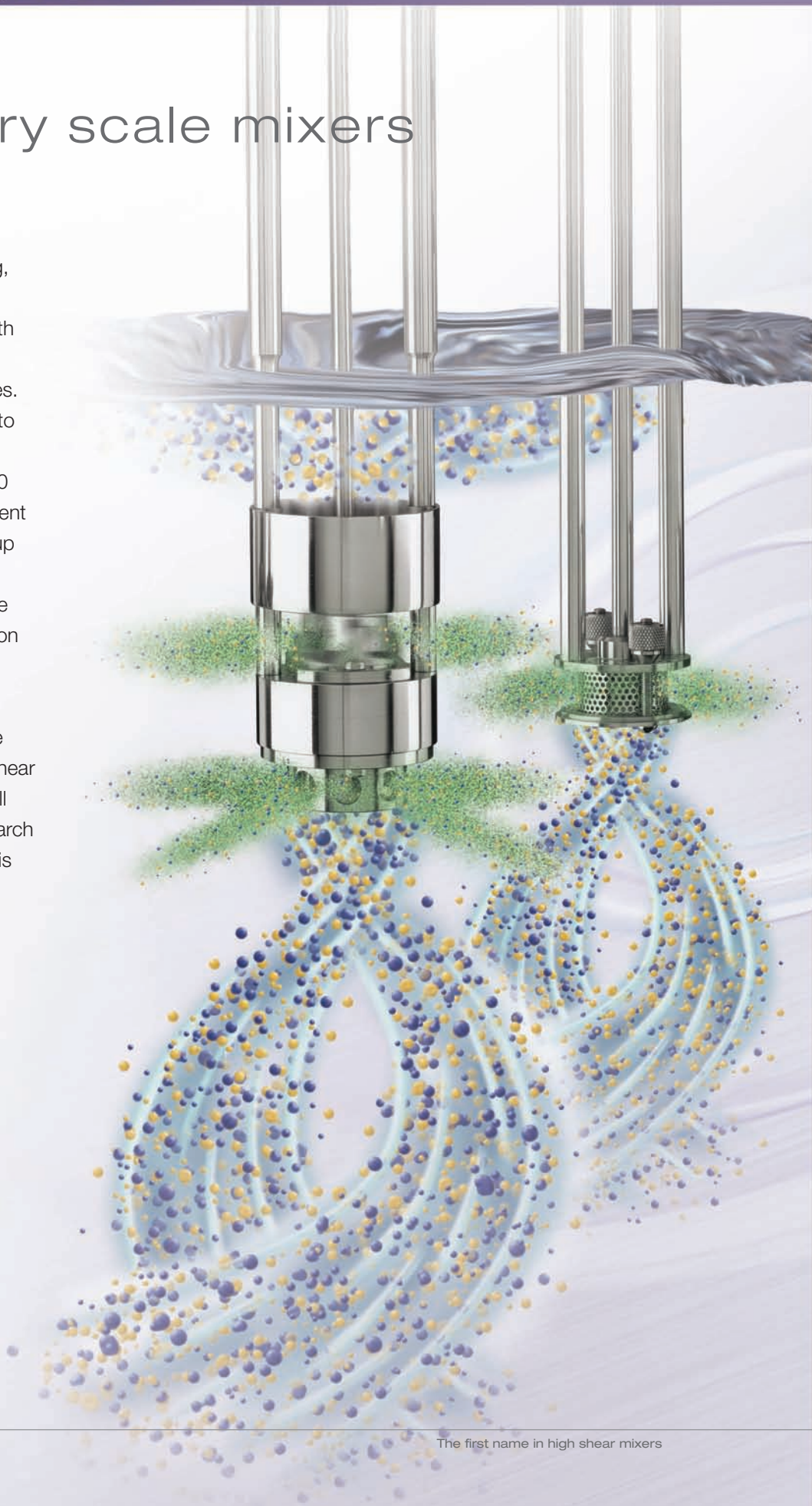
Laboratory scale mixers

Silverson Laboratory mixers are suitable for the widest range of applications - mixing, emulsifying, homogenising, disintegrating, dissolving - with an efficiency and flexibility unmatched by other machines. With a capacity from 1ml up to 12 litres and the ability to mix in-line with flow rates up to 20 litres/minute, they offer excellent reproducibility when scaling up and provide an accurate and easy means of forecasting the performance of larger Silverson machines under full-scale working conditions.

The Silverson L5 Series is the latest development in High Shear Laboratory mixing, ideal for all routine laboratory work, research and development, QA analysis and small scale production in all industries.



Models L5M, L5T & L5R

L5M Mixer

The multifunctional L5M Model features touch screen control with digital tachometer, programmable integral timer and amperage display, all accessed via the Mode button. This level of instrumentation is invaluable for applications where process validation and reproducibility are required.

Motor unit

Robust two-piece casing designed for cool, quiet and continuous operation.

Motor 250W (0.33hp) 220 volt, single phase (110 volt optional), 50/60 Hz. Nominal maximum speed 8000 rpm (6000 rpm under full load).

Speed control

Infinitely variable electronic speed control with integral on/off switch.

Electric rise & fall bench stand

The mixing unit may be effortlessly raised and lowered using the push-button controls on the motor unit.

Construction

All wetted parts are in grade 316 stainless steel with the exception of the bush which may be bronze alloy or PTFE.

The L5 is finished in a tough, easy to clean, non-chip white nylon coating. The flat base is covered by a removable non-slip mat which is resistant to most solvents.

L5T Mixer

Identical to the model L5M but supplied with tachometer only.

L5R Mixer

Identical to the model L5M but supplied without the tachometer, amperage display or integral timer.

Interchangeable mixing assemblies

Standard assembly (two arm) supplied complete with a General Purpose Disintegrating Head, Square Hole High Shear Screen, Standard Emulsor Screen and Axial Flow Head.

Slotted Disintegrating Heads, Fine Emulsor Screen, Pump Heads and other special heads are available as optional extras.

Capacity - depending on viscosity - up to 12 litres. Mixing unit dimensions – length 290mm (11 1⁄2”), width 57mm (2 1⁄4”).

Tubular assemblies

Suitable for use in narrow-necked containers. A full range of tubular mixing units for processing volumes from 1ml - 500ml is available for L5 models (See page 11)

Mixing assemblies

Silverson offers a range of mixing assemblies for specialised laboratory applications:

Duplex assembly

The Duplex differs from the standard mixing assembly by having two workheads facing in opposite directions; the upper head pulls materials down from the surface of the mix, while the lower head draws material up from the base of the mixing container.

The upper Coarse Tooth Disintegrating Head is designed to chop solid materials into small pieces and then expel them beneath the shroud. The lower workhead simultaneously draws in these partially disintegrated solids and reduces their size further.

This combined use of two workheads makes the Duplex ideal for applications where light or buoyant material (powders, rubbers and polymers, etc.) needs to be drawn down from the surface of a mix and rapidly dispersed. Because of the added movement afforded by the two workheads, the Duplex is also ideal for use on high viscosity materials.

Typical applications

- Rapid solution of rubbers and polymers into lubricating oils, solvents and bitumen for the production of luboils, adhesives and bituminous compounds
- Disintegration and dissolving solid resin for the production of varnish
- Vegetable and meat purée/slurries
- Addition of powders into high viscosity liquids

Tubular mixing assemblies

A series of interchangeable tubular mixing units is available for Silverson Laboratory mixers. The units have capacities from 1-500ml and are suitable for use in narrow-necked containers.

1" tubular

Supplied with interchangeable screw-on, General Purpose Disintegrating Head and Square Hole High Shear Screen or Integral Open-ended Vertical Slotted Disintegrating Head for tissue homogenisation. Interchangeable, screw-on Slotted Disintegrating Heads are available as extras. Capacity, depending on viscosity, 50ml up to 500ml.

3/4" tubular

Capacity, depending on viscosity, 20ml up to 250ml.

5/8" micro

Mixing unit of solid one-piece construction with Integral General Purpose Disintegrating Head or Open-ended, Vertical Slotted Disintegrating Head. Capacity, depending on viscosity, 5ml up to 50ml.

3/8" mini-micro

Capacity, depending on viscosity, 1ml up to 10ml.

In-Line mixing assembly

The In-Line assembly fits on to the model L5 Series Laboratory range and converts it into an in-line mixer/homogeniser.

The centrifugal action of the rotor in the high shear rotor/stator workhead generates a non-positive pumping action which gives a throughput on low viscosity liquids of approximately 20 litres/minute, reducing as the viscosity increases.

The pumping rate can be lowered by reducing the motor speed but it is better to insert a valve in the pipeline on the output side, as reducing the speed also reduces the mixing efficiency. The unit is suitable for use at atmospheric pressure only. It is not recommended for use on abrasive, corrosive or flammable materials.

Ultramix

The Silverson Ultramix is designed for applications which are beyond the capabilities of a conventional agitator or stirrer but do not necessarily require the intense high shear of a Silverson rotor/stator mixer.

Specialised mixers

Sealed unit laboratory mixer

Designed for research and pilot-scale production in the fields of pathology, bacteriology and virology. Complete disintegration and homogenisation of sterile or highly infected tissues is accomplished under conditions of absolute safety, since the mechanical seal excludes airborne contamination and ensures freedom from the risk of infection by aerosols escaping into the surrounding atmosphere.

The efficiency of the machine is such that any type of animal or vegetable tissue, bone, etc. is reduced to a fine homogeneous suspension in a few seconds, with virtually no heat rise.

The motor unit of this machine is a special modification of the L5 Series motor unit. Furnished with a Quick-Release mechanism which permits any of the Sealed Unit Mixing Assemblies listed below to be attached or removed.

Mixing vessels

1.0G - Glass vessel, nominal capacity 1 litre

0.5G – Glass vessel, nominal capacity 500ml

3/4” Flexible Tubular - 225ml glass bottle

5/8” Flexible Micro - 25ml Universal Vaccine vial

3/8” Flexible Mini-Micro - 7ml bijou vial

Stainless steel vessels

SS1 - 1 litre stainless steel container

SS2 - 2 litre stainless steel container

Operation under vacuum

Special SS1 and SS2 sealed mixing assemblies are available for operation under vacuum.

Model L2/Air (Compressed air)

An efficient, lightweight machine powered by an intrinsically safe air motor suitable for use in Atex Zoned/Explosion Hazard areas. The L2/Air Drive Unit is powered by a 0.25 hp, 6000 rpm variable speed motor, which requires 50 psi compressed air supply and consumes 19cfm (540 litres/minute) at full speed. Fitted with speed regulator, muffler, air regulator and gauge, water filter and lubricator. Supplied with manually operated adjustable bench stand. (Not pictured)

Pilot scale mixers

AX series

This series of mixers is designed for small-scale production in pilot plants, research institutes, hospital pharmacies, etc. Light and easily operated, AX series models have a capacity of up to 50 litres.

Model AXR variable speed motor

185W (0.25hp) 220 volt single phase (110 volt optional) 50/60 Hz. Nominal maximum speed 3500 rpm.

Speed control

Infinitely variable electronic speed control with integral on/off switch.

Construction

The Model AXR is finished in a tough, easy to clean, non-chip white nylon coating. All wetted parts in 316L stainless steel.

Model AX3

The Model AX3 features a fixed speed 0.25kW (0.33hp), 3 phase, IP55/Hoseproof, TEFV or ATEX approved Flameproof industrial motor. Variable speed available via an inverter as an optional extra.

More powerful motors allowing a maximum speed of up to 6000 rpm also available.

Model AX/Air

The Model AX/Air is powered by an intrinsically safe compressed air motor suitable for use in Atex Zoned/Explosion Hazard areas.

Bench stand

A spring assisted adjustable bench stand is available for use with all of the AX Series models.

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