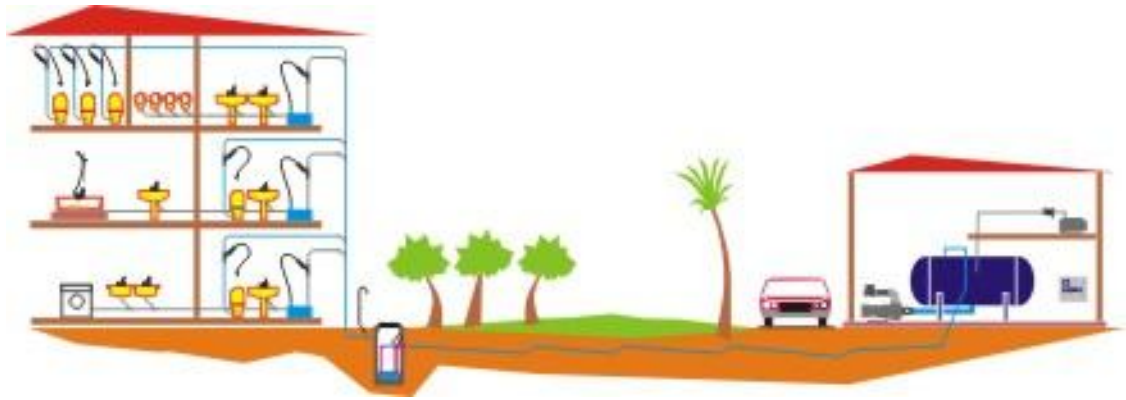
epVAC.VSS

Vacuum Sewer Collection & Transfer Systems for Municipalities

epVAC.VSS, the Technology

epVAC.VSS, the municipal wastewater collection and transfer systems are similar to gravity sewer systems in function. Both are collecting and conveying wastewater from sources to treatment or disposal points.

epVAC.VSS systems are collecting waste water in *valve pits*, each consisting of one or more *interface valve* and *sump*. The wastewater is conveyed to the *vacuum station* through *vacuum mains* and branches.
When 40 litres of wastewater collects in the sump, the interface valve opens and the network's negative differential pressure propels the wastewater through the network mains. The network's negative differential pressure is built up by *vacuum pumps+vacuum tank* combination. When the vacuum tank is filled to a preset level, discharge pumps convey the wastewater to the treatment/disposal works.

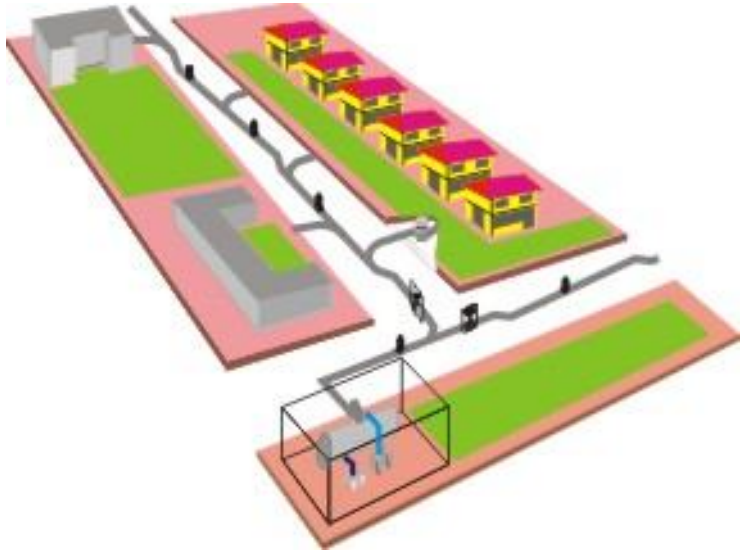


epVAC.VSS, where to use...?

epecoVAC-VSS provides cost effective, efficient and reliable solutions for small and medium communities, villages, towns, resorts, if any of the following conditions is existing:

-Unstable /loose soil.
-Hard rock ground formation.
-High ground water table (seepage).
-Restricted construction works (obstacles).
-Variable topographic ground with small change in elevations.

In small communities with flat terrains, gravity sewer systems would require deep trenches, manholes alongwith pumping stations. Deep trenches would require dewatering , as well as numerous safety considerations.
The trenches also would require backfilling with selected materials, not the sand and mud that would be excavated.
epVAC.VSS will allow for cost effective and reliable construction in small communities.



In airports, **epecoVAC.VSS** systems are used to collect wastewater from service workshops, aircraft parking lots, office and residential buildings. For optimum application, industrial wastewater, gray and black waters are collected in three independent streams. Separate wastewater treatment and recycling plants will allow for minimum waste sludge production and environmentally clean process.

In marinas and docks, **epVAC.VSS** are used to collect and transfer wastewater from ships and boats-if not equipped with evacuation pumps. Independent **epVAC.VSS** system can also receive and transfer bilge oil from ships and boats and transfer them to central stores/treatment facilities. **epVAC-VSS** systems collect and transfer , independently, domestic wastewater and industrial wastewater from harbor and docking facilities.

epVAC.VSS, provides specialized and innovative industrial wastewater collection and transfer systems.

epVAC.VSS are used in the following industries:

-Textile.
-Fibreglass & composites.
-Plastics.
-Oil Refineries.
Petrochemicals.
-Chemicals.
-Pharmaceutical.
-Construction material.
-Steel.
-Metal extraction.
.....and others.

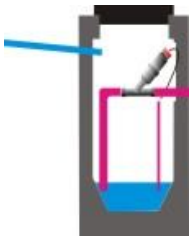
At a preset level, the sensor, immersed in the vacuum Interface Valve **IV**/Sump, actuates the controller and the Interface Valve **IV** is opened. The wastewater will flow-under vacuum, from the properties end trough the Vacuum Sewer Mains **VSM** to the Vacuum Station **VS**.

Vacuum in the **VSM** is created by Vacuum Pumps **VP**/ **VT** arrangement in the **VS**.

As the wastewater level in the Vacuum Tank **VT** reaches a preset level, Discharge Pumps **DP**, starts evacuation the **VT** to the disposal point-wastewater treatment plant, septic tank, ...etc.

In relatively small applications, **VS** is built &tested at EPECO factory, on a common base, including **VT**, **VP**, **DP** and controls. The system is referred to as **Vacuum Power Pack-Integra**.

Interface Valve **IV**



Interface Vacuum Valve/Sump

Vacuum Power Pack-Integra

Vacuum Pumps Pack-Flexi

In larger vacuum sewer systems , the **VS** components are built on independent basis, each called flexi package. **DP**,**VP**,**VT** flexi package are built & tested ex EPECO works and delivered to site for quick assembly-forming **VS**.

Vacuum Pumps

Vacuum Plant Room

Vacuum Tank

Vacuum Tank+
Discharge Pumps Pack-Flexi

epVAC.VSS, why

-**Easy and economical construction,** especially in unstable /loose, or hard rock ground formation. When water table is high, **epVAC.VSS** becomes very competitive due to shallow trenching (1400 mm max.) require, absences of manholes or lift stations.
Using small pipe works (90-250 mm) with no manholes and pipe laying in shallow trenches is easy, even with sites with restricted areas (waterways, roads, buildings, variable topographic ground formations,..etc.

-High RELIABILITY of the **epVAC.VSS** system-no leakage, no blockage and no clogging.

-ECO-FRIENDLY process-aerobic wastewater collection and transfer-no smell and efficient pretreatment for the following wastewater treatment process.
-VERSATILITY- allowing for many collection &transfer options: combined or separate gray & black watesr networks. Highly contaminated or hazardous wastewater can be safely collected and transferred in a fully sealed network as well.
Several disposal options are also possible: discharge to septic tank, treatment & reuse plant,...etc.

epeco

10, Taiaran Str., Raba’a al adawia,Nasr City
Cairo 11371, Egypt

Tel: +20 2 2401 2488 Fax: +20 2 2401 6626
e.mail:info@epeco.com www.epeco.com