
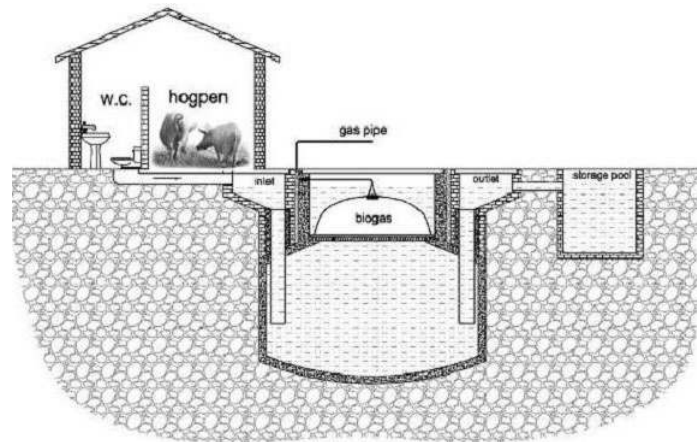


## The Puxin Digester

Thursday, 25 February 2010 03:03 | 



The 10m<sup>3</sup> Puxin Biogas Digester

Biogas SA is the sole licensee for South Africa of the Shenzhen Puxin Science and Technology Company (Puxin) of China. Puxin has developed over a period of 20 years a unique, patented hydraulic biogas digester that has eliminated all the disadvantages and enhanced the advantages of the more traditional fixed and floating dome type digester designs. As acknowledgement of its technology and contribution to promoting efficient alternative energy resources, Puxin was awarded the prestigious Global Top Ten Investment Scenarios to Apply New Technologies for Renewable Energy Utilization [BlueSky Award](#) in 2006, initiated by the United Nations Industrial Development Organisation.

The Puxin digester basically consists of a belly, a neck, the plastic gas holder or dome, an inlet and an outlet. One of the main features of the digester is the fact that it basically functions as a hydraulic system. The entire digester is flooded with water, with the water at the same level in the inlet, digester neck and outlet. The fact that the decomposition of the material now takes place under water, creates the ideal anaerobic conditions so critical for the creation of methane gas. The added advantage of the water is that it is also responsible for creating the constant pressure under which the biogas is available in this type of digester.

As the biogas is produced in the bottom of the digester belly, it rises upwards and is eventually caught in the dome. As the volume of gas increases, it starts to replace the water in a downward direction. The resulting upward pressure of the replaced water ensures that the collected biogas in the dome is always under constant pressure (up to 8 kPa). The fact that the gas is always available at the same constant pressure is a major advantage for the efficient running of most gas appliances. It is practically impossible to run a generator for instance, if the gas feeding the generator is not available under constant pressure; the generator will simply cut out every time the pressure drops.

Another advantage of the Puxin design, is the ease with which the digester can be emptied out. Because it is so easy to clean, any type of organic material can be used as feeder material. Where it is not practical to empty a digester (fixed dome type), only material such as manure that leaves now solid residuals after the decomposition process is complete, can be used as feeder material. Organic waste such as leaves, straw, grass, etc do not decompose to the same extent as manure and will always leave solid waste after decomposition. This spent material needs to be removed from the digester before the digester can be reloaded with new material. The light weight Puxin digester dome can easily be removed by two people, making it a practical system suitable to use organic waste as feeder material. This is a major advantage for applications where manure is not available in the necessary quantities, but enough organic material is available.