



## I USE CONVENTIONAL SOLUTIONS – WHY CHANGE?

### The future is now

Comparing Danfoss PIBCV to conventional two-way valves and manual balancing valves, you will simply need fewer products. The AB-QM is a compact automatic balancing valve and pressure independent control valve in one. That implies less commissioning and installation time, it will make calculations easier and manually balancing of the installation is unnecessary. The only thing you have to do is select the required flow and the AB-QM will automatically balance the installation immediately after installation.

### Your benefits:

Fewer products, less commissioning and installation time.



## I HAVE AN EXISTING INSTALLATION – WHY UPGRADE?

### AB-QM is perfect for upgrading your current HVAC system

From experience we know that our customers are challenged with balancing and control issues in their existing HVAC installations. Equipping your system with AB-QM will help you solve them. Since AB-QM will also save you energy, your investment will be paid back in less than 3 years.

### AB-QT is perfect to upgrade your one-pipe system

Upgrading your one-pipe system with an AB-QM and a thermostatic QT element will make your one-pipe system as efficient as a two-pipe heating system without any complex system renovations or new piping. The end-users will benefit from a perfectly controlled heating installation, resulting in improved indoor comfort and energy savings.

### Your benefits:

Improved balance and control, improved indoor comfort, and payback in less than 3 years.

ENGINEERING  
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### AB-QM threaded

Picture	DN	Q <sub>max</sub> (l/h)	External thread ISO 228/1	Code No. (with test plugs)	Type	External thread ISO 228/1	Code No. (without test plugs)*
	10 LF	150	G 1/2A	003Z1261		G 1/2A	003Z1251
	10	275		003Z1211			003Z1201
	15 LF	275		003Z1262			003Z1252
	15	450	G 3/4A	003Z1212		G 3/4A	003Z1202
	20	900		G 1A			003Z1203
	25	1.700		G 1 1/4A			003Z1204
	32	3.200		G 1 1/2A			003Z1205
	40	7.500		G 2A			003Z0770
	50	12.500		G 2 1/2A			003Z0771
	* AB-QM DN10-32 can't be upgraded to AB-QM with test plugs						

### AB-QM Flanged – with test plugs

Picture	DN	Q <sub>max</sub> (l/h)	Flange connection	Code No.
	50	12.500	PN 16	003Z0772
	65	20.000		003Z0773
	80	28.000		003Z0774
	100	38.000		003Z0775
	125	90.000	PN 16	003Z0705
	125 HF	110.000		003Z0715
	150	145.000		003Z0706
	150 HF	190.000		003Z0716
	200	190.000		003Z0707
	200 HF	250.000		003Z0717
	250	280.000		003Z0708
250 HF	370.000	003Z0718		



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## Millions of reasons to choose the best

Danfoss AB-QM – Perfect control and balance in one valve. Millions of AB-QM valves are installed worldwide making the Danfoss PIBCV a safe and energy saving choice.

## 3 years payback time

Case studies prove that investing in Danfoss PIBCV's pays itself back in less than 3 years.



www.hbc.danfoss.com



## CREATED TO MEET YOUR LOCAL NEEDS EVERYWHERE

### From new-built to renovation – made for your business

Despite all the innovations in the field of installation, it is still a challenge to balance and control a HVAC system without pressure independent technology. The Danfoss PIBCV will help save time during implementation, decreases maintenance and saves energy whether you're looking for a solution during renovation or designing for a new building.

### The easy choice

The following three sections describe typical situations for PIBCV. In each section you will find plenty of reasons to choose the best. Danfoss AB-QM.



## I ALREADY USE PIBCV – WHY DANFOSS?

### There are many types of PIBCV – and then there is the AB-QM

Danfoss is the market leader in pressure independent technology and has the most experience in producing reliable and precise automatic solutions. Independent research institutes determined that the AB-QM provides the best control performance compared to other pressure independent control valves on the market. With our extended product range of valve sizes and matching actuators we offer you perfection in control, even at low flows.

To make your job easier, our experienced sales and support staff will recommend the best setup for your application and provide you the best service possible.

### Your benefits:

Best control performance, broad product range with unique actuators, experienced customer support.



# PERFECT CONTROL AND BALANCE WITH AB-QM

Danfoss has developed the AB-QM, a pressure independent balancing and control valve in one. This valve, combined with a Danfoss actuator, optimizes your system in a cost-effective manner, saves energy and enables a perfect indoor climate.

## Peace of mind

More than 1 million AB-QM valves installed really says it all. This valve offers more than just control and balance in HVAC systems. It will save you time when installing, calculating and commissioning.

Your customers will benefit from better comfort and energy savings.

## Your benefits:

Lower costs and higher energy efficiency.



# AB-QM HELPS YOU GO GREENER

“With AB-QM valves, we have saved a significant amount of electricity (14-15%) simply by regulating the chilled water pump flow via variable speed drives at required rate only. Not only does this benefit us in terms of financial costs, it also supports the company’s long term sustainable environment policies.”

Edward Kway – Head of Engineering  
Fraser Centrepoint



# HOW DOES IT WORK?

The working principle is as simple as it is effective. The AB-QM consists of two different parts: the control valve (orange) and the differential pressure controller (blue). The integrated membrane of the pressure controller maintains a constant differential pressure across the valve. The flow through a valve is determined by the kv value and the differential pressure across the valve.

Because the differential pressure is now constant, overflows are prevented and the authority of the AB-QM to control the flow is ensured.

will immediately be pushed down and close the pressure controller (2). If the differential pressure decreases, the membrane will instantly move up again (3).

## Figures 1-3

In the illustrations you can see the membrane in action. If the differential pressure across the valve increases, the membrane

## Your benefits:

Constant  $\Delta p$  across the control valve, resulting in accurate flow limitation and 100% authority.



# THE PERFECT MATCH

Danfoss offers a wide range of actuators that match with the AB-QM. We can provide actuators suitable for all control strategies. On/Off, pulse-width modulation, 0-10 Volt thermal and 0-10 Volt/3-point gear motors.

Our gear actuators have advanced stroke-length detection to ensure full control from 0-10 Volt. Therefore we recommend Danfoss actuators for perfect proportional control.

## A selection from our extensive range of actuators:



# FULL RANGE UP TO DN 250

The AB-QM pressure independent balancing and control valve (PIBCV) was introduced a few years ago and enjoyed significant success, as our long list of references and success stories shows. The Danfoss AB-QM is the only PIBCV range in the market from DN10 to DN250.

To perfectly match all sizes of AB-QM valves, Danfoss has developed a unique collection of actuators. This excellent combination of AB-QM and actuator can handle any size of application.



## Your benefits:

Extensive PIBCV size and actuator choice.

# WE’VE DONE THE MATH SO YOU CAN FOCUS ON ENERGY SAVING AND COST REDUCTION

Controlling indoor temperatures is the central function of a HVAC installation. Therefore the control valves are crucial and they need to be accurately sized to achieve optimal working conditions. The AB-QM eliminates the need for sizing calculations for control valves.

With AB-QM there is no need to calculate the kv value of the valve anymore because if the required flow is within the setting range it can be applied. This also means greater flexibility because several different sizes of AB-QM can be used to realise the same flow. The simple setting procedure of the AB-QM makes late changes in the

design or subsequent system refits easy to implement.

The AB-QM has a compact and unique design that ensures 100% authority with all settings and all differential pressures and therefore makes authority calculations unnecessary. Having a 100% valve authority increases the control quality and precision – also at low flow requirements. This creates a better comfort in the building, as well as energy savings.

## Sizing

You will only need to know the flow, while sizing the AB-QM. Compared to properly

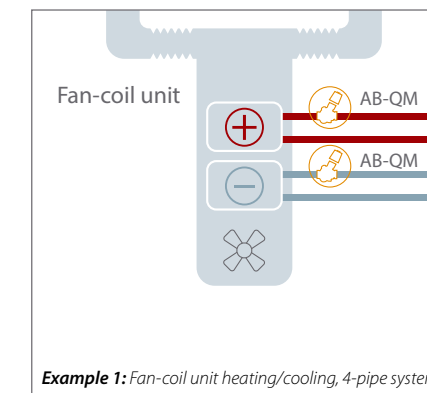
sizing a traditional 2-way valve you would still need to know the required flow, the pump head and the resistance in the rest of the installation. AB-QM will save you a lot of time.

## Your benefits:

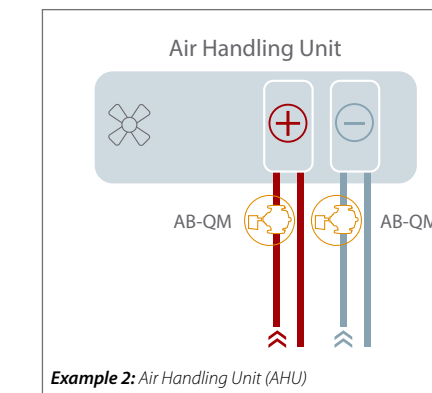
Easy setting and sizing, 100% authority and perfect control.

# APPLICATIONS

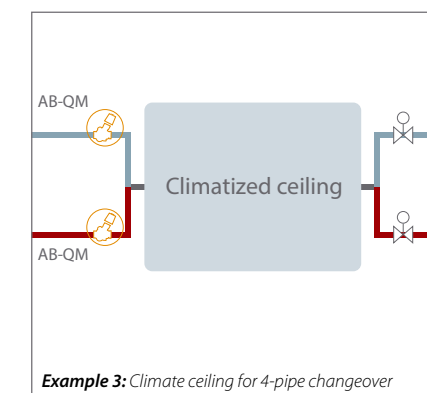
The Danfoss AB-QM is the obvious choice of a control valve for water based units, like an Air Handling Unit, Fan-coil unit, climate ceiling or one-pipe radiator systems. The AB-QM combined with a Danfoss actuator, ensures the required flow in every unit and maintains hydronic balance in the system. AB-QM is successfully applied in offices, hotels, hospitals, airport terminals, and in buildings where accurate temperature control is extremely important, such as in laboratories or food processing facilities.



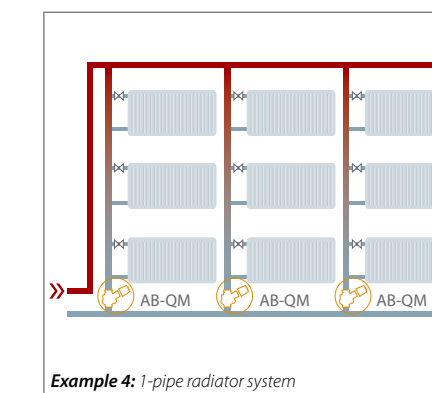
Example 1: Fan-coil unit heating/cooling, 4-pipe system



Example 2: Air Handling Unit (AHU)



Example 3: Climate ceiling for 4-pipe changeover



Example 4: 1-pipe radiator system

## TWA-Z/HF and ABN A5

Thermal wax actuator On/Off 24 NC/NO and 230 NC/NO.

## ABNM A5 LOG/LIN

Modulating thermal actuator 0-10V.

## AME/V 110/120NLX

Gear actuator for 3-point or modulating (0-10V) control.

## AME 435QM

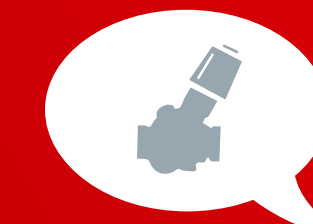
Gear actuator for modulating (0-10V) control.

## AME 55QM

Gear actuator for 3-point or modulating (0-10V) control.

## AME 85QM

Gear actuator for 3-point or modulating (0-10V) control.



Learn more on our website [abqm.danfoss.com](http://abqm.danfoss.com)