



# Uniflair Chillers TSAC-TSAF

**Uniflair** Air Cooled and Free Cooling Chillers  
with inverter driven scroll compressors.

120 - 350 kW



## Technology for a sustainable and completely accessible cooling

All-in-one units, completely configurable for easy design and installation, continuous and quiet operations in multiple applications and environmental conditions.

Uniflair Chillers are designed for Tier III and IV data center installations.

# System Architecture

## Electrical panel

- IP54 rated
- maximum internal temperature control
- auxiliary transformer
- general auxiliary cut-off switch
- magneto-thermal protection switches with trip alarm signal on compressors
- fuses for fan speed control protection
- safemotor for pumps protection and remote control cutoff switches.

## Microchannel condensing coils

- TSAC/F models up to 200 kW
- less refrigerant content
- CAPEX reduction

## Finned-tubes condensing coils

- TSAC/F models from 300 kW
- flexibility for movement and maintenance

## Free-cooling coils

- only TSAF models
- aluminum fins and mechanically-expanded copper tubes



## Microprocessor controller

- local user interface with 7-inch touch screen display
- exclusive PID algorithm for chilled water supply temperature regulation
- production of chilled water down to -10 °C
- advanced freeze protection on evaporator
- standard or VSD embedded pump rotation and management
- integrated features:
  - LAN card to connect units
  - SNMP, Modbus TCP/IP
  - USB connection for data download
  - Clock card
- external motorized isolating valve management

## Inverter Driven Scroll compressors

- inverter driver with IP54 protection grade coupled with a specific compressor and positioned in a dedicated soundproofed housing compartment
- oil by-pass valve and line
- integrated soft start
- power factor correction condenser
- integrated thermal protection
- crankcase heaters and inverter with oil heating function
- anti-vibration supports

# System Architecture

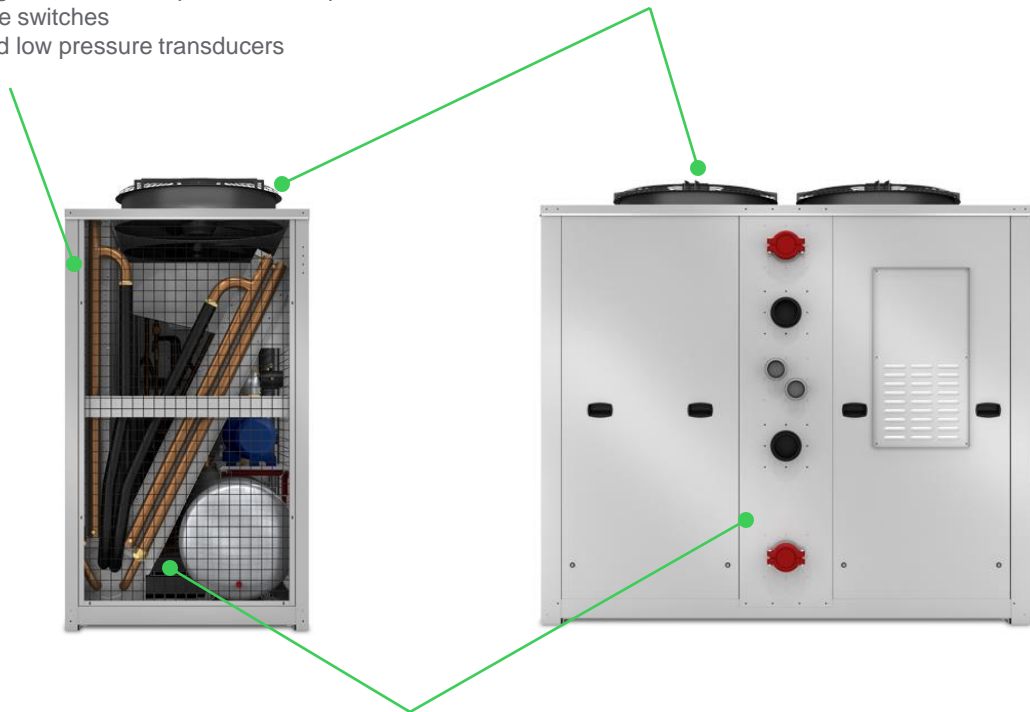
## Refrigerant circuits

Single (\*\*21 models) or double (\*\*42) refrigerant circuit conforming to EC standards (PED 97/23/ CE) with:

- filter dryer
- liquid sight glass
- electronic expansion valve
- discharge and suction taps on the compressor
- pressure switches
- high and low pressure transducers

## Fans with Electronically Commutated (EC) motors

- higher energy efficiency
- low noise at partial load
- higher ambient temperature operation



## Water-side heat exchanger

- brazed plate heat exchanger in stainless steel
- insulated with closed cell expanded polyurethane.

## Dimensional Data

TSA* models		1521A	2042A	2642A	3642A	4042A
Height (EC fans)	mm	2236	2236	2236	2156	2156
Width	mm	4112	4612	5562	5730	5730
Depth	mm	1151	1151	1151	2204	2204

# Main Configurable Options

## Double and/or separate power supply

- Double power supply with automatic transfer switch (ATS) for complete redundancy without single point of failure as per TIER III and IV recommendations
- Separate power supply from UPS for Unit and compressor/s control for 2 minutes quick start and emergency operation
- Automatic double and separate power supply from UPS for redundancy & Quick Restart

## Acoustic options

Aquaflair air-cooled mid chillers with VSD scroll compressors can have different options to reduce noise levels:

- Quiet version (standard): soundproof enclosures for compressors
- UltraQuiet version (option): soundproof enclosures for compressors and modulating condensation control algorithm for fans based on noise reduction

## Additional options

Aquaflair chillers can be equipped with special devices to operate at particular ambient conditions

- For aggressive ambient conditions: metal safety grilles and filters and coil treatments (electrolytic pre-painting treatment)
- Low ambient temperature option (standard for TSAF models): electrical heaters in the electrical board

## Onboard pumps

Onboard pumps allow a direct contact with the primary circuit only. The available options are:

- Integrated hydronic system with one or two circulation pumps (1 + 1 standby)
- Integrated hydronic system with one or two (1+1 standby) inverter-driven circulation pumps and pressure transducers for increased efficiency, flexibility and modularity

## Heat recovery

- Partial heat recovery: the unit is equipped with a system to recover the superheating of compressors

## Free-cooling options

- Intelligent free-cooling for increased efficiency leveraging on standby units
- Glycol-free free-cooling: integrated system to separate the main water system (pure water) from the free-cooling circuit (water + glycol)

## Adiabatic kit

- Available for TSAC/F models from 300kW
- Based on the natural process of water evaporation
- Energy efficiency
- Maximization of free-cooling operation for TSAF models

## Performance Data

TSA* models		1521A	2042A	2642A	3642A	4042A
<b>TSAC air-cooled chillers</b>						
Cooling capacity <sup>1,2</sup>	kW	127,8	152	206,3	290,6	324,2
EER <sup>1,2</sup>	kW	3,35	3,34	3,35	3,35	3,35
<b>TSAF free-cooling chillers</b>						
Cooling capacity <sup>1,3</sup>	kW	136,8	162,3	219	308,5	344
EER <sup>1,3</sup>	kW	3,44	3,43	3,41	3,40	3,38

<sup>1</sup>: Data for quiet version units. Data may change for units with different noise versions

<sup>2</sup>: Data refer to nominal conditions: water inlet / outlet temperatures 12 / 7 °C, outdoor temperature 35°C, 0% glycol, fouling factor 0,0 m<sup>2</sup> °C/W

<sup>3</sup>: Data refer to nominal conditions: water inlet / outlet temperatures 15 / 10 °C, outdoor temperature 35°C, 20% glycol, fouling factor 0,0 m<sup>2</sup> °C/W

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