FlowCon ADP 15-25mm

Combined Δp Controller, Balancing and Control Valve

SPECIFICATIONS

ADP:

Static pressure:	2500 kPa / 360 psi
Media temperature:	-20ºC to +120ºC / -4ºF to +248ºF
Material:	
- Insert:	Glass-reinforced PSU/POM/PPS
- Diaphragm:	EPDM
- Internal metal components:	Stainless steel
- O-rings:	EPDM
- Cone:	PPS
Maximum close off pressure:	600 kPaD / 87 psid
Maximum operational ΔP:	400 kPaD / 58 psid
Shut-off leakage:	ANSI / FCI 70-2 2006 / IEC 60534-4 - Class IV
Flow rate range:	9-680 l/hr / 0.040-2.994 GPM

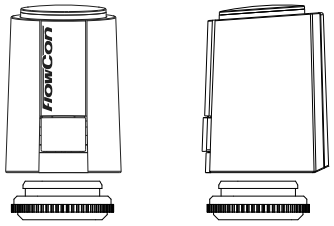
Valve:

Material:	
- Body:	Forged brass ASTM CuZn40Pb2 / DZR CuZn36pb2As
- Ball valve:	ABV: Chemically nickel plated brass ball
End connections:	A: Fixed female ISO or NPT
	AB: Fixed female ISO or NPT
	ABV: Union end connection in brass alloy ISO or NPT
Capillary tube:	Ø3mm, length: 1.0m copper.

SPECIFICATIONS (...continued)

FlowCon Actuators available for FlowCon ADP

FlowCon Actuator[1]	FT.0.3	FT.0.4
Supply voltage	230V AC ±10%, 50/60Hz	24V AC/DC -10%... +20%, 50/60Hz
Type	Thermal	Thermal
Power consumption	1.2W	1.2W
Control signal	ON/OFF, Normally closed	ON/OFF, Normally closed
Failsafe function	Yes	Yes
Operation time[2]	App. 4.5 minutes	App. 4.5 minutes
Ambient temperature[3]	+1ºC to +50ºC	+1ºC to +50ºC
Protection	IP54 including upside-down, class II	IP54 including upside-down, class III
Cable	Fixed, 1 meter	Fixed, 1 meter
Weight	0.11 kg	0.11 kg



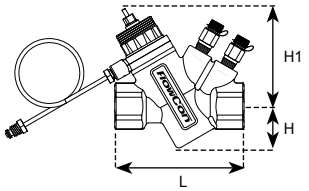
FlowCon FT.0.3/0.4

Note 1: FlowCon warranty is voided using other actuators than supplied by FlowCon International.
Note 2: Closing time is approximately the double dependent on ambient temperature.
Note 3: Stated temperature rating is defined due to no external insert condensation.

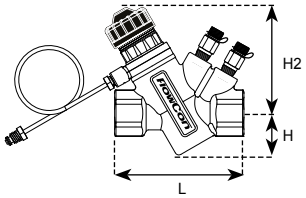
DIMENSIONS AND WEIGHTS (NOMINAL) (measured in mm unless noted)

Model no.	Valve model	Valve size	Insert size	L	H	H1	H2 w/cap	H3 FT.0.3/0.4 act.	End connections C[4]			Weight[5] (kgs.)	Kv[6] (m³/hr)
									ISO female	ISO male	Sweat		
ADP.04	A	15	20	80	31	72	78	125	n/a	n/a	n/a	0.58	2.6
ADP.05		20										0.53	
ADP.06		25		91								0.56	
ADP.01	AB	15	20	82	31	72	78	125	n/a	n/a	n/a	0.51	2.6
ADP.02		20		94								0.56	
ADP.07		25		102								0.62	
ADP.03	ABV1	15	20	122	33	72	78	125	22	24	20	0.85	2.6
		20							22	25	20		
		25							n/a	39	22		

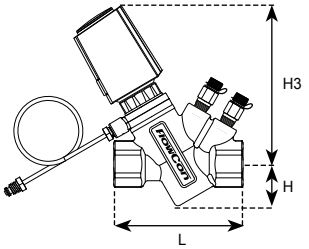
Note 4: Add end connection length to body length.
Note 5: Weight does not include end connections, insert, capillary tube or actuator (the weight of the insert and capillary tube is 0.28 kgs.).
Note 6: For valve body only.



FlowCon ADP 20mm with FlowCon AB DN15-20-25



FlowCon ADP 20mm with FlowCon AB DN15-20-25 and with FlowCon Protection Cap



FlowCon ADP 20mm with FlowCon AB DN15-20-25 and with FlowCon FT actuator

MODEL NUMBER SELECTION

ADP . ____ ____ . ____ ____ . ____ . ____ . ____ . ____ . ____

Insert type of body:
01=AB15 **02**=AB20 **03**=ABV1 **04**=A15 **05**=A20 **06**=A25 **07**=AB25
51=AB15.DZR **52**=AB20.DZR

Insert type of actuator:
00=No actuator **23**=FT.0.3 **24**=FT.0.4

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
ADP.03.XX 15-25mm, 1/2"-1"	**E** = 15mm=1/2" **F** = 20mm=3/4"	**H** = 15mm=1/2" **I** = 20mm=3/4" **J** = 25mm=1"	**K** = 15mm **L** = 18mm **M** = 22mm

Capillary tube connection - defined by partner valve connection sizes:
1=Capillary tube for connection to QuickDisc partner valve
2=Capillary tube with R¼" thread connection according to ISO 7.1 (compatible with FlowCon p/t port drillings)

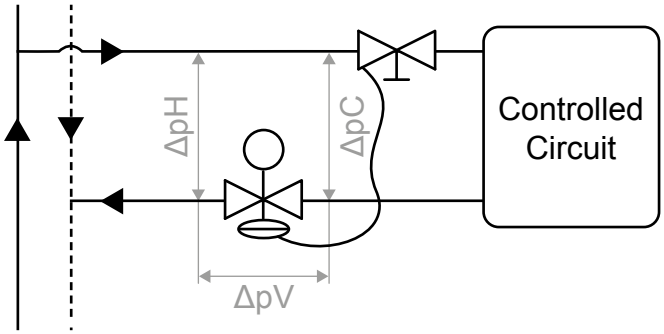
Connections standard:
I=ISO **N**=NPT (NPT: not available on body type: A25 and AB25)

Example: ADP.01.00.B.1.I=FlowCon ADP in FlowCon AB body (15mm), no actuator, capillary tube for connection to QuickDisc and with p/t plugs and 15mm ISO female union end connections.

SIZING - HOW TO SELECT

The FlowCon ADP valve is to be selected based on the required flow rates and the calculated differential pressure across the controlled circuit (ΔpC) at design flow - see flow rate table and flow rate curves for reference.
The installed FlowCon ADP will hereafter ensure that the set design flow are never superseded and that the differential pressure across the controlled circuit (ΔpC) are never superseding 17 kPaD even at partial load conditions.

The minimum required pump head are specified in the curve: Minimum Pump Head Required (below).



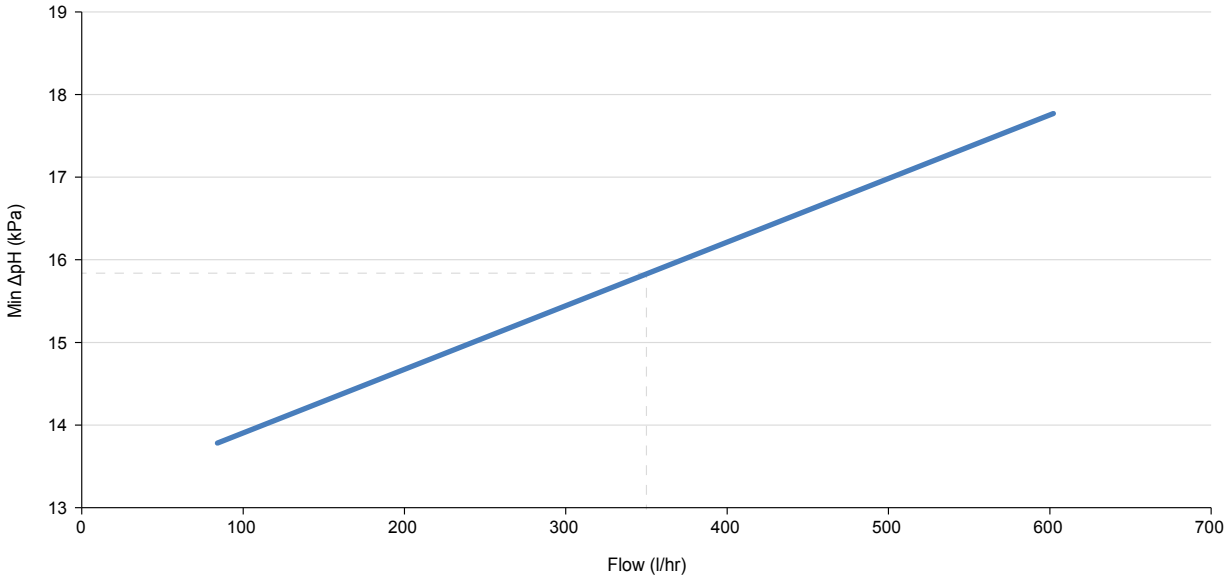
Example;

A flow rate of 340 l/hr is required with a differential pressure drop across the controlled circuit (ΔpC) being 7 kPaD considering the design flow the following sizing be made;

ΔpH = 15.8 kPaD (data found in curve below: Minimum pump head required).
Valve setting = 3.0 (see the flow rate table and the flow rate curves next page for reference).

Valve is now set to ensure that a differential pressure of 7 kPaD is maintained at the design flow of 340 l/h.
In case partial load may the differential pressure increase over the controlled circuit (ΔpC), but this will not supersede 17 kPaD.

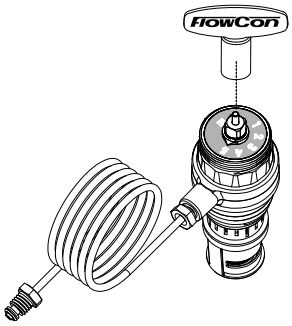
MINIMUM PUMP HEAD REQUIRED (ΔpH)



Please consider above minimum pump head required (ΔpH) upon pump sizing.

FLOW RATE TABLE

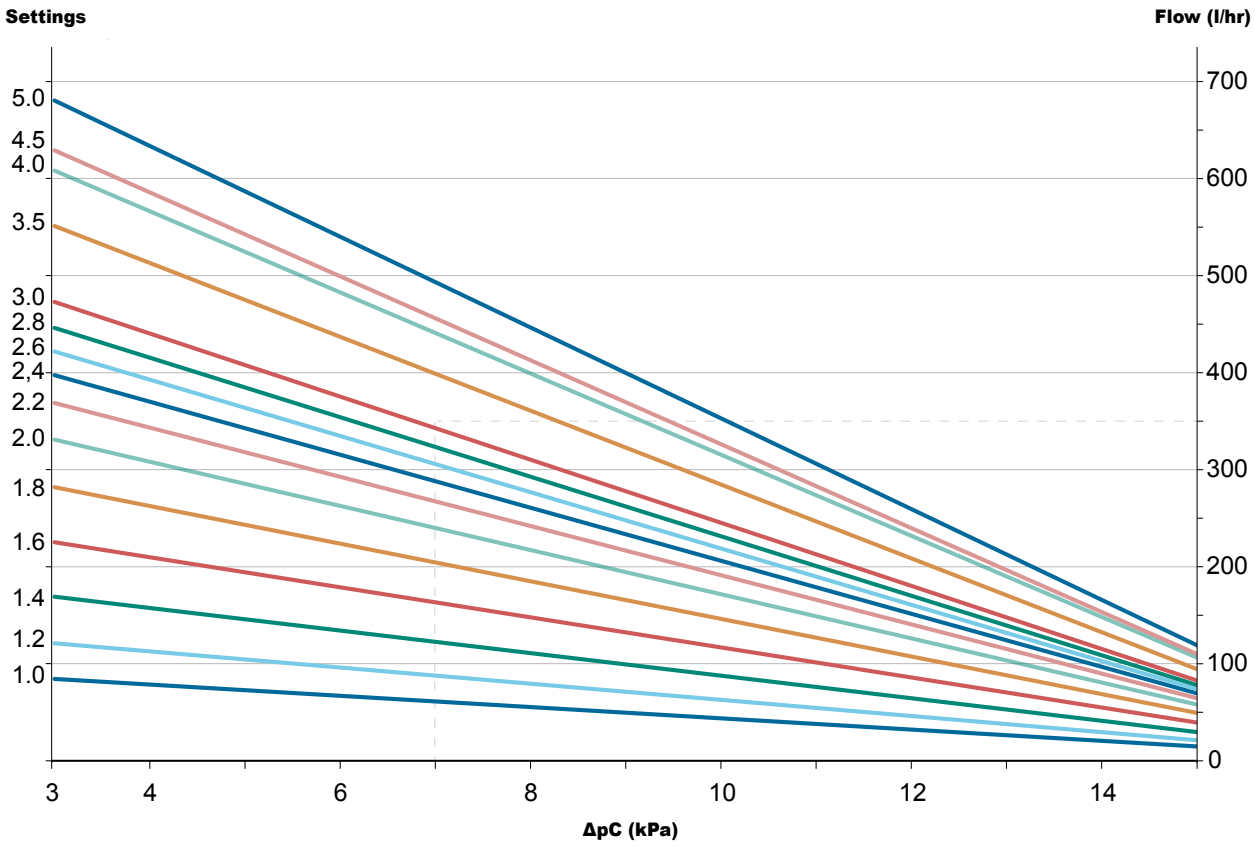
ΔpC (kPa)	Flow (l/hr) FlowCon ADP settings														
	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0	4.5	5.0
3	84	120	170	230	280	330	370	400	420	450	470	550	610	630	680
4	79	110	160	210	260	310	340	370	390	420	440	510	570	590	630
5	73	100	150	190	240	290	320	340	360	380	410	470	520	540	590
6	67	96	130	180	220	260	290	320	330	350	380	440	480	500	540
7	61	88	120	160	200	240	270	290	310	320	340	400	440	460	490
8	55	79	110	150	190	220	240	260	280	290	310	360	400	410	450
9	50	71	99	130	170	190	220	230	250	260	280	320	360	370	400
10	44	63	88	120	150	170	190	210	220	230	250	280	320	330	350
11	38	54	76	100	130	150	170	180	190	200	210	250	270	280	310
12	32	46	64	86	110	130	140	150	160	170	180	210	230	240	260
13	26	38	53	70	88	100	120	120	130	140	150	170	190	200	210
14	21	30	41	55	69	81	90	97	100	110	120	130	150	150	170
15	15	21	30	39	49	58	65	70	74	78	83	96	110	110	120
16	12	17	24	32	40	47	52	56	59	63	66	77	86	88	96
17	9	13	18	24	30	35	39	42	45	47	50	58	65	67	72



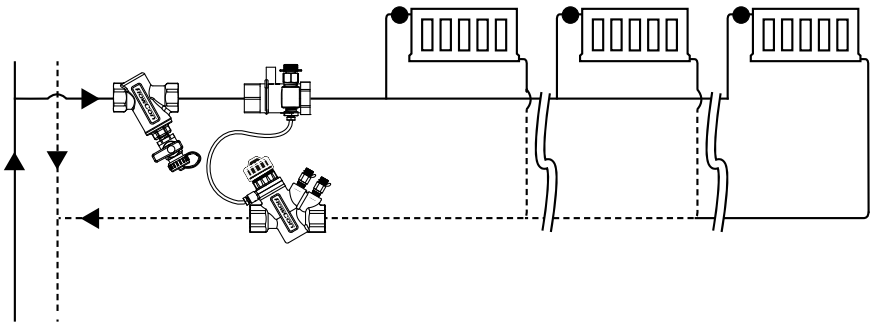
A Micrometer setting of 3.0 as illustrated beside corresponds to a differential pressure in the controlled circuit (ΔpC) of 7 kPaD when the design flow of 340 l/hr is achieved.

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

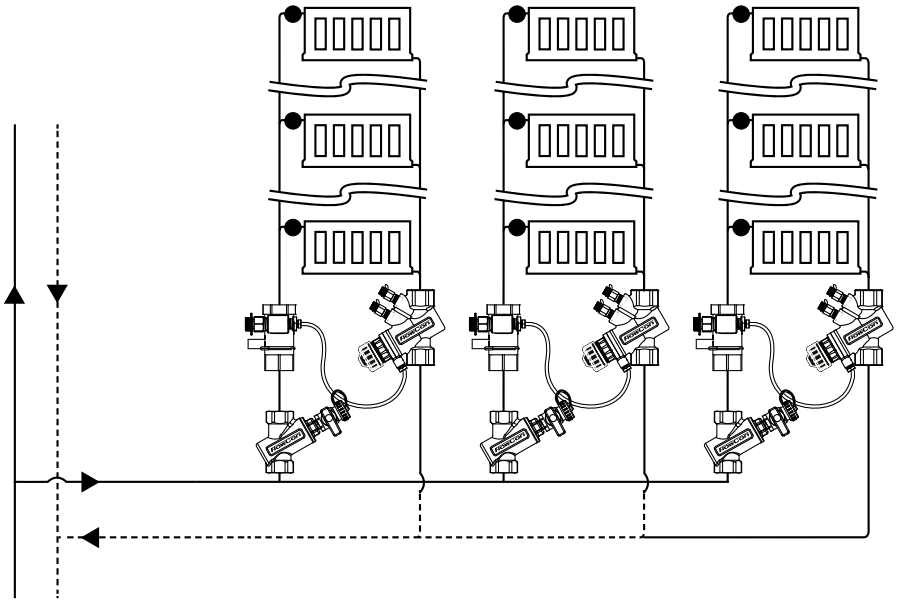
FLOW RATE CURVES



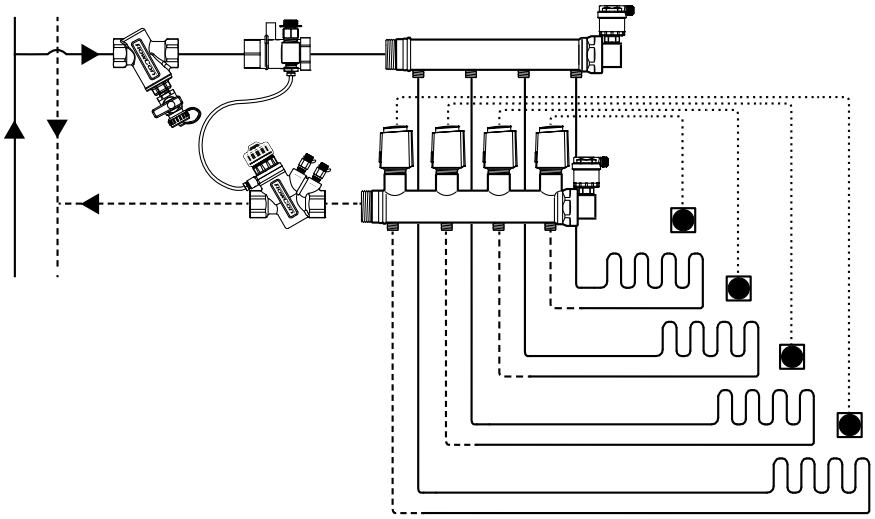
APPLICATIONS



FlowCon ADP mounted on the branch in 2-pipe heating system.

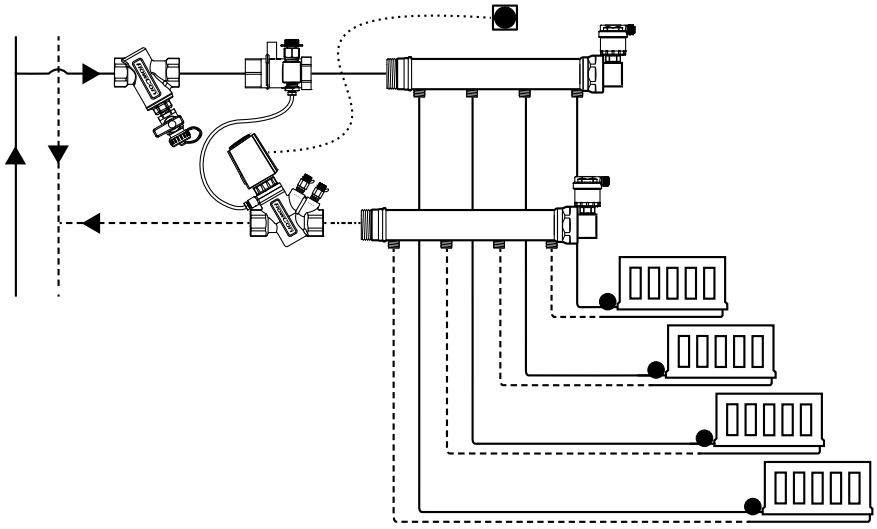


FlowCon ADP mounted on the riser in 2-pipe heating system.



FlowCon ADP mounted on a manifold for underfloor heating system.

APPLICATIONS (...continued)



FlowCon ADP used as zone valve for a manifold distribution system.

DESCRIPTION

The FlowCon ADP series is a combination of a pressure independent control valve as well as a differential pressure controller. The range features the traditional advantageous of a pressure independent control valve (PICV) - pressure independent maximum flow limitation, 100% authority if mounted with actuator - but do simultaneously ensure that the differential pressure across the controlled circuit do not supersede the valve values.

The differential pressure safety feature makes the valve perfect for locations, where a traditional PICV, are not suitable due to noise concerns, such as heating system branches or equivalent.

The ADP will in other words ensure a low stable differential pressure across the controlled circuit and simultaneously ensure that the maximum flow newer supersed the design value. The integration of the PICV valve and the differential pressure control valve DPCV ensure full functionality of both valves without any conflict and with a minimal pressure drop.

GENERAL SPECIFICATIONS

1. FLOW LIMITING DIFFERENTIAL PRESSURE CONTROLLER – FLOWCON ADP

1.1. Contractor shall install the flow limiting differential pressure controller where indicated in drawings.
1.2. Valve shall be a insert based, mechanically operated, differential pressure and flow control device with the option of adding an actuator make it a pressure independent control device.
1.3. Flow limiting differential pressure control valve shall accurately control flow and ensure that the differential pressure across the control circuit newer supersedes the valve value, independent of system pressure fluctuation.
1.4. Maximum flow setting shall be adjustable to 41 different settings within the range of the valve size.

2. VALVE ACTUATOR

2.a. FlowCon FT actuators
2.a.1. Valve actuator housing shall be rated to IP54, including up-side-down mounting.
2.a.2. Actuator shall be driven by 24V or 230V AC, and shall accept ON/OFF control signal.
2.a.3. Actuator shall have visible indication of stroke position.
2.a.4. Failsafe function shall be available on all version.

3. VALVE HOUSING

3.a. FlowCon A
3.a.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa static pressure at +120ºC.

OR….

3.b. FlowCon AB
3.b.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa static pressure at +120ºC.
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 2500 kPa static pressure at +120ºC.
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 AND PRESSURE REGULATION UNIT

4.1. Regulation unit shall consist of glass-reinforced PSU/POM/PPS with an EPDM diaphragm.
4.2. Regulation unit shall be insert based and readily accessible, for change-out or maintenance without removing the valve from the piping. Regulation unit shall be adjustable with the valve in-line and the system in operation.
4.3. Regulation unit shall be externally adjustable to 1 of 41 different flow rates without limiting the stroke length.
4.4. Regulation unit shall be capable of controlling the differential pressure across the controlled circuit between 3 to 17 kPaD and within a flow rate between 9 to 680 l/h.
4.5. Valve shall be capable of maintaining specified maximum flow rates within a differential pressure range of 15-400 kPaD.
4.6. Upper limit of pressure controller should be no more than 17 kPaD at minimum specified flow.

UPDATES

For latest updates please see www.flowcon.com