

Rotational Tissue Processors are 7x as Efficient when compared to Tidal Agitation Tissue Processors



Rotational and Tidal Agitation Fluid Exchange in Comparison of Tissue Processors

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Tissue processor design facilitates the replacement of water-based fixatives through dehydration, clearing, and infiltration resulting in a paraffin-infiltrated tissue sample. Traditional tissue processing is timeconsuming, frequently taking up to 10 or more hours to complete a cycle. As a result, the tissue processing step is often the most significant workflow bottleneck within the histology laboratory. Efforts to speed up tissue processing have resulted in an innovative technology known as rotational agitation (vs. traditional processing of tidal agitation). In rotational tissue processors (RTP), rotational agitation is performed at conventional processing temperatures and without microwaves, offering the advantages of traditional processing in a fraction of the time. This study focused on a series of measurements designed to compare the two methods and clearly show the benefits of rotational agitation by providing an overall seven-fold improvement in fluid exchange efficiency.



The Revos tissue processor's design is optimized for both routine and rapid processing.

The Rotational tissue processor (RTP) is superior in all ways to the tidal agitation processor. The RTP processor is seven times more efficient than the tidal agitation processor at passing fluid. It is also 5 times large in turbulence and vorticity, which could be used as a measurement of the amount of mixing that occurs within the cassettes.

Rapid processing

The Revos tissue processor's unique, **canted chamber enhances reagent distribution, reduces tissue processing time**, and allows for **high-quality processing results**.



Volume Flow Rate Calculations of a Cassette

Rotational Tissue Processor Machine	Tidal Agitation Machine
<p>Drainage Flow Rate</p> <p>Cassette Volume = 3721mm³</p> <p>Drainage Cycles = 8 cycles/min</p> <p>Volume Flow Rate = 496 mm³/sec</p>	<p>Drainage Flow Rate</p> <p>Cassette Volume = 3721mm³</p> <p>Drainage Cycles = 0.05 cycles/min</p> <p>Volume Flow Rate = 3 mm³/sec</p>
<p>Velocity Flow Rate</p> <p>Cassette Area = 709 mm²</p> <p>Average Flow Velocity = 65 mm/s</p> <p>Immersion Time = 40%/cycle</p> <p>Volume Flow Rate = 18434 mm³/sec</p>	<p>Velocity Flow Rate</p> <p>Cassette Area = 709 mm²</p> <p>Average Flow Velocity = 4 mm/s</p> <p>Immersion Time = 100%/cycle</p> <p>Volume Flow Rate = 2836 mm³/sec</p>
<p>Total Volume Flow Rate = 18930 mm³/sec</p>	<p>Total Volume Flow Rate = 2839 mm³/sec</p>

The Revos tissue processor's design is optimized for both routine and rapid processing.

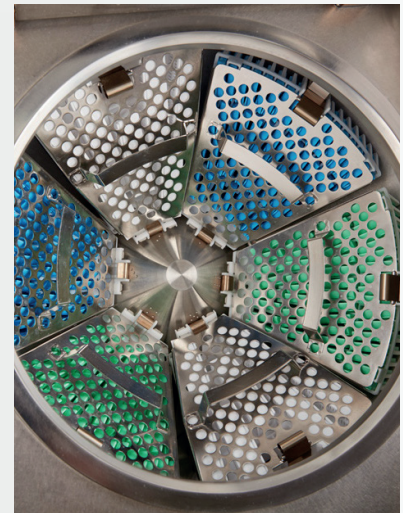


Figure 1. It can be seen from the calculations, that volume flow rate in the Rotational tissue processor (RTP) is far superior to the Tidal Agitation tissue processor, and is almost seven times larger. We could then imply that the RTP processor is seven times as efficient as the tidal agitation processor machine.

Epredia Revos Tissue Processor

- Quality
- Consistency
- Ease of use

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