



Modern gas separation technologies

Grasys core business lines:

- Development and production of air separation and gas separation equipment
- Natural and associated petroleum gas treatment, recovery of associated petroleum gas (APG)
- Engineering and design
- Implementation of integrated «turn-key» projects (EPC and EPCM contracts) with the main focus on air and gas separation, APG recovery and natural gas treatment

The Russian research and production company (RPC) GrasyS is the leading developer, producer and EPCM contractor in the field of air and gas separation in CIS and Eastern Europe.

The research and production company GrasyS has implemented more than 750 projects for 350 companies.

The equipment manufactured by GrasyS is used by such companies as Gazprom, Rosneft, Lukoil, TNK-BP, Surgutneftegaz, Slavneft, Tatneft, Gazprom Neft, Transneft, NOVATEK, Oil Industry of Serbia, Turkmen-

gaz, KazMunaiGaz, Kazakhmys, Zarubezhneft, Exxon Mobil, Shell, Enel, Eni, ConocoPhillips, Petrofac RITEC, Khimmash, Sibur, Eurochem, Irkutsk Oil Company, Samara-Nafta, Neftisa, Belorusneft, Naftogaz of Ukraine, Russneft etc.

GrasyS has all the necessary permitting documents and certificates to carry out its activities. The company quality management system complies with the international standards ISO 9001:2008.

GrasyS manufactures its equipment in accordance with the ASME, CE standards as well as the corporate standards of Total, Gazprom, develops and issues documentation in line with the world standards generally adopted for EPCM contracts.

Science and research are the crucial and integral lines of GrasyS activities ensuring its development and industrial leadership. Development of unique solutions on the basis of its own technologies, as well as improvement and adaptation of existing technologies allow successfully maintaining the high scientific and technical level of the produced equipment, resolving the challenges faced by industrial enter-

prises at the highest quality level, and enhancing production efficiency.

The company's equipment is manufactured at its in-house modern production site in Stupino, Moscow region, which includes workshops, warehouses, utility areas, office space and research laboratory.

The level of the GrasyS production system complies with the requirements of the independent auditor companies (Swiss Engineering Group (SEG), Moody's) involved in technical audits and expediting (control of the schedule and scope of equipment manufacturing, and assessment of order related risks) for our clients.



Products

Membrane plants for associated petroleum gas and natural gas treatment

APG and natural gas treatment up to fuel gas requirements and for delivery to gas transmission network

The membrane plants designed for reduction of the content of heavy hydrocarbons and sulfur-bearing impurities and removal of aerosols, condensed moisture and solid particles.

Methane content increase by 8 – 40% vol.

Methane number increase by 15 – 60.

Reduction of hydrocarbon and water dew point by 15 – 60°C.

Reduction of hydrogen sulfide and mercaptans content by 10 – 250 times.

Mine gases treatment up to fuel gas requirements

Regulation of the calorific capacity of mine gas and associated petroleum gas with high nitrogen content and their treatment up to fuel gas requirements. Increase in methane content by 15 – 25% vol. Increase in gas lower heating value.

Nitrogen plants and stations (N₂)

Membrane nitrogen plants

The most advanced fully automated systems for nitrogen production from atmospheric air. The nitrogen purity is up to 99.95%. The capacity is up to 5,000 m³/h.

Adsorption nitrogen plants

Modern stationary automated systems for nitrogen production from atmospheric air. The nitrogen purity is up to 99.9995%. The capacity is up to 5,000 m³/h.

NITROPOWER serial nitrogen generators

Highly efficient small-scale commercial nitrogen generators with a wide range of options. The nitrogen purity is up to 99.999%.



Products



Nitrogen plants and stations (N₂)

Mobile nitrogen stations

The nitrogen stations for nitrogen production from air designed with a special-purpose for operation in various climatic areas. The nitrogen purity is up to 99.5%. The capacity is up to 5,000 m³/h.

Self-propelled nitrogen compressor stations

Self-propelled and mobile nitrogen systems for high or low-pressure nitrogen production.

Nitrogen purity — up to 99.5%.
Capacity — up to 36 m³/min.
Pressure — up to 350 ati.



Oxygen plants and station (O₂)

Adsorption oxygen plants

Oxygen purity — up to 99%*
Capacity — up to 3000 m³/h.

Adsorption oxygen plants for cylinders filling

Oxygen purity — up to 99%*
Capacity — up to 400 cylinders per day.



Mobile oxygen stations for cylinders filling

Portable stations deploying on-site oxygen production cycle with cylinders filling.

Oxygen purity — up to 99%*.
Capacity — up to 120 cylinders per day.

*with the usage of additional purification stage



Compressors and modular compressor stations

A wide line-up of in-house screw and piston type compressors.

Air compressor stations are containerized ready-for-use systems designed for compressed air or gas supply to enterprises.



Plants for hydrogen production from workflows

The plants concentrate hydrogen in vent gases of hydrotreatment, hydrocracking, isomerization, catalytic reforming, and reduce the concentration of undesirable impurities up to the required level.

Natural and associated petroleum gas treatment

The technologies offered by Grasys complete the following tasks as part of natural and associated petroleum gas treatment:

- Meeting environmental challenges, fulfilling the terms of license agreements, reduction of flared gas volumes up to complete avoidance of flaring
- Gas treatment, purification, drying and recovery at gas production facilities
- Ensuring self-containment of power supply facilities, existing infrastructure facilities, and transportation arrangements. Gas treatment as a fuel for gas-fired reciprocating plants and gas turbine power plants
- Gas treatment up to gas transmission network requirements
- Saving on capital expenditure and operating costs through streamlining of technological solutions
- Reduction of harmful emissions during operation of gas-fired reciprocating plants and gas turbine power plants

Grasys performs integrated projects for APG recovery and natural gas treatment on the basis of its proprietary unique membrane technology with employment of other existing technologies:

- **Gas drying**
Grasys membrane technology
Glycol drying
- **Gasoline extraction**
Grasys membrane technology
Low-temperature separation (LTS)
Low-temperature condensation (LTC)
Combined technologies
- **Removal of H₂S and CO₂**
Grasys membrane technology
Adsorption technology
Absorption technology
Alkali treatment
- **Gas compression**
- **Gas conditioning before liquefaction**

Grasys – experienced EPCM contractor

Grasys has extensive experience in the performance of turn-key projects (EPCM contracts) in the field of air and gas separation, APG recovery and oilfield development.

Among the company projects are the major CIS and Eastern Europe plants for nitrogen production with membrane and adsorption technology, globally unrivaled APG treatment plants and other facilities.

The EPCM contract includes:

- Project management
 - Technical audit and consulting
 - Engineering surveys
 - Design
 - Procurement, manufacturing and supply of equipment
 - Logistics
 - Construction and installation works, installation of main process equipment
 - Facility delivery and commissioning
 - Services and personnel training



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