



**PUMPING EQUIPMENT  
FOR WATER INJECTION  
SYSTEMS**

Engineered flow solutions





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# Content

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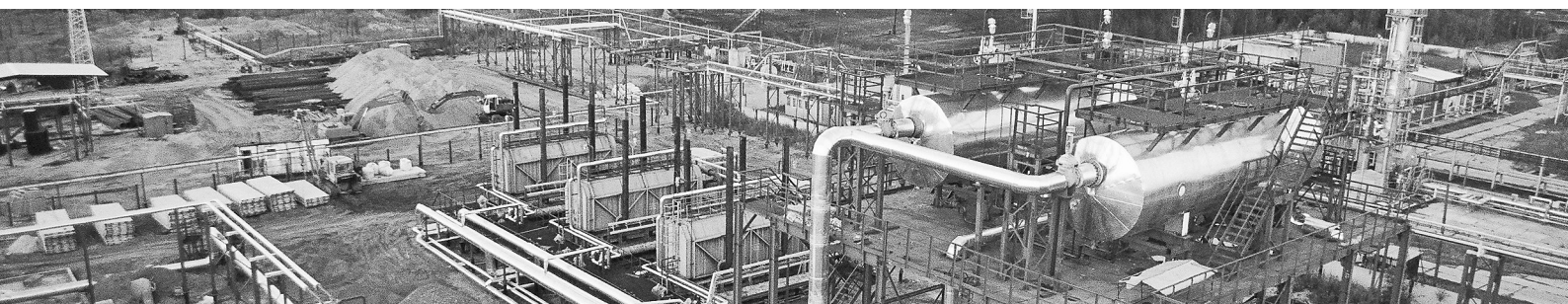
### CNS Pumps and Electric Pumps packages

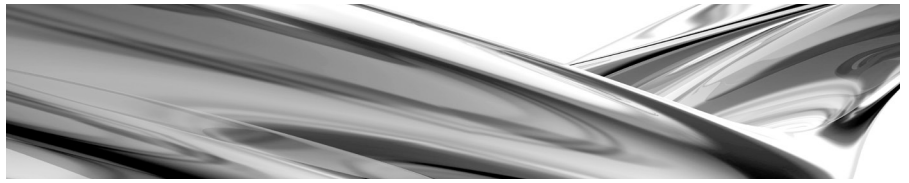
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## THE HMS GROUP

The HMS Group, since its inception in 1993, has developed into one of the leading Russian suppliers of pumps and engineered flow solutions for various applications in oil & gas industries.

Our team of 13,000 professionals is dynamically progressing in manufacturing, R&D, EPC solutions, sales and after sales services and facilities to build state-of-the-art products and meet advanced expectations of our clients.

The HMS Group, with its head office in Moscow and 16 manufacturing and R&D centers across Eastern Europe, with the sales and service support of 9 local branches offices around Russia, EU (Milan, Italy), Middle East and Central Asia is very keen to be close to its clients and respond to every unique demand.

Being a LSE listed company, with ISO 9000 quality management system, we follow international business practices in our every day operations.

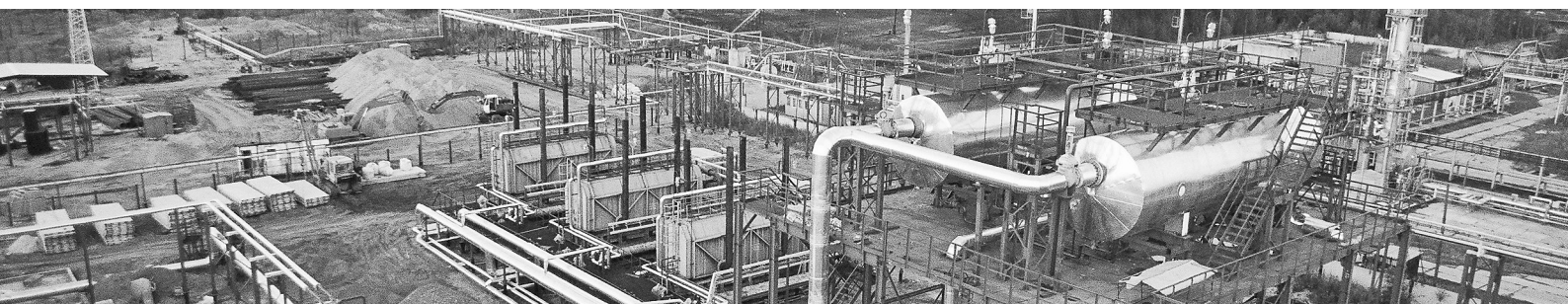
## HMS GROUP KEY BUSINESS

### Industrial pumps

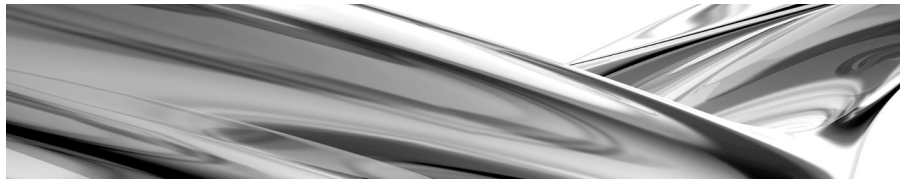
- oil wells water injection pumps;
- pumps for oil production and transportation;
- pumps for refineries;
- pumps for nuclear power plants, thermal power plants and combined cycle power plants;
- pumps for water supply and waste water treatment;
- pumps for still mills and foundries.

### Oil and gas integrated solutions:

- oil and water pumping stations;
- pressure vessels;
- metering stations;
- dosers;
- EPC solutions for oil field upstream development and various water supply systems.







The **HMS GROUP** consists of the leading pumping and oil equipment manufacturers, **EPC** and service providers

### **INDUSTRIAL PUMPS**

**HMS PUMPS**, Russia

Manufacturing of pumps for oil & gas, water supply and agricultural application

**LIVNYNASOS**, Russia

Manufacturing of borehole submersible centrifugal pumps for water supply

**NASOENERGOMASH**, Ukraine

Manufacturing of pumps for oil & gas, thermal and nuclear power generation, water supply and utilities

**HYDROMASHSERVICE**, Russia

Consolidated trade company of the HMS GROUP

**VNIIAEN**, Ukraine

R&D of pumps for nuclear and thermal energy

**PROMBURVOD**, Belarus

Manufacturing of borehole submersible centrifugal pumps for water supply

**BOBRUISK MACHINE BUILDING PLANT**, Belarus

Manufacturing of pumping equipment for oil & gas, chemical processing, mining, metallurgy, pulp & paper, water etc.

**DIMITROVGRADKHIMMASH**, Russia

Manufacturing of vessels, chemical equipment and pumps

**HMS HOUSEHOLD PUMPS**, Russia

Manufacturing and marketing of household pumps

### **OIL & GAS EQUIPMENT**

**HMS NEFTEMASH**, Russia

Oil field modular equipment manufacturer

**SIBNEFTEMASH**, Russia

Manufacturing of oil & gas field equipment

**SIBNEFTEAVTOMATIKA**, Russia

Design and manufacturing of flow metering equipment

**NIZHNEVARTOVSKREMSERVICE**, Russia

Repair, upgrade and maintenance of oil field equipment

### **EPC**

**GIPROTYUMENNEFTEGAZ**, Russia

Integrated oil & gas fields engineering

**TOMSKGAZSTROY**, Russia

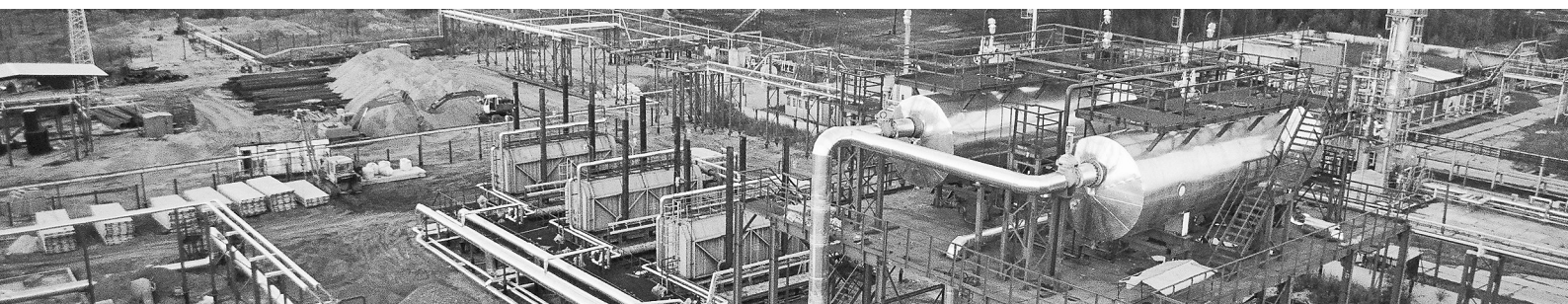
Construction of oil & gas facilities

**TREST SIBKOMPLEKTMONTAZHNALADKA**, Russia

Construction of oil & gas facilities

**INSTITUTE ROSTOVSKY VODOKANALPROEKT**, Russia

Design of water supply & drainage systems and hydraulic structures





## CNS Pumps and Electric Pumps packages

### General data

CNS Pumps and electric pumps packages are designated for heavy duty water processing in water injection stations.

Areas of application:

- systems of out-contour flooding water-flooding or contour water-flooding;
- oilfield formation water disposal (treatment) systems;
- descaling systems in steel mills and foundries;
- for coke hydraulic discharge systems.

### Configuration

Horizontal centrifugal multistage sectional single-case CNS-type pumps with single suction impeller and hydraulic balancing device.

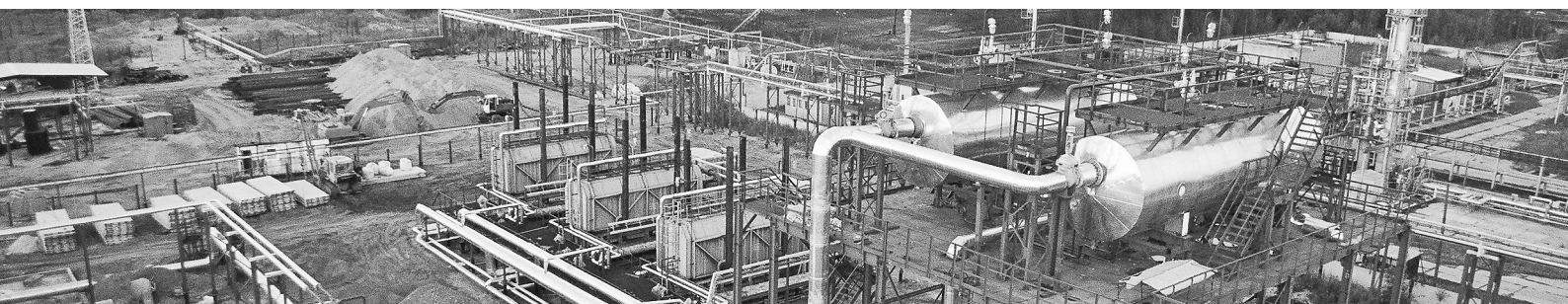
Pump suction nozzle is directed horizontally, pump discharge nozzle – upwards vertically.

Shaft sealing either by the mechanical seal or stuffing box. Design of mechanical seals allows periodic flushing of products of erosion and corrosion.

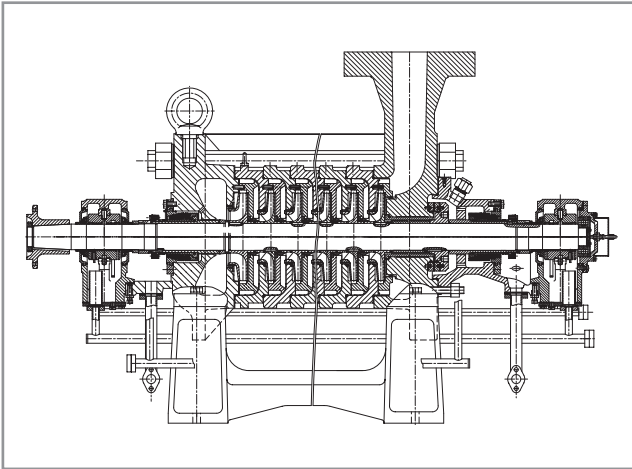
Journal bearings with oil bath lubrication or forced lubrication serve as rotor support.

The diaphragm coupling connects motor and pump and reduces vibrations.

Material execution of pumps depends on the service conditions and liquid parameters.







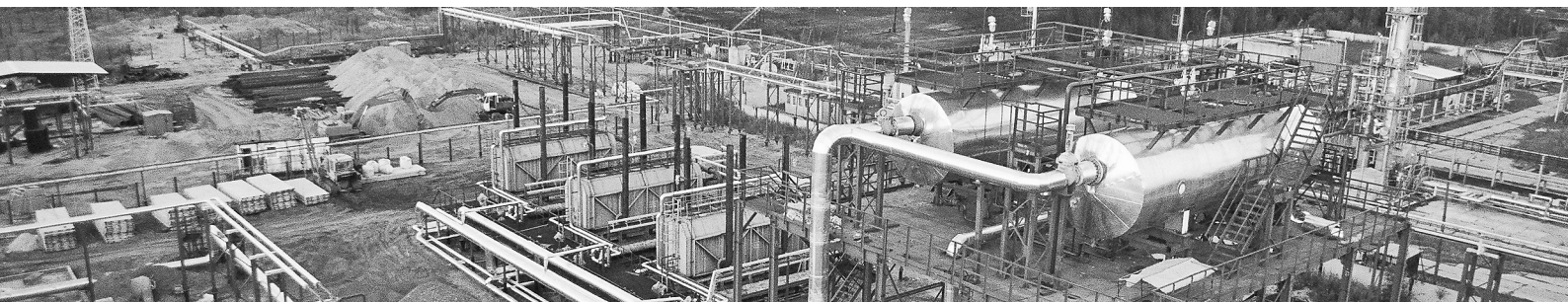
### Options\*

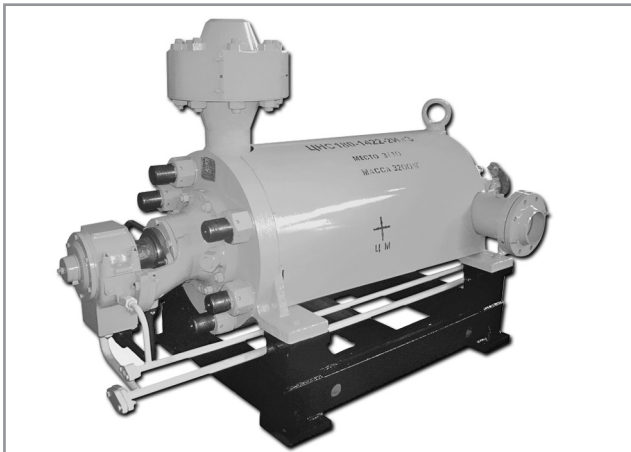
- with journal bearings with oil bath lubrication or forced lubrication;
- with cyclones separators for purified liquid fed into the chambers of mechanical seals;
- remote cyclones separators or built in the last stage separator to feed purified liquids into the hydraulic balancing device;
- with a gear or diaphragm coupling;
- with oil unit with water or air cooling and gear or centrifugal oil pump;
- skid execution or pump and motor individual baseplates;
- on a welded or cast foundation baseplates;
- standards and explosion proof execution.

### Scope of supply\*

- pump with electric motor on the frame with auxiliary pipelines;
- lubrication system;
- coupling and coupling guard;
- instruments;
- drive motor;
- spare parts, tools and accessories;
- operation manuals.

\* Scope of supply and options are determined and stipulated by customer in the contract.





## CNS 30...40-1 CNS 30...720-2 Pumps and Electric Pumps packages

### Configuration

CNS-type pumps CNS 30...40-1 and CNS 30...720-2 – centrifugal horizontal multistage casing sectional pumps with one-way liquid feeding to the first stage. The hydraulic balancing device is used to compensate the axial load.

Special rings with wear and corrosion-resistant alloys surfacing are applied to extend the hydraulic balancing device life. Journal bearings with oil bath lubrication or forced lubrication (by means of lubrication unit) serve for rotor support.

CNS 30...40-1 pumps have the similar construction like CNS 30...40-2 though their details have been designed to operate at a higher pump suction pressure (up to 117 bar).

CNS 30...40-1 pumps are able to operate as part of integrated pumping units consisting from cascade of pumps CNS 30...40-1 and CNS 30...40-2 and electric motor. These pumping units are equipped with mechanical seals.

Journal bearings with oil bath lubrication serve for rotor support in CNS 30...40-1 and CNS 30...40-2. For CNS 45...120-2 and CNS 180-1050-2 and

CNS 180-1422-2 journal bearings with oil bath lubrication or forced lubrication can be applied for rotor support.

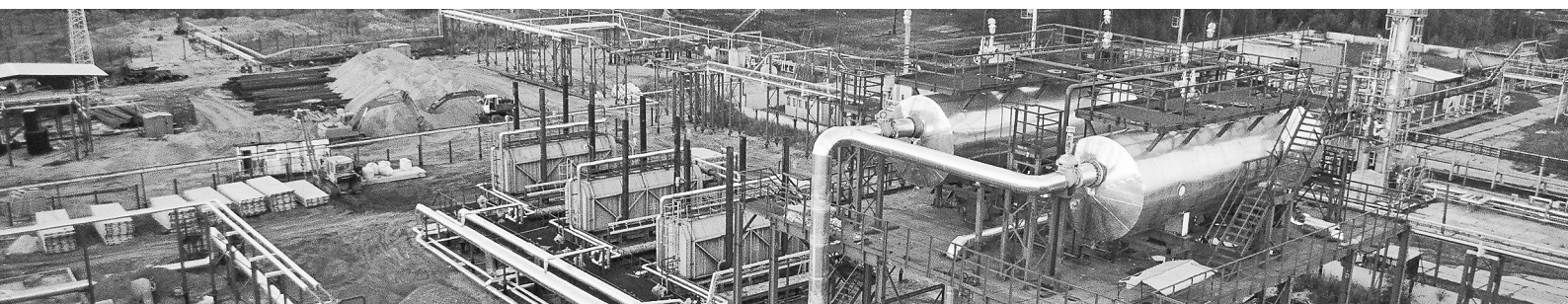
For pumps with  $Q > 180 \text{ m}^3/\text{h}$  and  $H > 1422 \text{ m}$  – only bearings with forced lubrication.

Either mechanical seal or stuffing box is applied for rotor sealing.

If solid particles are present in oilfield water, pumps can be equipped with a hydrocyclone (to feed purified liquid in the hydraulic balancing device), upon client's request.

Pump suction and discharge nozzles are of flanged type. In CNS 30...40-2 pump suction nozzle is directed horizontally and pump discharge nozzle – vertically upwards. In CNS 500...720-2 pump suction and discharge nozzles are directed vertically upwards. The diaphragm coupling connects motor and pump and reduces vibrations.

CNS45...240-2 and CNS180 has the same casing. CNS 315-2 has same main overall and mounting dimensions with CNS 180.







## CNSz 30—720-2 Pumps and Electric Pumps packages

### Configuration

CNSz-2 pumps have the starting thrust bearing to ensure a guaranteed clearance in the – hydraulic balancing device.

CNS-type pumps CNS 30...720-2 – centrifugal horizontal multistage sectional pumps with one-way liquid feeding to the first stage. Hydraulic balancing device with pull-out unit is used to compensate the axial load.

Journal bearings with forced lubrication (by means of oil unit) serve for rotor support. For CNS 30...120-2 embodiment with oil bath lubrication bearings is possible.

Either mechanical seal or stuffing box is applied for rotor sealing.

Pumps for liquids with solids contents equipped with cyclone separators.

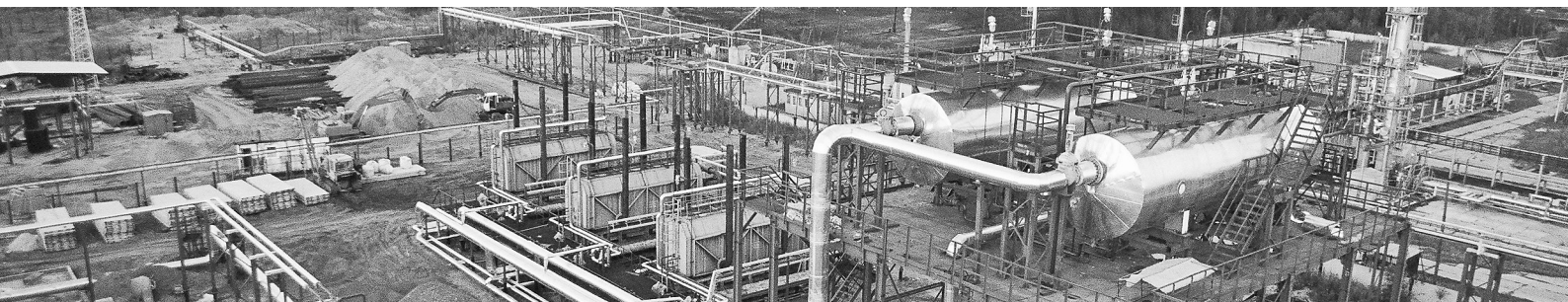
Pump suction and discharge nozzle are of flanged type. In CNS 30...315-2 pump suction nozzle is directed horizontally and pump discharge nozzle – vertically upwards. In CNSz 500...720-2 pump suction and discharge nozzle are directed vertically upwards.

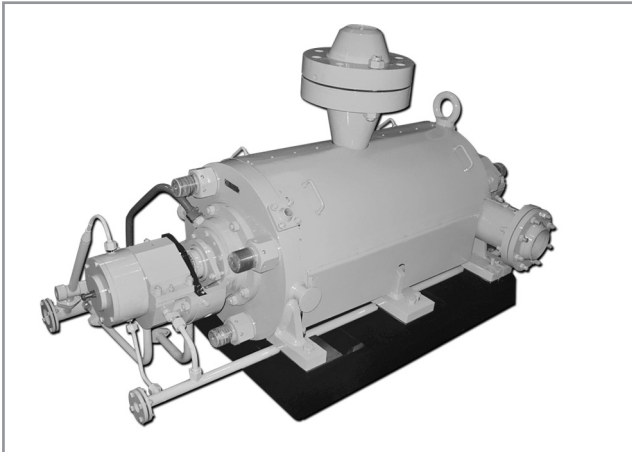
The diaphragm coupling reduces vibrations.

CNSz 45...240-2 pumps have the case of CNS 180. CNSz 315-2 have consistent overall and basing dimensions with CNS 180 pumps.

**Advantages of the pump structural scheme** with a guaranteed clearance in the hydraulic balancing device:

- pump operation reliability increase in the mode of frequent starts and stops;
- extended life of hydraulic balancing device.





## CNSp 30—315-2 Pumps and Electric Pumps packages

### Configuration

CNSp-2 pumps are equipped with «back-to-back» impellers.

CNSp-2 – centrifugal horizontal multistage sectional pumps with one-way fluid feeding to the first stage, with back-to-back impellers and rotor unloaded from axial forces.

Residual axial thrust unloads are carried out by self-aligning bearing.

Journal bearings with forced lubrication serve for rotor support. For CNSp 30...90-2 embodiment with oil bath lubrication bearings is possible.

Either mechanical seal or stuffing box is applied for rotor sealing.

Pump suction and discharge nozzles are of flanged

type; pump suction nozzle is directed horizontally and pump discharge nozzle – vertically upwards.

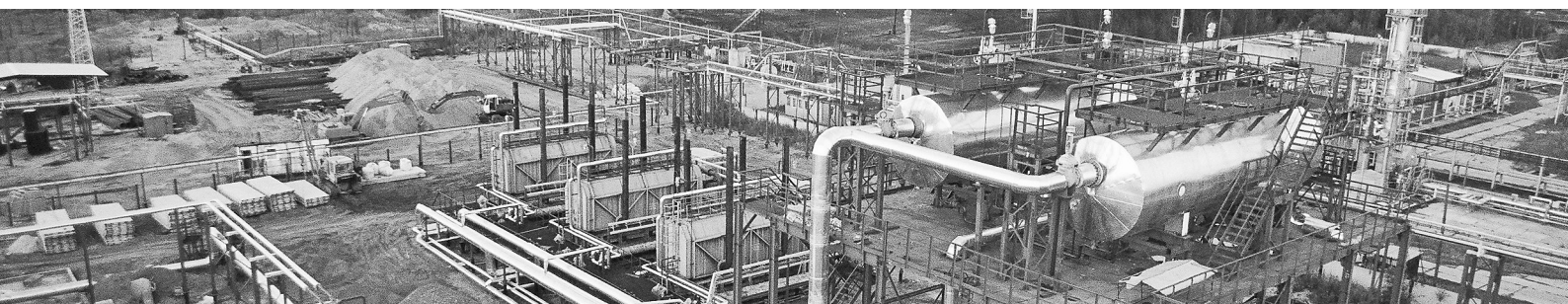
The diaphragm coupling connects motor and pump and reduces vibrations.

CNSp 45...240-2 have consistent suction connecting and basing dimensions with CNS 180 pumps.

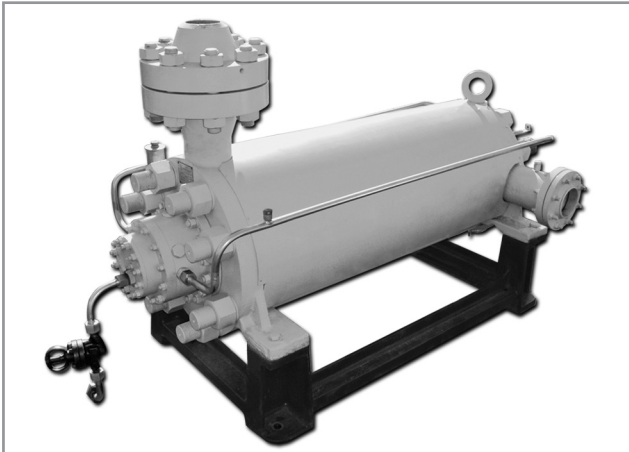
CNSp 315-2 have consistent overall and basing dimensions with CNS 180 pumps.

### Advantages of CNSp-pumps structural scheme:

- there is no need of hydraulic balancing device;
- increased pump reliability;
- extended pump life.







## CNS 45—240-3 Pumps and Electric Pumps packages

### Configuration

CNS 45..240-3 pumps are equipped with journal bearings lubricated by processed liquid.

CNS 45...240-3 are centrifugal horizontal multistage sectional pumps with one-way liquid feeding to the first stage.

The hydraulic balancing device is used to compensate the axial load.

Journal bearings serve for rotor support. They are cooled and lubricated with processed liquid.

These bearings allow to use just one instead of two mechanical seals; thus reduce overall weight and dimensions while keeping the same baseplate and connecting dimensions. For that type of pumps there is no need in lubricating system.

Mechanical seals are applied for rotor sealing.

Pump suction and discharge nozzles are of flanged type; pump suction nozzle is directed horizontally and pump discharge nozzle – vertically upwards.

The diaphragm coupling connects motor and pump and reduces vibrations.

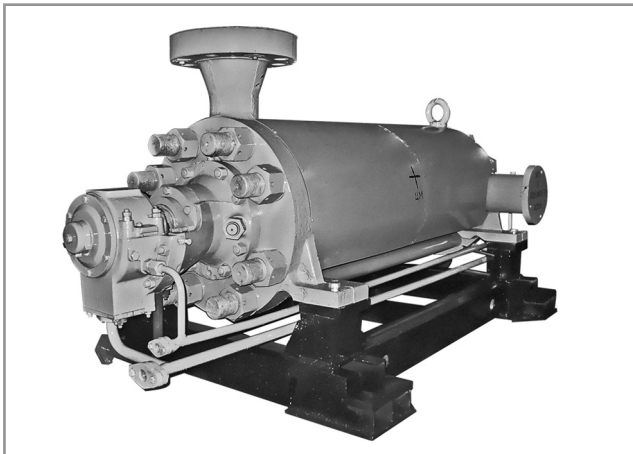
CNS 45...240-3 have consistent suction & discharge connecting and basing dimensions with CNS 180 pumps.

### Advantages of CNS 45...240-3-pumps structural scheme:

- the possibility to align rotor in the bearings during assembly to avoid rotor distortions in the stator;
- the ability to install seals with hydrocyclone cleaning;
- clean liquid is fed into hydraulic balancing device to extend its life time;
- ability to carry out full-cycle pump maintenance on site without dismantling it (including bearings replacement).







## **CNS 200-2200, CNSz 200-2200 Pumps and Electric Pumps packages**

### **Configuration**

Centrifugal horizontal multistage sectional pumps with hydraulic balancing device.

Special rings with wear-resistant and corrosion-resistant alloys surfacing are applied to extend the hydraulic balancing device's life.

Journal bearings with forced lubrication serve as rotor support. Either mechanical seal or stuffing box is applied for rotor sealing.

Pumps can be equipped with a hydrocyclone (the cleaning unit of liquid fed into mechanical seals), upon client's request

Pump suction and discharge nozzles of CNS and CNSz are of flanged type; pump suction nozzle is directed

horizontally and pump discharge nozzles – vertically upwards. The diaphragm coupling connects motor and pump and reduces vibrations.

Pumps come in CNS180-pump casing and fully compatible with them.

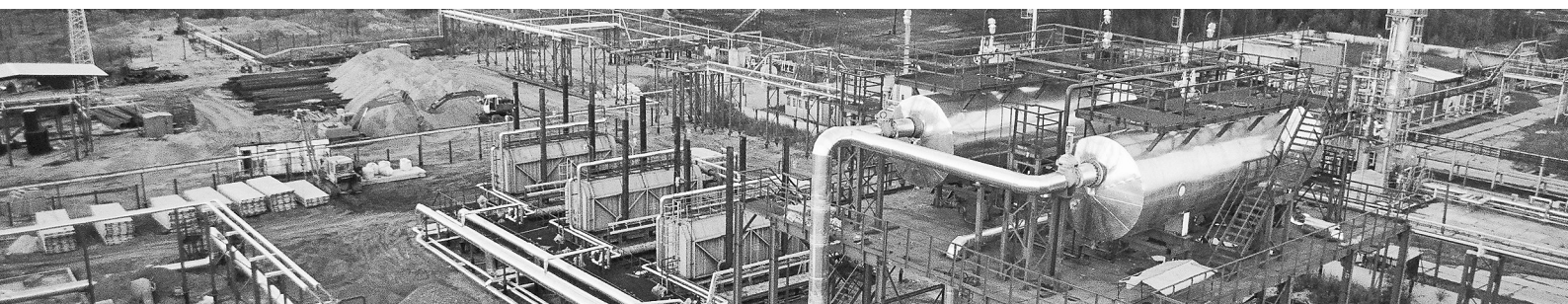
To improve the pump's overall reliability and durability in the frequent start&stop mode, hydraulic balancing device with pull-out unit is used to compensate the axial load.

This device is intended to keep a guaranteed clearance between rotor and stator parts to extend hydraulic balancing device's operation period.

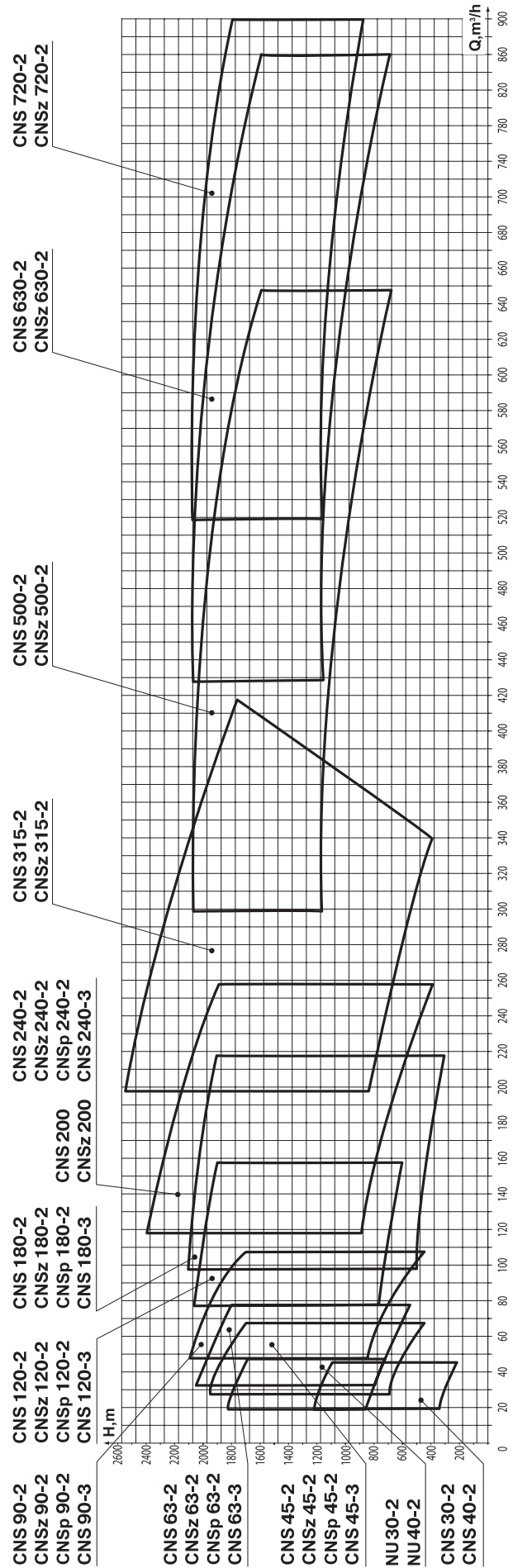


**Type key**

Type and embodiment:	CNS	x	XXX	–	XXXX	–	X	I (M,K)	T	C
C – centrifugal N – pump S – sectional										
Structural scheme: z – with inrush thrust bearing, to provide a guaranteed clearance in the unloader p – with the «back-to-back» impeller location										
Normal capacity, m <sup>3</sup> /h (from 30 to 720 m <sup>3</sup> /h)										
Head, m (from 800 to 2200m)										
Embodiment options: 1 – for operation in pumping systems with cascade pumps connection with suction pressure up to 117 bar 2 – for operation in water injection stations with suction pressure up to 31 bar 3 – for operation in water injection stations with suction pressure up to 31 bar with bearings lubricated and cooled by the pumped liquid no sign – ordinary execution										
flow parts material type: I – wear and corrosion resistant M, K – corrosion resistant										
Rotor’s seal type: T – mechanical seals S – stuffing box										
With/without the cleaning device for liquid fed to the hydraulic balancing device C – with hydrocyclone for cleaning liquid fed into the hydraulic balancing device										



# Performance range





## Liquid

Fresh, circulating strata, sewage and cenomanian water with temperature up to 60 °C; aggressive and sulfurous water, as well as surface water.

Customized pumps for liquids with higher temperature can be made if requested.

Liquids for conventional embodiment should be clean and oilfield water containing no hydrogen sulfide.

Temperature, °C	0 - 60
The maximum size of particles, mm, not more than	0.1
Density, kg/m <sup>3</sup>	1000 - 1050
pH	6.5 - 9

ions content, mg/l, max

Cl <sup>-</sup>	SO <sub>4</sub> <sup>-2</sup>	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>++</sup>	Mg <sup>++</sup>	Na <sup>+</sup> K <sup>++</sup>	CO <sub>2</sub>
1500	100	50	1000	500	3000	3000

Oil products' content, mg/l, max	100
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Liquids for wear and corrosion resistant pumps are heavy duty conditions water with sever chemical composition.

Temperature, °C	0 - 60
The maximum size of particles, mm, not more than	0.2
Density, kg/m <sup>3</sup>	1000 - 1200
pH	4 - 9

ions content, mg/l, max

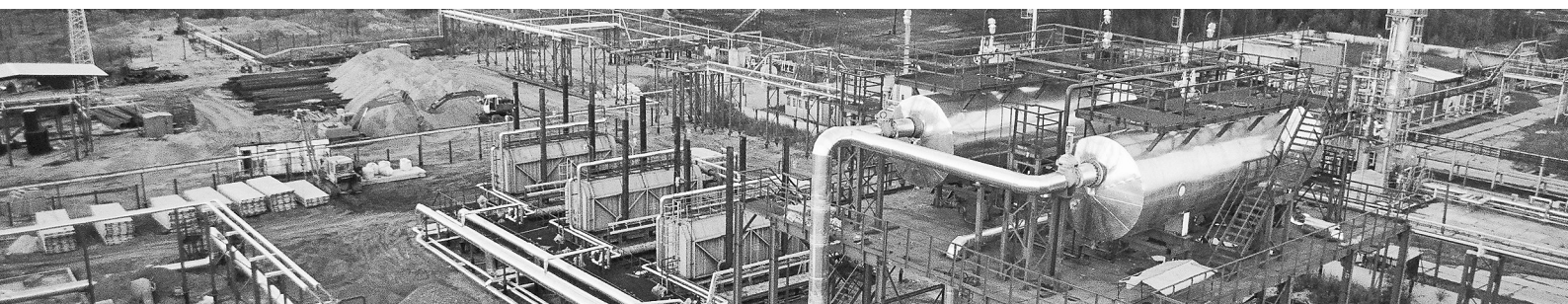
Cl <sup>-</sup>	SO <sub>4</sub> <sup>-2</sup>	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>++</sup>	Mg <sup>++</sup>	N <sup>+</sup> K <sup>++</sup>	Fe	CO <sub>2</sub>	O <sub>2</sub>	H <sub>2</sub> S
150000	1000	200	10000	2500	60000	200	300	5	300

Oil products' content, mg/l, max	200
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## Technical Data

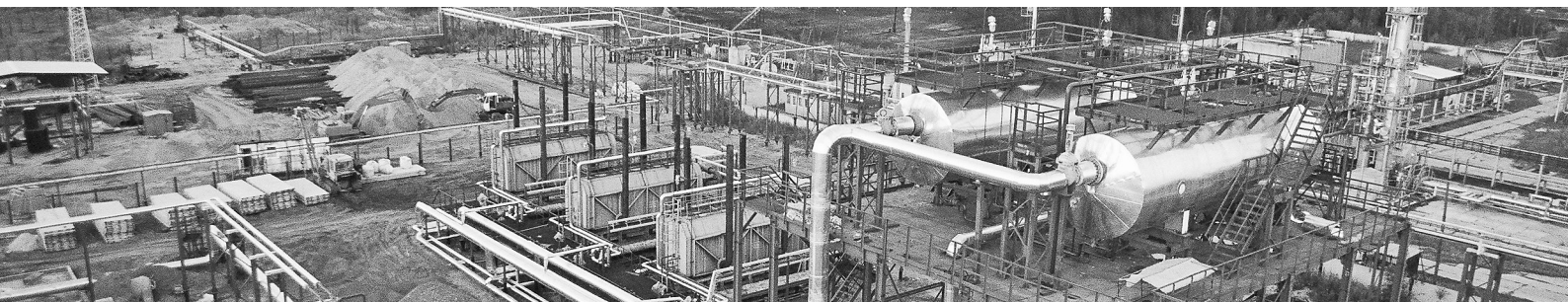
Pump type	P <sub>suction</sub> , bar, max	Capacity, m <sup>3</sup> /h	Head, m	NPSH <sub>r</sub> , m	Motor power, kW	Pump weight, kg	Pump Dimensions, mm	Suction nozzle diameter, mm	Discharge nozzle diameter, mm	Rotation speed, rpm
CNS 30-1050-1	117	30	1050	5	200	1900	4300x1100x1290	65	70	3000
CNS 40-1050-1	117	40	1050	5,5	250	1900	4300x1100x1290	65	70	3000
CNS 30-800-2	31	30	800	5	160	1520	3975x1247x1175	80	65	3000
CNSp 30-800-2	31	30	800	5	160	1790	4770x1247x1175	80	65	3000
CNSz 30-800-2	31	30	800	5	160	1580	4225x1247x1175	80	65	3000
CNS 30-1050-2	31	30	1050	5	200	1700	4100x1297x1175	80	65	3000
CNSp 30-1050-2	31	30	1050	5	200	1970	4900x1297x1175	80	65	3000
CNSz 30-1050-2	31	30	1050	5	200	1760	4350x1297x1175	80	65	3000
CNS 30-1422-2	31	30	1300	5	250	1900	4230x1247x1175	80	65	3000
CNSp 30-1422-2	31	30	1300	5	250	2170	5000x1247x1175	80	65	3000
CNSz 30-1422-2	31	30	1300	5	250	1960	4500x1247x1175	80	65	3000
CNS 40-800-2	31	40	800	5,5	200	1600	3975x1247x1175	80	65	3000
CNSp 40-800-2	31	40	800	5,5	200	1870	4770x1247x1175	80	65	3000
CNSz 40-800-2	31	40	800	5,5	200	1660	4350x1297x1175	80	65	3000
CNS 40-1050-2	31	40	1050	5,5	250	1780	4100x1297x1175	80	65	3000
CNSp 40-1050-2	31	40	1050	5,5	250	2050	4900x1297x1175	80	65	3000
CNSz 40-1050-2	31	40	1050	5,5	250	1840	4350x1297x1175	80	65	3000
CNS 40-1422-2	31	40	1250	5,5	315	1980	4230x1247x1175	80	65	3000
CNSp 40-1422-2	31	40	1250	5,5	315	2250	4230x1247x1175	80	65	3000
CNSz 40-1422-2	31	40	1250	5,5	315	2040	5000x1247x1175	80	65	3000
CNS 45-1050-2	31	45	1050	5	500	2400	2220x1230x1425	150	125	3000
CNSp 45-1050-2	31	45	1050	5	500	2640	2420x1655x1425	150	125	3000
CNSz 45-1050-2	31	45	1050	5	500	2500	2520x1230x1425	150	125	3000
CNS 45-1050-3	31	45	1050	5	500	2500	2220x1230x1425	150	125	3000
CNS 45-1422-2	31	45	1422	5	630	2790	2505x1230x1515	150	125	3000
CNSp 45-1422-2	31	45	1422	5	630	3285	2800x1655x1515	150	125	3000
CNSz 45-1422-2	31	45	1422	5	630	2890	2805x1230x1515	150	125	3000
CNS 45-1422-3	31	45	1422	5	630	2890	2505x1230x1515	150	125	3000
CNS 45-1900-2	31	45	1900	5	800	3330	2885x1230x1515	150	125	3000
CNSp 45-1900-2	31	45	1900	5	800	3925	3175x1655x1515	150	125	3000
CNSz 45-1900-2	31	45	1900	5	800	3430	3185x1230x1515	150	125	3000
CNS 45-1900-3	31	45	1900	5	800	3430	2885x1230x1515	150	125	3000





## Technical Data

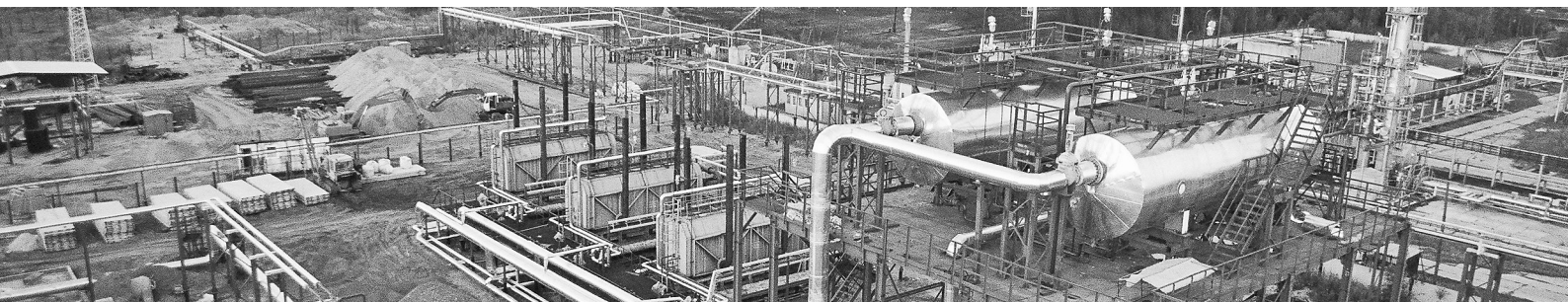
Pump type	P <sub>suction</sub> , bar, max	Capacity, m <sup>3</sup> /h	Head, m	NPSH <sub>r</sub> , m	Motor power, kW	Pump weight, kg	Pump Dimensions, mm	Suction nozzle diameter, mm	Discharge nozzle diameter, mm	Rotation speed, rpm
CNS 63-1050-2	31	63	1050	5	500	2400	2220x1230x1425	150	125	3000
CNSp 63-1050-2	31	63	1050	5	500	2640	2420x1655x1425	150	125	3000
CNSz 63-1050-2	31	63	1050	5	500	2500	2520x1230x1425	150	125	3000
CNS 63-1050-3	31	63	1050	5	500	2500	2220x1230x1425	150	125	3000
CNS 63-1422-2	31	63	1422	5	630	2790	2505x1230x1515	150	125	3000
CNSp 63-1422-2	31	63	1422	5	630	3285	2800x1655x1515	150	125	3000
CNSz 63-1422-2	31	63	1422	5	630	2890	2805x1230x1515	150	125	3000
CNS 63-1422-3	31	63	1422	5	630	2890	2505x1230x1515	150	125	3000
CNS 63-1900-2	31	63	1900	5	1000	3330	2885x1230x1515	150	125	3000
CNSp 63-1900-2	31	63	1900	5	1000	3925	3175x1655x1515	150	125	3000
CNSz 63-1900-2	31	63	1900	5	1000	3430	3185x1230x1515	150	125	3000
CNS 63-1900-3	31	63	1900	5	1000	3430	2885x1230x1515	150	125	3000
CNS 90-1050-2	31	90	1050	5	630	2400	2220x1230x1425	150	125	3000
CNSp 90-1050-2	31	90	1050	5	630	2640	2420x1655x1425	150	125	3000
CNSz 90-1050-2	31	90	1050	5	630	2500	2520x1230x1425	150	125	3000
CNS 90-1050-3	31	90	1050	5	630	2500	2220x1230x1425	150	125	3000
CNS 90-1422-2	31	90	1422	5	800	2790	2505x1230x1515	150	125	3000
CNSp 90-1422-2	31	90	1422	5	800	3285	2800x1655x1515	150	125	3000
CNSz 90-1422-2	31	90	1422	5	800	2890	2805x1230x1515	150	125	3000
CNS 90-1422-3	31	90	1422	5	800	2890	2505x1230x1515	150	125	3000
CNS 90-1900-2	31	90	1900	5	1000	3330	2885x1230x1515	150	125	3000
CNSp 90-1900-2	31	90	1900	5	1000	3925	3175x1655x1515	150	125	3000
CNSz 90-1900-2	31	90	1900	5	1000	3430	3185x1230x1515	150	125	3000
CNS 90-1900-3	31	90	1900	5	1000	3430	2885x1230x1515	150	125	3000
CNS 120 -1050-2	31	120	1050	6	800	2500	2220x1230x1425	150	125	3000
CNSp 120 -1050-2	31	120	1050	6	800	2840	2420x1655x1425	150	125	3000
CNSz 120 -1050-2	31	120	1050	6	800	2600	2520x1230x1425	150	125	3000
CNS 120 -1050-3	31	120	1050	6	800	2600	2220x1230x1425	150	125	3000
CNS 120 -1422-2	31	120	1422	6	1000	2900	2505x1230x1515	150	125	3000
CNSp 120 -1422-2	31	120	1422	6	1000	3485	2800x1655x1515	150	125	3000
CNSz 120 -1422-2	31	120	1422	6	1000	3000	2805x1230x1515	150	125	3000
CNS 120 -1422-3	31	120	1422	6	1000	3000	2505x1230x1515	150	125	3000





## Technical Data

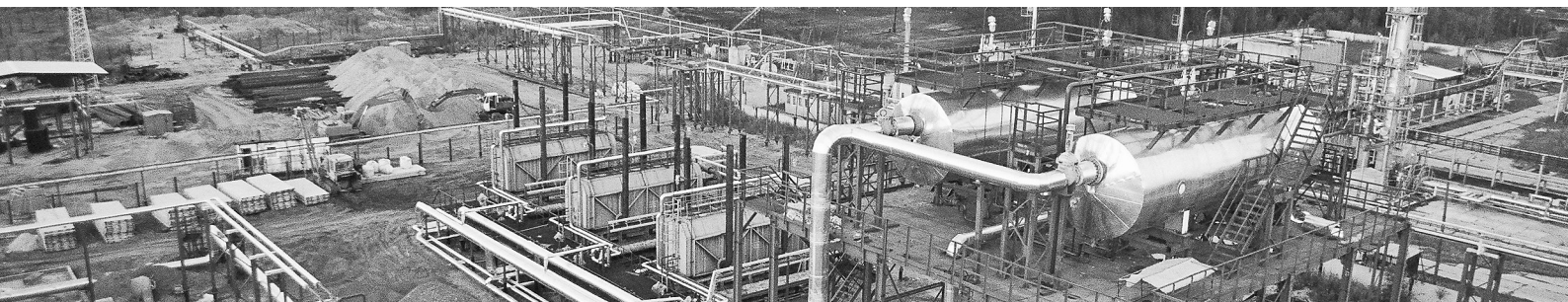
Pump type	P <sub>suction</sub> , bar, max	Capacity, m <sup>3</sup> /h	Head, m	NPSHr, m	Motor power, kW	Pump weight, kg	Pump Dimensions, mm	Suction nozzle diameter, mm	Discharge nozzle diameter, mm	Rotation speed, rpm
CNS 120 -1900-2	31	120	1900	6	1250	3500	2885x1230x1515	150	125	3000
CNSp 120 -1900-2	31	120	1900	6	1250	4125	3175x1655x1515	150	125	3000
CNSz 120 -1900-2	31	120	1900	6	1250	3600	3185x1230x1515	150	125	3000
CNS 120 -1900-3	31	120	1900	6	1250	3600	2885x1230x1515	150	125	3000
CNS 180-1050-2	31	180	1050	7	800	2600	2220x1230x1425	150	125	3000
CNSp 180-1050-2	31	180	1050	7	800	2940	2420x1655x1425	150	125	3000
CNSz 180-1050-2	31	180	1050	7	800	2700	2520x1230x1425	150	125	3000
CNS 180-1050-3	31	180	1050	7	800	2700	2220x1230x1425	150	125	3000
CNS 180-1422-2	31	180	1422	7	1250	3000	2505x1230x1515	150	125	3000
CNSp 180-1422-2	31	180	1422	7	1250	3585	2800x1655x1515	150	125	3000
CNSz 180-1422-2	31	180	1422	7	1250	3100	2805x1230x1515	150	125	3000
CNS 180-1422-3	31	180	1422	7	1250	3100	2505x1230x1515	150	125	3000
CNS 180-1900-2	31	180	1900	7	1600	3600	2885x1230x1515	150	125	3000
CNSp 180-1900-2	31	180	1900	7	1600	4225	3175x1655x1515	150	125	3000
CNSz 180-1900-2	31	180	1900	7	1600	3700	3185x1230x1515	150	125	3000
CNS 180-1900-3	31	180	1900	7	1600	3700	2885x1230x1515	150	125	3000
CNS 200-2200	31	200	2200	7	1600	3600	2885x1230x1515	150	125	3000
CNSz 200-2200	31	200	2200	7	1600	3600	2885x1230x1515	150	125	3000
CNS 240-1050-2	31	240	1050	7	1000	2600	2220x1230x1425	150	125	3000
CNSp 240-1050-2	31	240	1050	7	1000	2940	2420x1655x1425	150	125	3000
CNSz 240-1050-2	31	240	1050	7	1000	2700	2520x1230x1425	150	125	3000
CNS 240-1050-3	31	240	1050	7	1000	2700	2220x1230x1425	150	125	3000
CNS 240-1290-2	31	240	1290	7	1250	3100	2548x1200x1305 (1215)	150	125	3000
CNS 240-1405-2	31	240	1405	7	1250	3280	2743x1200x1305 (1215)	150	125	3000
CNS 240-1422-2	31	240	1422	7	1250	3000	2505x1230x1515	150	125	3000
CNSp 240-1422-2	31	240	1422	7	1250	3585	2800x1655x1515	150	125	3000
CNSz 240-1422-2	31	240	1422	7	1250	3100	2805x1230x1515	150	125	3000
CNS 240-1422-3	31	240	1422	7	1250	3100	2505x1230x1515	150	125	3000
CNS 240-1900-2	31	240	1900	7	1600	3600	2885x1230x1515	150	125	3000
CNSp 240-1900-2	31	240	1900	7	1600	4225	3175x1655x1515	150	125	3000
CNSz 240-1900-2	31	240	1900	7	1600	3700	3185x1230x1515	150	125	3000
CNS 240-1900-3	31	240	1900	7	1600	3700	2885x1230x1515	150	125	3000



## Technical Data

Pump type	P <sub>suction</sub> , bar, max	Capacity, m <sup>3</sup> /h	Head, m	NPSHr, m	Motor power, kW	Pump weight, kg	Pump Dimensions, mm	Suction nozzle diameter, mm	Discharge nozzle diameter, mm	Rotation speed, rpm
CNS 315-1050-2	31	315	1050	9	1600	3400	2220x1230x1425	200	150	3000
CNSp 315-1050-2	31	315	1050	9	1600	3850	2420x1655x1425	200	150	3000
CNSz 315-1050-2	31	315	1050	9	1600	3500	2520x1230x1425	200	150	3000
CNS 315-1422-2	31	315	1422	9	2000	4000	2505x1230x1515	200	150	3000
CNSp 315-1422-2	31	315	1422	9	2000	4780	2800x1655x1515	200	150	3000
CNSz 315-1422-2	31	315	1422	9	2000	4100	2805x1230x1515	200	150	3000
CNS 315-1900-2	31	315	1900	9	2500	4700	2885x1230x1515	200	150	3000
CNSp 315-1900-2	31	315	1900	9	2500	5520	3175x1655x1515	200	150	3000
CNSz 315-1900-2	31	315	1900	9	2500	4800	3185x1230x1515	200	150	3000
	31	200	2200	7	1600	4800	3185x1230x1515	200	150	3000
CNS 360-2000	31	341	1891	12	2500	6300	3087x1236x1676	300	200	3000
CNS 500-1050-2	16	500	1050	14/9*	2500	4100	2070x1330x1477	300	200	3000
CNSz 500-1050-2	16	500	1050	14/9*	2500	4200	2370x1330x1477	300	200	3000
CNS 500-1422-2	16	500	1422	14/9*	3150	5100	2346x1330x1477	300	200	3000
CNSz 500-1422-2	16	500	1422	14/9*	3150	5200	2646x1330x1477	300	200	3000
CNS 500-1900	16	567	2000	14,5	3952	6300	2620x1330x1477	300	200	3000
CNS 500-1900-1	16	800	1390	10	4000	5150	2346x1330x1477	300	200	3000
CNS 500-1900-2	16	500	1900	14/9*	4000	6100	2620x1330x1477	300	200	3000
CNSz 500-1900-2	16	500	1900	14/9*	4000	6400	2920x1330x1477	300	200	3000
CNS 630-1050-2	16	630	1050	16/9*	2500	4150	2070x1330x1477	300	200	3000
CNSz 630-1050-2	16	630	1050	16/9*	2500	4250	2370x1330x1477	300	200	3000
CNS 630-1422-2	16	630	1422	16/9*	4000	5150	2346x1330x1477	300	200	3000
CNSz 630-1422-2	16	630	1422	16/9*	4000	5250	2646x1330x1477	300	200	3000
CNS 630-1700	16	630	1700	16	3648	6980	2620x1330x1477	300	200	3000
CNS 630-1900-2	16	630	1900	16/9*	5000	6350	2620x1330x1477	300	200	3000
CNSz 630-1900-2	16	630	1900	16/9*	5000	6450	2920x1330x1477	300	200	3000
CNS 720-1050-2	16	720	1050	20/12*	3150	4200	2070x1330x1477	300	200	3000
CNSz 720-1050-2	16	720	1050	20/12*	3150	4300	2370x1330x1477	300	200	3000
CNS 720-1422-2	16	720	1422	20/12*	4000	5200	2346x1330x1477	300	200	3000
CNSz 720-1422-2	16	720	1422	20/12*	4000	5300	2646x1330x1477	300	200	3000
CNS 720-1900-2	16	720	1900	20/12*	5000	6400	2620x1330x1477	300	200	3000
CNSz 720-1900-2	16	720	1900	20/12*	5000	6500	2620x1330x1477	300	200	3000

1. Motor power is specified for density of 1000 kg/m<sup>3</sup>
2. \* Value is specified if inducer is installed
3. Customized technical parameters are optionally available





## ECPK Pumps and Electric Pumps packages



### General data

The units based upon 1ECPK-type pumps are intended for the Cenomanian water extraction from water supply wells to feed water injection stations.

### Type key

1 ECPK 16-3000-160 U\* TU3631-116-05747979-97

Modification's serial number

Type and embodiment:

E – electric driven

C – centrifugal

P – pressure maintenance

K – corrosion resistant execution

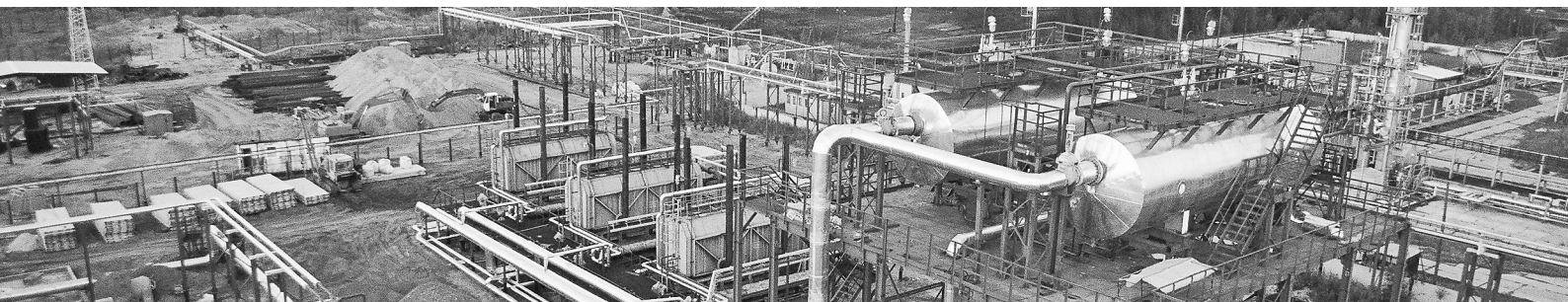
Diameter of the borehole in inches

Capacity, m<sup>3</sup>/day

Head, m

Climatic modification

Technical conditions designation





## Liquid

Water, Cenomanian water

Temperature, °C up to (for oil-filled motors)	60
Temperature, °C up to (for water-filled motors)	40
Maximal concentration of solid particles, g/l	0.1
Density, kg/m <sup>3</sup>	1200
pH value	5.4 - 9
Total mineralization, g/l, up to	250

## Configuration

1ECPK-type is centrifugal sectional multistage submersible pumps.

UECPK units consist of submersible equipment (pumping unit includes centrifugal sectional multistage 1ECPK-pump and electric PED or PEDP-type motor) and surface equipment—casing head, cable, transformer, control system.

## Materials

1ECPK-type pumps' main parts embodiment:

- flow part (the impeller, diffuser) is made of corrosion-resistant steel;
- the hydraulic balancing device is made of siliconized graphite;
- shaft is made of corrosion-resistant steel;
- case parts are made of carbon steel.

## Scope of supply

Scope of supply set for pump consists of:

- connecting coupling;
- spare parts;
- operational manual;
- spares parts, tools and equipment;
- a set of mounting clips and key for disassembling pump.\*

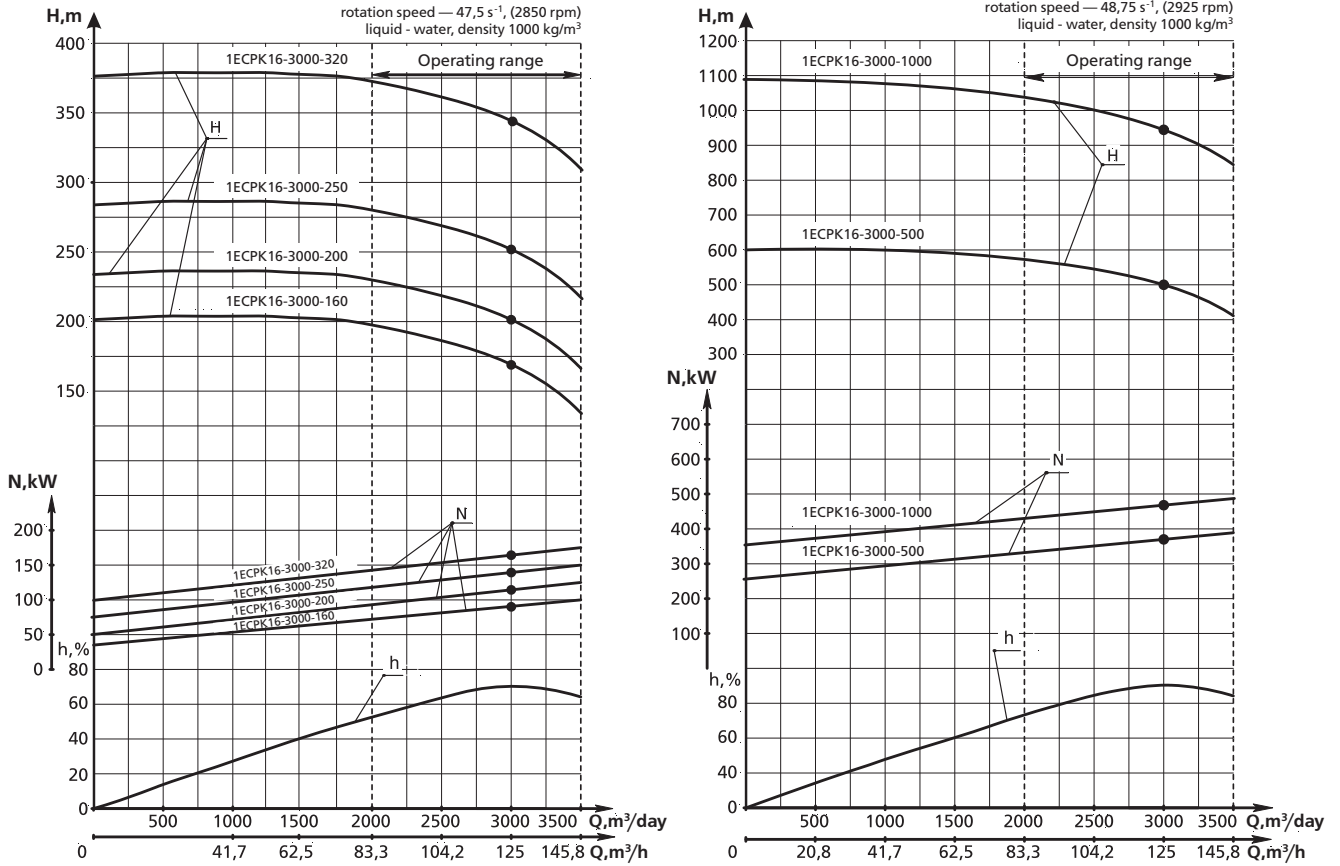
Scope of supply for pumping unit consists of:

- pump;
- the drive motor;
- list of mounting parts;
- submersible electric motor PED or PEDP-type motor
- spare parts, tools and accessories.

\* Delivery is made on demand and for additional fee.

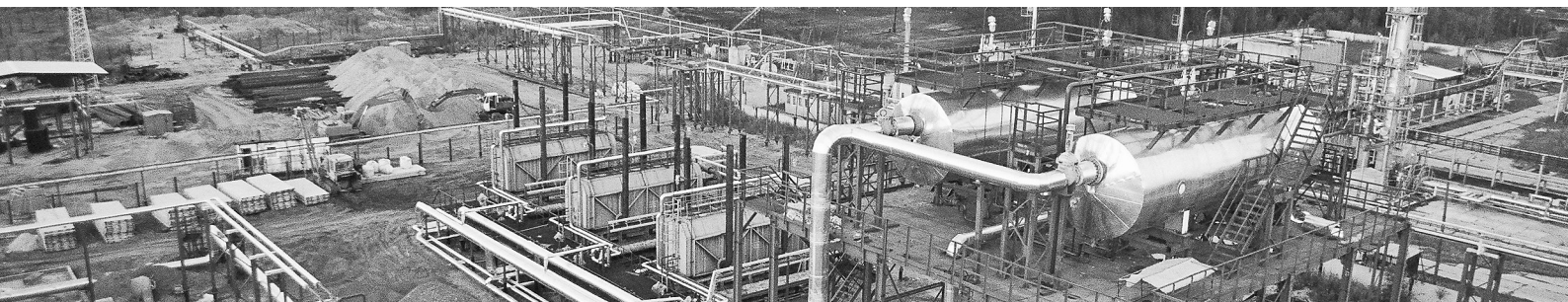


### Performance range and technical data



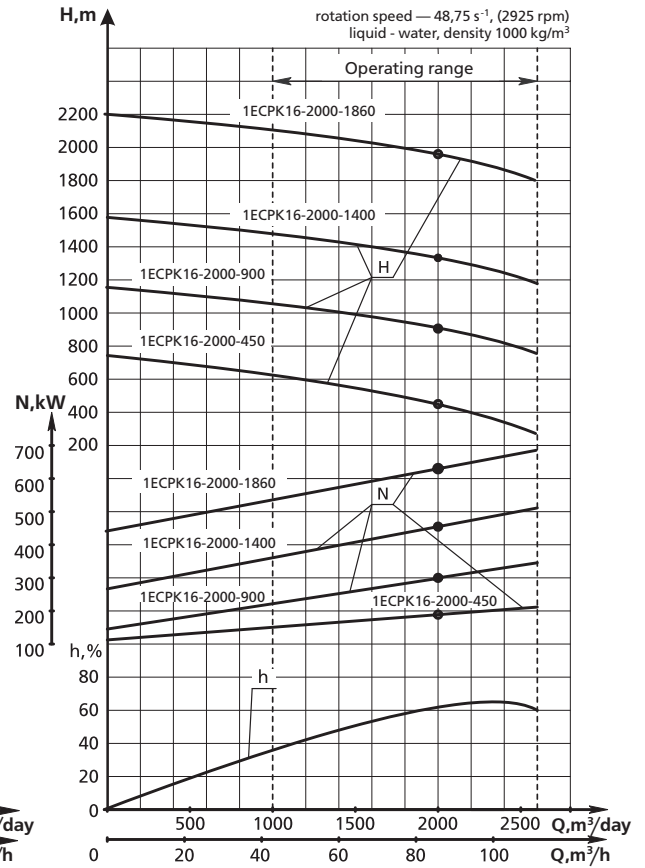
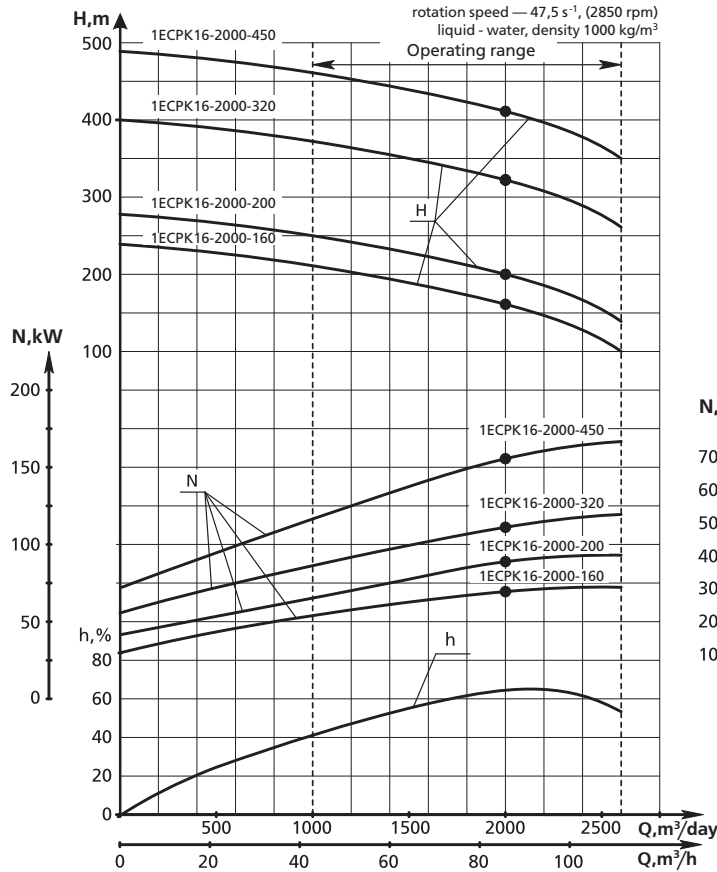
1ECPK 16 type	Capacity, m <sup>3</sup> /h (m <sup>3</sup> /day)	Head, m	Rotation speed, s <sup>-1</sup> (rpm)	Perf., %	Electric motor power at p=1000 kg/m <sup>3</sup> (p=1200 kg/m <sup>3</sup> ), not less	Pump parameters			
						Power consumption, kW (at p=1000 kg/m <sup>3</sup> )	Number of stages	Weight, kg, max	Dimensions, L x d, mm
3000-160*	125 (3000)	160	47.5 (2850)	70	90(115)	88	3	210	920x375
3000-200*		200			125	116	4	265	1050x375
3000-250*		250			140 (160)	139	5	320	1170x375
3000-320*		320			160 (180)	159	6	570	1550x351
3000-500		500	48.75 (2925)		280	276	9	785	1905x360
3000-1000		930	48.75 (2925)		500 (700)	460	16	1530	3055x360

\* With oil-filled motors



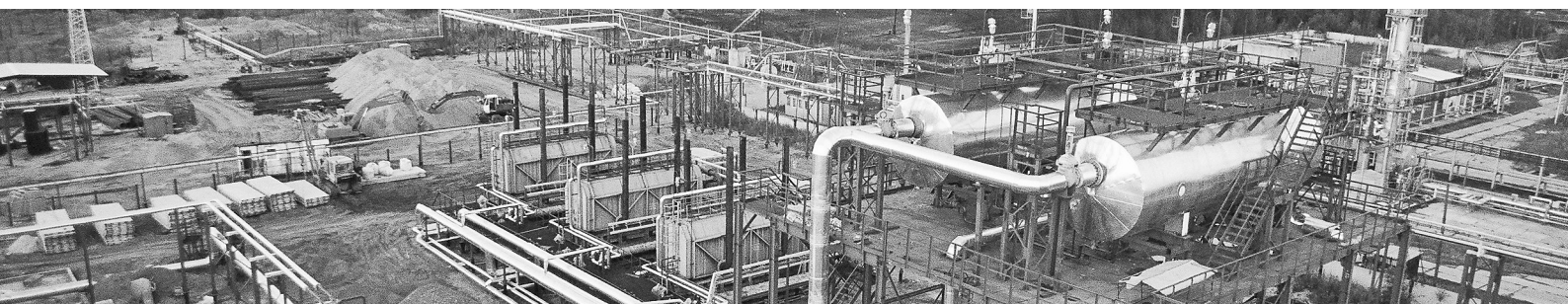


### Performance range and technical data



1ECPK 16 type	Capacity, m <sup>3</sup> /h (m <sup>3</sup> /day)	Head, m	Rotation speed, s <sup>-1</sup> (rpm)	Perf., %	Electric motor power at p=1000 kg/m <sup>3</sup> (p=1200 kg/m <sup>3</sup> ), not less	Pump parameters			
						Power consumption, kWt (at p=1000 kg/m <sup>3</sup> )	Number of stages	Weight, kg, max	Dimensions, L x d, mm
2000-160*	83.3 (2000)	160	47.5 (2850)	65	90 (125)	65	4	275	1010x375
2000-200*		200				82	5	310	1120x375
2000-320*		320				113	8	630	1720x351
2000-450*		450	180		10	900	195	1950x351	
2000-450		450	450				30	2150	1930x360
2000-1400		1360	48.75 (2925)		500 (700)	450	30	2150	4910x360

\* With oil-filled motors





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