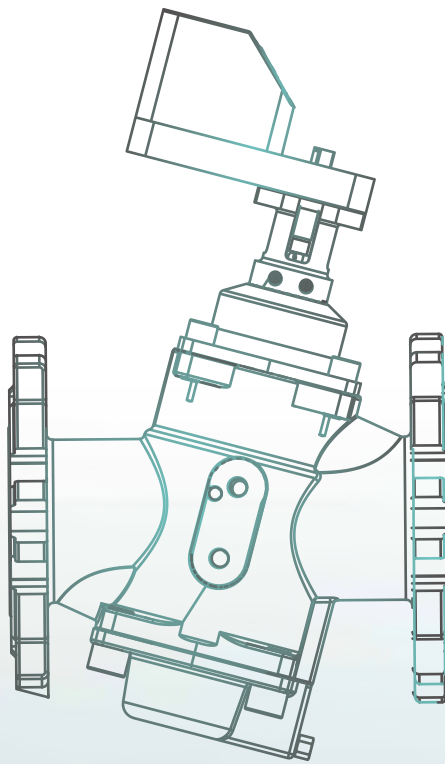


Moon

Dynamic Balancing Control Valve [PIBCV]



State of the Art Actuator
LCD Display
3 Functions in 1
100% Valve Authority At All Times
BMS Connectivity
DN20 - 250

FlowMate Moon

Dynamic Balancing Control Valve.

Designed & engineered to save energy with optimum efficiency and control. The Moon series is designed to serve as an automatic balancing valve, differential pressure control valve and a modulating control valve, it provides automatic balancing at full or part load, all the time maintaining the set flow rate to a high degree of accuracy and independent of pressure differential. Coupled with FlowMate BB actuator, the FlowMate Moon offers a new level of control and monitoring.



The FlowMate Moon is a Pressure Independent Control Valve, it maintains a constant differential pressure across the control orifice, automatically adjusting internally to regulate any pressure fluctuations.

Flow rate setting & Actuated temperature control comes via the FlowMate BB actuator, flow rate is easily set up and configured with a few button presses. As the differential control component is independent and constantly regulates differential pressure, it gives the modulating control component 100% valve authority – no need to calculate valve authority. The BB actuator also benefits from full stroke modulation as the external flow setting mechanism is independent and has no effect on the stroke.

BB Actuator

State of the art microprocessor

Intuitive operation & control

BMS connectivity

Fault monitoring & warning

Dual maximum flow rate setting



Use

The FlowMate Moon dynamic balancing control valve can be used in heating and cooling systems in applications with Fan Coil Units, Air Handling Units or other terminal unit applications.

Features

- DN20 to DN250 connection sizes.
- Compact and robust design.
- Advanced control & monitoring functionality via the FlowMate BB actuator.
- BMS connectivity, the BB actuator is compatible with major BMS systems.
- Unique valve design gives a higher than industry average DN size to flow rate ratio.
- Designed to ensure constant flow is maintained even with power or signal loss to the actuator.
- Fault monitoring and warning. The BB actuator warns of any faults via a flashing LED.

Benefits

- Precise Dynamic balancing resulting in
 - Minimized maintenance and downtime – The FlowMate Moon is designed to be hassle free in installation & operation.
- Greatly reduced commissioning requirements – saving time and resources.
- An efficient & cost saving system- all ensure peace of mind for the end user.
- Circuits fitted with the FlowMate Moon benefit from operation at high ΔP & desired flow rate with minimal drops in pressure.
- When connected to a BMS, monitoring and control can be done from a remote area.
- High grade materials give durability and a long operational lifetime.
- Installation space is kept to a bare minimum with reduced equipment requirements.
- Flow rate accuracy of $\pm 5\%$ within varying system differential pressure ranges.
- 100% authority meaning no there is no more need to calculate valve authority.

Intelligence

The FlowMate BB actuator brings a new level of control and monitoring. A intuitive four button keypad allows complete control over the actuators settings and configuration. Flow settings, control signals & feedback are all accessed via the keypad, there is no need to handle dip switches or rewire any cables.

Systems that require maximum flow rate to be adjusted frequently can benefit from the FlowMate BB's dual maximum flow rate setting. For seasonal or off-peak/on-peak related settings, this function allows quick switching of the desired flow rate.



All functions & settings are accessed & displayed via the backlit display and intuitive 4 button control panel.



Control & Monitor



Display shows Maximum setting & Current flow rate



Dual Maximum Flow rate settings, switch between flow rates in seconds

Multiple set up and configuration options

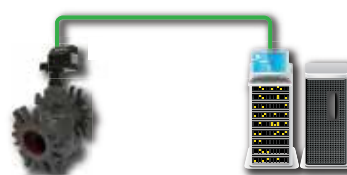


Set up the actuator with ease and be up and running in minutes. There is no need to configure dip switches or wiring. Upon start up, the FlowMate BB actuator runs a diagnostic and guides the user through set up and configuration.

Control & Monitoring via BMS

Taking control and monitoring further, the FlowMate BB actuator also allows networking with a Building Management System (BMS). Flow rate monitoring & selection as well as a fault alarm signal can be fed to a BMS. Once the FlowMate Moon is set up, the flow rate can be monitored and switched from wherever the BMS is stationed. In the unlikely event of a fault, a fault signal will inform the BMS of an issue.

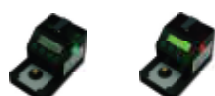
The FlowMate Moon can be networked with all major BMS systems



Dual Flow rate control, monitoring & fault signal can be fed back to a BMS



Failsafe control



LED Status

Option to close or open the valve in the event of power failure.

Green LED during normal operation.

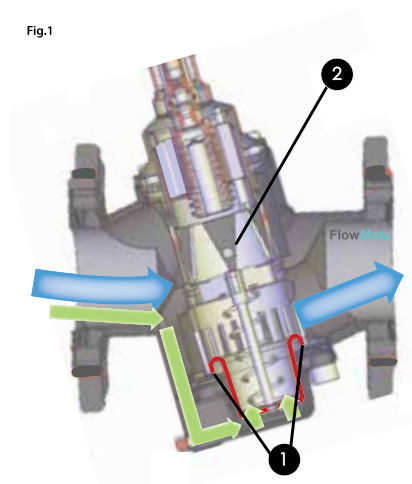
Red LED in the event of a fault.

Working Principle

The FlowMate Moon is essentially two mechanisms in one valve. **1** consists of a rolling diaphragm counteracted by a precision spring; this regulates the pressure differential across **2** which is a calibrated variable orifice mechanism controlled by the actuator.

The diaphragm in **1** reacts to varying pressure in the system and as a result, regulates the pressure differential across the actuated control valve orifice **2**.

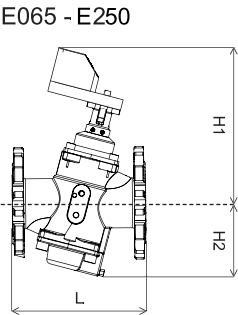
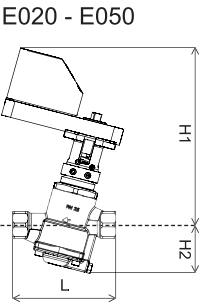
Fig.1



Maximum Flow Rates

Model	DN	DP Range kPa	l / s	l / h	GPM
E020M	20	40-500	2.0	7300	32.1
E025M	25	40-500	2.0	7300	32.1
E032S	32	30-500	3.3	11800	51.9
E032M	32	40-500	3.4	12400	54.6
E040S	40	30-500	3.3	11800	51.9
E040M	40	40-500	3.4	12300	54.1
E050M	50	40-500	3.4	12300	54.1
E050L	50	60-600	3.9	14000	61.6
E065S	65	30-500	8.1	29300	128.9
E065M	65	40-500	11.2	40400	177.8
E080S	80	30-500	8.1	29300	128.9
E080M	80	40-500	11.2	40400	177.8
E100M	100	40-500	11.2	40400	177.8
E100L	100	60-600	12.5	45000	198
E125S	125	30-500	16.7	60000	264
E125M	125	40-500	19.4	70000	308
E125L	125	60-600	22.2	80000	352
E150S	150	30-500	27.8	100000	440
E150M	150	40-500	33.3	120000	528
E150L	150	60-600	41.6	149760	660
E200S	200	30-500	47.22	170000	748
E200M	200	40-500	51.38	185000	814
E200L	200	60-600	55.55	200000	880
E250S	250	30-500	61.11	220000	968
E250M	250	40-500	65.27	235000	1034
E250L	250	60-600	69.44	250000	1100

Technical Specifications			Actuator Specifications	
Pressure Rating		PN25	Model	BB
Ambient Temperature		-10 to 60°C	Type	Modulating
Medium Temperature		-10 to 120°C	Voltage	24V AC/DC
Shut off Leakage		ANSI Class IV	Power Consumption	10VA
Maximum Close Off Pressure		700 kPa, 101 psi	Control Signal	2-10VDC, 0-10VDC, 4-20mA
Materials			Feedback Signal	2-10VDC, 0-10VDC, 4-20mA
Body	E020 - E050	Forged Brass	Operating Temperature	0 to 50°C
	E065 - E250	Ductile Iron	Closing & Opening Time	Max 180secs
Spring		Stainless Steel	Torque	8.8NM
Seat Plug		POM	Protection Class	IP54/ II
O-Rings		EPDM	Fault Monitoring/ Warning	Yes (dry contact)
Diaphragm		EPDM	Failsafe	Optional (Lithium Polymer 250mAh)
End Connection	E020 - E050	Female ISO	Housing	Polycarbonate
	E065 - E250	Flange	Display	Backlit LCD
PT Ports		Yes	Seasonal Setting (Automatic Temperature Control and Dual Mode adjustment)	Yes
PT Plugs		Yes		



Available Sizes & Dimensions						
Model	DN	L mm	H1 mm	H2 mm	Weight kg	Connection
E020	20	135	239	66	3.5	DN20 Female ISO
E025	25	135	239	66	3.7	DN25 Female ISO
E032	32	211	277	94	5.5	DN32 Female ISO
E040	40	211	277	94	5.8	DN40 Female ISO
E050	50	211	277	94	5.9	DN50 Female ISO
E065	65	274	320	150	22	DN65 Multi Flange
E080	80	274	320	150	22	DN80 Multi Flange
E100	100	274	320	150	22	DN100 Multi Flange
E125	125	334	368	196	35.5	DN125 Multi Flange
E150	150	420	407	245	67	DN150 Multi Flange
E200	200	495	315	280	96	DN200 Multi Flange
E250	250	505	315	280	110	DN250 Multi Flange

FlowMate

Innovative Flow Control Solutions



From concept to finished product, FlowMate exacts the highest levels of quality, precision and workmanship. To ensure that our clients enjoy maximum benefits, assurance and quality of service, FlowMate implements rigorous testing, manufacturing practices and protocols. To enjoy the next level of flow control that FlowMate offers, please contact us. Our highly skilled professionals will be pleased to advise and assist you.

For further information, please visit
WWW.FLOWMATE.COM

FM-MOON-EN-2016
Ver1.5

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