

HIGH SHEAR BOTTOM ENTRY MIXERS

S I L V E R S O N

Innovation in High Shear Mixing... A Silverson Tradition

For over 50 years Silverson has specialised in the manufacture of quality High Shear Mixers for processing and manufacturing industries worldwide.

Silverson's new hygienic series of High Shear Bottom Entry mixers are designed to fit into the bottom or side of a mixing vessel. These High Shear mixers are typically used in conjunction with a slow speed anchor stirrer or scraper unit for high viscosity products. The Silverson Bottom Entry mixer gives high shear homogenisation while the stirrer/scraper distributes the homogenised output uniformly through the vessel. This is ideal for high viscosity cosmetic, pharmaceutical and food products.

Bottom Entry mixers can also be used by themselves on low viscosity products and to wet out powders.

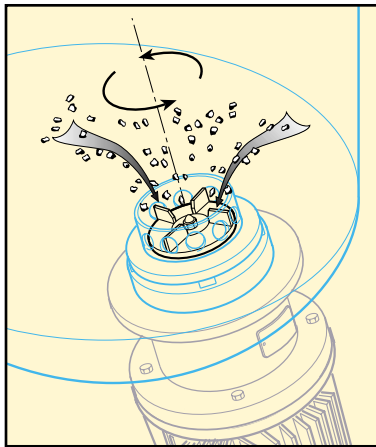
Silverson Bottom Entry mixers offer full compliance with 3A, USDA and GMP requirements.



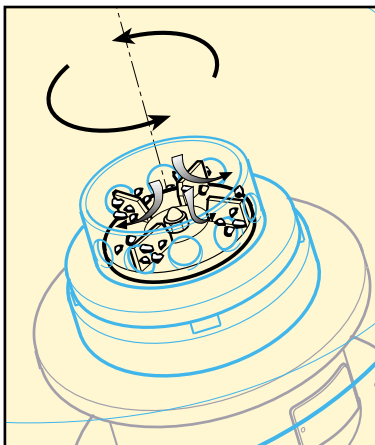
Excellent for use in processing food, cosmetics, toiletries and pharmaceuticals.



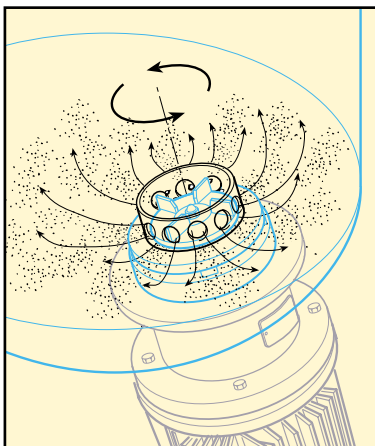
How the Silverson Works



1. The high speed rotation of the rotor blades exerts a powerful suction, drawing liquid and solid materials downwards into the centre of the workhead.



2. Centrifugal force then drives the materials towards the periphery of the workhead where they are milled in the clearance between the rotor and the stator.



3. The materials are subjected to intense hydraulic shear as they are forced out through the stator and projected radially at high speed towards the sides of the mixing vessel. Fresh material is simultaneously drawn into the workhead, maintaining the mixing cycle.

The Silverson Advantage

► **SPEED** The exceptionally rapid Silverson mixing action substantially reduces process times compared with conventional agitators and mixers and can reduce mixing times by up to 90%.

► **VERSATILITY** The advantage of the Silverson approach to mixing is that any one machine can perform duties that in the past may have required several different pieces of equipment.

Unrivalled versatility allows any machine to be adapted to perform the widest range of mixing applications:

► **BLENDING** Rapidly blend liquids of similar or greatly varying viscosities.

► **EMULSIFYING AND HOMOGENISING** Emulsions, typically in the range of 0.5 to 5 microns can be easily achieved.

► **DISINTEGRATION** Disintegrate matter of animal, vegetable, mineral or synthetic origin in a single operation.

► **PARTICLE SIZE REDUCTION** Uniformly mill both solid and semi-solid materials into either solution or fine suspension.

► **GELLING AND SOLUBILISING** Gums, alginates, C.M.C., carbopols, etc. into agglomerate-free solutions within minutes.



Interchangeable Workheads

Easily interchangeable workheads offer great versatility by allowing any machine to be adapted to perform a wide range of mixing operations. Changing from one head or screen to another is quick and simple.



General Purpose Disintegrating Head

Used for a wide range of applications, this head will give the greatest throughput. Suitable for blending liquids of similar or greatly varying viscosities, its uses also include the disintegration of solid and semi-solid materials.



Slotted Disintegrating Head

For the disintegration of fibrous materials such as animal and vegetable tissue, as well as the disintegration and solubilisation of "elastic" materials such as rubbers and polymers.



Square Hole High Shear Screen™

Provides exceptionally high shear rates and is ideal for the rapid size reduction of soluble and insoluble granular solids. It is also suitable for the preparation of emulsions, gels and thickeners and fine colloidal suspensions.

Technical Specifications

Materials of Construction All wetted parts are in 316 stainless steel. Electropolished finish is available as an optional extra.

Motor Specifications TEFV Totally Enclosed Fan Ventilated and EExD Flameproof motors available as standard. Variable frequency drive available as an optional extra.



Mounting Stainless steel flange fitting available as standard. Clamp-on fitting optional for smaller machines.

Sealing

Single mechanical shaft sealing A single carbon/ceramic mechanical shaft seal with viton elastomers is standard. Other face materials and elastomers available as an optional extra.

Double mechanical shaft sealing Double mechanical shaft seals are required when processing products that are abrasive, sticky or viscous or when the system is under vacuum. Sealant flushing systems can be supplied as an optional extra.

Cleaning Clean-in-place design. Simple, easy to clean construction.

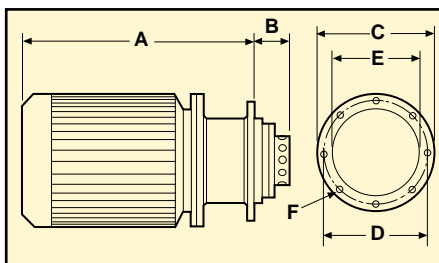
Operating Pressures All standard models are designed for operation on pressures not in excess of 40 psig (2.8 bar). High-pressure units are available upon request.

Ultra Hygienic Model Available with features including:

- Crevice-free construction
- Hygienic metal bellows shaft seal
- Electropolished finish

Diagrams & Dimensions

Larger models available upon request. All dimensions are in millimetres.



MODEL	kW	RPM	TEFV A	EExD A	B	C	D	E	F
BE243	0.75	3000	320	322	67	152	127	102	6x11
BE275	1.1	3000	312	318	77	210	178	128	6x14
BE387	2.2	3000	372	383	80	267	241	190	8x14
BE425	4	3000	432	443	83	267	241	190	8x14
BE450	7.5	3000	512	520	99	267	241	197	8x14
BE500	15	3000	605	605	113	305	267	197	8x17
BE600	22	3000	667	672	120	305	267	216	8x17

The dimensions shown are approximate only and certified diagrams should be used for installation purposes. Silverson reserves the right to change dimensions and specifications without notice.

United Kingdom Corporate Headquarters

Silverson Machines Ltd.
Waterside, Chesham
Buckinghamshire HP5 1PQ
England
Tel: +44 (0) 1494 786331
Fax: +44 (0) 1494 791452
Email: sales@silverson.co.uk

United States

Silverson Machines, Inc.
355 Chestnut Street
East Longmeadow, MA 01028
Tel: +1 (413) 525-4825
Fax: +1 (413) 525-5804
Email: sales@silverson.com



France

Silverson France
12 Boulevard Louise Michel
91030 EVRY CEDEX
France
Tel: +33 (0) 1 60 77 91 92
Fax: +33 (0) 1 60 77 81 88
Email: info@silverson.fr

Asia Pacific

Silverson Machines, Ltd.
70/72 Kian Teck Road
Singapore 628798
Tel: +65 626-21565
Fax: +65 638-80891
Email: silversonasia@pacific.net.sg

Silverson can be found on the World Wide Web at www.silverson.com

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Patent Pending.