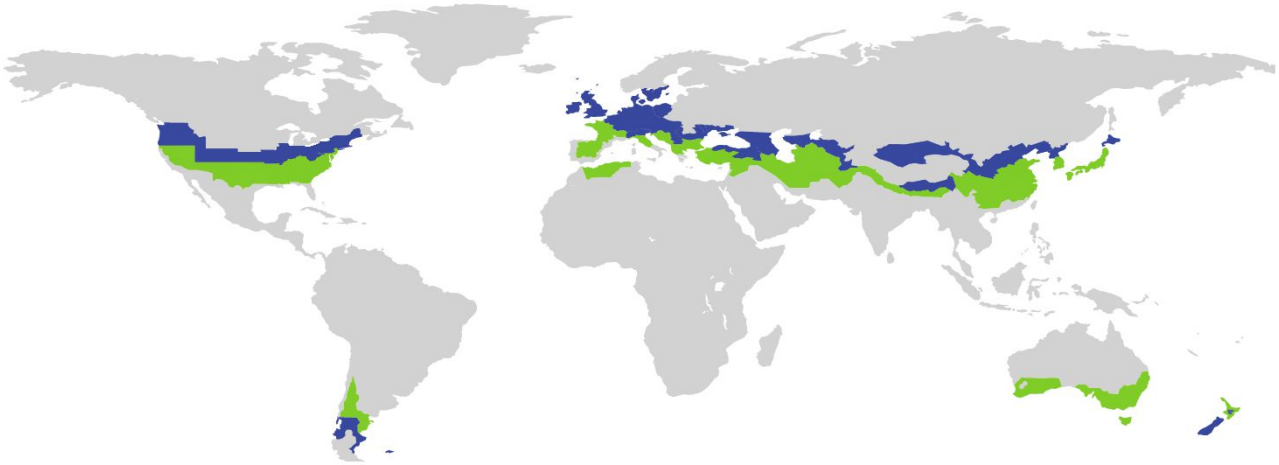
CERTIFICATE

Certified Passive House Component

ID: 2043bc03 valid until 31. December 2025

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category	**Balcony connection**
Type	**Cantilevered**
Manufacturer	**Thermal Breaks Ltd**
	CM17 0RB Matching Green
	UNITED KINGDOM
Product name	**TekTherm™ AK300HT**

This certificate was awarded based on the following criteria for the climate zone

Hygiene and comfort criterion

The minimum temperature factor of the interior surfaces is $f_{Rsi=0.25m^2K/W} \geq$ **0.86**

Energy criterion

The linear thermal bridge loss coefficient is **Ψ ≤** **0.25** W/(mK)

Efficiency criterion

The heat losses depending on the possible load bearing do not exceed **Eff.t. ≤** **10.00** W/(kNmK)

cool, temperate climate

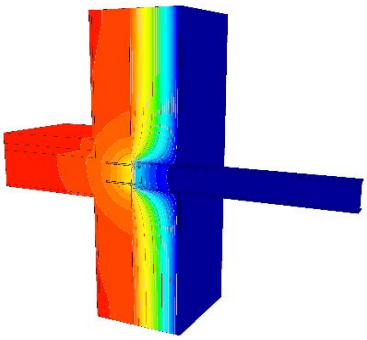
CERTIFIED COMPONENT

Passive House Institute

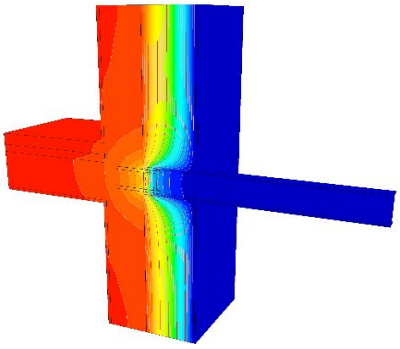
Thermal Breaks Ltd
Unit 27 Kingston Commercial Centre CM17 0RB Matching Green UNITED KINGDOM
0800 6444 949 | www.thermal-breaks.group

Determined values

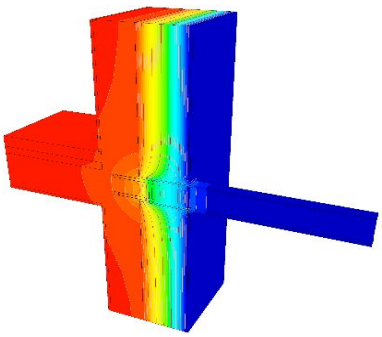
Product	h [mm]	d [mm]	$\lambda_{,C.min}$ [W/(mK)]	$\lambda_{,eq}$ [W/(mK)]	$\psi_{,WB}$ [W/(mK)]	$m_{Rd,y}$ [kNm/m]	f_{Rsi} [-]	Eff.t. [W/(kNmK)]	Efficiency class
AK300HT 25 mm - 1 / m	140	25	3.0	0.043	0.212	-34.8	0.925	6.08	phC
AK300HT 2 x 25mm - 1 / m	140	50	3.0	0.062	0.156	-34.8	0.94	4.49	phB
AK300HT 2 x 25mm - 1 / m + Insulation	140	50	3.0	0.036	0.109	-34.8	0.952	3.14	phB



AK 300 HT25mm



AK 300 HT50mm

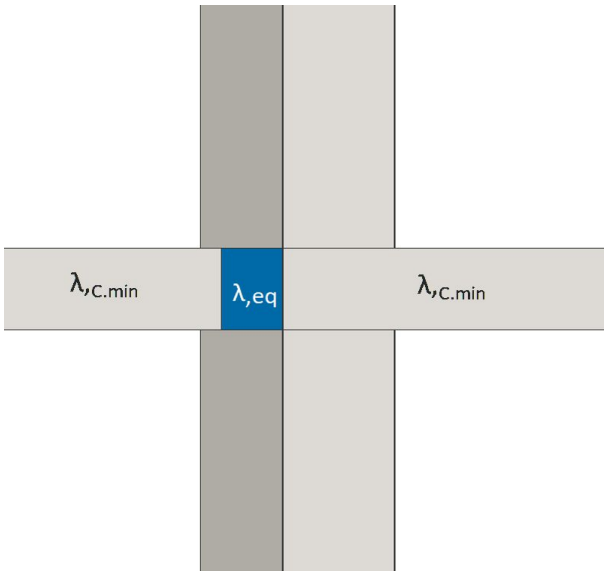


AK 300 HT50mm + Insulation

$\lambda_{,C.min}$ = Min. conductivity reinf. Concrete
$\lambda_{,eq}$ = Equivalent conductivity balcony connection
$\psi_{,WB}$ = Linear thermal bridge coefficient
f_{Rsi} = Temperature-factor
Eff.t. = Efficiency-value
$m_{Rd,y}$ = Design resistance

The simulations have been conducted with an HEA140 steel beam, with a distance of 1m. Larger distances reduce the equivalent linear thermal bridges. The stated values assume the installation of 1 anchor per meter. The thermal seperation element has a thermal conductivity of 0.14 W/(mK).

Using the equivalent thermal conductivity λ,eq, linear thermal bridge loss coefficients for other connection situations can be determined with 2D FEM simulations. The minimum thermal conductivity of the reinforced concrete λ,C.min of the balcony is to be used for the cantilever slab and the false ceiling. The equivalent rectangular geometry of the balcony connection element has the dimensions of height h and width d, as well as the thermal conductivity λ,eq.



Notice

The thermal bridge loss coefficients can be approximately linearly interpolated. Calculations and boundary conditions according to the criteria and algorithms "Certified Passive House Components - Balcony Connection, Version 2.1"