



# Laboratory & Pilot Mixers

for Industrial Mixing Applications

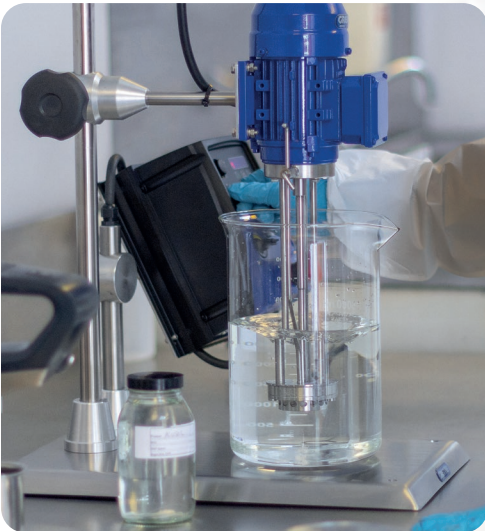
## What makes laboratory mixers so important?

Laboratory R & D is a vital step prior to bulk processing and ensures:

- Product meets customer requirements
- The formulation is suitable for bulk production
- Product has consistent properties regardless of batch size
- Production cost is consistent and predictable

Leading to clear commercial advantages:

- Flexible batch sizes
- Maximise availability, minimise inventory
- Speed to market with new products
- Rapid up-scaling of new products
- Process validation



## What are the key features of Greaves Laboratory mixers?

- Scalable to Bulk, delivering same process conditions as corresponding full scale Greaves mixers
- Sector leading rotor / stator gap tolerances, maximising shear rate and optimising bulk cycle times
- Available with Full Vacuum, Pressure, Thermal and Agitation options to emulate corresponding production systems
- Available in a range of mixing volumes from 0.5L to 100L Pilot systems
- Alternate head /baffle/impeller options to optimise flow and shear
- CE safety switchgear and electric lift options
- ATEX variants to Zone 0 & Zone 20 IIC T4



## High Speed Dispersers

Laboratory High Speed Dispersers are commonly used to wet out powders into liquid bases. The high speed serrated impeller creates a vortex which ensures powders are rapidly and evenly dispersed without agglomeration.

By determining the optimum serrated impeller / vessel ratio in the laboratory product, formulations can be confidently upscaled to bulk without further adjustment.



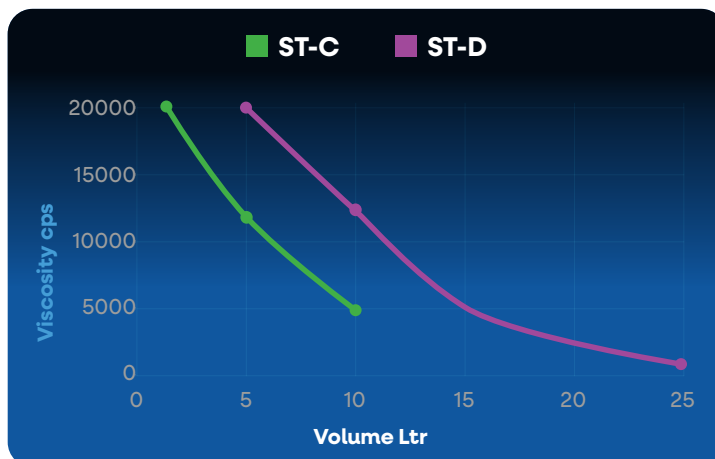
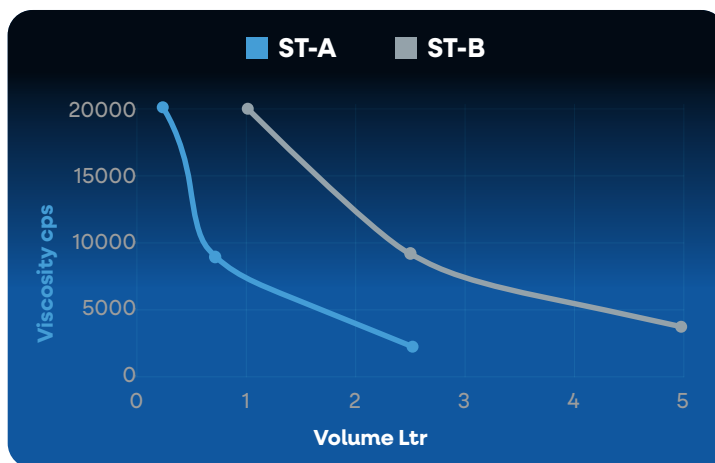
Laboratory / Pilot Scale Dispenser	kW	Speed (RPM)	Capacity (Litres)
ST-A	0.18	6000	Refer to graph ST-A
ST-B	0.18	6000	Refer to graph ST-B
ST-C	0.37	6000	Refer to graph ST-C
ST-D	0.75	6000	Refer to graph ST-D

### Benefits

- Laboratory formulations reliably up-scale to bulk production
- Easy cleaning, hygienic construction
- Low wear, low maintenance
- High Viscosity Capability
- Variable Speed with digital display
- Viscosity monitor (amps display)
- CE compliant safety system

### Options

- Interchangeable serrated impeller blades
- Product temperature display
- Manual or Electric lift
- Quick release interchangeable mixer tools
- Vacuum and pressure vessels
- Thermal vessel jackets
- Pneumatic drive
- ATEX rated



## High Shear Mixers

Laboratory High Shear Mixers follow the same principles as their full scale counterparts. The combination of high speed and close rotor / stator tolerance creates a high energy zone where liquid / liquid and liquid / powder mixtures are rapidly homogenised.

The mixer head geometry, vessel capacity and rotor speed are designed to create the same mixing and shear conditions as the corresponding full scale installation. This ensures that formulations created at Lab scale can be applied in production without adjustment.



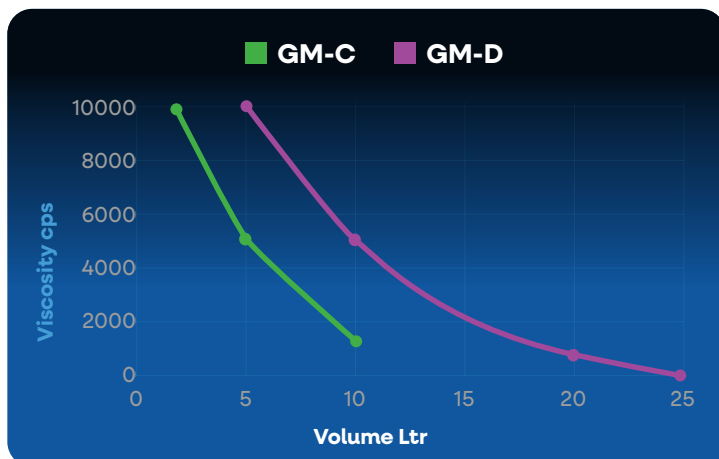
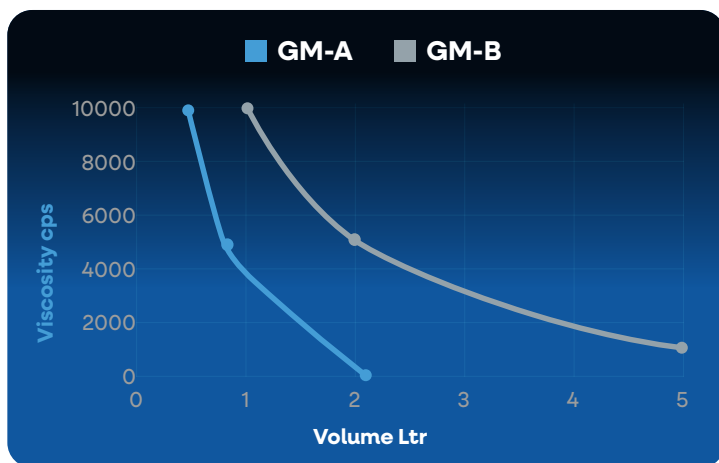
Laboratory / Pilot Scale Dispenser	kW	Speed (RPM)	Capacity (Litres)
GM-A	0.18	6000	Refer to graph GM-A
GM-B	0.18	6000	Refer to graph GM-B
GM-C	0.25	6000	Refer to graph GM-C
GM-D	0.75	6000	Refer to graph GM-D

### Benefits

- Laboratory formulations reliably upscale to bulk production
- Easy cleaning, hygienic construction
- Low wear, low maintenance
- High Viscosity Capability
- Variable Speed with digital display
- Viscosity monitor (amps display)
- CE compliant safety system

### Options

- Interchangeable mixer heads
- Product temperature display
- Manual or Electric lift
- Quick release interchangeable mixer tools
- Vacuum and pressure vessels
- Thermal vessel jackets
- Pneumatic drive
- ATEX rated



## Lab & Pilot Mixers Engineered to your Specifications

For particularly challenging process requirements, Greaves offers custom laboratory mixing solutions.

**These include:**

- Ultra-high viscosity
- Shear sensitive products
- Operator constraints
- High risk processes



Dual Action Lab Dispenser

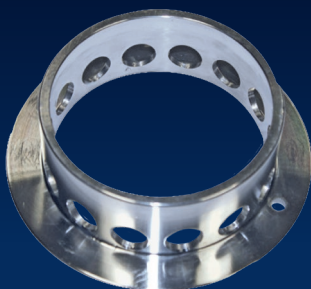


Full Vacuum Jacketed Vessel Dispenser

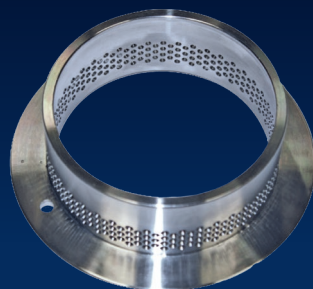


High Viscosity Blender

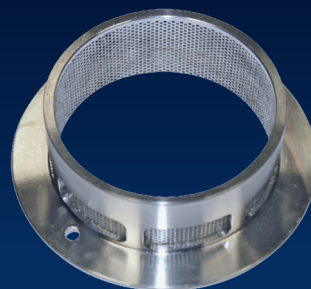
## High Shear Mixer Shear Stator Options



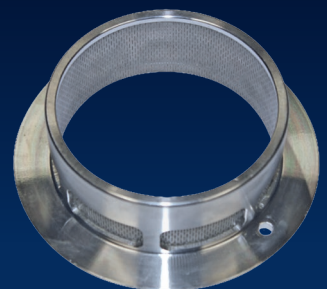
General purpose shear stator



Emulsification shear stator



1.5mm shear stator



500 micron shear stator

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