

**Michael Smith Engineers** are one of the UK's leading pump and pumping systems suppliers, specialising in seal-less pump technology.

Established in 1971, the company offers an extensive in-house design and engineering capability, fully equipped workshops, test-bed facilities, in-house and on-site repairs, servicing and trouble-shooting.

The company is ISO9000 accredited for the distribution of specialist pumping equipment. With comprehensive stocks, we are able to offer customers a fast and reliable service with next day delivery on many products.

This brochure provides brief details of the pumps and systems we supply. For further information please contact us

### ■ Viking Gear Pumps

Viking pumps provide an unmatched combination of application expertise and positive displacement pumping to meet your pumping needs. Choose from a wide range of models which meet the most challenging pumping applications.

- Capacities to 345 m<sup>3</sup>/hr and differential pressures to 103 Bar
- Wide choice of material options
- Sealed and sealless configurations available
- Positive displacement with smooth, low pulse output



### ■ Liquiflo Gear Pumps

When you need reliable and accurate pumping of aggressive, corrosive or hazardous fluids. Liquiflo gear pumps are perfect for pumping small volumes of thin or viscous liquids at high pressures, delivering smooth, pulseless flows.

- Maximum capacities from 0.5 to 200 lit/min at maximum differential pressures up to 24 Bar
- Self-priming and extremely accurate
- Can handle liquids at temperatures up to 300°C
- Wide choice of wetted materials and drive options available
- Sealed and seal-less configurations



### ■ Liquiflo PFA-Lined Gear Pumps

Liquiflo PFA Lined Gear Pumps are an excellent choice for pumping chemicals that require expensive alloys in metallic pumps, such as inorganic acids, bases and salts. They are also the first choice for high purity services where contact with metallic components must be avoided. Wetted materials include PFA pressure components with Silicon Carbide shafts and a choice of non-metallic materials for the bearings, wearplates and gears.

- Flows up to 47 l/min
- Differential pressures up to 6.9 bar
- Magnet drive so zero leakage
- Pulseless flow – easy to monitor
- Accurate output
- Simple to service – minimises downtime



### ■ Micropump Gear Pumps

These compact, lightweight, magnet drive gear pumps are leak free and give positive displacement pumping without any pulsations.

- Standard models cover capacities from 0.5 to 720 lit/hr at discharge pressures up to 6.9 Bar
- Pumps are available in Stainless Steel, Hastelloy, Titanium and Alloy 20
- All the pumps can be close coupled to a wide range of drives and motors
- High capacity models up to 2500 lit/hr and high differential pressure models up to 80 Bar are also available



### ■ HNP MZR Micro-Annular Gear Pumps

These ultra low-flow, miniature, positive displacement pumps are designed for precise, accurate, smooth, pulse-free pumping and dispensing of a wide variety of liquids. The compact size and low mass of the MZR pump/motor units ensure they can easily be incorporated into the designs of many systems.

- Accurate dispensing of volumes as small as 0.25 microlitres
- Flow rates from 0.15 to 1150 ml/min at differential pressures up to 150 Bar
- Accurate smooth pumping within +/- 1%
- Choice of drive options and wetted materials



### FMI Piston Pumps

FMI rotary piston pumps are ideally suited for dispensing, filling and sampling duties. With only one moving part and no valves to block, these compact units give continuous, accurate, positive displacement pumping over millions of cycles.

- The range covers capacities from micro-litres to 4600 ml/min at discharge pressures up to 6.9 Bar
- Available in a choice of inert wetted materials
- Instantly reversible and viscosity independent
- Large selection of drives, motors and controllers



### Hydra-Cell Metering Pumps

Hydra-Cell metering pumps are compact, cost-effective pump systems for high-performance metering applications. Used in place of ordinary metering pumps to provide superior performance at a lower cost, Hydra-Cell metering solutions give virtually pulse-less linear flow accurately and repeatedly.

- Electronic flow control is more accurate and reliable
- Greater choice of materials enhance capability
- Reduced pulsations improve operation
- Capacities from 0.2 lit/hr to 2600 lit/hr at discharge pressures up to 241 Bar



### Hydra-Cell Seal-less Diaphragm Pumps

The simple, durable design of Hydra-Cell pumps make them able to handle fluids that can destroy other pumps. These positive displacement pumps give smooth, near pulse-free output accurately, reliably and repeatedly.

- Heavy duty industrial construction for long service life in harsh conditions
- Hydraulically balanced, unstressed diaphragms
- Wide range of flow rates from 0.4 to 595 l/min and pressures up to 345 Bar
- Repeatable, accurate output, ideal for metering and dosing



### ■ Dickow Single Stage Centrifugal Pumps

A full range of volute casing centrifugal pumps including mechanically sealed pumps and leak free magnet drive pumps. Available in a choice of materials and mounting configurations.

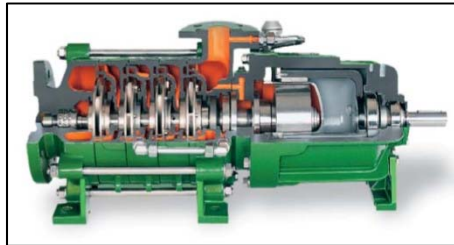
- Close-coupled or frame mounted configurations available
- Capacities to 900 m<sup>3</sup>/hr and differential heads up to 150 metres
- High temperature design available for pumping fluids up to 400°C
- High system pressure versions for 100 bar operating pressure
- API 610 and API 685 designs available



### ■ Dickow Multistage Centrifugal Pumps

A complete range of metallic multistage centrifugal pumps for high differential heads. Mechanical seal and leak free magnet drive designs are available as well as self-priming options and submersible configurations.

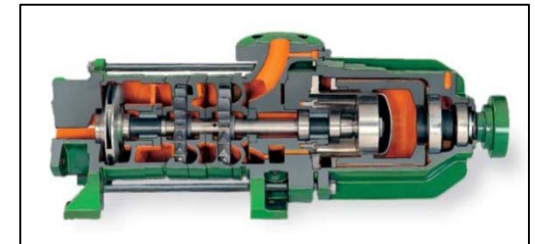
- Capacities up to 500 m<sup>3</sup>/hr
- Differential heads to 400 metres
- Self priming designs available
- Wide choice of wetted materials
- Vertical long shaft design for in-tank mounting



### ■ Dickow Side Channel Pumps

Dickow side channel pumps are specifically designed for efficient, economical pumping of low volumes of liquids at high differential pressures. They can pump large amounts of entrained gas without any problems and the magnet drive versions are leak free by design.

- Self priming, with very low NPSH requirements
- Trouble free pumping of boiling liquids and volatile liquids
- Horizontal and vertical configurations available
- Maximum capacities to 50 m<sup>3</sup>/hr
- Differential heads up to 400 metres



### ■ Finish Thompson Plastic Centrifugal Pumps

These non-metallic, reliable, leak-free, magnet drive pumps are designed for pumping aggressive, hard to handle fluids. By using rare earth magnetic technology, DB pumps give high performance from a compact, robust unit.

- Capacities up to 50 m<sup>3</sup>/hr and differential head up to 43 metres
- Available in a choice of wetted materials, certain models can run dry for up to 30 minutes without damage
- Can handle liquids at temperatures up to 105°C with specific gravities to 1.8
- Vertical configuration available for sump and tank emptying



### ■ Finish Thompson SP Series Self-Priming Magnetic Drive Pumps

SP Series pumps are seal-less, leak-free, magnet drive self-priming centrifugal pumps. The SP Series offer deep lift capabilities and lightning fast priming and can handle the most difficult applications with no seal replacement, no leaks and the capability to run dry without damage

- 4 series of pumps cover flow rates up to 45 m<sup>3</sup>/hr and heads up to 37 metres
- Capable of lifting fluids from 5.5 m in less than 90 seconds
- Use only a fraction of the energy AOD pumps require
- Corrosion resistant polypropylene or PVDF to handle



### ■ Finish Thompson Ultra-Chem Lined Centrifugal Pump

Ideal for pumping hazardous, hard to handle chemicals, Ultra-Chem magnetically driven pumps use a ductile iron casing and incorporate a Tefzel (ETFE) lining for high corrosion resistance. The Ultra-Chem product has been designed with a range of features to minimise wear on the pump components so maximising the time between routine service.

- Maximum capacities up to 329 m<sup>3</sup>/hr
- Differential heads up to 102 metres
- Powerful Neodymium magnet drive guarantees leak free operation
- Non metallic wetted parts for maximum corrosion resistance
- Dry-Coat shaft and bushing options for occasional dry running



### ■ Finish Thompson Stainless Steel Centrifugal Pumps

The Finish Thomson AC range of centrifugal pumps are compact, easy to operate and economically priced and can be tailored for your specific application. Built from 316 stainless steel, these robust centrifugal pumps are designed to operate in the harshest chemical environments.

- Flows to 58 m<sup>3</sup>/hr at differential heads to 53 metres
- Close coupled or frame mounted versions available
- Choice of different seal combinations, port sizes and impeller designs
- Corrosion resistant 316 stainless steel construction
- ATEX versions available for flameproof applications



### ■ FTI Air Operated Double Diaphragm Pumps

FTI AIR is a comprehensive line of air-operated double diaphragm pumps meticulously designed from the ground up, using state-of-the-art computer-aided design resources. Every pump component was run-tested continuously for many hundreds of hours at Finish Thompson and in field tests during development, resulting in one of the most reliable, rugged and affordable air-operated double diaphragm pumps on the market today.

- Five different sizes - 0.5", 1", 1.5", 2", 3"
- Metallic options include stainless steel and aluminium
- Plastic options include polypropylene and PVDF
- Capacities to 900 l/min
- Discharge pressures to 8.3 bar



### ■ Finish Thompson Drum Pumps

A complete range of lightweight, robust, portable pumps for emptying barrels, drums and carboys. These reliable units are ideal for handling a wide range of liquids including corrosives, solvents and viscous fluids

- Capacities up to 150 lit/min
- Viscosities up to 10,000 centipoise
- Wide choice of wetted materials available in different tube lengths
- Motor options include electric and air drives



## Centrifugal Pumps

Principal	Pump Type	Wetted Materials	Maximum Flow	Maximum Pressure	Viscosity Range
Dickow	Magnet Drive & Sealed Centrifugal	Cast Iron, Cast Steel, Stainless Steel, Hastelloy-C	1000 m <sup>3</sup> /hr	220 m	0.1 - 200 cP
Dickow	Magnet Drive & Sealed Multistage Centrifugal	Cast Iron, Cast Steel, Stainless Steel	500 m <sup>3</sup> /hr	460 m	0.1 - 200 cP
Dickow	Magnet Drive & Sealed Side Channel	Cast Iron, Stainless Steel	32 m <sup>3</sup> /hr	400 m	0.1 - 50 cP
FTI AC	Sealed Centrifugal	Stainless Steel	58 m <sup>3</sup> /hr	55 m	< 200 cP
FTI DB	Magnet Drive Centrifugal	PP & PVDF	48 m <sup>3</sup> /hr	45 m	0.2 - 150 cP
FTI SP	Self-Priming Magnet Drive Centrifugal	PP & PVDF	47.5 m <sup>3</sup> /hr	38 m	0.2 to 50 cP
FTI UC	Magnet Drive Centrifugal	ETFE/SiC	329 m <sup>3</sup> /hr	102 m	0.1 - 200 cP
FTI Drum	Drum Pumps & Barrel Pumps	Stainless Steel, PVC, PP & PVDF	9 m <sup>3</sup> /hr	24 m	1 - 100,000 cP

## Positive Displacement Pumps

Principal	Pump Type	Wetted Materials	Maximum Flow	Maximum Pressure	Viscosity Range
Boyser	Industrial Peristaltic	Various Rubber / Elastomers	20 m <sup>3</sup> /hr	15 bar	0.5 - 10,000 cP
FTI Air	Air Operated Double Diaphragm	PP, PVDF, Aluminium, Stainless Steel, FDA-PP, FDA-SS	54 m <sup>3</sup> /hr	8.3 bar	Up to 20,000 cP
FMI	Valveless Metering	Ceramic	4580 ml/min	6.9 bar	1 - 500 cP
HNPM	Magnet Drive & Sealed Internal Gear	Stainless Steel, Alloy-C, Tantalum	1150 ml/min	150 bar	0.3 - 1000000 cP
Hydracell G Series	High Pressure Diaphragm	Stainless Steel, Brass, Hastelloy-C, Iron, PVDF, PP	10.2 m <sup>3</sup> /hr	345 bar	0.5 - 6000 cP
Hydracell M Series	High Pressure Diaphragm Metering	Stainless Steel, Hastelloy-C, PVC, PVDF	30 l/hr	241 bar	0.5 - 6000 cP
Hydracell P Series	High Pressure Diaphragm Metering	Stainless Steel, Hastelloy-C, PP, PVDF	2630 l/hr	172 bar	0.5 - 6000 cP
Hydracell T&Q Series	High Pressure Diaphragm	Stainless Steel, Nickel Aluminium Bronze (NAB)	35 m <sup>3</sup> /hr	345 bar	0.5 - 6000 cP
Liquiflo	Magnet Drive & Sealed External Gear	Stainless Steel, Alloy-C, Titanium, PFA Lined	13.2 m <sup>3</sup> /hr	24.1 bar	0.3 - 100,000 cP
Micropump	Magnet Drive External Gear	Stainless Steel, Alloy-C, Titanium	2100 l/hr	8.7 bar	0.5 - 1500 cP
Viking SG Series	Magnet Drive & Sealed External Gear	Cast Iron	43 m <sup>3</sup> /hr	34 bar	0.1 - 250,000 cP
Viking GP Series	Sealed External Gear	Cast Iron	43 m <sup>3</sup> /hr	103 bar	0.1 - 50 cP
Viking	Magnet Drive & Sealed Internal Gear	Cast Iron, Cast Steel, Stainless Steel	365 m <sup>3</sup> /hr	14 bar	0.1 - 440,000 cP
Viking	Sealed Vane	Stainless Steel	36 m <sup>3</sup> /hr	14 bar	01 - 500 cP

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