APV Rannie and Gaulin Homogenisers

Gaulin. Rannie. Famous names in the history of homogenisation. Today, the benefits of this heritage in homogenisation and high-pressure pumps come to you as a great opportunity to choose between world leading brands.

Gaulin and Rannie bring an impeccable reputation of excellence and technological breakthroughs. From Auguste Gaulin’s invention for “treating milk” at the 1900 Paris World’s Fair – to the latest emulsifying, dispersing, and cell disruption advances – Rannie and Gaulin deliver specific industry expertise unmatched by any other manufacturer.

In food, dairy, cosmetic, chemical, biotech, and pharmaceutical fields, Rannie and Gaulin stand for real-world innovation and expertise. When you call on us, you get the greatest range of equipment and service from a single source. Exceptional design, precision engineering, and quality manufacturing that improves your process profitability.

No matter what industry you’re in, we’ve met the challenge and can manufacture a high-efficiency homogeniser tailored to your needs.

With over a century of real-world experience, Rannie and Gaulin have the products and experts to ensure an ideal configuration and installation for you. Laboratory, pilot plant, production or biotech, we’ve been there and bring extensive knowledge and dedication to satisfy every customer.

1892
Rannie is established in Albertslund, featuring production of lactoscopes and pumps for use in the dairy industry.

1899
Auguste Gaulin is granted a patent in Paris for a homogeniser for milk (U.S. patent granted in 1904).

1900
Milk homogenised on Gaulin’s machine is shown at the World’s fair in Paris.

1909
Manton-Gaulin company is formed to manufacture the Gaulin homogeniser.

1918
Rannie develops its first homogeniser.

1925
Manton-Gaulin patents the first two-stage homogenising valve for ice cream mix.

1930’s
Homogenised milk is certified.

1945
Rannie introduces the first machine able to handle capacities up to 4000 l/h
At SPX Flow Technology, we work hard to improve the performance of your process and reduce your operating costs, so we pay attention to every aspect of delivering the right homogeniser for you. For example, we know the ideal type of valve, valve housing, and valve seating to optimise performance for your specific application. It's advanced technology, personalised for your exacting needs.

With SPX Flow Technology, you can tap into the vast technical resources and support of the acknowledged industry leader. We’re ready to help you develop new products and enhance existing ones with better taste, longer life, better consistency and added consumer appeal – just like we’ve done for over 100 years. It’s the value of tradition translated into a tradition of value.

1950's
The first homogeniser is used for cell disruption of yeast.

1955
Liquid Whirling (LW) homogenising valve patented by Rannie, delivering built-in back pressure for improved efficiency.

1960's
The use of the homogeniser extends well beyond the dairy industry including chemical, food, textile, paper, plastics and pharmaceutical industries.

1971
Procter & Gamble patents a process for peanut butter using the Gaulin homogeniser.

1972
APV, an SPX brand, acquires Gaulin.

1976
Rannie introduces a completely enclosed homogeniser that limits sound levels to 80 dB or less.

1990's
The use of homogenisers extends throughout a wide range of industries. Maximum operating pressures to 1500 bar.

1995
Gaulin and Rannie form the APV Homogeniser Group.

1998
APV, an SPX brand, patents the new Super Micro-Gap homogenising valve.

2001
APV, an SPX brand, standardizes the Gaulin and Rannie product lines, creating the largest selection of homogenisers in the world.

1982 and 1983
Gaulin is granted patents for the super efficient Micro-Gap homogenising valve.

1987
APV, an SPX brand, acquires Rannie.

1989
Gaulin is granted patents on the citrus juice concentrate process.
Excellence Through Innovation

SPX Flow Technology has revolutionized countless processes, facilitating the development of new products and enhancing many more.

We feature the widest selection of laboratory, pilot plant, production homogenisers, and colloid mills in the world, with hundreds of innovative solutions to meet your highly specialised emulsions and dispersion applications. Whatever you are processing, we will deliver a homogeniser customized to your specific needs.

No matter how viscous or abrasive your product, whether you require sterile conditions, emission containment, or coolant collection, you’ll get a high-performance homogeniser or colloid mill designed for highly efficient performance. Capacities up to 60,000 litres/hour. Operating pressures as high as 1,500 bar. Low-pressure homogenisers for improved dairy products.

The Micro-Gap valve (MG), improves efficiency for dairy high-energy units and delivers superior cell disruption and processing of ultra-fine emulsions and dispersions. Whatever the demands for pressure and flow, SPX Flow Technology creates the most technologically advanced homogenisers and colloid mills on the market today.

Along with product improvement, operating efficiency, and the most advanced valve technology today, Rannie and Gaulin homogenisers reduce maintenance and downtime with operator friendly, easy access features. Noise and vibration are reduced dramatically. Oil and water consumption are slashed. And cleaning and sterilisation are simplified, thanks to an in-line design that virtually eliminates crevices and dead ends.

Performance: Buy or Rent

SPX’s rental program offers the flexibility to scale your equipment up or down as process requirements change. Additionally, the rental program provides a solution for equipment upgrades and process improvement when capital budgets are limited. Whether you buy or rent, SPX Flow Technology delivers the equipment you need to optimise your production performance.
The Theory of Homogenisation

The unhomogenised product enters the valve area at high pressure and low velocity. As the product enters the adjustable, close clearance area between the valve and seat, there is a rapid increase in velocity with a corresponding decrease in pressure. The intense energy release causes turbulence and localised pressure differences, which will tear apart the particles. The homogenised product impinges on the impact ring and exits at a pressure sufficient for movement to the next processing stage.

Homogenising Techniques

For processing of emulsions a single-stage valve assembly may be used. However, the use of a two-stage assembly, where 15 – 25% of the total pressure is applied to the second stage, will improve the stability of most emulsions. For processing dispersions a single-stage valve assembly is usually preferred.

Multi-Pass Homogenisation

If a 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 a series, which ensures discrete passes, or by re-circulating the product through a single unit.

Right the effect of four discrete passes at 1000 bar on an oil-in-water intravenous emulsion. Each pass results in a shift in the particle-size distribution towards smaller droplet sizes and a more narrow distribution.
Covering a Full Spectrum of Applications

While others talk versatility, only SPX Flow Technology’s extensive experience – with an unsurpassed variety of applications – means you’ll receive the right unit and configuration for outstanding performance. Simply put, we understand your business. The bottom-line and process-performance benefits of this knowledge and expertise will simply delight you.

**Dairy Products**
Extended shelf stability, improved smoothness and body.
- Milk
- Ice cream
- Cream
- Yoghurt
- Desserts
- Sour cream
- Cheeses
- Condensed milk

**Foods and Beverages**
Improved viscosity control and shelf stability, reduced ingredient cost.
- Fat substitutes
- Dressings
- Liqueurs
- Peanut butter
- Flavours and fragrances
- Fruit juices
- Sauces
- Beverage emulsions
- Baby foods
- Vegetable juices
- Tomato products
- Reduced fat products
- Infant formulas
- Juice concentrates
- Egg products
- Nutritional supplements

**Healthcare and Cosmetics**
Smoother textures, better dispersion of thickeners, enhanced colour, increased gloss, better application.
- Hair products
- Conditioners
- Skin creams
- Lipsticks
- Lotions
- Nail polishes
- Shampoos
- Liposome emulsions
Chemicals

Particle size and viscosity control, enhanced colour, uniformity of application, and improved stability.

- Disinfectants
- Silicone emulsions
- Latex
- Emulsifiers
- Wax emulsions
- Viscosity index improvements
- Insecticides
- Lubricants
- Pigment dispersions
- Specialty paints and coatings
- Resins/rosins
- Inks

Biotechnology

Cell disruption for harvesting high yields of intracellular products.

- Bacteria (E-Coli)
- Proteins
- Yeast (Cerevisiae)
- Algae
- Enzymes

Pharmaceuticals

Stability, uniformity, narrow particle size distribution, enhanced texture.

- Antibiotics
- Ointments
- Veterinarian preparations
- Intravenous emulsions
- Nutritional supplements
- Creams
- Liposomes
- Antacids
- Tablet coatings
From the power end to the liquid end, Rannie and Gaulin homogenisers are designed and built to exceed your expectations for excellence in quality and technological innovation.

The most critical component of the homogenising system is the valve technology. SPX Flow Technology has established itself as the leader in developing a wide range of technologically advanced valves for a wide range of applications. Our engineers are committed to working with you every step of the way to ensure the homogenising valve configuration and material selection are customized for your specific application.

The two-stage valve assembly is recommended for most emulsions, a single-stage assembly is preferred for most dispersions. No matter what your application is, SPX Flow Technology has the solution that will optimise performance for your specific processing conditions.

The Liquid End

SPX Flow Technology is the world leader in design, construction, and materials, taking valve technology further with the largest range of product offerings. Our experts will help you select the right homogenising valve and cylinder design for your application. The choice between the Rannie and Gaulin fluid ensures that you get the right machine for your specific application. SPX's liquid ends are dependable and low maintenance, offering precise operation while meeting all international sanitary specifications. Whether you choose the Rannie (Three-Piece Valve Housing) or the Gaulin (Mono-Block), we offer the widest range of materials and configurations in the industry.

The Gaulin Mono-Block Design

The Gaulin cylinder block for sanitary applications provides an in-line flow pattern and minimises the number of sealed areas. Top and front caps improve accessibility and simplify maintenance. **Poppet valves** for low-viscosity, moderately abrasive products, like ice cream mixes and dairy products, vegetable oils, and silicone emulsions.

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**Ball valves**, designed for high-viscosity, abrasive products including peanut butter, evaporated milk, wax emulsions lubricants and pigments. **Aseptic Double-Packed Cylinders**, engineered for aseptic processing and can also provide containment of fugitive emissions (compounds that are pathogenic, toxic, and radioactive flammable).

**The Rannie Three-Piece Valve Housing**

The Rannie cylinder block exemplifies engineering superiority and is well suited for both sanitary and industrial applications. The design allows for pressure segregation from the suction and discharge manifolds, reducing the possibility of breaking or cracking when adverse operating conditions are present or operating pressures exceed 600 bar. The Rannie homogeniser is well suited for ultra-high pressure or severe duty applications. It is also available in an aseptic design. The Rannie homogeniser incorporates both ball and poppet valves with no difference in capacity.

**Patented Micro-Gap Homogenising Valve Assembly**

SPX’s patented Micro-Gap (MG) Valve was developed to provide optimal performance for milk processing. The MG requires less operating pressure to achieve desired particle size, delivering increased product stability and savings on energy and maintenance costs. Results from actual in-plant tests confirmed annual energy savings of up to 20,000 U.S. dollars per year, when compared against conventional valves requiring higher pressure.
**SEO Homogenising Valve:** A flat, conical homogenising valve made of several ceramic materials is used for abrasive products. Also available in Stellite and tungsten carbide. The SEO achieves the same homogenising effect as the LW, at slightly higher pressures.

**XFD Homogenising Valve:** Typically used as a single-stage valve for capacities up to 36,000 liters/hour or as the first-stage valve in a two-stage configuration. The XFD is available in Stellite and tungsten carbide.

**LW Universal Homogenising Valve:** The LW’s (liquid whirl) whirling chambers deliver highly efficient homogenising effect with low power consumption. The LW is a universal valve that can be used for emulsions, dispersion and suspensions. In some cases, the efficiency of the LW valve will eliminate the need for a second stage.

**Actuation:** Standard, high-performance actuation systems are available for all models and can be operated by manual or automatic control. Hydraulic actuation is standard on high capacity units.
The Power End

Engineered to provide multiple environmental and ergonomic benefits, the power end incorporates a durable slow-speed drive with adjustable stainless steel feet and vibration dampeners.

A stainless steel enclosure, elimination of external oil piping, pilot lamp, and push-button start/stop feature facilitate easy operation. Every power end is engineered for minimal noise and vibration, to keep process effectiveness at its highest. Maintenance-reduction features include an extended 2,000 hour/six-month oil change interval, and easy access through hinged doors. The power end is common across both Rannie and Gaulin machines. The elimination of separate power ends ensures the timely availability of replacement parts worldwide.

Automation

Integrate your homogeniser into your process control system with leading-edge automation packages. Remote-activation, self-adjusting electronic homogeniser control systems provide consistent homogeniser pressure with no operator involvement. Automation packages are available for a variety of hydraulic control systems.
The most comprehensive customer service and support in the industry. Our regional offices and distributor network mean you are always close to SPX Flow Technology expertise.

**Superior Customer Service**

Your relationship with SPX Flow Technology doesn’t end with the sale. We have the people with the skills to keep your equipment running at optimal levels. We stock vital parts for the machines in operation and can usually ship orders within 24 hours, which will minimise downtime and reduce service expenses.

**On-Call Technical Expertise**

When you do business with SPX Flow Technology, you have access to the vast technical resources of the world leader in homogenisation equipment and solutions. We offer you high-quality training and responsiveness, and can arrange seminars with your team – at your facility – to keep you, your people and equipment “state of the art.” Our field service engineers are available to travel to your location for on-site support.

**SPX Flow Technology - The Answer for Productive, Efficient Homogenisation**

We want to help you

- Improve your product
- Increase process efficiency
- Reduce operating costs

with the most technologically advanced homogenisers available. With the legacy of Rannie and Gaulin, SPX Flow Technology builds on past performance and innovates today to perfect the future of homogenisation. Profit from our vision, and discover all the advantages SPX Flow Technology can deliver for you. Contact us to discuss your specific objectives and applications, and the many benefits that only SPX’s technology can provide for you and your business.
Many physical and chemical properties of a product can be enhanced by homogenisation. As the recognized pioneer in homogenisation technology, we maintain well-equipped, professionally staffed customer service facilities -- resources not available from any other source.

The Customer Service Laboratories

Our laboratories have helped improve the products and solve the processing problems of many customers. Product stability, colour, viscosity, taste, appearance and consistency can be monitored throughout the homogenisation process.

GAUSSIAN ANALYSIS (Solid particles)

Sample testing parameters can include
- Particle size analysis
- Photomicrographs
- Viscosity measurement and stability.

Expert Analyses

People with the experience and expertise to evaluate and interpret test data are critical to your success. SPX Flow Technology is proud to offer you the most experienced technical support in the field of homogenisation.

Sample of an emulsion processed at various homogenising pressures
### Rannie Homogenisers - Max. Capacity L/h - Ball and Poppet Valves

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### Gaulin Homogenisers - Max. Capacity L/h - Ball Type Valves

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