STULZ the natural choice

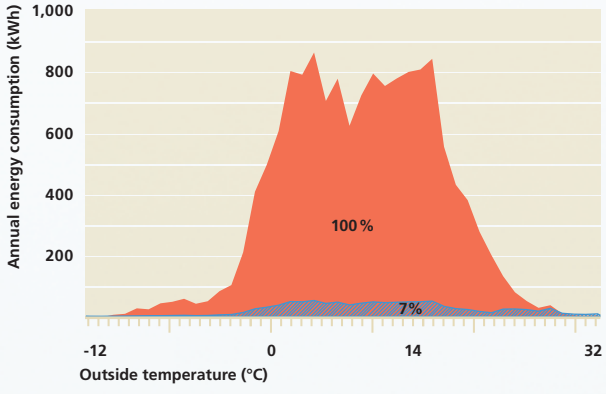
Telecom Line
Wall-Air Series

STULZ

STULZ precision air conditioners for outdoor installation – the Wall-Air 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.

Up to 93 % energy savings with mixed mode



Energy consumption with the use of free cooling and mixed mode
Energy consumption without free cooling, using the example of a WLD 60, based on the temperature profile of the city of Hamburg

In telecommunications containers, space is at a premium. **Wall-Air** 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.

The Wall-Air series is available in the basic version as an Upflow unit. The Displacement version is recommended for especially energy-efficient operation.

Technical features of the Wall-Air series

- Energy-saving operation thanks to proportional free cooling facility
- 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 Upflow

Wall-Air Displacement

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.

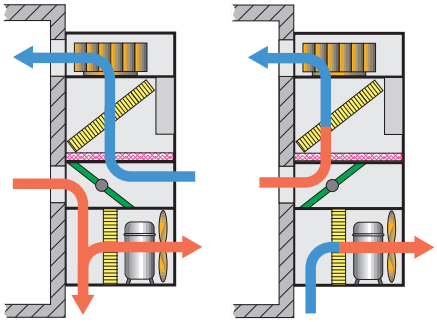
The standard air-conditioning solution: Wall-Air Upflow

Technical features

- Scroll compressors (CVS 50 and upwards)
- Air filter, filter class EU3
- Housing of galvanised, powder-coated sheet steel
- Air shortage and filter alarm

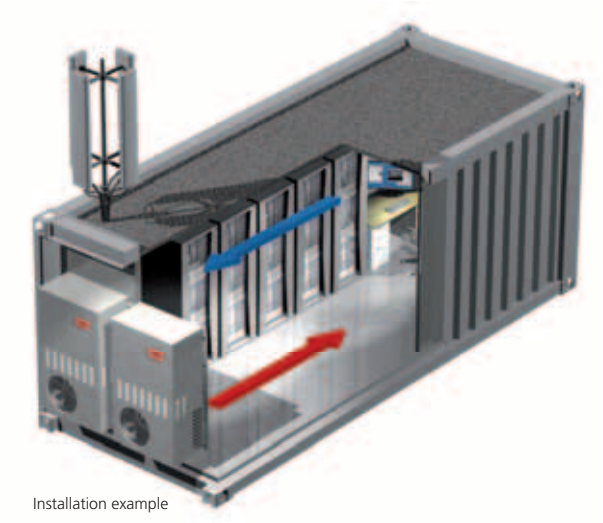
Options

- Electric heating
- Humidity sensor
- Anti vandalism sound absorption cover
- High-temperature refrigerant R134a
- External operator terminal for C2020
- Epoxy finish coating for heat exchangers
- Air intake and blow-out grilles



Free cooling

Compressor operation



Installation example

Wall-Air Upflow

Unit type		CVS40 HR2 Type1	CVS50 HR2 Type1	CVS60 HR2 Type1	CVS80 HR2 Type1	CVS90 HR2 Type1	CVSA2 HR2 Type1	CVSA4 HR2 Type1	CVSA7 HR2 Type1
Cooling capacity (total)[1) 2)]	kW	3.8	5.2	6.4	8.4	9.3	11.9	14.0	16.8
Cooling capacity (sensible)[1) 2)]	kW	3.8	5.2	5.7	7.4	8.6	11.9	14.0	14.7
Noise level (internal/external)[3)]	dB (A)	54/63	54/63	55/63	58/69	58/66	62/71	69/71	69/71
Air flow	m³/h	1,000	1,000	1,600	2,100	2,500	2,850	2,850	3,500
Height	mm	1,500	1,500	1,500	1,725	1,725	1,910	1,910	1,910
Width	mm	880	880	880	960	960	1,170	1,170	1,170
Depth	mm	490	490	490	565	565	600	600	600
Weight	kg	139	143	146	175	185	230	237	240

[1)] Operating conditions: Inside temperature 25 °C / rel. humidity 40 % / outside temperature 35 °C

[2)] 400V/3Ph/N/50Hz + 48V DC

[3)] 2 m distance, free-field

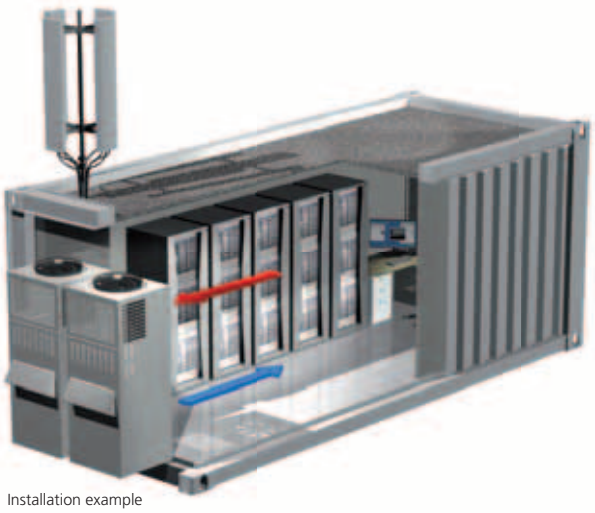
The low-noise solution: Wall-Air Displacement

Technical features

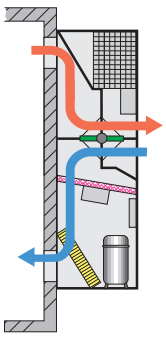
- Displacement principle for quiet running
- Outside air conditions -20/+50 °C winter/summer
- G4 zigzag filter

Options

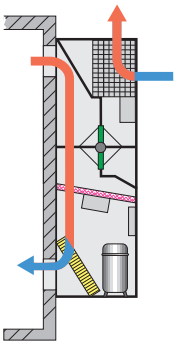
- High temperature operation up to 55 °C with R134a
- Compressor soft start
- Electric heating
- Aluminium housing
- Condenser with anti-corrosive finish
- Supply-air diffuser
- Serial interface RS485 for connection to BMS systems
- Electrical cables ready to plug in
- Winter kit up to -40 °C
- External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



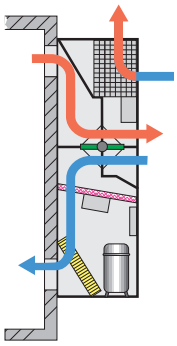
Installation example



Free cooling



Compressor operation



Mixed mode

Wall-Air Displacement							
Unit type		**WLD40 HR2 Type1**	**WLD60 HR2 Type1**	**WLD80 HR2 Type1**	**WLD90 HR2 Type1**	**WLDA2 HR2 Type1**	**WLDA4 HR2 Type1**
Cooling capacity (total)[1) 2)]	kW	4.3	6.0	8.0	10.0	12.0	14.0
Cooling capacity (sensible)[1) 2)]	kW	4.3	6.0	8.0	10.0	12.0	14.0
Noise level (internal/external)[3)]	dB (A)	59/50	49/50	57/51	59/53	62/54	63/54
Air flow (DX)	m³/h	1,100	1,400	2,300	2,700	3,200	3,600
Air flow (free cooling)	m³/h	900	1,100	1,800	2,200	2,600	2,900
Height	mm	2,090	2,090	2,260	2,260	2,260	2,260
Width	mm	880	880	990	990	990	990
Depth	mm	660	660	850	850	850	850
Weight	kg	170	210	230	246	248	251

[1)] Operating conditions: Inside temperature 30 °C / rel. humidity 30 % / outside temperature 35 °C

[2)] 400V/3Ph/N/50Hz + 48V DC

[3)] 2 m distance, free-field

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.

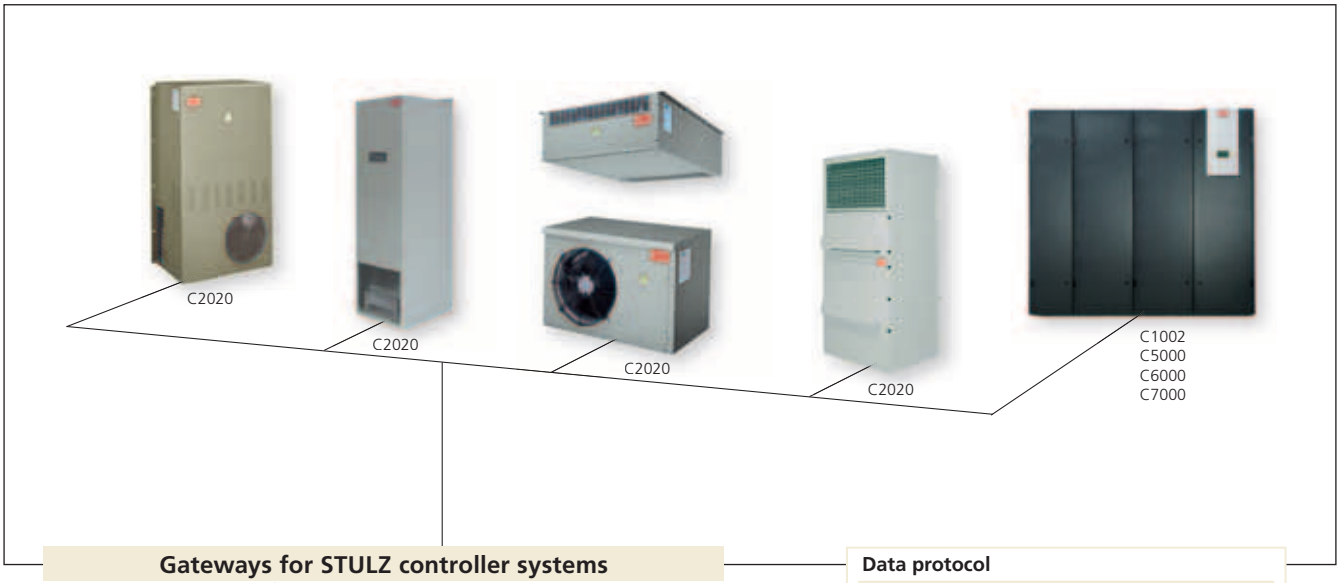
Night mode
- Condenser and evaporator fan speed is limited in a time-controlled manner, to ensure quiet operation e.g. at night or the weekend.

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

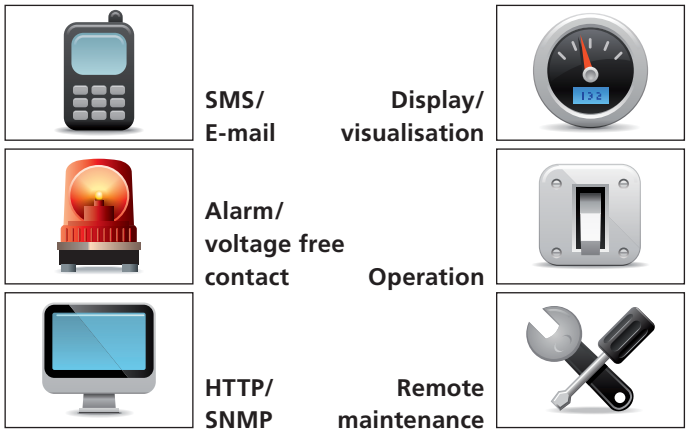
- Compatible with all common BMS systems
- Communication using SNMP and HTTP IP protocols
- STULZ TeleCompTrol monitoring system as a bus and modem version



Gateways for STULZ controller systems

ALARM

Remote monitoring and control



SMS/ E-mail

Display/ visualisation

Alarm/ voltage free contact

Operation

HTTP/ SNMP

Remote maintenance

Customer

Data protocol
Modbus [1]
Saia bus [1]
P90 [1] [2]
SNP [1] [2]
Network bus [1] [2]
SDC [1] [2]
Ni bus [1] [2]
LonTalk® 1) 2)
SNMP [1] [2]
HTTP [1] [2]
N2 bus [1] [2]
Unigyr bus [1] [4]
Sinec L2 bus [1] [4]
GSM CompTrol® SMS [1] [3]

[1] Serial RS485 interface card required
[2] Compatible gateways available as an option
[3] Via voltage free contact
[4] third-party supplier

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