



TE TECH
PROCESS SOLUTIONS



te-mem™

Water and Wastewater Treatment



Innovative Membrane Technology

The te-mem™ process

The te-mem™ process uses submerged organic hollow fibre membranes which are wrapped around a carrier inside a cartridge and arranged in bundles. The cartridge provides the required strength and protection for the hollow fibre membranes and allows the application of high pressure air scouring for cleaning purposes, this turbulent air scouring results in high cleaning efficiencies.

The cartridges are combined in modules with air scour and filtrate connections. The pore size of the membranes allow for the removal of bacteria and viruses. Its compact design makes the modules suitable for grey water / water re-use, as well as conventional water and wastewater treatment applications.

Membrane Fibre Characteristics

- Organic hollow fibres with outer diameter of 0.3 – 0.5mm
- Average pore size 20.1 nm
- TMP ranges from 50 – 600 mbar (immersed application) up to 3 bar (pressurized application)
- Clean water fluxes up to 300 l/m².h
- Homogeneous fibre gives higher integrity and longer lifetime
- Anti-fouling and permanently hydrophilic (no conservation of membranes necessary)

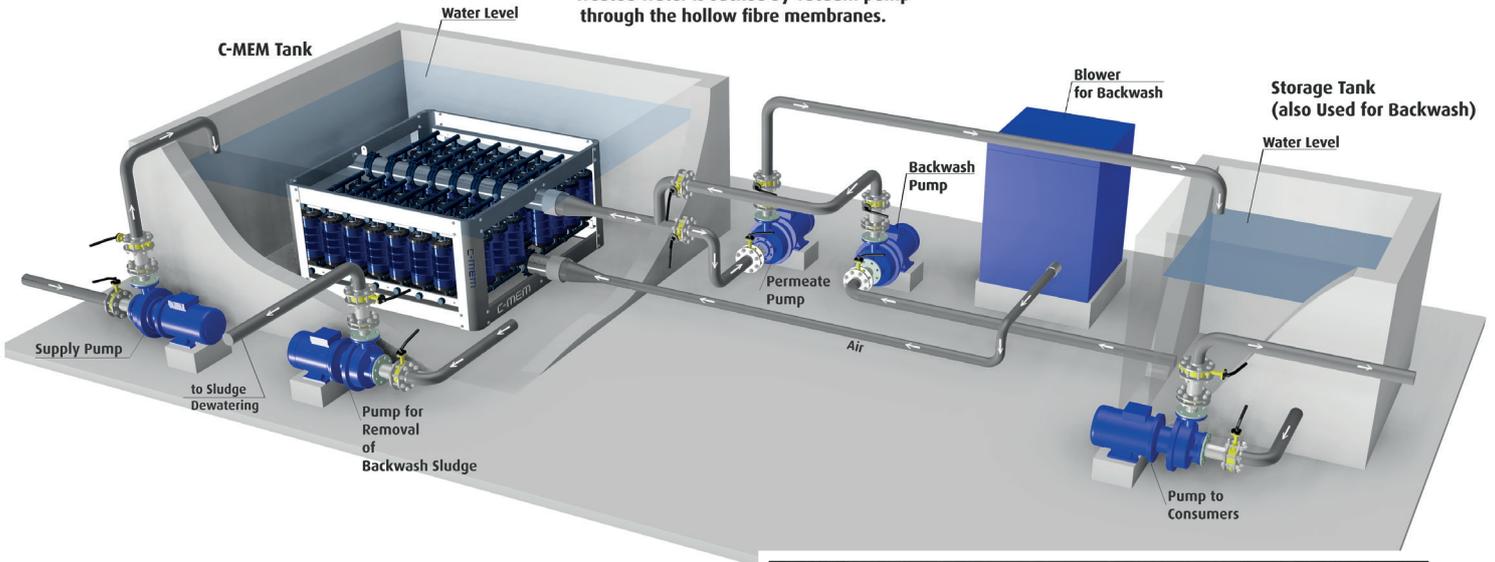
te-mem™ System Design

The following components are generally required in a te-mem™ plant:

- Process tank into which the modules are immersed
- Filtration pumps or gravitation system to produce the filtered water through the hollow fibres in “outside-in operation”
- Air scour blowers for cleaning the membranes
- CIP cleaning system
- Backwash or treated water tank
- Selector for the improvement of biomass filtration properties (for MBR only)
- Control system

te-mem™ Submerged

Treated water is sucked by vacuum pump through the hollow fibre membranes.



High Treatment Efficiency

Applications

- Membrane bioreactor (te-mem™ MBR)
- Membrane moving bed biofilm reactor (te-mem™ MBBR)
- Landfill leachate
- Grey and rain water treatment
- Pre-treatment before RO
- Elimination of turbidity, algae, bacteria and viruses (Fe, Mn, As with pre-oxidation process)
- Ground and surface water treatment
- Water reuse
- Elimination of Cryptosporidia and Giardia
- Wastewater disinfection
- Package plants
- Mobile water treatment plants
- Emergency supply package
- Gravity driven membrane filtration (te-mem™ Zero) without electric power consumption.

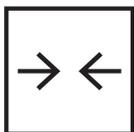


Membrane bundle

Main Advantages

The main advantage of the te-mem™ cartridge is the much better cleaning possibility, hence higher flux.

- Air scour cleaning much more effective, less air required
- te-mem™ cartridge design allows cleaning chemicals to react without dilution
- te-mem™ cartridges can be simply and individually replaced
- Very robust fibres with anti-fouling properties
- High resistance to oxidative chemicals
- Does not require expensive "out of tank" pipework
- Easy access and maintenance
- Extremely compact applications, retrofitting of existing tanks possible



Compact



Cost Effective



DfMA



Resilient



Innovative



Sustainable



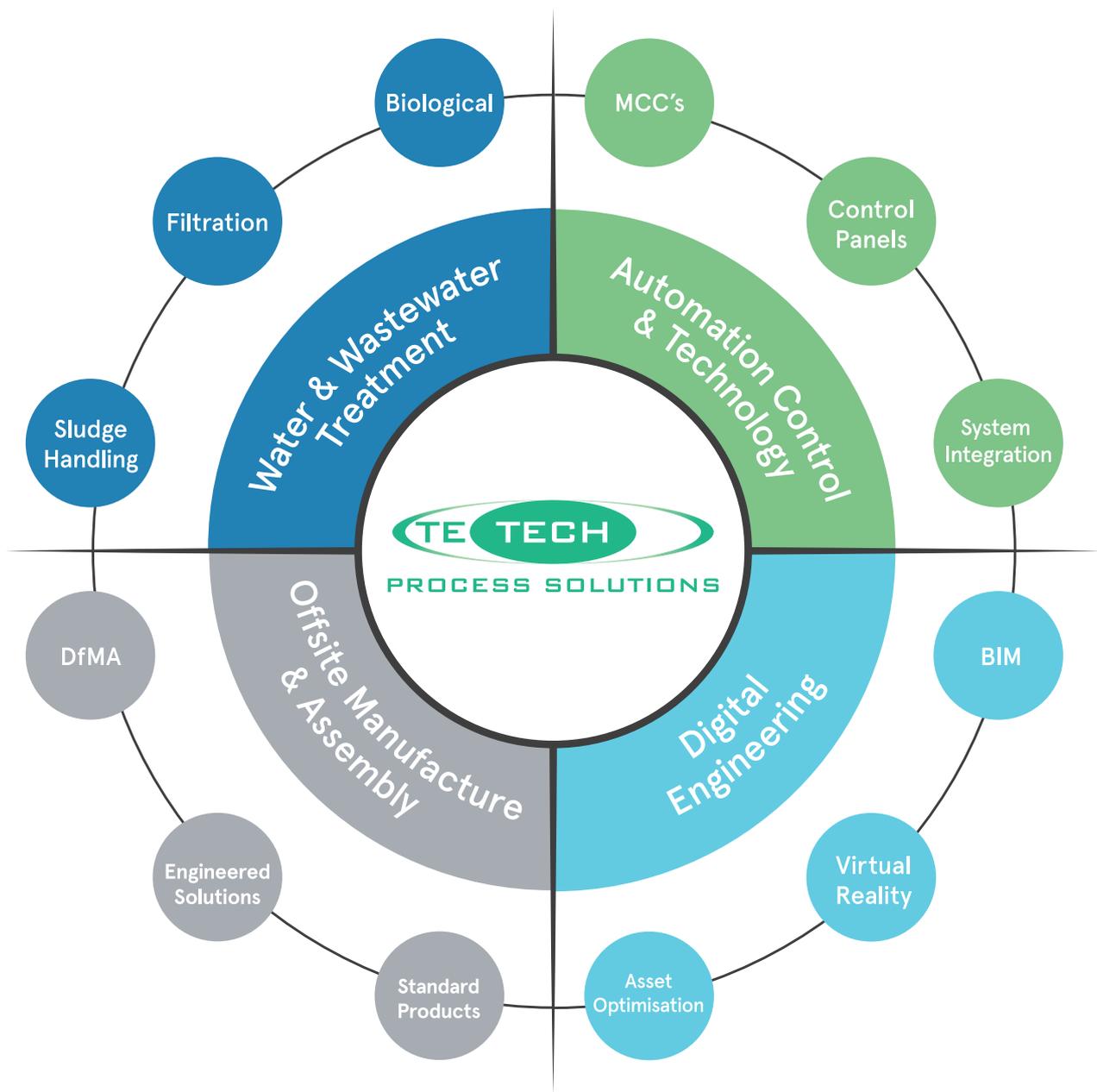
Flexible

WATER &
WASTEWATER
TREATMENT

AUTOMATION
CONTROL &
TECHNOLOGY

DIGITAL
ENGINEERING

OFFSITE
MANUFACTURE
& ASSEMBLY



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