Universal GIRDERBRACKET







FOR SIDE FIXING OF ROOF TRUSSES TO 90mm GIRDER TRUSS BOTTOM CHORDS

APPLICATION:

MidLoad Girder Brackets will support trusses 35mm to 90mm thick. The supported truss can be located on either side of the cleat making the location of the bracket much simpler. The MidLoad Girder Bracket is suitable for girder truss bottom chords of 90mm.

USES

- Universal Girder Brackets are designed to secure heavily loaded trusses, like truncated girder and secondary girder trusses to primary girder trusses.
- MidLoad Girder Brackets use M12 bolts and are smaller than HiLoad Girder Brackets and therefore more suitable for lighter loads.
- Hip Hold Down (optional) Combine CT1200 with Mid or HiLoad Girder Bracket for fixing hip and incoming girder truss connection.

SPECIFICATIONS:

Steel Grade	G250
Thickness (Total Coated)	4.0mm
Coating	Electro-galvanized
Bolts	Zinc plated M12
Washers	Zinc plated Round 56 mm x 3 mm
Nails	MiTek 40 x 3.75mm hot dipped galvanized reinforced head.
Product Code	GBM to suit 35, 38, 50, 75 & 90mm timber thickness. GBMBLT - bolt kit.

This Engineered Building Product has been designed and manufactured in accordance with ISO 9001 and meets all the requirements of the National Construction Code Series and Australian Standards.



When different timbers are used in trusses, base 'DL only' and 'DL+LL' capacities on joint group of girder truss and base 'DL+WL' capacity on weaker joint group of girder and supported truss.

If Girder Bracket is also used to support a hip truss, allocate maximum 85% capacity to supported truss and 15% (DL only, DL+LL) or 30% (DL+WL) capacity to hip truss.

INSTALLATION:

Install as per instructions on page 8. For installation with hip hold down using CycloneTie 1200, follow the instructions on page 10.



Table 1 - Limit State Design Capacity (kN)					
Joint Group	nt Group DL only DL + Roof LL k ₁ = 0.57 k ₁ = 0.77		DL + WL k ₁ = 1.14		
J2	12.7	17.1	8.5		
J3	7.9	10.6	7.5		
J4	5.1	6.8	4.8		
J5	3.3	4.5	3.2		
J6	1.6	2.3	1.6		
JD2	12.7	17.1	8.5		
JD3	12.7	17.1	8.5		
JD4	8.9	12.1	8.5		
JD5	6.4	8.7	6.1		
JD6	4.3	5.8	4.1		



Values in this table incorporate the Category 1 capacity factor (\emptyset) for houses. For other categories, multiply the design capacities by the following factors. Refer to AS1720.1 for a full definition of each category.

Category	1	2	3
Adjustment factor	1.00	0.94	0.88



FOR SIDE FIXING OF ROOF TRUSSES TO GIRDER TRUSS BOTTOM CHORDS OF 130mm OR DEEPER

APPLICATION:

HiLoad Girder Brackets will support trusses 35mm to 90mm thick. The supported truss can also be located on either side of the cleat making the location of the bracket much simpler. The HiLoad Girder Bracket is suitable for girder truss bottom chords of 130mm and deeper.

HiLoad Girder Brackets are manufactured with a long cleat to prevent the twisting of the bottom chord of the girder truss. The cleat also has a cut away section which avoids the possibility of interference with ceiling linings.

USES

- Universal Girder Brackets are designed to secure heavily loaded trusses, like truncated girder and secondary girder trusses to primary girder trusses.
- HiLoad Girder Brackets utilize M16 bolts and a large angle section for increased bearing and a long cleat to resist twisting of girder bottom chords.

OPTIONAL

 Hip Hold Down (optional) Combine CT1200 with Mid or HiLoad Girder Bracket for fixing hip and incoming girder truss connection.

SPECIFICATIONS:

Steel Grade	G250
Thickness (Total Coated)	4.0mm
Coating	Electro-galvanized
Bolts	Zinc plated M16 (Standard & All Thread)
Washers	Zinc plated Round 65 mm x 4 mm
Nails	MiTek 40 x 3.75mm hot dipped galvanized reinforced head.
Product Code	GBH to suit 38, 50, 75 & 90mm timber thickness. GBHBLT - bolt kit.

This Engineered Building Product has been designed and manufactured in accordance with ISO 9001 and meets all the requirements of the National Construction Code Series and Australian Standards.



When different timbers are used in trusses, base 'DL only' and 'DL+LL' capacities on joint group of girder truss and base 'DL+WL' capacity on weaker joint group of girder and supported truss.

If Girder Bracket is also used to support a hip truss, allocate maximum 85% capacity to supported truss and 15% (DL only, DL+LL) or 30% (DL+WL) capacity to hip truss.

INSTALLATION:

Install as per instructions on page 8.

For installation with hip hold down using CycloneTie 1200, follow the instructions on page 10.



Table 2 - Limit State Design Capacity (kN)							
Joint Group	Nominal Girder	DL only k ₁ = 0.57		DL + Roof LL k ₁ = 0.77		DL + WL k ₁ = 1.14	
	Thickness (mm)		Supported Truss Thickness				
	()	35	45	35	45	35	45
	38	15.0	15.0	20.3	20.3	15.8	20.5
J2	50	15.0	15.0	20.3	20.3	15.8	20.5
	75	15.0	15.0	20.3	20.3	15.8	20.5
	38	11.5	11.5	15.6	15.6	10.0	13.2
J3	50	15.0	15.0	20.3	20.3	10.0	13.2
	75	15.0	15.0	20.3	20.3	10.0	13.2
	38	7.2	7.2	9.7	9.7	6.4	8.5
J4	50	9.7	9.7	13.1	13.1	6.4	8.5
	75	13.3	13.3	17.9	17.9	6.4	8.5
J5	38	4.9	4.9	6.6	6.6	4.2	5.7
	50	6.5	6.5	8.8	8.8	4.2	5.7
	75	9.7	9.7	13.1	13.1	4.2	5.7
	38	2.5	2.5	3.4	3.4	2.1	2.8
J6	50	3.3	3.3	4.4	4.4	2.1	2.8
	75	4.9	4.9	6.6	6.6	2.1	2.8
	35	15.0	15.0	20.3	20.3	20.5	25.9
JD2	45	15.0	15.0	20.3	20.3	20.5	25.9
	70	15.0	15.0	20.3	20.3	20.5	25.9
	35	15.0	15.0	20.3	20.3	15.1	19.4
JD3	45	15.0	15.0	20.3	20.3	15.1	19.4
	70	15.0	15.0	20.3	20.3	15.1	19.4
	35	12.1	12.1	16.4	16.4	11.4	14.4
JD4	45	15.0	15.0	20.3	20.3	11.4	14.4
	70	15.0	15.0	20.3	20.3	11.4	14.4
	35	8.4	8.4	11.3	11.3	7.8	10.2
JD5	45	11.0	11.0	14.8	14.8	7.8	10.2
	70	12.1	12.1	16.4	16.4	7.8	10.2
	35	5.6	5.6	7.6	7.5	5.3	6.9
JD6	45	7.4	7.4	10.0	10.0	5.3	6.9
	70	8.2	8.2	11.1	11.1	5.3	6.9

Values in this table incorporate the Category 1 capacity factor (Ø) for houses. For other categories, multiply the design capacities by the following factors. Refer to AS1720.1 for a full definition of each category.

Category	1	2	3
Adjustment factor	1.00	0.94	0.88



A SOLUTION TO BOOMERANG GIRDER CONNECTIONS

APPLICATION:

Specifications for Boomerang Girder Bracket are the same as Universal HiLoad Girder Bracket except for cleat angle.

When ordering specify left hand (LH) or right hand (RH) and the angle required. Boomerang Girder Brackets are available with 22.5° or 45° cleats only. For other angles use a wedge as specified in installation instructions.

USES

 Boomerang Girder Brackets are made to order and provide the solution to boomerang truss connection.

CLEAT ANGLES

LEFT HAND 22.5° or 45° RIGHT HAND 22.5° or 45°

SPECIFICATIONS:

Steel Grade	G250
Thickness (Total Coated)	4.0mm
Coating	Electro-galvanized
Bolts	Zinc plated M16 (Standard & All Thread)
Washers	Zinc plated Round 65 mm x 4 mm
Nails	MiTek 40 x 3.75mm hot dipped galvanized reinforced head.
Product Code	See Table

This Engineered Building Product has been designed and manufactured in accordance with ISO 9001 and meets all the requirements of the National Construction Code Series and Australian Standards.



When different timbers are used in trusses, base 'DL only' and 'DL+LL' capacities on joint group of girder truss and base 'DL+WL' capacity on weaker joint group of girder and supported truss.

Capacities in Table 3 apply to complex roofs where supported trusses do not align on each side of boomerang girder truss. Where supported trusses do align and are supported by the same bolts, adjust capacities in Table 3 as follows:

Product Code	Size	Direction
GBBL22	22.5°	Left Hand
GBBR22	22.5°	Right Hand
GBBL45	45°	Left Hand
GBBR45	45°	Right Hand
GBBAT	Bolt Kit	NA

- Reduce 'DL only' and 'DL+LL' capacities for 70mm girders (JD2 to JD6) by 30%; and 50% for all other cases.
- Do not adjust 'DL+WL' capacities in all cases.



Table 3 - Limit State Design Capacity (kN)							
laint Crown	Nominal Girder	DL k ₁ =	only 0.57	DL + F k ₁ =	loof LL 0.77	DL + k ₁ =	· WL 1.14
John Group	(mm)	Supported Truss Thickness					
		35	45	35	45	35	45
	38	15.0	15.0	20.3	20.3	15.8	20.5
J2	50	15.0	15.0	20.3	20.3	15.8	20.5
	75	15.0	15.0	20.3	20.3	15.8	20.5
	38	11.5	11.5	15.6	15.6	10.0	13.2
J3	50	15.0	15.0	20.3	20.3	10.0	13.2
	75	15.0	15.0	20.3	20.3	10.0	13.2
	38	7.2	7.2	9.7	9.7	6.4	8.5
J4	50	9.7	9.7	13.1	13.1	6.4	8.5
	75	13.3	13.3	17.9	17.9	6.4	8.5
	38	4.9	4.9	6.6	6.6	4.2	5.7
J5	50	6.5	6.5	8.8	8.8	4.2	5.7
	75	9.7	9.7	13.1	13.1	4.2	5.7
	38	2.5	2.5	3.4	3.4	2.1	2.8
J6	50	3.3	3.3	4.4	4.4	2.1	2.8
	75	4.9	4.9	6.6	6.6	2.1	2.8
	35	15.0	15.0	20.3	20.3	20.5	25.9
JD2	45	15.0	15.0	20.3	20.3	20.5	25.9
	70	15.0	15.0	20.3	20.3	20.5	25.9
	35	15.0	15.0	20.3	20.3	15.1	19.4
JD3	45	15.0	15.0	20.3	20.3	15.1	19.4
	70	15.0	15.0	20.3	20.3	15.1	19.4
	35	12.1	12.1	16.4	16.4	11.4	14.4
JD4	45	15.0	15.0	20.3	20.3	11.4	14.4
	70	15.0	15.0	20.3	20.3	11.4	14.4
	35	8.4	8.4	11.3	11.3	7.8	10.2
JD5	45	11.0	11.0	14.8	14.8	7.8	10.2
	70	12.1	12.1	16.4	16.4	7.8	10.2
	35	5.6	5.6	7.6	7.5	5.3	6.9
JD6	45	7.4	7.4	10.0	10.0	5.3	6.9
	70	8.2	8.2	11.1	11.1	5.3	6.9

Values in this table incorporate the Category 1 capacity factor (Ø) for houses. For other categories, multiply the design capacities by the following factors. Refer to AS1720.1 for a full definition of each category.

Category	1	2	3
Adjustment factor	1.00	0.94	0.88

FIXING INSTRUCTIONS FOR MIDLOAD & HILOAD GIRDER BRACKETS:

- 1. Install the Girder Truss straight and plumb. Apply temporary and/or permanent bracing as required by design.
- 2. Locate bracket on Girder Truss bottom chord and fix into position by nailing through locating holes.
- 3. Drill through pre-punched bolt holes into Girder Truss bottom chord. Fix bracket to Girder Truss bottom chord with bolts ensuring correct washers are used to provide bearing against the timber.
- 4. Position Supported Truss in the bracket so that it is hard against both the cleat and the vertical leg of angle.
- 5. Fix truss being carried to Girder Bracket by drilling through pre-punched holes in Girder Bracket cleat.
- 6. Ensure washers are fitted and all bolts are tightened before loading roof.

NOTES:

- Holes to be drilled to suit M16 bolts for HiLoad Girder Bracket and M12 bolts for MidLoad Girder Bracket. Do not drill oversized holes and use hexagonal head bolts. DO NOT USE REDUCED SHANK OR CUP HEAD BOLTS.
- 2. Girder Truss bottom chords to be a minimum of 130mm (nominal) for HiLoad Girder Bracket and 90mm for MidLoad Girder Bracket.
- 3. Where ceiling is to be fixed directly to bottom chord, notching of the heel of supported trusses is acceptable to obtain a better ceiling line.
- 4. Supported Truss bottom chords to be a minimum of 90mm (nominal) for HiLoad Girder Bracket.



FIXING INSTRUCTIONS FOR BOOMERANG GIRDER BRACKETS:

- 1. Follow steps 1 to 6 as for HiLoad and MidLoad Girder Brackets on previous page.
- 2. For trusses with intersecting angles that do not correspond to cleat angle, cut suitable dry timber wedges to match angle.
- 3. Install standard truss and clamp wedges on both sides as shown below.
- 4. Drill through pre-punched holes and fit 2/M16 bolts.

NOTES:

- Holes to be drilled to suit M16 bolts for HiLoad Girder Bracket and M12 bolts for MidLoad Girder Bracket. Do not drill oversized holes and use hexagonal head bolts. DO NOT USE REDUCED SHANK OR CUP HEAD BOLTS.
- 2. Girder Truss bottom chords to be a minimum of 130mm (nominal) for HiLoad Girder Bracket and 90mm for MidLoad Girder Bracket.
- 3. Where ceiling is to be fixed directly to bottom chord, notching of the heel of supported trusses is acceptable to obtain a better ceiling line.
- 4. Supported Truss bottom chords to be a minimum of 90mm (nominal) for HiLoad Girder Bracket.



FIXING INSTRUCTIONS FOR HIP HOLD DOWN WITH MIDLOAD AND HILOAD **GIRDER BRACKETS:**

- 1. Secure the supported truss to Girder Bracket and locate the hip truss into position. Bend a CycloneTie 1200 over the top chord of the hip truss and move about 200mm along top chord and fix with one MiTek 30 x 2.8mm nail.
- 2. Bend one leg under the bottom chord of the supported truss and the other under the bottom chord of the girder truss. Tap slightly to make a tight bend then wrap them under the chords and fix with 4 MiTek 30 x 2.8mm nails as shown in diagram below.



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