

# Automatic flow regulator with adjustable cartridge

## 118 series



cert. n° 0003  
ISO 9001

01138/06 GB



### Function

Flow regulators maintain a constant flow rate as the upstream/downstream pressure difference varies. They automatically balance the hydronic circuit and ensure the design flow rate.

This particular series of devices is equipped with a special cartridge that can be adjusted from the outside, with which the flow rate can be set on the desired value directly, with no need to shut off the valve.

### Product range

Series 118 Automatic flow regulator with adjustable cartridge  
Code 118000 Cartridge adjustment key

sizes 1/2" - 3/4" - 1" - 1 1/4"

### Technical specifications

Materials: - body: brass EN 12165 CW617N  
- pressure port plugs: brass EN 12164 CW614N  
- adjustable cartridge: polymer with HNBR diaphragm  
- hydraulic seals: EPDM

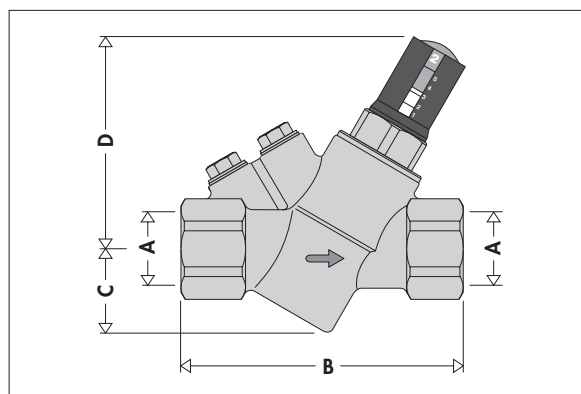
Medium: water, glycol solutions  
Max percentage of glycol: 50%

Max working pressure: 25 bar  
Temperature range: 0–100°C

$\Delta p$  Range: 17–210 kPa; 17–400 kPa; 30–400 kPa; 35–400 kPa  
Flow rates: 0,10–5,00 m<sup>3</sup>/h  
Accuracy:  $\pm$  5%

Connections: 1/2"–1 1/4" F  
Pressure port connections: 1/4" F

### Dimensions



Code	A	B	C	D	Weight(kg)
118141...	1/2"	83	31	80	0,66
118151...	3/4"	94	31	80	0,62
118161...	1"	128	47	100	1,90
118171...	1 1/4"	128	47	100	1,70

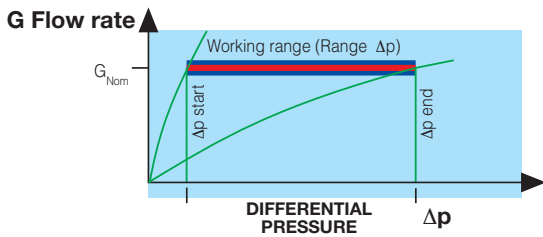
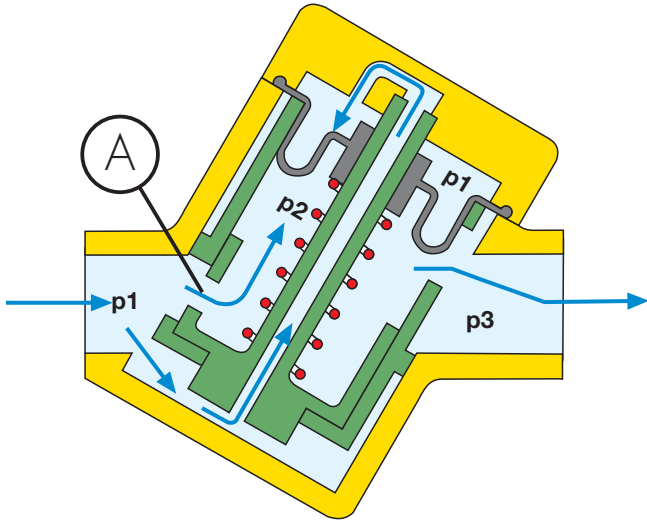
## Operating principle

With reference to the drawing shown,  $p_1$  and  $p_3$  are the pressures in the circuit.  $\Delta p = (p_1 - p_3)$  is the total pressure difference between upstream and downstream of the valve.

Pressure  $p_2$  is determined by the diaphragm in reaction to the pressure  $p_1$  that acts on the upper chamber of the diaphragm.

Interacting with the spring, the difference  $(p_1 - p_2)$  remains constant, keeping a constant  $\Delta p_A$  through the orifice (A).

The outcome is a constant flow rate through the valve irrespective of changes in the upstream/downstream pressure difference.

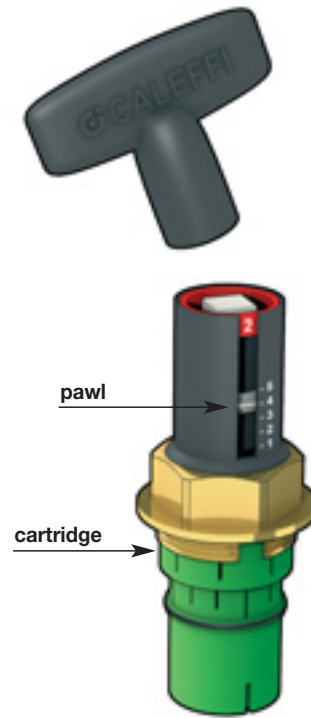


## Flow rate adjustment

By using the special key (code 118000) you act on the adjustment mechanism and read off the desired position on the graduated reference scale.

A double gauge, with a scale from 1 to 5 and decimal division from 1 to 9, permits making exact flow rate adjustments. Its colour identifies the pressure range.

Depending on the range of flow rate, the cartridges are available in various colours to permit easy identification. The same colours are on the outside, on the adjuster screw and on the protection cover.



## Method of coding for 118 series flow regulator

For correct identification of the device, fill in the form giving series N°, size, flow rate and  $\Delta p$ .

Full code:

1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	4 <sup>a</sup>	5 <sup>a</sup>	6 <sup>a</sup>	7 <sup>a</sup>	8 <sup>a</sup>	9 <sup>a</sup>
1	1	8	1		1			
SERIES			SIZE		RANGE OF FLOW RATE AND RANGE $\Delta p$			

SIZE

The fifth digit indicates the size:

SIZE	1/2"	3/4"	1"	1 1/4"
DIGIT	4	5	6	7

FLOW RATE AND  $\Delta p$  RANGE




The last three digits indicate the available ranges of flow rate and the Range  $\Delta p$ , with the corresponding cartridges. Each cartridge is marked by a specific colour.



Body size	Cartridge size	$\Delta p$ range (kPa)	Flow rate range (m <sup>3</sup> /h)	Cartridge colour	Cartridge code digit
1/2" - 3/4"	DN 20	17-210	0,10-0,40	Black	1YB
	DN 20	17-210	0,15-0,60	Green	1YG
	DN 20	35-400	0,14-0,60	Black	1GB
	DN 20	35-400	0,24-0,90	Green	1GG
1" - 1 1/4"	DN 20	30-400	0,40-1,30	Red	1YR
	DN 40	17-400	1,05-5,00	Black	2YB

## Flow-rate adjustment tables

Flow rate - codes 1YB and 1YG - white pawl - DN 15 (1/2") and DN 20 (3/4")					Flow rate - codes 1GB and 1GG - grey pawl - DN 15 (1/2") and DN 20 (3/4")					Flow rate - code 1YR - white pawl - DN 15 (1/2") and DN 20 (3/4")			Flow rate - code 2YB - white pawl - DN 25 (1") and DN 32 (1 1/4")		
17–210 kPa				Adjustment position	35–400 kPa				Adjustment position	30–400 kPa		Adjustment position	17–400 kPa		Adjustment position
Black		Green			Black		Green			Red			Black		
l/h	Min (Δp) (kPa)	l/h	Min (Δp) (kPa)	Rotation	l/h	Min (Δp) (kPa)	l/h	Min (Δp) (kPa)	Rotation	l/h	Min (Δp) (kPa)	Rotation	l/h	Min (Δp) (kPa)	Rotation
100,0	17	157,0	15	1,0	137,9	32	237,6	32	1,0	405,9	29	1,0	1048,0	17	1,0
107,8	17	168,3	15	1,1	149,8	32	254,1	32	1,1	527,4	30	1,1	1203,4	17	1,1
115,6	17	179,6	15	1,2	161,8	33	270,5	32	1,2	448,9	30	1,2	1355,9	17	1,2
124,4	17	190,9	15	1,3	173,7	33	287,0	32	1,3	470,4	31	1,3	1505,6	17	1,3
131,2	17	202,2	15	1,4	185,6	33	303,5	32	1,4	491,9	31	1,4	1652,4	17	1,4
139,0	17	213,5	15	1,5	197,6	33	319,9	32	1,5	513,4	32	1,5	1796,3	18	1,5
146,8	17	224,8	15	1,6	209,5	33	336,4	32	1,6	534,9	32	1,6	1937,3	18	1,6
154,6	17	236,1	15	1,7	221,4	33	352,8	32	1,7	556,4	33	1,7	2075,4	18	1,7
162,4	17	247,4	15	1,8	233,3	33	369,3	32	1,8	577,9	34	1,8	2210,7	18	1,8
170,2	17	258,7	15	1,9	245,3	33	385,8	32	1,9	599,4	34	1,9	2343,0	18	1,9
178,0	17	270,0	15	2,0	257,2	34	402,2	32	2,0	620,9	35	2,0	2472,5	18	2,0
185,8	17	281,3	15	2,1	269,1	34	418,7	32	2,1	642,4	35	2,1	2599,1	18	2,1
193,6	17	292,6	15	2,2	281,1	34	435,1	32	2,2	663,9	36	2,2	2722,8	18	2,2
201,4	17	303,9	15	2,3	293,0	34	451,6	33	2,3	685,4	37	2,3	2843,6	18	2,3
209,2	17	315,2	15	2,4	304,9	34	468,1	33	2,4	706,9	38	2,4	2961,6	18	2,4
217,0	17	326,5	16	2,5	316,9	34	484,5	33	2,5	728,4	38	2,5	3076,6	19	2,5
224,8	17	337,8	16	2,6	328,8	35	501,0	33	2,6	749,9	39	2,6	3188,8	19	2,6
232,6	17	349,1	16	2,7	340,7	35	517,4	34	2,7	771,4	40	2,7	3298,1	19	2,7
240,4	17	360,4	16	2,8	352,6	35	533,9	34	2,8	792,9	41	2,8	3404,5	19	2,8
248,2	17	371,7	16	2,9	364,6	35	550,4	34	2,9	814,4	42	2,9	3508,0	19	2,9
256,0	17	383,0	16	3,0	376,5	35	566,8	35	3,0	835,9	42	3,0	3608,7	19	3,0
263,8	17	394,3	17	3,1	388,4	36	583,3	35	3,1	857,4	43	3,1	3706,4	19	3,1
271,6	17	405,6	17	3,2	400,4	36	599,8	35	3,2	878,9	44	3,2	3801,3	19	3,2
279,4	17	416,9	17	3,3	412,3	36	616,2	36	3,3	900,4	45	3,3	3893,3	19	3,3
287,2	17	428,2	17	3,4	424,2	36	632,7	36	3,4	921,9	46	3,4	3982,4	19	3,4
295,0	17	439,5	17	3,5	436,2	37	649,1	37	3,5	943,4	47	3,5	4068,6	19	3,5
302,8	17	450,8	18	3,6	448,1	37	665,6	37	3,6	964,9	48	3,6	4152,0	19	3,6
310,6	17	462,1	18	3,7	460,0	37	682,1	38	3,7	986,5	49	3,7	4232,4	19	3,7
318,4	18	473,4	18	3,8	471,9	37	698,5	38	3,8	1008,0	50	3,8	4310,0	20	3,8
326,2	18	484,7	18	3,9	483,9	38	715,0	39	3,9	1029,0	51	3,9	4384,7	20	3,9
334,0	18	496,0	18	4,0	495,8	38	731,4	39	4,0	1051,0	52	4,0	4456,5	20	4,0
341,8	18	507,3	19	4,1	507,7	38	747,9	40	4,1	1072,0	53	4,1	4525,4	20	4,1
349,6	18	518,6	19	4,2	519,7	38	764,4	40	4,2	1094,0	54	4,2	4591,5	20	4,2
357,4	18	529,9	19	4,3	531,6	39	780,8	41	4,3	1115,0	55	4,3	4654,6	20	4,3
365,2	18	541,2	20	4,4	543,5	39	797,3	41	4,4	1137,0	56	4,4	4714,9	20	4,4
373,0	18	552,5	20	4,5	555,5	39	813,7	42	4,5	1158,0	58	4,5	4772,3	20	4,5
380,8	18	563,8	20	4,6	567,4	40	830,2	42	4,6	1180,0	59	4,6	4826,8	20	4,6
388,6	19	575,1	20	4,7	579,3	40	846,7	43	4,7	1201,0	60	4,7	4878,4	20	4,7
396,4	19	586,4	21	4,8	591,2	40	863,1	44	4,8	1223,0	61	4,8	4927,2	20	4,8
404,2	19	597,7	21	4,9	603,2	41	879,6	44	4,9	1244,0	62	4,9	4973,0	20	4,9
412,0	19	609,0	21	5,0	615,1	41	896,1	45	5,0	1266,0	64	5,0	5016,0	20	5,0

### Minimum differential pressure required

To correctly size the pump, you need to add, to the fixed head losses of the most disadvantaged circuit, the minimum pressure difference required by the device. This value corresponds to the minimum Δp of the start of the working range, indicated in the tables.

## Accessories



### 100

Pair of fast-plug pressure/temperature test port.  
Max working pressure: 30 bar.  
Working temperature range: -5–130°C.

Code

100000 1/4"



### 100

Pair of fittings with fast coupling syringe for connection of the pressure ports to the measuring instruments.  
Female 1/4" threaded connection.  
Max working pressure: 10 bar.  
Max working temperature: 110°C.

Code

100010 1/4"



### 130 FLOMET

Electronic flow rate and pressure differential measuring station.  
Supplied complete with shut-off valves and connection fittings.  
It can be used to check operation in the working range of Autoflow devices.  
It can also be used to measure the flow rate of balancing valves series 131, 135 and of the metering devices series 683.  
Transducer range: 0,05–200 kPa.  
Max differential pressure: 200 kPa.

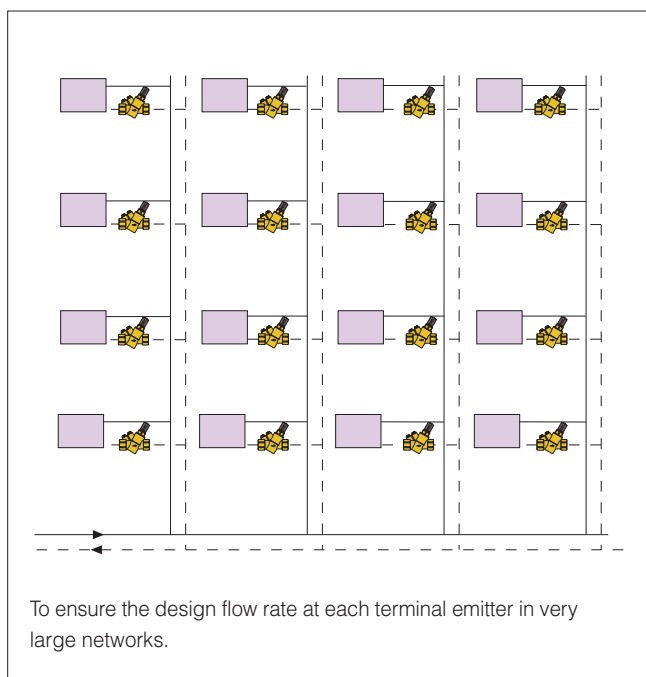
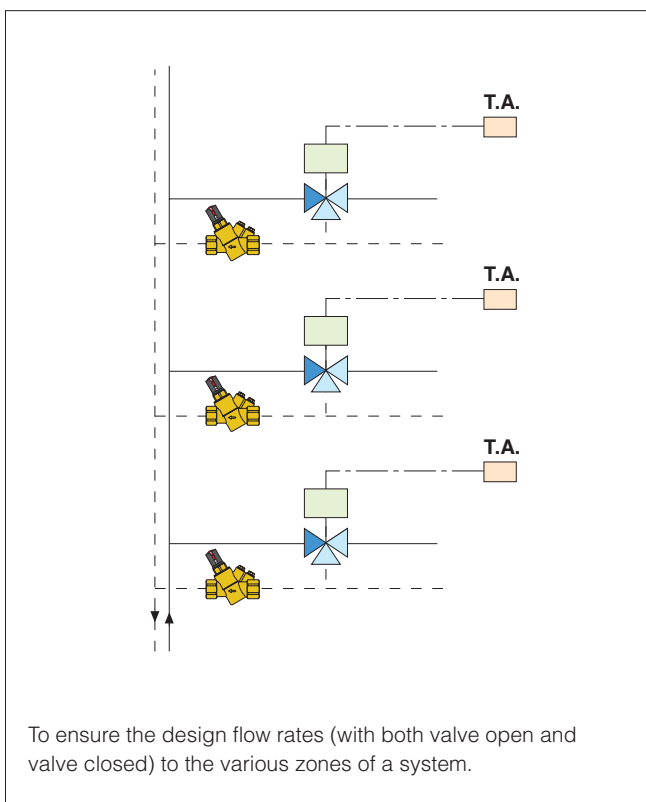
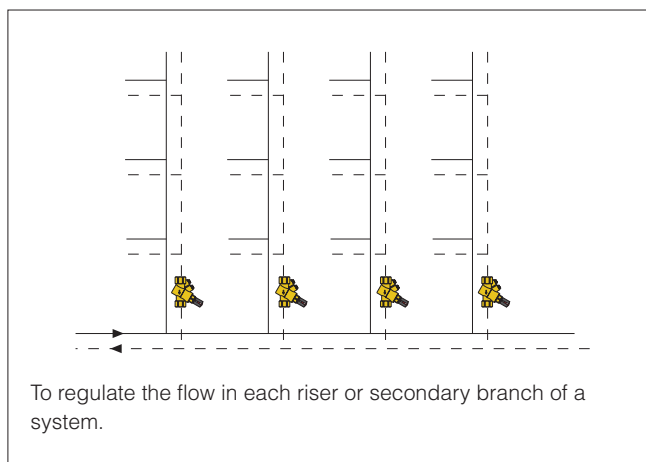
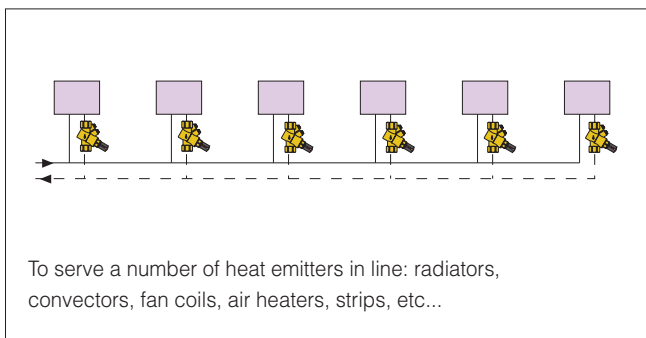
Code

130000 Supply 230 V (ac)

130001 Battery operated

## Application diagrams

In heating and air-conditioning systems, the regulators are preferably installed on the circuit return pipe. Some typical installation examples are given below.



## SPECIFICATION SUMMARIES

### 118 series

Automatic flow regulator with adjustable cartridge. 1/2" F connections (from 1/2" to 1 1/4"), 1/4" F pressure port. Brass pressure port plugs and body. Polymer adjustable cartridge with HNBR diaphragm. EPDM hydraulic seals. Medium: water and glycol solutions. Maximum percentage of glycol 50%. Maximum working pressure 25 bar. Temperature range 0–100°C. Δp range 17–210 kPa (17–400 kPa, 30–400 kPa, 35–400 kPa). Range of flow rate from 0,10 to 5,00 m³/h. Accuracy ± 5%.

We reserve the right to change our products and their relevant technical data contained in this publication at any time and without prior notice.

