Bunter group

инжиниринг
производство
сервис

Product catalogue

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Bunter Group LLC has been a manufacturer and supplier of a wide range of equipment for the fuel and power industry since 2013

The Company comprises of

— 6 800 m2 production facilities in the city of Syzran;
— 3 200 m2 production facilities in the city of Yekaterinburg;
— Scientific and Technical center in the city of Saratov;
— R&D department of flare and heating equipment in the city of Yekaterinburg;
— Service department for the provision of rental services for Process systems and equipment;
— Management company in the city of Yekaterinburg.

Production site in Syzran

Production site in Yekaterinburg

The company’s activities are aimed at providing Customers with modern and efficient equipment during modernization and construction of new facilities.

More than 200 projects have been implemented on the territory of the Russian Federation, the Republic of Kazakhstan and the Republic of Uzbekistan.

Specialists of in-house scientific and technical center have developed and patented 4 highly efficient models of equipment.

Bunter Group offers a full cycle solutions in accordance with the Client’s tasks. The company’s extensive knowledge, expertise and potential allows us to be sure that these solutions will be implemented.

2.1. MUKN-0.12K – Mobile indirect Heater

The installation consists of a heater with an intermediate coolant, a liquid fuel storage tank and a process unit with gas and liquid fuel piping manifold.

All equipment is located on a single frame, which allows to quickly relocate the installation from one facility to another.

The main elements of the heater are a twisted process coil and a furnace device with transverse finned heat exchange tubes.

The use of a twisted process coil makes it possible to increase the intensity of heat transfer to the product due to the vortex flow mode, minimize hydraulic resistance, and also promotes self-cleaning of the inner surface of the coil.

Mobile indirect Heater MUKN-0.12K

Mobile indirect Heater MUKN-0.12K

The furnace device new design and the twisted coil symbiosis allows to significantly reduce the weight and size of the heating installation.

- Oil and gas heaters

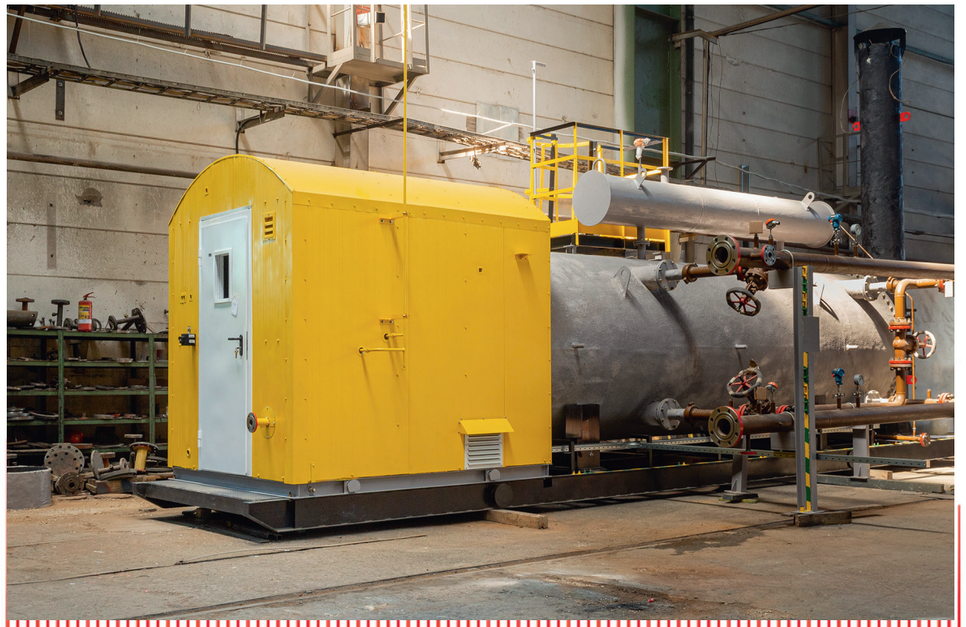
2.2. PPT-2 Heater

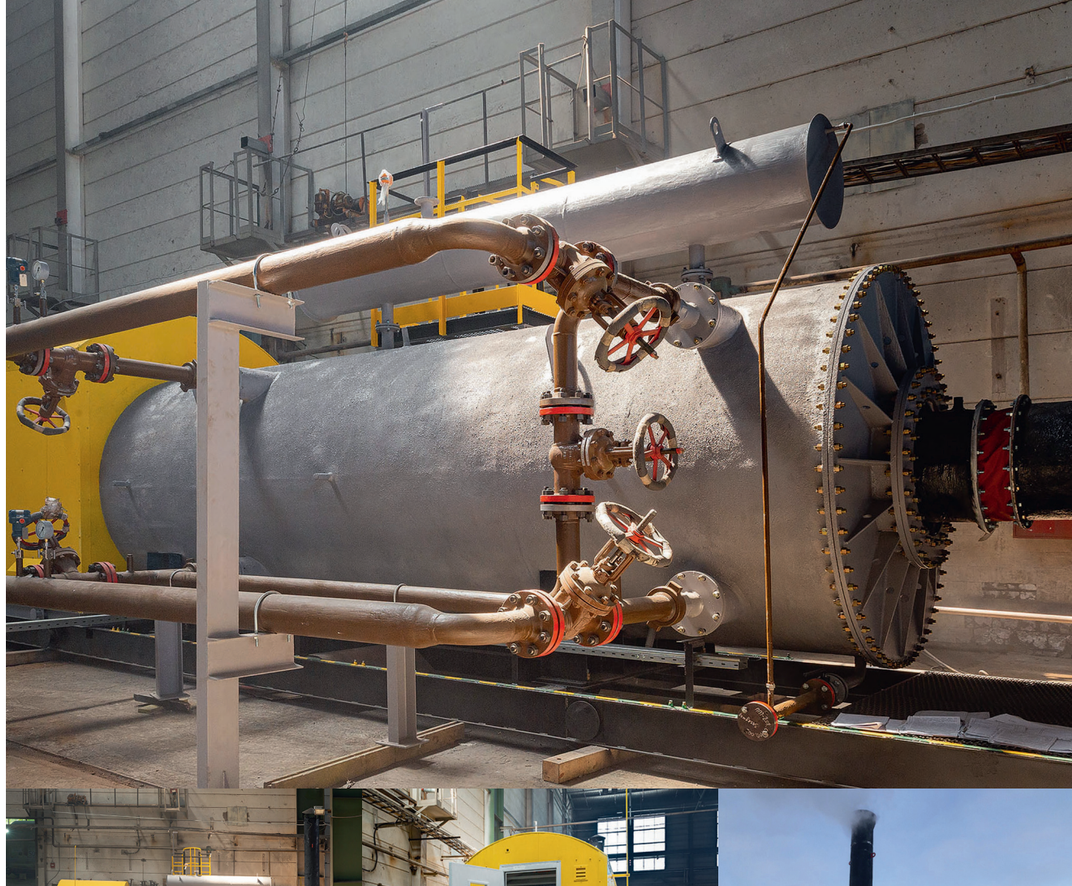
The heater is a tubular plant with a furnace installed inside it. There are process coils in the form of cylindrical spirals around which. A block burner and a chimney are connected to the ends of the furnace device.

Advantages:

— Reduced operating costs due to lower fuel and electricity consumption;
— Reduces weight and size compared to analogues;
— Reduced amount of harmful emissions into the atmosphere and noise level;
— Increased efficiency up to 92%;
— Possibility to use liquid and gaseous fuels simultaneously.

PPT-2 Heater





PPT-2 Heater

All elements are assembled on the single frame.
Heated products: oil, oil-water emulsions, gas or water.
A wide range of models ensures the best installation accordance with the customer requirements.
The heater design is patented.

2.3. PP-type Oil Heaters (PP-0,63, PP-1,6, PP-4)

PP-type heaters are designed for heating oil products during transportation through pipelines, as well as oil emulsions and gas condensate at oil treatment plants. The heaters are designed to work on both gas and liquid fuels. When using liquid fuel, it is necessary to use a liquid fuel preparation unit.

The main component of the heater is a heating unit designed to transfer heat from the combustion products of the fuel gas to the heated product. The heating unit is a container mounted on a base frame and filled with an intermediate coolant. Furnaces and a product coil are placed in the container.

The main and ignition burners are attached to the flange of the furnace. The furnace is a U-shaped welded structure. The heating unit is designed as a monoblock, which can be carried out by any type of transport

PP-1,6 heater
is ready for shipment

PP-1,6 heater at the client's facility

Oil from the field network enters the product coils of the heater. The coils are located in the medium of an intermediate coolant. Thus, the furnace, heated from the combustion products by means of burners, heats the coolant, the heat from which is then transferred to the coil.

Parameter	Value		
	PP-0,63	PP-1,6	PP-4
Useable power, MW	0,73 (0,63)	1,86	4
Oil consumption, t/day	500-1150	2350	2000-10000
Working pressure (drop), MPa	6,3 (0,25)	6,3 (0,55)	6,3 (0,1-0,3)
Heating temp,°C	≤80	≤80	≤80
Coil diameter, mm x number of threads	DN 100x1	DN 100x2	DN 150x4; 150x2
Dimensions, m	10,5x3,0x8,1	18,5x4,8x7,55	22,6x4,9x7,55
Weight, kg	12500	40000	50000
Volume of heat-carrying medium, m^3	10,5	78	70
EFFICIENCY, %	70	70	80

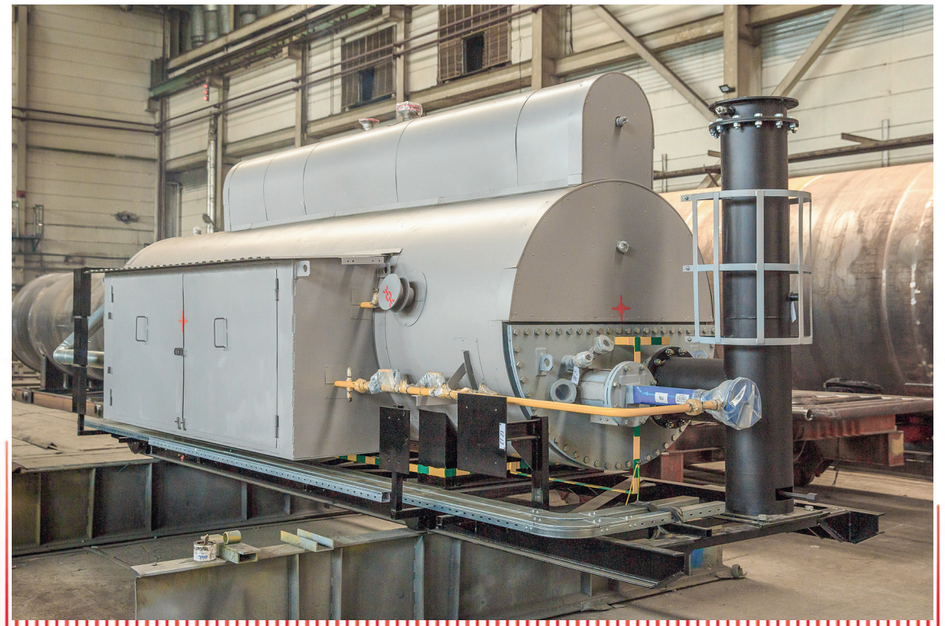
2.4. PNPT type Oil Heaters (PNPT-0.3, PNPT-0.63, PNPT-1.6, PNPT-3.3, PNPT-3.87)

PNPT heaters are designed for heating oil, reservoir mixture and their mixtures in the system of collection, transportation and preparation of well products.

The heated product enters the inlet manifold with pressure and temperature sensors. Next, the heated product is sent to the product coil located in the furnace body, where it is heated due to the heat given off by the combustion products through the furnace to the intermediate coolant.

Fuel gas from the field network enters the tank heating coil, where it is heated to the required temperature and then sent to the fuel preparation unit. The fuel preparation unit is adjacent to the side surface of the heater housing. This solution allows to receive heat from the wall of the heater container and prevent freezing of equipment inside the fuel preparation unit.

PNPT-0,3 Heater



PNPT-0,3 Heater

A safety relief valve is installed on the fuel gas pipeline upstream the pressure regulator to discharge an excess volume of gas into the atmosphere in case of exceeding the permissible volume setted on the pressure regulator.

Parameter	Value				
	PNPT-0,3	PNPT-0,63	PNPT-1,6	PNPT-3,3	PNPT-3,87
Net power, MW (Gcal/h)	0,35 (0,3)	0,73 (0,63)	1,86 (1,6)	3,3 (2,84)	4,5 (3,87)
Oil consumption, t/day	150-600*	350-1200*	1000-3100*	1500-5000*	2000-11000*
Working pressure (drop), MPa	6,3 (0,2)	6,3 (0,25)	6,3 (0,55)	6,3 (0,55)	6,3 (0,1-0,3)
Heating temp**,°C	≤80*	≤80*	≤80*	≤80*	≤80*
Coil diameter, mm x number of threads	DN80x1**	DN100x1**	DN100x2; DN125x2**	DN125x3; DN125x2; DN100x2; DN100x4**	DN125x2; 125x4; 150x2; 150x4 **
Dimensions, m	7,6x2,2x11,5**	10,5x3,0x8,1**	11x4,2x16**	15x4,2x8**	17x4,9x8**
Weight, kg	7300	12500	21000	35000	40000
Volume of heat-carrying medium, m^3	6	10,5	25	50	50
Efficiency, %, not less	82	82	82	82	82

* Parameters can be specified based on the operating conditions and physical and chemical properties of the heated product;
** The parameters are specified depending on the customer's requirements.

2.5. PBT-1,6M Block Tubular Heater

The block tubular heater with an intermediate coolant is designed for heating oil, gas, reservoir water and their mixtures in the system of collection, transportation and preparation of well products.

The process of heating the product is carried out as follows: the heated medium from the field net enters the heater coil, is heated by an intermediate coolant, and then is removed from the heater.

The gas to power the fuel burners is heated in the heating unit and enters the fuel preparation unit.

After purification and reduction, the fuel gas is fed to the ignition and main burners, burned in the heater furnace, giving heat to the intermediate coolant. The cooled combustion products are discharged through the flue pipe from the heater furnace into the atmosphere.

PBT-1,6M Block Tubular Heater

PBT-1,6M
Block Tubular Heater
at the client's facility

The PBT-1.6M heaters may be produced for operation using gas or liquid fuel, as well as combined fuel (oil or diesel fuel /gas).

The effective thermal power of PBT-1.6 M is 1.86 MW. Oil consumption is from 1000 to 3000 tons per day. The efficiency of the heating plant is 80%.

2.6. PPT-0,2 Block Heater

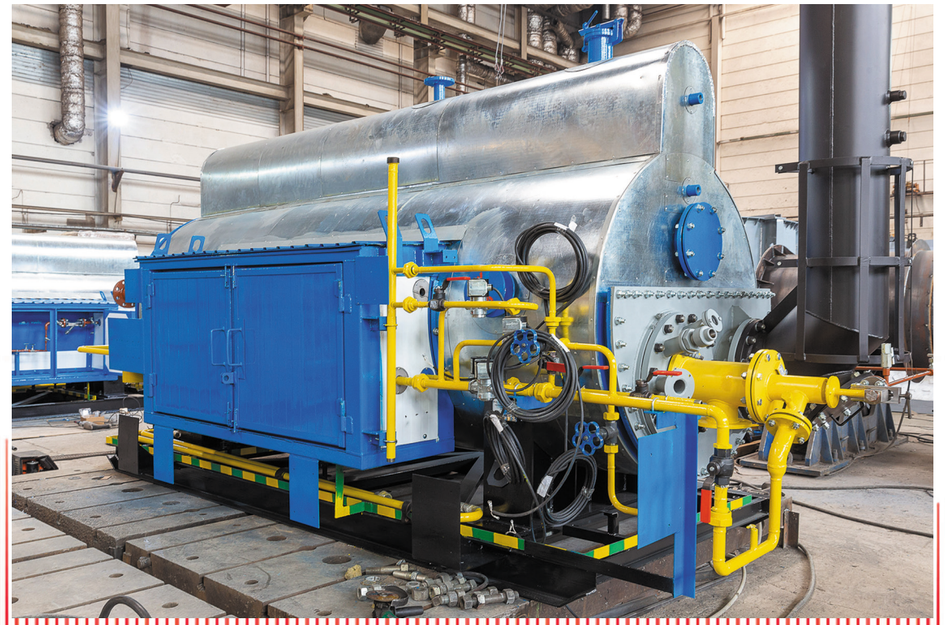
Heaters with an intermediate coolant of this type are designed for heating oil emulsions in oil collection and transportation systems, as well as natural or associated gas, waste field water at gas-distributing installations gas lift oil production production.

The PPT-0.2G heater can be equipped with two injection burners, so it can work in a wide range of thermal capacities – from 35 kW to 290 kW. The power control factor in this case will be 8.

The process of heat transfer to the product is carried out as follows: the heated product enters the product coil, where it is heated by an intermediate coolant and then removed from the heater.

The operating and emergency alarm system provides notification of the maintenance personnel about the operation of the burners and the breakdown of their flame, as well as about the fuel supply cut-off when the parameters of the oil heating process deviate from the set values.

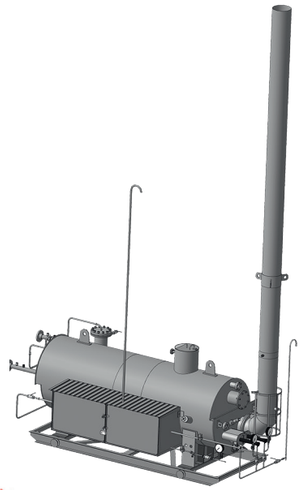
PPT-0,2
Block Heater



PPT-0,2 Block Heater

In the absence of fuel gas, the PPT-0.2G heater can additionally be equipped with a gas extraction unit (pulsation bottle), a device for separating and cleaning of mechanical impurities and moisture of associated gas.

PPT-0.2W heater can be manufactured for operation using liquid fuel (oil, fuel oil, diesel fuel) by a separate order.



2.7. PTPG-30M Gas Heater

The heater is designed to heat the prepared gas in the system of collection, transportation and preparation of well products.

The effective thermal power of the heater is 1.1 MW. The productivity of the heated product is no more than 30,000 Nm3 /h.

The product from the field net enters the pipe bundle of the heater, is heated by an intermediate coolant, and then is removed from the heater.

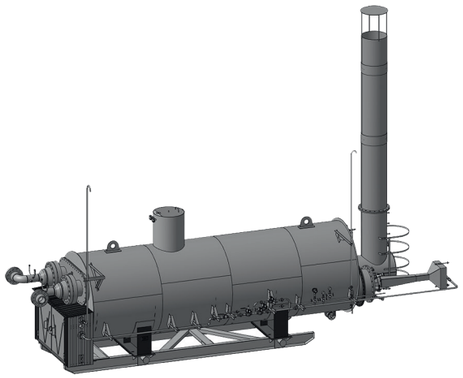
The gas to power the burners enters the gas collector, then follows the stage of purification and reduction.

After purification and reduction, the fuel gas is fed to the ignition and main burners, burned in the heater furnace, giving heat to the intermediate coolant.

PTPG-30M Gas Heater

PTPG-30M Gas Heater

The cooled combustion products are discharged through the chimney from the heater furnace into the atmosphere.



2.8. PVE-3,5 Heater

The PVE-3,5 heater with a heating capacity of 3,5 MW is designed for heating technical water in the system of collection, transport and preparation of well products.

The capacity of the equipment is up to 2000 tons per day. The capacity of the heater container, taking into account the furnace devices, is 30 cubic meters.

The network water enters the plant through two inlet fittings, heats up from the walls of the furnace devices, passing between the partitions. Then it enters the collector and is removed from the device.

Fuel gas from the field network enters the tank heating coil, where it is heated to a temperature of 50 ° C and then sent to the fuel preparation unit. The fuel preparation unit is adjacent to the side surface of the heater housing.

This solution allows to receive heat from the wall of the heater vessel and prevent freezing of equipment inside the fuel preparation unit.

PVE-3,5 Heater

PVE-3,5 Heater

The design of the controller provides for a safety shut-off valve, it protects the gas equipment from exceeding the pressure downstream the controller above the standard value.

The cooled combustion products are discharged from the heater furnace into the atmosphere through the chimney.

3.1. Tubular Block Furnace (PPN-3, PTB-5, PTB-10)

Tubular block furnaces are designed for heating oil and oil emulsions during their field preparation and transportation, as well as for heating water for technological purposes.
A wide range of direct heating furnaces allows you to choose an individual solution for your operating conditions, to reduce the capital costs of construction and bring you more cost advantages.
The furnaces are designed to operate on the gas fuel.

Advantages:
— high performance by the heated product;
— increased thermal power up to 14 MW;
— the necessary multiplicity of flue gas recirculation, provided by the design of the combustion chambers and the heat exchange chamber, leads to a decrease in the temperature of the pipe walls and a decrease in the formation of coke on the walls of the coil;
— no need for an expensive coolant;
— modern level of automation of the process of the product heating;
— ease of maintenance of the furnace equipment during operation.

PTB-5 Tubular Block Furnace

Installation of PTB-5 Tubular Block Furnace at the client's facility

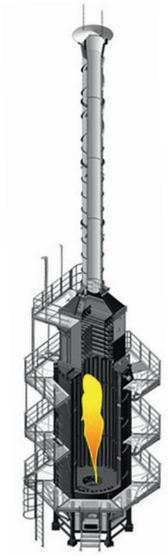
n/a	Parameter	PPN-3	PTB-5-40E	PTB-5-63E	PTB-10A	PTB-10E	PTB-10-64
1	Rated thermal power, MW	3,5	3,5...7,3		5,5...11,6	5,5...13,9	5,5...11,6
2	Productivity of the heated product, t/h:						
	- oil emulsion with a water content of 30% at ΔT = 85 °C	55	115		180	220	180
	- oil emulsion with a water content of 30% at ΔT = 35 °C	130	275		440	530	440
3	Product temperature, °C:						
	- at the furnace input, at least	+5	+5		+5		
	- at the furnace output, no more	90	90		90		
4	Pressure in the product coil, MPa (kgf/cm2):						
	- working, no more	6,3(63)	4,0(40)	6,3(63)	6,3(63)		
	- design	6,3(63)	4,0(40)	6,3(63)	6,3(63)		
	- test hydraulic	8,2(82)	5,2(52)	8,2(82)	8,2(82)		
5	Number of combustion chambers, pcs.	1	2		4		
6	Weight, kg, no more:						
	- furnace (in non-working condition);	20000	30000		46700	55000	46700
	- heat exchange chamber;	10000	19800		36000	41650	36000
	- furnace base unit;	4000	6500		5900 b/ hydraulic fracturing	9000	5900 b/ hydraulic fracturing
	- fan unit		1500		1500	1500	1500

3.2. CA -Vertical Circular Heater

CA Heaters are cylindrical furnaces, with a wall-mounted arrangement of coil pipes in one radiation chamber, free vertical flare combustion of combined fuel.

These furnaces are designed for high-temperature heating of oil or petroleum products during their processing.
Hydrocarbon gases, water, inert gas and other media can be heated, if necessary.

The furnace consists of:
— radiant chamber with radiant coils, burner devices, blast windows and a fire extinguishing system;
— convective chambers with convective tube bundles and heat-absorbing surfaces;
— flues and chimneys with regulating gates.



CA-1-106-6-7
Vertical Circular
Heater

The furnace body is lined from the inside with refractories and thermal insulation materials that protect against heat loss to the environment.

The furnaces are equipped with automation systems and instrumentation for safe operation of the equipment.

The combined burners are located in the floor of the furnace. Single-row wall-mounted tube screens are installed on the walls of the radiation chamber.

The exhaust of combustion gases is through a chimney installed on the furnace and a gas collector.

There are two versions of these furnaces: radiant (without a convection chamber) and radiant-convective (with a convection chamber).

CA-1-106-6-7 Vertical Circular Heater

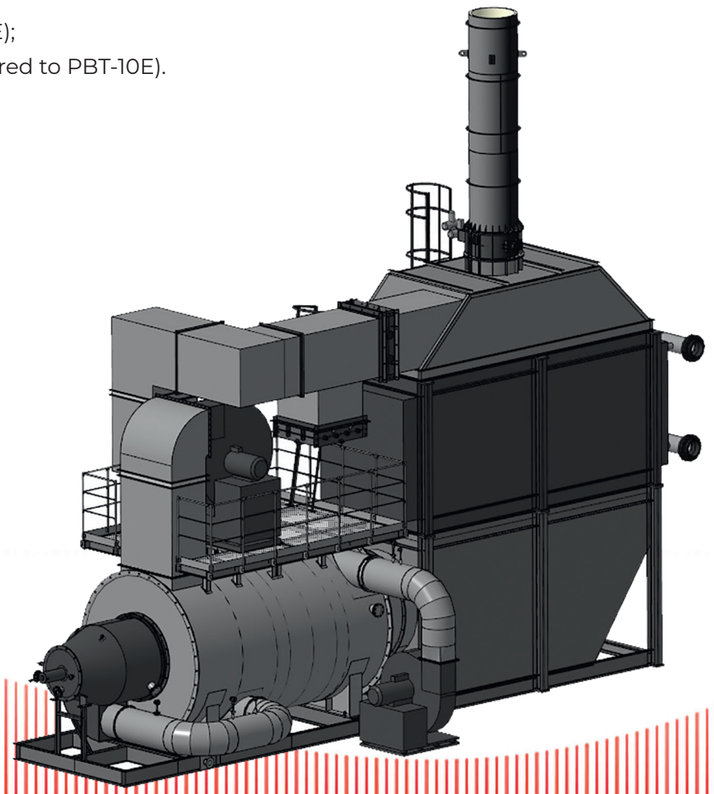
Indicators*	CA 15/3	CA 30/4	CA 40/4	CA 50/5	CA 70/6	CA 80/7	CA 110/7	CA 120/8	CA 150/10	CA 210/9	CA 280/12	CA 350/15
Heating surface of radiant pipes, m²	15	30	40	50	70	80	110	120	150	210	280	350
Working length of radiant pipes, m	3	4	4	5	6	7	7	8	10	9	12	15
Average heat output (with permissible heat stress of radiant pipes 32.0 kW/m²), MW	0,7	1,4	1,8	2,3	3,2	3,7	5	5,5	7	9,5	13	16
Width m	4	4,4	4,6	4,6	5	5	5,8	5,8	5,8	7,5	7,5	8,1
Height, m	20	20	25	25	25	25	30	30	30	35	40	45

3.3. PKBG Samum type Convection Furnace

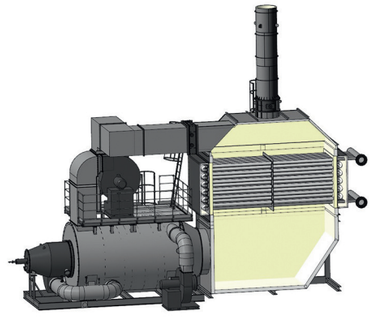
PKBG-Samum product convection heating furnace with forced flue gas recirculation is the latest development of Banter Group, designed for heating crude and commercial oil, petroleum products, water, gas, high temperature organic heat carriers. The furnace can be used in processes of preparation, transportation, as well as oil and gas processing.

Key Features:
— guaranteed thermal stability of the product;
— increased service life of the coil up to 25 years;
— high efficiency (up to 92%);
— customized design to the required heating specifications.

Economic efficiency:
— less harmful emissions into the atmosphere due to the low burning temperature;
— energy savings (compared to PBT-10E);
— significant savings on repairs (compared to PBT-10E).



PKBG Samum type Convection Furnace



PKBG Samum type Convection Furnace

Parameter		PTB-10E	«PKBG-Samum»
Productivity, t/h		200-500	200-500
Temperature of the	at the input, at least	10	10
	at the output, no more	90	90
Power, MW		13,9	13,9
EFFICIENCY, %		80	92
Fuel consumption, m³/h		1600	1400
Specific fuel consumption, m³/kWh		0,134	0,117
Overall dimensions, m		16,2x6,2x9,2	14,7x5,7x10,6
Consumed electric power, kW		110	85
Predicted service life of the coil, years		10	25
The temperature of the outgoing flue gases, °C		400	220
Weight, t		55	50

The use of PKBG-Samum furnaces is economically advantageous when creating new or reconstructing existing enterprises for the preparation, transport and processing of oil and gas, due to the following:

— customized design to the required heating specifications. You do not overpay for the excess power of the furnace, as when using serial products;
— increased service life of the coil up to 25 years and reduced financial losses caused by equipment downtime (due to soft, adjustable heating, eliminating thermal corrosion of the pipe metal);
— reduced site foundation and the cost of construction and installation work, since the auxiliary equipment is located directly on the furnace block;
— reduced quantity and cost of the equipment used in the heating process of viscous and high-viscosity oil. Now it is possible to feed oil directly into the furnace, eliminating the intermediate circuit (heat exchanger, pump, pipelines, expensive intermediate coolant);
— high efficiency (92%). As a result, reduced fuel consumption and lower fines for emissions of harmful substances into the atmosphere compared to other furnaces;
— reduced electricity consumption with the same heat output of the furnace (85 kW PKBG-Samum / 110 kW PTB-10E).

4.1. Heater-Treater Oil Treatment Plant

The block automated oil treatment plant is designed for efficient heating, dehydration and desalting of oil emulsions and preparation of oil to marketable quality according to GOST

Thanks to its universal functionality, one Heater-treater Plant is able to replace several cleaning systems at the same time, performing the following functions:
— dehydration of crude oil;
— its separation into oil and by-products;
— obtaining refined oil.

The plant can work even in the harshest climatic conditions: the equipment can withstand air temperatures up to -60 ° C. Despite the fact that the equipment is installed in an open area, it is resistant even to the strongest gusts of wind. The plant is initially delivered in a high degree of readiness for operation, which allows you to significantly save on its installation.

Heater-Treater Oil Treatment Plant

Heater-Treater Oil Treatment Plant

Advantages:
— multi-functionality (the plant can perform several oil refining functions at once);
— reduction of the building area, the number of interblock communications and shut-off and control valves;
— reduction in the volume of construction and installation work;
— reduced capital equipment costs;
— saving energy resources;
— simplify the management and maintenance of the site.

4.2. BPP-1,6U Line Heater with Separation Unit

The equipment complex, which includes a unit for preliminary selection and separation of associated petroleum gas for the operation of the heater burners, is designed to provide heating of the oil emulsion directly from the well cluster in the absence of prepared fuel gas to power the heater burners, as well as residual infrastructure around the well cluster.

Composition of the BPP-1,6U line heater unit with separation unit:
— gas pre-selection units – slug catchers;
— reduction cabinets;
— line heater;
— receiver;
— separator;
— automation system.

The automation system allows automatic remote ignition of the pilot and main burners with preliminary ventilation of the furnace space by natural draft.

BPP-1,6U Line Heater with Separation Unit

BPP-1,6U Line Heater with Separation Unit

The automation system is designed for automatic control, monitoring, regulation of processes of the PP-1,6 line heater. It main functions are:

— automatic ignition of the heater burner according to the specified program;
— manual ignition from the operator panel at the stage of setup and testing;
— termination of fuel gas supply to the burner devices in case of emergency process parameters;
— memorizing the cause of the accident;
— stopping the fuel supply with the decryption of the message on the operator panel and the issuance of an audible signal;
— transmission of the alarm signal to the upper level (operator room) through the dry relay contact.

4.3. CDFT End Pipe Phase Divider

The Divider is designed for preliminary discharge of reservoir water directly in the areas of oil production facilities. The design of each CDFT is developed individually depending on the initial requirements and data of the Client.

The dividers are installed in the field or at centralized sites of oil, gas and water collection systems and do not require additional maintenance.

The advantage of CDFT over the classical preparation technology is cutting-down of capital costs from reducing the metal consumption up to 3 times and the building area up to 1.5 times.

The effect is achieved by:
— laying out several devices in one unit;
— parallel rather than sequential flow of phase separation processes;
— exclusion of a part of the equipment (by using mixers and coalescers, as well as using the pipe separation method).

CDFT-1400-60-4 End Pipe Phase Divider

CDFT-1400-60-4 End Pipe Phase Divider

High efficiency of separation of oil and gas mixture is achieved by:
— a slug catcher that provides gas separation already at the plant input;
— the use of coalescing nozzles for additional separation of water from oil residues and mechanical impurities;
— completing the end pipe phase divider with a water metering system.

4.4. MUN Mobile Heating Unit

The MUN mobile heating unit is a set of equipment designed to provide liquid heating related to an increase in the amount of incoming liquid, as well as with a change in its parameters.

Technical specifications:
— design capacity for liquid (oil + water) – 4800-7200 m3/day;
— design capacity for oil – 4800-13700 m3/day;
— excess working pressure – 0.3-1.6 MPa;
— efficiency rate of heaters – 80%;
— fuel gas consumption (common for the plant), no more than – 1360 Nm3/h;
— the water content of the oil emulsion at the plant inlet is 10-50%;
— the temperature of the heated product at the plant inlet is 0...10° C;
— the temperature of the heated product at the plant outlet is 25...30° C;
— the estimated service life is 30 years.

MUN Mobile Heating Unit

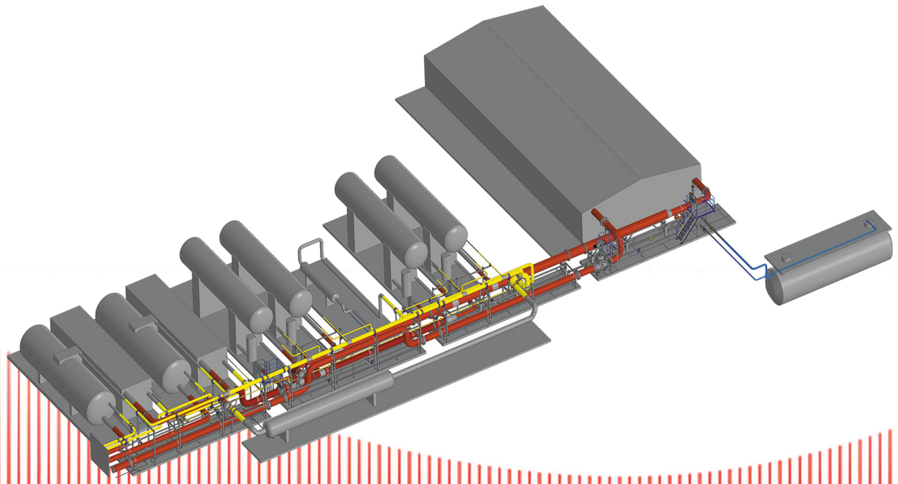
MUN Mobile Heating Unit

The main features of the plant:
— individual design according to the Customer's specifications;
— mobility, fast and cost-effective installation;
— large range of performance;
— application in fields not provided with electricity;
— disposal of well products takes place at modern smokeless combustion plants.

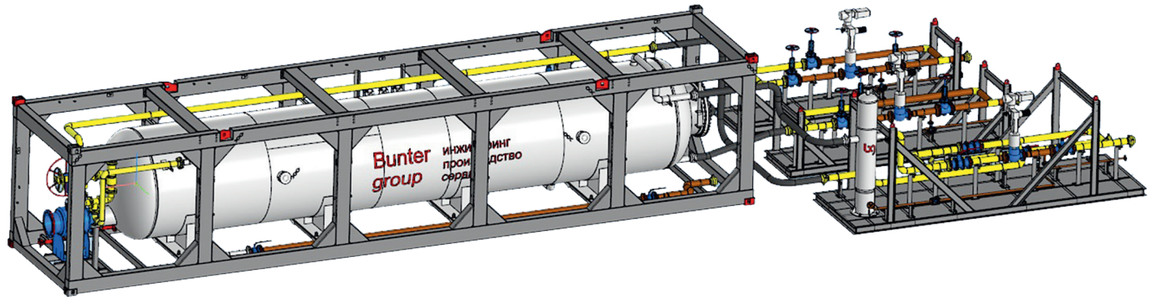
4.5. MUPN - Mobile Oil Treatment Plant

The mobile oil treatment plant is a complex of modular equipment designed for oil treatment up to the requirements of GOST R 51858-2002.

MUPN is designed for degassing, dehydration and desalination of oil.
The composition of the MUPN, depending on the initial parameters, may include the following equipment:
— separation equipment (NGS, NGSV, GS, KSU, etc.);
— heating equipment (electric heaters, line heaters with intermediate coolant);
— oil dehydration and desalination units;
— water treatment devices;
— pumping units for the transport of oil and water, for pumping water or oil into the reservoir;
— oil, gas, and water metering units;
— horizontal and vertical flare units;
— container park (buffer tanks, storage tanks, fire-fighting reserve tanks);
— operator units, household units, energy units, etc.;
— engineering networks.



MUPN - Mobile Oil Treatment Plant



MUPN - Mobile Oil Treatment Plant

The basic layout of the oil treatment plant may differ depending on the requirements to performance, the properties of the emulsion, the requirements for the preparation of oil and water.

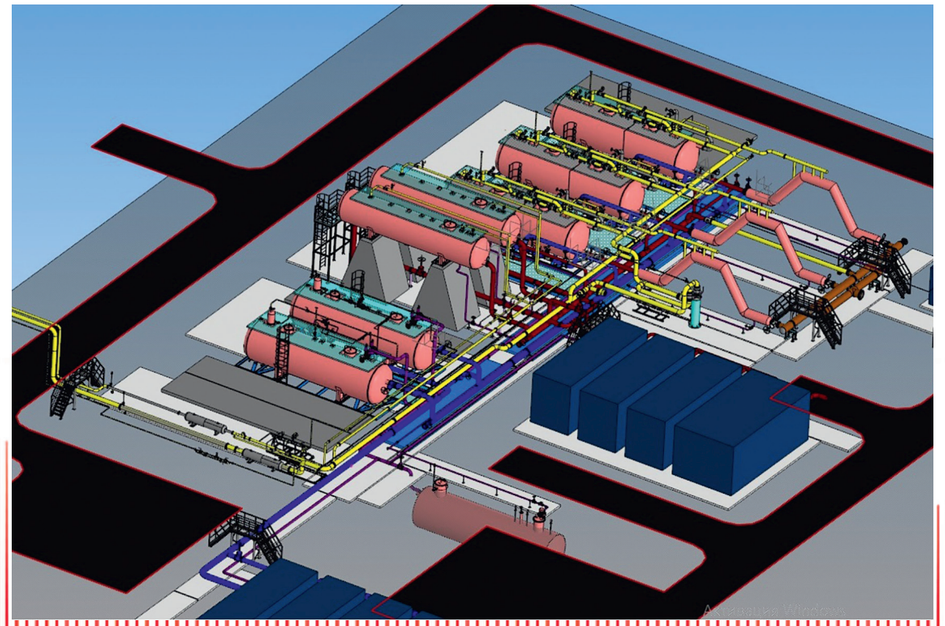
Advantages of MUPN:
— the use of mobile units manufactured within the transport dimensions ensures a reduction in the production time, commissioning, cutting down of capital costs;
— no need to prepare foundations or pile field;
— the unified assemblies allow to scale the oil treatment facility, as well as to modernize the MUPN and use the equipment at other fields if relocation is necessary;
— the use of modern efficient internal devices allows to reduce the construction footprint and the metal consumption of the plant;
— the possibility of phased development of the field due to the process scalability and the possibility of adding new equipment assemblies and process chains without stopping wells.

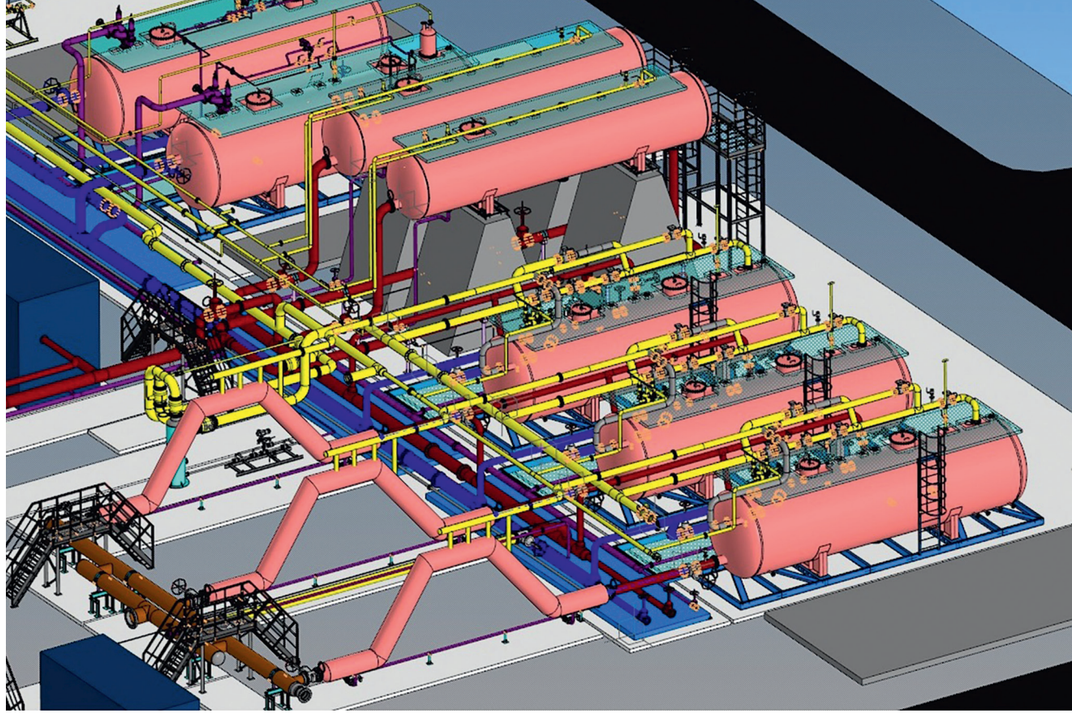
4.6. MUPSV – Preliminary Water Discharge Unit

MUPSV are designed for degassing of well products, oil treatment to a residual water content of no more than 1-10%, as well as for:

— associated petroleum gas separation;
— preparation and application of gas for own needs;
— discharge of reservoir water with disposal into the reservoir pressure maintenance system (PPD);
— automated filling of the product into lorry tanks, or pumping of oil-containing liquid into the main pipeline;
— operational measurements of oil, water and associated petroleum gas.

MUPSV – Preliminary Water Discharge Unit





MUPSV – Preliminary Water Discharge Unit

Advantages of the MUPSV with container design:

— the use of mobile assembled units manufactured within the transport dimensions ensures a reduction in the production time, commissioning and capital costs;
— no need to prepare foundations or a pile field;
— unified assembled units allow to scale the oil treatment facility;
— the ability to modernize the MUPSV and use the equipment at other fields if relocation is necessary;
— modern efficient internal devices allow to reduce the construction footprint and the metal consumption of the plant.

Bunter Group carries out a full cycle of work from the design of mobile oil treatment plants, from independent realization to commissioning, with the possibility of subsequent customized reengineering, if necessary.

5.1. UFBG Open-Type Flare System

Flare systems are used for the safe disposal of emergency, periodic and permanent discharges of enterprises. They are used in oil and gas production, treatment and processing plants.

The most typical design of a flare system is an open flare. With this design, gas combustion is carried out in an open manner at a given height.

The diameter of the flare is determined by the required capacity, and the height is determined by the requirements for providing radiation from gas combustion at specified points at ground level.

In addition, the temperature and composition of the discharges are taken into account, which also affect the material design of the flare riser.

Flare System horizontal

UFBG-250(400)-25 Open-Type Flare System

Depending on the overall dimensions, the flare can be held in an upright position by a stretch system or by means of a derrick. In some cases, it is possible to use self-supporting stacks.

If necessary, one flare system may consist of several flares, each of which process separately or serve as a backup stack.

This solution allows you to save space when installing several flares within the flare system.

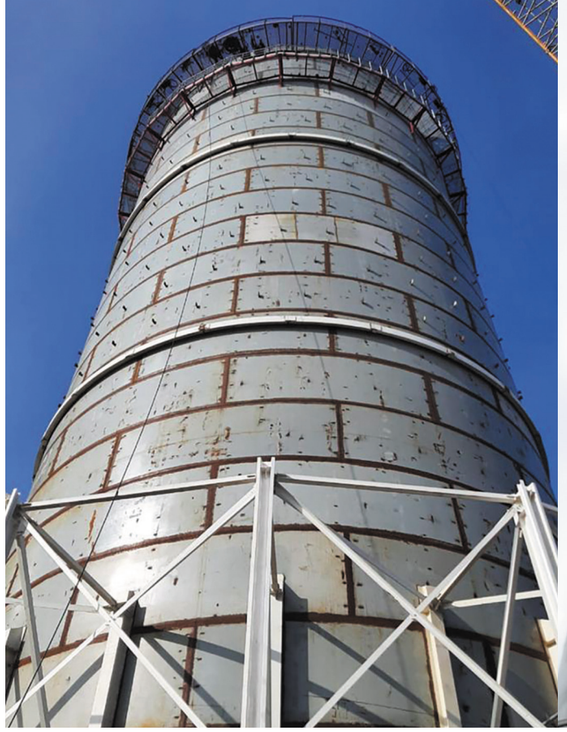
5.2. UFBG—ZT Enclosed Type Flare Facility

Enclosed–type flare system are a special type of construction that ensures the combustion of gas without a visible flame and the absence of radiation during its operation. The main elements of the flare facility are a combustion chamber, a gas supply unit for combustion, a fuel gas controller, a control system.

The combustion (utilization) of gas takes place in a vertical combustion chamber. The upper part of the chamber is open. Flue gases formed during the oxidation process exit through the upper cut of the chamber. Due to the design of the main burners, combustion occurs with an excessive amount of air, and, as a result, smokeless combustion of gas is provided.

The main burners are divided into groups. Depending on the volume of gas supplied for combustion, there is an opening/closing of a certain group of valves installed on the gas collector. To prevent locking of the gas discharge in the flare collector in case of failure of the valves, bypass lines with safety valves are provided as part of the flare system.

UFBG-ZT Enlosed type flare system after the installation of the metal structure



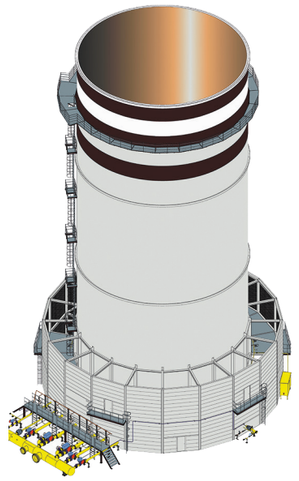
UFBG-ZT Enlosed type flare system after installation of internal layers of thermal insulation and a stage system of burners

UFBG-ZT Enlosed type flare facility during installation

The chamber is made of carbon steel. The inner surface of the chamber is covered with thermal insulation materials to protect it from thermal effects.

The overall dimensions of the chamber are calculated in such a way as to provide the necessary performance for the burned product. In order to maintain burning process, the design provides the necessary number of duty burners. The air supply to the chamber is due to natural draft. The scope of delivery includes instrumentation and shut-off valves to ensure process control.

Due to the absence of thermal radiation, safe operation is ensured for personnel, the environment and equipment.



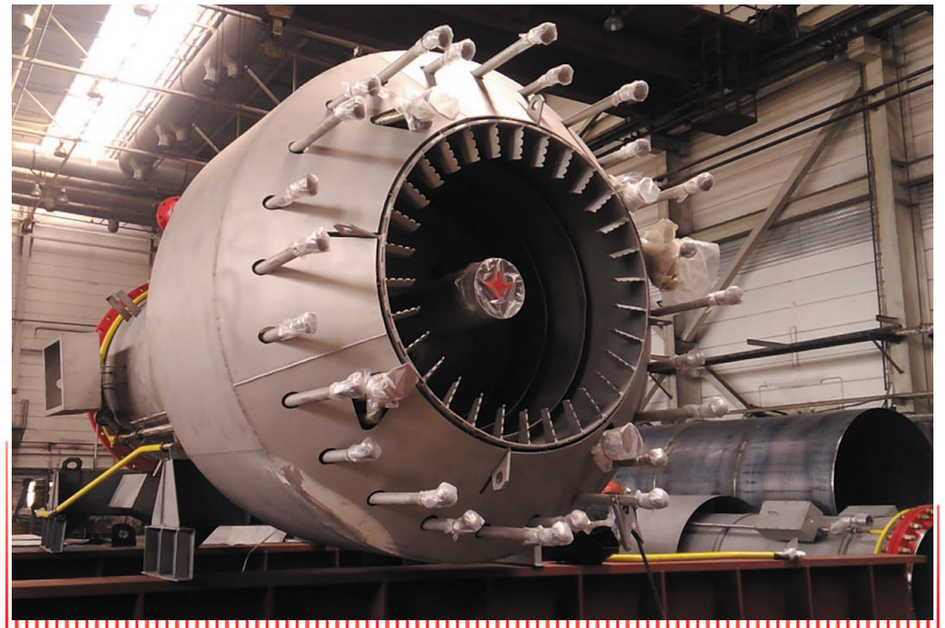
5.3. Flare Tip

Depending on the requirements to the combustion process and the actual technological modes of operation, flare facility can be equipped with flare tips of various designs. In the absence of requirements to ensure smokeless operation, it is possible to supply flare systems with a jet (gas dynamic) shutter.

If heavy hydrocarbons are present in the discharged gas, the use of flare tips with steam or air supply is necessary to ensure smokeless operation. In addition, it is possible to use high-speed (injection) tips that do not require the use of additional media for smokeless operation.

The possibility of using any of these systems is determined individually for each facility, based on the available process parameters and operating modes of the equipment. All tips are made of heat-resistant steel, regardless of the design.

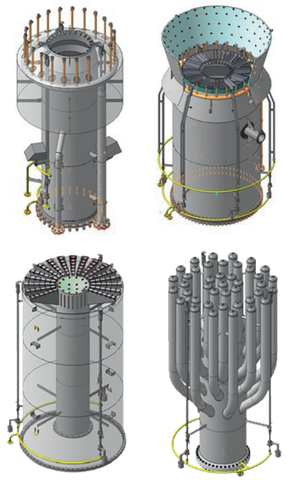
Flare Tip



Flare Tip

In order to ensure the maintenance of the flare process, duty burners are provided. The number of burners on duty depends on the diameter of the flare tip.

It is possible to use burners of various types, each of which is determined by the method of its ignition: «electric spark» (ignition on the burner), «running fire» (ignition at the ignition panel), combined method («electric spark» + «running fire»).



6.1. Industrial Automation

The Bunter Group includes a production division whose activities are aimed at creating and implementing automatic control systems and software and hardware complexes for oil and gas production, oil and gas processing and oil and chemical industries.

A complete set of design and operational documentation is being developed to implement the proposed solutions.

The equipment and materials necessary for the implementation of turnkey automation solutions for technological complexes and production facilities at the Customer's enterprise are completed and delivered on the Contract basis with the Customer.

The division has its own production facilities. Control stations for automatic control systems are produced on the basis of these capacities, which can be implemented in cabinet, panel, remote and bench versions.

Automation system cabinets

Elements of automation systems

To implement the final solutions for the automatic control systems and dispatching software and hardware complexes, Bunter Group independently develops application software.

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