

TATA STEEL



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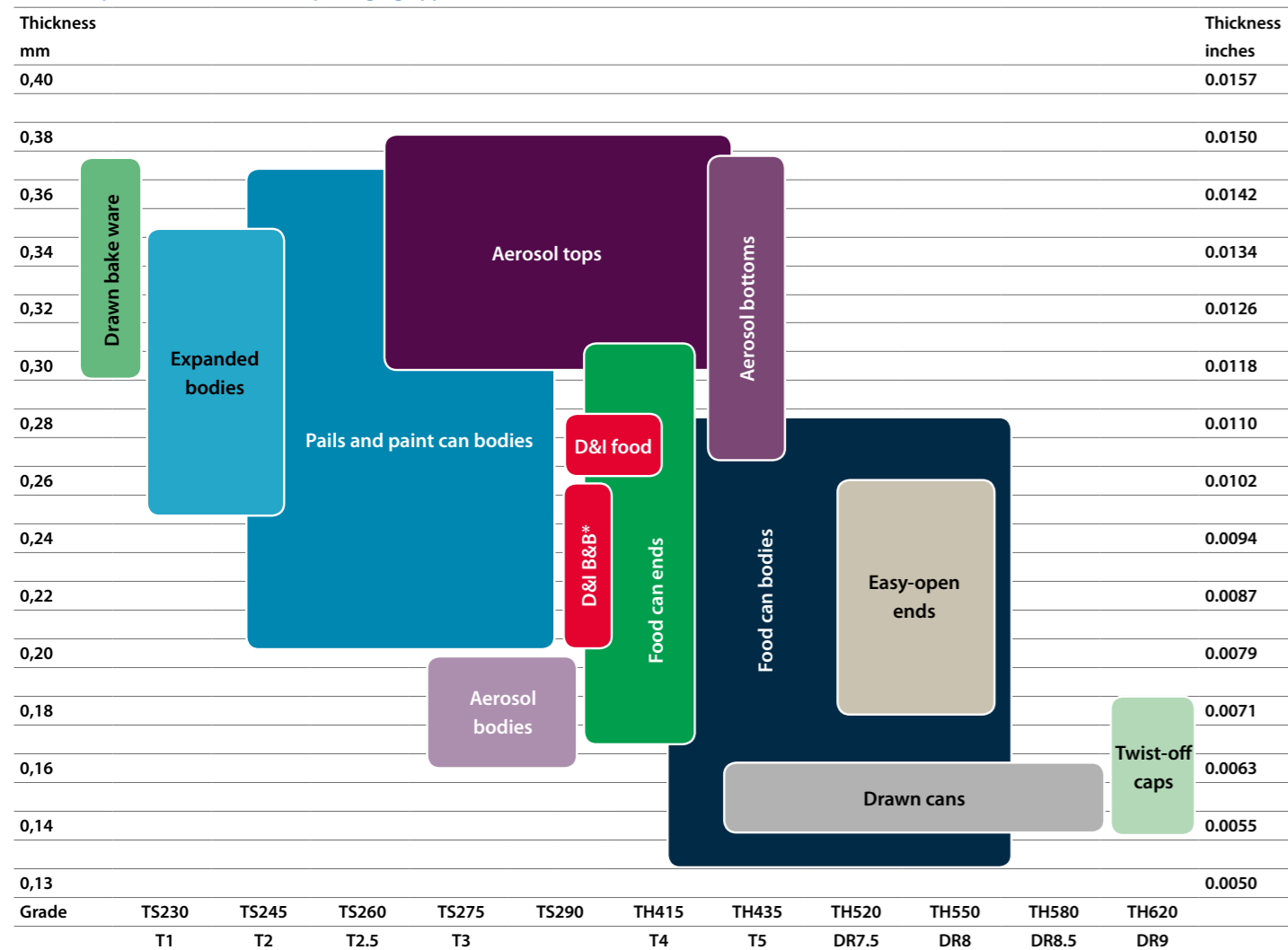
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Steel for packaging applications

Product range and technical specifications

General specification window for packaging applications



* Beer and beverage cans

Specifications shown here are typical values. For all enquiries, including outside of these specifications, please contact us.

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Protact® is a registered trademark of Tata Steel.



Packaging



HIGH PERFORMANCE STEEL FOR PACKAGING

A comprehensive product portfolio for demanding canmaking operations

Tata Steel's range of products includes; tinfoil, tin-free steels (ECCS), blackplate, and our market leading Protact® laminated steel. This includes; clean steels for D&I, high strength formable steels for easy-open-ends and coated steels ideally suited to coil-fed canmaking operations.

Our manufacturing base produces reliable high performance steel grades. We process our steel in lengths and widths to match the specific needs of canmakers. We have the flexibility and expertise to customize products to meet specific end-application requirements. Our partners value our on-site support to optimize the process efficiency of canmaking.

We have the technical expertise of a dedicated packaging steel manufacturer. Wide experience and advanced capabilities including canmaking on commercial presses and Electrochemical Impedance Spectroscopy, have helped our partners create even more efficient designs for their products and improve pack performance. Our product testing facility helps to bring packaging solutions to market faster.

Downgauging is an important trend in the metal packaging industry for both efficiency and sustainability. We collaborate with canmakers on a dedicated project-by-project basis for mutual benefit.

We encourage sustainability by focusing on manufacturing efficiency and waste reduction. Working with national industry associations, we champion how steel is truly recyclable and

100 per cent sustainable. Steel is the most recycled packaging material. Only steel has a recycling rate of over 70 per cent - the highest of all. Steel can be used and recycled infinitely with no loss of quality.

For more detailed product information or to find out how partnership with us can optimize your business, please contact us at infopackaging@tatasteel.com



Protact®

Protact laminated steel from Tata Steel is a fully approved and controlled food-safe product. It is a proven material solution across a number of high-performance canmaking applications and formats. Protact removes the need for complex, cost-intensive operations associated with the use of lacquer. For further information visit tatasteleurope.com/packaging.

Standard grades

Temper	EN	AISI/ASTM	Yield/proof strength (MPa)	Yield/proof strength (KSI)	Tensile strength (MPa)	Tensile strength (KSI)	Range (MPa)	Range (KSI)
TS200	-	-	200	29	320	46	+/- 50	+/- 7
TS230	TS230	T1	230	33	325	47	+/- 50	+/- 7
TS245	TS245	T2	245	35	340	49	+/- 50	+/- 7
TS260	TS260	-	260	38	360	52	+/- 50	+/- 7
TS275	TS275	T3	275	40	375	54	+/- 50	+/- 7
TS290	TS290	-	290	42	390	56	+/- 50	+/- 7
TS310 (*)	-	-	310	45	395	57	+/- 50	+/- 7
TS345	-	-	345	50	400	58	+/- 50	+/- 7
TS355	-	-	355	51	415	60	+/- 50	+/- 7
TS370	-	-	370	54	425	62	+/- 50	+/- 7
TS385	-	-	385	56	435	63	+/- 50	+/- 7
TS480	-	-	480	70	505	73	+/- 50	+/- 7
TS520	-	DR7.5	520	75	545	79	+/- 50	+/- 7
TS550	TS550	DR8	550	80	575	83	+/- 50	+/- 7
TH415	TH415	T4	415	60	435	63	+/- 50	+/- 7
TH435	TH435	T5	435	63	460	68	+/- 50	+/- 7
TH460	-	-	460	67	480	70	+/- 50	+/- 7
TH480	-	-	480	70	500	73	+/- 50	+/- 7
TH520	TH520	DR7.5	520	75	540	78	+/- 50	+/- 7
TH550	TH550	DR8	550	80	570	83	+/- 50	+/- 7
TH580	TH580	DR8.5	580	84	590	86	+/- 50	+/- 7
TH600 (*)	-	-	600	87	610	88	+/- 50	+/- 7
TH620	TH620	DR9	620	90	625	90	+/- 50	+/- 7

(*) = Under development

D&I grades (food and beverage)

Tinfoil for Drawn and Wall Ironed (D&I) applications has specific properties including low earing performance. Tata Steel offers alloyed extra low carbon, continuous annealed products to ensure excellent formability and highly efficient processing. Through our continuous improvement approach we focus on developing stronger, more ductile and formable steel grades to further increase the efficiency of canmaking. These steel grades combine the formability requirements of canmaking with the strength required of the final pack in beer and beverage and food applications.

D&I	AISI/ASTM	Yield/proof strength (MPa)	Yield/proof strength (KSI)	Tensile strength (MPa)	Tensile strength (KSI)	Range (MPa)	Range (KSI)
TH340	T3	340	49	360	52	+/- 40	+/- 6
TH360	T3.5	360	52	380	55	+/- 40	+/- 6
TH380	T3.5	380	55	400	58	+/- 40	+/- 6
TH415	T4	415	60	415	60	+/- 40	+/- 6

Easy-open-end grades

Steel for easy-open ends requires high strength to withstand the retorting process, yet still enabling the ends to be easy to open. The steel is also ductile enough for seaming and rivet forming operations.

EOE grades	EN	AISI/ASTM	Yield/proof strength (MPa)	Yield/proof strength (KSI)	Tensile strength (MPa)	Tensile strength (KSI)	Range (MPa)	Range (KSI)
TH460	-	-	460	67	495	72	+/- 50	+/- 7
TH520	TH520	DR7.5	520	75	540	78	+/- 50	+/- 7
TH550	TH550	DR8	550	80	570	83	+/- 50	+/- 7
TH580	TH580	DR8.5	580	84	590	85	+/- 50	+/- 7
TH600 (*)	-	-	600	87	610	88	+/- 50	+/- 7
TH620	TH620	DR9	620	90	625	90	+/- 50	+/- 7

(*) = Under development

Metallic coating mass for electrolytic tinfoil and tin free steel (ECCS)

Metallic coating		EN			ASTM		
		Min	Max		Min	Max	
Tinfoil	Total Tin	1	14	g/m² per side	0.05	0.62	lb/bb per side
Tin free steel (ECCS)	Total Chromium	50	140	mg/m² per side	4.6	13	mg/ft² per side
	Chromium in Oxide	7	35	mg/m² per side	0.7	3.3	mg/ft² per side

Surface finish

EN10202 Product description	Roughness (µm)	ASTM Finish	Roughness (µinch)
Super Bright	< 0.25	5B	30 - 50
Bright	< 0.35	5C	30 - 60
Fine Stone	0.25 - 0.45	5D (1)	>60
Stone	0.35 - 0.60	7B	7 - 15
Heavy Stone	0.60 - 0.80	7C	6 - 25
Silver/Matt (1)	0.80 - 2.50		

1) Special roughness range upon request

Available in bright and matt

Dimensions

Product	Coils/sheets*		Sheets Cut length
	Thickness	Width	
Single reduced (SR)	0.17 - 0.49 mm	700 - 1200 mm	457 - 1137 mm (width max. 1018 mm)
Double reduced (DR)	0.13 - 0.26 mm	700 - 1200 mm	457 - 1137 mm (width max. 1018 mm)
Wide D&I	-	Up to 1219 mm	-
Width tolerance	Standard trim	(- 0.00, + 3.00 mm)	
	Special trim	(- 0.00, + 1.00 mm)	
	Super trim	(- 0.25, + 0.00 mm)	

Dimensions

Product	Coils/sheets*		Sheets Cut length
	Thickness	Width	
Single reduced (SR)	0.007 - 0.019 inch (60# - 169#)	27 - 47 inch	18 - 44.8 inch
Double reduced (DR)	0.005 - 0.010 inch (45# - 89#)	27 - 47 inch	18 - 44.8 inch
Wide D&I	-	Up to 48 inch	-
Width tolerance	Standard trim	(- 0.00, + 0.118 inch)	
	Special trim	(- 0.00, + 0.039 inch)	
	Super trim	(- 0.01, + 0.00 inch)	

* Other dimensions available on request. Scroll cutting also available on request.

* Minimum and maximum dimensions are indicated. Restrictions in the combination of thickness and width may be applicable.

