



# UP AND DOWN AGITATION

Why LAMBDA replaced the traditional rotational stirring with a unique and efficient agitation?

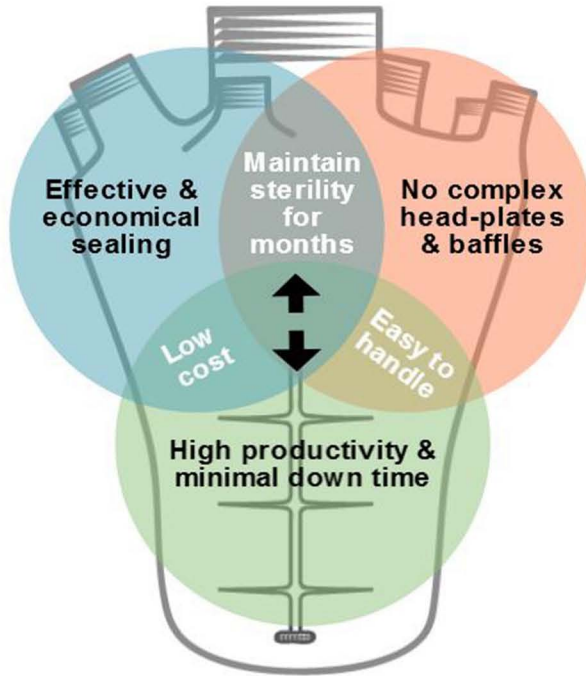
## Advantages of LAMBDA's non-rotational agitation



Quality sealing allows to maintain sterility easily for long continuous runs



Increased cell viability with optimal bio-mimicking "fish-tail" agitation



Saves money, simplifies the setting up process and reduces cleaning time

Efficient mixing for all types of culture: bacterial, mammalian & fungal cells

Cells are not destroyed due to shear stress

Optimal oxygen transfer (OTR) without air flooding

### Major problems with ROTATIONAL STIRRING

Induces hydrodynamic shear stress to cells

Destructive effect on culture growth

Unreliable seals to close the moving motor axis and immobile vessel

High risk of contamination

Increased handling complexity, downtime, foaming and complex internal environment

Air flooding

Vortex controlling baffles complicate the set-up & cleaning process

Inefficient gas & mass transfer in the media