DAKU

LA NATURA SUL TETTO

DAKU EXTENSIVE INSTALLATION MANUAL

DAKU EXTENSIVE ROOFTOP GARDEN

DAKU EXTENSIVE gardens are designed to resist long droughts without needing an irrigation system, and to minimize the growth of infesting plants. This is possible thanks to a carefully selected mixture of self-regenerating plants, capable of surviving even at extreme conditions. For these reasons, DAKU EXTENSIVE gardens need little maintenance, are easy to manage and are good looking. DAKU EXTENSIVE gardens are perfect for surfaces with low accessibility, adapting to all kinds of needs and climatic conditions.

The main advantages of DAKU EXTENSIVE gardens are:

- They reduce the effects of heat waves, decreasing the temperature and helping the environment;
- They improve drainage, reducing the effect of heavy rains;
- They protect the roof, increasing its durability and its insulating performances;
- They reduce pollution and help the environment.

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

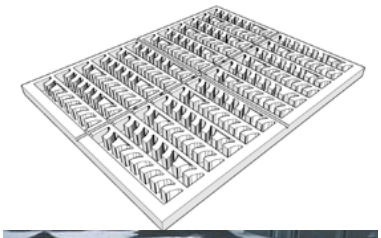
Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

DAKU
LA NATURA SUL TETTO

MATERIALS

1.DAKU SEDUM plants mixture
2. DAKU ROOF SOIL substrate
3. DAKU STABILFILTER filtering component
4. DAKU FSD 20 panels

Thickness of the system (without plants)	cm	13.00
Weight when saturated (without plants)	kg/m²	93.00
Total amount of water for the plants	l/m²	30.50
Air volume at pF1	l/m²	46.50



DAKU FSD 20 panels are made of expanded polystyrene, with a size of 1.25x1.00 m. They are used for water storage and drainage.

DAKU STABILFILTER filters are geotextiles in polypropylene and are used as a separation layer between the **DAKU FSD** panels and the **DAKU ROOF SOIL** substrate.

DAKU ROOF SOIL is a light substrate made of volcanic mineral materials, suitably combined with organic substances. Thanks to its features, the substrate is suited for DAKU EXTENSIVE gardens with low overall thickness (8 cm minimum).

SEDUMS are plants belonging to the “Crassulaceae” family. They can live in extreme environments, characterized by long periods of drought, high and low temperatures.

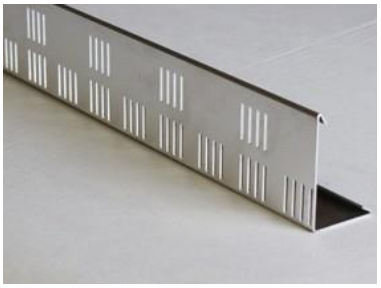
DAKU PLUS is an additional nutrition compost for rooftop gardens. It is made of fertilizing granules, covered by a biodegradable polymeric membrane, which gradually releases nutritive substances, depending on the soil temperature.

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

DAKU
LA NATURA SUL TETTO

ACCESSORIES



DAKU PRO series is a set of components, made of an aluminum-magnesium alloy, used for separation and containment. These components separate the DAKU ROOF SOIL substrates from the other materials. The components are welded to the roof, without mechanical fixing.

DAKU CONTROLLER components are made for inspecting easily and safely the drainage and ventilation pipes. They are made of aluminum-magnesium, are 25x25 cm wide and 10 cm tall.

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

MATERIALS HANDLING

PACKAGING:

During productions, all the materials are packaged. The type of package depends on the dimensions and characteristics of each material.

DAKU FSD 20 panels are usually packaged in pallets made of 2 half-size pallets wrapped in polyethylene packaging film. The pallets are then put on bars made of EPS so that they can be moved with forklifts or cargo nets.

DAKU STABILFILTER geotextiles are made of rolls (dimensions: 200x30x30 cm), wrapped in a single polyethylene package. Each roll can be carried separately or, depending on the quantity needed, a set of rolls can be loaded on a pallet and wrapped in polyethylene.

DAKU ROOF SOIL substrate is usually packaged in a 1 m^3 polypropylene bag, with a drain valve on the bottom. There are 4 loops for lifting and moving the bag. The substrate can be packaged also in smaller bags, with a capacity of 33 l each. Bags can be put on a pallet, wrapped in a polyethylene film. The substrate can also be delivered loose. DAKU PLUS is packaged in 5-10 kg polyethylene bags.

DAKU CONTROLLER and DAKU PRO accessories are usually packaged in cardboard boxes or in pluriballs and polyethylene films.

SHIPMENT:

All materials are delivered to the construction sites with trucks. All materials must be loaded and unloaded by qualified workers, in compliance with the safety regulations, by using forklifts and cranes.

STORAGE:

Store the materials on plain surfaces, on a dry indoor environment and far away from heat sources or flames. In the construction site, store the materials outdoor only for the time necessary for their installation. Store the materials in a safe area, in compliance with the safety measures of the site. Do not pile pallets or big bags.

LIFTING AND MOVEMENT:

Use forks or cargo nets to lift the materials to the rooftop. Make sure the lifting equipment is compatible with the materials. Lift the big bags by using ALL THE 4 LOOPS that equip the bag. If the lifting is done by using forks, make sure the forks are smooth and rounded ahead, without edges, as they may damage the equipment. All workers must maintain a safe distance from suspended loads when they are being moved.

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

INSTALLATION STEPS

1)PREPARING THE ROOFTOP SURFACE

Make sure that there is no debris and no water stagnation on the rooftop surface.



2) LAYING THE DAKU FSD 20 DRAINAGE AND WATER STORAGE PANELS

DAKU FSD 20 panels for drainage and water storage must be laid manually. Lay the panels starting from one side of the rooftop.

Each panel has a rabbet joint on each side to easily lay and connect it with other panels without using glue or other type of fixing.

Lay the panels putting the side with the truncated-cone feet downward, directly on the rooftop surface. The other side, with the storage cells, must be upward. (figure 1)

If needed, the panels can be shaped to fit the shape of the rooftop. Handsaws and cutters can be used, paying attention not to cut through the storage cells. (figure 2)

If a panel covers an area above a drain, make a hole on the section of the panel directly above the drain with a handsaw or a cutter. Then fix on the hole the DAKU CONTROLLER inspection component. This will make inspection easier. (figure 3)

figure 1

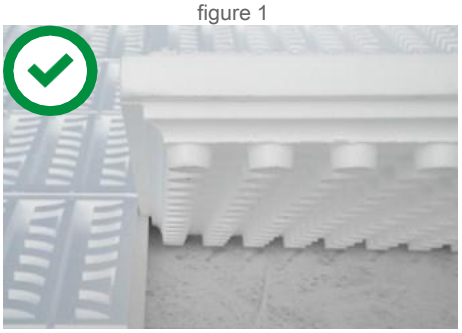
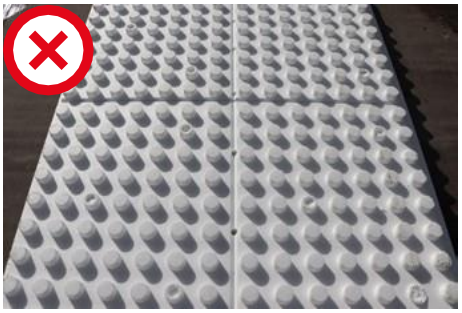



figure 2

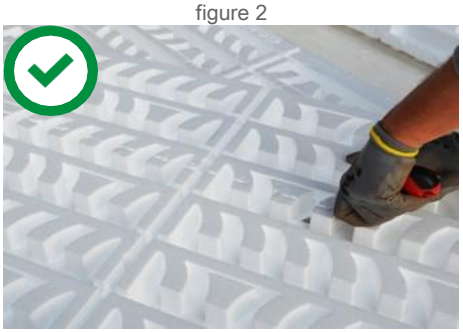


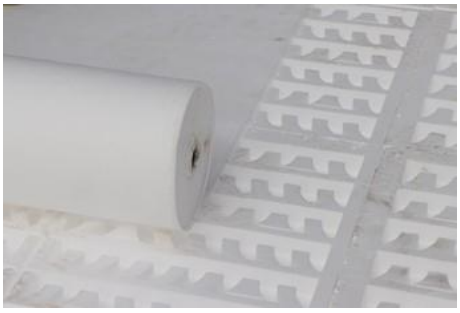

figure 3

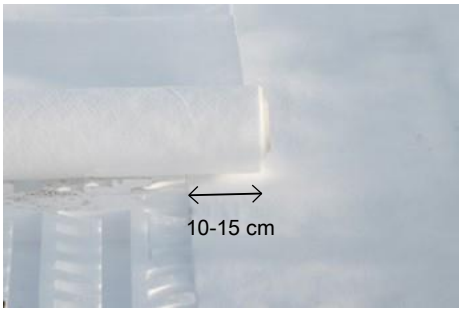

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

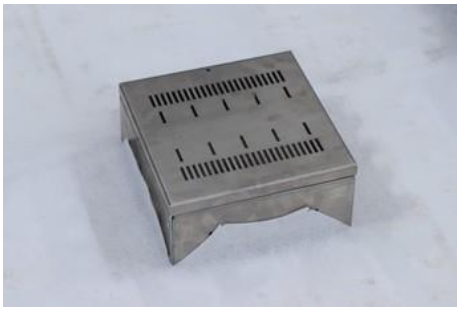
Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

3) LAYING THE DAKU SFE FILTERING SHEET

Unroll and lay the DAKU STABILFILTER filtering sheets, by covering the whole surface of the FSD panels. On the edges of the rooftop, fold the sheets upwards, with a margin of 10-15 cm. Cover with the sheets also all the vertical surfaces (edges, chimneys, et cetera), making sure the height of the vertical cover matches the thickness of the garden's substrate. DAKU STABILFILTER sheets can be cut with







cutters or scissors.

4) LAYING THE DAKU ROOF SOIL SUBSTRATE

Lay the DAKU ROOF SOIL substrate directly on the DAKU STABILFILTER SFE geotextile. The thickness of the substrate may change, depending on the garden's design and on the requirements for the desired plants. In a standard extensive garden, the thickness of the substrate is of 8 cm. The substrate should be laid on the geotextile starting from the last sheet installed and going towards the first sheet installed. This procedure will prevent the substrate from penetrating into the rabbet joints. The substrate must be laid using hand tools, such as rakes and shovels. Big bags can be easily emptied by opening the drain valve. DO NOT stand under a big bag while it is being moved.

DAKU ITALIA s.r.l.
Via XIII Martiri, 28
30027 San Donà di Piave (VE), Italy

Email: daku@daku.it
Tel: T.+39 0421 51864
web: www.daku.it

5) LAYING THE PERIMETRAL GRAVEL

On extensive rooftop gardens, it is necessary to lay a strip of gravel on the edges (50 cm wide minimum), so that the components are not carried away by the wind. Strips of gravel can be also put around vertical surfaces (edges, chimneys, et cetera). Also, these strips should be at least 50 cm wide. The width of the strips can be reduced by 30% if there are perimeter edges with a height equal or greater than 50 cm.

6) ADDING THE DAKU PLUS FERTILIZER

INSTALLATION: Before milling the surface and before planting the sedums, spread the fertilizer directly on the DAKU ROOF SOIL substrate. Spread 8 gr/m^2 for each cm of thickness of the substrate. On extensive gardens, DAKU PLUS is used also as fertilizer during routine maintenance after the winter, when the plants are still resting. During maintenance, 40/50 gr/m^2 are spread on the whole garden's surface.

7) PLANTING THE SEDUMS

Spread DAKU SEDUM TALEA substrate, using 80/100 gr/m^2, directly on the DAKU ROOF SOIL substrate (compounded with DAKU PLUS fertilizer). Roll the substrate with the DAKU ROLL roller rake. Check if the substrate is partially buried and if not, do it manually. After the substrate has been rolled, irrigate the garden (10 l/m^2) After the installation, irrigation cycles must be scheduled, in accordance with the maintenance manual.