



# Read more about BAC's patented Combined Flow Technology



New industry standards for efficient cooling, maximum coil life and easy inspection and maintenance were set with the introduction of **BAC's patented Combined Flow Technology.**

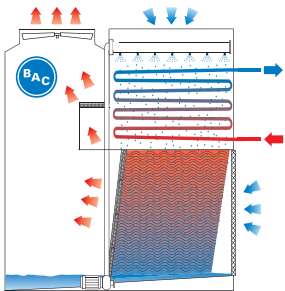
Over the years BAC improved the design of the products having this technology enclosed.

As a result e.g. the FXVS closed circuit cooling tower offers the highest capacity per footprint on the market, it's thermal performance is certified by Eurovent.

BAC product with Combined Flow Technology

**Closed circuit cooling towers :** FXVS, FXVT, HXI

**Condensers:** CXVE, CXV-D, HXC



## Combined Flow Technology

The Combined Flow Technology optimizes the sensible heat transfer of the coil by cooling the spray water (typically 4 to 7°C) over the cross flow fill. In combination with the parallel airflow the FXVS can cool to temperatures below the spray water temperature. This makes it more efficient compared to any other cooler in the market.

### How does it work?

The warm process fluid circulates through a heat exchanger coil, which is wetted by a spray system. In parallel with the water spray flow, an axial fan draws air over the coil. The evaporation process cools the fluid inside the coil. The process fluid travels from the bottom to the top resulting in the coldest spray water and air to be in contact with the coldest process fluid. The spray water will then continue over a fill pack where it will be cooled again. The spray pump then recirculates the cooled water to the top of the tower. The warm saturated air leaves the tower through the high efficient drift eliminators which will prevent water droplets from leaving the unit.

## ➤➤➤ BAC PRODUCTS WITH COMBINED FLOW TECHNOLOGY



CXV-D



FXVS



CXVE



HXI



HXC



FXVS



FXVT

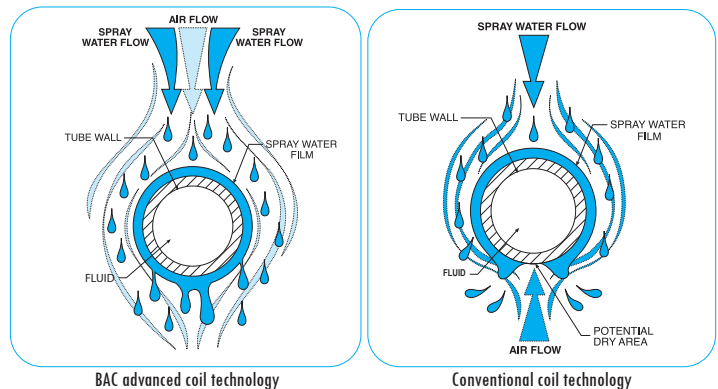
## BENEFITS OF COMBINED FLOW TECHNOLOGY

### Scale reduction sustains thermal performance and maximum coil life

- ✓ The spray water loading (l/s per m<sup>2</sup>) over the coil bundle is typically 3 to 4 times higher compared to a conventional fluid cooler; resulting in more sensible and less latent heat transfer.
- ✓ The coil tubes are covered by a thick water film, minimizing the risk for dry spots and drastically reducing the risk for fouling.
- ✓ Air and spray water are in parallel flow resulting in better water coverage.
- ✓ With cold spray water, scale compounds have the tendency to stay in solution rather than depositing as solids on the coil.



The main evaporation occurs over the fill system, ensuring **sensible cooling on the coil**. This **minimizes** scaling of the coil, **safeguarding** the entire system from extensive maintenance or shutdown.



### Why is scale prevention so important?

Even minimal amounts of scale on the coil surface will affect the performance of closed circuit cooling towers. The formation of scale is not always noticed by the system operator, but a closed circuit cooling towers with a scaled-up coil must operate at higher fan speeds and forces other system components to work harder to compensate. In a cooling system, this burden is placed on the chiller. With scale build-up on the coil, the chiller consumes greater energy and system capacity is reduced.

1 mm thick scale  
 → 30% cooling performance reduction

### Easy inspection and maintenance

- ✓ Crossflow units incorporate the combined flow technology which allows **access** to all critical components during operation.
- ✓ **Preventive maintenance inspection** is possible to avoid scaling or severe damages to the unit.
- ✓ Water distribution section, top of coil and fill core are **easily accessible** even during wet operation.
- ✓ FXVS closed circuit cooling towers incorporate BACross patented fill which can easily be **cleaned or replaced**.
- ✓ All the maintenance services can be executed while **standing**, even inside the unit. So regular inspection jobs are no longer a hurdle for maintenance people.

### IMPORTANCE

**of proper water distribution**  
 Not only does proper water operation guarantee the thermal performance, but it also minimizes scaling of the coil.

