

Wall-hanging gas condensing boilers



Hoval TopGas® comfort

10-22 kW

■ Description	37
■ Part No.	39
■ Technical data	45
■ Dimensions	47
■ Engineering	50



Hoval TopGas® combi

21/18, 26/23, 32/28 kW

■ Description	53
■ Part numbers	54
■ Technical data	58
■ Dimensions	60
■ Engineering	61



Hoval TopGas® classic

12-30 kW

■ Description	63
■ Part numbers	65
■ Technical data	73
■ Dimensions	76
■ Engineering	81



Hoval TopGas® classic

35-80 kW

■ Description	83
■ Part numbers	84
■ Technical data	92
■ Dimensions	94
■ Engineering	95



Hoval TopGas® classic

100, 120 kW

■ Description	97
■ Part numbers	98
■ Technical data	105
■ Dimensions	107
■ Engineering	108

Floor-standing gas
condensing boilers



Hoval UltraGas®	15-100 kW	
■ Description		111
■ Part numbers		112
■ Technical data		125
■ Dimensions		128
■ Engineering		131



Hoval UltraGas® 2	125-1550 kW	
■ Description		133
■ Part numbers		134
■ Technical data		144
■ Dimensions		150
■ Engineering		155



Hoval UltraGas® 2 D	250-3100 kW	
■ Description		159
■ Part numbers		161
■ Technical data		171
■ Dimensions		177
■ Engineering		181

Hoval TopGas® comfort (10-22)

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:
 - Pre-mixing burner with Venturi and surface burner
 - Automatic ignition and ionisation monitoring
 - Speed-controlled high-efficiency pump
 - Automatic quick aspirator
 - Safety valve 3 bar
 - Pressure gauge
 - One primary flow socket and one return flow socket for heating circuit and hot water production
 - Flue gas duct with corrosion free plastic device for draining condensation water
 - Condensate collecting tray for draining condensation water including siphon
 - Water pressure monitor for lack of water protection
 - Flue gas temperature limiter
 - Reverse switch, overflow valve, filling and draining cock, connection for diaphragm pressure expansion tank
- Factory setting for natural gas "H"
- Boiler fully cased with varnished white steel plates

Basic boiler control panel G04

- Control unit for gas burner BIC 335 for ignition and monitoring of the burner
- Modulating burner control
- Main switch "I/O"
- 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
- Control (device) for an external gas valve

Incl. control, optionally in two different versions:

- RS-OT controller
- TopTronic® E controller

Optional

- Propane

Delivery

- Wall-hanging gas condensing boiler fully cased

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 the boiler room, living room, or can optimally be installed in the boiler control panel.
- Outdoor sensor
- Immersion sensor (calorifier sensor)



Model range

TopGas® comfort type		Nominal heat output 50/30 °C kW
(10)	A	3.1-10
(16)	A	2.9-16
(22)	A	4.5-22

Energy efficiency class of the compound system with control.

Delivery

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

TopTronic® E controller

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

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

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.

<p>Further information about the TopTronic® E see "Controls"</p>	<p>Mounted below/free standing calorifier TopVal (130,160)</p>	<p>Calorifier CombiVal ERW (200), white</p>
<p><i>Delivery</i></p> <ul style="list-style-type: none"> • Wall-hanging gas condensing boiler fully panelled • Control separately packed, mounting on-site 	<ul style="list-style-type: none"> • Water heater with smooth pipe heat exchanger made of enamelled steel, fixed build in • Floor-mounted calorifier for TopGas® comfort (10-22) • Magnesium protection anode • Thermal insulation using HCFC free PU foam, with foil mantle, white <p><i>Delivery</i></p> <ul style="list-style-type: none"> • Calorifier and thermal insulation completely installed 	<ul style="list-style-type: none"> • Calorifier made of steel, enamelled inside • Smooth pipe heat exchanger enamelled, built in • Free-standing calorifier for TopGas® comfort (10-22) • 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 <p><i>On request</i></p> <ul style="list-style-type: none"> • Electric heating element
	<p>Heating armature groups and wall distributors see "Various system components"</p>	<p><i>Delivery</i></p> <ul style="list-style-type: none"> • Calorifier and thermal insulation completely installed (foil jacket can be removed for installation)

Wall-mounted gas condensing boilers



Hoval TopGas® comfort (10-22)
incl. RS-OT controller (can be built in)

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. High-efficiency pump, fully cased incl. connection fittings.

TopGas® comfort type		Nominal heat output 50/30 °C kW
(10)		3.1-10.0
(16)		2.9-16.0
(22)		4.5-22.0

Boiler permissions

TopGas® comfort (10-22):
CE product ID No.: CE-0085BR0482

Energy efficiency class of the
compound system with control

7014 080
7014 081
7014 082



Hoval TopGas® comfort (10-22)
incl. TopTronic® E controller (mountable)

Design as above but with
TopTronic® E controller.

TopGas® comfort type		Nominal heat output 50/30 °C kW
(10)		3.1-10.0
(16)		2.9-16.0
(22)		4.5-22.0

Energy efficiency class of the
compound system with control

No additional module expansions or
controller modules can be installed!

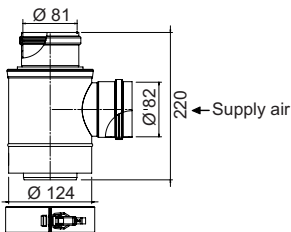
7014 084
7014 085
7014 086

Accessories



Modification set for propane
for TopGas® comfort (10-22)

6047 633



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

2010 174



Visible console
for TopGas® comfort
for preinstallation of connections for
gas R ½"
heating flow and return connections G ¾"
flat sealing

6015 444



Ball valve set - flow and return
Consisting of:
2 ball valves for flow and return
2 seals
Connection ¾"

6017 173



Gas valve, passage DN 15, R ½"
with thermally releasing cut-off device

2012 075



Gas valve, corner version DN 15, R ½"
with thermally releasing cut-off device

2012 076



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

Additional sludge separators
see "Various system components"

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

Free-standing calorifiers



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



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

flexible piping between
TopVal (130,160) and
TopGas® comfort (10-22) with
non-return flap in the primary flow
to prevent single pipe circulation
including sealing material.

2025 578



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

7015 961

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)

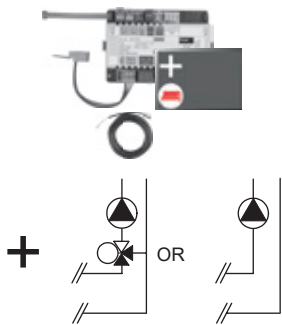
Test pressure: 13 bar (SVGW 12 bar)
Dimensions (H): 1464 mm, Ø 600 mm
Tilting dimension: 1583 mm
Weight: 77 kg

Delivery:
Calorifier, thermal insulation
and thermometer mounted
packaged and delivered

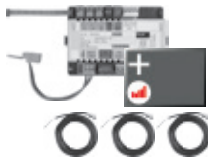
SVGW No. 0503–4950

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

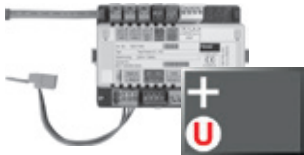
TopTronic® E module expansions
for TopTronic® E basic module heat generator



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



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



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



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

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

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

Flow rate sensor sets		
Plastic housing		
Size	Connection inches	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1 ¼"	5-85
DN 25	G 1 ½"	9-150

Flow rate sensor sets		
Brass housing		
Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1 ½"	14-240

Part No.

6034 576

6037 062

6034 575

6038 526
6038 507
6038 508
6038 509
6038 510

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"

Part No.



Flow temperature guard
for underfloor heating
(per heating circuit 1 guard) 15-95 °C, switch-
ing 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

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

Hoval TopGas® comfort (10-22)
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® comfort (10-22)

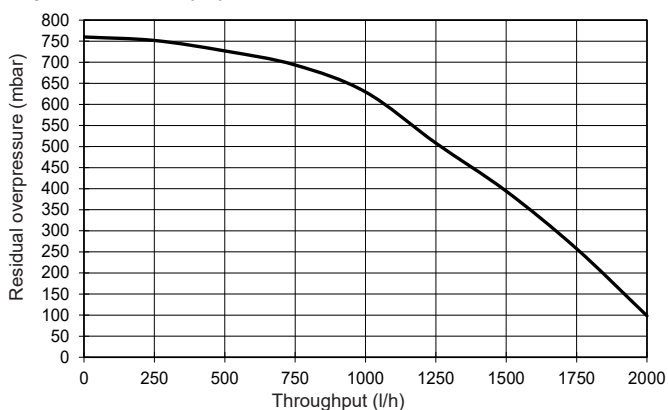
Type		(10)	(16)	(22)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	2.7-9.1	2.6-14.6	4.1-20.1
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	3.1-10.0	2.9-16.0	4.5-22.0
• Nominal heat output at 80/60 °C, propane ²⁾	kW	4.8-9.1	5.8-14.6	7.7-20.1
• Nominal heat output at 50/30 °C, propane ²⁾	kW	5.3-10.0	6.3-16.0	8.4-22.0
• Nominal heat input with natural gas ³⁾	kW	2.9-9.5	2.7-15.2	4.2-21.0
• Nominal heat input with propane ²⁾	kW	5.0-9.5	6.0-15.2	8.0-21.0
• Operating pressure heating min./max. (PMS)	bar	1/3	1/3	1/3
• Operating temperature max. (T _{max})	°C	85	85	85
• Boiler water content (V _(H2O))	l	1.4	1.7	2.0
• Flow resistance boiler		see diagram		
• Minimum circulation water quantity	l/h	180	180	180
• Boiler weight (without water content, incl. cladding)	kg	61	65	69
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV)	%	96.1/86.6	96.1/86.5	95.7/86.2
• Boiler efficiency at 30 % partial load operation (EN 15502) (NCV/GCV)	%	105.9/95.4	106.0/95.5	106.1/95.6
• Room heating energy efficiency				
- without control	ηs	%	89	90
- with control	ηs	%	91	92
- with control and room sensor	ηs	%	93	94
• NOx class (EN 15502)		-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	6.3	18.9
• CO ₂ content in flue gas at min./max. nominal heat output		%	8.8/9.0	8.8/9.0
• Heat loss in standby mode		watts	60	80
• Dimensions		see table of dimensions		
• Gas flow pressure min./max.				
- Natural gas E/LL	mbar	17.4-50	17.4-50	17.4-50
- Propane	mbar	37-50	37-50	37-50
• Gas connection values at 15 °C/1013 mbar:				
- Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.97 kWh/m ³	m ³ /h	0.29-0.95	0.27-1.52	0.42-2.11
- Natural gas LL (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³	m ³ /h	0.34-1.11	0.32-1.77	0.49-2.45
- Propane ¹⁾ (NCV = 25.9 kWh/m ³)	m ³ /h	0.19-0.37	0.23-0.59	0.31-0.81
• Operating voltage	V/Hz	230/50	230/50	230/50
• Electrical power consumption (incl. pump) min./max.	watts	20/32	19/38	20/44
• Standby	watts	7	7	7
• Type of protection	IP	40	40	40
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40
• Sound power level				
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	46	51	54
• Condensate quantity (natural gas) at 50/30 °C	l/h	0.9	1.4	2.0
• pH value of the condensate	approx.	4.2	4.2	4.2
• Construction type		B23, C13(x), C33(x), C53(x), C63(x)		
• Flue gas system				
- Temperature class		T 120	T 120	T 120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	14.4	23.1	31.9
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	4.4	4.1	6.3
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	65	71	68
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	51	54	52
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	31	34	32
- Maximum permitted temperature of the combustion air	°C	50	50	50
- Flow rate combustion air	Nm ³ /h	11.7	18.7	26.2
- Maximum supply pressure for supply air and flue gas line	Pa	75	75	75
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50

¹⁾ Data related to NCV. The TopGas® comfort can also be operated with propane.

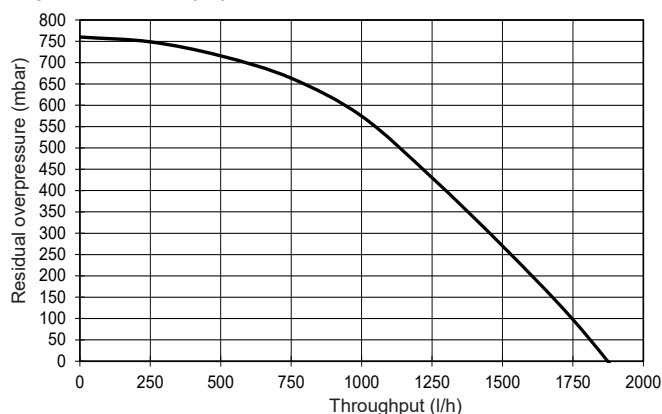
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Residual overpressures of heating pump

TopGas® comfort (10)

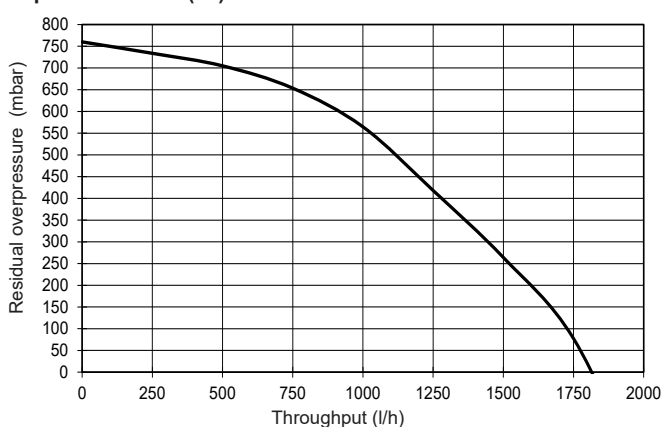


TopGas® comfort (16)



Residual overpressures of heating pump

TopGas® comfort (22)



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

Type		TopVal (130)	TopVal (160)	CombiVal ERW (200)
• Volume	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	56
• Dimensions	Diameter	590	590	600
	Height	869	1036	1464

Heater coils (integral)

• Heating surface	m ²	0.96	1.01	0.95
• Heating water	dm ³	6.7	7.1	6.4
• Flow resistance boiler ¹	z-value	22	22	7
• Operating pressure/test pressure	bar	8/13	8/13	10/13
• Flow temperature maximum	°C	95	95	110

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

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

TopGas® comfort/ calorifier type	Hot water output		Number of flats ³
	dm ³ /10 min ¹ 45 °C	dm ³ /h ² 45 °C	
(10)/TopVal (130)	162	215	1
(16)/TopVal (130)	173	345	1
(22)/TopVal (130)	184	475	1
(10)/TopVal (160)	195	215	1
(16)/TopVal (160)	206	345	1-2
(22)/TopVal (160)	217	475	1-2
(10)/CombiVal ERW (200)	239	215	1-2
(16)/CombiVal ERW (200)	250	345	1-2
(22)/CombiVal ERW (200)	261	475	2

¹ Peak hot water output in 10 min.

² Continuous hot water output per hour.

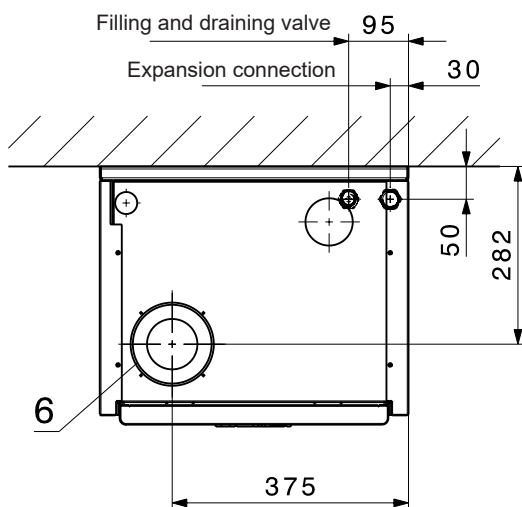
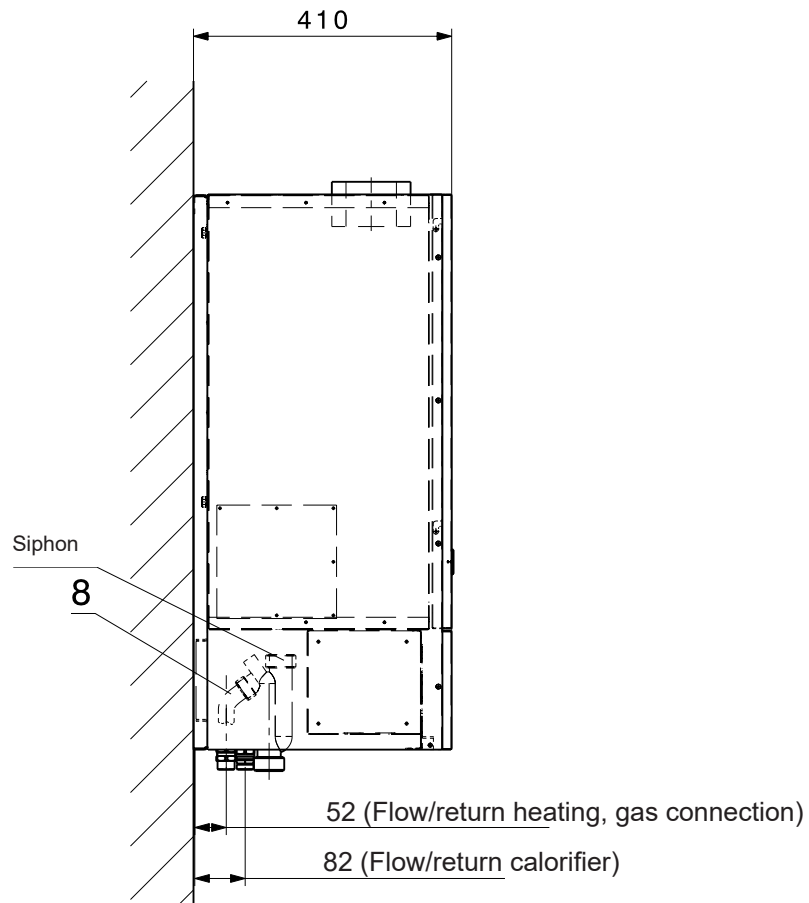
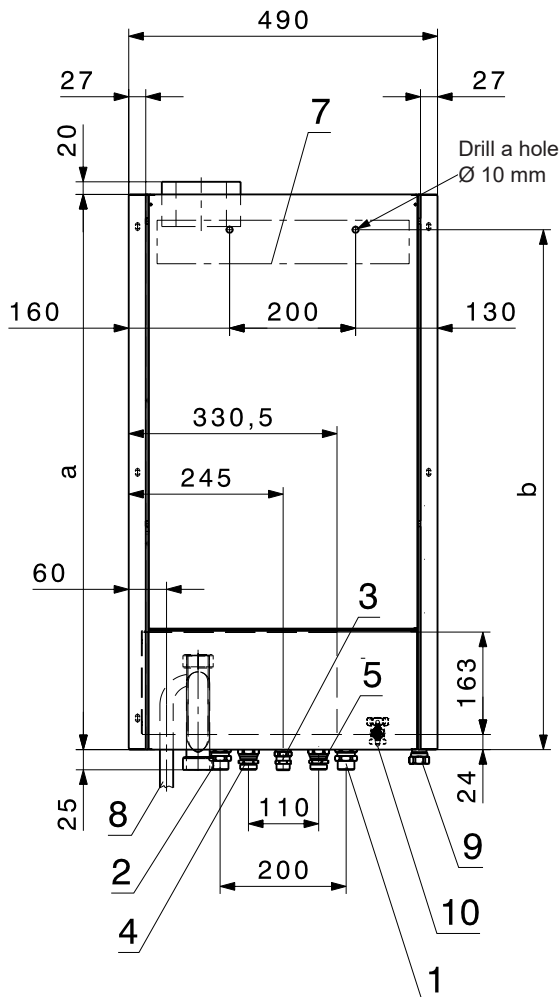
³ Normal flats (3-4 rooms with 4 people, 1 bath holding around 150 litres, 1 wash basin, 1 sink)

TopGas® comfort (10-22)

Minimal spaces

(Dimensions in mm)

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



TopGas® comfort
type

	a	b
(10)	820	764
(16)	880	824
(22)	940	884

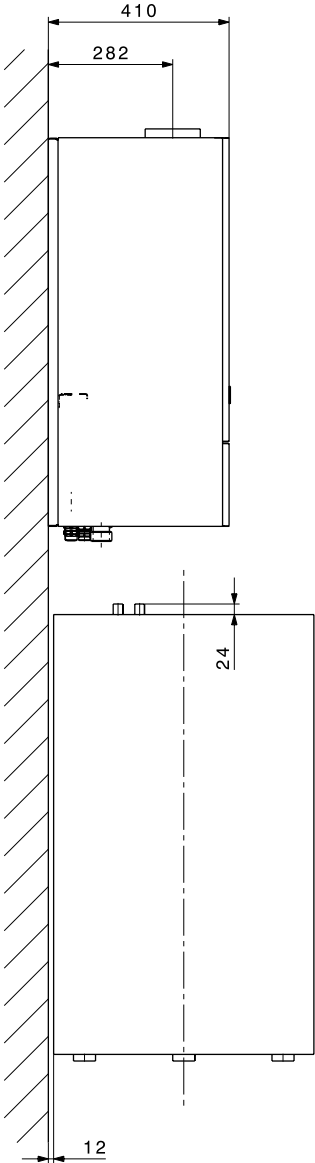
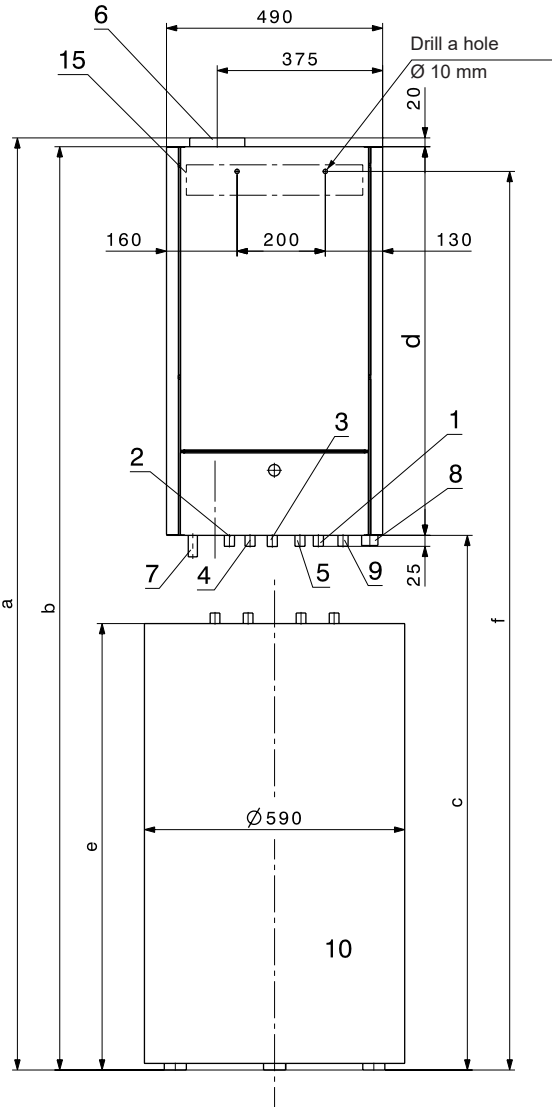
- 1 Return heating Ø 22 mm with locking ring including double nipple G 3/4"
- 2 Flow heating Ø 22 mm with locking ring including double nipple G 3/4"
- 3 Gas connection Ø 15 mm with locking ring including double nipple G 1/2"
- 4 Flow calorifier Ø 18 mm with locking ring including double nipple G 3/4"
- 5 Return calorifier Ø 18 mm with locking ring including double nipple G 3/4"
- 6 Concentric supply air/flue gas connection C80/125
- 7 Wall rail
- 8 Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- 9 Connection of diaphragm pressure expansion tank G 3/4"
- 10 Filling and draining valve

TopGas® comfort (10-22) with TopVal (130,160) placed below

Minimal spaces
(Dimensions in mm)

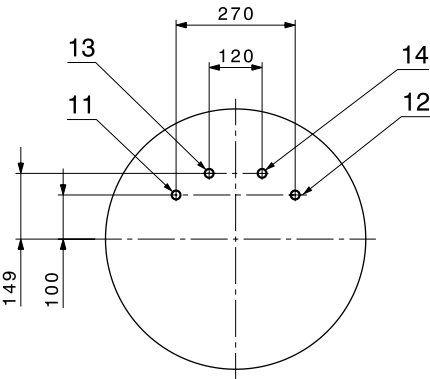
- Sideways 50 mm
- Space to ceiling dependent on the flue gas system
- Front 500 mm

CombiVal ERW (200)
see Calorifiers



- Return heating Ø 22 mm with locking ring incl. double nipple G 3/4"
- Flow heating Ø 22 mm with locking ring incl. double nipple G 3/4"
- Gas connection Ø 15 mm with locking ring incl. double nipple G 1/2"
- Flow calorifier Ø 18 mm with locking ring incl. double nipple G 3/4"
- Return calorifier Ø 18 mm with locking ring incl. double nipple G 3/4"
- Concentrical supply air/flue gas connection C80/125
- Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- Connection of diaphragm pressure expansion tank G 3/4"
- Filling and draining valve
- Calorifier TopVal (130,160)
- Flow heating G 3/4" ext. thread
- Return heating G 3/4" ext. thread
- Hot water R 3/4" ext. thread
- Cold water R 3/4" ext. thread
- Wall rail

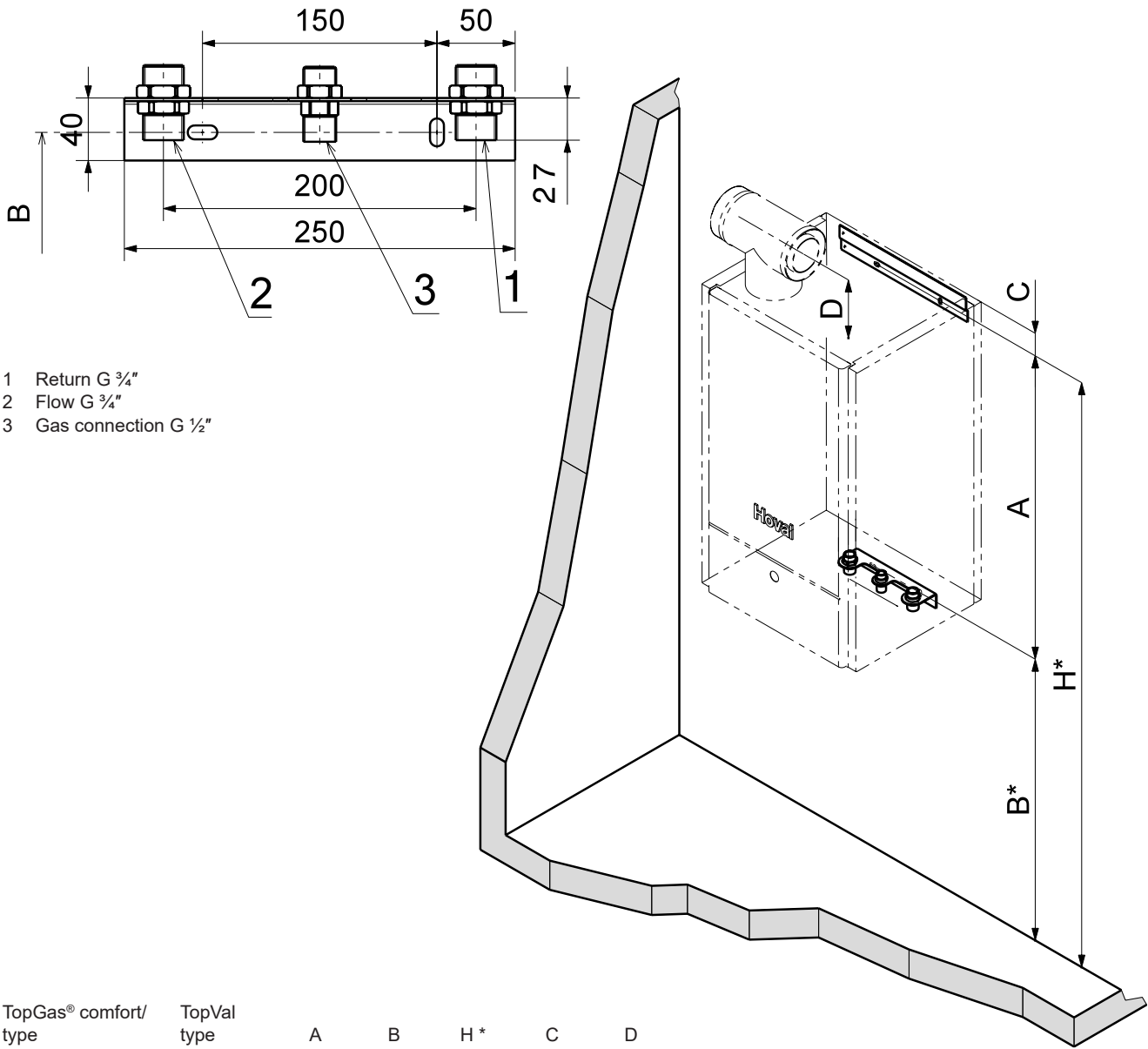
View from above TopVal (130,160) without TopGas®



TopGas® comfort/TopVal		a	b	c	d	e	f
type	type						
(10)	(130)	1885	1865	1045	820	845	1810
	(160)	2082	2032	1212	820	1012	1977
(16)	(130)	1945	1925	1045	880	845	1870
	(160)	2112	2092	1212	880	1012	2037
(22)	(130)	2005	1985	1045	940	845	1930
	(160)	2172	2152	1212	940	1012	2097

Measures for drill holes and visible console for preinstallation
(Dimensions in mm)

- for
- TopGas® comfort with TopVal (130,160) placed below



TopGas® comfort/ type	TopVal type	A	B	H *	C	D
(10)	(130)	814	996	1810	55	120
	(160)	814	1163	1977	55	120
(16)	(130)	874	996	1870	55	120
	(160)	874	1163	2037	55	120
(22)	(130)	934	996	1930	55	120
	(160)	934	1163	2097	55	120

* Measures for drill hole

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.
- 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

Gas boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work rooms, 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. An air pipe D = 80 for direct combustion air supply (air-exhaust system) can be directly connected to the boiler.

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

- **Room air-dependent operation:**
A minimum ventilation outlet of at least 150 cm² or 2 x 75 cm² cross-section is necessary for a boiler output up to 50 kW. For each further kW of output 2 cm² more cross-section must be provided.
- 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.

Gas connection

Commissioning

- Start-up is to be carried out only by a specialist of Hoval.
- 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. 37 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

The gas boiler TopGas® comfort is equipped with a safety mechanism to guard against water loss and can therefore be installed in upper stories.

Condensate drainage

- The allowance to lead the flue gas condensate into the canalisation must be obtained from the responsible authority.
- The condensate from the flue gas system can be discharged through the boiler. A condensate trap is not needed anymore with the flue gas system.
- The condensate must be openly lead into the canalisation (tunnel).
- 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 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.

Flue gas line dimensioning

see Rubrik «Flue gas line systems»

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

Hoval TopGas® combi
(21/18, 26/23, 32/28)

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:
 - flue gas side: aluminium
 - water side: copper
- Hot water is produced with the aid of a second copper coil integrated in the boiler.
- Integrated:
 - 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 white varnished steel plates

Basic boiler control panel G04

- Gas firing sequence controller with monitoring unit
- Modulating burner control
- Main switch "I/O"
- Operation and fault indication

Optional

- Gas valves

Delivery

- Wall-hanging gas condensing boiler fully cased
- Siphon and mounting material in package
- Wall-hanging gas condensing boiler







Heating controller set RS-OT

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

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



Model range

TopGas® combi type		Nominal heat output 50/30 °C kW		Hot water output 45 °C dm³/10 min
(21/18)		5.9-18.6		60
(26/23)		7.6-23.4		80
(32/28)		7.8-27.1		124

Energy efficiency class of the compound system with control.







Wall-hanging gas condensing boiler



Boiler permissions
 Hoval TopGas® combi (21/18, 26/23, 32/28):
 CE product ID No. 0063BQ3155

Wall-hanging gas condensing boiler
 TopGas® combi (21/18, 26/23, 32/28)

Heat exchanger made of corrosion-free aluminium alloy with integrated forced flow copper coil. Hot water is produced with the aid of a copper coil integrated in the boiler.
 With a modulating, pre-mixing surface burner made of stainless steel. Including basic boiler control and RS-OT controller, ready cased.







TopGas® combi		Nominal heat output		Hot water output at 45 °C
type		at 50/30 °C kW		dm³/10 min
(21/18)		5.9-18.6		60
(26/23)		7.6-23.4		80
(32/28)		7.8-27.1		124

7014 106
 7014 107
 7014 108

Energy efficiency class of the
 compound system with control



Wall-hanging gas condensing boiler as above
 but without controller.

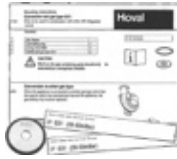
TopGas® combi		Nominal heat output		Hot water output at 45 °C
type		at 50/30 °C kW		dm³/10 min
(21/18)		5.9-18.6		60
(26/23)		7.6-23.4		80
(32/28)		7.8-27.1		124

7013 539
 7013 540
 7013 541

Hoval TopGas® combi may only be operated where the water hardness is less than 15 d°H (german degrees of hardness).

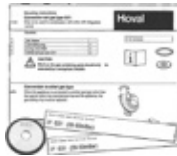
Accessories

Part No.



Modification set for propane
for TopGas® combi (21/18),
TopGas® classic (24)
no external main gas valve possible!

2057 298



Modification set for propane
TopGas® combi (26/23,32/28),
TopGas® classic (30)
No external main gas valve possible!

2057 299



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



Simple flue gas connecting piece E80
for separate conduction of flue gas and
combustion air

2029 057



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



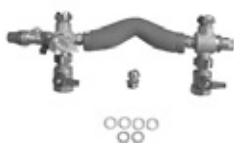
Automatic air vent 3/8" external thread
Air valve with automatic
shut-off valve
Casing and cover made of brass
EN 12165 CW617N and EPDM seals
Vertical venting
Operating temperature: max. 110 °C
Operating pressure: max. 10 bar
Glycol content: max. 30 %

2054 183



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

Accessories



Extension set sanitary tube
for TopGas® combi
essential for installation of
connection set 3
2 pieces

Part No.

6016 874



Mounting frame MR50 without diaphragm pressure expansion tank
For increasing the space to wall
in order to simplify installation
(e.g. flue gas duct directly on wall).
Not essential except for connection set above.
TopGas® combi (21/18)
TopGas® combi (26/23)
TopGas® combi (32/28)

2029 696
2029 701
2029 702


Mounting frame MR110 with diaphragm pressure expansion tank and corrugated hose
for connection to connection set 3
Diaphragm pressure expansion tank with connection set bottom on site!
Frame for fastening the Hoval TopGas® combi with built-in diaphragm pressure expansion tank and connection hose
Content 12 l/pre-pressure 0.75 bar
TopGas® combi (21/18)
TopGas® combi (26/23)
TopGas® combi (32/28)

6016 863
6016 864
6016 865


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



Flow temperature guard
for underfloor heating (1 controller per heating circuit) 15-95 °C, SD 6 K, capillary 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

242 902



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

Accessories



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"

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® combi (21/18, 26/23, 32/28)

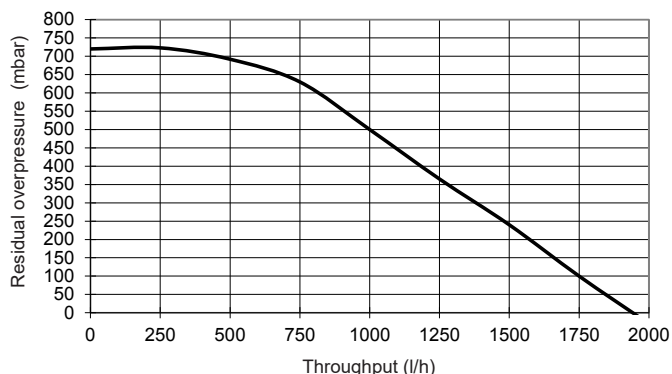
Type		(21/18)	(26/23)	(32/28)
• Nominal heat output at 80/60 °C, natural gas	kW	5.4-17.8	6.9-22.8	7.1-26.3
• Nominal heat output at 50/30 °C, natural gas	kW	5.9-18.6	7.6-23.4	7.8-27.1
• Nominal heat output at 80/60 °C, propane ¹⁾	kW	5.7-17.8	7.3-22.8	7.3-26.3
• Nominal heat output at 50/30 °C, propane ¹⁾	kW	6.3-18.6	8.0-23.4	8.0-27.4
• Nominal heat input with natural gas ²⁾	kW	5.6-18.7	7.1-23.7	7.2-27.3
• Nominal heat input domestic water heating, natural gas ²⁾	kW	5.6-22.1	7.1-28.0	7.5-32.7
• Nominal heat input with propane ¹⁾	kW	5.9-18.7	7.5-23.7	7.5-27.3
• Operating pressure heating min./max. (PMS)	bar	1/3	1/3	1/3
• Operating temperature max. (T _{max})	°C	85	85	85
• Boiler water content (V _(H2O))	l	1.4	1.7	2.0
• Flow resistance boiler		see diagram		
• Minimum circulation water quantity	l/h	180	180	180
• Boiler weight (without water content, incl. cladding)	kg	30	33	36
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV)	%	95.4/85.9	96.2/86.7	96.5/86.9
• Boiler efficiency at 30 % partial load operation (EN 15502) (NCV/GCV)	%	107.1/96.5	107.9/97.2	108.5/97.7
• Room heating energy efficiency				
- without control	η _s %	91	92	93
- with control	η _s %	93	94	95
- with control and room sensor	η _s %	95	96	97
• Water heating energy efficiency	η _{wh} %	83 (L)	85 (XL)	85 (XL)
• NOx class (EN 15502)		-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	27	34	51
• CO ₂ content in flue gas at min./max. nominal heat output	%	8.8/9.0	8.8/9.0	8.8/9.0
• Heat loss in standby mode	Watt	38	38	38
• Dimensions		see table of dimensions		
• Gas flow pressure min./max.				
- Natural gas E/LL	mbar	18-50	18-50	18-50
- Propane	mbar	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	0.56-1.88	0.71-2.38	0.72-2.74
- Natural gas LL (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³	m ³ /h	0.56-1.88	0.71-2.38	0.72-2.74
- Propane ¹⁾ (NCV = 25.9 kWh/m ³)	m ³ /h	0.23-0.72	0.29-0.92	0.29-1.05
• Operating voltage	V/Hz	230/50	230/50	230/50
• Electrical power consumption (incl. pump) min./max.	Watt	15/35	15/35	15/35
• Standby	Watt	2	2	2
• Type of protection	IP	44	44	44
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40
• Sound power level				
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	45	45	45
• Condensate quantity (natural gas) at 50/30 °C	l/h	1.8	2.2	2.6
• pH value of the condensate	approx.	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
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	31.0	39.3	45.3
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	8.4	10.6	10.8
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	85	85	85
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	64	64	64
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	32	32	32
- Maximum permitted temperature of the combustion air	°C	50	50	50
- Flow rate combustion air	Nm ³ /h	33.3	42.2	49.2
- Maximum supply pressure for supply air and flue gas line	Pa	75	75	75
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50

¹⁾ Data related to NCV. TopGas® combi can also be operated with propane.

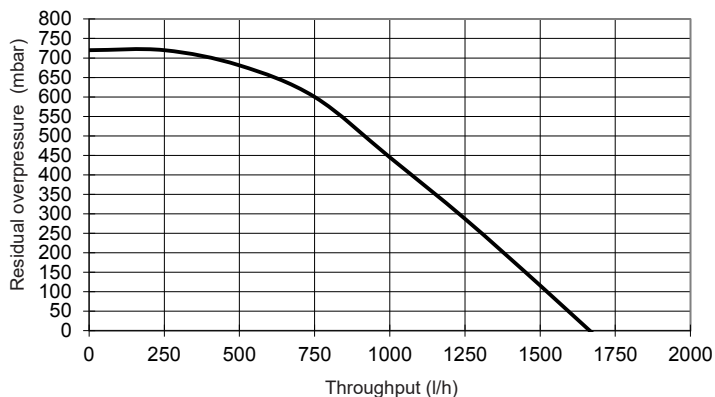
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Maximum residual overpressure heating pump

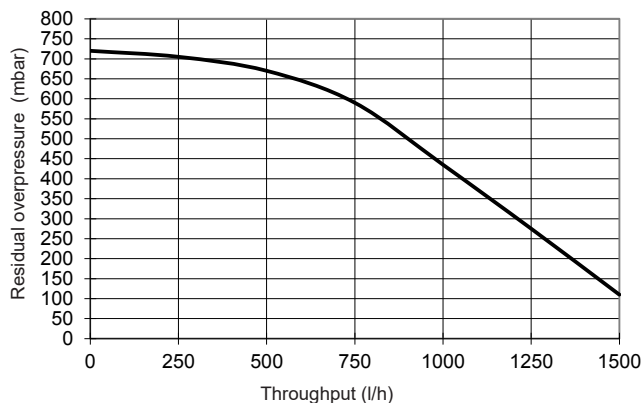
TopGas® combi (21/18)



TopGas® combi (26/23)



TopGas® combi (32/28)



Hot water output with TopGas® combi

TopGas® combi type	Hot water output				Max. flow rate through boiler dm ³ /10 min	Number of flats ³⁾	Stand-by deficiency qB (70 °C) Watt
	dm ³ /10 min ¹⁾ 40 °C	dm ³ /h ²⁾ 40 °C	dm ³ /10 min ¹⁾ 45 °C	dm ³ /h ²⁾ 45 °C			
(21/18) ⁴⁾	97	579	60	360	60	1	60
(26/23) ⁴⁾	126	759	80	480	80	1	80
(32/28) ⁴⁾	145	869	124	745	95	1	95

¹⁾ Hot water peak performance in 10 min.

Value can only be attained by addition of cold water to the boiler!

²⁾ Hot water output per hour.

Value can only be attained by addition of cold water to the boiler!

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

⁴⁾ Data indicated for hot water output valid at input pressure (domestic water/sanitary side) of 2 bar!

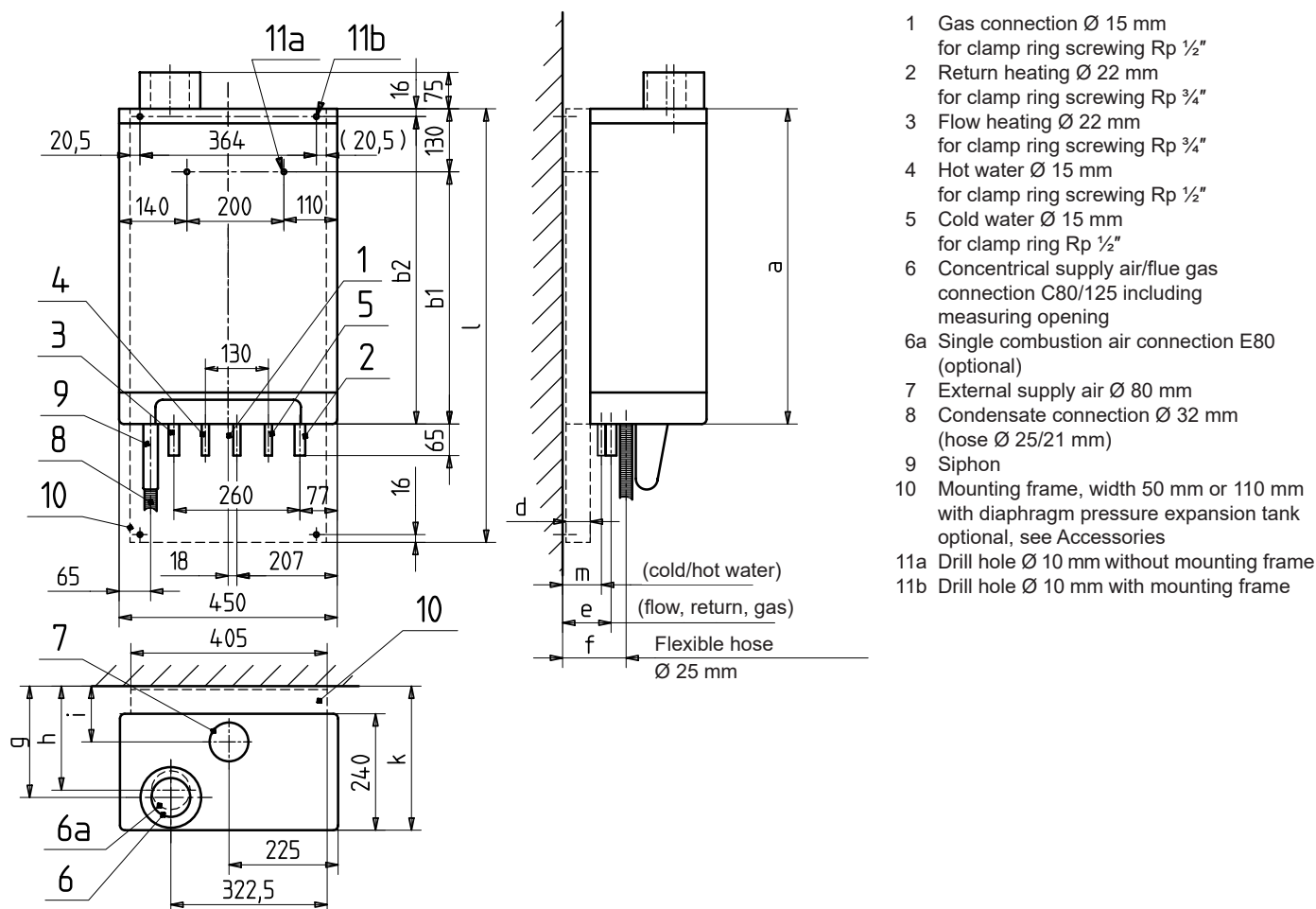
Notice

TopGas® combi may only be operated where the water hardness is less than 15 °dH (German degrees of hardness).

TopGas® combi (21/18, 26/23, 32/28)

Minimum spaces (Dimensions in mm)

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



TopGas® combi type

TopGas® combi type	a	b1	b2	d	e	f	g	h	i	k	l	m
(21/18)	590	460		0	50	75	185	170	65	247	—	30
(21/18) with mounting frame (MR50)	590		574	50	100	125	235	220	115	297	834	80
(21/18) with mounting frame with diaphragm pressure expansion tank (MR110)	590		574	110	160	185	295	280	175	357	834	140
(26/23)	650	520		0	50	75	185	170	65	247	—	30
(26/23) with mounting frame (MR50)	650		634	50	100	125	235	220	115	297	894	80
(26/23) with mounting frame with diaphragm pressure expansion tank (MR110)	650		634	110	160	185	295	280	175	357	894	140
(32/28)	710	580		0	50	75	185	170	65	247	—	30
(32/28) with mounting frame (MR50)	710		694	50	100	125	235	220	115	297	954	80
(32/28) with mounting frame with diaphragm pressure expansion tank (MR110)	710		694	110	160	185	295	280	175	357	954	140

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.
- 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.

Domestic water quality

TopGas® combi may only be operated where the domestic water quality is less than 13 d°H (german degrees of hardness).

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-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.
- **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.

Gas connection

Commissioning

- Start-up is to be carried out only by a specialist.
- 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. 18 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).

Boiler on the top storey of the building

If the gas boiler TopGas® combi is built in in a roof heating centre, an external water pressure switch 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 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.

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)		3.8-12.0
(18)		5.7-18.0
(24)		7.7-24.0
(30)		9.2-30.0

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!

Part No.

7014 088
7014 099
7014 100
7014 101



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)		3.8-12.0
(18)		5.7-18.0
(24)		7.7-24.0
(30)		9.2-30.0

Energy efficiency class of the compound system with control

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

7014 102
7014 103
7014 104
7014 105



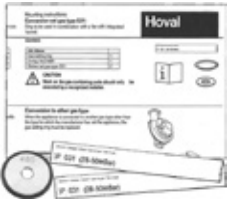
Hoval TopGas® classic (12-30)

Design as above but without controller.

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



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



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



Simple flue gas connecting piece E80
for separate conduction of flue gas and combustion air



Automatic air vent 3/4" 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 %

Part No.

2037 926
2057 295
2057 298
2057 299

2007 995

2063 018

2029 057

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

Part No.



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

Additional sludge separators
see "Various system components"

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



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



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

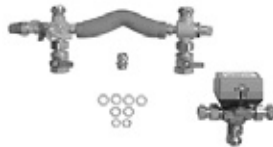
6037 757



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 ¾"
2 ball stop valves
Inner bore for heating flow/return
flow Rp ¾"

2025 576



Clamp ring screwing for gas connection



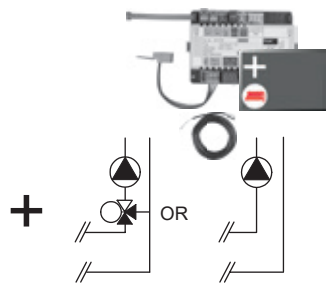
Calorifier with thermal insulation Hoval CombiVal ERW (200) white

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

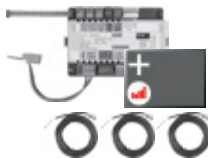
7015 961

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

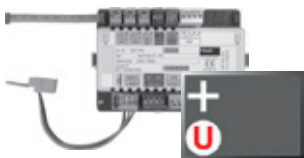
TopTronic® E module expansions
for TopTronic® E basic module heat generator



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



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



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

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



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

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

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

Flow rate sensor sets		
Plastic housing		
Size	Connection inches	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1¼"	5-85
DN 25	G 1½"	9-150

Flow rate sensor sets		
Brass housing		
Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1½"	14-240

Part No.

6034 576

6037 062

6034 575

6038 526
6038 507
6038 508
6038 509
6038 510

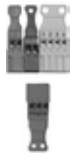
6042 949
6042 950

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"

Part No.



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

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)

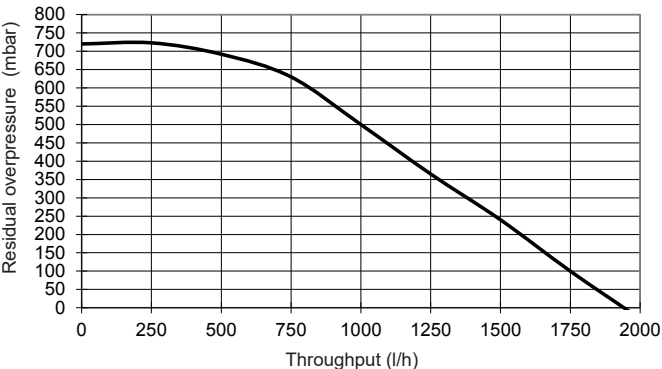
Type		(12)	(18)	(24)	(30)
• Nominal heat output at 80/60 °C, natural gas	kW	3.4-11.5	5.3-17.2	7.0-22.9	8.7-28.5
• Nominal heat output at 50/30 °C, natural gas	kW	3.8-12.0	5.7-18.0	7.7-24.0	9.2-30.0
• Nominal heat output at 80/60 °C, propane ¹⁾	kW	3.5-11.5	5.8-17.3	7.4-22.9	9.2-28.5
• Nominal heat output 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.

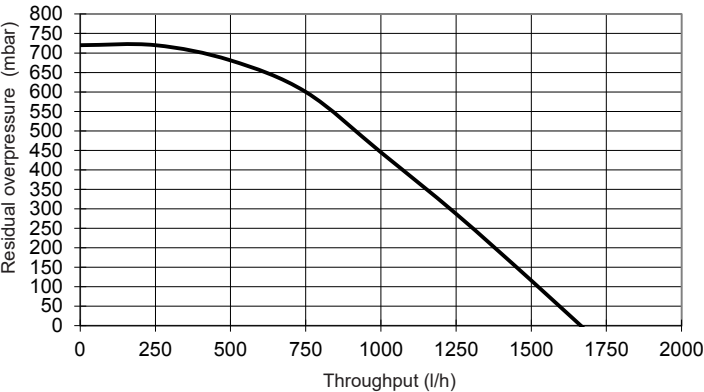
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Residual overpressures of heating pumps

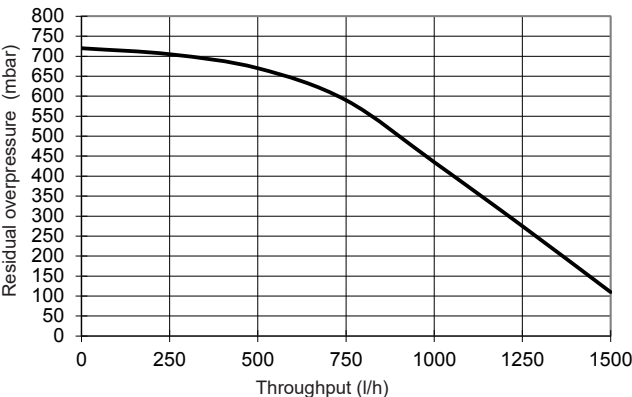
TopGas® classic (12)



TopGas® classic (18)

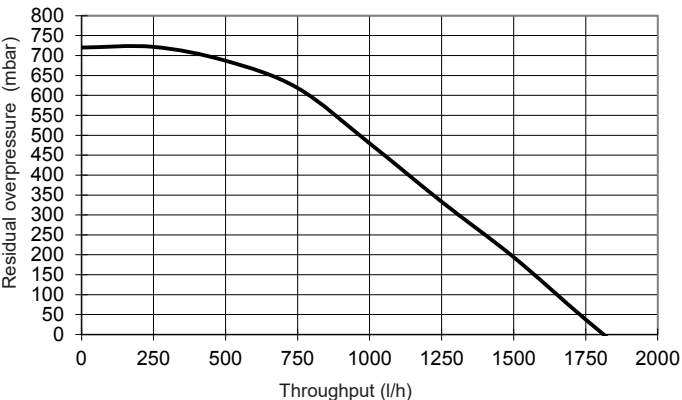


TopGas® classic (24,30)

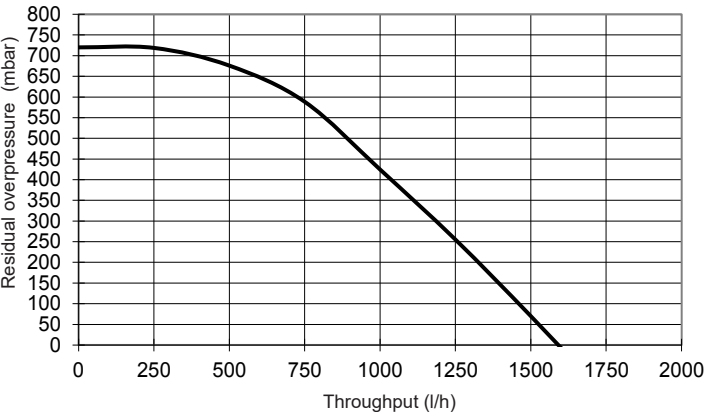


Residual overpressures of heating pumps TopGas® classic with connection set 4 or connection set 10
(reversing valve included in the set)

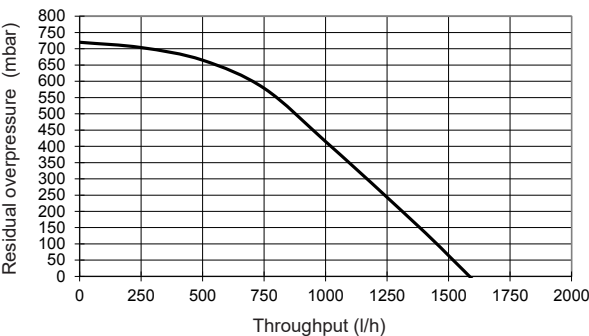
TopGas® classic (12)



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	mm	590	590	600
	Height	mm	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	(12)	TopVal (130)	166	267	1
		(130)	179	411	1
		(130)	190	546	1
		(130)	198	610	1
classic	(12)	TopVal (160)	199	267	1
		(160)	212	411	1-2
		(160)	223	546	1-2
		(160)	232	610	1-2
classic	(12)	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

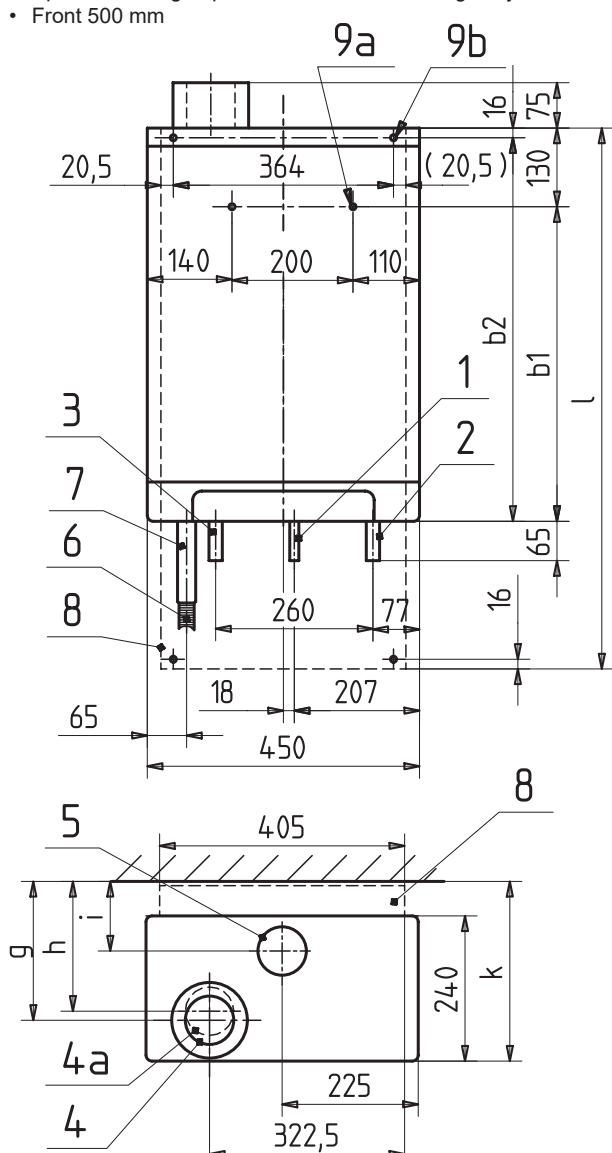
³⁾ Flat (3-4 rooms with 3-4 people, 1 bathtub with approx. 150 litres, 1 washbasin, 1 sink)

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

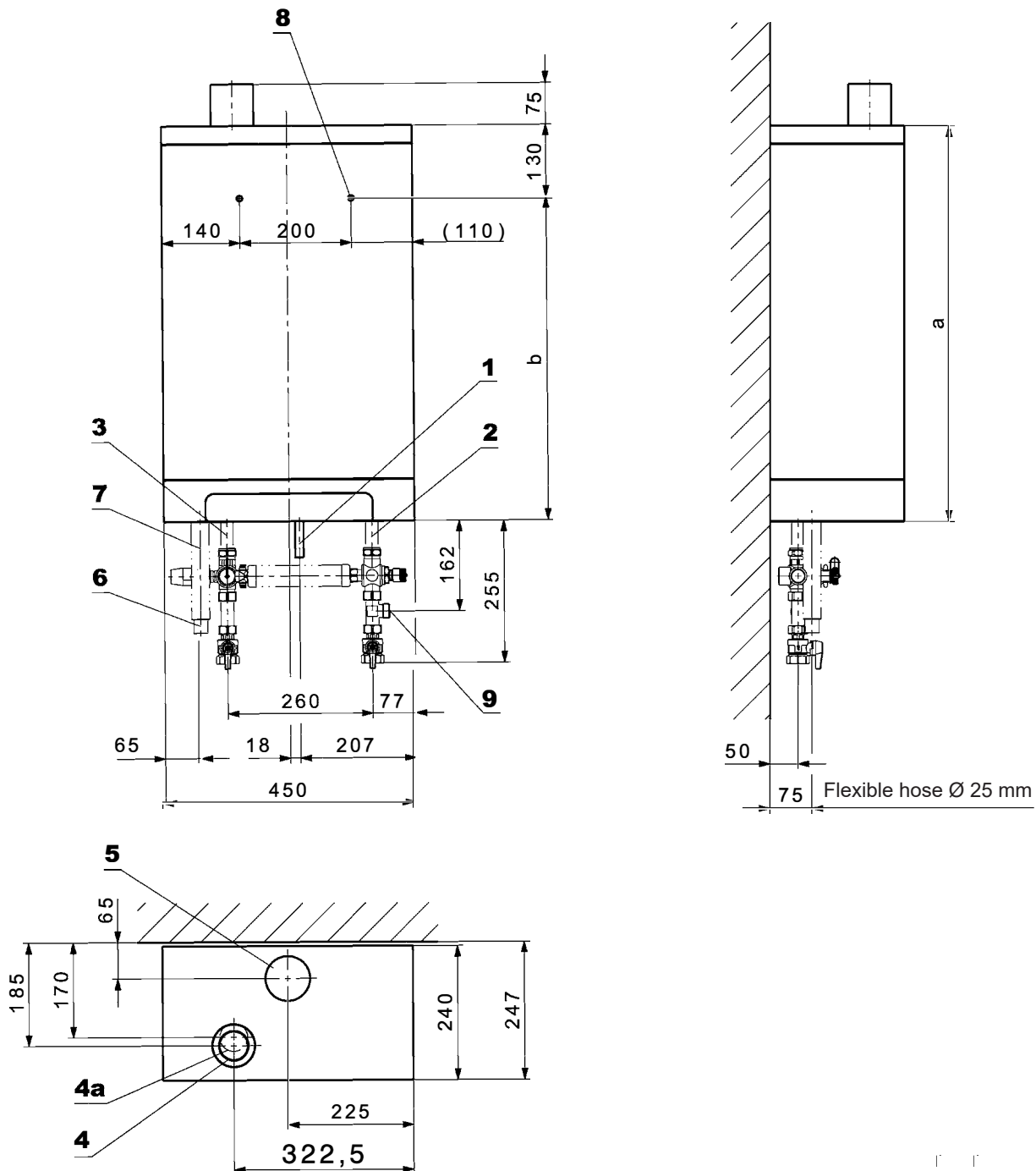
	a	b1	b2	d	e	f	g	h	i	k	l
(12)	590	460		0	50	75	185	170	65	247	–
(12) with mounting frame (MR50)	590		574	50	100	125	235	220	115	297	834
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	590		574	110	160	185	295	280	175	357	834
(18)	650	520		0	50	75	185	170	65	247	–
(18) with mounting 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

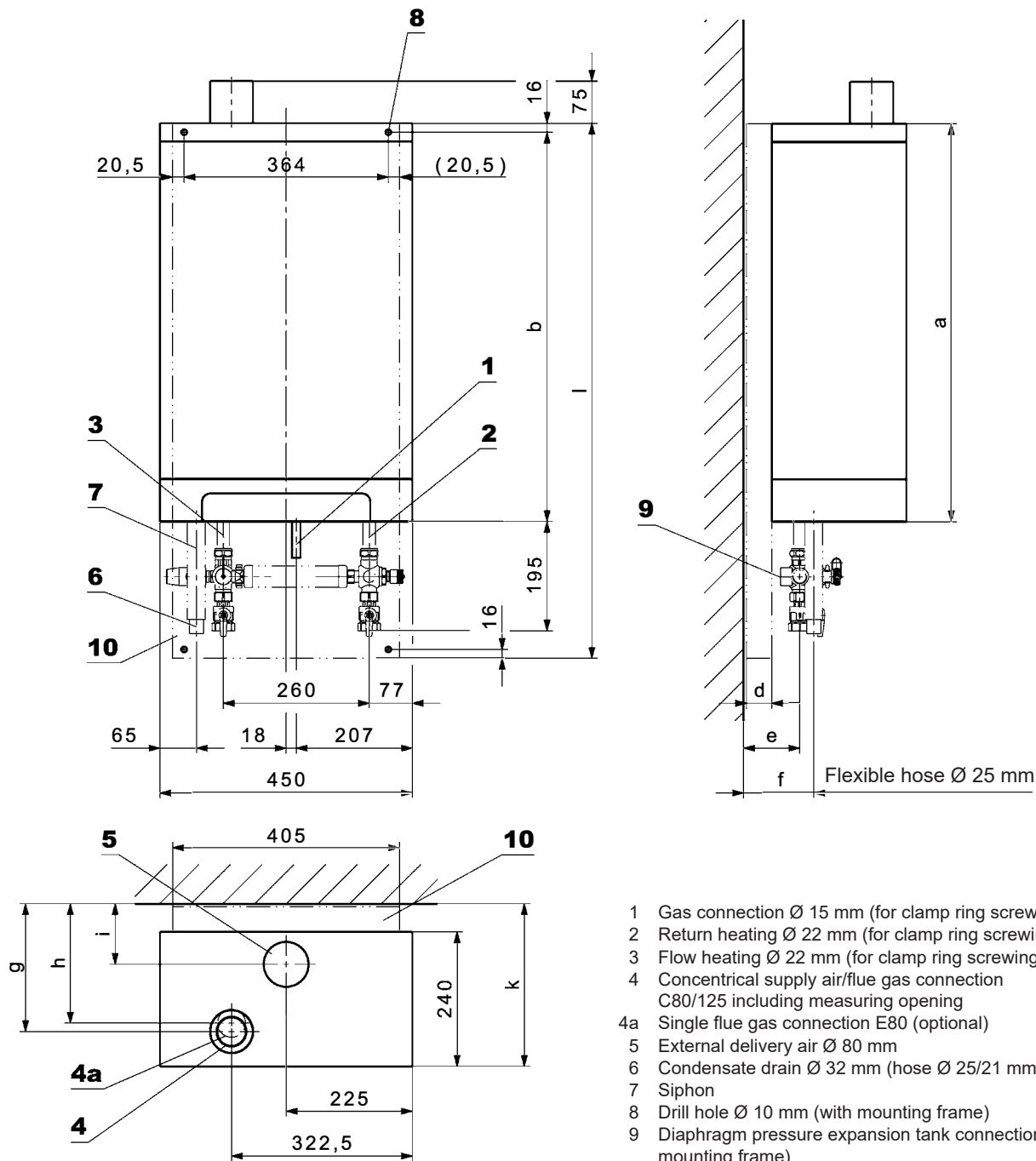
- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80 (optional)
- 5 External 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



TopGas® classic
type

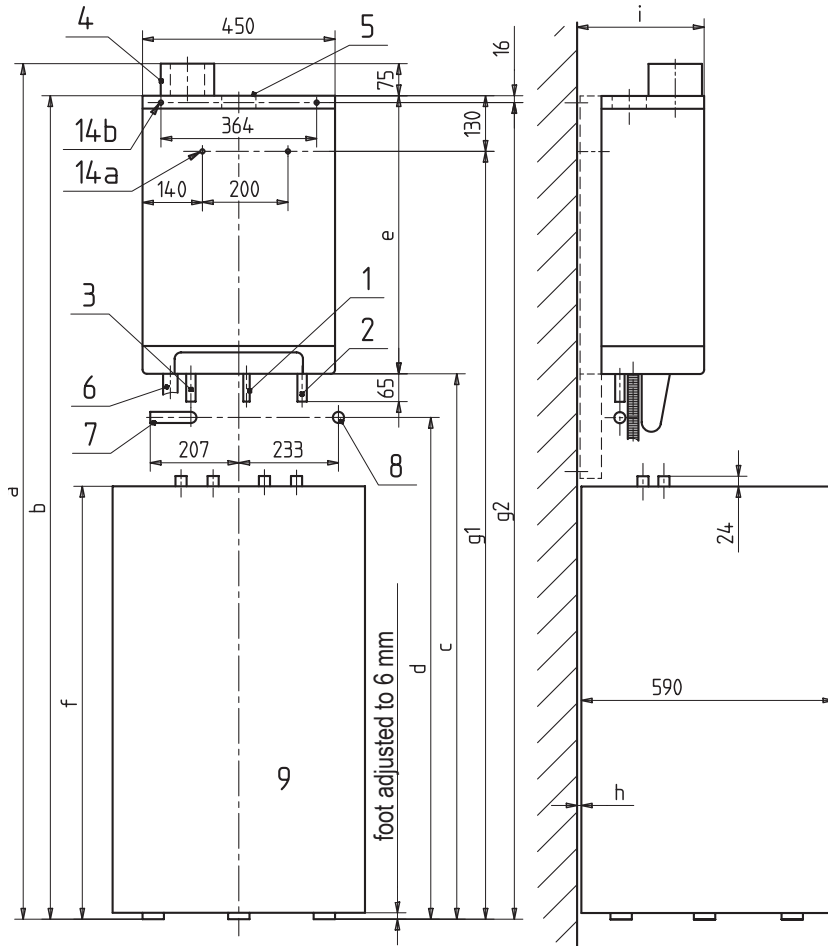
	a	b	d	e	f	g	h	i	k	l
(12) with mounting frame (MR50)	590	574	50	100	125	235	220	115	297	834
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	590	574	110	160	185	295	280	175	357	834
(18) with mounting frame (MR50)	650	634	50	100	125	235	220	115	297	894
(18) with mounting frame with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

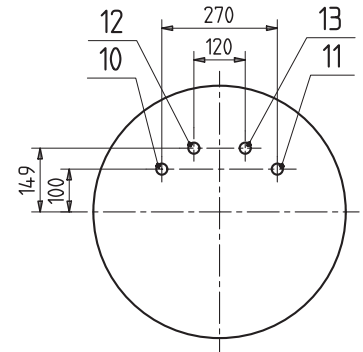
(Dimensions in mm)

- 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 ¾"
- 8 Connection positions behind heating return Rp ¾"
- 9 Calorifier TopVal (130,160)
- 10 Flow heating G ¾" external thread
- 11 Return heating G ¾" external thread
- 12 Hot water R ¾" external thread
- 13 Cold water R ¾" 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

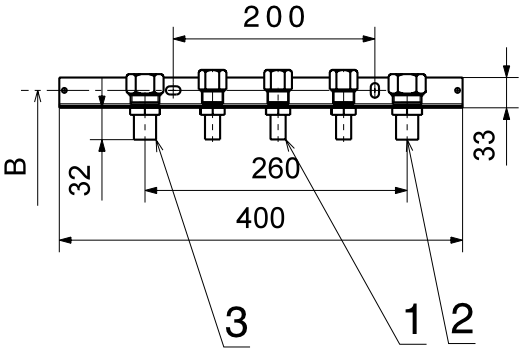
	a	b	c	d	e	f	g1	g2	h	i
(12)	1775	1700	1108	950	590	860	1570	—	10	247
(12) with mounting frame (MR50)	1775	1700	1108	950	590	860	—	1684	60	297
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	1823	1748	1156	998	590	860	—	1732	10	357
(18)	1835	1760	1108	950	650	860	1630	—	10	247
(18) 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

	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

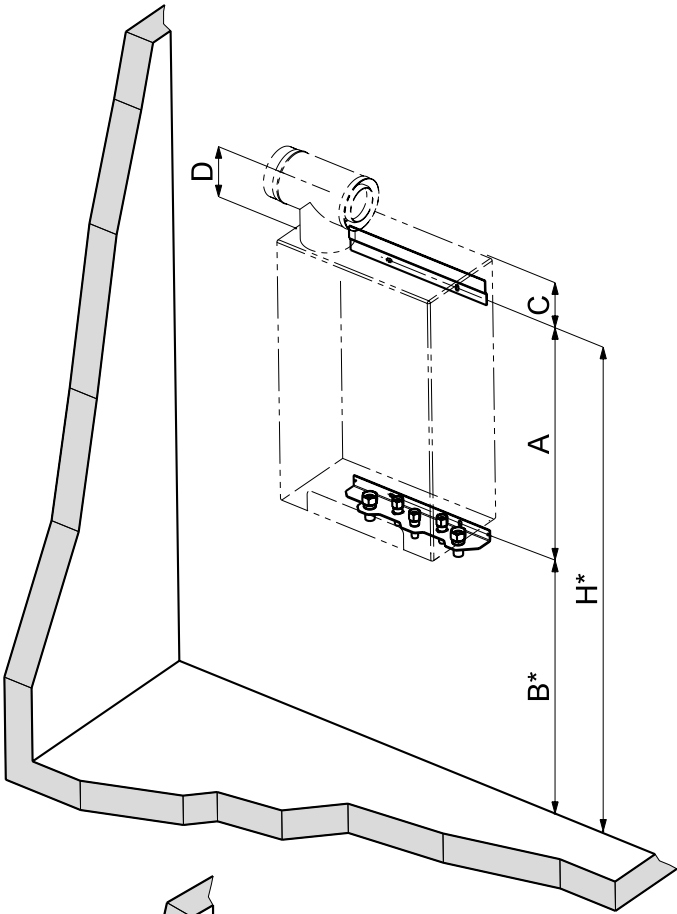
Measures for drill holes and visible console for preinstallation without mounting frame
(Dimensions in mm)



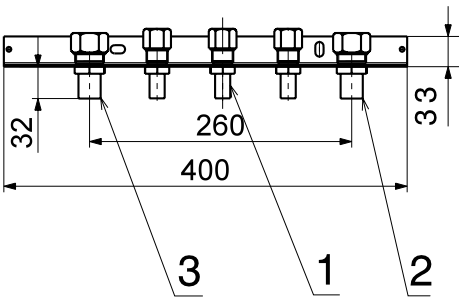
- 1 Gas connection Ø 15 mm (for locking ring fitting, on site)
- 2 Return (for locking ring fitting, on site)
- 3 Flow (for locking ring fitting, on site)

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)



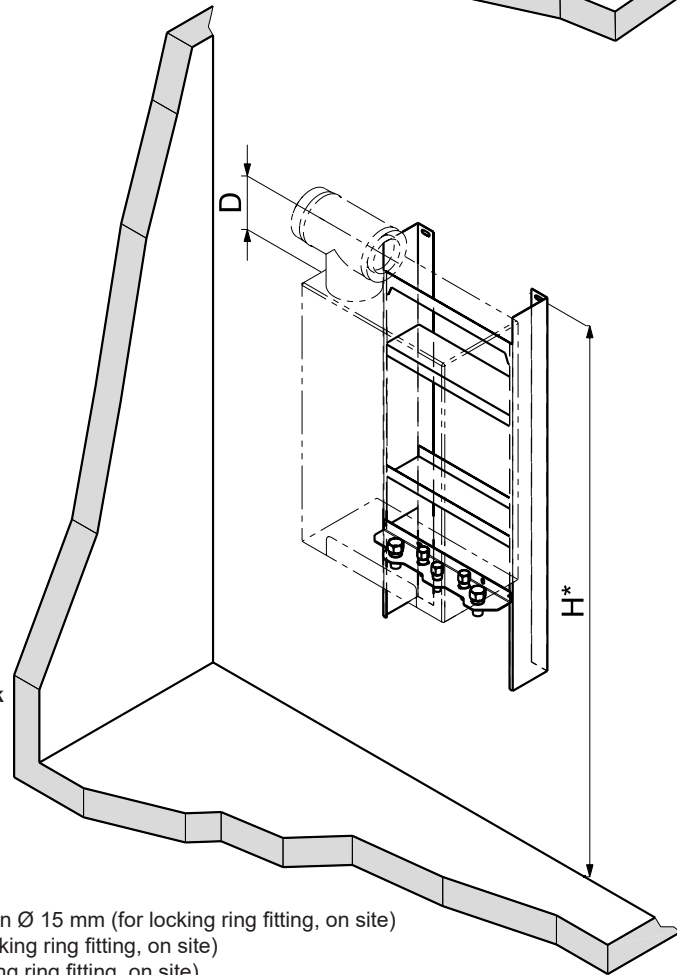
With mounting frame MR50

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



Permissions boilers

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

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		Nominal heat output 50/30 °C kW
type		
(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**

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

Part No.

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

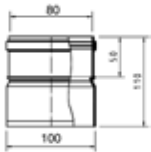
Type	Connection	Flow rate
	inches	at 1 m/s flow speed m³/h
MBL DN 32	Rp 1 1/4"	3.6
MBL DN 40	Rp 1 1/2"	5.0

2062 166
2062 167

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

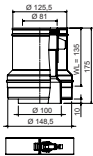
Additional sludge separators
see «Various system components»

Accessories



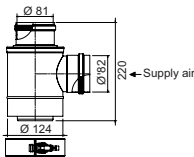
Reducing part E100 -> E80 PP

2015 245



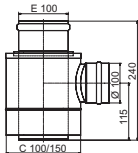
Concentric reducing part
C100/150 -> C80/125 PP
Painted white

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)
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.

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!

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

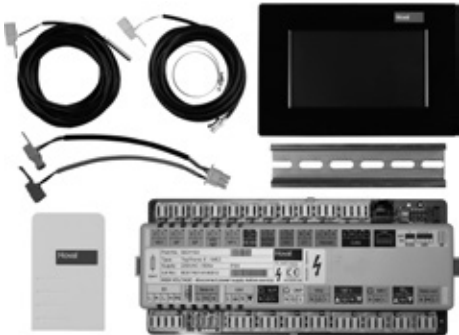
Part No.

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 control 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



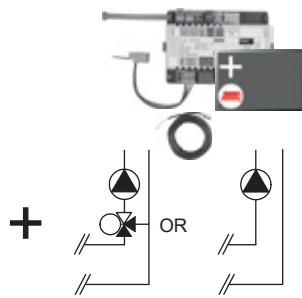
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

Part No.

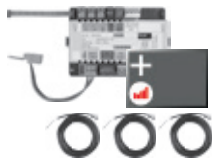
6037 312

242 902

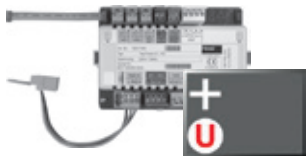
TopTronic® E module expansions
for TopTronic® E basic module heat generator



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



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



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

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



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

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

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

Flow rate sensor sets		
Plastic housing		
Size	Connection inches	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1¼"	5-85
DN 25	G 1½"	9-150

Flow rate sensor sets		
Brass housing		
Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1½"	14-240

Part No.

6034 576

6037 062

6034 575

6038 526
6038 507
6038 508
6038 509
6038 510

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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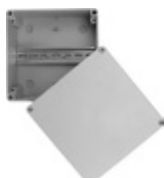
TopTronic® E sensors

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	8.8/8.8
• Heat loss in standby mode	Watt	95	95	105	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

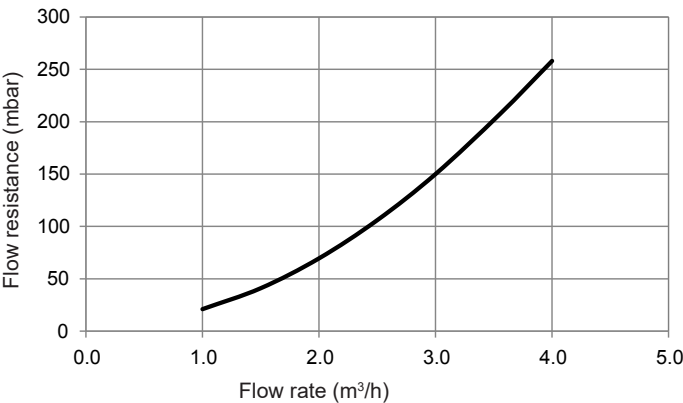
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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.

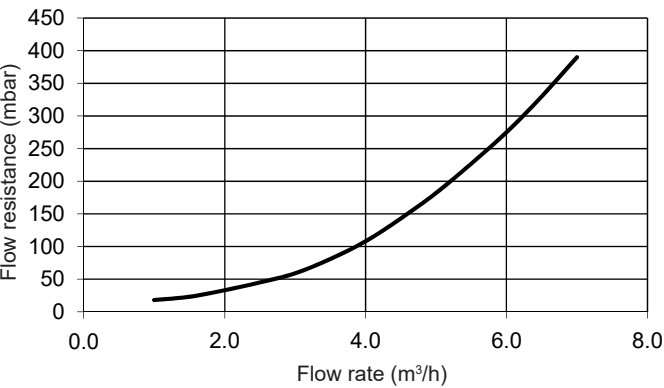
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

TopGas® classic (35,45)

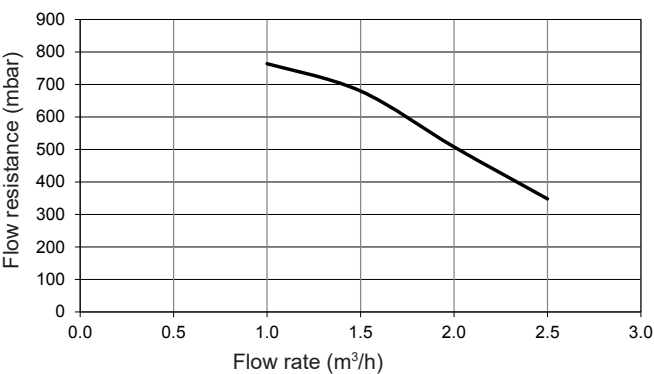


TopGas® classic (60,80)



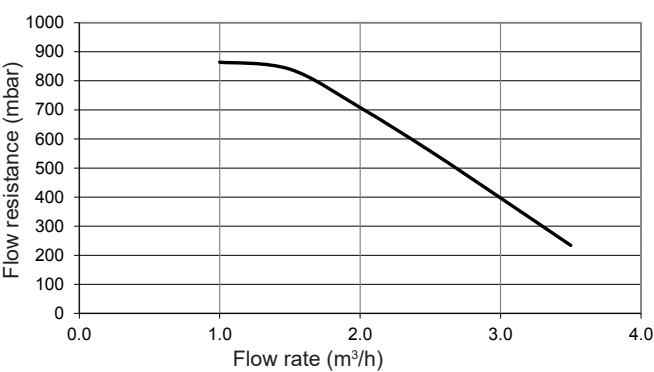
Maximum residual overpressure with connection set AS32-TG/SPS-S 8 PM1

TopGas® classic (35,45)

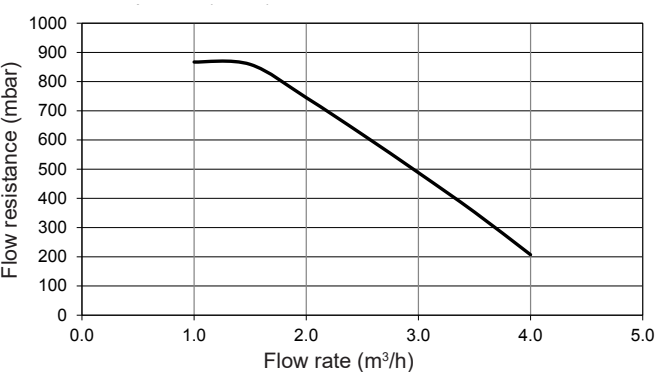


Maximum residual overpressure with connection set AS32-TG/SPS-I 10

TopGas® classic (35,45)

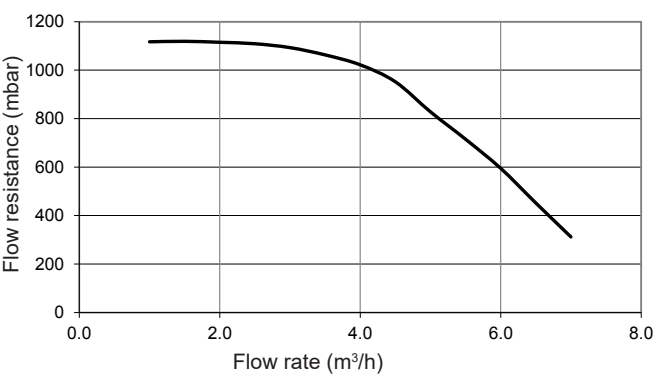


TopGas® classic (60,80)



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

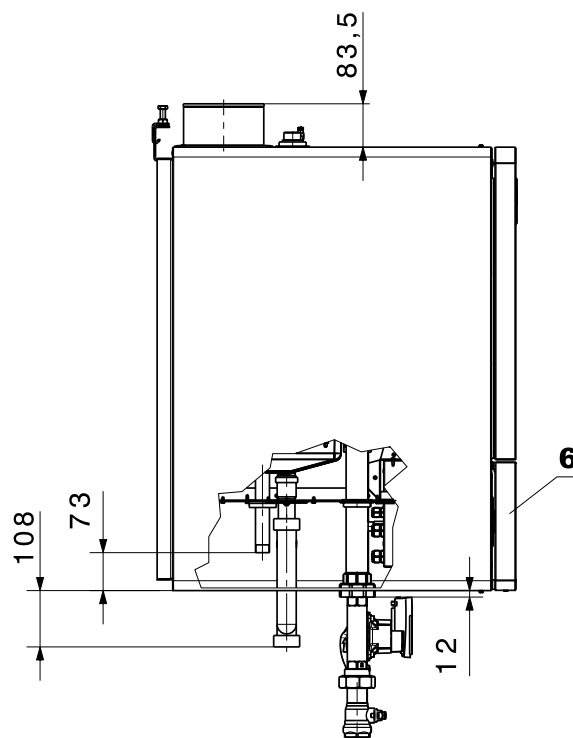
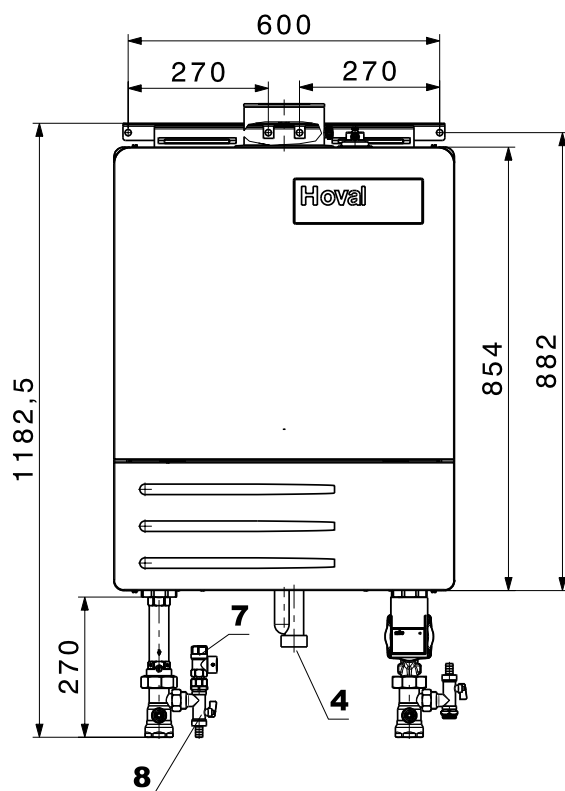
TopGas® classic (60,80)



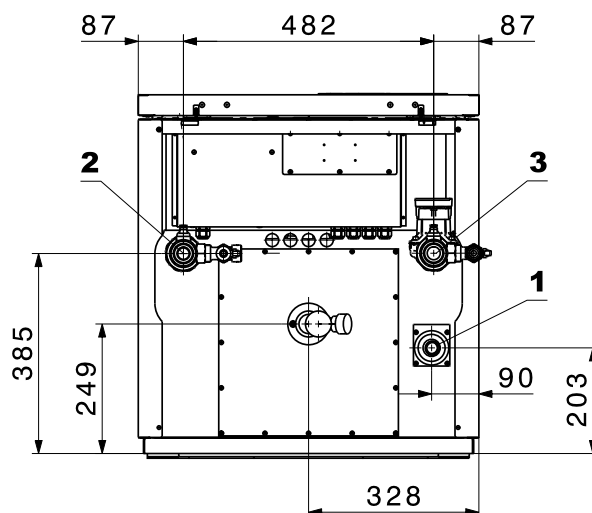
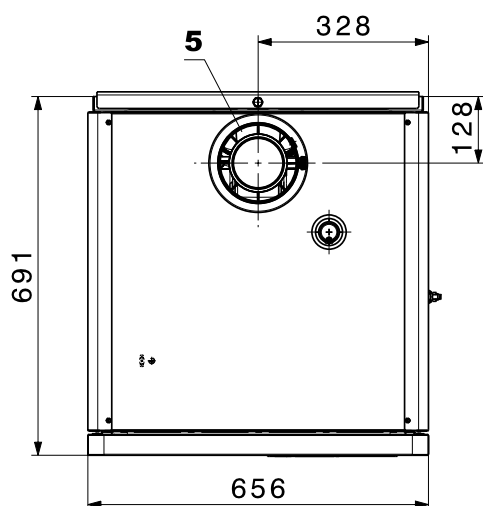
TopGas® classic (35-80)
Minimum spaces

(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 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.

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®	Nominal heat output 50/30 °C kW
classic type	
(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



Permissions boilers

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

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

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	•

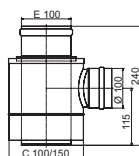
6043 801
6043 802

Speed control legend

 PWM1 or PM1

PWM control signal heating

Part No.


Separating piece C100/150 -> 2 x E100 PP

for UltraOij® (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.

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

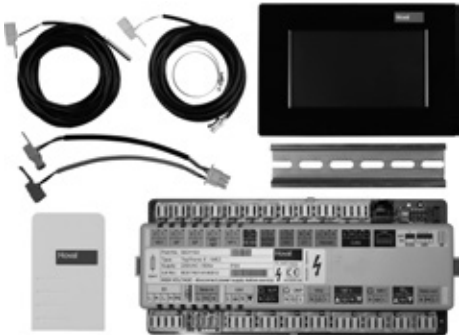
panel:

- 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.



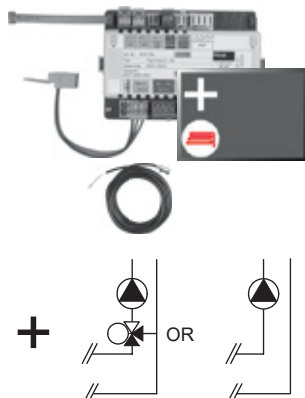
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

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:

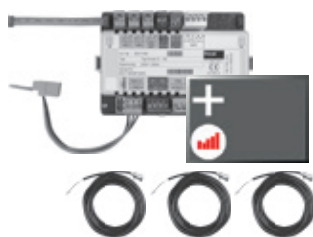
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

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

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

2062 167



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

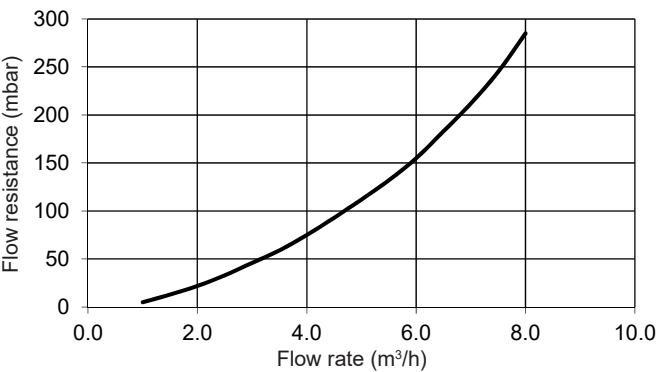
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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

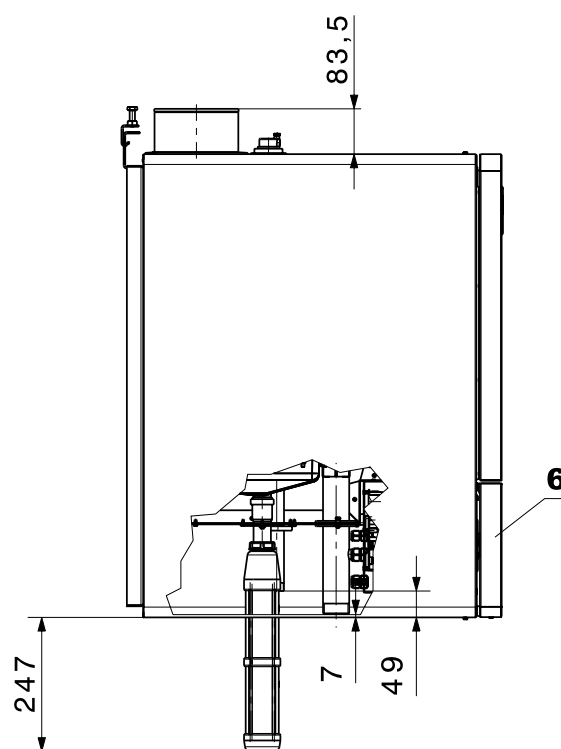
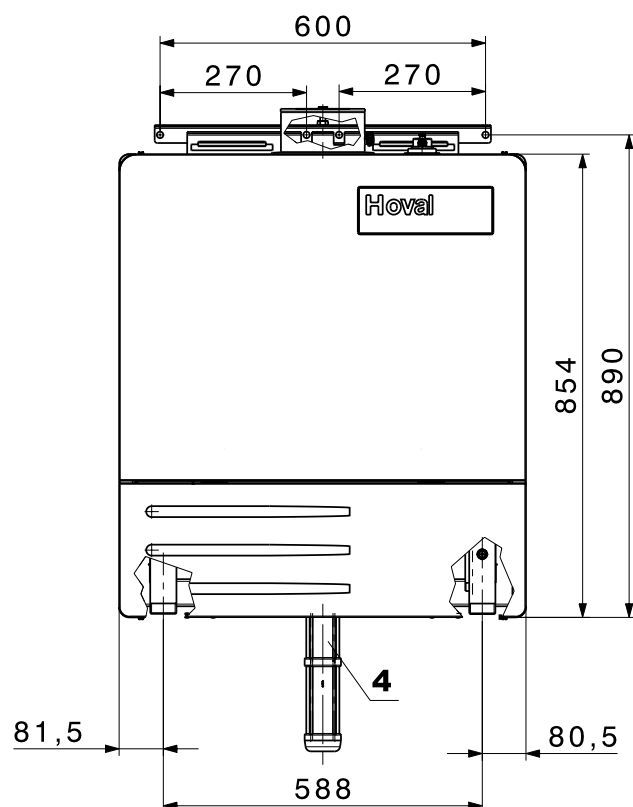
TopGas® classic (100,120)



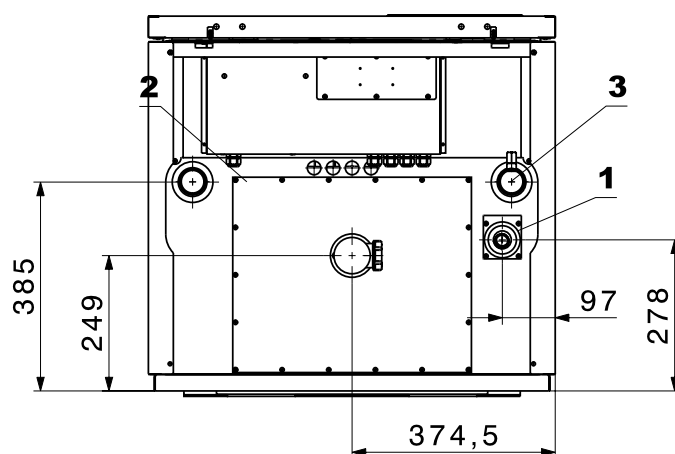
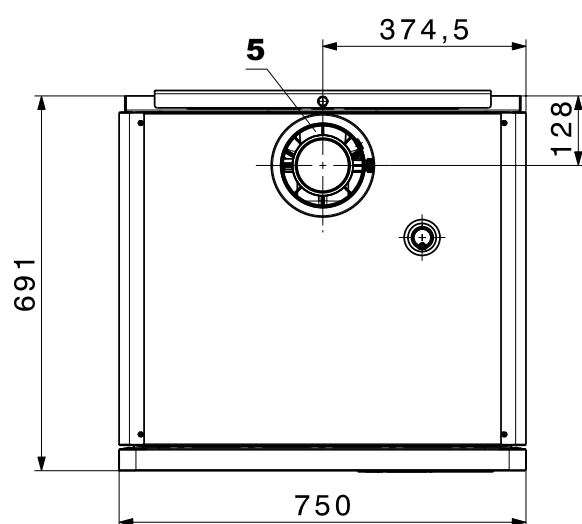
TopGas® classic (100,120)
Minimum spaces

(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 Concentrical 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	Gas throughput natural gas E	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
type	m³/h			
(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.

Hoval UltraGas® (15-100)

Gas condensing boiler

- Steel boiler with condensation 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
- Combustion chamber made of stainless steel
- Maximal flue gas condensation through downstream heating surface made of **aluFer®** stainless steel bounded pipe; heating gas side: aluminium water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor (minimum and maximum pressure limiter integrated)
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with blower and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plate, red powder-coated
- Heating connections to left and right for:
 - flow
 - return - high temperature
 - return - low temperature
- **UltraGas® (15-50):**
Flue gas connection backwards to the top
- **UltraGas® (70,100):**
concentric supply air/flue gas connection, vertically upwards, horizontally to rear as option, see accessories and dimension sheet
- TopTronic® E controller installed
- Possibility of connecting an external gas solenoid valve with error output

TopTronic® E controller

Control panel

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

TopTronic® E control module

- 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)



Model range

UltraGas® type		Nominal heat output 50/30 °C kW
(15)	A	3.0-15.2
(20)	A	4.0-20.2
(27)	A	5.0-26.9
(35)	A	5.8-34.3
(50)	A	8.0-48.8
(70)	A	13.5-69.0
(100)		20.9-99.0

Energy efficiency class of the compound system with control.

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
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- RAST 5 basic plug set

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

Number of modules that can be additionally installed in the heat generator:

- 1 module expansion and 1 controller module **or**
- 2 controller modules

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

Further information about the TopTronic® E
see "Controls"

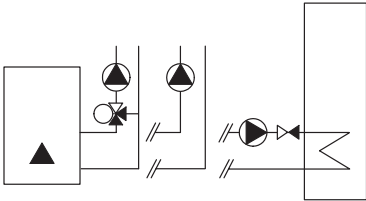
Optional

- For propane
- Free-standing calorifier see Calorifiers
- Flue gas systems

Delivery

- Floor-standing gas condensing boiler fully cased

Floor-standing gas condensing boiler



Boiler permissions
UltraGas® (15-100)

CE product ID No. CE-0085AQ0620

Hoval UltraGas® (15-100)
Floor-standing gas condensing boiler
with built-in Hoval TopTronic® E control

- Control functions integrated for
- 1 heating circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- Can be optionally expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
 - Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

Boiler made of steel with TopTronic® E control, combustion chamber made of stainless steel. Secondary heating surfaces made of **aluFer®** stainless steel composite pipe. Premix burner with blower. Modulating burner.

Delivery
Gas boiler fully panelled

UltraGas®		Nominal heat output
type		50/30 °C kW
(15)	A ➤	3.0-15.2
(20)	A ➤	4.0-20.2
(27)	A ➤	5.0-26.9
(35)	A ➤	5.8-34.3
(50)	A ➤	8.0-48.8
(70)	A ➤	13.5-69.0
(100)		20.9-99.0

Part No.

- 7013 300
- 7013 301
- 7013 302
- 7013 303
- 7013 304
- 7011 990
- 7011 991

Energy efficiency class of the compound system with control

Accessories

Part No.

Modification set for propane
for UltraGas® (15-70)

6047 605

Modification set for propane
for UltraGas® (100)

6047 609

Necessary accessories for
room air independent operation



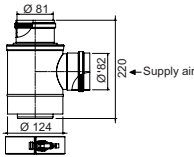
**Connection set for room air
independent operation without
sound absorber**
for UltraOil® (16-35), UltraGas® (15-50)
Consisting of:
corrugated pipe Ø 50 mm for
combustion air supply to burner.
Concentric boiler connection piece
E80 -> C80/125 PP for flue gas
and supply air.
Necessary if no Hoval
LAS flue gas line system is used.

6027 510

In the UltraGas®, ventilation of the installa-
tion or boiler room must be guaranteed for
operation INdependent from the room air.

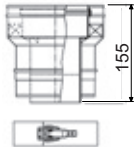
For room air independent operation with sepa-
rate combustion air duct (not concentrical).

Accessories



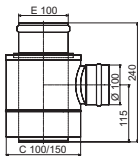
Separating piece C80/125 -> 2 x E80 PP
for room air independent operation
for separate conduction of flue gas and
combustion air.

2010 174



Adapter piece C80/125 -> C100/150 PP

2018 533



Separating piece C100/150 -> 2 x E100 PP
for UltraOil® (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.

2015 244



Horizontal flue gas connection E100 PP
for UltraOil® (50), UltraGas® (70,100)
for the conversion of the vertical
flue gas connection (series delivery)
to a horizontal to rear routed
flue gas connection.

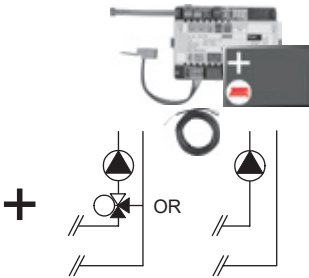
6016 933



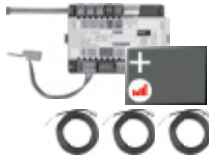
Suction tube for combustion air
for UltraGas® (70)
only necessary with horizontal and
concentric flue gas connection
(separate ducting of combustion air
and flue gas).
Connection "Horizontal flue gas
connection E100 PP" essential,
ø 75 mm
The boiler room must be ventilated.

6017 288

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!



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



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

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



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

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

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

Flow rate sensor sets		
Plastic housing		
Size	Connection inches	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1¼"	5-85
DN 25	G 1½"	9-150

Flow rate sensor sets		
Brass housing		
Size	Connection inches	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1½"	14-240

Part No.

6034 576

6037 062

6034 575

6038 526
6038 507
6038 508
6038 509
6038 510

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 TTE-FE HK	6034 503



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

Part No.

Flow temperature guard

for under floor heating (1 guard per heating circuit) 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, enclosed cable and plug

242 902



Set clamp-on thermostat RAK-TW1000.S
Thermostat with strap, with cable (4 m) and plug

6033 745

Immersion thermostat RAK-TW1000.S SB 150
Thermostat with immersion sleeve ½"
- depth of immersion 150 mm, brass nickel-plated

6010 082



CO monitor

For safety shut-off of the boiler on leakage of carbon monoxide
incl. connection cable

6043 277



Installation example

for UltraGas® (15-50)

Safety set SG15-1"

Suitable up to max. 50 kW
complete with safety valve (3 bar)
Pressure gauge and autom. aspirator with shut-off valve.
Connection: DN 15, 1" internal thread

641 184



Installation example

for UltraGas® (70, 100)

Safety set SG20-1"

Area of application up to 100 kW
complete with safety valve (3 bar)
Pressure gauge and autom. aspirator with shut-off valve.
Connection: DN 20-1" internal thread

6014 390



Boiler socket

for MultiJet® (20,25),
UltraOil® (16-35), UltraGas® (15-50)
to elevate the condensate drainage
made of steel
height 150 mm
anthracite painted

6025 418

Accessories



Gas valve
with thermally releasing cut-off device.

Type	Connection inches
DN 15	R ½"
DN 20	R ¾"
DN 25	R 1"



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"

Part No.

2012 075
2012 077
2069 324

2007 995
2007 996

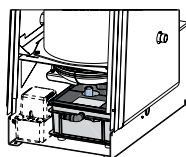
Condensate drain for Hoval UltraGas® (15-90)



Condensate pump

for transporting condensate
into a higher drainage duct
Including connection lines
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: max. 4 m
Can be combined with neutralisation box

6045 476



Neutralisation box

for transporting condensation water into
a lower lying drainage duct
incl. condensate neutralisation
incl. neutralisation granulate 3 kg
combinable with condensate pump
can be mounted in boiler socket

6024 764

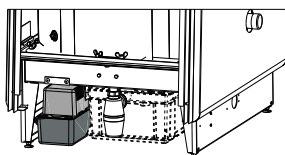


Neutralisation granulate

for neutralisation box
Refill set volume 3 kg
Life time of one filling:
approx. 1 year, depending on amount
of condensate

2028 906

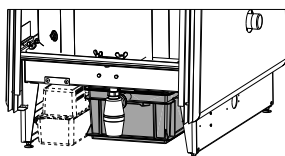
Condensate drain for Hoval UltraGas® (70,100)



Condensate pump

for UltraOil® (50), UltraGas® (70,100)
for transporting condensate
into a higher drainage duct
Including connection lines
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: max. 4 m
Can be combined with neutralisation box
can be mounted in boiler socket

6061 127



Neutralisation box

for UltraOil® (50), UltraGas® (70,100)
for transporting condensation water into
a lower lying drainage duct incl.
neutralisation granulate 6 kg.
Combinable with condensate pump;
can be mounted in boiler socket

6012 553



Neutralisation granulate

for neutralisation box
Refill set volume 3 kg
Life time of one filling:
approx. 1 year, depending on amount
of condensate

2028 906

Boiler connection set



Connection set AS 25-S/NT/HT
for mounting a
heating regulating armature HA25 for
MultiJet® (12,16), UltraOil® (16,20),
UltraGas® (15,27)
Rigid flow pipe and flexible return pipe
Suitable for left or right connection
Low/high temperature
Connection set completely insulated
For mounting a heating
regulating armature HA20 an
adapter set DN 20-DN 25 is required.

6017 055



Connection set AS 32-S/NT/HT
for mounting a
heating regulating armature HA32
for UltraGas® (35,50)
Rigid flow pipe and flexible
return pipe with fastening material
Suitable for left or right connection
Low/high temperature
Connection set completely insulated
For mounting a heating
regulating armature HA25 an
adapter set DN 25-DN 32 is required.

6014 846



Connection set AS 40-S/NT/HT
for mounting a
heating regulating armature HA40
for UltraOil® (50), UltraGas® (70,100)
Rigid flow pipe and flexible
return pipe with screw flange R 1½"
Suitable for left or right connection
Low/high temperature
Connection set completely insulated
For mounting a heating
regulating armature HA32 an
adapter set DN 32-DN 40 is required.

6014 848



Connection set AS 25-LG
for mounting a
Compact charging group LG-2
for MultiJet® (12,16),
UltraOil® (16-35), UltraGas® (15-27)
Suitable for left or right connection
Low-temperature return
Connection set completely insulated
made of flexible pipes

6034 818

Heating armature groups


Heating armature group HA-3BM-R

with 3-way motor mixer and heat-insulating box.
Installation right (flow left)

HA group/pump Speed control EEI


DN 20 (¾")

HA20-3BM-R/HSP 4	•		•	•	0.18	6051 715
HA20-3BM-R/HSP 6	•		•	•	0.20	6051 716
HA20-3BM-R/SPS-S 7	•	•	•	•	0.20	6049 541
HA20-3BM-R/SPS-S 8	•	•	•	•	0.20	6049 542

DN 25 (1")

HA25-3BM-R/HSP 6	•		•	•	0.20	6051 717
HA25-3BM-R/SPS-S 7	•	•	•	•	0.20	6049 545
HA25-3BM-R/SPS-S 8	•	•	•	•	0.20	6049 546
HA25-3BM-R					without pump	6046 642

Pumps for HA25-3BM-R

see "Circulating pumps".

Pump installation dimensions 1½" x 180 mm

DN 32 (1¼")

HA32-3BM-R/SPS-S 7	•	•	•	•	0.20	6049 549
HA32-3BM-R/SPS-S 8	•	•	•	•	0.20	6049 550
HA32-3BM-R/SPS-I 8	•	•	•	•	0.23	6059 328
HA32-3BM-R/SPS-I 12 PM1	•		•	•	0.23	6046 619
HA32-3BM-R					without pump	6046 643

Pumps for HA32-3BM-R

see "Circulating pumps".

Pump installation dimensions 2" x 180 mm

DN 40 (1½")

HA40-3M-R/SPS-I 8	•		•	•	0.23	6059 327
HA40-3M-R/SPS-I 12 PM1	•		•	•	0.23	6040 904
HA40-3M-R					without pump	6014 867

Pumps for HA40-3M

see "Circulating pumps".

Pump installation dimensions DN 40/PN 6 x 250 mm

Part No.
Speed control legend

Δp-v Variable differential pressure

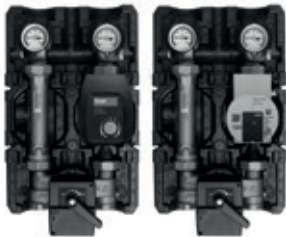
ENF Vent function 10 min.

 PWM control signal heating

Δp-c Constant differential pressure

 Constant rotational Speed

Heating armature groups



Heating armature group HA-3BM-L
with 3-way motor mixer and heat-insulating box.
Installation left (flow right)

HA group/pump Speed control EEI






     ≤

DN 20 (¾")					
HA20-3BM-L/HSP 4	•		•	•	0.18
HA20-3BM-L/HSP 6	•		•	•	0.20
HA20-3BM-L/SPS-S 7	•	•	•	•	0.20
HA20-3BM-L/SPS-S 8	•	•	•	•	0.20
DN 25 (1")					
HA25-3BM-L/HSP 6	•		•	•	0.20
HA25-3BM-L/SPS-S 7	•	•	•	•	0.20
HA25-3BM-L/SPS-S 8	•	•	•	•	0.20
HA25-3BM-L					without pump

Pumps for HA25-3BM-L
see "Circulating pumps".
Pump installation dimensions 1½" x 180 mm

DN 32 (1 ¼")					
HA32-3BM-L/SPS-S 7	•	•	•	•	0.20
HA32-3BM-L/SPS-S 8	•	•	•	•	0.20
HA32-3BM-L/SPS-I 8	•	•	•	•	0.20
HA32-3BM-L/SPS-I 12 PM1	•	•	•	•	0.23
HA32-3BM-L					without pump

Pumps for HA32-3BM-L
see "Circulating pumps".
Pump installation dimensions 2" x 180 mm

Speed control legend		
	Δp-v	Variable differential pressure
	ENF	Vent function 10 min.
		PWM control signal heating
	Δp-c	Constant differential pressure
		Constant rotational Speed



Charging group LG-2

Heating armature group HA-2

For the connection of a side calorifier or as heating circuit without mixer, with heat-insulating box. Installation right (flow left).

Charging/HA group/pump Speed control EEI



DN 20 (¾")

LG/HA20-2/HSP 4	•	•	•	0.18	6051 743
LG/HA20-2/HSP 6	•	•	•	0.20	6051 744
LG/HA20-2/SPS-S 7	•	•	•	0.20	6040 906
LG/HA20-2/SPS-S 8	•	•	•	0.20	6040 907

DN 25 (1")

LG/HA25-2/HSP 6	•	•	•	0.20	6051 745
LG/HA25-2/SPS-S 7	•	•	•	0.20	6049 553
LG/HA25-2/SPS-S 8	•	•	•	0.20	6049 554
LG/HA25-2	without pump				6046 646

Pumps for LG/HA25-2

see "Circulating pumps".

Pump installation dimensions 1½" x 180 mm

DN 32 (1 ¼")

LG/HA32-2/SPS-S 8	•	•	•	0.21	6049 555
LG/HA32-2/SPS-I 8 PM1	•	•	•	0.20	6059 330
LG/HA32-2	without pump				6046 647

Pumps for LG/HA32-2

see "Circulating pumps".

Pump installation dimensions 2" x 180 mm

Part No.

Speed control legend

	Δp-v	Variable differential pressure
	ENF	Vent function 10 min.
		PWM control signal heating
	Δp-c	Constant differential pressure
		Constant rotational Speed



Wall brackets
for mounting a Hoval
armature group on the wall.

Type	Axle spacing	Connection		Wall clear-
	mm	top	bottom	ance
		inches	inches	mm
DN 20	90	Rp 1"	R 1"	70,85,100
DN 25	125	Rp 1½"	R 1"	87-162
DN 32	125	Rp 2"	R 1½"	142,167

Part No.

6019 209
6019 210
6025 295



Adapter set DN 20-DN 25
for the installation of the HA group
DN 20 to a wall distributor DN 25 or
a connection set DN 25.
Installation height: 120 mm

6013 693

Adapter set
for the installation of the HA group to a wall
distributor
Type

DN 32-DN 25
DN 25-DN 32
DN 25-DN 40

6007 191
6006 954
6014 852



Adapter fitting DN 32-DN 40
for the installation of the HA group
DN 32 to a wall distributor DN 40 or a
connection set AS 40-S/NT/HT.

6014 863

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

System modules
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.

Hoval UltraGas® (15-27)

Type		(15)	(20)	(27)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	3.0-14.3	3.8-18.7	4.5-25.0
• Nominal heat output at 50/30 °C, natural gas ^{1), 2)}	kW	3.0-15.2	4.0-20.2	5.0-26.9
• Nominal heat output at 80/60 °C, propane ³⁾	kW	4.5-13.8	4.9-18.6	6.6-24.3
• Nominal heat output at 50/30 °C, propane ²⁾	kW	4.8-15.3	5.2-20.7	7.3-27.0
• Nominal heat input with natural gas ⁴⁾	kW	2.9-14.5	3.8-18.9	4.7-25.4
• Nominal heat input with propane ³⁾	kW	4.7-14.3	5.1-19.3	6.8-25.2
• Operating pressure heating min./max. (PMS)	bar	1/3	1/3	1/3
• Operating temperature max. (T _{max})	°C	85	85	85
• Boiler water content (V _(H2O))	l	57	55	51
• Flow resistance boiler ⁵⁾	z value	3.5	3.5	3.5
• Minimum circulation water quantity	l/h	-	-	-
• Boiler weight (without water content, incl. cladding)	kg	176	179	186
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV)	%	97.5/87.8	97.0/88.1	97.9/88.2
• Boiler efficiency at 30 % partial load operation (NCV/GCV)	%	107.9/97.2	108.0/97.3	108.0/97.3
• Room heating energy efficiency				
- without control	ηs	%	92	92
- with control	ηs	%	94	94
- with control and room sensor	ηs	%	96	96
• NOx class (EN 15502)		-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	33	32
• CO ₂ -content in flue gas at min./max. nominal heat output	%	8.8/9.0	8.8/9.0	8.8/9.0
• Heat loss in standby mode	Watt	160	160	160
Dimensions		see table of dimensions		
• Gas flow pressure min./max.				
- Natural gas E/LL	mbar	17.4-50	17.4-50	17.4-50
- Propane	mbar	37-50	37-50	37-50
• Gas connection values at 15 °C/1013 mbar:				
- Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.97 kWh/m ³	m ³ /h	0.29-1.45	0.38-1.90	0.47-2.55
- Natural gas LL- (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³	m ³ /h	0.34-1.69	0.44-2.21	0.55-2.96
- Propane (NCV = 25.9 kWh/m ³)	m ³ /h	0.18-0.55	0.20-0.75	0.26-0.97
• Operating voltage	V/Hz	230/50	230/50	230/50
• Electrical power consumption min./max.	Watt	20/44	22/62	20/56
• Stand-by	Watt	9	9	9
• Type of protection	IP	20	20	20
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40
• Sound power level				
- Heating noise (EN 15036 Part 1) (room air dependent)	dB(A)	57	62	66
- Flue gas noise radiated from the mouth (DIN 45635 Part 47) (room air dependent/independent of room air)	dB(A)	43	49	55
- Sound pressure level heating noise (depending on installation conditions) ⁶⁾	dB(A)	50	56	59
• Condensate quantity (natural gas) at 40/30 °C	l/h	1.3	1.8	2.4
• pH value of the condensate	approx.	4.2	4.2	4.2
• Construction type		B23, B23P, C53, C63		
• Flue gas system				
- Temperature class		T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	23	31	42
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	4.7	6	7.1
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	62	63	64
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	45	45	45
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	31	31	31
- Maximum permitted temperature of the combustion air	°C	50	50	50
- Flow rate combustion air	Nm ³ /h	17	23	31
- Maximum supply pressure for supply air and flue gas line	Pa	100	100	100
- Maximum draught/depression at flue gas outlet	Pa	-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 reduction of up to 7 % is possible.

²⁾ Factory measurements

³⁾ Data related to NCV.

⁴⁾ 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 (readjustment might be necessary).

⁵⁾ Flow resistance boiler in mbar = flow rate (m³/h)² x z; resp. see diagrams

⁶⁾ Compare notice at "Engineering".

Hoval UltraGas® (35-100)

Type		(35)	(50)	(70)	(100)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	5.2-33.0	7.5-46.0	12.1-64.5	19.0-92.0
• Nominal heat output at 50/30 °C, natural gas ^{1), 2)}	kW	5.8-34.3	8.0-48.8	13.5-69.0	20.9-99.0
• Nominal heat output at 80/60 °C, propane ³⁾	kW	6.9-32.2	9.9-45.5	15.4-63.3	23.0-92.0
• Nominal heat output at 50/30 °C, propane ²⁾	kW	7.6-34.3	10.9-49.9	17.1-69.0	25.0-99.0
• Nominal heat input with natural gas ⁴⁾	kW	5.4-33.3	7.7-46.9	12.5-65.5	19.6-94.1
• Nominal heat input with propane ³⁾	kW	7.2-33.4	10.2-47.2	16.0-65.5	23.8-94.1
• Operating pressure heating min./max. (PMS)	bar	1/3	1/3	1/4	1/4
• Operating temperature max. (T _{max})	°C	85	85	85	85
• Boiler water content (V _(H2O))	l	81	75	157	144
• Flow resistance boiler ⁵⁾	z value	1.1	1.1	1.5	1.5
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water content, incl. cladding)	kg	205	217	302	331
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV)	%	97.9/88.2	98.0/88.3	98.0/88.3	97.6/87.9
• Boiler efficiency at 30 % partial load operation (NCV/GCV)	%	108.1/97.4	108.1/97.4	108.1/97.4	108.1/97.4
• 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
• NOx class (EN 15502)		-	-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV) NOx	mg/kWh	26	28	28	29
• 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	220	220	290	290
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 = 9.97 kWh/m ³	m ³ /h	0.54-3.34	0.77-4.70	1.25-6.57	1.97-9.44
- Natural gas LL- (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³	m ³ /h	0.63-3.89	0.90-5.47	1.46-7.64	2.29-10.98
- Propane (NCV = 25.9 kWh/m ³)	m ³ /h	0.28-1.29	0.39-1.82	0.62-2.53	0.92-3.63
• Operating voltage	V/Hz	230/50	230/50	230/50	230/50
• Electrical power consumption min./max.	Watt	24/95	26/119	25/91	21/230
• Stand-by	Watt	9	9	9	9
• Type of protection	IP	20	20	20	20
• 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)	62	60	64	67
- Flue gas noise radiated from the mouth (DIN 45635 Part 47) (room air dependent/independent of room air)	dB(A)	55	58	55	59
- Sound pressure level heating noise (depending on installation conditions) ⁶⁾	dB(A)	55	53	57	59
• Condensate quantity (natural gas) at 40/30 °C	l/h	3.1	4.4	6.2	8.9
• pH value of the condensate	approx.	4.2	4.2	4.2	4.2
• Construction type	B23, B23P, C53, C63				
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	55	78	109	157
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	8.1	11.6	18.8	29.5
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	65	68	63	65
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	46	46	43	44
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	31	31	31	32
- Maximum permitted temperature of the combustion air	°C	50	50	50	50
- Flow rate combustion air	Nm ³ /h	41	58	81	117
- Maximum supply pressure for supply air and flue gas line	Pa	120	120	130	130
- 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 reduction of up to 7 % is possible.

²⁾ Factory measurements

³⁾ Data related to NCV.

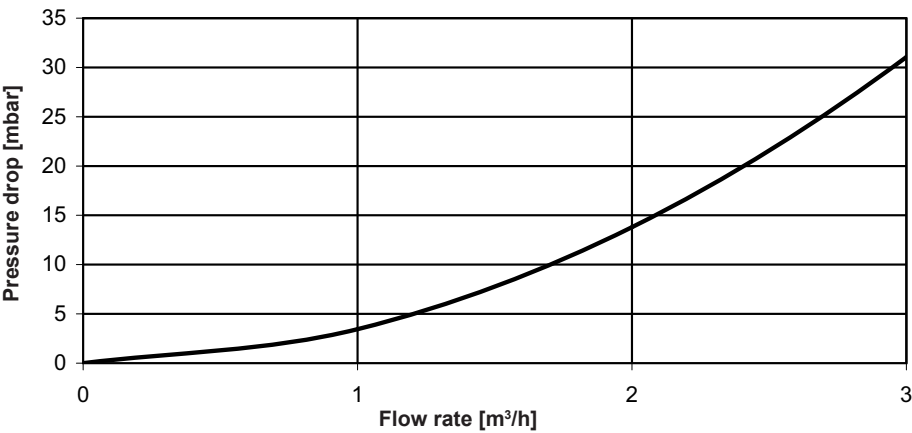
⁴⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible (readjustment might be necessary).

⁵⁾ Flow resistance boiler in mbar = flow rate (m³/h)² x z; resp. see diagrams

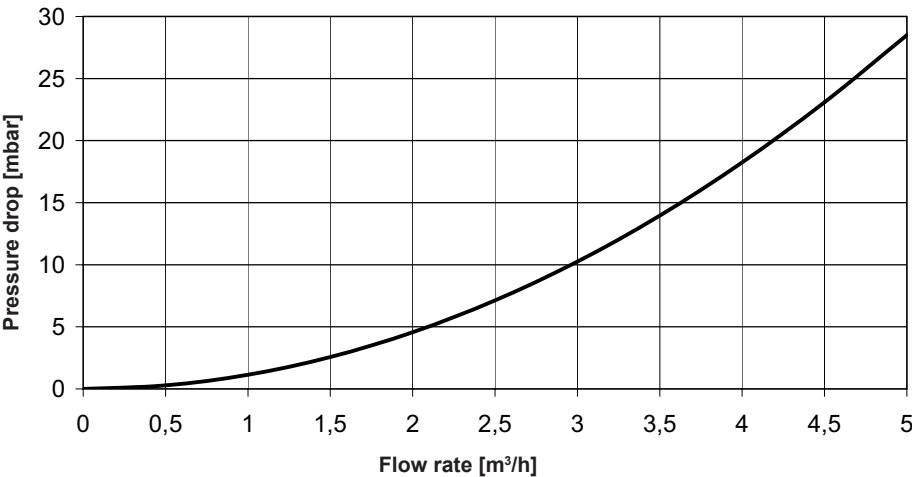
⁶⁾ Compare notice at "Engineering".

Flow resistance on the heating water side

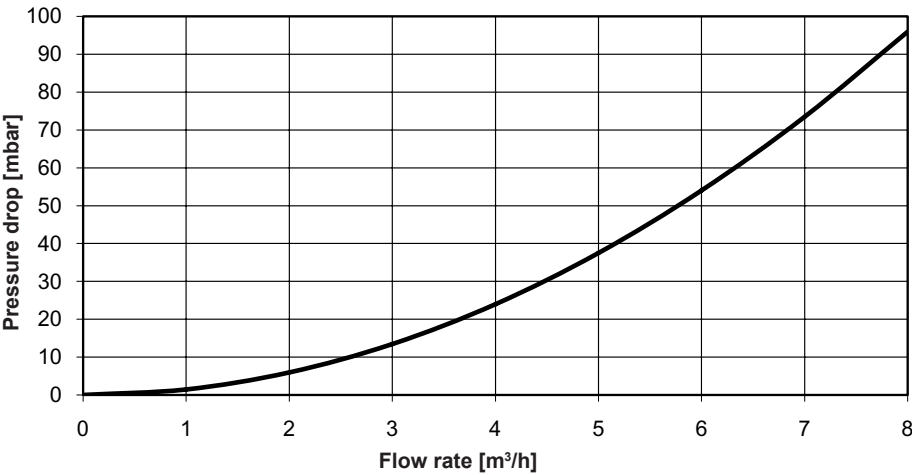
UltraGas® (15-27)



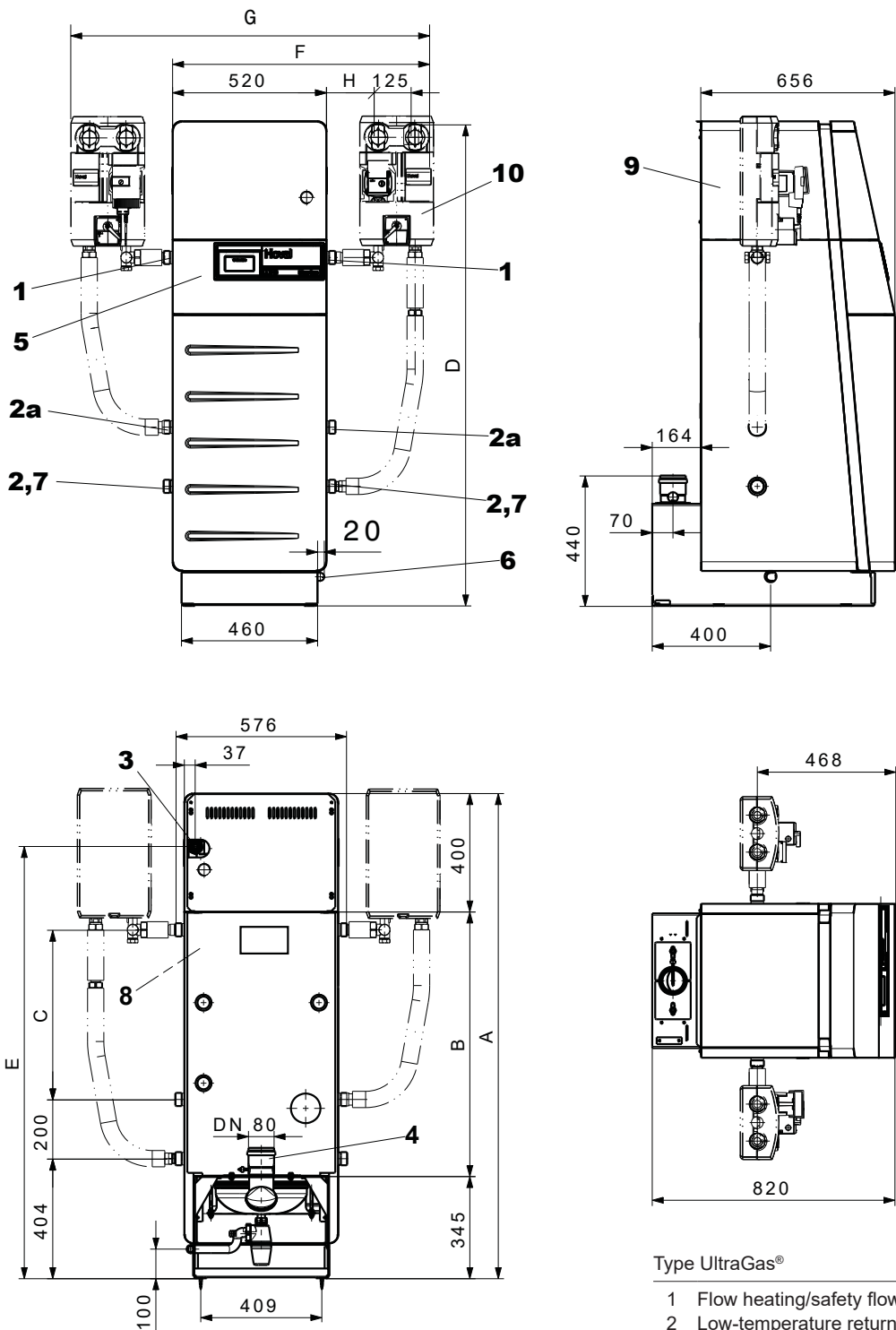
UltraGas® (35,50)



UltraGas® (70,100)



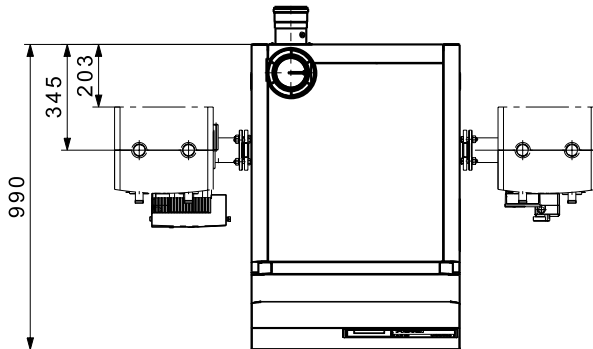
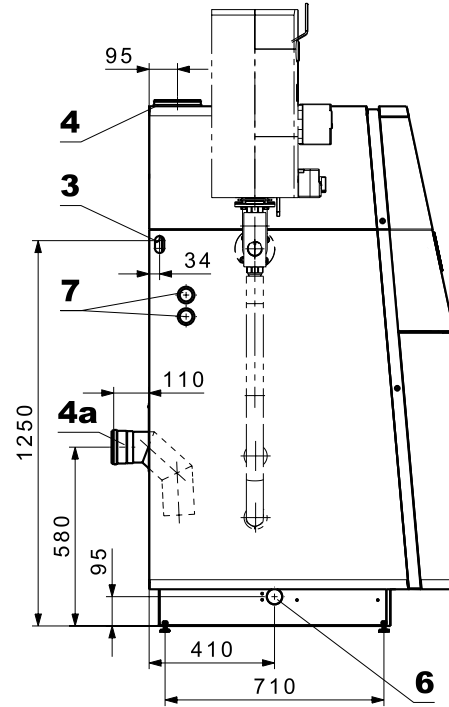
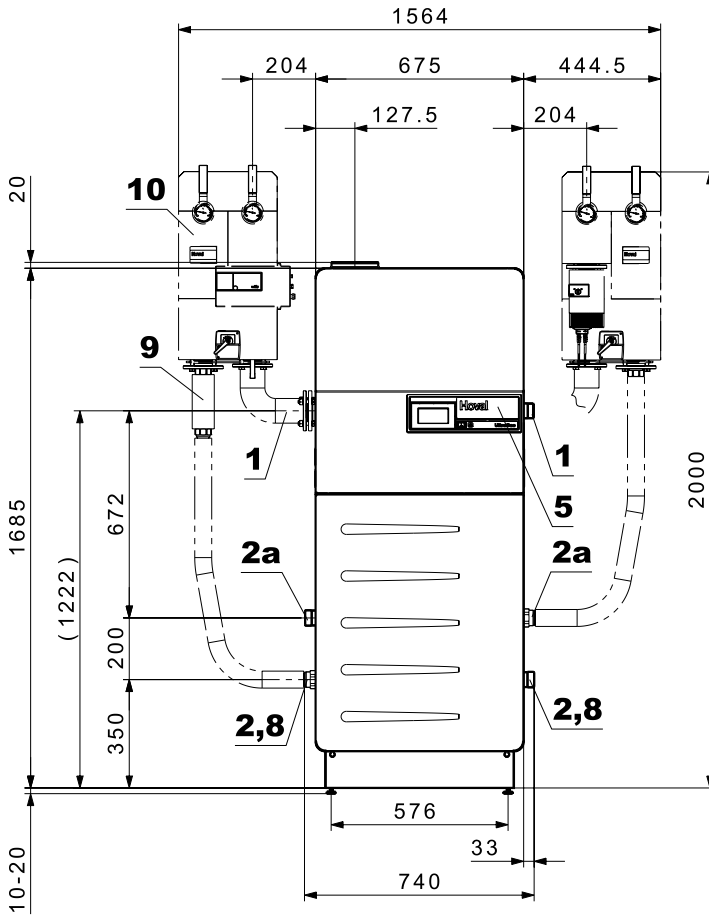
UltraGas® (15-27) with connection set AS25-S/NT/HT and armature group HA25
UltraGas® (35,50) with connection set AS32-S/NT/HT and armature group HA32
(Dimensions in mm)



Type	A	B	C	D	E	F	G	H
UltraGas® (15-27)	1400	655	333	1330	1220	852	1184	144
UltraGas® (35,50)	1640	895	573	1620	1460	930	1340	222

Type UltraGas®	(15-27)	(35,50)
1 Flow heating/safety flow	R 1"	R 1 1/4"
2 Low-temperature return	R 1"	R 1 1/4"
2a High-temperature return	R 1"	R 1 1/4"
3 Gas connection	Rp 3/4"	Rp 3/4"
4 Flue gas outlet	DN 80	DN 80
5 Control panel		
6 Condensate drain (left or right) incl. siphon (DN 25) and 2 m PVC passage tube inner Ø 19 x 4 mm		
7 Drain		
8 Electric cable entry point		
9 Sound attenuation cowl		
10 Heating armature group or charging group (option)		

Hoval UltraGas® (70,100) with connection set AS40-S/NT/HT and armature group HA40 (Dimensions in mm)

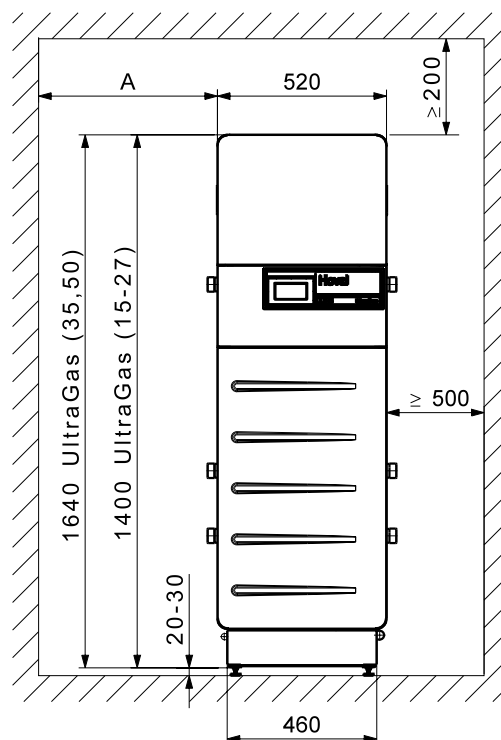
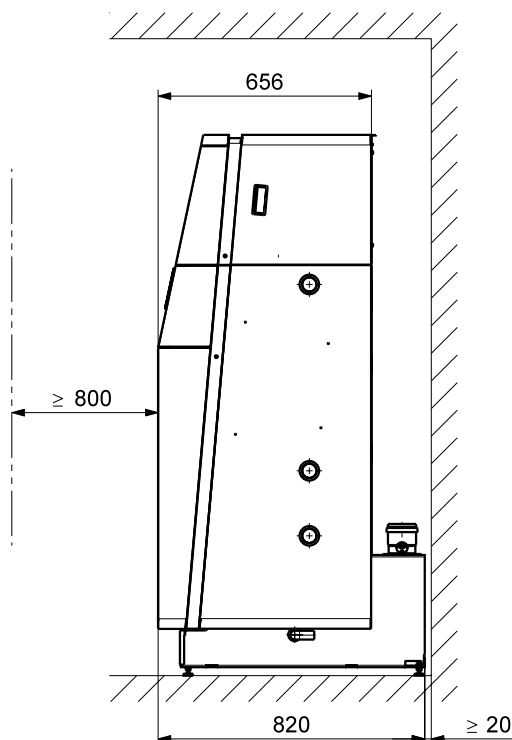


Type UltraGas®	(70)	(100)
1. Flow heating/safety flow	R 1½"	R 1½"
2. Low-temperature return	R 1½"	R 1½"
2a. High-temperature return	R 1½"	R 1½"
3. Duct for the gas pipe left or right	R ¾"	R ¾"
4. Concentrical supply air/flue gas connection	C100/150	C100/150
4a. Combustion air connection to the back (option)	E 100	E 100
5. Control panel		
6. Condensate drain (left or right) incl. siphon (DN 25) and 2 m PVC passage tube inner Ø 19 x 4 mm		
7. Electrical connection left or right		
8. Drain		
9. Connection set (option)		
10. Heating armature group or charging group (option)		

Space requirement

(Dimensions in mm)

UltraGas® (15-50)



Door of the boiler inclusive burner swivelling to the top and to the left or to the front.

A = minimal 150 mm *

Burner service position in the front - boiler cleaning from the right

A = optimal 300 mm *

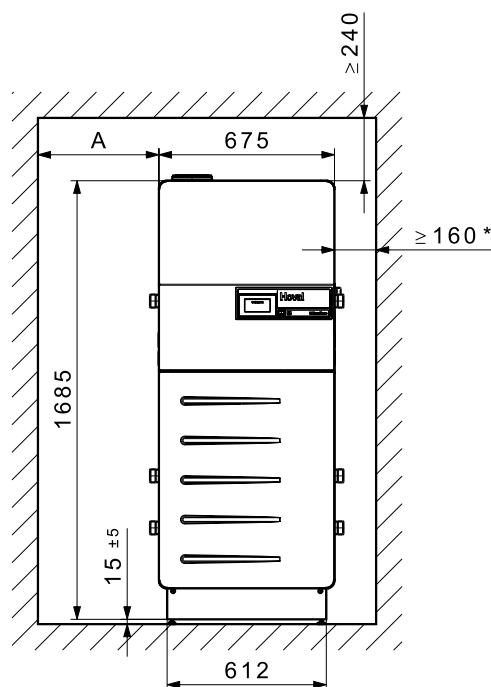
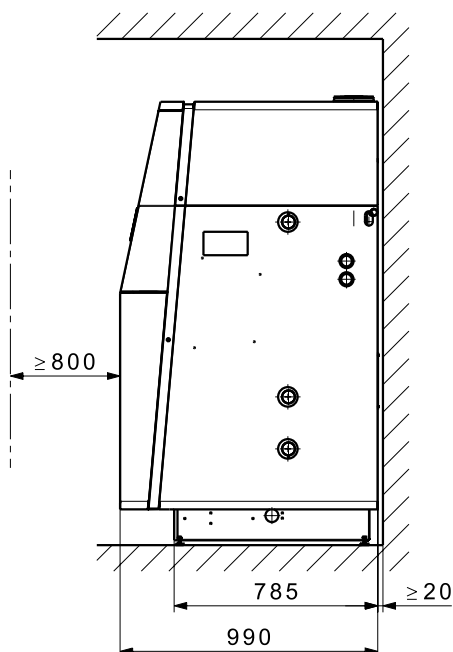
Burner service position left - boiler cleaning from the front

Boiler can be placed with the right side directly against the wall however, a minimum gap of 160 mm is required.

* without armature group,
500 mm with armature group

- The cleaning opening must be well accessible.
- Boiler rear side must be accessible.

UltraGas® (70,100)



Door of the boiler inclusive burner swivelling to the top and to the left or to the front.

A = minimal 150 mm *

Burner service position in the front - boiler cleaning from the right

A = optimal 300 mm *

Burner service position left - boiler cleaning from the front

* without armature group,
500 mm with armature group

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.

Frost protection agent

- see separate engineering sheet "Use of frost protection agent".

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, disinfectants, 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. The connection for direct combustion air supply must be used for direct combustion air supply to the boiler (LAS system). It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

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.
- In the UltraGas®, ventilation of the installation or boiler room must be guaranteed for operation independent from the room air.
- **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 into the open.

Gas connection

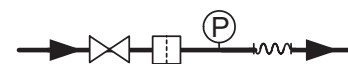
Commissioning

- Initial commissioning must be performed by a specialist technician from Hoval or a gas specialist technician.
- 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 a 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

- Necessary flow pressure at the boiler inlet: UltraGas® (15-100) min. 17.4 mbar, max. 50 mbar

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.
- Necessary gas flow pressure at the boiler inlet: UltraGas® (15-100)
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 UltraGas® 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.

Closed heating system

The boiler is only approved for use in closed heating systems.

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

If a calorifier is connected, all heating groups must be provided with a mixer.

Boiler base

The boiler should be placed on a sufficiently high base (boiler base see accessories) to protect it against floor humidity and for the siphon for condensate drain.

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions"

Heating boiler in the attic

- If the gas boiler is positioned on the top floor, the installation of a low water protection, which automatically turns the gas burner off in case of water shortage, is recommended.

Condensate drain

- 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
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler scope of delivery).

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The diaphragm pressure expansion tank has to be installed in principle at the boiler return.
- Starting from 70 °C an intermediate tank is necessary.

Safety valve

- At the heating flow a safety valve must be installed. An automatic exhaustor is built in the boiler.

Noise damping

The following measures are possible for sound insulation:

- Make boiler room walls, ceiling and floor as solid as possible.
- If there are living areas above or below the boiler room, connect pipes flexibly using expansion joints.
- Connect circulating pumps to the piping network using expansion joints

Noise level

- The acoustic **power** level value is independent on the local and spacial circumstances.
- The acoustic **pressure** level is dependent on the installation conditions and can for instance be 5 to 10 dB(A) lower than the acoustic **power** level at a distance of 1 m.

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.

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 UltraGas® (15-100)

UltraGas® type	Gas throughput natural gas E m³/h	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
(15)	1.5	70612/6B	Rp ¾"	0.10
(20)	1.9	70612/6B	Rp ¾"	0.10
(27)	2.6	70612/6B	Rp ¾"	0.10
(35)	3.3	70612/6B	Rp ¾"	0.10
(50)	4.7	70612/6B	Rp ¾"	0.13
(70)	6.6	70602/6B	Rp 1"	0.10
(100)	9.5	70602/6B	Rp 1"	0.14

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

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

Hoval UltraGas® 2 (125-1550)

Floor-standing gas condensing boiler

- Floor-standing gas condensing boiler
- 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
- Combustion chamber made of stainless steel
- Maximum flue gas condensation by secondary heating surfaces made of **TurboFer®** hybrid stainless steel composite pipes;
- heating gas side: stainless steel/aluminium
water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor:
 - Fulfills the function of a minimum and maximum pressure limiter
 - Replacement for the low water level protection
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with fan and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plates, red powder-coated
- Heating connections incl. counter flanges, screws and seals backwards for:
 - flow
 - return - high temperature
 - return - low temperature
- **UltraGas® 2 (300-1550):**
with integrated gas pipe compensator
- TopTronic® E controller installed
- Possibility of connecting an external gas solenoid valve with error output

TopTronic® E controller

Control panel

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

TopTronic® E control module

- 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 circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management



Model range

UltraGas® 2 type	Nominal heat output at 50/30 °C kW
(125)	25-126
(150)	35-151
(190)	38-191
(230)	51-233
(300)	58-299
(350)	70-352
(400)	69-399
(450)	77-451
(500)	77-491
(620)	136-622
(700)	146-703
(800)	166-804
(1000)	205-999
(1100)	229-1112
(1300)	269-1320
(1550)	324-1550
H (700)	146-703
H (1100)	229-1112
H (1550)	324-1550

- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- RAST 5 basic plug set

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

Number of modules that can be additionally installed in the heat generator:

- UltraGas® 2 (125-230)**
 - 1 module expansion and 1 controller module
- or**
- 2 controller modules

UltraGas® 2 (300-500):

- 3 controller modules/module expansions

UltraGas® 2 (620-1550):

- 4 controller modules/module expansions

Notice

Max. 1 module expansion can be connected to the basic module heat generator TTE-WEZ!

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

Further information about the TopTronic® E see "Controls"

Optional

- With or without neutralisation
- Free-standing calorifier see Calorifiers

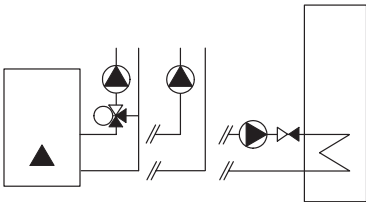
Delivery

- Boiler, casing and insulation separately packed and delivered

On-site

- Mounting of insulation, casing and control panel
- Mounting of boiler feet

Floor-standing gas condensing boiler



Boiler permissions

CE product ID No.
UltraGas® 2 (125-1550) CE-0085DL0175

Hoval UltraGas® 2 (125-1550)
Floor-standing gas condensing boiler
with built-in Hoval TopTronic® E control

- Control functions integrated for
- 1 heating circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- Can be optionally expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
 - Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

Boiler made of steel with TopTronic® E control, combustion chamber made of stainless steel. Secondary heating surfaces made of TurboFer® hybrid stainless steel composite pipes. Pre-mix burner with fan. Modulating burner.

Delivery
Boiler, casing and thermal insulation separately packed

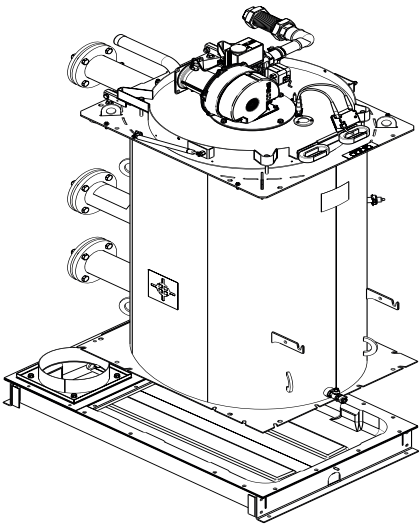
UltraGas® 2 type	Nominal heat output at 50/30 °C kW ¹⁾	Operating pressure bar
(125)	25-126	6
(150)	35-151	6
(190)	38-191	6
(230)	51-233	6
(300)	58-299	6
(350)	70-352	6
(400)	78-399	6
(450)	77-451	6
(500)	77-491	6
(620)	136-622	6
(700)	146-703	6
(800)	166-804	6
(1000)	205-999	6
(1100)	229-1112	6
(1300)	269-1320	6
(1550)	324-1550	6

¹⁾ kW = modulation range

Part No.

- 7018 911
- 7018 912
- 7018 913
- 7018 914
- 7018 823
- 7018 824
- 7018 825
- 7019 125
- 7018 826
- 7018 848
- 7018 869
- 7018 841
- 7018 842
- 7018 843
- 7018 891
- 7018 892

Floor-standing gas condensing boiler
(multi-part installation)



Hoval UltraGas® 2 (125-1550)
(multi-part installation)

Double boiler consisting of two individual boilers (UltraGas® 125-1550 kW), each with a built-in Hoval TopTronic® E control for **multi-part installation**. Assembled on-site by the installer.

UltraGas® 2 type	Nominal heat output 50/30 °C kW	Operating pressure bar
(125)	25-126	6
(150)	35-151	6
(190)	38-191	6
(230)	51-233	6
(300)	58-299	6
(350)	70-352	6
(400)	78-399	6
(450)	77-451	6
(500)	77-491	6
(620)	136-622	6
(700)	146-703	6
(800)	166-804	6
(1000)	205-999	6
(1100)	229-1112	6
(1300)	269-1320	6
(1550)	324-1550	6

¹ kW = modulation range

Part No.

7018 909
7018 910
7018 929
7018 930
7018 816
7018 817
7018 818
7019 124
7018 849
7018 864
7018 865
7018 854
7018 855
7018 856
7018 899
7018 900

Floor-standing gas condensing boiler
(high-pressure design)

Hoval UltraGas® 2 H (700-1550)
(high-pressure design)

Floor-standing gas condensing boiler in **high-pressure design**
(operating pressure 10 bar)

Delivery time approx. 8 weeks

UltraGas® 2 type	Nominal heat output 50/30 °C kW	Operating pressure bar
H (700)	146-703	10
H (1100)	229-1112	10
H (1550)	324-1550	10

¹ kW = modulation range

7019 065
7018 776
7018 777

Propane version
on request



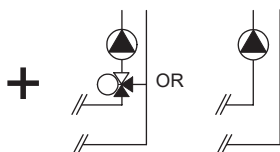
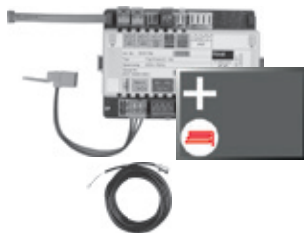
System flow sensor
for installation in the flow connector sleeve Rp 1/4",
for regulating the flow temperature

6053 398

Installation of the system flow sensor is recommended for optimal control of the flow temperature.

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:

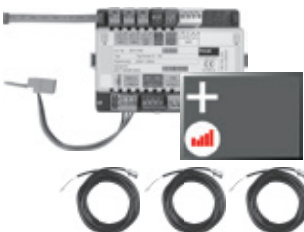
- Fitting accessories
- 1 contact sensor

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

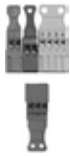
6034 575

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



System module SB-SM-BZ1

for passing on a volt-free operating and fault message. (for 1-stage/modulating H-Gens)	6048 055
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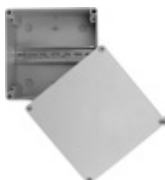
Bivalent switch

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

Part No.



Fitting pipe flow



Fitting pipe return

Flow temperature switch
for under floor heating (1 guard per heating circuit) 15-95 °C, differential gap 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

Set clamp-on thermostat RAK-TW1000.S
Thermostat with strap, with cable (4 m) and plug

Immersion thermostat RAK-TW1000.S SB 150
Thermostat with pocket ½" - depth of immersion 150 mm, brass nickel-plated

Safety set DN 25
complete with safety valve
DN 25 (3 bar), up to 200 kW
Pressure gauge and automatic aspirator with barrier
Connection: 1" internal thread

Safety set DN 32
complete with safety valve
DN 32 (3 bar), up to 300 kW
Pressure gauge and automatic aspirator with barrier
Connection 1¼" internal thread

Safety fitting pipe for flow and return
Suitable for max. 6 bar, with screws and nuts.
- for installation on the flow or high and low-temperature return of the Hoval UltraGas® 2 boiler.
- for installation of an additional safety temperature limiter, a maximum pressure limiter.
- for connection of a diaphragm pressure expansion tank on the return.

Dimension	Suitable for UltraGas® 2	Connection
DN 65	(125-230)	flow
DN 65	(125-230)	return
DN 100	(300-700)	flow
DN 100	(300-700)	return
DN 125	(800-1100)	flow
DN 125	(800-1100)	return
DN 150	(1300,1550)	flow
DN 150	(1300,1550)	return

242 902

6033 745

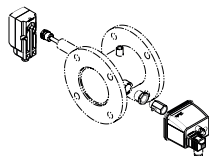
6010 082

6018 709

6018 710

6053 408
6023 108
6053 409
6023 110
6055 078
6023 112
6055 079
6051 680

Accessories



Safety armature set

Compatible with fitting pipe for meeting safety requirements of EN 12828: > 300 kW or SWKI HE301-01: 70-1000 kW related to single boiler

Consisting of:

- adjustable maximum pressure limiter incl. ball valve
- safety temperature limiter (RAK-ST.131)

Part No.

6051 903



Hydraulic butterfly valve

for direct installation on the flow and/or return of the boiler.

For 24 V, pre-wired.

Operating method: continuously controlling (2...10 V)

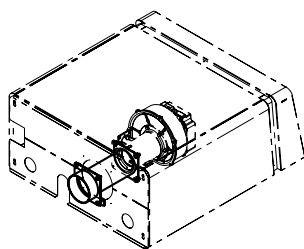
UltraGas® 2 (125-230)	DN 65
UltraGas® 2 (300-700)	DN 100
UltraGas® 2 (800-1100)	DN 125
UltraGas® 2 (1300,1550)	DN 150

6050 605

6050 606

6050 607

6051 894



Connection for direct combustion air input

Not to be combined with motorised combustion air damper

UltraGas® 2 (125,150)
UltraGas® 2 (190,230)
UltraGas® 2 (300-500)
UltraGas® 2 (620-700)
UltraGas® 2 (800-1100)
UltraGas® 2 (1300,1550)

6052 548

6052 550

6053 096

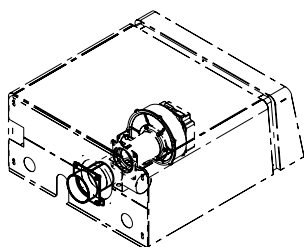
6053 779

6053 781

6052 844

Recommendation:

If the air intake opening at the facade is near a noise sensitive place (window of bedroom, terrace etc.), we recommend to use a silencer at the direct fresh air inlet.



Connection for direct combustion air input

Only in combination with a motorised combustion air damper (ordered separately). Can also be used for creating a boiler cascade with a common flue gas line.

UltraGas® 2 (125,150)
UltraGas® 2 (190,230)
UltraGas® 2 (300-500)
UltraGas® 2 (620-700)
UltraGas® 2 (800-1100)
UltraGas® 2 (1300,1550)

6052 847

6052 848

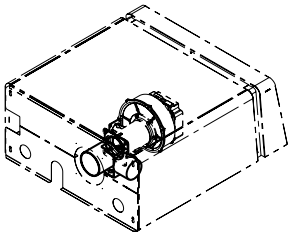
6053 097

6053 780

6053 782

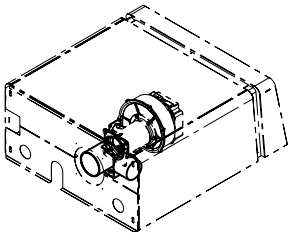
6052 849

Accessories



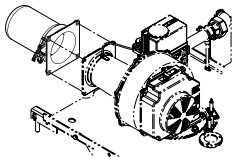
Motorised combustion air damper DN 110
for UltraGas® (125-350),
UltraGas® 2 (125-500)
For boiler cascades with a common
flue gas line. Ready-to-connect

6015 196



Motorised combustion air damper DN 180
for UltraGas® (400-1550),
UltraGas® 2 (620-1550)
For boiler cascades with a
common flue gas line.
Ready-to-connect

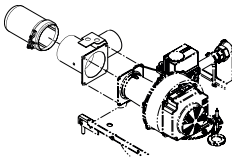
6015 197



Connection protection filter
for filtering the combustion air in the building
phase

for installation on the air suction socket:
UltraGas® 2 (125-500)
UltraGas® 2 (620-1550)

6052 283
6052 284



for installation on the combustion air damper:
UltraGas® 2 (125-500)
UltraGas® 2 (620-1550)

6052 151
6052 152

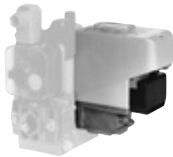


Gas valve
with thermally releasing cut-off device.

Type	Connection inches
DN 25	R 1"
DN 32	R 1¼"
DN 40	R 1½"
DN 50	R 2"

2069 324
2069 325
2069 326
2069 327

Accessories



Valve testing system
for UltraGas® 2 (125-1550),
UltraGas® 2 (250D-3100D)
Automatic, compact testing system for testing
the leakage of the gas valve before each burner
start with ready-to-connect wiring.
Suitable for all gas qualities for
which the UltraGas® 2 is permitted.

UltraGas® 2 (125-350)	6039 964
UltraGas® 2 (400-700)	6039 965
UltraGas® 2 (800-1550)	6054 484

For an UltraGas® 2 double boiler, two valve
test systems must be ordered.

Gas valve kit
Set with gas valve and thermally releasing
shut-off device
Thermal closing at approx. 95 °C
Tripping time < 60 s
Maximum working pressure 5 bar
Ambient temperature < 60 °C
Combustible gases according to G260

For a kit, the gas ball valve, fitting protection
and mounting set must each be ordered
separately in the same dimension.



Gas ball valve with flange	
Type	
DN 65	2007 988
DN 80	2007 989
DN 100	2007 990

Fitting protection TAS	
Type	
TAS 23-65	2069 328
TAS 23-80	2069 329
TAS 23-100	2069 330

Mounting set for assembly
Gas ball valve with fitting protection
Type

MS-TAS 23-65	6041 745
MS-TAS 23-80	6041 746
MS-TAS 23-100	6041 747



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

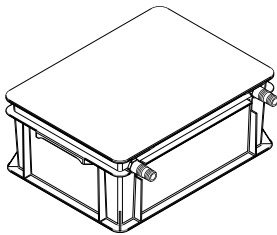
Type	Connection	
70602/6B	Rp 1"	2007 996
70604/6B	Rp 1¼"	2054 495
70603/6B	Rp 1½"	2007 997
70631/6B	Rp 2"	2007 998
70610F/6B	DN 65	2007 999



Gas pipe compensator 1"
for UltraGas® 2 (125,150),
UltraGas® 2 D (250,300)
for compensating for connection
tolerances in the gas pipe

Gas pipe compensator 1½"
for UltraGas® 2 (190,230),
UltraGas® 2 D (380,460)
for compensating for connection
tolerances in the gas pipe

Condensate drainage
to UltraGas® 2



Neutralisation box
Condensate drain into a lower drainage duct
Connection hose: 2 m
Service life up to 1 year, depending on the boiler
operating mode
Positioning behind the boiler or laterally
One neutralisation box per boiler

Type	Neutralisa- tion granulate	
UltraGas® 2 (125-400)	HNB-0400	3 kg
UltraGas® 2 (450-800)	HNB-0800	6 kg
UltraGas® 2 (1000,1100)	HNB-1200	9 kg
UltraGas® 2 (1300,1550)	HNB-1600	12 kg

Part No.

6054 792
6054 793
6054 794
6054 795



Condensate pump
for transporting condensate
into a higher drainage duct
Including connection lines
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: max. 4 m
Can be combined with neutralisation box

6045 476



Double condensate pump
For UltraGas® 2 (1000-1550)
for transporting the condensate
into a higher drainage duct
Including connection line
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: 3 m
Can be combined with neutralisation box

6061 175



Neutralisation granulate
for neutralisation box
Refill set volume 3 kg
Life time of one filling:
approx. 1 year, depending on amount
of condensate

2028 906

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.

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Hoval UltraGas® 2 (125-230)

Type		(125)	(150)	(190)	(230)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	21-114	33-139	35-177	47-218
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	25-126	35-151	38-191	51-233
• Nominal heat output at 80/60 °C, propane ²⁾	kW	27-113	43-138	55-175	81-217
• Nominal heat output at 50/30 °C, propane ²⁾	kW	30-126	48-151	62-191	90-233
• Nominal heat input with natural gas ³⁾	kW	23-116	32-142	35-179	47-223
• Nominal heat input with propane ²⁾	kW	28-116	44-142	57-179	84-223
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H2O))	l	207	195	276	265
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	378	400	490	510
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.6/88.9	97.6/88.1	98.5/88.7	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	108.7/98.1	108.7/98.1	109.0/98.2	108.4/97.8
• Room heating energy efficiency					
- without control	η _s %	93	93	93	93
- with control	η _s %	95	95	95	95
- with control and room sensor	η _s %	97	97	97	97
- annual energy consumption	Q _{HE} GJ	209	265	326	412
• NOx class (EN 15502)		-	-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	25	28	33	37
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	31	21	25	13
• O ₂ content in flue gas min./max. output	%	5.9/5.6	5.5/6.0	5.9/6.0	6.0/5.9
• Heat loss in standby mode	Watt	380	380	510	510
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-80
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	80
• 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	2.4-12.0	3.3-14.6	3.6-18.5	4.8-23.0
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	2.8-14.3	3.9-17.5	4.3-22.0	5.8-27.4
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	1.2-4.8	1.8-5.8	2.3-7.3	3.4-9.1
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	41/140	43/225	38/151	49/228
• Standby	Watt	7	8	8	8
• Type of protection	IP	20	20	20	20
• 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)	64	69	63	66
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	69	70	66	68
- Sound pressure level heating noise (reference value depending on installation conditions)	dB(A)	54	59	53	56
• Condensate quantity (natural gas) at 50/30 °C	l/h	11	12	15	20
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	188	226	283	344
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	37	51	55	63
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	64	65	68	69
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	43	45	46	47
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	28	29	29
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	154	180	232	280
- Maximum supply pressure for combustion air supply and flue gas line	Pa	120	120	130	130
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 (300-450)

Type		(300)	(350)	(400)	(450)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	54-274	67-315	62-362	73-415
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	58-299	70-352	69-399	77-451
• Nominal heat output at 80/60 °C, propane ²⁾	kW	83-274	115-311	97-361	111-408
• Nominal heat output at 50/30 °C, propane ²⁾	kW	93-299	129-352	108-399	122-451
• Nominal heat input with natural gas ³⁾	kW	54-282	64-331	62-374	71-427
• Nominal heat input with propane ²⁾	kW	87-282	121-331	100-374	115-427
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H₂O))	l	472	452	432	412
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	770	810	830	840
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.2/98.4	108.9/98.1	109.0/98.2	108.9/98.1
• Room heating energy efficiency					
- without control	η _s %	94	93	93	-
- with control	η _s %	96	95	95	-
- with control and room sensor	η _s %	98	97	97	-
- annual energy consumption	Q _{HE} GJ	505	590	653	-
• NOx class (EN 15502)		-	-	-	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	39	45	39	45
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	18	26	23	30
• O ₂ content in flue gas min./max. output	%	5.5/5.8	5.7/5.7	5.9/5.9	6.0/5.6
• Heat loss in standby mode	Watt	750	750	750	750
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-80
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	80
• Gas connection values at 15 °C/1013 mbar:					
- Natural gas E (W ₀ = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³	m ³ /h	5.6-29.1	6.6-34.1	6.4-38.6	7.3-44.0
- Natural gas LL (G25) - (W ₀ = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	6.6-34.7	7.9-40.7	7.6-46.0	8.7-52.5
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	3.6-11.6	5.0-13.6	4.1-15.3	4.7-17.5
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	51/365	55/350	56/518	56/590
• Standby	Watt	5	5	5	5
• Type of protection	IP	20	20	20	20
• 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)	73	70	73	74
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	71	72	73	74
- Sound pressure level heating noise (reference value depending on installation conditions)	dB(A)	63	60	63	64
• Condensate quantity (natural gas) at 50/30 °C	l/h	22	25	28	29
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	445	522	591	674
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	85	101	98	112
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	64	65	66	67
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	43	44	48	47
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	29	29	29
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	364	428	483	552
- Maximum supply pressure for combustion air supply and flue gas line	Pa	130	130	130	130
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 (500-800)

Type		(500)	(620)	(700)	(800)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	71-449	125-580	132-653	150-743
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	77-491	136-622	146-703	166-804
• Nominal heat output at 80/60 °C, propane ²⁾	kW	111-441	168-569	174-643	233-744
• Nominal heat output at 50/30 °C, propane ²⁾	kW	121-491	178-622	187-703	254-804
• Nominal heat input with natural gas ³⁾	kW	71-463	124-591	134-668	151-759
• Nominal heat input with propane ²⁾	kW	115-463	174-591	180-668	236-759
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H2O))	l	408	536	509	831
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	850	1050	1100	1370
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.3/88.6
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.0/98.2	109.0/98.2	108.9/98.1	109.1/98.3
• Room heating energy efficiency					
- without control	ηs %	-	-	-	-
- with control	ηs %	-	-	-	-
- with control and room sensor	ηs %	-	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-	-
• NOx class (EN 15502)		6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	50	33	40	36
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	46	24	26	23
• O ₂ content in flue gas min./max. output	%	5.5/5.8	5.9/6.0	6.0/5.7	6.0/5.8
• Heat loss in standby mode	Watt	750	1000	1000	1200
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-300
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	300
• 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	7.3-47.7	12.8-60.9	13.8-68.9	15.6-78.2
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	8.7-56.9	15.3-72.7	16.5-82.2	18.6-93.4
- Propane (G31) NCV = 24.4 kWh/m ^{3 2)}	m ³ /h	4.7-19.0	7.1-24.2	7.4-27.4	9.7-31.1
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	57/716	63/831	67/1060	94/1012
• Standby	Watt	5	5	5	7
• Type of protection	IP	20	20	20	20
• 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)	78	75	76	78
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	77	72	71	-
- Sound pressure level heating noise (reference value depending on installation conditions)	dB(A)	68	65	66	68
• Condensate quantity (natural gas) at 50/30 °C	l/h	37	51	48	57
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	736	933	1055	1198
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	112	196	211	238
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	66	68	69	66
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	44	47	49	44
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	28	28	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	602	764	863	981
- Maximum supply pressure for combustion air supply and flue gas line	Pa	130	130	130	130
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 (1000-1550)

Type		(1000)	(1100)	(1300)	(1550)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	185-926	203-1038	241-1230	297-1447
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	205-999	229-1112	269-1320	324-1550
• Nominal heat output at 80/60 °C, propane ²⁾	kW	245-926	299-1033	362-1227	427-1439
• Nominal heat output at 50/30 °C, propane ²⁾	kW	264-999	316-1112	385-1320	453-1550
• Nominal heat input with natural gas ³⁾	kW	187-943	206-1057	247-1251	297-1469
• Nominal heat input with propane ²⁾	kW	248-943	306-1057	371-1251	437-1469
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H2O))	l	756	718	1211	1118
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	1540	1600	2130	2300
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.0/98.2	108.6/97.8	108.7/97.9	108.5/97.7
• Room heating energy efficiency					
- without control	η _s %	-	-	-	-
- with control	η _s %	-	-	-	-
- with control and room sensor	η _s %	-	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-	-
• NOx class (EN 15502)		6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	36	41	37	35
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	25	26	23	23
• O ₂ content in flue gas min./max. output	%	6.0/5.9	6.0/5.9	6.0/5.9	6.0/6.0
• Heat loss in standby mode	Watt	1200	1200	1600	1600
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-300	17.4-300	17.4-300	17.4-300
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	300	300	300	300
• Gas connection values at 15 °C/1013 mbar:					
- Natural gas E (W _o = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³	m ³ /h	19.3-97.2	21.2-109.0	25.5-129.0	30.6-151.4
- Natural gas LL (G25) - (W _o = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	23.0-116.0	25.3-130.0	30.4-153.9	36.5-180.7
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	10.2-38.6	12.5-43.3	15.2-51.3	17.9-60.2
• Operating voltage	V/Hz	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50
• Electrical power consumption min./max.	Watt	203-1873	203-1933	271/4111	301/4141
• Standby	Watt	7	7	5	7
• Type of protection	IP	20	20	20	20
• 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)	83	82	86	85
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	-	-	-	-
- Sound pressure level heating noise (reference value depending on installation conditions)	dB(A)	73	72	76	75
• Condensate quantity (natural gas) at 50/30 °C	l/h	68	72	100	138
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	1488	1669	1975	2230
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	295	325	390	450
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	69	70	66	68
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	47	49	45	46
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	28	29	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	1219	1366	1617	1830
- Maximum supply pressure for combustion air supply and flue gas line	Pa	130	130	130	130
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 H (700-1550)

Type		H (700)	H (1100)	H (1550)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	132-653	203-1038	297-1447
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	146-703	229-1112	324-1550
• Nominal heat output at 80/60 °C, propane ²⁾	kW	174-643	299-1033	427-1439
• Nominal heat output at 50/30 °C, propane ²⁾	kW	187-703	316-1112	453-1550
• Nominal heat input with natural gas ³⁾	kW	134-668	206-1057	297-1469
• Nominal heat input with propane ²⁾	kW	180-668	306-1057	437-1469
• Operating pressure heating min./max. (PMS)	bar	1/10	1/10	1/10
• Operating temperature max. (T _{max})	°C	95	95	95
• Boiler water content (V _(H2O))	l	509	709	1118
• Flow resistance boiler		see diagram		
• Minimum circulation water quantity	l/h	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	1144	1700	2440
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2-88.5	98.2-88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	108.9/98.1	108.6-97.8	108.5/97.7
• Room heating energy efficiency				
- without control	ηs %	-	-	-
- with control	ηs %	-	-	-
- with control and room sensor	ηs %	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-
• NOx class (EN 15502)		6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	40	41	35
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	26	26	23
• O ₂ content in flue gas min./max. output	%	6.0/5.7	6.0/5.9	6.0/6.0
• Heat loss in standby mode	Watt	1000	1200	1600
• Dimensions		see dimensional drawing		
• Gas flow pressure min./max.				
- Natural gas E/LL	mbar	17.4-80	17.4-300	17.4-300
- Propane	mbar	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	300	300
• 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	13.8-68.9	21.2-109.0	30.6-151.4
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	16.5-82.2	25.3-130.0	36.5-180.7
- Propane (G31) NCV = 24.4 kWh/m ^{3 2)}	m ³ /h	7.4-27.4	12.5-43.3	17.9-60.2
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50
• Electrical power consumption min./max.	Watt	67/1060	203/1933	301/4141
• Standby	Watt	5	7	7
• Type of protection	IP	20	20	20
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40
• Sound power level				
- Heating noise (EN 15036 part 1) (room air dependent)	dB(A)	76	82	85
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	71	-	-
- Sound pressure level heating noise (reference value depending on installation conditions)	dB(A)	66	72	75
• Condensate quantity (natural gas) at 50/30 °C	l/h	48	72	138
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63		
• Flue gas system				
- Temperature class		T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	1055	1669	2230
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	211	325	450
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	69	70	68
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	49	49	46
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48
- Volume flow of combustion air	Nm ³ /h	863	1366	1830
- Maximum supply pressure for combustion air supply and flue gas line	Pa	130	130	130
- Maximum draught/underpressure at flue gas outlet	Pa	-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 (D), an output reduction of up to 7 % is possible.

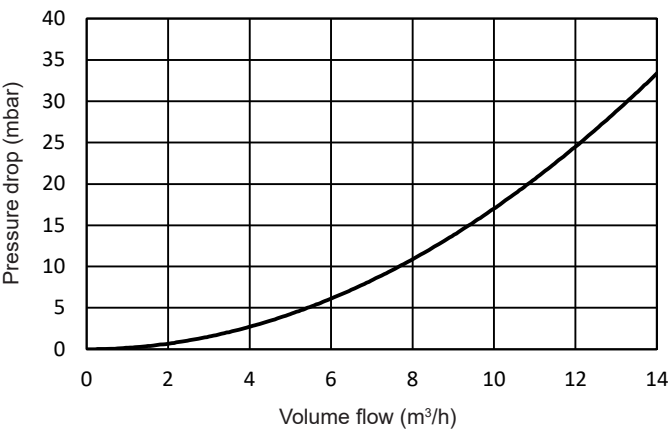
²⁾ Data related to NCV, conditional data

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.

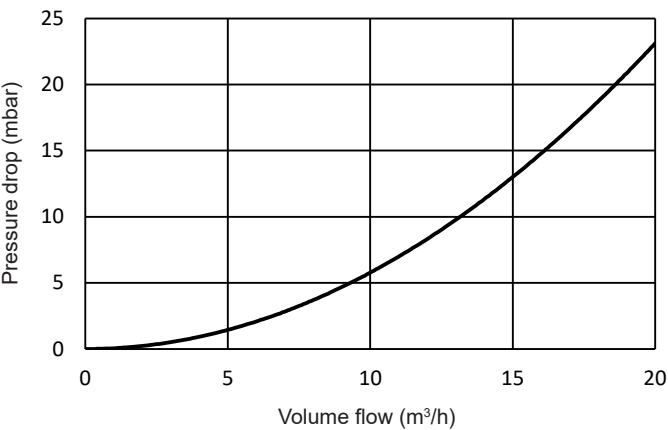
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

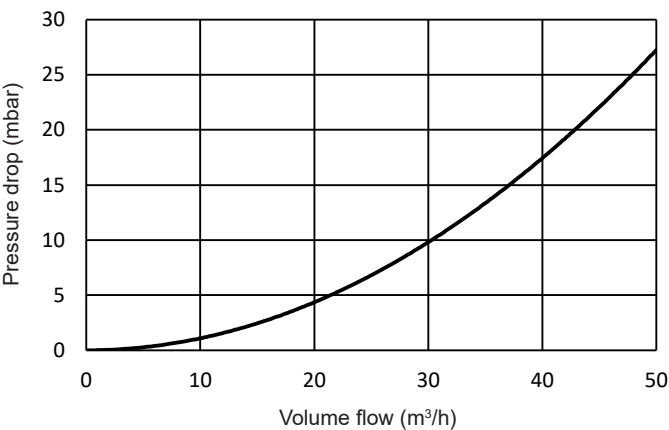
UltraGas® 2 (125,150)



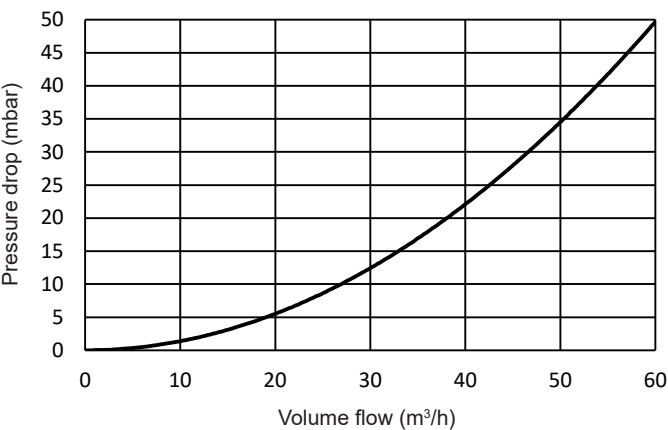
UltraGas® 2 (190,230)



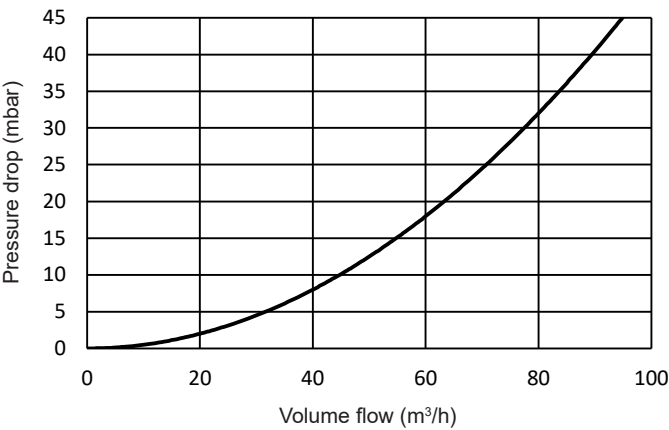
UltraGas® 2 (300-500)



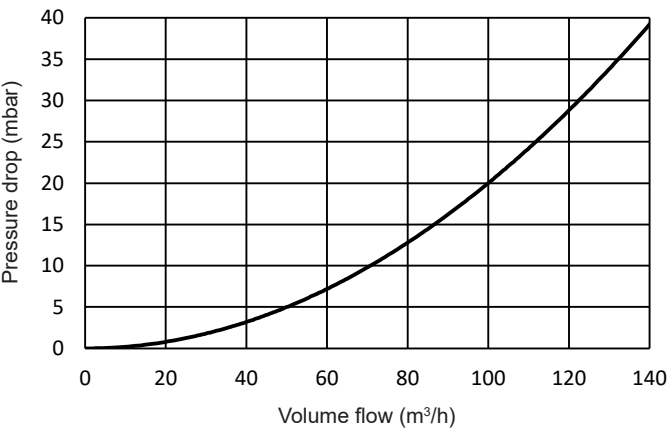
UltraGas® 2 (620,700)



UltraGas® 2 (800-1100)

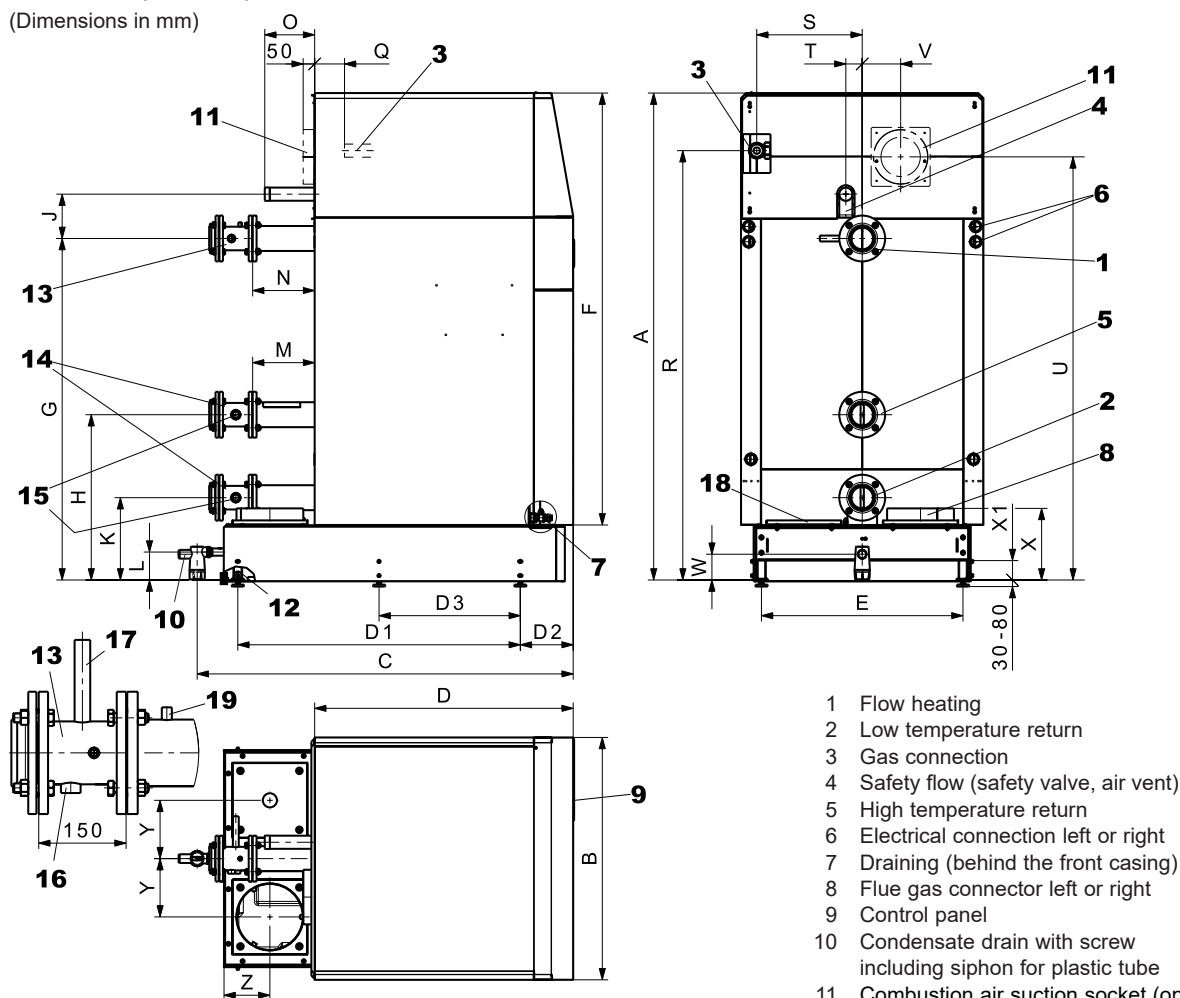


UltraGas® 2 (1300,1550)



UltraGas® 2 (125-1550)

(Dimensions in mm)



Notice

Minimal space see separate page

- 1 Flow heating
- 2 Low temperature return
- 3 Gas connection
- 4 Safety flow (safety valve, air vent)
- 5 High temperature return
- 6 Electrical connection left or right
- 7 Draining (behind the front casing)
- 8 Flue gas connector left or right
- 9 Control panel
- 10 Condensate drain with screw
including siphon for plastic tube
- 11 Combustion air suction socket (option)
- 12 Boiler feet (adjustable 30-80 mm)
- 13 Safety fitting pipe flow (option)
- 14 Safety fitting pipe return (option)
- 15 Diaphragm pressure expansion tank connection Rp 1"
- 16 Pressure limiter Rp 3/4"
- 17 Safety temperature control Rp 1/2"
- 18 Cleaning opening left or right
- 19 Flow connection sleeve Rp 1/4" for installation of the
system flow sensor

Type	A	B	C	D	D1	D2	D3	E	F	G	H	J	K	L	M	N	O	Q	R
(125,150)	1923	720	1182	799	754	242	-	533	1681	1479	714	122	334	134	207	207	65	192	1725
(190,230)	1968	820	1256	895	854	242	-	633	1726	1517	717	145	337	134	204	204	69	226	1778
(300-500)	1923	930	1632	1165	1204	242	-	743	1683	1447	745	169	365	131	285	285	189	13	1735
(620,700)	2234	1110	1722	1184	1294	242	-	923	1982	1564	757	203	377	128	286	286	225	-2	1966
(800-1100)	2255	1290	1822	1364	1480	242	-	1103	1987	1573	788	215	408	128	378	378	225	58	1959
(1300,1550)	2395	1560	2200	1640	1790	250	895	1363	2103	1600	822	238	442	138	420	420	218	22	2064
H (700)	2234	1110	1722	1184	1294	242	-	923	1982	1564	757	203	377	128	286	286	225	-2	1966
H (1100)	2255	1290	1822	1364	1480	242	-	1103	1987	1573	788	215	408	128	378	378	225	58	1959
H (1550)	2395	1560	2200	1640	1790	250	895	1363	2103	1600	822	238	442	138	390	390	218	22	2064

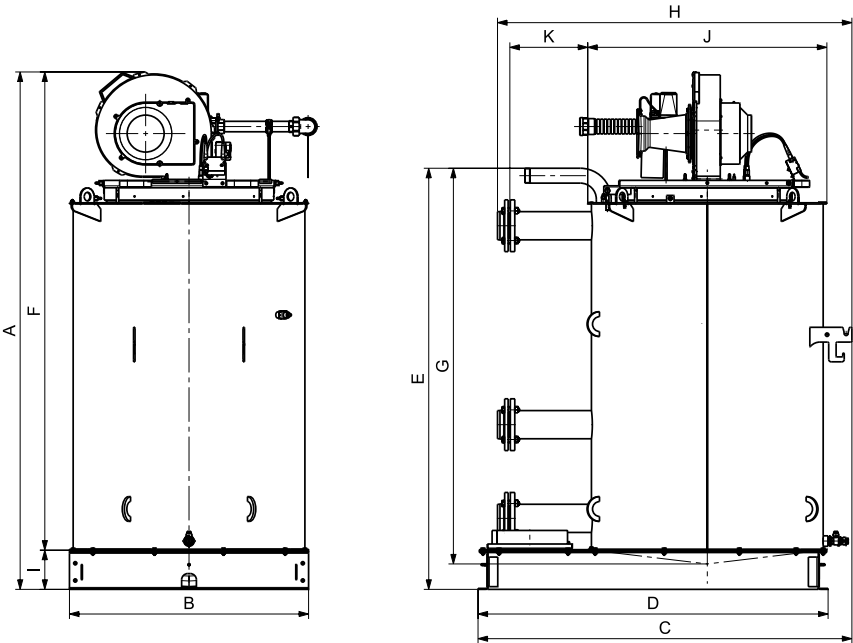
Type	S	T	U	V	W	X	X1	Y	Z	1,2,5*	3	4	8	10	11
(125,150)	318	40	1725	101	124	319	99	157	139	DN 65 / PN 6 / 4-hole	Rp 1"	R 1"	Ø 155/159	DN 40	Ø 122/125
(190,230)	371	50	1778	101	124	319	99	195	139	DN 65 / PN 6 / 4-hole	Rp 1½"	R 1¼"	Ø 155/159	DN 40	Ø 197/200
(300-500)	368	40	1736	101	121	316	96	217	184	DN 100 / PN 6 / 4-hole	Rp 1½"	R 1½"	Ø 252/256	DN 40	Ø 197/200
(620,700)	483	75	1938	176	118	328	89	267	211	DN 100 / PN 6 / 4-hole	Rp 2"	R 2"	Ø 302/306	DN 40	Ø 247/250
(800-1100)	572	100	1959	176	118	374	89	357	219	DN 125 / PN 6 / 8-hole	Rp 2"	R 2"	Ø 302/306	DN 40	Ø 247/250
(1300,1550)	621	100	2064	190	128	398	89	455	244	DN 150 / PN 6 / 8-hole	Rp 2"	R 2"	Ø 402/406	DN 40	Ø 247/250
H (700)	483	75	1938	176	118	328	89	267	211	DN 100 / PN 16 / 8-hole	Rp 2"	R2"	Ø 302/306	DN 40	Ø 247/250
H (1100)	572	100	1959	176	118	374	89	357	219	DN 125 / PN 16 / 8-hole	Rp 2"	R 2"	Ø 302/306	DN 40	Ø 247/250
H (1550)	621	100	2064	190	128	398	89	455	244	DN 150 / PN 16 / 8-hole	Rp 2"	R 2"	Ø 402/406	DN 40	Ø 247/250

* DN = nominal diameter, PN = nominal pressure

Installation dimensions

Boiler without casing and insulation
(Dimensions in mm)

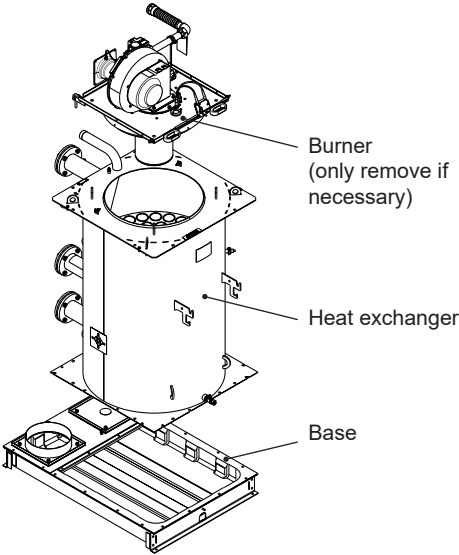
UltraGas® 2 (125-1550)



UltraGas® 2 type	A	B	C	D	E	Dimensions for multi-part installation					
						F	G	H	I	J	K
(125,150)	1765	580	957	880	1519	1625	1421	946	140	580	242
(190,230)	1818	680	1054	980	1583	1678	1484	1037	140	680	236
(300-500)	1777	790	1400	1330	1544	1637	1451	1391	140	950	316
(620,700)	2099	970	1516	1420	1708	1940	1605	1437	159	970	316
(800-1100)	2120	1150	1712	1606	1729	1945	1625	1722	175	1150	408
(1300,1550)	2255	1410	2032	1916	1779	2056	1671	2042	199	1410	458

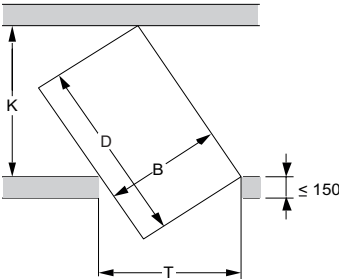
Weights for multi-part installation UltraGas® 2

UltraGas® 2 type	Base kg	Heat exchanger kg	Burner kg
(125)	34	207	29
(150)	34	220	29
(190)	42	272	39
(230)	42	293	39
(300)	60	440	54
(350)	60	474	54
(400)	60	509	50
(450)	60	543	50
(500)	60	565	50
(620)	79	929	80
(700)	79	977	80
(800)	104	1017	93
(1000)	104	1154	100
(1100)	104	1347	100
(1300)	155	1683	160
(1550)	155	1847	160



Required minimum width of door and corridor for boiler installation

The following values are the calculated minimum values (dimensions in mm)



$$K = \frac{B}{T} \times D$$

$$T = \frac{B}{K} \times D$$

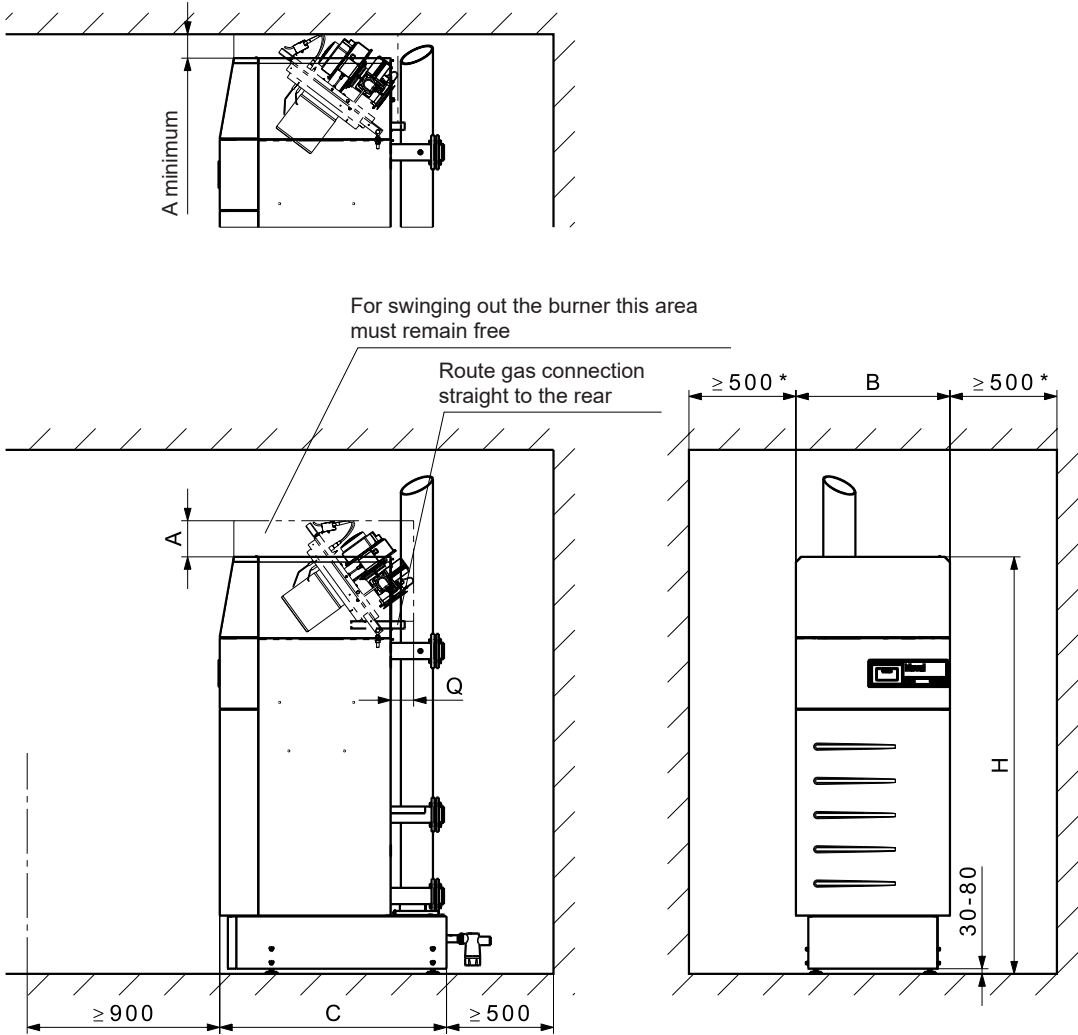
B = boiler width
D = max. boiler length
T = door width
K = corridor width

Calculation example for the necessary corridor width
Door width T = 800

$$\text{UltraGas® 2 (500)} \quad K = \frac{790}{800} \times 1330 = \text{corridor width} \geq 1314$$

Space requirements
(Dimensions in mm)

UltraGas® 2 (125-1550)

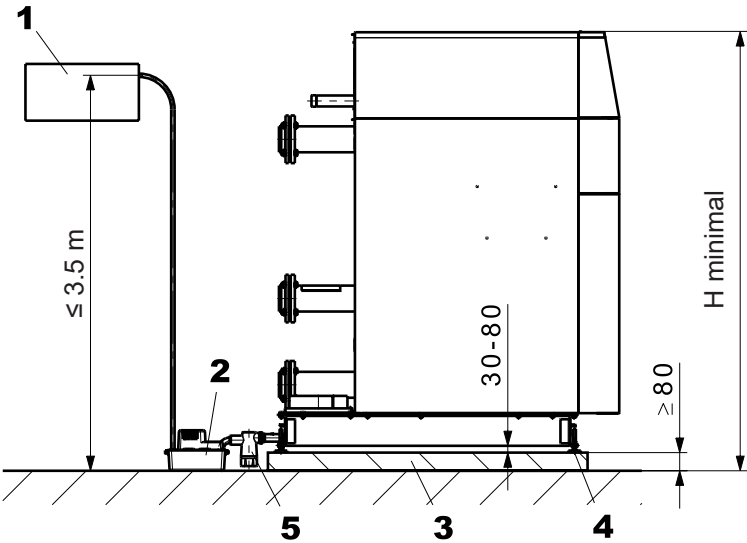


UltraGas® 2 type	A ¹⁾	A minimum ²⁾	B	C	H ³⁾	H minimum ⁴⁾	Q
(125,150)	169	106	720	1060	1953	1934	125
(190,230)	155	71	820	1160	1998	1979	2
(300-500)	513	156	930	1510	1953	1937	60
(620,700)	121	121	1110	1600	2264	2255	155
(800-1100)	280	195	1290	1786	2285	2276	119
(1300,1550)	291	154	1560	2104	2425	2416	163
H (700)	121	121	1110	1600	2264	2255	155
H (1100)	280	195	1290	1786	2285	2276	119
H (1550)	291	154	1560	2104	2425	2416	163

¹⁾ If room height is too small: Reduction of dimension possible (see A minimum).
²⁾ **Attention!** With A minimum the burner can not be swung out completely anymore!
Cleaning with UltraGas® 2 (125-230) and UltraGas® 2 (620-1550) still possible
³⁾ Height value assumes adjustable feet are set to 30 mm
⁴⁾ The base plates cannot be installed without feet and the installer will have to fit a siphon with min. 70 mm barrier height. For details see next page.

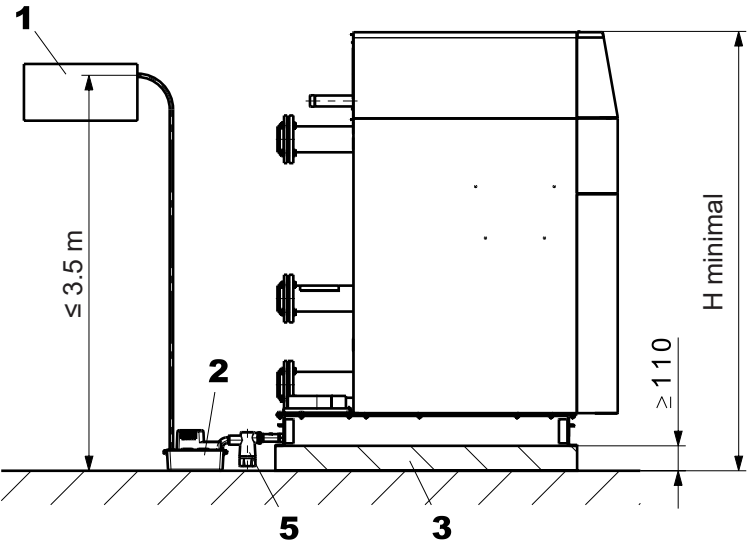
- The heat generator can be placed with one side directly on the wall. However, to protect heat-sensitive walls against damage, a distance of at least 150 mm from the wall must be provided.
- The cleaning opening must be easily accessible. As a result, a minimum distance of 500 mm must be maintained on the cleaning opening side.

UltraGas® 2 (125-1550) with masonry base and adjustable feet
(Dimensions in mm)



UltraGas® 2 type	H minimal ¹⁾
(125,150)	1934
(190,230)	1979
(300-500)	1937
(620,700)	2255
(800-1100)	2276
(1300,1550)	2416
H (700)	2255
H (1100)	2276
H (1550)	2416

UltraGas® 2 (125-1550) with masonry base without adjustable feet



UltraGas® 2 type	H minimal ¹⁾
(125,150)	1934
(190,230)	1979
(300-500)	1937
(620,700)	2255
(800-1100)	2276
(1300,1550)	2416
H (700)	2255
H (1100)	2276
H (1550)	2416

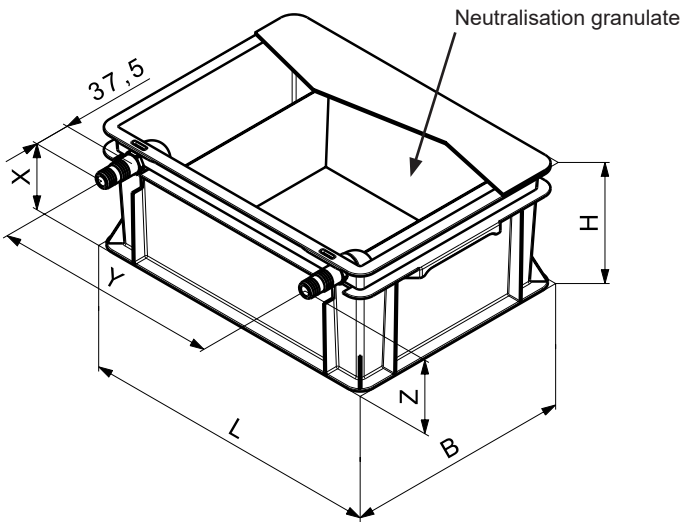
- 1 Neutralisation unit (option)
- 2 Condensate pump (option)
- 3 Masonry base
- 4 Feet adjustable up to 30-80 mm
- 5 Siphon²⁾

¹⁾ Height value assumes adjustable feet are set to 30 mm
²⁾ **Caution!** The installer will have to fit a siphon with min. 70 mm barrier height.

Notice

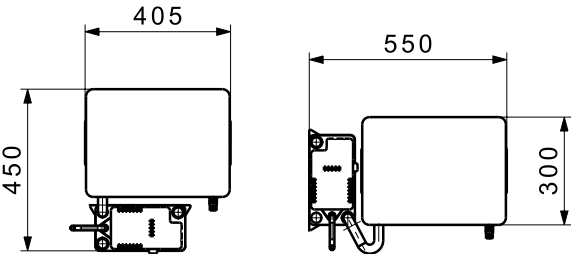
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimal, cleaning the siphon is more difficult.

Neutralisation unit HNB-0400 to HNB-1600
(Dimensions in mm)

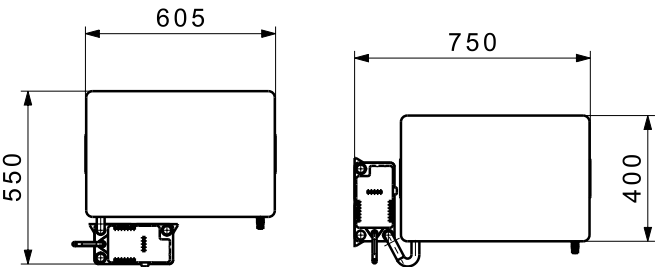


	HNB-0400,-0800	HNB-1200,-1600
Dimensions (L x W x H)	405 x 300 x 180 mm	605 x 400 x 180 mm
Inlet height (Z)	128 mm	
Drain height (X)	118 mm	
Distance between the connections (Y)	approx. 350 mm	approx. 550 mm

Neutralisation unit HNB-0400,-0800 and condensate pump
(Dimensions in mm)



Neutralisation unit HNB-1200,-1600 and condensate pump
(Dimensions in mm)



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:
The quality of the heating water must be checked and documented periodically:
 - For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
 - For an installed heat output above 1000 kW, a check of the heating water is required twice a year.

The following standard values for the heating water must be measured and adhered to:

- 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.

Frost protection agent

see separate engineering sheet
"Use of frost protection agent".

Heating room

- Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. laundrettes, hairdressers).
- Halogen compounds can be caused by cleaning and degreasing solutions, solvents, glue and bleaching lyes. Pay attention to the Procal leaflet, corrosion through Halogen compounds.

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 to boiler (LAS system) mount the connection for direct combustion air inlet. It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

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.
- In the UltraGas® 2, ventilation of the installation or boiler room must be guaranteed for operation independent from the room air.
- **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 into the open.

Gas connection

Commissioning

- Initial commissioning must be performed by a specialist technician from Hoval or a gas specialist technician.
- 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.

In the UltraGas® 2 (400-1550) type, an external gas filter must be installed in the gas supply line.
Make sure that the gas line from the external gas filter to the gas connection of the boiler is cleaned.
For the UltraGas® (125-350) types, it is necessary to comply with the local regulations concerning the need for a gas filter.

Construction of a 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

Necessary gas flow pressure at the boiler inlet:
UltraGas® 2 (125-700) min. 17.4 mbar, max. 80 mbar
UltraGas® 2 (800-1550) min. 17.4 mbar, max. 300 mbar

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.
- Necessary gas flow pressure at the boiler inlet: UltraGas® 2 (125-1550) 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 UltraGas® 2 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.

Closed heating system

The boiler is only approved for use in closed heating systems.

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

If a calorifier is connected, all heating groups must be provided with a mixer.

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions" for information

Pump follow-on

For operating temperatures of the boiler above 85 °C, after each burner switch-off, the circulating pump must be in operation for at least 2 minutes (the pump after-run is included in the boiler controller with TopTronic® E control).

Heating boiler in the attic

If the gas boiler is positioned on the top floor, the installation of a low water protection, which automatically turns the gas burner off in case of water shortage, is recommended.

Condensate drain

- 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
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler scope of delivery).

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The diaphragm pressure expansion tank has to be installed in principle at the boiler return, or at the safety flow.
- Starting from 70 °C an intermediate tank is necessary.

Safety valve

- At the safety flow a safety valve and an automatic exhaustor must be installed.

Noise damping

The following measures are possible for sound insulation:

- Make boiler room walls, ceiling and floor as solid as possible.
- If there are living areas above or below the boiler room, connect pipes flexibly using expansion joints.
- Connect circulating pumps to the piping network using expansion joints

Noise level

- The acoustic **power** level value is dependent on the local and spacial circumstances.
- The acoustic **pressure** level is dependent on the installation conditions and can for instance be 5 to 10 dB(A) lower than the acoustic **power** level at a distance of 1 m.

Recommendation:

If the combustion air intake opening is located on the house facade near a noise-sensitive place (window of bedroom, garden terrace, etc.), we recommend using a silencer in the combustion air duct.

Allocation of gas filters for UltraGas® 2

UltraGas® 2 type	Gas throughput m³/h	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
(125)	11.9	70602/6B	Rp 1"	0.2
(150)	14.2	70602/6B	Rp 1"	0.3
(190)	18.0	70603/6B	Rp 1½"	0.2
(230)	22.4	70603/6B	Rp 1½"	0.2
(300)	29.2	70603/6B	Rp 1½"	0.3
(350)	33.9	70603/6B	Rp 1½"	0.4
(400)	38.6	70603/6B	Rp 1½"	0.6
(450)	44.0	70603/6B	Rp 1½"	0.7
(500)	46.4	70631/6B	Rp 2"	0.5
(620)	59.3	70631/6B	Rp 2"	0.7
(700)	67.0	70631/6B	Rp 2"	0.8
(800)	76.1	70631/6B	Rp 2"	0.9
(1000)	94.6	70631/6B	Rp 2"	1.4
(1100)	106.0	70631/6B	Rp 2"	1.6
(1300)	125.5	70610F/6B	DN 65	1.5
(1550)	147.3	70610F/6B	DN 65	2.1

Flue gas system

- Gas boilers must be connected to a flue gas system (chimney or flue gas lines).
- Flue gas lines must be gas tight and leak tight against condensate and over pressure.
- 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 built in in the boiler.

Standard values for

flue gas line dimensions

Standard values for the flue gas line dimensions can be found in the following table.

Table with bases for calculation

- Calculation based on max. 1000 m above sea level.
- Installation room with supply air opening (room air dependent operation)
- An individual calculation must be carried out for room air-independent operation (accessories as option) or a combustion air supply via a duct.
- Connecting line was calculated with max. 5 m.

- The first 2 m of the flue gas line must be configured with the same dimension as the flue gas connector, after which the size of the flue gas system can be selected according to the table below.

Table "Standard values for flue gas line dimensions"

Boiler		Flue gas line (smooth walled)	Number of elbows 90° (flue gas + combustion air)			
UltraGas® 2	Internal Ø flue gas outlet	Designation	Total pipe length in m (flue gas + combustion air)			
type	mm	DN	1	2	3	4
(125)	155	130	24	23	22	21
(150)	155		18	17	16	15
(125)	155	150	47	47	46	45
(150)	155		45	45	45	44
(190)	155		43	42	40	38
(230)	155		20	20	19	18
(230)	155	175	44	43	43	42
(230)	155	200	45	44	43	43
(300)	252		45	44	43	43
(350)	252		44	43	43	42
(400)	252	250	44	43	42	41
(450)	252		50	50	50	50
(500)	252		50	50	50	50
(620)	302		43	42	41	40
(700)	302		42	41	40	39
(800)	302	300	45	44	43	43
(1000)	302		44	43	43	42
(1100)	302	350	47	46	45	44
(1300)	402		46	45	44	43
(1550)	402		45	44	43	43
H (700)	302	250	42	41	40	39
H (1100)	302	350	47	46	45	44
H (1550)	402		45	44	43	43

Notice: The values in the table "Standard values for flue gas line dimensions" are standard values for reference.

An exact calculation for the flue gas duct must be made on-site.

For chimney systems above 25 m effective height, negative pressure in the chimney is to be expected in some operating conditions. Therefore, we recommend an individual design of the chimney system and checking the individual pressure conditions.

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

Hoval UltraGas® 2 D (250-3100)

Gas boiler

- Double boiler made of steel with condensing technology consisting of 2 individual boilers of 125, 150, 190, 230, 300, 350, 400, 450, 500, 620, 700, 800, 1000, 1100, 1300 or 1550 kW
- 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
- Combustion chamber made of stainless steel
- Maximum flue gas condensation by secondary heating surfaces made of **TurboFer®** hybrid stainless steel composite pipes; heating gas side: stainless steel/aluminium water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor:
 - Fulfills the function of a minimum and maximum pressure limiter
 - Replacement for the low water level protection
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with fan and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plates, red powder-coated
- Flue gas overpressure set consisting of motorised air intake suction flap (connection for direct combustion air supply without accessories possible) and flue gas collector.
- Heating connections backwards incl. counter flanges, screws and seals
 - Flow
 - Return - high temperature
 - Return - low temperature
- **UltraGas® 2 D (600-3100):** with integrated gas pipe compensator
- Each individual boiler has a Hoval TopTronic® E control built in
- Possibility of connecting an external gas solenoid valve with error output



Model range

UltraGas® 2 type	Nominal heat output at 50/30 °C kW
D (250)	25-252
D (300)	35-302
D (380)	38-382
D (460)	51-466
D (600)	58-598
D (700)	70-704
D (800)	69-798
D (900)	77-902
D (1000)	77-982
D (1240)	136-1244
D (1400)	146-1406
D (1600)	166-1608
D (2000)	205-1998
D (2200)	229-2224
D (2600)	269-2640
D (3100)	324-3100
DH (1400)	146-1406
DH (2200)	229-2224
DH (3100)	324-3100

TopTronic® E controller

Control panel

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

TopTronic® E control module

- 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 circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- RAST 5 basic plug set

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

Number of modules that can be additionally installed in the heat generator (per single boiler):

UltraGas® 2 (125-230)

- 1 module expansion and 1 controller module or
- 2 controller modules

UltraGas® 2 (300-500):

- 3 controller modules/module expansions

UltraGas® 2 (620-1550):

- 4 controller modules/module expansions

Notice

Max. 1 module expansion can be connected to the basic module heat generator TTE-WEZ!

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

Further information about the TopTronic® E
see "Controls"

Optional

- Free-standing calorifier see "Calorifiers"
- Additional control for more heating circuits
- Hydraulic connection

Delivery

- 2 gas boilers, casing with thermal insulation, 2 TopTronic® E controls, flue gas collector and combustion air connection delivered separately packed

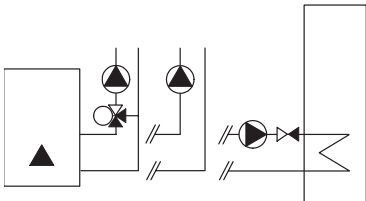
On site

- Mounting of casing, thermal insulations and boiler control panel
- Mounting of boiler feet
- Mounting of the flue gas connection line and flue gas overpressure set (motorised air intake suction flaps)
- Bus cable for connecting the two boiler controllers of the double boiler on site (not included in scope of delivery)

Notice

For the version with common flue gas line with overpressure, the flue gas excess pressure set must be imperatively mounted.

Floor-standing gas condensing boiler



Boiler permissions

UltraGas® 2 D (250-3100)
CE product ID No.: applied for

Hoval UltraGas® 2 D (250-3100)
Double boiler consisting of two individual boilers (UltraGas® 2 125-1550 kW), each with a built-in Hoval TopTronic® E control

- Control functions integrated for
- 1 heating circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management
- Can be optionally expanded by max. 1 module expansion:
 - module expansion heating circuit or
 - module expansion heat balancing or
 - module expansion Universal
 - Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

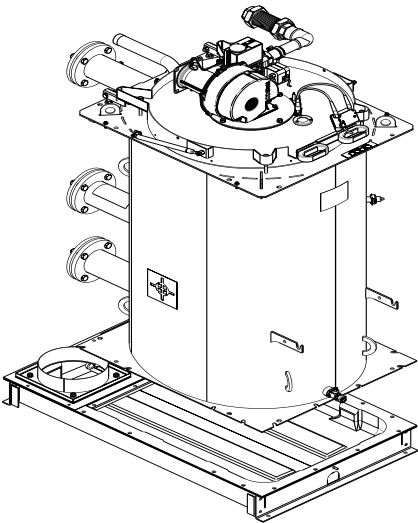
Gas boiler made of steel with TopTronic® E control, combustion chamber made of stainless steel.
Secondary heating surfaces made of **TurboFer®** stainless steel composite pipes.
Pre-mix burner with fan.

Delivery
2 gas boilers, cladding and thermal insulation
2 TopTronic® E controls, flue gas collector and combustion air connection supplied separately packaged

UltraGas® 2 type	Nominal heat output at 50/30 °C kW	Operating pressure bar	
D (250)	25-252	6	7018 907
D (300)	35-302	6	7018 908
D (380)	38-382	6	7018 933
D (460)	51-466	6	7018 934
D (600)	58-598	6	7018 812
D (700)	70-704	6	7018 813
D (800)	78-798	6	7018 814
D (900)	77-902	6	7019 143
D (1000)	77-982	6	7018 815
D (1240)	136-1244	6	7018 880
D (1400)	146-1406	6	7018 881
D (1600)	166-1608	6	7018 857
D (2000)	205-1998	6	7018 858
D (2200)	229-2224	6	7018 859
D (2600)	269-2640	6	7018 903
D (3100)	324-3100	6	7018 904

Part No.

Floor-standing gas condensing boiler
(multi-part installation)



Hoval UltraGas® 2 D (250D-3100D)
(multi-part installation)

Double boiler consisting of two individual boilers (UltraGas® 125-1550 kW), each with a built-in Hoval TopTronic® E control for **multi-part installation**. Assembled on-site by the installer.

UltraGas® 2 type	Output at 50/30 °C kW	Operating pressure bar
D (250)	25-252	6
D (300)	35-302	6
D (380)	38-382	6
D (460)	51-466	6
D (600)	58-598	6
D (700)	70-704	6
D (800)	78-798	6
D (900)	77-902	6
D (1000)	77-982	6
D (1240)	136-1244	6
D (1400)	146-1406	6
D (1600)	166-1608	6
D (2000)	205-1998	6
D (2200)	229-2224	6
D (2600)	269-2640	6
D (3100)	324-3100	6

¹ kW = modulation range

Part No.

- 7018 905
- 7018 906
- 7018 931
- 7018 932
- 7018 850
- 7018 851
- 7018 852
- 7019 142
- 7018 853
- 7018 867
- 7018 868
- 7018 860
- 7018 861
- 7018 862
- 7018 901
- 7018 902

Floor-standing gas condensing boiler
(high-pressure design)

Delivery time approx. 8 weeks

Hoval UltraGas® 2 DH (1400-3100)
(high-pressure design)

Floor-standing gas condensing boiler in **high-pressure design** (operating pressure 10 bar)

UltraGas® 2 type	Output at 50/30 °C kW ¹⁾	Operating pressure bar
DH (1400)	146-1406	10
DH (2200)	229-2224	10
DH (3100)	324-3100	10

¹ kW = modulation range

- 7019 105
- 7018 831
- 7018 832

Propane version
on request

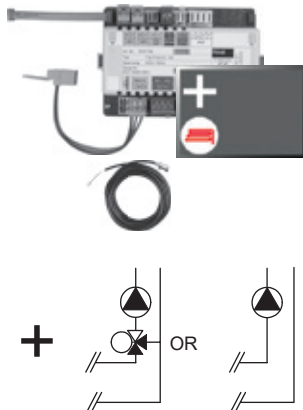


System flow sensor
for installation in the flow connector sleeve Rp 1/4",
for regulating the flow temperature

6053 398

Installation of the system flow sensor is recommended for optimal control of the flow temperature.

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:

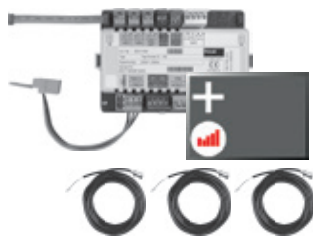
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

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.

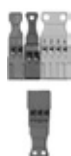
Part No.

6034 576

6037 062

6034 575

Accessories for TopTronic® E



TopTronic® E controller modules

TTE-HK/WW	TopTronic® E heating circuit/ hot water module
TTE-SOL	TopTronic® E solar module
TTE-PS	TopTronic® E buffer module
TTE-MWA	TopTronic® E measuring module

Supplementary plug set

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

TopTronic® E room control modules

TTE-RBM	TopTronic® E room control modules
	easy white
	comfort white
	comfort black

Enhanced language package TopTronic® E

one SD card required per control module

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

System module SB-SM-BZ1

for passing on a volt-free operating
and fault message.
(for 1-stage/modulating H-Gens)

6048 055

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

Part No.



Fitting pipe flow



Fitting pipe return

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

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

Kit clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap,
enclosed cable (4 m) and plug

Immersion thermostat *RAK-TW1000.S SB 150*
Thermostat with pocket ½"
- depth of immersion 150 mm,
brass nickel-plated

Safety set DN 25
complete with safety valve
DN 25 (3 bar), up to 200 kW
Pressure gauge and automatic
aspirator with barrier
Connection: 1" internal thread

Safety set DN 32
complete with safety valve
DN 32 (3 bar), up to 300 kW
Pressure gauge and automatic
aspirator with barrier
Connection 1¼" internal thread

Safety fitting pipe for flow and return
Suitable for max. 6 bar, with screws and nuts.
- for installation on the flow or high and low-temperature return of the Hoval UltraGas® 2 boiler.
- for installation of an additional safety temperature limiter, a maximum pressure limiter.
- for connection of a diaphragm pressure expansion tank on the return.

Dimension	Suitable to UltraGas® 2 D	Connection
DN 65 ¹⁾	(250-460)	flow
DN 65 ¹⁾	(250-460)	return
DN 100 ¹⁾	(600-1400)	flow
DN 100 ¹⁾	(600-1400)	return
DN 125 ¹⁾	(1600-2200)	flow
DN 125 ¹⁾	(1600-2200)	return
DN 150 ¹⁾	(2600,3100)	flow
DN 150 ¹⁾	(2600,3100)	return

¹⁾ 2 pieces are necessary

Further information see "Dimensions"
Hoval UltraGas® 2 (125-1550)

242 902

6033 745

6010 082

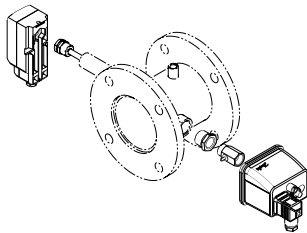
6018 709

6018 710

6053 408
6023 108
6053 409
6023 110
6055 078
6023 112
6055 079
6051 680

Accessories

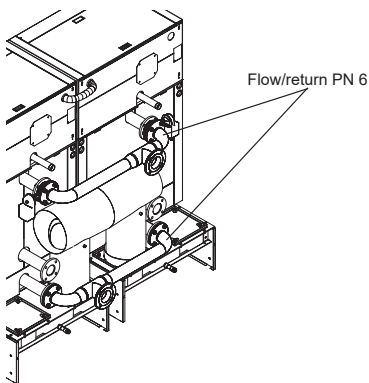
Part No.



Safety armature set
Compatible with fitting pipe for meeting safety requirements of EN 12828: > 300 kW or SWKI HE301-01: 70-1000 kW related to single boiler
Consisting of:
- adjustable maximum pressure limiter incl. ball valve
- safety temperature limiter (RAK-ST.131)

6051 903

2 pieces per double boiler necessary



Hydraulic connection set for double boiler, flow/return PN 6

Pipe connection set for double boiler including motor shut-off flap valves.
For 24 V, pre-wired.
Operating method: continuously controlling (2...10 V)

for UltraGas® 2 D (250-460)
for UltraGas® 2 D (600-1000)
for UltraGas® 2 D (1240,1400)
for UltraGas® 2 D (1600-2200)
for UltraGas® 2 D (2600,3100)

6054 637
6054 638
6054 639
6054 640
6054 641

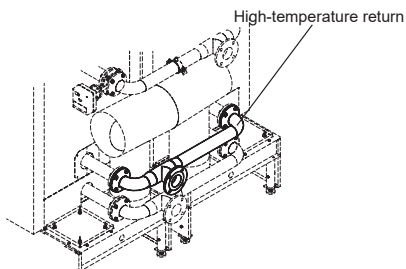


Hydraulic butterfly valve
for direct installation on the flow and/or return of the boiler.
For 24 V, pre-wired.
Operating method: continuously controlling (2...10 V)
As an option if no flow/return set is ordered.

UltraGas® 2 (125-230) DN 65
UltraGas® 2 (300-700) DN 100
UltraGas® 2 (800-1100) DN 125
UltraGas® 2 (1300, 1550) DN 150

6050 605
6050 606
6050 607
6051 894

2 pieces per double boiler necessary



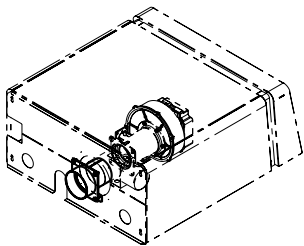
Hydraulic connection set for double boiler, High-temperature return PN 6

for UltraGas® 2 D
(e.g. for return calorifier charge).

zu UltraGas® 2 D (250-460)
zu UltraGas® 2 D (600-1000)
zu UltraGas® 2 D (1240,1400)
zu UltraGas® 2 D (1600-2200)
zu UltraGas® 2 D (2600,3100)

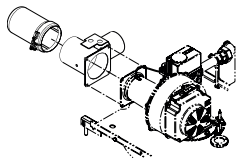
6054 636
6054 396
6004 924
6009 534
6051 915

Accessories



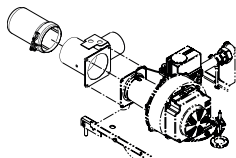
Connection for direct combustion air input
Only in combination with a motorised combustion air damper (ordered separately).
Can also be used for creating a boiler cascade with a common flue gas line.

UltraGas® 2 (125,150)	6052 847
UltraGas® 2 (190,230)	6052 848
UltraGas® 2 (300-500)	6053 097
UltraGas® 2 (620,700)	6053 780
UltraGas® 2 (800-1100)	6053 782
UltraGas® 2 (1300,1550)	6052 849



Connection protection filter
for UltraGas® 2 (125-500)
for installation on
the motorised combustion air damper
for filtering the combustion air
in the building phase
Pore width of the filter < 50 µm

6052 151



Connection protection filter
for UltraGas® 2 (620-1550)
for installation on
the motorised combustion air damper
for filtering the combustion air
in the building phase
Pore width of the filter < 50 µm

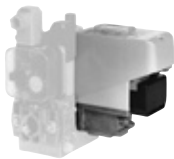
6052 152



Gas valve
with thermally releasing cut-off device.

Type	Connection inches	
DN 25	R 1"	2069 324
DN 32	R 1¼"	2069 325
DN 40	R 1½"	2069 326
DN 50	R 2"	2069 327

Accessories



Valve testing system
for UltraGas® 2 (125-1550),
UltraGas® 2 (250D-3100D)
Automatic, compact testing system for testing
the leakage of the gas valve before each burner
start with ready-to-connect wiring.
Suitable for all gas qualities for
which the UltraGas® 2 is permitted.

UltraGas® 2 D (250D-700D)	6039 964
UltraGas® 2 D (800D-1400D)	6039 965
UltraGas® 2 D (1600D-3100D)	6054 484

For an UltraGas® 2 double boiler, two valve
test systems must be ordered.

Gas valve kit
Set with gas valve and thermally releasing
shut-off device
Thermal closing at approx. 95 °C
Tripping time < 60 s
Maximum working pressure 5 bar
Ambient temperature < 60 °C
Combustible gases according to G260

Gas ball valve with flange
Type

DN 65	2007 988
DN 80	2007 989
DN 100	2007 990

Fitting protection TAS
Type

TAS 23-65	2069 328
TAS 23-80	2069 329
TAS 23-100	2069 330

Mounting set for assembly
Gas ball valve with fitting protection
Type

MS-TAS 23-65	6041 745
MS-TAS 23-80	6041 746
MS-TAS 23-100	6041 747

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	
70602/6B	Rp 1"	2007 996
70604/6B	Rp 1¼"	2054 495
70603/6B	Rp 1½"	2007 997
70631/6B	Rp 2"	2007 998
70610F/6B	DN 65	2007 999

Gas pipe compensator 1" 6034 556

for UltraGas® 2 (125,150),
UltraGas® 2 D (250,300)
for compensating for connection
tolerances in the gas pipe

Gas pipe compensator 1½" 6034 557

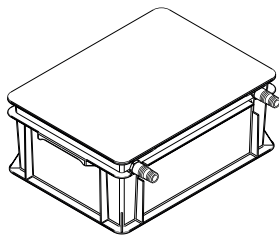
for UltraGas® 2 (190,230),
UltraGas® 2 D (380,460)
for compensating for connection
tolerances in the gas pipe

For a kit, the gas ball valve, fitting protection
and mounting set must each be ordered
separately in the same dimension.



2 pieces per double boiler necessary

Condensate drainage
to UltraGas® 2 D



Neutralisation box

Condensate drain into a lower drainage duct
Connection hose: 2 m
Service life up to 1 year, depending on the boiler
operating mode
Positioning behind the boiler or laterally
One neutralisation box per boiler

Type		Neutralisa- tion granulate
UltraGas® 2 (125-400)	HNB-0400	3 kg
UltraGas® 2 (450-800)	HNB-0800	6 kg
UltraGas® 2 (1000,1100)	HNB-1200	9 kg
UltraGas® 2 (1300,1550)	HNB-1600	12 kg

6054 792
6054 793
6054 794
6054 795



Condensate pump

for transporting condensate
into a higher drainage duct
Including connection lines
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: max. 4 m
Can be combined with neutralisation box

6045 476



Double condensate pump

For UltraGas® 2 (1000-1550)
for transporting the condensate
into a higher drainage duct
Including connection line
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: 3 m
Can be combined with neutralisation box

6061 175

2 pieces needed per double boiler



Neutralisation granulate

for neutralisation box
Refill set volume 3 kg
Life time of one filling:
approx. 1 year, depending on amount
of condensate

2028 906

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.

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Hoval UltraGas® 2 D (250-460)

Type		D (250)	D (300)	D (380)	D (460)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	21-228	33-278	35-354	47-436
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	25-252	35-302	38-382	51-466
• Nominal heat output at 80/60 °C, propane ²⁾	kW	27-226	43-276	55-351	81-434
• Nominal heat output at 50/30 °C, propane ²⁾	kW	30-252	48-302	62-382	90-466
• Nominal heat input with natural gas ³⁾	kW	23-232	32-284	35-358	47-446
• Nominal heat input with propane ²⁾	kW	28-232	44-284	57-358	84-446
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H₂O))	l	2 x 207	2 x 195	2 x 276	2 x 265
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	2 x 378	2 x 400	2 x 490	2 x 510
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.6/88.9	97.6/88.1	98.5/88.7	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	108.7/98.1	108.7/98.1	109.0/98.2	108.4/97.8
• Room heating energy efficiency					
- without control	η _s %	93	93	93	93
- with control	η _s %	95	95	95	95
- with control and room sensor	η _s %	97	97	97	97
- annual energy consumption	Q _{HE} GJ	386	479	598	751
• NOx class (EN 15502)		-	-	-	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	25	28	33	37
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	31	21	25	13
• O ₂ content in flue gas min./max. output	%	5.9/5.6	5.5/6.0	5.9/6.0	6.0/5.9
• Heat loss in standby mode	Watt	760	760	1020	1020
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-80
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	80
• 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	2.4-23.9	3.3-29.3	3.6-36.9	4.8-46.0
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	2.8-28.5	3.9-34.9	4.3-44.0	5.8-54.9
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	1.2-9.5	1.8-11.6	2.3-14.7	3.4-18.3
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	41/280	43/450	38/302	49/456
• Standby	Watt	7	8	8	8
• Type of protection	IP	20	20	20	20
• 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)	76	81	67	70
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	-	-	-	-
• Condensate quantity (natural gas) at 50/30 °C	l/h	22	24	30	40
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	376	452	566	688
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	37	51	55	63
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	64	65	68	69
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	43	45	46	47
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	28	29	29
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	308	360	464	560
- Maximum supply pressure for combustion air supply and flue gas line	Pa	60	60	60	60
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 D (600-1000)

Type		D (600)	D (700)	D (800)	D (900)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	54-548	67-630	62-724	73-830
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	58-598	70-704	69-798	77-902
• Nominal heat output at 80/60 °C, propane ²⁾	kW	83-548	115-622	97-722	111-816
• Nominal heat output at 50/30 °C, propane ²⁾	kW	93-598	129-704	108-798	122-902
• Nominal heat input with natural gas ³⁾	kW	54-564	64-662	62-748	71-854
• Nominal heat input with propane ²⁾	kW	87-564	121-662	100-748	115-854
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H2O))	l	2 x 472	2 x 452	2 x 432	2 x 412
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	2 x 770	2 x 810	2 x 830	2 x 840
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.2/98.4	108.9/98.1	109.0/98.2	108.9/98.1
• Room heating energy efficiency					
- without control	η _s %	94	93	93	-
- with control	η _s %	96	95	95	-
- with control and room sensor	η _s %	98	97	97	-
- annual energy consumption	Q _{HE} GJ	926	1076	1212	-
• NOx class (EN 15502)		6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	39	45	39	45
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	18	26	23	30
• O ₂ content in flue gas min./max. output	%	5.5/5.8	5.7/5.7	5.9/5.9	6.0/5.6
• Heat loss in standby mode	Watt	1500	1500	1500	1500
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-80
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	80
• 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	5.6-58.1	6.6-68.2	6.4-77.1	7.3-88.0
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	6.6-69.4	7.9-81.4	7.6-92.0	8.7-105.0
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	3.6-23.1	4.9-27.1	4.1-30.7	4.7-35.0
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	51/730	55/700	56/1036	56/1180
• Standby	Watt	5	5	5	5
• Type of protection	IP	20	20	20	20
• 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)	76	73	76	77
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	-	-	-	-
• Condensate quantity (natural gas) at 50/30 °C	l/h	44	50	56	58
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	890	1044	1182	1348
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	85	101	98	112
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	64	65	66	67
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	43	44	48	47
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	29	29	29
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	728	856	966	1104
- Maximum supply pressure for combustion air supply and flue gas line	Pa	60	60	60	60
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 D (1000-1600)

Type		D (1000)	D (1240)	D (1400)	D (1600)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	71-898	125-1160	132-1306	150-1486
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	77-982	136-1244	146-1406	166-1608
• Nominal heat output at 80/60 °C, propane ²⁾	kW	111-882	168-1139	174-1286	233-1488
• Nominal heat output at 50/30 °C, propane ²⁾	kW	121-982	178-1244	187-1406	254-1610
• Nominal heat input with natural gas ³⁾	kW	71-926	124-1182	134-1336	151-1518
• Nominal heat input with propane ²⁾	kW	115-926	174-1182	180-1336	236-1518
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H₂O))	l	2 x 408	2 x 536	2 x 509	2 x 831
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	2 x 850	2 x 1050	2 x 1100	2 x 1370
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.3/88.6
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.0/98.2	109.0/98.2	108.9/98.1	109.1/98.3
• Room heating energy efficiency					
- without control	η _s %	-	-	-	-
- with control	η _s %	-	-	-	-
- with control and room sensor	η _s %	-	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-	-
• NOx class (EN 15502)		6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	50	33	40	36
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	46	24	26	23
• O ₂ content in flue gas min./max. output	%	5.5/5.8	5.9/6.0	6.0/5.7	6.0/5.8
• Heat loss in standby mode	Watt	1500	2000	2000	2400
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-80	17.4-80	17.4-80	17.4-300
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	80	80	300
• 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	7.3-95.5	12.8-121.9	13.8-137.7	15.6-156.5
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	8.7-113.9	15.3-145.4	16.5-164.3	18.6-186.7
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	4.7-38.0	7.1-48.4	7.4-54.8	9.7-62.2
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50
• Electrical power consumption min./max.	Watt	57/1432	63/1662	67/2120	94/2024
• Standby	Watt	5	5	5	7
• Type of protection	IP	20	20	20	20
• 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)	81	78	79	81
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	-	72	71	-
• Condensate quantity (natural gas) at 50/30 °C	l/h	74	102	96	114
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	1472	1866	2110	2396
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	112	196	211	238
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	66	68	69	66
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	44	47	49	44
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	28	28	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	1204	1528	1726	1962
- Maximum supply pressure for combustion air supply and flue gas line	Pa	60	60	60	60
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 D (2000-3100)

Type		D (2000)	D (2200)	D (2600)	D (3100)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	185-1852	203-2076	241-2460	297-2894
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	205-1998	229-2224	269-2640	324-3100
• Nominal heat output at 80/60 °C, propane ²⁾	kW	245-1852	299-2067	362-2455	427-2877
• Nominal heat output at 50/30 °C, propane ²⁾	kW	264-1998	316-2224	385-2640	453-3100
• Nominal heat input with natural gas ³⁾	kW	187-1886	206-2114	247-2502	297-2938
• Nominal heat input with propane ²⁾	kW	248-1886	306-2114	371-2502	437-2938
• Operating pressure heating min./max. (PMS)	bar	1/6	1/6	1/6	1/6
• Operating temperature max. (T _{max})	°C	95	95	95	95
• Boiler water content (V _(H2O))	l	2 x 756	2 x 718	2 x 1211	2 x 1118
• Flow resistance boiler		see diagram			
• Minimum circulation water quantity	l/h	-	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	2 x 1540	2 x 1600	2 x 2130	2 x 2300
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾	%	109.0/98.2	108.6-97.8	108.7/97.9	108.5/97.7
• Room heating energy efficiency					
- without control	ηs %	-	-	-	-
- with control	ηs %	-	-	-	-
- with control and room sensor	ηs %	-	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-	-
• NOx class (EN 15502)		6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	36	41	37	35
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	25	26	23	23
• O ₂ content in flue gas min./max. output	%	6.0/5.9	6.0/5.9	6.0/5.9	6.0/6.0
• Heat loss in standby mode	Watt	2400	2400	3200	3200
• Dimensions		see dimensional drawing			
• Gas flow pressure min./max.					
- Natural gas E/LL	mbar	17.4-300	17.4-300	17.4-300	17.4-300
- Propane	mbar	37-57	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	300	300	300	300
• 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	19.3-194.4	21.2-217.9	25.5-257.9	30.6-302.9
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	23.0-232.0	25.3-260.0	30.4-307.7	36.5-361.4
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	10.2-77.3	12.6-86.6	15.2-102.5	17.9-120.4
• Operating voltage	V/Hz	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50
• Electrical power consumption min./max.	Watt	203/3746	203/3866	271/8222	301/8282
• Standby	Watt	7	7	5	7
• Type of protection	IP	20	20	20	20
• 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)	86	85	89	88
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	-	-	-	-
• Condensate quantity (natural gas) at 50/30 °C	l/h	136	144	200	276
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63			
• Flue gas system					
- Temperature class		T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)	kg/h	2976	3338	3950	4460
- Flue gas mass flow at min. nominal heat input (dry)	kg/h	295	325	390	450
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	69	70	66	68
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	47	49	45	46
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	28	29	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48	48
- Volume flow of combustion air	Nm ³ /h	2438	2732	3234	3660
- Maximum supply pressure for combustion air supply and flue gas line	Pa	60	60	60	60
- Maximum draught/underpressure 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 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

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

Hoval UltraGas® 2 DH (1400-3100)

Type		DH (1400)	DH (2200)	DH (3100)
• Nominal heat output at 80/60 °C, natural gas ¹⁾	kW	132-1306	203-2076	297-2894
• Nominal heat output at 50/30 °C, natural gas ¹⁾	kW	146-1406	229-2224	324-3100
• Nominal heat output at 80/60 °C, propane ²⁾	kW	174-1286	299-2067	427-2877
• Nominal heat output at 50/30 °C, propane ²⁾	kW	187-1406	316-2224	453-3100
• Nominal heat input with natural gas ³⁾	kW	134-1336	206-2114	297-2938
• Nominal heat input with propane ²⁾	kW	180-1336	306-2114	437-2938
• Operating pressure heating min./max. (PMS)	bar	1/10	1/10	1/10
• Operating temperature max. (T _{max})	°C	95	95	95
• Boiler water content (V _(H2O))	l	2 x 509	2 x 709	2 x 1118
• Flow resistance boiler			see diagram	
• Minimum circulation water quantity	l/h	-	-	-
• Boiler weight (without water capacity, incl. cladding)	kg	2 x 1144	2 x 1700	2 x 2440
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾	%	98.2/88.5	98.2/88.5	98.2/88.5
• Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾		108.9/98.1	108.6/97.8	108.5/97.7
• Room heating energy efficiency				
- without control	ηs %	-	-	-
- with control	ηs %	-	-	-
- with control and room sensor	ηs %	-	-	-
- annual energy consumption	Q _{HE} GJ	-	-	-
• NOx class (EN 15502)		6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	40	41	35
• Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂)	CO mg/Nm ³	26	26	23
• O ₂ content in flue gas min./max. output	%	6.0/5.7	6.0/5.9	6.0/6.0
• Heat loss in standby mode	Watt	2000	2400	3200
• Dimensions		see dimensional drawing		
• Gas flow pressure min./max.				
- Natural gas E/LL	mbar	17.4-80	17.4-300	17.4-300
- Propane	mbar	37-57	37-57	37-57
• Gas inlet pressure max. (idle pressure)	mbar	80	300	300
• 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	13.8-137.7	21.2-217.9	30.6-302.9
- Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³	m ³ /h	16.5-164.3	25.3-260.0	36.5-361.4
- Propane (G31) NCV = 24.4 kWh/m ³ ²⁾	m ³ /h	7.4-54.8	12.6-86.6	17.9-120.4
• Operating voltage	V/Hz	1 x 230/50	1 x 230/50 3 x 400/50	1 x 230/50 3 x 400/50
• Electrical power consumption min./max.	Watt	67/2120	203/3866	301/8282
• Standby	Watt	5	7	7
• Type of protection	IP	20	20	20
• Permitted ambient temperature during operation	°C	5-40	5-40	5-40
• Sound power level				
- Heating noise (EN 15036 part 1) (room air dependent)	dB(A)	79	85	88
- Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air)	dB(A)	71	-	-
• Condensate quantity (natural gas) at 50/30 °C	l/h	96	144	276
• pH value of the condensate (approx.)	pH	4.2	4.2	4.2
• Construction		B23, B23P, C53, C63		
• Flue gas system				
- Temperature class		T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)		2110	3338	4460
- Flue gas mass flow at min. nominal heat input (dry)		211	325	450
- Flue gas temperature at max. nominal heat output and 80/60 °C	°C	69	70	68
- Flue gas temperature at max. nominal heat output and 50/30 °C	°C	49	49	46
- Flue gas temperature at min. nominal heat output and 50/30 °C	°C	29	29	28
- Max. permissible temperature of the combustion air	°C	48	48	48
- Volume flow of combustion air	Nm ³ /h	1726	2732	3660
- Maximum supply pressure for combustion air supply and flue gas line	Pa	60	60	60
- Maximum draught/underpressure at flue gas outlet	Pa	-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 (D), an output reduction of up to 7 % is possible.

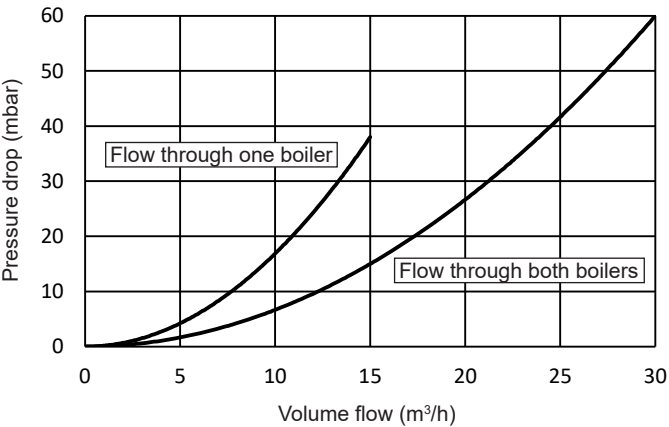
²⁾ Data related to NCV, conditional data

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.

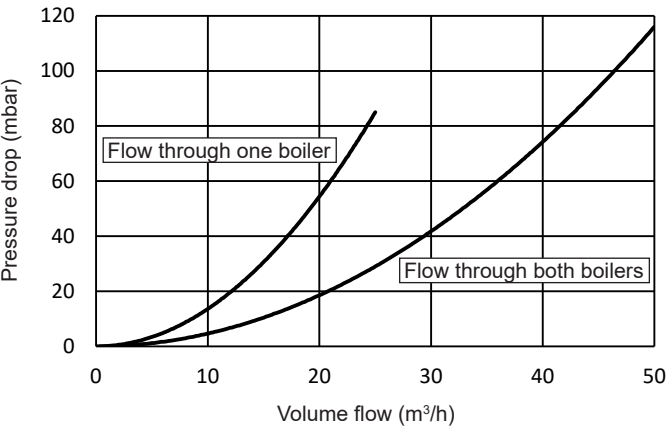
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

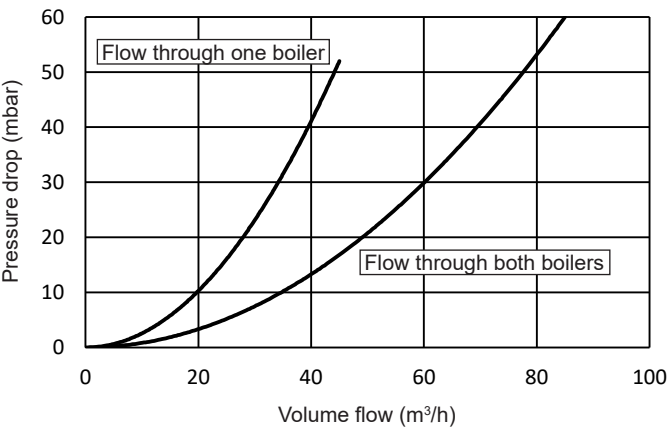
UltraGas® 2 D (250,300)



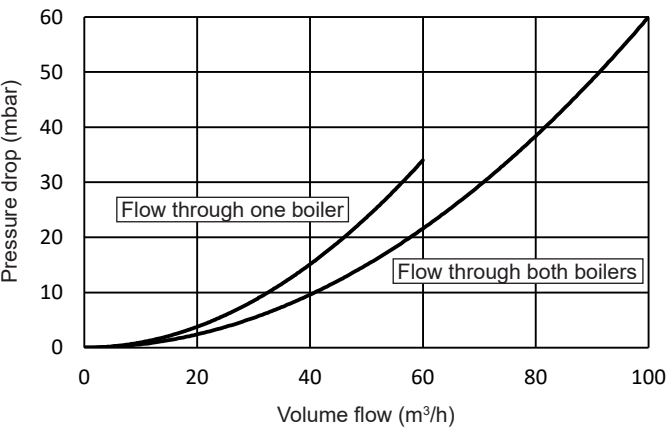
UltraGas® 2 D (380,460)



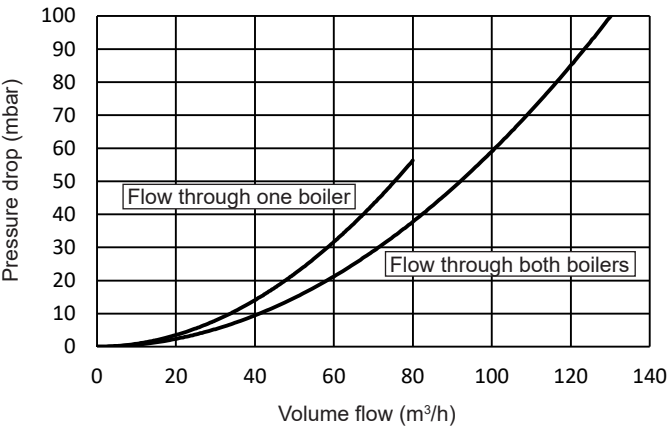
UltraGas® 2 D (600-1000)



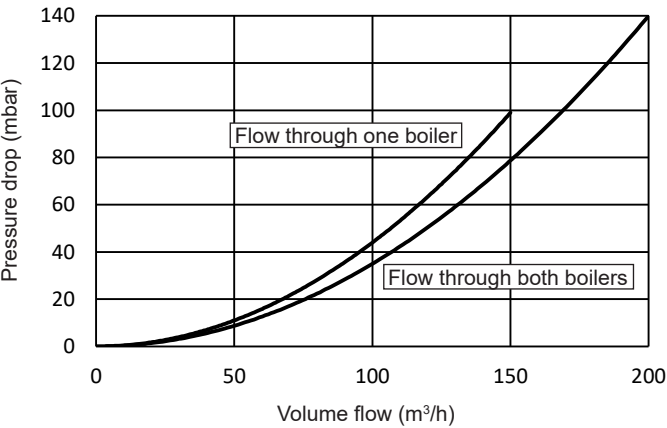
UltraGas® 2 D (1240,1400)



UltraGas® 2 D (1600-2200)

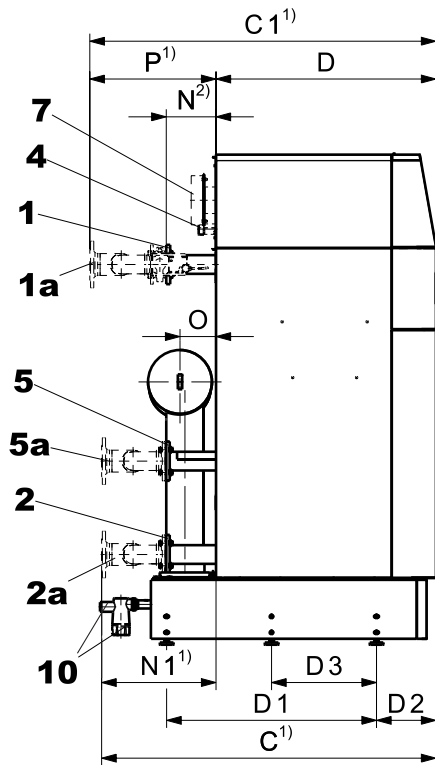


UltraGas® 2 D (2600,3100)

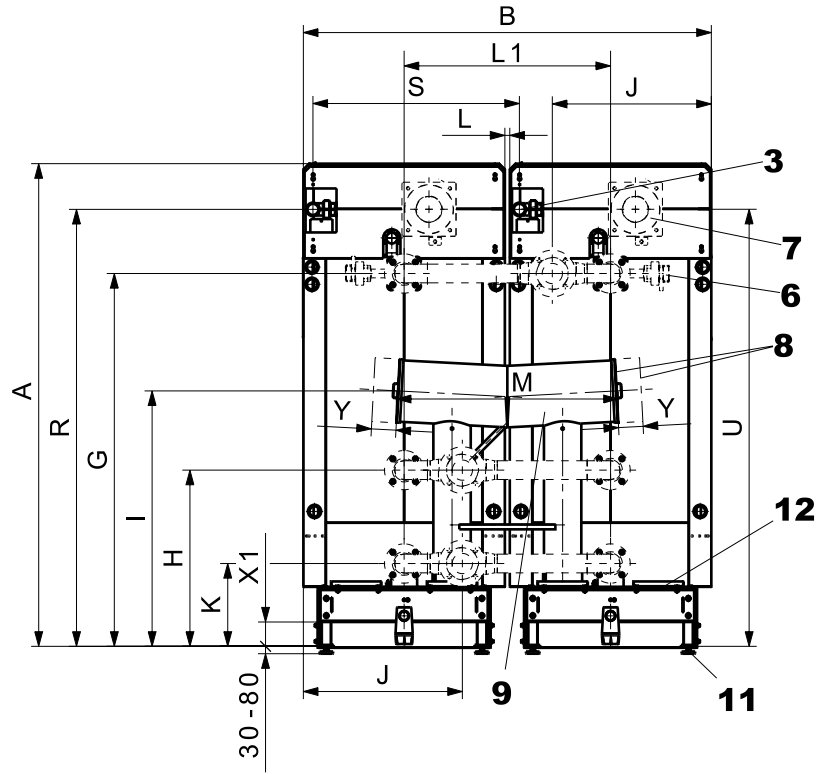


UltraGas® 2 D (250-3100)

(Dimensions in mm)



- 1 Flow heating
- 1a Hydraulic connection flow (option)²⁾
- 2 Low-temperature return
- 2a Hydraulic connection low-temperature return (option)²⁾
- 3 Gas connection
- 4 Safety flow (safety valve, air vent)
- 5 High-temperature return
- 5a Hydraulic connection high-temperature return (option)²⁾
- 6 Hydraulic shut-off valve (option)
- 7 Combustion air intake connector (option)
- 8 Flue gas outlet connection left or right
- 9 Flue gas collector
- 10 Condensate drain with siphon and screw connection for plastic pipe



- 11 Boiler feet (adjustable 30-80 mm)
- 12 Cleaning opening

Notice

For subsequent technical details, see single boiler UltraGas® 2 (125-1550):

- Detailed dimensions and dimensions for multi-part installation
- Mounting position of system flow sensor
- Safety fitting pipe flow/return for mounting the protection set and diaphragm pressure expansion tank

Type	A	B	C ¹⁾	C1 ¹⁾	D	D1	D2	D3	G	H	I	J	K	L	M	N ²⁾	N1 ¹⁾	O	P ¹⁾	R	S	U	X1	Y
D (250,300)	1923	1560	1269	1317	799	754	242	-	1479	714	1116	597	334	120	902	207	470	142	518	1725	840	1725	99	-
D (380,460)	1968	1660	1363	1411	895	854	242	-	1517	717	1116	647	337	20	902	204	468	147	516	1778	840	1778	99	-
D (600-1000)	1923	1880	1807	1864	1165	1204	242	-	1447	745	1143	814	365	20	930	285	642	176	699	1735	950	1736	96	-
D (1240,1400)	2234	2240	1827	1884	1184	1294	242	-	1564	757	1195	904	377	20	1019	286	643	205	700	1966	1130	1938	89	-
D (1600-2200)	2255	2600	2158	2218	1364	1480	242	-	1573	788	1280	1054	408	20	1018	378	794	228	854	1959	1310	1959	89	-
D (2600,3100)	2395	3150	2571	2631	1640	1790	250	895	1600	822	1231	1339	442	30	1322	420	931	240	991	2064	1590	2064	89	495
DH (1400)	2234	2240	1827	1884	1184	1294	242	-	1564	757	1195	904	377	20	1019	286	643	205	700	1966	1130	1938	89	-
DH (2200)	2255	2600	-	-	1364	1480	242	-	1573	788	1280	1054	408	20	1018	378	-	228	-	1959	1310	1959	89	-
DH (3100)	2395	3150	-	-	1640	1790	250	895	1600	822	1231	1339	442	30	1322	390	-	240	-	2064	1590	2064	89	495

Type	1,2,5 ³⁾	1a,2a,5a ^{2), 3)}	3	4	7	8	10
D (250,300)	DN 65 / PN 6 / 4-hole	DN 80 / PN 6 / 4-hole	Rp 1"	R 1"	Ø 122/125	Ø 254/256	DN 40
D (380,460)	DN 65 / PN 6 / 4-hole	DN 80 / PN 6 / 4-hole	Rp 1½"	R 1½"	Ø 197/200	Ø 254/256	DN 40
D (600-1000)	DN 100 / PN 6 / 4-hole	DN 125 / PN 6 / 8-hole	Rp 1½"	R 1½"	Ø 197/200	Ø 306/308	DN 40
D (1240,1400)	DN 100 / PN 6 / 4-hole	DN 125 / PN 6 / 8-hole	Rp 2"	R 2"	Ø 247/250	Ø 356/358	DN 40
D (1600-2200)	DN 125 / PN 6 / 8-hole	DN 150 / PN 6 / 8-hole	Rp 2"	R 2"	Ø 247/250	Ø 402/404	DN 40
D (2600,3100)	DN 150 / PN 6 / 8-hole	DN 200 / PN 6 / 8-hole	Rp 2"	R 2"	Ø 247/250	Ø 504/506	DN 40
DH (1400)	DN 100 / PN 16 / 4-hole	-	Rp 2"	R 2"	Ø 247/250	Ø 356/358	DN 40
DH (2200)	DN 125 / PN 16 / 8-hole	-	Rp 2"	R 2"	Ø 247/250	Ø 402/404	DN 40
DH (3100)	DN 150 / PN 16 / 8-hole	-	Rp 2"	R 2"	Ø 247/250	Ø 504/506	DN 40

¹⁾ UltraGas® 2 D: dimensions incl. hydraulic connections and hydraulic butterfly valves

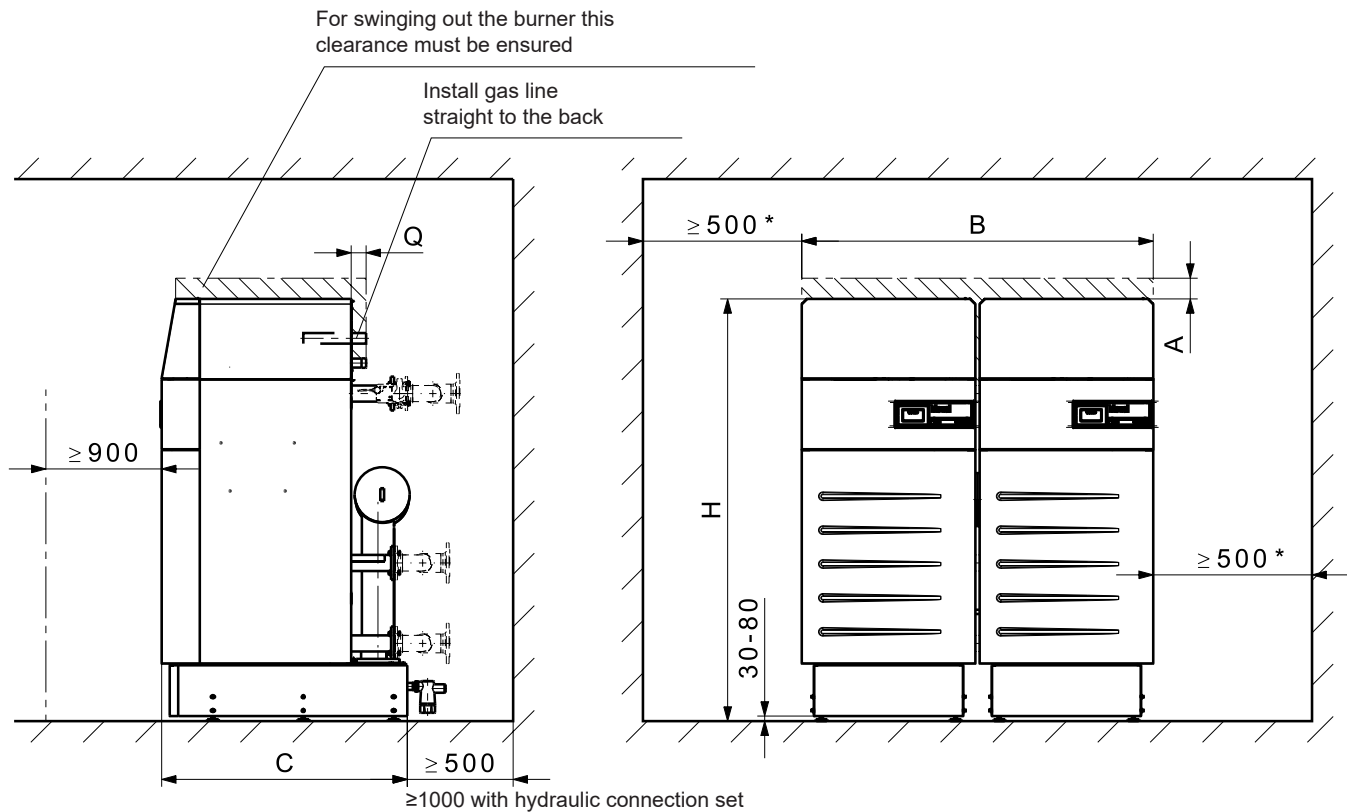
²⁾ UltraGas® 2 D and UltraGas® 2 DH: dimensions without hydraulic connection and hydraulic butterfly valve

No hydraulic connections of the double boilers are available for UltraGas® 2 DH.

³⁾ DN = nominal diameter, PN = nominal pressure

Space requirements

UltraGas® 2 D (250-3100)
(Dimensions in mm)

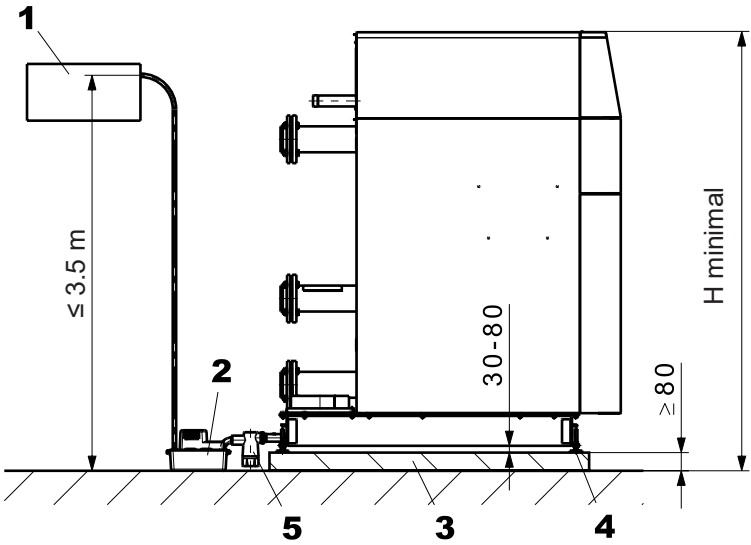


UltraGas® 2 type	A ¹⁾	A minimum ²⁾	B	C	H ³⁾	H minimum ⁴⁾	Q
D (250,300)	169	106	1560	1060	1953	1934	125
D (380,460)	155	71	1660	1160	1998	1979	2
D (600-1000)	513	156	1880	1510	1953	1937	60
D (1240,1400)	121	121	2240	1600	2264	2255	155
D (1600-2200)	280	195	2600	1786	2285	2276	119
D (2600,3100)	291	154	3150	2104	2425	2416	163
DH (1400)	121	121	2240	1600	2264	2255	155
DH (2200)	280	195	2600	1786	2285	2276	119
DH (3100)	291	154	3150	2104	2425	2416	163

¹⁾ If room height is too small: Reduction of dimension possible (see A minimum).
²⁾ **Attention!** With A minimum the burner can not be swung out completely anymore!
Cleaning with UltraGas® 2 D (250-460) and UltraGas® 2 D (1240-3100) still possible
³⁾ Height value assumes adjustable feet are set to 30 mm
⁴⁾ The base plates cannot be installed without feet and the installer will have to fit a siphon with min. 70 mm barrier height. For details see next page.

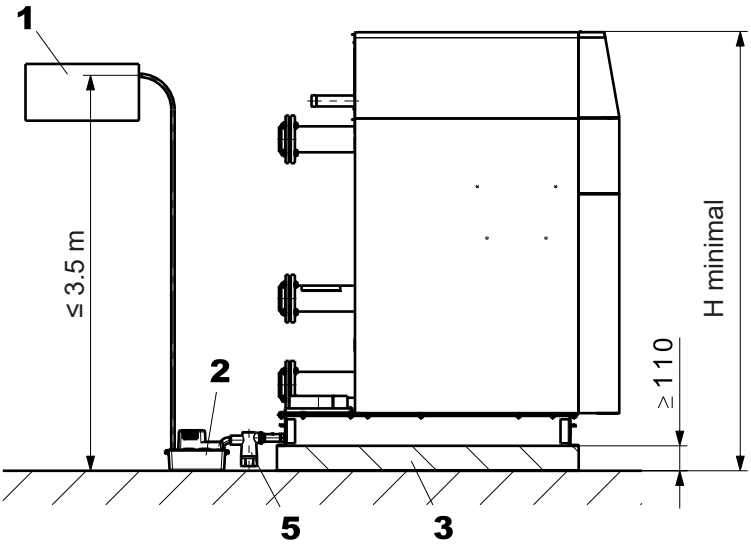
- The heat generator can be placed with one side directly on the wall. However, to protect heat-sensitive walls against damage, a distance of at least 150 mm from the wall must be provided.
- The cleaning opening must be easily accessible. As a result, a minimum distance of 500 mm must be maintained on the cleaning opening side.

UltraGas® 2 (250-3100) with masonry base and adjustable feet
(Dimensions in mm)



UltraGas® 2 type	H minimal ¹⁾
D (250,300)	1934
D (380,460)	1979
D (600-1000)	1937
D (1240,1400)	2255
D (1600-2200)	2276
D (2600,3100)	2416
DH (1400)	2255
DH (2200)	2276
DH (3100)	2416

UltraGas® 2 (250-3100) with masonry base without adjustable feet



UltraGas® 2 type	H minimal ¹⁾
D (250,300)	1934
D (380,460)	1979
D (600-1000)	1937
D (1240-1400)	2255
D (1600-2200)	2276
D (2600,3100)	2416
DH (1400)	2255
DH (2200)	2276
DH (3100)	2416

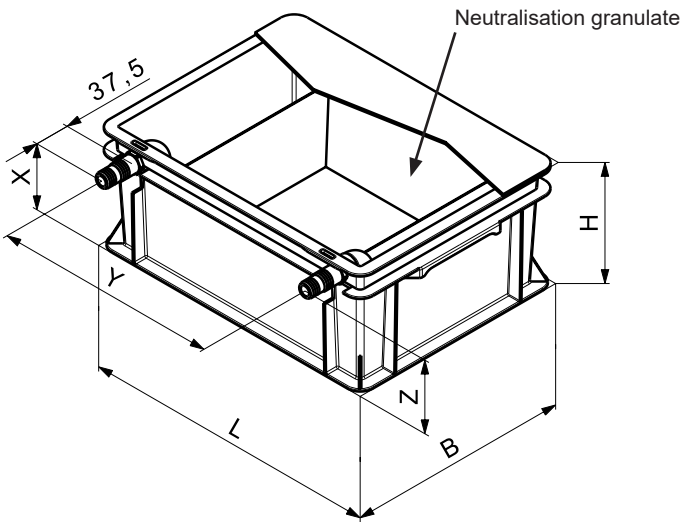
- 1 Neutralisation unit (option)
- 2 Condensate pump (option)
- 3 Masonry base
- 4 Feet adjustable up to 30-80 mm
- 5 Siphon ²⁾

¹⁾ Height value assumes adjustable feet are set to 30 mm
²⁾ **Caution!** The installer will have to fit a siphon with min. 70 mm barrier height.

Notice

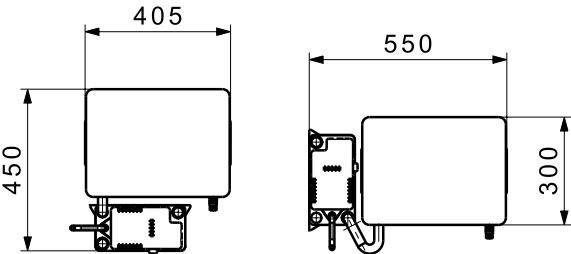
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimal, cleaning the siphon is more difficult.

Neutralisation unit HNB-0400 to HNB-1600
(Dimensions in mm)

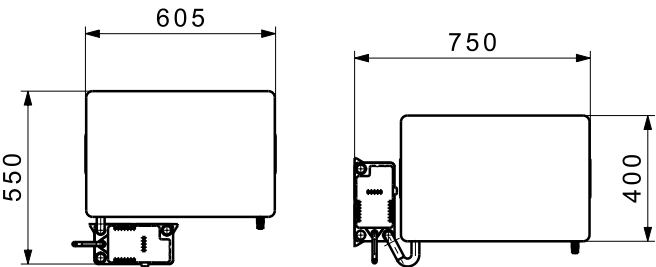


	HNB-0400,-0800	HNB-1200,-1600
Dimensions (L x W x H)	405 x 300 x 180 mm	605 x 400 x 180 mm
Inlet height (Z)	128 mm	
Drain height (X)	118 mm	
Distance between the connections (Y)	approx. 350 mm	approx. 550 mm

Neutralisation unit HNB-0400,-0800 and condensate pump
(Dimensions in mm)



Neutralisation unit HNB-1200,-1600 and condensate pump
(Dimensions in mm)



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:

The quality of the heating water must be checked and documented periodically:

- For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
- For an installed heat output above 1000 kW, an check of the heating water is required twice a year.

The following standard values for the heating water must be measured and adhered to:

- 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.

Frost protection agent

see separate engineering sheet
"Use of frost protection agent".

Heating room

- Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. laundrettes, hairdressers).
- Halogen compounds can be caused by cleaning and degreasing solutions, solvents, glue and bleaching lyes. Pay attention to the Procal leaflet, corrosion through halogen compounds.

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 to boiler mount the connection for direct combustion air inlet. It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

For the version with common flue gas line with overpressure, the flue gas excess pressure set must be imperatively mounted!

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.
- In the UltraGas® 2, ventilation of the installation or boiler room must be guaranteed for operation independent from the room air.
- **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 into the open.

Gas connection Commissioning

- Initial commissioning must be performed by a specialist technician from Hoval or a gas specialist technician.
- Burner setting values according to the installation instructions.

Manual gas shut-off tap and gas filter

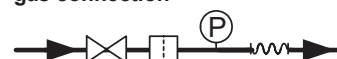
Immediately in front of the boiler a manual gas shut-off device (tap) must be installed according to relevant regulations.

In the UltraGas® 2 (400-1550) type, an external gas filter must be installed in the gas supply line.

Make sure that the gas line from the external gas filter to the gas connection of the boiler is cleaned.

For the UltraGas® 2 (125-350) types, it is necessary to comply with the local regulations concerning the need for a gas filter.

Construction of a 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

Necessary gas flow pressure at the boiler inlet:
UltraGas® 2 D (250-1400) min. 17.4 mbar, max. 80 mbar
UltraGas® 2 D (1600-3100) min. 17.4 mbar, max. 300 mbar

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.

- Necessary gas flow pressure at the boiler inlet: UltraGas® 2 (125-1550)
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 UltraGas® 2 D 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.

Closed heating system

The boiler is only approved for use in closed heating systems.

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

If a calorifier is connected, all heating groups must be provided with a mixer.

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions" for information

Pump follow-on

For operating temperatures of the boiler above 85 °C, after each burner switch-off, the circulating pump must be in operation for at least 2 minutes (the pump after-run is included in the boiler controller with TopTronic® E control).

Heating boiler in the attic

If the gas boiler is positioned on the top floor, the installation of a low water protection, which automatically turns the gas burner off in case of water shortage, is recommended.

Condensate drain

- 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 system can be discharged through the boiler. A condensate trap is not needed anymore with 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
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler scope of delivery).

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The diaphragm pressure expansion tank has to be installed in principle at the boiler return, or at the safety flow.
- Starting from 70 °C an intermediate tank is necessary.

Safety valve

- At the safety flow a safety valve and an automatic exhauster must be installed.

Noise damping

The following measures are possible for sound insulation:

- Make boiler room walls, ceiling and floor as solid as possible.
- If there are living areas above or below the boiler room, connect pipes flexibly using expansion joints.
- Connect circulating pumps to the piping network using expansion joints

Noise level

- The acoustic power level value is dependent on the local and spacial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 5 to 10 dB(A) lower than the acoustic power level at a distance of 1 m.

Recommendation:

If the combustion air intake opening is located on the house facade near a noise-sensitive place (window of bedroom, garden terrace, etc.), we recommend using a silencer in the combustion air duct.

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 UltraGas® 2

UltraGas® 2 type	Gas throughput m³/h	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
(125)	11.9	70602/6B	Rp 1"	0.2
(150)	14.2	70602/6B	Rp 1"	0.3
(190)	18.0	70603/6B	Rp 1½"	0.2
(230)	22.4	70603/6B	Rp 1½"	0.2
(300)	29.2	70603/6B	Rp 1½"	0.3
(350)	33.9	70603/6B	Rp 1½"	0.4
(400)	38.6	70603/6B	Rp 1½"	0.6
(450)	44.0	70603/6B	Rp 1½"	0.7
(500)	46.4	70631/6B	Rp 2"	0.5
(620)	59.3	70631/6B	Rp 2"	0.7
(700)	67.0	70631/6B	Rp 2"	0.8
(800)	76.1	70631/6B	Rp 2"	0.9
(1000)	94.6	70631/6B	Rp 2"	1.4
(1100)	106.0	70631/6B	Rp 2"	1.6
(1300)	125.5	70610F/6B	DN 65	1.5
(1550)	147.3	70610F/6B	DN 65	2.1

Standard values for flue gas line dimensions

Standard values for the flue gas line dimensions can be found in the following table.

Table with bases for calculation

- Calculation based on max. 1000 m above sea level.
- Installation room with supply air opening (room air dependent operation)
- An individual calculation must be carried out for room air-independent operation (accessories as option) or a combustion air supply via a duct.
- Connecting line was calculated with max. 5 m.
- Flue gas overpressure set: Mandatory, included in the scope of delivery!

- The first 2 m of the flue gas line must be configured with the same dimension as the flue gas connector, after which the size of the flue gas system can be selected according to the table below.

Table "Standard values for flue gas line dimensions"

Boiler		Flue gas line (smooth walled)	Number of elbows 90° (flue gas + combustion air)			
UltraGas® 2 type	Internal Ø flue gas outlet mm	Designation DN	Total pipe length in m (flue gas + combustion air)			
			1	2	3	4
D (250)	254	200	45	44	43	43
D (300)	254		44	43	43	42
D (380)	254	225	46	45	44	43
D (460)	254	250	47	46	45	44
D (600)	306	300	48	47	46	45
D (700)	306		47	46	45	44
D (800)	306		46	45	44	43
D (900)	306	350	50	50	50	50
D (1000)	306		48	48	47	46
D (1240)	356		47	46	45	44
D (1400)	356	400	48	47	46	45
D (1600)	402		46	45	44	43
D (2000)	402	450	47	46	45	44
D (2200)	402	500	46	45	44	43
D (2600)	504		48	48	47	46
D (3100)	504		48	47	46	45
DH (1400)	356	400	48	47	46	45
DH (2200)	402	500	46	45	44	43
DH (3100)	504		48	47	46	45

Notice: The values in the table "Standard values for flue gas line dimensions" are standard values for reference.

An exact calculation for the flue gas duct must be made on-site.

For chimney systems above 25 m effective height, negative pressure in the chimney is to be expected in some operating conditions.

Therefore, we recommend an individual design of the chimney system and checking the individual pressure conditions.

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