

Description / Application



The controller is a self-acting differential pressure controller with flow limitation primarily for use in district heating systems. The control closes on rising differential pressure.

The controller has a control valve (flange connection) with adjustable throttle for flow setting, an actuator with one diaphragm and a spring for differential pressure setting.

Nominal diameter DN 32 - 50
Nominal pressure PN 25
Max. temperature 150 °C
Connection Flange
Diff. pressure setting: Adjustable (AIPB)
 Fixed (AIPB-F)
Return mounting

Ordering

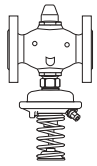
Example
 Differential pressure controller with flow limitation AIPB, DN 32, PN 25, t_{max} : 150 °C, differential pressure 0.1 - 1.0 bar

- 1x AIPB DN 32 controller
 Code no: **003H0200**

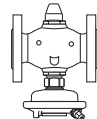
Valve and actuator will be delivered assembled.

- Option:**
- 1x AI impulse tube
 Code no: **003H0279**


AIPB Controller (adjustable setting)

	DN mm	k_{vs} m ³ /h	t_{max} °C	PN	Diff. pressure bar	Code No.
	32	12.5	150		25	
40	16	0.3 - 2.0		003H0211		
50	20	150	25	0.1 - 1.0	003H0201	
				0.3 - 2.0	003H0212	
				0.1 - 1.0	003H0202	
				0.3 - 2.0	003H0213	

AIPB-F Controller (fixed setting)

	DN mm	k_{vs} m ³ /h	t_{max} °C	PN	Diff. pressure bar	Code No.
	32	12.5	150			
40	16	003H0190				
50	20	003H0191				

Accessories

	Type	Description	Ordering no.	Code No.
	Impulse tube AI	- Copper tube Ø 6 x 1 x 1000 mm - 1 x threaded fitting R 1/8	1x	003H0279

Technical data

Valve

Nominal diameter (DN)				32	40	50
k_{vs} value (m ³ /h)				12.5	16	20
Range of flow rate* (m ³ /h)	AIPB and AIPB-F			1 - 8	1 - 10	1 - 12
	0.5 bar Δp_s	0.3 bar Δp_{system}	0.2 bar Δp_b			
flow rate* (m ³ /h)	AIPB			1 - 10	1 - 12	1 - 15
	1.0 bar Δp_s	0.5 bar Δp_{system}	0.5 bar Δp_b			
z value acc. to VDMA 24 422				0.55	0.5	0.5
Nominal pressure				PN 25		
Diff. pressure $\Delta p_{max.}$ (bar)				16		
Flow medium				Water for heating, district heating and cooling systems		
Max. medium temperature (°C)				150		
Type of connection				Flange, PN 25 DIN 2501		
Approx. valve weight (kg)				6.5	9.0	10
Valve body material				Ductile iron EN-JS1025 (GGG-40.3)		
Seat material				Stainless steel M. No. 1.4571		
Cone material				CuZn40Pb2, M. No. 1.4404		
Sealing				Soft seal EPDM		

* the max. flow rate depends on the differential pressure (Δp_{system}) across the system (full open)
 $\Delta p_s = \Delta p_{system} + \Delta p_b$

Δp_b Differential pressure across the flow restrictor throttle
 Δp_s Set point differential pressure

Actuator

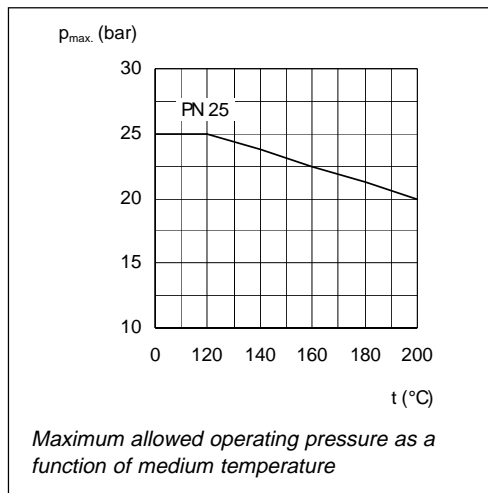
Type	AIPB		AIPB-F
Actuator size (cm ²)	54		
Max. operating pressure	PN 25		
Setpoint ranges Δp_s with spring colours (bar)	0.1 - 1.0 yellow	0.3 - 2.0 red	0.5 ¹⁾
Excess pressure safety	x		-
Material	Body	Stainless steel No.1.4301, CuZn36Pb2As ²⁾	
	Diaphragm	EPDM	
Impulse tube	R 1/8 for Cu-pipe Ø6 x 1 mm		
Approx. actuator weight (kg)	1.8		1.5

¹⁾ 0.2 bar on request

²⁾ Dezincing free brass

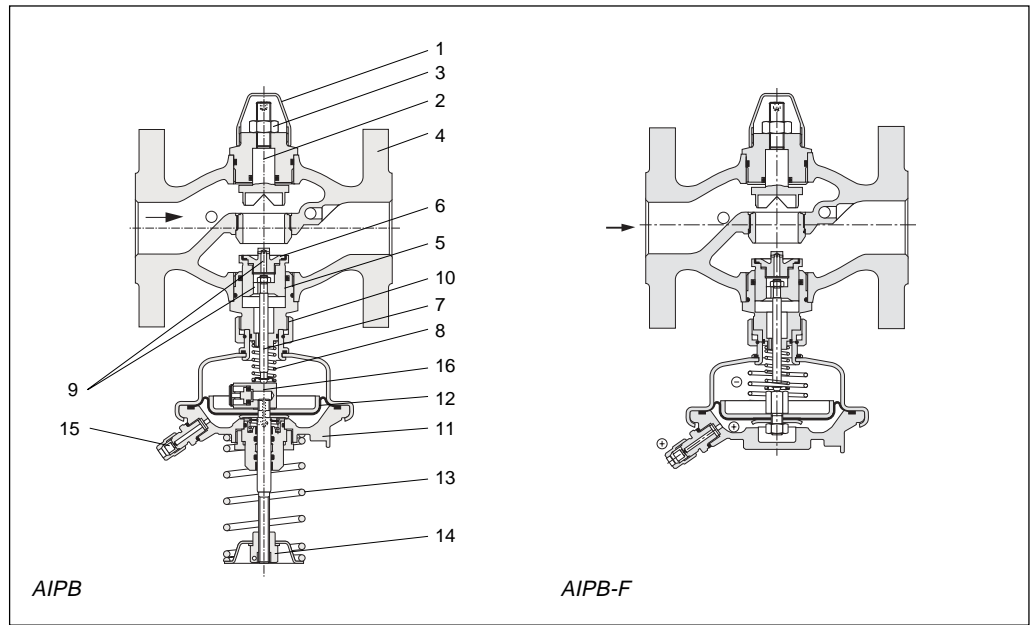
Sizing diagrams

Pressure temperature diagram

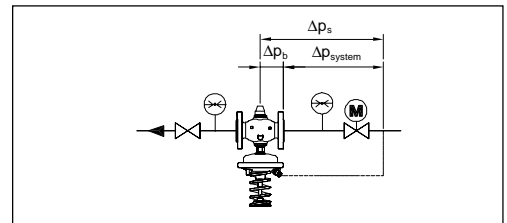


Design and function

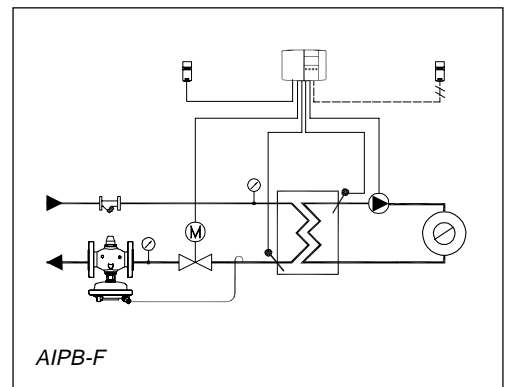
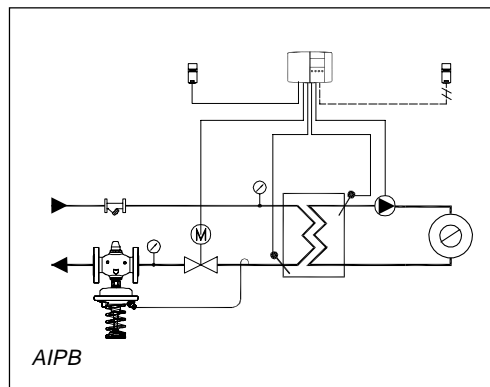
- 1. Cover
- 2. Adjustment throttle
- 3. Nut
- 4. Valve
- 5. Trim
- 6. Valve plug with pressure balance
- 7. Valve stem
- 8. Valve spring
- 9. Control drilling
- 10. Union nut
- 11. Actuator
- 12. Rolling diaphragm
- 13. Set-point spring
- 14. Set-point adjuster for diff. pressure
- 15. Control line connection with orifice
- 16. Pressure restricting valve



Total differential pressure Δp_s of the controller consist of resistor differential pressure Δp_b across the flow restrictor throttle and differential pressure Δp_{system} of the system (motorised valve). Total differential pressure is transferred on the diaphragm chamber via the impulse tubes to create a force balanced with the force of the spring.



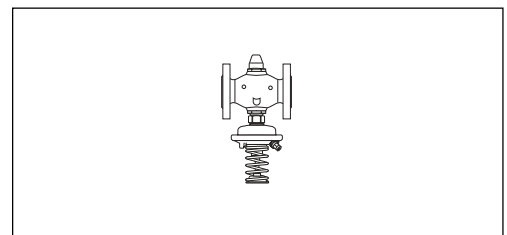
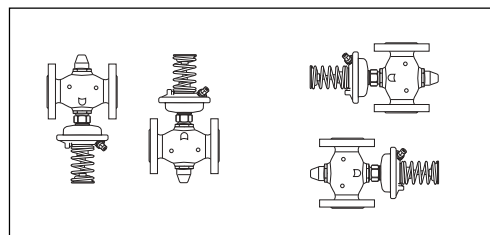
Application principles



Installation position

Up to medium temperature of 100 °C the controllers can be installed in any position.

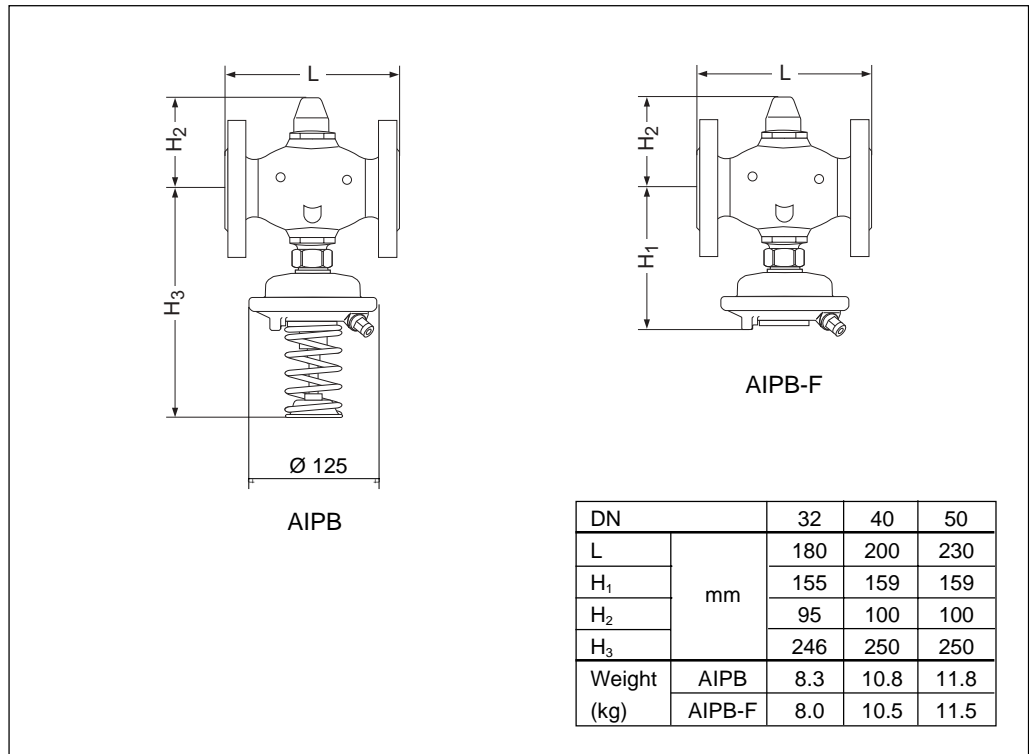
For higher temperature the controllers have to be installed in horizontal pipes only, with a pressure actuator oriented downwards.



Setting

Differential control is set by adjusting the setting spring.

Dimensions



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