



**VISTALINE™**



**MM vistaline**  
DUO-/TRIO BEAMS

**arcon**  
HOUTCONSTRUCTIES



A close-up photograph of a person's hands holding a small evergreen seedling. The seedling has dark green needles and a thick, dark brown root ball covered in soil. The person is wearing a light-colored, possibly khaki, long-sleeved shirt. The background is blurred, showing more of the person's torso and arms. A dark red rectangular box is overlaid on the left side of the image, containing white text.

## In safe hands

Mayr-Melnhof Holz is committed to sustainable and ecological practices. Informed and responsible management of natural resources – regrowth and expansion of our forests – lies at the heart of our business.



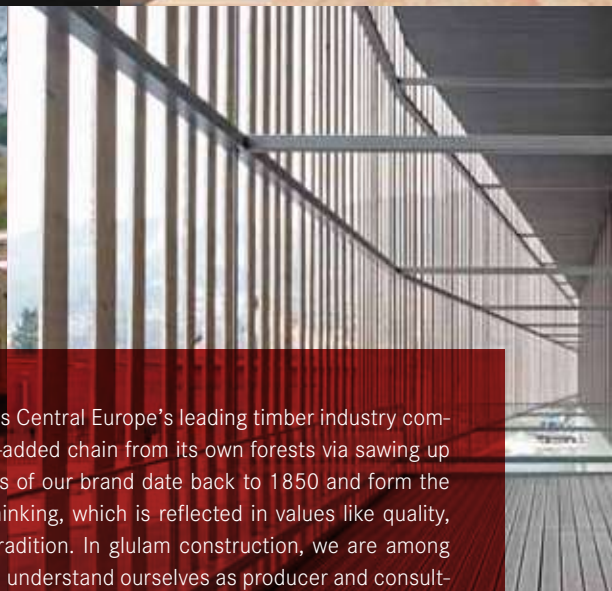
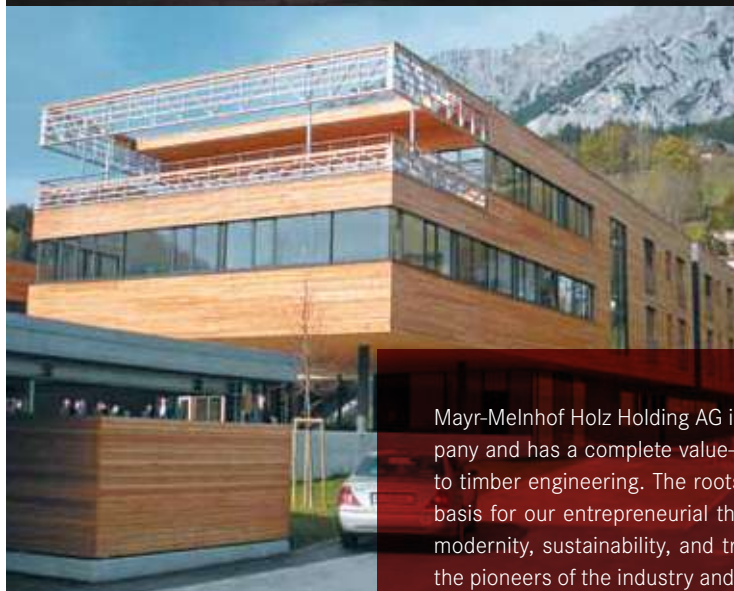


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WHERE  
IDEAS  
CAN  
GROW.



Mayr-Melnhof Holz Holding AG is Central Europe's leading timber industry company and has a complete value-added chain from its own forests via sawing up to timber engineering. The roots of our brand date back to 1850 and form the basis for our entrepreneurial thinking, which is reflected in values like quality, modernity, sustainability, and tradition. In glulam construction, we are among the pioneers of the industry and understand ourselves as producer and consultant for perfect solutions in timber from a single source. Our business partners are based in timber trade, timber processing and the construction or packaging industry, respectively. The sawmill locations for the sawn timber area are located in Leoben (Austria), Frankenmarkt (Austria), Paskov (Czech Republic) and Efimovskij (Russia). Timber processing is undertaken in Gaishorn (Austria), Kalwang (Austria), Reuthe (Austria) and Richen (Germany). With a biomass power station at the Leoben site as well as pellet and briquette production at individual locations, Mayr-Melnhof is furthermore active in the area of bio-energy.



## Products of Mayr-Melnhof Holz



**MM masterline**  
Glulam beams



**MM vistaline**  
Duo-/Trio beams



**MM profideck**  
Laminated ceiling elements



**MM blockdeck**  
Floor and wall beams



**MM crosslam**  
Cross-laminated timber



**K1 multiplan**  
3-ply structural panels



**K1 yellowplan**  
Formwork panels



**HT 20plus**  
Formwork beams



**MM sawn timber**



**MM royalpellets**



**MM royalbriquettes**

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## MM vistaline

DUO-/TRIO BEAMS

### Quality for highly visible timber structures

**MM vistaline** is a rectangular-shaped, glued lamella beam for visible applications in private and commercial buildings.

**MM vistaline** solid timber beams consist of 2 or 3 lamellas that are vertically glued with one another. A special cutting pattern, the exceptional sorting and the careful drying of the spruce wood form the basis for the unique visual quality of the finished product. Since 1991 **MM vistaline** beams have been manufactured at the Gaishorn site in Styria, Austria and distributed by the Mayr-Melnhof Holz Group throughout Europe.



### Areas of application

- Walls and ceilings
- Visible roof structures
- Post-and-beam construction
- Timber frame and skeleton construction
- Visible components for very demanding designs

### Properties

- 2 or 3-ply glued lamella beams
- Without glue lines in the height of the component
- Custom cutting pattern at sawmill, special sorting
- Highest surface quality
- Short lead times through constant availability
- Inherently stable because of kiln-dried lamellas
- Minimised split formation, engineered timber product
- No need for chemical protection of the timber
- Natural building material, climate-friendly
- Quality-controlled manufacturing



German Technical  
Approval  
Z-9.1.440 (DIBt)



Certificate of  
Compliance  
(MPA Stuttgart)



Chain of Custody



## Facts MM vistaline:

### Type of wood

- Spruce

### Surface

- Visible quality (SI)

### Dimensions

- Widths: from 8 to 20 cm
- Heights: from 10 to 24 cm
- Lengths: 12 or 13.5 m

### Product standard

- Technical approval certificate  
Z-9.1-440 (DIBt)

### Strength

- C24

## MM vistaline DUO-/TRIO BEAMS

The visible beams of the **MM vistaline** line are available in two, three or four-ply glued versions and in 24 cross sections, depending on the application.

The strength of the spruce lamellas is regulated by the European timber grading rules – the optical quality is carefully selected. Architects and builders value **MM vistaline** as an inherently stable, split-minimised lamella beam without visible glue lines in the broad and visible side of the component. That is why these high-quality products are used primarily to enhance the appearance of residential areas, restaurants, exhibition halls or hotel complexes.

All **MM vistaline** products are tested for quality and are PEFC certified.

# Technical data

## Product

Lamella beams consisting of 2 or 3 parallel lamellas glued with one another.

## Type of wood

Spruce (picea abies)

## Lumber grades

At least S10 according to DIN 4074 or C24 M

## Product standard

German general technical approval certification  
Z-9.1-440 (DIBt)  
(European standard prEN 14080,  
expected to apply from 2012 onwards)

## Strength class

C24

## Service classes

**MM vista**line lamella beams must only be used in service classes 1 or 2 according to EN 386 without climatic cycling, i.e. indoors or under the roof.

## Material properties

Characteristic values of strength class C 24

<b>Bending strength</b>	$f_{m,k}$ [N/mm <sup>2</sup> ]	24
<b>Tensile strength II</b>	$f_{t,0,k}$ [N/mm <sup>2</sup> ]	14
<b>Compressive strength II</b>	$f_{c,0,k}$ [N/mm <sup>2</sup> ]	21
<b>Compressive strength <math>\perp</math></b>	$f_{c,90,k}$ [N/mm <sup>2</sup> ]	2.5
<b>Shear strength</b>	$f_{v,k}$ [N/mm <sup>2</sup> ]	2.0
<b>Average modulus of elasticity</b>	$E_{0,g,mean}$ [N/mm <sup>2</sup> ]	11,600
<b>Shear modulus</b>	$G_{g,mean}$ [N/mm <sup>2</sup> ]	690

## Gluing

Melamine resin-based adhesive, adhesive type I acc. To EN 301 approved for gluing load-bearing timber components, both indoors and outdoors.

## Lamella thickness

40 to 80 mm

## PlanPlaning

All sides are cleanly surfaced.

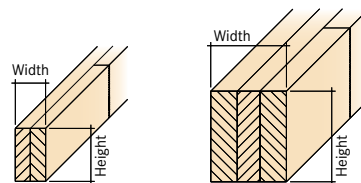
## Edges

All edges are slightly chamfered.

## Size definition

**MM vista**line Duo

**MM vista**line Trio



Lengths: 12.0 and 13.5 m (other lengths are possible with the minimum order size of 1 package)

## Wood moisture

12%  $\pm$  2%

## Density

Approx. 450 kg/m<sup>3</sup>

## Coefficient of thermal conductivity

$\lambda$  = 0.13 W/(mK)

## Diffusion resistance

$\mu$  = 20 to 40

## Fire behaviour

- Building material class acc. To DIN 4102-4; B2 (standard inflammable) or acc. to EN 13501 Euroclass D, s2, d0
- Charring rate: 0.7 mm/min

## Emission class

The limits of Emission Class E1 ( $\leq$  0.1 ppm HCHO) are significantly undercut.





### Surface quality

**Visible quality (Si):** core-separated, bare, healthy knots (any defects are repaired).

**Industrial quality (NSi):** Defective knots and colour variations through blue stain to red streakiness permitted. Upon request only.

### Shrinkage and swelling tendency

**MM vista**line lamella beams have an average shrinkage and swelling tolerance of 0.24% in both width and height per 1% change in the wood moisture. Changes in length of 0.01% can generally be ignored.

In closed, normally air-conditioned rooms a wood equilibrium moisture content of 9% can be expected. This corresponds to the equilibrium moisture content at a room temperature of 20°C and a relative humidity of 50%.

As a result of the natural and hence unavoidable tendency of the wood to shrink and swell, small shrinkage cracks may occur depending on the indoor climate.

### Dimensional tolerances

In line with EN 336 Structural Timber, at least dimension tolerance class 2.

Widths and heights:	$\pm 1.0 \text{ mm}$	$b, h \leq 10 \text{ cm}$
	$\pm 1.5 \text{ mm}$	$b, h \geq 10 \text{ cm}$

Twist:	$\leq 4 \text{ mm/2 m}$
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Longitudinal curvature:	$\leq 4 \text{ mm/2 m}$
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### Labelling

**MM vista**line lamella beams are labelled with the following details: Mayr-Melnhof Holz Gaishorn factory, construction supervision approval notice Z-9.1-440, the monitoring of the commissioned approval institution and day of production.



### Packaging

Bundle wrapped in plastic foil (see list of packaging units). Individually wrapped pieces on request.

- The plastic foil provides protection against dirt and spray water during shipping
- The plastic foil offers a limited protection of the component against UV radiation and water absorption
- The packaging material is not suitable for long-term storage

Short-term penetration of water does not indicate a deficiency. If moisture or water has penetrated the package, cut off and remove the foil to ensure good circulation around the wet component.

## Product range

Width	Height	Length	Pieces per package	Pieces per layer	Number of layers	Package width	Package height	In stock
[mm]	[mm]	[m]				[mm]	[mm]	
MM vistaline Duo beams consisting of 2 lamellas								
80	100	12.0 & 13.5	36	6	6	600	480	
80	120	12.0 & 13.5	30	5	6	600	480	
80	140	12.0 & 13.5	24	4	6	560	480	x
80	160	12.0 & 13.5	24	4	6	640	480	x
80	180	12.0 & 13.5	18	3	6	540	480	x
80	200	12.0 & 13.5	18	3	6	600	480	x
100	140	12.0 & 13.5	20	4	5	560	500	x
100	160	12.0 & 13.5	20	4	5	640	500	x
100	180	12.0 & 13.5	15	3	5	540	500	x
100	200	12.0 & 13.5	15	3	5	600	500	x
120	160	12.0 & 13.5	16	4	4	640	480	x
120	180	12.0 & 13.5	12	3	4	540	480	x
120	200	12.0 & 13.5	12	3	4	600	480	x
120	220	12.0 & 13.5	12	3	4	660	480	x
120	240	12.0 & 13.5	8	2	4	480	480	x
140	200	12.0 & 13.5	12	3	4	600	560	x
140	240	12.0 & 13.5	8	2	4	480	560	x
160	200	12.0 & 13.5	9	3	3	600	480	
160	220	12.0 & 13.5	9	3	3	660	480	
160	240	12.0 & 13.5	6	2	3	480	480	
MM vistaline Trio beams consisting of Trio beams consisting of 3 lamellas								
180	180	12.0 & 13.5	9	3	3	540	540	x
180	200	12.0 & 13.5	9	3	3	600	540	x
180	220	12.0 & 13.5	9	3	3	660	540	x
180	240	12.0 & 13.5	9	2	2	480	540	x
200	200	12.0 & 13.5	6	3	2	600	400	x
200	240	12.0 & 13.5	6	3	2	720	400	x

Bundle wrapped in plastic foil.



# Span table

## Span tables for single span beams

These tables are only to be used for predimensioning purposes. Prior to implementation a precise structural analysis must be carried out in accordance with the currently applicable dimensioning standards in every case.

### System assumptions:

- Uniform loading
- Beam is supported against lateral shifting; no risk of tilting
- Shear and creep deformations are not taken into account
- Uniform load  $q$  is composed of:  
g: permanent load, incl. dead load of the beam  
p: live load or snow load

### Material: C24 (S 10)

Material properties for S10 acc. to DIN 1052:1988:

Modulus of elasticity pursuant to

Z-9.1-440:  $E = 11,600 \text{ [N/mm}^2\text{]}$

Permissible bending stress:  $\sigma_{b,zul} = 10 \text{ [N/mm}^2\text{]}$

Permissible shear stress:  $\tau_{zul} = 0.9 \text{ [N/mm}^2\text{]}$

Permissible deformation:  $f_{zul} = l/300 \text{ [m]}$

### Example

#### Given:

Span  $l = 3.50 \text{ m}$

Load  $q = 6.00 \text{ kN/m}$

#### Selected:

120/220 mm max.  $l = 3.59 \text{ kN/m} > \text{exist. } l = 3.5 \text{ kN/m}$   
or

140/200 mm max.  $l = 3.53 \text{ kN/m} > \text{exist. } l = 3.5 \text{ kN/m}$

### Leading design criteria:

☐ Deflection ☐ Modulus ☐ Shear force

	[mm]		Maximum permissible spans at widths 80 – 160 mm / q [kN / m]														
	b	h	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	9.0	10.0	
Duo	80	140	3.79 f	3.31 f	3.01 f	2.79 f	2.63 f	2.44 M	2.29 M	2.16 M	2.04 M	1.87 M	1.73 M	1.62 M	1.49 Q	1.34 Q	
	80	160	4.33 f	3.78 f	3.44 f	3.19 f	3.00 f	2.79 M	2.61 M	2.46 M	2.34 M	2.13 M	1.98 M	1.85 M	1.71 Q	1.54 Q	
	80	180	4.87 f	4.25 f	3.86 f	3.59 f	3.38 f	3.14 M	2.94 M	2.77 M	2.63 M	2.40 M	2.22 M	2.08 M	1.92 Q	1.73 Q	
	80	200	5.41 f	4.73 f	4.29 f	3.99 f	3.75 f	3.49 M	3.27 M	3.08 M	2.92 M	2.67 M	2.47 M	2.31 M	2.13 Q	1.92 Q	
	100	140	4.08 f	3.56 f	3.24 f	3.01 f	2.83 f	2.69 f	2.56 M	2.41 M	2.29 M	2.09 M	1.93 M	1.81 M	1.70 M	1.62 M	
	100	160	4.66 f	4.07 f	3.70 f	3.44 f	3.23 f	3.07 f	2.92 M	2.75 M	2.61 M	2.39 M	2.21 M	2.07 M	1.95 M	1.85 M	
	100	180	5.25 f	4.58 f	4.16 f	3.86 f	3.64 f	3.45 f	3.29 M	3.10 M	2.94 M	2.68 M	2.48 M	2.32 M	2.19 M	2.08 M	
	100	200	5.83 f	5.09 f	4.63 f	4.29 f	4.04 f	3.84 f	3.65 M	3.44 M	3.27 M	2.98 M	2.76 M	2.58 M	2.43 M	2.31 M	
	120	160	4.95 f	4.33 f	3.93 f	3.65 f	3.44 f	3.26 f	3.12 f	3.00 f	2.86 M	2.61 M	2.42 M	2.26 M	2.13 M	2.02 M	
	120	180	5.57 f	4.87 f	4.42 f	4.11 f	3.86 f	3.67 f	3.51 f	3.38 f	3.22 M	2.94 M	2.72 M	2.55 M	2.40 M	2.28 M	
	120	200	6.19 f	5.41 f	4.92 f	4.56 f	4.29 f	4.08 f	3.90 f	3.75 f	3.58 M	3.27 M	3.02 M	2.83 M	2.67 M	2.53 M	
	120	220	6.81 f	5.95 f	5.41 f	5.02 f	4.72 f	4.49 f	4.29 f	4.13 f	3.94 M	3.59 M	3.33 M	3.11 M	2.93 M	2.78 M	
	120	240	7.43 f	6.49 f	5.90 f	5.48 f	5.15 f	4.90 f	4.68 f	4.50 f	4.29 M	3.92 M	3.63 M	3.39 M	3.20 M	3.04 M	
	140	200	6.52 f	5.70 f	5.17 f	4.80 f	4.52 f	4.29 f	4.11 f	3.95 f	3.81 f	3.53 M	3.27 M	3.06 M	2.88 M	2.73 M	
	140	240	7.82 f	6.83 f	6.21 f	5.76 f	5.42 f	5.15 f	4.93 f	4.74 f	4.58 f	4.23 M	3.92 M	3.67 M	3.46 M	3.28 M	
Trio	180	180	6.38 f	5.57 f	5.06 f	4.70 f	4.42 f	4.20 f	4.02 f	3.86 f	3.73 f	3.51 f	3.33 M	3.12 M	2.94 M	2.79 M	
	180	200	7.09 f	6.19 f	5.63 f	5.22 f	4.92 f	4.67 f	4.47 f	4.29 f	4.15 f	3.90 f	3.70 M	3.46 M	3.27 M	3.10 M	
	180	220	7.80 f	6.81 f	6.19 f	5.75 f	5.41 f	5.14 f	4.91 f	4.72 f	4.56 f	4.29 f	4.07 M	3.81 M	3.59 M	3.41 M	
	180	240	8.51 f	7.43 f	6.75 f	6.27 f	5.90 f	5.60 f	5.36 f	5.15 f	4.98 f	4.68 f	4.44 M	4.16 M	3.92 M	3.72 M	
	200	200	7.34 f	6.41 f	5.83 f	5.41 f	5.09 f	4.84 f	4.63 f	4.45 f	4.29 f	4.04 f	3.84 f	3.65 M	3.44 M	3.27 M	
	200	240	8.81 f	7.70 f	6.99 f	6.49 f	6.11 f	5.80 f	5.55 f	5.34 f	5.15 f	4.85 f	4.61 f	4.38 M	4.13 M	3.92 M	

# 8 Locations

- 4 Sawmills
- 4 Timber processing plants
- 2 Pellets production sites
- 3 Briquettes production sites



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