



STULZ the natural choice

Wall-Air Displacement Evolution WDE+

Inverter Technology Compressor

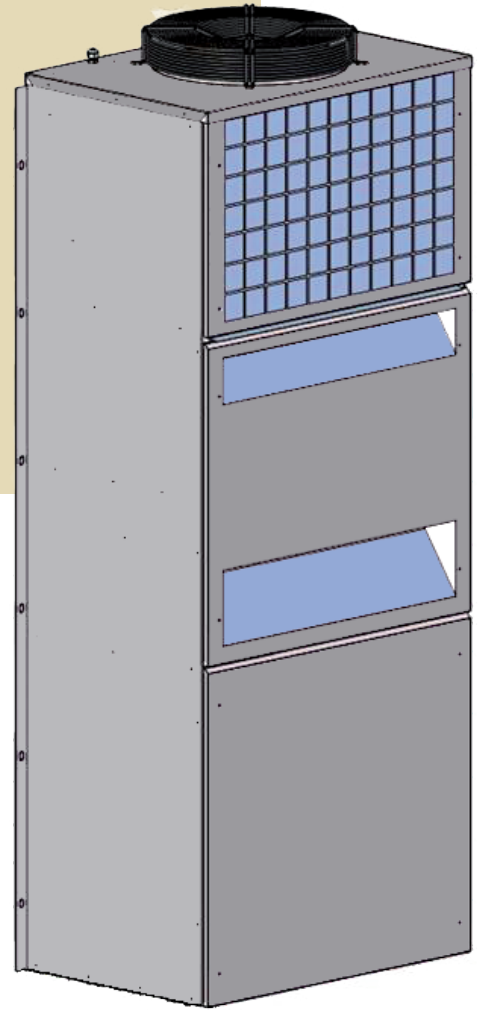


Precision Air Conditioners for outdoor installation - WDE +

In telecommunications containers space is at a premium. Wall Air units are installed outside the containers. Therefore enabling the space inside the container to be used to the full.

WDE + is available in displacement version.

The units blow out the cold air close to the ground at low speed (<1 m/s). Due to the low speed at which the air is flowing, a "pool" of cold air forms on the floor. This cold air is drawn in by fans integrated in the server rack as a function of the heat load, and the heated air is expelled upwards. Because this method prevents hot and cold air from mixing, the displacement unit can draw the air at 30°C, instead of at 25°C as was previously the case.



Free Cooling

At low outside temperature, cooling is direct with outside air. The outside air is conveyed into the container when the air flap is open. Therefore when outside temperature are low, energy intensive compressor cooling is not necessary.

Mixed Mode

Once the outside temperature exceeds a given threshold, free cooling alone is no longer sufficient. Then, in mixed mode, the runtimes of the compressor are kept to a minimum by the simultaneous use of free cooling and compressor cooling.

In this way depending on the local temperature profile the annual energy costs can be cut by a further 10%.

The partial load mode of the air conditioner produces further potential savings.

Technical Features

- Nominal Cooling Capacity from 3 to 8 kW
- Dimensions (h/w/d): 2090/880/560 mm
- energy savings operation thanks to proportional free cooling facility
- Microchannel Technology Condenser
- C2020 microprocessor control
- automatic restart after power failure
- speed controlled condenser and evaporator fan
- 48V DC backup operation
- contacts for various alarm signals for connection to a monitoring system
- refrigerant R410A
- outside air conditions -20 / +45 °C winter /summer
- G4 zigzag filter
- compressor soft start
- integrated crankcase heater functionality

Options

- electric heating
- aluminium housing
- condenser with anti corrosive finish
- external operator terminal for C2020
- supply air diffuser
- serial interface RS485 for connection to BMS systems
- humidity sensor

EC driver compressor

Efficient telecommunications shelter runs 24/7, but the operational conditions can change throughout the day and the year. The WDE **compressor with EC driver** monitor and adapt the cooling capacity to the actual heat load.

This allows a relevant energy saving and higher efficiency, even at partial loads.



Features

- compressor + EC driver
- high efficiency at partial loads
- inbuilt compressor protection and safety features
- power factor from 96% to 98%
- no in-rush current
- volume ratio of scroll optimised for highest efficiency in cooling mode
- DC brushless motor
- positive displacement oil pump to provide lubrication and sealing at entire speed range
- oil management control for compressor reliability (driver control algorithm)
- integrated soft start and integrated crankcase heater functionality

Electronic Expansion Valve

Compressor and expansion valve are controlled by the same driver. Valve adjustment by the driver is before the compressor speed variation. So the transient time is shorter (some seconds instead of 30 s typical of a standard TEX valve) and the efficiency is higher. This is particularly important with variable speed compressors, where variations are very frequent. Due to the quick adaptation of the valve to variable conditions, the following stress of refrigerant circuit are reduced:

- 1) risk of liquid at compressor intake when speed is decreasing
- 2) excessive overheating when speed is increasing.

The driver optimizes valve opening according to condenser pressure.

Condensing temperature is reduced with a further benefit on power consumption.





STULZ GmbH

Holsteiner Chaussee 283
22457 Hamburg
Tel.: +49(40)55 85-269
Fax: +49(40)55 85-308

STULZ S.P.A.

Via Torricelli, 3
37067 Valeggio sul Mincio (VR)
Tel.: +39(045)633 16 00
Fax: +39(045)633 16 35

info@stulz.it
www.stulz.it

