

# ESP HORIZONTAL RESERVOIRS



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**EKO-SYSTEM-POLSKA**



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## 1. GENERAL INFORMATION

EKO-SYSTEM-POLSKA is a manufacturer of ESP-ZPR, ESP-ZPK and ESP-ZPN type horizontal reservoirs: made of PEHD or PELLD. polyethylene. The reservoirs are designed for water and municipal sewage storage. They are completely tight and resistant to aggressive liquids stored therein, therefore, environmentally friendly.

The product has: [ITB AT-15-8371/2010 Technical Approval](#)

## 2. ADVANTAGES OF ESP RESERVOIRS

- High mechanical strength and high flexibility
- Possibility of installation even up to 8 m
- Low installation and operating costs
- Long-term durability
- High chemical and corrosion resistance
- Possibility of recycling of the reservoir
- 100 % tightness
- Safety of use
- Easy transportation and installation
- Low thermal conductivity
- Low weight compared with such materials as concrete, reinforced concrete, steel, PMB, etc.
- Do not require constant maintenance
- UV resistance



## 3. PURPOSE OF ESP HORIZONTAL RESERVOIRS

The reservoirs are designed:

- For storage of sanitary sewage
- For water storage
- For rainwater collecting within rainwater recovery systems
- For “backwash” water storing in industrial installations
- For sedimentation tanks in water treatment plants and sewage treatment plants
- For farms sewage treatment plants housings

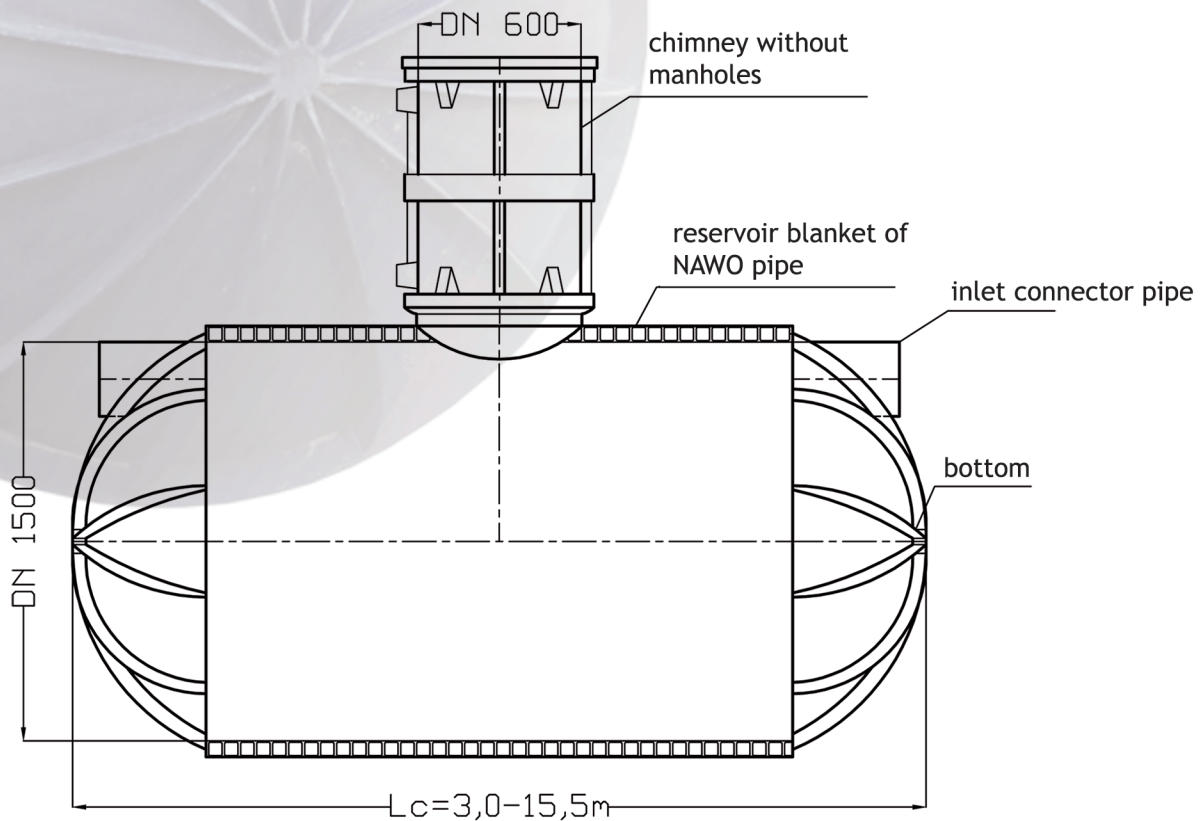
#### 4. TYPES OF ESP RESERVOIRS

##### 4.1 ESP-ZPK TYPE HORIZONTAL RESERVOIR

EKO-SYSTEM-POLSKA offers cylindrical reservoirs made of PEHD NAWO pipe with SN1.5 - SN4 circumferential rigidity. Reservoir volume in standard dimensions within the range of  $3\div 25\text{m}^3$ , with a maximum length of 15.5m. The reservoirs have two bottoms in the shape of ribbed bowls with inlet and outlet connector pipes, are rotomoulded of PEHD.



Fig. Type ESP-ZPK horizontal reservoir



Summary of standard volumes and dimensions of ESP ZPK horizontal reservoir.

DN	3000 dm <sup>3</sup>	5000 dm <sup>3</sup>	8000 dm <sup>3</sup>	10000 dm <sup>3</sup>	15000 dm <sup>3</sup>	20000 dm <sup>3</sup>	25000 dm <sup>3</sup>
(mm)	Lc (m)						
1200	2.8	4.6 Z	7.2 Z	9.0 Z	-	-	-
1400	2.1 Z	3.4 Z	5.4 Z	6.7 Z	9.9 Z	-	-
<b>1500</b>	<b>2.4 X</b>	<b>3.5 X</b>	<b>5.2 X</b>	<b>6.4 X</b>	<b>9.2 X</b>	<b>12.1 X</b>	<b>14.9 X</b>
1600	-	2.7 Z	4.2 Z	5.2 Z	7.7 Z	10.2 Z	-
1800	-	2.2 Z	3.4 Z	4.1 Z	6.1 Z	8.0 Z	-
2000	-	-	2.8	3.4 Z	5.0 Z	6.6 Z	8.2 Z
2200	-	-	2.4 Z	2.9 Z	4.2 Z	5.5 Z	6.8 Z
2400	-	-	-	-	3.6 Z	4.7 Z	5.8 Z

X - standard selection

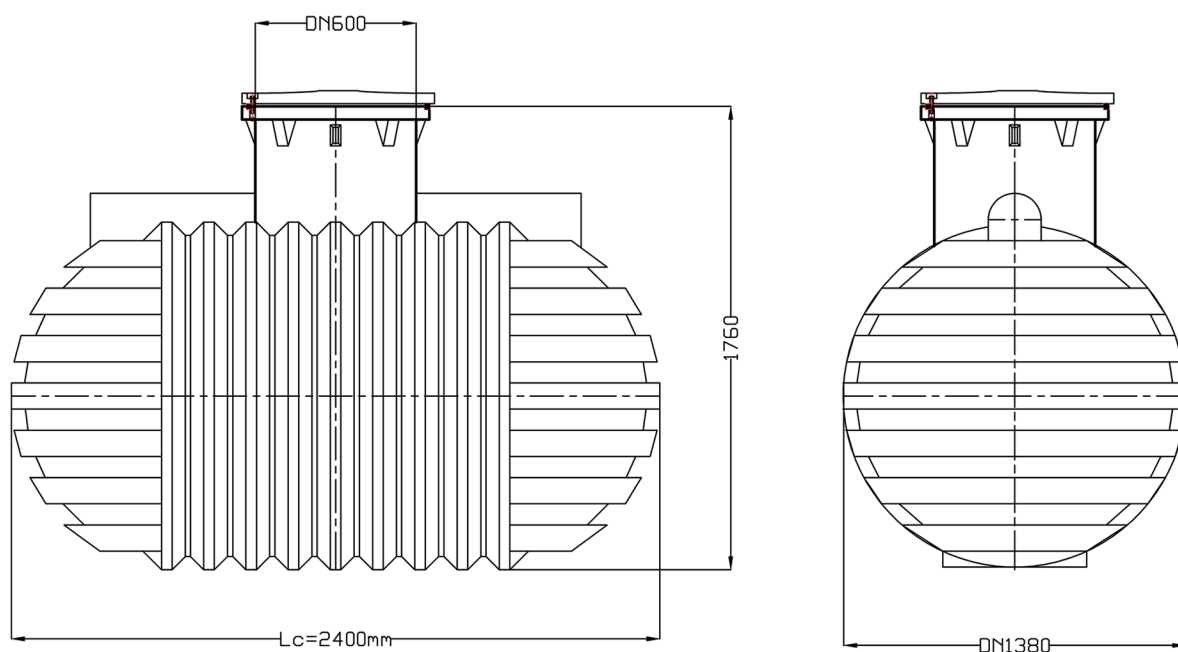
Z - product available upon request

#### 4.2 ESP-ZPR TYPE HORIZONTAL RESERVOIR

ESP-ZPR is of monolithic structure. It is made of HDPE or PEHD polyethylene using rotomoulding method, it is in the shape of a horizontal cylinder terminated with spherical bottoms on both sides. It contains ribs outside of the cylinder and bottoms. The reservoir's volume is 2.5 m<sup>3</sup>.



Fig. ESP-ZPR type horizontal reservoir

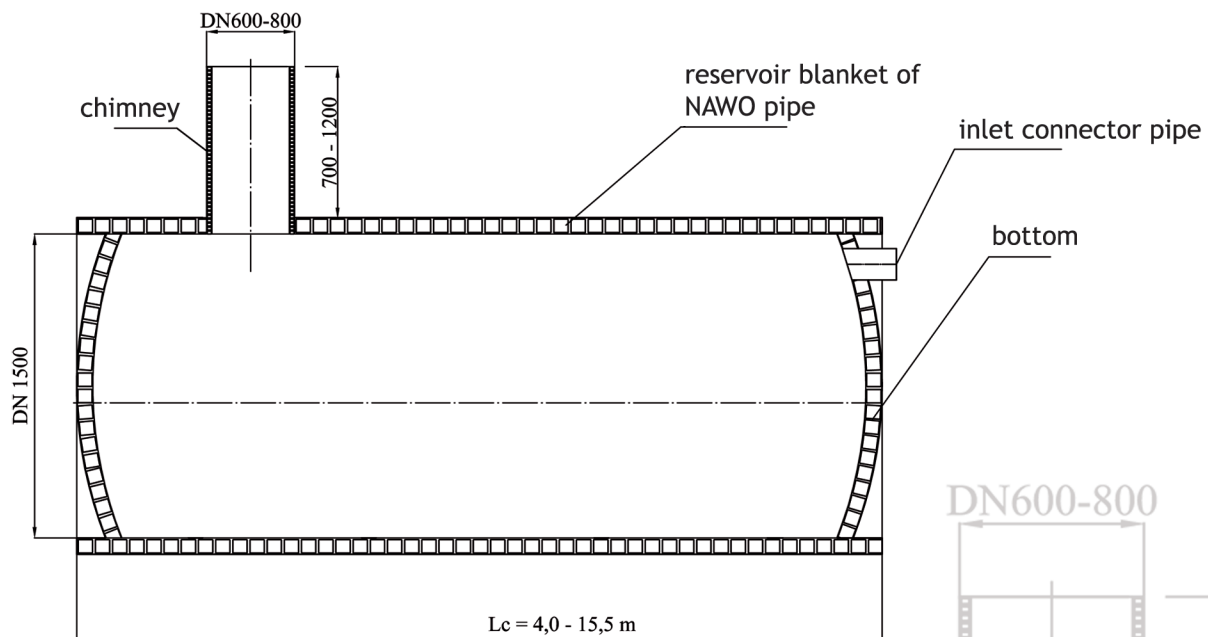


### 4.3 ESP-ZPN TYPE HORIZONTAL RESERVOIR

EKO-SYSTEM-POLSKA also manufactures ESP-ZPN type cylindrical reservoirs made of PEHD NAWO pipe with SN2 -SN6.3 circumferential rigidity. Reservoir volume in standard dimensions within the range of  $3\text{--}25\text{m}^3$ , with a maximum length of 15.5m. The reservoirs have two bottoms in the shape of bowls made of NAWO tube with SN 1.5 - SN2 circumferential rigidity and inlet and outlet connector pipes.



Fig. ESP-ZPN type horizontal reservoir

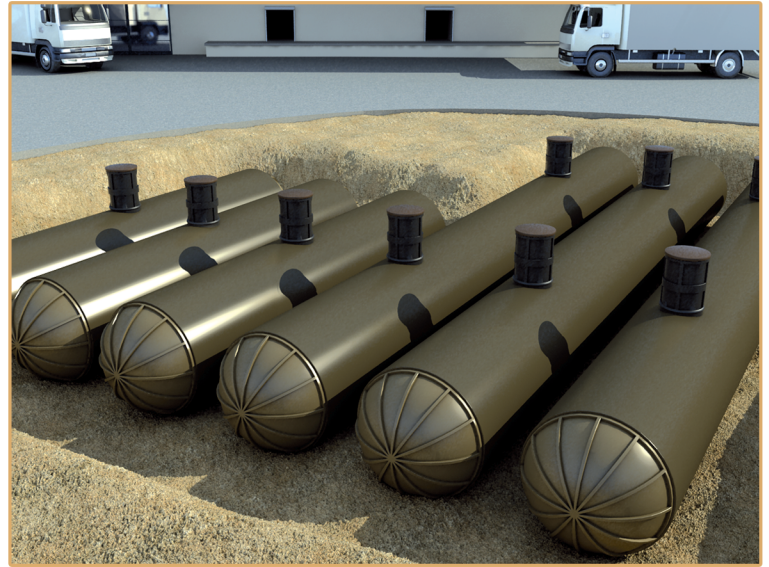


### 4.4 LARGE CAPACITY RESERVOIRS

ESP reservoirs are MPV and it is possible to combine them into batteries of any capacity. Large capacity containers are delivered in parts, which are ready to be connected at the site using extrusion welding. The result is a homogeneous monolithic structure without mechanical connections - so it is tight and reliable. EKO-SYSTEM-POLSKA by offering you this solution allows for a capacity of several thousand cubic meters with optimal use of available land.

Possible arrangements of reservoirs:

- Single linear
- Parallel reservoirs batteries
- Serial reservoirs batteries
- Reservoirs in special systems



## 5. STRUCTURE OF ESP-ZPK AND ESP – ZPN RESERVOIRS

Blanked of the reservoir is made of a structural tube with SN6.3 SN1.5 circumferential rigidity with accordance with ISO 9969. The reservoir has two bottoms in the shape of ribbed bowls with inlet and outlet connector pipes, are rotomoulded of PEHD or in the shape of a bowl made of a structural tube with SN1.5 SN2 circumferential rigidity in spherical form. The elements of the reservoir are connected together by extrusion welding using a granulate or a PEHD wire.

Fig. Structure of ESP – ZPN reservoir

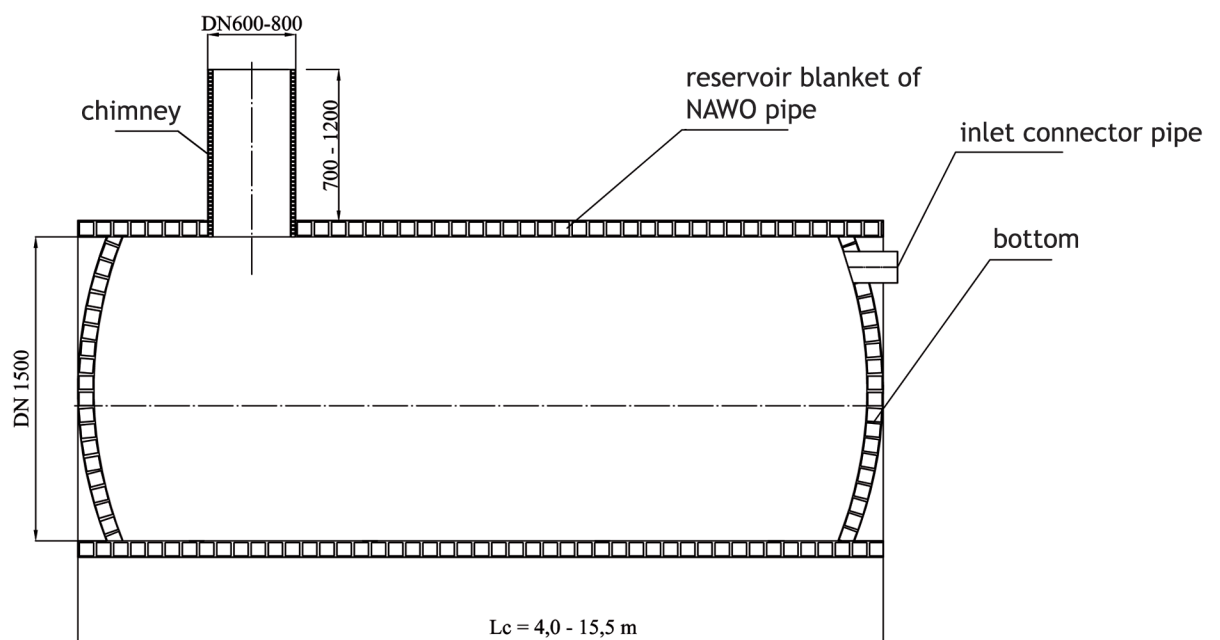
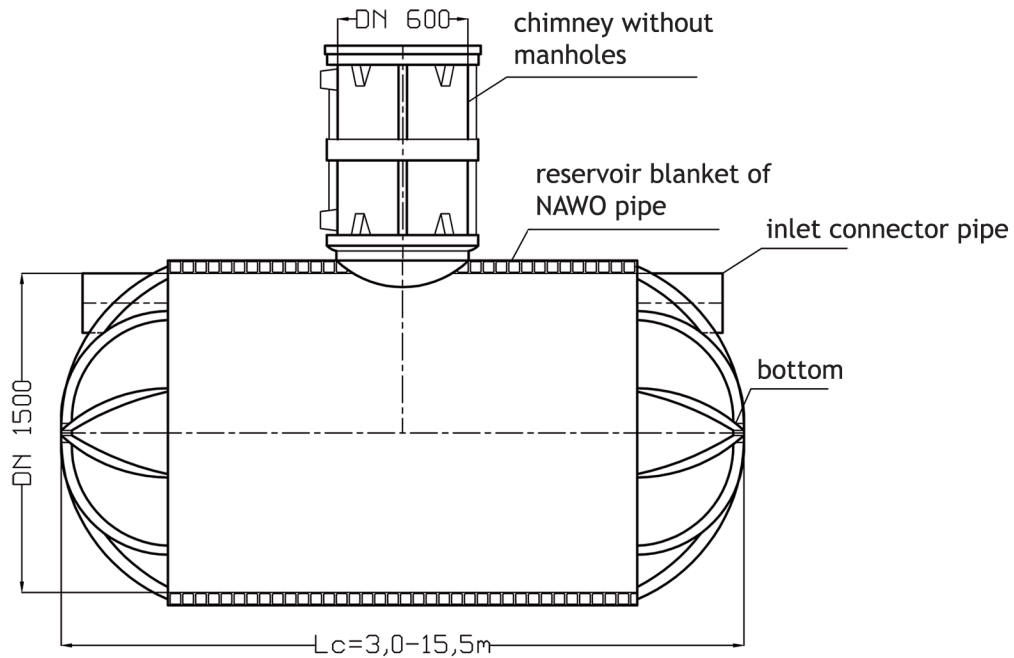


Fig. Structure of ESP – ZPK reservoir



## 6. CONDITIONS OF USE OF ALL TYPES OF ESP RESERVOIRS

The reservoirs are designed to be installed underground in areas unencumbered with vehicular traffic.

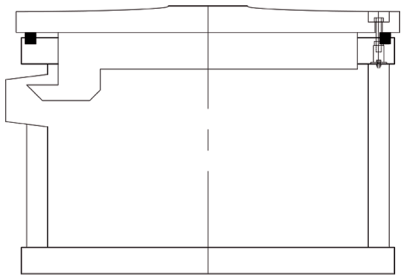
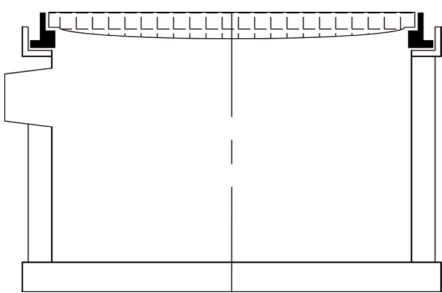
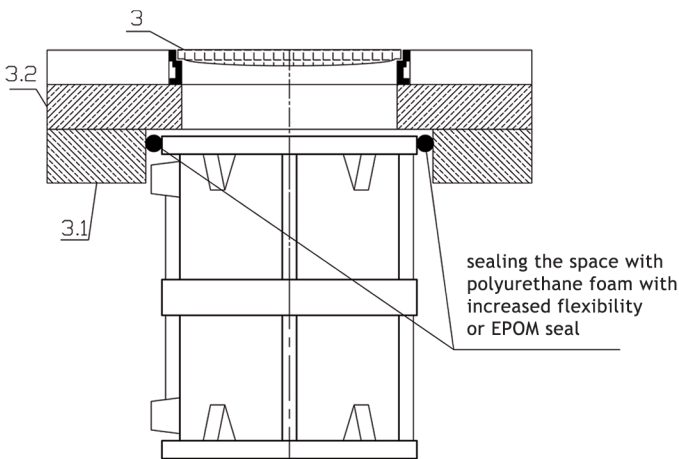
Depth of foundation below ground level should be:

- Not more than 2.5m - for ESP-ZPR type reservoirs
- Not more than 4.0m - for ESP-ZPK type reservoirs
- Not more than 8.0m - for ESP-ZPN type reservoirs



**NOTE!!** In case of the need to install the reservoirs on car parks or other areas encumbered with vehicular traffic, contact the Manufacturer to determine the conditions of construction.

The chimney is designed to be closed with a manhole made of polyethylene, A class cast-iron light manhole and B class cast iron manhole.  
 The manhole of PEHD polyethylene and A class cast iron manhole have closures made of stainless steel

Item	Type of finials	Range of applications	Catalogue No.
1.	PEHD DN 600 manhole with closure 	Development in green areas - only for pedestrians	ESP-0914130
1.1	Seal under PEHD manhole (OPTION) A		ESP-0914120
2.	DN 600 A15 class cast iron manhole with closure 	Surfaces for pedestrians and cyclists (EN-124)	ESP-0914131
3	DN 600 B125 class cast iron manhole 	Roads and pedestrian areas, equivalent areas, car park or passenger cars parking areas (EN-124)	ESP-0914132
3.1	DN 600 reinforced concrete load distribution ring		ESP-0914133
3.2	DN 600 reinforced concrete cover plate		ESP-0914134

## 7. TRANSPORT, INSTALLATION, OPERATING CONDITIONS OF ESP RESERVOIRS

ESP horizontal reservoirs should be transported by means of transport equipped with adequate protections against damage to the cargo. For loading, unloading and assembly special non-metallic lanes or tapes must be used.

Tanks should be erected and assembled in a properly prepared and dehydrated excavation, depending on the soil and water conditions directly in the native soil or bed of loose soil.

The above 10m<sup>3</sup>reservoirs, are as a standard supplied together with a ventilation chimney L= 1 m - as a set (ESP-0914114)

NOTE!!! The reservoir collects toxic gases - hydrogen sulphide, methane, therefore, do not approach to the reservoir with fire or do not kindle fire near reservoir or on its cover. All works inside the running reservoir constitute a risk to health and life.



## 8. SELECTION OF SEWAGE RESERVOIR VOLUME

The sewage reservoir volume must be selected, assuming that the sewage retention time is at least 12-14 days.

Calculation of ESP sewage reservoir volume:

$$V_{zb} [m^3] = OLM * q * t_z$$

$V_{zb}$  - volume of ESP reservoir in [m<sup>3</sup>]

CNI - calculation number of inhabitants, for a permanently resident person 1 CNI = 1 person

$q$  - unitary water consumption in [m<sup>3</sup>/d], per 1 person 0.12 - 0.15 [m<sup>3</sup>/d] is assumed

$t_z$  - sewage retention time indicated in days [d]

## 9. RANGE

### 9.1 STANDARD EQUIPMENT

- Horizontal reservoir of PEHD polyethylene (ESP-0914150 - ESP-0914156)



- PEHD DN600 manhole with closure (ESP-0914130)

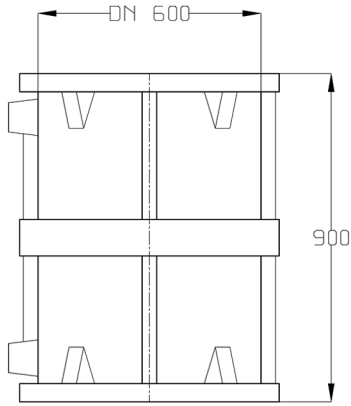
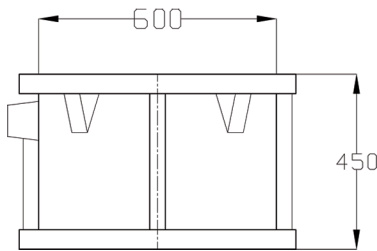


- IN – SITU Ø160 seal on inlet (ESP-0914123)



## 9.2 ADDITIONAL EQUIPMENT OF ESP-0914136 RESERVOIR

Where there is a need to increase the standard height of the chimney it is possible to use an extension.

Item	Elements of additional equipment of the reservoir	Catalogue No.
1.	DN 600, H = 900 mm extension 	ESP-0914136
2.	DN 600, H = 450 mm extension 	ESP-0914135
3.	Set for mounting extension on the site	ESP-0914119
4.	IN – SITUØ110 seal on inlet	ESP-0914122
5.	IN – SITUØ160 seal on inlet	ESP-0914123
6.	L= 1 m Chimney ventilation - set	ESP-0914114

DN 600, H = 900 mm extension (ESP-0914136)



DN 600, H = 900 mm extension (ESP-0914136)



## 10. APPROVAL, CERTIFICATE



**INSTYTUT TECHNIKI BUDOWLANEJ**

PL 00-611 WARSZAWA, ul. FILTROWA 1

tel.: (48 22) 825-04-71 ; (48 22) 825-76-55 - fax: (48 22) 825-52-86

Członek Europejskiej Unii Akceptacji Technicznej w Budownictwie - UEAtc  
Członek Europejskiej Organizacji ds. Aprobát Technicznych - EOTA

Seria: APROBATY TECHNICZNE

### **APROBATA TECHNICZNA ITB AT-15-8371/2010**

Na podstawie rozporządzenia Ministra Infrastruktury z dnia 8 listopada 2004 r. w sprawie aprobát technicznych oraz jednostek organizacyjnych upoważnionych do ich wydawania (Dz. U. Nr 249/2004, poz. 2497), w wyniku postępowania aprobacyjnego dokonanego w Instytucie Techniki Budowlanej na wniosek firm:

**Przedsiębiorstwo Produkcyjno – Handlowe  
„EKO – SYSTEM – POLSKA”  
Szarnecka – Placko Dorota  
36 – 002 Jasionka 74A**

stwierdza się przydatność do stosowania w budownictwie wyrobów pod nazwą:

### **Poziome zbiorniki kanalizacyjne z polietylenu, typów: ESP – ZPR, ESP – ZPK i ESP – ZPN**

w zakresie i na zasadach określonych w Załączniku, który jest integralną częścią niniejszej Aprobaty Technicznej ITB.

Termin ważności:  
24 czerwca 2015 r.

Załącznik:  
Postanowienia ogólne i techniczne



DYREKTOR  
Instytutu Techniki Budowlanej

*Marek Kaproń*  
Marek Kaproń

Warszawa, 24 czerwca 2010 r.

Dokument Aprobaty Technicznej ITB AT-15-8371/2010 zawiera 20 stron. Tekst tego dokumentu można kopiować tylko w całości. Publikowanie lub upowszechnianie w każdej innej formie fragmentów tekstu Aprobaty Technicznej wymaga pisemnego uzgodnienia z Instytutem Techniki Budowlanej.

SGS

Tłumaczenie certyfikatu HU10/5022

System zarządzania funkcjonujący w



**Przedsiębiorstwo Produkcyjno-Handlowe  
"EKO-SYSTEM-POLSKA"  
Szarnecka-Placko Dorota**

Siedziba: 36-002 Jasionka 74 a, Polska

Zakład Produkcyjny: 39-120 Sielec 51 E, Polska

został oceniony i certyfikowany jako spełniający wymagania zawarte w

**ISO 9001:2008**

Zakres rejestracji

- produkcja kompletnych przepompowni ścieków z automatyką sterującą
- produkcja zbiorników i studni z PEHD
- produkcja rur i kształtek z PEHD

W celu uzyskania dalszych wyjaśnień dotyczących zakresu certyfikacji i zastosowania wymogów normy ISO 9001:2008 proszę skontaktować się z Organizacją

Certyfikat ważny od 31 maja 2010 do 30 maja 2013 oraz pozostaje ważny z zastrzeżeniem uzyskiwania pozytywnych wyników auditów nadzoru.

Audit recertyfikacyjny należy przeprowadzić przed 30 kwietnia 2013.

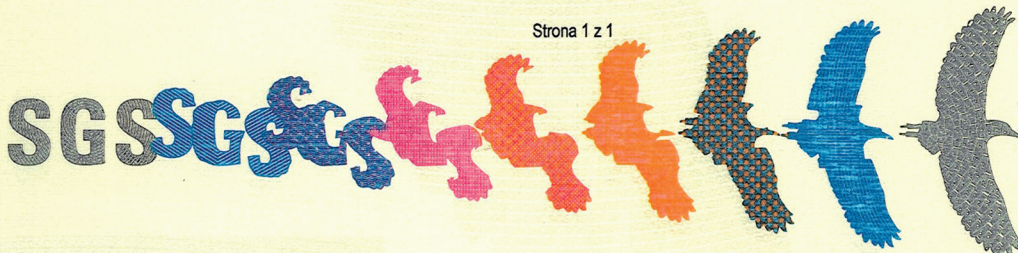
Wydanie 1. Certyfikowany od 31 maja 2010.

Autoryzacja



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Strona 1 z 1



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## 11. HORIZONTAL RESERVOIR COLLECTION CARD



# EKO-SYSTEM-POLSKA

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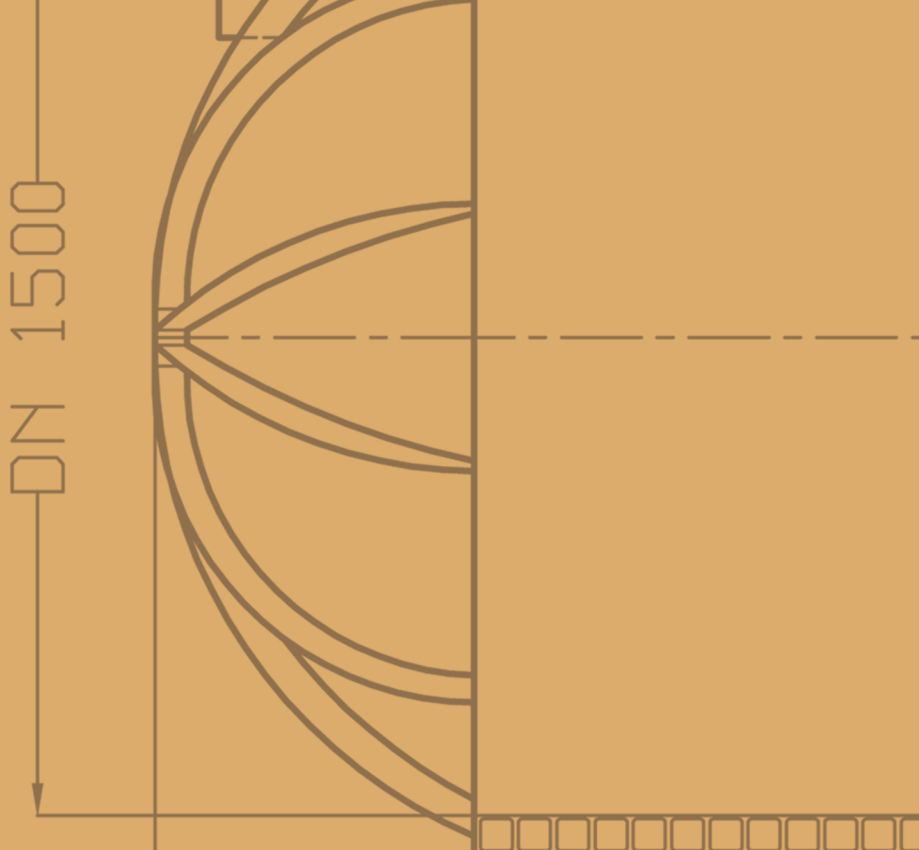


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<b>Typ nadawcy</b>	Projektant	Inwestor	Wykonawca		
		Tel.:	Fax:		
		Tel. kom.:	E-mail:		
<b>Nazwa i adres inwestora:</b>					
<b>Lokalizacja obiektu:</b>				<b>Symbol obiektu</b>	
<b>DANE TECHNICZNE ZBIORNIKA:</b>					
<b>Opis zbiornika</b>	<b>Typ zbiornika</b>	<b>Pojemność [dm<sup>3</sup>]</b>	<b>Nr katalogowy</b>	<b>Wybór</b>	
Zbiornik PEHD DN1300	ESP-ZPR	2500	ESP-0914150		
Zbiornik PEHD DN1500	ESP-ZPK	5000	ESP-0914151		
Zbiornik PEHD DN1500	ESP-ZPK	8000	ESP-0914152		
Zbiornik PEHD DN1500	ESP-ZPK	10000	ESP-0914153		
Zbiornik PEHD DN1500	ESP-ZPK	15000	ESP-0914154		
Zbiornik PEHD DN1500	ESP-ZPK	20000	ESP-0914155		
Zbiornik PEHD DN1500	ESP-ZPK	25000	ESP-0914156		

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