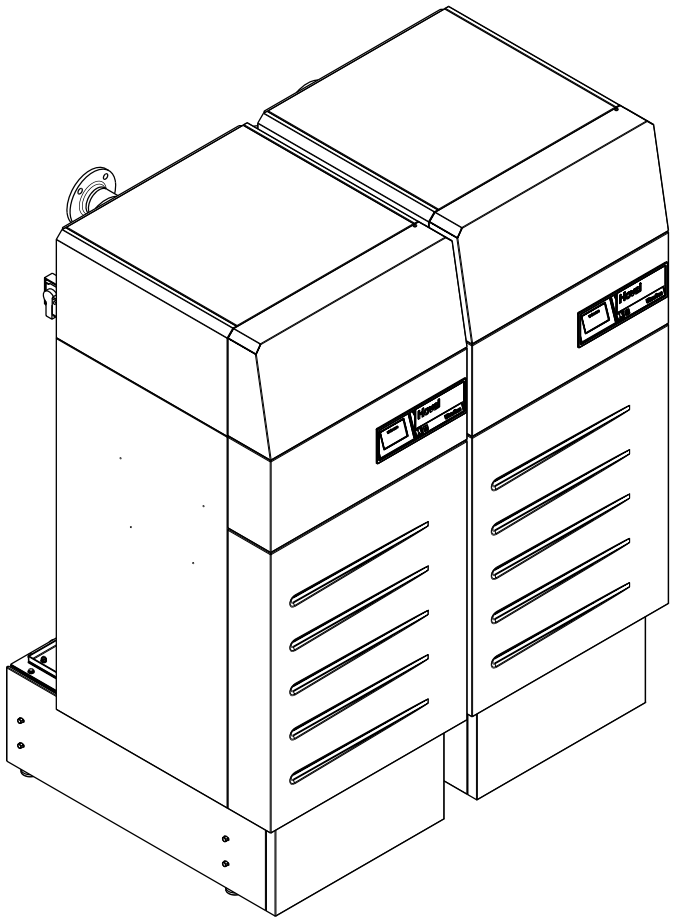
Technical information
Installation instructions

Hoval

UltraGas® 2 D (250-3100)

Gas condensing boilers
Hoval double boiler



These instructions are applicable to the following types:
Nominal output ranges at 50/30 °C and natural gas

51-UltraGas® 2 D (250)	25 - 252 kW
51-UltraGas® 2 D (300)	35 - 302 kW
51-UltraGas® 2 D (380)	38 - 382 kW
51-UltraGas® 2 D (460)	51 - 466 kW
51-UltraGas® 2 D (600)	67 - 604 kW
51-UltraGas® 2 D (700)	73 - 700 kW
51-UltraGas® 2 D (800)	85 - 802 kW
51-UltraGas® 2 D (900)	96 - 906 kW
51-UltraGas® 2 D (1060)	110 - 1066 kW
51-UltraGas® 2 D (1240)	136 - 1244 kW
51-UltraGas® 2 D (1400)	146 - 1406 kW
51-UltraGas® 2 D (1600)	166 - 1608 kW
51-UltraGas® 2 D (2000)	205 - 1998 kW
51-UltraGas® 2 D (2200)	229 - 2224 kW
51-UltraGas® 2 D (2600)	269 - 2640 kW
51-UltraGas® 2 D (3100)	324 - 3100 kW

Hoval products must be installed and commissioned by specialists only. These instructions are intended for **service engineers**. Electrical installation must be performed by a licensed electrical company.

Floor-standing gas condensing boilers UltraGas® 2 D (250-3100) acc. to EN 15502-1/15502-2-1 are suitable and licensed for use as heat generators for hot water heating systems with a permissible flow temperature of up to 95 °C [1]. They are designed for continuously controlled reduced operation in heating systems.

[1] See technical data

1. Important notices

1.1 Safety

The instructions in your possession for our UltraGas® 2 D (250-3100) condensing boilers provide additional information about setup and commissioning of the double-boiler plant.

WARNING

Basic information about commissioning, maintenance and operation can be found in the supplied instructions:

- Technical information / installation instructions UltraGas® 2
- Operating instructions UltraGas® 2

It is essential for the boiler to be commissioned by a Hoval service technician or a trained Hoval partner.

1.2 Explanation of the symbols

1.2.1 Warnings

DANGER

... indicates a situation of immediate danger which will lead to serious or fatal injuries if not avoided.

WARNING

... indicates a situation of possible danger which can lead to serious or fatal injuries if not avoided.

CAUTION

... indicates a situation of possible danger which can lead to minor or slight injuries if not avoided.

NOTICE

... indicates a situation of possible danger which can lead to damage to property if not avoided.

1.2.2 Warning symbols

The following warning symbols are combined with signal words CAUTION, WARNING and DANGER for the warning notes.

General warning symbols

Warning of electrical voltage

Warning of hot surface

Warning of potentially explosive substances

Warning of harmful or irritating substances

Warning of cutting injuries

1.2.3 Information

Information:
Provides important information.

Tool:
Indicates which tool you will need for the next work step.

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Provides important information. Refers to standards and directives.

Read the operating instructions before installation and commissioning.

Read the installation instructions before installation.

1.3 On delivery

Carry out a visual inspection immediately on receiving the boiler. If any damage is found, take the necessary steps as defined in the delivery contract. The respective risk carrier bears the cost of repairs.

1.4 Guarantee

The guarantee does not cover defects attributable to:

- Failure to comply with these instructions
- Failure to comply with the operating instructions
- Incorrect installation
- Impermissible modifications
- Incorrect handling
- Contaminated operating materials (gas, water, combustion air)
- Unsuitable chemical additives to the heating water
- Damage caused by the application of force
- Corrosion by halogen compounds (e.g. paints, adhesives, solvents)
- Corrosion caused by not observing the required water quality

1.5 Instructions

All instructions relevant to your plant can be found in the Hoval system manual - please keep all manuals! In exceptional cases, the instructions can be found with the components!

Further sources of information:

- Hoval catalogue
- Standards, regulations

2. Installation

2.1 Installation process

1. Before placing the boilers, they must be thermally insulated and clad in accordance with the UltraGas® 2 installation instructions, except for the pedestal sheets.

2. The UltraGas® 2 twin boilers are set up next to each other as shown in the following scale drawings.
   - It is essential to install the motorised butterfly valves on the double boilers.
   - The hydraulic connecting lines are optional.

3. Install the pedestal sheets and the optional condensate box according to the UltraGas® 2 installation instructions.

4. See separate instructions for installation of the flue gas overpressure set!

5. Optional:
   Installation of the hydraulic pipe connection set (common flow and return)

See hydraulic connection set instructions

2.2 UltraGas® 2 D (250-460) technical data

Type			D (250)	D (300)	D (380)	D (460)
• Nominal heat output at 80/60 °C, natural gas		kW	21-228	33-278	35-354	47-436
• Nominal heat output at 50/30 °C, natural gas		kW	25-252	35-302	38-382	51-466
• Nominal heat output at 80/60 °C, propane [2]		kW	-	-	-	-
• Nominal heat output at 50/30 °C, propane [2]		kW	-	-	-	-
• Nominal heat input with natural gas [1]		kW	23-232	32-284	35-358	47-446
• Nominal heat input with propane [2]		kW	-	-	-	-
• 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 ($V_{(H20)}$)		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) [3]		%	98.6/88.9	97.6/88.1	98.5/88.7	97.7/88.1
• Boiler efficiency at 30 % partial load (NCV/GCV) [3]		%	108.7/98.1	108.7/98.1	109.0/98.2	108.4/97.8
• Room heating energy efficiency						
- without control	ηs	%	93	93	93	93
- with control	ηs	%	95	95	95	95
- with control and room sensor	ηs	%	97	97	97	97
• NOx class (EN 15502)			6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	25	28	33	37
• Carbon monoxide emissions at 50/30 °C [4]	CO	mg/Nm^3	31	21	25	13
• O_2 content in flue gas min./max. output [5]		%	5.9/5.6	5.5/6.0	5.9/6.0	6.0/5.9
• CO_2 content in flue gas at min./max. output		%	8.6/8.7	8.8/8.5	8.6/8.5	8.5/8.6
• 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
- Liquid gas		mbar	-	-	-	-
• 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	2.3-23.3	3.2-28.5	3.5-35.9	4.7-44.7
- Natural gas LL (Wo = 12.4 kWh/m^3) NCV = 8.57 kWh/m^3		m^3/h	2.7-27.1	3.7-33.1	4.1-41.8	5.5-52.0
- Propane (NCV = 25.9 kWh/m^3)		m^3/h	-	-	-	-
• Operating voltage		V/Hz	1x230/50	1x230/50	1x230/50	1x230/50
• 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.)	4.2	4.2	4.2	4.2
• Construction			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 supply air and flue gas line		Pa	60	60	60	60
- Maximum draught/underpressure at flue gas outlet		Pa	-50	-50	-50	-50

[1] 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/m^3, operation in the Wobbe value range from 12.0 to 15.7 kWh/m^3 is possible without resetting.

[2] Data related to NCV.

[3] Conversion acc. to EN 15502-1, Appendix J

[4] Data related to 3% of O_2

[5] Values at determination of technical data during approval

2.3 UltraGas® 2 D (600-900) technical data

Type			D (600)	D (700)	D (800)	D (900)
• Nominal heat output at 80/60 °C, natural gas		kW	62-566	70-664	80-756	87-858
• Nominal heat output at 50/30 °C, natural gas		kW	67-604	73-700	85-802	96-906
• Nominal heat output at 80/60 °C, propane [2]		kW	-	-	-	-
• Nominal heat output at 50/30 °C, propane [2]		kW	-	-	-	-
• Nominal heat input with natural gas [1]		kW	62-582	70-676	78-770	89-874
• Nominal heat input with propane [2]		kW	-	-	-	-
• 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 ($V_{(H20)}$)		l	2 x 522	2 x 496	2 x 483	2 x 457
• 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 850
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) [3]		%	98.2/88.5	98.1/88.5	98.3/88.6	98.3/88.7
• Boiler efficiency at 30 % partial load (NCV/GCV) [3]		%	109.2/98.4	108.4/97.7	108.3/97.6	108.3/97.9
• Room heating energy efficiency						
- without control	ηs	%	93	93	-	-
- with control	ηs	%	95	95	-	-
- with control and room sensor	ηs	%	97	97	-	-
• NOx class (EN 15502)			6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	31	38	41	37
• Carbon monoxide emissions at 50/30 °C [4]	CO	mg/Nm^3	21	21	26	31
• O_2 content in flue gas min./max. output [5]		%	6.0/5.9	6.0/5.9	6.0/5.9	5.9/5.8
• CO_2 content in flue gas at min./max. output		%	8.5/8.6	8.6/8.6	8.5/8.6	8.6/8.6
• 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
- Liquid gas		mbar	-	-	-	-
• Gas connection values at 15 °C/1013 mbar:			0	0	0	0
- Natural gas E (Wo = 15.0 kWh/m^3) NCV = 9.97 kWh/m^3		m^3/h	6.2-58.4	7.0-67.8	7.8-77.2	8.9-87.7
- Natural gas LL (Wo = 12.4 kWh/m^3) NCV = 8.57 kWh/m^3		m^3/h	7.2-67.9	8.2-78.9	9.1-89.8	10.4-102.0
- Propane (NCV = 25.9 kWh/m^3)		m^3/h	-	-	-	-
• Operating voltage		V/Hz	1x230/50	1x230/50	1x230/50	1x230/50
• Electrical power consumption min./max.		Watt	42/520	44/584	53/1120	63/1160
• Standby		Watt	5	8	5	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)	-	73	-	79
- 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	52	62	70	80
• pH value of the condensate		(approx.)	4.2	4.2	4.2	4.2
• Construction			B23P, C53, C63			
• Flue gas system						
- Temperature class			T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)		kg/h	920	1076	1216	1390
- Flue gas mass flow at min. nominal heat input (dry)		kg/h	98	112	123	142
- Flue gas temperature at max. nominal heat output and 80/60 °C		°C	68	66	67	69
- Flue gas temperature at max. nominal heat output and 50/30 °C		°C	47	46	48	48
- Flue gas temperature at min. nominal heat output and 50/30 °C		°C	28	28	29	29
- Max. permissible temperature of the combustion air		°C	48	48	48	48
- Volume flow of combustion air		Nm^3/h	752	880	994	1138
- Maximum supply pressure for supply air and flue gas line		Pa	60	60	60	60
- Maximum draught/underpressure at flue gas outlet		Pa	-50	-50	-50	-50

[1] 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/m^3, operation in the Wobbe value range from 12.0 to 15.7 kWh/m^3 is possible without resetting.

[2] Data related to NCV.

[3] Conversion acc. to EN 15502-1, Appendix J

[4] Data related to 3% of O_2

[5] Values at determination of technical data during approval

2.4 UltraGas® 2 D (1060-1600) technical data

Type			D (1060)	D (1240)	D (1400)	D (1600)
• Nominal heat output at 80/60 °C, natural gas		kW	100-994	125-1160	132-1306	150-1486
• Nominal heat output at 50/30 °C, natural gas		kW	110-1066	136-1244	146-1406	166-1608
• Nominal heat output at 80/60 °C, propane [2]		kW	-	-	-	-
• Nominal heat output at 50/30 °C, propane [2]		kW	-	-	-	-
• Nominal heat input with natural gas [1]		kW	101-1012	124-1182	134-1336	151-1518
• Nominal heat input with propane [2]		kW	-	-	-	-
• 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 ($V_{(H20)}$)		l	2 x 571	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 978	2 x 1050	2 x 1100	2 x 1370
• Boiler efficiency at 80/60 °C in full-load operation (NCV/GCV) [3]		%	98.2/88.5	98.2/88.5	98.2/88.5	98.3/88.6
• Boiler efficiency at 30 % partial load (NCV/GCV) [3]		%	109.1/98.3	109.0/98.2	108.9/98.1	109.1/98.3
• Room heating energy efficiency						
- without control	ηs	%	-	-	-	-
- with control	ηs	%	-	-	-	-
- with control and room sensor	ηs	%	-	-	-	-
• NOx class (EN 15502)			6	6	6	6
• Nitrogen oxide emissions (EN 15502) (GCV)	NOx	mg/kWh	33	33	40	36
• Carbon monoxide emissions at 50/30 °C [4]	CO	mg/Nm^3	20	24	26	23
• O_2 content in flue gas min./max. output [5]		%	5.9/5.9	5.9/6.0	6.0/5.7	6.0/5.8
• CO_2 content in flue gas at min./max. output		%	8.6/8.6	8.5/8.5	8.5/8.7	8.5/8.6
• Heat loss in standby mode		Watt	2000	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	17.4-80
- Liquid gas		mbar	-	-	-	-
• Gas connection values at 15 °C/1013 mbar:			0	0	0	0
- Natural gas E (Wo = 15.0 kWh/m^3) NCV = 9.97 kWh/m^3		m^3/h	10.1-101.5	12.4-118.6	13.4-134.0	15.1-152.3
- Natural gas LL (Wo = 12.4 kWh/m^3) NCV = 8.57 kWh/m^3		m^3/h	11.8-118.1	14.5-137.9	15.6-155.9	17.6-177.1
- Propane (NCV = 25.9 kWh/m^3)		m^3/h	-	-	-	-
• Operating voltage		V/Hz	1x230/50	1x230/50	1x230/50	1x230/50
• Electrical power consumption min./max.		Watt	67/1610	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)	80	78	79	-
- 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	78	102	96	114
• pH value of the condensate		(approx.)	4.2	4.2	4.2	4.2
• Construction			B23P, C53, C63			
• Flue gas system						
- Temperature class			T120	T120	T120	T120
- Flue gas mass flow at max. nominal heat input (dry)		kg/h	1600	1866	2110	2396
- Flue gas mass flow at min. nominal heat input (dry)		kg/h	159	196	211	238
- Flue gas temperature at max. nominal heat output and 80/60 °C		°C	67	68	69	66
- Flue gas temperature at max. nominal heat output and 50/30 °C		°C	45	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	1308	1528	1726	1962
- Maximum supply pressure for supply air and flue gas line		Pa	60	60	60	60
- Maximum draught/underpressure at flue gas outlet		Pa	-50	-50	-50	-50

[1] 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/m^3, operation in the Wobbe value range from 12.0 to 15.7 kWh/m^3 is possible without resetting.

[2] Data related to NCV.

[3] Conversion acc. to EN 15502-1, Appendix J

[4] Data related to 3% of O_2

[5] Values at determination of technical data during approval

2.5 UltraGas® 2 D (2000-3100) technical data

Type			D (2000)	D (2200)	D (2600)	D (3100)
• Nominal heat output at 80/60 °C, natural gas		kW	185-1852	203-2076	241-2460	297-2894
• Nominal heat output at 50/30 °C, natural gas		kW	205-1998	229-2224	269-2640	324-3100
• Nominal heat output at 80/60 °C, propane [2]		kW	-	-	-	-
• Nominal heat output at 50/30 °C, propane [2]		kW	-	-	-	-
• Nominal heat input with natural gas [1]		kW	187-1886	206-2114	247-2502	297-2938
• Nominal heat input with propane [2]		kW	-	-	-	-
• 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 ($V_{(H20)}$)		l	2 x 756	2 x 718	2 x 1211	2 x 1118
• Flow resistance boiler						
• 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) [3]		%	98.2/88.5	98.2/88.5	98.2/88.5	98.2/88.6
• Boiler efficiency at 30 % partial load (NCV/GCV) [3]		%	109.0/98.2	108.6/98.0	108.7/97.9	108.5/97.9
• Room heating energy efficiency						
- without control	ηs	%	-	-	-	-
- with control	ηs	%	-	-	-	-
- with control and room sensor	ηs	%	-	-	-	-
• 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 [4]	CO	mg/Nm^3	25	26	23	23
• O_2 content in flue gas min./max. output [5]		%	6.0/5.9	6.0/5.9	6.0/5.9	6.0/6.0
• CO_2 content in flue gas at min./max. output		%	8.5/8.6	8.5/8.5	8.5/8.6	8.5/8.5
• Heat loss in standby mode		Watt	2400	2400	3200	3200
• Dimensions						
• Gas flow pressure min./max.						
- Natural gas E/LL		mbar	17.4-80	17.4-80	17.4-80	17.4-80
- Liquid gas		mbar	-	-	-	-
• 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	18.8-189.2	20.7-212.0	24.8-251.0	29.8-294.7
- Natural gas LL (Wo = 12.4 kWh/m^3) NCV = 8.57 kWh/m^3		m^3/h	21.8-220.1	24.0-246.7	28.8-291.9	34.7-342.8
- Propane (NCV = 25.9 kWh/m^3)		m^3/h	-	-	-	-
• Operating voltage		V/Hz	1x230/50 3x400/50	1x230/50 3x400/50	1x230/50 3x400/50	1x230/50 3x400/50
• 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)	-	82	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	142	200	276
• pH value of the condensate		(approx.)	4.2	4.2	4.2	4.2
• Construction						
• 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	650	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 supply air and flue gas line		Pa	60	60	60	60
- Maximum draught/underpressure at flue gas outlet		Pa	-50	-50	-50	-50

[1] 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/m^3, operation in the Wobbe value range from 12.0 to 15.7 kWh/m^3 is possible without resetting.

[2] Data related to NCV.

[3] Conversion acc. to EN 15502-1, Appendix J

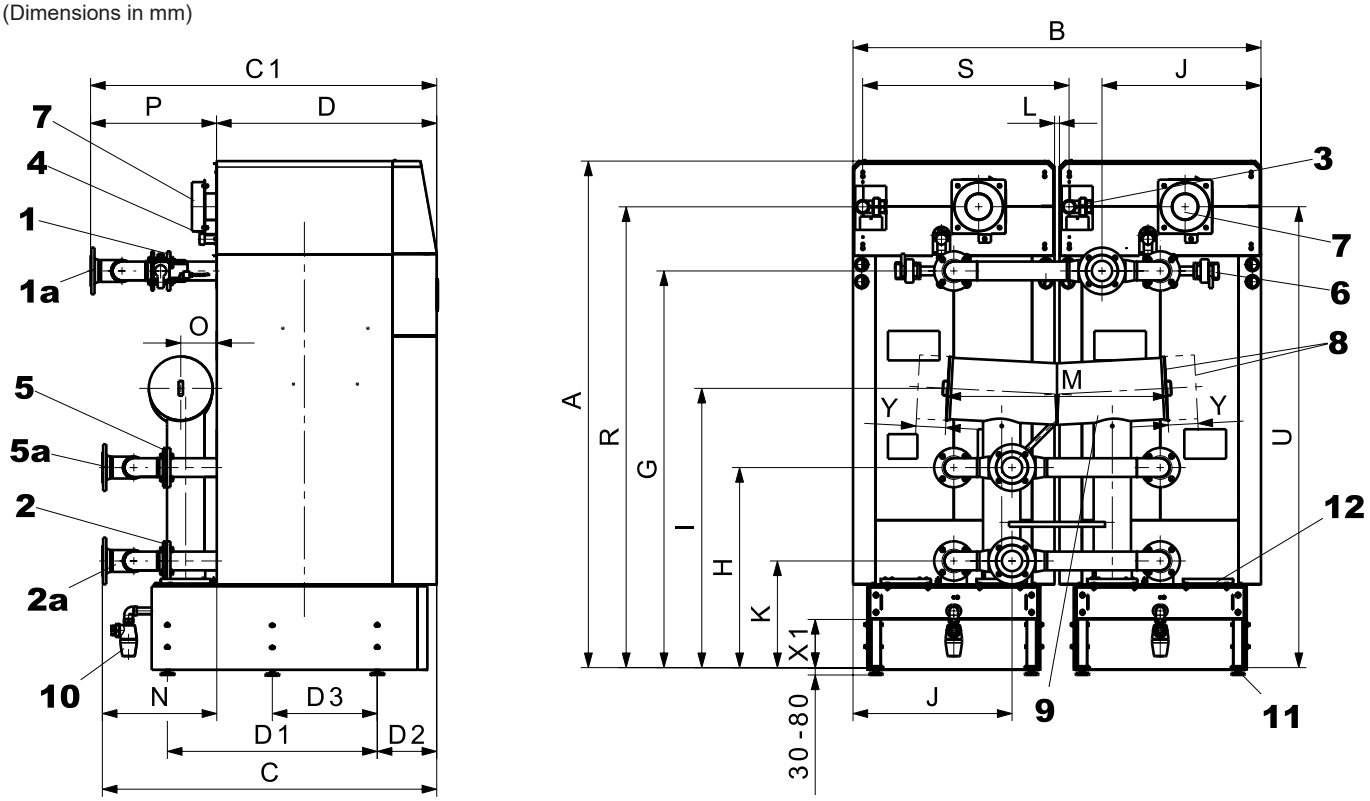
[4] Data related to 3% of O_2

[5] Values at determination of technical data during approval

3. Technical information

3.1 Dimensions

(Dimensions in mm)



1 Heating flow
1a Flow connection set (option) [1)]
2 Low-temperature return
2a Return connection set (option) [1)]
3 Gas connection
4 Safety flow (safety valve, air vent)
5 High-temperature return
5a High-temperature return connection set (option) [1)]
6 Motorised butterfly valve
7 Combustion air suction socket
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 up to 80 mm
12 Cleaning opening

[1)] Information for pipe connections (option) to UltraGas® 2 D (250-3100)

Notice
For detailed dimensions and weights for installation as individual parts, see UltraGas® 2 (125-1550)

Space requirement – see separate drawing

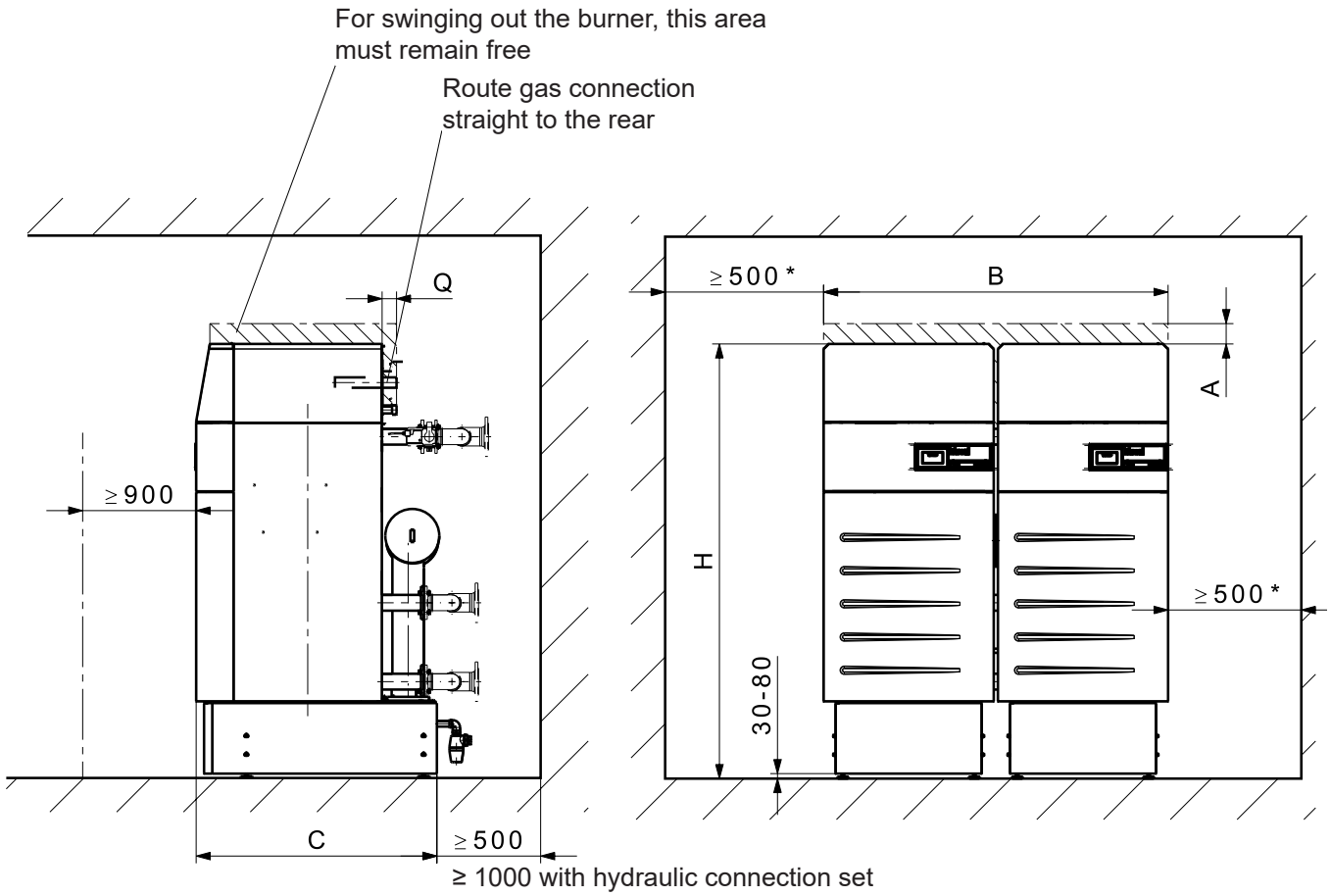
Type UltraGas® 2 D	A	B	C	C1	D	D1	D2	D3	G	H	I	J	K	L	M	N	O	P	R	S	U	X1	Y
(250.300)	2023	1560	1269	1317	799	754	242	-	1579	814	1116	597	434	120	902	470	142	518	1825	840	1825	199	-
(380.460)	2068	1660	1363	1411	895	854	242	-	1617	817	1116	647	437	20	902	468	147	516	1878	840	1878	199	-
(600.700)	2128	1880	1807	1864	1165	1204	242	-	1652	845	1143	814	465	20	930	642	176	699	1939	950	1940	196	-
(800,900)	2198	1880	1807	1864	1165	1204	242	-	1652	845	1143	814	465	20	930	642	176	699	2015	950	1986	196	-
(1060-1400)	2334	2240	1827	1884	1184	1294	242	-	1664	857	1195	904	477	20	1019	643	205	700	2066	1130	2038	189	-
(1600-2200)	2355	2600	2158	2218	1364	1480	242	-	1673	888	1211	1054	508	20	1018	794	228	854	2059	1310	2059	189	-
(2600.3100)	2495	3150	2571	2631	1640	1790	250	895	1700	922	1231	1339	542	30	1322	931	240	991	2164	1590	2164	189	495

Type UltraGas® 2 D	1,2,5 [2)]	1a,2a,5a [2)]	3	4	7	8	10
(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 25
(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 25
(600.700)	DN 100 / PN 6 / 4 hole	DN 125 / PN 6 / 8 hole	Rp 2″	R 1½″	Ø 197/200	Ø 306/308	DN 25
(800.900)	DN 100 / PN 6 / 4 hole	DN 125 / PN 6 / 8 hole	Rp 2″	R 1½″	Ø 247/250	Ø 306/308	DN 25
(1060-1400)	DN 100 / PN 6 / 4 hole	DN 125 / PN 6 / 8 hole	Rp 2″	R 2"	Ø 247/250	Ø 356/358	DN 25
(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
(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

[2)] DN = nominal diameter, PN = nominal pressure

3.2 Space requirements

(Dimensions in mm)

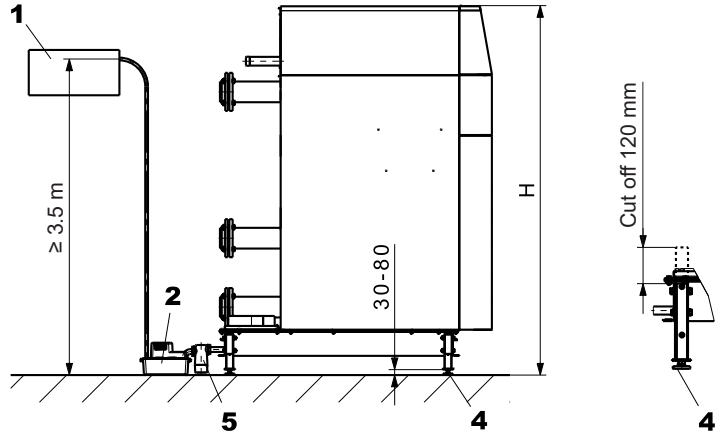


Type UltraGas® 2 D	A [1]	A minimum [2]	B	C	H [3]	H minimum [4]	Q
(250.300)	169	106	1560	1060	2053	1933	125
(380.460)	155	71	1660	1160	2098	1978	2
(600.700)	285	170	1880	1510	2158	2038	65
(800.900)	230	157	1880	1510	2228	2108	141
(1060-1400)	121	121	2240	1600	2364	2244	155
(1600-2200)	280	195	2600	1786	2385	2265	119
(2600.3100)	291	154	3150	2104	2525	2405	163

[1] If the room height is too low: the dimension A can be reduced. See A minimum.
[2] **Caution!** At A minimum, the burner can no longer be swivelled out completely! Cleaning is made difficult!
[3] Height value assumes adjustable feet are set to 30 mm
[4] The feet can be shortened. **Caution!** If the feet are shortened, the base strip cannot be installed and the installer will have to fit a siphon with min. 70 mm barrier height. For details see next page.

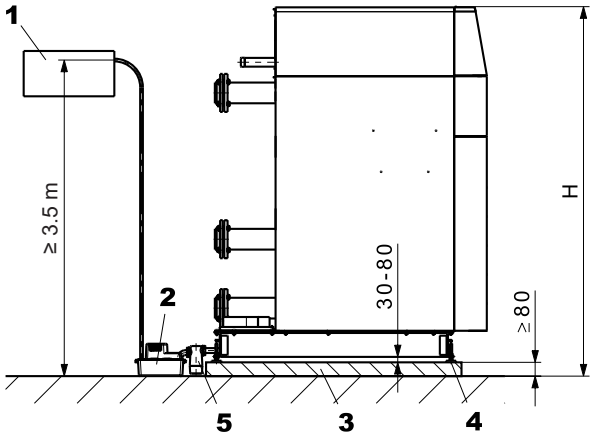
* The boiler can be placed with one side directly on the wall. However, to protect heat-sensitive walls against damage, a distance of at least 150 mm from the wall must be provided.
* The cleaning opening must be easily accessible. As a result, a minimum distance of 500 mm must be maintained on the cleaning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

UltraGas® 2 with shortened boiler feet
(Dimensions in mm)



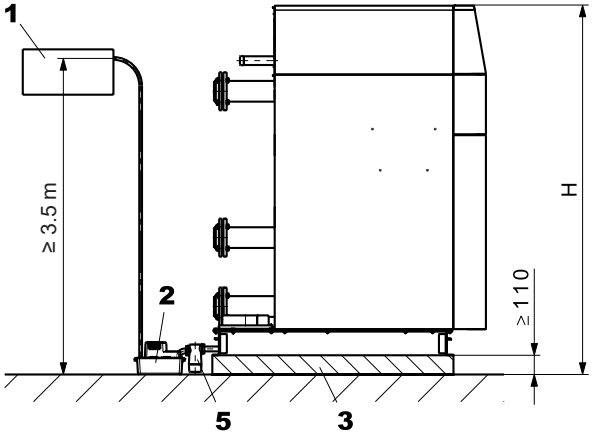
UltraGas® 2 D Type	H [1]
(250.300)	1933
(380.460)	1978
(600.700)	2038
(800.900)	2108
(1060-1400)	2244
(1600-2200)	2265
(2600.3100)	2405

UltraGas® 2 with walled-in base and adjustable feet



UltraGas® 2 D Type	H [1]
(250.300)	1934
(380.460)	1979
(600.700)	2042
(800.900)	2112
(1060-1400)	2255
(1600-2200)	2276
(2600.3100)	2416

UltraGas® 2 with walled-in base without adjusting feet



UltraGas® 2 D Type	H
(250.300)	1934
(380.460)	1979
(600.700)	2042
(800.900)	2112
(1060-1400)	2255
(1600-2200)	2276
(2600.3100)	2416

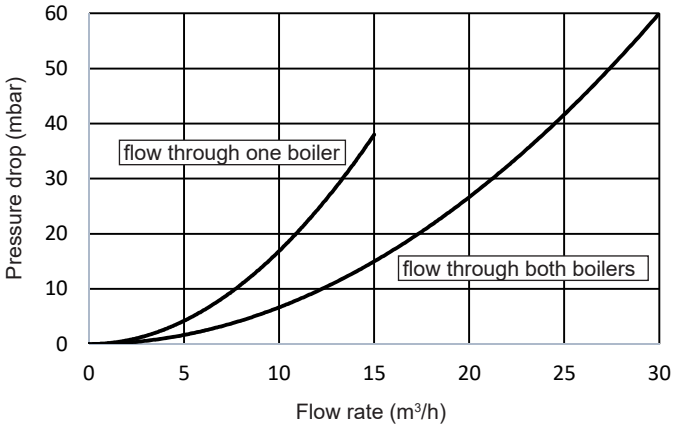
1 Neutralisation unit (option)
2 Condensate pump (optional)
3 Walled base
4 Adjustable feet 30-80 mm
5 Siphon [2]

[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.

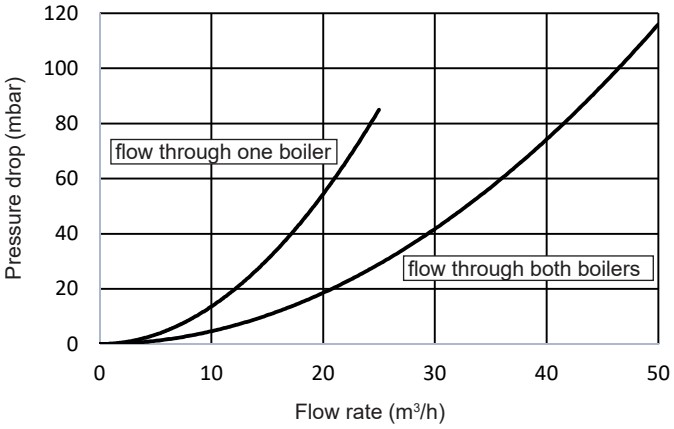
Notice
- The steps of the climbing aid provided must be horizontal. Adapt the climbing aid if necessary.
- No refunds for pedestal sheets and adjustable feet!

3.3 Heating water side flow resistance

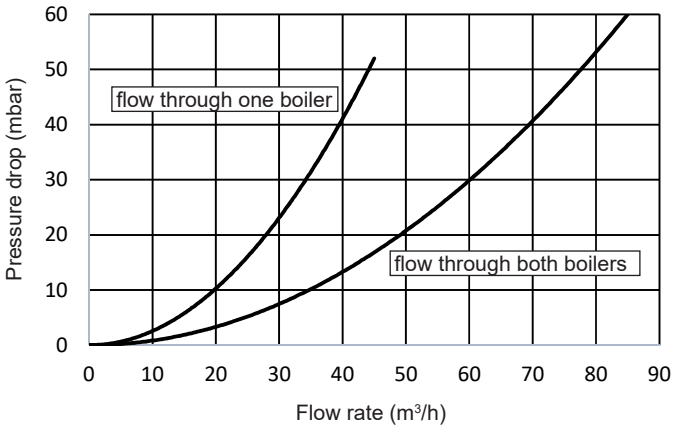
UltraGas® 2 D (250,300)



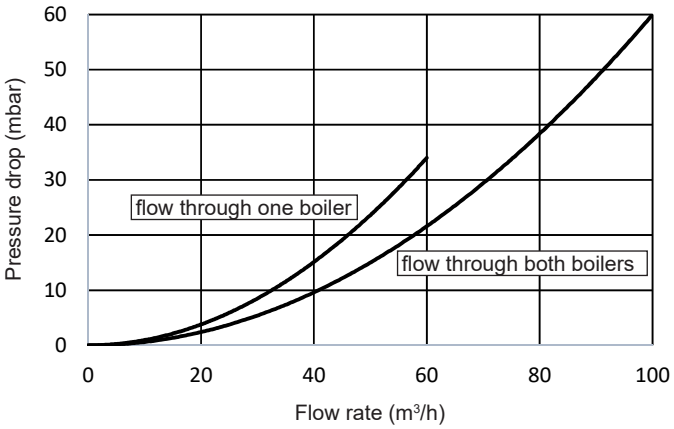
UltraGas® 2 D (380,460)



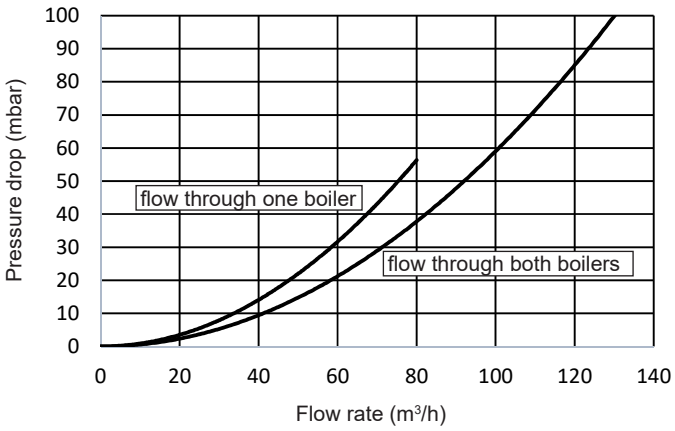
UltraGas® 2 D (600-900)



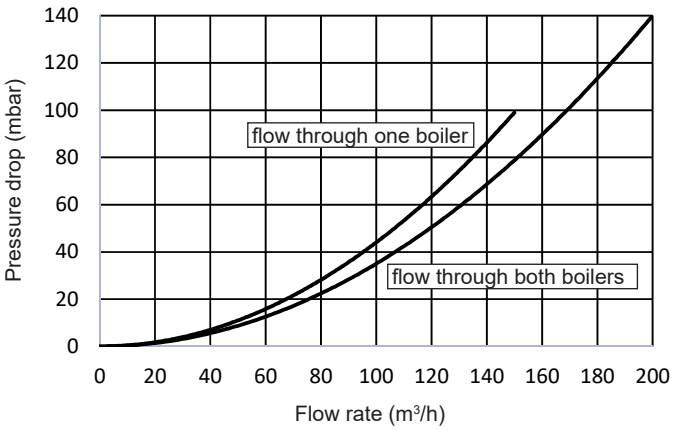
UltraGas® 2 D (1060-1400)



UltraGas® 2 D (1600-2200)



UltraGas® 2 D (2600,3100)



4. Installation

4.1 Room air dependent installation

Binding values for the size of supply air openings are not generally specified in the relevant regulations. It is merely required that no partial vacuum in excess of 3 N/m^2 occurs. The locally applicable regulations must be complied with.

4.2 Room air independent installation

The UltraGas® 2 double boilers are each equipped with suction dampers. An intake system can be mounted directly on these intake dampers by the customer (remove the blind cover on the rear wall).

The combustion air intake can be designed either as a separate or as a common intake line.

WARNING

The sum of the pressure drops of the intake and flue gas lines must not exceed 60 Pa.

If the intake and flue gas lines are configured with the same dimensions, the effective pipe lengths can be added together and configured according to the UltraGas® 2 double boiler engineering.

If the intake line is configured with a different dimension from the flue gas line, an individual calculation must be made by the chimney builder.

4.3 Standard values for flue gas line dimensions (overpressure)

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.

WARNING

Flue gas outlet for oversized flue gas lines.

- For flue systems from third-party suppliers (air/flue gas line of version C63), a tolerance of +1/-0.5 % of the flue gas line nominal diameter DN specified in the table must be upheld for the connection points.

Table "Standard values for flue gas line dimensions"

Boiler		Smooth-walled flue gas line	Number of 90° bends (flue gas + supply air)				
Type	Flue gas dim. mm	Designation	Total pipe length in m (flue gas + supply air)				
UltraGas® 2 D	inside	DN	1	2	3	4	5 [1)]
(250)	254	200	45	44	43	43	
(300)	254		44	43	43	42	
(380)	254	225	46	45	44	43	
(460)	254	250	47	46	45	44	
(600)	306	300	48	47	46	45	
(700)	306		47	46	45	44	
(800)	306		46	45	44	43	
(900)	306	350	48	48	47	46	
(1060)	356		48	48	47	46	
(1240)	356		47	46	45	44	
(1400)	356	400	48	47	46	45	
(1600)	402		46	45	44	43	
(2000)	402	450	47	46	45	44	
(2200)	402	500	46	45	44	43	
(2600)	504		48	48	47	46	
(3100)	504		48	47	46	45	

- The values in the table "Standard values for flue gas line dimensions" are standard values for reference. An exact calculation for the flue gas line 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.

4.4 Hydraulic connection

- Make sure that the boilers are connected in the Tichelmann (reverse return) system.
- If the optional hydraulic connection set is used, please observe separate assembly instructions.
- When using the high-temperature return, install it so that the connection nozzle is on the same side (see chapter 3.1).

4.4.1 Hydraulic integration

A mixer must be installed when combining a calorifier with underfloor heating.

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

4.5 Boiler sequence control / Electrical connection / Parameters

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

5. Maintenance

5.1 Flue gas overpressure set

Regreasing the engine plain bearings

When the actuator has reached a high number of cycles, there can be increased lubricant consumption in the sinter metal plain bearings of the shaded pole motor. This leads to a significant loss of motor power or even standstill. As a result, it is recommended for the plain bearings to be regreased in good time if these symptoms occur.

CAUTION

There is a possibility of electric shock.
Before opening the motor, safely disconnect it from the electrical power system!

If sticking of the damper has already been identified, the actuator must be renewed.

The bearings must be regreased with **Ballistol Universal Oil**, as using other oils can lead to complete failure of the motors.

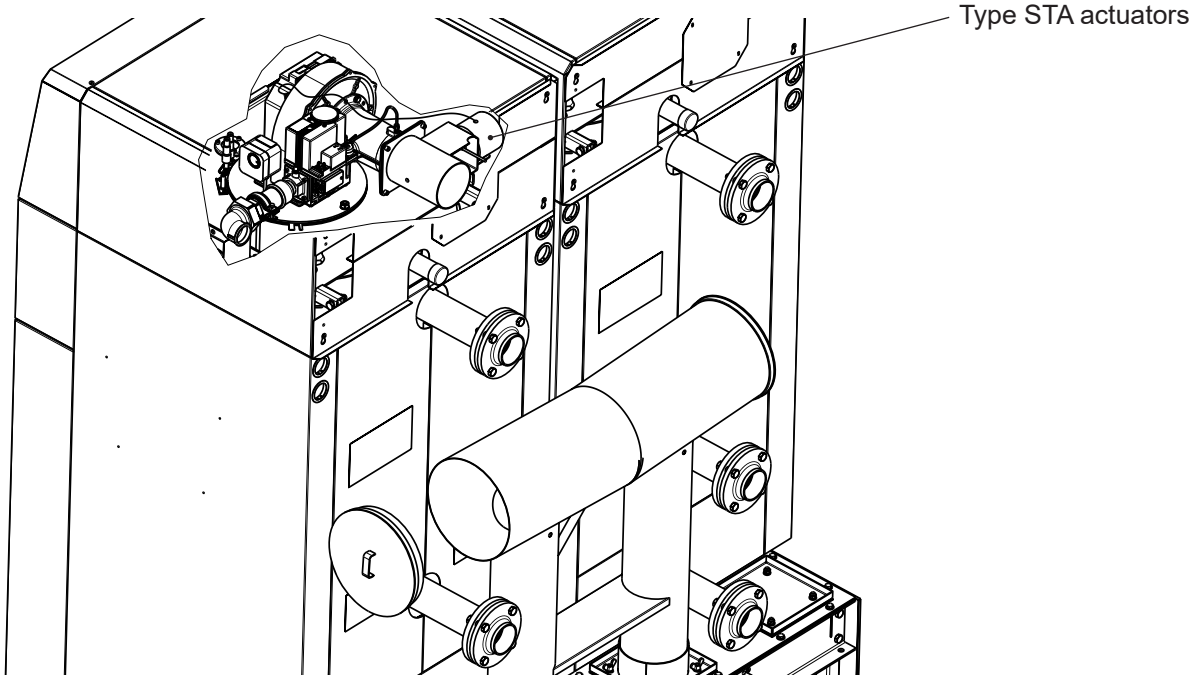
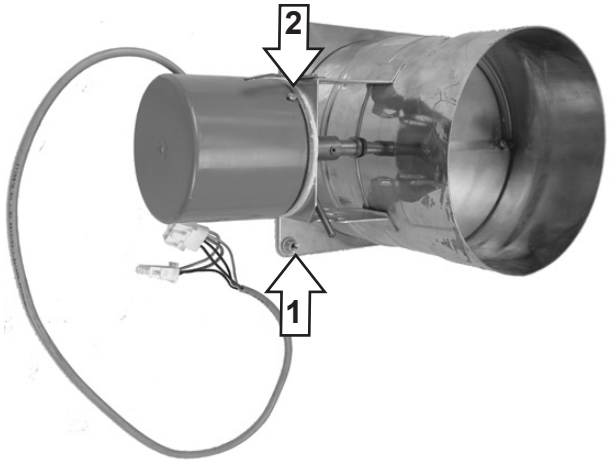
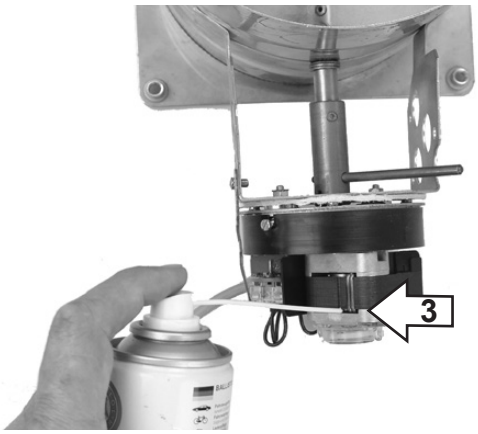


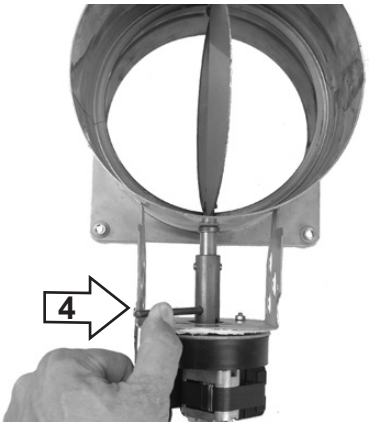
Fig. 01



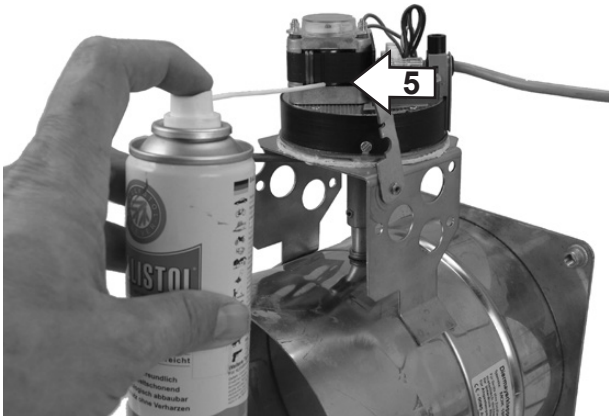
1. To remove the supply air damper, unscrew the fixing screws (1).
2. Unscrew both cover screws (2) and pull off the cover to the back.



3. Connect the tube for filling the oil.
4. Spray the oil strongly past the rotor into the lower bearings (3) several time as can be seen in the photo.



5. Hold the actuator in this position and move the damper (4).
6. Wait a few minutes until the oil has been absorbed.



7. Turn the intake air damper through 180°.
8. Spray the oil strongly past the rotor into the lower bearings (5) several time as can be seen in the photo.
9. Hold the supply air damper in this position and move the damper.
10. Wait a few minutes until the oil has been absorbed.

11. Assemble the motor in reverse order and let it run for several cycles so that the lubricant is optimally distributed within the bearings.

The motor should run significantly better in this case, otherwise repeat the lubricating procedure.

5.1.1 UltraGas® 2 D (250-1600)

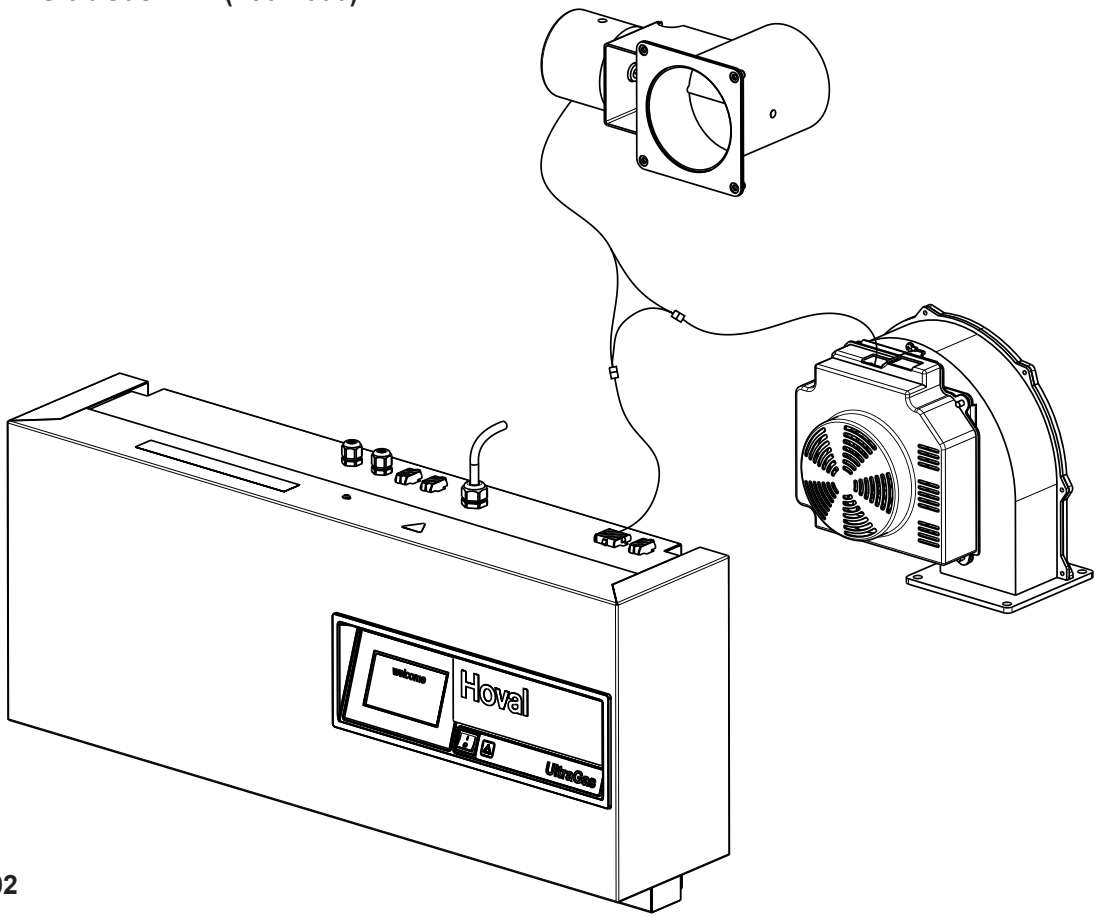


Fig. 02

5.1.2 UltraGas® 2 D (2000-3100)

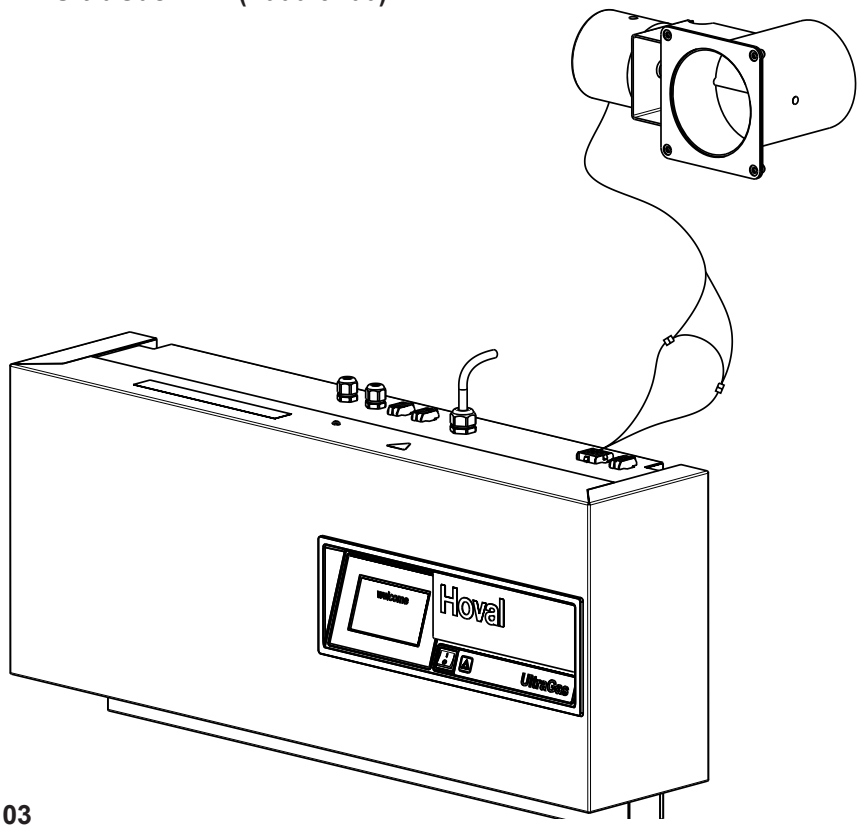


Fig. 03

COPY FOR PLANT USER

Hoval

Confirmation

The user (owner) of the system herewith confirms that
- he has received adequate instruction in the operating and maintenance of the installation,
- received and taken note of the operating and maintenance instructions and, where applicable other documents concerning the installation and any further components.
- and is consequently sufficiently familiar with the installation.

Installation address:

Type:

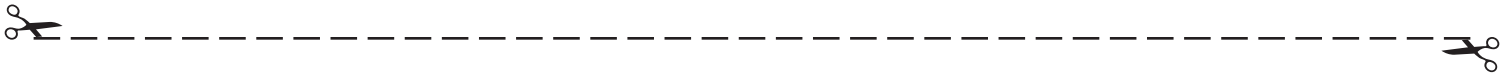
Serial number:

Year of manufacture:

Place, Date:

System installer:

System user:



COPY OF SYSTEM INSTALLER

Hoval

Confirmation

The user (owner) of the system herewith confirms that
- he has received adequate instruction in the operating and maintenance of the installation,
- received and taken note of the operating and maintenance instructions and, where applicable other documents concerning the installation and any further components.
- and is consequently sufficiently familiar with the installation.

Installation address:

Type:

Serial number:

Year of manufacture:

Place, Date:

System installer:

System user: