

Infographic

Actuator selection for PICVs

An interactive selection for all Danfoss AB-QM PICV valves

Pressure Independent Control Valves (PICVs) are commonly used for hydronic balancing and precise temperature control in HVAC heating and cooling systems. The control accuracy, controllers to be used, project price and many more aspects are mostly determined by the selection of the PICV actuator.

There are many actuators that fit the Danfoss AB-QM series of PICV valves. This interactive infographic helps you find the best suited actuator for your projects.

Continue by clicking the buttons below:

Small combinations DN 15 - DN 32	>	Large combinations DN 125 - DN 150	>
Medium combinations DN 40 - DN 100	>	X-large combinations DN 200 - DN 250	>



Small combinations for terminal units

AB-QM valves size S

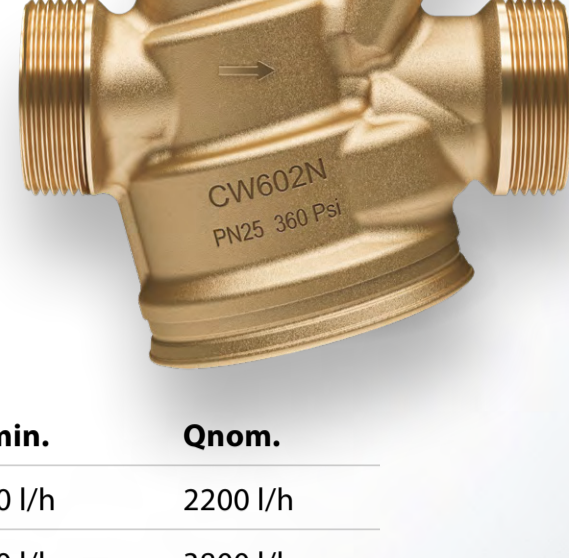
AB-QM 4.0

DN	Qmin.	Qnom.
15 LF	20 l/h	200 l/h
15	65 l/h	650 l/h
15 HF	120 l/h	1200 l/h
20	110 l/h	1100 l/h
20 HF	190 l/h	1900 l/h

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Why choose?

- pressure independent control performance
- high accuracy control at full- and partial load conditions
- for heating and cooling systems
- increase HVAC system efficiency



DN	Qmin.	Qnom.
25	230 l/h	2200 l/h
25 HF	380 l/h	3800 l/h
32	360 l/h	3600 l/h
32 HF	500 l/h	5000 l/h

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[Actuators size S >](#)

Actuators size S - specifications

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 / Floating			On-off	
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 	<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	AM 140	TWA-Q
Specification summary						
Control signals	BACnet; Modbus; 0-10V; 4-20mA	0(2)-10V; 0(4)-20mA	3-point	0-10V	on-off 24/230V AC	on-off (PWM) 24/230V AC/DC
Power supply	24V AC/DC	24V AC/DC	24V AC	24V AC/DC	24/230V AC	24/230V AC/DC
Feedback signal	BACnet; Modbus	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	--	--	--	V441 (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	1.5/5/10 m	1/5/10 m	1.5/5 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	standard	optional	--	standard
Expand features	energy cable; remote I/O cable; ChangeOver® actuator	Multicolor LED's for status, warnings, alarms	--	--	--	--
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[AB-QM size M >](#)

Medium combinations for air handling units

AB-QM valves size M

AB-QM NovoCon® for NovoCon M actuator

DN	Qmin.	Qnom.
40 (G 2A)	3 m³/h	7,5 m³/h
50 (G 2 ½A)	5 m³/h	12,5 m³/h
50	5 m³/h	12,5 m³/h
65	8 m³/h	20 m³/h
65 HF	10 m³/h	25 m³/h
80	11,2 m³/h	28 m³/h
80 HF	16 m³/h	40 m³/h
100	15,2 m³/h	38 m³/h
100 HF	23,6 m³/h	59 m³/h

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Why choose?

- pressure independent control performance
- high accuracy control of low flows at partial load conditions
- for heating and cooling systems
- increase HVAC system efficiency



DN	Qmin.	Qnom.
40 (G 2A)	3 m³/h	7,5 m³/h
50 (G 2 ½A)	5 m³/h	12,5 m³/h
50	5 m³/h	12,5 m³/h
65	8 m³/h	20 m³/h
65 HF	10 m³/h	25 m³/h
80	11,2 m³/h	28 m³/h
80 HF	16 m³/h	40 m³/h
100	15,2 m³/h	38 m³/h
100 HF	23,6 m³/h	59 m³/h

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[Actuators size M >](#)

Actuators size M - specifications

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 / Floating	
Actuator principle	Step motor	Gear	
Why choose?	<ul style="list-style-type: none"> • connectivity & data • high accuracy • HVAC 4.0 	<ul style="list-style-type: none"> • high accuracy • speed 	<ul style="list-style-type: none"> • speed
Actuator	NovoCon® M	AME 435 QM	AMV 435
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 / 230V AC
Feedback signal	BACnet; Modbus	x-signal	--
Speed	24/12/6/3 sec./mm	15/7.5 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
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[AB-QM size L >](#)

Large combinations for chillers

AB-QM valves size L

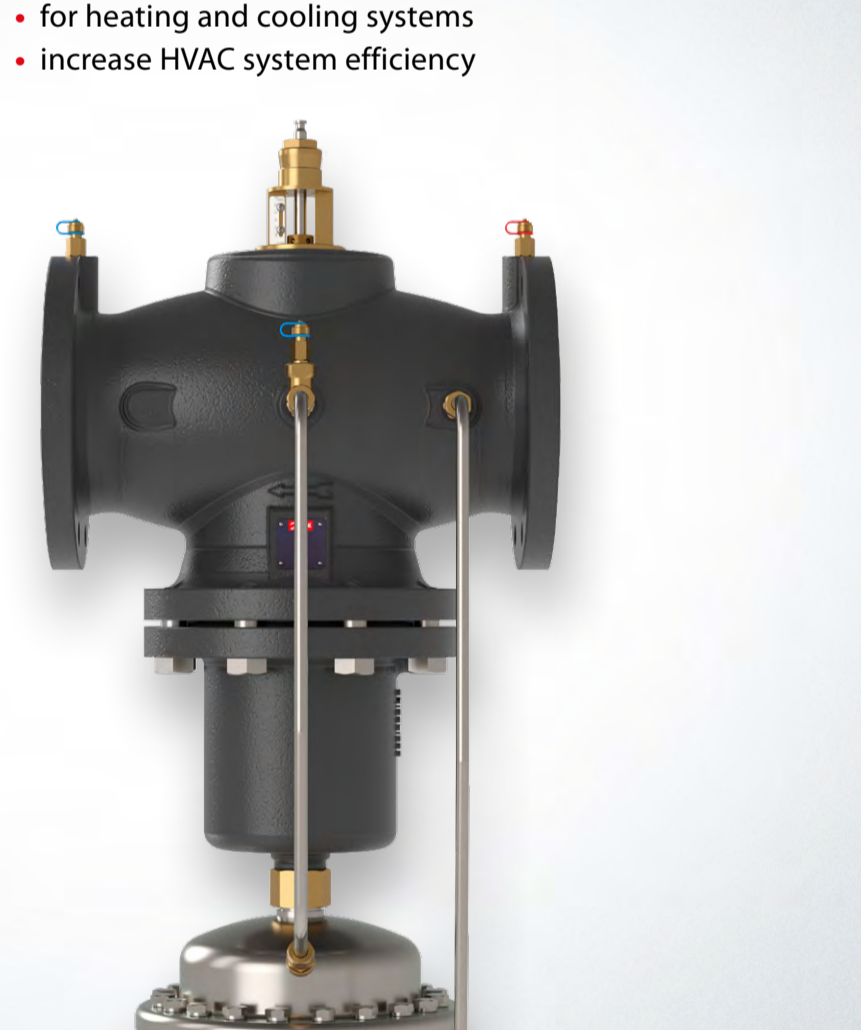
AB-QM

DN	Qmin.	Qnom.
125	36 m³/h	90 m³/h
125 HF	44 m³/h	110 m³/h
150	58 m³/h	145 m³/h
150 HF	76 m³/h	190 m³/h

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Why choose?

- pressure independent control performance
- high accuracy control of low flows at partial load conditions
- for heating and cooling systems
- increase HVAC system efficiency



DN	Qmin.	Qnom.
125	36 m³/h	90 m³/h
125 HF	44 m³/h	110 m³/h
150	58 m³/h	145 m³/h
150 HF	76 m³/h	190 m³/h

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[Actuators size L >](#)

Actuators size L - specifications

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 / Floating			
Actuator principle	Step motor	Gear			
Why choose?	<ul style="list-style-type: none"> • connectivity & data • high accuracy • BMS integration • HVAC 4.0 • remote possibilities 	<ul style="list-style-type: none"> • high accuracy • low-price 	<ul style="list-style-type: none"> • speed • high accuracy • DC power supply 	<ul style="list-style-type: none"> • UL certification 	<ul style="list-style-type: none"> • high accuracy • DC power supply • UL certification • SL/SD
Actuator	NovoCon® L	AME 55 QM	AME 655-1	AME 658-1	
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	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	065Z7022	065Z7022	065Z7022	065Z7022	
Spring return	Spring up / Spring down	--	--	Spring up / Spring down	
UL certification	--	--	yes	yes	
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[AB-QM size XL >](#)

X-large combinations for district cooling

AB-QM valves size XL

AB-QM

DN	Qmin.	Qnom.
200	80 m³/h	200 m³/h
200 HF	108 m³/h	270 m³/h
250	120 m³/h	300 m³/h
250 HF	148 m³/h	370 m³/h

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Why choose?

- pressure independent control performance
- high accuracy control of low flows at partial load conditions
- for district energy systems
- increase system efficiency



DN	Qmin.	Qnom.
200	80 m³/h	200 m³/h
200 HF	108 m³/h	270 m³/h
250	120 m³/h	300 m³/h
250 HF	148 m³/h	370 m³/h

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[Actuators size XL >](#)

Actuators size XL - specifications

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 / Floating	
Actuator principle	Step motor	Gear	
Why choose?	<ul style="list-style-type: none"> • connectivity & data • high accuracy • BMS integration • HVAC 4.0 • remote possibilities 	<ul style="list-style-type: none"> • speed • high accuracy • power supply 	<ul style="list-style-type: none"> • UL certification
Actuator	NovoCon® XL	AME 685-1	
Specification summary			
Control signals	BACnet; Modbus; 0-10V; 4-20mA	0-10V; 4-20mA; 3-point	
Power supply	24V AC/DC	24V AC/DC	
Feedback signal	BACnet; Modbus	x-signal	
Speed	24/12/6/3 sec./mm	6/3 sec./mm	
Characteristic	Logarithmic / Linear	Logarithmic / Linear	
Valve open/close detection	yes	yes	
Cable	--	--	
Mounting adapter	--	--	
Actuator connection	Push/pull	Push/pull	
IP class	IP54	IP54	
Options & accessories			
Expand features	3x Temperature sensors; 1x Analog Input; 1x Analog Output		
Stem heater	--	--	
Spring return	--	--	
UL certification	--	yes	
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Engineering HVAC 4.0 for smart buildings

As studies by the International Energy Agency (IEA) show 30% of the global energy consumption is caused by HVAC and lighting of buildings.

To make buildings more energy efficient and comfortable for it's occupants we need to use smart technologies.

The combinations of Danfoss AB-QM PICVs and NovoCon® digital actuators are a good example of what we call HVAC 4.0

The actuators provide the Building Management System (BMS) with real-time performance data. By continuously analyzing the data and remotely adapting the HVAC system to perform better, we help reduce the global energy consumption. For a better tomorrow.

Find out more on hvac40.danfoss.com