

Gatic Vortex gives you control of
drainage volume and speed.

GATIC® Vortex

Specialised Engineering. Special Advice.

Harness the power of Vortex



Gatic Vortex has been developed to bring the benefits of advanced fluid dynamics to the control of surface and waste water in a wide range of situations.

More than 35 years of relevant professional and specialist experience in the field of storm water attenuation, sewerage system design and vortex technology, mean our designers and engineers are well equipped to provide highly capable and competitive products, as well as sound advice to the industry.

Vortex Flow Control systems (VFCs) have now been successfully installed in their thousands all over the UK and throughout Ireland.

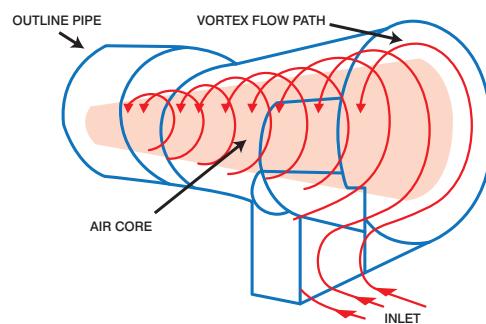
How does it work?

The design allows the flow to enter tangentially. At normal and low flow rates, the liquids pass straight through the control. As the rate of flow becomes greater, the increase in hydraulic head (and hence energy) causes the liquid to attempt to rotate around the inner face of the control. This results in a brief transition period until

the hydraulic head has risen sufficiently for it to provide enough energy for the liquid to rotate consistently.

When the flow rate reaches such a level, the liquid rotates at high velocity around the inner face of the control, resulting in a high energy, air filled vortex.

The air core occupies the majority of the outlet of the control with the flow exiting the device from around the outer edge as a spray rather than a jet. Vortex flow controls therefore have a much larger cross-sectional area than conventional flow controls. Consequently, they are much less prone to blockage.



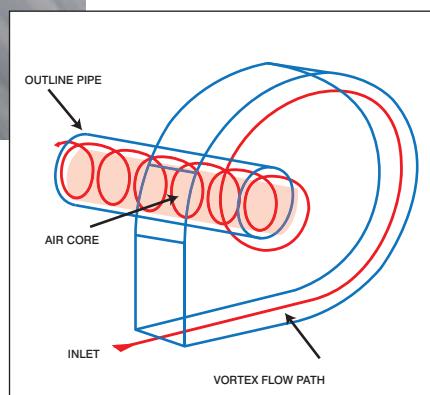
GATIC[®] Vortex

Specialised Engineering. Special Advice.

Bespoke Vortex systems to suit any application



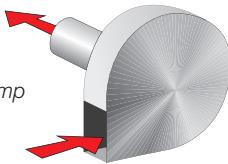
Gatic has a range of VFCs at its disposal to allow the most effective configuration to be deployed for each situation.



SW control units

Typically referred to as 'Snails', these controls are generally only used in surface water systems as a sump is normally required, due to the outlet being higher than the inlet.

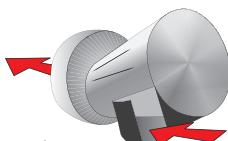
Flow range: 1-200 litres per second



CB control units

These can be used in surface water systems where SW versions are physically too large. Also used in foul or combined applications.

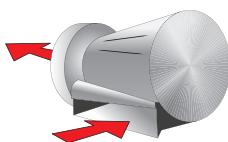
Flow range: 3-4000 litres per second



CS control units

Used where other designs cannot be accommodated due to their physical size.

Flow range:
3-4000 litres per second



Every Gatic Vortex project is individually built for its application. Since all of our flow controls are bespoke fabricated, they can be made to fit into any type of chamber, tank or system.

We are well aware of the effects that development has had on the UK's water table and natural soakaways and always take these considerations into account in formulating our recommendations.

In deciding the size and type of VFC that will be best suited to provide the flow control that your project calls for, we use our experience to plan and control the materials, time and labour costs, ensuring the most efficient and cost effective outcome.

Features and options

We have developed a range of designs, each with unique characteristics which, combined with additional features and options, enable us to meet any brief.

✓ Our devices are typically fabricated in 10 gauge 3mm 304 grade stainless steel to the relevant British Standards.
(316 grade is also available.)

✓ Stainless steel is far superior to the plastic often used for VFCs. It will not corrode and is resistant to turbulence and abrasion. Life expectancy of the unit is likely to exceed that of the system to which it is installed.

✓ Post installation maintenance is negligible. Blockages are practically unheard of and the drain-down/bypass mechanism is operated remotely from ground level.

✓ Should a blockage occur, the mechanism allows drain-down without over pumping or bypass penstocks and extra pipework.

Vortex flow applications

The list of applications for Vortex Flow Controls would have to include virtually anywhere of an area big enough for surface water regulation and disposal to be likely to become an issue. In today's changing weather environment, with severe weather events becoming ever more frequent, the demand for effective control can only become more pressing.

Below are a few current examples.



Major infrastructure projects.

Control of surface water run off from:

- Housing developments
- Industrial developments
- Infrastructure developments
- Land drainage



Urban development and landscaping.



Construction and redevelopment.

As part of flood and pollution alleviation schemes within:

- Existing sewerage systems
- River networks

Flow balancing in:

- New and existing sewerage systems
- Sewerage treatment works
- Potable water treatment plants

Control of pass-on flows from:

- Combined sewer overflows
- Storage tanks
- Reservoirs
- Swales



Reservoirs, land drainage and sewerage control.

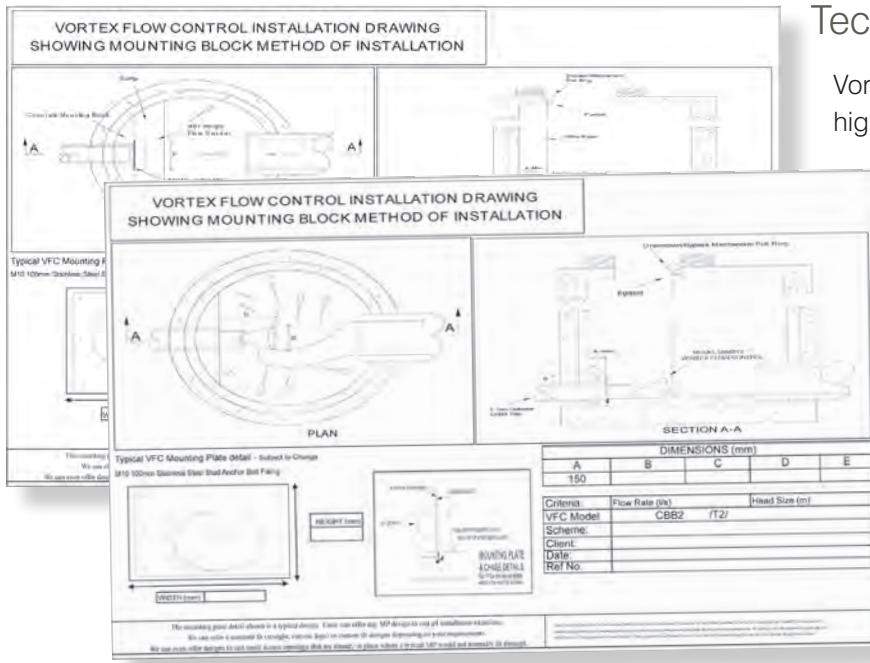
GATIC® Vortex

Specialised Engineering. Special Advice.

Technical information and engineering back-up



Examples of sliding orifice plates and flow restrictors.



Typical installation drawings for Gatic Vortex Flow Controls.

At Gatic, we take pride, not only in the overall excellence of our products but also the scope and standard of our specialised engineering back-up and advice.

Since all our systems are bespoke designs, unusual and problematic situations, requiring a unique Vortex Flow Control are nothing new to our engineers and designers.

We have a huge fund of experience and a vast inventory of equipment from which to tease the perfect solution. However, we pride ourselves on the impartiality of our advice.

If a VFC installation is inappropriate and will not successfully provide the answer to your water control and disposal problems, we will happily point you in other directions more suitable to your requirements.

Technical data

Vortex Flow Control design and installation is a highly specialised and technically demanding business and, although some of our customers like to be involved in the detail to a greater extent than others, many prefer to brief us thoroughly, approve the plans and figures we present and tell us to get on with it.

At Gatic, we're happy to play it either way, supplying you with as much or as little technical information as you desire. On this page you will find examples of typical installation diagrams and opposite are flow charts and graphs for a sample SW Vortex Flow Control unit.

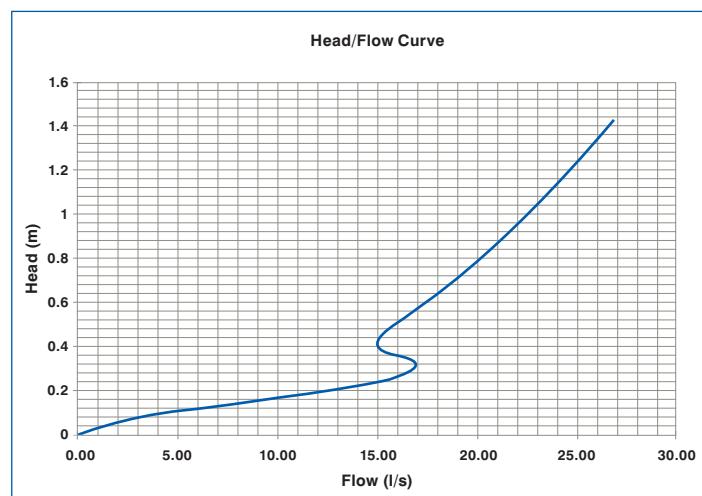
Additional features

- No moving parts.
- Self-activating.
- No external energy requirements.
- Very resistant to abrasion and corrosion.
Other materials such as Grade 316 stainless steel are available when necessary, (eg. for use with salt water or chemicals).
- Individually designed. All of our flow controls are individually calculated and fabricated to the millimetre to achieve maximum efficiency.
- We also design our flow controls to suit every individual situation to work with all types of systems old or new.
- Savings in time and labour due to flexible installation methods. Unique head/flow relationship can produce savings in storage volumes.
- Throttle plates.
- Orifice plates.
- Penstocks (penstocks are often coupled up with flow controls as an extra drain-down facility but are usually not necessary as all of our flow controls come with their own drain-down bypass).
- Downstream access for maintenance.
- Easy drain-down operation from ground level.

To find out more about how Gatic can help you harness the power of the Vortex, call our technical team on +44 (0) 1304 203545.

SW Design		Head (m)	Flow (l/s)
Design Flow (l/s)	20.00	0.05	1.54
Design Head (m)	0.80	0.10	4.37
Diameter (mm)	199	0.15	8.03
Outlet Area (m^2)	0.030970	0.20	12.36
Invitation OK?	Yes	0.25	17.27
		0.30	16.91
		0.35	17.45
		0.40	15.18
		0.45	15.00
		0.50	15.81
		0.55	16.58
		0.60	17.32
		0.65	18.03
		0.70	18.71
		0.75	19.36
		0.80	20.00
		0.85	20.62
		0.90	21.21
		0.95	21.79
		1.00	22.36

Flow performance chart for 199mm SW Gatic Vortex Flow Control unit.



Example of fluid head/flow curve. The graph clearly shows the 'kick-back' characteristic of the establishment of full vortex flow.

GATIC® Vortex

Specialised Engineering. Special Advice.



Gatic
Poulton Close
Dover
Kent CT17 0UF
United Kingdom

Copyright GATIC – July 2014

Specialised Engineering. Special Advice.

Tel no: +44 (0) 1304 203545
Fax no: +44 (0) 1304 215001
email: info@gatic.com
websites: www.gatic.com/vortex

GATIC is a division of Alumasc Ltd