

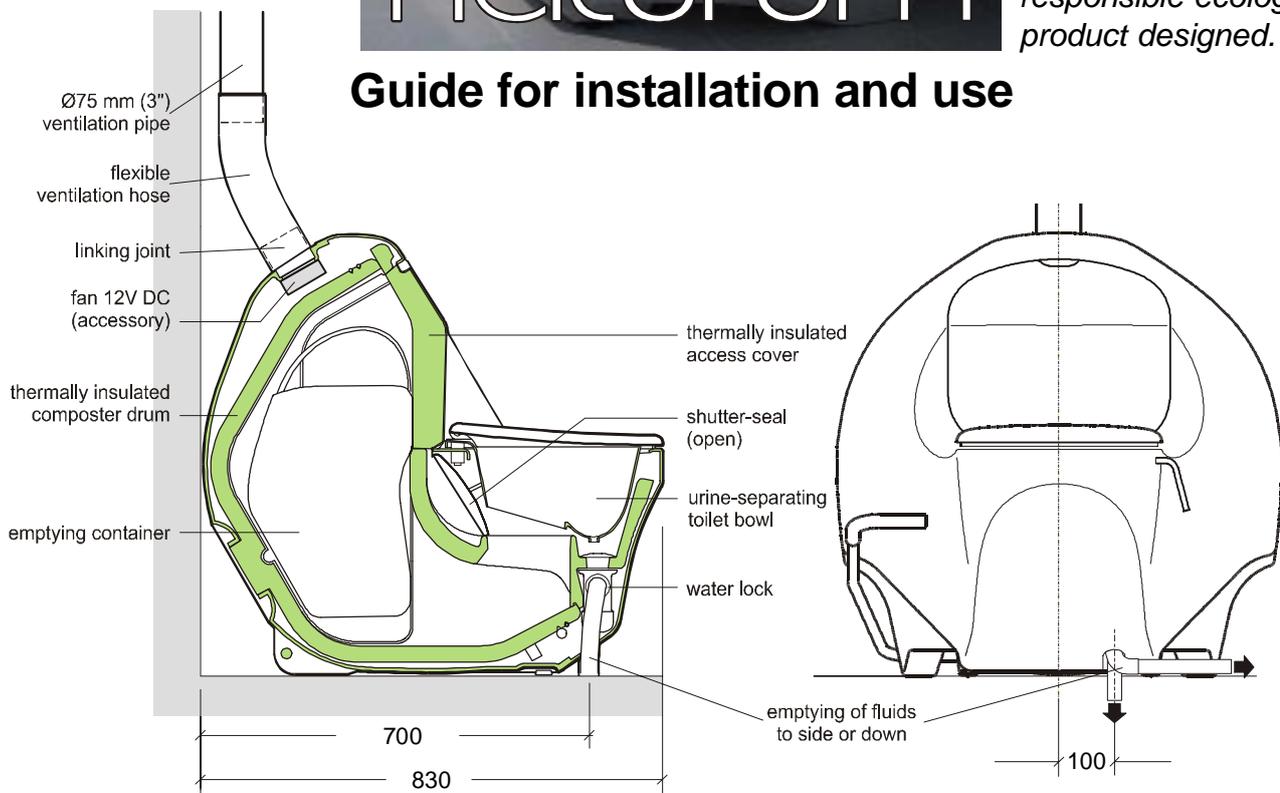
BIOLAN®



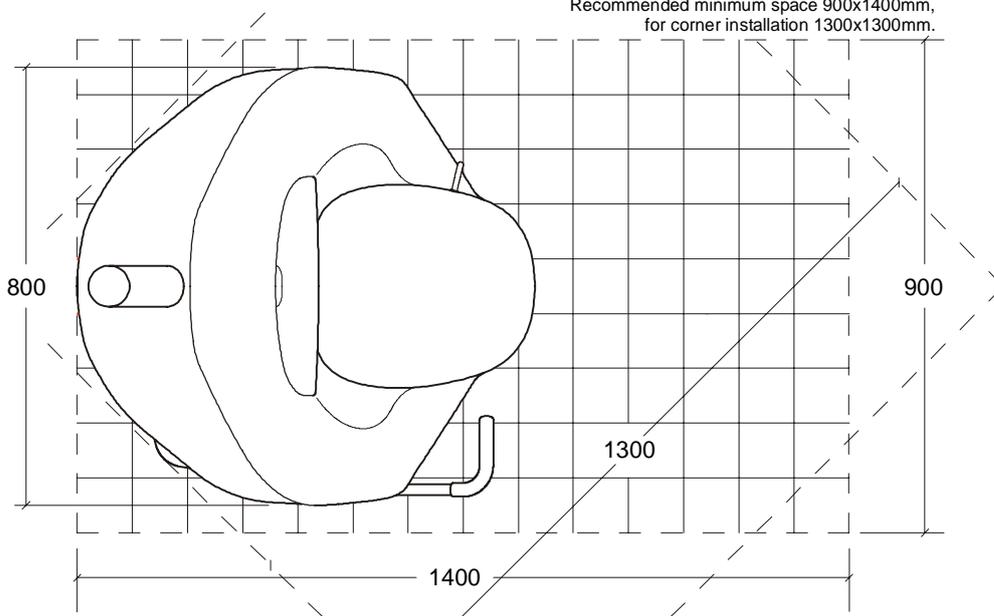
naturum

Thank you for choosing a Naturum Dry Toilet. Obviously we think that we achieve one of the world's best composting toilet. We also hope that it will stand as an example of the most responsible ecological product designed.

Guide for installation and use



Recommended minimum space 900x1400mm,
for corner installation 1300x1300mm.



Standard parts:

- Emptying container
- Cover to emptying container
- Service harrow
- Flexible ventilation pipe
- Linking joint
- Ventilation pipe in 3 parts
- Illustrated user instructions
- Absorbent
- Starting compost soil

Installation situation

The ideal space for a Naturum is width of 90 cm and depth of 140 cm. More room of course makes use easier, but the Naturum has been installed in even smaller spaces. Space demands by the handwashing sink and other bathroom installations should also be taken into account. It is a good idea to have the sink fitted with a bidet shower hose, situated so that the tap is within reach from seated position and the hose can be used to wash down the toilet bowl.

Floor drain or urine pipe connection alternatives are shown in the enclosed drawing. The pipe may exit through the floor 10 cm from the centre, at 70 cm from the rear wall or thereabouts, but immediately below the appliance there is little space unless it is raised up off the floor a little.

The Naturum can be levelled and prevented from rocking by rotating the screw-adjustable shoes under the appliance.

Fixing down to the floor is not recommended, because it should be possible to clean out the floor area covered by the appliance, just like the dust from under a washing machine.

Ventilation pipe

Ventilation is essential for the proper functioning of the Naturum. When the humidity of the compost mass is suitable, it mixes well and ready compost shakes into the emptying container. If there is too much humidity due to inadequate air flow, the mass forms clods and may start sliding in the drum.

The Naturum is provided with a 2,4 m length of ventilation pipe, diameter 75 mm. If any other parts are required, there are available from any hardware store. The pipe may be more the 75 mm in diameter but not less. It should run as near vertically as possible to the roof.

Slopes may not be more than 45° off vertical. Where the pipe runs through unheated spaces such as attics, it should be insulated.

Natural ventilation, which is dependent upon air pressure differences, is not reliable in all weather conditions. A slight odour of compost may occur rarely, and should be no problem, but if it is desired to avoid this too, a small fan may be installed in the pipe for use in case of requirement only.

If it is necessary to install the ventilation pipe contradictory to these recommendations then a fan should be installed to ensure airflow.

The fan can be connected so that it is turned on simultaneously by the light switch. The Naturum may also be connected to an existing ventilation duct or mechanical ventilation system.

Emptying pipe

The emptying pipe may discharge into a greywater floor-drain; into its own drain for the collection of urine; or directly outwards through the wall, provided that it is sufficiently well insulated against freezing.

If the connection is made to a floordrain it is best to make it beyond the U-bend, so that it is not possible for urine to

stand here, possibly causing odours. Certain types of floordrain have a cap intended for cleaning. The emptying pipe can be connected into this opening.

Starting to use

The Naturum is delivered with two 30 l bags of peat moss. Please check that the moisture content in the peatmoss is suitable. If not, add water. (The suitable moisture content of the peatmoss is when a few drops of water can be squeezed out of it in the clenched fist) empty one of bags carefully into the drum through the seat opening and keep the drum rotating by pressing the pedal until the bag is all in. A funnel for example made out of newspaper will be useful to avoid spilling whilst pouring the peat. The seat-bowl should then be removed and the shutter-seal inspected to check that its movement is not blocked by peat. (Figure 1) With the seat-bowl again in place, and the shutter-seal closed, give the appliance one light "flushing", and the Naturum is ready for use.

Use

When the cover is open, the shutter-seal at the base of the seat-bowl is closed. The Naturum allows a standing urinating position and also washing down with a shower hose. When sitting down, open the shutter-seal by the lever at the side for the passage of solid refuse into the drum. From a seated position, urine is directed from the front base of the seat bowl into the fluids' funnel.

It is unnecessary to close the shutter-seal for urinating in a seated position.

Paper is dropped into the compost drum. Watch however that paper does not drop into the fluids' funnel, which might cause blocking of the fluids' exit pipe.

After use the pedal should be pressed a couple of times, rotating the drum so that the refuse is removed from sight and is covered by compost. The shutter seal is then shut and the seat cover closed.

To avoid any kind of problems, visitors should be told that solid refuse should not be deposited on the closed shutter seal.



1. The seat-bowl may be lifted from its place for cleaning.

Remember to close the shutter seal and seat cover always after use, thus retaining the necessary heat and humidity levels within the compost.

Capacity

The Naturum has been tested in continuous use by four person households. Temporarily loading has been up to seven persons. In larger than four person households the use of two Naturums is recommended, and in this case their use should be equally shared.

Bidet

When using the bidet hose for washing the shutter seal must be closed, to prevent the entry of water into the compost drum. *Remember first however to press the pedal removing solids from sight.*

Ensure that the shutter seal is really closed! The removal of excess water from the drum may be difficult.

Washing down

You can clean the seat-bowl if necessary by flushing with the shower hose or with a cup of water. If necessary it may be washed down in the normal manner using the hose and a toilet brush.

When using a hand-held shower hose, and particularly when pouring water from any container into the Naturum, it is essential to be careful with the amount of water, bearing in mind that the fluids' funnel cannot dispose of more than its size allows, or it may overflow.

Washing liquids with an abrasive content should not be used on plastics, because they will scratch the surface, causing unsightly marks.

If necessary the seat-bowl may be lifted off and washed, likewise the area around the opening to the composting drum and the fluids' funnel. (Figures 1 and 2)

The shutter-seal is easy to lift off for checking and cleaning. (Figure 3)

If the shutter seal is not completely closed, too much fluid may enter the compost, causing disturbance in proper functioning.



2. If needed, the area around the opening to the composting drum may be washed with a wet WC or washing-up



3. The shutter-seal may also be removed for cleaning.

Addition of absorbent material

The continuous use of an absorbent material is essential with the Naturum. By this means the composting process may be controlled and a suitable composition achieved for the mass. A good absorbent is unfertilized milled peat, but you may wish to try out some other similar materials, such as sawdust, chippings, chopped straw, finely chopped branchwood, or mixtures of these.

*When using peat moss as an absorbent it should be added at the rate of **1 litre/person/week**.*

It is unnecessary to add absorbent after every use, the dosing once a week being sufficient.

Emptying

Open the cover in the "seat back". Close the emptying container with its cover and pull it out. (Figure 4) Empty the container into a composter suitable for garden or household refuse. After emptying return the container to its correct position and remove its cover.

The interval between emptying is normally about three weeks for a four person family, but you may empty more frequently if desired. It is not necessary to wash out the container.

It is recommended that the output of the Naturum should be composted further for at least a period of six months, along with domestic or garden refuse. It may be spread under the bushes or trees, or hoed into the surface soil of your garden. The use of the compost for food productive plants requires further composting.

The delay periods necessary for the utilisation of urine are only a few days, particularly when a special purpose subsurface container with a settling tank is used.

Service requirements

If the pedal action seems stiff or the mass seems to be sliding in the drum, first ensure that the emptying container is not full. If the compost is too damp, due to e.g. the accidental passage of water or the use of too little absorptive material, add dry absorptive material to the extent of 2 litres at a time and monitor activity. Note that quite large amounts of water may condensate upon the walls of the

composter and on the insulation of the emptying container, and may even flow down to form a small puddle at the bottom of the drum. This is quite normal, and merely indicates that the circulation of water within the composter is occurring as it should. When operating the pedal, it is quite normal that the sound of the falling of masses within the drum be heard.

Replacement air

Any draught caused by e.g. a kitchen stove fan, fireplace or sauna is liable to cause a drop of pressure in the home. This may cause replacement air to travel downwards through the ventilation pipe of the Naturum and into the home. This should not be a problem, since a properly functioning Naturum does not give off smells, just the sweet scent of compost soil. However, it is recommended that replacement ventilation air be also available from elsewhere. A window left open a crack, with the toilet door closed, ought normally to be sufficient.

The prevention of possible insect problems

The construction of the Naturum does not favour the entry of flies or other insects. Temperatures above 40°C repel or kill insect larvae in any case. However, it is worthwhile taking a few simple precautions. The ventilation pipe should have an insect net of the correct density installed, and not at the peak outlet, because it may freeze over.

Another precaution worth taking is to place a fly paper at the spot where the pipe transits a lighted space, for example the room immediately above.

If you have trouble with insects and the temperature is not rising above 40°C, you may wish to spray inside the drum with a pyrethrine insect poison.

When using water

Water should not enter the composter drum. When washing or using the handshower ensure that the seal at the base of the seat-bowl is in its closed position. If however, water

gets into the drum, *dry* absorbent material should be added, and the situation watched. Add more absorbent if the pedal still seems to be heavy when pressed.

Your experience is valuable

Although the Naturum is indeed an example of advanced natural composting toilet technology, the device operates only as well as its user is able to use it. Get used to observing the operation of your Naturum, and you will rapidly learn its secrets.

The Biolan company's development group aims to develop the Naturum to be ever better and safer, and those user experience are valuable. We would like to hear from you!

Accessory if necessary:

- *electric fan to ensure draught in unfavourable conditions*

Please do not put into Naturum the following:

- *cigarette butts*
- *burning objects*
- *sanitary towels*
- *napkins*
- *ash*
- *sand*



4. Close the emptying container with its cover before pulling it out.

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