



The precision you know. The flow you need.

You've always relied on the market-leading precision of the Danfoss AB-QM. Naturally, we're evolving its capabilities to match the scale of your increasing ambitious projects.

We have enhanced the design flow rates for our larger dimension PICV valves, giving you greater freedom for demanding, large-scale HVAC systems in buildings, data centers and even district cooling. It's the trusted accuracy you depend on, now ready for any design challenge you may have.



High accuracy flow control up to

670,000 l/h



Setting the standard in hydronic HVAC control

The world of HVAC is in constant evolution, driven by the pursuit of greater efficiency, enhanced comfort, and smarter building management. Two decades ago, Danfoss revolutionized this landscape by introducing the first commercially viable Pressure Independent Control Valve (PICV), the AB-QM. This innovation marked the beginning of a market-wide shift away from statically balanced systems to the streamlined efficiency of pressure-independent balancing and control solutions. Today, PICVs are the industry standard, and Danfoss continues to lead the way.



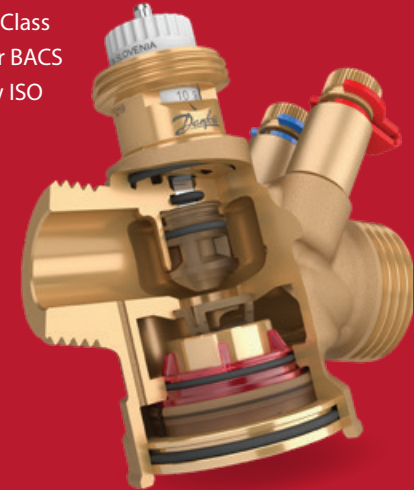
The core of high performance: the unmatched AB-QM valve

At the heart of any high-performing hydronic system is the ability to deliver precise and stable flow, regardless of pressure fluctuations. The Danfoss AB-QM is engineered to do exactly that. By integrating the function of a control valve and a balancing valve into a single, intelligent unit, it provides dynamic hydronic balancing and perfect temperature control, ensuring optimal performance while simplifying design, installation and commissioning.

What truly sets the AB-QM apart is its fundamental design. Its unique membrane construction provides 100% valve authority, as the integrated differential pressure controller acts solely on the control valve inside. Unlike other solutions that measure differential pressure across the in- and outlet of the valve (and sometimes electronically compensated), the AB-QM's method guarantees true pressure independence. This results in a range of benefits:

Class A

AB-QM valves feature a built-in differential pressure controller, providing Class A efficiency rating for BACS according to the new ISO 16484-4 standard.



- **Unmatched accuracy:** A near-perfect linear characteristic delivers the exact design flow at all times, preventing energy-wasting overflows and ensuring optimal delta T.
- **Enhanced indoor comfort:** Eliminates flow fluctuations and “hunting” for the right flow, creating a solid foundation for occupants’ comfort and well-being.
- **Simplified project lifecycle:** Reduces design complexity, eliminates the need for manual balancing during commissioning, and simplifies maintenance, saving time and costs at every step.
- **Lower operational costs:** By ensuring design flow and enabling higher system delta T, the AB-QM significantly reduces pump energy consumption, a major contributor to a building’s operational expenses.



Unlocking full potential with a versatile actuator portfolio

A world-class valve requires a perfectly matched actuator to deliver on its promise of performance. That is why the AB-QM is supported by a comprehensive portfolio of actuators, offering a perfect fit for any application and control strategy. Whether your project requires basic on/off control, cost-effective thermal modulation, robust gear-driven modulating or high-accuracy step motor driven modulating control, our range provides a reliable and efficient solution.

For those looking to build truly smart, future-proof buildings, we recommend our premier range: the NovoCon® digital actuators. Available in S, M, and L models, the NovoCon® family is much more than just a series of actuators; they are intelligent gateways that connect your hydronic system directly to your Building Management System (BMS). With seamless BACnet MS/TP or Modbus RTU connectivity, they unlock the ultimate digital potential of the AB-QM. Key values include:



- **Seamless BMS integration:** Daisy-chain bus communication allows for fast, cost-effective installation and provides immediate access to system data.
- **Remote functionality:** Enables remote commissioning (up to 64 actuators at once), flow setting, and system flushing, significantly reducing time spent on-site.
- **Active energy management:** Provides real-time data on flow, valve position, and energy consumption, allowing for continuous optimization and verification of system performance.
- **Predictive maintenance:** Delivers system alarms and diagnostics directly to the BMS, allowing for proactive maintenance and fault detection before issues impact comfort or efficiency.



Class B, upgradeable to Class A

NovoCon® digital actuators are rated Class B in the ISO 52120-1 standard for BACS. By including presence detection sensors their efficiency is elevated to Class A, contributing to higher ratings for green building certifications.



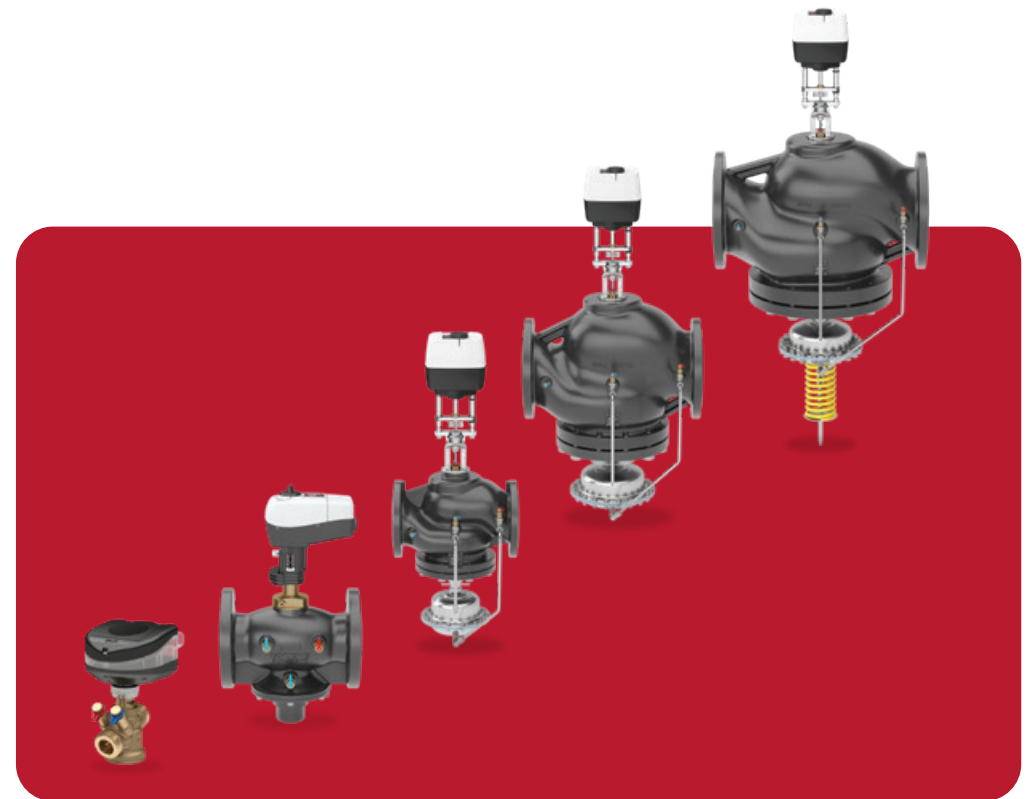
A complete solution for every application

Together, AB-QM and our complete range of actuators provide a high-value solution for the full spectrum of hydronic HVAC applications. From terminal units and air handling units to large-scale chiller and heat pump control and even district cooling systems, this combination ensures optimal performance and efficiency, tailored to your specific needs.

Reflecting our commitment to continuous innovation, our latest AB-QM valves from DN 125 - DN 250 feature an adapted design and increased nominal flow. This means the entire large-valve range can

now be perfectly paired with the powerful and versatile NovoCon® L actuator. This eliminates the need for the larger and stronger NovoCon® XL moving forward, simplifying specification and installation across all your projects, delivering robust control without unnecessary complexity.

Continue reading to discover how the market-leading PICV solutions from Danfoss can bring unmatched efficiency, intelligence, and reliability to your next HVAC project.



Continue by clicking the buttons below:

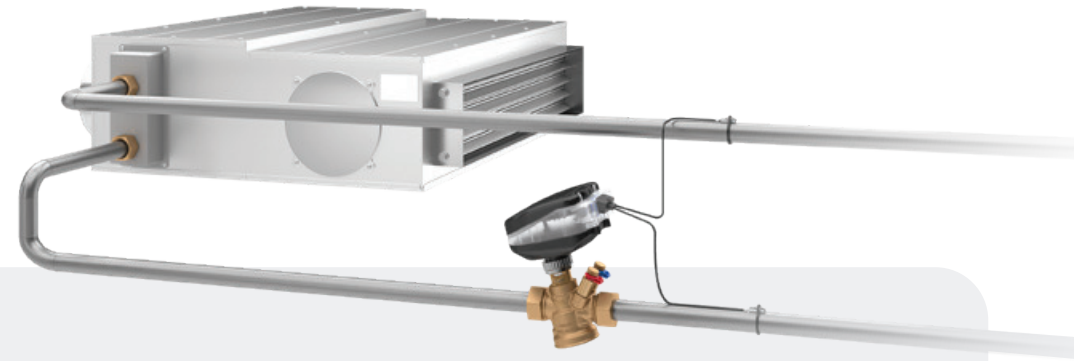
Small combinations
DN 15 - DN 32

Medium combinations
DN 40 - DN 100

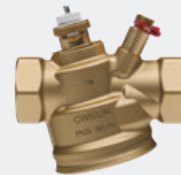
Large combinations
DN 125 - DN 250



Small combinations for terminal units



AB-QM valves size S



AB-QM 4.0

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DN	Qmin.	Qnom.	External thread with test plugs	External thread without test plugs
15 LF	20 l/h	200 l/h	003Z8200	003Z8220
15	70 l/h	700 l/h	003Z8201	003Z8221
15 HF	120 l/h	1,200 l/h	003Z8202	003Z8222
20	110 l/h	1,100 l/h	003Z8203	003Z8223
20 HF	190 l/h	1,900 l/h	003Z8204	003Z8224

Note: AB-QM 4.0 are also available with internal thread acc. ISO 7/1

AB-QM 4.0

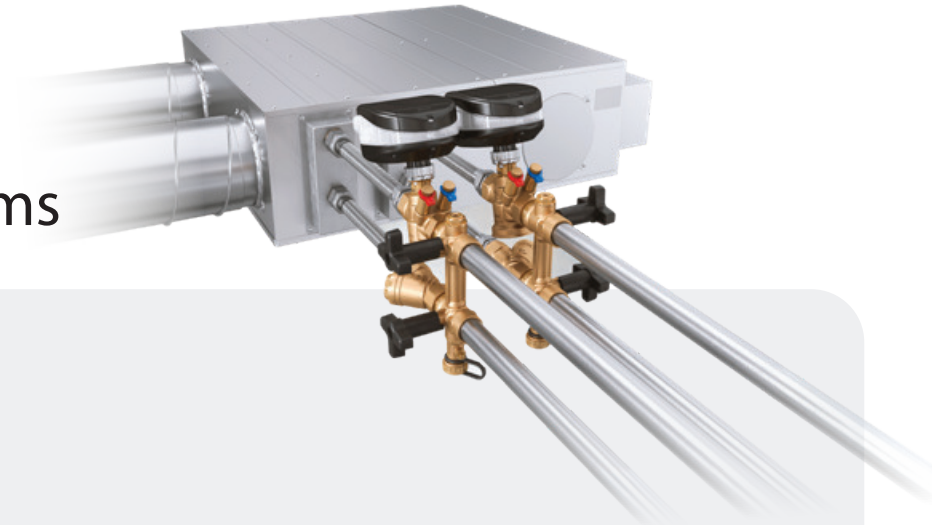
[Go to datasheet >](#)

DN	Qmin.	Qnom.	External thread with test plugs
25	220 l/h	2,200 l/h	003Z8205
25 HF	380 l/h	3,800 l/h	003Z8206
32	360 l/h	3,600 l/h	003Z8207
32 HF	500 l/h	5,000 l/h	003Z8208

Note: AB-QM 4.0 are also available with internal thread acc. ISO 7/1



Pre-assembled combinations for FCU units, radiant panels or chilled beams



AB-QM connection sets size S

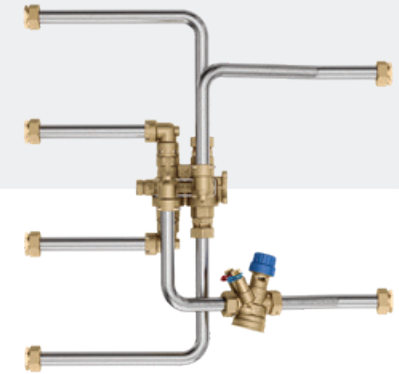


AB-QM 4.0 Flexo

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DN	Qmin.	Qnom.	Left-hand version with strainer	Right-hand version with strainer
15 LF	20 l/h	200 l/h	003Z1620	003Z1720
15	70 l/h	700 l/h	003Z1621	003Z1721
15 HF	120 l/h	1,200 l/h	003Z1622	003Z1722
20	110 l/h	1,100 l/h	003Z1623	003Z1723
20 HF	190 l/h	1,900 l/h	003Z1624	003Z1724

Note: AB-QM 4.0 Flexo are also available without strainer component



AB-QM 4.0 CO6 Flexo

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DN	Qmin.	Qnom.	Connection 18 mm	Connection 1/2"
15 LF	20 l/h	200 l/h	003Z1580	003Z1560
15	70 l/h	700 l/h	003Z1581	003Z1561

Note: AB-QM 4.0 CO6 Flexo contains a 6-way valve which requires a ChangeOver 6 actuator for switching between heating and cooling in a four-pipe changeover system



Specifications

Actuators size S

The overview shows the most common used actuators for AB-QM PICVs. For special needs or applications contact our local Sales representative.

Control principle	Modulating			On-off		
	Digital	Step motor	Gear	Thermal	Gear	Thermal
Actuator principle	Step motor	Step motor	Gear	Thermal	Gear	Thermal
Why choose?	<ul style="list-style-type: none"> connectivity & data BMS integration high accuracy remote possibilities energy monitoring and management 	<ul style="list-style-type: none"> high accuracy high quality AC/DC power supply recognition All mounting directions 	<ul style="list-style-type: none"> high quality 	<ul style="list-style-type: none"> low noise operation 	<ul style="list-style-type: none"> high quality speed 	<ul style="list-style-type: none"> low-price PWM complete series
Actuator	NovoCon® S	AME 110 NL(X)	AMV 110/120 NL	ABNM A5	AMI 140	TWA-Q
Code number	003Z8504	See datasheet	See datasheet	See datasheet	See datasheet	See datasheet
						
Specification summary						
Control signals	BACnet; Modbus; 0-10V; 4-20mA	0(2)-10V; 0(4)-20mA	3-point	0-10V	on-off	on-off (PWM)
Power supply	24V AC/DC	24V AC/DC	24V AC	24V AC/DC	24/230V AC	24V AC/DC; 230V AC
Feedback signal	BACnet; Modbus; 0-10V	x-signal (AME 110NLX)	--	--	--	--
Speed	24/12/6/3 sec./mm	12/3 sec./mm	24/12 sec./mm	30 sec./mm	12 sec./mm	30 sec./mm
Characteristic	Logarithmic / Linear	Logarithmic / Linear	--	Logarithmic / Linear	--	--
Valve open/close detection	yes	yes	yes	yes	no	no
Cable	plug-in	standard	standard	plug-in	standard	standard
Mounting adapter	--	--	--	VA41 (incl.)	--	--
IP class	IP54	IP54	IP42	IP54	IP42	IP54
Options & accessories						
Power cable lengths	1.5/5/10 m	1.5/2.5/5 m	1.5 m	1/5/10 m	1.5 m	1.2/2/2.5/5 m
Daisy-chain cable length	0.5/1.5/5/10 m	--	--	--	--	--
Halogen free cables	standard	standard	standard	standard	standard	optional
DC power supply	standard	standard	--	optional	--	standard
Expand features	energy cable; remote I/O cable; ChangeOver [®] actuator	Multicolor LED's for status, warnings, alarms			5 meter power cable	
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Medium combinations for AHU, CRAH, CDU units



AB-QM valves size M



AB-QM NovoCon® for NovoCon M actuator

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DN	Qmin.	Qnom.	With test plugs
40 (G 2A)	3 m ³ /h	7.5 m ³ /h	003Z1770
50 (G 2 1/2A)	5 m ³ /h	12.5 m ³ /h	003Z1771
50	5 m ³ /h	12.5 m ³ /h	003Z1772
65	8 m ³ /h	20 m ³ /h	003Z1773
65 HF	10 m ³ /h	25 m ³ /h	003Z1793
80	11.2 m ³ /h	28 m ³ /h	003Z1774
80 HF	16 m ³ /h	40 m ³ /h	003Z1794
100	15.2 m ³ /h	38 m ³ /h	003Z1775
100 HF	23.6 m ³ /h	59 m ³ /h	003Z1795



AB-QM for AME and AMV actuators

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DN	Qmin.	Qnom.	With test plugs
40 (G 2A)	3 m ³ /h	7.5 m ³ /h	003Z0770
50 (G 2 1/2A)	5 m ³ /h	12.5 m ³ /h	003Z0771
50	5 m ³ /h	12.5 m ³ /h	003Z0772
65	8 m ³ /h	20 m ³ /h	003Z0773
65 HF	10 m ³ /h	25 m ³ /h	003Z0793
80	11.2 m ³ /h	28 m ³ /h	003Z0774
80 HF	16 m ³ /h	40 m ³ /h	003Z0794
100	15.2 m ³ /h	38 m ³ /h	003Z0775
100 HF	23.6 m ³ /h	59 m ³ /h	003Z0795



Specifications

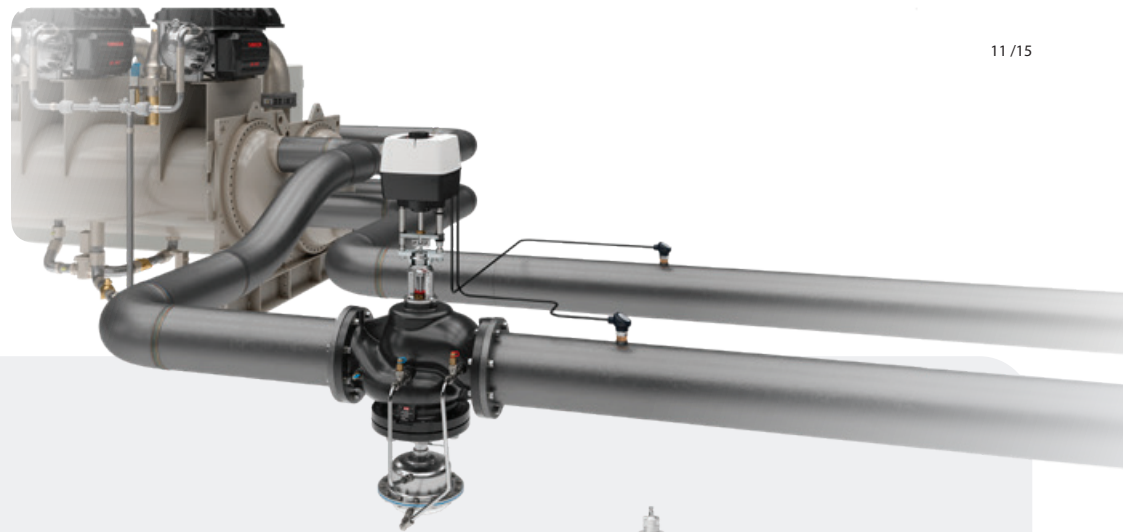
Actuators size M

The overview shows the most common used actuators for AB-QM PICVs. For special needs or applications contact our local Sales representative.

Control principle	Digital		Modulating	
	Step motor		Gear	
Actuator principle	Step motor		Gear	
Why choose?	<ul style="list-style-type: none"> • connectivity & data • high accuracy • BMS integration • remote possibilities • energy monitoring and management 		<ul style="list-style-type: none"> • high accuracy • speed 	<ul style="list-style-type: none"> • speed
Actuator	NovoCon® M		AME 435 QM	AMV 435
Code number	003Z8540		082H0171	See datasheet 
Specification summary				
For valves	AB-QM NovoCon®		AB-QM	AB-QM
Control signals	BACnet; Modbus; 0-10V; 4-20mA		0-10V; 4-20mA	3-point
Power supply	24V AC/DC		24V AC/DC	24V AC/DC; 230V AC
Feedback signal	BACnet; Modbus; 0-10V		x-signal	end-position signal
Speed	24/12/6/3 sec./mm		15/7.5/3 sec./mm	15/7.5 sec./mm
Characteristic	Logarithmic / Linear		Logarithmic / Linear	--
Valve open/close detection	yes		yes	no
Cable	--		--	--
Mounting adapter	--		--	--
Actuator connection	push/pull		push/pull	push/pull
IP class	IP54		IP54	IP54
Options & accessories				
Expand features	3x Temperature sensors; 1x Analog Input; 1x Analog Output			
Stem heater	--		for AB-QM generation 2 = 065Z0315	for AB-QM generation 2 = 065Z0315
	Go to datasheet >		Go to datasheet >	Go to datasheet >



Large combinations for Chillers, CDU units, District Cooling



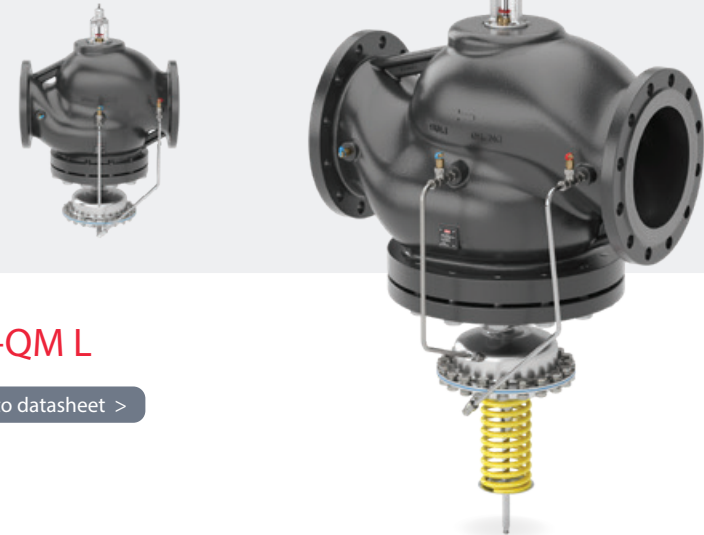
AB-QM valves size L



AB-QM L

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DN	Qmin.	Qnom.	With test plugs
125	46 m ³ /h	115 m ³ /h	003Z0725
125 HF	56 m ³ /h	140 m ³ /h	003Z0735
150	62 m ³ /h	155 m ³ /h	003Z0726
150 HF	80 m ³ /h	200 m ³ /h	003Z0736



AB-QM L

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DN	Qmin.	Qnom.	With test plugs
200	128 m ³ /h	320 m ³ /h	003Z0727
200 HF	164 m ³ /h	410 m ³ /h	003Z0737
250	152 m ³ /h	380 m ³ /h	003Z0728
250 HF	200 m ³ /h	500 m ³ /h	003Z0738
250 SHF	240 m ³ /h	600 m ³ /h	003Z0739
250 SHF+	272 m ³ /h	670 m ³ /h	003Z0840



Specifications

Actuators size L

The overview shows the most common used actuators for AB-QM PICVs. For special needs or applications contact our local Sales representative.

Control principle	Digital	Modulating		
	Step motor	Gear		
Actuator principle	Step motor			
Why choose?	<ul style="list-style-type: none"> connectivity & data BMS integration high accuracy remote possibilities energy monitoring and management 	<ul style="list-style-type: none"> high accuracy low-price 	<ul style="list-style-type: none"> speed high accuracy DC power supply UL certification 	<ul style="list-style-type: none"> high accuracy DC power supply SU/SD UL certification
Actuator	NovoCon® L	AME 55 QM	AME 655-1	AME 658-1
Code number	See datasheet 	082H3078 	082H5010 	See datasheet 
Specification summary				
Control signals	BACnet; Modbus; 0-10V; 4-20mA	0-10V; 4-20mA; 3-point	0-10V; 4-20mA; 3-point	0-10V; 4-20mA; 3-point
Power supply	24V AC/DC	24V AC	24V AC/DC	24V AC/DC
Feedback signal	BACnet; Modbus; 0-10V	x-signal	x-signal	x-signal
Speed	24/12/6/3 sec./mm	8 sec./mm	6/2 sec./mm	6/4 sec./mm
Characteristic	Logarithmic / Linear	Logarithmic / Linear	Logarithmic / Linear	Logarithmic / Linear
Valve open/close detection	yes	yes	yes	yes
Cable	--	--	--	--
Mounting adapter	--	--	--	--
Actuator connection	push/pull	push/pull	push/pull	push/pull
IP class	IP54	IP54	IP54	IP54
Options & accessories				
Expand features	3x Temperature sensors; 1x Analog Input; 1x Analog Output			
Stem heater	003Z7291	003Z7291	003Z7291	003Z7291
Spring return	Spring up / Spring down	--	--	Spring up / Spring down
UL certification	--	--	yes	yes
	Go to datasheet >	Go to datasheet >	Go to datasheet >	Go to datasheet >




Specifications


Actuators size XL

For service and exchange of existing actuators on AB-QM X-large supplied till mid 2026.

The overview shows the most common used actuators for AB-QM PICVs. For special needs or applications contact our local Sales representative.

Control principle	Digital
Actuator principle	Step motor
Why choose?	<ul style="list-style-type: none"> connectivity & data BMS integration high accuracy remote possibilities energy monitoring and management replacement for existing NovoCon® XL
Actuator	NovoCon® XL
Code number	003Z8563
	
Specification summary	
Control signals	BACnet; Modbus; 0-10V; 4-20mA
Power supply	24V AC/DC
Feedback signal	BACnet; Modbus; 0-10V
Speed	24/12/6/3 sec./mm
Characteristic	Logarithmic / Linear
Valve open/close detection	yes
Cable	--
Mounting adapter	--
Actuator connection	push/pull
IP class	IP54
Options & accessories	
Expand features	3x Temperature sensors; 1x Analog Input; 1x Analog Output
Stem heater	--
Spring return	--
UL certification	--

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Control principle	Modulating
Actuator principle	Gear
Why choose?	<ul style="list-style-type: none"> speed high accuracy power supply UL certification replacement for existing AME 685-1
Actuator	AME 685-1
Code number	082H5013
	
Specification summary	
Control signals	0-10V; 4-20mA; 3-point
Power supply	24V AC/DC
Feedback signal	x-signal
Speed	6/3 sec./mm
Characteristic	Logarithmic / Linear
Valve open/close detection	yes
Cable	--
Mounting adapter	--
Actuator connection	push/pull
IP class	IP54
Options & accessories	
Expand features	
Stem heater	--
Spring return	--
UL certification	yes

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Service and support beyond the products

Beyond the proven performance of our Danfoss AB-QM valves and corresponding actuators, we offer comprehensive support to ensure your project's success. For example make informed, sustainable choices with our Environmental Product Declarations (EPDs), which are undergoing third-party verification for full transparency on carbon footprint. Streamline your planning with expert guidance from our HVAC Design Support Center.

They also continuously enrich the BIMtool with hydronic HVAC solutions. Use our intuitive flow calculator to get instant product and presetting recommendations for your specific AB-QM requirements, online or in the Installer App. And of course, our extended team of local hydronic balancing and control specialists is ready to support you with all your inquiries and questions.



[Go to EPD documents >](#)

[Read more about Design Support Center >](#)

[Read more and download the BIMtool >](#)

[Try the AB-QM flow calculator >](#)

[Contact our experts >](#)

Engineering a better future with HVAC 4.0

HVAC 4.0 is the future of building efficiency. It's the digitalization of hydronic systems, and our AB-QM valves with NovoCon® digital actuators are at the heart of this transformation.

By providing real-time data directly to the BMS, they allow operators to remotely optimize performance, cut energy consumption, and improve comfort. This is how we help you engineer a sustainable tomorrow.

Discover the next generation of HVAC on

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