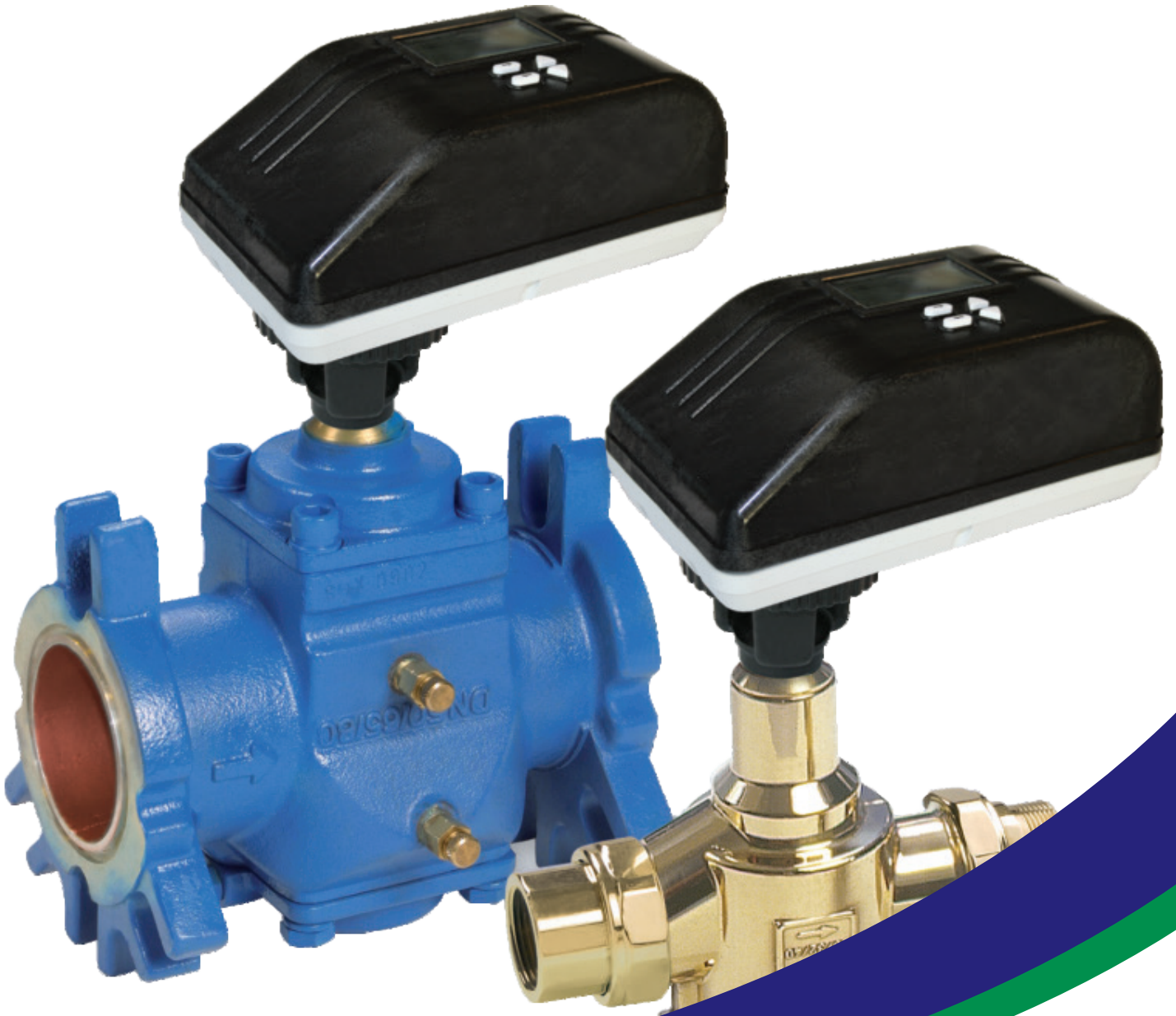




Energy • Environment • Sustainability



**HIGH**  
PERFORMANCE  
engineering solutions

[www.ensavior.com](http://www.ensavior.com)

**HYDRONIC**  
Balancing Valves



## ENSAVIOR



“In this age of globalization, the smarter and healthier buildings require high-performance engineering solutions. Today is the need for businesses to make a switch to best engineering practices and promote environmentally responsible products and services”



# Who we are



## Ensuring Quality, Retaining Trust

Ensavior Technologies Private Limited is a comprehensive engineering solutions provider in India, engaged in Design, Engineering, Sales, Marketing, Operation and Maintenance of various product and systems for building services industry pertaining to Heating, Ventilation and Air conditioning (HVAC). All the products and services promoted revolve around the fundamentals of saving Energy and Environment with a special emphasis on Economic, Environmental and Social Sustainability.

Over the years, Ensavior has remarkably extended its product line, serving the building services industry that includes Pumps for HVAC, Plumbing, Fire; Automatic Balancing & PICV Valves; Customised Air Purification with a focus on Gas Phase Filtration system, Ultra Violet Germicidal Irradiation (UVGI) system and Electrostatic Precipitation system; Thermal Energy Storage system; Electrolytic Scale Remover (ESR) system and HVAC Sensors & Transducers.

We engage in the project right from the conceptualization stage and thereby help in right selection, optimum design and implementation of most energy-efficient products. Besides that, we ensure on-site job training to project managers, facility

managers and operators so that the systems are operated in most efficient and simplest manner. Based on the needs of the project, we also undertake the operation and maintenance of the system for which we have back up of spare parts and trained manpower.

For us, every project is a golden opportunity for continuous improvement and swift growth. This results in maximum cost-effectiveness, efficiency, and productivity for our customers. Realizing the rapid pace of new innovative product solutions reaching the marketplace, and everchanging National Code revisions and requirements, we take pride in educating and training of our staff to offer our customers the latest in safety, convenience, and improvements.

At Ensavior, we firmly believe that the more you engage with customers, the clearer things become and it is easier to cater to their requirements. We have a well-established track record, and our services have always met with excellent customer satisfaction. It is our constant endeavor to make every aspect of the customer's requirement a little bit better since we know when a customer comes first, the relationship lasts.

*World's Most Smart and Innovative  
Pressure Independent Balancing cum Control Valve*





## **FlowCon** *international*

*A Griswold Controls LLC./FlowCon International Company*

FlowCon International was founded in 1985 and boasts more than 50 years of HVAC market experience. They have offices in California (USA), Singapore, Dubai, China and Denmark to handle all sales and marketing world-wide. Furthermore, they act as the sales and marketing organization of Griswold Controls' products out of the USA. A company that is 100% devoted to dynamic flow regulation and pressure independent temperature control. FlowCon builds on innovation and shifts from idea to action very rapidly. They offer a better product range and up-to-date application know-how, to offer the optimum solution for a well-balanced HVAC system.

At FlowCon International focus is directly on development of new products as well as further development of current product range so that a wide range of options is offered to the customers in order for them to be able to choose the proper application product. FlowCon spends a lot of time in research to remain the front-runner offering state-of-the-art product solutions

- ◆ FlowCon Green DN15-50 (1/2" – 2")
- ◆ FlowCon SM DN 50-250 (2" – 10")
- ◆ Automatic Balancing Valve
- ◆ FlowCon Energy FIT System





## The FlowCon Green

The FlowCon Green insert is designed as a 3-in-1 solution combining a full stroke modulation control valve, an automatic balancing valve and a differential pressure control valve. This new insert includes an innovative self-adjustment feature, which enables each valve continuously to self-balance.

This ensures delivery of precisely the flow rate required by each terminal unit, independent of pressure fluctuations in the hydronic system. Each FlowCon Green insert can also be adjusted to set an accurate maximum flow rate limit to each circuit without stroke limitation.

## Features and Benefits

- ◆ 3-in-1 combi valve, modulating control valve, dynamic flow limiter and differential pressure control valve in one body.
- ◆ Differential pressure independent.
- ◆ Full stroke modulation at any design flow.
- ◆ 100% authority for any flow setting.
- ◆ Automatic system balancing, the correct flow rate for each circuit is achieved automatically.
- ◆ Dynamic balancing, the correct flow rate is maintained as each valve continuously compensates for pressure fluctuations.
- ◆ The new FN/FH actuator provides linear flow or equal percentage control characteristics.
- ◆ Field adjustable, flow rate can be changed on demand without removing the insert from the valve body.
- ◆ Elimination of branch or “partner” balancing valves which results in fewer total valves in the project.
- ◆ Easily accessible insert for flow rate adjustment or maintenance.
- ◆ Accuracy: Greatest of either  $\pm 10\%$  of controlled flow rate or  $\pm 5\%$  of maximum flow rate.
- ◆ Up to 41 different flow curves in one and the same insert.
- ◆ Choice of actuator, electrical actuators: 0(2)-10V modulating, 3-point floating or 2-position, or thermal actuators: 0-10V modulating or ON/OFF.
- ◆ Pressure/temperature measurement plugs available for verifying operating differential pressure or checking  $\Delta T$  across the coil.

## Technical Data

FlowCon Green			Green.1 DN15/20/25	Green.2 DN25/32/40	Green.3 DN40/50
Static Pressure	(kPa)		2500	2500	2500
	(psi)		360	360	360
Temperature Rating (media / ambient)	(°C)		-20 to +120 / 1 to +50	-20 to +120 / 1 to +50	-20 to +120 / 1 to +50
	(°F)		-4 to +248 / +34 to +122	-4 to +248 / +34 to +122	-4 to +248 / +34 to +122
Pressure Drop Data			NOTE: For pump head calculations, add the minimum pressure differential for the index circuit to the other components pressure losses (i.e. valves, coil, etc.)		
Valve Body	(Kv-value)	(m <sup>3</sup> /hr)	3.1	12.5	34.1
	(Cv-value)	(GPM)	3.6	14.5	39.6

FlowCon Green insert			Green.1 (Black O-ring)	Green.2 (Black O-ring)	Green.3 (Black O-ring)
Pressure		(kPaD)	30-800	16-800 (at setting 2.6)	16-600
Differential		(psid)	4.4-116	2.3-116 (at setting 2.6)	2.3-87
Flow Rate		(l/sec)	0.0178-0.308	0.240-1.29	0.528-3.79
		(GPM)	0.282-4.89	3.81-20.4	8.36-60



## The FlowCon SM

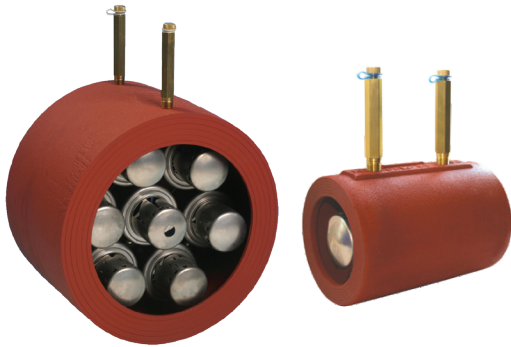
The FlowCon SM valve is a dynamic control valve, which means the valve automatically keeps a constant differential pressure across the internal controlling orifice of the valve. Consequently, pressure drop fluctuations across the FlowCon SM will not affect the set flow through the valve. FlowCon SM can be set to limit the maximum design flow, which makes over-sizing control valves obsolete. Extensive calculations and assessments of the authority of the selected valve are eliminated. The dynamic flow characteristics keep the FlowCon SM in constant authority and automatically balanced, eliminating the requirement for a separate balancing valve in the circuit.

## Features and Benefits

- ◆ Pressure independent flow control.
- ◆ Total valve authority.
- ◆ User friendly touch panel on actuator for selection of flow, control input etc. (optional on SM DN15-40).
- ◆ Save time and labour; installation and adjustment of balancing valves are eliminated.
- ◆ Kv sizing calculations and problems are eliminated; each valve is adjustable to 51 different maximum flow rate settings.
- ◆ Feedback signal provides information of current valve position, which can be converted into flow rate.
- ◆ Optional failsafe power storage feature which opens or closes the valve in case external power supply fails.
- ◆ Continuously displaying flow rate and scrolling other actuator information (optional on SM DN15-40).
- ◆ Actuator is suitable for electrical modulating, 3-point-floating or 2 position signals.
- ◆ Linear flow or equal percentage control characteristics.
- ◆ Pressure/temperature measurement plugs for verifying operating pressure differential range or checking  $\Delta T$  across the coil.
- ◆ Double union end or flange connection for ease of installation.

## Technical Data

		SM1 DN15/20/25	SM2 DN25/32/40	SM3 DN50/65/80			SM4 DN80/100			SM5 DN125/150		SM6 DN200/250
Pressure Differential	(kPaD)	32-320	40-320	30-800	30-800	35-800	30-800	35-800	50-800	30-800	35-800	35-800
	(psid)	4.6-46	5.8-46	4.5-116	4.5-116	5.1-116	4.5-116	5.1-116	7.3-116	4.5-116	5.1-116	5.1-116
Flow Rate	(l/sec)	0.176-0.685	0.513-2.34	1.48-4.16	2.57-7.15	3.55-9.88	3.49-9.38	4.73-14.2	3.68-20.2	6.48-23.3	7.10-29.5	9.21-76.8
	(GPM)	2.78-10.9	8.13-37.1	23.4-66.0	40.7-113	56.3-157	55.4-149	75.0-225	58.3-320	103-369	113-468	146-1220
Static Pressure	(kPa)	2500			4000							
	(psi)	360			580							
Temperature Rating (media/ambient)	(°C)	-20 to +120 / -10 to +50										
	(°F)	-4 to +248 / +14 to +122										



## FlowCon High Flow

The FlowCon high flow series of valves are designed to meet the higher capacity flow limiting requirements of pumps, chillers, boilers, condensers, heat exchangers, cooling towers and filters.

### Product Range

Available in AHU-Wafer, and Wafer. Applications range from air handling units and boiler flow control in common HVAC systems over multiple chillers/multiple heat exchangers or pump balancing system in high-rise buildings to fuelling, industrial process and filtration applications.

## Features and Benefits

- ◆ Automatic balancing, the correct flow rate for each circuit is achieved automatically.
- ◆ Dynamic balancing, the correct flow rate is maintained as each valve compensates for pressure fluctuations in the system.
- ◆ Pre-set stainless steel insert(s) with few moving parts, ensure high reliability.
- ◆ Accuracy of  $\pm 5\%$ .
- ◆ Wide range of sizes and flow rates, max. 1000mm and 2286.9 l/sec.
- ◆ Pressure/temperature measurement plugs for verifying operating pressure differential range.

## Technical Data

		AHU-Wafer DN50-80	Wafer DN100-1000
Static Pressure	(kPa)	2500	3400
	(psi)	360	493
Temperature Rating (media)	(°C)	+135	+175
	(°F)	+275	+347
Pressure Drop Data Valve	NOTE: For pump head calculations, add the minimum pressure differential for the index circuit to the other components pressure losses (i.e. valves, coil, etc.)		
	Kv-value	N/A	N/A
	Cv-value	N/A	N/A

Stainless Steel Insert		F324xxxx	F3C2xxxx	F324xxxx	F324xxxx
Insert Size	(mm)	80	50	80	80
	(inch)	3	2	3	3
Pressure Differential	(kPaD)	10-880	10-880	10-880	10-880
	(psid)	1-128	1-128	1-128	1-128
Flow Rate (GPM)	(l/sec)	0.883-10.1	0.757-21.6	0.883-2286.9	0.883-642.6
		14.0-160	12.0-342	14.0-36300	14.0-10200

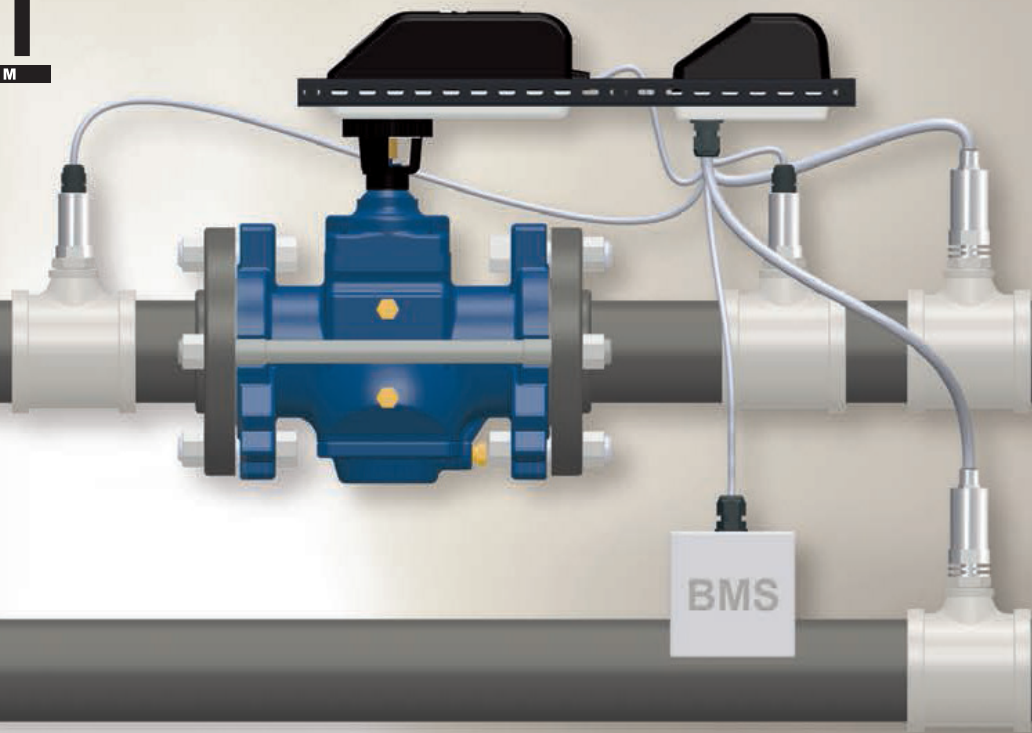
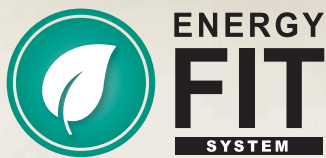


## FlowCon Energy FIT System

FlowCon is proud to present the FlowCon Energy FIT System, the world's first pressure and temperature independent regulation valve. With the FIT System you will get monitoring, measuring, connectivity and control in one package including PICV valve, sensor kit and the new FlowCon Intelligent Interface. Download the FlowCon App and take full advantage of the FIT system.

The FIT System measures energy usage while monitoring coil performance and adjusts the PICV valve to optimize coil performance. The PICV valve maintains the correct flow, despite pressure changes, and guarantees that flow will only change when demand requirements change or  $\Delta T$  is outside specification. The FIT System is suitable for any submetering application.

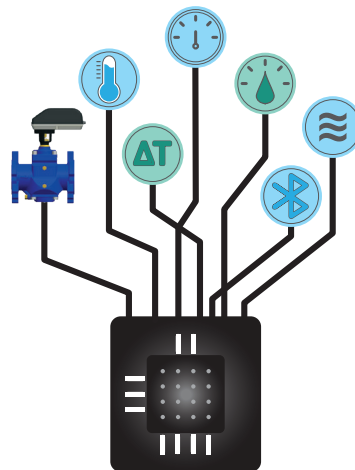
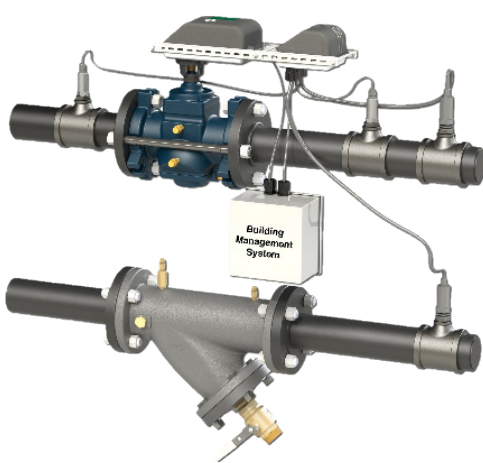
By optimizing  $\Delta T$ , flow rate requirements may be reduced resulting in significant energy savings, while having pressure independency and temperature independency and optimized comfort.



- ◆ State-of-the-art - Pressure and temperature independence.
- ◆ All-in-one including PICV, temperature and pressure sensors, flow meter and BTU meter for submetering applications.
- ◆ User friendly with easy setting directly on display actuator.
- ◆ Cost savings due to optimized energy consumption and improved efficiency.
- ◆ Complete overview of energy and flow.
- ◆ Simple monitoring via Bluetooth® or analog to BMS.
- ◆ Clear information regarding  $\Delta T$ ,  $\Delta P$ , flow rate and BTU heat transfer.
- ◆ Flexible solution - also allowing upside-down installation.
- ◆ No piping restriction and most compact system on the market.

## FlowCon Energy FIT System

FlowCon Energy FIT System, the world's first pressure and temperature independent regulation valve. With the FIT System get monitoring, measuring, connectivity and control in one package including PICV valve, sensor kit and the new FlowCon Intelligent Interface. The FIT System measures energy usage while monitoring coil performance and adjusts the PICV valve to optimize coil performance. The PICV valve maintains the correct flow, despite pressure changes, and guarantees that flow will only change when demand requirements change or  $\Delta T$  is outside specification. FIT System is typically installed on AHUs or in the plant room and includes:



	Intelligent Interface
	PICV with electrical display actuator
	Temperature sensors
	Pressure sensors
	Integrated BTU meter
	Integrated Flow meter
	Bluetooth®
	$\Delta T$ control

## FlowCon TO-GO

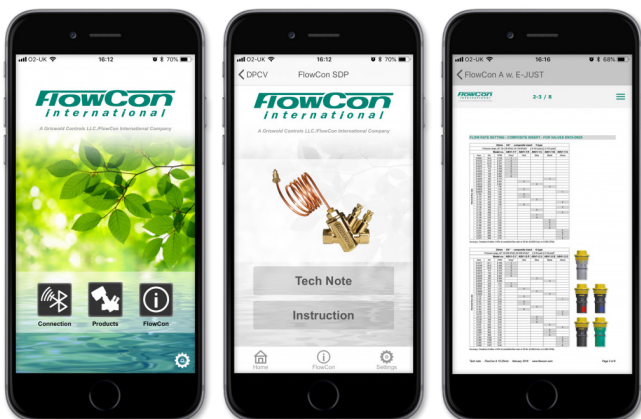
The FlowCon App is ready. We include 3 features in the FlowCon App's first version:

- ◆ **Connection** is 'the new black' and works with FlowCon FIT and FlowCon Intelligent Metering via Bluetooth® and provides direct readings on  $\Delta T$ ,  $\Delta P$ , flow rate, BTU heat transfer and  $\Delta T$  target.
- ◆ **Products** will provide direct links to tech notes, instructions and animations on a limited selection for simple overview.
- ◆ **FlowCon** including information on our company consisting of FlowCon Corporate Brochure and FlowCon Branding Video as well as direct e-mail link and transfer to [www.flowcon.com](http://www.flowcon.com).

Next to this there is possibility to adjust standard **Settings** and choose between English, Chinese and Russian languages.

As a postscript the FlowCon App version 2 will include a **Selection** feature and is planned for 2020.

Already now you can download the FlowCon App from AppStore or GooglePlay and enjoy an easier life with FlowCon.





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








## Ensavior Technologies Pvt. Ltd.

Pumping | Pressurisation & Deaeration | PICV & Automatic Balancing Valves | Thermal Storage | Water Filtration  
Electrolytic Scale Remover | Air Purification | Dry Scrubber | UVGI | HVAC Sensors | Gas / Refrigerant Leak Detector

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