



# WASTEWATER TREATMENT PLANTS HYDROVIT<sup>®</sup>



**VÍTKOVICE ENVI**



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## OUR PATENTED HYDROVIT SYSTEM

**VÍTKOVICE ENVI has been producing and supplying large capacity tanks, bolted together from enamelled plates from our own production, to the Czech Republic and abroad for 50 years. These plates form the basic building blocks, and a prominent feature of Vítkovice HYDROVIT® WWTP.**

The cleaning process of our waste water treatment plant is based on a thorough mechanical pre-treatment and biological treatment, as well as long-term activation of aerobic sludge stabilisation. The high efficiency of removal of organic substances with the significant reduction in nitrogen oxides is achieved by the combination of nitrification and denitrification. Upon request, we can include chemical removal of phosphorus or other elements and compounds. We offer comprehensive services, experience, and know-how in the implementation of technological units or components for biological wastewater treatment plants, which are the result of collaboration with leading water management experts.

Our company has a program to supply our own wastewater treatment plant design, construction, manufacturing, supply, and service capacities.

### **BENEFITS OF WASTE WATER TREATMENT PLANTS FROM ENAMELED PLATES**

The cleaning process takes place in concentric tanks, which guarantee compact WWTP design, and significantly reduce operating costs. Fully automated process with minimal operator requirements.

### **SHORT-TERM CONSTRUCTION PERIOD**

Delivery in 3 months from the signing of a contract

### **LOW DEMAND FOR CIVIL WORKS**

- small built-up area
- minimum site excavation
- simple concrete basement of biological tanks

### **VARIABILITY OF TECHNOLOGY SETTING**

Easy modular technology extension

### **MINIMAL AND SIMPLE MAINTENANCE**

- simple facility in terms of structure
- automatic standby of main units
- continuous tightness check-up

### **EASY LIQUIDATION AFTER THE SERVICE LIFE TERMINATION**

- tanks and technological facility can be scrapped as metal scrap
- or tanks can be dismantled and enamelled plates can be used to other purposes



## Waste water treatment plant with the capacity of 500 – 2 000 PE HYDROVIT® SBR

The working area of the treatment plant consists of single overhead enamel tanks with discontinuous purification processes. The tank is filled through automatic management for the functions of the activation and sedimentation tanks. The automatic system reacts to a wide range of changes of substance and hydraulic loads. The functionality of the treatment plant is guaranteed from as little as 30% of the inflow. The technology used for activated sludge treatment ensures a high and stable effect of eliminating pollution. The alternation of simple aeration and mixing ensures low residual pollution BOD<sub>5</sub> and N - NH<sub>4</sub> in treated water. The fine bubbling aeration system with power control significantly reduces operating costs, and reduces odours. This, together with a low noise fan, allows for the construction of the treatment plant near the civic buildings.

### HYDROVIT® SBR waste water treatment plants forem a type series with the following capacity stages:

Hydraulic load	EO	500	1000	1500	2000
Flow rate Q <sub>24</sub>	m <sup>3</sup> /d - l/s	66 - 0,8	132 - 1,5	198 - 2,3	264 - 3,1
Daily maximum Q <sub>d</sub>	m <sup>3</sup> /d	96	180	270	360
Hour maximum Q <sub>h</sub>	m <sup>3</sup> /h	10	16	23	30
<b>Substance load</b>					
BOD <sub>5</sub>	kg/d	23	48	77	108
WWTP size					
Reactor diameter	m	6	8,57	10,29	12
Reactor height	m	4,4	4,4	4,4	4,4

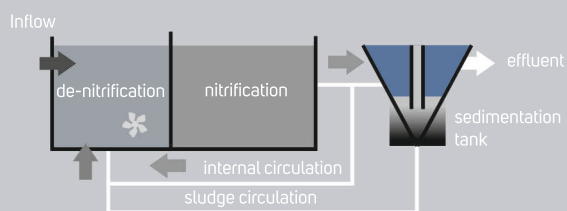


**Compact flow waste water treatment plant with the capacity of 2,000 – 10,000 PE**  
**HYDROVIT® SI**

The basis of the treatment plant is a biological triple tank, which is composed of three concentrically arranged tanks of enamelled plates. In the biological triple tank there are spaces for activation, sedimentation, and the storage of sludge. Activation is aerated by finely bubbling elements. The technology for activation cleaning can be realised in the form of pre-denitrification (D-N), or with the regeneration of sludge (R-N-D). The design with a pumping sump with mechanical pre-treatment, valve shafts, and sludge dewatering equipment is custom designed to fit the customer's wishes. The triple tank is fitted with service bridges made of composite materials, ensuring long life with minimal maintenance. The HYDROVIT® SI system can also be installed in similar enamelled tanks located inside the building.

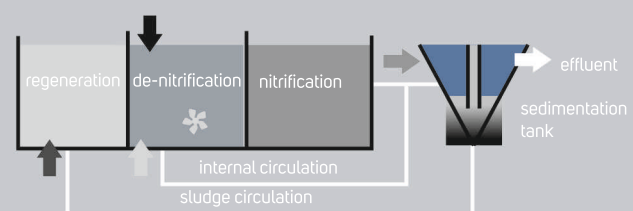
**D-N proces**  
**Activation with nitrification and preliminary de-nitrification**

*The operation is also available without automatic control. High denitrification efficiency. Organic compounds are preferably used for de-nitrification. High sludge load in de-nitrification increases the de-nitrification speed = a lower required volume of de-nitrification.*



**R-D-N proces**  
**Activation with nitrification and preliminary de-nitrification and regeneration**

*The operation is also available without automatic control. High denitrification efficiency. The inclusion of regeneration increases the sludge concentration in de-nitrification, increases the de-nitrification speed nic compounds are preferably used for de-nitrification = high efficiency in nitrogen removal. The regeneration unit decreases a risk of the sludge swelling.*





**ACTIVATION  
TANK**

**SECONDARY  
SETTING  
TANK**

collection  
setting of the  
channel tank

emergency  
overflow

grit  
chamber

partition  
with circulation  
pumps

thickener

**SLUDGE  
TANK**

sludge  
tank cover

service  
bridges

stilling  
well

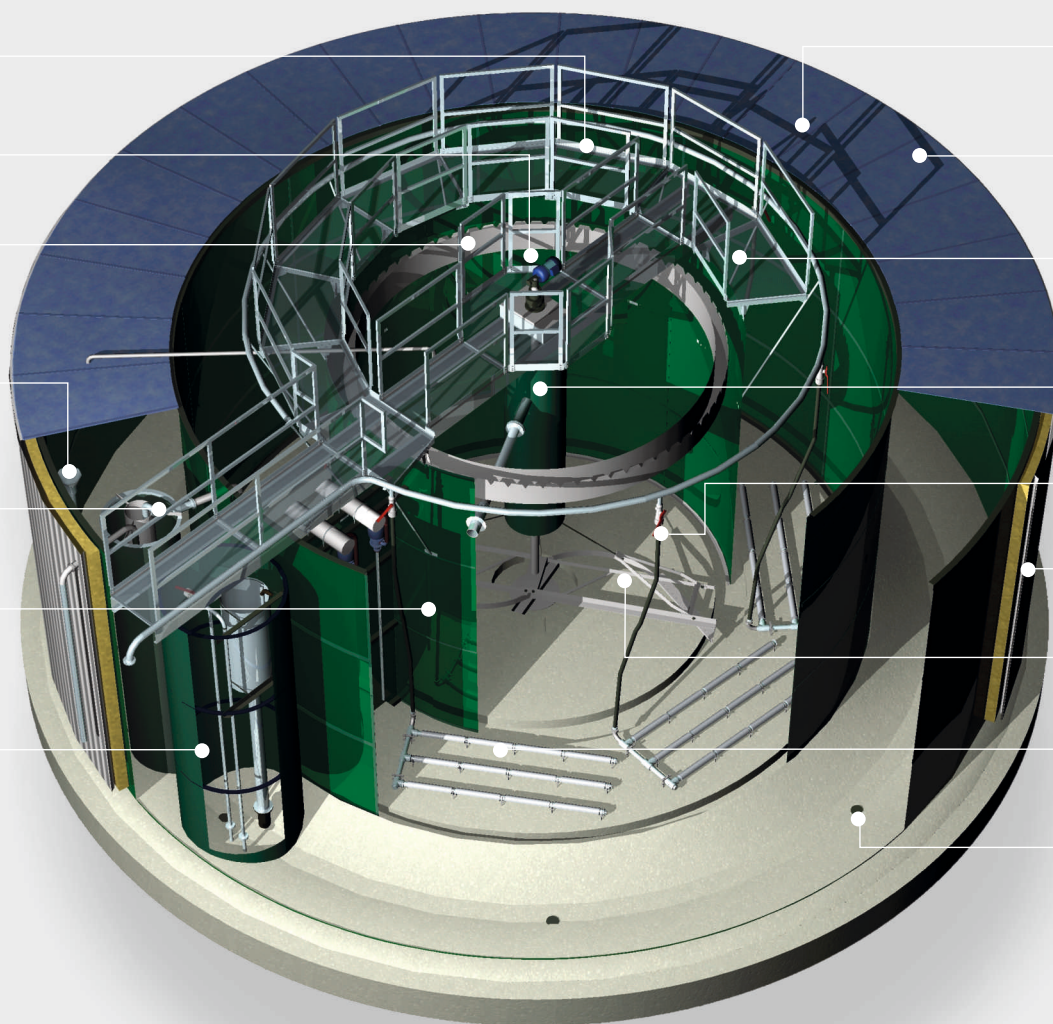
aeration  
valves

termal  
isolation

two  
arm scraper

aeration  
system

sludge  
discharge



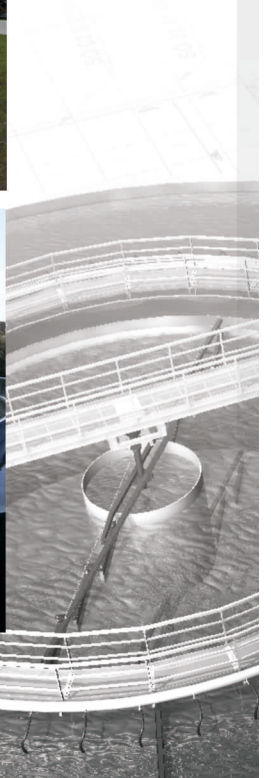
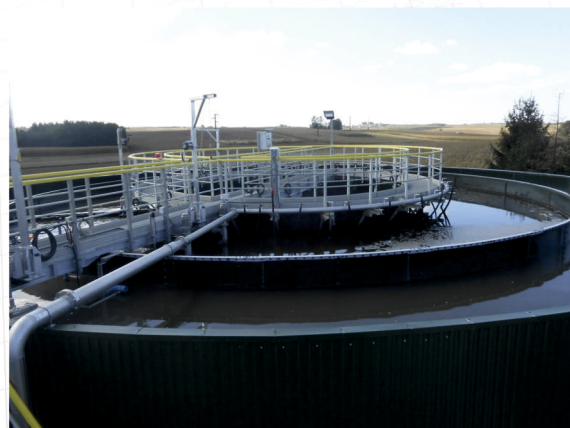
**It can be supplied in two basic variants:**

- **Partially covered** - having only the sludge tank equipment covered (blower room, operator room, shower, changing room, WC) including sludge dewatering located in a separate operations building

- **Completely covered** - the peripheral wall of the biological tank is raised by two rows, and carries a conical roof (usually enamelled). The accessories are located in this roofed space above the triple tank. Sludge dewatering and the armature shaft are in the roofed module, connected to the triple tank.

**HYDROVIT® SI waste water treatment plants  
forem a type series with the following capacity stages:**

Hydraulic load	EO	2000	3000	4000	5000	6000	7000
Flow rate $Q_{24}$	$m^3/d - l/s$	300 - 3,5	450 - 5,2	600 - 6,9	750 - 8,7	900 - 10,4	1050 - 12,2
Daily maximum $Q_d$	$m^3/d$	420	630	840	1050	1215	1418
Hour maximum $Q_h$	$m^3/h$	37	55	74	88	101	118
<b>Substance load</b>							
BOD5	kg/d	120	180	240	300	360	420
<b>WWTP size</b>							
Reactor diameter	m	16,29	19,71	21,43	20,57	22,29	24
Reactor height	m	4,4	4,4	4,4	5,9	5,9	5,9
Technology of the activation process		D-N	D-N	R-D-N	R-D-N	R-D-N	R-D-N

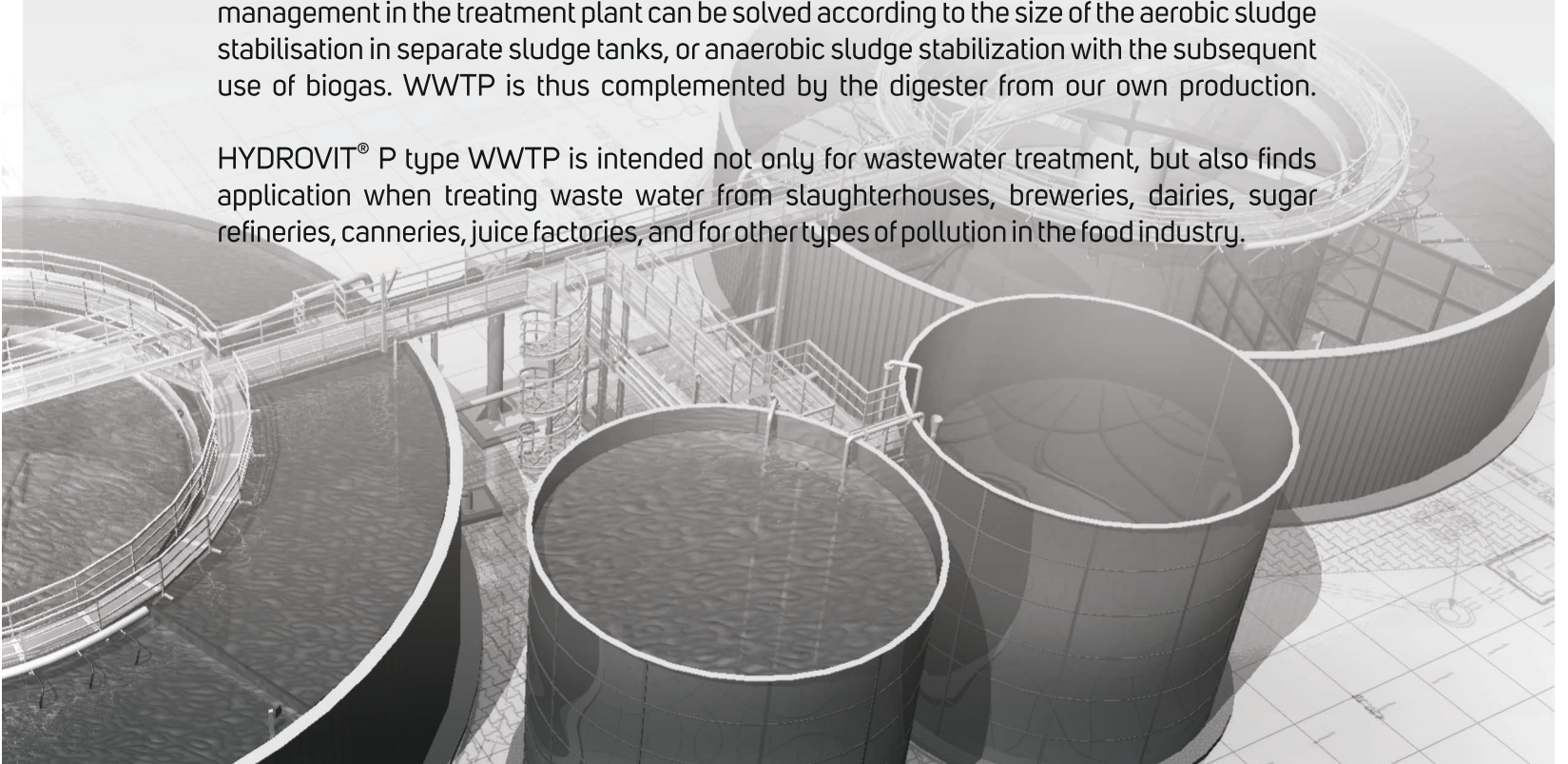




## WWTP with an output for 1,500 to 100,000 equivalent inhabitants or more **HYDROVIT® P**

The construction of the WWTP is always a customised solution, according to customer requirements. One characteristic of the treatment plant is a biological twin tank, made up of concentrically formed activation and sedimentation tanks. The activation tank may, for the elimination of nitrogen, be technologically prepared in the form of pre-denitrification (D-N) or with the regeneration of sludge (R-D-N). For the aeration tank, computer-controlled fine bubble aeration is used, which ensures high efficiency and low operating costs. Sludge management in the treatment plant can be solved according to the size of the aerobic sludge stabilisation in separate sludge tanks, or anaerobic sludge stabilization with the subsequent use of biogas. WWTP is thus complemented by the digester from our own production.

HYDROVIT® P type WWTP is intended not only for wastewater treatment, but also finds application when treating waste water from slaughterhouses, breweries, dairies, sugar refineries, canneries, juice factories, and for other types of pollution in the food industry.





Waste water treatment plant, Poland  
 Realization: 2015  
 Location: Wierzbna  
 Capacity: 4 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®SI



Waste water treatment plant, Poland  
 Realization: 2015  
 Location: Wierzawica  
 Capacity: 16 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: 2x HYDROVIT®SI 400,  
 1x 2x HYDROVIT®SI 800



Waste water treatment plant, Poland  
 Realization: 1998  
 Location: Radymno  
 Capacity: 1 500 PE



Industrial wastewater treatment plant, Russia  
 Realization: 2016  
 Location: Vladivostok  
 Capacity: 6 pcs. tanks



Waste water treatment plant, Bugarska  
 Realization: 2016  
 Location: Panagurišće  
 Capacity: 19 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®P



Waste water treatment plant, Bulgaria  
 Realization: 2014  
 Location: Pídrop  
 Capacity: 25 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®P



Waste water treatment plant Bulgaria  
 Realization: 2013  
 Location: Jablanica  
 Capacity: 5 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®P



Waste water treatment plant Bulgaria  
 Realization: 2000  
 Location: Sopot  
 Capacity: 25 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®P



Industrial wastewater treatment,  
 Czech Republic  
 Realization: 1995  
 Location: Spolchemie, Ústí nad Labem  
 Capacity: 90 000 PE



Industrial wastewater treatment,  
 Czech Republic  
 Realization: 2014  
 Location: Hamé Babice  
 Capacity: 23 200 PE  
 Purpose: Complete delivery industrial wastewater treatment plant



Waste water treatment plant, Poland  
 Realization: 1989  
 Location: Mikulčica  
 Capacity: 2 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®SI



Waste water treatment plant, Poland  
 Realization: 2001  
 Location: Kamien  
 Capacity: 2 000 PE  
 Purpose: Complete delivery wastewater treatment plant  
 Model: HYDROVIT®SI



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