

# DELPHIN<sup>®</sup> compact



Small wastewater treatment plants

[www.delphin-ws.de](http://www.delphin-ws.de)

DELPHIN Water Systems GmbH & Co. KG  
The experts for fixed-bed technology

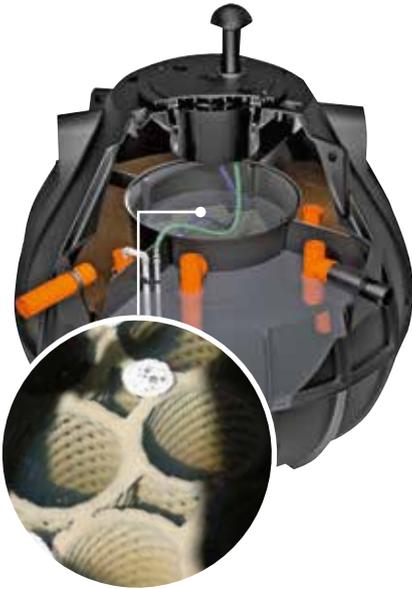


A treatment plant for generations

*“One should buy a treatment plant only once and then the matter should be off the table. A DELPHIN<sup>®</sup> compact is the right plant for that!”*

**Quality  
for Your  
Project**

Made in Germany



Overgrown fixed-bed material in a DELPHIN® compact plant

### Maximum performance

In a biological small scale wastewater treatment plant DELPHIN® compact domestic sewage is fully treated with state-of-the-art fixed-bed technology. German, French and other international standards are easily met. The plant therefore was awarded with German and French approvals by the national authorities and is CE marked.

### Ideal also for single and two person households

Fully biological small scale treatment plants are designed and tested with reference values for the pollution contained in domestic wastewater. In many cases, however, the load falls under the so called population equivalent (PE). A 4 PE treatment plant, which is charged with 600 litres of wastewater daily during the approval testing period, often receives less than 140 litres per day in real single or two person households.

DELPHIN has enhanced its technology as first manufacturer in such a way that such underload situations mustn't result in a problem. This is documented by many control measurements at numerous DELPHIN® small scale treatment plants installed at holiday homes, single or two person households and by the DELPHIN underload guarantee.



Serial production of DELPHIN® compact fixed-bed inserts

### Quality – Made in Germany

The quality of DELPHIN small scale treatment plants is the result of continuous research and development in connection with a highly accurate and fully documented production. The materials used for the fabrication and the technical equipment allow an outstandingly long lifetime of the plant. You can count on DELPHIN® small scale treatment plants. They are tested for a long lifetime with many thousands of operating hours.

### Up to 20 years reliability



Due to this circumstance we offer for our DELPHIN® small scale treatment plants with fixed-bed technology a prolongation of the usual guarantee for the tank material from two to up to 20 years after product registration at your local dealer.

### Exclusively at DELPHIN Water Systems

The warranty covers all aspects of our small scale treatment plants as specified in our product and service description. We replace any defect part for free and take care of corrections in case of faulty material, early fatigue or flawed processing. In case of a warranty claim the technical service has to be performed by an authorized DELPHIN dealer.

### Quality supported by specialized dealers

Please consider that our prolonged guarantee is valid only for treatment plants which were purchased at an authorized DELPHIN dealer in your country and which were also installed by an authorized installer. Furthermore the maintenance described in our manual must be regularly carried out during the period of guarantee.



Mounting of fixed-bed inserts in a DELPHIN® compact plant

## Quiet and odourless wastewater treatment for your home



1 Inlet, 2 Primary settlement, 3 Fixed-bed reactor, 4 Secondary clarifier, 5 Outlet, 6 Compressor, 7 Control board



Easy removal of the fixed-bed through the manhole

### Effortless diffuser change due to easily removable fixed-bed

While the fixed-bed of a DELPHIN® compact plant has a virtually indefinite life span, the membrane diffusers underneath the fixed-bed should be changed about every 10 years. The new suspension design allows for an easy removal and reassembly of the fixed-bed. Thus, the diffuser change becomes straightforward and simple.

The fixed-bed consists of 4 parts, which can be separated at easily accessible spots and simply be lifted through the manhole. After the work has been done it can just as easily be put back into position. This way your service technician can perform the diffuser change (material cost approx. 50,- €) in the blink of an eye and you can enjoy your DELPHIN® compact plant for a long time to come.

## The perfect size for any requirement

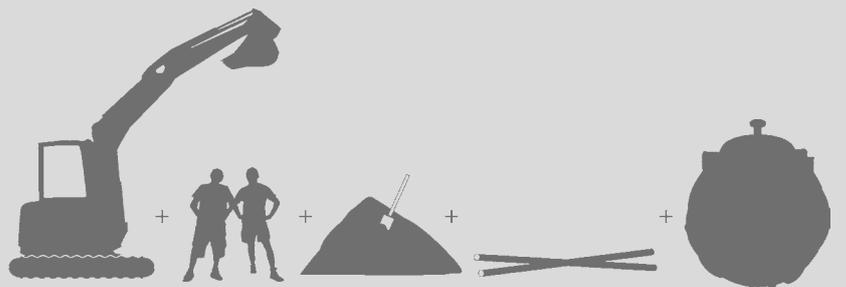
Configuration	Type DELPHIN® compact	max. PE	Treatment class	Compressor 1~, 230V, 50 Hz	Power consumption [kWh/year]	Weight
	4/C/1	4	C	XP- 80, 58 W	~ 144	380 kg
	4/N/1	4	N	HP-100, 95 W	~ 316	380 kg
	4/D/1	4	D	HP-100, 95 W	~ 349	380 kg
	6/C/1	6	C	HP-100, 95 W	~ 233	380 kg
	8/C/1	8	C	HP-120, 115 W	~ 457	400 kg
	8/C/2	8	C	HP-100, 95 W	~ 274	540 kg
	8/N/2	8	N		~ 524	
	8/D/2	8	D		~ 598	
	10/N/2	10	N	HP-150, 125 W	~ 579	720 kg
	10/D/2	10	D		~ 618	
	12/C/2	12	C		~ 360	
	14/N/3	14	N	HP-200, 210 W	~ 1062	1050 kg
	14/D/3	14	D		~ 1212	
	25/C/3	25	C		~ 878	
	24/N/5	24	N	2BH7310, 550W (3~, 230/400V, 50 Hz)	~ 2225	1700 kg
	24/D/5	24	D		~ 2681	
	32/C/5	32	C		~ 1632	
	36/N/5	36	N	2BH7410, 1100W (3~, 230/400V 50 Hz)	~ 2814	1815 kg
	36/D/5	36	D		~ 3474	
	46/C/5	46	C		~ 1949	

### Treatment class

Achievable effluent results at standard dimensioning (1 PE = 150 l/d, 60 g BOD<sub>5</sub>/d, 11 g N/d)

C (carbon removal)	COD: ≤ 100 mg/l	BOD <sub>5</sub> : ≤ 25 mg/l	-		SS: ≤ 35 mg/l
N (nitrification)	COD: ≤ 75 mg/l	BOD <sub>5</sub> : ≤ 15 mg/l	NH <sub>4</sub> - N: ≤ 10 mg/l		SS: ≤ 25 mg/l
D (denitrification)	COD: ≤ 75 mg/l	BOD <sub>5</sub> : ≤ 15 mg/l	NH <sub>4</sub> - N: ≤ 10 mg/l	N <sub>tot</sub> ≤ 25 mg	SS: ≤ 25 mg/l

### All you need:



## Alternatives for the installation of technical equipment

The technical equipment (compressor and air distribution) of a DELPHIN® compact wastewater treatment plant can be arranged according to the specific requirements of each plant site. To find the ideal solution in any case DELPHIN Water Systems offers four alternatives for the installation.



### Version 1: Standard

By default, the technical equipment is built into the practical hooking-in-module. It is located directly underneath the man hole cover inside the plant and thus easily accessible. The installation of the technical components (except for the control panel) is realized without an external shaft or switch cabinet. The big advantage of this version is the combination of the best possible noise reduction with the shortest possible air conductors.



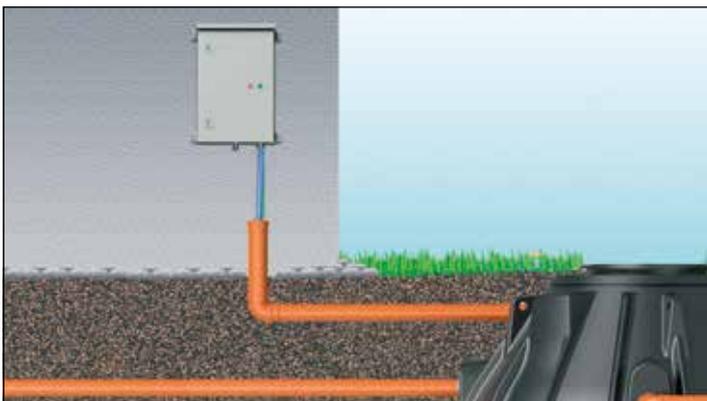
### Version 2: External technology shaft

Technology shaft for the subsurface installation of the compressor and the air distribution outside the treatment plant. The control panel may be installed in any distance to the wastewater treatment plant indoors or outdoors at a wall. The air hoses have to be installed inside a protective conduit between technology shaft and plant.



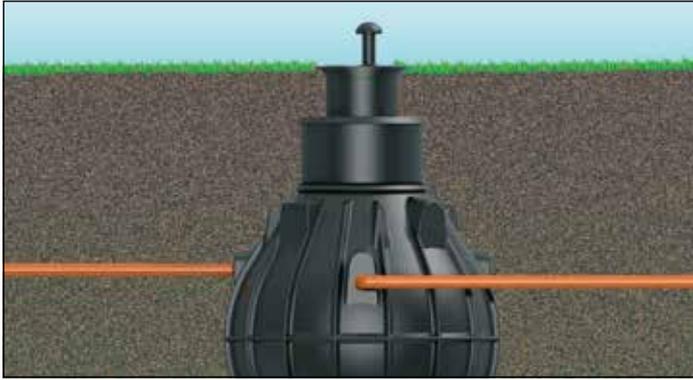
### Version 3: Wall bracket

Stainless steel wall bracket for indoor installation of compressor, control panel and air distribution. The bracket is equipped with two shock-proof sockets for the connection of the compressor and the control panel. The air hoses have to be installed inside a protective conduit between wall bracket and plant.



### Version 4: Outdoor switch cabinet

Premium steel cabinet for the accommodation of compressor, control panel and air distribution outdoors. The switch cabinet is equipped with a rain cover, wall fixations, ventilation grids as well as external operation and alarm lights. The air hoses have to be installed inside a protective conduit between cabinet and plant.



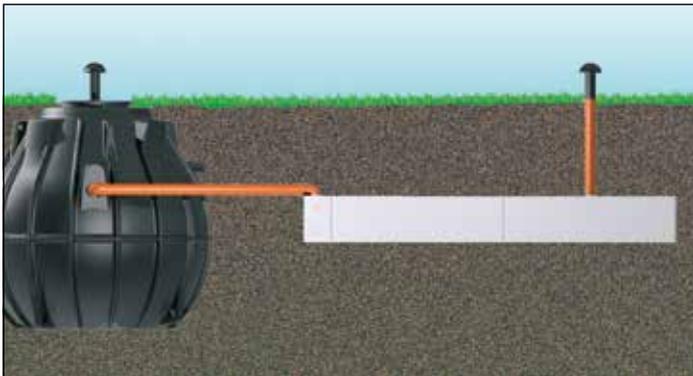
### Extensions

An extension of the installation depth can be achieved using optional dome extensions of 250 mm or 500 mm. In this case, water inlets up to 1.55 m below ground level can be connected to the small wastewater treatment plant without the requirement for an additional pump shaft. The wide diameter of the extensions ( $\varnothing=1000$  mm) assures the maintainability of the plant.



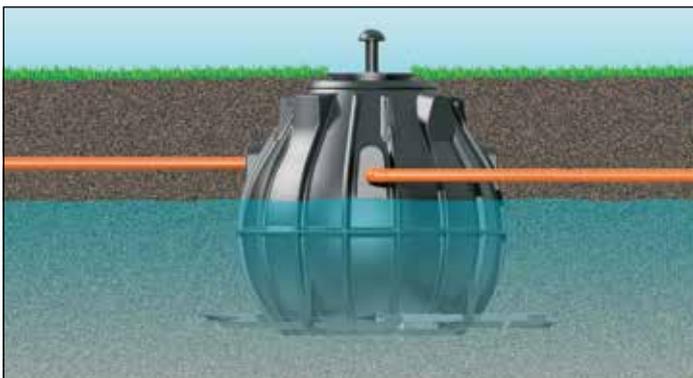
### Additional airlift device

With an additional airlift pump the original outlet level of the treatment plant in the final clarification is raised by 50 cm or alternatively by 90 cm. With this solution high discharge points can be reached and the additional installation of a pump shaft is avoided. This accessory is available as internal version for sizes up to 8 PE and as external shaft for sizes up to 12 PE.



### DELPHIN® block seepage elements

If no drainage channel is available for the discharge of the biologically treated wastewater, DELPHIN® block seepage elements can be used for soils with sufficient permeability. With its large holding capacity peak inflows are buffered and the water can seep slowly through the side walls into the underground. DELPHIN® block seepage elements are designed in accordance with the standard of DIN 4261-5.



### Buoyancy protection DELPHIN® ATS compact

If the tank of a small treatment plant is going to be installed at places with a high subterranean water level and therefore will be immersed into the water for more than 40 cm, a buoyancy protection must be attached to the treatment plant. The DELPHIN® ATS compact buoyancy protection consists of galvanized steel tube profiles and geotextile loops. The geotextile loops are easily put over the steel tubes after those have been connected to the massive eyes, which are part of the bottom of each DELPHIN® compact tank.

Your specialist dealer