INTRODUCTION

As one of the most prominent and well respected names in the engineering and construction industry, Metsec plc is a company whose commitment to quality and development is unparalleled.
Established over 60 years ago, and pioneers in the development of the cold-roll forming process for producing metal profiles, Metsec has led the way ever since with continuous investment in the very latest technology which together with our unrivalled expertise has been the key to our success in bringing first class products to markets the world over.
The Building Products Division's search for new markets is relentless and has led to the development of fully integrated products and systems for use within the construction industry fully backed by a comprehensive technical expertise that provides innovative and cost effective solutions to meet specific customer requirements.

METSTRUT SERVICES SUPPORT SYSTEMS

The Metstrut system incorporates a comprehensive selection of channel sections in a variety of material specifications together with an extensive range of brackets and fasteners that meet stringent quality requirements to provide specifiers and end users with a flexible and versatile method of supporting building services.
This catalogue is designed to provide a technical guide for the structural use of the various channel sections supported by detailed load tables, and is also an easy reference for the selection of the appropriate brackets and fasteners to complete the system. This is further backed by our technical department and our friendly sales office staff who are only too pleased to offer advice and provide competitive quotations.
Please forward all enquiries to:-

Metsec Building Products Ltd
Metstrut Division
Broadwell Road
Oldbury
West Midlands B69 4HE
Tel 0121 552 1541
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Hot Line Order Number
Tel 0121 552 0800

Certificate No. FM 32175

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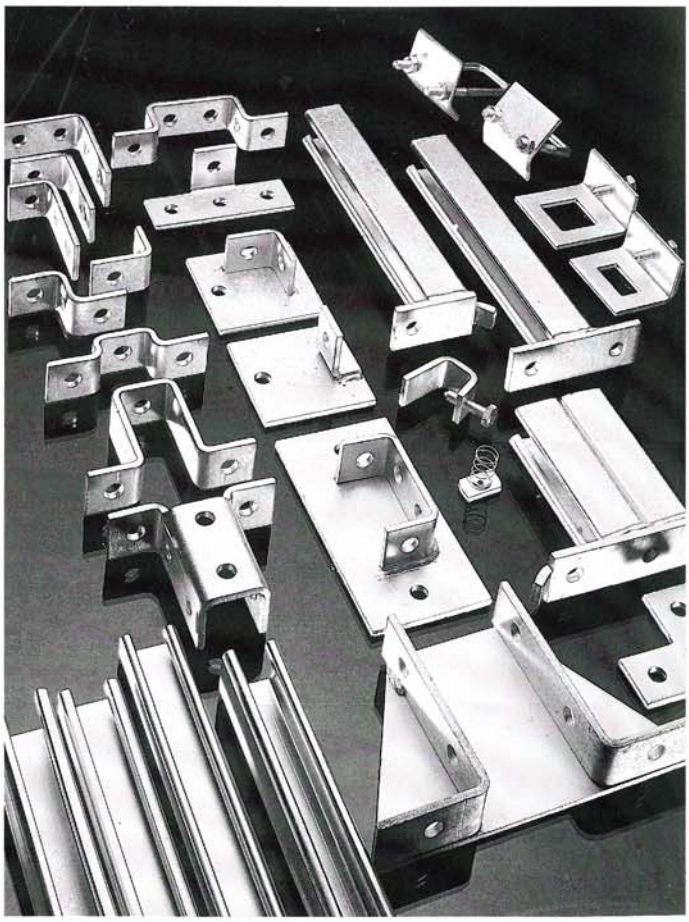


1 MATERIAL SPECIFICATION

1.1. **CHANNELS** :- Manufactured from steel complying with **BS1449** or **BS2989** (pre-zinc coated)
1.2. **BRACKETS** :- Manufactured from steel complying with **BS970**, **BS1449** or **BS4360** Zinc coated after manufacture to **BS729** or **BS1706**.
1.3. **FIXINGS** :- Bolts, hexagon nuts, screws and washers manufactured from steel complying with **BS3692**, **BS970**, Grade A4 of **BS6105** or **BS4190**
Protective coating complying with **BS1706** or **BS3382**

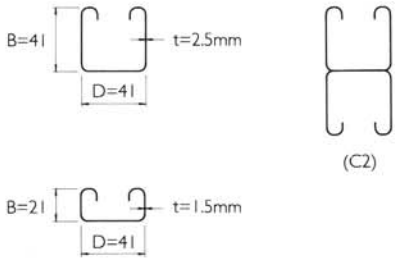
2 DIMENSIONS AND TOLERANCES

In accordance with **BS6946: 1988 "Metal channel cable support systems for electrical installations"**.

3 CHANNEL NOTATION

METSEC channel references are serialised for easy recognition and use.
eg. channel series **MS414125** comprises single channel or combinations of channel within the basic section profile thus:-

	MS	**41**	**41**	**25**	**(C2)**
	Metsec Standard Prefix	Channel Flange (B)	Channel Web (D)	Signifies Material Thickness eg. 2.5 or 1.5mm	Suffix (combinations using 2-No. standard sections in this example)
OR	**MS**	**41**	**21**	**15**	

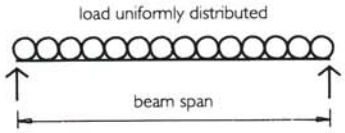


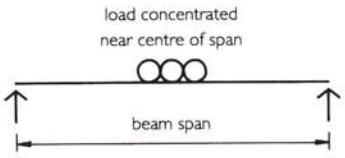
4 LOAD TABLES

4.1. **Comprehensive load tables** are provided for each channel series:-
MS414125 Series - Pages 4 & 5
MS414115 Series - Pages 6 & 7
MS412125 Series - Pages 8 & 9
MS412115 Series - Pages 10 & 11
Slotted Sections - Pages 12 & 13

4.2. **Basis of Design and Formulation of Load Tables:-**
4.2.1. Safe loads calculated in accordance with **BS5950: Part 5: 1987** - Code of Practice for design of Cold Formed Sections.
4.2.2. Minimum Yield Stress (Ys) **280 N/mm²** (≯ 28 Material)
4.2.3. Beams assumed simply supported and provided with adequate lateral restraint over the given span.
4.2.4. Beam loads are applied through the shear centre of the section in the direction indicated in the tables.
4.2.5. Alternative beam safe load tables are provided for a uniformly distributed load or load concentrated near the centre of the span.

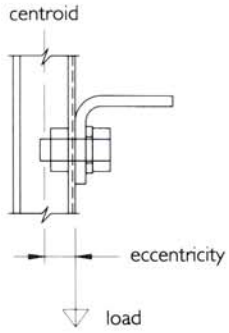
eg.





4.2.6. Beam loads and corresponding deflections are calculated at a stress of **175 N/mm²**. ie. using a global factor of safety of **1.6** to determine safe working loads from limit state analysis (ultimate stress ÷ 1.6 = 175N/mm²).
Beam safe loads tabulated with corresponding deflections may be used in the rare case where excessive deflection does not impair the strength or efficiency of the structure or its components or cause damage to the supported work.
Alternative safe loads are tabulated with deflections limited to **span/200** or **span/360** at the discretion of the designer and recommended where deflections are critical. It is easily recognisable from the tables whether the design of the beam is governed by deflection or stress on a given span. ie. the critical load is highlighted in colour.
4.2.7. **Column effective lengths** shall be determined by the designer in accordance with **Table 9 of BS5950: Part 5: 1987**.
4.2.8. Beam loads are generally applied at the column face via the connection bracket. Therefore column safe load tables are provided allowing for this eccentricity of load from the centroid of the section.

eg.



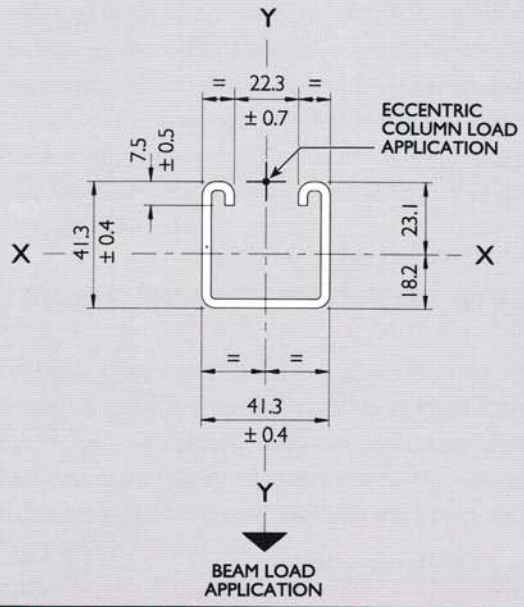
4.3. **Alternative Combinations**:-
For safe loads on alternative combinations not tabulated please refer to Metsec Technical Dept.
4.4. **Stainless Steel**:- The mechanical properties of stainless steel are significantly different from those of carbon steel and safe load tables must not be used for sections in this material. Please consult Metsec Technical Dept. for advice.

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
3.39	2.67	7.32	3.17	4.03	1.47	9.34	4.52	1.66

MS.414125

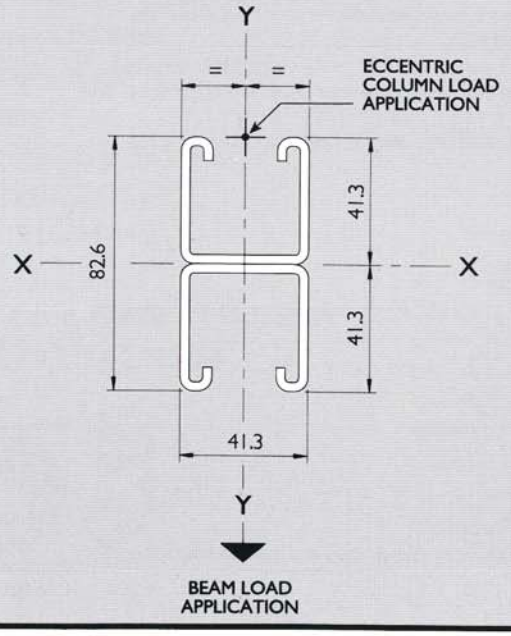
2.5mm UNIFORM THICKNESS.
DIMENSIONS IN ACCORDANCE WITH
BS 6946 : 1988



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
6.78	5.34	37.2	9.01	9.01	2.34	18.68	9.05	1.66

MS.414125-C2

COMBINATION COMPRISING 2- No. MS. 414125



SAFE LOAD TABLES

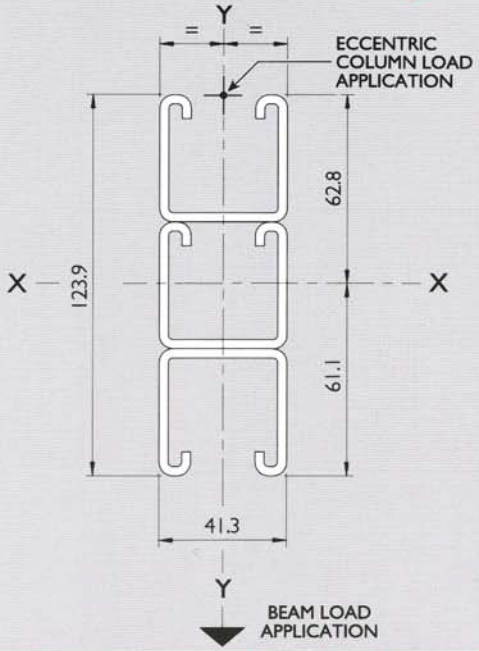
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	4388	0.04	4388	4388	2262	0.02	2262	2262	6045	1739
0.2	2262	0.16	2262	2262	1131	0.10	1131	1131	6018	1726
0.3	1508	0.35	1508	1508	754	0.21	754	754	5866	1695
0.4	1131	0.62	1131	1131	566	0.38	566	566	5690	1658
0.5	905	0.96	905	905	452	0.60	452	452	5468	1612
0.6	754	1.39	754	754	377	0.87	377	377	5176	1557
0.7	646	1.88	646	646	324	1.18	324	324	4818	1496
0.8	566	2.46	566	510	283	1.55	283	283	4371	1424
0.9	503	3.11	503	403	252	1.95	252	252	3928	1351
1.0	452	3.85	452	327	226	2.41	226	204	3512	1280
1.1	411	4.66	411	270	206	2.91	206	169	3146	1211
1.2	377	5.54	377	227	189	3.46	189	142	2801	1142
1.3	348	6.51	348	193	175	4.07	175	121	2541	1084
1.4	324	7.54	300	167	162	4.72	162	104	2323	1033
1.5	301	8.66	261	145	151	5.41	151	91	2112	980
1.6	282	9.86	230	128	141	6.16	141	80	1961	939
1.7	267	11.12	203	113	133	6.96	127	71	1807	895
1.8	251	12.47	181	101	125	7.80	113	63	1675	855
1.9	239	13.89	163	91	120	8.68	102	57	1586	827
2.0	226	15.39	147	82	113	9.62	92	51	1486	795
2.1	215	16.97	133	74	108	10.61	83	46	1378	758
2.2	206	18.63	121	68	103	11.64	76	42	1304	731
2.3	197	20.36	111	62	99	12.72	69	39	1239	707
2.4	188	22.16	102	57	94	13.85	64	35		
2.5	181	24.06	94	52	91	15.04	59	33		
2.6	174	26.02	87	49	87	16.26	54	30	$\propto \frac{Le}{rxx} > 180$	
2.7	168	28.06	81	45	84	17.54	50	28		
2.8	161	30.17	75	42	81	18.86	47	26		
2.9	156	32.37	70	39	78	20.23	44	24		
3.0	151	34.63	65	37	76	21.65	41	23		
0.1	8776	0.01	8776	8776	6429	0.01	6429	6429	12091	2943
0.2	6429	0.09	6429	6429	3215	0.06	3215	3215	12091	2940
0.3	4286	0.19	4286	4286	2143	0.12	2143	2143	12091	2936
0.4	3215	0.35	3215	3215	1607	0.22	1607	1607	11985	2924
0.5	2572	0.54	2572	2572	1286	0.34	1286	1286	11819	2907
0.6	2143	0.77	2143	2143	1072	0.48	1072	1072	11636	2886
0.7	1837	1.05	1837	1837	918	0.66	918	918	11431	2863
0.8	1607	1.38	1607	1607	804	0.86	804	804	11193	2836
0.9	1429	1.75	1429	1429	714	1.09	714	714	10912	2805
1.0	1286	2.15	1286	1286	643	1.34	643	643	10574	2769
1.1	1169	2.61	1169	1169	584	1.63	584	584	10168	2726
1.2	1072	3.10	1072	1072	536	1.94	536	536	9685	2675
1.3	989	3.64	989	981	495	2.28	495	495	9129	2616
1.4	918	4.22	918	846	459	2.64	459	459	8518	2549
1.5	857	4.85	857	737	429	3.03	429	429	7882	2476
1.6	804	5.51	804	648	402	3.44	402	402	7253	2397
1.7	756	6.23	756	574	378	3.89	378	359	6653	2316
1.8	714	6.98	714	512	357	4.36	357	320	6096	2233
1.9	677	7.77	677	459	338	4.86	338	287	5588	2151
2.0	643	8.61	643	415	321	5.38	321	259	5129	2070
2.1	612	9.50	612	376	306	5.94	306	235	4717	1991
2.2	584	10.43	584	343	292	6.52	292	214	4347	1915
2.3	559	11.39	559	314	280	7.12	280	196	4016	1840
2.4	536	12.40	518	288	268	7.75	268	180	3718	1769
2.5	514	13.46	478	265	257	8.41	257	166	3451	1701
2.6	495	14.56	442	245	247	9.10	247	153	3210	1635
2.7	476	15.70	410	228	238	9.81	238	142	2993	1572
2.8	459	16.88	381	212	230	10.55	230	132	2797	1512
2.9	443	18.11	355	197	222	11.32	222	123	2619	1454
3.0	429	19.38	332	184	214	12.11	207	115	$\propto Le/ryy > 180$	

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
10.17	8.01	124.63	19.86	20.38	3.50	28.02	13.57	1.66

MS.414125-C3

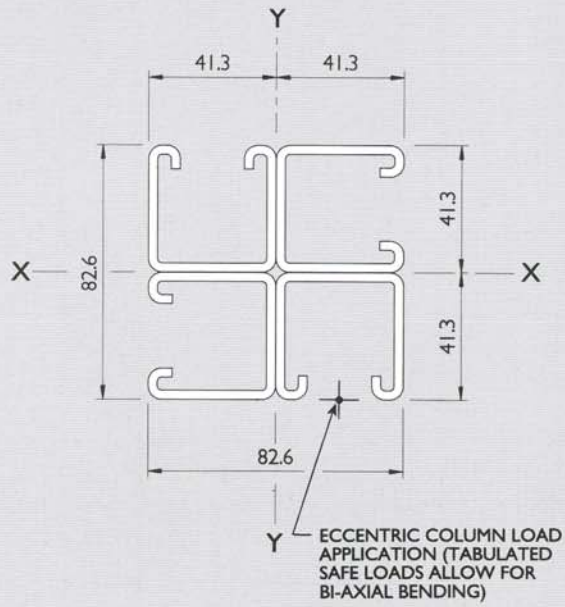
COMBINATION COMPRISING 3- No. MS.414125



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
13.56	10.68	84.79	20.53	20.53	2.5	84.79	20.53	2.5

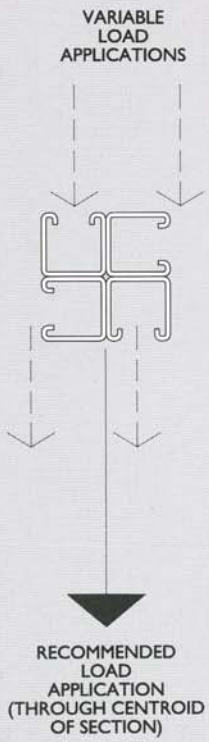
MS.414125-C4

COMBINATION COMPRISING 4- No. MS.414125



SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Def.	Uniformly Distributed Load: Load (kg) Deflection limited to span/200	Uniformly Distributed Load: Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Def.	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/200	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Safe Column Load (kg): Load applied at face of section
0.1	13164	0.01	13164	13164	13164	0.01	13164	13164	18137	4299
0.2	13164	0.05	13164	13164	7086	0.03	7086	7086	18137	4299
0.3	9448	0.13	9448	9448	4724	0.08	4724	4724	18137	4297
0.4	7086	0.23	7086	7086	3543	0.14	3543	3543	17948	4283
0.5	5669	0.35	5669	5669	2834	0.22	2834	2834	17702	4264
0.6	4724	0.51	4724	4724	2362	0.32	2362	2362	17437	4243
0.7	4049	0.69	4049	4049	2025	0.43	2025	2025	17123	4217
0.8	3543	0.91	3543	3543	1771	0.57	1771	1771	16758	4187
0.9	3149	1.15	3149	3149	1575	0.72	1575	1575	16367	4155
1.0	2834	1.42	2834	2834	1417	0.89	1417	1417	15861	4112
1.1	2577	1.71	2577	2577	1288	1.07	1288	1288	15252	4061
1.2	2362	2.04	2362	2362	1181	1.28	1181	1181	14527	3998
1.3	2180	2.39	2180	2180	1090	1.50	1090	1090	13693	3922
1.4	2025	2.78	2025	2025	1012	1.74	1012	1012	12777	3834
1.5	1890	3.19	1890	1890	945	1.99	945	945	11823	3734
1.6	1771	3.63	1771	1771	886	2.27	886	886	10879	3626
1.7	1667	4.10	1667	1667	834	2.56	834	834	9979	3512
1.8	1575	4.59	1575	1575	787	2.87	787	787	9144	3395
1.9	1492	5.12	1492	1492	746	3.20	746	746	8382	3278
2.0	1417	5.67	1417	1389	709	3.54	709	709	7694	3161
2.1	1350	6.25	1350	1260	675	3.91	675	675	7075	3045
2.2	1288	6.86	1288	1148	644	4.29	644	644	6521	2933
2.3	1232	7.50	1232	1050	616	4.68	616	616	6023	2823
2.4	1181	8.16	1181	965	590	5.10	590	590	5577	2717
2.5	1134	8.86	1134	889	567	5.54	567	556	5177	2615
2.6	1090	9.58	1090	822	545	5.99	545	514	4816	2516
2.7	1050	10.33	1050	762	525	6.46	525	476	4490	2421
2.8	1012	11.11	1012	709	506	6.94	506	443	4195	2330
2.9	977	11.92	977	661	489	7.45	489	413	3928	2243
3.0	945	12.75	945	617	472	7.97	472	386	$\propto Le/ryy > 180$	
0.1									24182	4748
0.2									24182	4740
0.3									24182	4728
0.4									23949	4703
0.5									23633	4671
0.6									23297	4635
0.7									22935	4596
0.8									22562	4555
0.9									22125	4509
1.0									21680	4463
1.1									21198	4416
1.2									20682	4367
1.3									20137	4317
1.4									19572	4267
1.5									18999	4216
1.6									18431	4167
1.7									17881	4119
1.8									17211	4042
1.9									16718	4000
2.0									16270	3961
2.1									15872	3920
2.2									15340	3878
2.3									15039	3844
2.4									14591	3786
2.5									13783	3704
2.6									13009	3622
2.7									12275	3540
2.8									11585	3458
2.9									10938	3377
3.0									10334	3297



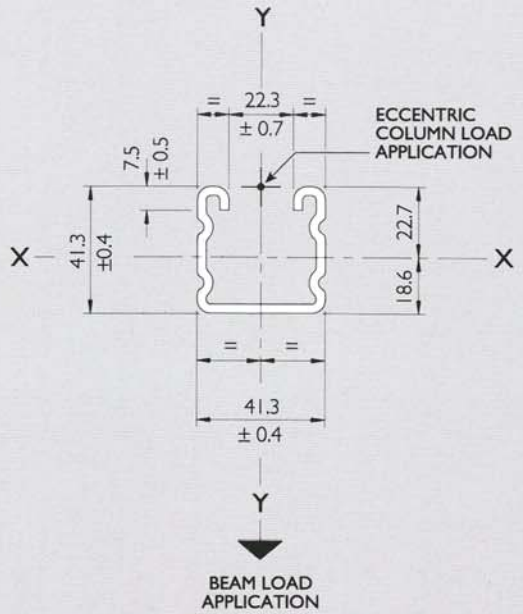
NB:- Section reference MS.414125-C4 when utilised as a beam may be subject to variable load applications outside the shear centre. This will produce combined bending and torsion. Wherever possible with this section the effects of torsion should be avoided by ensuring that loads are applied through the shear centre or by providing adequate restraints designed to resist twisting of the section.
It is recommended that section ref. MS414125-C3 is used as an economical alternative.
Please refer to Metsec Technical Dept. for further advice if required.

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
2.14	1.69	4.99	2.20	2.68	1.53	6.14	2.97	1.69

MS.414115

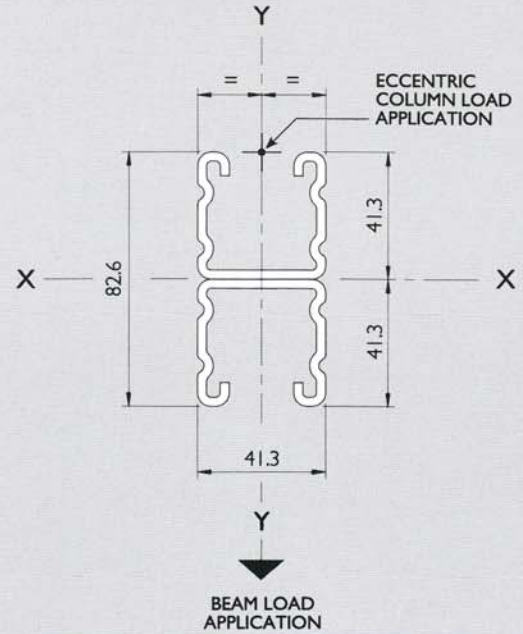
1.5mm UNIFORM THICKNESS.



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
4.29	3.38	24.82	6.01	6.01	2.41	12.27	5.94	1.69

MS.414115-C2

COMBINATION COMPRISING 2- No. MS. 414115



SAFE LOAD TABLES

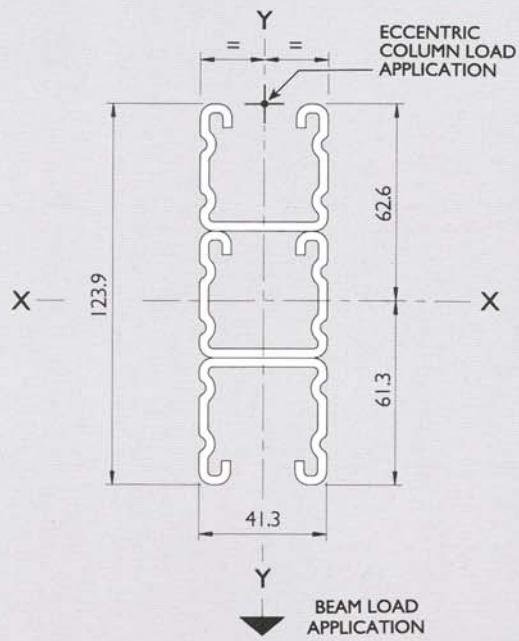
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Def.	Uniformly Distributed Load: Load (kg) Deflection limited to span/200	Uniformly Distributed Load: Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Def.	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/200	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Safe Column Load (kg): Load applied at face of section
0.1	2632	0.03	2632	2632	1569	0.02	1569	1569	3823	1187
0.2	1568	0.16	1568	1568	784	0.10	784	784	3814	1179
0.3	1046	0.35	1046	1046	523	0.22	523	523	3723	1159
0.4	784	0.63	784	784	392	0.39	392	392	3617	1133
0.5	627	0.98	627	627	314	0.61	314	314	3478	1100
0.6	523	1.41	523	523	261	0.88	261	261	3297	1061
0.7	448	1.92	448	448	224	1.20	224	224	3057	1015
0.8	392	2.51	392	348	196	1.57	196	196	2743	957
0.9	349	3.17	349	275	174	1.98	174	172	2418	897
1.0	314	3.92	314	222	157	2.45	157	139	2109	836
1.1	285	4.74	285	184	143	2.96	143	115	1857	782
1.2	261	5.64	261	154	131	3.53	131	97	1625	727
1.3	241	6.62	237	132	121	4.14	121	82	1432	677
1.4	224	7.68	204	114	112	4.80	112	71	1270	631
1.5	209	8.81	178	99	105	5.51	105	62	1148	594
1.6	196	10.03	156	87	98	6.27	98	54	1033	556
1.7	185	11.32	139	77	92	7.07	87	48	934	522
1.8	174	12.69	124	69	87	7.93	77	43	862	495
1.9	165	14.14	111	62	83	8.84	69	39	788	466
2.0	157	15.67	100	56	78	9.79	63	35	$\frac{\alpha Le}{rxx} > 180$	
2.1	149	17.27	91	50	75	10.80	57	32		
2.2	143	18.96	83	46	71	11.85	52	29		
2.3	136	20.72	76	42	68	12.95	47	26		
2.4	131	22.56	70	39	65	14.10	43	24		
2.5	125	24.48	64	36	63	15.30	40	22		
2.6	121	26.48	59	33	60	16.55	37	21		
2.7	116	28.55	55	31	58	17.85	34	19		
2.8	112	30.71	51	28	56	19.19	32	18		
2.9	108	32.94	48	26	54	20.59	30	17		
3.0	105	35.25	44	25	52	22.03	28	15		
0.1	5264	0.01	5264	5264	4288	0.01	4288	4288	7644	1937
0.2	4288	0.09	4288	4288	2144	0.05	2144	2144	7644	1936
0.3	2859	0.19	2859	2859	1429	0.12	1429	1429	7644	1933
0.4	2144	0.34	2144	2144	1072	0.22	1072	1072	7584	1925
0.5	1715	0.54	1715	1715	858	0.34	858	858	7482	1914
0.6	1429	0.78	1429	1429	715	0.48	715	715	7370	1901
0.7	1225	1.06	1225	1225	613	0.66	613	613	7245	1886
0.8	1072	1.38	1072	1072	536	0.86	536	536	7100	1868
0.9	953	1.74	953	953	476	1.09	476	476	6931	1848
1.0	858	2.15	858	858	429	1.35	429	429	6729	1825
1.1	780	2.61	780	780	390	1.63	390	390	6486	1797
1.2	715	3.10	715	715	357	1.94	357	357	6197	1765
1.3	660	3.64	660	655	330	2.27	330	330	5862	1727
1.4	613	4.22	613	565	306	2.64	306	306	5490	1684
1.5	572	4.84	572	492	286	3.03	286	286	5099	1636
1.6	536	5.51	536	432	268	3.44	268	268	4705	1585
1.7	505	6.22	505	383	252	3.89	252	239	4326	1532
1.8	476	6.98	476	342	238	4.36	238	213	3971	1478
1.9	451	7.77	451	307	226	4.86	226	192	3646	1423
2.0	429	8.61	429	277	214	5.38	214	173	3350	1370
2.1	408	9.50	408	251	204	5.93	204	157	3083	1318
2.2	390	10.42	390	229	195	6.51	195	143	2843	1267
2.3	373	11.39	373	209	186	7.12	186	131	2628	1218
2.4	357	12.40	346	192	179	7.75	179	120	2434	1170
2.5	343	13.46	319	177	172	8.41	172	111	2260	1125
2.6	330	14.55	295	164	165	9.10	165	102	2103	1081
2.7	318	15.70	273	152	159	9.81	159	95	1961	1040
2.8	306	16.88	254	141	153	10.55	153	88	1833	1000
2.9	296	18.11	237	132	148	11.32	148	82	1717	962
3.0	286	19.38	221	123	143	12.11	138	77	1611	925

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
6.43	5.07	81.08	12.95	13.23	3.55	18.41	8.91	1.69

MS.414115-C3

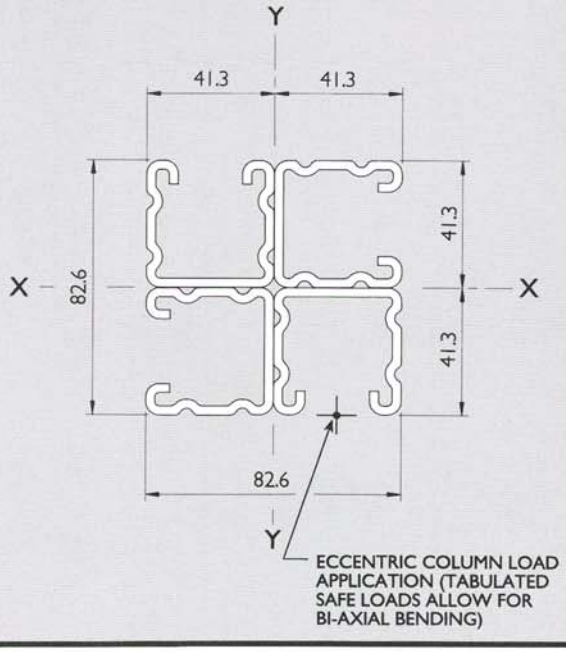
COMBINATION COMPRISING 3- No. MS.414115



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
8.57	6.76	55.37	13.41	13.41	2.54	55.37	13.41	2.54

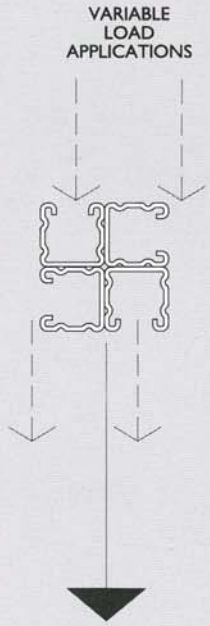
MS.414115-C4

COMBINATION COMPRISING 4- No. MS.414115



SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	7896	0.01	7896	7896	7896	0.01	7896	7896	11467	2788
0.2	7896	0.05	7896	7896	4619	0.04	4619	4619	11467	2788
0.3	6158	0.13	6158	6158	3079	0.08	3079	3079	11467	2787
0.4	4619	0.23	4619	4619	2309	0.14	2309	2309	11353	2778
0.5	3695	0.35	3695	3695	1848	0.22	1848	1848	11208	2767
0.6	3079	0.51	3079	3079	1540	0.32	1540	1540	11045	2753
0.7	2639	0.70	2639	2639	1320	0.43	1320	1320	10854	2736
0.8	2309	0.91	2309	2309	1155	0.57	1155	1155	10633	2717
0.9	2053	1.15	2053	2053	1026	0.72	1026	1026	10372	2694
1.0	1847	1.42	1847	1847	924	0.89	924	924	10094	2670
1.1	1680	1.72	1680	1680	840	1.07	840	840	9729	2637
1.2	1540	2.04	1540	1540	770	1.28	770	770	9296	2598
1.3	1421	2.40	1421	1421	711	1.50	711	711	8794	2551
1.4	1320	2.78	1320	1320	660	1.74	660	660	8236	2496
1.5	1232	3.19	1232	1232	616	2.00	616	616	7648	2433
1.6	1155	3.63	1155	1155	577	2.27	577	577	7058	2364
1.7	1087	4.10	1087	1087	543	2.56	543	543	6490	2292
1.8	1026	4.60	1026	1026	513	2.88	513	513	5957	2217
1.9	972	5.13	972	972	486	3.20	486	486	5468	2141
2.0	924	5.68	924	904	462	3.55	462	462	5025	2065
2.1	880	6.26	880	820	440	3.91	440	440	4625	1991
2.2	840	6.87	840	747	420	4.29	420	420	4265	1918
2.3	803	7.51	803	683	402	4.69	402	402	3942	1847
2.4	770	8.18	770	628	385	5.11	385	385	3652	1777
2.5	739	8.87	739	578	370	5.55	370	361	3390	1711
2.6	711	9.60	711	535	355	6.00	355	334	3155	1646
2.7	684	10.35	684	496	342	6.47	342	310	2942	1585
2.8	660	11.13	660	461	330	6.96	330	288	2750	1525
2.9	637	11.94	637	430	319	7.46	319	269	2575	1468
3.0	616	12.78	616	402	308	7.99	308	251	2416	1414
0.1									15290	3081
0.2									15290	3076
0.3									15290	3069
0.4									15192	3056
0.5									14995	3035
0.6									14791	3013
0.7									14555	2986
0.8									14303	2957
0.9									14017	2925
1.0									13689	2890
1.1									13310	2851
1.2									12873	2809
1.3									12376	2762
1.4									11887	2717
1.5									11300	2664
1.6									10686	2608
1.7									10066	2549
1.8									9552	2499
1.9									8973	2439
2.0									8523	2391
2.1									8014	2333
2.2									7639	2288
2.3									7204	2233
2.4									6898	2193
2.5									6530	2142
2.6									6283	2106
2.7									6060	2072
2.8									5861	2041
2.9									5595	1999
3.0									5435	1971



NB:- Section reference MS.414115-C4 when utilised as a beam may be subject to variable load applications outside the shear centre. This will produce combined bending and torsion. Wherever possible with this section the effects of torsion should be avoided by ensuring that loads are applied through the shear centre or by providing adequate restraints designed to resist twisting of the section.

It is recommended that section ref. MS414115-C3 is used as an economical alternative.

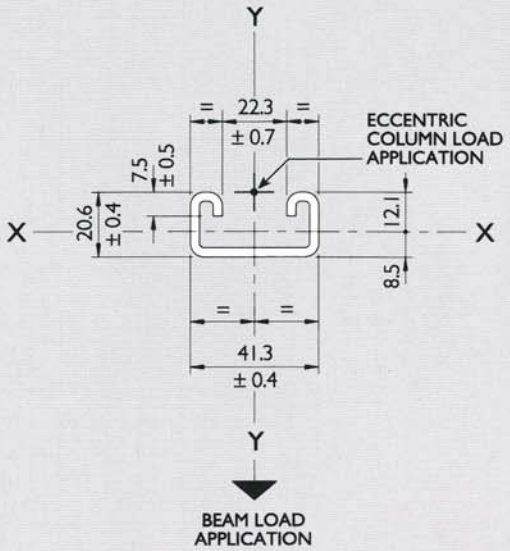
Please refer to Metsec Technical Dept. for further advice if required.

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
2.35	1.85	1.21	1.00	1.43	0.72	5.44	2.63	1.52

MS.412125

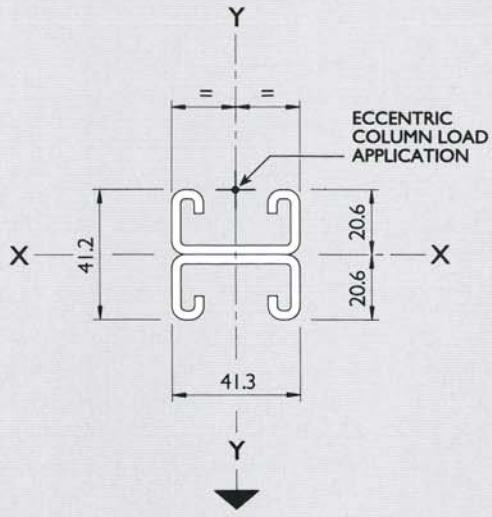
2.5mm UNIFORM THICKNESS.
DIMENSIONS IN ACCORDANCE WITH BS 6946 : 1988



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
4.71	3.70	5.78	2.81	2.81	1.11	10.88	5.27	1.52

MS.412125-C2

COMBINATION COMPRISING 2- No. MS. 412125



SAFE LOAD TABLES

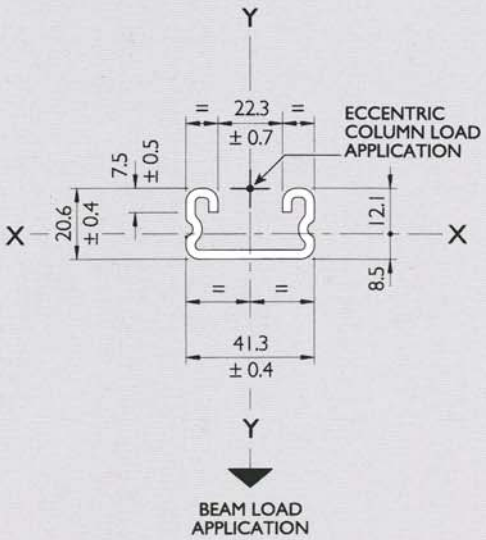
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	1420	0.07	1420	1420	710	0.05	710	710	4199	1084
0.2	710	0.29	710	710	355	0.18	355	355	4126	1068
0.3	473	0.66	473	473	237	0.41	237	237	3973	1042
0.4	355	1.17	355	336	177	0.73	177	177	3760	1005
0.5	284	1.83	284	215	142	1.14	142	135	3436	957
0.6	237	2.64	237	150	118	1.65	118	93	2978	894
0.7	203	3.59	198	110	101	2.24	101	69	2471	821
0.8	177	4.68	151	84	89	2.93	89	53	2019	747
0.9	158	5.94	120	66	79	3.71	75	42	1657	677
1.0	142	7.33	97	54	71	4.58	61	34	1375	613
1.1	129	8.87	80	44	65	5.54	50	28	1156	556
1.2	118	10.55	67	37	59	6.59	42	23	984	505
1.3	109	12.38	57	32	55	7.74	36	20		
1.4	101	14.36	49	27	51	8.98	31	17		
1.5	95	16.49	43	24	47	10.30	27	15		
1.6	89	18.76	38	21	44	11.72	24	13		
1.7	84	21.18	34	19	42	13.24	21	12		
1.8	79	23.74	30	17	39	14.84	19	10		
1.9	75	26.45	27	15	37	16.53	17	9		
2.0	71	29.31	24	13	35	18.32	15	8	$\frac{\alpha Le}{rxx} > 180$	
2.1	68	32.31	22	12	34	20.20	14	8		
2.2	65	35.46	20	11	32	22.17	13	7		
2.3	62	38.76	18	10	31	24.23	11	6		
2.4	59	42.20	17	9	30	26.38	11	6		
2.5	57	45.80	16	9	28	28.62	10	5		
2.6	55	49.53	14	8	27	30.96	9	5		
2.7	53	53.42	13	7	26	33.39	8	5		
2.8	51	57.45	12	7	25	35.90	8	4		
2.9	49	61.62	12	6	24	38.51	7	4		
3.0	47	65.95	11	6	24	41.22	7	4		
0.1	4004	0.04	4004	4004	2002	0.03	2002	2002	8399	1882
0.2	2002	0.17	2002	2002	1001	0.11	1001	1001	8399	1876
0.3	1335	0.39	1335	1335	667	0.24	667	667	8269	1858
0.4	1001	0.69	1001	1001	501	0.43	501	501	8084	1833
0.5	801	1.08	801	801	400	0.67	400	400	7862	1802
0.6	667	1.55	667	667	334	0.97	334	334	7582	1765
0.7	572	2.11	572	526	286	1.32	286	286	7214	1720
0.8	501	2.76	501	403	250	1.73	250	250	6733	1665
0.9	445	3.50	445	318	222	2.19	222	199	6140	1601
1.0	400	4.32	400	258	200	2.70	200	161	5484	1528
1.1	364	5.22	364	213	182	3.26	182	133	4835	1451
1.2	334	6.22	322	179	167	3.88	167	112	4243	1372
1.3	308	7.29	274	152	154	4.56	154	95	3726	1295
1.4	286	8.46	237	131	143	5.29	143	82	3284	1221
1.5	267	9.71	206	115	133	6.07	129	72	2908	1150
1.6	250	11.05	181	101	125	6.91	113	63	2589	1084
1.7	236	12.47	161	89	118	7.80	100	56	2317	1022
1.8	222	13.98	143	80	111	8.74	89	50	2084	964
1.9	211	15.58	129	71	105	9.74	80	45	1884	910
2.0	200	17.26	116	64	100	10.79	72	40		
2.1	191	19.03	105	58	95	11.90	66	37		
2.2	182	20.89	96	53	91	13.06	60	33		
2.3	174	22.83	88	49	87	14.27	55	30		
2.4	167	24.86	81	45	83	15.54	50	28		
2.5	160	26.98	74	41	80	16.86	46	26	$\frac{\alpha Le}{rxx} > 180$	
2.6	154	29.18	69	38	77	18.24	43	24		
2.7	148	31.46	64	35	74	19.67	40	22		
2.8	143	33.84	59	33	72	21.15	37	21		
2.9	138	36.30	55	31	69	22.69	34	19		
3.0	133	38.84	52	29	67	24.28	32	18		

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
1.52	1.20	0.89	0.75	1.03	0.77	3.68	1.78	1.55

MS.412115

1.5mm UNIFORM THICKNESS.



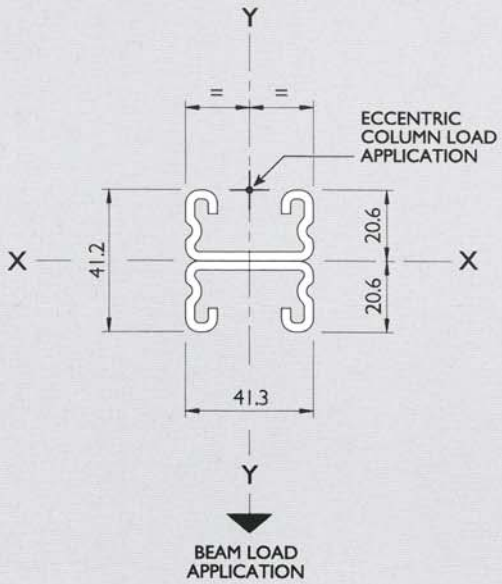
SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	1072	0.07	1072	1072	536	0.05	536	536	2715	793
0.2	535	0.30	535	535	268	0.19	268	268	2679	782
0.3	357	0.67	357	357	179	0.42	179	179	2591	763
0.4	268	1.19	268	249	134	0.75	134	134	2473	738
0.5	214	1.87	214	160	107	1.17	107	100	2300	705
0.6	179	2.69	179	111	89	1.68	89	69	2051	663
0.7	153	3.66	147	81	77	2.29	77	51	1748	612
0.8	134	4.78	112	62	67	2.99	67	39	1453	558
0.9	119	6.05	89	49	60	3.78	55	31	1203	506
1.0	107	7.46	72	40	54	4.67	45	25	1004	459
1.1	97	9.03	59	33	49	5.65	37	21	847	416
1.2	89	10.75	50	28	45	6.72	31	17	722	378
1.3	82	12.62	42	24	41	7.88	27	15	622	344
1.4	77	14.63	37	20	38	9.14	23	13		
1.5	71	16.80	32	18	36	10.50	20	11		
1.6	67	19.11	28	16	33	11.94	18	10		
1.7	63	21.57	25	14	32	13.48	16	9		
1.8	60	24.19	22	12	30	15.12	14	8		
1.9	56	26.95	20	11	28	16.84	12	7		
2.0	54	29.86	18	10	27	18.66	11	6		
2.1	51	32.92	16	9	26	20.58	10	6	$\frac{\propto Le}{rxx} > 180$	
2.2	49	36.13	15	8	24	22.58	9	5		
2.3	47	39.49	14	8	23	24.68	8	5		
2.4	45	43.00	12	7	22	26.87	8	4		
2.5	43	46.66	11	6	21	29.16	7	4		
2.6	41	50.46	11	6	21	31.54	7	4		
2.7	40	54.42	10	5	20	34.01	6	3		
2.8	38	58.52	9	5	19	36.58	6	3		
2.9	37	62.78	9	5	18	39.24	5	3		
3.0	36	67.18	8	4	18	42.00	5	3		

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
3.03	2.40	4.08	1.98	1.98	1.16	7.35	3.56	1.56

MS.412115-C2

COMBINATION COMPRISING 2- No. MS.412115



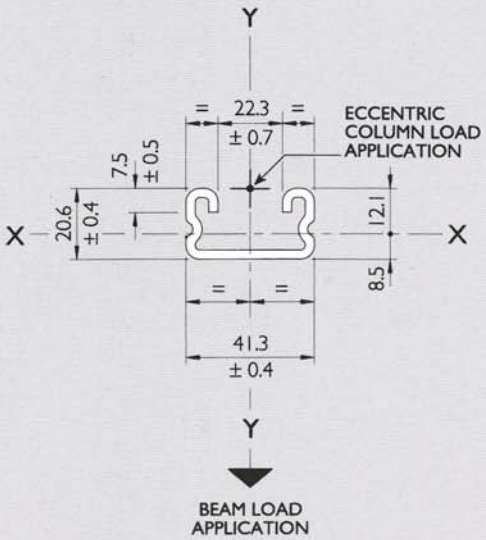
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	2696	0.04	2696	2696	1415	0.03	1415	1415	5411	1302
0.2	1415	0.17	1415	1415	707	0.11	707	707	5411	1297
0.3	943	0.39	943	943	472	0.24	472	472	5342	1286
0.4	707	0.69	707	707	354	0.43	354	354	5230	1269
0.5	566	1.08	566	566	283	0.67	283	283	5100	1249
0.6	472	1.55	472	472	236	0.97	236	236	4938	1224
0.7	404	2.12	404	372	202	1.32	202	202	4729	1194
0.8	354	2.76	354	284	177	1.73	177	177	4458	1159
0.9	314	3.50	314	225	157	2.19	157	140	4117	1117
1.0	283	4.32	283	182	141	2.70	141	114	3725	1069
1.1	257	5.22	257	150	129	3.27	129	94	3319	1017
1.2	236	6.22	228	126	118	3.89	118	79	2934	963
1.3	218	7.30	194	108	109	4.56	109	67	2589	910
1.4	202	8.46	167	93	101	5.29	101	58	2290	859
1.5	189	9.71	146	81	94	6.07	91	51	2033	810
1.6	177	11.05	128	71	88	6.91	80	44	1813	763
1.7	166	12.48	113	63	83	7.80	71	39	1624	720
1.8	157	13.99	101	56	79	8.74	63	35	1463	679
1.9	149	15.59	91	50	74	9.74	57	32	1323	641
2.0	141	17.27	82	46	71	10.79	51	28	1202	606
2.1	135	19.04	74	41	67	11.90	46	26		
2.2	129	20.90	68	38	64	13.06	42	24		
2.3	123	22.84	62	34	62	14.27	39	22		
2.4	118	24.87	57	32	59	15.54	36	20		
2.5	113	26.98	52	29	57	16.87	33	18	$\frac{\propto Le}{rxx} > 180$	
2.6	109	29.19	48	27	54	18.24	30	17		
2.7	105	31.47	45	25	52	19.67	28	16		
2.8	101	33.85	42	23	51	21.16	26	15		
2.9	98	36.31	39	22	49	22.69	24	14		
3.0	94	38.86	36	20	47	24.29	23	13		

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
1.52	1.20	0.89	0.75	1.03	0.77	3.68	1.78	1.55

MS.412115

1.5mm UNIFORM THICKNESS.



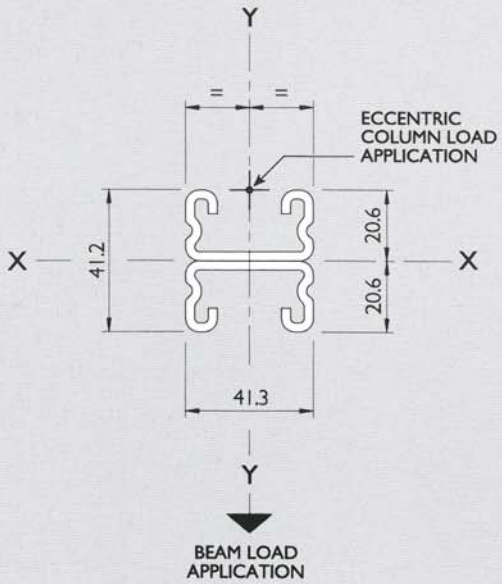
SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	1072	0.07	1072	1072	536	0.05	536	536	2715	793
0.2	535	0.30	535	535	268	0.19	268	268	2679	782
0.3	357	0.67	357	357	179	0.42	179	179	2591	763
0.4	268	1.19	268	249	134	0.75	134	134	2473	738
0.5	214	1.87	214	160	107	1.17	107	100	2300	705
0.6	179	2.69	179	111	89	1.68	89	69	2051	663
0.7	153	3.66	147	81	77	2.29	77	51	1748	612
0.8	134	4.78	112	62	67	2.99	67	39	1453	558
0.9	119	6.05	89	49	60	3.78	55	31	1203	506
1.0	107	7.46	72	40	54	4.67	45	25	1004	459
1.1	97	9.03	59	33	49	5.65	37	21	847	416
1.2	89	10.75	50	28	45	6.72	31	17	722	378
1.3	82	12.62	42	24	41	7.88	27	15	622	344
1.4	77	14.63	37	20	38	9.14	23	13		
1.5	71	16.80	32	18	36	10.50	20	11		
1.6	67	19.11	28	16	33	11.94	18	10		
1.7	63	21.57	25	14	32	13.48	16	9		
1.8	60	24.19	22	12	30	15.12	14	8		
1.9	56	26.95	20	11	28	16.84	12	7		
2.0	54	29.86	18	10	27	18.66	11	6		
2.1	51	32.92	16	9	26	20.58	10	6	$\frac{\propto Le}{rxx} > 180$	
2.2	49	36.13	15	8	24	22.58	9	5		
2.3	47	39.49	14	8	23	24.68	8	5		
2.4	45	43.00	12	7	22	26.87	8	4		
2.5	43	46.66	11	6	21	29.16	7	4		
2.6	41	50.46	11	6	21	31.54	7	4		
2.7	40	54.42	10	5	20	34.01	6	3		
2.8	38	58.52	9	5	19	36.58	6	3		
2.9	37	62.78	9	5	18	39.24	5	3		
3.0	36	67.18	8	4	18	42.00	5	3		

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
3.03	2.40	4.08	1.98	1.98	1.16	7.35	3.56	1.56

MS.412115-C2

COMBINATION COMPRISING 2- No. MS.412115



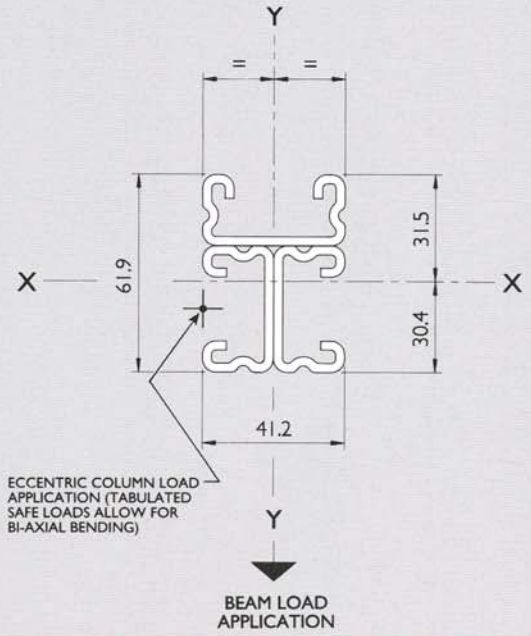
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	2696	0.04	2696	2696	1415	0.03	1415	1415	5411	1302
0.2	1415	0.17	1415	1415	707	0.11	707	707	5411	1297
0.3	943	0.39	943	943	472	0.24	472	472	5342	1286
0.4	707	0.69	707	707	354	0.43	354	354	5230	1269
0.5	566	1.08	566	566	283	0.67	283	283	5100	1249
0.6	472	1.55	472	472	236	0.97	236	236	4938	1224
0.7	404	2.12	404	372	202	1.32	202	202	4729	1194
0.8	354	2.76	354	284	177	1.73	177	177	4458	1159
0.9	314	3.50	314	225	157	2.19	157	140	4117	1117
1.0	283	4.32	283	182	141	2.70	141	114	3725	1069
1.1	257	5.22	257	150	129	3.27	129	94	3319	1017
1.2	236	6.22	228	126	118	3.89	118	79	2934	963
1.3	218	7.30	194	108	109	4.56	109	67	2589	910
1.4	202	8.46	167	93	101	5.29	101	58	2290	859
1.5	189	9.71	146	81	94	6.07	91	51	2033	810
1.6	177	11.05	128	71	88	6.91	80	44	1813	763
1.7	166	12.48	113	63	83	7.80	71	39	1624	720
1.8	157	13.99	101	56	79	8.74	63	35	1463	679
1.9	149	15.59	91	50	74	9.74	57	32	1323	641
2.0	141	17.27	82	46	71	10.79	51	28	1202	606
2.1	135	19.04	74	41	67	11.90	46	26		
2.2	129	20.90	68	38	64	13.06	42	24		
2.3	123	22.84	62	34	62	14.27	39	22		
2.4	118	24.87	57	32	59	15.54	36	20		
2.5	113	26.98	52	29	57	16.87	33	18	$\frac{\propto Le}{rxx} > 180$	
2.6	109	29.19	48	27	54	18.24	30	17		
2.7	105	31.47	45	25	52	19.67	28	16		
2.8	101	33.85	42	23	51	21.16	26	15		
2.9	98	36.31	39	22	49	22.69	24	14		
3.0	94	38.86	36	20	47	24.29	23	13		

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
4.57	3.60	16.98	5.39	5.58	1.93	7.76	3.76	1.30

MS.412115-C3

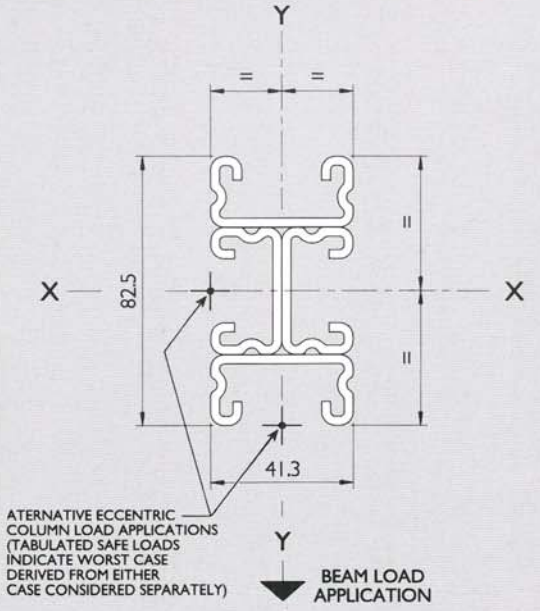
COMBINATION COMPRISING 3- No. MS.412115



Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
6.09	4.80	35.33	8.57	8.57	2.41	11.44	5.54	1.37

MS.412115-C4

COMBINATION COMPRISING 4- No. MS.412115



SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	2632	0.01	2632	2632	2632	0.01	2632	2632	8143	1879
0.2	2632	0.08	2632	2632	1924	0.07	1924	1924	8143	1872
0.3	2566	0.25	2566	2566	1283	0.16	1283	1283	7982	1852
0.4	1924	0.45	1924	1924	962	0.28	962	962	7796	1828
0.5	1540	0.71	1540	1540	770	0.44	770	770	7578	1799
0.6	1283	1.02	1283	1283	641	0.64	641	641	7330	1767
0.7	1100	1.38	1100	1100	550	0.87	550	550	7011	1728
0.8	962	1.81	962	962	481	1.13	481	481	6656	1687
0.9	855	2.29	855	855	428	1.43	428	428	6214	1639
1.0	770	2.83	770	757	385	1.77	385	385	5789	1592
1.1	700	3.42	700	625	350	2.14	350	350	5255	1530
1.2	641	4.07	641	526	321	2.54	321	321	4804	1475
1.3	592	4.78	592	448	296	2.98	296	280	4335	1412
1.4	550	5.54	550	386	275	3.46	275	241	3918	1352
1.5	513	6.36	513	336	257	3.97	257	210	3495	1283
1.6	481	7.23	481	296	241	4.52	241	185	3181	1228
1.7	453	8.17	453	262	226	5.10	226	164	2860	1165
1.8	428	9.15	420	234	214	5.72	214	146	2627	1116
1.9	405	10.20	377	210	203	6.38	203	131	2381	1060
2.0	385	11.30	341	189	192	7.06	192	118	2206	1017
2.1	367	12.46	309	172	183	7.79	183	107	2015	967
2.2	350	13.68	281	156	175	8.55	175	98	1848	920
2.3	335	14.95	257	143	167	9.34	161	89	1699	876
2.4	321	16.28	236	131	160	10.17	148	82	$\frac{\propto Le}{ryy} > 180$	
2.5	308	17.66	218	121	154	11.04	136	76		
2.6	296	19.10	202	112	148	11.94	126	70		
2.7	285	20.60	187	104	143	12.87	117	65		
2.8	275	22.15	174	97	137	13.85	109	60		
2.9	265	23.76	162	90	133	14.85	101	56		
3.0	257	25.43	151	84	128	15.89	95	53		

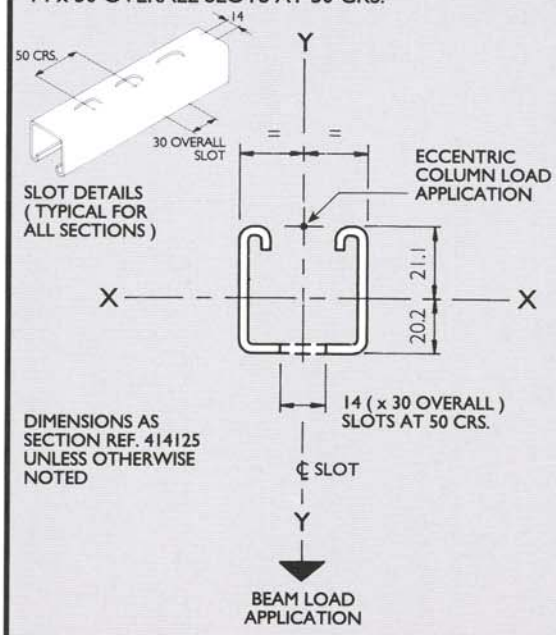
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	2632	0.01	2632	2632	2632	0.01	2632	2632	10859	2760
0.2	2632	0.04	2632	2632	2632	0.02	2632	2632	10815	2752
0.3	2632	0.13	2632	2632	2037	0.12	2037	2037	10542	2726
0.4	2632	0.30	2632	2632	1528	0.22	1528	1528	10251	2696
0.5	2445	0.54	2445	2445	1222	0.34	1222	1222	9875	2656
0.6	2037	0.78	2037	2037	1019	0.49	1019	1019	9438	2611
0.7	1746	1.06	1746	1746	873	0.66	873	873	8873	2553
0.8	1528	1.38	1528	1528	764	0.86	764	764	8258	2488
0.9	1358	1.75	1358	1358	679	1.09	679	679	7554	2409
1.0	1222	2.16	1222	1222	611	1.35	611	611	7000	2341
1.1	1111	2.61	1111	1111	556	1.63	556	556	6374	2258
1.2	1019	3.10	1019	1019	509	1.94	509	509	5973	2200
1.3	940	3.64	940	932	470	2.28	470	470	5500	2126
1.4	873	4.23	873	804	437	2.64	437	437	5250	2085
1.5	815	4.85	815	700	407	3.03	407	407	4909	2024
1.6	764	5.52	764	615	382	3.45	382	382	4699	1985
1.7	719	6.23	719	545	360	3.89	360	341	4384	1922
1.8	679	6.98	679	486	340	4.37	340	304	3968	1832
1.9	643	7.78	643	436	322	4.86	322	273	3603	1745
2.0	611	8.62	601	394	306	5.39	306	246	3284	1662
2.1	582	9.51	582	357	291	5.94	291	223	3003	1583
2.2	556	10.43	556	325	278	6.52	278	203	2755	1505
2.3	531	11.40	531	298	266	7.13	266	186	2536	1427
2.4	509	12.42	492	273	255	7.76	255	171	2342	1354
2.5	489	13.47	454	252	244	8.42	244	157	$\frac{\propto Le}{ryy} > 180$	
2.6	470	14.57	419	233	235	9.11	235	146		
2.7	453	15.72	389	216	226	9.82	226	135		
2.8	437	16.90	362	201	218	10.56	218	126		
2.9	421	18.13	337	187	211	11.33	211	117		
3.0	407	19.40	315	175	204	12.13	197	109		

SECTION PROPERTIES

MS.414125-S

2.5mm UNIFORM THICKNESS.
14 x 30 OVERALL SLOTS AT 50 CRS.

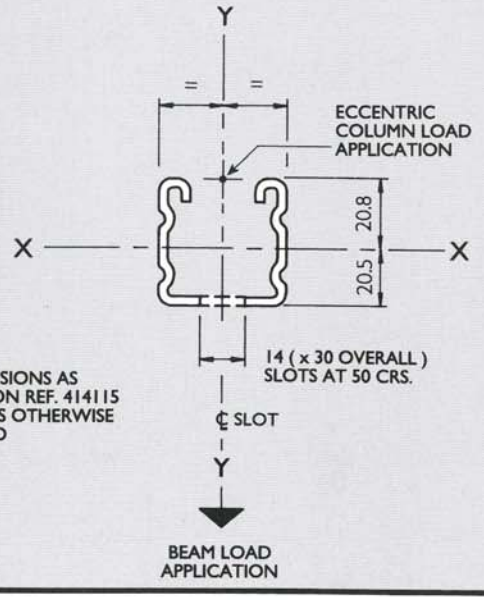
Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
3.04	2.53	6.20	2.94	3.07	1.43	9.28	4.50	1.75



MS.414115-S

1.5mm UNIFORM THICKNESS.
14 x 30 OVERALL SLOTS AT 50 CRS.

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
1.93	1.61	4.25	2.01	2.10	1.48	6.10	2.96	1.78



SAFE LOAD TABLES

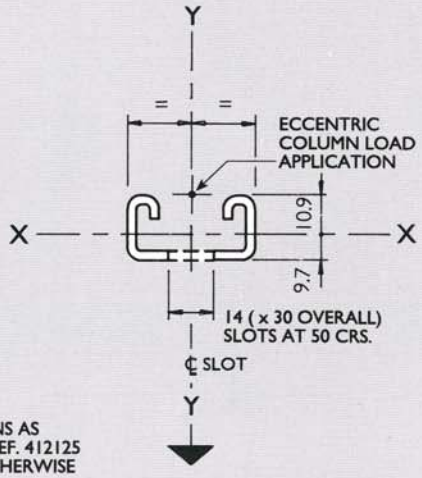
Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Def.	Load (kg) Deflection limited to span/200	Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Load applied at face of section
0.1	4190	0.04	4190	4190	2095	0.03	2095	2095	5421	1699
0.2	2095	0.17	2095	2095	1048	0.11	1048	1048	5387	1683
0.3	1397	0.38	1397	1397	698	0.24	698	698	5244	1649
0.4	1048	0.67	1048	1048	524	0.42	524	524	5070	1606
0.5	838	1.05	838	838	419	0.66	419	419	4841	1553
0.6	698	1.52	698	698	349	0.95	349	349	4541	1491
0.7	599	2.06	599	564	299	1.29	299	299	4151	1416
0.8	524	2.70	524	432	262	1.69	262	262	3701	1333
0.9	466	3.41	466	341	233	2.13	233	213	3250	1247
1.0	419	4.21	419	276	210	2.63	210	173	2842	1163
1.1	381	5.10	381	228	190	3.19	190	143	2521	1090
1.2	349	6.07	345	192	175	3.79	175	120	2229	1019
1.3	322	7.12	294	163	161	4.45	161	102	2011	960
1.4	299	8.26	254	141	150	5.16	150	88	1808	902
1.5	279	9.48	221	123	140	5.93	138	77	1637	849
1.6	262	10.78	194	108	131	6.74	121	67	1494	802
1.7	246	12.18	172	96	123	7.61	108	60	1391	767
1.8	233	13.65	153	85	116	8.53	96	53	1286	729
1.9	221	15.21	138	77	110	9.51	86	48	1196	695
2.0	210	16.86	124	69	105	10.53	78	43	1118	664
2.1	200	18.58	113	63	100	11.61	70	39		
2.2	190	20.39	103	57	95	12.75	64	36		
2.3	182	22.29	94	52	91	13.93	59	33		
2.4	175	24.27	86	48	87	15.17	54	30		
2.5	168	26.34	80	44	84	16.46	50	28	$\frac{\propto Le}{rxx} > 180$	
2.6	161	28.49	74	41	81	17.80	46	26		
2.7	155	30.72	68	38	78	19.20	43	24		
2.8	150	33.04	63	35	75	20.65	40	22		
2.9	144	35.44	59	33	72	22.15	37	21		
3.0	140	37.92	55	31	70	23.70	35	19		
0.1	2632	0.04	2632	2632	1436	0.03	1436	1436	3448	1150
0.2	1436	0.17	1436	1436	718	0.11	718	718	3435	1140
0.3	958	0.38	958	958	479	0.24	479	479	3350	1118
0.4	718	0.67	718	718	359	0.42	359	359	3246	1090
0.5	575	1.05	575	575	287	0.66	287	287	3110	1055
0.6	479	1.52	479	479	239	0.95	239	239	2930	1012
0.7	410	2.07	410	386	205	1.29	205	205	2691	961
0.8	359	2.70	359	296	180	1.69	180	180	2385	899
0.9	319	3.41	319	234	160	2.13	160	146	2082	836
1.0	287	4.21	287	189	144	2.63	144	118	1803	773
1.1	261	5.10	261	156	131	3.19	131	98	1564	714
1.2	239	6.07	237	131	120	3.79	120	82	1364	660
1.3	221	7.12	202	112	110	4.45	110	70	1199	611
1.4	205	8.26	174	97	103	5.16	103	60	1061	567
1.5	192	9.48	151	84	96	5.93	95	53	947	527
1.6	180	10.79	133	74	90	6.74	83	46	850	491
1.7	169	12.18	118	66	84	7.61	74	41	778	463
1.8	160	13.66	105	58	80	8.53	66	37	708	434
1.9	151	15.21	94	52	76	9.51	59	33		
2.0	144	16.86	85	47	72	10.54	53	30		
2.1	137	18.59	77	43	68	11.62	48	27		
2.2	131	20.40	70	39	65	12.75	44	24		
2.3	125	22.30	64	36	62	13.93	40	22		
2.4	120	24.28	59	33	60	15.17	37	21	$\frac{\propto Le}{rxx} > 180$	
2.5	115	26.34	55	30	57	16.46	34	19		
2.6	110	28.49	50	28	55	17.81	32	18		
2.7	106	30.72	47	26	53	19.20	29	16		
2.8	103	33.04	43	24	51	20.65	27	15		
2.9	99	35.44	41	23	50	22.15	25	14		
3.0	96	37.93	38	21	48	23.71	24	13		

SECTION PROPERTIES

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
2.00	1.71	0.99	0.91	1.02	0.70	5.28	2.56	1.62

MS.412125-S

2.5mm UNIFORM THICKNESS.
14 x 30 OVERALL SLOTS AT 50 CRS.



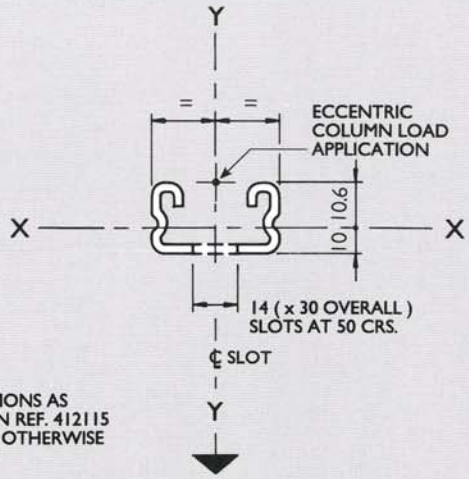
DIMENSIONS AS SECTION REF. 412125 UNLESS OTHERWISE NOTED.

BEAM LOAD APPLICATION

Area cm.²	Wt. kg./m.	Ixx cm.⁴	Zxx (Top) cm.³	Zxx (Btm.) cm.³	rxx cm.	Iyy cm.⁴	Zyy cm.³	ryy cm.
1.31	1.12	0.74	0.70	0.75	0.75	3.64	1.76	1.67

MS.412115-S

1.5mm UNIFORM THICKNESS.
14 x 30 OVERALL SLOTS AT 50 CRS.



DIMENSIONS AS SECTION REF. 412115 UNLESS OTHERWISE NOTED

BEAM LOAD APPLICATION

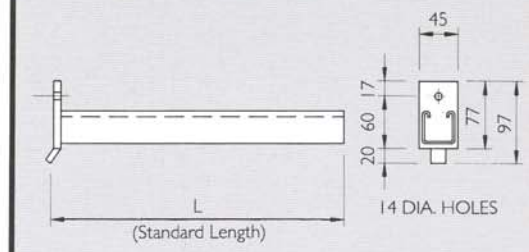
SAFE LOAD TABLES

Beam Span or Column Effective Length (m)	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Load	Uniformly Distributed Load: Safe Load (kg) & corresponding Deflection (mm) Def.	Uniformly Distributed Load: Load (kg) Deflection limited to span/200	Uniformly Distributed Load: Load (kg) Deflection limited to span/360	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Load	Load Concentrated Near Centre of Span: Safe Load (kg) & corresponding Deflection (mm) Def.	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/200	Load Concentrated Near Centre of Span: Load (kg) Deflection limited to span/360	Safe Column Load (kg): Load applied at centroid of section	Safe Column Load (kg): Load applied at face of section
0.1	1299	0.08	1299	1299	649	0.05	649	649	3575	1047
0.2	649	0.33	649	649	325	0.20	325	325	3509	1030
0.3	433	0.73	433	433	216	0.46	216	216	3375	1001
0.4	325	1.30	325	276	162	0.82	162	162	3185	961
0.5	260	2.04	260	177	130	1.27	130	111	2895	908
0.6	216	2.94	216	123	108	1.84	108	77	2490	841
0.7	186	4.00	162	90	93	2.50	93	56	2052	764
0.8	162	5.22	124	69	81	3.26	78	43	1671	688
0.9	144	6.61	98	55	72	4.13	61	34	1368	617
1.0	130	8.16	80	44	65	5.10	50	28	1134	555
1.1	118	9.87	66	37	59	6.17	41	23	953	499
1.2	108	11.74	55	31	54	7.34	35	19	810	451
1.3	100	13.78	47	26	50	8.61	29	16		
1.4	93	15.98	41	23	46	9.99	25	14		
1.5	87	18.35	35	20	43	11.47	22	12		
1.6	81	20.88	31	17	41	13.05	19	11		
1.7	76	23.57	28	15	38	14.73	17	10		
1.8	72	26.42	25	14	36	16.52	15	9		
1.9	68	29.44	22	12	34	18.40	14	8		
2.0	65	32.62	20	11	32	20.39	12	7		
2.1	62	35.97	18	10	31	22.48	11	6	$\frac{\propto Le}{rxx} > 180$	
2.2	59	39.47	16	9	30	24.67	10	6		
2.3	56	43.14	15	8	28	26.96	9	5		
2.4	54	46.98	14	8	27	29.36	9	5		
2.5	52	50.97	13	7	26	31.86	8	4		
2.6	50	55.13	12	7	25	34.46	7	4		
2.7	48	59.45	11	6	24	37.16	7	4		
2.8	46	63.94	10	6	23	39.96	6	4		
2.9	45	68.59	9	5	22	42.87	6	3		
3.0	43	73.40	9	5	22	45.88	6	3		
0.1	994	0.08	994	994	497	0.05	497	497	2340	776
0.2	497	0.33	497	497	248	0.21	248	248	2307	764
0.3	331	0.75	331	331	166	0.47	166	166	2228	743
0.4	248	1.34	248	206	124	0.84	124	124	2122	715
0.5	199	2.09	199	132	99	1.31	99	83	1965	679
0.6	166	3.01	165	92	83	1.88	83	57	1738	632
0.7	142	4.09	121	67	71	2.56	71	42	1469	577
0.8	124	5.35	93	52	62	3.34	58	32	1215	521
0.9	110	6.77	73	41	55	4.23	46	25	1003	468
1.0	99	8.35	59	33	50	5.22	37	21	836	420
1.1	90	10.11	49	27	45	6.32	31	17	704	378
1.2	83	12.03	41	23	41	7.52	26	14	600	341
1.3	76	14.12	35	20	38	8.82	22	12	516	309
1.4	71	16.37	30	17	35	10.23	19	11		
1.5	66	18.79	26	15	33	11.75	17	9		
1.6	62	21.38	23	13	31	13.36	15	8		
1.7	58	24.14	21	11	29	15.09	13	7		
1.8	55	27.06	18	10	28	16.91	11	6		
1.9	52	30.15	16	9	26	18.84	10	6		
2.0	50	33.41	15	8	25	20.88	9	5		
2.1	47	36.83	13	7	24	23.02	8	5	$\frac{\propto Le}{rxx} > 180$	
2.2	45	40.42	12	7	23	25.27	8	4		
2.3	43	44.18	11	6	22	27.61	7	4		
2.4	41	48.11	10	6	21	30.07	6	4		
2.5	40	52.20	10	5	20	32.63	6	3		
2.6	38	56.46	9	5	19	35.29	5	3		
2.7	37	60.89	8	5	18	38.05	5	3		
2.8	35	65.48	8	4	18	40.93	5	3		
2.9	34	70.24	7	4	17	43.90	4	2		
3.0	33	75.17	7	4	17	46.98	4	2		

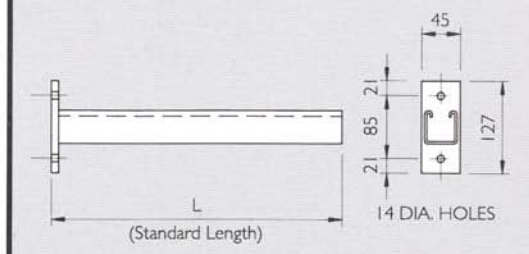
ARM DETAILS

NB :- ARMS HAVE BEEN INDEPENDENTLY TESTED (BOLT TORQUE 65 N.m.).
TABULATED SAFE LOADS SATISFY MINIMUM FACTOR OF SAFETY OF 3 ON CONTINUOUS SLIP AND LIMITING DESIGN STRESSES IN CHANNEL ARMS AND THEIR FIXINGS.

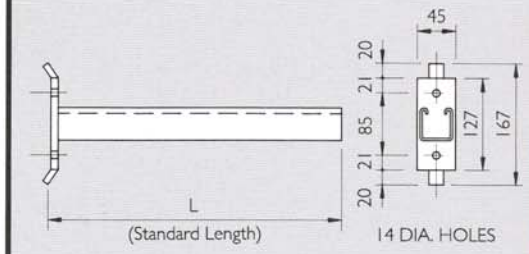
Recommended Safe Loads (kg.) for Arm bolted to 2.5mm thick channel (Bolt Torque 65Nm)



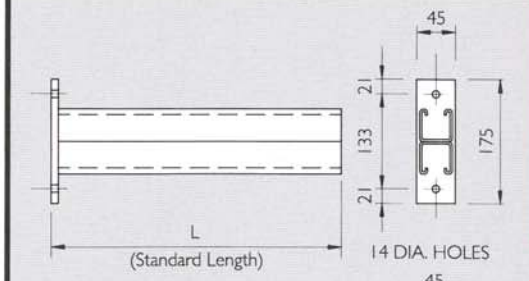
REF.	L (mm)	Wt. (kg)
MS150B	150	0.67
MS300B	300	1.06
MS450B	450	1.46
MS600B	600	1.85
MS750B	750	2.30



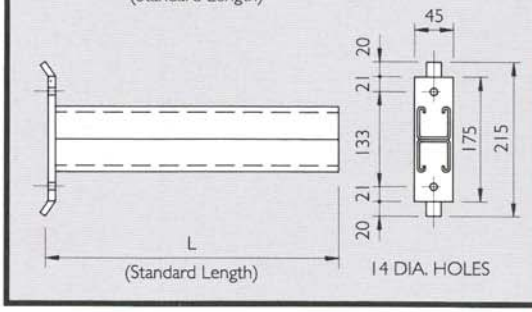
REF.	L (mm)	Wt. (kg)
MS150A	150	0.77
MS300A	300	1.16
MS450A	450	1.56
MS600A	600	1.95
MS750A	750	2.35



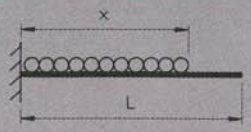
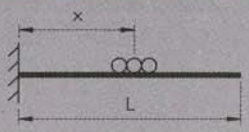
REF.	L (mm)	Wt. (kg)
MS150C	150	0.86
MS300C	300	1.26
MS450C	450	1.65
MS600C	600	2.05
MS750C	750	2.44



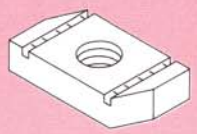
REF.	L (mm)	Wt. (kg)
MS150E	150	1.26
MS300E	300	2.05
MS450E	450	2.85
MS600E	600	3.64
MS750E	750	4.43



REF.	L (mm)	Wt. (kg)
MS150D	150	1.35
MS300D	300	2.15
MS450D	450	2.94
MS600D	600	3.73
MS750D	750	4.52

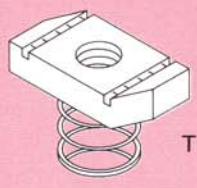
x (m.)	Total Uniformly Distributed Load	Concentrated Load
		
0.10	342	342
0.15	342	342
0.20	342	283
0.25	342	226
0.30	342	188
0.35	323	162
0.40	283	141
0.45	251	126
0.50	226	113
0.55	206	103
0.60	188	94
0.65	174	87
0.70	162	81
0.75	151	75
0.10	684	542
0.15	608	377
0.20	542	283
0.25	452	226
0.30	377	188
0.35	323	162
0.40	283	141
0.45	251	126
0.50	226	113
0.55	206	103
0.60	188	94
0.65	174	87
0.70	162	81
0.75	151	75
0.10	684	643
0.15	684	552
0.20	643	484
0.25	594	430
0.30	552	388
0.35	516	353
0.40	484	324
0.45	455	299
0.50	430	277
0.55	408	259
0.60	387	243
0.65	369	229
0.70	353	216
0.75	337	205

CHANNEL NUTS - PLAIN



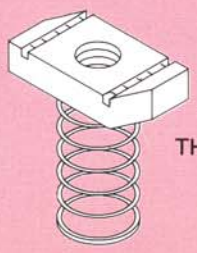
THREAD SIZE
6mm
8mm
10mm
12mm

CHANNEL NUTS - SHORT SPRING



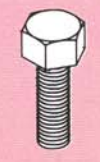
THREAD SIZE
6mm
8mm
10mm
12mm

CHANNEL NUTS - LONG SPRING



THREAD SIZE
6mm
8mm
10mm
12mm

HEXAGON HEAD SET SCREWS



M6
M8
M10
M12

PAN HEAD MACHINE SCREWS

M6
M8
M10
M12

CONE POINT SET SCREWS

M10 x 40

ROOFING BOLTS & NUTS

M6
M8

HEXAGON NUTS

M6
M8
M10
M12

FLAT WASHERS

M6
M8
M10
M12

LOCK WASHERS

M6
M8
M10
M12

PENNY WASHERS

M6	25 O/D
M8	25 - 32 O/D
M10	25 - 32 O/D

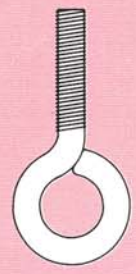
THREADED ROD

M6 x 3 metres
M8 x 3 metres
M10 x 3 metres
M12 x 3 metres

THREADED ROD CONNECTORS

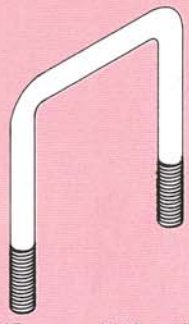
M6 x 18mm
M8 x 24mm
M10 x 30mm
M12 x 36mm

EYE BOLTS



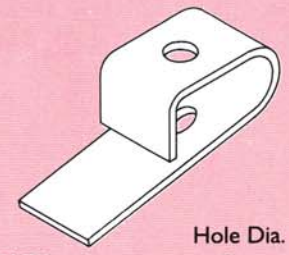
M6 x 80mm
M8 x 80mm
M10 x 80mm
M12 x 80mm

SQUARE BASE 'U' BOLTS



M8 x 65mm M10 x 65mm
M8 x 110mm M10 x 110mm
M8 x 150mm M10 x 150mm

PURLIN CLIPS

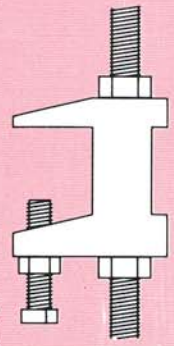


	Hole Dia.
MPC6	8mm
MPC8	10mm
MPC10	12mm

NON-DRILL ANCHORS

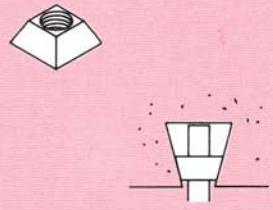
MNDA 6
MNDA 8
MNDA 10
MNDA 12

FLANGE CLAMPS



MFC 10
MFC 12

WEDGE NUTS



MWN 6
MWN 8
MWN 10

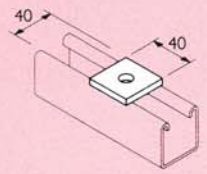
All materials unless noted otherwise, are 6mm thick mild steel hot dip galvanised after fabrication as standard. Holes are 14mm diameter for M12 hex. head screws.

All dimensions in m.m.

Alternative finishes on request.

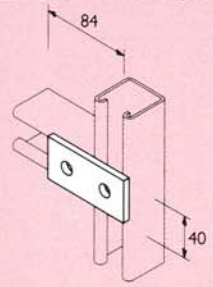
MSF501

Weight : 0.07 kg



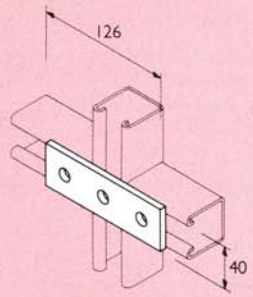
MSF502

Weight : 0.15 kg



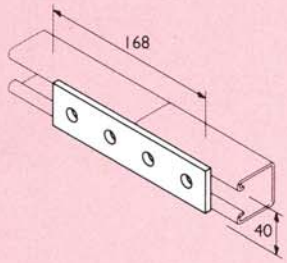
MSF503

Weight : 0.22 kg



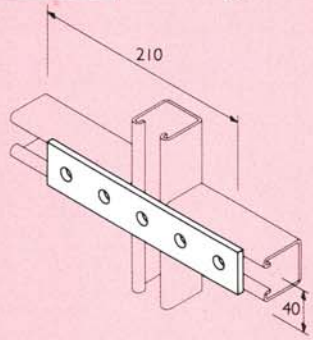
MSF504

Weight : 0.29 kg



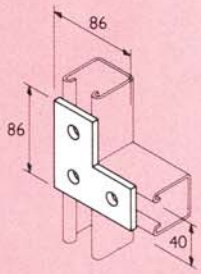
MSF505

Weight : 0.36 kg



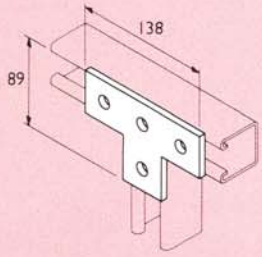
MSF506

Weight : 0.23 kg



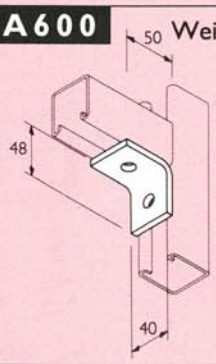
MSF507

Weight : 0.35 kg



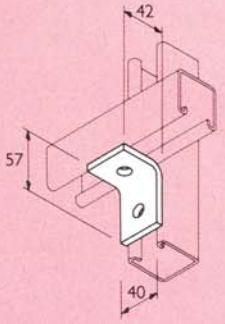
MSA600

Weight : 0.16 kg



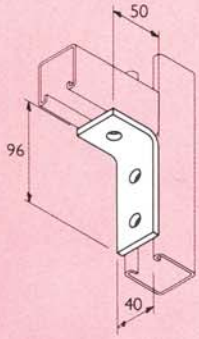
MSA601

Weight : 0.15 kg



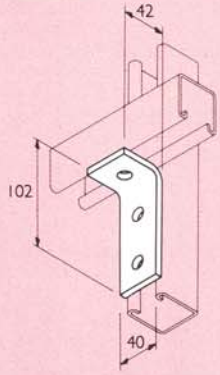
MSA602

Weight : 0.23 kg



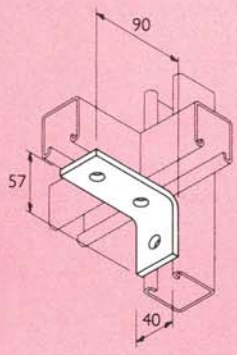
MSA603

Weight : 0.24 kg



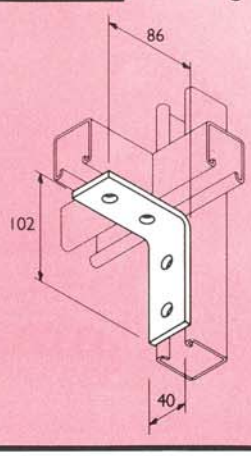
MSA604

Weight : 0.24 kg



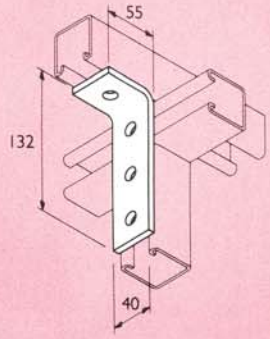
MSA605

Weight : 0.31 kg

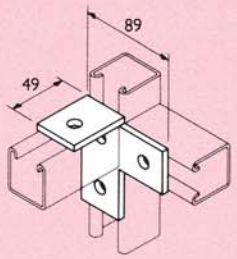


MSA606

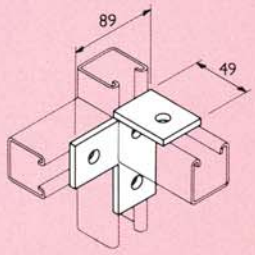
Weight : 0.31 kg



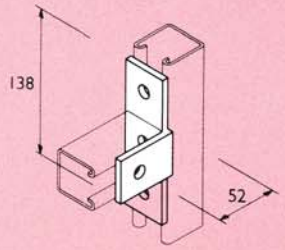
MSA607 Weight : 0.340 kg



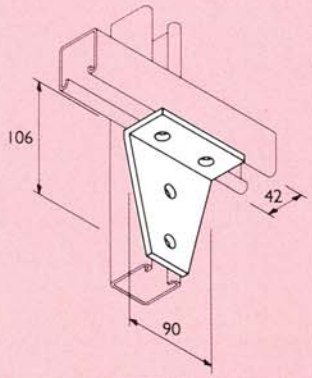
MSA608 Weight : 0.335 kg



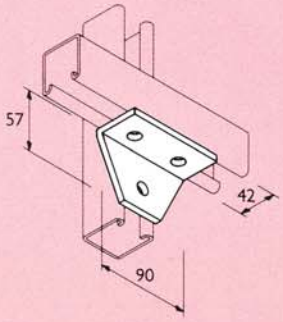
MSA609 Weight : 0.345 kg



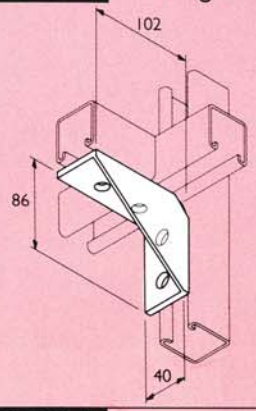
MSA610 Weight : 0.435 kg



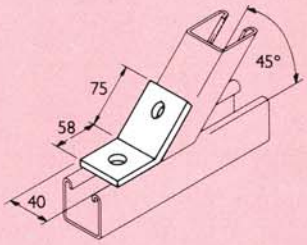
MSA611 Weight : 0.310 kg



MSA612 Weight : 0.420 kg

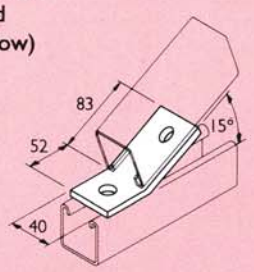


MSA614 Weight : 0.240 kg



MSA615 Weight : 0.250 kg

Specify angle required (see below)

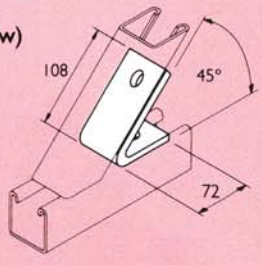


Angles available

15°	52.5°
22.5°	60°
30°	67.5°
37.5°	75°
45°	82.5°

MSA616 Weight : 0.335 kg

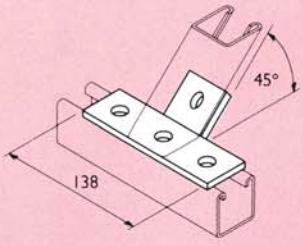
Specify angle required (see below)



Angles available

15°	52.5°
22.5°	60°
30°	67.5°
37.5°	75°
45°	82.5°

MSA617 Weight : 0.353 kg

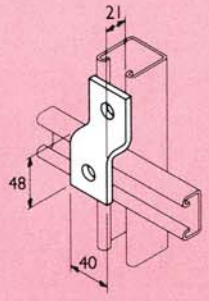


NOTATION EXAMPLES

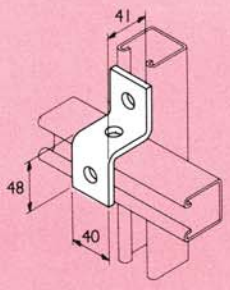
For 30° Specify (30)

For 60° Specify (60)

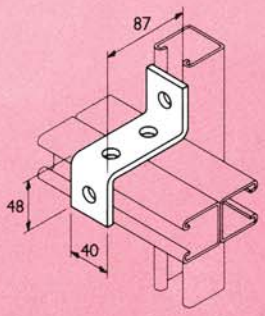
MSZ700 Weight : 0.180 kg



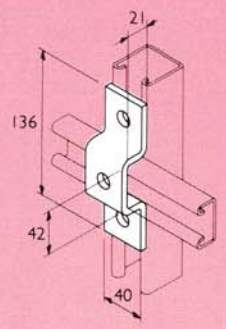
MSZ701 Weight : 0.205 kg



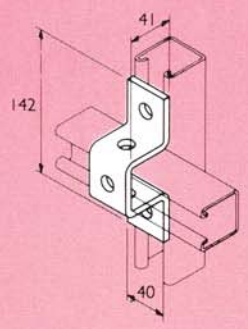
MSZ702 Weight : 0.285 kg



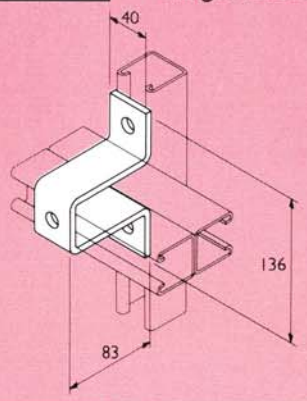
MSU800
Weight : 0.290 kg



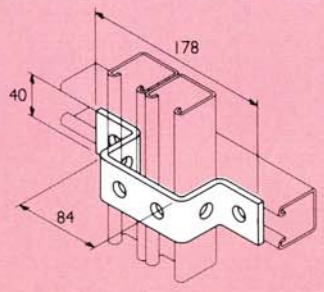
MSU801
Weight : 0.350 kg



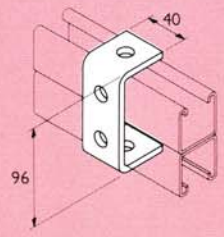
MSU802
Weight : 0.530 kg



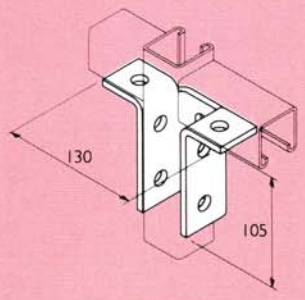
MSU803
Weight : 0.420 kg



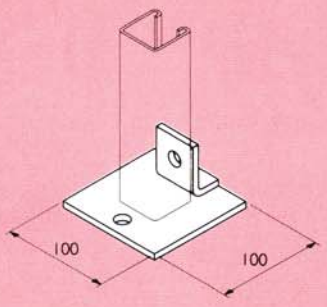
MSU804
Weight : 0.300 kg



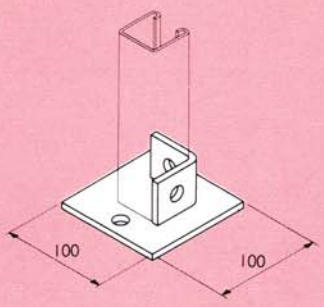
MSU805
Weight : 0.725 kg



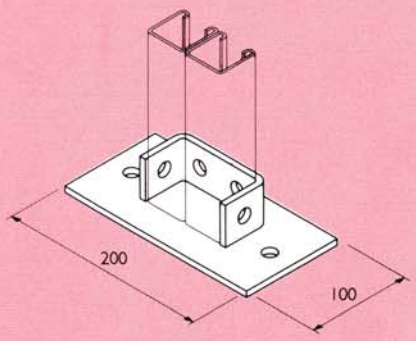
MBP304
Weight : 0.595 kg



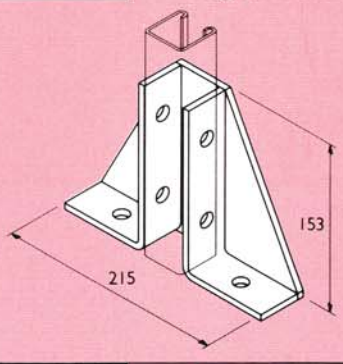
MBP305
Weight : 0.645 kg



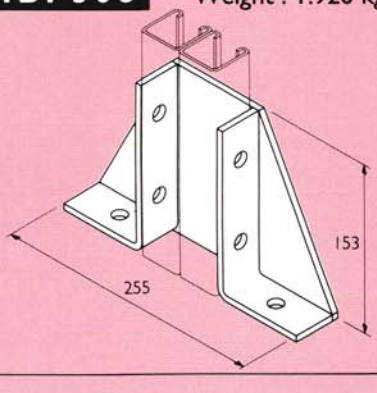
MBP306
Weight : 1.310 kg



MBP307
Weight : 1.695 kg

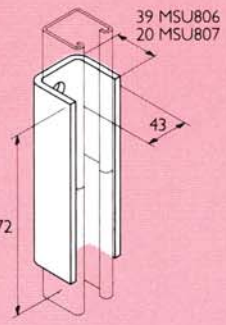


MBP308
Weight : 1.920 kg



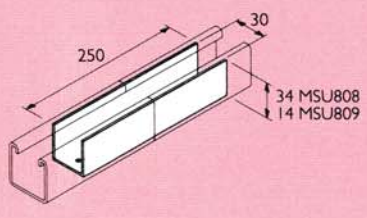
MSU806
Weight : 0.95 kg

MSU807
Weight : 0.65 kg



MSU808
Weight : 0.352 kg

MSU809
Weight : 0.207 kg



MSU808
For use with
MS4141 Channel

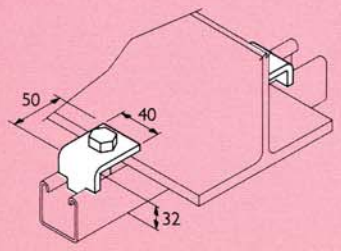
MSU809
For use with
MS4121 Channel

MSU806
For use with
MS4141 Channel

MSU807
For use with
MS4121 Channel

MBC400

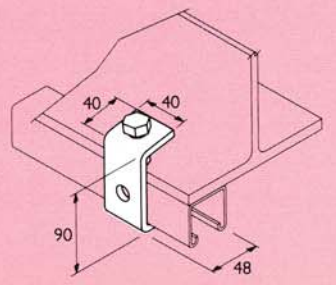
Weight : 0.12 kg



S.W.L. = 270 kg

MBC401

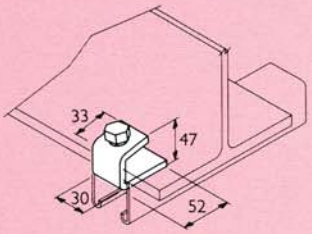
Weight : 0.43 kg



10mm Thick
Tapped M10 S.W.L. = 230 kg

MBC402

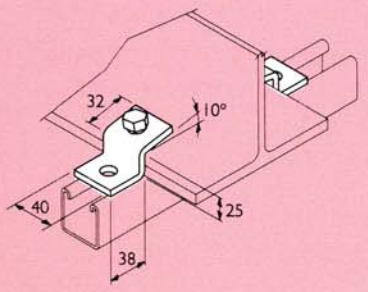
Weight : 0.15 kg



Tapped M10 S.W.L. = 200 kg

MBC403

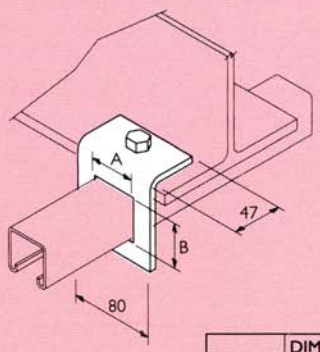
Weight : 0.16 kg



Tapped M10 S.W.L. = 200 kg

MBC404 MBC407 MBC408

Weight : 0.37 kg
0.32 kg
0.47 kg

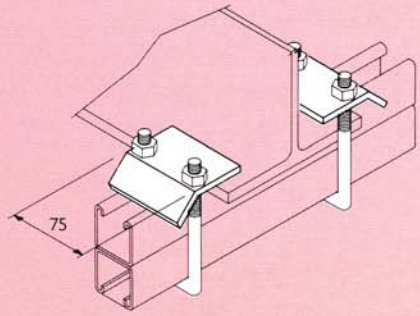


	DIM A	DIM B
MBC404	43mm	43mm
MBC407	43mm	23mm
MBC408	43mm	84mm

S.W.L. = 220 kg

MBC405 MBC406

Weight : 0.275 kg
0.265 kg



'U' BOLT DIAMETER	
MBC405	10mm
MBC406	8mm

S.W.L. = 450 kg

PVC END CAPS

PVC4141

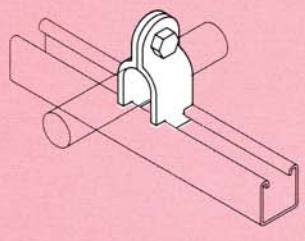
PVC4121

BEAM CLAMPS:- THE ABOVE BEAM CLAMPS ARE RECOMMENDED TO BE USED IN PAIRS . MAXIMUM LOADINGS GIVEN ARE PER CLAMP WHEN USED IN PAIRS.

PIPE SUPPORTS:- DIMENSIONS FOR PIPE CLIPS, HANGERS, CLAMPS etc. ARE GIVEN IN THE CURRENT PRICE LIST.

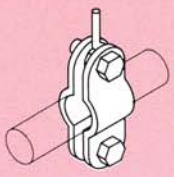
SCREW/BOLTS NOT INCLUDED WITH BEAM CLAMPS.

UNIVERSAL PIPE CLIPS



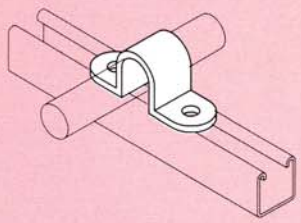
Supplied complete with nut and bolt

PIPE HANGERS

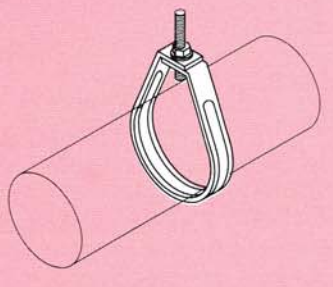


Supplied complete with nuts and bolts

PIPE CLAMPS

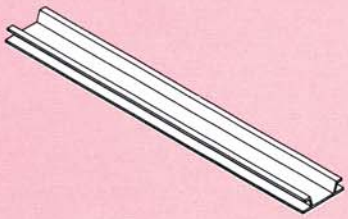


FILBOWS



For pipe diameters 15mm to 250mm

ROLLER CHAIRS

For pipe diameters 75mm
100mm
180mm
250mm

CLOSURE STRIP