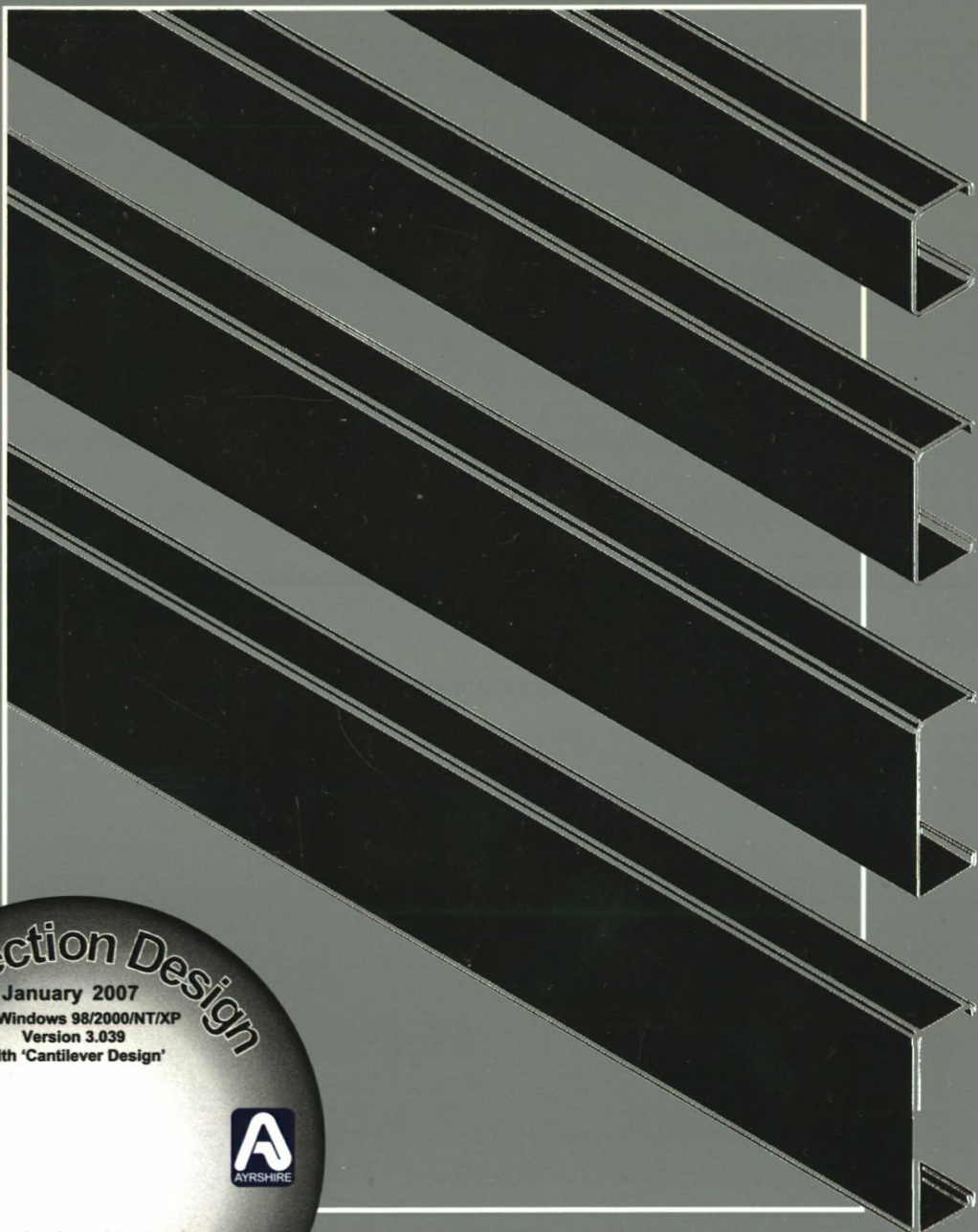




C SECTIONS







Ayrshire Metal Products plc are Britain's leading manufacturer of cold rolled steel profiles. With over fifty years' experience and some of the most advanced production facilities, Ayrshire provide expert technical and manufacturing assistance to suit individual customer needs.

Cold rolled C Sections continue to be used extensively in storage platforms and are increasingly being used for a variety of alternative applications.

Ayrshire's comprehensive range of C Sections has been extended, and utilising Grade S390 material, provides even greater choice, flexibility and design efficiency. Load tables covering 1.5, 1.6, 1.8 and 2.0mm gauge standard sections have been produced.

The wide range of sections on offer means that for almost any application the optimum solution can be obtained, leading to savings in material.

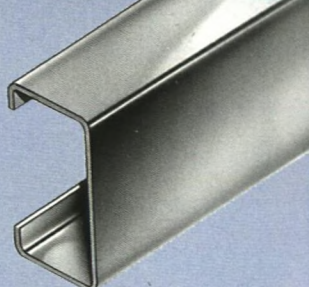
The use of high speed computer controlled production methods ensures that the widest range of sections can be manufactured cut to length and punched to individual requirements.

This, combined with Ayrshire's reputation for customer service, means that a total service of quality, reliability and economy is achieved.



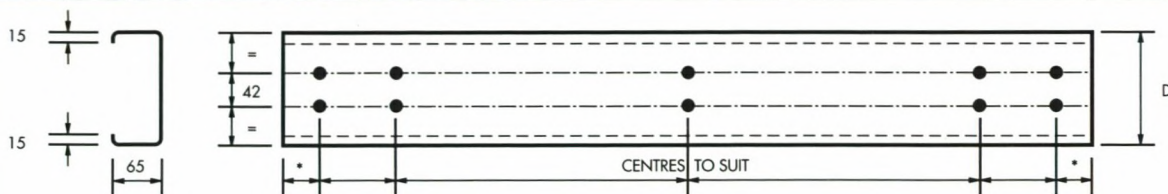
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SINGLE SPAN BEAM	8	MATERIAL SPECIFICATION	
Oversail Design (With Cleats)		AND NOTES.....	16



PUNCHING DETAILS

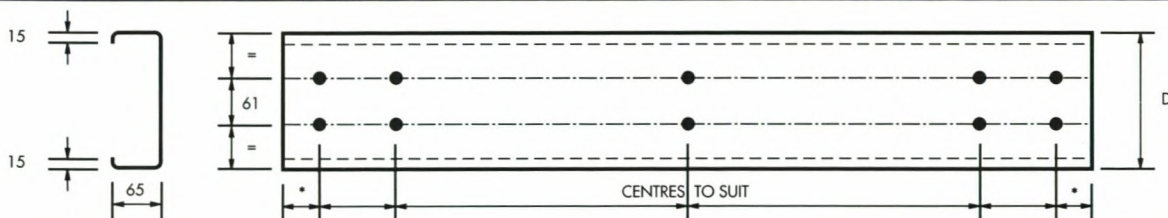
W WEB HOLES : 14mm DIAMETER AT 42mm CENTRES



HOLES PUNCHED IN PAIRS

(*AYRSHIRE RECOMMEND 18mm MINIMUM WHEN USING AYRSHIRE CLEATS)

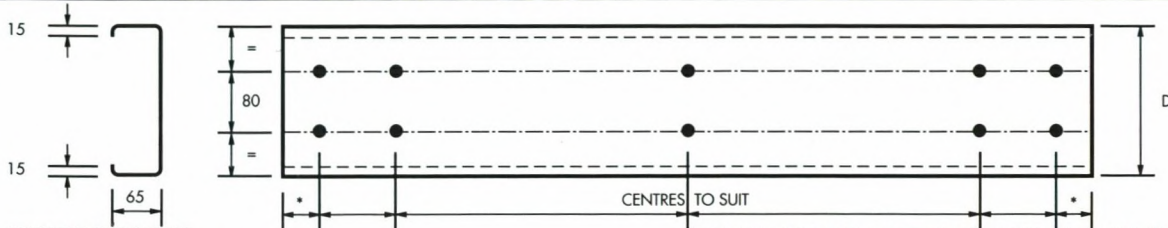
P WEB HOLES : 14mm DIAMETER AT 61mm CENTRES



HOLES PUNCHED IN PAIRS

(*AYRSHIRE RECOMMEND 24mm MINIMUM WHEN USING AYRSHIRE CLEATS)

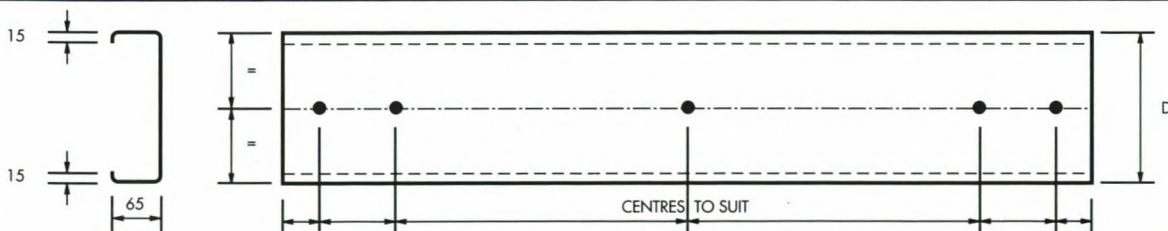
Y WEB HOLES : 18mm DIAMETER AT 80mm CENTRES



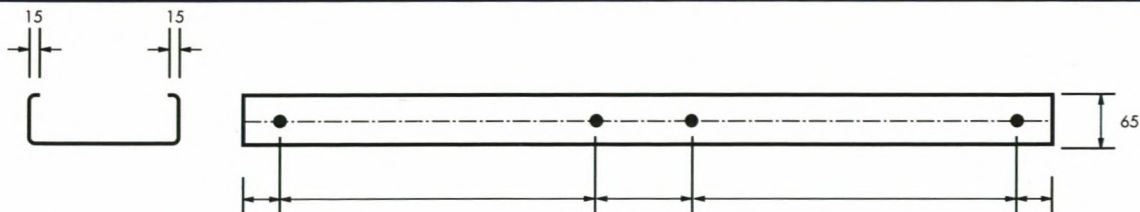
HOLES PUNCHED IN PAIRS

(*AYRSHIRE RECOMMEND 24mm MINIMUM WHEN USING AYRSHIRE CLEATS)

A WEB HOLES : 14mm DIAMETER ALONG CENTRE LINE OF WEB

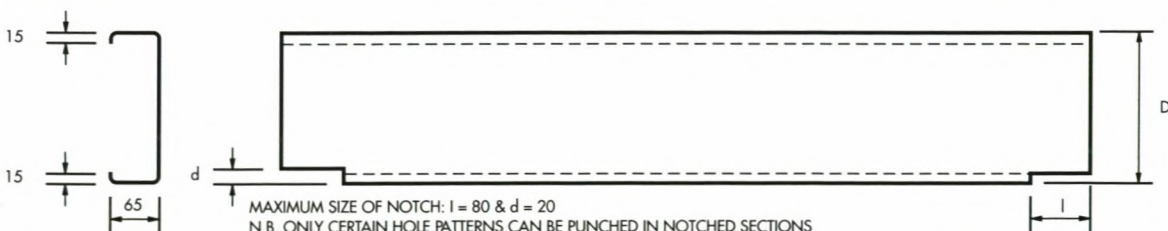


Z FLANGE HOLES : 14mm DIAMETER ALONG CENTRE LINE OF FLANGE



HOLES PUNCHED IN ONE OR BOTH FLANGES, TO BE SPECIFIED.

N NOTCHING

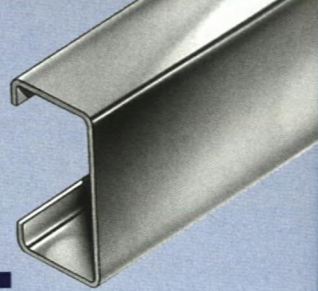


MAXIMUM SIZE OF NOTCH: $l = 80$ & $d = 20$

N.B. ONLY CERTAIN HOLE PATTERNS CAN BE PUNCHED IN NOTCHED SECTIONS

ALTERNATIVE HOLE DIAMETERS AND CENTRES ARE AVAILABLE
PLEASE CONTACT AYRSHIRE FOR FURTHER DETAILS.

'C' SECTION DESIGN CD



Ayrshire Design Tools C Design 3.039 Ayrshire Metal Products (Sunderland) Ltd. 1990-2005 Licensed to Customers of Ayrshire Metal Products (Sunderland) Ltd.	Job No.	Sheet No.	Rev.
	2/3		
	Part		
	Ref		
	By	Date	02-Oct-2006 1
Client	File		

Section Design Report (Single Span Oversail No Cleats) - ID: Beam1

Design Case

Design Geometry		Design Loadings		Load Factors	
Span (m)	3	Dead (kN/m ²)	0.25	Dead	1.4
Centres (m)	0.61	Service (kN/m ²)	0	Service	1.4
Max. Def. (mm)	L/250=12.0	Imposed (kN/m ²)	4.8	Imposed	1.6
Bearing width (mm)	100	Self weight (kg/m)	3.67		

Adequate lateral-torsional restraint assumed from the decking.
Major axis bending only.

Total Applied UDL	Factored (kN)	Working (kN)
Dead + Service + Imposed (including self weight)	14.846	9.350
Imposed	14.054	8.784

Consider: 15016 Single Span Oversail No Cleats, Major Axis (With Decking Restraint).

Major axis capacity:	+Ult. Capacity (kN)	15.260	+Defn. Capacity (kN)	11.520
+ve stress ratio	14.846/15.260 =	0.973		
Deflection ratio:	8.784/11.520 =	0.762	Thus, max. def. for imposed load =	9.1 mm
			Max. def. for total load =	9.7 mm

Conclusion: Section: 15016 S390G Checks results: PASS

System: Single Span Oversail No Cleats. Method: Major Axis (With Decking Restraint).

Bracing: Tie rods required at mid span.

Design in accordance with BS5950 Part 4:2000

C-Section Design

C-Section Design - Main | Expanded Checks | ID Notes | Load Factors | Cantilever

ID: Beam1

System: Single Span Oversail No Cleats

Method: Major Axis (With Decking Restraint)

Geometry:

Span: 3 m

Centres: 0.61 m

Bearing width: 100 mm

Load Case:

Dead: 0.25 kN/m²

Service: 0 kN/m²

Imposed: 4.8 kN/m²

Imposed Defn: L/250 12.0 mm

Loading (Major Axis)

Service Loading

+ve: 9.242 kN udl

Imposed Unfact'd

+ve: 8.784 kN udl

Factored Loading

+ve: 14.695 kN udl

Filters:

Min. thickness: 0 mm

Min. depth: 0 mm

Max. depth: 240 mm

Current Selection: 15016

[Double click a section to select]

Automatically select best section

Section	s/w (kg/m)	Stress ratio	Defn. (mm)	Bracing Description
15016	3.67	0.973	9.1	Tie rods required at mid span.
15516	3.73	0.980	8.5	Tie rods required at mid span.
12718	3.80	0.755	12.0	Tie rods required at mid span.
16516	3.86	0.995	7.3	Tie rods required at mid span.
14018	3.98	0.743	9.6	Tie rods required at mid span.
15518	4.20	0.757	7.6	Tie rods required at mid span.
12720	4.22	0.664		
16518	4.34	0.767		

Project Information

Project Info:

Project:

Client:

Job No / Order No.:

Part:

Ref:

Designer

Checked

Approved

Name:

Date:

Revision:

Comments

Date last modified:

Saved in file:

Apply & Close

Cancel

Apply

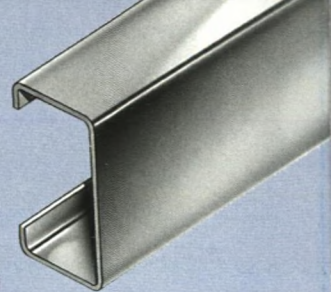
C-Section Design - Main Expanded Checks ID Notes Load Factors Cantilever																																			
		Unfactored point loads on cantilever tip (kN) Dead: 0 Service: 0 Imposed: 0																																	
		Unfactored uniform loads on floor (kN/m ²) Dead: 0.25 Service: 0 Imposed: 4.8																																	
System: Single Span Oversail No Cleats		Method: Major Axis (With Decking Restraint)																																	
Results <table border="1"> <tr> <th>Check</th> <th>Applied</th> <th>Capacity</th> <th>Ratio</th> </tr> <tr> <td>Bending (kNm)</td> <td>Mx=10.170</td> <td>Mx=10.170</td> <td>0.244</td> </tr> <tr> <td>Shear (kN)</td> <td>Fy=8.269</td> <td>Fy=52.963</td> <td>0.156</td> </tr> <tr> <td>Bending & s...</td> <td>Mx=2.461 &...</td> <td>min(Mx,Mb)...</td> <td>0.084</td> </tr> <tr> <td>Web crushin...</td> <td>R=13.230</td> <td>Pw=21.791</td> <td>0.607</td> </tr> <tr> <td>Bending & w...</td> <td>Mx=2.461 &...</td> <td>min(Mx,Mb)...</td> <td>0.648</td> </tr> <tr> <td>Bending-mal...</td> <td>M=5.532</td> <td>Mx=10.170</td> <td>0.550</td> </tr> <tr> <td>Deflection...</td> <td>-7.864</td> <td>291 r/250=8...</td> <td>0.983</td> </tr> </table>		Check	Applied	Capacity	Ratio	Bending (kNm)	Mx=10.170	Mx=10.170	0.244	Shear (kN)	Fy=8.269	Fy=52.963	0.156	Bending & s...	Mx=2.461 &...	min(Mx,Mb)...	0.084	Web crushin...	R=13.230	Pw=21.791	0.607	Bending & w...	Mx=2.461 &...	min(Mx,Mb)...	0.648	Bending-mal...	M=5.532	Mx=10.170	0.550	Deflection...	-7.864	291 r/250=8...	0.983	Dimensions: Section: 15020 Cantilever Length (m): 1 Main Span (m): 3 Centres (m): 0.61 Cantilever bearing width (mm): 100 Overall design ratio: 0.983 Overall check status: PASS	
Check	Applied	Capacity	Ratio																																
Bending (kNm)	Mx=10.170	Mx=10.170	0.244																																
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Deflection...	-7.864	291 r/250=8...	0.983																																
Applied load displayed is worst case from cantilever load or shear from backspan																																			
Apply & Close		Cancel Apply																																	

For speed of design, Ayrshire have produced a very simple to install C-Section design CD.

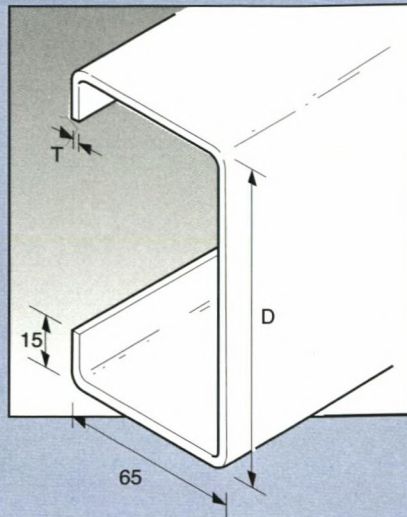
The CD includes a more comprehensive range of section capabilities than could be illustrated in the brochure and has a facility which enables instant printouts which are suitable for submission with building regulation applications.



'C' SECTION DIMENSIONS



C SECTION REFERENCE CODE	DIMENSION DEPTH (mm)	THICKNESS (mm)
12715	127	1.5
14015	140	1.5
15515	155	1.5
16515	165	1.5
20015	200	1.5
22015	220	1.5
10016	100	1.6
12016	120	1.6
12716	127	1.6
14016	140	1.6
15016	150	1.6
15516	155	1.6
16516	165	1.6
17016	170	1.6
18016	180	1.6
20016	200	1.6
22016	220	1.6
12718	127	1.8
14018	140	1.8
15518	155	1.8
16518	165	1.8
17018	170	1.8
18018	180	1.8
20018	200	1.8
22018	220	1.8
10020	100	2.0
12720	127	2.0
15020	150	2.0
16520	165	2.0
18020	180	2.0
18520	185	2.0
20020	200	2.0
22020	220	2.0
24020	240	2.0



LISTED TO THE LEFT ARE THE STANDARD C SECTIONS AVAILABLE IN THE AYRSHIRE RANGE. DEPENDANT UPON QUANTITY, ANY DEPTH BETWEEN 100mm AND 240mm FROM 1.5, 1.6, 1.8 OR 2.0mm THICK MATERIAL CAN BE PRODUCED.

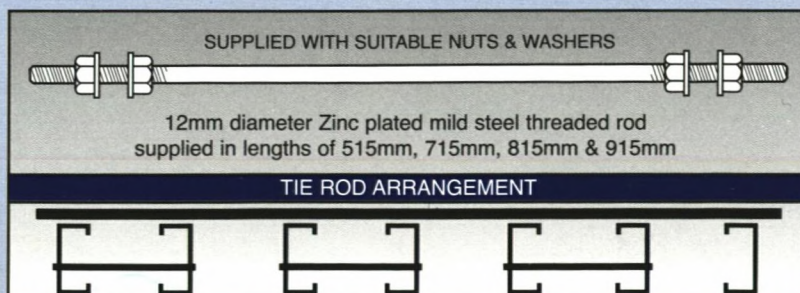
SECTIONS ARE SUPPLIED TO CUSTOMER DETAILS UP TO A MAXIMUM LENGTH OF 10m (SEE PAGE 2 FOR PUNCHING).

MATERIAL SPECIFICATION

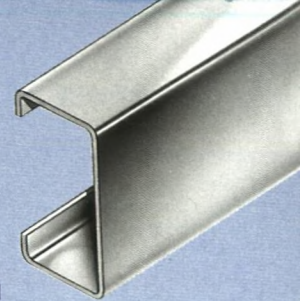
Ayrshire C Sections are manufactured by cold rolling from pre-hot dipped galvanised material to BS EN 10147, Grade S390 GD + Z275 with a guaranteed minimum yield strength of 390 N/mm².

Other materials are available upon request.

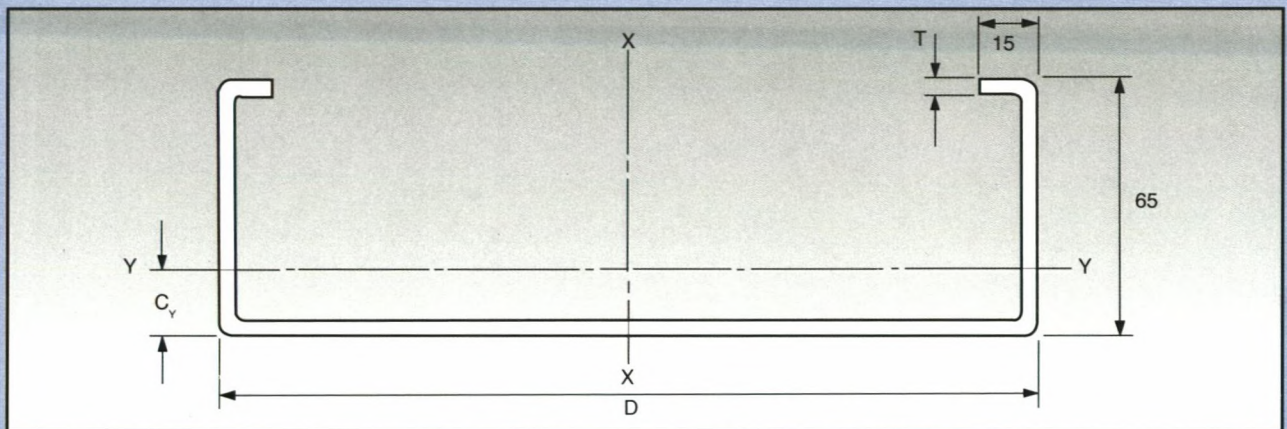
TIE RODS



* WHEN SPANS EXCEED 2.5m TIE RODS MUST BE FITTED TO EACH C SECTION AT MIDSPAN TO GIVE ADEQUATE RESTRAINT TO LOWER FLANGE WHEN USED AS SECONDARY FLOOR BEAMS.



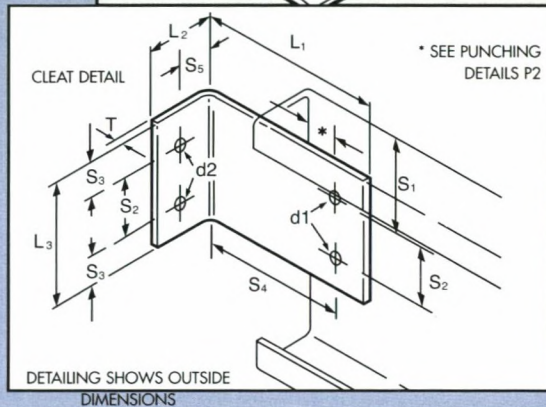
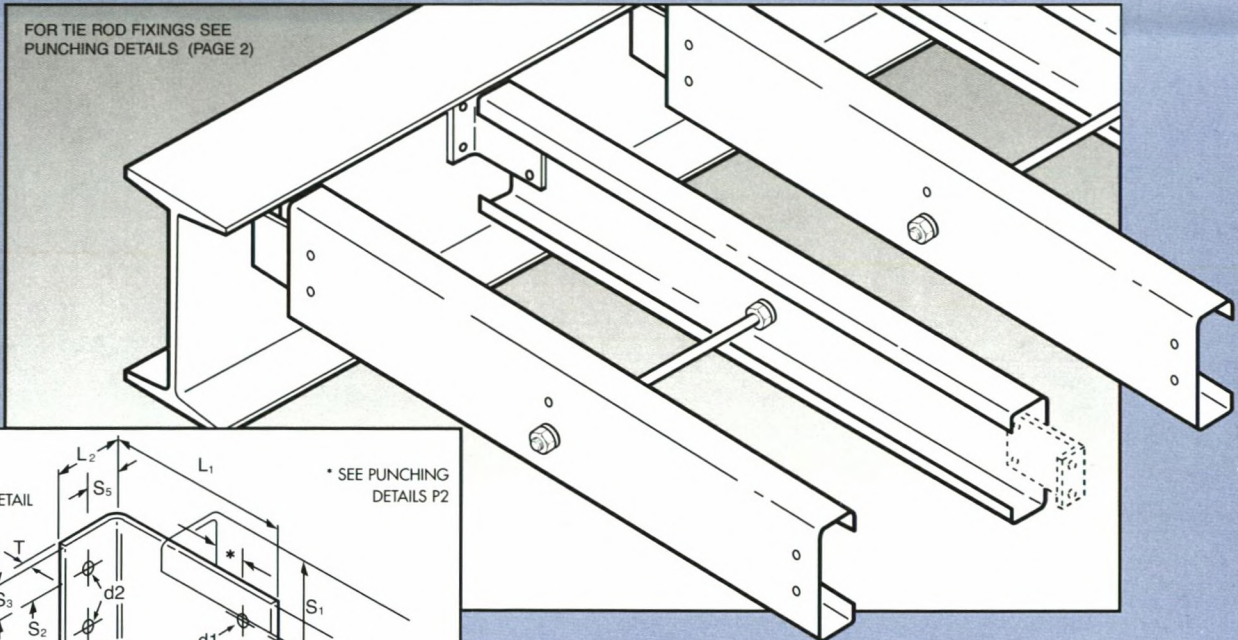
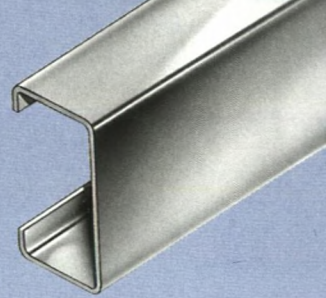
'C' SECTION PROPERTIES



Section	Depth (mm)	T (mm)	Area (mm ²)	Weight (kg/m)	Ixx (cm ⁴)	Iyy (cm ⁴)	Zxx (cm ³)	Zyy (cm ³)	Rxx (mm)	Ryy (mm)	Cy (cm)
12715	127	1.5	398.05	3.17	105.49	22.70	16.62	5.20	51.48	23.88	2.13
14015	140	1.5	416.90	3.32	131.86	23.46	18.84	5.26	56.24	23.72	2.03
15515	155	1.5	438.65	3.50	166.68	24.26	21.51	5.32	61.64	23.52	1.94
16515	165	1.5	453.15	3.61	192.61	24.74	23.35	5.36	65.20	23.37	1.88
20015	200	1.5	503.90	4.03	301.70	26.23	30.18	5.46	77.38	22.81	1.69
22015	220	1.5	532.90	4.26	377.70	26.95	34.34	5.51	84.19	22.49	1.61
10016	100	1.6	382.90	3.04	65.25	22.18	13.06	5.35	41.28	24.07	2.35
12016	120	1.6	413.90	3.29	98.72	23.66	16.46	5.48	48.84	23.91	2.18
12716	127	1.6	424.75	3.38	112.36	24.13	17.70	5.52	51.43	23.83	2.13
14016	140	1.6	444.90	3.54	140.47	24.93	20.07	5.59	56.19	23.67	2.03
15016	150	1.6	460.50	3.67	164.64	25.51	21.96	5.63	59.80	23.54	1.97
15516	155	1.6	468.15	3.73	177.58	25.78	22.92	5.65	61.59	23.47	1.94
16516	165	1.6	483.65	3.86	205.24	26.30	24.88	5.69	65.14	23.32	1.88
17016	170	1.6	491.40	3.92	219.97	26.54	25.89	5.71	66.90	23.24	1.85
18016	180	1.6	506.90	4.04	251.28	27.01	27.93	5.75	70.41	23.09	1.79
20016	200	1.6	537.90	4.30	321.58	27.88	32.17	5.81	77.32	22.76	1.69
22016	220	1.6	568.90	4.55	402.64	28.64	36.61	5.86	84.13	22.44	1.61
12718	127	1.8	477.86	3.80	125.92	26.92	19.84	6.16	51.33	23.74	2.12
14018	140	1.8	500.61	3.98	157.48	27.83	22.51	6.23	56.09	23.58	2.03
15518	155	1.8	526.86	4.20	199.17	28.77	25.71	6.31	61.48	23.37	1.94
16518	165	1.8	544.36	4.34	230.24	29.35	27.92	6.35	65.03	23.22	1.88
17018	170	1.8	553.11	4.41	246.79	29.62	29.04	6.37	66.80	23.14	1.85
18018	180	1.8	570.61	4.55	281.97	30.15	31.34	6.41	70.30	22.99	1.79
20018	200	1.8	605.61	4.83	360.98	31.11	36.11	6.48	77.20	22.66	1.70
22018	220	1.8	640.61	5.12	452.10	31.96	41.11	6.54	84.01	22.34	1.61
10020	100	2.0	477.93	3.80	80.71	27.25	16.15	6.57	41.09	23.88	2.35
12720	127	2.0	530.58	4.22	139.27	29.65	21.94	6.78	51.23	23.64	2.12
15020	150	2.0	575.43	4.58	204.34	31.35	27.25	6.92	59.59	23.34	1.97
16520	165	2.0	604.68	4.82	254.90	32.32	30.91	7.00	64.93	23.12	1.88
18020	180	2.0	633.93	5.06	312.27	33.21	34.71	7.06	70.19	22.89	1.79
18520	185	2.0	643.74	5.13	332.96	33.50	36.01	7.09	71.92	22.81	1.77
20020	200	2.0	672.93	5.37	399.91	34.26	40.00	7.14	77.09	22.56	1.70
22020	220	2.0	711.93	5.68	501.00	35.21	45.56	7.20	83.89	22.24	1.61
24020	240	2.0	750.93	6.00	616.34	36.05	51.37	7.26	90.60	21.91	1.53

SINGLE SPAN BEAM

Inset Design (With Cleats)



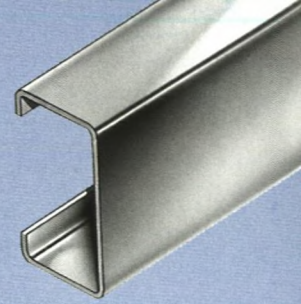
CLEATS 11, 12 & 15 - 3mm THICK : 13, 14 & 16 - 4mm THICK
LOAD TABLE ON PAGE 7 SHOWS WHERE DIFFERENT CLEAT THICKNESSES APPLY

SECTION CODE	PUNCHING CODE	CLEAT CODE	T (mm)	L1 (mm)	L2 (mm)	L3 (mm)	S1 (mm)	S2 (mm)	S3 (mm)	S4 (mm)	S5 (mm)	d1 (mm)	d2 (mm)
12715	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
14015	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
15515	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
16515	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
20015	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
22015	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
10016	W	I1 or I3	3 or 4	130	55	90	29	42	24	105	30.5	14	14
12016	W	I1 or I3	3 or 4	130	55	90	39	42	24	105	30.5	14	14
12716	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
14016	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
15016	W	I1 or I3	3 or 4	130	55	90	54	42	24	105	30.5	14	14
15516	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
16516	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
17016	P	I5 or I6	3 or 4	140	55	130	54.5	61	34.5	115	30.5	14	14
18016	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
20016	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
22016	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
12718	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
14018	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
15518	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
16518	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
17018	P	I5 or I6	3 or 4	140	55	130	54.5	61	34.5	115	30.5	14	14
18018	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
20018	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
22018	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
10020	W	I1 or I3	3 or 4	130	55	90	29	42	24	105	30.5	14	14
12720	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
15020	W	I1 or I3	3 or 4	130	55	90	54	42	24	105	30.5	14	14
16520	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
18020	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
18520	P	I5 or I6	3 or 4	140	55	130	62	61	34.5	115	30.5	14	14
20020	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
22020	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
24020	Y	I2 or I4	3 or 4	140	55	130	80	80	25	115	30.5	18	18

LOAD TABLES

(SEE NOTES PAGE 16)

Inset Design (With Cleats)

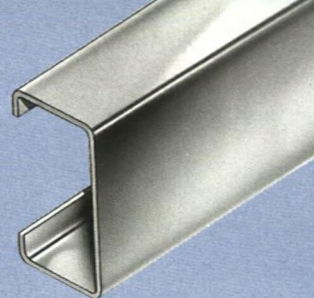


SAFE WORKING LOAD IN kN

SECTION CODE	DEFL'N LIMIT	SPAN (m)								
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
12715	L/250	11.88	11.09	7.74	5.70	4.36	3.44	2.77	2.27	1.88
	L/360	11.88	7.84	5.48	4.04	3.09	2.44	1.96	1.60	1.32
16515	L/250	20.67	16.51	13.73	10.34	7.93	6.27	5.07	4.17	3.48
	L/360	20.67	14.18	9.91	7.31	5.61	4.44	3.59	2.95	2.45
20015	L/250	19.05	19.05	16.93	14.48	12.35	9.77	7.91	6.53	5.46
	L/360	19.05	19.05	15.39	11.36	8.72	6.90	5.59	4.61	3.85
22015	L/250	17.32	17.32	17.32	15.82	13.81	12.12	9.81	8.10	6.78
	L/360	17.32	17.32	17.32	14.06	10.79	8.53	6.91	5.69	4.76
10016	L/250	10.88	7.04	4.92	3.63	2.78	2.19	1.76	1.44	1.19
	L/360	7.75	5.03	3.53	2.61	2.00	1.57	1.26	1.02	0.84
12016	L/250	11.88	10.40	7.26	5.35	4.09	3.22	2.59	2.12	1.76
	L/360	11.40	7.36	5.15	3.79	2.90	2.29	1.83	1.49	1.23
12716	L/250	11.88	11.78	8.21	6.04	4.63	3.64	2.93	2.40	1.99
	L/360	11.88	8.32	5.81	4.28	3.27	2.58	2.07	1.69	1.39
14016	L/250	11.88	11.88	10.17	7.48	5.73	4.51	3.63	2.98	2.47
	L/360	11.88	10.28	7.17	5.28	4.04	3.18	2.55	2.08	1.72
15016	L/250	11.88	11.88	11.86	8.72	6.67	5.26	4.24	3.47	2.89
	L/360	11.88	11.88	8.34	6.14	4.69	3.69	2.97	2.43	2.01
16516	L/250	22.65	18.09	14.90	10.98	8.42	6.65	5.37	4.42	3.69
	L/360	22.65	15.05	10.51	7.76	5.95	4.70	3.79	3.12	2.59
18016	L/250	24.73	19.76	16.43	13.34	10.22	8.07	6.52	5.37	4.49
	L/360	24.73	18.27	12.75	9.39	7.20	5.69	4.59	3.77	3.14
20016	L/250	23.27	22.34	18.58	15.90	13.12	10.38	8.40	6.93	5.80
	L/360	23.27	22.34	16.35	12.06	9.26	7.32	5.92	4.88	4.08
22016	L/250	21.16	21.16	20.36	17.41	15.20	12.89	10.43	8.60	7.20
	L/360	21.16	21.16	20.28	14.94	11.46	9.06	7.33	6.04	5.05
12718	L/250	11.88	11.88	9.15	6.73	5.14	4.05	3.25	2.66	2.20
	L/360	11.88	9.25	6.45	4.75	3.63	2.85	2.28	1.86	1.53
16518	L/250	26.48	21.15	16.64	12.25	9.38	7.41	5.98	4.92	4.10
	L/360	26.07	16.79	11.72	8.63	6.61	5.22	4.21	3.45	2.87
18018	L/250	26.56	23.16	19.27	14.90	11.41	9.00	7.27	5.98	4.99
	L/360	26.56	20.41	14.22	10.47	8.02	6.33	5.10	4.19	3.49
20018	L/250	26.56	26.23	21.82	18.67	14.65	11.58	9.36	7.72	6.45
	L/360	26.56	26.16	18.25	13.45	10.31	8.15	6.59	5.42	4.52
22018	L/250	26.56	26.56	24.02	20.54	17.93	14.40	11.65	9.60	8.03
	L/360	26.56	26.56	22.67	16.69	12.79	10.10	8.17	6.72	5.61
12720	L/250	11.88	11.88	10.07	7.40	5.65	4.44	3.57	2.92	2.41
	L/360	11.88	10.18	7.09	5.21	3.98	3.12	2.50	2.03	1.67
16520	L/250	26.56	24.02	18.35	13.50	10.34	8.15	6.58	5.40	4.50
	L/360	26.56	18.50	12.90	9.50	7.27	5.73	4.62	3.78	3.14
18020	L/250	26.56	26.37	21.93	16.44	12.58	9.92	8.01	6.59	5.49
	L/360	26.56	22.51	15.68	11.54	8.83	6.96	5.61	4.60	3.82
20020	L/250	26.56	26.56	24.88	21.10	16.16	12.76	10.32	8.50	7.10
	L/360	26.56	26.56	20.12	14.82	11.36	8.96	7.24	5.95	4.97
22020	L/250	26.56	26.56	26.56	23.51	20.13	15.89	12.85	10.59	8.85
	L/360	26.56	26.56	25.02	18.42	14.11	11.13	8.99	7.40	6.18
24020	L/250	26.56	26.56	26.56	25.72	22.46	19.47	15.74	12.97	10.85
	L/360	26.56	26.56	26.56	22.52	17.25	13.61	11.00	9.05	7.56

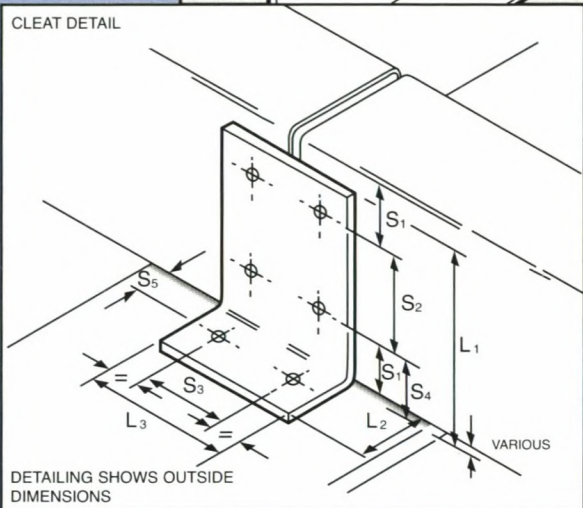
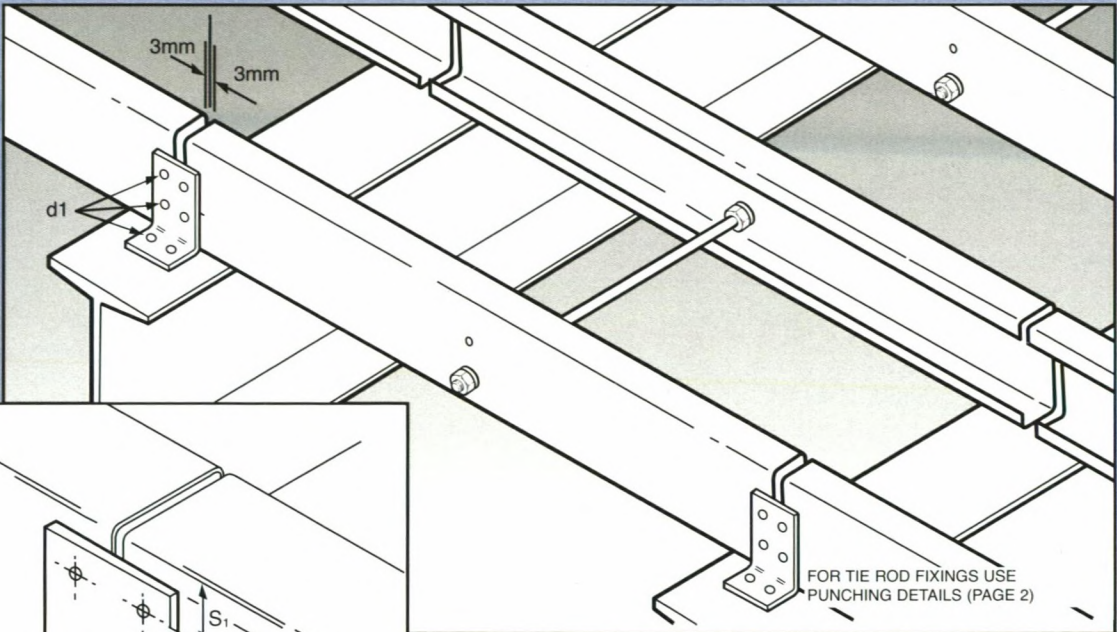
L = SPAN

NOTE: TINTED AREAS INDICATES 4mm THICK CLEATS REQUIRED



SINGLE SPAN BEAM

Oversail Design (With Cleats)

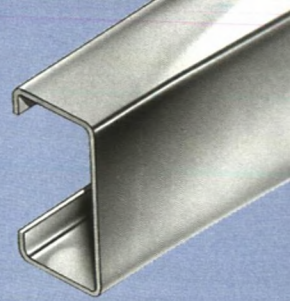


SECTION CODE	PUNCHING CODE	CLEAT CODE	T (mm)	L1 (mm)	L2 (mm)	L3 (mm)	S1 (mm)	S2 (mm)	S3 (mm)	S4 (mm)	S5 (mm)	d1 (mm)
12715	W	C	3	115	60	110	42.5	42	60	47.5	32.5	14
14015	W	E	3	145	60	110	49	42	60	59	32.5	14
15515	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16515	P						52					
20015	Y	J	3	180	60	120	60	80	70	75	32.5	18
22015	Y						70					
10016	W	C	3	115	60	110	29	42	60	47.5	32.5	14
12016	W						39					
12716	W						42.5					
14016	W	E	3	145	60	110	49	42	60	59	32.5	14
15016	W						54					
15516	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16516	P						52					
17016	P						54.5					
18016	P						59.5					
20016	Y	J	3	180	60	120	60	80	70	75	32.5	18
22016	Y						70					
12718	W	C	3	115	60	110	42.5	42	60	47.5	32.5	14
14018	W	E	3	145	60	110	49	42	60	59	32.5	14
15518	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16518	P						52					
17018	P						54.5					
18018	P						59.5					
20018	Y	J	3	180	60	120	60	80	70	75	32.5	18
22018	Y						70					
10020	W	C	3	115	60	110	29	42	60	47.5	32.5	14
12720	W						42.5					
15020	W	E	3	145	60	110	54	42	60	59	32.5	14
16520	P	G	3	160	60	120	52	61	70	64.5	32.5	14
18020	P						59.5					
18520	P						62					
20020	Y	J	3	180	60	120	60	80	70	75	32.5	18
22020	Y						70					
24020	Y	K	3	190	60	120	80	80	70	85	32.5	18

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(SEE NOTES PAGE 16)

Oversail Design (With Cleats)

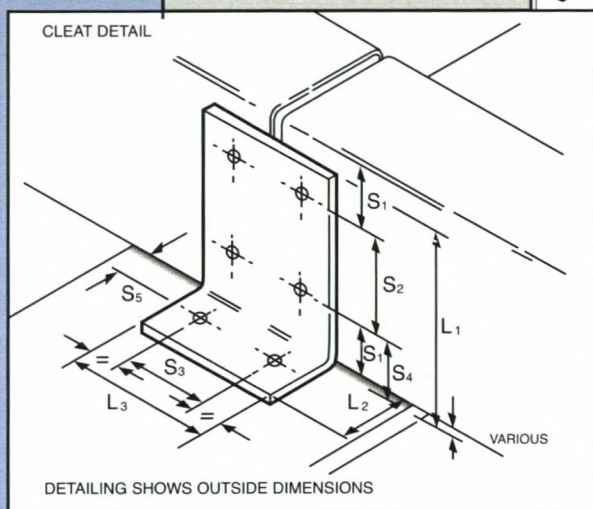
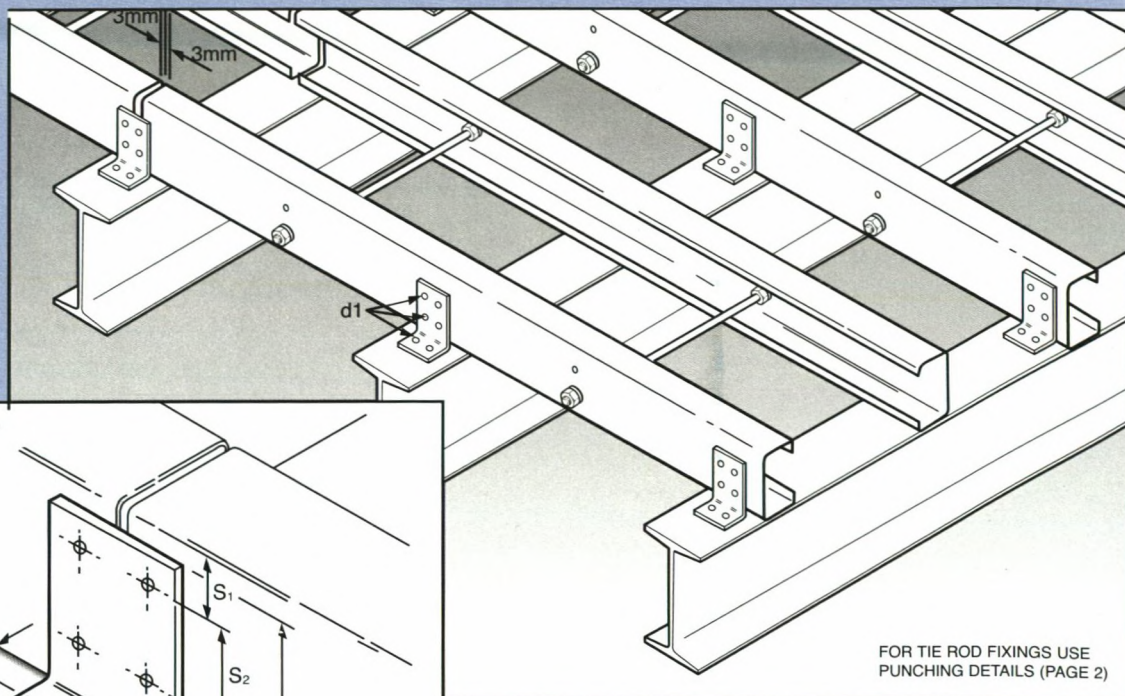
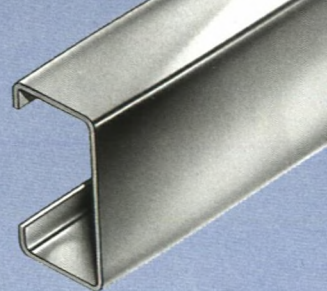


SAFE WORKING LOAD IN kN

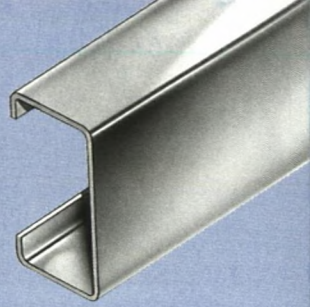
SECTION CODE	DEFL'N LIMIT	SPAN (m)								
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
12715	L/250	15.37	11.09	7.74	5.70	4.36	3.44	2.77	2.27	1.88
	L/360	12.14	7.84	5.48	4.04	3.09	2.44	1.96	1.60	1.32
16515	L/250	20.67	16.51	13.73	10.34	7.93	6.27	5.07	4.17	3.48
	L/360	20.67	14.18	9.91	7.31	5.61	4.44	3.59	2.95	2.45
20015	L/250	19.05	19.05	16.93	14.48	12.35	9.77	7.91	6.53	5.46
	L/360	19.05	19.05	15.39	11.36	8.72	6.90	5.59	4.61	3.85
22015	L/250	17.32	17.32	17.32	15.82	13.81	12.12	9.81	8.10	6.78
	L/360	17.32	17.32	17.32	14.06	10.79	8.53	6.91	5.69	4.76
10016	L/250	10.88	7.04	4.92	3.63	2.78	2.19	1.76	1.44	1.19
	L/360	7.75	5.03	3.53	2.61	2.00	1.57	1.26	1.02	0.84
12016	L/250	15.85	10.40	7.26	5.35	4.09	3.22	2.59	2.12	1.76
	L/360	11.40	7.36	5.15	3.79	2.90	2.29	1.83	1.49	1.23
12716	L/250	16.83	11.78	8.21	6.04	4.63	3.64	2.93	2.40	1.99
	L/360	12.89	8.32	5.81	4.28	3.27	2.58	2.07	1.69	1.39
14016	L/250	18.65	14.60	10.17	7.48	5.73	4.51	3.63	2.98	2.47
	L/360	15.96	10.28	7.17	5.28	4.04	3.18	2.55	2.08	1.72
15016	L/250	20.06	16.02	11.86	8.72	6.67	5.26	4.24	3.47	2.89
	L/360	18.60	11.97	8.34	6.14	4.69	3.69	2.97	2.43	2.01
16516	L/250	22.65	18.09	14.90	10.98	8.42	6.65	5.37	4.42	3.69
	L/360	22.65	15.05	10.51	7.76	5.95	4.70	3.79	3.12	2.59
18016	L/250	24.73	19.76	16.43	13.34	10.22	8.07	6.52	5.37	4.49
	L/360	24.73	18.27	12.75	9.39	7.20	5.69	4.59	3.77	3.14
20016	L/250	23.27	22.34	18.58	15.90	13.12	10.38	8.40	6.93	5.80
	L/360	23.27	22.34	16.35	12.06	9.26	7.32	5.92	4.88	4.08
22016	L/250	21.16	21.16	20.36	17.41	15.20	12.89	10.43	8.60	7.20
	L/360	21.16	21.16	20.28	14.94	11.46	9.06	7.33	6.04	5.05
12718	L/250	19.61	13.13	9.15	6.73	5.14	4.05	3.25	2.66	2.20
	L/360	14.36	9.25	6.45	4.75	3.63	2.85	2.28	1.86	1.53
16518	L/250	26.48	21.15	16.64	12.25	9.38	7.41	5.98	4.92	4.10
	L/360	26.07	16.79	11.72	8.63	6.61	5.22	4.21	3.45	2.87
18018	L/250	29.00	23.16	19.27	14.90	11.41	9.00	7.27	5.98	4.99
	L/360	29.00	20.41	14.22	10.47	8.02	6.33	5.10	4.19	3.49
20018	L/250	31.25	26.23	21.82	18.67	14.65	11.58	9.36	7.72	6.45
	L/360	31.25	26.16	18.25	13.45	10.31	8.15	6.59	5.42	4.52
22018	L/250	30.45	28.87	24.02	20.54	17.93	14.40	11.65	9.60	8.03
	L/360	30.45	28.87	22.67	16.69	12.79	10.10	8.17	6.72	5.61
12720	L/250	22.19	14.47	10.07	7.40	5.65	4.44	3.57	2.92	2.41
	L/360	15.82	10.18	7.09	5.21	3.98	3.12	2.50	2.03	1.67
16520	L/250	29.06	24.02	18.35	13.50	10.34	8.15	6.58	5.40	4.50
	L/360	28.76	18.50	12.90	9.50	7.27	5.73	4.62	3.78	3.14
18020	L/250	29.06	26.37	21.93	16.44	12.58	9.92	8.01	6.59	5.49
	L/360	29.06	22.51	15.68	11.54	8.83	6.96	5.61	4.60	3.82
20020	L/250	31.25	29.91	24.88	21.10	16.16	12.76	10.32	8.50	7.10
	L/360	31.25	28.87	20.12	14.82	11.36	8.96	7.24	5.95	4.97
22020	L/250	31.25	31.25	27.48	23.51	20.13	15.89	12.85	10.59	8.85
	L/360	31.25	31.25	25.02	18.42	14.11	11.13	8.99	7.40	6.18
24020	L/250	31.25	31.25	30.07	25.72	22.46	19.47	15.74	12.97	10.85
	L/360	31.25	31.25	30.07	22.52	17.25	13.61	11.00	9.05	7.56

L = SPAN

DOUBLE SPAN BEAM (With Cleats)



SECTION CODE	PUNCHING CODE	CLEAT CODE	T (mm)	L1 (mm)	L2 (mm)	L3 (mm)	S1 (mm)	S2 (mm)	S3 (mm)	S4 (mm)	S5 (mm)	d1 (mm)
12715	W	C	3	115	60	110	42.5	42	60	47.5	32.5	14
14015	W	E	3	145	60	110	49	42	60	59	32.5	14
15515	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16515	P						52					
20015	Y	J	3	180	60	120	60	80	70	75	32.5	18
22015	Y						70					
10016	W	C	3	115	60	110	29	42	60	47.5	32.5	14
12016	W						39					
12716	W						42.5					
14016	W	E	3	145	60	110	49	42	60	59	32.5	14
15016	W						54					
15516	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16516	P						52					
17016	P						54.5					
18016	P						59.5					
20016	Y	J	3	180	60	120	60	80	70	75	32.5	18
22016	Y						70					
12718	W	C	3	115	60	110	42.5	42	60	47.5	32.5	14
14018	W	E	3	145	60	110	49	42	60	59	32.5	14
15518	P	G	3	160	60	120	47	61	70	64.5	32.5	14
16518	P						52					
17018	P						54.5					
18018	P						59.5					
20018	Y	J	3	180	60	120	60	80	70	75	32.5	18
22018	Y						70					
10020	W	C	3	115	60	110	29	42	60	47.5	32.5	14
12720	W	E	3	145	60	110	42.5					
15020	W						54	42	60	59	32.5	14
16520	P	G	3	160	60	120	52					
18020	P						59.5	61	70	64.5	32.5	14
18520	P						62					
20020	Y	J	3	180	60	120	60	80	70	75	32.5	18
22020	Y						70					
24020	Y	K	3	190	60	120	80	80	70	85	32.5	18



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(SEE NOTES PAGE 16)

(With Cleats)

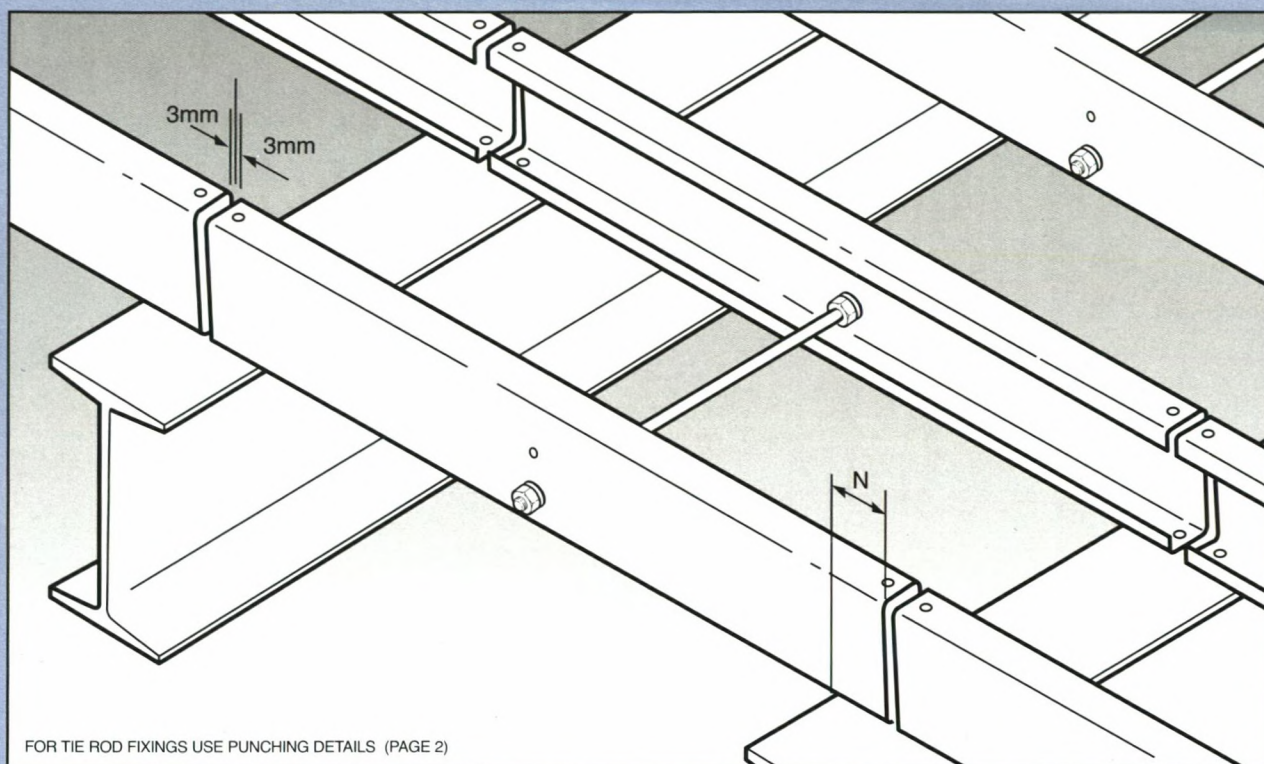
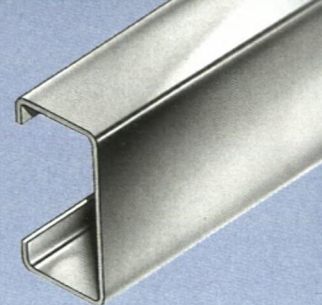
SAFE WORKING LOAD IN kN

SECTION CODE	DEFL'N LIMIT	2.0	2.5	3.0	SPAN (m)	4.0	4.5	5.0
12715	L/250	14.76	12.03	10.12	8.71	7.63	6.78	6.09
	L/360	14.76	12.03	10.12	8.71	6.82	5.35	4.29
16515	L/250	18.48	16.05	13.51	11.64	10.21	9.08	8.16
	L/360	18.48	16.05	13.51	11.64	10.21	9.08	7.94
20015	L/250	15.24	15.24	15.24	14.27	12.52	11.14	10.02
	L/360	15.24	15.24	15.24	14.27	12.52	11.14	10.02
22015	L/250	13.86	13.86	13.86	13.86	13.79	12.27	11.04
	L/360	13.86	13.86	13.86	13.86	13.79	12.27	11.04
10016	L/250	12.38	10.09	8.48	7.30	6.07	4.75	3.81
	L/360	12.38	10.09	7.55	5.51	4.18	3.26	2.60
12016	L/250	15.21	12.41	10.45	8.99	7.88	7.00	5.83
	L/360	15.21	12.41	10.45	8.38	6.37	4.99	4.00
12716	L/250	16.21	13.23	11.14	9.59	8.41	7.47	6.65
	L/360	16.21	13.23	11.14	9.55	7.27	5.70	4.57
14016	L/250	18.07	14.76	12.42	10.70	9.39	8.34	7.50
	L/360	18.07	14.76	12.42	10.70	9.11	7.15	5.75
15016	L/250	19.49	15.93	13.41	11.56	10.14	9.01	8.10
	L/360	19.49	15.93	13.41	11.56	10.14	8.40	6.76
16516	L/250	21.63	17.68	14.89	12.84	11.26	10.02	9.01
	L/360	21.63	17.68	14.89	12.84	11.26	10.02	8.46
18016	L/250	20.69	19.42	16.36	14.11	12.38	11.01	9.90
	L/360	20.69	19.42	16.36	14.11	12.38	11.01	9.90
20016	L/250	18.62	18.62	18.30	15.78	13.85	12.32	11.08
	L/360	18.62	18.62	18.30	15.78	13.85	12.32	11.08
22016	L/250	16.93	16.93	16.93	16.93	15.28	13.60	12.23
	L/360	16.93	16.93	16.93	16.93	15.28	13.60	12.23
12718	L/250	18.98	15.52	13.08	11.27	9.89	8.79	7.45
	L/360	18.98	15.52	13.08	10.70	8.14	6.38	5.12
16518	L/250	23.25	20.81	17.56	15.15	13.30	11.83	10.64
	L/360	23.25	20.81	17.56	15.15	13.30	11.79	9.49
18018	L/250	23.25	22.90	19.33	16.68	14.64	13.03	11.73
	L/360	23.25	22.90	19.33	16.68	14.64	13.03	11.66
20018	L/250	25.00	25.00	21.64	18.69	16.41	14.62	13.16
	L/360	25.00	25.00	21.64	18.69	16.41	14.62	13.16
22018	L/250	24.36	24.36	23.78	20.57	18.10	16.13	14.53
	L/360	24.36	24.36	23.78	20.57	18.10	16.13	14.53
12720	L/250	19.50	17.65	14.88	12.83	11.26	10.01	8.24
	L/360	19.50	17.65	14.88	11.83	9.00	7.06	5.66
16520	L/250	23.25	23.25	20.04	17.30	15.20	13.53	12.17
	L/360	23.25	23.25	20.04	17.30	15.20	13.05	10.50
18020	L/250	23.25	23.25	21.95	18.99	16.70	14.88	13.40
	L/360	23.25	23.25	21.95	18.99	16.70	14.88	12.91
20020	L/250	25.00	25.00	24.60	21.31	18.75	16.72	15.07
	L/360	25.00	25.00	24.60	21.31	18.75	16.72	15.07
22020	L/250	25.00	25.00	25.00	23.49	20.71	18.49	16.68
	L/360	25.00	25.00	25.00	23.49	20.71	18.49	16.68
24020	L/250	25.00	25.00	25.00	25.00	22.61	20.22	18.26
	L/360	25.00	25.00	25.00	25.00	22.61	20.22	18.26

L = SPAN

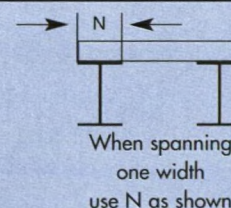
SINGLE SPAN BEAM

Oversail Design (Without Cleats)



The following tables show conditions for single span oversail design applications without cleats and are restricted to a selective number of sections for each span condition. In each case the sections shown give capacities within the range of applied imposed loads for a typical floor application, (i.e. 2.50kN/m² Imposed load - office, walkways etc and 4.80kN/m² Imposed load - storage areas), based upon 610mm beam centres.

For a complete list of sections available for differing spans, please refer to the enclosed CeeDesign CD.



SPAN: 2.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
12715	L/250	6.67	7.01	7.19	7.36	7.53	7.71	7.88	8.40
	L/360	6.67	7.01	7.19	7.36	7.53	7.71	7.88	8.40
10016	L/250	8.08	8.48	8.68	8.88	9.08	9.28	9.48	10.07
	L/360	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07
12016	L/250	7.85	8.24	8.44	8.63	8.82	9.02	9.21	9.79
	L/360	7.85	8.24	8.44	8.63	8.82	9.02	9.21	9.79

SPAN: 2.50 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
12715	L/250	6.65	6.99	7.17	7.34	7.51	7.68	7.86	8.38
	L/360	6.65	6.99	7.17	7.30	7.30	7.30	7.30	7.30
10016	L/250	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
	L/360	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
12016	L/250	7.83	8.22	8.41	8.61	8.80	9.00	9.19	9.77
	L/360	6.83	6.83	6.83	6.83	6.83	6.83	6.83	6.83

SPAN: 3.00 m

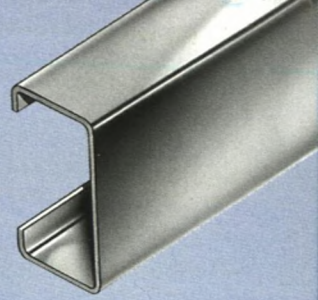
SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
12016	L/250	6.81	6.81	6.81	6.81	6.81	6.81	6.81	6.81
	L/360	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
12716	L/250	7.73	7.76	7.76	7.76	7.76	7.76	7.76	7.76
	L/360	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36
14016	L/250	7.58	7.96	8.14	8.33	8.52	8.71	8.90	9.46
	L/360	6.72	6.72	6.72	6.72	6.72	6.72	6.72	6.72

LOAD TABLES

(SEE NOTES PAGE 16)

Oversail Design (Without Cleats)

SAFE WORKING LOAD IN KN



SPAN: 3.50 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
15016	L/250	7.44	7.81	8.00	8.18	8.34	8.34	8.34	8.34
	L/360	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75
16516	L/250	7.26	7.63	7.81	7.99	8.17	8.35	8.54	9.08
	L/360	7.19	7.19	7.19	7.19	7.19	7.19	7.19	7.19
18016	L/250	7.09	7.44	7.62	7.80	7.98	8.16	8.33	8.87
	L/360	7.09	7.44	7.62	7.80	7.98	8.16	8.33	8.83
16518	L/250	9.65	10.08	10.30	10.52	10.74	10.96	11.18	11.69
	L/360	8.07	8.07	8.07	8.07	8.07	8.07	8.07	8.07
18018	L/250	9.45	9.88	10.09	10.31	10.52	10.74	10.95	11.60
	L/360	9.45	9.88	9.91	9.91	9.91	9.91	9.91	9.91
20018	L/250	9.18	9.60	9.81	10.02	10.23	10.44	10.65	11.27
	L/360	9.18	9.60	9.81	10.02	10.23	10.44	10.65	11.27

SPAN: 4.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
16516	L/250	7.24	7.60	7.78	7.93	7.93	7.93	7.93	7.93
	L/360	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46
18016	L/250	7.06	7.42	7.59	7.77	7.95	8.13	8.31	8.84
	L/360	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
16518	L/250	8.89	8.89	8.89	8.89	8.89	8.89	8.89	8.89
	L/360	6.12	6.12	6.12	6.12	6.12	6.12	6.12	6.12
18018	L/250	9.42	9.85	10.06	10.28	10.49	10.71	10.92	10.92
	L/360	7.53	7.53	7.53	7.53	7.53	7.53	7.53	7.53
20018	L/250	9.15	9.57	9.78	9.99	10.20	10.40	10.61	11.24
	L/360	9.15	9.57	9.68	9.68	9.68	9.68	9.68	9.68
20020	L/250	11.79	12.28	12.53	12.77	13.02	13.27	13.51	14.25
	L/360	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72

SPAN: 4.50 m

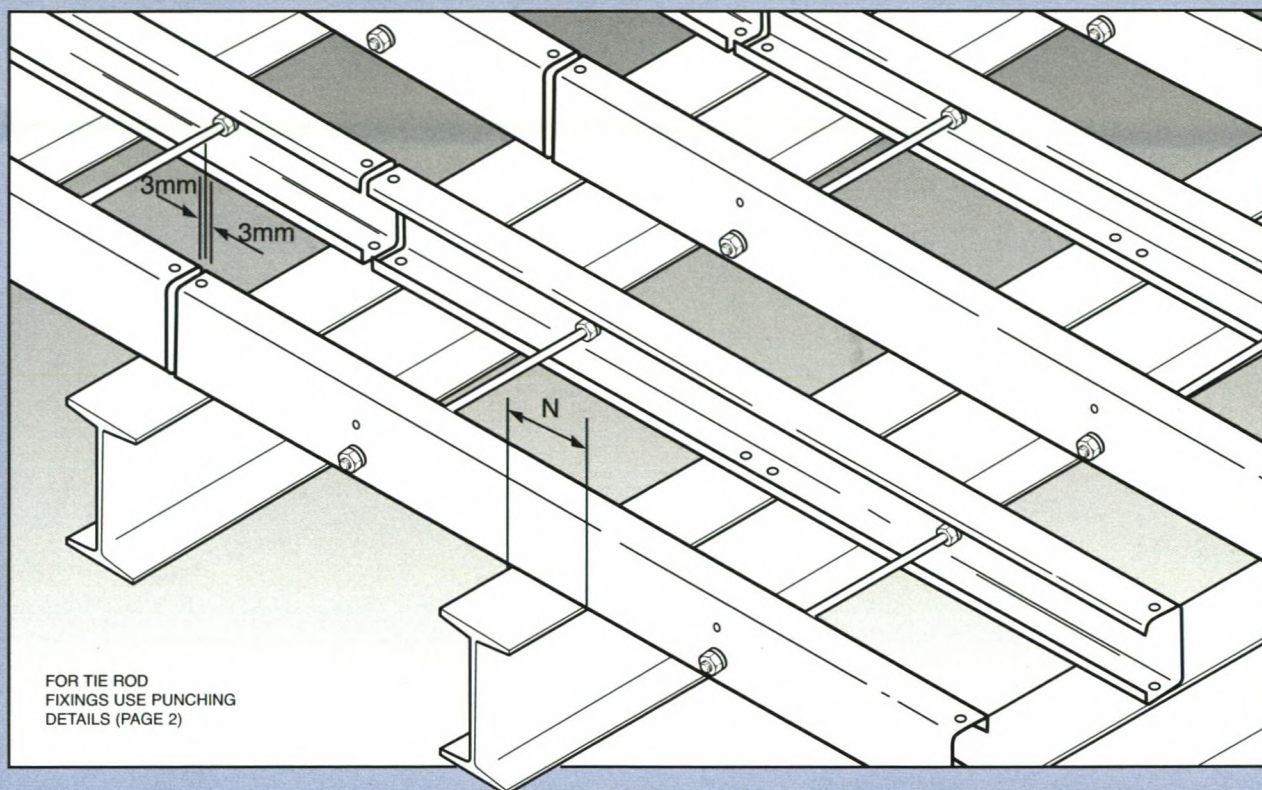
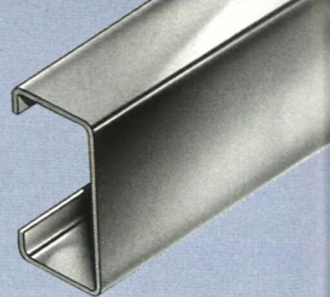
SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
20018	L/250	9.12	9.53	9.74	9.95	10.16	10.37	10.58	11.01
	L/360	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58
22018	L/250	8.85	9.25	9.46	9.66	9.87	10.07	10.27	10.88
	L/360	8.85	9.25	9.46	9.54	9.54	9.54	9.54	9.54
20020	L/250	11.75	12.20	12.20	12.20	12.20	12.20	12.20	12.20
	L/360	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40
22020	L/250	11.45	11.93	12.17	12.41	12.65	12.89	13.14	13.86
	L/360	10.57	10.57	10.57	10.57	10.57	10.57	10.57	10.57
24020	L/250	11.15	11.62	11.85	12.09	12.32	12.56	12.79	13.50
	L/360	11.15	11.62	11.85	12.09	12.32	12.56	12.79	13.05

SPAN: 5.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):							
		50	60	65	70	75	80	85	100
22018	L/250	8.81	9.22	9.42	9.63	9.83	10.03	10.24	10.85
	L/360	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66
20020	L/250	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81
	L/360	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73
22020	L/250	11.41	11.89	12.13	12.34	12.34	12.34	12.34	12.34
	L/360	8.49	8.49	8.49	8.49	8.49	8.49	8.49	8.49
24020	L/250	11.11	11.58	11.81	12.05	12.28	12.52	12.75	13.46
	L/360	10.49	10.49	10.49	10.49	10.49	10.49	10.49	10.49

DOUBLE SPAN

Oversail Design (Without Cleats)



The following tables show conditions for double span oversail design applications without cleats and are restricted to a selective number of sections for each span condition. In each case the sections shown give capacities within the range of applied imposed loads for a typical floor application, (i.e. 2.50kN/m² Imposed load - office, walkways etc and 4.80kN/m² Imposed load - storage areas), based upon 610mm beam centres.

For a complete list of sections available for differing spans, please refer to the enclosed CeeDesign CD.

SPAN: 2.00 m

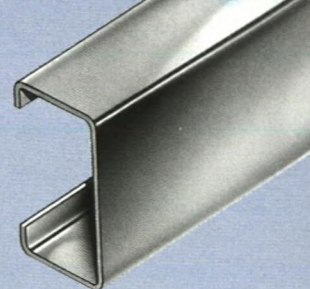
SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
12715	L/360	5.97	6.51	7.03	7.51	7.96
16515	L/360	6.03	6.77	7.36	7.91	8.44
10016	L/360	6.29	6.80	7.26	7.70	8.11
12016	L/360	6.60	7.17	7.70	8.21	8.68
12716	L/360	6.68	7.27	7.82	8.34	8.83
14016	L/360	6.79	7.41	8.00	8.55	9.08

SPAN: 2.50 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
12715	L/360	5.59	6.07	6.52	6.93	7.32
16515	L/360	5.85	6.41	6.93	7.42	7.89
10016	L/360	5.81	6.24	6.63	6.99	7.33
12016	L/360	6.16	6.66	7.12	7.55	7.95
12716	L/360	6.25	6.77	7.25	7.70	8.12
14016	L/360	6.40	6.94	7.46	7.94	8.39

SPAN: 3.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
16515	L/360	5.57	6.07	6.54	6.99	7.40
14016	L/360	6.04	6.53	6.98	7.41	7.80
16516	L/360	6.25	6.80	7.30	7.78	8.23
18016	L/360	6.33	6.90	7.43	7.94	8.42
12718	L/360	7.23	7.67	8.14	8.58	8.99
16518	L/360	7.77	8.30	8.88	9.42	9.93



LOAD TABLES

(Without Cleats)

(SEE NOTES PAGE 16)

SAFE WORKING LOAD IN kN

SPAN: 3.50 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
16515	L/360	5.31	5.77	6.20	6.59	6.97
14016	L/360	5.72	6.16	6.56	6.94	7.29
16516	L/360	5.96	6.45	6.91	7.34	7.75
18016	L/360	6.06	6.58	7.06	7.52	7.95
16518	L/360	7.39	7.87	8.39	8.88	9.34
18018	L/360	7.54	8.05	8.60	9.12	9.61
20018	L/360	7.68	8.22	8.81	9.37	9.90
16520	L/360	8.92	9.34	9.91	10.45	10.96
18020	L/360	9.13	9.57	10.19	10.77	11.31
20020	L/360	9.35	9.82	10.48	11.10	11.69

SPAN: 4.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
16515	L/360	5.07	5.49	5.88	6.24	6.57
20015	L/360	5.24	5.71	6.15	6.56	6.95
16516	L/360	5.69	6.14	6.56	6.95	7.31
18016	L/360	5.80	6.28	6.72	7.14	7.53
20016	L/360	5.90	6.41	6.88	7.33	7.75
16518	L/360	7.04	7.48	7.95	8.39	8.80
18018	L/360	7.20	7.67	8.18	8.65	9.09
20018	L/360	7.37	7.87	8.41	8.92	9.40
16520	L/360	8.48	8.86	9.38	9.87	10.32
18020	L/360	8.71	9.12	9.68	10.20	10.69
20020	L/360	8.95	9.39	9.99	10.56	11.10
22020	L/360	9.13	9.59	10.23	10.84	11.41

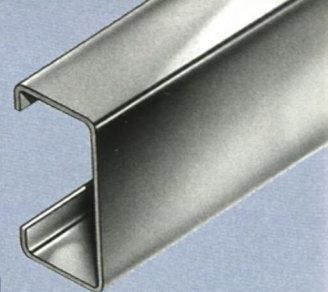
SPAN: 4.50 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
18016	L/360	5.56	6.00	6.41	6.79	7.14
20016	L/360	5.67	6.15	6.59	7.00	7.38
16518	L/360	6.72	7.12	7.55	7.95	8.32
18018	L/360	6.90	7.33	7.79	8.22	8.62
20018	L/360	7.08	7.54	8.04	8.51	8.95
16520	L/360	8.08	8.43	8.90	9.34	9.74
18020	L/360	8.33	8.70	9.21	9.68	10.13
20020	L/360	8.59	8.99	9.54	10.06	10.55
22020	L/360	8.78	9.21	9.80	10.36	10.89
24020	L/360	8.92	9.37	10.00	10.59	11.16

SPAN: 5.00 m

SECTION CODE	DEFL'N LIMIT	Bearing width value, N (mm):				
		100	125	150	175	200
18018	L/360	6.61	7.01	7.44	7.83	8.20
20018	L/360	6.80	7.24	7.70	8.13	8.54
22018	L/360	6.94	7.40	7.90	8.37	8.80
16520	L/360	7.71	8.03	8.46	8.86	9.23
18020	L/360	7.97	8.31	8.78	9.21	9.62
20020	L/360	8.24	8.62	9.13	9.61	10.06
22020	L/360	8.45	8.85	9.41	9.92	10.41
24020	L/360	8.61	9.03	9.62	10.17	10.69

MATERIAL SPECIFICATION



C SECTIONS: The sections illustrated in this manual are manufactured from "S390" material. BS EN 10147 is the standard code of practice for the specification of hot dipped zinc coated steel strip for cold formed sections. Whilst this code does not explicitly carry a standard specification for "S390" material, an appropriate technical description can be calculated that complies with the principles given in Table 1 of this code. These structural parameters can be defined as follows:

Yield strength: $R_{ch} = 390 \text{ N/mm}^2$ guaranteed minimum value

Tensile strength: $R_m = 468 \text{ N/mm}^2$ minimum value (i.e. $1.2 \times$ Yield strength in accordance with the design code BS5950:Part5:1998).

Elongation: $A_{80} = 14\%$

All other technical delivery conditions for the coating, surface finish, quality and treatment as defined in BS EN 10147 are satisfied, hence, the material reference is "S390GD+Z275" zinc coated steel, with a minimum guaranteed yield strength of 390 N/mm^2 .

TIE RODS: Mild steel hard drawn wire to BS1052 and zinc plated to BS1706 Grade ZN12 Class C. Nuts and washers zinc plated to BS4320.

CLEATS: Either pre-hot dipped galvanised mild steel to BS EN 10147, Grade S280+Z275 with a guaranteed minimum strength of 280 N/mm^2 , or mild steel to BS EN 10025, S275 with a guaranteed minimum yield strength of 275 N/mm^2 and galvanised after manufacture to EN ISO 1461:1999, dependant upon availability.

Cleats tested at University of Salford, Department of Civil Engineering.

NOTES ON LOAD TABLES:-

The calculation of structural properties for the sections in this manual are in accordance with BS5950: Part 5: 1998 using the yield and tensile strengths as defined in the material specification above. Plus data from load tests carried out at University of Nottingham, Department of Civil Engineering.

Tabulated capacities are based on the use of unfactored loads.

Self weight of section has been deducted.

Load tables are valid assuming:-

1. Top (compression) flange is adequately restrained by decking/fixings.
2. Beams are fixed in pairs with toes pointing towards each other (see Page 4).
3. Tie rods are provided for spans greater than 2.5m as shown on Page 4.
4. When required, cleats are used as shown.
5. The imposed (live) load is evenly distributed.



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