min**	17600	8800	6200	4700	3700
	max	23400	14600	7800	5900	4700
1250	**min**	18000	9000	6000	4500	3600
	max	24000	15000	10000	7500	6000
1500	**min**	21600	10800	7200	5400	4300
	max	28800	18000	12000	9000	7200
1524	**min**	21900	11000	7300	5500	4400
	max	29300	18300	12200	9100	7300

The minimum mass is calculated as 75% of average coil size or subdivision of it. Maximum mass is capped at the theoretical maximum of an 11.95m slab; for split coils a 25% head room is added in case where a coil with a defective portion is used and split.

For material thinner or equal to 0.9mm, the risk for collapsing of coils (oval coils) exist. This risk is increased when material is coated with a plastic product (e.g. PVC, LPF, LNC, PEB). For this reason, the maximum pack mass is limited by the height of the coil or slit. Typical values are given below:

Type	Ferritic		Austenitic	
ID	**508**	**610**	**508**	**610**
Width	**Maximum mass for 2H=W**			
500	2320	2630	2380	2700
710	5330	5960	5470	6110
914	9880	10920	10130	11200
1000	12000	12000	12000	12000
1219	14600	14600	14600	14600
1250	21690	23650	22250	24250
1500	28800	28800	28800	28800
1524	29300	29300	29300	29300

Notes

1. Only if plastic coated

The formula to calculate the maximum pack mass for another width is given as:

$$\text{MaxPackMass} = \pi.\text{density}.\text{width}^2(\text{width} + 2.\text{innerdiameter})/4\text{Plate and Sheet Mass}$$

Slit Pack Mass

For slits, the same formulas as above can be applied. Due to the infinite number of variations it is not given in this document. Consult with TCS if there is uncertainty. The absolute maximum for slit mass is 5t, due to lifting and packing equipment constraints (eye to sky). Minimum mass is determined by minimum outer diameter of 950mm.

Maximum width to pack eye to sky is 499mm. For packing eye to wall, the constraint is the outer diameter vs width ratio (OD/W) with a maximum of 2 – to comply with safety regulations.

4.12.2 Plate Mass

Minimum Plate Pack Mass

Plate will be supplied with a minimum Pack Mass of 2 000kg.

Maximum Plate Pack Mass

The maximum Pack Mass depends on the skid carrying capacity, which is dependent on the gauge and case length.

Gauge (mm)	Skid Length (mm)			
	≤ 2 800	> 2 800 to ≤ 4 000	> 4 000 to ≤ 6 200	>6 200mm
2.5 to 3	4 000kg	3 500kg	3 000kg	-
>3 to 60	4 000kg	4 000kg	3 000kg	5 000kg
>60	5 000kg	5 000kg	5 000kg	5 000kg

4.12.3 Sheet Mass

Minimum Sheet Pack Mass

Sheet will be supplied with a minimum Pack Mass of 1 500kg.

Maximum Sheet Pack Mass

The maximum Pack Mass depends on the skid carrying capacity, which is dependent on the gauge and case length.

Gauge (mm)	Skid Length (mm)			
	≤ 2 400	>2 400 to ≤2 800	>2 800 to ≤4 000	>4 000 to ≤7 100
0.3 to <0.9	2 500kg	2 000kg	2 000kg	1 000kg
0.9	3 000kg	3 000kg	2 500kg	1 000kg
>0.9 to <1.5	3 000kg	3 000kg	2 500kg	1 500kg
1.5 to <2.0	3 500kg	3 500kg	3 000kg	2 000kg
2.0	3 500kg	3 500kg	3 000kg	2 500kg
>2.0 to <3.1	4 000kg	4 000kg	3 500kg	2 500kg
3.1 to <3.8	4 000kg	4 000kg	4 000kg	2 500kg
3.8 to <4.0	4 000kg	4 000kg	4 000kg	3 000kg
≥4.0	4 000kg	4 000kg	4 000kg	3 300kg

4.13 Packing

Full packing details are available on request. However, some generalised packing methods are given below.

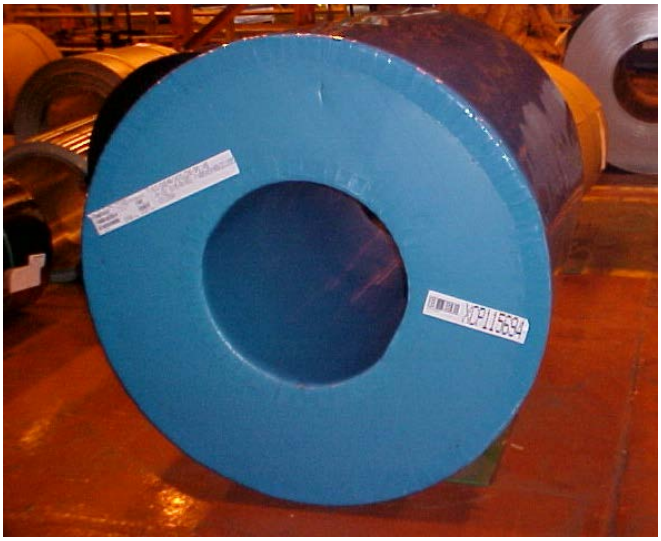
4.13.1 Coils

No. 1 Coil

Packing is suitable for rail/road/sea transport. Coil axis is horizontal. Coil has no wooden base, unless shipped in containers. The coil is labelled with two bar code labels, one on either side of the coil.

Black Hot Band Coil

Packing is suitable for rail/road/sea transport. Coil axis is horizontal. Coil is without packing material. Strapping is with a suitable steel strapping. The coil is labelled with two bar code labels, one on either side of the coil.



Cold Rolled Coil

Packing is suitable for rail/road/sea transport. Coil may have inner cores in gauges of 0.8mm and less. Coil axis is horizontal. Coil has no wooden base, unless shipped in containers. The coil is labelled with bar code labels, on either side of the coil.

Fourths Cold Rolled Coil

Coil axis is horizontal. Coil has no wooden base. The coil is labelled with bar code labels, on either side of the coil.

Slit Coil

The slit is placed onto an eye to the sky wooden pallet with blue low density polyethylene plastic sheet between the slit and the wooden pallet. Two bar code labels are stapled to the wooden pallet. The slit is labelled with bar code labels.

4.13.2 Plate and Sheet

Hot rolled plate and Hot and Cold rolled sheet packing is suitable for rail/road/sea transport. The case is labelled with two bar code labels, one on either side of the case.

5 SLAB SUPPLIED FOR ROLLING OR FORGING

Types

Austenitic and ferritic types are available for re-rolling to ASTM A240, viz. 304, 304L, 310S, 316, 316L, 321 and 430. Other types may be available on enquiry.

Austenitic types are available for forging to ASTM A182, viz. F304, F304L, F316, F316L, F310 and F321 and F430. Other types may be available on enquiry.

Widths

The standard nominal slab widths are 1 030, 1 250, 1 280, 1 540 and 1 575mm. Other widths may be available on enquiry.

Typical tolerance on width is ±10mm for austenitic material and ±15mm on ferritic material.

Lengths

Slab lengths are available between 4 100mm and 12 000mm, with a tolerance of ±50mm.

Thicknesses

Slabs are only available in thicknesses of 200mm with a tolerance of ±5mm.

6 SUMMARY OF CHANGES

Revision	Paragraph	Detail of Change
9	4	Removed 410S equivalent to 1.4000.
	15.9	Min gauge for PE coating changed from 0.5mm to 0.4mm.
	15.2.1	Split BA / BE Column
10	15.2.1	Heat resisting grades only available as BE or 2E. 2B and 2D only available with the understanding that the surface will be lightly shot blasted.
	22	Correct reference to F310, not F310S
11		Updated Board of Directors
		Include document number and revision in Footer
		General numbering corrections and layout changes
		Moved Changes to end.
	1.1	Added C843 variation to 441 and 43612. Updated the Chemical compositions and Fixed errors.
	1.3	Removed 304LN. Fixed Errors
	1.4	Added C843 variation to 441 and 43612. Removed 304LN. Added full description to General field for 310S, as per 1.1
	3.2.2.1	Added 43612. Removed 304LN
	3.2.2.2	Removed 304LN. Added note for 441 certification
	3.3	Corrected measurement position for mill edge material
	3.3.1.1	Added explanation for Typical Coil Mass. Added Ideal Pack Mass
	3.8	Added EN 10095 and IS 6911. Corrected name for ASME specification and removed revision. Noted that other specifications are possible.
	4.2.2.1	Added 43612. Removed 304LN. Removed duplicate note.
	4.3.3.1	Added explanation for Typical Coil Mass. Added Ideal Pack Mass. Section on pack mass limitation to prevent coils collapsing.
	4.10	Added EN 10095 and IS 6911. Corrected name for ASME specification and removed revision. Noted that other specifications are possible. Corrected certificate number for analysis only certification
	4.3	Corrected measurement position for mill edge material
	15.2.1	Removed “Unity”
12		Consolidation of data between hot and cold products and sequence changes
	1	Explain that the general chemistry is displayed
	1.4	Added additional equivalents 1.4513 for 431612, 1.4950 for 30911 and 1.4951 for 31085.
		Removed 30427
	3.1.1	Display correct imperial dimensions
	3.1.2	Added comment of maximum piece mass for >16mm plates
	3.2.3	Maximum gauges changed for 3CR12, 3CR12L & 40975, with the accompanying note removed
		Maximum gauges for all changed from 6mm to 6.35mm for standard imperial dimension
		Minimum for 202 and 301LN/301L changed to 3.5mm
		Inserted Note 1 for specification restrictions on gauge
		Inserted Note 6 for H-grade and grain size limitation
		Updated Note 7
		Inserted Note 8for gauge above maximum processed as plate
	3.2.4	Updated maximum for 3CR12, 3CR12L & 40975
		Added 43612
		Removed 202 and 301LN as possibilities
		Added HRA ranges for 309S, 309S Si & 310S
		Inserted Note 1 for specification restrictions on gauge
	3.2.5	Inserted mill’s best gauge tolerances
	4.1	Display correct imperial dimensions
	4.2.2	Added 40975
		Maximum gauges for all changed from 6mm to 6.35mm for standard imperial dimension
		Inserted 301LN range for polished wider than 1 300mm
		Inserted Note 1**Error! Reference source not found.** for specification restrictions on gauge
	4.2.3	Inserted mill’s best gauge tolerances
	5	Inserted Delivery Conditions with consolidated data

	5.1 5.1.1 5.3 5.4.3 5.5.1 5.6 5.9 5.10.2 5.12.1 6	Removed 2.2 analysis only certificates ASME SA240 and ASTM A240 now also accredited Added Testing and Releasing Remove mass restriction on fourths Corrected available inner diameters Expanded on packing restrictions vs mass and width for slit coils Updated remark for slit coils Inserted code P80 Case marking added Removed CR Minimum Coil Mass Added minimum mass limitations Added F430
13	 1 1.1 1.3 1.4 2 3.1.6 3.2 3.3.2 3.3.3 4.1.3 4.2.1 4.2.2 4.2.3-4.2.12 4.10.1	Changed layout and sequence of some data to remove duplication for hot and cold rolled products Corrected Technical email address Clarified limits given Corrected 3CR12 limits Split between 17.5% and 18.0% minimum C for 304/304L Changes for 3CR12/3CR12L, 40920 and 304L Clarification on bottom finish for polished top finish Increased maximum gauge for 430, 430DDQ and 309 BE finish Insert Coil Dimensions Consolidated hot and cold rolled sheet and plate dimensions Updated with current capabilities of plant Insert blank dimensions Add CPR regulation number Add Mill's Best Range Shifted plate normal tolerance down to specification minimum of -0.30mm Add Mill's Best Range Added comment on Normal tolerance aim ranges Changed Normal to Split Add Width and Length Tolerances for the various products Added explanation for material marking differing from final material number Added sheet for No1 products No. 1 coil is line marked

7 DOCUMENT APPROVAL

	Job Title	Co No	Date	Signature
Prepared by	Technical Customer Services Engineer	**5736**		
Checked by	Manager: Technical Customer Services	**1885**		
Accepted by	Senior Manager: Technical	**1717**		
Approved by	General Manager: Manufacturing	**5565**		