AS/NZS 1163

Production Standard of AS/NZS 1163

●AS/NZS 1163

AS1163 is the Australian/New Zealand Standard for Cold-formed structural steel hollow sections.The grade designation (for example, C250) is based on the steel's nominal minimum yield strength (in MPa). To indicate that the section is cold-formed, the prefix 'C' is used before the value of the nominal yield strength of the steel. AS1163 only takes into account cold-formed structural steel hollow sections. As specified in AS1163, the suffix 'L0' denotes impact properties at 0° C.

The standard establishes requirements for a variety of grades AS1163 C250, AS1163 C250 L0, AS1163 C350, AS1163 C350 L0, AS1163 C450, and AS1163 C450 L0.

●Dimensions and Sizes of AS/NZS 1163

Outside Diameter	Thickness	Mass per Unit Length	Outside Diameter	Thickness	Mass per Unit Length
O.D.	W.T.	Weight	O.D.	W.T.	Weight
mm	mm	kg / m	mm	mm	kg / m
42.4	3.2	3.09	165.1	3	12
42.4	4	3.79	165.1	3.5	13.9
42.4	4.9	4.53	165.1	5	19.7

48.3	3.2	3.56	165.1	5.4	21.3
48.3	4	4.37	168.3	4.8	19.4
48.3	5.4	5.71	168.3	6.4	25.6
60.3	3.6	5.03	168.3	7.1	28.2
60.3	4.5	6.19	219.1	4.8	25.4
60.3	5.4	7.31	219.1	6.4	33.6
76.1	2.3	4.19	219.1	8.2	42.6
76.1	3.2	5.75	273.1	4.8	31.8
76.1	3.6	6.44	273.1	6.4	42.1
76.1	4.5	7.95	273.1	9.3	60.5
76.1	5.9	10.2	323.9	6.4	50.1
88.9	2.6	5.53	323.9	9.5	73.7
88.9	3.2	6.76	323.9	12.7	97.5
88.9	4	8.38	355.6	6.4	55.1
88.9	4.8	9.96	355.6	9.5	81.1
88.9	5	10.3	355.6	12.7	107
88.9	5.5	11.3	406.4	6.4	63.1
88.9	5.9	12.1	406.4	9.5	93
101.6	2.6	6.35	406.4	12.7	123
101.6	3.2	7.77	457	6.4	71.1
101.6	4	9.63	457	9.5	105
101.6	5	11.9	457	12.7	139
114.3	3.2	8.77	508	6.4	79.2
114.3	3.6	9.83	508	9.5	117
114.3	4.5	12.2	508	12.7	155
114.3	4.8	13	610	6.4	95.3
114.3	5.4	14.5	610	9.5	141
114.3	6	16	610	12.7	187
139.7	3	10.1			
139.7	3.5	11.8			
139.7	5	16.6			
139.7	5.4	17.9			

●Chemical Composition of AS/NZS 1163

Grades (see Note 1)	Chemical composition (cast or product analysis)(see Note 2)% max .										
	C	Si	Mn	P	S	Cr	Mo	Al (see	Ti	Micro –	CE (see

								Note 3)		alloying elements	Note 4)
C250,C250L0	0.12	0.05	0.5	0.03	0.03	0.15	0.1	0.1	0.04	0.03(see Note 5)	0.25
C350,C350L0	0.2	0.25	1.6	0.03	0.03	0.3	0.1	0.1	0.04	0.15(see Note 6)	0.43
C450,C450L0	0.2	0.25(see Note 7)	1.7	0.03	0.03	0.3	0.35	0.1	0.04	0.15(see Note 6)	0.43

NOTES : 1 The use of sulphide modification manufacturing techniques for these grades is permitted . 2 The following elements may be present to the limits stated : (a) Copper 0.25%. (b) Nickel 0.25%. 3 Limits specified are for soluble or total aluminium . 4 Carbon equivalent (CE) is calculated from the following equation :

$$CE = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

5 Applies to niobium and vanadium only . However , niobium greater than 0.010% is not permitted .
6 Applies to niobium , vanadium and titanium only . However , vanadium greater than 0.10% is not permitted .
7 For circular hollow sections (CHS), the silicon limit shall be 0.45.

●Mechanical Properties Tensile Strength and Yield Strength of AS/NZS 1163

Grade	Minimum yield strength MPa	Minimum tensile strength MPa	Minimum elongation as a proportion of the gauge length of 5.65√S。(see Note)%					
			Circular hollow sections d0 / t			Rectangular hollow sections b / t , d / t		
			≤15	>15≤30	>30	≤15	>15≤30	>30
C250,C250LO	250	320	18	20	22	14	16	18
C350,C350LO	350	430	16	18	20	12	14	16
C450,C450L0	450	500	12	14	16	10	12	14

NOTE : These limits apply to the face from which the tensile test is taken . That is , for RHS , the use of b / t or d / t ratio is dependent on which face the test specimen is cut from . For SHS , there is only one ratio (as b = d).