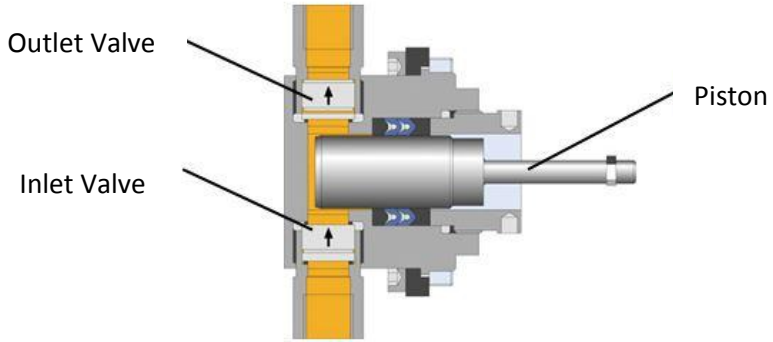
Dosing Technology BATTLE

Endless-Piston-Principle

VS

Piston Pumps



+ repeatability over 99% + dosing accuracy ± 1% + pulsation free + reversible flow direction + high viscosity + low shear dosing + volumetric dosing + valveless, self-sealing + solids dosable + independent of viscosity, time, pressure	- sensitive against dry running

+ high pressures possible	- many moving parts - piston filling times affect cycle times - high maintenance costs - complicated system design which needs many regulatory elements - high pulsation - shear sensitive and abrasive materials are difficult to dispense

Dosing Technology BATTLE

Endless-Piston-Principle

+ low to high viscosity media dosable through special dosing geometry
+ low shear dosing
+ continious dosing
+ pulsation free
+ easy cleaning
+ solids dosable
+ self-sealing system
+ compatible with all media
+ dosing accuracy ± 1 %
+ dosage independent of time, temperature and pressure

- sensitive against dry running

VS

Membrane Pumps

+ less maintenance effort
+ save for dry running

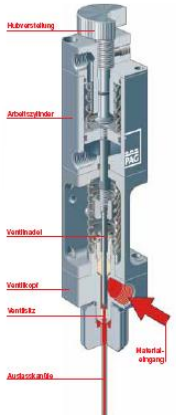
- not suitable for high pressures
- dosing quantity depends on time, temperature and pressure
- pulsation through piston stroke travel
- dosable materials depends on membrane design
- not compatible with all media
- no continious dosing

Dosing Technology BATTLE

Endless-Piston-Principle

VS

Needle Valve



+ low to high viscosity media dosable through special dosing geometry + continious dosing + pulsation free + easy cleaning + solids dosable + self-sealing system + compatible with all media + dosing accuracy ± 1 % + dosage independent of time, temperature and pressure	- sensitive against dry running

+ good cycle times + cheap	- many moving parts - dosed quantity independent of time, temperature and pressure - pulsation through pneumatic stroke - wear out through abrasive materials - sealing not suitable for all medias - no continious dosing

Dosing Technology BATTLE

Endless-Piston-Principle

+ low to high viscosity media dosable through special dosing geometry
+ low shear dosing
+ continious dosing
+ pulsation free
+ easy cleaning
+ solids dosable
+ self-sealing system
+ compatible with all media
+ dosing accuracy ± 1 %

- bigger size

VS

Peristaltic Pumps

+ gentle conveying
+ save against dry running

- limited life time of the tube
- pulsation depending on the building design
- no continious dosing
- contamination through wear of the tube possible
- less precise due to wear out of the tube
- not compatible for all media

Dosing Technology BATTLE

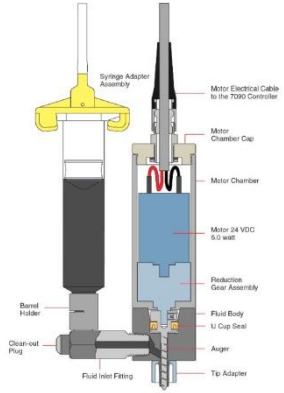
Endless-Piston-Principle

+ low to high viscosity media dosable through special dosing geometry
+ low shear dosing
+ dosed quantity proportional to the speed
+ dosed quantity independent of supply pressure
+ easy cleaning
+ fillers dosable
+ self-sealing system
+ dosing accuracy ± 1 %

- sensitive against dry running

VS

Auger Valve



+ high viscosity up to pasty materials

- low viscosity not dosable because of openings in the design
- high shear forces
- dosed quantity is not proportional to the speed
- dosed quantity depends on the supply pressure
- high cleaning effort
- no fillers dosable
- no self-sealing system
- dosing accuracy ± 5 %

Dosing Technology BATTLE

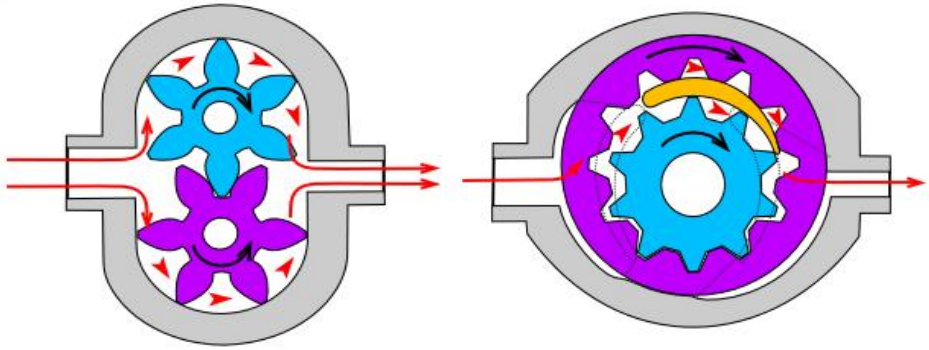
Endless-Piston-Principle

+ repeatability over 99%
+ dosing accuracy ± 1%
+ pulsation free
+ reversible flow direction
+ high viscosity
+ low shear dosing
+ continuous dosing
+ valveless
+ solids dosable
+ independent of viscosity, time, pressure

- low pressures

VS

Gear Pumps



+ very cheap
+ high pressures
+ reversible flow direction

- not suitable for abrasive fluids
- gap stream
- low repeatability
- very high shear
- valves necessary
- viscosity-dependent
- linear conveyance only with increased effort and readjust possible

Dosing Technology BATTLE

Endless-Piston-Principle

VS

Time-Pressure-System

+ repeatability over 99% + dosing accuracy ± 1% + pulsation free + reversible flow direction + high viscosity + low shear dosing + continuous dosing + valveless + needs only power, low energy costs + solids dosable + independent of viscosity, time, pressure	- price - not suitable for CA adhesives

+ very cheap + suitable for single-use applications	- many small items - valves are always necessary - always needs compressed air and electricity, increased energy costs - difficult control of the quantity - low dosing accuracy of ± 5% - highly variable dosing results by viscosity and temperature changes