

Our goal is motivation
our employees and
systematically training
for raising their
awareness and
importance desired
relationship according
to quality product and
customer

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The main activity of the company FAGAS Ltd. is designing and manufacturing of measuring and gas regulation equipment, as well as installment of equipment and offering support / service.

Our product range includes:

- All types of measuring, regulating and measuring regulating low, medium and high pressure stations
- Receiving stations, block stations, cleaning stations
- Compressor plants for natural gas - CNG
- High pressure control stations - PRS CNG
- Gas pressure regulators
- Gas filters (GF-P and R-Filters)
- Insulation flanges
- Heat exchangers
- Measuring kits for home use
- Electrical cabinets for supervision and control

Our company provides design, servicing, technical support and education.

Our main achievement is long-term cooperation with many customers from the public and private sectors, local gas distributors, construction companies and companies from abroad.

From the very beginning, we achieve impressive business results, positive financial effects of business and an outstanding solvency rate

The technical sector of FAGAS Ltd. is a team of experts in mechanical engineering and electrical engineering with a rich working experience and enviable references, specialized in areas such as technology welding, product design innovations, automation, electronics and other related fields.

Our manufacturing sector employs specialized installers of metal structures/measuring instruments, certified welders, mechanical and electrical technicians and installers of gas appliances.



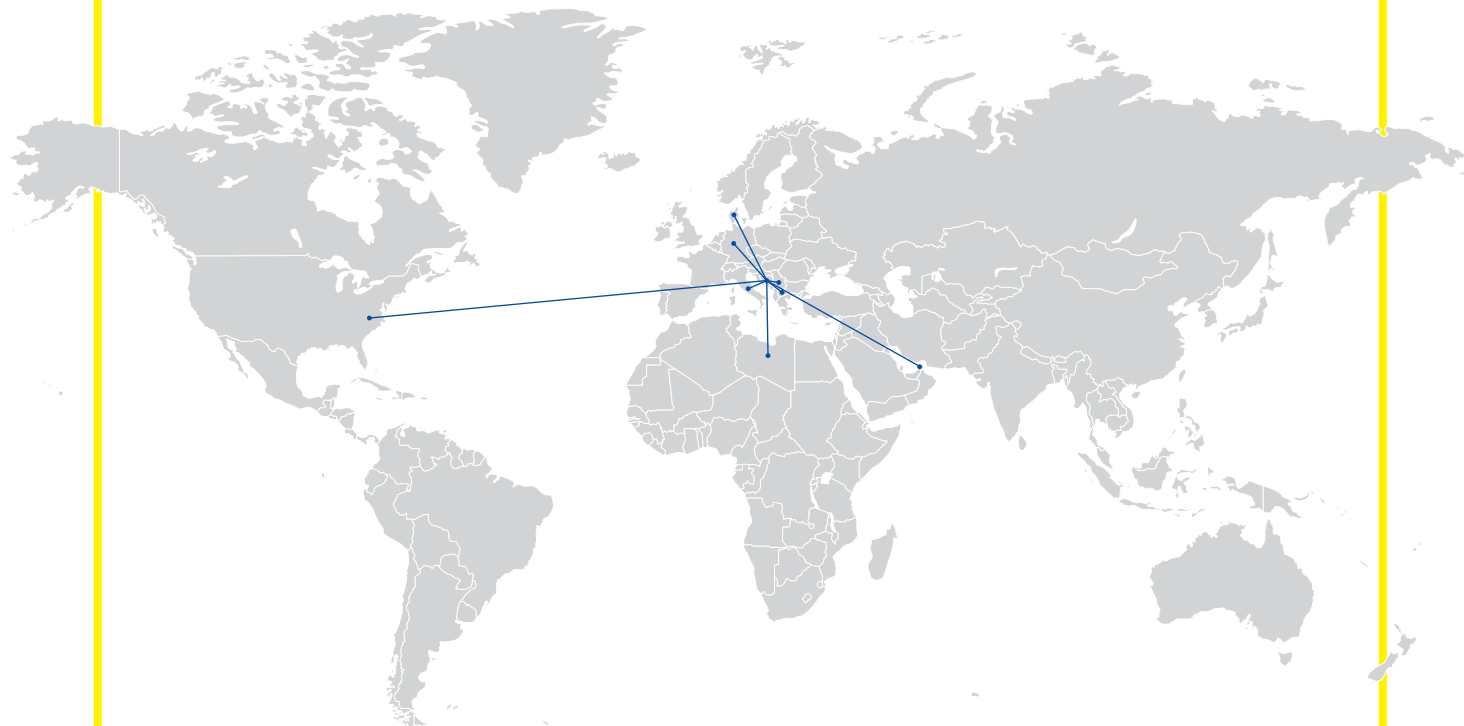
FAGAS Ltd. Sarajevo was founded in 1997. The main scope of the company is the design and production of equipment for measuring and regulating gas, as well as its installation according to customer requirements.

The factory covers an area of more than 5,000 m². FAGAS d.o.o. employs 22 educated and trained professionals.

Besides being present on the markets of the former Yugoslavia, FAGAS Ltd. exports to the markets of North America, Scandinavia, Germany, as well as to the markets of the Middle East.

FAGAS Ltd. is an authorized distributor and servicer for the Honeywell HPS and PMC portfolio. We are proud owners of the "Honeywell Gold HPS Channel partner" certificate.

You can contact us in Bosnian, English, German and Turkish.



The company has ISO 9001, ISO 14001, ISO 45001, DIN EN ISO 3834-2, AD2000-MERKBLATT HP0, EN 1090-1 and EN 1090-2 certificates.



Our best reference is a large number of steady clients that see stable and reliable partner in us and our cooperation, on mutual satisfaction, has been going on for years.

FAGAS Ltd. has obtained certificates for the following standards ISO 9001, ISO 14001, ISO 45001, DIN EN ISO 3834-2, AD2000-Merkblatt HP0, EN 1090-1 and EN1090-2. Our business policy is to strive to make all our products certified by the competent institutions according to BAS EN standards. In addition to product certification by domestic institutions, FAGAS Ltd. Certified their products by the German Association for air, gas and water DVGW, TÜV Thüringen e.V.

We offer a wide range of our products and the representative products from renowned production companies such as:

- HONEYWELL (ELSTER INSTROMET)
- NATURELGAS
- CUBOGAS
- PREMATLAK
- G.BEE
- ELSEL GAS

FAGAS Ltd. in our work has realized a large number of projects in local, as well as in the foreign market.

In the period from 1999 to 2005, FAGAS Ltd. designed and did the gasification of the municipality of Visoko. FAGAS Ltd. was the general contractor including every project phase, from financing to project development documentation, field work and equipment delivery.

The project included:

- Gasification for 6,000 gas users;
- Primary gas network works according to the project gasification made and certified by an authorized person institutions;
- Works of the secondary gas network according to its own project.





compressor plants

Compressed natural gas is one of the forms of natural gas storage. It is labeled as CNG or KPG. Natural gas is very difficult to convert and store in the form of a liquid, so its compression is a compromise between the requirement to reduce its specific volume (for the same amount to take up less space). Due to a number of technical advantages, compressed natural gas is by far the most commonly used in cars. The area of use of CNG mainly coincides with liquefied petroleum gas (LPG or LPG). It is used as an alternative fuel to start a car. This fuel can be

directly powered by an internal combustion engine, and can also be used to generate hydrogen and power fuel cells, which generate electricity to power electric motors. In order to be used on existing internal combustion engines, the vehicle must be appropriately reconstructed, i.e. adapted, i.e. a gas (CNG) system must be installed. In general, these modifications can be easily performed, and the obtained performance is completely comparable to "classic" vehicles.

By applying the CPG system on vehicles, it is reduced exhaust emissions, so that without them additional purification reaches the EURO 5 standard. Due to the price of fuel, the exploitation of such vehicles is cheaper, although the price of the vehicle itself (with gas system) is slightly higher than the price of a petrol or diesel vehicle fuel. In recent years, the application of natural gas in cars is experiencing a real expansion. It is estimated that the number of vehicles in the world, which (partially

or exclusively) use natural gas goes over several million. It usually starts with city buses, but the scope increases and there are more and more drivers, especially taxis, or vehicles for internal transport. In parallel with the development of natural gas vehicles the needed infrastructure is developing too. Gas pipelines are being built (which also supply other consumers), the network of stations for filling vehicles with natural gas is expanding.



Place of installation
NIS a.d.
Novi Sad (Serbia)
 $Q = 350 \text{ m}^3/\text{h}$



Place of installation
KJKP „Sarajevogas,, d.o.o.
Sarajevo (Bosnia and Herzegovina)
 $Q = 2 \times 750 \text{ m}^3/\text{h}$
 $p_{\text{ul}} = 4 - 8 \text{ bar}$





pipeline systems

Observing the gas supply system in the direction of gas flow, i.e. from the manufacturer to the consumer, the pressure ranges in which its individual parts operate change.

Thus, the pressure supply area through the main gas pipelines is usually between 50 and 25 bar, and the pressure consumption range between 7 and 3 bar, or between 100 and 20 mbar.

At the transition from one area to another, the pressure is regulated in the control stations (RS). If the amount of gas is also measured to calculate how much is sold, then we are talking about metering and regulation stations (MRS) and transceiver stations.

Based on their purpose, we usually call them:

- Transceiver measuring and regulating stations
- Regional measuring and regulating stations
- Collective control stations for consumer groups

Control stations consist of:

- Pressure regulating devices
- Security devices
- Shut-off devices
- Fittings, pipes, seals and joints

And according to the needs:

- Preheater
- Bypass lines
- Condensate separator
- Dust separator
- Odorizer
- Control devices
- Gas flow measuring devices



Place of installation:
Šepak for company Bijeljina-gas Ltd.
(Bosnia and Herzegovina)
MEASURING STATION
 $Q = 100.000 \text{ m}^3/\text{h}$ | $p = 50 \text{ bar}$



Place of installation:

B. Palanka for the company Novi-Sad Gas Ltd. (Serbia)
REGULATING STATIONS
 $Q = 2.500 \text{ m}^3/\text{h}$ | $p = 12 \text{ bar}$



Place of installation:

Visoko for the company BH GAS Ltd.
(Bosnia and Herzegovina)
MAIN REGULATION - MEASURING STATION
 $Q = 30.000 \text{ m}^3/\text{h}$ | $p = 50 \text{ bar}$



Place of installation:
SBK for the company BH GAS Ltd.
(Bosnia and Herzegovina)
MAIN REGULATION - MEASURING STATIONS
 $Q = 6.500; 10.000; 20.000 \text{ m}^3/\text{h}$ | $p = 19 - 50 \text{ bar}$



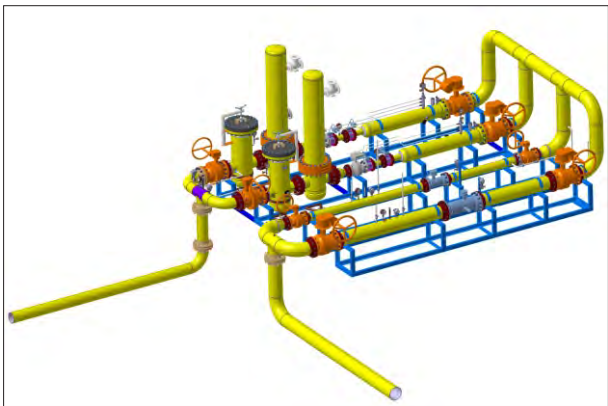
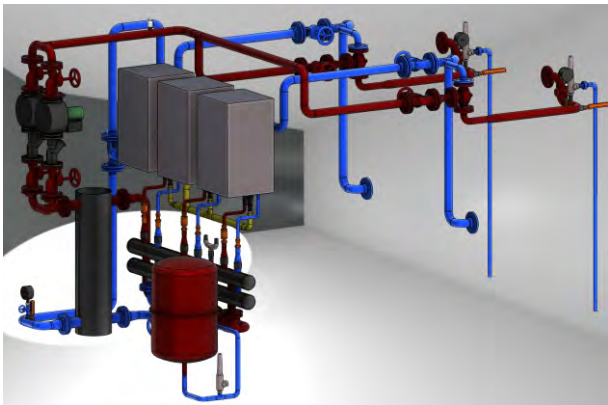
Place of installation:
Egypt for Brembana & Rolle S.p.A. (ITA)
GAS & OIL & STEAM



Place of installation:
Bijeljina for the company Bijeljina-gas Ltd.
(Bosnia and Herzegovina)
Designing MAIN REGULATION - MEASUREMENT
STATIONS and BOILER ROOM



MAIN REGULATION - MEASURING STATION
 $Q = 40.000 \text{ m}^3/\text{h}$ | $p = 50 \text{ bar}$
Control cabinet - FLOW COMPUTER for MAIN
REGULATORY - MEASURING STATION



REGIONAL REGULATING GAS STATIONS



REGIONAL MEASURING GAS STATIONS



REGULATORY MEASURING GAS STATION



Brembana & Rolle S.p.A. (ITA) GAS & OIL & STEAM



BOILER ROOM FOR GRMS



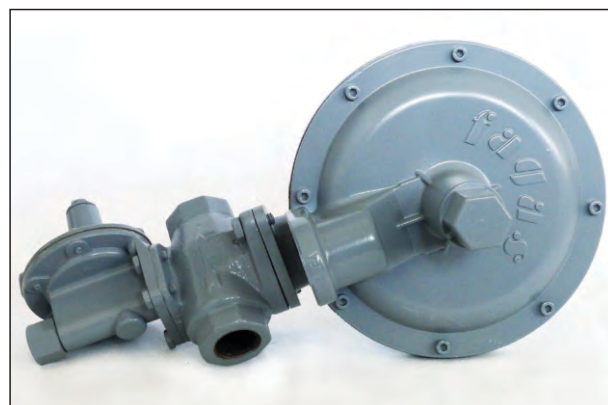
REGULATORY MEASURING STATION FOR KTG (CNG)





1800 B series regulator

The 1800B series regulators provide the possibility of economical and accurate pressure regulation in various applications, and protection of consumers from too high and too low pressure in the installation.



Regulator series F-BH1-N and F-BH1P

These regulators provide the possibility of economical and accurate regulation of pressure in various applications, and protection of consumers from too high and too low pressure in the installation.



Regulator series F-BH-2

For precise regulation of gas pressure from full flow to low flows (pilot flow) UNIS FAGAS Ltd. produced a gas pressure regulator type F-BH 2.



Regulator series F-BH-3

For precise regulation of full flow gas pressure to small flows (pilot flow) UNIS FAGAS Ltd. produced in addition to the F-BH 2 regulator and the regulator higher capacity F-BH 3.



Regulator series F-BH-4

Product of small dimensions, adaptable to all types of gases of reliable quality and recognizable design is available on the European market since 2010. It is especially interesting for stove manufacturers which produce under the new EU directives.



PVC cabinets

We offer regulation and measuring equipment for accommodation folding PVC cabinets, which are UV stable and which are made of self-extinguishing material.





GAS HEATER / HEAT EXCHANGER

A gas heater / heat exchanger is a device in which heat is delivered (transferred) from one medium to another. They can be made in a few ways, e.g., the media are in touch and separated by a partition, a pipe wall, or something similar and thus prevented from their direct contact.

The surface of the heat exchanger is made of tubes, so these heat exchangers are called tubular heat exchangers.

Depending on which procedure is primary, i.e. whether we want the main medium heated or cooled, heat exchangers are divided into heaters and coolers. The materials used to produce heat exchangers are usually steel. They can be non-alloy, low-alloy, high-alloy steel and cast steel. Pipes for the production of heat exchangers are made of aluminum and its alloys, copper and its alloys, as well as carbon, low-alloy and high-alloy steel. According to the corrosion protection procedure, the gas heater / heat exchanger is protected by an anti-corrosion surface, aggressive atmospheric influence, condensation, etc.

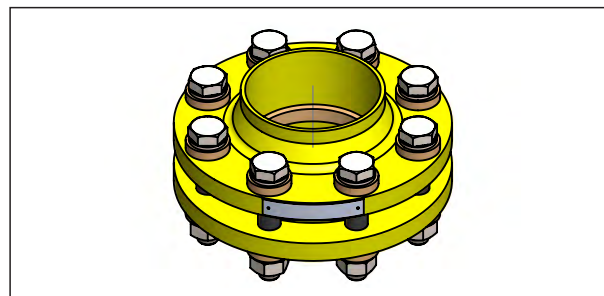


Gas heater / exchanger

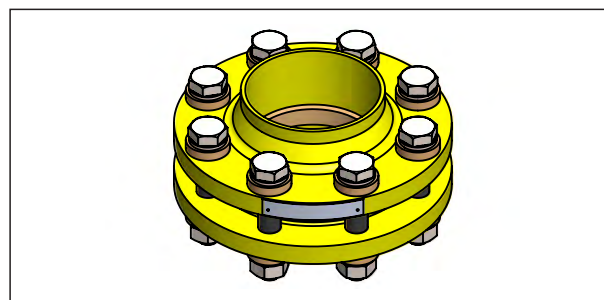
heat exchangers and insulating flanges

INSULATION FLANGES

Insulation flanges, rated pressure PN16, are made in sizes DN25-300 in accordance with DIN2470. Insulation flanges are used in pipelines, oil pipelines and other pipelines that need to be protected from stray currents. Experience shows that this type of insulating flanges is very successfully used in the cathodic protection of these installations, and their installation prevents the conduction of current up to a voltage of 5,000V. The test voltage is 12,000V. They are installed in pipelines through which non-aggressive gases flow up to a temperature of 60 °. The insulating flange is installed completely, so that the ends of the flanges (with three to four welds / staples, up to 1 cm long) are welded to the pipe in places. After that, by loosening the screws, the insulating flange is completely disassembled to protect the insulating elements and seals from high temperatures during welding. After welding, the disassembled elements are brought back to their original position by screwing and tightening the bolts and nuts until full sealing of the sealing joints is achieved.

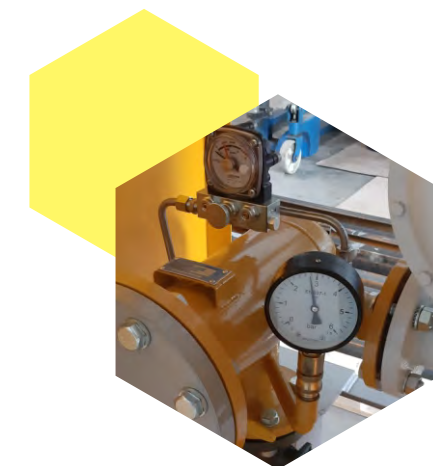


Insulation flange TYPE: IP-I-12 PN16



Insulation flange TYPE: IP-I-15 Pn16

gas filters



ABOUT THE PRODUCT

A gas filter is necessary for regulating and measuring cells to protect devices against sensitive damage from gas impurities. They serve to stop and collect impurities (solid particles, dust, rust and condensation from the gas stream) $\geq 5 \mu\text{m}$.

PRODUCT DESCRIPTION

We make gas filters in sizes for pressures from 0.1 to 100 bar. They were designed and tested for leaks according to PED 97/23 EC Directive, DIN 30690-1 technical regulations for the manufacture of pressure vessels (G 498). The opening and closing system can be flanged with quick-closing head, which allows easy and safe replacement of filters



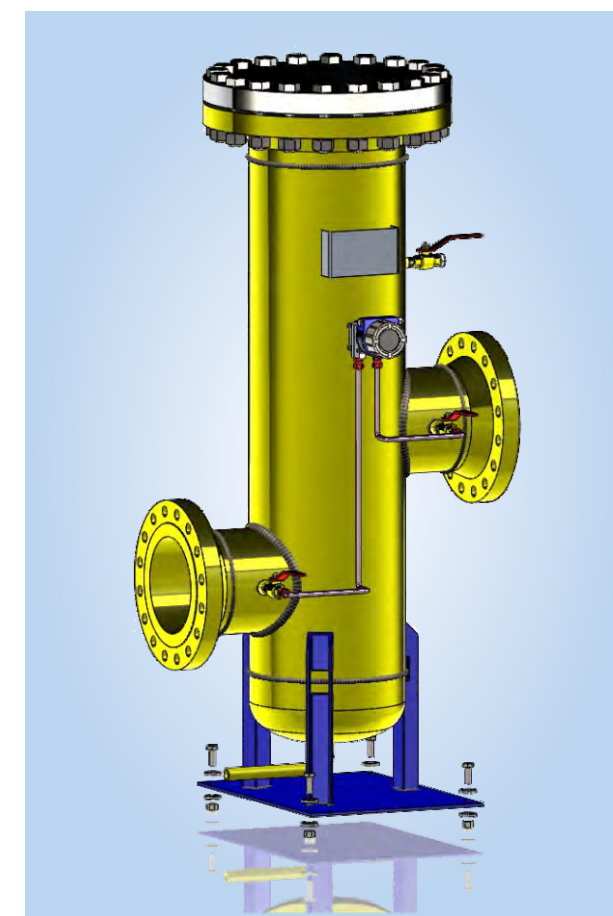
Gas filter DN125 PN16 (Angle installation)

ORDER DATA

GF-P-H / X / $\frac{X}{X}$ / $\frac{XXX}{XXX}$ / $\frac{XXX}{XXX}$

GF-P – Filter type (Gas filter-flange)
H, V, U – Version (horizontal, vertical, angular position)
X – Gas filter housing DN
X/X – Type of filter cartridge/Number of filter cartridges;
XXX – Nominal opening DN
XXX – Nominal pressure PN
XXX / XXX – Input angle / Output connection angle according to the installation position

inserts. Gas inlet and outlet connections can be made at the request of the customer depending on the type of regulation, measuring and regulating - measuring stations. Gas filter has connection R 1/4" for installation of differential manometer; or R 1/2" if instead of differential manometers they use manometers to measure pressure (manometers are not part of the filter and are ordered separately). A drain connection for exhaustion of impurities and condensates is included. After the gas enters the gas filter, due to the change of flow direction and gas speed, larger impurities are separated and collected at the bottom of the filter. The gas passes through the filter cartridge, where it separates residual impurity $\geq 5 \mu\text{m}$.



Gas filter DN400 PN50 (horizontal installation)



Honeywell

Honeywell products:

- Advanced Software
- Control, monitoring and safety systems
- Gas metering and control solutions
- Instrumentation
- Marine program
- Telecom and industrial safety
- Terminal operations
- Wireless

Honeywell services:

- Assessments and engineering studies
- Distributed control system services
- Industrial cyber security solutions
- OneWireless services
- System quality control services
- Security system services
- Advanced software services
- Total Care field service

Honeywell solutions:

- Biofuels
- Chemicals
- Marine program
- Metals, minerals and mining
- Oil and gas
- Electricity generation
- Pulp and paper
- Refining

Advanced Software

Honeywell is the world's leading provider of advanced software solutions for the process industry. These solutions solve complex problems through a unique outcome-based consulting approach that supports better process design, process history and analytics, business excellence, production management and enterprise collaboration. Advanced software solutions enable users to make

faster and smarter decisions to improve security, reliability, efficiency and sustainability.

Control, Monitoring and Security Systems

Honeywell transforms process control beyond the traditional distributed control system (DCS) function by joining resources, processes, and people to improve business agility. Honeywell's control, monitoring and security systems provide integrated process control and advanced security with better lifecycle support.

Gas Measurement and Regulation Solutions

Honeywell offers industry-leading gas control, metering and analysis equipment to utilities and other customers worldwide. It offers expertise along the entire gas supply chain, with reliable products and systems that allow customers to exercise complete control over their regulation and measurement needs. All leading technologies are included to provide complete solutions for the most demanding applications. This leads to reduced uncertainty, greater reliability, minimal risk and lower maintenance costs.

Instrumentation

Honeywell's comprehensive portfolio of measurement and control products, including stand-alone instruments, smart sensors and integrated systems, combined with software solutions and open data access interfaces, allows users to better manage their drives and optimize their productivity. Honeywell Authorized Distributors and System Integrators provide local support, expertise, and training.

Terminal Operations

Honeywell Enraf offers a comprehensive range of products and inventory management systems and tank terminal operations, offering open connectivity, modular design and a robust transportation path. The solutions enable optimal use of tank storage capacity to maximize operational efficiency and increase revenue.

We are proud partners of the world's leading companies for CNG (CNG) systems.



NaturelGaz operates in the natural gas sector (CNG /LNG) as a member of Global Investment Holding. Company supplies CNG and LNG products in the industrial area, and also sells cars at CNG also supplies districts and cities that do not have access to natural gas pipeline.

Our mission is to create high value for all of us stakeholders with our innovative solutions and operational strength and support sustainable living for the whole world.

Areas of CNG use:

- Asphalt plants
- Chemical industry
- Building materials industry
- Metallurgical industry
- Food industry
- Mining
- Other industrial plants

CNG characteristics

Compressed natural gas is one of the forms in which, for easier transport and storage, natural gas is converted.

It is labeled as KPG or CNG (Compressed Natural Gas), while the best known is methane.

Natural gas is very difficult to convert and keep in shape of fluid, and its compression is a compromise between requests that its specific volume is reduced (yes, the same amount takes up less space) and technical and financial complexity of its liquefaction and storage in liquid state.

Gas taken from the distribution network of natural gas is compressed to pressures of 200–250 bar and stored in appropriate high pressure containers.

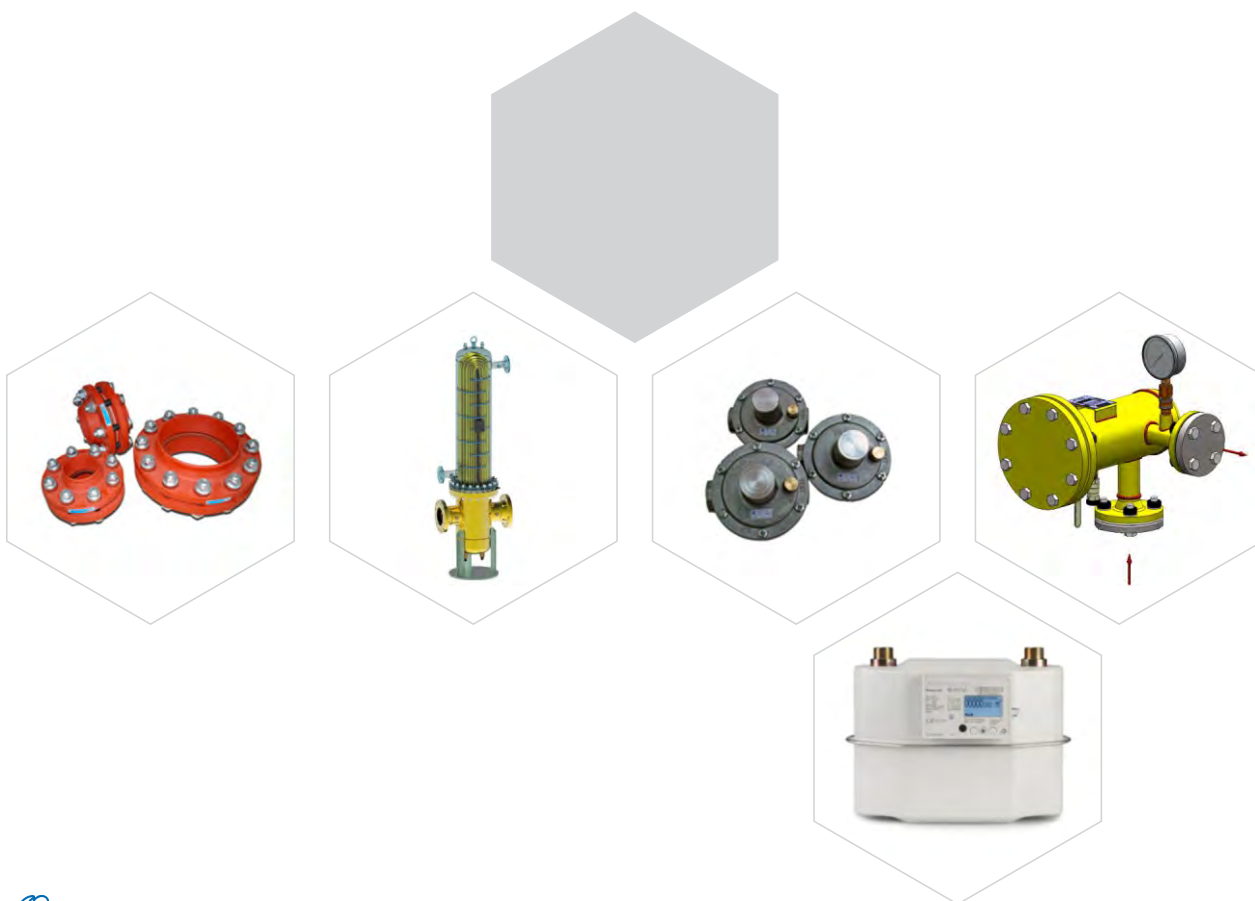
cuboGas

CUBOGAS offers integrated "plug & fill" solutions with all necessary accessories for installation of compressors and gas stations. CUBOGAS systems are efficient in all conditions of inlet pressure (from 0.1 to 100 barg / 1.45 to 1.450 psi) and are ideal for all the needs of gas stations thanks to its flexibility.

CUBOGAS systems include all the components needed for your complete CNG filling station needs: from CNG dryers for drying the filter gas and reducing water dew point thus improving the quality of the natural gas, to a new alternative compressor setting, or efficient and reliable gas compression up to 250 barg (4,500 psi) with storage cylinders. CUBOGAS systems are ideal fast charging solutions that allow dispensers to refuel quickly.

Physico-chemical properties od CNG	Unit
Molecular weight	16.4 gr / mol
Boiling point	-162 ° C
Freezing point	-182 ° C
Freezing point	-188 ° C
Latent heat of vaporization	504 kJ / kg
Critical temperature	-82.5 ° C
Critical pressure	42.95 bar
Self-ignition point	537 ° C
Explosion limit	5-15%
Gas density	0.66 kg / Sm ³
Specific weight	0.55 (Air = 1)
Composition of CNG	%
Methane (CH ₄)	70-90
Ethan (C ₂ H ₆)	5-15
Propane (C ₃ H ₈) and Buthan (C ₄ H ₁₀)	5
CO ₂ , N ₂ , H ₂ S, etc.	the rest

Colorless, odorless, non-toxic, suffocating, highly flammable



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