

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



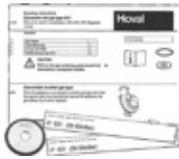
Wall-hanging gas condensing boiler as above but without controller.

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).

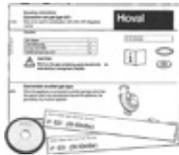
Accessories



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

Part No.

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



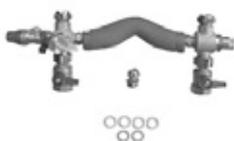
Automatic air vent 3/8" external thread
Air valve with automatic
shut-off valve
Casing and cover made of brass
EN 12165 CW617N and EPDM seals
Vertical venting
Operating temperature: max. 110 °C
Operating pressure: max. 10 bar
Glycol content: max. 30 %

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)

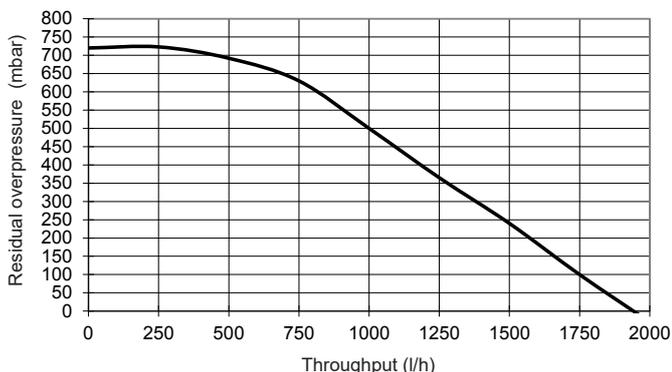
Type		(21/18)	(26/23)	(32/28)
• Nominal heat output at 80/60 °C, natural gas	kW	5.4-17.8	6.9-22.8	7.1-26.3
• Nominal heat output at 50/30 °C, natural gas	kW	5.9-18.6	7.6-23.4	7.8-27.1
• Nominal heat output at 80/60 °C, propane ¹⁾	kW	5.7-17.8	7.3-22.8	7.3-26.3
• Nominal heat output at 50/30 °C, propane 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.

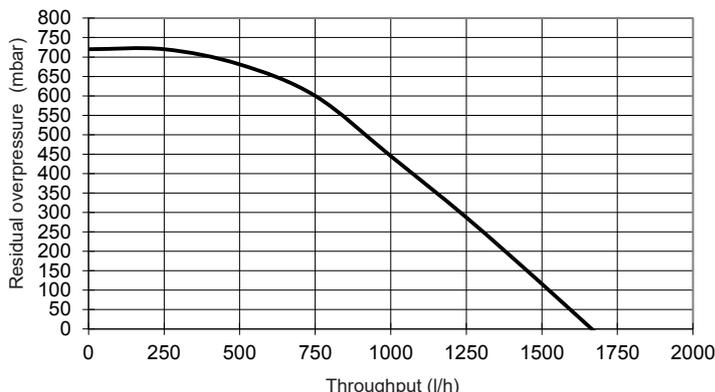
²⁾ Data related to NCV. The boiler series is tested for EE/H setting. With a factory setting to a Wobbe value of 15.0 kWh/m³, operation in the Wobbe value range from 12.0 to 15.7 kWh/m³ is possible without new settings.

Maximum residual overpressure heating pump

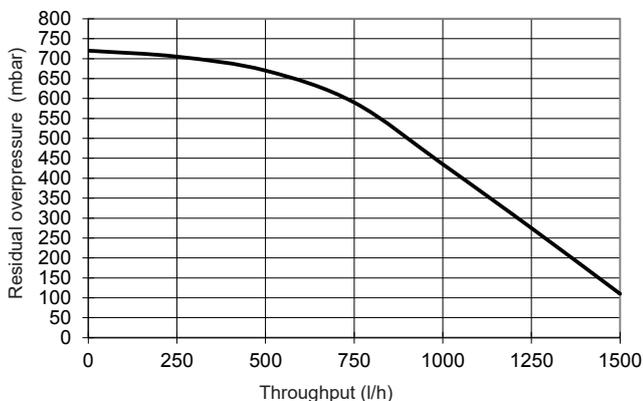
TopGas® combi (21/18)



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).

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.