



PRESSURE INDEPENDENT CONTROL VALVE

Maplef GreEQ.0 / GreEQ.1 / GreEQ.2

Pressure Independent Control Valves

Equal% Characteristics

15-40 mm / 1/2"-1 1/2"



FEATURES / CHARACTERISTICS

Insert:

Static pressure

: 2500 kPa / 360 psi

Ambient temperature

: +1°C to +50°C / +34°F to +122°F

Media temperature

: -20°C to +120°C / -4°F to +248°F

Material:

- Insert

: Glass-reinforced PSU/POM/PPS

- Metal components (internal)

: Stainless steel

- O-rings

: EPDM

- Cone

: PPS

- Diaphragm

: 20 mm / 3/4" insert: EPDM

40 mm / 1 1/2" insert

: Hydrogenated acrylonitrile-butadiene-rubber

Stroke: 20 mm / 3/4" insert

: 3.4 mm / 0.13 in

40 mm / 1 1/2" insert

: 5.2 mm / 0.2 in

Head nut

: Forged brass ASTM CuZn40Pb2

Maximum close off pressure

: 800 kPa / 116 psi

Maximum operational ΔP

: 800 kPaD / 116 psid

Control characteristic

: Equal% (on insert)

Control range

: 1:1000 / IEC 60534

Rangeability

: 100:1

Turn down ratio

: 100:1

Shut-off leakage

: ANSI / FCI 70-2 2006 / IEC 60534-4 - Class IV

Flow Range

: 20 mm / 3/4" insert: 0.00482-0.244 l/sec / 0.0763-3.54 GPM

40 mm / 1 1/2" insert: 0.236-0.600 l/sec / 3.74-9.52 GPM

Valve:

Material:

- Housing

: Forged brass ASTM CuZn40Pb2 or DZR CuZn36Pb2As

- Ball valve

: ABV: Chemically nickel-plated brass ball

End connections²

: A: Fixed female ISO or NPT

(only available for GreEQ insert 20 mm / 3/4")

AB: Fixed female ISO or NPT

ABV: Union end connection in brass alloy ISO or NPT.

: AB/ABV: 1/4" ISO

Housing taps

Note 1: Stated temperature rating is defined due to no external insert condensation.

Note 2: NPT only available ex. US-factory.

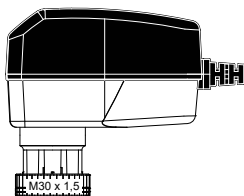


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MAPLEF ACTUATORS

Maplef Actuator ³	MFNR.0.2
Supply voltage	24V AC/DC ±15%, 50/60 Hz
Type	Electrical, bi-directional step motor
Power consumption	AC: 6VA / DC: 4W
Control signal	Analog 0-10V DC
Feedback	No
Failsafe function	No
Auto stroke	No
Operation time	5.5 sec/mm
Ambient temperature	0°C to +50°C / +32°F to +122°F
Humidity rating	0..80% rH, no condensation
Protection	IP54, class III incl. upside-down, indoor use only
Cable	Fixed, 3 x 0.22 mm ² , 1.5 m / 3 x AWG24, 4.9 ft
Closing point adjustment	During operation the actuator will self-adjust according to the closing point and stroke length of the valve
Weight	0.23 kg / 0.50 lb



Maplef MFNR.0.2

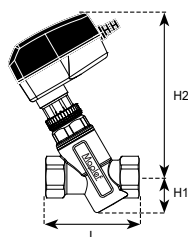
Note 3: Maplef warranty is voided using other actuators than supplied by Maplef.

DIMENSIONS AND WEIGHTS (NOMINAL)

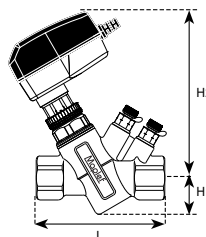
Model no.	Valve model	Valve size	Insert size	L	H1	H2	End connections C ⁴			Weight ⁵
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	Female ISO (NPT)	Male ISO (NPT)	Sweat ISO (NPT)	
MPEQ.X.XX.04	A	15 (½)	20 (¾)	80 (3.15)	31 (1.22)	150 (5.91)	-	-	-	0.54 (1.19)
MPEQ.X.XX.05		20 (¾)		0.50 (1.10)						
MPEQ.X.XX.06		25 (1)		0.54 (1.19)						
MPEQ.X.XX.01	AB	15 (½)	20 (¾)	82 (3.23)	31 (1.22)	150 (5.91)	-	-	-	0.55 (1.21)
MPEQ.X.XX.02		20 (¾)		94 (3.70)						0.61 (1.34)
MPEQ.X.XX.07		25 (1)		102 (4.02)						0.64 (1.41)
MPEQ.2.XX.14		25 (1)	40 (1½)	128 (5.04)	47 (1.85)	170 (6.69)	-	-	-	1.86 (4.10)
MPEQ.2.XX.15		32 (1¼)								1.70 (3.75)
MPEQ.X.XX.03	ABV	15 (½)	20 (¾)	122 (4.80)	33 (1.30)	150 (5.91)	22 (0.87)	24 (0.95)	20 (0.79)	0.90 (1.98)
		20 (¾)					22 (0.87)	25 (0.99)	20 (0.79)	
		25 (1)					-	39 (1.54)	22 (0.87)	
MPEQ.2.XX.17		25 (1)	40 (1½)	162 (6.38)	42 (1.65)	170 (6.69)	35 (1.38)	40 (1.57)	34 (1.34)	2.14 (4.72)
		32 (1¼)					33 (1.30)	40 (1.57)	34 (1.34)	
		40 (1½)					33 (1.30)	42 (1.65)	-	

Note 4: Add end connection length to body length.

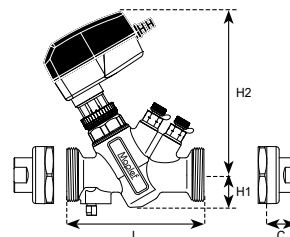
Note 5: Weight does not include end connections or actuator.



Maplef GreEQ.0/1 in
Maplef A valve
DN15/20/25 (1/2", 3/4", 1")
with Maplef MFNR.0.2 actuator



Maplef GreEQ.0/1 in
Maplef AB valve
DN15/20/25 (1/2", 3/4", 1")
with Maplef MFNR.0.2 actuator



Maplef GreEQ.0/1 in
Maplef ABV1 valve
DN15/20/25 (1/2", 3/4", 1")
with Maplef MFNR.0.2 actuator



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Pressure Independent Control Valves

Equal% Characteristics

15-40 mm / 1/2"-1 1/2"

MODEL NUMBER SELECTION

Insert flow range:

- 0** = 20 mm / 3/4" insert (low flow)
1 = 20 mm / 3/4" insert (medium flow)
2 = 40 mm / 1 1/2" insert

Insert type of actuator:

- 33** =M FNR.0.2

Insert type of housing:

20 mm / 3/4" insert:

- 01** = AB DN15, 1/2"
02 = AB DN20, 3/4"
03 = ABV1 DN15-25, 1/2"-1"
04 = A DN15, 1/2"
05 = A DN20, 3/4"
06 = A DN25, 1"
07 = AB DN25, 1"

40 mm / 1 1/2" insert:

- 14** = AB DN25, 1"
15 = AB DN32, 1 1/4"
17 = ABV2 DN25-40, 1"-1 1/2"

Insert p/t plug requirements:

- B** = pressure/temperature plugs

- P** = taps plugged

- leave blank if A-housing or no p/t plugs required

Insert inlet x outlet union end connections:

Model and size	Female threaded	Male treaded	Sweat
MPEQ.0.XX.03, 15-25 mm / 1/2"-1"	E = 15 mm / 1/2"	H = 15 mm / 1/2"	K = 15 mm
MPEQ.1.XX.03, 15-25 mm / 1/2"-1"	F = 20 mm / 3/4"	I = 20 mm / 3/4" J = 25 mm / 1"	L = 18 mm M = 22 mm O = 1/2" R = 3/4" U = 1"
MPEQ.2.XX.17, 25-40 mm / 1"-1 1/2"	G = 25 mm / 1" P = 32 mm / 1 1/4" Q = 40 mm / 1 1/2"	J = 25 mm / 1" S = 32 mm / 1 1/4" T = 40 mm / 1 1/2"	N = 28 mm W = 35 mm V = 1 1/4" W = 1 1/2"

Insert connection standard:

- I** = SO

- N** = NPT (NPT: not available on A DN25 (1") and AB DN25 (1") for 20 mm (3/4") insert)

Example:

MPEQ.1.33.03.B.F.F.J = 20 mm (3/4") Maplef GreEQ, medium flow, with an ABV1-housing with p/t plugs and a 24V modulating actuator and DN20 (3/4") ISO female union end connections.



PRESSURE INDEPENDENT CONTROL VALVE

Maple GreEQ.0 / GreEQ.1 / GreEQ.2

DESCRIPTION

The Maple GreEQ series is pressure independent control valves with equal percentage characteristics that are two-way, modulating to accept digital or analog input signals. The valves accept 0-10V input signals. Each valve has an adjustable maximum flow rate setting maintaining a full stroke 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. Maple A, AB or ABV.

MAXIMUM FLOW RATE LIMITATION SETTINGS

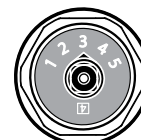
Maple GreEQ										
Insert size: 20 mm · 3/4"						Insert size: 40 mm · 1 1/2"				
Nominal flow rate	16-600 kPaD · 2.3-87 psid ⁶			30-800 kPaD · 4.4-116 psid ⁷			16-800 kPaD · 2.3-116 psid ⁸			Setting
	GreEQ.0 (grey O-ring)			GreEQ.1 (black O-ring)			GreEQ.2 (black O-ring)			
	l/sec	l/hr	GPM	l/sec	l/hr	GPM	l/sec	l/hr	GPM	
	0.00482	17.3	0.0763	0.00764	27.5	0.121	0.236	850	3.74	1.0
	0.00548	19.7	0.0868	0.00880	31.7	0.139	0.252	908	4.00	1.1
	0.00629	22.6	0.0995	0.0102	36.7	0.162	0.256	923	4.07	1.2
	0.00724	26.1	0.115	0.0119	42.8	0.188	0.264	950	4.19	1.3
	0.00836	30.1	0.132	0.0139	49.9	0.219	0.281	1010	4.45	1.4
	0.00965	34.7	0.153	0.0161	58.0	0.255	0.300	1080	4.76	1.5
	0.0111	40.0	0.176	0.0187	67.3	0.296	0.303	1090	4.80	1.6
	0.0128	45.9	0.202	0.0216	77.6	0.342	0.353	1270	5.59	1.7
	0.0146	52.5	0.231	0.0248	89.1	0.392	0.375	1350	5.95	1.8
	0.0166	59.7	0.263	0.0283	102	0.448	0.400	1440	6.34	1.9
	0.0188	67.7	0.298	0.0322	116	0.509	0.422	1520	6.70	2.0
	0.0212	76.3	0.336	0.0364	131	0.576	0.444	1600	7.05	2.1
	0.0238	85.6	0.377	0.0409	147	0.647	0.464	1670	7.36	2.2
	0.0266	95.6	0.421	0.0457	164	0.723	0.481	1730	7.62	2.3
	0.0295	106	0.467	0.0508	183	0.805	0.497	1790	7.89	2.4
	0.0327	118	0.517	0.0563	202	0.891	0.511	1840	8.11	2.5
	0.0360	129	0.569	0.0620	223	0.982	0.522	1880	8.28	2.6
	0.0394	142	0.624	0.0680	245	1.08	0.533	1920	8.46	2.7
	0.0431	155	0.681	0.0743	267	1.18	0.542	1950	8.59	2.8
	0.0468	168	0.741	0.0809	291	1.28	0.550	1980	8.72	2.9
	0.0507	182	0.803	0.0876	315	1.39	0.556	2000	8.81	3.0
	0.0547	197	0.866	0.0946	340	1.50	0.561	2020	8.90	3.1
	0.0588	212	0.931	0.102	366	1.61	0.567	2040	8.99	3.2
	0.0630	227	0.998	0.109	392	1.73	0.572	2060	9.07	3.3
	0.0673	242	1.07	0.117	419	1.84	0.575	2070	9.12	3.4
0.0716	258	1.13	0.124	446	1.96	0.578	2080	9.16	3.5	
0.0760	273	1.20	0.132	474	2.08	0.581	2090	9.21	3.6	
0.0804	289	1.27	0.139	501	2.21	0.581	2090	9.21	3.7	
0.0847	305	1.34	0.147	529	2.33	0.582	2100	9.25	3.8	
0.0890	320	1.41	0.155	557	2.45	0.584	2100	9.25	3.9	
0.0933	336	1.48	0.162	584	2.57	0.585	2110	9.30	4.0	
0.0975	351	1.54	0.170	611	2.69	0.586	2110	9.29	4.1	
0.102	365	1.61	0.177	637	2.80	0.588	2120	9.34	4.2	
0.105	379	1.67	0.184	662	2.91	0.589	2120	9.34	4.3	
0.109	393	1.73	0.191	687	3.02	0.590	2120	9.34	4.4	
0.113	406	1.78	0.198	711	3.13	0.592	2130	9.38	4.5	
0.116	417	1.84	0.204	733	3.22	0.593	2140	9.43	4.6	
0.119	428	1.88	0.209	754	3.32	0.595	2140	9.43	4.7	
0.122	438	1.93	0.215	773	3.40	0.596	2150	9.47	4.8	
0.124	447	1.97	0.220	790	3.48	0.598	2150	9.47	4.9	
0.126	454	2.00	0.224	805	3.54	0.600	2160	9.52	5.0	

Standard accuracy: Greatest of either $\pm 10\%$ of controlled flow rate or $\pm 5\%$ of maximum flow rate.

Note 6: If used in pressure range 200-600 kPaD (29-87 psid), greatest of either standard accuracy or -20% / $+0\%$ applies.

Note 7: If used in pressure range 400-800 kPaD (58-116 psid), greatest of either standard accuracy or -20% / $+0\%$ applies.

Note 8: at setting 2.6.

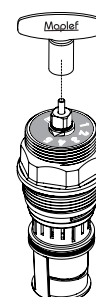


A micrometer **setting of 3.4** as illustrated above corresponds to a maximum flow rate of

GreEQ.0: 0.0673 l/sec
(1.07 GPM)

GreEQ.1: 0.117 l/sec
(1.84 GPM)

GreEQ.2: 0.575 l/sec
(9.12 GPM)



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



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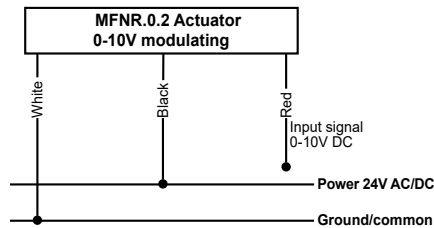
Pressure Independent Control Valves

Equal% Characteristics

15-40 mm / 1/2"-1 1/2"

WIRING INSTRUCTION

Maplef MFNR (analog)



GENERAL SPECIFICATIONS

1. PRESSURE INDEPENDENT DYNAMIC CONTROL VALVES - MAPLEF GREEN

- 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 41 different settings within the range of the valve size.
- 1.5. Valve housing shall be permanently marked to show direction of flow.

2. VALVE ACTUATOR - MAPLEF MFNR ACTUATOR

- 2.1. Actuator housing shall be rated to IP54. 360° mounting shall be acceptable.
- 2.2. Actuator shall be driven by 24V AC/DC, and shall accept 0-10V DC control signal.
- 2.3. Actuator shall use full stroke and provide full authority.
- 2.4. Manual override shall be possible.

3. VALVE HOUSING

3.a. Maplef A

- 3.a.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa (360 psi) static pressure at +120°C (+248°F). OR....

3.b. Maplef AB

- 3.b.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2 or DZR ASTM CuZn36Pb2As, rated at no less than 2500 kPa (360 psi) static pressure at +120°C (+248°F).
- 3.b.2. Pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.

OR....

3.c. Maplef ABV

- 3.c.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa (360 psi) static pressure at +120°C (+248°F).
- 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.



PRESSURE INDEPENDENT CONTROL VALVE

Maplef GreEQ.0 / GreEQ.1 / GreEQ.2

GENERAL SPECIFICATIONS(Continue..)

4. FLOW REGULATION UNIT

- 4.1. Flow regulation unit shall have equal percentage characteristics.
- 4.2. Flow regulation unit shall consist of glass-reinforced PSU/ POM/PPS with an EPDM diaphragm (20 mm / 3/4" insert) or a hydrogenated acrylonitrile-butadiene-rubber diaphragm (40 mm / 1 1/2" insert).
- 4.3. Flow regulation unit shall be readily accessible for change-out or maintenance. Flow regulation unit shall be adjustable with the valve in-line and the system in operation.
- 4.4. Flow regulation unit shall be externally adjustable to 1 of 41 different flow rates without limiting the stroke length; shall be available in 2 different operational pressure ranges for DN15/20/25 (1/2", 3/4", 1") and 1 operational pressure range for DN25/32/40 (1", 1 1/4", 1 1/2"); minimum range shall be capable of being activated by 16 kPaD (2.3 psid). Further, the flow regulation unit shall be capable of controlling the flow within $\pm 10\%$ of controlled flow or $\pm 5\%$ of maximum flow.

APPLICATION AND SCHEMATIC EXAMPLE

