

RoeVac® Vacuum Sewer Systems

Part 2:

Technical introduction, Benefits, Limitations, Application Fields



Our Technology

Key questions

- What are vacuum sewer systems?
- What are the advantages?
- How does it work?
- Application fields!

The conventional way



The conventional way



Our Technology – What are vacuum sewer systems

Vacuum sewer systems are...

- **Collection Systems** for domestic waste water
- **Easy to install** systems for waste water within low and medium dense residential, industrial, commercial or mixed use areas
- **State of technology**, eco-friendly, safe and operator friendly systems
- **Alternatives for conventional gravity sewer systems** under difficult conditions

Vacuum sewer systems are NOT...

- Transportation system for waste water (pumping station replacement)
- Main collectors for large sewer systems

Our Technology – How does it work?

Please **click on Image** to start animation

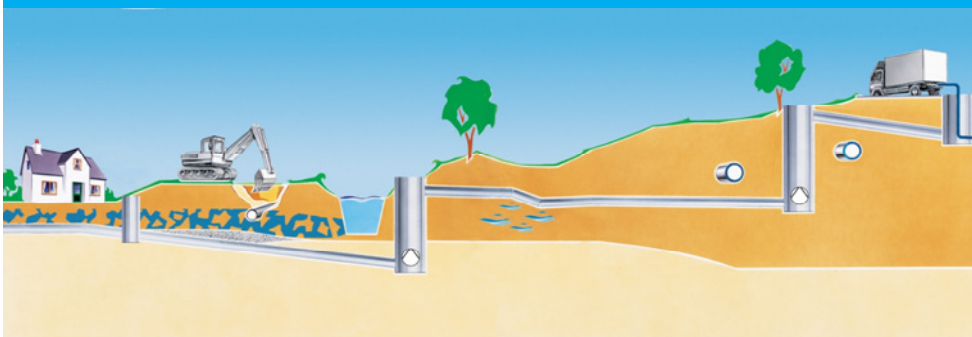


Our Technology – Advantages – Construction

Vacuum sewer system

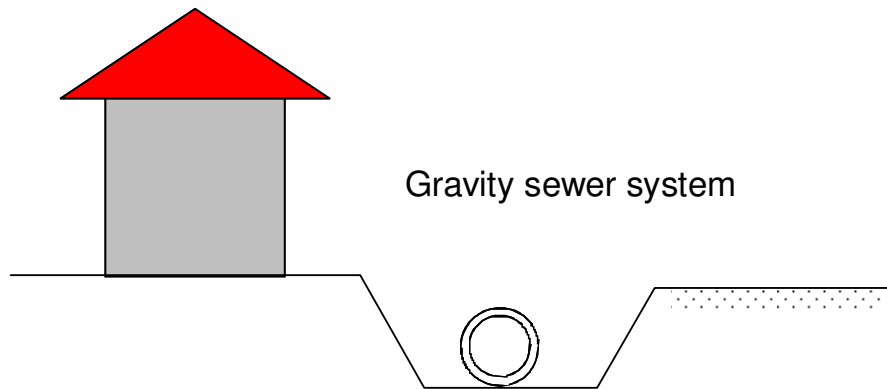


Gravity sewer system



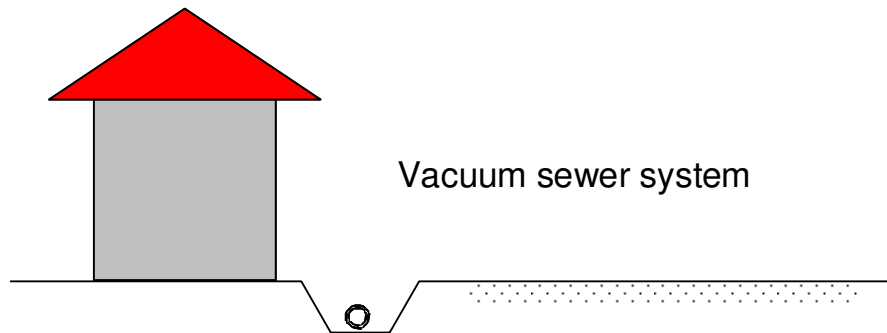
- Small pipes, flexible installation
- Shallow and small trenches
- No manholes, no lift stations
- Centralized vacuum station instead of many lift stations
- Saving of construction time
- Saving of construction and operation costs

Our Technology – Advantages – Construction



Gravity Sewer System

- Wide and deep trenches
- Average installation depth of 3 – 8 m or much more
- Large pipe diameters (200 - 1200 mm)
- Weak PVC or concrete pipes
- Heavy machinery required
- Manholes and lift stations required along lines



Vacuum Sewer System

- Small and shallow trenches
- Average installation depth of only 1.0 - 1.2 m
- Small pipe diameter (90 - 250 mm)
- Easy to install, durable HDPE pipes
- Simple or even no machinery for excavation
- No manholes, no lift stations

Our Technology – Advantages – Construction



Our Technology – Advantages – Operation



- Centralized vacuum station: Energy supply, maintenance and operation from one central location
- Maintenance free pipe network, no sedimentation
- Minimum maintenance at vacuum valves and collection chambers
- Full remote monitoring of valves and vacuum station is possible
- No hazardous conditions for maintenance personnel (no manholes)
- Less H_2S and other fouling gases
- No dumping of solid waste possible
- Comparable low energy costs

Our Technology – Advantages – Eco Friendly



- Exfiltration free – No contamination
- Infiltration free – Reduced flows
- Minimum impact to the environment from construction
- Fresh water saving as no flushing is required for the pipe network
- Vacuum sewer systems are the only systems allowed to be installed in ecologically sensitive areas and drinking water protection zones
- Vacuum sewer system are the only systems allowed to be installed in the same trench with drinking water pipes
- No Odors

Our Technology – Application fields

“The more problems a gravity system has, the more interesting a vacuum system gets!”

■ The following conditions will **benefit a vacuum sewer system**:

- Flat terrain und lack of natural slope
- Expanded municipalities with little flows and long distances
- Resorts with little and seasonal flows
- High ground water tables
- Rocky, sandy or unstable underground
- Ecologically sensitive areas
- Limited construction space, existing infrastructure

Our Technology – Application fields

Typical and most common application fields

- **Low dense** residential, industrial, commercial or mixed used **developments**
- Holiday resorts with villas and bungalows and/or seasonal flows
- Marinas, Corniche promenades and harbours
- Rehabilitation of existing sewer systems
- Installation of sewer systems within existing developments (e.g. old town areas with septic tanks)
- Natural or artificial Islands, reclaimed land
- Flood areas or areas exposed to sea and river tides