Condensing boiler technology

Product Catalogue 2019-03
ebm-papst in Oceania

Oceania

Australia

ebm-papst A&NZ Pty Ltd.
10 Oxford Road
Laverton North, Victoria, 3026
AUSTRALIA
Phone 413 9360-6400
Fax +61 3 9360-6464
sales@ebmpapst.com.au
www.ebmpapst.com.au

New Zealand

ebm-papst A&NZ Pty Ltd.
61 Hugo Johnston Drive, Unit H
Penrose 1061, Auckland
NEW ZEALAND
PO Box 11276,
Penrose 1642, Auckland
Phone +64 9 525-0245
Fax +64 9 525-0246
sales@ebmpapst.com.au
www.ebmpapst.com.au
EC radial blowers for condensing boiler technology

<table>
<thead>
<tr>
<th>Information</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>About ebm-papst</td>
<td>4</td>
</tr>
<tr>
<td>Greenintelligence</td>
<td>5</td>
</tr>
<tr>
<td>Gas condensing technology</td>
<td>6</td>
</tr>
<tr>
<td>Laboratory equipment</td>
<td>10</td>
</tr>
<tr>
<td>Systems for condensing boiler technology</td>
<td>12</td>
</tr>
<tr>
<td>System solutions</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EC radial blowers</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG 71</td>
<td>20</td>
</tr>
<tr>
<td>VG 100</td>
<td>22</td>
</tr>
<tr>
<td>VG 108</td>
<td>24</td>
</tr>
<tr>
<td>NRG 118</td>
<td>26</td>
</tr>
<tr>
<td>RG 148</td>
<td>28</td>
</tr>
<tr>
<td>NRG 137</td>
<td>30</td>
</tr>
<tr>
<td>RG 175</td>
<td>32</td>
</tr>
<tr>
<td>G1G 170</td>
<td>34</td>
</tr>
<tr>
<td>G3G 200</td>
<td>36</td>
</tr>
<tr>
<td>G3G 250</td>
<td>38</td>
</tr>
<tr>
<td>G3G 250 MW</td>
<td>40</td>
</tr>
<tr>
<td>G3G 315</td>
<td>42</td>
</tr>
<tr>
<td>VG 450</td>
<td>44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas valves for pneumatic and electronic gas air ratio control systems</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>G15/G20 E01</td>
<td>54</td>
</tr>
<tr>
<td>G20 D01</td>
<td>56</td>
</tr>
<tr>
<td>G15/G20 F01</td>
<td>58</td>
</tr>
<tr>
<td>G32 F01</td>
<td>60</td>
</tr>
<tr>
<td>G40 F01</td>
<td>62</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Burner control units</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial range</td>
<td>65</td>
</tr>
<tr>
<td>Residential range</td>
<td>66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agents Worldwide</th>
<th>Page</th>
</tr>
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</table>

Condensing boiler technology · Edition 2019 · 03
Six reasons that make us the ideal partner:

**Our systems expertise.**
You want the best solution for every project. The entire ventilation system must thus be considered as a whole. And that’s what we do – with motor technology that sets standards, sophisticated electronics and aerodynamic designs – all from a single source and perfectly matched.

**Our spirit of invention.**
We are also always able to develop customized solutions for you with our versatile team of over 600 engineers and technicians.

**Our lead in technology.**
We are not only pioneers and trailblazers in the development of highly efficient EC technology, we also recognized the opportunities of digitization at an early stage. Therefore, we can offer solutions today that combine the highest energy efficiency with the advantages of IoT and digital networking.

**Closeness to our customers.**
ebm-papst has 25 production locations worldwide (including facilities in Germany, China and the USA), together with 49 sales offices, each of which has a dense network of sales representatives. You will always have a local contact, someone who speaks your language and knows your market.

**Our standard of quality.**
Our quality management is uncompromising, at every step in every process. This is underscored by our certification according to international standards including DIN EN ISO 9001, TS declaration of conformity and DIN EN ISO 14001.

**Our sustainable approach.**
Assuming responsibility for the environment, for our employees and for society is an integral part of our corporate philosophy. We develop products with an eye to maximum environmental compatibility, in particular resource-preserving production methods. We promote environmental awareness among our young staff and are actively involved in sports, culture and education. That’s what makes us a leading company – and an ideal partner for you.
Sustainability and environmental protection are more than just buzzwords for us; they are a pivotal part of our company philosophy. Our commitment includes green production, dealing responsibly with resources and society, and finished products that use energy efficiently—things for which our globally respected GreenTech label has stood for many years.

GreenIntelligence is the logical next step in the evolution of GreenTech. In a nutshell, it is everything GreenTech stands for, enhanced by the possibilities and opportunities of digital connectivity, the Internet of Things and artificial intelligence. For our customers, that means we bring their applications to a completely new level by adding new value that goes far beyond the purely physical capabilities of individual fans or drives. Think of remote monitoring, predictive maintenance, self-optimizing processes: ebm-papst makes all of these things possible today with integrated solutions featuring smart connectivity for ventilation and drive engineering applications. Or simply: the next level of Green.

**GreenIntelligence optimizes processes.**

Today, the greatest economic opportunities for industrial systems are in process efficiency. Digital connectivity for all components enables better process planning, faster troubleshooting, and optimization of their overall interaction. ebm-papst supplies both the physical components and the smart control systems that are required for this.

**GreenIntelligence for smart solutions.**

When it comes to choosing the right drive or fan, product characteristics such as energy efficiency and performance figures are no longer the only crucial factors; the optimum interaction of all components in a process is what matters. Our GreenIntelligence solutions can communicate with their environment. They gather and analyze data and adjust to conditions to ensure the best possible performance.

**GreenIntelligence is limitless connectivity.**

All GreenIntelligence products have full Industry 4.0 capability and can be integrated in any system quickly and easily thanks to plug & play, minimizing the amount of effort involved in installation and adjustment for our customers.

**GreenIntelligence is self-improving.**

In the data it gathers, the system software supplied by ebm-papst can recognize potential for optimization and, if desired, implement it automatically—the first step toward artificial intelligence.

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**Here is how much GreenIntelligence there is in RadiMix:**
- Future-proof thanks to full Industry 4.0 capability
- System data readout through LIN bus connectivity
- Easy integration of digital heating functionality
- Status monitoring of blower and environment
- Predictive maintenance for lower servicing costs—maintenance only when really needed
- Can be used in combination with renewable energy sources
- Perfectly adjusted and network-capable integrated solution from a single source
Gas condensing technology
That's ebm-papst
More than just combustion
Modern gas condensing units are known for their productivity and efficient energy utilization. They have to be supplied with exactly the right amount of gas and air in an ideal ratio for every operating status and under all ambient conditions. Only then is hygienic and efficient combustion guaranteed. Compact dimensions keep the installation space to a minimum and at the same time provide better accessibility.

ebm-papst offers the world’s most extensive product range for condensing technology. From just a few kilowatts for use in private households to several megawatts for supplying entire residential areas: We will always find the right solution. Our portfolio contains efficient EC radial blowers, gas valves and perfectly matched system solutions for every application.

Advantages at a glance
– System and development expertise from the market leader
– Unrivaled power and modulation spectrum
– Well-established technology guarantees a long service life
– High power density thanks to compact design
– Outstanding efficiency levels
– Extremely smooth operation with a low noise level
– Pre-matched components for easy adaptation to the respective application
– Future-proof thanks to BUS connection option

Since creating the world’s first gas blower for condensing technology, we have been the market leader for efficient components and complete, perfectly matched systems. We develop blowers, venturis, valves and burner controls together with our customers and supply everything as a full package. Enjoy the benefits of our well-established and constantly updated technology combined with unique system expertise.
Ideally suited for all applications

Residential technology 150 kW

- Gas condensing heating systems for private households
- Use as heating unit only, as combi-boiler or in conjunction with regenerative energies
The first condensing blower for heat output up to 4 MW rounds off our extensive product portfolio.

For decentralized heating solutions keeping construction work and heat loss from long pipes to a minimum compared to large Combined Heat and Power stations.

Gas condensing heating systems for applications ranging from small trade businesses to heating installations in large industrial plants.

From single boiler to cascade system installations.
As market and technology leaders, we are constantly endeavoring to improve our performance and provide our customers with the best possible complete solution. Our engineers and technicians assist our customers with the development of their application right from the start to help advance the process of improvement. Before series launch we conduct extensive tests to ensure compliance with legal requirements and customer specifications. We have a wide range of measuring equipment at our disposal for this purpose.

For example our checks include examining design influences such as modifications to the gas-air mixing device, the backflow flaps or the venturi. All these factors can affect the efficiency, noise level and functionality of a condensing heating system. We take measurements on gas-air composite systems directly in the heating unit to ensure ideal matching of the individual components and motor performances. This is accompanied by flow simulation with direct incorporation of the results obtained.

**Gas laboratory:**
- Highly advanced measuring equipment with all the standard test and limit gases used in Europe, America and Asia
- Exhaust gas measurements (CO₂, CO, air ratio), measurements with variable aerodynamic parameters (venturi pressure, mass flow, exhaust gas back pressure) to increase and optimize the modulation range
- Measurement of thermal and electrical performance data
- Simulation of wind and turbulence in the exhaust gas area, e. g. for electronic gas-air composite systems
- Communication with all standard bus systems, e. g. CANbus, LINbus, Modbus, ebus, OpenTherm

**Climate chambers:**
- Environmental simulation and service life tests with more than 30 climatic, cold and warm chambers
- Simulation of temperature range from 70°C to 300°C possible

**Air performance test stands:**
Checking of the operating characteristics of blowers and systems with recording of the air performance curves
Endurance test rooms:
About 150 different endurance tests with over 700 specimens in progress

EMC measurement room:
Emission and immission measurements

Approvals:
AGA, CCC, CSA, DVGW, EAC, KIWA, TÜV, UL, VDE

Sound measurement laboratory:
Precise sound power and gas measurement technology with incorporation of real conditions

Vibration test:
For simulation of transportation and operation with different vibration profiles

Standards and Directives:
– Low-Voltage Directive
– Machinery Directive
– Gas Appliance Regulation
– EMC Directive

Gas valve test stands:
For gas valves with pneumatic and electronic modulation

Additional equipment:
– 3D microscope
– 3D plotter
An optimum gas-air mixing ratio is crucial to the energy yield realized during combustion. The mixing ratio needs to be exactly adjusted to the heating value of the gases being used (e.g. natural gas, LPG or biogas). An additional challenge is the flexibility of heat output. The greater the modulation range of a heating system, the better its heating output can be adjusted to actual needs. The limits of the modulation level are determined among others by the minimum and maximum output of the premixing blower. This means its components need to be perfectly matched. That's why we offer complete heating systems including gas blowers, venturis, gas valves and burner control units from a single source.

Ideally suited for use in electronic or pneumatic gas air ratio control systems

Electronic gas air ratio control system

Pneumatic gas air ratio control system
**Venturi:**
The pressure generated by the venturi effect provides an optimum mixture of gas and air in the pneumatic gas-air ratio control.

**Gas blower:**
State-of-the-art blower technology for modulating operation with low noise and a long service life.

**Gas valve:**
The component required for the reliable supply of gas has a particularly compact design.

**Burner control with display:**
The electronic control is matched precisely to the system. Signals from the burner control can be evaluated in the lab using LabVision software.
Our system solutions at a glance

All heating technology components must be perfectly harmonized in order to achieve optimum performance and efficiency. This is why we offer complete heating systems, including gas blower, venturi and gas valve, from a single source.

A key benefit of our gas-air composite systems is their optimal mixing ratio with simultaneously high modulation ranges. To achieve this high level of efficiency, we provide different venturi elements for multi-venturis, depending on the heat output range.

Mounting positions
With horizontal shaft or vertical shaft with motor positioned at top

Illustration examples

System solutions

<table>
<thead>
<tr>
<th>System</th>
<th>Heat output range [kW]</th>
<th>Gas valve</th>
<th>Max. motor power [W]</th>
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</thead>
<tbody>
<tr>
<td>HS0077E1PXXS (NRV 77)</td>
<td>2 – 15</td>
<td>G15 E01</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>5 – 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 – 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS0118E1PXXS (NRV 118)</td>
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<td>G15 E01</td>
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<td></td>
<td>5 – 28</td>
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<tr>
<td></td>
<td>7 – 42</td>
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<td></td>
</tr>
<tr>
<td>HS0148D1PXXS (NRV 148)</td>
<td>10 – 65</td>
<td>G15 D01</td>
<td>200</td>
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<tr>
<td></td>
<td>20 – 110</td>
<td>G20 D01</td>
<td></td>
</tr>
<tr>
<td>HS0137D1PXXS (NRV 137)</td>
<td>15 – 90</td>
<td>G20 D01</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>24 – 145</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

Our multi-venturi solutions provide you with a wide variety of motor performances and options for assigning our systems to your devices. This gives you the benefit of flexible integration into compact spaces.

We supply our systems as completely tested, harmonized units with optimized interfaces to minimize your effort.
Heat load in kW

Heat output range depending on type of gas concerned and system conditions.
Our system solutions at a glance

NRV 77  The system for heat outputs from 2 to 35 kW
– Gas blower NRG 77 with multi-venturi
– Gas valve G15 E01
– Operating voltage 230 V, option of 120 V
– 24 V gas valve on request
– Further heat output ranges on request

Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Heat output range [kW]</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS0077E1PXXS</td>
<td>2 – 15</td>
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<td></td>
<td>5 – 28</td>
<td>5573433010</td>
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<tr>
<td></td>
<td>7 – 35</td>
<td>5573433020</td>
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</table>

* Approximate figures. Heat output range depending on type of gas concerned and system conditions.

NRV 118  The system for heat outputs from 3 to 42 kW
– Gas blower NRG 118 with multi-venturi
– Gas valve G15 E01
– Operating voltage 230 V, option of 120 V
– 24 V gas valve on request
– Further heat output ranges on request

Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Heat output range [kW]</th>
<th>Part number</th>
</tr>
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<tbody>
<tr>
<td>HS0118E1PXXS</td>
<td>3 – 23</td>
<td>5573432010</td>
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<td>5 – 28</td>
<td>5573432020</td>
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<td></td>
<td>7 – 42</td>
<td>5573432030</td>
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* Approximate figures. Heat output range depending on type of gas concerned and system conditions.
NRV 148  The system for heat outputs from 10 to 110 kW
– Gas blower RG 148 with multi-venturi
– Gas blower G15 D01 (5571450000); G20 D01 (5572450000)
– Operating voltage 230 V, option of 120 V
– 24 V gas valve on request

Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Heat output range [kW] *</th>
<th>Part number</th>
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<td>HS0148D1PXKS</td>
<td>10 – 65</td>
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<td></td>
<td>20 – 110</td>
<td>5572450000</td>
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</table>

* Approximate figures. Heat output range depending on type of gas concerned and system conditions.

NRV 137  The system for heat outputs from 15 to 145 kW
– Gas blower NRG 137 with multi-venturi
– Gas valve G20 D01
– Operating voltage 230 V, option of 120 V
– 24 V gas valve on request

Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Heat output range [kW] *</th>
<th>Part number</th>
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<tr>
<td>HS0137D1PXKS</td>
<td>15 – 90</td>
<td>5572410000</td>
</tr>
<tr>
<td></td>
<td>24 – 145</td>
<td>5572410020</td>
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</table>

* Approximate figures. Heat output range depending on type of gas concerned and system conditions.
Modern gas-fired modulated condensing units have to be supplied with the optimum volume and mixture of air and fuel in all operating modes and ambient conditions. They require adjustable blowers with steep pressure/air flow characteristic curves and high maximum pressures. ebm-papst played a significant role in developing EC blowers for this purpose and now offers the widest range of solutions for this application area. However, the special properties of these blowers make them suitable for many other applications as well. Examples include gas-powered cooking appliances for the food service industry or gas-powered deep fryers for commercial use.

Heat output range depending on type of gas concerned and system conditions.
**Impellers:**
- For type VG, NRG und RG blowers of pentane-resistant plastic: dynamically fine balanced
- For the G1G 170, G3G 200, G3G 250, G3G 250MW, G3G 315 and VG 450 models made of sheet aluminum

**Speed controls:**
- Adjustment required in individual cases
- Controlled via PWM signal
- 0–10 V input optional
- Bus communication optional

**Bearings:**
- Maintenance-free ball bearings covered on both sides for long service life and smooth operation
- Use of lubricants suited for the particular application

**Mounting positions:**
- With horizontal shaft or vertical shaft with motor positioned at top
- For vibration-cushioned motor installation, the motor’s weight is additionally supported by a flexible element.

**Commutation electronics:**
- Integrated into the blower unit and perfectly harmonized with the motor
- Integrated blockage switch-off and overheating protection as per EN 60335
- Various standard interfaces available for the respective burner control
- Optimized in accordance with EMC emissions and pollution

**Drive:**
- Brushless DC (EC) motors with integrated electronics
- Vibration-free mounting to minimize structure-borne sound
- Adjustment of motor power on an individual basis

**Housing:**
- Made of die-cast aluminum
- (respectively cast aluminium/sheet steel)
- Required density thanks to special seal for housing halves and drive shaft conduit
- Outlet flange adjustable to many designs

**Bearings:**
- Maintenance-free ball bearings covered on both sides for long service life and smooth operation
- Use of lubricants suited for the particular application

**Protection class:**
- Protection class I

**Degree of protection:**
- Degree of protection IP20 with cover, depending on the installation position

**Speed output:**
- With Hall IC signal output; in case of motors for line voltage operation, speed signal output is galvanically isolated
- VG, NRG and RG blowers, each with two pulses per revolution
- G1G and G3G blowers, each with three pulses per revolution
- G3G 250 MW blower with four pulses per revolution
- G3G 315 and VG 450 blower with five pulses per revolution
EC radial blower
VG 71

Material/surface
■ Housing: Die-cast aluminium/sheet steel
■ Impeller: Plastic
■ Motor protection cap: Plastic

Mechanical data
■ Degree of protection: IP20 with cover, depending on the installation position
■ Installation position: With horizontal shaft or for vertical shaft with motor position above
■ Mounting: Ball bearings
■ Multiventuri on request

Electrical data
■ Protection class I

Possible mounting positions
Mains connector X, interface connector W
Electrical interfaces
More at www.ebmpapst.com

Measuring requirements
Air performance measured according to ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
### EC radial blower VG 71

**Nominal voltage** 220/240 V AC, 50/60 Hz

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed ( n )</th>
<th>Max. input power ( P_{ed} )</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \text{min}^{-1} )</td>
<td>W</td>
<td>( ^\circ \text{C} )</td>
<td>( ^\circ \text{C} )</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>14000</td>
<td>65</td>
<td>60</td>
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</table>

Subject to change. Available with the option of a more powerful motor.

### EC radial blower

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight kg</th>
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<tbody>
<tr>
<td>VGR0071MSGBS</td>
<td>5566780050</td>
<td>0.9</td>
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</tbody>
</table>

### Technical drawing

**Dimensions in mm**

1. Groove suitable for round sealing ring 63 x 3
2. 6.5 deep
EC radial blower
VG 100

Material/surface
- Housing: Die-cast aluminium/sheet steel
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multiventuri on request

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.

Possible mounting positions
Mains connector X, interface connector W
Electrical interfaces
More at www.ebmpapst.com
EC radial blower VG 100

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power P_{in}</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>Nominal voltage 220/240 V AC, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>10000</td>
<td>90</td>
<td>60</td>
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Subject to change. Available with the option of a more powerful motor.

<table>
<thead>
<tr>
<th>EC radial blower</th>
<th>Part number</th>
<th>Weight kg</th>
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<tbody>
<tr>
<td>VGR0100MSGBS</td>
<td>5566780041</td>
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</tbody>
</table>

Technical drawing

1. Groove suitable for round sealing ring 63 x 3
2. 6.5 deep

Dimensions in mm

A
EC radial blower
VG 108

Material/surface
- Housing: Die-cast aluminium/sheet steel
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multiventuri on request

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
**EC radial blower VG 108**

###Technical drawing

**Dimensions in mm**

1. Groove suitable for round sealing ring 70 x 3
2. 6.5 deep
3. 7.5 deep

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**Table: EC radial blower**

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight (kg)</th>
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**Nominal voltage 220/240 V AC, 50/60 Hz**

<table>
<thead>
<tr>
<th>Max. speed n</th>
<th>Max. input power P_{ed}</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000</td>
<td>135</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Subject to change. Available with the option of a more powerful motor.
EC radial blower
NRG 118

Material/surface
- Housing: Aluminium
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multi-venturi available

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
### Curve

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed ( n )</th>
<th>Max. input power ( P_{el} )</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage 230 V AC, 50 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>10000</td>
<td>70</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Nominal voltage 115 V AC, 60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>10000</td>
<td>61</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Subject to change. Available with the option of a more powerful motor.

1) Temperature depending on temperature-time profile. Higher temperatures on request.

### EC radial blower

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A VGR0118NSHCS</td>
<td>5566731160</td>
<td>1.0</td>
</tr>
<tr>
<td>B VGR0118NSHCS</td>
<td>5566730030</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### Technical drawing

A Technical drawing

Dimensions in mm

1. Groove suitable for round sealing ring \( 63 \times 3 \)
2. \( 6.5 \) deep
Measuring requirements

Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.

Material/surface

- Housing: Aluminium
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data

- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multi-venturi available

Electrical data

- Protection class I

EC radial blower

RG 148

Material/surface

- Housing: Aluminium
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data

- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multi-venturi available

Electrical data

- Protection class I
<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power P in</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>Nominal voltage 230 V AC, 50/60 Hz</td>
<td>9000</td>
<td>200</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Nominal voltage 120 V AC, 60 Hz</td>
<td>8200</td>
<td>130</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Subject to change. Available with the option of a more powerful motor.

<table>
<thead>
<tr>
<th>EC radial blower</th>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VGR0148XSHGS</td>
<td>2.1</td>
</tr>
<tr>
<td>B</td>
<td>VGR0148XSHGS</td>
<td>on request</td>
</tr>
</tbody>
</table>

(A) Technical drawing

- Groove suitable for round sealing ring 70 x 3
- 10.5 deep
- 9.5 deep
EC radial blower
NRG 137

Material/surface
- Housing: Aluminium
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings
- Multi-venturi available

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
### Technical drawing

**EC radial blower**

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>A VGR0137NSHGS</td>
<td>5566733110</td>
<td>1.9</td>
</tr>
<tr>
<td>B VGR0137NSHGS</td>
<td>5566733040</td>
<td>2.4</td>
</tr>
</tbody>
</table>

### Dimensions in mm

1. Groove suitable for round sealing ring 70 x 3
2. 6.5 deep
3. 7.5 deep

---

Subject to change. Available with the option of a more powerful motor.
EC radial blower

RG 175

Material/surface
- Housing: Aluminium
- Impeller: Plastic
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.

More at www.ebmpapst.com
Curve | Max. speed \( n \) | Max. input power \( P_{\text{ed}} \) | Max. perm. amb. motor temp. | Max. perm. temp. of medium
---|---|---|---|---
| \( \min^{-1} \) | W | °C | °C |
| Nominal voltage 230 V AC, 50/60 Hz | A | 6250 | 270 | 60 | 60 |
| Nominal voltage 120 V AC, 60 Hz | B | 6250 | 240 | 60 | 60 |

Subject to change. Available with the option of a more powerful motor.

<table>
<thead>
<tr>
<th>EC radial blower</th>
<th>Type</th>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VGR0175XSHGS</td>
<td>5566714090</td>
<td>2.9</td>
</tr>
<tr>
<td>B</td>
<td>VGR0175XSHGS</td>
<td>5566714002</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Technical drawing

- Groove suitable for round sealing ring 210 x 3.4
- 8.5 deep
EC radial blower

G1G 170

Material/surface
- Housing: Aluminium
- Impeller: Sheet aluminium
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.

More at www.ebmpapst.com
### EC radial blower G1G 170

#### Technical drawing

**Dimensions in mm**

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VGR0170XSPGS</td>
<td>5.0</td>
</tr>
<tr>
<td>B</td>
<td>VGR0170XSPGS</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Subject to change.

**Curve**

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power P_{ed}</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>Nominal voltage 1–230 V AC, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>7200</td>
<td>420</td>
<td>55</td>
<td>80</td>
</tr>
<tr>
<td>B</td>
<td>7200</td>
<td>360</td>
<td>55</td>
<td>80</td>
</tr>
</tbody>
</table>

**Notes**

1. Groove suitable for round sealing ring 110 x 3.2
2. 9.5 deep
EC radial blower
G3G 200

Material/surface
- Housing: Aluminium
- Impeller: Sheet aluminium
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings

Electrical data
- Protection class I

More at www.ebmpapst.com

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power Ped</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>A</td>
<td>6100</td>
<td>890</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>B</td>
<td>5700</td>
<td>800</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Nominal voltage 1–230 V AC, 50/60 Hz

Nominal voltage 1–115 V AC, 50/60 Hz

Subject to change.

<table>
<thead>
<tr>
<th>EC radial blower</th>
<th>Part number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A VGR0200XSPKS</td>
<td>5560003030</td>
<td>10</td>
</tr>
<tr>
<td>B VGR0200XSPKS</td>
<td>5560003051</td>
<td>10</td>
</tr>
</tbody>
</table>

Technical drawing

Dimensions in mm

1. Groove suitable for round sealing ring 180 x 3.5
2. 12 deep
EC radial blower
G3G 250

Material/surface
- Housing: Aluminium
- Impeller: Metall
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover, depending on the installation position
- Installation position: With horizontal shaft or for vertical shaft with motor position above
- Mounting: Ball bearings

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1.225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power P_{in}</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>A</td>
<td>5200</td>
<td>1150</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>B</td>
<td>5200</td>
<td>1200</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Subject to change.

### EC radial blower

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VGR0250XSPKS</td>
<td>5560005021</td>
</tr>
<tr>
<td>B</td>
<td>VGR0250XSPKS</td>
<td>5560005051</td>
</tr>
</tbody>
</table>

### Technical drawing

A  

Dimensions in mm

1. Groove suitable for round sealing ring 180 x 3.5
2. 12 deep
Measuring requirements

Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1.225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
### Curve Properties

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power P_{ed}</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>Nominal voltage 3–380 – 480 V AC, 50/60 Hz</td>
<td>6400</td>
<td>2500</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Subject to change.

### EC radial blower

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGR0250XTRHS</td>
<td>G3G250MW5001</td>
<td>24 kg</td>
</tr>
</tbody>
</table>

### Technical drawing

- **Dimensions in mm**
  - Ø220
  - Ø178.6
  - Ø120
  - Ø260
  - 180
  - 220
  - 92
  - 5
  - 6.3
  - 2.9
  - 6x60°

- **Notes**
  1. Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
  2. Clearance for screw 10-12 mm, tightening torque 20 ± 3 Nm
  3. Tightening torque 3.5 ± 0.5 Nm
EC radial blower
G3G 315

Material/surface
- Housing: Aluminium
- Impeller: Sheet aluminium
- Motor protection cap: Plastic

Mechanical data
- Degree of protection: IP20 with cover
- Installation position: Any
- Mounting: Ball bearings

Electrical data
- Protection class I

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1.225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.

on Page 14 Possible mounting positions
on Page 46 Mains connector X, interface connector W
on Page 48 Electrical interfaces
More at www.ebmpapst.com
EC radial blower G3G 315

**Nominal voltage** 3–380 – 480 V AC, 50/60 Hz

<table>
<thead>
<tr>
<th>Curve</th>
<th>Max. speed n</th>
<th>Max. input power Ped</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min⁻¹</td>
<td>W</td>
<td>°C</td>
<td>°C</td>
</tr>
<tr>
<td>A</td>
<td>6000</td>
<td>8000</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Subject to change.

---

<table>
<thead>
<tr>
<th>Type</th>
<th>Part number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>VGR0315XTTLS</td>
<td>5560007000</td>
</tr>
</tbody>
</table>

---

**Technical drawing**

Dimensions in mm
EC radial blower
VG 450

Material/surface
- Housing: Die-cast aluminium
- Impeller: Sheet aluminium
- Motor casing: Cast aluminium
- Electronics box: Cast aluminium

Mechanical data
- Protection class blower: IP00
- Protection class electronics: IP54
- Protection class motor: IP20
- Installation position: Any
- Mounting: Ball bearings

Electrical data
- Protection class I

More at www.ebmpapst.com

Measuring requirements
Air performance measured according to: ISO 5801 with ebm-papst scroll housing without touch protection. The information is only applicable under the specified measuring or standard conditions (15 °C, 1013 hPa, 1,225 kg/m³) and may change depending on the installation conditions. In case of deviation from the standard configuration and depending on the type of gas, the heat output must be checked when installed.
### EC radial blower VG 450

#### Curve

<table>
<thead>
<tr>
<th>Max. speed ( n )</th>
<th>Max. input power ( P_{ed} )</th>
<th>Max. perm. amb. motor temp.</th>
<th>Max. perm. temp. of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>min(^{-1})</td>
<td>W</td>
<td>(^\circ)C</td>
<td>(^\circ)C</td>
</tr>
<tr>
<td>Nominal voltage 3~380-480 V AC, 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4250</td>
<td>14000</td>
<td>40(^{1)})</td>
<td>50</td>
</tr>
</tbody>
</table>

\(^{1)}\) short-term 60

Subject to change.

#### Technical drawing

**Type**

<table>
<thead>
<tr>
<th>Part number</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGR450XTPS</td>
<td>85</td>
</tr>
</tbody>
</table>

**Dimensions in mm**

- Seal groove

---

**Technical drawing**

A Technical drawing

Dimensions in mm

A Technical drawing

Dimensions in mm

A Technical drawing

Dimensions in mm

---

A Technical drawing

Dimensions in mm

A Technical drawing

Dimensions in mm

---

A Technical drawing

Dimensions in mm

A Technical drawing

Dimensions in mm
Connectors

<table>
<thead>
<tr>
<th>Connector</th>
<th>VG 71</th>
<th>VG 100</th>
<th>VG 108</th>
<th>NRG 118</th>
<th>RG 148</th>
<th>NRG 137</th>
<th>RG 175</th>
<th>GI6 170</th>
<th>GI6 200</th>
<th>GI6 250</th>
<th>GI6 250 kW</th>
<th>GI6 315</th>
<th>GI6 400</th>
<th>GI6 540</th>
<th>VG 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Interface</td>
<td>04600451...</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>04</td>
<td>04</td>
<td>04</td>
<td>38</td>
<td>39</td>
<td>39</td>
<td>64</td>
<td>61</td>
<td>63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connectors refer to 230 V versions. Further connector types on request.

1 Mains connector X
3-pin pin-connector with coding type 0A according to RAST 5
in 90° angled / horizontal design
with locking feature on top or down for locking device suitable for
mating connector according to RAST 5
with coding type 0A as e. g.
CoHaMo YY-A5002-H03-K01 or Lumberg 3623 03 K01

Part number for mating connector:
2431045025

2 Mains connector X
3-pin pin-connector according RAST 6.35
in 90° angled / horizontal design
suitable for mating connector according to RAST 6.35
e. g. Tyco Universal MATE-N-LOK

Order number: 1586847-1 and 3 x socket 926882-1

Part number for mating connector:
Connector shell 2430945012; Crimp socket 2430745002/3
3 Interface connector W
4-pin pin-connector according RAST 3.0
in 90° angled / horizontal design
suitable for mating connector according RAST 3.0
e. g. Molex Micro-Fit 3.0

Order number:
43645-0408 and 4 x socket 43030-0001

Part number for mating connector:
Plug shell 2431045133;
Crimp socket 2430045128

4 Interface connector W
5-pin pin-connector according RAST 4.2
in 90° angled / horizontal design
suitable for mating connector
e. g. Stocko STO-FIT, CoHaMo

Order number Stocko:
EH 705-005-004-960 and 5 x socket RBB 8230.120

Order number CoHaMo:
YY-5700-H05AS-GW

Part number for mating connector:
Connector shell 2430945035; Crimp socket 2430845065

5 Interface connector W
5-pin pin-connector according RAST 4.2
in 90° angled / horizontal design
suitable for mating connector
e. g. Stocko STO-FIT, CoHaMo

Order number Stocko:
EH 705-005-004-960 and 5 x socket RBB 8230.120

Order number CoHaMo:
YY-5700-H05AS-GW

Part number for mating connector:
Connector shell 2430945035; Crimp socket 2430845065

6 Interface connector W
5-pin pin-connector according RAST 4.2
in 90° angled / horizontal design
suitable for mating connector
e. g. Stocko STO-FIT, CoHaMo

Order number Stocko:
EH 705-005-004-960 and 5 x socket RBB 8230.120

Order number CoHaMo:
YY-5700-H05AS-GW

Part number for mating connector:
Connector shell 2430945035; Crimp socket 2430845065
Further types available on request.

**Interface 04  120/230 VAC, 50/60 Hz**

- Safe start PWM >20%
- HalTSignal: 2 pulses per revolution
- PWM "HIGH" = blower ON
- PWM "LOW" = blower OFF

**Interface 31  120/230 VAC, 50/60 Hz**

- PWM 1-6kHz
- N.C.
- Digital PWM
- Safe Start: >20% PWM
- PWM-low = Blower off
- PWM-High = Blower on
Further types available on request.

**Interface 61** 3 ~ 380-480 VAC, 50/60 Hz

- **RS485**
- **GND**
- **PWM**
- **tacho output** 5 pulses per revolution
- **N.C.**
- **PWM** 1-6 kHz
- **input signal** square pulse
  - PWM-Low = fan off
  - PWM-High = fan on
- **input open** = max. speed
- **GND**
- **RS485**
- **RS232**

*PWM-Low - fan off
PWM-High - fan on
input open -> max. speed
GND
RS485
RS232

**Interface 63** 3 ~ 380-480 VAC, 50/60 Hz

- **RS485**
- **GND**
- **PWM**
- **tacho output** 5 pulses per revolution
- **N.C.**
- **PWM** 1-6 kHz
- **input signal** square pulse
  - PWM-Low = fan off
  - PWM-High = fan on
- **input open** = max. speed
- **GND**
- **RS485**
- **RS232**

*PWM-Low - fan off
PWM-High - fan on
input open -> max. speed
GND
RS485
RS232

- **connection via terminal block**
- **recommended wire size** 0.5 - 1mm²
- **EBM-PAPST circuit**

* for use of 0-10V interface, bridge PWM to GND

**Further types available on request.**
Interface 64 3 - 380-480 VAC, 50/60 Hz

- Interface via terminal block
- Interfaces 0-10V and PWM
- Input signal - square pulse
- PWM - Low - fan off
- PWM - High - fan on
- Input open -> max. speed

For use of 0-10V interface, bridge PWM to GND

* Gasmodule - Interface
  - Start -> PWM > 10%
  - n=min -> PWM > 7%
  - Stop -> PWM > 5%
  - 10V -> n=max
  - 2V -> n=min
  - >1.6V -> Start
  - <1.0V -> Stop

10VDC OUTPUT (±10%) max.10mA
20VDC OUTPUT (±20%) max.50mA
4 pulses per resolution
12VDC(±10%) / max.10mA / Impedance 1k
Our gas valves are mainly used in condensing unit applications for domestic heating technology in the low-to-medium output range. They ensure precise air-gas ratio adjustment.

The G20 D01 and G15/G20 E01 gas valves are suitable for condensing units with pneumatic composite controls. Regardless of the suction pressure generated by the premix blower, these gas valves always keep the offset pressure at zero and compensate for pressure fluctuations in the supply network as well.

The offset (zero point shift) can be configured at the servo controller. At the same time, the desired gas quantity is adjusted using an integrated flow control element. Depending on the design, reference pressure can be connected to the servo controller if required.

The G15/G20 F01, G32 F01 and G40 F01 gas valves are suitable for condensing units with electronic composite controls. Regardless of gas quality and any pressure fluctuations in the supply network, these gas valves regulate the constant air-gas ratio without relying on mechanical gas valve settings.

Mounting position
Solenoid at any position between vertical and horizontal – but not upside down
Type examination certificate for North America (USA and Canada): Master Contract No. 172723

Applicable standards
ANSI Z21.78 2010 / CSA 6.20 2010:
Combination Gas Controls for gas appliances
Approvals exist for the chief gas consuming countries.

Additional notes
– Work on the gas valve may be performed by authorised specialists only.
– Please be sure to observe the corresponding installation instructions.
– Corresponding documents with safety instructions are available upon request or on the Internet.

Type examination certificate in accordance with EC Gas Appliances Directive: CE 0085CM0036 (product ID number)

Applicable standards:
– EN126:2012 06: Multifunctional controls for gas burning appliances
– EN161:2012 08: Automatic shut-off valves for gas burners and gas appliances
– EN88-1:2011: Pressure regulators and associated safety devices for gas appliances – Part 1: Pressure regulators for inlet pressures up to and including 50 kPa
Gas valves pneumatic gas air ratio control system

G15/G20 E01

---

Material/surface
- Housing: Aluminium

Mechanical data
- Degree of protection: IP40 in combination with a suitable plug
- Permitted gas families: II + III (in accordance with EN 437)
- Maximum inlet pressure: 65 mbar (CE), 0.5 psi (CSA)
- Permitted ambient temperature: 0°C to 60°C
- Permitted storage temperature: -25°C to 70°C
- Offset correction: +/- 20 Pa
- Input (gas connection): External thread G3/4 or G1/2 (EN ISO 228) or 4 x M4-mounting holes (optional)
- Output: ebm-papst proprietary quick release
- Safety valve: Coaxial design: Valve class B/C as per EN161

Electrical data
- Designed for protection class I
- Electrical connection: Connector shell with 4.20mm grid

---

Capacity curve – GXXE01-BCXCS

---

Conditions: +15°C/59°F, p= 1013mbar

---

Recommended operating range

---

<table>
<thead>
<tr>
<th>( V_n ) [m³/h] Erdgas / Natural gas (dv = 0,65)</th>
<th>0.2</th>
<th>0.3</th>
<th>0.4</th>
<th>0.5</th>
<th>0.6</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Delta p ) [mbar]</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>9</td>
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<table>
<thead>
<tr>
<th>( V_n ) [m³/h] Luft / Air (dv = 1,00)</th>
<th>0.1</th>
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<th>0.3</th>
<th>0.4</th>
<th>0.5</th>
<th>0.6</th>
<th>0.8</th>
<th>1</th>
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<tr>
<td>( \Delta p ) [mbar]</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>10</td>
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More at www.ebmpapst.com
### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Max. input power</th>
<th>Nominal diameter</th>
<th>Maximum inlet pressure</th>
<th>Flow rate (at Δp = 5 mbar)</th>
<th>Automatic shutoff valves (EN161)</th>
<th>Minimum signal pressure</th>
<th>Opening and closing time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V</td>
<td>VA</td>
<td>mbar</td>
<td>m³/h</td>
<td>Pa</td>
<td></td>
<td></td>
<td>s</td>
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<tr>
<td>GXXE01-BCXCS</td>
<td>230 RAC</td>
<td>9.8</td>
<td>DN15/20</td>
<td>65</td>
<td>3.4</td>
<td>Class B/C</td>
<td>-40</td>
<td>&lt; 1</td>
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<tr>
<td></td>
<td>120 RAC</td>
<td>9.8</td>
<td>DN15/20</td>
<td>65</td>
<td>3.4</td>
<td>Class B/C</td>
<td>-40</td>
<td>&lt; 1</td>
</tr>
<tr>
<td></td>
<td>24 RAC</td>
<td>9.8</td>
<td>DN15/20</td>
<td>65</td>
<td>3.4</td>
<td>Class B/C</td>
<td>-40</td>
<td>&lt; 1</td>
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<td>Class B/C</td>
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<td>65</td>
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<td>&lt; 1</td>
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Subject to change.

### Gas valve

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
<th>kg</th>
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<tbody>
<tr>
<td>GXXE01-BCXCS</td>
<td>0.57</td>
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</tr>
</tbody>
</table>

### Technical drawing

Dimensions in mm

1. Electrical connection
2. Solenoid coil
3. Pressure test nipple P₁
4. Pressure regulator offset adjustment
5. Pressure test nipple P₂
6. Main flow throttle
Gas valves pneumatic gas air ratio control system
G20 D01

Material/surface
- Housing: Aluminium

Mechanical data
- Degree of protection: IP40 in combination with a suitable plug
- Permitted gas families: II + III (in accordance with EN 437)
- Maximum inlet pressure: 65 mbar (CE), 0.5 psi (CSA)
- Permitted ambient temperature: 0°C to 60°C
- Permitted storage temperature: -25°C to 70°C
- Offset correction: +/- 20 Pa
- Input (gas connection): 4 x M5-mounting holes (hole spacing 36 mm)
- Output: 4 x M5-mounting holes (hole spacing 36 mm)
- Safety valve: Valve class B/B as per EN161

Electrical data
- Designed for protection class I
- Electrical connection: Connector shell with 5.08 mm grid

Capacity curve – G20D01-BBXCS

Conditions +15°C/ 59°F, p= 1013mbar, dry

Recommended operating range

More at www.ebmpapst.com
### Nominal Data

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated Voltage</th>
<th>Max. Input Power</th>
<th>Nominal Diameter</th>
<th>Maximum Inlet Pressure</th>
<th>Flow Rate (at Δp = 5 mbar)</th>
<th>Automatic Shut-off Valves (EN161)</th>
<th>Minimum Signal Pressure</th>
<th>Opening and Closing Time</th>
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</thead>
<tbody>
<tr>
<td>G20D01-BBXCS</td>
<td>230 RAC</td>
<td>2 x 12.5</td>
<td>DN20</td>
<td>65</td>
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<td>Class B/B</td>
<td>-40</td>
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<tr>
<td></td>
<td>120 RAC</td>
<td>2 x 12.5</td>
<td>DN20</td>
<td>65</td>
<td>5.3</td>
<td>Class B/B</td>
<td>-40</td>
<td>&lt; 1</td>
</tr>
<tr>
<td></td>
<td>24 RAC</td>
<td>2 x 12.5</td>
<td>DN20</td>
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<td>5.3</td>
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<tr>
<td></td>
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<td>DN20</td>
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<td>Class B/B</td>
<td>-40</td>
<td>&lt; 1</td>
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Subject to change.

### Gas Valve

<table>
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<tr>
<th>Type</th>
<th>Weight</th>
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<tbody>
<tr>
<td>G20D01-BBXCS</td>
<td>1.3 kg</td>
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</tbody>
</table>

### Technical Drawing

![Technical drawing of G20D01-BBXCS gas valve]

1. Pressure regulator offset adjustment
2. Servo regulator
3. Electrical connection
4. Solenoid coil
5. Pressure test nipple P₁
6. Main flow throttle
7. Pressure test nipple P₂
Gas valves electronic gas air ratio control system

G15/G20 F01

Material/surface
- Housing: Aluminium

Mechanical data
- Degree of protection: IP40 in combination with a suitable plug
- Permitted gas families: II + III (in accordance with EN 437)
- Maximum inlet pressure: 60 mbar (CE), 0.5 psi (CSA)
- Permitted ambient temperature: -15°C to 70°C
- Permitted storage temperature: -25°C to 70°C
- Input (gas connection): External thread G3/4 oder G1/2 (EN ISO 228)
- Output: ebm-papst proprietary quick release
- Safety valves: Coaxial design: Valve class B/C as per EN161

Electrical data
- Designed for protection class I
- Electrical connection: Connector shell with 4.20mm grid

More at www.ebmpapst.com

Capacity curve – GXXF01-BCXCS

Recommended operating range

Conditions: +15°C/ 59°F, p= 1013 mbar

Gas [m³/h] Erdgas / Natural gas

Vοn [m³/h] Luft / Air

Recommended operating range

Recommended operating range
### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Max. input power</th>
<th>Nominal diameter</th>
<th>Maximum inlet pressure</th>
<th>Flow rate (at Δp = 5mbar)</th>
<th>Flow rate (at Δp = 5mbar)</th>
<th>Automatic shut-off valves (EN161)</th>
<th>Opening and closing time</th>
<th>Subject to change.</th>
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<tbody>
<tr>
<td></td>
<td>V</td>
<td>VA</td>
<td>mbar</td>
<td>m³/h</td>
<td>m³/h</td>
<td></td>
<td></td>
<td>s</td>
<td></td>
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<tr>
<td>GXXF01-BCXCS</td>
<td>230 RAC</td>
<td>9.8</td>
<td>DN15/20</td>
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<td>2.1</td>
<td>2.9</td>
<td>Class B/C</td>
<td>&lt; 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120 RAC</td>
<td>9.8</td>
<td>DN15/20</td>
<td>60</td>
<td>2.1</td>
<td>2.9</td>
<td>Class B/C</td>
<td>&lt; 1</td>
<td></td>
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<td></td>
<td>24 RAC</td>
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<td>60</td>
<td>2.1</td>
<td>2.9</td>
<td>Class B/C</td>
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<td></td>
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<td></td>
<td>24 DC</td>
<td>9.8</td>
<td>DN15/20</td>
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<td>2.9</td>
<td>Class B/C</td>
<td>&lt; 1</td>
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<tr>
<td></td>
<td>22 DC</td>
<td>11.9</td>
<td>DN15/20</td>
<td>60</td>
<td>2.1</td>
<td>2.9</td>
<td>Class B/C</td>
<td>&lt; 1</td>
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Gas valve

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>GXXF01-BCXCS</td>
<td>0.47</td>
</tr>
</tbody>
</table>

### Technical drawing

Dimensions in mm

1. Electrical connection safety valve
2. Pressure test nipple
3. G 3/4" or G1/2" ISO 228-1
4. Solenoid coil
5. Electrical connection stepper motor
Gas valves electronic gas air ratio control system

G32 F01

Material/surface
- Housing: Aluminium

Mechanical data
- Degree of protection: IP40 in combination with a suitable plug
- Permitted gas families: I + II + III (in accordance with EN 437)
- Maximum inlet pressure: 60 mbar (CE), 0.5 psi (CSA)
- Permitted ambient temperature: -15°C to 60°C
- Permitted storage temperature: -25°C to 70°C
- Input (gas connection): external thread G 1 1/4 (EN ISO 228)
- Output: Flange connection 4 x mounting holes for self-tapping screw (nominal diameter 5 mm); hole spacing 52.33 mm
- Safety valves: Coaxial design: Valve class B/C in accordance with EN161
- Interface to mechanical pressure monitor port: Inlet pressure; central chamber pressure
- Pressure test nipple: Inlet and outlet pressure

Electrical data
- Designed for protection class I
- Electrical connection:
  - Safety module: suitable for connector housing with pitch 4.20mm (e.g., Stocko STO-FIT System, EH 705-103; Würth series WR-MPC4, item no. 649 003 013 322)
  - Stepper motor module:
    - Connector housing Stocko-Grid MH790-06-001

Capacity curve – G32F01-CBXCS

More at www.ebmpapst.com
### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Max. input power</th>
<th>Nominal diameter</th>
<th>Maximum inlet pressure</th>
<th>Flow rate (at Δp = 5mbar)</th>
<th>Automatic shutoff valves</th>
<th>Opening and closing time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V</td>
<td>VA</td>
<td>mbar</td>
<td>m³/h</td>
<td>s</td>
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<td>Class C/B</td>
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<tr>
<td></td>
<td>24 DC</td>
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<td>Class C/B</td>
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</table>

Subject to change.

### Gas valve

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G32F01-CBXCS</strong></td>
<td>1.55</td>
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</table>

### Technical drawing

**Dimensions in mm**

1. 1 1/4” B ISO 228-1
2. Electrical connection safety valve
3. Pressure test nipple
4. Electrical connection control valve
5. Solenoid coil
Gas valves electronic gas air ratio control system
G40 F01

Material/surface
- Housing: Aluminium

Mechanical data
- Degree of protection:
  IP40 in combination with a suitable plug
- Permitted gas families:
  I + II + III (in accordance with EN 437)
- Maximum inlet pressure:
  60 mbar (CE), 0.5 psi (CSA)
- Permitted ambient temperature:
  -15°C to 60°C
- Permitted storage temperature:
  -25°C to 70°C
- Input (gas connection):
  Flange connection 4 x mounting holes for self-tapping screw (nominal diameter 6 mm); hole spacing Ø52.33 mm. Input flange 1 ½” optional
- Output: Flange connection 4 x mounting holes for self-tapping screw (nominal diameter 6 mm); hole spacing Ø52.33 mm
- Safety valve:
  Coaxial design: External thread B/B as per EN161
- Interface to mechanical pressure monitor port:
  Inlet pressure; central chamber pressure for VPS (optional)
- Pressure test nipple:
  Inlet and outlet pressure

Electrical data
- Designed for protection class I
- Electrical connection:
  Suitable for connector housing with pitch 4.20mm (e.g., Stocko STO-FIT System, EH 705-103; Würth WR-MPC4 series, item no. 649 003 013 322)
- Stepper motor module:
  Connector housing Stocko-Grid MH790-06-001

Capacity curve – G40F01-BBXCS

More at www.ebmpapst.com
Gas valve G40 F01

**Nominal data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Max. input power</th>
<th>Nominal diameter</th>
<th>Maximum inlet pressure</th>
<th>Flow rate (at Δp = 5mbar)</th>
<th>Automatic shut-off valves (EN161)</th>
<th>Opening and closing time</th>
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<td>60</td>
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**Gas valve**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>G40F01-BBXCS</td>
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</table>

**Dimensions in mm**

1. Electrical connection safety valve
2. Pressure test nipple
3. Electrical connection control valve
4. Solenoid coil

Subject to change.
We supply the right electronics for controlling ignition, performance regulation and monitoring the function of the condensing boiler as well as user interfaces needed for conveniently controlling central heating and hot water. The burner control can also be combined with other modules and provide control for system regulation, for example cascade operation.

Our product range, consisting of tried-and-tested hardware and software, enables reliable operating performance and short development cycles. The versatile software architecture enables easy interface integration. In addition, as with our blowers, we value having the lowest possible energy consumption.

**For Commercial Applications**
- For commercial boilers up to 2MW
- Integrated cascade control
- Flexibility to configure many systems:
  - preset appliance types
  - Configurable inputs and outputs
  - Integrated low water cutoff
  - Many modes for CH and DHW

**User Interface**
- Touch screen: communication with boiler control via Modbus
- Ethernet connection to web server
- Graphical LCD interface for boiler status, operation and configuration
- Password-protected user levels
- Includes diagnostics software and a smart app for remote control
For Residential Applications

- Smart control for various appliances up to 50kW:
  - water heaters (with/without tank) and residential combi boilers
- Also applicable as general burner control
- Optional Modbus communication
- Available as all-in-one kit

User Interface

- On-board HMI: Reset button and status LED
- Advanced external display option
## Commercial range

### Packages

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<tr>
<th></th>
<th>120/230</th>
<th>212×152×49</th>
<th>8 boilers × 8 modules</th>
<th>Y</th>
<th>900PB Display</th>
<th>Y</th>
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**Commercial Plus with integrated cascade control:**

Up to 8 boilers × 8 modules (1 managing boiler and max. 7 dependent boilers).

- Applicable for commercial boilers up to 2 MW
- Configurable input/output functions
- Multiple heat demand options (on/off, OpenTherm, 0-10V)
- Internal/external spark igniter or hot-surface igniter
- Primary safeguard functions
- Extra safety- and smart control functions

**Power supply**

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**Dimensions control**

- AL-BUS
- Modbus
- Ethernet
- Diagnostics software
- Smart app

**Commercial Plus**

- Managing boiler: M1, M2, etc.
- Dependent boiler: D1, D7, etc.

**Commercial**

- Managing boiler: M1, M2, etc.
- Dependent boiler: D1, D7, etc.

**Residential Plus**

- Managing boiler: M1, M2, etc.
- Dependent boiler: D1, D7, etc.
Residential range

Packages

- Smart control for various appliances: water heaters (with/without tank) and residential combi boilers
- Also applicable as general burner control
- Flexible mounting options
- On-board user interface or advanced external display
- Optional Modbus communication

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<th>Dimensions control</th>
<th>On-board HMI</th>
<th>User interface</th>
<th>AL-BUS</th>
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900LB Display

(Tankless) Water Heater
Residential Combi Boiler
Smart Burner

Burner control units
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<td>Austria</td>
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</tr>
<tr>
<td></td>
<td>Straubingstraße 17</td>
</tr>
<tr>
<td></td>
<td>4030 Linz</td>
</tr>
<tr>
<td></td>
<td>AUSTRIA</td>
</tr>
<tr>
<td></td>
<td>Phone +43 732 321150-0</td>
</tr>
<tr>
<td></td>
<td>Fax +43 732 321150-20</td>
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<tr>
<td></td>
<td><a href="mailto:info@at.ebmpapst.com">info@at.ebmpapst.com</a></td>
</tr>
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</tr>
<tr>
<td>Belgium</td>
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<tr>
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<tr>
<td></td>
<td>Romeinsestraat 6/0101</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
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</tr>
<tr>
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<tr>
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<td>ROMANIA</td>
</tr>
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<td></td>
<td>Phone +40 268 33859</td>
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</tr>
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<tr>
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<tr>
<td></td>
<td>1044 Budapest</td>
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<tr>
<td></td>
<td>HUNGARY</td>
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<tr>
<td></td>
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<td>Phone +30 210 9513-705</td>
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<tr>
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<tr>
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ebm-papst in America & Africa

America

Argentina

*ebm-papst Argentina S.A.*
Parque Industrial Canning Etapa II - Nave 61A, Perito Moreno 845, Canning (1804), Buenos Aires
ARGENTINA
Phone +54 11 46576135
Fax +54 11 46572092
ventas@ar.ebmpapst.com
www.ebmpapst.com.ar

Brazil

*ebm-papst Motores Ventiladores Ltda.*
Av. José Giorgi, 301 Galpões B6+B7
Condominio Logical Center
06707-100 Cotia - São Paulo
BRAZIL
Phone +55 11 4613-8700
Fax +55 11 4777-1456
vendas@br.ebmpapst.com
www.ebmpapst.com.br

Canada

*ebm-papst Canada Inc.*
419 King Street West, Suite 603A
Oshawa, ON, L1J2K5
CANADA
Phone +1 905 420-3533
Fax +1 905 420-3772
sales@ca.ebmpapst.com
www.ebmpapst.ca

Mexico

*ebm Industrial S. de R.L. de C.V.*
Paseo de Tamarindos 400-A-Sto Piso
Col. Bosques de las Lomas
Mexico 05120, D.F.
MEXICO
Phone +52 55 3300-5144
Fax +52 55 3300-5243
sales@mx.ebmpapst.com
www.ebmpapst.com.mx

USA

*ebm-papst Inc.*
P.O. Box 4009
100 Hyde Road
Farmington, CT 06034
UNITED STATES
Phone +1 860 674-1515
Fax +1 860 674-8536
sales@us.ebmpapst.com
www.ebmpapst.us

*ebm-papst Inc.*
Automotive & Drives Business Unit
3200 Greenfield Road, Suite 130
Dearborn, MI 48120
UNITED STATES
Phone +1 313 406-8080
Fax +1 313 406-8081
automotive@us.ebmpapst.com
www.ebmpapst-automotive.us

Africa

South Africa

*ebm-papst South Africa (Pty) Ltd.*
P.O. Box 3124
1119 Yacht Avenue
2040 Honeydew
SOUTH AFRICA
Phone +27 11 794-3434
Fax +27 11 794-5020
info@za.ebmpapst.com
www.ebmpapst.co.za

**Agents**

- fan agent
- compact fan agent
- motor specialist
- motor agent
ebm-papst in Oceania

Oceania

Australia
ebm-papst A&NZ Pty Ltd.
10 Oxford Road
Laverton North, Victoria, 3026
AUSTRALIA
Phone +61 3 9360-6400
Fax +61 3 9360-6464
sales@ebmpapst.com.au
www.ebmpapst.com.au

New Zealand
ebm-papst A&NZ Pty Ltd.
61 Hugo Johnston Drive, Unit H
Penrose 1061, Auckland
NEW ZEALAND
Phone +64 9 525-0245
Fax +64 9 525-0246
sales@ebmpapst.com.au
www.ebmpapst.com.au
Condensing boiler technology

Product Catalogue 2019-03