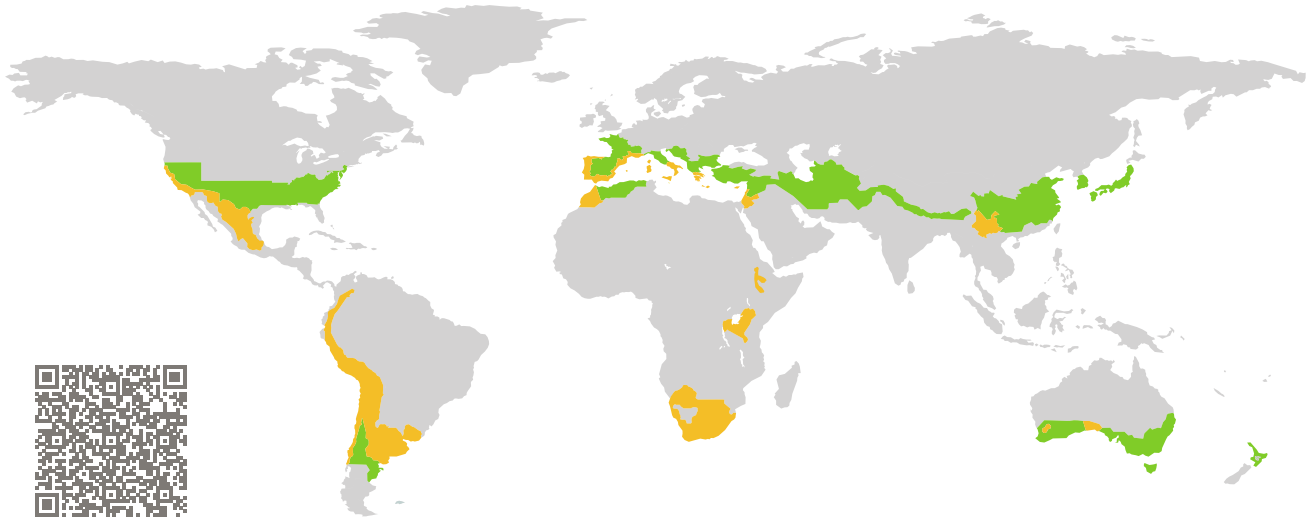


# CERTIFICATE

Certified Passive House Component

Component-ID 1446wi04 valid until 31st December 2026

Passive House Institute  
Dr. Wolfgang Feist  
64283 Darmstadt  
Germany

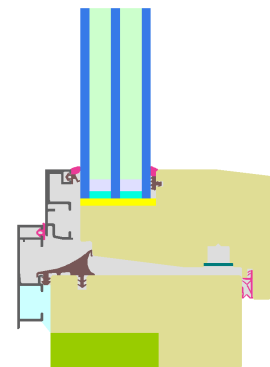


Category: **Window Frame**  
Manufacturer: **Shanghai Symbol Construction co., Ltd, Shanghai, China**  
Product name: **LM125**

**This certificate was awarded based on the following criteria for the warm, temperate climate zone**

Comfort  $U_W = 1.00 \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$   
 $U_{W, \text{installed}} \leq 1.05 \text{ W}/(\text{m}^2 \text{ K})$   
with  $U_g = 0.90 \text{ W}/(\text{m}^2 \text{ K})$

Hygiene  $f_{Rsi=0.25} \geq 0.65$



Passive House  
efficiency class

phE

phD

phC

phB

phA

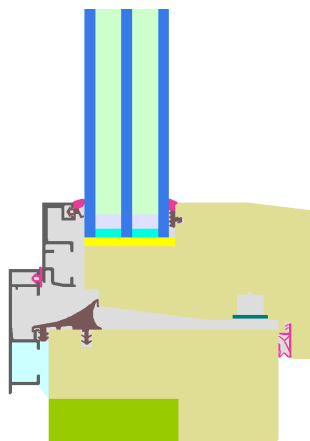
[www.passivehouse.com](http://www.passivehouse.com)

warm, temperate climate

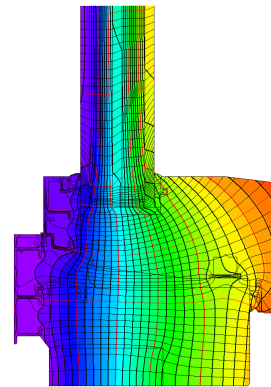


**CERTIFIED  
COMPONENT**

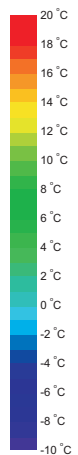
Passive House Institute



Calculation model



Isothermal



## Description

Timber frame with insulation (high density EPS 0.048 W/(mK)) and external aluminium shell; Pane thickness: 39 mm (5/12/5/12/5), rebate depth: 16 mm. Spacer: SWISSPACER Ultimate with butyl as secondary seal.

## Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with  $U_g = 0.90$  W/(m² K). If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g =$	0.90	0.60	0.58	0.54	W/(m² K)
		↓	↓	↓	↓	
Window	$U_W =$	1.00	0.79	0.77	0.74	W/(m² K)

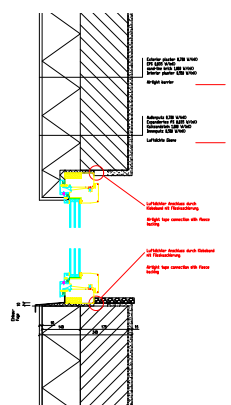
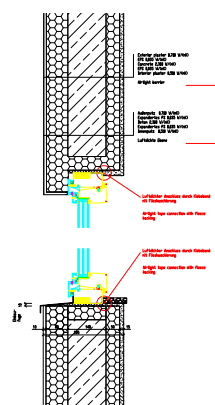
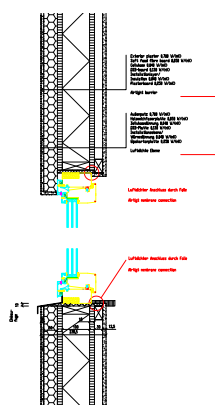
Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.

The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

Further information relating to certification can be found on [www.passivehouse.com](http://www.passivehouse.com) and [passipedia.org](http://passipedia.org).

Frame values		Frame width $b_f$ mm	$U$ -value frame $U_f$ W/(m <sup>2</sup> K)	$\Psi$ -glazing edge $\Psi_g$ W/(m K)	Temp. Factor $f_{RSI=0.25}$ [-]
Mullion 1 casement	(1M1) 	156	1.04	0.026	0.66
Bottom	(OB1) 	111	1.00	0.026	0.66
Head	(OH1) 	111	1.00	0.026	0.66
Jamb	(OJ1) 	111	1.00	0.026	0.66
Spacer: SWISSPACER Ultimate			Secondary seal: Butyl		

## Validated installations

Exterior insulation and finishing system	Formwork blocks (operable)	Lightweight timber (operable)
$U_{Wall} = 0.23 \text{ W/(m}^2 \text{ K)}$	$U_{Wall} = 0.25 \text{ W/(m}^2 \text{ K)}$	$U_{Wall} = 0.21 \text{ W/(m}^2 \text{ K)}$
		
$\Psi_{install}$ W/(m K)	$\Psi_{install}$ W/(m K)	$\Psi_{install}$ W/(m K)
Top 0.007	Top 0.003	Top 0.007
Side 0.007	Side 0.003	Side 0.007
Bottom 0.022	Bottom 0.014	Bottom 0.018
$U_{W,installed} = 1.03 \text{ W/(m}^2 \text{ K)}$	$U_{W,installed} = 1.01 \text{ W/(m}^2 \text{ K)}$	$U_{W,installed} = 1.02 \text{ W/(m}^2 \text{ K)}$

Disclaimer: The Passive House Institute GmbH (PHI) conducts heat-transfer analyses in accordance with the standards set out in Criteria and Algorithms for Certified Passive House Components: Transparent Building Components and Opening Elements in the Building Envelope, based on information provided by the manufacturer. PHI does not verify on-site implementation. It is the responsibility of the project leader to ensure that installed components match the certified specifications in terms of geometry, configuration, and materials. Manufacturers must make full product information available upon request to parties involved in a construction project. These parties may compare the provided information with project documentation and perform on-site inspections as part of the quality-assurance process.

