METSEC
CABLE MANAGEMENT

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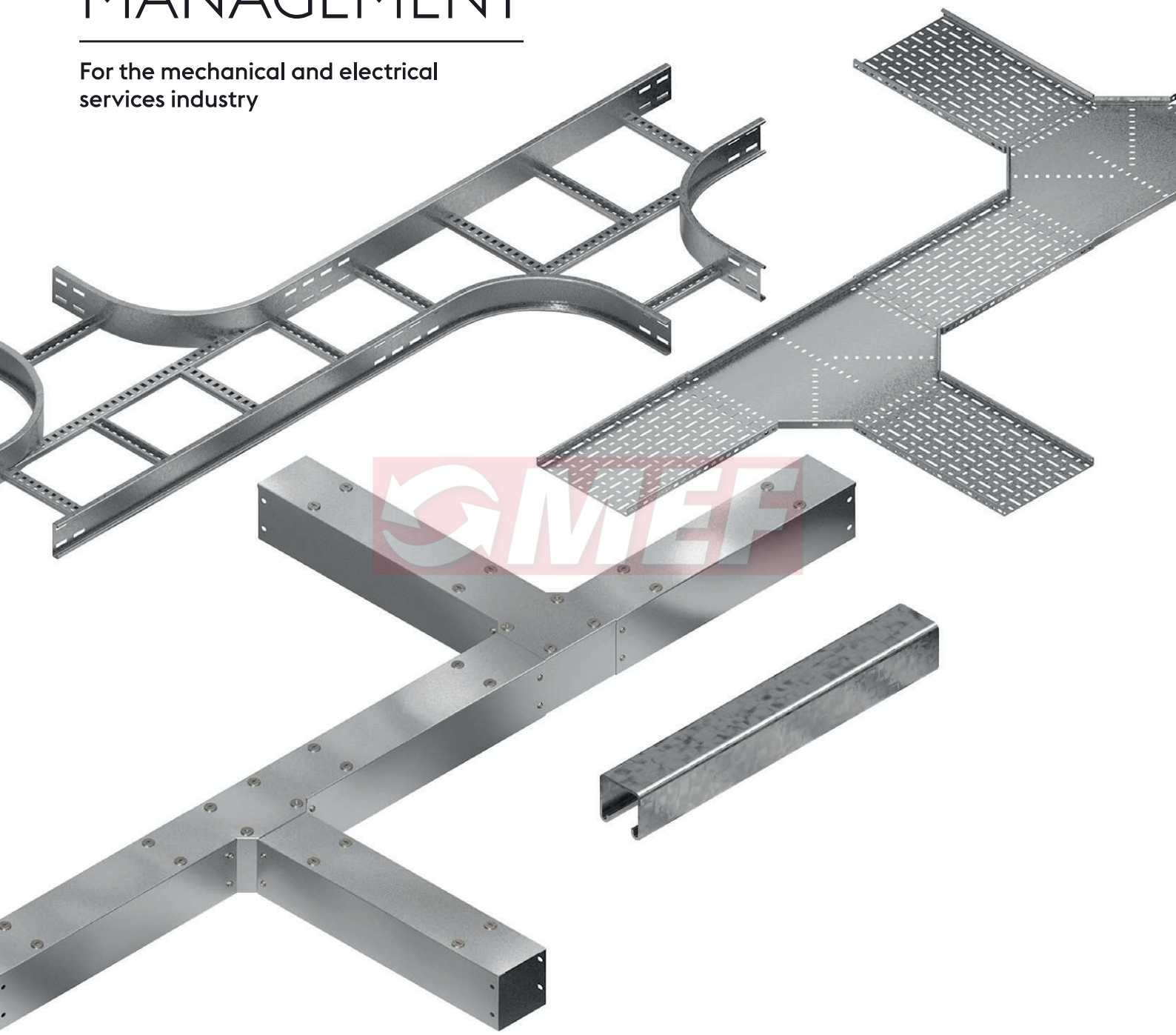
For the mechanical and electrical services industry



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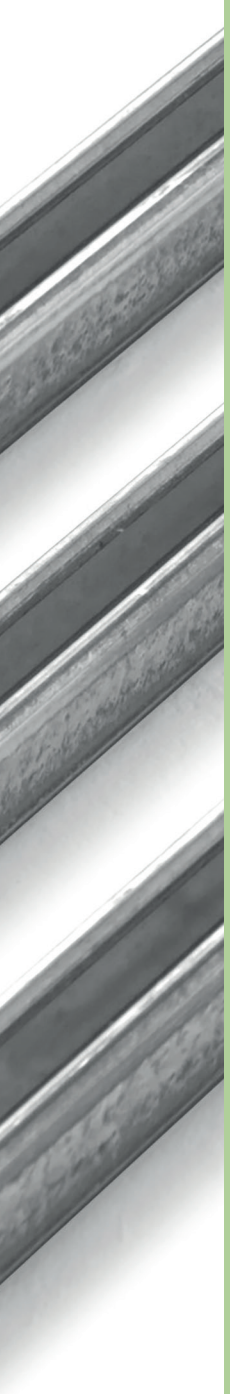

METAL FRAMING SYSTEMS

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The Metsec metal framing system provides flexible and economical support solutions for mechanical and electrical services.

Four channel profiles are available as plain back or slotted back variants and each can be assembled into multiple configurations when additional load carrying capacity is needed. This is further complimented with a wide range of brackets and fasteners to achieve almost any framework assembly and configuration.

Metal framing systems can be found in almost all building sectors and in a wide range of applications.

Often used as a first fix component, Metsec systems are used to support cable trays, cable ladders and other items of capital equipment.

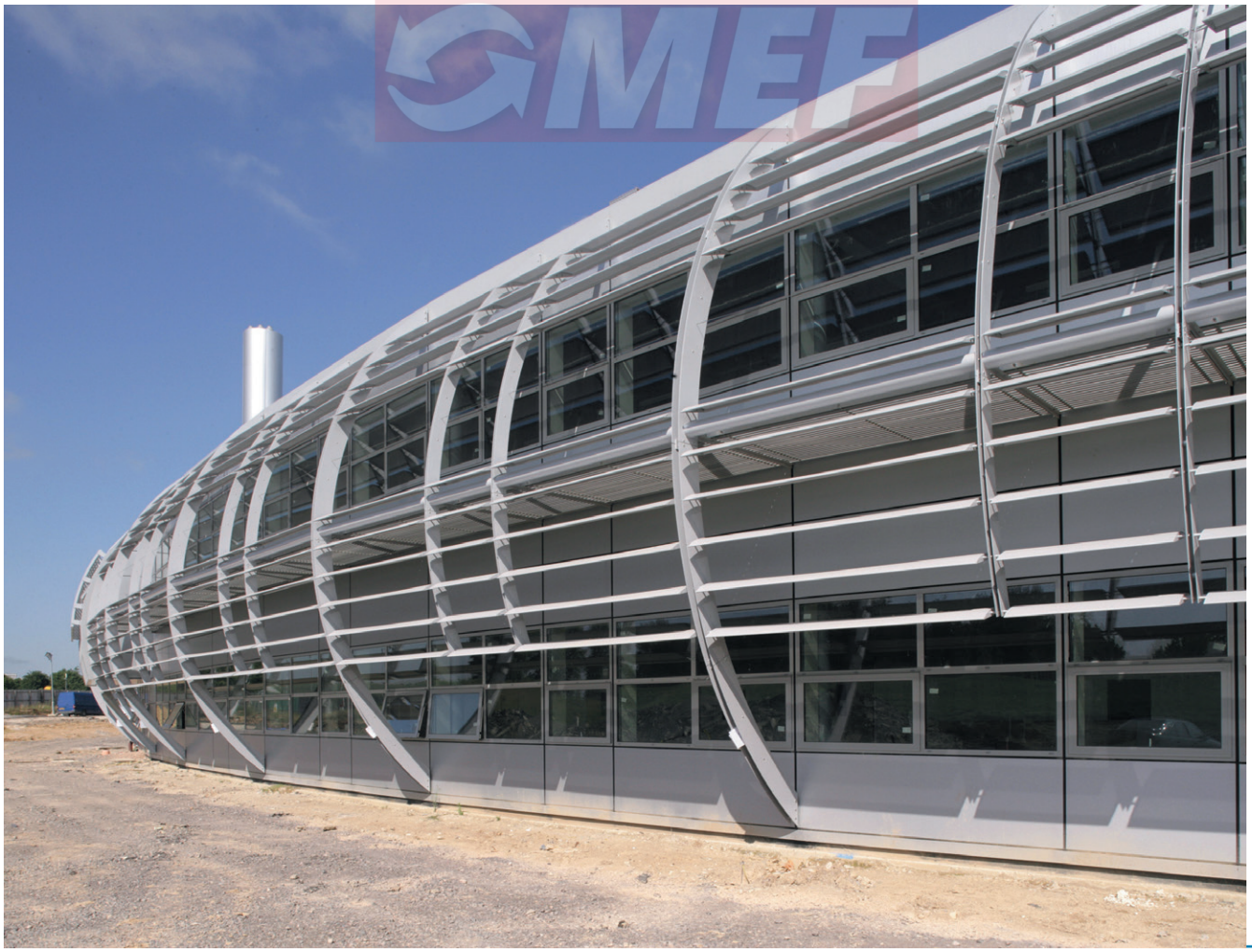
Cut-to-length service

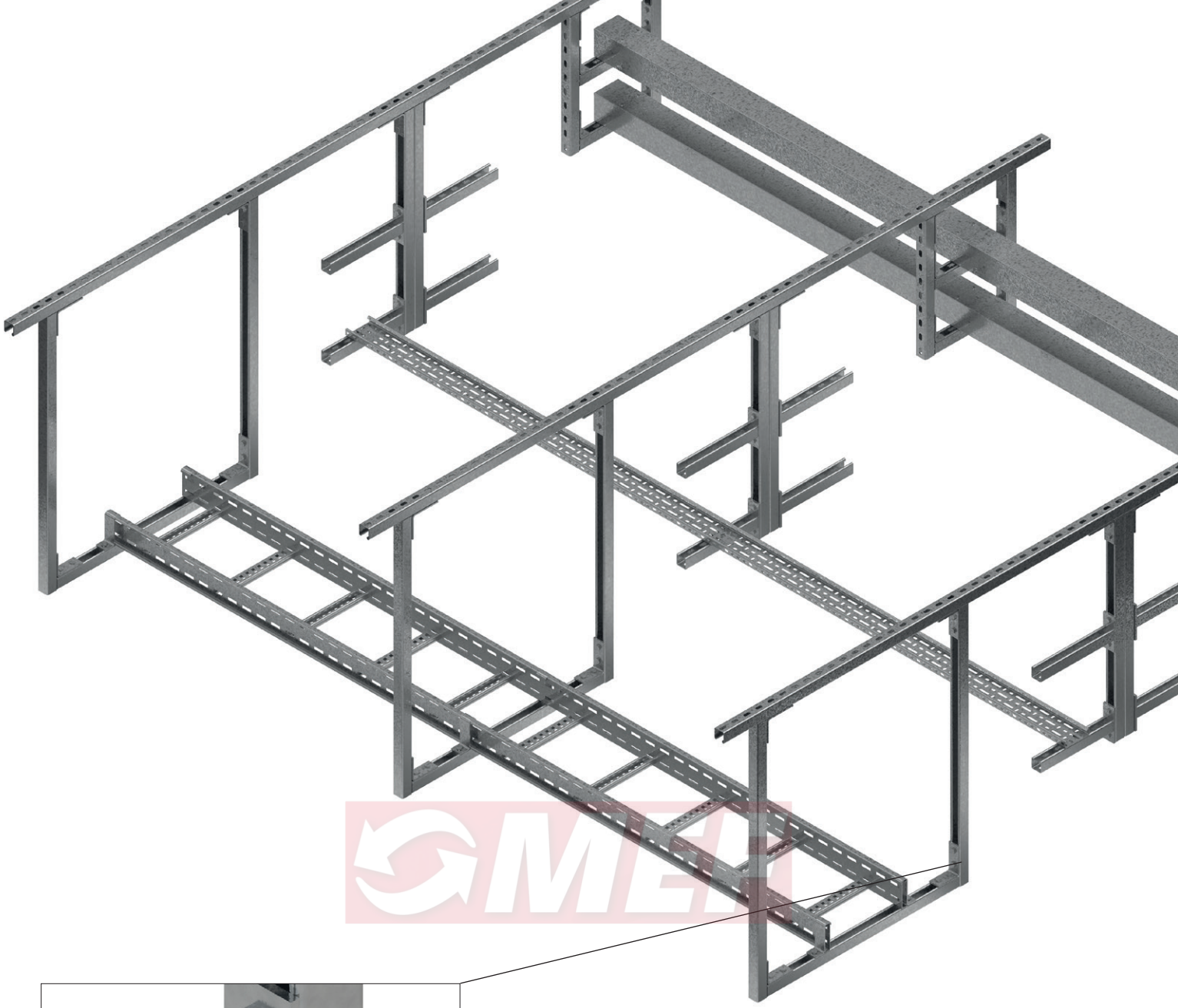
Metsec offers a competitive cut-to-length service. By cutting in process, the integrity of the pre-galvanised coating is maintained on the cut end.

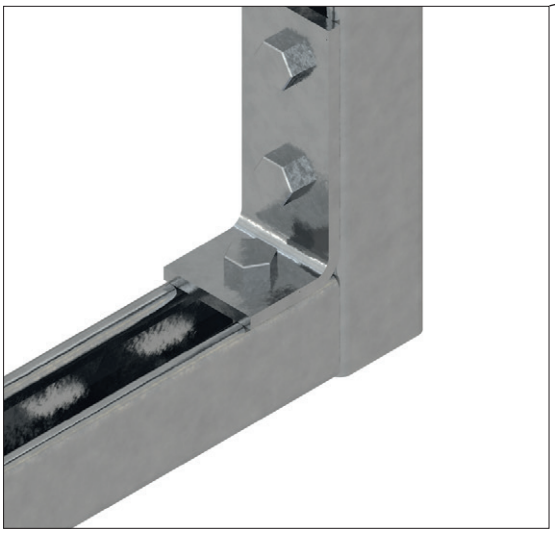
This service reduces the potential for waste when cut on site and provides substantial labour savings.

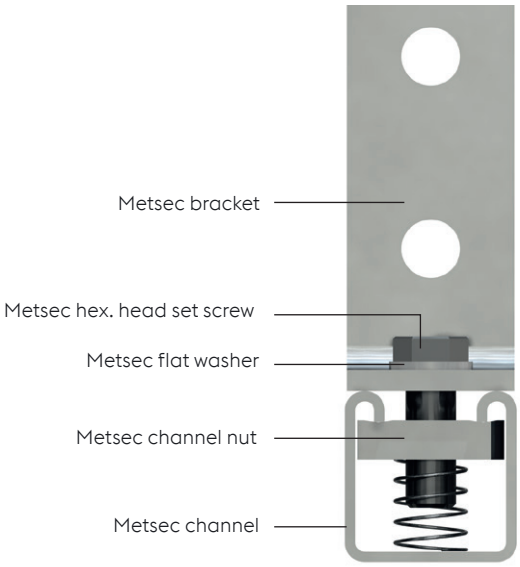
Pre-fabrication service

Considerable savings can be made on site by pre-fabrication modules and bracketry. Metsec offers this service see page 172.









Always use the complete Metsec system

STANDARDS

The Metsec metal framing system comprises single and combination channels, assembly brackets, channel nuts and fasteners. The integration of these items in their use, forms the basis of the system and as such should be purchased as a complete system.

The Metsec metal framing system conforms to BS 6946, the British Standard Specification for Metal channel cable support systems for electrical installations.

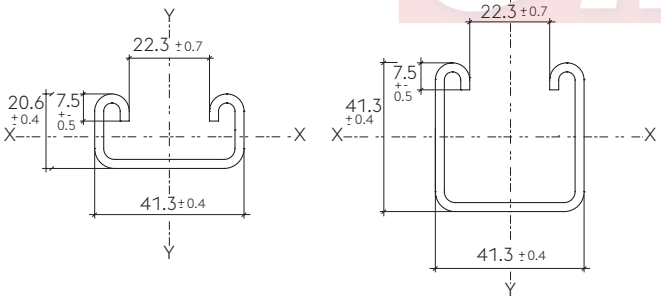
Independent testing has been carried out to verify the load tables for the various channels and to determine pull out and slip performance of the channel nuts when used as a system.

It is this system integrity that needs to be maintained for all installations to meet site safety requirements.

The material used for the Metsec channels meets and surpasses the minimum yield strength of 250 N/mm² and brackets have a minimum yield strength of 170 N/mm².

Sectional dimensions

The standard requires channel sections to meet the dimensional requirements stated when measured not less than 150mm from the end. Twist will not be greater than 2.5° per metre and bow shall not exceed 5mm for channel 3m in length and 10mm for channel 6m in length, when measured at the centre of the length.



Safe working slip and pull-out loads

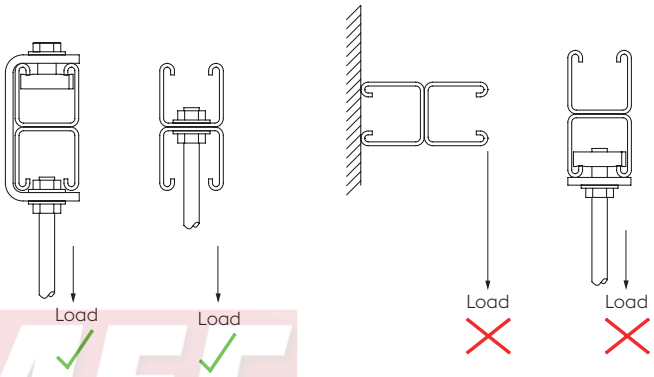
These have been determined by carrying out the tests in accordance with the method stated in section 8 of the standard. It should be noted that the channel nuts are a vital component within the system and the numerous imported products do not necessarily carry the same load and should never be mixed with Metsec systems.

Marking

Metsec channels are marked at regular intervals along their length in the production process. The standard requires the name of the manufacturer and BS 6946. Brackets and other components are marked by labelling the packaging.

Combination channels

Channels that are required in multiple configurations e.g. back to back channel, are supplied spot welded as standard. These channels should always be fully supported at each end under the bottom face and the load should never be hung from just the lips of the bottom channel. Spot welding should never be loaded in tension or the load applied as a bending moment.



Material specification

1. Channels: manufactured from steel complying with BS EN 10346 pre-galvanised, BS EN 10025-2 mild steel hot dip galvanised after manufacture to BS EN 1461 and BS EN 10088-1 and BS EN 10088-2 stainless steel grade 1.4404 (316L).

2. Brackets: manufactured from steel complying with BS EN 10025-2 mild steel hot dip galvanised after manufacture to BS EN ISO 1461 and BS EN 10088-1 and BS EN 10088-2 stainless steel grade 1.4404 (316L).

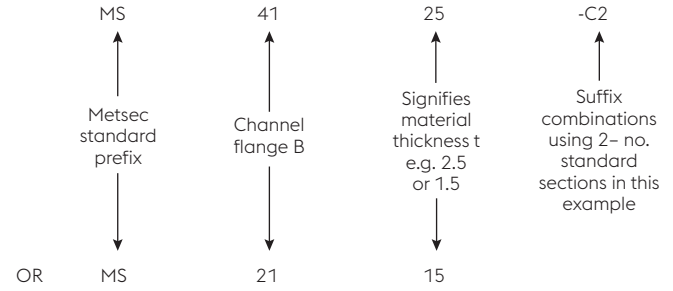
3. Fixings: bolts, hexagon nuts, screws and washers manufactured from steel complying with DIN938/8, DIN 933/8.8, BS4320 and zinc plated and CR3 passivated or hot dip galvanised after manufacture to BS EN ISO 1461. Stainless steel to BS EN 10088-1 and BS EN 10088-2 grade 1.4404 (316L) A4.

Dimensions and tolerances

In accordance with BS 6946 Metal channel cable support systems for electrical installations.

Channel notation

Metsec channel references are serialised for easy recognition and use, e.g.: channel series MS4125 comprises single channel or combinations of channel within the basic section profile thus:

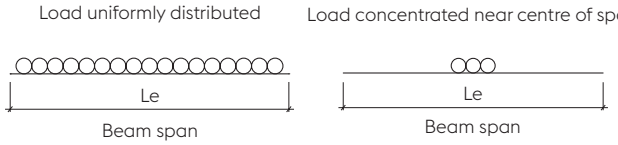


Load tables

Comprehensive load tables are provided for each channel series:
MS4125 series – pages 136-137
MS2125 series – pages 138-139
MS4115 series – pages 140-141
MS2115 series – pages 142-143
Slotted sections – pages 144-147

Basis of design and formulation of load tables

1. Safe loads calculated in accordance with BS EN 1993-1-3 Code of Practice for Design of Cold Formed Sections.
2. Minimum Yield Stress (Ys) 280N/mm² (S280 GD + Z275 NA-C).
3. Beams assumed simply supported and provided with adequate lateral restraint over the given span.
4. Beam loads are applied through the shear centre of the section in the direction indicated in the tables.
5. Alternative beam safe load tables are provided for a uniformly distributed load or load concentrated near the centre of the span, e.g.:



6. Beam loads and corresponding deflections are calculated at a stress of 175N/mm² i.e.: 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 i.e.: the critical load is highlighted in colour.

7. Column effective lengths shall be determined by the designer in accordance with Table 9 of BS EN 1993-1-3.

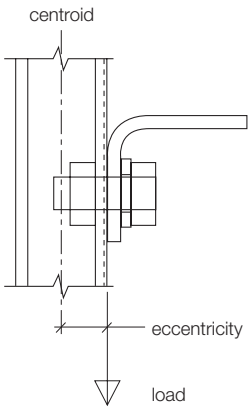
8. Beam loads are generally applied at the column face via the connection bracket. Therefore column safe load tables are provided allowing for this eccentricity of load from the centroid of the section.

Alternative combinations

For safe loads on alternative combinations not tabulated please refer to Metsec Cable Management Technical Department.

Stainless steel

The mechanical properties of stainless steel are significantly different from those for carbon steel and safe load tables must not be used for sections in this material. Please consult Metsec Cable Management Technical Department for advice.



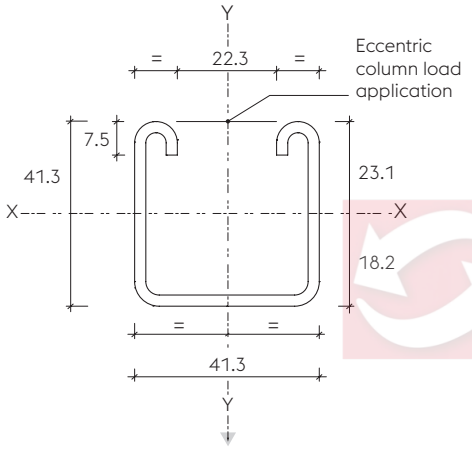
LOAD TABLES

MS4125

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
3.39	2.67	7.32	3.17	4.03	1.47	9.34	4.52	1.66



Beam load application

Safe load tables

Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	754	1.39	754	754	377	1.11	377	377	5176	1557
0.7	646	1.88	646	646	324	1.51	324	324	4818	1496
0.8	566	2.46	566	510	283	1.98	283	283	4371	1424
0.9	503	3.11	503	403	252	2.5	252	252	3928	1351
1	452	3.85	452	327	226	3.08	226	204	3512	1280
1.1	411	4.66	411	270	206	3.72	206	169	3146	1211
1.2	377	5.54	377	227	189	4.43	189	142	2801	1142
1.3	348	6.51	348	193	175	5.21	175	121	2541	1084
1.4	324	7.54	300	167	162	6.04	162	104	2323	1033
1.5	301	8.66	261	145	151	6.92	151	91	2112	980
1.6	282	9.86	230	128	141	7.88	141	80	1961	939
1.7	267	11.12	203	113	133	8.91	127	71	1807	895
1.8	251	12.47	181	101	125	9.98	113	63	1675	855
1.9	239	13.89	163	91	120	11.11	102	57	1586	827
2	226	15.39	147	82	113	12.31	92	51	1486	795
2.1	215	16.97	133	74	108	13.58	83	46	1378	758
2.2	206	18.63	121	68	103	14.9	76	42	1304	731
2.3	197	20.36	111	62	99	16.28	69	39	1239	707
2.4	188	22.16	102	57	94	17.73	64	35		
2.5	181	24.06	94	52	91	19.25	59	33		
2.6	174	26.02	87	49	87	20.81	54	30		
2.7	168	28.06	81	45	84	22.45	50	28	$\frac{\propto Le}{rxx}$	> 180
2.8	161	30.17	75	42	81	21.14	47	26		
2.9	156	32.37	70	39	78	25.89	44	24		
3	151	34.63	65	37	76	27.71	41	23		

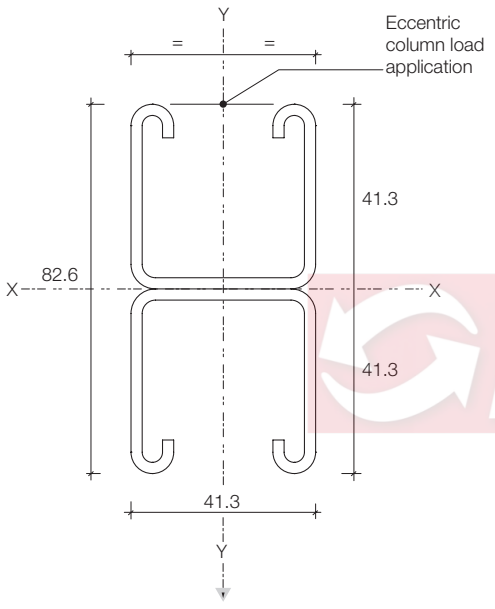
MS4125-C2

Combination comprising 2 no. MS4125

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
6.78	5.34	37.2	9.01	9.01	2.34	18.68	9.05	1.66



Beam load application

Safe load tables

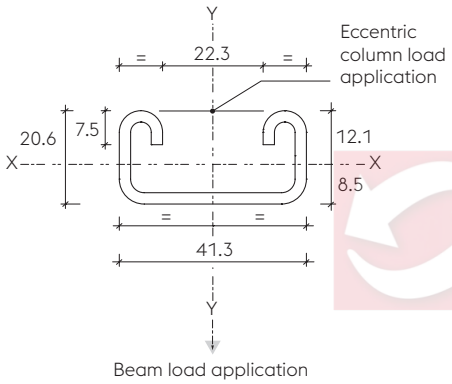
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	2143	0.77	2143	2143	1072	0.61	1072	1072	11636	2886
0.7	1837	1.05	1837	1837	918	0.84	9.18	918	11431	2863
0.8	1607	1.38	1607	1607	804	1.1	804	804	11193	2836
0.9	1429	1.75	1429	1429	714	1.4	714	714	10912	2805
1	1286	2.15	1286	1286	643	1.72	643	643	10574	2769
1.1	1169	2.61	1169	1169	584	2.09	584	584	10168	2726
1.2	1072	3.1	1072	1072	536	2.48	536	536	9685	2675
1.3	989	3.64	989	981	495	2.92	495	495	9129	2616
1.4	918	4.22	918	846	459	3.38	459	459	8518	2549
1.5	857	4.85	857	737	429	3.88	429	429	7882	2476
1.6	804	5.51	804	648	402	4.4	402	402	7253	2397
1.7	756	6.23	756	574	378	4.98	378	359	6653	2316
1.8	714	6.98	714	512	357	5.58	357	320	6096	2233
1.9	677	7.77	677	459	338	6.22	338	287	5588	2151
2	643	8.61	643	415	321	6.89	321	259	5129	2070
2.1	612	9.5	612	376	306	7.6	306	235	4717	1991
2.2	584	10.43	584	343	292	8.35	292	214	4347	1915
2.3	559	11.39	559	314	280	9.11	280	196	4016	1840
2.4	536	12.4	518	288	268	9.92	268	180	3718	1769
2.5	514	13.46	478	265	257	10.76	257	166	3451	1701
2.6	495	14.56	442	245	247	11.65	247	153	3210	1635
2.7	476	15.7	410	228	238	12.56	238	142	2993	1572
2.8	459	16.88	381	212	230	13.5	230	132	2797	1512
2.9	443	18.11	355	197	222	14.49	222	123	2619	1454
3	429	19.38	332	184	214	15.5	207	115	$\frac{\propto Le}{ryy}$	> 180

MS2125

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
2.35	1.85	1.21	1	1.43	0.72	5.44	2.63	1.52



Beam load application

Safe load tables

Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	237	2.64	237	150	118	2.11	118	93	2978	894
0.7	203	3.59	198	110	101	2.87	101	69	2471	821
0.8	177	4.68	151	84	89	3.75	89	53	2019	747
0.9	158	5.94	120	66	79	4.75	75	42	1657	677
1	142	7.33	97	54	71	5.86	61	34	1375	613
1.1	129	8.87	80	44	65	7.09	50	28	1156	556
1.2	118	10.55	67	37	59	8.44	42	23	984	505
1.3	109	12.38	57	32	55	9.91	36	20		
1.4	101	14.36	49	27	51	11.49	31	17		
1.5	95	16.49	43	24	47	13.18	27	15		
1.6	89	18.76	38	21	44	15	24	13		
1.7	84	21.18	34	19	42	16.95	21	12		
1.8	79	23.74	30	17	39	19	19	10		
1.9	75	26.45	27	15	37	21.16	17	9		
2	71	29.31	24	13	35	23.45	15	8		
2.1	68	32.31	22	12	34	25.86	14	8		
2.2	65	35.46	20	11	32	28.38	13	7		
2.3	62	38.76	18	10	31	31.01	11	6		
2.4	59	42.2	17	9	30	33.77	11	6		
2.5	57	45.8	16	9	28	36.63	10	5		
2.6	55	49.53	14	8	27	39.63	9	5		
2.7	53	53.42	13	7	26	42.74	8	5		
2.8	51	57.45	12	7	25	45.95	8	4		
2.9	49	61.62	12	6	24	49.29	7	4		
3	47	65.95	11	6	24	52.76	7	4		

$\frac{\propto Le}{rxx} > 180$

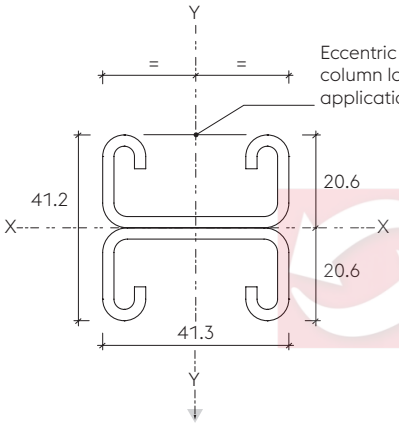
MS2125-C2

Combination comprising 2 no. MS2125

Finish: pre galvanised = PG, post galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
4.71	3.7	5.78	2.81	2.81	1.11	10.88	5.27	1.52



Beam load application

Safe load tables

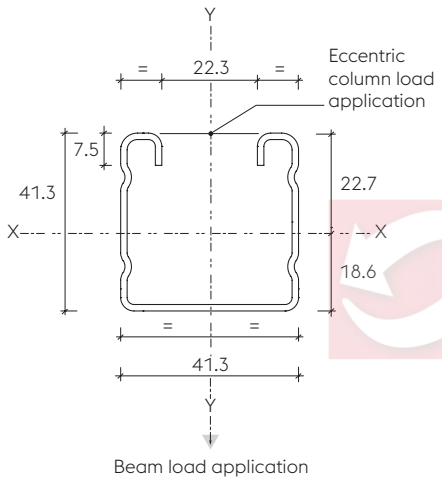
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	667	1.55	667	667	334	1.24	334	334	7582	1765
0.7	572	2.11	572	526	286	1.69	286	286	7214	1720
0.8	501	2.76	501	403	250	2.21	250	250	6733	1665
0.9	445	3.5	445	318	222	2.8	222	199	6140	1601
1	400	4.32	400	258	200	3.46	200	161	5484	1528
1.1	364	5.22	364	213	182	4.17	182	133	4835	1451
1.2	334	6.22	322	179	167	4.97	167	112	4243	1372
1.3	308	7.29	274	152	154	5.84	154	95	3726	1295
1.4	286	8.46	237	131	143	6.77	143	82	3284	1221
1.5	267	9.71	206	115	133	7.77	129	72	2908	1150
1.6	250	11.05	181	101	125	8.84	113	63	2589	1084
1.7	236	12.47	161	89	118	9.98	100	56	2317	1022
1.8	222	13.98	143	80	111	11.19	89	50	2084	964
1.9	211	15.58	129	71	105	12.47	80	45	1884	910
2	200	17.26	116	64	100	13.81	72	40		
2.1	191	19.03	105	58	95	15.23	66	37		
2.2	182	20.89	96	53	91	16.72	60	33		
2.3	174	22.83	88	49	87	18.27	55	30		
2.4	167	24.86	81	45	83	19.89	50	28		
2.5	160	26.98	74	41	80	21.58	46	26	$\frac{\propto Le}{ryy}$	> 180
2.6	154	29.18	69	38	77	23.35	43	24		
2.7	148	31.46	64	35	74	25.18	40	22		
2.8	143	33.84	59	33	72	27.07	37	21		
2.9	138	36.3	55	31	69	29.04	34	19		
3	133	38.84	52	29	67	31.08	32	18		

MS4115

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
2.14	1.69	4.99	2.2	2.68	1.53	6.14	2.97	1.69



Safe load tables

Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	523	1.41	523	523	261	1.13	261	261	3297	1061
0.7	448	1.92	448	448	224	1.54	224	224	3057	1015
0.8	392	2.51	392	348	196	2.01	196	196	2743	957
0.9	349	3.17	349	275	174	2.53	174	172	2418	897
1	314	3.92	314	222	157	3.14	157	139	2109	836
1.1	285	4.74	285	184	143	3.79	143	115	1857	782
1.2	261	5.64	261	154	131	4.52	131	97	1625	727
1.3	241	6.62	237	132	121	5.3	121	82	1432	677
1.4	224	7.68	204	114	112	6.14	112	71	1270	631
1.5	209	8.81	178	99	105	7.05	105	62	1148	594
1.6	196	10.03	156	87	98	8.03	98	54	1033	556
1.7	185	11.32	139	77	92	9.05	87	48	934	522
1.8	174	12.69	124	69	87	10.15	77	43	862	495
1.9	165	14.14	111	62	83	11.32	69	39	788	466
2	157	15.67	100	56	78	12.53	63	35		
2.1	149	17.27	91	50	75	13.82	57	32		
2.2	143	18.96	83	46	71	15.17	52	29		
2.3	136	20.72	76	42	68	16.58	47	26		
2.4	131	22.56	70	39	65	18.05	43	24		
2.5	125	24.48	64	36	63	19.58	40	22	$\frac{\propto Le}{rxx}$	> 180
2.6	121	26.48	59	33	60	21.18	37	21		
2.7	116	28.55	55	31	58	22.85	34	19		
2.8	112	30.71	51	28	56	24.56	32	18		
2.9	108	32.94	48	26	54	26.36	30	17		
3	105	35.25	44	25	52	28.2	28	15		

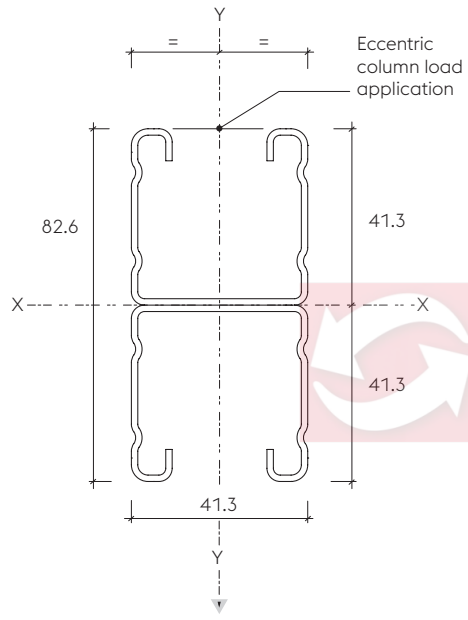
MS4115-C2

Combination comprising 2 no. MS4115

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
4.29	3.38	24.82	6.01	6.01	2.41	12.27	5.94	1.69



Safe load tables

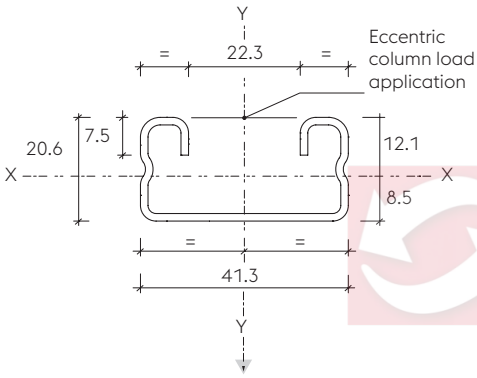
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	1429	0.78	1429	1429	715	0.61	715	715	7370	1901
0.7	1225	1.06	1225	1225	613	0.84	613	613	7245	1886
0.8	1072	1.38	1072	1072	536	1.1	536	536	7100	1868
0.9	953	1.74	953	953	476	1.4	476	476	6931	1848
1	858	2.15	858	858	429	1.73	429	429	6729	1825
1.1	780	2.61	780	780	390	2.09	390	390	6486	1797
1.2	715	3.1	715	715	357	2.48	357	357	6197	1765
1.3	660	3.64	660	655	330	2.91	330	330	5862	1727
1.4	613	4.22	613	565	306	3.38	306	306	5490	1684
1.5	572	4.84	572	492	286	3.88	286	286	5099	1636
1.6	536	5.51	536	432	268	4.4	268	268	4705	1585
1.7	505	6.22	505	383	252	4.98	252	239	4326	1532
1.8	476	6.98	476	342	238	5.58	238	213	3971	1478
1.9	451	7.77	451	307	226	6.22	226	192	3646	1423
2	429	8.61	429	277	214	6.89	214	173	3350	1370
2.1	408	9.5	408	251	204	7.59	204	157	3083	1318
2.2	390	10.42	390	229	195	8.33	195	143	2843	1267
2.3	373	11.39	373	209	186	9.11	186	131	2628	1218
2.4	357	12.4	346	192	179	9.92	179	120	2434	1170
2.5	343	13.46	319	177	172	10.76	172	111	2260	1125
2.6	330	14.55	295	164	165	11.65	165	102	2103	1081
2.7	318	15.7	273	152	159	12.56	159	95	1961	1040
2.8	306	16.88	254	141	153	13.5	153	88	1833	1000
2.9	296	18.11	237	132	148	14.49	148	82	1717	962
3	286	19.38	221	123	143	15.5	138	77	1611	925

MS2115

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
1.52	1.2	0.89	0.75	1.03	0.77	3.68	1.78	1.55



Beam load application

Safe load tables

Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	179	2.69	179	111	89	2.15	89	69	2051	663
0.7	153	3.66	147	81	77	2.93	77	51	1748	612
0.8	134	4.78	112	62	67	3.83	67	39	1453	558
1.5	119	6.05	89	49	60	4.84	55	31	1203	506
1	107	7.46	72	40	54	5.98	45	25	1004	459
1.1	97	9.03	59	33	49	7.23	37	21	847	416
1.2	89	10.75	50	28	45	8.6	31	17	722	378
1.3	82	12.62	42	24	41	10.09	27	15	622	344
1.4	77	14.63	37	20	38	11.7	23	13		
1.5	71	16.8	32	18	36	13.44	20	11		
1.6	67	19.11	28	16	33	15.28	18	10		
1.7	63	21.57	25	14	32	17.25	16	9		
1.8	60	24.19	22	12	30	19.35	14	8		
1.9	56	26.95	20	11	28	21.56	12	7		
2	54	29.86	18	10	27	23.88	11	6		
2.1	51	32.92	16	9	26	26.34	10	6		
2.2	49	26.13	15	8	24	28.9	9	5	$\frac{\propto Le}{rxx}$	> 180
2.3	47	39.49	14	8	23	31.59	8	5		
2.4	45	43	12	7	22	34.39	8	4		
2.5	43	46.66	11	6	21	37.32	7	4		
2.6	41	50.46	11	6	21	40.37	7	4		
2.7	40	54.42	10	5	20	43.53	6	3		
2.8	38	58.52	9	5	19	46.82	6	3		
2.9	37	62.78	9	5	18	50.23	5	3		
3	36	67.18	8	4	18	53.76	5	3		

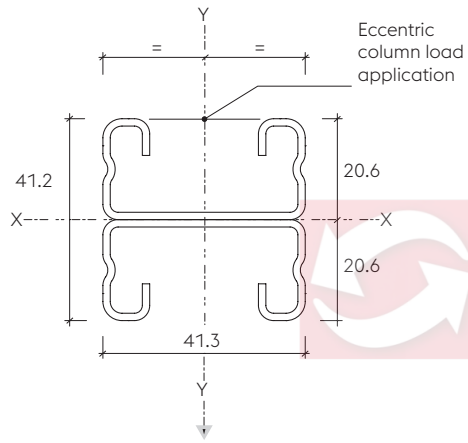
MS2115-C2

Combination comprising 2 no. MS2115

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm3	ryy mm
3.03	2.4	4.08	1.98	1.98	1.16	7.35	3.56	1.56



Beam load application

Safe load tables

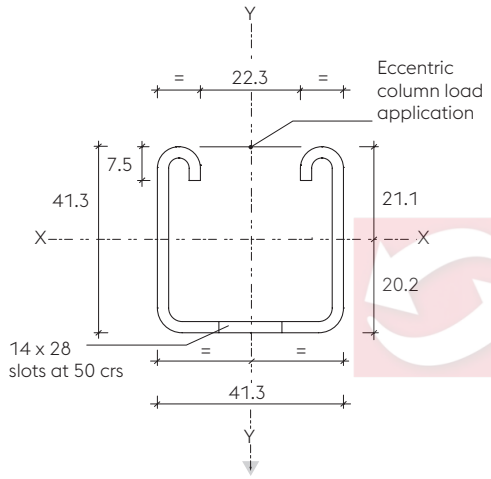
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	472	1.55	472	472	236	1.24	236	236	4938	1224
0.7	404	2.12	404	372	202	1.69	202	202	4729	1194
0.8	354	2.76	354	284	177	2.21	177	177	4458	1159
0.9	314	3.5	314	225	157	2.8	157	140	4117	1117
1	283	4.32	283	182	141	3.46	141	114	3725	1069
1.1	257	5.22	257	150	129	4.19	129	94	3319	1017
1.2	236	6.22	228	126	118	4.98	118	79	2934	963
1.3	218	7.3	194	108	109	5.84	109	67	2589	910
1.4	202	8.46	167	93	101	6.77	101	58	2290	859
1.5	189	9.71	146	81	94	7.77	91	51	2033	810
1.6	177	11.05	128	71	88	8.84	80	44	1813	763
1.7	166	12.48	113	63	83	9.98	71	39	1624	720
1.8	157	13.99	101	56	79	11.19	63	35	1463	679
1.9	149	15.59	91	50	74	12.47	57	32	1323	641
2	141	17.27	82	46	71	13.81	51	28	1202	606
2.1	135	19.04	74	41	67	15.23	46	26		
2.2	129	20.9	68	38	64	16.72	42	24		
2.3	123	22.84	62	34	62	18.27	39	22		
2.4	118	24.87	57	32	59	19.89	36	20		
2.5	113	26.98	52	29	57	21.59	33	18	$\frac{\propto Le}{ryy}$	> 180
2.6	109	29.19	48	27	54	23.35	30	17		
2.7	105	31.47	45	25	52	25.18	28	16		
2.8	101	33.85	42	23	51	27.08	26	15		
2.9	98	36.31	39	22	49	29.04	24	14		
3	94	38.86	36	20	47	31.09	23	13		

MS4125 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
3.04	2.53	6.2	2.94	3.07	1.43	9.28	4.5	1.75



Beam load application

Safe load tables

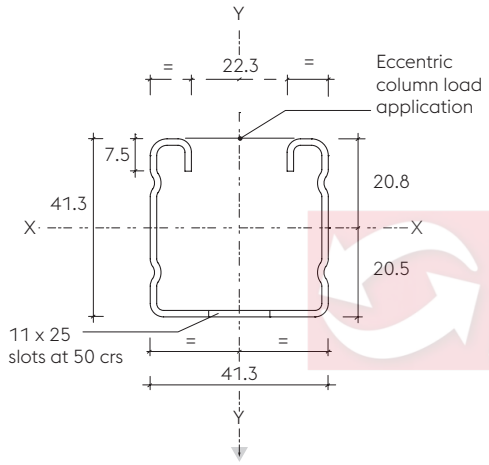
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	698	1.52	698	698	349	1.22	349	349	4541	1491
0.7	599	2.06	599	564	299	1.65	299	299	4151	1416
0.8	524	2.7	524	432	262	2.16	262	262	3701	1333
0.9	466	3.41	466	341	233	2.73	233	213	3250	1247
1	419	4.21	419	276	210	3.37	210	173	2842	1163
1.1	381	5.1	381	228	190	4.08	190	143	2521	1090
1.2	349	6.07	345	192	175	4.85	175	120	2229	1019
1.3	322	7.12	294	163	161	5.7	161	102	2011	960
1.4	299	8.26	254	141	150	6.6	150	88	1808	902
1.5	279	9.48	221	123	140	7.59	138	77	1637	849
1.6	262	10.78	194	108	131	8.63	121	67	1494	802
1.7	246	12.18	172	96	123	9.74	108	60	1391	767
1.8	233	13.65	153	85	116	10.92	96	53	1286	729
1.9	221	15.21	138	77	110	12.17	86	48	1196	695
2	210	16.86	124	69	105	13.48	78	43	1118	664
2.1	200	18.58	113	63	100	14.86	70	39		
2.2	190	20.39	103	57	95	16.32	64	36		
2.3	182	22.29	94	52	91	17.83	59	33		
2.4	175	24.27	86	48	87	19.42	54	30		
2.5	168	26.34	80	44	84	21.07	50	28	$\frac{\propto Le}{rxx} > 180$	
2.6	161	28.49	74	41	81	22.78	46	26		
2.7	155	30.72	68	38	78	24.58	43	24		
2.8	150	33.04	63	35	75	26.43	40	22		
2.9	144	35.44	59	33	72	28.35	37	21		
3	140	37.92	55	31	70	30.37	35	19		

MS4115 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
1.93	1.61	4.25	2.01	2.1	1.48	6.1	2.96	1.78



Beam load application

Safe load tables

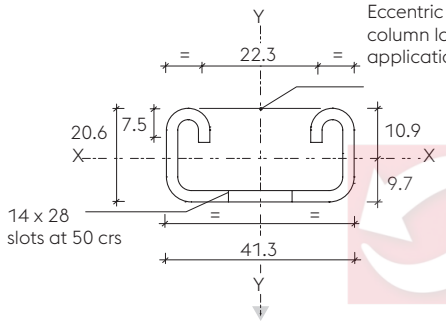
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	479	1.52	479	479	239	1.22	239	239	2930	1012
0.7	410	2.07	410	386	205	1.65	205	205	2691	961
0.8	359	2.7	359	296	180	2.16	180	180	2385	899
0.9	319	3.41	319	234	160	2.73	160	146	2082	836
1	287	4.21	287	189	144	3.37	144	118	1803	773
1.1	261	5.1	261	156	131	4.08	131	98	1564	714
1.2	239	6.07	237	131	120	4.81	120	82	1364	660
1.3	221	7.12	202	112	110	5.7	110	70	1199	611
1.4	205	8.26	174	97	103	6.6	103	60	1061	567
1.5	192	9.48	151	84	96	7.59	95	53	947	527
1.6	180	10.79	133	74	90	8.63	83	46	850	491
1.7	169	12.18	118	66	84	9.74	74	41	778	463
1.8	160	13.66	105	58	80	10.92	66	37	708	434
1.9	151	15.21	94	52	76	12.17	59	33		
2	144	16.86	85	47	72	13.49	53	30		
2.1	137	18.59	77	43	68	14.87	48	27		
2.2	131	20.4	70	39	65	16.32	44	24		
2.3	125	22.3	64	36	62	17.83	40	22		
2.4	120	24.28	59	33	60	19.42	37	21	$\frac{\propto Le}{ryy}$	> 180
2.5	115	26.34	55	30	57	21.07	34	19		
2.6	110	28.49	50	28	55	22.8	32	18		
2.7	106	30.72	47	26	53	24.58	29	16		
2.8	103	33.04	43	24	51	26.43	27	15		
2.9	99	35.44	41	23	50	28.35	25	14		
3	96	37.93	38	21	48	30.35	24	13		

MS2125 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm^2	Wt kg/m	Ixx cm^2	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm^4	Zyy cm^3	ryy mm
2	1.71	0.99	0.91	1.02	0.7	5.28	2.56	1.62



Beam load application

Safe load tables

Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	216	2.94	216	123	108	2.36	108	77	2490	841
0.7	186	4	162	90	93	3.2	93	56	2052	764
0.8	162	5.22	124	69	81	4.17	78	43	1671	688
0.9	144	6.61	98	55	72	5.29	61	34	1368	617
1	130	8.16	80	44	65	6.53	50	28	1134	555
1.1	118	9.87	66	37	59	7.9	41	23	953	499
1.2	108	11.74	55	31	54	9.4	35	19	810	451
1.3	100	13.78	47	26	50	11.02	29	16		
1.4	93	15.98	41	23	46	12.79	25	14		
1.5	87	18.35	35	20	43	14.68	22	12		
1.6	81	20.88	31	17	41	16.7	19	11		
1.7	76	23.57	28	15	38	18.85	17	10		
1.8	72	26.42	25	14	36	21.15	15	9		
1.9	68	29.44	22	12	34	23.55	14	8		
2	65	32.62	20	11	32	26.1	12	7		
2.1	62	35.97	18	10	31	28.77	11	6		
2.2	59	39.47	16	9	30	31.58	10	6		
2.3	56	43.14	15	8	28	34.51	9	5		
2.4	54	46.98	14	8	27	37.58	9	5		
2.5	52	50.97	13	7	26	40.78	8	4		
2.6	50	55.13	12	7	25	44.11	7	4		
2.7	48	59.45	11	6	24	47.56	7	4		
2.8	46	63.94	10	6	23	51.15	6	4		
2.9	45	68.59	9	5	22	54.87	6	3		
3	43	73.4	9	5	22	58.73	6	3		

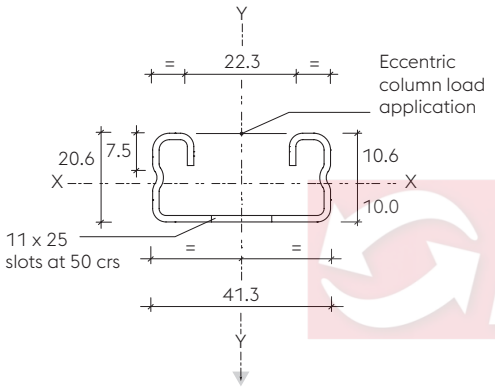
$\frac{\propto Le}{rxx} > 180$

MS2115 – slotted

Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Section properties

Area cm²	Wt kg/m	Ixx cm²	Zxx (top) mm	Zxx (btm) mm	rxx cm	Iyy cm⁴	Zyy cm³	ryy mm
1.31	1.12	0.74	0.7	0.75	0.75	3.64	1.76	1.67



Beam load application

Safe load tables

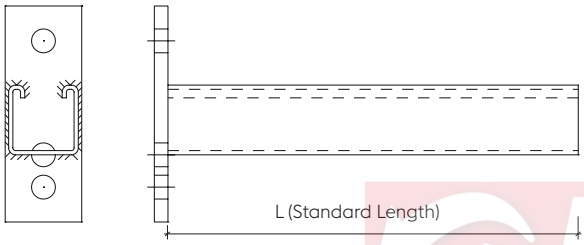
Le (m)	Safe working loads in kg uniform (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe working loads in kg concentrated (kg) Load	(mm) Def.	Def. limit span/ 200 (kg)	Def. limit span/ 360 (kg)	Safe column loads kg at centroid	Safe column loads kg at face
0.6	166	3.01	165	92	83	2.41	83	57	1738	632
0.7	142	4.09	121	67	71	3.28	71	42	1469	577
0.8	124	5.35	93	52	62	4.28	58	32	1215	521
0.9	110	6.77	73	41	55	5.41	46	25	1003	468
1	99	8.35	59	33	50	6.68	37	21	836	420
1.1	90	10.11	49	27	45	8.09	31	17	704	378
1.2	83	12.03	41	23	41	9.63	26	14	600	341
1.3	76	14.12	35	20	38	11.29	22	12	516	309
1.4	71	16.37	30	17	35	13.09	19	11		
1.5	66	18.79	26	15	33	15.04	17	9		
1.6	62	21.38	23	13	31	17.1	15	8		
1.7	58	24.14	21	11	29	19.32	13	7		
1.8	55	27.06	18	10	28	21.64	11	6		
1.9	52	30.15	16	9	26	24.12	10	6		
2	50	33.41	15	8	25	26.73	9	5		
2.1	47	36.83	13	7	24	29.47	8	5		
2.2	45	40.42	12	7	23	32.35	8	4	$\frac{\propto Le}{ryy}$	> 180
2.3	43	44.18	11	6	22	35.34	7	4		
2.4	41	48.11	10	6	21	38.49	6	4		
2.5	40	52.2	10	5	20	41.77	6	3		
2.6	38	56.46	9	5	19	45.17	5	3		
2.7	37	60.89	8	5	18	48.7	5	3		
2.8	35	65.48	8	4	18	52.39	5	3		
2.9	34	70.24	7	4	17	56.19	4	2		
3	33	75.17	7	4	17	60.13	4	2		

CANTILEVER ARM DETAILS

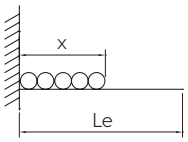
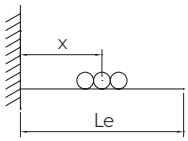
Cantilever arms – single

Finish: post-galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. MS150ASS

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



Recommended safe loads (kg) for arm bolted to 2.5mm thick channel (M12 bolt torque 65Nm)

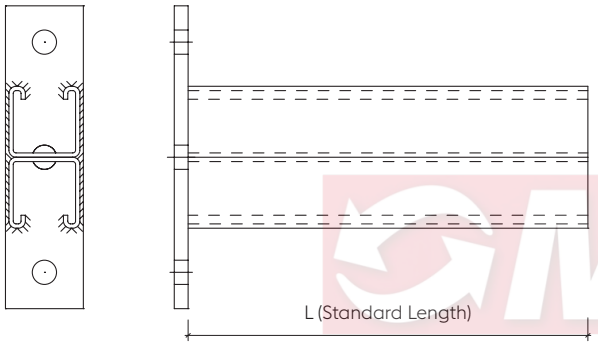
X (m)	Total uniformly distributed load	Concentrated load
		
0.10	684	542
0.15	608	377
0.20	542	283
0.25	452	226
0.30	377	188
0.35	323	162
0.40	283	141
0.45	251	126
0.50	226	113
0.55	206	103
0.60	188	94
0.65	174	87
0.70	162	81
0.75	151	75

NB: Arms have been independently tested (M12 bolt torque 65 Nm). Tabulated safe loads satisfy minimum factor of safety of 3 on continuous slip and limited design stresses in channel arms and their fixings.

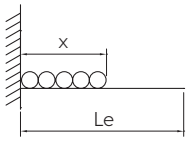
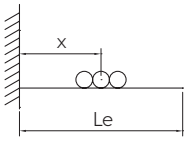
Cantilever arms – double

Finish: post-galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. MS150ESS

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



Recommended safe loads (kg) for arm bolted to 2.5mm thick channel (M12 bolt torque 65Nm)

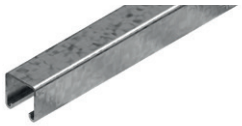
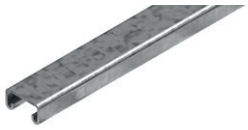
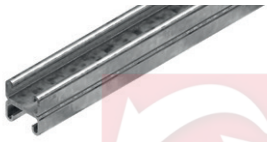
X (m)	Total uniformly distributed load	Concentrated load
		
0.10	684	643
0.15	684	552
0.20	643	484
0.25	594	430
0.30	552	388
0.35	516	353
0.40	484	324
0.45	455	299
0.50	430	277
0.55	408	259
0.60	387	243
0.65	369	229
0.70	353	216
0.75	337	205

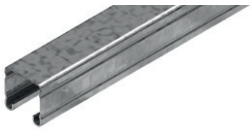
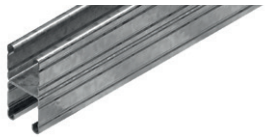
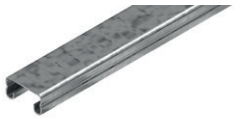
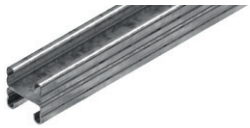
NB: Arms have been independently tested (M12 bolt torque 65 Nm). Tabulated safe loads satisfy minimum factor of safety of 3 on continuous slip and limited design stresses in channel arms and their fixings.

CHANNEL, FIXINGS AND ACCESSORIES

Channel – plain

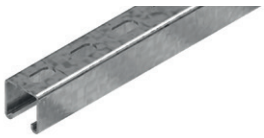
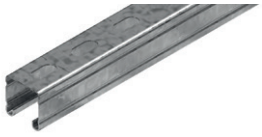
Finish: pre-galvanised = PG, post-galvanised = HDG, stainless steel grade 1.4404 (316L) = SS

Length m		
3	MS4125PG3	
6	MS4125PG6	
3	MS4125PG3C2	
6	MS4125PG6C2	
3	MS2125PG3	
6	MS2125PG6	
3	MS2125PG3C2	
6	MS2125PG6C2	

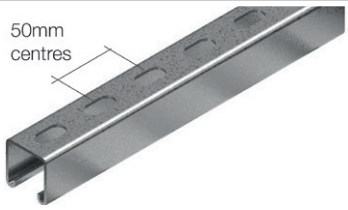
Length m		
3	MS4115PG3	
6	MS4115PG6	
3	MS4115PG3C2	
6	MS4115PG6C2	
3	MS2115PG3	
6	MS2115PG6	
3	MS2115PG3C2	
6	MS2115PG6C2	

Channel – slotted

Finish: pre galvanised = PG, post galvanised = HDG, stainless steel grade 316 = SS

Length m		
3	MS4125PG3S11	
6	MS4125PG6S11	
3	MS4125PG3S14	
6	MS4125PG6S14	
3	MS2125PG3S11	
6	MS2125PG6S11	
3	MS2125PG3S14	
6	MS2125PG6S14	
3	MS4115PG3S11	
6	MS4115PG6S11	
3	MS2115PG3S11	
6	MS2115PG6S11	

Slot sizes in channel

S11 = 11 x 25mm	
S14 = 14 x 28mm	

Channel nuts

Finish: BZP as standard. For post-galvanised add HDG e.g. MPN06HDG. For stainless steel grade 1.4404 (316L) add SS e.g. MPN06SS

Nut type	
Plain channel nuts	
MPN06	
MPN08	
MPN10	
MPN12	
Short spring channel nuts	
MSN06	
MSN08	
MSN10	
MSN12	
Long spring channel nuts	
MLN06	
MLN08	
MLN10	
MLN12	

Closure strip – 3m long

PVC white = W, PVC black = B, pre-galvanised steel = S

MS41CLW3	
MS41CLB3	
MS41CLS3	

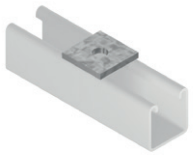
PVC end caps

Black = B, White = W

41mm deep channel	
PVC41B	
PVC41W	
21mm deep channel	
PVC21B	
PVC21W	

BRACKETS

Finish: post-galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. MSF501/06SS

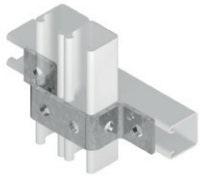
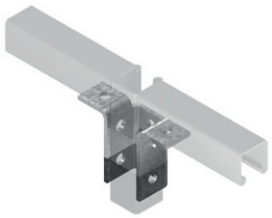
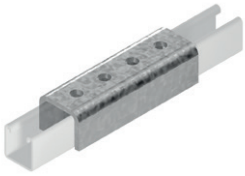
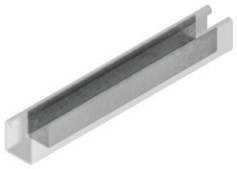
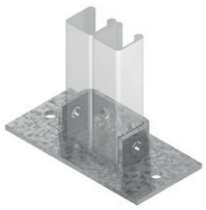
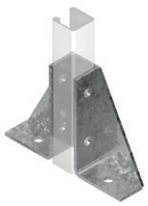
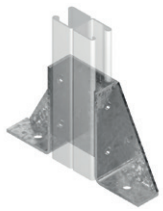
MSF501/06 MSF501/08 MSF501/10 MSF501/12		MSF502		MSF503	
MSF504		MSF505		MSF506	
MSF507		MSA600		MSA601	
MSA602		MSA603		MSA604	
MSA605		MSA606		MSA607	

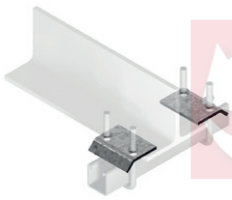
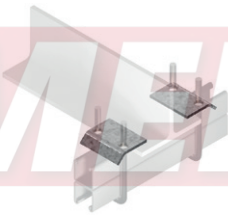
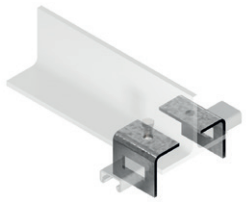
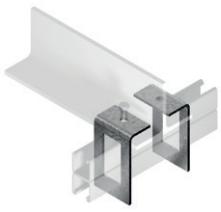
MSA608		MSA609		MSA610	
MSA611		MSA612		MSA614	
MSA615	 *	MSA616	 *	MSA617	

*Available in 7.5° increments from 15° to 82.5°

MSZ700		MSZ701		MSZ702	
MSU800		MSU801		MSU802	

Finish: post-galvanised as standard. For stainless steel grade 1.4404 (316L) add SS e.g. MSF501/06SS

MSU803		MSU804		MSU805	
MSU806		MSU807		MSU808	
MSU809		MBP304		MBP305	
MBP306		MBP307		MBP308	

MBC400 SWL 270kg		MBC401CP SWL 230kg		MBC402CP SWL 200kg	
MBC403CP SWL 200kg		MBC404CP SWL 220kg		MBC405/65 SWL 450kg	
MBC405/110 SWL 450kg		MBC405/150 SWL 450kg		MBC407 SWL 220kg	
MBC408 SWL 220kg		Holes in brackets are 14mm in diameter for M12 hexagonal head bolts Beam clamps should be used in pairs. Maximum loadings given are per clamp when used in pairs. Where required, cone point screws included.			