MULTIPLAN™

K1 multiplan

3-PLY STRUCTURAL PANELS

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.

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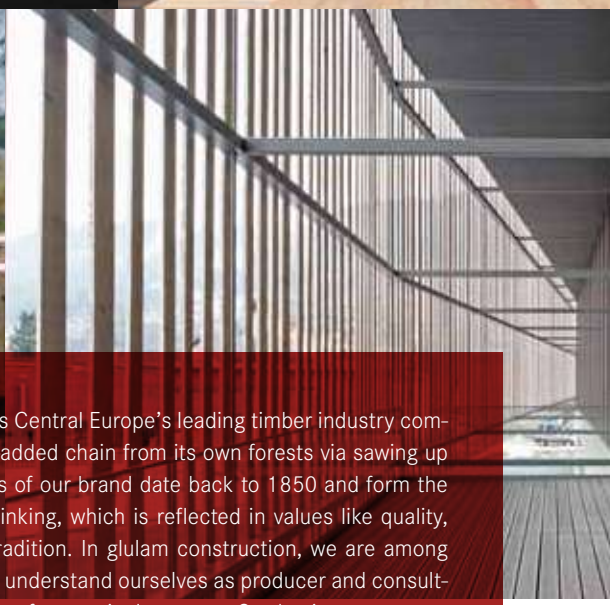
MAYR MELNHOF HOLZ

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

K1 multiplan

3-PLY STRUCTURAL PANELS

The tough panel – often imitated, but never reached.

K1 **multi**plan is a three-ply solid timber panel which is approved for structural load purposes by the «Deutsches Institut für Bautechnik». It also conforms to European Standards and carries a CE label. This structural panel is characterised by an extraordinarily high load-bearing capacity and dimensional stability. It is versatile and flexible in ist dimensions – thicknesses from 20 to 75 mm, 2 m widths and lengths up to 18 m.

K1 **multi**plan has been produced in Austria at the Reuthe factory in Bregenzerwald with great success since 1993.

Areas of application

- Load-bearing roof, ceiling and wall elements
- Bracing and space enclosing panel
- Plane area-covering structural elements
- Curved area-covering structural elements
- Structurally effective acoustic panels
- Exterior wall cladding
- Special shapes can be machined from large panels

Properties

- Large format, extremely strong structural panel
- Standard formats 2 x 5 and 2 x 6 m
- Finger-jointed to lengths of 18 m
- Thicknesses from 20 to 75 mm
- Made of solid spruce or Siberian larch
- Load-bearing and bracing functions
- Natural building material, climate-friendly
- Visually attractive surfaces
- Quality-controlled manufacturing

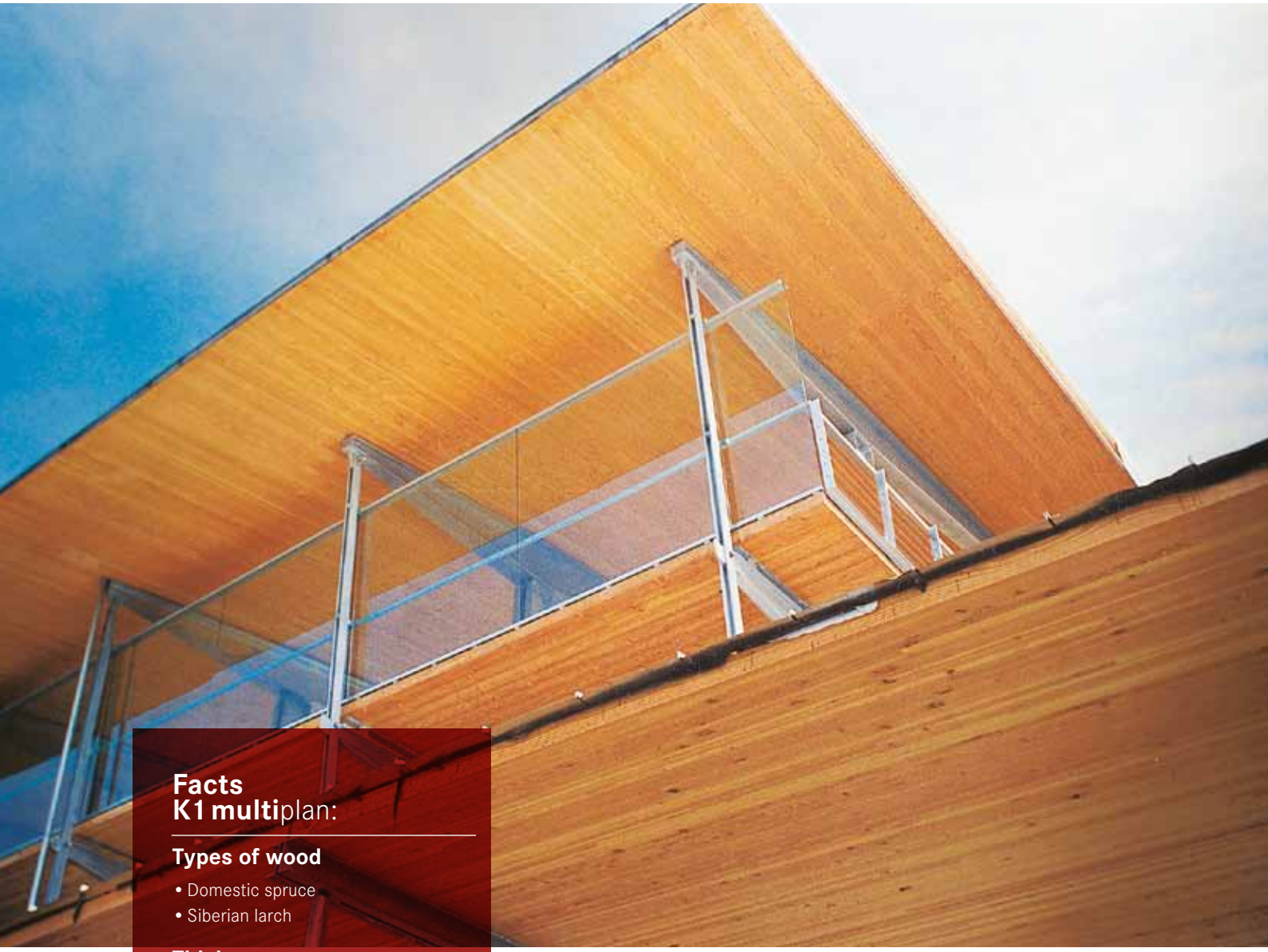
EC Certificate of Conformity
EN 13986

German Technical Approval
Z-9.1-242

Certificate of Compliance

Chain of Custody

ISO 9001
Quality management



Facts K1 multiplan:

Types of wood

- Domestic spruce
- Siberian larch

Thicknesses

- 20 – 75 mm

Formats

- 2 x 5 m, 2 x 6 m
- Finger-jointed up to 18 m lengths

Surface qualities

- B/C, C/C
- Sanded

Product standard

- Technical approval certification Z-9.1-242

Versatile and exceptionally sturdy

K1 **multi**plan is suitable for load-bearing and bracing applications. In addition, it is used for exterior wall cladding. The panel is produced from selected domestic spruce or durable Siberian larch in a unique production process.

Planners, engineers and timber builders have relied on the proven advantages of K1 **multi**plan for almost two decades.

Advantages

Load-bearing roof elements

There is no better alternative for load-bearing roof and floor elements in residential or hall construction than K1 **multi**plan . By finger-jointing the already large standard formats of 2 x 6 m, the panel can be produced up to 18 m length.
It is even possible to realise exceptional architectural designs economically and with versatility.

- Structurally effective system
- Underside in visible quality
- Possible integration of insulation, services and roof covering

Roof elements, exhibition hall 26, Hannover, Germany

Curved area-covering structural elements

K1 **multi**plan copes with exceptional geometrical requirements. In conjunction with curved glulam ribs, the three-layer panel adapts effortlessly to the desired shape and becomes a integrated load-bearing unit.

- Flexibility in design
- High degree of prefabrication
- Combination of load bearing and bracing functions

Manufacturing facility, Matrei, Austria

Acoustic panels including bracing

Extreme climatic conditions such as temperature and humidity are no problem at all for K1 **multi**plan.
Even the acoustic requirements at the Dornbirn ice skating arena were solved to perfection with the help of an individual hole pattern.

- Combines load-bearing and acoustic functions
- Large format, shapeable structural panel
- Selectable hole pattern and grid

Ice skating arena, Dornbirn, Austria

Cantilevered roof structures

Large roof projections, high snow loads: this is where K1 **multi**plan proves its real strength. It fulfils a load-bearing function and is a design element at the same time.

- Attractive, visually graded timber surface in spruce or larch
- Panel thicknesses to 75 mm allow free-spanning of cantilevered roofs
- Creative design possibilities though large format and cutting to size using CNC

Soccer stadium, Bregenz, Austria

Special shapes with maximum load-bearing capacity

The excellent strength and high load-bearing capacity enables K1 **multi**plan to be used in many special applications, such as a curved segments in domes, as I-beams in plane load-bearing structures or as CNC-machined panels in exhibition constructions.

- Individually machined from large format panels
- Panels machined with CNC-technology
- Machine-finished structural components

Dormitory, Barcelona, Spain

Natural aesthetics in exterior wall construction

Thanks to the unique production process in which large laminated blocks are re-sawn to obtain solid and stable plies, the cross-layered K1 **multi**plan offers a high degree of dimensional stability. Considering the natural behavior of exposed timber surfaces, it is suited for the application in exterior wall paneling. There is a choice between panels made from domestic spruce or the more durable Siberian larch.

- Reduced number of joints thanks to large formats
- Mainly vertical grain structure increases the resistance of the surface
- High-quality bonding of the top layers

Technical data

Product

3-ply solid wood panel for structural applications

Types of wood

- Spruce (picea abies) from domestic forests
- Siberian larch (Larix spp.)
- Douglas fir on request (depending on project size)

Product standard

Manufactured in compliance with the general technical approval certificate Z-9.1-242 as well as EN 13986.

Lay-out

- Edge-glued outer and middle layers, cross-bonded
- Manufactuted from large laminated glulam blocks
- Lamella width (outside layers) 34 mm
- Waterproof melamine resin-based adhesive
- Joint-glued and sanded surfaces

Surface qualities

- B-quality: visible quality
- C-quality: non-visible quality
- Surface, fully sanded (grain size 60)

For detailed quality criteria, see Page 13

Moisture content

10 to 12% ± 2%

Gluing

Melamine resin-based adhesive, adhesive Type I acc. to EN 301 approved for gluing loadbearing timber components, for both interiors and exteriors.

Colour of glue line

Light coloured glue line (melamine adhesive)

Density

Spruce approx. 450 kg/m^3

Thermal conductivity

λ = 0.13 W/(mK)

Diffusion resistance value

μ = 190 to 220

Shrinkage and swelling behaviour

Shrinkage and swelling tolerance per %

Length:	0.01 bis 0.02%
Width:	0.01 bis 0.02%
Thickness :	0.24%

Depending on the climate, minor cracks may occur on the surface when used in interior rooms or on sunlit exterior surfaces.

Dimensional tolerances

In line with EN 13353 (dimensional tolerances for large and medium-size format panels)

Lengths up to 6,000 mm:	±	2 mm
Widths up to 2,000 mm:	±	2 mm
Thickness tolerance in the panel:	±	0.5 mm
Limiting deviation for thickness:	±	1 mm
Edge straightness:		1 mm/m
Squareness:		1 mm/m

Emission class

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

Product range

Panel formats

Standard format: 6,020 x 2,015 mm or 5,020 x 2,015 mm
Maximum format: 18,000 x 2,015 mm (finger-jointed in the length)

The **K1 multi**plan standard format is delivered with an additional allowance of 20 mm in the length and 15 mm in the width. If the allowance is not required, the exact delivery dimensions must be specified in the order.

Delivery dimensions: 6,020 x 2,015 mm or 5,020 x 2,015 mm
Invoiced dimensions: 6,000 x 2,000 mm or 5,000 x 2,000 mm

Panel thicknesses and lay-ups

Thicknesses [mm]	**20**	**26**	**30**	**35**	**40**	**40**	**45**
Outer layer [mm]	6.7	6.7	6.7	6.7	6.7	13	13
Middle layer [mm]	6.6	12.6	16.6	21.6	26.6	14	19

Thicknesses [mm]	**50**	**55**	**60**	**65**	**70**	**75**
Outer layer [mm]	13	13	13	13	13	13
Middle layer [mm]	24	29	34	39	44	49

Other panel thicknesses on request (volume dependent)

In-stock panels

Thicknesses [mm]	**20**	**26**	**30**	**35**	**40**	**40**	**45**
Outer layer [mm]	6.7	6.7	6.7	6.7	6.7	13	13
Spruce B/C [m]	6 x 2	6 x 2	6 x 2	–	6 x 2 5 x 2	–	–
Larch B/C [m]	6 x 2	–	–	–	–	–	–

Thicknesses [mm]	**50**	**55**	**60**	**65**	**70**	**75**
Outer layer [mm]	13	13	13	13	13	13
Spruce B/C [m]	6 x 2	–	–	6 x 2	–	–
Larch B/C [m]	–	–	–	–	–	–

Special formats

It is possible to produce special lengths and widths above an order quantity of 300 m².

Widths : from 1.25 m in 25 cm steps up to max. 2 m
Lengths: from 4.00 m in 50 cm steps up to max. 6 m

Invoicing is carried out with a surcharge and to the next larger dimension, e.g. ordered dimension 4.20 x 1.30 m = invoiced dimension 4.50 x 1.50 m. In the case of lengths above 6.0 m, the panels are endlessly finger-jointed and then subsequently cut to size. This type of production also allows for intermediate lengths without waste.

Minimum order quantity

Larch (production): 300 m²
Special format: 300 m²
Finger-jointed panels: 200 m²

Packing

- The packages are protected by a plastic foil
- The packages are protected top and bottom with timber lamellas.
- The panel are delivered with the B-side up

Thicknesses [mm]	**20**	**26**	**30**	**35**	**40**	**45**	**50**
Panels/Package	20	15	15	10	10	10	10

Thicknesses [mm]	**55**	**60**	**65**	**70**	**75**
Panels/Package	10	10	5	5	5

Storage

- Store on flat and level ground
- Protect panels or packages against the weather
- Place supporting timbers every 1 m

Labelling

Quality

Surface quality

Spruce	B- visual surface quality	C- non-visual surface quality
General Requirements	Proper gluing, no open joints	Proper gluing
Structure, grain direction, figuring	Strong timber structure and slight spiral grain permissible, vertical or horizontal annual growth rings	No special requirements
Knots	Healthy firmly intergrown branches and isolated black knots permissible	No special requirements
Loose knots	Permissible, max. 3 pieces / panel max. ø 10 mm	No special requirements
Circular plugs	Permissible, max. 3 pieces/m² no in-line configuration	No special requirements
Resin pockets	Low-resin, large resin pockets patched with 5 x 50 mm boat plugs	No special requirements
Bark pockets	Permissible if isolated	No special requirements
Cracks	Slight surface cracks permissible if isolated, penetrative end cracks up to 50 mm long permissible	No special requirements
Pith	Permissible	No special requirements
Compression wood	Permissible	No special requirements
Insect attack, worm-holes	Inadmissible	Insect infestation inadmissible, isolated wormholes admissible
Discolouration, fungal attack	Isolated occurrences of slight discolouration permissible (e.g. blue stain)	No special requirements, not inadmissible
Surface condition	Isolated small faults permissible	No special requirements
Mixing of wood types	Inadmissible	Inadmissible

Larch	B- visual surface quality	C- non-visual surface quality
Similar to spruce except for the following	Small proportion of sapwood possible, more black knots, more patched areas	Unplugged, insofar as no fire protection class is required and the static properties are not impaired

Quality criteria correspond to EN 13017-1

Quality assurance

In-house production controls and twice-yearly external monitoring by independent institutes from Austria and Germany. Continuous product tests and documentation of the processes form the basis of the Mayr-Melnhof Holz quality assurance.

Certified quality




f.l.t.r.:

- EG-conformity certificate
- Technical approval certificate
- Certificate of compliance
- ISO 9001 certificate

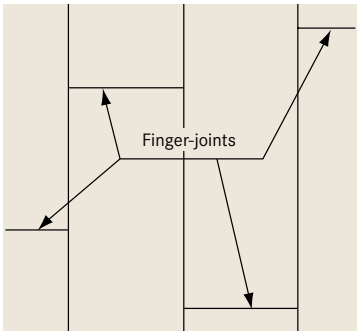
Additional services

Finger-joints up to 18 m in length

All **K1 multi**plan panels with thicknesses from 20 to 75 mm can be force-fitted by finger-jointing in the longitudinal direction. The maximum length of the panel is 18 m, the width of the panel is restricted to 2 m. The manufacturing method enables delivery of intermediate lengths without cutting waste.

Arrangement of the finger-joint

First, during the manufacturing process, 2 x 5 m or 2 x 6 m panels are finger-jointed in the longitudinal direction in a cycle pressing process. These "infinite" panels are subsequently cut to the desired fixed length of the component using a CNC-controlled chop-saw. Due to this process, the finger-joints are arranged at different positions in the panel. It is not possible to determine the exact position of a joint in advance.



Dimensional tolerances of the finger-jointed panels

Finger-jointed panels are delivered with an addition of approx. 30 mm in length, and due to the manufacturing method may have a width offset of up to 5 mm between the individual panels. Should a narrower dimensional tolerance be required for the component, we strongly recommend exact, rectangular panel cutting at our CNC-controlled machining centre. We offer this accurate cutting of the finger-jointed panels at a surcharge.

Finger-joints in the visible area

The visible sides of the **K1 multi**plan panels (B-side) are masked in the area of the finger-joint prior to pressing in order to reduce glue discharge. Any glue discharge at this point, however, cannot be entirely prevented, so that subsequent grinding off of the glue traces is indispensable. Since the panel joints can only be reground manually, it should be mentioned that, in case of subsequent surface coating (e.g. colour glazing), differences in colour may occur in this area. The geometry of the fingers likewise causes the joint to remain visible as a narrow strip in the ground state, too.

Connections with groove and external tongue

Upon using the **K1 multi**plan panels in a ceiling or roof slab, a connection among one another by means of groove and external tongue is frequently specified. For that, we can offer 2- or 4-sided CNC-controlled groove milling in the dimensions 21 x 5 mm (depth x thickness), including an external tongue with the dimensions 38 x 5 mm (width x thickness).

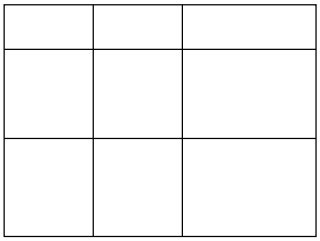
Format cuts

In principle, the standard formats 5 x 2 and 6 x 2 m are delivered with an addition of 20 mm in length and 15 mm in width. Please note: this rule also applies to all panels in stock.

Exact format cuts are possible without any problem thanks to state-of-the-art crosscut saws and the CNC-machining portal on request and at a surcharge. For the format cuts, there is a distinction between three different types:

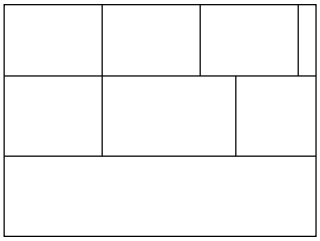
Type 1: Format cut with continuous length and width cut

This format cut separates the panel in the longitudinal and transverse direction in one continuous cut. This format cut may already be undertaken during the production process with the fixedly installed crosscut saws, and thus is the most cost-effective variant.



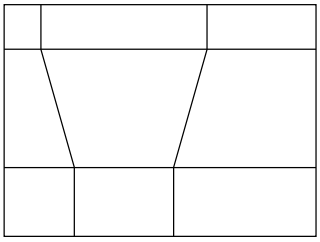
Type 2: Format cut with stepwise length or width cuts

This format cut cannot be undertaken during the production process, but is executed on the panel crosscut saw or the CNC-machining portal. The cuts are no longer continuous, but are undertaken individually, i.e. first the longitudinal cuts, and the transverse cuts in the 2nd step, or vice versa.



Type 3: Special cuts

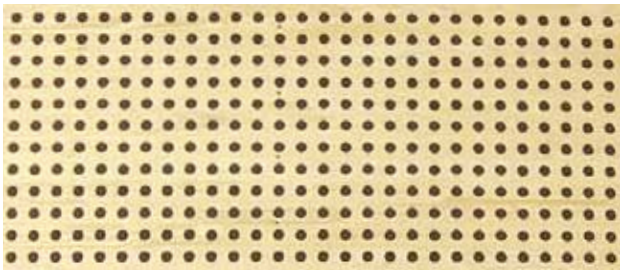
Cuts, which are not covered by types 1 or 2, are considered special cuts. These include, among others, angular and non-linear cuts. Special cuts can be undertaken on the CNC-machining portal or manually. In any case, a drawing is required for price calculation.



Punching and slotting

Likewise, the **K1 multiplan** panel is excellently suited for use as an acoustic panel. Depending on the specification, the panels can be provided with an individual and acoustically optimised hole or slot pattern, respectively. For that, the following options are available in regards to the hole or slot geometry:

Hole diameter:	6, 8, 10, 12, 14 AND 16 mm
Hole grid:	20/20, 25/25, 33/33, 50/50 and 100/100 mm
Slot width:	at least 20 mm



Material Properties

Characteristic strength values and stiffnesses of selected panel types in N/mm² for dimensioning acc. to DIN 1052:2008

Loading of panels	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
$f_{m,0,k}$	33	27.2	25.1	23.2	21.5	28.8	27.8	26.8	25.7	24.7	23.7	22.8	21.9
$f_{m,90,k}$	6.2	8.8	10.7	12.7	14.3	6.4	7.5	8.8	10	11.1	12.1	13	13.9
$E_{m,0,mean}$	11,100	10,200	9,600	8,900	8,200	11,000	10,700	10,300	9,900	9,500	9,100	8,700	8,400
$E_{m,90,mean}$	800	1,600	2,300	3,000	3,700	900	1,200	1,600	2,000	2,400	2,800	3,100	3,500
$f_{v,k}$	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
G_{mean}	90	90	90	90	90	90	90	90	90	90	90	90	90
Diaphragm	**20 mm**	**26 mm**	**30 mm**	**35 mm**	**40 mm**	**40 mm**	**45 mm**	**50 mm**	**55 mm**	**60 mm**	**65 mm**	**70 mm**	**75 mm**
$f_{m,0,k}$	13.6	10.6	9.3	8.1	7.1	13.2	11.8	10.7	9.8	9	8.4	7.8	7.4
$f_{m,90,k}$	7	10	11.4	12.6	13.5	7.4	8.8	9.9	10.9	11.6	12.6	12.8	13.3
$f_{c,0,k}$	20.4	16	14	12.1	10.7	19.9	17.8	16.1	14.7	13.6	12.6	11.8	11
$f_{c,90,k}$	10.6	15.1	17	18.9	20.3	11.2	13.2	14.9	16.3	17.4	18.9	19.2	20
$f_{t,0,k}$	13.6	10.6	9.3	8.1	7.1	13.2	11.8	10.7	9.8	9	8.4	7.8	7.4
$f_{t,90,k}$	7	10	11.4	12.6	13.5	7.4	8.8	9.9	10.9	11.6	12.6	12.8	13.3
$f_{v,k}$	3	3	3	3	3	3	3	3	3	3	3	3	3
$E_{m,0,mean}$	6,800	5,300	4,600	4,000	3,600	6,600	5,900	5,400	4,900	4,500	4,200	3,900	3,700
$E_{m,90,mean}$	3,500	5,000	5,700	6,300	6,800	3,700	4,400	5,000	5,400	5,800	6,300	6,400	6,700
G_{mean}	600	600	600	600	600	600	600	600	600	600	600	600	600

Permissible stresses and calculation values for modulus of elasticity of selected panel types in N/mm² for dimensioning acc. to DIN1052:1988-04 (load case H)

Loading of panels	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
zul $\sigma_{B,0}$	13.2	10.9	10	9.3	8.6	11.5	11.1	10.7	10.3	9.9	9.5	9.1	8.8
zul $\sigma_{B,90}$	2.5	3.5	4.3	5.1	5.7	2.6	3	3.5	4	4.4	4.8	5.2	5.6
$E_{B,0}$	11,100	10,200	9,600	8,900	8,200	11,000	10,700	10,300	9,900	9,500	9,100	8,700	8,400
$E_{B,90}$	800	1,600	2,300	3,000	3,700	900	1,200	1,600	2,000	2,400	2,800	3,100	3,500
zul τ	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
G	90	90	90	90	90	90	90	90	90	90	90	90	90
Diaphragm	**20 mm**	**26 mm**	**30 mm**	**35 mm**	**40 mm**	**40 mm**	**45 mm**	**50 mm**	**55 mm**	**60 mm**	**65 mm**	**70 mm**	**75 mm**
zul $\sigma_{B,0}$	5.4	4.3	3.7	3.2	2.9	5.3	4.7	4.3	3.9	3.6	3.4	3.1	2.9
zul $\sigma_{B,90}$	2.8	4	4.5	5	5.4	3	3.5	4	4.3	4.6	5	5.1	5.3
zul $\sigma_{D,0}$	8.2	6.4	5.6	4.8	4.3	7.9	7.1	6.4	5.9	5.4	5	4.7	4.4
zul $\sigma_{D,90}$	4.2	6	6.8	7.6	8.1	4.5	5.3	6	6.5	7	7.6	7.7	8
zul $\sigma_{Z,0}$	5.4	4.3	3.7	3.2	2.9	5.3	4.7	4.3	3.9	3.6	3.4	3.1	2.9
zul $\sigma_{Z,90}$	2.8	4	4.5	5	5.4	3	3.5	4	4.3	4.6	5	5.1	5.3
zul τ_r	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
$E_{B,0}$	6,800	5,300	4,600	4,000	3,600	6,600	5,900	5,400	4,900	4,500	4,200	3,900	3,700
$E_{B,90}$	3,500	5,000	5,700	6,300	6,800	3,700	4,400	5,000	5,400	5,800	6,300	6,400	6,700
G	600	600	600	600	600	600	600	600	600	600	600	600	600

Span tables

Maximum permissible spans in metres in load case H

Requirements:

- Even load
- Allowance must be made for the dead load of the panel
- Equal span widths
- fperm. = l/200
- Loading on a span basis is not taken into account
- Creep deformations and dead loads are not taken into account in the tables
- Values only apply to **K1 multi**plan in accordance with certification permit Z-9.1-242

Single span beam

Load q [kN/m²]	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
1	1.39	1.77	2.0	2.20	2.39	2.64	2.94	3.23	3.51	3.79	4.05	4.31	4.55
1.5	1.21	1.54	1.74	1.99	2.16	2.31	2.57	2.82	3.07	3.31	3.54	3.76	3.98
2	1.10	1.40	1.58	1.81	2.01	2.10	2.33	2.56	2.79	3.01	3.22	3.42	3.62
2.5	1.02	1.30	1.47	1.68	1.87	1.95	2.17	2.38	2.59	2.79	2.99	3.18	3.36
3	0.96	1.22	1.38	1.58	1.76	1.83	2.04	2.24	2.44	2.63	2.81	2.99	3.16
3.5	0.91	1.16	1.31	1.50	1.67	1.74	1.94	2.13	2.31	2.49	2.67	2.84	3.00
4	0.87	1.11	1.26	1.43	1.60	1.66	1.85	2.04	2.21	2.39	2.55	2.71	2.87
4.5	0.84	1.07	1.21	1.38	1.54	1.60	1.78	1.96	2.13	2.29	2.46	2.61	2.76
5	0.81	1.03	1.17	1.33	1.49	1.54	1.72	1.89	2.05	2.21	2.37	2.52	2.66

Double span beam

Load q [kN/m²]	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
1	1.86	2.27	2.49	2.75	2.98	2.98	3.94	4.33	4.71	5.08	5.44	5.78	6.11
1.5	1.62	2.05	2.25	2.48	2.69	2.69	3.44	3.78	4.12	4.44	4.75	5.05	5.34
2	1.48	1.88	2.09	2.31	2.51	2.51	3.13	3.44	3.74	4.03	4.31	4.59	4.85
2.5	1.37	1.75	1.97	2.18	2.37	2.37	2.91	3.19	3.47	3.74	4.01	4.26	4.50
3	1.29	1.64	1.86	2.09	2.27	2.27	2.73	3.00	3.27	3.52	3.77	4.01	4.23
3.5	1.22	1.56	1.76	2.01	2.18	2.18	2.60	2.85	3.10	3.35	3.58	3.81	4.02
4	1.17	1.49	1.69	1.92	2.11	2.11	2.48	2.73	2.97	3.20	3.42	3.64	3.85
4.5	1.13	1.43	1.62	1.85	2.05	2.05	2.39	2.62	2.85	3.08	3.29	3.50	3.70
5	1.09	1.39	1.57	1.79	1.99	1.99	2.31	2.53	2.76	2.97	3.18	3.38	3.57

Triple span beam

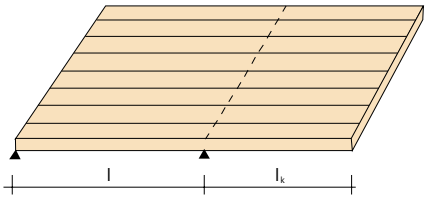
Load q [kN/m²]	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
1	1.72	2.14	2.35	2.59	2.81	2.81	3.65	4.01	4.36	4.70	5.03	5.35	5.66
1.5	1.50	1.92	2.12	2.34	2.54	2.54	3.19	3.50	3.81	4.11	4.40	4.67	4.94
2	1.37	1.74	1.97	2.18	2.37	2.37	2.90	3.18	3.46	3.73	3.99	4.25	4.49
2.5	1.27	1.62	1.83	2.06	2.24	2.24	2.69	2.96	3.21	3.46	3.71	3.94	4.17
3	1.19	1.52	1.72	1.96	2.14	2.14	2.53	2.78	3.03	3.26	3.49	3.71	3.92
3.5	1.13	1.44	1.63	1.86	2.06	2.06	2.40	2.64	2.87	3.10	3.31	3.52	3.72
4	1.08	1.38	1.56	1.78	1.99	1.99	2.30	2.53	2.75	2.96	3.17	3.37	3.56
4.5	1.04	1.33	1.50	1.71	1.91	1.91	2.21	2.43	2.64	2.85	3.05	3.24	3.43
5	1.01	1.28	1.45	1.65	1.84	1.84	2.14	2.35	2.55	2.75	2.94	3.13	3.31

These tables must be used for pre-dimensioning only. An accurate engineering analysis must be carried out prior to execution in any case.

Maximum permissible spans in metres in load case H

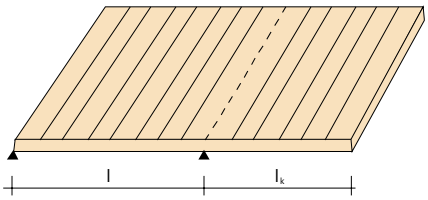
Requirements:

- Even load
- Allowance must be made for the dead load of the panel
- Equal span widths
- fperm. = l/200 (field centre)
- fperm. = lk/100 (cantilever)
- Assumption l = 1m
- Loading on a span basis is not taken into account
- Creep deformations and dead loads are not taken into account in the tables
- Values only apply to **K1 multiplan** in accordance with certification permit Z-9.1-242



Single span member with cantilever
Outer layer at right angle to support

Load q [kN/m²]	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
1	0.67	0.83	0.94	1.08	1.21	1.27	1.43	1.59	1.74	1.90	2.05	2.19	2.34
1.5	0.60	0.73	0.82	0.93	1.05	1.09	1.23	1.36	1.50	1.63	1.76	1.89	2.01
2	0.57	0.67	0.75	0.85	0.95	0.99	1.11	1.23	1.35	1.46	1.58	1.69	1.80
2.5	0.54	0.63	0.70	0.79	0.88	0.91	1.02	1.13	1.24	1.35	1.45	1.56	1.66
3	0.53	0.61	0.67	0.74	0.83	0.86	0.96	1.06	1.16	1.26	1.36	1.45	1.55
3.5	0.52	0.59	0.64	0.71	0.79	0.82	0.91	1.00	1.10	1.19	1.28	1.37	1.46
4	0.51	0.57	0.62	0.69	0.75	0.78	0.87	0.96	1.04	1.13	1.22	1.31	1.39
4.5	0.50	0.56	0.60	0.66	0.73	0.75	0.83	0.92	1.00	1.09	1.17	1.25	1.33
5	0.49	0.55	0.59	0.65	0.71	0.73	0.81	0.89	0.96	1.04	1.12	1.20	1.28



Single span member with cantilever
Outer layer parallel to support

Load q [kN/m²]	Outer layer = 6.7 mm Panel thickness					Outer layer = 13 mm Panel thickness							
	20 mm	26 mm	30 mm	35 mm	40 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	75 mm
1	1)	0.54	0.62	0.75	0.91	0.59	0.71	0.85	1.01	1.19	1.37	1.56	1.76
1.5	1)	0.51	0.57	0.67	0.80	0.55	0.64	0.75	0.88	1.03	1.18	1.34	1.51
2	1)	0.49	0.54	0.62	0.73	0.52	0.60	0.69	0.80	0.93	1.06	1.21	1.36
2.5	1)	1)	0.52	0.59	0.69	0.51	0.57	0.65	0.75	0.86	0.98	1.11	1.25
3	1)	1)	0.51	0.57	0.65	0.49	0.55	0.62	0.71	0.81	0.92	1.04	1.17
3.5	1)	1)	0.50	0.55	0.63	0.48	0.53	0.60	0.68	0.77	0.87	0.99	1.11
4	1)	1)	0.49	0.54	0.61	1)	0.52	0.58	0.65	0.74	0.84	0.94	1.05
4.5	1)	1)	1)	0.53	0.59	1)	0.51	0.57	0.64	0.71	0.80	0.90	1.01
5	1)	1)	1)	0.52	0.58	1)	0.51	0.56	0.62	0.69	0.78	0.87	0.97

These tables must be used for pre-dimensioning. An accurate engineering analysis must be carried out prior to execution in any case.
1) The deflection in the internal field (l) is exceeded.

8 Locations

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

Efimovskij

Russia

Richen

Paskov

Germany

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

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