



**Smart**

building:  
HVAC data, plug-in  
cables, remote  
commissioning and  
energy monitoring

ENGINEERING  
TOMORROW

*Danfoss*

Case story | AB-QM + NovoCon® ChangeOver® Energy

## Flexible HVAC installation with energy monitoring for a multi-tenant healthy & smart office

The challenge? Gaining BREEAM credits for energy monitoring at the new multi-tenant, healthy & smart office **EDGE Amsterdam West (The Netherlands)** and a fast and fail free installation thanks to smart digital actuators.

# Optimized heating and cooling comfort for users

**Innovative and compact hydronic balancing and control serves both users and installers. Read how a new office building with an area of 60,000m<sup>2</sup> is equipped with a smart, innovative climate solution for its heating and cooling system.**

## The project

For the multi-tenant healthy & smart office project EDGE Amsterdam West developed by EDGE, it was important that the layout of the various meeting rooms in the building was flexible. From an installation point of view, the various office spaces are divided into zones of approximately 40m<sup>2</sup>. Installation technical interventions are minimal in the case of tenant modifications.

In order to comply with BREEAM Outstanding certification, it is necessary to have insight into the energy flows. With Danfoss' digital hydronics solution NovoCon<sup>®</sup> S ChangeOver<sup>6</sup> Energy, this can be achieved at the field-component level.

## Why the combination of Danfoss AB-QM and NovoCon<sup>®</sup>?

The NovoCon<sup>®</sup> S digital IoT actuator is specially designed for use with the AB-QM pressure independent balancing and control valve (PICV). This automatically ensures a dynamic hydronic balance in the HVAC system, an important requirement for energy-efficient buildings. The NovoCon<sup>®</sup> concept offers a lot of flexibility; for example, flows can be adjusted remotely, and it is possible to assign the NovoCon<sup>®</sup> to other rooms via a BMS. This ensures a flexible building layout. It is possible to change the layout of a building in a relatively cheap way, which increases the attractiveness for potential tenants or buyers.



**Working together with EDGE and our partners, our calculation proved the Danfoss solution was the economically stronger choice. Energy monitoring at climate ceiling level was an important part of achieving a high BREEAM score.**



**Peter Mol Project Manager  
at Bosman Bedrijven B.V.,  
installer of this project**



## Advantages during installation

The combination of Danfoss AB-QM and NovoCon<sup>®</sup> offers several advantages for the installer.

For example the climate ceilings can be closed immediately after pressure testing, flushing and filling of the system and mounting of the actuators. The AB-QM design flow settings and commissioning are made digitally, via the Building Management System (BMS). The ceiling no longer needs to be kept open for this. Testing of the NovoCon<sup>®</sup> digital actuators is already carried out on construction power, so even before the BMS system is installed in the building. This makes it possible to close the ceilings earlier in the construction process and save costs for a floor plan. The contractor can continue with the other work.

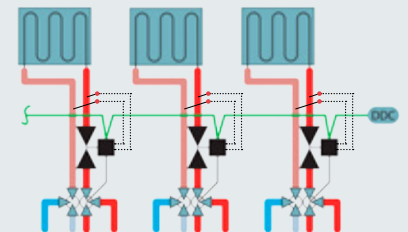
## Benefits for the end user

By using the smart NovoCon<sup>®</sup> ChangeOver<sup>6</sup> Energy actuators, the end user and the administrator have real-time insight per climate ceiling how much energy is used. In addition, it provides more insight into the costs and malfunctions or stealth consumption of energy. These can be detected and solved early, which helps prevent complaints.

## Overview of applied products:

1,100 pc. AB-QM 4.0 DN15 + NovoCon<sup>®</sup> ChangeOver<sup>6</sup> Energy  
64 pc. AB-QM DN50-100 + AME 435QM

The NovoCon<sup>®</sup> ChangeOver<sup>6</sup> Energy concept in the application of heating and cooling in a 4-pipe change-over system.



Two temperature sensors are connected to the NovoCon<sup>®</sup> S and the supply and return pipes. By continuously measuring this data and combining it with data on the actual flow through the AB-QM control valve, a very accurate estimate of the actual energy consumption is possible.

## Danfoss A/S

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