

9. Purlins

Horizontal steel member commonly used to support roof structures.

- 9.1 Plain Channels
- 9.2 Lipped Channels
- 9.3 C-Purlin
- 9.4 Z-Purlin

Purlins

Standard specifications

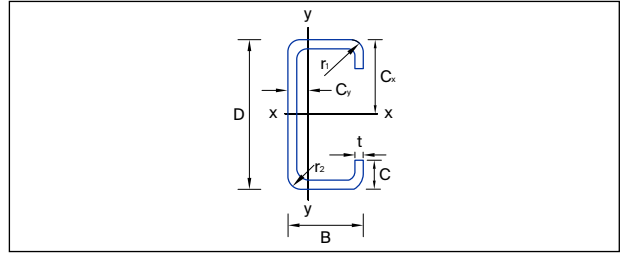
Material	Yield strength N/mm ²	Tensile strength N/mm ²	Min. Elongation	Min. Charpy V-notch.	Dimensions & Tolerances
<i>JIS 3350</i>					<i>JIS 3350</i>
SSC400	245	400-540	17-21%	-	
<i>AS 1397</i>					<i>AS 1365</i>
G250	250	320	22%	-	
G300	300	340	18%	-	
G350	350	420	14%	-	
G450	450	480	9%	-	
<i>EN 10346</i>					<i>EN 10162</i>
S220GD	220	300	20%	-	
S250GD	250	330	19%	-	
S280GD	280	360	18%	-	
S320GD	320	390	17%	-	
S350GD	350	420	16%	-	
S390GD	390	460	16%	-	
S420GD	420	480	15%	-	
S450GD	450	510	14%	-	

High-Tensile Galvanised C and Z Purlins

Mechanical properties/tolerances

Steel grade	Base steel	Mechanical properties			Tolerances				Zinc
	Thickness	Yield strength	Tensile strength	Minimum elongation	Depth	Flange width	Length	Hole Centres	coating
ASTM A446, Grade E (mod.) & AS 1397 G450	1.6mm, 2.0mm and 2.5 mm	min. 450 N/mm ²	min. 510 N/mm ²	10%	±1mm	±2mm	±3mm	±1.5mm	min. 275g/m ² coating

9.3 C-Purlin



Specification JIS G 3350/ EN 10162

Designation		Thickness	Web	Flange	Lip	Area of Section	Moment of Inertia		Radius of Gyration	
Size Number	Mass per Metre	t	D	B	C	A	I _x	I _y	r _x	r _y
mm	kg/m	mm	mm	mm	mm	cm ²	cm ⁴	cm ⁴	cm	cm
C10010	1.78	1.0	102	51	12.5	2.16	36.4	7.55	4.11	1.87
C10012	2.10	1.2	102	51	12.5	2.58	43.2	8.92	4.10	1.86
C10015	2.62	1.5	102	51	13.5	3.23	53.7	11.2	4.08	1.87
C10019	3.29	1.9	102	51	14.5	4.09	67.3	14.2	4.1	1.87
C15012	2.89	1.2	152	64	14.5	3.54	129	18.8	6.0	2.31
C15015	3.59	1.5	152	64	15.5	4.43	161	23.7	6.0	2.31
C15019	4.51	1.9	152	64	16.5	5.61	202	30.0	6.0	2.31
C15024	5.70	2.4	152	64	18.5	7.12	254	38.6	6.0	2.33
C20015	4.49	1.5	203	76	15.5	5.55	353	39.6	8.0	2.67
C20019	5.74	1.9	203	76	19.0	7.13	451	53.1	8.0	2.73
C20024	7.24	2.4	203	76	21.0	9.04	569	68.1	7.9	2.74
C25019	6.50	1.9	254	76	18.5	8.08	762	56.1	9.7	2.64
C25024	8.16	2.4	254	76	20.5	10.20	962	72.1	9.7	2.65
C30024	10.09	2.4	300	96	27.5	12.60	1700	151	11.6	3.46
C30030	12.76	3.0	300	96	31.5	16.00	2130	196	11.6	3.5
C35030	15.23	3.0	350	125	30.0	19.10	3580	382	13.7	4.47

Designation		Section Modulus		Centroid	Shear Centre	Torion Constant	Mono-symmetry Section Constant	Section Modulus in Bending	Area in Compression
Size Number	Mass per Metre	Z _x	Z _y	\bar{X}	X ₀	J	β _y	Z _{xe}	A _e
mm	kg/m	cm ³	cm ³	mm	mm	mm ⁴	mm	cm ³	cm ²
C10010	1.78	7.13	2.19	16.1	39.9	71.9	123	5.37	113
C10012	2.10	8.48	2.59	16.0	39.7	124	123	6.74	153
C10015	2.62	10.5	3.29	161.0	40.1	242	122	8.73	217
C10019	3.29	13.2	4.21	16.2	40.4	492	122	12.3	329
C15012	2.89	17.0	4.17	18.3	46.5	170	171	11.8	165
C15015	3.59	21.1	5.29	18.4	46.9	332	171	17.1	244
C15019	4.51	26.6	6.74	18.5	47.1	675	170	21.8	340
C15024	5.70	33.5	8.79	18.9	48.0	1370	169	30.9	527
C20015	4.49	34.7	7.17	19.9	51.6	416	223	24.1	251
C20019	5.74	44.4	9.77	20.8	53.6	858	221	36.6	381
C20024	7.24	56.0	12.7	21.1	54.4	1740	219	47.5	541
C25019	6.50	60.0	9.86	18.1	48.5	972	276	46.2	381
C25024	8.16	75.7	12.8	18.4	49.3	1970	274	64.9	543
C30024	10.09	113.0	21.7	25.0	66.0	2430	320	91.1	632
C30030	12.76	142.0	28.5	25.8	67.9	4790	316	124	897
C35030	15.23	205.0	42.3	33.2	86.3	5730	378	159	940