G-PA 1600/4200

WATER PURIFYING

G-TECH

"help for a better future"

Gheotech Italia are active in various activities intended to achieve a common goal: to find economically sustainable solutions that promote both energy saving and respect for the environment through the provision of products and high-quality solutions at affordable prices

The purification systems of Gheotech Italia are compact, easy to install and allow to treat water that has both chemical and microbiological contamination.
They are characterized by the coupling of filtration and sterilization systems which use innovative technologies and reliable materials.
The purification system allows to preserve the organoleptic quality of water while maintaining the presence of all the minerals essential for life.
They are suitable for the treatment of a wide range of pollutants and for targeted applications where necessary.
Their dimensioning is prefaced by detailed qualitative analysis of the fluid to be treated.
At the end of the treatment process, the water is adequate for “human consumption”.

1. Excellent quality of drinking water

A trasportable water purifying system which completely removes all hazardous substances from chemically affected water resource. Our competitive advantages, is the advanced filtering technology, which retain all the essential minerals throughout the process.

Water flowing through the system is treated four times since it flows through:

- sediment trapper
- ultra filters
- multimedia filter
- UV (ultraviolet) sterilizer

Advantages:

- high capacity
- chemical free technology
- portability
- simple use and maintenance
- energy efficiency

2. Latest purification technologies

Purification of drinking water is a very demanding task and can only be carried out with appropriate technology. This is why the system has been developed by applying latest filtration technologies.

The system can purify microbiologically and chemically polluted water to the highest level, but it does not affect the minerals essential for health. The system is simple to use, ideal for on-site application and an expert to operate it is not required.

The plant is completely assembled on aluminum-brushed skid, with plastic support grid. Two versions:

G-PA 1600 : production up to 1.600 l/h of drinking water.
G-PA 4200 : production up to 4.200 l/h of drinking water.

Technical specifications (*) (**)

	G-PA 1600	G-PA 4200
Capacity	1.600 liter per hour	4.200 liter per hour
Weight	120 Kg	220 Kg
Dimensions	1640x70x165	1640x70x165
Power consumption	0,9 kW/h	1,5 kW/h
Power supply	230V / 50Hz	230V / 50Hz
Operating pressure	3 bar (300 kPa)	3 bar (300kPa)

(*) Note: the manufacturer reserves the right to modify the characteristics of the devices addressed in this presentation without prior notice.

(**) Note: Patent pending no. 10201600011015

3. Multilevel filtration system

Multilevel filtering system is composed of sediment trapper, ultra filter modules, different filtration agents and UV sterilizer. Treatment of water includes several physical and separation processes, which remove all the impurities both particles and dissolved substances, from the water.

The purification process:

1. Mechanical filters block all bigger particles.
2. Ultra-filtration membrane extracts the micro-organisms and other micro particles.
3. Multimedia filter removes all the remaining organic and inorganic materials, including all impurities and heavy metals.
4. UV rays destroy all bacteria.

Water filtration is done compromised of several types of physical and chemical separation processes in order to remove unwanted substances in the water.

The system consists of a variety of filtration media tested by independent laboratories.

Sediment trapper

The sediment trapper eliminates sand, rust, slime and various non-soluble particles larger than 100 microns. The filter is of self-cleaning type with return flushing when the pressure drops below a predefined limit.

Ultrafilter

The ultrafiltration membrane is durable, thin and selectively permeable. It removes all molecules, including colloids, microorganisms and pyrogens larger than 0.01 microns. The module is equipped with an automatic cross-washing system that allows long-term operation of the ultra-filtration system, even in case of heavily polluted water.

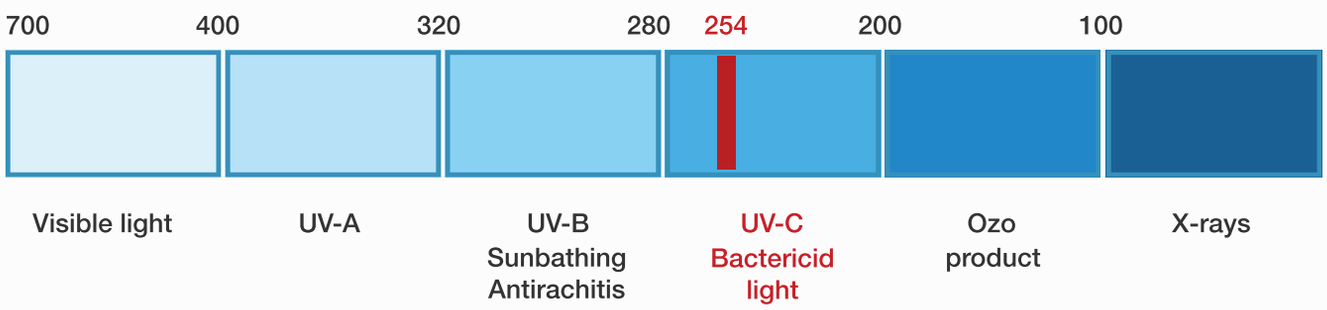
Ion exchanger

Multimedia filter consists of: ion resin, redox media and activated carbon.
Ion exchange resins are insoluble granular substances which have exchangeable acidic or basic radicals in their molecular structure.

Positive or negative ions fixed on these radicals are replaced by ions of the same charge in liquid solution in contact with them. The system eliminates nitrates by using a selective ion resin.
Kinetic degradation fluxion (KDF) is a redox media. Reduction-oxidation reaction is one of the most common reactions that take place in nature. Redox agents remove dissolved gases (chlorine, hydrogen sulphide, sulphur hydrogen and methane) and soluble heavy metals.
The primary beneficent property of KDF media is i ts compatibility with granular activated carbon. The granular activated carbon (GAC) removes chlorine, bad activated carbon which removes chlorine, bad taste and odor. The procedure includes both catalytic reduction and adsorption.

UV sterilizer

Purification of water is achieved by the combination of micro filters, ultra filters, special filtering media and an UV sterilizer.
Water disinfection of is the last stage in the purifying process. This procedure involves elimination or reduction of pathogenic microorganisms dissolved in water to levels when the microorganism content does not represent a potential hazard for infections.
Microorganisms which have to be removed from the water before its use are: bacteria, spores, viruses and protozoa.
The resistance of such organisms varies and depends on their concentration, disinfection method, type and quantity of the applied disinfection agent, duration of the process and physical as well as chemical properties of water.
UV sterilizer applied to the system uses special bactericide bulb operating at wavelength of 254 nanometers. Radiation dose is 30,000 microwatt per square centimeter per second.

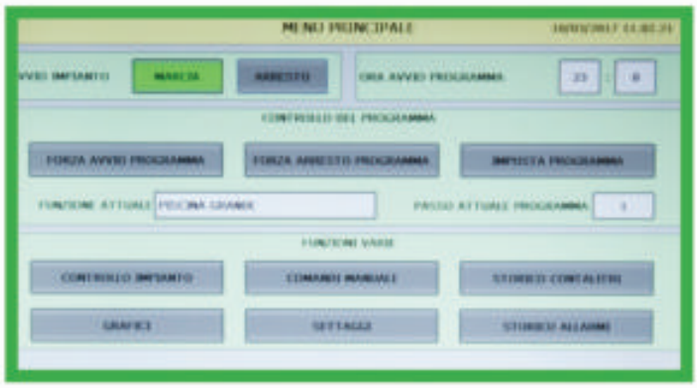


4. Application and maintenance of the system

Application of the system does not require any special skills. The system can be transported by a vehicle and manually brought to the operation site. The system is connected to the electric grid or to a generator. The device can operate with natural water source like lakes, rivers, streams, rainwater or with water supplied by water network.

The water inlet pressure must be at least 3-6 bar (300-600 kPa or 43,5-87 PSI). The system is quick, low budget and low cost solution for providing people with drinking water in small communities where water sources are contaminated and there is no public water supply.

A microprocessor controls the complete operation of the device and sends a warning signal when any of the filter cartridges or UV light needs to be replaced.



5. The Systems eliminate all pathogenic microorganisms causing waterborne diseases

PARASITIC INFECTIONS

Disease and Transmission	Microbial Agent
Schistosomiasis (immersion)	Members of the genus
Dracunculiasis (Guinea Worm Disease)	Schistosoma Dracunculus
Enterobiasis	Vermicularis
Ascariasis	Lumbricoides Enterobius
Echinococcosis (Hydatid disease)	Echinococcus
Hymenolepiasis (Dwarf Tapeworm Infection)	Hymenolepis nana
Fasciolopsiasis	Fasciolopsis buski
Taeniasis	Tapeworms of the genus Taenia

PROTOZOAN INFECTIONS

Disease and Transmission	Microbial Agent
Amoebiasis (hand-to-mouth)	Protozoan (Entamoeba histolytica)
Cryptosporidiosis (oral)	Protozoan (Cryptosporidium parvum)
Cyclosporiasis	Protozoan parasite (Cyclospora)
Giardiasis (fecal-oral) (hand-to-mouth)	Cayetanensis Protozoan (Giardia lamblia)
Microsporidiosis	Protozoan phylum (Microsporidia)

VIRAL INFECTIONS

Disease and Transmission	Microbial Agent
SARS (Severe Acute Respiratory Syndrome)	Coronavirus
Hepatitis A	Hepatitis A virus (HAV)
Poliomyelitis (Polio)	Poliovirus
Polyomavirus infection	Two of Polyomavirus: JC virus and BK virus

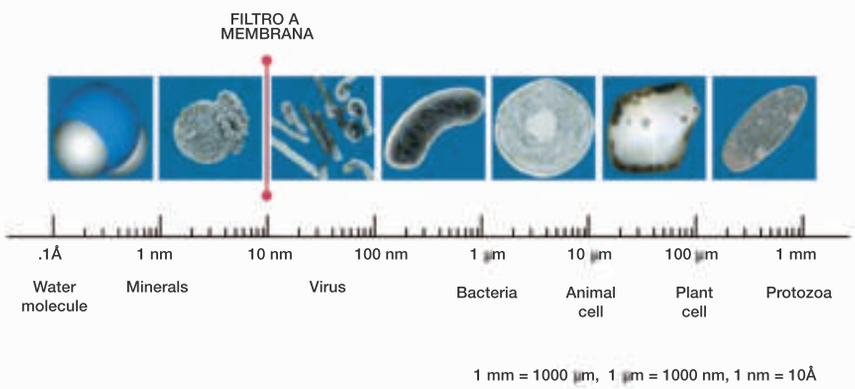
BACTERIAL INFECTIONS

Disease and Transmission	Microbial Agent
Botulism	Clostridium botulinum
Vibrio Ilness	Vibrio vulnificus, Vibrio alginolyticus
Typhoid fever	Caused by many bacteria of genus Salmonella typhi
Salmonellosis	Caused by a number of bacterial and fungal species
Campylobacteriosis	Most commonly caused by Campylobacter jejuni
Cholera	Spread by the bacterium Vibrio cholerae
Leptospirosis	Caused by bacterium of genus Leptospira
Legionnaires' disease, Pontiac fever)	Caused by bacteria belonging to genus Legionella
Dysentery	Caused species in the genera Shigella and Salmonella
E. coli infection	Certain strains of Escherichia coli
M. marinum infection	Mycobacterium marinum
Otitis Externa (swimmer's ear)	Different types of bacteria or fungi

6. The Systems eliminate all toxic chemicals

Organic Moleculus	Oils	Hydrogen sulfide
Detergents	Oil products	Radon
Herbicides	Selenium	Lead
Pesticidi	Chlorine	Mercury
Iron	Cyanide	Barium
Cadmium	Chromium	Trihalomethanes

Relative sizes of microorganisms



Some successful applications

1) **Purification of polluted water or otherwise not appropriated for human consumption from different sources such as**

Reservoirs

Waterway

Well

2) Water emergency situations where normal supply sources are unavailable

Packaging plants of water that can be easily distributed/sold through envelopes (micro business models for sale in isolated communities without water services)

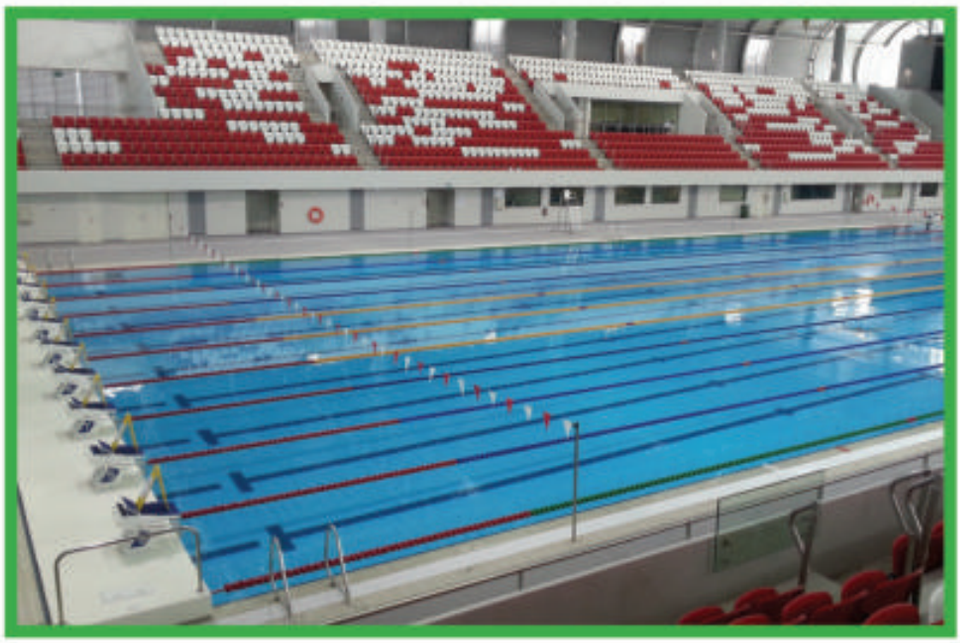
Disruption of water public service due to failures or natural disaster

During catastrophic events, in support of the civil defense departments and first responders

3) Purification of water used for domestic facilities, such as:

Residence

Hotels, restaurants, accommodation facilities



Pools, sports centres, gyms

Wellness centers, SPA

G-PA 1600/4200 | en
Rev. 01/2017

Gheotech Italia srl

Branch office:
Via Stefano da Seregno
20831 Seregno (MB)

H.Q.:
Viale Regina Margherita, 28
20122 Milano

+39 0362 223335
www.g-techsrl.com