

BIOLAN®

INSTRUCTIONS FOR INSTALLATION, USE AND MAINTENANCE

Date of manufacture	Assembler
Date	Buyer
Stamp and signature of seller	

Separating Dry Toilet

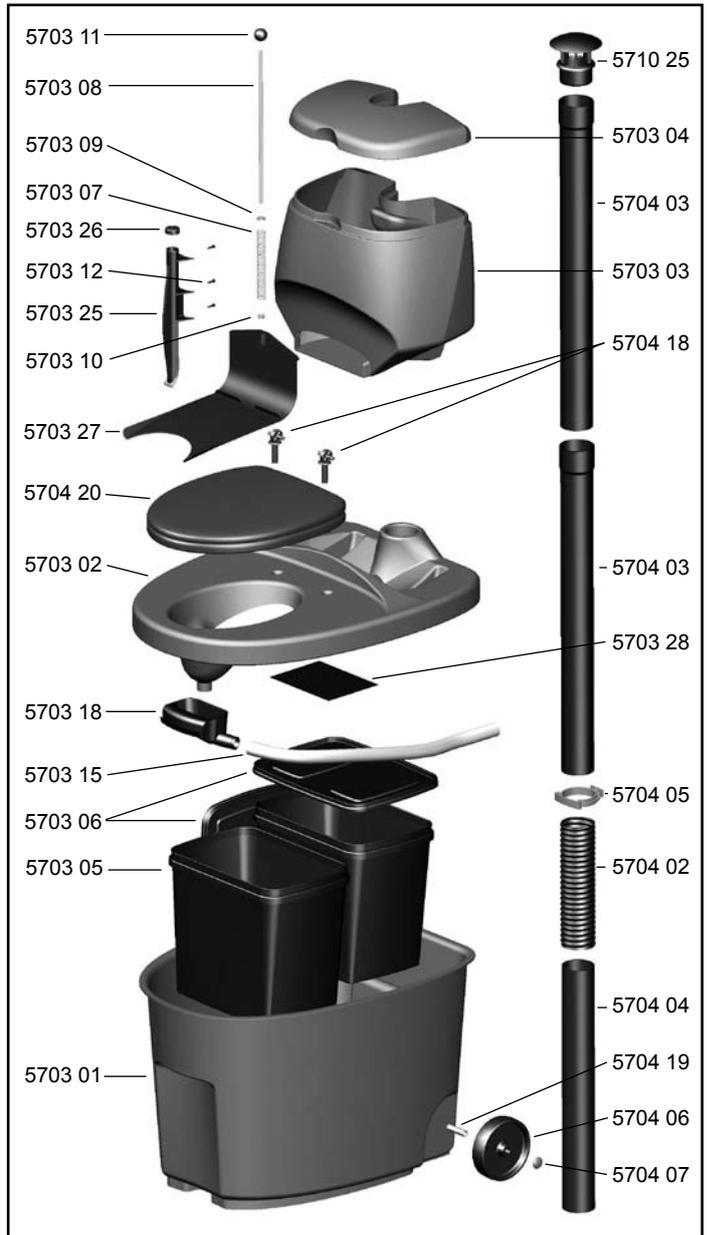


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Components of the Biolan Separating Dry Toilet

Part No.	Component title	Material
5703 01	Toilet tank	Polyethene
5703 02	Top	Polyethene
5703 03	Bedding container	Polyethene
5703 04	Cover for bedding container	Polyethene
5703 05	Inner receptacle	Polyethene
5703 06	Cover for inner receptacle	Polyethene
5703 07	Batcher spring	Stainless steel
5703 08	Batcher rod	Stainless steel
5703 09	Rod washer	Stainless steel
5703 10	Rod nut	Stainless steel
5703 11	Batcher knob	Polyethene
5703 12	Attachment screw for batcher, 3 pcs.	Stainless steel
5703 15	Removal pipe	Polyethene
5703 18	Liquid funnel	Polyethene
5703 25	Batcher frame	Polyethene
5703 26	Batcher plug	Polyethene
5703 27	Batcher sheet	Polyethene
5703 28	Guide plate	Polyethene
5704 02	Flexible ventilation pipe	PVC + steel
5704 03	Ventilation pipe 750 mm, 2 pcs.	Polyethene
5704 04	Ventilation pipe 600 mm	Polyethene
5704 05	Pipe bracket	Polyethene
5704 06	Wheel	Polyethene
5704 07	Lock ring	Stainless steel
5704 18	Hinge pins, 2 pcs.	Polyethene
5704 19	Rod	Steel
5704 20	Thermal lavatory seat	Polypropene
5710 25	Ventilation pipe cap	Polyethene



Delivery of the Biolan Separating Dry Toilet includes all the parts listed on the component list. In addition The Installation, Use and Maintenance Instructions, a bag of Biolan Komposti and Huussi Dry Bedding is included in the delivery.

BIOLAN SEPARATING DRY TOILET

The Biolan Separating Dry toilet is a toilet unit to be either placed indoors on the floor surface or in a separate toilet building. The operation of the Separating Dry Toilet is based on separation of the solid waste and liquid in the seat part. The toilet requires neither water nor electricity supply.

1. Planning and installation

While building and selecting the location for the Biolan Separating Dry Toilet, it is essential to provide sufficient space for use and maintenance of the toilet. Also, the ventilation pipe must be conducted without any bends through the roof above the ridge. The liquid shall be collected in a closed tank to be utilized later, or treated together with other wastewater from the estate, or forwarded to the wastewater treatment plant. When dimensioning and selecting the location for the liquid tank, you need to take into account that daily amount of liquid from the separating toilet is 1-1,5 litres per user. Post-treatment of the solid toilet waste and selection of the location must also be carefully planned in order to enable easy servicing of the unit.

Technical specifications

- length 78 cm, width 59,4 cm
- sitting height 53 cm
- height 85 cm, 98,5 cm to the batcher's knob
- weight about 16 kg
- inner receptacle 28 l, 2 pcs.
- external diameter of the ventilation pipe 75 mm
- external diameter of liquid removal pipe 32 mm

1.1 Placing the Separating Dry Toilet in the toilet space

Place the Separating Dry Toilet at a level position on the floor surface. When selecting the location for the unit, the space required for ventilation, the liquid removal system and maintenance of the unit needs to be taken into account.

1.2 Installing the ventilation pipe

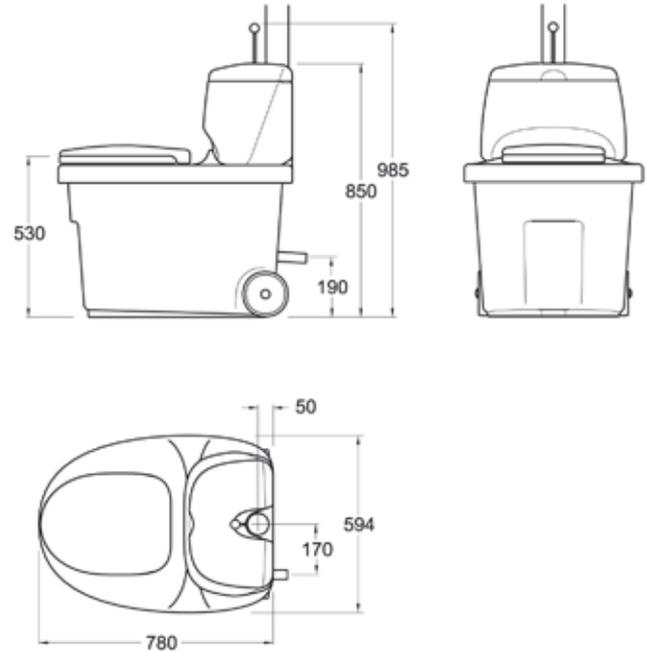
The ventilation pipe is led from the toilet unit straight up above the roof ridge. Any bends in the ventilation pipe impede natural ventilation, causing odour problems. The ventilation pipe is joined up in accordance with the component picture on page 2 and the lead-through on the roof is sealed using sealant suitable for the roofing material. As required, the ventilation pipe can be extended using a sewage pipe 75 mm in diameter.

In complicated installations, or if the toilet is being built in connection with living quarters, it is recommended that the ventilation be ensured using the separate Biolan Exhaust Ventilator (5754) or the Biolan Wind Ventilator (5725). The Exhaust Ventilator is available as an option and, as required, it can be retro-fitted (see p. 6 for the optional equipment).

The flexible ventilation pipe (5704 02) is easiest to install when it is warm, using a screwdriver as a stretching aid. As necessary, the surfaces can be made slippery using, for example, dishwashing detergent.

1.3 Conducting the liquid away after separation

After separation the liquid is conducted from the toilet unit into either the liquid tank or the wastewater disposal system. During installation, provide the required gradient to enable unobstructed flow of the liquid all the way down. Depending on the installation location, the lead-through can be accomplished as a sewer, a lead-through pipe through the wall or the floor. The diameter of the toilet unit liquid hose is 32 mm. Sewer pipe parts or a hose 32 mm in diameter are suitable for conducting the

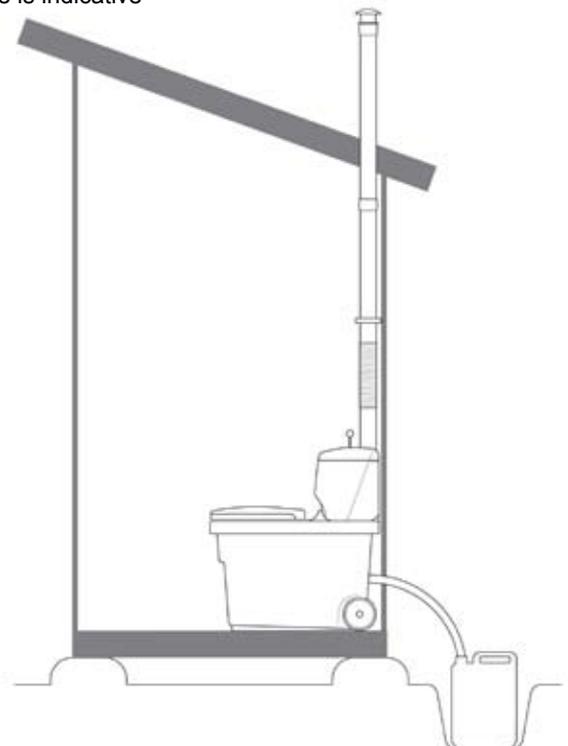


liquid away. We recommend using a coupling sleeve at the pipe or hose joint.

The toilet unit has no drain trap. If the liquid is conducted into a tank, the hose must extend all the way to the bottom, in which case the surface of the liquid in the tank makes a drain trap in the hose. Thus the air cannot flow from the liquid tank back to the toilet unit. If the liquid is conducted to the sewer system, then ventilation of the sewer system and the toilet must be explicitly taken into account during planning.

Example picture of installation

the picture is indicative



2. Use and maintenance of the Biolan Separating Dry Toilet

The Separating Dry Toilet must be used and maintained in accordance with the instructions. This makes use and maintenance of the toilet more pleasant. Separation of the liquid and the solid waste requires that the Separating Dry Toilet must always be used in the seated position. When operating the unit for the first few times, the users should verify that their own seating distance and habits are suitable for it. Guests should also be instructed on how to use the toilet.

The Separating Dry Toilet is intended for composting toilet waste also including toilet paper. Do not put into the toilet anything that could hamper post-treatment of the toilet waste, such as:

- debris, sanitary towels
- chemicals, lime
- detergents, wash water
- ash, cigarette butts

2.1 Before use

Put a couple of centimetres thick layer of the Biolan Komposti and Huussi Dry Bedding on the bottom of the foremost inner receptacle (5703 05). Fill the bedding container (5703 03) with the bedding.

2.2 Using Dry Bedding

The bedding batcher is located in the bedding container at the rear of the toilet unit. It is operated by depressing the batcher's knob. The dry bedding does not need to be added every time the toilet is used; adding it after defecation is sufficient.

Applying suitable dry bedding is essential for proper operation of the toilet. We recommend using Biolan Komposti and Huussi Dry Bedding which absorbs odours efficiently and keeps the waste well-aired.

2.3 Year-round use of the toilet

A toilet, installed in a warm space, can be used around the year. This requires that when installing the toilet in a cold space, thermal insulation of the ventilation and the liquid removal systems must be taken into account.

A toilet, installed in a cold space, can freeze during winter. The toilet unit is manufactured of frost-proof polyethylene, so freezing does not damage it. A toilet, located in a cold space, can be used occasionally during winter. If the liquid is collected in a canister, the canister must be emptied in the autumn in order to avoid damage caused by freezing of the liquid. If the bedding in the container is moist, it may freeze during winter. Thus the batcher of the bedding will not work and the bedding needs to be added manually.

2.4 Emptying the inner receptacle

There are two separate inner receptacles inside the tank of the Separating Dry Toilet. Only one of them is used at a time. When one of the receptacles fills up, it is moved to the rear part of the unit and the other receptacle is put into use. As required, the surface of the waste can be levelled using, for example, a stick. The covers for the inner receptacles are intended for use while transporting the receptacles for emptying. Leave the cover ajar when storing. Once both the toilet receptacles have filled up, empty the one that filled up first into the compost.

Disconnect the ventilation pipe (570404) of the toilet from the top of the unit for emptying. Turn the top part of the toilet unit

to the side or lift it away to enable the inner receptacles to be lifted out. There is no need to wash the inner receptacles when emptying them.

While putting the inner receptacles back, make sure that the receptacle that will be used is in the correct location against the separating bowl. Put a couple of centimetres thick layer of the Biolan Komposti and Huussi Dry Bedding on the bottom of the receptacle.

Refer to page 5 for instructions for composting the solid waste from the Separating Dry Toilet.

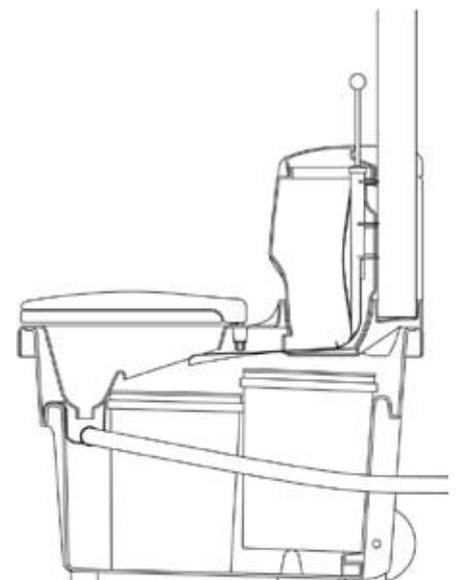
2.5 Emptying the liquid tank

Empty the liquid tank when necessary. The emptying intervals are determined by the size of the liquid tank and by how often the toilet is being used. One person produces 1-1,5 litres of liquid daily.

The liquid, rich in nutrients, in particular nitrogen, can be utilized as fertilizer in the yard and garden. Although urine is sterile, it is recommended to keep it in storage for about a year before using it in the garden. A small amount of undiluted liquid can be used as a source of nitrogen for the garden compost and the compost of separated toilet waste. Optionally the liquid can be taken to the wastewater treatment plant. More about utilization of urine on page 5.

2.6 Cleaning the Separating Dry Toilet

The Separating Dry Toilet must be washed and cleaned when needed. Any common domestic cleaning agents can be used for cleaning. The toilet can be dismantled to enable proper cleaning. Wash the liquid bowl in the seat ring, the liquid funnel (5703 18) and the removal pipe (5703 17) with warm water and mild detergent or crystallized sodium at least once a year to remove any precipitate the urine has formed.



3. Problems that may occur

3.1 Odours and moisture

No odour problems occur in the Separating Dry Toilet provided that it is installed and used in the correct manner. If odour problems occur, check that:

- there is no liquid on the bottom of the toilet tank (5703 01). If liquid exists, check the removal hose connection for tightness and wash the tank to eliminate the odour. Make sure that the foremost inner receptacle is correctly positioned against the rim of the separating bowl.
- the ventilation pipe leading from the toilet unit to the roof, is straight and extends above the roof ridge. If the ventilation pipe is not straight or does not extend above the roof ridge, you should repair the installation or improve the ventilation by installing a separate Biolan Exhaust Ventilator or a Biolan Wind Fan (see page 6).
- the hose leading to the liquid canister extends to the bottom of the canister. Thus the surface of the liquid in the canister forms a drain trap in the hose, preventing air-flow from the canister towards the liquid bowl.
- the connection of the hose to the canister is tight. If the air can flow out between the liquid hose and the cap, the air-flow

can circulate from the canister in the direction of the bowl, causing odour.

- the waste in the inner receptacles is always covered by the Biolan Komposti and Huussi Dry Bedding.

3.2 Insects

Insects do not normally exist in the Separating Dry Toilet. But if, for example, flies appear in the toilet unit, empty both receptacles into a compost and then wash them. Use pyrethrin-based spray to do away with any flying insects in the toilet space. At the same time, check that:

- the waste in the inner receptacles is always covered by the Biolan Komposti and Huussi Dry Bedding.
- the ventilation pipe leading from the toilet unit to the roof, is straight and extends above the roof ridge. If the ventilation pipe is not straight or does not extend above the roof ridge, you should repair the installation or improve the ventilation by installing a separate Biolan Exhaust Ventilator or a Biolan Wind Fan (see page 6).

4. Composting the toilet waste

The waste emptied from the Separating Dry Toilet always requires composting before it can be utilized. The toilet waste can be composted together with garden waste and domestic waste. While composting, observe the local regulations on waste handling and consider sufficient protective distances to neighbours, wells and bodies of water.

Organize the composting so that no liquids seep from the compost into the soil. The Biolan Garden Composter or the Biolan Biolan Stone Composter (page 6.) are well suited to the purpose. For hygienic reasons, the toilet waste must be composted for at least a year before application to edible plants. Burying waste in the ground is prohibited.

The micro-organisms in the compost decompose organic matter under aerobic conditions. After the composting has continued for 1–3 years the result will be compost soil. To ensure that the composting is efficient, the living conditions of the micro-organisms must be taken care of. The basic requirements for

compost are the presence of oxygen, moisture and nutrients.

The micro-organisms in the compost live in the water, so the compost must be suitably moist. The solid waste from the Separating Dry Toilet is relatively dry and also poor in nitrogen compared with the Dry Toilet where urine and solid matter are placed into the same tank. Therefore, the compost needs to be dampened with water or separated urine, which also make it a good source of additional nitrogen in the compost. To ensure that the compost is mellow, coarse bedding or branch chaff are used in layers among the waste. A compost that is too tightly packed or too wet is anaerobic and starts to rot and smell.

After the addition of toilet waste or liquid, carefully cover the surface of the compost with bedding, garden waste or peat. To enable proper composting of all the ingredients of the compost, turn over the compost at least once during the summer. Toilet waste, composted with care, makes excellent matter for soil improvement for plants, bushes and trees.

5. Utilization of liquid

Separated liquid can be utilized as is as nitrogen fertilizer or, diluted with water, for, for example, lawns, ornamental bushes and perennial plants. In the spring, in connection with the initial fertilization, it can also be used for a vegetable plot but during the growing season it must not be applied to green vegetables. The recommended storage time for urine is about one year before it should be used in the garden. Do not apply urine to the plants in the autumn in order to avoid disturbing preparation of perennial plants for winter.

A safe dilution ratio is 1:5, which means one litre is diluted with five litres of water. Undiluted urine can also be used, but the area must then be carefully watered after the application to avoid early blight. It is best to carry out the application when it is cloudy, either early in the morning or late in the evening.

Evaporation of nitrogen and the odour-related problems are at minimum. In a kitchen garden 1-1,5 l/m² undiluted urine can be applied during the growing season.

Liquids rich in nutrients must not be allowed to enter soil as they cause excessively concentrated nutrient load.

Please consult your local waste advisor for regulations on composting.

Biolan accessories

Biolan Komposti and Huussi Dry Bedding

Biolan Komposti and Huussi Dry Bedding is a blend for composting and dry toilets. It is made of dried, clean conifer bark and peat. Komposti and Huussi Dry Bedding gives the compost an airy structure, which ensures effective and odourless composting.

Package 40 l. Product no. 5621
Package 135 l. Product no. 5620



Biolan Wind Fan

The Biolan Wind Fan is a wind-powered exhaust fan. It is ideal for improving the ventilation of dry toilets and other locations that require good ventilation. Only a slight breeze is needed to improve ventilation significantly. Fits to a pipe of 110 mm or 75 mm in diameter.

Product no. 5725



Biolan Exhaust Ventilator

The Exhaust Ventilator is designed to improve ventilation of the dry toilet in complicated installations. Use of the ventilator is recommended where, for example, the air outlet pipe needs to bend and curve, which impairs natural ventilation. The couplers of the fan fit directly to a pipe 75mm in diameter, so it is easy to install to the air outlet pipe of the Biolan Separating Dry Toilet. The output of the ventilator can be adjusted. The ventilator operates with a voltage of 12 V.

Product no. 5754



Biolan Garden Composter

The Biolan Garden Composter is intended for composting of garden and toilet waste. Equipped with the bottom basket, which is available as an option, it is also suitable for composting domestic waste. Colour: green. Volume about 900 litres. Dimensions: 154 x 92 x 106 cm (w x h x d). Dimension of the bottom basket: 154 x 5 x 107 cm (w x h x d).

Product no. 5720



Biolan Stone Composter

The Biolan Stone Composter is a lightly thermo-insulated Finnish composter, for garden, domestic and toilet waste. The composter is strongly built and weatherproof. Its hinged cover makes daily use easier. Colour: red granite and grey granite. Volume about 450 litres. Dimensions: 114 x 95 x 95 cm (w x h x d). Weight 19 kg.

Product numbers: red granite 5731, grey granite 5732



Matters related to the guarantee

The Biolan Separating Dry Toilet has a guarantee of one year.

1. The guarantee is valid from the date of purchase and covers possible defects in material and workmanship. The guarantee does not cover possible indirect damages.
2. Biolan Oy retains the right to decide about repairing or replacing the damaged part at its discretion.
3. Any damages resulting from careless or forcible handling of the device, failure to observe the Operating Instructions, or normal wear are not covered by this guarantee.

For matters related to the guarantee, please consult Biolan Oy directly.

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