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Ebsray lpg autogas pumps are being discrete for Antargaz

L-R: Jean-Marc Bernard, Ebsray; Marine Bongat, Antargaz, and Christian Marzin, Pernin.

In France, it is known as gaz de petrole liquefie or GPL. For English speakers, it is liquefied petroleum gas (lpg), and for those who use it to power their vehicles, it is commonly called autogas. Lpg autogas is now the third most popular automotive fuel in the world, albeit with only three per cent of total market share, but its use has been expanding, with consumption totalling 25.8 million metric tonnes in 2013, up 57 per cent from the 16.4 million metric tonnes that were consumed in 2003.

There are now more than 25 million lpg autogas powered vehicles traversing the world's

roads, though the majority of those vehicles reside in the five countries – South Korea, Turkey, Russia, Poland and Italy – that together accounted for 50 per cent of global lpg autogas consumption in 2013.

Antargaz, based in France, annually supplies more than 500,000 metric tonnes of lp gas by both cylinders and bulk to a customer base consisting of 3.2 million people in France, Belgium, Luxembourg and The Netherlands. One of Antargaz's top customers in France is Groupe Auchan SA, which operates 134 hypermarkets and 409 supermarkets in the country, many of which feature Auchan petrol stations.

Marine Bongat, a project engineer in the bulk services division at Antargaz, said: "Auchan is a big company, it's a national company with many shops, and we provide lp gas for them for many locations. If they have too many problems during the year, they can decide to shut down the contract with us and that would be a disaster. We really need to fulfill their needs and to be sure that everything will work and there won't be too many problems, so it is very important that the equipment is working every day."

French lpg autogas refuelling sites must meet two sets of criteria

Antargaz's lpg autogas operations at the refuelling locations it serves feature an underground storage vessel in which the lpg autogas is placed by delivery trucks before being pumped to the dispenser when the refuelling system is activated by drivers. The storage vessels at these sites must meet two sets of criteria.

Firstly, French regulations state that they must be as discreet and unobtrusive to the public as possible.

Marine said: "It must be very discreet, which is our main design goal. French regulations tell us that we must have all of the equipment protected by a cover and out of touch of the public. Some pumps have parts outside – the motor, for instance – so it's hard to hide it and everyone can touch it. In that case, you need a two meter high fence around the tank, even if the tank is underground, which is a bit weird, because then you have something hidden behind a giant

fence, which can be very costly. Our clients don't like it, people wonder why the big fence is there, it can be something dangerous."

Secondly, and most important for the refuelling site's business, the refuelling system must operate reliably and effectively, day in and day out.

Marine said: "If the pump would break, we would have to change it. First, you would have to remove all of the lp gas from the tank, which is a very long process that would take one day. Then you have to remove the pump in order to install a new one, which means that, for one entire day, the petrol station is closed and you cannot use it. That's why the pump has to work every day and well, because it's a complicated and long process to change it."

Antargaz's position in the lpg autogas supply market is unique because it's not only a supplier of the fuel, but also owns the equipment that is used in the underground storage vessels, making reliability an even more prominent concern.

Marine said: "We are providing lp gas for our clients and we are also providing them the equipment to use the lp gas, and we are still the owner of the equipment so, if there is a problem, we must intervene as soon as possible to avoid them having to go a day without petrol at the station."

Ebsray RX10 series regenerative turbine pump

The demands that are placed on lpg autogas dispensing facilities in France – discreet construction and safe, reliable operation chief among them – demand the use of a specific type of pump, mainly one that is submersible. Antargaz turned to lp gas equipment manufacturer and distributor Pernin Equipements for the solution and Pernin recommended the RX10 series regenerative turbine pump from Ebsray.

Marine said: "We have been working with Pernin Equipements since 2004, and they have been providing us with these Ebsray pumps and so far we have had no problems. The submersible pump is good for what we do; we can protect it and hide it under a cover. It is a

good working relationship."

Ebsray RX10 pumps meet Antargaz's needs because they have been designed for low flow, high head duties on low viscosity liquids, such as lpg autogas. Specifically, the RX10 model has been precision built for efficient high pressure pumping from underground or aboveground storage vessels. The pumps are fully submersible inside the vessel, which helps enable Antargaz to install the entire storage system below ground, which results in the clean look that is demanded by French refuelling site regulations.

The two inch RX10 pumps feature a sealless design and single stage turbine pumping element that delivers quiet, smooth, pulse free operation, with an ATEX certified pumping unit. Standard materials of construction include ductile iron or steel casings, bronze impellers and carbon composite bearings. The RX10 pumps can deliver flow rates up to 103 litres/minute at differential pressures up to nine bar and speeds up to 3,500 rpm. Antargaz also utilises Ebsray's RV18 series bypass valves on its lpg autogas dispensing systems, which help deliver full product flow while maintaining controlled, preset maximum differential pressures.

The pumps are monitored at the refuelling site by a controller that is placed in a kiosk near the lpg autogas dispensers. The controller monitors sensors in the storage vessel and along the fuel delivery lines that track the system pressure that is being created both before and after the pump, and whether any lpg autogas is actually being pumped.

Marine said: "If the pump is working without lp gas, it will be destroyed in a few seconds. Thanks to the sensors and controller, we can stop the pump automatically if there is any problem. You can study the controller to see what isn't working, which is good for maintenance and safety. You will also know if there is any leakage. The main problem with leakage is it will start a fire and explosion and hurt people. It is very important to suppress the leakage when it occurs…and the sensors will stop the pumps when there is a drop in pressure."

Submersibility

No matter what you call it, the use of lpg autogas as a vehicle fuel continues to become more popular in France, and Antargaz stands poised to capitalise on this growth. Helping it reach its full potential in the market are Ebsray RX10 series regenerative turbine pumps, which possess the operational characteristics, including submersibility, reliability and safety, that enable Antargaz to confidently offer the best service to its customers.

Marine said: “My job is to be sure that the material that we are putting at the disposal of our clients is safe and respects all legislation. Ebsray is a reliable technology and it is very discreet because it is a real submersible pump, so the installation is not too visible. Thanks to the Ebsray pump, we don’t have problems and we can ensure that the lp gas deliveries will take place at the petrol station and there won’t be any problems.”

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