Engineering Flow Solutions

INTEGRATED SOLUTIONS FOR WATER & UTILITIES




Water Supply &
Sewage Disposal

CONTENTS

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 & thermal energy, water & utilities, and the other industries.

- HMS Group foundation – 1993
- Manufacturing facilities in Russia, CIS and Europe
- Extensive experience of the integrated projects for oil & gas and water & utilities
- Over 15 000 employees
- Representative offices in Turkmenistan, Uzbekistan, Kazakhstan, Iraq, UAE

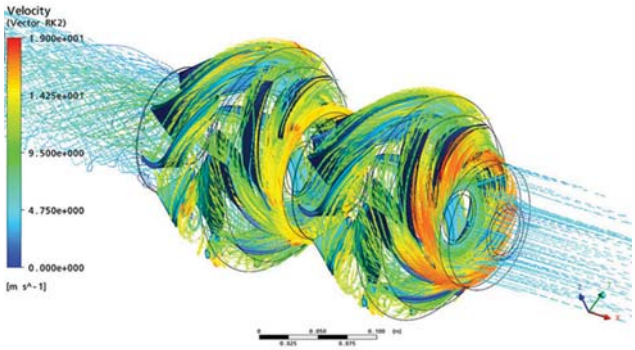
For the water supply and sewage disposal applications HMS Group offers its up-to-date, reliable and energy-saving solutions: from design engineering, manufacturing, and procurement of the pumps and pumping systems to the integrated projects.

The modern R&D infrastructure with the long-term engineering experience in development of the water supply and sewage disposal pumps is represented by centrally managed R&D centers in Russia and CIS.

In development of the new pump models and retrofit of conventional pumps the latest three-dimensional engineering software and computational fluid dynamics simulation methods are applied.

The HMS Group engineers tend to cooperate closely with technical departments of customers and actively participate in development of specifications and introduction of the new solutions at the customers' process facilities.

The pumping equipment including all critical parts and components is manufactured at the HMS Group's factories equipped with up-to-date processing centers and NC machine tools by the leading manufacturers from Germany, Great Britain, and South Korea.



The casing parts and impellers are manufactured at the large foundries equipped with the new molding lines and induction furnaces.

A unique testing equipment allows definition of the pumping systems parameters within capacity range of up to 25 000 m^3/h and up to 14 MW of the drive power.

The pumps and pumping systems pass the acceptance tests by ISO 9906:2012 international standard or by the special testing methods developed in a cooperation with customer.

The materials and design of the water supply & sewage disposal pumps correspond to the Russian GOST state standard and the main international standards: ISO, 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 energy, and other industries

HMS LIVGIDROMASH (Livny, Russia)

Manufacturing of the pumping equipment for water supply & sewage disposal, oil & gas, thermal and nuclear energy, 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

HMS GROUP FOR WATER SUPPLY AND SEWAGE DISPOSAL

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

- Engineering, construction, and refurbishment of the water supply & sewage disposal facilities
- Complex procurement of the main and auxiliary equipment
- Service, maintenance, and overhaul of equipment and process facilities
- Retrofit of the pumping systems in accordance with customer requirements

PRODUCT RANGE FOR WATER SUPPLY

HMS Ciris borehole submersible pumps: new series

Intended for pumping of 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: standard series

Intended for pumping of 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: до 280 m^3/h **H**: up to 420 m

Design Features

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

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**: 3000 rpm **Voltage**: 50 Hz, 3x400V

Design Features

- Casing of stainless steel
- Spline or keyed shaft coupling
- NEMA flanges
- High temperature (PE2/PA) insulated winding wire (up to 100 °C)

ZMD double suction pumps: new series

Intended for pumping of water with temperature up to 150 °C, with solids content up to 0.2% by mass and up to 4 mm by 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 200 м

Advantages

- High energy efficiency and reliability
- Excellent suction capability (low NPSH)
- ISO/DIN/AISI flanges
- Gland or mechanical seals
- A wide range of material options including Duplex steel
- Vertical installation as a standard option

The ZMD pumps are manufactured and supplied by Apollo Goessnitz (Germany) – a company of HMS Group

D and HMS DeLium double suction pumps: standard series

Intended for pumping of water with temperature up to 85 °C, with solids content up to 0.05% by mass and up to 0.2 mm by size

Application

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

Q: up to 13 000 m^3/h **H**: up to 150 m

Advantages

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

CN multistage pumps

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

Application

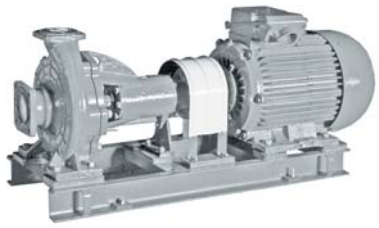
Water supply systems of industrial facilities and residential areas, agricultural irrigation and drainage systems

Q: up to 1000 m^3/h **H**: up to 210 m

Design Features

Centrifugal two- or four-stage pumps with horizontally split volute type casing. The pumps are equipped with one-side suction impellers. Gland or mechanical seals are applied

K, 1K overhung pumps



Intended for pumping of water with temperature up to 105 °C, solids content below 0.1% by mass, solids size below 0.2 mm

Application

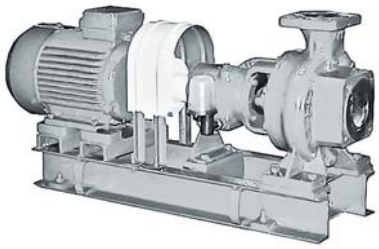
Water supply and centralized heating systems, general industrial application

Q: up to 200 m^3/h **H**: up to 90 m

Design Features

The pumps are equipped with gland seals of thermally expanded graphite, or single mechanical seals with friction pairs of compound materials

2K overhung pumps



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

Application

Hot & cold water supply systems as well as centralized heating systems at industrial facilities and residential areas

Q: up to 100 m^3/h **H**: up to 34 m

Design Features

Closed type impeller with radial blades; gland seals of thermally expanded graphite or single mechanical seals

KM, 1KM overhung close-coupled pumps

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

Application

Water supply and centralized heating systems at industrial facilities and residential areas

Q: up to 200 m^3/h **H**: up to 80 m

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 applied

KML, 1KML overhung close-coupled pumps

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

Application

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

Q: up to 100 m^3/h **H**: up to 50 m

Design Features

Overhung close-coupled pumps with in-line nozzles for installation directly into the pipeline without any skid. Gland or single mechanical seals

CVK overhung centrifugal–vortex pumps

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

Application

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

Q: up to 22,7 m^3/h **H**: up to 160 m

Design Features

The vortex type impeller with inserts represents a high-pressure stage in the pump while the centrifugal type impeller provides cavitation-free operation of the high-pressure stage

CNSg, 1CNSg multistage pumps

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

Application

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

Q: up to 320 m^3/h **H**: up to 600 m

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

CNSv multistage vertical pumps

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

Application

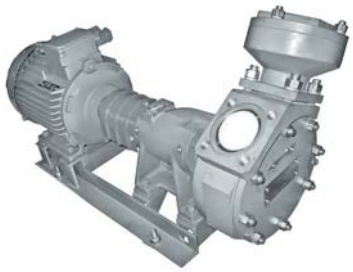
Hot water circulation units in the centralized water supply & heating systems at industrial facilities and residential areas; feed water supply to the steam boilers at small-size CHHPs

Q: up to 25 m^3/h **H**: up to 120 m

Design Features

Single-casing ring-section multistage vertical pumps with in-line impellers and gland seals of thermally expanded graphite with a seal cooling circuit

VK, VKS, VKO vortex pumps



Intended for pumping of water with temperature up to 85 °C, solids content below 0.01% by mass, solids size below 0.05 mm

Application

Water supply systems, general industrial processes

Q: up to 36 m^3/h **H**: up to 45 m

Design Features

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

NKF rotary piston lobe-type flanged pumps

Intended for pumping of water with temperature up to 30 °C, solids content below 0.2% by mass, solids size below 0.2 mm

Application

Rapidly deployed water supply from natural water sources in irrigation, firefighting, land drainage, natural and artificial reservoirs drainage at agricultural facilities

Q: up to 42 m^3/h **P**: up to 6 kgs/cm^2

Design Features

Manufactured in a flanged version for installation directly on a power takeoff shaft of a diesel engine

DNA diesel-driven pumping units

Intended for pumping of water with temperature up to 85 °C, solids content up to 0.05% by mass, solids size below 0.2 mm

Application

Emergency water supply, firefighting systems, agriculture

Q: up to 2000 m^3/h **H**: up to 130 m

Design Features

The units are available in stationary, skid-mounted or truck-mounted version

BOOSTA automated pressure boosting systems

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

Application

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

Q: up to 500 m^3/h **H**: up to 250 m

Design Features

The pressure boosting systems are equipped with vertical centrifugal multistage sectional pumps, valves, protection and control panels

PRODUCT RANGE FOR SEWAGE DISPOSAL

SM overhung pumps

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

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

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

Design Features
Gland or mechanical shaft seal

SMS overhung torque flow pumps

Intended for pumping of water with temperature up to 90 °C, solids content up to 8% by mass, solids size below 5 mm

Application
Pumping of sewage run-off at industrial facilities and residential areas

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

Design Features
Fully recessed impeller of an open type

N1V single-screw horizontal pumps

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

Application
Pumping of return sludge in waste water treatment facilities, sewage run-off at industrial facilities and residential areas

Q: up to 70 m^3/h **P**: up to 10 kgs/cm^2

Advantages
- Pumping of liquids of a wide range of viscosity, density and solids content
- Available application as a reversible pump

SVN overhung torque flow pumps

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

Application
Pumping of waste water from industrial facilities and residential areas on 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

SVNM overhung torque flow close-coupled pumps

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

Application

Pumping of waste water from industrial facilities and residential areas on 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

GNOM submersible drainage pumps

Intended for pumping of contaminated water with temperature up to 60 °C, solids content below 10% by mass and solids 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
- Open type impeller of high durability material
- Stable parameters within entire operation range
- High reliability and simple maintenance
- Motor is separated from pump by the system of seals with oil chamber
- Stationary or portable version with rigid or flexible pipeline

CMF submersible drainage pumps

Intended for pumping of contaminated water with temperature up to 35 °C, solids content below 10% by mass and solids size below 8 mm

Application

Pumping of waste water from industrial facilities and residential areas, drainage and sanitary wastes of subway facilities, pumping of ground water in industrial and civil construction, drainage of land in agriculture

Q: up to 160 m^3/h **H**: up to 80 m

Advantages

- High reliability and durability
- Easy installation, operation and maintenance
- Complex thermal and moisture protection as well as protection from «dry run»
- High serviceability with minimum universal tools

PUMPING EQUIPMENT PROTECTION AND CONTROL SYSTEMS

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

Intended for protection and control of a single pumping unit equipped with asynchronous electric motor

Features

- Pump motor power: up to 90 kW
- Manual, automatic or remote control
- Easy and flexible adjustment of operation modes and protection parameters
- Output dispatching signals

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

Intended for protection and control of a single borehole or submersible pump

Features

- Pump motor power: up to 132 kW
- Direct-on-line or soft start of a motor
- Manual, automatic or remote control
- Adjustable pump ON/OFF switch delay timer
- Output dispatching signals
- Consistent operation of several panels in a common hydraulic system

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

Intended for protection and remote control of a single borehole, submersible or surface installation pump

Features

- Pump motor power: up to 132 kW
- Direct-on-line or soft start of a motor
- Complex protection of pump, electric motor and hydraulic system
- Extended features range of manual, automatic (by sensor signals) and remote control and monitoring of equipment:
  - RS-485/RS-232 interface, Modbus RTU
  - GSM/GPRS modem or 433 MHz radio band (option)
  - Pump control & status reports by SMS (Short Messaging Service) as option

HMS Control ST protection & control panels for a set of surface installed pumps

Intended for protection and control of up to 4 surface installation pumps

Features

- Number of protected pumps: up to 4
- Motor power of each pump: up to 75 kW (higher power is optional)
- Cascade or cascade-frequency regulation with soft start of motors
- Extended range of features of manual, automatic (by sensor signals) and remote control (including wireless)
- Pump energy consumption decrease by 10-50%
- Reservation/equalization of the pumps running hours
- Connection of additional equipment and sensors
- Connection to the upper level dispatching system (SCADA)

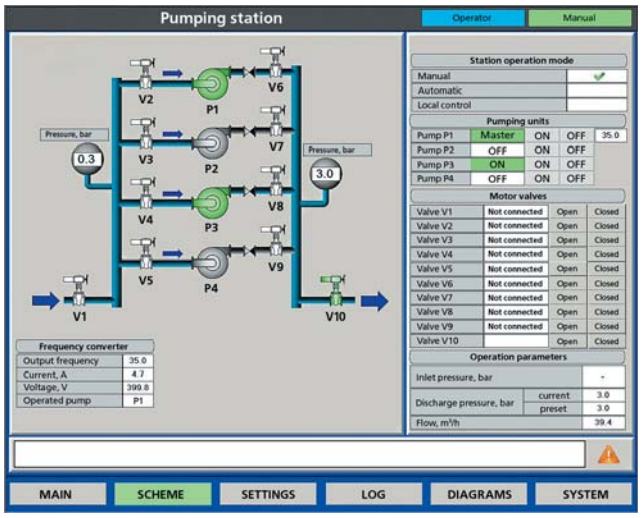
HMS Control G protection & control panels for a single drainage pump

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

Features

- Pump motor power: up to 5.5 kW
- Manual or automatic control
- Easy installation, adjustment and operation
- Front-panel operation mode indicators
- Automatic switch off the motor in case of short circuit or overheating

Pumps supervisory control and data acquisition system (SCADA) based on HMS Control series panels



Intended for a complex automation of the water supply facilities: borehole water intakes, water storage tanks, 2-nd & 3-rd lift pumping stations, measuring points, booster stations, auxiliary process equipment

Application

Real-time receiving of information regarding equipment operating conditions and parameters; remote control of equipment; detailed logs of events in the water supply system and equipment parameters

Features

- Decrease of equipment operation cost
- Increase of the mean time between repairs
- Real time control of the water supply system
- Control of auxiliary process equipment, valves, etc.

ENERGY-EFFICIENT PUMPING SOLUTIONS FROM HMS GROUP

According to various estimates the pumping equipment accounts for up to 20–25% of global energy consumption.

The energy consumption also accounts for up to 85% of the pumping equipment total operating costs.

At the same time the pumping system efficiency often does not exceed 10–20%, while the pump efficiency makes about 50–90%.

HMS Group offers the integrated audit of the pumping systems and performs a correct equipment selection according to the customer requirements with counseling on the energy-efficient operation of pumps and extension of their operation lifetime.

Energy-efficient operation of the pumping equipment, being one of the main goals during retrofit of the water supply facilities or replacement of the pumping equipment, is primarily achieved by provision of consistent operation of all pumps and hydraulic system in general.

The main stages of audit and counseling on energy saving include definition of real and required parameters of the hydraulic system, correct selection of pumps and methods of their regulation.

In the complex systems of two or more pumps, the greatest effect is achieved by the integrated approach combining different methods of the pumps regulation.

HMS Group recommends to apply the up-to-date control & protection panels as one of the methods of the pumps energy-efficient operation. The panels are configured according to parameters of the hydraulic system and provide the following features:

- coordinated operation of all pumps at the pumping station
- automated control of the process parameters
- increased system performance
- extended operational lifetime and reliability of the pumping system

Energy saving methods offered by HMS Group for the pumping systems	Energy saving ratio
Variable Frequency Drives (VFD) application	10-50%
Pump rotation speed decrease at stable water supply network parameters	5-40%
Regulation by changing the number of pumps operated in parallel	10-30%
Impellers trimming	up to 20%, (10% average)
Storage tanks application during water peak demand	10-20%
Electric motors replacement for more efficient ones	1-3%
Pumps replacement for more efficient ones	1-2%

WATER SUPPLY & SEWAGE DISPOSAL FACILITIES: ENGINEERING AND CONSTRUCTION



HMS Group utilizes an integrated approach to engineering, construction and retrofit of the water supply and sewage disposal facilities at all stages – from early design stage to commissioning.

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

TYPES OF EPC PROJECTS

- 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)

The integrated approach, being realized by HMS Group in the water supply and sewage disposal projects, usually includes the following 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, customer personnel training
10. Comprehensive after-sales service
11. Retrofit of the pumping equipment and the process systems

The engineering & construction projects are managed by a dedicated project team of the HMS Group in accordance with the international standards for project management.

INTEGRATED PROJECTS FOR WATER SUPPLY & SEWAGE DISPOSAL

Competencies and resources of HMS Group provide optimal system of the complex projects management to ensure timely and high-quality solution of tasks that significantly increases efficiency of the implemented projects

Project Management	Process Equipment & Systems Complex Procurement	After-Sales Service
■ Risk management ■ Works quality control ■ Meeting the deadlines ■ Installation & commissioning management ■ Building & construction supervision ■ Logistic support ■ Production management	■ Basic & detailed engineering, as-build documentation ■ Main process equipment manufacturing ■ Outsourcing of auxiliary systems and equipment ■ Factory assembling ■ Stress tests (optional) ■ Transportation to site of operation ■ Installation & commissioning works	■ Technical audit and inspection ■ Site inspection by manufacturer's representatives ■ Servicing on site or in service centers ■ Supply of original spare pars ■ Optimization and adjustment of process systems

REFERENCES: IRAQ



WATER TREATMENT FACILITY AT RUMAILA OILFIELD: COMPLEX REFURBISHMENT

Basra, Iraq

Qarmat Ali Water Treatment Facility supplies water for the injection systems at Rumaila oilfield

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 1-st lift main pumps ■ 2 new 2-nd 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: TURKMENISTAN



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

Lebap Velayat, Turkmenistan

The pumping station is a basis of a new hydrotechnical system of Turkmenistan that provides water supply for irrigation of farmlands and drinking water supply system for inhabited areas and industrial facilities

Customer	Ministry of Water Resources of Turkmenistan
Scope of works	■ Design and exploration works ■ Manufacturing of main process equipment ■ Outsourcing of auxiliary equipment and systems ■ Complex procurement of equipment ■ Turnkey construction ■ Site installation and commissioning
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: TURKMENISTAN



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

Mary Velayat, Turkmenistan

The Zahmet-Turkmengala machine channel is a complex hydraulic engineering structure that provides lifting of water by tens of meters over the water level in the Karakum channel to Hindu Kush water storage reservoir for irrigation and drinking water supply system for inhabited areas

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
Site 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: UZBEKISTAN

SHUR–CHANNEL PUMPING STATION ENGINEERING AND TURNKEY CONSTRUCTION

Andijan Region, Uzbekistan

The Shur-Channel pumping station is a basis of a hydrotechnical system providing water supply for irrigation of numerous farmlands in Bukhara Region

Customer	Ministry of Agriculture and Water Resources of Uzbekistan
Scope of works	■ Design and exploration works ■ Manufacturing of main process equipment ■ Outsourcing of auxiliary equipment and systems ■ Complex procurement of equipment ■ Turnkey construction ■ Site installation and commissioning
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

REFERENCES: RUSSIA



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

Orsk, Russia

The pumping stations at the Kumak Water Intake Facility provide utility and drinking water supply for the city of Orsk

Customer	Orsk Vodokanal (Russia)
Scope of works	■ Site audit ■ Project engineering ■ Equipment manufacturing and procurement ■ Site installation and commissioning
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
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: RUSSIA



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

Orenburg, Russia

The Novo-Sakmarsky water intake facility is one of the largest municipal water intakes providing centralized utility and drinking water supply in the city of Orenburg and neighboring residential areas

Customer	Orenburg Vodokanal (ROSVODOKANAL)
Scope of works	■ Site 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: ■ Capacity: 2250 m^3/h ■ Head: 60 m ■ Electric transformer substation ■ Pump control and protection panels
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: RUSSIA



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

St. Petersburg, Russia

The Southern Water Treatment Plant is the largest one in the city servicing the southern districts of St. Petersburg

Customer	Vodokanal of St. Petersburg
Scope of works	■ Site 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 ■ Capacity: 5000 m^3/h ■ Head: 34 m
Pumping units 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

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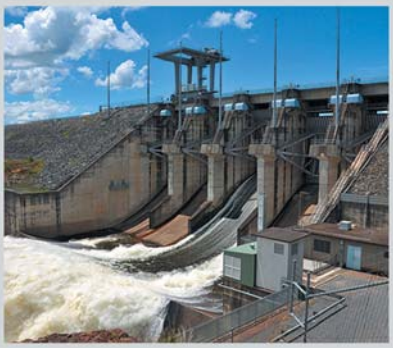


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