

IT Cooling Solutions

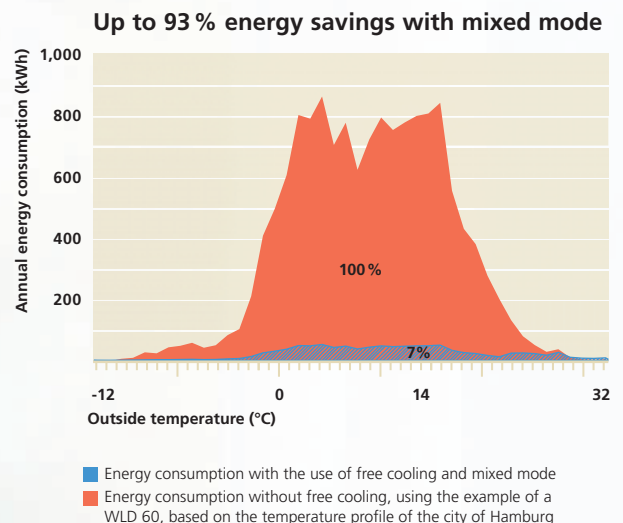
# Wall-Air Series Displacement Evolution Telecom-Line



# STULZ precision air conditioners for outdoor installation – the Wall-Air Advanced WDE series



With its Telecom Line, STULZ offers a range of professional air-conditioning solutions for the telecommunications infrastructure and for switch cabinets. All units are designed for 24/7 operation, 365 days a year, and offer maximum reliability and availability. In the unlikely event that a problem does arise, STULZ's network of competent partners and branches guarantees fast, trouble-free service.



In telecommunications containers, space is at a premium. **Wall-Air Advanced WDE** units are installed outside the container, therefore enabling the space inside the container to be used to the full.

The basic unit comes with cooling and microprocessor control. The performance spectrum of the series can be considerably extended by various optional extras, providing solutions for individual requirements.

#### Technical features of the Wall-Air Advanced WDE series

- Energy-saving operation thanks to proportional free cooling facility
- Condenser with Microchannel technology
- 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 R407C
- Mixed mode for energy-saving operation



Wall-Air Displacement  
Advanced WDE

#### Displacement principle

Displacement 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 then expelled upwards. Because this method prevents hot and cold air from mixing, the displacement unit can draw in the air at 30°C, instead of at 25°C as was previously the case. The enlarged temperature spread enables the displacement units to work more quietly and efficiently.

#### Free cooling

At low outside temperatures, cooling is direct with outside air. The outside air is conveyed into the container when the air flap is open. Therefore, when outside temperatures 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.



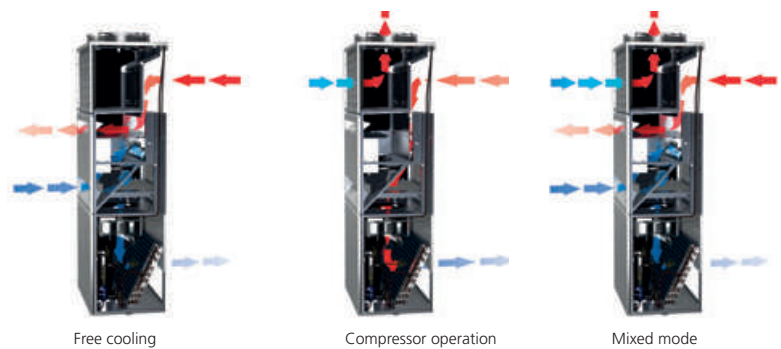
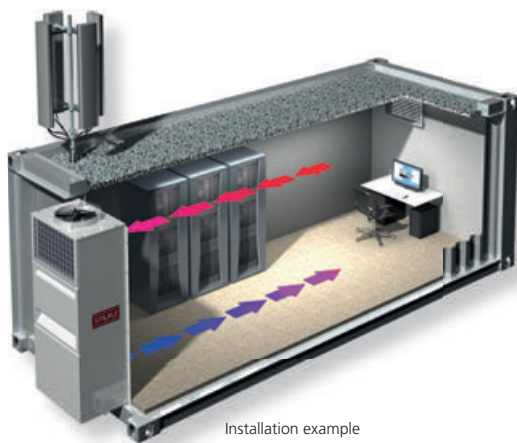
# The low-noise solution: Wall-Air Displacement Advanced WDE

## Technical features

- Displacement principle for quiet running
- Outside air conditions -20/+50 °C winter/summer
- G4 zigzag filter
- Night mode
- Sequencing operation

## Options

- High temperature operation up to 55 °C with R134a
- Compressor soft start
- Electric heating
- Aluminium housing
- Serial interface RS485 for connection to BMS systems
- Electrical cables ready to plug in
- Winter kit up to -40 °C
- External operator terminal for C2020
- Humidity sensor



Wall-Air Displacement								
Model		WDE40	WDE60	WDE80	WDEA0	WDEA2	WDEA4	WDEA6
Total cooling capacity <sup>1)2)</sup>	kW	4.3	6.1	8.0	10.0	12.0	13.9	15.7
External sound pressure level <sup>3)</sup>	dB(A)	50	51	52	53	54	58	60
Weight	kg	170	200	200	240	240	250	250
Height (including condenser fan)	mm	2,085	2,085	2,085	2,226	2,226	2,226	2,226
Width	mm	879	879	879	992	992	992	992
Depth	mm	565	565	565	730	730	730	730
Air flow in cooling mode	m <sup>3</sup> /h	1,100	1,700	2,700	2,400	2,800	3,600	3,600
Air flow in free cooling mode	m <sup>3</sup> /h	900	1,300	1,800	2,500	2,500	3,000	3,000

<sup>1)</sup> Outside temperature 35 °C/Inside temperature 30 °C/rel. humidity 30 %

<sup>2)</sup> 400V/3Ph/N/50Hz (Plus) 48V DC

<sup>3)</sup> Measured at 2m distance, free field

# STULZ Cooling Solutions for Telecommunications



# The C2020 control system

The C2020 consists of an IO controller inside the unit and an optional operator terminal. The IO controller controls all the functions, the operator terminal (keypad) displays the most important operating states and alarms. The keypad, which also features an LCD, is able to configure and monitor up to 5 units.

## Sequencing

- Using the C2020, any desired number of standby units can be configured in an air-conditioning system. A system has a maximum number of 5 units. If an individual unit drops out or the heat load rises, inactive standby units are switched in for additional support.
- The operating times of all connected air conditioners are compared to ensure that each one is used to an equal extent.

## Controlling the various operating modes

- Compressor operation
- Free cooling function dependent on temperature and enthalpy
- Mixed mode management
- Backup ventilation upon failure of the main power supply
- Heating
- Humidification and dehumidification (humidification requires an external humidifier)

## Step-by-step operator guidance via keypad

- Operator
- Service (password-protected)
- Manufacturer (password-protected)

## Multilingual display

- The keypad can offer a choice of seven languages for the display of general menus, alarms and setpoints.

## Flash EPROM for simple configuration and software updates

- Central configuration of units via laptop
- Hardware key for uploading and downloading software without a laptop and for copying the configuration to other units



## Individual forwarding of alarms

- Via bus system/BMS systems (optional)
  - Via voltage free contacts (standard)
- 9 off-load contacts are available. Alarms can be assigned a high or low priority.

## High-pressure alarm management

- In order to avoid making unnecessary service calls, high-pressure alarms are initially reset three times automatically. Then, after the fourth error message, the alarm must be deleted manually after 4 hours.

## Night mode

- Condenser and evaporator fan speed is limited in a time-controlled manner, to ensure quiet operation e.g. at night or the weekend.

## Energy-saving mode

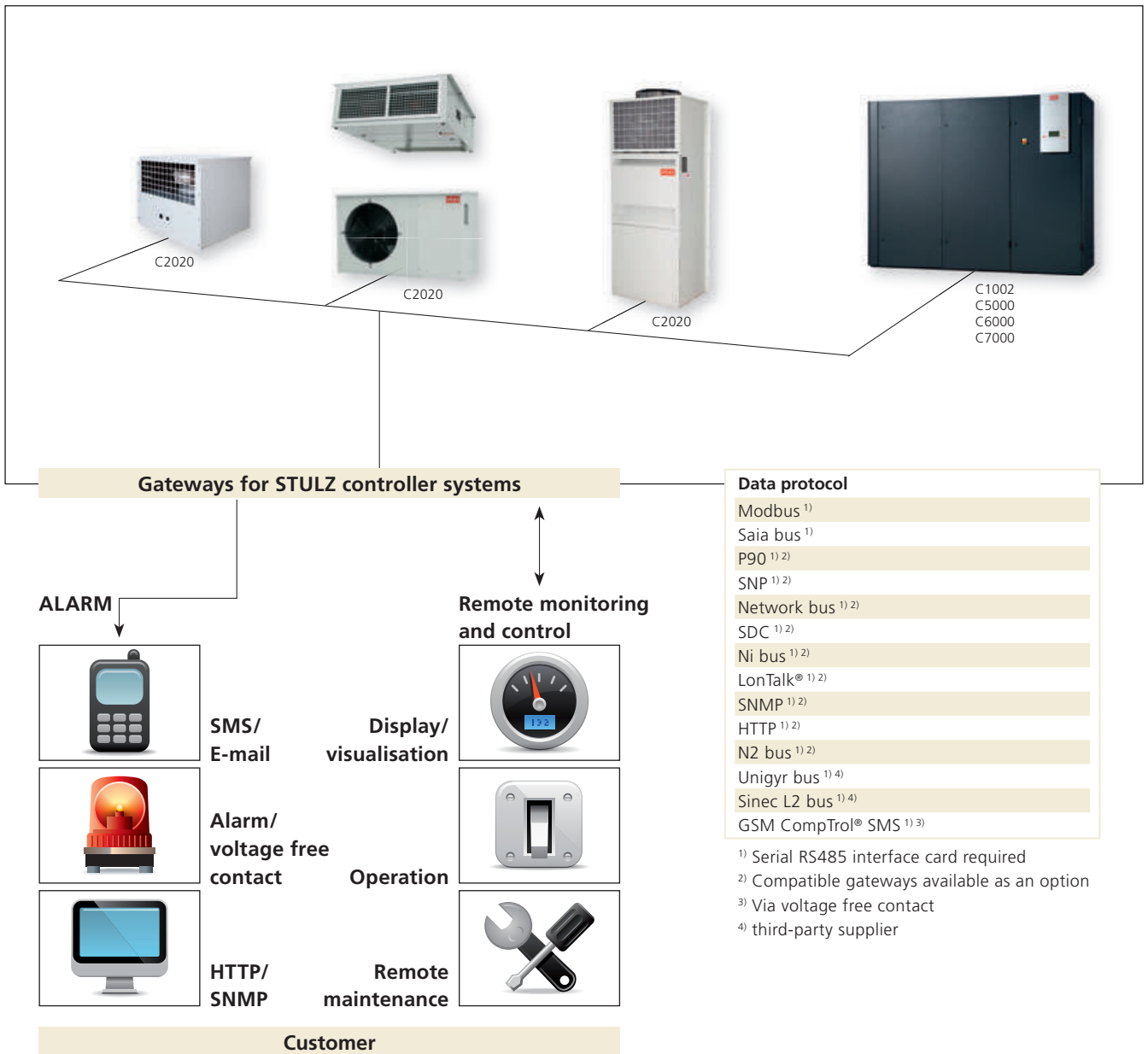
- The fan speed is automatically reduced (adjustable) at times when neither heating nor cooling is required.

## Integration in existing air-conditioning systems

- The comfort air conditioners commonly installed in base stations can be activated by the C2020 control. Air conditioning becomes more reliable and considerably more efficient.

# Network solutions for communication without limits

- Compatible with all common BMS systems
- Communication using SNMP and HTTP IP protocols
- STULZ TeleCompTrol monitoring system as a bus and modem version



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## IT Cooling Solutions

### Close to you all over the world.

... With specialist, competent partners in our subsidiaries and exclusive sales and service partners around the world. Our five production sites are in Europe, North America and Asia.