

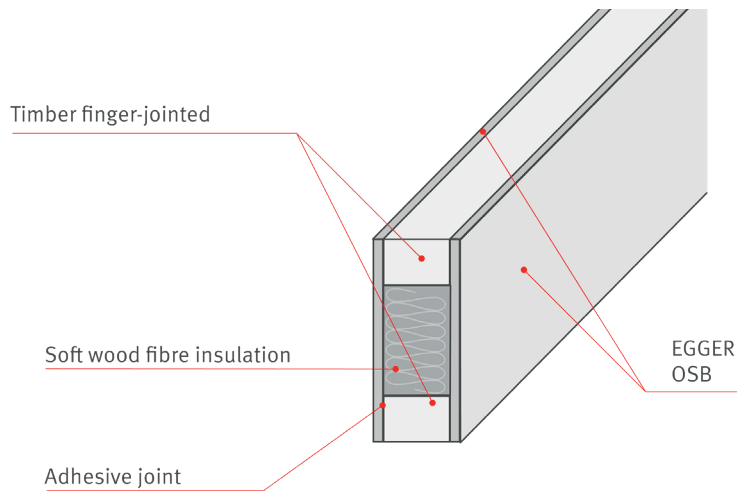
Technical insights

EGGER EcoBox

Product description

The EGGER EcoBox is a box cross-section consisting of timber and OSB. The cavity is filled with wood fibre insulation. The individual parts are joined and glued together during an industrial production process.

The EGGER EcoBox is characterised by its efficient and resource-saving use of materials. The optimum combination of the properties of the raw materials and the precise assembly results in a straight and even product with very high stability. This makes the EGGER EcoBox an ideal starting product for efficient manual production through to the highly automated production of elements or room modules in timber frame construction.



The EGGER EcoBox has an ETA - European Technical Assessment (approval). This makes it measurable and safe to use as a building product throughout the EU.

Technical characteristics

Table 1: Dimensions, characteristic strength values and general properties

EcoBox EB.80/10								Properties softwood flange	Properties OSB
Length L (Z) [m]	Individual lengths up to 6.10 m // pre-assembled support lengths from 2.43 to 3.05 m								
Width B (Y)/thickness [mm]	80 mm							60 mm	10 mm
Height H (X)/[mm]	160	180	200	220	240	280	320	40 mm	160 to 320 mm
Weight [kg/lm]	4.32	4.63	4,95	5.26	5,57	6,20	6,82		
Thickness [kg/m³]	337	322	309	299	290	277	267	$\rho_{\text{mean}} = 420 \text{ kg/m}^3$	$\rho_{\text{mean}} = 600 \text{ kg/m}^3$
Technical classes	Classes of use 1 and 2 EN 1995-1-1/DIN 68800							C16	OSB/3
Fire resistance	normal flammability/B2/D-s2, d0							D-s2, d0	D-s2, d0
Haptic/surface configuration	OSB/softwood planed/bevelled edging (3 mm bevel)								
Moisture content	Timber: $12 \pm 3 \%$ / OSB: $8 \pm 3 \%$							$k_{\text{def}} = 0.6$ in Class of use 1 $k_{\text{def}} = 0.8$ in Class of use 2	$k_{\text{def}} = 1.5$ in Class of use 1 $k_{\text{def}} = 2.25$ in Class of use 2
Insulation cavity	standard with softwood fibre 45 kg/m³								

Table 2: Geometry, cross-section values, stiffness

h	Cross-section values belt and base						Cross-section values and stiffness box profile									
							t=0					t=∞ Class of use 1				
	A_{wood}	$I_{y,wood}$	$I_{z,wood}$	A_{OSB}	$I_{y,OSB}$	$I_{z,OSB}$	$A_{ef,t=0}$	$I_{y,ef,t=0}$	$I_{z,ef,t=0}$	$EI_{y,t=0}$	$EI_{y,t=0}$	$A_{ef,t=00}$	$I_{y,ef,t=00}$	$I_{z,ef,t=00}$	$EI_{y,t=00}$	$EI_{z,t=00}$
mm	cm ²	cm ⁴	cm ⁴	cm ²	cm ⁴	cm ⁴	cm ²	cm ⁴	cm ⁴	kN*m ²	kN*m ²	cm ²	cm ⁴	cm ⁴	kN*m ²	kN*m ²
160	48	1,792	144	32.0	683	395	63.2	2,116	331	169.3	26.5	57.7	2,000	264	100.0	13.2
180	48	2,416	144	36.0	972	444	65.1	2,878	355	230.2	28.4	58.9	2,711	279	135.6	13.9
200	48	3,136	144	40.0	1,333	493	67.0	3,769	378	301.5	30.3	60.2	3,541	294	177.1	14.7
220	48	3,952	144	44.0	1,775	543	68.9	4,795	402	383.6	32.1	61.4	4,491	309	224.6	15.4
240	48	4,864	144	48.0	2,304	592	70.8	5,958	425	476.7	34.0	62.6	5,564	324	278.2	16.2
280	48	6,976	144	56.0	3,659	691	74.6	8,714	472	697.1	37.8	65.0	8,088	354	404.4	17.7
320	48	9,472	144	64.0	5,461	789	78.4	12,066	519	965.3	41.5	67.5	11,132	384	556.6	19.2

Table 3: Bending moments, compressive and tensile strengths

h	Characteristic max. bending moment – main axis – $M_{y,Rk}$ (at the time)				Characteristic max. bending moment – minor axis – $M_{z,Rk}$ (at the time)				Compression strength Support $N_{c,Rk}$ (at the time)				Strength under weight Support $N_{t,Rk}$ (at the time)			
	t=0		t=∞ Class of use 1		t=0		t=∞ Class of use 1		t=0		t=∞ sc 1		t=0		t=∞ sc 1	
	wood	OSB	wood	OSB	wood	OSB	wood	OSB	wood	OSB	wood	OSB	wood	OSB	wood	OSB
mm	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m	kN	kN	kN	kN	kN	kN	kN
160	6.0	6.7	5.7	9.9	2.12	1.73	1.69	2.15	107	212	98	302	65	132	59	188
180	7.0	7.7	6.6	11.3	2.27	1.85	1.79	2.27	111	218	100	308	66	136	60	192
200	7.9	8.6	7.5	12.7	2.42	1.97	1.88	2.39	114	224	102	315	68	140	61	196
220	8.8	9.6	8.2	14.0	2.57	2.09	1.98	2.52	117	231	104	321	70	144	63	200
240	9.6	10.5	9.0	15.3	2.72	2.22	2.08	2.64	120	237	106	327	72	148	64	204
280	11.2	12.2	10.4	17.8	3.02	2.46	2.27	2.88	127	250	111	340	76	155	66	212
320	12.9	14.0	11.9	20.1	3.32	2.70	2.46	3.13	133	262	115	353	80	163	69	220

Table 4: Shear strengths; shear compression strength of solid structural timber bottom plate under EGGER EcoBox

h	characteristic shear strength							characteristic compression strength perpendicular to grain direction – EcoBox on bottom plate (C24)				
	$V_{z,Rk}$				required bearing length*			Edge support	Middle support	$k_{c,90}$	Edge support	Middle support
	Base	Glued joint			End bearing	Middle bearing	$V_{y,Rk}$					
mm	t=0	t=∞ Class of use = 1	t=∞ Class of use = 2	cm				cm	kN	$A_{ef,1}$	$A_{ef,2}$	-
160	16.3	11.8	11.1	11.0	5.0	10.0	8.0	128.0	160.0	1.25	40	50
180	19.0	13.7	12.9	12.7	5.5	11.0	8.0	138.0	172.0	1.25	43	54
200	21.8	15.7	14.8	14.5	6.5	13.0	8.0	148.0	184.0	1.25	46	58
220	24.5	17.8	16.6	16.4	7.0	14.0	8.0	158.0	196.0	1.25	49	61
240	27.2	19.9	18.5	18.2	8.0	16.0	8.0	168.0	208.0	1.25	53	65
280	32.6	24.2	22.5	22.1	9.5	19.0	8.0	188.0	232.0	1.25	59	73
320	38.1	28.7	26.5	26.0	11.5	23.0	8.0	208.0	256.0	1.25	65	80

* required bearing lengths to activate the complete shear strength $V_{z,Rk}$