

## Datasheet

Part no.: see pricelist, prices on request



### **VITOPLEX 100-LS** Type SXD

**Three-pass oil/gas boiler**

**Steam boiler up to 1 bar operating pressure**  
in accordance with the requirements of the  
Pressure Equipment Directive 97/23/EC

## Specification

### Specification

Steam output <sup>*1</sup>	t/h	0.26	0.44	0.7	0.9	1.4	2.2
<b>Rated heating output</b>	kW	170	285	460	580	900	1450
<b>Combustion output</b>	kW	186	311	503	634	984	1585
<b>CE designation</b> in accordance with Pressure Equipment Directive 97/23/EC		CE-0035					
<b>Pressure drop on the hot gas side</b>	Pa mbar	90 0.9	180 1.8	250 2.5	300 3.0	360 3.6	470 4.7
<b>Boiler body dimensions (transport dimensions)</b>							
Length (dim. e)	mm	1490 <sup>*2</sup>	1655 <sup>*2</sup>	1820 <sup>*2</sup>	2310 <sup>*3</sup>	2460 <sup>*3</sup>	2970 <sup>*3</sup>
Width (dim. b)	mm	670	750	825	1175	1245	1380
Height (incl. connectors) (dim. n)	mm	1665	1805	1970	1960	2270	2490
<b>Overall dimensions</b>							
Total length (dim. d)	mm	1630	1800	1980	2440	2590	3135
Total width (dim. a)	mm	770	950	1025	1380	1445	1580
Total height with fittings (dim. c)	mm	1880	2020	2185	2165	2280	2695
Height of anti-vibration boiler supports (loaded)	mm	37	37	37	37	37	37
<b>Foundation (recommended)</b>							
Length	mm	1400	1550	1750	1900	2100	2600
Width	mm	870	950	1025	1200	1260	1400
<b>Combustion chamber diameter</b>	mm	480	550	585	685	780	840
<b>Combustion chamber length</b>	mm	1120	1290	1440	1830	1980	2480
<b>Weight – boiler body</b>	kg	685	975	1350	1715	2360	3550
<b>Total weight</b> incl. thermal insulation and fittings	kg	770	1075	1480	1850	2520	3752
<b>Boiler water content</b>	m <sup>3</sup>	0.552	0.735	0.980	1.730	2.261	3.240
Average operating range <sup>*4</sup>	m <sup>3</sup>	0.345	0.460	0.615	1.316	1.709	2.377
<b>Steam chamber volume<sup>*4</sup></b>	m <sup>3</sup>	0.207	0.275	0.365	0.414	0.552	0.863
<b>Steam level surface area<sup>*4</sup></b>	m <sup>2</sup>	0.677	0.861	1.058	1.565	1.180	2.544
Lowest water level	mm	1146	1243	1378	1422	1680	1844
<b>Boiler connections</b>							
Steam connector	PN 16 DN	100	125	125	150	200	200
Feedwater connector	PN 16 DN	40	40	40	40	40	40
Safety connection (safety valve)	PN 16 DN	65	65	80	80	100	125
Drain	PN 16 DN	40	40	40	40	40	40
<b>Flue gas temp<sup>*5</sup></b>							
– at rated heating output	°C	200	200	200	200	200	200
– at partial load (50 % of rated heating output)	°C	130	130	130	130	130	130
<b>Flue gas mass flow rate<sup>*5</sup></b> (for fuel oil EL and natural gas)							
– at rated heating output	kg/h	290	485	780	980	1525	2445
– at partial load (50 % of rated heating output)	kg/h	145	240	390	490	760	1220
Required draught	Pa/mbar	0	0	0	0	0	0
<b>Flue outlet</b>	∅ mm	200	200	250	250	300	400
<b>Boiler efficiency</b>	%	91					
<b>Gas content</b>	m <sup>3</sup>	0.296	0.449	0.603	0.942	1.204	2.193
Combustion chamber and hot gas flues							

<sup>\*1</sup> At a feedwater temperature of 80 °C relative to the rated boiler heating output.

<sup>\*2</sup> With boiler door and flue gas collector removed

<sup>\*3</sup> Boiler door removed.

<sup>\*4</sup> Average water level between pump "On" and "Off"

<sup>\*5</sup> Values for sizing the flue system to EN 13384 relative to 13 % CO<sub>2</sub> for fuel oil EL and 10 % CO<sub>2</sub> for natural gas.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

Partial load corresponds to 50 % of rated output; calculate the flue gas mass flow rate when the partial load differs from that stated (subject to operating mode).

## Specification (cont.)

### Vitoplex 100-LS steam output, 0.26 to 0.7 t/h

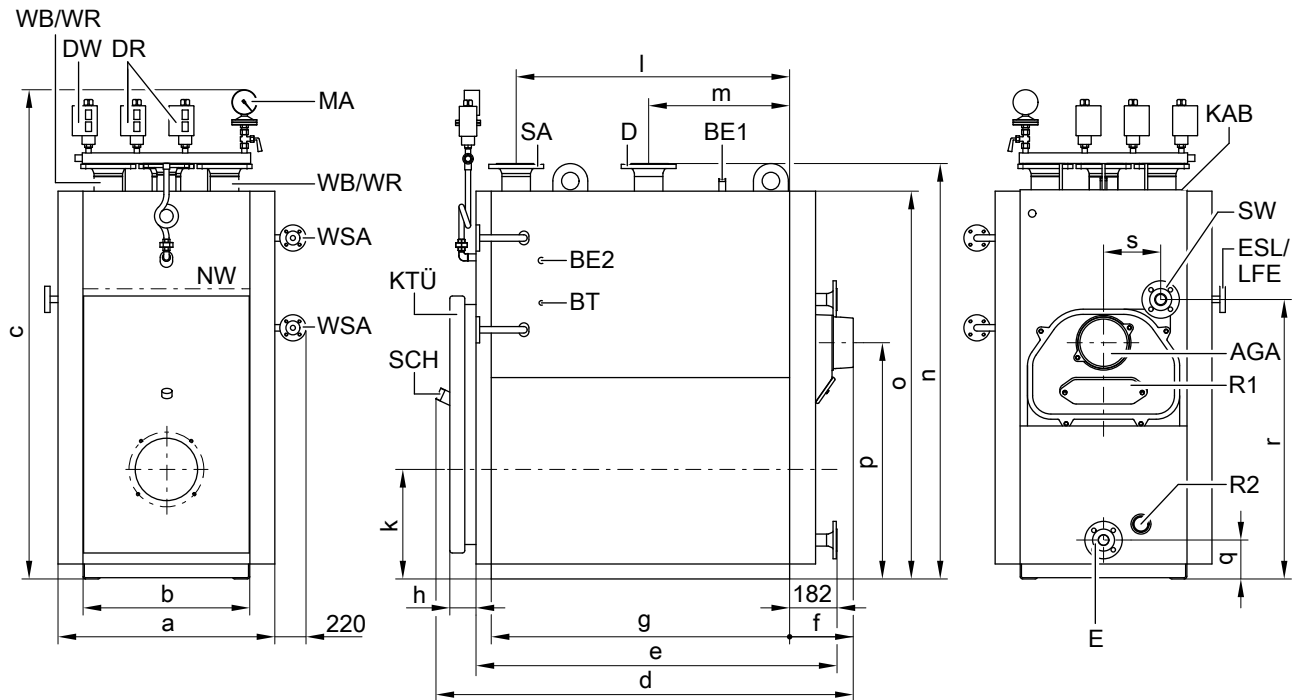


Illustration with optional accessories DW, DR, MA

AGA	Flue outlet	LFE	Connector for conductivity electrode PN 16 DN 20
BE1	R ¾ nipple for ventilation	MA	R ½ female connection for pressure gauge
BE2	R ¾ female connection for ventilation	NW	Lowest water level
BT	R ½ female connection for thermostat (standby)	R1	Cleaning aperture
D	Steam connector	R2	Female connection for cleaning
DR	2 R ½ female connections for pressure regulator	SA	Safety connection (safety valve)
DW	R ½ female connection for pressure limiter	SCH	Inspection port
E	Drain	SW	Feedwater connector
ESL	Connector for T.D.S. line PN 16 DN 20	WB/WR	Connection PN 16 DN 100 for water level limiter/water level controller
KAB	Boiler cover (load-bearing)	WSA	Connection PN 16 DN 20 for water level indicator
KTÜ	Boiler door		

#### Dimensions

Steam output	t/h	0.26	0.44	0.7
a	mm	770	950	1025
b	mm	670	750	825
c	mm	1880	2020	2185
d	mm	1630	1800	1980
e (transport dimension)	mm	1490	1655	1820
f	mm	215	215	230
g (length of the base rails)	mm	1195	1360	1510
h	mm	166	166	186
k	mm	440	450	490
l	mm	1090	1260	1375
m	mm	565	620	685
n	mm	1665	1805	1970
o	mm	1560	1700	1865
p	mm	950	1045	1135
q	mm	160	135	155
r	mm	1120	1205	1325
s	mm	230	245	260

Dimension e: With boiler door and flue gas collector removed.

Dimension k: Observe the installed height of the burner.

## Specification (cont.)

### Vitoplex-LS steam output 0.9 to 2.2 t/h

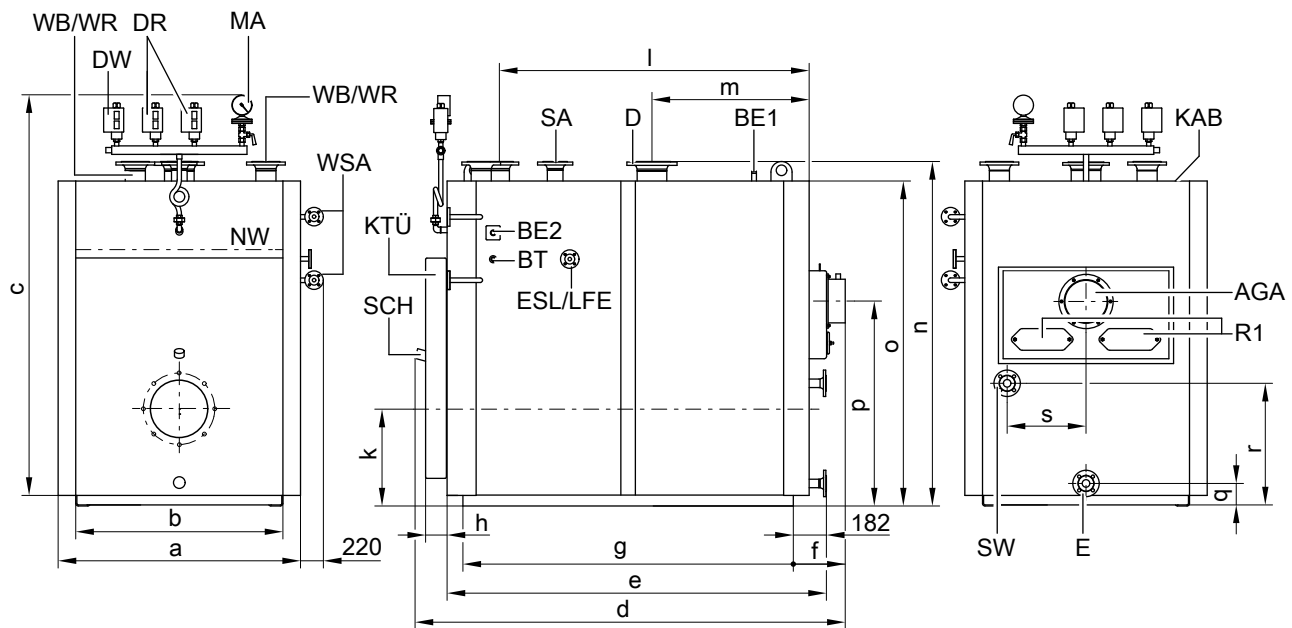


Illustration with optional accessories DW, DR, MA

AGA	Flue outlet	LFE	Connector for conductivity electrode PN 16 DN 20
BE1	R ¼ nipple for ventilation	MA	R ½ female connection for pressure gauge
BE2	R ¾ female connection for ventilation	NW	Lowest water level
BT	R ½ female connection for temperature controller (standby)	R1	Cleaning aperture
D	Steam connector	SA	Safety connection (safety valve)
DR	2 R ½ female connections for pressure regulator	SCH	Inspection port
DW	R ½ female connection for pressure limiter	SW	Feedwater connector
E	Drain	WB/WR	Connection PN 16 DN 100 for water level limiter/water level controller
ESL	Connector for T.D.S. line PN 16 DN 20	WSA	Connection PN 16 DN 20 for water level indicator
KAB	Boiler cover (load-bearing)		
KTÜ	Boiler door		

#### Dimensions

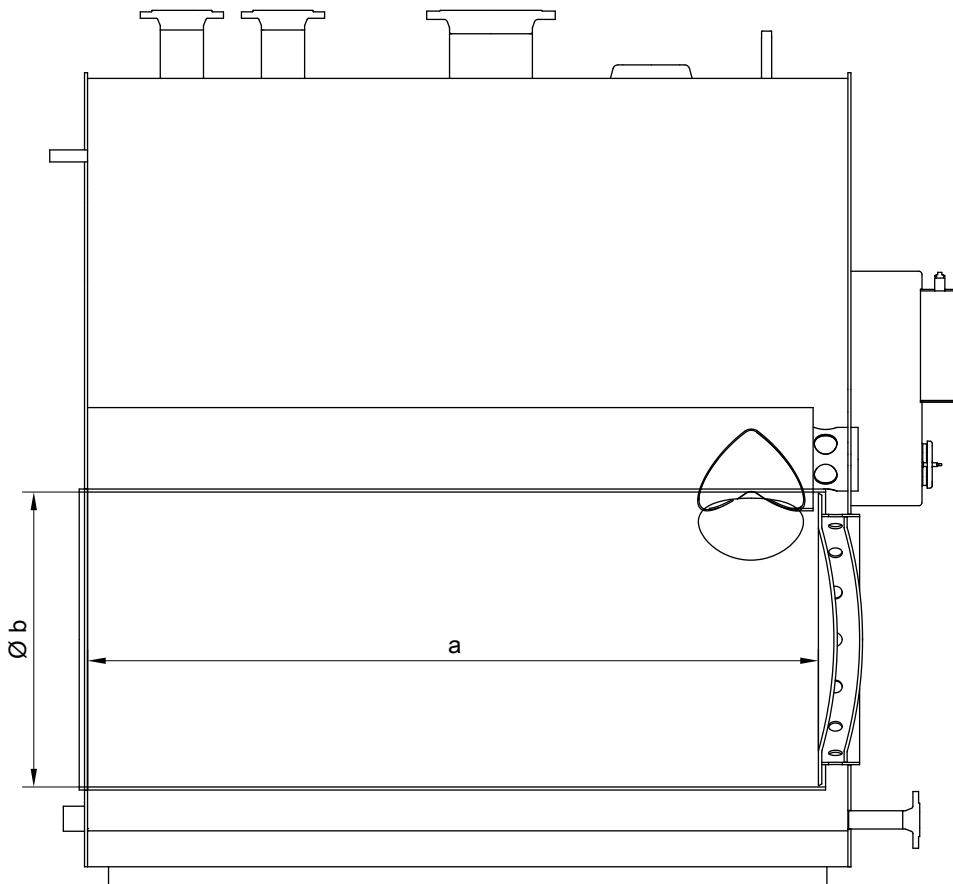
Steam output	t/h	0.9	1.4	2.2
a	mm	1380	1445	1580
b	mm	1175	1245	1380
c	mm	2165	2280	2695
d	mm	2440	2590	3135
e (transport dimension)	mm	2310	2460	2970
f	mm	290	290	300
g (length of the base rails)	mm	1880	2030	2525
h	mm	212	212	247
k	mm	550	605	640
l	mm	1350	1500	2095
m	mm	800	950	1145
n	mm	1960	2270	2490
o	mm	1880	2195	2410
p	mm	1170	1385	1490
r	mm	700	820	905
q	mm	130	130	135
s	mm	450	480	550

Dimension e: Boiler door removed.

Dimension k: Observe the installation height of the burner.

## Specification (cont.)

### Information for burner selection

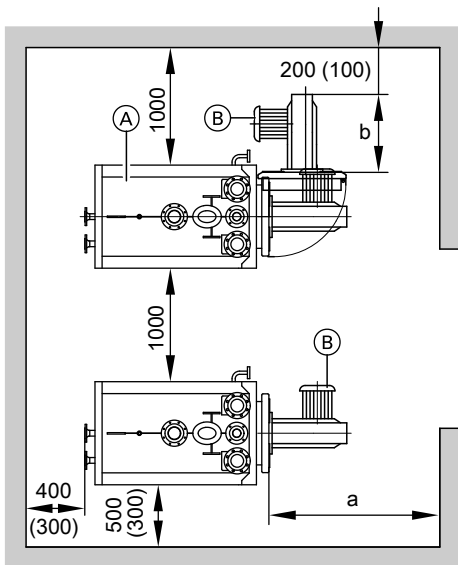


#### Combustion chamber dimensions

Steam output	t/h	0.26	0.44	0.7	0.9	1.4	2.2
Length of flame tube/approved for flames (dim. a)	mm	1120	1290	1440	1830	1980	2480
Flame tube diameter (dim. b)	mm	480	550	585	685	780	840

## Siting

### Recommended minimum clearances



- (A) Boiler
- (B) Burner

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

In the delivered condition, the boiler door opens to the left. You can reposition the hinge bolts so that the door can open to the right.

### Dimensions

Steam output	t/h	0.26	0.44	0.7	0.9	1.4	2.2
a <sup>*6</sup>	mm	1200	1300	1400	150	175	175
					0	0	0
b	mm	Burner length (installed)					
Height above boiler <sup>*7</sup>	mm	2000					

### Installation locations for steam boilers

Any boiler room for steam boilers must [in Germany] comply with the DDA information, issue 2.2002 "Installation and operation of land-based steam boiler systems, CE-designated shell boilers".

Steam boilers must not be installed

- in, under, above or alongside living spaces,
  - in, under or above areas for social gatherings and work spaces.
- Rooms without permanent work space, which are only rarely visited, or control rooms and areas for associated machinery, which are operated by a boilerman or from a control room, are excluded from this classification.

Contrary to this ruling, steam boilers may be installed

- in, below and above work areas,
  - below, above or alongside living spaces,
  - below and above areas for social gatherings,
- if the product derived from the water content in litres and the permissible operating pressure in bar does not exceed 10,000.

This also applies, if the product falls below 20,000 and if

- the permissible operating pressure is a maximum of 32 bar,
- the water content is a maximum of 10,000 l,
- the permissible steam generation is a maximum of 2 t/h and
- the system has been equipped and tested in accordance with TRD 604, sheet 1, section 5.

### Installation conditions

Maintain the following conditions to prevent faults and system damage:

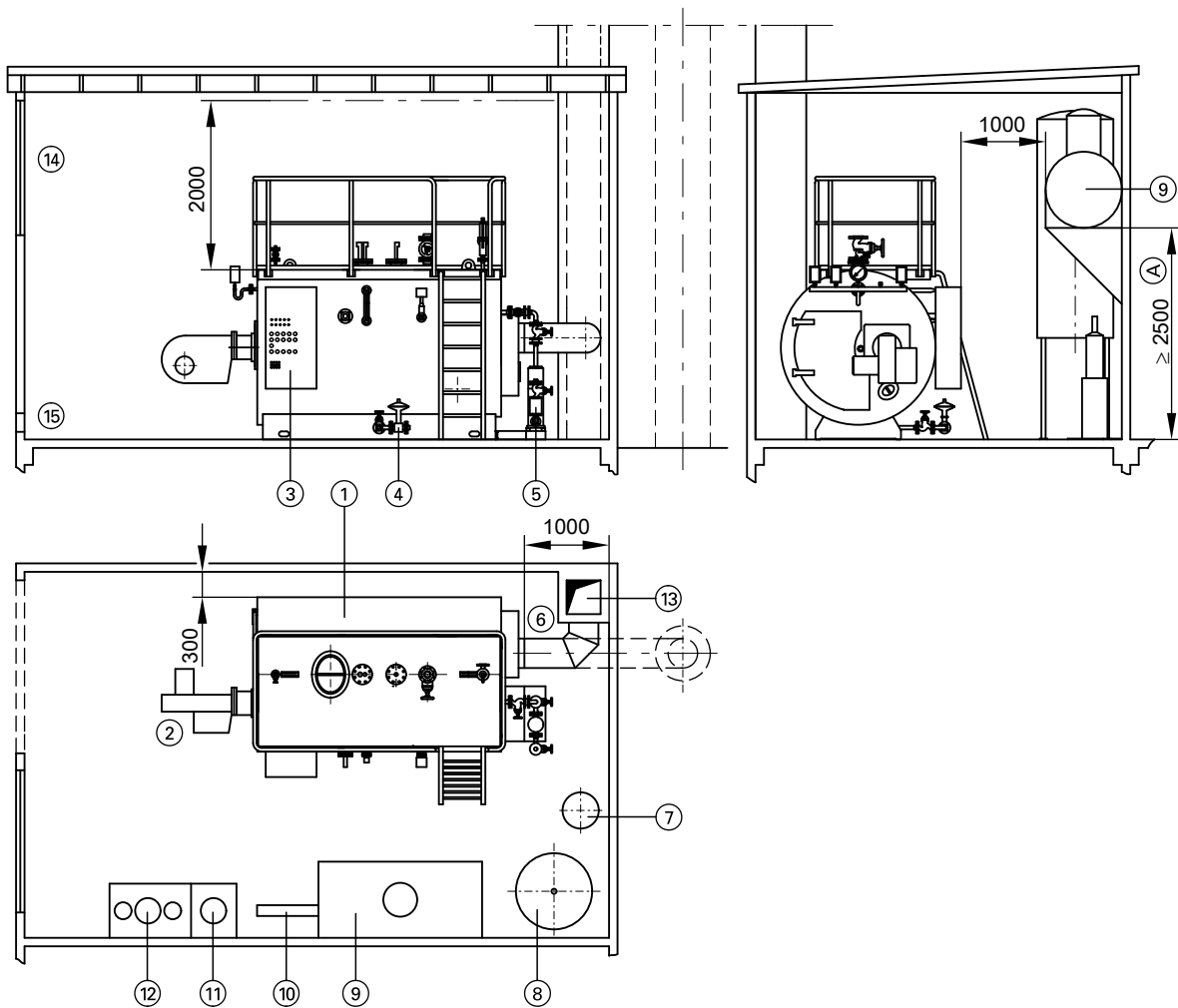
- In rooms where air contamination through **halogenated hydrocarbons** (e.g. as contained in sprays, paints, solvents and cleaning agents) may occur, install the boiler only if adequate measures can be taken to provide a supply of uncontaminated combustion air.
- Avoid very dusty conditions.
- Avoid high levels of humidity.
- Prevent the risk of frost and ensure good ventilation.
- Installation on a level surface.

<sup>\*6</sup> Length required for installation and removal of turbulators.

<sup>\*7</sup> Height required for installation and removal of multiple level electrode.

## Specification (cont.)

Example: Boiler installation room according to DDA Information issue 2.2002 [Germany]



- (A) Inlet height (subject to feedwater temperature, type of feedwater pump, load pressure inside the feedwater tank)
- (1) High pressure steam boiler
- (2) Burner
- (3) Control panel
- (4) Blow-down
- (5) Feedwater pump (observe the inlet height during installation)
- (6) Flue pipe
- (7) Blow-down container

- (8) Spray circulation deaerator (alternative to (9))
- (9) Feedwater tank with trickle deaerator
- (10) Steam distributor
- (11) Dosing
- (12) Water treatment (chemical)
- (13) Flue system
- (14) Extract air vent
- (15) Ventilation air vent

## Delivered condition

Boiler body with fitted boiler door, fitted cleaning cover, welded load-bearing cover, inserted turbulators and mating flanges with bolts and gaskets on all connectors. Crate with thermal insulation, carton with burner plate.

Fitting assembly, adjustable feet, inspection pipe, pipe connectors for water level indicator, gaskets and other accessories may be found inside the combustion chamber.

With boilers up to 0.7 t/h steam output, the cleaning brush and the turbulator extractor are delivered lying on top, with boilers from 0.9 t/h steam output, they will be inside the combustion chamber.

### Load-bearing boiler cover

The Vitoplex 100-LS is supplied with a fitted load-bearing boiler cover to assist in the installation. Boiler platforms and ladders can be supplied on request.

## Design information

### Flue system

Steam boiler and flue system must match each other. According to EN 13384 and DIN 18160, flue gases must be extracted 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 system.

Provide the connection piece between the boiler flue outlet and the chimney with thermal insulation. We recommend you seek advice from your local flue gas inspector.

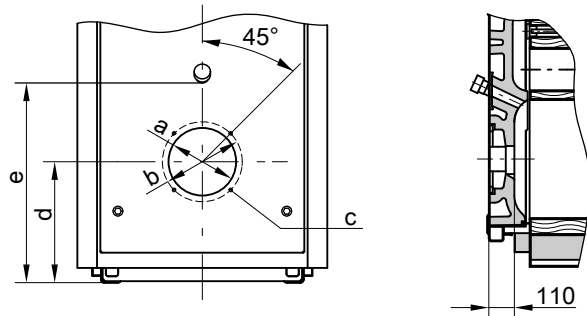
### Burner installation

#### Vitoplex 100-LS steam output 0.26 to 0.7 t/h

The burner fixing hole circle, burner fixing holes and blast tube aperture meet the requirements of EN 303-1.

The burner may be installed directly on the hinged boiler door. Fit the burner plate that is part of the standard delivery if the burner dimensions deviate from those in EN 303-1. The burner plate may be factory-fitted on request (chargeable option). For this purpose, please state the burner make and type when ordering.

The blast tube must protrude through the thermal insulation on the boiler door.



#### Dimensions

Steam output	t/h	0.26	0.44	0.7
a	∅ mm	240	240	290
b	∅ mm	270	270	330
	Quantity	4	4	4
c	Thread	M 10	M 10	M 12
d	mm	440	456	492
e	mm	696	749	804

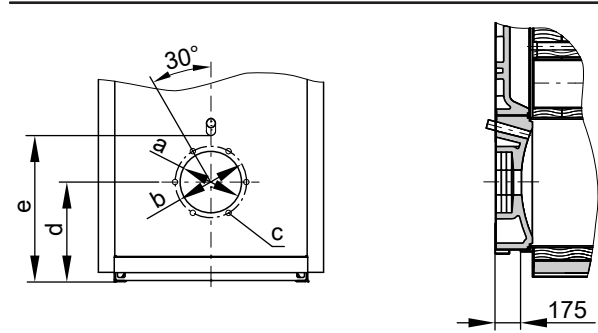
#### Vitoplex 100-LS steam output 0.9 to 2.2 t/h

Install the burner plate supplied on the hinged boiler door. The burner must be fitted to the burner plate; installation without a burner plate, immediately onto the boiler door, is not possible.

Drill the burner plate supplied on site in accordance with the burner dimensions.

Burner plates may be factory-fitted on request (chargeable option). For this purpose, please state the burner make and type when ordering.

The blast tube must protrude through the thermal insulation on the boiler door.



#### Dimensions

Steam output	t/h	0.9	1.4	2.2
a	∅ mm	350	400	400
b	∅ mm	412	490	490
	Quantity	6	6	6
c	Thread	M 12	M 12	M 12
d	mm	553	605	640
e	mm	826	927	967

#### Selection of suitable burners

The burner must be suitable for the respective rated heating 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 conform to TRD 411 [or local regulations].

#### Pressure-jet gas burner

The burner must be tested to EN 676 and CE-designated in accordance with Directive 90/396/EEC.

#### Burner adjustment

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

### Water quality

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

### Permissible operating pressure

Steam boiler for operating pressure:

- 1.0 bar equipped to EN 12953-6
- 0.5 bar equipped to TRD 701

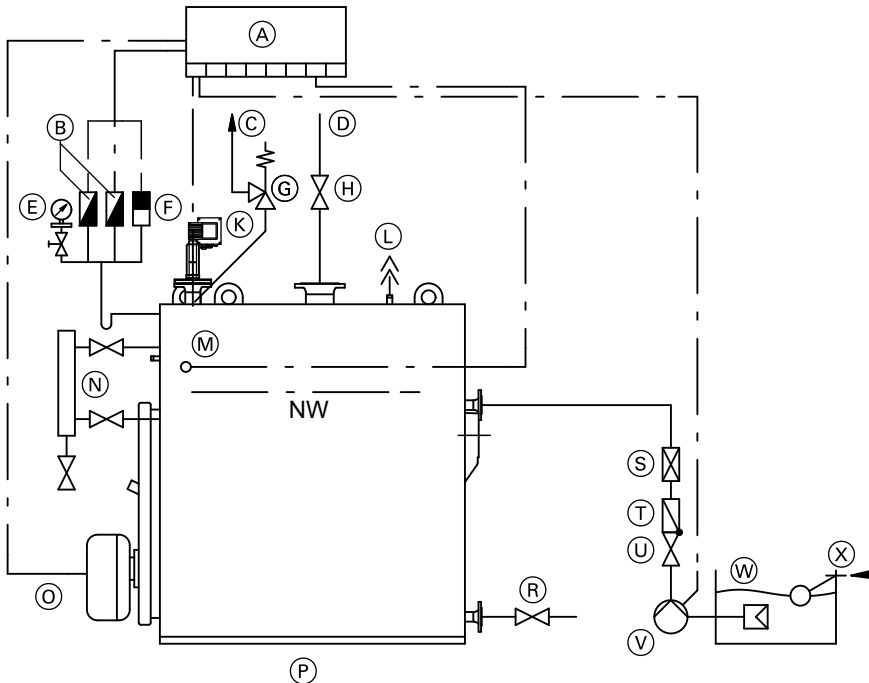


## Design information (cont.)

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

#### Note

For a safety pressure of 1 bar, install two water level limiters of a special type (fail-safe, redundancy, heterogeneity and self-monitoring) in accordance with the Pressure Equipment Directive.



- |  |   |
|--|---|
| (A) Vitocontrol control panel with interlocking circuit          | (O) Fully automatic combustion system to DIN standards and TRD guidelines |
| (B) Pressure regulator   | (P) Viessmann steam boiler<br>Steam pressure: max. 1.0 bar                |
| (C) Discharge pipe leading outdoors                              | (R) Blow-down valve   |
| (D) Steam line   | (S) Slide coupling (butterfly)  |
| (E) Pressure gauge and test valve                                | (T) Non-return valve (feedwater)  |
| (F) Pressure limiter   | (U) Shut-off valve (feedwater)  |
| (G) Safety valve   | (V) Feedwater pump  |
| (H) Steam shut-off valve   | (W) Feedwater tank  |
| (K) Fill level electrode as a water level controller and limiter | (X) Feedwater to VdTÜV guideline [in Germany]                             |
| (L) Steam vent valve   | NW Lowest water level   |
| (M) Temperature controller (standby)                             |   |
| (N) Water level indicator  |   |

#### Note

Steam boilers with **0.26 to 0.7 t/h** steam output with a safety pressure **in excess of 0.5 bar** must be supervised according to the Health and Safety at Work Act [Germany - check local regulations]. In accordance with the conformity assessment diagram no. 5 of the EU Pressure Equipment Directive, these boilers must be classed as category III. Prior to commissioning, this system must be tested by an authorised body (e.g. ZÜS [Germany]).

Steam boilers with **0.9 to 2.2 t/h** steam output with a safety pressure **in excess of 0.5 bar** must be supervised according to the Health and Safety at Work Act [Germany - check local regulations]. In accordance with the conformity assessment diagram no. 5 of the EU Pressure Equipment Directive, these boilers must be classed as category IV. Assembly, installation and operation are subject to approval by the appropriate local authority [check local regulations]. The system must be tested prior to commissioning. Steam boilers must be tested at certain intervals by an authorised body (ZÜS [in Germany]).

## Boiler accessories

All boiler equipment can be supplied. Further information and prices on request.

### Safety equipment

- Safety valve
- Multiple level electrode
- Pressure regulator
- Pressure limiter
- Pressure gauge
- Water level indicator
- Water level limiter
- Temperature controller (standby)

### Additional accessories

- Anti-vibration boiler supports
- Steam shut-off valve
- Feedwater valve
- Condensate management
- Non-return valve (feedwater)
- Feedwater pump
- Automatic steam vent valve

- Quick-action blow-down valve
- T.D.S. unit with T.D.S. valve
- Shut-off damper
- Mating flanges with screws and gaskets

### Water treatment systems

- Chemical and thermal systems

### Burner

- Burner for liquid or gaseous fuels (types on request)

### Vitocontrol control panels

- Boiler control panel for wall mounting or floorstanding

### Services

- Delivery
- Handling
- Commissioning
- Maintenance and service

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