

MODULAR STEEL TANKS

For storage of domestic potable,
industrial and firefighting water.



FLAMAX

FLAMAX TANKS

FLAMAX modular tanks are simple and robust water storage facilities with capacity ranging from 25 to 50 000 m³.

PICTURE OF COMPLETED FACILITY:

- Freight Village multimodal industrial-logistics center Vorsino, Borovsky district, Kaluga region
- Capacity: 2 x 600 m³ FM Global
- Date: 2015



AESTHETIC APPEARANCE

FLAMAX modular tanks have modern and aesthetic appearance due to the proportional structure components and uniform surface of galvanized mild steel sheets. Tank sheets can be painted in colors matching the surrounding buildings or in customer's brand colors.

PICTURE OF COMPLETED FACILITY:

- Petkorm pet food plant
- Dmitrov, Moscow region
- 2 x 500 m³
- 2017



ADVANCED TECHNOLOGY

Structural reliability is ensured by high-quality materials and advanced engineering solutions. Tank steel sheets and structure components, including bolted joints, are galvanized to prevent corrosion, and structural integrity is provided by an extra-strong reinforced PVC-membrane.

PICTURE OF COMPLETED FACILITY:

- PEPSI BOTTLING GROUP
- Domodedovo, Moscow region
- Capacity: 2 x 1100 m³
- Date: 2016



CUSTOM SOLUTIONS

Custom design of tanks can be developed according to any technical requirements, including the most complex ones.

Each FLAMAX tank is a tailor-made product designed with regard to the estimated water volume, site plot, requirements for process piping and automation, as well as temperature conditions, snow, wind and seismic loads typical for a specific region.

PICTURE OF COMPLETED FACILITY:

- Dekathlon, St. Petersburg.
- Korabselki residential area, Bugrovkoye village, Vsevolzhsky district, Leningrad region
- Capacity: 2 x 375 m³
- Date: 2015



MANUFACTURING AND INSTALLATION

Advanced European technology –
thousands of satisfied customers worldwide.

PICTURE OF COMPLETED FACILITY:

- X5 Retail, Voronezh
- Aidarovskoye village, Ramonsky district, Voronezh region
- Capacity: 2 x 550 m³
- Date: 2014





PREFABRICATION

All components of FLAMAX tanks are prefabricated using high-precision machinery and undergo a strict outgoing inspection.

This ensures maximum structural reliability compared to products produced on site.





PACKAGED DELIVERY

Tanks can be delivered by any mode of transport, as all components are standard size and fit EUR-pallets.

This allows easy delivering of cargo to the most isolated areas of construction sites.

Unloading is possible by a usual forklift. Thanks to sealed and compact package components can be stored in any accessible location prior to installation.

As a result, shipping, unloading and storage costs can be substantially reduced as compared to the same works for other types of tanks.



PICTURE 1

Loaded heavy truck: two packed 700 m³ tanks

PICTURE 2

At the appointed time the tanks are delivered to the installation site

PICTURE 3

Unloading of packed tanks by a forklift takes less than 60 minutes

PICTURE 4

Tanks are placed on standard EUR-pallets and take up minimum space on the construction site when being stored prior to installation



QUICK YEAR-ROUND INSTALLATION

Assembling of tanks doesn't involve working at heights, welding operations and using heavy equipment.

Assembly procedure allows installation at any time of the year within the minimum period of time (1000 m³ for 5-7 days).

Tanks can be installed both outside and inside buildings/structures in very confined spaces.

Tanks can be disassembled and reassembled at a new location.



PICTURE OF COMPLETED FACILITY:

- State Public Institution Fund for Gasification, Energy-Saving Technology and Utility Development of the Republic of Tatarstan
- Arsk (Republic of Tatarstan)
- Capacity: 2 x 500 m³
- Date: 2018

PICTURE 2

Tank assembly can be performed by a small team of 4 - 5 workers

PICTURE 3

Tanks are assembled using a synchrolift system with hydraulic jacks instead of heavy-duty special vehicles

ENGINEERING SOLUTIONS

Durability.
Integrity.
Corrosion resistance.

PICTURE OF COMPLETED FACILITY:

- NPK KATREN
- Khimki, Moscow region
- Capacity: 1 x 310 m³
- Date: 2015





ENVIRONMENTAL STABILITY

All sheets and external elements of FLAMAX tanks are protected from the negative impact of the environment and do not corrode.

This helps to extend the service life and to permanently keep an aesthetic appearance.





ABSOLUTE INTEGRITY

A key feature of FLAMAX tanks is a high strength reinforced PVC membrane, which provides a perfect long-term sealing of the tank, preserves drinking water quality and requires no special care and complicated maintenance.

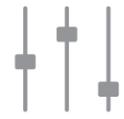




OPERATION UNDER EXTREME CONDITIONS FROM $-55\text{ }^{\circ}\text{C}$ TO $+55\text{ }^{\circ}\text{C}$

Depending on the installation region we provide the most effective heat insulation of walls, roof and floor, which allows to operate the FLAMAX tanks under rough climatic conditions.





AUTOMATION. ENERGY SAVING.

Advanced system of automation and environmental monitoring in the FLAMAX tanks can significantly reduce operating costs and ensure a seamless interaction between tanks and pumping station equipment.



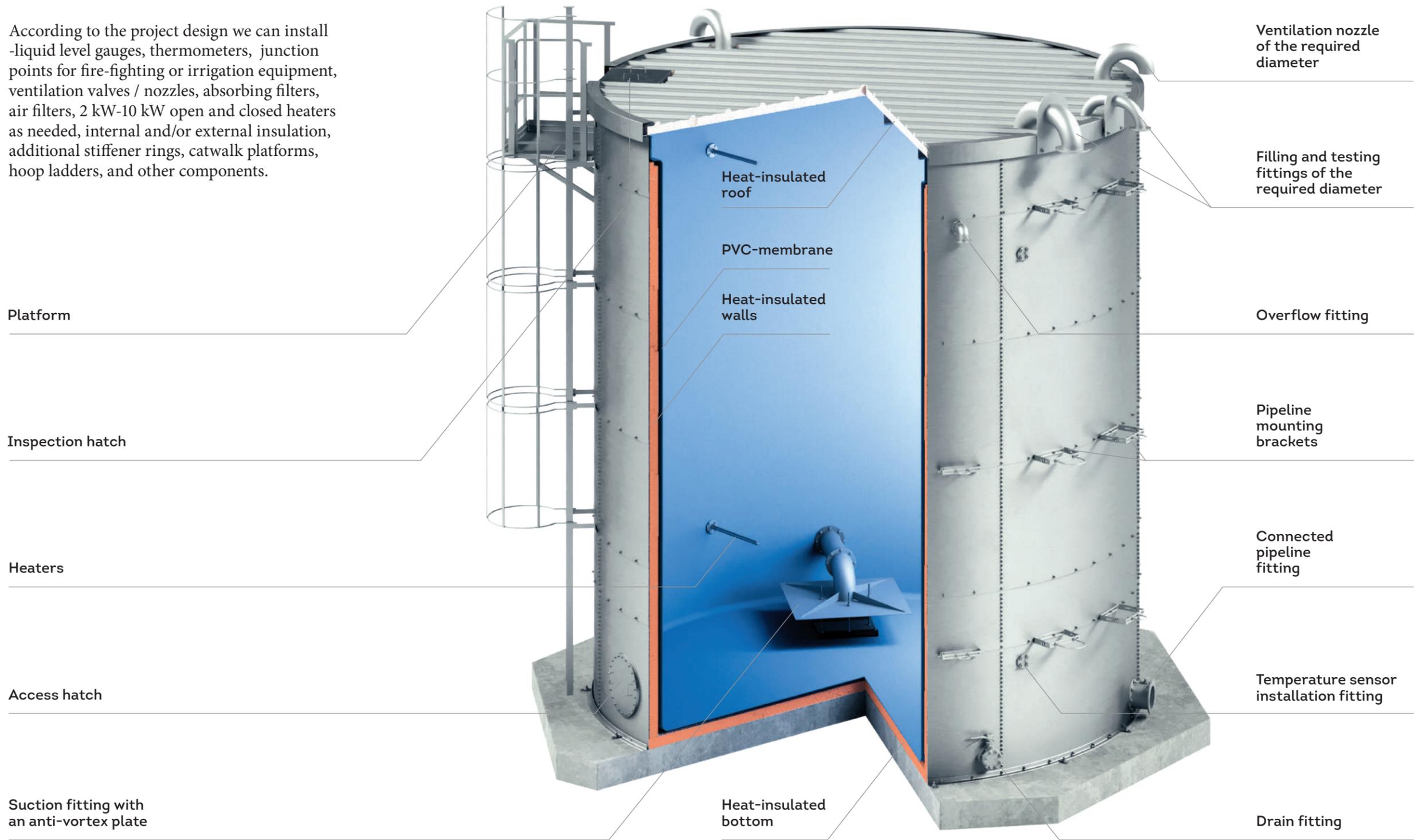
COMPONENT PARTS

Each tank is equipped with components and instruments according to the developed design documentation.



TANK IN SECTION

According to the project design we can install -liquid level gauges, thermometers, junction points for fire-fighting or irrigation equipment, ventilation valves / nozzles, absorbing filters, air filters, 2 kW-10 kW open and closed heaters as needed, internal and/or external insulation, additional stiffener rings, catwalk platforms, hoop ladders, and other components.



Platform

Inspection hatch

Heaters

Access hatch

Suction fitting with an anti-vortex plate

Heat-insulated bottom

Ventilation nozzle of the required diameter

Filling and testing fittings of the required diameter

Overflow fitting

Pipeline mounting brackets

Connected pipeline fitting

Temperature sensor installation fitting

Drain fitting

DIMENSIONS

Dimensions of tanks having equal capacity can vary widely. Thus, the tank size is determined according to the source data received from the customer. Below is a partial indicative list of tank dimensions.

V - 100 m³



Diameter - 5.46 / Height - 5.41



Diameter - 4.21 / Height - 6.24

V - 215 m³



Diameter - 8.58 / Height - 4.77



Diameter - 7.02 / Height - 6.61

V - 590 m³



Diameter - 11.7 / Height - 6.61



Diameter - 9.36 / Height - 9.57

V - 1620 m³



Diameter - 15.6 / Height - 9.57



Diameter - 12.48 / Height - 14.37

TABLE OF TANK USEFUL CAPACITY DEPENDING ON HEIGHT AND DIAMETER, m³

	Qty of rings in height, pcs.	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	
	Height, m	1,25	1,81	2,37	3,01	3,57	4,21	4,77	5,41	5,97	6,61	7,17	7,81	8,37	9,01	9,57	10,2	10,77	11,41	11,97	12,61	13,17	
Qty of sheets in a ring, pcs	Diameter, m																						
4	3,12	4	8	13	18	22	27	31															
5	3,90	7	13	20	28	34	42	49	56	63	71	77											
6	4,68	9	19	29	40	49	60	70	81	91	102	111	122	132	143	153	164	173	184	194	205	214	
7	5,46	13	26	39	54	67	82	95	110	123	138	151	166	180	194	208	223	236	251	264	279	292	
8	6,24	17	34	51	71	88	107	124	144	161	181	198	217	234	254	271	291	308	327	345	364	381	
9	7,02	21	43	65	89	111	136	157	182	204	229	250	275	297	322	343	368	390	414	436	461	483	
10	7,80	26	53	80	110	137	168	194	225	252	282	309	340	366	397	424	454	481	512	538	569	596	
11	8,58	32	64	97	134	166	203	235	272	305	342	374	411	443	480	513	550	582	619	651	688	721	
12	9,36	38	76	115	159	197	241	280	324	363	407	445	489	528	572	610	654	693	737	775	819	858	
13	10,14	44	90	135	186	232	283	329	380	425	477	522	574	619	671	716	768	813	865	910	961	1 007	
14	10,92	51	104	156	216	269	329	381	441	493	553	606	666	718	778	830	890	943	1 003	1 055	1 115	1 167	
15	11,70	59	119	179	248	308	377	437	506	566	635	695	764	824	893	953	1 022	1 082	1 151	1 211	1 280	1 340	
16	12,48	67	136	204	282	351	429	498	576	644	723	791	869	938	1 016	1 085	1 163	1 231	1 310	1 378	1 456	1 525	
17	13,26	76	153	231	319	396	485	562	650	728	816	893	982	1 059	1 147	1 225	1 313	1 390	1 479	1 556	1 644	1 722	
18	14,04	85	172	258	357	444	543	630	729	816	915	1 001	1 100	1 187	1 286	1 373	1 472	1 558	1 657	1 744	1 843	1 930	
19	14,82	95	191	288	398	495	605	702	812	909	1 019	1 116	1 226	1 323	1 433	1 529	1 640	1 736	1 847	1 943	2 054	2 150	
20	15,60	105	212	319	441	548	671	778	900	1 007	1 129	1 236	1 358	1 465	1 588	1 695	1 817	1 924	2 046	2 153	2 276	2 383	

*Useful capacity values are based on the above-water portion height of 500 mm of the unused residue level of 200 mm

**This table does not include the whole model range

***Thickness of heat insulating material is determined on the basis of the thermotechnical calculation depending on the installation region and conditions. In case of applying internal insulation the useful capacity is reduced by the amount of insulation volume

ALLOCATION

Tanks and their allocation are selected according to the source data and always meet the most technically challenging and non-standard customer requirements.

FLAMAX offers comprehensive turn key solutions for the construction of tanks with a pumping station. In this case the customer gains a key advantage: no need to solve problems with the responsibility allocation between contractors.

A comprehensive solution allows to reduce the overall design cost for customers.

Tanks with a pumping station are two very closely related components of one engineering system.

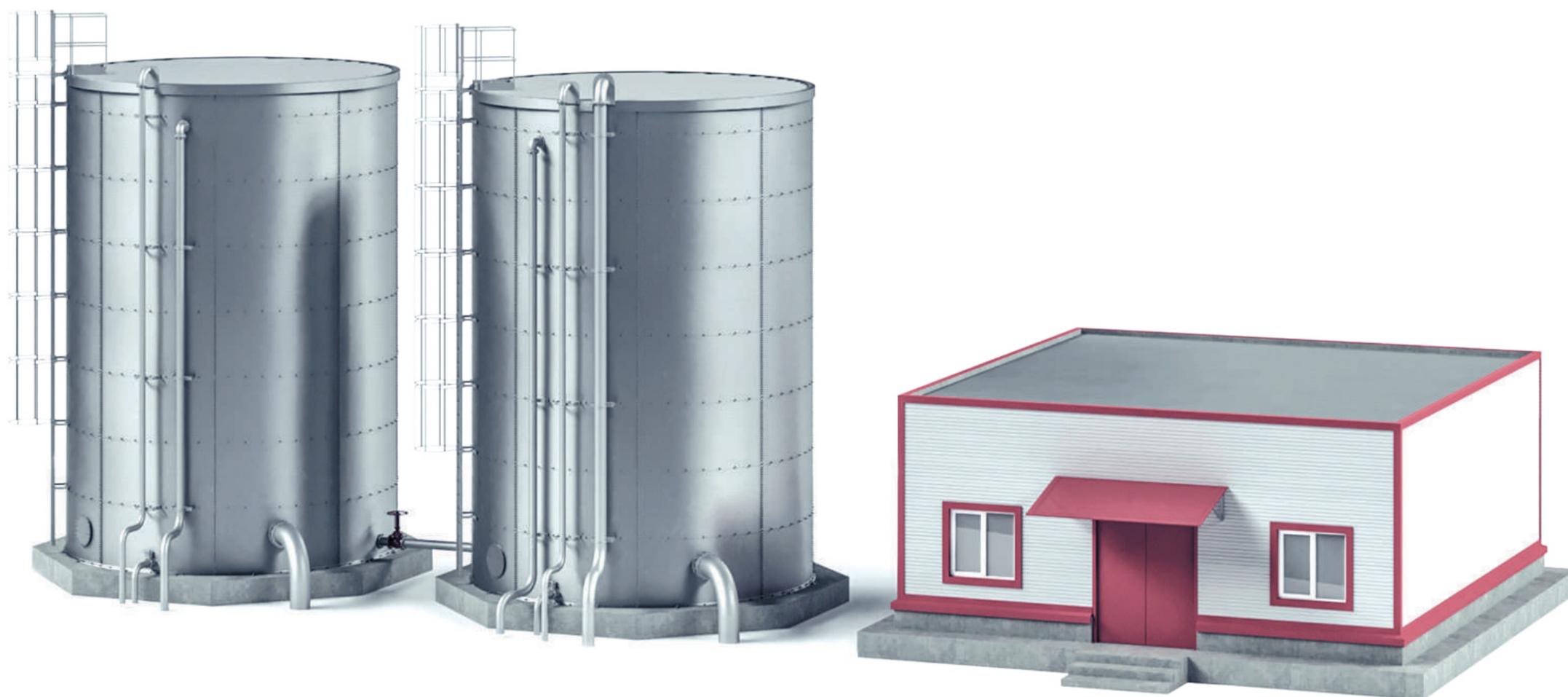
PICTURE OF COMPLETED FACILITY:

- ENTER LOGISTIKA
Reutov, Moscow-Nizhny
Novgorod highway
- Capacity: 2 x 240 m³
- Date: 2015



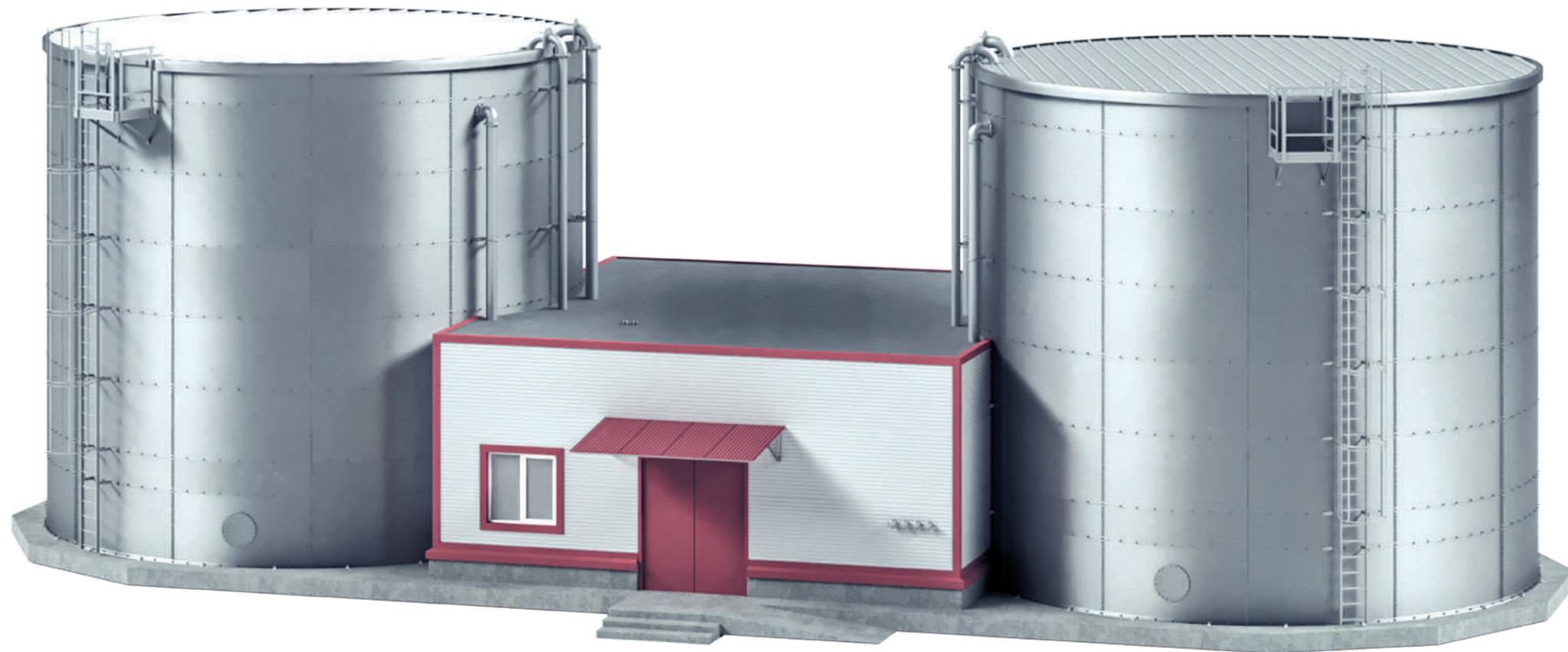
1 FREESTANDING TANKS

Freestanding tanks:
a classical architectural solution



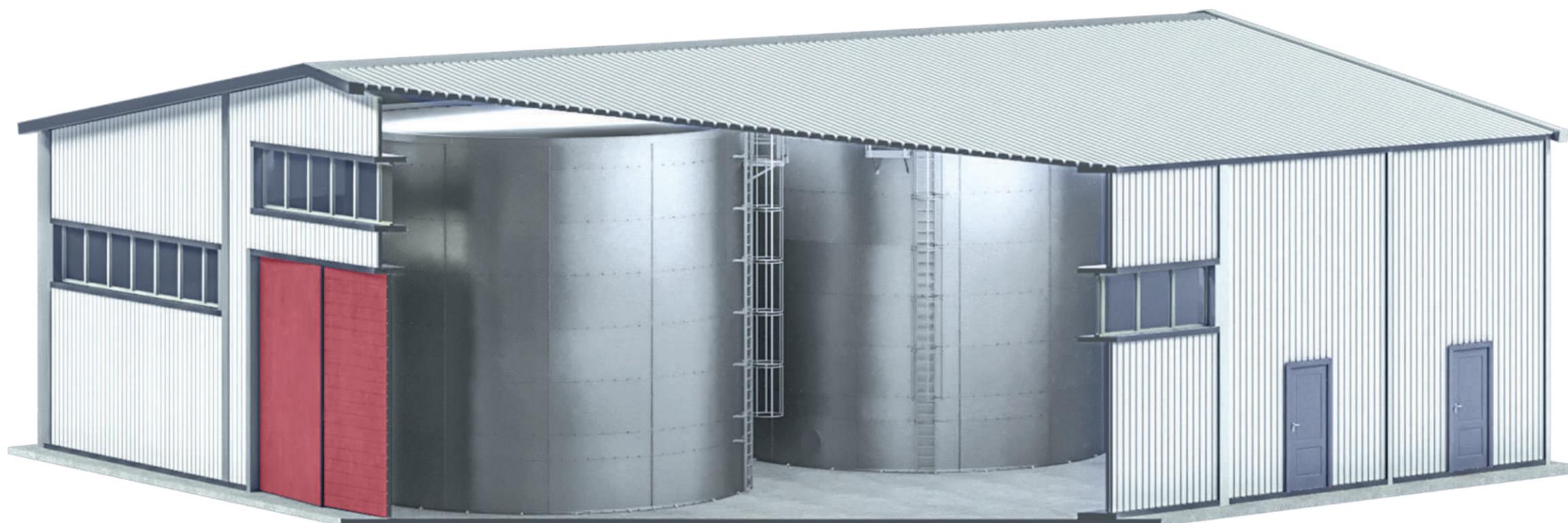
2 TANKS ADJACENT TO THE PUMP STATION/BUILDING

Tanks are adjacent to the pump station/
building: site space saving, no heating
of water-filled pipelines is required, easy
operation of basic units, direct access
to conduits for maintenance.



3 TANKS PLACED INDOORS

Tanks are inside buildings/structures:
a significant reduction of tank cost due
to lack of wind and snow loads.

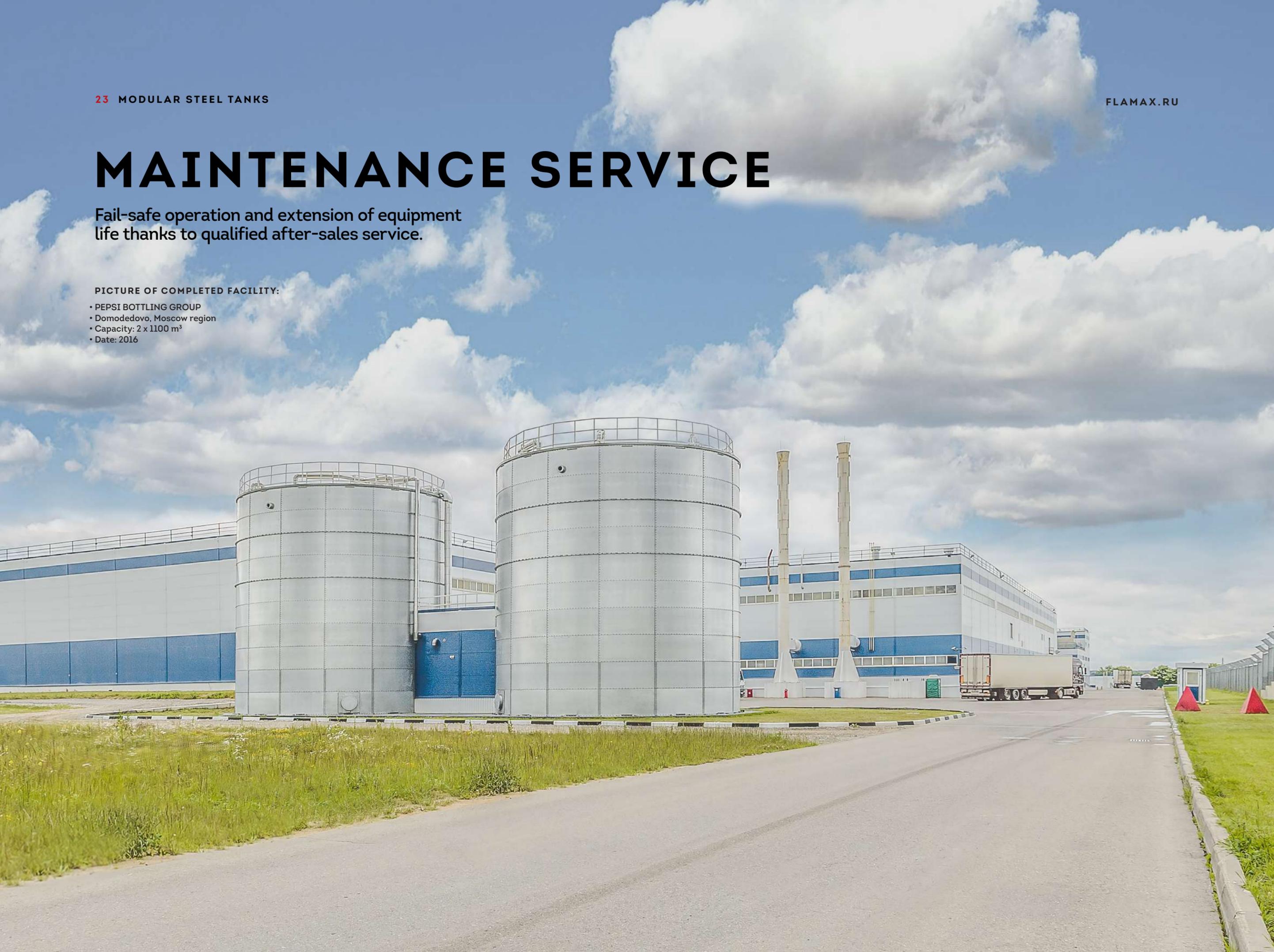


MAINTENANCE SERVICE

Fail-safe operation and extension of equipment life thanks to qualified after-sales service.

PICTURE OF COMPLETED FACILITY:

- PEPSI BOTTLING GROUP
- Domodedovo, Moscow region
- Capacity: 2 x 1100 m³
- Date: 2016



SERVICE DEPARTMENT OPERATION

FLAMAX customer service staff provides a full range of services: from simple technical inspection to the complex replacement of separate components. Well-organized operation of customer service helps to minimize costs for maintenance of tanks, provide consistent quality and uninterrupted operation of systems, allows to avoid unscheduled downtime.

Service strategy of our company consists in providing failure-free operation of equipment after commissioning, continuous monitoring of main units and components, as well as in maximum participation in maintenance or repair works performed by customers



PICTURE 1

Primary service inspection of interior space in order to identify problems and check general condition of the tank is performed by a special robot

PICTURE 2,3

The tank hasn't been serviced for more than 10 years. Internal flanges and membrane are removed

PICTURE 4

A new membrane is installed, flanges, suction fitting and other components are replaced. The tank is as good as new!

UNIVERSAL SERVICE PACKAGES

FLAMAX offers various packages of operational procedures within the framework of contracts and maintenance -schedule:

ECONOMY package

24-hour remote consulting on all equipment-related issues with an agreed number of emergency site visits.

STANDARD package

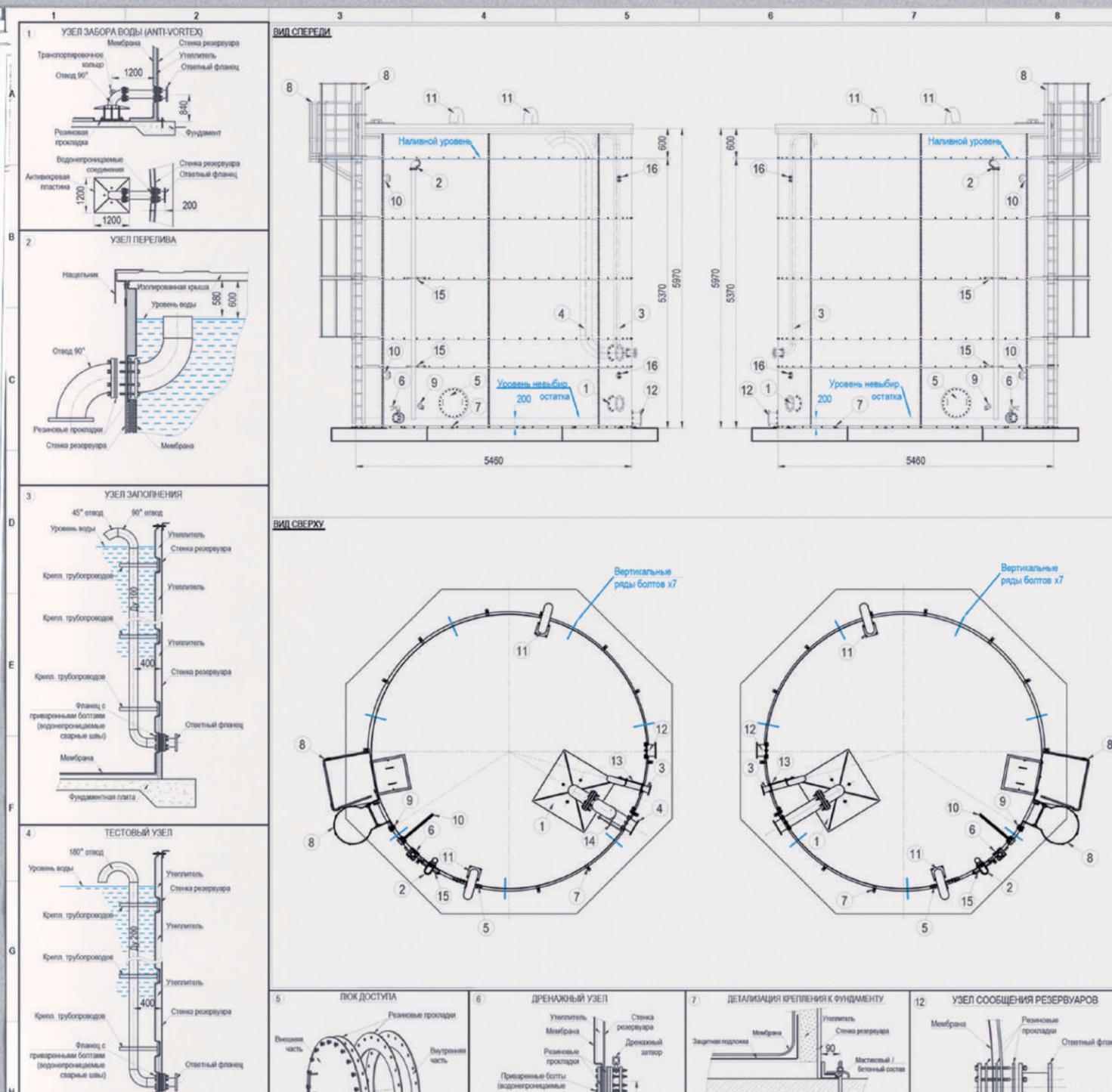
24-hour remote consulting on all equipment-related issues with an agreed number of scheduled and emergency site visits.

BUSINESS package

24-hour remote consulting on all equipment-related issues with an agreed number of scheduled and emergency site visits. Extension of warranty period.

FOR ENGINEERING COMPANIES

FLAMAX design department is actively cooperating with engineering companies, providing comprehensive support from design development and documents preparation to obtaining an expert report.



Спецификация (на 2 резервуара)					
№ПП	НАИМЕНОВАНИЕ	КОЛ-ВО	PN NP	DN ND	МАТЕРИАЛ
1	Узел забора воды (Anti-Vortex)	2	10	200	Гальваник. сталь
2	Узел перелива (с трубопроводом)	2	10	100	Гальваник. сталь
3	Узел заполнения (исп. внутри резервуара, присоединено в стене)	2	10	100	Гальваник. сталь
4	Узел рециркуляции (тестовый) (исп. внутри резервуара, присоединение сбоку)	1	10	200	Гальваник. сталь
5	Ляк доступа	2	/	Ø600	Гальваник. сталь
6	Дренажный узел	2	10	80	Гальваник. сталь
7	Анкерные крепления	28	/	M12	
8	Лестница + платформа	2	/	/	Алюминий
9	Гидростатический манометр	2	/	25	Гальваник. сталь
10	Трубчатый электронагрев по 4 кВт	4	/	50	Гальваник. сталь
11	Дыхательный патрубкок	4	/	150	Алюминий
12	Узел сообщения трубопровода	2	/	200	Гальваник. сталь
13	Крепление трубопровода (исп. внутри резервуара)	6	/	100	Гальваник. сталь
14	Крепление трубопровода (исп. внутри резервуара)	3	/	200	Гальваник. сталь
15	Крепление трубопровода перелива	4	/	100	Гальваник. сталь
16	Узел установки термообразователей (датчик температуры воды)	4	/	15	Гальваник. сталь

Общие замечания:
 Все размеры в мм.
 Соединения узлов не должны проходить через любой вертикальный или горизонтальный шов болтов.
 Количество узлов, их диаметры и места размещения могут быть изменены согласно требованиям РД.

Характеристики р-ра:
 Листы для резервуара изготавливаются из гальванизированной низкоуглеродистой стали.
 Резервуар спроектирован с расчетом на гидростатическое и ветровое нагрузки.
 Резервуар выдерживает ветровые нагрузки до 230 Па (скорость ветра 19,5 м/с) в опрокинутом состоянии, в заполненном состоянии на скорость ветра 44 м/с.

Информация об узлах:
 Все соединения узлов выполнены из гальванизированной низкоуглеродистой стали.
 Фланцевые соединения - NP10.

Информация о крыше:
 Конструкция крыши предусматривает нагрузку не менее 180 кг/м².
 Трапециевидные панели крыши толщиной 60мм (включены в комплект поставки).
 Внутренняя изоляция из панелей экструдированного пенополистирола толщиной 100мм (включено в комплект поставки). Размещение изоляции предусматривается между мембраной и стеной резервуара, между мембраной и фундаментом через защитную подложку.

ПРИМЕЧАНИЕ:
 Высота оси всасывающего трубопровода:
 - при Ду200 - от 400 мм до 1080 мм
 - при Ду250 - от 560 мм до 923 мм
 - при Ду300 - от 657 мм до 900 мм
 - при Ду350 - от 733 мм до 880 мм
 - при Ду400 - от 820 мм до 880 мм

ГАБАРИТНЫЕ ХАРАКТЕРИСТИКИ:
 - Требуемый полезный объем: не менее 108 м³
 - Диаметр = 5,46 м.
 - Высота = 5,97 м.
 - Количество листов в кольце = 7 шт.
 - Количество колец в высоту = 5 шт.
 - Уровень налива воды = 5,37 м.
 - Невыбираемый теплоизоляционный остаток = 0,2 м.
 - Высота надземной части = 0,5 м.
 - Снеговая нагрузка = не менее 180 кг/м².

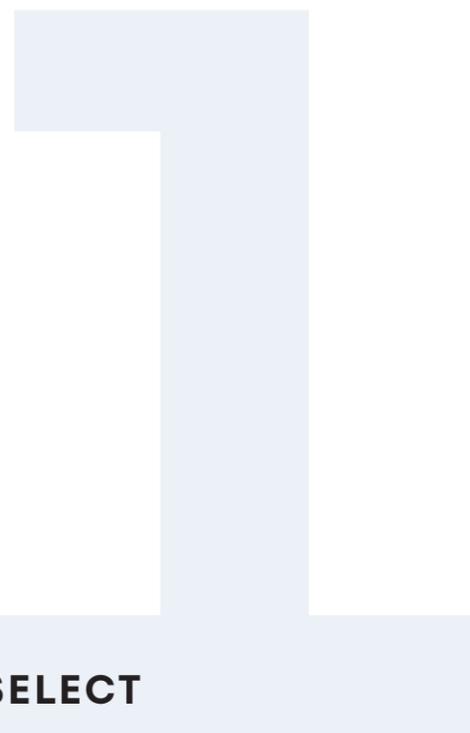
- Геометрический объем = 140 м³
 - Наливной объем до отметки на стм. +5,37 м = 126 м³
 - Полезный объем за минусом невыбираемого остатка = 121 м³
 - Тип теплоизоляции - внутренняя.
 - Материал теплоизоляции - экструдированный пенополистирол.
 - Толщина теплоизоляции - 100 мм (стены и дно).
 - Общий объем изоляционного материала = 11 м³.
 - Полезный объем за минусом невыбираемого остатка и потерь в объеме на теплоизоляцию 100мм (стены+дно) = 110 м³.

Предварительный чертёж 0 15/02/2017



SUPPORT OF ENGINEERING COMPANIES

We always provide prompt all-round assistance in design development to engineering companies, ready to use our product:



the tank that best matches the declared technical specifications.



all technical issues associated with related works:

- develop foundation requirements indicating loads and tolerances
- develop power supply requirements
- recommend schemes and principles to control water filling and heating automation.



drawings of designed tank, electric circuit diagrams, automation flow chart, assignment for related works, as well as photorealistic image of the tank (if needed).



on design regulations and standards relating to the tanks for firefighting & potable water storage, as well as various automation equipment and processing facilities of pumping stations.

FLAMAX

Tel.: +7 (800) 200 62 69
Moscow: +7 (495) 649 62 69
Kazan: +7 (843) 202 21 21
www.flamax.ru