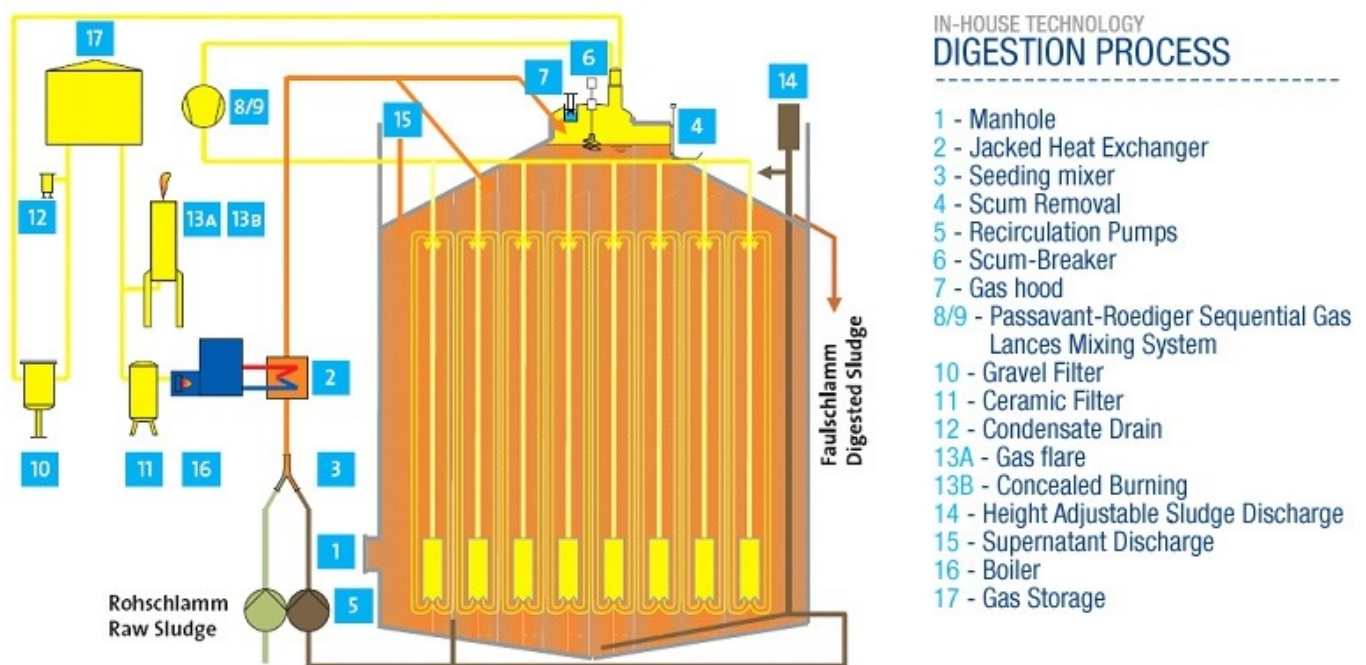


# In-house Technology

## Sludge Digestion – Sequential Gas Lances Mixing System

PE&E has gained experience in the installation of more than 1,500 digestion tanks. On the basis of this expert knowledge and our experience gained in the maintenance and operation sector, we have developed a special system for the injection of digester gas. With this method, the gas is injected via flexible insert lances shortly above the digester bottom. This allows, even in case of shallow digester bottoms, to prevent the formation of deposits. In addition, the PE&E Sequential Gas Lances Mixing System provides for the possibility of maintenance works at the mixing system even during operation of the plant. It is thus not necessary to empty the digester at regular intervals for maintenance purposes. As an outstanding advantage of this system, however, has to be mentioned that continuous operation of the mixing system is not required, thus considerably reducing operation costs.

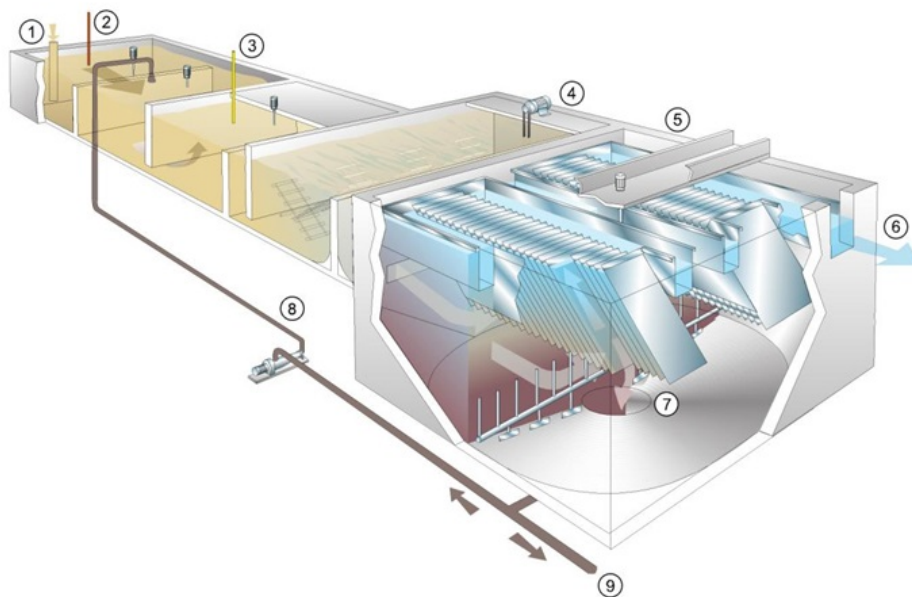


## Turbo LME-Process

The Turbo LME principle is based on the combination of the turbo-flocculation process and the lamella separator with integrated thickener-rake unit (LME). In this process the multi-chamber flocculation is used for the production of an extremely sedimentable floc which is separated from water in the adjoining lamella separator and which is thickened in one single step in the thickener up to the optimum sludge concentrations.

Highly turbulent flocculation stages, contact sludge return and individually defined energy input are component parts of the PE&E system which enables ideally use of the reaction kinetics.

Thanks to the special and unique lamella geometry, the process provides an up to now unattainable effluent quality, even in the case of high hydraulic loads with additional maximum sludge thickening.



IN-HOUSE TECHNOLOGY  
**TURBO-LME PROCESS**

- 1 - Influent
- 2 - Coagulant
- 3 - Flocculation Aid
- 4 - Flocculator
- 5 - Lamella Separator
- 6 - Clarified Water Outlet
- 7 - Thickener
- 8 - Contact Sludge
- 9 - Excess Sludge