

Hoval TopGas® (12, 16, 22)

Wall gas condensing boiler with or without calorifier TopVal

Description

Subject to alterations

Hoval TopGas®

Boiler

- Wall mounted gas condensing boiler
- Heat-exchanger out of corrosion resistance aluminium alloy with integrated copper pipe
- integrated:
 - Heat circuit pump Biral M13-4
 - Pressure gauge
 - Flue gas temperature limiter
 - Air exhauster
- Pre mixing burner out of stainless steel
 - Modulation control
 - Automatical ignition
 - Ionisation guard
- Boiler insulated and cased with white steel plates

Standard control panel

- Gas firing sequence control MCBA 1482
- Modulating burner control
- Main switch 0/I
- Operation / Trouble indication
- Outdoor sensor AF 120 N
- Connection possibility for calorifier with temperature sensor TF25/12K

Optional

- For liquid gas
- Mounting frame
- Mounting frame with expansion tank
- Calorifier TopVal or CombiVal
- Control panel with TopTronic regulators
- Connection set 1-4
- Gas ball valve
- Connection for external gas valve and trouble indication
- Cover

TopGas Type	Range of output kW
12	3,9-12,6
16	5,2-16,8
22	7,3-23,3

Delivery

- Wall gas boiler insulated and cased
- Outdoor temperature sensor AF 120, siphon and fittings are enclosed



Calorifier TopVal

- Calorifier and heating register are out of double enamelling
- Heating register integrated
- Calorifier TopVal 150
- Magnesium anode
- Temperature sensor TF 25/12K incl. pocket
- Insulation out of Polyurethane, 50 mm (λ 0.025 W/mK)
- casing out of white plastic

Delivery

Calorifier fully insulation and cased

Calorifier CombiVal ER 150-500

- Calorifier made of steel, enamelled inside
- Enamelled plain ended pipe - heat exchanger built-in
- With magnesium safety anode
- Flange for electro heat insert
- Heat isolation made of polyurethane foamed on calorifier
- Casing made of sheet steel, red stove enamelled

Type on request

- Electro heat insert

Delivery

- Calorifier complete with casing

Control panel with TopTronic RS 30 regulator

- Flow temperature regulation and room temperature sensor, without Outdoor sensor as room temperature regulation consists of:
 - With room temperature sensor
 - Operating switch
 - Temperature adjustment Day/Night
 - Adaption with Microcomputer
 - Calorifier loading control
 - Digital display
 - Burner running time meter and count-up counter

Connection set 1 Connection for boiler TopGas with below placed calorifier TopVal:

- 1 Flow armature with connection possibilities for safety valve, fill and drain ball valve , over flow valve
- 1 Return flow armature with over flow valve and connection possibilities for expansion line
- 1 Safety valve 3 bar
- 1 Filling and drain ball valve
- 1 Connection with insulation to over flow valve
- 1 Expansion tank
- 2 Connection with insulation for TopVal (150)
- 1 Fitting for gas connection 15 mm x R1/2"
- 2 Shutt-off valve Rp ¾" for flow and return
- 1 3 way valve with fittings Rp ¾" and electro cable 1,5 m

Connection set 4 For TopGas and calorifier TopVal or CombiVal ER:

- 1 Flow armature with connection possibilities for safety valve, filling and drain ball valve , over flow valve
- 1 Return flow armature with over flow valve and connection for expansion line
- 1 Safety valve 3 bar
- 1 Fill and drain ball valve
- 1 Connection with insulation to over flow valve
- 1 Expansion tank
- 1 Fitting for gas connection 15 mm x R1/2"
- 2 Shutt-off valve Rp ¾" for flow and return flow
- 1 3 way valve with fittings Rp ¾" and elektro cable 1,5 m

Delivery

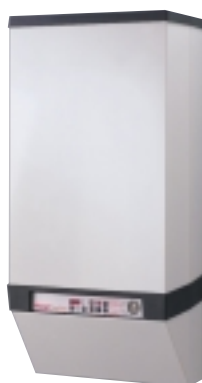
- Connection set separately delivered

Connection set 2 For cold and hot water connection left or right with below placed calorifier TopVal:

- Pre mounted piping set for cold and hot water connection with insulation, size ¾"

Connection set 3 For TopGas without calorifier:

- 1 Flow armature with connection possibilities for safety valve, filling and drain ball valve , over flow valve
- 1 Return flow armature with over flow valve and connection possibilities for expansion line
- 1 Safety valve 3 bar
- 1 Fill and drain ball valve
- 1 Connection with insulation to over flow valve
- 1 Expansion tank
- 1 Fitting for gas connection 15 mm x R1/2"
- 2 Shutt-off valve Rp ¾" for flow and return



Wall gas condensing boiler TopGas

Part no.

Heat ex-changer out of corrosion resistance aluminium alloy with integrated copper pipe. Modulated gas surface burner made of stainless steel and standard control panel. Boiler fully cased.

TopGas Type	Range of output kW ¹	
12	3,9-12,6	6 001 446
16	5,2-16,8	6 001 447
22	7,3-23,3	6 002 452

¹ kW = Range of modulation

Modification liquid gas



- Connection value: Propan 50 mbar/0,95 kg/h to Type (12)	6 001 620
- Connection value: Propan 50 mbar/1,27kg/h to Type (16)	6 001 622
- Connection value: Propan 50 mbar/1,76kg/h to Type (22)	6 002 453



Calorifier TopVal

with integrated heat register out of double enamilling, incl. temperature sensor
TF 25/12K
Content: 133 liters

Type 150	6 001 566
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Calorifier CombiVal ERW (200)

Calorifier made of steel, enamelled inside. With built-in enamelled plain ended pipe heat exchanger, white. Content: 200 liters

ERW 200	7000 083
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Control panel with
TopTronic regulator



RS 30

Weather controlled flow temperature regulation with Outdoor temperature sensor AF120 (incl.) and room temperature sensor with switch in facility.

Without outdoor sensor as room temperature regulation

242 631

Accessories to heating control
system



Electric control

external gas valve, external trouble indication
- AM3 (mounting at place)

6 001 433



Temperature sensor

- TF 25/12K

242 617



Flow temperature sensor

for floor heating

- Thermostat with diving sensor 619.0015
- Thermostat 692.1120

242 190

242 217

Accessories
TopGas with below placed
calorifier (TopVal)



**Mounting frame
(must be used)**

Frame for fixing of Type (12, 16, 22)

Part no.

2 001 289

or



Mounting frame with expansion tank

Frame for fixing of Type (12, 16, 22)
with integrated expansion tank
Volume 12 l / k 0,75 bar

2 001 290



Connection-set 1 (must be used)

Connection set to TopGas with below placed TopVal



Connection-Set 2

for cold and hot water connection left or right for below placed TopVal



Accessories for TopGas with stand by calorifier

Mounting frame with expansion tank

Frame for fixing of Type (12, 16, 22)
with integrated expansion tank
Volume 12 l / k 0,75 bar

2 001 252



Connection-Set 3

for TopGas without calorifier

2 001 257



Connection-Set 4

for TopGas with stand by calorifier (TopVal or CombiVal)

2 001 258



Connection bracket

for pre-installation of gas connection, flow and return flow, also useable with mounting frame
Part no. 2 001 252

2 001 253



Cover

Cover for gas connections, (12, 16, 22)

2 001 254



Accessories

Part no.

Gas ball valve, size 1/2"

246 471

Gas ball valve, 90°, size 1/2"

240 273



Low water protection SIT

Adjusted to 1 bar. Mounting at place, Thread R 1/4", electric cable 1,5m

6 001 698



Reducing adapter LAS

Adapter for boiler outlet/inlet DN 80/110 and chimney DN 80/125

2 001 259



Service

Commissioning

on request

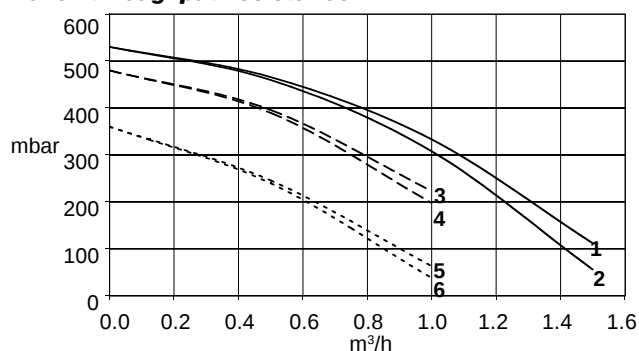
Technical data

Subject to alterations

TopGas

Type		12	16	22
• Nominal output 80/60°C (natural gas) ¹ • Nominal output 40/30°C (natural gas) ¹ • Nominal output 80/60°C (liquid gas) • Nominal output 40/30°C (liquid gas) • Nominal load (natural gas) ¹ • Nominal load (liquid gas)	kW	3,5-11,8	4,7-15,7	6,5-21,5
	kW	3,9-12,6	5,2-16,8	7,3-23,3
	kW	8,2-11,8	7,9-15,7	7,8-21,5
	kW	9,1-12,6	8,6-16,8	8,7-23,3
	kW	3,6-12,0	4,8-16,0	6,7-22,2
	kW	8,4-12,0	8,0-16,0	8,0-22,2
• Working pressure max./min. • Working temperature max. • Boiler capacity • Min. water circulation	bar	3,0 / 1,0	3,0 / 1,0	3,0 / 1,0
	°C	85	85	85
	l	1,5	1,5	2
	l/h	180	180	180
• Weight (without water content) • Standard degree of utilisation	kg	36,0	36,0	40,0
	40/30 °C	%	108,8	108,2
	75/60 °C	%	104,6	103,7
• Readiness loss rated head load at 70°C	Watt	60	80	95
• Standard emission faktors Nitrogen oxides Carbon monoxide	mg/kWh	18,3	20,8	19,6
	mg/kWh	15,8	15,2	9,4
• Dimension	Hight	mm	750	750
	Width	mm	450	450
	Length	mm	270	270
• Connection	Flow	Ø mm	22	22
	Return	Ø mm	22	22
	Gas	Ø mm	15	15
	Flue gas	mm	80 / 110	80 / 110
	Additional for direct compustion air	mm	80	80
• Gas pressure min./ max.	Natural gas E/LL	mbar	18 -24	18 -24
	Liquid gas	mbar	42 -57	42 -57
• Gas connected value at 0°C / 1013 mbar:	Natural gas E-(Wo=15,0 kWh/m³) Hu=9,97kWh/m³	m³/h	0,36 - 1,20	0,48 - 1,60
	Natural gas LL-(Wo=12,4 kWh/m³) Hu=8,57 kWh/m³	m³/h	0,42 - 1,40	0,56 - 1,87
	Liquid gas (Hu = 32,7 kWh/m³)	kg/h	0,66 - 0,95	0,63 - 1,27
• Rated voltage	V/Hz	230 / 50	230 / 50	230 / 50
• Driving voltage	V/Hz	24 / 50	24 / 50	24 / 50
• Power consumption	Watt	185	187	206
• System of protection	IP	44	44	44
• Sound level	dB(A)	48- 53	48- 53	48- 53
• Condensate amount (natural gas) at 40 / 30°C	l/h	0,95	1,31	1,82
• pH-value of condensate		ca. 4,5	ca. 4,5	ca. 4,5
• Values for flue calculation	- Temperature class	T 120	T 120	T 120
	- Flue gas mass flow	kg/h	6,5 - 21,2	8,6 - 28,4
	- Flue gas temperature T _V 80°C / T _R 60°C	°C	55 - 80	60 - 85
	- Flue gas temperature T _V 40°C / T _R 30°C	°C	35 - 50	37 - 60
	- Flow pressure at flue gas collector	Pa	70	70

¹ The boiler series is tested for EE/H-settings. With a factory setting of the ... of 15.0 kWh/m³ operation at a of 12.0 up to 15.7 kWh/m³ is possible without new settings.

Boiler throughput resistance


m³/h = Throughput flow rate
mbar = Throughput resistance

- 1 Pump-Stage 3 (without reversing valve)
- 2 Pump-Stage 3 (with reversing valve)
- 3 Pump-Stage 2 (without reversing valve)
- 4 Pump-Stage 2 (with reversing valve)
- 5 Pump-Stage 1 (without reversing valve)
- 6 Pump-Stage 1 (with reversing valve)

Technical data

Subject to alterations

Calorifier TopVal (150) and CombiVal ERW (200)

Type		TopVal150	CombiVal ERW (200)
• Volume	dm ³	133	200
• Working / test pressure	bar	6 / 13	6 / 12
• Max. working temperature	°C	75	75
• Insulation	mm	50	50
• Thermal conductivity λ	Watt/mK	0,025	0,025
• Weight	kg	83	118
• Dimension	Diameter	610	601
	Height	930	1268

Heating register

• Heat surface	m ²	1,1	1,35
• Water capacity	dm ³	5,2	7,0
• Throughput resistance ¹	z-Wert	24	18
• Working / test pressure	bar	4 / 5	8 / 13
• Working temperature	°C	85	95

¹Throughput resistance in mbar = volume flow (m³/h)² x z

Hot water output TopVal, CombiVal with TopGas, Flow 80°C

TopGas/ Calorifier Type	Hot water output		Flat ³ Quantity	Readiness loss rated head load qB ⁴ (70°C) Watt
	dm ³ /10 min ¹ 45°C	dm ³ /h ² 45°C		
12/TopVal150	170	290	1	108
16/TopVal150	195	390	1	128
22/TopVal150	220	520	2	156
12/Combival ERW (200)	265	295	1-2	89
16/Combival ERW (200)	275	395	2	89
22/Combival ERW (200)	290	540	2	89

¹Hot water output in 10 min.

²Hot water continuous output per hour

³Flat (3–4 rooms with 4 people)

⁴TopGas and TopVal without loading line

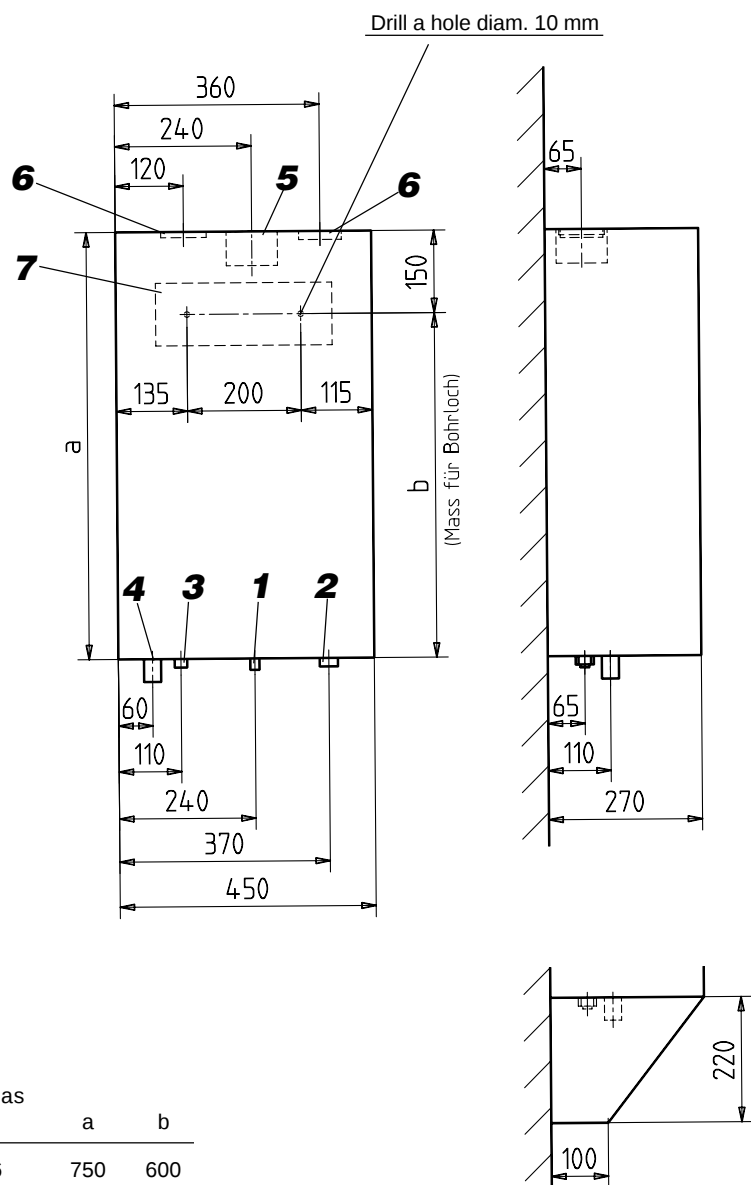
Dimension

Subject to alterations

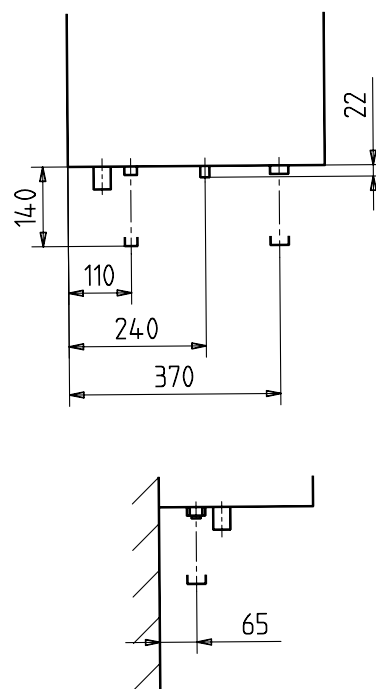
Minimum spaces

(Measurements in mm)

- Right / left 50 mm
- Space to ceiling is dependent of the flue gas system
- Front 500 mm



Connection positions with Connection Set 3 and 4



With cover

TopGas Type	a	b
12, 16	750	600
22	810	660

- 1 Gas connection
- 2 Flow
- 3 Return
- 4 Condensate connection for siphon
- 5 Flue gas / fresh air connection
- 6 Add. fresh air connection
- 7 Mounting bracket or mounting frame screw 8 mm / plug 10 mm

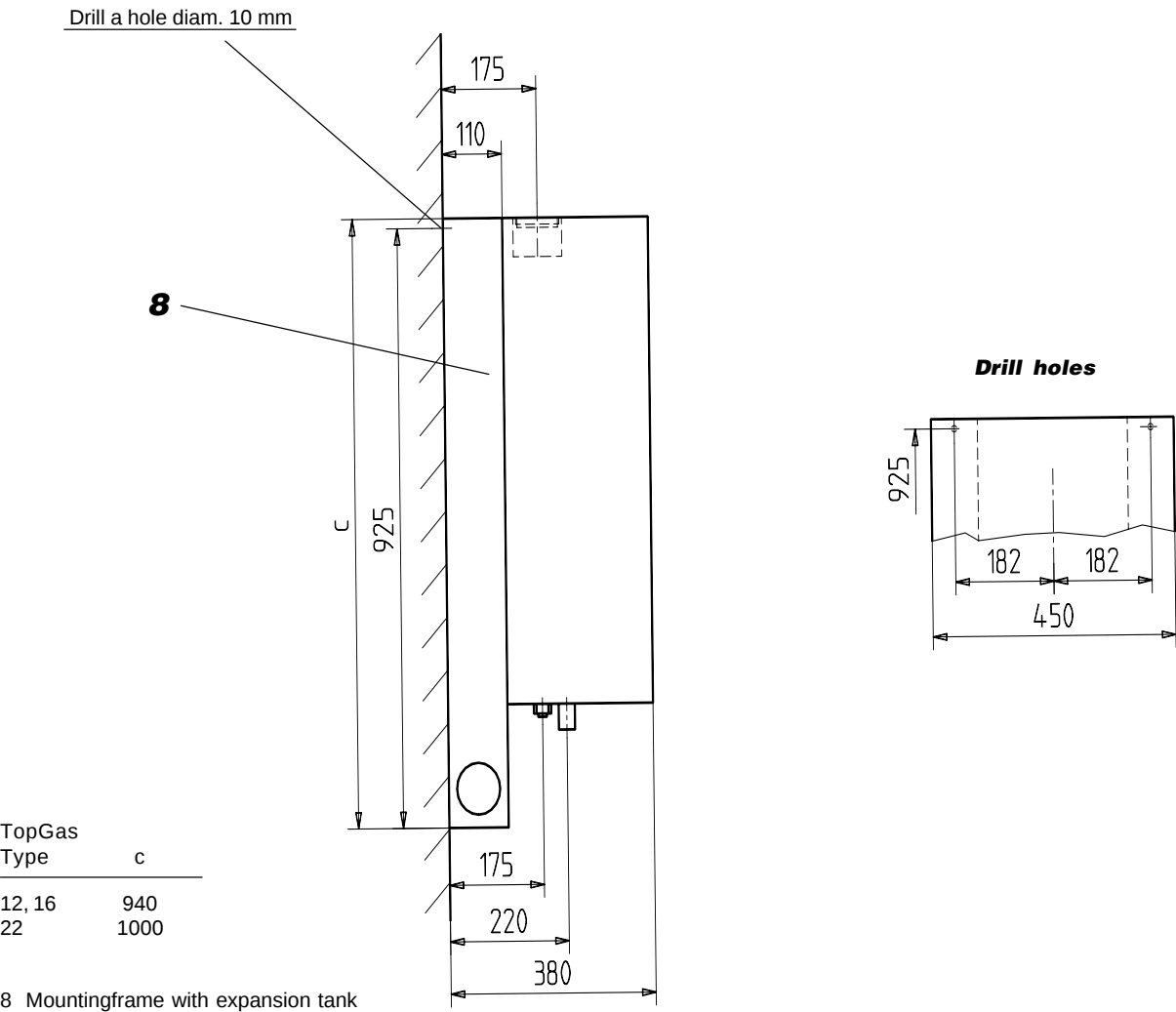
- Ø 15 outer for fitting R 1/2"¹
- Ø 22 outer for fitting Rp 3/4"¹
- Ø 22 outer for fitting Rp 3/4"¹
- DN 40
- DN 80/110
- DN 80

¹If you use Hoval connection sets, then the fittings are enclosed

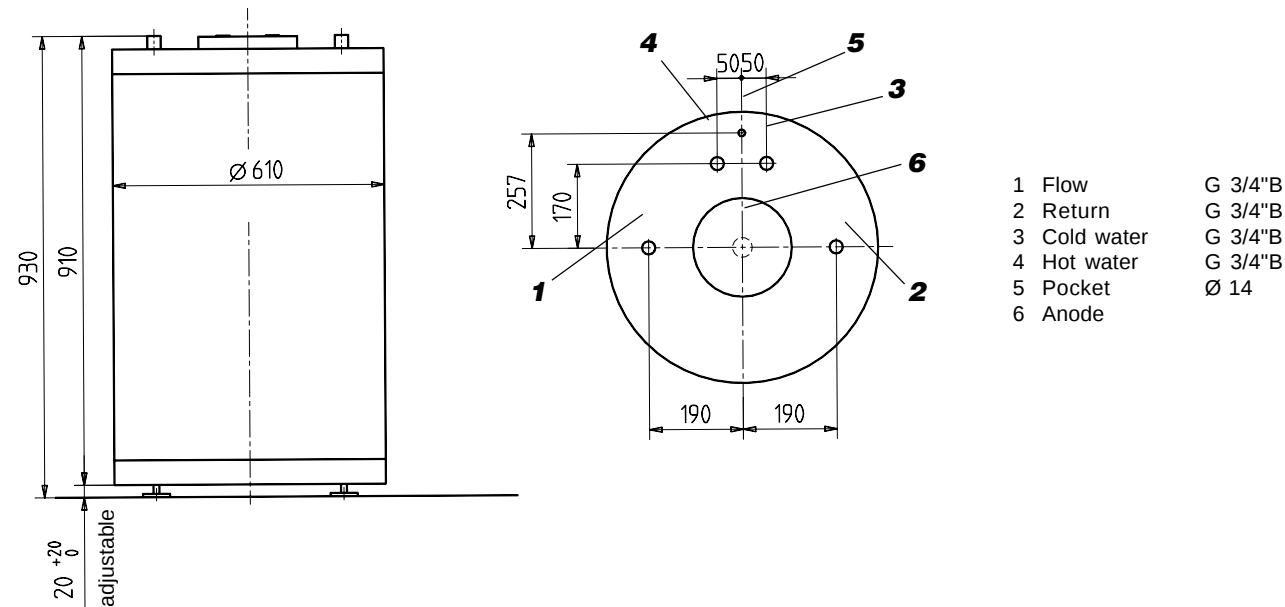
Dimension

Subject to alterations

Mounting with frame and expansion tank



Calorifier
TopVal (150)



Dimension

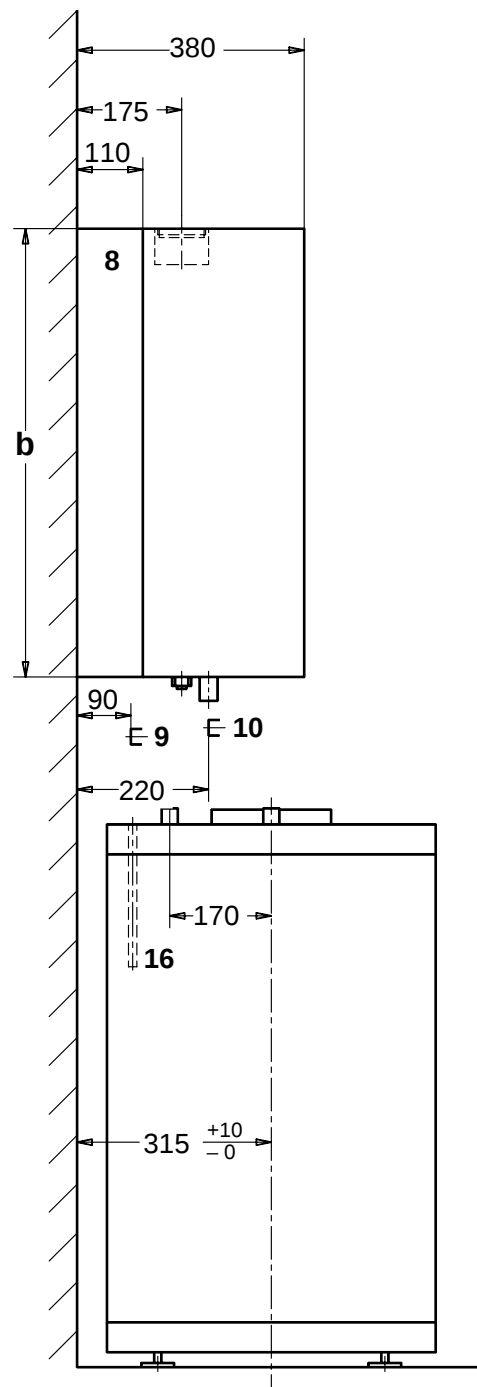
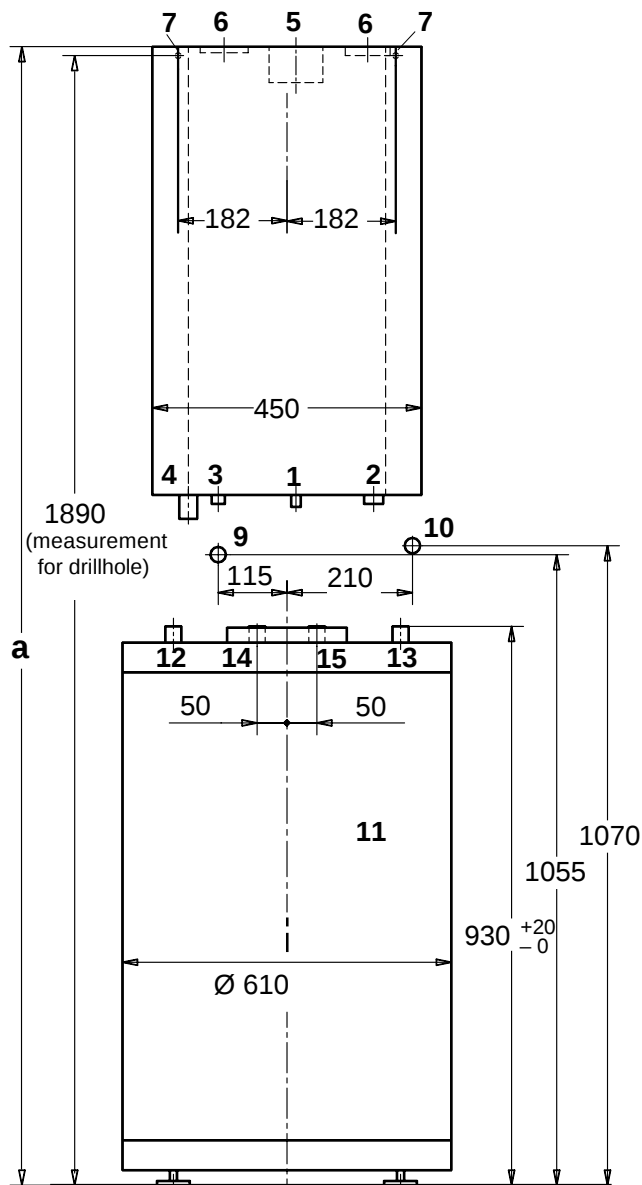
Subject to alterations

TopGas with below placed TopVal (150)

Minimum spaces

(Measurements in mm)

- Right / Left 50 mm
- space to ceiling is dependent of the flue gas system
- Front 500 mm



- | | |
|--|---|
| 1 Gas connection | outer Ø 10 for fitting R 1/2" ¹ |
| 2 Return | outer Ø 22 for fitting Rp 3/4" ¹ |
| 3 Flow | outer Ø 22 for fitting Rp 3/4" ¹ |
| 4 Condensate connection for siphon | DN 40 |
| 5 Flue gas / compustion air connection | DN 80/110 |
| 6 Additional air connection | DN 80 |
| 7 Mounting frame | |
| screws 8 mm | |
| 8 Frame with expansion tank | |
| 9 Connection flow | Rp 3/4" |
| 10 Connection return | Rp 3/4" |
| 11 Calorifier TopVal (150) | |
| 12 Flow | G 3/4B |
| 13 Return | G 3/4B |
| 14 Hot water | G 3/4B |
| 15 Cold water | G 3/4B |
| 16 Pocket for calorifier sensor | |

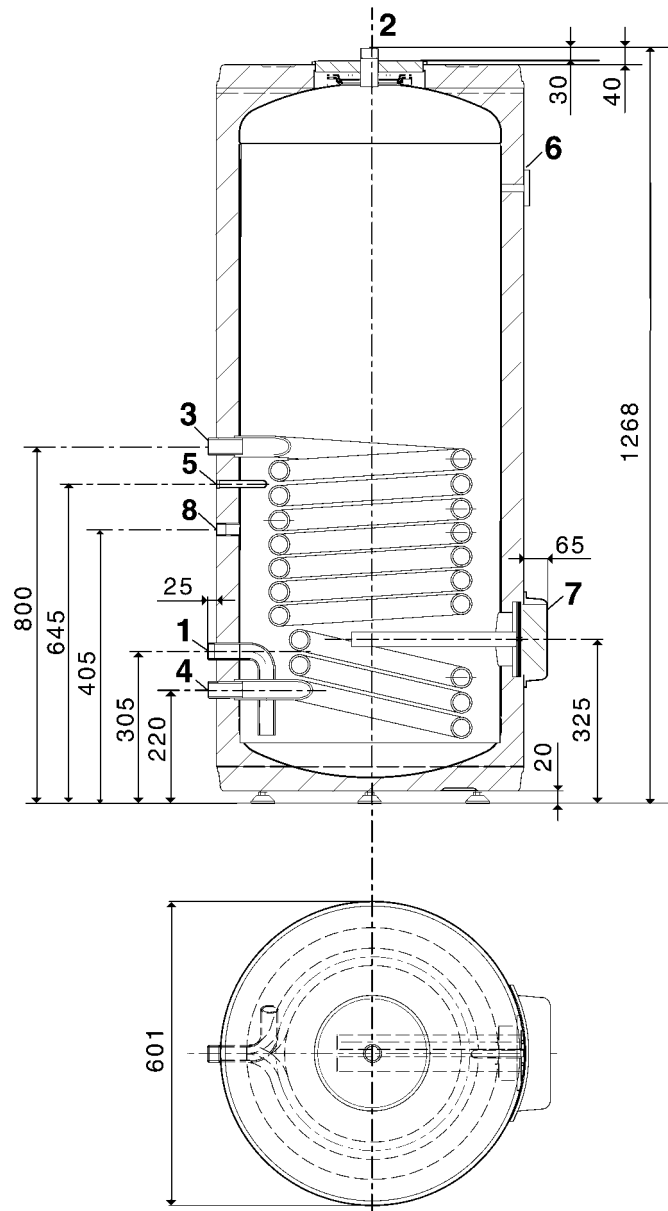
TopGas Type	a	b
12, 16	1905	750
22	1965	810

¹ If you use Hoval connection sets then the fitting are enclosed

Dimensions

Subject to alterations

Calorifier CombiVal ERW (200)



- 1 Cold water R1"¹
- 2 Warm water R1"¹
- 3 Flow heating R1"¹
- 4 Return heating R1"¹
- 5 Connection for capillarthermostat, cabel sensor
- 6 Thermometer
- 7 Flange with anode (and elektirical heating inset)
- 8 pos. circulation R 3/4"¹

Standards and Guidelines

Following standards and guidelines must be respected:

- Technical information and installation manual of company Hoval
- Hydraulic and technical control regulations of the local gas supply authority
- Firing guidelines of local gas works
- Fire protection standards
- Gas directives G1 of the SVGW
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI- 93-1 „Safety equipment for heating systems“.
- Directives Procal/FKR "Electric plug connections at heating boilers and burners".
- Procal Data Sheet "Corrosion through halogen compounds".
- Procal Data sheet "Corrosion damage in heating installations" and the brochure "Protection against corrosion and boiler scale formation in heating and service water installation".

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°FH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry, drying and hobby rooms etc.).

- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture. A direct combustion air connection to the boiler can be supplied as an option.

Minimal free surface area for the air opening can be assumed symplified the following way.

- operation with air supply from within the room
6 cm² / 1kW boiler output, at least 200 cm²
- operation with separate combustion air supply to the boiler
0,8 cm² / 1 kW boiler output. The pressure in the combustion air supply tube has to be taken into account when dimensioning the flue gas system.

System separation in the case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, pH value)

Gas connection

Commissioning

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed before every gas boiler

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate
- A gas pressure controller to reduce the boiler inlet pressure must be installed onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

Min. heat water circulation

- Min. heat water circulation see the technical data of the boiler

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with TopTronic regulator)

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.

Noise level

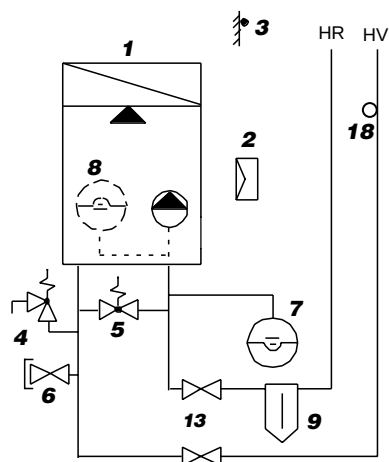
- The acoustic power level value is dependent on the local and spatial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Examples

Subject to alterations

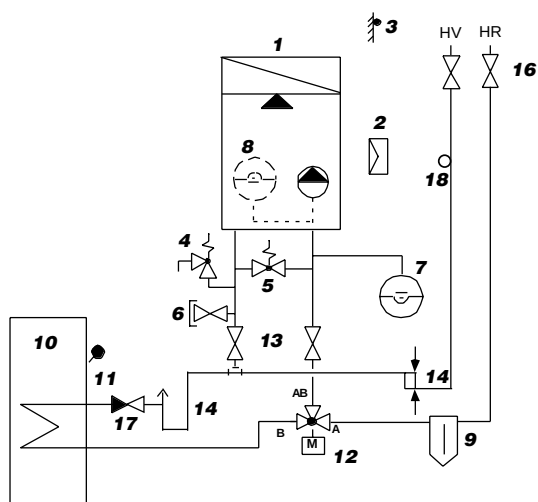
TopGas (12, 16, 22) without calorifier

Control panel with TopTronic RS30; No mixing circuit.



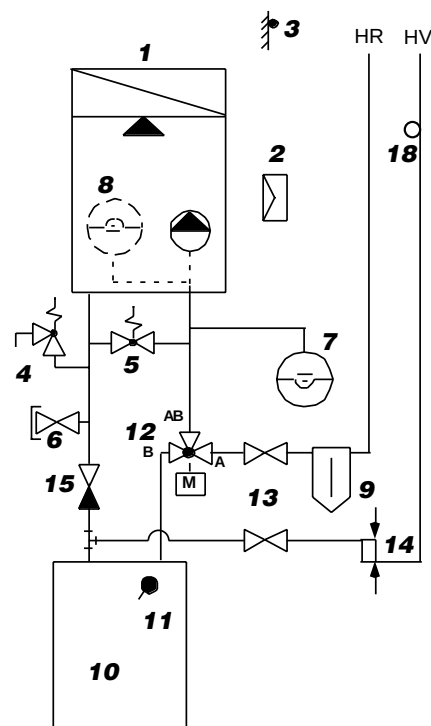
TopGas (12, 16, 22) with calorifier (for example CombiVal)

Control panel with TopTronic RS30. Motorized reversing valve must be additional installed. The room heating is cutted-off during the heating of the calorifier.



TopGas (12, 16, 22) with Calorifier TopVal

Control panel with TopTronic RS30; The room heating is cutted-off during the heating of the calorifier.



- | | |
|--|--|
| 1 Gas wall boiler | 9 mud filter (recommended) |
| 2 TopTronic RS30 | 10 Calorifier |
| 3 Outdoor sensor | 11 Sensor for calorifier |
| 4 Safety valve ¹ | 12 Reversing valve ¹ |
| 5 Over flow valve ¹ | 13 Shut off valve ¹ |
| 6 Fill and drain ball valve ¹ | 14 „bag“ to avoid one-tube-circulation or non return |
| 7 Optional expansion tank | |
| 8 Optional expansion tank / | |

- | |
|----------------------------------|
| valve |
| 15 Non return valve ¹ |
| 16 Closing valve (on site) |
| 17 Shut off valve (on site) |
| 18 Flow temperature guard |

¹ enclosed in the set

Hoval TopGas® 24

- Gas condensing boiler
- Heat-exchanger out of corrosion resistance aluminium alloy integrated in stainless steel water tank
- Water capacity 35 Litre
- Integrated:
 - Heating circuit pump Wilo RS20/65
 - Pressure gauge
 - Flue gas temperature limiter
 - Air exhauster
 - Safety valve 3 bar
 - Expansion tank 10 L / 0,5 bar
- Pre-mix burner out of stainless steel
 - Modulation control
 - Automatic ignition
 - Ionisation guard
- Boiler cased with white steel plates

Standard control panel

- Gas firing sequence control MCBA 1482
- Modulating burner control
- Main switch 0 / I
- Operation / trouble indication
- Connection possibility for calorifier with temperature sensor TF25/12K

Optional

- For liquid gas
- Calorifier CombiVal
- Connection-Set 5-6
- Gas ball valve
- Connection for external gas valve and trouble indication
- Different designs of control panel

Delivery

- Wall gas boiler fully cased



Model

TopGas Type	Range of output kW
24	7,9-25

Boiler-/burner control panel

Control panel with TopTronic RS30 regulator

- For 1 heating circuit without mixing operation
- Weather-controlled regulation for flexible boiler water temperature
- RS30 with room temperature sensor with switch-in facility, located in boiler room or living room
- Outdoor sensor AF 120 N
- Connection possibility for calorifier with temperature sensor TF 25 / 12 K

Control panel with TopTronic 1B regulator

- For 1 heating circuit without mixing operation
- Weather-controlled 2-point regulation for flexible boiler water temperature
- Main switch 0 / I
- With outdoor sensor AF 100 N
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility.
 - Calorifier with temperature sensor KT 10-40

Control panel with TopTronic 133B regulator

- For 1 or 2 heating circuits with mixing operation
- Weather-controlled 3-point feed temperature regulation for flexible boiler water temperature
- Outdoor sensor AF 100 N
- Flow sensor VF 100
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility
 - Calorifier with temperature sensor KT 10-40

Delivery

- Control panel separately packed and delivered

At place

- Mounting of control panel

Connection-Set 5 For TopGas without calorifier consists of:

- 1 Flow armature with connections for fill and drain ball valve
- 1 Return flow armature, connection for expansion tank
- 1 Fill and drain ball valve
- 1 Gas connection 15 mm x R1/2"

- 3 Cap ½" to close the not used connections
- 1 Cap instead of over flow valve
- 2 Shut off valve Rp ¾" for flow and return flow

Connection-Set 6 For TopGas with calorifier consists of:

- 1 Flow armature with connections for fill and drain ball valve
- 1 Return flow armature, connection for expansion tank
- 1 Fill and drain ball valve
- 1 Gas connection 15 mm x R1/2"
- 3 Cap ½" to close the not used connections
- 1 Cap instead of over flow valve
- 2 Shut off valve Rp ¾" for flow and return flow
- 1 3-way valve with fittings Rp 3/4" and electric-cable 1,5 m

Delivery

- Connection set separately packed and delivered



Wall gas condensing boiler TopGas

Part no.

Heat-exchanger out of corrosion resistance aluminium alloy integrated in stainless steel water tank.

Modulating burner out of stainless steel and standard control panel.

TopGas Type	Range of output kW ¹
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(24)	7,9-25,0
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6 001 448

¹ kW = Range of modulation



Modification liquid gas

- Propan 50 mbar / 1,90 kg/h

6 001 624



Calorifier CombiVal ERW (200)

Calorifier made of steel, enamelled inside. With built-in enamelled plain ended pipe heat exchanger, white.

Content: 200 liters

ERW 200

7000 083

TopTronic regulator

TopTronic RS30

(No mixing valve)

For 1 heating circuit

Flow temperature regulation with outdoor temperature sensor AF 120 and room temperature sensor. Required sensors must be ordered separately.

242 631

Outdoor temperature sensor AF 120

242 714

TopTronic 1B

(No mixing valve)

For 1 heating circuit

Flow temperature regulation with outdoor temperature sensor AF 100 and flow sensor. Connection of room station RS10 possible.

691 284

TopTronic 133B

For 1 or 2 Heating circuit

Flow temperature regulation with outdoor temperature sensor AF 100 and flow sensor. Connection of room station RS10 possible

691 285

Mounting set for

TopTronic 1B and 133B (must be ordered separately)

6 001 930

Electric Control

External gas valve, external trouble indication
AM3

6 001 433



Accessories for TopTronic regulator

Part no.

To TopTronic 1B and 133B



Room station RS 10

for 1 or 2 mixing circuits, with room sensor, information-, program- and correction key

242 634



Remote control RFF 60S

for 1 mixing circuit, with room sensor, program key and temperature adjustment

2 000 754



Room temperature sensor RF 40

for 1 mixing circuit (instead of RS 10 or RFF 60S)

242 679



Additional Outdoor temperature sensor AF 100N

for 1 mixing circuit (per heating circuit 1 separate outdoor sensor possible) or for the mean value (per regulator 2 outer sensor possible)

242 646



Sensor KT 10-40

with 4 m cable for calorifier

242 371



Temperature sensor VF100N

242 647

To TopTronic RS30



Sensor TF25/12K

with 4m cable for calorifier

242 617



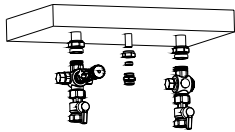
Flow temperature guard

for floor heating systems (per heat circuit 1 guard)

- Thermostat with diving sensor 619.0015
- Thermostat 692.1120

242 190
242 217

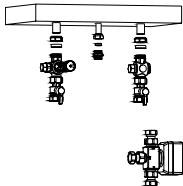
Accessories



Connection set 5
for heating

Part no.

2 001 262



Connection set 6
for heating and calorifier

2 001 263



Gas ball valve, size 1/2"

246 471

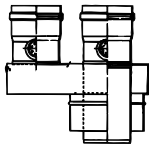
Gas ball valve, 90°, size 1/2"

240 273



Connection bracket for pre-mounting
for pre-installation of the heating, flow and return flow connection

2 001 261



E80 with measuring connections
Direct fresh air and flue gas connection

2 001 445

Service



Commissioning

on request

Technical data

Subject to alterations

TopGas

Type			24
• Nominal output 80/60°C with natural gas¹ • Nominal output 40/30°C with natural gas¹ • Nominal output 80/60°C with liquid gas • Nominal output 40/30°C with liquid gas • Nominal load natural gas¹ • Nominal load liquid gas kW kW kW kW kW kW 7,0 - 24,2 7,9 - 25,0 7,0 - 24,2 7,9 - 25,0 7,3 - 24,5 7,3 - 24,5			
• Working pressure max./min. • Working temperature max. • Boiler water capacity • Expansion tank capacity (pessure 0,5 bar) • Boiler weight bar °C l l kg 3,0 / 1.0 85 35 10 60			
• Standard degree of utilisation 40/30 % 107,8 75/60 % 106,2 • Readiness loss rated head load at 70°C Watt 96 • Standard emission factors Nitrogen oxides mg/kWh 28 Carbon monoxide mg/kWh 22			
• Dimension: Height mm 950 Width mm 500 Length mm 400			
• Connection Flow Return Gas Flue gas / combustion air Ø mm Ø mm Ø mm mm 22 22 15 80 / 125			
• Gas pressure min./max. natural gas E/LL liquid gas mbar mbar 18 - 24 42 - 57			
• Gas connected value 0°C / 1013 mbar: Natural gas E - (Wo = 15,0 kWh/m³) Hu = 9,97kWh/m³ Natural gas LL- (Wo = 12,4 kWh/m³) Hu = 8,57 kWh/m³ Liquid gas (Hu = 32,7 kWh/m³) m³/h m³/h kg/h 0,73 - 2,46 0,85 - 2,86 0,60 - 1,90			
• Rated voltage • Driving voltage • Power consumption • System of protection V/Hz V/Hz Watt IP 230 / 50 24 / 50 183 42			
• Sound level • Condensate amount (natural gas) at 40 / 30°C • pH-value of condensate dB(A) l/h 49 - 57 4,4 ca. 5			
• Value for flue calculation - Temperature class - Flue gas mass flow - Flue gas temperature T_V80°C / T_R60°C - Flue gas temperature T_V40°C / T_R30°C - Feed pressure at flue gas collector kg/h °C °C Pa T 120 12,6 - 39,6 62 - 65 33 - 45 60			

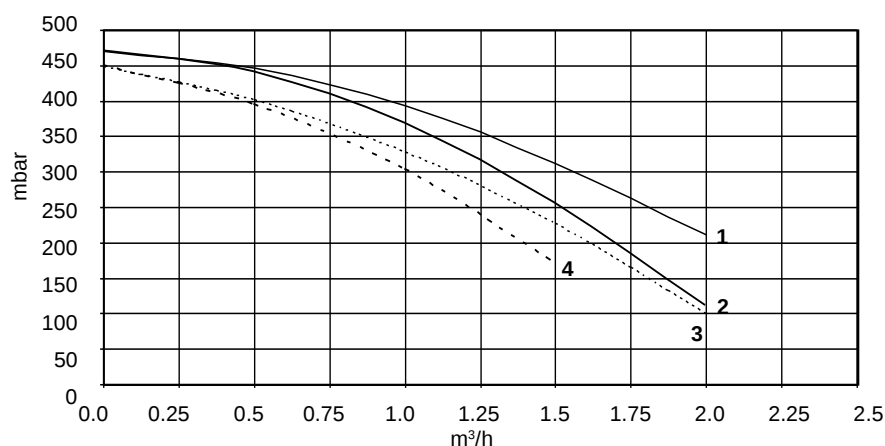
¹ The boiler series is tested for EE/H-settings. With a factory setting of the Wobbevalue of 15.0 kWh/m³ operation at a Wobbevalue of 12.0 up to 15.7 kWh/m³ is possible without new settings.

Technical data

Subject to alterations

Feed pressure of heating pump

with integrated pump Wilo RS 20/65



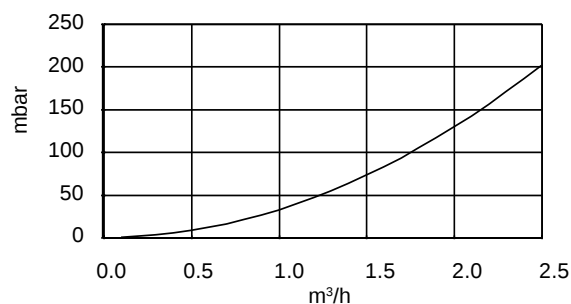
m³/h = Volume flow

mbar = Feed pressure for the heating system

- 1 Pump-stage 4 (without reserving valve)
- 2 Pump-stage 4 (with reserving valve)
- 3 Pump-stage 3 (without reserving valve)
- 4 Pump-stage 3 (with reserving valve)

Water resistance

TopGas without pump



Calorifier TopVal (150) and CombiVal ERW (200)

Type		CombiVal ERW (200)	
• Volume	dm³	200	
• Working / test pressure	bar	6 / 12	
• Max. working temperature	°C	75	
• Insulation	mm	50	
• Thermal conductivity λ	Watt/mK	0,025	
• Weight	kg	118	
• Dimension	Diameter	mm	601
	Height	mm	1268

Heating register

• Heat surface	m²	1,35
• Water capacity	dm³	7,0
• Throughput resistance¹	z-Wert	18
• Working / test pressure	bar	8 / 13
• Working temperature	°C	95

¹Throughput resistance in mbar = volume flow (m³/h)² x z

Hot water output CombiVal ERW 200 with TopGas, Flow 80°C

TopGas Type	Hot water output		Readiness loss rated head load qB⁴	
	dm³/10 min¹ 45°C	dm³/h² 45°C	Flat³ Quantity	(70°C) Watt
24	300	550	1	89

¹Hot water output in 10 min.

²Hot water continuous output per hour

³Flat (3–4 rooms with 4 people)

⁴TopGas and TopVal without loading line

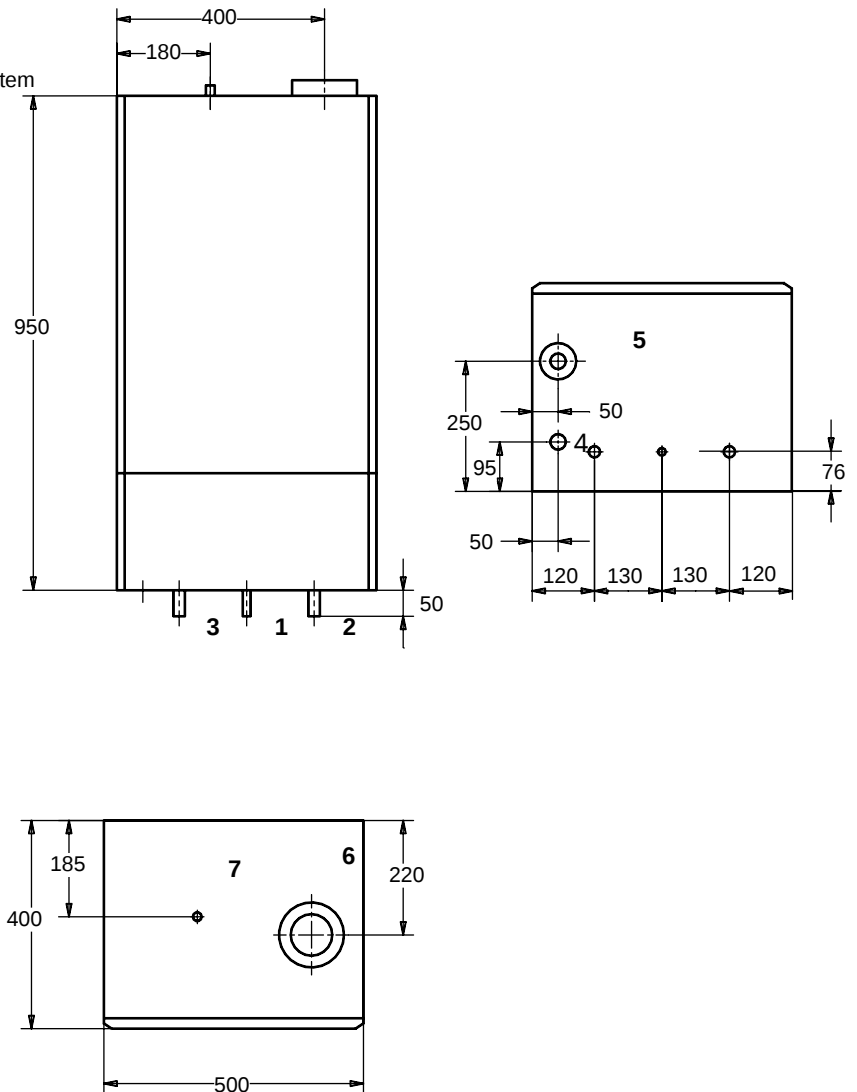
Dimension

Subject to alterations

Min. Space

(All measurements in mm)

- right / left 50 mm
- Space to ceiling is dependent on the flue gas system
- Front 500 mm

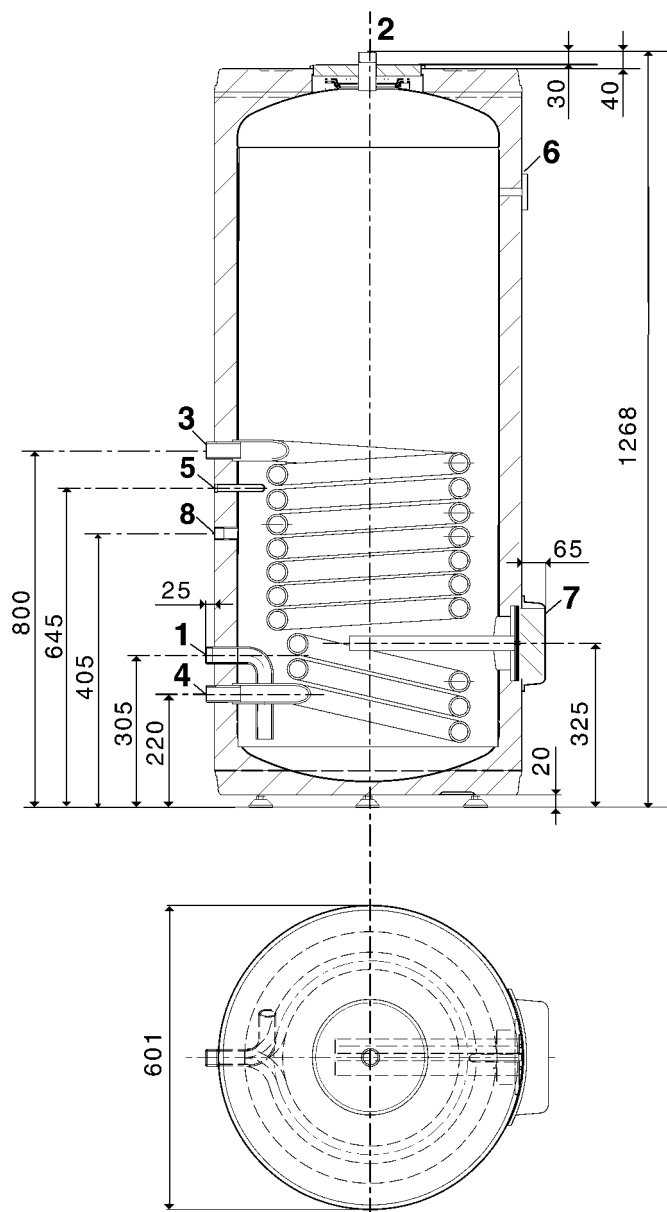


- 1 Gas connection
- 2 Flow heating
- 3 Return flow heating
- 4 Condensate drain
- 5 Safety valve (heating)
- 6 Flue gas / combustion air connection DN 80/125
- 7 Air exhaust

outer Ø 15 for fitting (R 1/2")¹
 outer Ø 22 for fitting (Rp 3/4")¹
 outer Ø 22 for fitting (Rp 3/4")¹
 DN 25 flex.

¹If you use Hoval connection sets, then the fittings are enclosed

Calorifier CombiVal ERW (200)



- 1 Cold water R1"
- 2 Warm water R1"
- 3 Flow heating R1"
- 4 Return heating R1"
- 5 Connection for Capillarthermostat, Cable sensor
- 6 Thermometer
- 7 Flange with anode (and electro heat insert)
- 8 poss. Circulation R 3/4"

Standards and Guidelines

Following standards and guidelines must be respected:

- Technical information and installation manual of company Hoval
- Hydraulic and technical control regulations of the local gas supply authority
- Firing guidelines of local gas works
- Fire protection standards
- Gas directives G1 of the SVGW
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI- 93-1 „Safety equipment for heating systems“.
- Directives Procal/FKR "Electric plug connections at heating boilers and burners".
- Procal Data Sheet "Corrosion through halogen compounds".
- Procal Data sheet "Corrosion damage in heating installations" and the brochure "Protection against corrosion and boiler scale formation in heating and service water installation".

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°FH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry, drying and hobby rooms etc.).

- Minimal free cross section for air opening 6.5 cm² per 1 kW boiler output.
- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture. A direct combustion air connection to the boiler can be supplied as an option.

Minimal free surface area for the air opening can be assumed symplified the following way.

- operation with air supply from within the room
6 cm² / 1kW boiler output, at least 200 cm²
- operation with separate combustion air supply to the boiler
0,8 cm² / 1 kW boiler output. The pressure in the combustion air supply tube has to be taken into account when dimensioning the flue gas system.

System separation in the case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, ph value)

Gas connection

Commissioning

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed in front of every gas boiler

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate
- A gas pressure controller to reduce the boiler inlet pressure must be installed onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

Min. heat water circulation

- Min. heat water circulation see the technical data of the boiler

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with TopTronic regulator)

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.
- **Noise level**
 - The acoustic power level value is dependent on the local and spatial circumstances.
 - The acoustic pressure level is dependent on the installation conditions and can for instance be 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

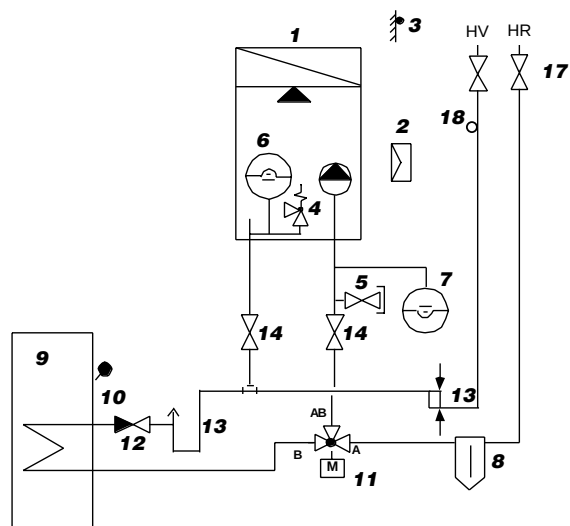
Examples

Subject to alterations

TopGas (24)

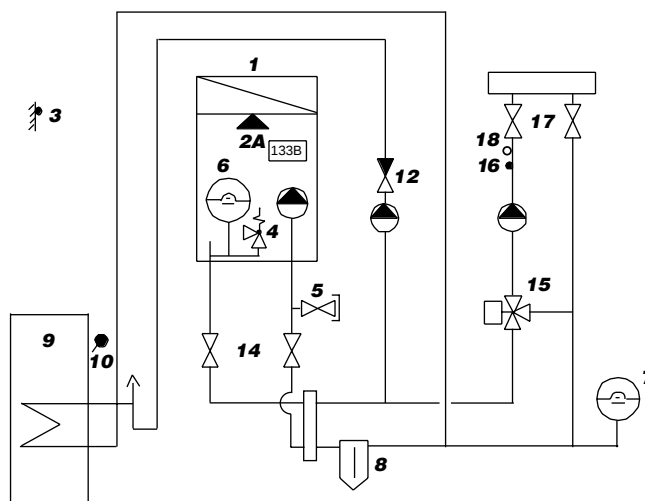
Pump integrated, temperature regulation with TopTronic RS 30. The room heating will be cut-off during the heating of the calorifier.

No mixing circuit!



TopGas (24)

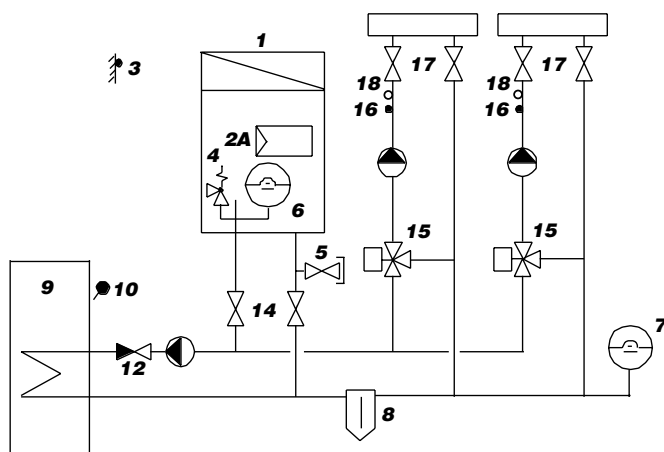
Pump integrated, flow temperature regulation of max. 2 mixing circuit. TopTronic 133B. Room heating and heating up of the calorifier at the same time possible.



TopGas (24)

Non pump operation, flow temperature regulation of max. mixing circuits. TopTronic 133B. For optimal regulation, the min. flow resistance of the mixing valve must be the same as the resistance of the gas boilers.

Room heating and heating up of the calorifier at the same time possible.



- | | |
|---|--|
| 1 Wall gas boiler | 7 Expansion tank |
| 2 Regulator RS30 | 8 Mud filter |
| 2A Regulator 133B | 9 Calorifier |
| 3 Outdoor sensor | 10 Sensor calorifier |
| 4 Safety valve | 11 Reversing valve ¹ |
| 5 Fill and drain ball valve ¹ | 12 Non return valve |
| 6 Expansion tank integrated capacity 10 l / 0,5 bar | 13 Bag to avoid one-tube circulation or non return |

- | |
|--------------------------------|
| valve |
| 14 Shut off valve ¹ |
| 15 Mixing valve |
| 16 flow sensor |
| 17 Shut off valve |
| 18 Flow temperature guard |

¹ in the connection set included

Wall gas condensing boiler

Description

Subject to alterations

Hoval TopGas®

Wall gas boiler

- Condensing boiler
- Heat-exchanger out of corrosion resistance aluminium alloy
- Integrated:
 - Pressure gauge
 - Water pressure sensor
 - Flue gas sensor
 - Air exhauster
- Pre mixing burner out of stainless steel
 - Modulated control
 - Automatic ignition
 - Ionisation guard
 - Gas pressure sensor
- Boiler fully insulated and cased with white steel plates

Standard control panel

- Gas firing sequence control MCBA 1482
- Modulated burner control
- Main switch 0 / I
- Operation and trouble indication
- Connection for external gas valve and trouble indication
- Connection for calorifier with temperature sensor TF25/12K

Optional

- for liquid gas
- Calorifier
- Different designs of control panels

Delivery

- Boiler fully cased



Model

TopGas Type	Range of output kW
45	13,7-45,3
60	14,0-64,8

Control panel

Control panel with TopTronic RS30 regulator

- For 1 heating circuit without mixing operation
- Weather-controlled regulation for flexible boiler water temperature
- RS30 with room temperature sensor with switch-in facility, located in boiler room or living room
- Main switch 0 / I
- Outdoor sensor AF 120 N
- Connection possibility for calorifier with temperature sensor TF 25 / 12 K

Control panel with TopTronic 1B regulator

- For 1 heating circuit without mixing operation
- Weather-controlled 2-point regulation for flexible boiler water temperature
- Main switch 0 / I
- With outdoor sensor AF 100 N
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility
 - Calorifier with temperature sensor KT 10-40

Control panel with TopTronic 133B regulator

- For 1 or 2 heating circuits with mixing operation
- Weather-controlled 3-point feed temperature regulation for flexible boiler water temperature
- Main switch 0 / I
- Outdoor sensor AF 100 N
- Flow sensor VF 100
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility
 - Calorifier with temperature sensor KT 10-40

Delivery

- Control panel separately packed

At place

- Mounting of control panel



Wall gas condensing boiler

Part no.

Heat-exchanger out of corrosion resistance aluminium alloy, modulated burner out of stainless steel and standard panel, boiler cased.

TopGas Type	Range of output kW ¹	
45	13,7-45,3	6 004 606
60	14,0-64,8	6 001 470

¹ kW = Range of modulation

Modification Liquid gas

min. output	45: 13,2 kW	
	60: 16,8 kW	619 568

Cut piece E100

with measuring connection	2 001 474
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TopTronic regulator to TopGas (45, 60)

TopTronic RS30

(No mixing operation)
For 1 heating circuit
Flow temperature regulation with outdoor temperature sensor AF 120 and room temperature sensor. Required sensors must be ordered separately.

242 631

Outdoor sensor AF 120

242 714



TopTronic 1B

(No mixing operation)
For 1 heating circuit
Flow temperature regulation with outdoor temperature sensor AF 100 and room temperature sensor. Without outdoor sensor for room temperature regulation.

691 284

TopTronic 133B

For 1 or 2 heating circuits
Flow temperature regulation with outdoor temperature sensor AF 100 and flow sensor. Without outdoor sensor for room temperature regulation.

691 285

Mounting set for TopTronic 1B and 133B (must be ordered separately)

6 001 931

**Accessories for heating
regulator TopTronic**
Part no.
To TopTronic 1B and TopTronic 133B

Room station RS 10

 for 1 or 2 mixing circuits, with room sensor,
information, program and correction key

242 634


Remote control RFF 60S

 for 1 mixing circuit with room sensor,
program key and temperature adjustment

2 000 754


Room temperature sensor RF 40

for 1 mixing circuit

242 679


**Addition outdoor temperature sensor
AF 100N**

 for 1 mixing circuit (per heating circuit
1 separate outdoor sensor is possible)
or for the mean value (per regulator
2 outer temperature sensor possible)

242 646


Sensor KT 10-40

with 4 m cable for calorifier

242 371


Flow sensor VF100N

242 647

To TopTronic RS30

Sensor TF25/12K

with 4 m cable for calorifier

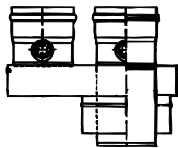
242 617

Flow temperature guard

 for floor heating
(per heating circuit 1 sensor)
- Thermostat with diving sensor
- Thermostat

 619.0015
692.1120

 242 190
242 217



Accessories

E 100 with measuring connection
Connection for TopGas (45, 60)

Part no.

2 001 474



Service

Commissioning

on request

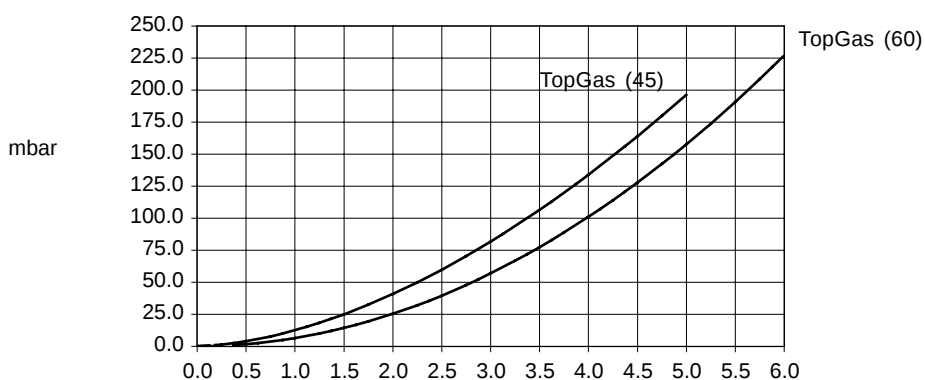
Technical data

Subject to alterations

TopGas (45, 60)

Type		45	60
• Nominal output 80/60°C natural gas ¹	kW	9,6 - 43,1	12,7 - 61,0
• Nominal output 40/30°C natural gas ¹	kW	10,7 - 47,1	14,0 - 64,8
• Nominal output 80/60°C liquid gas	kW	13,2 - 43,1	16,8 - 61,0
• Nominal output 40/30°C liquid gas	kW	14,7 - 47,1	18,5 - 64,8
• Nominal load natural gas ¹	kW	10,0 - 44,0	13,0 - 62,0
• Nominal load liquid gas	kW	13,7 - 44,0	17,2 - 62,0
• Working pressure max./min.	bar	4,0 / 1,0	4,0 / 1,0
• Working temperature max.	°C	85	85
• Boiler water capacity	l	10	10
• Boiler weight	kg	105	105
• Standard degree of utilisation			
- 40/30	%	109,7	109,4
- 75/60	%	106,6	106,1
• Readiness loss rated head load at 70°C	Watt	110	120
• Standard emission factors			
- Nitrogen oxide	mg/kWh	31,3	27,6
- Carbon monoxide	mg/kWh	13	13
• Dimension:			
Height	mm	900	900
Width	mm	640	640
Length	mm	490	490
• Connection			
- Flow	Zoll	R 1 1/4"	R 1 1/4"
- Return flow	Zoll	R 1 1/4"	R 1 1/4"
- Gas	Zoll	R 3/4"	R 3/4"
- Flue gas / combustion air	mm	100 / 150	100 / 150
• Gas pressure min./max.			
- Natural gas E/LL	mbar	18 - 24	18 - 24
- Liquid gas	mbar	42 - 57	42 - 57
• Gas connected value 0°C / 1013 mbar:			
- Natural gas E - (Wo = 15,0 kWh/m³) Hu = 9,97kWh/m³	m³/h	1,00 - 4,40	1,30 - 6,20
- Natural gas LL- (Wo = 12,4 kWh/m³) Hu = 8,57 kWh/m³	m³/h	1,40 - 5,10	1,50 - 7,20
- Liquid gas (Hu = 32,7 kWh/m³)	kg/h	1,10 - 3,30	1,40 - 4,90
• Rated voltage	V/Hz	230 / 50	230 / 50
• Driving voltage	V/Hz	24 / 50	24 / 50
• Power consumption	Watt	99	133
• System of protection	IP	20	20
• Sound level	dB(A)	49 - 59	49 - 59
• Condensate amount (natural gas) at 40 / 30°C	l/h	4,4	5,3
• pH-value of condensate		ca. 5,0	ca. 5,0
• Value for flue calculation			
- Temperature class		T 120	T 120
- Flue gas mass flow	kg/h	17,6 - 77,8	23,0 - 109,8
- Flue gas temperature T _V 80°C / T _R 60°C	°C	61 - 62	62 - 63
- Flue gas temperature T _V 40°C / T _R 30°C	°C	31 - 38	31 - 41
- Feed pressure at the flue gas outlet	Pa	90	110

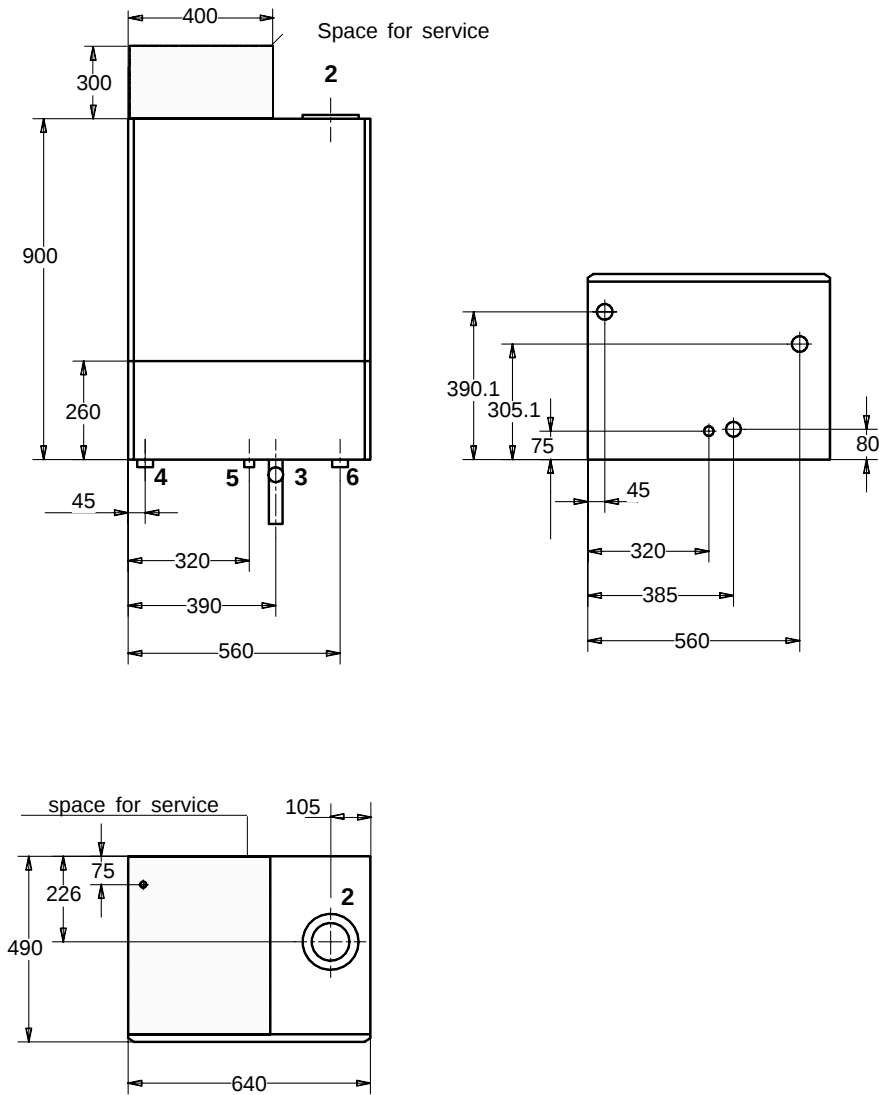
¹ The Boiler series is tested for EE/H settings. With a factory setting of the Wobbevalue of 15.0 kWh/m³ operation at a Wobbevalue of 12.0 up to 15.7 kWh/m³ is possible without new settings.

Boiler flow resistance


Dimension

Subject to alterations

(All measurements in mm)
Right / left side 50 mm
Space to ceiling is dependent on the flue gas system



- | | |
|--|------------|
| 1 Air exhaust | R3/8" |
| 2 Flue gas,
combustion air connection | DN 100/150 |
| 3 Condensate drain | DM 40 |
| 4 Heating flow | R 1 1/4" |
| 5 Gas connection | R3/4" |
| 6 Heating return flow | R1/4" |

Standards and Guidelines

Following standards and guidelines must be respected:

- Technical information and installation manual of company Hoval
- Hydraulic and technical control regulations of the local gas supply authority
- Firing guidelines of local gas works
- Fire protection standards
- Gas directives G1 of the SVGW
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI 93-1 „Safety equipment for heating systems”.
- Directives Procal/FKR "Electric plug connections at heating boilers and burners”.
- Procal Data Sheet "Corrosion through halogen compounds”.
- Procal Data sheet "Corrosion damage in heating installations" and the brochure "Protection against corrosion and boiler scale formation in heating and service water installation”.

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°fH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry, drying and hobby rooms etc.).

- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture. A direct combustion air connection to the boiler can be supplied as an option.

Minimal free surface area for the air opening can be assumed symplified the following way.

- operation with air supply from within the room
6 cm² / 1kW boiler output, at least 200 cm²
- operation with separate combustion air supply to the boiler
0,8 cm² / 1 kW boiler output. The pressure in the combustion air supply tube has to be taken into account when dimensioning the flue gas system.

System separation in the case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, ph value)

Gas connection

Commissioning

- Initial placing in operation is only to carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed in front of every gas boiler

Type of gas

- The boiler is only to operated with the type of gas stated on the rating plate
- A gas pressure controller to be reduce the boiler inlet pressure must be installed onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

Min. heat water circulation

- Min. heat water circulation see the technical data of the boiler

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with TopTronic regulator)

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.

Noise level

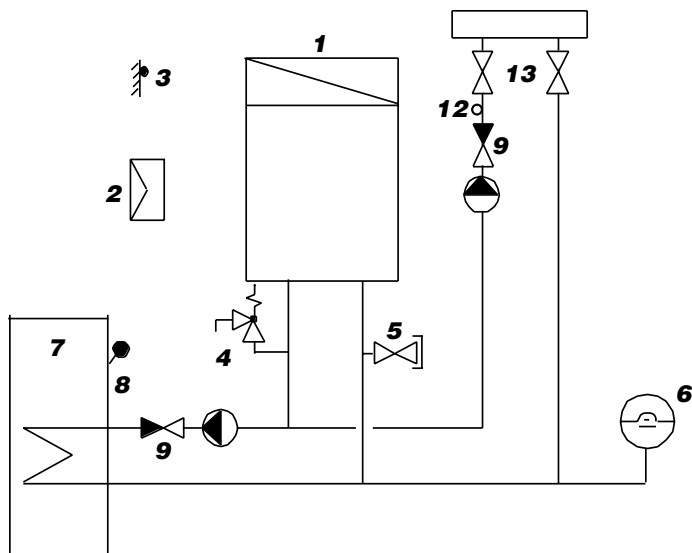
- The acoustic power level value is dependent on the local and spatial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Examples

Subject to alterations

TopGas (45, 60)

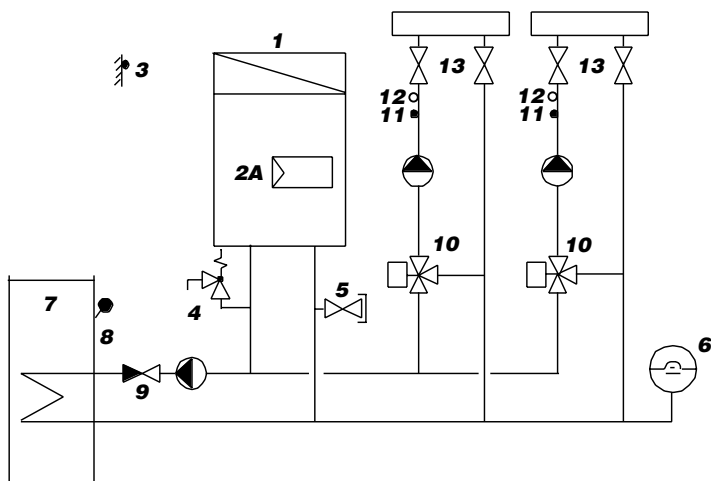
Flow temperature regulation. TopTronic RS30. The room heating will be cut-off during the heating of the calorifier.



TopGas (45, 60)

Flow temperature regulation of max. 2 mixing circuit. TopTronic 133B. For optimal regulation, the min. flow resistance of the mixing valve must be the same as the

resistance of the gas boilers. Room heating and heating up of the calorifier at the same time possible.



- 1 Wall gas boiler
- 2 Heating regulator RS30
- 2A Heating regulator 133B
- 3 Outersensor
- 4 Safety valve
- 5 Fill and drain ball valve
- 6 Expansion tank

- 7 Calorifer
- 8 Sensor calorifier
- 9 Non return valve
- 10 Mixing valve
- 11 Flow sensor
- 12 Flow temperature guard
- 13 Shut off valve

Gas condensing boiler

Description

Subject to alterations

Hoval UltraGas® UG-M-c

Gas heating boiler

- Cast aluminium boiler based on the condensing principle
- Thermal insulation with mineral wool and aluminium foil
- Integrated water pressure switch (boil-dry safe guard)
- Pre mixing surface burner
 - Modulating, with blower and venturi
 - Automatic ignition
 - Ionisation monitoring
 - Gas supply pressure monitor
- Gas heating boiler delivered with sheet steel cladding ready fitted, paint finish red/orange
- Control panel with boiler control and heating programs in different versions
- Automatic gas firing unit with monitoring unit MCBA 1482

Optional

- For liquid gas
- Connection for external gas valve and trouble indication
- Direct combustion air connection
- Condensate water pump
- Neutralisation box
- Free standing calorifier

Delivery

- Gas boiler fully cased



Standard control panel

Control panel with TopTronic RS30 regulator

- For 1 heating circuit without mixing operation
- Weather-controlled regulation for flexible boiler water temperature
- RS30 with room temperature sensor with switch-in facility, located in boiler or living room
- Main switch 0 / I
- Outdoor sensor AF 120 N
- Connection possibility for calorifier with temperature sensor TF 25 / 12 K

Control panel with TopTronic 1B regulator

- For 1 heating circuit without mixing operation
- Weather-controlled 2 point regulation for flexible boiler water temperature
- Main switch 0 / I
- with outdoor sensor AF 100 N
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40

Model

UltraGas Type	Range of output kW
20	5,8-23,2
30	5,8-29,8
40	11,2-44,9

with room temperature sensor with switch-in facility.

- Calorifier with temperature sensor KT 10-40

Control panel with TopTronic 133B regulator

- For 1 or 2 heating circuits with mixing operation
- Weather-controlled 3-point feed temperature regulation for flexible boiler water temperature
- Main switch 0 / I
- Outdoor sensor AF 100 N
- Flow sensor VF 100
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility
 - Calorifier with temperature sensor KT 10-40

Control panel without regulator

- For the connection of an external TopTronic regulator or external On/Off commands
- Modulating boiler control
- Main switch 0 / I

Boiler basic control GLT M4.2/G2 (Connection of a non Hoval regulator)

- Output activation 0-10V=, or potential-free On/Off setting signal. , Hotter/colder
 - 0 to 0,5 V = Burner «off»
 - 0,5 to 1,0 V = Burner «base load»
 - 1,0 to 10,0 V = output modulation
 - 10 V = 100% heat output
- Non-Hoval regulator with possibility for adjusting the PID behaviour



Gas condensing boiler UltraGas

Part no.

Cast aluminium boiler.
Pre-mixing burner modulating with blower.
Standard control panel.
Boiler comp. cased.

Version for operation with:

- **TopTronic RS 30** for 1 heating circuit without mixing operation and with calorifier temperature regulation.
Outdoor sensor AF 120 and calorifier sensor TF 25/12 K are included.
- **GLT-Modul** for controlling with a external regulator

TopTronic RS 30 or GLT-Modul must be ordered seperately.

UltraGas Type	Range of output kW ¹	
UG-M-c 20	5,8-23,2	8000 600
UG-M-c 30	5,8-29,8	8000 601
UG-M-c 40	11,2-44,9	8000 602

¹ kW = Modulating range at 40/30 °C, natural gas H

Top Tronic RS30

(Non mixing operation)
For 1 heating circuit
Weather-controlled regulation for flexible boiler water temperature with outdoor temperature sensor AF120 and room temperature sensor with switch-in facility.

242 631



GLT-Modul

for boiler regulation with an external regulator (DDC-Signal 0-10V).

6 001 563

Version for operation with:

TopTronic 1B oder 133B for 1 heating circuit without mixing valve and 1 to 2 heating circuit with mixing valve and calorifier temperature regulation.

TopTronic 1B or 133B must be ordered seperately.

UltraGas Type	Range of output kW ¹	
UG-M-c 20	5,8-23,2	1 D41 001
UG-M-c 30	5,8-29,8	1 D41 002
UG-M-c 40	11,2-44,9	1 D41 003

¹ kW = Modulating range at 40/30 °C, natural gas H



TopTronic 1B

Weather-controlled 2 point regulation with outdoor temperature sensor AF100. Outdoor sensor and calorifier sensor are included.

691 284

TopTronic 133B

For 1 direct and up to 2 heating circuit with mixing valve. Weather-controlled 3-point feed temperature regulation with outdoor sensor AF100 and flow sensor outdoor sensor, 1 flow sensor and calorifier sensor are included.

691 285

Electrical control

External gas valve, external trouble indication AM3.

Only required for boiler version for TopTronic 1B/133B.

For boiler version with TopTronic RS 30 regulator already included.

691 362

Modification liquid gas

Gas pressure sensor, installation sheet

619 568

Accessories to TopTronic regulator

Part no.



Room station RS 10

for 1 or 2 mixing circuit, with room sensor, information, program and correction key

242 634



Remote control RFF 60S

for 1 mixing circuit with room sensor, program key and temperature adjustment

2 000 754



Room temperature sensor RF 40

for 1 mixing circuit

242 679



Add. outdoor temperature sensor AF 100N

for 1 mixing circuit (per Heating circuit 1 separate outdoor sensor is possible) or for the mean value (per regulator 2 outdoor temperature sensor possible)

242 646



Sensor KT 10-40

with 4 m cable for calorifier

242 371



Flow sensor VF100N

242 647

Accessories to TopTronic regulator

Part no.



To TopTronic RS 30

Sensor TFK 25/12K
with 4 m cable for calorifier

242 617



Flow temperature guard
for floor heating
(per heating circuit 1 sensor)
- Thermostat with diving sensor
- Thermostat

619.0015
692.1120

242 190
242 217

Accessories



Connection for direct combustion air inlet

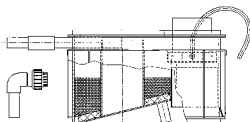
619 677

Commendation:
If the air inlet at the house front is near a noise sensitive place (window,...), we commend to use a sound absorber at the direct combustion air inlet.



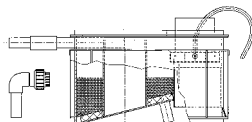
Condensate box
Type KB2
Condensate box with pump, for mounting under the casing

619 608



Type KB3
Condensate box with 6 kg neutralisation granulate, for mounting under the casing

619 606



Type KB4
Condensate box with 6 kg neutralisation granulate with pump, for mounting under the casing

619 609

Service



Commissioning

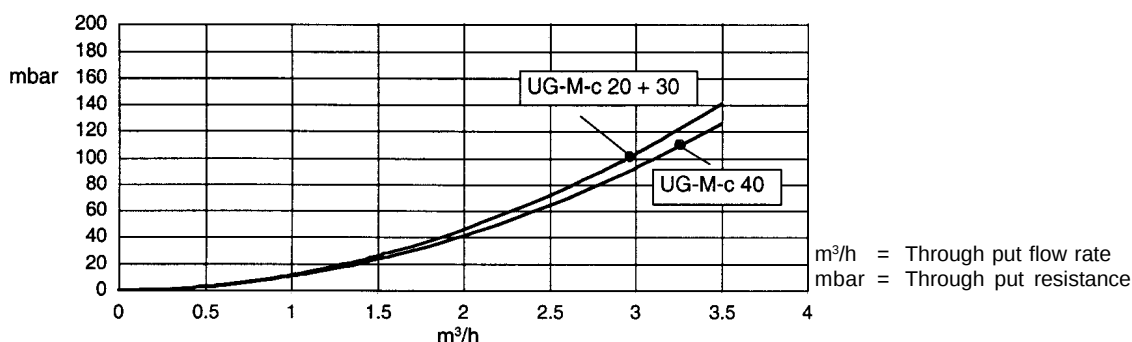
on request

Technical data

subject to alterations

UG-M-c

Type		20	30	40
• Nominal output 80/60°C natural gas	kW	5,3-21,1	5,3-27,3	10,2-40,6
• Nominal output 40/30°C natural gas	kW	5,8-23,2	5,8-29,8	11,2-44,9
• Nominal output 80/60°C liquid gas	kW	7,6-21,1	7,6-27,3	13,4-40,6
• Nominal output 40/30°C liquid gas	kW	8,3-23,2	8,3-29,8	14,9-44,9
• Nominal load natural gas	kW	5,4-21,9	5,4-28,0	10,4-42,0
• Nominal load liquid gas	kW	7,7-21,9	7,7-28,0	13,7-42,0
• Working pressure max./min,	bar	3,0 / 1,0	3,0 / 1,0	3,0 / 1,0
• Working temperature max,	°C	85	85	85
• Boiler water capacity	l	4,0	4,0	5,0
• Minimal water circulation content	l/h	200	250	350
• Boiler weight	kg	79	87	95
• Standard degree of utilisation 40/30°C	%	109,2	109,1	109,2
75/60°C	%	106,1	105,9	106,0
• Readiness loss rated heat load at 70°C	Watt	84	84	126
• Standard emission factors				
Nitrogen oxides	mg/kWh	17	18	13
Carbon monoxide	mg/kWh	7	7	6
• Dimension:				
Height	mm	1030	1030	1030
Width	mm	520	520	520
Length	mm	670	670	670
• Connection				
Flow	Zoll	R1"	R1"	R1"
Return flow	Zoll	R1"	R1"	R1"
Gas	Zoll	Rp½"	Rp½"	Rp½"
Flue gas	mm	100	100	100
• Gas pressure min./ max,				
Natural gas E/LL	mbar	18-24	18-24	18-24
Liquid gas	mbar	42- 57	42- 57	42- 57
• Gas- connected value at 0°C / 1013 mbar:				
Natural gas E-(Wo=15,0 kWh/m³) Hu=9,97kWh/m³	m³/h	2,2	2,8	4,2
Natural gas LL-(Wo=12,4 kWh/m³) Hu=8,57 kWh/m³	m³/h	2,6	3,3	4,9
Liquid gas (Hu=32,7 kWh/m³)	kg/h	1,81	2,32	3,48
• Rated voltage	V/Hz	230/50	230/50	230/50
• Driving voltage	V/Hz	24/50	24/50	24/50
• Power consumption	Watt	64	70	83
• System of protection	IP	20	20	20
• Sound level	dB(A)	51-60	54-66	56-67
• Condensate value (natural gas) bei 40 / 30°C	l/h	2,1	3,54	4,88
• ph-value of the condensate		ca. 5,0	ca. 5,0	ca. 5,0
• Value for the flue calculation				
Temperature class		T120	T120	T120
Flue gas mass flow	kg/h	38,2	56,5	72,7
Flue gas temperature T _v 80°C / T _R 60°C	°C	63	63	64
Flue gas temperature T _v 40°C / T _R 30°C	°C	42	42	43
Delivery pressure at flue gas connector	Pa	50	60	70

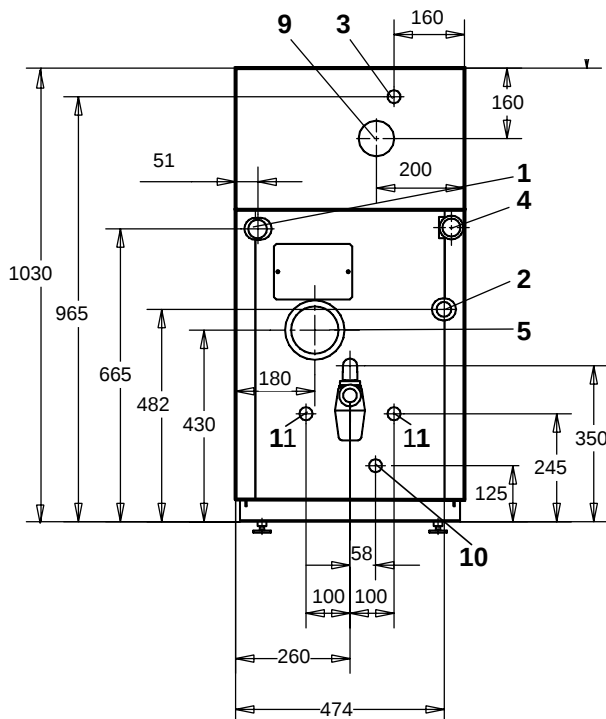
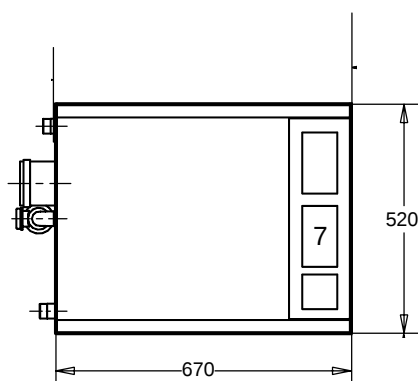
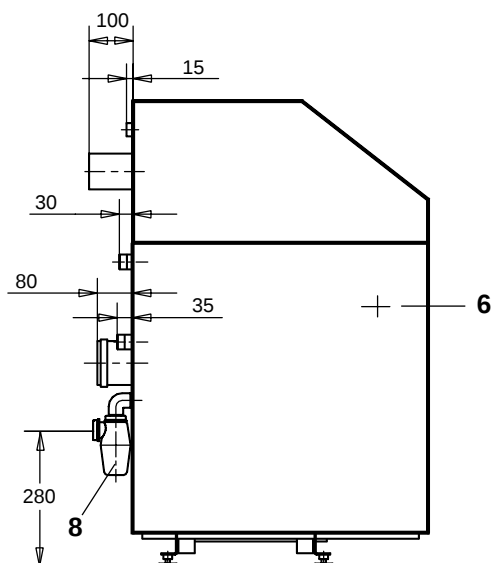
Boiler through put resistance


Dimension

subject to alterations

UltraGas UG-M-c (20-40)

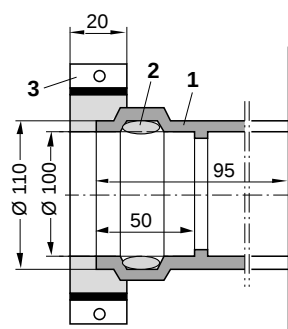
(All measurements in mm)



- 1 Flow R1"
- 2 Return R1",
- 3 Gas connection Rp 1/2"
- 4 Electrical connection
- 5 Fluegas collector Ø 100/110 mm
- 6 Drain 1/2"
- 7 Control panel
- 8 Odour trap with thread for plastic tube Ø 25 mm
- 9 Direct combustion air connection Ø 81/85
- 10 Condensate drain line R 3/4" with condensate box
- 11 Connection Ø 25 for condensate drainage from chimney if condensate box integrated

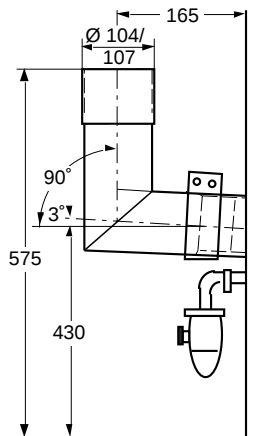
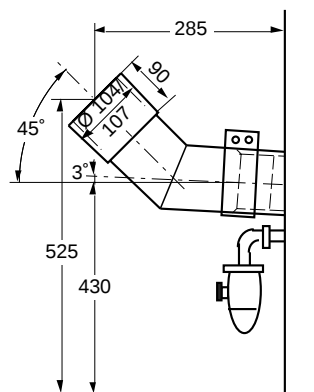
Flue gas collector (5)

- 1 Flue gas collector out of cast aluminium
- 2 Gasket
- 3 Bridge with gasket



Angle for flue gas collector (one request)

out of chrome steel, for mounting at the flue gas collector



Note

Minimal Spaces on page 77

Standards and guidelines

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- Hydraulic and technical control regulations of the local gas supply authority
- Gas directives G1 of the SVGW
- Flue gas systems are to be created according to the SVGW directives and the VKF fire protection guidelines.
- Local fire brigade regulations
- The fire protection regulations of the VKF
- Procal data sheet „Corrosion through halogen compounds“
- Procal data sheet „Corrosion damage in heating installations“ and the brochure „Protection against corrosion and boiler scale formation in heating and service water installations“
- Ventilation and air supply for the boiler installation room according to directives SWIKI 91-1
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Approval for diverting the flue gas condensate water to the drainage system must be obtained from the responsible authority
- Heating water
pH-value 8,3 to 9,0
max. oxygen content 0,1 mg/m³
chlorine content max. 30 mg/m³

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°fH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry, drying and hobby rooms etc.).

- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

- A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture.
- A direct combustion air connection to the boiler can be supplied as an option.
- Minimaler freier Querschnitt für die

System separation in the case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, pH value)

Gas connection

Commissioning

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed before every gas boiler

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate
- A gas pressure controller to reduce the boiler inlet pressure must be installed onsite for liquid gas (propan).

Gas pressure

- Necessary flow pressure at the boiler inlet:
- Natural gas min. 18 mbar, max. 24 mbar
 - Liquid gas min. 42 mbar, max. 57 mbar

Installing the heating system

The gas boiler is not to be used as a heat producer for the installation of underfloor heating pipes.

Space requirements

- At least 800mm free space must be available in front of the boiler.
- Minimum distance from the wall at the back = 500 mm
- Minimum distance from the wall at the left and right hand sides = 500mm

Heating pump

- The heating pump must be installed in the feed side in order that the pump operates in the overpressure range (avoidance of cavitation).

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with the TopTronic controller).

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.

Expansion tank

- An adequately dimensioned expansion tank must be provided.
- The expansion tank is to be connected to heating feed of the gas boiler, except in multi boiler installations, in order that the pump and boiler operate in the overpressure range (avoidance of cavitation).

- A safety valve and an automatic bleeding device must be installed in the heating feed.

Noise level

- The acoustic power level value is dependent on the local and spatial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Chimney / flue gas system
Individually occupied chimney

- Gas boilers must be connected to a flue gas system
- Flue gas lines must be gastight and leaktight against condensate and over pressure and are to be fitted with a safety temperature limiting device.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. temperature class T120.
- The condensate from the flue gas system is not to be drained via the boiler.

Chimney dimensions
Over pressure flue gas line, gas and watertight
Principles

- Height above sea level max. 800m
- Introduction to a vertical section: 90°
- Connection tube:
Minimum to after the first bend in the dimension of the boiler flue gas connector
max. length 2m.

- Combustion air:
In the case of room air-dependent operation (accessories as an option) the air line must be at least the same dimension as the flue gas line.

Boiler		Flue gas line			Number of 90° bows				
Type	Flue gas internal dim.	Designation DN	Pipe diameter outside	mm inside	Total pipe length in m (flue gas + air supply)				
					1	2	3	4	5
UG-M-c 20	100	80	80	77	23	23	22	20	17
UG-M-c 30	100	smooth walled			18	16	14	11	8
UG-M-c 20	100	100	100	97	30	30	30	30	30
UG-M-c 30	100	smooth walled			30	30	30	30	30
UG-M-c 40	100				30	30	30	27	24
UG-M-c 30	100	130	130	127	38	38	38	38	38
UG-M-c 40	100	smooth walled			38	38	38	38	38
UG-M-c 20	100	80	90	81	23	23	22	20	17
UG-M-c 30	100	flexible			18	16	14	11	8
UG-M-c 20	100	100	113	102	30	30	30	30	30
UG-M-c 30	100	flexible			30	30	30	30	30
UG-M-c 40	100				30	30	30	27	24

Note: Chimney entry 45° also 45° bows offer less resistance and could yield smaller dimensions or longer flue gas lines.

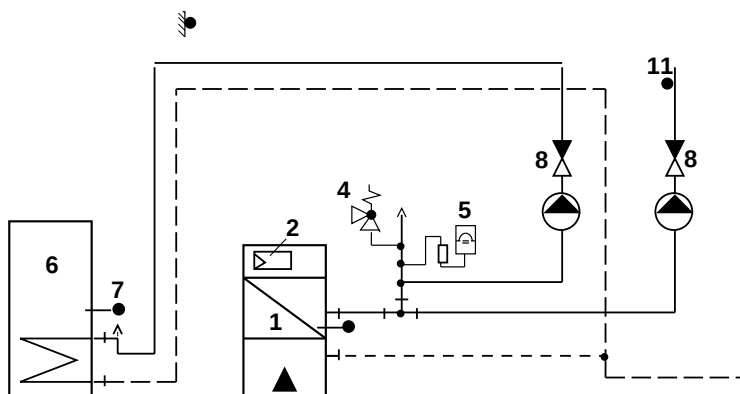
Examples

subject to alterations

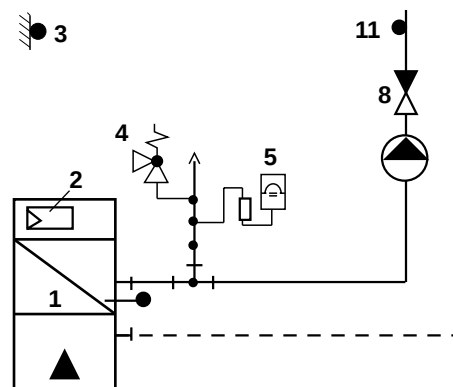
Note:

The application examples may only be used in combination with the listed types of boiler. As boiler type UG-M-c has only one boiler feed, the connection of calorifier, expansion tank etc. is to be established on-site (T-piece).

Temperature control by means of weather controlled, flexible boiler temperature. The room heating is cut-off during the heating of the calorifier.

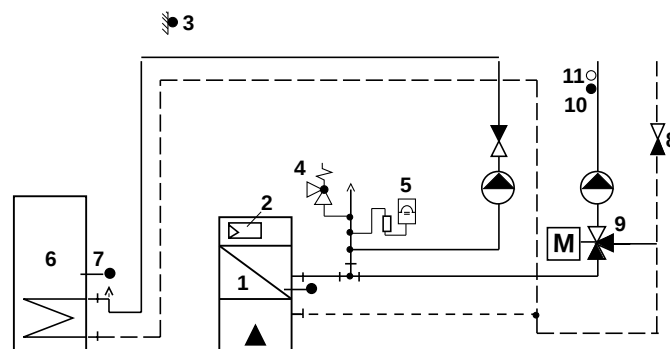


Temperature control by means of weather controlled, flexible boiler temperature. (without calorifier)

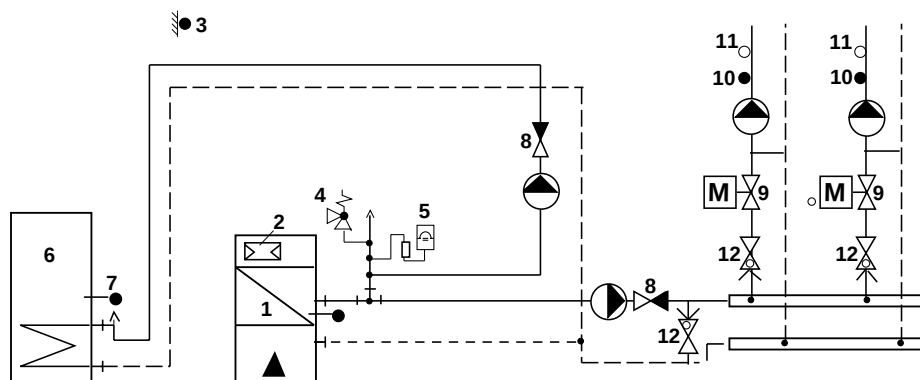


Temperature control by means of weather controlled feed temperature (motorized mixing valve), flexible boiler temperature. The operation of the room heating and the heating of the calorifier

are possible simultaneously. To guarantee optimal control capability, the resistance in the mixing valve must be at least as great as in the gas boiler.



System with 2 heating groups. Heating controller incorporated in the boiler. Speed regulated pump in the boiler circuit. Limit switch in straight through valve or small bypass with adjustment valve at the start of the distributor to guarantee minimum water flow rate for the circulation pump when the straight through valves are closed.



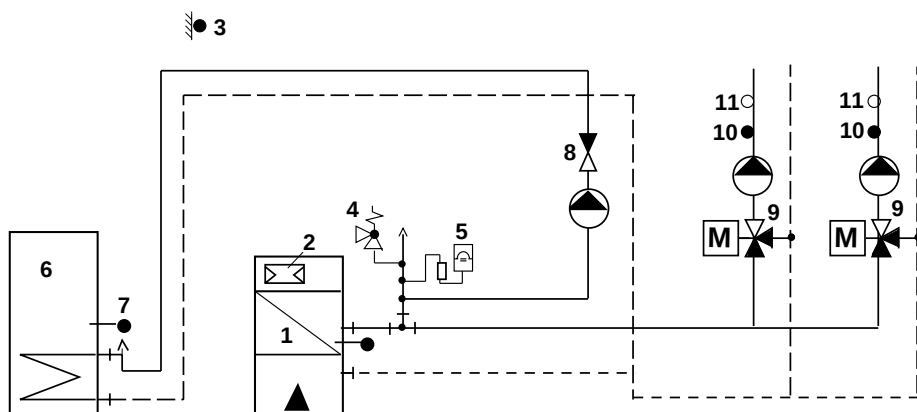
- 1 UltraGas boiler
- 2 Heating regulator
- 3 Outdoor sensor
- 4 Safety valve
- 5 Expansion tank
- 6 Calorifier

- 7 Calorifier sensor
- 8 Non-return valve
- 9 Mixing valve / straight through valve
- 10 Flow sensor
- 11 Flow temperature guard
- 12 STA valve

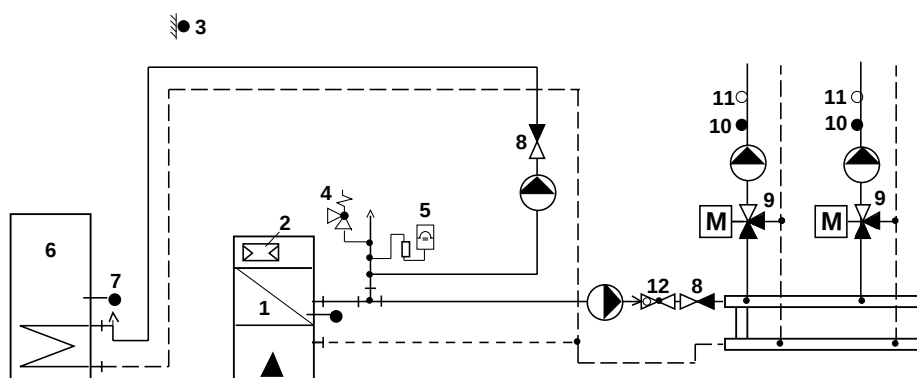
Examples

subject to alterations

System with 2 heating groups, heating controller incorporated into the boiler. Temperature controlled with motorized 3-way valves. To guarantee optimal control capability, the resistance in the mixing valve must be at least as great as in the gas boiler.



System with 2 heating groups, heating controller incorporated in the boiler. Pump boiler circuit possibly with speed control.



- 1 UltraGas boiler
- 2 Heating regulator
- 3 Outdoor sensor
- 4 Safety valve
- 5 Expansion tank
- 6 Calorifier

- 7 Calorifier sensor
- 8 Non return valve
- 9 Mixing valve / straight through valve
- 10 Flow sensor
- 11 Flow temperature guard
- 12 STA valve

Hoval AtmoGas

Gas boiler

- Boiler body made of cast iron GG20
- Boiler body insulated with mineral wool
- Flue gas non return safety device
- Boiler fill and drain ball valve
- Atmospheric premix surface burner for natural gas
 - premix burner without blower
 - Automatic ignition
 - Ionisation monitoring
- Casing out of steel plates ret/orange powder coated
- Gas firing sequence control S4565BF incl. connection for external gas valve
- Standard control panel M1.1/G1

Optional

- For liquid gas
- Stand by calorifier
- Heating regulation in different versions

Delivery

- Gas boiler fully cased



Calorifier LSP

- Placed under the gas boiler AtmoGas
- Calorifier and heating register made of double enamelling
- Size 150
- Magnesium-Safety anode
- Insulation out of Polyurethan, 50 mm (λ 0.025 W/mK)
- Casing out of steel, red powder coated and fully assembled
- Temperature sensor

Model

AtmoGas Type	Range of output kW
LN 9	8,6
LN 15	14,9
LN 19	19,9
LN 23	23,6
LN 27	27,6
LN 31	32,9
LN 35	37,6
LN 41	42,4
LN 46	47,2
LN 51	50,8

Delivery

- Calorifier fully cased

Loading groupe calorifier

- Pre-mounted and wired consists of
 - Loading pump M12-1
 - Non return valve
 - Piping and insulation for connection to LSP calorifier

Control panel

Control panel with TopTronic 23B regulator

- 2-point burner regulation
- 3-point-regulation for weather controlled flow temperature of one mixing circuit
- Main switch 0 / I
- Outdoor sensor AF 100N
- Flow sensor VF 100
- Connection possibilities:
 - Room station RS 10, RFF60S, RF40 with switch-in room temperature sensor.
 - Calorifier temperature sensor KT 10-40

Control panel with TopTronic 233B regulator

- as with TT23B but for two mixing circuits
- 2 Flow sensors VF 100N

Delivery

- Control panel separately packed

At place

- Fixing of regulator

Atmospheric gas boiler

Description

Subject to alterations

Heating armature group

Type HA 25-3L 1"

- For systems with 1 heating group with mixing valve
- for mounting at the back of the boiler
- Heating group to AtmoGas (LN 9- LN35) with regulator TopTronic
- Heating group to AtmoGas (LN 9- LN23) with calorifier LSP and regulator TopTronic
- Pre-mounted and wired consists of:
 - Heating pump
 - Motorized 3 way mixing valve (with integrated bypass)
 - 2 ball valves with thermometer
 - Non return valve
 - Piping and fittings
 - Power supply 1x230V
 - Insulationout of shells

Heating connection set

Piping and fittings of the HA-group and connection of loading group or loading line.

Type

AS-AG 1" LSP
for HA 25-3L with LSP calorifier placed under the boiler

AS-AG 1"
for HA 25-3L with/without stand-by calorifier

AS-UG 32 H
for HA 32-3L with/without stand-by calorifier

Heating armature group

Type HA 32-3L 1¼"

- as Heating armature group HA H25-3L 1" but size 1¼"
- Heating group to AtmoGas (LN 41-LN51) with TopTronic regulator
- without insulation
- Motorized 3 way mixing valve without Bypass

Delivery

- Heating armature group separately packed

Atmospheric gas boiler AtmoGas

Part no.

Boiler body made of cast iron. Premix burner without blower. with automatic ignition and ionisation monitoring.
Delivery: Gas boiler and standard control panel fully assembled and cased.



AtmoGas Type	Range of output kW	
LN 9	8,6	8 000 623
LN 15	14,9	8 000 624
LN 19	19,9	8 000 625
LN 23	23,6	8 000 626
LN 27	27,6	8 000 627
LN 31	32,9	8 000 628
LN 35	37,6	8 000 629
LN 41	42,4	8 000 630
LN 46	47,2	8 000 631
LN 51	50,8	8 000 632

Modification liquid gas

AtmoGas LN 9	619 394
AtmoGas LN 15	619 395
AtmoGas LN 19	619 396
AtmoGas LN 23	619 397
AtmoGas LN 27	619 398
AtmoGas LN 31	619 399
AtmoGas LN 35	619 400
AtmoGas LN 41	619 401
AtmoGas LN 46	619 402
AtmoGas LN 51	619 403

Modification natural gas L

AtmoGas LN 9	6 001 524
AtmoGas LN 15	6 001 525
AtmoGas LN 19	6 001 526
AtmoGas LN 23	6 001 527
AtmoGas LN 27	6 001 528
AtmoGas LN 31	6 001 529
AtmoGas LN 35	6 001 530
AtmoGas LN 41	6 001 531
AtmoGas LN 46	6 001 532
AtmoGas LN 51	6 001 533

Calorifier Type LSP



Calorifier out of double enamelling and insulation.
Fully cased, incl. temperature sensor KT 10-40S

Type	Volume dm ³	
LSP 150	145	7 000 079
LSP 200	191	7 000 080

Only for AtmoGas LN up to 23 kW useable.

Loading group Part no. 619 334 L must be ordered separately.


**Control panel with
TopTronic regulator**
Part no.
TopTronic 2B

(Non mixing operation!) For 1 heating circuit
Weather controlled flow temperature
regulation with outdoor temperature sensor
AF 100.
Outdoor sensor and calorifier sensor are
included

691 283

TopTronic 23B

For 1 direct and 1 mixing circuit
Weather controlled flow temperature
regulation with outdoor temperature sensor.
Outdoor sensor, flow sensor and calorifier
sensor are included.

691 208

TopTronic 233B

For 1 direct and up to 2 mixing circuit
Weather controlled flow temperature
regulation with outdoor temperature sensor.
Outdoor sensor, flow sensor and calorifier
sensor are included.

691 282

Accessories for TopTronic

Roomstation RS 10

for 1 or 2 mixing circuit, with room sensor,
information, program and correction key

242 634


Remote control RFF 60S

for 1 mixing circuit wit room sensor, program
key and temperature adjustment

2 000 754


Room temperature sensor RF 40

for 1 mixing circuit

242 679


**Add. outdoor temperature sensor
AF 100N**

for 1 mixing circuit (per Heating circuit
1 separate outdoor sensor is possible)
or for the mean value (per regulator
2 outdoor temperature sensor possible)

242 646


**Flue gas temperature sensor
PT 1000/4**

242 681


Sensor KT 10-40

with 4 m cable for calorifier

242 371


Flow sensor VF100N

242 647



	Part	no.
Flow temperature guard		
for floor heating		
(per heating circuit 1 sensor)		
- Thermostat with diving sensor	619.0015	242 190
- Thermostat	692.1120	687 997

**Cascade control of 2
AtmoGas with TopTronic**

Automatic cascade control of 2 gas boilers,
with/without priority change over switch and
connection possibilities of max. 2 mixing
circuit, pump 1 x 230 V.



Master boiler 1 M1.1/23B		
Heating regulation for 1 mixing circuit		6002 365
Cascade control		691 300
Outdoor sensor AF 100N		
Flow sensor VF 100N		242 647
Master boiler 2 M1.1/23B		
Heating regulation for 2 mixing circuits		6002 365
Accessories		
Flow sensor VF 100N add. heating circuit		242 647
Retrun flow sensor VF 100N		242 647
Motor straight through ball valve 56.2164		AV 4319
Motor straight through ball valve 56.3164		AV 4322

Heating armature group
type HA
to AtmoGas LN9 - LN51
with calorifier LSP



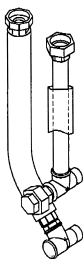
For Systems with 1 mixing circuit to AtmoGas (without LSP) with incl. TopTronic regulator. Pre-mountend and wired.
For direct mounting to the boiler, the connection set part no. 619 360 or 6001042 is required.

HA-Type	to boiler type AG	pump Type	Part no.
HA 25-3L	LN9 - LN 35	M12-1	1 G00 007
HA 32-3L	LN41 - LN51	M14-2	AW4561

Loading group type LG

For 1 direct heating circuit or for connection of a stand-by calorifier.
For direct mounting to the boiler, the connection set part no. 619 360 or 6001042 is required.

HA-Type	Flow/ Return flow	Pump Type	
LG 25-L	1"	M12-1	1G00 012



Connection set
to AtmoGas LN 9 - LN 35
Type AS-AG 1"

Piping and fittings for connection of the heating armature group and connection for CombiVal

619 360

Connection set
to AtmoGas LN 41 - LN 51
Type AS-UG 32-H

Piping and fittings for connection of the heating armature group and connection for CombiVal

6001042

Service

Commissioning

on request



Technical data

Subject to alterations

AtmoGas

Type		9	15	19	23	27	31	35	41	46	51
• Nominal output 80/60°C natural gas	kW	8,6	14,9	19,9	23,6	27,6	32,9	37,6	42,4	47,2	50,8
• Nominal output 80/60°C liquid gas	kW	8,6	14,9	19,9	23,6	27,6	32,9	37,6	42,4	47,2	50,8
• Nominal load natural gas	kW	9,5	16,4	21,9	25,9	30,4	36,2	41,4	46,6	51,9	55,9
• Nominal load liquid gas	kW	9,5	16,4	21,9	25,9	30,4	36,2	41,4	46,6	51,9	55,9
• Working pressure max./min.	bar	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0
• Working temperature min./max.	°C	40/90	40/90	40/90	40/90	40/90	40/90	40/90	40/90	40/90	40/90
• Boiler water capacity	l	4,2	5	5,8	6,6	7,4	8,2	9	9,8	10,6	11,4
• Boiler weight	kg	75	80	100	115	130	135	145	160	170	182
• Flue gas deficiency	%	12	11,7	11,4	11,4	11,3	11,2	11,2	11,0	10,8	10,8
• Standard degree of utilisation 75/60%	%	92,1	93,4	92,8	92,6	92,2	92	92,3	92,1	92	91,9
• Readiness loss rated heat load at 70 °C	Watt	152	239	287	321	356	391	410	466	503	520
• Standard emission factors											
Nitrogen oxides	mg/kWh	53	61,8	37,5	41	60,5	43,4	49,7	57,6	35,6	30,7
Carbon monoxide	mg/kWh	7,0	7,1	6,9	7,0	6,8	7,3	7,1	7	7	7,5
• Dimension											
Height	mm	810	810	810	810	810	810	810	810	810	810
Width	mm	560	560	560	560	730	730	730	902	902	902
Length	mm	840	840	840	840	840	840	840	840	840	840
• Connection											
Flow	Zoll	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"
Return flow	Zoll	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"
Gas	Zoll	R½"	R½"	R½"	R½"	R½"	R½"	R½"	R½"	R½"	R½"
Flue gas	mm	90	110	110	130	130	130	150	180	180	180
• Gas pressure min./max.											
Natural gas E/LL	mbar	18-24	18-24	18-24	18-24	18-24	18-24	18-24	18-24	18-24	27-24
Liquid gas	mbar	42-57	42-57	42-57	42-57	42-57	42-57	42-57	42-57	42-57	42-57
• Gas connection value at 0°C / 1013 mbar:											
Natural gas E-(Wo = 15,0 kWh/m³)											
Hu = 9,97 kWh/m³	m³/h	0,95	1,64	2,19	2,59	3,04	3,62	4,14	4,66	5,19	5,59
Natural gas LL-(Wo = 12,4 kWh/m³)											
Hu = 8,57 kWh/m³	m³/h	1,1	1,91	2,56	3,02	3,55	4,22	4,83	5,44	6,06	6,52
Liquid gas (Hu = 32,7 kWh/m³)	kg/h	0,74	1,28	1,71	2,0	2,38	2,82	3,23	3,64	4,05	4,37
• Rated voltage	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
• Driving voltage	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
• Power consumption	Watt	6,2	6,2	6,2	6,2	6,2	6,2	6,2	6,2	6,2	6,2
• System of protection	IP	20	20	20	20	20	20	20	20	20	20
• Sound level	dB(A)	45-46	45-46	45-46	45-46	45-46	45-46	45-46	45-46	45-46	45-46
• Value for the chimney calculation											
Temperature class		T160	T160	T160	T160	T160	T160	T160	T160	T160	T160
Flue gas mass flow	kg/h	30,8	52,1	59,7	68,2	70,3	95,3	112,8	124,8	146,6	155
Flue gas temperature T _v 80°C / T _r 60°C	°C	98	102	111	114	115	119	113	116	109	114
Feed pressure at the flue gas connector	Pa	3	3	3	3	3	3	3	3	3	3

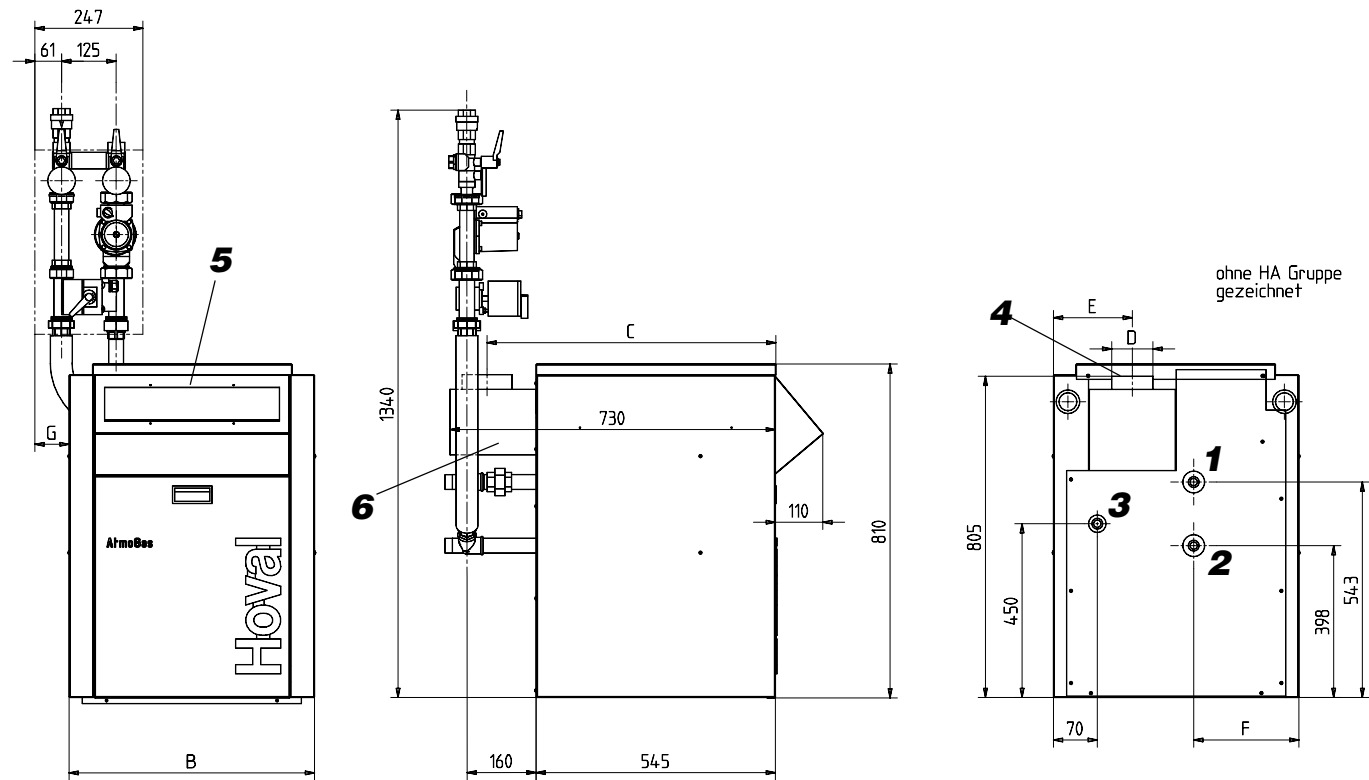
Throughput resistance boiler in mbar = Volume flow (m³/h)² x 9,8

Dimension

Subject to alterations

AtmoGas LN (9-51)

(all measurements in mm)

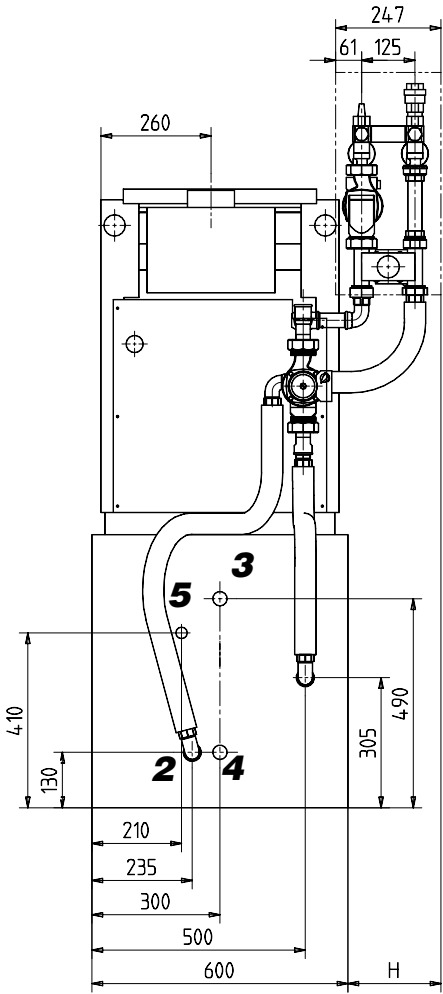
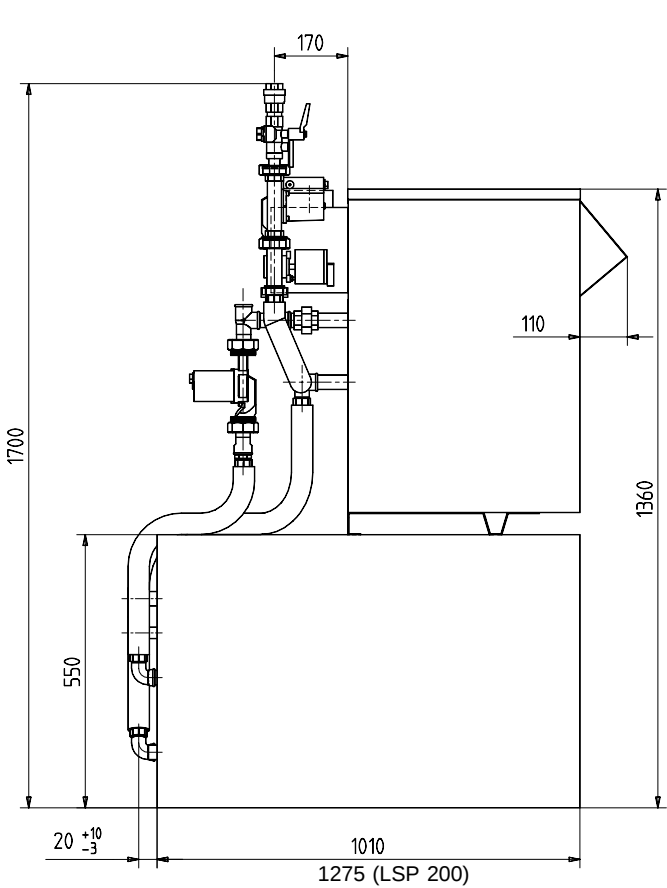


AtmoGas Type	B	C	D Ø	E	F	G
LN 9	560	658	92/94	260	245	78
LN 15	560	658	112/114	260	190	133
LN 19	560	658	112/114	260	135	188
LN 23	560	648	132/134	260	80	243
LN 27	730	648	132/134	345	190	133
LN 31	730	648	132/134	345	135	188
LN 35	730	639	152/154	345	80	243
LN 41	902	639	182/184	430	190	133
LN 46	902	639	182/184	430	135	188
LN 51	902	639	182/184	430	80	243

- 1 Flow / safety flow R 1"
- 2 Return R 1"
- 3 Gas connection R 1/2"
- 4 Flue gas outlet
- 5 Control panel
- 6 Temperature limiter (Flue gas limit thermostat)

AtmoGas LN (9-51)

(all measurements in mm)



1

- 1 Flow / safety flow R 1"
- 2 Return R 1"
- 3 Gas connection R 1/2"
- 4 Flue gas outlet
- 5 Control panel
- 6 Temperature limiter (Flue gas limit thermostat)

AtmoGas Typ	H
LN 9	58
LN15	113
LN 19	168

Standards and guidelines

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- Hydraulic and technical control regulations of the local gas supply authority
- Gas directives G1 of the SVGW
- Flue gas systems are to be created according to the SVGW directives and the VKF fire protection guidelines.
- Local fire brigade regulations
- The fire protection regulations of the VKF
- Procal data sheet „Corrosion through halogen compounds“
- Procal data sheet „Corrosion damage in heating installations“ and the brochure „Protection against corrosion and boiler scale formation in heating and service water installations“
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Approval for diverting the flue gas condensate water to the drainage system must be obtained from the responsible authority
- Heating water
pH-value 8,3 to 9,0
max. oxygen content 0,1 mg/m³
chlorine content max. 30 mg/m³

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°FH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system**Boiler installation room**

- Gas boilers are not to be installed in room in which halogen compounds occur and which

can enter the combustion air (e.g. laundry, - Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

- A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture.
- A direct combustion air connection to the boiler can be supplied as an option.
- Minimaler freier Querschnitt für die

System separation in the case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, pH value)

Gas connection**Commissioning**

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed before every gas boiler

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate
- A gas pressure controller to reduce the boiler inlet pressure must be installed onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

Installing the heating system

The gas boiler is not to be used as a heat producer for the installation of underfloor heating pipes.

Space requirements

- At least 800mm free space must be available in front of the boiler.
- Minimum distance from the wall at the back = 200 mm
- Minimum distance from the wall at the left and right hand sides = 300mm

Heating pump

- The heating pump must be installed in the feed side in order that the pump operates in the overpressure range (avoidance of cavitation).

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with the TopTronic controller).

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Expansion tank

- An adequately dimensioned expansion tank must be provided.
- Minimum heating system pressure 1,0 bar
- The expansion tank is to be connected to heating feed of the gas boiler, except in multi boiler installations, in order that the pump and boiler operate in the overpressure range (avoidance of cavitation).
- A safety valve and an automatic bleeding device must be installed in the heating feed.

Noise level

- The acoustic power level value is dependent on the local and spatial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Chimney / flue gas system

Individually occupied chimney

- Gas boilers must be connected to a flue gas system
- Flue gas lines must be gastight and leaktight against condensate and over pressure and are to be fitted with a safety temperature limiting device.
- Connection tube and chimney must be insulated.
- Flue gas mass flow after the flow safety device per 1 kW boiler nominal output,
 - LN 9 = 3,5 kg/h
 - LN 15 - LN 23 = 2,1 kg/h
 - LN 27 = 2,8 kg/h
 - LN 31 - LN 46 = 2,2 kg/h
 - LN 51 = 3 kg/h
- After the flow safety device the flue gas tube has to be min. 0,5m vertical height and enter into the chimney under an angle of 45°
- At the flue gas tube must be a flue gas measurement outlet (opening diameter 10-21mm)

Required diameter of connection tube and chimney

- Height above sea level max. 1000m
- smooth pipe inside, gas and water tight.
- The length of the connection tube between boiler and chimney ≤ 3 m, 2 angle 45°
- Connection tube and chimney insulated
- Outdoor temperature $\leq + 25^{\circ}\text{C}$.

AtmoGas Type	Connection tube Ø	Chimney height			
		5 m Ø	10 m Ø	15 m Ø	20 m Ø
LN 9	100	100	100	100	100
LN 15	100	100	100	100	100
LN 19	100	100	100	100	100
LN 23	125	125	125	125	125
LN 27	125	125	125	125	125
LN 31	125	125	125	125	125
LN 35	150	150	150	125	125
LN 41	150	150	150	125	125
LN 46	175	175	150	150	150
LN 51	175	175	175	150	150

Flue gas system for two AtmoGas boiler

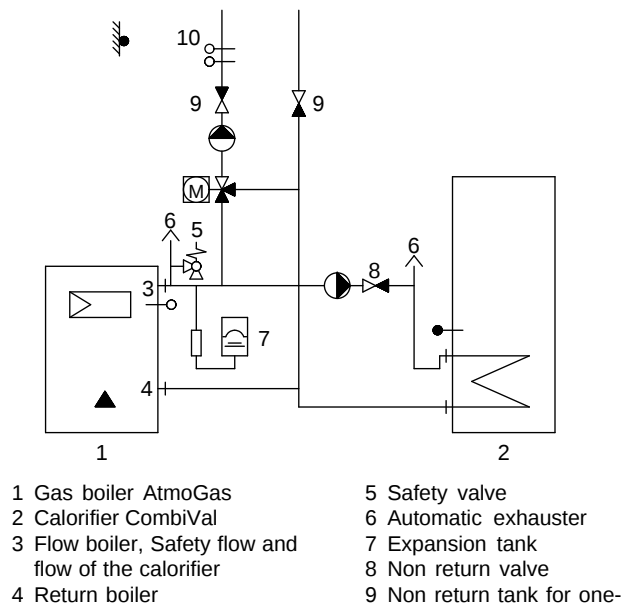
- Every boiler has to be connected separately to the flue gas system
- The vertical difference between the two chimney inlets must be minimum as the connection tube diameter
- The angle of the connection tube enter into the chimney must be 45 °C

AtmoGas Type	Connection tube Ø	chimney height		
		10 m Ø	15 m Ø	20 m Ø
LN 35 + LN 35	150	175	150	150
LN 41 + LN 41	150	175	175	150
LN 46 + LN 46	175	175	175	175
LN 51 + LN 51	175	200	200	200

Example

Subject to alterations

AtmoGas with heating armature group and calorifier CombiVal



AtmoGas with calorifier CombiVal and 2 heating groups

