

Comparison of Perfusion Systems by KTH, Royal Technical University of Stockholm.

| Properties | Spin filter | ATF | Hollow fibre TFF | Centritech | Acoustic settler | Inclined settler |
|--|-----------------|------------|------------------|------------|------------------|------------------|
| Fouling (or poor operation) | -- | + | -- | + | + | - |
| Simplicity of operation | + | ++ | ++ | - | + | + |
| Easiness to optimise the operation parameters | | ++ | ++ | - | - | -- |
| Easiness to obtain and maintain sterility | ++ | ++ | ++ | + | ++ | + |
| Scalability | | ++ | | + | - | |
| Possibility for re-sterilisation | yes if external | yes | yes | yes | yes if external | yes if external |
| Residence time of cells in separator and connection tubing | 0 if internal | 1 – 2 min* | ≅ 10 sec. | 2 – 9 min | 3 – 14 min | 10 – 20 min |
| Running cost | + | - | - | - | + | + |
| Purchase cost | + | + | + | - | + | + |

* Residence time for ATF excludes the fact that the media and cells are in fast equilibrium (5-10seconds) with the bioreactor, so do not experience a different environment unlike with other external systems such as Cell Settlers or Centrifuges.

Table reproduced courtesy of Veronique Chotteau, KTH, Stockholm.