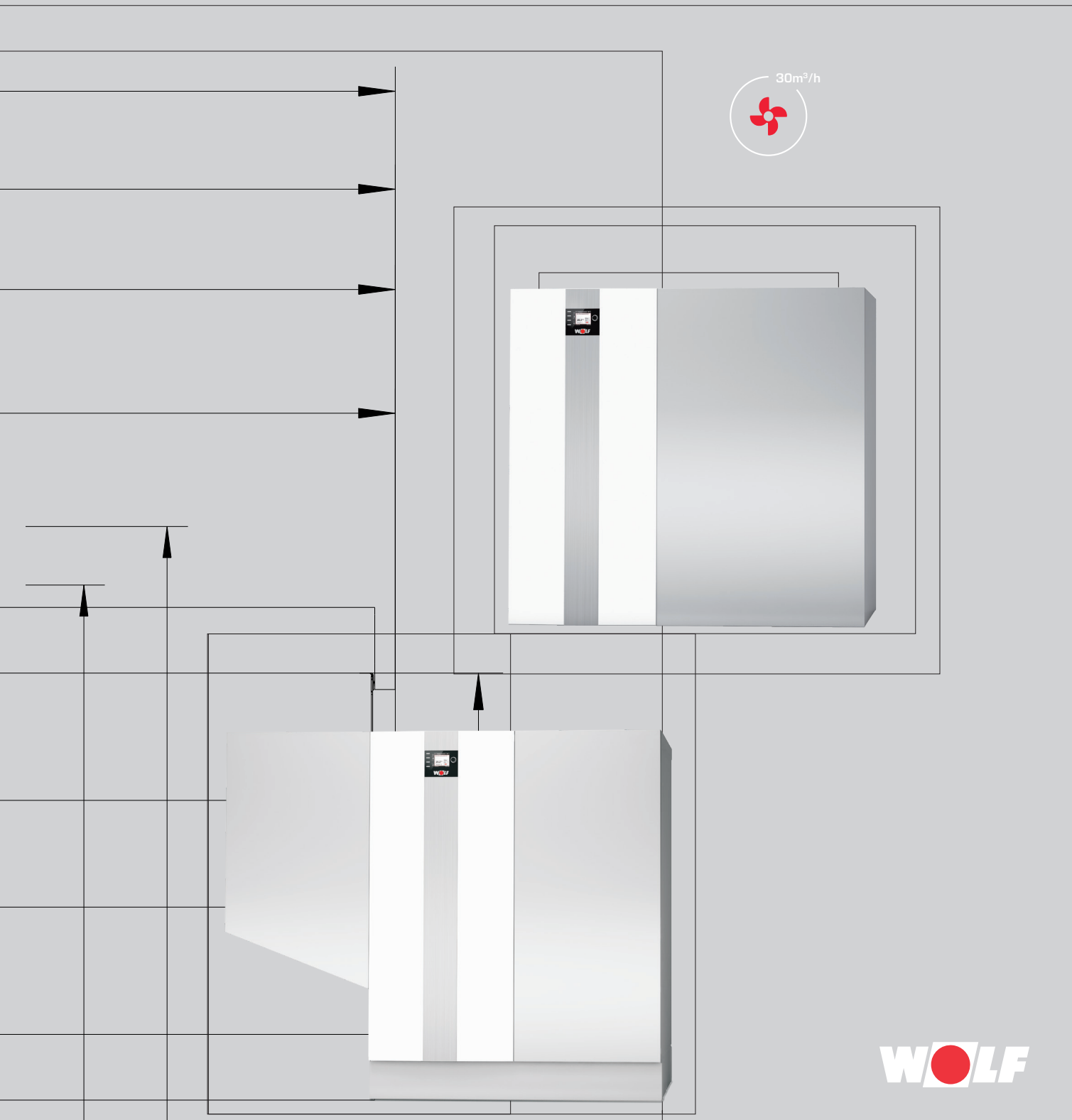
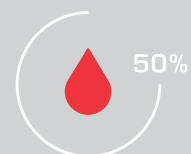
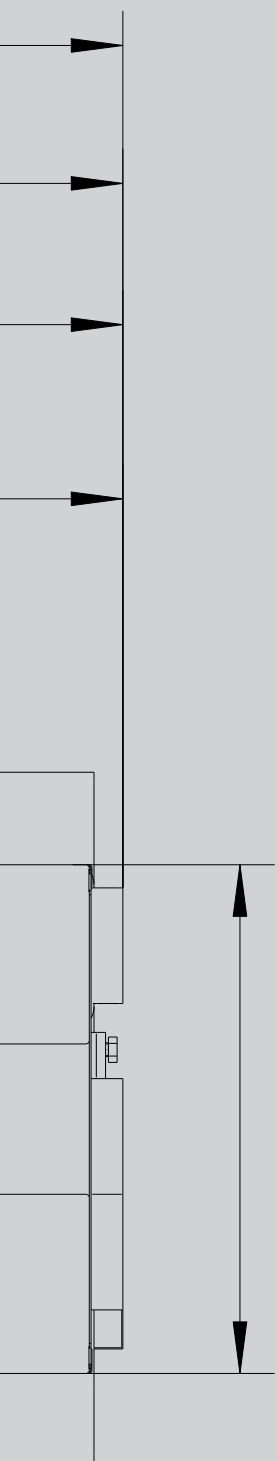


TECHNICAL DOCUMENTATION

# WOLF GAS CONDENSING BOILERS

MGK-2 - 130, 170, 210, 250, 300 / MGK-2 - 390, 470, 550, 630, 800, 1000





## THE EXTENSIVE EQUIPMENT RANGE

from system supplier WOLF offers the ideal solution for commercial and industrial buildings, new build and modernisation projects alike. The range of WOLF control units can meet any requirement for heating convenience. All equipment is easy to operate, highly energy efficient and reliable. Solar thermal systems can be swiftly integrated into existing systems.

WOLF equipment is easy and quick to install and maintain.

<b>GAS CONDENSING BOILERS</b>	<b>MGK-2-130-300</b>	04-05
	<b>MGK-2-390-1000</b>	06-07
<b>SPECIFICATION</b>	<b>MGK-2-130-300</b>	08
<b>DIMENSIONS + CONNECTION DIMENSIONS</b>	<b>MGK-2-130-300</b>	13
<b>SPECIFICATION</b>	<b>MGK-2-390-1000</b>	10
<b>DIMENSIONS + CONNECTION DIMENSIONS</b>	<b>MGK-2-390-1000</b>	11
<b>STANDARD CONTROL UNIT</b>		12
<b>CONTROL ACCESSORIES</b>		13-15

**Gas condensing boilers for condensing operation and DHW heating.  
Tested to EN 15502 and current EC directives.**

**Approved for: Natural gas E/H, LL and LPG propane  
For heating systems to EN 12828**

**Modulating output control  
from 17 to 100 %**

**Very compact dimensions**  
minimal appliance width for easy handling  
through 800 mm door

**Can be combined with BM-2 programming unit  
or AM display module**

**Integral spread control**  
for optimised utilisation of the boiler's  
condensing effect and minimal power  
consumption by the boiler circuit pump

**Easy handling**  
thanks to special slots for  
pallet truck or forklift

**Complete maintenance from the front and right**  
The boiler can therefore be positioned against  
the wall, both at the back and on the left.

**Heat exchanger made from  
proven aluminium-silicon alloy**

**Appliance fully thermally insulated**

**Cascades with up to 5  
gas condensing boilers**  
Output range up to 1.5 MW

**Integral back draught safety device**  
for cascade operation

**Communication**

via smartphone, laptop or PC using an WOLF Link Home LAN/WLAN module

0-10 V input for integration into BMS

230 V fault message output

Common sensor connection option for low loss header

# 18

## BENEFITS OF WOLF GAS CONDENSING BOILERS 130 - 300 KW

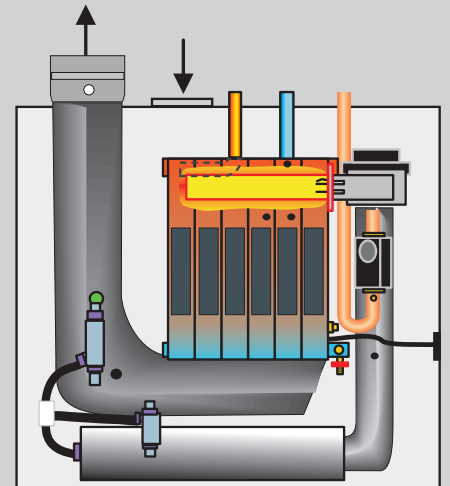
MGK-2- 130, 170, 210, 250, 300

Neutralising system set with booster and condensate removal pump can be integrated into the casing

Extremely clean combustion, high standard seasonal efficiency [to DIN] up to 110 % (net cv) / 99 % (gross cv) for the best possible energy efficiency

Quick, easy installation thanks to prefitted casing, hydraulically and electrically ready to connect

Return temperature raising facility or minimum water circulation volume are not required



**Gas condensing boiler for condensing operation and DHW heating**  
**MGK-2-390-630 tested to EN 13836 / EN 15420 / EN 15417,**  
**MGK-2-800/1000 tested to EN 15502 and current EC directives.**  
**Approved for: Natural gas E/H, LL**  
**For heating systems to EN 12828**

**Modulating output control**  
from 17 to 100 %

**Very compact dimensions**  
minimal appliance width for easy handling through  
800 mm door for MGK-2-390-630 and  
1000 mm door for MGK-800/1000

**Can be combined with BM-2 programming unit  
or AM display module**

**Integral spread control**  
for optimised utilisation of the boiler's  
condensing effect and minimal power  
consumption by the boiler circuit pump

**Easy handling**  
thanks to special slots for  
pallet truck or forklift

**Gas condensing boiler can be split**  
Heat exchanger and gas/air connection can be split for  
easy handling in tight spaces

**Removable cover**  
Enables direct access for adjustments and maintenance

**Heat exchanger made from  
proven aluminium-silicon alloy**  
with full thermal insulation

**Cascades with up to 5  
gas condensing boilers**  
Output range up to 5 MW

**Integrated back draught safety device**  
for cascade operation  
from March 2017

### Communication

via smartphone, laptop or PC using an WOLF Link Home LAN/WLAN module

0-10 V input for integration into BMS

230 V fault message output

Common sensor connection option for low loss header

# 18

## BENEFITS OF WOLF GAS CONDENSING BOILERS 390 - 1000 KW

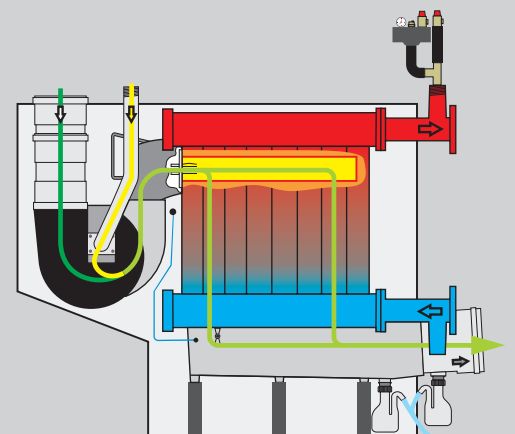
MGK-2- 390, 470, 550, 630, 800, 1000

Neutralising system set with booster and condensate removal pump can be integrated into the casing

Extremely clean combustion,  
high standard seasonal efficiency [to DIN]  
up to 110 % (net cv) / 99 % (gross cv)  
for the best possible energy efficiency

Quick, easy installation thanks to prefitted casing,  
hydraulically and electrically ready to connect

Return temperature raising facility or  
minimum water circulation volume  
are not required



SPECIFICATION		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
Lowest heating output (modulating) at 80/60 °C	kW		23	27	34	39	45
Lowest heating output (modulating) at 50/30 °C	kW		24	30	37	44	49
Lowest heat input (modulating)	kW		23	28	35	41	46
Heat input modulation range	%		19-100	17-100	17-100	17-100	17-100
Efficiency 80/60 at Q <sub>max</sub>	%		98.1	98.0	98.1	98.0	98.0
50/30 at Q <sub>max</sub>	%		104.1	104.2	104.3	103.9	105.2
TR30 at 30 %	%		107.8	106.9	106.7	106.6	106.8
Height	mm		1300				
Width	mm		995				1355
Depth	mm		640				
Flue diameter	mm		160			200	
Combustion air supply <sup>4)</sup>	mm		160				
Heating flow outside diameter	R		1½"				2"
Heating return outside diameter	R		1½"				2"
Gas connection	R		1"				1½"
Air/flue gas duct	Type		B23(P), B33, C33(x), C43(x) C53(x), C63(x) C83, C93(x)				
Gas category		Germany	II <sub>2ELL3P</sub>				
		Austria	II <sub>2H3P</sub>				
		Switzerland	I <sub>2H</sub>				
Gas supply details:							
Natural gas E/H [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 [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
LPG P [net cv = 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				
LPG P	mbar		50				
Water capacity of the heating water heat exchanger	l		12	15.4	16	20	22
Max. permissible boiler pressure	bar		6				
Max. permissible flow temperature	°C		90				
Available gas fan draught	Pa		10-200				10-150
Flue gas temperature 80/60-50/30 at Q <sub>max</sub>	°C		65-45				
Flue gas temperature 80/60-50/30 at Q <sub>min</sub>	°C		55-35				
Max. 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				
Heating water pressure drop with 20 K spread	mbar		95	100	115	135	160
Electrical connection	V~/Hz		1~ NPE / 230 V AC / 50 Hz				
Integral fuse (medium time lag)	A		4				
Standby power consumption	W		5.0				
Power consumption at partial load/full load	W		30 / 240	42 / 258	42 / 291	43 / 326	48 / 350
IP rating			IP 20				
Sound pressure level at full load <sup>3)</sup>	dB(A)		~ 49	~ 54	~ 54	~ 54	~ 54
Total weight (empty)	kg		195	250	271	292	313
Amount of condensate at 40/30 °C	l/h		12	16	20	24	28
Condensate pH value			approx. 4.0				
CE designation			0085CN0326	0085CN0326	0085CN0326	0085CN0326	0085CN0326

<sup>1)</sup> Does not apply to Austria/Switzerland

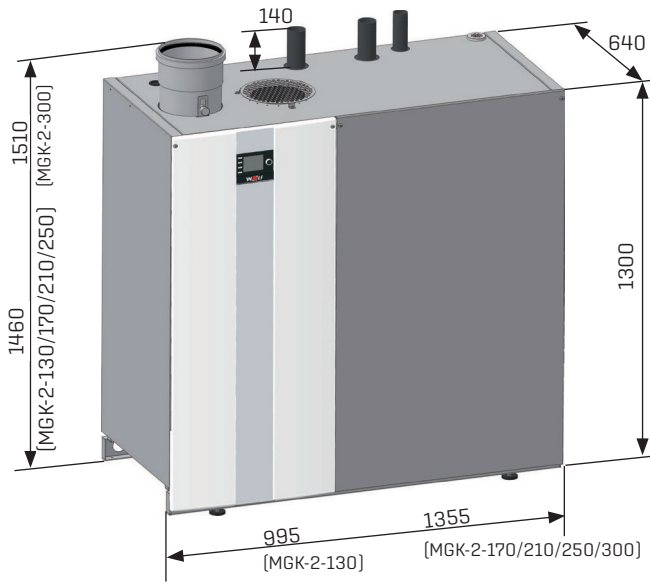
<sup>2)</sup> Does not apply to Switzerland

<sup>3)</sup> At 1 m distance in free space

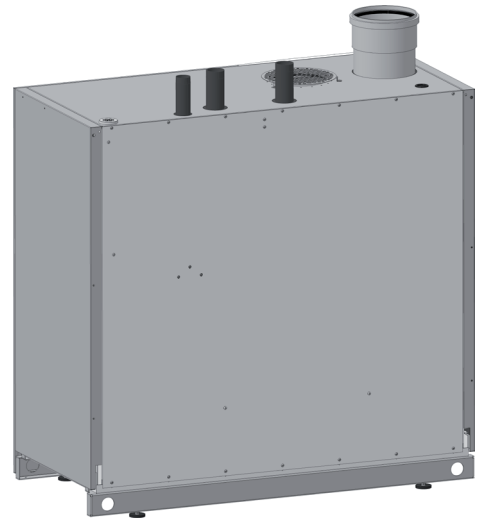
<sup>4)</sup> With accessory adaptor for room sealed operation



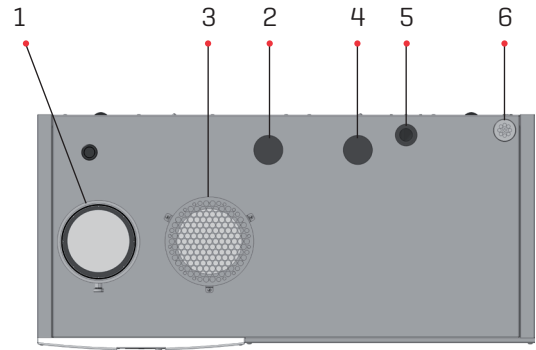
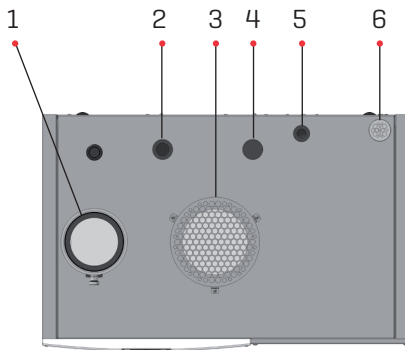
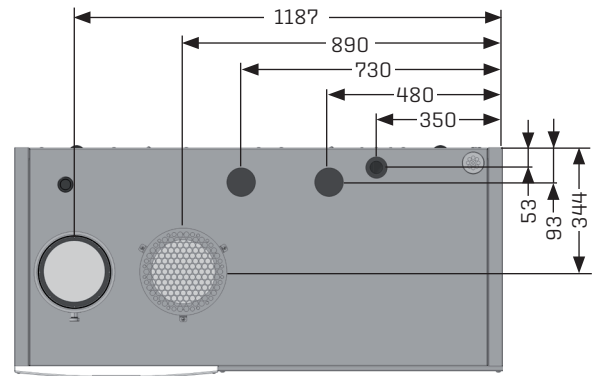
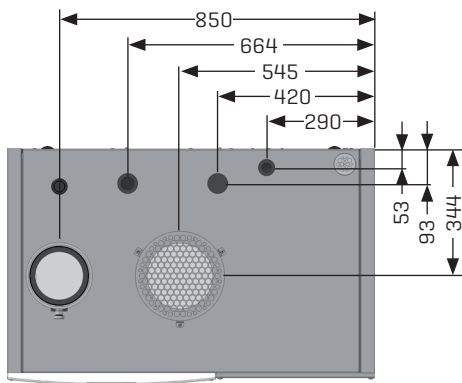
# DIMENSIONS + CONNECTION DIMENSIONS MGK-2-130-300



**MGK-2-130**



**MGK-2-170/210/250/300**



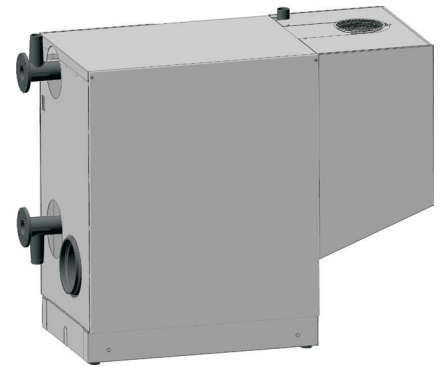
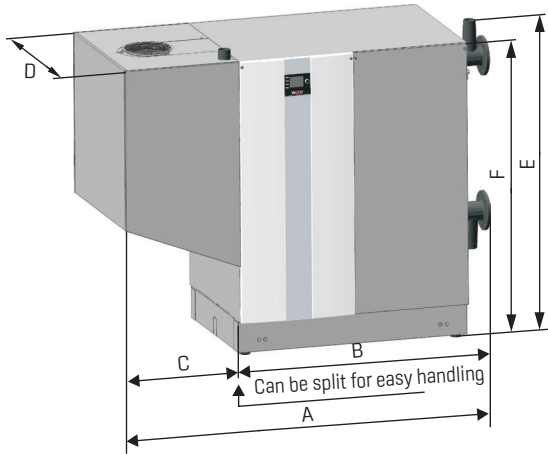
- 1 Flue gas connection
- 2 Heating flow
- 3 Combustion air supply
- 4 Heating return
- 5 Gas connection
- 6 Cable entry

SPECIFICATION	MGK-2	390	470	550	630	800	1000	
Rated heating output at 80/60 °C	kW	366.7	434.7	511.6	584.4	700	931	
Rated heating output at 50/30 °C	kW	392.0	467.1	549.3	626.6	752	1000	
Rated heat input	kW	371.2	443.6	521.0	593.9	710	942	
Lowest heating output (modulating) at 80/60 °C	kW	58.5	70.7	84.5	96.7	119	157	
Lowest heating output (modulating) at 50/30 °C	kW	64.2	78.7	94.0	106.8	133	174	
Lowest heat input (modulating)	kW	59.5	73.2	86.8	98.5	122	160	
Heat input modulation range	%	17-100	17-100	17-100	17-100	17-100	17-100	
Efficiency	80/60 at Qmax	%	98.8	98.0	98.2	98.4	98.7	98.8
	50/30 at Qmax	%	105.6	105.3	105.4	105.5	106.0	106.2
	TR30 at 30 %	%	107.8	108.9	108.6	107.6	108.8	110.0
Standard seasonal efficiency [to DIN]	at 40 / 30 °C	%	109.9	110.1	110.3	110.4	110.1	110.1
	at 75 / 60 °C	%	106.4	106.4	106.3	106.3	106.3	106.3
Total height	mm	1460						
Total width	mm	1860 (1295 in sections)			2265 (1700 in sections)			
Total depth / depth excl. casing	mm	850 / 790			970 / 950			
Flue diameter	mm	250						
Combustion air supply	mm	200						
Heating flow	DN	80 PN6			100 PN6			
Heating return	DN	80 PN6			100 PN6			
Gas connection	R	2"			2.5"			
Air/flue gas duct	Type	B23, B23P, C33, C43, C53, C63, C83, C93			B23, B23P, C43, C53, C63, C83, C93			
Gas category	Germany	I <sub>2ELL</sub>						
	Austria / Switzerland	I <sub>2H</sub>						
Gas supply details:								
Natural gas E/H [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	75.0	99.5	
Natural gas LL [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	80.3	106.6	
Gas supply pressure: Natural gas E/H/LL	mbar	20						
Water capacity of the heating water heat exchanger	l	50	56	62	68	80.6	92.6	
Max. permissible boiler pressure	bar	6						
Max. permissible flow temperature	°C	90						
Available gas fan draught	Pa	150			200	250		
Standby losses excess temperature 30/50 K	%	0.11 / 0.18	0.10 / 0.17	0.09 / 0.15	0.09 / 0.14	0.07/0.13	0.06/0.10	
Flue gas temperature 80/60-50/30 at Qmax	°C	65-35			65-42		65-40	
Flue gas temperature 80/60-50/30 at Qmin	°C	60-30			62-32		62-32	
Max. flue gas mass flow rate	g/s	156.3	185.2	225.3	247.4	307	407	
Flue gas category to DVGW G 635		G 52						
Heating water pressure drop with 20 K spread	mbar	120	113	126	118	127	123	
Electrical connection	V~/Hz	1~ NPE / 230 V AC / 50 Hz / 10 A/B Alternative: 3~ NPE / 400 V AC / 50 Hz				3~ NPE 400 V AC/50 Hz		
Output heating circuit pump/ZHP fuse	V~/Hz	1~ NPE / 230 V AC / 50 Hz / 4 A Alternative: 3~ NPE / 400 V AC / 50 Hz / 4 A				1~ NPE / 230 V AC / 50 Hz / 7 A Alternative: 3~ NPE / 400 V AC / 50 Hz / 7 A		
Power consumption (partial load/full load)	W	42 - 410	45 - 490	48 - 580	50 - 660	50 - 850	60 - 1835	
Standby power consumption	W	8				11		
IP rating		IP 20						
Sound power to EN 15036 Part 1, room sealed	dB(A)	61	66	68	68	67.7	73.3	
Sound pressure level 1 m upstream of MGK-2, room sealed <sup>2)</sup>	dB(A)	44	49	50	50	65-70	70-75	
Sound power to EN 15036 Part 1, open flue	dB(A)	78	82	84	84	85.1	83.5	
Sound pressure level 1 m upstream of MGK-2, open flue <sup>2)</sup>	dB(A)	60	64	65	65	82-87	80-85	
Total weight (empty)	kg	390	420	450	480	625	680	
Amount of condensate at 40/30 °C	l/h	39	46	52	59	77	93	
Condensate pH value		approx. 4.0						
CE designation		0085CN0326	0085CN0326	0085CN0326	0085CN0326	0085CN0326	0085CN0326	

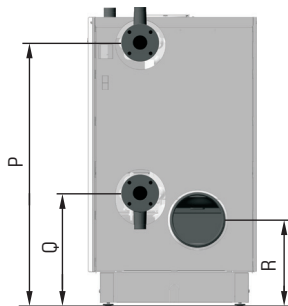
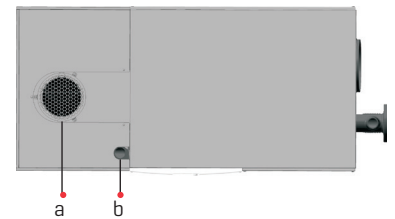
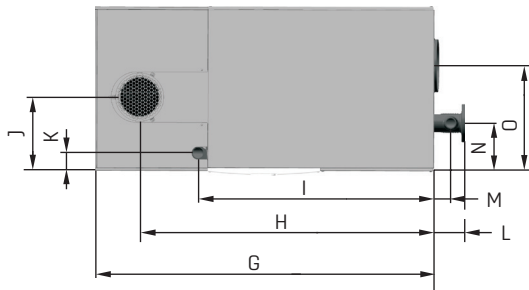
<sup>1)</sup> Does not apply to Austria/Switzerland

<sup>2)</sup> Depending on the general system conditions, such as: type/design of flue gas system; size and nature of the installation room

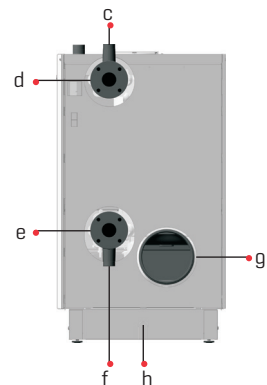
# DIMENSIONS + CONNECTION DIMENSIONS MGK-2-390-1000



Connections:



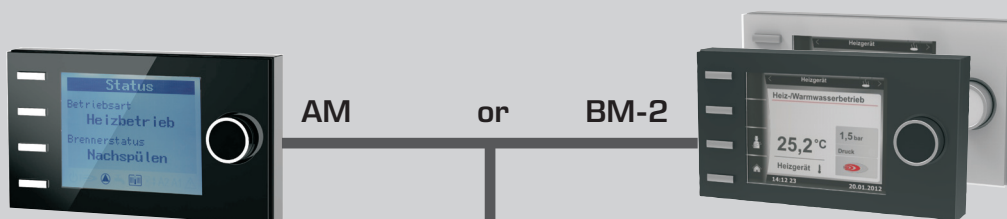
- a Supply air pipe DN 200
- b Gas pipe
- c Connection, safety assembly
- d Flow pipe
- e Return pipe
- f Connection, BDF valve
- g Flue pipe DN 250
- h Condensate drain



	MGK-2-390-630	MGK-2-800/1000		MGK-2-390-630	MGK-2-800/1000
A	1860 mm	2265 mm	J	365 mm	410 mm
B	1295 mm	1700 mm	K	85 mm	70 mm
C	565 mm	565 mm	L	160 mm	250 mm
D	850 mm 790 mm without casing	970 mm 930 mm without casing	M	85 mm	140 mm
E	1460 mm	1506 mm	N	240 mm	290 mm
F	1420 mm	1460 mm	O	525 mm	579 mm
G	1700 mm	2015 mm	P	1290 mm	1316 mm
H	1480 mm	1784 mm	Q	535 mm	562 mm
I	1180 mm	1496 mm	R	410 mm	435 mm

## STANDARD CONTROL UNIT

The operation of a MGK-2 gas condensing boiler requires either an AM display module or a BM-2 programming unit.



The AM functions solely as a display module for the heat generator. Appliance-specific parameters and values can be programmed and displayed.

### AM display module

- Display module for the heat generator
- Only required if BM-2 is used as a remote control or in a cascade circuit
- Operated by rotary selector with pushbutton function
- 4 quick start keys for frequently used functions
- Backlit LCD screen
- AM is always inside the heat generator

BM-2 programming unit in black and white weather-compensated flow temperature

- Time programs for heating, DHW and DHW circulation
- 3.5" colour display
- Easy user prompts via plain text display
- Operated by rotary selector with pushbutton function
- 4 function keys for frequently used functions
- microSD card slot for software update
- Installation either inside the boiler control unit or in wall mounting base as a remote control
- Only one programming unit required for multi boiler systems
- Can be extended with MM-2 mixer module (up to 7 heating circuits with mixer)
- BM-2 can also be used as a remote control for the CWL Excellent ventilation unit (one programming unit for heating and ventilation)



AM display module or BM-2 programming unit - an essential requirement

2-wire eBUS connection



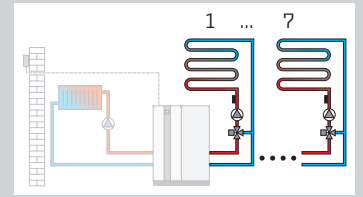
BM-2 programming unit in black or white (if BM-2 is inside the heat generator, max. 6 additional remote controls are possible)

2-wire eBUS connection



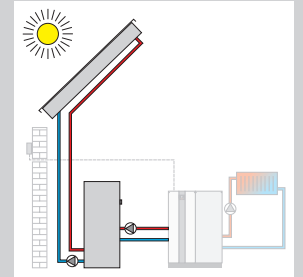
**MM-2 MIXER MODULE**

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



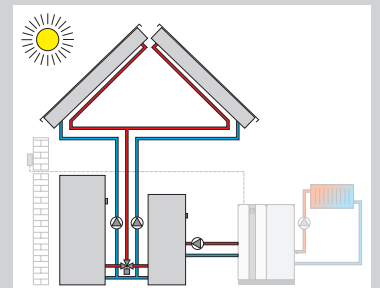
**SM1-2 SOLAR MODULE**

- Extension module to control one solar circuit incl. collector temperature sensor, cylinder temperature sensor and sensor wells
- In conjunction with WOLF heat generators, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar energy
- Heat metering with external heat meter
- Function check for flow rate and gravity brake
- Temperature differential control for one heat consumer
- Maximum cylinder temperature limit
- Indication of set and actual values on the BM-2 programming unit
- Integral hours run meter
- eBUS interface with automatic energy management
- Rast 5 connection technology



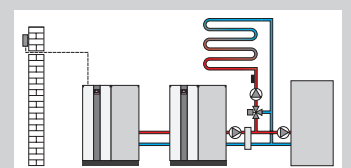
**SM2-2 SOLAR MODULE**

- 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 heat generators, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar energy
- Heat metering with external heat meter for all configurations
- Selection of cylinder operating mode
- Indication of set and actual values on the BM-2 programming unit
- eBUS interface with automatic energy management
- Rast 5 connection technology



**KM-2 CASCADE MODULE**

- Extension module to control systems with a low loss header or cascade operation
- Can be used for 4 heat generators
- Easy controller configuration by selecting one of the preset system versions
- Switching of one heating circuit with mixer
- BM-2 programming unit slots into wall mounting base and can be extended to serve as a remote control
- 0-10 V input for BMS systems; 230 V fault message output
- eBUS interface with automatic energy management
- Rast 5 connection technology



# CONTROL ACCESSORIES

2-wire eBUS connection



### EXTERNAL WIRELESS SENSOR

[only in conjunction with receiver for external wireless sensor and remote control, part no. 27 44 209]



### WIRELESS RECEIVER FOR EXTERNAL WIRELESS SENSOR AND WIRELESS REMOTE CONTROL

incl. radio clock [DCF77 signal]



### WIRELESS REMOTE CONTROL

[only in conjunction with receiver for external wireless sensor and remote control]  
Max. one wireless remote control per circuit with mixer.



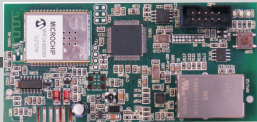
### AFB ANALOGUE REMOTE CONTROL

- Simple WRS remote control for heating circuits and circuits with mixer
- Each heating circuit can be operated separately with a remote control
- Integral room temperature sensor
- Temperature and program selection via rotary selector
- Only in conjunction with BM-2 programming unit



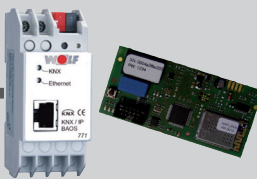
### ISM 6 LON INTERFACE MODULE

For communication between the control unit and the building management system using LON standard network variables



### ISM8i ETHERNET INTERFACE MODULE

Interface module with disclosed TCP/IP protocol for system-independent integration of WOLF heating appliances and ventilation units.

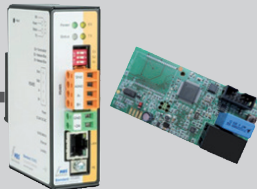


### KNX INTERFACE KIT

Interface kit for integration of WOLF heat generators into a KNX network

Consisting of:

ISM8i interface module, KNX-IP-BAOS module, installation/operating instructions, network cable

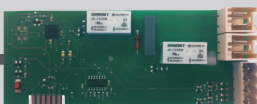


### BACNET INTERFACE KIT

Interface kit for integrating WOLF heating appliances into a BACnet network

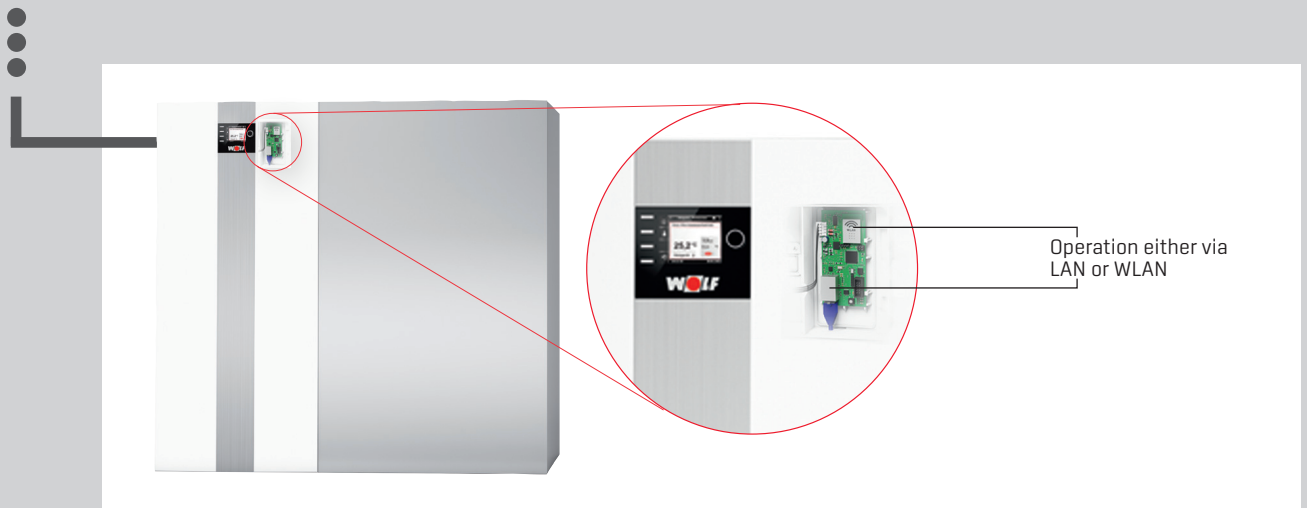
Consisting of:

ISM8 interface module, WOLF BACnet gateway, installation and operating instructions, network cable [2 pce]



### I/O MODULE

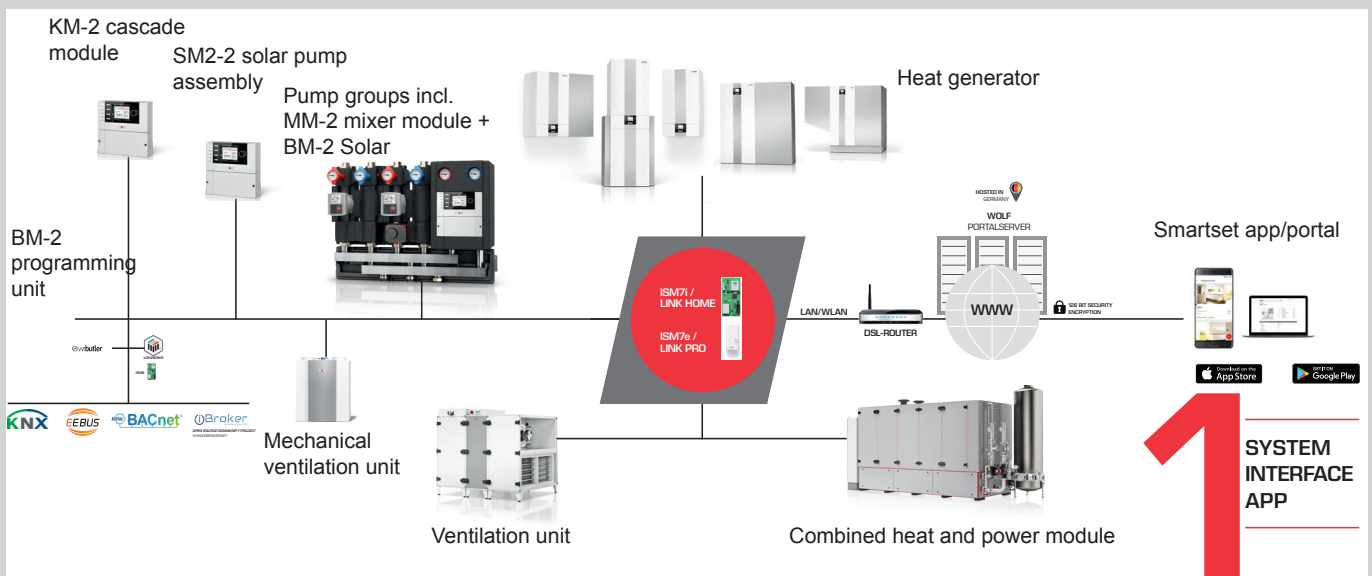
Extension module for 2 programmable inputs and outputs



**WOLF Link home / WOLF Link pro interface module**

The Link home and Link pro interface modules can be used to access WOLF control components remotely in order to view states and levels and change parameters. Over a secure internet connection. The WOLF Link home is designed to be installed in an appliance. The WOLF Link pro is designed for wall mounting. Both interface modules can be integrated into an existing network either with a network cable [LAN] or wirelessly [WLAN].

They can be operated using the WOLF Smartset app [for iOS and Android], the WOLF portal on any platform [internet access required] or the Windows PC application WOLF Smartset.



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