



Facts on formwork timber beams:

Wood types

- Spruce / Fir

Beam height

- 20 cm

Lengths

- Lengths up to 10 m

Product standard

- Technical approval certificate
Z-9.1-146

Weight

- 4,6 kg / m

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Globally recognised quality

HT20plus is the internationally recognised brandname for concrete formwork beams of the Mayr-Melnhof Kaufmann Group. The worldwide unique protective cap system, the high quality finishing and the proven durability have made it what it is today: A successful brand par excellence!

The HT20plus is manufactured at the Reuthe factory in Bregenzerwald, Austria and delivered from there to more than 60 worldwide.

The Kaufmann formwork beams have become one of the leading brands over more than 50 years. In the formwork industry the product is renowned for its exceptional quality.



At a glance

- The shock-resistant, bevelled **protective cap** made of synthetic materials provides protection from splintering at the chord ends.
- Indestructible **finger-joints** between chords and webs.
- **The webs** made of 3-ply, laminated solid wood panels ensure high carrying capacity for continuous use in all climate zones.
- The inscription of the monitoring stamp, the length and production data provide **unique labelling** of the HT 20plus beams.
- **Guaranteed safety** based on certified quality by the German Institute of Structural Engineering.

Many areas of application

- Ceiling formworks
- Wall formworks
- Bridge formworks
- Tunnel formworks
- Special formworks
- Scaffolding
- Working platforms





Solid-wall I-joist beam for concrete formwork construction

The 20 cm high HT20plus is produced in various standard lengths. A patented, solid plastic cap prevents premature chipping on the chord ends. Moreover, the superior quality solid wood chords combined with triple laminated solid wood webs guarantee above-average durability.

Customers around the world rely on this quality product «Made in Austria». The HT 20plus does what it says – you can count on it!



General technical approval certificate
Z - 9.1-146 (DIBt)



Certificate of compliance
ÜZ - BWU03 - I 14.24.27
(MPA Stuttgart)



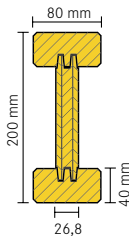
PEFC
Chain of Custody



ISO 9001
Quality management

Product	Formwork timber beam, glued, solid-wall I-joist beams
Wood types	Spruce, fir, a mixture of wood types is permitted
Wood moisture	12% +/- 3% at the time of delivery
Weight	4,6 kg / m
Gluing	Melamine resin-based adhesive, Adhesive Type I acc. to EN 301 approved for gluing load-bearing timber components.
Chords	<ul style="list-style-type: none"> Made of carefully selected class S 10 spruce wood according to DIN 4074 Finger-jointed, solid wood cross-sections with a dimension of 80 x 40 mm Finger-jointing of the chords according to DIN 68140-1 Web milling on the opposing side of the core (left-sided chord surface) Planed and chamfered to approx. 0.4 mm
Webs	3-ply solid wood panel, laminated primarily showing vertical growth rings.
Design	Technical approval certificate Z-9.1-146 in conjunction with DIN 1052 or Eurocode 5 and EN 12812 apply for the design of the HT20plus formwork beams.
Surface protection	The complete beam is waterproofed using a water-repellent colour glaze.
Supports	Thanks to the 3-ply solid wood webs, HT 20plus formwork beams can be cut into and supported at any lengths.

Dimensions tolerances



Dimensions ¹⁾	HT 20 plus	Tolerances ²⁾
Beam height	200 mm	+ / - 2,0 mm
Chord height	40 mm	- 1,5%
Chord width	80 mm	- 1,5%
Web thickness	26,8 mm	+ / - 0,5 mm

¹⁾ These values apply at a wood moisture content of 12%

²⁾ According to technical approval certificate Z-9.1-146

Material properties

Properties	DIN 1052-1:1988-04	DIN 1052:2008-12 / Eurocode 5
Strains	Permissible stress values	Characteristic limits of load-bearing capacity
Shear force	zul Q = 11,0 kN	V _k = 23,9 kN
Bending moment	zul M = 5,0 kNm	M _k = 10,9 kNm
Support	-	R _{b,k} = 47,8 kN
Section modulus ¹⁾	W _x = 461 cm ³	
Geometrical moment of inertia ¹⁾	I _x = 4.613 cm ⁴	
Modulus of elasticity	E = 10.000 N / mm ²	
Shear modulus	G = 600 N / mm ²	

¹⁾ The values of the section modulus and the geometrical moment of inertia apply to new or used concrete formwork beams. An analogously increased factor of safety needs to be added for severely worn beams.

Standard lengths

2,45 / 2,90 / 3,30 / 3,60 / 3,90 / 4,50 / 4,90 / 5,90 m / max. 10,0 m length

Package units

Standard package
60 pieces each



Container package
100 pieces each



Packaging

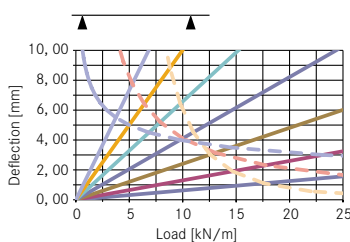
The packages are delivered suitable for the construction site and protected by integrated supporting timber.

Permissible distances between main beams and supports

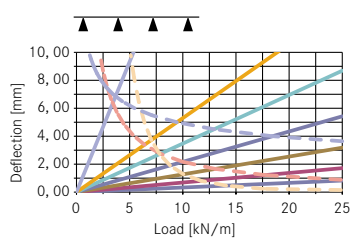
- Max. deflection: $l / 500$
- Live load: $1,5 \text{ kN / m}^2$ or 20% of concrete weight
- Permissible carrying force of the supports: min. 22 kN
- Technical specifications: Permissible moment = 5,0 kNm;
Permissible shear force $V = 11,0 \text{ kN}$

Floor thickness cm	Total load kN / m ²	Table 1: Crossbeams Distance between crossbeams (m)				Table 2: Main beams Selected distance between the main beams (m)								
		0,50	0,625	0,667	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	3,00	3,50
		Max. permissible support width of the crossbeam = distance between main beams				Max. permissible support width = distance between supports								
10	4,35	3,67	3,40	3,33	3,20	2,91	2,70	2,48	2,29	2,14	2,02	1,92	1,69	1,44
12	4,87	3,47	3,22	3,15	3,03	2,75	2,55	2,34	2,17	2,03	1,91	1,81	1,51	1,29
14	5,39	3,30	3,07	3,00	2,89	2,62	2,43	2,22	2,06	1,93	1,81	1,63	1,36	1,17
16	5,91	3,17	2,94	2,88	2,77	2,52	2,33	2,12	1,97	1,84	1,65	1,49	1,24	1,06
18	6,43	3,05	2,83	2,77	2,67	2,42	2,23	2,04	1,89	1,71	1,52	1,37	1,14	0,98
20	6,95	2,95	2,74	2,68	2,58	2,34	2,15	1,96	1,81	1,58	1,41	1,27	1,06	0,90
22	7,47	2,86	2,66	2,60	2,50	2,27	2,07	1,89	1,68	1,47	1,31	1,18	0,98	0,84
24	7,99	2,79	2,59	2,53	2,43	2,21	2,00	1,83	1,57	1,38	1,22	1,10	0,92	0,79
26	8,51	2,72	2,52	2,47	2,37	2,16	1,94	1,72	1,48	1,29	1,15	1,03	0,86	0,74
28	9,03	2,65	2,46	2,41	2,32	2,10	1,88	1,62	1,39	1,22	1,08	0,97	0,81	0,70
30	9,61	2,59	2,41	2,36	2,27	2,04	1,82	1,53	1,31	1,14	1,02	0,92	0,76	0,65
35	11,17	2,47	2,29	2,24	2,16	1,89	1,58	1,31	1,13	0,98	0,88	0,79	0,66	0,56
40	12,73	2,36	2,19	2,15	2,05	1,73	1,38	1,15	0,99	0,86	0,77	0,69	0,58	0,49
45	14,29	2,27	2,11	2,05	1,93	1,54	1,23	1,03	0,88	0,77	0,68	0,62	0,51	0,44
50	15,85	2,20	2,01	1,95	1,83	1,39	1,11	0,93	0,79	0,69	0,62	0,56	0,46	0,40
55	17,41	2,13	1,92	1,86	1,68	1,26	1,01	0,84	0,72	0,63	0,56	0,51	0,42	0,36
60	18,97	2,05	1,84	1,74	1,55	1,16	0,93	0,77	0,66	0,58	0,52	0,46	0,39	0,33
65	20,53	1,97	1,71	1,61	1,43	1,07	0,86	0,71	0,61	0,54	0,48	0,43	0,36	0,31
70	22,09	1,90	1,59	1,49	1,33	1,00	0,80	0,66	0,57	0,50	0,44	0,40	0,33	0,28
75	23,65	1,84	1,49	1,40	1,24	0,93	0,74	0,62	0,53	0,47	0,41	0,37	0,31	0,27
80	25,21	1,75	1,40	1,31	1,16	0,87	0,70	0,58	0,50	0,44	0,39	0,35	0,29	0,25
85	26,77	1,64	1,31	1,23	1,10	0,82	0,66	0,55	0,47	0,41	0,37	0,33	0,27	0,23
90	28,33	1,55	1,24	1,16	1,04	0,78	0,62	0,52	0,44	0,39	0,35	0,31	0,26	0,22
95	29,89	1,47	1,18	1,10	0,98	0,74	0,59	0,49	0,42	0,37	0,33	0,29	0,25	0,21
100	31,45	1,40	1,12	1,05	0,93	0,70	0,56	0,47	0,40	0,35	0,31	0,28	0,23	0,20

Single span beam



Multispan beam



- $l = 1,25 \text{ m}$
- $l = 1,50 \text{ m}$
- $l = 1,75 \text{ m}$
- $l = 2,00 \text{ m}$
- $l = 2,25 \text{ m}$
- $l = 2,50 \text{ m}$
- $l = 2,75 \text{ m}$
- $zul M$
- $zul Q$
- $zul f$

Example of calculation: Floor thickness: 20 cm, distance between crossbeams: 75 cm; we are looking for the distance between the main beams and the supports.

The permissible distance between main beams according to **table 1 = 2,58 m**. The identical or next smaller distance between main beams in **table 2 = 2,5 m**. Look for the permissible distance between supports in table 2, read downwards in column «2,50 m» and sideways in row «20 cm» floor thickness, the result is **1,27 m**. Caution! Examine the supports to ensure the corresponding carrying force.

