

## DANOPREN PR 100

DANOPREN PR 100 is a rigid extruded polystyrene (XPS) foam board with tongue and groove edges at various thicknesses. Manufactured without CFC's, HCFC's or HFC's. Designation Code for CE Marking: XPS-EN13164-T1-CS(10\Y)200-WL(T)0,7-DS(70)



### INTENDED USE

Thermal Insulation for Buildings (ThIB).  
Cavity walls. Ventilated façades.

### PACKAGING, CODING

PRESENTATION	VALUE	UNIT
Length	260	cm
Width	60	cm
Total thickness	100	mm
m <sup>2</sup> per package	6,24	m <sup>2</sup>
Product Code	482008	-



Perimeter cutting and surface

**TECHNICAL DATA**

TECHNICAL DATA	VALUE	UNIT	STANDARD
Thickness	100	mm	EN 823
Thickness tolerance	-2/+3	mm	EN 823
Length	260	cm	EN 822
Length tolerance	± 10	mm	EN 822
Width	60	cm	EN 822
Width Tolerance	-8/+8	mm	EN 822
Flatness	6	mm/m	EN 825
Squareness	5	mm/m	EN 824
Thermal conductivity <sup>(1)</sup>	0,037	W/mK	EN 12667
Thermal Resistance	2,75	m <sup>2</sup> K/W	EN 12667
Compression strength <sup>(2)</sup>	>200	kPa	EN 826
Long-term water absorption by total immersion	≤ 0.7	Vol.%	EN 12087
Long-term water absorption by diffusion	≤ 3	Vol.%	EN 12088
Water absorption by freeze-thaw cycling	≤ 1	Vol.%	EN 12091
Water vapour diffusion resistance factor (μ) <sup>(4)</sup>	≥ 80	-	EN 12086
Dimensional Stability	≤ 5	%	EN 1604
Reaction to fire	E	Euroclase	EN 13501-01 ----- EN 13501-1
Coefficient of linear thermal expansion	0,07	mm/m·K	-
Working temperature range (Celsius degrees)	-50 / +75	°C	-
Specific heat	1.450	J/kg·K	-
Nominal density	32	kg/m <sup>3</sup>	EN 1602
Capillarity	Null	-	-
Edge treatment	Tongue & Groove	-	-
Surface	Skinned	-	-

(1) Declared thermal conductivity  $\lambda_D$  according to EN 13164 (§ 4.2.1; Annex A; Annexes C.2 y C.4.1)

EN 13164. Harmonized Technical Specification for factory made thermal insulation XPS foam products. Valid for CE marking and voluntary quality marks purposes.

(2) Short-term (instant) test method; value reached at yield point or 10% deformation, whatever it comes first.

(4) For skinned products it depends on thickness: the higher the thickness, the lesser the m-value

**TECHNICAL SPECIFICATION DESCRIPTION**

\_\_\_ m<sup>2</sup> of cavity wall thermal insulation, by means of DANOPREN PR extruded polystyrene (XPS) rigid foam boards of \_\_\_ mm thickness, with a declared thermal conductivity  $\lambda_D =$  \_\_\_ W/m·K; declared thermal resistance  $R_D =$  \_\_\_ m<sup>2</sup>·K/W; Euroclass E fire reaction classification, according to EN 13501-1 and designation code XPS-EN13164-T1-CS (10Y) 200-WL (T) 0,7-DS (70), according to EN 13164 harmonized technical specifications.

**STANDARDS & CERTIFICATION**

Main regulatory/standardization references- EPBD Recast 2010/31/EU. Energy Performance of Buildings- Construction Products Regulation (UE) 305/2011 laying down the harmonised conditions for the marketing of construction products.- EN 13164. Thermal insulation products for buildings – Factory made extruded polystyrene foam (XPS) products – Specification- UK: Building Regulations 2010 (SI 2010/2214) amended in 2012 and 2013. Approved Documents (2013) - L1A, L1B, L2A, L2B. Standard Assessment Procedure - SAP 2012CE markingConformity according to EN 13164 for all DANOSA factory made XPS products in Europe.Voluntary quality mark certificate.French ACERMI Certificate granted to DANOPREN PR, in compliance with EN 13164 and own ACERMI rules.Spanish Marca AENOR granted to DANOPREN PR, in compliance with EN 13164.Quality managementRegistered Firm in compliance with EN ISO 9001, granted by BUREAU VERITAS to DANOSA XPS manufacturing site at Tudela (Navarra- Spain)Registered Firm in compliance with EN ISO 9001, granted by BUREAU VERITAS to DANOSA XPS manufacturing site at Leiria (Portugal)

## ADVANTAGES AND BENEFITS

- Easy and safe handling of the DANOPREN PR XPS boards: they are light, do not irritate the skin, do not give off dust, maintain their physical integrity. Consequence: easier storage and installation job on-site.
- Negligible long-term water absorption. Two consequences: 1. Storage and installation job can be done even under adverse weather conditions; 2. Thermal performance is not degraded by long-term water absorption.
- Long-term high compressive and mechanical strength. Two consequences: 1. The XPS boards are robust enough to withstand rough handling during transport and installation without losing their physical integrity or their performance as thermal insulation; 2. Where placed under permanent load, the thickness and, therefore, the Thermal Resistance (obviously proportional to the thickness), will be maintained at long-term.
- Thanks to its water absorption and mechanical resistance, the DANOPREN PR XPS boards, properly installed, show a durability equal to the service life of the building in which they are incorporated. Three consequences: 1. Continuous energy saving; 2. Equivalent continuous reduction of CO2 emissions, and 3. Maintenance costs (repair, replacement) null.
- Eventually, and depending on the installation system, it may be feasible to re-use the DANOPREN PR XPS boards. As a consequence, a maximum level of environmental sustainability can be obtained, closing the product life-cycle by opening a new life-cycle within the concept "from cradle to cradle".

## INSTALLATION

### CAVITY WALL

- When installing the DANOPREN PR XPS insulation boards in cavity walls, the cavity should be checked to ensure that it is free of mortar projections and debris that may interfere with placement of insulation boards
- The substrate wall should provide a smooth and uniform surface to give proper support to DANOPREN PR boards.
- DANOPREN PR boards have a high water vapor diffusion resistance factor (MU), so typically it is not necessary to install a vapor barrier. When installed correctly, the boards themselves will function as a suitable barrier in most typical applications and climates, so that interstitial condensation is avoided. In exceptional applications, such as cold stores (where temperatures are down to -40 degrees Celsius), a vapor barrier must be installed. The correct position of the vapour barrier should be on the "warm" side of the insulation, i.e., looking out of the cold store itself).
- If fixing or gluing DANOPREN PR boards, please ensure that the manufacturer's instructions are followed. The boards rigidity and strength assure they will not move or creep after being installed. This prevents causing the appearance of both thermal bridges and air leakage by convection between the "warm" and "cold" cavity sides.
- The DANOPREN PR boards have a Tongue & Groove edge treatment. The joints formed must be firmly pressed to be tight. This edge treatment ensures that joints between boards will stop entirely any air leakage by convection between the "warm" and "cold" sides of the cavity. This makes the installation simple, avoiding the usual installation of two layers of boards to achieve an effective "closure", since it is already obtained with the Tongue & Groove joint.
- In case the cavity wall is higher than the boards length, the missing area must be properly completed with board pieces to provide thermal continuity, preventing the formation of thermal bridges and air leakage by convection. DANOPREN PR boards fit most of the typical cavity heights (up to 2.60 m in length), with this length vertically oriented within the cavity.
- For the case that the air cavity is fully ventilated as part of an external insulation system (ventilated façade), the regulations on fire safety must be considered, and, depending on their requirements, include necessary protections or fire barriers, so that regulatory requirements are properly met in the final end-use application of the product.
- On the other hand, in the case of a ventilated façade, the DANOPREN PR boards should be fixed with a minimum of four mechanical fixings near the corners and one in the centre of the board.
- At ventilated façades, the cladding must be fixed to the substrate wall or to an auxiliary self-supporting structure. DANOPREN PR boards must not carry the cladding weight.
- At ventilated façades the thermal bridge caused by the cladding fastenings should be considered for thermal calculations.

## INDICATIONS AND IMPORTANT RECOMMENDATIONS

- Check that the product has arrived on-site within the original packaging, properly labeled and in perfect condition.
- Check the presence of CE marking and DoP (Declaration of Performance).
- Check, if specified in the project, the presence of a voluntary quality mark.
- Check that the thermal insulation is the one specified in the project.
- Check that the project technical specifications are followed, particularly in terms of dimensions, thickness, declared thermal conductivity, declared thermal resistance, water vapour diffusion resistance factor and fire reaction.
- Check that the installation follows what specified in the project, particularly the order of layers in the roof and the correct position of the thermal insulation layer with respect to the rest.
- Check the continuity of the thermal insulation layer, avoiding the presence of thermal bridges, particularly where close to every detailing. Examples: windows lintels, jambs and sills; perforations; roof parapets; floors; pillars.

## HANDLING, STORAGE AND PRESERVATION

- DANOPREN XPS boards suffer irreversible dimensional changes if exposed for a long time at high temperatures. The maximum working service temperature is 75°C.
- DANOPREN XPS boards, in direct contact with substances or materials containing volatile compounds, are exposed to solvents attack. The adhesive manufacturer's recommendations concerning its compatibility with polystyrene foam should be taken into account.
- DANOPREN XPS boards can be stored outdoors. They are unaffected by rain, snow or ice. Accumulated dirt can be easily washed. Stored for an extended period of time, the boards should be protected from direct sunlight, preferably in their original packaging. When kept indoors, it should be properly ventilated.
- The XPS boards must be kept away from heat or flames sources. DANOPREN products contain a flame retardant additive to inhibit accidental ignition from a small fire source, but the boards are combustible and, if exposed to an intensive fire, may burn rapidly. Fire classification is based on small scale tests, which may not reflect the reaction of the products in its end use state under actual fire conditions.
- For more information, refer to the product SDS.

## WARNING

The information contained in this document and any other advice provided, are given in good faith, based on TIKIDAN's current knowledge and experience when products are properly stored, handled and applied, in normal situations and in accordance with the recommendations of TIKIDAN. The information applies only to the application (s) and the product (s) to which reference is expressly made. In case of changes in the parameters of the application, or in case of a different application, consult the TIKIDAN Technical Service before using the TIKIDAN products. The information contained herein does not exonerate the responsibility of the building agents to test the products for the application and intended use, as well as their correct application in accordance with current legal regulations.

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