

1. Unique identification code of the product type:

**SOLTHERM P**

2. Intended use or uses

**External Thermal Insulation Composite System with rendering (ETICS) is designed to insulate walls made of masonry wall units (bricks, stone, blocks) or concrete (cast-in-situ or precast) with render coat or without. Surface (wall) characteristics should be checked prior to ETICS installation, particularly due to the conditions for reaction to fire classification and bonding/fixing method.**

**The system can be used on new and existing vertical walls. It can also be used on horizontal or inclined surfaces that are not exposed to weather conditions.**

3. Producer:

**BOLIX S.A., 34-300 Żywiec, ul. Stolarska 8, Polska**

4. Authorised representative:

**N/A**

5. System or systems of assessment and verification of constancy of performance (AVCP):

**System 2+**

6a. Harmonised standard: **N/A**

Notified body or notified bodies: **N/A**

6b. European Assessment Document:

European Technical Assessment: **ETA-13/0928 of 22/06/2018 "External Thermal Insulation Composite System with rendering (ETICS)"**

Technical Assessment Body: **Instytut Techniki Budowlanej (Building Research Institute), ul. Filtrowa 1, 00-611 Warszawa, Poland**

Notified body or notified bodies: **Instytut Techniki Budowlanej (Building Research Institute) no. 1488. Certification of the factory production control 1488-CPR-0516/Z.**

7. Declared performance/s:

<b>BOLIX®</b>	<b>Declaration of Performance</b>	No.
		<b>1750/EC/SOP/02</b>

Reaction to fire	B - s1, d0 (all configurations)	ETAG 004:2013
Weathering resistance	Conforms to the requirements	ETAG 004:2013
Water absorption	<1 kg/m <sup>2</sup> after 1 h <0.5 kg/m <sup>2</sup> after 24 h	ETAG 004:2013
Impact resistance	See Table 1	ETAG 004:2013
Water vapour permeability	See Table 2	ETAG 004:2013
Release of dangerous substances	See point 3 of the Safety Data Sheets	-
Fixing strength (transverse displacement)	NPD	ETAG 004:2013
Bond strength between base coat and insulation material	≥ 0,08 MPa	ETAG 004:2013
Bond strength between adhesive and substrate (concrete) and between adhesive and insulation product	Conforms to the requirements (See Table 3)	ETAG 004:2013
Wind load resistance	See Table 4	ETAG 004:2013
Sound insulation	NPD	ETAG 004:2013
Thermal resistance	See Table 5	ETAG 004:2013

**Table 1: Impact resistance**

<b>Finish coat:</b> Reinforced base coat <b>Soltherm UB / Soltherm WB / Soltherm BC-P</b> with render finish specified below*	Single mesh layer; coat thickness of 3.0-5.0 mm
Soltherm STF20, Soltherm STF15, Soltherm STF10, Soltherm STF25wt	Category II
Soltherm AFC20, Soltherm AFC10, Soltherm AFC15, Soltherm AFCi, Soltherm AFC 25wt, Soltherm AFC15wt, Soltherm AFCs, Soltherm RMG, Soltherm AMC, Soltherm AFC20 eco-shield, Soltherm AFC10 eco-shield, Soltherm AFC15 eco-shield, Soltherm AFCi ecoshield, Soltherm AFC25wt eco-shield, Soltherm AFC15wt eco-shield, Soltherm AFCs eco-shield	Category III
Soltherm SFC-P20, Soltherm SFC-P15, Soltherm SFC-P25wt	
Soltherm AF-P+20, Soltherm AF-P+15, Soltherm AF-P+25wt	
Soltherm MTC30, Soltherm MTC20, Soltherm MTC15, Soltherm MTC25wt, Soltherm MTC15g, Soltherm MTC25wtg	

\*refers to the system with a single mesh covered by ETA 13/0928:

VERTEX R 117 A 101 ; AKE 145 ; SSA-1363-150 SMO,5 ; ST-2924/100 KM ; ASGLATEX 03-1 ; SSA-1363-160 SMO,5A ; AKE 160 ; ST 112/100/7 KM

**Table 2: Water vapour permeability**

<b>Finish coat</b>	<b>Diffusion equivalent air layer thickness (Sd value)</b>
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Reinforced base coat with render specified below (tested with and without a paint coat)	
Soltherm UB + acrylic render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">Test results:</p> <p>Soltherm AP colour + Soltherm AFC15 + Soltherm SNP + Soltherm STC-P: 1.39 m                      Soltherm AP colour + Soltherm AFC15 + Soltherm SP + Soltherm ACP: 1.60 m                      Soltherm AP colour + Soltherm AMC: 0.39 m</p>
Soltherm UB + silicate-silicone render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm SNP + Soltherm AF-P+15 + Soltherm SP + Soltherm ACP: 1.64 m                      Soltherm SNP + Soltherm AF-P+15 + Soltherm SNP + Soltherm STC-P: 1.40 m                      Soltherm SNP + Soltherm AF-P+15: 0.89 m</p>
Soltherm UB + silicone render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm SNP + Soltherm SFC-P20 + Soltherm SNP + Soltherm STC-P: 1.36 m                      Soltherm SNP Colour + Soltherm SFC-P20 + Soltherm SNP + Soltherm STC-P: 1.20 m                      Soltherm SNP + Soltherm SFC-P20: 0.74 m</p>
Soltherm UB + silicate render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm STP + Soltherm STF20 + Soltherm STP + Soltherm STPT: 0.24 m</p>
Soltherm UB + mineral render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm AP colour + Soltherm MTC25wt g: 0,26 m                      Soltherm AP colour + Soltherm MTC25wt g + Soltherm ACP: 0,51 m</p>
Soltherm WB + acrylic render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm AP colour + Soltherm AFCi: 0.43 m                      Soltherm AP colour + Soltherm AFCi + Soltherm SP + Soltherm ACP: 0.72 m</p>
Soltherm WB + silicate silicone render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm SNP + Soltherm AF-P+25wt: 0.48 m                      Soltherm SNP + Soltherm AF-P+25wt + Soltherm SP + Soltherm ACP: 0.94 m</p>
Soltherm WB + silicone render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm SNP + Soltherm SFC-P25wt: 0.32 m                      Soltherm SNP + Soltherm SFC-P25wt + Soltherm SP + Soltherm ACP: 0.64 m</p>
Soltherm WB + silicate render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm STP + Soltherm STF25wt: 0.15 m                      Soltherm STP + Soltherm STF25wt + Soltherm SP + Soltherm ACP: 0.28 m</p>
Soltherm WB + mineral render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm AP colour + Soltherm MTC30: 0.18 m                      Soltherm AP colour + Soltherm MTC30 + Soltherm SP + Soltherm ACP: 0.42 m</p>
Soltherm BC-P + acrylic render finishes	<p style="text-align: center;"><b>≤ 2.0 m</b></p> <p style="text-align: center;">test results:</p> <p>Soltherm AP colour + Soltherm AFC15 + Soltherm SNP + Soltherm STC-P: 1.34 m                      Soltherm AP colour + Soltherm AFC15 + Soltherm SP + Soltherm ACP: 1.40 m                      Soltherm AP colour + Soltherm AFC15: 0.70 m                      Soltherm AP colour + Soltherm AMC: 0.50 m</p>

Soltherm BC-P + silicate-silicone render finishes	$\leq 2.0$ m test results: Soltherm SNP + Soltherm AF-P+15 + Soltherm SP + Soltherm ACP: 1.32 m Soltherm SNP + Soltherm AF-P+15 + Soltherm SNP + Soltherm STC-P: 1.17 m Soltherm SNP + Soltherm AF-P+15: 0.74 m
Soltherm BC-P + silicone render finishes	$\leq 2.0$ m test results: Soltherm SNP + Soltherm SFC-P20 + Soltherm SNP + Soltherm STC-P: 0.91 m Soltherm SNP Colour + Soltherm SFC-P20 + Soltherm SNP + Soltherm STC-P: 0.84 m
Soltherm BC-P + silicate render finishes	$\leq 2.0$ m test results: Soltherm STP + Soltherm STF20 + Soltherm STP + Soltherm STPT: 0,25 m
Soltherm BC-P + mineral render finishes	$\leq 2.0$ m test results: Soltherm AP colour + Soltherm MTC 25 wt g + Soltherm ACP: 0,67 m

**Tabela 3: Bond strength between adhesive and substrate (concrete) and between adhesive and insulation product**

Adhesives	Material	Under dry conditions	48h immersion in water and 2h drying	48h immersion in water and 7h drying
Soltherm SA / Soltherm UB / Soltherm WB / Soltherm BC-P	Concrete EPS	$\geq 0,25$ MPa $\geq 0,08$ MPa	$\geq 0,08$ MPa $\geq 0,03$ MPa	$\geq 0,25$ MPa $\geq 0,08$ MPa
The minimum contact area for bonding must be at least 40% for EPS boards of tensile strength perpendicular to the faces $\geq 100$ kPa and $\geq 150$ kPa.				

**Table 4: Wind load resistance**

Fixings to which the following breaking force values apply:	Washer diameter	$\geq 60$ mm		
	Washer stiffness	$\geq 0.4$ kN / mm		
EPS performance to which the following breaking force values apply:	Thickness	$\geq 50$ mm		
	Tensile strength perpendicular to the faces	$\geq 100$ [kPa]		
Breaking force, kN	Fixings not located at the joints between boards (pull-out test)	$R_{panel}$	Minimum:	0.44
	Fixings located at the joints between boards (pull-out test)	$R_{joint}$	Average:	0.46
			Minimum:	0.42
			Average:	0.45

**Table 5: Thermal resistance of ETICS**

Thermal resistance of the insulation product $R_D$	Value declared by the producer of the insulation product (see product labelling on the packaging)
Thermal resistance of the render $R_{render}$	0.02 (m <sup>2</sup> · K)/W

Thermal resistance of ETICS

 $R_{ETICS} = R_D + R_{render}$ 

The thermal bridges caused by mechanical fixing devices influence the thermal transmittance of the entire wall and shall be taken into account using the following calculation (EN ISO 6946:2007):

$U_c = U + \chi_p \cdot n$  - corrected thermal transmittance  
with:  $(\chi_p \cdot n)$  influence of thermal bridges  
 $n$  - number of anchors per 1 [m<sup>2</sup>]  
 $\chi_p$  [W/K] Point thermal transmittance value of the anchor – declared by the producer or:

= 0,002 W/K for anchors with a stainless steel screw with the head covered by plastic material, and for anchors with an air gap at the head of the screw

= 0.004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material

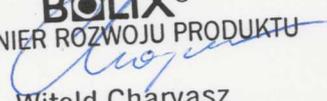
= 0.008 W/K for all other anchors (worst case)

8. Appropriate Technical Documentation or Specific Technical Documentation:

N/A

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued compliant with the Regulation (EU) No. 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

**BOLIX®**  
INŻYNIER ROZWOJU PRODUKTU  
  
Witold Charyasz

Żywiec, 28/08/2018

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Witold Charyasz