

Hoval TopGas® classic (12-30)

Wall-hanging gas condensing boiler

- With condensing boiler technology
- For the combustion of:
 - natural gas E
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Heat exchanger made of corrosion resistant aluminium alloy with integrated forced flow copper coil; heating gas side: aluminium water side: copper
- Minimal water circulation necessary (see technical data).
- Integrated:
 - speed-controlled high-efficiency pump
 - water pressure sensor
 - hand aspirator
 - flue gas temperature limiter
- Pre-mixing surface burner made of stainless steel
 - Modulating with gas/air group control
 - Automatic ignition
 - Ionisation guard
- Wall-hanging gas condensing boiler fully cased with varnished white steel plates

Basic boiler control panel G04

- Gas firing sequence controller with monitoring unit
- Modulating burner control
- Main switch "0/1"
- Operation and fault indication
- Regulation of hot water production by means of sensor or by thermostatic demand.
- For connecting a maximum of 1 room control device or 1 remote control with room sensor.

Incl. control, optionally in two different versions:

- RS-OT controller
- TopTronic® E controller

Optional

- Free-standing calorifier TopVal (130, 160)
- Gas valve
- With mounting frame
- With mounting frame and diaphragm pressure expansion tank
- Connection set

Delivery

- Wall-hanging gas condensing boiler fully cased
- Mounting material
- Instruction package
- Appliance handbook

RS-OT controller

- For 1 heating circuit without mixing operation
- Controlled by atmospheric conditions for gliding boiler water temperature
- With integrated overpluggable room temperature sensor
- Located in boiler/living room
- Outdoor sensor
- Immersion sensor (calorifier sensor)

Cannot be installed in the boiler control panel! Only wall mounting possible!

Delivery

- Wall-hanging gas condensing boiler fully panelled
- Control separately packed, mounting on-site



Model range

TopGas® classic type		Nominal heat output 40/30 °C kW
(12)	A	3.8-12.0
(18)	A	5.7-18.0
(24)	A	7.7-24.0
(30)	A	9.2-30.0

Energy efficiency class of the compound system with control

TopTronic® E controller

As supplement for basic boiler control panel G04.

Cannot be installed in the boiler control panel! Only wall mounting possible!

Control panel

- Colour touchscreen 4.3 inch
- Heat generator blocking switch for interrupting operation
- Fault signalling lamp

TopTronic® E control module

- Colour touchscreen 4.3 inch
- Simple, intuitive operating concept
- Display of the most important operating statuses
- Configurable start screen
- Operating mode selection
- Configurable day and week programmes
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with online HovalConnect)
- Adaptation of the heating strategy based on the weather forecast (with online HovalConnect)

TopTronic® E basic module heat generator TTE-WEZ

- Control functions integrated for
 - 1 heating/cooling circuit with mixer
 - 1 heating/cooling circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- RAST 5 basic plug set
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Cable set ZE2 for connecting the TopTronic® E control to the basic boiler control panel

Wall casing with control module cut-out G-510 BM

- Suitable for installing
 - 1 basic module plus 1 module expansion or
 - 1 basic module plus 1 controller module or
 - 2 controller modules plus 1 module expansion or
 - 1 controller module plus 2 module expansions or
 - 3 controller modules

Options for TopTronic® E controller

- Can be expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
- Can be networked with a total of up to 16 controller modules:
 - heating circuit/hot water module
 - solar module
 - buffer module
 - measuring module

No additional module expansions or controller modules can be installed in the boiler control panel!

The supplementary plug set must be ordered in order to use expanded controller functions.

Further information about the TopTronic® E see "Controls"

Delivery

- Wall-hanging gas condensing boiler fully panelled
- Control and wall casing separately packed, mounting on-site

Floor-mounted/free-standing calorifier**TopVal (130,160)**

- Water heater with fixed, smooth pipe enamelled stainless steel heat exchanger.
- Floor-mounted calorifier for TopGas® classic (12-30)
- Magnesium protection anode
- Thermal insulation using HCFC free PU foam, with foil mantle, white

Delivery

- Calorifier and thermal insulation completely installed

Calorifier**CombiVal ERW (200), white**

- Calorifier made of steel, enamelled inside.
- Smooth pipe heat exchanger enamelled, built in.
- Free-standing calorifier for TopGas® classic (12-30)
- Magnesium protection anode integrated.
- Flange for electric heating element.
- Thermal insulation made of Polyurethane foamed on the calorifier, dismantable foil casing, white, completely mounted.
- Pocket welded in including thermometer

On request

- Electric heating element

Delivery

- Calorifier and thermal insulation completely installed (foil jacket can be removed for installation)

Wall-mounted gas condensing boilers



Hoval TopGas® classic (12-30)

incl. RS-OT controller

Heat exchanger made of corrosion-proof aluminium alloy with integrated copper meander with forced flow. With modulating, pre-mixing surface burner made of stainless steel. Including basic boiler control panel and control RS-OT, fully cased.

TopGas® classic type		Nominal heat output 50/30 °C kW
(12)	A ➤	3.8-12.0
(18)	A ➤	5.7-18.0
(24)	A ➤	7.7-24.0
(30)	A ➤	9.2-30.0

7014 088
7014 099
7014 100
7014 101

Boiler permissions

Hoval TopGas® classic (12-30):

CE product ID No. 0063BQ3155t

Energy efficiency class of the compound system with control

Control cannot be installed in the boiler controller! Only wall installation possible!



Hoval TopGas® classic (12-30)

incl. TopTronic® E controller

Version as above, but with TopTronic® E control in a separate wall housing WG-510 BM.

TopGas® classic type		Nominal heat output 50/30 °C kW
(12)	A ➤	3.8-12.0
(18)	A ➤	5.7-18.0
(24)	A ➤	7.7-24.0
(30)	A ➤	9.2-30.0

7014 102
7014 103
7014 104
7014 105

Energy efficiency class of the compound system with control

Control cannot be installed in the boiler controller! Only wall installation possible!



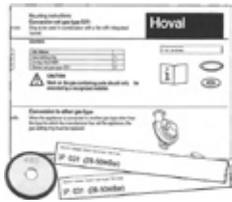
Hoval TopGas® classic (12-30)

Design as above but without controller.

TopGas® classic type		Nominal heat output 50/30 °C kW
(12)	A ➤	3.8-12.0
(18)	A ➤	5.7-18.0
(24)	A ➤	7.7-24.0
(30)	A ➤	9.2-30.0

7013 515
7013 516
7013 517
7013 518

Accessories



Modification set for propane

no external main gas valve possible!

TopGas® classic type	min. output kW (80/60 °C)
TopGas® classic (12)	3.5
TopGas® classic (18)	5.8
TopGas® classic (24)	7.4
TopGas® classic (30)	9.2

Part No.



Gas filter 70612/6b Rp 3/4"

with instrument glands up/downstream of the filter cartridge (dia.: 9 mm)
pore size of filter cartridge < 50 µm
Max. pressure differential 10 mbar
Max. inlet pressure 100 mbar

2007 995



Backflow check valve

for TopGas® classic (12-30),
TopGas® combi
for preventing the emergence of flue gas from the boiler
for use with cascades or with multi-use of flue gas lines

2063 018



Simple flue gas connecting piece E80

for separate conduction of flue gas and combustion air

2029 057



Automatic air vent 3/8" external thread

Air valve with automatic shut-off valve
Casing and cover made of brass
EN 12165 CW617N and EPDM seals
Vertical venting
Operating temperature: max. 110 °C
Operating pressure: max. 10 bar
Glycol content: max. 30 %

2054 183

Accessories



Visible console for preinstallation
for preinstallation of gas, heating flow and return, cold and hot water connections
Possible with all mounting frames or directly on the wall!

2025 779



Connection set 3
TopGas® classic (12-30),
TopGas® combi (21/18, 26/23, 32/28)
without calorifier
without/with mounting frame
Consisting of:
flow fitting, return flow fitting with integrated bypass valve,
safety valve 3 bar
Filling/drain valve, diaphragm pressure expansion tank connection,
2 ball stop valves
Inner bore for heating
flow/return flow Rp 3/4"
Clamp ring screwing for gas connection

2001 257



Screen
for TopGas® classic (12-30),
TopGas® combi (21/18,26/23,32/28)
to cover the connection range gas
Heating supply and return
in combination with connection set 3
Combination with/without mounting frame MR50/MR110 possible

2029 787



Mounting frame MR50 without diaphragm pressure expansion tank
For increasing the space to wall in order to simplify installation (e.g. flue gas duct direct on wall). Not essential.
TopGas® classic (12)
TopGas® classic (18)
TopGas® classic (24,30)

2029 696
2029 701
2029 702



Mounting frame MR110 with diaphragm pressure expansion tank and corrugated hose
for connection to the connection set 3, 4 or 10
Frame for fastening the TopGas® classic with built-in diaphragm pressure expansion tank and connection hose
Content 12 l/pre-pressure 0.75 bar
TopGas® classic (12)
TopGas® classic (18)
TopGas® classic (24)

6016 863
6016 864
6016 865



Connection set 10
for Hoval TopGas® and floor-mounted TopVal calorifier
without/with mounting frame MR50/MR110
Consisting of:
Flow fitting, return fitting with integrated overflow valve,
Safety valve approx. 3 bar
Filling/drain valve, diaphragm pressure expansion tank connection,
3-way valve Rp 3/4"
2 shut-off ball valves heating flow/return, internal thread Rp 3/4"
Squeezing ring screw connection for gas connection

2025 577

Accessories



Gas valve, passage DN 15, R 1/2"
with thermally releasing cut-off device

2012 075



Gas valve, corner version DN 15, R 1/2"
with thermally releasing cut-off device

2012 076



Clamp ring screwing
(1/2" external thread x 15)
For gas cock when no connection set or finery panel is used for pre-installation.

2001 824



Clamp ring screwing
(3/4" external thread x 22)
For flow/return when no connection set or finery panel is used for pre-installation.

2006 330



Sludge separator with magnet
Type: MB3 DN 25 Rp 1"
With variable connection for vertical or horizontal pipelines
Removal of ferromagnetic and non-magnetic dirt and sludge particles from heating or cooling circuits with the medium water or water/glycol (50/50 %)
Brass casing
Sludge separation up to a particle size of 5 µm
With unscrewable casing bottom part for cleaning and inspection work complete with sludge removal tap

2062 165

Nominal diameter: DN 25
Pipe connection: Rp 1" internal thread
Installation length: 90 mm
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C
Max. throughput: 2.0 m³/h
Max. flow speed: 1.0 m/s
Max. pressure drop: 3.8 kPa
Contents: 0.36 l
Weight: 2.3 kg

Additional sludge separators
see "Various system components"



3-way reversing valve VC 4012 3/4"
for calorifier
external thread 3/4"
230 V/50 Hz
single wire control
running time: 7 s
incl. 1 m cable

6016 891

Free-standing calorifier



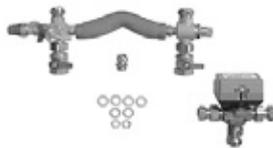
B **Calorifier TopVal (130) round**
 made of steel, inside enamel painted,
 with permanently installed coil 0.96 m²
 and magnesium sacrificial anode
 Useful volume: 128 l
 Operating/test pressure:
 10/13 bar (SVGW 6/13 bar)
 Operating temperature max.: 95 °C
 Foil jacket made of synthetic material,
 RAL 9010, pure white

6037 757



B **Calorifier TopVal (160) round**
 made of steel, inside enamel painted,
 with permanently installed coil 1.01 m²
 and magnesium sacrificial anode
 Useful volume: 157 l
 Operating/test pressure:
 10/13 bar (SVGW 6/13 bar)
 Operating temperature max.: 95 °C
 Foil jacket made of synthetic material,
 RAL 9010, pure white

6037 758



Connection set 4
 for TopGas® and free standing
 calorifier CombiVal
 with/without mounting frame MR50/MR110
 Consisting of:
 flow fitting, return flow fitting with
 integrated bypass valve
 Safety valve 3 bar
 Filling/drain valve, diaphragm pressure
 expansion tank connection
 3-way valve Rp 3/4"
 2 ball stop valves
 Inner bore for heating flow/return
 flow Rp 3/4"

2025 576

B Clamp ring screwing for gas connection

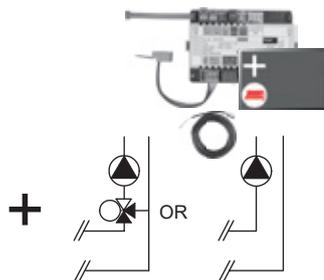


**Calorifier with thermal insulation
 Hoval CombiVal ERW (200) white**
 made from steel, enamelled on the inside
 With built-in enamelled
 plain-tube heat exchanger
 Magnesium protection anode built in
 Thermal insulation made of polyurethane
 rigid foam, foam-lined at the
 calorifier, removable foil jacket,
 colour white
 Technical data:
 Volume: 196 dm³
 Energy efficiency class: B
 Inspection port flange Ø 180/120 mm
 Heating surface coil: 0.95 m²
 Operating temperature: max. 95 °C
 Operating pressure:
 max. 10 bar (SVGW 6 bar)
 Test pressure: 13 bar (SVGW 12 bar)
 Dimensions (H): 1464 mm, Ø 600 mm
 Tilting dimension: 1583 mm
 Weight: 77 kg
 Delivery:
 Calorifier, thermal insulation
 and thermometer mounted
 packaged and delivered
 SVGW No. 0503–4950

7015 961

**Diaphragm pressure expansion tanks,
 heating armature groups and wall dis-
 tributors**
 see "Various system components"

TopTronic® E module expansions
for TopTronic® E basic module heat generator



Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

TopTronic® E module expansion heating circuit TTE-FE HK

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

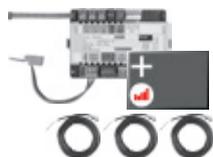
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- Fitting accessories
- 1 contact sensor ALF/2P/4/T, L = 4.0 m
- Basic plug set FE module

Part No.

6034 576



Notice

The flow rate sensor set must be ordered as well.

TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ

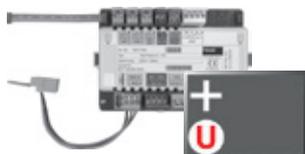
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

Consisting of:

- Fitting accessories
- 3 contact sensors ALF/2P/4/T, L = 4.0 m
- Plug set FE module

6037 062



Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- Fitting accessories
- Plug set FE module

6034 575

Further information

see "Controls" - "Hoval TopTronic® E module expansions" chapter



Flow rate sensor sets

Plastic housing

Size	Connection inches	Flow rate l/min
DN 8	G 3/4"	0.9-15
DN 10	G 3/4"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1 1/4"	5-85
DN 25	G 1 1/2"	9-150

6038 526

6038 507

6038 508

6038 509

6038 510



Flow rate sensor sets

Brass housing

Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1 1/2"	14-240

6042 949

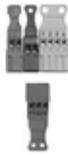
6042 950

Accessories for TopTronic® E



TopTronic® E controller modules

TTE-HK/WW	TopTronic® E heating circuit/ hot water module	6034 571
TTE-SOL	TopTronic® E solar module	6037 058
TTE-PS	TopTronic® E buffer module	6037 057
TTE-MWA	TopTronic® E measuring module	6034 574



Supplementary plug set

	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion	6034 503
	TTE-FE HK	



TopTronic® E room control modules

TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070



Enhanced language package TopTronic® E

	one SD card required per control module	6039 253
	Consisting of the following languages:	
	HU, CS, SL, RO, PL, TR, ES, HR,	
	SR, JA, DA	



HovalConnect

	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593

TopTronic® E interface modules

	GLT module 0-10 V	6034 578
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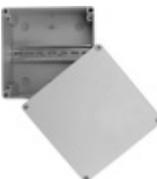
TopTronic® E sensors

AF/2P/K	Outdoor sensor	2055 889
	H x W x D = 80 x 50 x 28 mm	
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776



Bivalent switch

	for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826



System housing

	System housing 182 mm	6038 551
	System housing 254 mm	6038 552



TopTronic® E wall casing

WG-190	Wall casing small	6052 983
WG-360	Wall casing medium	6052 984
WG-360 BM	Wall casing medium with control module cut-out	6052 985
WG-510	Wall casing large	6052 986
WG-510 BM	Wall casing large with control module cut-out	6052 987

Further information
see "Controls"



Flow temperature guard

for floor heating (per heating circuit 1 guard)
 15-95 °C, switching difference 6 K, capillary
 tube max. 700 mm, setting (from the outside
 visibly) inside the housing cover.

Clamp-on thermostat *RAK-TW1000.S*
 Thermostat with strap, without cable and plug

Part No.

242 902



**BMS module 0-10 V/OT - OpenTherm
 (building management system)**

no control unit TopTronic® E or RS-OT
 necessary
 power supply via OT bus
 Temp. control external with 0-10 V
 0-1.0 V no request
 1.0-9.5 V0-100 °C

Cannot be installed in boiler control
 panel:

- TopGas® classic (12-30)

Can be installed in boiler control
 panel:

- TopGas® classic (35-120),
 - TopGas® comfort

6016 725

**TopGas® classic (12-30)
 without controller** on request

Service



Commissioning

Commissioning by works service or Hoval
 trained authorised serviceman/company
 is condition for warranty.

For commissioning and other services
 please contact your Hoval sales office.

TopGas® classic (12-30)

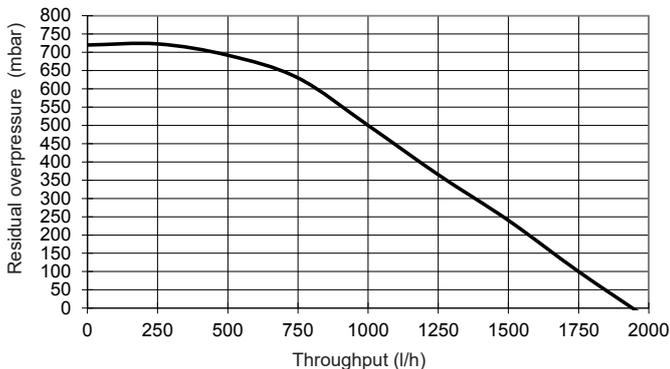
Type		(12)	(18)	(24)	(30)
• Nominal heat output at 80/60 °C, natural gas	kW	3.4-11.5	5.3-17.2	7.0-22.9	8.7-28.5
• Nominal heat output at 50/30 °C, natural gas	kW	3.8-12.0	5.7-18.0	7.7-24.0	9.2-30.0
• Nominal heat output at 80/60 °C, propane ¹⁾	kW	3.5-11.5	5.8-17.3	7.4-22.9	9.2-28.5
• Nominal heat output at 50/30 °C, propane ¹⁾	kW	3.4-12.0	6.3-18.0	8.0-24.0	9.6-30.0
• Nominal heat input with natural gas ²⁾	kW	3.5-11.8	5.3-17.8	7.1-23.5	8.8-28.9
• Nominal heat input with propane ¹⁾	kW	3.6-11.8	5.9-17.8	7.5-23.5	9.3-28.9
• Operating pressure heating min./max. (PMS)	bar	1/3	1/3	1/3	1/3
• Operating temperature max. (T _{max})	°C	85	85	85	85
• Boiler water content (V _(H2O))	l	1.4	1.7	2.0	2.0
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	180	180	180	180
• Boiler weight (without water content, incl. cladding)	kg	32	35	38	40
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV)	%	97.7/88.0	96.9/87.3	97.4/87.7	98.4/88.6
• Boiler efficiency at 30 % partial load operation (EN 15502) (NCV/GCV)	%	108.8/98.0	108.3/97.6	108.9/98.1	108.3/97.6
• Room heating energy efficiency					
- without control	ηs %	92	92	93	93
- with control	ηs %	94	94	95	95
- with control and room sensor	ηs %	96	96	97	97
• NOx class (EN 15502)		-	-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	27	27	24	53
• CO ₂ content in flue gas at min./max. nominal heat output	%	8.8/9.0	8.8/9.0	8.8/9.0	8.8/9.0
• Heat loss in standby mode	Watt	38	38	38	38
• Dimensions		see table of dimensions			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-50	17.4-50	17.4-50	17.4-50
- Propane	mbar	25-50	25-50	25-50	25-50
• Gas connection values at 15 °C/1013 mbar:					
- Natural gas E - (Wo = 15.0 kWh/m ³) NCV = 9.97 kWh/m ³	m ³ /h	0.35-1.18	0.53-1.79	0.71-2.36	0.88-2.90
- Natural gas LL- (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³	m ³ /h	0.41-1.38	0.62-2.08	0.83-2.74	1.03-3.37
- Propane ¹⁾ (NCV = 25.9 kWh/m ³)	m ³ /h	0.14-0.46	0.23-0.69	0.29-0.91	0.36-1.12
• Operating voltage	V/Hz	230/50	230/50	230/50	230/50
• Electrical power consumption (incl. pump) min./max.	Watt	15/40	15/40	15/45	15/40
• Stand-by	Watt	2	2	2	2
• Type of protection	IP	44	44	44	44
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40	5-40
• Sound power level					
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	50	50	50	50
• Condensate quantity (natural gas) at 50/30 °C	l/h	1.1	1.6	2.1	2.7
• pH value of the condensate	approx.	4.2	4.2	4.2	4.2
• Construction type		B23, B33, C13(x), C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)			
• Flue gas system					
- Temperature class		T 120	T 120	T 120	T 120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	19.6	29.5	39.0	49.0
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	5.4	8.0	10.6	13.2
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	78	78	78	70
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	57	57	57	51
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	32	32	32	32
- Maximum permitted temperature of the combustion air	°C	50	50	50	50
- Flow rate combustion air	Nm ³ /h	14.5	21.9	28.9	35.6
- Maximum supply pressure for supply air and flue gas line	Pa	75	75	75	75
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50	-50

¹⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

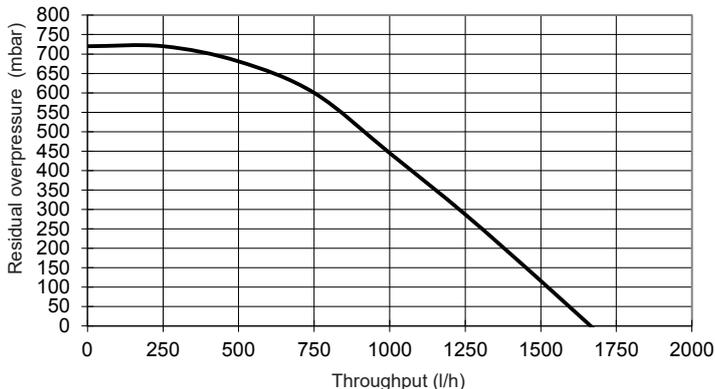
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Residual overpressures of heating pumps

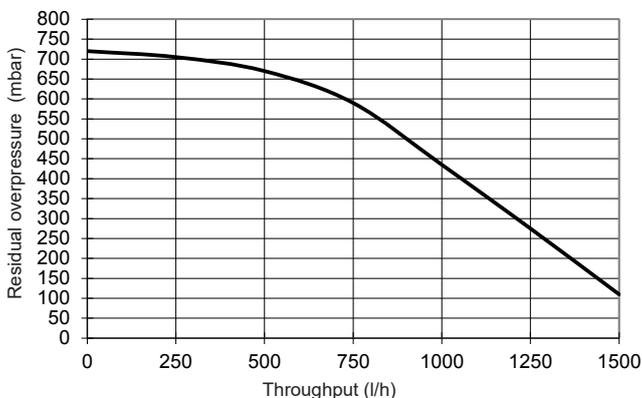
TopGas® classic (12)



TopGas® classic (18)

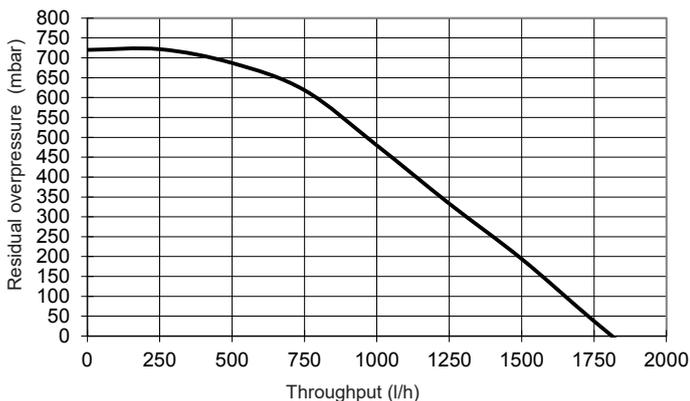


TopGas® classic (24,30)

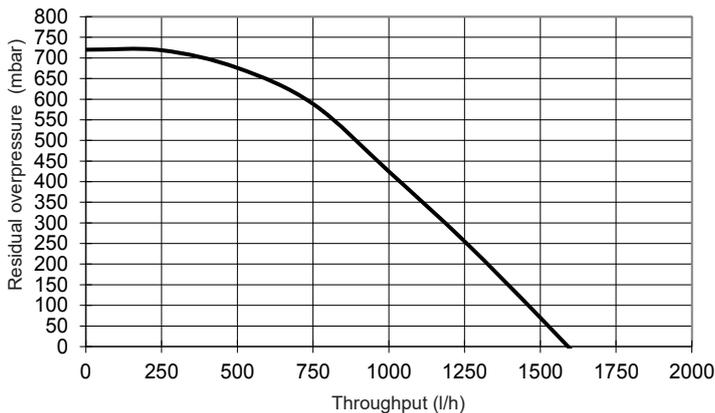


Residual overpressures of heating pumps TopGas® classic with connection set 4 or connection set 10 (reversing valve included in the set)

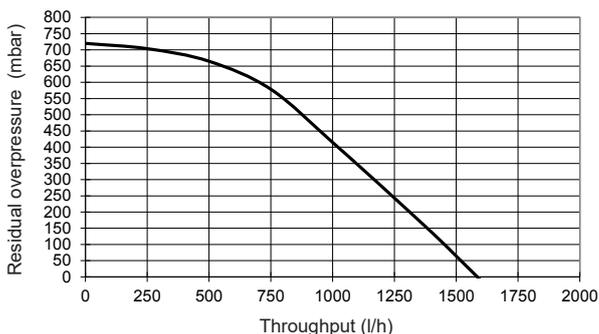
TopGas® classic (12)



TopGas® classic (18)



TopGas® classic (24, 30)



Calorifier TopVal (130,160) and CombiVal ERW (200)

Type		TopVal (130)	TopVal (160)	CombiVal ERW (200)
• Capacity	dm ³	128	157	196
• Operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	95	95	95
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	53	56	49
• Weight	kg	53	56	77
• Dimensions	Diameter	590	590	600
	Height	869	1036	1464
<i>Heating register (built-in)</i>				
• Heating surface	m ²	0.96	1.01	0.95
• Heating water	dm ³	6.7	7.1	6.4
• Flow resistance ¹⁾	z-value	22	22	7
• Operating pressure/test pressure	bar	8/13	8/13	8/13
• Max. operating temperature	°C	95	95	110

¹⁾ Flow resistance boiler in mbar = flow rate (m³/h)² x z

Hot water output TopVal, CombiVal with TopGas® classic, heating flow 80 °C

Boiler type	Calorifier type	Hot water output		Number ³⁾ of flats	
		dm ³ /10 min ¹⁾ 45 °C	dm ³ /h ²⁾ 45 °C		
classic	TopVal	(130)	166	267	1
		(130)	179	411	1
		(130)	190	546	1
		(130)	198	610	1
classic	TopVal	(160)	199	267	1
		(160)	212	411	1-2
		(160)	223	546	1-2
		(160)	232	610	1-2
classic	CombiVal ERW	(200)	243	267	1-2
		(200)	256	411	1-2
		(200)	267	546	2
		(200)	276	610	2

¹⁾ Hot water peak performance in 10 min

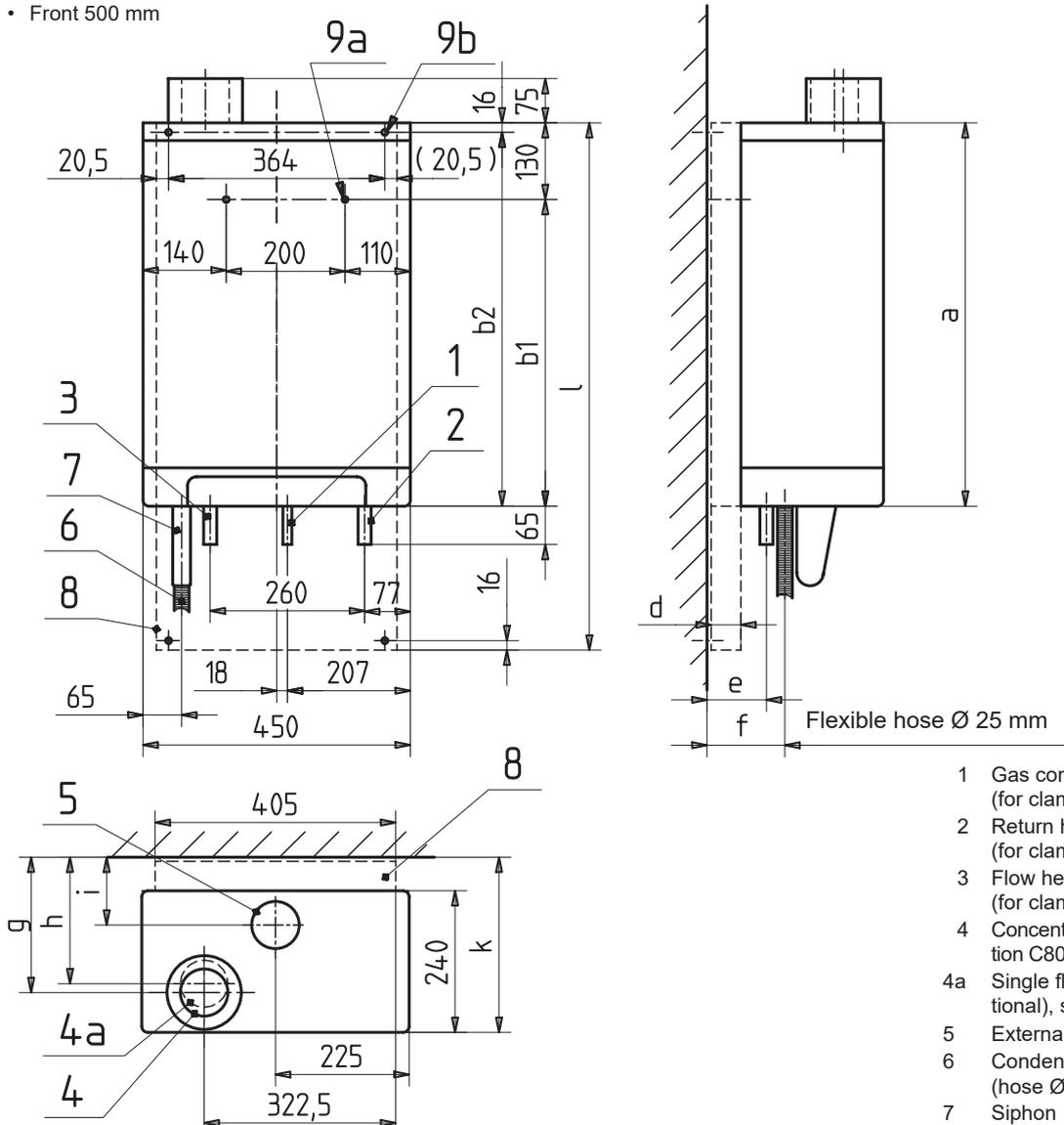
²⁾ Hot water output per hour

³⁾ Flat (3-4 rooms with 3-4 people, 1 bathtub with approx. 150 litres, 1 washbasin, 1 sink)

TopGas® classic (12-30)

Minimal spaces
(Dimensions in mm)

- Sideways 50 mm
- Space to ceiling dependent on the used flue gas system
- Front 500 mm



- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80, (optional), see Accessories
- 5 External delivery air Ø 80 mm
- 6 Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- 7 Siphon
- 8 Mounting frame, 50 mm or 110 mm with diaphragm pressure expansion tank optionally, see Accessories
- 9a Drill hole Ø 10 mm without mounting frame
- 9b Drill hole Ø 10 mm with mounting frame

TopGas® classic type

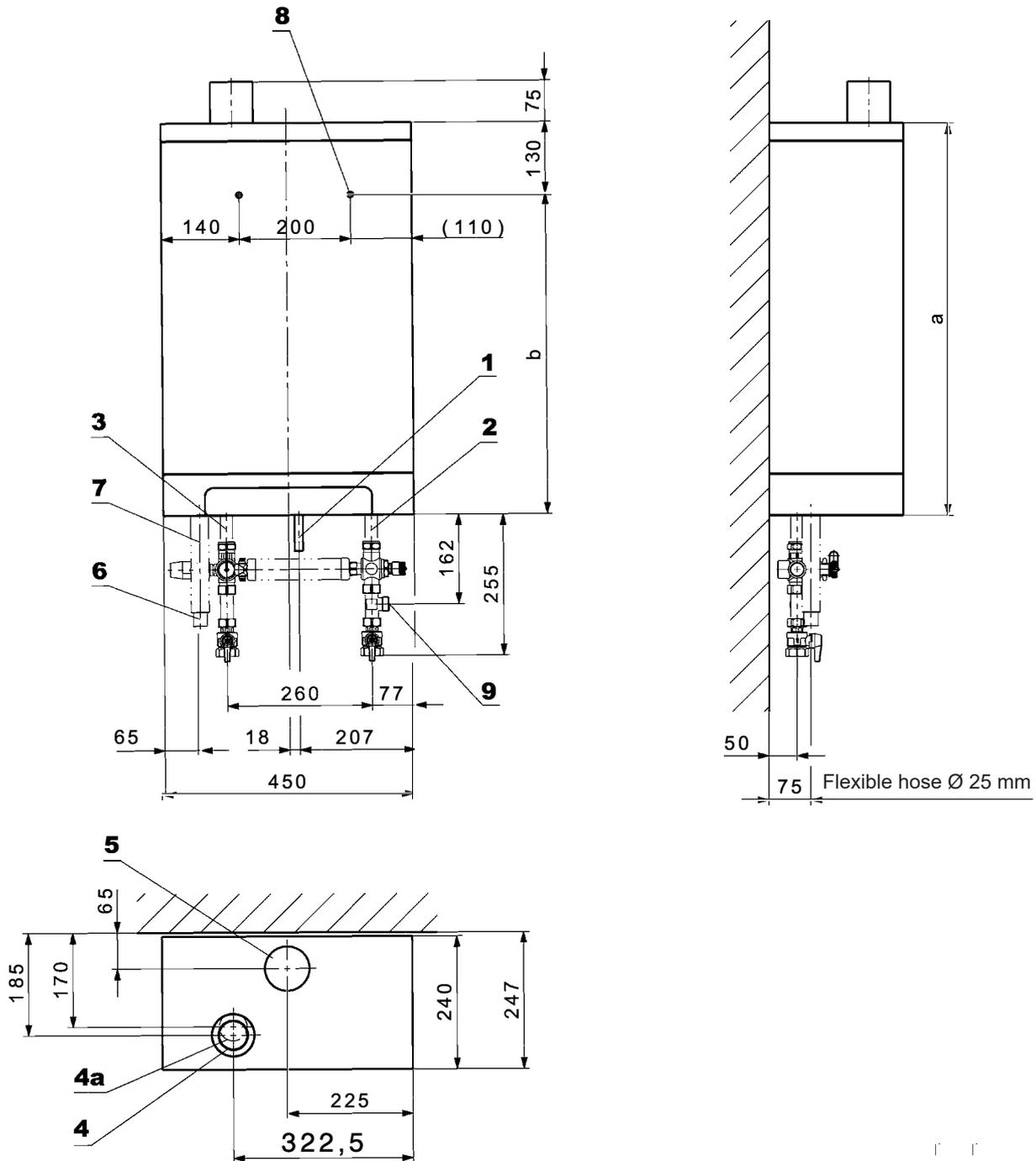
TopGas® classic type	a	b1	b2	d	e	f	g	h	i	k	l
(12)	590	460		0	50	75	185	170	65	247	–
(12) with mounting frame (MR50)	590		574	50	100	125	235	220	115	297	834
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	590		574	110	160	185	295	280	175	357	834
(18)	650	520		0	50	75	185	170	65	247	–
(18) with mounting frame (MR50)	650		634	50	100	125	235	220	115	297	894
(18) with mounting frame with diaphragm pressure expansion tank (MR110)	650		634	110	160	185	295	280	175	357	894
(24,30)	710	580		0	50	75	185	170	65	247	–
(24,30) with mounting frame (MR50)	710		694	50	100	125	235	220	115	297	954
(24,30) with mounting frame with diaphragm pressure expansion tank (MR110)	710		694	110	160	185	295	280	175	357	954

TopGas® classic (12-30) with connection set 3 without mounting frame

Minimal spaces

(Dimensions in mm)

- Sideways 50 mm
- Space to ceiling dependent on the used flue gas system
- Front 500 mm



TopGas® classic type	a	b
(12)	590	460
(18)	650	520
(24,30)	710	580

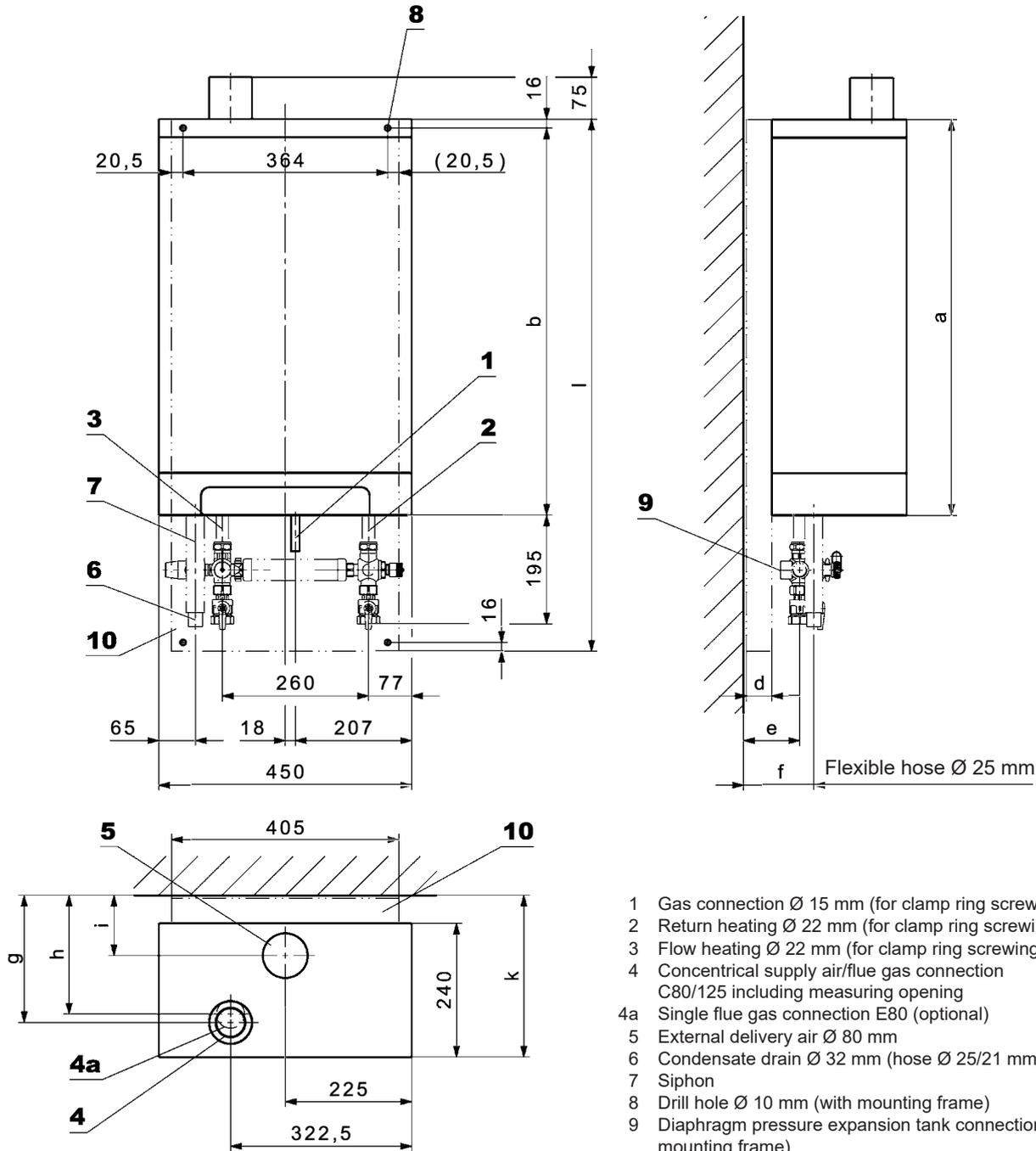
- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80 (optional)
- 5 External delivery air Ø 80 mm
- 6 Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- 7 Siphon
- 8 Drill hole Ø 10 mm (without mounting frame)
- 9 Diaphragm pressure expansion tank connection (without mounting frame)

TopGas® classic (12-30) with connection set 3 and mounting frame

Minimal spaces

(Dimensions in mm)

- Sideways 50 mm
- Space to ceiling dependent on the used flue gas system
- Front 500 mm



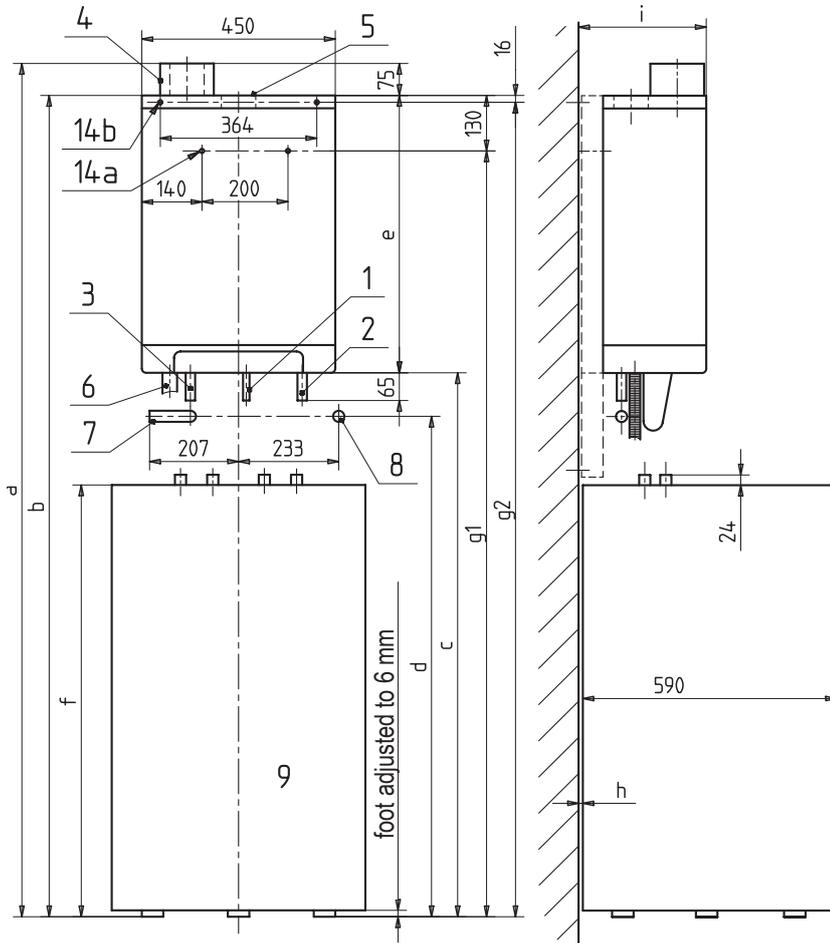
- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80 (optional)
- 5 External delivery air Ø 80 mm
- 6 Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- 7 Siphon
- 8 Drill hole Ø 10 mm (with mounting frame)
- 9 Diaphragm pressure expansion tank connection (with mounting frame)
- 10 Mounting frame 50 mm or 110 mm (optional)

TopGas® classic type

TopGas® classic type	a	b	d	e	f	g	h	i	k	l
(12) with mounting frame (MR50)	590	574	50	100	125	235	220	115	297	834
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	590	574	110	160	185	295	280	175	357	834
(18) with mounting frame (MR50)	650	634	50	100	125	235	220	115	297	894
(18) with mounting frame with diaphragm pressure expansion tank (MR110)	650	634	110	160	185	295	280	175	357	894
(24,30) with mounting frame (MR50)	710	694	50	100	125	235	220	115	297	954
(24,30) with mounting frame with diaphragm pressure expansion tank (MR110)	710	694	110	160	185	295	280	175	357	954

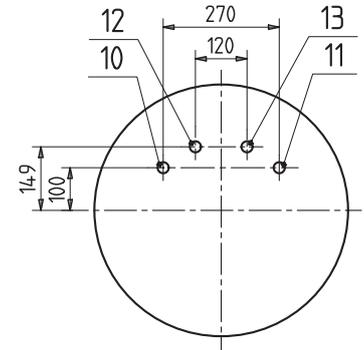
TopGas® classic (12-30) with calorifier TopVal (130,160) placed below

- Minimal spaces**
- Space to ceiling dependent on the flue gas system
 - Front 500 mm
 - Sideways 50 mm



CombiVal ERW (200)
see Calorifiers

View from the top without TopGas®



- 1 Gas connection Ø 15 mm (for clamp ring screwing, on site)
 - 2 Return heating Ø 22 mm (for clamp ring screwing, on site)
 - 3 Flow heating Ø 22 mm (for clamp ring screwing, on site)
 - 4 Concentrical supply air/flue gas connection C80/125 including measurement vents
 - 5 External delivery air Ø 80 mm
 - 6 Condensate drain Ø 32 mm
 - 7 Connection positions sideways heating flow Rp 3/4"
 - 8 Connection positions behind heating return Rp 3/4"
 - 9 Calorifier TopVal (130,160)
 - 10 Flow heating G 3/4" external thread
 - 11 Return heating G 3/4" external thread
 - 12 Hot water R 3/4" external thread
 - 13 Cold water R 3/4" external thread
- 14a Drill hole Ø 10 mm without mounting frame
14b Drill hole Ø 10 mm with mounting frame

TopGas® classic with TopVal 130

TopGas® classic type

TopGas® classic type	a	b	c	d	e	f	g1	g2	h	i
(12)	1775	1700	1108	950	590	860	1570	–	10	247
(12) with mounting frame (MR50)	1775	1700	1108	950	590	860	–	1684	60	297
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	1823	1748	1156	998	590	860	–	1732	10	357
(18)	1835	1760	1108	950	650	860	1630	–	10	247
(18) with mounting frame (MR50)	1835	1760	1108	950	650	860	–	1744	60	297
(18) with mounting frame with diaphragm pressure expansion tank (MR110)	1883	1808	1156	998	650	860	–	1792	10	357
(24,30)	1895	1820	1108	950	710	860	1690	–	10	247
(24,30) with mounting frame (MR50)	1895	1820	1108	950	710	860	–	1804	60	297
(24,30) with mounting frame with diaphragm pressure expansion tank (MR110)	1943	1868	1156	998	710	860	–	1852	10	357

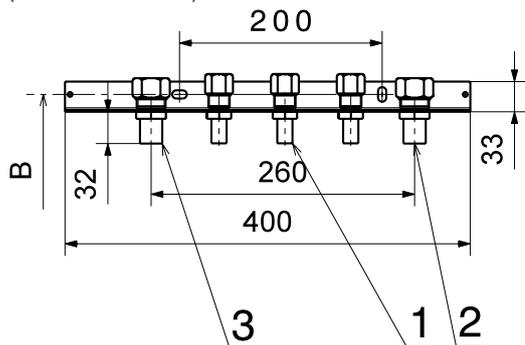
TopGas® classic with TopVal 160

TopGas® classic type

TopGas® classic type	a	b	c	d	e	f	g1	g2	h	i
(12)	1942	1867	1275	1115	590	1027	1737	–	10	247
(12) with mounting frame (MR50)	1942	1867	1275	1115	590	1027	–	1851	60	297
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	1990	1915	1323	1163	590	1027	–	1899	10	357
(18)	2002	1927	1275	1115	650	1027	1797	–	10	247
(18) with mounting frame (MR50)	2002	1927	1275	1115	650	1027	–	1911	60	297
(18) with mounting frame with diaphragm pressure expansion tank (MR110)	2050	1975	1323	1163	650	1027	–	1959	10	357
(24,30)	2062	1987	1275	1115	710	1027	1857	–	10	247
(24,30) with mounting frame (MR50)	2062	1987	1275	1115	710	1027	–	1971	60	297
(24,30) with mounting frame with diaphragm pressure expansion tank (MR110)	2110	2035	1323	1163	710	1027	–	2020	10	357

Measures for drill holes and visible console for preinstallation without mounting frame

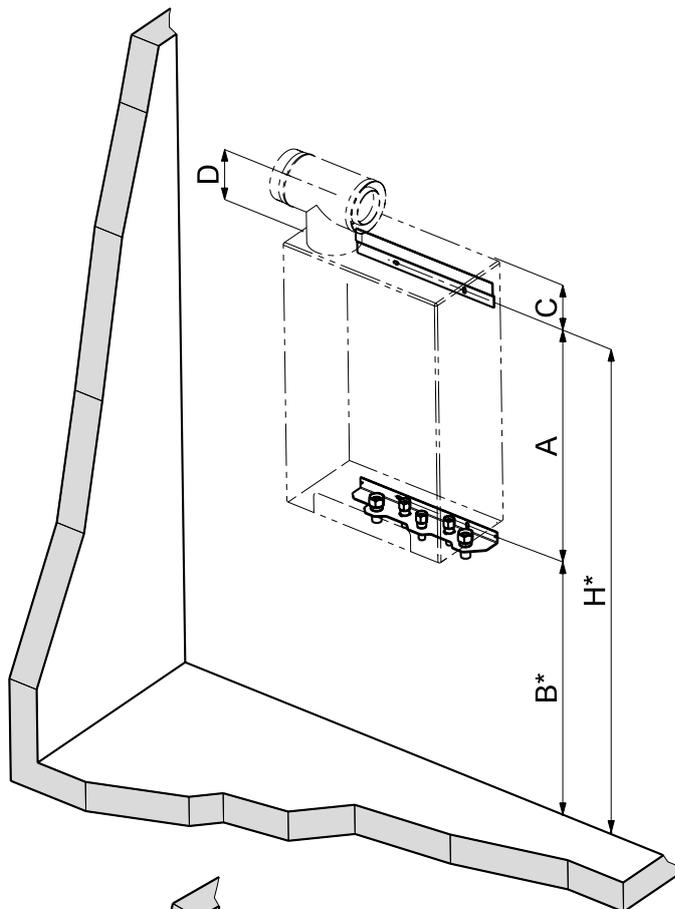
(Dimensions in mm)



- 1 Gas connection Ø 15 mm (for locking ring fitting, on site)
- 2 Return (for locking ring fitting, on site)
- 3 Flow (for locking ring fitting, on site)

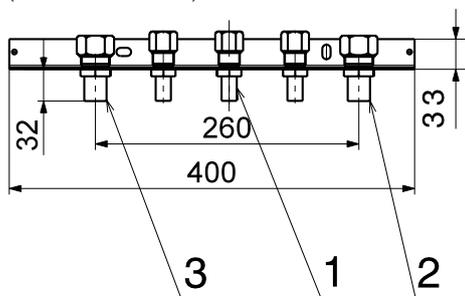
TopGas® classic type	TopVal type	A	B*	H*	C	D
(12)	(130)	518	1052	1570	130	175
	(160)	518	1219	1737	130	175
(18)	(130)	578	1052	1630	130	175
	(160)	578	1219	1797	130	175
(24,30)	(130)	638	1052	1690	130	175
	(160)	638	1219	1857	130	175

* Measures for drill hole



Visible console for preinstallation with mounting frame

(Dimensions in mm)



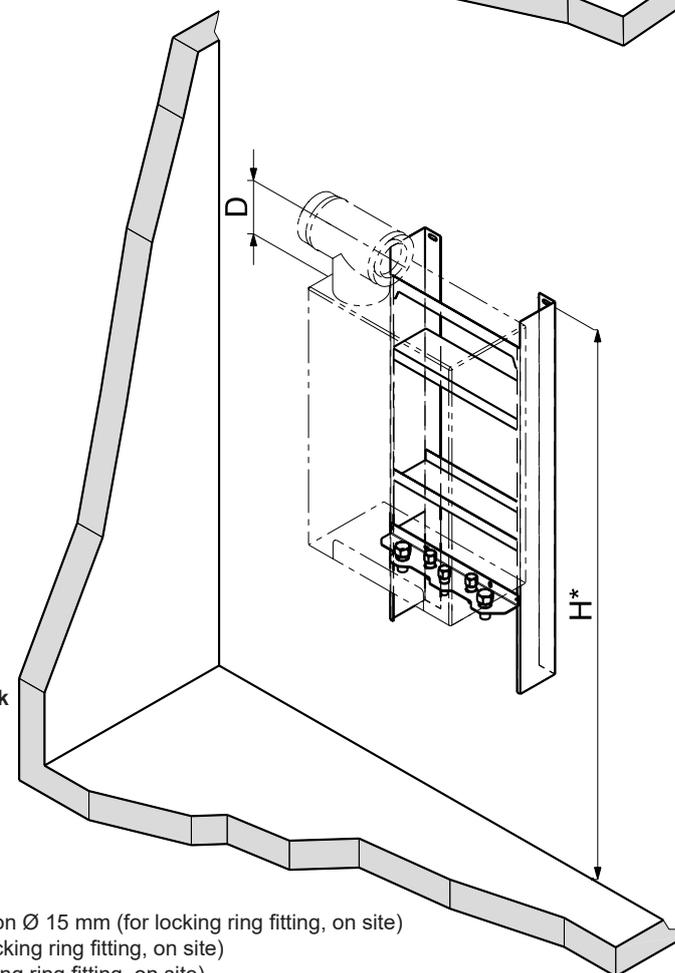
With mounting frame MR50

TopGas® classic type	TopVal type	H *	D
(12)	(130)	1684	175
	(160)	1851	175
(18)	(130)	1744	175
	(160)	1911	175
(24,30)	(130)	1804	175
	(160)	1971	175

With mounting frame MR110 with diaphragm pressure expansion tank

TopGas® classic type	TopVal type	H *	D
(12)	(130)	1732	175
	(160)	1899	175
(18)	(130)	1792	175
	(160)	1959	175
(24,30)	(130)	1852	175
	(160)	2020	175

* Measures for drill hole



- 1 Gas connection Ø 15 mm (for locking ring fitting, on site)
- 2 Return (for locking ring fitting, on site)
- 3 Flow (for locking ring fitting, on site)

Standards and guidelines

The official regulations for installation and operation must be observed. In particular, these are the country-specific standards (e.g. EN standard, DIN standards, ...) as well as the corresponding regional regulations.

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- hydraulic and technical control regulations of Hoval
- DVGW directives
- DIN EN 12828 Safety-relevant requirements
- DIN EN 12831 Heaters Rules for the calculation of the heat requirements of buildings
- VDI 2035 Protection against damage by corrosion and boiler scale formation in heating and service water installations
- EN 14868 "Protection of metallic materials against corrosion"
- VDE 0100 supplement 2

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

- VDI 2035
- In addition, the EN 14868 standard must be applied, **as well as the manufacturer-specific specifications**

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water can be both fully demineralised and also merely softened.

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- In the case of **softening the filling and replacement water**, the following conditions must be complied with:
 - Electrical conductivity of the heating water for operation with water containing salts: > 100 µS/cm to ≤ 1500 µS/cm
 - pH value of the heating water for systems without aluminium alloy as water-side material 8.2 to 10.0 (measurement 10 weeks after commissioning at the earliest)
- The sum of the chloride, nitrate and sulphate contents in the heating water must not exceed 50 mg/l in total.

Additional notices

- Hoval boilers and calorifiers are suitable for heating systems without significant oxygen intake. (System type I according to EN 14868).
- Plants with continual oxygen intake (e.g. underfloor heating without diffusion-proof plastic piping) or intermittent oxygen intake (e.g. requiring frequent topping-up) must be equipped with a system separation.
- In the case of bivalent heating systems, the values of the heat generator with the strictest requirement for water quality must be complied with.
- If only the boiler is replaced in an existing plant, it is not recommended for the entire heating system to be refilled, provided that the heating water already contained in the system complies with the relevant directives or standards.
- Before filling new systems and, where necessary, existing heating systems containing heating water that does not comply with the directives or standards, the heating system must be professionally cleaned and flushed. The boiler must not be filled until the heating system has been flushed.

Heating room

Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work room, hairdressers and so on).

Halogen compounds can be caused by cleaning and degreasing solutions, dissolvents, glue and bleaching lyes.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. For direct combustion air supply (LAS system), a separator C80/125 -> E80 PP can be used.

The minimum free cross-section for the combustion air can be assumed simplified as follows:

- *Room air-independent operation with separate combustion air pipe to the boiler:* 0.8 cm² per 1 kW of output. The pressure drop in the combustion air pipe must be considered for the calculation of the flue gas system.
- *Room air-dependent operation:* A minimal ventilation outlet of at least 150 cm² or 2 x 75 cm² cross-section is necessary for of boiler output up to 50 kW. For each further kW output 2 cm² more cross-section must be provided.

Gas connection

Commissioning

- Initial commissioning is only allowed to be carried out by a qualified installer.
- Burner setting values according to the installation instructions.

Manual gas shut-off valve and gas filter

Immediately in front of the boiler a manual gas shut-off device (valve) must be installed according to relevant regulations. Should the local regulations or conditions demand this, an approved gas filter must be installed in the gas supply pipe between the gas tap (thermally releasing) and the boiler in order to prevent malfunction due to foreign particles being carried along with the gas.

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 on site for propane.

Gas pressure

Necessary gas flow pressure at the boiler inlet: natural gas min. 17.4 mbar, max. 50 mbar. Propane min. 25 mbar, max. 50 mbar.

Sludge separator

Installation of a sludge separator with magnetic ring in the gas boiler return is recommended.

Minimum heating water circulation quantity

- Depending on the boiler type, different minimum circulating water quantities are required through the boiler. For details, see the corresponding data sheets.
- During burner operation, the circulating pump must be constantly in operation and the minimum heating water circulation quantity must be guaranteed.
- After each burner switch-off, the circulating pump must be in operation for at least 2 minutes (is guaranteed by the boiler controller).

Heating boiler in the attic

If the gas boiler TopGas® classic is built-in in a roof control room, an external water pressure guard must be provided.

Condensate drainage

- A permit for discharge of the flue gas condensate into the sewage system must be obtained from the relevant authority or sewer operator.
- The condensate from the flue gas line can be discharged via the boiler. A condensate trap is no longer needed in the flue gas system.
- The condensate must be conducted openly (funnel) into the sewage system.
- Suitable materials for condensate drain:
 - stoneware pipes
 - pipes made from glass
 - pipes made from stainless steel
 - pipes made from plastic: PVC, PE, PP, ABS and UP

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The diaphragm pressure expansion tank has to be installed at the diaphragm pressure expansion tank connection (pump intake side) (see "Dimensions").
- Starting from 70 °C an intermediate tank is necessary.

Flue gas system

- Gas boilers must be connected to a certified and approved flue gas system such as flue gas lines.
- Flue gas lines must be gas-, condensate- and overpressure-tight.
- The flue gas lines must be secured against unwanted loosening of the plug connections.
- The flue gas system must be connected with an angle, so that the resulting condensate of the flue gas system can flow back to the boiler and can be neutralised there before discharging into the canalisation.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. temperature class T120.
- A flue gas temperature limiter is integrated into the boiler.

Looking for the appropriate hydraulic schematic?

Please contact your local Hoval partner.

Hoval TopGas® classic (35-80)

Wall-hanging gas condensing boiler

- With condensing boiler technology
- For the combustion of:
 - natural gas E
 - natural gas E with a hydrogen content (H₂) of up to 20 %
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Heat exchanger made of corrosion resistant aluminium-silicone cast alloy integrated into stainless steel heating water tank
- Built-in:
 - pressure gauge
 - water pressure guard for water shortage protection
 - flue gas temperature sensor with flue gas limiter function
 - automatic quick aspirator
- Pre-mixing surface burner made of stainless steel
 - Modulating with gas/air group control
 - Automatic ignition
 - Ionisation guard
 - Gas pressure guard
- Minimum water flow necessary (see technical data)
- Wall-hanging gas condensing boiler fully cased with coated white steel plates

Basic boiler control panel G04

- Control unit for gas burner with monitoring unit BIC 335
- Modulating burner control
- Main guard "I/O"
- Operation and fault indication
- Connection for external gas valve and fault indication

Option

- Propane
- Free-standing calorifier
- Boiler burner control in different designs

Delivery

- Wall-hanging gas condensing boiler fully cased

Heating controller set RS-OT

- For 1 heating circuit without mixing operation
Weather-controlled regulation for continuously adjustable decreased boiler water temperature
- With integrated overpluggable room temperature sensor, located in boiler room or living room. Can optionally be installed in the boiler control panel.
- Outdoor sensor
- Immersion sensor (calorifier sensor)

BMS-Module 0-10 V/OT (OpenTherm) (building management system)

For boiler control as part of a building management system.

External **temperature control** 0-10 V.

0-1.0 V no requirement

1.0-9.5 V 0-100 °C

Can be installed in the boiler control panel!

Heating controller set TopTronic® E ZE1

(Can be built in) as supplement for basic boiler control panel G04.



Model range

TopGas® classic type		Nominal heat output 50/30 °C kW
(35)	A ➔	7.4-34.9
(45)	A ➔	9.1-44.3
(60)	A ➔	12.8-60.3
(80)		14.8-79.1

Energy efficiency class of the compound system with control

Control panel

- Colour touchscreen 4.3 inch
- Heat generator blocking switch for interrupting operation
- Fault signalling lamp

TopTronic® E control module

- Colour touchscreen 4.3 inch
- Simple, intuitive operating concept
- Display of the most important operating statuses
- Configurable start screen
- Operating mode selection
- Configurable day and week programmes
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with online HovalConnect)
- Adaptation of the heating strategy based on the weather forecast (with online HovalConnect)

TopTronic® E basic module heat generator TTE-WEZ

- Control functions integrated for
 - 1 heating/cooling circuit with mixer
 - 1 heating/cooling circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- RAST 5 basic plug set
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Cable set ZE1 for connecting the TopTronic® E control to the basic boiler control panel

No additional module expansions or controller modules can be installed in the boiler control panel!

Options for TopTronic® E controller

- Can be expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
- Can be networked with a total of up to 16 controller modules:
 - heating circuit/hot water module
 - solar module
 - buffer module
 - measuring module

No additional module expansions or controller modules can be installed in the boiler control panel!

The supplementary plug set must be ordered in order to use expanded controller functions.

Further information about the TopTronic® E see "Controls"

Delivery

- Heating controller set separately packed, mounting on site

Notice

Observe the notices on water quality, see "Engineering"!

Wall-hanging gas condensing boiler



Hoval TopGas® classic (35-80)

Heat exchanger made of aluminium alloy.
Modulating burner made of stainless steel and basic boiler control panel, completely cased.

TopGas® classic type		Nominal heat output 50/30 °C kW
(35)		7.4-34.9
(45)		9.1-44.3
(60)		12.8-60.3
(80)		14.8-79.1

Permissions boilers

TopGas® classic (35-80):
CE product ID No. CE-0085BQ0218

Energy efficiency class of the compound system with control

Part No.

7014 580
7014 581
7014 582
7014 583

Accessories



Gas filter

with measurement nozzle before and behind the filter inset (diameter: 9 mm)
Pore width of the filter inset < 50 µm
Max. pressure difference 10 mbar
Max. inlet pressure 100 mbar

Type	Connection inches
70612/6B	Rp ¾"
70602/6B	Rp 1"

2007 995
2007 996

Conversion kit for propane
for TopGas® classic (35-120)

6047 634



Connection set AS32-TG

consisting of:

Return:

- Shut-off valve with union nut 2" side output with boiler fill and drain valve and connection nozzle G ¾" (external) for connecting a diaphragm pressure expansion tank
- Speed-controlled high-efficiency pump, various versions

Flow:

- Fitting piece (180 mm) G 2" with integrated non-return flap
- Shut-off valve with union nut 2" and side outflow with safety valve DN 20, 3 bar up to 100 kW incl. boiler filling/draining valve

Connection set/pump type	Speed control
AS32-TG/SPS-S 8 PM1	•
AS32-TG/SPS-I 10	•
AS32-TG/SPS-I 12 PM1	•

6049 483
6059 334
6043 800

Speed control legend

PWM1 PWM control signal heating or PM1

Accessories



Connection set AS32-2/H
 for compact mounting
 of all required fittings
 of a direct circuit
 consisting of:
 2 thermometer ball valves
 Wall bracket included separately
 Connection T-piece DN 32
 in the return flow for connecting the
 sludge separator CS 32 bottom and
 the diaphragm pressure expansion tank
 on the side on connection set
 installation option
 for an overflow valve
 incl. non-return valve

6039 793



Gas valve, passage DN 15, R 1/2"
 with thermally releasing cut-off device

2012 075



Gas valve, passage DN 20, R 3/4"
 with thermally releasing cut-off device

2012 077



Gas valve, corner version DN 15, R 1/2"
 with thermally releasing cut-off device

2012 076



Gas valve, corner version DN 20, R 3/4"
 with thermally releasing cut-off device

2012 078



**Sludge separator with magnet
 MB3/L DN 25...DN 50**
 Fast and continuous removal of ferromagnetic
 and non-magnetic dirt and sludge particles.
 Sludge separation up to a particle size of 5 µm.
 Brass housing
 Max. operating pressure: 6 bar
 Max. flow temperature: 110 °C

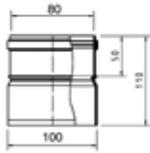
Type	Connection inches	Flow rate at 1 m/s flow speed m³/h
MBL DN 32	Rp 1 1/4"	3.6
MBL DN 40	Rp 1 1/2"	5.0

2062 166
 2062 167

**Heating armature groups
 and wall distributors**
 see "Various system components"

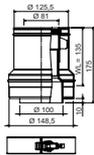
Additional sludge separators
 see «Various system components»

Accessories



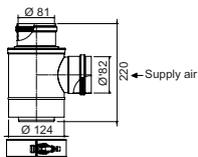
Reducing part E100 -> E80 PP

2015 245



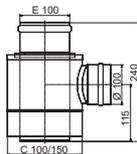
**Concentric reducing part
C100/150 -> C80/125 PP**
Painted white

2025 334



Separating piece C80/125 -> 2 x E80 PP
for room air independent operation
for separate conduction of flue gas and
combustion air.

2010 174



Separating piece C100/150 -> 2 x E100 PP
for UltraOil® (35,50),
TopGas® classic (35-80),
UltraGas® (50-100)

2015 244

for separate conduction of flue gas and
combustion air (LAS-system)

Recommendation:

If the air inlet at the facade is near a
noise sensitive place (window of bedroom,
terrace etc.), we recommend
to use a sound absorber at the
direct combustion air inlet.



Backflow check valve
for TopGas® classic (60-120)
to prevent the emergence
of flue gas from the boiler
in the use of cascades

6036 265

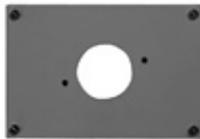
Boiler controller with heating controller set RS-OT



Heating controller set RS-OT
 (Not for mixing operation!)
 For 1 heating circuit without mixing operation
 Flow temperature control controlled by atmospheric conditions with outdoor sensor, immersion sensor (calorifier sensor) and overridable room temperature sensor.
 Can be implemented as a room temperature control without outdoor sensor.
 Only wall mounting possible!

Notice

For integration into control panel: mounting set RS-OT must be ordered.



Mounting set RS-OT
 Assembly set for mounting of heating controller set RS-OT into boiler



BMS module 0-10 V/OT - OpenTherm (building management system)
 no control unit TopTronic® E or RS-OT necessary
 power supply via OT bus
 Temp. control external with 0-10 V
 0-1.0 V no request
 1.0-9.5 V0-100 °C
 Cannot be installed in boiler control panel:
 - TopGas® classic (12-30)
 Can be installed in boiler control panel:
 - TopGas® classic (35-120),
 - TopGas® comfort

Part No.

6020 566

6018 218

6016 725

Boiler controller with heating controller set TopTronic® E



Boiler controller TopTronic® E ZE1
As supplement for basic boiler control panel G04 (can be built in).

Mounting of TopTronic® E control module in the front of boiler control panel
Mounting of TopTronic® E basic module heat generator in controller

Consisting of:
TopTronic® E control module
TopTronic® E basic module heat generator
fitting accessories
- 1 outdoor sensor AF/2P/K
- 1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
- 1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
No additional module expansions or controller modules can be installed in the boiler control panel! This means an additional mixer circuit must be implemented using the TopTronic® E heating circuit/hot water module in an external wall casing.

For RS-OT and TopTronic® E ZE1

Flow temperature guard
for underfloor heating (per heating circuit 1 guard) 15-95 °C, switching difference 6 K, capillary tube max. 700 mm, setting (visible from the outside) inside the housing cover



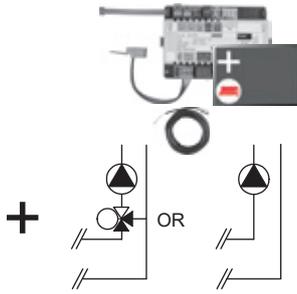
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

Part No.

6037 312

242 902

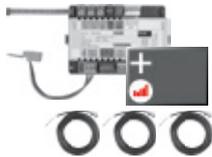
TopTronic® E module expansions
for TopTronic® E basic module heat generator



Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!

TopTronic® E module expansion heating circuit TTE-FE HK
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer
Consisting of:
- Fitting accessories
- 1 contact sensor
ALF/2P/4/T, L = 4.0 m
- Basic plug set FE module

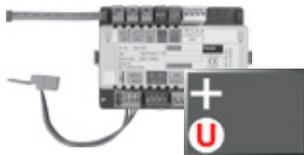
6034 576



Notice
The flow rate sensor set must be ordered as well.

TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case
Consisting of:
- Fitting accessories
- 3 contact sensors
ALF/2P/4/T, L = 4.0 m
- Plug set FE module

6037 062



Notice
Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

TopTronic® E module expansion Universal TTE-FE UNI
Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions
Consisting of:
- Fitting accessories
- Plug set FE module

6034 575

Further information
see "Controls" - "Hoval TopTronic® E module expansions" chapter



Flow rate sensor sets
Plastic housing

Size	Connection inches	Flow rate l/min
DN 8	G 3/4"	0.9-15
DN 10	G 3/4"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1 1/4"	5-85
DN 25	G 1 1/2"	9-150

6038 526
6038 507
6038 508
6038 509
6038 510



Flow rate sensor sets
Brass housing

Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1 1/2"	14-240

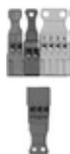
6042 949
6042 950

Accessories for TopTronic® E



TopTronic® E controller modules

TTE-HK/WW	TopTronic® E heating circuit/ hot water module	6034 571
TTE-SOL	TopTronic® E solar module	6037 058
TTE-PS	TopTronic® E buffer module	6037 057
TTE-MWA	TopTronic® E measuring module	6034 574



Supplementary plug set

	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion	6034 503
	TTE-FE HK	



TopTronic® E room control modules

TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070



Enhanced language package TopTronic® E

	one SD card required per control module	6039 253
	Consisting of the following languages:	
	HU, CS, SL, RO, PL, TR, ES, HR,	
	SR, JA, DA	



HovalConnect

	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593

TopTronic® E interface modules

	GLT module 0-10 V	6034 578
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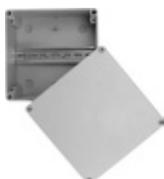
TopTronic® E sensors

AF/2P/K	Outdoor sensor	2055 889
	H x W x D = 80 x 50 x 28 mm	
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776



Bivalent switch

	for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826



System housing

	System housing 182 mm	6038 551
	System housing 254 mm	6038 552



TopTronic® E wall casing

WG-190	Wall casing small	6052 983
WG-360	Wall casing medium	6052 984
WG-360 BM	Wall casing medium with control module cut-out	6052 985
WG-510	Wall casing large	6052 986
WG-510 BM	Wall casing large with control module cut-out	6052 987

Further information
see "Controls"

Service



Commissioning

Commissioning by works service or Hoval trained authorised serviceman/company is condition for warranty.

For commissioning and other services please contact your Hoval sales office.

Part No.

TopGas® classic (35-80)

Type		(35)	(45)	(60)	(80)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	6.9-31.7	8.3-39.8	11.9-54.1	13.4-71.8
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	7.4-34.9	9.1-44.3	12.8-60.3	14.8-79.1
• Nominal heat output at 80/60 °C, propane ²⁾	kW	9.5-32.5	10.4-41.5	14.1-56.6	18.4-73.7
• Nominal heat output at 50/30 °C, propane ²⁾	kW	10.5-36.3	11.45-45.8	15.5-61.1	20.3-79.9
• Nominal heat input with natural gas ³⁾	kW	6.9-33.0	8.5-42.4	11.7-56.9	13.8-75.8
• Nominal heat input with propane ²⁾	kW	9.8-33.0	10.7-42.1	14.5-57.7	19.0-74.4
• Operating pressure heating min./max. (PMS)	bar	1/4	1/4	1/4	1/4
• Operating temperature max. (T _{max})	°C	85	85	85	85
• Boiler water content (V _(H2O))	l	4.0	4.0	5.4	5.4
• Flow resistance boiler	z value	see diagram			
• Minimum circulation water quantity	l/h	300	350	470	550
• Boiler weight (without water content, incl. cladding)	kg	96	96	116	116
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	97.6/88.1	95.7/86.3	97.0/87.5	96.3/86.8
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	107.4/96.6	107.3/96.8	107.3/96.8	107.8/97.3
• Room heating energy efficiency					
- without control	ηs	%	92	92	92
- with control	ηs	%	94	94	94
- with control and room sensor	ηs	%	96	96	96
- annual energy consumption	Q _{HE}	GJ	61	76	104
• NOx class (EN 15502)		-	-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	23.9	27.4	23.4
• O ₂ content in flue gas min./max. output		%	8.7/9.0	8.8/8.9	8.8/8.8
• Heat loss in standby mode		Watt	95	95	105
• Dimensions		see table of dimensions			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-50	17.4-50	17.4-50	17.4-50
- Propane	mbar	37-50	37-50	37-50	37-50
• Gas connection values at 15 °C/1013 mbar:					
- Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³	m ³ /h	0.7-3.4	0.9-4.4	1.2-5.9	1.4-7.8
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	0.8-4.1	1.0-5.2	1.4-7.0	1.7-9.3
- Propane (G31) (NCV = 24.4 kWh/m ³) ²⁾	m ³ /h	0.4-1.4	0.4-1.7	0.6-2.4	0.8-3.0
• Operating voltage	V/Hz	230/50	230/50	230/50	230/50
• Electrical power consumption min./max.	Watt	24/74	24/78	23/78	23/116
• Stand-by	Watt	6	6	6	6
• Type of protection	IP	40D	40D	40D	40D
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40	5-40
• Sound power level					
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	61	61	63	63
• Condensate quantity (natural gas) at 50/30 °C	l/h	3.7	4.3	5.4	7.1
• pH value of the condensate		4-6	4-6	4-6	4-6
• Construction type		B23, C13(x), C33(x), C53(x), C63(x), C93(x)			
• Flue gas system					
- Temperature class		T 120	T 120	T 120	T 120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	52.5	66.4	88.4	124.0
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	10.5	13.0	17.8	20.9
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	57.7	59.4	58.9	62.7
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	36.7	40.5	38.6	43.9
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	28.8	28.9	29.4	30.0
- Maximum permitted temperature of the combustion air	°C	50	50	50	50
- Flow rate combustion air	Nm ³ /h	42.9	54.2	72.4	102.0
- Maximum supply pressure for supply air and flue gas line	Pa	120	120	140	140
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50	-50

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100, an output

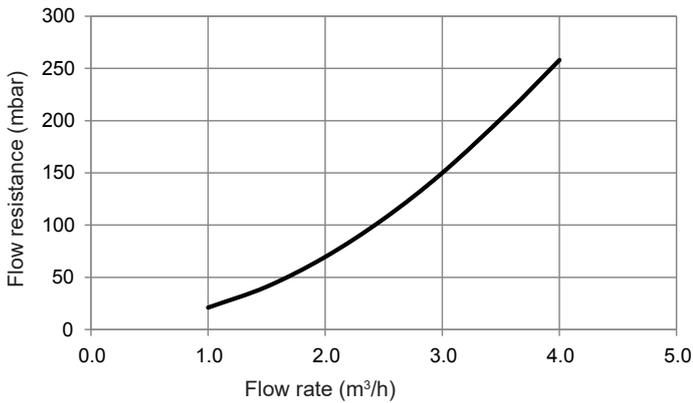
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

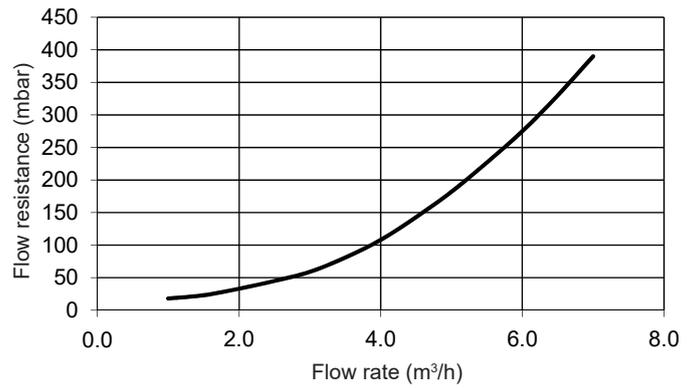
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

TopGas® classic (35,45)

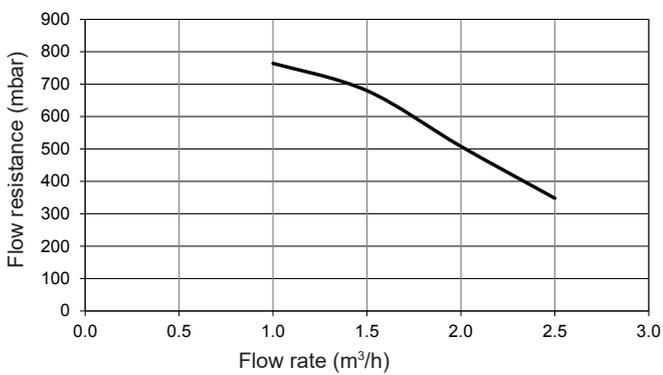


TopGas® classic (60,80)



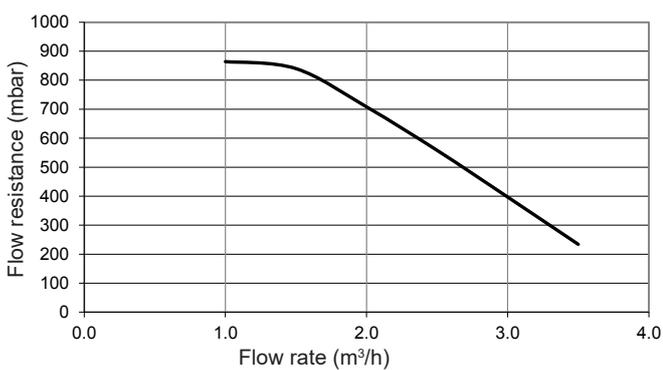
Maximum residual overpressure with connection set AS32-TG/SPS-S 8 PM1

TopGas® classic (35,45)

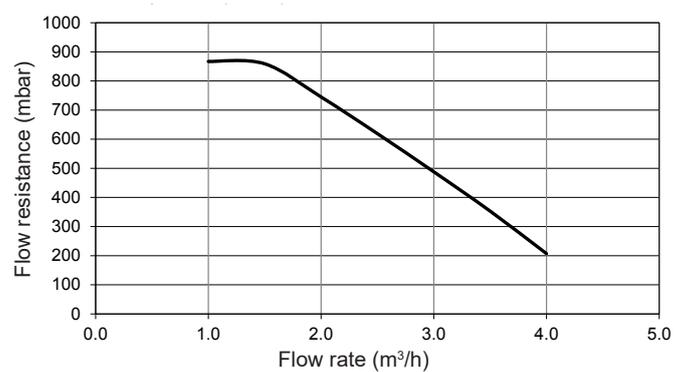


Maximum residual overpressure with connection set AS32-TG/SPS-I 10

TopGas® classic (35,45)

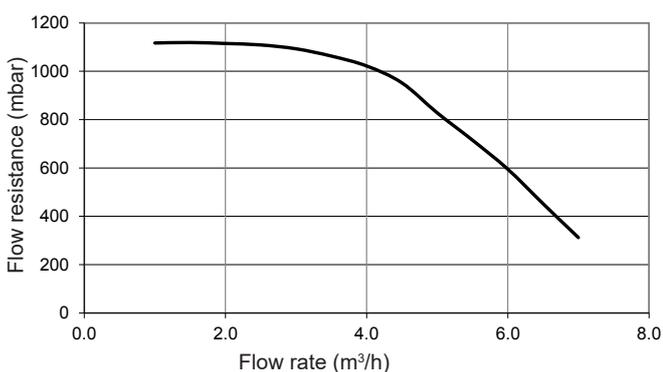


TopGas® classic (60,80)



Maximum residual overpressure with connection set AS32-TG/SPS-I 12PM1

TopGas® classic (60,80)

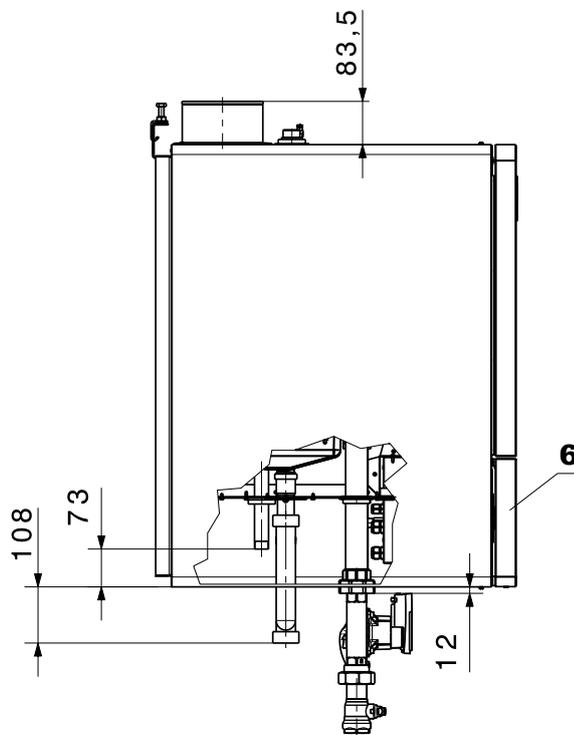
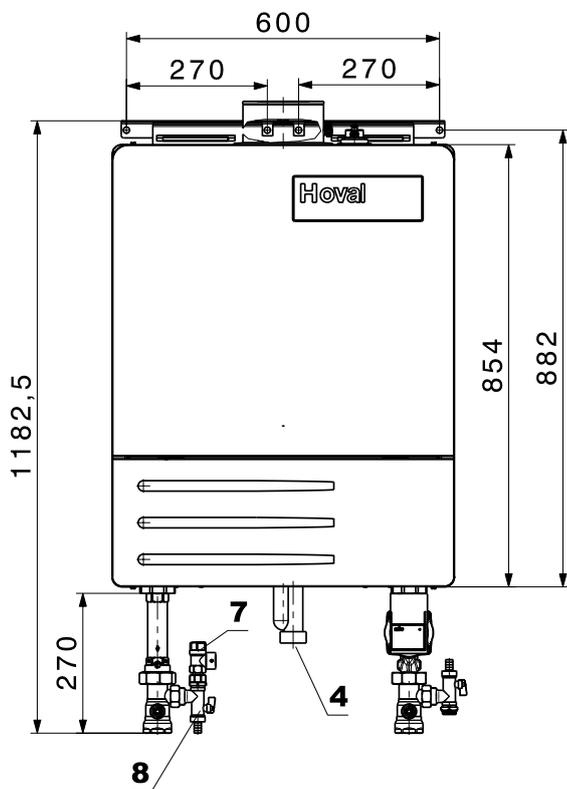


TopGas® classic (35-80)

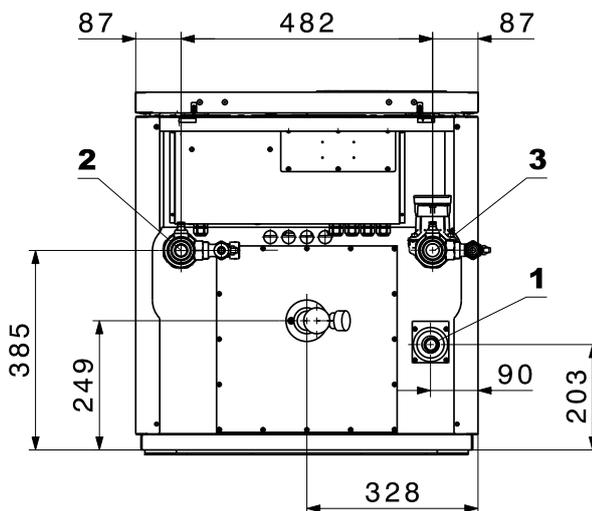
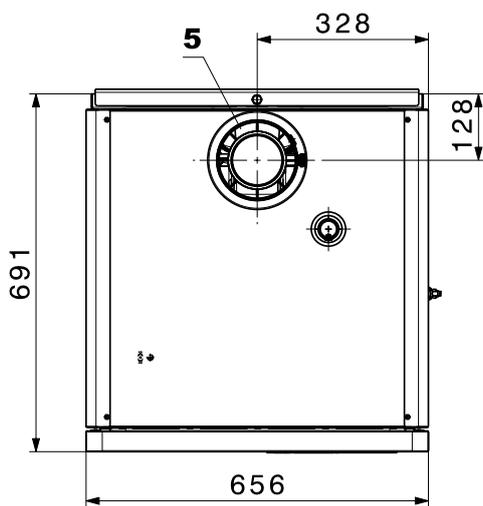
Minimum spaces

(Dimensions in mm)

- Sideways 50 mm
- Space to ceiling dependent on the used flue gas system
- Front 500 mm



View from bottom



- 1 Gas connection R 3/4"
- 2 Heating flow R 1 1/4"
- 3 Heating return R 1 1/4"
- 4 Condensate drain DN 40
- 5 Concentric supply air/flue gas connection C100/150
- 6 Cover control panel
- 7 Safety valve
- 8 KFE ball valve

Standards and guidelines

The official regulations for installation and operation must be observed. In particular, these are the country-specific standards (e.g. EN standard, DIN standards, ...) as well as the corresponding regional regulations.

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- hydraulic and technical control regulations of Hoval
- DVGW directives
- DIN EN 12828
Safety-relevant requirements
- DIN EN 12831 Heaters
Rules for the calculation of the heat requirements of buildings
- VDI 2035 Protection against damage by corrosion and boiler scale formation in heating and service water installations
- EN 14868 "Protection of metallic materials against corrosion"
- VDE 0100 supplement 2

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

- VDI 2035
- In addition, the EN 14868 standard must be applied, **as well as the manufacturer-specific specifications**

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water must be fully demineralised.

The use of fully softened water should be avoided in systems with aluminium alloy as the water-side material.

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 $\mu\text{S}/\text{cm}$.
- pH value of the heating water for systems with aluminium alloy as water-side material 8.0 to 8.5 (measurement 10 weeks after commissioning at the earliest)
- The sum of the chloride, nitrate and sulphate contents in the heating water must not exceed 50 mg/l in total.

Additional notices

- Hoval boilers and calorifiers are suitable for heating systems without significant oxygen intake. (System type I according to EN 14868).
- The following systems must be equipped with **separate circuits**:
 - Systems operated with softened water.
 - Plants with continual oxygen intake (e.g. underfloor heating without diffusion-proof plastic piping) or intermittent oxygen intake (e.g. requiring frequent topping-up).
- In the case of bivalent heating systems, the values of the heat generator with the strictest requirement for water quality must be complied with.
- If only the boiler is replaced in an existing plant, it is not recommended for the entire heating system to be refilled, provided that the heating water already contained in the system complies with the relevant directives or standards.
- Before filling new systems and, where necessary, existing heating systems containing heating water that does not comply with the directives or standards, the heating system must be professionally cleaned and flushed. The boiler must not be filled until the heating system has been flushed.

Frost protection agent

The boiler must not be operated with frost protection agent in the heating water. Separate circuits are required in frost-protected systems.

Heating room

Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work room, hairdressers and so on).

Halogen compounds can be caused by cleaning and degreasing solutions, dissolvents, glue and bleaching lyes.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. For direct combustion air supply (LAS system), use the separator C80/125 -> E80 PP or C100/150 -> E100 PP.

The minimum free cross-section for the combustion air can be assumed simplified as follows:

- *Room air-independent operation with separate combustion air pipe to the boiler:* 0.8 cm² per 1 kW of output. The pressure drop in the combustion air pipe must be considered for the calculation of the flue gas system.
- *Room air-dependent operation:* Minimum free cross-section of the opening into the open: 150 cm² or twice 75 cm² and additionally 2 cm² necessary for each kW of output over 50 kW for vent in to the open.

Gas connection

Commissioning

- Initial commissioning is only allowed to be carried out by a qualified installer.
- Burner setting values according to the installation instructions.

Manual gas shut-off valve and gas filter

Immediately in front of the boiler a manual gas shut-off device (valve) must be installed according to relevant regulations. Should the local regulations or conditions demand this, an approved gas filter must be installed in the gas supply pipe between the gas tap (thermally releasing) and the boiler in order to prevent malfunction due to foreign particles being carried along with the gas.

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.

Gas pressure natural gas

- Necessary gas flow pressure at the boiler inlet: natural gas min. 17.4 mbar, max. 50 mbar

Propane gas pressure

- For propane, a gas pressure regulator must be provided on site for reducing the pilot pressure on the boiler
- Required gas flow pressure at the boiler entry: Propane min. 37 mbar, max. 50 mbar

Gas pressure regulator

- The installation of a gas pressure regulator is only necessary if the gas flow pressure in the gas network exceeds the maximum permissible gas flow pressure of the TopGas® classic or if there are considerable fluctuations in the gas flow pressure.
- Pressure fluctuations in the gas network must be prevented by suitable measures (e.g. gas storage tanks or pressure regulators). The local conditions must be checked in each individual case.

Sludge separator

Installation of a sludge separator with magnetic ring in the gas boiler return is recommended.

Minimum heating water circulation quantity

- Depending on the boiler type, different minimum circulating water quantities are required through the boiler. For details, see the corresponding data sheets.
- During burner operation, the circulating pump must be constantly in operation and the minimum heating water circulation quantity must be guaranteed.
- After each burner switch-off, the circulating pump must be in operation for at least 2 minutes (is guaranteed by the boiler controller).

Heating boiler in the attic

A water pressure guard is built in in the boiler, which automatically turns the gas burner off in case of water shortage. Notice: Mount the diaphragm pressure expansion tank in the boiler flow and the pump in the boiler return. See also paragraph "diaphragm pressure expansion tank"!

Condensate drainage

- A permit for discharge of the flue gas condensate into the sewage system must be obtained from the relevant authority or sewer operator.
- The condensate from the flue gas line can be discharged via the boiler. A condensate trap is no longer needed in the flue gas system.
- The condensate must be conducted openly (funnel) into the sewage system.

- Suitable materials for condensate drain:
 - stoneware pipes
 - pipes made from glass
 - pipes made from stainless steel
 - pipes made from plastic: PVC, PE, PP, ABS and UP

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The minimum inlet pressure in the diaphragm pressure expansion tank must be 1.2 bar and the minimum operating pressure in the boiler must be 1.5 bar.
- The pump must be connected in the boiler return and the diaphragm pressure expansion tank must be connected on the pump suction side.
- If the aforementioned minimum operating pressure in the boiler of 1.5 bar cannot be maintained (e.g. roof heating centres), the diaphragm pressure expansion tank must be installed in the boiler flow.
- Starting from 70 °C an additional intermediate tank is necessary.

Flue gas system

- Gas boilers must be connected to a certified and approved flue gas system such as flue gas lines.
- Flue gas lines must be gas-, condensate- and over pressure-tight.
- The flue gas lines must be secured against unwanted loosening of the plug connections.
- The flue gas system must be connected with an angle, so that the resulting condensate of the flue gas system can flow back to the boiler and can be neutralised there before discharging into the canalisation.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. temperature class T120.
- A flue gas temperature limiter is integrated into the boiler.

Allocation of gas filters for TopGas® classic (35-80)

TopGas® classic	Gas throughput natural gas E	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
type	m³/h			
(35)	3.3	70612/6B	Rp ¾"	0.10
(45)	4.3	70612/6B	Rp ¾"	0.13
(60)	5.7	70612/6B	Rp ¾"	0.20
(80)	7.6	70602/6B	Rp 1"	0.10

It is essential to set the dimensions of the gas line!

Looking for the appropriate hydraulic schematic?
Please contact your local Hoval partner.

Hoval TopGas® classic (100,120)

Wall-hanging gas condensing boiler

- With condensing boiler technology
- For the combustion of:
 - natural gas E with a hydrogen content (H₂) of up to 20 %
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Heat exchanger made of corrosion resistant aluminium alloy
- Built in:
 - pressure gauge
 - water pressure guard for water shortage protection
 - flue gas temperature sensor with flue gas temperature limiting function
 - automatic quick aspirator
- Pre-mixing surface burner made of stainless steel
 - Modulating with gas/air group control
 - Automatic ignition
 - Ionisation guard
 - Gas pressure monitor
- Minimal water circulation necessary (see technical data)
- Wall-hanging gas condensing boiler fully cased with coated white steel plates

Basic boiler control panel G04

- Control unit for gas burner with monitoring unit BIC 335
- Modulating burner control
- Main guard "I/O"
- Operation and fault indication
- Connection for external gas valve and fault indication

Optional

- For propane
- Free-standing calorifier
- Different designs of control panels

Delivery

- Wall-hanging gas condensing boiler fully cased

Heating controller set RS-OT

- For 1 heating circuit without mixing operation
- Weather-controlled regulation for continuously adjustable decreased boiler water temperature
- With integrated overpluggable room temperature sensor
- Located in boiler room or living room
- Outdoor sensor
- Immersion sensor (calorifier sensor)

BMS module 0-10 V/OT (OpenTherm) (building management system)

For boiler control as part of a building management system.

External **temperature control** 0-10 V.

0-1.0 V no requirement

1.0-9.5 V 0-100 °C

Can be installed in the boiler control panel!

Heating controller set TopTronic® E ZE1

(Can be built in) as supplement for basic boiler control panel G04.



Model range

TopGas® classic type	Nominal heat output 50/30 °C kW
(100)	20.7-100.0
(120)	22.9-120.5

Control panel

- Colour touchscreen 4.3 inch
- Heat generator blocking switch for interrupting operation
- Fault signalling lamp

TopTronic® E control module

- Colour touchscreen 4.3 inch
- Simple, intuitive operating concept
- Display of the most important operating statuses
- Configurable start screen
- Operating mode selection
- Configurable day and week programmes
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with HovalConnect option)
- Adaptation of the heating strategy based on the weather forecast (with HovalConnect option)

TopTronic® E basic module heat generator TTE-WEZ

- Control functions integrated for
 - 1 heating/cooling circuit with mixer
 - 1 heating/cooling circuit without mixer
 - 1 hot water charging circuit
- bivalent and cascade management
- RAST 5 basic plug set
- Outdoor sensor
- Immersion sensor (calorifier sensor)

- Contact sensor (flow temperature sensor)
- Cable set ZE1 for connecting the TopTronic® E control to the basic boiler control panel

Options for TopTronic® E controller

- Can be expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
- Can be networked with a total of up to 16 controller modules:
 - heating circuit/hot water module
 - solar module
 - buffer module
 - measuring module

No additional module expansions or controller modules can be installed in the boiler control panel!

The supplementary plug set must be ordered in order to use expanded controller functions.

Further information about the TopTronic® E see "Controls"

Delivery

- Heating controller set separately packed, mounting on site

Wall-hanging gas condensing boiler



Hoval TopGas® classic (100,120)
Heat exchanger made of aluminium alloy
Modulating burner made of stainless steel
and basic boiler control panel, fully cased.

TopGas® classic type	Nominal heat output at 50/30 °C kW
(100)	20.7 - 100.0
(120)	22.9 - 120.5

Permissions boilers

TopGas® classic (100,120)
CE product ID No. CE-0085BQ0218

Part No.

7014 584
7014 585

Accessories



Gas filter
with measurement nozzle before and behind the filter inset (diameter: 9 mm)
Pore width of the filter inset < 50 µm
Max. pressure difference 10 mbar
Max. inlet pressure 100 mbar

Type	Connection inches
70612/6B	Rp ¾"
70602/6B	Rp 1"

2007 995
2007 996

Conversion kit for propane
for TopGas® classic (35-120)

6047 634



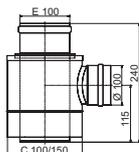
Connection set AS 40-TG
consisting of:
Return:
- Shut-off valve with connecting nut 2" and boiler fill and drain valve with coupling G ¾" (external) for connecting a diaphragm pressure expansion tank
- Speed-controlled high-efficiency pump, various versions
Flow:
- Fitting piece (180 mm) G2" with integrated non-return valve
- Shut-off valve with integrate non-return valve and side output with safety valve DN 25, 3 bar up to 120 kW incl. boiler fill and drain valve

Connection set / pump type	Speed control
AS 40-TG/SPS-I 9 PM1	●
AS 40-TG/SPS-I 12 PM1	●

6043 801
6043 802

Speed control legend

PWM1 PWM control signal heating or PM1



Separating piece C100/150 -> 2 x E100 PP
 for UltraOj® (35,50),
 TopGas® classic (35-80),
 UltraGas® (50-100)
 for separate conduction of flue gas and
 combustion air (LAS-system)
 Recommendation:
 If the air inlet at the facade is near a
 noise sensitive place (window of bedroom,
 terrace etc.), we recommend
 to use a sound absorber at the
 direct combustion air inlet.

Part No.

2015 244



Backflow check valve
 for TopGas® classic (60-120)
 to prevent the emergence
 of flue gas from the boiler
 in the use of cascades

6036 265

**Boiler controller with
 heating controller set RS-OT**



Heating controller set RS-OT
 (Not for mixing operation!)
 For 1 heating circuit without
 mixing operation
 Flow temperature control controlled by
 atmospheric conditions with outdoor
 sensor, immersion sensor (calorifier
 sensor) and overridable room
 temperature sensor.
 Can be implemented as a room
 temperature control without
 outdoor sensor.
 Only wall mounting possible!

6020 566

Notice

For integration into control panel: mounting
 set RS-OT must be ordered.



Mounting set RS-OT
 Assembly set for mounting of heating
 controller set RS-OT into boiler

6018 218



**BMS module 0-10 V/OT - OpenTherm
 (building management system)**
 no control unit TopTronic® E or RS-OT
 necessary
 power supply via OT bus
 Temp. control external with 0-10 V
 0-1.0 V no request
 1.0-9.5 V0-100 °C
 Cannot be installed in boiler control
 panel:
 - TopGas® classic (12-30)
 Can be installed in boiler control
 panel:
 - TopGas® classic (35-120),
 - TopGas® comfort

6016 725

Boiler controller with heating controller set TopTronic® E



Boiler controller TopTronic® E ZE1
As supplement for basic boiler control panel G04 (can be built in).

Mounting of TopTronic® E control module in the front of boiler control panel
Mounting of TopTronic® E basic module heat generator in controller

Consisting of:
TopTronic® E control module
TopTronic® E basic module heat generator
fitting accessories
- 1 outdoor sensor AF/2P/K
- 1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
- 1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
No additional module expansions or controller modules can be installed in the boiler control panel! This means an additional mixer circuit must be implemented using the TopTronic® E heating circuit/hot water module in an external wall casing.

For RS-OT and TopTronic® E ZE1

Flow temperature guard
for floor heating (per heating circuit 1 guard)
15-95 °C, switching difference 6 K, capillary tube max. 700 mm, setting (visible from the outside) inside the housing cover.



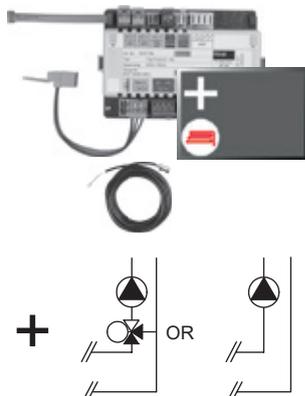
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

Part No.

6037 312

242 902

TopTronic® E module expansions
for TopTronic® E basic module heat generator



TopTronic® E module expansion heating circuit TTE-FE HK

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

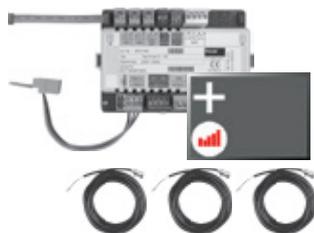
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- Fitting accessories
- 1 contact sensor ALF/2P/4/T, L = 4.0 m
- Basic plug set FE module

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

Consisting of:

- Fitting accessories
- 3 contact sensors ALF/2P/4/T, L = 4.0 m
- Plug set FE module

Notice

Suitable flow rate sensors (pulse sensors) must be provided on site.



TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- Fitting accessories
- Plug set FE module

Further information

see "Controls" - "Hoval TopTronic® E module expansions" chapter

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Part No.

6034 576

6037 062

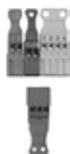
6034 575

Accessories for TopTronic® E



TopTronic® E controller modules

TTE-HK/WW	TopTronic® E heating circuit/ hot water module	6034 571
TTE-SOL	TopTronic® E solar module	6037 058
TTE-PS	TopTronic® E buffer module	6037 057
TTE-MWA	TopTronic® E measuring module	6034 574



Supplementary plug set

	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion	6034 503
	TTE-FE HK	



TopTronic® E room control modules

TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070



Enhanced language package TopTronic® E

	one SD card required per control module	6039 253
	Consisting of the following languages:	
	HU, CS, SL, RO, PL, TR, ES, HR,	
	SR, JA, DA	



HovalConnect

	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593

TopTronic® E interface modules

	GLT module 0-10 V	6034 578
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TopTronic® E sensors

AF/2P/K	Outdoor sensor	2055 889
	H x W x D = 80 x 50 x 28 mm	
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776



Bivalent switch

	for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826



System housing

	System housing 182 mm	6038 551
	System housing 254 mm	6038 552



TopTronic® E wall casing

WG-190	Wall casing small	6052 983
WG-360	Wall casing medium	6052 984
WG-360 BM	Wall casing medium with control module cut-out	6052 985
WG-510	Wall casing large	6052 986
WG-510 BM	Wall casing large with control module cut-out	6052 987

Further information
see "Controls"

Accessories



Gas valve, passage DN 20, R 3/4"
with thermally releasing cut-off device

2012 077



Gas valve, corner version DN 20, R 3/4"
with thermally releasing cut-off device

2012 078



Sludge separator with magnet

Type: MBL DN 40 Rp 1 1/2"

With variable connection for vertical or horizontal pipelines

Performance-enhancing magnetic assistance from removable, external magnet.

Fast and continuous removal of ferromagnetic and non-magnetic dirt and sludge particles from heating or cooling circuits with the medium water or water/glycol (50/50 %) Brass casing

2062 167

Sludge separation up to a particle size of 5 micrometres - separation and sludge removal without interrupting operation by the spiral pipe insert
With unscrewable casing bottom part for cleaning and inspection work complete with sludge removal tap.

Nominal diameter: DN 40
Pipe connection: Rp 1 1/2" (internal thread)
Installation length: 128 mm
Max. operating pressure: 10 bar
Max. flow temperature: 110 °C
Max. throughput: 5.0 m³/h
Max. flow speed: 1.0 m/s
Max. pressure drop: 5.8 kPa
Contents: 0.75 l
Weight: 3.7 kg
Type: MBL DN 40 IT



Sludge separator with magnet

Type: MBL DN 50 Rp 2"
 With variable connection for vertical or horizontal pipelines
 Performance-enhancing magnetic assistance from removable, external magnet.
 Fast and continuous removal of ferromagnetic and non-magnetic dirt and sludge particles from heating or cooling circuits with the medium water or water/glycol (50/50 %)
 Brass casing
 Sludge separation up to a particle size of 5 micrometres - separation and sludge removal without interrupting operation by the spiral pipe insert
 With unscrewable casing bottom part for cleaning and inspection work complete with sludge removal tap.

Nominal diameter: DN 50
 Pipe connection: Rp 2" (internal thread)
 Installation length: 128 mm
 Max. operating pressure: 10 bar
 Max. flow temperature: 110 °C
 Max. throughput: 7.5 m³/h
 Max. flow speed: 1.0 m/s
 Max. pressure drop: 5.8 kPa
 Contents: 0.75 l
 Weight: 3.9 kg

Part No.

2062 168

Service



Commissioning

Commissioning by works service or Hoval trained authorised serviceman/company is condition for warranty.

For commissioning and other services please contact your Hoval sales office.

TopGas® classic (100,120)

Type		(100)	(120)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	18.6-91.2	20.7-109.7
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	20.7-100.0	22.9-120.5
• Nominal heat output at 80/60 °C, propane ²⁾	kW	22.9-90.4	23.7-107.6
• Nominal heat output at 50/30 °C, propane ²⁾	kW	25.3-100.0	26.1-120.0
• Nominal heat input with natural gas ³⁾	kW	19.2-93.7	21.1-114.0
• Nominal heat input with propane ²⁾	kW	23.7-93.0	24.6-111.5
• Operating pressure heating min./max. (PMS)	bar	1/4	1/4
• Test pressure (PT)	bar	6	6
• Operating temperature max. (T _{max})	°C	85	85
• Boiler water content (V _(H₂O))	l	7.0	7.0
• Flow resistance boiler	z value	see diagram	
• Minimum circulation water quantity	l/h	800	800
• Boiler weight (without water content, incl. cladding)	kg	130	130
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	97.8/88.2	98.6/88.9
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	107.6/97.0	106.1/95.8
• Room heating energy efficiency			
- without control	ηs %	92	91
- with control	ηs %	94	93
- with control and room sensor	ηs %	96	95
- annual energy consumption	Q _{HE} GJ	171	205
• NOx class (EN 15502)		-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	28.0	31.0
• O ₂ content in flue gas min./max. output	%	5.5/5.5	4.7/5.5
• Heat loss in standby mode	Watt	115	115
• Dimensions		see table of dimensions	
• Gas flow pressure min./max.			
- Natural gas E/LL	mbar	17.4-50	17.4-50
- Propane	mbar	37-50	37-50
• Gas connection values at 15 °C/1013 mbar:			
- Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³	m ³ /h	2.0-9.7	2.2-11.8
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	2.4-11.5	2.6-14.0
- Propane (G31) - (NCV = 24.4 kWh/m ³) ²⁾	m ³ /h	1.0-3.8	1.0-4.6
• Operating voltage	V/Hz	230/50	230/50
• Electrical power consumption min./max.	Watt	22/150	22/214
• Stand-by	Watt	6	6
• Type of protection	IP	40D	40D
• Permitted ambient temperature during operation	°C	5-40	5-40
• Sound power level			
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	63	63
• Condensate quantity (natural gas) at 50/30 °C	l/h	8.9	10.3
• pH value of the condensate		4-6	4-6
• Construction type		B23, C13(x), C33(x), C53(x), C63(x), C93(x)	
• Flue gas system			
- Temperature class		T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	152	187
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	29.2	32.0
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	63	67
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	43	46
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	30	30
- Maximum permitted temperature of the combustion air	°C	50	50
- Flow rate combustion air	Nm ³ /h	125	153
- Maximum supply pressure for supply air and flue gas line	Pa	140	140
- Maximum draught/depression at flue gas outlet	Pa	-50	-50

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100, an output

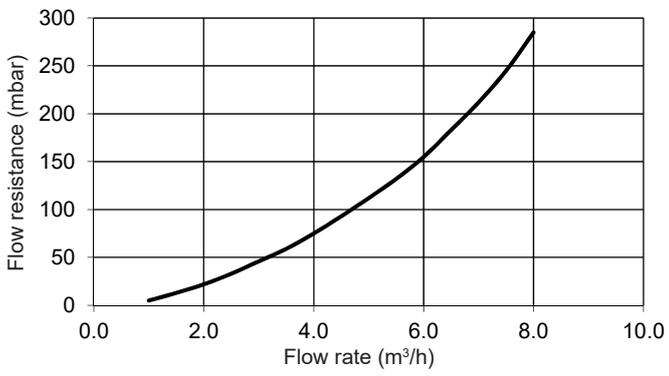
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

TopGas® classic (100,120)

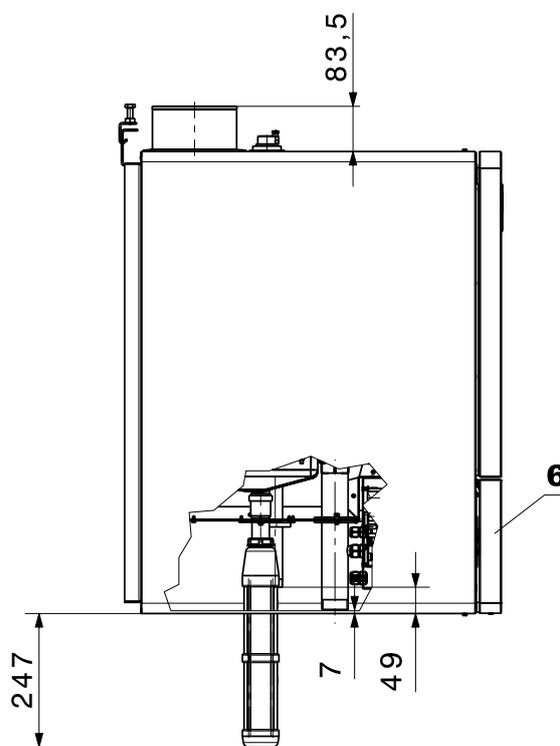
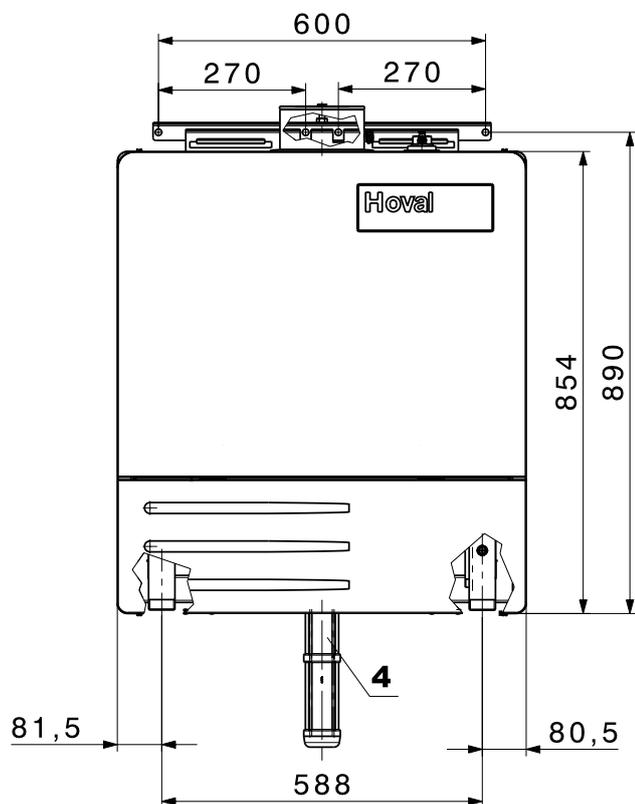


TopGas® classic (100,120)

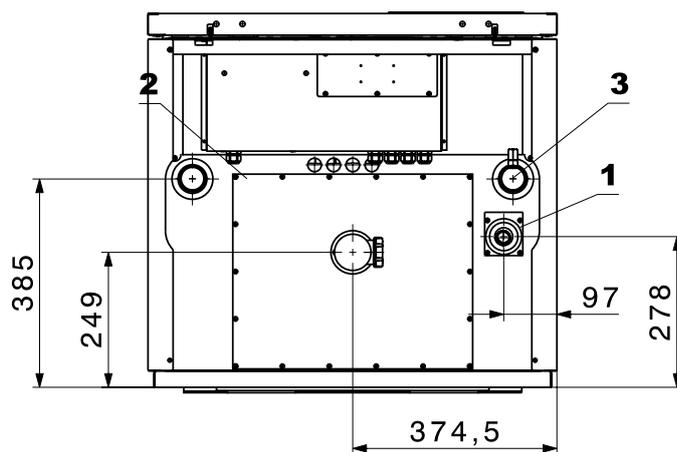
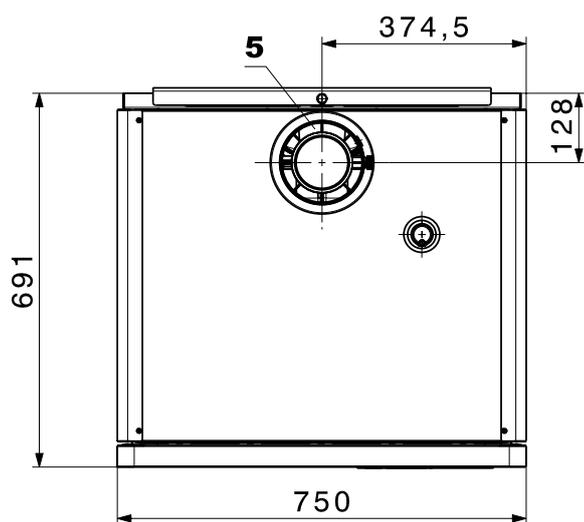
Minimum spaces

(Dimensions in mm)

- Sideways 50 mm
- Space to ceiling dependent on the flue gas system
- Front 500 mm



View from bottom



- 1 Gas connection R 3/4"
- 2 Heating flow R 1 1/4"
- 3 Heating return R 1 1/4"
- 4 Condensate drain DN 40
- 5 Concentric supply air/flue gas connection C100/150
- 6 Cover control panel

Standards and guidelines

The official regulations for installation and operation must be observed. In particular, these are the country-specific standards (e.g. EN standard, DIN standards, ...) as well as the corresponding regional regulations.

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- hydraulic and technical control regulations of Hoval
- DVGW directives
- DIN EN 12828 Safety-relevant requirements
- DIN EN 12831 Heaters Rules for the calculation of the heat requirements of buildings
- VDI 2035 Protection against damage by corrosion and boiler scale formation in heating and service water installations
- EN 14868 "Protection of metallic materials against corrosion"
- VDE 0100 supplement 2

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

- VDI 2035
- In addition, the EN 14868 standard must be applied, **as well as the manufacturer-specific specifications**

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water must be fully demineralised.

The use of fully softened water should be avoided in systems with aluminium alloy as the water-side material.

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- pH value of the heating water for systems with aluminium alloy as water-side material 8.0 to 8.5 (measurement 10 weeks after commissioning at the earliest)
- The sum of the chloride, nitrate and sulphate contents in the heating water must not exceed 50 mg/l in total.

Additional notices

- Hoval boilers and calorifiers are suitable for heating systems without significant oxygen intake. (System type I according to EN 14868).
- The following systems must be equipped with **separate circuits**:
 - Systems operated with softened water.
 - Plants with continual oxygen intake (e.g. underfloor heating without diffusion-proof plastic piping) or intermittent oxygen intake (e.g. requiring frequent topping-up).
- In the case of bivalent heating systems, the values of the heat generator with the strictest requirement for water quality must be complied with.
- If only the boiler is replaced in an existing plant, it is not recommended for the entire heating system to be refilled, provided that the heating water already contained in the system complies with the relevant directives or standards.
- Before filling new systems and, where necessary, existing heating systems containing heating water that does not comply with the directives or standards, the heating system must be professionally cleaned and flushed. The boiler must not be filled until the heating system has been flushed.

Frost protection agent

The boiler must not be operated with frost protection agent in the heating water. Separate circuits are required in frost-protected systems.

Heating room

Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work room, hairdressers and so on).

Halogen compounds can be caused by cleaning and degreasing solutions, dissolvents, glue and bleaching lyes.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. For direct combustion air supply (LAS system), use the separator C80/125 -> E80 PP or C100/150 -> E100 PP.

The minimum free cross-section for the combustion air can be assumed simplified as follows:

- **Room air-independent operation with separate combustion air pipe to the boiler:** 0.8 cm² per 1 kW of output. The pressure drop in the combustion air pipe must be considered for the calculation of the flue gas system.
- **Room air-dependent operation:** Minimum free cross-section of the opening into the open: 150 cm² or twice 75 cm² and additionally 2 cm² necessary for each kW of output over 50 kW for vent in to the open.

Gas connection Commissioning

- Initial commissioning is only allowed to be carried out by a qualified installer.
- Burner setting values according to the installation instructions.

Manual gas shut-off valve and gas filter

Immediately in front of the boiler a manual gas shut-off device (valve) must be installed according to relevant regulations. Should the local regulations or conditions demand this, an approved gas filter must be installed in the gas supply pipe between the gas tap (thermally releasing) and the boiler in order to prevent malfunction due to foreign particles being carried along with the gas.

Construction of recommended gas connection



Legend:

-  manual gas shut-off valve
-  gas hose/compensator
-  gas filter
-  pressure gauge with test burner and push-button valve

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.

Gas pressure natural gas

- In boilers with a nominal heat input in excess of 70 kW, install a pressure regulator in accordance with EN88-1 in the gas supply line directly before the boiler.
- Necessary gas flow pressure at the boiler inlet: natural gas min. 17.4 mbar, max. 50 mbar

Propane gas pressure

- For propane, a gas pressure regulator must be provided on site for reducing the pilot pressure on the boiler
- Required gas flow pressure at the boiler entry: propane min. 37 mbar, max. 50 mbar

Allocation of gas filters for TopGas® classic (100,120)

TopGas® classic type	Gas throughput natural gas E m³/h	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
(100)	9.4	70602/6B	Rp 1"	0.14
(120)	11.4	70602/6B	Rp 1"	0.20

It is essential to set the dimensions of the gas line!

Sludge separator

Installation of a sludge separator with magnetic ring in the gas boiler return is recommended.

Minimum heating water circulation quantity

- The minimum inlet pressure in the diaphragm pressure expansion tank must be 1.2 bar and the minimum operating pressure in the boiler must be 1.5 bar.
- The pump must be connected in the boiler return and the diaphragm pressure expansion tank must be connected on the pump suction side.
- After each burner switch-off, the circulating pump must be in operation for at least 2 minutes (is guaranteed by the boiler controller).

Heating boiler in the attic

A water pressure guard is built in in the boiler, which automatically turns the gas burner off in case of water shortage. Notice: Mount the diaphragm pressure expansion tank in the boiler flow and the pump in the boiler return. See also paragraph "diaphragm pressure expansion tank"!

Condensate drainage

- A permit for discharge of the flue gas condensate into the sewage system must be obtained from the relevant authority or sewer operator.
- The condensate from the flue gas line can be discharged via the boiler. A condensate trap is no longer needed in the flue gas system.
- The condensate must be conducted openly (funnel) into the sewage system.
- Suitable materials for condensate drain:
 - stoneware pipes
 - pipes made from glass
 - pipes made from stainless steel
 - pipes made from plastic: PVC, PE, PP, ABS and UP

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The minimum inlet pressure in the diaphragm pressure expansion tank must be 1.2 bar and the minimum operating pressure in the boiler must be 1.5 bar.
- The pump must be connected in the boiler return and the diaphragm pressure expansion tank must be connected on the pump suction side.
- If the aforementioned minimum operating pressure in the boiler of 1.5 bar cannot be maintained (e.g. roof heating centres), the diaphragm pressure expansion tank must be installed in the boiler flow.
- Starting from 70 °C an additional intermediate tank is necessary.

Flue gas system

- Gas boilers must be connected to a certified and approved flue gas system such as flue gas lines.
- Flue gas lines must be gas-, condensate- and over pressure-tight.
- The flue gas lines must be secured against unwanted loosening of the plug connections.
- The flue gas system must be connected with an angle, so that the resulting condensate of the flue gas system can flow back to the boiler and can be neutralised there before discharging into the canalisation.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. temperature class T120.
- A flue gas temperature limiter is integrated into the boiler.

Looking for the appropriate hydraulic schematic?
Please contact your local Hoval partner.

