



OIL AND GAS EQUIPMENT PLANT LLC



**PRODUCT
CATALOG**



ZAVODNGO.COM



OIL AND GAS EQUIPMENT PLANT LLC

PRODUCTION AND ENGINEERING COMPANY

We design, manufacture and supply equipment for the oil and gas producing and oil refining industries, energy, metallurgy, utilities:

- NK, NKV, NPS Type Oil Fuel Pumps
- CNS, CNSh, CNSn Type Sectional Pumps
- ND Type Metering Plunger Pumps
- NDR-2M Type Metering Diaphragm Pumps
- T, PT Type Three-plunger Crank Pumps
- End Seals and End Seal Support Systems
- Pressure Fall Automatic Maintenance System on the Basis of a Differential Hydro-sucker SAPPD
- MK Type Plate Couplings
- Safety valve KO 302 M
- Adjustable choke SHR
- Safety valve 17s52p
- Drilling equipment and fishing tools.

We are based on the needs of the client and, in most cases, the technical solution is the result of a joint activity of the customer and the technical specialists of our company.

Having at our disposal several production sites equipped with high-tech equipment (including foundry, heat treatment, metalworking centers, test bench) our company provides manufacturing and repair of pumping equipment of any complexity.

Products of LLC Oil and Gas Equipment Plant conforms to requirements of domestic regulatory documents and international standards ISO 13709/API 610 and API 682. The supplied equipment has all permits for use in high-risk facilities of Ukraine, Russia and Belarus.

*Our experts work for you at all stages:
from design and selection of equipment
to commissioning and maintenance.*



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OIL FUEL PUMPS NK and NKV types

(OH2)
API 610

Appointment

Oil fuel pumps NK and NKV centrifugal type can be used for transferring and piping oil, oil products, dry hydrocarbon gases and other liquids which have similar physicochemical features and the same corrosive impact to the pump component material.

Temperature, °C	from -50 to +400
Density, kg/m ³ , not more	1050
Mechanical impurity density, %, not more	0,2
Size of nonabrasive solid particles, mm, not more	0,2
Sulfur content in restricted mode, %, not more	3,5
Paraffin content, %, not more	7



TECHNICAL CHARACTERISTICS

Pump type	Nominal supply, m ³ /h	Nominal head, m	Speed of rotation, per min	Engine power, kW
NK 12/40	12	40	2950	5,5/7,5
NK 16/70	16	70	2950	5,5/7,5
NK 16/125	16	125	2950	5,5/11
NK 65/35-70	65/35	70	2950	5,5/22
NK 32/80	32	80	2950	5,5/22
NK 63/80	63	80	2950	7,5/30
NK 65/35-125	65/35	125	2950	7,5/55
NK 65/35-240	65/35	240	2950	11/110
NK 210/80	210	80	2950	22/110
NK 200/120	120/200	120	2950	75/110
NK 210/200	210	200	2950	37/200
NK 200/210	200	210	2950	37/200
NK 200/370	120/200	370	2950	250/315
NK 560/335-70	335/560	70	2950	110/160
NK 560/335-120	335/560	120	2950	160/250
NK 560/335-180	335/560	180	2950	90/400
NK 560/300	560	300	2950	400/630
NKV 360/80	360	80	2950	160
NKV 360/125	360	125	2950	200
NKV 360/200	360	200	2950	315
NKV 360/320	360	320	2950	400
NKV 600/125	600	125	2950	250/400
NKV 600/200	600	200	2950	250/400
NKV 600/320	600	320	2950	250/800

While pump developing and manufacturing the original constructive solutions have been used. It makes possible to increase the quality, reliability and operating life of the pumps. In order to increase the coefficient of efficiency the pumps are manufactured with I and II rotors and M, a, b, v, g working wheel grooving.

Performance according to the material of flow part:

- C** – carbonic steel ASTM A216WCB, A352LCB
- X** – chromic steel ASTM A217CS, Aisi420
- H** – chromium-nickel steel UNS J92630, J92701





OIL FUEL PUMPS NPS type

(BB3)
API 610

Appointment

Oil fuel pumps NPS type can be assigned for transferring and piping oil, oil products, dry hydrocarbon gases and other liquids, which have similar physicochemical features and the same corrosive impact to the pump component material; temperature from minus 80 °C plus +200 °C. The allowed level of nonabrasive solid particles in the pumped fluid is not more than 0,2% w/w; the allowed particle size is not more than 0,2 mm.

Oil fuel pumps NPS type can be used in technological installations petrochemical, petro- and the gas-processing enterprises, delivery system of fuel (Thermal Power Station), large boiler and inflate stations.



Design

Pumps NPS type – oil fuel centrifugal interbasic section eight-step cell type with a flat horizontal case. Details of a running part of pumps – carbon steel. Pump impeller – one-way: are located on a shaft in two groups by four wheels between portable ball-bearing support. For unloading of a rotor from axial forces entrance apertures of driving impellers of both groups are turned into the opposite sides. Greasing of bearings – liquid, circulating.

Performance according to the material of flow part:

- C** — carbonic steel ASTM A216WCB, A352LCB
- H** — chromium-nickel steel UNS J92630, J92701

Pump type	Nominal supply, m ³ /h	Nominal head, m	Speed of rotation, per min	Engine power, kW
NPS 65/35–500	65/35	500	3000	55...200
NPS 120/65–750	120/65	750	3000	90...630
NPS 200/700	200	700	3000	200...800





CENTRIFUGAL PUMPS

CNSSh type

Appointment

Centrifugal pumps of the CNSSh type are designed for pumping water and other neutral liquids similar to water in density and viscosity, with a pH of 5.5 ... 8.5, with temperature of up to 70 °C, with a total content of sulfates and chlorides up to 20 g / l, mass concentration of solids up to 1.5% and particle size up to 1 mm.

Design

Horizontal, sectional, multi-stage pumps with one-sided arrangement of impellers. The axial forces of the rotor are perceived by the hydraulic heel assembly of a special design. The rotor bearings are grease-lubricated rolling bearings. The torque from the drive motors is transmitted to the pumps using a sleeve-finger coupling. Pump rotor seals are of stuffing box type



TECHNICAL CHARACTERISTICS

Pump name	Head, m	The power consumed by the pump, kW	Efficiency, %
CNSSh 300-140	143	150	74
CNSSh 300-210	214	225	75
CNSSh 300-290	286	300	75
CNSSh 300-360	358	375	76
CNSSh 300-430	430	450	76
CNSSh 300-500	500	525	77
CNSSh 300-570	572	600	77
CNSSh 300-650	645	675	78
CNSSh 300-720	715	750	78
CNSSh 300-800	800	825	79

Advantages

1. Optimization of the geometry of the flowing part, impellers, and guide vanes made it possible to increase the efficiency from 74 to 79%.
2. High purity of surface treatment of cast parts allowed to reduce power consumption of units in 5-9%.
3. The use of alloy steels and alloys increases the indicators of corrosion and wear resistance, which allows to increase the turnaround time and the service life of the pumps.
4. The stuffing box of the pump is made in accordance with API 682, which allows the installation of mechanical shaft seals.
5. The use of dual-core roller bearings of the middle series made it possible to reduce the level of vibration and to operate the pumps without forced cooling of the bearing units, as well as to exclude their replacement during the entire period of operation.
6. Specially developed design of hydraulic heel allowed to significantly increase the reliability of the pump.





METERING PUMPS

ND type

API 675

Appointment

Metering plunger pumps and units can be assigned for voluminous pressure metering of neutral and aggressive liquids, emulsions and slurry oils which have kinematic viscosity from $8,5 \times 10^{-7}$ to 8×10^{-4} m²/s (from 0,0085 to 8 St); temperature from 258K to 473K (from minus 15°C to plus 200°C and more); nonabrasive solid phase concentration not more 10% in the mass with maximum particle density up to 2000 kg/m³; particle size of nonabrasive solid phase not more than 1% from internal diameter of inlet nozzle.

Performance according to the material of flow part:

- D** — chromic steel ASTM A216WCB, A352LCB
- K** — chromium-nickel steel UNS J92630, J92701



TECHNICAL CHARACTERISTICS

Pump type and size	Supply with max plunger stroke, l/h	Ultimate pressure, kgf/cm ²
ND 25/400	25	400
ND 40/250	40	250
ND 63/160	63	160
ND 100/100	100	100
ND 160/63	160	63
ND 250/40	250	40
ND 400/25	400	25
ND 630/16	630	16
ND 1000/10	1000	10
ND 1600/10	1600	10
ND 40/400	40	400
ND 25/100	25	100

Pump type and size	Supply with max plunger stroke, l/h	Ultimate pressure, kgf/cm ²
ND 40/630	40	630
ND 100/250	100	250
ND 63/400	63	400
ND 160/160	160	160
ND 250/100	250	100
ND 400/63	400	63
ND 630/40	630	40
ND 1000/25	1000	25
ND 1600/16	1600	16
ND 2500/10	2500	10
NDP 100/320	100	320





METERING DIAPHRAGM PUMPS

NDR-2M type

Appointment

Designed for pumping liquids and suspensions, including toxic and aggressive ones.

The presence of abrasive in the pumped liquid is allowed.

Terms of Use

Flow rate at max plunger stroke, l/h	25 to 2500
Discharge pressure, MPa	1,0 to 63



TECHNICAL CHARACTERISTICS

Pump type	Nominal supply, m ³ /sec (l/h)	Pressure in pump outlet, MPa (kgs/sm ²)	Engine power, kW
NDR-2M 25/400	6,9x10 ⁻⁶ (25)	40 (400)	1,5
NDR-2M 40/250	1,1x10 ⁻⁵ (40)	25 (250)	3,0
NDR-2M 40/400		40 (400)	3,0
NDR-2M 40/630		63 (630)	3,0
NDR-2M 63/160	1,75x10 ⁻⁵ (63)	16 (160)	1,5
NDR-2M 63/400		40 (400)	3,0
NDR-2M 100/100		10 (100)	1,5
NDR-2M 100/250	2,8x10 ⁻⁵ (100)	25 (250)	3,0
NDR-2M 160/63	4,4x10 ⁻⁵ (160)	6,3(63)	1,5
NDR-2M 160/160		16 (160)	3,0
NDR-2M 250/40		4,0(40)	1,5
NDR-2M 250/100	6,9x10 ⁻⁵ (250)	10,0 (100)	3,0
NDR-2M 400/25	1,1x10 ⁻⁴ (400)	2,5 (25)	1,5
NDR-2M 400/63		6,3(63)	3,0
NDR-2M 630/16		1,6(16)	1,5
NDR-2M 630/40	1,75x10 ⁻⁴ (630o)	4,0(40)	3,0
NDR-2M 1000/10	2,8x10 ⁻⁴ (1000)	1,0(10)	1,5
NDR-2M 1000/25		2,5 (25)	3,0
NDR-2M 1600/16		1,6(16)	
NDR-2M 2500/10	6,9x10 ⁻⁴ (2500)	1,0 (10)	





THREE-PLUNGER CRANK PUMPING T, PT type

API 675

Appointment

The T and PT three-plunger crank units and pumps are designed to pump both neutral liquids and aggressive liquids, which are neutral to the materials of the hydraulic portion, with the kinematic viscosity of not more than 800 mm²/sec (8 St) at a temperature depending on the make of 243 K to 473 K (minus 30°C to plus 200°C). The allowed level of nonabrasive solid particles in the pumped fluid is not more than 0.2 % w/w; the allowed particle size is not more than 0.2 mm. These pumps and units are used in operations that require use of high pressures including explosion- and fire-risk ones (for instance, hydraulic cleaning of manufacturing equipment). They are also used as feeding pumps in movable steam-generating plants.



TECHNICAL CHARACTERISTICS

Pump type	Feeding, m ³ /h		Pressure in pump outlet, MPa
	Min.	Max.	
1.1 PT-25	1,0	3,2	10
1.3 T-32-2,7	3,2	50	40
1.3 PT-50	8,0	20	16
1.3 T-28-2,7	2,5	4,3	50
2.3 PT-25	1,25	3,2	10
2.3 PT-36	2,5	6,3	10
2.3 PT-45	4,0	10,0	10
2.3 PT-1/40	1		40
2.3 PT-1,6/25	1,6		25
2.3 PT-2,5/16	2,5		16
2.3 PT-4/10	4		10
2.3 PT-6,3/6,3	6,3		6,3
2.3 PT-10/4	10		4

Pump type	Feeding, m ³ /h		Pressure in pump outlet, MPa
	Min.	Max.	
2.3 PT-12,5/2,5	12,5		2,5
1.3 T-10/20	10		20
1.3 T-6,3/20	6,3		20
1.3 T-12,5/10	12,5		10
1.3 T-12,5/16	12,5		16
1.3 T-16/16	16		16
1.3 T-16/8	16		8
1.3 T-20/10	20		10
ANP 4/63	3,5		63
ANP 5/63	4,5		63
ANP 6/50	6		50
UPG 6/10	6		10
UPG 4/16	4		16

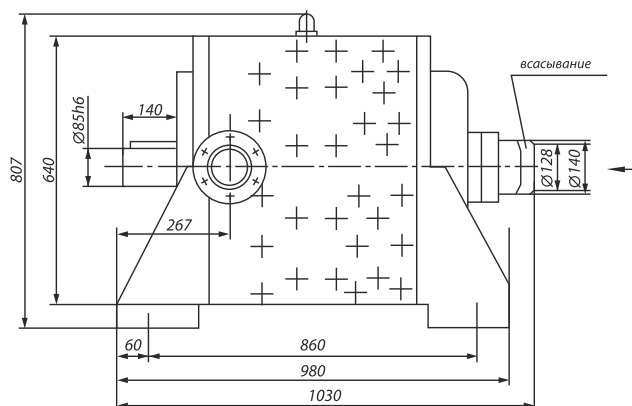
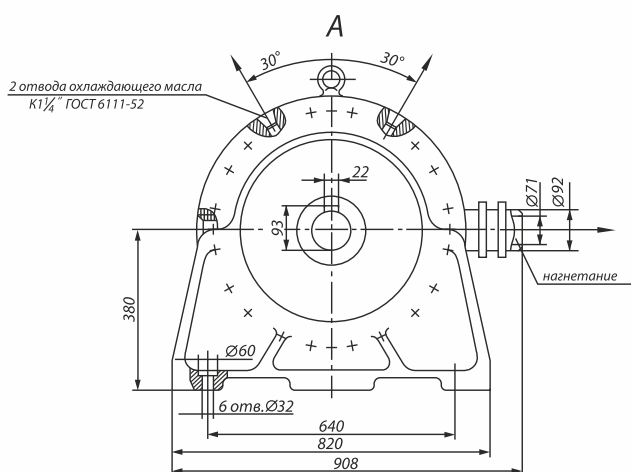




RADIAL PISTON PUMP NR 2-1250 type

Appointment and application area

The radial piston pump NR 2-1250 is designed to supply working fluid to the hydraulic system of the walking mechanism of walking excavators and other powerful hydroficated machines, where an unregulated flow rate with a pressure of up to 20 MPa is required.



Габаритные и присоединительные размеры
насоса НР2-1250

TECHNICAL CHARACTERISTICS

Parameter	Parameter value
Working volume, cm ³	1250
Nominal flow, l/min	1100-60
Rated rotation speed, c ⁻¹	16
Discharge pressure, MPa nominal maximum	20 25
Suction pressure, MPa maximum minimal	0,6 0,4
Rated power, no more, kW	400±15
Weight (without working fluid), no more, kg	1500





ELASTIC PLATE MUFFS MK type

Appointment and application area

Elastic plate muffers type MK are designed to transmit the torsional moment from drive to pumps, compressors, smoke exhausters and other rotation devices which are to be used at oil and gas, chemical, metallurgical and other industrial areas.

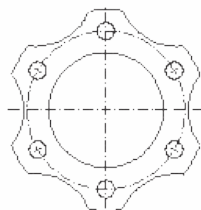
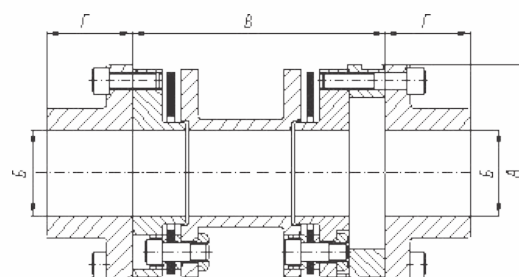
Operation

The principle of elastic plate muffs operation is based on transmission the torsional moment between shafts through bags of thin metal sheets. At this time the mutual angle, axial and radial shaft misalignment can be compensated only with elastic deformation of sheet bags. The muff is consisted in two half-muffs and spacer plate with two bags of elastic units. The spacer plate is fixed to half-muffs with screw.

Benefits

Having compared the tooth muffs and pin coupling, the plate muffs are available to:

- reduce the vibration level;
- enhance in-use life of pump and compressor support and end compaction;
- make possible the axial misalignment of joint rotors aiming to take the working position while start (alignment of magnetic axis of electro drive rotor and stator, setting the working gap into hydraulic balancing device)
- exclude lubrication supply and maintenance.



MAIN TECHNICAL CHARACTERISTICS OF MUFFS TYPE MK

Muff's type	Transmitting torsional moment, HxM		Transmitting power, kW*, while		Size, mm				Permitted relative shaft misalignment			Minimum axial distance between edges of connecting shafts, mm	Weight, kg while B min
	Nominal	Max. short-term	n=1000 rpm	n=3000 rpm	ø C	ø D max	B min	A	Radial, mm	Axial, mm	Angle, °		
MK 2-17	160	395	17	51	100	45	100	40	0,35	± 2,0	0,5	90	7
MK 2-34	315	787	34	102	125	60	100	40	0,45	± 2,8		95	11
MK 2-67	630	1575	67	201	150	75	120	55	0,55	± 3,2		110	16
MK 2-105	1000	2500	105	315	150	75	120	65	0,35	± 2,0		110	17
MK 2-270	2500	6250	270	810	180	80	140	80	0,5	± 2,2		140	30
MK 2-420	4000	10000	420	1260	220	100	160	90	0,6	± 3,0		160	50
MK 2-670	6300	15750	670	2010	255	120	180	105	0,7	± 3,8		170	80
MK 2-1050	10000	25000	1050	3150	285	130	200	120	0,75	± 4,0		170	103
MK 2-1340	12500	31250	1340	4020	310	160	200	140	0,75	± 4,0		200	120





END SEALING FOR OIL AND GAS COMPLEX

API 682

SINGLE END SEALING BRANDS

TM — to be used in non-aggressive, non-explosive, firesafe liquids, leakage of which in atmosphere is permissible considering security requirements.

TMP — has sealing with an extra throttle valve from atmosphere side intended to lower leakage level in case of damage of a main friction pair

TMH — has a thermal barrier along a shaft (a cooler).

DOUBLE END SEALING

2TM — to be used in cases, when leakage of a product pumped into atmosphere is not permissible (poisonous, radioactive, explosive and such kind of liquids), and also is the pumped product has poor lubricity (gases, condensed gases), the pumped product is severely contaminated with abrasive impurities (up to 25%), it has tendency to gumming-up, polymerization, crystallization, etc.

2 TMH — has a thermal barrier along a shaft (a cooler).

2 TM(H) sealing is used together with a heat exchanger tank **BTN-12D-35K, SAPPD 1.1-7.5/2/35K**.

DOUBLE TANDEM-TYPE END SEALING

2 TMT — are used in cases, when single sealing cannot be applied according to security conditions' requirements (hot oil products, flammable and toxic liquids and other).

2 TMTH — has a thermal barrier along a shaft (a cooler).

Sealing of **2 TMTH** brand is used together with a heat exchanger tank **BT-12T-15K**.

Design

- hydraulically unloaded friction pairs;
- cartridge structure;
- springs are taken out of the operating environment (product);
- second throttle valve.

Sealing type	Pumped medium temperature	Piping as in API 682	Can be used in pumps of the following brands
TM, TMP TMH	from -30 to +100 °C до +400 °C	Plan 01, 02, 11, 12, 13, 21, 22, 31, 32, 41	NK, NKV, NPS, CNS, CN, PE, SE, D
2TM 2TMH	from -30 to +200 °C to +400 °C	Plan 53A, 53B, 53C, 54	
2TMT 2TMTH	from -30 to +200 °C to +400 °C	Plan 52	



MATERIALS USED

Friction pairs — silicon carbide, tungsten carbide, siliconized graphite, anti-friction coal-graphite;

Secondary sealing — rubber compounds on the basis of fluorine caoutchouc, ethylene-propylene;

Body parts — stainless steel AISI 420, 321, 318, 316Ti, S31635, 904L.





END SEALING FUNCTIONALITY EMSURING SYSTEMS

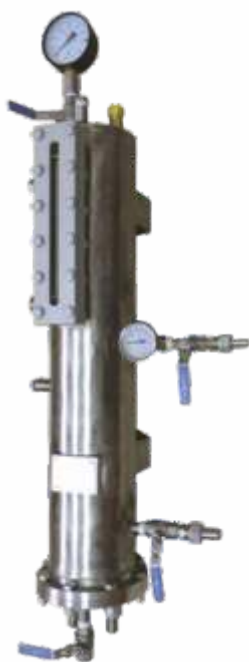
API 682

Heat exchanging tank BT-12T-15K

it is intended to store, cool and control quantity, temperature, pressure of flush liquid, used for lubricating and cooling of double end sealing. It is used in piping of tandem-type end sealing according to the plan 52 API 682.

Specific of design

- detachable type construction, bottom with a coil can be disassembled to remove scale and residue;
- is equipped with Klinger glass;
- there are provided connecting pipes to connect level, temperature and pressure sensors;
- is supplied with ball cocks, safety valve, bimetallic thermometer, manometer.



Heat exchanging tank BTN-12D-35K

it is intended to store, cool and control quantity, temperature, pressure of barrier liquid, which is used to lubricate and cool of double end sealing. It is used in piping of double end sealing according to the plan 53A API 682.

Specific of design

- detachable type construction, bottom with a coil can be disassembled to remove scale and residue;
- is equipped with a pump pumping NPR 3–35K;
- is equipped with Durance glass for liquid level visual control
- there are provided connecting pipes to connect level, temperature and pressure sensors;
- is supplied with ball cocks, safety valve, bimetallic thermometer, manometer.



Materials

stainless steel, AiSi 321H, rubber compounds on the basis of fluorelastomer, perfluorelastomer, ethylene-propylene.

Materials

stainless steel, AiSi 321H, rubber compounds on the basis of fluorelastomer, perfluorelastomer, ethylene-propylene.

MAIN CHARACTERISTIC

Parameter type	BT-12T-15K	BTN-12D-35K
Flush/barrier fluid	Mineral oil synthetic oil, diesel fuel, water, etc.	
Cooling mixture	Chemically desalted water and other heat-transfer agents	
Quantity of flush/barrier fluid in a tank, dm ³		
maximum	12	
minimum	8,5	
Flush/barrier fluid temperature incoming to a tank, °C, not more than	80	
Working pressure of flush/barrier fluid, MPa, kgf/cm ² , not more than	1,5 (15)	3,5 (35)
Pressure of flush/barrier fluid, MPa, kgf/cm ² , not more than	10	
Recommended cooling mixture temperature when coming into the tank, °C	20...30	
Recommended discharge of cooling mixture, m ³ /h	0,6...1,2	
Calculated power of a built-in heat exchanger, kW	3,5	
Mass, kg	25	58





END SEALING FUNCTIONALITY ENSURING SYSTEMS

API 682

Pressure fall automatic maintenance system on the basis of a differential hydro-sucker SAPPD 1,1-7,5/2-35K

It is for storing, cooling down, refill of quantity and automatic maintenance of pressure fall of barrier liquid in a cooling system of double end sealing. SAPPD is used in piping according to the 53C API 682 plan.

Design

- Contains a detachable heat exchanger, differential hydro-sucker and a hand supercharging pump NPR 3-35K;
- Detachable type construction (for convenience in cleaning of inside surface);

Kit contents

Bimetallic thermometer at barrier liquid's entrance to the heat exchanger;

- Indicating manometer on the line of pumping up of barrier liquid into a seal;
- Visual control device of barrier liquid in a differential sucker;
- Connector to connect a temperature sensor;
- Safety valve.



Material used

- Stainless steel AISI 321H, 420;
- Rubber mixtures on the basis of fluorelastomer, perfluorelastomer.

MAIN CHARACTERISTICS OF SAPPD 1,1-7,5/2-35K

PARAMETER TYPE	SAPPD 1.1-7,5/2-35K
Barrier liquid	Mineral oil, synthetic oil, diesel fuel, water, etc.
Coolant	Chemically desalted water and other heat-transfer agents
Barrier liquid quantity, l in a strapping of a heat exchanger in a differential hydro-sucker	7,5 2
Hydraulic gain coefficient	1,1
Working liquid temperature (product), °C, not more than	from -20 to +200
Barrier liquid temperature when entering a tank, °C, not more than	90

PARAMETER TYPE	SAPPD 1.1-7,5/2-35K
Barrier liquid working head, mPa (kgf/sm ² not more than)	3,85 (38,5)
Coolant's head, mPa (kgf/sm ² not more than)	10
Recommended coolant's temperature at a tank's entrance, °C	20...30
Recommended coolant's discharge, m ³ /h	0,6...1,2
Calculated power of an in-build heat exchanger, kW	3,5
Mass, kg	66





END SEALING FUNCTIONALITY ENSURING SYSTEMS

API 682

Detachable heat exchanger VT-45K

It is intended to cool down liquids pumped into a chamber of an end sealing. It is used for piping according to the plans 21,22,23,41 API 682.

DESIGN

- Detachable type construction to remove scale and residue
- A coil-type heat exchanger is mounted into a lid;
- A deliver set contains stop valves and a bimetallic thermometer;
- Parts' material – stainless steel AISI 321H.

SPECIFICATIONS

- Medium consumed: chemically desalted water, steam condensate,
- Inner content – 7 l;
- Capacity of a heat exchanger – 3,5 kW;
- Coolant's maximum pressure – 1(10) MPa (kgf/cm²)
- Coolant's pressure – 4,5, (45) MPa (kgf/cm²)
- Mass – 11 kg



Hydrocyclone separator brand GCC

is designed for cleaning the sealing fluid supplied to the mechanical seal of the hard abrasive inclusions. Used in together with single mechanical seal in piping plan 31 API682.

APPLICATION

Oil production and transportation pumps, chemical and oil-processing industry pumps, pumping of liquids with solid abrasive impurities.

MATERIAL of production: steel AISI 321H

SPECIFICATIONS

- Maximum working pressure – 10 (100) (kgf/cm²);
- Maximum working temperature – 150 °C;
- Connections – G ½, flange;
- Minimum pressure fall at hydrocyclone – 1,5 (15) MPa (kgf/cm²);
- Purification rate depending on viscosity of working medium (product) and mechanical particles size — from 90 to 99%;
- Unlike filters do not need recurrent cleaning;
- Service life period is not less than three years.





END SEALING FOR CHEMICAL INDUSTRIES

API 682

BRANDS OF THE SEALING PRODUCED

TMR – single end mechanical sealing for insulation of running shafts of mixing devices, reactors and other equipment with non-aggressive, non-explosive and fire-safe working liquids, which leakage into atmosphere is permissible when considering security requirements.

TMR-P – production with a frictionless bearing.

2 TMR - double end mechanical sealing for insulation of running shafts of mixing devices, reactors and other equipment, where leakage of pumped liquid is not permissible.

2 TMR-P – production with a frictionless bearing.

2 TMF – double end mechanical sealing of cartridge-type with multiple springs, hydraulically unloaded, with fluoroplastic secondary sealing from the side or working liquid. It is used in equipment with mediums, which have increased corrosion effect on metal parts of a sealing.

2 TMF-P – production with a frictionless bearing.

BG – contactless gas barrier end sealing with multiple springs for sealing of running shafts of equipment, working liquids of which have no corrosion effect on sealing parts they contact with, and in which leakage of pumped liquid is not permissible. It is used in conditions when it is impossible to use liquid as sealing medium.

TBG - P – production with a frictionless bearing.

2 TBG – double contactless gas barrier end sealing. External gas sealing pair performs backup function when used in especially important processes.

2 TBG-P – production with a frictionless bearing.

TMR —



2TMR —



2TMF —



BG —





END SEALING FOR CHEMICAL INDUSTRIES

API 682

TECHNICAL CHARACTERISTICS OF SEALING

- Shaft diameters — from 40 to 150 mm
- Working medium (product) maximum pressure seal of the following brands:
 - TMR, TMR-P, 2 TMR, 2 TMR-P — not more than 35 kgf/cm²;
 - 2 TMF, 2 TMF-P — not more than 10 kgf/cm²;
 - TBG, TBG-P, 2 TBG, 2 TBG-P — not more than 6 kgf/cm²;
- Sealed liquid/gas temperature from -30 to 200°C (with use of a cooler between boxes of a chemical device (cooler along the shaft) — up to 400°C
- Sealing has hydraulically unloaded friction pairs
- Cartridge construction allows easy assembly and disassembly;
- Springs either detached from the working liquid (product), or are in barrier liquid (barrier gas);
- There is a nonmetal throttle bush in case of shift of a sealing set, as a backup sealing preventing increased leakage of the working medium (barrier medium).

TO ENSURE FUNCTIONALITY OF SEALING THE FOLLOWING PIPING STRUCTURES ARE USED

Sealing brand	Structure
TMR, TMR-P	Bringing into cavity after a friction pair of flush liquid from outside source
2 TMR, 2 TMR-P, 2 TMF, 2 TMF-P	Barrier liquid circulation under pressure, exceeding the one being sealed, and circulation of barrier liquid from the sealing into the tank Circulation via sealing of barrier liquid brought in from outside source
TBG, TBG-P, 2 TBG, 2 TBG-P	Connection to the sealing of purified barrier gas from outside source

MATERIALS USED

- silicon carbide, tungsten carbide, siliconized graphite, anti-friction coal-graphite;
- rubber compounds on the basis of fluorine caoutchouc, perfluorine caoutchouc ethylene-propylene;
- stainless steel AISI 420, 321, 318, 316Ti, S31635, 904L.

SYSTEMS ENSURING FUNCTIONALITY OF GATE GAS END SEALING OF TBG AND 2 TBG BRANDS



GAS PREPARATION BPG 6-M-1 UNIT

BPG 6-M-1 unit is intended to purify and pump gas into sealing of TBG and 2 TBG brands, and also to control pressure and gas discharge.

TECHNICAL CHARACTERISTICS:

Gate gas: air, nitrogen;

- Maximum pressure at the unit's entrance: 6 atm;
- Maximum pressure at the unit's exit: 6 atm;
- Level of purification from solid inclusions: not more than 1 mkm.





IMPELLERS FOR COOLING TOWER FANS (CTF) AND AIR COOLER UNITS (ACU)

Impellers with fiberglass blades of different sizes and with a diameter of 1.7 to 7.0 meters and the number of blades from 2 to 14 pcs

DISTINCTIVE CHARACTERISTICS AND FEATURES

The aerodynamic profile is slightly sensitive to surface contamination and works well in a wide range of angles of attack

- The design of the blade provides the installation of a device for removing static electricity, which accumulates during operation on the surface of the blade
- All blades in one or several sets are balanced according to a single conditional moment, which allows them to be installed in any sequence without disturbing the overall balancing of the impellers.
- The design of the blade attachment allows easily adjust the angle of the blade. When ellipsethe diffuser has the ability to change the impeller diameter to minus 10 mm.
- In zones with high linear velocities the leading edge of the blade has a protective cover plate made of stainless steel to prevent wear from collision with burning and micro drops of water injection.



Impellers with metal blades made by riveting of different sizes with a diameter of 1.7 to 7.0 meters and the number of blades: 2 to 12 pcs

DISTINCTIVE CHARACTERISTICS AND FEATURES

- Impellers with stainless metal blades have a greater degree of corrosion protection compared to existing analogues of metal blades.
- All blades and spars are balanced according to a single standard which allows you to install them in any sequence without disturbing the overall balancing of the impellers.
- The blade mounting design makes it easy to adjust the angle of attack of the blades. When the diffuser is elliptical, it is possible to change the impeller diameter to minus 40 mm on the spot.





PIPELINE FITTINGS

Safety valve KO 302 M DN 100, 80 PN16, 32

Background information about product.

Safety valves appropriate for automatic lapping of pipe with natural gas if the pressure in it increases or decreases emergency.

Safety valve should be installed on the well head.

Valves are produced according to
TU U 28.1-37764125-001:2013



TECHNICAL CHARACTERISTICS

Nominal pressure Ru, MPa (kgf/cm ²)	32 (320)
Conditional pass Du, mm	80, 100
Maximum pressure drop MPa (kgf/cm ²)	10 (100)
Range of operation within: with decreasing pressure, MPa with increasing pressure, MPa	от 2 до 8 from 11 to 20
Transport medium	natural gas with a carbon dioxide and hydrogen sulfide content of not more than 6 volume percent, gas condensate
Working environment temperature, °C	from -50 to +100





PIPELINE FITTINGS

Adjustable choke SHR DN100, 80 PN16,32

Adjustable choke means for control/ for regulation of debit of production rate of gas wells by changing of cross-section manually. Adjustable choke should be installed on technological lines of gas companies.



TECHNICAL CHARACTERISTICS

Conditional pressure PN, MPa (kgf/cm ²) by GOST 356-63	16 (160)	32 (320)
Internal diameter DN, mm by GOST 365-67	100, 80	100, 80
Maximum pressure drop MPa (kgf/cm ²)	10 (100)	10 (100)
Control limits of diameter of cross-section with one array of replacement parts, mm	30/40/50	30/40/50
Transport medium	natural gas corrosive impurities	
Temperature of transport medium, °C	from -50 to +100	

Safety valve 17s52p DN32,25 PN32

Background information about product.

Safety valves appropriate for arrangement on gas pipes and containers for automatic faulting of medium if the operating pressure increases over rated level

Actuation medium: gases and liquids.

Concerning them the material of main details is corrosion-resistant

TECHNICAL CHARACTERISTICS

Conditional pressure PN, MPa (kgf/cm ²)	32 (320)
Internal diameter DN, mm	25, 32
Temperature of actuation medium	from -50 to +120°C
Leaks in the valve gate	no more than 15 cm ³ /min

Orifice coefficient of valves

for gaseous mediums	not lower than 0,15
for liquids	not lower than 0,06





NOTES

