

A tall, modern skyscraper with a distinctive facade of white, diamond-shaped perforated panels. The building is set against a clear blue sky. At the top of the building, the word "samba" is visible in white letters, accompanied by a circular logo. The building is surrounded by greenery and a road with a few cars in the foreground.

samba

ENGINEERING  
TOMORROW

*Danfoss*

Case story | Hydronic Balancing & Control

## Head office of SAMBA Financial Group **A monument of sustainability** in Riyadh

At the heart of the new King Abdullah Financial District in Riyadh stands the impressive SAMBA head office. The 40-storey building represents a landmark in sustainable architecture and engineering and forms an attractive work space for the 800 people working in the SAMBA Financial Group head office.

All the way through design and construction it has been the ambition of the building owner, Riyadh Investment Company, to create a showcase of sustainable solutions. Among others, the tower of the skyscraper will harness the Saudi sunshine in photovoltaic panels. Furthermore, the energy efficient air conditioning system will cut the energy use by a predicted 25 percent compared to conventional buildings.

To deliver the most energy efficient air conditioning system a solution from Danfoss including balancing valves has been chosen. The system is now being controlled by 1,700 AB-QM pressure independent balancing and control valves.

In the design phase we convinced the contractors that our solution would be the most efficient for several reasons. First of all the AB-QM valves deliver the high energy efficiency required by the client. But also the fast installation, short commissioning and great reliability of our solution were convincing arguments, says Anis Ben Ali Ouerghi, Technical Manager at Danfoss.

**25%**

energy savings  
achieved by perfect  
hydronic balancing of  
the air conditioning  
system.

### Achieving the energy savings

The secret of the energy efficiency and reliability of the air conditioning solution lies in the perfect balancing of the system. Even with varying outside temperatures and varying cooling demands, the hydronic balance achieved by the pressure independent balancing and control valves ensures the proper flow providing the desired level of cooling at any time.

The perfect balance of the system also explains the energy savings achieved with this Danfoss solution. When the flow rate is highly controlled and stable, less pumping is required which results in substantial energy savings.

Add to this that the AB-QM valves are maintenance-free, and the design of the valves prevents clogging during everyday use.

The sustainable solutions integrated into the design of the SAMBA head office pave the way for the desired LEED Gold certification of the building.



SAMBA Financial Group head office in  
Riyadh, Kingdom of Saudi Arabia



**Danfoss was chosen as a supplier because we were able to meet Riyadh Investment Company's wish to create a sustainable solution showcase. Danfoss demonstrated to the investor that they were able to achieve 25% energy savings by installing our pressure independent balancing and control valves mounted with matching modulating actuators from the Danfoss AME series.**

Ismail Serhan OZTEN  
Regional Sales manager Danfoss  
Middle East/ Africa



### Key facts about the air conditioning solution:

- 1,700 AB-QM pressure independent balancing and control valves
- All valves mounted with matching modulating actuators from the Danfoss AME series

### Advantages of the heating/cooling solution:

- Easy installation and commissioning
- Energy savings of 25%
- Increased comfort for users at all times
- Increased lifetime of all system components
- Optimized pump and Heat Exchanger efficiency

### About the building

**Location:** Riyadh, Kingdom of Saudi Arabia

**Height of building:** 40 storeys, 230 m high

**Building owner:** Riyadh Investment Company

**Architects:** Foster+Partners, Gensler, RTKL, FX Fowle

**Engineers:** Buro Happold

**Project ambitions:** LEED 'Gold' rating, energy savings of 25% compared to conventional buildings

Danfoss A/S · Heating Segment · Ulvehavevej 61 · 7100 Vejle · Denmark  
Tel.: +45 7488 8500 · Email: heating@danfoss.com · www.heating.danfoss.com

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