

Design

How it works

Vacuflow is not an inverted pressure system with the pipes completely filled with water. Instead, the vacuum sewage system is based on the admission of sewage and air into the piping so that the sewage moves in the form of small shots or plugs. This greatly facilitates the efficient movement of the sewage.

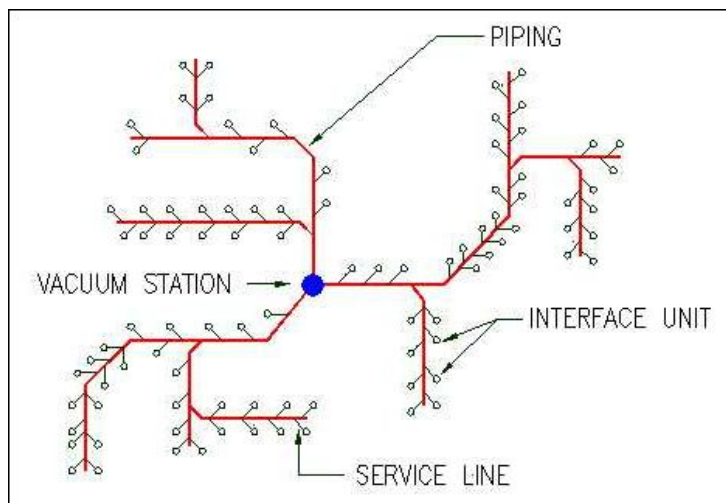
A Vacuflow system comprises 3 principal components:

- * Interface unit
- * Piping
- * Vacuum station

The Vacuflow system is very similar to a gravity system. The vacuum station should normally be located at the lowest point in the area. There is also an advantage to minimize the pipe lengths and diameters by locating the station in the middle of the area. The figure below illustrates a typical vacuum sewage system which can easily serve an area upto 5000 meter in diameter. When designing a vacuum sewage system, the three main components, the interface unit, the piping and the vacuum station are studied separately. As Vacuflow is operating with vacuum, the lift in every separate pipe line must be calculated. Also the pipe length must be considered.

As mentioned earlier, the Vacuflow method utilizes the atmospheric pressure for the sewage disposal. The vacuum station is normally operating at a vacuum level of 60-65 kPa.

The vacuum level in the interface unit at the discharge valve shall never be less than 25 kPa and the lift in the interface unit shall normally not be higher than 1.5 m. As a general rule the loss of vacuum between the station and to any interface unit shall not be higher than 3.5 m.



How to design a Vacuflow system

The design is not only based on theoretical criteria, but also on many years of experience. Therefore, the design work should always be done in cooperation with the engineer of the QUA-VAC organisation and final design shall always be approved by the responsible QUA-VAC distributor.

Feasibility study

When checking if an area or project is suitable for Vacuflow technique, the following shall be done.

- * Draw up a scheme (or drawing) with all pipe routes for the connection of the entire area. Eventual extensions in the future should also be considered.
- * Draw up, on the same scheme/drawing, along the pipe routes all important ground levels for the whole area.
- * Number of properties and persons per property. Eventual extensions in the future should also be considered.
- * Daily flow per person or per property as well as the flow for industrial plants.
- * Point of discharge into gravity main or treatment works (for dimensioning the rising main)
- * Make up an assumption for a suitable location of the vacuum station. The best economic location will be determined from above data's.

When sending above mentioned data to the responsible QUA-VAC distributor or agent for your area a feasibility study for you will be made.