

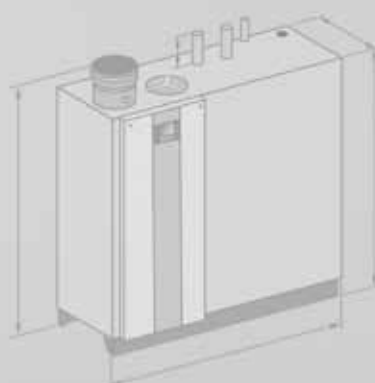
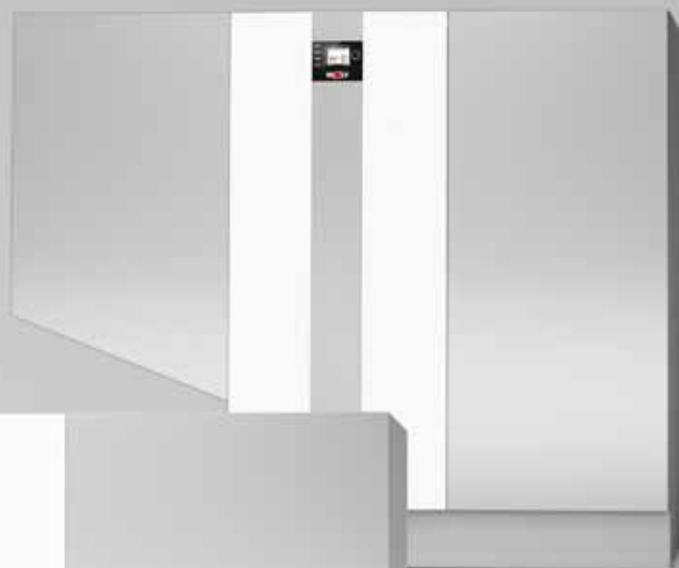


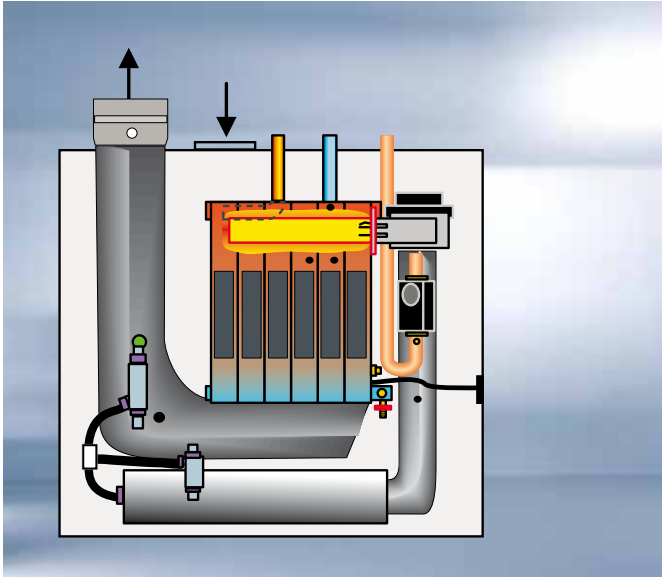
Technical documentation

# MGK-2 gas condensing boiler

MGK-2 - 130, 170, 210, 250, 300

MGK-2 - 390, 470, 550, 630





Gas condensing boiler for condensing operation and DHW heating  
 Tested to DIN EN 13836 / DIN EN 15420 / DIN EN 15417 and current EC directives.  
 Approved for: natural gas E/H, LL  
 For heating systems to DIN EN 12828

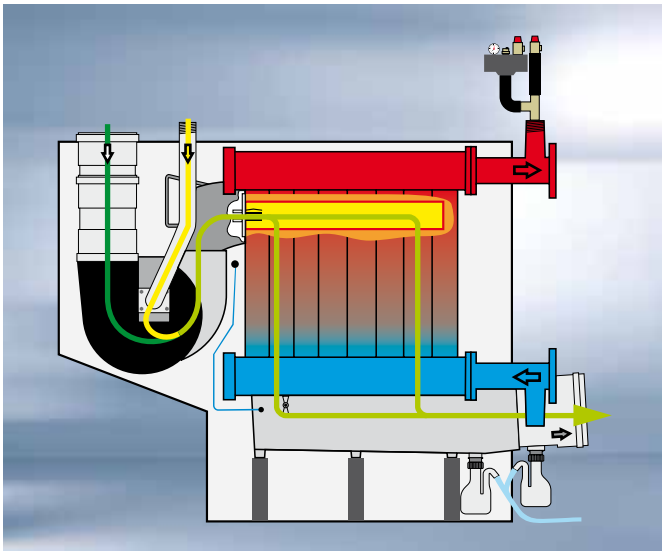
*5 Jahre Systemgarantie*

## MGK-2-130-300 gas condensing boiler

five types of boilers in two sizes with modulating regulated output ranging from 23 kW to 294 kW for open flue or balanced flue operation.



- with modulating output 17–100 %,
- Highly compact dimensions, minimum appliance width for handling through 80 cm doorways
- May be combined with BM-2 programming module of AM display module
- Spread via external heating circuit pump integrated in the control unit. The spread control optimises the utilisation of the boiler's condensing effect and minimises the power consumption of the boiler circuit pump
- Slot at the back for pallet or forklift truck forks to facilitate handling
- Service exclusively from front and right. Boiler may thus be put directly to the wall with rear and left side.
- Heat exchanger made from proven aluminium:silicon alloy; fully insulated
- Cascade control of up to four gas condensing boilers provides an output range of up to 2.5 MW
- No return temperature raising facility or minimum water circulation required
- Easy, quick installation thanks to pre-fitted thermal insulation and casing; ready for hydraulic and electrical connection
- Very clean combustion, high standard seasonal efficiency [to DIN] up to 110 % ( $H_1$ [gross cv]) / 99 % ( $H_2$ [net cv]) for the best possible energy utilisation
- Neutralizer kit with booster and condensate rising facility may be integrated within the casing
- communication via smartphone, laptop or PC possible through LAN/WLANmodule ISM7i
- 0–10V input for building management systems,
- fault signal output 230V
- sensor for header may be connected



Gas condensing boiler for condensing operation and DHW heating  
 Tested to DIN EN 13836 / DIN EN 15420 / DIN EN 15417 and current EC directives.  
 Approved for: natural gas E/H, LL  
 For heating systems to DIN EN 12828

*5-year system warranty*

## MGK-2-390-630 gas condensing boiler

four boiler sizes with modulating regulated output ranging from 64 kW to 626 kW for open flue or balanced flue operation..



- with modulating output 17–100 %,
- Highly compact dimensions, minimum appliance width for handling through 80 cm doorways
- May be combined with BM-2 programming module of AM display module
- Spread via external heating circuit pump integrated in the control unit. The spread control optimises the utilisation of the boiler's condensing effect and minimises the power consumption of the boiler circuit pump
- Slot at the back for pallet or forklift truck forks to facilitate handling
- Handling made easy, even in the tightest of spaces, as the appliance can be split into heat exchanger and gas:air system
- Direct access for adjustments and maintenance thanks to removable cover
- Heat exchanger made from proven aluminium:silicon alloy; fully insulated
- Cascade control of up to four gas condensing boilers provides an output range of up to 2.5 MW
- No return temperature raising facility or minimum water circulation required
- Easy, quick installation thanks to pre-fitted thermal insulation and casing; ready for hydraulic and electrical connection
- Very clean combustion, high standard seasonal efficiency [to DIN] up to 110 % ( $H_1$ [gross cv]) / 99 % ( $H_3$ [net cv]) for the best possible energy utilisation
- Neutralizer kit with booster and condensate rising facility may be integrated within the casing
- communication via smartphone, laptop or PC possible through LAN/WLANmodule ISM7i
- 0–10V input for building management systems,
- fault signal output 230V
- sensor for header may be connected

# Specification MGK-2-130-300

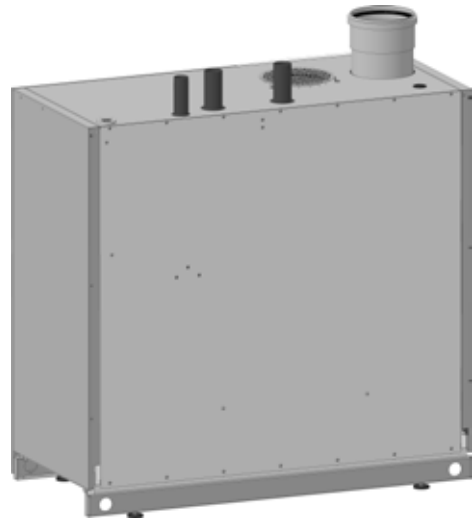
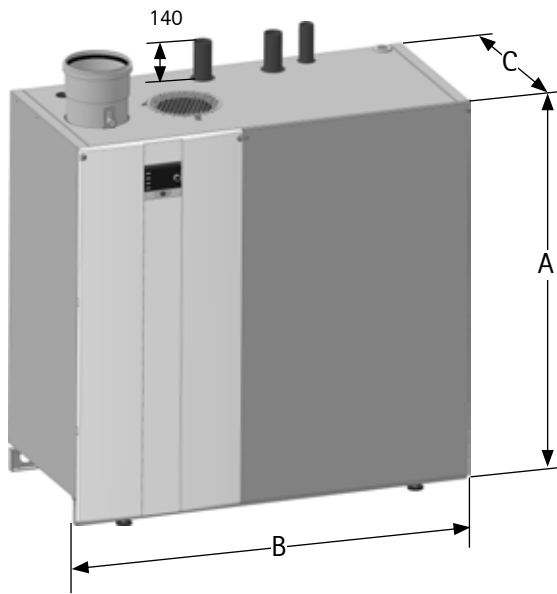
Typ	MGK-2	130	170	210	250	300	
Rated heating output at 80/60 °C	kW	118	157	196	233	275	
Rated heating output at 50/30 °C	kW	126	167	208	250	294	
Rated heat input	kW	120	160	200	240	280	
Low heating output (modul.) at 80/60 °C	kW	23	27	34	39	45	
Low heating output (modul.) at 50/30 °C	kW	24	30	37	44	49	
Low heat input (modulating)	kW	23	28	35	41	46	
Heat input modulation range	%	19-100	17-100	17-100	17-100	17-100	
Efficiency	η 80/60 at Qmax	%	98,1	98,0	98,1	97,2	98,0
	η 50/30 at Qmax	%	104,1	104,2	104,3	103,9	105,2
	η TR30 at 30 %	%	107,8	106,5	106,2	105,5	106,8
Overall height	A mm	1300	1300	1300	1300	1300	
Overall width	B mm	995	1355	1355	1355	1355	
Total depth / depth excl. casing	C mm	640	640	640	640	640	
Flue diameter	mm	160	160	160	160	200	
Combustion air supply <sup>4)</sup>	mm	160	160	160	160	160	
Heating flow	G	1 1/2"	2"	2"	2"	2"	
Heating return	G	1 1/2"	2"	2"	2"	2"	
Gas connection	R	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	
Air/flue gas routing	Type	B23, B33 C33, C43 C53, C63 C83	B23, B33 C33, C43 C53, C63 C83	B23, B33 C33, C43 C53, C63 C83	B23, B33 C33, C43 C53, C63 C83	B23, B33 C33, C43 C53, C63 C83	
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	
	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>	
	Switzerland	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	
Gas supply details:							
Natural gas E/H (H <sub>i</sub> [net cv] = 9.5 kWh/m <sup>3</sup> = 34.2 MJ/m <sup>3</sup> )	m <sup>3</sup> /h	13,1	16,8	21	25,2	29,4	
Natural gas LL (H <sub>i</sub> [net cv] = 8.6 kWh/m <sup>3</sup> = 31.0 MJ/m <sup>3</sup> ) <sup>1)</sup>	m <sup>3</sup> /h	14,6	18,6	23,3	27,9	32,6	
Flüssiggas P (H <sub>i</sub> = 12,8 kWh/kg = 46,1 MJ/kg) <sup>2)</sup>	kg/h	9,7	12,5	15,6	18,7	21,8	
Gas supply pressure: Natural gas E/LL	mbar	20	20	20	20	20	
Gas supply pressure: Flüssiggas P	mbar	50	50	50	50	50	
Water content, heating water heat exchanger	l	12	15,4	16	20	22	
Max. permissible boiler pressure	bar	6	6	6	6	6	
Max. permissible flow temperature	°C	90	90	90	90	90	
Available gas fan draught	Pa	10-200	10-150	10-150	10-150	10-150	
Flue gas temperature 80/60-50/30 at Qmax	°C	65-45	65-45	65-45	65-45	65-45	
Flue gas temperature 80/60-50/30 at Qmin	°C	55-35	55-35	55-35	55-35	55-35	
Flue gas mass flow rate	g/s	56,7	72,6	90,8	108,9	127,1	
Flue gas category to DVGW G 635		G52	G52	G52	G52	G52	
Heating water pressure drop	mbar	95	100	115	135	160	
Power supply	V~ / Hz	1~ NPE / 230VAC / 50Hz					
Fitted fuse (medium slow)	A	4	4	4	4	4	
Power consumption in standby	W	5,0	5,0	5,0	5,0	5,0	
Power consumption (partial load / full load)	W	30 / 240	42 / 258	42 / 291	43 / 326	48 / 350	
IP rating		IP20	IP20	IP20	IP20	IP20	
Sound pressure level at carga completa <sup>3)</sup>	dB(A)	<54	<54	<54	<54	<54	
Total weight (dry)	kg	195	250	271	292	313	
Condensate volume at 40/30 °C	Ltr/h	12	16	20	24	28	
Condensate pH value		ca. 4,0	ca. 4,0	ca. 4,0	ca. 4,0	ca. 4,0	
CE ID		0085CN0326	0085CN0326	0085CN0326	0085CN0326	0085CN0326	

<sup>1)</sup> Not applicable to Austria / Switzerland

<sup>2)</sup> Not applicable to Switzerland

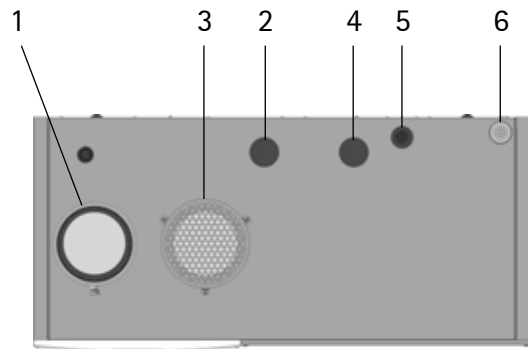
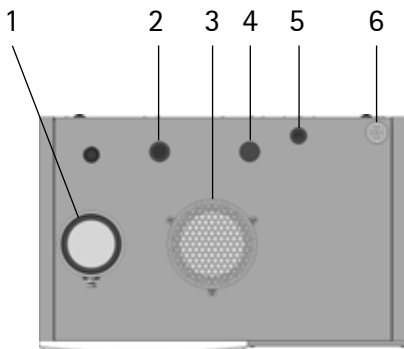
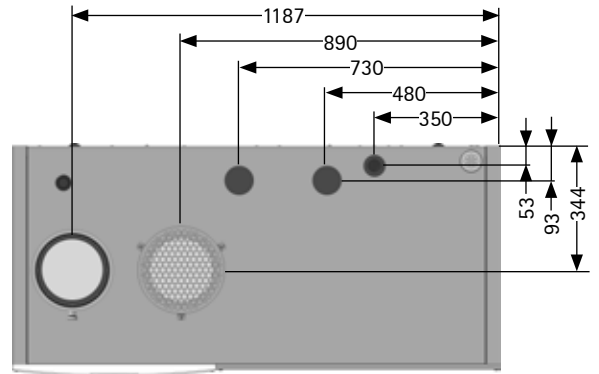
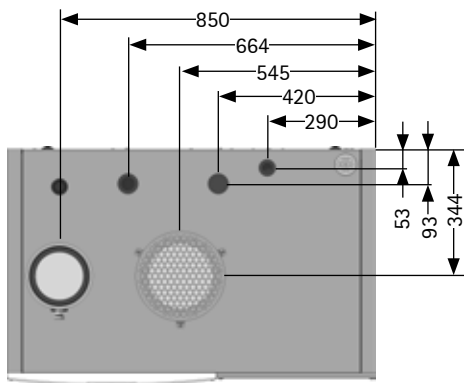
<sup>3)</sup> This value depends on general system conditions, such as: Type/version of flue system, size and nature of installation room

# Specification MGK-2-130-300



Connections: MGK-2-130

MGK-2-170/210/250/300



- 1 Flue gas connection
- 2 Heating flow
- 3 Combustion air supply
- 4 Heating return
- 5 Gas connection
- 6 Cable passage

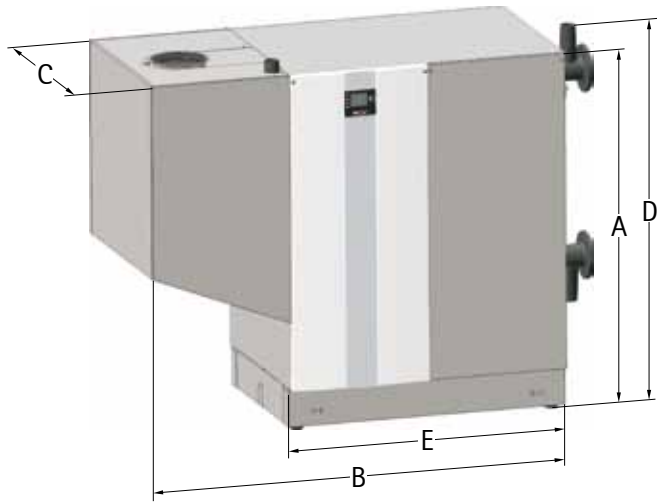
# Specification MGK-2-390-630

Type	MGK-2	390	470	550	630	
Rated heating output at 80/60 °C	kW	366.7	434.7	511.6	584.4	
Rated heating output at 50/30 °C	kW	392.0	467.1	549.3	626.6	
Rated heat input	kW	371.2	443.6	521.0	593.9	
Low heating output (modul.) at 80/60 °C	kW	58.5	70.7	84.5	96.7	
Low heating output (modul.) at 50/30 °C	kW	64.2	78.7	94.0	106.8	
Low heat input (modulating)	kW	59.5	73.2	86.8	98.5	
Heat input modulation range	%	17-100	17-100	17-100	17-100	
Efficiency	η 80/60 at Q <sub>max</sub>	%	98.8	98.0	98.2	98.4
	η 50/30 at Q <sub>max</sub>	%	105.6	105.3	105.4	105.5
	η TR30 at 30 %	%	107.8	108.9	108.6	107.6
standardised efficiency factor	bei 40 / 30°C	%	109,9	110,1	110,3	110,4
	bei 75 / 60°C	%	106,4	106,4	106,3	106,3
Overall height	D/A mm	1460/1420	1460/1420	1460/1420	1460/1420	
Overall width	B mm	1860	1860	1860	1860	
	E mm	(1295 geteilt)	(1295 geteilt)	(1295 geteilt)	(1295 geteilt)	
Total depth / depth excl. casing	C mm	850 / 790	850 / 790	850 / 790	850 / 790	
Flue diameter	mm	250	250	250	250	
Combustion air supply	mm	200	200	200	200	
Heating flow	DN	80 PN6	80 PN6	80 PN6	80 PN6	
Heating return	DN	80 PN6	80 PN6	80 PN6	80 PN6	
Gas connection	R	2"	2"	2"	2"	
Air/flue gas routing	Type	B23, B23P, C33, C43, C53, C63, C83, C93	B23, B23P, C33, C43, C53, C63, C83, C93	B23, B23P, C33, C43, C53, C63, C83, C93	B23, B23P, C33, C43, C53, C63, C83, C93	
Gas category	Germany	I <sub>2ELL</sub>	I <sub>2ELL</sub>	I <sub>2ELL</sub>	I <sub>2ELL</sub>	
	Austria / Switzerland	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	
Gas supply details:						
Natural gas E/H (H <sub>i</sub> [net cv] = 9.5 kWh/m <sup>3</sup> = 34.2 MJ/m <sup>3</sup> )	m <sup>3</sup> /h	39.1	46.7	54.8	62.5	
Natural gas LL (H <sub>i</sub> [net cv] = 8.6 kWh/m <sup>3</sup> = 31.0 MJ/m <sup>3</sup> ) <sup>1)</sup>	m <sup>3</sup> /h	43.2	51.6	60.6	69.1	
Gas supply pressure: Natural gas E/H/LL	mbar	20	20	20	20	
Water content, heating water heat exchanger	l	50	56	62	68	
Max. permissible boiler pressure	bar	6	6	6	6	
Max. permissible flow temperature	°C	85	85	85	85	
Available gas fan draught	Pa	150	150	150	150	
Stand-by losses overtemperature 30/50 K	%	0,11 / 0,18	0,10 / 0,17	0,09 / 0,15	0,09 / 0,14	
Flue gas temperature 80/60-50/30 at Q <sub>max</sub>	°C	65-35	65-35	65-35	65-35	
Flue gas temperature 80/60-50/30 at Q <sub>min</sub>	°C	60-30	60-30	60-30	60-30	
Flue gas mass flow rate	g/s	156.3	185.2	225.3	247.4	
Flue gas category to DVGW G 635		G 52	G 52	G 52	G 52	
Heating water pressure drop	mbar	120	113	126	118	
Power supply protection	V~/Hz	1~ NPE / 230 V AC / 50 Hz Alternative: 3~ PE / 400 V AC / 50 Hz				
Heating circuit pump output / ZHP protection	V~/Hz	1~ NPE / 230 V AC / 50 Hz / 4 A Alternative: 3~ PE / 400 V AC / 50 Hz / 4 A				
Power consumption (partial load / full load)	W	42 - 410	45 - 490	48 - 580	50 - 660	
Power consumption in standby	W	11	11	11	11	
IP rating		IP20	IP20	IP20	IP20	
Sound power level to DIN EN 150036 part 1, balanced flue	dB(A)	61	66	68	68	
Sound pressure level at 1 m distance from the MGK-2, balanced flue <sup>2)</sup>	dB(A)	44	49	50	50	
Sound power level to DIN EN 150036 part 1, open flue	dB(A)	78	82	84	84	
Sound pressure level at 1 m distance from the MGK-2, balanced flue <sup>2)</sup>	dB(A)	60	64	65	65	
Total weight (dry)	kg	390	420	450	480	
Condensate volume at 40/30 °C	l/h	39	46	52	59	
Condensate pH value		approx. 4.0	approx. 4.0	approx. 4.0	approx. 4.0	
CE ID		0085CN0326	0085CN0326	0085CN0326	0085CN0326	

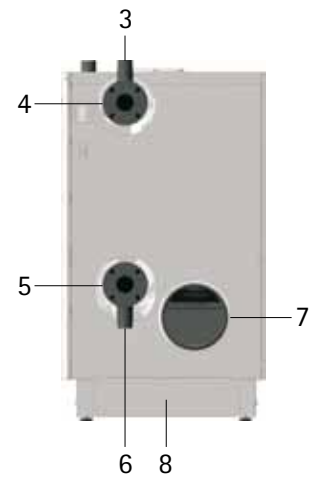
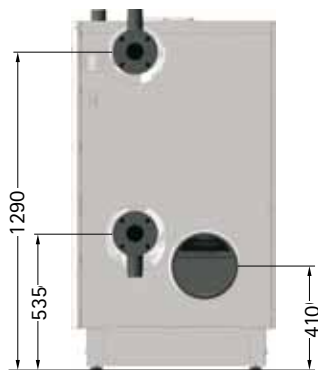
<sup>1)</sup> Not applicable to Austria / Switzerland

<sup>2)</sup> This value depends on general system conditions, such as: Type/version of flue system, size and nature of installation room

# Specification MGK-2-390-630



## Connections:

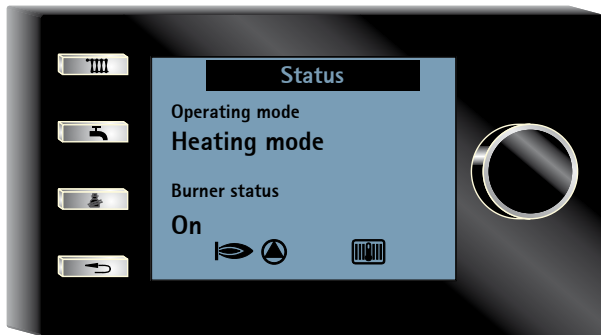


- 1 Combustion air supply
- 2 Gas connection
- 3 Safety assembly connection
- 4 Heating flow
- 5 Heating return
- 6 BDF valve connection
- 7 Flue gas connection
- 8 Condensate drain

# Standard control unit

The operation of the MGK-2 requires either an AM display module or a BM-2 programming module.

## AM



The AM acts exclusively as display module for the boiler. Parameter and values that are specific to the individual boiler can be programmed or displayed.

Specification:

- 3" LCD
- 4 quick start keys
- 1 rotary selector with key function

Please note:

- Required if the BM-2 is used as remote control or in a cascade
- AM always on the boiler

## BM2



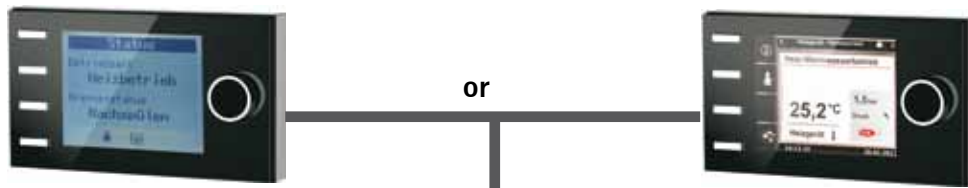
The BM-2 (programming module) communicates with all connected extension modules and with the boiler via the eBUS.

Specification:

- 3.5" colour display
- 4 function keys
- 1 rotary selector with key function
- SD card slot for software update
- Central programming unit with weather-compensated flow temperature
- Time programs for heating, DHW heating and DHW circulation



# Control accessories



## AM display module

- Boiler display module
- Only required if the BM-2 is used as remote control or in a cascade
- Operation by rotary selector with key function
- 4 quick start keys for frequently used functions
- Backlit LCD

## BM-2 programming module (incl. outside temperature sensor)

- Weather-compensated flow temperature
- Time programs for heating, DHW heating and DHW circulation
- 3.5" colour display
- Easy user prompts with plain text display
- Operation by rotary selector with key function
- 4 function keys for frequently used functions
- Installation either inside the boiler control unit, or as a remote control in a wall mounting base
- Only one programming module required for multi boiler systems
- Can be extended with MM mixer module (up to 7 heating circuits with mixer)



Either an AM display module or BM-2 programming module is required

2-wire eBUS connection



## BM-2 programming module

(if the BM-2 is fitted inside the boiler then up to 6 additional remote control units may be used)

- Weather-compensated flow temperature
- Time programs for heating, DHW heating and DHW circulation
- 3.5" colour display
- Easy user prompts with plain text display
- Operation by rotary selector with key function
- 4 function keys for frequently used functions
- Installation either inside the boiler control unit, or as a remote control in a wall mounting base
- Only one programming module required for multi boiler systems
- Can be extended with MM mixer module (up to 7 heating circuits with mixer)

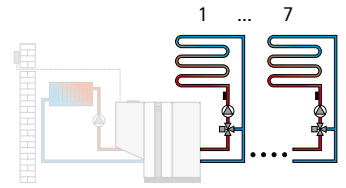
# Control accessories

2-wire eBUS connection



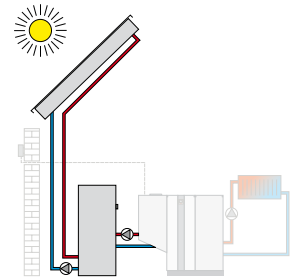
## MM mixer module

- Extension module for regulating one heating circuit with mixer
- Weather-compensated flow temperature control
- Easy controller configuration by selecting one of the preset system versions
- BM-2 programming module extended with a wall mounting base to act as a remote control
- Rast 5 connection technology
- Incl. flow temperature sensor



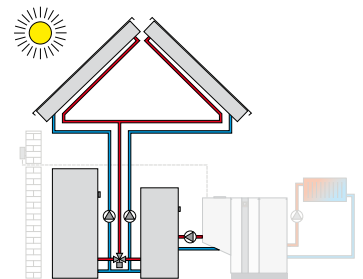
## SM1 solar module

- Extension module for regulating one solar circuit
- In conjunction with Wolf boilers, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar yield
- Temperature differential control for one heat consumer
- Maximum cylinder temperature limit
- Display of the set and actual values on the BM-2 programming module
- Integral hours run meter
- Optional connection of heat meters
- Rast 5 connection technology
- Incl. collector sensor and cylinder sensor, each with sensor well



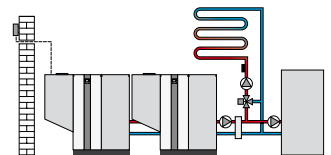
## SM2 solar module

- Extension module to control one solar thermal system with up to 2 cylinders and 2 collector arrays, incl. 1 collector sensor and 1 cylinder sensor, each with sensor well
- Easy controller configuration by selecting one of the preset system versions
- In conjunction with Wolf boilers, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar yield
- Capturing the amount of heat
- Display of the set and actual values on the BM-2 programming module
- eBUS interface with automatic energy management
- Rast 5 connection technology



## KM cascade module

- Extension module for controlling systems with a low loss header or in a cascade
- Can be used for conventional gas boiler control units (4 appliances)
- Easy controller configuration by selecting one of the preset system versions
- Control of one heating circuit with mixer
- BM-2 programming module can be extended to act as a remote control
- 0-10 V input for BMS; fault message output 230 V
- eBUS interface with automatic energy management
- Rast 5 connection technology



# Control accessories

2-wire eBUS connection



**Wireless clock (DCF77 signal) with outside temperature sensor** for automatic time setting.



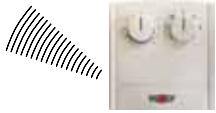
**Wireless clock (DCF77 signal)** for automatic time setting.



**Wireless outside temperature sensor** (only in conjunction with receiver for wireless outside temperature sensor and remote control, part no. 27 44 209)



**Wireless receiver for wireless outside temperature sensor and wireless remote control** incl. wireless clock (DCF77 signal)



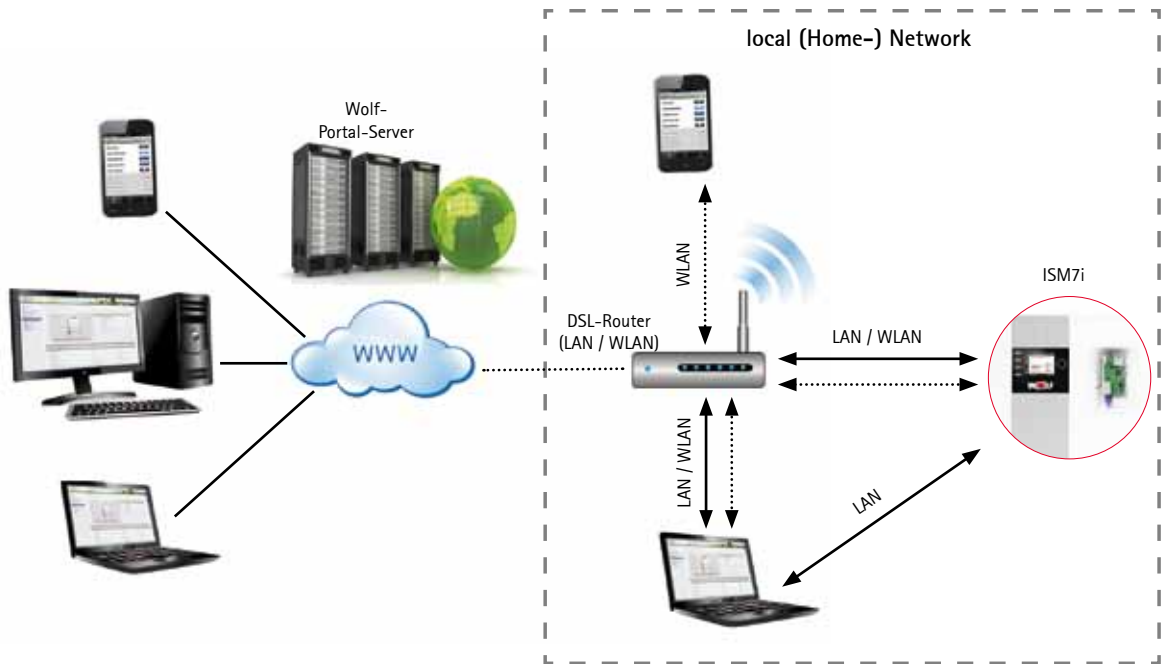
**Wireless remote control** (only in conjunction with a receiver for wireless outside temperature sensor and remote control) up to one wireless remote control per heating circuit with mixer.



LAN / WLAN interface

**ISM7i**

LAN / WLAN interface for access to the control unit via the internet or a local area network. Operation via iPhone app, Wolf-Portal or PC software. Comprising an ISM7i interface module and PC software for loading into the appliance control unit.





The comprehensive equipment range from system supplier Wolf offers the ideal solution for commercial and industrial buildings, for new build and for modernisation projects alike. The range of Wolf control units fulfils every need where heating convenience is concerned. The products are easy to operate, energy-efficient and reliable. Photovoltaic and solar heating systems can be quickly integrated into existing systems. All Wolf products can be easily and rapidly commissioned and maintained.

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The competence brand for energy saving systems

Art.Nr. 4800745



2015/02

Subject to technical modifications