



WHS, WCS, SHS, DXES, DXCS and CS
Customized duct heaters,
duct coolers and condensers



WHS / WCS / SHS / DXES / DXCS / CS

Customised rectangular duct heaters, duct coolers and condensers

- Six models for various requirements
- WHS, hot water heater
- WCS, cold water cooler
- SHS, steam heater
- DXES, evaporator for DX cooling
- DXCS, combined battery for DX cooling and heating
- CS, condenser

Design

Refer to respective model as the design varies.

Regulators

See page 9 for a description of the regulators.



DXES



CS



SHS

WHS

Customised rectangular duct heaters for hot water

WHS duct heaters with rectangular duct connection use hot water as energy medium and are used for heating the ventilation air in ventilation systems. The duct heater dimensions and its production are based on the customer's specifications.

- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- Externally threaded pipe connection
- Screws or guide rail joints are used to connect it to the duct system
- Nipples for venting and draining
- Nipple for installation of antifreeze sensors
- Recommended maximum air velocity: 5 m/s

Design

The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. Coil with copper pipes and aluminium fins.

WHS duct heaters are also equipped with nipples for draining and venting as well as an internally threaded connection for installation of antifreeze sensors.

Drawing and specifications are provided along with the quote.

Other Types of Materials

If required, WHS duct heaters are available in a corrosion resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.

Operating Data

Max. operating temperature: +150 °C
 Max. operating pressure: 1.0 MPa (10 bar)
 The coils have been pressurised and leak tested.



Installation

WHS duct heaters can be installed in horizontal or vertical ducts. Specify air direction when ordering.

Control Unit

VEAB has a complete range of regulators, sensors, actuators and valves for feedback control of room and Inlet air temperature. We also have regulators with integrated antifreeze control, alarm and standstill heater.

Air Tightness Class C

WHS duct heaters meet air tightness class C as per EN 15727, which ensures that the heated air reaches its destination and does not leak out of the ventilation system that saves both energy and money.



WHS / WCS / SHS /
DXES / DXCS / CS

Project Design/Orders

Description – WHS

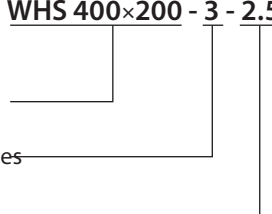
Duct heater, VEAB type WHS, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins. Equipped with nipples for draining and venting as well as an internally threaded connection for antifreeze sensors (dipping sensors). Externally threaded water connections.

Type designation **WHS 400x200 - 3 - 2.5**
 (example)

Size designation

Number of rows of pipes

Fin spacing mm



Specify the following when configuring/ ordering

1. Duct dimensions: - mm
2. Air direction: - Left/right
3. Air flow: - m³/h
4. Inlet air temperature: - °C
5. Outlet air temp. or desired output: - °C or kW
6. Inlet water temperature: - °C
7. Outlet water temp. water flow: - °C or l/s
8. Antifreeze agent: - type / %

WCS

Customised rectangular duct coolers for cooled water

WCS duct coolers with rectangular connection use cold water as energy medium and are used to cool the ventilation air in a ventilation system. The duct cooler dimensions and its production are based on the customer's specifications.

- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- Externally threaded pipe connection
- Screws or guide rail joints are used to connect it to the duct system
- Stainless steel drip tray for condensation water
- Nipples for venting and draining
- Recommended maximum air velocity: 3 m/s

Design

The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. Coil with copper pipes and aluminium fins.

WCS duct coolers also come with nipples for draining and venting.

An internally threaded connection for installation of anti-freeze dipping sensors must be requested as an extra option.

Drawing and specifications are provided along with the quote.

Other Types of Materials

If required, WCS duct coolers are available in a corrosion resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.

Operating Data

Max. operating pressure: 1.0 MPa (10 bar)

The coils have been pressurised and leak tested.



Installation

WCS duct coolers are intended for installation in horizontal ducts. Specify air direction when ordering.

Droplet Eliminator

For air velocities above 2.5 m/s, we recommend installing a droplet eliminator. The droplet eliminator is installed at the outlet end of the battery. This prevents water droplets from being carried along with the air flowing through the duct system. The droplet eliminator must be ordered separately.

Control Unit

VEAB has a complete range of regulators, sensors, actuators and valves for feedback control of room and inlet air temperature.

Project Design/Orders

Description – WCS

Duct cooler, VEAB type WCS, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins. WCS duct coolers come with nipples for draining and venting. Externally threaded water connections. Stainless steel drip tray equipped with externally threaded connection for condensation water. For air velocities above 2.5 m/s, order droplet eliminator, DE.

Type designation WCS 400×200 - 3 - 2.5
(example)

Size designation

Number of rows of pipes

Fin spacing mm

Specify the following when configuring/ ordering

1. Duct dimensions: - mm
2. Air direction: - Left/right
3. Air flow: - m³/h
4. Inlet air temperature: - °C
5. Inlet air humidity: - % RH
6. Outlet air temp. or desired output: - °C or kW
7. Inlet water temperature: - °C
8. Outlet water temp. water flow: - °C or l/s
9. Antifreeze agent: - type / %
10. Possible droplet eliminator

SHS

Customised rectangular duct heaters for steam

SHS duct heaters with rectangular duct connection use steam as energy medium and are used for heating the ventilation air in ventilation systems. The duct heater dimensions and its production are based on the customer's specifications.

- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- Externally threaded pipe connection
- Screws are used to connect it to the duct
- Recommended maximum air velocity: 5 m/s



WHS / WCS / SHS /
DXES / DXCS / CS

Design

The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. Coil with copper pipes and aluminium fins. Drawing and specifications are provided along with the quote.

Other Types of Materials

If required, SHS duct heaters are available in a corrosion resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.

Operating Data

Max. operating temperature: +164°C
 Max. operating pressure: 0.6 MPa (6 bar)
 The coils have been pressurised and leak tested.

Installation

SHS duct heaters are intended for installation in horizontal ducts. Specify air direction when ordering.

Project Design/Orders

Description – SHS

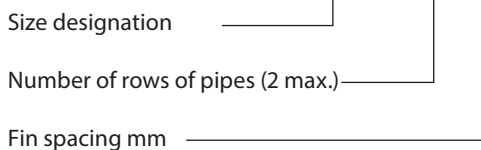
Duct heater, VEAB type SHS, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins.
 Externally threaded connecting pipe.

Specify the following when configuring/ ordering

- | | |
|--|---------------------|
| 1. Duct dimensions: | - mm |
| 2. Air flow: | - m ³ /h |
| 3. Inlet air temperature: | - °C |
| 4. Outlet air temp. or desired output: | - °C or kW |
| 5. Steam temp.: | - °C |
| 6. Operating pressure | - bar |

Type designation SHS 400×200 - 1 - 2.5

(example)



DXES

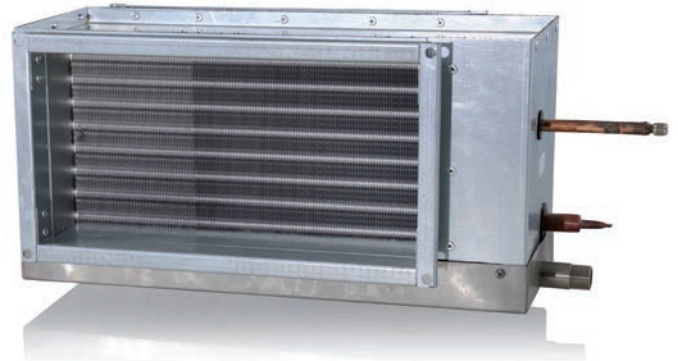
Customised rectangular duct coolers with DX coil

DXES duct coolers with rectangular duct connection use an evaporating cooling agent as its energy medium and is used for cooling the ventilation air in ventilation systems. The duct cooler is designed and produced based on the customer's specifications.

- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- The pipe connection is to be soldered
- Screws or guide rail joints are used to connect it to the duct system
- Stainless steel drip tray for condensation water
- Recommended maximum air velocity: 3 m/s

Design

The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. Coil with copper pipes and aluminium fins. Drawing and specifications are provided along with the quote.



Other Types of Materials

If required, DXES duct coolers are available in a corrosion-resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.

Operating Data

Max. operating pressure: 4.17 MPa (41.7 bar)
 Test pressure: 4.8 MPa (48 bar)
 The batteries have been pressurised and leak tested.

Droplet Eliminator

For air velocities above 2.5 m/s, we recommend installing a droplet eliminator at the outlet end of the coil. This prevents water droplets from being carried along with the air flowing through the duct system. The droplet eliminator must be ordered separately.

Installation

DXES duct coolers are intended for installation in horizontal ducts. Specify air direction when ordering. Supplied pressurised at 2 bar.

Project Design/Orders

Description – DXES

Duct cooler, VEAB type DXES for DX cooling, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins. Pipe connections are to be soldered. Stainless steel drip tray equipped with externally threaded connection for condensation water. For air velocities above 2.5m/s, order the DXES with droplet eliminator, DE.

Type designation **DXES 400×200 - 3 - 2.5**

(example)

Size designation

Number of rows of pipes

Fin spacing mm

Specify the following when configuring/ ordering

1. Duct dimensions: - mm
2. Air direction: - Left/right
3. Air flow: - m³/h
4. Inlet air temperature: - °C
5. Inlet air humidity: - % RH
6. Outlet air temp. or desired output: - °C or kW
7. Type of coolant: - °C
8. Evaporation temp.:
9. Possible droplet eliminator
10. Min. and max. inner volume of coil

DXCS

Customised rectangular duct batteries for combined cooling and heating, for heat pump with dual pipe connections and controller

DXCS duct batteries with rectangular connection use a coolant as its energy medium and are used for cooling and heating the ventilation air in ventilation systems. The duct battery is designed and produced based on the customer's specifications.

- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- The pipe connection is to be soldered
- Screws or guide rail joints are used to connect it to the duct system
- Stainless steel drip tray for condensation water
- Recommended maximum air velocity: 3 m/s

Design

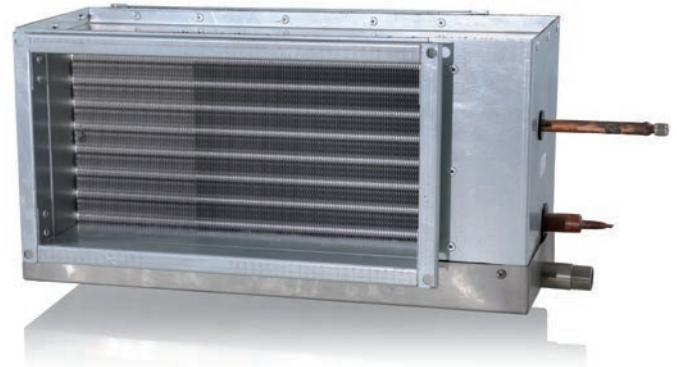
The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. Coil with copper pipes and aluminium fins. Drawing and specifications are provided along with the quote.

Other Types of Materials

If required, DXCS duct batteries are available in a corrosion-resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.

Operating Data

Max. operating pressure: 4.17 MPa (41.7 bar)
 Test pressure: 4.8 MPa (48 bar)
 The batteries have been pressurised and leak tested.



WHS / WCS / SHS / DXES / DXCS / CS

Installation

DXCS duct batteries are intended for installation in horizontal ducts. Specify air direction when ordering. Supplied pressurised at 2 bar.

Droplet Eliminator

For air velocities above 2.5 m/s, we recommend installing a droplet eliminator. The droplet eliminator is installed at the outlet end of the battery. This prevents water droplets from being carried along with the air flowing through the duct system. The droplet eliminator must be ordered separately.

Project Design/Orders

Description – DXCS

Duct battery, VEAB type DXCS for coolant, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins. Pipe connections are to be soldered. Stainless steel drip tray equipped with externally threaded connection for condensation water. For air velocities above 2.5 m/s, order the DXCS with droplet eliminator, DE.

Type designation DXCS 400x200 - 3 - 2.5

(example)

Size designation

Number of rows of pipes

Fin spacing mm

Specify the following when configuring/ ordering

1. Duct dimensions: - mm
2. Air direction: - Left/right
3. Air flow: - m³/h
4. Inlet air temperature: - °C
5. Inlet air humidity: - % RH
6. Outlet air temp. or desired output: - °C or kW
7. Type of coolant:
8. Evaporation temp.: - °C
9. Condensing temperature - °C
10. Possible droplet eliminator
11. Min. and max. inner volume of coil
12. Cooling and heating output on outdoor unit

CS

Customised rectangular condensers for in-duct mounting

CS is a condenser used for condensing a coolant. Condensers are designed and produced based on the customer's specifications.

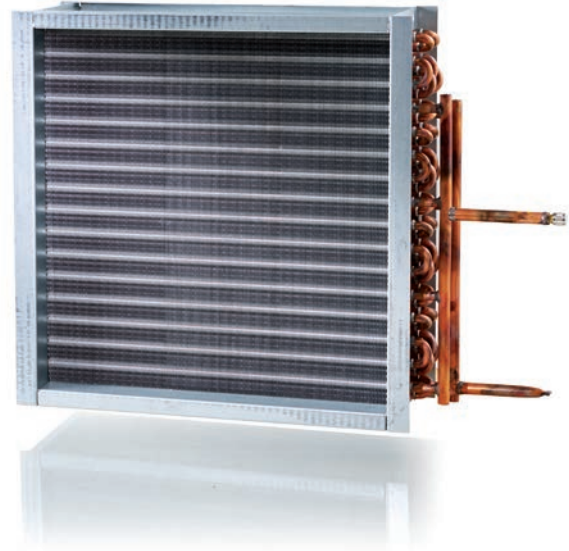
- Casing made of hot-dip galvanised sheet steel Magnelis ZM200
- Coil with copper pipes and aluminium fins
- The pipe connection is to be soldered
- Screws or guide rail joints are used to connect it to the duct system

Design

The casing is made of hot-dip galvanised sheet steel Magnelis ZM200. The condenser has copper pipes and aluminium fins. Drawing and specifications are provided along with the quote.

Other Types of Materials

If required, CS condensers are available in a corrosion resistant execution with a frame made of stainless material and epoxy-coated aluminium fins or with copper fins for use in humid and corrosive environments.



Operating Data

Max. operating pressure: 4.17 MPa (41.7 bar)

Test pressure: 4.8 MPa (48 bar)

The batteries have been pressurised and leak tested.

Installation

CS condensers can be installed in horizontal or vertical ducts. Air direction must be specified in order. Supplied pressurised at 2 bar.

Project Design/Orders

Description – CS

Condenser for duct installation. VEAB type CS, with casing made of hot-dip galvanised sheet steel Magnelis ZM200, coil with copper pipes and aluminium fins. Pipe connections are to be soldered.

Type designation CS 400×200 - 3 - 2.5

(example)

Size designation

Number of rows of pipes

Fin spacing mm

Specify the following when configuring/ordering

1. Duct dimensions: - mm
2. Air direction: - Left/right
3. Air flow: - m³/h
4. Inlet air temperature: - °C
5. Outlet air temp. or desired output: - °C or kW
6. Type of coolant:
7. Condensation temp.: - °C
8. Nominal condenser capacity: - kW
9. Min. and max. inner volume of coil

Regulators for Water Based Systems



AQUA24TF



RC



RC-DO



OPTIGO OP10

AQUA

Complete regulator with integrated room sensor. Floating feedback control for control of three-position actuators. Cascade connection with minimum limitation of inlet air in case of room feedback control. Can be fitted with external room and/or duct sensor as well as external setpoint adjuster. Temperature range 0-30 °C, depending on choice of sensor.

AQUA24TF

24 V supply. The regulator includes an integrated regulating antifreeze device with two alarm relays and automation for standstill heater.

REGIO MINI

Complete regulator with integrated room sensor. Can be fitted with external room and/or duct sensor. Includes two control outputs for sequential heating and cooling, for example.

RC

24 V supply. 0...10 V outgoing control signal. Base setpoint 20-26 °C is adjusted with DIP switches. The base setpoint can be adjusted by ± 3 °C using the setpoint knob.

RC-DO

24 V supply. 0...10 V outgoing control signal. RC-DO includes a backlighted display and temperature range from 0-50 °C.

OPTIGO

Regulator with display. One knob for all adjustments. To be mounted on DIN rail. Operates with PT1000 sensor within the -20 °C to $+40$ °C range. Started/stopped with "run" signal from fan.

OP5

24 V supply. 0...10 V outgoing control signal. Operates with a room or duct sensor. Convertible for heating or cooling feedback control.

OP10

24 V supply. Adjustable for 0...10 V outgoing control signal or 3-point feedback control. Two control outputs for sequential heating and cooling, for example. Input for two sensors and possible antifreeze sensor. Inlet air feedback control or room feedback control with cascade controlled inlet air. Antifreeze control with standstill heater. Output for starting/stopping fans, for example, via relay 230 VAC 1-ph., 5 A. Programmable weekly timer for control of both fans and heating/cooling. Outputs for external timer that extends operating time. Can be equipped with an external setpoint adjuster.

OP10-230

Same functions as OP10 but with 230 VAC 1-ph supply.

Sensors for AQUA

Temperature sensor with NTC elements for use with AQUA regulators:
TG-K330, TG-R430, TG-R530, TG-R630, TG-A130, TG-D130 and TG-D230.

Sensors for OPTIGO and Region MINI

Temperature sensor with PT-1000 elements for use with OPTIGO regulators:
TG-K3, TG-R4, TG-R5, TG-UH, TG-A1, TG-D1 and TG-D2.



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