



## THE CONVERSION UNIT

The Original Septic Tank Conversion System

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MANTAIR TCU 2.1

# THE CONVERSION UNIT

The Original Septic Tank Conversion System

The Mantair conversion unit is a sewage treatment system specifically designed to fit within an existing septic tank or cesspool, effectively converting the existing tank into a small sewage treatment plant producing a clear, odourless and harmless effluent. The Mantair unit provides a discreet, reliable and affordable solution to sewage treatment for domestic dwellings and small scale commercial premises without mains drainage where existing tankage is present.

The Mantair unit is ideal for situations where the existing septic tank is discharging untreated effluent to a watercourse or where a soakaway has failed.

The Mantair unit is also ideal for converting Cesspool holding tanks, removing the need for frequent emptying.

“As the original pioneers of the conversion unit concept in 1988, Mantair is still today the market leader in the field of septic tank conversion and upgrades. With over 5000 units installed throughout the UK, Ireland, mainland Europe and West Africa, the MANTAIR unit is regarded by many Regulators and Specifiers as the reliable ‘in tank’ septic tank conversion unit. The Mantair unit has been used on varying applications including National Trust Nature Reserves, SSSI and RAMSAR Sites.”

## KEY FEATURES & BENEFITS

- Accepted by the Environment Agency for discharge to natural watercourse under Permit Certification.
- Utilises the existing tank and fits through the manhole opening, providing a quick and efficient installation procedure.
- No disruptive excavations required, avoiding the disturbance to established gardens.
- No electrical pumps or motors installed within the underground treatment zone, providing lower maintenance and servicing costs.
- Efficient air blower is economical with low running costs.
- Works in high water table areas.
- Installations have a Lifetime Process Guarantee.
- Produces a treated effluent in compliance with the Regulating Authorities.

## THE PROCESS

Once installed, the Mantair unit separates the existing tank into two compartments / zones. The majority of the existing tank is transformed into an Aeration/Mixing Zone. Air is supplied to this zone via an aerator contained within a draught tube. Within this zone the aeration and mixing encourages the growth of aerobic micro-organisms which degrade the sewage.

The contents of aeration / mixing zone where the micro-organisms are maintained in suspension are referred to as ‘mixed liquor’. As further flow enters the tank, part of the mixed liquor is displaced into the second compartment, referred to as ‘the final settlement zone’. Here the micro-organisms separate and form a thin sludge.

This is continuously returned to the aeration/mixing zone, thus maintaining the levels of micro-organisms in the mixed liquor.

The liquid which remains in the upper part of the final settlement zone is the treated effluent which is discharged from the Mantair unit via the Final Effluent Airlift. The final effluent airlift controls the rate of discharge from the system and prevents any shock hydraulic loads from upsetting the treatment process. The use of an airlift enables the Mantair unit to discharge the effluent at a higher level than the tank inlet.







## HOW IT WORKS

The Mantair unit is powered by a small air blower, which can be located in either an existing outbuilding or in a small remote housing. The blower can be located up to 25 metres from the Mantair unit and is powered by domestic 240v electrical supply. It is connected to the Mantair unit by a small bore MDPE pipe concealed underground. The blower provides the air that is required for the treatment process and to lift the treated effluent to the discharge point.

*“Mantair conversion units are designed to treat domestic sewage and to achieve a final effluent standard that complies with the Environment Agency’s requirements for discharge to a natural watercourse.”*

## MODEL SELECTION

The Mantair unit is available in population equivalents of (PE) 5 – 25. When sizing a sewage treatment system the British Water Flows & Loads Code of Practice should be used.

PE	Maximum Flow (Litres/Day)	B.O.D. Load (kg/Day)	Air Blower Rating (Kw)
5	1000	0.300	0.086
7	1400	0.420	0.086
10	2000	0.600	0.100
12	2400	0.720	0.120
15	3000	0.900	0.120
20	4000	1.200	0.200
25	5000	1.500	0.200



## EUROPEAN STANDARD EN12566-3

EN12566-3 is the European Standard for “packaged sewage treatment plants” up to 50 population equivalent. An integral part of the test procedure is structural testing of the packaged plant tankage. As the Mantair conversion unit does not include new tankage, it cannot be tested and EN12566-3 is not applicable.

As there is not a European Standard for ‘in tank’ Conversion Units it is not possible for them to obtain a CE Mark. However, all components used in the manufacture of the Mantair conversion unit comply with the relevant European Standard.

The Environment Agency recognises the Mantair conversion unit as a sewage treatment system, and issues Permit Certificates authorising the discharge from the system to be direct to natural watercourses.

The Mantair unit should not be confused with other products marketed as ‘conversion units’ which involve the installation of additional tankage downstream of the existing septic tank. As new tankage is required these products can be tested under the European Standard. These products however do not ‘convert’ the existing septic tank, but provide biological treatment in additional tankage.



# MANTAIR

*Mantair Ltd is a family owned British company which specialises in the manufacture, installation and servicing of wastewater treatment products for areas not serviced by 'mains drainage'.*

The Mantair brand has been providing consumers with reliable, sustainable and economical drainage solutions for over two decades and continues to provide a professional service using modern technologies.

## INSTALLATION & COMMISSIONING

The Mantair conversion unit is supplied and installed by the Mantair Contracts Division and network of Mantair Licensed Contractors. They are not available through wholesale or retail outlets.

Our engineers and licensed contractors ensure care is taken at all times during delivery and installation of the wastewater treatment product to negate the potential of any damage. At all times during the contract the client is kept informed of progress. On final commissioning of the treatment plant the site is left in a clean and tidy condition.



## MAINTENANCE & SERVICING

Maintenance of the Mantair unit is simple, and comprises the renewal of the air blower inlet filter and flushing through of pipe work and components. Regular maintenance is essential to ensure the efficient operation of the Mantair system. Typically, the Mantair unit will require emptying by vacuum tanker at approximately twelve month intervals, depending on usage.

The Mantair Maintenance Division together with our network of Licensed Contractors offer a full after sales service, including planned maintenance visits.



## CONTACT MANTAIR

For further information and advice on selecting the appropriate wastewater treatment system for your situation, contact MANTAIR for professional and friendly assistance.

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## LICENSED CONTRACTORS

All Licensed Contractors offer a comprehensive service. This includes an initial site survey, guidance and advice on system selection, complete installation and commissioning of your treatment plant and full after sales service.