

Gas condensing boiler

Description

Subject to alterations

Hoval UltraGas®

Gas heating boiler

- Steel boiler based on the condensing principle
- Stainless steel combustion and flue gas chamber
- Re-switch heating surface of **aluFer®**-composite tubing
- Thermal insulation with mineral wool and aluminium foil
- Integrated water pressure switch (boil-dry safeguard)
- Premix surface burner
 - with blower and venturi
 - Automatic ignition
 - Ionisation monitoring
- Gas boiler delivered with steel sheet casing fully fitted, paint red/orange

Standard control panel with TopTronic regulator in different versions:

- Gas firing sequence control MCBA 1482
- Modulating burner control
- Main switch 0 / I
- Boiler sensor
- Gas pressure switch
- Gas valve
- Low water cut-off
- Connection for external gas valve and trouble indication

Optional

- For liquid gas (Propan up to 250 kW)
- Special boiler base with or without neutralisation box
- Direct combustion air connection
- calorifier

Delivery

- UG-AM-c (50-150)
Gas boiler compl. cased
- UG-AM-c (200-500)
Boiler, casing and insulation separately packed and delivered

At place

- UG-AM-c (200-500)
Fitting of insulation and casing

Standard control panel

Control panel with TopTronic RS30 regulator

- For 1 heating circuit without mixing operation
- Weather-controlled regulation for flexible boiler water temperature
- RS30 with room temperature sensor with switch-in facility, located in boiler room or living room
- Main switch 0 / I
- Outdoor sensor AF 120 N
- Connection possibility for calorifier with temperature sensor TF 25 / 12 K

Model

UltraGas Type	Range of output kW
50	13-51,6
60	13-61,5
80	20,7-82,1
100	20,7-101
125	25,2-125,1
150	32,1-150
200	44-202
250	49-250
300	55-300
350	55-350
400	98,7-400
450	98,5-450
500	97,3-500



Control panel with TopTronic 1B regulator

- For 1 heating circuit without mixing operation
- Weather-controlled 2 point regulation for flexible boiler water temperature
- Main switch 0 / I
- with outdoor sensor AF 100 N
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility.
 - Calorifier with temperature sensor KT 10-40

Control panel with TopTronic 133B regulator

- For 1 or 2 heating circuits with mixing operation
- Weather-controlled 3-point feed temperature regulation for flexible boiler water temperature
- Main switch 0 / I
- Outdoor sensor AF 100 N
- Flow sensor VF 100
- Connection possibilities:
 - Room station RS10, RFF60S, RF 40 with room temperature sensor with switch-in facility
 - Calorifier with temperature sensor KT 10-40

Control panel without regulator

- For the connection of an external TopTronic regulator or external On/Off commands
- Connection possibility for calorifier with sensor KT 10-40
- Main switch 0 / I

Boiler basic control GLT M4.2/G2 (Connection of a non Hoval regulator)

- Output activation 0-10V=, or potential-free On/Off setting signal. ,
Hotter/colder
0 to 0,5 V = Burner «off»
0,5 to 1,0 V = Burner «base load»
1,0 to 10,0 V = output modulation
10 V = 100% heat output
- Non-Hoval regulator with possibility for adjusting the PID behaviour

Delivery

- Control panel separate packed
UG-AM-c (200-350)

At place

- Mounting of the control panel
UG-AM-c (200-350)

Gas condensing boiler

Description

Subject to alterations

Special boiler base for UG-AM-c (50-150)

without condensate water neutralisation

SO 21 and SO 31

- Steel boiler base in black lacquer finish
- With removal base front
- For condensate drainage into lower situated drain line

SO 22 and SO 32

- Version as for SO 21,31
- With condensate delivery pump, collector tank and float switch

with condensate neutralisation

SO 23 and SO 33

- Version as for SO 21,31
- With collector tank for condensate
- With 9 kg neutralisation granulate "Neutralat"

SO 24 and SO 34

- Version as for SO 23,33
- With condensate delivery pump, collector tank and float switch

Neutralisation box for UG-AM-c (200-500)

- Neutralisation box containing granulate
For installing under or adjacent to boiler
- Neutralisation box containing granulate
and pump. For installing under or adjacent
to boiler

At place

- When installing adjacent to boiler:
Fit boiler connection line to neutralisation
box.



**Gas condensing boiler
UltraGas UG-AM-c**

Part no.

Steel gas heating boiler with stainless steel combustion and flue gas chamber.
Re-switch heating surfaces of aluFer composite tubing.
Premix surface burner with blower
Modulating burner control
Adjusted for natural gas „H“.
Standard control panel included.
For UltraGas size 50-150 you must use a boiler base (see accessories).

Delivery
UG-AM-c (50-150) compl. cased
UG-AM-c (200-350) boiler, casing and insulation is packed separately.

Version for operation with GLT

GLT-Modul for controlling with a external regulator

GLT-Modul must be ordered seperately.

UltraGas UG-AM-c Type	Range of output kW ¹	
50	13,0-51,6	8 001 111
60	13,0-61,5	8 001 112
80	20,7-82,1	8 001 113
100	20,7-101,0	8 001 097
125	25,2-125,1	8 001 098
150	32,1-150,0	8 001 099
200	44,0-202,0	8 001 049
250	49,0-250,0	8 001 050
300	55,0-300,0	8 001 100
350	55,0-350,0	8 001 102
400	98,7-400	8 001 170
450	98,5-450	8 001 171
500	97,3-500	8 001 172

¹ kW = modulating output at 40/30 °C,
natural gas H



GLT-Modul
for boiler regulation with an external regulator
(DDC-signal 0-10V).

6 001 563

Top Tronic regulator

Part no.

Version for operation with:

TopTronic 1B oder 133B for 1 heating circuit without mixing valve and 1 to 2 heating circuit with mixing valve and calorifier temperature regulation.

TopTronic 1B or 133B must be ordered separately.

UltraGas UG-AM-c Type	Range of output kW ¹	
50	13,0-51,6	8001 117
60	13,0-61,5	8001 118
80	20,7-82,1	8001 119
100	20,7-101,0	8001 120
125	25,2-125,1	8001 121
150	32,1-150,0	8001 122
200	44,0-202,0	8001 123
250	49,0-250,0	8001 124
300	55,0-300,0	8001 125
350	55,0-350,0	8001 126
400	98,7-400	8001 173
450	98,5-450	8001 174
500	97,3-500	8001 175

¹ kW = modulating range of output at 40/30 °C, natural gas H

TopTronic 1B

Weather-controlled 2 point regulation with outdoor temperature sensor AF100. Outdoor sensor and calorifier sensor are included.

691 284

TopTronic 133B

For 1 direct and up to 2 heating circuit with mixing valve. Weather-controlled 3-point feed temperature regulation with outdoor sensor AF100 flow sensor outdoor sensor, 1 flow sensor and calorifier sensor are included.

691 285

Electrical control

External gas valve, external trouble indication AM3.

Only required for boiler version for TopTronic 1B/133B.

For boiler version with TopTronic RS 30 regulator already included.

691 362

Modification liquid gas

Gas pressure sensor, installation sheet

619 568



Additional heating circuit

TopTronic 3

For 1 heating circuit with mixing valve Weather controlled feed temperature regulation with outdoor temperature sensor AF 100. Outdoor sensor and flow sensor included.

691 335

Additional equipment ZM1.

Adapter set for second regulator

691 138

Accessories to TopTronic regulator

Part no.

To TopTronic 1B and TopTronic 133B



Room station RS 10

for 1 or 2 mixing circuit, with room sensor, information, program and correction key

242 634



Remote control RFF 60S

for 1 mixing circuit wit room sensor, easy program switch and temperature adjustment

2 000 754



Room temperature sensor RF 40

for 1 mixing circuit

242 679



Add. outdoor temperature sensor AF 100N

for 1 mixing circuit (per Heating circuit 1 separate outdoor sensor is possible)
or for the mean value (per regulator 2 outdoor temperature sensor possible)

242 646



Sensor KT 10-40

with 4 m cable for calorifier

242 371



Flow sensor VF100N

242 647

To TopTronic RS 30



Sensor TFK 25/12K

with 4 m cable for calorifier

242 617



Flow temperature guard

for floor heating

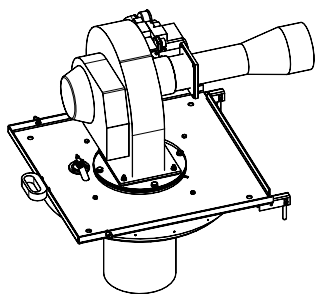
(per heating circuit 1 sensor)

- Thermostat with diving sensor 619.0015

242 190

- Thermostat 692.1120

242 217



Accessories

Part no.

Connection for direct combustion air inlet:

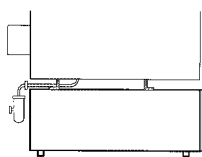
UG-AM-c 50-80	619 426
UG-AM-c 100-150	6 000 673
UG-AM-c 200/350	6 003 613
UG-AM-c 400/500	6 005 814

Commendation:

If the air inlet at the house front is near a noise sensitive place (window,...), we commend to use a sound absorber at the direct combustion air inlet.

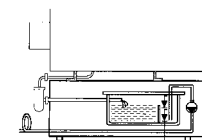
Special boiler support stand to UG-AM-c (50-150)

out of steel, black painted

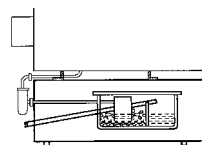


without condensate neutralisation

– For condensate drainage into a lower situated drain line		
UG-AM-c 50-60	Type SO21	619 065
UG-AM-c 70-150	Type SO31	619 140



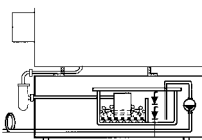
– with condensate pump, collector tank and float switch		
UG-AM-c 50-60	Type SO22	6 002 761
UG-AM-c 70-150	Type SO32	6 002 762



with condensate neutralisation incl. collector tank

For condensate drainage into a lower situated drain line.

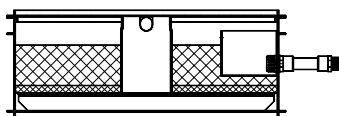
– with 9 kg neutralisation granulate «Neutralat»		
UG-AM-c 50-60	Type SO23	6 002 759
– with 9 kg neutralisation granulate «Neutralat»		
UG-AM-c 70-150	Type SO33	6 002 760



with condensate pump and float switch		
– with 9 kg neutralisation granulate «Neutralat»		
UG-AM-c 50-60	Typ SO24	6 002 745
– with 9 kg neutralisation granulate «Neutralat»		
UG-AM-c 70-150	Typ SO3	6 002 746

Neutralisation box to UG-AM-c (200-500)

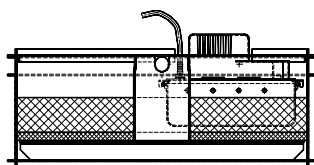
Placed under or adjacent to the boiler



Type KB 23 UG1

For condensate drainage into a lower situated drain line.

– with 12 kg granulate	6 001 917
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Type KB 24 UG1

For condensate drainage into a higher situated drain line.

6 001 918

Price

subject to alterations



Service
Commissioning

Part no.

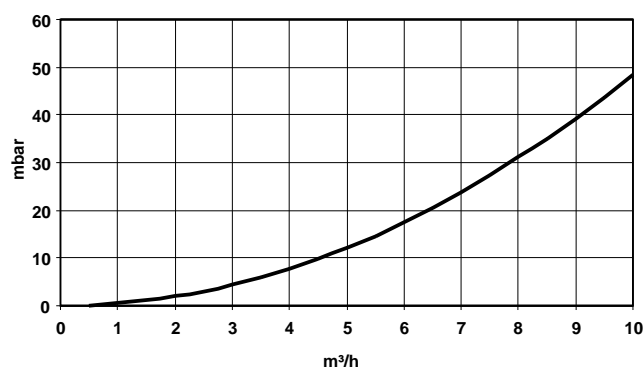
on request

Technical data

Subject to alterations

UG-AM-c

Type		50	60	80	100
• Nominal output 80/60°C natural gas	kW	11,7-47,0	11,7-55,5	18,6-73,9	18,6-91,5
• Nominal output 40/30°C natural gas	kW	13,0-51,6	13,0-61,5	20,7-82,1	20,7-101,0
• Nominal output 80/60°C liquid gas	kW	15,6-47,0	15,6-55,5	24,8-73,9	30,6-91,5
• Nominal output 40/30°C liquid gas	kW	17,4-51,6	17,4-61,5	27,6-82,1	33,9-101,0
• Nominal load natural gas	kW	11,9-47,6	11,9-57,2	19,2-76,7	19,2-95,3
• Nominal load liquid gas	kW	15,9-47,6	15,9-57,2	25,6-76,7	31,7-95,3
• Working pressure max./min.	bar	3 / 1,0	3 / 1,0	3 / 1,0	3 / 1,0
• Working temperature max.	°C	85	85	85	85
• Boiler water capacity	l	131	129	122	158
• Boiler weight	kg	200	210	220	240
• Standard degree of utilisation 40/30°C	%	109,1	109,2	109,2	109,1
75/60°C	%	106,0	105,7	106,1	105,7
• Readiness loss rated heat load at 70°C	Watt	410	410	410	460
• Standard emission factors nitrogen oxides	mg/kWh	21,6	22,5	23,2	22,0
carbon monoxide	mg/kWh	11,0	10,1	10,7	10,5
• Dimension:					
Height	mm	1590	1590	1590	1590
Width	mm	702	702	792	792
Length	mm	1015	1015	1105	1105
• Connection					
Flow	Zoll	R1½"	R1½"	R1½"	R1½"
Return	Zoll	R1½"	R1½"	R1½"	R1½"
Gas	Zoll	Rp½"	Rp½"	Rp¾"	Rp1"
Flue gas Ø inside	mm	154	154	154	154
• Gas pressure min./ max.					
natural gas E/LL	mbar	18-24	18-24	18-24	18-24
liquid gas	mbar	42-57	42-57	42-57	42-57
• Gas connected value at 0°C / 1013 mbar:					
natural gas E - (Wo=15,0 kWh/m³) Hu=9,97 kWh/m³	m³/h	4,8	5,7	7,7	9,6
natural gas LL- (Wo=12,4 kWh/m³) H =8,57 kWh/m³	m³/h	5,6	6,7	8,9	11,1
liquid gas (Hu = 32,7 kWh/m³)	kg/h	3,7	4,5	6,0	7,5
• Rated voltage	V/Hz	230/50	230/50	230/50	230/50
• Driving voltage	V/Hz	24/50	24/50	24/50	24/50
• Power consumption	Watt	105	129	120	155
• System of protection	IP	20	20	20	20
• Sound level	dB(A)	62	66	66	66
• Condensate amount (natural gas) at 40 / 30°C	l/h	4,4	5,3	7,0	8,8
• pH-value of condensate		ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0
• Values for the flue calculation					
Temperature class		T120	T120	T120	T120
Flue gas mass flow	kg/h	81,4	99,4	132,9	165,3
Flue gas temperature T _v 80°C / T _R 60°C	°C	67	68	70	70
Flue gas temperature T _v 40°C / T _R 30°C	°C	43	44	45	46
Feed pressure at flue collector	Pa	82	143	113	143

Boiler through put resistance
UG-AM-c (50-100)


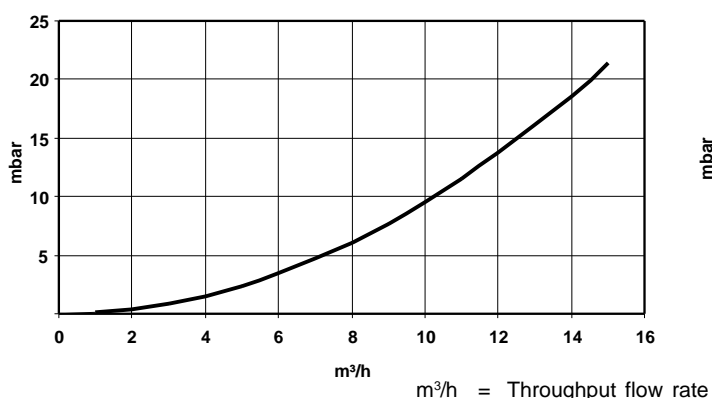
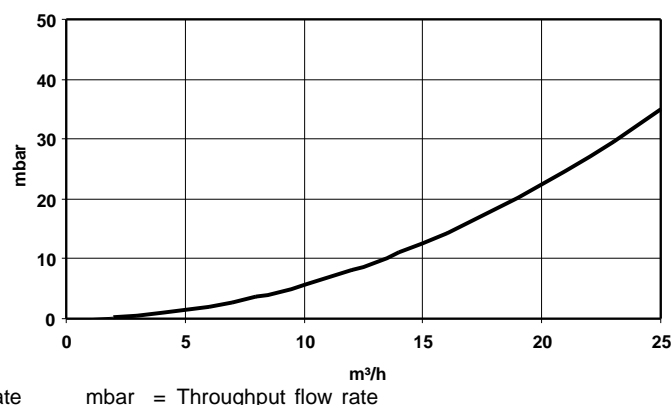
m³/h = Through put flow rate
mbar = Through put resistance

Technical data

Subject to alterations

UG-AM-c

Type			125	150	200	250
•	Nominal output 80/60°C natural gas	kW	22,8-113,3	28,9-137,0	39,0-184,0	44,0-226,0
	Nominal output 40/30°C natural gas	kW	25,2-125,1	32,1-150,0	44,0-202,0	49,0-250,0
	Nominal output 80/60°C liquid gas	kW	30,6-113,3	34,7-137,0	63,0-184,0	78,0-226,0
	Nominal output 40/30°C liquid gas	kW	33,9-125,1	38,5-150,0	70,0-202,0	87,0-250,0
	Nominal load natural gas	kW	23,6-116,0	30,0-143,0	40,0-190,0	45,0-235,0
	Nominal load liquid gas	kW	31,7-118,0	36,0-143,0	65,0-190,0	80,0-235,0
•	Working pressure max./min.	bar	5 / 1,0	5 / 1,0	5 / 1,0	5 / 1,0
	Working temperature max.	°C	85	85	85	85
	Boiler water capacity	l	198	198	340	330
	Boiler weight	kg	340	350	560	600
•	Standard degree of utilisation 40/30°C	%	109,4	109,1	109,5	109,4
	75/60°C	%	106,0	105,9	106,1	106,1
•	Readiness loss rated heat load at 70°C	Watt	480	500	530	560
•	Standard emission factors Nitrogen oxides	mg/kWh	19,7	23,4	24,1	27,8
	Carbon monoxide	mg/kWh	6,6	9,2	9,0	9,4
• Dimension:	Height	mm	1985	1985	1930	1930
	Width	mm	770	770	930	930
	Length	mm	1155	1155	1670	1670
• Connection	Flow	Zoll	DN65	DN65	DN65	DN65
	Return	Zoll	DN65	DN65	DN65	DN65
	Gas	Zoll	Rp1"	Rp1"	Rp1½"	Rp1½"
	Flue gas Ø inside	mm	181	181	252	252
•	Gas pressure min./ max. natural gas E/LL	mbar	18-24	18-24	18-24	18-24
	liquid gas	mbar	42-57	42-57	42-57	42-57
•	Gas connected value at 0°C / 1013 mbar:					
	natural gas E - (Wo=15,0 kWh/m³) Hu=9,97kWh/m³	m³/h	11,8	14,3	19,1	23,6
	natural gas LL- (Wo=12,4 kWh/m³) Hu=8,57 kWh/m³	m³/h	13,8	16,7	22,2	27,4
	liquid gas (Hu=32,7 kWh/m³)	kg/h	9,3	11,3	14,9	18,5
•	Rated voltage	V/Hz	230/50	230/50	230/50	230/50
•	Driving voltage	V/Hz	24/50	24/50	24/50	24/50
•	Power consumption	Watt	165	208	206	330
•	System of protection	IP	20	20	20	20
•	Sound level	dB(A)	70	69	68	73
•	Condensate amount (natural gas) at 40 / 30°C	l/h	11,1	13,2	17,8	22,0
•	pH-value of condensate		ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0
•	Values for the flue calculation					
	Temperature class		T120	T120	T120	T120
	Flue gas mass flow	kg/h	208,8	253,1	336,2	416,2
	Flue gas temperature T _v 80°C / T _R 60°C	°C	66	77	65	68
	Flue gas temperature T _v 40°C / T _R 30°C	°C	43	54	35	38
	Feed pressure at the flue gas connector	Pa	100	105	120	160

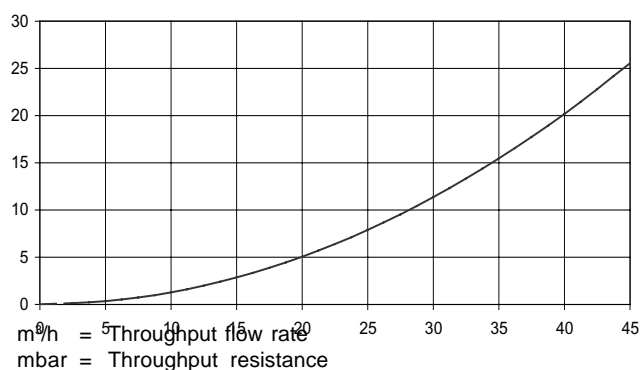
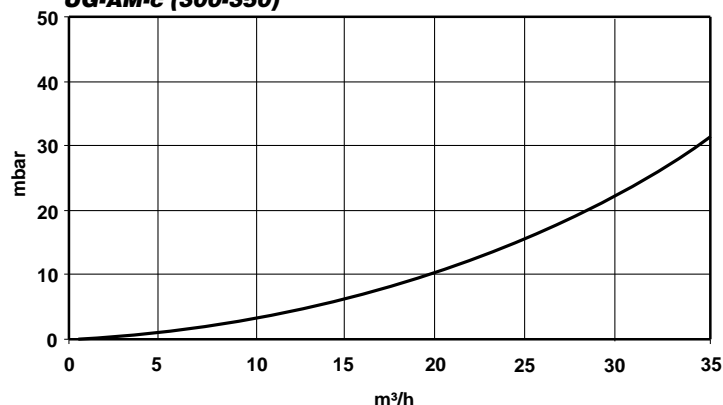
Boiler Through put resistance
UG-AM-c (125-150)

UG-AM-c (200-250)


Technical data

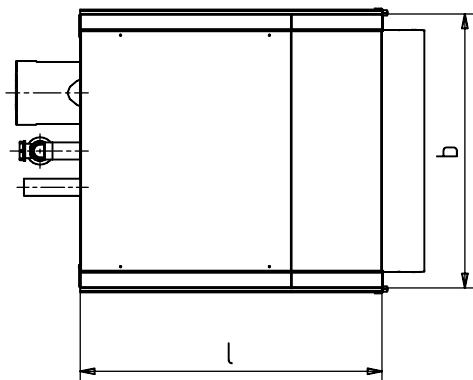
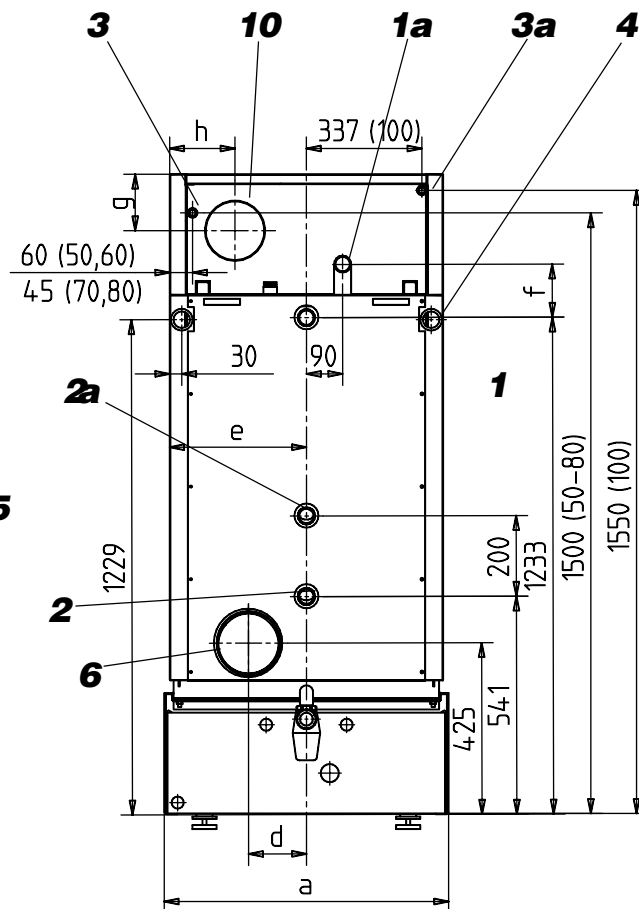
Subject to alterations

UG-AM-c

Type		300	350	400	450	500
• Nominal output 80/60°C natural gas	kW	54-272	58,8-318	89,8-364	89,9-410	89,7-460
• Nominal output 40/30°C natural gas	kW	60-300	65,4-350	98,7-400	98,5-450	97,3-500
• Nominal output 80/60°C liquid gas	kW	80-272	95-318	-	-	-
• Nominal output 40/30°C liquid gas	kW	91-300	109-350	-	-	-
• Nominal load natural gas	kW	55-283	60-330	93-377	93-425	93-478
• Nominal load liquid gas	kW	84-283	100-330	-	-	-
• Working pressure max./min.	bar	5,0 / 1,0	5,0 / 1,0	5,0/1,0	5,0/1,0	5,0/1,0
• Working temperature max.	°C	85	85	85	85	85
• Boiler water capacity	l	420	409	397	397	397
• Boiler weight	kg	630	670	740	740	740
• Standard degree of utilisation 40/30°C	%	110,0	110,0	110,0	110,0	110,0
75/60°C	%	107,5	107,5	107,6	107,6	107,6
• Readiness loss rated heat load at 70°C	Watt	700	720	750	750	750
• Standard emission factors nitrogen oxides	mg/kWh	38	41	43	42	41
carbon monoxide	mg/kWh	9	10	11	12	13
• Dimension:						
Height	mm	2095	2095	2095	2095	2095
Width	mm	1110	1110	1100	1100	1100
Length	mm	1754	1754	1745	1745	1745
• Connection						
Flow	Zoll	DN80	DN80	DN100	DN100	DN100
Return flow	Zoll	DN80	DN100	DN100	DN100	
Gas	Zoll	1½"	1½"	2"	2"	2"
Flue gas Ø inside	mm	300	300	300	300	300
• Gas pressure min./ max.						
Natural gas E/LL	mbar	18-24	18-24	25-50	25-50	25-50
Liquid gas	mbar	42-57	42-57	-	-	-
• Gas connected value at 0°C / 1013 mbar:						
natural gas E - (Wo=15,0 kWh/m³)						
Hu=9,97kWh/m³	m³/h	28,4	33,1	37,8	42,6	47,9
natural gas LL- (Wo=12,4 kWh/m³)						
Hu=8,57 kWh/m³	m³/h	33,0	38,5	44	49,6	55,7
liquid gas (Hu=32,7 kWh/m³)	kg/h	22,2	25,9	-	-	-
• Rated voltage	V/Hz	230/50	230/50	230/50	230/50	230/50
• Driving voltage	V/Hz	24/50	24/50	24/50	24/50	24/50
• Power consumption	Watt	492	360	441	601	819
• System of protection	IP	20	20	20	20	20
• Sound level	dB(A)	80	84	71	73	75
• Condensate amount (natural gas) at 40 / 30°C	l/h	26,5	30,9	35,2	39,7	44,7
• pH value of condensate		ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0
• Values for the flue calculation						
Temperature class		T120	T120			
Flue gas mass flow	kg/h	501,2	584,5	660,6	742,5	825,0
Flue gas temperature T _v 80°C / T _R 60°C	°C	64	65	65	70	75
Flue gas temperature T _v 40°C / T _R 30°C	°C	39	42	42	45	53
Feed pressure at flue gas connector	Pa	160	160	163	163	163

Boiler through put resistance
UG-AM-c (300-350)


(All measurements in mm)



- 1 Flow heating R 1¼" (50-60), R 1½" (70-100)
- 1a Safety flow and flow calorifier
R 1¼" (50-60), R 1½" (70-100)
- 2 Return heating R 1¼" (50-60), R 1½" (70-100)
- 2a Return calorifier R 1¼" (50-60), R 1½" (70-100)
- 3 Gas connection Rp ½" (50-60) Rp ¾" (70-80)
- 3a Gas connection Rp 1" (100)
- 4 Electrical connection, left or right
- 5 Draining (behind the front door)
- 6 Flue gas connector Ø 154/158 mm
- 7 Boiler control
- 8 Odour trap with thread for plastic tube
Ø a 25 mm and hose fittings Ø i 19 mm
- 9 Boiler plinth (optional)
- 10 Air inlet connector Ø 150/154 mm (optional)
for direct combustion air supply
- 11 Boiler foot lengthened 15-30 mm

UG-AM-c Type	l	b	a	c	d	e	f	g	h
50-60	750	680	145	60		135	702	200	140
70-80	840	770	190	45		125	792	30	160
100	840	770	190		337	125	792	30	160

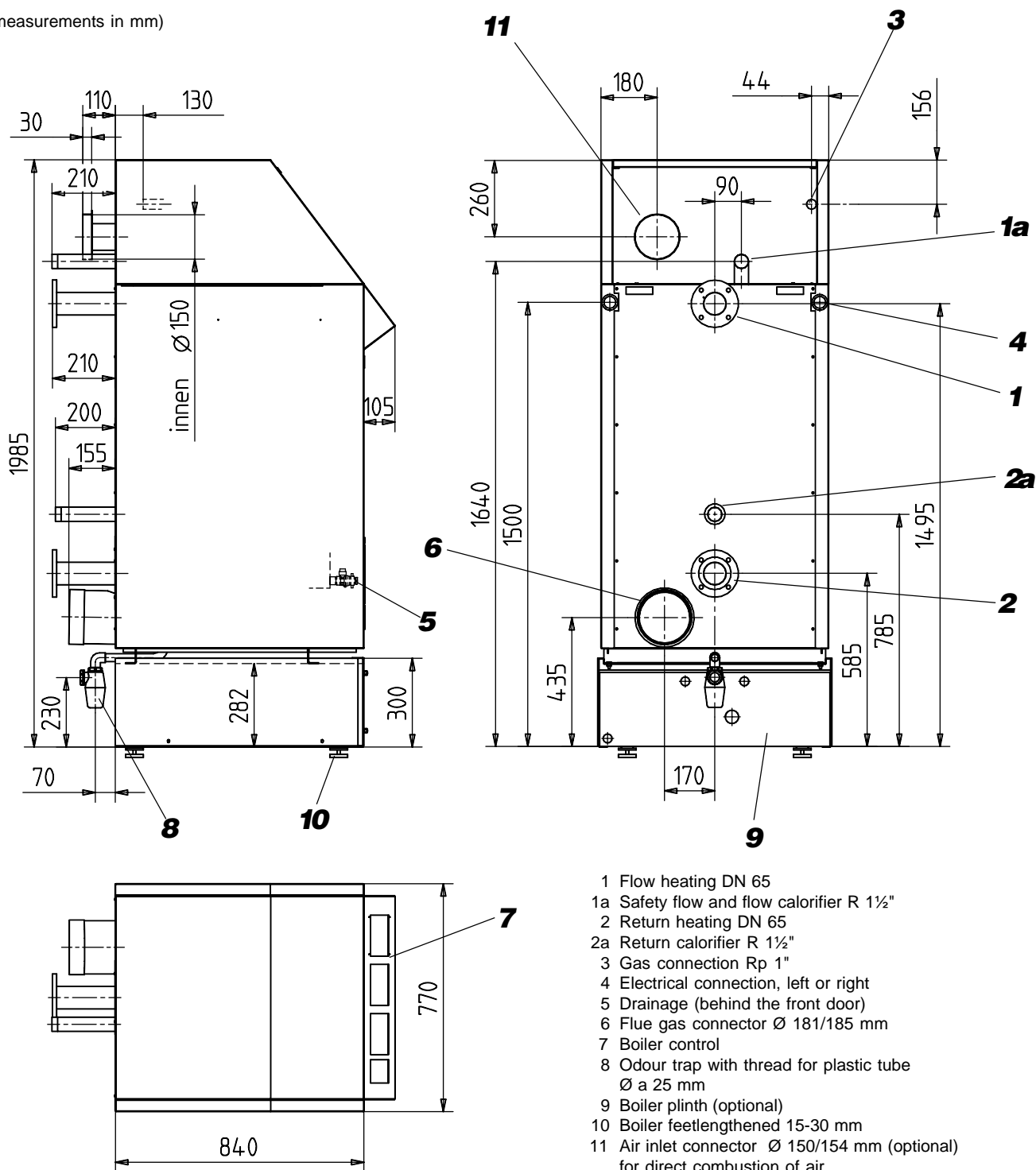
55

Dimensions

Subject to alterations

UltraGas UG-AM-c (125, 150)

(All measurements in mm)



Note:

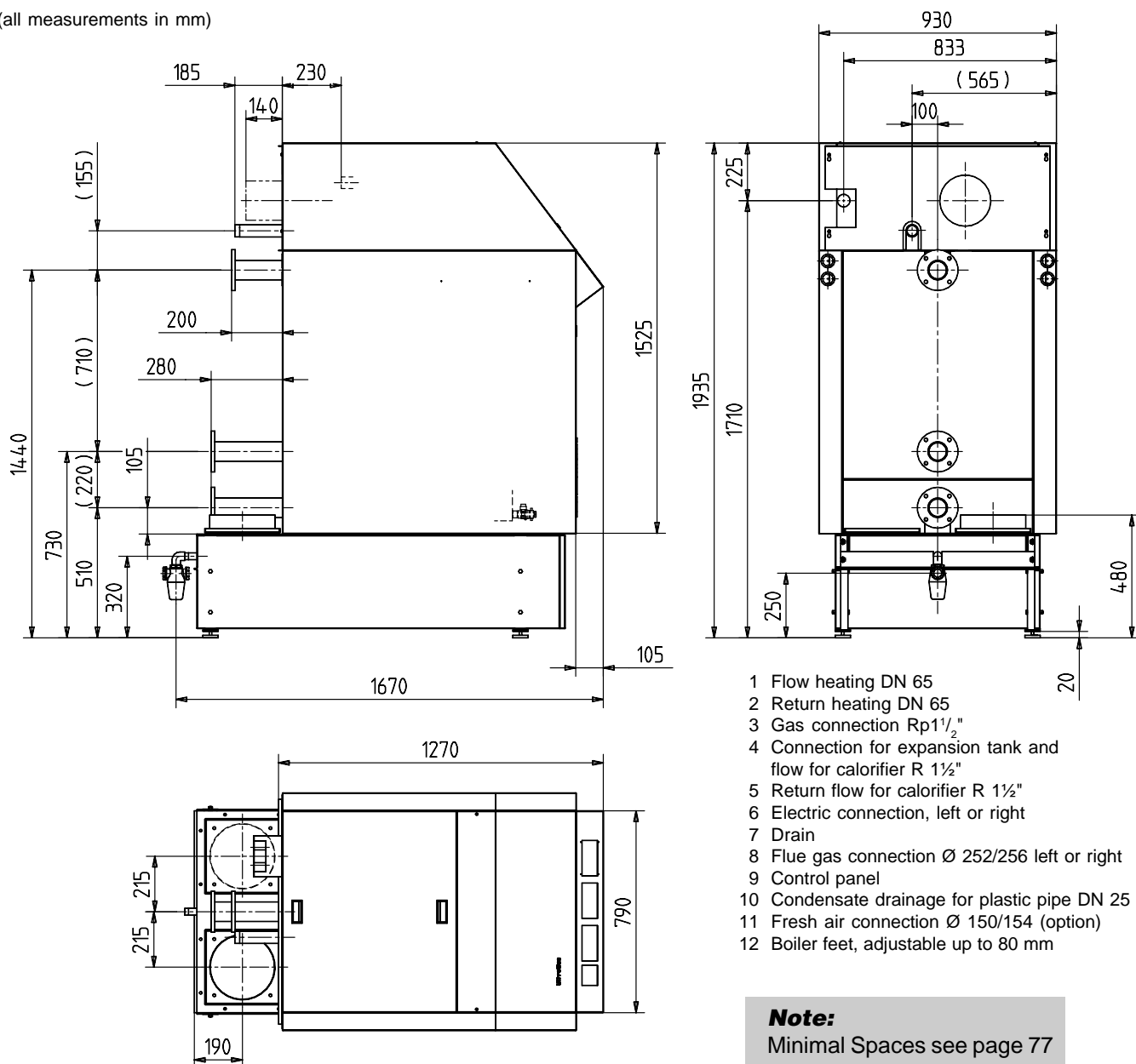
Minimal Spaces see page 77

Dimension

Subject to alterations

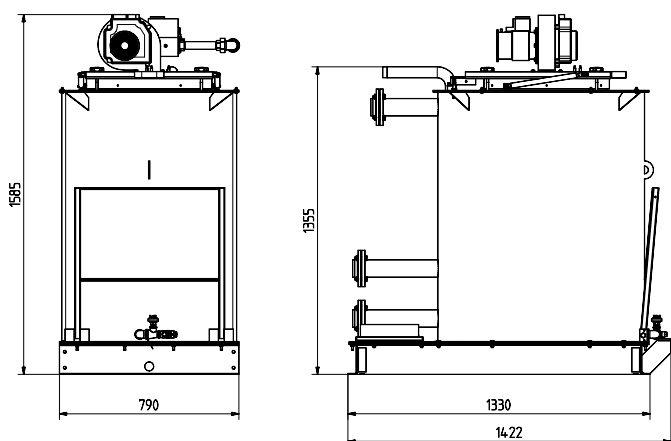
UltraGas UG-AM-c (200, 250)

(all measurements in mm)



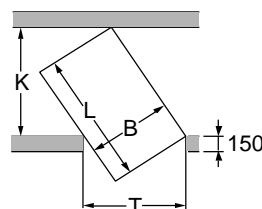
Opening dimension UG-AM-c (200, 250)

Boiler without casing and insulation



Required min. width of door and corridor to bring in the boiler

The following informations are minimal dimensions



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

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

T = Width door B = Width boiler
K = Width corridor L = max length of boiler

Calculation example for the necessary corridor width

Width door T = 800

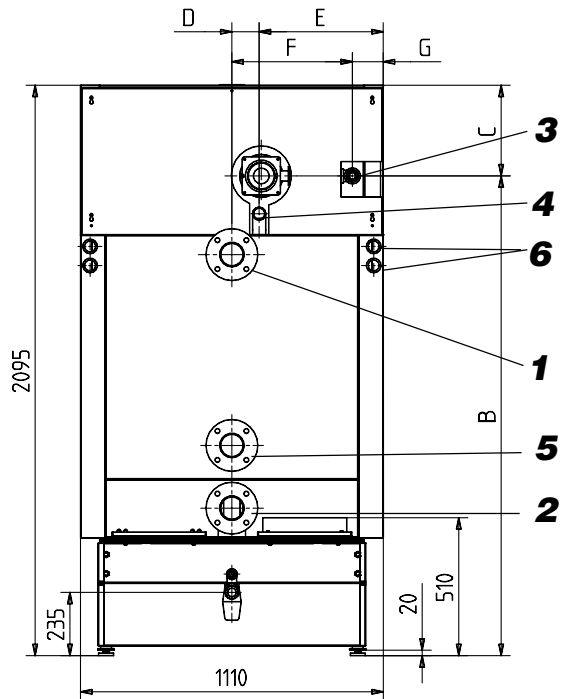
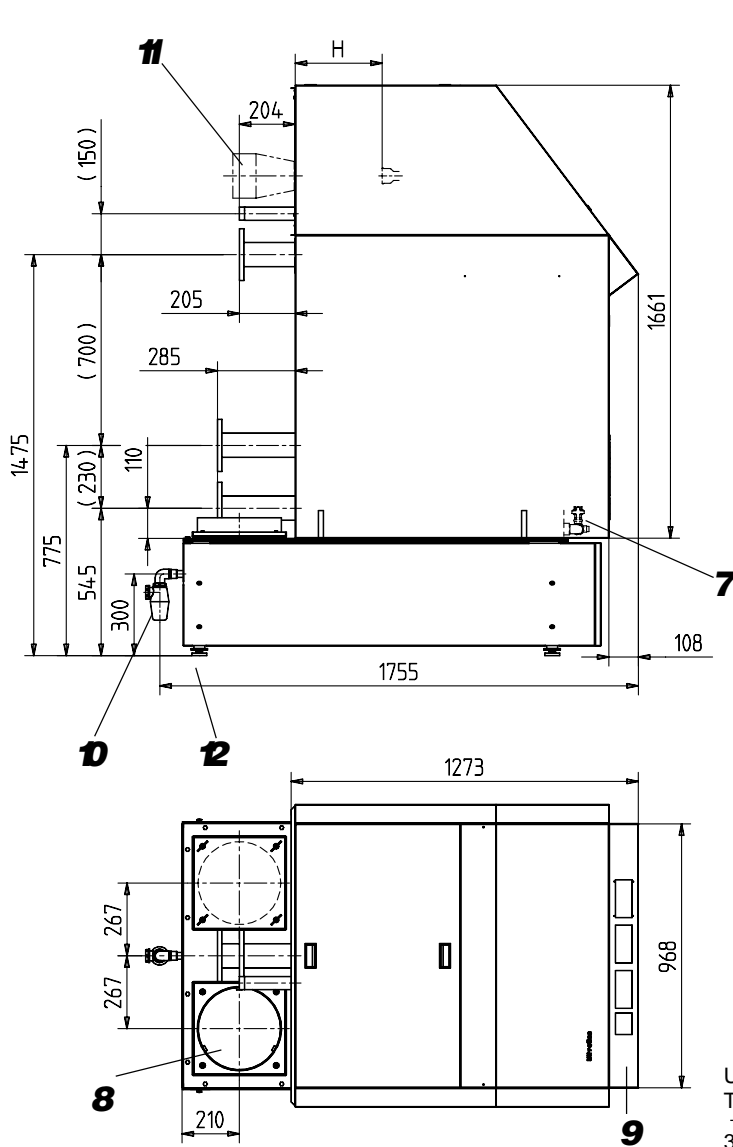
$$\text{UG-AM-c 200/250} \quad K = \frac{790}{800} \times 1422 = \text{width corridor} \geq 1405$$

Dimension

Subject to alterations

UltraGas UG-AM-c (300, 350)

(All measurements in mm)



- 1 Flow heating DN 80
- 2 Return heating DN 80
- 3 Gas connection Rp1½"
- 4 Safety flow and flow calorifier R 1½"
- 5 Return calorifier R 1½"
- 6 Electrical connection, left or right
- 7 Draining (behind the front door)
- 8 Flue gas connector Ø 300/305mm left or right
- 9 Boiler control
- 10 Odour trap with thread for plastic tube Ø a 25 mm
- 11 Air inlet connector Ø 154/160 mm (optional) for direct combustion air supply
- 12 Boiler foot lengthened up to 80 mm

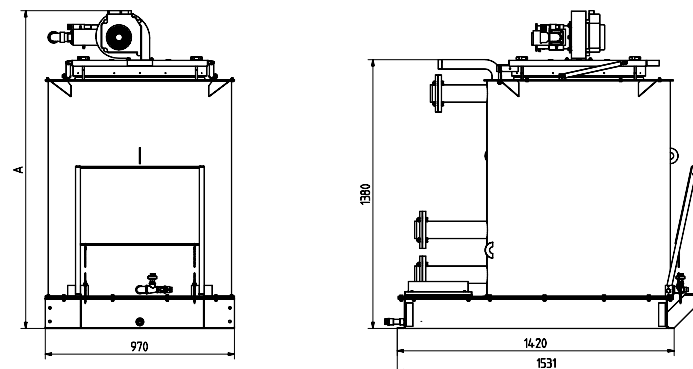
UG-AM-c Type	A	B	C	D	E	F	G	H
300	300	1760	335	100	455	442	133	319
350	400	1840	255	179	376	513	42	294

Note:

Minimal Spaces see page 77

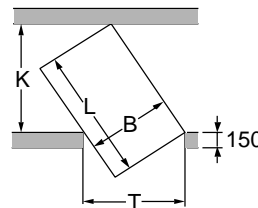
Opening dimension UG-AM-c (300, 350)

Boiler without casing and insulation



Required minimum width for door and corridor to bring in the boiler

The following information are minimal dimensions



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

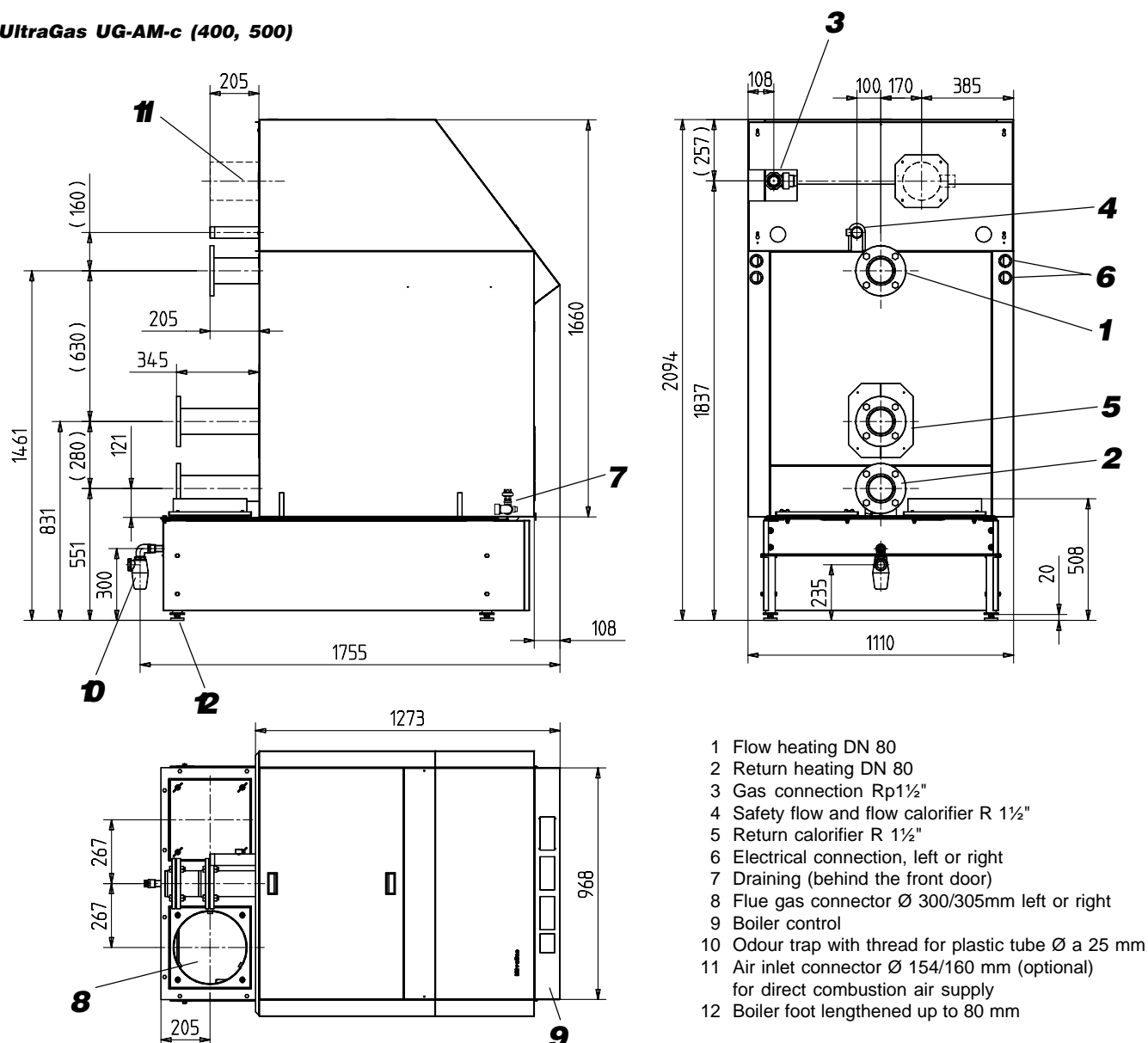
$$T = \frac{B}{K} \times L$$

T = Width door
K = Width corridor
B = Width boiler
L = Max. length boiler

Calculation example for the necessary width of the corridor

Width door T = 800

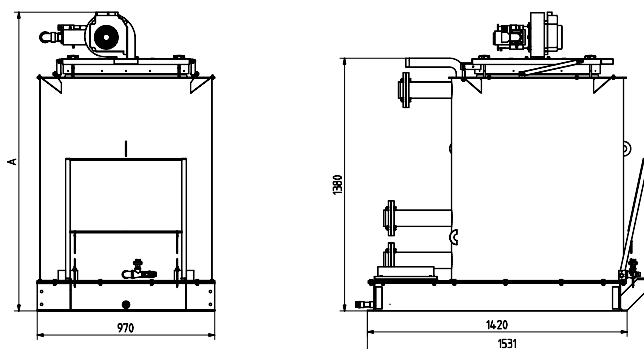
$$UG-AM-c \ 300/350 \quad K = \frac{970}{800} \times 1531 = \text{Width boiler} \geq 1857$$

UltraGas UG-AM-c (400, 500)

Note:

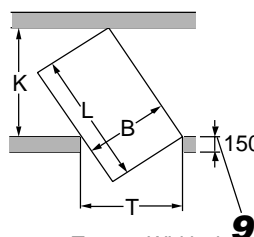
Minimal Spaces see page 77

Opening dimension UG-AM-c (400, 500)

Boiler without casing and insulation


Required minimum width for door and corridor to bring in the boiler

The following information are minimal dimensions



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

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

T = Width door
K = Width corridor

B = Width boiler
L = Max. length boiler

Calculation example for the necessary width of the corridor

Width door T = 800

$$\text{UG-AM-c 400/450/500 } K = \frac{970}{800} \times 1531 = \text{Width boiler} \geq 1857$$

Dimension / special boiler base

Subject to alterations

Condensate drainage

- For the condensate drainage by the UltraGas boiler, we need in all cases a boiler base.
- The authorisation for the drainage into the canalisation of the condensate has to be given by the local authorities
- The condensate drainage without neutralisation is allowed, if you are using for the drain only plastic tubes or stoneware.

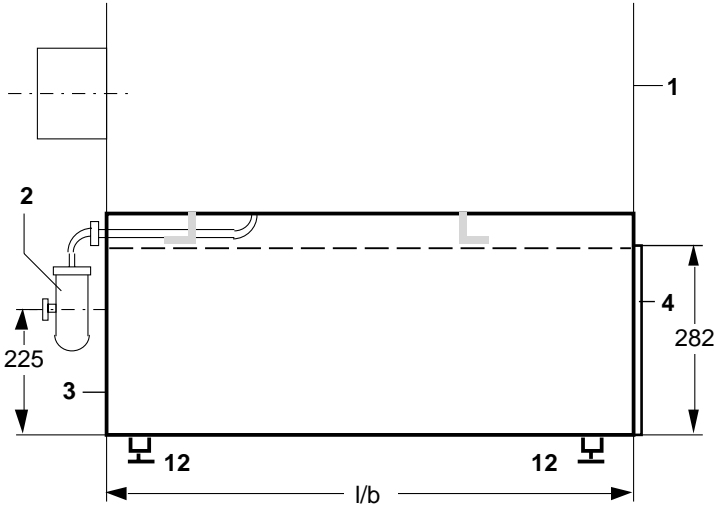
Boiler base Type	to UltraGas Type	l/b
S021	UG-AM-c 50-60	750/702
S031	UG-AM-c 70-150	840/792

Application

- Condensate drainage into lower situated drain line (without condensate neutralisation).

Execution

- Steel boiler base, in black lacquer finish with removal base front.



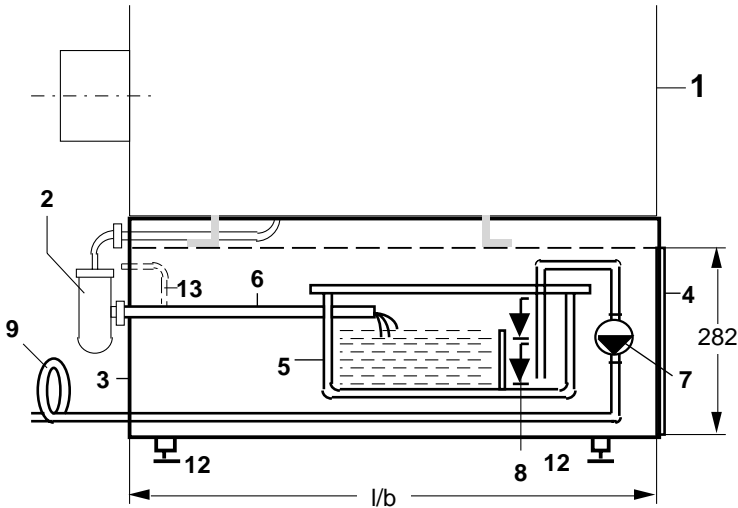
Boiler stand Type	for UltraGas Type	l/b
S022	UG-AM-c 50-60	750/702
S032	UG-AM-c 70-150	840/792

Application

- Condensate drainage into higher situated drain line.

Excution

- Steel boiler base, in black lacquer finish with front removalbe for maintenance
- 8 litre plastic condensate collector tank with neutralisation unit
- Condensate pump, delivery hight max. 3,5 m (2 dm³/min).
- Float switch for the condensate delivery pump, wired. Cable with plug connector for connection to the boiler control.



- 1 Gas boiler, front side

2 Siphon for condensate drainage with union for plastic tube Ø 25 and hose union Ø 19 (part of the boiler supply)

3 Special steel boiler plinth
- 4 Removable base front

5 Condensate delivery

6 Plastic pipe Ø 25

7 Condensate delivery pump Typ VCM-20 ULS
- 8 Float switch

9 Silicon hose Ø 9/13, length 4 m

12 Feet height, adjustable up to 30mm (boiler supply)
- 13 Connection for possible chimney condensate disposal

Dimension / special boiler stand

Subject to alterations

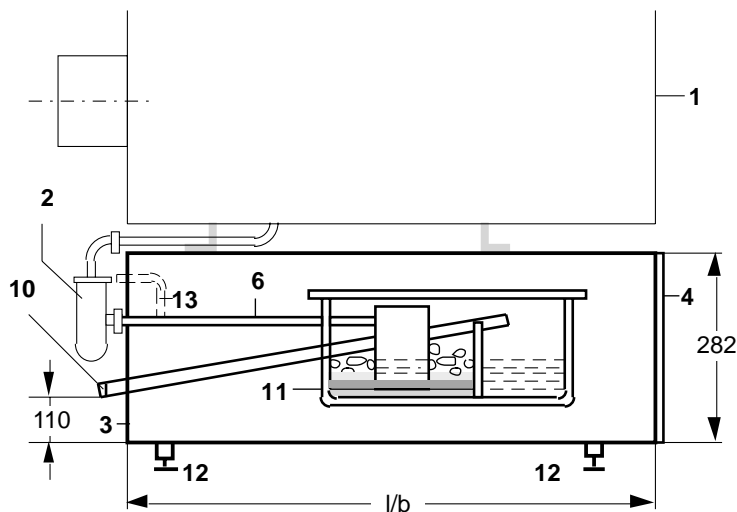
Boiler stand Type	to UltraGas Type	l/b
S023	UG-AM-c 50-60	750/702
S033	UG-AM-c 70-150	840/792

Application

- Condensate drainage into a lower situated drain line
- with condensate neutralisation

Execution

- Steel boiler base, in black lacquer finish with front removable for maintenance.
- Condensate collector tank and neutralisation unit
- neutralisation granulate «Neutralat» 9 kg to Typ 50-150



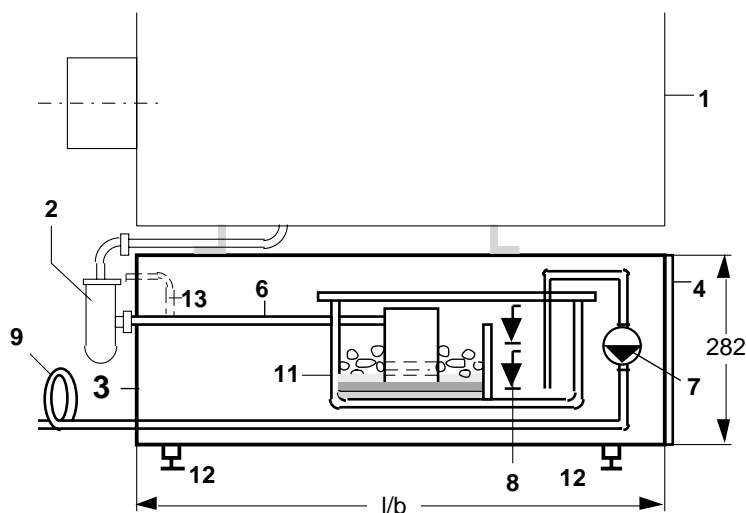
Boiler stand Type	to UltraGas Type	l/b
S024	UG-AM-c 50-60	750/702
S034	UG-AM-c 70-150	840/792

Application

- Condensate drainage into higher situated drain line,
- With condensate neutralisation.

Execution

- Steel boiler base, in black lacquer finish with front removable for maintenance.
- Condensate collector tank and neutralisation unit
- Condensate pump, delivery height max. 3,5 m (2 dm³/min).
- Float switch for the condensate delivery pump, wired. Cable with plug connector for connection to the boiler control.
- Neutralisation granulat «Neutralat» 9 kg to Typ 50-150



- 1 Gas boiler front side
- 2 Siphon for condensate drainage with union for plastic tube Ø 25 and hose union Ø 19 (part of the gas boiler supply)
- 3 Special steel boiler base
- 4 Removalbe base front

- 6 Plastic pipe Ø 25
- 7 Condensate delivery pump
- 8 Float switch
- 9 Silicon hose Ø 9/13, length 4 m

- 10 Condensate drainage, plastic pipe with external thread ¾"
- 11 Condensate collector tank with neutralisation unit

- 12 Feet height 15 mm, adjustable up to 30 mm (part of boiler supply)
- 13 Connection for possible chimney condensate disposal

Dimension

Subject to alterations

Neutralisation unit for UG- AM-c (200-500)

(All measurements in mm)

Neutralisation box Type KB 23 UG1

Application

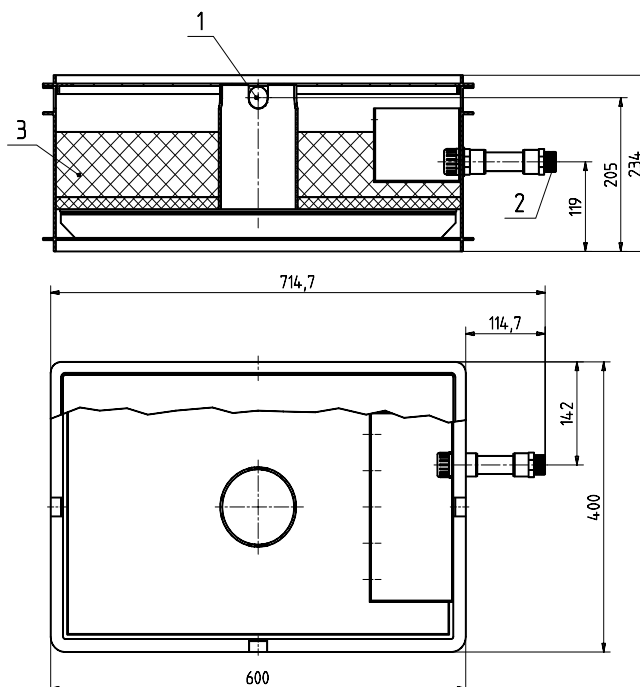
- Condensate drainage into a lower situated drainline
- With condensate neutralisation
- Installation under or adjacent to the boiler

Execution

- Collector tank with neutralisation unit
- 12 kg neutralisation granulate
- Connection between boiler (siphon) and neutralisation box if installed under the boiler

At place:

- If installing adjacent to the boiler, fit connection lines between the boiler (siphon) and the neutralisation box.
- Drain line from the neutralisation box



- 1 Condensate inlet from the boiler
- 2 OutletR ¾"
- 3 Condensate box with 12 kg granulate

Neutralisation box with pump Type KB 24 UG1

Application:

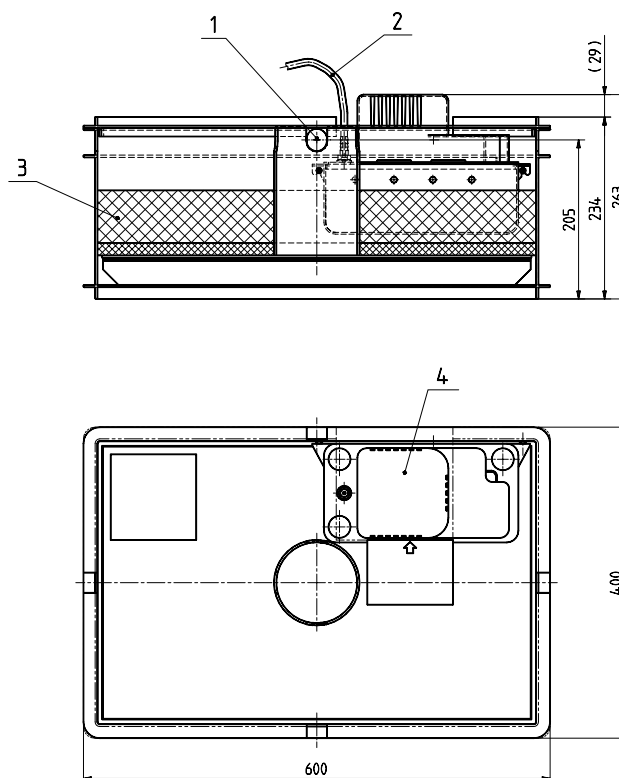
- Condensate drainage into a higher situated drain line
- With condensate pump, delivery height 3,5m
- With condensate neutralisation, 12 kg granulate
- Installation under or adjacent to boiler

Execution

- Collector tank with delivery pump and neutralisation unit
- 12 kg neutralisation-granulate
- Pump delivery height max. 3,5 m (2 dm³/min)
- Silicon hose Ø 9/13 mm, length 4 m
- Electro cable length 1,5 m with plug for connection to the boiler control panel if the installation is located under the boiler
- Plastic connection line Ø 25, boiler (siphon) to neutralisation box when the installation location is under the boiler.

At place:

- Drain line if the silicone hose is to short
- In the case of installation adjacent to boiler:
- Connection line between boiler (siphon) and the neutralisation box
 - Electrical connection between the delivery pump and the electrical control panel if the supply cable is to short.



- 1 Condensate inlet from the boiler
- 2 Outlet from pump, silicon hose Ø 9/13 mm, length 4 m
- 3 Condensate tank with 12 kg granulate
- 4 Condensate pump

Standards and guidelines

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- Hydraulic and technical control regulations of the local gas supply authority
- Gas directives G1 of the SVGW
- Flue gas systems are to be created according to the SVGW directives and the VKF fire protection guidelines.
- Local fire brigade regulations
- The fire protection regulations of the VKF
- Procal data sheet „Corrosion through halogen compounds“
- Procal data sheet „Corrosion damage in heating installations“ and the brochure „Protection against corrosion and boiler scale formation in heating and service water installations“
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Approval for diverting the flue gas condensate water to the drainage system must be obtained from the responsible authority
- Heating water
pH-value 8,3 to 9,0
max. oxygen content 0,1 mg/m³
chlorine content max. 30 mg/m³

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°fH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry,

drying and hobby rooms, etc.)

- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

- A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aperture.
- A direct combustion air connection to the boiler can be supplied as an option.

System separation in case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, pH value)

Gas connection

Commissioning

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed before every gas boiler

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 onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

For UG-AM-c 50-350

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

For UG-AM-c 400-500

- Natural gas min. 25 mbar, max. 50 mbar

Installing the heating system

The gas boiler is not be used as a heat producer for the installation of underfloor heating pipes.

Space requirements

- At least 800mm free space must be available in front of the boiler.
- Minimum distance from the wall at the back = 500 mm
- Minimum distance from the wall at the left and right hand sides = 500mm

Heating pump

- The heating pump must be installed in feed side in order that the pump operates in the overpressure range (avoidance of cavitation).

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with the TopTronic controller).

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.

Expansion tank

- An adequately dimensioned expansion tank must be provided.
- The expansion tank is to be connected to heating feed of the gas boiler, except in multi boiler installations, in order that the pump and boiler operate in the overpressure range (avoidance of cavitation).
- A safety valve and an automatic bleeding device must be installed in the heating feed.

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 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Chimney / flue gas system
Individually occupied chimney

- Gas boilers must be connected to a flue gas system
- Flue gas lines must be gastight and leaktight against condensate and over pressure and are to be fitted with a safety temperature limiting device.
- Gas boilers with condensation heat utilisation are to be connected to a flue gas line min. Temperature class T120.
- The condensate from the flue gas system is not to be drained via the boiler.

Chimney dimensions
Over pressure flue gas line, gas and watertight
Principles

- Height above sea level max. 1000m
- Introduction to a vertical section: 90°
- Connection tube:
Minimum to after the first bend in the dimension of the boiler flue gas connector max. length 2m.
- Combustion air:

In the case of room air-dependent operation (accessories as an option) the air line must be at least the same dimension as the flue gas line.

Boiler		Flue gas line			Number of bows 90°				
Type	Flue gas internal dim.	Dimension DN	Pipe diameter mm		Total pipe length in m (flue gas + air supply)				
UG-AM-c			outside	inside	1	2	3	4	5
50	154	100	100	97	29	29	29	28	27
60	154				29	29	29	29	29
80	154				14	13	12	12	11
50	154	130	130	127	38	38	38	38	38
60	154				38	38	38	38	38
80	154				38	38	38	38	38
100	154				38	38	38	38	38
125	181				24	23	22	21	20
150	181				15	14	13	12	10
80	154	150	152	150	44	44	44	44	44
100	154				44	44	44	44	44
125	181				44	44	44	44	44
150	181				44	44	44	44	44
200	250				26	25	23	22	20
250	250				24	23	21	20	18
125	181	175	177	175	52	52	52	52	52
150	181				52	52	52	52	52
200	250				52	52	52	52	52
250	250				52	52	52	52	52
200	250	200	202	200	59	59	59	59	59
250	250				59	59	59	59	59
300	300				59	59	59	59	59
350	300				57	56	55	53	52
250	250	250	252	250	70	70	70	70	70
300					70	70	70	70	70
350					70	70	70	70	70
400					70	70	70	70	70
450					70	70	70	70	70
500					70	70	70	70	70
350	300	300	302	300	70	70	70	70	70
400					70	70	70	70	70
450					70	70	70	70	70
500					70	70	70	70	70

Note: Chimney entry 45° also 45° elbows offer less resistance and could yield smaller dimensions or longer gas lines.

Gas condensing boiler

Description

Subject to alterations

Hoval UltraGas®

Gas heating boiler

- Based on the condensing principle
- Steel double boiler consisting of 2 individual boilers of 150, 200, 250, 300, 350, 400, 450 oder 500 kW
- Thermal insulation with mineral wool and aluminium foil
- Combustion and flue gas chambers out of stainless steel
- Re-switch heating surface of **aluFer®** composite tubing
- Integrated water pressure guard (scurity for water shortcoming)
- Premix surface burner
 - modulating, with blower and venturi
 - automatic ignition
 - ionisation guard
- Gas heating boiler delivered with steel sheet casing ready fitted, red/orange powder coated
- Boiler control panel with boiler control and heating programs in different versions, including automatic gas firing unit with monitoring unit MCBA 1482V3.x
- Connection lines of Flow/Return with motorized shut off valve in the flow

Optional

- For liquid gas (propan up to 700 kW)
- Special boiler base with neutralisation box for UG-AM-c (300D)
- Neutralisation box for UG-AM-c (400D-1000D)
- Flue gas over pressure set
- Free standing calorifier (CombiVal)

Delivery

- UG-AM-c (300D): completely insulated and cased, connection lines with shut off valve separately packed.
- UG-AM-c (400D-1000D): Boiler, Casing and connection lines with shut off valve separately packed

Work on-site

UG-AM-c (300D)

- Mounting of the boiler on the Hoval special boiler base
- Installation of the connection lines with shut off valve in the flow and return

UG-AM-c (400D-1000D)

- Mounting of boiler feet
- Mounting of insulation, casing and control panel
- Installation of the connection lines with shut off valve in the flow and return

Model-Range

UltraGas Type	Output kW
300D / 133B	32,1 - 300
300D / GLT	32,1 - 300
400D / 133B	44 - 404
400D / GLT	44 - 404
500D / 133B	49 - 500
500D / GLT	49 - 500
600D / 133B	60 - 600
600D / GLT	60 - 600
700D / 133B	65,4 - 700
700D / GLT	65,4 - 700
800D / 133B	98,7 - 800
800D / GLT	98,7 - 800
900D / 133B	98,8 - 900
900D / GLT	98,8 - 900
1000D / 133B	97,3 - 1000
1000D / GLT	97,3 - 1000

Standard control panel

Control panel with TopTronic 133B regulator (per boiler):

- For 1-4 heating circuit with mixer operating mode, weather controlled 3 point flow temperature regulation and flexible boiler water temperature
- Modulating burner control
- Main switch 0 / I
- Integrated priority selector switch and relay kit for shut-off valve
- Outdoor sensor AF 100N
- Flow sensor VF 100N (4 pcs)
- Connection possibilities:
 - Room station RS 10, RFF60S, RF40 with room temperature sensor with switch-in facility.

– Calorifier temperature sensor KT 10-40

Boiler basic control

GLT M4.2/G2

(per boiler):

(Connection of a non Hoval regulator)

- Output activation 0-10 V =, or potential-free On/Off setting signal.
warmer/colder
0 bis 0,5 V = burner «off»
0,5 bis 1,0 V = burner «base load»
1,0 bis 10,0 V = output modulation
10 V = 100% heat output
- Non-Hoval regulator with possibility for adjusting the PID behaviour
- Modulating burner control
- Main switch 0 / I

Delivery

- Control panel separately packed and delivered UG-AM-c (400D-700D)

At place

- Mounting the control UG-AM-c (400D-700D)



Gas condensing boiler UltraGas UG-AM-c

Part no.

Steel double boiler consists of 2 individual boilers of 150, 200, 250, 300, 350, 400, 450 and 500 kW Thermal insulation with mineral wool and aluminium foil. Combustion and flue gas chambers out of stainless steel. Re-switch heating surface of **aluFer®** composite tubing.

Delivery UG-AM-c 300D

2 Boiler with casing, control panel already mounted.

Connection lines with motorized shut off valve in the flow line separately packed.

Delivery UG-AM-c 400D-1000D

2 Boiler, casing with insulation, control panel and connection lines with motorized shut off valve in the flow line separately packed and delivered.

UltraGas

UG-AM-c

Type

Range of output
kW¹

300D / 133B	32,1 - 300	8001 082
300D / GLT	32,1 - 300	8001 083
400D / 133B	44 - 404	8001 051
400D / GLT	44 - 404	8001 052
500D / 133B	49 - 500	8001 053
500D / GLT	49 - 500	8001 054
600D / 133B	55 - 600	8001 084
600D / GLT	55 - 600	8001 085
700D / 133B	55 - 700	8001 086
700D / GLT	55 - 700	8001 087
800D / 133B	98,7 - 808	8001 176
800D / GLT	98,7 - 808	8001 177
900D / 133B	98,5 - 900	8001 178
900D / GLT	98,5 - 900	8001 179
1000D / 133B	97,3 - 1000	8001 180
1000D / GLT	97,3 - 1000	8001 181

¹ kW = Modulating range of output

Modification liquid gas

(only up to 500kW)

619 568

TopTronic regulator for additional heating circuit

TopTronic 3

For 1 Heating circuit for mixing valve.

Weather controlled flow temperature with outdoor sensor AF 100. Outdoor and flow sensor are included.

TopTronic 133B

For 1 direct and up to 2 mixing circuits.

Weather controlled flow temperature with outdoor sensor AF 100 and flow sensor. Outdoor sensor, 1 flow sensor and calorifier sensor are included.

691 335

691 285

Additional equipment ZM1.

Adapter set for second regulator

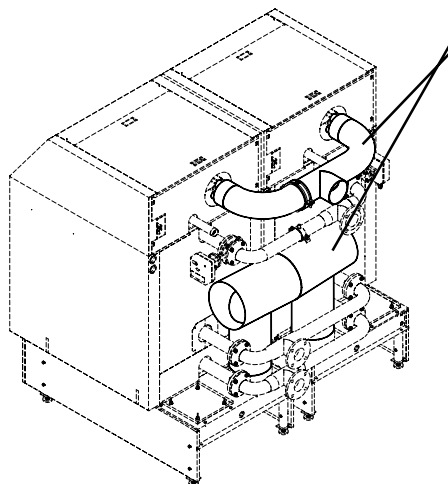
691 138



Accessories

Part no.

Fresh air/flue gas Over Pressure set

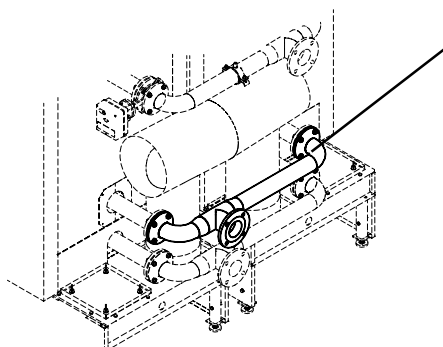


Usage for connection of boiler to a common flue gas tube with over pressure.
Flue gas collector made of high quality steel, combustion air connection, including back flow protection and venturi connection

for UG-AM-c (300D)	6001 942
for UG-AM-c (400D, 500F)	6005 284
for UG-AM-c (600D, 700D)	6003 453
for UG-AM-c (800D, 900D, 1000D)	delievable from January 2003

This fresh air/flue gas-Overpressure set is part of authorisation for the connection to a common flue gas tube with over pressure !

Hydraulic Connection Set 1



Hydraulic connection set for high temperature return

for UG-AM-c (300D)	6001 926
for UG-AM-c (400D, 500F)	6002 803
for UG-AM-c (600D, 700D)	delievable from January 2003
for UG-AM-c (800D, 900D, 1000D)	

Accessories for TopTronic regulator

Part no.

Room station RS 10

for 1 or 2 mixing circuit, with room sensor, information, program and correction key

242 634



Remote control RFF 60S

for 1 mixing circuit with room sensor, program key and temperature adjustment

2 000 754



Room temperature sensor RF 40

for 1 mixing circuit (instead of R10 or RFF60S)

242 679



Add. outdoor temperature sensor AF 100N

for 1 mixing circuit (per Heating circuit 1 separate outdoor sensor is possible)
or for the overage value (per regulator 2 outdoor temperature sensor possible)

242 646



Cable sensor KT 10-40

with 4m cable, for calorifier

242 371



Flow sensor VF100N

242 647



Accessories

Part no.



Flow temperature guard

for floor heating

(per heating circuit 1 sensor)

- Thermostat with diving sensor 619.0015

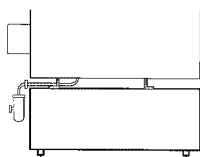
- Thermostat 692.1120

242 190

242 217

Special boiler base to UG-AM-c (300D)

consists of 2 individual bases

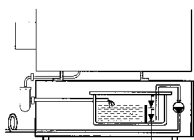


without condensate neutralisation Type S031

For condensate drainage into lower situated
drain line

to UG-AM-c 300D (2 pcs must be used)

619140

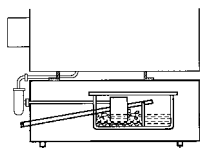


Type S032

For condensate drainage into higher situated
drain line with condensate pump, collector
tank, float switch

to UG-AM-c 300D (2 pcs must be used)

6002762

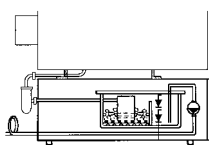


with condensate neutralisation incl. collector tank Type S033

For condensate drainage into lower situated
drain line

With 9 kg neutralisation granulate «Neutralat»
to UG-AM-c 300D (2 pcs must be used)

6002760



Type S034

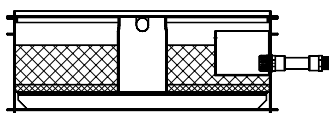
For condensate drainage into higher situated
drain line.

With 9 kg neutralisation granulate «Neutralat»
with condensate pump, collector tank, float
switch

to UG-AM-c 300D (2 pcs must be used)

6002746

Neutralisation unit to UG-AM-c (400D-700D)



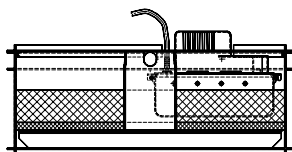
Place under or next to the boiler

Type KB 23 UG1

Condensate drainage into lower situated
drain line

– With 12 kg granulate

6001 917



Type KB 24 UG1

Condensate drainage into higher situated
drain line.

– With condensate pump

– With 12 kg granulate

6001 918



Service

Art. Nr.

Commissioning

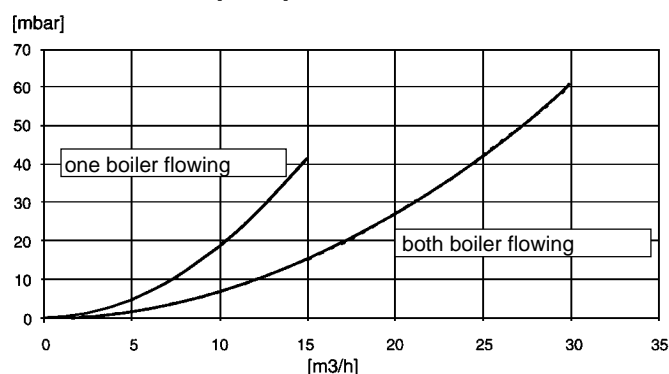
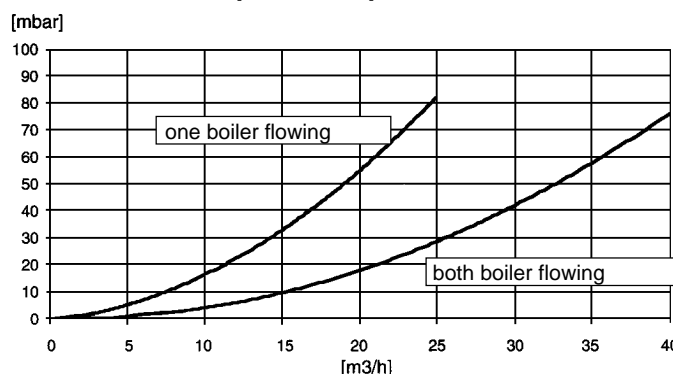
on request

Technical data

Subject to alterations

UG-AM-c

Type			300D	400D	500D
•	Nominal output 80/60°C natural gas	kW	28,9-274	39-368	44-452
	Nominal output 40/30°C natural gas	kW	32,1-300	44-404	49-500
	Nominal output 80/60°C liquid gas	kW	35-274	63-368	78-452
	Nominal output 40/30°C liquid gas	kW	39-300	70-404	87-500
	Nominal load natural gas	kW	30-286	40-380	45-470
	Nominal load liquid gas	kW	36-286	65-380	80-470
•	Working pressure max./min.	bar	5 / 1,0	5 / 1,0	5 / 1,0
	Working temperature max.	°C	85	85	85
	Boiler water capacity	l	400	680	660
	Boiler weight	kg	2 x 350	2 x 560	2 x 600
•	Standard degree of utilisation 40/30°C	%	109,1	109,5	109,4
	75/60°C	%	105,9	106,1	106,1
	Readiness loss rated heat load at 70°C	Watt	1000	1060	1120
	Standard emission factors nitrogen oxides	mg/kWh	23,4	24,1	27,8
	carbon monoxide	mg/kWh	9,2	9,0	9,4
• Dimension:	Height	mm	1984	1935	1935
	Width	mm	1720	1880	1880
	Length	mm	1600	1795	1795
• Connection	Flow	DN	80	80	80
	Return	DN	80	80	80
	Gas	2 x Zoll	1"	1½"	1½"
	Flue gas	mm	250	300	300
• Gas pressure min./ max.	natural gas E/LL	mbar	18-24	18-24	18-24
	liquid gas	mbar	42-57	42-57	42-57
• Gas connection amount at 0°C / 1013 mbar:	Natural gas E - (Wo=15,0 kWh/m³) Hu=9,97kWh/m³	m³/h	3,0-28,6	4,0-38,2	4,5-47,2
	Natural gas LL- (Wo=12,4 kWh/m³) Hu=8,57 kWh/m³	m³/h	3,5-33,4	4,7-44,4	5,3-54,8
	Liquid gas (Hu=32,7 kWh/m³)	kg/h	2,8-22,6	5,1-29,8	6,3-37,0
• Rated voltage		V/Hz	230 / 50	230 / 50	230 / 50
• Driving voltage		V/Hz	24 / 50	24 / 50	24 / 50
• Power consumption		Watt	416	412	660
• System of protection		IP	20	20	20
• Sound level		dB(A)	78	76	80
• Condensate amount (natural gas) at 40 / 30°C		l/h	26,4	35,6	44,0
• pH-value of condensate			ca. 5,0	ca. 5,0	ca. 5,0
• Values for the flue gas calculation	Temperature class		T120	T120	T120
	Flue gas mass flow	kg/h	506,9	672,5	832,3
	Flue gas temperature T _v 80°C / T _R 60°C	°C	77	65	68
	Flue gas temperature T _v 40°C / T _R 30°C	°C	54	35	38
	Feed pressure at flue gas connector	Pa	60	60	100

Boiler throughput resistance
UltraGas UG-AM-c (300D)

UltraGas UG-AM-c (400D-500D)


m³/h = throughput flow

mbar = throughput resistance

Technical data

Subject to alterations

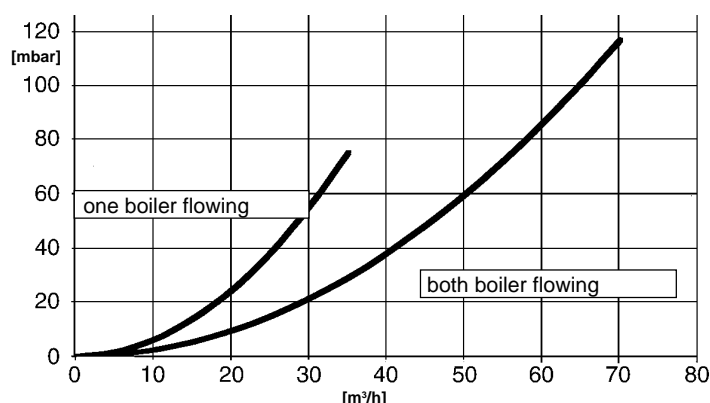
UG-AM-c

Type		600D	700D	800D	900D	1000D
• Nominal output 80/60°C natural gas	kW	54-544	58,8-636	89,8-728	89,8-820	89,7-920
• Nominal output 40/30°C natural gas	kW	60-600	65,4-700	98,7-800	98,8-900	97,3-1000
• Nominal output 80/60°C liquid gas	kW	80-544	95-636	-	-	-
• Nominal output 40/30°C liquid gas	kW	91-600	109-700	-	-	-
• Nominal load natural gas	kW	55-566	60-660	93-754	93-850	93-956
• Nominal load liquid gas	kW	84-566	100-660	-	-	-
• Working pressure max./min.	bar	5,0 / 1,0	5,0 / 1,0	5,0 / 1,0	5,0 / 1,0	5,0 / 1,0
• Working temperature max.	°C	85	85	85	85	85
• Boiler water capacity	l	840	820	794	794	794
• Boiler weight	kg	2 x 630	2 x 670	2 x 740	2 x 740	2 x 740
• Standard degree of utilisation 40/30°C 75/60°C	%	110,0 107,5	110,0 107,5	110,0 107,6	110,0 107,4	110,0 107,2
• Readiness loss rated heat load at 70°C	Watt	2 x 700	2 x 720	2 x 750	2 x 750	2 x 750
• Standard emission factors nitrogen oxides	mg/kWh	38	41	43	42	41
Carbon monoxide	mg/kWh	9	10	11	12	13
• Dimension:	Height	mm	2092	2092	2095	2095
	Weidth	mm	2240	2240	2240	2240
	Length	mm	1840	1840	1700	1700
• Connection	Flow	DN	100	100	125	125
	Return	DN	100	100	125	125
	Gas	2 x Zoll	1½"	1½"	2"	2"
	Flue gas	mm	350	350	356	356
• Gas pressure min./ max.	natural gas E/LL	mbar	18-24	18-24	25-50	25-50
	liquid gas	mbar	42-57	42-57	-	-
• Gas connection amount at 0°C / 1013 mbar:						
Natural gas E - (Wo=15,0 kWh/m³) Hu=9,97kWh/m³	m³/h	56,8	66,2	75,6	85,3	95,9
Natural gas LL- (Wo=12,4 kWh/m³) Hu=8,57 kWh/m³	m³/h	66	77	88	99,2	111,6
Liquid gas (Hu=32,7 kWh/m³)	kg/h	6,6-44,7	7,87-52,0	-	-	-
• Rated voltage	V/Hz	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50
• Driving voltage	V/Hz	24 / 50	24 / 50	24 / 50	24 / 50	24 / 50
• Power consumption	Watt	984	720	882	1202	1638
• System of protection	IP	20	20	20	20	20
• Sound level	dB(A)	83	87	74	76	78
• Condensate amount at 40 / 30°C	l/h	53	61,8	70,5	79,4	89,3
• pH-value of condensate		ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0	ca. 5,0
• Values for the flue calculation						
Temperature class		T120	T120	T120	T120	T120
Flue gas mass flow	kg/h	1002,4	1169	1320	1485	1650
Flue gas temperature T _v 80°C / T _r 60°C	°C	64	65	65	70	75
Flue gas temperature T _v 40°C / T _r 30°C	°C	39	42	42	45	53
Feed pressure at flue gas connector	Pa	60	60	60	60	60

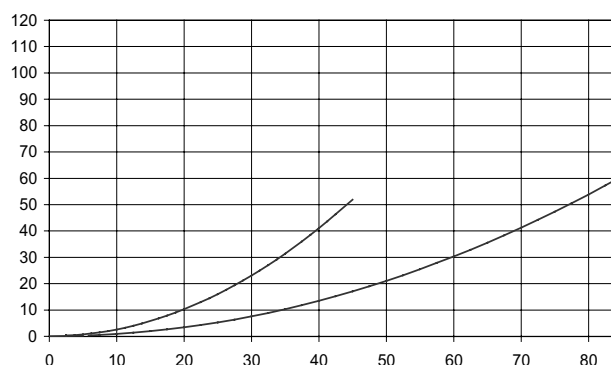
Boiler throughput resistance

UltraGas UG-AM-c (600D, 700D)

m³/h = throughput flow
mbar = throughput resistance



UG-AM-c (800D-1000D)

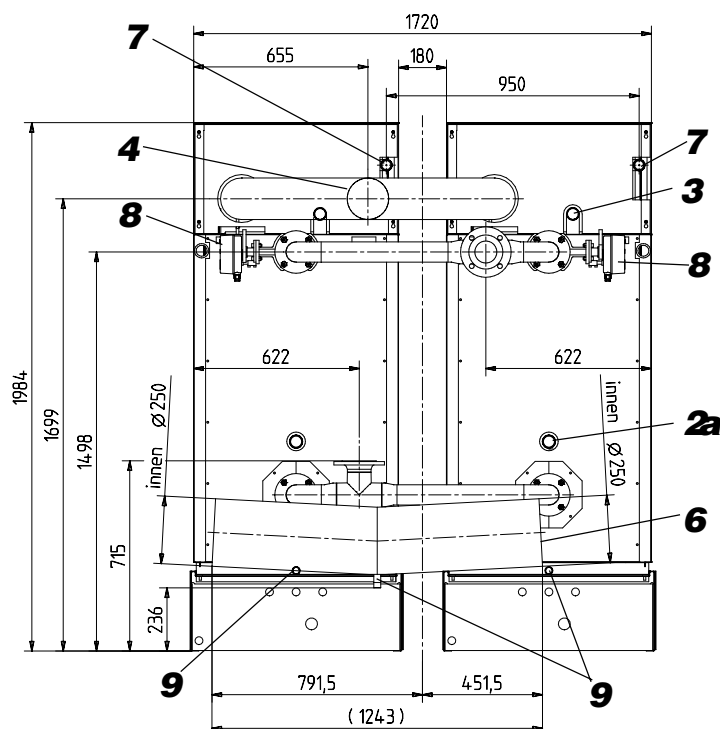


Dimension

Subject to alterations

UltraGas UG-AM-c (300D)

(All measurements in mm)



- 1 Flow } DN80, PN6
- 2 Return } DN80, PN6
- 2a Return Calorifier R 1½"
- 3 Safety valve R 1½"

- 4 Induction combustion air
- 5 Flue gas outlet Ø 250/254, left or right possible
- 6 Flue gas collector (see acc. flue gas over-pressure set)

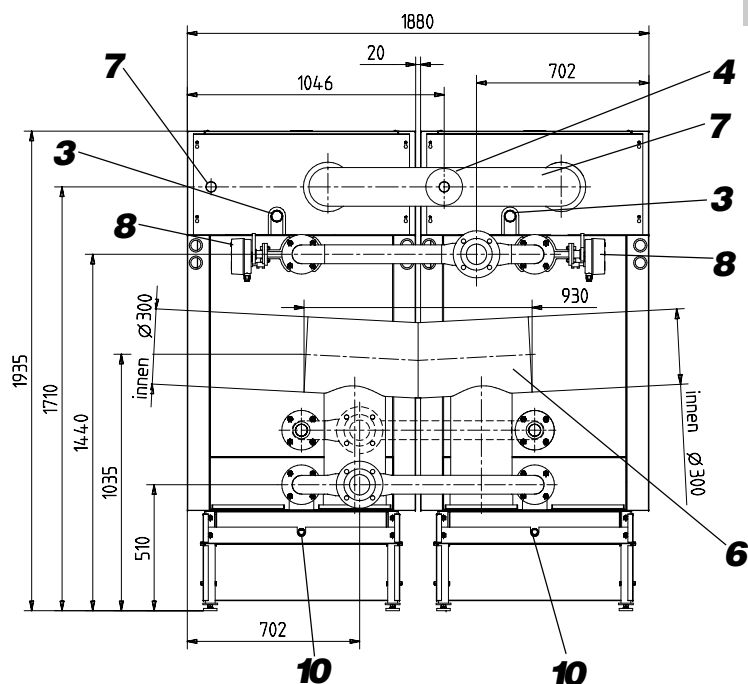
- 7 Condensate drain R ¾"
- 8 Gas connection Rp 1"
- 9 Motorized shut off valve

For detailed measurements see UltraGas UG-AM-c (150)

UltraGas UG-AM-c (400D, 500D)

Note:

Minimal Spaces see page 77



- 1 Flow } DN80, PN6
- 2 Return } DN80, PN6
- 3 Safety flow R 1½"
- 4 Induction combustion air

- 5 Flue gas outlet Ø 300/304, left or right possible
- 6 Flue gas collector (see acc. flue gas over pressure set)
- 7 Gas connection Rp 1"

- 8 Motorized shut off valve
- 9 High temperature return DN 125
- 10 Condensate drain

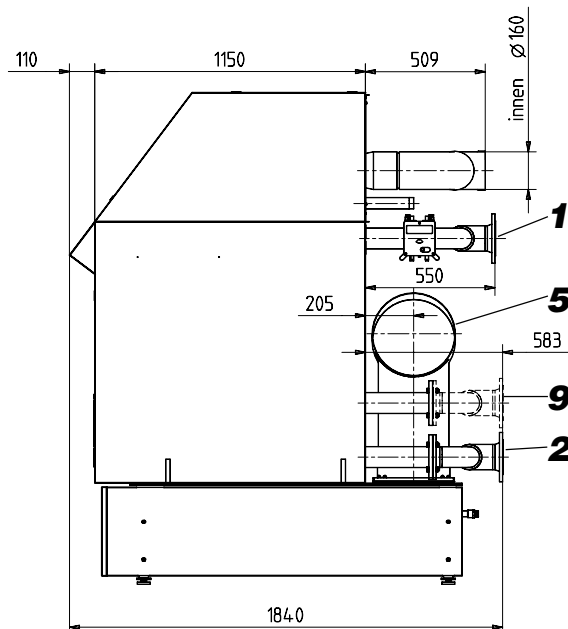
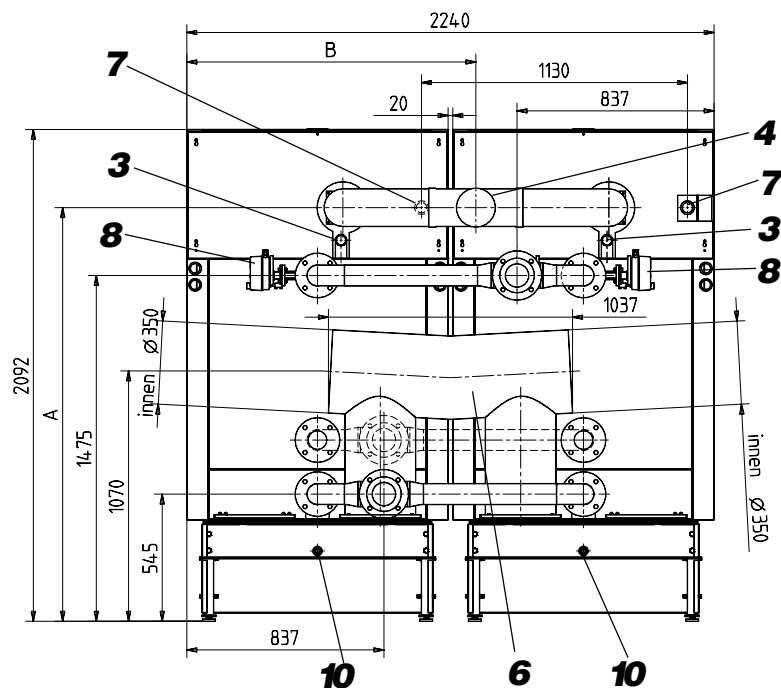
For detailed measurements see UltraGas UG-AM-c (200, 250)

Dimension

Subject to alterations

UltraGas UG-AM-c (600D, 700D)

(All measurements in mm)



- 1 Flow } DN80, PN6
- 2 Return }
- 3 Safety valve R 1½"
- 4 Induction combustion air

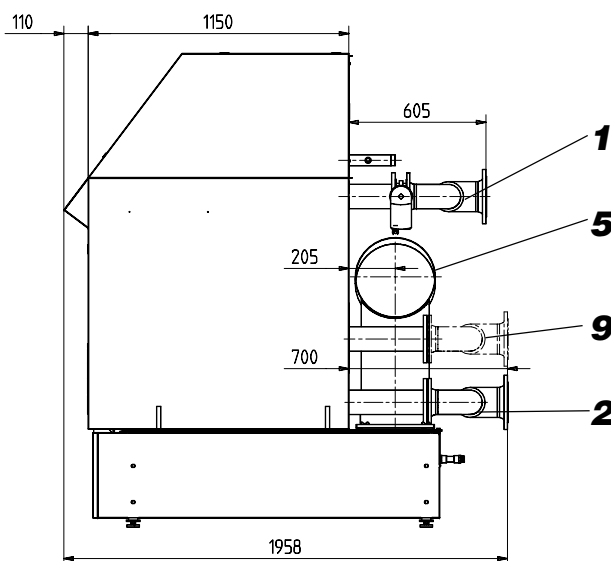
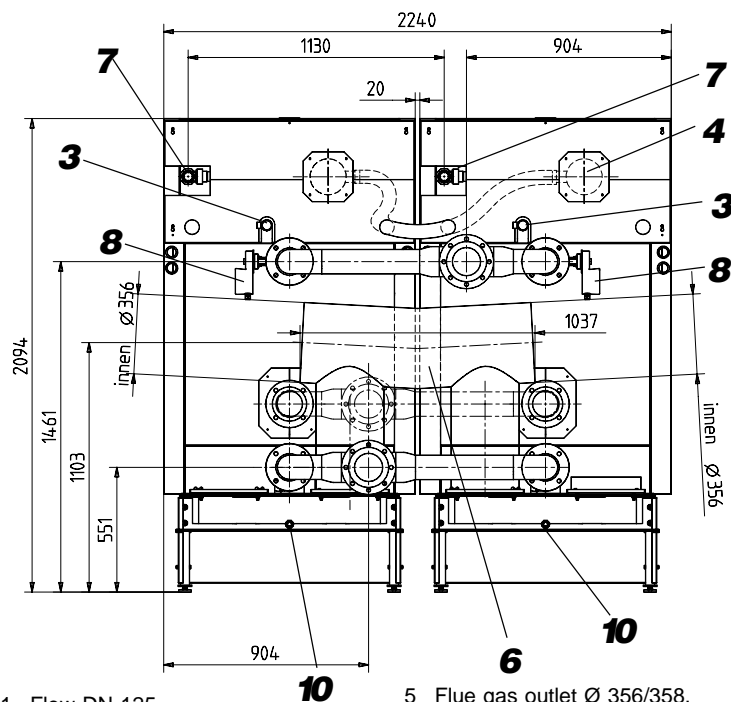
- 5 Flue gas outlet Ø 350/354, left or right possible
- 6 Flue gas collector (see acc. flue gas over pressure set)

- 7 Gas connection Rp 1½"
- 8 Motorized shut off valve
- 9 High temperature return DN 100
- 10 Condensate drain

For detailed measurements see
UltraGas UG-AM-c (300, 350)

UltraGas UG-AM-c (800D-1000D)

(All measurements in mm)



- 1 Flow DN 125
- 2 Return DN 125
- 3 Safety valve R 1½"
- 4 Induction combustion air

- 5 Flue gas outlet Ø 356/358, left or right possible
- 6 Flue gas collector (see acc. flue gas over-pressure set)

- 7 Gas connection Rp 2"
- 8 Motorized shut off valve
- 9 High temperature return DN 125
- 10 Condensate drain

For detailed measurements see
UltraGas UG-AM-c (300, 350)

Note:

Minimal Spaces see page 77

Dimension

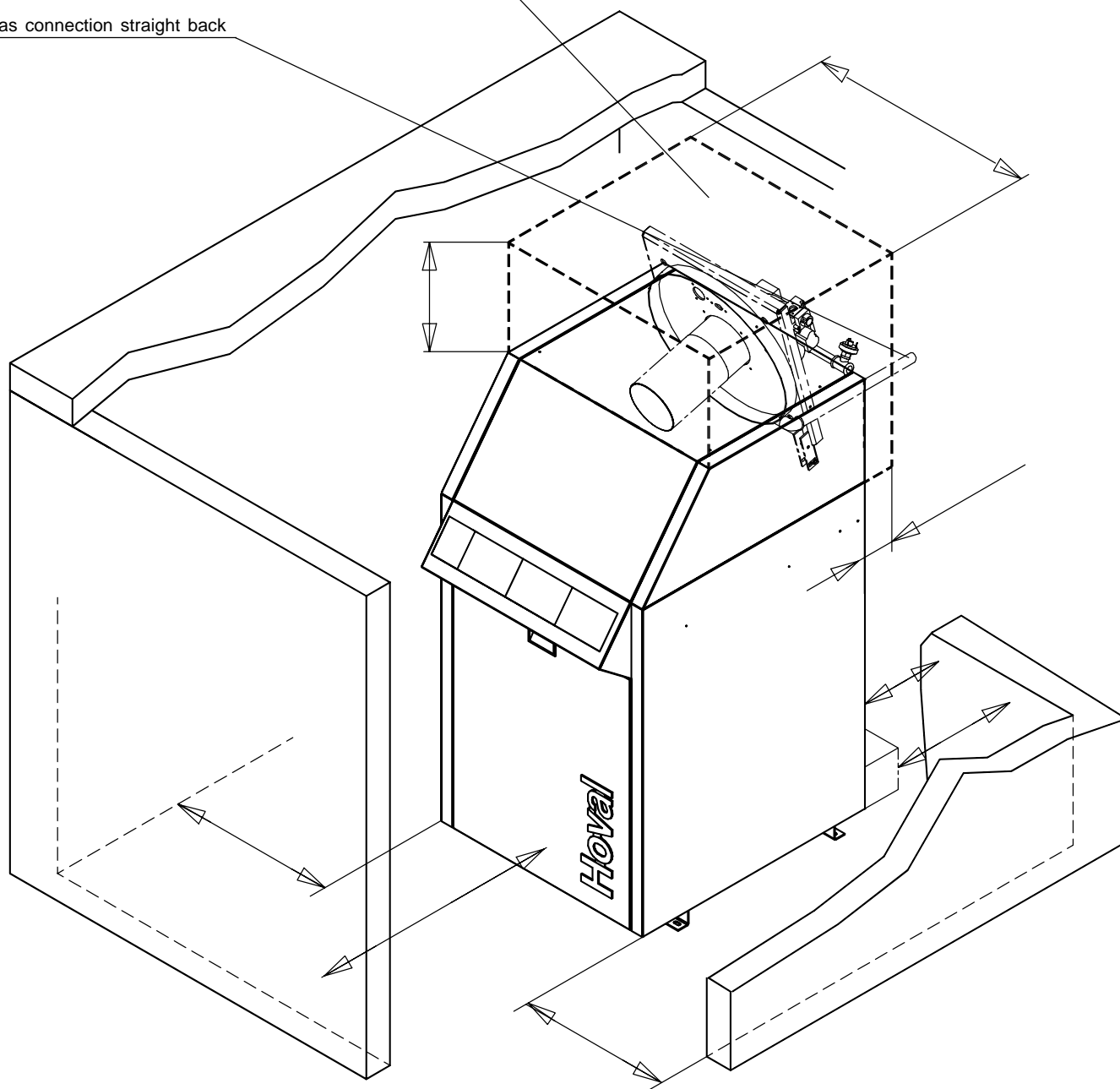
Subject to alterations

Minimal Spaces

(all measurements in mm)

This part has to be kept free to allow the burner to swing out

Gas connection straight back



UG-AM-c Typ	min A	min B	min C	min D
50-60	300	100	500	-
70-100	370	100	500	-
125-150	240	100	500	-
200-250	150	500	-	500
300-350	230	500	-	500
400-500	230	500	-	500
300D	240	100	900	-
400D-500D	150	500	-	500
600D-1000D	230	500	-	500

Dimensions

Subject to alterations

Neutralisation unit to UG-AM-c (400D-1000D)

(All measurements in mm)

Neutralisation box type KB 23 UG1

Application

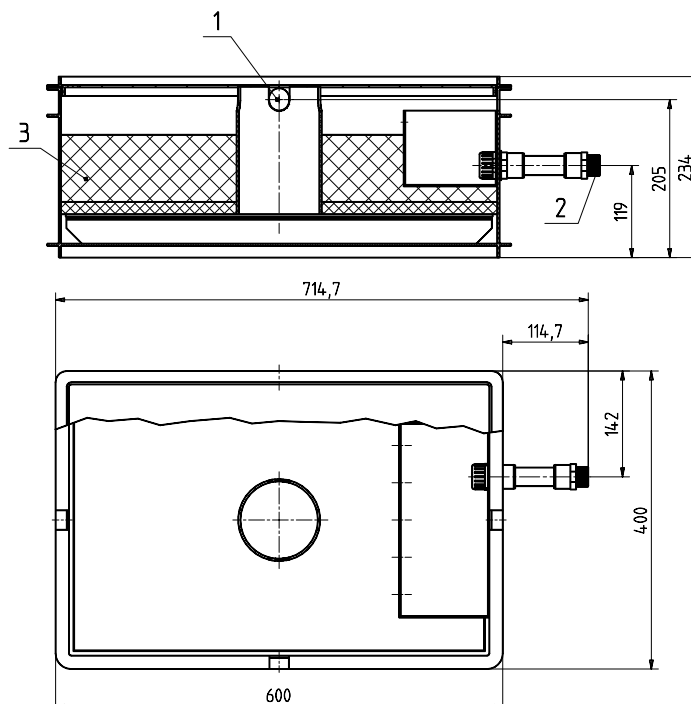
- Condensate drainage into a lower situated drain line
- With condensate neutralisation
- Installed under or next to the boiler

Execution

- Collector tank with neutralisation
- 12 kg Neutralisation granulate
- Connection between boiler (siphon) and neutralisation box when installed under the boiler

Work on-site:

- If installing adjacent to the boiler, fit connection lines between the boiler and the neutralisation box
- Drain line from the neutralisation box



- 1 Condensate inlet from the boiler
- 2 Outlet R 3/4"
- 3 Condensate tank with 12 kg granulate

Neutralisation box with pump Type KB 24 UG1

Application:

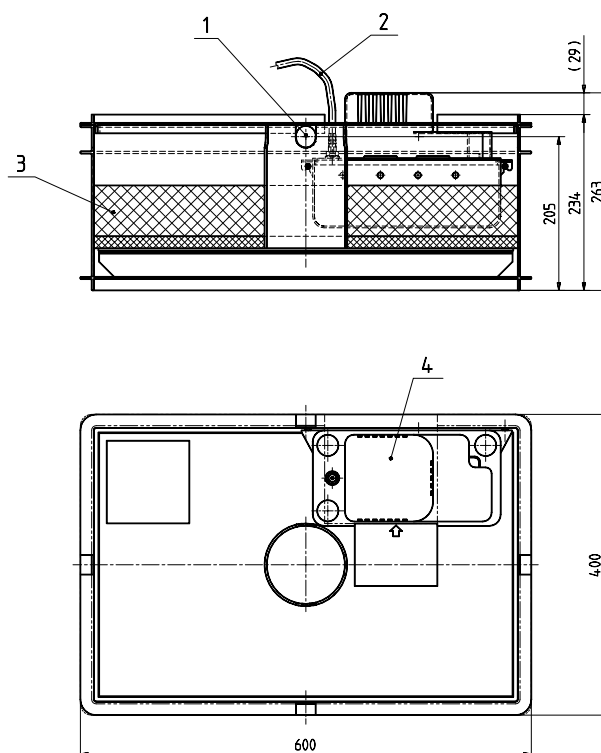
- Condensate drainage into a higher situated drain line
- With condensate pump, delivery height 3,5m
- With condensate – neutralisation, 12 kg granulate
- Installed under or adjacent to the boiler

Execution:

- Collector tank with delivery pump and neutralisation unit
- 12 kg neutralisation granulate
- Pump delivery height max. 3,5 m (2 dm³ / min.)
- Silicone hose Ø 9/13 mm, Length 4 m
- Electro cable 1,5 m, with plug for connection to the boiler control panel when the box is placed under the boiler
- Plastic connection line Ø 25, boiler (siphon) to neutralisation box when the box is placed under the boiler

Work on-site:

- Drain line if the silicone hose is to short
- In case of installing next to boiler:
- Connection line between boiler (siphon) to neutralisation box
 - Electrical connection between the delivery pump and the electrical control panel if the supplied cable is to short



- 1 Condensate inlet from boiler
- 2 Outlet from pump, silicon hose Ø 9/13 mm, length 4 m
- 3 Condensate tank with 12 kg granulate
- 4 Condensate pump

Standards and guidelines

The following standards and guidelines must be complied with:

- Hoval technical information and installation instructions
- Hydraulic and technical control regulations of the local gas supply authority
- Gas directives G1 of the SVGW
- Flue gas systems are to be created according to the SVGW directives and the VKF fire protection guidelines.
- Local fire brigade regulations
- The fire protection regulations of the VKF
- Procal data sheet „Corrosion through halogen compounds“
- Procal data sheet „Corrosion damage in heating installations“ and the brochure „Protection against corrosion and boiler scale formation in heating and service water installations“
- Ventilation and air supply for the boiler installation room according to directives SWKI 91-1
- Directives SWKI 97-1 «Water treatment for heating, steam and air conditioning installations»
- Approval for diverting the flue gas condensate water to the drainage system must be obtained from the responsible authority
- Heating water
pH-value 8,3 to 9,0
max. oxygen content 0,1 mg/m³
chlorine content max. 30 mg/m³

Water treatment

- There are no special requirements for systems with a water capacity of up to 1000 dm³. However, the heating system water should conform to drinking water quality standards.
- For systems with a total water capacity in excess of 1000 dm³, a water quality with a total hardness (sum of the earth alkalines) up to a max. 3 mol/m³ permitted. This corresponds to a total hardness of max. 30°fH or 16,8°dH.
- The heating system is to be professionally cleaned and purged before installing the boiler; this applies both to new and old installations.
- The water properties must be checked at least once a year.

Heating system

Boiler installation room

- Gas boilers are not to be installed in room in which halogen compounds occur and which can enter the combustion air (e.g. laundry, drying and hobby rooms, etc.)

- Sources of halogen compounds include detergents, degreasing agents and solvents, adhesives and bleaching agents.

Combustion air

- A supply of the combustion air must be guaranteed. There must be no possibility for closing the air supply aparture.
- A direct combustion air connection to the boiler can be supplied as an option.

System separation in case of installations with:

- Open expansion vessel (if integration of a pressure expansion vessel is not possible).
- Plastic pipes without a diffusion barrier
- Chemical additives or antifreeze agents in the heating water. No inhibiting or antifreeze agents may be used in the boiler.
- Application of protective diode systems only with the approval of the manufacturer (aluminium, pH value)

Gas connection

Commissioning

- Initial placing in operation is only to be carried out by a specialist of Hoval and the gas supplier.
- Burner settings values according to the installation instructions.

Shut-off valve

- A shut-off valve must be installed before every gas boiler

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 onsite for liquid gas (propan).

Gas pressure

Necessary flow pressure at the boiler inlet:

for UG-AM-c 300D-700D

- Natural gas min. 18 mbar, max. 24 mbar
- Liquid gas min. 42 mbar, max. 57 mbar

for UG-AM-c 800D-1000D

- Natural gas min. 25 mbar, max. 50 mbar

Installing the heating system

The gas boiler is not be used as a heat producer for the installation of underfloor heating pipes.

Space requirements

- At least 800mm free space must be available in front of the boiler.
- Minimum distance from the wall at the back = 500 mm
- Minimum distance from the wall at the left and right hand sides = 500mm

Heating pump

- The heating pump must be installed in feed side in order that the pump operates in the overpressure range (avoidance of cavitation).

Pump after-run time

- The circulation pump must continue to run for at least 2 minutes each time the burner is switched off (the pump after-run time is included in the boiler control with the TopTronic controller).

Heating boiler in the attic storey

- A water pressure switch is installed in the boiler, which automatically cuts off the burner in the case of a water deficiency.

Condensate water drain line

- Condensate water drainage is only permissible without neutralisation where the drain pipelines and the drainage system are plastic or earthenware (exceptions may be authorised by certain local authorities).
- A siphon must be installed at the condensate outlet on the gas boiler (included in the boiler supply).
- The entry of the condensate into the drain system must be open.

Expansion tank

- An adequated dimensioned expansion tank must be provided.
- The expansion tank is to be connected to heating feed of the gas boiler, except in multi boiler installations, in order that the pump and boiler operate in the overpressure range (avoidance of cavitation).
- A safety valve and an automatic bleeding device must be installed in the heating feed.

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 10 to 15 dB(A) lower than the acoustic power level at a distance of 1m.

Chimney / flue gas system

Individually used chimney

- Gas boiler must be connected to a flue gas system
- Gas boiler with condensation heat utilisation are to be connected to a flue gas line min. cat. T120
- Flue gas lines must be gastight and leaktight against condensate and secure for over pressures are to be fitted with a safety temperature limiting device.
- The condensate from the flue gas system is not to be drained via boiler

Chimney dimensions (Overpressure) for UG-AM-c (300D-1000D)

Over pressure flue gas line, gas and watertight

Principles

- Height above sea level max. 1000m
- Introduction to a vertical section 90° minimum to after the first bend in the dimension of the boiler flue gas connector max. length 2 m.
- Connection tube Minimum to after the first bend in the dimension of the boiler flue gas connector max. length 2m.
- Combustion air In the case of room air dependent operation the air line must be at least the same dimension as the flue gas line
- Flue gas excess is absolutely required

Boiler		Flue gas line (smooth walled)			Number of 90° bows				
Type	Flue gas dim. internal	Designation DN	Pipe diameter mm		Total pipe length in m (flue gas + air supply)				
UG-AM-c			outside	inside	1	2	3	4	5
300D	250	200	202	200	35	33	30	27	25
300D	250	200	252	250	70	70	70	70	70
400D	300	250	252	250	67	64	61	58	55
500D	300	250	252	250	38	35	32	29	26
400D	300	300	302	300	70	70	70	70	70
500D	300	300	302	300	70	70	70	70	70
600D	350	300	302	300	70	70	70	70	70
700D	350	300	302	300	64	60	55	50	46
800D	350	300	302	300	45	40	35	31	26
900D	350	300	302	300	32	27	22	17	12
1000D	350	300	302	300	26	21	15	12	-
700D	350	350	352	350	70	70	70	70	70
800D	350	350	352	350	70	70	70	70	70
900D	350	350	352	350	70	70	70	70	70
1000D	350	350	352	350	70	70	70	70	70

Note: Chimney entry 45°, 45° elbows offer less resistance and could yield smaller dimensions or longer flue gas lines.

Chimney dimensions (negative pressure) for UG-AM-c (300D-1000D)

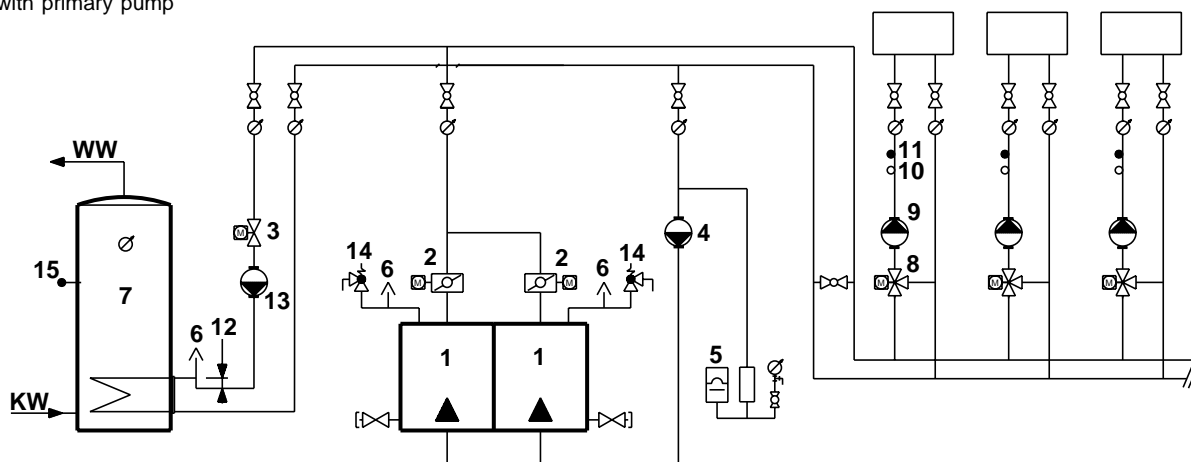
The flue gas plant is to be dimensioned in such a way that no back circulation is possible in the room. A safe operation of the flue gas plant has to be proved by approved measuring principles.

Application examples

Subject to alterations

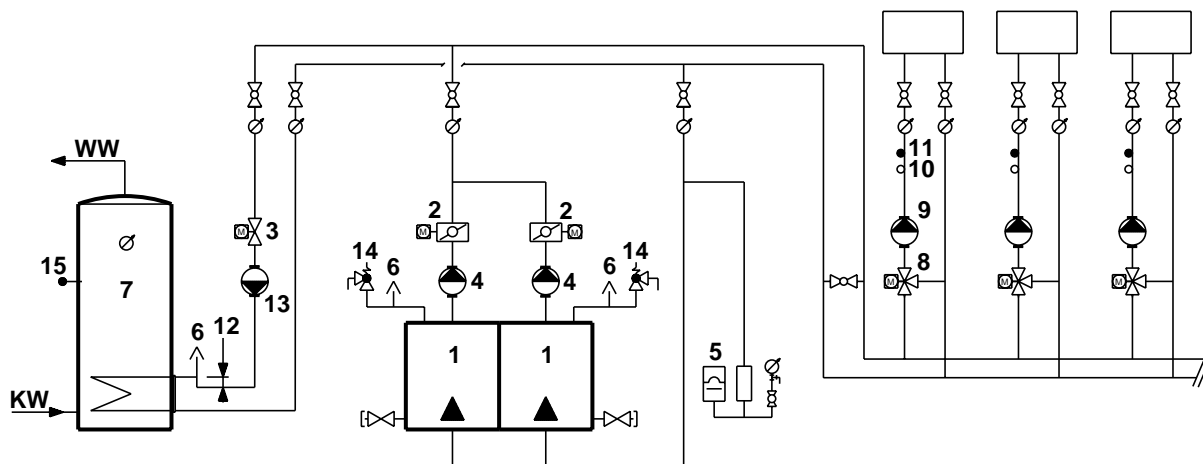
UG-AM-c (300D-1000D)

with primary pump



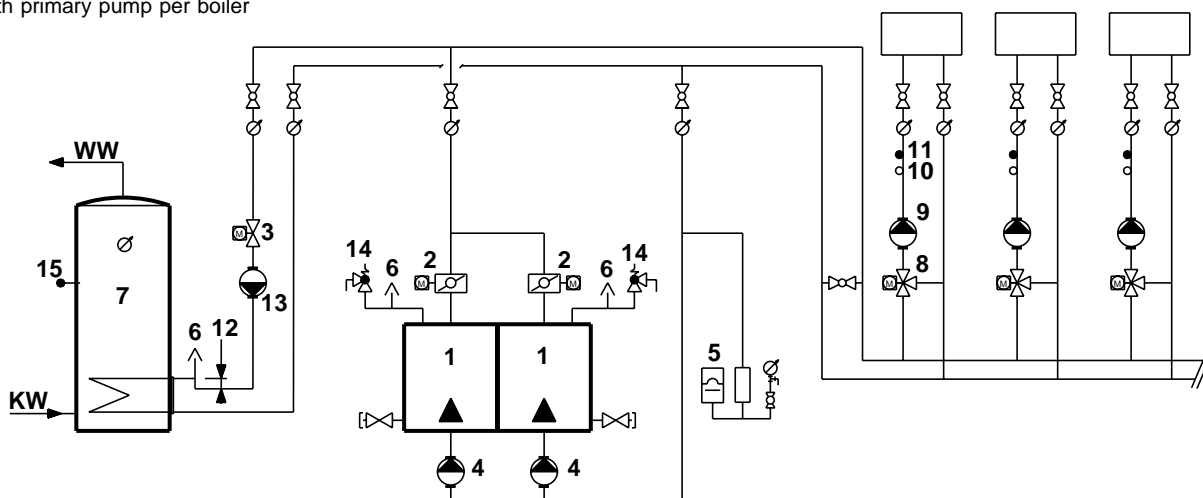
UG-AM-c (300D)

with primary pump per boiler



UG-AM-c (400D-1000D)

with primary pump per boiler



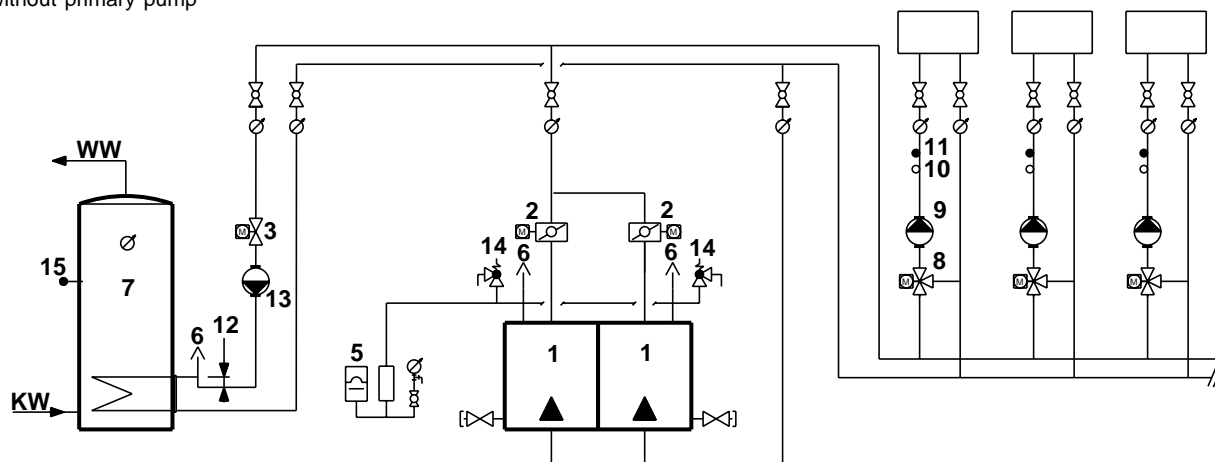
- | | |
|------------------------------------|---|
| 1 Boiler UltraGas | 10 Flow temperature sensor (if floor heating) |
| 2 Motorized shut off valve | 11 Flow temperature sensor |
| 3 Motorized straight through valve | 12 Non return unit |
| 4 Pump boiler circuit | 13 Loading pump calorifier |
| 5 Pressure expansion tank | 14 Safety valve |
| 6 Automatic exhauster | 15 Calorifier sensor |
| 7 Calorifier CombiVal | |
| 8 Mixing valve | |
| 9 Pump heating circuit | |

Example

Subject to alterations

UG-AM-c (300D-1000D)

without primary pump



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