

**Wall-hanging gas
condensing boilers**

Hoval TopGas® comfort
10-22 kW

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


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

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


Hoval TopGas® classic
12-30 kW

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


Hoval TopGas® classic
35-80 kW

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


Hoval TopGas® classic
100, 120 kW

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

**Floor-standing gas
condensing boilers****Hoval UltraGas®**

- Description
- Part numbers
- Technical data
- Dimensions
- Engineering

15-100 kW111
112
125
128
131**Hoval UltraGas® 2**

- Description
- Part numbers
- Technical data
- Dimensions
- Engineering

125-1550 kW133
134
144
150
155**Hoval UltraGas® 2 D**

- Description
- Part numbers
- Technical data
- Dimensions
- Engineering

250-3100 kW159
161
171
177
181

Hoval TopGas® comfort (10-22)

Wall-hanging gas condensing boiler

- With condensing boiler technology
- For the combustion of:
 - natural gas E
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Heat exchanger made of corrosion resistant aluminium alloy with integrated forced flow copper coil; heating gas side: aluminium water side: copper
- Minimal water circulation necessary (see technical data)
- Integrated:
 - Pre-mixing burner with Venturi and surface burner
 - Automatic ignition and ionisation monitoring
 - Speed-controlled high-efficiency pump
 - Automatic quick aspirator
 - Safety valve 3 bar
 - Pressure gauge
 - One primary flow socket and one return flow socket for heating circuit and hot water production
 - Flue gas duct with corrosion free plastic device for draining condensation water
 - Condensate collecting tray for draining condensation water including siphon
 - Water pressure monitor for lack of water protection
 - Flue gas temperature limiter
 - Reverse switch, overflow valve, filling and draining cock, connection for diaphragm pressure expansion tank
- Factory setting for natural gas "H"
- Boiler fully cased with varnished white steel plates

Basic boiler control panel G04

- Control unit for gas burner BIC 335 for ignition and monitoring of the burner
- Modulating burner control
- Main switch "I/O"
- Operation- and fault indication
- Regulation of hot water production by means of sensor or by thermostatic demand
- For connecting a maximum of 1 room control device or 1 remote control with room sensor
- Control (device) for an external gas valve

Incl. control, optionally in two different versions:

- RS-OT controller
- TopTronic® E controller

Optional

- Propane

Delivery

- Wall-hanging gas condensing boiler fully cased

RS-OT controller

- For 1 heating circuit without mixing operation
- Controlled by atmospheric conditions for gliding boiler water temperature
- With integrated overpluggable room temperature sensor
- Located in the boiler room, living room, or can optimally be installed in the boiler control panel.
- Outdoor sensor
- Immersion sensor (calorifier sensor)



Model range

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

Energy efficiency class of the compound system with control.

Delivery

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

TopTronic® E controller

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

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

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

Options for TopTronic® E controller

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

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

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

Further information about the TopTronic® E
see "Controls"

Delivery

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

Mounted below/free standing calorifier TopVal (130,160)

- Water heater with smooth pipe heat exchanger made of enamelled steel, fixed build in
- Floor-mounted calorifier for TopGas® comfort (10-22)
- Magnesium protection anode
- Thermal insulation using HCFC free PU foam, with foil mantle, white

Delivery

- Calorifier and thermal insulation completely installed

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

Calorifier CombiVal ERW (200), white

- Calorifier made of steel, enamelled inside
- Smooth pipe heat exchanger enamelled, built in
- Free-standing calorifier for TopGas® comfort (10-22)
- Magnesium protection anode integrated
- Flange for electric heating element
- Thermal insulation made of Polyurethane foamed on the calorifier, dismantable foil casing, white, completely mounted
- Pocket welded in including thermometer

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

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

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

Part No.

7014 080
7014 081
7014 082

Boiler permissions

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

Energy efficiency class of the compound system with control



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

Design as above but with TopTronic® E controller.

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

7014 084
7014 085
7014 086

Energy efficiency class of the compound system with control

No additional module expansions or controller modules can be installed!

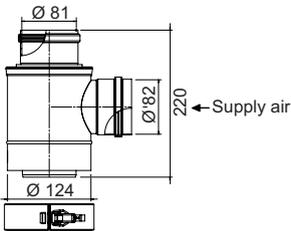
Accessories



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

Part No.

6047 633



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

2010 174



Visible console
for TopGas® comfort
for preinstallation of connections for
gas R 1/2"
heating flow and return connections G 3/4"
flat sealing

6015 444



Ball valve set - flow and return
Consisting of:
2 ball valves for flow and return
2 seals
Connection 3/4"

6017 173



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



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

2062 165

Additional sludge separators
see "Various system components"

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

Free-standing calorifiers



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

6037 757



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

6037 758



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

2025 578



B **Calorifier with thermal insulation
 Hoval CombiVal ERW (200) white**
 made from steel, enamelled on the inside
 With built-in enamelled
 plain-tube heat exchanger
 Magnesium protection anode built in

7015 961

Thermal insulation made of polyurethane
 rigid foam, foam-lined at the
 calorifier, removable foil jacket,
 colour white

Technical data:
 Volume: 196 dm³
 Energy efficiency class: B
 Inspection port flange Ø 180/120 mm
 Heating surface coil: 0.95 m²
 Operating temperature: max. 95 °C
 Operating pressure:

max. 10 bar (SVGW 6 bar)

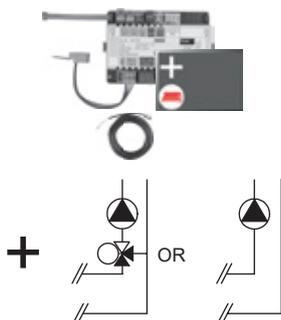
Test pressure: 13 bar (SVGW 12 bar)
 Dimensions (H): 1464 mm, Ø 600 mm
 Tilting dimension: 1583 mm
 Weight: 77 kg

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

SVGW No. 0503–4950

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

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



Notice

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

TopTronic® E module expansion heating circuit TTE-FE HK

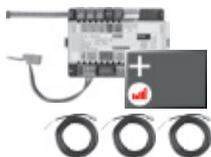
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

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

Consisting of:

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

6034 576



Notice

The flow rate sensor set must be ordered as well.

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

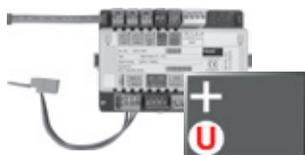
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

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

Consisting of:

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

6037 062



Notice

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

TopTronic® E module expansion Universal TTE-FE UNI

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

Consisting of:

- Fitting accessories
- Plug set FE module

6034 575

Further information

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



Flow rate sensor sets

Plastic housing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Flow rate sensor sets

Brass housing

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

6042 949
6042 950

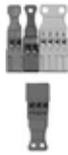
Accessories for TopTronic® E

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 |
|--|-------------------|----------|



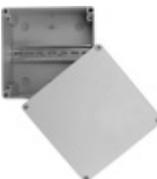
TopTronic® E sensors

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



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information
see "Controls"



Flow temperature guard

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

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

Part No.

242 902



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

no control unit TopTronic® E or RS-OT necessary

power supply via OT bus
 Temp. control external with 0-10 V
 0-1.0 V no request
 1.0-9.5 V0-100 °C

Cannot be installed in boiler control panel:

- TopGas® classic (12-30)

Can be installed in boiler control panel:

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

6016 725

Hoval TopGas® comfort (10-22)
without controller on request

Service



Commissioning

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

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

TopGas® comfort (10-22)

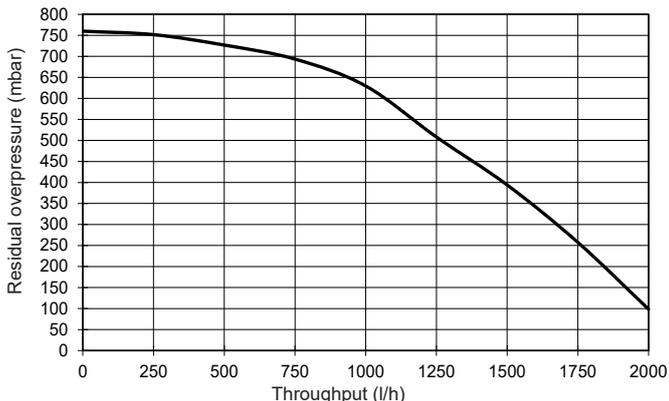
| Type | | (10) | (16) | (22) |
|--|--------------------|-------------------------------------|-------------------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 2.7-9.1 | 2.6-14.6 | 4.1-20.1 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 3.1-10.0 | 2.9-16.0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

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

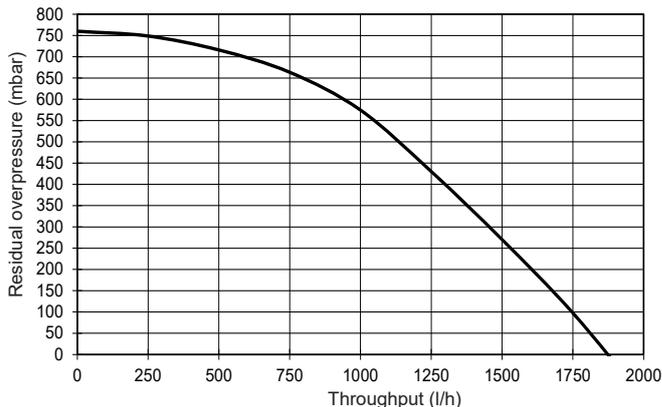
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Residual overpressures of heating pump

TopGas® comfort (10)

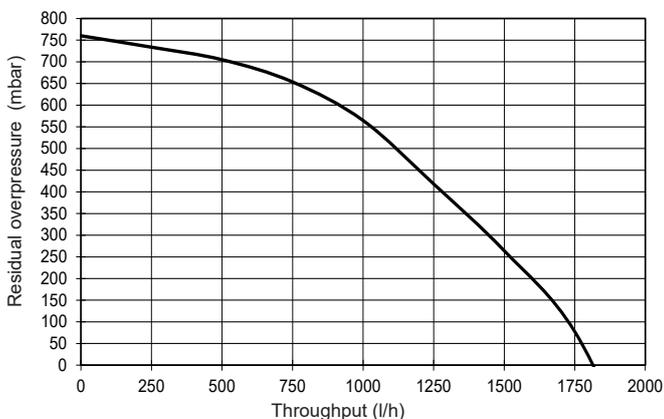


TopGas® comfort (16)



Residual overpressures of heating pump

TopGas® comfort (22)



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

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

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

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

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

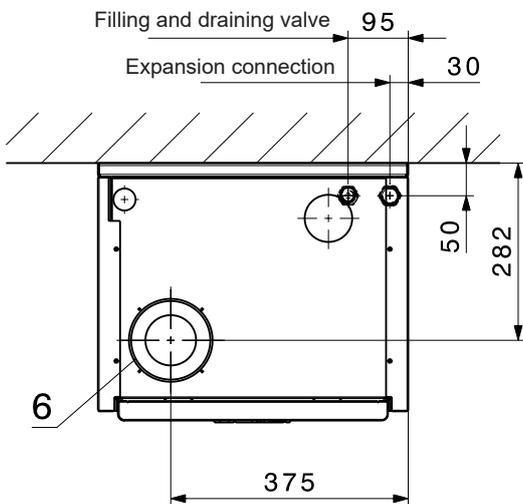
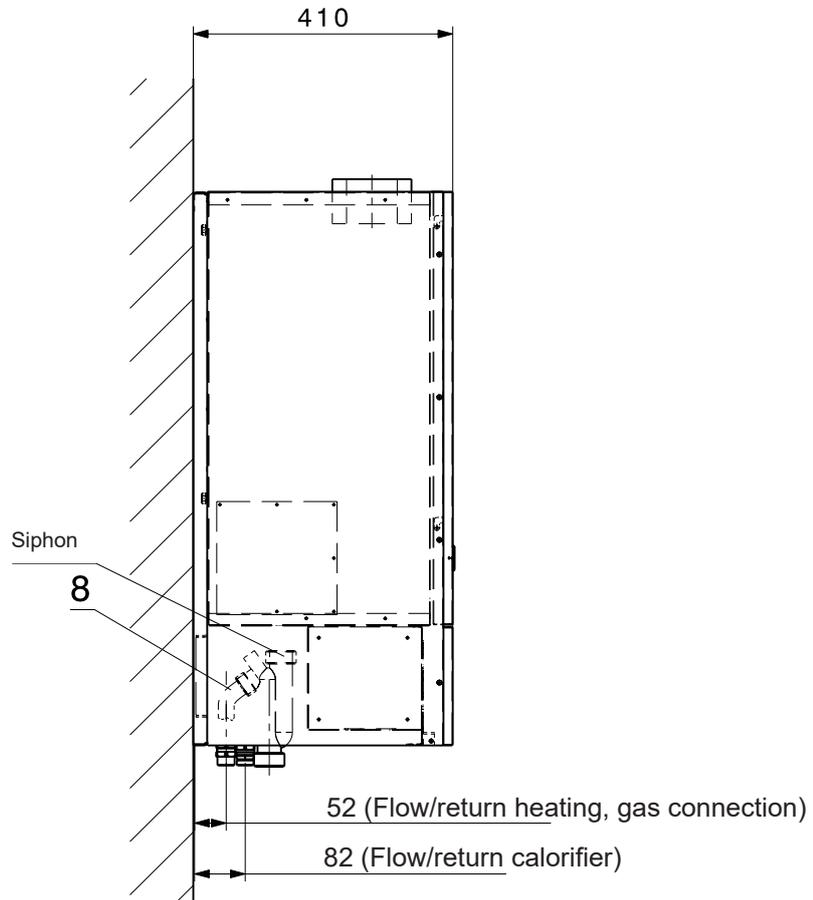
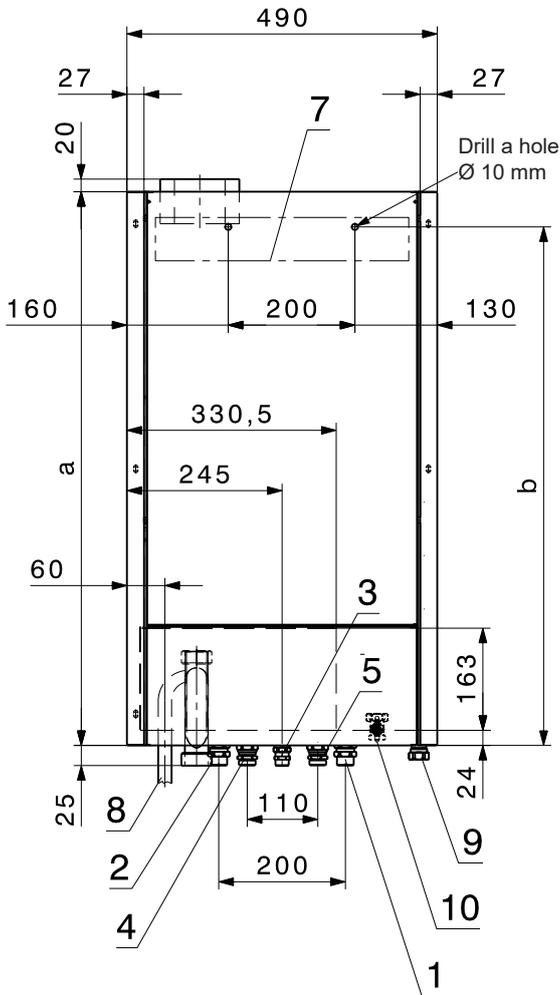
¹ Peak hot water output in 10 min.
² Continuous hot water output per hour.
³ Normal flats (3-4 rooms with 4 people, 1 bath holding around 150 litres, 1 wash basin, 1 sink)

TopGas® comfort (10-22)

Minimal spaces

(Dimensions in mm)

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



| TopGas® comfort type | a | b |
|----------------------|-----|-----|
| (10) | 820 | 764 |
| (16) | 880 | 824 |
| (22) | 940 | 884 |

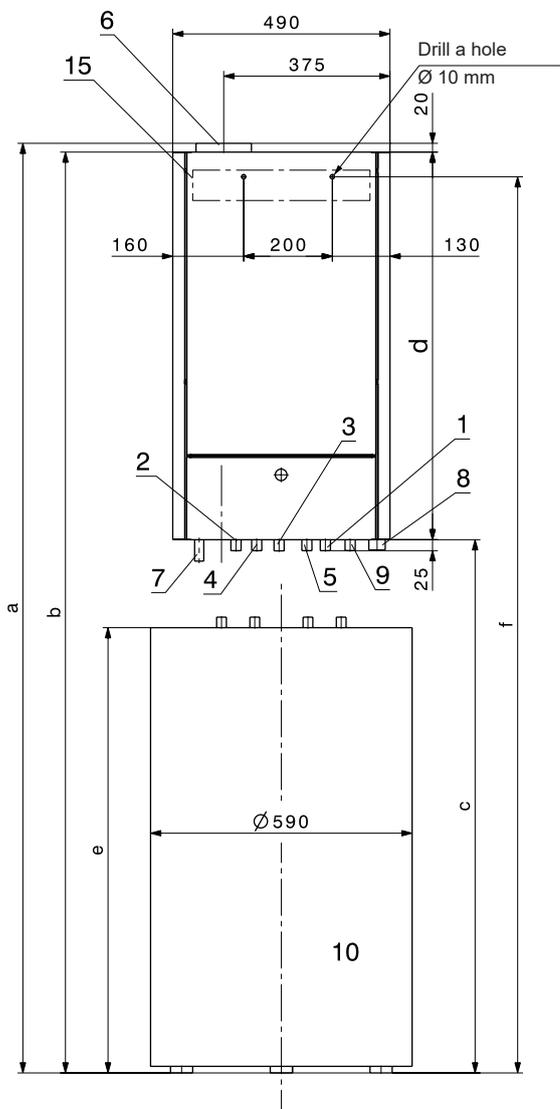
- 1 Return heating Ø 22 mm with locking ring including double nipple G 3/4"
- 2 Flow heating Ø 22 mm with locking ring including double nipple G 3/4"
- 3 Gas connection Ø 15 mm with locking ring including double nipple G 1/2"
- 4 Flow calorifier Ø 18 mm with locking ring including double nipple G 3/4"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

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

CombiVal ERW (200)
see Calorifiers

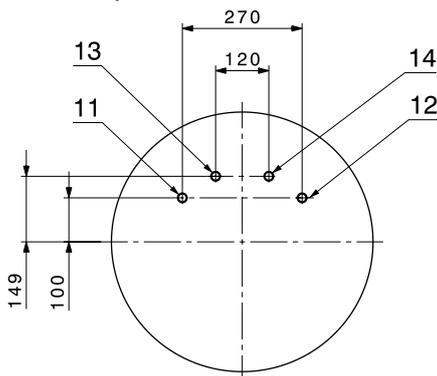
Minimal spaces
(Dimensions in mm)

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



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

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



TopGas® comfort/TopVal

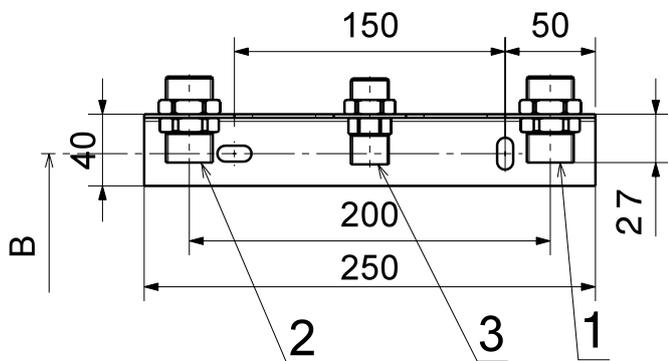
| type | type | a | b | c | d | e | f |
|------|-------|------|------|------|-----|------|------|
| (10) | (130) | 1885 | 1865 | 1045 | 820 | 845 | 1810 |
| | (160) | 2082 | 2032 | 1212 | 820 | 1012 | 1977 |
| (16) | (130) | 1945 | 1925 | 1045 | 880 | 845 | 1870 |
| | (160) | 2112 | 2092 | 1212 | 880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

Measures for drill holes and visible console for preinstallation

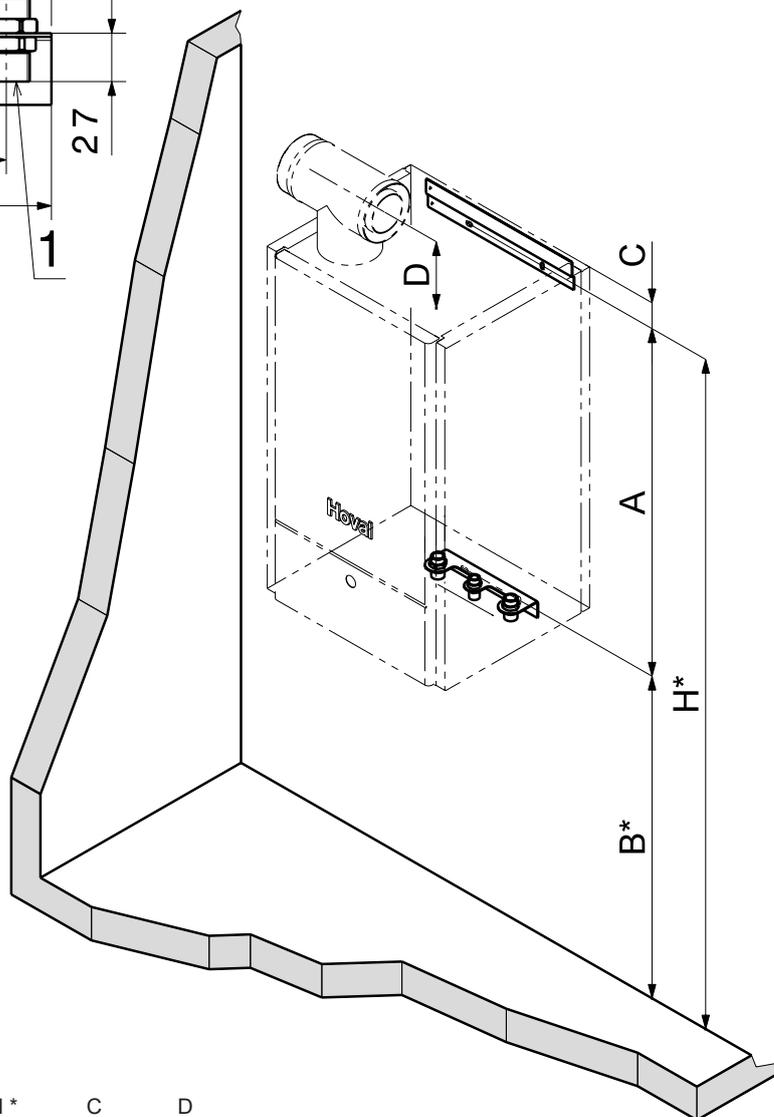
(Dimensions in mm)

for

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



- 1 Return G 3/4"
- 2 Flow G 3/4"
- 3 Gas connection G 1/2"



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

* Measures for drill hole

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.

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

Additional notices

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

Heating room

Gas boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work rooms, hairdressers and so on). Halogen compounds can be caused by cleaning and degreasing solutions, dissolvents, glue and bleaching lyes.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. An air pipe D = 80 for direct combustion air supply (air-exhaust system) can be directly connected to the boiler.

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

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

Gas connection

Commissioning

- Start-up is to be carried out only by a specialist of Hoval.
- Burner setting values according to the installation instructions.

Manual gas shut-off valve and gas filter

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

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.
- A gas pressure controller to reduce the boiler inlet pressure must be installed on site for propane.

Gas pressure

Necessary gas flow pressure at the boiler inlet: natural gas min. 17.4 mbar, max. 50 mbar. Propane min. 37 mbar, max. 50 mbar.

Sludge separator

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

Minimum heating water circulation quantity

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

Heating boiler in the attic

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

Condensate drainage

- The allowance to lead the flue gas condensate into the canalisation must be obtained from the responsible authority.
- The condensate from the flue gas system can be discharged through the boiler. A condensate trap is not needed anymore with the flue gas system.
- The condensate must be openly lead into the canalisation (tunnel).
- Suitable materials for condensate drain:
 - stoneware pipes
 - pipes made from glass
 - pipes made from stainless steel
 - pipes made from plastic: PVC, PE, PP, ABS and UP

Diaphragm pressure expansion tank

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

Flue gas system

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

Flue gas line dimensioning

see Rubrik «Flue gas line systems»

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

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

Wall-hanging gas condensing boiler

- With condensing boiler technology
- For the combustion of:
 - natural gas E
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Heat exchanger made of corrosion resistant aluminium alloy with integrated forced flow copper coil:
 - flue gas side: aluminium
 - water side: copper
- Hot water is produced with the aid of a second copper coil integrated in the boiler.
- Integrated:
 - high-efficiency pump
 - water pressure sensor
 - hand aspirator
 - flue gas temperature limiter
- Pre-mixing surface burner made of stainless steel
 - Modulating with gas/air group control
 - Automatic ignition
 - Ionisation guard
- Wall-hanging gas condensing boiler fully cased with white varnished steel plates

Basic boiler control panel G04

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

Optional

- Gas valves

Delivery

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

Heating controller set RS-OT

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

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



Model range

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

Energy efficiency class of the compound system with control.

Wall-hanging gas condensing boiler



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

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

Boiler permissions

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

| 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 |

Part No.

7014 106
7014 107
7014 108

Energy efficiency class of the compound system with control



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

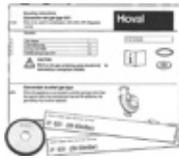
| TopGas® combi type | Nominal heat output at 50/30 °C kW | Hot water output at 45 °C dm³/10 min |
|--------------------|------------------------------------|--------------------------------------|
| (21/18) | 5.9-18.6 | 60 |
| (26/23) | 7.6-23.4 | 80 |
| (32/28) | 7.8-27.1 | 124 |

7013 539
7013 540
7013 541

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

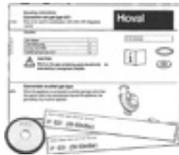
Accessories

Part No.



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

2057 298



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

2057 299



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

2007 995



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

2029 057



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

2063 018



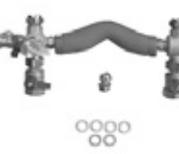
Automatic air vent 3/8" external thread
Air valve with automatic
shut-off valve
Casing and cover made of brass
EN 12165 CW617N and EPDM seals
Vertical venting
Operating temperature: max. 110 °C
Operating pressure: max. 10 bar
Glycol content: max. 30 %

2054 183



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

2025 779



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

2001 257

Accessories



Extension set sanitary tube

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

6016 874



**Mounting frame MR50 without diaphragm
pressure expansion tank**

For increasing the space to wall
in order to simplify installation
(e.g. flue gas duct directly on wall).
Not essential except for connection set above.

TopGas® combi (21/18)

TopGas® combi (26/23)

TopGas® combi (32/28)

2029 696

2029 701

2029 702



**Mounting frame MR110 with diaphragm
pressure expansion tank and corrugated
hose**

for connection to connection set 3
Diaphragm pressure expansion tank with 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)

TopGas® combi (26/23)

TopGas® combi (32/28)

6016 863

6016 864

6016 865



Screen

for TopGas® classic (12-30),
TopGas® combi (21/18,26/23,32/28)

to cover the connection range gas

Heating supply and return

in combination with connection set 3

Combination with/without mounting

frame MR50/MR110 possible

2029 787

Flow temperature guard

for underfloor heating (1 controller per heat-
ing circuit) 15-95 °C, SD 6 K, capillary max.
700 mm. Setting (visible from the outside)
inside the housing cover.



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

242 902



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

2012 075



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

2012 076

Accessories



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

2001 824



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

2006 330



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

2062 165

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

Additional sludge separators
 see "Various system components"

Service



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

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

TopGas® combi (21/18, 26/23, 32/28)

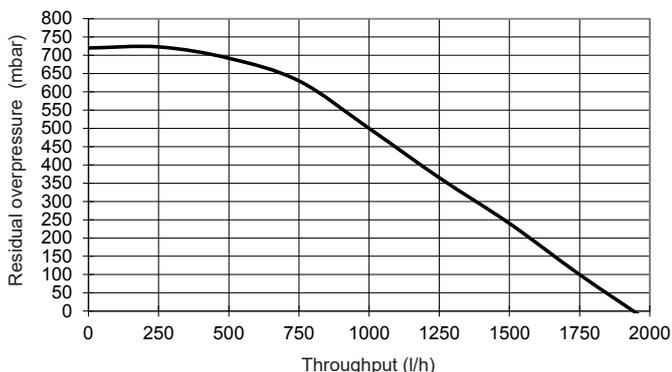
| Type | | (21/18) | (26/23) | (32/28) |
|--|--------------------|--|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas | kW | 5.4-17.8 | 6.9-22.8 | 7.1-26.3 |
| • Nominal heat output at 50/30 °C, natural gas | kW | 5.9-18.6 | 7.6-23.4 | 7.8-27.1 |
| • Nominal heat output at 80/60 °C, propane ¹⁾ | kW | 5.7-17.8 | 7.3-22.8 | 7.3-26.3 |
| • Nominal heat output at 50/30 °C, propane ¹⁾ | kW | 6.3-18.6 | 8.0-23.4 | 8.0-27.4 |
| • Nominal heat input with natural gas ²⁾ | kW | 5.6-18.7 | 7.1-23.7 | 7.2-27.3 |
| • Nominal heat input domestic water heating, natural gas ²⁾ | kW | 5.6-22.1 | 7.1-28.0 | 7.5-32.7 |
| • Nominal heat input with propane ¹⁾ | kW | 5.9-18.7 | 7.5-23.7 | 7.5-27.3 |
| • Operating pressure heating min./max. (PMS) | bar | 1/3 | 1/3 | 1/3 |
| • Operating temperature max. (T _{max}) | °C | 85 | 85 | 85 |
| • Boiler water content (V _(H2O)) | l | 1.4 | 1.7 | 2.0 |
| • Flow resistance boiler | | see diagram | | |
| • Minimum circulation water quantity | l/h | 180 | 180 | 180 |
| • Boiler weight (without water content, incl. cladding) | kg | 30 | 33 | 36 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) | % | 95.4/85.9 | 96.2/86.7 | 96.5/86.9 |
| • Boiler efficiency at 30 % partial load operation (EN 15502) (NCV/GCV) | % | 107.1/96.5 | 107.9/97.2 | 108.5/97.7 |
| • Room heating energy efficiency | | | | |
| - without control | 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 |
| • CO ₂ content in flue gas at min./max. nominal heat output | % | 8.8/9.0 | 8.8/9.0 | 8.8/9.0 |
| • Heat loss in standby mode | Watt | 38 | 38 | 38 |
| • Dimensions | | see table of dimensions | | |
| • Gas flow pressure min./max. | | | | |
| - Natural gas E/LL | mbar | 18-50 | 18-50 | 18-50 |
| - Propane | mbar | 25-50 | 25-50 | 25-50 |
| • Gas connection values at 15 °C/1013 mbar: | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.97 kWh/m ³ | m ³ /h | 0.56-1.88 | 0.71-2.38 | 0.72-2.74 |
| - Natural gas LL (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³ | m ³ /h | 0.56-1.88 | 0.71-2.38 | 0.72-2.74 |
| - Propane ¹⁾ (NCV = 25.9 kWh/m ³) | m ³ /h | 0.23-0.72 | 0.29-0.92 | 0.29-1.05 |
| • Operating voltage | V/Hz | 230/50 | 230/50 | 230/50 |
| • Electrical power consumption (incl. pump) min./max. | Watt | 15/35 | 15/35 | 15/35 |
| • Standby | Watt | 2 | 2 | 2 |
| • Type of protection | IP | 44 | 44 | 44 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | |
| - Heating noise (EN 15036 Part 1) (room air dependent) | dB(A) | 45 | 45 | 45 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 1.8 | 2.2 | 2.6 |
| • pH value of the condensate | approx. | 4.2 | 4.2 | 4.2 |
| • Construction type | | B23, B33, C13(x), C33(x), C43(x), C53(x), C63(x), C83(x), C93(x) | | |
| • Flue gas system | | | | |
| - Temperature class | | T 120 | T 120 | T 120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 31.0 | 39.3 | 45.3 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 8.4 | 10.6 | 10.8 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 85 | 85 | 85 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 64 | 64 | 64 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 32 | 32 | 32 |
| - Maximum permitted temperature of the combustion air | °C | 50 | 50 | 50 |
| - Flow rate combustion air | Nm ³ /h | 33.3 | 42.2 | 49.2 |
| - Maximum supply pressure for supply air and flue gas line | Pa | 75 | 75 | 75 |
| - Maximum draught/depression at flue gas outlet | Pa | -50 | -50 | -50 |

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

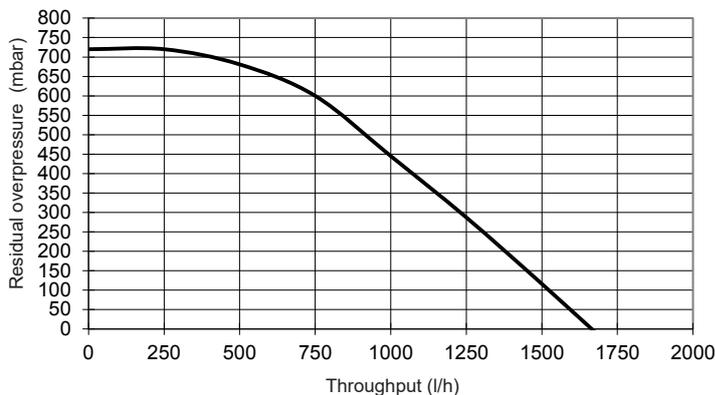
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Maximum residual overpressure heating pump

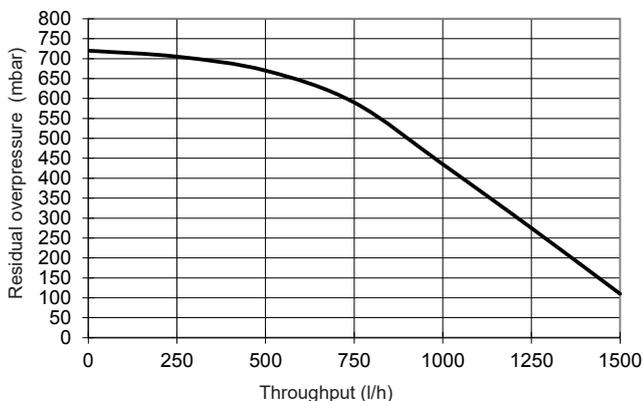
TopGas® combi (21/18)



TopGas® combi (26/23)



TopGas® combi (32/28)



Hot water output with TopGas® combi

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

¹⁾ Hot water peak performance in 10 min.

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

²⁾ Hot water output per hour.

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

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

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

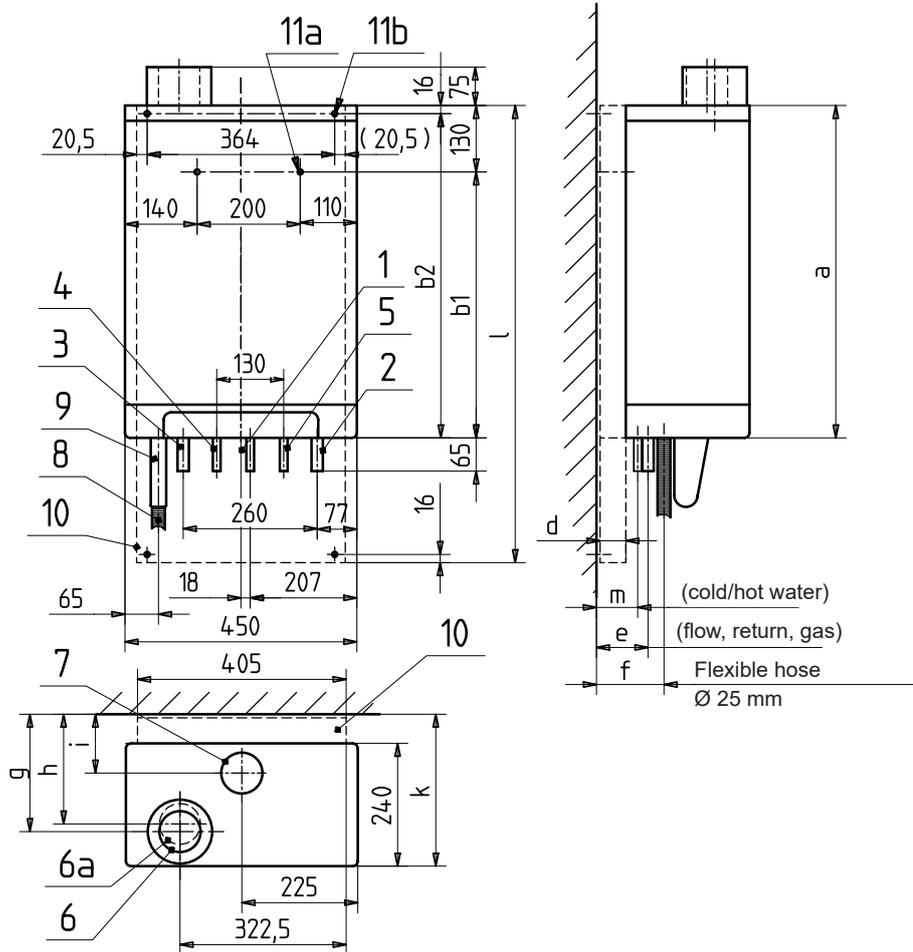
Notice

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

TopGas® combi (21/18, 26/23, 32/28)

Minimum spaces
(Dimensions in mm)

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



- 1 Gas connection Ø 15 mm for clamp ring screwing Rp ½"
- 2 Return heating Ø 22 mm for clamp ring screwing Rp ¾"
- 3 Flow heating Ø 22 mm for clamp ring screwing Rp ¾"
- 4 Hot water Ø 15 mm for clamp ring screwing Rp ½"
- 5 Cold water Ø 15 mm for clamp ring Rp ½"
- 6 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 6a Single combustion air connection E80 (optional)
- 7 External supply air Ø 80 mm
- 8 Condensate connection Ø 32 mm (hose Ø 25/21 mm)
- 9 Siphon
- 10 Mounting frame, width 50 mm or 110 mm with diaphragm pressure expansion tank optional, see Accessories
- 11a Drill hole Ø 10 mm without mounting frame
- 11b Drill hole Ø 10 mm with mounting frame

TopGas® combi
type

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

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

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

Additional notices

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

Domestic water quality

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

Heating room

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

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

Combustion air supply

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

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

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

Gas connection

Commissioning

- Start-up is to be carried out only by a specialist.
- Burner setting values according to the installation instructions.

Manual gas shut-off valve and gas filter

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

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.
- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.

Gas pressure

Necessary gas flow pressure at the boiler inlet: natural gas min. 18 mbar, max. 50 mbar. Propane min. 25 mbar, max. 50 mbar.

Sludge separator

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

Minimum heating water circulation quantity

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

Boiler on the top storey of the building

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

Condensate drainage

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

Diaphragm pressure expansion tank

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

Flue gas system

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

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

Hoval TopGas® classic (12-30)

Wall-hanging gas condensing boiler

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

Basic boiler control panel G04

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

Incl. control, optionally in two different versions:

- RS-OT controller
- TopTronic® E controller

Optional

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

Delivery

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

RS-OT controller

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

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

Delivery

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



Model range

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

Energy efficiency class of the compound system with control

TopTronic® E controller

As supplement for basic boiler control panel G04.

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

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

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

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

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

Options for TopTronic® E controller

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

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

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

Further information about the TopTronic® E see "Controls"

Delivery

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

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

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

Delivery

- Calorifier and thermal insulation completely installed

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

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

On request

- Electric heating element

Delivery

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

Wall-mounted gas condensing boilers



Hoval TopGas® classic (12-30)

incl. RS-OT controller

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

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

Boiler permissions
Hoval TopGas® classic (12-30):
 CE product ID No. 0063BQ3155t

Energy efficiency class of the compound system with control

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

Part No.

- 7014 088
- 7014 099
- 7014 100
- 7014 101



Hoval TopGas® classic (12-30)

incl. TopTronic® E controller

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

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

Energy efficiency class of the compound system with control

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

- 7014 102
- 7014 103
- 7014 104
- 7014 105



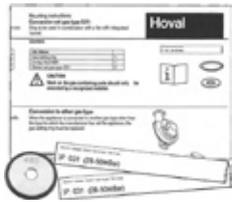
Hoval TopGas® classic (12-30)

Design as above but without controller.

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

- 7013 515
- 7013 516
- 7013 517
- 7013 518

Accessories



Modification set for propane

no external main gas valve possible!

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

Part No.



Gas filter 70612/6b Rp 3/4"

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

2007 995



Backflow check valve

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

2063 018



Simple flue gas connecting piece E80

for separate conduction of flue gas and combustion air

2029 057



Automatic air vent 3/8" external thread

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

2054 183

Accessories



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

2025 779



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

2001 257



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

2029 787



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

2029 696
2029 701
2029 702



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

6016 863
6016 864
6016 865



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

2025 577

Accessories



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

2012 075



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

2012 076



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

2001 824



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

2006 330



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

2062 165

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

Additional sludge separators
see "Various system components"



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

6016 891

Free-standing calorifier



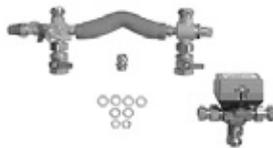
B **Calorifier TopVal (130) round**
 made of steel, inside enamel painted,
 with permanently installed coil 0.96 m²
 and magnesium sacrificial anode
 Useful volume: 128 l
 Operating/test pressure:
 10/13 bar (SVGW 6/13 bar)
 Operating temperature max.: 95 °C
 Foil jacket made of synthetic material,
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

6037 757



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

6037 758



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

2025 576

B Clamp ring screwing for gas connection

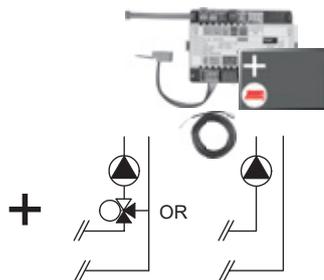


**Calorifier with thermal insulation
 Hoval CombiVal ERW (200) white**
 made from steel, enamelled on the inside
 With built-in enamelled
 plain-tube heat exchanger
 Magnesium protection anode built in
 Thermal insulation made of polyurethane
 rigid foam, foam-lined at the
 calorifier, removable foil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

7015 961

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

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



Notice

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

TopTronic® E module expansion heating circuit TTE-FE HK

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

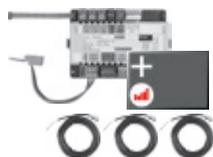
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

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

Part No.

6034 576



Notice

The flow rate sensor set must be ordered as well.

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

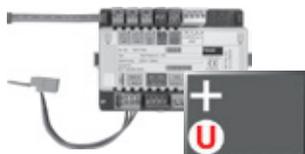
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

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

Consisting of:

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

6037 062



Notice

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

TopTronic® E module expansion Universal TTE-FE UNI

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

Consisting of:

- Fitting accessories
- Plug set FE module

6034 575

Further information

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



Flow rate sensor sets

Plastic housing

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

6038 526

6038 507

6038 508

6038 509

6038 510



Flow rate sensor sets

Brass housing

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

6042 949

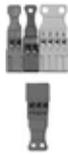
6042 950

Accessories for TopTronic® E



TopTronic® E controller modules

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



Supplementary plug set

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



TopTronic® E room control modules

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



Enhanced language package TopTronic® E

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



HovalConnect

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

TopTronic® E interface modules

| | | |
|--|-------------------|----------|
| | GLT module 0-10 V | 6034 578 |
|--|-------------------|----------|



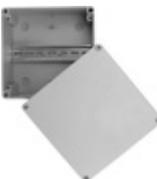
TopTronic® E sensors

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



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information
see "Controls"



Flow temperature guard

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

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

Part No.

242 902



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

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

Cannot be installed in boiler control
 panel:

- TopGas® classic (12-30)

Can be installed in boiler control
 panel:

- TopGas® classic (35-120),

- TopGas® comfort

6016 725

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

Service



Commissioning

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

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

TopGas® classic (12-30)

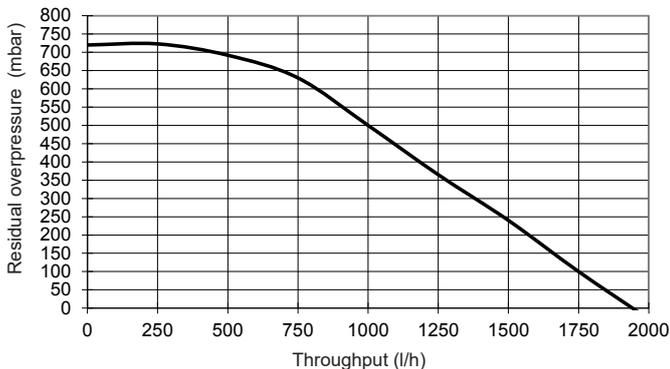
| Type | | (12) | (18) | (24) | (30) |
|---|--------------------|---|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas | kW | 3.4-11.5 | 5.3-17.2 | 7.0-22.9 | 8.7-28.5 |
| • Nominal heat output at 50/30 °C, natural gas | kW | 3.8-12.0 | 5.7-18.0 | 7.7-24.0 | 9.2-30.0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

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

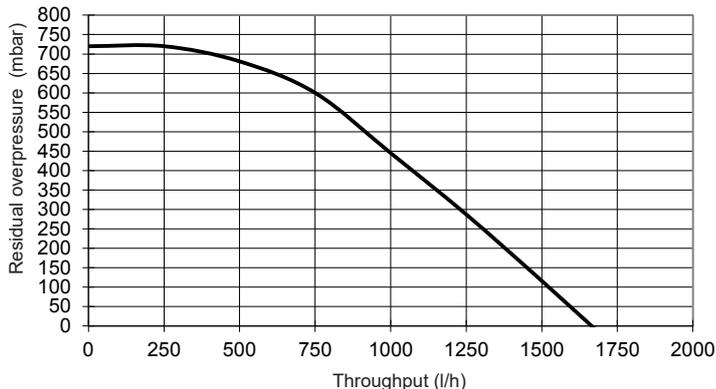
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Residual overpressures of heating pumps

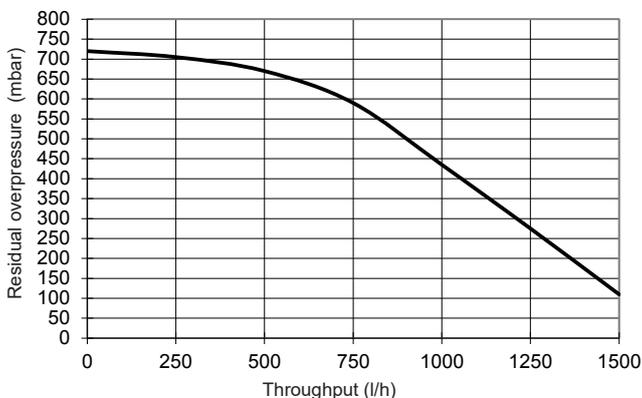
TopGas® classic (12)



TopGas® classic (18)

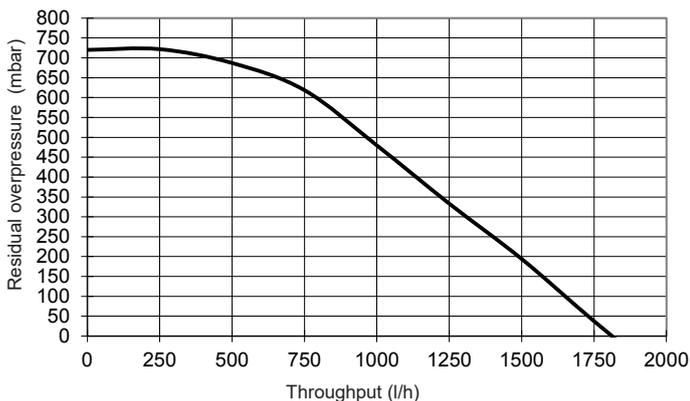


TopGas® classic (24,30)

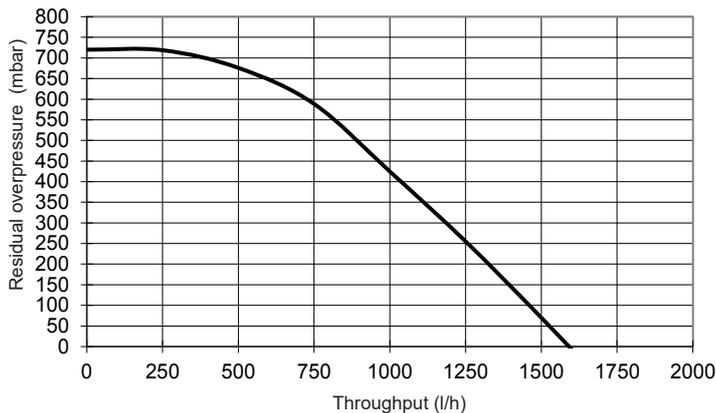


Residual overpressures of heating pumps TopGas® classic with connection set 4 or connection set 10 (reversing valve included in the set)

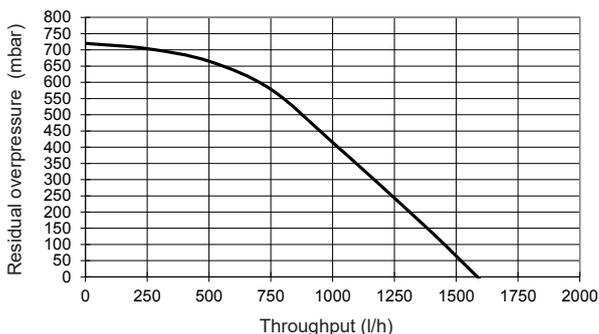
TopGas® classic (12)



TopGas® classic (18)



TopGas® classic (24, 30)



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

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

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

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

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

¹⁾ Hot water peak performance in 10 min

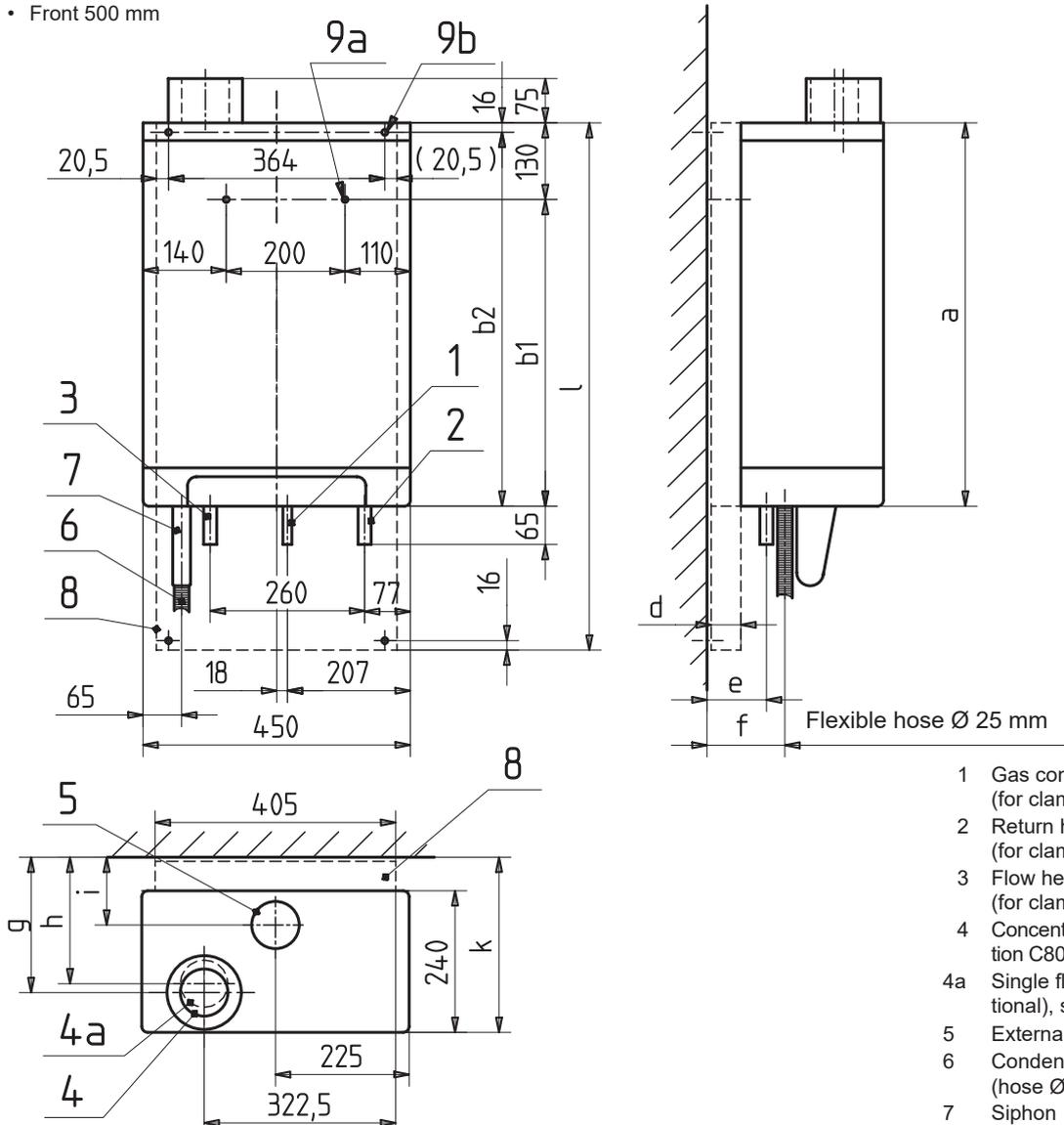
²⁾ Hot water output per hour

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

TopGas® classic (12-30)

Minimal spaces
(Dimensions in mm)

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



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

TopGas® classic type

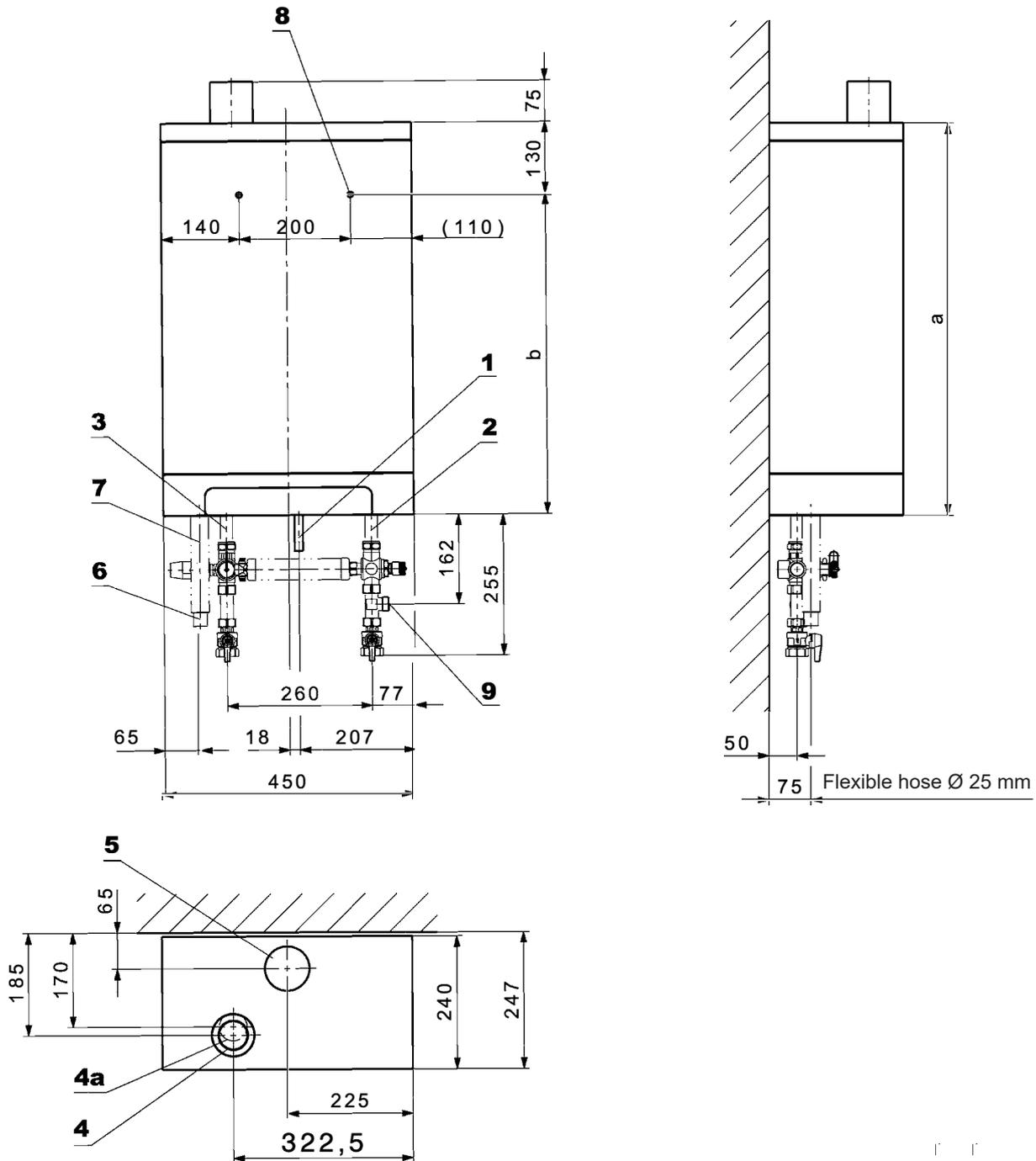
| TopGas® classic type | a | b1 | b2 | d | e | f | g | h | i | k | l |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| (12) | 590 | 460 | | 0 | 50 | 75 | 185 | 170 | 65 | 247 | – |
| (12) with mounting frame (MR50) | 590 | | 574 | 50 | 100 | 125 | 235 | 220 | 115 | 297 | 834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

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

Minimal spaces

(Dimensions in mm)

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



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

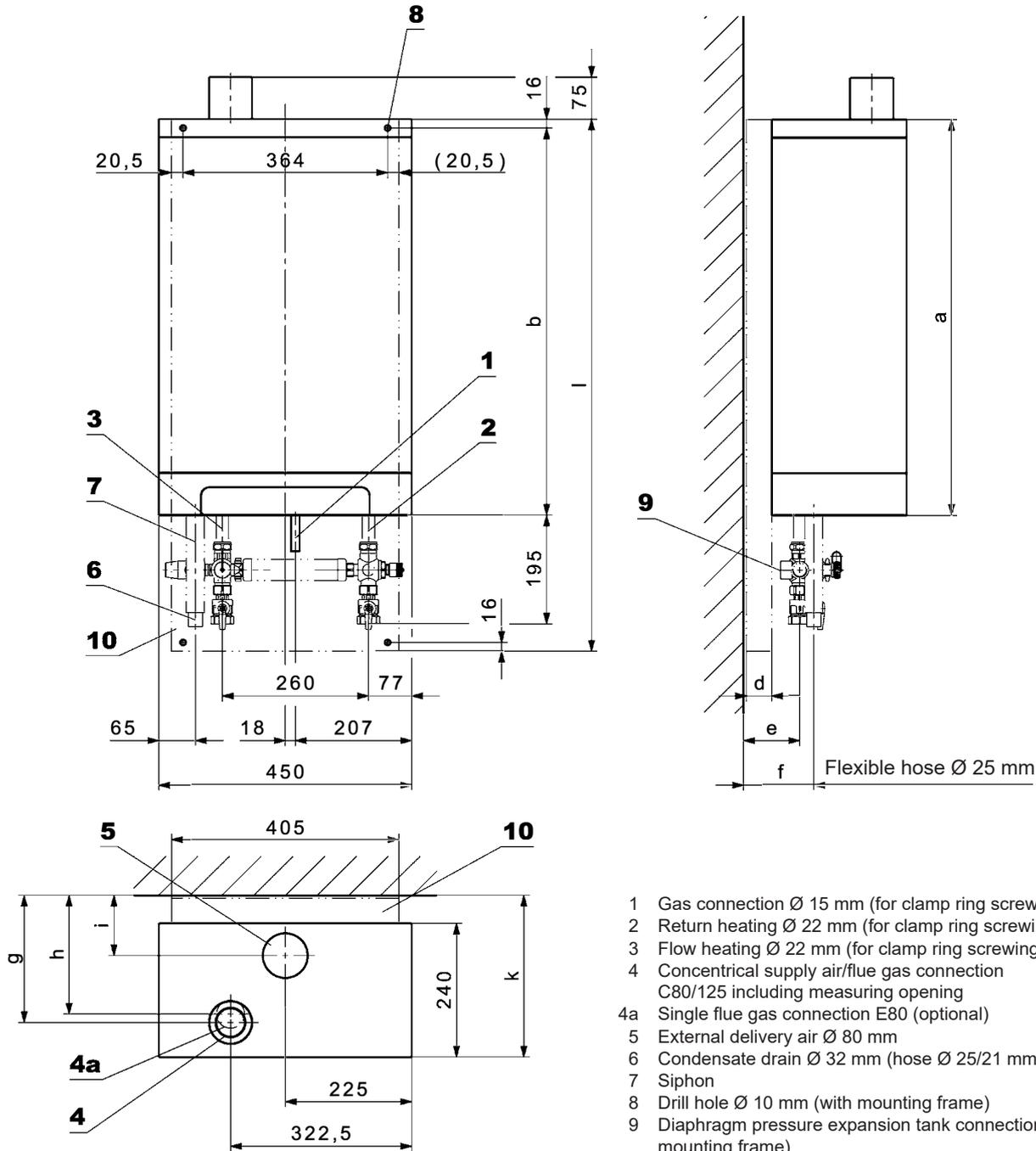
- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80 (optional)
- 5 External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

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

Minimal spaces

(Dimensions in mm)

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



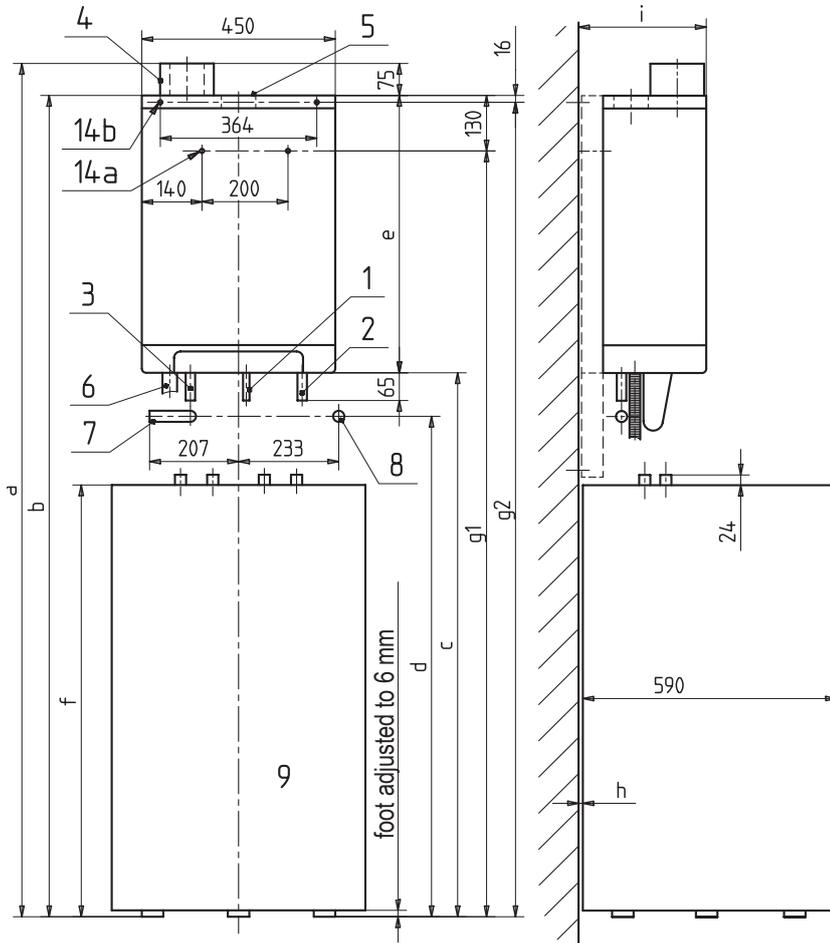
- 1 Gas connection Ø 15 mm (for clamp ring screwing)
- 2 Return heating Ø 22 mm (for clamp ring screwing)
- 3 Flow heating Ø 22 mm (for clamp ring screwing)
- 4 Concentrical supply air/flue gas connection C80/125 including measuring opening
- 4a Single flue gas connection E80 (optional)
- 5 External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

TopGas® classic type

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

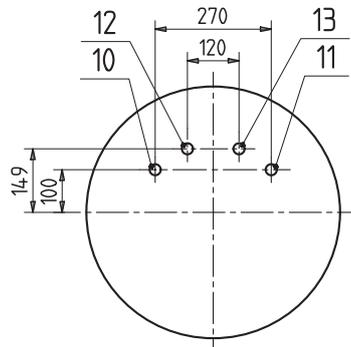
TopGas® classic (12-30) with calorifier TopVal (130,160) placed below

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



CombiVal ERW (200)
see Calorifiers

View from the top without TopGas®



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

TopGas® classic with TopVal 130

TopGas® classic type

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

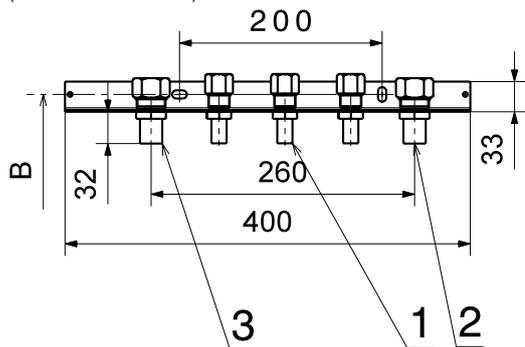
TopGas® classic with TopVal 160

TopGas® classic type

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

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

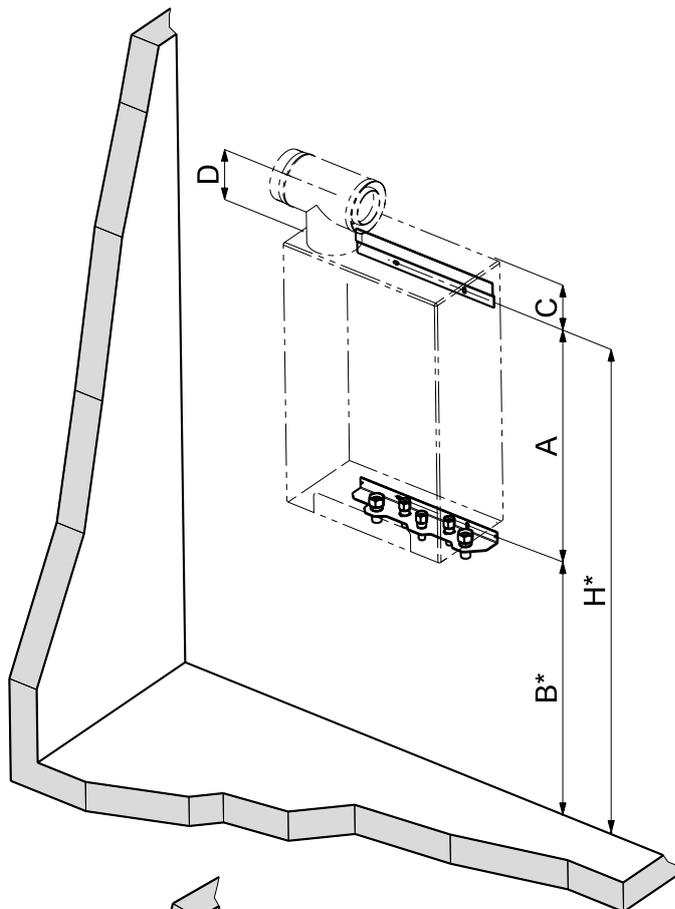
(Dimensions in mm)



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

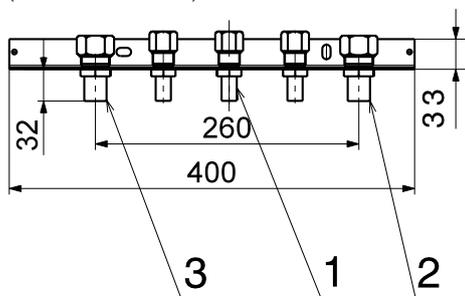
| TopGas® classic type | TopVal type | A | B* | H* | C | D |
|----------------------|-------------|-----|------|------|-----|-----|
| (12) | (130) | 518 | 1052 | 1570 | 130 | 175 |
| | (160) | 518 | 1219 | 1737 | 130 | 175 |
| (18) | (130) | 578 | 1052 | 1630 | 130 | 175 |
| | (160) | 578 | 1219 | 1797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

* Measures for drill hole



Visible console for preinstallation with mounting frame

(Dimensions in mm)



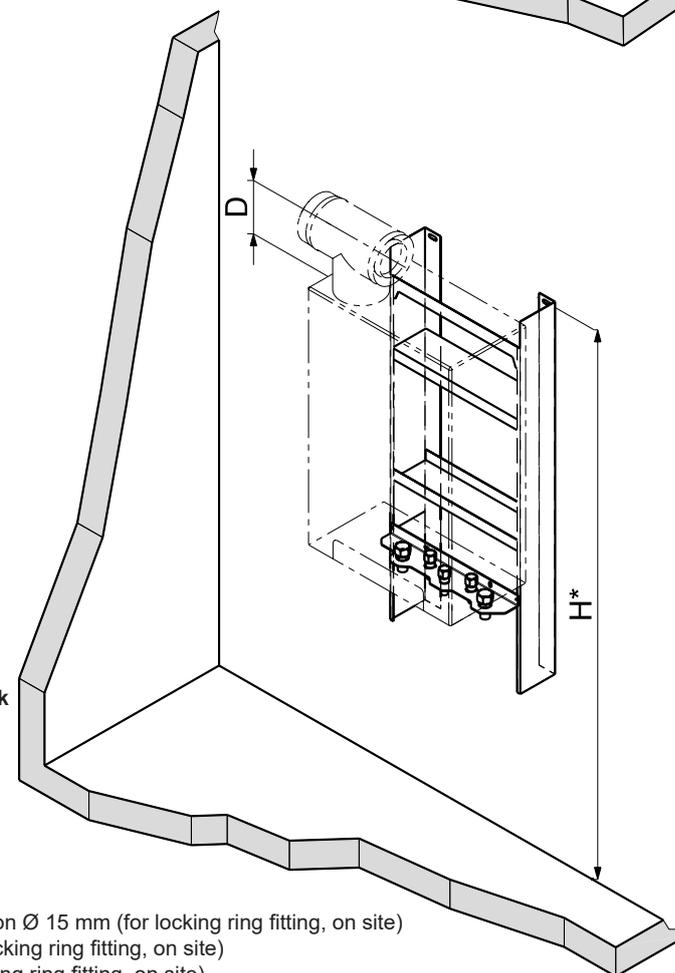
With mounting frame MR50

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

With mounting frame MR110 with diaphragm pressure expansion tank

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

* Measures for drill hole



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

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

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

Additional notices

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

Heating room

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

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

Combustion air supply

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

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

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

Gas connection

Commissioning

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

Manual gas shut-off valve and gas filter

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

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.
- A gas pressure controller to reduce the boiler inlet pressure must be installed on site for propane.

Gas pressure

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

Sludge separator

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

Minimum heating water circulation quantity

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

Heating boiler in the attic

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

Condensate drainage

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

Diaphragm pressure expansion tank

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

Flue gas system

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

Looking for the appropriate hydraulic schematic?

Please contact your local Hoval partner.

Hoval TopGas® classic (35-80)

Wall-hanging gas condensing boiler

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

Basic boiler control panel G04

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

Option

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

Delivery

- Wall-hanging gas condensing boiler fully cased

Heating controller set RS-OT

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

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

For boiler control as part of a building management system.

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

0-1.0 V no requirement

1.0-9.5 V 0-100 °C

Can be installed in the boiler control panel!

Heating controller set TopTronic® E ZE1

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



Model range

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

Energy efficiency class of the compound system with control

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

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

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

Options for TopTronic® E controller

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

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

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

Further information about the TopTronic® E see "Controls"

Delivery

- Heating controller set separately packed, mounting on site

Notice

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

Wall-hanging gas condensing boiler



Hoval TopGas® classic (35-80)

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

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

Permissions boilers

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

Energy efficiency class of the compound system with control

Part No.

7014 580
7014 581
7014 582
7014 583

Accessories



Gas filter

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

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

2007 995
2007 996

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

6047 634



Connection set AS32-TG

consisting of:

Return:

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

Flow:

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

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

6049 483
6059 334
6043 800

Speed control legend

PWM1 PWM control signal heating or PM1

Accessories



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

Part No.

6039 793



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

2012 075



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

2012 077



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

2012 076



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

2012 078



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

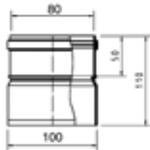
| Type | Connection inches | Flow rate at 1 m/s flow speed m³/h |
|-----------|----------------------|--|
| MBL DN 32 | Rp 1 1/4" | 3.6 |
| MBL DN 40 | Rp 1 1/2" | 5.0 |

2062 166
 2062 167

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

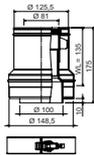
Additional sludge separators
 see «Various system components»

Accessories



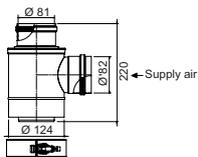
Reducing part E100 -> E80 PP

2015 245



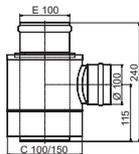
**Concentric reducing part
C100/150 -> C80/125 PP**
Painted white

2025 334



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

2010 174



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

2015 244

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

Recommendation:

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



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

6036 265

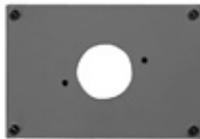
Boiler controller with heating controller set RS-OT



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

Notice

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



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



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

Part No.

6020 566

6018 218

6016 725

Boiler controller with heating controller set TopTronic® E



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

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

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

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

For RS-OT and TopTronic® E ZE1

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



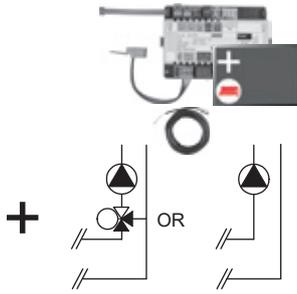
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

Part No.

6037 312

242 902

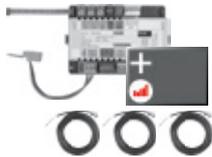
TopTronic® E module expansions
for TopTronic® E basic module heat generator



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

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

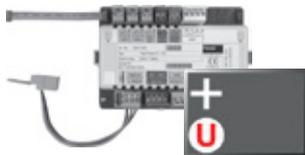
6034 576



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

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

6037 062



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

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

6034 575

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



Flow rate sensor sets
Plastic housing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Flow rate sensor sets
Brass housing

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

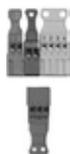
6042 949
6042 950

Accessories for TopTronic® E



TopTronic® E controller modules

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



Supplementary plug set

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



TopTronic® E room control modules

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



Enhanced language package TopTronic® E

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



HovalConnect

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

TopTronic® E interface modules

| | | |
|--|-------------------|----------|
| | GLT module 0-10 V | 6034 578 |
|--|-------------------|----------|



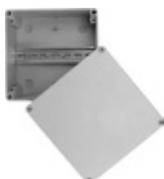
TopTronic® E sensors

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



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information
see "Controls"

Service



Commissioning

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

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

Part No.

TopGas® classic (35-80)

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

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

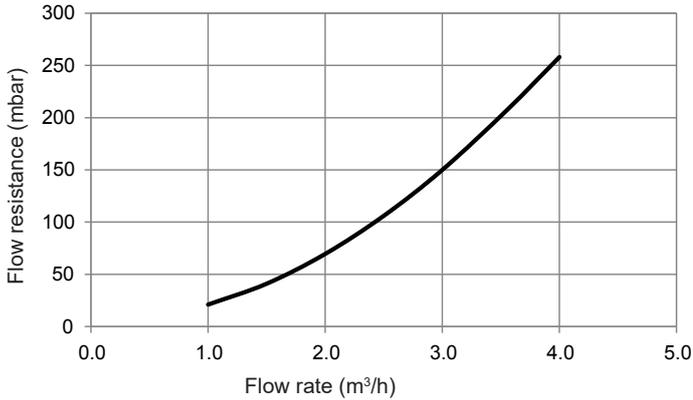
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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

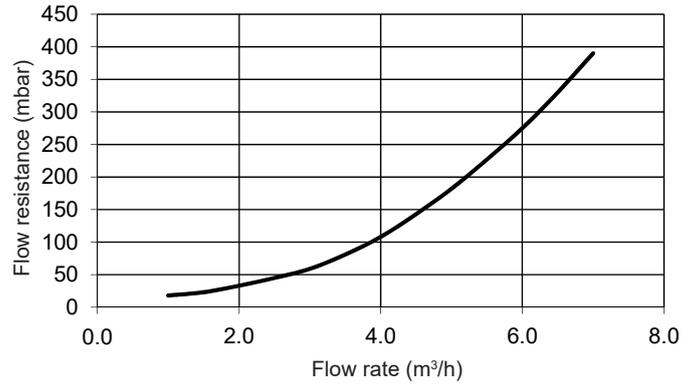
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

TopGas® classic (35,45)

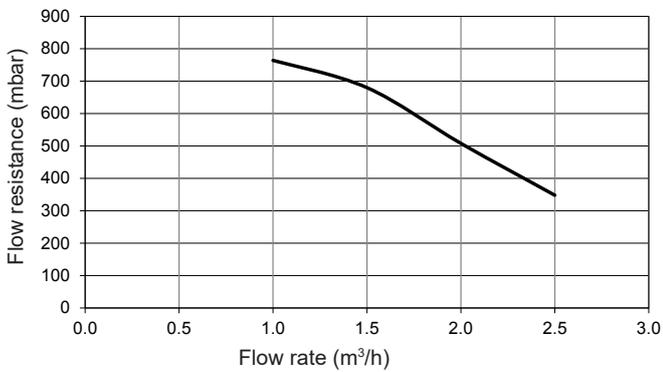


TopGas® classic (60,80)



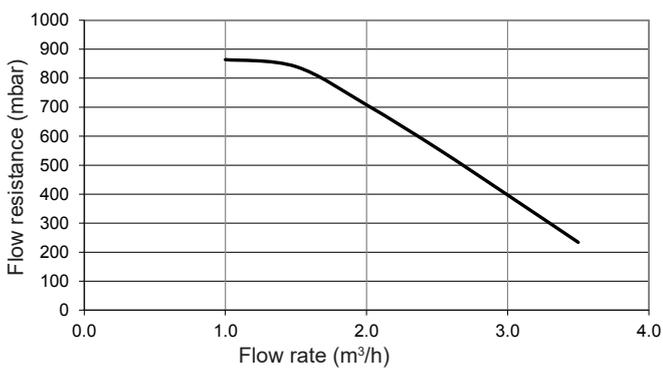
Maximum residual overpressure with connection set AS32-TG/SPS-S 8 PM1

TopGas® classic (35,45)

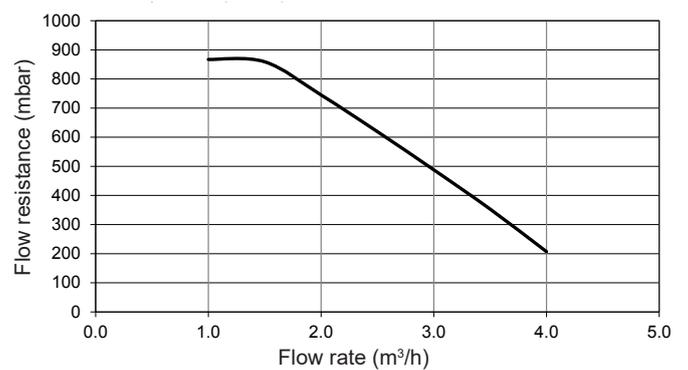


Maximum residual overpressure with connection set AS32-TG/SPS-I 10

TopGas® classic (35,45)

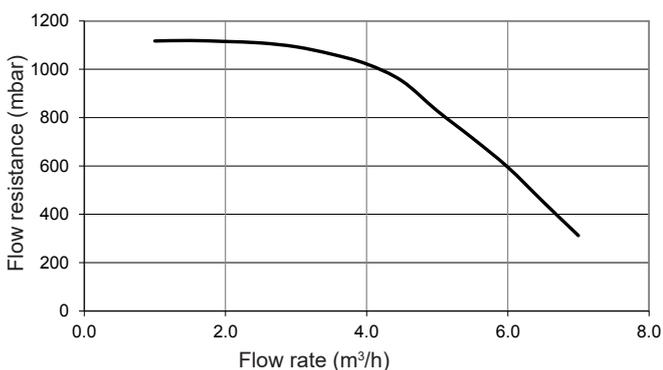


TopGas® classic (60,80)



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

TopGas® classic (60,80)

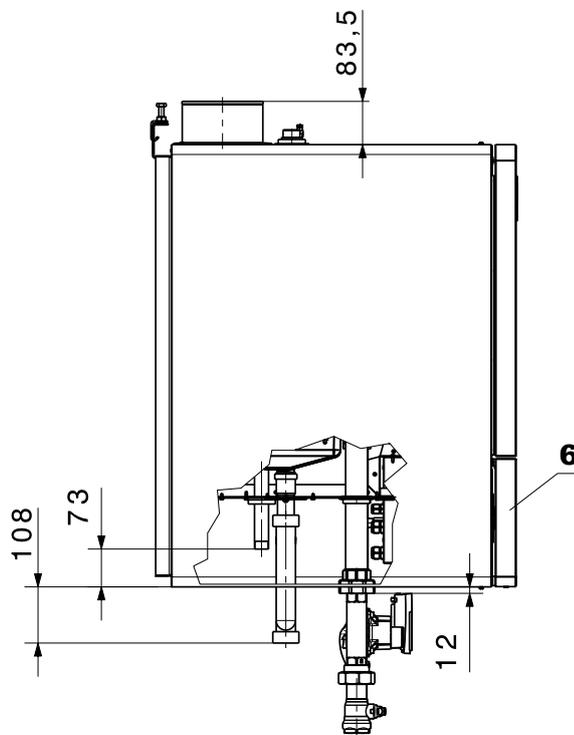
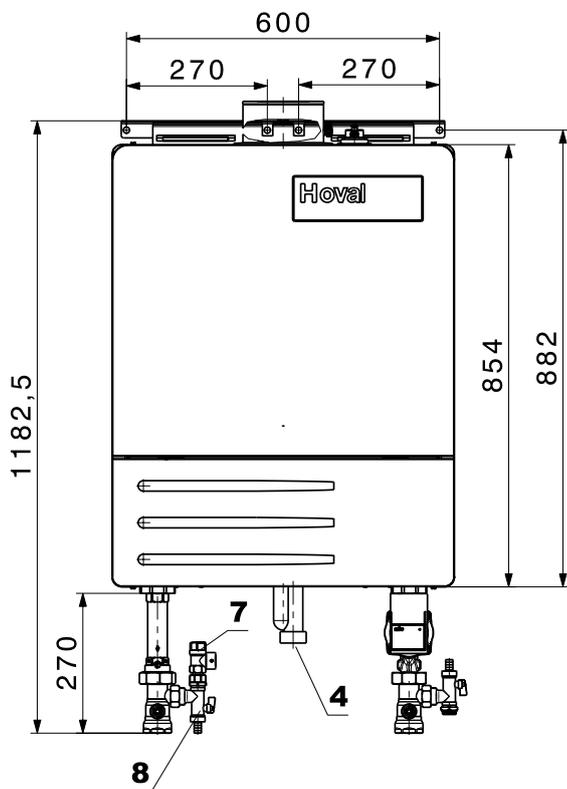


TopGas® classic (35-80)

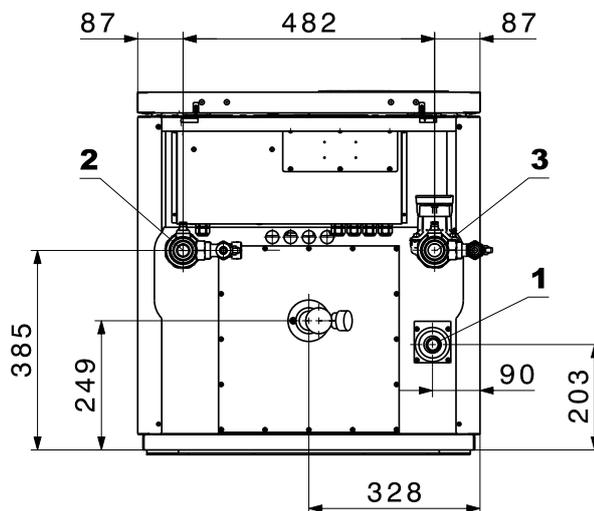
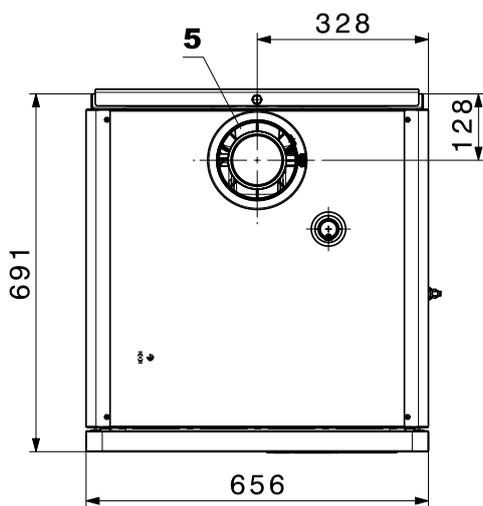
Minimum spaces

(Dimensions in mm)

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



View from bottom



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

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water must be fully demineralised.

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

Heating water

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

Additional notices

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

Frost protection agent

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

Heating room

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

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

Combustion air supply

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

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

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

Gas connection

Commissioning

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

Manual gas shut-off valve and gas filter

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

Type of gas

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

Gas pressure natural gas

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

Propane gas pressure

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

Gas pressure regulator

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

Sludge separator

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

Minimum heating water circulation quantity

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

Heating boiler in the attic

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

Condensate drainage

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

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

Diaphragm pressure expansion tank

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

Flue gas system

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

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

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

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

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

Hoval TopGas® classic (100,120)

Wall-hanging gas condensing boiler

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

Basic boiler control panel G04

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

Optional

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

Delivery

- Wall-hanging gas condensing boiler fully cased

Heating controller set RS-OT

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

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

For boiler control as part of a building management system.

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

0-1.0 V no requirement

1.0-9.5 V 0-100 °C

Can be installed in the boiler control panel!

Heating controller set TopTronic® E ZE1

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



Model range

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

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

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

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

Options for TopTronic® E controller

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

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

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

Further information about the TopTronic® E see "Controls"

Delivery

- Heating controller set separately packed, mounting on site

Wall-hanging gas condensing boiler



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

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

Permissions boilers

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

Part No.

7014 584
7014 585

Accessories



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

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

2007 995
2007 996

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

6047 634



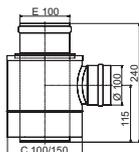
Connection set AS 40-TG
consisting of:
Return:
- Shut-off valve with connecting nut 2" and boiler fill and drain valve with coupling G ¾" (external) for connecting a diaphragm pressure expansion tank
- Speed-controlled high-efficiency pump, various versions
Flow:
- Fitting piece (180 mm) G2" with integrated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

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

6043 801
6043 802

Speed control legend

PWM1 PWM control signal heating or PM1



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

Part No.

2015 244



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

6036 265

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



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

6020 566

Notice

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



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

6018 218



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

6016 725

Boiler controller with heating controller set TopTronic® E



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

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

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

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

For RS-OT and TopTronic® E ZE1

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



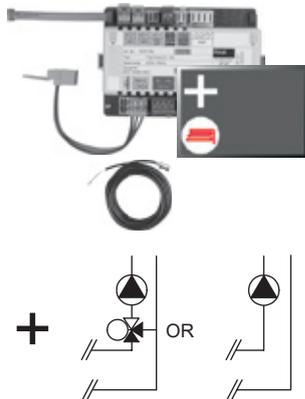
Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap, without cable and plug

Part No.

6037 312

242 902

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



TopTronic® E module expansion heating circuit TTE-FE HK

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

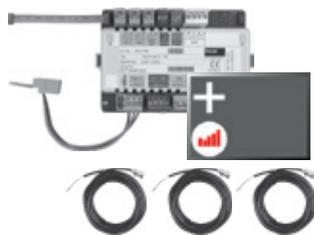
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

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

Notice

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



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

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

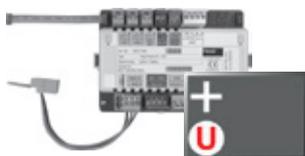
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer incl. energy balancing in each case

Consisting of:

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

Notice

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



TopTronic® E module expansion Universal TTE-FE UNI

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

Consisting of:

- Fitting accessories
- Plug set FE module

Further information

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

Notice

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

Part No.

6034 576

6037 062

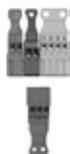
6034 575

Accessories for TopTronic® E



TopTronic® E controller modules

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



Supplementary plug set

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



TopTronic® E room control modules

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



Enhanced language package TopTronic® E

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



HovalConnect

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

TopTronic® E interface modules

| | |
|-------------------|----------|
| GLT module 0-10 V | 6034 578 |
|-------------------|----------|



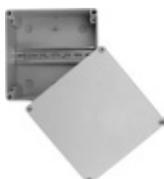
TopTronic® E sensors

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



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information
see "Controls"

Accessories



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

2012 077



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

2012 078



Sludge separator with magnet

Type: MBL DN 40 Rp 1 1/2"

With variable connection for vertical or horizontal pipelines

Performance-enhancing magnetic assistance from removable, external magnet.

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

2062 167

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

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



Sludge separator with magnet

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

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

Part No.

2062 168

Service



Commissioning

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

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

TopGas® classic (100,120)

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

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

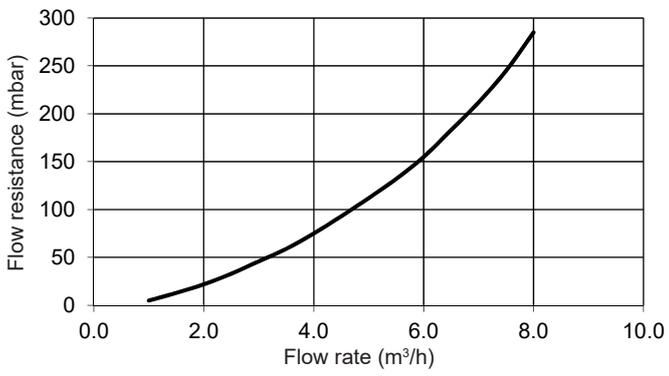
²⁾ Data related to NCV. TopGas® classic is also suitable for propane/butane (liquid gas) mixtures.

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

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

Flow resistance on the heating water side

TopGas® classic (100,120)

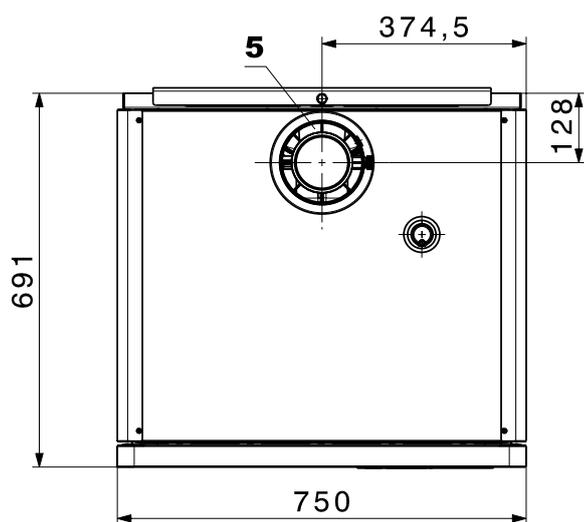
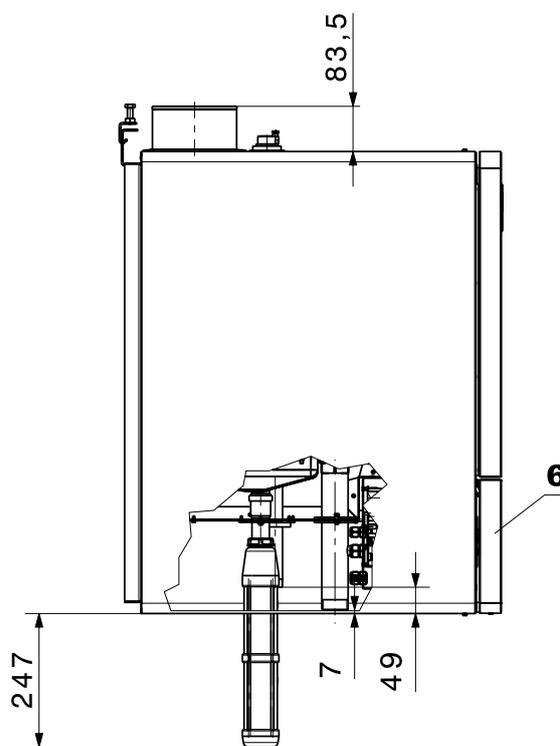
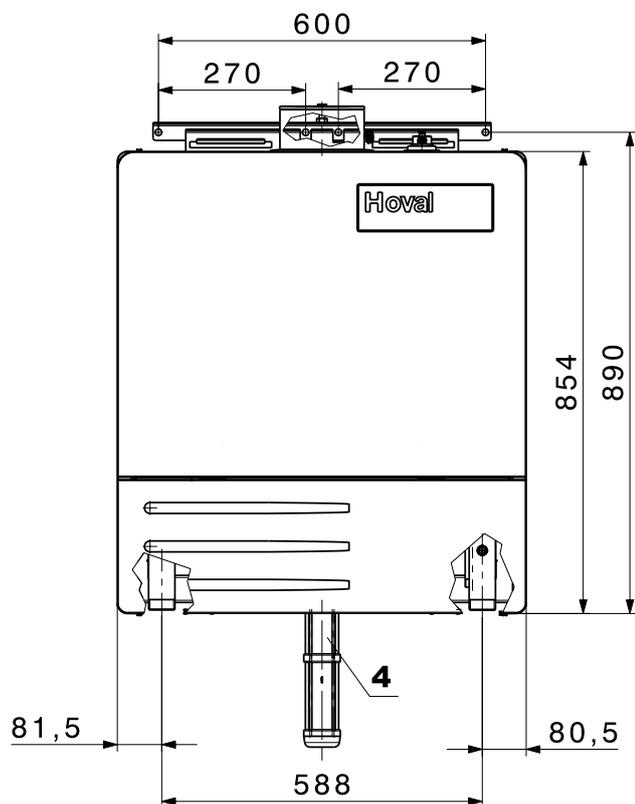


TopGas® classic (100,120)

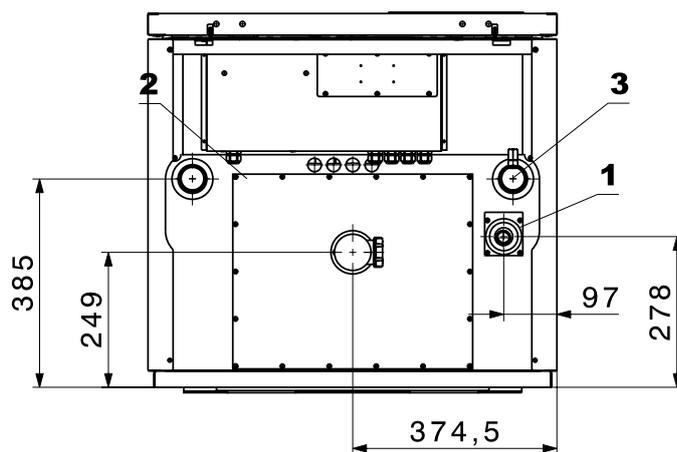
Minimum spaces

(Dimensions in mm)

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



View from bottom



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

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water must be fully demineralised.

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

Heating water

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

Additional notices

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

Frost protection agent

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

Heating room

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

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

Combustion air supply

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

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

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

Gas connection Commissioning

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

Manual gas shut-off valve and gas filter

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

Construction of recommended gas connection



Legend:

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

Type of gas

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

Gas pressure natural gas

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

Propane gas pressure

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

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

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

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

Sludge separator

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

Minimum heating water circulation quantity

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

Heating boiler in the attic

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

Condensate drainage

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

Diaphragm pressure expansion tank

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

Flue gas system

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

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

Hoval UltraGas® (15-100)

Gas condensing boiler

- Steel boiler with condensation technology
- For the combustion of:
 - natural gas E
 - natural gas E with a hydrogen content (H₂) of up to 20 %
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Combustion chamber made of stainless steel
- Maximal flue gas condensation through downstream heating surface made of **aluFer®** stainless steel bounded pipe; heating gas side: aluminium water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor (minimum and maximum pressure limiter integrated)
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with blower and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plate, red powder-coated
- Heating connections to left and right for:
 - flow
 - return - high temperature
 - return - low temperature
- **UltraGas® (15-50):**
Flue gas connection backwards to the top
- **UltraGas® (70,100):**
concentrical supply air/flue gas connection, vertically upwards, horizontally to rear as option, see accessories and dimension sheet
- TopTronic® E controller installed
- Possibility of connecting an external gas solenoid valve with error output

TopTronic® E controller

Control panel

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

TopTronic® E control module

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



Model range

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

Energy efficiency class of the compound system with control.

TopTronic® E basic module heat generator TTE-WEZ

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

Options for TopTronic® E controller

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

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

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

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

Further information about the TopTronic® E see "Controls"

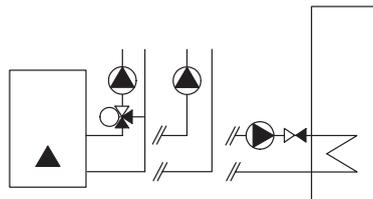
Optional

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

Delivery

- Floor-standing gas condensing boiler fully cased

Floor-standing gas condensing boiler



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.

Boiler permissions

UltraGas® (15-100)

CE product ID No. CE-0085AQ0620

Delivery
Gas boiler fully panelled

| UltraGas® type | | Nominal heat output 50/30 °C kW | Part No. |
|----------------|------------|---------------------------------------|----------|
| (15) | A ➤ | 3.0-15.2 | 7013 300 |
| (20) | A ➤ | 4.0-20.2 | 7013 301 |
| (27) | A ➤ | 5.0-26.9 | 7013 302 |
| (35) | A ➤ | 5.8-34.3 | 7013 303 |
| (50) | A ➤ | 8.0-48.8 | 7013 304 |
| (70) | A ➤ | 13.5-69.0 | 7011 990 |
| (100) | | 20.9-99.0 | 7011 991 |

Energy efficiency class of the compound system with control

Accessories

Part No.

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

6047 605

Modification set for propane
for UltraGas® (100)

6047 609

Necessary accessories for
room air independent operation



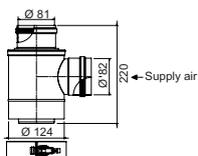
Connection set for room air independent operation without sound absorber
for UltraOi® (16-35), UltraGas® (15-50)
Consisting of:
corrugated pipe Ø 50 mm for combustion air supply to burner.
Concentric boiler connection piece E80 -> C80/125 PP for flue gas and supply air.
Necessary if no Hoval LAS flue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

6027 510

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

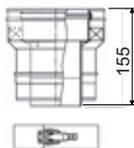
For room air independent operation with separate combustion air duct (not concentrical).

Accessories



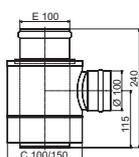
Separating piece C80/125 -> 2 x E80 PP
for room air independent operation
for separate conduction of flue gas and
combustion air.

2010 174



Adapter piece C80/125 -> C100/150 PP

2018 533



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

2015 244

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

Recommendation:

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



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

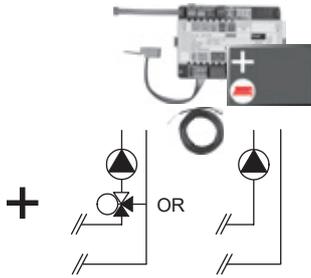
6016 933



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

6017 288

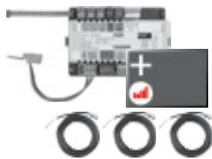
TopTronic® E module expansions
for TopTronic® E basic module heat generator



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

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

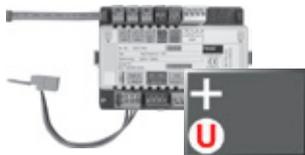
6034 576



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

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

6037 062



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

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

6034 575

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



Flow rate sensor sets
Plastic housing

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

6038 526
6038 507
6038 508
6038 509
6038 510



Flow rate sensor sets
Brass housing

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

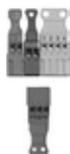
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Accessories for TopTronic® E



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 |
|-------------------|----------|



TopTronic® E sensors

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



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information
see "Controls"

Accessories

Part No.

Flow temperature guard

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



Clamp-on thermostat *RAK-TW1000.S*
Thermostat with strap,
enclosed cable and plug

242 902



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

6033 745

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

6010 082



CO monitor

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

6043 277



Installation example

for UltraGas® (15-50)

Safety set SG15-1"

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

641 184



Installation example

for UltraGas® (70, 100)

Safety set SG20-1"

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

6014 390



Boiler socket

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

6025 418

Accessories



Gas valve
with thermally releasing cut-off device.

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



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

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

Part No.

| |
|----------|
| 2012 075 |
| 2012 077 |
| 2069 324 |
| 2007 995 |
| 2007 996 |

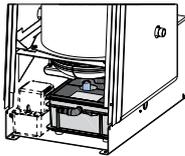
**Condensate drain for
Hoval UltraGas® (15-90)**



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

Part No.

6045 476



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

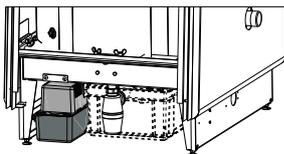
6024 764



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

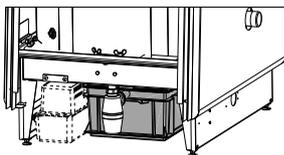
2028 906

**Condensate drain for
Hoval UltraGas® (70,100)**



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

6061 127



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

6012 553



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

2028 906

Boiler connection set



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

6017 055



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

6014 846



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

6014 848



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

6034 818

Heating armature groups



Heating armature group HA-3BM-R

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

HA group/pump Speed control EEI



DN 20 (¾")

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

DN 25 (1")

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

Pumps for HA25-3BM-R

see "Circulating pumps".
Pump installation dimensions 1½" x 180 mm

DN 32 (1¼")

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

Pumps for HA32-3BM-R

see "Circulating pumps".
Pump installation dimensions 2" x 180 mm

DN 40 (1½")

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

Pumps for HA40-3M

see "Circulating pumps".
Pump installation dimensions DN 40/PN 6 x 250 mm

Part No.

Speed control legend

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

Heating armature groups



Heating armature group HA-3BM-L

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

| | | |
|---------------|--|-----|
| HA group/pump | Speed control | EEl |
| |      | ≤ |

DN 20 (¾")

| | | | | | |
|--------------------|---|---|---|------|----------|
| HA20-3BM-L/HSP 4 | • | • | • | 0.18 | 6051 718 |
| HA20-3BM-L/HSP 6 | • | • | • | 0.20 | 6051 719 |
| HA20-3BM-L/SPS-S 7 | • | • | • | 0.20 | 6049 543 |
| HA20-3BM-L/SPS-S 8 | • | • | • | 0.20 | 6049 544 |

DN 25 (1")

| | | | | | |
|--------------------|---|--------------|---|------|----------|
| HA25-3BM-L/HSP 6 | • | • | • | 0.20 | 6051 720 |
| HA25-3BM-L/SPS-S 7 | • | • | • | 0.20 | 6049 547 |
| HA25-3BM-L/SPS-S 8 | • | • | • | 0.20 | 6049 548 |
| HA25-3BM-L | | without pump | | | 6046 644 |

Pumps for HA25-3BM-L

see "Circulating pumps".
Pump installation dimensions 1½" x 180 mm

DN 32 (1 ¼")

| | | | | | |
|-------------------------|---|--------------|---|------|----------|
| HA32-3BM-L/SPS-S 7 | • | • | • | 0.20 | 6049 551 |
| HA32-3BM-L/SPS-S 8 | • | • | • | 0.20 | 6049 552 |
| HA32-3BM-L/SPS-I 8 | • | • | • | 0.20 | 6059 329 |
| HA32-3BM-L/SPS-I 12 PM1 | • | • | • | 0.23 | 6046 631 |
| HA32-3BM-L | | without pump | | | 6046 645 |

Pumps for HA32-3BM-L

see "Circulating pumps".
Pump installation dimensions 2" x 180 mm

Part No.

Speed control legend

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



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 (3/4")

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

DN 25 (1")

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

Pumps for LG/HA25-2

see "Circulating pumps".
 Pump installation dimensions 1½" x 180 mm

DN 32 (1 ¼")

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

Pumps for LG/HA32-2

see "Circulating pumps".
 Pump installation dimensions 2" x 180 mm

Part No.

Speed control legend

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



Wall brackets

for mounting a Hoval armature group on the wall.

| Type | Axle spacing | Connection | | Wall 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 |

Part No.

6019 209
6019 210
6025 295



Adapter set DN 20-DN 25

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

6013 693

Adapter set

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

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

6007 191
6006 954
6014 852



Adapter fitting DN 32-DN 40

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

6014 863

Diaphragm pressure expansion tanks, heating armature groups and wall 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.

Hoval UltraGas® (15-27)

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

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

²⁾ Factory measurements

³⁾ Data related to NCV.

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

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

⁶⁾ Compare notice at "Engineering".

Hoval UltraGas® (35-100)

| Type | | (35) | (50) | (70) | (100) |
|---|--------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 5.2-33.0 | 7.5-46.0 | 12.1-64.5 | 19.0-92.0 |
| • Nominal heat output at 50/30 °C, natural gas ^{1), 2)} | kW | 5.8-34.3 | 8.0-48.8 | 13.5-69.0 | 20.9-99.0 |
| • Nominal heat output at 80/60 °C, propane ³⁾ | kW | 6.9-32.2 | 9.9-45.5 | 15.4-63.3 | 23.0-92.0 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 7.6-34.3 | 10.9-49.9 | 17.1-69.0 | 25.0-99.0 |
| • Nominal heat input with natural gas ⁴⁾ | kW | 5.4-33.3 | 7.7-46.9 | 12.5-65.5 | 19.6-94.1 |
| • Nominal heat input with propane ³⁾ | kW | 7.2-33.4 | 10.2-47.2 | 16.0-65.5 | 23.8-94.1 |
| • Operating pressure heating min./max. (PMS) | bar | 1/3 | 1/3 | 1/4 | 1/4 |
| • Operating temperature max. (T _{max}) | °C | 85 | 85 | 85 | 85 |
| • Boiler water content (V _(H₂O)) | l | 81 | 75 | 157 | 144 |
| • Flow resistance boiler ⁵⁾ | z value | 1.1 | 1.1 | 1.5 | 1.5 |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water content, incl. cladding) | kg | 205 | 217 | 302 | 331 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) | % | 97.9/88.2 | 98.0/88.3 | 98.0/88.3 | 97.6/87.9 |
| • Boiler efficiency at 30 % partial load operation (NCV/GCV) | % | 108.1/97.4 | 108.1/97.4 | 108.1/97.4 | 108.1/97.4 |
| • Room heating energy efficiency | | | | | |
| - without control | ηs | 92 | 92 | 92 | 92 |
| - with control | ηs | 94 | 94 | 94 | 94 |
| - with control and room sensor | ηs | 96 | 96 | 96 | 96 |
| • NOx class (EN 15502) | | - | - | - | - |
| • Nitrogen oxide emissions (EN 15502) (GCV) NOx | mg/kWh | 26 | 28 | 28 | 29 |
| • CO ₂ -content in flue gas at min./max. nominal heat output | % | 8.8/9.0 | 8.8/9.0 | 8.8/9.0 | 8.8/9.0 |
| • Heat loss in standby mode | Watt | 220 | 220 | 290 | 290 |
| Dimensions | | see table of dimensions | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-50 | 17.4-50 | 17.4-50 | 17.4-50 |
| - Propane | mbar | 37-50 | 37-50 | 37-50 | 37-50 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.97 kWh/m ³ | m ³ /h | 0.54-3.34 | 0.77-4.70 | 1.25-6.57 | 1.97-9.44 |
| - Natural gas LL- (Wo = 12.4 kWh/m ³) NCV = 8.57 kWh/m ³ | m ³ /h | 0.63-3.89 | 0.90-5.47 | 1.46-7.64 | 2.29-10.98 |
| - Propane (NCV = 25.9 kWh/m ³) | m ³ /h | 0.28-1.29 | 0.39-1.82 | 0.62-2.53 | 0.92-3.63 |
| • Operating voltage | V/Hz | 230/50 | 230/50 | 230/50 | 230/50 |
| • Electrical power consumption min./max. | Watt | 24/95 | 26/119 | 25/91 | 21/230 |
| • Stand-by | Watt | 9 | 9 | 9 | 9 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 Part 1) (room air dependent) | dB(A) | 62 | 60 | 64 | 67 |
| - Flue gas noise radiated from the mouth (DIN 45635 Part 47) (room air dependent/independent of room air) | dB(A) | 55 | 58 | 55 | 59 |
| - Sound pressure level heating noise (depending on installation conditions) ⁶⁾ | dB(A) | 55 | 53 | 57 | 59 |
| • Condensate quantity (natural gas) at 40/30 °C | l/h | 3.1 | 4.4 | 6.2 | 8.9 |
| • pH value of the condensate | approx. | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction type | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 55 | 78 | 109 | 157 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 8.1 | 11.6 | 18.8 | 29.5 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 65 | 68 | 63 | 65 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 46 | 46 | 43 | 44 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 31 | 31 | 31 | 32 |
| - Maximum permitted temperature of the combustion air | °C | 50 | 50 | 50 | 50 |
| - Flow rate combustion air | Nm ³ /h | 41 | 58 | 81 | 117 |
| - Maximum supply pressure for supply air and flue gas line | Pa | 120 | 120 | 130 | 130 |
| - Maximum draught/depression at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Factory measurements

³⁾ Data related to NCV.

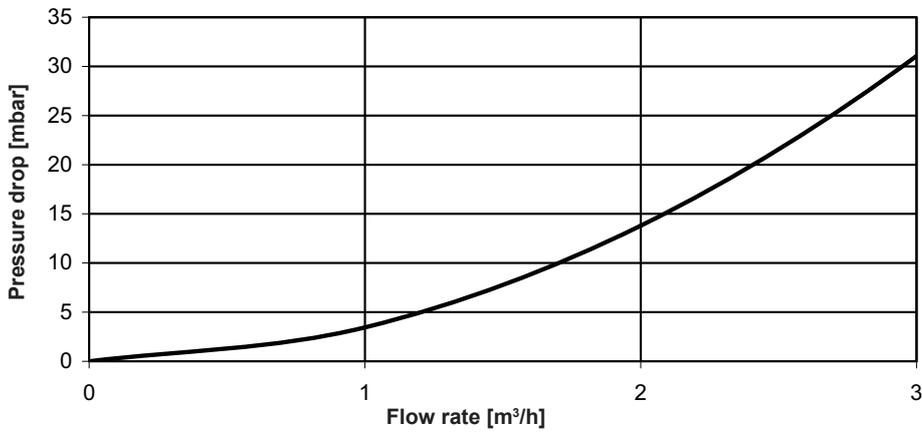
⁴⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible (readjustment might be necessary).

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

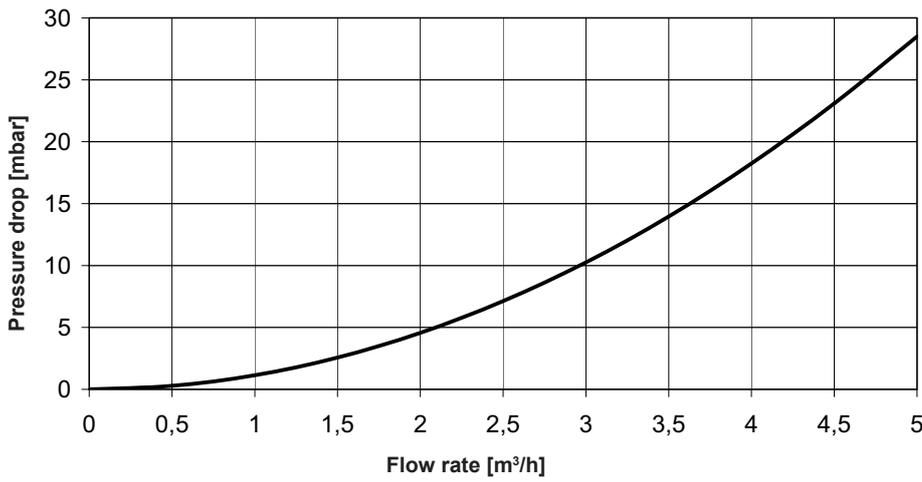
⁶⁾ Compare notice at "Engineering".

Flow resistance on the heating water side

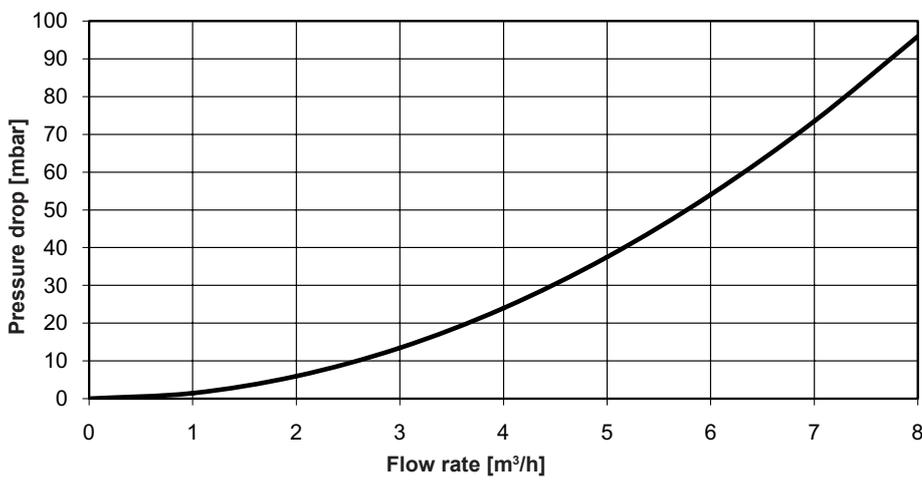
UltraGas® (15-27)



UltraGas® (35,50)

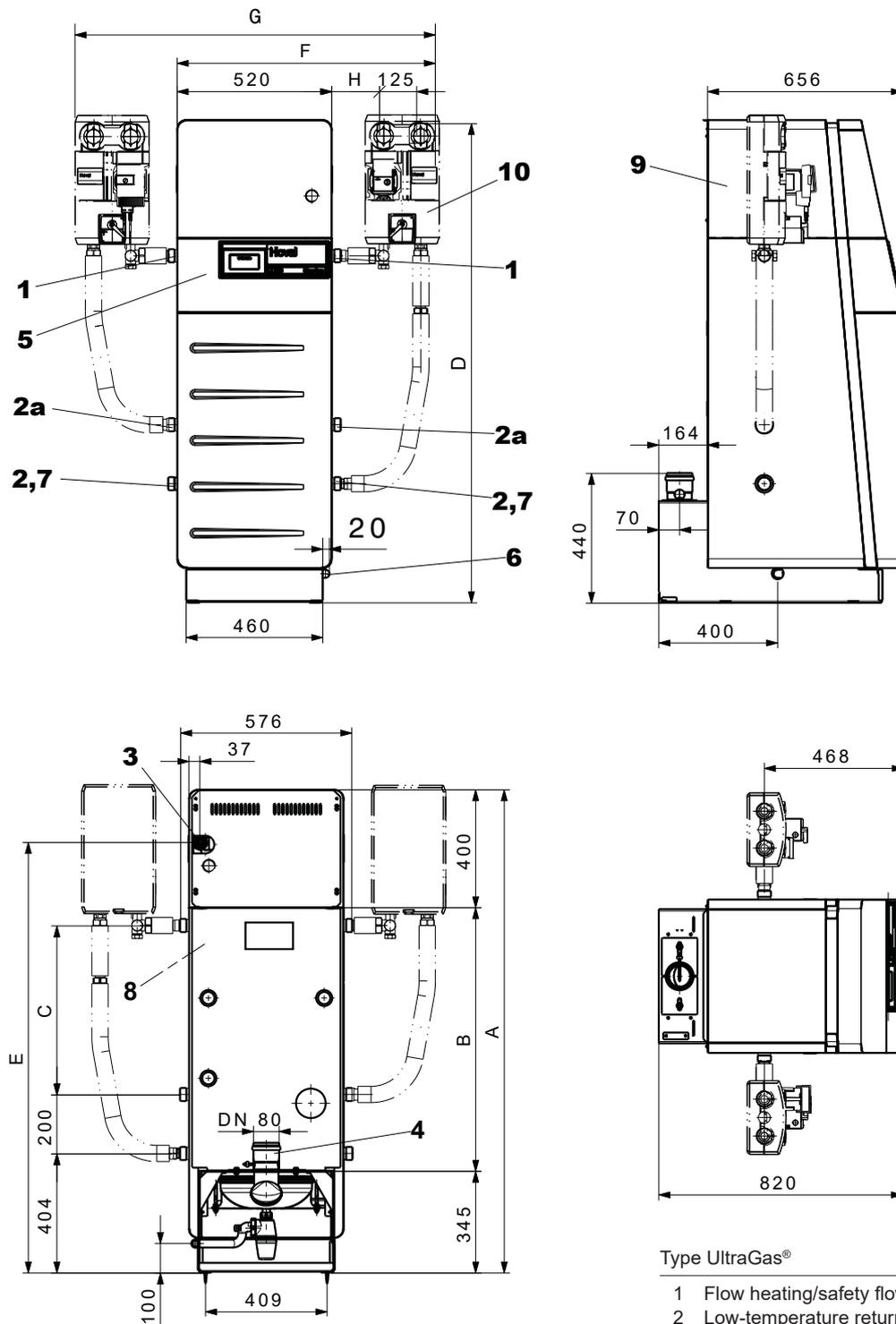


UltraGas® (70,100)



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

(Dimensions in mm)

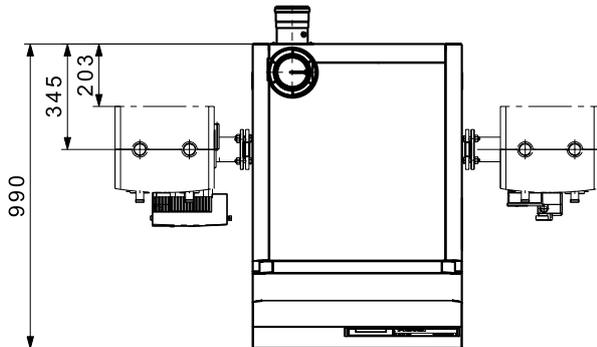
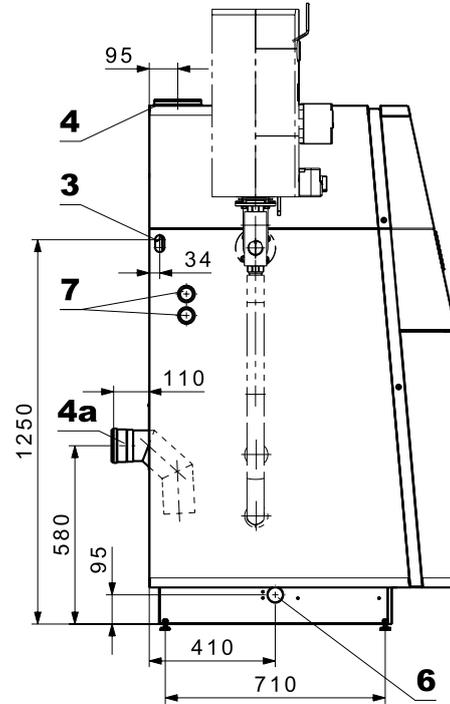
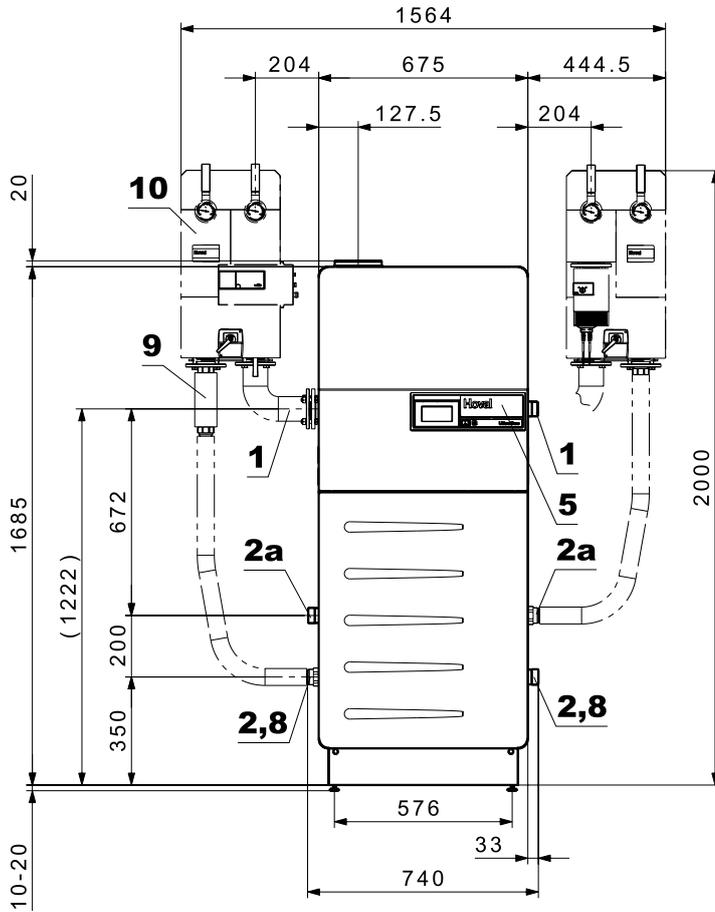


Type UltraGas® (15-27) (35,50)

| 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) | | |

| 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 |

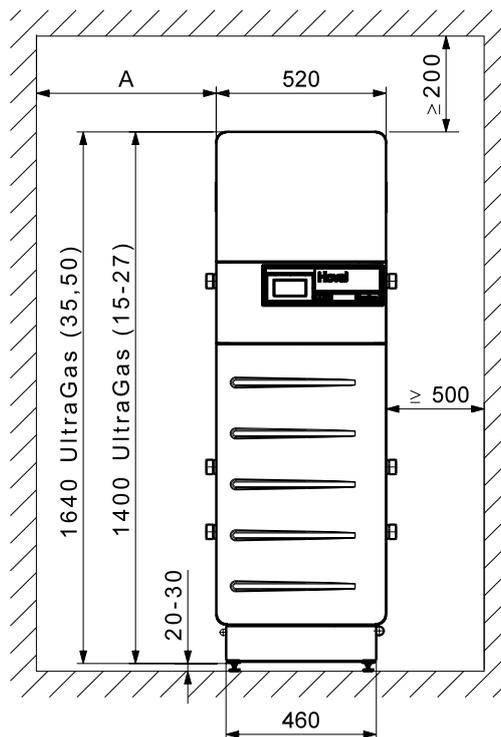
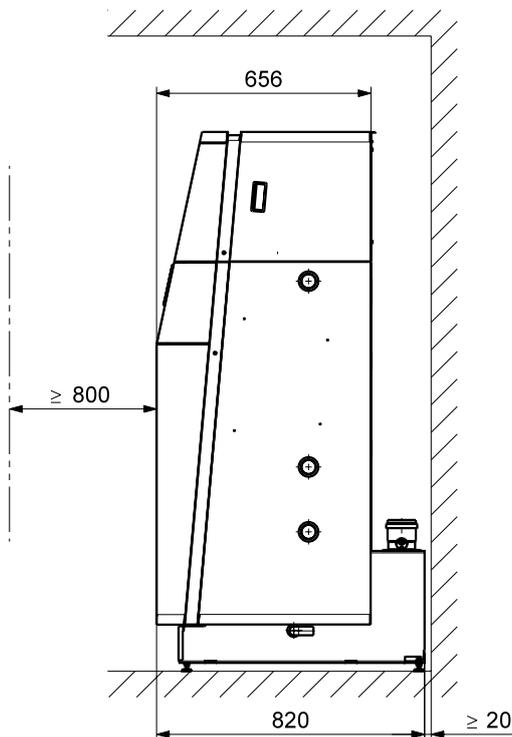
Hoval UltraGas® (70,100) with connection set AS40-S/NT/HT and armature group HA40
(Dimensions in mm)



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

Space requirement
(Dimensions in mm)

UltraGas® (15-50)



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

A = minimal 150 mm *

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

A = optimal 300 mm *

Burner service position left - boiler cleaning from the front

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

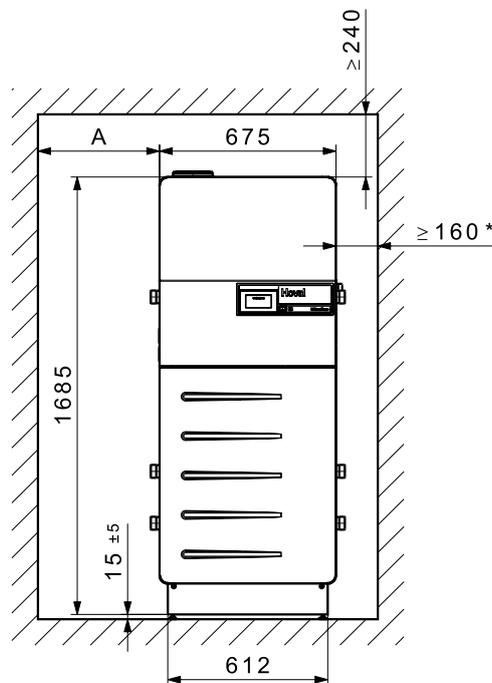
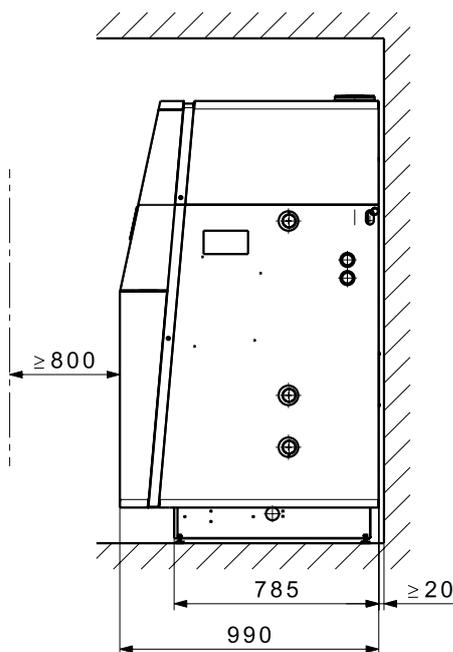
* without armature group,

500 mm with armature group

- The cleaning opening must be well accessible.

- Boiler rear side must be accessible.

UltraGas® (70,100)



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

A = minimal 150 mm *

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

A = optimal 300 mm *

Burner service position left - boiler cleaning from the front

* without armature group,

500 mm with armature group

Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

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

- The sum of the chloride, nitrate and sulphate contents in the heating water must not exceed 50 mg/l in total.

Additional notices

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

Frost protection agent

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

Heating room

- Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. wash-, dryer-, work room, hairdressers and so on).
- Halogen compounds can be caused by cleaning and degreasing solutions, disinfectants, glue and bleaching lyes.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. The connection for direct combustion air supply must be used for direct combustion air supply to the boiler (LAS system). It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

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

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

Gas connection

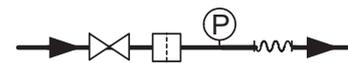
Commissioning

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

Manual gas shut-off valve and gas filter

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

Construction of a recommended gas connection



Legend:

 manual gas shut-off valve

 gas hose/compensator

 gas filter

 pressure gauge with test burner and push-button valve

Type of gas

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

Gas pressure natural gas

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

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.
- Necessary gas flow pressure at the boiler inlet: UltraGas® (15-100) min. 37 mbar, max. 50 mbar

Gas pressure regulator

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

Closed heating system

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

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

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

Boiler base

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

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!

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions"

Heating boiler in the attic

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

Condensate drain

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

Diaphragm pressure expansion tank

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

Safety valve

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

Noise damping

The following measures are possible for sound insulation:

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

Noise level

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

Recommendation:

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

Flue gas system

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

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

Hoval UltraGas® 2 (125-1550)

Floor-standing gas condensing boiler

- Floor-standing gas condensing boiler
- For the combustion of:
 - natural gas E
 - natural gas E with a hydrogen content (H₂) of up to 20 %
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Combustion chamber made of stainless steel
- Maximum flue gas condensation by secondary heating surfaces made of **TurboFer®** hybrid stainless steel composite pipes;
- heating gas side: stainless steel/aluminium
water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor:
 - Fulfils the function of a minimum and maximum pressure limiter
 - Replacement for the low water level protection
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with fan and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plates, red powder-coated
- Heating connections incl. counter flanges, screws and seals backwards for:
 - flow
 - return - high temperature
 - return - low temperature
- **UltraGas® 2 (300-1550):**
with integrated gas pipe compensator
- TopTronic® E controller installed
- Possibility of connecting an external gas solenoid valve with error output

TopTronic® E controller

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

- Control functions integrated for
 - 1 heating circuit with mixer
 - 1 heating circuit without mixer
 - 1 hot water charging circuit
 - bivalent and cascade management



Model range

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

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

Options for TopTronic® E controller

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

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

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

UltraGas® 2 (300-500):

- 3 controller modules/module expansions

UltraGas® 2 (620-1550):

- 4 controller modules/module expansions

Notice

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

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

Further information about the TopTronic® E see "Controls"

Optional

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

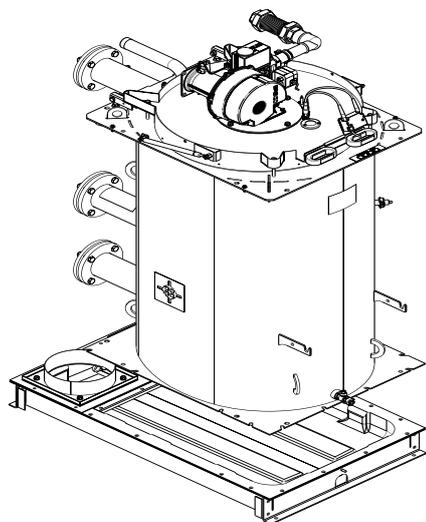
Delivery

- Boiler, casing and insulation separately packed and delivered

On-site

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

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



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

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

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

¹ kW = modulation range

Part No.

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

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

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

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

Delivery time approx. 8 weeks

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

¹ kW = modulation range

Propane version
on request

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

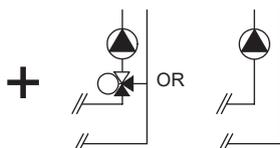
7019 065
7018 776
7018 777

6053 398



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

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



TopTronic® E module expansion heating circuit TTE-FE HK

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

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

Consisting of:

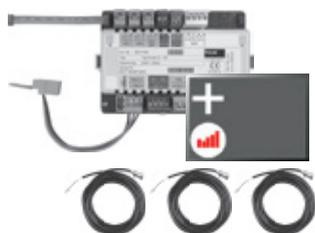
- Fitting accessories
- 1 contact sensor

ALF/2P/4/T, L = 4.0 m

- Basic plug set FE module

Notice

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



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

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

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

Consisting of:

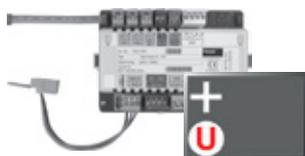
- Fitting accessories
- 3 contact sensors

ALF/2P/4/T, L = 4.0 m

- Plug set FE module

Notice

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



TopTronic® E module expansion Universal TTE-FE UNI

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

Consisting of:

- Fitting accessories
- Plug set FE module

Further information

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

Notice

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

Part No.

6034 576

6037 062

6034 575

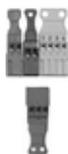
Accessories for TopTronic® E

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 |
|-------------------|----------|

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 |

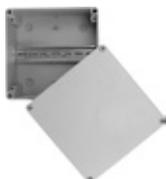


| | |
|--|----------|
| System module SB-SM-BZ1 | 6048 055 |
| for passing on a volt-free operating and fault message. | |
| (for 1-stage/modulating H-Gens) | |



Bivalent switch

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



System housing

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



TopTronic® E wall casing

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

Further information

see "Controls"

Accessories

Part No.

Flow temperature switch

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



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

242 902



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

6033 745

Immersion thermostat RAK-TW1000.S SB 150
Thermostat with pocket 1/2" - depth of immersion 150 mm, brass nickel-plated

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

6018 710



Fitting pipe flow

Safety fitting pipe for flow and return

Suitable for max. 6 bar, with screws and nuts.

- for installation on the flow or high and low-temperature return of the Hoval UltraGas® 2 boiler.
- for installation of an additional safety temperature limiter, a maximum pressure limiter.
- for connection of a diaphragm pressure expansion tank on the return.

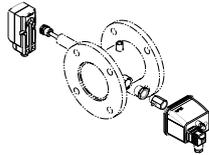
| Dimension | Suitable for UltraGas® 2 | Connection |
|-----------|--------------------------|------------|
|-----------|--------------------------|------------|



Fitting pipe return

| | | | |
|--------|-------------|--------|----------|
| DN 65 | (125-230) | flow | 6053 408 |
| DN 65 | (125-230) | return | 6023 108 |
| DN 100 | (300-700) | flow | 6053 409 |
| DN 100 | (300-700) | return | 6023 110 |
| DN 125 | (800-1100) | flow | 6055 078 |
| DN 125 | (800-1100) | return | 6023 112 |
| DN 150 | (1300,1550) | flow | 6055 079 |
| DN 150 | (1300,1550) | return | 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)

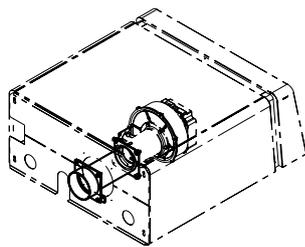
Part No.

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)

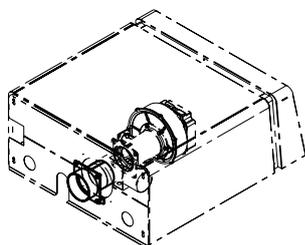
| | | |
|-------------------------|--------|----------|
| UltraGas® 2 (125-230) | DN 65 | 6050 605 |
| UltraGas® 2 (300-700) | DN 100 | 6050 606 |
| UltraGas® 2 (800-1100) | DN 125 | 6050 607 |
| UltraGas® 2 (1300,1550) | DN 150 | 6051 894 |



Connection for direct combustion air input
 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 |

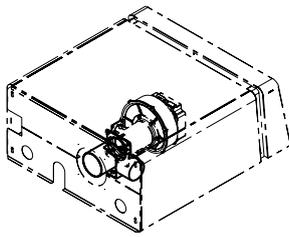
Recommendation:
 If the air intake opening at the facade is near a noise sensitive place (window of bedroom, terrace etc.), we recommend to use a silencer at the direct fresh air inlet.



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

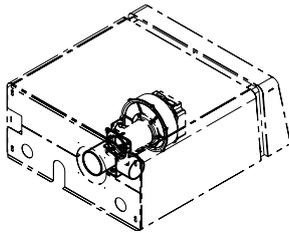
| | |
|-------------------------|----------|
| UltraGas® 2 (125,150) | 6052 847 |
| UltraGas® 2 (190,230) | 6052 848 |
| UltraGas® 2 (300-500) | 6053 097 |
| UltraGas® 2 (620-700) | 6053 780 |
| UltraGas® 2 (800-1100) | 6053 782 |
| UltraGas® 2 (1300,1550) | 6052 849 |

Accessories



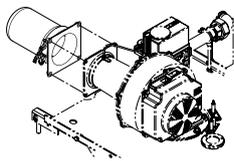
Motorised combustion air damper DN 110
for UltraGas® (125-350),
UltraGas® 2 (125-500)
For boiler cascades with a common
flue gas line. Ready-to-connect

6015 196



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

6015 197

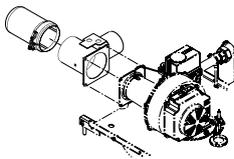


Connection protection filter
for filtering the combustion air in the building
phase

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

6052 283

6052 284



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

6052 151

6052 152



Gas valve
with thermally releasing cut-off device.

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

Accessories



Valve testing system

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

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

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

Gas valve kit

Set with gas valve and thermally releasing
shut-off device

Thermal closing at approx. 95 °C
Tripping time < 60 s

Maximum working pressure 5 bar
Ambient temperature < 60 °C

Combustible gases according to G260

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

Gas ball valve with flange

Type

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



Fitting protection TAS

Type

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



Mounting set for assembly

Gas ball valve with fitting protection

Type

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

Gas filter

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



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

Gas pipe compensator 1"

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

6034 556



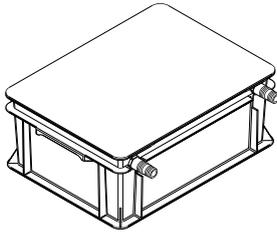
Gas pipe compensator 1½"

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. 4 m
 Can be combined with neutralisation box

6045 476



Double condensate pump

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

6061 175



Neutralisation granulate

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

2028 906

Part No.

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.

Hoval UltraGas® 2 (125-230)

| Type | | (125) | (150) | (190) | (230) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 21-114 | 33-139 | 35-177 | 47-218 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 25-126 | 35-151 | 38-191 | 51-233 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 27-113 | 43-138 | 55-175 | 81-217 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 30-126 | 48-151 | 62-191 | 90-233 |
| • Nominal heat input with natural gas ³⁾ | kW | 23-116 | 32-142 | 35-179 | 47-223 |
| • Nominal heat input with propane ²⁾ | kW | 28-116 | 44-142 | 57-179 | 84-223 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H2O)) | l | 207 | 195 | 276 | 265 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 378 | 400 | 490 | 510 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.6/88.9 | 97.6/88.1 | 98.5/88.7 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 108.7/98.1 | 108.7/98.1 | 109.0/98.2 | 108.4/97.8 |
| • Room heating energy efficiency | | | | | |
| - without control | η _s % | 93 | 93 | 93 | 93 |
| - with control | η _s % | 95 | 95 | 95 | 95 |
| - with control and room sensor | η _s % | 97 | 97 | 97 | 97 |
| - annual energy consumption | Q _{HE} GJ | 209 | 265 | 326 | 412 |
| • NOx class (EN 15502) | | - | - | - | - |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 25 | 28 | 33 | 37 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 31 | 21 | 25 | 13 |
| • O ₂ content in flue gas min./max. output | % | 5.9/5.6 | 5.5/6.0 | 5.9/6.0 | 6.0/5.9 |
| • Heat loss in standby mode | Watt | 380 | 380 | 510 | 510 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-80 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 80 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 2.4-12.0 | 3.3-14.6 | 3.6-18.5 | 4.8-23.0 |
| - Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 2.8-14.3 | 3.9-17.5 | 4.3-22.0 | 5.8-27.4 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 1.2-4.8 | 1.8-5.8 | 2.3-7.3 | 3.4-9.1 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 41/140 | 43/225 | 38/151 | 49/228 |
| • Standby | Watt | 7 | 8 | 8 | 8 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 64 | 69 | 63 | 66 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | 69 | 70 | 66 | 68 |
| - Sound pressure level heating noise (reference value depending on installation conditions) | dB(A) | 54 | 59 | 53 | 56 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 11 | 12 | 15 | 20 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 188 | 226 | 283 | 344 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 37 | 51 | 55 | 63 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 64 | 65 | 68 | 69 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 43 | 45 | 46 | 47 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 28 | 29 | 29 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 154 | 180 | 232 | 280 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 120 | 120 | 130 | 130 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Data related to NCV, conditional data

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

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

Hoval UltraGas® 2 (300-450)

| Type | | (300) | (350) | (400) | (450) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 54-274 | 67-315 | 62-362 | 73-415 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 58-299 | 70-352 | 69-399 | 77-451 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 83-274 | 115-311 | 97-361 | 111-408 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 93-299 | 129-352 | 108-399 | 122-451 |
| • Nominal heat input with natural gas ³⁾ | kW | 54-282 | 64-331 | 62-374 | 71-427 |
| • Nominal heat input with propane ²⁾ | kW | 87-282 | 121-331 | 100-374 | 115-427 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H₂O)) | l | 472 | 452 | 432 | 412 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 770 | 810 | 830 | 840 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.2/98.4 | 108.9/98.1 | 109.0/98.2 | 108.9/98.1 |
| • Room heating energy efficiency | | | | | |
| - without control | 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 | 505 | 590 | 653 | - |
| • NOx class (EN 15502) | | - | - | - | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 39 | 45 | 39 | 45 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 18 | 26 | 23 | 30 |
| • O ₂ content in flue gas min./max. output | % | 5.5/5.8 | 5.7/5.7 | 5.9/5.9 | 6.0/5.6 |
| • Heat loss in standby mode | Watt | 750 | 750 | 750 | 750 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-80 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 80 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (W _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 | 5.0-13.6 | 4.1-15.3 | 4.7-17.5 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 51/365 | 55/350 | 56/518 | 56/590 |
| • Standby | Watt | 5 | 5 | 5 | 5 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 73 | 70 | 73 | 74 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | 71 | 72 | 73 | 74 |
| - Sound pressure level heating noise (reference value depending on installation conditions) | dB(A) | 63 | 60 | 63 | 64 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 22 | 25 | 28 | 29 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 445 | 522 | 591 | 674 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 85 | 101 | 98 | 112 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 64 | 65 | 66 | 67 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 43 | 44 | 48 | 47 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 29 | 29 | 29 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 364 | 428 | 483 | 552 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 130 | 130 | 130 | 130 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Data related to NCV, conditional data

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

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

Hoval UltraGas® 2 (500-800)

| Type | | (500) | (620) | (700) | (800) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 71-449 | 125-580 | 132-653 | 150-743 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 77-491 | 136-622 | 146-703 | 166-804 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 111-441 | 168-569 | 174-643 | 233-744 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 121-491 | 178-622 | 187-703 | 254-804 |
| • Nominal heat input with natural gas ³⁾ | kW | 71-463 | 124-591 | 134-668 | 151-759 |
| • Nominal heat input with propane ²⁾ | kW | 115-463 | 174-591 | 180-668 | 236-759 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H2O)) | l | 408 | 536 | 509 | 831 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 850 | 1050 | 1100 | 1370 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.3/88.6 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.0/98.2 | 109.0/98.2 | 108.9/98.1 | 109.1/98.3 |
| • Room heating energy efficiency | | | | | |
| - without control | η _s % | - | - | - | - |
| - with control | η _s % | - | - | - | - |
| - with control and room sensor | η _s % | - | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 50 | 33 | 40 | 36 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 46 | 24 | 26 | 23 |
| • O ₂ content in flue gas min./max. output | % | 5.5/5.8 | 5.9/6.0 | 6.0/5.7 | 6.0/5.8 |
| • Heat loss in standby mode | Watt | 750 | 1000 | 1000 | 1200 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 7.3-47.7 | 12.8-60.9 | 13.8-68.9 | 15.6-78.2 |
| - Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 8.7-56.9 | 15.3-72.7 | 16.5-82.2 | 18.6-93.4 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 4.7-19.0 | 7.1-24.2 | 7.4-27.4 | 9.7-31.1 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 57/716 | 63/831 | 67/1060 | 94/1012 |
| • Standby | Watt | 5 | 5 | 5 | 7 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 78 | 75 | 76 | 78 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | 77 | 72 | 71 | - |
| - Sound pressure level heating noise (reference value depending on installation conditions) | dB(A) | 68 | 65 | 66 | 68 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 37 | 51 | 48 | 57 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 736 | 933 | 1055 | 1198 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 112 | 196 | 211 | 238 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 66 | 68 | 69 | 66 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 44 | 47 | 49 | 44 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 28 | 28 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 602 | 764 | 863 | 981 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 130 | 130 | 130 | 130 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Data related to NCV, conditional data

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

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

Hoval UltraGas® 2 (1000-1550)

| Type | | (1000) | (1100) | (1300) | (1550) |
|---|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 185-926 | 203-1038 | 241-1230 | 297-1447 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 205-999 | 229-1112 | 269-1320 | 324-1550 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 245-926 | 299-1033 | 362-1227 | 427-1439 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 264-999 | 316-1112 | 385-1320 | 453-1550 |
| • Nominal heat input with natural gas ³⁾ | kW | 187-943 | 206-1057 | 247-1251 | 297-1469 |
| • Nominal heat input with propane ²⁾ | kW | 248-943 | 306-1057 | 371-1251 | 437-1469 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H₂O)) | l | 756 | 718 | 1211 | 1118 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 1540 | 1600 | 2130 | 2300 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.0/98.2 | 108.6/97.8 | 108.7/97.9 | 108.5/97.7 |
| • Room heating energy efficiency | | | | | |
| - without control | η _s % | - | - | - | - |
| - with control | η _s % | - | - | - | - |
| - with control and room sensor | η _s % | - | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 36 | 41 | 37 | 35 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 25 | 26 | 23 | 23 |
| • O ₂ content in flue gas min./max. output | % | 6.0/5.9 | 6.0/5.9 | 6.0/5.9 | 6.0/6.0 |
| • Heat loss in standby mode | Watt | 1200 | 1200 | 1600 | 1600 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-300 | 17.4-300 | 17.4-300 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 300 | 300 | 300 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (W _o = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 19.3-97.2 | 21.2-109.0 | 25.5-129.0 | 30.6-151.4 |
| - Natural gas LL (G25) - (W _o = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 23.0-116.0 | 25.3-130.0 | 30.4-153.9 | 36.5-180.7 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 10.2-38.6 | 12.5-43.3 | 15.2-51.3 | 17.9-60.2 |
| • Operating voltage | V/Hz | 1 x 230/50 3 x 400/50 |
| • Electrical power consumption min./max. | Watt | 203-1873 | 203-1933 | 271/4111 | 301/4141 |
| • Standby | Watt | 7 | 7 | 5 | 7 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 83 | 82 | 86 | 85 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | - | - | - | - |
| - Sound pressure level heating noise (reference value depending on installation conditions) | dB(A) | 73 | 72 | 76 | 75 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 68 | 72 | 100 | 138 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 1488 | 1669 | 1975 | 2230 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 295 | 325 | 390 | 450 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 69 | 70 | 66 | 68 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 47 | 49 | 45 | 46 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 28 | 29 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 1219 | 1366 | 1617 | 1830 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 130 | 130 | 130 | 130 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Data related to NCV, conditional data

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

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

Hoval UltraGas® 2 H (700-1550)

| Type | | H (700) | H (1100) | H (1550) |
|---|-----------------------|-------------------------|--------------------------|--------------------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 132-653 | 203-1038 | 297-1447 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 146-703 | 229-1112 | 324-1550 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 174-643 | 299-1033 | 427-1439 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 187-703 | 316-1112 | 453-1550 |
| • Nominal heat input with natural gas ³⁾ | kW | 134-668 | 206-1057 | 297-1469 |
| • Nominal heat input with propane ²⁾ | kW | 180-668 | 306-1057 | 437-1469 |
| • Operating pressure heating min./max. (PMS) | bar | 1/10 | 1/10 | 1/10 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 |
| • Boiler water content (V _(H2O)) | l | 509 | 709 | 1118 |
| • Flow resistance boiler | | | see diagram | |
| • Minimum circulation water quantity | l/h | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 1144 | 1700 | 2440 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2-88.5 | 98.2-88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 108.9/98.1 | 108.6-97.8 | 108.5/97.7 |
| • Room heating energy efficiency | | | | |
| - without control | ηs % | - | - | - |
| - with control | ηs % | - | - | - |
| - with control and room sensor | ηs % | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 40 | 41 | 35 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 26 | 26 | 23 |
| • O ₂ content in flue gas min./max. output | % | 6.0/5.7 | 6.0/5.9 | 6.0/6.0 |
| • Heat loss in standby mode | Watt | 1000 | 1200 | 1600 |
| • Dimensions | | see dimensional drawing | | |
| • Gas flow pressure min./max. | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-300 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 300 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 13.8-68.9 | 21.2-109.0 | 30.6-151.4 |
| - Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 16.5-82.2 | 25.3-130.0 | 36.5-180.7 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 7.4-27.4 | 12.5-43.3 | 17.9-60.2 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 3 x 400/50 | 1 x 230/50 3 x 400/50 |
| • Electrical power consumption min./max. | Watt | 67/1060 | 203/1933 | 301/4141 |
| • Standby | Watt | 5 | 7 | 7 |
| • Type of protection | IP | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 76 | 82 | 85 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | 71 | - | - |
| - Sound pressure level heating noise (reference value depending on installation conditions) | dB(A) | 66 | 72 | 75 |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 48 | 72 | 138 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | |
| • Flue gas system | | | | |
| - Temperature class | | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 1055 | 1669 | 2230 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 211 | 325 | 450 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 69 | 70 | 68 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 49 | 49 | 46 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 863 | 1366 | 1830 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 130 | 130 | 130 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 |

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

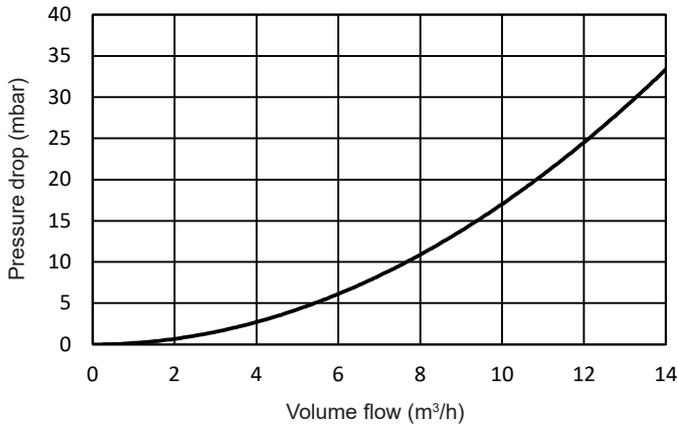
²⁾ Data related to NCV, conditional data

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

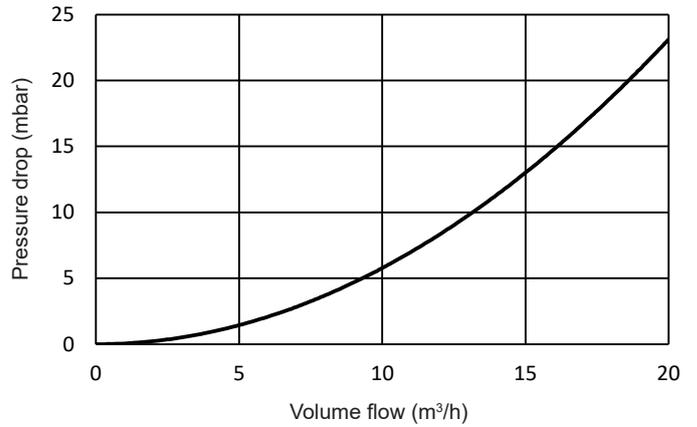
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

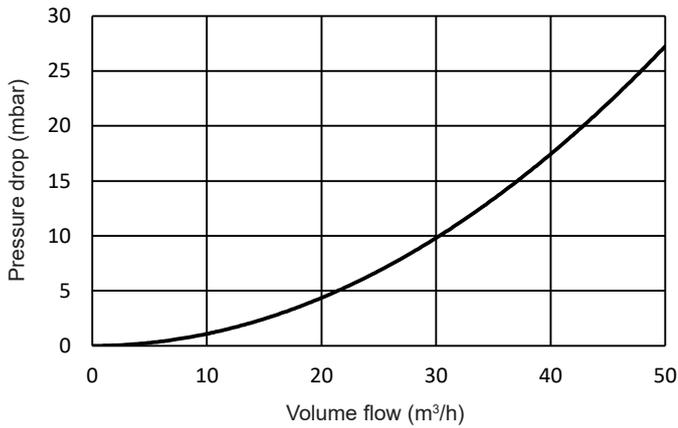
UltraGas® 2 (125,150)



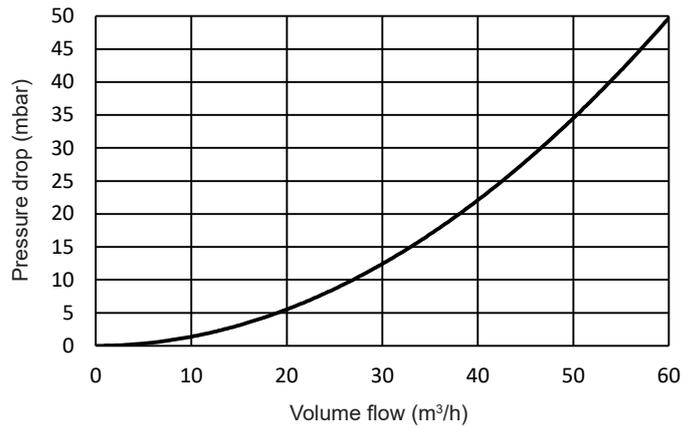
UltraGas® 2 (190,230)



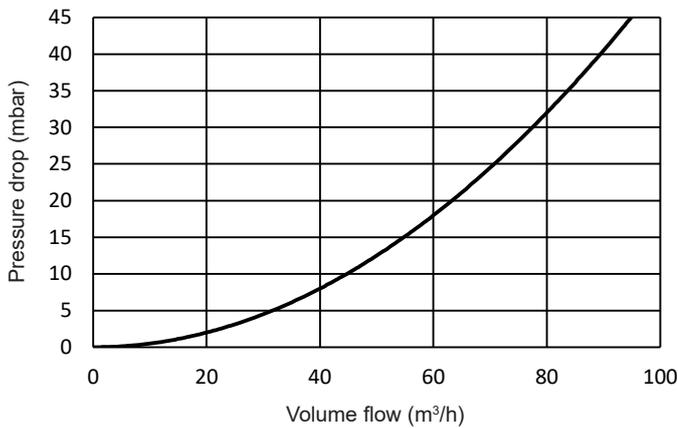
UltraGas® 2 (300-500)



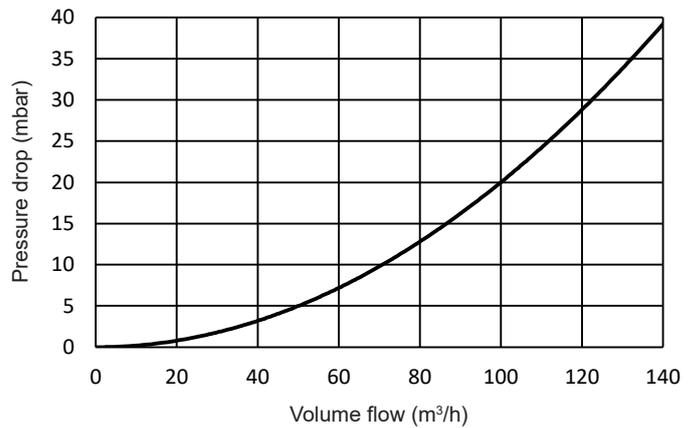
UltraGas® 2 (620,700)



UltraGas® 2 (800-1100)

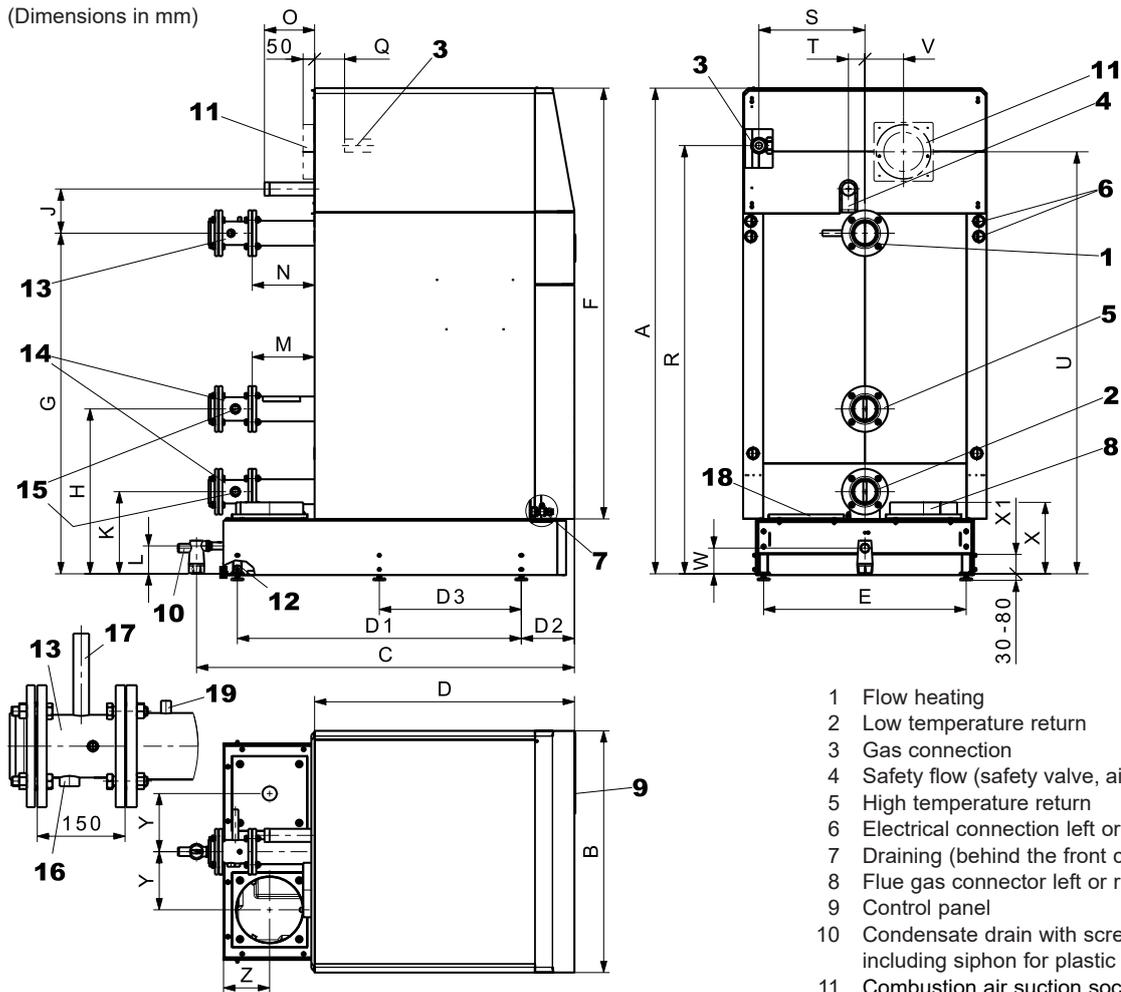


UltraGas® 2 (1300,1550)



UltraGas® 2 (125-1550)

(Dimensions in mm)



- 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

Notice
Minimal space see separate page

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

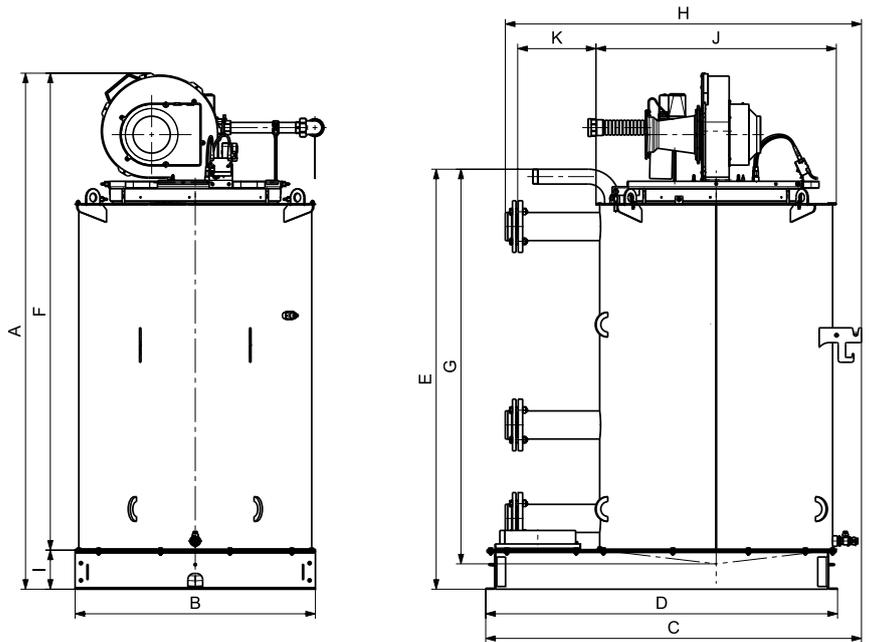
| Type | S | T | U | V | W | X | X1 | Y | Z | 1,2,5* | 3 | 4 | 8 | 10 | 11 |
|-------------|-----|-----|------|-----|-----|-----|----|-----|-----|-------------------------|-----------|----------|-----------|-------|-----------|
| (125,150) | 318 | 40 | 1725 | 101 | 124 | 319 | 99 | 157 | 139 | DN 65 / PN 6 / 4-hole | Rp 1" | R 1" | Ø 155/159 | DN 40 | Ø 122/125 |
| (190,230) | 371 | 50 | 1778 | 101 | 124 | 319 | 99 | 195 | 139 | DN 65 / PN 6 / 4-hole | Rp 1 1/2" | R 1 1/4" | Ø 155/159 | DN 40 | Ø 197/200 |
| (300-500) | 368 | 40 | 1736 | 101 | 121 | 316 | 96 | 217 | 184 | DN 100 / PN 6 / 4-hole | Rp 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 casing and insulation
(Dimensions in mm)

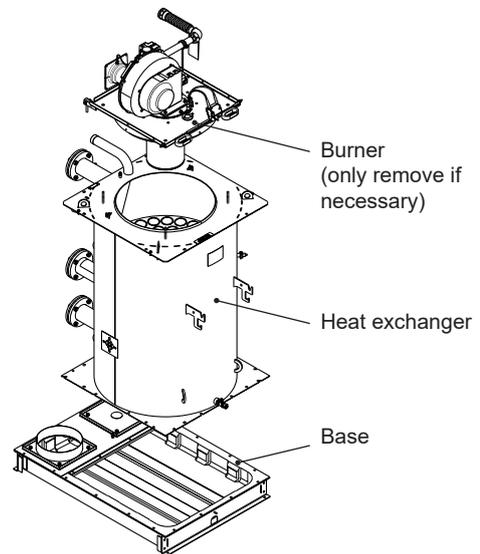
UltraGas® 2 (125-1550)



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

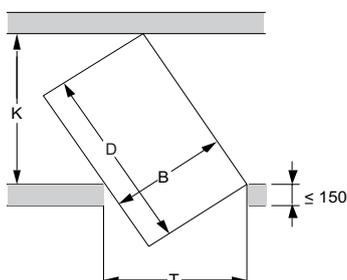
Weights for multi-part installation UltraGas® 2

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



Required minimum width of door and corridor for boiler installation

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



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

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

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

Calculation example for the necessary corridor width

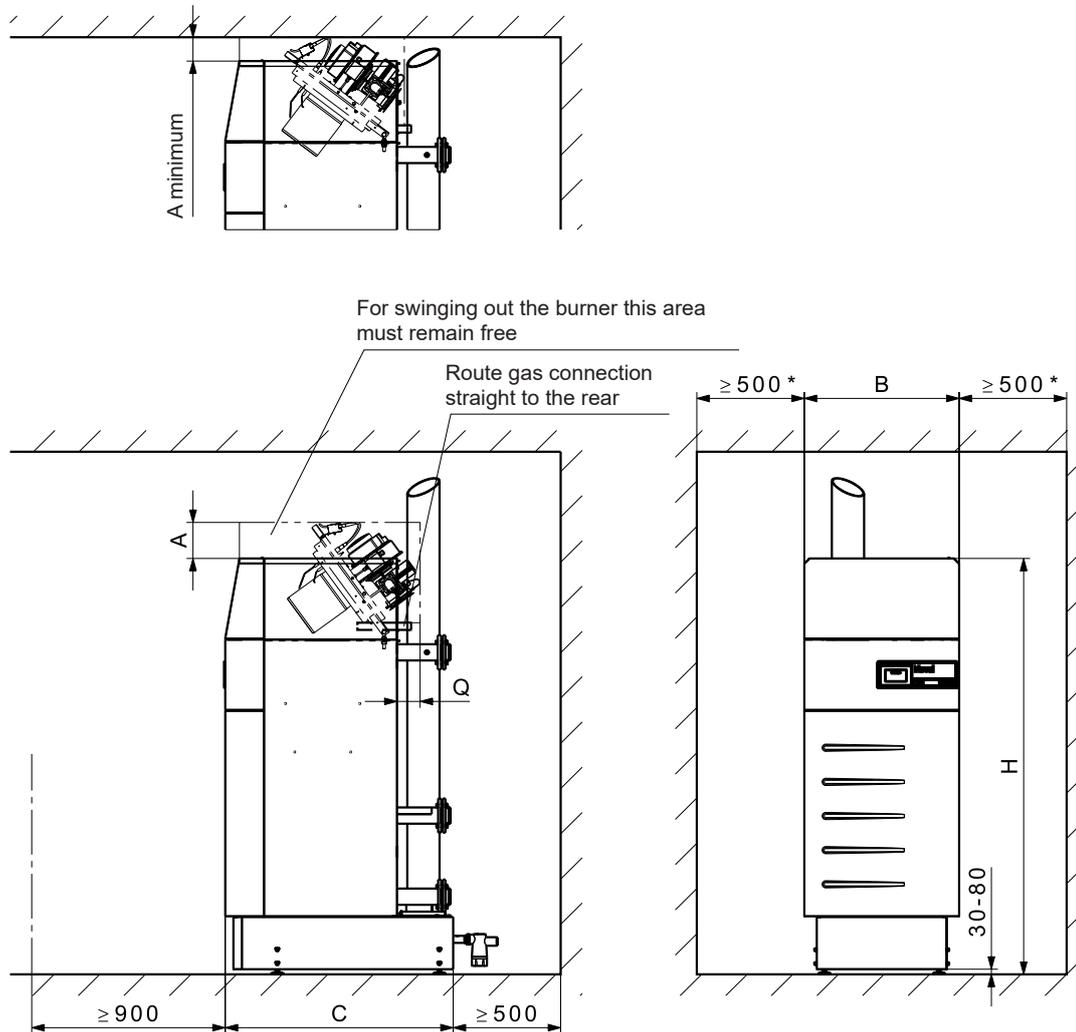
Door width T = 800

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

Space requirements

(Dimensions in mm)

UltraGas® 2 (125-1550)



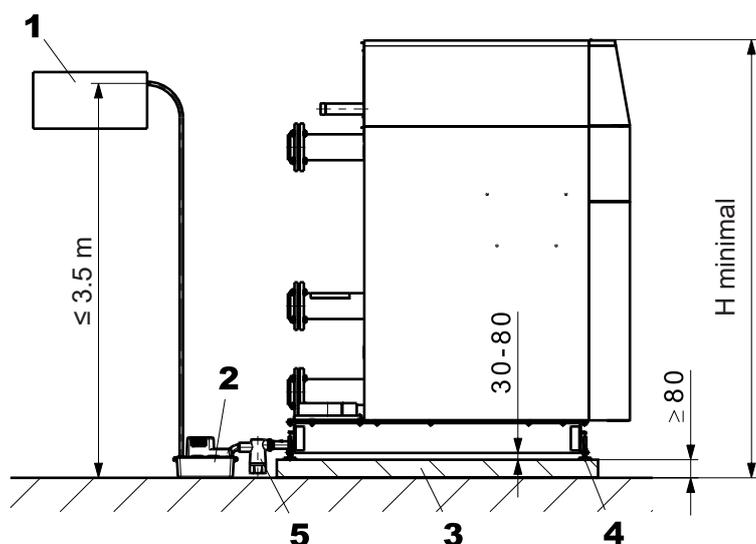
| UltraGas® 2 type | A ¹⁾ | A minimum ²⁾ | B | C | H ³⁾ | H minimum ⁴⁾ | Q |
|------------------|-----------------|-------------------------|------|------|-----------------|-------------------------|-----|
| (125,150) | 169 | 106 | 720 | 1060 | 1953 | 1934 | 125 |
| (190,230) | 155 | 71 | 820 | 1160 | 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.

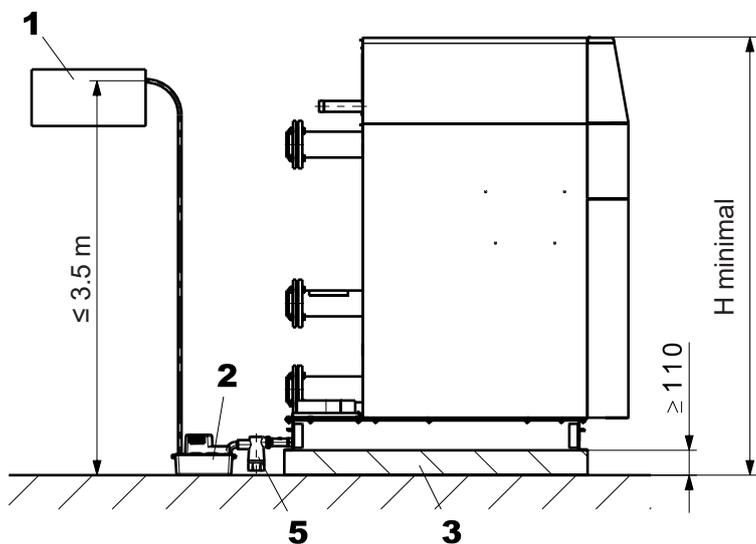
UltraGas® 2 (125-1550) with masonry base and adjustable feet

(Dimensions in mm)



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

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



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

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

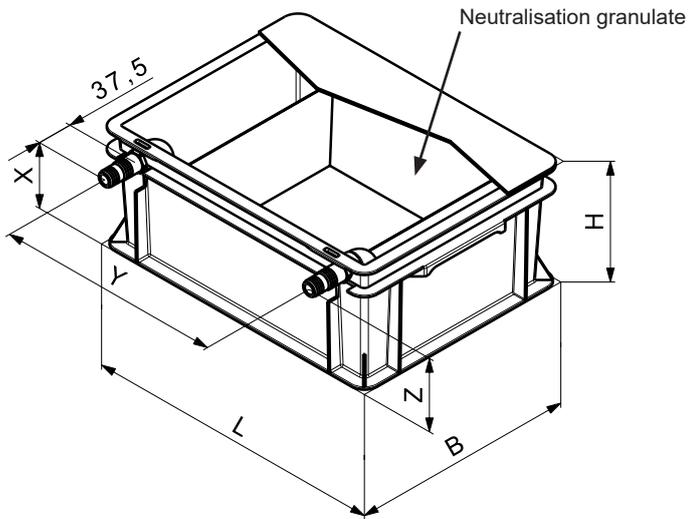
¹⁾ Height value assumes adjustable feet are set to 30 mm

²⁾ **Caution!** The installer will have to fit a siphon with min. 70 mm barrier height.

Notice

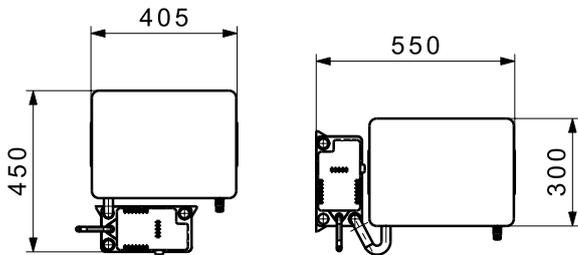
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimal, cleaning the siphon is more difficult.

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

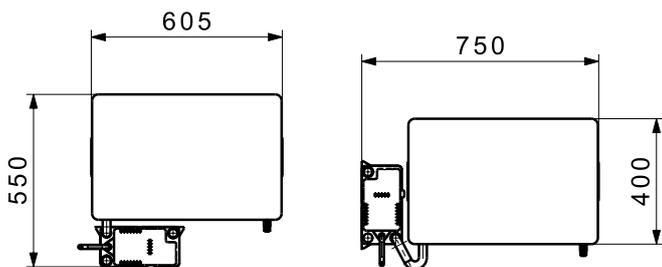


| | HNB-0400,-0800 | HNB-1200,-1600 |
|--------------------------------------|--------------------|--------------------|
| Dimensions (L x W x H) | 405 x 300 x 180 mm | 605 x 400 x 180 mm |
| Inlet height (Z) | 128 mm | |
| Drain height (X) | 118 mm | |
| Distance between the connections (Y) | approx.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

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



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



Standards and guidelines

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

The following standards and guidelines must be complied with:

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

Water quality in heating systems Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- In the case of **softening the filling and replacement water**, the following conditions must be complied with:

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

- For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
- For an installed heat output above 1000 kW, 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 (LAS system) mount the connection for direct combustion air inlet. It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

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

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

Gas connection

Commissioning

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

Manual gas shut-off valve and gas filter

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

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

Construction of a recommended gas connection



Legend:

manual gas shut-off valve

gas hose/compensator

gas filter

pressure gauge with test burner and push-button valve

Type of gas

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

Gas pressure natural gas

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

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.
- Necessary gas flow pressure at the boiler inlet: UltraGas® 2 (125-1550) min. 37 mbar, max. 50 mbar

Gas pressure regulator

- The installation of a gas pressure regulator is only necessary if the gas flow pressure in the gas network exceeds the maximum permissible gas flow pressure of the UltraGas® 2 or if there are considerable fluctuations in the gas flow pressure.
- Pressure fluctuations in the gas network must be prevented by suitable measures (e.g. gas storage tanks or pressure regulators). The local conditions must be checked in each individual case.

Closed heating system

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

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

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

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions" for information

Pump follow-on

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

Heating boiler in the attic

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

Condensate drain

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

Diaphragm pressure expansion tank

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

Safety valve

- At the safety flow a safety valve and an automatic 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.

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) Designation DN | Number of elbows 90° (flue gas + combustion air) Total pipe length in m (flue gas + combustion air) | | | | |
|---------------------|----------------------------------|--|--|----|----|----|----|
| UltraGas® 2 type | Internal Ø flue gas outlet mm | | 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 | | 45 | 44 | 43 | 43 | |
| (300) | 252 | 200 | 45 | 44 | 43 | 43 | |
| (350) | 252 | | 44 | 43 | 43 | 42 | |
| (400) | 252 | 250 | 44 | 43 | 42 | 41 | |
| (450) | 252 | | 50 | 50 | 50 | 50 | |
| (500) | 252 | | 50 | 50 | 50 | 50 | |
| (620) | 302 | | 43 | 42 | 41 | 40 | |
| (700) | 302 | | 42 | 41 | 40 | 39 | |
| (800) | 302 | | 300 | 45 | 44 | 43 | 43 |
| (1000) | 302 | | | 44 | 43 | 43 | 42 |
| (1100) | 302 | 350 | 47 | 46 | 45 | 44 | |
| (1300) | 402 | | 46 | 45 | 44 | 43 | |
| (1550) | 402 | | 45 | 44 | 43 | 43 | |
| H (700) | 302 | 250 | 42 | 41 | 40 | 39 | |
| H (1100) | 302 | 350 | 47 | 46 | 45 | 44 | |
| H (1550) | 402 | | 45 | 44 | 43 | 43 | |

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

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

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

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

Hoval UltraGas® 2 D (250-3100)

Gas boiler

- Double boiler made of steel with condensing technology consisting of 2 individual boilers of 125, 150, 190, 230, 300, 350, 400, 450, 500, 620, 700, 800, 1000, 1100, 1300 or 1550 kW
- For the combustion of:
 - natural gas E
 - natural gas E with a hydrogen content (H₂) of up to 20 %
 - propane according to DIN 51622
 - biomethane according to EN 16723
- Combustion chamber made of stainless steel
- Maximum flue gas condensation by secondary heating surfaces made of **TurboFer®** hybrid stainless steel composite pipes; heating gas side: stainless steel/aluminium water side: stainless steel
- Thermal insulation with mineral wool mat
- Water pressure sensor:
 - Fulfills the function of a minimum and maximum pressure limiter
 - Replacement for the low water level protection
- Flue gas temperature sensor with flue gas limiter function
- Pre-mix burner
 - with fan and venturi
 - modulating operation
 - automatic ignition
 - ionisation guard
 - gas pressure monitor
- Gas boiler fully cased with steel plates, red powder-coated
- Flue gas overpressure set consisting of motorised air intake suction flap (connection for direct combustion air supply without accessories possible) and flue gas collector.
- Heating connections backwards incl. counter flanges, screws and seals
 - Flow
 - Return - high temperature
 - Return - low temperature
- **UltraGas® 2 D (600-3100):** with integrated gas pipe compensator
- Each individual boiler has a Hoval TopTronic® E control built in
- Possibility of connecting an external gas solenoid valve with error output



Model range

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

TopTronic® E controller

Control panel

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

TopTronic® E control module

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

TopTronic® E basic module heat generator TTE-WEZ

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

Options for TopTronic® E controller

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

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

UltraGas® 2 (125-230)

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

UltraGas® 2 (300-500):

- 3 controller modules/module expansions

UltraGas® 2 (620-1550):

- 4 controller modules/module expansions

Notice

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

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

Further information about the TopTronic® E
see "Controls"

Optional

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

Delivery

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

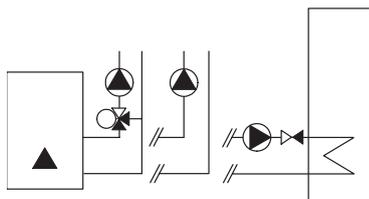
On site

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

Notice

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

Floor-standing gas condensing boiler



Boiler permissions

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

Hoval UltraGas® 2 D (250-3100)

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

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

Gas boiler made of steel with TopTronic® E control, combustion chamber made of stainless steel.

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

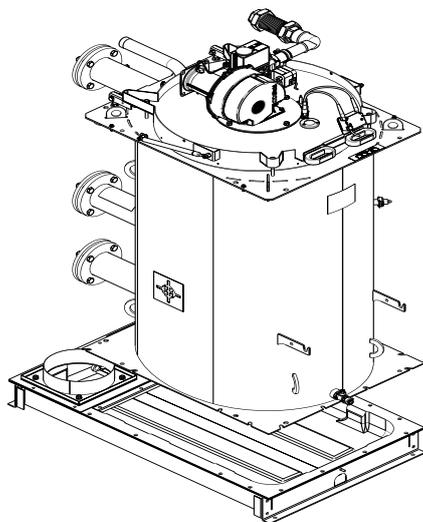
Delivery

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

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

Part No.

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



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

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

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

¹ kW = modulation range

Part No.

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

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

Delivery time approx. 8 weeks

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

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

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

¹ kW = modulation range

Propane version
on request

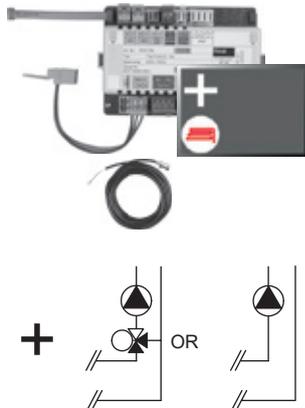


System flow sensor
for installation in the flow connector sleeve Rp 1/4",
for regulating the flow temperature

6053 398

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

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



TopTronic® E module expansion heating circuit TTE-FE HK

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

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

Consisting of:

- Fitting accessories
- 1 contact sensor ALF/2P/4/T, L = 4.0 m

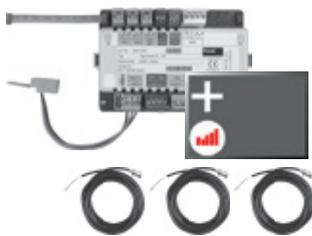
- Basic plug set FE module

Notice

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

Part No.

6034 576



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:

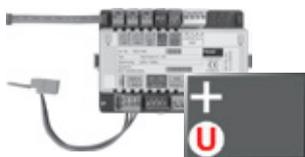
- Fitting accessories
- 3 contact sensors ALF/2P/4/T, L = 4.0 m

- Plug set FE module

Notice

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

6037 062



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

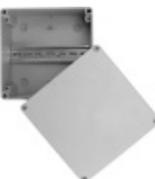
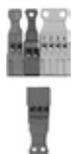
see "Controls" - "Hoval TopTronic® E module expansions" chapter

Notice

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

6034 575

Accessories for TopTronic® E



TopTronic® E controller modules

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

Supplementary plug set

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

TopTronic® E room control modules

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

Enhanced language package TopTronic® E

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

HovalConnect

- HovalConnect LAN
- HovalConnect WLAN
- HovalConnect Modbus
- HovalConnect KNX

TopTronic® E interface modules

- GLT module 0-10 V

TopTronic® E sensors

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

System module SB-SM-BZ1

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

Bivalent switch

- for various release or switching functions
- Bivalent switch 1-piece
- Bivalent switch 2-piece

System housing

- System housing 182 mm
- System housing 254 mm

TopTronic® E wall casing

- WG-190 Wall casing small
- WG-360 Wall casing medium
- WG-360 BM Wall casing medium with control module cut-out
- WG-510 Wall casing large
- WG-510 BM Wall casing large with control module cut-out

Further information

see "Controls"

Part No.

6034 571

6037 058

6037 057

6034 574

6034 499

6034 503

6037 071

6037 069

6037 070

6039 253

6049 496

6049 498

6049 501

6049 593

6034 578

2055 889

2055 888

2056 775

2056 776

6048 055

2056 858

2061 826

6038 551

6038 552

6052 983

6052 984

6052 985

6052 986

6052 987

Accessories

Part No.

Flow temperature guard

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



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

242 902



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

6033 745

Immersion thermostat RAK-TW1000.S SB 150
Thermostat with pocket 1/2"
- depth of immersion 150 mm,
brass nickel-plated

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

6018 710



Fitting pipe flow

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 return

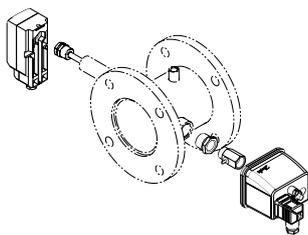
| Dimension | Suitable to UltraGas® 2 D | Connection |
|----------------------|---------------------------|------------|
| DN 65 ¹⁾ | (250-460) | flow |
| DN 65 ¹⁾ | (250-460) | return |
| DN 100 ¹⁾ | (600-1400) | flow |
| DN 100 ¹⁾ | (600-1400) | return |
| DN 125 ¹⁾ | (1600-2200) | flow |
| DN 125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

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

¹⁾ 2 pieces are necessary

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

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

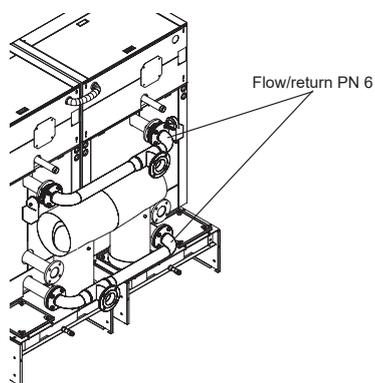
Consisting of:

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

2 pieces per double boiler necessary

Part No.

6051 903



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

Pipe connection set for double boiler including motor shut-off flap valves.

For 24 V, pre-wired.

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

for UltraGas® 2 D (250-460)

for UltraGas® 2 D (600-1000)

for UltraGas® 2 D (1240,1400)

for UltraGas® 2 D (1600-2200)

for UltraGas® 2 D (2600,3100)

6054 637

6054 638

6054 639

6054 640

6054 641



Hydraulic butterfly valve

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

For 24 V, pre-wired.

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

As an option if no flow/return set is ordered.

UltraGas® 2 (125-230) DN 65

UltraGas® 2 (300-700) DN 100

UltraGas® 2 (800-1100) DN 125

UltraGas® 2 (1300, 1550) DN 150

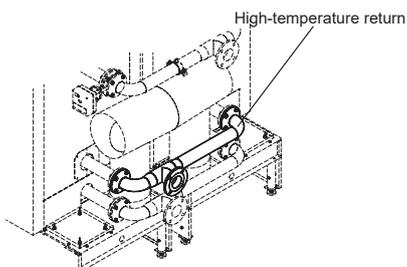
6050 605

6050 606

6050 607

6051 894

2 pieces per double boiler necessary



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

for UltraGas® 2 D

(e.g. for return calorifier charge).

zu UltraGas® 2 D (250-460)

zu UltraGas® 2 D (600-1000)

zu UltraGas® 2 D (1240,1400)

zu UltraGas® 2 D (1600-2200)

zu UltraGas® 2 D (2600,3100)

6054 636

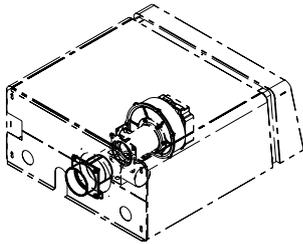
6054 396

6004 924

6009 534

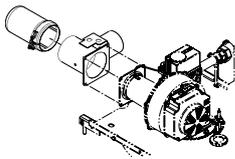
6051 915

Accessories



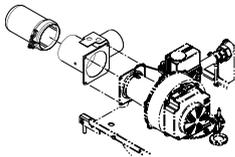
Connection for direct combustion air input
 Only in combination with a motorised combustion air damper (ordered separately).
 Can also be used for creating a boiler cascade with a common flue gas line.

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



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

6052 151



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

6052 152



Gas valve
 with thermally releasing cut-off device.

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

Accessories



Valve testing system

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

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

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

Gas valve kit

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

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

Gas ball valve with flange

| Type | |
|--------|----------|
| DN 65 | 2007 988 |
| DN 80 | 2007 989 |
| DN 100 | 2007 990 |



Fitting protection TAS

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



Mounting set for assembly

| Gas ball valve with fitting protection | | |
|---|--|----------|
| Type | | |
| MS-TAS 23-65 | | 6041 745 |
| MS-TAS 23-80 | | 6041 746 |
| MS-TAS 23-100 | | 6041 747 |

Gas filter

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



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

Gas pipe compensator 1" 6034 556

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



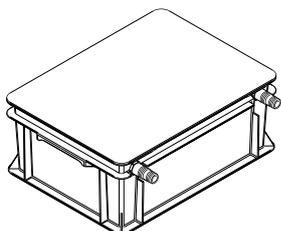
Gas pipe compensator 1½" 6034 557

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



2 pieces per double boiler necessary

Condensate drainage to UltraGas® 2 D



Neutralisation box

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

| Type | | Neutralisa- tion granulate | |
|-------------------------|----------|-------------------------------|----------|
| UltraGas® 2 (125-400) | HNB-0400 | 3 kg | 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. 4 m
 Can be combined with neutralisation box

6045 476



Double condensate pump

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

6061 175

2 pieces needed per double boiler



Neutralisation granulate

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

2028 906

Service

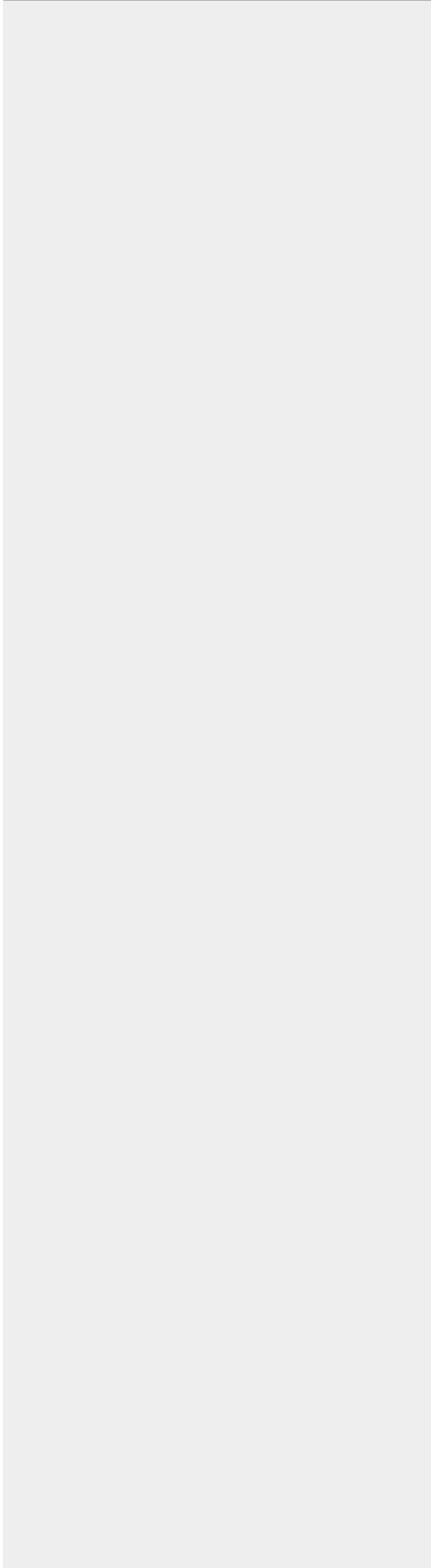


Commissioning

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

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

Part No.



Hoval UltraGas® 2 D (250-460)

| Type | | D (250) | D (300) | D (380) | D (460) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 21-228 | 33-278 | 35-354 | 47-436 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 25-252 | 35-302 | 38-382 | 51-466 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 27-226 | 43-276 | 55-351 | 81-434 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 30-252 | 48-302 | 62-382 | 90-466 |
| • Nominal heat input with natural gas ³⁾ | kW | 23-232 | 32-284 | 35-358 | 47-446 |
| • Nominal heat input with propane ²⁾ | kW | 28-232 | 44-284 | 57-358 | 84-446 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H₂O)) | l | 2 x 207 | 2 x 195 | 2 x 276 | 2 x 265 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 2 x 378 | 2 x 400 | 2 x 490 | 2 x 510 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.6/88.9 | 97.6/88.1 | 98.5/88.7 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 108.7/98.1 | 108.7/98.1 | 109.0/98.2 | 108.4/97.8 |
| • Room heating energy efficiency | | | | | |
| - without control | η _s % | 93 | 93 | 93 | 93 |
| - with control | η _s % | 95 | 95 | 95 | 95 |
| - with control and room sensor | η _s % | 97 | 97 | 97 | 97 |
| - annual energy consumption | Q _{HE} GJ | 386 | 479 | 598 | 751 |
| • NOx class (EN 15502) | | - | - | - | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 25 | 28 | 33 | 37 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 31 | 21 | 25 | 13 |
| • O ₂ content in flue gas min./max. output | % | 5.9/5.6 | 5.5/6.0 | 5.9/6.0 | 6.0/5.9 |
| • Heat loss in standby mode | Watt | 760 | 760 | 1020 | 1020 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-80 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 80 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (W _o = 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) - (W _o = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 2.8-28.5 | 3.9-34.9 | 4.3-44.0 | 5.8-54.9 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 1.2-9.5 | 1.8-11.6 | 2.3-14.7 | 3.4-18.3 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 41/280 | 43/450 | 38/302 | 49/456 |
| • Standby | Watt | 7 | 8 | 8 | 8 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 76 | 81 | 67 | 70 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | - | - | - | - |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 22 | 24 | 30 | 40 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 376 | 452 | 566 | 688 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 37 | 51 | 55 | 63 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 64 | 65 | 68 | 69 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 43 | 45 | 46 | 47 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 28 | 29 | 29 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 308 | 360 | 464 | 560 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 60 | 60 | 60 | 60 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

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

²⁾ Data related to NCV, conditional data

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

⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Hoval UltraGas® 2 D (600-1000)

| Type | | D (600) | D (700) | D (800) | D (900) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 54-548 | 67-630 | 62-724 | 73-830 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 58-598 | 70-704 | 69-798 | 77-902 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 83-548 | 115-622 | 97-722 | 111-816 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 93-598 | 129-704 | 108-798 | 122-902 |
| • Nominal heat input with natural gas ³⁾ | kW | 54-564 | 64-662 | 62-748 | 71-854 |
| • Nominal heat input with propane ²⁾ | kW | 87-564 | 121-662 | 100-748 | 115-854 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H2O)) | l | 2 x 472 | 2 x 452 | 2 x 432 | 2 x 412 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 2 x 770 | 2 x 810 | 2 x 830 | 2 x 840 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.2/98.4 | 108.9/98.1 | 109.0/98.2 | 108.9/98.1 |
| • Room heating energy efficiency | | | | | |
| - without control | 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 | Watt | 1500 | 1500 | 1500 | 1500 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-80 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 80 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 5.6-58.1 | 6.6-68.2 | 6.4-77.1 | 7.3-88.0 |
| - Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 6.6-69.4 | 7.9-81.4 | 7.6-92.0 | 8.7-105.0 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 3.6-23.1 | 4.9-27.1 | 4.1-30.7 | 4.7-35.0 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 51/730 | 55/700 | 56/1036 | 56/1180 |
| • Standby | Watt | 5 | 5 | 5 | 5 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 76 | 73 | 76 | 77 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | - | - | - | - |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 44 | 50 | 56 | 58 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 890 | 1044 | 1182 | 1348 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 85 | 101 | 98 | 112 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 64 | 65 | 66 | 67 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 43 | 44 | 48 | 47 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 29 | 29 | 29 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 728 | 856 | 966 | 1104 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 60 | 60 | 60 | 60 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Hoval UltraGas® 2 D (1000-1600)

| Type | | D (1000) | D (1240) | D (1400) | D (1600) |
|---|-----------------------|-------------------------|------------|------------|------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 71-898 | 125-1160 | 132-1306 | 150-1486 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 77-982 | 136-1244 | 146-1406 | 166-1608 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 111-882 | 168-1139 | 174-1286 | 233-1488 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 121-982 | 178-1244 | 187-1406 | 254-1610 |
| • Nominal heat input with natural gas ³⁾ | kW | 71-926 | 124-1182 | 134-1336 | 151-1518 |
| • Nominal heat input with propane ²⁾ | kW | 115-926 | 174-1182 | 180-1336 | 236-1518 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H₂O)) | l | 2 x 408 | 2 x 536 | 2 x 509 | 2 x 831 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 2 x 850 | 2 x 1050 | 2 x 1100 | 2 x 1370 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.3/88.6 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.0/98.2 | 109.0/98.2 | 108.9/98.1 | 109.1/98.3 |
| • Room heating energy efficiency | | | | | |
| - without control | η _s % | - | - | - | - |
| - with control | η _s % | - | - | - | - |
| - with control and room sensor | η _s % | - | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 50 | 33 | 40 | 36 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 46 | 24 | 26 | 23 |
| • O ₂ content in flue gas min./max. output | % | 5.5/5.8 | 5.9/6.0 | 6.0/5.7 | 6.0/5.8 |
| • Heat loss in standby mode | Watt | 1500 | 2000 | 2000 | 2400 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-80 | 17.4-80 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 80 | 80 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (W _o = 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) - (W _o = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 8.7-113.9 | 15.3-145.4 | 16.5-164.3 | 18.6-186.7 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 4.7-38.0 | 7.1-48.4 | 7.4-54.8 | 9.7-62.2 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 |
| • Electrical power consumption min./max. | Watt | 57/1432 | 63/1662 | 67/2120 | 94/2024 |
| • Standby | Watt | 5 | 5 | 5 | 7 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 81 | 78 | 79 | 81 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | - | 72 | 71 | - |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 74 | 102 | 96 | 114 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 1472 | 1866 | 2110 | 2396 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 112 | 196 | 211 | 238 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 66 | 68 | 69 | 66 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 44 | 47 | 49 | 44 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 28 | 28 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 1204 | 1528 | 1726 | 1962 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 60 | 60 | 60 | 60 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Hoval UltraGas® 2 D (2000-3100)

| Type | | D (2000) | D (2200) | D (2600) | D (3100) |
|---|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 185-1852 | 203-2076 | 241-2460 | 297-2894 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 205-1998 | 229-2224 | 269-2640 | 324-3100 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 245-1852 | 299-2067 | 362-2455 | 427-2877 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 264-1998 | 316-2224 | 385-2640 | 453-3100 |
| • Nominal heat input with natural gas ³⁾ | kW | 187-1886 | 206-2114 | 247-2502 | 297-2938 |
| • Nominal heat input with propane ²⁾ | kW | 248-1886 | 306-2114 | 371-2502 | 437-2938 |
| • Operating pressure heating min./max. (PMS) | bar | 1/6 | 1/6 | 1/6 | 1/6 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 | 95 |
| • Boiler water content (V _(H2O)) | l | 2 x 756 | 2 x 718 | 2 x 1211 | 2 x 1118 |
| • Flow resistance boiler | | see diagram | | | |
| • Minimum circulation water quantity | l/h | - | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 2 x 1540 | 2 x 1600 | 2 x 2130 | 2 x 2300 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | % | 109.0/98.2 | 108.6-97.8 | 108.7/97.9 | 108.5/97.7 |
| • Room heating energy efficiency | | | | | |
| - without control | ηs % | - | - | - | - |
| - with control | ηs % | - | - | - | - |
| - with control and room sensor | ηs % | - | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 36 | 41 | 37 | 35 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 25 | 26 | 23 | 23 |
| • O ₂ content in flue gas min./max. output | % | 6.0/5.9 | 6.0/5.9 | 6.0/5.9 | 6.0/6.0 |
| • Heat loss in standby mode | Watt | 2400 | 2400 | 3200 | 3200 |
| • Dimensions | | see dimensional drawing | | | |
| • Gas flow pressure min./max. | | | | | |
| - Natural gas E/LL | mbar | 17.4-300 | 17.4-300 | 17.4-300 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 300 | 300 | 300 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | | |
| - Natural gas E (Wo = 15.0 kWh/m ³) NCV = 9.7 kWh/m ³ | m ³ /h | 19.3-194.4 | 21.2-217.9 | 25.5-257.9 | 30.6-302.9 |
| - Natural gas LL (G25) - (Wo = 12.4 kWh/m ³) NCV = 8.13 kWh/m ³ | m ³ /h | 23.0-232.0 | 25.3-260.0 | 30.4-307.7 | 36.5-361.4 |
| - Propane (G31) NCV = 24.4 kWh/m ³ ²⁾ | m ³ /h | 10.2-77.3 | 12.6-86.6 | 15.2-102.5 | 17.9-120.4 |
| • Operating voltage | V/Hz | 1 x 230/50 3 x 400/50 |
| • Electrical power consumption min./max. | Watt | 203/3746 | 203/3866 | 271/8222 | 301/8282 |
| • Standby | Watt | 7 | 7 | 5 | 7 |
| • Type of protection | IP | 20 | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 86 | 85 | 89 | 88 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | - | - | - | - |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 136 | 144 | 200 | 276 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | | |
| • Flue gas system | | | | | |
| - Temperature class | | T120 | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | kg/h | 2976 | 3338 | 3950 | 4460 |
| - Flue gas mass flow at min. nominal heat input (dry) | kg/h | 295 | 325 | 390 | 450 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 69 | 70 | 66 | 68 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 47 | 49 | 45 | 46 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 28 | 29 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 2438 | 2732 | 3234 | 3660 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 60 | 60 | 60 | 60 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 | -50 |

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

²⁾ Data related to NCV, conditional data

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Hoval UltraGas® 2 DH (1400-3100)

| Type | | DH (1400) | DH (2200) | DH (3100) |
|---|-----------------------|-------------------------|--------------------------|--------------------------|
| • Nominal heat output at 80/60 °C, natural gas ¹⁾ | kW | 132-1306 | 203-2076 | 297-2894 |
| • Nominal heat output at 50/30 °C, natural gas ¹⁾ | kW | 146-1406 | 229-2224 | 324-3100 |
| • Nominal heat output at 80/60 °C, propane ²⁾ | kW | 174-1286 | 299-2067 | 427-2877 |
| • Nominal heat output at 50/30 °C, propane ²⁾ | kW | 187-1406 | 316-2224 | 453-3100 |
| • Nominal heat input with natural gas ³⁾ | kW | 134-1336 | 206-2114 | 297-2938 |
| • Nominal heat input with propane ²⁾ | kW | 180-1336 | 306-2114 | 437-2938 |
| • Operating pressure heating min./max. (PMS) | bar | 1/10 | 1/10 | 1/10 |
| • Operating temperature max. (T _{max}) | °C | 95 | 95 | 95 |
| • Boiler water content (V _(H₂O)) | l | 2 x 509 | 2 x 709 | 2 x 1118 |
| • Flow resistance boiler | | | see diagram | |
| • Minimum circulation water quantity | l/h | - | - | - |
| • Boiler weight (without water capacity, incl. cladding) | kg | 2 x 1144 | 2 x 1700 | 2 x 2440 |
| • Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) ⁴⁾ | % | 98.2/88.5 | 98.2/88.5 | 98.2/88.5 |
| • Boiler efficiency at 30 % partial load (NCV/GCV) ⁴⁾ | | 108.9/98.1 | 108.6/97.8 | 108.5/97.7 |
| • Room heating energy efficiency | | | | |
| - without control | ηs % | - | - | - |
| - with control | ηs % | - | - | - |
| - with control and room sensor | ηs % | - | - | - |
| - annual energy consumption | Q _{HE} GJ | - | - | - |
| • NOx class (EN 15502) | | 6 | 6 | 6 |
| • Nitrogen oxide emissions (EN 15502) (GCV) | NOx mg/kWh | 40 | 41 | 35 |
| • Carbon monoxide emissions at 50/30 °C (related to 3 % of O ₂) | CO mg/Nm ³ | 26 | 26 | 23 |
| • O ₂ content in flue gas min./max. output | % | 6.0/5.7 | 6.0/5.9 | 6.0/6.0 |
| • Heat loss in standby mode | Watt | 2000 | 2400 | 3200 |
| • Dimensions | | see dimensional drawing | | |
| • Gas flow pressure min./max. | | | | |
| - Natural gas E/LL | mbar | 17.4-80 | 17.4-300 | 17.4-300 |
| - Propane | mbar | 37-57 | 37-57 | 37-57 |
| • Gas inlet pressure max. (idle pressure) | mbar | 80 | 300 | 300 |
| • Gas connection values at 15 °C/1013 mbar: | | | | |
| - Natural gas E (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 | 7.4-54.8 | 12.6-86.6 | 17.9-120.4 |
| • Operating voltage | V/Hz | 1 x 230/50 | 1 x 230/50 3 x 400/50 | 1 x 230/50 3 x 400/50 |
| • Electrical power consumption min./max. | Watt | 67/2120 | 203/3866 | 301/8282 |
| • Standby | Watt | 5 | 7 | 7 |
| • Type of protection | IP | 20 | 20 | 20 |
| • Permitted ambient temperature during operation | °C | 5-40 | 5-40 | 5-40 |
| • Sound power level | | | | |
| - Heating noise (EN 15036 part 1) (room air dependent) | dB(A) | 79 | 85 | 88 |
| - Flue gas noise radiated from the mouth (DIN 45635 part 47) (room air dependent/independent of room air) | dB(A) | 71 | - | - |
| • Condensate quantity (natural gas) at 50/30 °C | l/h | 96 | 144 | 276 |
| • pH value of the condensate (approx.) | pH | 4.2 | 4.2 | 4.2 |
| • Construction | | B23, B23P, C53, C63 | | |
| • Flue gas system | | | | |
| - Temperature class | | T120 | T120 | T120 |
| - Flue gas mass flow at max. nominal heat input (dry) | | 2110 | 3338 | 4460 |
| - Flue gas mass flow at min. nominal heat input (dry) | | 211 | 325 | 450 |
| - Flue gas temperature at max. nominal heat output and 80/60 °C | °C | 69 | 70 | 68 |
| - Flue gas temperature at max. nominal heat output and 50/30 °C | °C | 49 | 49 | 46 |
| - Flue gas temperature at min. nominal heat output and 50/30 °C | °C | 29 | 29 | 28 |
| - Max. permissible temperature of the combustion air | °C | 48 | 48 | 48 |
| - Volume flow of combustion air | Nm ³ /h | 1726 | 2732 | 3660 |
| - Maximum supply pressure for combustion air supply and flue gas line | Pa | 60 | 60 | 60 |
| - Maximum draught/underpressure at flue gas outlet | Pa | -50 | -50 | -50 |

¹⁾ In relation to natural gas G20 (100 % methane). With a hydrogen content (H₂) of up to 20 % in accordance with DVGW ZP3100 (D), an output reduction of up to 7 % is possible.

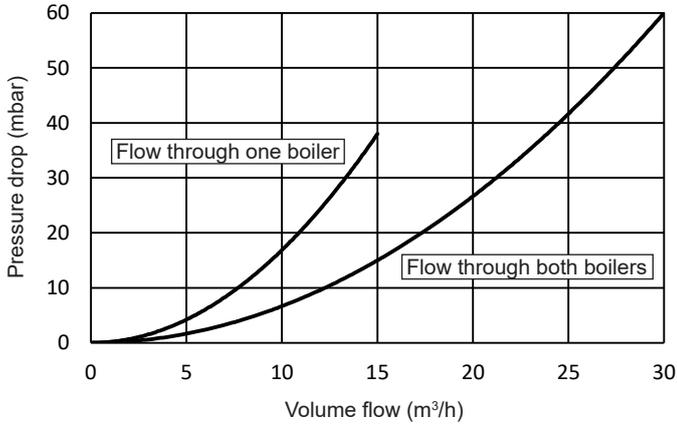
²⁾ Data related to NCV, conditional data

³⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without resetting.

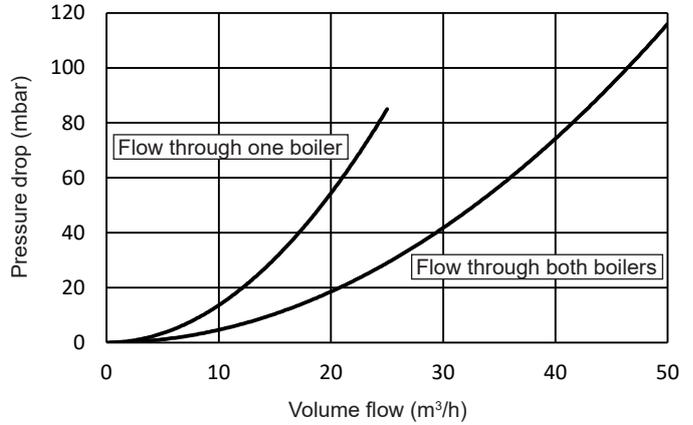
⁴⁾ Conversion acc. to EN 15502-1, Appendix J

Flow resistance on the heating water side

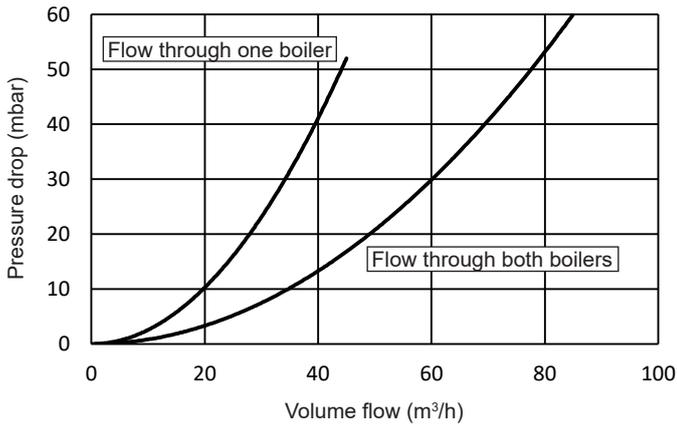
UltraGas® 2 D (250,300)



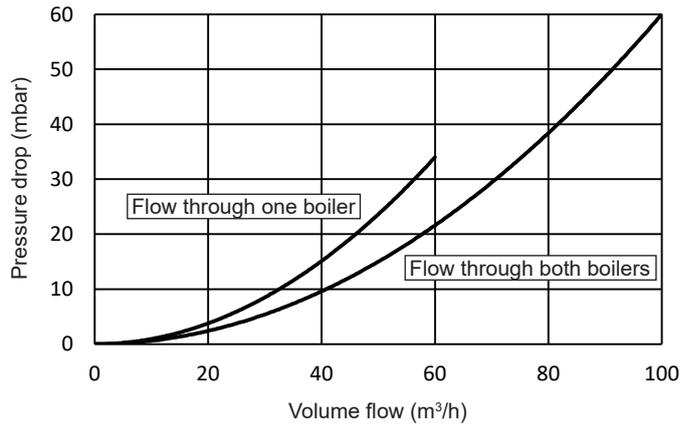
UltraGas® 2 D (380,460)



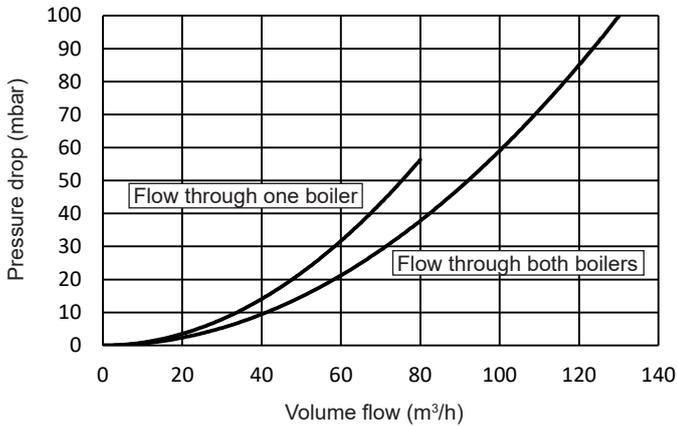
UltraGas® 2 D (600-1000)



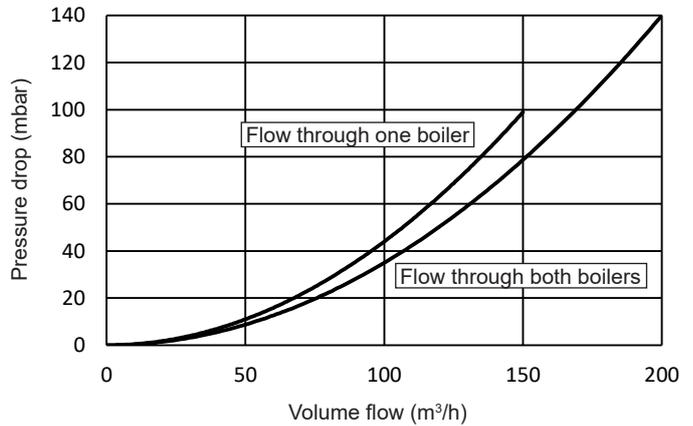
UltraGas® 2 D (1240,1400)



UltraGas® 2 D (1600-2200)

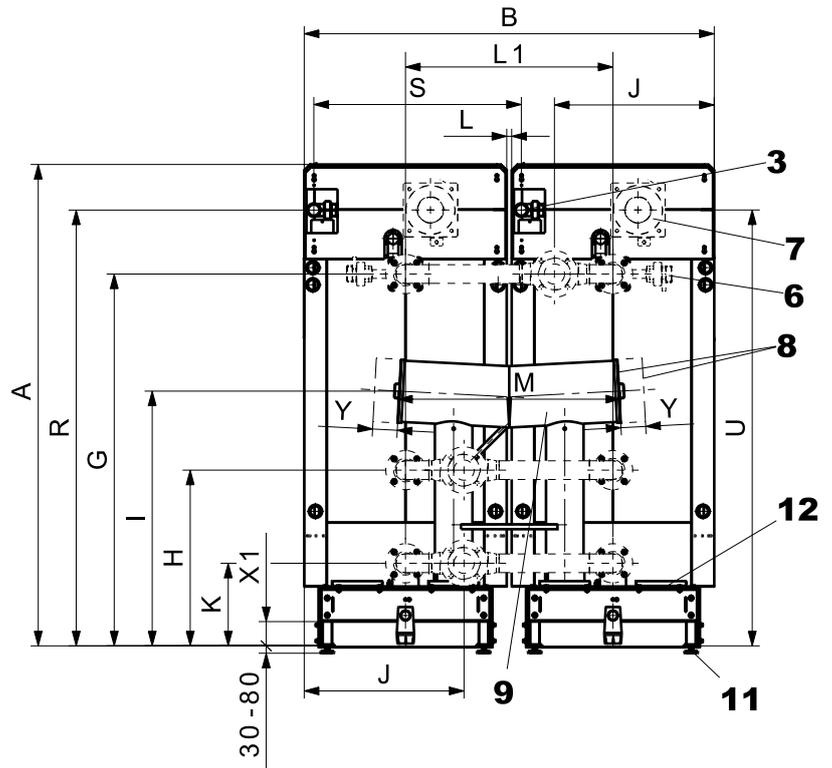
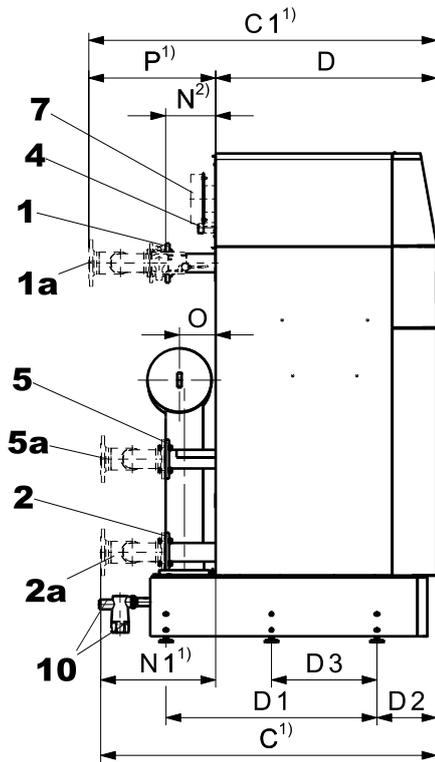


UltraGas® 2 D (2600,3100)



UltraGas® 2 D (250-3100)

(Dimensions in mm)



- 1 Flow heating
- 1a Hydraulic connection flow (option)²⁾
- 2 Low-temperature return
- 2a Hydraulic connection low-temperature return (option)²⁾
- 3 Gas connection
- 4 Safety flow (safety valve, air vent)
- 5 High-temperature return
- 5a Hydraulic connection high-temperature return (option)²⁾
- 6 Hydraulic shut-off valve (option)
- 7 Combustion air intake connector (option)
- 8 Flue gas outlet connection left or right
- 9 Flue gas collector
- 10 Condensate drain with siphon and screw connection for plastic pipe

- 11 Boiler feet (adjustable 30-80 mm)
- 12 Cleaning opening

Notice
 For subsequent technical details, see single boiler UltraGas® 2 (125-1550):

- Detailed dimensions and dimensions for multi-part installation
- Mounting position of system flow sensor
- Safety fitting pipe flow/return for mounting the protection set and diaphragm pressure expansion tank

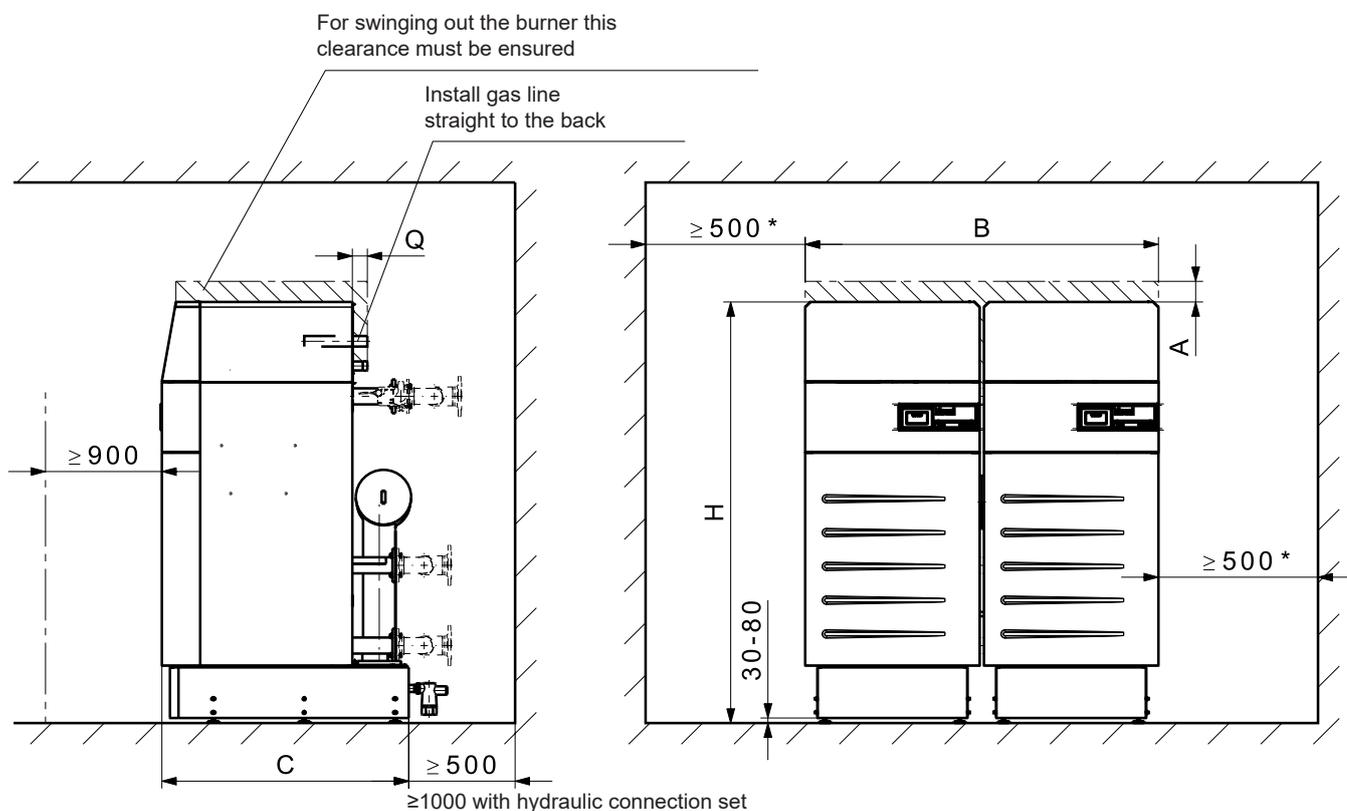
| Type | A | B | C ¹⁾ | C1 ¹⁾ | D | D1 | D2 | D3 | G | H | I | J | K | L | M | N ²⁾ | N1 ¹⁾ | O | P ¹⁾ | R | S | U | X1 | Y |
|---------------|------|------|-----------------|------------------|------|------|-----|-----|------|-----|------|------|-----|-----|------|-----------------|------------------|-----|-----------------|------|------|------|----|-----|
| D (250,300) | 1923 | 1560 | 1269 | 1317 | 799 | 754 | 242 | - | 1479 | 714 | 1116 | 597 | 334 | 120 | 902 | 207 | 470 | 142 | 518 | 1725 | 840 | 1725 | 99 | - |
| D (380,460) | 1968 | 1660 | 1363 | 1411 | 895 | 854 | 242 | - | 1517 | 717 | 1116 | 647 | 337 | 20 | 902 | 204 | 468 | 147 | 516 | 1778 | 840 | 1778 | 99 | - |
| D (600-1000) | 1923 | 1880 | 1807 | 1864 | 1165 | 1204 | 242 | - | 1447 | 745 | 1143 | 814 | 365 | 20 | 930 | 285 | 642 | 176 | 699 | 1735 | 950 | 1736 | 96 | - |
| D (1240,1400) | 2234 | 2240 | 1827 | 1884 | 1184 | 1294 | 242 | - | 1564 | 757 | 1195 | 904 | 377 | 20 | 1019 | 286 | 643 | 205 | 700 | 1966 | 1130 | 1938 | 89 | - |
| D (1600-2200) | 2255 | 2600 | 2158 | 2218 | 1364 | 1480 | 242 | - | 1573 | 788 | 1280 | 1054 | 408 | 20 | 1018 | 378 | 794 | 228 | 854 | 1959 | 1310 | 1959 | 89 | - |
| D (2600,3100) | 2395 | 3150 | 2571 | 2631 | 1640 | 1790 | 250 | 895 | 1600 | 822 | 1231 | 1339 | 442 | 30 | 1322 | 420 | 931 | 240 | 991 | 2064 | 1590 | 2064 | 89 | 495 |
| DH (1400) | 2234 | 2240 | 1827 | 1884 | 1184 | 1294 | 242 | - | 1564 | 757 | 1195 | 904 | 377 | 20 | 1019 | 286 | 643 | 205 | 700 | 1966 | 1130 | 1938 | 89 | - |
| DH (2200) | 2255 | 2600 | - | - | 1364 | 1480 | 242 | - | 1573 | 788 | 1280 | 1054 | 408 | 20 | 1018 | 378 | - | 228 | - | 1959 | 1310 | 1959 | 89 | - |
| DH (3100) | 2395 | 3150 | - | - | 1640 | 1790 | 250 | 895 | 1600 | 822 | 1231 | 1339 | 442 | 30 | 1322 | 390 | - | 240 | - | 2064 | 1590 | 2064 | 89 | 495 |

| Type | 1,2,5 ³⁾ | 1a,2a,5a ^{2),3)} | 3 | 4 | 7 | 8 | 10 |
|---------------|-------------------------|---------------------------|--------|-------|-----------|-----------|-------|
| D (250,300) | DN 65 / PN 6 / 4-hole | DN 80 / PN 6 / 4-hole | Rp 1" | R 1" | Ø 122/125 | Ø 254/256 | DN 40 |
| D (380,460) | DN 65 / PN 6 / 4-hole | DN 80 / PN 6 / 4-hole | Rp 1½" | R 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)



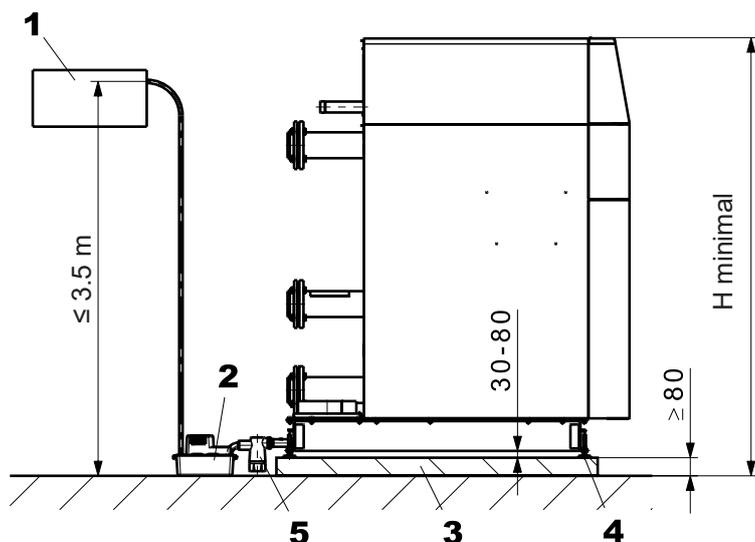
| UltraGas® 2 type | A ¹⁾ | A minimum ₂₎ | B | C | H ³⁾ | H minimum ₄₎ | Q |
|------------------|-----------------|-------------------------|------|------|-----------------|-------------------------|-----|
| D (250,300) | 169 | 106 | 1560 | 1060 | 1953 | 1934 | 125 |
| D (380,460) | 155 | 71 | 1660 | 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.

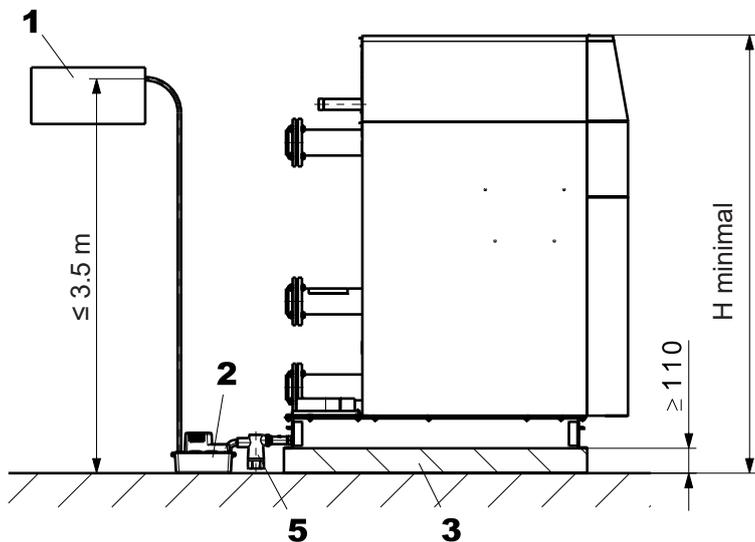
UltraGas® 2 (250-3100) with masonry base and adjustable feet

(Dimensions in mm)



| UltraGas® 2 type | H minimal ¹⁾ |
|------------------|-------------------------|
| D (250,300) | 1934 |
| D (380,460) | 1979 |
| D (600-1000) | 1937 |
| D (1240,1400) | 2255 |
| D (1600-2200) | 2276 |
| D (2600,3100) | 2416 |
| DH (1400) | 2255 |
| DH (2200) | 2276 |
| DH (3100) | 2416 |

UltraGas® 2 (250-3100) with masonry base without adjustable feet



| UltraGas® 2 type | H minimal ¹⁾ |
|------------------|-------------------------|
| D (250,300) | 1934 |
| D (380,460) | 1979 |
| D (600-1000) | 1937 |
| D (1240-1400) | 2255 |
| D (1600-2200) | 2276 |
| D (2600,3100) | 2416 |
| DH (1400) | 2255 |
| DH (2200) | 2276 |
| DH (3100) | 2416 |

- 1 Neutralisation unit (option)
- 2 Condensate pump (option)
- 3 Masonry base
- 4 Feet adjustable up to 30-80 mm
- 5 Siphon ²⁾

¹⁾ Height value assumes adjustable feet are set to 30 mm

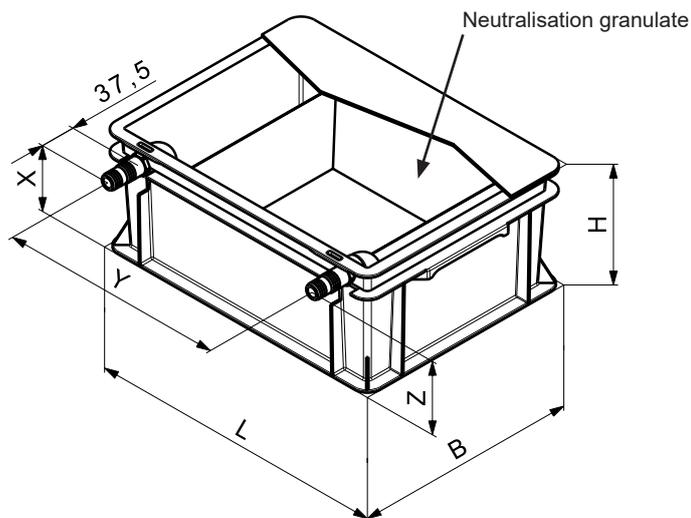
²⁾ **Caution!** The installer will have to fit a siphon with min. 70 mm barrier height.

Notice

- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- Base plates and feeds will not be re-funded!
- With H minimal, cleaning the siphon is more difficult.

Neutralisation unit HNB-0400 to HNB-1600

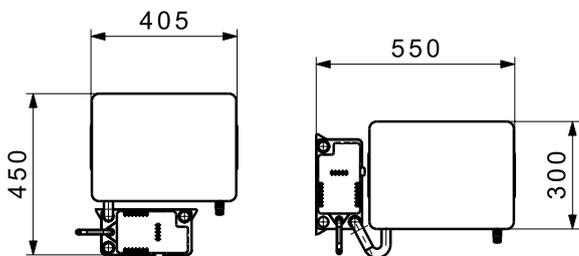
(Dimensions in mm)



| | HNB-0400,-0800 | HNB-1200,-1600 |
|--------------------------------------|--------------------|--------------------|
| Dimensions (L x W x H) | 405 x 300 x 180 mm | 605 x 400 x 180 mm |
| Inlet height (Z) | 128 mm | |
| Drain height (X) | 118 mm | |
| Distance between the connections (Y) | approx. 350 mm | approx. 550 mm |

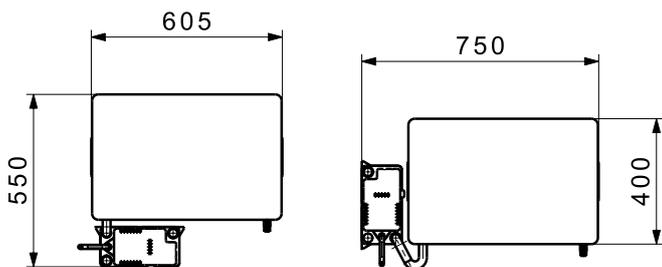
Neutralisation unit HNB-0400,-0800 and condensate pump

(Dimensions in mm)



Neutralisation unit HNB-1200,-1600 and condensate pump

(Dimensions in mm)



Standards and guidelines

The official regulations for installation and operation must be observed. In particular, these are the country-specific standards (e.g. EN standard, DIN standards, ...) as well as the corresponding regional regulations.

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- hydraulic and technical control regulations of Hoval
- DVGW directives
- DIN EN 12828 Safety-relevant requirements
- DIN EN 12831 Heaters Rules for the calculation of the heat requirements of buildings
- VDI 2035 Protection against damage by corrosion and boiler scale formation in heating and service water installations
- EN 14868 "Protection of metallic materials against corrosion"
- VDE 0100 supplement 2

Water quality in heating systems Filling and replacement water, heating water

The following applies:

- VDI 2035
- In addition, the EN 14868 standard must be applied, **as well as the manufacturer-specific specifications**

Manufacturer-specific specifications

Filling and replacement water

The filling and replacement water can be both fully demineralised and also merely softened.

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- In the case of **softening the filling and replacement water**, the following conditions must be complied with:
The quality of the heating water must be checked and documented periodically:
 - For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
 - For an installed heat output above 1000 kW, an check of the heating water is required twice a year.
 The following standard values for the heating water must be measured and adhered to:
 - Electrical conductivity of the heating water for operation with water containing salts: > 100 µS/cm to ≤ 1500 µS/cm
 - pH value of the heating water for systems without aluminium alloy as water-side material 8.2 to 10.0 (measurement 10 weeks after commissioning at the earliest)
- The sum of the chloride, nitrate and sulphate contents in the heating water must not exceed 50 mg/l in total.

Additional notices

- Hoval boilers and calorifiers are suitable for heating systems without significant oxygen intake. (System type I according to EN 14868).
- Plants with continual oxygen intake (e.g. underfloor heating without diffusion-proof plastic piping) or intermittent oxygen intake (e.g. requiring frequent topping-up) must be equipped with a system separation.
- In the case of bivalent heating systems, the values of the heat generator with the strictest requirement for water quality must be complied with.
- If only the boiler is replaced in an existing plant, it is not recommended for the entire heating system to be refilled, provided that the heating water already contained in the system complies with the relevant directives or standards.
- Before filling new systems and, where necessary, existing heating systems containing heating water that does not comply with the directives or standards, the heating system must be professionally cleaned and flushed. The boiler must not be filled until the heating system has been flushed.

Frost protection agent

see separate engineering sheet "Use of frost protection agent".

Heating room

- Boilers cannot be positioned in rooms in which halogen compounds can occur and into which combustion air can enter (e.g. laundrettes, hairdressers).
- Halogen compounds can be caused by cleaning and degreasing solutions, solvents, glue and bleaching lyes. Pay attention to the Procal leaflet, corrosion through halogen compounds.

Combustion air supply

The supply of combustion air must be guaranteed. There must be no possibility to close the air supply opening. For direct combustion air to boiler mount the connection for direct combustion air inlet. It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

For the version with common flue gas line with overpressure, the flue gas excess pressure set must be imperatively mounted!

The minimum free cross-section for the combustion air can be assumed simplified as follows:

- **Room air-independent operation with separate combustion air pipe to the boiler:** 0.8 cm² per 1 kW of output. The pressure drop in the combustion air pipe must be considered for the calculation of the flue gas system.
- In the UltraGas® 2, ventilation of the installation or boiler room must be guaranteed for operation independent from the room air.
- **Room air-dependent operation:** Minimum free cross-section of the opening into the open: 150 cm² or twice 75 cm² and additionally 2 cm² necessary for each kW of output over 50 kW for vent into the open.

Gas connection Commissioning

- Initial commissioning must be performed by a specialist technician from Hoval or a gas specialist technician.
- Burner setting values according to the installation instructions.

Manual gas shut-off tap and gas filter

Immediately in front of the boiler a manual gas shut-off device (tap) must be installed according to relevant regulations.

In the UltraGas® 2 (400-1550) type, an external gas filter must be installed in the gas supply line.
Make sure that the gas line from the external gas filter to the gas connection of the boiler is cleaned.
For the UltraGas® 2 (125-350) types, it is necessary to comply with the local regulations concerning the need for a gas filter.

Construction of a recommended gas connection



Legend:

- manual gas shut-off valve
- gas hose/compensator
- gas filter
- pressure gauge with test burner and push-button valve

Type of gas

- The boiler is only to be operated with the type of gas stated on the rating plate.

Gas pressure natural gas

Necessary gas flow pressure at the boiler inlet:
UltraGas® 2 D (250-1400) min. 17.4 mbar, max. 80 mbar
UltraGas® 2 D (1600-3100) min. 17.4 mbar, max. 300 mbar

Gas pressure propane

- A gas pressure controller to reduce the boiler inlet pressure must be installed on-site for propane.

- Necessary gas flow pressure at the boiler inlet: UltraGas® 2 (125-1550)
min. 37 mbar, max. 50 mbar

Gas pressure regulator

- The installation of a gas pressure regulator is only necessary if the gas flow pressure in the gas network exceeds the maximum permissible gas flow pressure of the UltraGas® 2 D or if there are considerable fluctuations in the gas flow pressure.
- Pressure fluctuations in the gas network must be prevented by suitable measures (e.g. gas storage tanks or pressure regulators). The local conditions must be checked in each individual case.

Closed heating system

The boiler is only approved for use in closed heating systems.

Minimum circulation water quantity

No minimum water circulation volume is required.

Calorifier connection

If a calorifier is connected, all heating groups must be provided with a mixer.

Installation instructions

Please observe the installation instructions supplied with every boiler.

Space requirements

See "Dimensions" for information

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 |

Pump follow-on

For operating temperatures of the boiler above 85 °C, after each burner switch-off, the circulating pump must be in operation for at least 2 minutes (the pump after-run is included in the boiler controller with TopTronic® E control).

Heating boiler in the attic

If the gas boiler is positioned on the top floor, the installation of a low water protection, which automatically turns the gas burner off in case of water shortage, is recommended.

Condensate drain

- A permit for discharge of the flue gas condensate into the sewage system must be obtained from the relevant authority or sewer operator.
- The condensate from the flue gas system can be discharged through the boiler. A condensate trap is not needed anymore with the flue gas system.
- The condensate must be conducted openly (funnel) into the sewage system.
- Suitable materials for condensate drain:
 - stoneware pipes
 - pipes made from glass
 - pipes made from stainless steel
 - pipes made from plastic: PVC, PE, PP, ABS and UP
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler scope of delivery).

Diaphragm pressure expansion tank

- An adequately dimensioned diaphragm pressure expansion tank must be provided.
- The diaphragm pressure expansion tank has to be installed in principle at the boiler return, or at the safety flow.
- Starting from 70 °C an intermediate tank is necessary.

Safety valve

- At the safety flow a safety valve and an automatic exhauster must be installed.

Noise damping

The following measures are possible for sound insulation:

- Make boiler room walls, ceiling and floor as solid as possible.
- If there are living areas above or below the boiler room, connect pipes flexibly using expansion joints.
- Connect circulating pumps to the piping network using expansion joints

Noise level

- The acoustic power level value is dependent on the local and spacial circumstances.
- The acoustic pressure level is dependent on the installation conditions and can for instance be 5 to 10 dB(A) lower than the acoustic power level at a distance of 1 m.

Recommendation:

If the combustion air intake opening is located on the house facade near a noise-sensitive place (window of bedroom, garden terrace, etc.), we recommend using a silencer in the combustion air duct.

Flue gas system

- Gas boilers must be connected to a certified and approved flue gas system such as flue gas lines.
- Flue gas lines must be gas-, condensate- and over pressure-tight.
- The flue gas lines must be secured against unwanted loosening of the plug connections.
- The flue gas system must be connected with an angle, so that the resulting condensate of the flue gas system can flow back to the boiler and can be neutralised there before discharging into the canalisation.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. temperature class T120.
- A flue gas temperature limiter is integrated into the boiler.

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 |
| D (300) | 254 | | 44 | 43 | 43 | 42 |
| D (380) | 254 | 225 | 46 | 45 | 44 | 43 |
| D (460) | 254 | 250 | 47 | 46 | 45 | 44 |
| D (600) | 306 | 300 | 48 | 47 | 46 | 45 |
| D (700) | 306 | | 47 | 46 | 45 | 44 |
| D (800) | 306 | | 46 | 45 | 44 | 43 |
| D (900) | 306 | 350 | 50 | 50 | 50 | 50 |
| D (1000) | 306 | | 48 | 48 | 47 | 46 |
| D (1240) | 356 | | 47 | 46 | 45 | 44 |
| D (1400) | 356 | 400 | 48 | 47 | 46 | 45 |
| D (1600) | 402 | | 46 | 45 | 44 | 43 |
| D (2000) | 402 | 450 | 47 | 46 | 45 | 44 |
| D (2200) | 402 | 500 | 46 | 45 | 44 | 43 |
| D (2600) | 504 | | 48 | 48 | 47 | 46 |
| D (3100) | 504 | | 48 | 47 | 46 | 45 |
| DH (1400) | 356 | 400 | 48 | 47 | 46 | 45 |
| DH (2200) | 402 | 500 | 46 | 45 | 44 | 43 |
| DH (3100) | 504 | | 48 | 47 | 46 | 45 |

Notice: The values in the table “Standard values for flue gas line dimensions” are standard values for reference.

An exact calculation for the flue gas duct must be made on-site.

For chimney systems above 25 m effective height, negative pressure in the chimney is to be expected in some operating conditions.

Therefore, we recommend an individual design of the chimney system and checking the individual pressure conditions.

**Looking for the appropriate hydraulic schematic?
Please contact your local Hoval partner.**