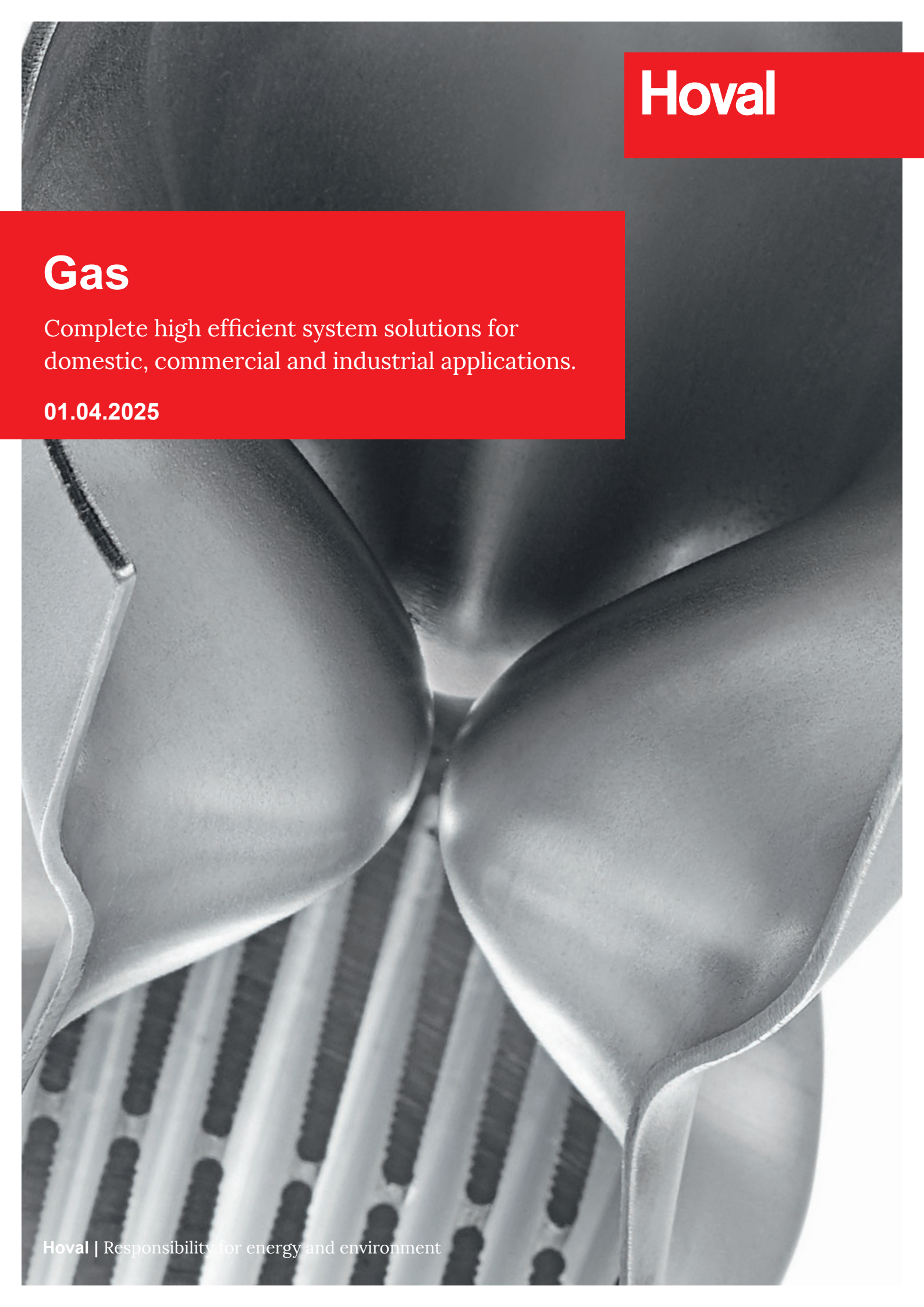




Hoval

Gas

Complete high efficient system solutions for domestic, commercial and industrial applications.

01.04.2025

Wall-hanging gas condensing boilers		Hoval TopGas® combi	21/18, 26/23, 32/28 kW	
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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
 - natural gas E with a hydrogen content (H₂) of up to 20 % by vol.
 - 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 clad with white varnished steel plates

Basic boiler control panel

- 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 clad
- 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 dm ³ /10 min
--------------------------	---	---

(21/18)	A	5.9-18.6	A	60
(26/23)	A	7.6-23.4	A	80
(32/28)	A	7.8-27.1	A	124

A*** → D

A* → F

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

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, fully clad

TopGas® combi type		Nominal heat output at 50/30 °C kW		Hot water output at 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
see "Description"

Part No.

7014 106
7014 107
7014 108



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

TopGas® combi type		Nominal heat output at 50/30 °C kW		Hot water output at 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

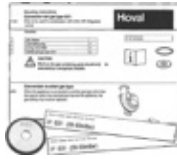
Hoval TopGas® combi may only be operated where the water hardness is less than 15 °dH (german degrees of hardness).

Energy efficiency class
see "Description"

7013 539
7013 540
7013 541

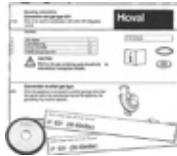
Accessories

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



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, lockable
quick air vent 3/8"**
with removable cover for inspection
Casing and cover made of brass CW617N
Float made of polyethylene
Seal between tank and cover
with reinforced polyamide seal
Connection G 3/8" DIN-ISO228/1
Maximum operating pressure: 12 bar
Maximum operating temperature: 160 °C
Also suitable for water with additives
(glycol up to 50 %)
With automatic shut-off valve with
air breaker made of brass CW617N
Seal made of FKM, air breaker made of
heat-resistant polymer
Spring made of stainless steel

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"
Compression fitting for gas connection

2001 257

Accessories



Extension set sanitary tube

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

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)

2029 696

TopGas® combi (26/23)

2029 701

TopGas® combi (32/28)

2029 702



Mounting frame MR110 with diaphragm pressure expansion tank and corrugated hose

for connection to connection set 3
Diaphragm pressure expansion tank with con-
nection 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)

6016 863

TopGas® combi (26/23)

6016 864

TopGas® combi (32/28)

6016 865



Cover

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 monitor

for panel heating (1 controller per
heating circuit) 15 ... 95 °C, setting
(visible externally) under the casing
cover

Clamp-on flow temperature monitor RAK-TW1000S

with retaining 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



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

2001 824



Compression fitting
(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 made of technopolymer
with magnet: DM PO 1"**
for horizontal and vertical pipelines
with threaded connections IT (ISO 228-1)
for operating media:
water, glycol solutions
Maximum glycol content: 30 %
Max. operating pressure: 3 bar
Operating temperature range: 0 ... 90 °C
Magnetic strength: 2 x 0.3 T
Optionally with insulating half shells
Kv 10.5 m³/h

2054 376

Materials
Casing: PA66G30
Sludge separator cover: PA66G30
Upper cap: brass EN 12164 CW614N
Bleeder screw:
Brass EN 12164 CW614N
T-nut for T-piece: PPSG40
T-piece: brass EN 1982 CB 753S
Seals: EPDM
Drain valve with hose connection:
Brass EN 12165 CW617N
Weight: 1.5 kg



Insulation for sludge separator
DM PO 1"-1 1/4"

2085 524

Additional sludge separators
see "Various system components"



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

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	ηs %	91	92	93
- with control	ηs %	93	94	95
- with control and room sensor	ηs %	95	96	97
• Water heating energy efficiency	ηwh %	83 (L)	85 (XL)	85 (XL)
• NOx class (EN 15502)		-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	27	34	51
• O ₂ content in flue gas at min./max. nominal heat output	%	5.5/5.1	5.5/5.1	5.5/5.1
• 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	28-50	28-50	28-50
• 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	15/80	15/80	15/80
• Standby	Watt	0	2	2
• Type of protection ³⁾	IP	X4D	X4D	X4D
• 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
- Max. permissible 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 combustion air supply and flue gas line	Pa	75	75	75
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50

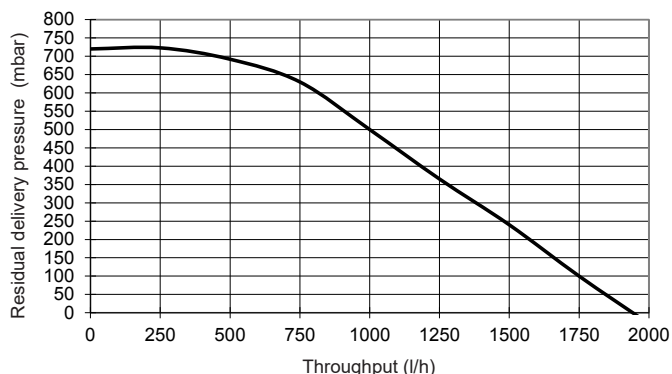
¹⁾ Data related to NCV. TopGas® combi can also be operated with propane.

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.

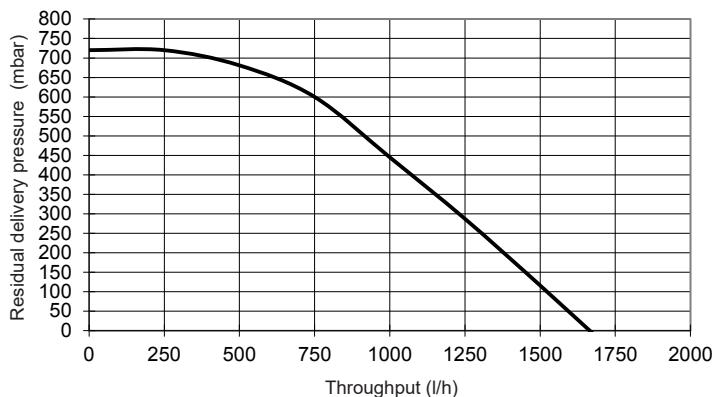
³⁾ For construction types B23 and B33, type of protection IP20

Maximum residual delivery pressure of heating pump

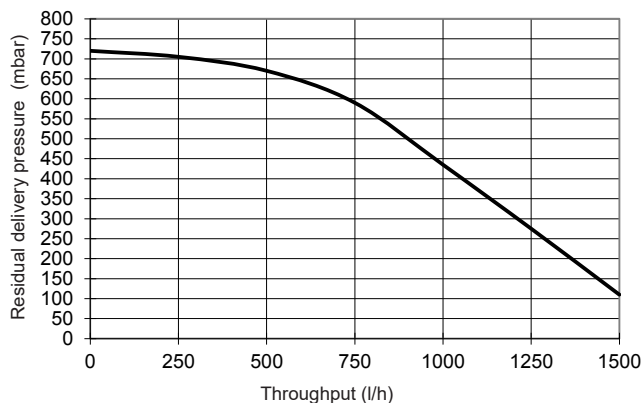
TopGas® combi (21/18)



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!

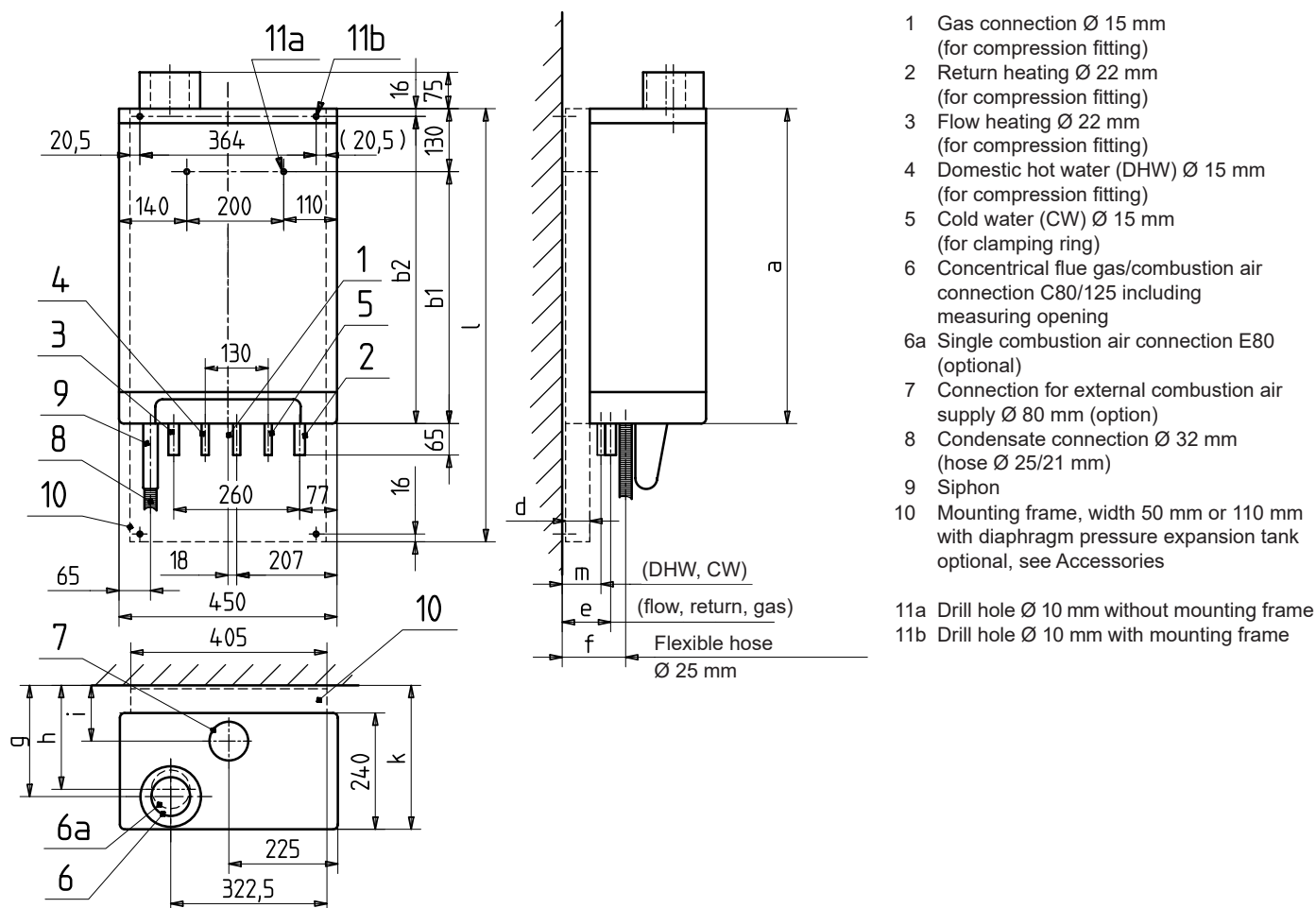
Notice

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, etc.) 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. 28 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
 - natural gas E with a hydrogen content (H₂) of up to 20 % by vol.
 - 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 clad with varnished white steel plates

Basic boiler control panel

- 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 clad
- 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!



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

A*** → D

Energy efficiency class of the compound system with control

Delivery

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

TopTronic® E controller

As supplement for basic boiler control panel
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 clad
- 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 jacket, 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 jacket, 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 clad

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

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

Energy efficiency class
see "Description"



Hoval TopGas® classic (12-30)
incl. TopTronic® E controller

Version as above, but with TopTronic® E control in a separate wall casing 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

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

Energy efficiency class
see "Description"



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

Energy efficiency class
see "Description"

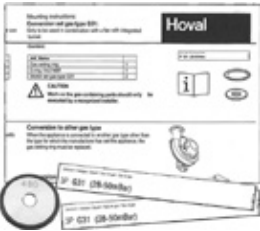
Part No.

7014 088
7014 099
7014 100
7014 101

7014 102
7014 103
7014 104
7014 105

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)
(12)	3.5
(18)	5.8
(24)	7.4
(30)	9.3

Part No.

2037 926
2057 295
2057 298
2057 299



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

2063 018



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

2029 057



**Automatic, lockable
quick air vent 3/8"**
with removable cover for inspection
Casing and cover made of brass CW617N
Float made of polyethylene
Seal between tank and cover
with reinforced polyamide seal
Connection G 3/8" DIN-ISO228/1
Maximum operating pressure: 12 bar
Maximum operating temperature: 160 °C
Also suitable for water with additives
(glycol up to 50 %)
With automatic shut-off valve with
air breaker made of brass CW617N
Seal made of FKM, air breaker made of
heat-resistant polymer
Spring made of stainless steel

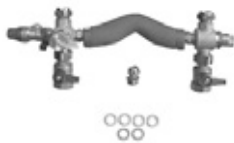
2054 183



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

Accessories



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"
Compression fitting for gas connection

Part No.

2001 257



Cover
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 pres-
sure 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 (24,30)

6016 863
6016 864
6016 865



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

2025 577

Accessories



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

2012 075



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

2012 076



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

2001 824



Compression fitting
(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 made of technopolymer
with magnet: DM PO 1"**
for horizontal and vertical pipelines
with threaded connections IT (ISO 228-1)
for operating media:
water, glycol solutions
Maximum glycol content: 30 %
Max. operating pressure: 3 bar
Operating temperature range: 0 ... 90 °C
Magnetic strength: 2 x 0.3 T
Optionally with insulating half shells
Kv 10.5 m³/h

2054 376

Materials
Casing: PA66G30
Sludge separator cover: PA66G30
Upper cap: brass EN 12164 CW614N
Bleeder screw:
Brass EN 12164 CW614N
T-nut for T-piece: PPSG40
T-piece: brass EN 1982 CB 753S
Seals: EPDM
Drain valve with hose connection:
Brass EN 12165 CW617N
Weight: 1.5 kg



Insulation for sludge separator
DM PO 1"-1 1/4"

2085 524

Additional sludge separators
see "Various system components"



3-way switching 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


A

A*** → D

Calorifier TopVal (130) round

made of steel, inside enamel painted,
with permanently installed coil 0.96 m²
and magnesium sacrificial anode
Useful volume: 119 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

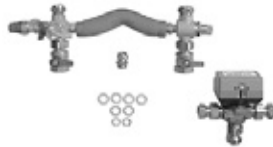

A

A*** → D

Calorifier TopVal (160) round

made of steel, inside enamel painted,
with permanently installed coil 1.01 m²
and magnesium sacrificial anode
Useful volume: 150 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"
Compression fitting for gas connection

2025 576


A

A*** → D

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:

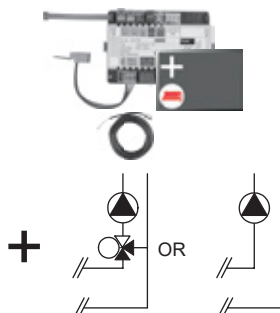
Calorifier, thermal insulation
and thermometer mounted
packaged and delivered

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



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:

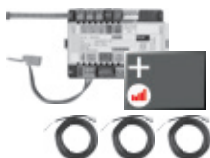
- Fitting accessories
- 1 contact sensor

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

The flow rate sensor set must be ordered as well.



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

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

Part No.

6034 576

6037 062

6034 575

Part No.



Flow rate sensor sets
Plastic casing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Brass casing

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

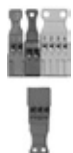
6042 949
6042 950

Accessories for TopTronic® E



TopTronic® E controller modules

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



Supplementary plug set

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



TopTronic® E room control modules

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



Enhanced language package TopTronic® E

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



HovalConnect

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

TopTronic® E interface modules

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

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



Bivalent switch

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



System casing

System casing 182 mm	6038 551
System casing 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 monitor

for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor
RAK-TW1000S

with retaining 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 V: 0 ... 100 °C

Cannot be installed in boiler control panel:

- TopGas® classic (12-30)

Can be installed in boiler control panel:

- TopGas® classic (35-120)

6016 725

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

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


Immersion sensor TF/12N/2.5/6T,

L = 2.5 m

for gas boiler with RS-OT

Cable length: 2.5 m

Sensor sleeve diameter: 6 x 50 mm,

dewpoint-proof,

operating temperature: -20 ... 105 °C,

protection class: IP67

2056 791

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
• O ₂ content in flue gas at min./max. nominal heat output	%	5.5/5.1	5.5/5.1	5.5/5.1	5.5/5.1
• 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	28-50	28-50	28-50	28-50
• 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	15/80	15/80	15/80	15/80
• Stand-by	Watt	2	2	2	2
• Type of protection ³⁾	IP	X4D	X4D	X4D	X4D
• 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
- Max. permissible 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 combustion air supply and flue gas line	Pa	75	75	75	75
- Maximum draught/depression at flue gas outlet	Pa	-50	-50	-50	-50

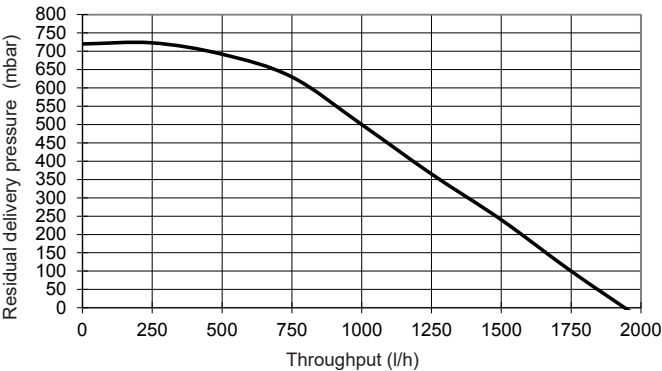
¹⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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.

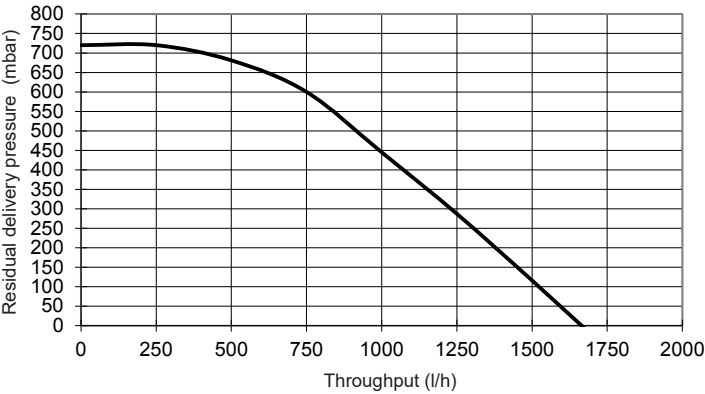
³⁾ For construction types B23 and B33, type of protection IP20

Maximum residual delivery pressure of heating pump

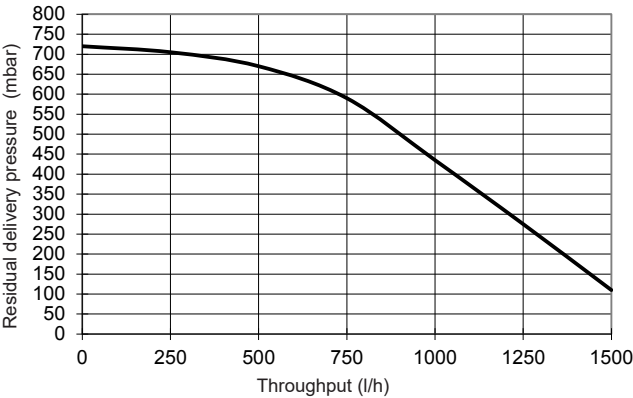
TopGas® classic (12)



TopGas® classic (18)

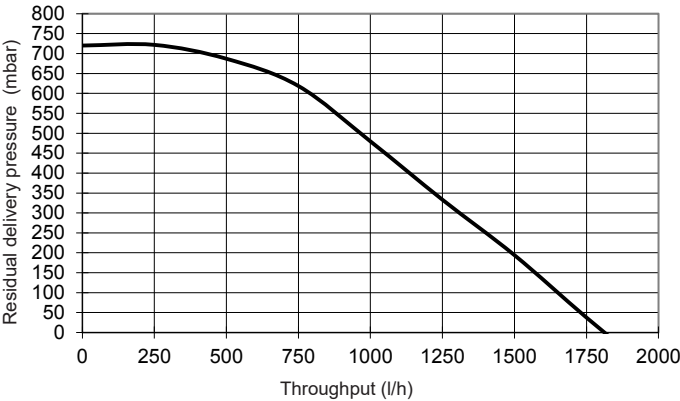


TopGas® classic (24,30)

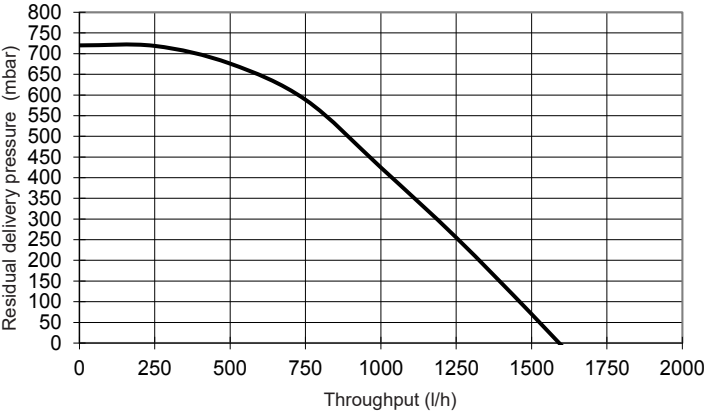


Maximum residual delivery pressure of heating pump TopGas® classic with connection set 4 or connection set 10
(reversing valve included in the set)

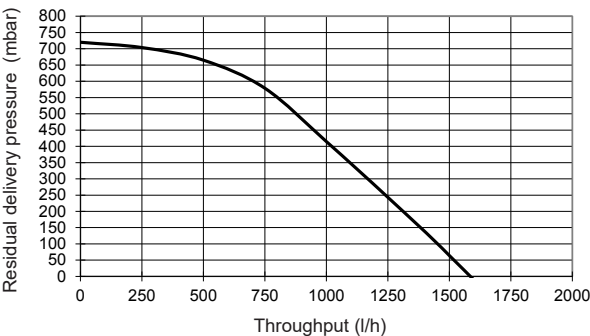
TopGas® classic (12)



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		119	150	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		43	51	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				Hot water output		Number ³⁾ of flats
				dm ³ /10 min ¹⁾	dm ³ /h ²⁾	
				45 °C	45 °C	
classic	(12)	TopVal	(130)	166	267	1
	(18)		(130)	179	411	1
	(24)		(130)	190	546	1
	(30)		(130)	198	610	1
classic	(12)	TopVal	(160)	199	267	1
	(18)		(160)	212	411	1-2
	(24)		(160)	223	546	1-2
	(30)		(160)	232	610	1-2
classic	(12)	CombiVal ERW	(200)	243	267	1-2
	(18)		(200)	256	411	1-2
	(24)		(200)	267	546	2
	(30)		(200)	276	610	2

¹⁾ Hot water peak performance in 10 min

²⁾ Hot water output per hour

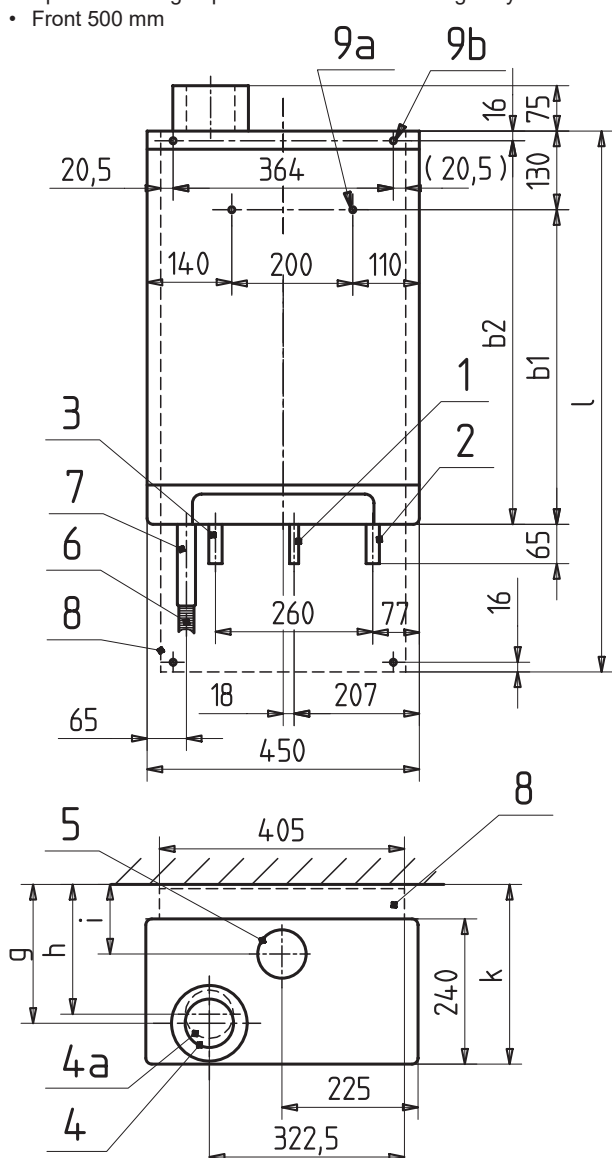
³⁾ Flat (3-4 rooms with 3-4 people, 1 bathtub with approx. 150 litres, 1 washbasin, 1 sink)

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 compression fitting)
- 2 Return heating/calorifier Ø 22 mm (for compression fitting)
- 3 Flow heating/calorifier Ø 22 mm (for compression fitting)
- 4 Concentrical flue gas/combustion air connection C80/125 including measuring opening
- 4a Single flue gas connection E80, (optional), see Accessories
- 5 Connection for external combustion air supply Ø 80 mm (option)
- 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

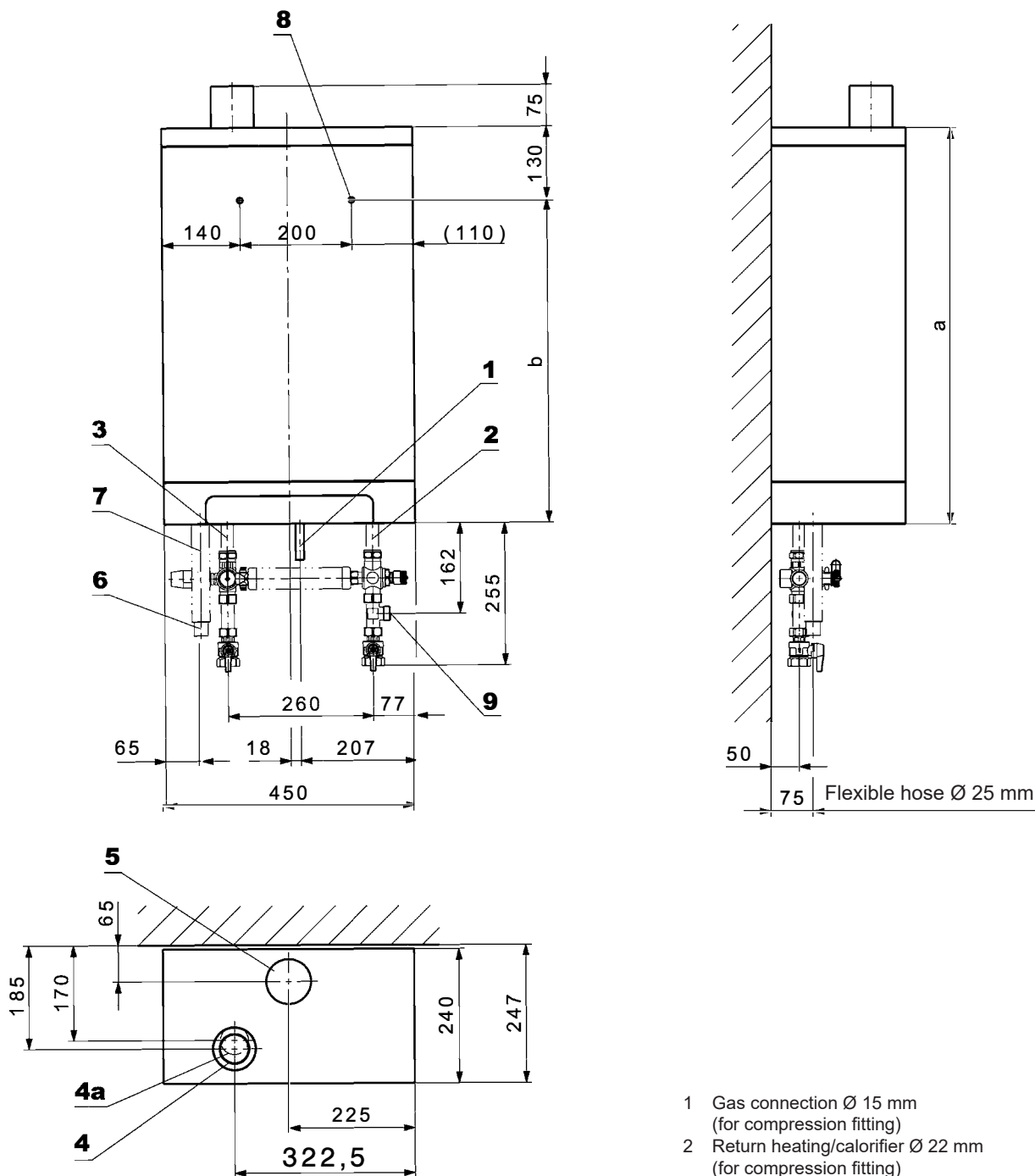
	a	b1	b2	d	e	f	g	h	i	k	l
(12)	590	460		0	50	75	185	170	65	247	–
(12) with mounting frame (MR50)	590		574	50	100	125	235	220	115	297	834
(12) with mounting frame with diaphragm pressure expansion tank (MR110)	590		574	110	160	185	295	280	175	357	834
(18)	650	520		0	50	75	185	170	65	247	–
(18) with mounting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

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

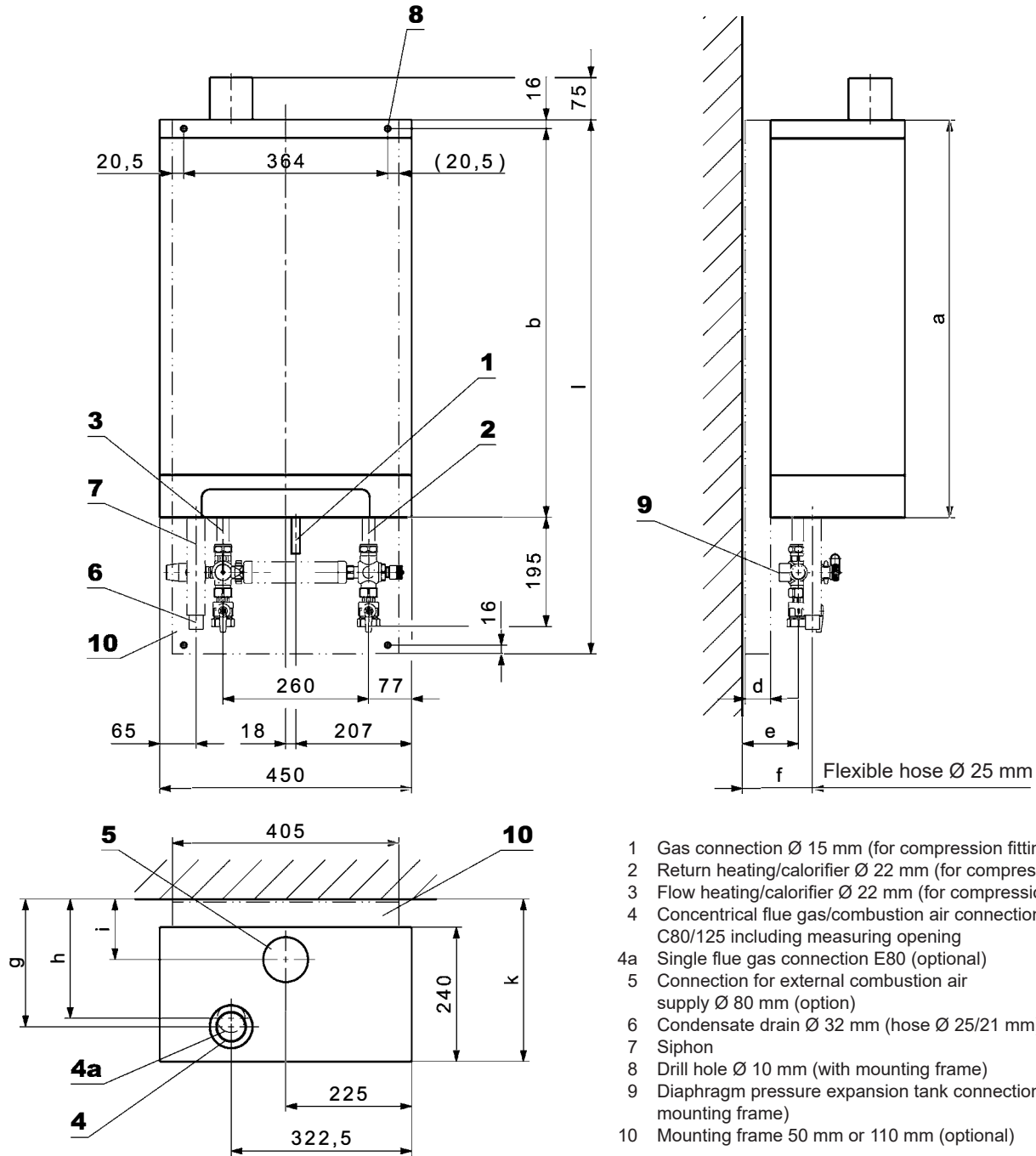
- Gas connection Ø 15 mm (for compression fitting)
- Return heating/calorifier Ø 22 mm (for compression fitting)
- Flow heating/calorifier Ø 22 mm (for compression fitting)
- Concentric flue gas/combustion air connection C80/125 including measuring opening
- Single flue gas connection E80 (optional)
- Connection for external combustion air supply Ø 80 mm (option)
- Condensate drain Ø 32 mm (hose Ø 25/21 mm)
- Siphon
- Drill hole Ø 10 mm (without mounting frame)
- 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)

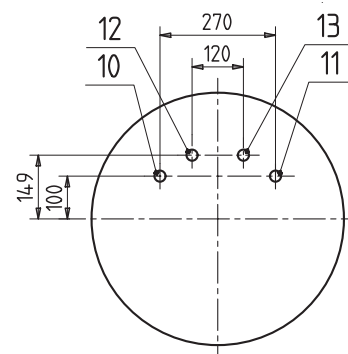
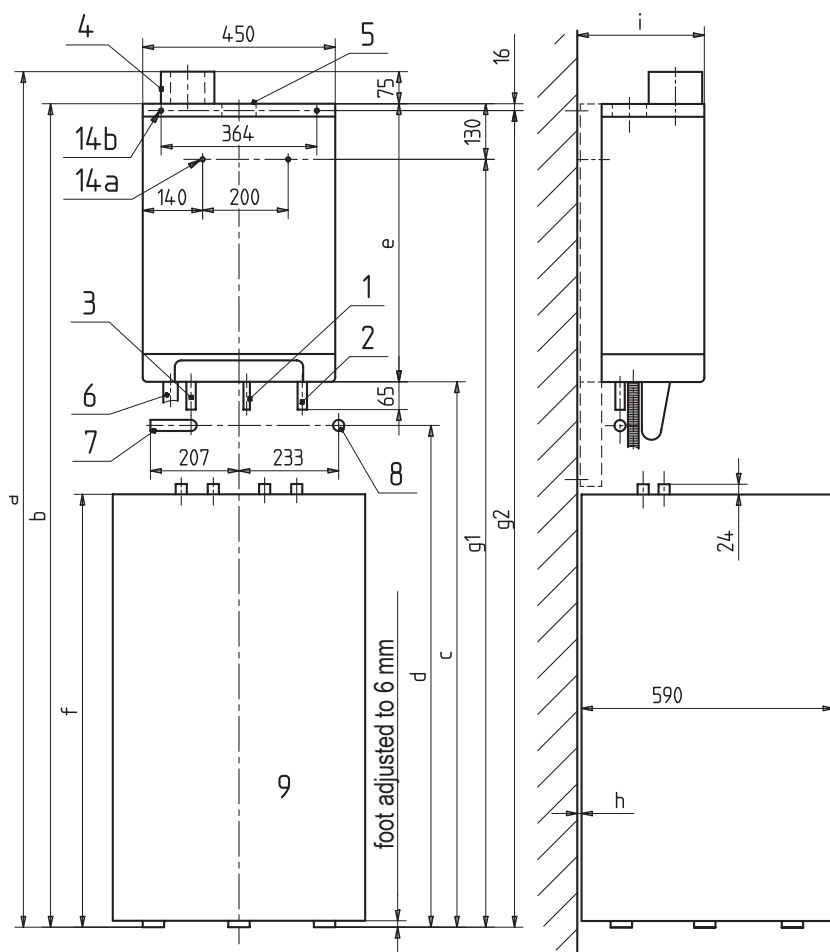
- Space to ceiling dependent on the flue gas system
- Front 500 mm

- Sideways 50 mm

CombiVal ERW (200)

see Calorifiers

View from the top without TopGas®



- 1 Gas connection Ø 15 mm
(for compression fitting, on site)
- 2 Return heating/calorifier Ø 22 mm
(for compression fitting, on site)
- 3 Flow heating/calorifier Ø 22 mm
(for compression fitting, on site)
- 4 Concentrical flue gas/combustion air connection
C80/125 including measurement vents
- 5 Connection for external combustion air
supply Ø 80 mm (option)
- 6 Condensate drain Ø 32 mm
- 7 Connection position laterally flow heating Rp ¾"
- 8 Connection positions behind return heating Rp ¾"
- 9 Calorifier TopVal (130,160)
- 10 Flow heating/calorifier G ¾" external thread
- 11 Return heating/calorifier 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

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

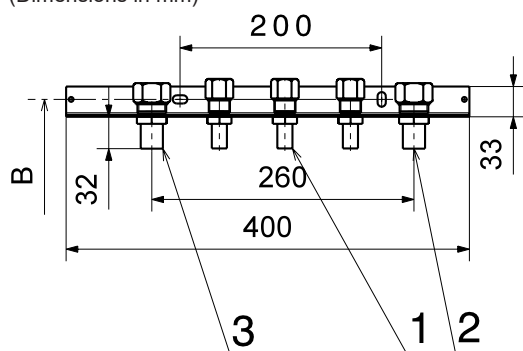
TopGas® classic

type

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

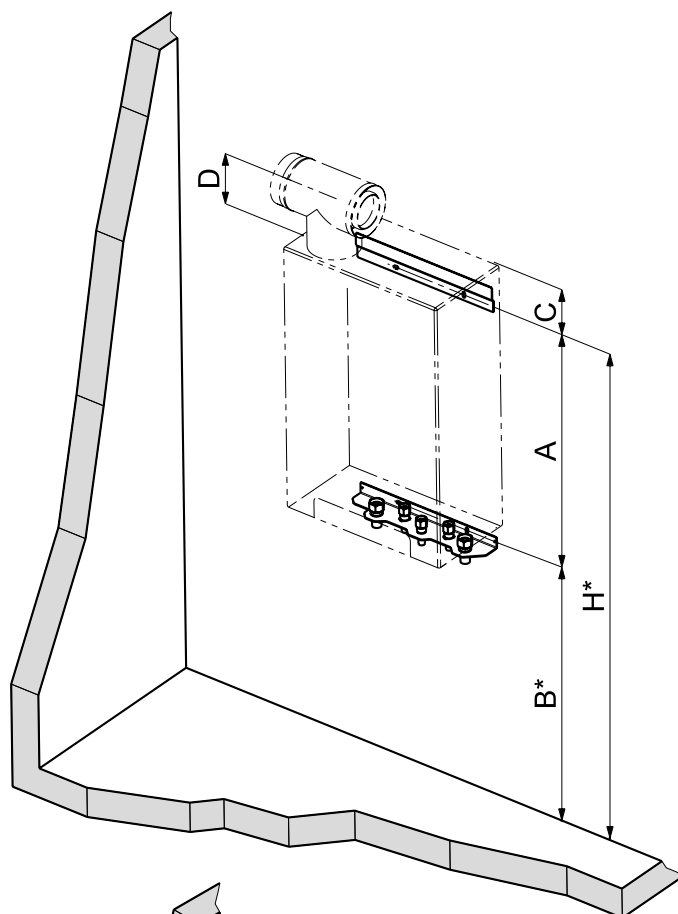
(Dimensions in mm)



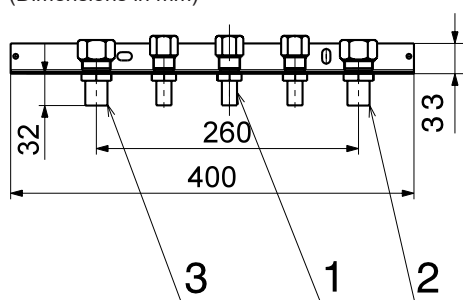
- 1 Gas connection Ø 15 mm (for compression fitting, on site)
2 Return heating/calorifier (for compression fitting, on site)
3 Flow heating/calorifier (for compression fitting, on site)

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

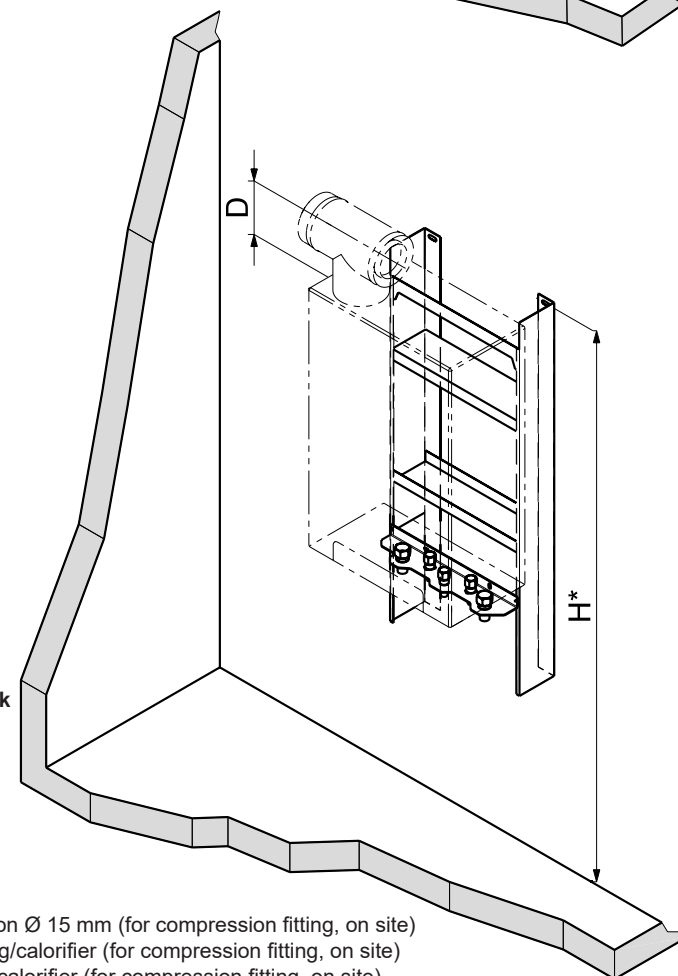
TopGas® classic type	TopVal type	H *	D
(12)	(130)	1684	175
	(160)	1851	175
(18)	(130)	1744	175
	(160)	1911	175
(24,30)	(130)	1804	175
	(160)	1971	175

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 compression fitting, on site)
2 Return heating/calorifier (for compression fitting, on site)
3 Flow heating/calorifier (for compression 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, etc.) 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. 28 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 % by vol.
 - 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 clad with coated white steel plates

Basic boiler control panel

- 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 clad

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



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

A*** → D

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, fully clad

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

Energy efficiency class
see "Description"

Part No.

7014 580
7014 581
7014 582
7014 583

Accessories

Speed control legend

PWM1
or PM1

PWM control signal heating

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

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 3/4" (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-I 8 PM1	•
AS32-TG/SPS-I 10	•
AS32-TG/SPS-I 12 PM1	•

6047 634

6049 483
6059 333
6043 800

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 bottom and the diaphragm pressure expansion tank
on the side on connection set
installation option for an overflow valve incl. non-return valve

6039 793

Accessories

Part No.



Gas filter 70612/6b Rp 3/4"
with instrument glands up/downstream
of the filter cartridge (dia.: 9 mm)
pore size of filter cartridge < 50 µm
Max. pressure differential 10 mbar
Max. inlet pressure 100 mbar

2007 995



Gas filter mod. 70602/6b Rp 1"
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 996



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 DM with magnet
made of technopolymer (PO) or
brass with insulation (MS)

Type	Connection inches	Flow rate at 1.2 m/s flow speed	k _v value m ³ /h
DM PO	Rp 1"	1.3	10.5
DM PO	Rp 1 1/4"	2.1	10.5
DM MS	Rp 1 1/2"	5.4	63.2
DM MS	Rp 2"	8.2	70.0

2054 376
2085 523
2085 527
2085 528

Additional sludge separators
see «Various system components»

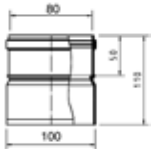
**Heating armature groups and wall
distributors**
see "Various system components"

Accessories



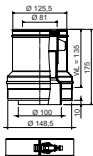
Insulation for sludge separator
DM PO 1"-1 1/4"

2085 524



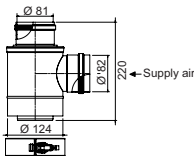
Reducing part E100 -> E80 PP

2015 245



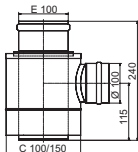
Concentric reducing part
C100/150 -> C80/125 PP
Painted white

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



Immersion sensor TF/12N/2.5/6T, L = 2.5 m

for gas boiler with RS-OT

Cable length: 2.5 m

Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,

operating temperature: -20 ... 105 °C, protection class: IP67



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 V: 0 ... 100 °C

Cannot be installed in boiler control panel:

- TopGas® classic (12-30)

Can be installed in boiler control panel:

- TopGas® classic (35-120)

Part No.

6020 566

6018 218

2056 791

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 monitor

for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor RAK-TW1000S

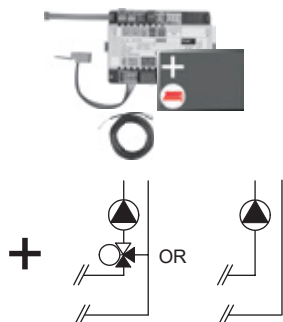
with retaining strap, without cable and plug

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:

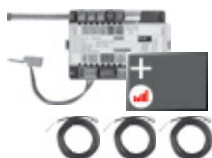
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer

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:

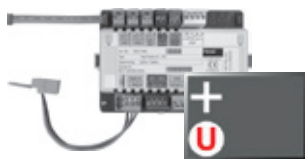
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

Consisting of:

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

Notice

The flow rate sensor set must be ordered as well.



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

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

Part No.

6034 576

6037 062

6034 575



Flow rate sensor sets
Plastic casing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Brass casing

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

6042 949
6042 950

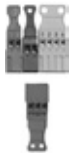
Accessories for TopTronic® E

Part No.



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



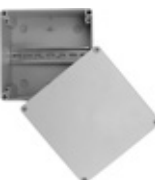
Bivalent switch

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



System casing

System casing 182 mm	6038 551
System casing 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	η _s %	92	92	92	92
- with control	η _s %	94	94	94	94
- with control and room sensor	η _s %	96	96	96	96
- annual energy consumption	Q _{HE} GJ	61	76	104	133
• NOx class (EN 15502)		-	-	-	-
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx mg/kWh	23.9	27.4	23.4	29.0
• O ₂ content in flue gas min./max. output	%	5.7/5.1	5.5/5.3	5.5/5.5	5.5/5.5
• 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
- Max. permissible 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 combustion air supply 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 % by vol. in accordance with DVGW ZP3100, an output reduction of up to 7 % is possible.

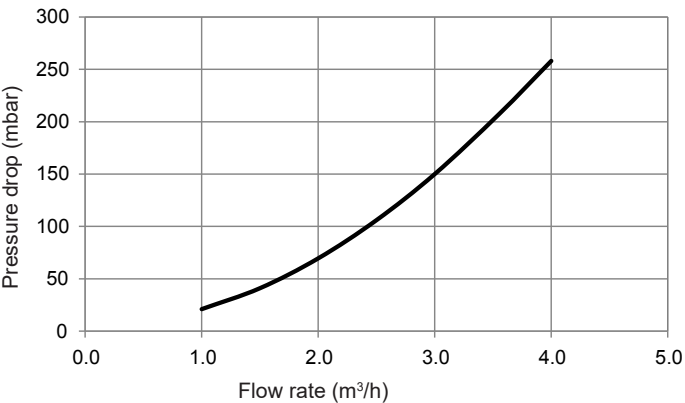
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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.

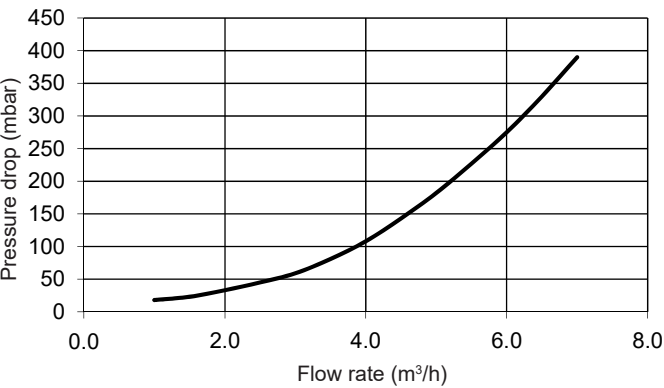
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

TopGas® classic (35,45)

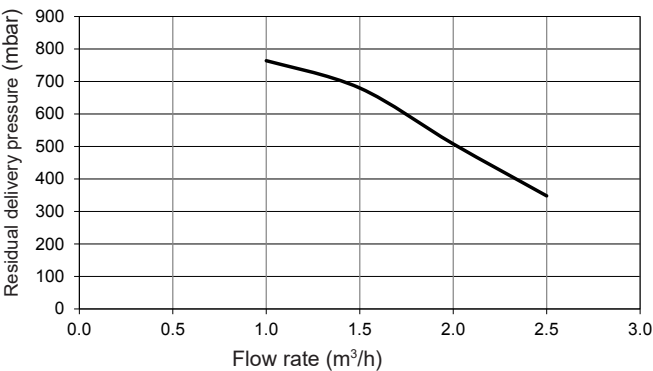


TopGas® classic (60,80)



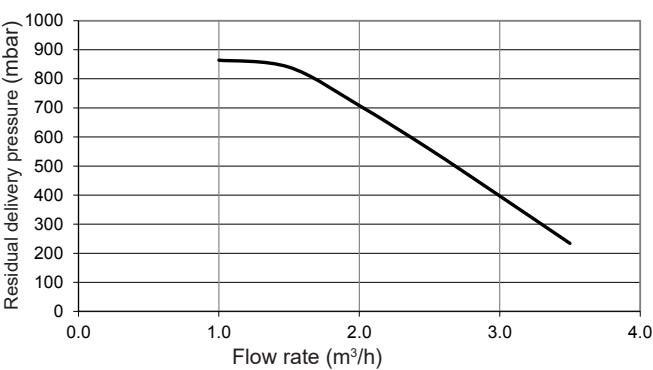
Maximum residual delivery pressure of heating pump with connection set AS32-TG/SPS-S 8 PM1

TopGas® classic (35,45)

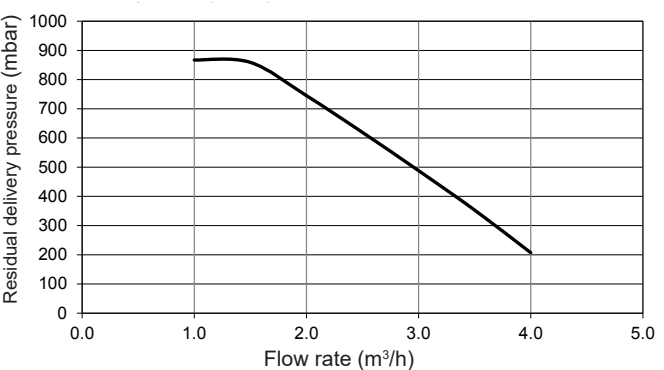


Maximum residual delivery pressure of heating pump with connection set AS32-TG/SPS-I 10

TopGas® classic (35,45)

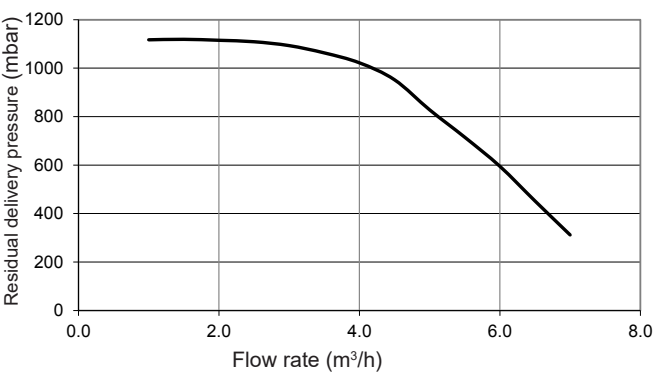


TopGas® classic (60,80)



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

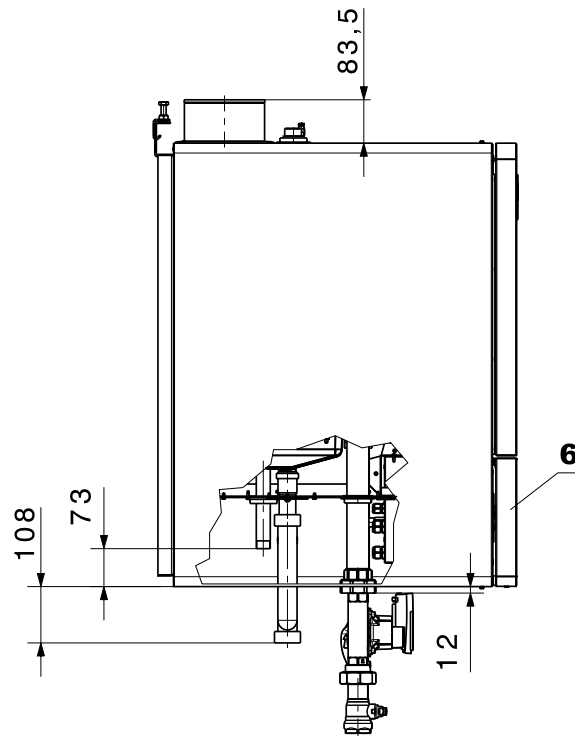
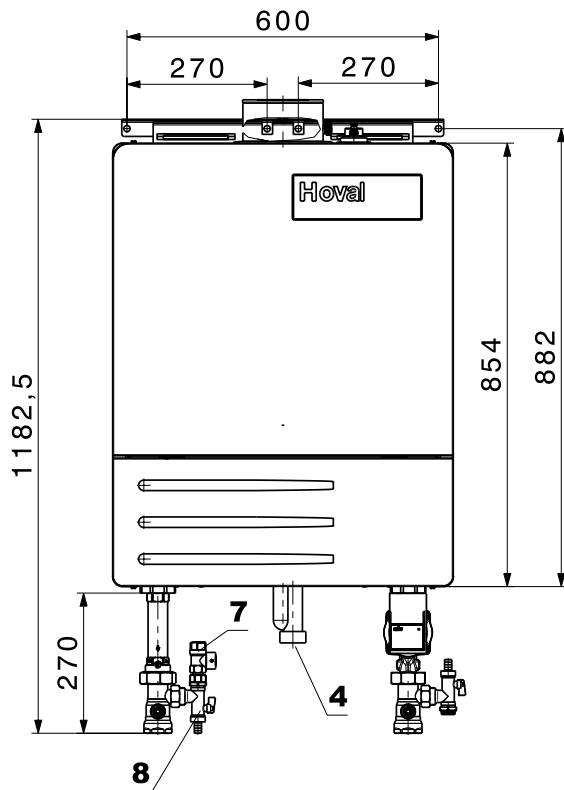
TopGas® classic (60,80)



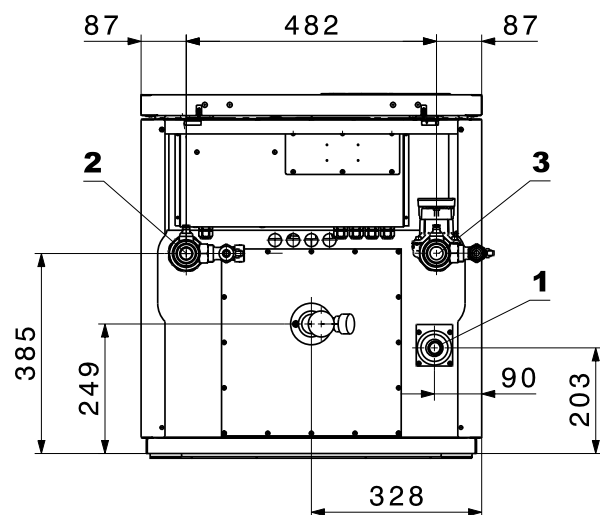
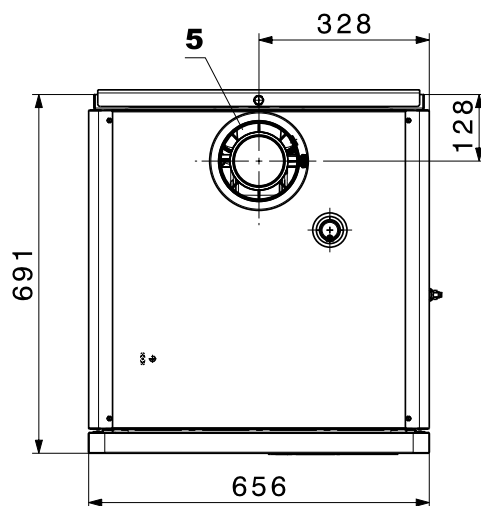
TopGas® classic (35-80)
Minimum spaces

(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 ¾" |
| 2 | Flow heating | R 1 ¼" |
| 3 | Return heating | R 1 ¼" |
| 4 | Condensate drain | DN 40 |
| 5 | Concentrical flue gas/combustion air 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, etc.) 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 the boiler, which automatically turns the gas burner off in case of water shortage. Notice: Mount the diaphragm pressure expansion tank in the heating flow and the pump in the heating 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 heating 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 heating 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 % by vol.
 - 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 clad with coated white steel plates

Basic boiler control panel

- 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 clad

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



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



Hoval TopGas® classic (100,120)

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

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

7014 584
7014 585

Permissions boilers

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

Accessories

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

6047 634



Connection set AS 40-TG

consisting of:

Return:

- Shut-off valve with union nut 2" side output with boiler fill and drain valve and connection nozzle G 3/4" (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 10	•
AS 40-TG/SPS-I 12 PM1	•

6059 334
6043 802

Speed control legend

	PWM1	PWM control signal heating
	or PM1	

Accessories



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



Gas filter mod. 70602/6b Rp 1"
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 996



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 DM with magnet
made of technopolymer (PO) or
brass with insulation (MS)

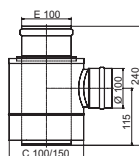
Type	Connection inches	Flow rate at 1.2 m/s flow speed	k _v value m ³ /h
DM MS	Rp 1 1/2"	5.4	63.2
DM MS	Rp 2"	8.2	70.0

2085 527

2085 528

Additional sludge separators
see «Various system components»

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



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.



Backflow check valve

for TopGas® classic (60-120)

to prevent the emergence

of flue gas from the boiler

in the use of cascades

Boiler controller with heating controller set RS-OT



Notice

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

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!



Mounting set RS-OT

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



Immersion sensor TF/12N/2.5/6T, L = 2.5 m

for gas boiler with RS-OT

Cable length: 2.5 m

Sensor sleeve diameter: 6 x 50 mm,

dewpoint-proof,

operating temperature: -20 ... 105 °C,

protection class: IP67



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 V: 0 ... 100 °C

Cannot be installed in boiler control panel:

- TopGas® classic (12-30)

Can be installed in boiler control panel:

- TopGas® classic (35-120)

Part No.

2015 244

6036 265

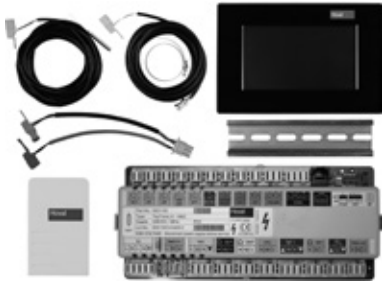
6020 566

6018 218

2056 791

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 monitor

for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor RAK-TW1000S

with retaining strap, without cable and plug

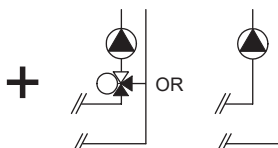
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6037 312

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:

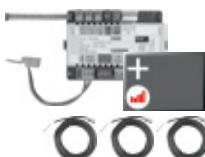
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

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:

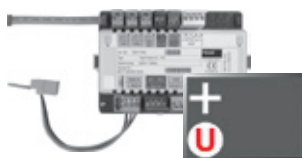
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

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

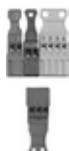
Accessories for TopTronic® E

Part No.



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 casing

System casing 182 mm	6038 551
System casing 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.

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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
- Max. permissible temperature of the combustion air	°C	50	50
- Flow rate combustion air	Nm ³ /h	125	153
- Maximum supply pressure for combustion air supply 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

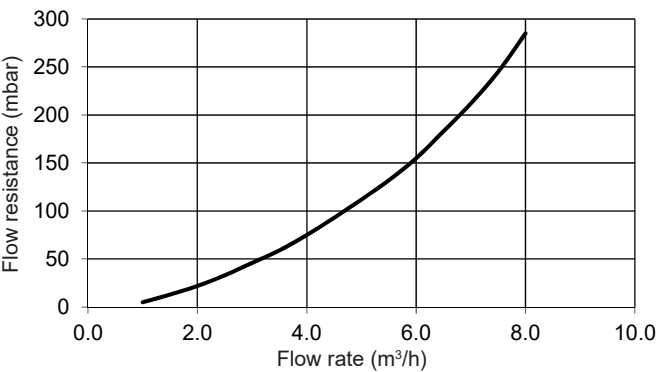
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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

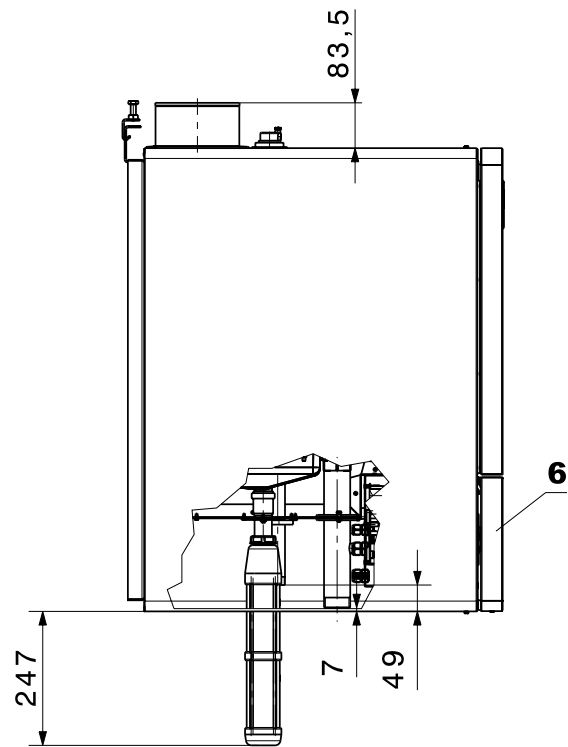
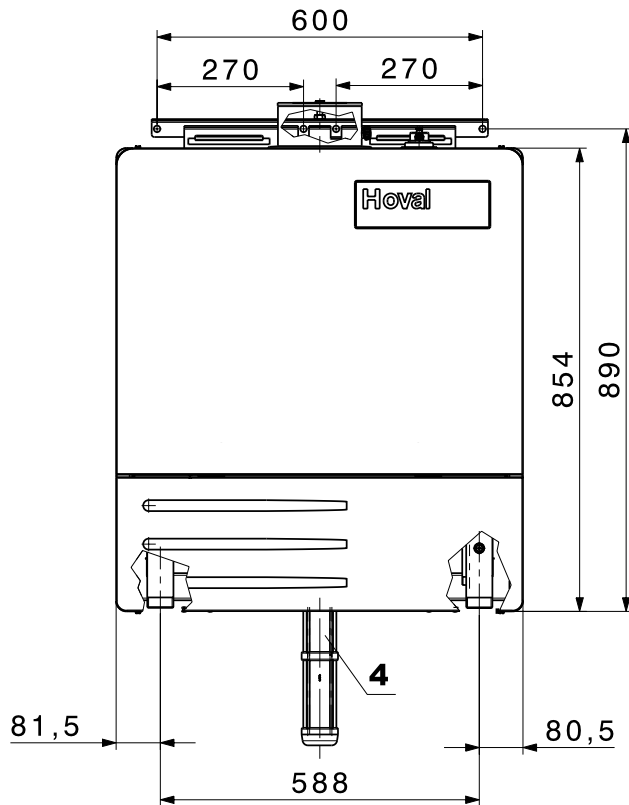
TopGas® classic (100,120)



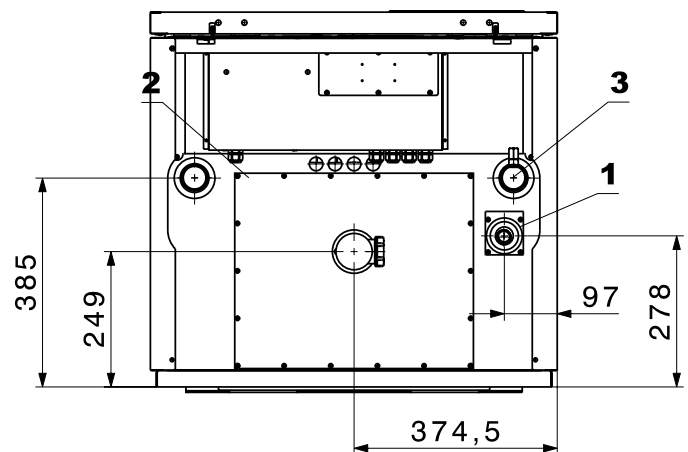
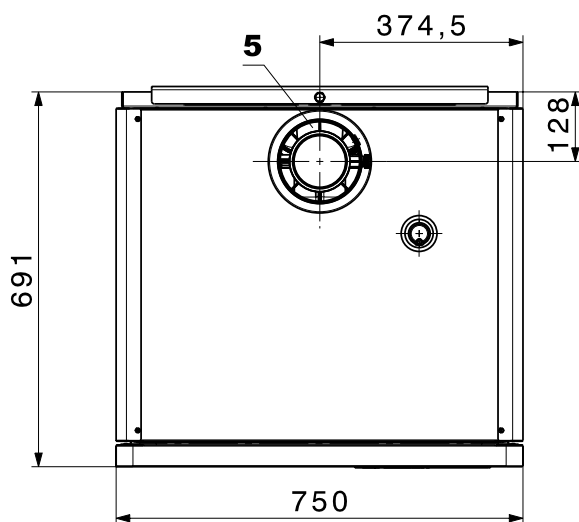
TopGas® classic (100,120)
Minimum spaces

(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 | Flow heating | R 1 1/4" |
| 3 | Return heating | R 1 1/4" |
| 4 | Condensate drain | DN 40 |
| 5 | Concentrical flue gas/combustion air 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, etc.) 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.

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!

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

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 heating flow and the pump in the heating 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 heating 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 heating 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 % by vol.
 - 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 clad with steel plate, red powder-coated
- Heating connections to left and right for:
 - heating flow
 - high temperature return
 - low temperature return
- **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

A*** → D

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"

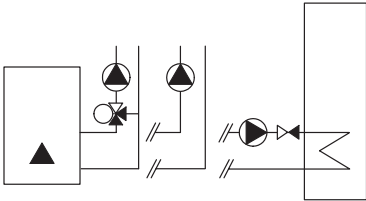
Optional

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

Delivery

- Floor-standing gas condensing boiler fully clad

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 clad

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

Energy efficiency class
see "Description"

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

Modification set for propane
for UltraGas® (100)

Part No.

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

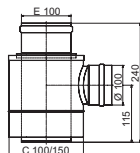
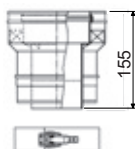
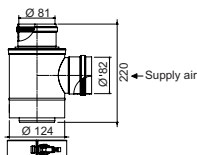
6047 605

6047 609

Accessories



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



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

For room air independent operation with separate combustion air duct (not concentric).

Separating piece C80/125 -> 2 x E80 PP

for room air independent operation for separate conduction of flue gas and combustion air.

Adapter piece C80/125 -> C100/150 PP

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.

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.

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.

Part No.

6027 510

2010 174

2018 533

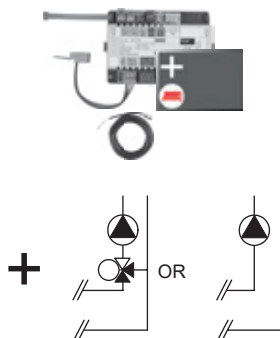
2015 244

6016 933

6017 288

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 without mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- Fitting accessories

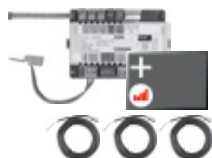
- 1 contact sensor

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 without 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

The flow rate sensor set must be ordered as well.



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

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

Part No.

6034 576

6037 062

6034 575

Part No.



Flow rate sensor sets
Plastic casing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Brass casing

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

6042 949
6042 950

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

Bivalent switch

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

System casing

System casing 182 mm	6038 551
System casing 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.

Accessories

Part No.



Flow temperature monitor
for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor RAK-TW1000S
with retaining strap, without cable and plug

242 902

Clamp-on flow temperature monitor set RAK-TW1000S
with retaining strap, supplied with cable (4 m) and plug

6033 745

Immersion thermostat RAK-TW1000S
Thermostat with immersion sleeve 1/2"
Depth of immersion 150 mm, nickel-plated brass

6010 082



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

6043 277

for UltraGas® (15-50)



Installation example

Safety set SGK15-PN3 IT 1" insulated
Safety group made of plastic complete with safety valve (3 bar), quick air vent and pressure gauge
Connection IT 1" (ISO228-1) with insulating caps
Medium temperature range: 5 ... 90 °C
Setting (pressure): 3 bar
Area of application up to 50 kW
Safety set

6063 905

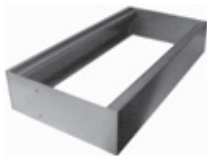
for UltraGas® (70,100)



Installation example

Safety set SG20-1"
Area of application up to 100 kW complete with safety valve (3 bar)
Pressure gauge and automatic aspirator with shut-off valve.
Connection: DN 20-1" internal thread

6014 390



Boiler socket
for 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"

Part No.

2012 075
2012 077
2069 324

Gas filter 70612/6b Rp ¾"
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

Gas filter mod. 70602/6b Rp 1"
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 996

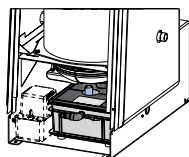
Condensate drain for Hoval UltraGas® (15-90)



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. 5 m
Can be combined with neutralisation box

6063 855



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

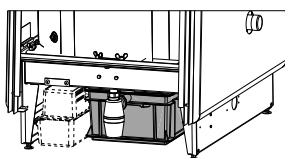
Condensate drain for Hoval UltraGas® (70,100)



Condensate pump

For transporting condensate into a higher drainage duct
Including connection lines
Completely wired, cable and plug
For connection to the boiler controller
Delivery head: max. 5 m
Can be combined with neutralisation box

6063 855



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 armature
group HA25
for 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 armature
group HA20 an adapter set
DN 20-DN 25 is required.

6017 055



Connection set AS 32-S/NT/HT
for mounting a heating armature
group 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 armature
group HA25 an adapter set
DN 25-DN 32 is required.

6014 846



Connection set AS 40-S/NT/HT
for mounting a heating armature
group 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 armature
group 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 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	•	•	•	•	0.20	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	•		•	•	0.20	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

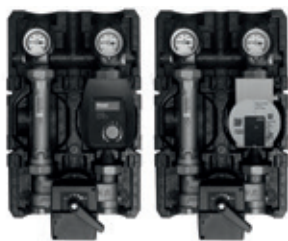
ENF Vent function 10 min.

 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 (1¼")						
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

Heating armature groups



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 (1¼")

LG/HA32-2/SPS-S 8	•	•	•	0.20	6049 555
LG/HA32-2/SPS-I 8	•	•	•	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

DN 40 (1½")

HA40-2/SPS-I 8	•	•	•	0.20	6059 331
HA40-2/SPS-I 12 PM1	•	•	•	0.23	6040 915
HA40-2		without pump			6014 868

Pumps for HA40-2

see "Circulating pumps".

Pump installation dimensions DN 40/PN 6 x 250 mm



Compact charging group LG-2

With heat-insulating box for the direct installation on the CombiVal with 1"-nozzle, in the feed line or on the boiler.

Charging group/pump Speed control EEI



DN 25 (1")

LG 25-Compact/HSP 4	•	•	•	0.18	6051 746
LG 25-Compact/HSP 6	•	•	•	0.20	6051 747
LG 25-Compact/SPS-S 7	•	•	•	0.20	6049 556

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 mm	Connection		Wall clearance mm
		top inches	bottom inches	
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



Standard pressure distributor WV-S 25-2/3 DN 25 (1")
wall distributor (not expandable) of brass for 2 armature groups on the top, with heat insulation made of EPP shells, including brackets.



Screw fittings brass VSM21
Version brass incl. seals
2 x screw fittings
External thread: G 1½"
Internal thread: Rp 1"



System pressure distributor expandable
Bronze wall distributor for 2 or 3 armature groups on top (expandable).
DN 20 without thermal insulation,
DN 25-50 with thermal insulation.
DN 20-32 including brackets,
DN 40/50 without brackets.
Variable connections boiler-side.
With separate components attachment of additional armature groups and conversion to pressureless operation possible.

Wall distributor type	HA groups	
DN 20 (¾")		
WV-M 20-2	for 2 HA groups	6013 694
WV-M 20-3	for 3 HA groups	6013 695
DN 25 (1")		
WV-M 25-2	for 2 HA groups	6046 648
WV-M 25-3	for 3 HA groups	6046 649
DN 32 (1¼")		
WV-M 32-2	for 2 HA groups	6046 650
WV-M 32-3	for 3 HA groups	6046 651
DN 40 (1½")		
WV-M 40-2	for 2 HA groups	6015 116
WV-M 40-3	for 3 HA groups	6015 117



Console for wall installation MKW-WV 40
for installing a pressure distributor WV-M 40 on the wall
Set (2 pieces)

For wall distributors with more than 4 HA groups absolutely use console for floor installation!

Part No.



**Console for floor installation
MKB-WV 40/50**
for installing the pressure distributor
WV-M 40 or WV-M 50
supported on the floor
Set (2 pieces)

6015 120

For wall distributors with up to 4 HA groups
1 set, for wall distributors with 5 or more
HA groups 2 sets necessary!



Differential pressure relief valve
for installation in a HA group
Casing and spring hood made of brass
Spring made of stainless steel
Seals made of EPDM
Setting handle made of plastic with
hexagon socket fastening screw
Self-sealing with O-ring
and screw connections
Operating pressure: max. 10 bar
Operating temperature: max. 110 °C
Setting range: 0.1-0.6 bar

Type	Thread on both sides	Connection		Dimens. between centre lines
DN 20	1/2"	3/4" IT	3/4" ET	90 mm
DN 25	1"	1" IT	1" ET	125 mm
DN 32	1 1/4"	1 1/4" IT	1 1/4" ET	125 mm

6013 684

6046 875

6014 849



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
distributors**
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.

Part No.

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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
• O ₂ -content in flue gas at min./max. nominal heat output	%	5.5/5.1	5.5/5.1	5.5/5.1
• 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 – (W _o = 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 – (W _o = 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
- Max. permissible temperature of the combustion air	°C	50	50	50
- Flow rate combustion air	Nm ³ /h	17	23	31
- Maximum supply pressure for combustion air supply and flue gas line	Pa	100	100	100
- Maximum draught/depression at flue gas outlet	Pa	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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
• O ₂ -content in flue gas at min./max. nominal heat output	%	5.5/5.1	5.5/5.1	5.5/5.1	5.5/5.1
• 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
- Max. permissible 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 combustion air supply and flue gas line	Pa	120	120	130	130
- Maximum draught/depression at flue gas outlet	Pa	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. in accordance with DVGW ZP3100, an output reduction of up to 7 % is possible.

²⁾ Factory measurements

³⁾ Data related to NCV.

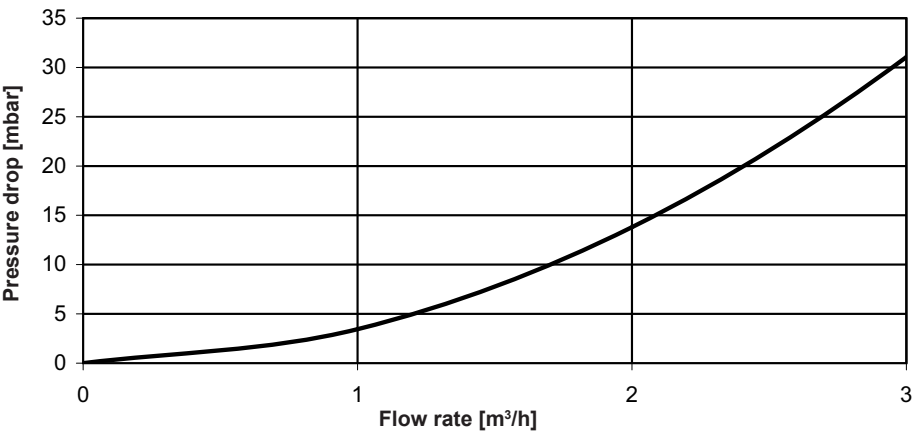
⁴⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible (readjustment might be necessary).

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

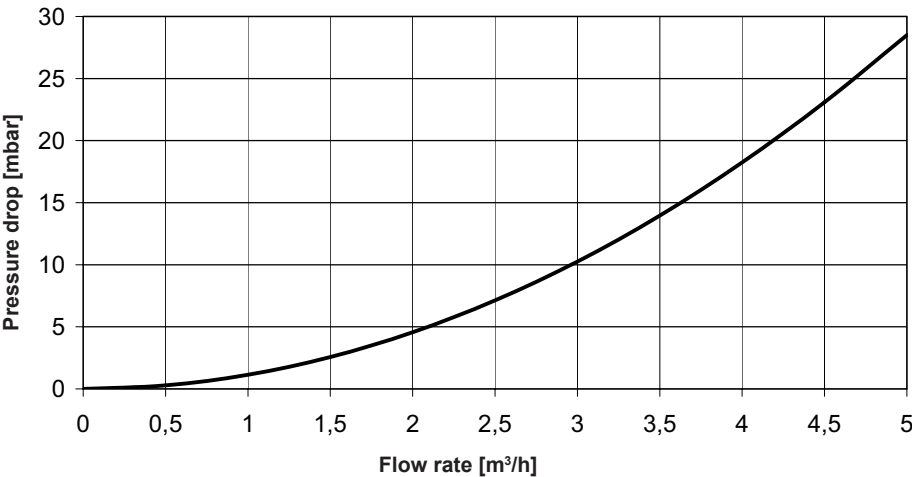
⁶⁾ Compare notice at "Engineering".

Flow resistance on the heating water side

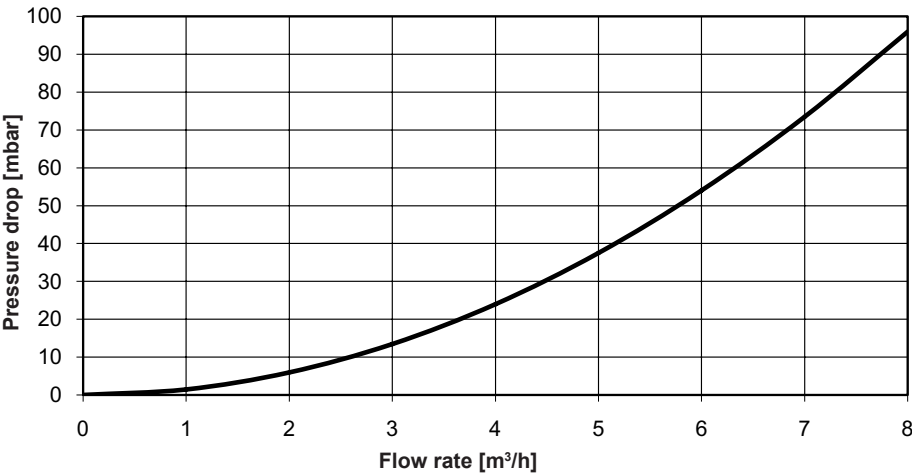
UltraGas® (15-27)



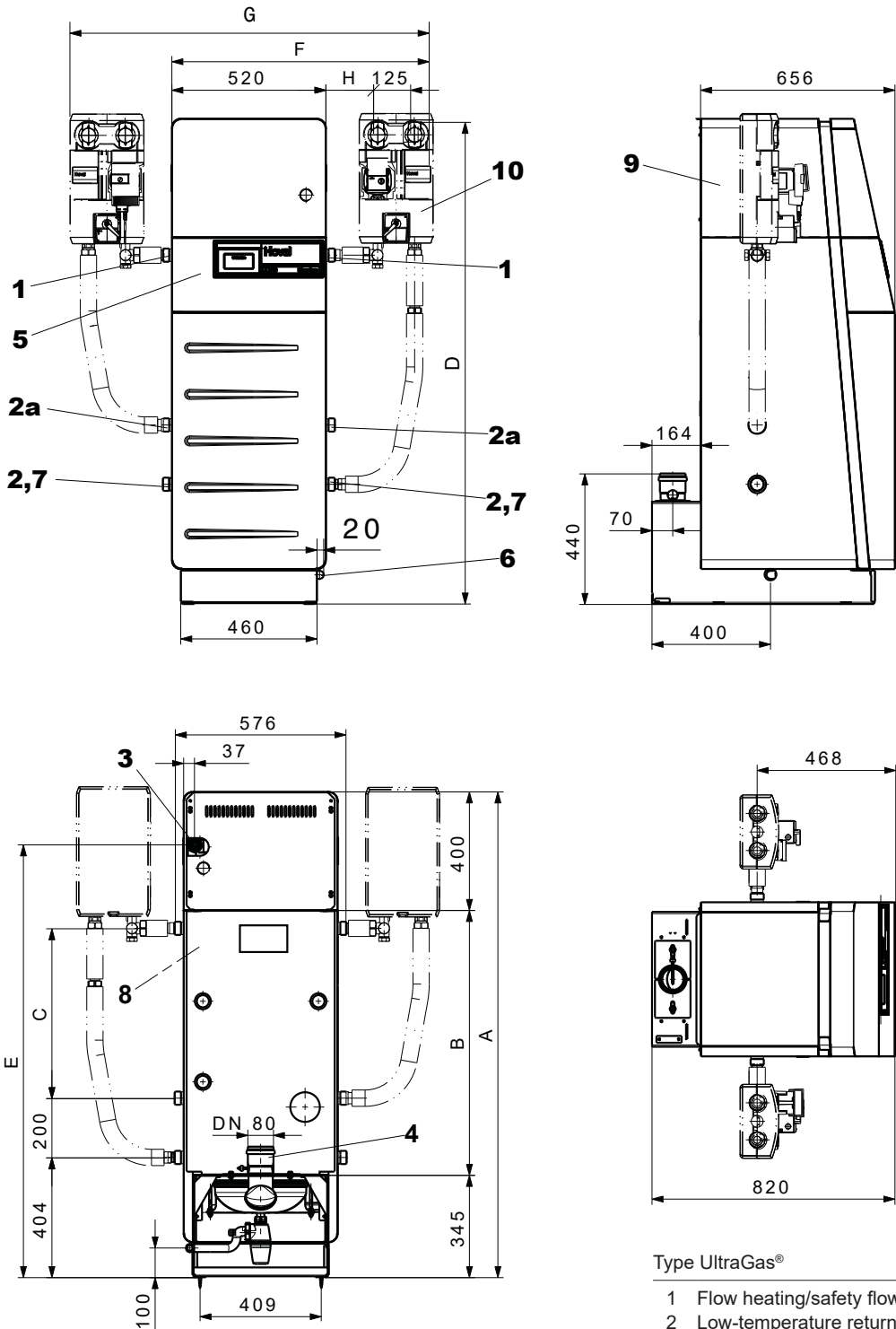
UltraGas® (35,50)



UltraGas® (70,100)



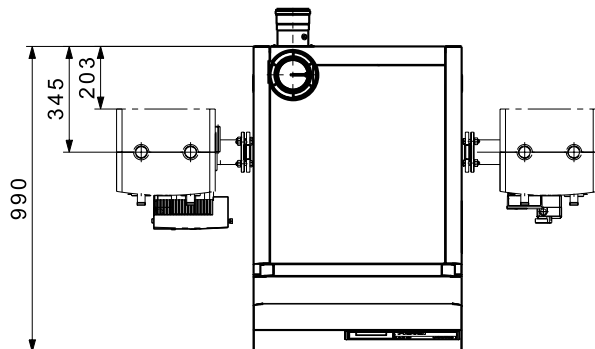
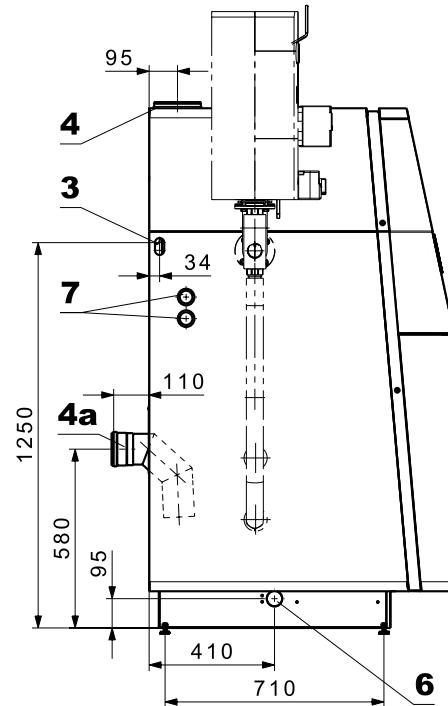
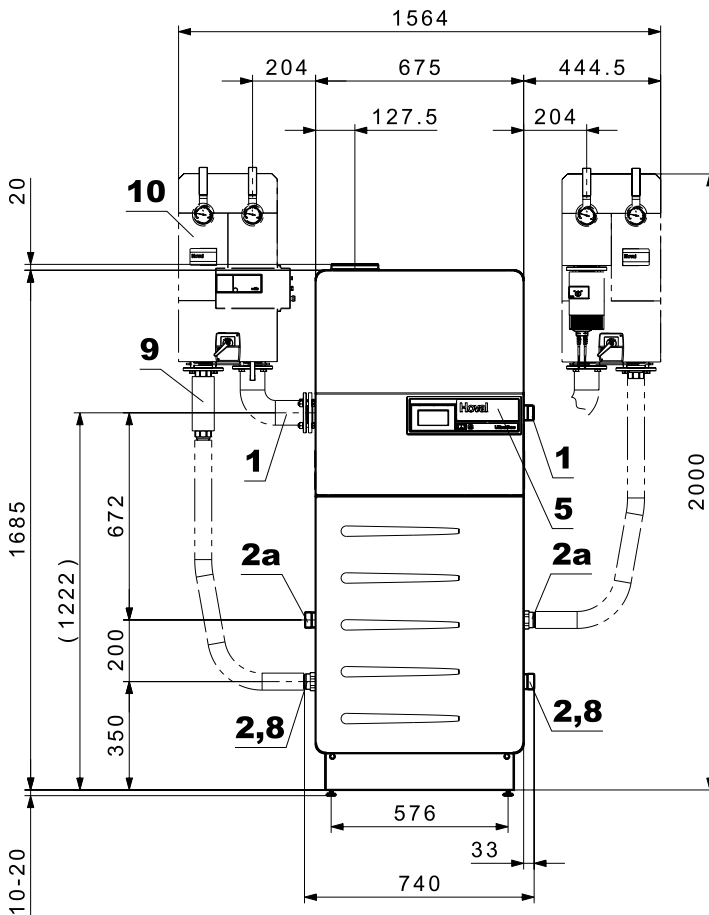
UltraGas® (15-27) with connection set AS25-S/NT/HT and armature group HA25
 UltraGas® (35,50) with connection set AS32-S/NT/HT and armature group HA32
 (Dimensions in mm)



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)		

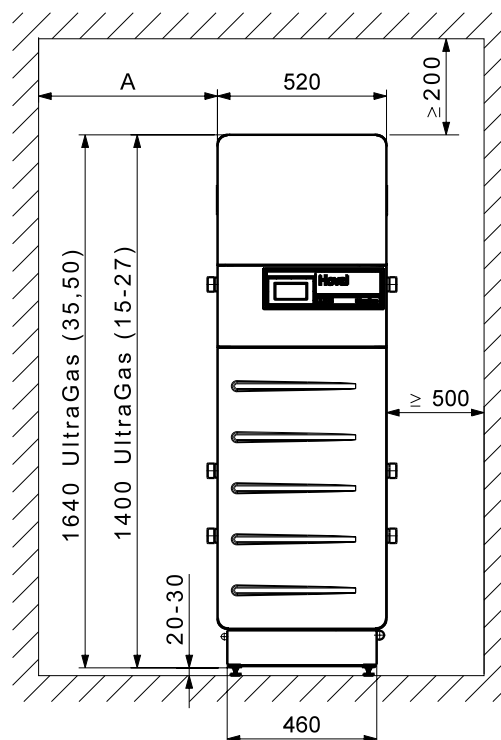
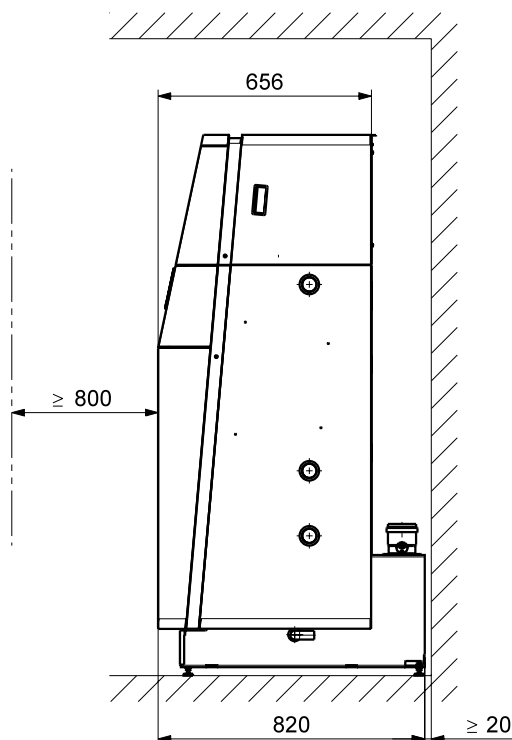
Hoval UltraGas® (70,100) with connection set AS40-S/NT/HT and armature group HA40 (Dimensions in mm)



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 *

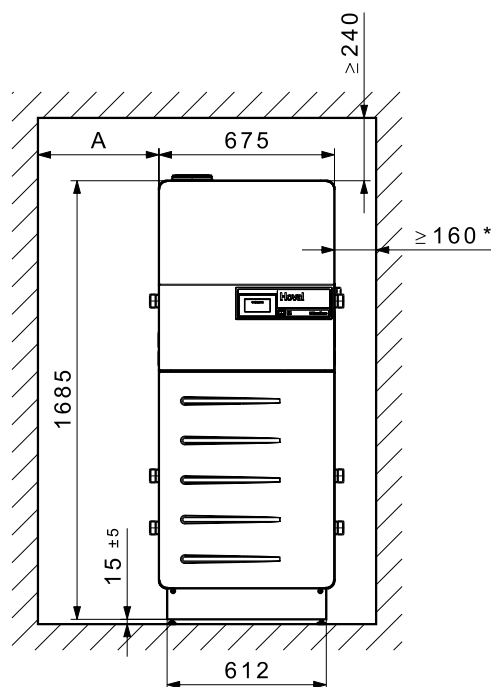
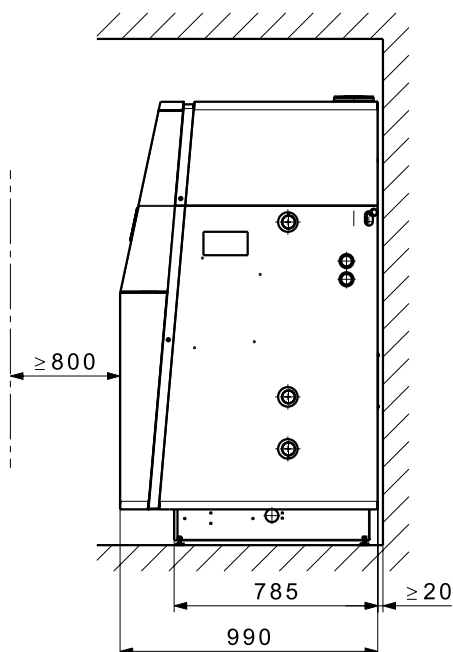
Burner service position left – boiler cleaning from the front

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, etc.) 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

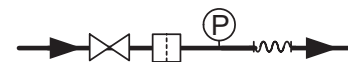
Commissioning

- 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 heating 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 % by vol.
 - 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 clad with steel plates, red powder-coated
- Heating connections backwards incl. counter flange, screws and seals for:
 - heating flow
 - high temperature return
 - low temperature return
- **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 Nominal heat output
type 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

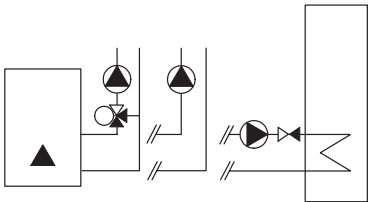
Delivery

- Boiler, cladding and thermal insulation separately packed and delivered

On-site

- Mounting of cladding, thermal insulation and boiler controller
- 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

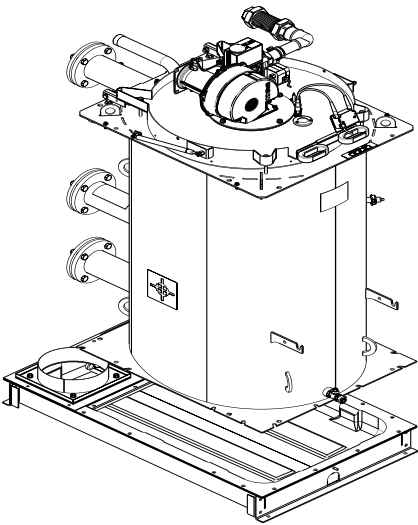
UltraGas® 2 type	Nominal heat output at 50/30 °C kW ¹⁾	Operating pressure bar
(125)	25-126	6
(150)	35-151	6
(190)	38-191	6
(230)	51-233	6
(300)	58-299	6
(350)	70-352	6
(400)	69-399	6
(450)	77-451	6
(500)	77-491	6
(620)	136-622	6
(700)	146-703	6
(800)	166-804	6
(1000)	205-999	6
(1100)	229-1112	6
(1300)	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)

Floor-standing gas condensing boiler
with 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)	69-399	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)

Delivery time approx. 8 weeks

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

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

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

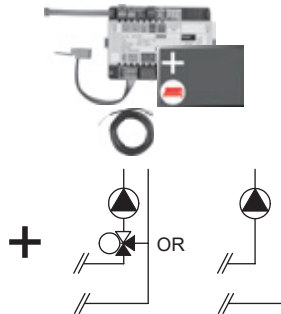


System flow sensor
for UltraGas® 2 for installation in the
flow connector sleeve Rp 1/4",
for regulating the flow temperature.
Consisting of temperature sensor and
connection cable

6053 398

Installation of the system flow sensor is rec-
ommended 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:

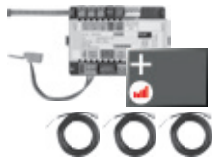
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer

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:

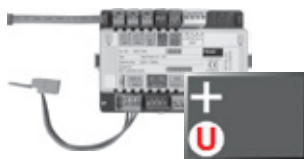
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

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 casing

System casing 182 mm	6038 551
System casing 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



Flow temperature monitor

for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor RAK-TW1000S

with retaining strap, without cable and plug

242 902

Clamp-on flow temperature monitor set RAK-TW1000S

with retaining strap, supplied with cable (4 m) and plug

6033 745

Immersion thermostat RAK-TW1000S

Thermostat with immersion sleeve ½" Depth of immersion 150 mm, nickel-plated brass

6010 082



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

6018 709



Safety set DN 32

complete with safety valve DN 32 (3 bar), up to 350 kW Pressure gauge and automatic aspirator with barrier Connection 1¼" internal thread

6018 710



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

Fitting pipe flow

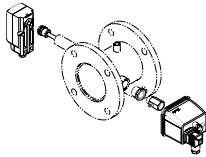
Dimension	Suitable for UltraGas® 2	Connection
DN 65	(125-230)	flow
DN 65	(125-230)	return
DN 100	(300-700)	flow
DN 100	(300-700)	return
DN 125	(800-1100)	flow
DN 125	(800-1100)	return
DN 150	(1300,1550)	flow
DN 150	(1300,1550)	return



Fitting pipe return

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)

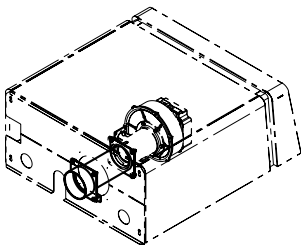
Part No.

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)

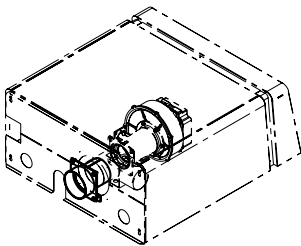
UltraGas® 2 (125-230)	DN 65	6050 605
UltraGas® 2 (300-700)	DN 100	6050 606
UltraGas® 2 (800-1100)	DN 125	6050 607
UltraGas® 2 (1300,1550)	DN 150	6051 894



Connection for direct combustion air supply
Not to be combined with motorised combustion air damper

UltraGas® 2 (125,150)	6052 548
UltraGas® 2 (190,230)	6052 550
UltraGas® 2 (300-500)	6053 096
UltraGas® 2 (620,700)	6053 779
UltraGas® 2 (800-1100)	6053 781
UltraGas® 2 (1300,1550)	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.

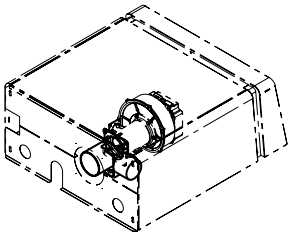


Connection for direct combustion air supply
Only in combination with a motorised combustion air damper (ordered separately). Can also be used for creating a boiler cascade with a common flue gas line.

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

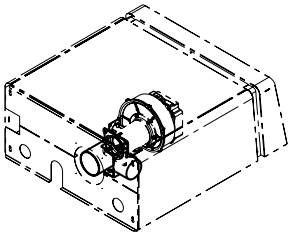
Accessories

Part No.



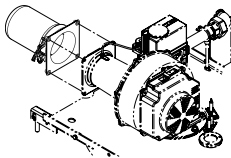
Motorised combustion air damper DN 110
for UltraGas® 2 (125-500)
For boiler cascades with a common
flue gas line. Ready-to-connect

6015 196



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

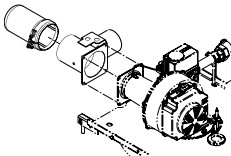
6015 197



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)

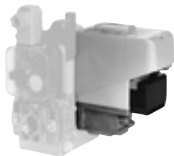
6052 151
6052 152



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



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.

Type
UltraGas® 2 (125-350)
UltraGas® 2 (400-700)
UltraGas® 2 (800-1550)
For an UltraGas® 2 double boiler, two valve test systems must be ordered.

6039 964
6039 965
6054 484

Accessories

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



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

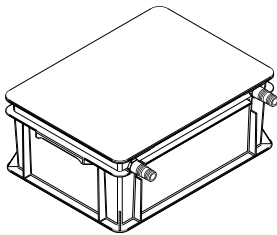
Gas filter
with measurement nozzle before and behind the filter inset (diameter: 9 mm)
Pore width of the filter inset < 50 µm
Max. pressure difference 10 mbar
Inlet pressure:
UltraGas® 2 (125-700): max. 80 mbar
UltraGas® 2 (800-1550): max 300 mbar

Type	Connection
70602/6B	Rp 1"
70604/6B	Rp 1¼"
70603/6B	Rp 1½"
70631/6B	Rp 2"
70610F/6B	DN 65

Gas pipe compensator 1"	
for UltraGas® 2 (125,150), UltraGas® 2 D (250,300) for compensating for connection tolerances in the gas pipe	6034 556

Gas pipe compensator 1 1/2"	
for UltraGas® 2 (190,230), UltraGas® 2 D (380,460) for compensating for connection tolerances in the gas pipe	6034 557

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	6054 792
UltraGas® 2 (450-800)	HNB-0800	6 kg	6054 793
UltraGas® 2 (1000,1100)	HNB-1200	9 kg	6054 794
UltraGas® 2 (1300,1550)	HNB-1600	12 kg	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. 5 m
Can be combined with neutralisation box

6063 855



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: 4 m
Can be combined with neutralisation box

6063 856



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.

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	32-113	43-138	52-175	66-217
• Nominal heat output at 50/30 °C, propane ²⁾	kW	35-126	48-151	59-191	73-233
• Nominal heat input with natural gas ³⁾	kW	23-116	32-142	35-179	47-223
• Nominal heat input with propane ²⁾	kW	33-116	44-142	54-179	68-223
• 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	390	400	485	505
• 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	ηs %	93	93	93	93
- with control	ηs %	95	95	95	95
- with control and room sensor	ηs %	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 (EN 15502) (50°C)	Watt	260	260	320	320
• 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	1.4-4.8	1.8-5.8	2.2-7.3	2.8-9.1
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	94-311	109-361	124-408
• Nominal heat output at 50/30 °C, propane ²⁾	kW	93-299	109-352	123-399	138-451
• 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	102-331	114-374	130-427
• 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	730	765	800	830
• 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 (EN 15502) (50°C)	Watt	430	430	430	430
• 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 _o = 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 _o = 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	4.2-13.6	4.7-15.3	5.3-17.5
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	133-441	173-569	193-643	233-744
• Nominal heat output at 50/30 °C, propane ²⁾	kW	147-491	184-622	208-703	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	140-463	179-591	201-668	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	855	1090	1135	1435
• 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 (EN 15502) (50°C)	Watt	430	540	540	600
• 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 – (W _o = 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) – (W _o = 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	5.7-19.0	7.3-24.2	8.2-27.4	9.7-31.1
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	262-926	299-1033	362-1227	427-1439
• Nominal heat output at 50/30 °C, propane ²⁾	kW	282-999	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	265-943	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	1580	1635	2280	2445
• 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 (EN 15502) (50°C)	Watt	600	600	740	740
• 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	10.9-38.6	12.5-43.3	15.2-51.3	17.9-60.2
• Operating voltage (50/60 Hz)	V	1 x 230 3 x 400	1 x 230 3 x 400	1 x 230 3 x 400	1 x 230 3 x 400
• 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	74	76
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	193-643	299-1033	427-1439
• Nominal heat output at 50/30 °C, propane ²⁾	kW	208-703	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	201-668	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	1170	1735	2550
• 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	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
• 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 (EN 15502) (50°C)	Watt	540	600	740
• 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 – (W _o = 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) – (W _o = 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	8.2-27.4	12.5-43.3	17.9-60.2
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230 3 x 400	1 x 230 3 x 400
• 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	76
• 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
- Combustion air flow rate	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	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

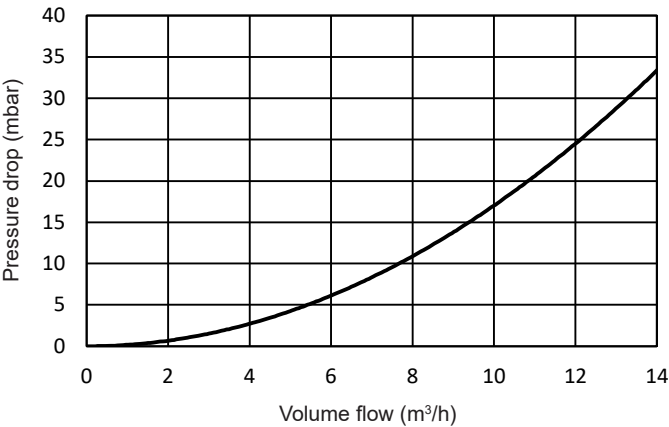
²⁾ Data related to NCV, conditional data

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.

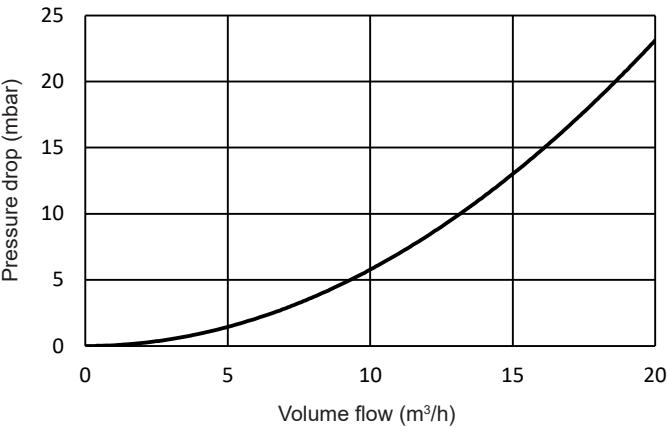
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

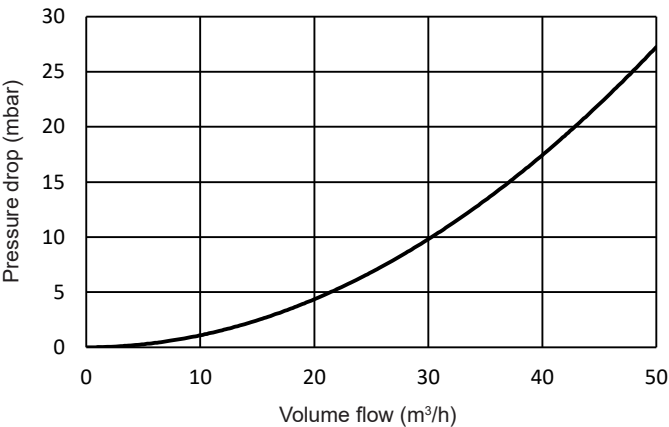
UltraGas® 2 (125,150)



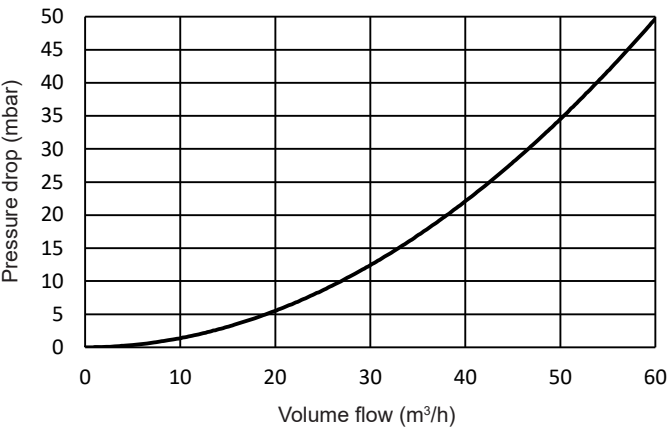
UltraGas® 2 (190,230)



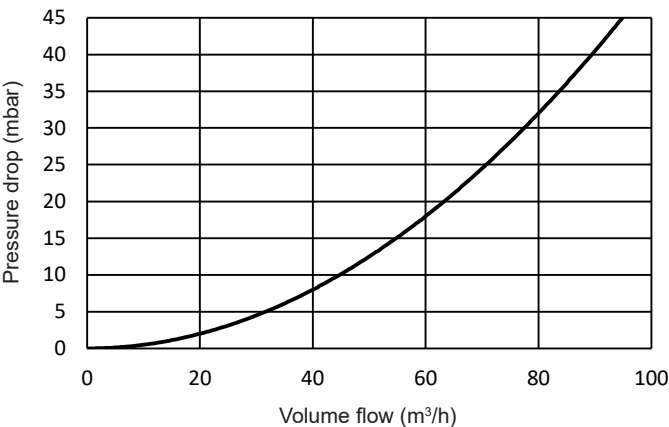
UltraGas® 2 (300-500)



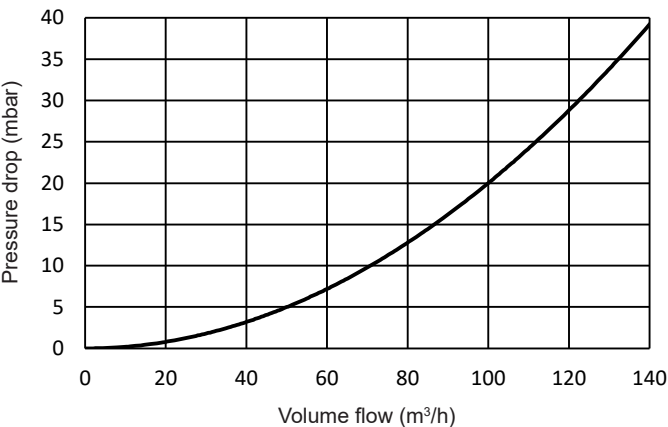
UltraGas® 2 (620,700)



UltraGas® 2 (800-1100)

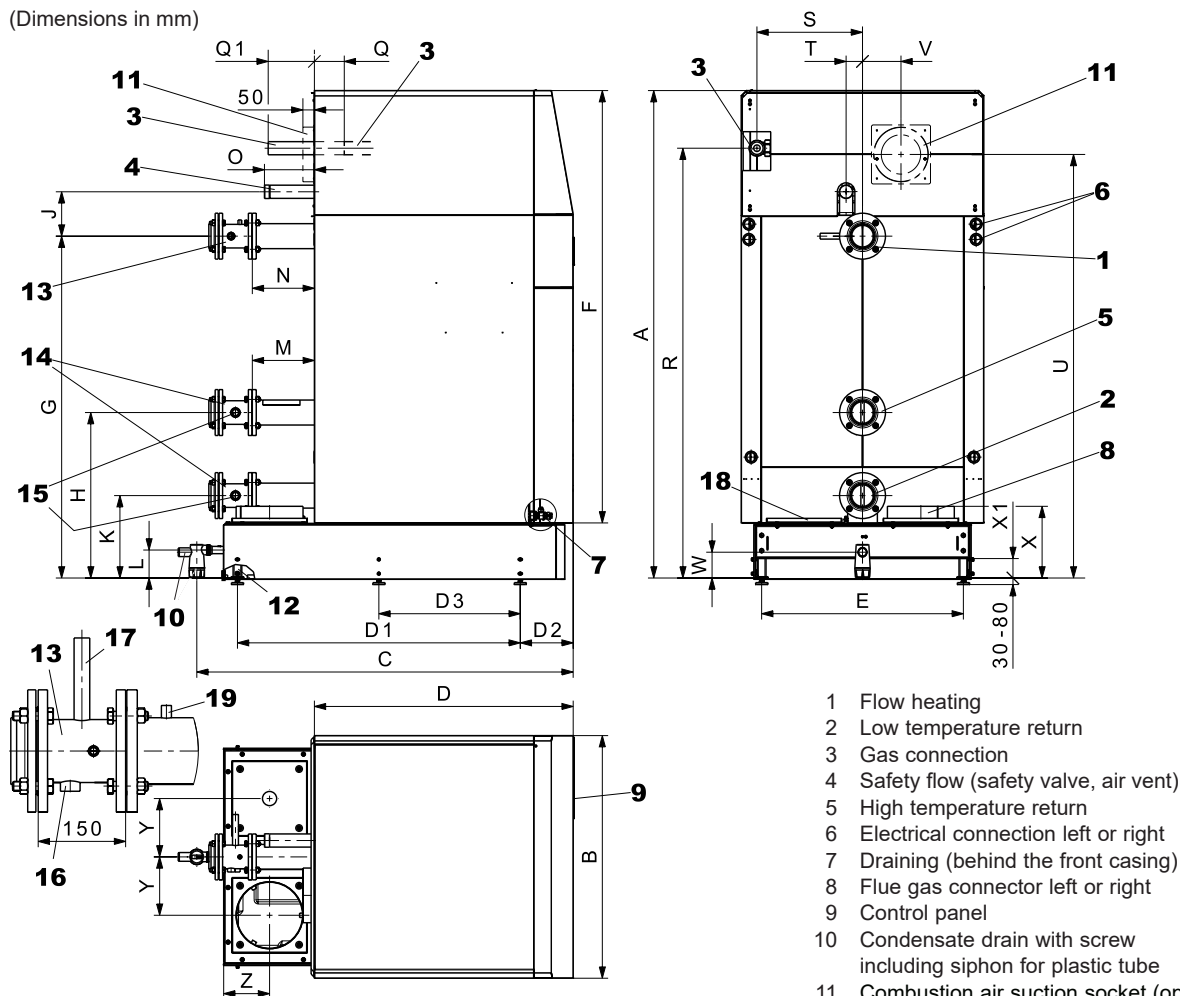


UltraGas® 2 (1300,1550)



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	Q1	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	-	190	1735
(620,700)	2234	1110	1722	1184	1294	242	-	923	1982	1564	757	203	377	128	286	286	225	0	0	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	0	0	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

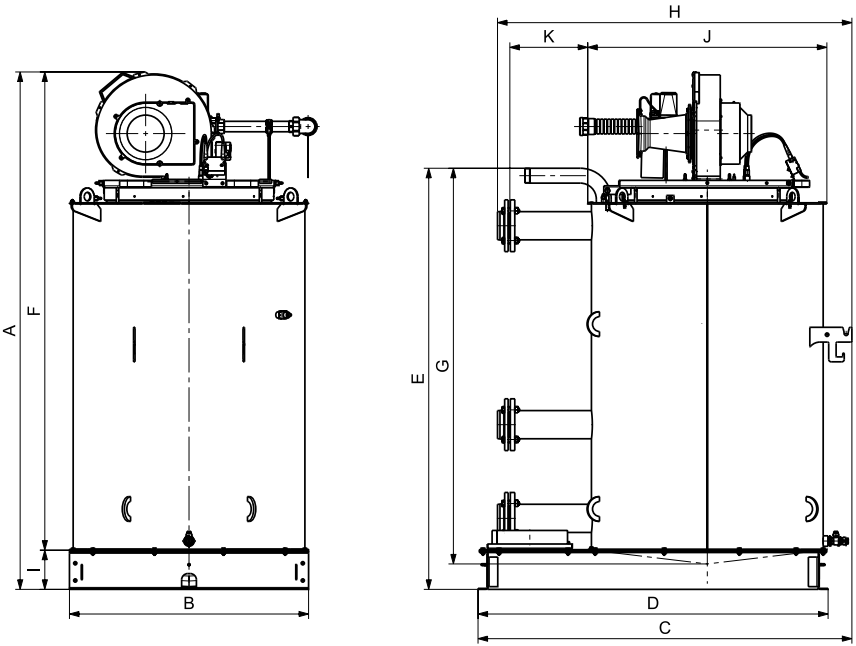
Type	S	T	U	V	W	X	X1	Y	Z	1,2,5 *	3	4	8	10	11
(125,150)	318	40	1725	101	124	319	99	157	139	DN 65 / PN 6 / 4-hole	Rp 1"	R 1"	Ø 155/159	DN 40	Ø 122/125
(190,230)	371	50	1778	101	124	319	99	195	139	DN 65 / PN 6 / 4-hole	Rp 1 1/2"	R 1 1/4"	Ø 155/159	DN 40	Ø 197/200
(300-500)	389	40	1736	101	121	316	96	217	184	DN 100 / PN 6 / 4-hole	Rp 1 1/2"	R 1 1/2"	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"	R 2"	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 cladding and thermal insulation
(Dimensions in mm)

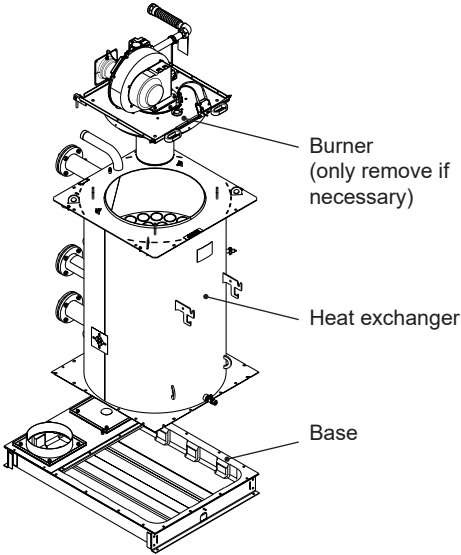
UltraGas® 2 (125-1550)



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

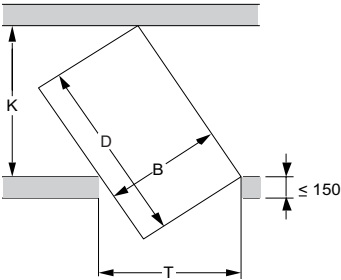
Weights for multi-part installation UltraGas® 2

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	455	60
(350)	60	486	60
(400)	60	520	60
(450)	60	554	60
(500)	60	576	60
(620)	86	729	80
(700)	86	777	80
(800)	104	1017	93
(1000)	104	1154	100
(1100)	104	1208	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)



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

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

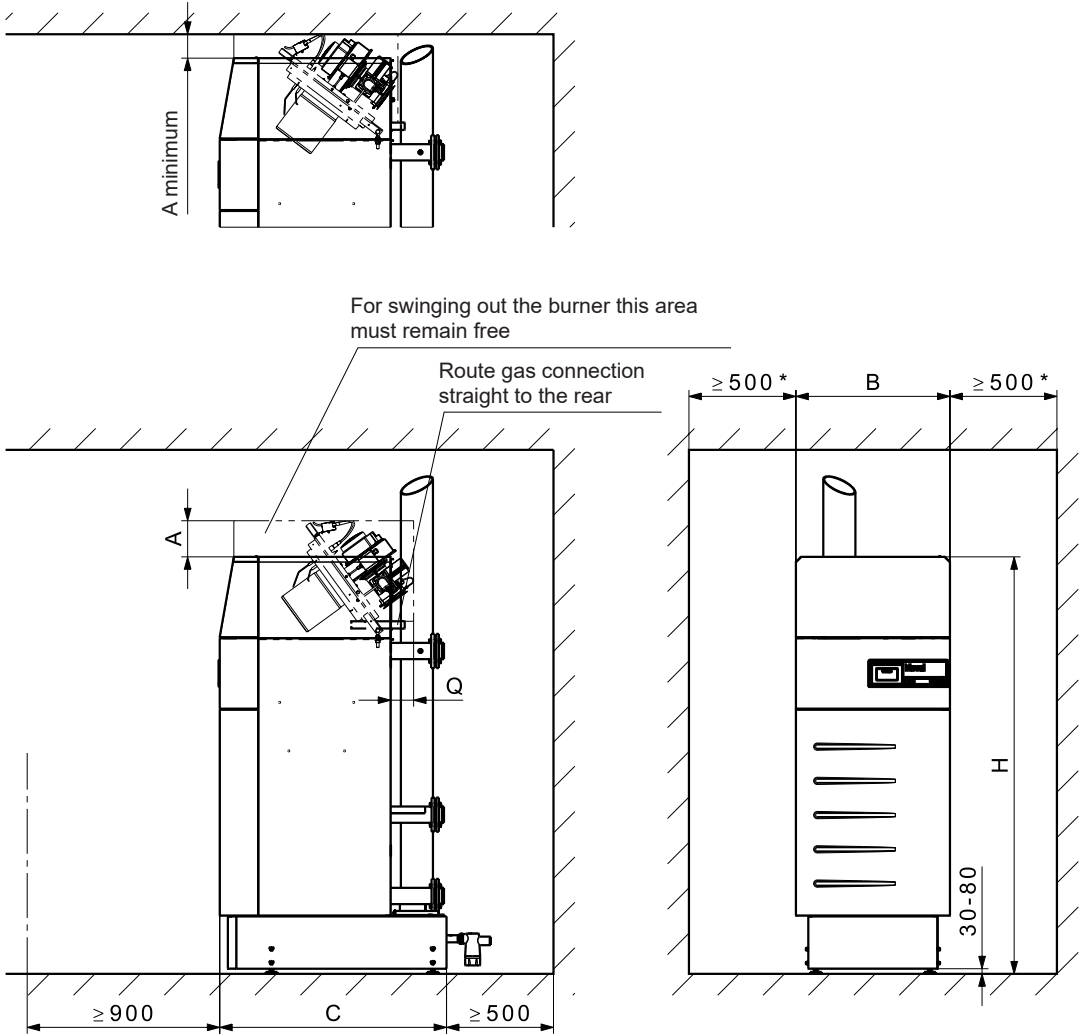
B = boiler width
D = max. boiler length
T = door width
K = corridor width

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

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

Space requirements
(Dimensions in mm)

UltraGas® 2 (125-1550)

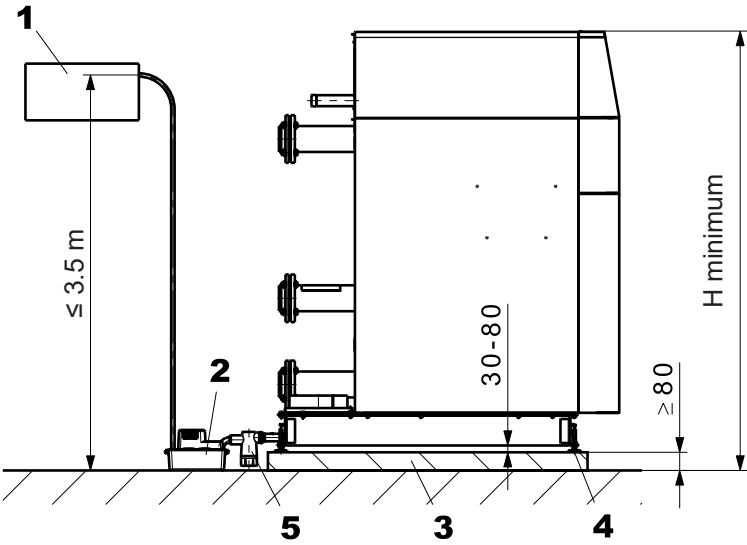


UltraGas® 2 type	A ¹⁾	A minimum ²⁾	B	C	H ³⁾	H minimum ⁴⁾	Q
(125,150)	169	106	720	1060	1953	1934	125
(190,230)	155	71	820	1160	1998	1979	2
(300-500)	513	156	930	1510	1953	1937	60
(620,700)	121	121	1110	1600	2264	2255	155
(800-1100)	280	195	1290	1786	2285	2276	119
(1300,1550)	291	154	1560	2104	2425	2416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

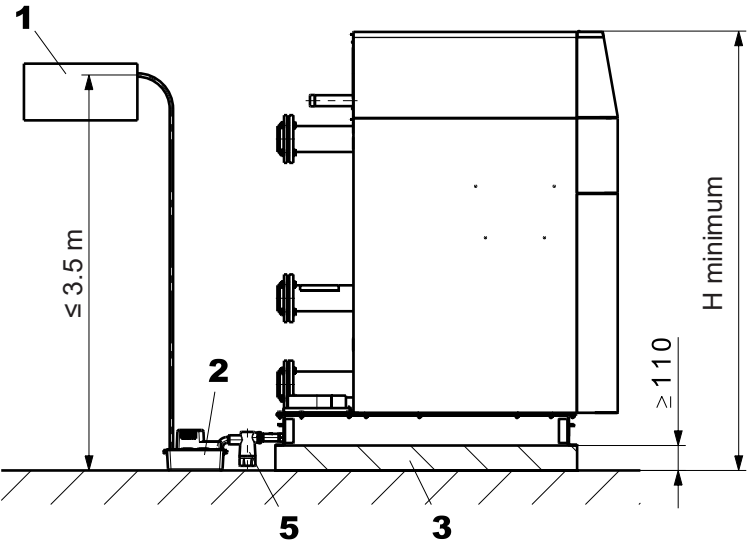
- The heat generator can be placed with one side directly on the wall. However, to protect heat-sensitive walls against damage, a distance of at least 150 mm from the wall must be provided.
- The cleaning opening must be easily accessible. As a result, a minimum distance of 500 mm must be maintained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

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



UltraGas® 2 type	H minimum 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 minimum 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

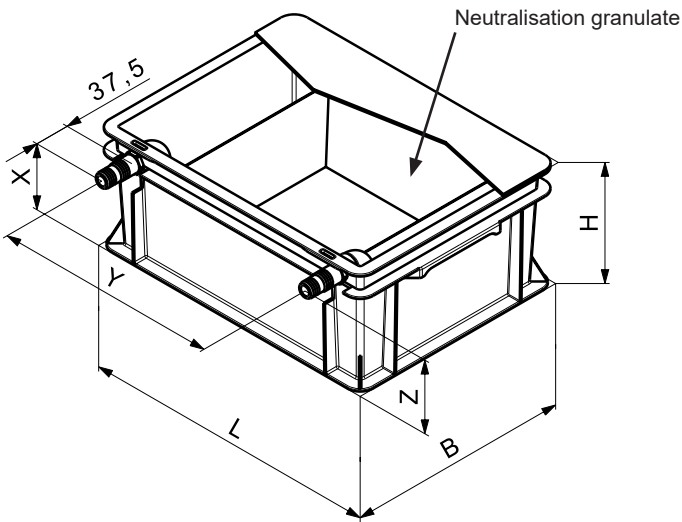
- 1 Neutralisation unit (option)
- 2 Condensate pump (option)
- 3 Masonry base
- 4 Feet adjustable up to 30-80 mm
- 5 Siphon ²⁾

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

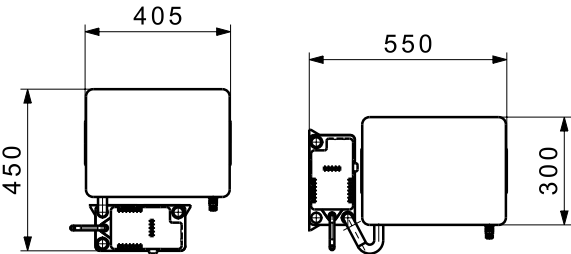
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimum, cleaning the siphon is more difficult.

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

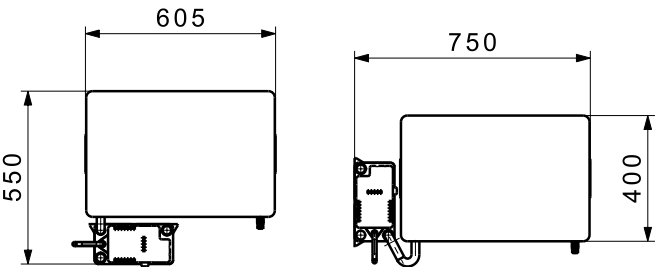


	HNB-0400,-0800	HNB-1200,-1600
Dimensions (L x W x H)	405 x 300 x 180 mm	605 x 400 x 180 mm
Inlet height (Z)	128 mm	
Drain height (X)	118 mm	
Distance between the connections (Y)	approx. 350 mm	approx. 550 mm

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, etc.) 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

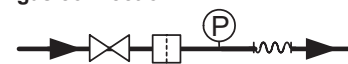
- Initial commissioning must be performed by a specialist technician from Hoval or a gas specialist technician.
- Burner setting values according to the installation instructions.

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 heating 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 % by vol.
 - 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 clad 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 flange, screws and seals for:
 - heating flow
 - high temperature return
 - low temperature return
- **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, cladding with thermal insulation, 2 TopTronic® E controls, flue gas collector and combustion air connection delivered separately packed

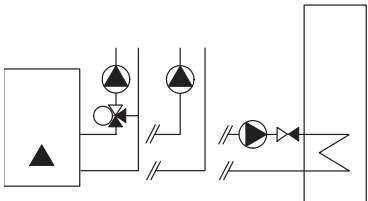
On site

- Mounting of cladding, thermal insulations and boiler controller
- Mounting of boiler feet
- Mounting of the flue gas connection line and flue gas overpressure set (two motorised combustion air dampers and a flue gas collector)
- 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.

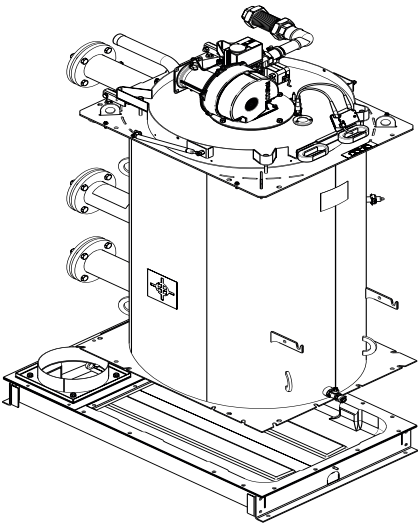
Secondary heating surfaces made of **TurboFer®** stainless steel composite pipes.
Pre-mix burner with fan.

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	Part No.
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)	69-798	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

¹⁾ kW = modulation range

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)	69-798	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

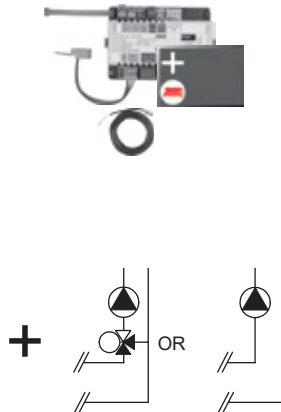


System flow sensor
for UltraGas® 2 for installation in the flow connector sleeve Rp 1/4", for regulating the flow temperature. Consisting of temperature sensor and connection cable

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:

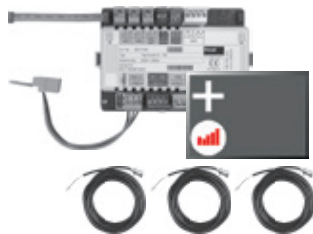
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer

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:

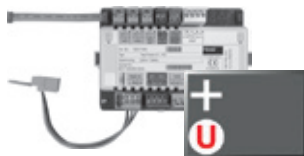
- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

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	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

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 casing

System casing 182 mm	6038 551
System casing 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



Flow temperature monitor
for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover

Clamp-on flow temperature monitor RAK-TW1000S
with retaining strap, without cable and plug

Clamp-on flow temperature monitor set RAK-TW1000S
with retaining strap, supplied with cable (4 m) and plug

Immersion thermostat RAK-TW1000S
Thermostat with immersion sleeve 1/2"
Depth of immersion 150 mm, nickel-plated brass



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 350 kW
Pressure gauge and automatic aspirator with barrier
Connection 1 1/4" internal thread



Fitting pipe flow



Fitting pipe return

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 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)

Part No.

242 902

6033 745

6010 082

6018 709

6018 710

6053 408

6023 108

6053 409

6023 110

6055 078

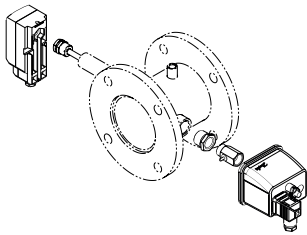
6023 112

6055 079

6051 680

Accessories

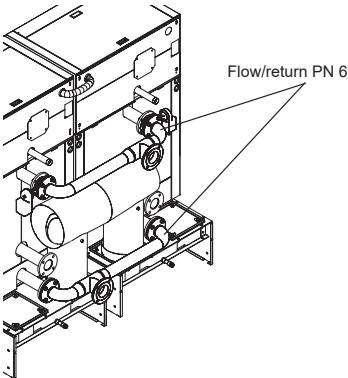
Part No.



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 needed per double boiler



Hydraulic connection set for double boiler flow/return PN 6
Pipe connection set for double boiler incl. hydraulic butterfly valves
For 24 V, pre-wired
Operating method: continuously controlling (2-10 V)

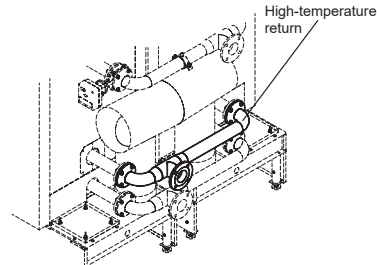
for UltraGas® 2 D (250-460)	6054 637
for UltraGas® 2 D (600-1000)	6054 638
for UltraGas® 2 D (1240,1400)	6054 639
for UltraGas® 2 D (1600-2200)	6054 640
for UltraGas® 2 D (2600,3100)	6054 641



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	6050 605
UltraGas® 2 (300-700)	DN 100	6050 606
UltraGas® 2 (800-1100)	DN 125	6050 607
UltraGas® 2 (1300,1550)	DN 150	6051 894

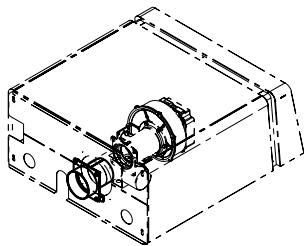
2 pieces needed per double boiler



Hydraulic connection double boiler high-temperature return PN 6 for UltraGas® 2 D
for UltraGas® 2 D
(e.g. for return calorifier charging)

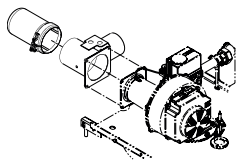
UltraGas® 2 D (250-460)	6054 636
UltraGas® 2 D (600-1000)	6054 396
UltraGas® 2 D (1240,1400)	6004 924
UltraGas® 2 D (1600-2200)	6009 534
UltraGas® 2 D (2600,3100)	6051 915

Accessories



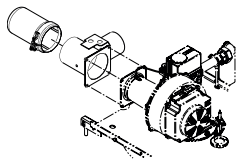
Connection for direct combustion air supply
Only in combination with a motorised combustion air damper (ordered separately).
Can also be used for creating a boiler cascade with a common flue gas line.

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



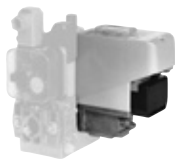
Connection protection filter
for UltraGas® 2 (620-1550)
for installation on
the motorised combustion air damper
for filtering the combustion air
in the building phase
Pore width of the filter < 50 µm

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



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.

Type	
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.	

Accessories

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



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	
Inlet pressure:	
UltraGas® 2 (125-700): max. 80 mbar	
UltraGas® 2 (800-1550): max 300 mbar	
Type	Connection
70602/6B	Rp 1"
70604/6B	Rp 1¼"
70603/6B	Rp 1½"
70631/6B	Rp 2"
70610F/6B	DN 65



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

2 pieces per double boiler necessary

Part No.

2007 988
2007 989
2007 990

2069 328
2069 329
2069 330

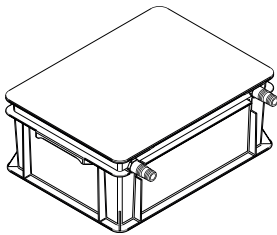
6041 745
6041 746
6041 747

2007 996
2054 495
2007 997
2007 998
2007 999

6034 556

6034 557

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	6054 792
UltraGas® 2 (450-800)	HNB-0800	6 kg	6054 793
UltraGas® 2 (1000,1100)	HNB-1200	9 kg	6054 794
UltraGas® 2 (1300,1550)	HNB-1600	12 kg	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. 5 m
Can be combined with neutralisation box

6063 855



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: 4 m
Can be combined with neutralisation box

6063 856

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.

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	32-226	43-276	52-351	66-434
• Nominal heat output at 50/30 °C, propane ²⁾	kW	35-252	48-302	59-382	73-466
• Nominal heat input with natural gas ³⁾	kW	23-232	32-284	35-358	47-446
• Nominal heat input with propane ²⁾	kW	33-232	44-284	54-358	68-446
• 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 390	2 x 400	2 x 485	2 x 505
• 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 (EN 15502) (50°C)	Watt	520	520	640	640
• 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	1.4-9.5	1.8-11.6	2.2-14.7	2.8-18.3
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	94-622	109-722	124-816
• Nominal heat output at 50/30 °C, propane ²⁾	kW	93-598	109-704	123-798	138-902
• 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	102-662	114-748	130-854
• 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 730	2 x 765	2 x 800	2 x 830
• 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	ηs %	94	93	93	-
- with control	ηs %	96	95	95	-
- with control and room sensor	ηs %	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 (EN 15502) (50°C)	Watt	860	860	860	860
• 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 _o = 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) – (W _o = 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	4.2-27.1	4.7-30.7	5.3-35.0
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	133-882	173-1139	193-1286	233-1488
• Nominal heat output at 50/30 °C, propane ²⁾	kW	147-982	184-1244	208-1406	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	140-926	179-1182	201-1336	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 855	2 x 1090	2 x 1135	2 x 1435
• 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 (EN 15502) (50°C)	Watt	860	1080	1080	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	7.3-95.5	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	5.7-38.0	7.3-48.4	8.2-54.8	9.7-62.2
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230	1 x 230	1 x 230
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	262-1852	299-2067	362-2455	427-2877
• Nominal heat output at 50/30 °C, propane ²⁾	kW	282-1998	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	265-1886	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 1580	2 x 1635	2 x 2280	2 x 2445
• 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 (EN 15502) (50°C)	Watt	1200	1200	1480	1480
• 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	19.3-194.4	21.2-217.9	25.5-257.9	30.6-302.9
- Natural gas LL (G25) – (W _o = 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	10.9-77.3	12.6-86.6	15.2-102.5	17.9-120.4
• Operating voltage (50/60 Hz)	V	1 x 230 3 x 400	1 x 230 3 x 400	1 x 230 3 x 400	1 x 230 3 x 400
• 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
- Combustion air flow rate	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	-30	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. 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	193-1286	299-2067	427-2877
• Nominal heat output at 50/30 °C, propane ²⁾	kW	208-1406	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	201-1336	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 1170	2 x 1735	2 x 2550
• 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	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
• 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 (EN 15502) (50°C)	Watt	1080	1200	1480
• 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 – (W _o = 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) – (W _o = 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	8.2-54.8	12.6-86.6	17.9-120.4
• Operating voltage (50/60 Hz)	V	1 x 230	1 x 230 3 x 400	1 x 230 3 x 400
• 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
- Combustion air flow rate	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	-30	-30	-30

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % by vol. in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

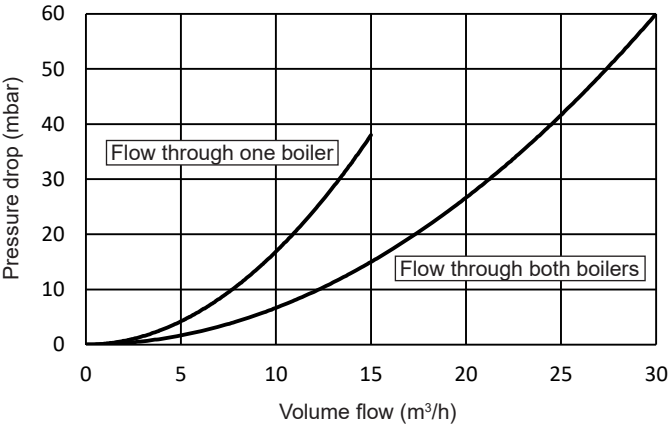
²⁾ Data related to NCV, conditional data

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.

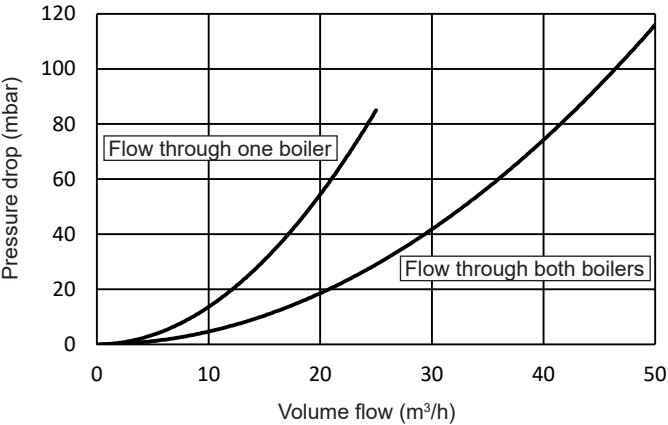
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

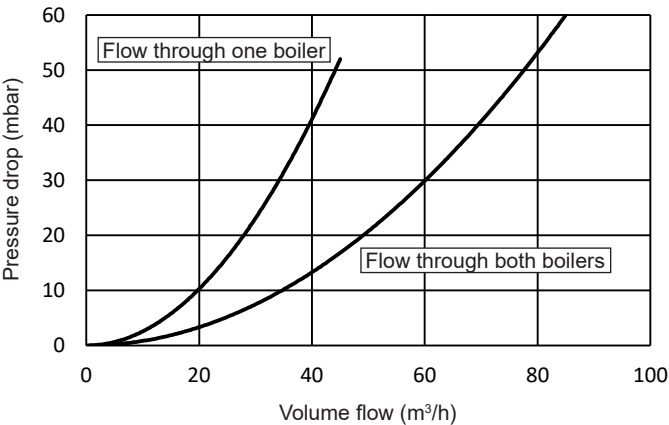
UltraGas® 2 D (250,300)



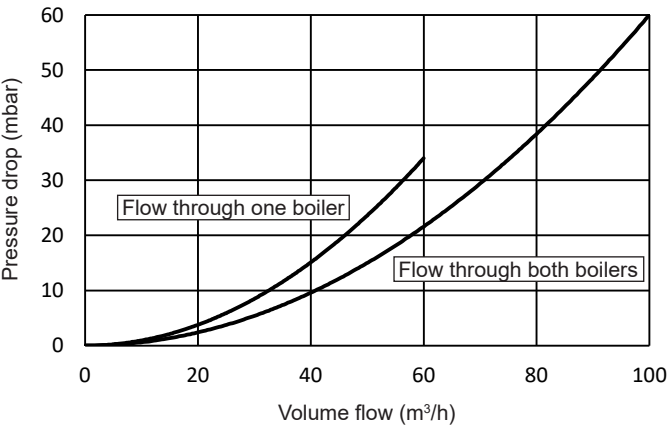
UltraGas® 2 D (380,460)



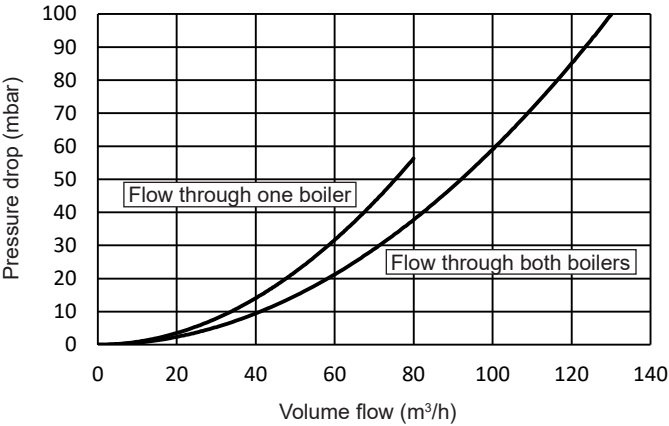
UltraGas® 2 D (600-1000)



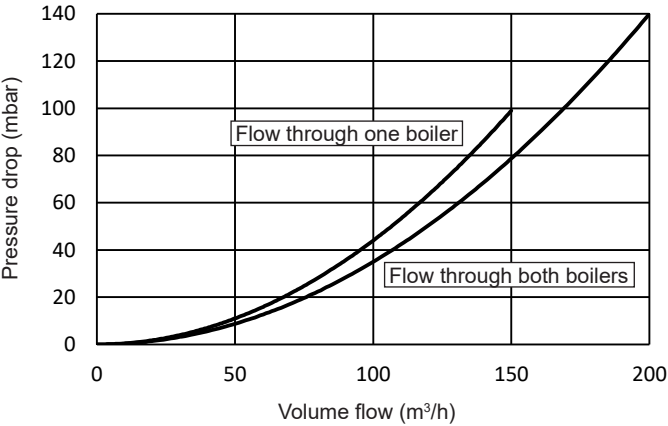
UltraGas® 2 D (1240,1400)



UltraGas® 2 D (1600-2200)

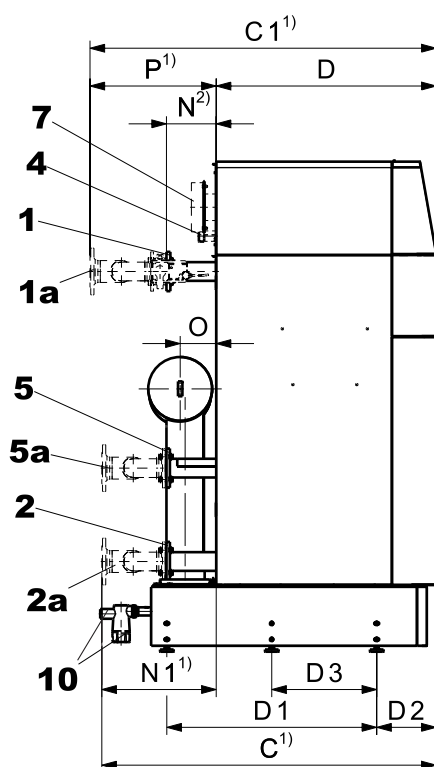


UltraGas® 2 D (2600,3100)

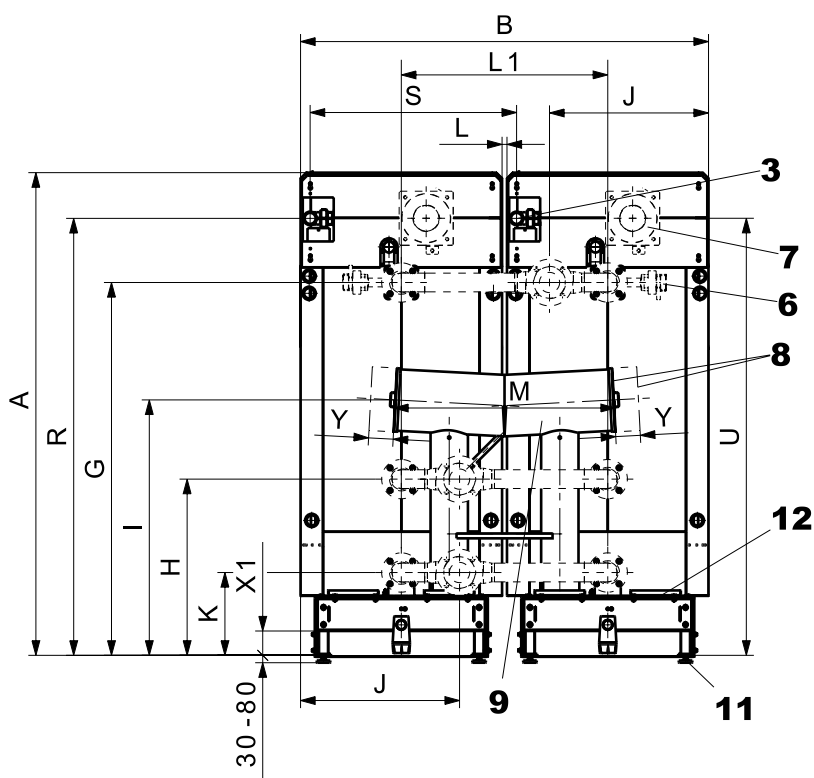


UltraGas® 2 D (250-3100)

(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	L1	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	840	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	840	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	950	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	1130	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	1310	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	1590	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	1130	1019	286	643	205	700	1966	1130	1938	89	-
DH (2200)	2255	2600	-	-	1364	1480	242	-	1573	788	1280	1054	408	20	1310	1018	378	-	228	-	1959	1310	1959	89	-
DH (3100)	2395	3150	-	-	1640	1790	250	895	1600	822	1231	1339	442	30	1590	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 1¼"	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

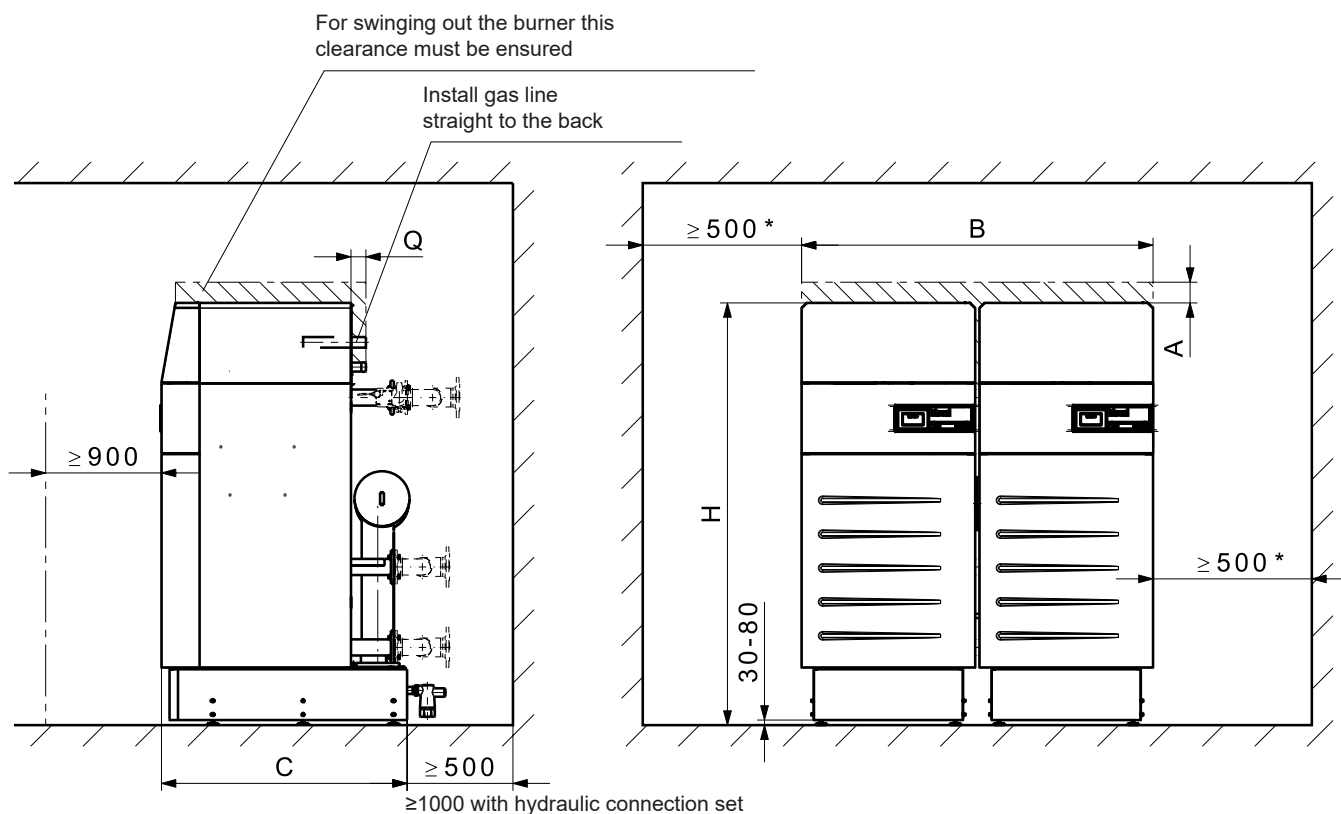
No hydraulic connections of the double boilers are available for UltraGas® 2 DH.

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).

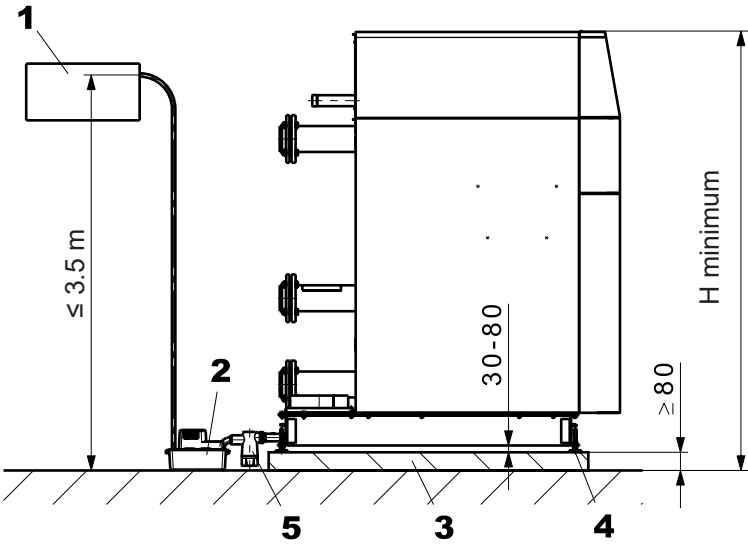
²⁾ **Attention!** With A minimum the burner can not be swung out completely anymore!
Cleaning with UltraGas® 2 D (250-460) and UltraGas® 2 D (1240-3100) still possible

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.

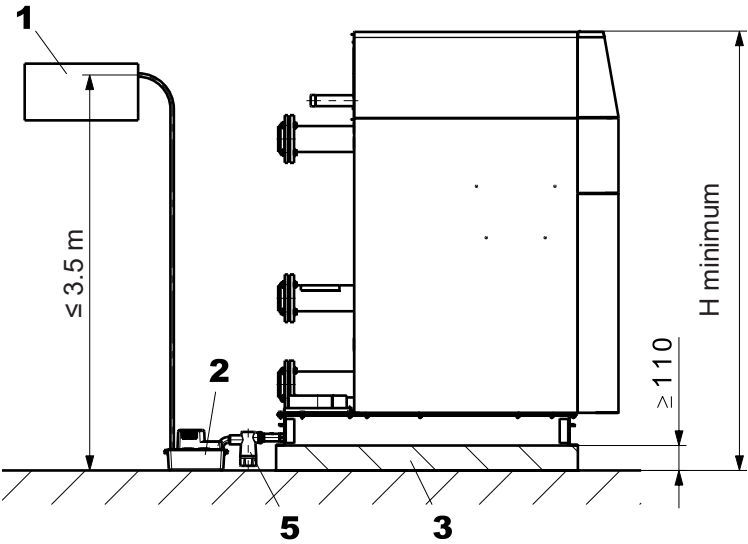
- The heat generator can be placed with one side directly on the wall. However, to protect heat-sensitive walls against damage, a distance of at least 150 mm from the wall must be provided.
- The cleaning opening must be easily accessible. As a result, a minimum distance of 500 mm must be maintained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

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



UltraGas® 2 type	H minimum 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 minimum 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

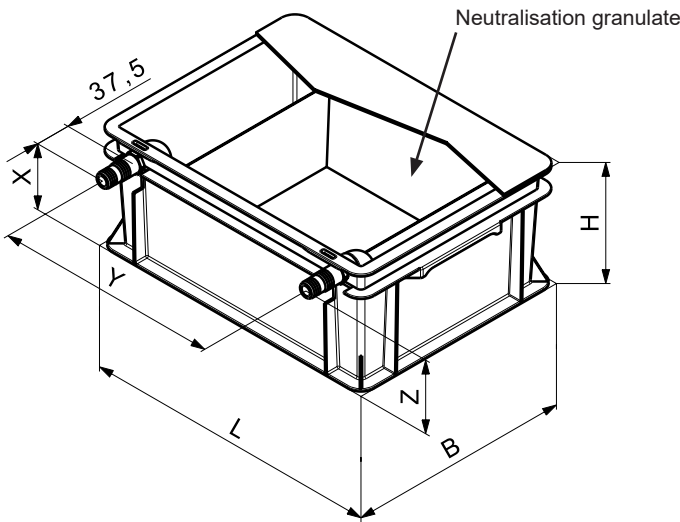
- 1 Neutralisation unit (option)
- 2 Condensate pump (option)
- 3 Masonry base
- 4 Feet adjustable up to 30-80 mm
- 5 Siphon ²⁾

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

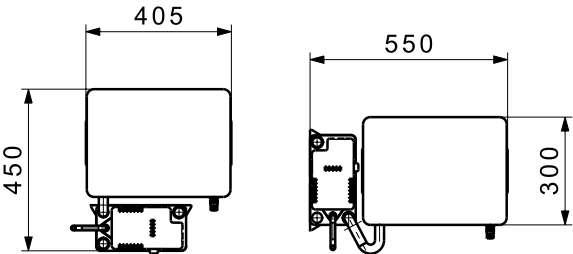
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimum, cleaning the siphon is more difficult.

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

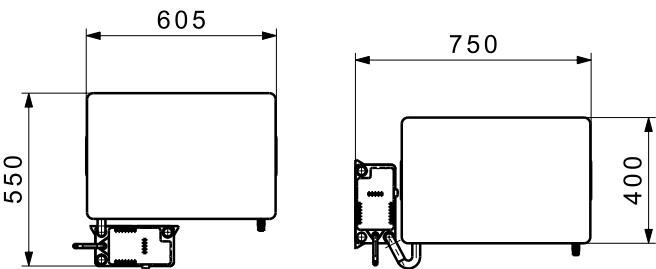


	HNB-0400,-0800	HNB-1200,-1600
Dimensions (L x W x H)	405 x 300 x 180 mm	605 x 400 x 180 mm
Inlet height (Z)	128 mm	
Drain height (X)	118 mm	
Distance between the connections (Y)	approx. 350 mm	approx. 550 mm

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, etc.) 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 heating 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	Gas throughput	Gas filter type	Dimension	Pressure drop gas filter (with clean filter) mbar
type	m³/h			
(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"

UltraGas® 2 type	Boiler	Flue gas line (smooth walled)		Number of elbows 90° (flue gas + combustion air)			
	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	43
D (300)	254		44	43	43	43	42
D (380)	254	225	46	45	44	44	43
D (460)	254	250	47	46	45	45	44
D (600)	306	300	48	47	46	46	45
D (700)	306		47	46	45	45	44
D (800)	306		46	45	44	44	43
D (900)	306	350	50	50	50	50	50
D (1000)	306		48	48	47	47	46
D (1240)	356		47	46	45	45	44
D (1400)	356	400	48	47	46	46	45
D (1600)	402		46	45	44	44	43
D (2000)	402	450	47	46	45	45	44
D (2200)	402	500	46	45	44	44	43
D (2600)	504		48	48	47	47	46
D (3100)	504		48	47	46	46	45
DH (1400)	356	400	48	47	46	46	45
DH (2200)	402	500	46	45	44	44	43
DH (3100)	504		48	47	46	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.

1. General

- 1.1 The following Terms and Conditions shall apply to all our present and future contracts for deliveries and other services (even if the said Terms and Conditions are not specifically mentioned in verbal, telephonic or fax communications).
- 1.2 All deviations from the present Terms and Conditions, ancillary verbal agreements and subsequent contractual amendments shall only be valid if they have been confirmed by us in writing.
- 1.3 Buying terms and conditions of the client shall not be valid even if they are not specifically rejected by us. Our Standard Terms and Conditions of Delivery shall be regarded as accepted at the latest upon receipt of our goods and services by the client.
- 1.4 If a provision of the present Terms and Conditions of Delivery proves to be wholly or partially invalid, the contracting parties shall replace the aforesaid provision by a new provision which comes as close as possible to the legal and economic intention of the invalid provision.

2. Offers

- 2.1 Our offers shall be subject to change without notice.
- 2.2 Orders shall only be regarded as accepted when they have been confirmed by us in writing.
- 2.3 Illustrations, drawings and all technical details in catalogues and printed material shall be approximate values as customary within the industry. They shall only be binding if specific reference is made to them in the contract. We shall also reserve the right to make technical and design changes after the conclusion of the contract.
- 2.4 Cost estimates, drawings and other documents shall remain our property and shall be subject to copyright protection; they may not be made available to third parties.

3. Regulations in the country of destination

- 3.1 At the latest at the time of the order, the buyer shall draw our attention to the regulations and standards in force in the country of destination relating to the design of the delivered goods and the operation thereof and also to the execution of services.
- 3.2 Our deliveries and services shall comply with the regulations and standards in the country of destination provided the buyer has drawn our attention thereto in accordance with Section 3.1.
- 3.3 The buyer shall duly inform us of any special application features of goods ordered from us if these differ from our general recommendations.

4. Prices

- 4.1 Our prices shall be ex works, net, excluding packaging.
- 4.2 All ancillary costs, e.g. freight, insurance, export, transit, import and other approvals, licenses and authentications, shall be for the account of the buyer. The buyer shall also bear all taxes, charges, customs duty, etc., which are levied in connection with the contract.
- 4.3 We shall reserve the right to make price adjustments if wage rates or material prices change between the date of the order confirmation and the contractual performance of the contract. Price increases shall normally be notified three months in advance. We shall be bound to the price stated in the order confirmation for a period of three months after the effective date of the price increase.

5. Payment terms

- 5.1 Unless otherwise agreed in writing, our invoices shall be payable within thirty days with no cash discount. Payment shall be deemed to have been made when the amount in question is at our unrestricted disposal on our account in Swiss Franks.
- 5.2 Payment dates shall be observed even if any delays whatsoever occur after shipment of the goods from our works. The buyer shall not be permitted to reduce or withhold payments on account of complaints or counterclaims not recognised by us.
- 5.3 Payments shall also be made if insignificant components are missing but usage of the delivered goods is not rendered impossible as a result or if rectification work has to be carried out on the delivery. We shall be entitled to reject rectification of the defect as long as the buyer has not discharged his/its obligations to us.
- 5.4 If the buyer fails to comply with the agreed payment dates, default interest shall be paid from the agreed due date without a reminder being issued; the aforesaid interest shall be based on the interest rates prevailing at the domicile of the buyer, but shall be not less than four percent above the current discount rate of the Swiss Central Bank.
- 5.5 We shall be entitled to make deliveries of pending orders dependent upon settlement of outstanding claims.

6. Reservation of title

- 6.1 Delivered goods shall remain our property (reserved goods) pending full and complete payment of all present and future claims to which we are entitled regardless of their legal cause. This shall also apply if payments are made in settlement of specifically designated claims.
- 6.2 The buyer shall be entitled to process and sell reserved goods in the ordinary course of business.
- 6.3 If our reserved goods are combined or intermingled with other goods, the buyer shall hereby transfer his/its ownership rights in the new goods or chattels to us upon the conclusion of the contract in the amount of the invoice value of the reserved goods.
- 6.4 If the goods are resold by the buyer, he/it shall hereby transfer to us upon the conclusion of the contract with us his/its claims arising from the aforesaid resale in the amount of the invoice value of the reserved goods.
- 6.5 If the reserved goods are used by the buyer to perform a works or works delivery contract, his/its claim from the aforesaid works or works delivery contract shall hereby be assigned to us in the same amount and on the same date as for the purchase price claim (Section 6.4).
- 6.6 As long as he/it is honouring his/its payment obligations, the buyer shall, however, be authorised to collect his/its resale claim which has been assigned to us. He/it may not dispose of such claims by way of assignment to third parties, however. The empowerment of the buyer to collect the claim may be revoked by us at any time. We shall be entitled to notify third party debtors of the assignment. The buyer shall be entitled to provide us with the necessary information and documents in order to enable us to enforce our rights.
- 6.7 If the value of our securities exceeds our total claims by more than 10 %, we shall be obliged to release securities of our choice at the request of the buyer.
- 6.8 The buyer shall inform us immediately of any pledge or other impediment to our property enforced by third parties.
- 6.9 The buyer shall be obliged to collaborate in measures required to protect our title. He/it shall, in particular, empower us upon the conclusion of the contract to make entries or prior notice of the reservation of title at his/its cost in public registers, books and documents, etc., in accordance with the relevant national laws and shall perform all formalities in this respect.
- 6.10 The buyer shall maintain the reserved goods at his/its cost for the duration of the reservation of title and shall insure the said goods against theft, breakage, fire, water and other risks in our favour. He/it shall also take all steps to ensure that our property claims are neither adversely affected nor rescinded.

7. Delivery periods

- 7.1 Delivery periods and deadlines stated by us shall be approximate unless we have given an express written confirmation of a deadline as binding.
- 7.2 Delivery periods shall be deemed to have been met if notification of readiness to deliver has been sent to the buyer before the end of the delivery period.
- 7.3 The delivery period shall be prolonged if details required for the performance of the contract are not received on time or if they are subsequently changed by the buyer.
- 7.4 The delivery period shall also be reasonably prolonged if impediments arise which we cannot avert despite exercise of the necessary care (e.g. major operational disruptions, industrial disputes, delayed or defective deliveries, force majeure, etc.).
- 7.5 If an agreed delivery date is met by more than 14 days, the buyer shall be obliged to set us a reasonable period of grace. The buyer may only withdraw from the contract if our goods have not been delivered by the end of the said period of grace. Compensation claims for non-performance, delayed performance or any consequential losses shall be excluded unless there was gross negligence on our part.

8. Transfer of risk

- 8.1 Unless expressly agreed otherwise in writing, our "ex works" deliveries shall be made in accordance with the international rules on the interpretation of commercial clauses of the International Chamber of Commerce (Incoterms) in the version in force on the date of the order confirmation.
- 8.2 The transfer of risk shall be determined by the aforesaid Incoterms.
- 8.3 Insurance against damages of any kind shall be the responsibility of the buyer.

- 8.4 Complaints in connection with the transport shall be immediately notified by the buyer to the last carrier upon receipt of the delivery.
- 8.5 If despatch is delayed at the request of the buyer or for any other reasons not attributable to us, the risk shall pass to the buyer on the original date envisaged for the "ex works" delivery. We shall be entitled to demand payment from this date onwards.
- 9. Delivery inspection**
- 9.1 The buyer shall be required to inspect deliveries immediately. If the goods do not comply with the order or the delivery note or if visible defects are identified, he/it shall be obliged to notify the aforesaid to us in writing within eight days of receipt. Later complaints shall not be recognised. (Regarding transport damages, cf. Section 8.4)
- 10. Assembly and operations**
- 10.1 The assembly, putting into operation, operation and maintenance of the delivered goods shall be carried out in accordance with our guidelines. They may be executed by our staff or by appropriately trained third parties as agreed with the buyer.
- 10.2 If we require a commissioning certificate for certain product groups, warranty claims for the proper functioning of the equipment can only be enforced if a proper hand-over has been documented by a confirmed commissioning certificate received by us within one month of the hand-over.
- 11. Warranty**
- 11.1 Warranty period
- 11.1.1 The general warranty period shall be 12 months from the first commissioning but no longer than 18 months from the date on which the relevant goods left our works.
If despatch is delayed for reasons not attributable to us, the warranty shall lapse no later than 18 months after notification of the readiness to deliver.
The general warranty period shall exclude electrical components for which the warranty period shall be 6 months from the first commissioning but no later than 12 months from the date of shipment from our works.
- 11.1.2 We refer to Section 11.6.1 with regard to the warranty period for third party products.
- 11.1.3 The warranty period for components which we have repaired during the warranty period or have delivered as replacement shall be 12 months from the completion of our repair or from the date of the replacement delivery but no longer than the end of a period equivalent to twice the original warranty period as per Section 11.1.1.
- 11.2 Liability for material, design and workmanship defects
- 11.2.1 The contractual condition of the goods shall be based on the condition upon the transfer of risk.
- 11.2.2 Defects shall be notified to us immediately in writing.
- 11.2.3 We shall be liable for all components which can be shown to have become defective or unusable before the end of the warranty period as a result of defective materials, defective design or defective workmanship, with such components being repaired or replaced ex works immediately at our choice.
- 11.3 Liability for warranted qualities
- 11.3.1 Warranted qualities shall only be those which are specifically designated as such in the order confirmation or in the relevant specifications.
- 11.3.2 The aforesaid assurance shall apply at the latest until the end of the warranty period. If a taking-over test has been agreed with the buyer, the assurance shall be deemed as performed if proof of the relevant qualities is furnished during the aforesaid test.
- 11.3.3 If the warranted qualities are not performed or only partially performed, the buyer shall be entitled to an immediate rectification. The buyer shall grant us the necessary time and opportunity for this purpose.
- 11.3.4 If the rectification is abortive or only partially successful, the buyer shall be entitled to a reasonable reduction of the purchase price. If the defect is so serious that it cannot be rectified within a reasonable period of time, and if deliveries or services for the notified purpose are not usable or are only usable to a much lesser extent, the buyer shall be entitled to refuse acceptance of the defective component or to withdraw from the contract if part-acceptance is economically unreasonable. We shall only be obliged to refund amounts which have been paid to us for the components affected by the aforesaid withdrawal.
- 11.4 Exclusion of liability for defects
- 11.4.1 Our liability shall exclude damages which cannot be proved to have been sustained as a result of defective material, defective design or defective workmanship.
- 11.4.2 Damages shall therefore be excluded for example which were caused by
- improper work of other persons with regard to planning, site preparation, assembly, operation and maintenance;
 - plant concepts and designs which do not comply with the latest state of the art;
 - non-observance of our guidelines for planning, assembly, commissioning, operations and maintenance;
 - force majeure (e.g. thunderstorms).
- 11.4.3 The following shall be excluded in particular
- corrosion damages (e.g. as a result of aggressive water, unsuitable water treatment, oxygen intakes, emptying the plant over a longer period of time, falling below the dew point, chemical or electrochemical effects, etc.);
 - damages caused by air pollution (e.g. the accumulation of intense dust, aggressive vapours, etc.);
 - damages caused by unsuitable equipment and fuels;
 - damages caused by overcharging, excessive water pressure, scaling, improper electrical connections and inadequate fuse protection.
- 11.4.4 Components shall also be excluded from the warranty which are subject to natural wear and tear (e.g. burner nozzles, combustion chamber inserts, ignition and monitoring components in contact with fire, fireclay and wall facings, fuses, seals and flexible tubes).
- 11.5 Commissioning certificate
- 11.5.1 We hereby draw attention to the due and proper hand-over and – if envisaged – the commissioning certificate in accordance with Section 10.2 as prerequisites for our warranty.
- 11.6 Deliveries and services of sub-contractors
- 11.6.1 Our liability for third party products which form a major part of the delivered goods (e.g. warehouse and conveying equipment, burners, measuring and control equipment, electrical components, flue gas and waste water cleaning equipment) shall – if permissible – be limited to an assignment of our claims against the suppliers of the said third party products.
- 12. Exclusion of further liability**
- 12.1 The buyer shall have no rights and claims for materials, design and workmanship defects or the lack of warranted qualities unless specifically mentioned in Sections 11.1 to 11.6.
- 12.2 All claims for compensation, reduction in the contract price, rescission of the contract or withdrawal from the contract shall be excluded in particular unless these are specifically mentioned. Under no circumstances shall the buyer have any compensation claim for damages which were not sustained by the delivered goods themselves (e.g. replacement costs, cost for establishing the cause of the damage, expertises, production stoppages, production losses, lost orders, lost profit and other direct or indirect damages). The aforesaid liability exclusion shall not apply in the event of gross negligence on our part.
- 12.3 The exclusion as per Section 12.2 shall apply for all breaches of contract and all claims of the buyer regardless of why they were lodged from a legal point of view. It shall therefore also apply for a breach of any ancillary obligations (e.g. inadequate advice, etc.).
- 13. Jurisdiction**
- 13.1 The place of jurisdiction for the buyer and for us shall be Vaduz. We shall be entitled to bring action against the buyer at his/its domicile, however.
- 13.2 The legal relationship between the parties shall be governed by the substantive laws of Switzerland. The application of the UN convention on contracts for the international sale of goods (CISG) shall be excluded.

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