



HIGH PRESSURE THERMOPLASTIC PIPES



quality integrity innovations

Our Company

Pipeline Systems OILTECH, LLC is a part of a group of companies working in oil and gas industry which produce, engineer and develop systems with the most advanced plastic technologies for the conduction free of corrosion of all kind of fluids at high pressures and temperatures.

The group is working worldwide providing services, installations, products and performing turn key projects.



Content

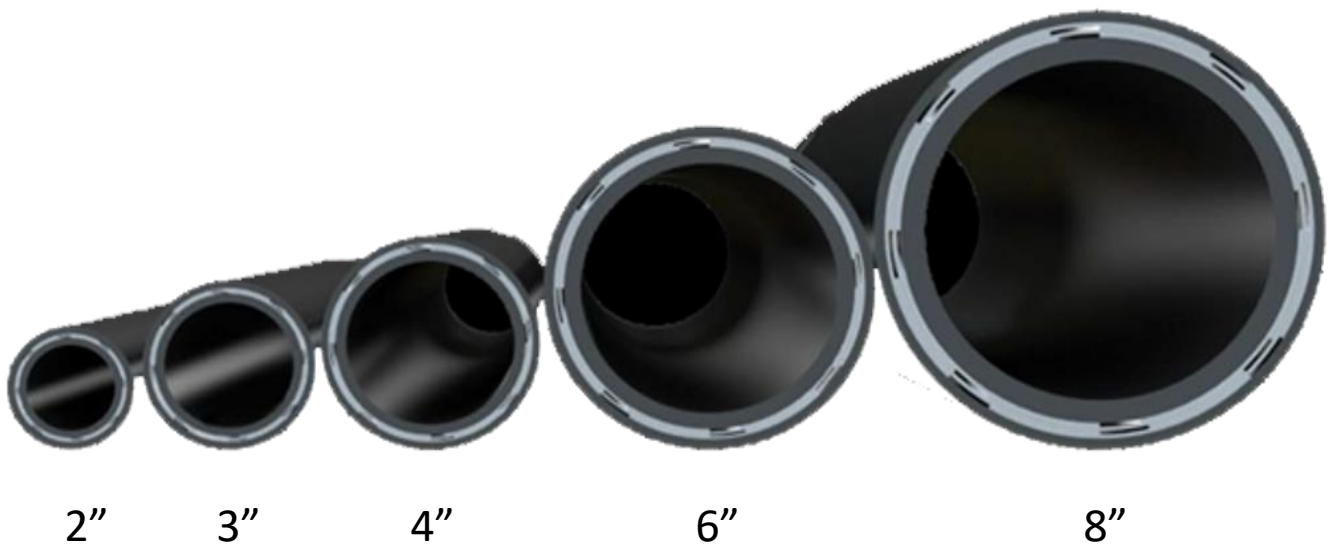


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Our product



We manufacture flexible composite pipes up to 8 inches for working pressures up to 3000 psi under our registered brand OILTEHPIPE. Our product is the result of work of the company engineering staff and has a number of characteristics that provide an indisputable advantage over the analogues available on the market. Pipes have increased reliability and strength due to special reinforcing profiles, which ensure their more dense laying with uniform loading, and polymer antifriction layer under the outer sheath. The design of reinforcing profiles and technology of their laying is the company's own development.

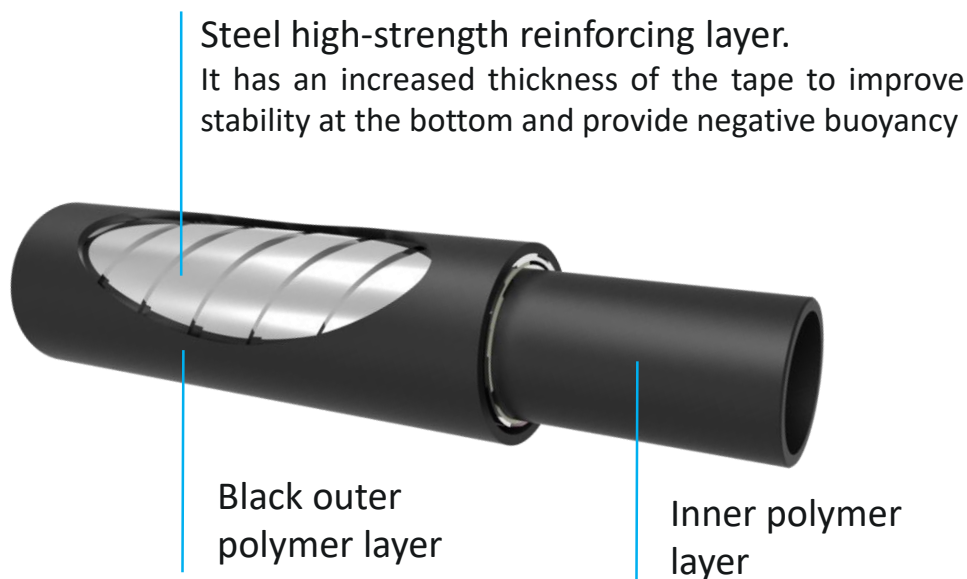


* The most common (in-demand) standard sizes of pipelines

Our product



The pipe consists of inner and outer polymer layers and intermediate reinforcing layer based on profiled metal tapes.

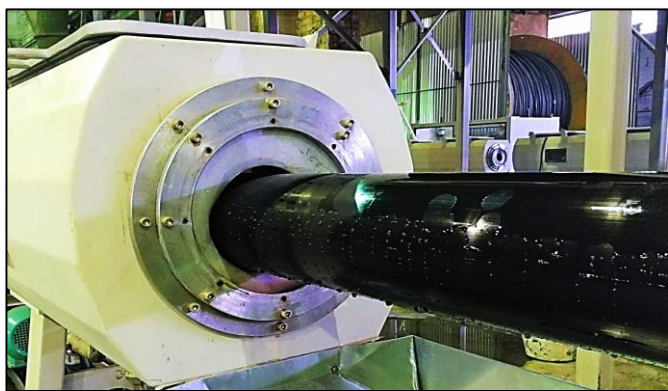


Nominal diameters (in): 2-8

Operating pressure (psi): 600-3000

Operating temperature (°F): -40...250

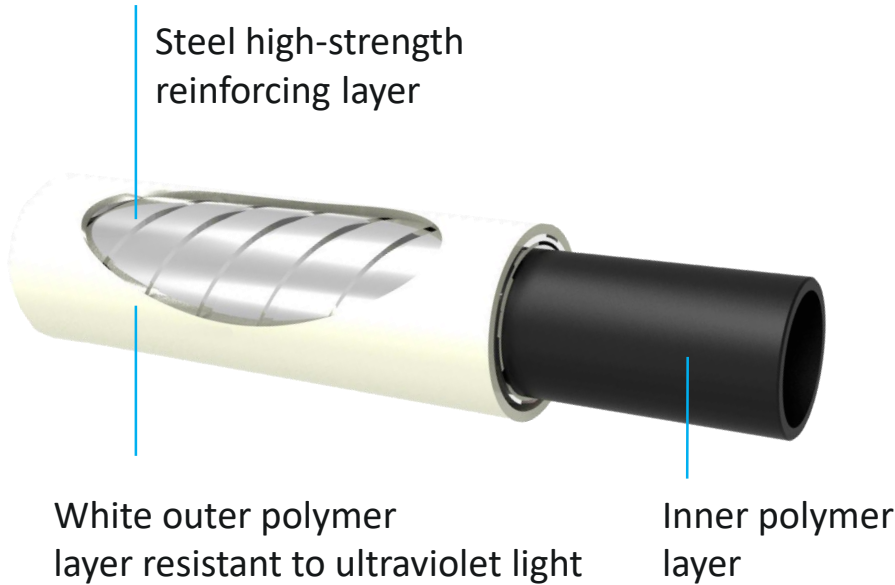
Transported fluids: oil, gas, and water.



OILTECHPIPE is produced both for onshore and offshore applications and differs by material of its outer sheath.

Design life is 20 years. Expected life is 50 years if the pipe is buried or 20 years if it is installed on surface.

Our product



Steel high-strength reinforcing layer

White outer polymer layer resistant to ultraviolet light

Inner polymer layer

To preserve all the properties of the pipeline during its storage or in use under direct sun exposure, the outer sheath of OILTECHPIPE is produced in white color. Design life is 20 years.

Quality and certification

OILTECHPIPE is produced in accordance with the TS 22.21.29-001-20243420-2018



Our product



Technical parameters

All main characteristics of the OILTECHPIPE: dimensions, thermal properties, pressure, weight and length can be found in the table below.

OILTECHPIPE	600 psi					1500 psi				3000 psi			
	2'	3'	4'	6'	8'	2'	3'	4'	6'	2'	3'	4'	6'
Dimensions													
Pipe Inside Diameter, (in)	2.09	3.07	3.82	5.59	7.87	2.09	3.07	3.82	5.59	2.09	3.07	3.82	5.59
Pipe Outside Diameter, (in)	2.95	4.09	4.88	7.00	9.69	3.03	4.13	5.00	7.13	3.03	4.21	5.08	7.48
Min. bending radius, (ft)	2.46	2.95	3.77	5.25	7.55	2,46	2,95	3,77	5,25	2,46	2,95	3,77	5,25
Thermal Properties													
Designed temperature, (°F)	-40+250												
Maximum allowed operating temperature, (°F)	-40+239												
Pressure													
Operating pressure according to API 15S, (psi)	600					1500				3000			
Minimum bursting pressure (68 °F), (psi)	1726	1581	1552	1581	1581	4134	3757	3611	3452	6237	5860	5787	5555
Minimum bursting pressure (150 °F), (psi)	1653	1552	1421	1552	1552	4061	3648	3524	3379	6164	5787	5715	5482
Weight and length													
Weight, (lb/ft)	2.82	4.30	6.04	10.95	20.16	3.63	5.44	8.27	13.17	4.43	7.79	11.42	22.17
Max. length, (ft)	3937	3937	2625	984	328	3937	3937	2625	984	3937	3609	2625	984
Weight of max. length with reel, (lb)	14409	20236	19162	14082	9919	17598	24724	25016	16266	20748	31421	33285	25122
Properties													
Design life, (years)	20												
Expected life buried, (years)	50												

Advantages



OILTECHPIPE has a number of advantages compared with the traditionally used steel pipes :



- ✓ no corrosion
- ✓ reduced pipeline cost
- ✓ reduced pipeline installation time
- ✓ production of long-length parts
- ✓ low thermal conductivity factor
- ✓ high resistance to aggressive environments
- ✓ possibility of electric heating
- ✓ low hydraulic losses
- ✓ low friction, no scale or erosion
- ✓ low operating costs
- ✓ no cathodic protection

Applications



Offshore

Onshore

Other applications

Installation methods

Offshore

- Static flowlines
- Flexible risers
- Water / chemical injection
- Well intervention

Onshore

- Flowlines
- Water injection
- Gas lift lines
- Gas distribution lines
- Effluent water

Other applications

- Mining
- Water utilities
- Gas utilities
- Pumping sewage stations
- Transport of diluents, diesel, gasoline, etc.

Installation Methods

- Trench pipe-laying
- Above-ground pipe-laying
- Underwater pipe-laying
- Relining
- Directing around corners and obstacles
- Guided with nylon straps

Fittings



Flange fitting
Bolted connection
Sealing elements



Midline fitting
Connection of pipe segments



Welded fitting
It is welded to standard
pipeline elements and
standard pipeline fittings



Custom manufacturing

Configuration is at the request of customers. It is possible to manufacture flanges according to GOST, ANSI.



Fitting installation



End fittings are installed in several consecutive stages - swaging along the inner surface, swaging along the outer surface.

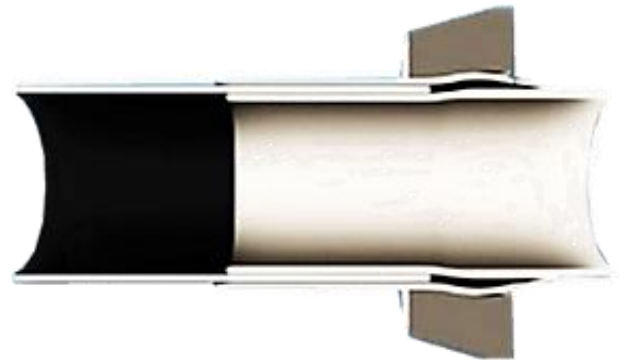
The purpose of swaging is the permanent formation of the end fitting walls according to the pipe size. This operation provides uniform tight crimp of the pipe walls by the fitting, both on the inner and outer surfaces.

Schematic diagram of broaching the fitting along its inner and outer surface:

Swaging along the inner surface



Swaging along the outer surface



Customer delivery



OILTECHPIPE is delivered in reels. It can be delivered to the place of installation by motor, railway and sea transport.

OILTECHPIPE in order to facilitate and make economically efficient the transport can produce reels and lengths according to required needs.



Advantages

- Quick installation of connections (30-45 minutes)
- Minimum amount of equipment
- Crew of 2-3 people



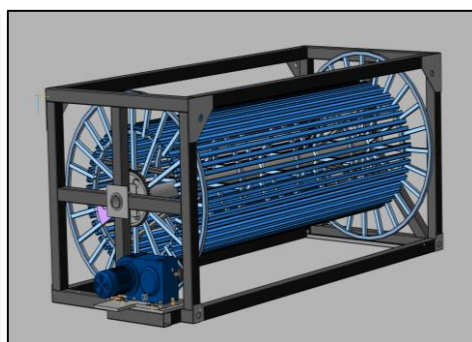
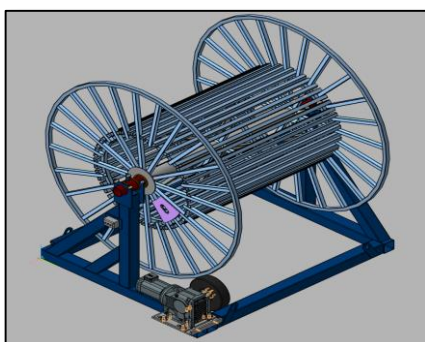
Pipeline Installation Equipment

- Fitting installation equipment
- Hydraulic press



Pipeline winding/unwinding equipment

- A-frames (pay-off)
- Take-up and pay-off equipment
- Moving on coiling rollers



Trench pipe-laying

In comparison with steel pipelines OILTECHPIPE requires 20-40 % less width of a trench and decreases the installation time by several times.

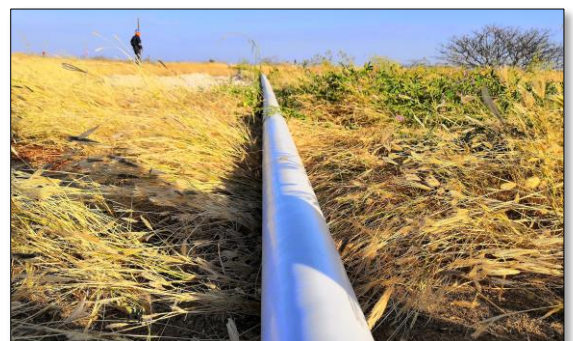


OILTECHPIPE does not have any special requirements to a bed plate, however in order to prevent outer sheath damages the areas contacting the pipe should not have big, sharp stones or bulges. Passages under the road as a rule go to a manifold pipe.

Above-ground pipe-laying

Using method of direct laying it is possible to set up multiple lines in a quick and effective way. Usually during laying there is no need in any supports and ramps which are used with steel pipes.

However, OILTECHPIPE can be installed in existing pipeline routes using these constructions.



Relining

OILTECHPIPE can be installed instead of old pipes of bigger diameter by pulling the flexible composite pipeline through the opening the existing one. There is a successful experience of pulling one segment of the pipe with the length up to 1.2 km including several bends. The main restriction is the length of a guide pipe, which should be preliminary pulled through the pipeline to be relined.



Installation in severe climatic conditions

OILTECHPIPE can also be installed above the ground and ideal for applications in areas with severe climatic conditions, such as Arctic regions. OILTECHPIPE does not lose its strength characteristics at low ambient temperatures.



Installation methods



Except for the abovementioned installation methods OILTECHPIPE can be installed under water at depths up to 120 m.

This kind of installation is applied to mount the pipeline both in fresh and sea water. Offshore pipelines are generally used for oil and gas transportation but can be used for transportation of other products, for example fresh water.



Above-ground pipe-laying

If the pipeline has enough length along the route, it is necessary to cut out the damaged section of at least 2 m, 1 m from the damage location on both sides. Then, fittings (either flanged or welded) are mounted on stub ends of the flexible composite pipe. After that, one of the sections of the pipeline is dragged to the other and two sections are connected together.

If the pipeline cannot be dragged, it is necessary to cut out the damaged section of at least 2 m, 1 m from the damage location on both sides. Then, fittings (either flanged or welded) are mounted on stub ends of the flexible composite pipe. After that, a repair insert is mounted on the cut-out location.



Underground pipe-laying

In case of repair of the pipeline with underground laying, it is necessary to dig a pit. Pitting is carried out to a depth that allows repairs along the lower generating line of the pipeline, while the length of the pipeline section cleared from the ground should be at least 4 m in length and 1 m in width.



Connection to steel pipeline

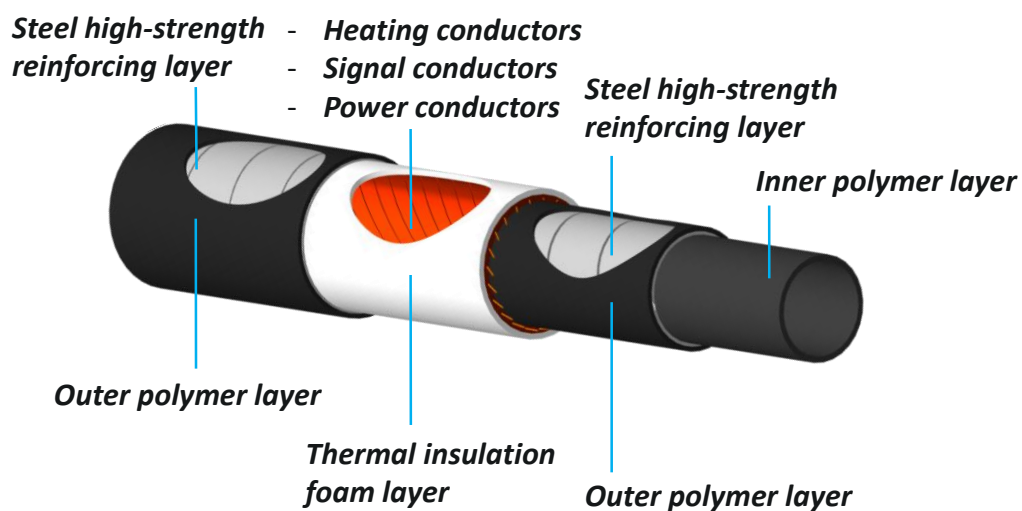
To connect an OILTECHPIPE to a steel pipeline, it is necessary to weld a counter flange to the steel pipeline, mount a flange fitting on the end of the flexible pipeline and connect both flanges. Another connection variant can be mounting a welded fitting on the end of the flexible pipeline and welding it to a steel pipeline.



Pipe with electrical heating



Flexible pipes can be equipped with a thermal insulation foam layer with conductive conductors for electric heating.



The technology of insulation of flexible pipes with thermal insulation foam layer with conductive cores for electric heating involves the following operations:

- ✓ application over the outer shell of the flexible pipe elements (segments) with conductors of the same layer, wound in the same direction with a certain step. Segments with conductive cores may include heating conductors, power conductors, signal conductors (twisted pairs, fiber);
- ✓ application of two anti-wear layers of polymer tape over segments with conductors;
- ✓ application of thermal insulation foam layer over polymer tape by continuous extrusion;
- ✓ application to the thermal insulation foam layer of the reinforcing element of two layers of high-strength metal tape wound in the same direction with a certain step and gap;
- ✓ production of the outer shell by continuous extrusion from compositions based on low-pressure polyethylene.

Pipe with electrical heating



Varieties of conductive cores and thermal insulation layers are shown in the table.

Number of conductive, information, power, control cores, pieces.	Types of conductive cores	Cross-section of conductive cores, mm ²	Thickness of thermal insulation foam layer, mm	The density of the foamed layer, g / cm ³	The thickness of the outer sheath, mm
1 - 36	copper (aluminium)	0,2 - 16,0	5 - 30	0,5 - 0,9	3 - 7
	twisted pair (categories 5e, 6)				
	fibre-optic				



Depending on the length of the pipeline, there are three designs of each pipe size.

No designs	Length of pipeline, m
1	up to 1800
2	from 1800 to 3700
3	from 3700 to 8000

Pipe with electrical heating



Technical parameters

All main characteristics of the OILTECHPIPE with electrical heating can be found in the table below.

OILTECHPIPE with electrical heating	600 psi				1500 psi				3000 psi			
	2'	3'	4'	6'	2'	3'	4'	6'	2'	3'	4'	6'
Dimensions												
Pipe Inside Diameter, (in)	2.09	3.07	3.82	5.59	2.09	3.07	3.82	5.59	2.09	3.07	3.82	5.59
Pipe Outside Diameter, (in)	4.13	5.31	6.30	8.46	4.33	5.51	6.5	8.66	4.53	5.71	6.69	8.86
Min. bending radius, (ft)	3.12	3.77	4.10	4.92	3.12	3.77	4.10	4.92	3.12	3.77	4.10	4.92
Thermal Properties												
Designed temperature, (°F)	-76+185											
Maximum allowed operating temperature, (°F)	-40+150											
Pressure												
Operating pressure according to API 15S, (psi)	600				1500				3000			
Minimum bursting pressure (68 °F), (psi)	1726	1581	1552	1581	4134	3757	3611	3452	6237	5860	5787	5555
Minimum bursting pressure (150 °F), (psi)	1653	1552	1421	1552	4061	3648	3524	3379	6164	5787	5715	5482
Weight and length												
Weight, (lb/ft) (Design 1)	6.35	8.63	10.48	20.97	7.16	9.88	13.37	23.79	7.90	10.95	14.92	27.89
Weight, (lb/ft) (Design 2)	6.43	8.72	10.56	21.05	7.24	9.96	13.45	23.87	7.98	11.03	15.00	27.97
Weight, (lb/ft) (Design 3)	6.98	9.21	11.12	21.59	7.78	10.50	14.00	24.41	8.52	11.58	15.54	28.51
Max. length, (ft)	1640	1148	984	492	1640	1148	984	492	1640	1148	984	492
Weight of max. length with reel, (lb) (Design 1)	13459	12959	13360	13360	14782	14385	16204	14749	15995	15620	17725	16766
Weight of max. length with reel, (lb) (Design 2)	13592	13051	13433	13340	14914	14478	16283	14789	16127	15712	17805	16806
Weight of max. length with reel, (lb) (Design 3)	14484	13614	13975	13492	15807	15104	16819	15058	17200	16338	18340	17075
Properties												
Design life, (years)	20											
Expected life buried, (years)	50											

Pipe with electrical heating



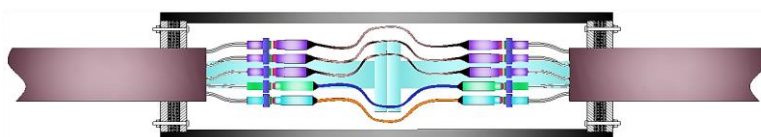
The heating control unit is used to control the electrical heating system of the pipeline. The heating control unit includes a control station and a transformer.



Cable assemblies are used to connect the conductors.

Description	General view
Connection to the heating control unit	
Connection of pipeline segments	
The end of the pipe with electric heating	

To improve the reliability, tightness of the connection of 2 segments of the pipe with electric heating, an external protective (intermediate) coupling is used.



Other products in the group



OILTECH group produces and distributes:



Tekcoat coatings



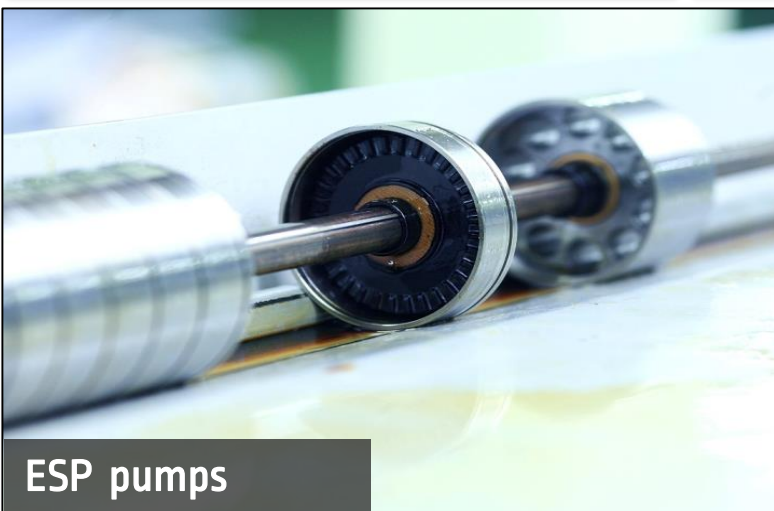
Cavity pumps



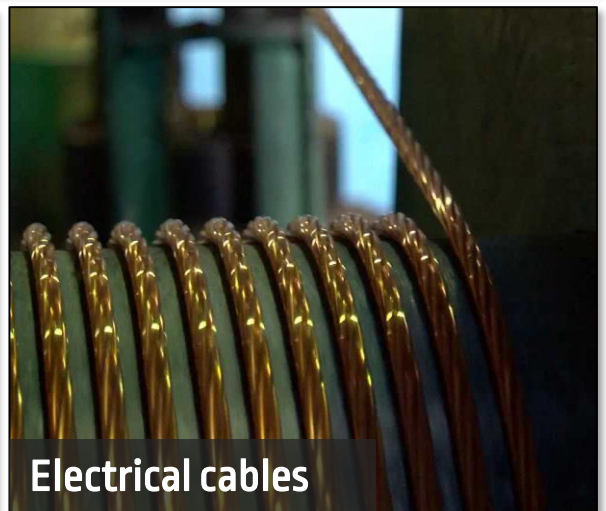
Rehabilitation pipes



Well heating systems



ESP pumps



Electrical cables

quality integrity innovations

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