# COMBINED HEATING & HOT WATER BOILERS

## HEATMASTER® TC

Combined gas fired total condensing boiler & water heater with stainless steel heat exchanger.

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# HEATMASTER® 25TC > 120TC

## Combined gas fired condensing boiler & water heater with stainless steel heat exchanger.

**Available in six sizes.**

- Heating and hot water from one unit saves space, reduces energy use and speeds up installation
- Operates in most efficient mode (condensing) for both heating and hot water
- Low maintenance with no anode protection required
- Reduces legionella risk due to temperature stored at > 60°C
- Corrosion-resistant stainless steel heat exchanger backed by a 10-year warranty reduces maintenance and increases system lifespan
- Suited to high demand and critical hot water premises such as hotels and hospitals
- Long life – 25-year guarantee on the corrosion resistant stainless steel cylinder
- Easy to use standardised controls using ACVMax control system
- Combine with Prestige® heat only boilers or Smart cylinder for highly efficient heating and hot water performance all from one manufacturer
- Suitable for vented or unvented systems (optional unvented kit required)
- Supplied with LPG kit for simple on-site conversion


**TANK-IN-TANK** TECHNOLOGY

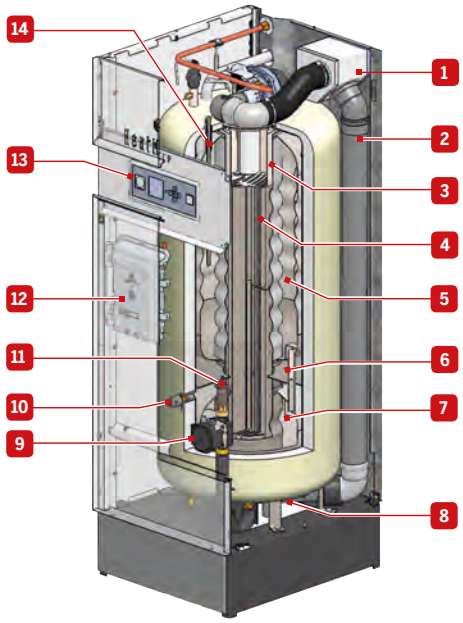
| | |
|---|---|
| FAST **HEAT UP** | RAPID **RECOVERY** |
| REDUCED **FOOTPRINT** | REDUCED **SCALE** |
| LOW **STORAGE** | MINIMUM **HEAT LOSS** |

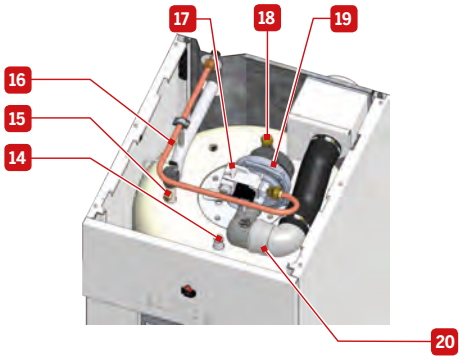
Read more about Tank-in-Tank P 6

10 HEAT EXCHANGER WARRANTY | TANK IN TANK | BIM OBJECTS | NAT GAS LPG | DOMESTIC COMMERCIAL

## ANATOMY

1. Concentric flue gas/air inlet box
2. Flue gas exhaust tube
3. Combustion chamber
4. Stainless steel heat exchanger
5. Stainless steel Tank-in-Tank hot water production tank
6. Primary circuit separation disc
7. Indirect water pre-heater
8. Condensate recovery dish
9. De-stratification pump
10. Pressure sensor
11. NTC Sensor (Heating circuit)
12. Electrical panel (with spare fuses at the back)
13. ACVMax Control panel
14. DHW tank dry well (Sparge tube with temperature sensor)
15. Automatic air vent
16. Gas pipe
17. Gas valve
18. Connection for DHW safety valve*
19. Modulating air/gas premix burner with fan
20. Air inlet
21. Discharge for built-in DHW safety valve / (T & P relief valve) outlet to be connected to the sewage system
22. Gas connection [M]
23. Grommets for electrical wires (low voltage control)
24. Domestic Hot Water outlet [M]
25. Heating supply connection [F]
26. Connection for provided heating safety valve (to be installed).
27. Connection for low temperature heating circuit return (HM 70 - 85 - 120 TC only)
28. Heating return connection [F]
29. Grommets for electrical wires (230 V)
30. Domestic Hot Water inlet [M]
31. Flue connection



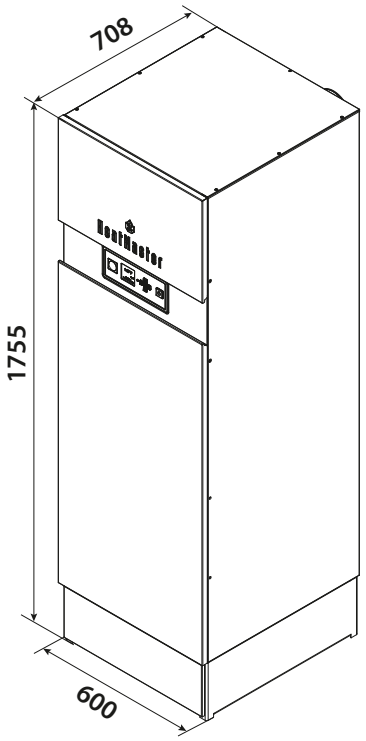


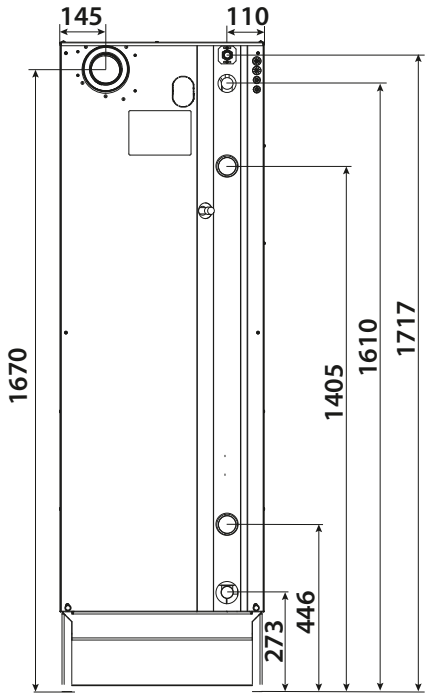
*ACV UK Ltd advise the installation of a domestic hot water mixing valve on the hot flow immediately after the appliance.

# HEATMASTER® 25TC > 120TC

## DIMENSIONS - 25TC > 45TC

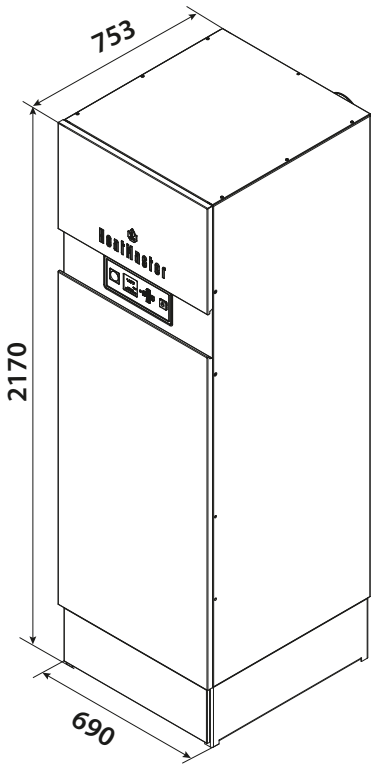
All dimensions in mm.

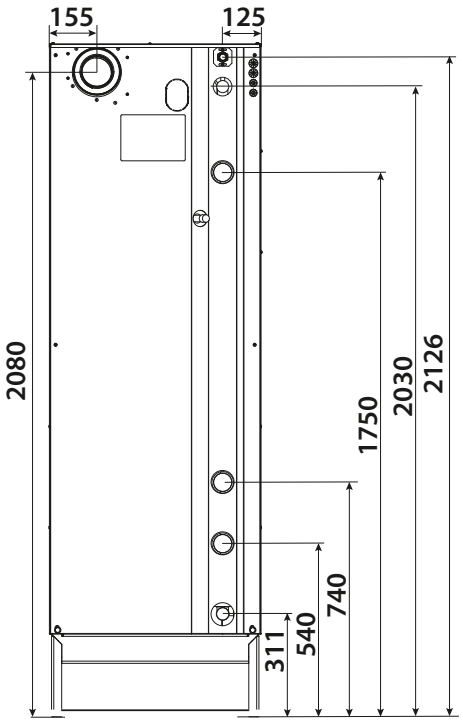



## DIMENSIONS - 70TC > 120TC

All dimensions in mm.



## TECHNICAL DATA

| TYPE | UNIT | HM 25 TC | HM 35 TC | HM 45 TC | HM 70 TC | HM 85 TC | HM 120 TC |
|---|---|---|---|---|---|---|---|
| Part number | | 05652101 | 05652201 | 05652301 | 05652401 | 05652501 | 05652601 |
| Input max (heating) | kW | 25 | 35 | 45 | 69,9 | 85 | 115 |
| Input min (heating) | kW | 5 | 7 | 9 | 21.5 | 21 | 25 |
| Output power max (80/60°C) | kW | 24.3 | 34.1 | 44.1 | 68.0 | 82.9 | 111.7 |
| Efficiency at 100% | % | 97.3 | 97.9 | 98 | 97.3 | 97 | 97 |
| Efficiency at 30% load (EN677) | % | 109.0 | 109.0 | 109.0 | 109.0 | 108 | 108 |
| Capacity (total) | L | 196 | 196 | 196 | 315 | 315 | 315 |
| Capacity (domestic hot water) | L | 96 | 96 | 96 | 190 | 190 | 190 |
| Connection - heating | Ø" | 1 F | 1 F | 1 F | 6/4 F | 6/4 F | 6/4 F |
| Connection - DHW | Ø" | 1 M | 1 M | 1 M | 1 M | 1 M | 1 M |
| Connection gas | Ø" | 3/4 M | 3/4 M | 3/4 M | 3/4 M | 3/4 M | 3/4 M |
| Water pressure drop boiler at Δt = 20°C | mbar | 3 | 6 | 10 | 9 | 14 | 27 |
| Gas flow rate (max output) | m³/h | 2.66 | 3.64 | 4.67 | 7.2 | 8.6 | 12 |
| Flue connection | Ømm | 80/125 | 80/125 | 80/125 | 100/150 | 100/150 | 100/150 |
| Weight (empty) | kg | 177 | 177 | 177 | 298 | 298 | 299 |
| Max operating temperature | °C | 87 | 87 | 87 | 87 | 87 | 87 |
| Max service pressure heating (primary) | bar | 3 | 3 | 3 | 3 | 3 | 3 |
| Max service pressure (DHW) | bar | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| Voltage | V | 230 | 230 | 230 | 230 | 230 | 230 |
| Declared load profile | | XXL | XXL | XXL | N/A | N/A | N/A |
| Electrical consumption | W | 95 | 110 | 126 | 210 | 266 | 327 |
| Space heating energy efficiency class | | A | A | A | A | A | A |
| Water heating energy efficiency class | | A | A | A | A | A | A |
| NOx class | | 6 | 6 | 6 | 6 | 6 | 6 |
| NOx emissions | mg/kWhr | 24.6 | 29.5 | 33.2 | 33.1 | 29.3 | 31.1 |

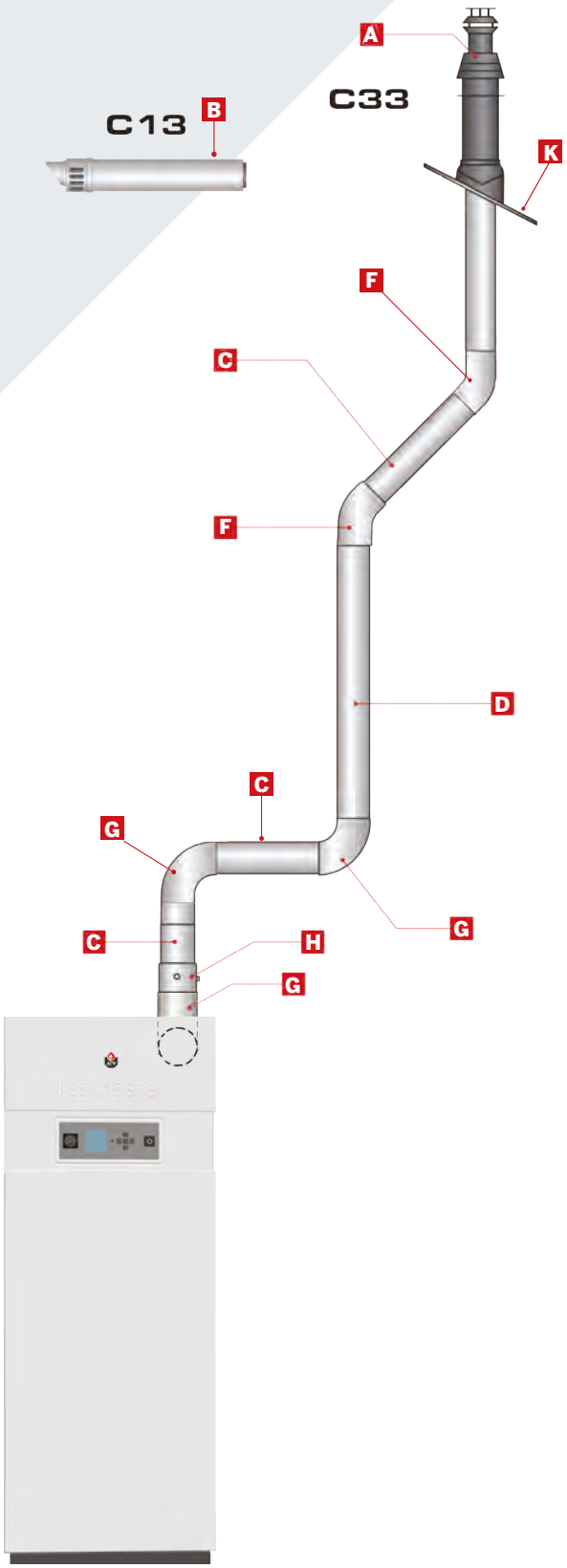
## DOMESTIC HOT WATER PERFORMANCE

| TYPE | UNIT | HM 25 TC | HM 35 TC | HM 45 TC | HM 70 TC | HM 85 TC | HM 120 TC |
|---|---|---|---|---|---|---|---|
| Peak flow at 40°C | L/10' | 361 | 409 | 471 | 716 | 783 | 900 |
| Peak flow 1st hour at 40°C | L/60' | 1018 | 1328 | 1610 | 2455 | 2895 | 3620 |
| Continuous flow at 40°C | L/h | 788 | 1104 | 1390 | 2087 | 2534 | 3402 |
| Peak flow at 45°C | L/10' | 301 | 339 | 373 | 592 | 646 | 676 |
| Peak flow 1st hour at 45°C | L/60' | 865 | 1127 | 1366 | 2083 | 2456 | 3098 |
| Continuous flow at 45°C | L/h | 676 | 946 | 1192 | 1789 | 2172 | 2928 |
| Peak flow at 60°C | L/10' | 183 | 197 | 320 | 348 | 371 | 440 |
| Peak flow 1st hour at 60°C | L/60' | 577 | 749 | 894 | 1391 | 1638 | 1847 |
| Continuous flow at 60°C | L/h | 473 | 662 | 820 | 1252 | 1520 | 1754 |

This data assumes an incoming mains water temperature of 10°C.

For flue accessories and controls see page 58.

# FLUE COMPONENTS




**Compatible with:**

- HEATMASTER® 25C*,
- HEATMASTER® 25 - 45 TC*
- WATERMASTER 25 - 45
- PRESTIGE® 24 - 32

Flue diameter 80/125mm

## TERMINALS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| A | 537D6184 | Vertical Terminal |
| B | 537D6185 | Horizontal Terminal |

## FLUE EXTENSIONS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| C | 537D6187 | 500 mm cuttable length |
| D | 537D6188 | 1000 mm cuttable length |

## ELBOWS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| F | 537D6190 | 43° - 45° bend |
| G | 537D6191 | 87° - 90° bend |

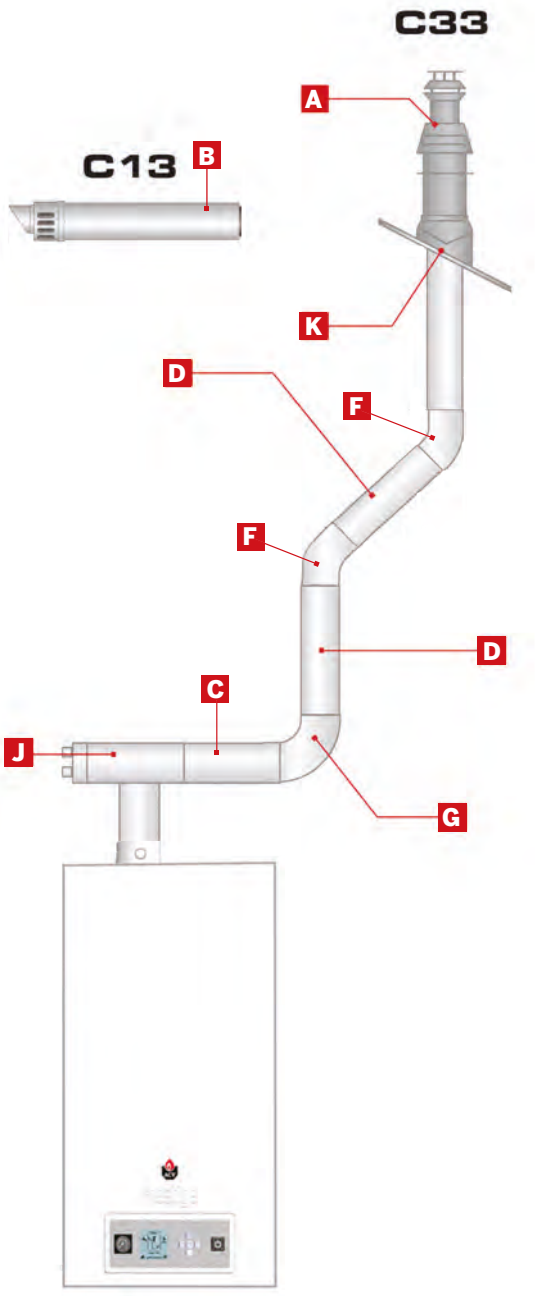
## MEASUREMENT TUBE

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| H | 537D6193 | Measuring tube for flue gas analysis |
| J | 537D6229 | Measurement T-piece with inspection panel (Not Shown) |

## ACCESSORIES

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| K | 537D6182 | Adjustable roof flashing |
| | 537D6183 | Wall bracket DN125 |
| | 537D6364 | Flat roof flashing |

*These boiler models are supplied with an external measuring tube for flue gas analysis as one is not incorporated within the boiler. The manufacturer reserves the right to modify manufacture.*




Compatible with:

- HEATMASTER® 70 - 85 - 120 TC*
- WATERMASTER 70 - 85 - 120
- PRESTIGE® 42 - 50 - 75 - 100 - 120

Flue diameter 100/150mm

## TERMINALS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| A | 537D6300 | Vertical terminal |
| B | 537D6301 | Wall terminal |

## FLUE EXTENSIONS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| C | 537D6303 | 500 mm cuttable length |
| D | 537D6304 | 1000 mm cuttable length |

## ELBOWS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| F | 537D6306 | 43° - 45° elbow |
| G | 537D6307 | 87° - 90° elbow |

## MEASUREMENT TUBE

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| H | 537D6308 | Measuring tube (Not Shown) |
| J | 537D6310 | Measurement T-piece with inspection panel |

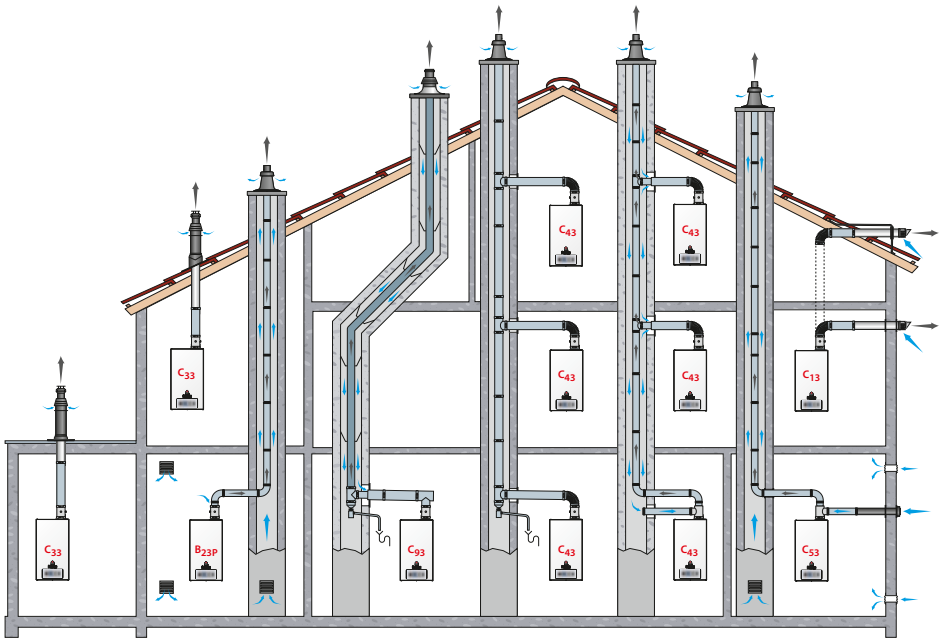
## ACCESSORIES

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| | 537D6208 | Flat roof collar |
| K | 537D6209 | Adjustable roof flashing |

## ADAPTERS (NOT SHOWN)

| | PART NUMBER | DESCRIPTION |
|---|---|---|
| | 537D6207 | Concentric to parallel adaptor Ø 100/150mm - Ø 2 x 100mm |
| | 537D6210 | Bracket Ø 100 mm |

# FLUE CONFIGURATIONS




## A TERMINALS

| REFERENCE | DESCRIPTION |
|---|---|
| B23P | Connection to a combustion product exhaust system designed to operate with positive pressure. |
| B23 | Connection to an exhaust duct that discharges the combustion products outside the room where it is installed, with the combustion air being drawn directly from the boiler room |
| C13(x) | Connection using pipes fitted with a horizontal terminal that simultaneously takes in combustion air for the burner and discharges combustion products outside through openings that are either concentric or close enough together to be subjected to similar wind conditions, i.e. openings shall fit inside a square of 50 cm for boilers up to 70 kW and inside a square of 100 cm for boilers above 70 kW. |
| C33(x) | Connection using pipes fitted with a vertical terminal that simultaneously takes in fresh air for the burner and discharges combustion products outside through openings that are either concentric or close enough together to be subjected to similar wind conditions , i.e. openings shall fit inside a square of 50 cm for boilers up to 70 kW and inside a square of 100 cm for boilers above 70 kW. |
| C43(x) | Connection using two pipes to a collective duct system serving more than one appliance; this system of collective ducts features two pipes connected to a terminal unit that simultaneously takes in fresh air for the burner and discharges the combustion products outside through openings that are either concentric or close enough together to be subjected to similar wind conditions. |
| C43(x) | Boilers are suitable for a connection to a natural draught chimney only. |
| C53(x) | Connection to separate ducts for supplying combustion air and discharging combustion products; these ducts may end in zones with different pressure levels, but are not allowed to be installed on opposite walls of the building. |
| C63(x) | Type C boiler meant to be connected to a system for supplying combustion air and discharging combustion products, that is approved and sold separately (Prohibited in some countries (e.g. Belgium) - refer to local regulations and standards in force). Terminals for the supply of combustion air and for the evacuation of combustion products are not allowed to be installed on opposite walls of the building. See also the following additional specifications:<br>• Maximum allowable draught is 200 Pa.<br>• Maximum allowable pressure difference between combustion air inlet and flue gas outlet (including wind pressures) is as follows: 95 Pa (HM 25 TC), 130 Pa (HM 35- 45 TC), 110 Pa (HM 70 TC), 160 Pa (HM 85 TC) and 170 Pa (HM 120 TC). 150 Pa (for P42/P50/P75) and 180 Pa (for P100/P120)<br>• Condensate flow is allowed into the appliance.<br>• Maximum allowable recirculation rate of 10% under wind conditions. |
| C83(x) | Connection using a single or double duct system. The system is made of a normal exhaust flue duct that discharges the combustion products. The appliance is also connected through a second duct fitted with a terminal, that supplies the burner with fresh outdoor air. Please contact your ACV representative for the meters of flue pipes that can be used to connect the appliance(s) |
| C93(x) | Connection using an individual system whose combustion product exhaust duct is installed in an exhaust duct that is integral with the building. The appliance, the exhaust duct and the terminal units are certified as an inseparable assembly. Minimum usable diameter for the vertical duct supplying the combustion air is 100 mm. The C93 configuration enables airtight operation in a pre-existing chimney.<br>The combustion air crosses the space between the tubing and the pre-existing chimney. Make sure to clean the pre-existing chimney thoroughly prior to installation, especially if there is soot or tar residue. Make sure that there is a clearance area for the combustion air at least equivalent to the area that would have been provided by separate concentric ducts or air intake ducts. |