Microfluidics™

Application Note

Microfluidizer® Technology – How it scales up

FROM LAB SCALE EQUIPMENT

INTRODUCTION

Microfluidizer® processor technology is unique in that all the results achieved on a lab scale unit are completely scalable to a pilot or production scale unit.

TO FULL PRODUCTION SCALE EQUIPMENT

Microfluidizer® Technology – How it scales up

A MODEL FOR EVERY APPLICATION

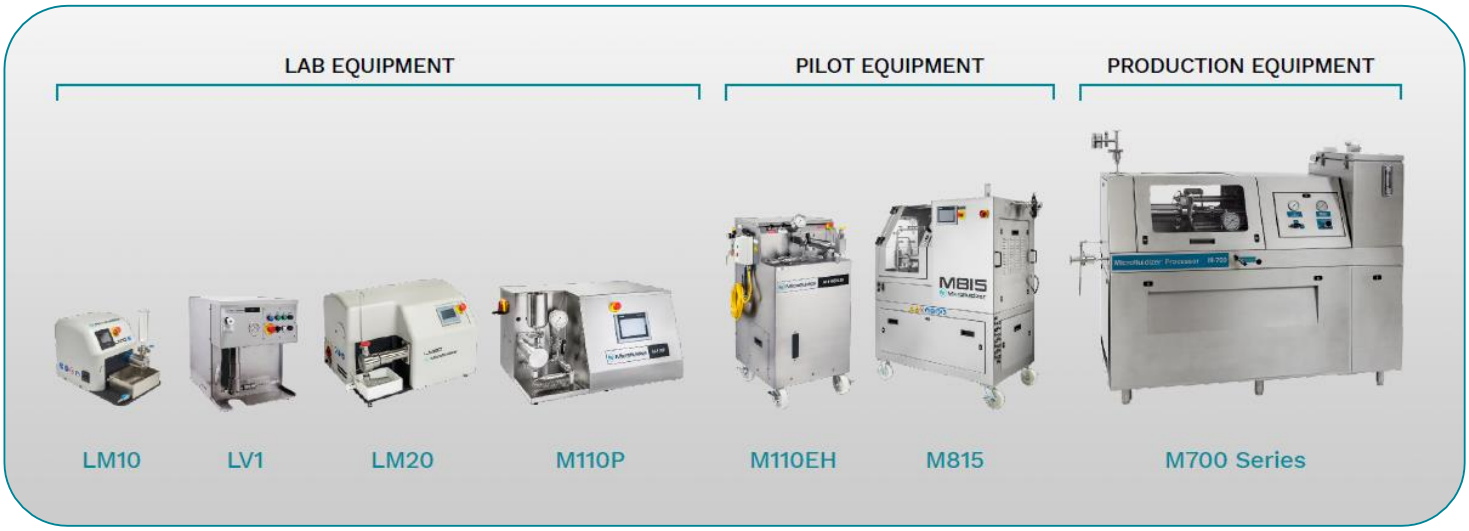
With the extensive range of Microfluidizer® Processors available, it ensures that there is a machine for every application need, from the lab scale to full production scale capabilities.

Achieving success in the lab is only valuable if it can be reliably repeated irrespective of scale. By utilizing a linear scale-up method, users are guaranteed to achieve uniquely consistent results with Microfluidizer® technology.

SAME PROCESSING TECHNOLOGY

All models contain the same fixed geometry Interaction Chamber™ design. This is what produces the linearly scalable capability.

Whatever the volume, the same results can be achieved from lab to manufacturing in batches from just 1mL to thousands of liters.



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A MODEL FOR EVERY APPLICATION

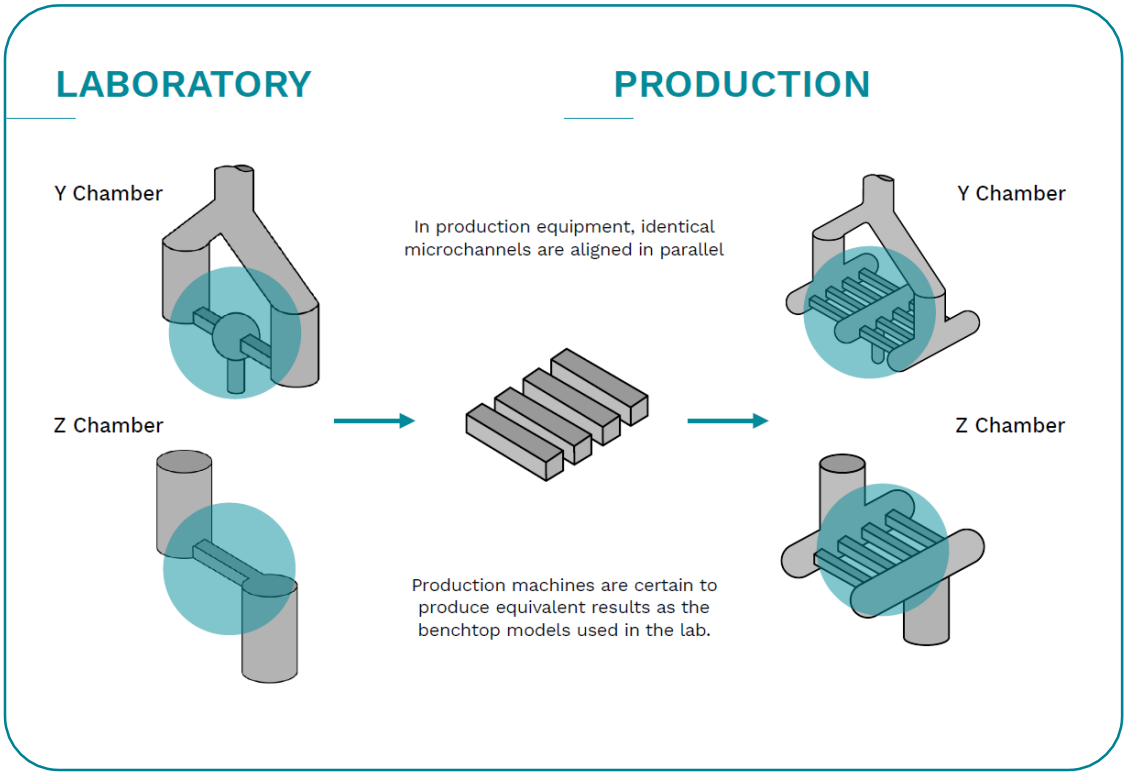
Results are reliably scaled up because the same Interaction Chamber™ designs are contained within every model.

Scaling is possible by adding in multiples of the same size and shape of microchannel. In the production machines the identical microchannels are aligned in parallel, no matter whether the Y-Chamber or Z-Chamber formation is used.

Reproducible results are achievable, batch to batch, day after day.

INTERACTION CHAMBER™ SELECTION

In general, the Y-Chamber is recommended for emulsification, whilst the Z-Chamber is recommended for dispersion of a solid into a liquid and also for cell disruption.



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PROVEN RESULTS

Figure 1 demonstrates that the results, in terms of particle size and distribution, achieved with the M110EH Lab scale model are replicated with the M7250 Production scale model.

Lab Scale
M110EH 300mL/min

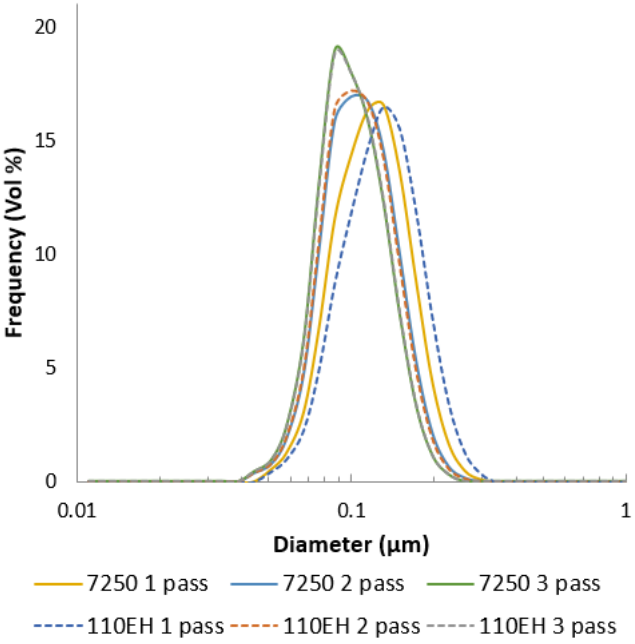

Figure 1 – Comparison of particle sizes and distributions achieved with the 110EH Lab scale model to those achieved with the 7250 Production scale model

Production Scale
M7250-30 EH 5L/min