



Diversified Enterprise COMPLEX 1

**Modular tanks for storage of water,
liquids, bulk food and non-food products**

- Tanks “Iceberg” made of stainless steel
- Tanks “Donskoy First” made of galvanized steel

Sollution No.1
for potable
water storage
and not only

For thousands of years of its development, mankind learned how to use natural resources effectively, but question of rational use and conservation of these resources is still acute at modern high-tech society. One of such questions is storage of pure water, and this question is not exclusive to countries with limited water resources and arid climate, but also to all the rest, because of the worsening of global environmental situation, price of pure drinking water sometimes exceeds price of oil, because water is a life-giving and one of the vital necessity resources.

“COMPLEX 1” produces modular bolted tanks of two kinds:

1. Cylindrical and rectangular tanks “Iceberg” made of stainless steel.
2. Cylindrical tanks “Donskoy First” made of galvanized steel.

■ Modular bolted tanks “Iceberg” made of stainless steel

This kind of reservoirs is made using South-Korean technology, which was honed with the assistance of our specialists. At our Russian enterprise these tanks have been producing since 2006. Technology consists in jointing stainless steel panels between themselves using bolts. Strengthening structural elements provide additional inflexibility and resistance to any unfavourable conditions of environment whether earthquakes, high wind or snow loads. This allows to use such water tanks almost in any part of the world. All environmental factors of each specific region are taken into account during designing.

But the main distinctive features of these reservoirs are the follows:

- structure is designed in such way that complete leakproofness of the tank is provided without using polimeric liners;
- unique design of sealing gasket, due to which stored in the tank product doesn't contact with a gasket.
- excluding supporting frame and external strengthening angle bars, all external and internal elements of reservoir are made of stainless steel, including whole reservoir's body, ladders, branch pipes, hatches, manholes, internal pillars, ridgepoles and external sheathing.

Considering unique corrosion-resistant properties of stainless steel, its low adhesion and absence of chemical interaction with contacting liquid, construction of “Iceberg” water tanks provides not only stunning durability, but also unsurpassed hygiene, that allows to use such reservoirs in scopes with the highest requirements and sanitary-hygienic standards. No wonder why surgical instruments are made of stainless steel. That's why often this type of water tanks is used for potable water storage.

Using of stainless steel also allows to avoid large expences for future service and maintenance, including costly cleanings, examinations, paintings, coating restorations, anticorrosion treatments and so on.

Main advantages:

- Cleanliness and hygiene
- Excellent leakproofness
- Environmental friendly
- Absence of welded connections as sources of corrosion
- Manufacturing of tanks of any shape and sizes
- Erection in any season
- Fast assembling and disassembling
- Possibility of relocation, installation at temporary sites
- Easy delivery unassembled
- Delivery to hard-to-get regions
- Assembling indoors, in a confined spaces
- Superb exterior
- Strength and durability
- Estimated operation period no less than 50 years
- Heat- and frost-resistance with thermal insulation, weatherability

Scopes of use:

- potable water as a reserve water supply
- technical water storage, rainwater harvesting, firefighting water storage
- juices, beer, kvass, edible oil and other food liquids
- alcohol-based liquids
- bulk food and non-food products
- foamers
- non-food liquids:
 - dilute acids and most of alkalis
 - detergents
 - technical oils
 - polar solvents
 - low-aggressive chemical and petro-chemical liquids
 - technical oils

Specialists of “COMPLEX 1” studied in detail experience of manufacturing, operation and maintenance of modern water storage systems made of different materials, and as a result conception of modular bolted tanks was taken as a basis and own production technology was developed.





We produce tanks made of stainless steel of different grades (AISI 430, 304, 316 and others). This metal complies with all hygienic requirements, don't need special care, protected from corrosion. Tanks made of stainless steel will serve properly no less than 50 years.



Tank can be made with capacity from 0.5 to 30,000 cbm (130 – 7,920,000 gallons). Herewith shape can be any, taking into account bypass of hindrances (for example building columns, corners).



Assembling of the tank is made by connecting prefabricated panels between themselves by bolts without welding. Special sealing gasket provides complete leakproofness and resistance of the tank to seismic impact. Herewith contact of stored product with gasket material is completely excluded.



Construction of the tank can be supplemented by any additional technological elements or equipment according to customer's wish (absorber filter for purifying the air, which comes into reservoir during it's draining, hatches in walls, temperature sensor, heating system, thermal insulation, other control-measuring instrumentations and automatics, etc.)

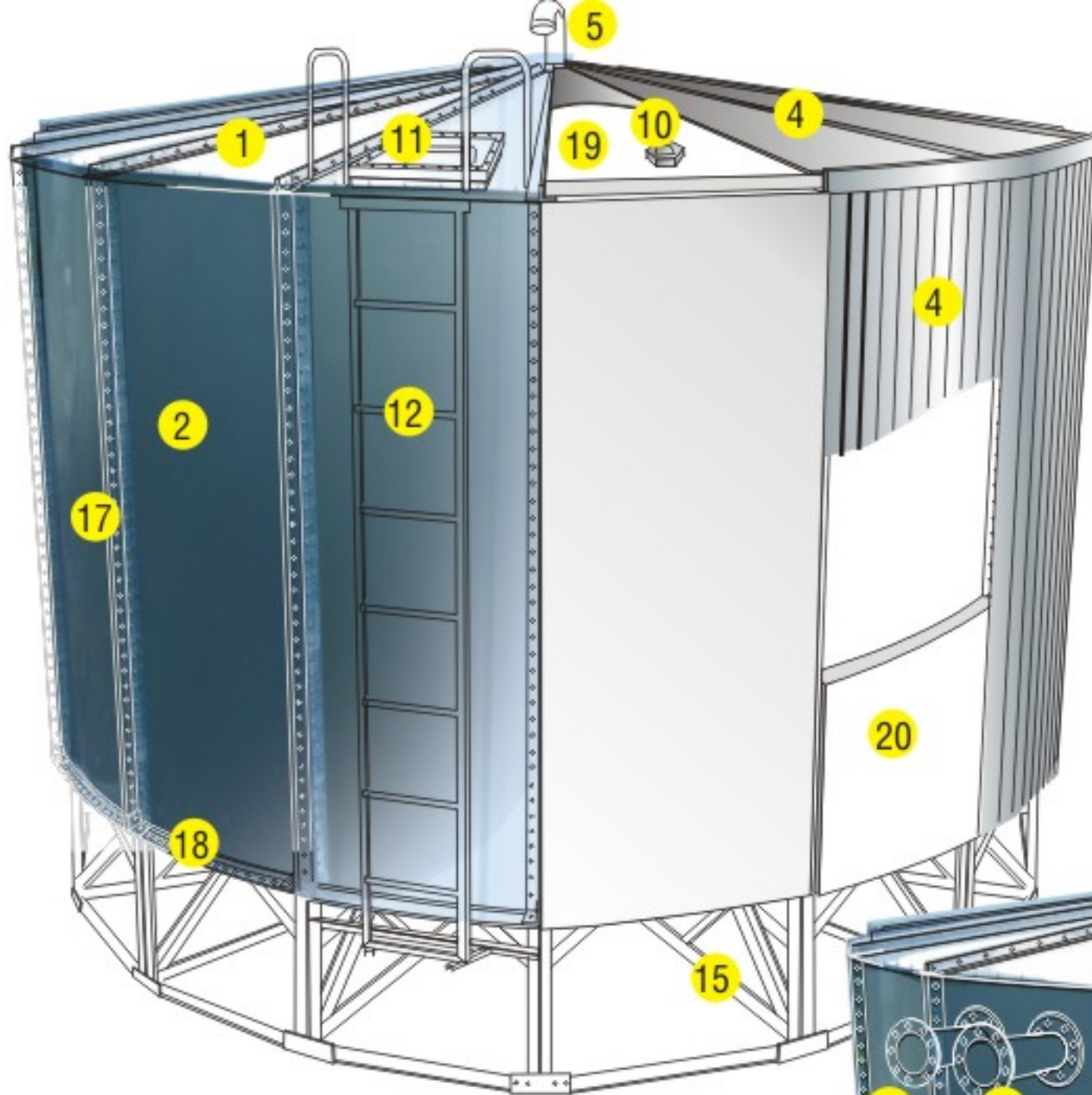
Tanks “Iceberg” are produced of two kinds:

- 1. Cylindrical
- 2. Rectangular

Operational characteristics:

Parameter	Value
Wind load	up to 60 m/sec
Snow load	up to 600 kg/sqm
Permissible temperature of stored product	up to +90°C (194°F)
Permissible temperature of outside air at which exploitaion of the tank is allowed taking into account compensation of heat losses	up to -50°C (-67°F)
Seismic stability	up to 9 points (MSK-64)

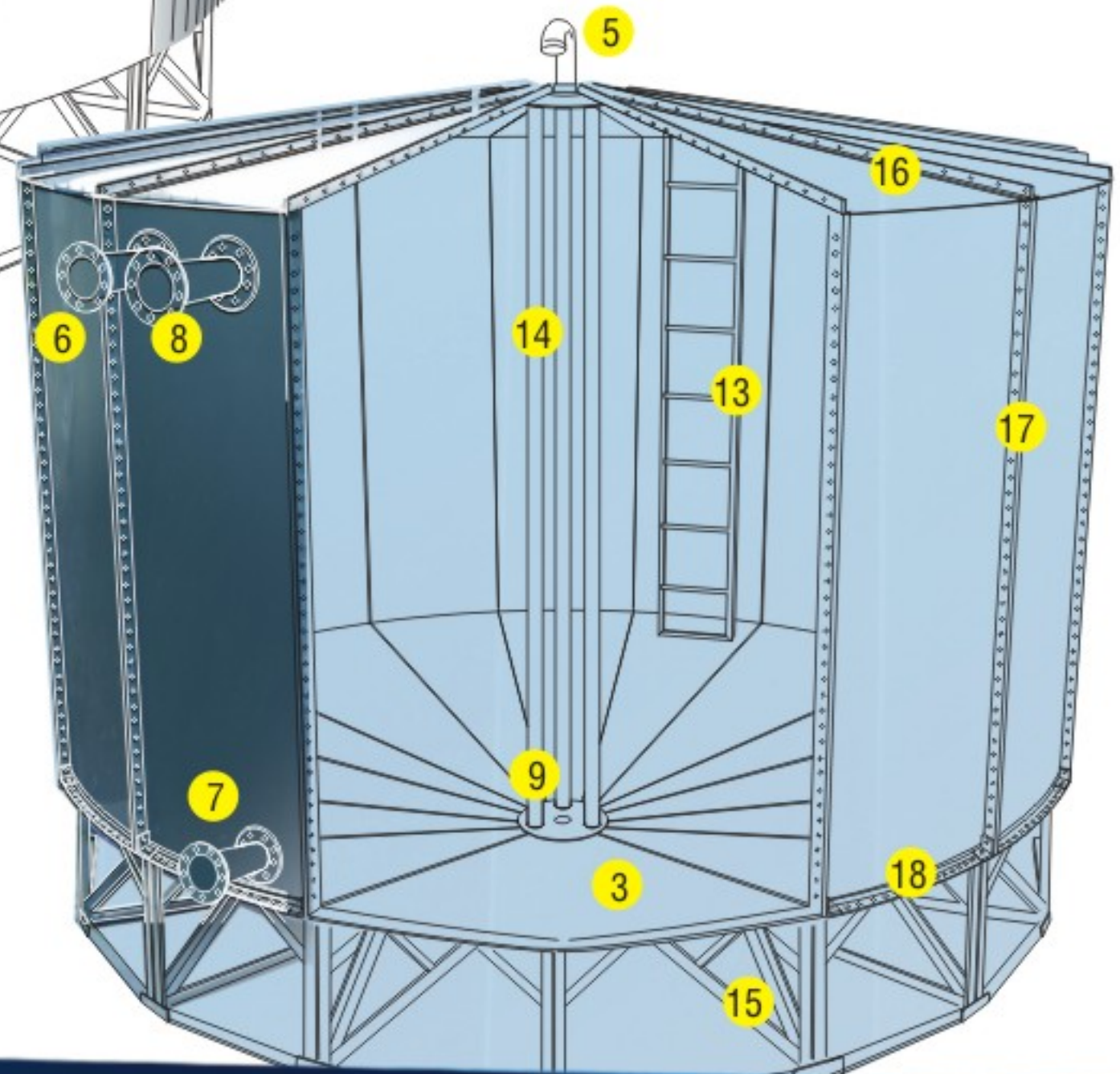
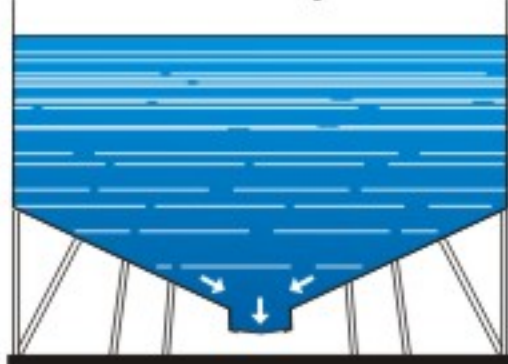




Cylindrical water tanks are produced with a capacity from 5 to 30,000 cbm (1,300 – 7,920,000 gallons). We have standard sizes of typical water tanks, but according to the customer's enquiry we produce sectional reservoirs of nonstandard sizes. Design can be made using thermal insulation or without it.

Bottom part of reservoir is equipped with central drainage branch pipe, located in the lowest point of the water tank, so it provides complete effortless drain of stored product, as it is shown at the scheme. Such design facilitates a lot exploitation of water tank and it's maintenance.

Tank can be produced without support frame, with installation directly on concrete base.



Rectangular water tanks
are produced with a capacity from 0.5 to 5,000 cbm (130-1,320,000 gallons) and are made by individual order. Design also can be made using thermal insulation or without it. Frequently this type of tanks is installed indoors, design allows to produce reservoirs of any shapes taking into account specificities of the room. We have produced L-shape and U-shape water tanks when there was need to go round building columns or corners.

Standard complectation:

Panels (polished stainless steel sheet)

- 1 — Roof (thickness 1.5-3.0 mm)
- 2 — Wall (thickness 1.5-8.0 mm)
- 3 — Bottom (thickness 1.5-8.0 mm)
- 4 — Decorative protective panel

Ventilation

- 5 — Breathing branch pipe
- 6 — Inlet branch pipe
- 7 — Outlet branch pipe
- 8 — Overflow branch pipe
- 9 — Drainage branch pipe
- 10 — Branch pipe for level measuring device

Maintenance

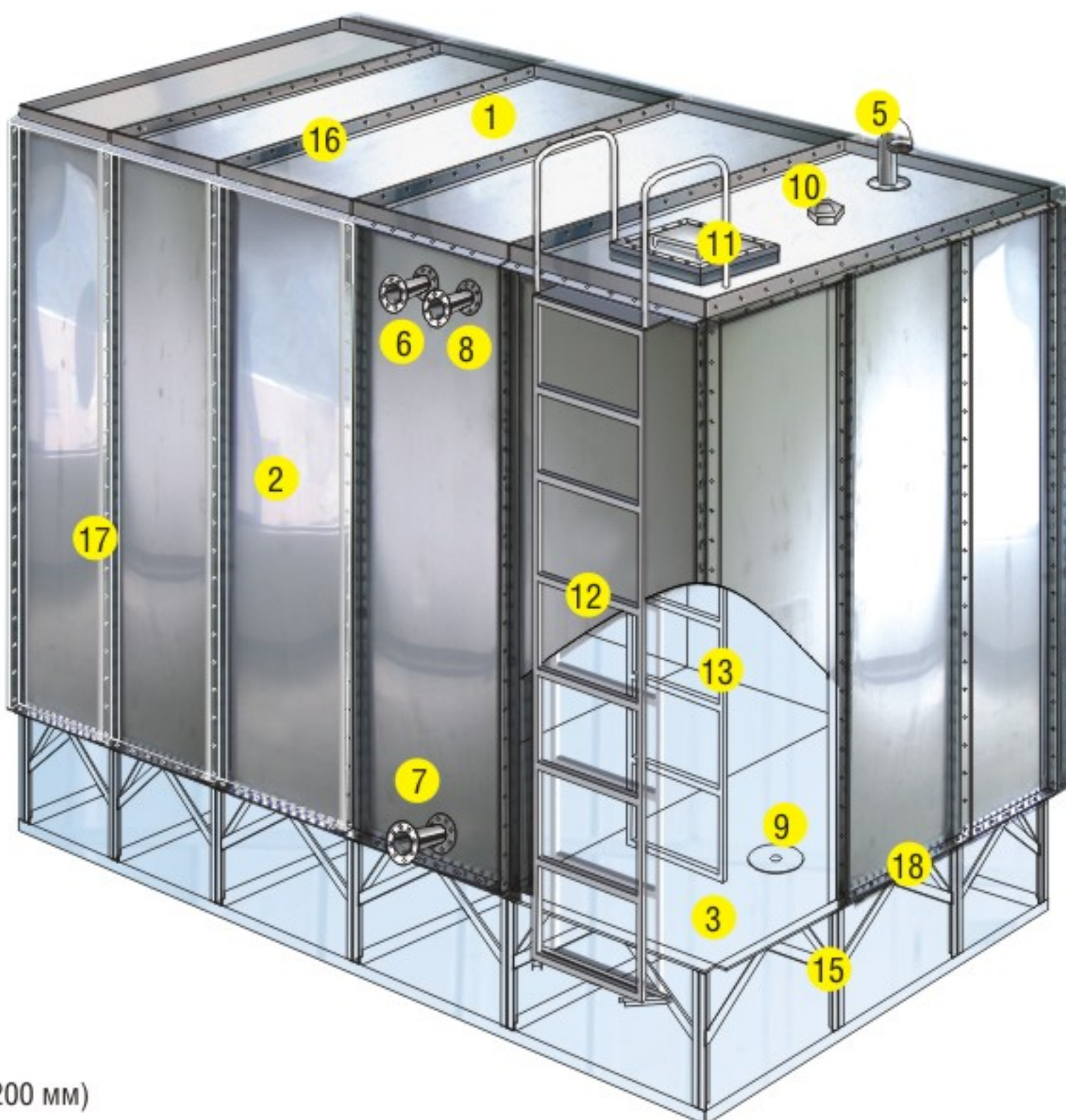
- 11 — Manhole
- 12 — External ladder
- 13 — Internal ladder
- 14 — Internal pillar (for tanks of large capacity)
- 15 — Support frame (galvanized steel A570-36)
- 16 — Roof strengthening angle bar
- 17 — Wall strengthening angle bar
- 18 — Bottom strengthening angle bar

Thermal insulation

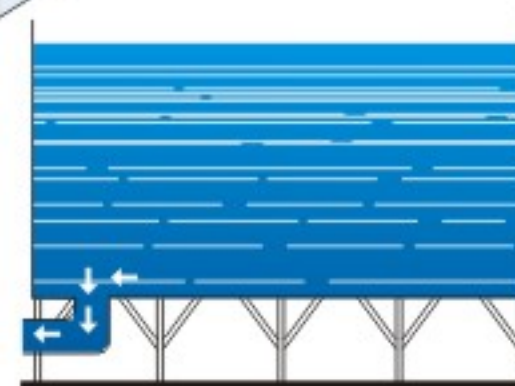
- 19 — Roof panels
(polyfoam, thickness 40-200 mm)
- 20 — Wall panels
(polyfoam/polyethylene foam, thickness 40-200 mm)
- Bottom panels
(self-adhesive foam foil polyethylene, thickness 10 mm)

Mounting hardware

Bolts, nuts, washers, rivets
(stainless steel, galvanized steel
strength class 9.8-12.9)



Rectangular water tank as a cylindrical one also is equipped with a drainage branch pipe, located in the lowest point. Tank can be produced without support frame, with installation directly on concrete base.



■ Modular bolted tanks “Donskoy First” made of galvanized steel

Reservoirs made of galvanized steel “Donskoy First” also are modular (sectional) and have all abovementioned advantages of modular water tanks.

Panels are jointing with bolts, which provide large compressive force, but “Donskoy First” reservoirs are assembled using another technology – frameless.

Sheets of panels lie overlap.

Main scope of use – as fire tanks, for technical water storage and rainwater harvesting, and also for storage of bulk food and non-food products.

These water tanks don't need any anticorrosion coatings neither external nor internal surfaces after erection.

Capacity of water tanks “Donskoy First” made by our plant is from 24 to 10,000 cbm (6,340 – 2,640,000 gallons).

These reservoirs also can be equipped with any additional technological elements and equipment and can be made using thermal insulation or without it.

All tanks made by our enterprise are completely leakproofness and don't need any internal liners.

Designing of modular tanks “Donskoy First” is also implemented taking into account seismic activity, wind and snow loads in the region of exploitation.

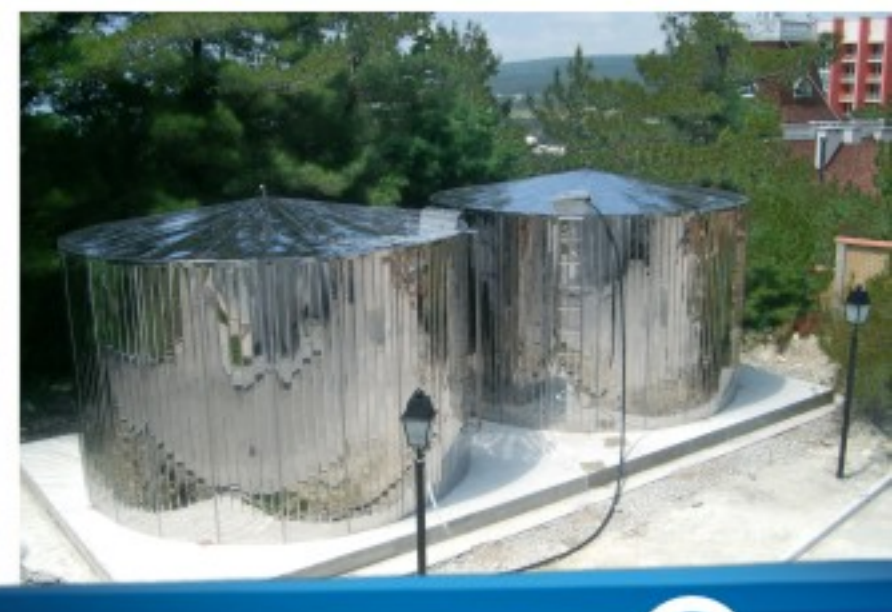
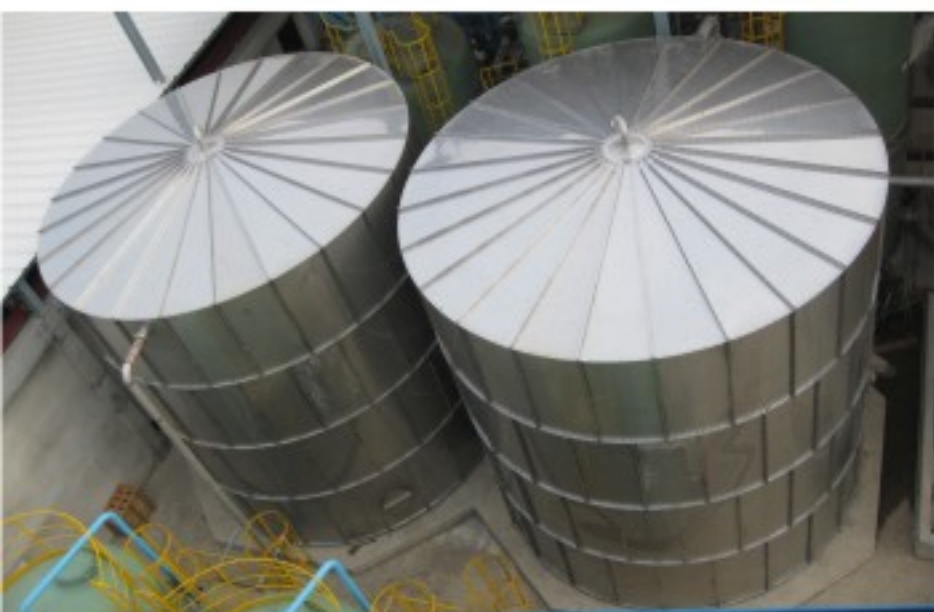
Tanks can be erected at the construction object by our crew, under supervision of our specialist or by customer's forces.



Geography of realized projects

- Russian Federation
(thousands of objects on all territory)
- Kazakhstan
- Uzbekistan
- Ukraine
- Belarus
- Lithuania
- South Korea
- China
- Vietnam
- Cuba
- Seychelles
- Nigeria
- Norway
- Spain

and others.



“COMPLEX 1” is a diversified enterprise, that was founded in 1991 by scientific workers of Rostov institute of civil engineering. For today the enterprise consists of great team of highly qualified engineers and workers. One of the main activities of the company is manufacturing and installation of modular (sectional) bolted water tanks. All technological processes related to manufacturing of bolted tanks are implemented at production area of our plant. Modern lathes, coordinate-punching and laser machines, sheet bending machines and presses, latest technologies and instruments for metalworking allow to the plant to produce high quality water tanks in tight schedule. The plant makes input quality control of all materials, that are used for water tanks manufacturing, including chemical composition check in the laboratory, which is a part of enterprise's structure.

We provide a full range of services:

1. Preparation of technical task for client;
2. Designing & Engineering;
3. Water tank manufacturing;
4. Completion with additional equipment;
5. Delivery of water tanks to destination point;
6. Installation of water tank in short term and leakproofness testing.



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