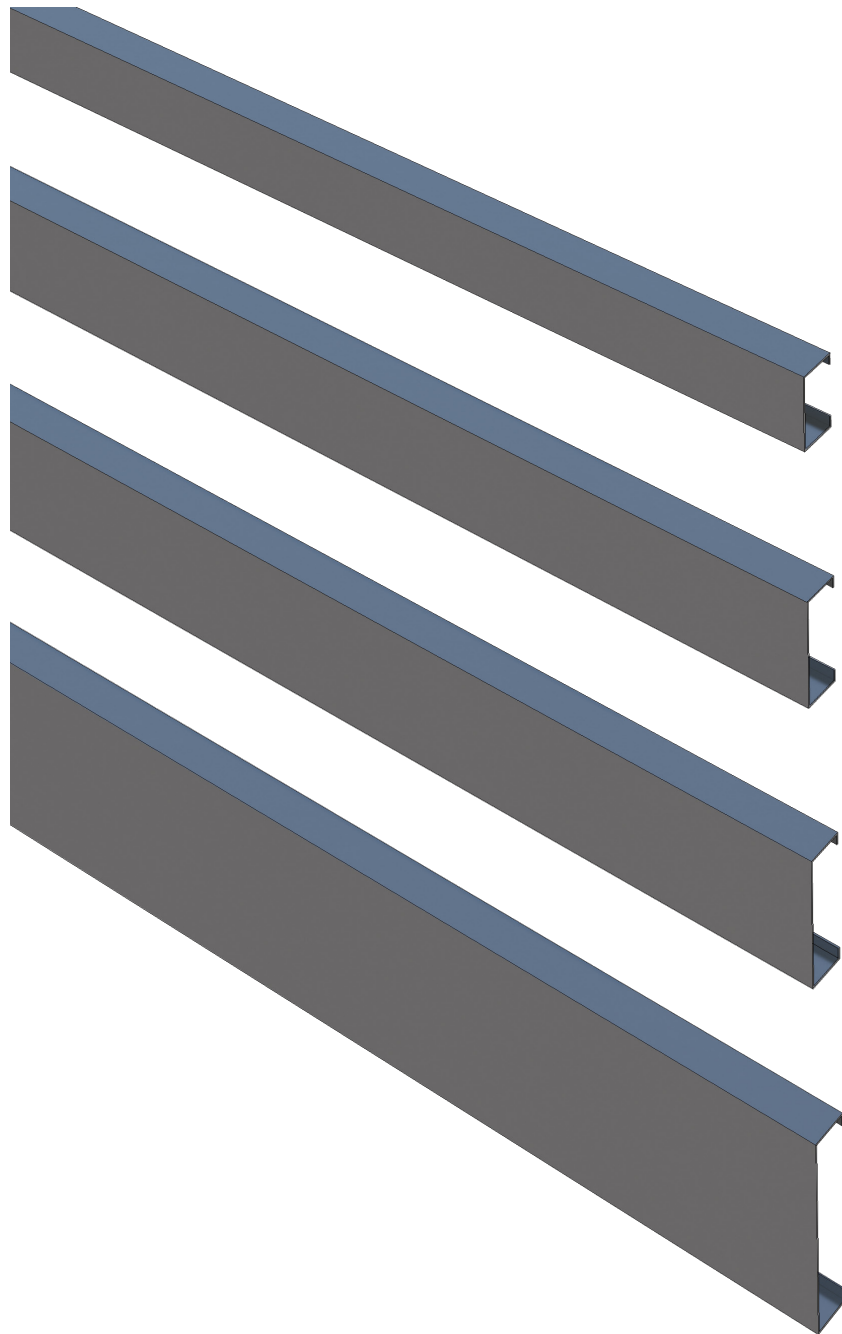




Ayrshire Metals Limited

CJ SECTIONS



Punching Details	4
Design Software	5
CJ Section Dimensions	6
CJ Section Properties	7
Single Span Beam - Inset Design (With Cleats)	8
Material Specification	10
Notes on Load Tables	11

Disclaimer

Every care has been taken to ensure the accuracy of all information and specifications contained in this brochure. However Ayrshire Metals Limited cannot be held responsible for any errors or omissions.

Ayrshire Metals Limited reserve the right to amend or alter specifications where necessary, without prior notice.

Ayrshire Metals Limited are one of 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.

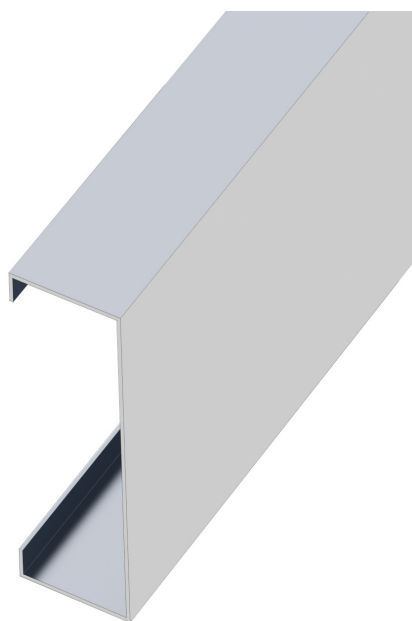
Cold rolled CJ Sections continue to be used extensively in storage platforms and are increasingly being used for a variety of alternative applications.

Ayrshire's comprehensive range of CJ Sections has been extended, and utilising Grade S450 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.

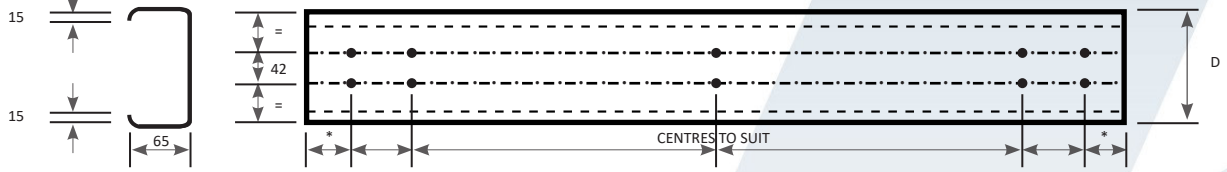
The wide range of sections on offer means that for almost any application the optimum solution can be obtained, leading to savings in material.

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.



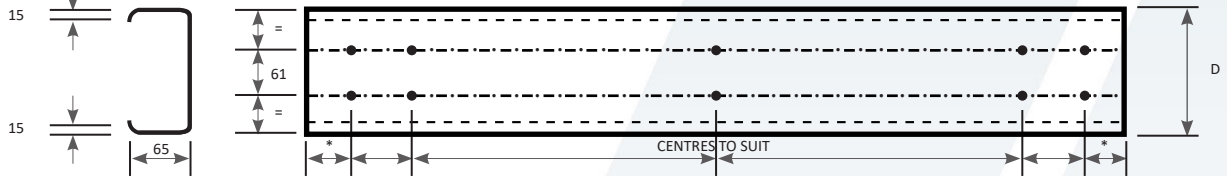
W WEB HOLES : 14mm DIAMETER AT 42mm CENTRES



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



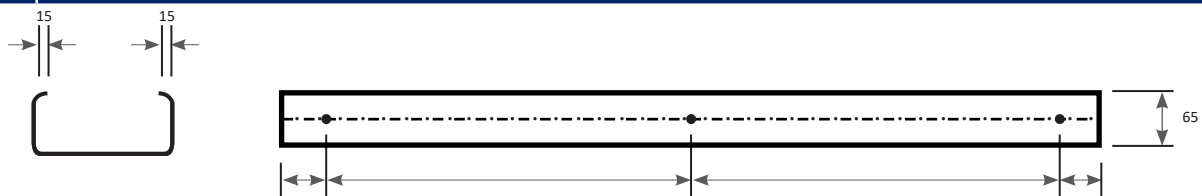
HOLES PUNCHED IN PAIRS

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

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

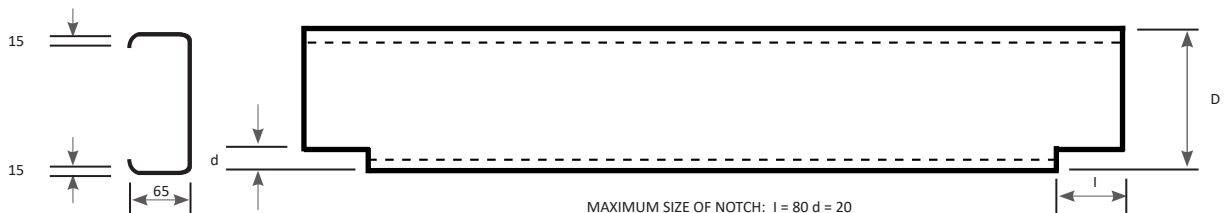


Z FLANGE HOLES : 14mm DIAMETER ALONG CENTRE LINE OF FLANGE




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

N NOTCHING



MAXIMUM SIZE OF NOTCH: $l = 80 d = 20$
NB: ONLY CERTAIN HOLE PATTERNS CAN BE PUNCHED IN NOTCHED SECTIONS

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


Ayrshire Design Tools
 AyrSuite Plus 4.4.00018
 Copyright © Ayrshire Metal Products (Coverley) Ltd. 1998-2020

Job No. Revision Rev
1/1

Job Title: _____ Part: _____
 Date: 08-Feb-2021 - Cnd
 File: _____ Revision: 08 Feb 2021, 12:25

Section Design Report (Inset) - ID: Beam1

Design Case

Design Geometry		Design Loadings		Load Factors
Span (m)	4	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=16.0	Imposed (kN/m ²)	4.8	Imposed 1.8
		Self weight (kg/m)	4.03	

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)	19.815	12.480
Imposed	18.739	11.712

Consider: 20015 Inset, Major Axis (With Decking Restraint).

Major axis capacity:	+Ult. Capacity (kN)	20.312	+Defn. Capacity (kN)	12.511
+ve stress ratio	19.815/20.312 =	0.976		
Deflection ratio:	11.712/12.511 =	0.938	Thus, max. def. for imposed load =	15.0 mm
			Max. def. for total load =	16.0 mm

Conclusion: Section: 20015 S390G Checks results: PASS
 System: Inset, Method: Major Axis (With Decking Restraint).
 Bracing: Tie rods required at mid span. 4mm cleat.
 Design in accordance with BS5950:Part5:1998.

C-Section Design
Expanded Checks
ID Notes
Load Factors
[Cantilever]

ID:
 System: Method:

Geometry:

Span: m

Centres: m

Load Case:

Dead: kN/m²

Service: kN/m²

Imposed: kN/m²

Imposed Defn.: L/ 16.0 mm

Loading (Major Axis):

Service Loading +ve: 12.322 kN udl

Imposed Unfact'd +ve: 11.712 kN udl

Factored Loading +ve: 19.593 kN udl

Filters: Min. thickness mm Min. depth mm Max. depth mm

Current Selection: 20015 [Double click a section to select] Automatically select best section

Section	s/w (kg/m)	Stress ratio	Defn. (mm)	Bracing Description
20015	4.03	0.976	15.0	Tie rods required at mid span. 4mm cleat.
22015	4.26	0.885	12.1	Tie rods required at mid span. 4mm cleat.
20016	4.30	0.889	14.1	Tie rods required at mid span. 4mm cleat.
22016	4.55	0.813	11.4	Tie rods required at mid span. 4mm cleat.
20018	4.83	0.759	12.6	Tie rods required at mid span. 4mm cleat.
18020	5.06	0.755	14.7	Tie rods required at mid span. 4mm cleat.
22018	5.12	0.690	10.2	Tie rods required at mid span. 4mm cleat.
18520	5.13	0.734	13.8	Tie rods required at mid span. 4mm cleat.

Project Information
✕

Project Info. | Drawing Comment | Delivery Information |

Project:
 Client:
 Job No / Order No.:
 Part:
 Ref:

Designer:
 Name:
 Date: 08-Feb-2021

Checked:
 Approved:

Revision:

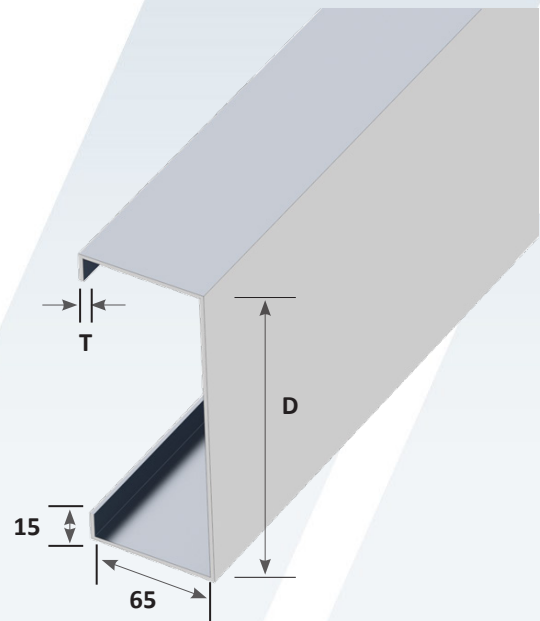
Comments:

Date last modified: 08-Feb-2021 12:23
 Saved in file:

For speed of design, Ayrshire have produced a very simple to install design and detail software called AyrSuite™ Plus.

The software 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.

CJ SECTION REFERENCE CODE	DIMENSION	
	DEPTH (mm)	THICKNESS (mm)
CJ 10016	100	1.6
CJ 10020	100	2.0
CJ 12016	120	1.6
CJ 12715	127	1.5
CJ 12716	127	1.6
CJ 12718	127	1.8
CJ 12720	127	2.0
CJ 14015	140	1.5
CJ 14016	140	1.6
CJ 14018	140	1.8
CJ 15016	150	1.6
CJ 15020	150	2.0
CJ 15515	155	1.5
CJ 15516	155	1.6
CJ 15518	155	1.8
CJ 16515	165	1.5
CJ 16516	165	1.6
CJ 16518	165	1.8
CJ 16520	165	2.0
CJ 17015	170	1.5
CJ 17016	170	1.6
CJ 17018	170	1.8
CJ 18016	180	1.6
CJ 18018	180	1.8
CJ 18020	180	2.0
CJ 18515	185	1.5
CJ 18516	185	1.6
CJ 18518	185	1.8
CJ 18520	185	2.0
CJ 20015	200	1.5
CJ 20016	200	1.6
CJ 20018	200	1.8
CJ 20020	200	2.0
CJ 22015	220	1.5
CJ 22016	220	1.6
CJ 22018	220	1.8
CJ 22020	220	2.0
CJ 24020	240	2.0



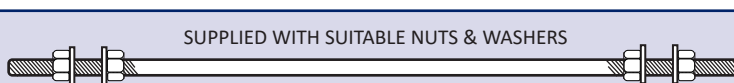
Listed to the left are the standard CJ Sections available in the Ayrshire Range. Dependant upon quantity, any depth between 100mm and 240mm from 1.5, 1.6, 1.8 or 2.0mm thick material can be produced. Sections are supplied to customer details up to a maximum length of 10m (see page 4 for punching).

MATERIAL SPECIFICATION

Ayrshire C Sections are manufactured by cold rolling from pre-hot dipped galvanised material to BS EN 10346, Grade S450 GD + Z275 with a guaranteed minimum yield strength of 450 N/mm².

Other materials are available upon request.

Tie Rods



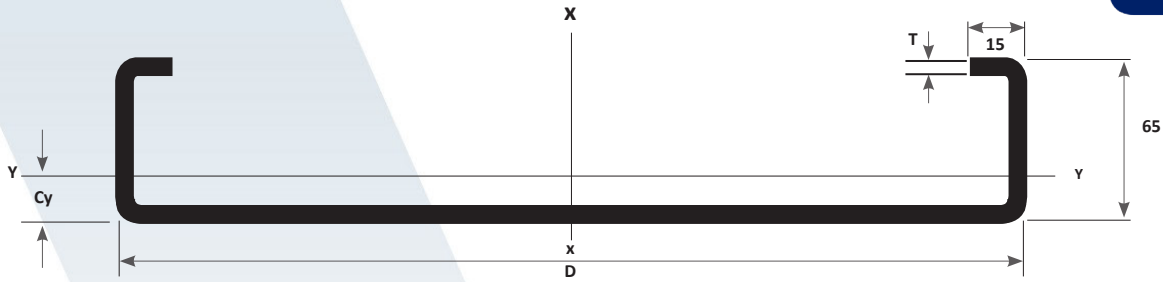
12mm diameter Zinc plated mild steel threaded rod supplied in lengths of 515mm, 715mm, 815mm & 915mm

TIE ROD ARRANGEMENT



*When spans exceed 2.5m Tie Rods must be fitted to each CJ Section at midspan to give adequate restraint to lower flange when used as secondary floor beams.

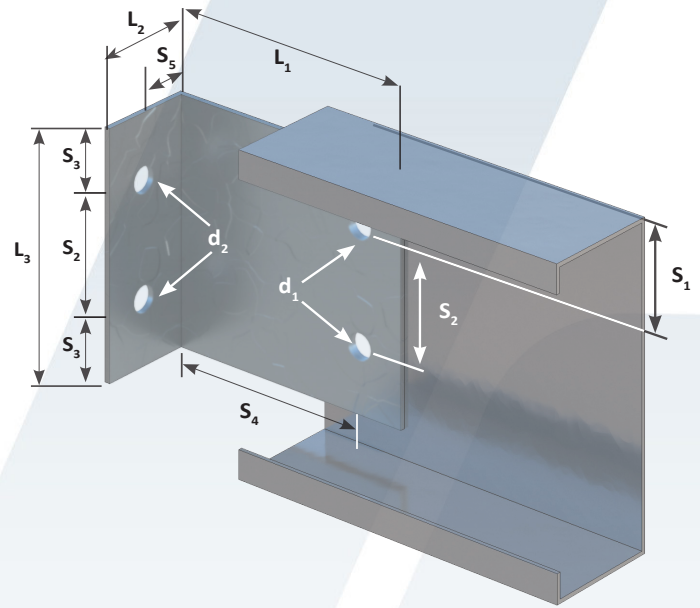
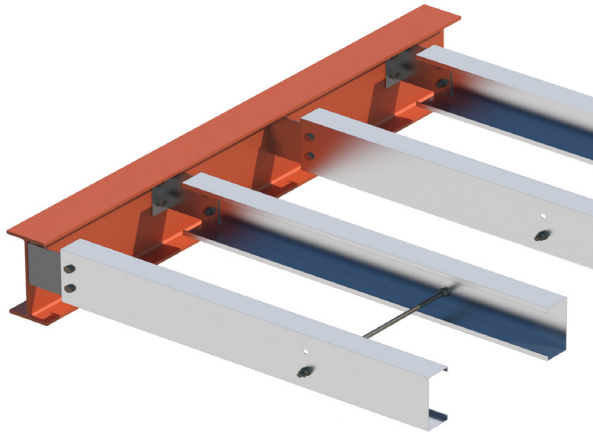
'C' Section Properties



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)
CJ10016	100	1.6	380	3.08	65.25	22.19	13.06	5.35	41.45	24.17	2.35
CJ10020	100	2.0	478	3.85	80.71	27.26	16.15	6.57	41.10	23.89	2.35
CJ12016	120	1.6	408	3.31	98.73	23.67	16.46	5.48	49.21	24.10	2.18
CJ12715	127	1.5	394	3.21	105.51	22.72	16.62	5.20	51.72	24.00	2.13
CJ12716	127	1.6	422	3.42	112.37	24.14	17.70	5.52	51.63	23.93	2.13
CJ12718	127	1.8	476	3.85	125.93	26.94	19.84	6.16	51.44	23.79	2.13
CJ12720	127	2.0	530	4.28	139.29	29.67	21.94	6.78	51.25	23.65	2.13
CJ14015	140	1.5	413	3.36	131.88	23.47	18.85	5.26	56.49	23.83	2.04
CJ14016	140	1.6	442	3.58	140.48	24.95	20.08	5.59	56.39	23.76	2.04
CJ14018	140	1.8	499	4.03	157.50	27.84	22.51	6.24	56.20	23.63	2.04
CJ15016	150	1.6	457	3.71	164.66	25.52	21.96	5.63	60.01	23.63	1.97
CJ15020	150	2.0	575	4.64	204.37	31.37	27.26	6.92	59.60	23.35	1.97
CJ15515	155	1.5	434	3.53	166.70	24.27	21.52	5.32	62.01	23.66	1.94
CJ15516	155	1.6	463	3.76	177.61	25.79	22.92	5.65	61.91	23.59	1.94
CJ15518	155	1.8	523	4.23	199.20	28.78	25.71	6.31	61.70	23.45	1.94
CJ16515	165	1.5	447	3.63	192.64	24.76	23.36	5.36	65.68	23.54	1.88
CJ16516	165	1.6	477	3.87	205.26	26.31	24.89	5.69	65.57	23.48	1.88
CJ16518	165	1.8	539	4.36	230.27	29.36	27.92	6.35	65.36	23.34	1.88
CJ16520	165	2.0	601	4.84	254.94	32.34	30.91	7.00	65.15	23.20	1.88
CJ17015	170	1.5	457	3.71	206.45	24.99	24.30	5.37	67.23	23.39	1.85
CJ17016	170	1.6	488	3.96	219.99	26.56	25.89	5.71	67.13	23.32	1.85
CJ17018	170	1.8	551	4.46	246.82	29.64	29.05	6.37	66.91	23.19	1.85
CJ18016	180	1.6	501	4.06	251.31	27.03	27.93	5.75	70.85	23.24	1.80
CJ18018	180	1.8	565	4.57	282.01	30.17	31.34	6.41	70.63	23.10	1.80
CJ18020	180	2.0	630	5.08	312.31	33.22	34.71	7.06	70.42	22.97	1.80
CJ18515	185	1.5	479	3.89	251.38	25.64	27.18	5.42	72.48	23.15	1.77
CJ18516	185	1.6	512	4.15	267.91	27.26	28.97	5.76	72.37	23.08	1.77
CJ18518	185	1.8	578	4.67	300.66	30.42	32.51	6.43	72.15	22.95	1.77
CJ18520	185	2.0	644	5.19	333.01	33.50	36.01	7.08	71.94	22.82	1.77
CJ20015	200	1.5	502	4.08	301.74	26.24	30.18	5.46	77.55	22.87	1.7
CJ20016	200	1.6	536	4.35	321.62	27.89	32.17	5.81	77.44	22.80	1.7
CJ20018	200	1.8	606	4.9	361.03	31.13	36.11	6.48	77.22	22.67	1.7
CJ20020	200	2.0	675	5.44	399.96	34.28	40.01	7.14	76.99	22.54	1.7
CJ22015	220	1.5	529	4.3	377.75	26.96	34.35	5.51	84.48	22.57	1.61
CJ22016	220	1.6	566	4.59	402.70	28.66	36.62	5.86	84.37	22.51	1.61
CJ22018	220	1.8	639	5.16	452.16	31.98	41.12	6.54	84.14	22.38	1.61
CJ22020	220	2.0	712	5.74	501.07	35.23	45.56	7.21	83.90	22.25	1.61
CJ24020	240	2.0	751	6.05	616.42	36.07	51.38	7.26	90.61	21.92	1.53

Single Span Beam

Inset 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)	d2 (mm)
CJ10016	W	I1 or I3	3 or 4	130	55	90	29	42	24	105	30.5	14	14
CJ10020	W	I1 or I3	3 or 4	130	55	90	29	42	24	105	30.5	14	14
CJ12016	W	I1 or I3	3 or 4	130	55	90	39	42	24	105	30.5	14	14
CJ12715	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
CJ12716	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
CJ12718	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
CJ12720	W	I1 or I3	3 or 4	130	55	90	42.5	42	24	105	30.5	14	14
CJ14015	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
CJ14016	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
CJ14018	W	I1 or I3	3 or 4	130	55	90	49	42	24	105	30.5	14	14
CJ15016	W	I1 or I3	3 or 4	130	55	90	54	42	24	105	30.5	14	14
CJ15020	W	I1 or I3	3 or 4	130	55	90	54	42	24	105	30.5	14	14
CJ15515	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
CJ15516	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
CJ15518	P	I5 or I6	3 or 4	140	55	130	47	61	34.5	115	30.5	14	14
CJ16515	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
CJ16516	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
CJ16518	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
CJ16520	P	I5 or I6	3 or 4	140	55	130	52	61	34.5	115	30.5	14	14
CJ17015	P	I5 or I6	3 or 4	140	55	130	54.5	61	34.5	115	30.5	14	14
CJ17016	P	I5 or I6	3 or 4	140	55	130	54.5	61	34.5	115	30.5	14	14
CJ17018	P	I5 or I6	3 or 4	140	55	130	54.5	61	34.5	115	30.5	14	14
CJ18016	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
CJ18018	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
CJ18020	P	I5 or I6	3 or 4	140	55	130	59.5	61	34.5	115	30.5	14	14
CJ18515	P	I5 or I6	3 or 4	140	55	130	62	61	34.5	115	30.5	14	14
CJ18516	P	I5 or I6	3 or 4	140	55	130	62	61	34.5	115	30.5	14	14
CJ18518	P	I5 or I6	3 or 4	140	55	130	62	61	34.5	115	30.5	14	14
CJ18520	P	I5 or I6	3 or 4	140	55	130	62	61	34.5	115	30.5	14	14
CJ20015	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
CJ20016	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
CJ20018	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
CJ20020	Y	I2 or I4	3 or 4	140	55	130	60	80	25	115	30.5	18	18
CJ22015	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
CJ22016	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
CJ22018	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
CJ22020	Y	I2 or I4	3 or 4	140	55	130	70	80	25	115	30.5	18	18
CJ24020	Y	I2 or I4	3 or 4	140	55	130	80	80	25	115	30.5	18	18

Load Tables (see notes page 11)

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
CJ10016	250	10.88	7.04	4.92	3.63	2.78	2.19	1.76	1.44	1.18
	360	7.75	5.03	3.53	2.61	2.00	1.57	1.26	1.02	0.84
CJ10020	250	11.81	8.58	5.98	4.40	3.36	2.64	2.11	1.72	1.41
	360	9.42	6.09	4.26	3.13	2.39	1.87	1.49	1.20	0.98
CJ12016	250	11.82	10.40	7.26	5.35	4.09	3.22	2.59	2.12	1.76
	360	11.40	7.36	5.15	3.80	2.90	2.28	1.83	1.49	1.23
CJ12715	250	11.82	11.09	7.74	5.70	4.36	3.44	2.77	2.27	1.88
	360	11.82	7.84	5.48	4.04	3.09	2.44	1.96	1.60	1.32
CJ12716	250	11.82	11.78	8.21	6.04	4.62	3.64	2.93	2.40	1.99
	360	11.82	8.32	5.81	4.28	3.27	2.57	2.07	1.68	1.39
CJ12718	250	11.81	11.79	9.15	6.73	5.14	4.05	3.25	2.66	2.20
	360	11.81	9.25	6.45	4.75	3.63	2.85	2.28	1.86	1.53
CJ12720	250	11.80	11.78	10.07	7.40	5.65	4.44	3.57	2.91	2.41
	360	11.80	10.18	7.09	5.21	3.98	3.12	2.50	2.03	1.66
CJ14015	250	11.82	11.80	9.58	7.05	5.39	4.25	3.43	2.81	2.33
	360	11.82	9.68	6.76	4.98	3.81	3.00	2.41	1.97	1.63
CJ14016	250	11.81	11.80	10.17	7.48	5.72	4.51	3.63	2.98	2.47
	360	11.81	10.28	7.17	5.28	4.04	3.17	2.55	2.08	1.72
CJ14018	250	11.81	11.79	11.35	8.34	6.38	5.02	4.04	3.31	2.74
	360	11.81	11.46	7.98	5.87	4.48	3.52	2.83	2.30	1.90
CJ15016	250	11.81	11.80	11.78	8.72	6.67	5.26	4.23	3.47	2.89
	360	11.81	11.80	8.34	6.14	4.69	3.69	2.97	2.42	2.01
CJ15020	250	11.80	11.78	11.76	10.73	8.20	6.45	5.19	4.25	3.53
	360	11.80	11.78	10.24	7.52	5.74	4.51	3.62	2.95	2.43
CJ15515	250	20.43	16.32	12.22	9.01	6.91	5.47	4.42	3.64	3.04
	360	19.14	12.37	8.65	6.39	4.91	3.88	3.14	2.58	2.15
CJ15516	250	22.40	17.89	12.97	9.56	7.34	5.79	4.68	3.85	3.21
	360	20.33	13.12	9.18	6.77	5.20	4.11	3.32	2.72	2.26
CJ15518	250	26.25	20.76	14.47	10.66	8.17	6.45	5.20	4.28	3.56
	360	22.68	14.62	10.21	7.53	5.77	4.55	3.67	3.01	2.50
CJ16515	250	21.75	17.37	14.03	10.34	7.93	6.27	5.07	4.17	3.48
	360	21.75	14.18	9.91	7.32	5.62	4.44	3.59	2.95	2.45
CJ16516	250	23.88	19.07	14.90	10.98	8.42	6.65	5.37	4.42	3.69
	360	23.35	15.06	10.52	7.76	5.95	4.70	3.79	3.12	2.59
CJ16518	250	26.49	22.39	16.64	12.25	9.38	7.41	5.98	4.92	4.10
	360	26.07	16.79	11.72	8.63	6.61	5.22	4.21	3.45	2.87
CJ16520	250	26.48	25.56	18.35	13.50	10.34	8.15	6.58	5.40	4.50
	360	26.48	18.51	12.90	9.50	7.27	5.73	4.62	3.78	3.14
CJ17015	250	22.42	17.90	14.89	11.05	8.47	6.69	5.41	4.46	3.72
	360	22.42	15.14	10.58	7.81	5.99	4.73	3.82	3.14	2.62
CJ17016	250	24.62	19.66	15.93	11.74	9.00	7.10	5.74	4.72	3.94
	360	24.62	16.08	11.23	8.28	6.35	5.01	4.05	3.32	2.77
CJ17018	250	26.49	23.10	17.80	13.10	10.03	7.92	6.39	5.26	4.38
	360	26.49	17.95	12.52	9.22	7.06	5.57	4.49	3.69	3.06
CJ18016	250	26.08	20.83	17.33	13.34	10.22	8.07	6.53	5.37	4.49
	360	26.08	18.27	12.75	9.39	7.20	5.69	4.59	3.77	3.14
CJ18018	250	26.48	24.52	20.25	14.90	11.41	9.01	7.27	5.98	4.99
	360	26.48	20.41	14.23	10.47	8.02	6.33	5.10	4.19	3.48
CJ18020	250	26.48	26.45	22.36	16.44	12.59	9.93	8.01	6.59	5.49
	360	26.48	22.52	15.68	11.54	8.83	6.96	5.61	4.60	3.82
CJ18515	250	21.46	19.46	16.19	13.35	10.23	8.08	6.54	5.38	4.50
	360	21.46	18.28	12.76	9.40	7.21	5.69	4.60	3.78	3.15
CJ18516	250	26.25	21.41	17.81	14.19	10.87	8.59	6.94	5.71	4.77
	360	26.25	19.43	13.55	9.98	7.65	6.04	4.88	4.01	3.34
CJ18518	250	26.48	25.23	20.98	15.86	12.14	9.58	7.74	6.37	5.31
	360	26.48	21.71	15.13	11.14	8.53	6.72	5.42	4.45	3.71
CJ18520	250	26.47	26.45	23.81	17.50	13.40	10.56	8.53	7.01	5.85
	360	26.47	23.96	16.69	12.27	9.39	7.40	5.96	4.89	4.07
CJ20015	250	19.77	19.75	17.80	15.22	12.35	9.77	7.91	6.52	5.46
	360	19.77	19.75	15.39	11.36	8.72	6.90	5.59	4.60	3.85
CJ20016	250	24.19	23.54	19.58	16.75	13.12	10.38	8.40	6.92	5.79
	360	24.19	23.42	16.35	12.06	9.26	7.32	5.92	4.88	4.08
CJ20018	250	26.48	26.46	23.07	19.12	14.65	11.58	9.36	7.71	6.45
	360	26.48	26.16	18.25	13.45	10.31	8.15	6.58	5.42	4.52
CJ20020	250	26.47	26.45	26.42	21.10	16.16	12.76	10.32	8.50	7.10
	360	26.47	26.45	20.12	14.82	11.35	8.96	7.24	5.95	4.96
CJ22015	250	17.90	17.88	17.86	16.63	14.51	12.12	9.81	8.09	6.78
	360	17.90	17.88	17.86	14.07	10.79	8.53	6.91	5.69	4.76
CJ22016	250	21.89	21.87	21.44	18.34	16.01	12.89	10.43	8.60	7.20
	360	21.89	21.87	20.28	14.95	11.46	9.06	7.33	6.04	5.05
CJ22018	250	26.47	26.45	25.38	21.71	18.23	14.40	11.65	9.60	8.03
	360	26.47	26.45	22.67	16.69	12.79	10.10	8.17	6.72	5.61
CJ22020	250	26.46	26.44	26.41	24.97	20.13	15.89	12.85	10.58	8.85
	360	26.46	26.44	25.03	18.42	14.11	11.13	8.99	7.40	6.17
CJ24020	250	26.46	26.43	26.41	26.38	23.83	19.47	15.74	12.97	10.85
	360	26.46	26.43	26.41	22.53	17.25	13.61	11.00	9.05	7.56

L = SPAN

NOTE: TINTED AREAS INDICATES 4mm THICK CLEATS REQUIRED

C SECTIONS

The sections illustrated in this manual are manufactured from "S450" material. BS EN 10346 is the standard code of practice for the specification of hot dipped zinc coated steel strip for cold formed sections. The structural parameters can be defined as follows:

- Yield strength; $R_{eH} = 450 \text{ N/mm}^2$ guaranteed minimum value
- Tensile strength: $R_m = 510 \text{ N/mm}^2$ minimum value
- Elongation: Min = 14%

All other technical delivery conditions for the coating, surface finish, quality and treatment as defined in BS EN 10346 are satisfied, hence, the material reference is "S450GD+Z275" zinc coated steel, with a minimum guaranteed yield strength of 450 N/mm^2 .

TIE RODS

Mild steel hard drawn wire to BS1052 and zinc plated to BS EN 1461. Nuts and washers zinc plated to BS4320.

CLEATS

Either pre-hot dipped galvanised mild steel to BS EN 10346, 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, dependant upon availability.

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

NOTES:

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 6).
3. Tie rods are provided for spans greater than 2.5m as shown on Page 6.
4. When required, cleats are used as shown.
5. The imposed (live) load is evenly distributed.

Ayrshire operate a policy of continual product development. As such, we reserve the right to change design details and product specification without notification.



Follow us on Social Media



to keep up to date with our latest news & projects:

@Ayrshire Metals

Contact Us:

Ayrshire Metals Limited
Royal Oak Way
Daventry
NN11 8NR

Tel: +44 (0) 1327 300990
Email: sales@ayrshire.co.uk
www.ayrshire.co.uk



**LIGHT STEEL FRAME
ASSOCIATION**
MANUFACTURING MEMBER

