FlowCon SME 1/2”-1”

Dynamic Self Balancing Control Valve

SPECIFICATIONS

Insert:

Static pressure:	2500 kPa / 360 psi
Ambient temperature:	+1ºC to +50ºC / +34ºF to +122ºF
Media temperature:	-20ºC to +100ºC / -4ºF to +212ºF
Material:	
- Cartridge:	Glass-reinforced PSU/POM/PPS
- Diaphragm:	EPDM
- Internal metal components:	Stainless steel
- O-ring:	EPDM
Maximum close off pressure:	400 kPaD / 58 psid
Maximum operational ΔP:	400 kPaD / 58 psid
Shut-off leakage:	<3 l/hr / 0.013 GPM
Flow rate range:	0.0111-0.334 l/sec / 0.176-5.28 GPM

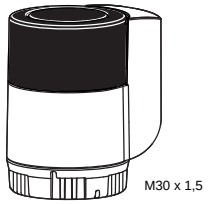
Valve:

Material:	
- Body:	Forged brass ASTM CuZn40Pb2
- Ball valve:	ABV: Chemically nickel plated brass ball
End connections:	A: Fixed female NPT. Alternatively sweat
	AB: Fixed female NPT. Alternatively sweat
	ABV: Union end conn. in brass alloy, NPT

SPECIFICATIONS (continued)

FlowCon Actuators:

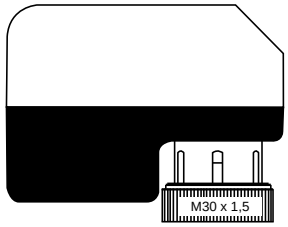
FlowCon Actuator[2]	FT.0.2	FT.0.3	FT.0.4
Supply voltage	24V AC ±20%, 50/60Hz	230V AC ±15%, 50/60Hz	24V AC/DC ±20%, 50/60Hz
Type	Thermal		
Power consumption	3VA	2.5VA	3VA
Control signal	0...10V (variable), Normally closed	ON/OFF, Normally closed	
Closing and opening time	app. 3.5 minutes		
Ambient temperature	+32°F to +122°F		
Protection	IP54 including upside-down, class III		
Cable	Plug-in, 3.2 feet		
Weight	0.40 lbs		



Type FT.0.2, FT.0.3 and FT.0.4

Note 2: FlowCon warranty is voided using other actuators than supplied or recommended by FlowCon International A/S.

FlowCon Actuator[3]	FB.0.2	FB.0.3	FB.0.4	FB.0.5
Supply voltage	24V AC ±10%, 50/60 Hz	230V AC, 50/60 Hz	24V AC, 50/60 Hz	110V AC, 50/60 Hz
Motor	Bi-directional synchronous	Bi-directional synchronous		
Power consumption	4VA	5VA	3VA	3VA
Control signal	Analog 0(2)-10V DC or 0(4)-20mA	3-point-floating		
Position output	0-10V DC	N/A		
Operation time	50 Hz: 10 sec/mm 60 Hz: 8.3 sec/mm	50 Hz: 10 sec/mm 60 Hz: 8.3 sec/mm		
Ambient temperature	+36°F to +131°F	+36°F to +131°F		
Humidity rating	<90% no condensation	<90% no condensation		
Protection	IP43, class II	IP43, class II		
Cable	Fixed, 4.9 feet	Fixed, 4.9 feet		
Actuator cover	Fireproof ABS casting	Fireproof ABS casting		
Weight	0.88 lbs	0.88 lbs		

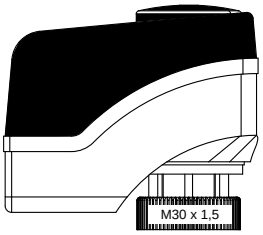


Type FB.0.2, FB.0.3, FB.0.4 and FB.0.5

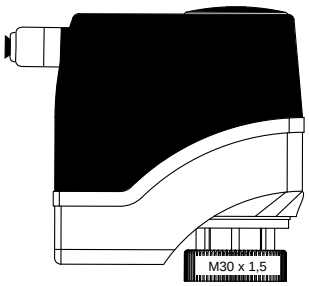
Note 3: FlowCon warranty is voided using other actuators than supplied or recommended by FlowCon International A/S.

FlowCon Actuator[4]	FM.0.2	FM.0.3	FM.0.4	FM.1.3	FM.1.4
Supply voltage	24V AC/DC ±20%, 50/60Hz	230V AC ±15%, 50/60Hz	24V AC ±20%, 50/60Hz	230V AC ±15%, 50/60Hz	24V AC ±20%, 50/60Hz
Motor	Stepper motor	Syn. motor		Syn. motor	
Power consumption	2.5VA	6.0VA	0.8VA	6.0VA	0.8VA
Control signal	Analog 0-10V DC	3-point-floating		3-point-floating	
Position output	N/A	N/A		N/A	
Operation time	50 Hz: 13.6 sec/mm	50 Hz: 60 sec/mm		50 Hz: 60 sec/mm	
Ambient temperature	+34ºF to +122ºF	+34ºF to +122ºF		+34ºF to +122ºF	
Humidity rating	5-85% r.h.	5-85% r.h.		5-85% r.h.	
Protection	IP40, class III	IP40, class II		IP40, class II	
Cable	Plug-in, 4.9 feet	Plug-in, 4.9 feet		Plug-in, 4.9 feet	
Weight	0.66 lbs	0.66 lbs		0.88 lbs	
Including 1 change-over switch					
Switching point adjustable	N/A	N/A		0-100% (pre-set to 50%)	
Switching capacity	N/A	N/A		max 250V AC, 0.5A	

Note 4: FlowCon warranty is voided using other actuators than supplied or recommended by FlowCon International A/S.



Type FM.0.2, FM.0.3 and FM.0.4

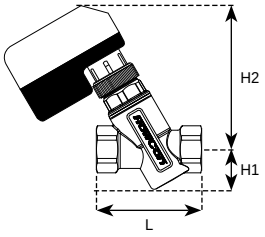


Type FM.1.3 and FM.1.4

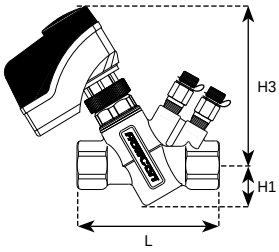
DIMENSIONS AND WEIGHTS (NOMINAL) (measured in inches unless noted)

Model no.	Valve model	Valve size	Cartridge size	L	H1	H2 (FB.0.x actuator)	H3 (FM.0.x actuator)	H4 (FM.1.x actuator)	H5 (FT.0.x actuator)	End connections C[5]			Weight[6] (lbs)	Cv[7] (GPM)
										NPT female	NPT male	Sweat		
SME.X.X.04	A	1/2”	3/4”	3.15	1.22	4.53	4.75	5.39	4.53	N/A	N/A	N/A	1.2	3.0
SME.X.X.05		3/4”											1.1	
SME.X.X.08	A sweat	1/2”		3.97	1.22	4.53	4.75	5.39	4.53	N/A	N/A	N/A	1.5	3.0
SME.X.X.09		3/4”											1.4	
SME.X.X.01	AB	1/2”	3/4”	3.23	1.22	4.53	4.75	5.39	4.53	N/A	N/A	N/A	1.2	3.0
SME.X.X.02		3/4”		3.70									1.3	
SME.X.X.10	AB sweat	1/2”	3/4”	4.57	1.22	4.53	4.75	5.39	4.53	N/A	N/A	N/A	1.5	3.0
SME.X.X.11		3/4”											1.6	
SME.X.X.03	ABV1	1/2”	3/4”	4.80	1.30	4.53	4.69	5.39	4.53	0.87	0.99	0.79	1.9	3.0
		3/4”								0.87	0.99	0.79		
		1”								N/A	1.54	0.87		

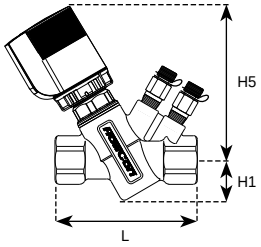
Note 5: Add end connection length to body length.
Note 6: Weight does not include end connections or actuator.
Note 7: For valve body.



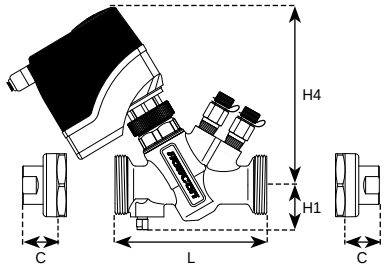
Valve model: A 1/2”, 3/4”, 1” with FB actuator



Valve model: AB 1/2”, 3/4”, 1” with FM.0 actuator



Valve model: AB 1/2”, 3/4”, 1” with FT actuator



Valve model: ABV1 1/2”, 3/4”, 1” with FM.1 actuator

MODEL NUMBER SELECTION

SME . ____ . ____ . ____ ____ . ____ . ____ . ____ . N

Insert flow range:
0=low flow 1=medium flow

Insert type of actuator:
02=FM.0.2 03=FM.0.3 04=FM.0.4 06=FM.1.3 07=FM.1.4
12=FB.0.2 13=FB.0.3 14=FB.0.4 15=FB.0.5
22=FT.0.2 23=FT.0.3 24=FT.0.4

Insert type of body:
01=AB15 02=AB20 03=ABV(15/20/25) 04=A15 05=A20
08=A15 1/2”sweat 09=A20 3/4”sweat 10=AB15 1/2”sweat 11=AB20 3/4”sweat

Insert p/t plug requirements:
B=pressure/temperature plugs P=taps plugged - leave blank if A-body or no p/t plugs required

Insert inlet x outlet union end connections: - leave blank if A- or AB-body or no end connections required

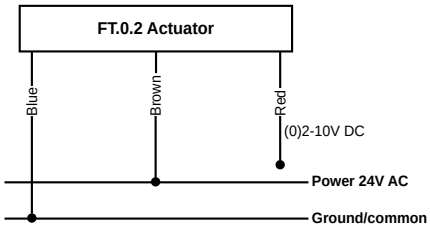
Body model and size	Female threaded	Male treaded	Sweat
SME.1.3, 15-25mm, 1/2”-1”	E=15mm=1/2” F=20mm=3/4”	H=15mm=1/2” I=20mm=3/4” J=25mm=1”	O=1/2” R=3/4” U=1”

Insert connections standard:
N=NPT

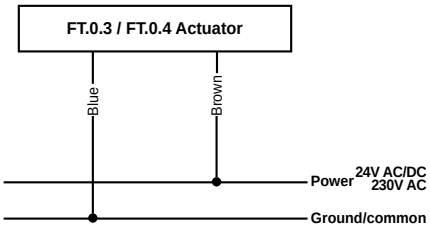
Example: SME.1.2.03.B.F.F.I=SME.1 with an ABV1-body with p/t plugs and a 24V modulating actuator and 20mm female connections.

WIRING INSTRUCTION

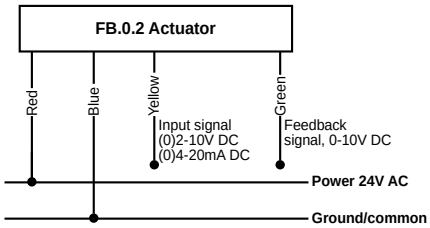
Type FT.0.2



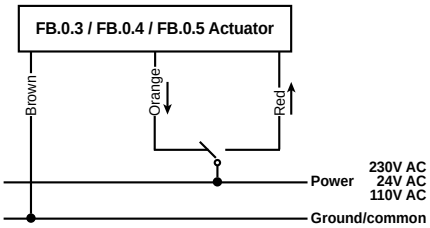
Type FT.0.3/0.4



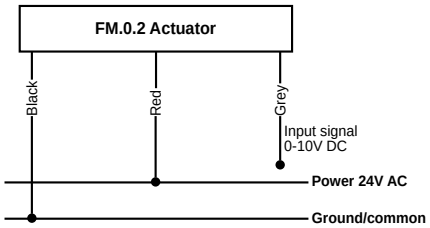
Type FB.0.2



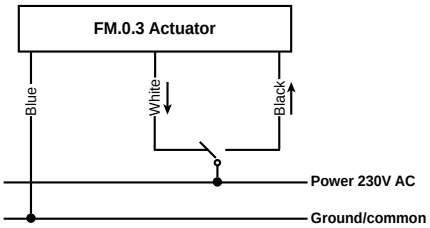
Type FB.0.3/0.4/0.5



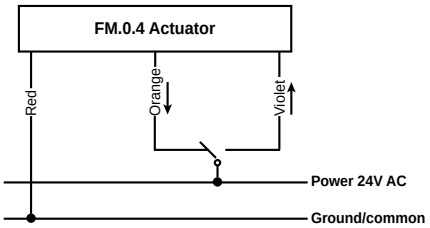
Type FM.0.2



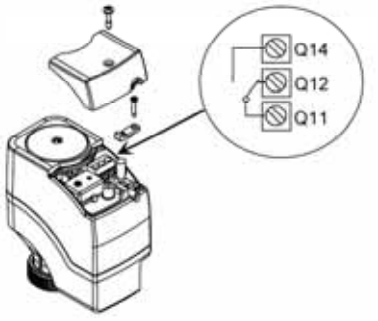
Type FM.0.3



Type FM.0.4



Type FM.1.x



Terminals for auxiliary switch
Pre-set setting:
0-50% Q11 -> Q12
50%-1 Q11 -> Q14

DESCRIPTION

The SME series are self balancing dynamic flow control valves that are pressure independent, two-way, modulating to accept digital or analog input signals. The valves accept 0-10V or digital 3-point floating input signals.
Each valve has an adjustable maximum flow rate setting to enable flow limitation and balancing to the coil or zone that the valve is controlling.

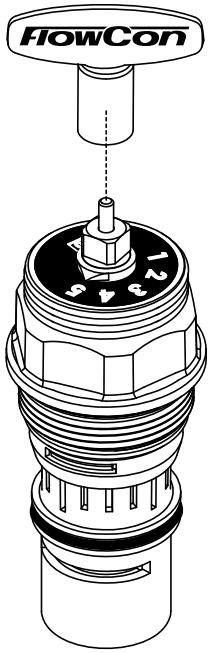
For use in fan-coil units, VAV applications and cooling ceilings for activation of the heating or cooling.

They are available in three different valve bodies, i.e. FlowCon A, AB or ABV1.

MAXIMUM FLOW RATE LIMITATION SETTINGS - VALVE SIZE: 1/2”-1”

Nominal flow rate	20mm · 3/4” · SME						Setting
	16-200 kPaD · 2.3-29 psid			30-400 kPaD · 4.4-58 psid			
	SME.0 (green o-ring)			**SME.1** (black o-ring)			
	l/sec	l/hr	GPM	l/sec	l/hr	GPM	
	0.0111	*40*	*0.176*	*0.0165*	*59.3*	*0.261*	1.2
	0.0167	*60*	*0.264*	*0.0223*	*80.3*	*0.353*	1.3
	0.0172	62	0.273	0.0331	119	0.526	1.4
	0.0298	107	0.472	0.0481	173	0.762	1.5
	0.0419	151	0.664	0.0630	226	0.993	1.6
	0.0536	193	0.850	0.0770	277	1.22	1.7
	0.0649	234	1.03	0.0910	326	1.44	1.8
	0.0758	273	1.20	0.104	374	1.65	1.9
	0.0862	310	1.37	0.117	421	1.86	2.0
	0.0963	347	1.53	0.130	467	2.06	2.1
	0.106	381	1.68	0.142	511	2.25	2.2
	0.115	415	1.83	0.154	554	2.44	2.3
	0.124	447	1.97	0.166	596	2.62	2.4
	0.133	477	2.10	0.177	636	2.80	2.5
	0.141	507	2.23	0.188	675	2.97	2.6
	0.148	534	2.35	0.198	712	3.14	2.7
	0.156	561	2.47	0.208	748	3.29	2.8
	0.163	586	2.58	0.218	783	3.45	2.9
	0.169	610	2.69	0.227	816	3.59	3.0
	0.176	633	2.79	0.236	848	3.74	3.1
	0.182	654	2.88	0.244	879	3.87	3.2
	0.187	674	2.97	0.252	908	4.00	3.3
	0.193	693	3.05	0.260	936	4.12	3.4
	0.197	711	3.13	0.268	963	4.24	3.5
	0.202	727	3.20	0.275	988	4.35	3.6
	0.206	743	3.27	0.281	1010	4.46	3.7
	0.210	757	3.33	0.286	1030	4.56	3.8
	0.214	770	3.39	0.295	1060	4.65	3.9
	0.217	782	3.44	0.300	1080	4.74	4.0
	0.220	793	3.49	0.303	1090	4.82	4.1
	0.223	802	3.53	0.309	1110	4.89	4.2
	0.225	811	3.57	0.314	1130	4.96	4.3
	0.227	819	3.61	0.317	1140	5.03	4.4
	0.229	826	3.63	0.320	1150	5.08	4.5
	0.231	831	3.66	0.325	1170	5.13	4.6
	0.232	836	3.68	0.328	1180	5.18	4.7
	0.233	839	3.70	0.331	1190	5.22	4.8
	0.234	842	3.71	0.331	1190	5.25	4.9
	0.234	844	3.72	0.334	1200	5.28	5.0

Accuracy: Greatest of either ±10% of controlled flow rate or ±2% of maximum flow rate.
Recommended range: 2.0-5.0.



Use the special designed key (FlowCon part no. ACC0001) for micrometer setting.

A micrometer setting of 3.4 as illustrated above corresponds to a maximum flow rate of 3.05 GPM (SME.0) and 4.12 GPM (SME.1).

GENERAL SPECIFICATIONS

1. PRESSURE INDEPENDENT DYNAMIC CONTROL VALVE FLOWCON SME

1.1. Contractor shall install the pressure independent dynamic control valves where indicated in drawings.
1.2. Valve shall be an electronic, dynamic, modulating, 2-way, pressure independent control device.
1.3. Pressure independent dynamic control valve shall accurately control flow, independent of system pressure fluctuation.
1.4. Maximum flow setting shall be adjustable to 39 different settings within the range of the valve size.

2. VALVE ACTUATOR, ELECTRONIC

2.a. **FlowCon FB-actuators**

2.a.1 Valve actuator housing shall be rated to IP43.
2.a.2 Actuator shall be driven by 24V, 110V or 230V AC, and shall depending on actuator choice accept 0(2)-10V DC, 0(4)-20mA or 3-point-floating electrical control signal.
2.a.3 Actuator shall use full stroke and provide full authority.
2.a.4 Feedback signal 0-10V to th control system shall be possible on modulating choice.

OR….

2.b. **FlowCon FM-actuators**

2.b.1 Valve actuator housing shall be rated to IP40.
2.b.2 Actuator shall be driven by 24V or 230V AC voltage, and shall depending on actuator choice accept 0-10V DC or 3-point-floating electrical control signal.
2.b.3 Actuator shall use full stroke and provide full authority.
2.b.4 Actuator shall have visible indication of stroke position.
2.b.5 Manually override to either a fully closed or fully open valve position shall be possible.

OR....

2.c. **FlowCon FT-actuators**

2.c.1 Valve actuator housing shall be rated to IP54.
2.c.2 Actuator shall be driven by 24V or 230V AC, and shall depending on actuator choice accept 0-10V DC or ON/OFF control signal.
2.c.3 Actuator shall use full stroke and provide full authority.
2.c.4 Actuator shall have visible indication of stroke position.

3. VALVE HOUSING

3.a. **FlowCon A**

3.a.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 360 psi static pressure at +212ºF.

OR….

3.b. **FlowCon AB**

3.b.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 360 psi static pressure at +212ºF.
3.b.2. Pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.

OR….

3.c. **FlowCon ABV**

3.c.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 360 psi static pressure at +212ºF.
3.c.2. Valve ball shall consist of chemically nickel plated brass (ASTM CuZn40Pb2).
3.c.3. Pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.

4. FLOW REGULATION UNIT

4.1. Flow regulation unit shall consist of glass-reinforced PSU/POM/PPS with an EPDM diaphragm.
4.2. Flow regulation unit shall be readily accessible, for change-out or maintenance.
4.3. Flow regulation unit shall be externally adjustable to 1 of 39 different flow rates; minimum range shall be capable of being activated by minimum 2.3 psid operation ranges; and shall be capable of controlling the flow within ±10% of rated flow or ±2% of maximum flow.

APPLICATION AND SCHEMATIC EXAMPLE