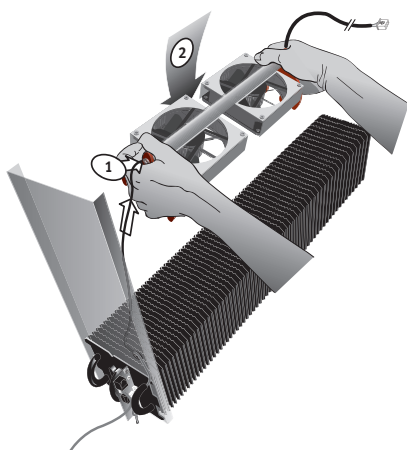


## DBE\_Installation

The components of the DBE system are easily snapped onto the Low-H<sub>2</sub>O heat exchanger using tension springs. This causes no hydraulic changes in the heating installation, however you should take account of the increased output of the Low-H<sub>2</sub>O radiators when sizing the installation. Furthermore, only a single 220 VAC supply needs to be provided locally. This supply point can be located invisibly behind the casing. The power supply provided should not be used with a direct 12 VDC supply. For freestanding appliances the power supply is via the feet of the appliance. The number of DBE units per radiator depends on the length of the Low-H<sub>2</sub>O heat exchanger, with a maximum of 6 DBE units coupled up in series. The type of casing also has an effect on the possible number of DBE units.



### ⚠ Connection 12 VDC

Take into account the + and - when using your own power supply. If not, the Control unit will be damaged.

DC-plug



### Adjustment and operation

Set the maximum desired comfort temperature using the multi-position switch on the microprocessor board. Every position (from 0 to 9) corresponds to a maximum desired value. The board also has a table of these values. Position 6 is the standard factory setting. This corresponds to a value of 22°C (room temperature).

The system is now controlled fully automatically. The microprocessor measures the room temperature and the average water temperature in the Low-H<sub>2</sub>O heat exchanger. These measurements are processed and the microprocessor determines the correctly modulated speed of the activator depending on the comfort temperature set. This means the activators will run faster if the temperature is significantly below the desired level. As the temperature rises, the speed drops, coming to a complete standstill when the desired temperature is reached. The system then operates completely statically. This automatic operation is the "comfort" mode.

You can always demand extra heat by turning on the manual "boost" function. The system will then work at maximum power for the time set. The standard setting is 15 minutes. In order for the unit to operate, the water temperature sensor must detect a minimum water temperature (flow) of 35°C.

### Low- temperature heating

The extremely high efficiency and power output at low temperatures, even on small radiators, make the DBE system an ideal candidate for low- temperature heating. It will even work with incoming water temperatures below 30°. At such low water temperatures, the standard minimum water temperature detection of 35°C needs to be lowered to the desired lower water temperature.

This is done through the programming option.

### Temperature setting

| nr. | °C  | nr. | °C    |
|-----|-----|-----|-------|
| 0   | 16° | 5   | 21°   |
| 1   | 17° | 6   | 22°   |
| 2   | 18° | 7   | 23°   |
| 3   | 19° | 8   | 24°   |
| 4   | 20° | 9   | Prog. |

→ factory setting



Set desired room temperature at its maximum

Water temperature sensor

Room temperature sensor

### Programming own user profile

Want to construct your own user profile? The DBE microprocessor board has a communication port.

The DBE system can be reconfigured via this port: water temperature, revs, duration of boost, etc. can be changed.

This involves a modification of the standard parameters. In order to do this you need a PC with DBE communication software.

The operation of the software is explained via a help function. A CD-ROM and connecting cable are available, as well for RS 232 - as USB connection.

Future upgrades of this communication software can be freely downloaded from the Jaga website.

URL: [http://www.jaga.be/drivers/JAGA\\_DBE\\_CUSTOMERS.zip](http://www.jaga.be/drivers/JAGA_DBE_CUSTOMERS.zip)

| CODE     | Description                          | € |
|----------|--------------------------------------|---|
| DBED.C01 | DBE communication software and cable |   |
| DBED.C02 | DBE communication software + USB     |   |

# DBE\_Control panel

## To put in Standby



>



OR



**Standby**  
room temperature is OK

**Operating (automatic)**  
room temperature is too low, water temperature OK (min. 35°C).

## Start boost



>



OR



**BOOST operating**  
Maximum output for 15 minutes, automatically switches back to Comfort-mode.  
To stop boost manually, press the button again.

**LEDs flashing:**  
Water temperature too low (below 35°C).  
Check the position of the thermostatic valve or the room thermostat.

## Set to summer mode



>



**Power off**  
5 sec.



## DBE Units\_Technical details

### Air flow

| Type    | m³/u    |       |
|---------|---------|-------|
|         | Comfort | Boost |
| DBEU.06 | 77      | 115   |
| DBEU.10 | 103     | 152   |
| DBEU.15 | 108     | 134   |

### Speeds

| Type    | T/min   |       |
|---------|---------|-------|
|         | Comfort | Boost |
| DBEU.06 | 1150    | 1710  |
| DBEU.10 | 1130    | 1670  |
| DBEU.15 | 850     | 1050  |

Speeds mounted measured

DBEU06



DBEU10



DBEU15



### The noise level

Comfort-mode: sound pressure less than 29 dB(A) per DBE unit (internal sound).

Boost-mode: less than 35 dB(A) per DBE unit (internal sound).

### Electrical characteristics

Maximum consumption per DBE unit in Boost-mode :

- type 06: 2.7 Watt

- type 10-11: 2.8 Watt

- type 15-16-20-21: 2.2 Watt

Power consumption of control unit: 0.0516 Watt.

Power supply 12VDC 24 Watt. The electronically switched power supply satisfies all international safety requirements.

A maximum of 6 DBE units can be connected to this supply. The low tension is very secure.

### Life expectancy:

As a result of the use of high quality ball bearings, the life expectancy of the DBE units is 50.000 operating hours at a temperature of 40°C.

The activators are protected against stalling through blockage. However, blockage should be avoided so as to avoid damage to the activator blades.

### Quality mark :

The appliance is CE tested and works according to the valid AMC standards EN55014, EN61000 and security demands.

The DBE system also disposes of CEBEC hall-mark.



## Pressure sound and correction factors

| Type    | dB(A)   |       |
|---------|---------|-------|
|         | Comfort | Boost |
| DBEU.06 | 27      | 34    |
| DBEU.10 | 29      | 35    |
| DBEU.15 | 27      | 31    |

Reverberation time  $T_1$  0,6 s  
Room of reference  $V_1$  80m³  
Pressure of reference  $P_0$  2.10<sup>-5</sup>Pa

### Other reverberation time

| Reverberation Time (s) | Correction [dB(A)] |
|------------------------|--------------------|
| T2                     |                    |
| 2.5                    | + 6.2              |
| 2.0                    | + 5.2              |
| 1.5                    | + 4.0              |
| 1.0                    | + 2.2              |

$$P_2 = P_1 - 10 \log \frac{T_2}{T_1}$$

$P_1$  = table of sound level

$P_2$  = sound level to be calculated

$T_1$  = reverberation time of room of reference ( $T_1 = 0,6$  sec)

$T_2$  = other reverberation time of room

### Other room volume

| Content (m3) | Correction [dB(A)] |
|--------------|--------------------|
| 80           | 0                  |
| 150          | - 2.7              |
| 200          | -4.0               |
| 250          | -4.9               |
| 300          | -5.7               |
| 350          | -6.4               |
| 400          | -7.0               |
| 500          | - 8.0              |
| 600          | - 8.8              |

Calculation of sound pressure for other local content

$$P_2 = P_1 - 10 \log \frac{V_2}{V_1}$$

$P_1$  = table of sound level

$P_2$  = sound level to be calculated

$V_1$  = size of room of reference (80 m³)

$V_2$  = other room size

### Several appliances with an equal sound level in a room

| Number [dB(A)] | Correction [dB(A)] |
|----------------|--------------------|
| 2              | + 3.0              |
| 3              | + 4.8              |

$$P_2 = P_1 + 10 \log n$$

$P_1$  = sound level one appliance

$P_2$  = sound level to be calculated

$n$  = number of appliances

Through the DBE-communication software (DBED) it is possible to set up others activator speeds. In this way you can obtain other outputs and sound pressures. For more information: consult the manufacturer or the help function which explains the communication software.

## DBE\_Correction factors

### Average correction factors according - 75/65/20°C for Comfort and Boost stand

| Tv | Tl | Tr > 20 | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
|----|----|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 90 | 20 | 0.70    | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 |
|    | 24 | 0.62    | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 | 1.12 | 1.17 | 1.22 | 1.32 |
| 85 | 20 | 0.65    | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 |      |
|    | 24 | 0.57    | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 | 1.12 | 1.17 |      |
| 80 | 20 | 0.60    | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 1.15 |      |      |
|    | 24 | 0.52    | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 0.97 | 1.02 | 1.07 |      |      |
| 75 | 20 | 0.55    | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.05 |      |      |      |
|    | 24 | 0.47    | 0.52 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 | 0.92 | 0.95 |      |      |      |
| 70 | 20 | 0.50    | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |      |      |      |
|    | 24 | 0.42    | 0.47 | 0.52 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 | 0.82 | 0.87 |      |      |      |      |
| 65 | 20 | 0.45    | 0.50 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 |      |      |      |      |      |
|    | 24 | 0.37    | 0.42 | 0.47 | 0.52 | 0.57 | 0.62 | 0.67 | 0.72 | 0.77 |      |      |      |      |      |
| 60 | 20 | 0.40    | 0.45 | 0.50 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 |      |      |      |      |      |      |
|    | 24 | 0.32    | 0.37 | 0.42 | 0.47 | 0.52 | 0.57 | 0.62 | 0.67 |      |      |      |      |      |      |
| 55 | 20 | 0.35    | 0.40 | 0.45 | 0.50 | 0.55 | 0.60 | 0.65 |      |      |      |      |      |      |      |
|    | 24 | 0.27    | 0.32 | 0.37 | 0.42 | 0.47 | 0.52 | 0.57 |      |      |      |      |      |      |      |
| 50 | 20 | 0.30    | 0.35 | 0.40 | 0.45 | 0.50 | 0.55 |      |      |      |      |      |      |      |      |
|    | 24 | 0.22    | 0.27 | 0.32 | 0.37 | 0.42 | 0.47 |      |      |      |      |      |      |      |      |
| 45 | 20 | 0.25    | 0.30 | 0.35 | 0.40 | 0.45 |      |      |      |      |      |      |      |      |      |
|    | 24 | 0.17    | 0.22 | 0.27 | 0.32 | 0.37 |      |      |      |      |      |      |      |      |      |
| 40 | 20 | 0.20    | 0.25 | 0.30 | 0.35 |      |      |      |      |      |      |      |      |      |      |
|    | 24 | 0.12    | 0.17 | 0.22 | 0.27 |      |      |      |      |      |      |      |      |      |      |
| 35 | 20 | 0.15    | 0.20 | 0.25 |      |      |      |      |      |      |      |      |      |      |      |
|    | 24 | 0.07    | 0.12 | 0.17 |      |      |      |      |      |      |      |      |      |      |      |
| 30 | 20 | 0.10    | 0.15 |      |      |      |      |      |      |      |      |      |      |      |      |
|    | 24 | 0.02    | 0.07 |      |      |      |      |      |      |      |      |      |      |      |      |

Example

The indicated outputs with  $\Delta T$  50 are the exact outputs. An average correction factor is given in the table above for all other  $\Delta T$  outputs, applicable for all dimensions.


Tv = flow temperature  
Tr = return temperature  
Tl = desired air temperature

#### Example 1

Select a radiator of 1000 Watt at: Tv = 75°C, Tr = 65°C and Tl = 20°.  
When you want to know how much radiator delivers up at Tv=50°C, Tr=40°C and Tl=24°C.  
In the table you can see the factor 0.42 with these temperatures.  
The radiator would therefore deliver up on this temperature (1000 x 0.42) = 420 Watt.

#### Example 2

You want to select a radiator that delivers up 1000 Watt by Tv = 50°C, Tr = 40°C and Tl = 24°. In the table you can see the factor 0.42 with these temperatures.  
On Tv = 75°C, Tr = 65°C and Tl = 20° you need a radiator to select of 1000 : 0.42 = 2381 Watt in comfort-mode.  
(Here you can see an example MINF.028 181 11/DBE)

 Output calculated in accordance with EN442, at a water temperature of 75/65 and a room temperature of 20°C (75/65/20).

**DBE**  
Dynamic Boost Effect



# Product descriptions DBE radiators

## Dynamic boost effect DBE



70

DBE

The DBE system is a boost system, suitable for assembly on Low-H<sub>2</sub>O appliances.

This is a patented system that makes use of micro-electronics. These micro-electronics control the activators.

An activator is designed to make best use of the warmth in the Low-H<sub>2</sub>O heat exchanger.

In combination with Low-H<sub>2</sub>O heat exchangers DBE offers the user numerous advantages. Low-H<sub>2</sub>O appliances powered by the DBE system are ultra high-performance for their small dimensions.

Using tension springs one simply clicks the parts of the DBE system to the Low-H<sub>2</sub>O heat exchanger. The system is very simple from a technical installation perspective. Nothing changes hydraulically in the heating installation. One must take account of the increased emission of the Low-H<sub>2</sub>O heating appliances in calculations for installation. Only a 220 VAC power supply need now be provided. This power point can be internally incorporated in the facing so it is invisible after the assembly of the Low-H<sub>2</sub>O appliance. (This depends on the remaining space in the Low-H<sub>2</sub>O appliance). For freestanding appliances the power supply enters through the feet of the appliance.

With the Dynamic Boost Effect Jaga introduces a new generation of intelligent radiators which think for themselves and can autonomously respond to circumstances.

The DBE system then considerably shortens the heating up time because heat is brought into the space in a highly efficient way. The improved heat dissipation in the space is also an important element of a comfortable indoor climate.

A radiator with DBE can generate up to 200% extra capacity. This according used heat exchanger and casing.

The radiator can now work both in static and dynamic mode. This is fully automatically controlled by a microprocessor. This microprocessor measures the room temperature and the average water temperature in the Low-H<sub>2</sub>O heat exchanger. These measurements are processed, and the microprocessor determines the modulated speed of the activators depending on the required comfort temperature. The activators will then run faster if one is far from the required temperature. As the temperature increases the speed reduces and stops when the required temperature is reached. At this time the system works fully statically. This automatic operation is the "comfort" mode.

### Boost-function

One can demand extra heat by switching on the manual "boost" function. The system now operates at maximum power for a certain time work provided that the heat exchanger is fed with warm water.

The accelerated heating up of a space results in important energy savings. And important inherent advantage of the DBE system is the improved power to size ratio.

This is due partly to the dynamic operation of the system. This results in a significant capacity increase with lower flow temperatures and make DBE the best possible solution in a low temperature system.

### Convenience

An ingenious system with extra easy operation.

Assembly of the system is straightforward, because everything is simply clicked on the heat exchanger.

Only one button is needed to operate the DBE system.

### Intelligent radiator.

Jaga fully pre-programs the micro-processor. You set the maximum room temperature just once. This is done by simply setting a switch on the micro-processor circuit to the required maximum room temperature.

From then on radiator regulates everything itself. The microprocessor continually measures and controls the temperature of the room and the water in the radiator. It even recognises switching from night to day program. Extra heat whenever needed. Fully automatic.

### One press on the button.

Do you want to unexpectedly use an unheated room? One press of the boost button and the radiator emits a powerful amount of heat. With the same button you switch the radiator to stand-by or comfort mode.

In boost mode the system remains under 31 dB(A) noise pressure per DBE unit. (manual mode/own noise).

In comfort mode this remains under 27 dB(A) per DBE unit. (Automatic mode/own noise).

### Programming

Do you want to create your own user profile? This can be done using an optionally supplied CD-Rom with connecting cable.

### Parts list:

Clickable DBE unit per type of Low-H<sub>2</sub>O heat exchanger.

#### Type 06:

Electrical consumption:  
2.708 Watts / unit in Boost mode  
(3 activators / unit)

#### Type 10-11

Electrical consumption:  
2.826 Watts / unit in boost mode  
(3 activators / unit)

#### Type 15-16-20-21

Electrical consumption:  
2.154 Watts / unit in boost mode  
(2 activators / unit)

The number of DBE units depends on the length of the Low-H<sub>2</sub>O heat exchanger with a maximum of 6 dbe units coupled in series. The type of facing also has an influence on the number of possible dbe units. (For this see the manufacturer's tables).

Working life of the DBE units: by using high quality ball bearings the working life of the DBE units is 50,000 working hours at a temperature of 40°C.

The activators are protected against stoppage due to blocking. Undesired blockage due to a foreign object for example must however be avoided at all times because this can damage the activator vanes. Remove any blockages as soon as possible.

Avoid compressing the activator housing.

### Connecting cable:

This is to connect the DBE units to each other or make the connection to the microprocessor circuit.

### Microprocessor circuit including temperature sensors.

This control must be clicked on the copper arc of the heat exchanger. The MAXIMUM required temperature is set on this circuit using a position switch. Each position (from 0 to 9) corresponds to a maximum required value. A table with values can be found on this circuit. Position no. 6 is the default factory setting. This corresponds to a value of 22°C.

Electrical consumption: 0.0516 Watt.

### Control panel with one boost button and 3 LEDs for indication:

- Standby
- Comfort
- Boost

### Power supply

12VDC 24 Watt.

The power supply is an electronically switched safety supply that meets the requirements of international prevailing safety standards.

A maximum of 6 DBE units can be connected to this supply.

### Options

PC connection + communication software. The DBE microprocessor circuit has a serial communication port. (type RS 232 or USB)

Using this port one can use a PC on which the communication software is installed to reconfigure the DBE system. This involves the adaptation of the standard parameters. Use of the software is explained by a help function.

### Selection:

Takes place using the tables provided by the producer. The tables with the DBE data in comfort mode are preferably used.

### Installation:

The installer proposes the heating elements with DBE taking the following requirements into account:

- a heat loss calculation according to the standard;
- heat emission and dimension tables according to the tables and DBE installation conditions given by the manufacturer.
- electrical connection according to the prevailing national standard.

## Product descriptions DBE radiators

### Knockonwood DBE wall mounted model

#### Material

DBE technology.

Low-H<sub>2</sub>O heat exchanger is composed of round, seamless circulation tubes made of pure red copper, with pure aluminium fins and two brass collectors for left or right 1/2" same end connection.

- Extended air vent 1/8" and drain cock 1/2" are included
- Pressure test: 20 bar
- Working pressure: 10 bar
- Brackets: galvanized steel plate thickness 1 mm, dark grey lacquered, with a maximum intermediate distance of 1.05 m.

Casing pre-fitted and supplied in one single piece, consisting of:

- front panel with grille made from a single curved, finished wood laminate panel at least 16 mm thick. FSC-labelled
- sides and chassis made from electrolytic galvanized steel plate 1.25 mm thick, fitted with a hole underneath for use with an integrated Jaga valve, including metallized cover plate for the unused hole
- Strong and functional packaging, can be used as a protective cover during construction works

#### Colour

Heat exchanger electrostatically lacquered with anthracite grey epoxy-polyester RAL 7024, gloss degree 70%.

Sides and chassis lacquered in the colour sandblast grey metallic, in a scratch resistant epoxy-polyester powder, sprayed electrostatically and baked at a temperature of 200 °C. UV-resistant due to ASTM G53.

Front panel with grille finished in veneer, inside koto veneer, outside in: oak / bleached oak / mahogany / wenge-coloured oak / beech / bleached beech / maple / walnut / zebrano veneer (FSC-labelled).

The surface temperature remains safe at all times, even at a water temperature of 90 °C. Knockonwood complies with the safety requirement DHSS DN4 1992.

Manufacturer: Jaga  
Type: Knockonwood

Outputs meet standard EN442.

#### Options

- brush for easy cleaning of the heat exchanger.

### Knockonwood DBE freestanding

#### Fully pre-mounted

#### Material

DBE technology.

Low-H<sub>2</sub>O heat exchanger is composed of round, seamless circulation tubes made of pure red copper, with pure aluminium fins and two brass collectors for left or right 1/2" same end connection.

- air vent 1/8" and drain cock 1/2" are included
- pressure test: 20 bar
- working pressure: 10 bar
- covering with integrated grilles consisting of four curved veneered wood laminate panels measuring minimum 16 mm. FSC label
- chassis from electrolytic, galvanised steel plate of 1.25 mm thick, with integrated Jaga valve
- feet with pipe for guards lacquered in sandblast grey metallic 001

#### Colour

Heat exchanger electrostatically lacquered with anthracite grey epoxy-polyester RAL 7024, gloss degree 70%.

Sides and chassis in the colour sandblast grey metallic lacquered.

The coating is a scratch resistant epoxy-polyester powder, sprayed electrostatically and baked at a temperature of 200 °C. UV-resistant due to ASTM G53.

Panels with integrated grilles finished with veneer, inside koto veneer, outside in: oak / oak bleached / mahogany / oak wenge-colour / beech / beech bleached / maple / walnut / zebrano veneer (FSC label).

The surface temperature remains safe at all times, even at a water temperature of 90 °C. Knockonwood complies with the safety requirement DHSS DN4 1992. Chassis sandblast grey metallic 001 lacquered

Manufacturer: Jaga  
Type: Knockonwood vrijstaand

Outputs meet standard EN442.

Connection sleeve couplings:  
Eurocone 3/4

### Strada DBE

#### Material

DBE technology.

Low-H<sub>2</sub>O heat exchanger is composed of round, seamless circulation tubes made of pure red copper, with pure aluminium fins and two brass collectors for left or right 1/2" same end connection.

- Extended air 1/8" and drain cock 1/2" are included
- Pressure test: 20 bar
- Working pressure: 10 bar
- Brackets: sendzimir, galvanized steel plate thickness 1 mm, dark grey lacquered, with a maximum intermediate distance of 1.05 m.
- Front panel: electrolytic, galvanized steel plate of 1.25 mm thick
- Side panels: electrolytic, galvanized steel plate of 1.25 mm thick with hole for integrated Jaga valve, inclusive metallized cover plates for the unused hole
- Wall slat: electrolytic, galvanized steel plate of 1.25 mm thick
- Inversed aluminium top grille coated in the same colour as the casing
- Strong and functional packaging, can be used as a protection cover during construction works

#### Colour

Heat exchanger electrostatically lacquered with anthracite grey epoxy-polyester RAL 7024, gloss degree 70%.

The casing is lacquered in the colour white (RAL 9010) / white (RAL 9016) / sandblast grey metallic 001 / other (see colour chart).

The coating is a scratch resistant epoxy-polyester powder, sprayed electrostatically and baked at a temperature of 200 °C. UV-resistant due to ASTM G53. The surface temperature remains safe at all times.

Manufacturer: Jaga.  
Type: Strada.

Outputs meet standard EN442.

#### Options

- Towel rail in chrome-plated aluminium.
- brush for easy cleaning of the heat exchanger.

### Mini DBE

#### Fully pre-mounted

#### Material

DBE technology.

The Low-H<sub>2</sub>O heat exchanger is manufactured from round, seamless circulation tubes of pure red copper, with pure aluminium fins and two brass collectors for left or right 1/2" same end connection.

- Air vent 1/8" and drain cock 1/2" are included
- Pressure test: 20 bar
- Working pressure: 10 bar
- The casing: in one piece, electrolytic painting, galvanized double profiled steel plate 1.25 mm thick
- The top grille: electrolytic, galvanized steel plate of 0.80 mm thick, profiled backwards angled steel plate with angled top side
- Wall brackets or feet delivered in same colour as the casing
- Jaga thermostatic vane with connection to the feet, left or right
- Sleeve couplings

#### Colour

Heat exchanger electrostatically lacquered with anthracite grey epoxy-polyester RAL 7024, gloss degree 70%.

The casing is lacquered in the colour white (RAL 9010) / white (RAL 9016) / sandblast grey metallic 001 / other (see colour chart).

The coating is a scratch resistant epoxy-polyester powder, sprayed electrostatically and baked at a temperature of 200 °C. UV-resistant due to ASTM G53.

Manufacturer: Jaga  
Type: Mini

Outputs meet standard EN442.

#### Option

- brush for easy cleaning of the heat exchanger.



## Product descriptions DBE radiators

### Canal Compact DBE

#### Material

Made of 4 mm thick fibreglass-reinforced polyester, provided with topcoat. Waterproof, single-piece. Provided on the top side with an integrated anodized black/natural coloured aluminium profile, height 31.5 mm, that serves as a frame for the grille and for the anchoring of the duct in the subfloor.

- Insulated R 1.5 / K 0.67 w/(m<sup>2</sup>.K): inside coating of 25 mm polyurethane foam.
- Insulated R 4.0 / K 0.25 w/(m<sup>2</sup>.K): inside coating of 80 mm polyurethane foam.

Polyurethane foam: (32 kg/m<sup>3</sup>); in accordance to ASTM 1692.

Finish: dark grey polyethylene foam of 5 mm thick, in accordance to DIN 4102-1, class B2.

Canal Compact is provided as standard with a chipboard cover, thickness 1.5 cm, with pre-assembled spacer sleeves (meter load max. 90 kg).

#### Feet

Feet from sendzimir galvanized and dark grey lacquered (RAL 7024) steel plate of 1.5 mm, provided with upright lips for fixing the separating wall and the heat exchanger.

#### Brackets

Brackets of electrolytic galvanized and dark grey coated (RAL 7024) 1 mm steel plate included. These are clicked on the heat exchanger and give extra support for the separation wall. On both ends they function as a seal between the duct and separation wall.

#### Separation wall

Black finished polyurethane wall in one piece, thickness 25 mm, slid in between the vertical upright lips of the feet.

#### Heat exchanger

- with DBE Technology
- The Low-H<sub>2</sub>O heat exchanger is manufactured from round, seamless circulation tubes of pure red copper, with pure aluminium fins and two brass collectors for left or right 1/2" same end connection.
- Straight air vent 1/8" and drain cock 1/2" are included.
- Mounting on 2 feet on the bottom end of the polyester duct.
- Pressure test: 20 bar.
- Working pressure: 10 bar.

Heat exchanger electrostatically lacquered with anthracite grey epoxy-polyester RAL 7024, gloss degree 70%.

Manufacturer: Jaga  
Type: Canal Compact

Outputs meet standard EN442.

### How to install

The building services engineer chooses the heating elements considering the following conditions:

- A heat output calculation according to the standard.
- Tables of heat outputs and dimensions for Knockonwood DBE/ Strada DBE / Mini DBE / Knockonwood freestanding DBE / Canal Compact DBE elements
- The normal fitting position for the heating elements is under the window, and to achieve the most aesthetically pleasing appearance the casing should not be wider than the total width of the window.

The height of the casing has to be a function of the heat loss calculations; aesthetically narrower types are preferable. Types 20 and 21 are more suitable for utility areas.

- When only small outputs are required, the casing can be extended, if necessary, to fill up the total window space
- the minimum space requirement under the heating elements is: for Knockonwood DBE / Strada DBE
  - type 06, 10 en 11:10 cm
  - type 15 en 16:12 cm
  - type 20 en 21:15 cm
- As minimum space between the top of the casing and the extended window sills, the above mentioned dimensions have to be applied.
- The heat exchangers will be connected to a one pipe system / two pipe system, with a same side end connection. The heat exchangers are equipped with 1/2" brass collector, 1/8" air vent and a 1/2" drain cock. The flow valve always has to be fitted to the top connection of the heat exchanger.
- The specially designed thermostatic Jaga-Danfoss / Jaga Comap / Jaga / Jaga type 6 / Jaga-Pro / Jaga-Top valves can be connected to plastic central heating service pipes/ RPE/ALU. tube / copper tube/ steel pipe. The valve body is concealed within the standard casing
- Jaga Danfoss thermostatic heads white type RA / white type RAX / chrome type RAX/ Jaga thermostatic heads / Jaga Deco thermostatic heads chrome / Jaga Deco thermostatic heads chrome-white / Jaga Comap thermostatic heads silver / remote controlled Jaga thermostatic heads / Jaga Deco thermostatic heads chrome-white with sensor at distance / not / to be fitted.



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DBE