VIRTUENS MCA

WALL-HUNG GAS CONDENSING BOILERS

TECHNICAL LEAFLET



Heating and domestic hot water using micro-accumulation or an independant tank

GAS Natural gas Propane

BRASS Brass hydroblock

Remote control possible

VIRTUENS MCA 15
2,4 to 15 kW, for heating only

VIRTUENS MCA 24
3 to 24 kW, for heating only

VIRTUENS MCA 32
3,4 to 32 kW, for heating only

VIRTUENS MCA 24/29MI
3 to 24 kW, for heating and micro-accumulated domestic hot water production with an output of up to 35 kW in domestic water mode

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All the boilers within the Virtuens MCA range are supplied equipped with a Diematic Evolution controller.

Diematic Evolution can control 1 to 3 heating circuits (plus one DHW circuit) and can be extended with many accessories.

Smart CDI or SMART TC° room thermostats can be connected to Virtuens MCA.

This enables remote control of the heating and domestic hot water production via a free downloadable app.

Various air/flue gas connection configurations are possible: we offer solutions for connection with a horizontal or vertical forced flue, to a chimney, or to a collective flue (3 CEp).

Hydrogen 20%

Operating conditions

Boiler:
Max. operating pressure: 3 bar
Max. operating temperature: 80 °C
Safety temperature limiter: 110 °C
Power supply: 230 V/50 Hz
International Protection marking: IP X5D

DHW cylinder:
DHW max. operating pressure: 8 bar

Homologations:
B_{23}, B_{23P}, B_{33}, $C_{[10]3}$, C_{13}, C_{33}, C_{43P}, C_{53}, C_{63}, C_{93}

Gas category
See national or local regulations
NOx class: 6

CE Identification no.:0085DL0336

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PRESENTATION OF THE RANGE

VIRTUENS MCA

Virtuens MCA boilers are factory tested.
They are pre-equipped to operate with natural gas; they can also be easily adjusted to operate with propane.

Virtuens MCA boilers are supplied equipped with a wall mounting frame with prefitted water and gas valves, a modulating heating circulating pump with an energy efficiency index (EEI) < 0.23, a heating safety pressure relief valve, an expansion vessel, and a heating/DHW diverter valve.

Two versions are available with DHW cylinders:
• Virtuens MCA 24 or 32 /BS 80: an 80-litre BMR 80 tank is placed either to the left or right of the boiler,
• Virtuens MCA 24 or 32 /BS 130: a 130-litre SRB 130 tank is placed on the ground, underneath the boiler.

The Virtuens MCA... MI version is a combination boiler producing large quantities of domestic hot water using an oversized plate heat exchanger and highly responsive electronics.

ENHANCED PERFORMANCE

- Efficiency up to 110%,
- Low sound power level,
- NOx class 6, in line with EN 15 502,
- NOx ≤ 30 mg/kWh

MODELS

MODELS	REFERENCE	GENERATOR TYPE
Virtuens MCA 15	7910521	Heating and DHW production with separate storage tank
Virtuens MCA 24	7910523	Heating and DHW production with separate storage tank
Virtuens MCA 32	7910524	Heating and DHW production with separate storage tank
Virtuens MCA 24/29 MI	7910525	Heating and micro-accumulated DHW production
Virtuens MCA 24-32/BMR 80	-	Heating and domestic hot water production with the associated 80 or 130 liters tank
Virtuens MCA 24-32/SRB 130		

A+ With SMART CDI room temperature sensor and cloud-based outside temperature or an outside temperature sensor (option)

PRESENTATION OF THE RANGE

STRENGTHS

DIEMATIC EVOLUTION CONTROL SYSTEM
- Highly advanced panel
- Simplified access to all operating modes
- Optimal management of systems combining different heating generators
- Remote control with our Smart CDI or SMART TC° range of smart room temperature sensors
- When using the cloud-connected Smart CDI or SMART TC°, there is no need to install an outside sensor option.

DOMESTIC HOT WATER PERFORMANCES
- High DHW performances: micro-accumulation (MI): specific flow 14,3l/min.

INTELLIGENT FILLING
- Exclusive active charging technology
- Guarantees comfortable filling
- Ensures optimal pressure in the heating circuit in a totally safe manner, avoiding inconveniences and accidents.

ROBUST
- Stainless steel mono coiled heat exchanger
- Brass hydraulic hydroblock across the entire range.
- Copper tubes.

EASY TO INSTALL
- Reduced installation time thanks to the wall mounting frame with taps provided in the boiler package
- Installation and commissioning aids: mounting template, quick guide, interactive control system.

COMPACT
- Compact and easy to integrate thanks to its smaller dimensions.

NEW-GENERATION BOILER
- Automatic combustion control
- Output modulation from 10% to 100%
- Suitable for G20 gas containing up to 20% Hydrogen (H2)
- Silent operation with soundproofing
- Central flue gas outlet
- Built-in exhaust gas non-return valve.

INTERNAL LIGHTING
- Better visibility.



ROOM THERMOSTATS AND SENSORS (OPTIONS)

Description	Control system class	Reference	Package	Connection	Batteries	Timer programme	Internet connected
SMART CDI connected room temperature sensor	Class VI*	7898724	-	wired	no	✓	✓
SMART CDI RF connected room temperature sensor	Class VI *	7900088	-	wireless	✓	✓	✓
Gateway LINK WIFI (GTW IoT)		7898722					
SMART TC° connected room temperature sensor (wired)	Class VI *	7691375	AD324	wired	no	✓	✓
Wired modulating room thermostat	Class V Class VI *	7609763	AD304	wired	✓	✓	no
Radio modulating room thermostat	Class V Class VI *	7609762	AD303	wireless	✓	✓	no
Programmable room thermostat (wired)	Class IV Class IV *	7768817	AD337	wired	✓	✓	no
Programmable room thermostat (wireless)	Class IV Class IV *	7768818	AD338	wireless	✓	✓	no
Outside temperature sensor (wired)	-	85757741	FM46	wired	no	no	no

* with wired outside temperature sensor 85757741
** with wired (85757741) or wireless (7776874) outside temperature sensor

TECHNICAL SPECIFICATIONS

VIRTUENS MCA

Boiler:

Boiler type: condensing

Burner: modulating total premix

Energy used: natural gas (20% H2) or propane

Combustion evacuation: chimney or balanced flue

Operating temperature:

Min. average operating temperature: 25 °C

Max. average operating temperature: 80 °

MODEL			15	24	32	24/BMR 80 24/SRB 130	32/BMR 80 32/SRB 130	24/29 MI
Generator type			**Heating only**			**Heating and DHW with separate tank**		**Heating and DHW**
Rated heating capacity	*Prated*	kW	15,0	24,0	32,0	24,7	33	24,0
Useful output	- at rated pressure and high temp. *P4* (1)	kW	15	24	32	24	32	24
	- at 30% of rated pressure and low temp. *P1* (2)	kW	5,1	8,1	10,8	8,1	10,9	8,1
Usable output range at flow/return t°	- 50/30 °C min.-max.	kW	2,6 - 16,3	3,2 - 26,1	3,7 - 34,9	3,3 - 26.1	3,7 - 34,9	3,2 - 26,1
	- 80/60 °C min.-max.	kW	2,4 - 15,0	2,9 - 24	3,4 - 32,0	3,0 - 24	3,4 - 32,0	2,9 - 24
Useful efficiency	- at rated pressure and high temp. *η4* (1)	%	88,1	87,9	87,8	87,9	87,9	87,9
	- at 30% of rated pressure and low temp. *η1* (2)	%	99,4	98,8	98,7	98,8	98,9	98,8
Seasonal energy efficiency (without control system) ***ηs***		%	94	94	94	94	94	94
Energy efficiency for the DHW (without control system) ***ηwh***		%	-	-	-	82	82	87
Declared load profile		-	-	-	-	XL	XL	XL
Nitrogen oxide (*NOx*) emissions		mg/kWh	18	20	22	21	30	20
Heat loss on standby *Pstby*		kW	0,04	0,04	0,04	0,04	0,04	0,04
Auxiliary electricity consumption	- full load *elmax*	kW	0,014	0,023	0,038	33	52	0,023
	- part load *elmin*	kW	0,011	0,011	0,011	0,011	0,011	0,011
	- standby *PSB*	kW	0,004	0,004	0,004	0,004	0,004	0,004
Gas consumption	- G20 (min/max*)	m^3/h	0,26/2,18	0,32/3,17	0,37/3,49	0,33/3,17	0,37/3,69	0,32/3,17
	- butane G30 (min/max*)	kg/h	0,20/1,62	0,24/2,36	0,28/2,75	0,24/2,36	0,28/2,75	0,24/-
	- propane G31 (min/max*)	kg/h	0,19/1,6	0,23/2,33	0,27/2,71	0,24/2,33	0,27/2,71	0,23/-
Flue gas mass flow rate (min)		kg/s	0,001	0,001	0,002	0,001	0,002	0,001
Flue gas mass flow rate (max)		kg/s	0,007	0,011	0,015	0,014	0,016	0,014
Sound power level, indoors *LWA*		dB(A)	48	50	51	50	53	50
Expansion vessel water capacity		l	8	8	8	8	8	8
Empty net weight		kg	28,5	28,5	29,2	Virtuens MCA 24 = 28,5 BMR 80 = 45,2 SRB 130 = 60,6	Virtuens MCA 32 = 29,2 BMR 80 = 45,2 SRB 130 = 60,6	28,5
Net weight, filled with water		kg	31	31	31,7	-	31,7	31

(1) High temperature setting: return temperature at the boiler inlet 60 °C and flow temperature at the boiler outlet 80 °C.
(2) Low temperature: return temperature (at the heater inlet) for condensing boilers 30 °C, for low temperature boilers 37 °C, and for other heaters 50 °C
* max = with domestic hot water tank

DHW

Maximum tank temperature (max): 95 °C
Tank thermostat hysteresis (Δ_base): 5 K

MODEL		24/BMR 80 24/SRB 130	32/BMR 80 32/SRB 130	24/29MI
Minimum water flow	l/min	-	-	2,0
Total tank water capacity (Vtot)	l	75	125	-
Power exchanged	kW	22,1	24	29 (Rated heat output (Pn) for domestic hot water)
Flow rate over 10 minutes at Δt = 30 K	l/10 min	165	200	-
Hourly flow rate at ΔT = 35 K	l/h	543	588	-
Specific flow rate at Δt = 30 K according to EN 13203-1	l/min	16,5	20,0	14,3
Minimum dynamic water pressure	bar	-	-	0,8
Heat loss coefficient (UA_S)	W/K	1,26	1,09	-

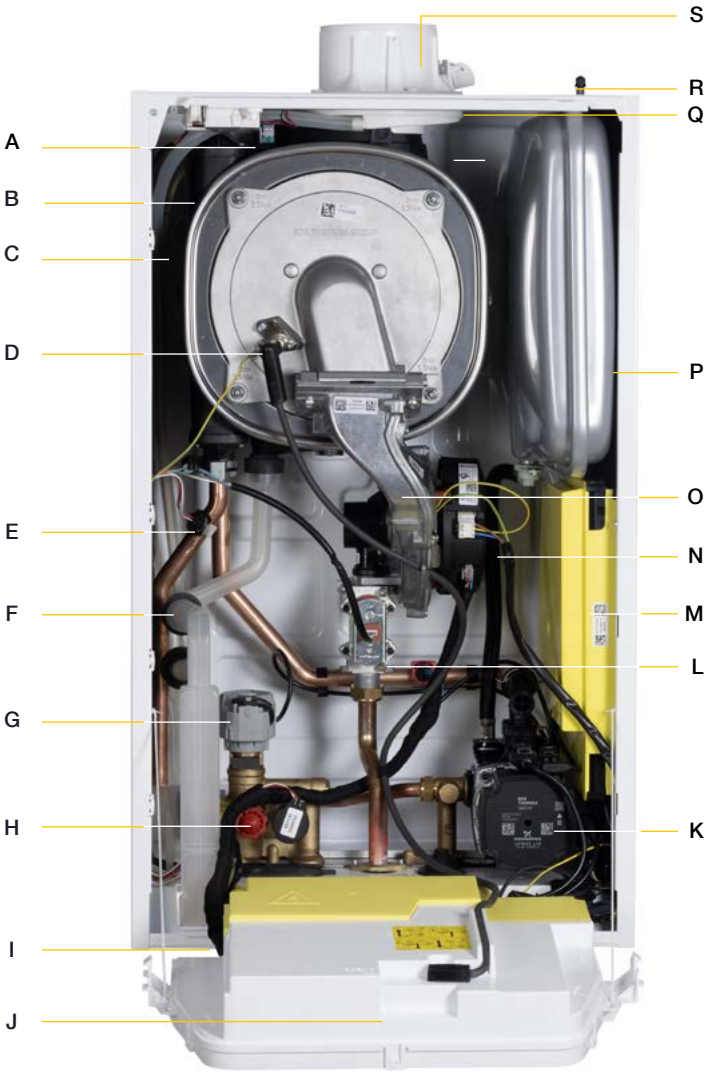
Domestic hot water performances at ambient temp. 20 °C, cold water temp. 10 °C, primary hot water temp. 80 °C, storage temp.
Domestic water performances according to EN13203-1

TECHNICAL SPECIFICATIONS

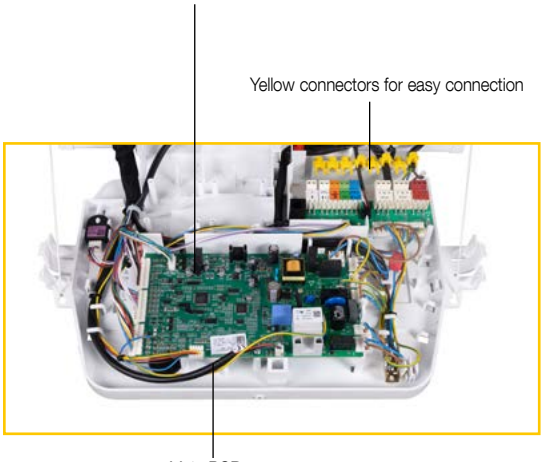
VIRTUENS MCA

DESCRIPTION

VIRTUENS MCA 15 / 24 / 32 AND VIRTUENS MCA 24/29 MI

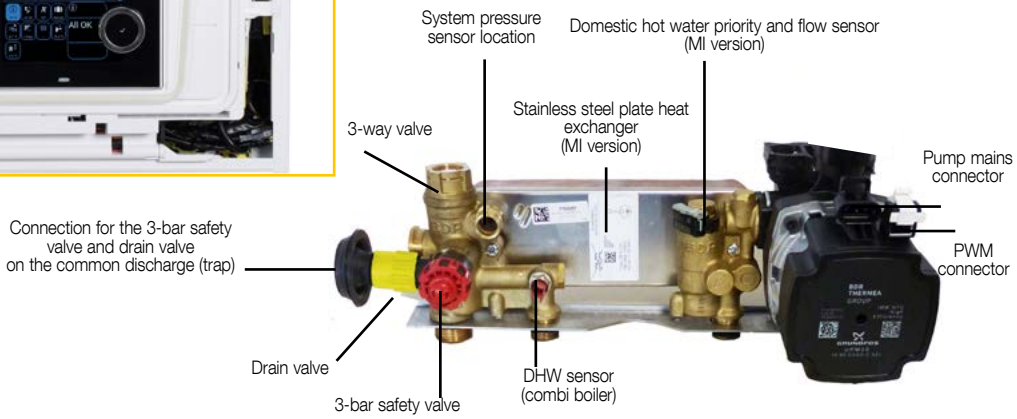


A Flue gas temperature sensor
B Multi-coil stainless steel heat exchanger
C Burner door
D Ignition electrode / combustion hygiene probe
E Flow temperature sensor and limit thermostat
F Pull-out siphon
G 3-way diverter valve
H 3-bar safety valve and drain valve
I Plug and play connection
J Housing for boiler control and safety boards
K PWM controlled pump with LIN-bus communication
L Electronic gas valve
M SCB 10 box
N Modulating fan
O Air/gas manifold pipe
P 8-litre expansion vessel / 1 bar pre-pressure
Q Internal lighting
R Expansion vessel air control/filling valve
S Flue gas adaptor Ø60/100mm





BRASS HYDROBLOCK



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TECHNICAL SPECIFICATIONS

VIRTUENS MCA

SUPPORT FOR INSTALLATION

All yellow components are advantages and aids for the installer. These instructions will make installation easier and unmistakenly save time.



Virtuens Smart_3

Cable pull relief. With a single screw all cables will be nicely tightened

Plug and play connector with service and L-bus connection



Virtuens Smart_Q0011

Drain valve



Virtuens Smart_6

SCB extension box - SCB 10

Accessing the electrical connections



Virtuens Smart_7

Cable pull relief

Mounting frame



Pre-equipped mounting frame with gas valve, pressure gauge, auto-filling, ...

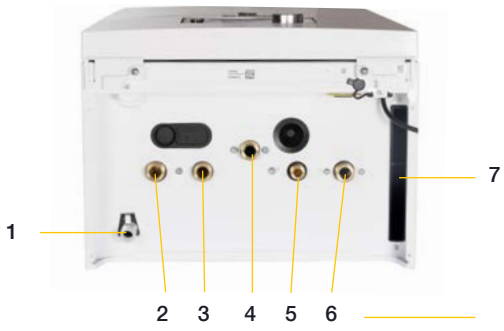
Virtuens Smart_1

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TECHNICAL SPECIFICATIONS

VIRTUENS MCA

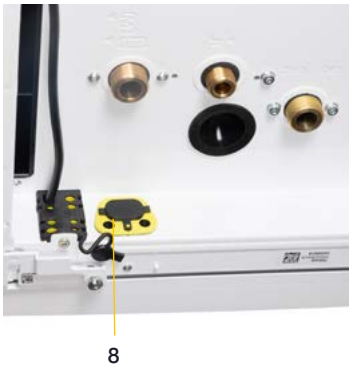
MAIN DIMENSIONS (IN MM AND INCHES)



Vlirtuens Smart_2

1 Condensate drain/safety pressure relief valve
2 Heating circuit flow [3/4"]
3 DHW outlet [1/2"]
4 Gas inlet [3/4"]
5 DHW circuit cold water inlet [1/2 "]
6 Heating circuit water return [3/4"]
7 Rubber grommet that allows the entry of the cables making a connection between the demand side and the SCB10

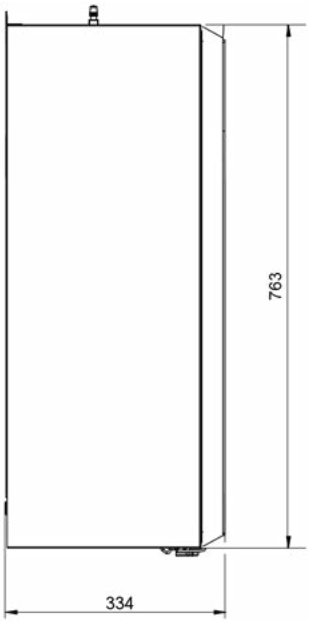
All 5 connections are at a distance of 65mm of each other, just to support easy installation



Vlirtuens Smart_3

8 Plug and play connector with service and L-bus connection





Virtuens Smart_F0010

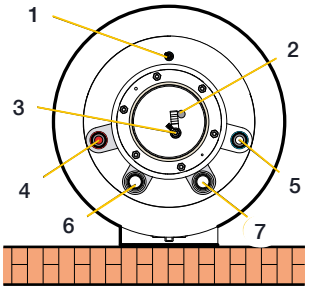
De Dietrich

TECHNICAL SPECIFICATIONS

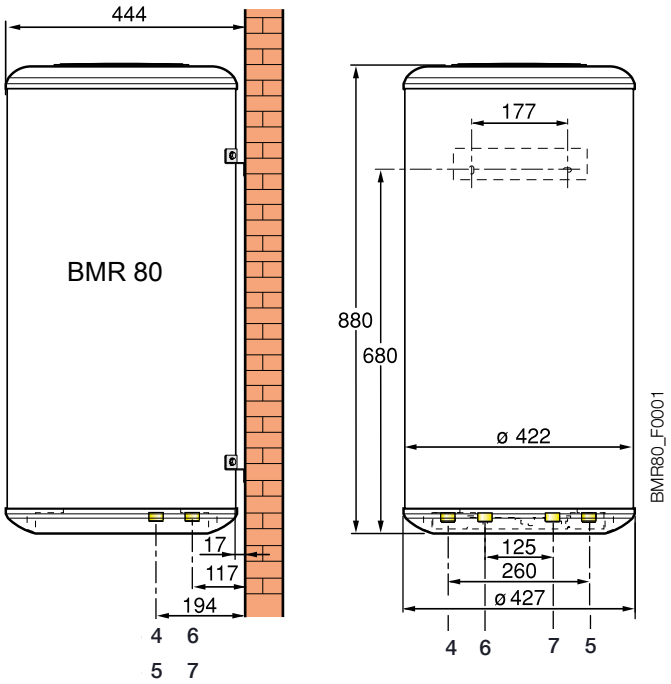
VIRTUENS MCA

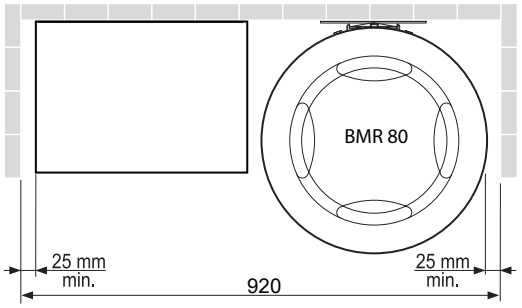
MAIN DIMENSIONS (IN MM AND INCHES)

BMR 80 DHW CYLINDER

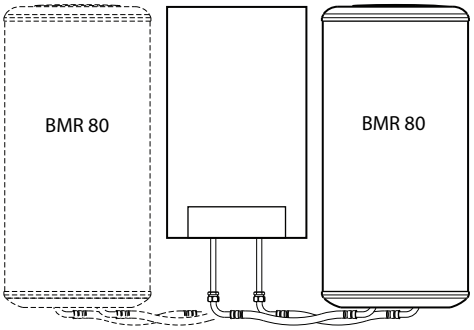


1 Heat exchanger bleed valve
2 Sensor pocket for domestic hot water sensor
3 Magnesium anode
4 Domestic hot water outlet - R 3/4"
5 Domestic cold water inlet - R 3/4"
6 Exchanger inlet - G 3/4"
7 Exchanger outlet - G 3/4"

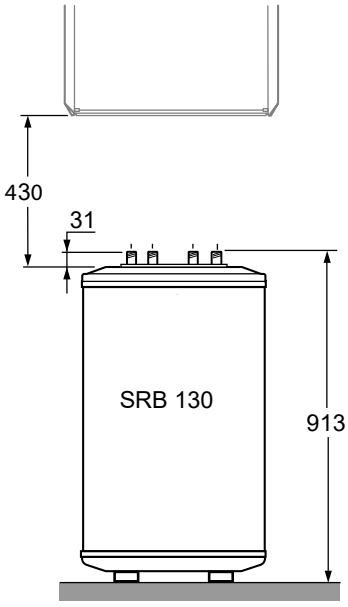


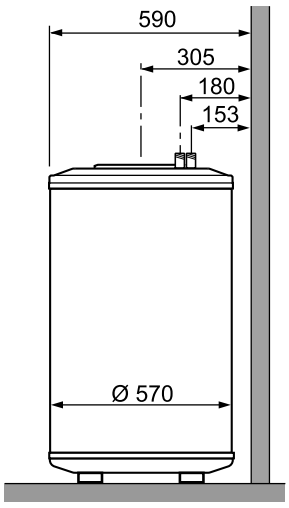


BMR 80 CYLINDER ON LEFT OR RIGHT

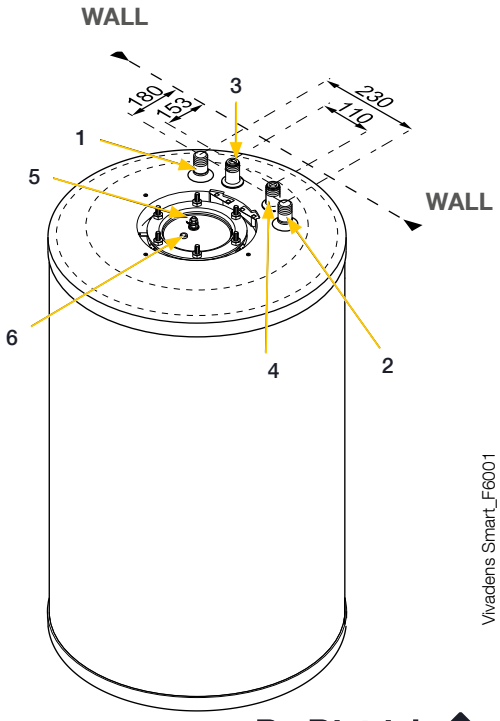


SRB 130 DHW CYLINDER





1 Primary inlet - G 3/4"
2 Primary outlet - G 3/4"
3 Domestic hot water outlet - R 3/4"
4 Domestic cold water inlet - R 3/4"
5 Magnesium anode
6 Sensor pocket



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CONTROL PANEL

DIEMATIC EVOLUTION

DIEMATIC EVOLUTION CONTROL PANEL

The DIEMATIC EVOLUTION control panel is a very advanced control panel with an innovative ergonomic user interface. It is equipped with a programmable electronic controller that controls the boiler temperature depending on the outside temperature and, if necessary, the room temperature if a room temperature controller or sensor is connected (option). As standard, the DIEMATIC EVOLUTION is able to automatically run a central heating system with 2 circuits direct without mixing valve or with mixing valve (however the flow sensors - package AD199 - must be ordered separately).

By simply adding 1 “PCB + sensor for 1 valve circuit” option (package AD249), it will be possible to control up to 3 circuits in total, with the option to equip each of these circuits with a room sensor (option).

Connecting a domestic hot water sensor can be used to program and control a DHW circuit (package AD212 - option).

This control system has been specifically developed to enable **optimal management of systems combining different heating generators** (boiler + heat pump or + solar system…). This control enables the installer to set up the entire heating system, regardless of its degree of complexity.



SELECTION OF OPTIONS ACCORDING TO THE CONNECTED CIRCUITS

TYPE OF CIRCUIT	Overview of heating zone control options							
	DHW	direct	2 x direct	valve	direct + 1 valve	2 x valve	direct + 2 x valve	3 x valve
Control panel DIEMATIC Evolution	1 x AD212	as standard (1)	as standard (1)	1 x AD199	1 x AD199	2 x AD199	1 x AD199 1 x AD249	2 x AD199 1 x AD249

(1) + 85757741 / FM46 (outside temperature sensor) to control an installation of a single boiler according to the outside temperature.

BOILER OPTIONS

VIRTUENS MCA

DIEMATIC EVOLUTION CONTROL PANEL OPTIONS



SMART_CDI_Q1003 / SMART_CDI_Q1002

SMART CDI room temperature sensor
Ref. 7898727

SMART CDI RF room temperature sensor (with support)
Ref. 7900088
+ Gateway LINK WIFI (GTW IoT)
Ref. 7898722

Smart CDI is a room sensor that connects to all DE DIETRICH appliances equipped with a Diematic Evolution or E-Pilot panel. SMART CDI RF in combination with WiFi Link (GTW IoT), the system can be remotely connected and controlled.

AD324



SMARTTC_Q007

SMART TC° smart room temperature sensor

R-BUS (wired) - Ref. 7691375 / AD324

Equipped with a backlit colour screen and a dropdown menu for simplified use, it enables remote control of the heating and domestic hot water via a free application to download application easy for the user to learn, with the option of providing a professional with access to their installation (via authorisation). It enables precise remote control of temperatures and modulation, incorporates various timer programmes with programming help, and provides access to the installation's parameters, including monitoring of consumption, with data backup.

While the SMART TC° can operate as a classic remote control without Wi-Fi or the app, it is nevertheless recommended to connect it to the internet to benefit from the latest updates.

AD346 / FM46



AD_Q0050

Wireless outside temperature sensor
Ref. 7776874 / AD346

Wired outside temperature sensor
Ref. 85757741 / FM46

The wireless outside temperature sensor is only compatible with the Smart TC RF communication gateway (Ref. 7691377).

AD304



AD303



isense_Q0004 + isense_Q0003

"Opentherm" modulating programmable room thermostat, wired
Ref. 7609763 / AD304

wireless - Ref. 7609762 / AD303

These thermostats are used for controlling and programming the heating and the domestic hot water. They integrate the setting parameters for the boiler: heating gradient, max. boiler temperature, fan speed, and the estimated energy metering (number of pump, DHW, and total operating hours, etc., in accordance with the RE 2020 specifications). The control system adapts the boiler output to the actual requirements.

Three operating modes are possible:

- **AUTOMATIC**: based on the set weekly programming; the setpoint temperature can be indicated for each programmed period.
- **PERMANENT**: used to permanently maintain the selected temperature for the day, night or frost protection.
- **HOLIDAY**: designed for absences of a long duration. Used to enter start and end dates for an absence and for the temperature to be maintained.

For operation based on the outside temperature, an outside temperature sensor (Ref. 85757741) can be added.

The "wireless" version is delivered with a sender-receiver box to be mounted on the wall close to the boiler.

AD337



AD338



TH_Q0001 /Trasmettitore_termostato

Programmable room thermostat (wired)
Ref. 7768817 / AD337

Programmable room thermostat (wireless) - Ref. 7768818 / AD338

These thermostats are used to regulate the heating according to various operating modes:

- **AUTOMATIC**: according to the timer programming, the setpoint temperature automatically switches from Comfort to Economy and vice versa. It is also possible to remain in permanent comfort mode, reduced mode or frost protection mode
- **ABSENT**: This mode allows a permanent temperature of between 5° and 15° to be set
- **MANUAL**: this mode is used to switch from comfort to economy (or vice versa) until the next programme change
- **OFF**: this mode used to stop the heat demand, for example in summer.

AD249



PdC_Q9116

PCB + Sensor for additional mixing valve circuit - Ref. 100013304 / AD249

This PCB can be installed to provide additional functions such as the management of multiple zones.

AD199



GT220_Q0002

Sensor for mixing valve (length 2.5 m)
Ref. 88017017 / AD199

This sensor is required to connect the first and the second circuit with mixing valve to a boiler fitted with a DIEMATIC Evolution control panel.

AD212



8518Q022

Domestic hot water sensor (length 5 m)
Ref. 100000030 / AD212

This is used for regulating the DHW temperature as a priority and programming of domestic hot water production with an independent calorifier.

AD332



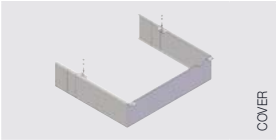
11265-REG

GTW-08 MODBUS Interface
Ref. 7721982 / AD332

BOILER OPTIONS

VIRTUENS MCA

ACCESSORIES

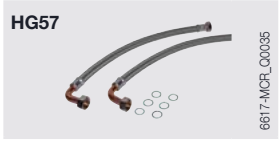


Valve Cover - Ref. 7777477

Height 100 mm.



Boiler / DHW TANK BMR80 Connection Kit
Ref. 100011287 / HG56



Boiler / DHW TANK SRB130 Connection Kit
Ref. 100011288 / HG57



1/2" - 3/4" offset wrench
Ref. C71414101

THE APPLICATIONS

VIRTUENS MCA

App DE DIETRICH SMART for remote control



A+ The system's energy efficiency class will be A+.

When combined with its application, the SMART TC° and SMART CDI smart room thermostat, available as an option, combines the height of comfort with ease of installation and use. The temperature of your home and your domestic hot water can be controlled wherever you are, both at home and remotely, and programmed hours entered to suit your lifestyle or requirements.

- «User friendly» with room thermostat with attractive design
- Remote heating management via the application
- Quick and easy programming aid
- Monitoring of heating and DHW consumption *
- Fault alert
- Operates as a room temperature sensor
- Controls your heating with voice commands **

* depending on the model







Download on the App Store

GET IT ON Google Play

Control your heating wherever you are in the world.
The SMART TC° functions in tandem with your Virtuens MCA boiler to give you new ways of using your system.

App DE DIETRICH START for professional commissioning

The DE DIETRICH START application is used with the GTW35-Bluetooth option to guide you step-by-step through the commissioning of De Dietrich products. You configure the products by answering questions – simple and intuitive, with no parameter codes to remember.

With this application, you can:

- Configure De Dietrich products
- Program the zone temperatures
- Save an installation configuration
- Send an installation report by e-mail
- Duplicate an installation configuration



App DE DIETRICH PRO for diagnostics

The De Dietrich PRO application is used with the GTW 35 - Bluetooth gateway, and is designed for professionals.
This application is a practical tool which can be used for all types of work: installation, maintenance and troubleshooting.
The local Bluetooth connection ensures quick and easy access to all of the control system parameters:

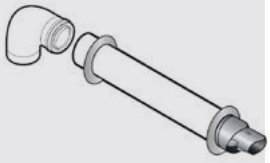
- The status of the generator
- The values and measurements
- Viewing and resetting of errors
- Viewing and resetting of meters
- Fault messages in clear text format
- Viewing and resetting of service messages

BOILER OPTIONS

VIRTUENS MCA

FLUE SYSTEM ACCESSORIES

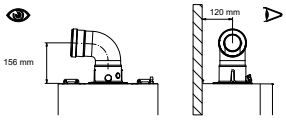
DY871



DY871_F0001

PPS horizontal flue terminal, ø 60/100 mm l=800 mm - Ref. 100008296 / DY871





Contains:
- 60/100 mm flow elbow
- Interior and exterior escutcheon plates
- 800 mm horizontal flue terminal

DY920



NANEO_G0023A

Connecting kit for shared flue system 3 CEP, Ø 80/125 mm Ref. 100019963 / DY920

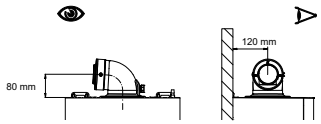
NG1



NG1_G0001

PPS compact elbow Ø 60/100 mm Ref. 7220862 / NG1



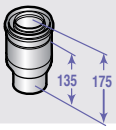




INI_G7755080

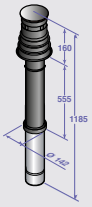
Flue gas outlet Ø 80/125 mm Ref. 7755080

DY708



DY708_F0001

Adapter Ø 60/100 mm - Ø 80/125 mm Ref. 84887708 / DY708



DY843_F0001

PPS vertical flue terminal ø 80/125 mm

- **Black - Ref. 100002732**
- **Red - Ref. 100002733**



Gomito_7802898

MCR replacement elbow Ø 60/100 mm Ref. 7802898



INI_G7220861

Bi-flue adapter 2 x 80 mm Ref. 7220861.
Allows C53 parallel pipe installation



INI_G7782188

Reduced elbow for horizontal forced flue terminal Ref. 7782188
Saves space at heights up to 66 mm.



INI_G7683812

PPS reduction piece Ø 80 to Ø 60 mm Ref. 7683812



INI_G7683812

PPS reduction piece Ø 80 to Ø 50 mm Ref. 7735536

De Dietrich

INFORMATION REQUIRED FOR INSTALLATION

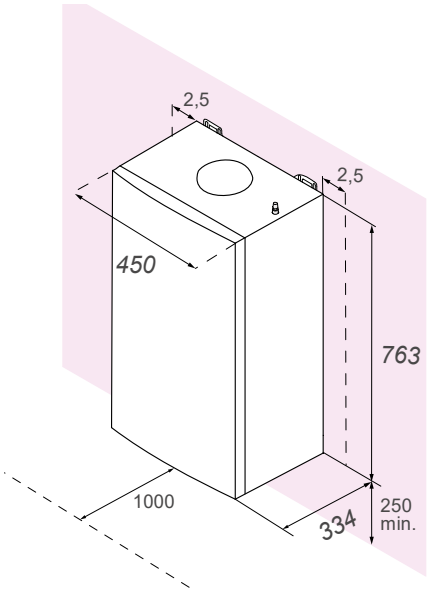
VIRTUENS MCA

STATUTORY INSTRUCTIONS ON INSTALLATION AND MAINTENANCE

The installation of the appliance in both residential buildings and establishments open to the public and its maintenance must be carried out by a qualified professional in compliance with the applicable statutory codes of practice.

LOCATION

Virtuens MCA condensing boilers must be installed in a frost-free location, which can also be ventilated. Under no circumstances may they be installed above a heat source or cooking appliance.
The IP X5D protection index enables them to be installed in kitchens and bathrooms, with the exception of volume areas 1 and 2. The wall to which the boiler is secured must be capable of bearing the weight of the boiler when filled with water.
To ensure adequate access to the boiler, we recommend the minimum dimensions indicated below are respected.



Virtuens MCA_F0003

VENTILATION

Ventilation must comply with the applicable regulations.

GAS CONNECTION

Comply with all applicable national or local instructions and regulations. In all cases, an isolation valve must be fitted as close as possible to the boiler. This valve is prefitted to the hydraulic connection plate delivered with Virtuens MCA boilers. A gas filter must be fitted to the boiler inlet.
Gas supply pressure:
- 20 mbar for natural gas H, G20,
- 25 mbar for natural gas L, G25,
- 37 mbar for propane, G31.

This appliance is designed to operate with natural gas containing up to 20% hydrogen (H2).

ELECTRICAL CONNECTION

The electrical safety of the equipment is only ensured when it is correctly connected to an effective earthing system in accordance with the applicable safety standards for installations.
The boiler must be electrically connected to a 230 V single-phase + earth mains supply.

This must comply with the applicable standard.
The boiler must be powered by an electrical circuit comprising an all-pole switch with an opening distance > 3 mm. Protect the connection to the mains with a 6 A fuse.

IMPORTANT: Condensing boilers are based on the principle of recovering the energy contained in the steam from the flue gases (latent heat from vaporisation). As a result, to achieve an annual operating efficiency of around 109%, the heating surfaces must be sized so as to obtain low return temperatures, below the dewpoint (for example, underfloor heating, low temperature radiators, etc.). This must be ensured throughout the heating period.

INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

WATER CONNECTIONS

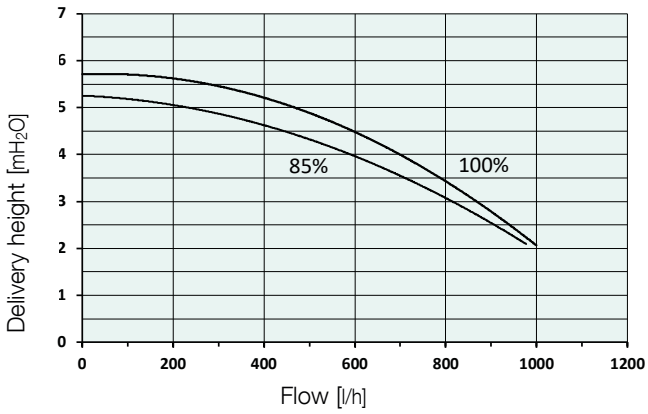
CONNECTION TO THE HEATING CIRCUIT

Virtuens MCA boilers must only be used in closed-circuit heating installations. The central heating systems must be cleaned to remove the debris resulting from installation of the system (copper, strands, brazing flux) and any deposits that could cause malfunctions (noise in the system, chemical reaction between metals). More specifically, if fitting a boiler within an existing installation, it is strongly recommended that sludge is eliminated from the system before installing the new boiler.
Furthermore, it is important to protect central heating installations against the risk of corrosion, scaling and microbiological growth by using a corrosion inhibitor adapted to all types of system (steel, cast iron radiators, underfloor heating, PER).
The water treatment products used must comply with regulations.

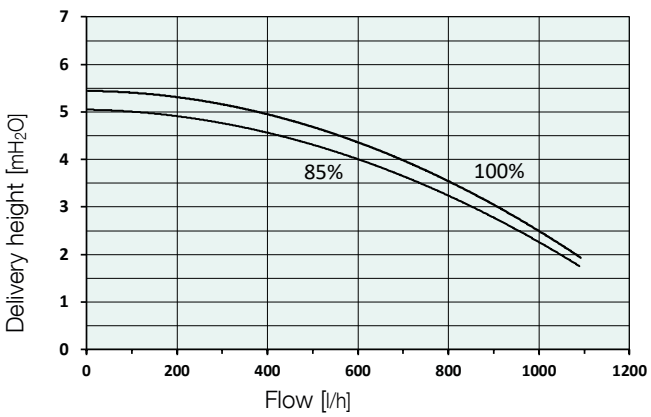
CHARACTERISTICS OF THE CIRCULATING PUMP

The pump used is a modulating type pump with high head suitable for use on any type of single or two-pipe heating system. The automatic air vent valve built into the pump body enables fast venting of the heating installation.
To prevent flow noise, you must pay attention to the hydraulic design of the heating installation.

VIRTUENS MCA 15 AND 24
VIRTUENS MCA 24/29 MI



VIRTUENS MCA 32



Output of the pump in DHW mode —> fixed at 100%.
Output of the pump in heating mode —> modulating from 85% to 100%.

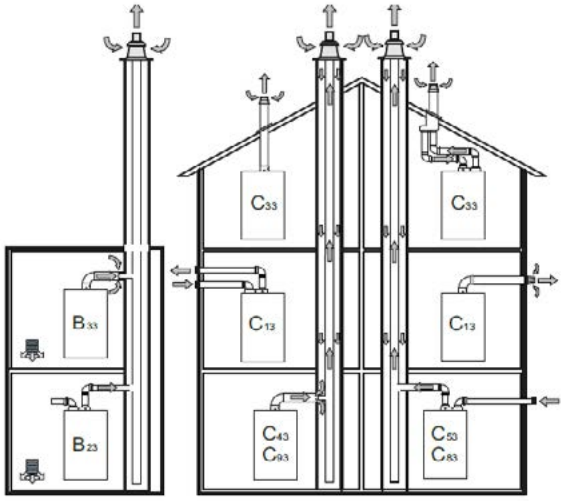
CONDENSATE DRAIN

The trap provided must be connected to the wastewater discharge system. The connection must be removable and the flow of condensates visible. The connections and pipes must be made from corrosion-resistant material. An optional condensate neutralisation system is available.

INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

AIR/FLUE GAS CONNECTION



Configuration

The Virtuens MCA boiler is an appliance which includes the fan upstream of the combustion chamber/heat exchanger.

TYPE B CONFIGURATIONS:

Appliance designed to be connected to an exhaust pipe for the evacuation of combustion products outside of the room in which it is installed. The combustion air is taken directly from the room.

B23 Appliance designed to be connected to a chimney for the evacuation of combustion products outside of the room in which it is installed. The combustion air is taken directly from the room.
B23P The B23P appliance is designed to be connected to an exhaust system which operates with positive pressure.
B33 Appliance designed for connection to a collective flue. This system consists of a single natural draught channel. The boiler exhaust pipe is contained inside a pipe for the intake of the combustion air, which is taken from inside the room. The combustion air penetrates through the openings in the surface of the appliance's concentric pipe.

TYPE C CONFIGURATIONS:

Appliance with a combustion circuit (air supply, combustion chamber, heat exchanger and evacuation of combustion products) which is sealed off from the room in which it is installed.

C(10)3 Appliance designed for connection to an exhaust system which operates with positive pressure.
C(11)3 Appliance designed for connection to an exhaust system which operates with positive pressure, provided by the manufacturer.
C13 Appliance designed to be connected via its pipes to a horizontal terminal, which supplies fresh air to the burner while simultaneously evacuating the combustion products to the outside, through openings which are concentric or which are close enough to be exposed to comparable wind conditions. The terminals for the split exhaust must be located within a square measuring 50 x 50 cm. Detailed instructions are provided together with the individual accessories
C33 Appliance designed to be connected via its pipes to a vertical terminal, which supplies fresh air to the burner while simultaneously evacuating the combustion products to the outside through openings which are concentric or which are close enough to be exposed to comparable wind conditions. The terminals for the split exhaust must be located within a square measuring 50 x 50 cm. Detailed instructions are provided together with the individual accessories.
C43 Appliance designed for connection to a system with a common pipe used by more than one device, via its two supply pipes. This system with a common pipe consists of two pipes connected to a terminal, which supplies fresh air to the burner while simultaneously evacuating the combustion products to the outside through openings which are concentric or which are close enough to be exposed to comparable wind conditions.
C43P The C43 appliance is designed for connection to an exhaust system which operates with positive pressure.
C53 Appliance connected, via its separate pipes, to two distinct terminals for drawing in the combustion air and evacuating the combustion products. These pipes may end in areas with different pressures, but not on different walls of the building.
C63 Appliance designed for connection to an approved exhaust system (sold separately) for the intake of combustion air and the evacuation of the combustion products. The maximum pipe pressure loss must not exceed 100 Pa. The pipes must be certified for the specific use and for a temperature exceeding 100°C. The chimney terminal used must be certified according to standard EN 1856-1.
C93 Appliance connected, via its exhaust pipe, to a vertical terminal and, via its combustion air intake pipe, to an existing chimney. The terminal supplies fresh air to the burner while simultaneously evacuating the combustion products to the outside through openings which are concentric or which are close enough to be exposed to comparable wind conditions.

INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

AIR/FLUE GAS CONNECTION

TABLE OF MAXIMUM PERMISSIBLE AIR-FLUE GAS DUCT LENGTHS BASED ON THE BOILER TYPE

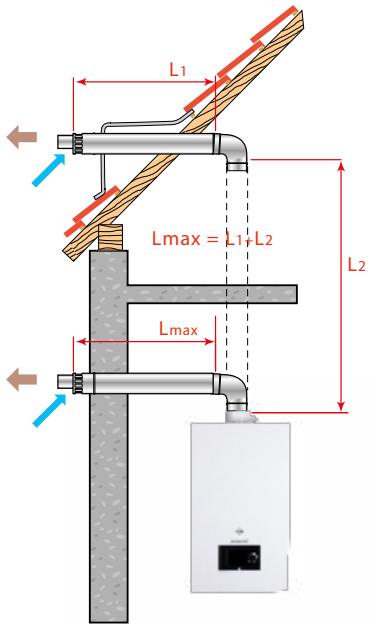
TYPE OF AIR-FLUE GAS CONNECTION			LMAX: EQUIVALENT MAXIMUM LENGTH OF THE CONNECTION DUCTS (IN m)			
			VIRTUENS MCA 15	VIRTUENS MCA 24	VIRTUENS MCA 32	VIRTUENS MCA 24/29 MI
1 Flue gas/air supply ducts connected to a horizontal flue terminal **(PPS)**	C_{13}	Ø 60/100 mm	10	10	10	10
		Ø 80/125 mm	25	25	25	25
2 Flue gas/air supply ducts connected to a vertical terminal **(PPS)**	C_{33}	Ø 60/100 mm	10	10	10	10
		Ø 80/125 mm	25	25	25	25
3 Duct(s): - concentric in boiler room, - single **rigid or flexible** in the chimney (combustion air in counter-current) **(PPS)**	C_{93}	Ø 60/100 mm Ø 80 mm	1 70	1 70	1 65	1 70
		Ø 60/100 mm Ø 60 mm	1 30	1 30	1 20	1 30
		Ø 60/100 mm Ø 50 mm	1 30	1 30	1 20	1 30
		Ø 80/125 mm Ø 80 mm	1 70	1 70	1 65	1 70
4 Duct(s): - concentric in boiler room, - single **rigid or flexible** in the chimney (combustion air taken from within the premises)	B_{23P}/B_{33}	Ø 60/100 mm Ø 80 mm	1 70	1 70	1 65	1 70
		Ø 60/100 mm Ø 60 mm	1 30	1 30	1 20	1 30
		Ø 60/100 mm Ø 50 mm	1 30	1 30	1 20	1 30
		Ø 80/125 mm Ø 80 mm	1 70	1 70	1 65	1 70
5 Separate air and flue gas pipes with bi-flow adapter (combustive air taken from outside)	C_{53}	Ø 60/100 mm su 2 x 80 mm	80	80	80	80

INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

AIR/FLUE GAS CONNECTION

1 CONFIGURATION C13 - ALUMINIUM/PPS CONCENTRIC HORIZONTAL FORCED FLUE
(connection to outside wall or with roof outlet)



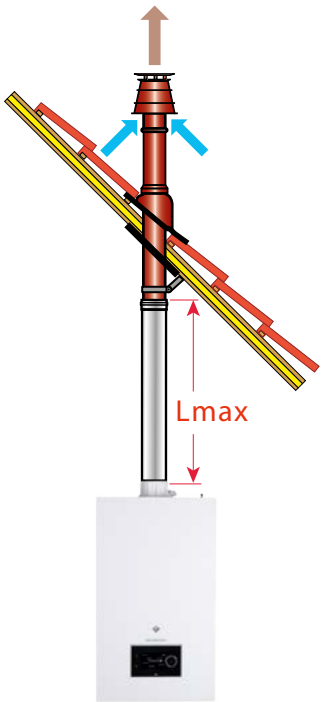
	LMAX (m)	LMAX (m)
CONNECTION Ø (mm) ▶	60/100	80/125
▼ BOILER TYPE		
Virtuens MCA 15	10	25
Virtuens MCA 24	10	25
Virtuens MCA 32	10	25
Virtuens MCA 24/29 MI	10	25

	EQUIVALENT LENGTH (m)	
CONNECTION Ø (mm) ▶	60/100	80/125
87° elbow	1,0	1,0
45° elbow	0,5	0,25

Virtuens Smart_FUMI_F0003E

AIR/FLUE GAS CONNECTION

2 CONFIGURATION C33 - ALUMINIUM/PPS CONCENTRIC VERTICAL FORCED FLUE
(connection to sloping or flat roof)



	LMAX (m)	LMAX (m)
CONNECTION Ø (mm) ▶	60/100	80/125
▼ BOILER TYPE		
Virtuens MCA 15	10	25
Virtuens MCA 24	10	25
Virtuens MCA 32	10	25
Virtuens MCA 24/29 MI	10	25

	EQUIVALENT LENGTH (m)	
CONNECTION Ø (mm) ▶	60/100	80/125
87° elbow	1,0	1,0
45° elbow	0,5	0,25

Virtuens Smart_FUMI_F0110B

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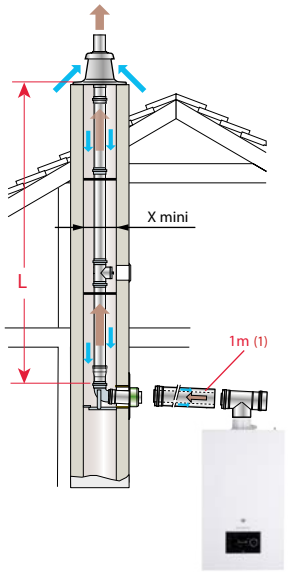
INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

AIR/FLUE GAS CONNECTION

❸ CONFIGURATION C_{93} - ALUMINIUM/PPS FLUE GAS/AIR SUPPLY DUCTS IN THE BOILER ROOM, SINGLE "RIGID" PPS DUCTS IN THE CHIMNEY

(combustion air in counter-current)



CONNECTION Ø (mm):		L_{MAX} (m)		
IN THE BOILER ROOM ▶		60/100	60/100	60/100
IN THE CHIMNEY ▶		80 RIGID	60 RIGID	50 RIGID
▼ BOILER TYPE				
Virtuens MCA 15		70	30	30
Virtuens MCA 24		70	30	30
Virtuens MCA 32		65	20	20
Virtuens MCA 24/29 MI		70	30	30
X min	⊟	130	110	110
	Ø	140	120	120

	EQUIVALENT LENGTH (m)	
CONNECTION Ø (mm) ▶	60/100	80/125
87° elbow	1,0	1,0
45° elbow	0,5	0,25

Virtuens Smart_FUMI_F0111B

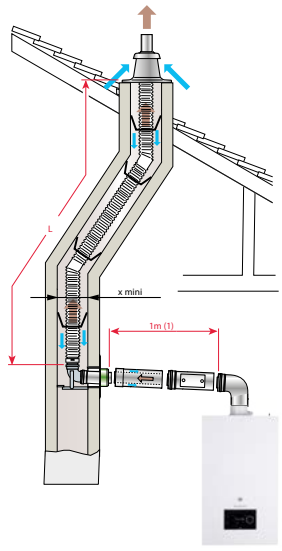
BOILER SHOWN:
Virtuens MCA connected to the Ø 80/125 mm pipe in the boiler room and a rigid Ø 80 mm pipe in the chimney

(1) For each additional metre of horizontal pipe, subtract 1.2 m from the vertical length Lmax indicated in the table above.

AIR/FLUE GAS CONNECTION

❸ CONFIGURATION C_{93} - ALUMINIUM/PPS FLUE GAS/AIR SUPPLY DUCTS IN THE BOILER ROOM, SINGLE "FLEXIBLE" PPS DUCTS IN THE CHIMNEY

(combustion air in counter-current)



CONNECTION Ø (mm):		L_{MAX} (m)	
IN THE BOILER ROOM ▶		60/100	60/100
IN THE CHIMNEY ▶		80 FLEX	50 FLEX
▼BOILER TYPE			
Virtuens MCA 15		70	30
Virtuens MCA 24		70	30
Virtuens MCA 32		65	20
Virtuens MCA 24/29 MI		70	30
X min	⊟	130	110
	Ø	140	120

	EQUIVALENT LENGTH (m)	
CONNECTION Ø (mm) ▶	60/100	80/125
87° elbow	1,0	1,0
45° elbow	0,5	0,25

Virtuens Smart_FUMI_F0112B

BOILER SHOWN:
Virtuens MCA connected to the Ø 80/125 mm pipe in the boiler room and a flexible Ø 80 mm pipe in the chimney

(1) For each additional metre of horizontal pipe, subtract 1.2 m from the vertical length Lmax indicated in the table above.

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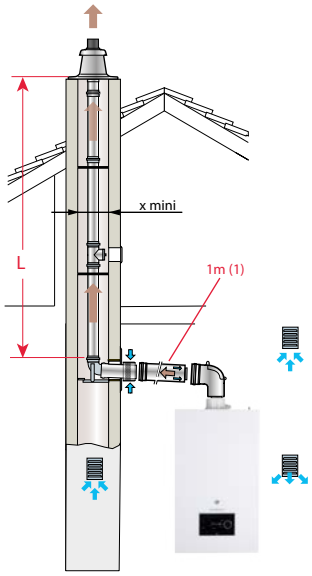
INFORMATION REQUIRED FOR INSTALLATION

VIRTUENS MCA

AIR/FLUE GAS CONNECTION

4 CONFIGURATION B_{23P}/B_{33} - CONNECTED TO A CHIMNEY BY ALUMINIUM/PPS FLUE GAS/AIR SUPPLY DUCTS IN THE BOILER ROOM, SINGLE PPS DUCTS IN THE CHIMNEY

(combustion air taken from the boiler room or in the installation room)



CONNECTION Ø (mm):		L_{MAX} (m)		
IN THE BOILER ROOM ▶		60/100	60/100	60/100
IN THE CHIMNEY ▶		80 RIGID	60 RIGID	50 RIGID
▼ BOILER TYPE				
Virtuens MCA 15		70	30	30
Virtuens MCA 24		70	30	30
Virtuens MCA 32		65	20	20
Virtuens MCA 24/29 MI		70	30	30
X min	⊟	130	110	110
	∅	130	110	110

	EQUIVALENT LENGTH (m)				
CONNECTION Ø (mm) ▶	60/100	80/125	80	60	50
87° elbow	1,0	1,0	0,5	2	3
45° elbow	0,5	0,25	-	-	-

Virtuens Smart_FUMI_F0114B

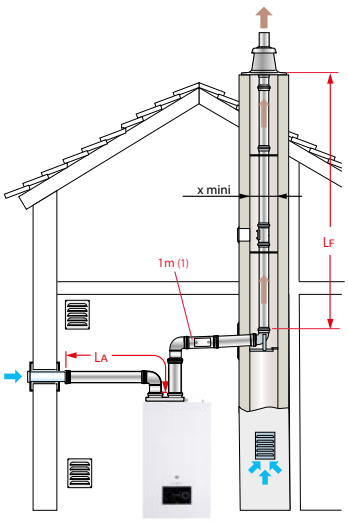
(1) For each additional metre of horizontal pipe, subtract 1.2 m from the vertical length Lmax indicated in the table above.

FOR INSTALLATION OF THE VIRTUENS MCA

5 CONFIGURATION C_{53} - SEPARATE AIR AND FLUE GAS PIPES WITH BI-FLOW ADPATER

(combustive air taken from outside)

PIPE OF RIGID CHIMNEY



CONNECTION Ø (mm):				
IN THE BOILER ROOM ▶		60/100 MM TO 2X80 MM		
IN THE CHIMNEY ▶		L (M)	LF (M)	LA (M)
▼ BOILER TYPE				
Virtuens MCA 15		80	70	10
Virtuens MCA 24		80	70	10
Virtuens MCA 32		80	65	15
Virtuens MCA 24/29 MI		80	70	10
X min	⊟		130	
	∅		130	

	EQUIVALENT LENGTH (m)	
CONNECTION Ø (mm) ▶	60/100	80/125
87° elbow	1,0	1,0
45° elbow	0,5	0,25

Virtuens Smart_FUMI_C53

(1) For each additional metre of horizontal pipe, subtract 1.2 m from the vertical length Lmax indicated in the table above.

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INSTALLATION EXAMPLE

VIRTUENS MCA

The examples shown below cannot include all of the possible installation scenarios that may be encountered. They are intended to draw attention to the basic rules to be respected. A number of safety and control components (including some built into Virtuens MCA... boilers as standard) are shown, though ultimate responsibility for providing the final safety and control components in the boiler room, based on its individual requirements, lies with the installers, consultant engineers and design offices. In every case, it is important to comply with the applicable regulations and adhere to good industry practice.
Caution: When connecting on the domestic hot water side, if the distribution pipes are made from copper, a sleeve made from steel, cast iron or any other insulating material must be placed between the hot water outlet and these pipes in order to prevent any corrosion phenomena on the connections.

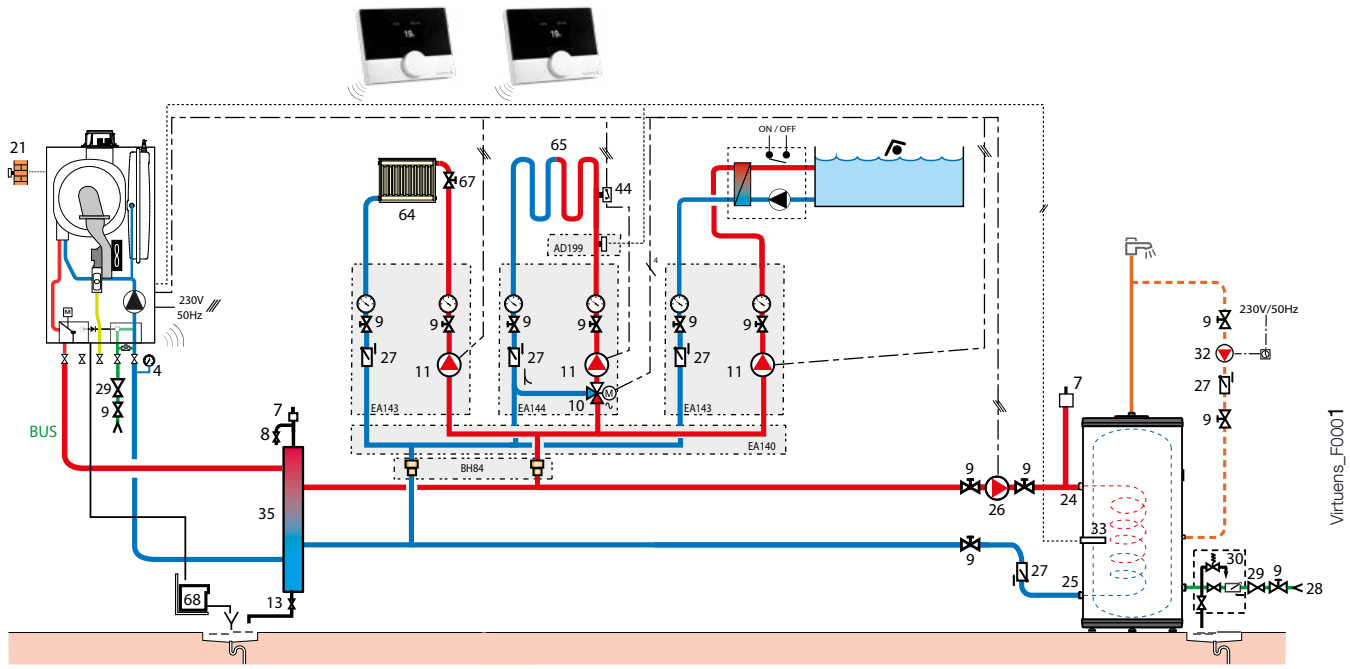
VIRTUENS MCA 24 WITH 3 HEATING CIRCUITS AND 1 DHW CIRCUIT

- 1 direct “radiator” circuit
- 1 direct “underfloor heating” circuit
- 1 swimming pool circuit
- 1 DHW production with a tank

SYSTEM

A+ With SMART CDI room temperature sensor and cloud-based outside temperature **or** an outside temperature sensor (option)

A



KEY

4 Manometer
7 Automatic air vent
8 Manual air vent
9 Shut-off valve
10 Three-way mixing valve
11 Heating pump
13 Flush valve
21 Outdoor temperature sensor
24 DHW tank exchanger primary inlet
25 DHW tank exchanger primary outlet
26 Cooling pump
27 Non-return valve
28 Domestic cold water inlet
29 Pressure reducer
30 Safety unit calibrated and sealed to 7 bar
32 DHW circulation loop pump (optional)
33 DHW temperature sensor
35 Low-loss header
44 65°C safety thermostat with manual reset for underfloor heating
64 Direct heating circuit: radiators
65 Direct heating circuit: underfloor heating
67 Manual valve
68 Condensate neutralisation sustem (optional)

De Dietrich

De Dietrich

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07/2026 - DCDDEX000075 – 347.555.559 R.C.S Strasbourg – Non-contractual document - PARMENTIER IMPRIMEURS - F-67 La Wantzenau