

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

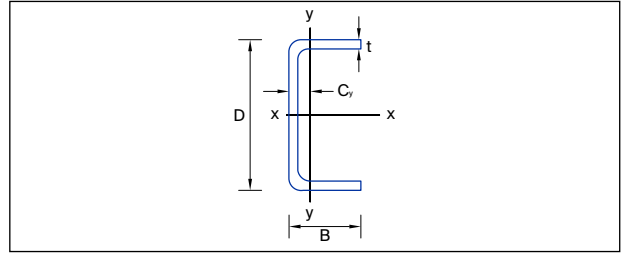
Material	Yield strength N/mm ²	Tensile strength N/mm ²	Min. Elongation	Min. Charpy V-notch.	Dimensions & Tolerances
<i>JIS 3350</i>					<i>JIS 3350</i>
SSC400	245	400-540	17-21%	-	
<i>AS 1397</i>					<i>AS 1365</i>
G250	250	320	22%	-	
G300	300	340	18%	-	
G350	350	420	14%	-	
G450	450	480	9%	-	
<i>EN 10346</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

9.1 Plain Channels



Specification JIS G 3350/ EN 10162

Designation		Thick-ness t	Area of Section A	Centre of Gravity C _y	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Buckling Constant u	Torsional Index x	Warping Constant H	Torsional Constant J
Size DxB mm	Mass per Metre kg/m				I _x cm ⁴	I _y cm ⁴	r _x cm	r _y cm	Z _x cm ³	Z _y cm ³	S _x cm ³	S _y mm ³				
60x30	1.44	1.6	1.84	0.823	10.3	1.63	2.37	0.944	3.45	0.751	4.00	1.37	0.897	29.7	0.0101	0.0165
	2.03	2.3	2.59	0.856	14.2	2.25	2.34	0.932	4.72	1.05	5.54	1.94	0.891	20.4	0.0138	0.0490
75x45	2.00	1.6	2.56	1.30	23.9	5.37	3.06	1.45	6.37	1.68	7.22	5.85	0.891	37.7	0.0528	0.0226
	2.84	2.3	3.62	1.34	33.1	7.49	3.02	1.44	8.83	2.37	10.1	7.83	0.885	26.1	0.0739	0.0673
	3.65	3.0	4.65	1.37	41.7	9.46	2.99	1.43	11.1	3.02	12.9	9.51	0.878	19.9	0.0939	0.150
100x50	2.44	1.6	3.12	1.32	50.0	7.87	4.01	1.59	10.0	2.14	11.5	3.88	0.901	50.1	0.136	0.0274
	3.47	2.3	4.43	1.36	69.9	11.0	3.97	1.58	14.0	3.03	16.1	5.52	0.898	34.6	0.189	0.0815
	4.47	3.0	5.70	1.39	88.6	14.0	3.94	1.57	17.7	3.88	20.6	7.12	0.895	26.3	0.240	0.181
125x50	3.92	2.3	5.00	1.21	117	11.8	4.85	1.54	18.8	3.12	22.0	5.72	0.900	43.2	0.315	0.0916
	5.06	3.0	6.45	1.24	149	15.1	4.81	1.53	23.9	4.01	28.2	7.46	0.898	32.7	0.397	0.204
	7.42	4.5	9.46	1.31	212	21.4	4.74	1.51	34.0	5.81	40.6	11.2	0.895	21.3	0.555	0.689
150x65	4.91	2.3	6.27	1.61	218	25.8	5.90	2.03	29.1	5.29	33.7	9.56	0.902	52.2	1.00	0.114
	6.36	3.0	8.10	1.64	279	33.1	5.87	2.02	37.2	6.81	43.4	12.4	0.900	39.7	1.27	0.253
	9.36	4.5	11.9	1.71	401	47.6	5.79	2.00	53.4	9.94	63.0	18.5	0.897	26.0	1.81	0.856
175x75	5.73	2.3	7.30	1.83	347	40.2	6.89	2.35	39.7	7.09	45.9	12.8	0.902	61.1	2.12	0.132
	7.42	3.0	9.45	1.86	445	51.5	6.86	2.33	50.8	9.14	59.1	16.6	0.901	46.5	2.70	0.294
	10.95	4.5	14.0	1.93	643	74.6	6.79	2.31	73.5	13.4	86.3	24.8	0.898	30.6	3.87	0.992
200x75	6.18	2.3	7.88	1.71	473	41.7	7.75	2.30	47.3	7.21	55.4	13.0	0.899	70.0	2.88	0.142
	8.01	3.0	10.2	1.74	608	53.6	7.72	2.29	60.8	9.30	71.4	16.9	0.898	53.3	3.67	0.316
	11.84	4.5	15.1	1.80	881	77.7	7.64	2.27	88.1	13.6	104	25.6	0.897	35.0	5.24	1.07
225x75	6.63	2.3	8.45	1.60	624	43.1	8.60	2.26	55.5	7.30	65.6	13.2	0.894	79.0	3.79	0.152
	8.59	3.0	11.0	1.63	803	55.4	8.56	2.25	71.3	9.43	84.6	17.3	0.894	60.1	4.83	0.339
	12.72	4.5	16.2	1.70	1166	80.4	8.48	2.23	104	13.8	124	26.3	0.893	39.4	6.88	1.14
250x75	7.08	2.3	9.03	1.50	802	44.3	9.43	2.22	64.2	7.39	76.5	13.4	0.888	88.2	4.84	0.163
	9.18	3.0	11.7	1.54	1032	56.9	9.39	2.21	82.5	9.54	98.8	17.6	0.888	67.1	6.17	0.361
	13.60	4.5	17.3	1.60	1502	82.7	9.31	2.18	120	14.0	145	27.1	0.888	44.0	8.79	1.22