

HIGH-PRESSURE PIPELINE SYSTEMS

New technologies



LLC "NordVest" presents a line of high-pressure pipeline systems with a diameter of up to 200 mm for an operating pressure of up to 180 atm.

The proposed pipes are the result of the work of the engineering and design personnel of the enterprise and have a number of characteristics that give them an indisputable advantage over analogues available on the market.

Pipes have increased indicators of reliability and strength due to the use of special reinforcing profiles, which ensure their more dense packing with uniform loading, as well as the presence of a polymer antifriction layer under the outer shell. The design of the reinforcing profiles and the technology of their laying is the company's own development.



²⁰ мм/2" 80 мм/4" 100 мм/5" 140 мм/6" 200 * The most common (demanded) standard sizes of pipelines

Pipeline system high-pressure (STV)



STV is a high-pressure multilayer structure pipeline system, consisting of polymer layers reinforced with highstrength metal materials. Separate sections of the pipeline are connected using metal fittings of various designs.



Inner diameters (L): 50-200 mm Working pressure (P): 40-180 atm. Working temperature: -60 ° C ... + 60°C (+ 80°C *) The pumped-over media: liquids and gases.

The outer sheath of the pipelines is made of a light-stabilized polymer resistant to ultraviolet radiation, and can be painted in any color at the request of the customer

The pumped-over media: oil, gas, water, abrasives, aggressive media, etc.

STV is available for both onshore and offshore applications and differs in outer shell material. Service life is 20 years.

* STV can be made from a material with increased heat resistance, which will allow the product to be used at temperatures up to + 80 °C.

STV advantages



The use of STV has a number of advantages compared to the traditionally used steel pipes:



•reduction in the cost of installation and operation of the pipeline;

- reduction of the pipeline installation time;
- manufacturing by lengthy segments;
- low thermal conductivity;
- high resistance to aggressive environments;
- the possibility of using electric heating;
- low hydraulic losses;
- low operating costs.

Fittings for STV installation

Flange fitting Bolted connection Sealing elements

Symmetrical fitting Connections of pipe sections

Butt weld fitting

Welded to standard piping and standard piping fittings

Manufacturing to order

Customized configuration It is possible to manufacture flanges according to GOST, ANSI





Fitting installation



End fittings are installed on the STV in several sequential steps - crimp on the inner surface, crimp on the outside.

The purpose of the crimp is to continuously shape the walls of the end fitting to fit the pipe. This operation ensures a uniform tight compression of the pipe walls with the fitting, both on the inner and outer surfaces.

Schematic diagram of a fitting pulling along the inner and outer surfaces of the fitting:

Inside crimp

Outside crimp





High-pressure pipeline system (STV)

Special execution

STV with thermal insulation layer





STV with electric heating



Inner diameters (DN): 50-140 mm Working pressure (PN): 40-180 atm. Working temperature: -60 ° C ... + 60 ° C Heating power: up to 50 W / m The pumped-over media: oil, gas, water, abrasives, aggressive media, etc.

Polymeric flexible pipelines have undeniable advantages over steel ones, including the possibility of additional insulation of pipelines and the installation of heating conductors. The polymer pipeline itself has a coefficient of heat transfer to the environment several times lower than that of steel, and the manufacture of a pipeline with an additional heat-insulating layer and the installation of heating conductors makes it possible to fully compensate for the heat losses of the pumped liquids into the environment.



STV of this type can be manufactured with heating power up to 50 W / m.

Installation of STV with electric heating



Концевое соединение

Муфта конечная (для замыкания контура обогрева)

Electrically Heated STVs are supplied on drums ranging from 200 to 500 m in length. To increase installation speed, the pipeline is supplied with end fittings and electrical connectors installed. The delivery set also includes a Heating Control Unit (UUN), a set of couplings (installation cables with electrical connectors), protective thermal covers.



Соединение с СПТ

Промежуточное соединение

Муфта подключения ВТС к СПТ

After laying the pipeline, all that remains is to connect the fittings, electrical couplings (all couplings have reusable quick-release couplings) and connect the system to the UUN. One UUN controls heating of a pipeline section with a length of 1000 to 8000 meters. In addition to heating conductors, STV contains power and signal (information) conductors. Power conductors can be used to supply heating systems for valves, tees and additional. equipment

Delivery to the consumer



STV is supplied on metal drums. It can be delivered to the place of installation by road, rail, sea transport.









Installation of flexible piping

Benefits

- Quick installation of connections (30-45 minutes)
- The minimum amount of equipment
- Team of 2-3 people



Equipment for piping installation

Fittings installation equipment Hydraulic press

Equipment for coiling / winding pipelines

- •A-frames (OU)
- Receiver and Receiver Devices (RRD)







trenching

Compared to steel pipelines, STV requires 20-40% less trench width and reduces the installation time by several times.

CTB does not have special requirements for the cushion, but to avoid damage to the outer shell, the areas of contact with the pipe should not have large, sharp stones or protrusions. Crossings under roads, as a rule, are drawn into a collection pipe.









Ground laying

By using the direct route method, multiple lines can be quickly and efficiently "run". Typically, STVs do not require the supports and ramps used with steel pipes. However, PTS can sometimes be installed along existing pipelines using these structures.





Pipeline laying by rehabilitation method

Flexible pipelines can be installed instead of old pipes of larger diameter by pulling reinforced pipelines into the existing cavity. Pulling operations of one pipe segment up to 1.2 km long, including several bends, were successfully completed. The main limitation is the length of the conductor, which must be previously pulled through the pipeline to be refurbished.





Installation in harsh climatic conditions

STVs can also be mounted above the ground and are ideal for applications in areas with harsh climates such as the tundra.

STV does not lose its strength characteristics at low ambient temperatures.

Underwater gasket



In addition to the above installation methods, the STV can be installed under water at depths of up to 120 meters. This type of laying is used for the installation of pipelines in both fresh and sea water. Subsea pipelines are mainly used to transport oil or gas, but can also be used to transport other products, such as fresh water.







Pipeline repair when laying on the ground

If the pipeline has an excessive length along the route, then it is necessary to cut out the damaged section at least 2 m, 1 m from the place of damage in each direction. Install fittings (either flanged or welded) on the cut ends of the flexible pipe. After that, one of the pipeline sections is pulled up and the two sections are connected to each other.



If it is impossible to tighten the pipeline, then it is necessary to cut out the damaged section of at least 2 m, 1 m from the place of damage in each direction. Install fittings (either flanged or welded) on the cut ends of the flexible pipe. Then replace the cutout with the repair insert.



Pipeline repair for underground laying

In the case of pipeline repairs during underground laying, it is necessary to conduct a grounding. Grinding is carried out to a depth that allows for repairs along the lower generatrix of the pipeline, while the length of the pipeline section, cleared of soil, should be at least 4 m in length and 1 m in width. Slopes, fastenings of the pit wall must be performed in accordance with paragraph 2.10 RD 153-39.4R-130-2002.



Steel pipe connection



To connect a flexible pipeline with a steel one, it is necessary to install a fitting with a flange on the end of the flexible pipeline and connect it to the flange of the steel pipeline. Another connection option is to install a welding fitting on the end of a flexible pipe and weld it to a steel pipeline.





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