

LIQUID FILLING MACHINERY





SHAMPOO • LIQUID SOAP • COSMETICS • LUBRICANTS • FOOD & BEVERAGES • CHEMICALS
HOUSEHOLD PRODUCTS • POLISH • PAINT • ADHESIVES • HAND SANITISER

LOW COST ✦ VERSATILE ✦ SIMPLE TO OPERATE ✦ HIGH OUTPUT
SMALL FOOTPRINT ✦ SIMPLIFIED PRODUCT CHANGE OVER
QUALITY MONITORING SYSTEM ✦ REMOTE SUPPORT

GRAVFIL® SUPPLY INDUSTRY LEADING LIQUID FILLING SYSTEMS CAPABLE OF HANDLING THE WIDEST RANGE OF PRODUCTS

Gravfil® made its first filling machine in 1929. Since then it has grown to become one of the leading and most respected manufacturers of liquid fillers and liquid filling lines available in the world.

Designed for speed and efficiency

Gravfil® machinery provides for outputs up to 400 containers per minute and beyond. Our machines can handle volumes from as little as 20ml up to 20 Litre and even larger if required. Our systems use volumetric, flow meter and level filling technologies to fill into cartons, plastic or metal containers.

Optimised liquid filling systems

Every type of liquid is unique and that's why **Gravfil®** have developed a number of different filling systems to suit specific applications. When we offer a solution to a liquid filling problem, we do not just consider the product and speed. We aim to provide an optimum solution that will fill efficiently, accurately and deliver a consistency to maximise production whilst minimising product give-away.



The Precision Automation group also design and manufacture the Dico® range of capping machines. Wider services include bespoke test, assembly and automation systems.



ATEX rated options are available for potentially explosive products such as hand sanitiser.



Compliant with European product safety directives.

ONE **GRAVFIL®** CUSTOMER
CURRENTLY FILLS MORE THAN:

6 MILLION

CONTAINERS OF
SHAMPOO EVERY DAY

EVERY DAY THE UK DRINKS
INDUSTRY PRODUCE OVER:

4 MILLION

GLASSES OF ORANGE JUICE
FILLED BY **GRAVFIL®** MACHINES

GRAVFIL® HAVE SOLD
AND INSTALLED:

5,000+

LIQUID FILLING MACHINES
AROUND THE WORLD



NEXUS | VOLUMETRIC ROTARY FILLER

For containers of 20ml–20 Litre
with filling speeds up to 24,000
bottles per hour



The NEXUS Volumetric Rotary Filler is suitable for high speed liquid filling. The high filling accuracy, which is up to +0.1% of cylinder volume, is ensured by the unique design of the filling valve – only available on **Gravfil®** machines.

Digitally controlled system

Filling volume is simply selected by the operator from a product menu and correct adjustment is achieved by the robust, fully motorised system.

- Mechanical structure in stainless steel
- Parts in contact with product constructed in stainless steel
- Options of filling technologies including, positive displacement, flow meter and vacuum filling

Easy and efficient cleaning by design

Cleaning is conducted in place and is carried out with the machine stationary. Spray balls and scavenge pumps can be fitted to fully optimise the cleaning process.

The Nexus is designed to use the simplest product feed path and metering cylinders are mounted directly on to the product tank. Our machines aim to achieve maximum efficiency with minimal maintenance.

- Siemens Control system with 15 Inch HMI
- Automated Clean-in-Place systems
- Simplified and rapid bottle format change over procedures.

ASK US TODAY ABOUT HOW TO INTEGRATE A GRAVFIL® FILLER INTO A COMPLETE FILLING AND CLOSING LINE.

TOUCH-SCREEN HMI USER INTERFACE

The easy-to-use software can be accessed by the operator on the **Gravfil® Excel** HMI screen.

- Run instructions
- Change-over instruction
- Machine status
- Advanced Profile Filling options

Maintenance technicians can access all the required information for fast diagnostics should any problems arise. Secure passwords allow the technician to manually actuate the controls and view input/output status.



EXCEL B | VOLUMETRIC IN-LINE FILLER

Linear filling machine for containers of 20ml- 1 Litre
with filling speeds up to 6,000 bottles per hour

The **Gravfil® EXCEL B** is a PC-PLC and servo motor controlled liquid filling machine. Filling nozzles are specifically designed and selected to suit the customer's products and containers.

When the correct number of containers are detected in position, the filling nozzles descend automatically. The locator/drip tray system ensures narrow necked containers are correctly aligned.

The product is dispensed by a servo-controlled positive displacement piston. On completion of the filling cycle the heads retract, the gating mechanism allows smooth exit of the containers.

GRAVFIL® ENERGY EFFICIENCY

Energy efficient Siemens servo drive, motion control and PLC systems. Hibernation mode to minimise power use with up to 30% energy saving over conventional equipment.

• Machine size (W x H x D)	142cm x 200cm x 130cm
• Weight	Up to 1200Kg
• Tank volume	120L
• Pumping cylinders	Options from 2-12
• Accuracy	> 99.995% of setpoint
• Repeatability	+/- 0.1%
• Filling range Low	2% of cylinder volume
• Filling range High	Infinite with multi-pump capability
• Filling speeds	Up to 100 BPM
• Nozzle type	Changeable options
• Nozzle size	Options to suit container size and filling rate
• Change part type	Adjustable
• Nozzle control	Pneumatic
• Cleanliness standard	Personal hygiene. Food. Household products
• ATEX Rated	Optional (requires air extraction)



CE  ATEX rated

For hand sanitiser and other explosive products Non-ATEX rated option available.



Gravfil® filling machines offer the most innovative and modern features available in the filling industry for liquids and low and high viscous products.

- ◉ Vacuum drip removal, for clean filling
- ◉ Servo drive, for optimum fluid control
- ◉ Automatic flushing
- ◉ Profile filling capability
- ◉ Option: Clean-in-Place
- ◉ Option: Quick change parts

OPTION QUICK CHANGE PARTS

Easy and swift product change over are the invaluable benefits of our Gravfil® quick change part system.

- ◉ Individual parts for specific container size and shape
- ◉ Pneumatic gates
- ◉ Electrical sensors
- ◉ No hand tools required
- ◉ Target change speeds <2 minutes

The change parts are secured with thumb screws and the pneumatic and electrical connections on plug and socket.

ADVANCED PROFILE FILLING SYSTEM (APF)

Gravfil® filling machines use our advanced profile dual-servo drive system for all container and product types. The innovative system allows the fill speed, nozzle speed and nozzle position to be optimised and controlled through our software.

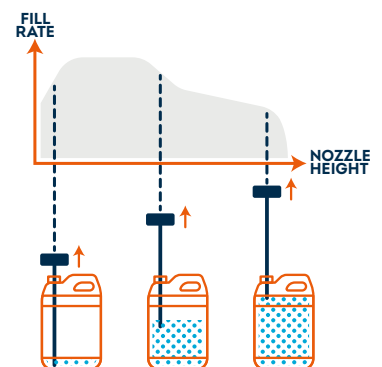
If required a container can be filled from the bottom up with the filling nozzle positioned as required during the fill cycle. The operator can maximise production requirements using our programmable filling speed functionality.

Infinite adjustment of the nozzle position

The nozzle can be positioned just below or just above the fluid level. This guarantees the nozzle position remains constant to the fluid level throughout the cycle.

PROFILE MAPPING

Complicated shaped containers, demanding non-viscous or foamy product are quickly optimised for faster or slower filling speeds directly from the 15-inch touch-screen HMI.



The flexibility to suit your product flow

More conventional and widely available pneumatic systems can only offer single or dual speed functionality.

FEATURES	Excel A	Excel B	Nexus II
Product range	150ml up to 20 Litre	20ml up to 1 Litre	20ml up to 20 Litre
Machine type	Linear	Linear	Rotary
Filling heads	4-12	4-12	12-30
Filling speeds (bottles per hour)	Up to 6,000	Up to 6,000	Up to 24,000
Profile filling capability	✓	✓	×
Integrated Clean-in-Place system	✓	✓	✓
Accuracy +/- of setpoint	>=0.025%	>=0.025%	>=0.025%
Cleanliness standards	Various	Various	Various
Contact parts	Stainless steel • PTFE	Stainless steel • PTFE	Stainless steel • PTFE
Tank volume (litres)	300	125	120

OPTIONS	Excel A	Excel B	Nexus II
ATEX rating	✓	✓	×
Quick change nozzles	✓	✓	✓
Quick change parts (container)	✓	✓	✓

BENEFITS	Excel A	Excel B	Nexus II
Remote support and diagnostics	✓	✓	✓
Simple in operation	✓	✓	✓
High output	✓	✓	✓
Quality monitoring systems	✓	✓	✓
Small footprint	✓	✓	✓
Versatile	★ ★ ★	★ ★ ★	★ ★ ★
Labour reduction	★ ★ ★	★ ★ ★	★ ★ ★
Simplified product change over	★ ★ ★	★ ★ ★	★ ★ ★

STANDARD QUICK CHANGE NOZZLES

All **Gravfil®** in-line filling machines are supplied with the ability to quickly change a nozzle type if required. The quick change ability gives the machine versatility to fill efficiently a wide range of container sizes and a wide range of liquid types.



Designed and built in the UK. Precision Automation are the only official manufacturer of Gravfil® machines

STANDARD SERVICE REMOTE DIAGNOSTICS

All Precision Automation equipment is designed using the very latest hardware. The PC interface and ethernet communication protocol means that we can remotely connect through the customer's VPN or 4G device. Our service desk can monitor the condition of the control system and, if required, take control of the machine. This important advanced feature further improves machine uptime and most cases prevents the requirement for on-site intervention.



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