

## DANOPREN 500 60

DANOPREN 500 60 is a rigid extruded polystyrene (XPS) foam board with shiplap edges at various thicknesses. Manufactured without CFC's, HCFC's or HFC's.

Designation Code for CE Marking:

XPS-EN13164-T1-CS(10\Y)500-WL(T)0,7-DS(70)

### INTENDED USE

Thermal Insulation for Buildings (ThIB)

High load-bearing floors (cold stores, parking decks, etc).

### PACKAGING, CODING

PRESENTATION	VALUE	UNIT
Length	125	cm
Width	60	cm
Total thickness	60	mm
m <sup>2</sup> per package	5.25	m <sup>2</sup>
Product Code	480103	-



Shiplap edges

**TECHNICAL DATA**

TECHNICAL DATA	VALUE	UNIT	STANDARD
Thickness	60	mm	EN 823
Thickness tolerance	-2/+3	mm	EN 823
Length	125	cm	EN 822
Length tolerance	-8/+8	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>	0,034	W/mK	EN 12667
Thermal Resistance	1,80	m <sup>2</sup> K/W	EN 12667
Compression strength <sup>(2)</sup>	≥ 500	kPa	EN 826
Compressive creep max 2% deflection after 50 years <sup>(3)</sup>	≥ 150	kPa	EN 1606
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
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	38	kg/m <sup>3</sup>	EN 1602
Capillarity	Null	-	-
Edge treatment	Shiplap	-	-
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.

(3) Creep: long-term deformation under constant loading

(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 high load-bearing floors (cold stores, parking decks, etc) thermal insulation, by means of DANOPREN 500 extruded polystyrene (XPS) rigid foam boards of \_\_\_ mm thickness, with a declared thermal conductivity  $\lambda_D =$  \_\_\_ W/m·K; declared thermal resistance  $RD =$  \_\_\_ m<sup>2</sup>·K/W; Euroclass E fire reaction classification, according to EN 13501-1 and designation code XPS-EN13164-T1-CS (10\Y)500-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
- UK: Building Regulations 2010 (SI 2010/2214) amended in 2012 and 2013. Approved Documents (2013) - L1A, L1B, L2A, L2B. Standard Assessment Procedure - SAP 2012
- 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

### CE marking

Conformity according to EN 13164 for all DANOSA factory made XPS products in Europe.

### Quality management

Registered Firm in compliance with EN ISO 9001, granted by BUREAU VERITAS to DANOSA XPS manufacturing site at Fontanar (Guadalajara- 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 500 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 500 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.
- Besides, due to these water absorption and mechanical long-term resistances, the DANOPREN 500 XPS boards can be installed on the waterproofing membrane, protecting it from mechanical damage and thermal shock, as per the well-known "inverted roof" concept.
- Eventually, and depending on the installation system, it may be feasible to re-use the DANOPREN 500 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

### INVERTED ROOF.

- The floor or parking deck structure load-bearing capacity will be carefully checked.
- The structural deck must show proper leveling and flatness (checked with a 2 m rule level).
- Before installing DANOPREN 500 XPS boards on a parking deck it is recommended to run a leakage test.
- For industrial floors or parking decks the imposed loads are rather higher than the usual ones for residential floors or roofs. Therefore it is recommended the use of DANOPREN 500 XPS boards, that show a higher compressive strength (almost double). Imposed loads must be checked in order not to exceed the compressive creep max 2% deflection after 50 years. In the case of DANOPREN 500 it is recommended not to exceed a value of 150 kPa.
- DANOPREN 500 XPS boards are part of a waterproofing system, therefore the systems and indications reflected in the Danosa solutions technical manual, product/systems specifications and other technical documentation should be taken into account.
- A suitable separation layer (for instance a fabric like DANOFELT PY 150) shall be installed between the DANOPREN 500 XPS boards and the waterproofing membrane, especially in case where it might arise any chemical incompatibility, such as in the case of PVC membranes (in this case, a fabric like DANOFELT PY 300).
- DANOPREN 500 XPS boards shall be installed loose-laid. Otherwise, a justification why not must be provided.
- DANOPREN 500 XPS boards shall be installed with staggered joints between successive rows.
- DANOPREN 500 XPS boards shall be installed with all their joints tight.
- When close to every detailing, the DANOPREN 500 XPS boards will form the joint with at least a 5 mm tolerance.
- A suitable separation layer (for instance a fabric like DANOFELT PY 200) shall be installed between the DANOPREN 500 XPS boards and the ballast (gravel or paving).
- When installing a parking deck the traffic bearing layer must be installed immediately, in order to avoid possible wind uplift of the DANOPREN 500 XPS boards. Usually it is formed with a concrete slab or interlocking pavers, in both cases over a well compacted 40 mm thick sand layer.

## INDICATIONS AND IMPORTANT RECOMMENDATIONS

- 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.

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**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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