

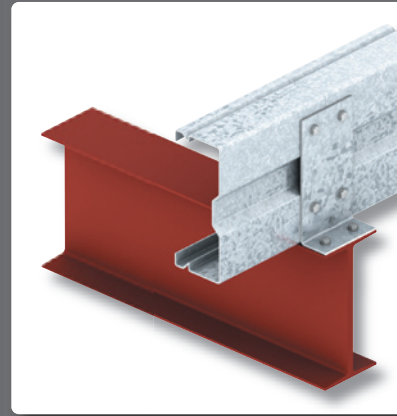
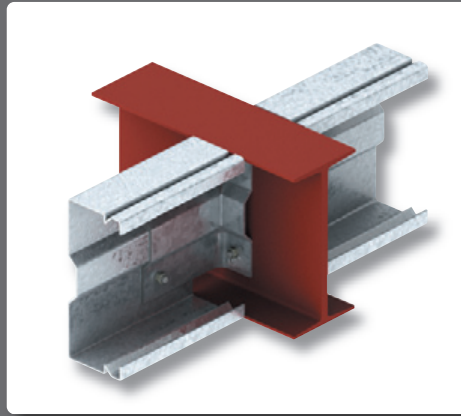
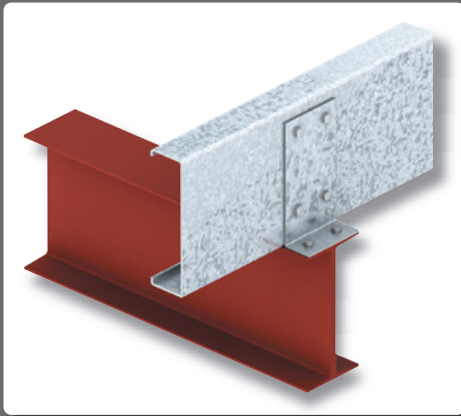
# Profiles & Sections: Applications

## Mezzanine Floors



*Low Energy - Low Carbon Buildings*





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## Introduction

Kingspan Off-Site Profiles & Sections has gained its reputation by continually exceeding its customers' expectations. To be successful in the future, Kingspan Off-Site recognises the need to constantly develop and to add value at all stages of the customer relationship.

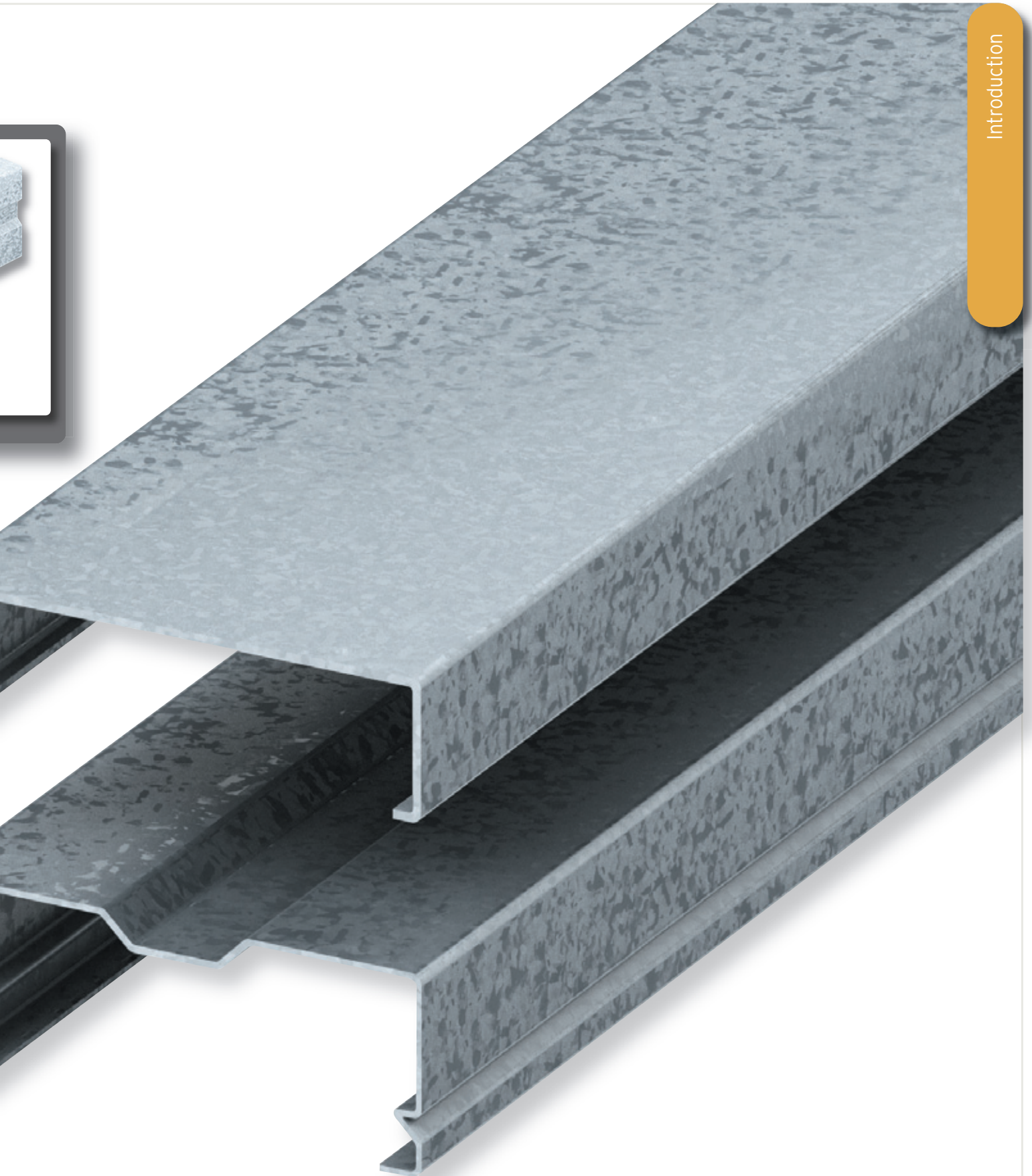
Kingspan Off-Site aims to work with like-minded organisations, helping them to develop their own businesses by contributing in three key areas:

**Design Creativity** - delivering systems that push the conventional.

**Quality Systems** - that are quick and simple to install incorporating lean manufacturing costs to deliver **Affordability** - for all sections of the market.

Kingspan Off-Site Profiles & Sections form genuine partnerships with customers, which is why they do not just think of Kingspan as a supplier, but as an integral member of the team.







Kingspan Off-Site Profiles & Sections has developed a range of storage handling and distribution solutions in conjunction with the University of Cambridge to challenge the conventional use of steel and concrete in providing storage solutions.





## The Sigma Advantage

Using extensive theoretical analysis and testing, an in-depth study into the strength-to-weight ratio of profiled cold rolled steel sections was conducted. It was discovered that the profile of the web and flange can significantly increase the stress limit, thereby achieving an optimum bending strength with thinner gauge materials and stiffness of sections.

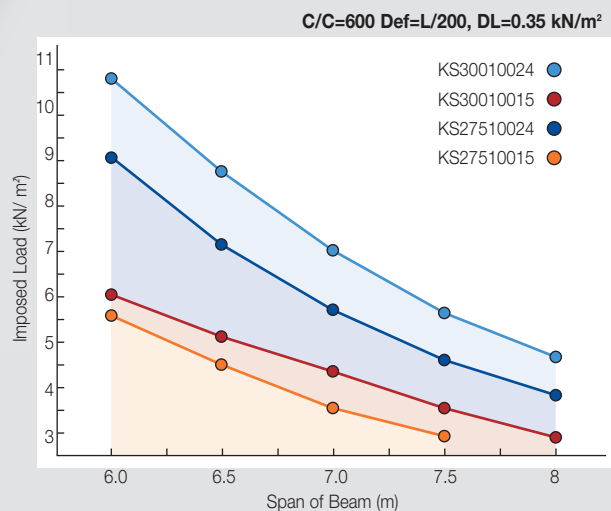
The advantages are immediately apparent with: Lighter gauge sections providing simpler on-site handling, longer spans can be achieved with lighter gauge sections providing cost savings: in the material, reducing the number of hot rolled sections required increases floor space available to the end users.

The Kingspan products provide solutions that can offer significant cost savings over other conventional designs.

### C Section

Where floor spans are already fixed and the beam profile has already been determined, Kingspan offers a range of standard C section beams incorporated within the Sigma software which is available free of charge upon request by calling

01922 724789 or by e-mailing  
[sales@kingspanoffsite.com](mailto:sales@kingspanoffsite.com)



*The graph above clearly demonstrates the ability of the Sigma beams to carry loads for spans up to 8m.*

# Applications, Infill/Oversail

The Kingspan Sigma and C section beams offer unrivalled span performance for SHD applications including:-

- Mezzanine platforms
- Modular and portable buildings
- Storage & work areas

Building applications include:

- Offices
- Retail Units
- Distribution warehouses
- Industrial units
- Refurbishment projects

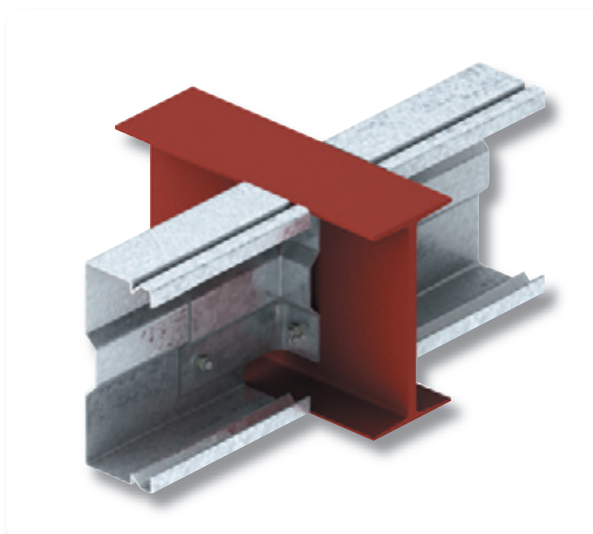
Kingspan Sigma and C section beams all have the following features:

- Detailed design to BS5950:1998 part 5 and SCI design guide P125 supported by testing authenticated by the SCI
- Quality assured to BSEN ISO9001.2000
- Detailed design in 3D modelling software by AdvanceSteel and MultiSteel
- Hot dipped galvanised steel to BSEN10326:2004, grade S390GD, coating Z275
- Kingspan MezaLite 300 floor system provides the full cold formed steel floor solution up to 4.5 m x 4.5 m with normal mezzanine floor loading conditions



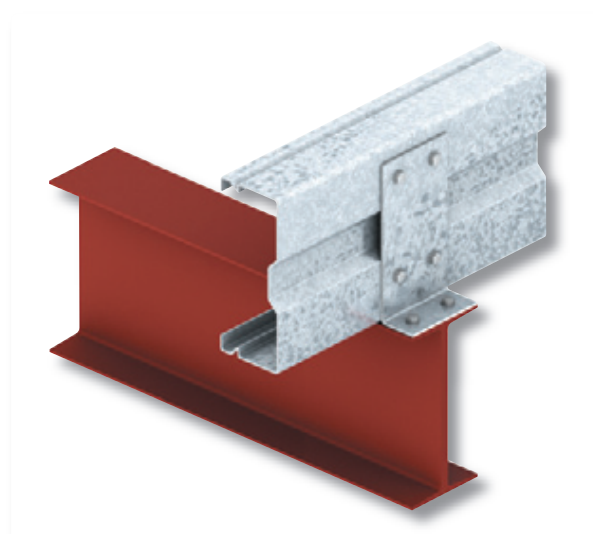
## Beam Fixing Options

### Infill



*Inset Sigma beam with the profiled cleat*

### Oversail



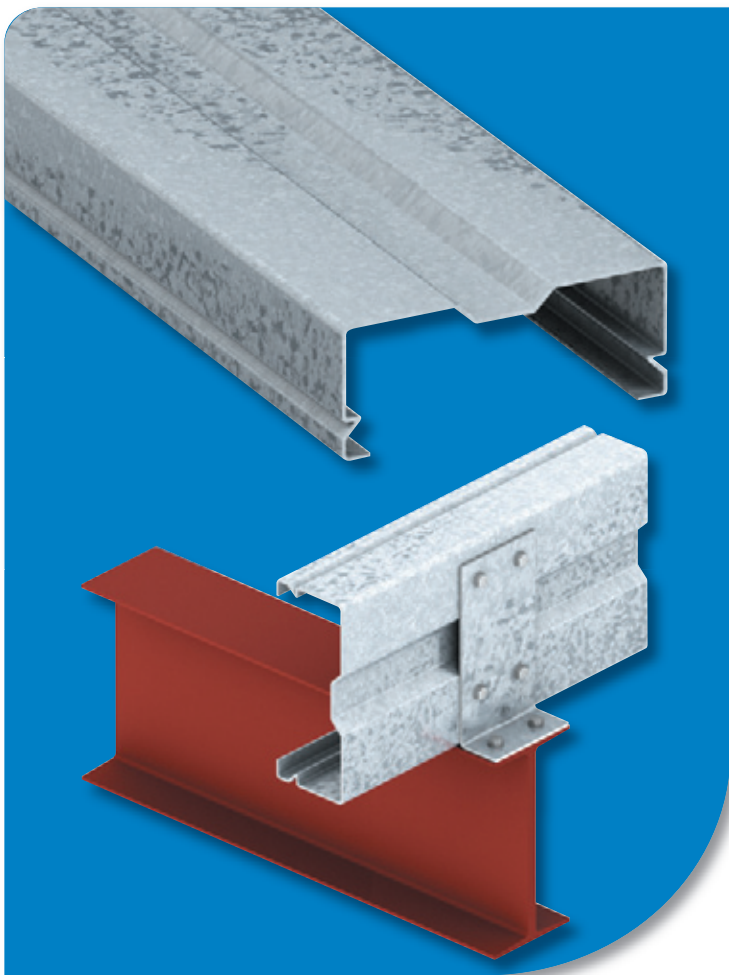
*Oversail Sigma beam with cleats*





The Kingspan Sigma and C section beams offer unrivalled span performance for SHD applications



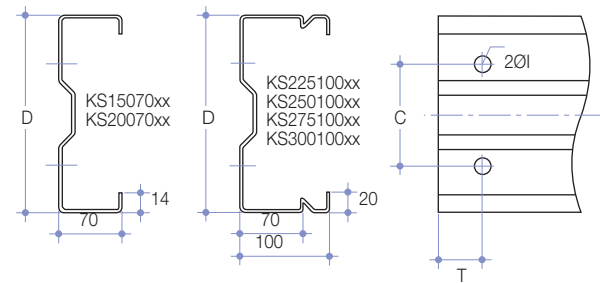


# Sigma Offer

## Section Dimensions

Section Reference	D mm	C mm	I mm	T (min) mm
KS15070xx	150	74	14	20
KS20070xx	200	124	14	20
KS225100xx	225	117	18	25
KS250100xx	250	142	18	25
KS275100xx	275	167	18	25
KS300100xx	300	192	18	25

Section Reference: KSxxxxxxx = KS (for Sigma) - Web Depth (mm) - Flange Width (mm) - 10 x Thickness (mm).



## Section Properties

Section Reference	t mm	Weight Kg/m	Area mm <sup>2</sup>	I <sub>xx</sub> cm <sup>4</sup>	I <sub>yy</sub> cm <sup>4</sup>	Z <sub>xx</sub> cm <sup>3</sup>	Z <sub>yy</sub> cm <sup>3</sup>	r <sub>xx</sub> cm	r <sub>yy</sub> cm	x <sub>cg</sub> mm	I <sub>xxr</sub> cm <sup>4</sup>	Z <sub>xxr</sub> cm <sup>3</sup>
KS1507012	1.2	2.95	377.73	134.73	22.91	18.11	4.85	5.97	2.46	21.58	119.89	15.05
KS1507013	1.3	3.20	409.79	145.93	24.77	19.63	5.25	5.97	2.46	21.53	133.03	16.93
KS1507014	1.4	3.45	441.76	157.08	26.61	21.14	5.65	5.96	2.45	21.48	146.32	18.86
KS1507015	1.5	3.69	473.66	168.15	28.43	22.65	6.04	5.96	2.45	21.43	159.60	20.81
KS1507016	1.6	3.94	505.48	179.17	30.23	24.15	6.43	5.95	2.45	21.38	172.68	22.74
KS1507018	1.8	4.44	568.88	201.00	33.79	27.13	7.20	5.94	2.44	21.28	197.74	26.41
KS2007012	1.2	3.40	435.73	262.41	23.13	26.40	4.81	7.76	2.30	20.71	235.78	22.34
KS2007013	1.3	3.69	472.79	284.36	25.00	28.62	5.20	7.76	2.30	20.66	261.05	25.03
KS2007014	1.4	3.98	509.76	306.19	26.86	30.84	5.60	7.75	2.30	20.62	286.65	27.79
KS2007015	1.5	4.26	546.66	327.93	28.69	33.04	5.99	7.75	2.29	20.57	312.26	30.57
KS2007016	1.6	4.55	583.48	349.56	30.51	35.24	6.37	7.74	2.29	20.53	337.58	33.34
KS2007018	1.8	5.12	656.88	392.50	34.09	39.61	7.14	7.73	2.28	20.44	386.39	38.62
KS2007020	2.0	5.69	729.96	435.01	37.60	43.94	7.89	7.72	2.27	20.35	432.35	43.51
KS22510014	1.4	5.30	679.97	555.09	85.47	49.65	12.99	9.04	3.55	32.83	531.02	46.19
KS22510015	1.5	5.69	729.01	594.55	91.40	53.20	13.90	9.03	3.54	32.76	575.30	50.41
KS22510016	1.6	6.07	777.92	633.83	97.27	56.74	14.80	9.03	3.54	32.69	619.16	54.60
KS22510018	1.8	6.83	875.35	711.83	108.88	63.78	16.59	9.02	3.53	32.55	704.40	62.69
KS22510020	2.0	7.58	972.26	789.09	120.31	70.77	18.34	9.01	3.52	32.41	785.87	70.29
KS22510024	2.4	9.08	1164.52	941.38	142.59	84.58	21.78	8.99	3.50	32.13	940.99	84.52
KS25010014	1.4	5.57	713.97	707.33	86.50	56.91	12.98	9.95	3.48	31.98	677.36	53.05
KS25010015	1.5	5.97	765.51	757.69	92.49	60.98	13.89	9.95	3.48	31.91	733.65	57.87
KS25010016	1.6	6.37	816.92	807.81	98.44	65.04	14.79	9.94	3.47	31.84	789.45	62.65
KS25010018	1.8	7.17	919.35	907.39	110.18	73.12	16.57	9.93	3.46	31.71	898.05	71.89
KS25010020	2.0	7.97	1021.26	1006.07	121.72	81.13	18.33	9.93	3.45	31.58	1002.00	80.60
KS25010024	2.4	9.54	1223.52	1200.70	144.24	96.99	21.76	9.91	3.43	31.31	1200.20	96.92
KS27510014	1.4	5.83	747.97	881.88	87.44	64.46	12.97	10.86	3.42	31.21	846.40	60.34
KS27510015	1.5	6.26	802.01	944.74	93.49	69.09	13.88	10.85	3.41	31.14	915.85	65.71
KS27510016	1.6	6.68	855.92	1007.33	99.49	73.69	14.78	10.85	3.41	31.08	984.85	71.05
KS27510018	1.8	7.51	963.35	1131.69	111.35	82.85	16.56	10.84	3.40	30.95	1120.20	81.48
KS27510020	2.0	8.35	1070.26	1254.97	123.01	91.94	18.31	10.83	3.39	30.82	1249.95	91.34
KS27510024	2.4	10.00	1282.52	1498.25	145.74	109.92	21.74	10.81	3.37	30.56	1497.63	109.85
KS30010014	1.4	6.10	781.97	1079.81	88.29	72.32	12.97	11.75	3.36	30.50	1040.17	68.12
KS30010015	1.5	6.54	838.51	1156.86	94.40	77.51	13.87	11.75	3.36	30.44	1124.81	74.09
KS30010016	1.6	6.98	894.92	1233.59	100.46	82.68	14.77	11.74	3.35	30.38	1208.77	80.02
KS30010018	1.8	7.86	1007.35	1386.09	112.42	92.96	16.54	11.73	3.34	30.25	1372.22	91.47
KS30010020	2.0	8.73	1119.26	1537.31	124.18	103.18	18.30	11.72	3.33	30.13	1531.23	102.52
KS30010024	2.4	10.46	1341.52	1835.89	147.11	123.38	21.72	11.70	3.31	29.87	1835.12	123.30

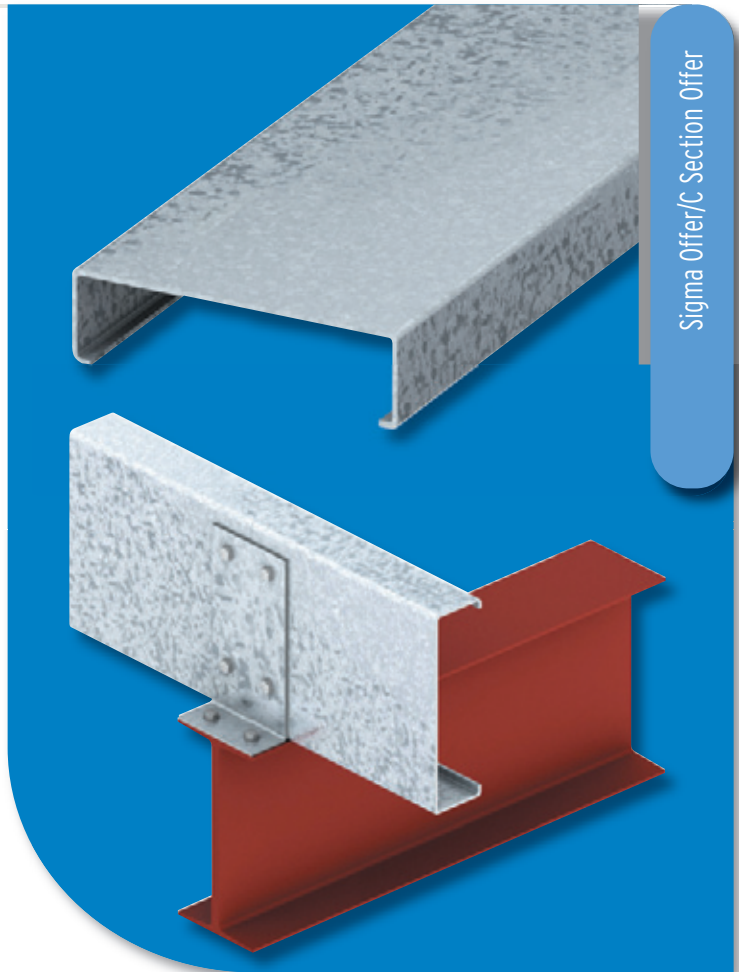
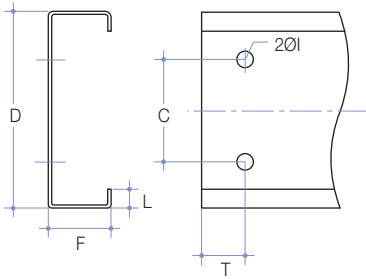


# C Section Offer

## Section Dimensions

Section Reference	D mm	F mm	L mm	C mm	I mm	T(min) mm
KC12763xx	127	63.5	12.7	64	14	20
KC15070xx	150	70.0	14.0	74	14	20
KC16563xx	165	63.5	12.7	74	14	20
KC20070xx	200	70.0	14.0	124	14	20
KC22570xx	225	70.0	14.0	117	18	25
KC25070xx	250	70.0	14.0	142	18	25

Section Reference: KCxxxxxxx = KC (for C Section) - Web Depth (mm)  
- Flange Width (mm) - 10 x Thickness (mm).



## C Section Properties

Section Reference	t mm	Weight Kg/m	Area mm <sup>2</sup>	I <sub>xx</sub> cm <sup>4</sup>	I <sub>yy</sub> cm <sup>4</sup>	Z <sub>xx</sub> cm <sup>3</sup>	Z <sub>yy</sub> cm <sup>3</sup>	r <sub>xx</sub> cm	r <sub>yy</sub> cm	x <sub>cg</sub> mm	I <sub>xt</sub> cm <sup>4</sup>	Z <sub>xt</sub> cm <sup>3</sup>
KC1276312	1.2	2.48	318.54	85.54	17.33	13.60	4.06	5.18	2.33	19.62	78.99	11.94
KC1276315	1.5	3.11	399.16	106.63	21.47	16.99	5.05	5.17	2.32	19.48	103.60	16.20
KC1276318	1.8	3.74	479.07	127.30	25.47	20.34	6.01	5.15	2.31	19.34	126.38	20.09
KC1507012	1.2	2.83	363.31	134.50	23.88	18.08	5.00	6.08	2.56	21.00	121.51	15.34
KC1507015	1.5	3.55	455.52	167.87	29.63	22.61	6.22	6.07	2.55	20.86	160.21	20.94
KC1507018	1.8	4.27	547.01	200.67	35.20	27.08	7.41	6.06	2.54	20.71	197.53	26.38
KC1507020	2.0	4.74	607.60	222.22	38.83	30.03	8.19	6.05	2.53	20.62	220.76	29.70
KC1656315	1.5	3.55	454.64	194.25	23.32	23.76	5.19	6.54	2.26	17.10	189.48	22.82
KC1656316	1.6	3.78	485.16	206.98	24.78	25.33	5.53	6.53	2.26	17.06	203.61	24.67
KC1656318	1.8	4.26	545.95	232.22	27.66	28.46	6.18	6.52	2.25	16.97	230.74	28.16
KC1656320	2.0	4.73	606.42	257.17	30.48	31.56	6.83	6.51	2.24	16.88	256.61	31.44
KC2007012	1.2	3.29	421.31	260.42	26.09	26.20	5.15	7.86	2.49	18.11	240.06	23.03
KC2007015	1.5	4.12	528.52	325.44	32.37	32.79	6.41	7.85	2.47	17.98	313.61	30.90
KC2007018	1.8	4.95	635.01	389.53	38.46	39.31	7.64	7.83	2.46	17.84	384.71	38.52
KC2007020	2.0	5.50	705.60	431.72	42.42	43.61	8.44	7.82	2.45	17.76	429.49	43.24
KC2257015	1.5	4.41	565.02	428.44	33.47	38.34	6.48	8.71	2.43	16.82	415.05	36.45
KC2257018	1.8	5.3	679.01	513.03	39.77	45.97	7.72	8.69	2.42	16.69	507.66	45.20
KC2507015	1.5	4.69	601.52	549.09	34.44	44.19	6.53	9.55	2.39	15.79	534.48	42.35
KC2507018	1.8	5.64	723.01	657.76	40.92	53.00	7.79	9.54	2.38	15.67	651.97	52.26

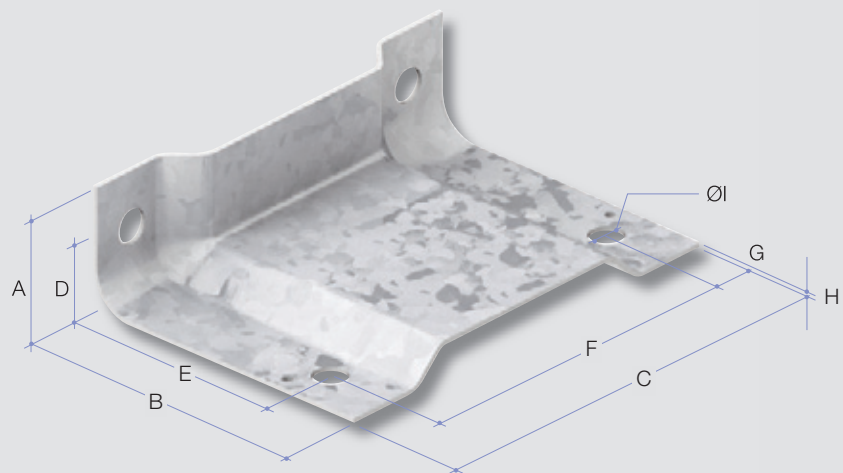
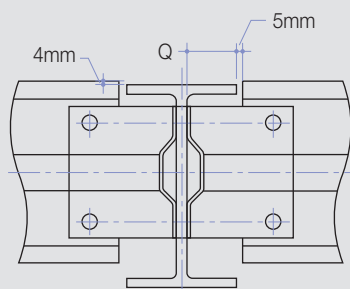
# Web Cleats

Designed to provide additional rigidity for the sigma beam and standard C sections the profiled cleats offer a further enhancement to the Sigma offer.

Kingspan Off-Site Web Cleat for C And Sigma Sections:  $Q_{max} = 105\text{mm}$

Cleat Ref	Web Depth mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Bolt
PC150W3B	150	60	160	110	30	130	74	18	3	14	M12
PC200W3B	200	60	160	160	30	130	124	18	3	14	M12
PC225W3B	225	60	160	165	30	130	117	24	3	18	M16
PC250W3B	250	60	160	190	30	130	142	24	3	18	M16
PC275W3B	275	60	160	215	30	130	167	24	3	18	M16
PC300W3B	300	60	160	240	30	130	192	24	3	18	M16

Note: PC150W3B cleat is also applicable for KC16563xx beams

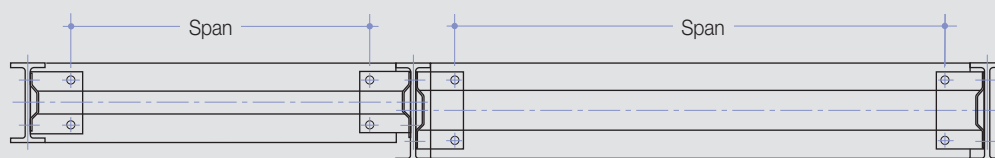


## Permissible Kingspan Off-Site Sigma Beam Combination

Beam A	Beam B									
	KC150	KS150	KC200	KS200	KC225	KS225	KC250	KS250	KS275	KS300
KC150	Y	Y		Y						
KS150	Y	Y		Y						
KC200			Y	Y						
KS200	Y	Y	Y	Y						
KC225					Y	Y			Y	Y
KS225					Y	Y			Y	Y
KC250							Y	Y		Y
KS250							Y	Y		Y
KS275					Y	Y			Y	
KS300					Y	Y	Y	Y		Y

### Notes:

- 1) The above beam combination is based on the standard beam hole location.
- 2) Hole location for Sigma beam is unchangeable.
- 3) Hole location for C beam is flexible, it can be changed based on design, so more beam combinations may be found if the hole location of C beam is changed.

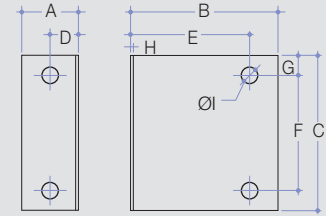


In secondary beam design, the span is specified as hole to hole distance of the beam.

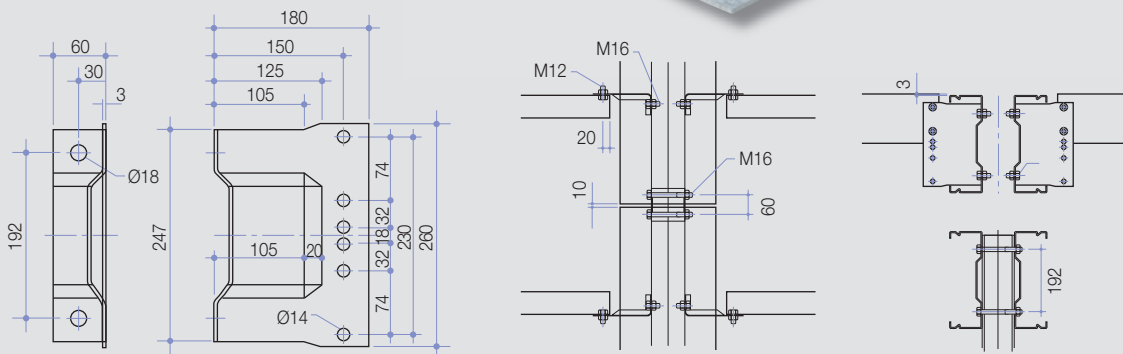
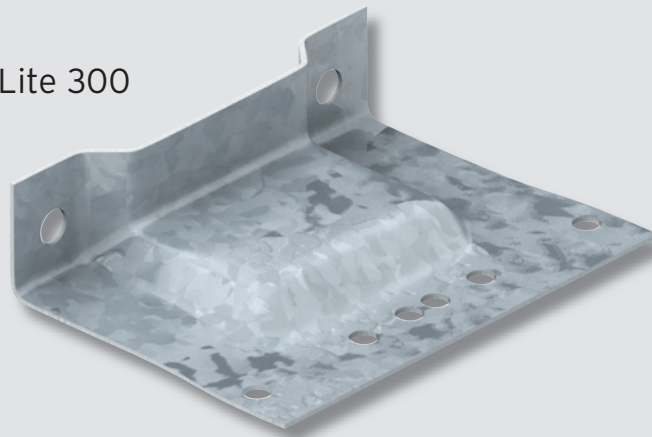


### Kingspan Off-Site Flat Cleat for KC12763xx Beam

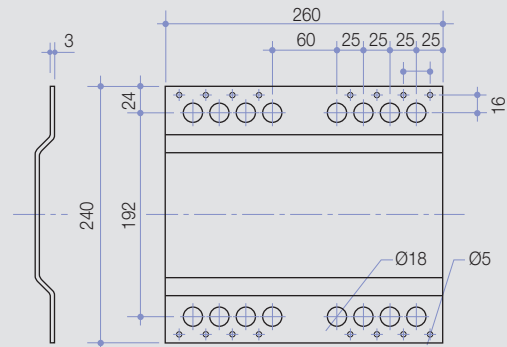
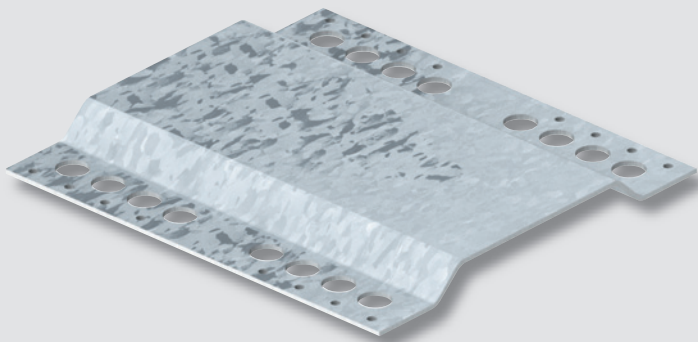
Cleat Ref	Web Depth mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Bolt
FC127W4A	127	60	140	100	30	110	64	18	4	14	M12



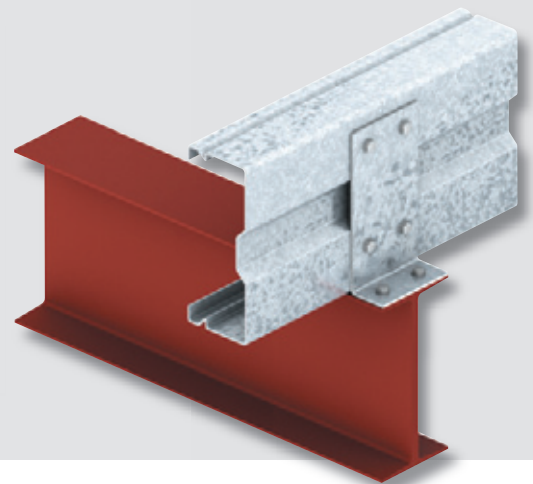
### Web Cleat for Kingspan MezaLite 300 Floor System (PC300PRS)



### Web Cleat for the Composite Cleats of Kingspan MezaLite 300 Floor System (PC300CAN)

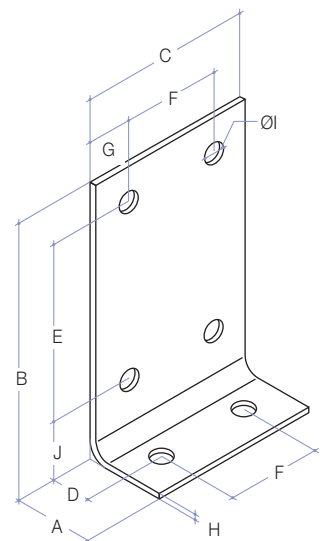


# Top Cleats - Tie Bars - Decking

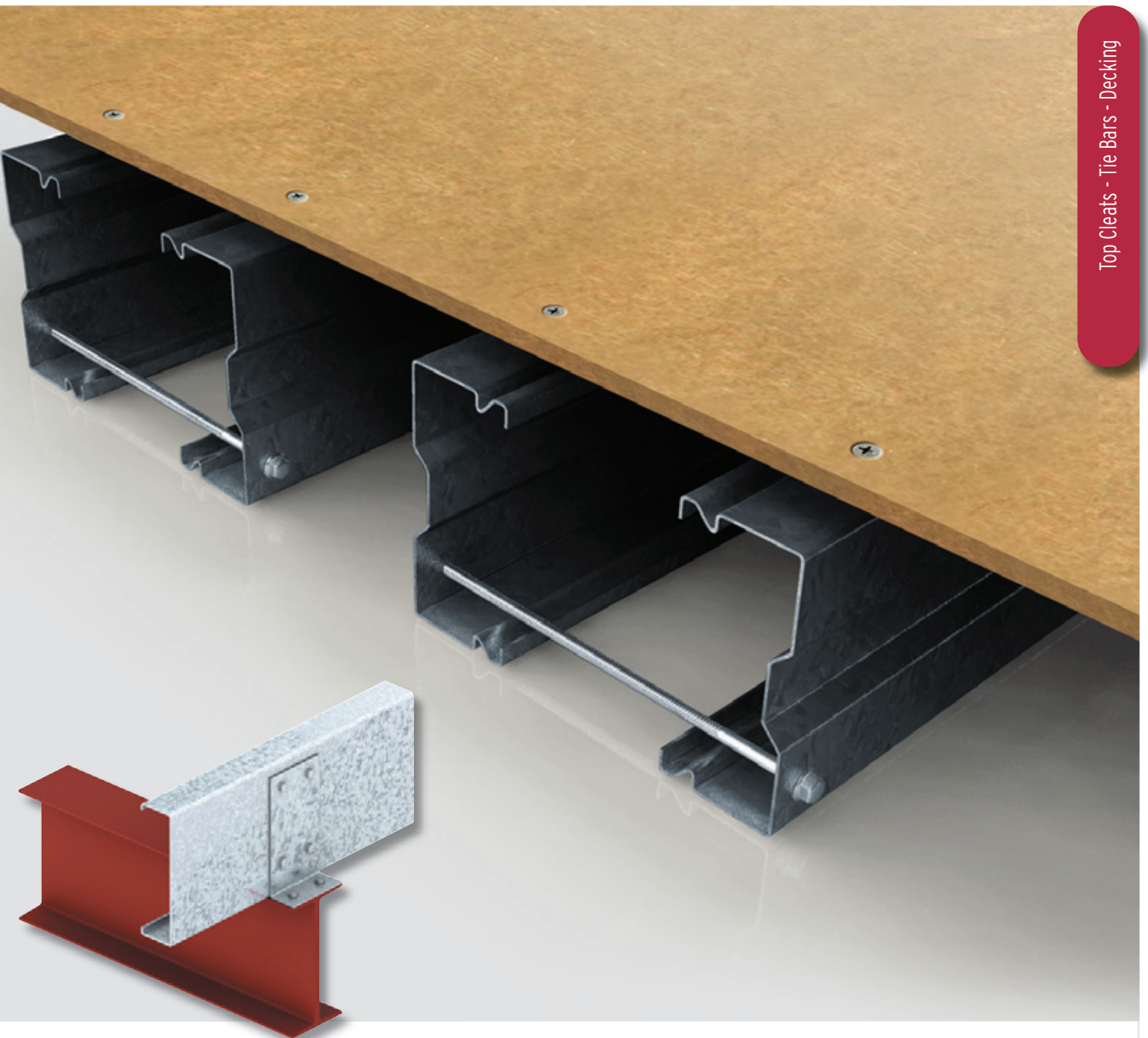


## Kingspan Off-Site Top Cleat

Cleat Ref	Web Depth mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	Bolt
FC150T4	150	55	143	120	30	74	66	27	4	14	44	M12
FC200T4	200	55	193	120	30	124	66	27	4	14	44	M12
FC225T4	225	55	202	120	30	117	66	27	4	18	60	M16
FC250T4	250	55	227	120	30	142	66	27	4	18	60	M16
FC275T4	275	55	252	120	30	167	66	27	4	18	60	M16
FC300T4	300	55	277	120	30.0	192	66	27	4	18	60	M16







## Tie Bars and Decking

When the floor is designed using Sigma sections with 100 mm legs, the centre line of the wider flat part (70 mm) of flange should be taken as the centre of the secondary beam, so the end of the decking boards should meet at the centre of the wider flat part of the flange rather than the centre of the whole flange as correctly shown in the figure on the right.

In the floor design, the beam is fully laterally restrained by decking boards and tie bars. The decking board fixed on the top flange with fixings spaced less than 1.2 m provide sufficient lateral support. For spans over 3.0 m, one tie bar must be used at a middle span location to the lower web holes of facing sections. When spans exceed 6.0 m, two tie bars must be used at a third of the span.

## Tie Bars

Beam Centres (mm)	Length of Bar (mm)
300	450
400	550
600	750
1000	1150

# Load Spans/Deflection Details

## Safe Load of Sigma Beams for Single Span (kN/m<sup>2</sup>)

Span mm	Section Reference	Weight kg/m	Deflection L/200 Centres, in mm				Deflection L/300 Centres, in mm				Deflection L/360 Centres, in mm			
			300 mm	450 mm	600 mm	1000 mm	300 mm	450 mm	600 mm	1000 mm	300 mm	450 mm	600 mm	1000 mm
<b>3000</b>	<b>KS1507012</b>	<b>2.95</b>	<b>10.65</b>	<b>7.93</b>	<b>5.21</b>	<b>3.04</b>	<b>8.73</b>	<b>6.55</b>	<b>4.36</b>	<b>2.62</b>	<b>7.27</b>	<b>5.46</b>	<b>3.64</b>	<b>2.18</b>
3000	KS1507013	3.20	12.01	8.95	5.89	3.45	9.46	7.09	4.73	2.84	7.88	5.91	3.94	2.36
3000	KS1507014	3.45	13.40	10.00	6.59	3.87	10.18	7.63	5.09	3.05	8.48	6.36	4.24	2.54
3000	KS1507015	3.69	14.81	11.05	7.30	4.29	10.89	8.17	5.45	3.27	9.08	6.81	4.54	2.72
3000	KS2007012	3.40	15.91	11.88	7.85	4.62	15.91	11.88	7.85	4.62	14.17	10.63	7.08	4.25
3000	KS2007013	3.69	17.86	13.34	8.82	5.20	17.86	13.34	8.82	5.20	15.35	11.51	7.68	4.61
<b>4000</b>	<b>KS2007012</b>	<b>3.40</b>	<b>8.86</b>	<b>6.59</b>	<b>4.32</b>	<b>2.50</b>	<b>7.17</b>	<b>5.38</b>	<b>3.59</b>	<b>2.15</b>	<b>5.98</b>	<b>4.48</b>	<b>2.99</b>	<b>1.79</b>
4000	KS2007013	3.69	9.95	7.41	4.86	2.83	7.77	5.83	3.89	2.33	6.48	4.86	3.24	1.94
4000	KS2007014	3.98	11.07	8.25	5.43	3.17	8.37	6.28	4.18	2.51	6.97	5.23	3.49	2.09
4000	KS2007015	4.26	12.20	9.10	5.99	3.51	8.96	6.72	4.48	2.69	7.47	5.60	3.73	2.24
4000	KS2007016	4.55	13.32	9.94	6.55	3.84	9.55	7.17	4.78	2.87	7.96	5.97	3.98	2.39
4000	KS2007018	5.12	15.47	11.55	7.63	4.49	10.73	8.05	5.36	3.22	8.94	6.71	4.47	2.68
4000	KS2007020	5.69	17.46	13.04	8.62	5.08	11.89	8.92	5.95	3.57	9.91	7.43	4.95	2.97
4000	KS22510014	5.30	18.55	13.85	9.16	5.41	15.17	11.38	7.59	4.55	12.64	9.48	6.32	3.79
4000	KS22510015	5.69	20.26	15.14	10.02	5.93	16.25	12.19	8.13	4.88	13.54	10.16	6.77	4.06
<b>5000</b>	<b>KS22510014</b>	<b>5.30</b>	<b>11.65</b>	<b>8.74</b>	<b>5.79</b>	<b>3.38</b>	<b>7.77</b>	<b>5.83</b>	<b>3.88</b>	<b>2.33</b>	<b>6.47</b>	<b>4.86</b>	<b>3.24</b>	<b>1.94</b>
5000	KS22510015	5.69	12.48	9.36	6.24	3.71	8.32	6.24	4.16	2.50	6.93	5.20	3.47	2.08
5000	KS22510016	6.07	13.31	9.98	6.65	3.99	8.87	6.65	4.44	2.66	7.39	5.54	3.70	2.22
5000	KS22510018	6.83	14.94	11.21	7.47	4.48	9.96	7.47	4.98	2.99	8.30	6.23	4.15	2.49
5000	KS22510020	7.58	16.56	12.42	8.28	4.97	11.04	8.28	5.52	3.31	9.20	6.90	4.60	2.76
5000	KS22510024	9.08	19.76	14.82	9.88	5.93	13.17	9.88	6.59	3.95	10.98	8.23	5.49	3.29
5000	KS25010014	5.57	13.57	10.13	6.68	3.92	9.90	7.42	4.95	2.97	8.25	6.19	4.12	2.47
5000	KS25010015	5.97	14.83	11.07	7.30	4.30	10.60	7.95	5.30	3.18	8.84	6.63	4.42	2.65
5000	KS25010016	6.37	16.07	12.00	7.93	4.67	11.31	8.48	5.65	3.39	9.42	7.07	4.71	2.83
5000	KS27510014	5.83	15.18	11.33	7.48	4.40	12.34	9.26	6.17	3.70	10.28	7.71	5.14	3.09
5000	KS27510015	6.26	16.72	12.49	8.25	4.86	13.22	9.92	6.61	3.97	11.02	8.26	5.51	3.31
5000	KS27510016	6.68	18.25	13.64	9.02	5.32	14.10	10.57	7.05	4.23	11.75	8.81	5.87	3.52
5000	KS30010014	6.10	16.44	12.27	8.11	4.78	15.11	11.33	7.56	4.53	12.59	9.44	6.30	3.78
5000	KS30010015	6.54	18.15	13.56	8.96	5.29	16.19	12.14	8.09	4.86	13.49	10.12	6.75	4.05
<b>6000</b>	<b>KS22510020</b>	<b>7.58</b>	<b>9.59</b>	<b>7.19</b>	<b>4.79</b>	<b>2.88</b>	<b>6.39</b>	<b>4.79</b>	<b>3.20</b>	<b>1.92</b>	<b>5.33</b>	<b>3.99</b>	<b>2.66</b>	<b>1.60</b>
6000	KS22510024	9.08	11.44	8.58	5.72	3.43	7.62	5.72	3.81	2.29	6.35	4.77	3.18	1.91
6000	KS25010016	6.37	9.81	7.36	4.91	2.94	6.54	4.91	3.27	1.96	5.45	4.09	2.73	1.64
6000	KS25010018	7.17	11.02	8.27	5.51	3.31	7.35	5.51	3.67	2.20	6.12	4.59	3.06	1.84
6000	KS25010020	7.97	12.22	9.17	6.11	3.67	8.15	6.11	4.07	2.44	6.79	5.09	3.39	2.04
6000	KS25010024	9.54	14.59	10.94	7.29	4.38	9.72	7.29	4.86	2.92	8.10	6.08	4.05	2.43
6000	KS27510015	6.26	11.48	8.61	5.66	3.31	7.65	5.74	3.83	2.30	6.38	4.78	3.19	1.91
6000	KS27510016	6.68	12.24	9.18	6.12	3.63	8.16	6.12	4.08	2.45	6.80	5.10	3.40	2.04
6000	KS27510018	7.51	13.75	10.31	6.87	4.12	9.17	6.87	4.58	2.75	7.64	5.73	3.82	2.29
6000	KS27510020	8.35	15.25	11.43	7.62	4.57	10.16	7.62	5.08	3.05	8.47	6.35	4.23	2.54
6000	KS27510024	10.00	18.20	13.65	9.10	5.46	12.13	9.10	6.07	3.64	10.11	7.58	5.06	3.03
6000	KS30010015	6.54	12.53	9.35	6.16	3.61	9.37	7.03	4.68	2.81	7.81	5.86	3.90	2.34
6000	KS30010016	6.98	13.72	10.23	6.75	3.96	9.99	7.49	5.00	3.00	8.33	6.24	4.16	2.50
6000	KS30010018	7.86	16.30	12.17	8.04	4.74	11.23	8.42	5.61	3.37	9.35	7.02	4.68	2.81
6000	KS30010020	8.73	18.29	13.66	9.04	5.33	12.45	9.34	6.23	3.74	10.38	7.78	5.19	3.11
6000	KS30010024	10.46	22.04	16.48	10.91	6.46	14.87	11.15	7.43	4.46	12.39	9.29	6.20	3.72



Safe Load of Sigma Beams for Single Span (kN/m<sup>2</sup>)

Span mm	Section Reference	Weight kg/m	Deflection L/200 Centres, in mm				Deflection L/300 Centres, in mm				Deflection L/360 Centres, in mm			
			300 mm	450 mm	600 mm	1000 mm	300 mm	450 mm	600 mm	1000 mm	300 mm	450 mm	600 mm	1000 mm
<b>7000</b>	<b>KS22510020</b>	<b>7.58</b>	<b>6.04</b>	<b>4.53</b>	<b>3.02</b>	<b>1.81</b>	<b>4.02</b>	<b>3.02</b>	<b>2.01</b>	<b>1.21</b>	<b>3.35</b>	<b>2.52</b>	<b>1.68</b>	<b>1.01</b>
7000	KS20010024	9.08	7.20	5.40	3.60	2.16	4.80	3.60	2.40	1.44	4.00	3.00	2.00	1.20
7000	KS25010016	6.37	6.18	4.63	3.09	1.85	4.12	3.09	2.06	1.24	3.43	2.57	1.72	1.03
7000	KS25010018	7.17	6.94	5.21	3.47	2.08	4.63	3.47	2.31	1.39	3.86	2.89	1.93	1.16
7000	KS25010020	7.97	7.70	5.77	3.85	2.31	5.13	3.85	2.57	1.54	4.28	3.21	2.14	1.28
7000	KS25010024	9.54	9.19	6.89	4.59	2.76	6.12	4.59	3.06	1.84	5.10	3.83	2.55	1.53
7000	KS27510016	6.68	7.71	5.78	3.85	2.31	5.14	3.85	2.57	1.54	4.28	3.21	2.14	1.28
7000	KS27510018	7.51	8.66	6.49	4.33	2.60	5.77	4.33	2.89	1.73	4.81	3.61	2.40	1.44
7000	KS27510020	8.35	9.60	7.20	4.80	2.88	6.40	4.80	3.20	1.92	5.33	4.00	2.67	1.60
7000	KS27510024	10.00	11.46	8.60	5.73	3.44	7.64	5.73	3.82	2.29	6.37	4.78	3.18	1.91
7000	KS30010015	6.54	8.85	6.64	4.43	2.59	5.90	4.43	2.95	1.77	4.92	3.69	2.46	1.48
7000	KS30010016	6.98	9.44	7.08	4.72	2.83	6.29	4.72	3.15	1.89	5.24	3.93	2.62	1.57
7000	KS30010018	7.86	10.60	7.95	5.30	3.18	7.07	5.30	3.53	2.12	5.89	4.42	2.95	1.77
7000	KS30010020	8.73	11.76	8.82	5.88	3.53	7.84	5.88	3.92	2.35	6.53	4.90	3.27	1.96
7000	KS30010024	10.46	14.04	10.53	7.02	4.21	9.36	7.02	4.68	2.81	7.80	5.85	3.90	2.34
<b>8000</b>	<b>KS25010020</b>	<b>7.97</b>	<b>5.16</b>	<b>3.87</b>	<b>2.58</b>	<b>1.55</b>	<b>3.44</b>	<b>2.58</b>	<b>1.72</b>	<b>1.03</b>	<b>2.86</b>	<b>2.15</b>	<b>1.43</b>	<b>0.86</b>
8000	KS25010024	9.54	6.15	4.62	3.08	1.85	4.10	3.08	2.05	1.23	3.42	2.56	1.71	1.03
8000	KS27510016	6.68	5.16	3.87	2.58	1.55	3.44	2.58	1.72	1.03	2.87	2.15	1.43	0.86
8000	KS27510018	7.51	5.80	4.35	2.90	1.74	3.87	2.90	1.93	1.16	3.22	2.42	1.61	0.97
8000	KS27510020	8.35	6.43	4.82	3.22	1.93	4.29	3.22	2.14	1.29	3.57	2.68	1.79	1.07
8000	KS27510024	10.00	7.68	5.76	3.84	2.30	5.12	3.84	2.56	1.54	4.27	3.20	2.13	1.28
8000	KS30010016	6.98	6.32	4.74	3.16	1.90	4.21	3.16	2.11	1.26	3.51	2.63	1.76	1.05
8000	KS30010018	7.86	7.10	5.33	3.55	2.13	4.74	3.55	2.37	1.42	3.95	2.96	1.97	1.18
8000	KS30010020	8.73	7.88	5.91	3.94	2.36	5.25	3.94	2.63	1.58	4.38	3.28	2.19	1.31
8000	KS30010024	10.46	9.41	7.06	4.70	2.82	6.27	4.70	3.14	1.88	5.23	3.92	2.61	1.57

**Note:**

The section properties and load properties within this brochure are in accordance with BS5950: Part 5:1998. The load tables are valid assuming:- Safe loads are uniformly distributed live (imposed) loads only, determined by the ultimate load capacity of the beam by a factor of 1.6 or by limiting deflection as stated. A dead load allowance of 0.35 kN/m<sup>2</sup> for decking and beams has been used in their evaluation. Top (Compression) flange is adequately restrained by decking/fixings. Tie bars are required for spans over 3000 mm.

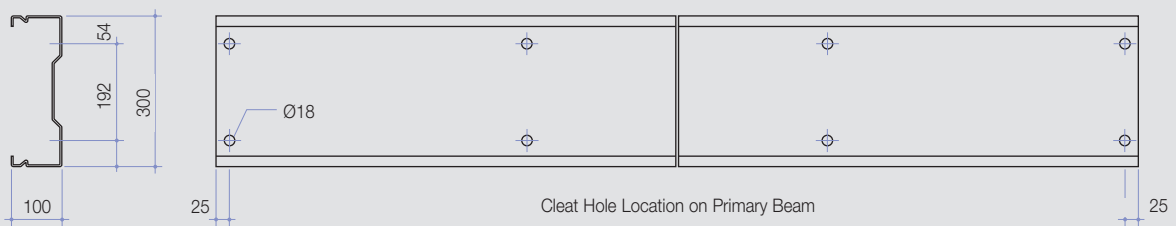
C section span load tables and other Sigma spans not listed please contact the Kingspan Sales team for a free copy of the Sigma calculation software.

# Kingspan MezaLite 300 Floor System

Kingspan MezaLite 300 floor system is a mezzanine floor solution using cold formed steel sections for both primary and secondary beams. In the Kingspan MezaLite 300 system, Sigma 300 beams are taken as the primary beam, replacing conventional hot rolled beams, and the secondary beam can be KS/KC150/200 or KS300 dependent on loading conditions. Both primary beam and secondary beam can be designed using Kingspan Off-Site Profiles & Sections beam design software.

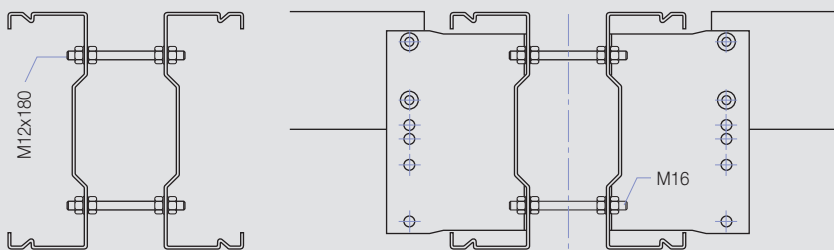
## Primary Beam

### Beam Layout

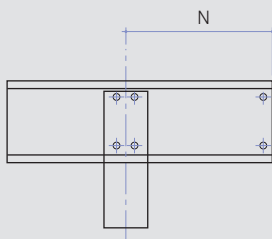


### Tie Bar for Primary Beam

One pair of tie bars are used at the middle of primary beams between the columns, however it is recommended that the fixing holes coincide with the cleat holes of the nearest to the middle the beam, in that case, the long cleat bolt (M16) can be taken as cleat connection bolts and tie bars to replace M12 tie bars.



### Primary Beam Cantilever



- If cantilever arrangement as specified above, the primary beam can be designed based on single span design condition.  
The max cantilever length is  $N < Span/6$ .
- One tie bar is used for a pair of beam at the end of cantilever.
- 4 off M18 bolts used for the connection between the column and cantilever primary beam.

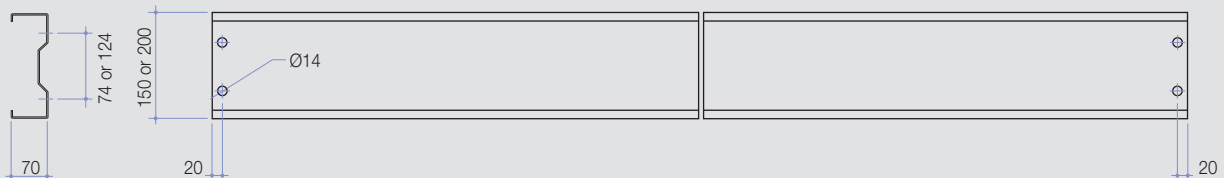


Kingspan MezaLite 300 floor system is a mezzanine floor solution using cold formed steel sections for both primary and secondary beams.

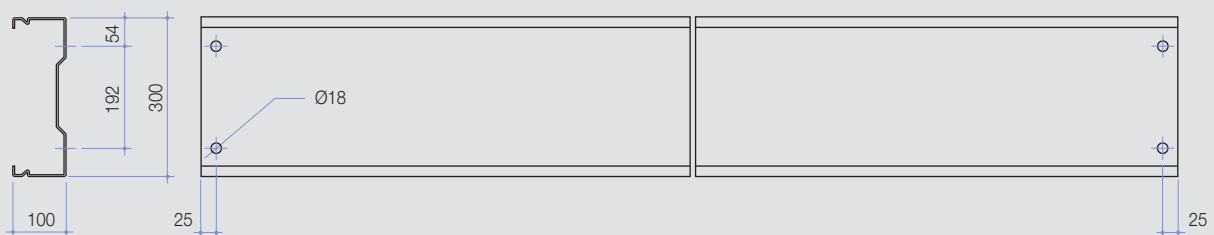
## Secondary Beam

Using the KS300 as the primary beam, three beam ranges, KS/KC150/200 or KS300 can be used as secondary beams.

For KS/KC150/200, a dedicated cleat PC300PRS is used for the connection between primary beam KS300 and secondary beams KS/KC150/200, the distance of the cleat holes to the end of beam is 20 mm.



If a KS300 is used as the secondary beam, PC300W3B is used and the distance of the cleat holes to the end of beam is 25 mm.

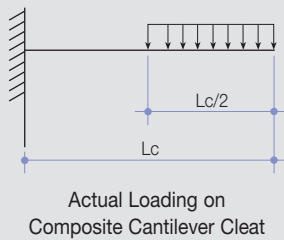
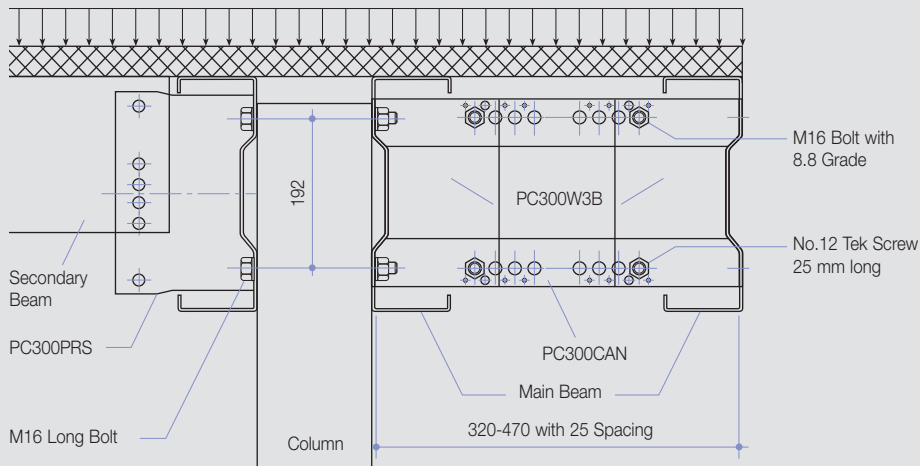




# Kingspan MezaLite 300 Floor System

## Composite Cantilever Cleat

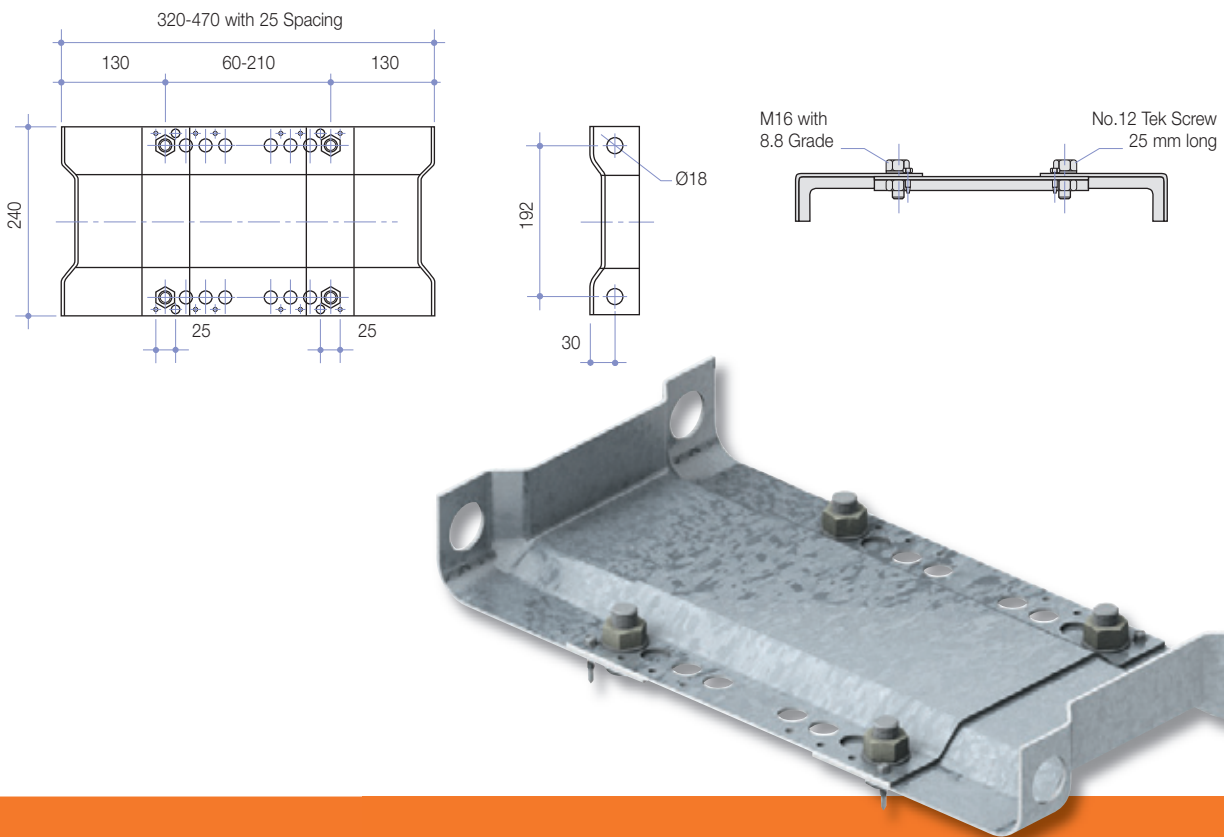
A cantilever option can be formed using composite cleats as generally detailed in the layout below.



- Along secondary beam direction, the cantilever can be created by composite cleat and primary beam.
- The composite cleat can be built up using 2 off PC300W3B and 1 off PC300CAN cleats connected by 4 off M16 bolts with 8.8 grade and 4 off No 12 Tek screws located next to the bolts.
- **Composite cleats must be connected to the column directly through the primary beam.**
- The cantilever length is adjustable when picking up different holes on PC300CAN cleat. So the total length can be changed from 320 mm to 470 mm with 25 mm spacing.
- Based on the arrangement detail shown in above figure, the composite cantilever cleat only support half loading subjected on the deck board above the cantilever, which can be design by Kingspan Off-Site beam design software.
- Section properties of the composite cleats are shown in the table opposite.

## Section Properties of Composite Cleat

Component				Total Length	Bending Strength	Full Area Moment	Reduced Area Moment
PC300W3B	PC300CAN	M16 Bolt	No12 Tek Screw	$L_c$ (mm)	$M_c$ (kN.m)	$I_{xx}$ (cm <sup>4</sup> )	(cm <sup>4</sup> )
2	1	4	4	320-470	1.51	366	36.62



## Material Specification

The sections presented above are manufactured from pre hot dipped galvanised steel to BS EN 10326:2004, grade S390GD, coating Z275, with a minimum guaranteed yield strength 390 N/mm<sup>2</sup>.

### Cleats:

3 or 4 mm cleat: hot dipped galvanised steel to BS EN 10326:2004, S350GD, coating Z275 with a guaranteed minimum yield strength, 350 N/mm<sup>2</sup>. All bolts used for cleats are grade 8.8.

### Tie Bars:

M12 dia mild steel rod or studding, each complete with four nuts and washers. Studding is zinc plated and threaded full length.



**Kingspan Off-Site**

Manor Works, Pleck Road, Walsall WS2 9ES

Telephone: +44 (0) 1922 724 789 Fax: +44 (0) 1922 644 460 Email: sales@kingspanoffsite.com

[www.kingspanoffsite.com](http://www.kingspanoffsite.com)

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