

Forza G: centrifugal purifiers and impact on the environment

Atmospheric and environmental pollution, their causes and prevention, are demanding ever-more controls and specific systems from glassworks.

The recirculation of wastewater from the processing of glass is offered by Forza G, whose entire purification process takes place in a

continuous closed circuit. The company presents its systems in this article and shows how the same purified liquid can be re-used for production, without having to discharge polluted reflux water into the municipal sewage system.



↑ The "Big Bag" in position below the centrifuge

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FORZA G ITALIA SRL

E NVIRONMENT

In recent years, the problem regarding environmental impact has come up more frequently, in various forms of environmental catastrophes that often take place because of the negligence of mankind towards

nature, both for economic reasons, and because of bad management.

The phenomenon regarding atmospheric pollution is not to be blamed only on the large chemical industries, that are normally controlled scrupulously, but, on the other hand,

to the majority of small- and medium-sized industries of the most diverse sectors. Generally speaking, these small industries do not receive adequate instructions and are rarely controlled by the institutions, which, in turn, are not well prepared to move in a tangle of laws of precarious interpretation.

Systems to avoid polluting and to reduce consumption of raw materials, often vital, exist, but are often ignored or sometimes avoided with palliatives offered at low cost on the market, also due to scarce information, other than to the dubious interpretation of the parameters of the laws in force.

One of the companies that proposes systems that are reliable and easy to use, but also efficient in obtaining results, is Italian Forza G.

PROCESS

The method that this company proposes is a system of separation between solid and liquid by means of a centrifuge - *Tornado*. The reflux water from the production is transported, by means of tubes or channels, into a central collection point - a tank positioned at ground level. The solid particles are transported to this tank by means of a cyclonic pump that has the aim of concentrating the solid particles in suspension into the inferior conical area, from where, by means of a suction pump, the thickened liquid is moved into the centrifuge that then retains the solid particles up to a volume of five microns, while dehydrating the sludge. The purified liquid is concentrated in the central-upper part of the cyclonic centrifuge, where it can be pumped back to production because the solid particles have been pushed to the bottom.



External collection tanks

IDENTIKIT

Company name:	Forza G Italia Srl
Production unit:	Treviso, northeast Italy
Founding year:	1999
Products:	Plants for the treatment of refuse water coming from production
Main markets:	Italy, Germany, The Netherlands and Spain
Type of clients:	Large, medium and small companies
Sales network:	Lechner Srl - northwest Italy and Germany Forza G Italia - northeast Italy Germano Mascolo - Emilia Romagna, Umbria and Marche Martino Di Gregorio - Puglia, Basilicata and Calabria Suministros Aries - Spain and Portugal Besana Lovati - France Equitrade Vof - The Netherlands, United Kingdom, Norway, Sweden, Finland
Post sales service:	Direct assistance, supply of spare parts, online service

At programmed intervals, the centrifuge stops so that the automatic unloading of the sludge into a container (Big Bag), located below the centrifuge, can take place. Once this operation has taken place, the purification cycle starts up again automatically.

The entire purification process takes place in a continuous closed circuit. This means that the same purified liquid can be re-used for production, therefore without further waste, and also without having to discharge polluted reflux water into the sewage system.

ADVANTAGES

Centralization means:

- optimization of refrigeration liquid consumption;
- working with liquid that is always pure;
- increased productivity;
- improved quality;
- elimination of machine down times;
- increased working life of machinery and tools;
- decreased production costs.

Advantages for the environment:

- no waste of raw materials such as water;
- no reflux waters from production in the environment;
- no use of the municipal sewage system;
- controls from the institutions dedicated to the environmental surveillance not needed;
- decrease in electrical energy consumption;
- possibility of recycling the waste coming from production, such as glass, marble, ceramics, etc.;
- contributing to improve and maintain cleaner the environment.

All these above listed facts have been obtained thanks to Forza G's collaboration with clients in Europe who, for many years, have been pro-

ducing with satisfaction and without waste.

OPERATIVE FUNCTIONS AND INDUSTRIAL QUALITY

Not only quality, but also ease of use. Forza G now proposes an industrial version of its system, with easy management.

The management and the treatment of processing wastewater represent a problem that is not easy to solve for glassworks. Even in consideration of the present normatives to be respected, in fact, the planning of the methods and times needed for the re-use of the residual fluids, is an important demand for glassworks.

Forza G works with systems for the treatment and re-use of "clean" and functional production water, with great care paid to ease of use. The proposed systems, on the one hand, respond to operating and environmental impact parameters in force, and, on the other hand, are characterized by their simple management, that does not effect timing of the production unit.

With the experience gathered over the years, and with these new management systems, the centrifuge system is considered the most industrialized on the market today. The strongpoint of this product is that it switches on and off automatically at the times programmed.

The entire system is discussed directly and continuously with clients, starting from design, leading to layout, studying the water system, and also giving advise or even setting up the entire water system.

CENTRIFUGAL DE-SLUDGERS PROCESS CYCLE

The word is, therefore, automation. The plant is made up of a number of elements that together ensure the optimal functions of the same machinery, with respect to the amount of water requested by the single processes carried out in



glassworks. The Forza G system uses a two-stage centrifuge with closed circuit, while the pumps aspirate the production water.

The separation process takes place inside a special water-decantation tank called "cyclonic" that carries out the thickening functions of all the suspended substances contained in the production liquid.

The collection of the first processing water is assured by a cylinder located inside the tank. The water is then sent back to the distribution circuit of the machines working in the glassworks.

The cyclonic tank is connected, at its lower part, to a pump that transports the thickened liquid to the inside of the bowl of the centrifuge. The gravitational pull, of 1,600G that is developed inside the bowl of the centrifuge, groups the solid particles with a specific weight higher than that of the treated liquid, against the sides of the same bowl.

The excess liquid is then returned to the tank for the collection of sewage.

Mud and sludge are unloaded at pre-fixed intervals. The Forza G system, if used as a closed circuit system, does not cause any dispersion of fluids in the municipal sewage system, and the sludge resulting from the treatment process is eliminated as inert industrial waste.

Unloading normally takes place automatically and, because there are no additives, filters or other elements to be controlled, does not need the supervision of personnel.

The quality of the treated solids is inferior to 5um (micron). The water obtained is of high quality, and can be re-used even with the most sophisticated machinery. Running costs are also very interesting - almost zero for over 4,000 hours of activity.

The system, now in use in many glassworks, can be used in many other different industrial applications.

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WHY PURIFICATION?

There are many reasons to use purification systems, among which are:

- processed glass is without scratches, completely smooth and shiny;
- purified water considerably decreases the consumption of the grinding wheels and increases the working life and efficiency of the machines;
- the water is purified without altering its pH (acidity and basicity), and without altering its saline content and organic composition;
- extreme simplicity and flexibility of use (the system can be adapted without problems to the quantity of water and dusts produced);
- continuous separation of silica after each passage;
- production of dry inert sludge, as refuse;
- minimum initial investment and very low maintenance costs;

- range of modular products, suitable to all dimensions of glassworks.

At present, the company manufactures five models of centrifuge of the Tornado series: T-50/M, T-100/S, T-100/A, T-150/A and T-250/A.

All these models can be integrated to become centralized systems for the purification and recirculation of refrigerating wastewater. ■

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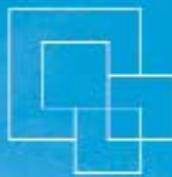


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