Wastewater Treatment

Introducing the cutting-edge OneRange

Setting the standard

One2Clean

One2Clean Xtra

OneAdvanced

Wastewater Treatment

What is the OneRange?

ECO-EFFICIENCY AND PERFORMANCE REDEFINED

Discover the OneRange

The GRAF OneRange is our complete lineup of high-performance sewage treatment plants, built to suit everything from single homes to large commercial developments. At the heart of the range is the One2Clean system, our trusted, energy-efficient domestic system with no moving parts inside the tank. For homeowners looking for additional functionality, the One2Clean Xtra includes an advanced control panel for added features. For larger or more complex projects, OneAdvanced offers a modular, scalable solution with enhanced treatment options to meet strict effluent standards. No matter your project size, the OneRange delivers reliable performance, low running costs, and environmental peace of mind.

One2Clean

Our core domestic system, designed for simplicity and efficiency. With no mechanical parts in the tank, it offers low energy use, minimal maintenance, and consistently high treatment performance.

One2Clean Xtra

Everything you get with One2Clean, plus a little more. Optional extra features, including level measuring to manage system workload and remote system monitoring with upgraded panel.

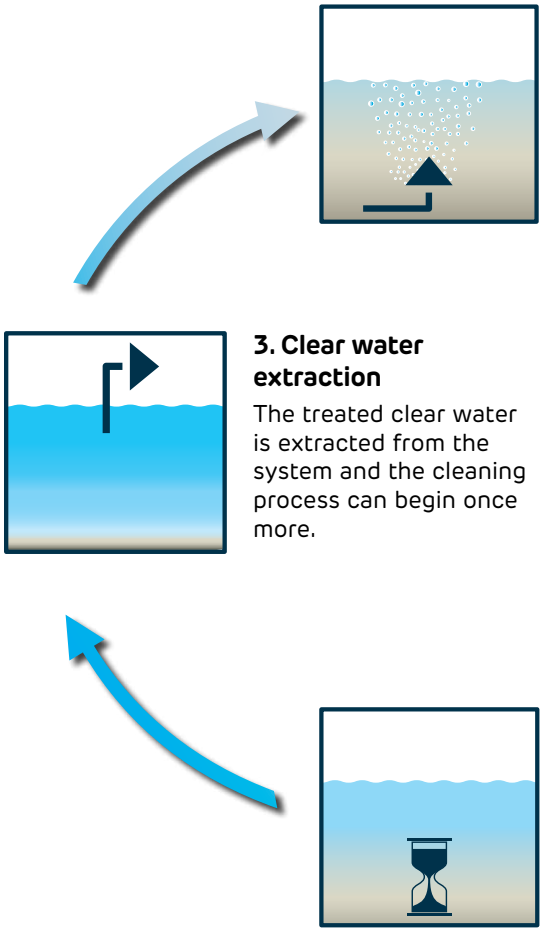
OneAdvanced

A flexible, modular system designed for larger or more complex projects. OneAdvanced scales up for commercial applications and offers a range of add-ons to meet strict discharge limits and requirements.

FREE COMMISSIONING SERVICE

GRAF UK will arrange **FREE** commissioning of your system by a GRAF accredited service provider who will register your system, activate your warranty and ensure it has been installed correctly.

How GRAF systems works



1. Wastewater treatment

The wastewater arrives directly in the biological zone without the need for pumping processes. Aeration of the entire container leads to immediate wastewater activation. The micro-organisms begin the biological cleaning process without delay.

2. Settling phase

Aeration is ceased by the control unit, the activated sludge sinks to the bottom. A clear water zone develops in the upper part of the tank.

3. Clear water extraction

The treated clear water is extracted from the system and the cleaning process can begin once more.

Incredibly low volume of sewage sludge

- Aeration of the entire wastewater tank
- Immediate wastewater activation
- Minimisation of sludge
- Less sludge removal
- Cost savings

Conventional wastewater treatment systems

one*2clean*

Low maintenance costs

- Simple construction
- High-quality components
- Maximum performance using optimised technology
- Integrated sampling point

Minimal power consumption

- No mechanical or moving parts inside the tank
- Economical motor valve
- Energy-optimised membrane compressor

EASY INSTALLATION

One2Clean Treatment Plant

- ✓ Only one tank with just one chamber required
- ✓ Less energy consumption and less wear
- ✓ No mechanical elements in the wastewater
- ✓ No pumps in the wastewater
- ✓ No electrical components in the wastewater
- ✓ Incredibly low volume of sewage sludge

ADVANCED TECHNOLOGY

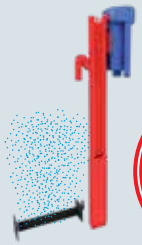
The go to treatment plant for Nutrient Neutrality.
Unrivalled effluent quality.

15 YEAR WARRANTY ON TANK

3 YEAR WARRANTY ON PARTS

50 YEAR DESIGN LIFE ON DESIGN

**1 year warranty following commissioning & 2 additional years if serviced annually.*



EFFICIENCY FACTOR OF UP TO 99 %

MINIMAL OPERATING COSTS

One*2Clean* set-up kit

- Conventional wastewater treatment systems require up to three pumping processes. One2Clean has no pumping process, which saves energy and extends the lifetime of the air compressor – the core part of the system
- Rugged clear water lifter manufactured in one seamless piece.
- Simple maintenance via an integrated sampling container

One*2Clean* system control

- The One2Clean has a compact controller
- The microprocessor control system ensures simple operation and maintenance

Wastewater tank

- Telescopic cover
- State-of-the-art manufacturing for maximum stability
- Suitable for vehicle loading in conjunction with telescopic vehicle dome shaft
- 100% watertight and corrosion-resistant
- Can be installed in groundwater

One2Clean Product Specification

The GRAF One2Clean biological wastewater treatment system features a user-friendly control panel for simplicity, and a design emphasising efficiency, quality and an energy usage starting from just 0.63kWh/d.

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Product code
5	750	0.3	3,750	2280	1755	1880	150	G50000
7	1,050	0.42	4,800	2280	1985	2110	185	G50002
9	1,350	0.54	6,500	2390	2190	2390	220	G50004
12	1,800	0.72	8,500	3500	2040	2515	380	G50200
15	2,250	0.9	10,000	3520	2240	2575	455	G50204
18	2,700	1.08	13,000	5380	2190	2390	440	G50010
19	2,850	1.14	13,000	4000	2420	2755	510	G50313

Treatment Performance

Nominal organic daily load (at a test influent of ≥ 300 mg/l BOD5 (mean)) = 0.27 kg/d Nominal hydraulic load = 0.75 m^3/day

COD		BOD_5		SS		NH_4N**		N_{tot}**		P_{tot}	
Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent
94.2%	43mg/l	98.0%	7mg/l	96.3%	14mg/l	98.3%	0.5mg/l	87.0%	7.9mg/l	80.2%	1.6mg/l

***determined for temperatures ≥ 12 ° C in the bioreactor*

One2Clean Xtra Treatment Plant

Building on the proven performance of our One2Clean system, One2Clean Xtra comes with added features designed to make life even easier for homeowners and installers. The system includes an advanced control panel that enables optional extras, giving you greater visibility over the system's performance. A sludge removal pipe is also an optional extra for domestic systems and comes standard for larger systems allowing for safer and cleaner desludging reducing the risk of dislodging or damaging internal components. These upgrades make One2Clean Xtra the ideal choice for those who want extra convenience, added functionality, and peace of mind.

15 YEAR WARRANTY ON TANK

3 YEAR WARRANTY ON PARTS

50 YEAR DESIGN LIFE ON DESIGN

**1 year warranty following commissioning & 2 additional years if serviced annually.*

One2Clean Xtra Product Specification

The GRAF One2Clean Xtra biological wastewater treatment system features a user-friendly control panel for simplicity, and a design emphasising efficiency, quality and an energy usage starting from just 0.63kWh/d.

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Product code
5	750	0.3	3,750	2280	1755	1880	150	G50400
7	1,050	0.42	4,800	2280	1985	2110	185	G50403
9	1,350	0.54	6,500	2390	2190	2390	220	G50406
12	1,800	0.72	8,500	3500	2040	2515	380	G50430
15	2,250	0.9	10,000	3520	2240	2575	455	G50433
19	2,850	1.14	13,000	4000	2420	2755	510	G50436
24	3,600	1.44	16,000	4590	2500	3160	890	G50450
32	4,800	1.92	22,000	6230	2500	3160	1085	G50452
45	6,750	2.70	32,000	8440	2500	3160	1430	G50454
50	7,500	3.00	38,000	9925	2500	3160	1630	G50456
60	9,000	3.60	44,000	11440	2500	3160	1840	G50458
70	10,500	4.20	48,000	12140	2500	3160	1970	G50460

System Add-Ons

- +K Control panel can be calibrated for under-loading.
- +C Carbon dosing (for holiday homes, etc)
- +P Phosphate removal
- +O Pumped outlet (IPS)
- +H Disinfection via UV light of Chlorine Dosing
- +R Remote Modem, LAN and GPRS options
- +D Denitrification package

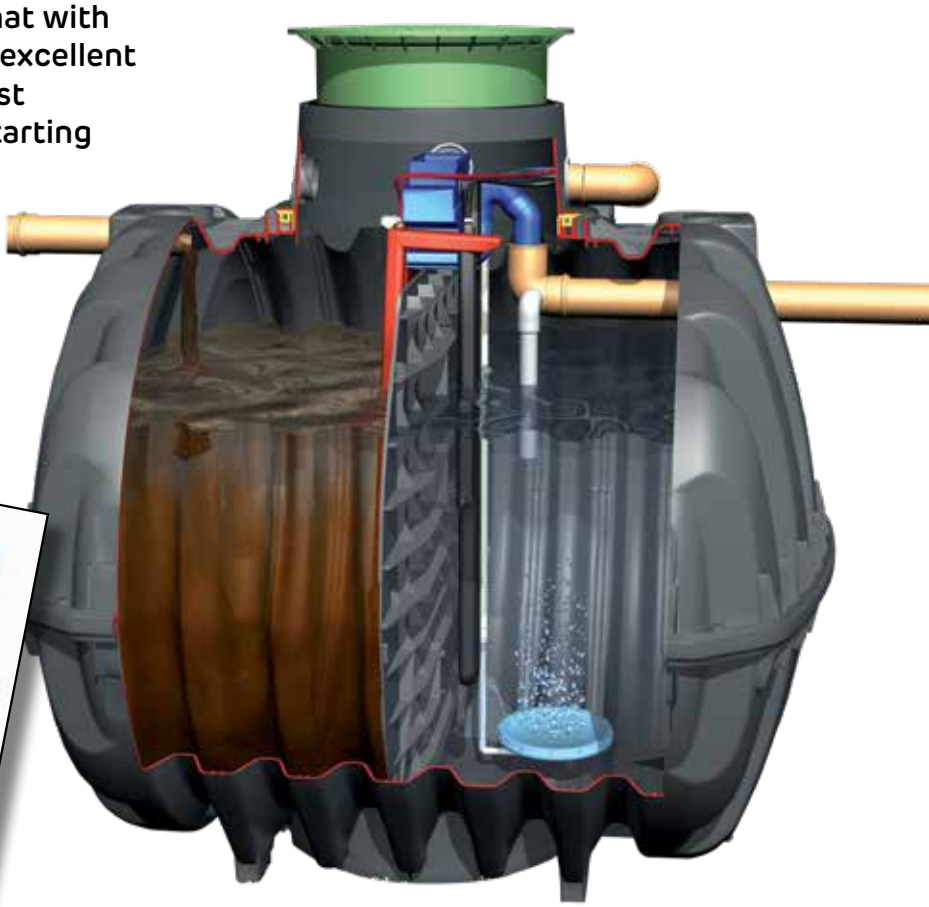
Treatment Performance

Nominal organic daily load (at a test influent of ≥ 300 mg/l BOD5 (mean)) = 0.27 kg/d Nominal hydraulic load = 0.75 m³/day

COD		BOD_5		SS		NH_4N**		N_{tot}**		P_{tot}	
Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent
94.8%	41mg/l	98.1%	7mg/l	96.6%	14mg/l	98.3%	0.5mg/l	87.0%	7.9mg/l	80.0%	1.6mg/l

OneAdvanced Treatment Plant

The GRAF OneAdvanced wastewater treatment system is available in sizes up to 1000PE and features an upgraded control panel that with the appropriate add-ons, can achieve excellent discharge quality, meeting the strictest requirements with an energy usage starting from just 0.95kWh/d.



Optional plug and play upgrades for the OneAdvanced systems

+K Convenience Package (Standard supply)
Underload detection by a pressure sensor.
Adapts number of batch cycles when inflow is low.
Especially relevant to larger commercial systems reducing compressor run times.

+D Removal of nitrogen
Standard denitrification (removal of nitrogen compounds) package. Achieving levels <20mg/l.

D+ Removal of nitrogen
Advanced denitrification (removal of nitrogen compounds) package. Achieving levels <15mg/l.

Combined D+ +C Removal of nitrogen
Advanced denitrification combining carbon dosing (removal of nitrogen compounds) package.
Achieving levels <10mg/l.

+P Phosphate removal package
Advanced phosphate removal package.
Achieving levels <0.4-1.0mg/l (subject to system size).

+C Carbon dosing package
Solution for holiday homes.
The addition of carbon as a nutrient allows the purification process to continue and prevents the biology from dying off.

+R Remote monitoring
WebMonitor – intelligent remote monitoring via access to control panel.
LAN and SIM card options.

+H Hygiene package
Offers the following tertiary treatments.
UV
Chlorine dosing
Sand filtration.

Advanced Technology

SBR technology – the modern approach to wastewater treatment.
Operational flexibility and excellent process control possibilities.
Optimising treatment processes.
Easily customised for bespoke design requirements.

Design Solutions

Offering bespoke design solutions for the most challenging projects.
Breweries
Distilleries
Dairies

Meeting Increasingly Stringent Environmental Discharge Standards

Nutrient Neutrality – phosphates and nitrates.
Ammonia
BOD
Suspended Solids

Product Quality

German engineering.

15 YEAR WARRANTY ON TANK
3 YEAR WARRANTY ON PARTS
50 YEAR DESIGN LIFE ON DESIGN

**1 year warranty following commissioning & 2 additional years if serviced annually.*

Sustainability

Low power consumption – Daily energy usage of your One Advanced treatment plant – from just 0.95kWh/d.

Reduced sludge growth – Longer de-sludging periods, lower annual volume of sludge removal.

Quiet operation – High quality compressors.

GRAF recycling plant – Supplying lightweight, high strength, injection moulded polypropylene tanks.

Gravel backfill – Versatile and cost effective option to concrete.

Customer service

Lifetime support – Customer support on your project from start to finish.

GRAFter network – Graf accredited service provider network for all your service and maintenance needs.

Treatment Performance

Nominal organic daily load (influent) = 0.39 kg BOD5/d
Nominal hydraulic load = 1.2 m3/day

COD		BOD_5		TN_b**		NH_4N**		P_{tot}**		SS	
Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent	Efficiency	Effluent
91.9%	51mg/l	95.9%	12mg/l	62.0%	21.1mg/l	65.6%	12mg/l	53.5%	3.8mg/l	94.4%	20mg/l

Advanced System Add-Ons

- +K Control panel can be calibrated for under-loading.
- +C Carbon dosing (for holiday homes, etc)
- +P Phosphate removal
- +O Pumped outlet (IPS)
- +H Disinfection via UV light of Chlorine Dosing
- +R Remote Modem, LAN and GPRS options
- +D Denitrification package

OneAdvanced Domestic and Small commercial Treatment Plant

OneAdvanced wastewater treatment one-tank systems

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Volume [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Product code
10	1,500	0.60	4,800	4,800	2280	1985	2110	185	G50138
14	2,100	0.84	6,500	6,500	2390	2190	2390	220	G50142

OneAdvanced wastewater treatment multi-tank systems

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Volume [l]	Length* [mm]	Width* [mm]	Height [mm]	Product code
22	3,300	1.68	9,600	2 x 4,800	5160	1985	2250-2450	G50024
28	4,200	1.92	13,000	2 x 6,500	5380	2190	2530-2730	G50026
35	5,250	2.10	17,000	2 x 8,500	15500	2040	2515-2715	G50028
40	6,000	2.40	20,000	2 x 10,000	15500	2240	1715-2915	G50030
50	7,500	3.00	26,000	4 x 6,500	11360	2190	2850-3050	G50032
60	9,000	3.60	26,000	2 x 13,000	11360	2190	2850-3050	G50034

Bringing modern SBR technology to the treatment of wastewater

Multiple line design –

Splitting load design into multiple lines that can run independently or combined. Lines can be shut down when not required which is ideal for dealing with large seasonal fluctuations in loading.

Modular design principle -

Future-proof longer-term projects.

Later phases added when project growth dictates.

Spreads capital expenditure over project duration.

Multiple design options –

Flexibility of SBR technology allows bespoke design solutions to meet your project requirements.

OneAdvanced XXL wastewater treatment systems

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Length [mm]	Width [mm]	Height [mm]	Product code
75	11,250	4.50	32,000	9900	2500	3300-3500	G50036
100	15,000	6.00	44,000	12900	2500	3300-3500	G50040
125	18,750	7.50	52,000	15000	2500	3300-3500	G50280
150	22,500	9.00	64,000	17700	2500	3300-3500	G50042
175	26,250	10.50	76,000	20450	2500	3300-3500	G50282
200	30,000	12.00	88,000	26400	2500	3300-3500	G50044
220	33,000	13.20	88,000	23480	2500	3300-3500	G50284
250	37,500	15.00	116,000	13300	8700	3300-3500	G50046
275	41,250	16.50	100,000	13400	8440	3300-3500	G50286
300	45,000	18.00	116,000	13300	8700	3300-3500	G50048
350	52,500	21.00	142,000	19900	5600	3300-3500	G50050
400	60,000	24.00	140,000	18040	7200	3300-3500	G50052
450/500	75,000	30.00	170,000	25130	6200	3300-3500	G50054
550/600	90,000	36.00	206,000	16200	11800	3300-3500	G50056
650/700	105,000	42.00	216,000	27500	5600	3300-3500	G50058
750/800	120,000	48.00	272,000	26200	8700	3300-3500	G50060
850/900	135,000	54.00	324,000	29100	8700	3300-3500	G50062
950/1000	150,000	60.00	348,000	30500	8700	3300-3500	G50064

Natural England and the Environment Agency's guide to nutrient neutrality

Nutrient neutrality

Nutrient neutrality is a policy aimed at controlling the levels of nutrients, particularly nitrogen and phosphorus, entering water bodies from human activities. Excessive nutrients from agriculture, wastewater, and urban runoff can cause environmental issues such as eutrophication, leading to algal blooms that damage water quality, biodiversity and ecosystems.

In the UK, this issue has become particularly important in areas with protected habitats, like Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which are governed by the Habitats Regulations. Natural England and the Environment Agency are key regulatory bodies involved in ensuring that new developments do not increase nutrient pollution in sensitive areas.

Natural England's role

Natural England is responsible for advising local planning authorities on protecting natural environments, particularly designated sites. It provides guidance on nutrient neutrality for new housing and other developments near sensitive water bodies.

Key points

- Guidance to Local Planning Authorities (LPAs): Natural England advises LPAs to ensure that development projects demonstrate nutrient neutrality, especially near vulnerable habitats.
- Nutrient budgeting: Developers must calculate the nutrient load (nitrogen and phosphorus) that their project will contribute to the water system.
  Natural England provides frameworks and tools to help assess these impacts.
- Mitigation: If nutrient neutrality cannot be demonstrated directly, mitigation measures must be proposed. This can include creating wetlands, woodland planting, or upgrading wastewater treatment processes to reduce nutrient runoff.

The Environment Agency's role

The Environment Agency is responsible for monitoring and regulating water quality in rivers, lakes, and coastal waters. It oversees how water companies, agriculture and urban areas contribute to nutrient pollution, and works to limit these impacts.

Key points

- Water quality regulation: The Environment Agency sets and enforces limits on nutrient levels entering water bodies through permits for discharges (eg, from sewage treatment plants).
- Catchment-based approach: It often takes a catchment-based approach, focusing on the health of entire river systems to manage nutrient levels.
- Agricultural regulation: The Agency also regulates nutrient management in farming, providing guidance on land use and fertiliser application, and promoting sustainable practices to limit runoff into water bodies.

Nutrient neutrality in planning

In areas where nutrient pollution is an issue, new developments must not increase the nutrient load on the environment. LPAs, supported by Natural England's guidance, are required to ensure that planning permissions are granted only if projects can prove nutrient neutrality.

Key points

- Nutrient Neutrality assessments: Developers must submit assessments to prove their developments won't add to nutrient levels.
- Mitigation measures: If developments would add nutrients to the environment, they must propose mitigations such as buffer zones, sustainable drainage systems (SuDS), or contributions to strategic mitigation schemes.

Impacts on development

Nutrient neutrality has had a significant impact on housing developments in certain regions, particularly around the Solent, Somerset Levels and the River Wye. Delays and increased costs can occur due to the need for nutrient assessments and mitigation strategies.

Long-term goals

Both Natural England and the Environment Agency aim to:

- Improve water quality and protect vulnerable habitats.
- Ensure sustainable development without compromising environmental health.
- Support the creation of mitigation solutions that balance development needs with environmental protection.

Overall, nutrient neutrality regulations, enforced by Natural England and other Environmental Agencies, play a crucial role in safeguarding sensitive ecosystems from the harmful effects of nutrient pollution.

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GRAF for a greener planet