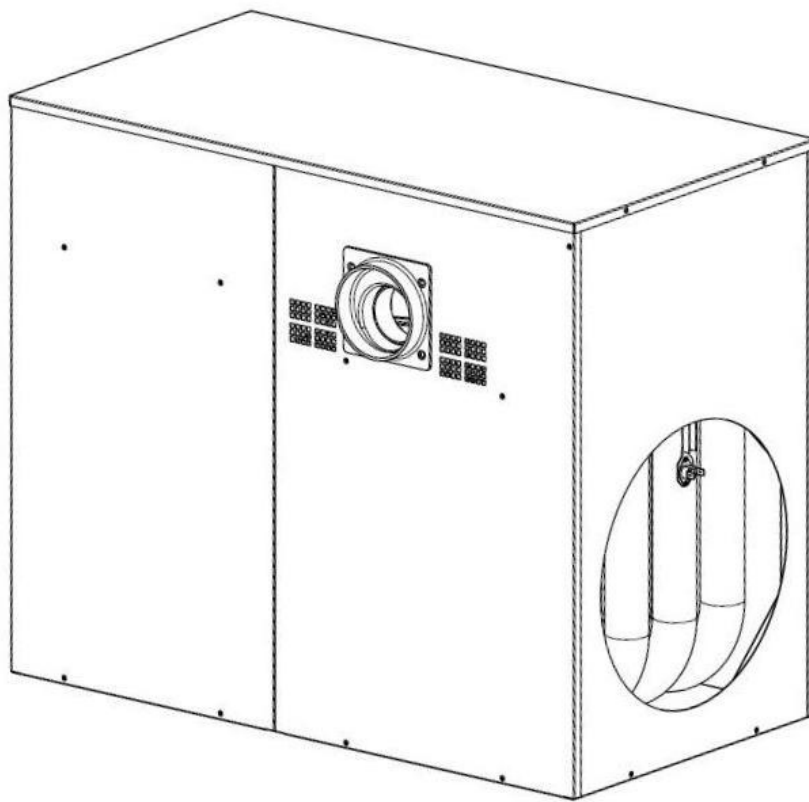


Brivis Compact Classic Ducted Gas Heater Installer's Manual



**PLEASE READ THESE INSTRUCTIONS CAREFULLY
BEFORE INSTALLING THIS PRODUCT**



Scope

This Installer's Manual is intended to be used as a guideline for the installation of Brivis Gas Fired Central Heaters. It covers only the installation and commissioning of the heater and the allowable flue configurations. Although recommended return air grilles and allowable duct outlet quantities are specified, it does not cover the actual ducting design required to suit the installation. This Installer's Manual is based on Australian Standards - for all other applications, please refer to local codes and regulations.

Brivis heaters must be installed by qualified personnel.

Models covered in this manual are as follows:

Brivis Compact Classic Heaters

Internal Models	
NG	LPG
CC315IN	CC315IL
CC320IN	CC320IL
CC320IN-XA	CC320IL-XA
CC325IN	CC325IL
CC325IN-XA	CC325IL-XA
CC330IN	CC330IL
CC330IN-XA	CC330IL-XA

Note: All units come with a manual Brivis digital manual thermostat

Note: Brivis CC3 Ducted Gas Heaters do not have on-board Add-On Cooling connections

Definitions

Shall

Indicates a mandatory requirement of this manual

Should

Indicates a recommended requirement of this manual

Any deviations from these instructions may, at the discretion of Brivis, void the warranty. As a result, the customer and/or installer may be charged a fee for non-product warranty related call outs. Also, note that failure to comply with these instructions may preclude Brivis from being able to service the unit.

Safety Warnings

Do not place articles on or against this appliance

Do not use or store flammable materials near this appliance

Do not spray aerosols in the vicinity of this appliance while it is in operation

Do not modify this appliance

Disclaimer

IMPORTANT NOTICE: Laws, regulations and industry standards can vary between States and Territories.

Accordingly, this installation manual shall be read in conjunction with, and subject to, all laws, regulations and industry standards applicable in the State or Territory in which the products are installed. You must ensure that the installation of the products will comply with those laws, regulations and standards, and that the products recommended to customers are fit for the purpose for which they are intended.

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1.0 General Guidelines

Brivis Compact Classic heaters are designed to provide a central source of heat for a ducted central heating system. Brivis Compact Classic heaters should not be installed downstream from an air washer, an evaporative cooler or refrigerative cooling system. Nor are they designed to be installed on a marine craft, houseboat, or any similar environment. Brivis Compact Classic heaters must be installed in accordance with these instructions and related regulations, codes, standards, and authorities. These include but may not be limited to:

- AS 5601 - Gas installations
- AS 4254 - Ductwork for air-handling systems in buildings
- HB 276 – A Guide to Good Practice
- Local Gas and Electricity Authorities
- Brivis "SuperSizeGuide"
- Local Building Regulations
- Environment Authorities
- Building Code of Australia (BCA)

Brivis assumes no responsibility for equipment installed in violation of any code, regulations and these installation instructions.

It is recommended the Brivis "SuperSizeGuide" be followed in estimating heating requirements and for system design that will result in efficient installation and provide a higher level of comfort and economical operation. For the hourly input and the gas type to be used, see the appliance data label located inside the service compartment.

Note: All installations should only be carried out by a qualified tradesperson. Installations at altitudes above 1000m above sea level may require main burner injector upgrading. Please contact the Brivis Customer Service Centre for advice.

1.1 Inspection

This appliance has been inspected and tested at the time of manufacture and packaging and released for transportation without known damage. Upon receipt, inspect the exterior for evidence of rough handling in shipment. Ensure that the appliance is labelled correctly for the gas it is intended to be connected to. Immediately report to supplier any discrepancies or damage. Brivis accepts no responsibility for installation of damaged or incorrect units.

1.2 Unpacking the Heater

Some heaters are supplied on a pallet with a plastic sleeve. To unpack:

- Cut and remove the external plastic packaging and dispose of thoughtfully
- Remove heater from pallet (if supplied)

1.3 Unloading or Lifting the Heater

When unloading or lifting the heater, ensure lifting equipment is in good operating condition and capable of lifting the total load. Be sure there is a clear area to place the heater down, which is within reach of the lifting equipment.

Note: Secure the heater with suitable lifting equipment if lifting to elevated heights, such as onto a house roof.

1.4 Gas Inlet Connection

- All piping must be in accordance with AS 5601 and any local gas regulations
- The connection point for internal model heaters is a male G3/4 compression fitting to AS 3688 located in the heater cabinet
- A gas cock should be fitted in the gas line adjacent to the heater and in a convenient location so it can be turned OFF quickly and easily
- The gas supply should in no way interfere with any servicing of the heater

Note: The gas supply must be installed by a licensed gas fitter. The gas pipe and gas meter should be sized so the heater can maintain its required incoming gas pressure at maximum consumption with all other gas appliances operating at their maximum capacity at the same time as the heater.

1.5 Electrical Power Supply

The heater is pre-wired with a 3-pin plug and lead, and should be plugged into a standard 10 Amp 220 to 240 volt fixed switched socket outlet adjacent to the heater, in a convenient location so it can be turned OFF quickly and easily.

Note: A qualified electrician must install the 220 to 240 volt wiring according to local regulations.

IMPORTANT: Switch OFF the power and unplug the heater before touching any wiring. If any electrical wiring is damaged, it must be replaced by the manufacturer, its service agents or an electrically qualified technician, in order to avoid a hazard.

The electricity supply must be 220 to 240 Volt at 50 Hz, and from an authorised power supplier. Generators should never be used, as their output may be incompatible with, or prone to damage the heater's electronic components.

1.6 Installation of Duct Connection Pops

The supply and return air pops must be fastened to the heater cabinet as follows:

- Insert pop into the cabinet pop hole, ensuring the flange is placed over the **OUTER** wall of the cabinet
- Spread flange to tightly fit the cabinet pop hole with the notched side overlapping the other
- Secure pops with the rivets supplied

1.7 Heater Positioning

Install the heater in a position that allows adequate and safe access for service as per guidelines in this manual and its applicable standards. The cost of any equipment and additional labour involved in accessing such heater installations will not be accepted by Brivis.

Note: All service clearance measurements must be adhered to, otherwise this will impede on the serviceability of the heater.

1.8 Installation of Heater

The Compact Classic range is designed to be installed in the **roof or beneath the floor only**. This must be done in accordance with the following guidelines and AS 5601.

Installing in the Roof Space

- The area under the heater must be capable of supporting the additional load, without causing deformation of any part of the building structure
- The appliance must be accessible by means of fixed access, a normal ladder or steps
- A passage of 600mm wide must be provided between the roof access opening and the heater
- This passage must have a suitable walkway of at least 19mm thick particle board or equivalent and be capable of supporting the weight of a person and their tools
- A permanent level platform must be provided beneath the heater and this platform area must extend 750mm out from the controls access panel side and fan motor access panel side/s for the entire length of the heater
- The air gap created between the base of the heater and the platform by the heater's supports must be maintained
- Permanent artificial lighting must be provided at the heater, with the switch located at the roof access opening

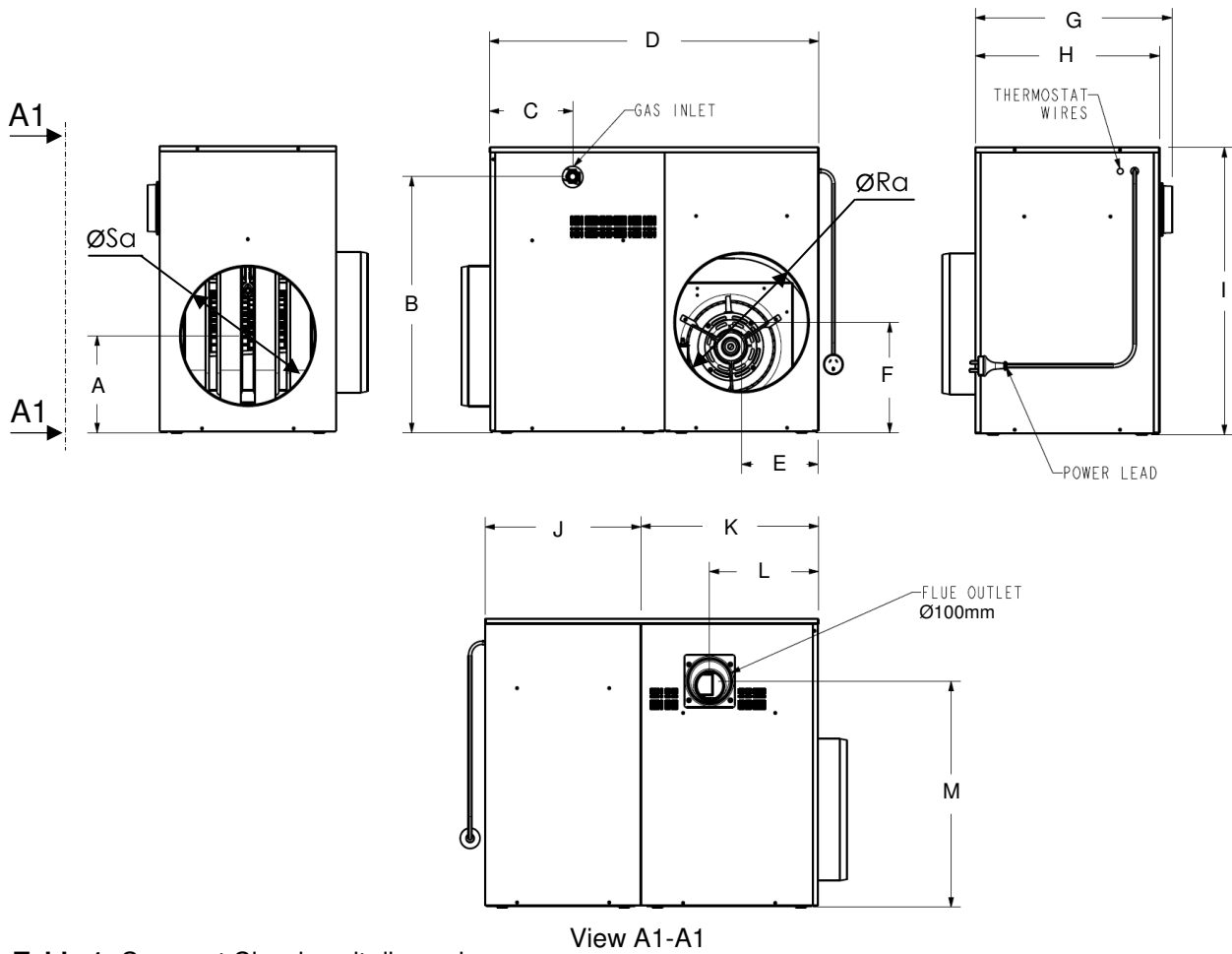
Installing Beneath the Floor

- There must be a minimum clearance of 200mm between any part of the appliance and the lowest part of the floor structure. In addition to this, refer to section "**2.2 Service Clearances**".
- The heater must be located within 2m of the access opening, or there is to be a minimum clearance of 1.2m between the lowest part of the floor structure and ground level, maintained from the access opening to the heater
- All under floor installations must be on a level concrete base (50mm thick), and provision made to drain any seepage or ground water away from the heater
- Permanent artificial lighting must be provided at the heater, with the switch located at the access opening
- Lateral (horizontal) flues may be installed in accordance with AS 5601, making sure that the lateral flue section has a minimum rise of a 20mm per metre of lateral run
- The flue must be terminated outside the building in accordance with AS 5601. This termination can be performed using a Brivis Remote Terminal. Refer to the Fluing instructions, **Section 2.6**

2.0 Compact Classic Model Guidelines

2.1 Heater Dimensions

Diagram 1.



View A1-A1

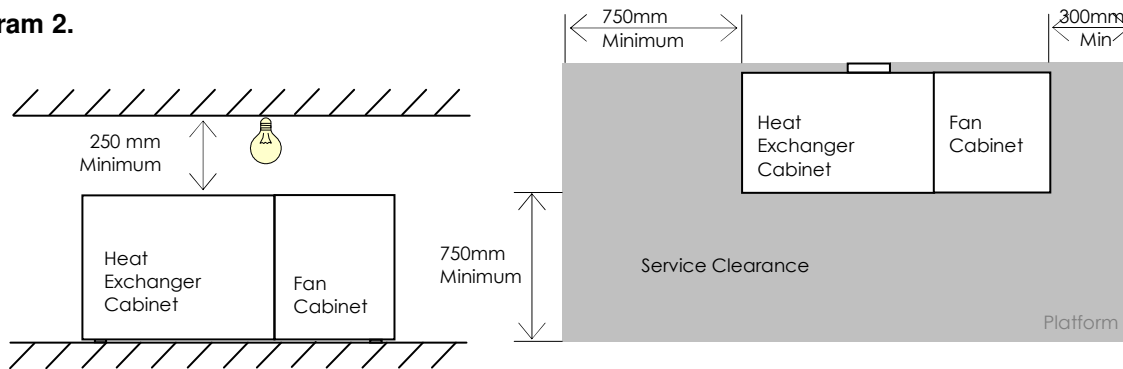
Table 1: Compact Classic unit dimensions

Dimension [mm]	CC315	CC320	CC320XA	CC325	CC325XA	CC330	CC330XA
A	204	204	204	204	204	239	239
B	542	542	542	542	542	577	577
C	183	183	183	183	183	183	183
D	724	724	724	724	724	843	843
E	168	168	168	168	168	229	229
F	233	233	233	233	233	233	233
G	411	411	411	411	411	564	564
H	385	385	385	385	385	537	537
I	604	604	604	604	604	640	640
J	338	338	338	338	338	457	457
K	386	386	386	386	386	386	386
L	236	236	236	236	236	236	236
M	474	474	474	474	474	509	509
$\varnothing Sa$	300	300	350	300	350	350	400
$\varnothing Ra$	300	300	350	300	350	350	400

2.2 Service Clearances

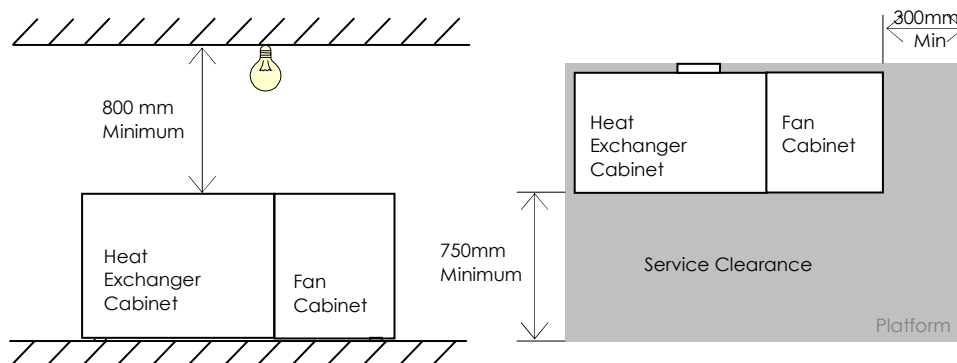
Method 1 - In Ceiling & Under Floor

Diagram 2.



Method 2 - In Ceiling & Under Floor

Diagram 3.



Note: All minimum service height clearances are to the underside of the rafters or any obstruction.

2.3 Splitting Compact Classic Heaters

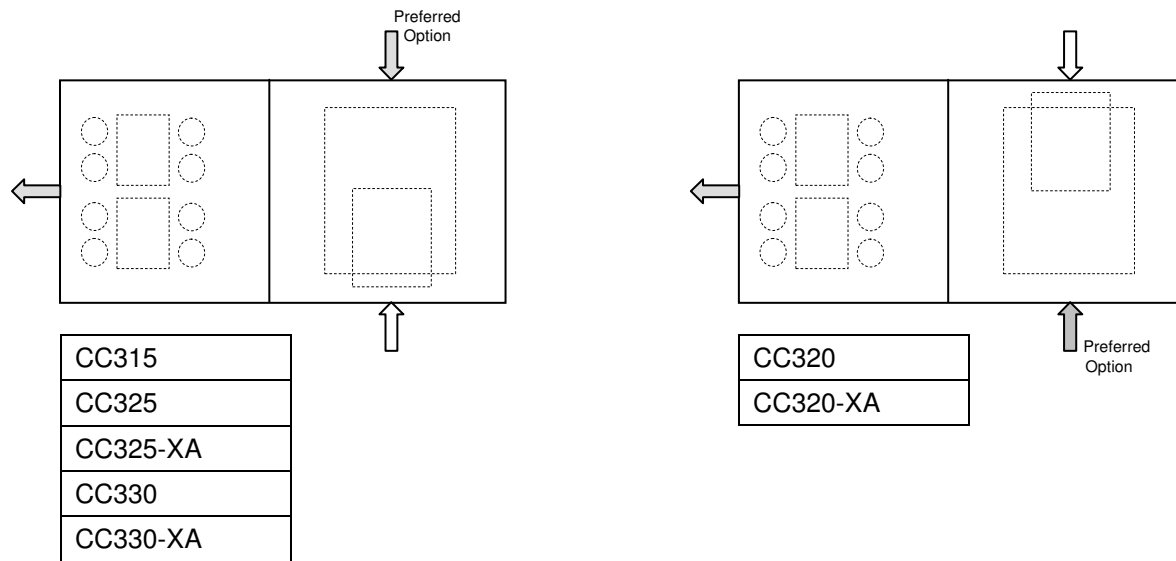
The Compact Classic model heaters can be split in half to allow for ease of installation. To split the heater, follow these simple instructions:

- Remove the four screws securing the roof and remove
- Disconnect the main loom quick-connect plug located on the cabinet centre wall
- Disconnect spark igniter from the control board and feed back into heat exchanger cabinet
- Remove the two large metric screws above the controls securing the fan cabinet to the heat exchanger cabinet
- Split the heater by firstly tilting then pulling the fan cabinet from the heat exchanger cabinet
- To reassemble conduct the above in reverse order

2.4 Recommended Duct Connection Options

There are two options available for the return air and one option for the supply air. Please refer to **Diagram 4** which highlights the preferred connection options for your unit.

Diagram 4. Supply and Return air options



Note: The ducting should be well insulated and it is mandatory under building codes to install insulated fire rated duct.

2.5 Changing the Return Air Pop

The return air pop orientation can be changed from side to side only.

To reverse the side of entry:

- Remove the four screws securing the side pop plate and remove
- Remove the four screws securing the opposite panel and remove
- Swap both to their opposite sides and fasten with the same screws

Note: If the return air pop is changed from the preferred side this will result in reduced air flow.

- The total number of outlets normally permitted for a heating system shall be reduced by 2 (refer to the outlet register chart in Section 4.0)
- DO NOT USE this configuration in Add-On Cooling applications, unless you ensure Minimum Recommended Airflow required for the cooling is maintained.

2.6 Flue Instructions

2.6.1 General

- All flues must be installed in accordance with AS 5601 Gas installation Code
- All horizontal flues must have a minimum rise of 20mm per 1m run
- Horizontal flues terminating on a wall must be at least 300mm above ground level
- Systems with both horizontal and vertical flue runs should be treated as all horizontal
- Provide adequate support to flue sections (e.g. saddles / strapping)

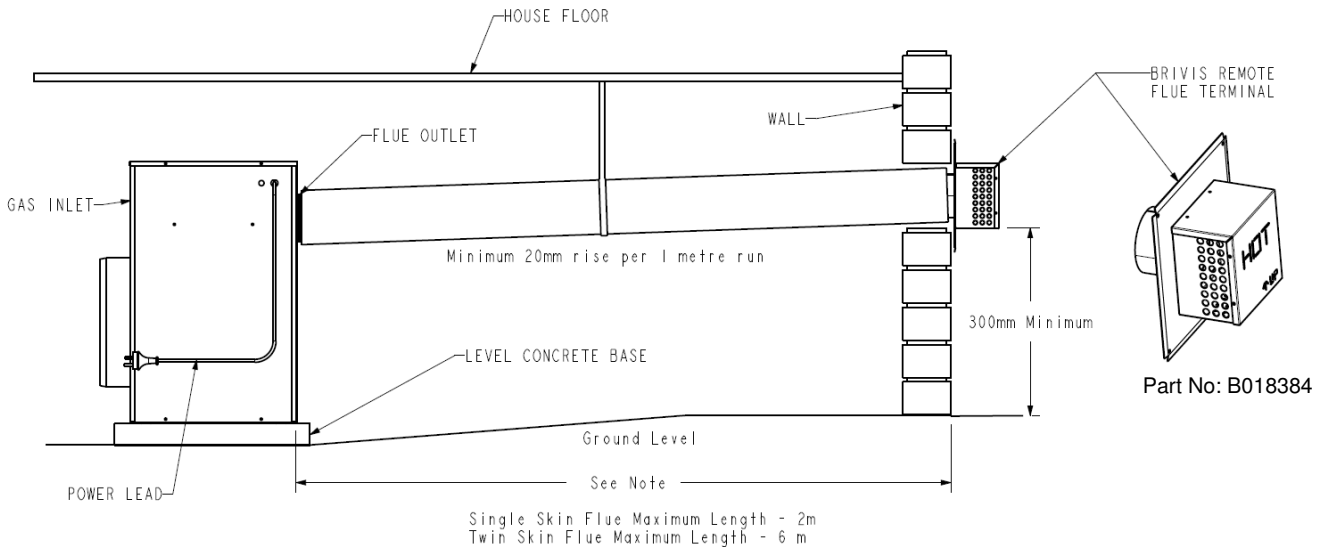
2.6.2 All Compact Classic models

- Require a **100mm round single or twin wall non-corrosive metal flue**, suitably terminated
- All flues must have a bolted flue sleeve connection to allow for repairs and/or removal of the appliance
- **Twin wall flue** – maximum flue length of **6m**
- **Single wall flue** – maximum flue length of **2m**
- Up to 4 x 90° elbows are permitted with the same length requirements specified above
- One x 45° bend is equivalent to 0.5 x 90° bend (i.e. 2 x 45° bends = 1 x 90° bend)

2.6.3 Bravis Remote Flue Terminal

In specific installations, for example under the floor, it is recommended that a remote terminal be used to terminate a horizontal flue on the outside wall of the building. Please refer to instructions supplied with a Bravis Remote Flue Terminal. Figure below depicts typical Compact Classic underfloor configuration.

Diagram 5. Remote flue terminal installation



2.7 Fan Speed Setting

There are three fixed fan speed options available with this unit, these are:

- High - **“HIGH”** (Factory Default)
- Medium - **“MED”**
- Low - **“LOW”**

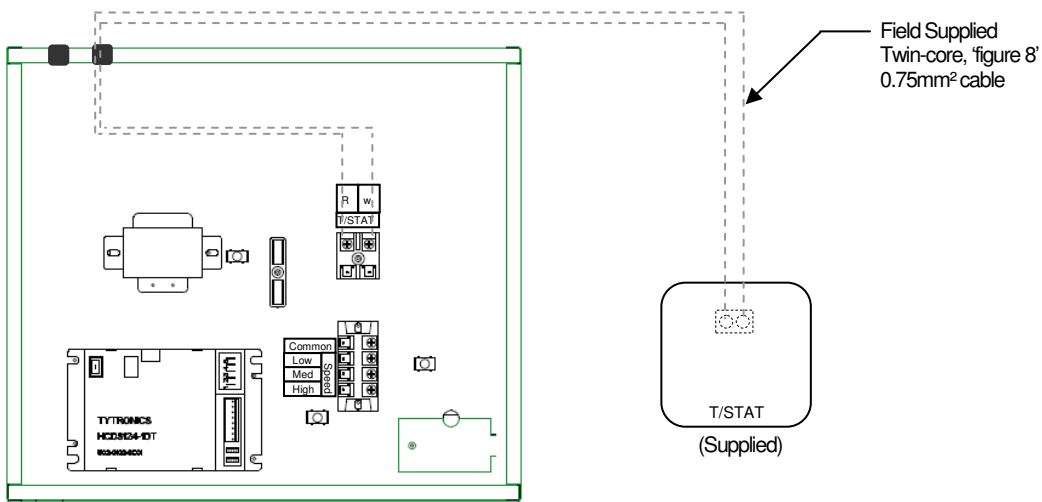
To adjust the fan speed:

Ensure the power supply to the unit is **OFF** at the fixed switched socket outlet adjacent to the heater
Access the controls and change as required:

- For High fan speed do not adjust
- For Medium fan speed move terminal from **“HIGH”** to **“MED”**
- For Low fan speed move terminal from **“HIGH”** to **“LOW”**
- Turn the power back on once complete

2.8 Wiring Diagram

Diagram 6. CC3 to Thermostat wiring diagram



3.0 Ducting Information

Good duct design and sizing are essential to every Brivis Central Heating system. Use the Brivis "SuperSizeGuide" and technical data within this manual for the best results and follow these guidelines:

- Ductwork should be well insulated, airtight and have a minimum insulation rating of R1.0 (R1.5 in some areas). Ensure that ducting complies with the Building Code of Australia
- The ducting should be well fastened to pops, BTO's, outlet boots and neck adapters adequately with duct tape, in accordance with AS 4254
- It should be correctly sized with the curves and bends smooth enough to ensure the air flows through efficiently and quietly with minimal resistance
- The registers and diffusers should be large enough and of good design. They should minimise noise, while providing the correct distribution pattern
- The positive return air system should be fitted with a grille large enough to accept the full air capacity of the system at low noise levels and minimum resistance
- If the system uses high level outlets (e.g. ceiling diffusers), then the return air inlet should be at a low level. Ceiling systems with a high level return air may result in reduced performance

Note: The ducting should be well insulated and it is mandatory under building codes to install insulated fire rated duct.

If a filter is fitted to the return air grille, it should be easily accessible for regular cleaning. The chart below gives the minimum recommended return air grille sizes for each model heater.

Table 2: Minimum Recommended Return Air Grille Selection Chart

Model	Without Filter		With Filter	
	Grille Size (mm ²)	Example of Size (mm)	Grille Size (mm ²)	Example of Size (mm)
CC315	0.21	(370x560)	0.30	(400x750)
CC320	0.21	(370x560)	0.30	(400x750)
CC320XA	0.24	(530x530)	0.35	(400x1000)
CC325	0.23	(530x530)	0.33	(350x900)
CC325XA	0.26	(530x530)	0.38	(400x1000)
CC330	0.35	(400x1000)	0.51	(400x1350)
CC330XA	0.38	(400x1000)	0.54	(400x1350)

For example a grille with a free ventilation opening measuring 370mm x 560mm, the grille size is 0.37m x 0.56m = 0.21m². This grille would be suitable for a CC315 & CC320 heater provided the grille does not have a filter fitted.

Note: Grille sizes are based on maximum airflow with typical Egg-Crate Grille type. For all other types, consult grille manufacturer's specifications.

4.0 Outlet Guide

The outlet chart provides recommendations based on using the Brivis "SuperSizeGuide" or a system designed using accepted design principles. These figures also relate to typical size registers and diffusers used on domestic heating systems i.e. 300mm x 100mm floor registers and 150mm round ceiling diffusers, with 150mm ductwork connection. For all systems, a minimum number of outlets must remain fully open (this includes both the outlet grille and the damper in the duct) if the heater is to operate properly without overheating. Similarly, ceiling outlet systems have a maximum number of outlets that can remain fully open, to ensure that the velocity through each outlet is sufficient. These maximum ceiling outlet figures relate to fully open outlets, however, the system will operate efficiently with more outlets open, if it has been properly balanced. There is no maximum number for floor outlets, so the following chart below lists the typical number of floor outlets for each heater model.

The outlet chart has been divided up into three columns as follows:

- A. The maximum number of outlets that should remain fully open for a ceiling outlet system
- B. The typical number of outlets for a floor outlet system
- C. The minimum number of outlets that should remain fully open for floor/ceiling systems

Table 3: Outlet register chart

Model	Airflow Rate (l/s)	A Maximum Ceiling	B Typical Floor	C Minimum Floor/Ceiling
CC315	540	10	9	5
CC320	540	10	9	5
CC320XA	625	11	10	6
CC325	600	11	10	6
CC325XA	680	12	11	7
CC330	920	13	16	8
CC330XA	980	14	16	8

Note: Airflow figures are based on the maximum fan speed setting at total static pressure of 50Pa for 15, 20 & 25 kW models, 125Pa for the 30kW model.

5.0 Commissioning and Control Settings

All Brivis heaters have been factory tested, but should be commissioned and adjusted in accordance with the following instructions to ensure efficient and optimal heating performance.

Remember:

- Switch the mains power OFF before touching any wiring.
- All these steps must be carried out by a qualified tradesperson.
- If the heater cannot be adjusted to operate in accordance with these instructions, then contact the Brivis Customer Service Centre (contact details are on the back cover of this manual).

5.1 Commissioning Instructions

With a correctly designed and installed ducted system, generally, the balancing damper in an outlet register should be initially set as follows:

- Living areas: 100% open
- Bedrooms: 50% open
- Bathrooms, ensuite & Laundry: 25% open

5.1.1 Start & Check Supply Pressure

1. Turn OFF the 240 Volt AC power supply at the fixed switched socket outlet adjacent to the unit.
2. Ensure the gas cock adjacent to the heater is in the OFF position.
3. Locate gas valve inlet pressure test point, remove the grub screw and insert your test point fitting (hose tail 1/8" NPT).
4. Attach a manometer to the test point.
5. Ensure that all air has been purged from the gas piping and then turn ON the gas cock adjacent to the unit.
6. Turn on the 240 Volt ac power supply adjacent to the unit.
7. Go to the Thermostat, turn it ON and increase the temperature setting so that it calls for heat
8. The unit will now attempt to ignite. If the ignition attempt fails the heater will cycle through five ignition attempts before locking out.
9. Once the ignition is successful allow the unit to run for one minute, ensuring the gas supply pressure does not fall to below 1.1 kPa for natural gas and 2.7 kPa for LPG heaters. **This should be done with all other gas appliances operating at their full capacity.**
10. If the reading is below the minimum requirement and cannot be adjusted any higher, this indicates the incoming gas supply is inadequate (check supply pipe for blockage, check pipe sizing and gas meter size).
11. Turn the unit OFF at the thermostat, isolate the gas and the 240 Volt power supply adjacent to the unit.
12. Remove and replace test point with the grub screw.

Note: If the unit does not ignite on the first attempt it may be a result of all air not being purged from the gas supply line. The heater will attempt to ignite up to five times before locking out, after which it will require a power reset.

If the heater does not attempt pilot ignition at all:

- Check the Lighting Procedure again and if it still fails to light, by-pass the Thermostat by removing cables from the terminal block at the unit and link (bridge) terminals "R" and "W". If it then lights, there is a fault with the wires to the Thermostat or in the Thermostat itself. If it does not light, check the overheat switch has not tripped or the 2 amp fuse has not blown.

5.1.2 Start & Check Burner Pressure

1. Repeat steps 1 to 7 in Section 5.1.1. For step 3 relocate the test point fitting from the inlet pressure test point location to the burner pressure test point location, either on the gas valve or the manifold.
2. Take a manometer reading of the test point pressure and confirm it is equal to the figure shown on the appliance data label. If the pressure reading is not correct adjust the gas valve pressure regulator either up or down to match the required test point pressure. If the pressure is lower than the required amount and cannot be adjusted any higher, this indicates that the incoming supply pressure is not sufficient (check supply pipe for blockage, pipe and gas meter sizing).

5.1.3 Setting the fan speed

Compact Classic Heaters are fitted with a single speed room fan with High, Medium and Low fan speed options. Refer to **section 2.7** to change the desired fan speed. Set the fan speed to achieve, as close as possible, a temperature rise at the nearest outlet to the heater above the inlet (Return Air) temperature for the type of system as follows:

- **Floor Outlet System:** 35° to 40° C rise (e.g. Return Air temp at 20° C plus 35° C rise equals a 55° C outlet temperature)
- **Ceiling or High Level outlet System:** 25° to 30° C rise. If the outlet air is hotter than recommended then a higher fan speed should be selected to reduce the outlet temperature - and if it is lower, then reduce the fan speed

Note: The temperature of the warm air at any outlet should not be more than 45° C above the return air temperature.

5.1.4 Final Checks

Confirm:

1. Minimum flowing gas pressure is 1.1 kPa for natural gas and 2.7 kPa for LPG heaters with all other gas appliances in operation.
2. The burner pressure is as indicated on the appliance data label.
3. The temperature of the warm air at any outlet is not more than 45° C above the return air temperature.
4. The fan continues to run while the burners are operating.

Once Confirmed:

- Turn the heater OFF at the thermostat.
- Ensure that the burners and fan turn OFF, then turn OFF the gas supply at the supply tap and remove the manometer hose and fitting from the pressure test point .
- Replace and tighten the test point screw, turn ON the gas supply at the supply tap, start up the heater again and test for leaks using soapy water solution or a leak detector spray.
- Replace controls access panel, then proceed to instruct the customer on correct operation of the system and assist the customer to fill in the Warranty Card details
- Issue any required documentation to the relevant people/authorities in regards to the installation of the heater, the gas connection and power supply (for example, a Certificate of Compliance and Certificate of Electrical Safety).

Note: Product warranty registration forms can be found online at brivis.com.au or in the owner's manual.

6.0 Technical Specifications

Table 4: Compact Classic Technical Specifications

Model	Gas Input		Heat Output		Duct Connection Pop Sizes [mm]	Minimum Recommended Return		Airflow @ Total Static Pressure [l/s]				Weight [kg]	Fan Motor		Total Maximum Current [A]	Maximum Nominal Cooling Capacity [kW]
	MJ/hr		kW			No Filter [m²]	With Filter [m²]	50 Pa	75 Pa	100 Pa	125 Pa		Power [W]	Current [A]		
	Max Input NG	Max Input LPG	Max Output NG	Max Output LPG												
CC315	70	70	15	15	300	0.21	0.30	540	520	500	480	52	250	1.8	4	10
CC320	90	90	19	19	300	0.21	0.30	540	520	500	480	53	315	2.5	4	10
CC320XA	90	90	19	19	350	0.24	0.35	625	596	570	545	53	315	2.5	4	10
CC325	107	107	23.5	23.5	300	0.23	0.33	600	580	560	525	53	315	2.5	4	10
CC325XA	107	107	23.5	23.5	350	0.26	0.38	680	650	620	593	53	315	2.5	4	13
CC330	133	133	30	30	350	0.35	0.51	1000	970	940	920	71	600	4.4	6.5	15
CC330XA	133	133	30	30	400	0.38	0.54	1060	1040	1000	980	71	600	4.4	6.5	15

Notes:

Notes:



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