VIESMANN

VITOLA 200

Hot water heating boiler without low limit
83 to 300 MBH / 24 to 88 kW

Technical Data Manual

Model Nos. and pricing: see Price List

Vitola 200 with Vitoflame Burner and
Vitocell-H 300 domestic hot water tank

Vitola 200 with Vitoflame Burner, boiler stand
and Vitocell-V 300 domestic hot water tank

Vitola 200

VB2 Series

Oil-/Gas-Fired Boiler
for hydronic heating systems
with modulating boiler water temperatures
without low limit
with biferral heating surfaces of cast iron/steel
Heating input: 83 to 300 MBH
24 to 88 kW

ENERGY STAR
Oil-fired

VERIFIED
CSA Energy Performance Rendement Énergétique
VÉRIFIÉ

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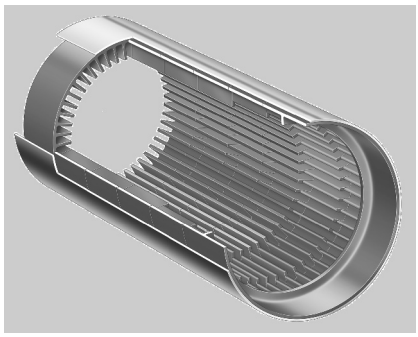
Vitola 200

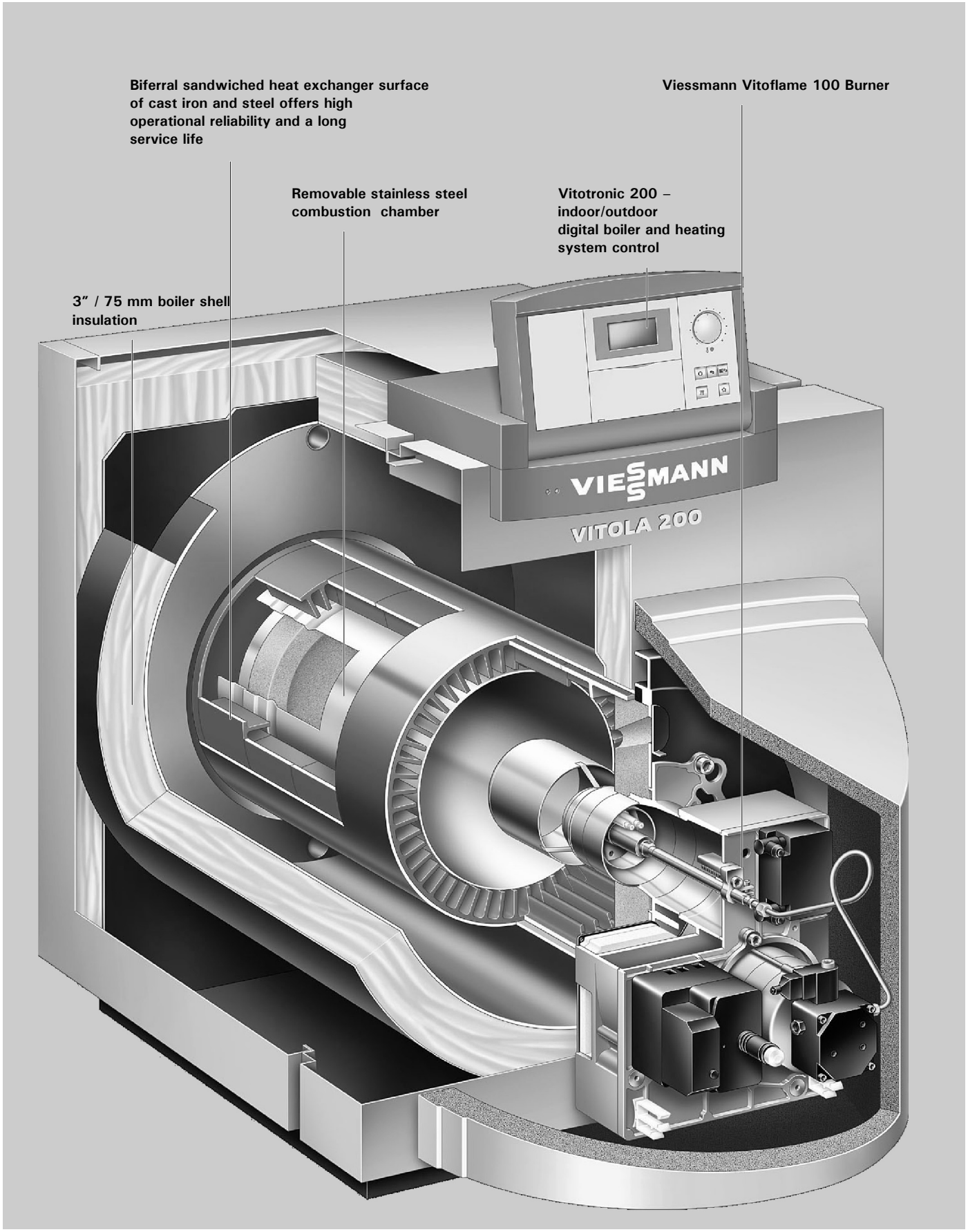
High quality at an affordable price:
The double-wall sandwiched heat exchanger surface of the Vitola 200 is a milestone in the history of heating technology. The Vitola 200 combines comfort with energy savings.

The benefits at a glance:

- **Biferral heat exchanger** of cast iron and steel for high operational reliability and a long service life.
- Reduced emissions with the Viessmann Chassis or Vitoflame Burner.
- Saves energy and preserves the environment via low boiler water temperatures; cold start ability; **A.F.U.E. of up to 87.4% (oil-fired version)**.
- Optimal temperature modulation due to wide water passageways and a large water content.
- Straight-forward installation and start-up – Burners supplied by Viessmann are tested with a combustion analyzer at operating temperature and matched to the boiler input in the factory.
- **Short installation times** due to the Viessmann Fastfix Installation System. Save up to 50% of the installation time when installing boiler panelling and control. Simple assembly is achieved with components which merely snap together, making special tools unnecessary.



The biferral sandwiched heat exchanger of cast iron and steel offers high operational reliability and a long service life


Biferral sandwiched heat exchanger surface of cast iron and steel offers high operational reliability and a long service life
Viessmann Vitoflame 100 Burner
Removable stainless steel combustion chamber
Vitotronic 200 – indoor/outdoor digital boiler and heating system control
3" / 75 mm boiler shell insulation
VIESSMANN
VITOLA 200

Technical data

Boiler Model		Model No.	VB2-18	VB2-22	VB2-33	VB2-40	VB2-50	VB2-63
CSA gas rating *1	input	MBH	90	116	146	185	238	300
		kW	26	34	42	54	69	88
	output	MBH	75	97	122	154	198	249
		kW	22	28	35	45	57	73
CSA oil rating	input	MBH	83	107	135	170	219	300
		kW	24	31	39	50	64	88
	output	MBH	72	92	116	146	189	258
		kW	21	27	34	43	55	76
Net I = B = R rating *2	for gas	MBH	65	84	106	134	172	217
		kW	19	25	31	39	50	64
	for oil	MBH	63	80	101	127	164	224
		kW	18	23	30	37	48	66
A.F.U.E. *3	for NG	%	84.5	84.0	84.0	84.0	83.9	83.9
	for LP	%	86.0	85.8	85.8	85.8	85.7	85.7
	for oil	%	87.1	87.2	87.2	87.3	87.4	87.1
Dimensions								
Length		inches	23¼	25¾	32¼	32¼	37¾	42
		mm	589	655	817	817	956	1070
Width		inches	21¼	22¼	23½	26½	27¾	27¾
		mm	537	565	599	674	702	702
Height		inches	27¾	28½	29¼	32¼	33½	33½
		mm	706	726	743	819	853	853
Overall dimensions *4								
Total length		inches	43¾	46¼	52¾	53¼	58½	63
		mm	1112	1178	1340	1350	1489	1603
Total width		inches	25¼	26¼	27½	30½	30½	30½
		mm	639	667	701	776	776	776
Total height (operation)		inches	32¾	33½	34	37	38½	38½
		mm	830	850	865	940	975	975
- Height 1 *5 (control unit in		inches	37	37¾	38¼	41¼	42¾	42¾
position for operation)		mm	940	960	975	1050	1085	1085
- Height 2 *5 (control unit in		inches	45¾	46½	47	50	51½	51½
position for servicing)		mm	1160	1180	1195	1270	1305	1305
Height of boiler stand		inches	9¾	9¾	9¾	9¾	9¾	9¾
		mm	250	250	250	250	250	250
Height of Vitocell-H under boiler								
- 42 to 53 USG / 160 to 200 ltr		inches	26	26	26	26	–	–
		mm	658	658	658	658		
- 92 USG / 350 ltr		inches	–	–	31	31	31	31
		mm			790	790	790	790
- 120 USG / 450 ltr		inches	–	–	–	37¼	37¼	37¼
		mm				947	947	947
Weight boiler shell		lbs	287	335	430	573	739	809
		kg	130	152	195	260	335	367
Total weight (boiler with insulation,		lbs	381	434	542	697	866	941
burner and boiler control)		kg	173	197	246	316	393	427
Boiler water content		USG	18.5	23.2	31.2	37.0	52.6	59
		ltr	70	88	118	140	199	223
Max. operating pressure		psig	30	30	30	30	30	30
Boiler water connections								
Supply and return		inches	1½	1½	1½	1½	1½	1½
Safety supply (Safety Header)		inches	1	1	1	1	1	1
Safety return, drain valve		inches	1	1	1	1	1½	1½

*1 *Propane burners have same input/output as natural gas burners.*
*2 *Net I = B = R rating based on piping and pick-up allowance of 1.15.*
*3 *Annual Fuel Utilization Efficiency with optional stack damper.*
*4 *Overall dimensions with Viessmann Vitoflame 100 Burner installed.*
*5 *See page 6.*

Technical data

Boiler Model	Model No.	VB2-18	VB2-22	VB2-33	VB2-40	VB2-50	VB2-63
Flue gas *6, temperature (gross) *7 at							
■ 104°F / 40°C boiler water temp. *9	°F	293	293	293	293	293	293
	°C	145	145	145	145	145	145
■ 167°F / 75°C boiler water temp.	°F	329	329	329	329	329	329
	°C	165	165	165	165	165	165
Flue gas mass flow	lbs/h	68	84	123	150	187	236
	kg/h	31	38	56	68	85	107
Vent pipe							
Boiler vent	outer ∅ inches	5	5	6	6	7	7
Flue gas volume, boiler	USG	10.3	14.0	20.6	29.1	41.5	45.7
	ltr	39	53	78	110	157	173
Required flue draft *8 *9	"w.c.	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02

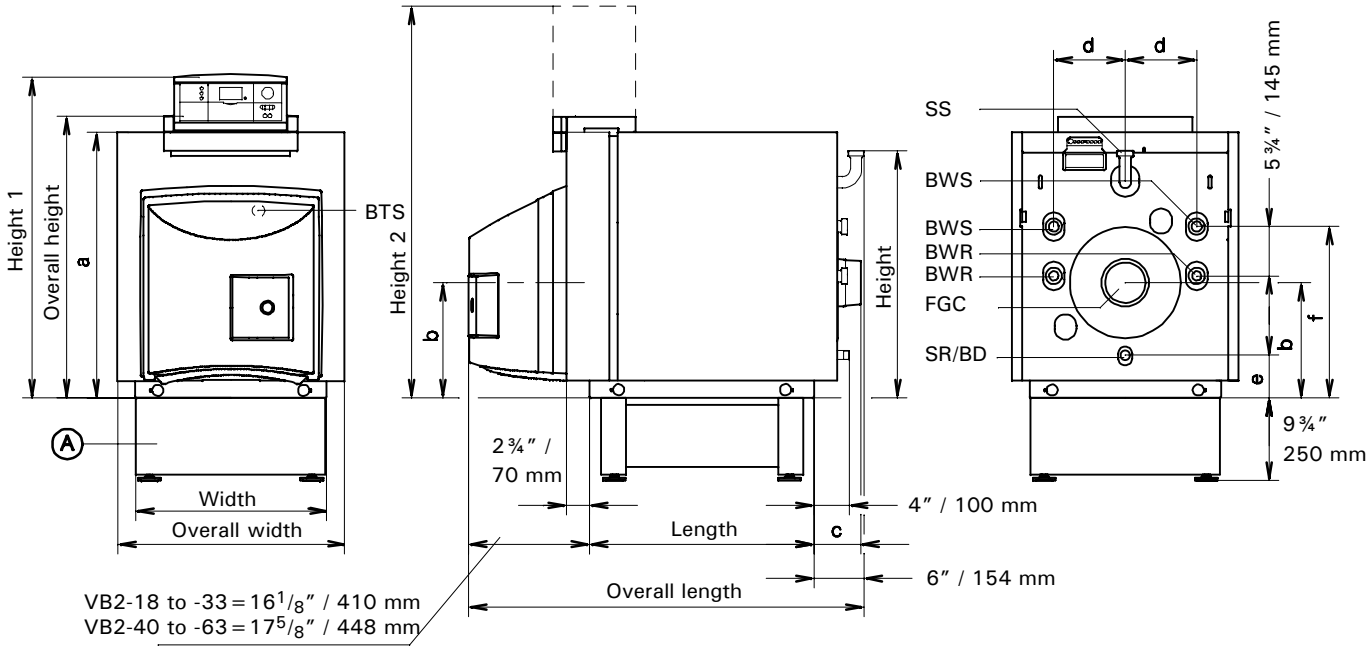
*6 *Combustion results are based on 11.0% to 13.0% CO_2 with fuel oil #2, 9.5% to 10.2% with natural gas, or 10.0% to 11.5% CO_2 with propane, and a hot water heating system supply temperature of 167°F / 75°C, return 140°F / 60°C.*

*7 *Measured flue gas temperature with combustion air temperature of 68°F / 20°C.*

*8 *Ensure compatibility during burner selection.*

*9 *Ensure compatibility with chimney system. The chimney vent system must be suitable for the application (low flue gas temperature with possible condensation), see page 10.*

▶ *For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.*



Dimensions

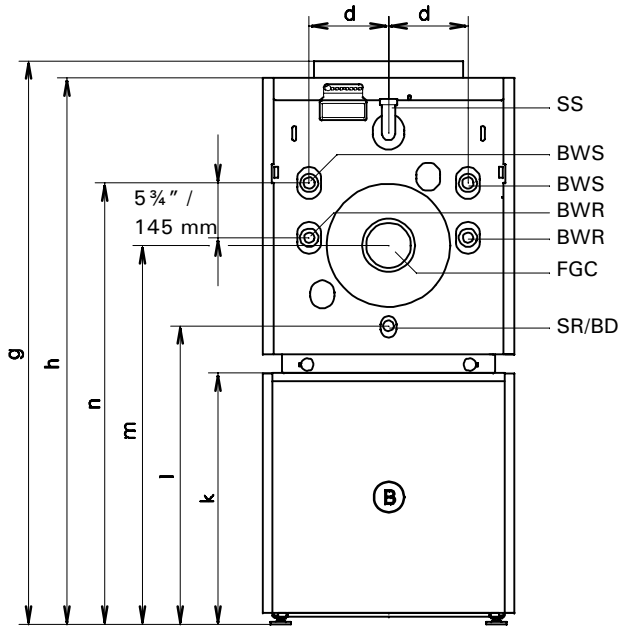
Boiler Model	VB2	-18	-22	-33		-40			-50		-63	
a	inches	30	30¾	31½		34½			35¾		35¾	
	mm	761	781	797		874			908		908	
b	inches	13¼	13¼	13¼		13½			14½		14½	
	mm	338	338	338		342			370		370	
c	inches	5¾	5½	5¾		5¾			5¾		5¾	
	mm	144	138	144		144			144		143	
d	inches	7¾	8¼	8¾		10			10½		10½	
	mm	195	210	225		254			268		268	
e	inches	5½	5	4¼		3¼			3¼		3¼	
	mm	141	125	110		84			85		85	
f	inches	19¼	19¾	20		21¼			24½		24½	
	mm	488	503	511		542			620		620	
With DHW tank under the boiler	USG	42 and 53	42 and 53	53	92	53	92	120	92	120	92	120
	ltr	160 and 200	160 and 200	200	350	200	350	450 *1	350	450 *1	350	450 *1
g	inches	61¼	62	62½	67¾	65¼	70¾	76¾	72	78¼	72	78¼
	mm	1555	1575	1590	1720	1665	1795	1952	1830	1987	1830	1987
h	inches	58¾	59½	60	65¼	63	68	74¼	69½	74¼	69½	74¼
	mm	1490	1510	1525	1655	1600	1730	1887	1765	1932	1765	1932
k	inches	26	26	26	31	26	31	37¼	31	37¼	31	37¼
	mm	658	658	658	790	658	790	947	790	947	790	947
l	inches	31½	30¾	30¼	35½	29¼	34½	40½	34½	40½	34½	40½
	mm	799	783	768	900	742	874	1031	875	1031	875	1031
m	inches	39¼	39¼	39¼	44½	39¼	44½	50¾	45¾	51¾	45¾	51¾
	mm	996	996	996	1128	1000	1132	1289	1160	1317	1160	1317
n	inches	45	45¾	46	51¼	47¼	52½	58½	55½	61¾	55½	61¾
	mm	1146	1161	1169	1301	1200	1332	1489	1410	1567	1410	1567

**1 Support Bars are necessary for 120 USG / 450 ltr tanks; dimensions "g" through "n" include 2¼" / 57 mm to account for the height of the Support Bars.*

Legend

BD Boiler Drain
BTS Boiler Temperature Sensor
BWR Boiler Water Return
BWS Boiler Water Supply
FGC Flue Gas Collar
SR Safety Return
SS Safety Supply

Ⓐ Boiler Stand
Ⓑ Vitocell-H



Mounting the Vitola 200 on a Vitocell-H

The Vitola 200 can be mounted on a Vitocell-H as shown to reduce the footprint of heating equipment in the mechanical room. Do **not** attempt to install combinations not listed in the Price List.

Boiler/Tank Compatibility

Support bars may be required when mounting a Vitola 200 boiler on a Viessmann Vitocell-H Series tank. Refer to the following chart to determine whether support bars are required for your application.

Order numbers are listed for boiler/tank combinations requiring support bars.

Certain boilers (listed with a "◆" in the chart) are directly compatible with the Vitocell-H tank and thus do not require additional hardware.

Combinations listed with "n.a." are incompatible. Do **not** attempt to install these combinations.

For more information see Viessmann Price List.

Boiler/Tank Compatibility

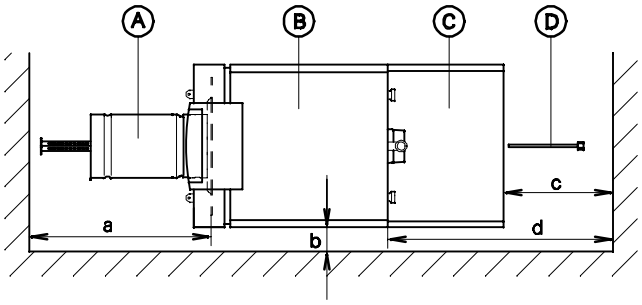
	Vitocell-H 100 DHW storage tank		**Vitocell-H 300** DHW storage tank			
Vitola 200	CHA-160	CHA-200	EHA-160	EHA-200	EHA-350	EHA-450
VB2-18/-22	◆	◆	◆	◆	n.a.	n.a.
VB2-33	◆	◆	◆	◆	◆	n.a.
VB2-40	n.a.	◆	n.a.	◆	◆	Z001 060
VB2-50/-63	n.a.	n.a.	n.a.	n.a.	◆	Z001 060

Order No. = Support bars are required.

◆ *= Support bars are not required. Boiler/tank are directly compatible.*

n.a. = Boiler/tank are incompatible. Neither mounting with support bars, nor direct-mounting possible.

Recommended Minimum Clearances for Service



Ⓐ Combustion chamber insert
Ⓑ Boiler
Ⓒ Vitocell-H domestic hot water storage tank *2
Ⓓ Sensor well for storage tank

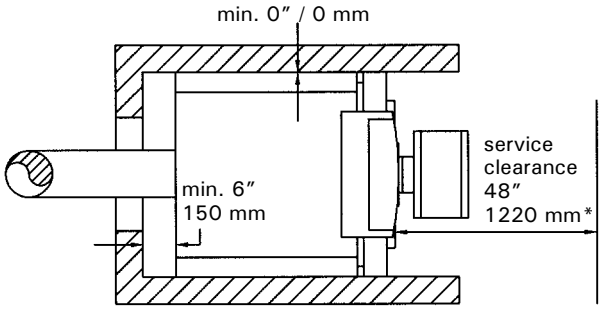
Boiler Model		VB2	-18	-22	-33	-40	-50	-63
Dim a*1**:**	Necessary clearance in front of the boiler for maintenance and service	inches	24½	26¾	33½	33½	36½	43
		mm	620	680	850	850	920	1090
Dim b:	Necessary clearance beside the boiler Ensure sufficient clearance if installing Divicon	inches	24	24	24	24	24	24
		mm	600	600	600	600	600	600
Dim c:	Necessary clearance behind a Vitocell-H installed below the boiler	inches	16¾	16¾	17¾	17¾	17¾	17¾
		mm	425	425	450	450	450	450
Dim d:	Ensure adequate clearance for Divicon or other accessories; minimum clearances (no Vitocell-H installed below the boiler)	inches	24	24	24	24	24	24
		mm	600	600	600	600	600	600
Top:		inches	24	24	24	24	24	24
		mm	600	600	600	600	600	600

*1 ***This clearance is required for service work.*** *Viessmann strongly recommends maintaining 48" / 1200 mm front clearance on all models.*
*2 *The Vitola 200 can be mounted on a Vitocell-H as shown to reduce the footprint of heating equipment in the mechanical room. Do **not** attempt to install combinations not listed in the Price List.*

Minimum Clearances to Combustibles

For typical installations, Viessmann recommends installing the boiler with clearances as published on page 10 under Recommended Minimum Clearances for Service.

Standard installation
(top view)



Boiler Model		VB2	-18	-22	-33	-40	-50	-63
Rear		inches	6	6	6	6	6	6
		mm	150	150	150	150	150	150
Sides		inches	0	0	0	0	0	0
		mm	0	0	0	0	0	0
Flue	(oil)	inches	9	9	9	9	9	9
		mm	230	230	230	230	230	230
	(gas)	inches	6	6	6	6	6	6
		mm	150	150	150	150	150	150

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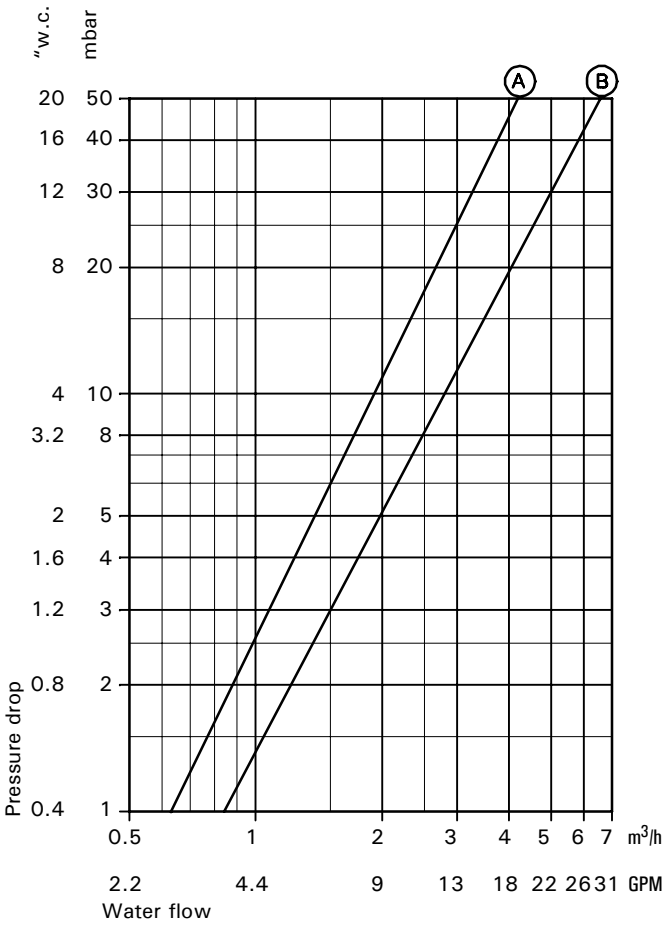
Waterside Flow (primary circuit)

The Vitola 200 is designed for closed loop, forced circulation hot water heating systems only.



Legend
Ⓐ VB2-18 to -33
Ⓑ VB2-40 to -63

Standard Equipment

Note:
Boiler controls and burners are purchased separately. Please see Price List for details.

Boiler shell with combustion chamber door

1 carton with insulating jacket and
1 cleaning brush
1 set of boiler ID hardware (coding card and technical literature)
1 installation fittings carton with safety header (c/w 30 psig pressure relief valve, air vent and pressure gage), drain valve, and installation fittings
1 carton with boiler control
1 carton with:
Viessmann Vitoflame Burner
(c/w burner hood and barometric damper)
or
Riello Burner (c/w barometric damper)

Boiler Control Alternatives

Vitotronic 100, KK10
standard boiler control for high temperature heating systems

Vitotronic 100, KW10
standard boiler control for high temperature heating systems
with indoor/outdoor system control

Vitotronic 200, KW2
for multiple temperature heating systems
with or without a mixing valve
with indoor/outdoor digital boiler and heating system control

Vitotronic 300, KW3
for multiple temperature heating systems
with up to two mixing valves
with indoor/outdoor digital boiler and heating system control

System Design Considerations

Chimney

For proper operation of the Vitola boiler, all products of combustion must be safely vented to the outdoors, while ensuring that flue gases do not cool prematurely.
It is critical that the chimney system be properly designed to handle the flue gas temperatures which the Vitola boiler produces.
Flue gases which cool too quickly produce condensation which leads to damages if the chimney diameter is too large and the chimney system is not well insulated.
If a calculated chimney diameter lies between two values, the larger diameter should be selected.

Intermediate section
The intermediate (vertical and horizontal) section of venting between the boiler vent pipe collar and the chimney must be of identical diameter as the vent connection of the boiler. Use the shortest possible path between the boiler and the chimney. A maximum of two elbows may be installed in the intermediate section. Avoid the use of two level 90° elbows.
The intermediate section must be sealed pressure tight at the boiler vent pipe collar and at the chimney connection. Ensure any test port for combustion values is sealed as well.

The chimney connection length between the boiler vent pipe collar and the chimney must be installed with **insulation**. Viessmann recommends consulting a reputable chimney installer for advice in project-specific circumstances.
Barometric damper must be used!

For Canadian oil installations only, a blocked vent safety shut-off switch must be installed.

Warranty

Our warranty does not cover damages resulting from the following:
– installation or service by unqualified and not licensed personnel
– corrosion caused by flue gas condensation due to low boiler water and/or return water temperatures
– operation with contaminated fill and supplementary feed water
For detailed warranty information, please read warranty sheet supplied with product.

Combustion air supply

The boiler must not be located in areas or rooms where chemicals containing chlorine, bromine, fluorine, or other corrosive chemicals are stored. Examples include refrigerants, bleach, paint, paint thinner, hair spray, cleaning solvents, water softener salt, etc. The combustion air must not be contaminated with the above mentioned, or other aggressive or corrosive chemicals.

Boiler should never be installed in areas where excessive dust, high humidity, or risk of frost exist. Ensure adequate ventilation and supply of fresh combustion air.

Consult Viessmann with uncertainties in regard to a suitable boiler installation location.

This boiler/burner unit needs clean fresh air for safe operation and must be installed so that there are provisions for adequate combustion and ventilation air. For oil-fired boilers, use the "Installation Code for Oil Burning Equipment CAN/CSA-B139" (Canada), or NFPA 31 (USA) and/or provisions of local codes. For gas or propane, use the "Natural Gas Installation Code CAN/CSA-B149.1 or B149.2" (Canada), or "National Fuel Gas Code ANSI Z223.1" (USA), and/or provisions of local codes.

The sizing methods outlined in the above codes should be used when installing a round duct to supply combustion air from the outside. Observe local jurisdictional requirements.

System layout

The boiler water temperature limit is factory set to 167°F / 75°C.
The boiler water temperature limit can be increased by altering the adjustable high limit to increase the supply water temperature.
To minimize piping losses of the system, however, we recommend that the radiation and domestic hot water production in the system be designed for a 158°F / 70°C boiler supply water temperature (new systems).

Water quality

Treatment for boiler feed water should be considered in areas of known problems, such as where a high mineral content and hardness exist. In areas where freezing might occur, an antifreeze may be added to the system water to protect the system. Please adhere to the specifications given by the antifreeze manufacturer. Do not use automotive silicate based antifreeze. Please observe that an antifreeze/water mixture may require a backflow preventer within the automatic water feed and influence components such as diaphragm expansion tanks, radiation, etc. A 40% antifreeze content will provide freeze-up protection to -10°F / -23°C. Do **not** use antifreeze other than specifically made for hot water heating systems. System also may contain components which might be negatively affected by antifreeze. Check total system frequently when filled with antifreeze. Advise system operator/ultimate owner that system is filled with a glycol mix.

The heating contractor must provide an MSDS (Material Safety Data Sheet) for the antifreeze used to the system operator/ultimate owner.

Oxygen diffusion barrier underfloor tubing

The boiler warranty does not cover leaks resulting from corrosion caused by the use of underfloor plastic tubing without an oxygen diffusion barrier. Such systems must have the non-oxygen diffusion barrier tubing separated from the boiler with a heat exchanger. Viessmann recommends the use of underfloor plastic tubing with an oxygen diffusion barrier.

Low water cut-off

A low water cut-off may be required by local codes. If boiler is installed above the radiation level, a low water cut-off device of approved type must be installed in all instances. An approved type low water cut-off device must be provided by the heating contractor. Do not install an isolation valve between the boiler and the low water cut-off.

Installation Examples

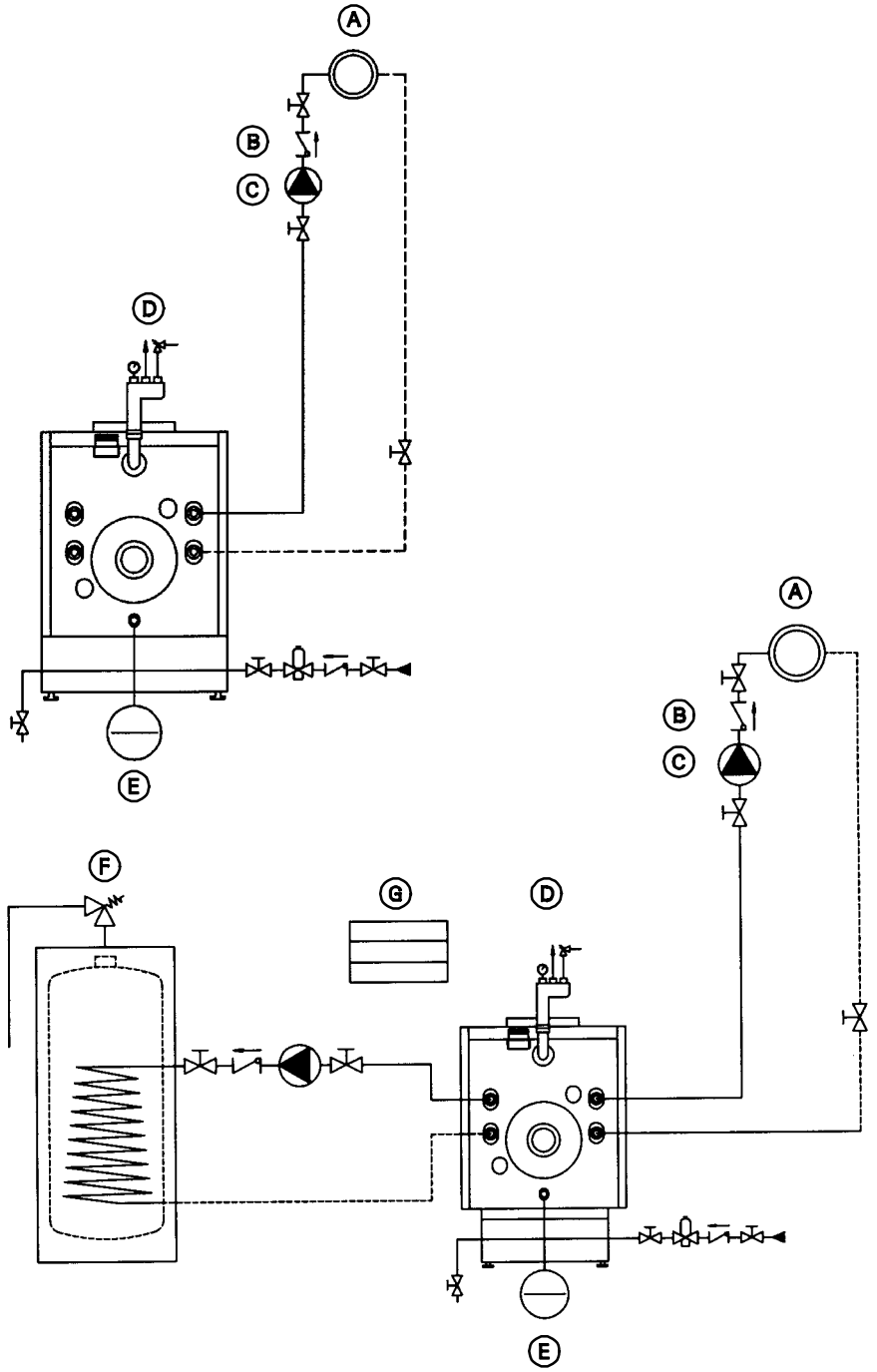
Important!
These examples depict possible piping layouts for Viessmann product equipped with Viessmann System Technology. For boiler and tank combinations, please install only the feasible combinations listed in the Price List.

These are simplified conceptual drawings only! Piping and necessary componentry must be field verified.

Proper installation and functionality in the field is the responsibility of the heating contractor.

Without mixing valve

e.g. with Vitotronic 100, KK10



Ⓐ Heating circuit
Ⓑ Spring-loaded flow check valve
Ⓒ Circulation pump
Ⓓ Safety header with automatic air vent, pressure relief valve, and pressure gage
Ⓔ Expansion tank
Ⓕ Domestic hot water storage tank (indirect-fired)
Ⓖ DHW Pump Module

The installation of the check valve to restrict gravity circulation in the heating supply pipe prevents uncontrolled heat flow to the heating system by gravity during priority switching of domestic hot water heating or during summer operation.

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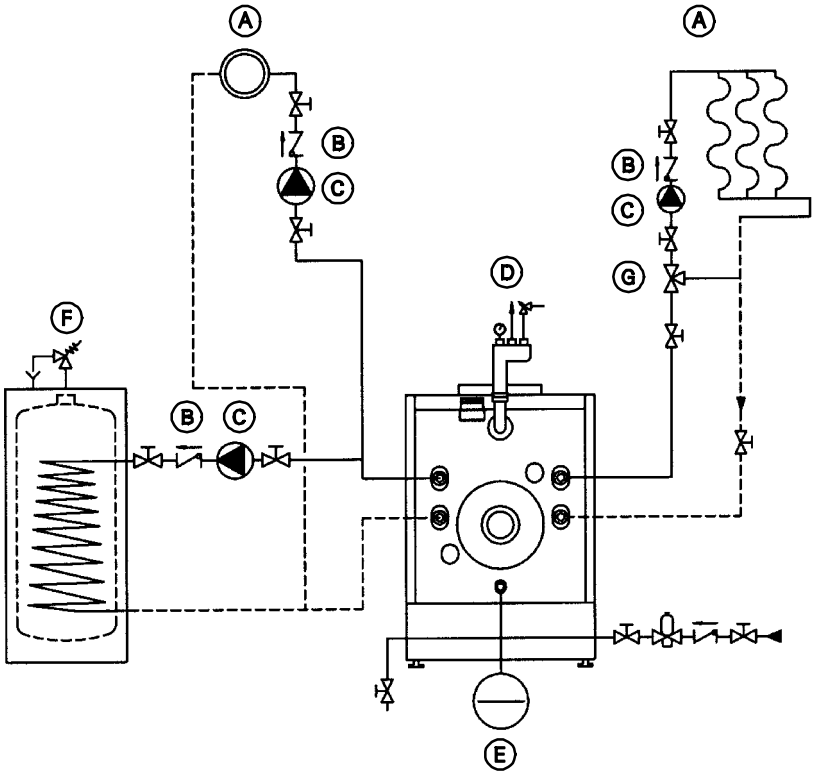
With one low-temperature circuit with 3-way mixing valve, one high-temperature circuit, and with domestic hot water production

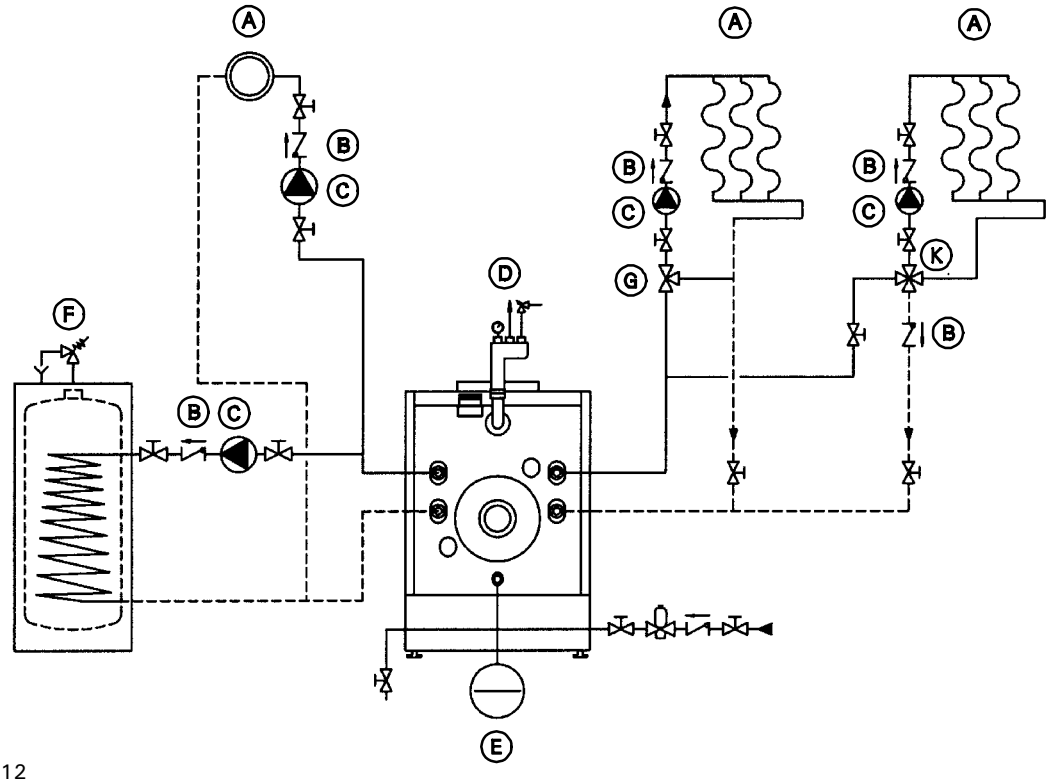
e.g. with Vitotronic 200, KW2 combined with one Mixing Valve Actuator Accessory Kit



Ⓐ Heating circuit
Ⓑ Spring-loaded flow check valve
Ⓒ Circulation pump
Ⓓ Safety header with automatic air vent, pressure relief valve, and pressure gage
Ⓔ Expansion tank
Ⓕ Domestic hot water storage tank (indirect-fired)
Ⓖ 3-Way mixing valve
Ⓚ 4-Way mixing valve

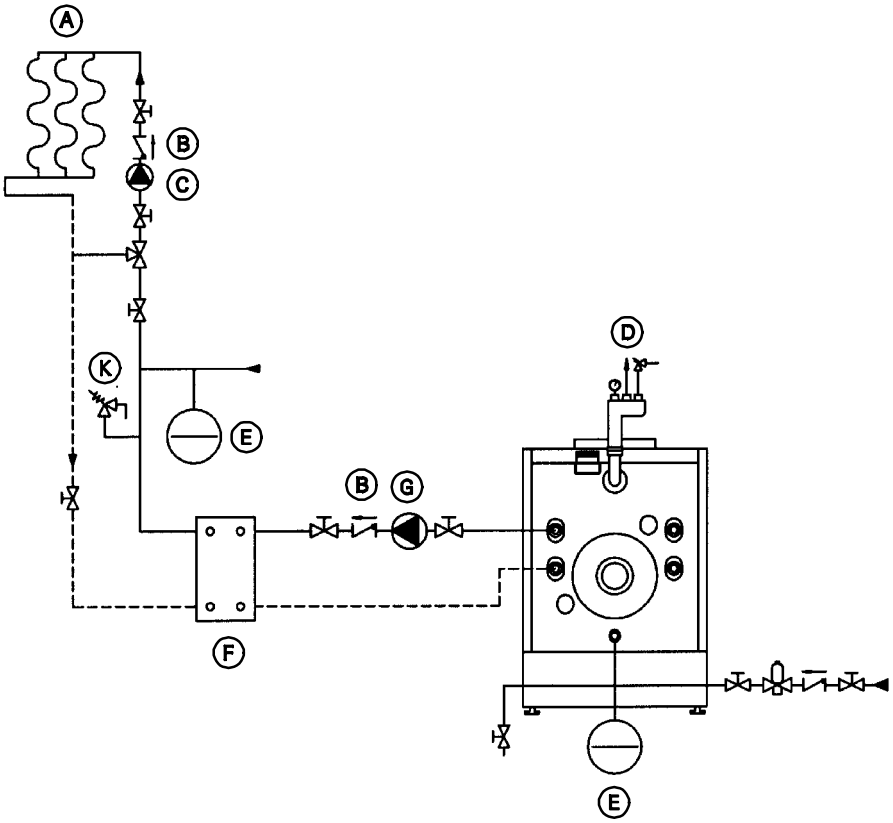
With two low-temperature circuits with mixing valves, one high-temperature circuit, and with domestic hot water production

e.g. with Vitotronic 300, KW3 combined with two Mixing Valve Actuator Accessory Kits



Underfloor heating system with one low-temperature circuit with 3-way mixing valve, and system separation

e.g. with Vitotronic 200, KW2 combined with one Mixing Valve Actuator Accessory Kit



Ⓐ Heating circuit
Ⓑ Spring-loaded flow check valve
Ⓒ Circulation pump for heating circuit
Ⓓ Safety header with automatic air vent, pressure relief valve, and pressure gage
Ⓔ Expansion tank
Ⓕ Heat exchanger
Ⓖ Circulation pump for heat exchanger
Ⓚ Pressure relief valve

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