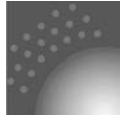


Datasheet

Part no.: see pricelist, prices on request



File in:
Vitotec folder, register 22

VITOMAX 200 LS Type M233

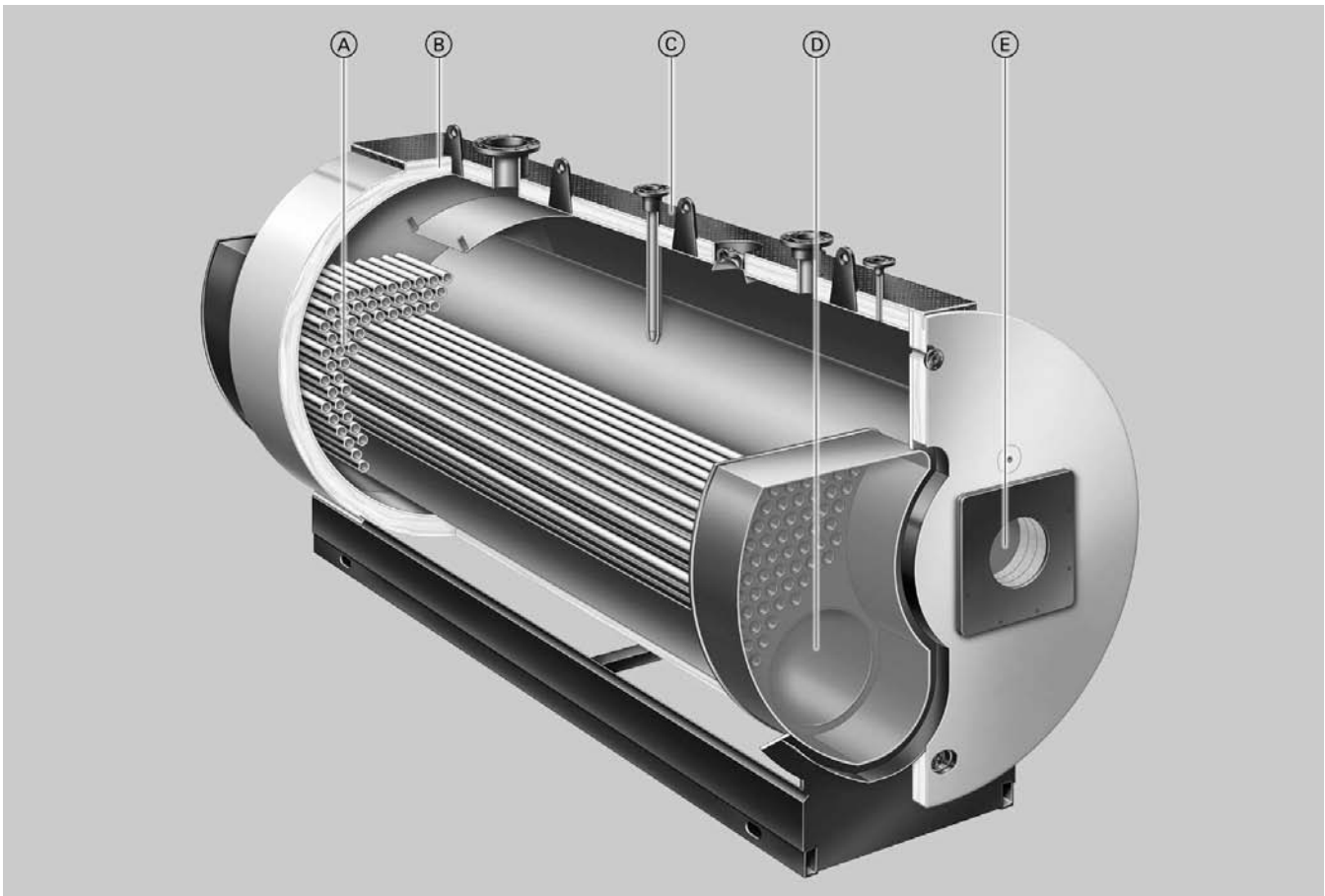
Oil/gas fired low pressure steam boiler
conforming to the requirements of the EC Pressure Equip-
ment Directive, EN 12953 and the TRD regulations

Three-pass boiler

Permissible operating pressure up to 1 bar

Benefits at a glance

- Three-pass boiler with low combustion chamber loading ($\leq 1.2 \text{ MW/m}^3$); consequently clean combustion with low emissions.
- Economical fuel consumption – boiler efficiency: 92 %.
- Large steam chamber and large evaporator as well as integral mist collector ensure a high steam quality.
- High level of serviceability through water-cooled reversing chamber without lining plus large cleaning door – for reduced maintenance costs.
- A walk-on cover on top of the boiler is part of the standard delivery – this simplifies the installation and maintenance and protects the thermal insulation against accidental damage.
- Wide water galleries and large space between hot gas pipes provide excellent self circulation and reliable heat transfer and thereby high operational reliability and a long service life.
- Low radiation losses through 100 mm thick composite insulation and water-cooled front.
- Low resistance on the flue gas side through convection heating surfaces with large hot gas pipes.
- The Vitocontrol control cabinet enables the regulation of all boiler-related control equipment.
- Connection for mounting all necessary measuring, control and safety equipment.
- Extensive matching accessories available.
- CE designation according to the European Pressure Equipment Directive 90/396/EEC or the European Gas Equipment Directive 97/23/EC.



- Ⓐ Third hot gas flue
- Ⓑ 100 mm thick composite insulation
- Ⓒ Walk-on cover
- Ⓓ Second hot gas flue
- Ⓔ Combustion chamber

Specification

Specification

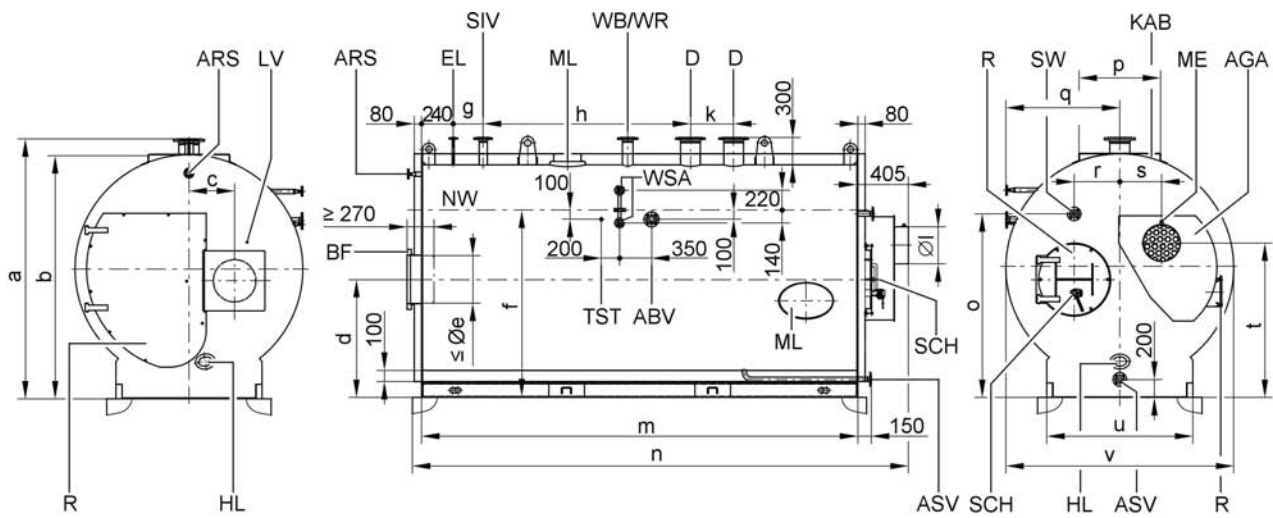
Steam volume*1	t/h	2.9	3.5	5.0
Rated output	kW	1900	2300	3300
Rated thermal load	kW	2080	2500	3600
CE designation		see page 6		
Hot gas pressure drop	Pa	650	700	750
	mbar	6.5	7.0	7.5
Total dimensions				
Total length (dimension n)	mm	4520	4520	4595
Total width (dimension v)	mm	2000	2200	2380
Total height (dimension a)	mm	2400	2600	2780
Height of anti-vibration boiler supports (loaded)	mm	37	37	37
Foundation				
Length	mm	4100	4100	4100
Width	mm	1400	1500	1600
Combustion chamber diameter	mm	845	965	1085
Combustion chamber length	mm	3560	3560	3635
Total weight	kg	5100	5700	6800
Boiler with thermal insulation				
Content Boiler water at the lowest water level	litres	4500	5550	6570
Volume Steam chamber from the lowest water level	m ³	1.6	2.1	2.4
Boiler connections				
Steam connector	PN 16 DN	300	350	2 × 250
Feed water connector	PN 16 DN	40	40	40
Safety valve connector	PN 16 DN	100	125	125
Blow-down valve connector	PN 16 DN	40	40	40
Flue gas parameters*2				
Temperature				
– at rated output	°C	170	170	170
– at partial load	°C	140	140	140
Mass flow rate (for fuel oil EL and natural gas)				
– at rated output	kg/h	3200	3840	5520
– at partial load	kg/h	1600	1920	2760
Required draught	Pa/mbar	0	0	0
Flue gas connection	Ø mm	400	450	500
Gas content	m ³	3.2	4.4	5.5
Combustion chamber and hot gas flues				
Boiler efficiency	%	92	92	92

*1 At a feed water temperature of 80 °C relative to the rated boiler output.

*2 Values for calculating the size of the flue system to DIN 4705 relative to 13 % CO₂ for fuel oil EL and 10 % CO₂ for natural gas. Flue gas temperatures measured as gross values at 20 °C combustion air temperature.

The details for partial load refer to 50 % of rated output. Calculate the flue gas mass flow rate accordingly when the partial load differs from that stated above (subject to burner adjustment).

Specification (cont.)



ABV	Connector DN 20 PN 40 for T.D.S. valve	ME	Test port R ½"
AGA	Flue outlet	ML	Man hole 300 × 400 mm
ARS	Connector DN 20 PN 16 for valve base (pressure regulator, pressure limiter and pressure gauge)	R	Clean-out cover
ASV	Connector DN 40 PN 16 for blow-down valve	SCH	Inspection aperture
BF	Burner connection flange	SIV	Safety valve connector
D	Steam connector (second connector only for 5.0 t/h)	SW	Feed water connector
EL	Connector DN 15 PN 16 for air vent valve	TST	Fem. connection R ½" for standby thermostat
HL	Hand hole 100 × 150 mm	WB/WR	Connector DN 50 PN 16 for water level limiter/water level regulator
KAB	Boiler cover, walk-on	WSA	Connector DN 20 PN 16 for water level indicator
LV	Fem. connection R ¼" for air ratio pressure control		

Note

The connectors shown are suitable for a safety pressure of 0.5 bar. At 1 bar, the boilers are equipped with additional connectors for supplementary safety equipment.

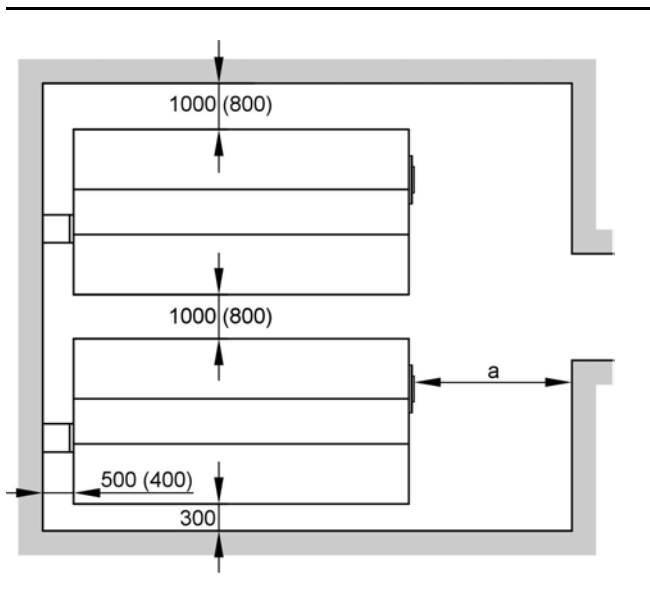
Dimensions

Steam output	t/h	2.9	3.5	5.0
a	mm	2400	2600	2780
b	mm	2205	2405	2585
c	mm	400	435	465
d	mm	1160	1235	1330
e	Ø mm	434	534	534
f	mm	1695	1830	1985
g	mm	300	320	350
h	mm	2465	2420	1765
k	mm	-	-	750
l	Ø mm	400	450	500
m	mm	3830	3830	3905
n	mm	4520	4520	4595
o	mm	1655	1790	1945
p	mm	700	700	800
q	mm	1060	1180	1240
r	mm	400	435	465
s	mm	400	435	465
t	mm	1340	1450	1575
u	mm	1200	1300	1400
v	mm	2000	2200	2380

Specification (cont.)

Positioning

Minimum clearances



To enable convenient installation and maintenance, observe the stated clearance dimensions; you must maintain the minimum clearances where space is tight (dimensions in brackets).

Steam output	t/h	2.9	3.5	5.0
a	mm	3300	3900	3950

Dimension a: Maintain this space in front of the boiler to enable the withdrawal of the turbulators or for cleaning.

Positioning

- Avoid air contamination by halogenated hydrocarbons (e.g. as in sprays, paints, solvents and cleaning agents)
- Avoid very dusty conditions

- Avoid high levels of humidity
- Protect against frost and ensure good ventilation, otherwise the system may suffer faults and damage. In rooms where air contamination through **halogenated hydrocarbons** may occur, install the boiler only if adequate measures can be taken to provide a supply of uncontaminated combustion air.

Delivered condition

Boiler body with burner plate, fitted cleaning door, flue outlet with clean-out aperture, fitted thermal insulation, fitted walk-on cover. With transport protection. The cleaning equipment, the valve base and the combustion chamber sight glass are supplied inside the combustion chamber.

Design information

Flue gas system

Steam boiler and flue system must match each other. According to DIN 4705 and DIN 18160, flue gases must be expelled to the outdoors and must be protected against cooling down, so that the precipitation of vaporised flue gas components inside the flue system will not cause any risks. Otherwise provide a moisture-resistant flue gas system.

Thermally insulate the connecting pipe between the flue outlet and the chimney. We recommend you seek advice from your local flue gas inspector.

Installation of a suitable burner

The burner must be suitable for the respective rated output and the pressure drop on the hot gas side of the boiler (see burner manufacturer's specification). The material of the burner head must be suitable for operating temperatures of at least 500 °C.

Pressure-jet oil burner

The burner must be tested and identified to EN 267 and must, when protected above 0.5 bar, conform to EN 12953-7.

Design information (cont.)

Pressure-jet gas burner

The burner must be tested to EN 676 and be CE-designated in accordance with Directive 90/396/EEC and must, when protected above 0.5 bar, conform to EN 12953-7.

Burner adjustment

Adjust the oil or gas throughput of the burner to the rated boiler output.

Water quality

The boiler feed water quality and that of the boiler water must comply with VdTÜV guidelines (see the technical guide "Standard values for water quality" [or with local regulations]).

Permissible operating pressures

- up to 0.5 bar

CE designation:

CE-0085 in accordance with the Gas Equipment Directive or

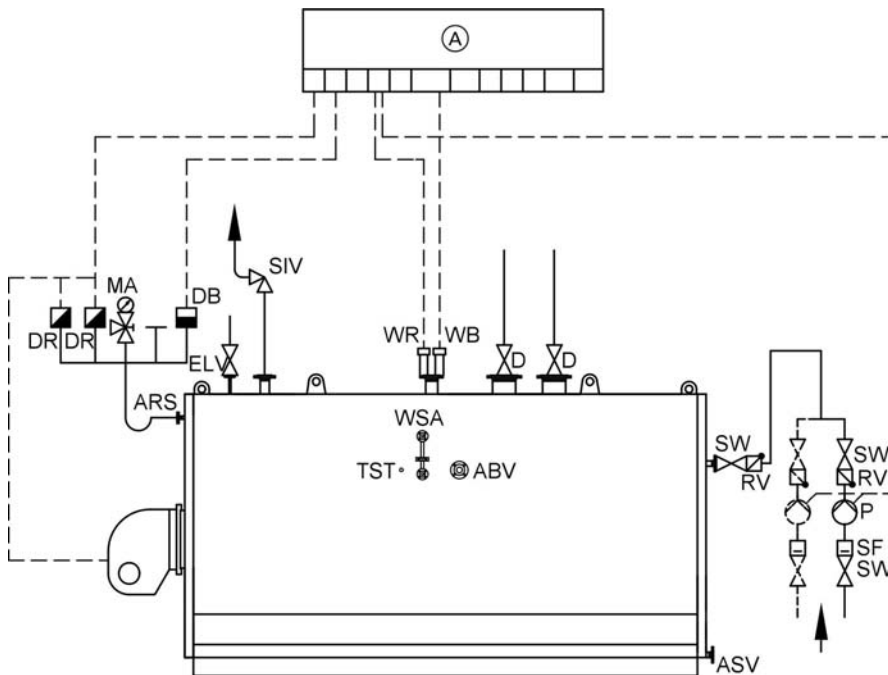
- up to 1 bar

CE designation:

CE-0035 according to the Pressure Equipment Directive
Additional safety equipment is required for operation with a safety pressure of 1 bar.

According to the Health & Safety Act [Germany] these boilers require permits and should be checked regularly by an authorised body.

Standard equipment for steam boilers with a safety pressure up to 0.5 bar (TRD 701)



Ⓐ	Vitocontrol control panel	P	Feed water pump
ABV	T.D.S. valve	RV	Non-return valve
ARS	Fitting assembly	SF	Dirt trap
ASV	Quick-action blow-down valve with manual lever	SIV	Safety valve
D	Steam shut-off valve	SW	Feed water valve
DB	Pressure limiter	TST	Thermostat (standby)
DR	Pressure regulator	WB	Water level limiter
ELV	Air vent valve	WR	Water level regulator
MA	Pressure gauge	WSA	Water level indicator

Design information (cont.)

Note

Steam boilers with an operating pressure in excess of 0.5 bar require supervision in accordance with the Health & Safety at Work Act [Germany]. Install two water level limiters of a special type (fail-safe, redundancy, heterogeneity and self-monitoring) in accordance with the Pressure Equipment Directive and EN 12953-6.

Boiler accessories

The following equipment may be supplied with the boiler. Further information on request.

Mating flange with screws and gaskets

Regulating and safety equipment

- Safety valves
- Multiple level electrode
- Pressure regulator
- Pressure limiter
- Pressure gauge
- Water level indicator
- Water level limiter
- Thermostat (standby)

Additional accessories

- Anti-vibration boiler supports
- Steam shut-off valve
- Feed water valve
- Non-return valve (feed water)
- Feed water tank
- Feed water pump

- Blow down valve
- automatic or manual T.D.S. equipment
- automatic or manual steam vent valve
- Platforms with safety rail and ladder

Water treatment system (chemical and thermal systems)

Burner

- Burner for liquid or gaseous fuels (type according to customer requirements)


Vitocontrol control panels

- Boiler control panel for wall mounting or a freestanding panel
- Boiler control panel fitted to the boiler, fully wired between the control panel and the boiler equipment

Services

- Delivery
- Transportation
- Commissioning

Tested quality

 CE designation according to current EC Directives.

Printed on environmentally friendly,
chlorine-free bleached paper



Subject to technical modifications.

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