Product data sheet – Corner brackets S, M and L

Product description

The Eurotec corner brackets S, M, and L enable the simple construction of a rigid frame corner. Combined with our innovative Magnus or IdeeFix the connection becomes strong. These applications can be found in modern timber construction, especially where the timber construction is a visible aspect. It is possible to avoid further annoying head straps.

Material

- EN-AW 6063-T66 (AlMgSi0,5)

Advantages/Specifications

- Supports load absorption with horizontal forces
- Pre-assembly at the factory optional
- Visible (surface-mounted) and hidden (flush-mounted) joints
- Many different areas of use

Product table

Corner brackets S, M and L					
Art. no.	Dimensions [mm]	Material thickness [mm]	Pillar [mm]	Bar [mm]	PU
975673	230 x 110	15	140 x 140	140 x 320	1
975674	250 x 120	15	160 x 160	160 x 360	1
975675	330 x 120	15	160 x 240	160 x 400	1

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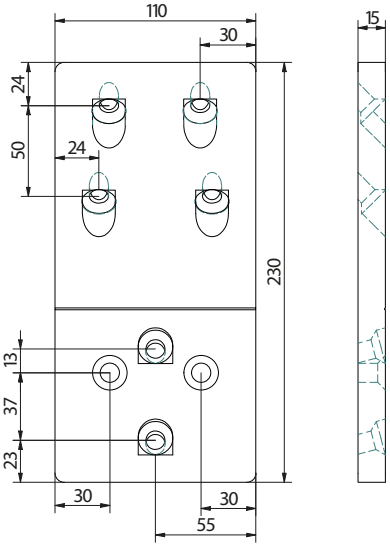
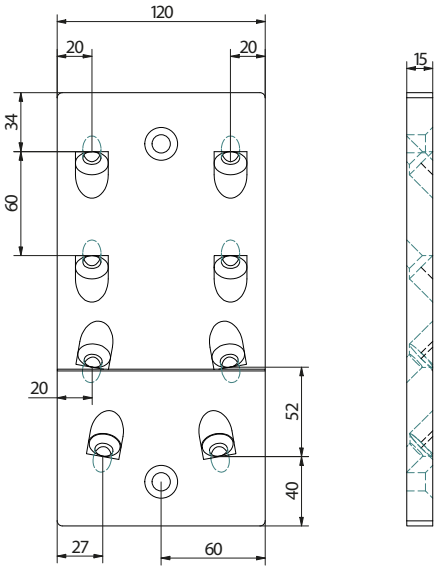
Drawings

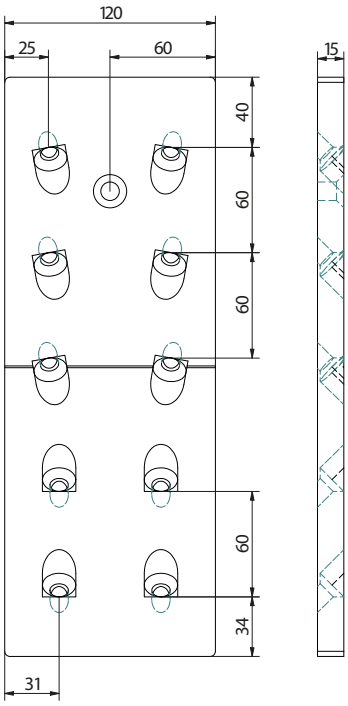
Corner brackets S



Corner brackets M



Corner brackets L



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Instructions for use

After fixing with Magnus or IdeeFix, the corner bracket is assembled.
It can be embedded or surface mounted. When assembling the frame corner, the corner bracket can be mounted on one side as an assembly aid. The other KonstruX screws can then be screwed in.

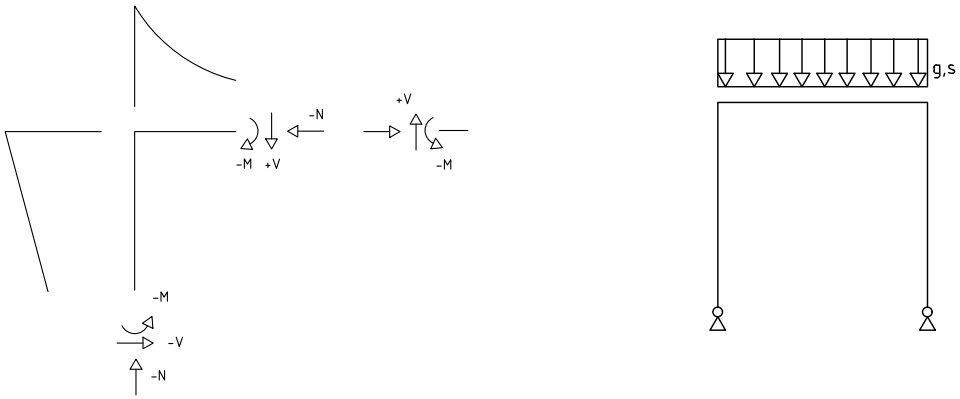
Rigid connections

Assumptions

Wooden components: ρ_k = 380 kg/m³; compressive strength across the grain (main beam)
$f_{c,90}$ = 2.7 N/mm²
Magnus according to ETA-15/0761
Fully threaded screws KonstruX ST countersunk head: Ø 10,1 = 195 mm acc. to ETA-11/0024

Negative corner moment, e.g. as a result of dead weight or snow load

Negative corner moment outside tension → corner bracket on tension
e.g. 2-joint frame for snow (s), dead load (g)



V: Lateral force; N: Normal force; M: Moment

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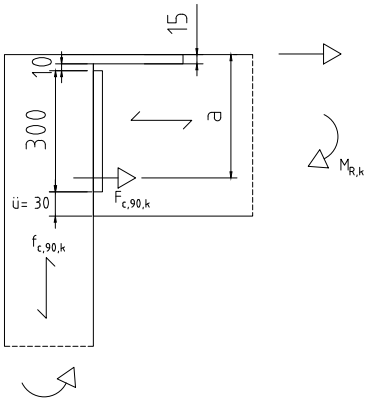
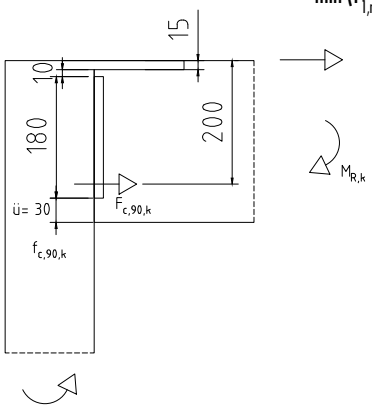
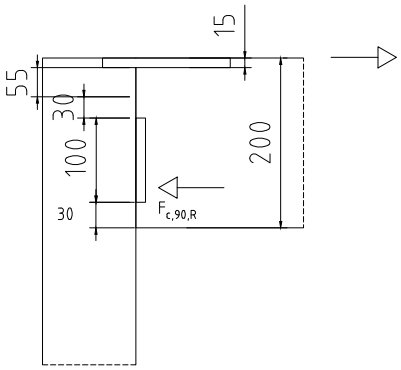
Neg. corner moment, corner bracket and Magnus, connection to column

Corner brackets S				
		$R_{k,\ Corner\ brackets}$	$R_{c,90,k}$	$M_{R,K}$
Magnus L 110 x 300		22,1 kN	49,0 kN	6,58 kNm
Magnus M 70 x 180		22,1 kN	19,8 kN min ($F_{1,n}$; $R_{c,90,n}$)	3,13 kNm
Magnus S 50 x 100 In the lower range		22,1 kN	19,8 kN	3,13 kNm

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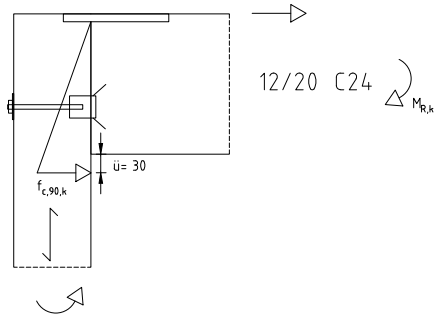
Neg. Corner moment, corner bracket and Magnus, connection to column

Corner brackets M				
		$R_{k,\ Corner\ brackets}$	$R_{c,90,k}$	$M_{R,K}$
Magnus L 110 x 300		50,3 kN	49,0 kN	11,6 kNm
Magnus M 70 x 180	No change to the corner bracket S because transverse pressure determines moment load capacity	50,3 kN	19,8 kN	3,13 kNm
Magnus S 50 x 100		50,3 kN	13,8 kN	2,18 kNm

Neg. corner moment, corner bracket and IdeeFix Ø 40 mm

Corner brackets S				
		$R_{k,\ Corner\ brackets}$	$R_{c,90,k}$	$M_{R,K}$
IdeeFix Ø 40 mm M16 Full thread 6,0 x 60		20,1 kN	34,8 kN	3,49 kNm
Corner brackets M		50,3 kN	34,8 kN	4,99 kNm

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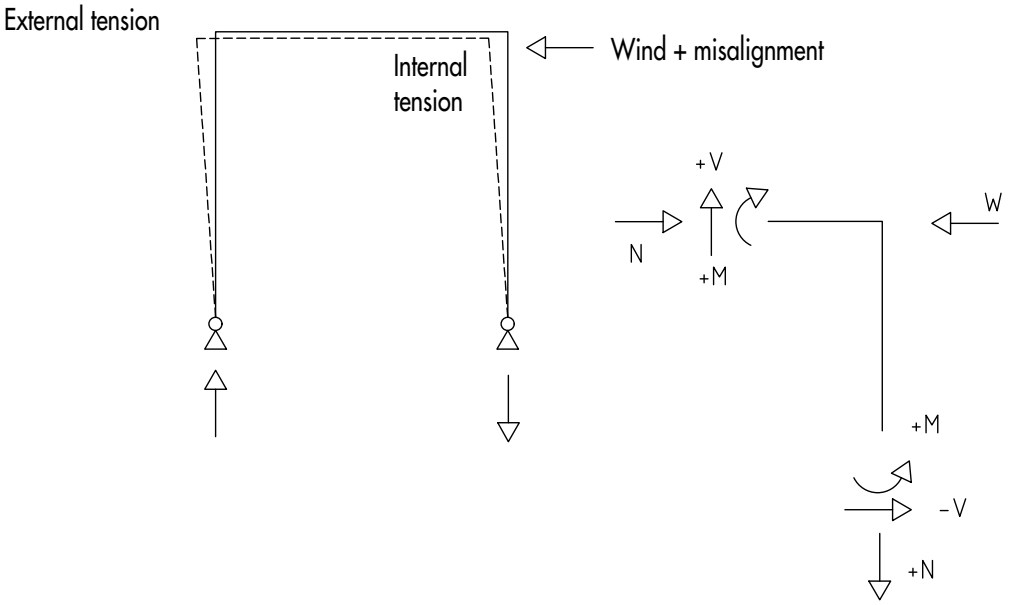
Positive corner moment, e. g. as a result of wind pressure

Positive corner moment; inner tension → lower screws of the Magnus must absorb tension.

Definition of internal forces IF; positive corner moment



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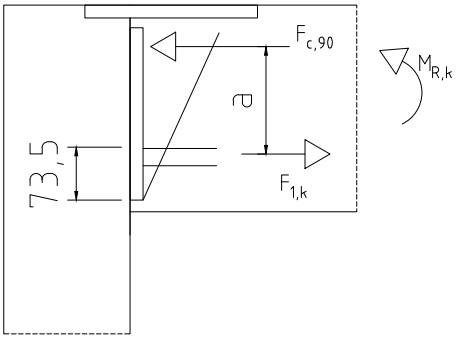
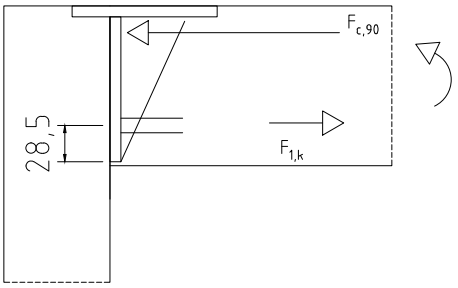
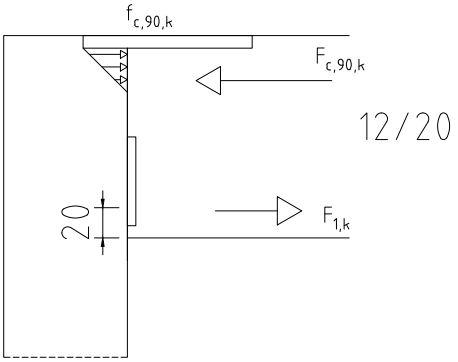
Pos. corner moment, corner bracket and Magnus, connection to column

		$F_{1,k}$	$R_{c,90,k}$	$M_{R,k}$
Magnus L 100 x 300		10,2 kN	Transverse pressure is not decisive $F_{1,k}$ is decisive	2,07 kNm
Magnus M 70 x 180		5,49 kN		0,73 kNm
				
Magnus S 50 x 100		3,73 kN		0,59 kNm
				

Corner bracket S and M without affecting load-bearing capacity.

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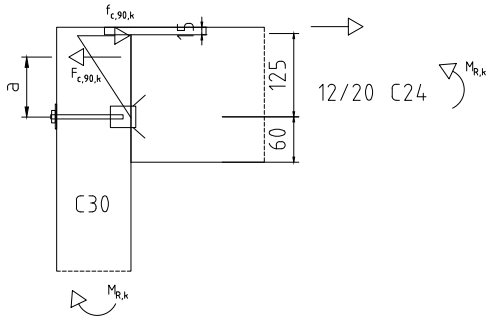
Pos. corner moment, corner bracket and IdeeFix Ø 40 mm

		$F_{k,\ IdeeFix}$	$R_{c,90,k}$	$M_{R,k}$
IdeeFix Ø 40 mm M16 Fully threaded 6,0 x 60 mm Washers Ø 68 mm		20,1 kN	20,3 kN	1,68 kNm

Corner bracket S and M without affecting load capacity.
Please note: The stated values are planning aids/preliminary measurements. They are subject to typographical and printing errors.
Projects must only be calculated by authorised persons.

Rigid connections for example: Carport

Effects

Dead load roof g_k = 0.6 kN/m²
Wind zone 1q_p = 0.5 kN/m²; the upper 500 mm high area of the longitudinal wall under the ridge and the gable is clad.
This is followed by a force coefficient of C_f = 1.52 with the flow at right angles to the ridge and a wind force of W_k = 1.71 kN
with the flow parallel to the ridge c_f = 1.42 and Wk = 1.07 kN snow zone I: S_k = 0.65 kN/m² μ = 0.8.

Static system

In the transverse direction, three-hinged frames were assumed in the gable walls. The rigid corner between the frame
and the column on the eaves side can be made with an Idee**Fix** Ø 40 mm and corner bracket S.
In the longitudinal direction, a two-hinged frame with rigid corners is formed between the ridge or eaves purlin and the supports.
This connection can be made with the Magnus L and corner bracket S or M.

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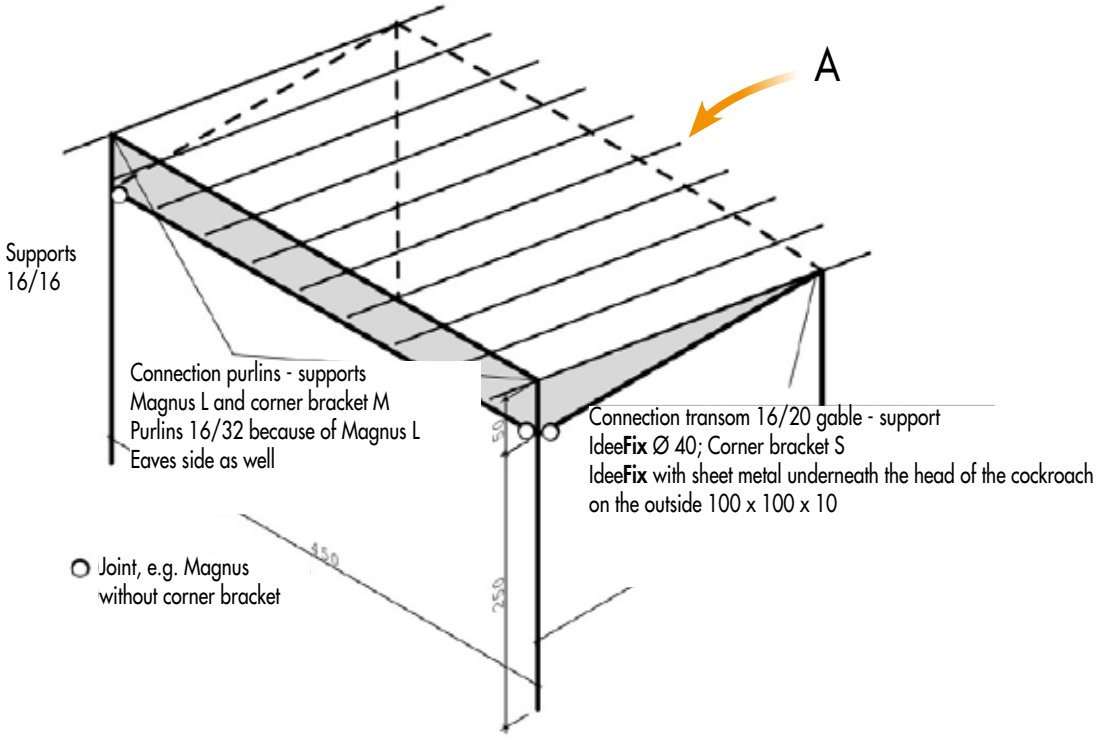

Dimensions of the carport

Calculation of the measurement showed that the positive corner moments (A) for transverse reinforcement can best be transferred with combining Idee**Fix** and the corner bracket. However, to absorb the corner moment ME, d = 1.62 kNm Instead of the Ø 68 mm washer, a 100 x 100 x 10 mm sheet can be mounted to absorb the tensile force with the Idee**Fix** screw head. Longitudinal reinforcement with Magnus L and the corner brackets is possible, especially since the dead load of the roof structure in combination with the wind action does not lead to positive corner moments ME, d = -4.4 kNm, i.e. if there is tension at the top in the area of the corner tab. So as long as there are no positive corner moments, the combination of Magnus connectors and corner brackets makes sense, with the transverse sections of the frame or purlin often being determined by the height of the Magnus. However, from a constructive perspective, it should be noted that the system can only be used on the prop head, so that e. g. the transverse bar of the longitudinal wall under the ridge cannot be rigidly connected to the supports.

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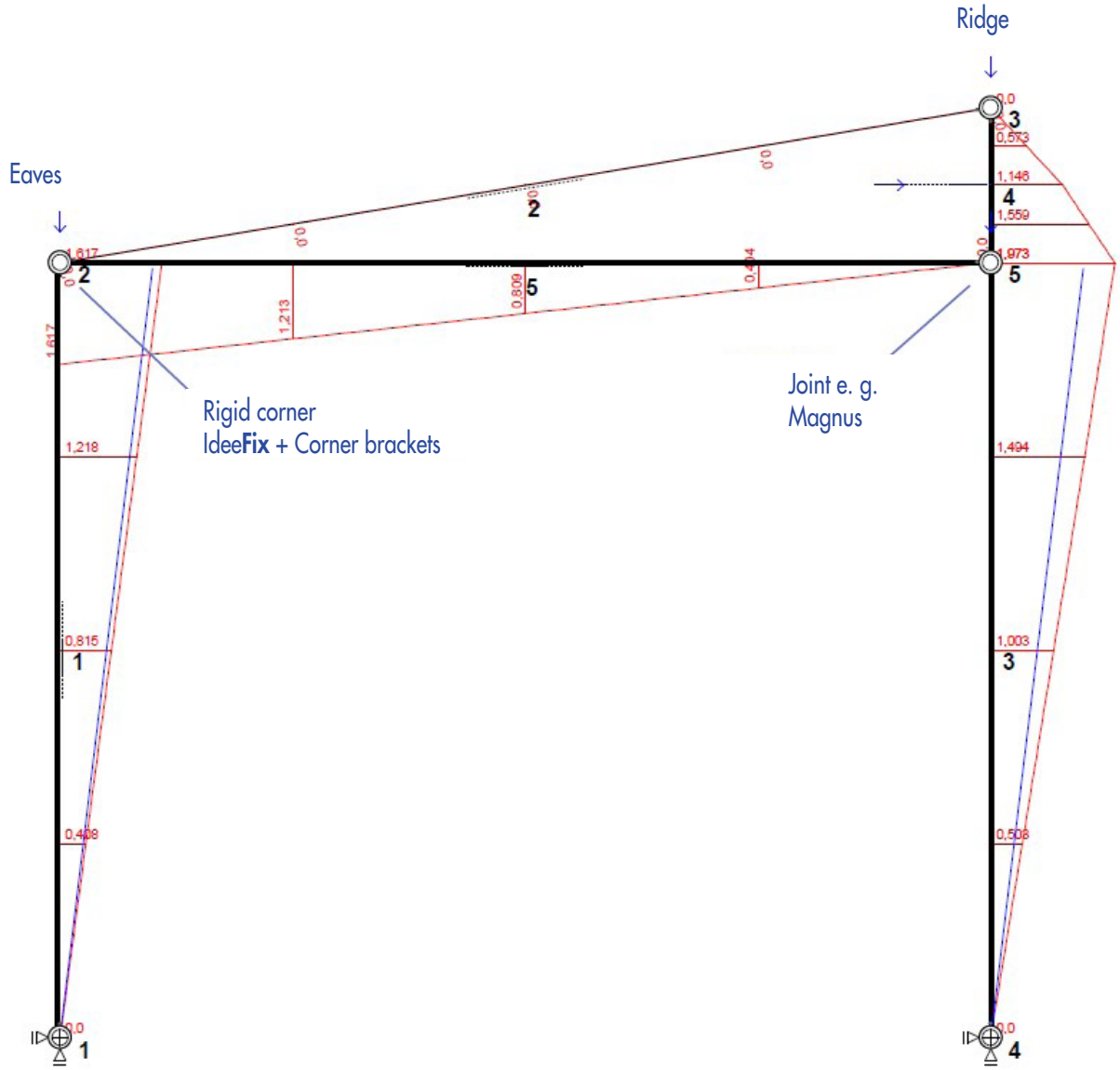
Load combination: g + w
NII (normal forces according to 2nd order theory): determined NII calculations of the system in such a way that for the bar:
1 other point: x = 2.5 (joints: 2) the moment becomes maximum.
Moment curve
Loads:
Vertical joint load
Point load normal to the axis
Pre-twist

Bracing in the transverse direction



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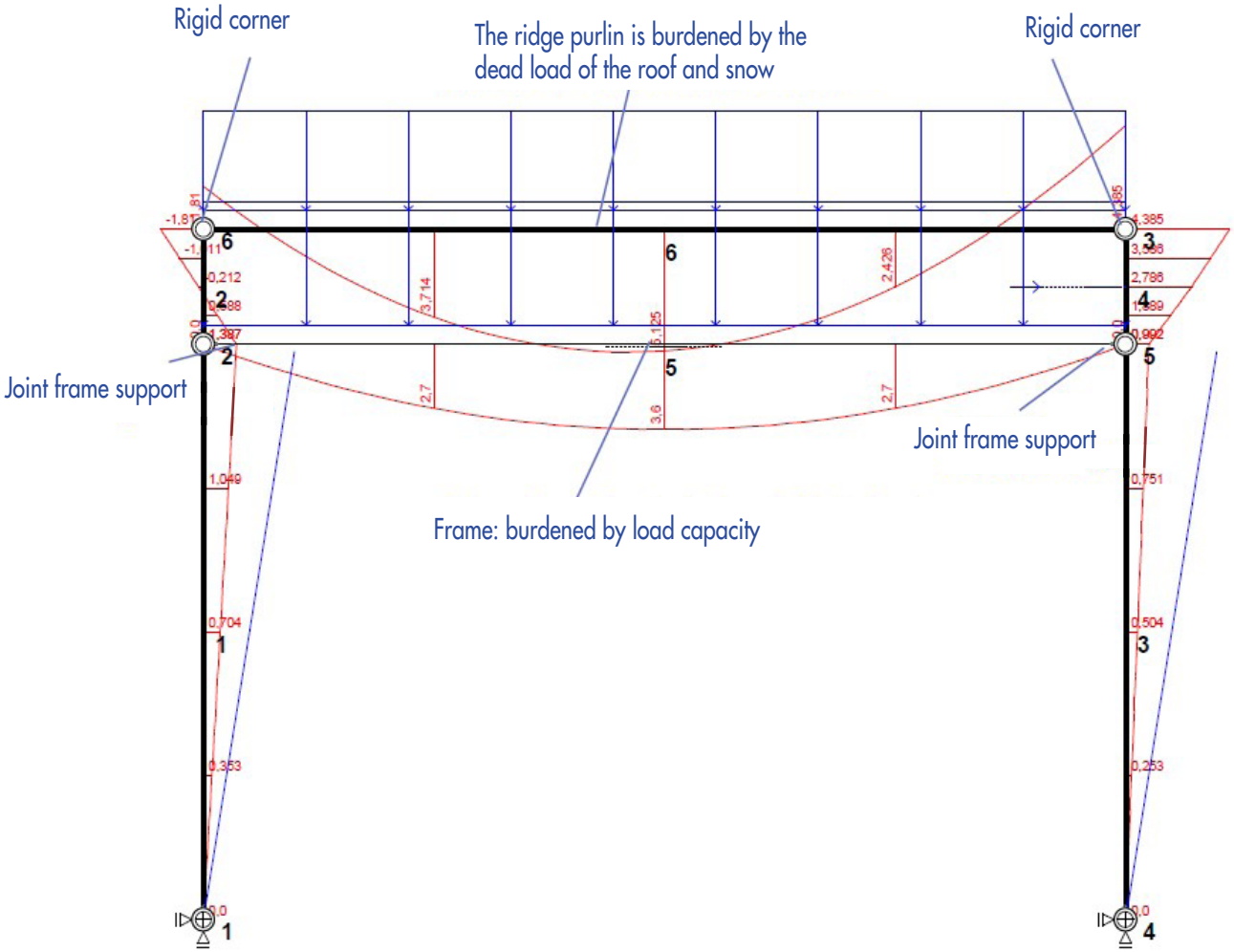
Load combination: designSchnee
NII (normal forces according to 2nd order theory): determined NII
Calculations of the system in such a way that for the bar: 4 other points: x = 0.5 (joints: 3) the moment becomes maximum.
Moment curve
Loads:
Point load normal to the axis
Line load q
Pre-twist

Long wall view



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Images of applications

If you are not familiar with how this product is used, and particularly with the product's intended use, please contact our Application Technology department (Technik@eurotec.team).

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