Recommendations on the hardness of XPS insulation for adjustable pedestals SOLVER PEDESTALS STANDARD

Adjustable pedestals SOLVER PEDESTALS STANDARD have a base with a total area of bottom part of 178.5 cm ^ 2.

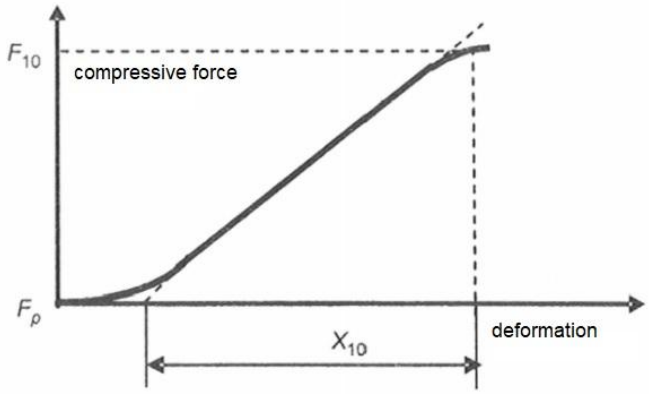
- for XPS - 200 styrodur, the permissible compressive stress at deformation up to 10% is 200 kPa. Converting Kilopascals to kg / cm ^ 2 we have 200 kPa = 2 kg / cm ^ 2. So it comes out that we can put a load of up to 357 kg on one support.

- for XPS-300 styrodur, the permissible compressive stress at deformation up to 10% is 300 kPa. Converting kilopascals to kg / cm ^ 2 we have 200 kPa = 3 kg / cm ^ 2. So it comes out that we can put a load of up to 535.5 kg on one support.

To calculate the permissible load per 1 m ^ 2, the exact design of the balcony / terrace would be needed. Assuming, however, that we are using panels with dimensions of 60 cm x 60 cm, e.g. on a balcony with dimensions of 2.4 m x 1.8 m, i.e. with an area of 4.32 m ^ 2, we will use 20 brackets. Taking into account the maximum allowable load for a given styrodur, we get the maximum load per 1 m ^ 2 of respectively:

- 1652 kg/m^2 for XPS 200
- 2479 kg/m^2 for XPS 300

Below is a diagram of the dependence of force on deformation[1]:



Picture 1. : An example of the dependence of force on deformation

F_p - strenght corresponding to the preload

F_{10} - strenght at 10% relative deformation

X_{10} - 10% relative deformation

[1] *PRACE INSTYTUTU TECHNIKI BUDOWLANEJ - QUARTERLY no. 1 (145) 2008*

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The diagram shows that the dependence of force on deformation is practically linear. If, when using the DD Pedestals brackets for XPS200 styrodur, the maximum load at 10% deformation is 1652 kg / m ^ 2, then 1% deformation will be obtained with a load of 165 kg / m ^ 2. So, if we allow a deformation of 2% or 2 mm for polystyrene with a thickness of 10 cm, the maximum permissible load will be 330 kg / m ^ 2. Accordingly, for XPS300 styrodur it will be 496 kg / m ^ 2.

The hardness of XPS200 or XPS300 boards should be selected according to the maximum allowable load per 1 m ^ 2 recommended by the construction site. According to our recommendations, the minimum hardness for the proper use of ventilated terraces on the SOLVER PEDESTALS STANDARD adjustable pedestals is XPS200.

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