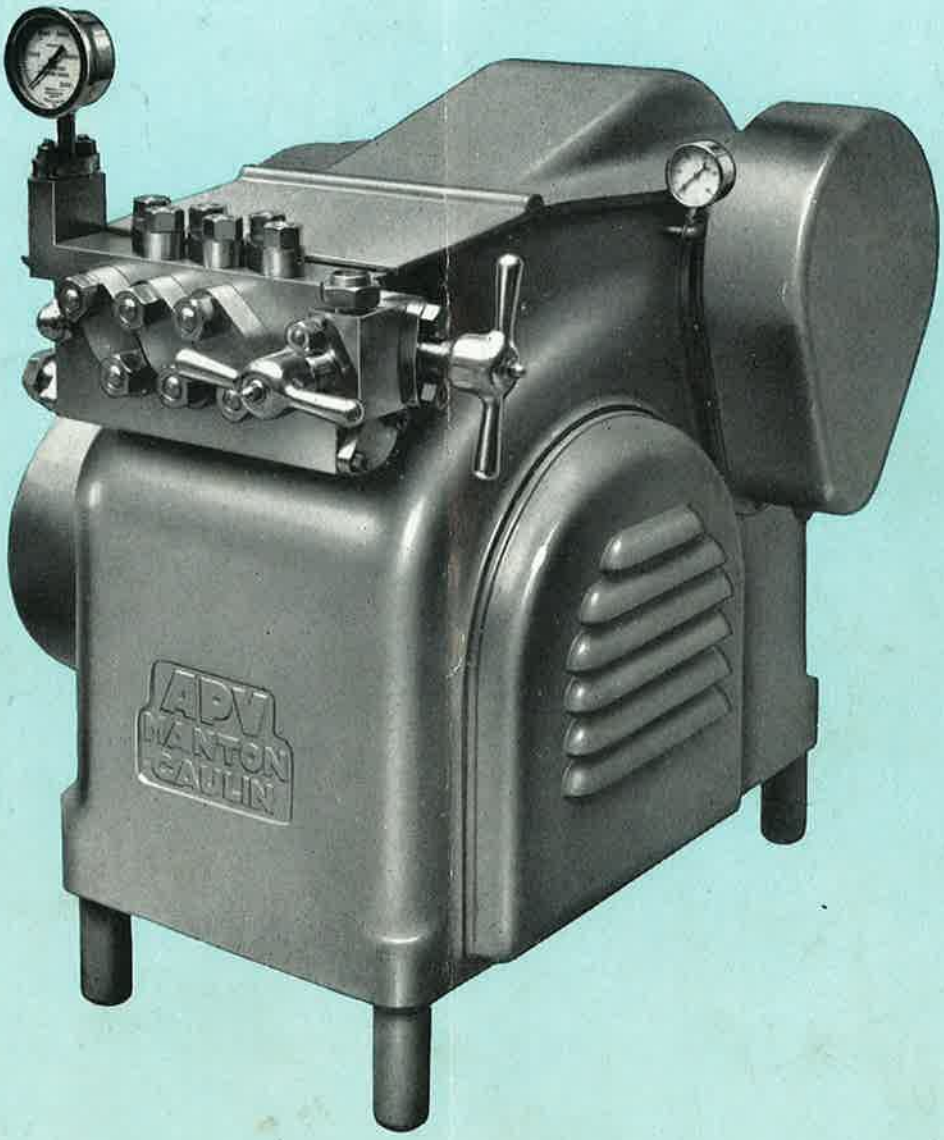
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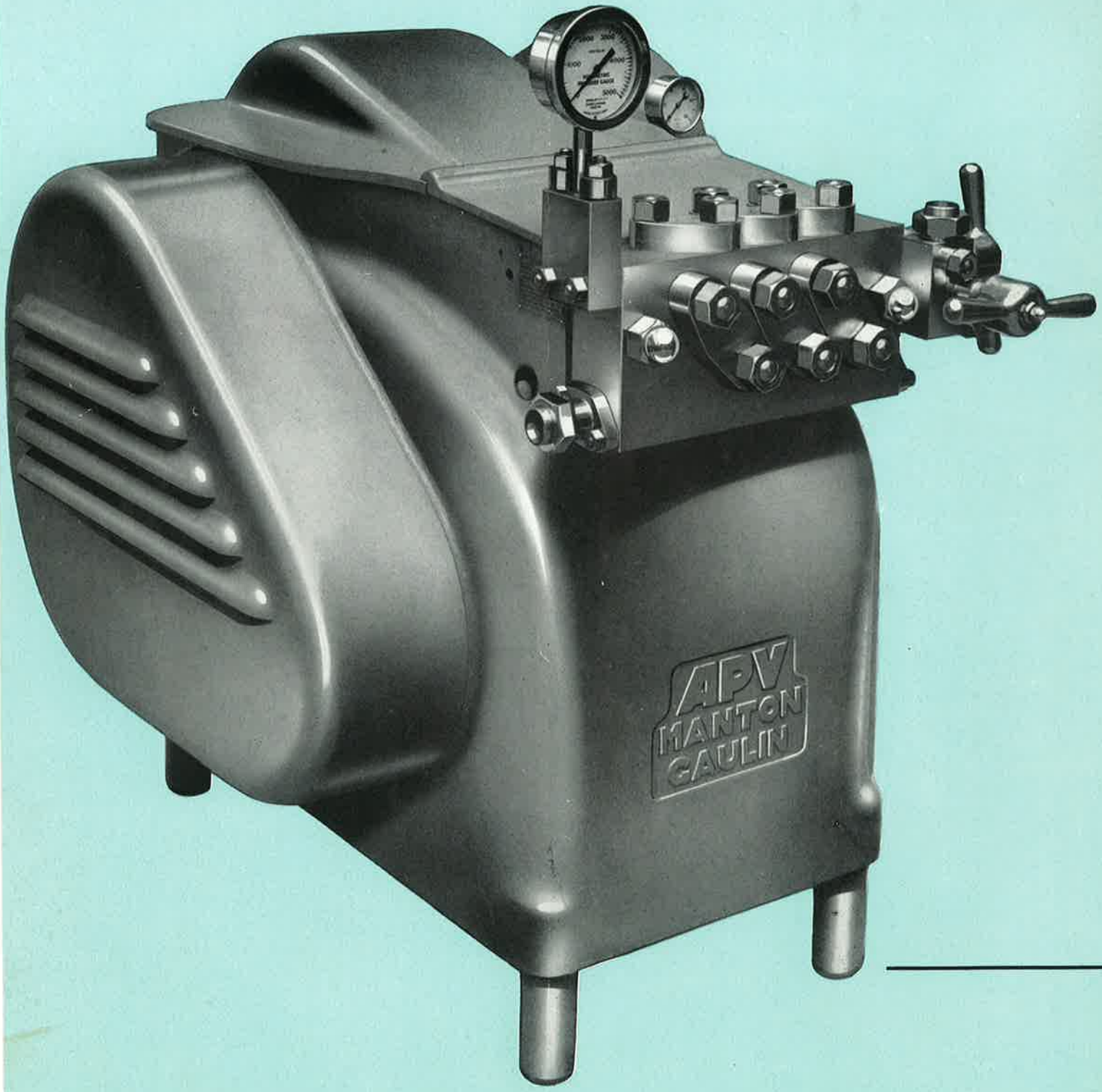
brings you

the World's leading Homogeniser



THE MANTON - GAULIN

THE APV MANTON



- GAULIN HOMOGENISER

The APV Manton-Gaulin Homogeniser is the direct descendant of the original homogeniser. Consequently no other machine of this type has such a long history of development based on experience.

This history is peculiarly international. Originating in France as the Gaulin, it became America's leading homogeniser as the Manton-Gaulin. For some years it has also been made in Great Britain as the APV Manton-Gaulin and it has gained the world's largest sales.

The APV Manton-Gaulin Homogeniser is based on a fundamentally sound design that has proved itself over the years. It is recognised as being outstanding in homogenising efficiency, engineering design and hygienic construction and is unique in using as standard a two-stage homogenising valve of special design to give more effective homogenisation at lower pressures. This means a lower power consumption and lower all-round operating costs.

The construction is exceptionally robust and well balanced, guaranteeing a long life coupled with the utmost reliability. The stainless steel head is specially simple in design and is extremely easy to dismantle and clean. In every way the APV Manton-Gaulin Homogeniser meets the practical needs in the ever increasing applications of homogenisation.

- **Higher homogenising efficiency**
- **Lower operating costs**
- **Robust design and sound construction**
- **Easiest to clean and sterilise**
- **Lower maintenance**

8 REASONS WHY THE MANTON-GAULIN HAS THE WORLD'S LARGEST SALES

1 EASE OF INSTALLATION AND MAINTENANCE

The APV Manton-Gaulin is an extremely compact unit and achieves its results with the minimum of parts, facilitating economy in maintenance, dismantling and cleaning. These parts cannot be confused with each other and thus mistakes in reassembling are avoided. Heavy construction throughout eliminates vibration and the necessity for fastening down, resulting in ease of installation.

2 LOW POWER REQUIREMENTS

The design of the homogenising valves and the triple-throw eccentric shaft enables the homogeniser to operate at maximum efficiency with a speed of only 100-120 r.p.m. This unusually high degree of power utilisation together with the effective lubricating system results in low stresses, less wear and long life. Less power is required to homogenise a given quantity of product than with other designs.

3 MULTIPLE VEE-BELT DRIVE

The electric motor, which is enclosed within the base of the machine for maximum protection, drives the eccentric assembly through a multiple vee-belt, providing a silent, thoroughly reliable drive. The motor is mounted on a rocker plate which makes adjustment of the belt tension easy and preserves the pulley alignment.

4 TRIPLE PLUNGER PUMP

The homogeniser pump is of the triple plunger type, giving perfect balance and freedom from vibration as well as minimising pulsations in the delivering line. The plungers are driven from an eccentric assembly through crossheads. An innovation is the use throughout of powerful herring-bone gears which are made heavier than is usual in this type of machine, thus eliminating loss of efficiency due to worn gears.

5 FORCE-FEED LUBRICATION

A positive pump geared to the drive shaft supplies filtered oil under pressure to all the drive shaft and eccentric shaft bearings, big end and wrist-pin bearings and crosshead bearings. On K6, K12 and K24 type machines a dehumidifying system prevents oil dilution due to condensation. An oil cooler is incorporated in types K12 and K24. A safety switch can be supplied to stop the machine in the event of oil pressure failure.

6 CAPACITY EASILY CHANGED

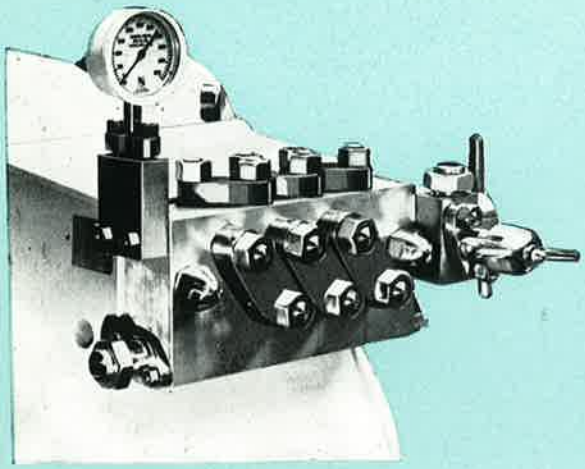
An outstanding feature of the APV Manton-Gaulin homogeniser is the ease with which the capacity may be varied—within the horse-power range of the motor—merely by changing the plungers and cylinder packings for others of the appropriate diameter for the desired output.

7 TWO-STAGE HOMOGENISING VALVE

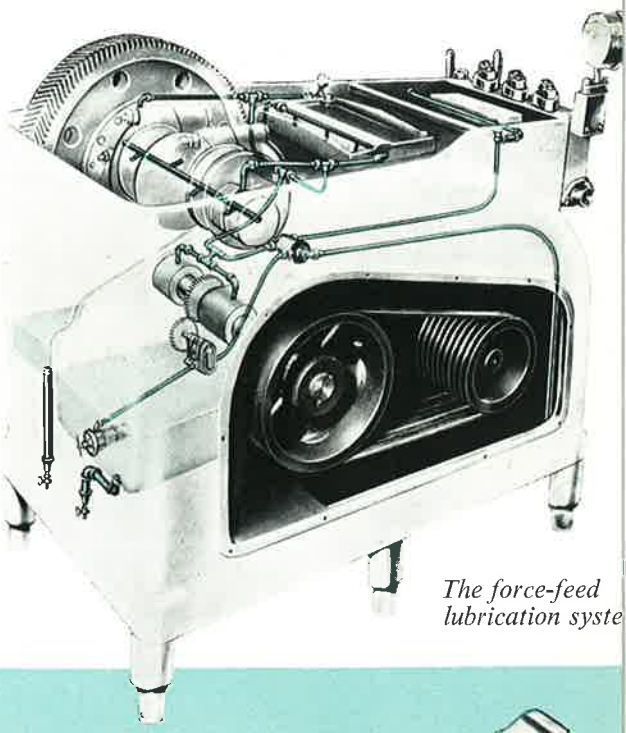
The secret of the efficiency of the APV Manton-Gaulin homogeniser lies in the design of the unique two-stage homogenising valve. This includes two precision-ground stellite valves in series through which the product is pumped at high pressure to impinge on impact rings at right angles to the flow, to produce the most complete and uniform degree of homogenisation. These valves are of solid stellite, and there is, therefore, no possibility of stellite facing becoming detached from its backing.
The homogenisation pressure is quickly and easily controlled by independent adjustment of the two stages of the valve, the over-all pressure being divided between the two stages in the proportions required. Machines are available for maximum pressures of 3,000 or 5,000 lb. per sq. in. to suit the product being processed.

8 HYGIENIC CONSTRUCTION

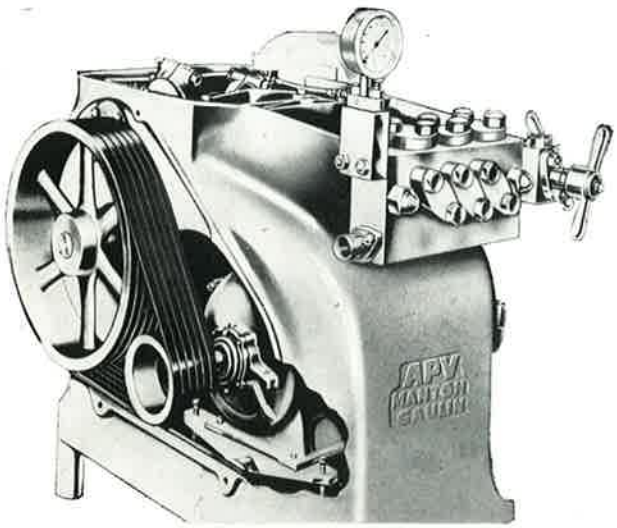
All parts in contact with the product are of stainless steel. There are no inaccessible crevices and cleaning is thus facilitated. Piston packings are in stainless steel and solid nylon with chevron-type intermediate sealing rings. Line connections are arranged for 3A., R.J.T. or S.P. fittings.



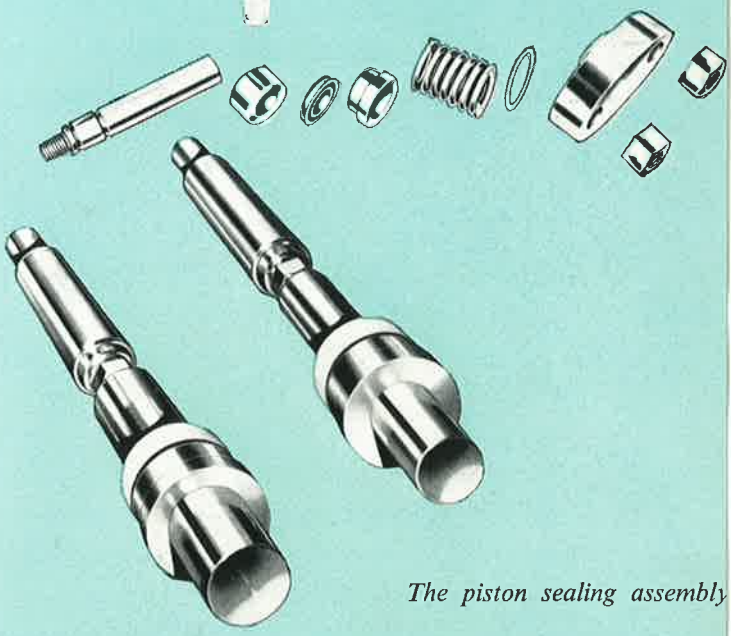
The simplicity of design is illustrated by this photograph of the cylinder block



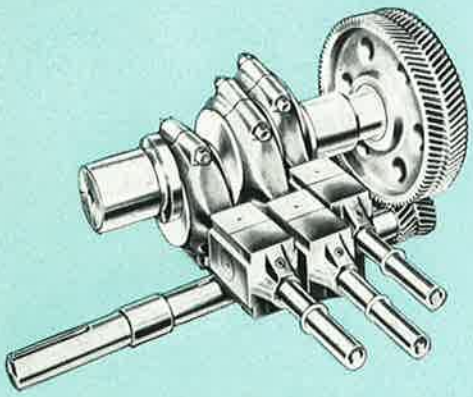
The force-feed lubrication syste



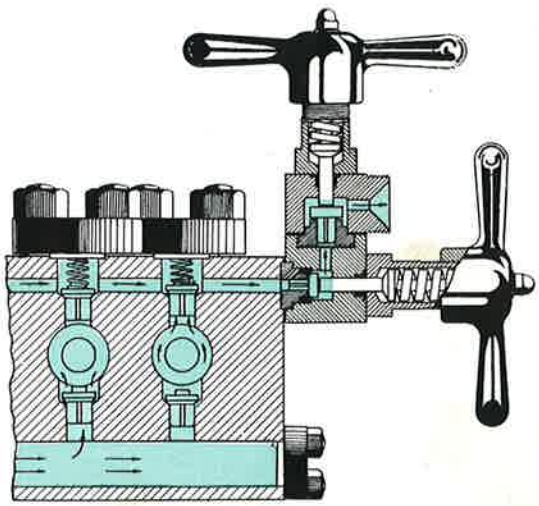
A cut-away photograph illustrating the multiple vee-belt drive



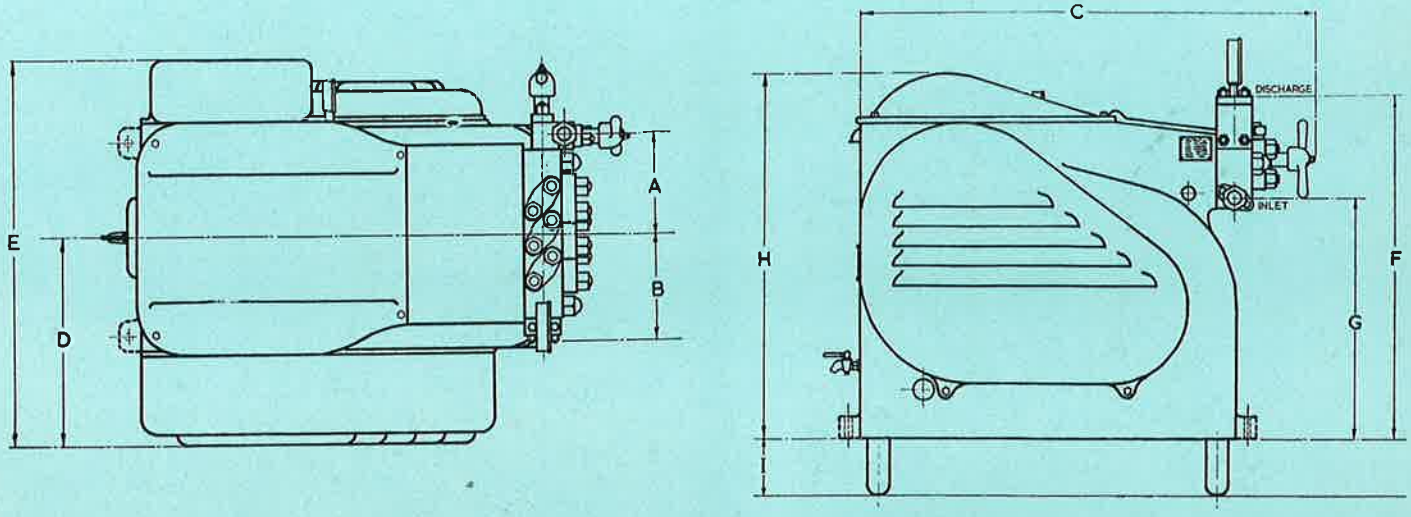
The piston sealing assembly



The triple plunger pump



The two-stage homogenising valve



The APV Manton-Gaulin range of Homogenisers

NOTE : *The figures shown in the capacity range columns refer only to homogenisers fitted for a maximum pressure of 3,000 p.s.i. When employing pressures above 3,000 p.s.i., the output is correspondingly reduced.*

Model No.	Capacity Range		A	B	C	D	E	F	G	H	I	Approx. Weight
	Imp. galls./hr.	litres/hr.	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	ins. *cms.*	lb. *kg.*
K3	60—200	272—910	7 *17·8*	8¾ *22·2*	39 *99·1*	15 *38·1*	29 *83·7*	35⅝ *90·4*	28¼ *71·8*	38¼ *97·2*	4 *10·2*	1,500 *682*
K6	200—550	910—2,497	10 *25·4*	11¾ *29·9*	50 *127·0*	21 *53·3*	39 *99·1*	34⅜ *87·3*	26¼ *66·7*	39½ *100·3*	6 *15·2*	3,400 *1,550*
K12	550—1,000	2,497—4,546	11⅝ *29·5*	13⅛ *33·3*	60 *152·4*	24¾ *62·9*	46¾ *118·8*	38⅜ *97·5*	28⅜ *72·1*	43¾ *111·1*	6 *15·2*	5,200 *2,370*
K24	1,000—2,000	4,546—9,086	13¼ *33·7*	15¼ *38·8*	76 *193·0*	23⅜ *59·4*	50½ *128·3*	42½ *108*	32½ *82·6*	52½ *133·4*	7 *17·8*	9,100 *4,140*

★ **A "Minor" model, with a capacity of 22 g.p.h. at pressures up to 5,000 p.s.i., is also produced and is ideally suited for pilot plant work or small scale production.**

Construction and Operation

The APV Manton-Gaulin homogeniser is a handsome, robust machine and is extremely compact. Four sizes are available, covering the range from 60-2,000 Imperial gallons per hour.

The pumping unit is of three-throw construction and its design ensures the maximum economy in operation, each size requiring a motor of lower horse-power than other models of corresponding capacity. The motor is totally enclosed within the cast homogeniser casing, affording complete protection both for the motor and the plant operators.

The motor bedplate is mounted on a rocker arm and simple jack screws afford a rapid and easy means of adjusting the tension of the multiple vee-belt drive. Alignment is accurate and permanent. The components are exceptionally robust, with large bearing surfaces lubricated under pressure, and in conjunction with the low running speed and perfect balance of moving parts ensure many years of trouble-free service.

The motor drives through accurately cut herringbone gears which eliminate end thrust on the three-throw eccentric shaft. Rugged connecting rods and crossheads transmit the drive to the three accurately ground pump plungers. These operate in the cylinder block through the stainless steel and nylon packings which, in combination with rubber seal rings, are self sealing and self adjusting. They are held in position by stainless steel springs.

The cylinder assembly comprises a single-piece forging of 18-8 stainless steel, machined to precise tolerances. All fittings and parts are interchangeable and the whole unit is designed for ease of stripping and reassembly. Tapered front and top cylinder cap bosses and bevelled cylinder ports eliminate gasket recesses, and cleaning of the whole assembly is particularly easy.

The robustness of the cylinder block and the positioning of the mounting studs along the centre line of the plungers completely eliminates any possibility of cylinder distortion. Smooth trouble-free action is ensured even under the most sustained periods of operation at the maximum homogenising pressure for which any particular machine is designed.

The unique two-stage homogenising valve comprises two precision-ground stellite valves in series, each arranged so that the liquid is forced through an exceedingly fine annular gap under high pressure to impinge on the impact ring, set at right angles to the flow. The very high shearing action produced, together with the explosive impact produces a completely homogenised product of constant uniform quality. The valves are fitted with hand wheels to permit individual precision adjustment, an accurate pressure gauge being provided for this purpose.

Interchangeability of parts is an important feature of this machine, simplifying servicing and the provision of spares. The owner of a Manton-Gaulin homogeniser, whether of American or British manufacture, is assured of a complete and satisfactory spares service.

The whole machine is mounted on four ball-ended feet and the aluminium alloy belt guard, doors and covers are easily removed for instant accessibility. The outer surfaces are of modern streamlined contour and the machine is finished in a durable enamel.

Power Requirements

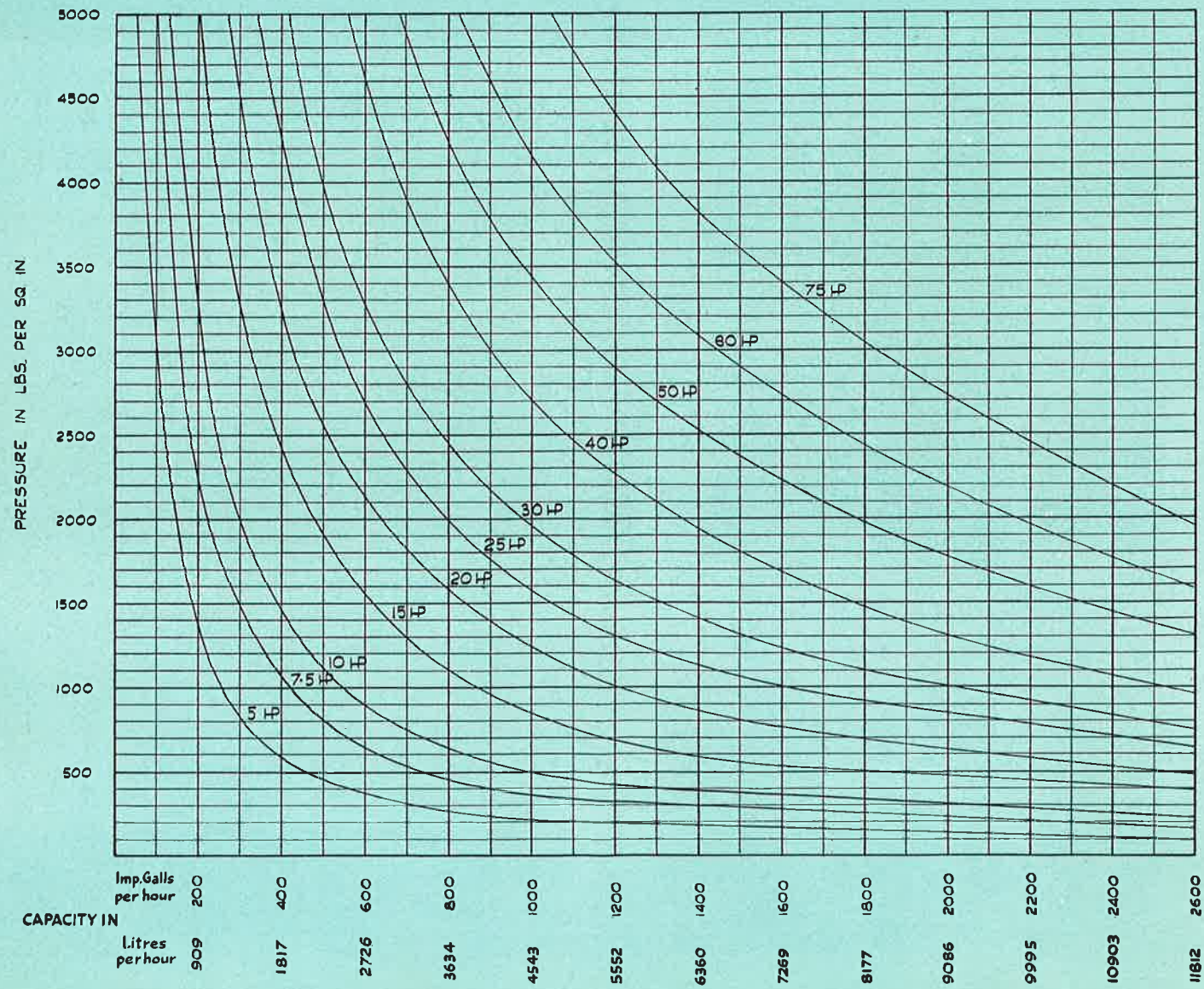
The graph shown below enables the correct size of motor to be determined for any combination of throughput and homogenising pressure.

The capacity of the homogeniser can be matched to that of the bottle filler, cooler, freezer, etc., within the foregoing capacity ranges by selection of suitable plungers and cylinder packings.

In anticipation of an increased output at some future time, it is sometimes advisable to install a homogeniser of larger capacity than immediate output demands, the speed of the machine being reduced to suit its initial rate.

Where the lines corresponding to pressure and capacity intersect between two of the power curves, the larger horse-power should be taken as correct for the application.

POWER CURVES FOR APV MANTON-GAULIN MODEL 'K' HOMOGENISERS



Homogenisation in the Dairy Industry

The homogeniser now holds an established place in the dairy industry. Its use is rapidly increasing, and it is being applied to an ever widening range of products.

Homogenised Pasteurised Milk. The three chief advantages resulting from homogenisation are : finer subdivision of the butter fat ; softer curd ; and improved flavour. The first two bring beneficial effects from nutritional and dietetic standpoints ; the third makes it a more popular drink, particularly amongst children, and increases general milk consumption.

To elaborate these points, the finer subdivision of the fat globules causes an almost permanent dispersion of the fat throughout the milk serum, and the result is a richer-tasting milk with cream in every drop. The homogenisation of milk modifies the conditions of coagulation of the casein, and causes the formation in the stomach of a soft and flaky curd, instead of one which is relatively hard and rubbery. This results in milk which can be more quickly and completely digested, and makes homogenised milk indisputably better for children, and of particular value in infant-feeding.

To housewives, homogenised milk brings some very real advantages. Being richer it goes further in tea or coffee, cooks better, makes delicious milk drinks and is excellent with cereals and fruit. It also boils cleanly without skin or scum, is quicker to serve, and there is no wastage of cream through adherence to bottle or cap. Wholesale customers—hotels, restaurants, canteens—appreciate its uniform quality, and the lack of stirring necessary when drawing off from bulk. It has many benefits for hospitals and is particularly valuable for schools, since not only do children drink it more readily, but there is no wastage of Vitamin A and D—rich cream.

Thirty years experience in N. America has shown that for dairymen, homogenised milk means increased sales of milk and cream. It also breaks the cream-line prejudice, and opens the way for new developments in processing and packaging methods.

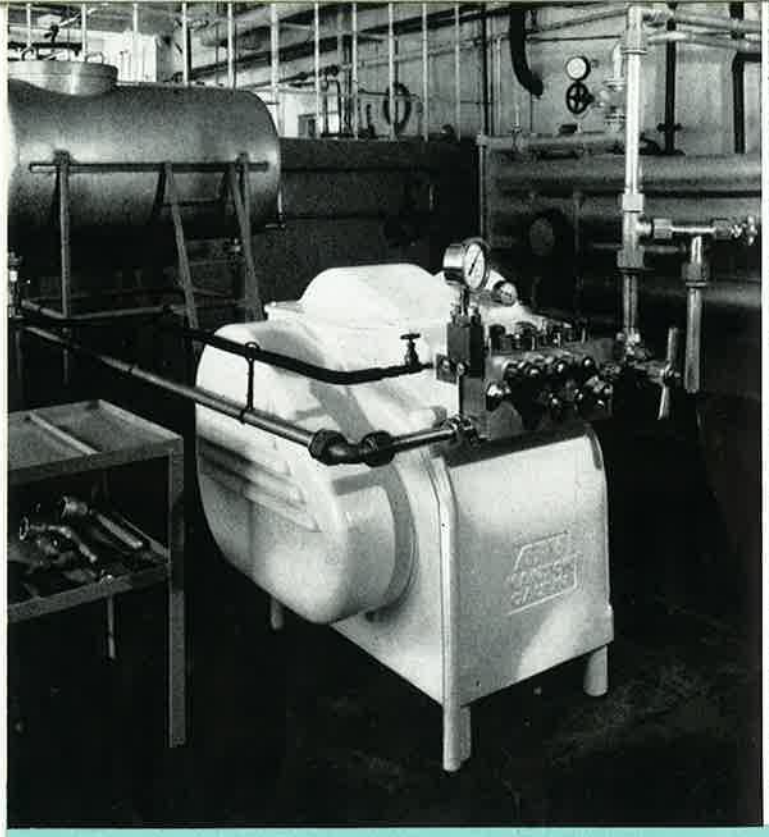
Sterilised Milk. Homogenisation is essential in the preparation of sterilised milk to prevent any separation of fat during the high temperature process. Sterilised cream also must be homogenised, as well as stabilised, before heat treatment.

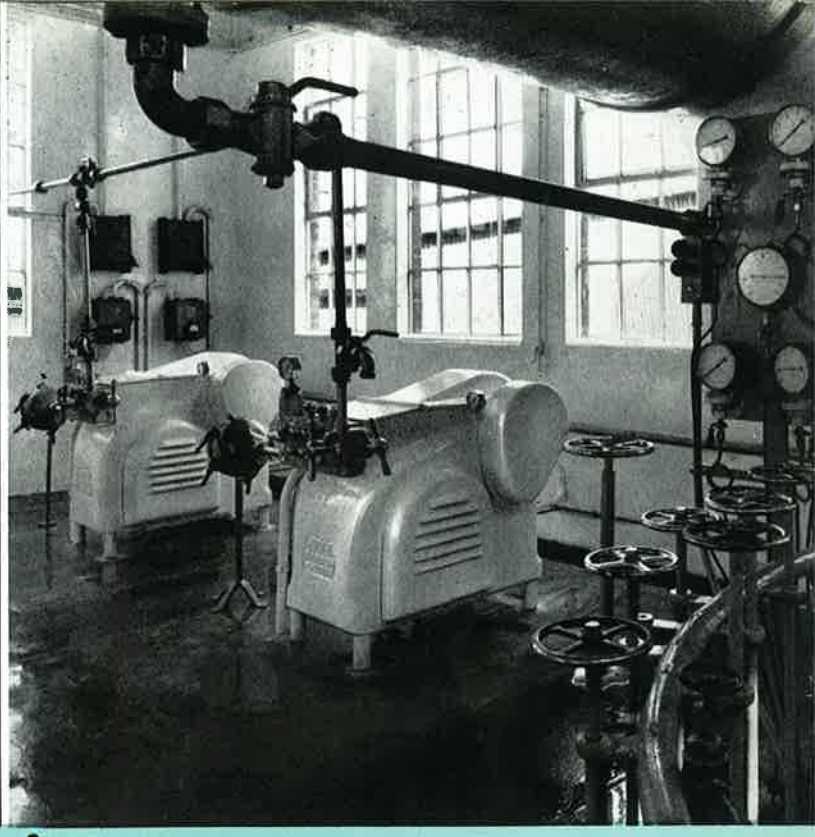
Evaporated Milk. Homogenisation is again an essential part of this process.

Fresh Cream. Fresh cream of low fat content (12% to 25%) which has been homogenised to increase its viscosity, is becoming increasingly popular. Using an 18% B.F. cream, a product equal in viscosity to unhomogenised 48% B.F. cream can be produced by homogenisation. An additional advantage is the elimination of cream plug.

Ice Cream. No modern ice cream factory is complete without a 2-stage homogeniser. Homogenisation prevents separation of the fat and also prevents its churning during freezing. Moreover, by improving the whipping properties of the mix, the desired over-run can be achieved more easily. Homogenisation also facilitates the use of the less expensive fat materials in the mix, reduces the amount of stabiliser, and ageing time required, and gives a smoother texture to the final product.

Other Applications. Less well-known, but no less important, is the part that homogenisation can play in other dairy processes, such as the preparation of chocolate milk, of artificial creams made from hardened vegetable oils, and of a large variety of specialised cheeses including Roquefort-type, processed, cream and cottage cheeses. In the reconstituting of milk powder, the homogeniser alone provides a completely satisfactory method.

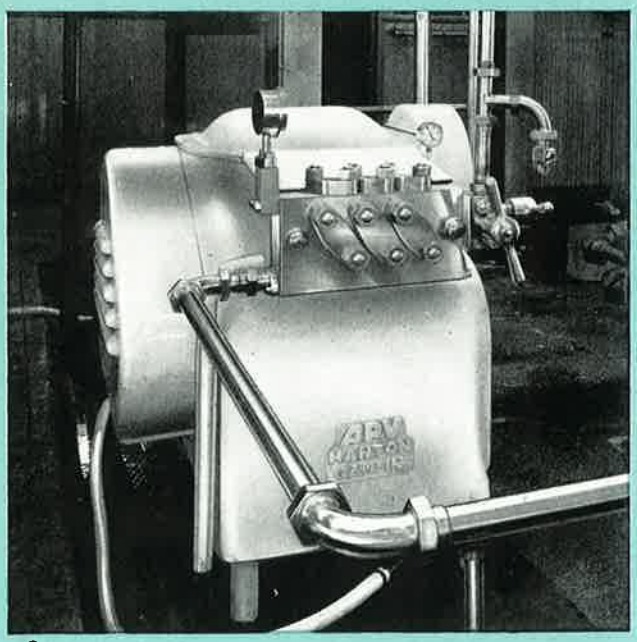




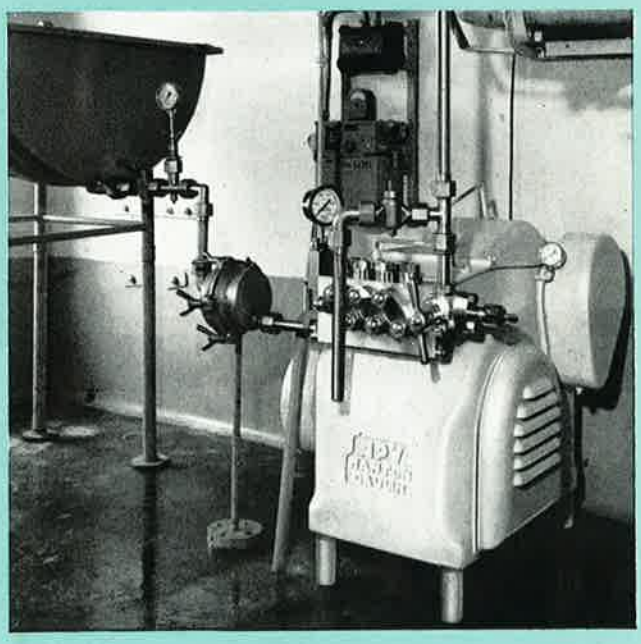
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APV MANTON-GAULIN HOMOGENISER INSTALLATIONS

Nos. 1, 2 and 4 illustrate APV Manton-Gaulin Homogeniser installations at the factories of the Nestlé Company Ltd. No. 3 is at the dairy of the Birmingham Co-operative Society Ltd.



3



4