Engineering Flow Solutions

SOLUTIONS FOR WATER & UTILITIES

HMS GROUP AT A GLANCE

HMS Group is the leading in Russia and CIS manufacturer or pumps, compressors, skid–mounted and modular process equipment for oil & gas, nuclear and thermal power plants, water supply & sewage disposal, and the other industries.

KEY FACTS & FIGURES

- HMS Group foundation: 1993
- Manufacturing facilities in Russia, CIS and Europe
- 4 R&D institute and 3 research centers
- Extensive track record of the integrated projects for oil & gas and water & utilities
- 13,000 employees
- Representative offices in Europe, CIS, and Middle East & North Africa region

HMS Group offers to the customers for water supply and sewage disposal applications its state-of-the-art, reliable and energy-efficient solutions at any level: from design engineering, manufacturing, and procurement of any main and auxiliary pumps and systems to realization of the integrated turnkey EPC projects.

RESEARCH & DEVELOPMENT

A contemporary R&D base with many years of experience in the development of pumps for water supply and sewage disposal is represented by the own centrally managed engineering centers located in Russia and CIS countries.

The HMS Group engineers apply modern 3D modeling and computational fluid dynamics (CFD) methods to design new equipment and modernize the existing one at the customer's facilities to ensure high efficiency of pumps and systems.

MANUFACTURING

The pumping equipment including all critical parts and components is manufactured at the HMS Group's factories with up-to-date processing centers and NC machine tools by the leading manufacturers. The casing parts and impellers are fabricated at the large foundries equipped with the new molding lines and induction furnaces.

TESTING

The HMS Group production facilities are equipped with the unique testing benches providing the in-situ tests in real operation conditions within the following operation parameters range:

- Capacity: up to 16,000 m^3/h
- Head: up to 4,200 m
- Drive power: up to 14,000 kW

The tests are performed out in accordance with the international standard ISO 9906:2012 Grade 1 or accordingly to special testing procedures approved by the customers.

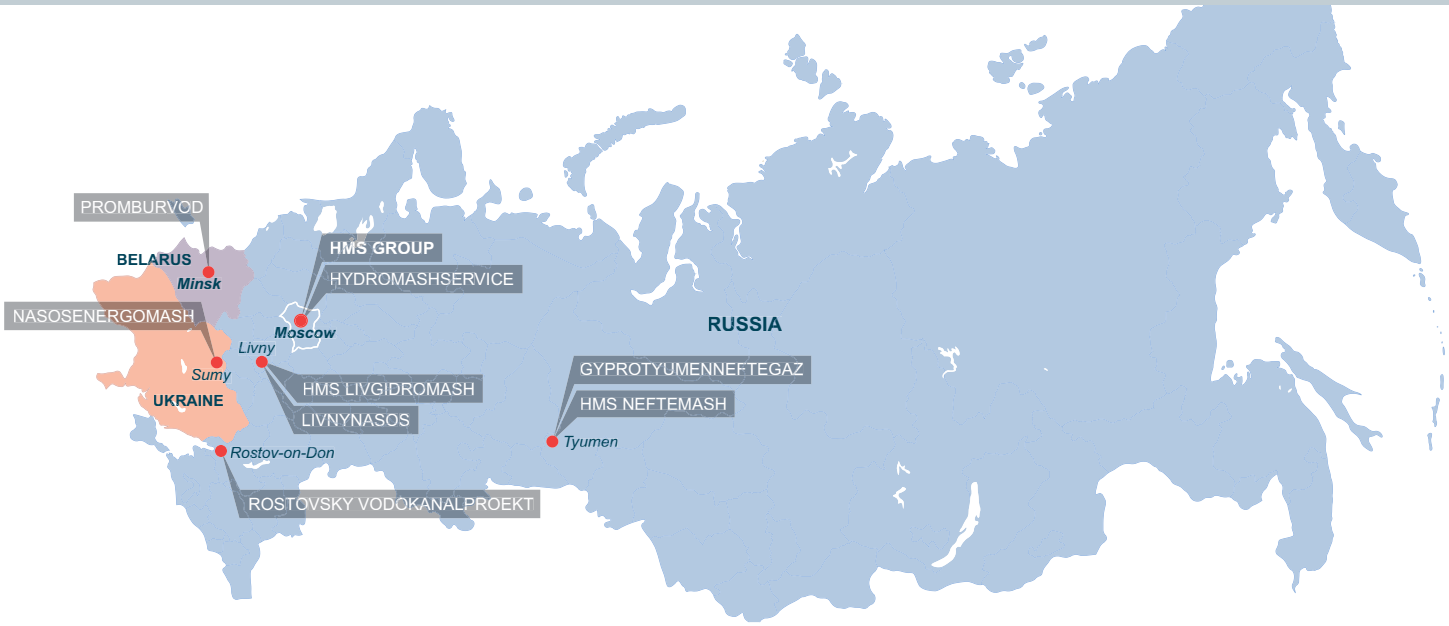
SERVICE

The HMS Group customers are provided with a full range of related services for pumps & systems including installation & commissioning, routine maintenance, repair and overhaul, spare parts supply, retrofit, engineering and technical support.

STANDARDS & QUALITY

The design and construction materials applied in the pumps for water supply and sewage disposal applications correspond to the main international standards: ISO, DIN EN, AISI, ANSI, NEMA.

MANUFACTURING ASSETS FOR WATER SUPPLY AND SEWAGE DISPOSAL APPLICATIONS



APOLLO GOESSNITZ GmbH (Goessnitz, Germany)

Manufacturing of sophisticated pumps and pumping systems for water & utilities, oil refining, gas processing, offshore oil&gas production platforms, thermal power plants, and other industrial applications

HMS LIVGIDROMASH (Livny, Russia)

Manufacturing of the pumping equipment for water supply & sewage disposal, oil & gas, thermal and nuclear power generation, shipbuilding and other industries

LIVNYNASOS (Livny, Russia)

Manufacturing of the borehole submersible pumps

PROMBURVOD (Minsk, Belarus)

Manufacturing of a wide range of the pumping equipment for water supply, sewage disposal, and agriculture applications

NASOSENERGOMASH (Sumy, Ukraine)

Production of a wide range of pumps and systems for the oil & gas complex, thermal and nuclear power plants, water & utilities and other industries.

HMS NEFTEMASH (Tyumen, Russia)

Manufacturing of skid-mounted equipment and process facilities for production, transportation, and processing of oil, gas, and condensate, industrial and residential water treatment & supply, sewage disposal and waste water processing.

GYPROTYUMENNEFTEGAZ, (Tyumen, Russia)
ROSTOVSKY VODOKANALPROEKT, (Rostov-on-Don, Russia)

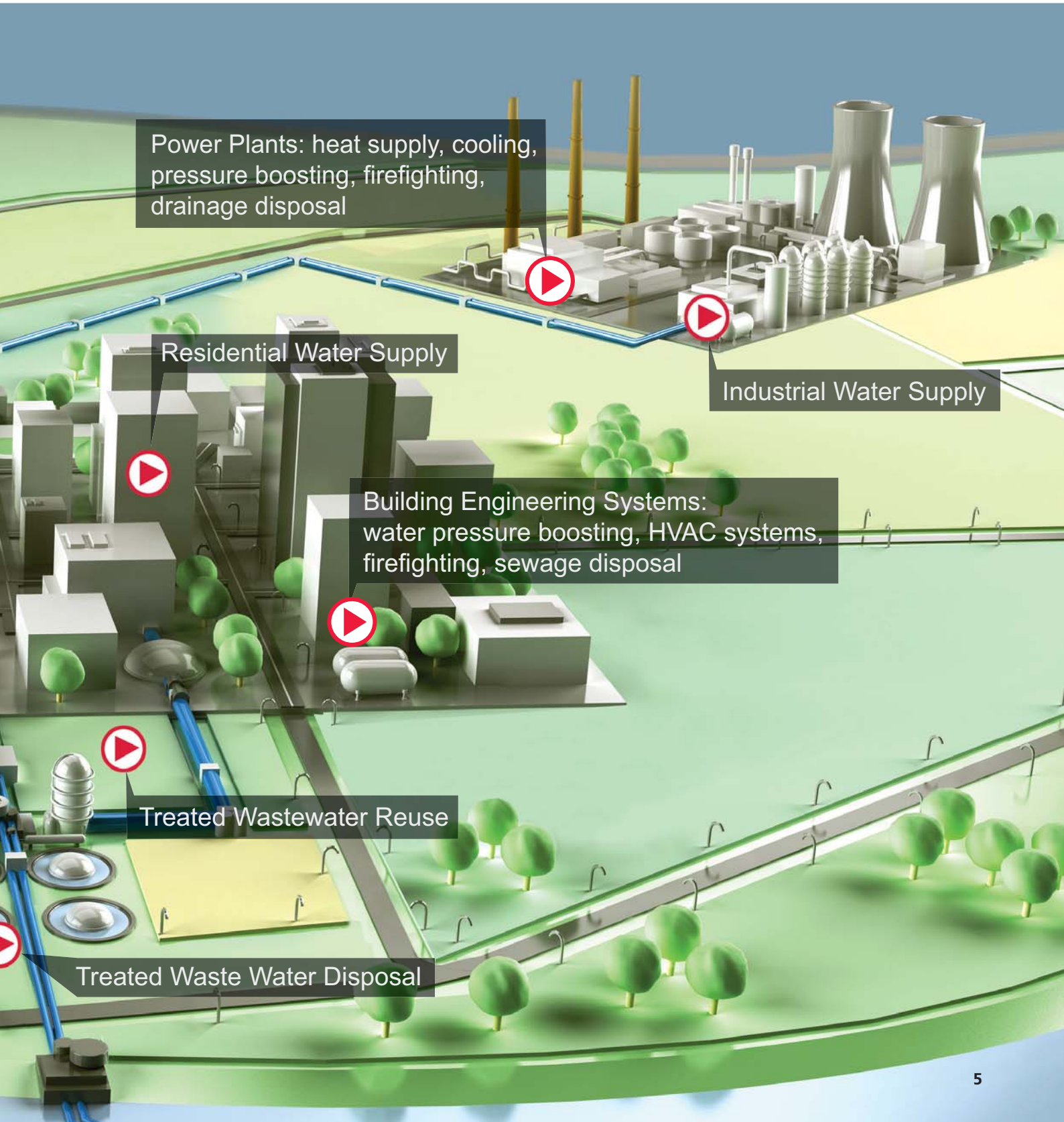
Engineering of equipment, production lines and facilities for oil, gas and condensate fields, water treatment & supply systems, sewage disposal facilities, and hydraulic engineering structures.

HMS GROUP COMPETENCES

- Facilities technical audit
- Pumping equipment & systems design and manufacturing
- Factory and site acceptance in-situ tests
- Installation supervision and commissioning

WATER SUPPLY & SEWAGE DISPOSAL AT INDUSTRIAL AND RESIDENTIAL AREAS

- Engineering, construction, and refurbishment of the water supply & sewage disposal facilities
- Complex procurement of the main and auxiliary equipment
- Maintenance, repair and general overhaul of equipment and process facilities
- Pumping systems retrofit in accordance with customer requirements



PUMPS FOR WATER SUPPLY

HMS Ciris borehole submersible pumps

Intended for pumping water with temperature below 30 °C from boreholes and reservoirs

Application

Industrial, residential, and rural water supply, pressure boosting, irrigation and firefighting, groundwater lowering systems

Q: up to 290 m^3/h **H**: up to 550 m

Design Features

- Casing parts, pump and motor shafts of stainless steel
- Impellers are made of polymer reinforced with stainless steel or completely of stainless steel (for 8" diameter pumps)
- 10" and 12" diameter pumps are completely made of stainless steel
- New DAP motor series with increased performance and durability

HMS FRS borehole submersible pumps

Intended for pumping clean and chemically active (mineralized) water with temperature below 30 °C and pH 5.5-9.5 from boreholes and reservoirs

Application

Water supply, irrigation, firefighting, dewatering, and drainage systems

Q: up to 100 m^3/h **H**: up to 150 m

Design Features

- Water-filled or hermetic asynchronous electric motor
- Casing parts, pump and motor shafts of stainless steel
- Impellers and guide vanes of polymer

HMS ECV borehole submersible pumps

Intended for pumping water with temperature below 30 °C from boreholes and reservoirs

Application

Industrial, residential, and rural water supply, pressure boosting, irrigation and firefighting, groundwater lowering systems

Q: up to 250 m^3/h **H**: up to 420 m

Design Features

- Water-filled asynchronous electric motor with «Squirrel cage» made of copper
- Impellers and diffusers of stainless steel and polymer materials
- Built-in non-return valve

PRODUCT RANGE

SPA borehole submersible pumps

Intended for pumping clean and chemically active water with temperature below 35 °C and pH 6.5-9.5 from boreholes and reservoirs

Application

Industrial, residential, and rural water supply, pressure boosting, irrigation and firefighting, groundwater lowering systems

Q: up to 280 m^3/h **H**: up 200 m

Design Features

- Water-filled or hermetic asynchronous electric motor
- Casing parts, pump and motor shafts of stainless steel
- Impellers and guide vanes of polymer or stainless steel

HMS DAP submersible sealed asynchronous electric motors

Intended to drive borehole submersible pumps of the HMS Ciris series and their analogs

Power: up to 130 kW
Speed: 3,000 rpm
Voltage: 50 Hz, 380/400 V

Design Features

- High energy efficiency over the entire performance range
- Casing of stainless steel
- NEMA flanges
- High temperature (PE2/PA) insulated winding wire (up to 100 °C)
- Safety for drinking water networks

ZMD/DeLium double suction pumps

Intended for pumping water with temperature up to 150 °C, with solids up to 0.2% of mass and up to 4 mm in size

Application

Water supply pumping stations, irrigation & firefighting systems, oil & gas, nuclear and thermal power plants processes

Q: up to 10,000 m^3/h **H**: up to 250 m Operational Pressure: up to 25 bar

Advantages

- High energy efficiency and reliability
- Excellent suction capability (low NPSH)
- A wide range of material options including Duplex steel

PUMPS FOR WATER SUPPLY

D double suction pumps

Intended for pumping water with temperature up to 95 °C, with solids up to 0.05% of mass and up to 0.2 mm in size

Application

Water supply pumping stations, irrigation & firefighting systems, general industrial applications

Q: up to 12,500 m³/h **H**: up to 125 m Operational Pressure: up to 20 bar

Advantages

- Excellent suction capability (low NPSH)
- Gland or mechanical seals
- A wide range of material options

CN multistage pumps

Intended for pumping water with temperature up to 100 °C, solids below 0.05% of mass, solids size up to 0.2 mm

Application

Water supply systems of industrial facilities and residential areas, irrigation and drainage systems in agriculture

Q: up to 3,300 m³/h **H**: up to 220 m Operational Pressure: up to 25 bar

Design Features

Centrifugal two- or four-stage pumps with horizontally split volute type casing. The pumps are equipped with single-suction impellers. Gland or mechanical seals are optionally available

Kordis overhung pumps

Intended for pumping water with temperature up to 120 °C, solids below 0.1% of mass, size up to 0.2 mm

Application

Process water supply and circulation units, HVAC systems in industrial and residential facilities

Q: up to 2,000 m³/h **H**: up to 100 m Operational Pressure: up to 16 bar

Design Features

The pumps are available in overhung or closed-coupled versions including vertical with in-line nozzles arrangement. The gland or mechanical seals are optionally available

PRODUCT RANGE

K, 1K, 2K overhung pumps

Intended for pumping water with temperature up to 120 °C, solids below 0.1% of mass, size up to 0.2 mm

Application

Water supply and HVAC systems, general industrial application

Q: up to 290 m^3/h **H**: up to 80 m Operational Pressure: up to 16 bar

Design Features

The centrifugal overhung pumps with single-entry impeller and axial supply of the pumped fluid. Available with optionally provided gland or single mechanical seals.

KM, 1KM overhung close-coupled pumps

Intended for pumping water with temperature up to 85 °C, solids below 0.1% of mass, size up to 0.2 mm

Application

Water supply and HVAC at industrial facilities and residential areas

Q: up to 200 m^3/h **H**: up to 80 m Operational Pressure: up to 16 bar

Design Features

The pumps are supplied as a single unit coupled with a flanged electric motor; cast iron impellers and gland seals or mechanical seals are installed

CVK overhung centrifugal-vortex pumps

Intended for pumping water with temperature up to 105 °C, solids below 0.01% of mass, size up to 0.05 mm

Application

Pressure boosting and water circulation units in water supply and HVAC systems at industrial facilities and residential areas

Q: up to 23 m^3/h **H**: up to 160 m Operational Pressure: up to 16 bar

Design Features

The pumps are equipped with a centrifugal inducer in the suction line, ensuring cavitation-free operation of the pump's high-pressure stage; available with gland or mechanical seal

PUMPS FOR WATER SUPPLY

CNSg, 1CNSg multistage pumps

Intended for pumping water with temperature up to 105 °C, solids below 0.1% of mass, size up to 0.1 mm

Application

Hot water circulation units in HVAC systems at industrial facilities and residential areas; feed water supply to the steam boilers at small-size CHHPs

Q: up to 600 m^3/h **H**: up to 600 m Operational Pressure: up to 36 bar

Design Features

Single-casing ring-section multistage pumps with in-line impellers and gland seals of thermally expanded graphite or mechanical seals. 1CNSg model is equipped with an inducer at the first stage

VK, VKS, VKO vortex pumps

Intended for pumping water, neutral and chemically active liquids with temperature up to 85 °C, solids below 0.01% of mass, size up to 0.05 mm

Application

Water and chemically active liquids supply & circulations systems

Q: up to 36 m^3/h **H**: up to 45 m Operational Pressure: up to 10 bar

Design Features

The pumps are supplied with single or double mechanical seal. Self-priming pumps (VKS series) are equipped with a cap on a discharge nozzle or heating chamber (VKO series)

DNA diesel-driven pumping units

Intended for pumping water with temperature up to 95 °C, solids up to 0.05% of mass, size up to 0.2 mm

Application

Reserve or emergency water supply and drainage units; firefighting systems; autonomous irrigation facilities in agriculture

Q: up to 3,500 m^3/h **H**: up to 450 m

Design Features

Made on the basis of serial pumps of double-suction pumps completed a diesel engine mounted on the common base frame with a gearbox or with a power take-off mechanism

PRODUCT RANGE

APD automated pressure boosting systems

Intended for pumping water with temperature up to 120 °C, solids up to 0.1% of mass, size up to 0.1 mm

Application

Pressure boosting and automatic pressure retention in the water supply systems at industrial facilities and residential areas

Q: up to 700 m^3/h **H**: up to 300 m

Design Features

The pressure boosting systems are equipped with vertical centrifugal multistage ring-section pumps (1 to 6), installed on the common frame, suction and pressure manifolds, valves, protection and control panels

Boosta multistage vertical pumps

Intended for pumping water and light solutions of chemically active liquids within temperature range 30 °C up to +120 °C, solids below 0.1% of mass, solids size up to 0.1 mm

Application

Pressure boosting and automatic pressure retention in the water supply systems at industrial facilities and residential areas

Q: up to 160 m^3/h **H**: up to 300 m

Design Features

Single-casing ring-section multistage pumps with in-line impellers; the components are made of chromium-nickel stainless steel

VVN liquid–ring vacuum pumps

Intended for pumping air, non-aggressive and inert gases as well as gas-vapor mixtures, preliminary cleaned from solids and the most part of the liquid phase

Application

Vacuum filtration, degassing systems, condensers and driers, evaporation, rectification, condensation, crystallization, and other processes

Q: up to 19 200 m^3/h **P**: 200 MBar

Design Features

The pump models VVN1-1.5 and 2VVN1-0.8 are manufactured as the monoblock versions close-coupled with the electric motor

PUMPS FOR SEWAGE DISPOSAL

SM overhung pumps

Intended for pumping waste water with temperature up to 80 °C, solids up to 2% of mass, size up to 5 mm

Application

Waste water disposal and drainage systems, residential and industrial waste water treatment facilities

Q: up to 400 m^3/h **H**: up to 80 m

Design Features

The pumps are supplied with a closed type impeller unloaded from axial forces; equipped with a gland seal with barrier & cooling liquid piping; mechanical seal is optionally available

SD overhung pumps

Intended for pumping waste water and non-aggressive liquids with temperature up to 80 °C, gas content up to 5%, solids up to 2% of mass and size up to 5 mm

Application

Waste water disposal and treatment, drainage and sewage systems of industrial facilities and residential areas

Q: up to 800 m^3/h **H**: up to 80 m

Design Features

The pumps are equipped with a closed type impeller and a gland seal with supply of the barrier & cooling liquid

SMS overhung torque flow pumps

Intended for pumping waste water and non-aggressive liquids with temperature up to 90 °C, gas content up to 5%, solids up to 1% by mass and up to 5 mm in size (maximum concentration of the pumped media is 8%)

Application

Waste water disposal and treatment facilities, drainage and sewage systems at industrial facilities and residential areas

Q: up to 200 m^3/h **H**: up to 60 m

Design Features

The pumps are equipped with a open-type impeller and supplied with a gland seal

PRODUCT RANGE

N1V rotary–screw pumps

Intended for pumping water with temperature up to 85 °C, solids up to 5% of mass, size up to 2 mm

Application

Pumping of return sludge at waste water treatment facilities, sewage disposal at industrial facilities and residential areas

Q: up to 70 m^3/h **P**: up to 25 kgs/cm^2

Advantages

- Pumping of liquids within a wide range of viscosity, density and solids content
- Available application as a reversible pump
- A set of gear and variator to regulate the pump flow is optionally available

SVN overhung torque flow pumps

Intended for pumping water with temperature up to 80 °C, with fibrous, solid and abrasive inclusions

Application

Waste water disposal at industrial facilities and residential areas; sewage pumping stations and water treatment facilities

Q: up to 200 m^3/h **H**: up to 50 m

Design Features

- Open type impeller with radial blades
- Gland seal as a standard supply option

SVNM overhung torque flow close–coupled pumps

Intended for pumping water with temperature up to 80 °C, with fibrous, solid and abrasive inclusions

Application

Waste water disposal at industrial facilities and residential areas; sewage pumping stations and water treatment facilities

Q: up to 12.5 m^3/h **H**: up to 20 m

Design Features

The pumps are supplied on a common baseplate with a flanged electric motor and installed mechanical seal

PUMPS FOR SEWAGE DISPOSAL

Burun PF rotary-screw submersible closed-coupled pumps

Intended for pumping waste water and other liquids with temperature up to 35 °C (up to 70 °C shortly), and solid/viscous inclusions up to 5% by mass, size up to 2 mm and viscosity up to 2,000 mPa*s

Application

Rainwater and waste water disposal from cesspits, settlers and sumps, handling suspensions at water treatment facilities; drainage and dewatering systems

Q: up to 1.8 m^3/h **P**: up to 4 kgs/cm^2

Advantages

- Main components are made of stainless steel
- Guide tube made of elastomer with adjustable clamping ratio
- Supplied with mechanical seal

GNOM submersible drainage pumps

Intended for pumping contaminated water with temperature up to 60 °C, solids below 10% by mass and size below 5 mm

Application

Dewatering systems, drainage of reservoirs, open pits, collectors, water wells

Q: up to 100 m^3/h **H**: up 25 m

Advantages

- High efficiency, reliability and simple maintenance
- Open type impeller of high durability material
- Stable parameters within entire operation range
- Motor is separated from pump by the system of seals with oil chamber
- Stationary or mobile installation with rigid or flexible pipeline

Sidus submersible sewage pumps

Pumping of waste water and other liquids with density up to 1,250 kg/m^3, pH from 5 to 12, solids size up to 160 mm and long fibered inclusions

Application

Handling waste water at industrial facilities and residential areas, storm waters, subway wastes, drainage of cesspits, settlers and mud sumps, dewatering systems

Q: up to 2,500 m^3/h **H**: up to 80 m

Advantages

- Dry or submersible installation
- Motor cooling with pumped liquid or cooling jacket
- Fast installation with automatic pipe coupling

PUMPING EQUIPMENT PROTECTION AND CONTROL SYSTEMS

HMS Control G protection & control panels for a single drainage pump

Intended for protection and control of a single submersible drainage pump by the signals from a liquids level sensor

Number of connected sensors: 1 pcs.

Parameters of connected electric motors

- Quantity: 1 pcs.
- Pump motor power: up to 5.5 kW
- Operational current: up to 13 A

Features

- Manual or automatic control
- Easy installation, adjustment and operation
- Front-panel operation mode indicators
- Automatic switching off the motor in case of short circuit or overheating

HMS Control L2 panels for protection & control of a single pump

Intended for protection and control of a single pumping unit of D, K, SM, CNS types, ECV type borehole pump or Ciris, GNOM drainage pump

Number of connected sensors: up to 4 pcs.

Parameters of connected electric motors

- Quantity: 1 pcs.
- Pump motor power: up to 90 kW
- Operational current: up to 205 A

Features

- Manual, automatic or remote control by signals from the level sensors
- Control any three-phase asynchronous electric motor with a short-circuit rotor

HMS Control L3 panels for protection & advanced control functions of a single pump

Intended for protection and control of a single pumping unit of D, K, SM, CNS types, ECV type borehole pump or Ciris, GNOM drainage pump

Number of connected sensors: up to 5 pcs.

Parameters of connected electric motors

- Quantity: 1 pcs.
- Pump motor power: up to 132 kW
- Operational current: up to 300 A

Features

- Manual, automatic or remote control by signals from the level sensors
- Direct-on-line or soft start of the electric motor

PUMPING EQUIPMENT PROTECTION AND CONTROL SYSTEMS

HMS Control L4 panels for protection & wireless control of a single pump

Intended for protection and control of a single pumping unit of D, K, SM, CNS types, ECV tipe borehole pump or Ciris, GNOM drainage pump

Number of connected sensors: up to 10 pcs.

Parameters of connected electric motors

- Quantity: 1 pcs.
- Pump motor power: up to 132 kW
- Operational current: up to 300 A

Features

- Direct-on-line or soft start of the electric motor
- Extended range of features for manual, automatic (by sensor signals) and remote control and monitoring of equipment: GSM/GPRS modem or 433 MHz radio band (option) and SMS

HMS Control ST protection & control panels for several surface installed pumps

Intended for protection and control of up to four (4) pumps of D, K, SM, CNS types or similar

Number of connected sensors: by customer's request

Parameters of connected electric motors

- Quantity: up to 4 pcs.
- Pump motor power: up to 132 kW
- Operational current: up to 300 A

Features

- Extended range of features for manual, automatic (by sensor signals) and remote control and monitoring of equipment: GSM/GPRS modem or 433 MHz radio band (option) and SMS
- Cascade or cascade-frequency regulation with soft start of motors

HMS Control SIDUS for control and protection of two submersible sewage pumps

Intended for control and protection of two submersible or semi-submersible pumps

Number of connected sensors: up to 7 pcs.

Parameters of connected electric motors

- Quantity: up to 2 pcs.
- Pump motor power: up to 132 kW
- Operational current: up to 230 A

Features

- Version with direct or soft-start of each pump
- Station remote control via Modbus-RTU protocol

PRODUCT RANGE

HMS Control PP remote monitoring panels for a pumping equipment

Sensors' signals collection, conversion, indication and further transmission for processing by the supervisory control and data acquisition system (SCADA)

Available sensor types

- Temperature: up to 12 pcs.
- Pressure: up to 2 pcs.
- Vibration: up to 10 pcs.
- Dry running: 1 pcs.

Features

- RS-485 standard support for a signal transmission
- Warnings and alarms in case of overrange/underrange of the process preset parameters

HMS Control ATS series for automatic back-up power switch

Intended for automatic switching the power supply of the connected pumping equipment or other load from the main three-phase electric network to the back-up power supply in case of an accident in the main line

Parameters of connected electric motors

- Pump motor power: up to 75 kW
- Operational current: up to 160 A

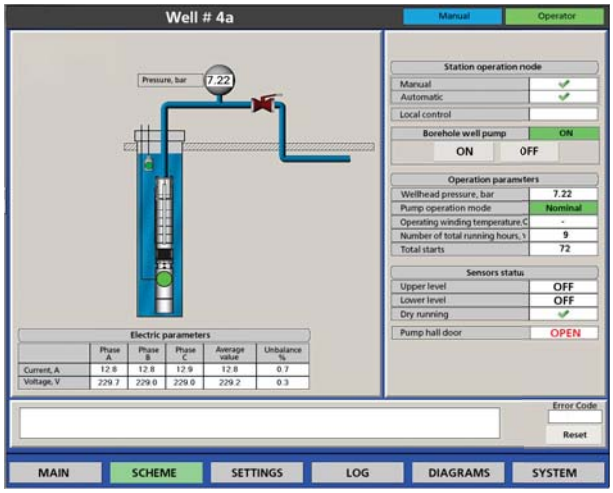
Controlled power setting parameters

- Phase asymmetry
- Correct phase rotation
- Break of one or several phases
- Voltage drop in any phase to less than 0.7 of the rated value
- Voltage increase or decrease

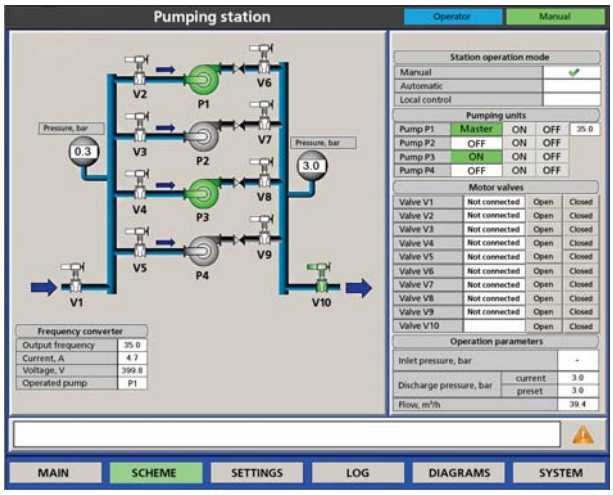
SUPERVISORY CONTROL & DATA ACQUISITION SYSTEM

SCADA systems based on HMS Control series panels

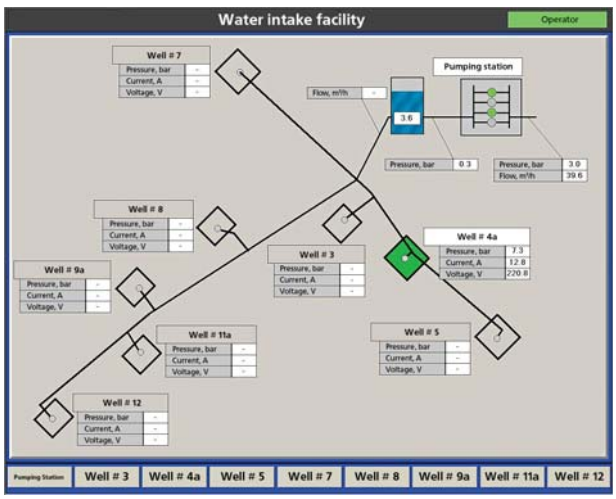
HMS Control L4



HMS Control ST



Facility supervisory control system



Intended for complex automation of water supply and sewage disposal facilities with automatic or supervisory control (including remote) of the process equipment

Supervised facilities

- Boreholes water intakes
- 2nd and 3rd stage pumping stations
- Water treatment systems
- Water storage tanks
- Pressure boosting stations
- Hydraulic engineering structures

Features

- Direct, remote and automatic equipment control
- Collection of real-time equipment status and process parameters
- Event logging and reporting on process systems operation
- Warning and alarm signals
- Security and fire alarms at facilities

Communication features

- Support of RS-485/RS-232 Modbus RTU
- Wireless radio channel 433 MHz
- GSM/GPRS modem

Advantages

- Real-time control
- Accurate control of operating parameter values
- Failures and alarms tracking, predictive prevention of abnormal operation and accidents
- Reduction of maintenance staff headcount
- Maintenance planning capability
- Automated collection, recording and analysis of equipment operating conditions and resources
- Reduction of energy consumption and operational expenses due to equipment optimal operation
- Optional connection of auxiliary process equipment

WATER SUPPLY & SEWAGE DISPOSAL FACILITIES: ENGINEERING AND CONSTRUCTION



HMS Group apply an integrated approach to the engineering, procurement and construction projects, as well as retrofit of the water supply and sewage disposal facilities and related hydraulic structures: from the site survey and early design stage to equipment commissioning and personnel training.

The engineering of the process facilities and hydraulic structures (especially in areas with severe geological and climatic conditions) are performed by a specialized institute – **Rostovsky Vodokanalproekt** (HMS Group), established in 1932.

According to the projects of the Institute over 5,000 water supply and sewage disposal facilities in cities, towns and industrial areas have been built and successfully operated over the years.

FACILITIES ENGINEERING

- Water supply and sewage disposal systems of industrial facilities and residential areas
- Pumping stations of potable water supply, sewage disposal, drainage and irrigation, waste water disposal
- Waste treatment plants of industrial enterprises and residential areas
- Water supply and sewage disposal mainline networks
- Water circulation and water cooling systems of industrial facilities
- Hydraulic engineering structures (surface and underground water intakes, dams, water storage basins, ponds and other facilities)

A dedicated team of HYDROMASHSERVICE – an integrated commercial company of HMS Group – performs the complex management of the EPC projects in accordance with the international project management standards.

PROJECT MAIN STAGES

1. Audit: site survey works, feasibility study, conceptual design
2. Consulting: development of the project road map in accordance with audit results and customer requirements
3. Process solutions development: feasibility study, preliminary design of the process systems
4. Design and working documentation development, projects schedule approval
5. Manufacturing of the key equipment and systems
6. Outsourcing of auxiliary equipment and systems
7. Complex procurement of equipment
8. Construction works supervision
9. Installation and commissioning supervision,
10. Customer personnel training
11. Comprehensive after-sales service
12. Retrofit of the pumping equipment and the process systems

HYDROMASHSERVICE remains solely responsible for the project implementation at all its stages.

REFERENCES: RUSSIA



WATER SUPPLY PUMP STATION «PRIMORSKAYA» COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

Customer	Vodokanal of St. Petersburg	
Scope of works	Facilities audit; engineering, manufacturing, and supply of the process equipment; installation supervision and commissioning	
Supplied equipment	Pumping units based on the DeLium series double suction pumps, with electric motors, variable frequency drives (VFD), spare parts and auxiliary equipment: ▪ Pumping units D 400-660 (2 pcs) ▪ Pumping units D 600-720 (3 pcs)	
Technical data	Pumping unit D 400-660 - Rated capacity: 2 000 m^3/h - Rated head: 37 m	Pumping unit D 600-720 - Rated capacity: 4 000 m^3/h - Rated head: 37 m
Solution features	The facility was retrofitted on the running pump station without stopping the process equipment The main process and electrical power supply & distribution equipment was replaced as well as the service pipes and fittings	
Result	Maximum efficiency of the pump units was ensured due to exact matching of pumps characteristics and the hydraulic network parameters Automatic retention of the required pressure was assured in the water supply pipelines of the Primorsky district surrounding areas during peak hours Smooth start and shutdown of pump units reduced the number of accidents, leaks and water hammer in the water supply system pipelines	
Project duration	2020 - 2022	

REFERENCES: RUSSIA



CITY SEWAGE TREATMENT FACILITIES

Kazan, Russia

Customer	Vodokanal Kazan
Scope of works	Site audit, engineering, equipment manufacturing, third-party components supply, construction, installation, and commissioning supervision
Supplied equipment	Complex of equipment and facilities for thermomechanical sewage sludge treatment (2 process lines)
Technical data	▪ Each of the two process lines handles 200 tons of dehydrated sludge per day ▪ The dried sediment has a moisture content of 8-10%, calorific value of brown coal, a fractional composition of 2-8 mm, mechanical strength of the granules
Design features and advantages	Lower environmental risks compared to sludge incinerators High performance compared to the belt or turbo dryers Possible application of the dry granular sludge as an alternative fuel in cement furnaces Absence of binders (resins, liquid glass, etc.) Possible application as an additive for land reclamation, except agricultural land (depending on the chemical composition)
Result	The implemented process provides obtaining dehydrated and disinfected sewage sludge with a significant reduction in its volume and weight Reclamation of the accumulated sludge storage fields of the treatment facilities in the city of Kazan
Year of commissioning	2020 - 2022

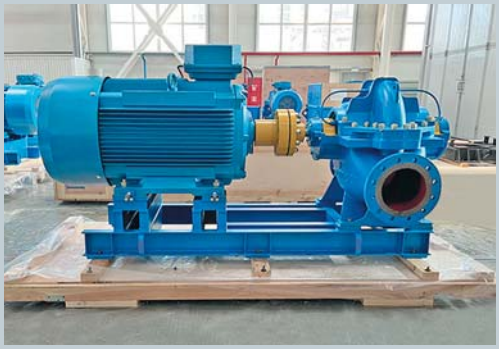
REFERENCES: RUSSIA

CITY SEWAGE TREATMENT FACILITIES

Orenburg, Russia

Customer	Orenburg Vodokanal (ROSVODOKANAL)
Scope of works	Project documentation development Supply of the process equipment Construction, installation and commissioning works supervision Customer personnel training
Supplied equipment	Centrifugal single-stage turbocompressor units (6 units) with control systems and auxiliary process equipment
Technical data	▪ Capacity: up to 15,000 m^3/m ▪ Discharge pressure: up to 0,16 MPa
Design features and advantages	A two-point system for changing the capacity and discharge pressure using both diffuser outlet and inlet vanes, allows gradual adjustment of the turbochargers performance within the range from 100 to 40% without pressure drop in the discharge path
Result	A stable air supply was provided to the aerotanks that process organic waste using activated sludge at the city's wastewater treatment facilities An energy saving achieved due to supply of turbochargers with variable frequency drives, which ensured high energy efficiency of the air supply system
Year of commissioning	2021

REFERENCES: EGYPT



TOSHKA – NEW VALLEY IRRIGATION PROJECT, EGYPT
COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

Customer	Al Madkour Projects (Madkour Group) for Ministry of Defense Nation Service Projects Organization Co. (NSPO), Egypt
Scope of works	Engineering and manufacturing of pumps & systems, purchase of third-party components, equipment delivery, installation and commissioning supervision
Supplied equipment	Double suction pumps of the DeLium series and pumping units on their base, with electric motors, spare parts and auxiliary process equipment (200 units)
Pumping units technical data	▪ Capacity: up to 1,440 m^3/m ▪ Head: up to 90 m
Design features & advantages	Pump casings made of high-strength ductile cast iron providing increased mechanical strength and resistance to abrasive wearing Modernization of the pump flow paths to ensure the hydraulic characteristics specified in the project requirements
Result	Reliable supply of fresh water was insured into a network of the irrigation channels for agricultural lands in the south-eastern part of the Sahara Domestic and drinking water supply was provided to a number of settlements and residential areas in the region A reserve of water supply was granted for recycling systems of the cooling water systems for the perspective local industrial enterprises and energy generation facilities
Project duration	Phased, within 2020-2021

REFERENCES: RUSSIA



PRESSURE BOOSTING PUMP STATION «TALLINSKAYA» COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

Saint-Petersburg, Russia

Customer	Vodokanal of St. Petersburg
Scope of works	Facilities audit Engineering, manufacturing, and supply of the process equipment Installation supervision and commissioning Integrated facility automation
Supplied equipment	Pumping units based on the new series of the double suction pumps DeLium with asynchronous electric motors (4 pcs)
Technical data	▪ Rated capacity: 1,080 m^3/h ▪ Rated head: 84 m
Design features and advantages	The pumps are designed in accordance with the specific customer's requirements to operate within a certain range of the pump station characteristics
Result	Reliable supply of purified drinking water was ensured to the city of Krasnoe Selo from the Southern Waterworks of St. Petersburg
Year of commissioning	2019

REFERENCES: RUSSIA



KURYANOVSKIE CITY WASTEWATER TREATMENT FACILITIES

Moscow, Russia

Customer	Mosvodokanal
Scope of works	Comprehensive audit and development of project documentation for the construction of the 1st and 2nd groups of secondary sedimentation tanks and a block of primary facilities for mechanical wastewater treatment
Designed objects	Receiving chambers, lattice buildings, sand traps Sedimentation tanks, acidifier, sludge dewatering shop Coarse impurities treatment unit Process gas holders Supervisory process control and data acquisition system units Inlet and outlet channels and chambers
Technical data	Total design capacity of the treatment facilities: 3,125 million cubic meters of wastewater per day
Design features and advantages	The main process equipment was manufactured and supplied by the domestic companies The facilities was automated with a process control system based on unmanned technologies
Result	High-quality wastewater treatment off biogenic elements, which improved the ecology of the Moscow River Reduced operating costs of the process equipment and facilities with increased reliability and service life due to application of contemporary technologies and materials Unpleasant odors were eliminated due to overlapping of the process tanks and installation of air purifiers, which improved the environment in the adjacent territory
Project implementation	2017

REFERENCES: RUSSIA



PS–10, PS–13, PS–14 PUMPING STATIONS OF VORONEZH VODOKANAL COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

Customer	RVK-Voronezh (Rosvodokanal Group)
Scope of works	Facilities audit Engineering, manufacturing, and supply of the process equipment Construction, installation and commissioning works Integrated automation of the process facilities
Supplied equipment	Pumping units based on a new double suction pumps series DeLium with electric motors and variable frequency drives (4 pcs) Transformer electric substation Shut-off and control valves Automation and control systems
Pumping units technical data	▪ Capacity: up to 2,800 m^3/h ▪ Head: up to 57 m
Design features and advantages	The pumps are equipped with bearings' temperature and vibration control systems Electric motors are equipped with the control systems for bearing vibration and windings temperature
Result	Integrated retrofit of the process equipment at the pumping stations Automation of the facilities and adjustment of equipment operation in optimal modes Achieved energy savings of about 40% due to the smooth control of the pumping units performance using frequency converters
Comissioning	2016

REFERENCES: RUSSIA



SOUTHERN WATER TREATMENT PLANT, VODOKANAL OF ST. PETERSBURG: COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

St. Petersburg, Russia

Customer	Vodokanal of St. Petersburg
Scope of works	Facilities audit Engineering, manufacturing, and supply of the process equipment Installation supervision and commissioning
Supplied equipment	Pumping units based on the new series of the double suction pumps HMS DeLium with asynchronous electric motors and variable frequency drives - DeLium D 700-1000A (3 pcs) - DeLium D 600-720 (2 pcs)
Pumping units technical data	■ Capacity: up to 5,000 m^3/h ■ Head: up to 34 m
Design features & advantages	High energy efficiency due to variable frequency drives Improved operational reliability Perfect suction ability (low NPSH) Increased operational lifetime Simple installation and easy maintenance
Year of supply	2016

REFERENCES: RUSSIA



LENINOGORSK WATER DISTRIBUTION FACILITY RETROFIT OF PUMPING STATION NO 2

Customer	Mosvodokanal
Scope of works	Facilities audit Engineering, manufacturing, and supply of the process equipment Construction, installation and commissioning supervision
Supplied equipment	Pumping units based on double suction pumps series D 3200-33-2 with electric motors (3 pcs)
Pumping units technical data	▪ Capacity: up to 2,500 m^3/h ▪ Head: up to 17 m
Design features and advantages	Pumps efficiency is increased by 2% due to a special hydrophobic coating applied by electroplating to the impellers and the inner surfaces of the casings
Result	The project was implemented as an energy-saving service contract at the expense of funds on lower electricity bills due to the new energy efficient pumping equipment at the station Reduced specific energy consumption of the pumping equipment from 146 kWh/m^3 down to 103.5 kWh/m^3 due to proper selection of pumps according to hydraulic system requirements Provided maximum efficiency and reliability of the pumping units due to the adjustment of their operation in optimal modes
Project duration	2014 – 2015

REFERENCES: RUSSIA



3RD LIFT PUMPING STATION AT NOVO–SAKMARSKY WATER INTAKE: COMPLEX PROCUREMENT OF PUMPING EQUIPMENT

Orenburg, Russia

Customer	Orenburg Vodokanal (ROSVODOKANAL)
Scope of works	Facilities audit Engineering, manufacturing and supply of the process equipment Installation supervision and commissioning
Supplied equipment	Pumping units based on the new series of the double suction pumps HMS DeLium with asynchronous electric motors and variable frequency drives (2 units) Electric transformer substation Pump control and protection panels
Pumping units technical data	■ Capacity: up to 2,250 m^3/h ■ Head: up to 60 m
Result	Maximum efficiency of the pumping units due to exact matching of their parameters and the hydraulic system characteristics Up to 30% energy saving due to smooth regulation of the pumping units capacity by the variable frequency drives Automatic retention of preset pressure in the pumping station output pipelines Decreased number of accidents, leaks, and water hammer in the water distribution system due to soft start/stop of the pumping units
Year of commissioning	2015

REFERENCES: TURKMENISTAN



PUMPING STATIONS OF THE ZAHMET–TURKMENGALA MACHINE CHANNEL: ENGINEERING AND TURNKEY CONSTRUCTION

Mary Velayat, Turkmenistan

Customer	Ministry of Water Resources of Turkmenistan
Scope of works	Design and exploration works Manufacture of main process equipment Purchase of utility systems Complex procurement of equipment Turnkey construction Installation supervision and commissioning
Pumping stations features	■ Total rated power: 40,000 kW ■ Total capacity: over 515,000 m^3/h
Facility features	The stations are located in area with seismicity of up to 7 by MSK-64
Result	Reliable water supply was arranged for irrigation of about 45,000 hectares of the farmlands as well as utility and drinking water supply for a number of Mary Velayat inhabited areas
Year of commissioning	2014

REFERENCES: RUSSIA

2ND LIFT PUMPING STATION AT KUMAK WATER INTAKE FACILITY: PUMPING EQUIPMENT RETROFIT

Orsk, Russia

Customer	Orsk Vodokanal (Russia)
Scope of works	Facilities audit Project engineering Equipment manufacturing and procurement Installation and commissioning supervision
Supplied equipment	Pump AD4000-95-2 with electric motor Power transformer KTPNT 1000-6/0.66 Variable Frequency Drive 710 kW, 690 V Pipes and fittings
Pumping unit technical data	■ Capacity: 2,250 m^3/h ■ Head: 60 m
Result	Maximum efficiency of the pumping unit operating with 630 kW electric motor (instead of 1,250 kW applied previously) due to correct pump selection by the hydraulic system requirements 40% energy saving due to VFD application and variable control of the pump rotation speed depending on the water supply demand Reduced number of water supply system accidents, leakages, and water hammer due to soft start/stop of the pumping unit
Year of commissioning	2013

REFERENCES: IRAQ



WATER TREATMENT FACILITY AT RUMAILA OILFIELD: COMPLEX REFURBISHMENT

Basra, Iraq

Customer	BP Iraq NV
Scope of works	Site audit Main equipment manufacturing Outsourcing of auxiliary equipment and systems Complex procurement of equipment Refurbishment and retrofit works Installation and commissioning Site acceptance tests
Supplied equipment	Water intake structure components 4 new 1st lift main pumps 2 new 2nd lift main pumps 10 new auxiliary pumps Pipeline elements and fittings Spare parts, tools and accessories
Result	Reliable and uninterrupted water supply was arranged for the water injection systems at Rumaila oilfield
Year of commissioning	Phased, within 2012 - 2014

REFERENCES: UZBEKISTAN



PUMPING STATION «KUYU–MAZAR»: ENGINEERING AND TURNKEY CONSTRUCTION

Bukhara region, Uzbekistan

Customer	Ministry of Agriculture and Water Resources of Uzbekistan
Scope of works	Design and exploration works Manufacturing of the main process equipment Outsourcing of auxiliary equipment and systems Complex procurement of equipment Turnkey construction Site installation and commissioning
Constructed facilities	Pumping station with a capacity of 35 m^3/sec Pressure pipeline with 1,200 mm diameter High-voltage substation and electric power line
Solution features	One new high-capacity stationary pumping station replaced several outdated floating ones The station is equipped with D12500-24 M2 double-suction pumps with synchronous motors and automation systems The pumps are made in a wear-resistant version using the flow path surface carbonization technology
Result	The new pumping station provided reliable water supply for irrigation of farmlands in the Bukhara region with an area of about 100,000 hectares
Project implementation	2012

REFERENCES: TURKMENISTAN



1ST PUMPING STATION OF YILGYNAGYZ WATER SUPPLY CHANNEL: ENGINEERING AND TURNKEY CONSTRUCTION

Lebap Velayat, Turkmenistan

Customer	Ministry of Water Resources of Turkmenistan
Scope of works	Design and exploration works Manufacturing of the main process equipment Outsourcing of auxiliary equipment and systems Complex procurement of equipment Turnkey construction Construction, installation and commissioning supervision
Pumping station features	■ Capacity: 35 m^3/sec ■ Main pipelines diameter: DN 1000-1200
Site features	The station is located in area with seismicity of up to 8 by MSK-64
Result	The station provides reliable water supply for 31,000 hectares of irrigated farmlands, potash and cement plants, and numerous residential areas
Year of commissioning	2011

REFERENCES: UZBEKISTAN

SHUR–CHANNEL PUMPING STATION ENGINEERING AND TURNKEY CONSTRUCTION

Andijan Region, Uzbekistan

Customer	Ministry of Agriculture and Water Resources of Uzbekistan
Scope of works	Design and exploration works Manufacturing of the main process equipment Outsourcing of auxiliary equipment and systems Complex procurement of equipment Turnkey construction Construction, installation and commissioning supervision
Constructed facilities	Pumping station Pressure pipeline with 1,200 mm diameter High-voltage substation and electric power line
Result	Reliable water supply was arranged for irrigation of about 100,000 hectares of the farmlands in a number of agricultural areas in the Bukhara Region
Year of commissioning	2006

HMS Group Moscow
International Sales Department

Phone: + 7 (495) 730 6601
e-mail: export@hms.ru
www.hms.biz

HMS 110E 03022022 ENG