BLOCKDECK™
Floor and Wall Beams

MM blockdeck
FLOOR AND WALL BEAMS

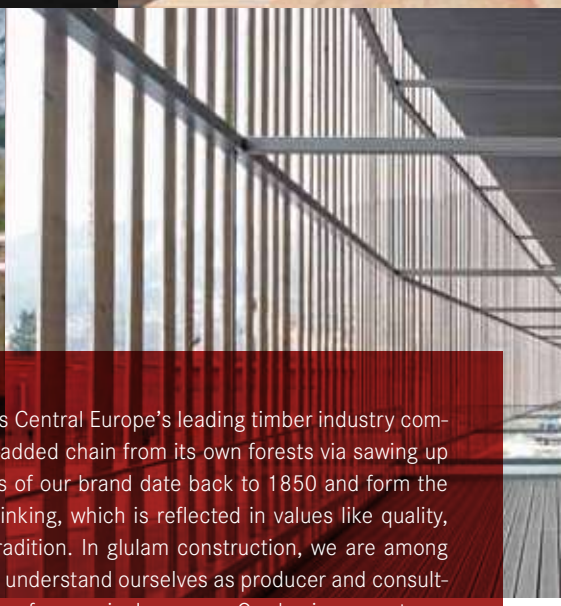
arcon
HOUTCONSTRUCTIES

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.

CONTENTS

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

Mayr-Melnhof Holz Holding AG
Turmgasse 67 · 8700 Leoben · Austria
T +43 3842 300 0 · **F** +43 3842 300 1210
holding@mm-holz.com · www.mm-holz.com

Esteemed Customer, thank you for your interest in our products. Please note that this document is a sales brochure and that the quoted figures are merely reference values. The document may contain typing errors and other mistakes. In preparing this sales brochure, all information was researched with due diligence. However, we cannot accept any liability for the accuracy and completeness of the figures and data stated therein. Any legal claims derived from the use of this information are therefore excluded. The content of the services we are liable for can only be defined by way of a written quotation in combination with our relevant written confirmation of your order. This sales brochure and our other sales materials are not quotations in a legal sense. For planning your project we recommend you get in personal contact with one of our members of staff who will be glad to assist you on a non-binding basis. Any copying of this material in full or in part requires the expressed approval of the MM Holz Group.

MM blockdeck

FLOOR AND WALL BEAMS

Environmentally friendly building with laminated floor boards

Profiled laminated floorboards and log house planks for ceilings, walls and roof structures are produced under the brandnames of **MM blockdeck** in the Mayr-Melnhof Holz factories. **MM blockdeck** consists of high-quality, glued spruce lamellas and is offered in dimensions ranging from 40 to 160 mm in thickness and up to 18 m in length.

As standard **MM blockdeck** is available from the Reuthe plant in qualities A/A and A/C for stricter requirements invisible applications.

For larger orders, individual production with customised profiles in our other plants is also possible.

Areas of application

- Walls
- Ceilings
- Cantilevered roof structures
- Supported roof structures
- Renovation and refurbishments

Properties

- Glued, profiled panel boards and planks
- Suitable for ceilings and walls
- Selected high-quality timbers in spruce
- Available in lengths up to 18 metres
- Individual profiles on request
- Commissioned lists on request

EC Certificate of Conformity
EN 14080

Certificate of Compliance
DIN 1052

Chain of Custody

ISO 9001
Quality management

Facts MM blockdeck:

Type of wood

- Spruce

Surface quality

- A/A: visible on both sides
- A/C: visible on one side
- C/C: not visible on either side

Dimensions

- Thicknesses: from 44 to 160 mm
- Width: 200 mm (on face)
- Lengths: 12 m (standard)
  up to 18 m on request

Product standard

- EN 14080, DIN 1052

Strengths

- GL 24h

Profile

- Double T&G

Solid – modern – versatile

Profiled floor and ceiling boards from Mayr-Melnhof Holz are used for both modern and are used for both modern and traditional timber constructions.

On outside walls the specially selected spruce timbers with a permeable design offer exceptional resistance to wind and weather. In the interior, walls and ceilings made of **MM block**deck ensure a harmonious, pleasant indoor climate.

MM blockdeck is a dry building material that, according to structuralrequirements, can also be used without further chemical treatment.

Technical data

Product

Glulam floorboards, planks (profiled glulam and lamella beams)

Type of wood

Spruce

Product standard

EN 14080, DIN 1052

Strength class

GL 24h

Material properties

Characteristic values of strength class GL 24h pursuant to EN 1194

Characteristic density	ρk	[kg/m³]	380
Bending strength	$f_{m,k}$	[N/mm²]	24
Tensile strength ∥	$f_{t,0,k}$	[N/mm²]	16.5
Tensile strength ⊥	$f_{t,90,k}$	[N/mm²]	0.4
Compressive strength ∥	$f_{c,0,k}$	[N/mm²]	24
Compressive strength ⊥	$f_{c,90,k}$	[N/mm²]	2.7
Shear strength	$f_{v,k}$	[N/mm²]	2.7
Average modulus of elasticity	$E_{0,g,mean}$	[N/mm²]	11,600
Modulus of elasticity 5% percentile	$E_{0,g,05}$	[N/ mm²]	9,400
Average modulus of elasticity	$E_{90,g,mean}$	[N/mm²]	390
Shear modulus	$G_{g,mean}$	[N/mm²]	720

Service classes

MM blockdeck products must only be used in Service Classes 1 or 2 without climatic cycling, i.e. indoors or roofed over.

Gluing

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

Colour of glue lines

Light coloured gluelines (melamine adhesive)

Lamella thickness

Up to 45 mm

Wood moisture

10 to 12% ± 2%

Density

approx. 450 kg/m³

Coefficient of thermal conductivity

λ = 0.13 W/ mK)

Diffusion resistance

μ = 20 to 40

Air layer thickness

sd = μ x element thickness

Technical Data

Thickness [mm]	**Number of lamellas**	**Weight** [kg/m²]	**Thermal resistance R** [m²K]/W	**Thermal insulation value h** W/[m² K]
44	**2**	20.2	0.34	2.95
62	**2**	28.2	0.48	2.10
95	**3**	43.7	0.73	1.37
125	**4**	57.5	0.96	1.04
160	**5**	73.5	1.24	0.81

Fire behaviour

Classification of MM blockdeck elements:

Nach EN 13501

Euro class D
Smoke class s2
Drip class d0

nach DIN 4102-1

B2 (standard inflammable)

The charring rate β_0 is 0.7mm/min according to EN 1995-1-2. As regards the proof of the fire resistance class e.g. REI 30 or REI 60, the double groove and ridge profile meets the minimum groove design requirements to the joint design.

Emission class

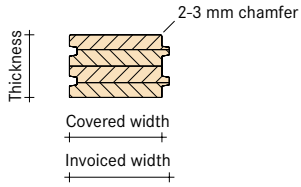
The limits of Emission Class E1 (≤ 0.1 ppm HCHO) are significantly undercut.

Product range

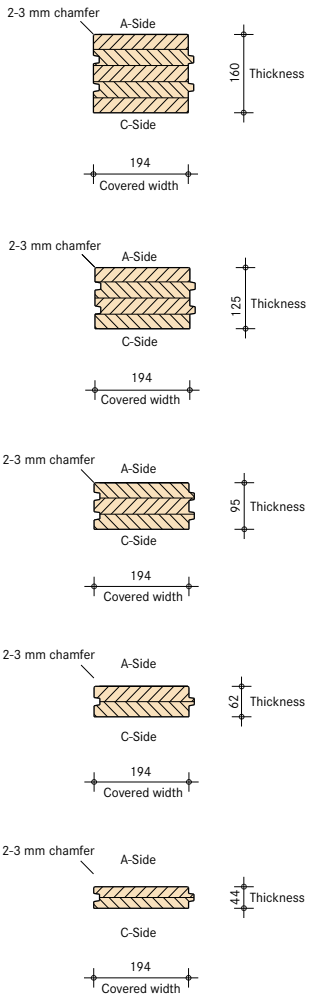
Dimensions

Thicknesses: 44, 62, 95, 125 and 160 mm
Widths: 200 mm (invoiced width)
Length: max. 18 m
Net width: 194 mm
Width incl. tongue: 205 mm
Invoiced width: 200 mm

Other dimensions on request.



Element dimensions



Lengths

Special dimensions and customised profiles for corresponding batch sizes on request. Delivered lengths = ordered lengths + approx. 5 cm (without precision end cuts)

Commissioning

Custom and precision end cuts on request

Packaging

Individually wrapped packages

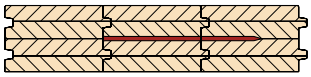
Storage

The floor and wall beams may not be exposed to weathering at any time.

Assembly

Recommended erection: connection by on-site pre-drilled **MM block**deck floor boards approx. every 150 cm with a 8.0 x 300 mm nail or by self-tapping screws.

Nailing



Coatings

- It is possible to have a water-soluble impregnation applied to reduce any moisture absorption during the assembly phase.
- It is recommended to apply coatings only after the equilibrium moisture content is reached.

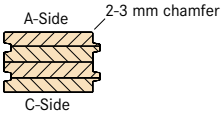
Quality

Surface quality

Planed, sides profiled
A/A: visible on both sides (A = supreme quality)
A/C: visible on one side
C/C: not visible on either side

Edge design

A-side: chamfered, approx. 2 - 3 mm
C-side: sharp edged
Sharp edged on both sides possible on request



Surface treatment

- Untreated
- Colourless impregnation on request

Shrinkage and swelling behaviour

MM **block**deck panels have an average shrinkage and swelling tolerance of 0.24% In both width and height per 1% change of 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 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. The shrinkage and swelling behaviour of the MM **block**deck panel boards must be taken into account in all joints and details of the design.

Dimensional tolerances

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

Widths and heights:	± 1.0 mm	b, h ≤ 10 cm
	± 1.5 mm	b, h ≥ 10 cm
Torsion:	≤ 4 mm / 2 m	
Longitudinal curvature:	≤ 4 mm / 2 m	

Quality assurance

In-house production is subject to constant controls as well as external monitoring by independent institutes from Austria and Germany twice a year. Continuous product tests and documentation of the processes form the basis of the Mayr-Melnhof Holz quality assurance.

f.l.t.r.:
- EC conformity certificate according to EN 14080
- Certificate of compliance (MPA) according to DIN 1052
- PEFC certificate
- ISO 9001 certificate

Span tables

Design table

These tables are to be used for predimensioning. Prior to implementation, a precise structural analysis must be carried out for each individual case.

Assumptions-structural system:

- Uniform loading
- 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

Assumption-material: GL 24h
Material properties for GL 24h according to the old dimensioning concept (DIN 1052:1988):

- Modulus of elasticity $E = 11{,}000\ [N/mm^2]$
- Permissible bending stress $\sigma_{b\,zul} = 11\ [N/mm^2]$
- Permissible shear stress $t_{zul} = 0.9\ [N/mm^2]$
- Permissible deflection $f_{zul} = l/300\ [m]$
  $f_{zul} = l/400\ [m]$

Note: Deflection criteria can be more strict in residential construction.

Single span beam

Load q [kN/m]	$f_{zul.}$ = l/300 Floor board thickness [mm]					$f_{zul.}$ = l/400 Floor board thickness [mm]				
	44 mm	62 mm	95 mm	125 mm	160 mm	44 mm	62 mm	95 mm	125 mm	160 mm
2.5	2.00	2.82	4.32	5.68	7.27	1.82	2.56	3.92	5.16	6.61
3	1.88	2.65	4.06	5.35	6.84	1.71	2.41	3.69	4.86	6.22
3.5	1.79	2.52	3.86	5.08	6.50	1.62	2.29	3.51	4.61	5.91
4	1.71	2.41	3.69	4.86	6.22	1.55	2.19	3.35	4.41	5.65
4.5	1.64	2.32	3.55	4.67	5.98	1.49	2.10	3.22	4.24	5.43
5	1.59	2.24	3.43	4.51	5.77	1.44	2.03	3.11	4.10	5.24
5.5	1.54	2.17	3.32	4.37	5.59	1.40	1.97	3.02	3.97	5.08
6	1.49	2.10	3.22	4.24	5.43	1.36	1.91	2.93	3.86	4.93

Double span beam

Load q [kN/m]	$f_{zul.}$ = l/300 Floor board thickness [mm]					$f_{zul.}$ = l/400 Floor board thickness [mm]				
	44 mm	62 mm	95 mm	125 mm	160 mm	44 mm	62 mm	95 mm	125 mm	160 mm
2.5	2.68	3.78	5.79	7.62	9.75	2.44	3.43	5.26	6.92	8.86
3	2.52	3.56	5.45	7.17	9.18	2.29	3.23	4.95	6.51	8.34
3.5	2.40	3.38	5.18	6.81	8.72	2.18	3.07	4.70	6.19	7.92
4	2.29	3.23	4.95	6.51	8.34	2.08	2.94	4.50	5.92	7.57
4.5	2.20	3.11	4.76	6.26	8.02	2.00	2.82	4.32	5.69	7.28
5	2.13	3.00	4.60	6.05	7.74	1.93	2.72	4.17	5.49	7.03
5.5	2.06	2.91	4.45	5.86	7.50	1.87	2.64	4.04	5.32	6.81
6	2.00	2.82	4.32	5.69	7.28	1.82	2.56	3.93	5.17	6.62

Triple span beam

Load q [kN/m]	$f_{zul.}$ = l/300 Floor board thickness [mm]					$f_{zul.}$ = l/400 Floor board thickness [mm]				
	44 mm	62 mm	95 mm	125 mm	160 mm	44 mm	62 mm	95 mm	125 mm	160 mm
2.5	2.48	3.50	5.36	7.05	9.03	2.26	3.18	4.87	6.41	8.20
3	2.34	3.29	5.05	6.64	8.50	2.12	2.99	4.58	6.03	7.72
3.5	2.22	3.13	4.79	6.31	8.07	2.02	2.84	4.35	5.73	7.33
4	2.12	2.99	4.58	6.03	7.72	1.93	2.72	4.16	5.48	7.01
4.5	2.04	2.88	4.41	5.80	7.42	1.85	2.61	4.00	5.27	6.74
5	1.97	2.78	4.26	5.60	7.17	1.79	2.52	3.87	5.09	6.51
5.5	1.91	2.69	4.12	5.42	6.94	1.73	2.44	3.75	4.93	6.31
6	1.85	2.61	4.00	5.27	6.74	1.69	2.37	3.64	4.79	6.13

Floor build-ups

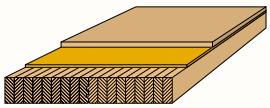
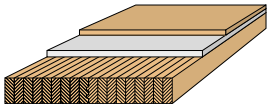
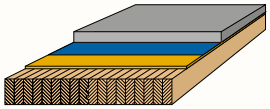
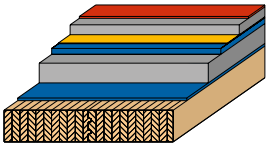
Soundproofing floors and ceilings

Soundproofing in multi-storey buildings is an extensive and complex field that requires a high level of specialist know-how and detailed planning.

The sources listed in the following provide detailed information on this subject:
Deckenkonstruktionen für den mehrgeschossigen Holzbau, (Ceiling structures for multi-storey timber constructions), Volume 20, Holzforschung Austria series, May 2009.
Schallschutz von Decken, (Soundproofing of ceilings), Lignatec 22/2008, LIGNUM July 2008

For more information on ceiling structures, please visit www.dataholz.com

Floor build-ups

		Weight [kg/m²]	Construction height [mm]	Airborne noise R_w dB	Impact noise $L_{N,w}$ dB
	• Particle board 25 mm • Mineral fibre board 12/10 mm, 80 - 110 kg/m³ • MM **block**deck 125 mm	74	160	49	67
	• Particle board 25 mm • Dry fill 30 mm • MM **block**deck 125 mm	78	180	49	70
	• Floor screed 50 mm • Waterproof layer 0.2 mm • Mineral fibre board 12/10 mm, 80 - 110 kg/m³ • MM **block**deck 125 mm	166	185	53	66
	• Flooring 10 mm • Floor screed 50 mm • Waterproof layer 0.2 mm • Mineral fibre board 30 mm, s' ≤ 9 MN/m³ • Dry fill 100 mm, ρ > 1,400 kg/m³ • Membrane • MM **block**deck 160 mm	328	350	≥ 65	≤ 47

Source: Informationsdienst Holz: Holzbauhandbuch 3rd series, part 3, issue 3 and Schweizer Lignum: IP Holz 933 d: Schalldammung von Geschossdecken aus Holz

8 Locations

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

Efimovskij

Russia

Richen

Germany

Paskov

Czech Republic

Leoben

Frankenmarkt

Austria

Kalwang

Reuthe

Gaishorn am See

arcon
HOUTCONSTRUCTIES

Arcon bv
Collseweg 23
5674 TR Nuenen
T : 00 (31) 088 02 27 107
E : info@arconbv.nl
W : www.arconhoutconstructies.nl

HET HOUTBOUW COLLECTIEF

Arcon bv participeert in het Houtbouw Collectief.