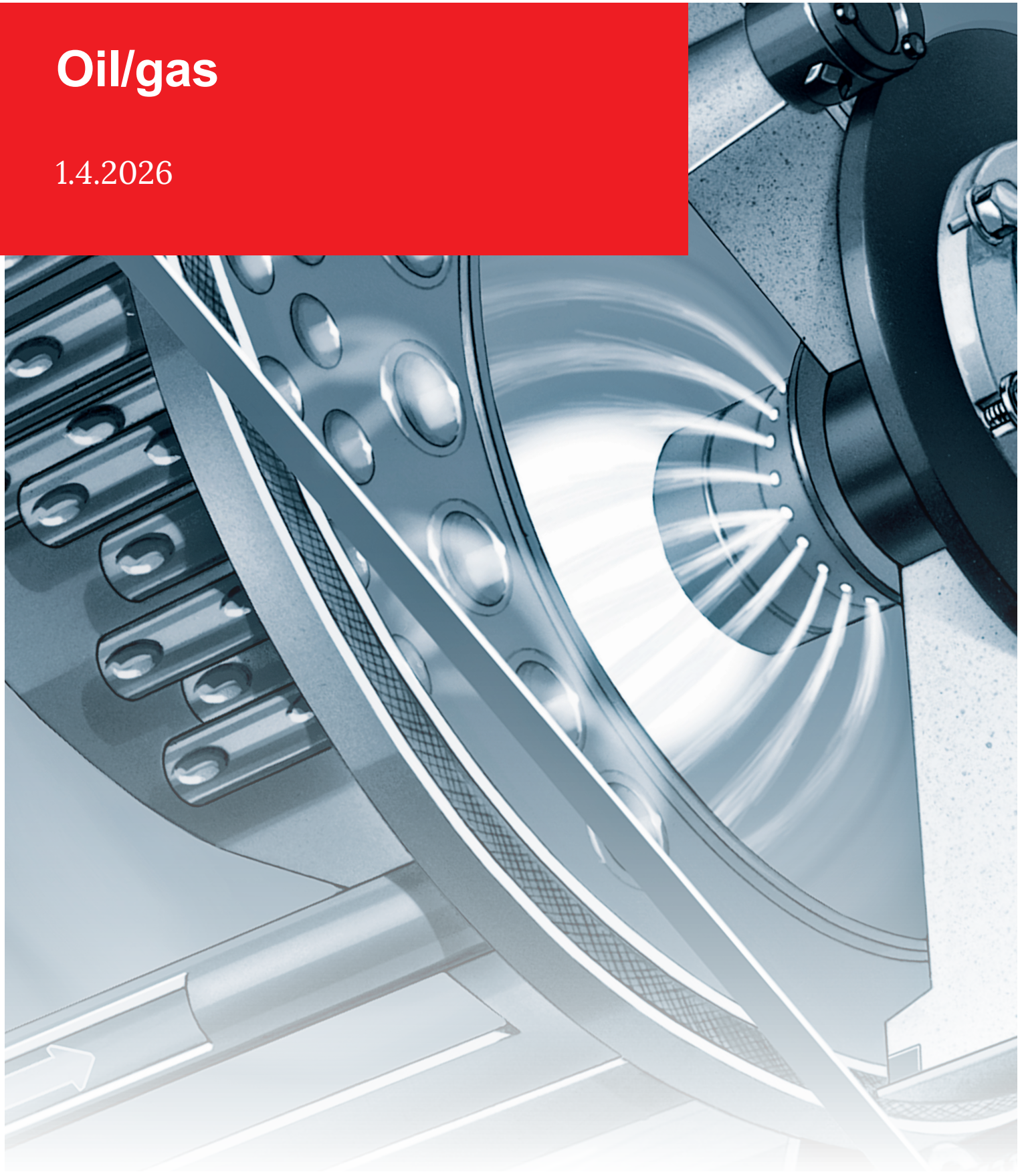
Hoval

CATALOGUE

Oil/gas

1.4.2026



Hoval | Responsibility for energy and environment

Oil/gas boilers
(heat value/gas condensation)

Hoval Max-3 **420-2700 kW**

Hoval Max-3 plus **420-2700 kW**

Up to 400 kW, now only condensing units are allowed to be placed on the market in the EU member states according to Regulation (EU) No. 813/2013.
This also affects replacement heat generators.

Hoval

CATALOGUE

Hoval Max-3

Oil/gas boiler
Max-3 (420-2700)

Table of contents

Hoval Max-3
Oil/gas boiler

Boiler
- 3-pass steel boiler according to EN 303 part 1 and 2 and EN 304 for firing of Diesel oil, oil L and gas.
- Max-3 (420-1250) complies with the Pressure Equipment Directive 2014/68/CE
- Boiler completely welded
- For LowNOx burner with intern flue gas recirculation
- Insulation at the boiler body 80 mm mineral wool mat
- Boiler completely clad with steel plate, red powder coated
- Flue gas outlet to the rear
- Heating flow connection to the top, heating return connections to the rear, incl. counter flanges, screws and seals

Optional
- Boiler control panel with boiler controller and heating control in various versions
  - Boiler controller
    - with TopTronic® E control
    - with thermostat T 2.2
    - with thermostat T 0.2
- Free-standing calorifier see Calorifiers
- Boiler door swivels to the left

Delivery
- Boiler, thermal insulation and casing delivered separately packed

On site
- Mounting of insulation and casing

Model range

Max-3 type	Max. - min. output kW
(420)	200-500
(530)	220-610
(620)	240-720
(750)	280-870
(1000)	350-1150
(1250)	480-1350
(1500)	640-1750
(1800)	750-2150
(2200)	920-2500
(2700)	1030-3000

Boiler controller with TopTronic® E/E13.4 control

- Maximum operating temperature 90 °C

TopTronic® E controller

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

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

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

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

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

Number of modules that can be additionally installed in the electrical box:
- 1 module expansion and 2 controller modules **or**
- 1 controller module and 2 module expansions **or**
- 3 controller modules

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

Further information about the TopTronic® E
see “Controls”

Oil automatic function device OFA
- Control function integrated for
  - flue gas sensor for safety shut-off
  - 0-10 V output for connecting a modulating main pump (incl. ΔT control with low consumption)
  - Standard plug connection for 2-stage burner 1 x 230 V
  - Variable input for plant-specific functions (heat generator block, return sensor, info sensor etc.)
  - Variable output for plant-specific functions (thermostat function, operating message, etc.)

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Boiler controller with TopTronic® E/E13.5 control

- Maximum operating temperature 105 °C

- Configuration as TopTronic® E/E13.4 but: safety temperature limiter 120 °C

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Control panel with thermostat T 2.2

- Maximum operating temperature 90 °C

- For systems without TopTronic® E control
- For direct 2-stage burner control, requirement starting from external calorifier or heater instruction is possible.
- Main switch “I/O”
- Safety temperature limiter 110 °C
- Selector switch burner load
- Switch summer/winter
- 3 boiler temperature regulators 30-90 °C
  - temperature regulator for base load heating
  - temperature regulator for full load heating
  - temperature regulator for calorifier
- Boiler and burner breakdown lamp
- Plug connection for burner (with cable and plug)

Optional
- 2 running time meters integrated
- 2 burner running time meters and pulse counters integrated
- Flue gas thermometer, 4.5 m capillary tube

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Control panel with thermostat T 0.2

- Maximum operating temperature 105 °C

- For external control
- For systems without TopTronic® E control
- For special control function

- Main switch “I/O”
- Safety temperature limiter 120 °C
- 3 boiler temperature regulators 50 ... 105 °C
  - temperature regulator for base load heating
  - temperature regulator for full load heating
  - temperature regulator for calorifier
- without burner plug connection

Optional
- 2 running time meters integrated
- 2 burner running time meters and pulse counters integrated
- Flue gas thermometer, 4.5 m capillary tube
- Safety temperature limiter 130 °C

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Oil/gas boiler

Permission Boiler
CE product ID No. CE-0085BL0015
according to Directive on appliances burning gaseous fuels 90/396/EG

Pressure Equipment Directive 2014/68/CE

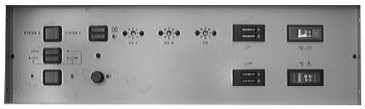
Hoval Max-3 (420-2700)

3-pass boiler made of steel for oil/gas LowNOx firing, without control panel.
For operating temperature up to 105 °C

Execution: complete delivery
Boiler, thermal insulation and casing delivered separately packed.

Max-3 type	Max. - min. output kW	Operating pressure bar	Part No.
(420)	200-500	6	7013 765
(530)	220-610	6	7013 766
(620)	240-720	6	7013 773
(750)	280-870	6	7013 774
(1000)	350-1150	6	7013 781
(1250)	480-1350	6	7013 782
(1500)	640-1750	6	7013 536
(1800)	750-2150	6	7013 537
(2200)	920-2500	6	7013 538
(2700)	1030-3000	6	7013 620

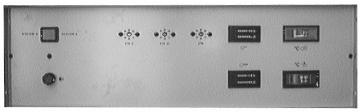
Control panel with thermostat



Control panel T 2.2
- Operating temperature max. 90 °C
- For systems without TopTronic® E controller.
- For direct 2-stage burner control, incl. plug connection for burner requirement starting from external calorifier or heater instruction is possible.

	Part No.
- without burner running time meter and pulse counter	6015 017
- incl. 2 burner running time meters integrated	6015 477
- incl. 2 burner running time meters and pulse counters integrated	6015 478

- For mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.



Control panel T 0.2
- Operating temperature max. 105 °C
- For external switching command
- For systems without TopTronic® E controller.
- For special control function without burner plug connection

	Part No.
- without burner running time meter and pulse counter	6015 016
- incl. 2 burner running time meters integrated	6015 475
- incl. 2 burner running time meters and pulse counters integrated	6015 476

- For mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.

Accessories to control panel with thermostat

	Part No.
Flue gas thermometer 4.5 m, capillary tube	241 149

Boiler controller with TopTronic® E control

Boiler control E13.4 TopTronic® E
for mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.
Operating temperature: max. 90 °C.
Control function integrated for
- 1 heating circuit with mixer
- 1 heating circuit without mixer
- 1 DHW charging circuit
Heat generator management
Additional heat generator management
Cascade management
Optionally expandable by max. 1 module expansion:
- Module expansion heating circuit or
- Module expansion Universal
Optionally networkable with up to 16 controller modules (incl. solar module).
Max. 3 additional controller modules can be installed in control box.

Consisting of:
electrical box,
control panel,
TopTronic® E control module,
TopTronic® E basic module heat generator,
oil automatic function device OFA-200,
safety temperature limiter,
burner cable cpl. 2-stage, L = 5.0 m,
1 outdoor sensor AF/2P/K,
1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
The electrical connection for each external burner must be clarified separately.

Part No.
6040 236

Boiler controller E13.5 TopTronic® E
for mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.
Operating temperature: max. 105 °C.
Control function integrated for
- 1 heating circuit with mixer
- 1 heating circuit without mixer
- 1 DHW charging circuit
Heat generator management
Additional heat generator management
Cascade management
Optionally expandable by max. 1 module expansion:
- Module expansion heating circuit or
- Module expansion Universal
Optionally networkable with up to 16 controller modules (incl. solar module).
Max. 3 additional controller modules can be installed in control box.

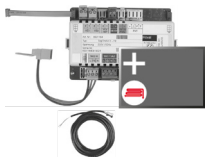
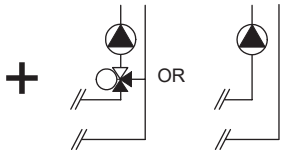
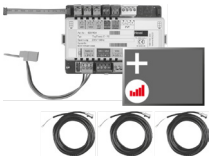
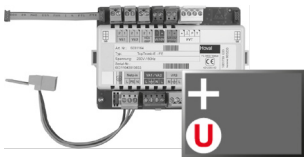
Consisting of:
electrical box,
control panel,
TopTronic® E control module,
TopTronic® E basic module heat generator,
oil automatic function device OFA-200,
safety temperature limiter,
burner cable cpl. 2-stage, L = 5.0 m,
1 outdoor sensor AF/2P/K,
1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
The electrical connection for each external burner must be clarified separately.

Part No.
6040 237

TopTronic® E module expansions

for TopTronic® E basic module heat generator

	Part No.
 **TopTronic® E module expansion heating circuit TTE-FE HK** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit without mixer or - 1 heating/cooling circuit with mixer Consisting of: - Fitting accessories - 1 contact sensor ALF/2P/4/T, L = 4.0 m - Basic plug set FE module  **Notice** The supplementary plug set may have to be ordered to implement functions differing from the standard!	6034 576
 **TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit without mixer or - 1 heating/cooling circuit with mixer incl. energy balancing in each case Consisting of: - Fitting accessories - 3 contact sensors ALF/2P/4/T, L = 4.0 m - Plug set FE module **Notice** Suitable flow rate sensors (pulse sensors) must be provided on site.	6037 062
 **TopTronic® E module expansion Universal TTE-FE UNI** Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions Consisting of: - Fitting accessories - Plug set FE module **Further information** see “Controls” – “Hoval TopTronic® E module expansions” chapter **Notice** Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.	6034 575

Accessories for TopTronic® E

		Part No.
	**TopTronic® E controller modules**	
	TTE-HK/WW TopTronic® E heating circuit/ hot water module	6034 571
	TTE-SOL TopTronic® E solar module	6037 058
	TTE-PS TopTronic® E buffer module	6037 057
	TTE-MWA TopTronic® E measuring module	6034 574
	**Supplementary plug set**	
	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion TTE-FE HK	6034 503
	**TopTronic® E room control modules**	
	TTE-RBM TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070
	**Enhanced language package TopTronic® E** one SD card required per control module Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA, NL	6039 253
	**HovalConnect**	
	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593
	TopTronic® E interface modules	
	GLT module 0-10 V	6034 578
	**TopTronic® E sensors**	
	AF/2P/K Outdoor sensor H x W x D = 80 x 50 x 28 mm	2055 889
	TF/2P/5/6T Immersion sensor, L = 5.0 m	2055 888
	ALF/2P/4/T Contact sensor, L = 4.0 m	2056 775
	TF/1.1P/2.5S/6T Collector sensor, L = 2.5 m	2056 776
	**Bivalent switch** for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826
	**System casing**	
	System casing 182 mm	6038 551
	System casing 254 mm	6038 552
	**TopTronic® E wall casing**	
	WG-190 Wall casing small	6052 983
	WG-360 Wall casing medium	6052 984
	WG-360 BM Wall casing medium with control module cut-out	6052 985
	WG-510 Wall casing large	6052 986
	WG-510 BM Wall casing large with control module cut-out	6052 987

Further information
see “Controls”

Accessories

	Part No.
 **Flow temperature monitor** for panel heating (1 controller per heating circuit) 15 ... 95 °C, setting (visible externally) under the casing cover	
Clamp-on flow temperature monitor RAK-TW1000S with retaining strap, without cable and plug	242 902
Immersion thermostat RAK-TW1000S Thermostat with immersion sleeve ½" Depth of immersion 150 mm, nickel-plated brass	6010 082
 **CO monitor** For safety shut-off of the boiler on leakage of carbon monoxide incl. connection cable	6043 277

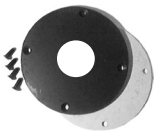
Vibration elements for boiler socket
For sound and vibration absorption.
Made of rubber. Cross section 80/50 mm

Delivery
4 vibration elements per boiler, mounted under the boiler socket

to Max-3 type	Set of pieces	Length mm	
(420,530)	L200 (4 pcs.)	200	6003 739
(620,750)	L400 (4 pcs.)	400	6003 741
(1000,1250)	L500 (4 pcs.)	500	6003 742
(1500,1800)	L800 (4 pcs.)	800	6005 623
(2200,2700)	L800 (6 pcs.)	800	6005 624

Blind flange
made of steel, incl. fixing screws and seal

Max-3 (420,530)	6002 192
Max-3 (620,750)	6030 026
Max-3 (1000-2700)	6002 156



Intermediate flange drilled for burner adaptation
made of steel, incl. fixing screws and seals

Max-3 (420,530)	6017 595
Max-3 (620,750)	6017 593
Max-3 (1000-2700)	6017 594

Notice
Only available in France, Italy, export and Central and Eastern European countries

Services

	Part No.
Services and associated scope of services see separate catalogue “Hoval Services”	
Commissioning by Hoval customer service is a prerequisite for warranty/guarantee activation.	

Max-3 (420-1250)

Type		(420)	(530)	(620)	(750)	(1000)	(1250)
• Nominal output at 80/60 °C	kW	500	610	720	870	1150	1350
• Max. - min. output (Heating oil EL, variant 1 and natural gas H, variant 1)	kW	320-500	350-610	450-720	520-870	680-1150	850-1350
• Max. - min. output (natural gas H, variant 2)	kW	200-500	220-610	240-720	280-870	350-1150	480-1350
• Burner input max.	kW	539	662	781	944	1247	1459
• Dimensions		see Dimensions					
• Boiler operating temperature max. [1]	°C	90	90	90	90	90	90
• Boiler operating temperature min.		see table operating conditions (below)					
• Return flow temperature min.		see table operating conditions (below)					
• Flue gas temperature min. at the boiler		see table operating conditions (below)					
• Safety temperature limiter setting (water side) [2]	°C	110	110	110	110	110	110
• Operating pressure	bar	6	6	6	6	6	6
• Boiler efficiency at 80/60 °C in full-load operation (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	92.7/87.5	92.4/87.2	92.4/87.2	92.5/87.3	92.5/87.3	92.5/87.3
• Boiler efficiency at 30 % partial load (EN 303) (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	95.2/89.8	95.3/89.9	94.9/89.5	95.2/89.8	95.3/89.9	95.2/89.8
• Nominal efficiency at 75/60 °C (DIN 4702-8) (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	94.8/89.5	94.7/89.4	94.3/89.0	94.8/89.4	94.9/89.5	94.8/89.4
• Stand-by loss qB at 70 °C	Watt	1000	1035	1120	1180	1250	1380
• Flue gas resistance at nominal output 180 °C flue gas temperature, 12.5 % CO_2 , 500 m over sea level (tolerance ± 20 %)	mbar	4.9	5.7	5.2	6.5	7.4	8.0
• Flue gas mass flow at nominal output 12.5 % CO_2 heating oil	kg/h	850	1037	1224	1479	1955	2295
• Flow resistance boiler [3]	z-value	0.022	0.022	0.008	0.008	0.003	0.003
• Water flow resistance at 10 K	mbar	40.4	60.1	30.5	44.5	29.1	40.2
• Water flow resistance at 20 K	mbar	10.1	15.1	7.6	11.1	7.3	10
• Water flow volume at 10 K	m^3/h	42.8	52.2	61.7	74.5	98.5	115.7
• Water flow volume at 20 K	m^3/h	21.4	26.1	30.8	37.2	49.2	57.9
• Boiler water content	litres	552	520	969	938	1528	1478
• Boiler gas volume	m³	0.583	0.602	0.846	0.872	1.35	1.39
• Insulation thickness boiler body	mm	80	80	80	80	80	80
• Weight (incl. casing)	kg	1309	1327	1752	1808	2545	2645
• Weight (without casing)	kg	1186	1204	1598	1654	2360	2460
• Maximum draught/underpressure at flue gas outlet	Pa	−50	−50	−50	−50	−50	−50
• Combustion chamber dimension Ø inside x length	mm	606x1624	606x1624	684x1899	684x1899	782x2182	782x2182
• Combustion chamber volume	m³	0.466	0.466	0.669	0.669	1.047	1.047

[1] Limited by the boiler controller E13.4 TopTronic® E and T 2.2 to 90 °C or by E13.5 TopTronic® E and T 0.2 to 105 °C.

[2] Max. safety temperature for boiler controller E13.4 TopTronic® E and T 2.2: 110 °C or E13.5 TopTronic® E and T 0.2: 120 °C.

[3] Flow resistance boiler in mbar = flow rate $(m^3/h)^2$ x z

Possible operating conditions:

Fuel		Heating oil EL		Natural gas H, low-sulphur heating oil EL		Heating oil L
		Variant 1	Variant 2	Variant 1	Variant 2	
Min. flue gas temperature	°C	130	110	130	100	130
Min. boiler temperature	°C	60	65	65	75	65
Min. return temperature	°C	50	55	55	65	55
Return temperature control		yes	yes	yes	yes	yes

Max-3 (1500-2700)

Type		(1500)	(1800)	(2200)	(2700)
• Nominal output at 80/60 °C	kW	1750	2150	2500	3000
• Max. - min. output (Heating oil EL, variant 1 and natural gas H, variant 1)	kW	1050-1750	1250-2150	1500-2500	1780-3000
• Max. - min. output (natural gas H, variant 2)	kW	640-1750	750-2150	920-2500	1030-3000
• Burner input max.	kW	1894	2324	2702	3243
• Dimensions		see Dimensions			
• Boiler operating temperature max. [1]	°C	90	90	90	90
• Boiler operating temperature min.		see table operating conditions (below)			
• Return flow temperature min.		see table operating conditions (below)			
• Flue gas temperature min. at the boiler		see table operating conditions (below)			
• Safety temperature limiter setting (water side) [2]	°C	110	110	110	110
• Operating pressure	bar	6	6	6	6
• Boiler efficiency at 80/60 °C in full-load operation (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	92.4/87.2	92.5/87.3	92.5/87.3	92.5/87.3
• Boiler efficiency at 30 % partial load (EN 303) (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	95.2/89.8	95.3/89.2	95.2/89.2	95.2/89.2
• Nominal efficiency at 75/60 °C (DIN 4702-8) (related to net calorific value NCV/gross calorific value GCV, heating oil EL)	%	94.8/89.4	94.9/89.5	94.9/89.5	95/89.5
• Stand-by loss qB at 70 °C	Watt	1850	1950	2100	2300
• Flue gas resistance at nominal output 180 °C flue gas temperature, 12.5 % CO_2 , 500 m over sea level (tolerance ± 20 %)	mbar	7.0	8.8	9.1	8.0
• Flue gas mass flow at nominal output 12.5 % CO_2 heating oil	kg/h	3031	3723	4329	5195
• Flow resistance boiler [3]	z-value	0.022	0.022	0.002	0.001
• Water flow resistance at 10 K	mbar	45.0	67.9	91.8	132.2
• Water flow resistance at 20 K	mbar	11.3	17	23	33.1
• Water flow volume at 10 K	m^3/h	150	184.3	214.3	257.1
• Water flow volume at 20 K	m^3/h	75	92.1	107.1	128.6
• Boiler water content	litres	2343	2750	3050	3550
• Boiler gas volume	m³	1.956	2.51	2.761	3.037
• Insulation thickness boiler body	mm	80	80	80	80
• Weight (incl. casing)	kg	3700	4900	5170	5750
• Weight (without casing)	kg	3400	4600	4800	5350
• Maximum draught/underpressure at flue gas outlet	Pa	−50	−50	−50	−50
• Combustion chamber dimension Ø inside x length	mm	880x2417	976x2605	976x2905	976x3233
• Combustion chamber volume	m³	1.58	2.07	2.3	2.41

[1] Limited by the boiler controller E13.4 TopTronic® E and T 2.2 to 90 °C or by E13.5 TopTronic® E and T 0.2 to 105 °C.

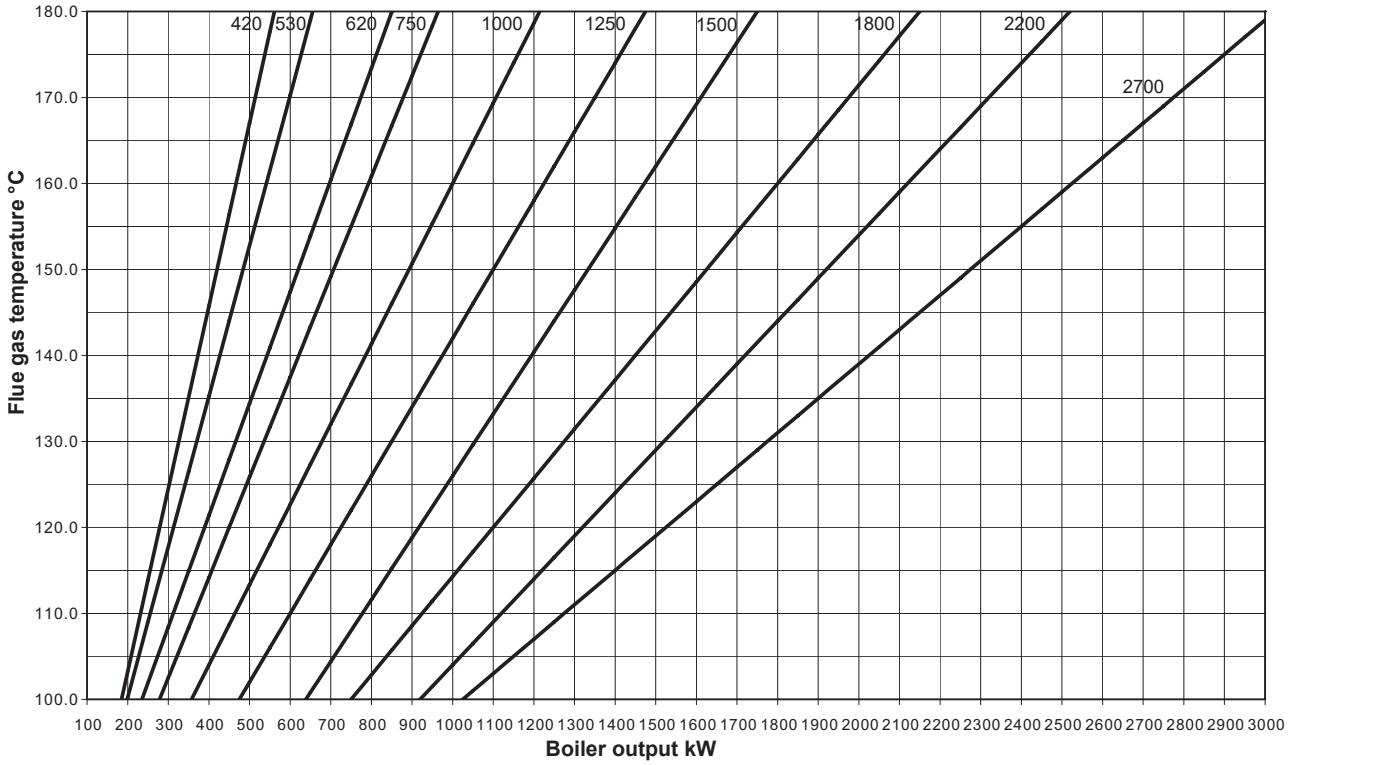
[2] Max. safety temperature for boiler controller E13.4 TopTronic® E and T 2.2: 110 °C or E13.5 TopTronic® E and T 0.2: 120 °C.

[3] Flow resistance boiler in mbar = flow rate $(m^3/h)^2$ x z

Possible operating conditions:

Fuel		Heating oil EL		Natural gas H, low-sulphur heating oil EL		Heating oil L
		Variant 1	Variant 2	Variant 1	Variant 2	
Min. flue gas temperature	°C	130	110	130	100	130
Min. boiler temperature	°C	60	65	65	75	65
Min. return temperature	°C	50	55	55	65	55
Return temperature control		yes	yes	yes	yes	yes

Flue gas output diagram

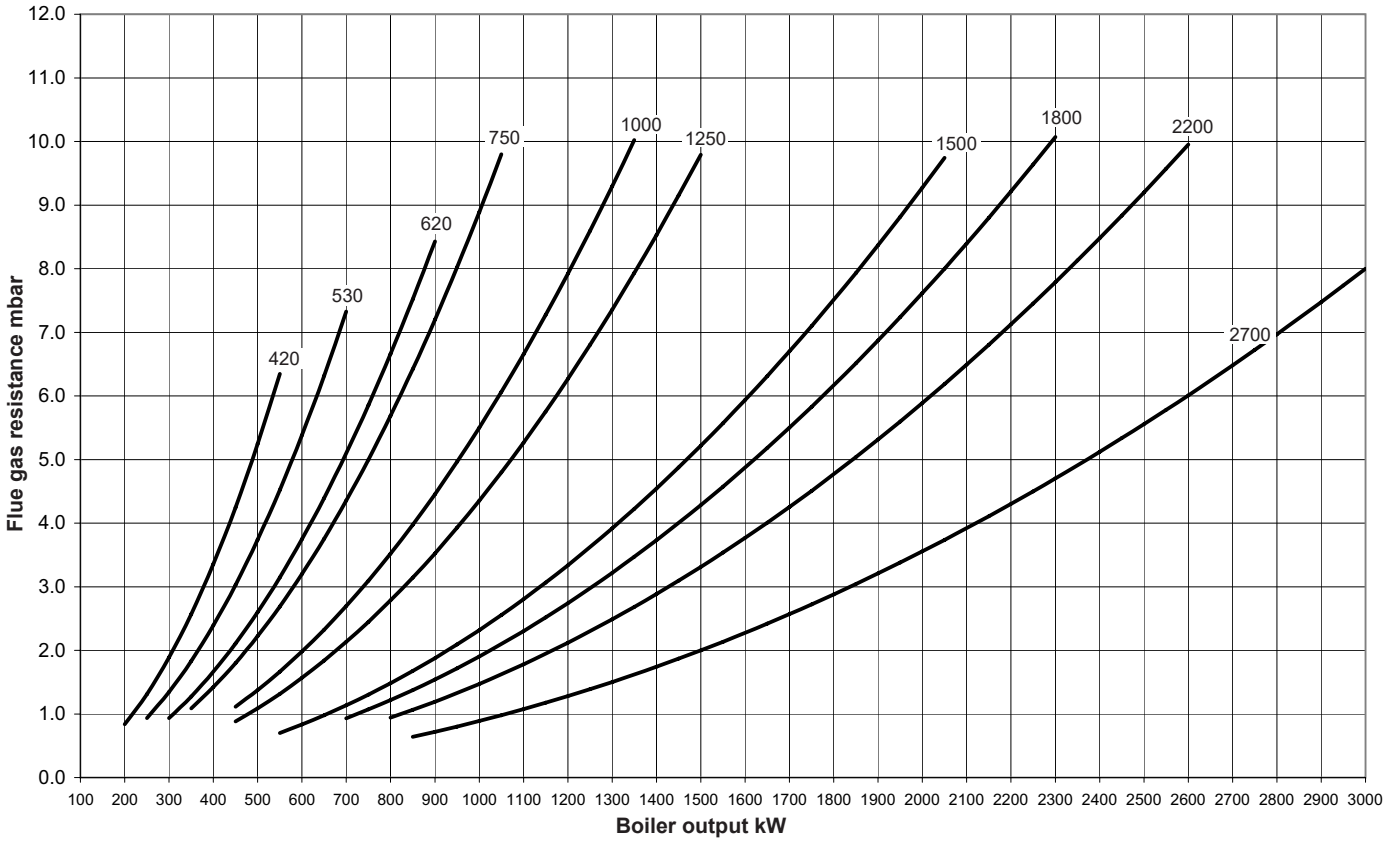


kW = boiler output
°C = flue gas temperature on a clean surface, flow temperature 80 °C, return temperature 60 °C (in accordance with DIN 4702).

- Operation with heating oil EL, natural gas
  λ = 1.22 with max. burner output
  (CO_2 heating oil EL = 12.5 %, CO_2 natural gas = 9.8 %)

- A reduction of the boiler water temperature to 10 K causes a reduction of the flue gas temperature of approx. 6-8 K.
- A modification of the CO_2 concentration of + 1 % causes a modification of the flue gas temperature of approx. − 8 K.
- A modification of the CO_2 concentration of − 1 % causes a modification of the flue gas temperature of approx. + 8 K.

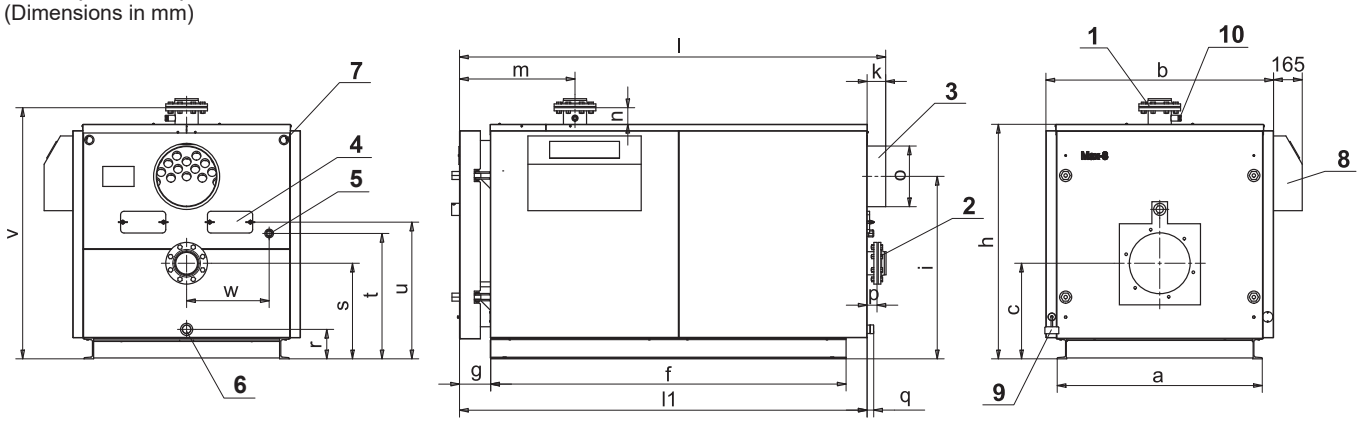
Flue gas resistor



kW = boiler output mbar = flue gas resistance λ = 1.11 (natural gas: CO_2 = 10.8 %) 500 above sea level (tolerance: ± 20 %)

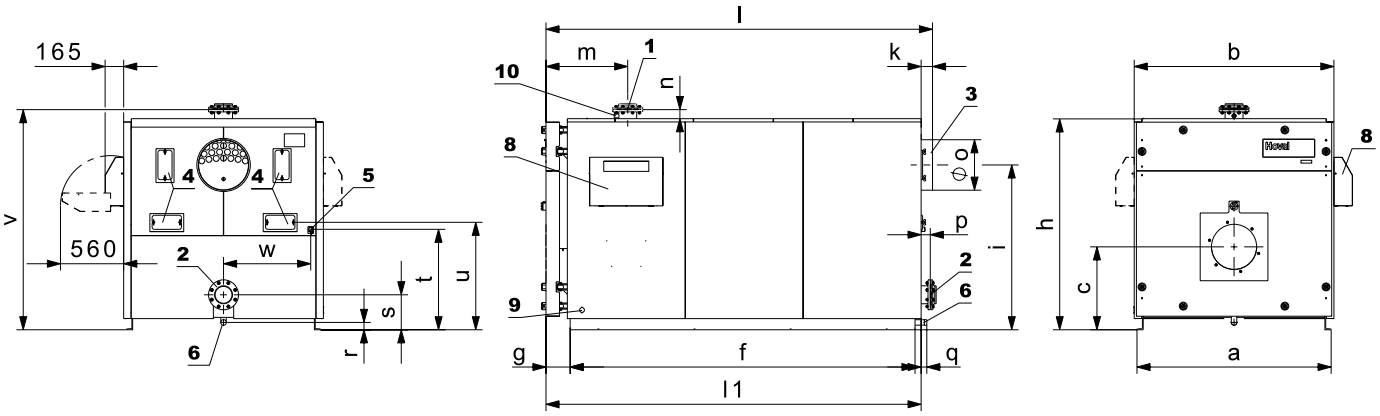
Max-3 (420-1250)

(Dimensions in mm)



Max-3 (1500-2700)

(Dimensions in mm)



1 Flow (420,530) DN 100, PN 6
(620,750) DN 125, PN 6
(1000,1250) DN 150, PN 6
(1500-2200) DN 150, PN 6
(2700) DN 200, PN 6

2 Return (420,530) DN 100, PN 6
(620,750) DN 125, PN 6
(1000,1250) DN 150, PN 6
(1500-2200) DN 150, PN 6
(2700) DN 200, PN 6

3 Flue gas outlet

4 Cleaning opening

5 Flue gas collector cleaning opening R 1″

6 Drain R 1½″

7 Cable routing

8 Control panel

9 Electrical connection

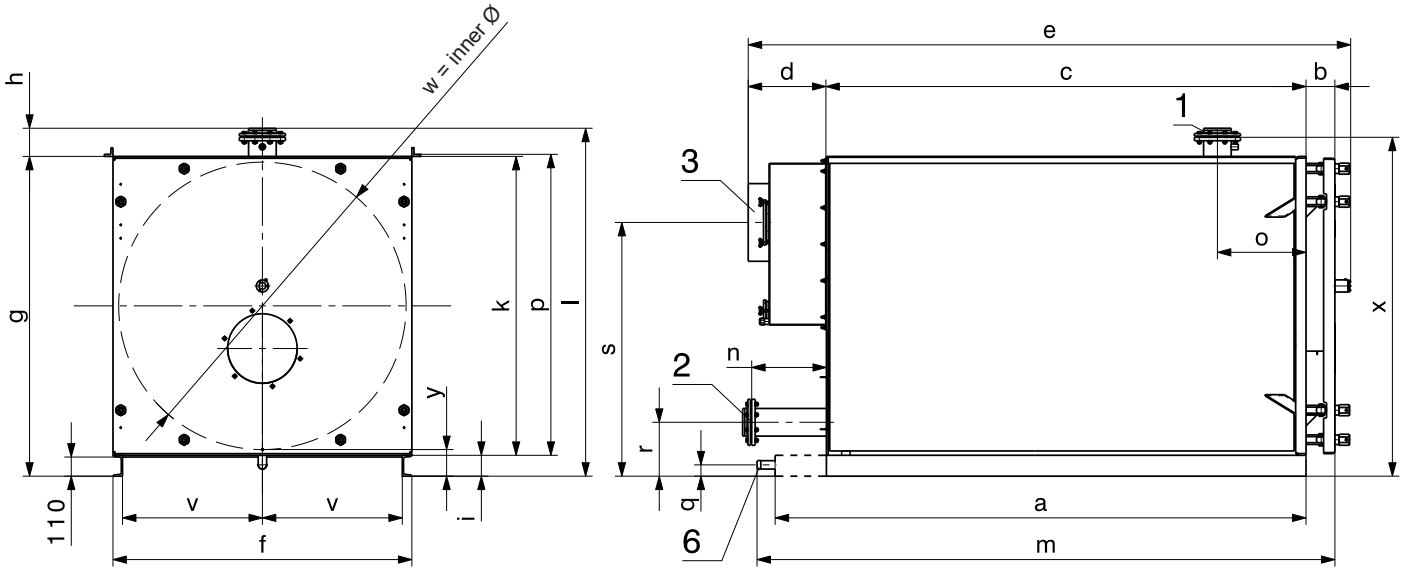
10 Bushing Rp ¾″ with immersion sleeve for boiler temperature sensor

Max-3 type	a	b	c	f	g	h	i	k	l	l1	m	n	Ø o	p	q	r
(420,530)	1060	1190	515	1770	181	1230	950	104	2178	2074	641	100	299	54	34	175
(620,750)	1180	1310	550	2045	181	1350	1050	105	2452	2347	666	95	349	55	35	170
(1000,1250)	1370	1500	635	2330	181	1550	1250	107	2739	2632	681	111	349	77	37	175
(1500)	1560	1610	665	2685	212	1710	1350	103	3040	2940	722	80	447	83	34	65
(1800)	1720	1770	735	3055	214	1870	1460	103	3424	3320	724	80	447	83	52	65
(2200)	1720	1770	735	3355	214	1870	1460	101	3724	3625	724	80	447	81	50	65
(2700)	1750	1800	755	3700	212	1900	1410	82	4032	3950	722	80	647	82	51	65

Max-3 type	s	t	u	v	w	x
(420,530)	350	595	660	1330	450	-
(620,750)	550	722	786	1445	475	-
(1000,1250)	415	620	685	1660	590	-
(1500)	310	777	842	1790	695	1850
(1800)	310	890	952	1950	773	2040
(2200)	310	890	952	1950	773	2340
(2700)	370	917	982	1980	790	2670

Dimensions without insulation and casing

Boiler incl. hinged flange, connector and flue gas collector.
(Dimensions in mm)



1 Flow
2 Return
3 Flue gas outlet
6 Drain

Max-3 type	a [1]	b	c	d	e	f	g	h	i	k	l	m	n	o	p
(420,530)	1920	150	1770	277	2222	1060	1180	196	120	1060	1376	2077	175	460	1072
(620,750)	2195	150	2045	228	2498	1180	1300	196	120	1180	1496	2353	172	485	1192
(1000,1250)	2480	150	2330	228	2783	1370	1500	187	120	1380	1660	2638	198	500	1392
(1500)	2685	164	2568	260	3078	1560	1680	162	120	1560	1842	2923	240	510	-
(1800)	3055	166	2760	450	3467	1720	1840	162	120	1720	2002	3325	430	510	-
(2200)	3355	166	3060	450	3767	1720	1840	162	120	1720	2002	3625	430	510	-
(2700)	3700	164	3390	430	4075	1750	1870	169	120	1750	2039	3953	430	510	-

Max-3 type	q	r	s	v	w	x	y
(420,530)	175	350	950	475	990	-	-
(620,750)	170	550	1050	535	1110	-	-
(1000,1250)	175	415	1250	630	1298	-	-
(1500)	65	310	1350	725	1494	1790	153
(1800)	65	310	1460	805	1654	1950	153
(2200)	65	310	1460	805	1654	1950	153
(2700)	65	370	1410	820	1684	1980	153

[1] Max-3 (1500-2700): socket protrudes

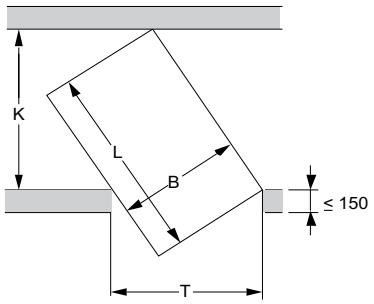
Required min. width of door and corridor to bring in the boiler

The stated measurements are minimal dimensions

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

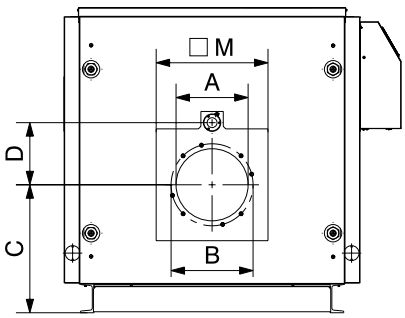
$$T = \frac{B}{K} \times L$$

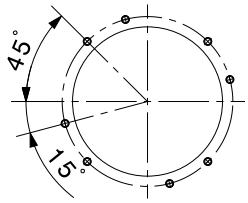
T Door width
K Corridor width
B Boiler width
L Max. boiler length



Furnace dimensions

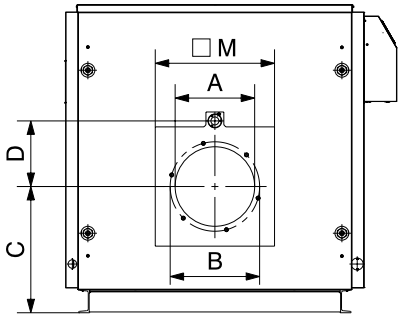
Max-3 (420,530)

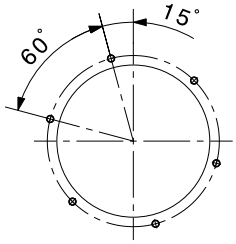




Screw joint flange
Max-3 (420,530)
4 x M12 (45°)
4 x M12 (15°)

Max-3 (620-1250)

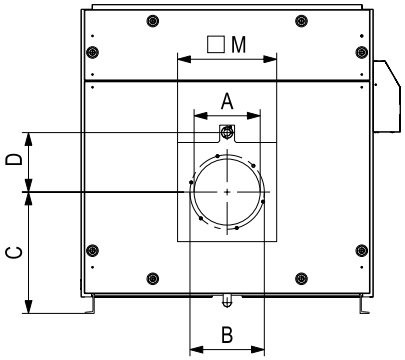


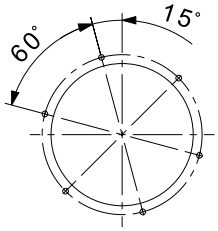


Screw joint flange
Max-3 (620,750)
6 x M12 (15°)

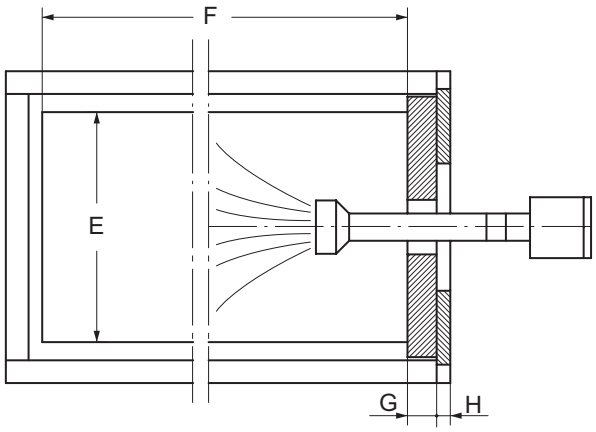
Screw joint flange
Max-3 (1000,1250)
6 x M16 (15°)

Max-3 (1500-2700)



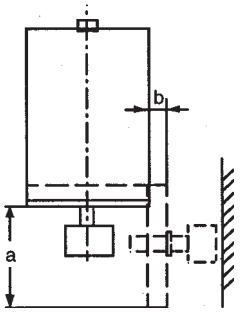


Screw joint flange
Max-3 (1500-2700)
6 x M16 (15°)



Swinging out of boiler door

Boiler door is swivelling to the right or left
(Dimensions in mm)



Dimensions
(Dimensions in mm)

Max-3 type	A	B	C	D	E	F	G	H	M
(420,530)	290	330	515	250	606	1624	163	30	450
(620,750)	350	400	550	310	684	1899	163	30	600
(1000,1250)	400	450	635	330	782	2182	163	30	600
(1500)	400	450	665	360	880	2417	170	30	600
(1800)	400	450	735	360	976	2605	170	30	600
(2200)	400	450	735	360	976	2905	170	30	600
(2700)	400	450	755	360	976	3233	170	30	600

Max-3 type	a	b
(420,530)	1060	150
(620,750)	1180	150
(1000,1250)	1370	150
(1500)	1520	175
(1800,2200)	1680	175
(2700)	1700	175

Standards and guidelines

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

The following requirements and directives must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

- In the case of **full demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- In the case of **softening the filling and replacement water**, the following conditions must be complied with:
  The quality of the heating water must be checked and documented periodically:
  - For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
  - For an installed heat output above 1000 kW, an check of the heating water is required twice a year.

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

Additional notices

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

Frost protection agent

The planning sheet “Use of frost protection agent” is available from your Hoval contact person.

Combustion air supply

The combustion air supply must be warranted. The air opening must not be lockable.It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

Room air dependent operation:

- Minimum free cross-section for the air opening can be assumed as follows by way of simplification. Nominal heat output is the determining factor!
- A minimum free cross-section of once 150 cm² or twice 75 cm² and an additional 2 cm² for each kW boiler capacity in excess of 50 kW is required for the air opening into the outside air.

Burner installation

- If the weight of the burner (including attachments) of gas and dual-fuel burners is more than 90 kg and the distance of the centre of gravity of the burner to the boiler door is greater than 60 cm, support the burner casing weight directly with a strut to the boiler room floor.
- Depending on the size of the burner flange, an intermediate flange may be required to attach the burner. The intermediate flange including screws and seal must be supplied by the burner company.
- The lines must be positioned so that the boiler door can still be fully opened.
- To allow the boiler door to be swung out 90° to the left or right, the connections must be flexible and routed to the burner in a sufficiently large loop.
- In systems with ThermoCondensor, the burner must additionally absorb the resistance of the heat exchanger.

The space between the burner pipe and the hinged flange is to be insulated. A line must be routed from the burner to the sight glass to carry cooling air, in order to cool the boiler sight glass and keep it clean (delivery by the burner company).

Electric connection of the burner
- Control voltage 1 x 230 V
- Burner motor 1 x 230 V / 3 x 400 V.
- The burner must be connected to the burner connection plug of the boiler.
- For safety reasons the electrical cable of the burner must be that short that the plug must be removed when swivelling boiler door.

Sound absorbing

Sound absorption is possible through the following steps:
- Heating room walls, ceiling and floor should be very solidly built, a sound insulation should be mounted into the air inlet. Pipe holders and support should be protected by means of anti-vibration sleeves.
- Install sound attenuation cowl for burner.
- If living rooms are located above or under the boiler room, vibration absorbers have to be mounted to the boiler base. Pipes and flue gas tube must be connected flexibly with compensators.
- Connect circulating pumps to the piping network using expansion joints.
- For damping of flame noise it is possible to install a silencer into the flue gas tube (space should be foreseen for later installation).

Measures for sound reduction

Make sure right from the planning phase that bedrooms are not situated in the immediate vicinity of the sound source (heating room, chimney).

A reduction of the radiated burner air sound level in the heating room (reduction of the burner noises) of up to approx. 12 dB can be achieved encapsulating the burner (sound attenuation cowl).

A significant part of the noise development in the combustion chamber and in the secondary heating surfaces is radiated as airborne noise via the flue gas line.
In addition, depending on dimensioning of the chimney and intersection, resonance effects caused by the vibration of the combustion noises (amplification) can occur.
These noises can be reduced on the one hand by measures on the burner side, such as modification of the flame geometry, the atomisation characteristic or the fuel throughput.
On the other hand, flue gas silencers achieve an important noise reduction.
These silencers must usually be adapted to low frequencies of 60-250 Hz.
Flue gas silencers work based on the principle of sound absorption.
The kinetic energy of the flue gases is consumed due to friction, which means a draughting requirement increase in the flue gas line is necessary. This must be taken into account when dimensioning the burner.

The connection piece from the boiler to the flue gas silencer must be gas-tight as the draught and pressure zero points lie behind the flue gas silencer.

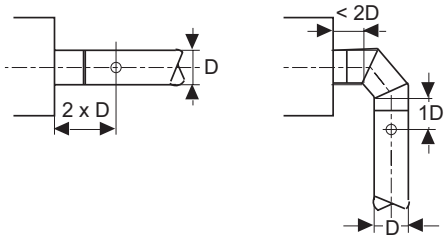
The space required of approx. 1 m for retrofitting of a flue gas silencer should be provided during planning.
Note also that secondary air devices are installed only behind a flue gas silencer.

Installation instructions

Please observe the installation instructions supplied with every boiler.

Flue gas system

Flue gas line
- The flue gas tube between boiler and chimney must be connected with an angle 30-45° to the chimney.



- If the flue gas tube is longer than 1 m, it must be insulated.
- The flue gas tube must be designed that no condensate water can get into the boiler.
- A closeable flue gas measuring socket with an inner diameter of 10-21 mm must be foreseen. The socket has to be led over the thermal insulation.

Chimney
- The flue gas system must be humidity-insensitive and acid-proof and admitted for flue gas temperatures up to > 160 °C.
- For existing chimney installation the restoration must be carried out according to the instructions of the chimney constructor.
- Calculation of the profile of the chimney according to DIN 4705.
- It is recommendable to use a secondary air valve for chimney draft limiting.

Flue gas temperature and power ranges

In order to achieve a good combustion quality (optimum flame burnout), the outputs must not be less than the specified minimum values.
For new systems, acid-resistant chimneys must be provided or the flue gas temperature must be set correspondingly higher (min. 160 °C).
The minimum flue gas temperature must be coordinated with the chimney conditions, otherwise the formation of sulphuric acid can lead to soot buildup in the chimney.

Diaphragm pressure expansion tank

- Ideally, the diaphragm pressure expansion tank should be connected to the heating system as described in our example applications, with a removable or sealable actuation device. This means that it is not necessary to drain the entire system in order to carry out work on the diaphragm pressure expansion tank.

Safety valve

- A safety valve and an automatic air vent must be installed in the safety flow.

Hoval quality.
You can count on us.

Hoval

Hoval is one of the leading international companies for heating and indoor climate solutions. Drawing on more than 80 years of experience and benefiting from a close-knit team culture, the Hoval Group delivers exciting solutions and develops technically superior products. This leadership role requires a sense of responsibility for energy and the environment, which is expressed in an intelligent combination of different heating technologies and customised indoor climate solutions.

Hoval also provides personal consultations and comprehensive customer service. With around 2500 employees in 15 companies around the world, Hoval sees itself not as a conglomerate, but as a large family that thinks and acts globally.
Hoval heating and indoor climate solutions are currently exported to more than 50 countries.

Responsibility for energy and environment

Liechtenstein
Hoval Aktiengesellschaft
9490 Vaduz
+423 399 24 00
hoval.com

United Kingdom
Hoval Ltd.
Newark Notts. NG 24 1JN
+44 1636 672 711
hoval.co.uk

2026 - 04 | Subject to modifications

Your Hoval partner

Hoval

CATALOGUE

Hoval Max-3 plus

Oil/gas boiler
Max-3 plus (420-2700)

Table of contents

Hoval Max-3 plus
Oil/gas boiler

Boiler
- High-efficiency 3-pass boiler according to EN 14394 for firing of heating oil EL and gas
- Max-3 plus (420-2700) complies with the Pressure Equipment Directive 2014/68/CE.
- Boiler completely welded
- For LowNOx burner with intern flue gas recirculation
- Insulation at the boiler body 80 mm mineral wool mat
- Boiler completely clad with steel plate, red powder coated
- Flue gas outlet to the rear
- Heating flow connection to the top, heating return connections to the rear, incl. counter flanges, screws and seals

Optional
- Boiler control panel with boiler controller and heating control in various versions
  - Boiler controller
    - with TopTronic® E control
    - with thermostat T 2.2
    - with thermostat T 0.2
- Free-standing calorifier see Calorifiers
- Boiler door swivels to the left.

Delivery
- Boiler, thermal insulation and casing delivered separately packed

On site
- Mounting of insulation and casing

Model range

Max-3 plus type	Max. - min. output kW
(420)	200-420
(530)	220-530
(620)	240-620
(750)	280-750
(1000)	350-1000
(1250)	480-1250
(1500)	650-1500
(1800)	750-1800
(2200)	920-2200
(2700)	1030-2700

Boiler controller with TopTronic® E/E13.4 control

- Maximum operating temperature 90 °C

TopTronic® E controller

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

TopTronic® E control module
- Simple, intuitive operating concept
- Display of the most important operating statuses
- Configurable start screen
- Operating mode selection
- Configurable day and week programmes
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function

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

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

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

Number of modules that can be additionally installed in the electrical box:
- 1 module expansion and 2 controller modules **or**
- 1 controller module and 2 module expansions **or**
- 3 controller modules

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

Further information about the TopTronic® E
see “Controls”

Oil automatic function device OFA
- Control function integrated for
  - flue gas sensor for safety shut-off
  - 0-10 V output for connecting a modulating main pump (incl. ΔT control with low consumption)
  - Standard plug connection for 2-stage burner 1 x 230 V
  - Variable input for plant-specific functions (heat generator block, return sensor, info sensor etc.)
  - Variable output for plant-specific functions (thermostat function, operating message, etc.)

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Boiler controller with TopTronic® E/E13.5 control

- Maximum operating temperature 105 °C

- Configuration as TopTronic® E/E13.4 but: safety temperature limiter 120 °C

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Control panel with thermostat T 2.2

- Maximum operating temperature 90 °C

- For systems without TopTronic® E control
- For direct 2-stage burner control, requirement starting from external calorifier or heater instruction is possible.
- Main switch “I/O”
- Safety temperature limiter 110 °C
- Selector switch burner load
- Switch summer/winter
- 3 boiler temperature regulators 30-90 °C
  - temperature regulator for base load heating
  - temperature regulator for full load heating
  - temperature regulator for calorifier
- Boiler and burner breakdown lamp
- Plug connection for burner (with cable and plug)

Optional
- 2 running time meters integrated
- 2 burner running time meters and pulse counters integrated
- Flue gas thermometer, 4.5 m capillary tube

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Control panel with thermostat T 0.2

- Maximum operating temperature 105 °C

- For external control
- For systems without TopTronic® E control
- For special control function
- Main switch “I/O”
- Safety temperature limiter 120 °C
- 3 boiler temperature regulators 50-105 °C
  - temperature regulator for base load heating
  - temperature regulator for full load heating
  - temperature regulator for calorifier
- Without burner plug connection

Optional
- 2 running time meters integrated
- 2 burner running time meters and pulse counters integrated
- Flue gas thermometer, 4.5 m capillary tube
- Safety temperature limiter 130 °C

Delivery
- Boiler controller separately delivered

On site
- Mounting of the boiler controller at the boiler left or right side

Oil/gas boiler

Permission Boiler
Directive on appliances burning gaseous fuels 90/396/EG
Max-3 plus (420-2700):
CE product ID No. CE-0085BL0015
Pressure Equipment Directive 2014/68/CE

Hoval Max-3 plus (420-2700)

High-efficiency 3-pass boiler made of steel for oil/gas LowNOx firing, without control panel.
For operating temperature up to 105 °C

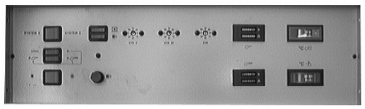
Execution: complete delivery
Boiler, thermal insulation and casing delivered separately packed.

Max-3 plus type	Max. - min. output kW	Operating pressure bar	Part No.
(420)	200-420	6	7013 783
(530)	220-530	6	7013 784
(620)	240-620	6	7013 785
(750)	280-750	6	7013 786
(1000)	350-1000	6	7013 787
(1250)	480-1250	6	7013 788
(1500)	650-1500	6	7013 626
(1800)	750-1800	6	7013 627
(2200)	920-2200	6	7013 628
(2700)	1030-2700	6	7013 659

The minimum boiler operating temperature and the minimum boiler return temperature must imperatively be observed (see technical data).
A constant return temperature control must be provided!

The condensate trap must imperatively be mounted on the flue gas outlet of the boiler!

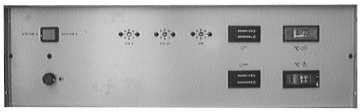
Control panel with thermostat



Control panel T 2.2
- Operating temperature max. 90 °C
- For systems without TopTronic® E controller.
- For direct 2-stage burner control, incl. plug connection for burner requirement starting from external calorifier or heater instruction is possible.

	Part No.
- without burner running time meter and pulse counter	6015 017
- incl. 2 burner running time meters integrated	6015 477
- incl. 2 burner running time meters and pulse counters integrated	6015 478

- For mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.



Control panel T 0.2
- Operating temperature max. 105 °C
- For external switching command
- For systems without TopTronic® E controller.
- For special control function without burner plug connection

	Part No.
- without burner running time meter and pulse counter	6015 016
- incl. 2 burner running time meters integrated	6015 475
- incl. 2 burner running time meters and pulse counters integrated	6015 476

- For mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.

Accessories to control panel with thermostat

	Part No.
Flue gas thermometer 4.5 m, capillary tube	241 149

Boiler controller with TopTronic® E control

Boiler control E13.4 TopTronic® E
for mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.
Operating temperature: max. 90 °C.
Control function integrated for
- 1 heating circuit with mixer
- 1 heating circuit without mixer
- 1 DHW charging circuit
Heat generator management
Additional heat generator management
Cascade management
Optionally expandable by max. 1 module expansion:
- Module expansion heating circuit or
- Module expansion Universal
Optionally networkable with up to 16 controller modules (incl. solar module).
Max. 3 additional controller modules can be installed in control box.

Consisting of:
electrical box,
control panel,
TopTronic® E control module,
TopTronic® E basic module heat generator,
oil automatic function device OFA-200,
safety temperature limiter,
burner cable cpl. 2-stage, L = 5.0 m,
1 outdoor sensor AF/2P/K,
1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
The electrical connection for each external burner must be clarified separately.

Part No.
6040 236

Boiler controller E13.5 TopTronic® E
for mounting on heat generator side right (standard) or left (configuration on request). Specify mounting variant in purchase order.
Operating temperature: max. 105 °C.
Control function integrated for
- 1 heating circuit with mixer
- 1 heating circuit without mixer
- 1 DHW charging circuit
Heat generator management
Additional heat generator management
Cascade management
Optionally expandable by max. 1 module expansion:
- Module expansion heating circuit or
- Module expansion Universal
Optionally networkable with up to 16 controller modules (incl. solar module).
Max. 3 additional controller modules can be installed in control box.

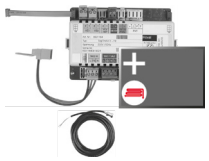
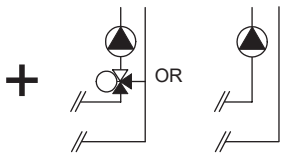
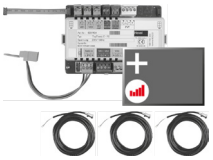
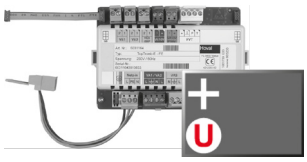
Consisting of:
electrical box,
control panel,
TopTronic® E control module,
TopTronic® E basic module heat generator,
oil automatic function device OFA-200,
safety temperature limiter,
burner cable cpl. 2-stage, L = 5.0 m,
1 outdoor sensor AF/2P/K,
1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m
1 contact sensor ALF/2P/4/T/S1, L = 4.0 m

Notice
The electrical connection for each external burner must be clarified separately.

Part No.
6040 237

TopTronic® E module expansions

for TopTronic® E basic module heat generator

	Part No.
 	**TopTronic® E module expansion heating circuit TTE-FE HK** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit without mixer or - 1 heating/cooling circuit with mixer Consisting of: - Fitting accessories - 1 contact sensor ALF/2P/4/T, L = 4.0 m - Basic plug set FE module **Notice** The supplementary plug set may have to be ordered to implement functions differing from the standard!	6034 576
	**TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit without mixer or - 1 heating/cooling circuit with mixer incl. energy balancing in each case Consisting of: - Fitting accessories - 3 contact sensors ALF/2P/4/T, L = 4.0 m - Plug set FE module **Notice** Suitable flow rate sensors (pulse sensors) must be provided on site.	6037 062
	**TopTronic® E module expansion Universal TTE-FE UNI** Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions Consisting of: - Fitting accessories - Plug set FE module **Further information** see “Controls” – “Hoval TopTronic® E module expansions” chapter **Notice** Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.	6034 575

Accessories for TopTronic® E

		Part No.
	**TopTronic® E controller modules**	
	TTE-HK/WW TopTronic® E heating circuit/ hot water module	6034 571
	TTE-SOL TopTronic® E solar module	6037 058
	TTE-PS TopTronic® E buffer module	6037 057
	TTE-MWA TopTronic® E measuring module	6034 574
	**Supplementary plug set**	
	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion TTE-FE HK	6034 503
	**TopTronic® E room control modules**	
	TTE-RBM TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070
	**Enhanced language package TopTronic® E** one SD card required per control module Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA, NL	6039 253
	**HovalConnect**	
	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593
	TopTronic® E interface modules	
	GLT module 0-10 V	6034 578
	**TopTronic® E sensors**	
	AF/2P/K Outdoor sensor H x W x D = 80 x 50 x 28 mm	2055 889
	TF/2P/5/6T Immersion sensor, L = 5.0 m	2055 888
	ALF/2P/4/T Contact sensor, L = 4.0 m	2056 775
	TF/1.1P/2.5S/6T Collector sensor, L = 2.5 m	2056 776
	**Bivalent switch**	
	for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826
	**System casing**	
	System casing 182 mm	6038 551
	System casing 254 mm	6038 552
	**TopTronic® E wall casing**	
	WG-190 Wall casing small	6052 983
	WG-360 Wall casing medium	6052 984
	WG-360 BM Wall casing medium with control module cut-out	6052 985
	WG-510 Wall casing large	6052 986
	WG-510 BM Wall casing large with control module cut-out	6052 987

Further information
see “Controls”

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

Clamp-on flow temperature monitor RAK-TW1000S
with retaining strap, without cable and plug — 242 902

Immersion thermostat RAK-TW1000S
Thermostat with immersion sleeve ½"
Depth of immersion 150 mm,
nickel-plated brass — 6010 082

CO monitor
For safety shut-off of the boiler on leakage of carbon monoxide
incl. connection cable — 6043 277

Vibration elements for boiler socket
For sound and vibration absorption.
Made of rubber. Cross section 80/50 mm

Delivery
4 vibration elements per boiler, mounted under the boiler socket

to Max-3 type	Set of pieces	Length mm	Part No.
(420,530)	L200 (4 pcs.)	200	6003 739
(620,750)	L400 (4 pcs.)	400	6003 741
(1000,1250)	L500 (4 pcs.)	500	6003 742
(1500,1800)	L800 (4 pcs.)	800	6005 623
(2200,2700)	L800 (6 pcs.)	800	6005 624

Blind flange
made of steel, incl. fixing screws and seal

Max-3 (420,530)	6002 192
Max-3 (620,750)	6030 026
Max-3 (1000-2700)	6002 156

Intermediate flange drilled for burner adaptation
made of steel, incl. fixing screws and seals

Max-3 (420,530)	6017 595
Max-3 (620,750)	6017 593
Max-3 (1000-2700)	6017 594

Services

Services and associated scope of services
see separate catalogue “Hoval Services”

Commissioning by Hoval customer service is a prerequisite for warranty/guarantee activation.

Part No.

Max-3 plus (420-1250)

Type		(420)	(530)	(620)	(750)	(1000)	(1250)
• Nominal output at 80/60 °C	kW	420	530	620	750	1000	1250
• Range of output at 80/60 °C	kW	147-420	185-530	217-620	263-750	350-1000	437-1250
• Burner input max.	kW	441	557	651	788	1050	1313
• Boiler operating temperature max. [1]	°C	90	90	90	90	90	90
• Boiler operating temperature min.	°C	see table operating conditions (below)					
• Return flow temperature min.	°C	see table operating conditions (below)					
• Safety temperature limiter setting (water side) [2]	°C	110	110	110	110	110	110
• Operating pressure	bar	6	6	6	6	6	6
• Boiler efficiency at 80/60 °C in full-load operation (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	95.2/89.8	95.2/89.8	95.2/89.8	95.2/89.8	95.2/89.8	95.2/89.8
• Boiler efficiency at 30 % partial load (EN 303) (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	97.1/91.6	97.1/91.6	97.1/91.6	97.1/91.6	97.1/91.6	97.1/91.6
• Nominal efficiency at 75/60 °C (DIN 4702-8) (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	97.0/91.5	97.0/91.5	97.0/91.5	97.0/91.5	97.0/91.5	97.0/91.5
• Stand-by loss qB at 70 °C	Watt	1000	1035	1120	1180	1250	1380
• Flue gas resistance at nominal output natural gas: 10.8 % CO_2, 500 m over sea level (tolerance ± 20 %)	mbar	6.5	8.0	8.2	9.5	10.0	12.0
• Flue gas mass flow at nominal output natural gas: 10.8 % CO_2	kg/h	680	859	1004	1215	1619	2025
• Flow resistance boiler [3]	z-value	0.022	0.022	0.008	0.008	0.003	0.003
• Water flow resistance at 10 K	mbar	28.70	45.70	22.74	33.28	22.18	34.66
• Water flow resistance at 20 K	mbar	7.17	11.42	5.68	8.32	5.54	8.66
• Water flow volume at 10 K	m³/h	36.12	45.58	53.32	64.50	86.00	107.50
• Water flow volume at 20 K	m³/h	18.06	22.79	26.66	32.25	43.00	53.75
• Boiler water content	litres	552	520	969	938	1528	1478
• Boiler gas volume	m³	0.583	0.602	0.846	0.872	1.350	1.390
• Insulation thickness boiler body	mm	80	80	80	80	80	80
• Weight (incl. casing)	kg	1329	1347	1782	1838	2585	2685
• Weight (without casing)	kg	1206	1224	1628	1684	2400	2500
• Combustion chamber dimension Ø inside x length	mm	606/1624	606/1624	684/1899	684/1899	782/2182	782/2182
• Combustion chamber volume	m³	0.466	0.466	0.669	0.669	1.047	1.047
• Dimensions		see Dimensions					
• Draught/underpressure at flue gas outlet max.	Pa	−50	−50	−50	−50	−50	−50

[1] Limited by the boiler controller E13.4 TopTronic® E and T 2.2 to 90 °C or by E13.5 TopTronic® E and T 0.2 to 105 °C.
[2] Max. safety temperature for boiler controller E13.4 TopTronic® E and T 2.2: 110 °C or E13.5 TopTronic® E and T 0.2: 120 °C.
[3] Flow resistance boiler in mbar = flow rate $(m^3/h)^2$ x z

Possible operating conditions

Fuel		Heating oil EL	Natural gas H
Min. boiler temperature	°C	65	75
Min. return temperature	°C	55	65
Return temperature control		yes	yes

Max-3 plus (1500-2700)

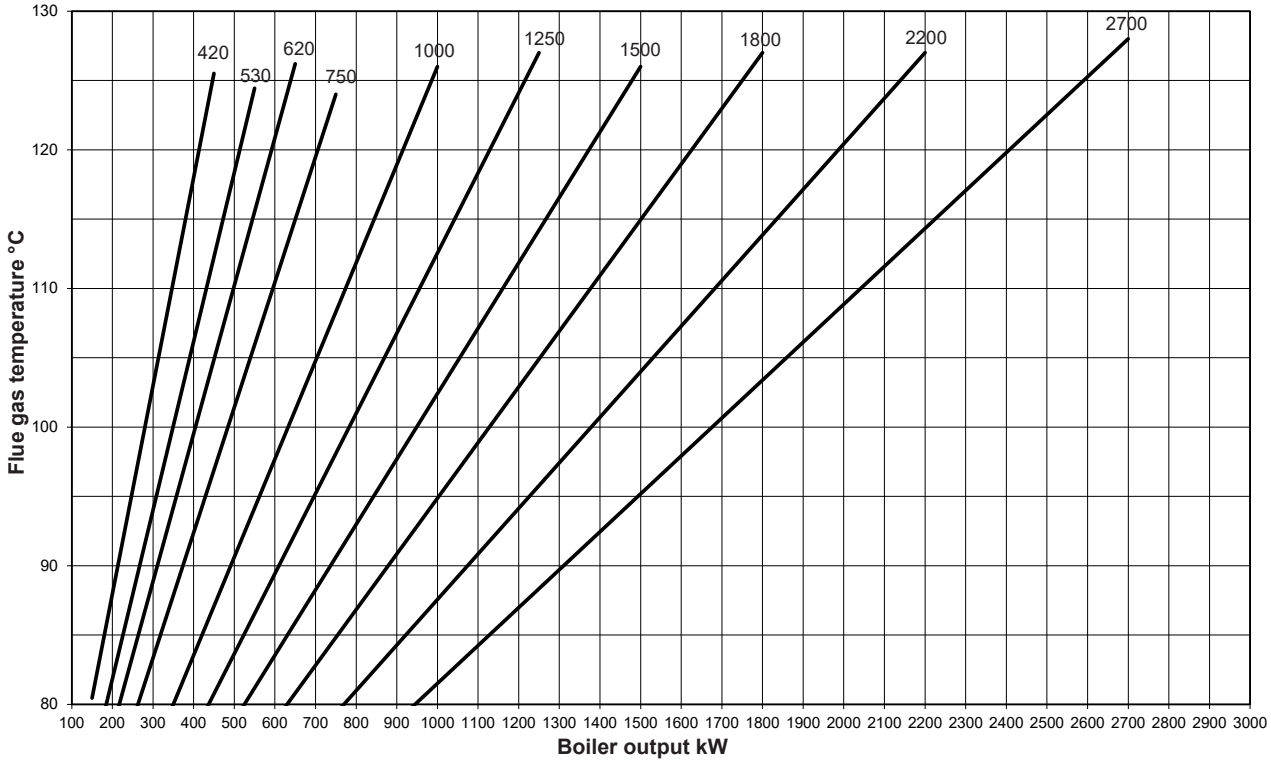
Type		(1500)	(1800)	(2200)	(2700)
• Nominal output at 80/60 °C	kW	1500	1800	2200	2700
• Range of output at 80/60 °C	kW	525-1500	630-1800	770-2200	945-2700
• Burner input max.	kW	1575	1890	2310	2835
• Boiler operating temperature max. [1]	°C	90	90	90	90
• Boiler operating temperature min.	°C		see table operating conditions (below)		
• Return flow temperature min.	°C		see table operating conditions (below)		
• Safety temperature limiter setting (water side) [2]	°C	110	110	110	110
• Operating pressure	bar	6	6	6	6
• Boiler efficiency at 80/60 °C in full-load operation (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	95.2/89.8	95.2/89.8	95.2/89.8	95.2/89.8
• Boiler efficiency at 30 % partial load (EN 303) (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	97.1/91.6	97.1/91.6	97.1/91.6	97.1/91.6
• Nominal efficiency at 75/60 °C (DIN 4702-8) (related to net calorific value NCV / gross calorific value GCV, heating oil EL)	%	97.0/91.5	97.0/91.5	97.0/91.5	97.0/91.5
• Stand-by loss qB at 70 °C	Watt	1850	1950	2100	2300
• Flue gas resistance at nominal output natural gas: 10.8 % CO_2, 500 m over sea level (tolerance ± 20 %)	mbar	10.0	12.0	13.0	13.0
• Flue gas mass flow at nominal output natural gas: 10.8 % CO_2	kg/h	2429	2916	3564	4374
• Flow resistance boiler [3]	z-value	0.002	0.002	0.002	0.001
• Water flow resistance at 10 K	mbar	33.1	47.6	71.1	53.6
• Water flow resistance at 20 K	mbar	8.3	11.9	17.8	13.4
• Water flow volume at 10 K	m³/h	128.6	154.3	188.6	231.5
• Water flow volume at 20 K	m³/h	64.3	77.4	94.3	115.7
• Boiler water content	litres	2343	2750	3050	3550
• Boiler gas volume	m³	1.956	2.510	2.761	3.037
• Insulation thickness boiler body	mm	80	80	80	80
• Weight (incl. casing)	kg	3748	4955	5230	5810
• Weight (without casing)	kg	3448	4655	4860	5410
• Combustion chamber dimension Ø inside x length	mm	880/2415	980/2595	980/2895	980/3200
• Combustion chamber volume	m³	1.58	2.07	2.30	2.41
• Dimensions			see Dimensions		
• Draught/underpressure at flue gas outlet max.	Pa	−50	−50	−50	−50

[1] Limited by the boiler controller E13.4 TopTronic® E and T 2.2 to 90 °C or by E13.5 TopTronic® E and T 0.2 to 105 °C.
[2] Max. safety temperature for boiler controller E13.4 TopTronic® E and T 2.2: 110 °C or E13.5 TopTronic® E and T 0.2: 120 °C.
[3] Flow resistance boiler in mbar = flow rate $(m^3/h)^2$ x z

Possible operating conditions

Fuel		Heating oil EL	Natural gas H, low-sulphur heating oil EL
Min. boiler temperature	°C	65	75
Min. return temperature	°C	55	65
Return temperature control		yes	yes

Flue gas output diagram

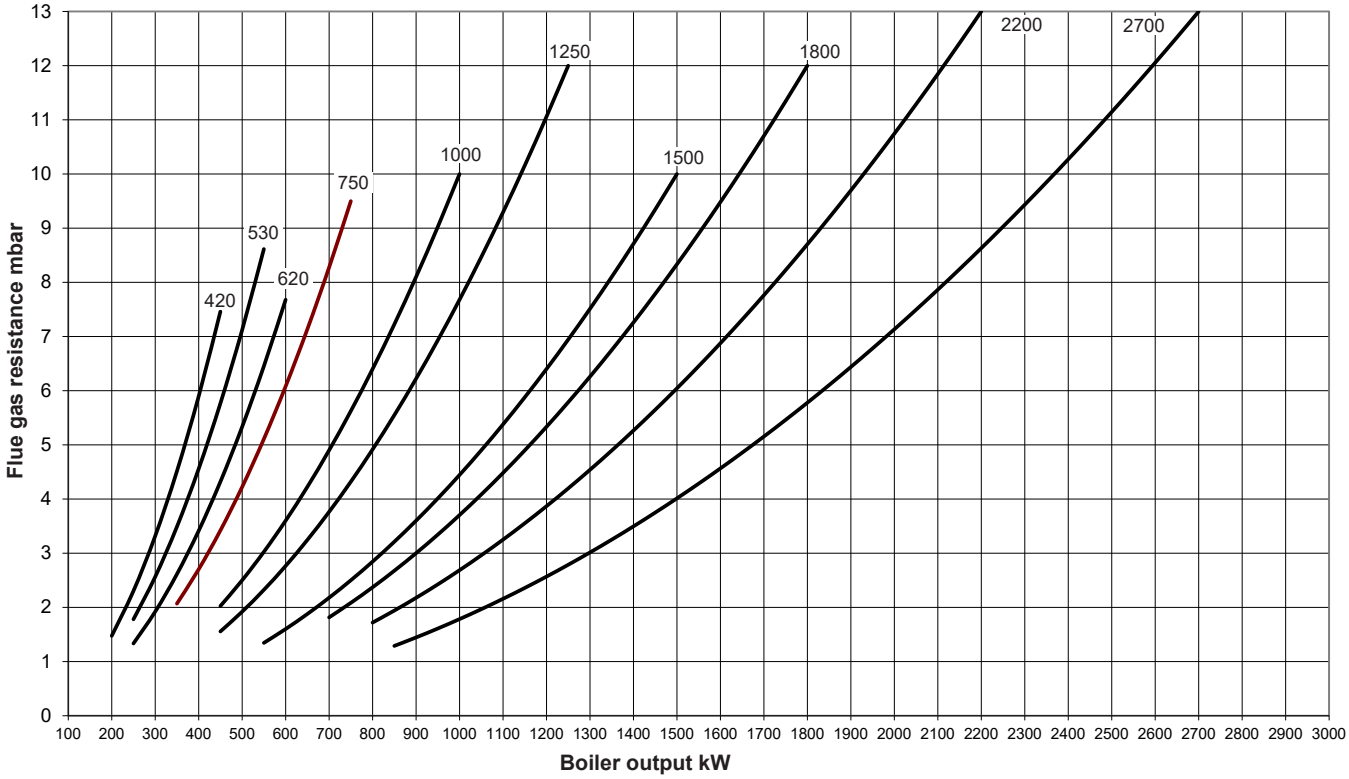


kW = boiler output
°C = flue gas temperature on a clean surface, flow temperature 80 °C, return temperature 60 °C (in accordance with DIN 4702).

- Operation with heating oil EL, natural gas
  λ = 1.22 with max. burner output
  (CO_2 heating oil EL = 12.5 %, CO_2 natural gas = 9.8 %)

- A reduction of the boiler water temperature of 10 K causes a reduction of the flue gas temperature of approx. 6-8 K.
- A modification of the CO_2 concentration of + 1 % causes a modification of the flue gas temperature of approx. − 8 K.
- A modification of the CO_2 concentration of − 1 % causes a modification of the flue gas temperature of approx. + 8 K.

Flue gas resistor

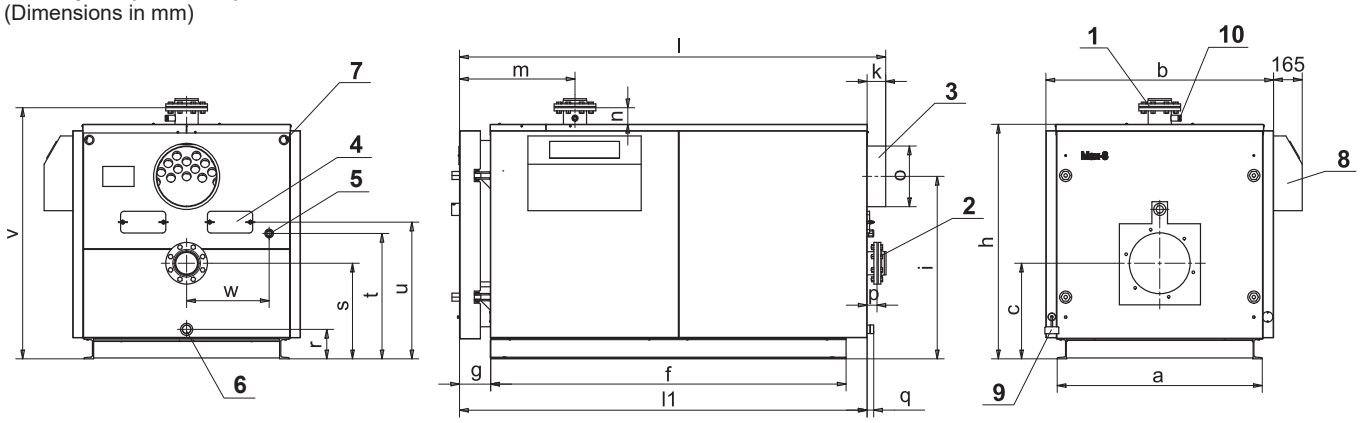


kW = boiler output

mbar = flue gas resistance λ = 1.11 (natural gas: CO_2 = 10.8 %) 500 above sea level (tolerance: ± 20 %)

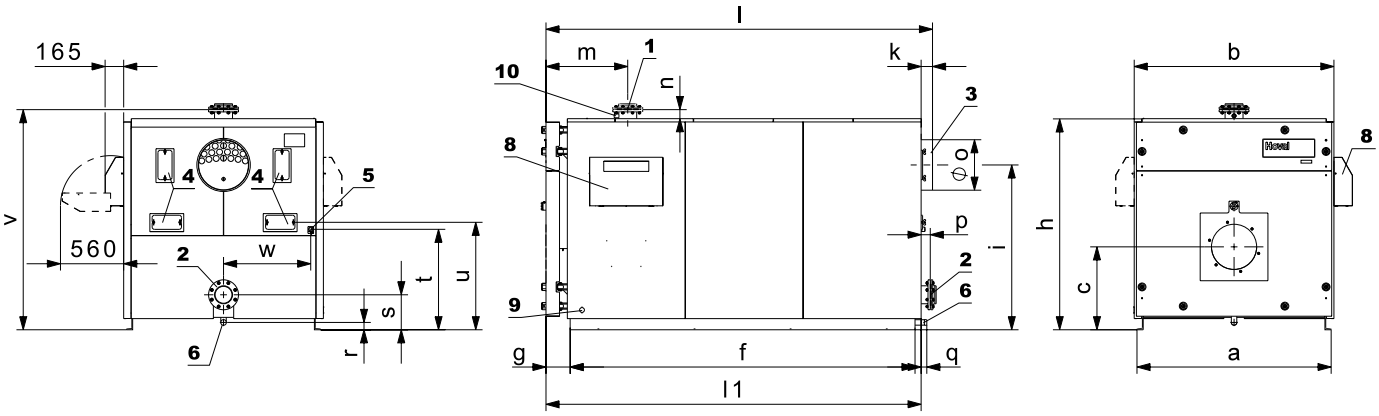
Max-3 plus (420-1250)

(Dimensions in mm)



Max-3 plus (1500-2700)

(Dimensions in mm)



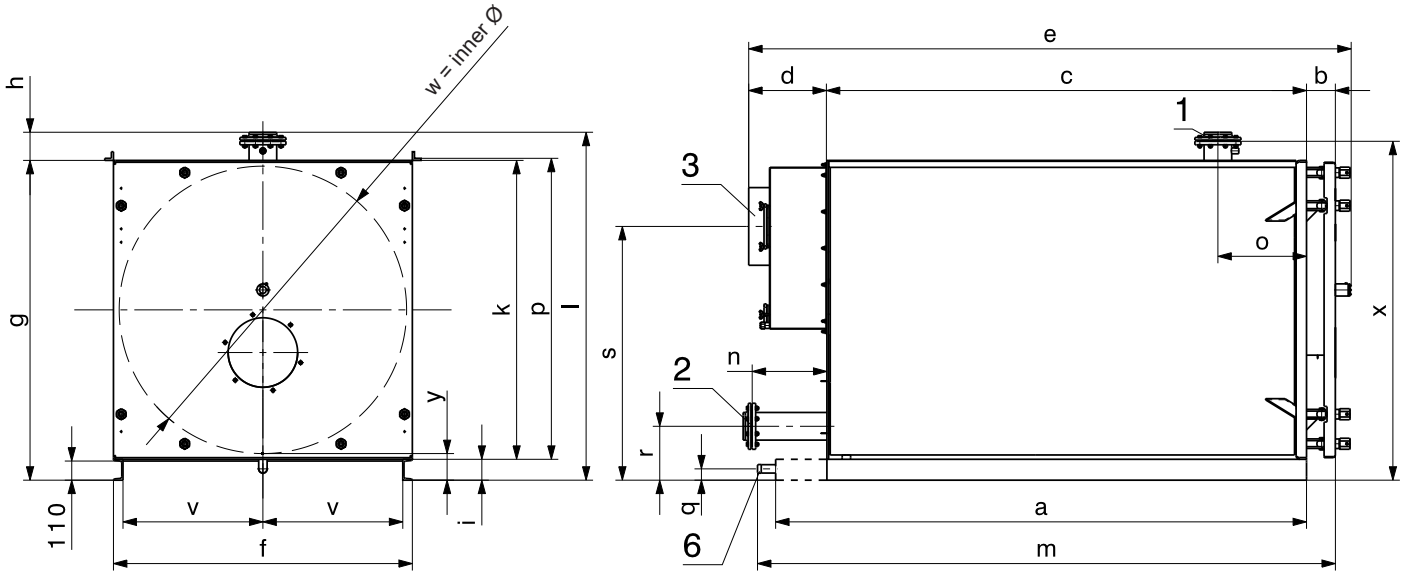
1	Flow	(420,530)	DN 100, PN 6	2	Return	(420,530)	DN 100, PN 6
		(620,750)	DN 125, PN 6			(620,750)	DN 125, PN 6
		(1000,1250)	DN 150, PN 6			(1000,1250)	DN 150, PN 6
		(1500-2200)	DN 150, PN 6			(1500-2200)	DN 150, PN 6
		(2700)	DN 200, PN 6			(2700)	DN 200, PN 6
3	Flue gas outlet						
4	Cleaning opening						
5	Flue gas collector cleaning opening R 1″						
6	Drain R 1½″						
7	Cable routing						
8	Control panel						
9	Electrical connection						
10	Bushing Rp ¾″ with immersion sleeve for boiler temperature sensor						

Max-3 plus type	a	b	c	f	g	h	i	k	l	l1	m	n	Ø o	p	q	r
(420,530)	1060	1190	515	1770	181	1230	950	104	2178	2074	641	100	299	54	34	175
(620,750)	1180	1310	550	2045	181	1350	1050	105	2452	2347	666	95	349	55	35	170
(1000,1250)	1370	1500	635	2330	181	1550	1250	107	2739	2632	681	111	349	77	37	175
(1500)	1560	1610	665	2685	212	1710	1350	103	3040	2940	722	80	447	83	34	65
(1800)	1720	1770	735	3055	214	1870	1460	103	3424	3320	724	80	447	83	52	65
(2200)	1720	1770	735	3355	214	1870	1460	101	3724	3625	724	80	447	81	50	65
(2700)	1750	1800	755	3700	212	1900	1410	82	4032	3950	722	80	647	82	51	65

Max-3 plus type	s	t	u	v	w	x
(420,530)	350	595	660	1330	450	-
(620,750)	550	722	786	1445	475	-
(1000,1250)	415	620	685	1660	590	-
(1500)	310	777	842	1790	695	1850
(1800)	310	890	952	1950	773	2040
(2200)	310	890	952	1950	773	2340
(2700)	370	917	982	1980	790	2670

Dimensions without insulation and casing

Boiler incl. hinged flange, connector and flue gas collector.
(Dimensions in mm)



1 Flow
2 Return
3 Flue gas outlet
6 Drain

Max-3 plus type	a [1]	b	c	d	e	f	g	h	i	k	l	m	n	o	p
(420,530)	1920	150	1770	277	2222	1060	1180	196	120	1060	1376	2077	175	460	1072
(620,750)	2195	150	2045	228	2498	1180	1300	196	120	1180	1496	2353	172	485	1192
(1000,1250)	2480	150	2330	228	2783	1370	1500	187	120	1380	1660	2638	198	500	1392
(1500)	2685	164	2568	260	3078	1560	1680	162	120	1560	1842	2923	240	510	-
(1800)	3055	166	2760	450	3467	1720	1840	162	120	1720	2002	3325	430	510	-
(2200)	3355	166	3060	450	3767	1720	1840	162	120	1720	2002	3625	430	510	-
(2700)	3700	164	3390	430	4075	1750	1870	169	120	1750	2039	3953	430	510	-

Max-3 plus type	q	r	s	v	w	x	y
(420,530)	175	350	950	475	990	-	-
(620,750)	170	550	1050	535	1110	-	-
(1000,1250)	175	415	1250	630	1298	-	-
(1500)	65	310	1350	725	1494	1790	153
(1800)	65	310	1460	805	1654	1950	153
(2200)	65	310	1460	805	1654	1950	153
(2700)	65	370	1410	820	1684	1980	153

[1] Max-3 plus (1500-2700) socket protrudes

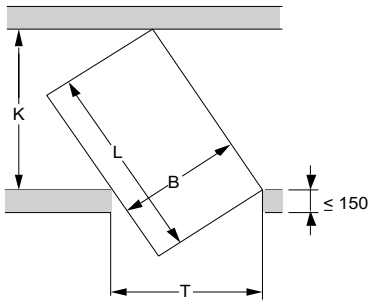
Required min. width of door and corridor to bring in the boiler

The stated measurements are minimal dimensions

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

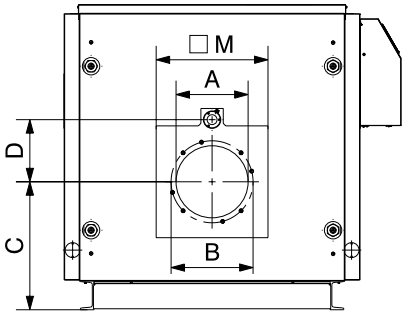
$$T = \frac{B}{K} \times L$$

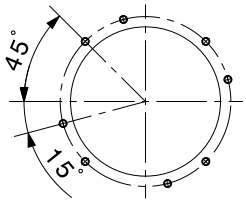
T Door width
K Corridor width
B Boiler width
L Max. boiler length



Furnace dimensions

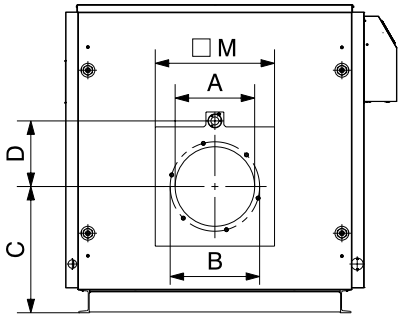
Max-3 plus (420,530)

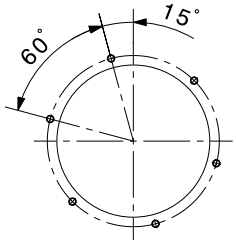




Screw joint flange
Max-3 plus (420,530)
4 x M12 (45°)
4 x M12 (15°)

Max-3 plus (620-1250)

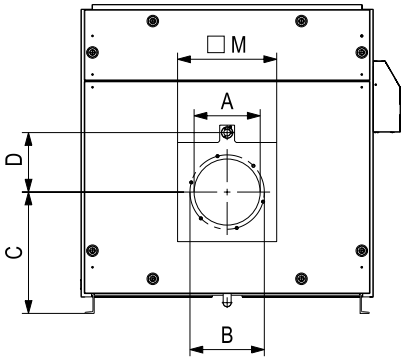


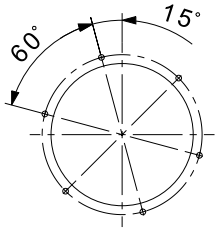


Screw joint flange
Max-3 plus (620,750)
6 x M12 (15°)

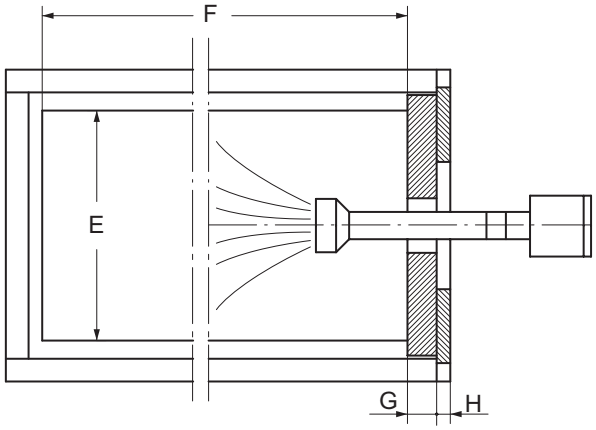
Screw joint flange
Max-3 plus (1000,1250)
6 x M16 (15°)

Max-3 plus (1500-2700)



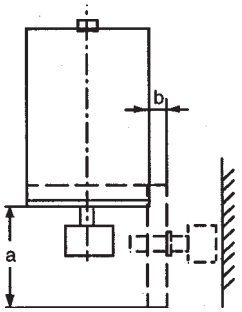


Screw joint flange
Max-3 plus (1500-2700)
6 x M16 (15°)



Swinging out of boiler door

Boiler door is swivelling to the right or left
(Dimensions in mm)



Dimensions
(Dimensions in mm)

Max-3 plus type	A	B	C	D	E	F	G	H	M
(420,530)	290	330	515	250	606	1624	163	30	450
(620,750)	350	400	550	310	684	1899	163	30	600
(1000,1250)	400	450	635	330	782	2182	163	30	600
(1500)	400	450	665	360	880	2417	170	30	600
(1800)	400	450	735	360	976	2605	170	30	600
(2200)	400	450	735	360	976	2905	170	30	600
(2700)	400	450	755	360	976	3233	170	30	600

Max-3 plus type	a	b
(420,530)	1060	150
(620,750)	1180	150
(1000,1250)	1370	150
(1500)	1520	175
(1800,2200)	1680	175
(2700)	1700	175

Standards and guidelines

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

The following requirements and directives must be complied with:

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

Water quality in heating systems

Filling and replacement water, heating water

The following applies:

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

Manufacturer-specific specifications

Filling and replacement water

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

Heating water

- In the case of full **demineralisation of the filling and replacement water**, the electrical conductivity of the heating water must not exceed the value of 100 µS/cm.
- In the case of **softening the filling and replacement water**, the following conditions must be complied with:
  The quality of the heating water must be checked and documented periodically:
  - For an installed heat output above 100 kW up to and including 1000 kW, an annual check of the heating water is required.
  - For an installed heat output above 1000 kW, an check of the heating water is required twice a year.

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

Additional notices

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

Frost protection agent

The planning sheet “Use of frost protection agent” is available from your Hoval contact person.

Combustion air supply

The combustion air supply must be warranted. The air opening must not be lockable.It is very important to ensure that the combustion air is free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

Room air dependent operation:

- Minimum free cross-section for the air opening can be assumed as follows by way of simplification. Nominal heat output is the determining factor!
- A minimum free cross-section of once 150 cm² or twice 75 cm² and an additional 2 cm² for each kW boiler capacity in excess of 50 kW is required for the air opening into the outside air.

Burner installation

- If the weight of the burner (including attachments) of gas and dual-fuel burners is more than 90 kg and the distance of the centre of gravity of the burner to the boiler door is greater than 60 cm, support the burner casing weight directly with a strut to the boiler room floor.
- Depending on the size of the burner flange, an intermediate flange may be required to attach the burner. The intermediate flange including screws and seal must be supplied by the burner company.
- The lines must be positioned so that the boiler door can still be fully opened.
- To allow the boiler door to be swung out 90° to the left or right, the connections must be flexible and routed to the burner in a sufficiently large loop
- In systems with ThermoCondensor, the burner must additionally absorb the resistance of the heat exchanger

The space between the burner pipe and the hinged flange is to be insulated. A line must be routed from the burner to the sight glass to carry cooling air, in order to cool the boiler sight glass and keep it clean (delivery by the burner company).

Electric connection of the burner

- Control voltage 1 x 230 V
- Burner motor 1 x 230 V / 3 x 400 V
- The burner must be connected to the burner connection plug of the boiler.
- For safety reasons the electrical cable of the burner must be that short that the plug must be removed when swivelling boiler door.

Sound absorbing

Sound absorption is possible through the following steps:

- Heating room walls, ceiling and floor should be very solidly built, a sound insulation should be mounted into the air inlet. Pipe holders and support should be protected by means of anti-vibration sleeves.
- Install sound attenuation cowl for burner.
- If living rooms are located above or under the boiler room, vibration absorbers have to be mounted to the boiler base. Pipes and flue gas tube must be connected flexibly with compensators.
- Connect circulating pumps to the piping network using expansion joints.
- For damping of flame noise it is possible to install a silencer into the flue gas tube (space should be foreseen for later installation).

Measures for sound reduction

Make sure right from the planning phase that bedrooms are not situated in the immediate vicinity of the sound source (heating room, chimney).

A reduction of the radiated burner air sound level in the heating room (reduction of the burner noises) of up to approx. 12 dB can be achieved encapsulating the burner (sound attenuation cowl).

A significant part of the noise development in the combustion chamber and in the secondary heating surfaces is radiated as airborne noise via the flue gas line.
In addition, depending on dimensioning of the chimney and intersection, resonance effects caused by the vibration of the combustion noises (amplification) can occur.
These noises can be reduced on the one hand by measures on the burner side, such as modification of the flame geometry, the atomisation characteristic or the fuel throughput.
On the other hand, flue gas silencers achieve an important noise reduction.
These silencers must usually be adapted to low frequencies of 60-250 Hz.
Flue gas silencers work based on the principle of sound absorption.
The kinetic energy of the flue gases is consumed due to friction, which means a draughting requirement increase in the flue gas line is necessary. This must be taken into account when dimensioning the burner.

The connection piece from the boiler to the flue gas silencer must be gas-tight as the draught and pressure zero points lie behind the flue gas silencer.

The space required of approx. 1 m for retrofitting of a flue gas silencer should be provided during planning.
Note also that secondary air devices are installed only behind a flue gas silencer.

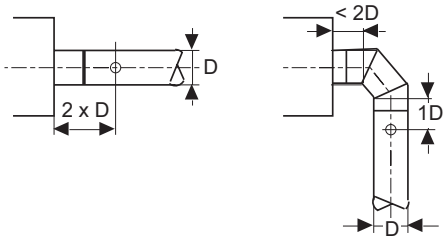
Installation instructions

Please observe the installation instructions supplied with every boiler.

Flue gas system

Flue gas line

- The flue gas tube between boiler and chimney must be connected with an angle 30-45° to the chimney.



- If the flue gas tube is longer than 1 m, it must be insulated.
- The flue gas tube must be designed that no condensate water can get into the boiler.
- A closeable flue gas measuring socket with an inner diameter of 10-21 mm must be foreseen. The socket has to be led over the thermal insulation.

Chimney

- The flue gas system must be humidity-insensitive and acid-proof and admitted for flue gas temperatures up to > 160 °C.
- For existing chimney installation the restoration must be carried out according to the instructions of the chimney constructor.
- Calculation of the profile of the chimney according to DIN 4705.
- It is recommendable to use a secondary air valve for chimney draft limiting.

Flue gas temperature and power ranges

In order to achieve a good combustion quality (optimum flame burnout), the outputs must not be less than the specified minimum values.
For new systems, acid-resistant chimneys must be provided or the flue gas temperature must be set correspondingly higher (min. 160 °C).
The minimum flue gas temperature must be coordinated with the chimney conditions, otherwise the formation of sulphuric acid can lead to soot buildup in the chimney.

Diaphragm pressure expansion tank

- Ideally, the diaphragm pressure expansion tank should be connected to the heating system as described in our example applications, with a removable or sealable actuation device. This means that it is not necessary to drain the entire system in order to carry out work on the diaphragm pressure expansion tank.

Safety valve

- A safety valve and an automatic air vent must be installed in the safety flow.

Hoval quality.
You can count on us.

Hoval

Hoval is one of the leading international companies for heating and indoor climate solutions. Drawing on more than 80 years of experience and benefiting from a close-knit team culture, the Hoval Group delivers exciting solutions and develops technically superior products. This leadership role requires a sense of responsibility for energy and the environment, which is expressed in an intelligent combination of different heating technologies and customised indoor climate solutions.

Hoval also provides personal consultations and comprehensive customer service. With around 2500 employees in 15 companies around the world, Hoval sees itself not as a conglomerate, but as a large family that thinks and acts globally.
Hoval heating and indoor climate solutions are currently exported to more than 50 countries.

Responsibility for energy and environment

Liechtenstein
Hoval Aktiengesellschaft
9490 Vaduz
+423 399 24 00
hoval.com

United Kingdom
Hoval Ltd.
Newark Notts. NG 24 1JN
+44 1636 672 711
hoval.co.uk

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