ASEPTIC FILLING SOLUTIONS

Watson-Marlow...Innovation in Full Flow
Behind the filling and capping systems lie the meticulous skill and dedication of Watson-Marlow Flexicon design engineers. Watson-Marlow Pumps Group is also an ISO9001 company.
For over 50 years the Watson-Marlow Pumps Group has led the world in peristaltic pumping innovation, the technology of choice for high purity fluid handling in the pharmaceutical, biotech and diagnostics industries.

**PRECISION**

For Watson-Marlow Flexicon customers it is vital that our machines work with high precision. Not only do we satisfy that demand; we deliver exactly what has been ordered on time, every time. Today’s industry also requires safe operation with minimum risk to process, product and personnel. We accomplish this through our unique peristaltic filling systems.

**EFFICIENCY**

Our customers can produce small and medium sized batches securely and profitably. Watson-Marlow Flexicon’s equipment is reliable, easy to operate and requires minimal maintenance at long intervals. We offer first class after-sales service and full documentation for all our products. In performance as well as quality, we deliver what we say we will.

**FLEXIBILITY**

Our fillers are easily and quickly adjustable for a huge range of fill volumes, fluids, capacities, bottles and caps. We can customize products to your exact requirements and you can visit our plant to assure yourself that our performance matches our promise. We offer a short response time from initial contact to delivery.

---

Peristaltic pumping - the solution for high purity

A peristaltic pump’s low-shear action is created by compressing a tube. Inside the single-use tube the fluid is driven forward by rollers while the tube’s recovery behind each roller draws in more fluid. The pump is perfect for moving fluid aseptically because the fluid stays within the tube. Unlike piston pumps there are no seals, valves or moving parts in its path to lead to contamination.

Watson-Marlow peristaltic pumps and fillers are recognized by process engineers for high quality, reliability and performance. Our equipment helps engineers simplify validation, improve yield and reduce expensive downtime.
Flexicon - flexible enough to grow with your changing needs

Tabletop units

Fillers

Cappers

Semi-automatic systems

Filling

Filling and capping

<table>
<thead>
<tr>
<th>Lab - R&amp;D</th>
<th>Clinical I</th>
<th>Clinical II</th>
<th>Clinical III</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS and FC - Crimp and Screw Cappers (pages 10-11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF6 and PF22 - Dispensing System (pages 8-9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FF20 - Vial/Bottle Handling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP50 - Filling and Stoppering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPC50ISO - FPC50 for integration into an Isolator</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aseptic liquid filling and capping equipment
**Watson-Marlow Flexicon** offers a range of products that grow with you, from stand-alone units for hand filling, through semi-automatic systems, to fully automatic filling, stoppering and capping machines. The fully automatic systems are customized to fit any glass vial, plastic bottle, test tube, eye-dropper or non-self standing microtube.

### Fully-automatic systems

Wide range of systems for automation of filling, stoppering, capping and weight check

### Solutions for integration or retrofit

OEM panel mount fillers

Trolley solutions for piston pump replacement

---

<table>
<thead>
<tr>
<th></th>
<th>Small Production</th>
<th>Full Production</th>
<th>High Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aseptic Fluid Path</td>
<td>(pages 6-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FF30 - Filling/Screw Capping</td>
<td>(pages 14-15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stoppering</td>
<td>(pages 16-17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Capping</td>
<td>(pages 18-19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>integration into an Isolator</td>
<td>(pages 18-19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMB210 - Fully Automatic Monobloc</td>
<td>(pages 20-21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMB210ISO - FMB210 for integration into an Isolator</td>
<td>(pages 20-21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEM Solutions - Master Controllers, Trolleys and Pumps/Fillers</td>
<td>(pages 22-23)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DAFPA is a ready-to-use, disposable filling system: **Disposable Aseptic Fluid Path**. It optimizes Watson-Marlow Flexicon’s peristaltic liquid fillers in the biopharmaceutical industries.

DAFPA eliminates the need for cleaning validation and allows drug segregation and fast batch change with no cross-contamination risk, thus reducing costs by eliminating expensive downtime.

Watson-Marlow Flexicon’s fillers in combination with DAFPA provide unparalleled flexibility. Unlike piston fillers and other dispensers, your sterile product contacts only disposable materials approved for pharmaceutical use.

- Designed for peristaltic filling units
- Sterile and ready-to-use
- Major reduction in cleaning and validation costs
- Prevention of cross contamination
- Enhancement of operator safety
- Customized configurations available

**Top quality whatever the scale**

Flexicon peristaltic pumpheads and silicone precision tubing offer pulsation-free, accurate dispensing from benchtop units to fully automatic production equipment.
Simplify your cleaning validation

Imagine a USP Class VI fluid path that is fully traceable from end-to-end, is simple to validate and you have DAFPA. From the bag, to the tubing through the pump, to the filling nozzle on your machine, DAFPA provides an entire wet end, which is fully assembled and lot traceable. And best yet, its single use design eliminates costly cleaning validation.
Flexicon tabletop fillers are designed for use in cleanrooms for production processes complying with cGMP.

Setting up a filling regime for vials, bottles, test tubes or other containers is achieved by loading the peristaltic pump tube and entering the parameters required using the intuitive keypad.

The pump maintains a closed fluid path from the bulk product container to the end of the filling nozzle. Change the path and the pump is clean, sterile and ready for the next batch. You can control the filler with a foot switch or integrate it into an automatic bottle handling system.

- No cross-contamination
- Accuracy: ±0.5%
- Drip-free
- One-minute set-up and changeover
- Fill volumes from 0.5 to 250 ml for PF6 and from 5 to 5000 ml for PF22
- RS232 port for printer connection and real-time documentation
The PF6 is the smallest of the Flexicon tabletop filler range.

**PF22 - capacity diagram (based on water)**

**DF32 - capacity diagram (based on water)**
A range of vial and cap sizes and tools are available for all cappers

Cappers offer consistent quality crimps and torque

When there is need to increase productivity, while minimizing operator fatigue and injury, our cappers can be added to your current process. Features offered by both crimp and screw cappers are

• Consistent quality closure
• Cap up to 1,000 units/hour
• Fast change-overs

Deciding which capper is right for the process depends on the capping needs. Each capper has specific benefits.

Screw cappers

• No tools needed for changeover
• Handles caps up to 65mm and bottle sizes to 1,000ml
• Adjustable closing torque

Crimp cappers

• High quality aluminum overseal
• Low particle release
• Crimp heads and bottle tools in standard or customized sizes are available
• Collection of used compressed air

<table>
<thead>
<tr>
<th>Capper Name</th>
<th>Max. Cap Size</th>
<th>Max Bottle Size</th>
<th>Air Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diameter</td>
<td>Height</td>
<td>Diameter</td>
</tr>
<tr>
<td>FC10 Screw</td>
<td>50 mm</td>
<td>40 mm</td>
<td>55 mm</td>
</tr>
<tr>
<td>FC32 Screw</td>
<td>65 mm</td>
<td>40 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>FS10 Crimp</td>
<td>8-20 mm DIN standard</td>
<td>55 mm</td>
<td>180 mm</td>
</tr>
<tr>
<td>FS32 Crimp</td>
<td>13-32 mm DIN standard</td>
<td>95 mm</td>
<td>240 mm</td>
</tr>
</tbody>
</table>
If space is at a premium in your current setting, take a look at the small foot print offered by our cappers.

Dimensions in mm/inch
As the need for more automation grows the Watson-Marlow Flexicon’s product line meets the needs of flexible production of small batches. There is great care taken to minimize production downtime. Our design ensures sterile filling.

The speed at which the vials/bottles are presented at the filling needle is fully adjustable, allowing light vials and bottles to be filled. Solutions can be designed to handle bottles with special shapes.

The FF20, used in conjunction with one of our crimp or screw capping machines, provides a simple and flexible means of production.

- Low cost
- 0.1ml to 150ml fills
- Ø12 to Ø60 mm bottles
- Complete change-over in less than five minutes
- No format parts
- Prevents repetitive strain injuries
- Consistent production quality
- Designed for cleanroom environments
- Tabletop-mounted or placed inside a laminar air flow cabinet

Are you already a Watson-Marlow 520Di dispensing pump user? GOOD NEWS, the FF20 is fully compatible with Watson-Marlow’s 520Di.
Automatic filling and tabletop vial/bottle handling system

Dimensions in mm/inch

- 150 / 6" 
- 450 / 17.7" 
- 70 / 2.8" 
- 100 / 4" 
- 860 / 33.9" 
- 400 / 15.8" 
- 370 / 14.6" 
- 400 / 15.8" 
- 355 / 14" 
- 440 / 17.3" 
- 280 / 11" 

Optional

Dimensions in mm/inch
The flexible FF30: consistent, small-scale production quality

From time to time there is a need for a different type of filling and capping. Watson-Marlow Flexicon’s product line adapts to the changing needs of our customers.

The FF30 is mainly made of stainless steel and anodized aluminum for cleanroom use in pharmaceutical, biotech, diagnostic and ophthalmic industries.

A key element is to ensure clean production with no chance of cross-contamination. The FF30 is perfect for flexible small batch production of liquids, oils and creams in bottles or jars with screw caps.

- Ideal for flexible small-scale production
- Protects operators from repetitive strain injuries
- Consistent cap torque prevents leakage of liquid
- Handles a wide range of bottles and caps
- Up to 1,200 units/hour
- Attractive cost/benefit
- Complete cap and bottle change in 5 minutes
- Fill bottles from 12 mm - 50 mm in diameter

Are you already a Watson-Marlow 520Di dispensing pump user? GOOD NEWS, the FF30 is fully compatible with Watson-Marlow’s 520Di.
Semi-automatic filling and capping bottle handling system

Dimensions in mm/inch

1250 / 49.2"

800 / 31.5"

1000 / 39.4", when open

575 / 22.6"
Automating the key steps of aseptic filling cuts the risk of operator error and related contamination. The peristaltic filling system like a FP50, eliminates the costs and issues of volumetric filling pumps.

The FP50 is a very popular tabletop filling system for pharmaceutical research and development departments and biopharmaceutical companies.

FP50 users can avoid sending delicate, expensive and critical products to outside filling facilities, which saves money, especially during clinical trial phases.

A customized FP50 is built into an isolator so that the fluid and the filled vials are completely contained. It is controlled from a panel, which also allows the operator to manage the isolator and the vapor generator which kills any micro-organisms within the isolator.

- Up to 25 units/minute
- Quick and simple format changes
- Single-use filling with no risk of cross-contamination
- Filling accuracy better than ± 1%
- 0.1 ml to 100 ml fills of 2R to 100H vials
- Universal format parts reduce costs
- Full or partial stoppering
- Size for LAF bench installations

Fully-automatic filling and stoppering

Milled vibrator bowl in stainless steel to accurately deliver the stoppers for placement
FP50 automates two key features: vial filling and stoppering. Fully-automatic filling and stoppering requires no additional format parts.

Dimensions in mm/inch:
- Stoppering with 13 mm and 20 mm stoppers.
- Maximum tray dimensions:
  - Min. 695 / 27.4"
  - Max. 785 / 30.9"
  - 214 / 8.4"
- Additional measurements:
  - Min. 180 / 7.1"
  - Max. 305 / 12.0"
- Maximum tray length:
  - 550 / 21.7"
  - 450 / 17.7"
The versatile FPC50 for clinical trial and small scale production

The FPC50 adds aluminum cap placement and cap sealing to the extensive facilities of the FP50. It provides a ready-to-use and easy-to-validate filling system for small batch production.

The universal format parts of the FPC50 allow for a wide range of vials, stoppers and caps.

The peristaltic filling system eliminates having product-dedicated or volume-dedicated pumps in stock.

The FPC50ISO is a variation designed for integration into an isolator or a restricted access barrier system.

- Peristaltic filling from 0.1 ml to 100 ml
- Overseals 13 mm and 20 mm flip-off and standard aluminium caps
- Fast and easy changeover between batches
- Universal format parts reduce costs
- Up to 25 vials/minute
- Small footprint fits inside small cleanrooms
- Optional weight-check system
- IQ/OQ documentation available

**The FPC50’s crimping head**

**Easy height change**
Height adjustment is achieved using a simple and intuitive crank

**Optional weight-check**
Weighing cell ensures automatic pump recalibration during a batch and up to 100% check weighing.
Rounded edges facilitate cleaning

Dimensions in mm/inch
The FMB210 is perfect for fully automated filling and capping medium size batches. It can handle a wide range of container and closure types.

Designed to meet the latest cGMP standard for aseptic filling of injectable drugs, the FMB210 is a high-quality, fully automated filler for aseptic drug, ophthalmic and diagnostic applications.

A unique tool platform allows simple, fast and accurate format changes where multiple products need to be processed on a single filler. It can be configured for a choice of infeed and outfeed options.

- Aseptic filling of injectable drugs: filling, stoppering and capping
- Ophthalmics and diagnostics: filling, dropper insert and screw capping including micro-tubes
- Customized design allows for various applications/configurations
- Compact design maintains a small footprint that fits inside small cleanrooms
- Up to 75 units/minute
- Completely closed peristaltic system ensuring no cross-contamination
- FDA validated sterile production

Two high-accuracy peristaltic pumps are fully integrated

An FMB210 fed by a bottle unscrambler unit and, right, an FMB210 installed within a laminar air flow cabinet
The sensor for the FMB210's no-vial-no-fill feature.

Dimensions in mm/inch:
- 1725 / 67.9"
- 825 / 32.5"
- 1130 / 44.5"
- 2050 / 80.7"
- 1250 / 49.2"

Acc. to customer tray:
- 1130 / 44.5" customer tray
Once there is a need for larger scale production, we can provide fully automatic filling solutions for new or existing systems.

Watson-Marlow Flexicon’s OEM solutions consist of fillers, master controllers, trolleys, gating and electronic bottom-up systems. OEM applications include:

- High capacity filling lines for the biopharm industry
- Filling lines for bottles with an awkward shape for the diagnostics industry
- Existing filling lines where piston pumps should be replaced

A vast number of OEM customers and machine manufacturers have already successfully incorporated our solutions into their filling lines, adding value to their product.

- Faster changeover between batches
- Less product waste during changeover between different liquids to be filled
- Easy cleaning, validation and programming
- No need for format parts for different fill volumes or products to be filled
- Minimum need for maintenance
- Functions to prevent after dripping and splashing

**Trolleys**

Watson-Marlow Flexicon’s trolleys are cabinets on castors fitted with two or more fillers. Trolley solutions are supplied for integration into new or existing filling lines. We have several standard designs or will build to fit custom requirements.
MC12 control unit for multi-filling system
The unit fulfils all usual requirements and can be extended to include several filling stations, an electronic bottom-up fill system, a printer for documentation logging, a direct link to a balance for dynamic recalibration and more.

Master controllers
Master controllers, such as the MC100, can control 16 pumps in a filling line. We supply stand-alone controllers, panel mounts and controllers for communication with filling line systems via Profibus or DeviceNet. The MC100 receives filling data through an industrial fieldbus, calculates operating values for the fillers then transmits those through a FlexNet protocol to the fillers.
Our engineers can help you choose the perfect filling and capping equipment for your needs.

Accessories

Watson-Marlow Flexicon provide silicone tubing, filling nozzles and other accessories, which can ensure aseptic filling and the highest possible filling accuracy. All designed for use within the pharmaceutical and biotech industries.

It gives you a fast and easy change-over between batches and prevents cross-contamination between liquids to be filled.

Let us assist you find the right accessories for your Watson-Marlow Flexicon equipment.

You are also welcome to download detailed brochures and evaluate films of the entire product range at www.wmflexicon.dk

Watson-Marlow...Innovation in Full Flow