

# Thyristor Modulating Electric Duct Heater

CBMF Circular & RBMF Rectangular Electric Duct Heaters



Systemair NZ is a wholly-owned subsidiary of global HVAC leader Systemair Group. With 28 production facilities and sales organisations in 50+ countries, Systemair Group and Systemair NZ are **#ByYourSide**.

**Simplicity and reliability:**

The values and business concepts of Systemair Group are core; manufacture and market high-quality ventilation products. Based on our Group business concept and values, and with our customers in focus, we aim to be your most efficient and helpful partner in mastering your indoor air quality challenges.

**Selection software:**

We save you time and money with our latest Electric Duct Heater software, Specification Portal software and REVit plugin, available [www.systemair.nz](http://www.systemair.nz). Transposition errors caused by manually entering BIM data is a thing of the past.

**Green Ventilation:**

As the Green Ventilation solutions leader, our products have outstanding energy efficiency combined with well-thought-out material consumption and production methods. We actively develop solutions and techniques such as heat recovery, night cooling, and demand-control-ventilation for the New Zealand building market.

**Quality and customer experience:**

Your customer experience is always our priority. When you need an indoor air quality solution, we manage the process with you from quote to despatch. Our Customer Service Group is with you for the long-haul, just like our fans.

**Testing:**

We don't cut corners. Manufactured to the highest standard, we test every fan before leaving the factory for quality and performance. On-site acceptance testing is available by request.





- Range from 150mm dia to 400mm dia available
- Steel case with ZM310 coating achieved C5 anti-corrosion rating
- Capacity up to 12kW
- Temperature sensor supplied with duct heater
- Integrated regulator
- Suitable for 0-10V capacity control
- High level Modbus RS485 communication
- Fault alarm output - optional
- Two stages overhear protection
- Built-in airflow sensor
- Revit files available from website selection software

## CBMF Circular Electric Duct Heater

CBMF circular electric duct heaters are used to heat the ventilation air for various rooms and areas with individually controlled temperatures. Circular electric duct heaters are also used for pre-heating or post-heating in air handling units and heat recovery units.

The heater casing is made of steel sheet with a coating of Magnelis ZM310 with anti-corrosion class C5 according to ISO12944 and is resistant to fingerprints. The heating elements are tubular heating elements made of stainless steel. The design is accordance with AS/ NZS3102-2002. Refer to our online selection tool for duct heater detail performance. The duct heaters have an integrated electronic regulator and are supplied with temperature sensors. They are also available with an external feedback control on request.

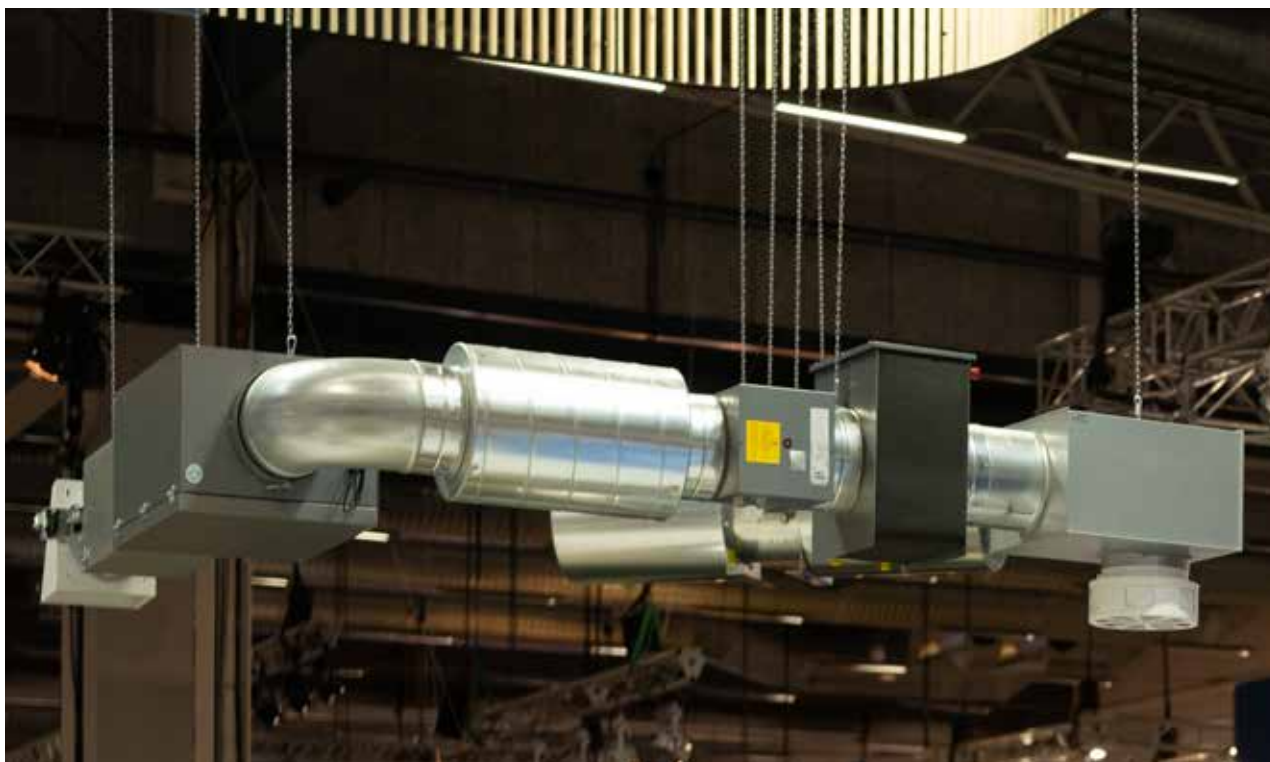


### Unique Design

The casing is made of **Aluzinc-coated sheet steel** and the heating elements of **stainless steel, C5 anti corrosion class**. The junction box contains all the terminals required for electrical connection. The duct connection is suitable for push-in assembly in round ducts. All duct heaters are manufactured with an IP44 degree of protection. The design is accordance with AS/ NZS3102-2002. The heaters are tested and in compliance with IEC60335.1 and IEC60335.2-30.

### Overheating Protection

All models in the CBMF series come with two overheating protection devices, one with an automatic reset at 70°C and the other with a manual reset at 110°C. These are connected in series with the heating elements upon delivery and therefore no connection to any external relay is required. This provides increased security and lower installation costs. All duct heaters are supplied with built-in flow sensors for a minimum air flow of 1.5 m/s. All duct heaters feature a reset button for the overheating protection on the heater cover.



## Air Velocity

The duct heaters are manufactured for a minimum air velocity of 1.5 m/s.

## Integrated Regulator

All duct heaters come with an integrated regulator which makes installation simple. This reduces both the installation cost and the risk of misconnections.

**The regulator is electronic and regulates the output using a triac with so-called time-proportional control (pulse/pause technology).** This results in very accurate temperature control. Since feedback control is performed electronically and no mechanical contactor, its operation is completely noiseless and minimize wear and tear.



TG-R430 as setpoint adjuster and room sensor

TG-K330 as sensor

## Duct Sensors

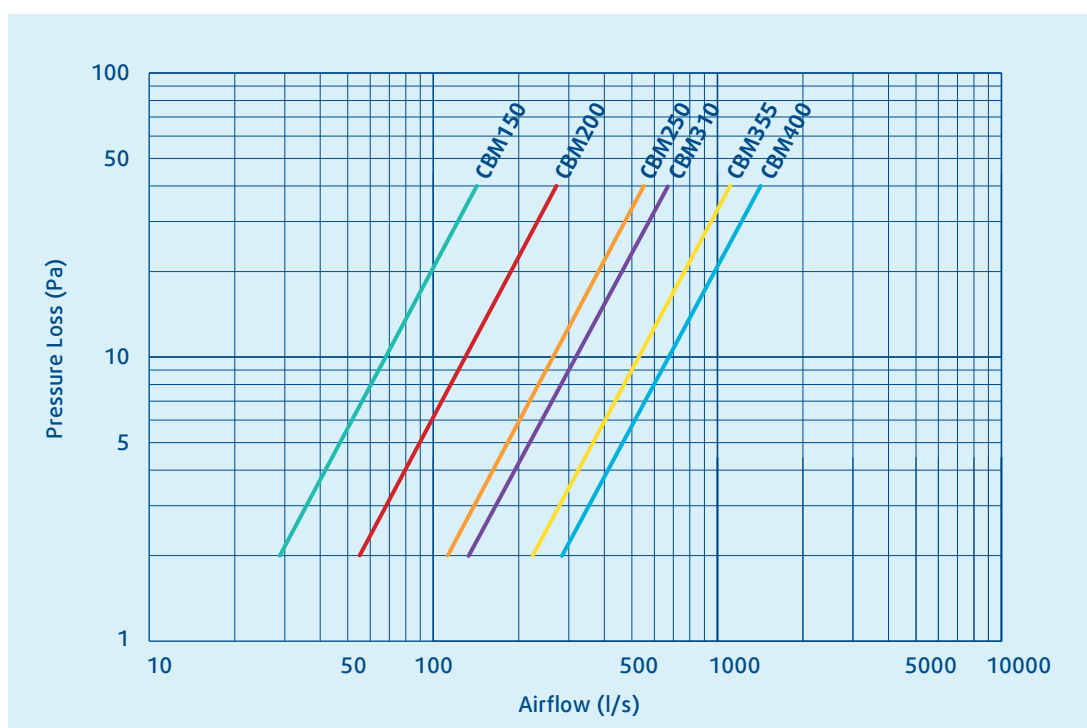
All duct heaters supplied with TG-K330 duct sensor. The duct sensor to be mounted in the outlet of duct heater to sensing the supply air temperature. The temperature setting can be adjusted on the heater cover.

# Technical Data

| CBM           |      | 150-2,1 | 200-3,1 | 250-3,0 | 315-9,0 | 355-9,0 | 400-9,0 |
|---------------|------|---------|---------|---------|---------|---------|---------|
| Art. no.      |      | 5481    | 7593    | 7595    | 5485    | 5486    | 5487    |
| Connection ØD | mm   | 150     | 200     | 250     | 315     | 355     | 400     |
| Power         | kW   | 2.1     | 3       | 3       | 9       | 9       | 9       |
| Voltage       | V    | 230     | 230/1-  | 230     | 400/3-  | 400/3-  | 400/3-  |
| Current       | A    | 9.1     | 13.1    | 13.1    | 13      | 13      | 13      |
| Weight        | kg   | 3.3     | 4.3     | 4.8     | 7.5     | 8       | 8.5     |
| Min. airflow  | m³/h | 100     | 180     | 180     | 430     | 550     | 700     |

For complete range please refer to the Systemair New Zealand online selection software Duct Heater Specifier [www.systemair.nz/software](http://www.systemair.nz/software)

## Pressure Drop Chart



## Installation



These duct heaters can be mounted in horizontal or vertical ducts. The air flow through the duct heater must follow the air direction arrow on the duct heater. In horizontal ducts, the junction box must be installed pointing up or rotated to the sides by up to 90°. Installation with the junction box pointing down is not allowed. **The distance to or from a duct bend, fan, damper, etc. must be at least equal to twice the connection diameter.**

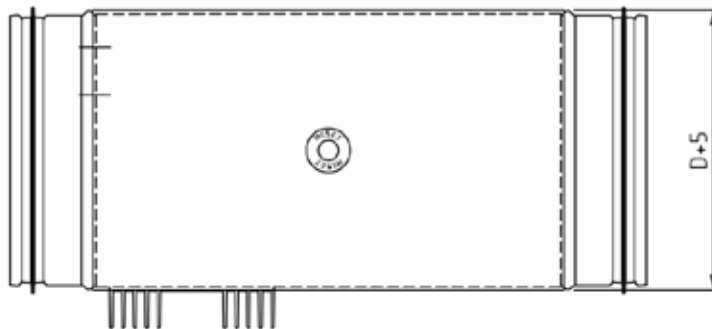
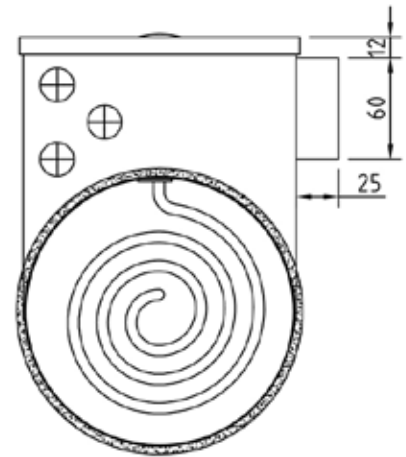
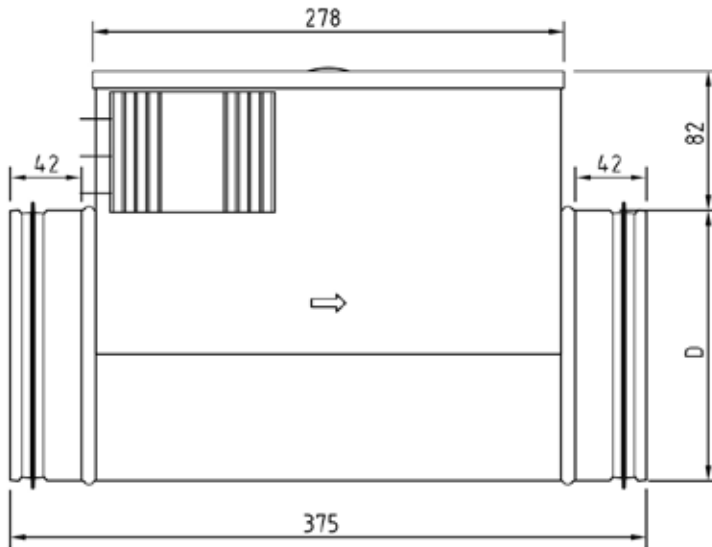
### Interlocking with Fan/Air Flow

Electric duct heaters must always be installed in such a way that they are interlocked with the fan that blows air into the duct or with the air flow streaming through the heater. The power feed to the duct heater must be cut off, should the fan be shut off or if the air flow ceases.

All CBMF duct heaters have a dry contact input that opens to disable the heater. It can be used either the link with fan operation or operation on/off from a Building Management System.

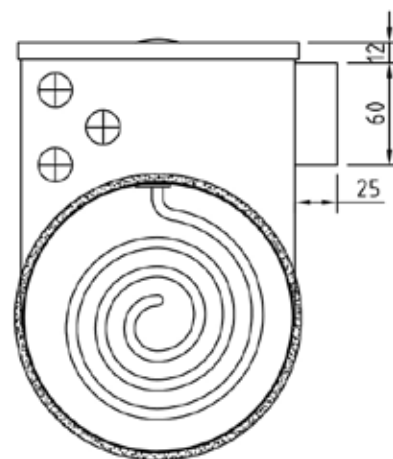
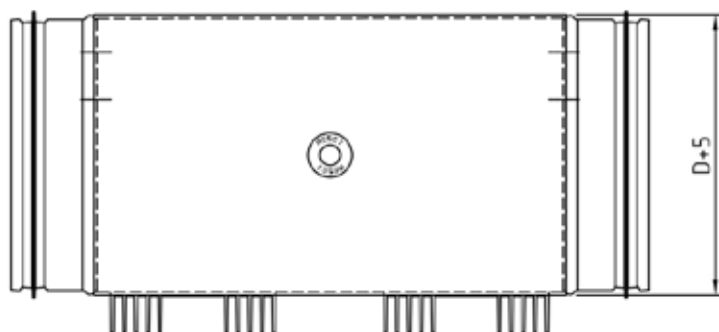
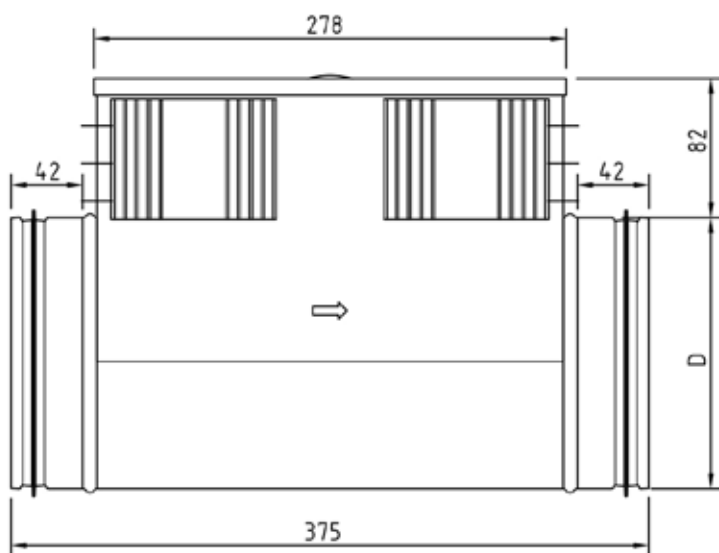
# Dimensions

D = Diameter of the duct heater / 1Ph



# Dimensions

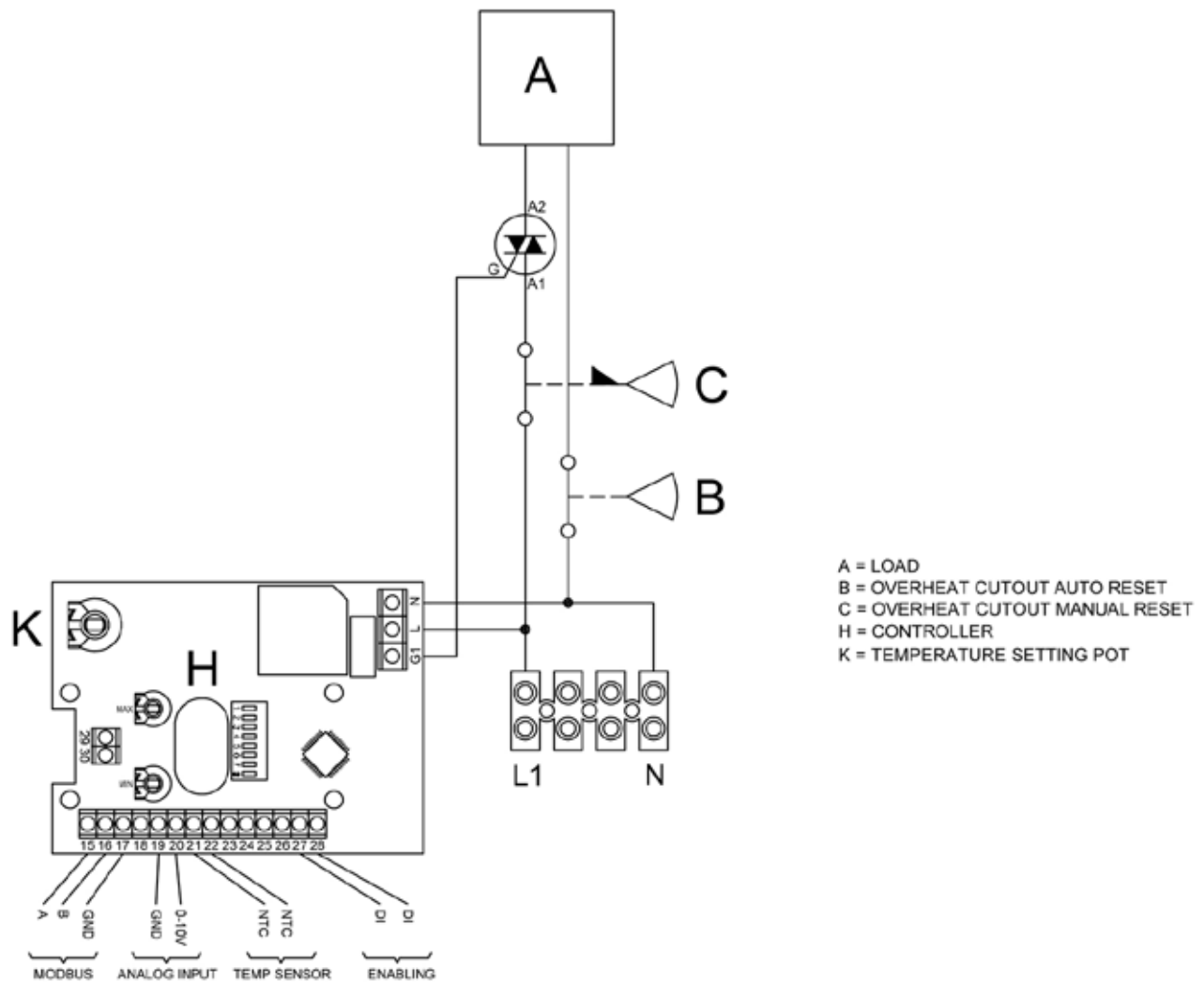
D = Diameter of the duct heater / 3Ph



# Wiring Diagram

## Single phase 230V/1Ph power supply

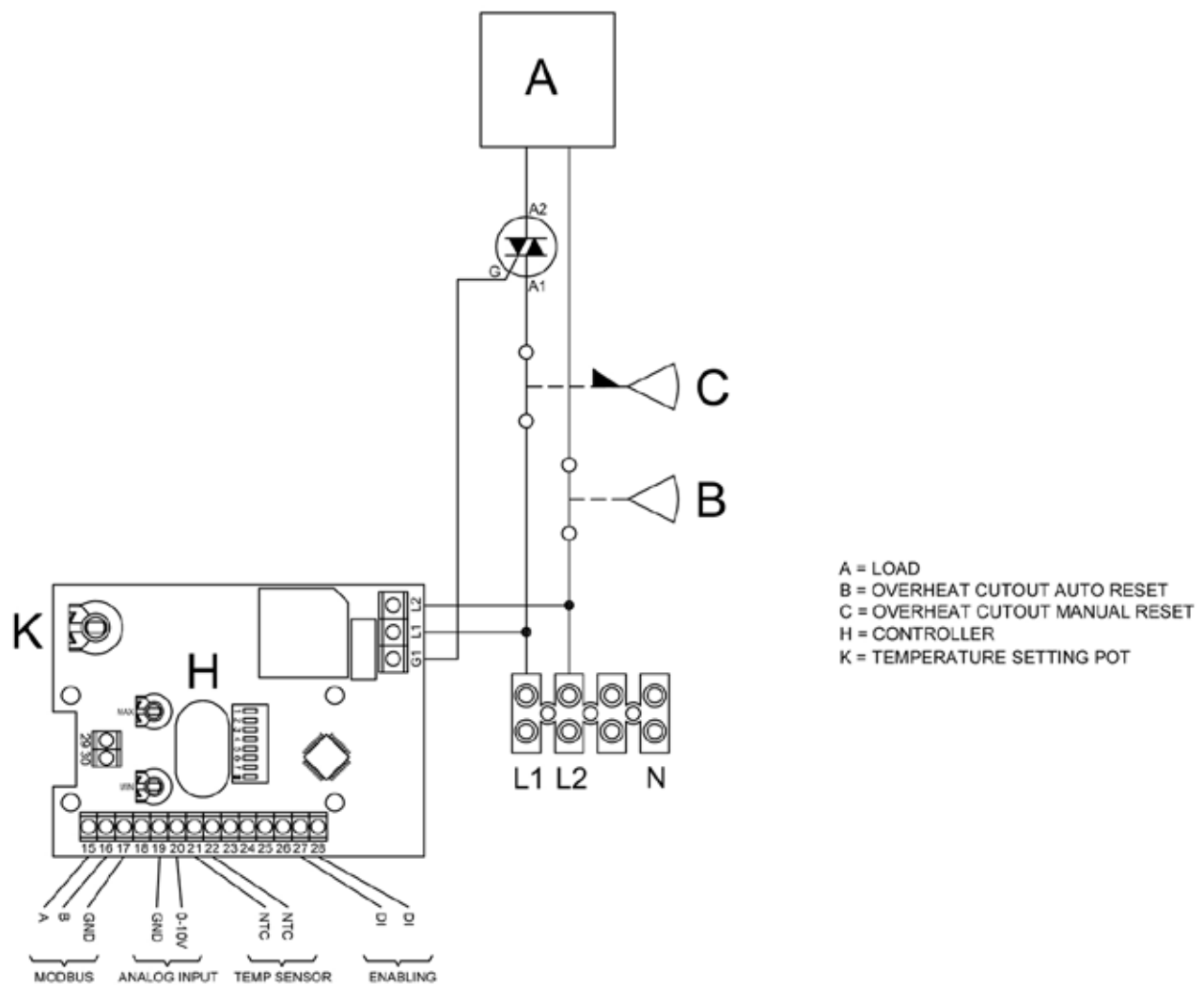
For Technical Data Sheets visit our Electric Duct Heater software on our website for the most up to date information.



# Wiring Diagram

## Two phase 400V/2Ph power supply

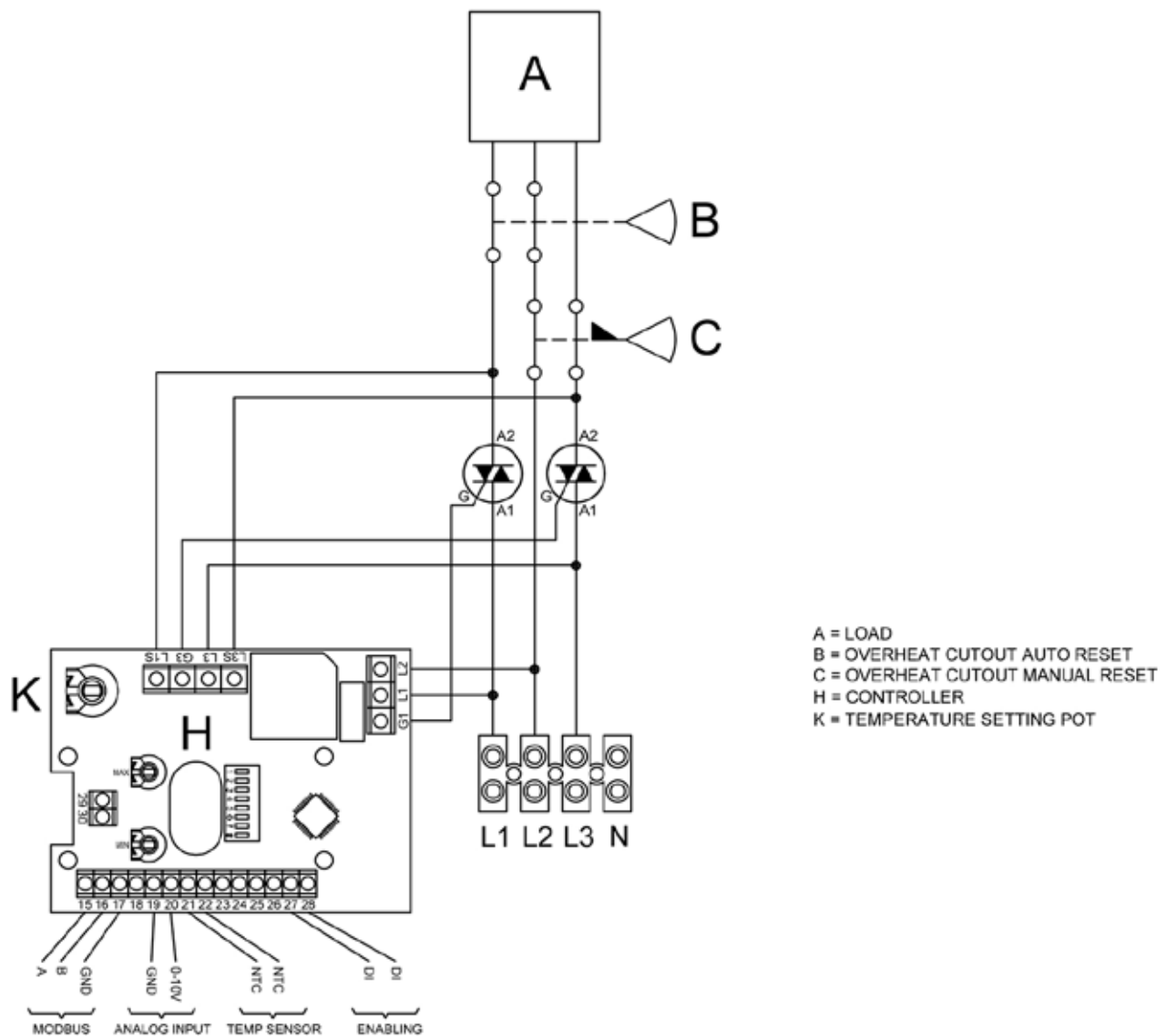
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# Wiring Diagram

## Three phase 400V/3Ph power supply

For Technical Data Sheets visit our Electric Duct Heater software on our website for the most up to date information.





- Steel case with ZM310 coating achieved C5 anti-corrosion rating
- Capacity up to 40kW
- Temperature sensor supplied with duct heater
- Integrated regulator
- Suitable for 0-10V capacity control
- High level Modbus RS485 communication
- Fault alarm output
- Two stages overheat protection
- Built-in airflow sensor
- Revit files available from website selection software

## RBMF Rectangular Electric Duct Heater

The casing is made of steel sheet with a coating of Magnelis ZM310 with anti-corrosion class C5 according to ISO12944 and is resistant to fingerprints. The heating elements are tubular heating elements made of stainless steel. The design is accordance with AS/ NZS3102-2002. Refer to our online selection tool for duct heater detail performance. The duct heaters are manufactured with an IP43 degree of protection but are also available with IP55 or IP65. The products are customised in terms of size and output. Duct heaters with built-in flow sensors are made for a minimum air flow of 1.5 m/s. All are designed for a duct pressure of max. 1000 Pa and a max. outlet air temperature of 50 °C.

### Overheating Protection

All duct heater models come with at least two overheating protection devices, one automatic reset and one manual reset. All duct heaters feature a reset button for the overheating protection on the heater cover.

### Alarm Relay

All models equipped with an integrated relay with potential-free alarm contact, which indicates that the manually resettable overheating protection device has tripped.

### Electronic Flow Switch

All models equipped with Integrated electronic flow sensor. The flow sensor limits heating output when the air flow is less than 1.5 m/s to prevent overheating. If the air flow is less than 0.7 m/s, no heat is emitted. This feature enable the heater installation without any external interlocking resulting a very simple installation.

## Control

All Units have in-built Integrated Regulator. The regulator regulates the heating output using a triac with so-called time-proportional control (pulse/pause technology). This results in very accurate temperature control. Since feedback control is performed electronically, its operation is completely noiseless and involves minimal wear. Heater supplied with a temperature sensor that to be installed in supply air duct. There are three operating modes for the control:

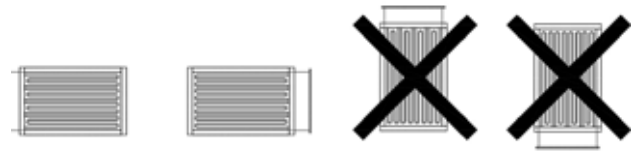
**Temperature Control** - Providing constant supply air temperature.

**Capacity Control** – Heater being controlled via external analogue signal 0-10V, 2-10V or 4-20mA.

**Modbus RS485** – High level communication for BMS to monitoring and controlling the heater.

## Installation

All duct heaters can be mounted in horizontal or vertical ducts. The air flow through the duct heater must follow the air direction arrow on the duct heater cover. On a horizontal duct, the terminal box can be placed to the right or to the left, but not above or below. The duct heater must be installed in such a way that it receives an even air flow over the entire surface. We recommend that the distance to or from duct bends, fans, dampers, etc. is at least equal to the diagonal dimension of the duct heater.



## Unit Model

| Model | Width | Height | Capacity | Power    | Protection |
|-------|-------|--------|----------|----------|------------|
| RBMF  | 400   | 500    | 14kW     | 400V/3Ph | IP55       |

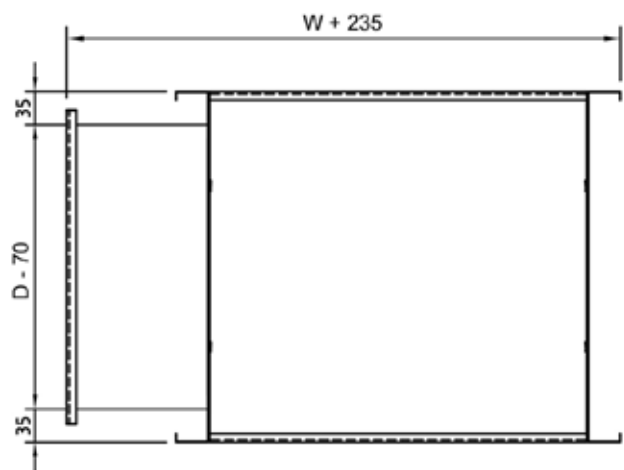
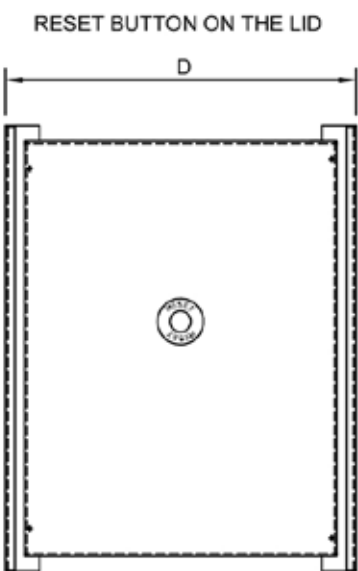
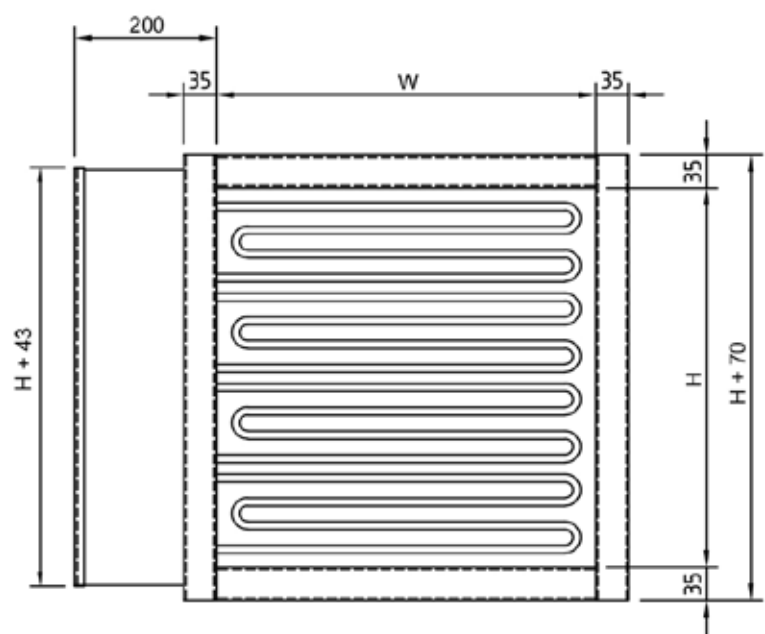
Please refer to online Duct Heater Specifier (DHS) for detail

Unit Model Explained

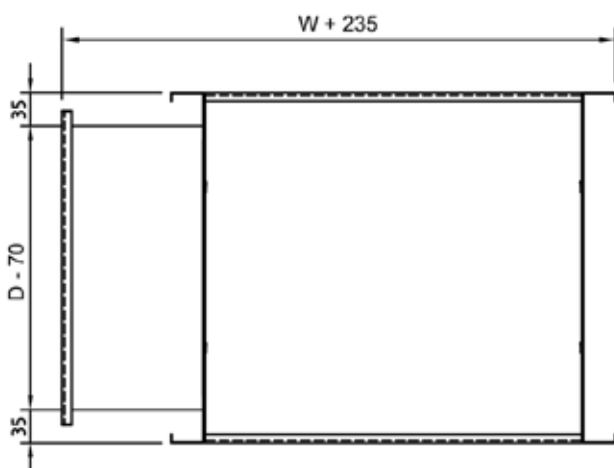
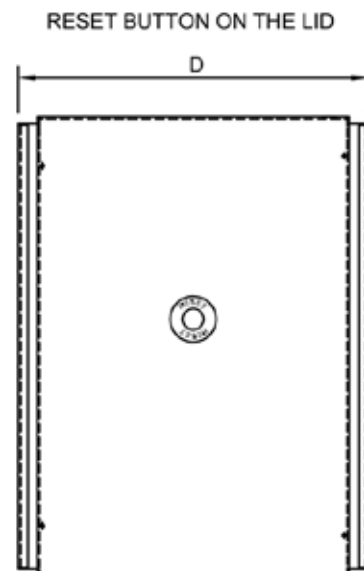
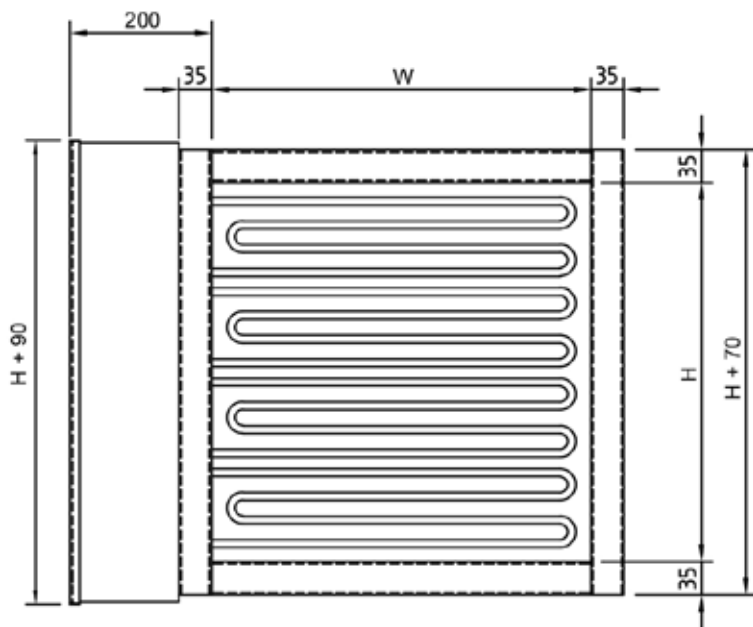
Example of RBMF400x500-14Kw-400/3Ph-IP55



# Dimensions (IP44)



# Dimension (IP55 and IP56)



# Wiring Diagram

