

## CASE STORY



**THE CUSTOMER**  
TRANE®, a global building technology and energy solutions company.

**THE CHALLENGE**  
Exceed the seasonal energy efficiency ratio (SEER) requirements of the EU Ecodesign directive.

**THE SOLUTION**  
Redesign TRANE chillers and heat pumps to improve their efficiency during part-load operation.

**THE HEAT EXCHANGERS**  
TRANE integrated SWEP AsyMatrix DFX650 brazed plate heat exchangers, as evaporators and condensers, into its Sintesis™ Advantage CGAF and CXAF chiller and heat pump portfolio.

**THE RESULTS**  
Exceptional seasonal efficiencies that exceed Ecodesign regulations, while also enabling TRANE's customers to reduce energy consumption and costs.

## Improved efficiency in part-load operation

### Challenging the EU Ecodesign directive

The EU Ecodesign directive, first adopted in 2008, stipulated that all products approved for sale in the EU must meet newly-established Ecodesign requirements. At the same time, new European F-gas regulations caused the prices of HFC refrigerants to rise. These changes posed huge challenges for the HVAC industry as it shifted from optimizing machines for full-load efficiency to optimizing them for seasonal efficiency, while simultaneously working to reduce refrigerant charge and exploring low-GWP alternatives. These challenges required system manufacturers like TRANE to rethink the design of their chillers and heat pumps to improve efficiency at part-load conditions.

### The role of SWEP BPHEs

TRANE, a long-standing customer of SWEP, commissioned a solution that could tackle both challenges at once by both improving part-load efficiency and also reducing the quantity of refrigerant in the system.

To ensure maximum efficiency and reduce the refrigerant charge, TRANE integrated the AsyMatrix DFX650 BPHE, from the SWEP True Dual Heat Exchanger range, into its Sinesis™ Advantage CGAF and CXAF chiller and heat pump portfolio.



The Sinesis™ Advantage, CGAF chiller with capacity ranges from 290 kW to 680 kW.

SWEP True Dual BPHEs can work either as condensers or evaporators, depending on the operation mode of the unit. Their innovative asymmetric channel configuration combines maximum heat transfer on the refrigerant side with minimum pressure drop on the secondary side. The refrigerant channel volume is smaller than the water volume in this design, further reducing refrigerant cost.

### Why choose SWEP?

When used in combination with other high-quality components, such as microchannel coils, variable-volume ratio compressors, and electronically commuted fans, SWEP BPHEs deliver exceptional seasonal efficiencies.

The SWEP True Dual range also includes the DB650 condenser and the DV650 evaporator for applications targeting a medium- to high-temperature approach. With products designed to cover a wide range of applications, this series can be utilized at various levels of system efficiency, covering capacities from 250 kW to 700 kW.

### More About TRANE

Trane designs, manufactures and services HVAC systems and controls to create and sustain safe, comfortable and efficient work environments for buildings and industrial processes. Trane takes great pride in the expertise they have built over decades and uses it to deliver the exact solutions their customers need to meet their business objectives by reducing energy consumption and costs.



SWEP DFX650.