



FlowCon International - Our Story



FlowCon International

Selection of Product Range



***Project: The Walkie-Talkie, London,
United Kingdom (frontpage)***

*Martin Gettings, Group Sustainability Manager
at Canary Wharf Construction:*

*“Our total project approach to make sustainability
real has resulted in one of the most sustainable
buildings of its type in central London”.*

*With its BREEAM Excellent rating, the Walkie-
Talkie construction is proven to include high
energy-efficiency, be environmentally friendly,
and sustain social responsibility.*

*FlowCon has supplied By-Pass Mini Assemblies
and PICVs to all heat exchangers,
FCUs and AHUs in the building.*

FlowCon International

History and Background




Since the very beginning of our corporate history, FlowCon International has been a technology front-runner with a keen eye on human comfort and the environment.

FlowCon International was founded in Denmark in 1985 as a joint venture between the two market leaders in Europe and the USA on the dynamic balancing valves' market. The fundamental purpose of this union was to combine these two companies' know-how for further joint development of pressure independent products. At the same time, FlowCon International was appointed the international sales organization for Griswold Controls.

The close collaboration between FlowCon International and Griswold Controls resulted in a merger of FlowCon and Griswold in 2014, making it the largest specialized manufacturer of dynamic balancing and pressure independent control valves for the Heating, Ventilation and Air-Conditioning (HVAC) segment globally. In 2020 FlowCon incorporated Griswold Controls into the FlowCon Group. Today, the FlowCon Group today also includes FlowCon IVC, Denmark (founded in 2014) and FloControl Ltd., United Kingdom (acquired in 2022).

The FlowCon Group holds the largest installation base of dynamic balancing valves and pressure independent control valves, PICVs, with significantly more than 10 million valves installed in the market - some of which had been operational for more than 25 years.

Very few companies within our industry can provide as impressive a track record of revolutionary products as the FlowCon Group which among other includes:

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- 2020** Release of the first ever equal percentage PICV insert
 - 2018** Launch of the world's first pressure independent ΔT control valve
 - 2010** Introduction of the world's first PICV with intelligent display actuator and BACnet connectivity
 - 2003** Release of the world's first serviceable externally adjustable automatic flow limiting valve
 - 1998** Launch of the world's first characterized ball valve for linear control characteristics
 - 1994** Introduction of the world's first pressure independent control valve, PICV
 - 1960** Release of the automatic flow limiting valve

Today, FlowCon is presented in over 65 countries on 6 continents, with sales and production facilities in Denmark, USA (Griswold Controls) and United Kingdom (FloControl). Next to this, we have own sales and marketing offices in Singapore, China and Dubai servicing customers locally.

FlowCon International

Project: Okada Manila Casino Resort, Manila, Philippines

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At Asia's largest 5-star hotel and casino resort sustainability, comfort and luxury go hand in hand. FlowCon supports the ambition and has supplied PICVs offering the best indoor comfort and optimized energy consumption. This will benefit both hotel guests, management's cost consciousness and environmental focus.



FlowCon International

Our Mission, Vision, and Values



Mission

Our Mission is to make waterborne HVAC system the preferred source of cooling and heating in buildings and thereby **reduce the environmental footprint** obtained with proper building temperature control.

By working closely with our partners and customers in the HVAC community, FlowCon International attempts to foresee and fulfill their coming needs. Our goal is to create products that will help drive the development of dynamic and pressure independent solutions.

Vision

Our Vision is to **improve energy efficiency, increase simplicity** and **secure stability** in waterborne HVAC installations - in all project phases from planning through to maintenance. We do this by developing and promoting products, which approach and prevent problems generated by pressure fluctuations in the system.

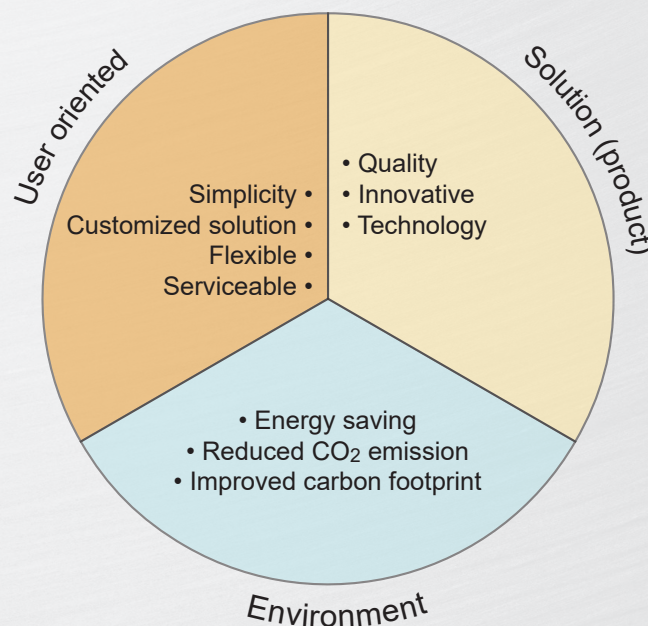
Values

We believe in honest, ethical, and moral practice within a conservative management approach, meaning that any optimization is done with respect to the company's ecosystem consisting of customers, employees, shareholders, and vendors.

A flat organizational structure with private ownership and direct involvement of the owners in the day-to-day operation gives the best customer service with 24-7-365 service which is very important for us.

Our Core Values are:

- **User Orientation**
- **Environmental Focus**
- **Product Solutions.**



FlowCon International

Project: Tornado Tower, Doha, Qatar

Project: Tornado Tower, Doha, Qatar

FlowCon International is the sole supplier of balancing valves and PICVs to the Tornado Tower, and has delivered FlowCon Green, FlowCon SM and FlowCon Wafers to the project. Tornado Tower was awarded 'the best tall building in the Middle East and Africa' in 2009 by the Council of Tall Buildings and Urban Habitat.



FlowCon International

Our Company Values



User Oriented

- an extra word on Simplicity

Due to the modular construction of the valves, it is very easy to customize FlowCon products and make exactly the solution that you require meeting your special project needs. The modular construction furthermore allows more efficient logistics, simplified site handling and easy site maintenance of the product.

Besides controlling the water flow, the product construction is supporting a significantly more efficient distribution, installation, and operation of the valves.

Environment

- an extra word on Energy Savings

We are experts in controlling the flow of water and we use our expertise to help optimize the flow to all equipment in a building, leading to energy savings and reduced building carbon footprint.

- 30% of the world's energy is used in operation of buildings¹.
- HVAC systems account for more than 40% of the energy used in commercial buildings².
- 20% of the world's electricity is used to pump fluids around³.
- 90% of a pump's life cycle costs, LCC, is energy related⁴.

From these percentages it is clear, that if a pump can work less, significant energy savings can be achieved.

Using dynamic valves:

- ... may reduce building energy consumption by at least 15% by simply ensuring system stability⁵.
- ... may add a further 30% cost saving through simplified system design by using pressure independent control valves, PICVs, and optimal pump control⁶.
- ... may result in considerable energy-, emission- and cost savings (10-40%)⁷.

Solutions

- an extra word on Innovation

At FlowCon, we work in an innovative environment and move from idea to manufactured product quickly. This is also supported by our flat company structure which motivates close cooperation across departments and rapid reaction to market needs. We are constantly developing products in response to market demands, introducing at least 2 new products each year. More than 5% of our income is invested in research and development.

1) Source: International Energy Agency, 'Tracking Report', September 2022.

2) Source: US Department of Energy, 2010 and Council of Australian Governments, 'Guide to Best Practice Maintenance and Operation of HVAC Systems for Energy Efficiency', January 2012.

3) Source: Hydraulic Institute via Triangular Wave Technology, 'Equipment Applications Fact Sheet Series'.

4) Source: Science Direct, 'Life Cycle Energy Cost Savings through careful System Design', 2007.

5) Source: Science Direct, 'A Critical review for Buildings Energy Performance', 2021.

6) Source: University of Southern Denmark, 'Fault Detection and Efficiency Assessment for HVAC Systems...', 2022.

7) Source: US Energy Information Administration.

FlowCon International

Project: Cactus Towers, Copenhagen, Denmark

Project: Cactus Towers, Copenhagen, Denmark

The project introduces the concept of “micro-living”, which fits the young tenants’ dynamic life paths and minimalistic mindset. Living with less also benefits the environment and sustainability and goes well with SDG11 ‘Sustainable Cities and Communities’.

The development includes FlowCon GreEQ PICVs suitable for very low flow rates.



FlowCon International

Sustainability



FlowCon's business idea started with dynamic balancing valves or products leading to the invention of the PICV concept (Pressure Independent Control Valve) and introduction of the world's first PICV in 1994.

Since then, the range of product solutions have grown, all with the same **core idea** of **optimizing room comfort while reducing energy consumption** through pressure independency. It is today very well documented that the PICV technology is improving indoor comfort while reducing energy consumption in buildings and thereby reducing buildings' CO₂ emission.

We find it natural to link our business concept with **United Nation's 17 Sustainable Development Goals**, the SDGs and we put our main focus on three SDGs, namely SDG7 (Affordable and Clean Energy), SDG11 (Sustainable Cities and Communities) and SDG13 (Climate Action). We have selected these SDGs because they enable us to continue to push our product development even further, as well as support our customers on their path to more sustainable solutions.

To us it is not enough to supply our customers with energy efficient solutions to their HVAC system to reduce their environmental impact. We have also committed our CO₂ reduction target to the acknowledged **Science Based Targets initiative** for the company's own emissions. We know our own environment footprint and we want to - together with our partners - to deliver as positive an environmental impact as possible.

We are proud to say:

Your Environment - Our Commitment



FlowCon International

Project: The Holy Mosque, Mecca, Saudi Arabia

Project: The Holy Mosque, Mecca, Saudi Arabia

The Holy Mosque has been using FlowCon valves continuously for more than a decade.

FlowCon International is the sole supplier of balancing valves and PICVs.

FlowCon has amongst other delivered FlowCon SM for air handling units and dynamic balancing FlowCon K valves to the ZamZam water distribution.



FlowCon International

Product Development



Product Development

Developing pressure independent products has been the success criteria ever since the founding of the company and product development is a key stone in the organization. With our direct focus on development of new products and further development of the current product range, we can offer our customers the best products matching their application. Every year we reinvest more than 5% of our income in research and product development. This makes us able to constantly develop and improve solutions in response to market demands. At the same time, we also spend a lot of time in **research** to remain **the front-runner** in our line of business offering **state-of-the-art product solutions**. This could for instance be alternative materials, which are tested to meet special demands as to temperature, media, and reduced weight.

All development is done in SolidWorks providing 3D models available for production partners and customers. These models used directly in customers' own CAD programs are helpful in illustrating product dimensions, special product features etc.

Demo units, either 3D printed or machined, are hereafter tested for performance verification. Once a concept is approved, an actual product is produced and tested rigidly in our in-house laboratories in both the USA and in Denmark to verify performance and lifespan. By testing the product in two locations simultaneously, it is possible to verify the result and minimize test inaccuracies.

The focus on product development has resulted in having the world's largest selection of dynamic balancing valves and PICVs:

- FlowCon's unique insert concept keeps solutions flexible, meaning that we can provide a solution for every system. This unique design allows simplified selection, installation, and field serviceability.
- FlowCon SM is the world's most advanced pressure independent control valve, PICV.
- FlowCon Wafer is the world's largest dynamic balancing valve.



*Project: Caledonian House,
St. Stephen's Green, Dublin, Ireland
"FlowCon are the best PICV valves
I have ever used", Stephen Sheehan,
Project Management, Designer Group.*

FlowCon International

Project: PIF Tower, Riyadh, Saudi Arabia

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The PIF Tower (formerly known as CMA Tower) is with its LEED Gold rating highly focused on sustainability, water efficiency, energy, and indoor climate. FlowCon backs the ambition to work with energy and environmental design and has delivered FlowCon SM PICVs and balancing Wafer valves to the project.



FlowCon International

Sourcing and Production



Sourcing and Production

First after confirmation of product performance and rigid life-time testing, a product will be released for production. We operate with a network of sub-suppliers, whom all are subjected to continuous vendor evaluation. All sub-components are manufactured in accordance with FlowCon 3D engineering drawings.

Once produced, all sub-components are received at our factories, located in Denmark, United Kingdom, and California respectively, and will be subject to incoming inspection. After approval, the components are assembled into final products and function tested before shipment in accordance with our ISO 9001:2015 certification. All products sold by FlowCon International hold either European or American origin, which can be certified by the Danish Industrial Federation upon request.

Quality Control and Stock Capacity

FlowCon International operates under a stringent quality control system covering everything from product development, sourcing,

incoming inspections, manufacturing processes, outgoing inspection, continuous product testing including lifetime tests and documentation of each process. Each process is done in accordance with ISO 9001:2015 certification.

Given our experience in the HVAC field, we are very well aware of having the right products available at the right time, is essential for a successful project execution. Therefore, we continuously carry inventory valued above 15 million € to ensure on-time delivery of projects of all sizes. Our stock capabilities are located in our facilities in Denmark, United Kingdom, Shanghai, Dubai and the USA. From stock, we offer valves in any size from DN15 (1/2") to DN1000 (40") controlling flow rates between 17 l/hr (0.07 GPM) up to 8240 m³/hr (36300 GPM). Combined with the modular build of products, this will ensure execution of most projects within a very short period of time.

Innovation, quality, and availability are the main virtues within the FlowCon Group.

Project: Axel Towers, Copenhagen, Denmark

"FlowCon products were technically as well as construction-wise ideal for the project in question. As the project is located in the city center, space was limited and the site difficult to enter. It made perfect sense to have FlowCon valve housings installed in identical sizes on all locations and later apply the suitable insert set to the required flow rate. This process minimized the piping works and reduced the logistic challenge at site. At the same time, the balancing procedure was not necessary as the valves are self-balancing helping us to meet the tight deadline", Michael Dall, Project Manager, Ib Andersen VVS.



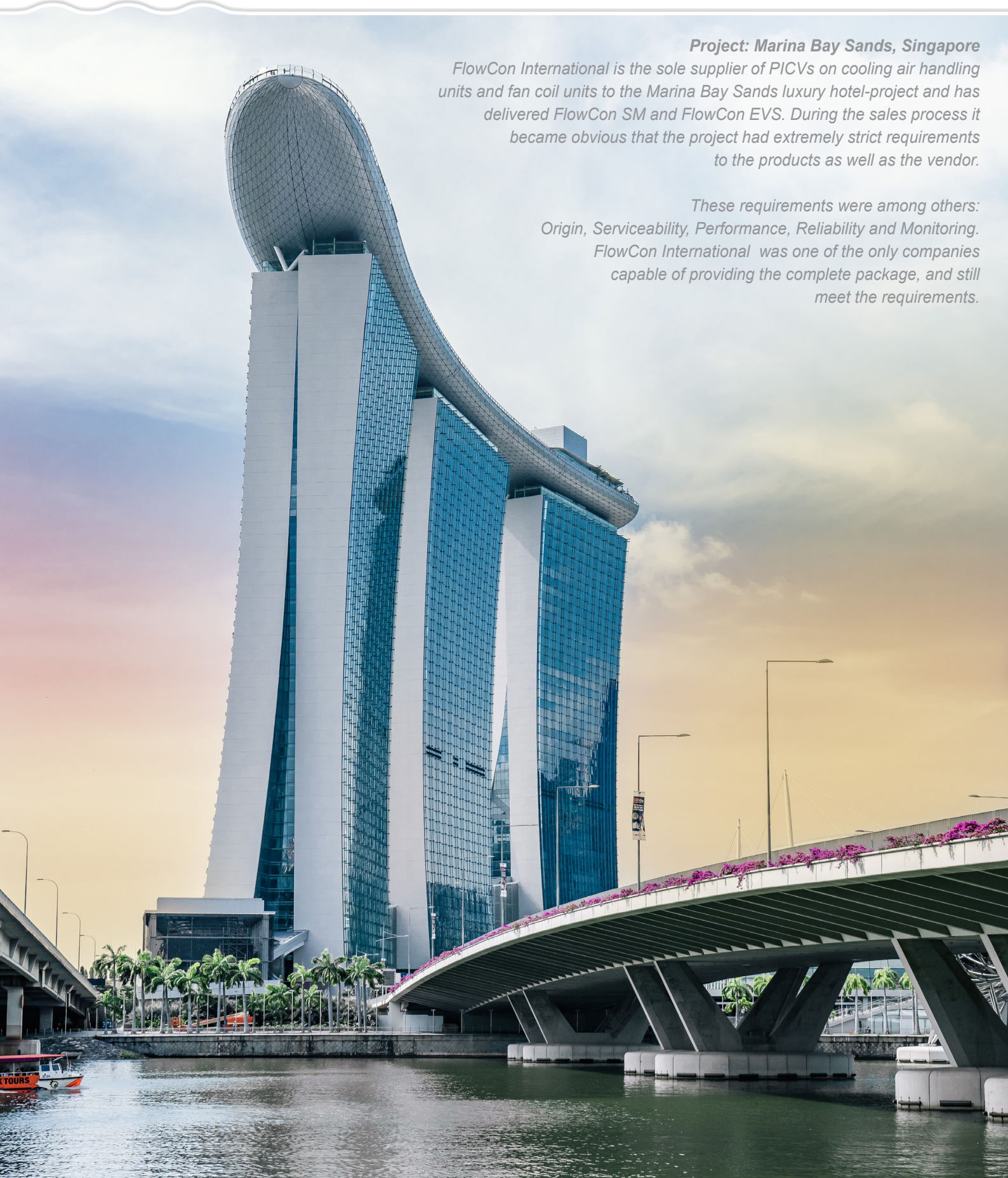
FlowCon International

Project: Marina Bay Sands, Singapore

Project: Marina Bay Sands, Singapore

FlowCon International is the sole supplier of PICVs on cooling air handling units and fan coil units to the Marina Bay Sands luxury hotel-project and has delivered FlowCon SM and FlowCon EVS. During the sales process it became obvious that the project had extremely strict requirements to the products as well as the vendor.

These requirements were among others: Origin, Serviceability, Performance, Reliability and Monitoring. FlowCon International was one of the only companies capable of providing the complete package, and still meet the requirements.



FlowCon International

Working with HVAC Practitioners



Working with HVAC Practitioners

By collaborating closely with our partners and customer in the heating, ventilation, and air conditioning community, FlowCon attempts to foresee and fulfill their coming needs. Our goal is to create products that will help drive the development of dynamic HVAC solutions. By using FlowCon pressure independent

products in the variable flow system, you can obtain direct pump energy savings of ~35% compared with traditional 2-way control valve and static valves. Additionally, cost savings are obtained in the installation phase and commissioning phase when working with PICVs:

- **Simplified design** → fewer valves
- Fewer valves → **less head loss**
- **User friendly** insert technology → allowing **serviceability** and **easy installation**
- **Flexibility** → for on-site and in-operation change possibility
- Self-balancing valves → **no commissioning**
- 100% authority → **better energy utilization**
- 100% stroke → **better control** and consequently **better indoor comfort**
- Simple end-of-life **waste sorting**

With our long history in the HVAC industry, we have expertise in providing high quality valves for many types of applications all over the world. These range from hotels and office blocks over shopping centers, airports,

hospitals, universities, stadium cooling and much more.

You can find a selection of FlowCon projects on our website

www.flowcon.com

Project: New South Glasgow Hospital, Glasgow, United Kingdom

"I have dealt with FlowCon for 6 or 7 years and the fantastic project support and technical advice the lads can offer along with the quality products they offer, is why they are always top of my list of preferred suppliers", Ciran J. Kellegher, Operations Director UK, Mercury Engineering.



www.flowcon.com



#YourEnvironmentOurCommitment

FlowCon
international

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