

Merchant Bar Sections

Rounds, Squares and Flats

Availability

Merchant bar rounds, squares and flats are available in a variety of steel grades and sizes.

Due to process limitations not all grades are available in all sizes. For new applications we recommend you confirm product availability with a OneSteel Sales Office at an early stage of design. Other specifications and sizes may also be available on enquiry.

Specifications

Merchant bar sections are available in the following standards:

- 300PLUS® and AS/NZS 3679.1 - Structural Steel - Hot Rolled Bars and Sections.
- AS 1442 - Carbon Steels and Carbon Manganese Steels - Hot Rolled Bars and Semifinished Products.
- AS 1444 - Wrought Alloy Steels Standard, Hardenability (H) Series and Hardened and Tempered to Designated Mechanical Properties.
- AS 1447 - Hot-Rolled Spring Steels.
- OneSteel grades (based on AISI-SAE nomenclature).

Table 3 Rounds - Size Availability and Mass

Diameter (mm)	Mass (kg/m)
10	0.616
12	0.887
13	1.04
14	1.21
15	1.39
16	1.58
17	1.78
18	1.99
19	2.23
20	2.46
22	2.98
24	3.55
27	4.49
30	5.55
33	6.71
36	7.99
39	9.38
42	10.9
45	12.5
48	14.2
50	15.4
56	19.3
60	22.2
65	26.0
75	34.7
90	49.9

Standard Length: 6 Metres

Table 4 Squares - Size Availability and Mass

Thickness (mm)	Mass (kg/m)
10*	0.790
12	1.13
16	2.01
20	3.14
25	4.91
40	12.5

Standard Length: 6 Metres

* Confirm availability with sales office.

AVAILABILITY

Table 5 Flats – Size Availability and Mass (kg/m)

Width (mm)	Thickness (mm)							
	5	6	8	10	12	16	20	25
20				1.57				
25	0.981	1.18	1.57	1.96	2.36			
32	1.26	1.51	2.01	2.51	3.01			
40	1.57	1.88	2.51	3.14	3.77	5.02	6.28	
50	1.96	2.36	3.14	3.93	4.71	6.28	7.85	9.81
65	2.55	3.06	4.08	5.10	6.12	8.16	10.2	
75	2.94	3.53	4.71	5.89	7.07	9.42	11.8	14.7
90		4.24	5.65	7.07	8.48			
100	3.93	4.71	6.28	7.85	9.42	12.6	15.7	19.6
110		5.18	6.91	8.64	10.4			
130	5.10	6.12	8.16	10.2	12.2	16.3	20.4	25.5
150	5.89	7.07	9.42	11.8	14.1	18.8	23.6	29.4
180		8.48		14.1	17.0			
200		9.42	12.6	15.7	18.8			
250		11.8	15.7	19.6	23.6			
300		14.1	18.8	23.6	28.3			

Standard Length: 6 Metres



Table 6 Merchant Bar Sections - Regular Grades

Steel Type	Standard	Grades Available
Structural Steels	OneSteel	300PLUS
	AS/NZS 3679.1	350
Carbon and Carbon-Manganese Steels	AS 1442	1016
		1022
		1045
Spring Steels	AS 1447	XK5160S XK9258S XK9261S
OneSteel Grades	OneSteel	1015 X4K92M61S

Note

Grade availability can vary with section.

Rods and Light Billets

Rods and light billets are available in a wide range of OneSteel grades, and selected grades from AS 1442, AS 1444 and AS 1447 specifications.

These sections are not available in structural grades 300PLUS® or 350.

Due to process limitations not all grades are available in all sizes.

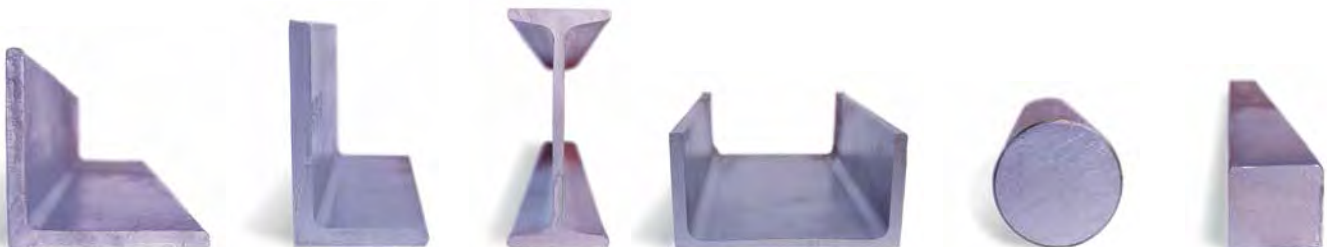
Confirm product availability with a OneSteel Sales Office at an early stage of design.

Table 7 Rods Size Availability

Diameter (mm)													
5.5	6.5	7.0	8.0	9.0	10.0	11.2	12.5	13.0	14.0	15.0	16.0	17.0	18.0

Table 8 Light Billets Size Availability

Sizes Available mm x mm	
45 x 45	
50 x 50	
63 x 63	
75 x 75	



Merchant Bar Sections

Table 36 Chemical Composition - For OneSteel Merchant Bar Sections - Regular Grades - AS 1442

Steel Type	Grade	C		Si		Mn		P		S	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Carbon and Carbon Manganese Steels	1016	0.13	0.18	0.10	0.35	0.60	0.90	*	0.040	*	0.040
	1022	0.18	0.23	0.10	0.35	0.70	1.00	*	0.040	*	0.040
	1045	0.43	0.50	0.10	0.35	0.60	0.90	*	0.040	*	0.040

Table 37 Chemical Composition - For OneSteel Merchant Bar Sections - Regular Grades - AS 1447

Steel Type	Grade	C		Si		Mn		P		S		Cr	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Spring Steels	5160	0.55	0.65	0.10	0.35	0.70	1.00	*	0.040	*	0.040	0.70	0.90
	9258	0.50	0.65	1.60	2.20	0.70	1.05	*	0.040	*	0.040	*	*
	9261	0.55	0.65	1.80	2.20	0.70	1.00	*	0.040	*	0.040	0.10	0.25

Note

1. Merchant Bar Sections are also available in AS/NZS 3679.1:2010 specification. See Tables 32 to 35. Other grades may be available on enquiry.

Table 38 OneSteel Grades

Steel Type	Grade	C		Si		Mn		P		S		Cr		V	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
OneSteel	1015	0.13	0.18	0.10	0.35	0.30	0.60	*	0.040	*	0.050	*	*	*	*
	X4K92M61S*	0.55	0.65	1.60	1.90	0.70	1.00	*	0.040	*	0.040	0.10	0.25	0.15	0.25

Table 39 Heat Treatment Limitations

Grade	Maximum Recommended Cross Section*		
	Rounds	Squares	Flats
5160	40mm	36mm	28mm
9261	27mm	25mm	19mm
9258			16mm

* The recommendations are based on the criterion that, at the maximum dimensions, a hardness of 50 HRC can be achieved in the centre of the quenched section.

The actual properties obtained are dependent on both grade and heat treatment process control. As OneSteel has no control over the springmakers' heat treatment process, the above recommendations cannot be guaranteed. However, springmakers with efficient heat treatment facilities will be able to achieve a hardness value of 50 HRC as recommended.