Uni:Gem★

Unique septic tank to sewage treatment plant conversion unit

CE

AN INDUSTRY FIRST
Compliant with 2020 general binding rules

MARSH

Overview

Marsh Industries' latest innovation, the Uni:Gem★, is a unique septic tank conversion unit which exceeds EN12566-3 / EN12566-6 standards and conforms with 2020 General Binding Rules (GBRs for septic tanks or small sewage treatment plants for domestic use).

Positioned behind any existing septic tank the Uni:Gem★ treats the septic tank discharge to an effluent quality of BOD 12.25:TSS 16:Ammonia 14.845 mg/l (The UK Forward is less than BOD 20:TSS 30: Ammonia 20), meaning final effluent can be discharged safely to a river, ditch or watercourse.

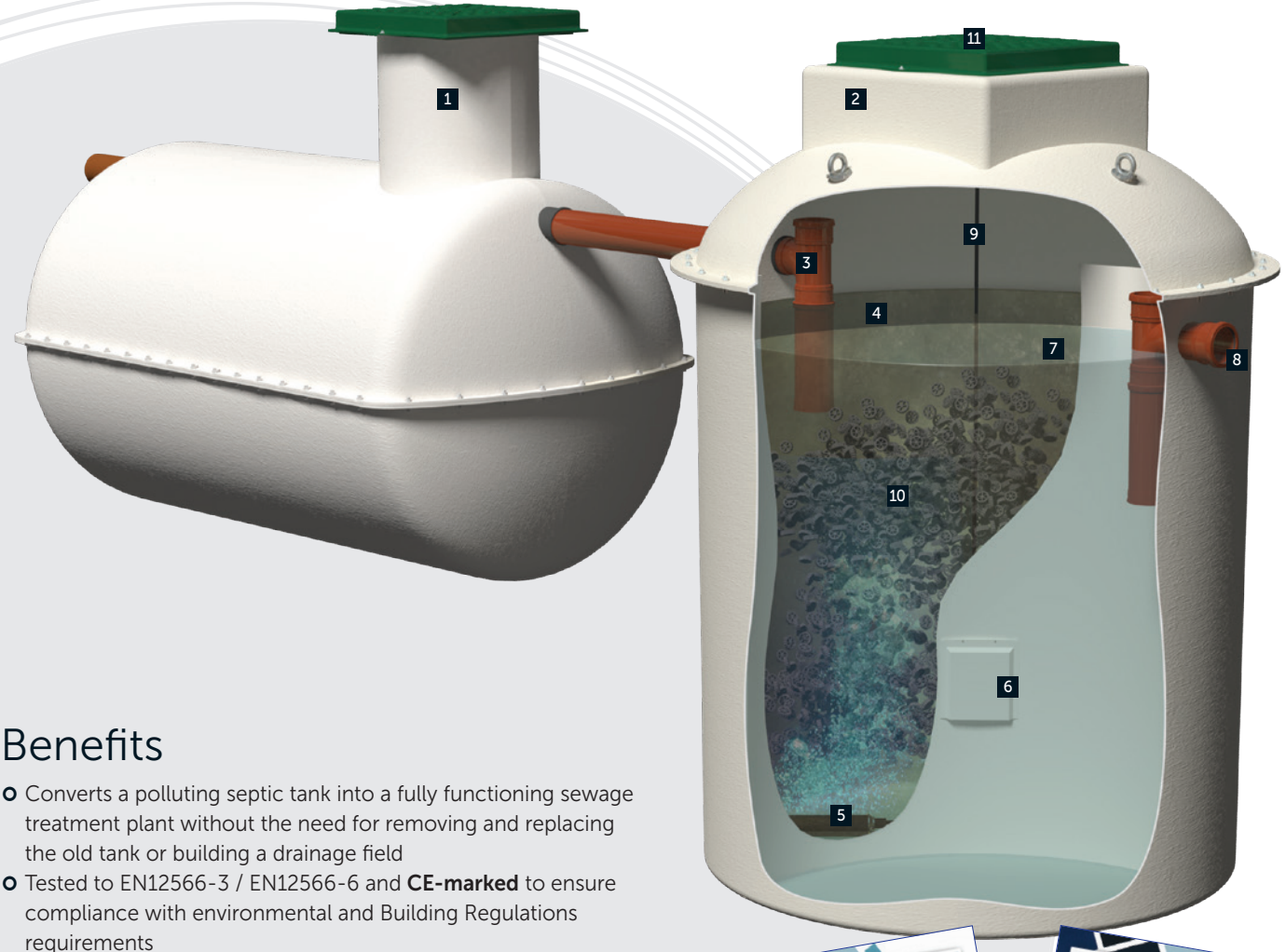
The Uni:Gem★ provides notable benefits for existing septic tank owners, particularly those who need to upgrade or replace their septic tanks before 1st January 2020.

Operating principle

Effluent from the existing septic tank or sewage treatment plant is transferred to the Uni:Gem★ unit and enters the aeration chamber where it is treated to remove dissolved constituents. Here aerobic bacteria, supported by diffused air and mobile media, ensures full treatment is achieved before the treated effluent (and 'sloughed off' bacteria) flows to a final settlement chamber prior to discharge.

Key

1 **Existing septic tank**
2 **Uni:Gem★ tank**
3 Inlet
4 Aeration chamber
5 Air diffuser
6 Transfer to final settlement
7 Final settlement
8 Outlet
9 Air diffuser feed
10 Bio media
11 Manway access

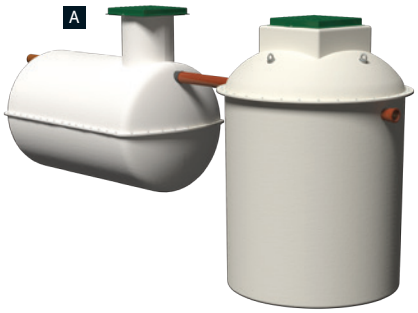


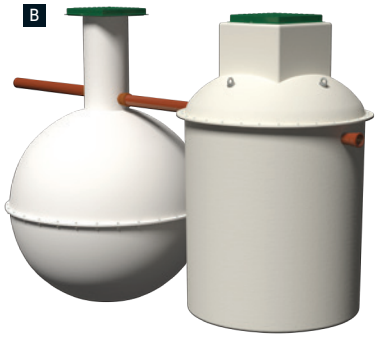
Benefits

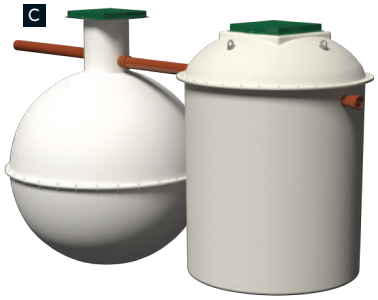
- Converts a polluting septic tank into a fully functioning sewage treatment plant without the need for removing and replacing the old tank or building a drainage field
- Tested to EN12566-3 / EN12566-6 and **CE-marked** to ensure compliance with environmental and Building Regulations requirements
- Outstanding effluent quality of **12.25:16:14.845 (BOD:SS:NH⁴)** ensures discharges well within national consent standards
- Tested and proven to be suitable for all ground conditions, all year round
- Provides a space saving solution for sites and where minimal disruption to surrounding obstructions is required
- Low energy compressor ensures minimal running, maintenance and servicing costs
- Quick and easy installation provides enormous cost-savings as well as health, safety and environmental benefits
- Offers simple and safe access for maintenance and cleaning
- Horizontal and vertical models available
- Integral lifting eyes for improved on-site handling
- Final effluent is clear and odourless

Specifications

Model	Width Ø	Height	Inlet		Outlet	
			Invert	Ø	Invert	Ø
A **UG-SCS Uni:Gem★ up to 6PE** *For shallow cylindrical septic tanks*	1512 1652 over flanges	2300	800	110	900	110
B **UG-SPH Uni:Gem★ up to 6PE** *For spherical 'onion-shaped' septic tanks*	1512 1652 over flanges	2540	1040	110	1140	110
C **UG-STP6 2800L septic tank Uni:Gem★ up to 6PE** *EN12566-6 complete package sewage treatment plant*	1870 1512 1652 over flanges	2300 2090	550 590	110 110	590 690	110 110







> Uni:Gem★ supplied with external compressor and compressor housing
> Check your septic tank outlet invert (ground level to the bottom of the pipe)
> Other sizes of Uni:Gem★ are available. Contact Marsh Industries for more information
> *For precise tank sizes and configurations, please contact Marsh Industries*
> *All dimensions in mm*

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2020 General Binding Rules

For decades, millions of septic tanks have been installed throughout the UK in rural and urban areas. Septic tanks are known to be ineffective at processing sewage to modern environmental standards, causing long-term damage to the country's natural water infrastructure and wildlife.

It was therefore inevitable that new rules and a code of conduct would be introduced to prevent the effects of wastewater pollution once and for all; The Environmental Permitting (England and Wales) (Amendment) (England) Regulations 2014 came into force on 1 January 2015 creating the General Binding Rules (GBRs) for septic tanks or small sewage treatment plants for domestic use. These rules are designed to reduce the level of pollution from sewage in the nation's watercourses.

The rules state that any existing septic tank discharging to surface water, ie, to a water ditch, stream or river, etc, must either be upgraded or replaced with a new package sewage treatment plant by 1st January 2020.

Marsh Industries, the leading UK manufacturer of package sewage treatment plants, produces over 3000 units per year. However the company's range of Uni:Gem★ septic conversion units is the only product available on the market which can treat wastewater from an existing septic tank without the need for a complete replacement product or drainage field upgrade.

To comply with the GBRs and current EN standards, the entire Uni:Gem range was redeveloped from the ground up and tested, not only to meet, but to exceed UK and International standards. The Uni:Gem★ was born – creating an **'industry first' 2020 compliant septic conversion unit** with outstanding processing performance.

The Uni:Gem★ range was tested in accordance with BSEN12566-3/A1:2009 and EN12566-6 standards at the PIA GmbH test facility in Aachen, Germany, over the course of 38 weeks with a daily loading of:

Flow: 900 litres/day BOD: 360g NH^4: 48g

Testing occurred between November 2018 and August 2019 to ensure all seasons were covered whilst minimum/maximum temperatures were tested to assure Ammonia and BOD process reduction for the UK climate. Holiday periods were also simulated during the test procedure.

Final test results yielded an output of 12.5:16:4mg/ltr (BOD:Suspended solids:Ammonia) that is well within national discharge consent requirements.

The Uni:Gem★ is an extremely cost effective solution for converting any polluting septic tank into a fully compliant sewage treatment plant ensuring homeowners, estate managers, water companies/amenities have an effective way to keep the environment clean whilst providing a quick and efficient installation process.

Structural integrity testing

Structural integrity tests, performed in accordance with EN ISO 179-1/1eA: 2010-11, were undertaken to evaluate the strength of Marsh Industries' GRP materials against similar GRP materials used by other manufacturers.

Three separate material samples were submitted for impact testing; Marsh GRP material (virgin unfilled resin), a GRP material containing calcium fillers and a GRP material containing sand filler.

The tests involved 12 samples of each material at a size of 80x10x5mm. The nominal pendulum energy was 15J at an impact velocity of 3.8m/s.

Results proved Marsh GRP material to be 40% stronger than the other materials tested.

Fire resistance testing

Fire resistance testing was performed to assess ignitability of products subjected to direct impingement of flame. Marsh Industries' GRP material passed all practical testing to achieve EN ISO 11925-2:2010 standard.

Also available from Marsh Industries

Ensign™

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Advanced sewage treatment plant

The Marsh Ensign is widely regarded as one of the most efficient, reliable and economical sewage treatment plants on the market.

Tested and approved to BSEN12566-3/A1:2009 all Ensign units provide treatment well within national consent requirements. Published test results of 11.5:19.2:8.4mg/ltr (BOD:suspended solids:ammonia), with influent concentrations on test higher than those chosen by most competitor plants, effectively equates to 97% pollutant removal.

Ranging in size from 4 to 50PE in Ultra, Standard and Shallow versions of each, and with a wide range of ancillaries, almost all site, consent and budget requirements can be met by units from the range.

Ultra:Polylok L™

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Sewage treatment plant

The Ultra:Polylok L draws upon Marsh Industries' extensive experience in the industrial and commercial sewage treatment sectors bringing its outstanding performance and value engineering to the domestic sector.

The Marsh UPL is available in 6PE and 12PE models, is approved to BS EN12566-3 and carries an impressive effluent quality of 20:30:20, within national consent standards.

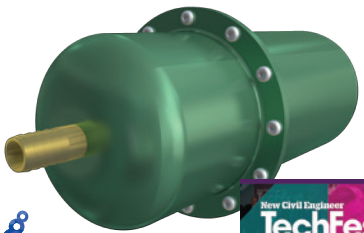
Both models are compact and easy to install, meeting the needs of installers and specifiers alike.

Whisspurr™

Acoustic Vibration Reduction (AVR) unit

Designed to reduce noise and vibration from diaphragm compressors used in the wastewater treatment sectors.

- Significantly reduces compressor volume and vibration, addressing concerns of noise pollution in rural areas
- No reduction in air pressure
- Requires no electrics
- Easy retrofit to existing compressors



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