

JACKODUR[®] Inverted roof

Thermal insulation system - gravel design.



Installation Instructions



General information

JACKODUR® thermal insulation made from extruded polystyrene foam (XPS) is produced and monitored in accordance with DIN EN 13164 and approval no. Z-23.15-1477. Thanks to its closed-cell structure, JACKODUR® thermal insulation is resistant to moisture and is therefore ideal as insulation outside of the waterproofing layer.

Substructure

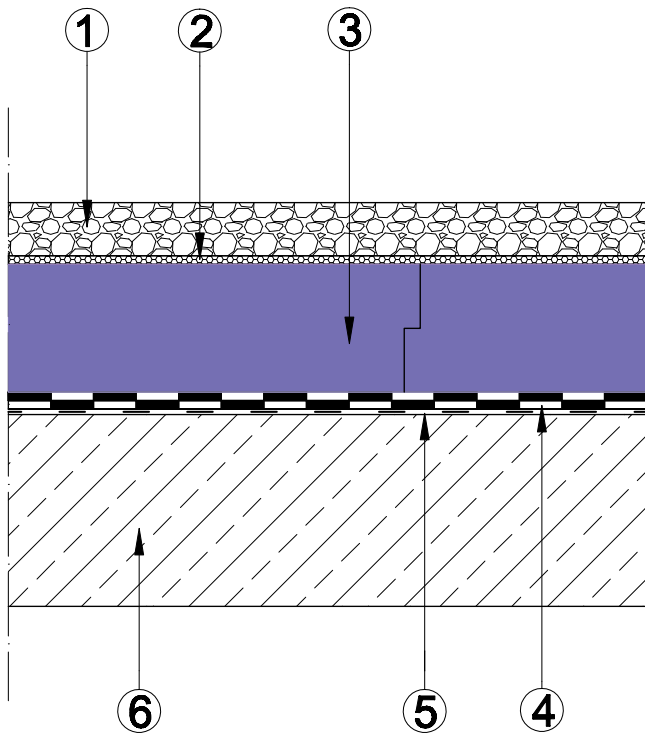
The surfaces on which JACKODUR® thermal insulation is to be laid must be sufficiently level. There should be a gradient of at least 2%. A less steep gradient is possible but requires a higher quality of waterproofing (see “Flat roof guidelines”).

Roof waterproofing layer

All conventional roof waterproofing can be used. It should be installed according to the manufacturer’s instructions. The roof waterproofing layer must satisfy the pertinent technical rules such as “Flat roof guidelines” and the DIN 18195 standard. Polystyrene induces plasticiser migration in plastic-based waterproofing. In order to prevent this, a separating layer (e.g. plastic non-woven material) should be arranged between the waterproofing layer and JACKODUR® thermal insulation.

Insulation layer

JACKODUR® thermal insulation may be laid on top of the roof waterproofing layer. The boards should be laid tightly against one another without cross joints and always in a single layer. JACKODUR® thermal insulation may be laid loose or spot bonded to the subsurface or bonded around the edges to the subsurface. The JACKODUR® thermal insulation must have edge profiling (e.g. shiplap). It must also be noted that in accordance with standard DIN 4108-2, an addition to the U-value must also be taken into account for inverted roofs.



- ① Washed round gravel 16/32 mm
- ② JACKODUR® WA filter layer
- ③ JACKODUR® Plus 300 Standard SF,
JACKODUR® KF 300 Standard SF
- ④ Waterproofing layer
- ⑤ Primer
- ⑥ Load-bearing structure

Table 1: ΔU -value increase

Proportion of thermal resistance beneath the roof membrane as % of the total thermal resistance	Increase of the U-value AU W/(m ² ·K)
0 – 10	0.05*
10.1 – 50	0.03
> 50	0

* This value must always be used if the thermal resistance of the building component layers underneath the roof membrane < 0.1 W/(m²·K)

However, if the water-draining, diffusion open separating layer, JACKODUR® WA filter layer is used on an inverted roof with gravel together with JACKODUR® thermal insulation, then the addition to the U-value can be left out. This means, $\Delta U=0$ even if the thermal resistance of the building component layers beneath the roof membrane is < 0.1 m² K/W..

JACKODUR® thermal insulation should be exposed to direct sunlight for the shortest time possible. Otherwise it can lead to deformation of the thermal insulation boards, especially in summer temperatures. For this reason, JACKODUR® thermal insulation, the filter layer and the protective layer should be laid step by step.

Flat roof filter layer

If a flat roof filter layer is used, the penetration of small pieces of stone into the joints of the thermal insulation boards will be prevented and the thickness of the protective layer that needs to be applied can be reduced. By using the flat roof filter layer JACKODUR® WA filter layer in combination with JACKODUR® thermal insulation, the addition to the U-value can also be left out (more details under insulating layer). The flat roof filter layer is arranged on the JACKODUR® thermal insulation. The JACKODUR® WA filter layer must be laid with 15 cm overlaps towards the roof outlets.

Protective layer

Grade 16 to 32 mm washed round gravel, as delivered, should be used as the protective layer. The layer of gravel must be at least 5 cm thick. Thicker layers can result due to wind loads.

Wind suction protection

Wind suction protection is to be measured in accordance with approval no. Z-23.34-1540.

Care and maintenance

Care and maintenance work must be carried out on inverted roofs with gravel from time to time, in order to counteract potential changes, damage or consequential damage in good time. In particular, the functional capacity of the roof drains should be checked for drainage and if necessary any contamination or deposits removed.

Penetrations and fixings

In order to prevent thermal bridges from occurring in penetrations in inverted roofs, the use of JACKODUR® perimeter adhesive foam is recommended to fill any imperfections.

JACKODUR® perimeter adhesive foam is also recommended for fixing JACKODUR® thermal insulation to the fascia.

Instructions for using JACKODUR® perimeter adhesive foam can be taken from the relevant data sheet.



Note

The information provided in this leaflet is based on our knowledge and experience to date. It does not constitute a guarantee in any legal sense. When using this product, please always bear in mind the circumstances of the particular intended application, especially with regard to physical, technical and legal construction issues.