

APV Lab Series Homogenisers



Now you can achieve fully reproducible results for emulsions, dispersions, or cell disruption that can be applied to full-scale production with complete confidence.

Plus, you can test sample sizes as small as 100 ml at adjustable pressures up to 2000 bar – the highest pressure of any lab unit available – for unmatched research flexibility and cost efficiencies.

APV Lab Series Homogenisers provide the desired mean particle size and narrow, uniform distribution you need to help you improve existing products and develop new ones.

Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global Fortune 500 multi-industry manufacturing leader.

For more information, please visit www.spx.com.

Compact, versatile design specifically developed for R&D laboratories within the dairy, food, chemical, pharmaceutical, cosmetic and biotech industries

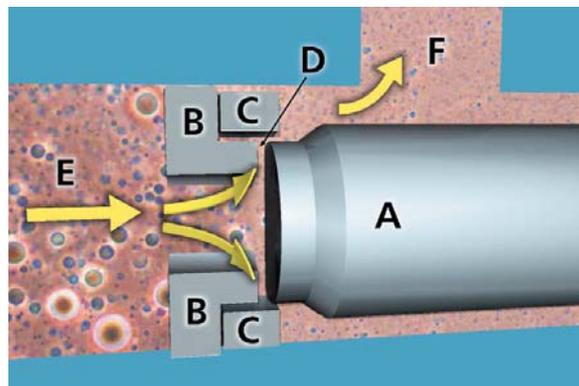
APV LAB SERIES HOMOGENISERS

- Unique, knife-edge dual function homogenising and cell disruption valve helps deliver superior emulsions, dispersions or harvest of intracellular products
- Available two-stage homogenising valve can be specified in either tungsten carbide or ceramics
- Features an easy-to-read digital pressure display and electronic pressure safety system
- Small footprint – suitable for benchtop location
- Field-replaceable and reversible tungsten carbide pump valve seats
- Smooth, quiet and reliable operation

Two units available to meet your laboratory requirements; operating pressures of 1000 bar and 2000 bar with nominal capacities of 22 l/h and 11 l/h respectively. Ideal for a wide variety of emulsions and dispersions. and exits at a pressure sufficient for movement to the next processing stage.

OPTIONAL EQUIPMENT

- Air operated pressure feeder assembly
- Explosion proof design
- Two-stage homogenising valve assembly
- Aseptic cylinder design
- Digital gauge and gauge adapter for second stage pressure readout
- Elastomers and wettables available in alternative material



The theory of Homogenisation

THE THEORY OF HOMOGENISATION

The unhomogenised product (E) enters the valve seat (B) at high pressure and low velocity. As the product flows through the adjustable, close clearance area between the valve (A) and seat (B), there is a rapid increase in velocity with a corresponding decrease in pressure.

This intense energy transition, occurring in microseconds, produces turbulent three-dimensional mixing layers that disrupt the particles at the discharge from the gap (D). The homogenised product (F) impinges on the impact ring (C) and exits at a pressure sufficient for movement to the next processing stage.

HOMOGENISING TECHNIQUES

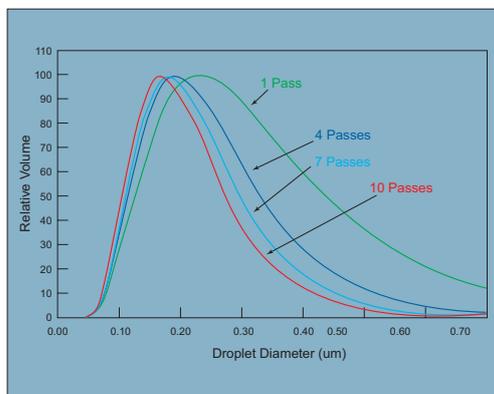
SINGLE-STAGE OR TWO-STAGE HOMOGENISATION:

For processing of emulsions, a single-stage valve assembly may be used; however, the use of a two-stage assembly, where approximately 10% of the total pressure is applied to the second stage, will improve the droplet size reduction of most emulsions.

For processing dispersions, a single-stage valve assembly is usually preferred.

MULTIPLE-PASS HOMOGENISATION:

If an extremely narrow particle size distribution is required, it may be necessary to homogenise the product more than once. This can be done by two or more homogenisers in series or by repeating a pass through the same homogeniser. Using discrete passes through the homogeniser is the preferred procedure for multiple-passing a product. Some examples of multiple-pass products are intravenous emulsions, blood substitutes and prenteral emulsions



Above: The effect of up to 10 discrete passes at 1000 bar on an oil-in-water intravenous emulsion. Each pass results in a shift of the particle size distribution towards smaller droplet sizes.

Typical Product Applications

FOOD/BENERAGE

Beverage emulsion
Fat substitutes
Milk
Sauces



PERSONAL CARE/COSMETICS

Hair products
Liposome emulsions
Nail polish
Skin creams



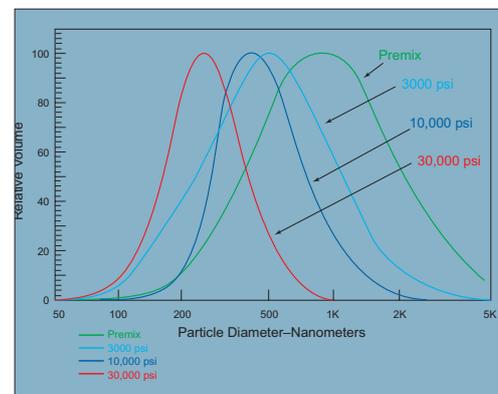
PHARMACEUTICAL/BIOTECH

Cell disruption
Intravenous emulsions
Nutritional supplements
Ointments



CHEMICALS

Inks
Pigment dispersions
Silicone emulsions
Specialty paints and coatings



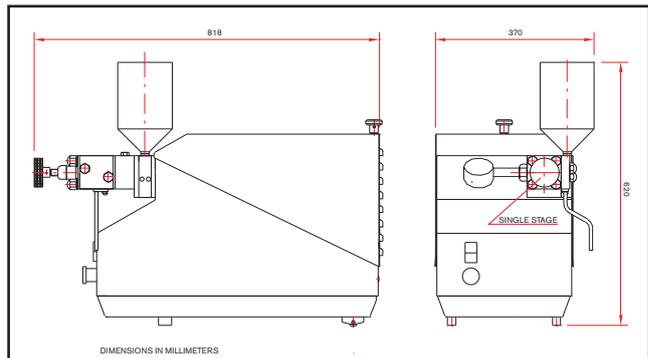
Above: The reduction in average particle size resulting from homogenisation at various pressures.

APV Lab Series Homogenisers



STANDARD FEATURES / EQUIPMENT	MODEL 1000	MODEL 2000
CAPACITY	22 L/H	11 L/H
MINIMUM TEST SAMPLE	150 ML	100 ML
MAXIMUM OPERATING PRESSURE	1000 BAR	2000 BAR
PLUNGER DIAMETER/MATERIAL	14MM / CERAMIC	10MM / CERAMIC
PLUNGER PACKING *	PVDF/EPDM	PVDF/EPDM
O-RINGS/BACKUP RING *	EPDM/POM	EPDM/POM
PUMP VALVE SEAT MATERIAL *	TUNGSTEN CARBIDE	TUNGSTEN CARBIDE
PUMP VALVE	COBALT BASED ALLOY	COBALT BASED ALLOY
HOMOGENISING VALVE/SEAT *	CERAMIC	CERAMIC
DIGITAL PRESSURE DISPLAY	YES	YES
OVER CURRENT PRESSURE SAFETY SYSTEM	YES	YES
MOTOR	TEFC. 3KW, THREE-PHASE/50-60 HZ / 200, 230, 380, 400, 460, 575 VOLTS	TEFC. 3KW, THREE-PHASE/50-60 HZ / 200, 230, 380, 400, 460, 575 VOLTS

*PVDF - POLYVINYLIDENE FLUORIDE, EPDM - ETHYLENE PROPYLENE DIENE MONOMER, POM - ACETAL POLYMER



NET WEIGHT 105 KGS · GROSS WEIGHT 130 KGS · VOLUME 0,5 M³

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