

WMK 69-116



VERY LOW TEMPERATURE CONDENSING UNIT
Low NO_x Class 6

OUTPUT RANGE

from 69 to 115 kW

OPERATION TEMPERATURE

no limit on the return temperature

SUPPLY

Natural Gas or LPG

MODELS

69

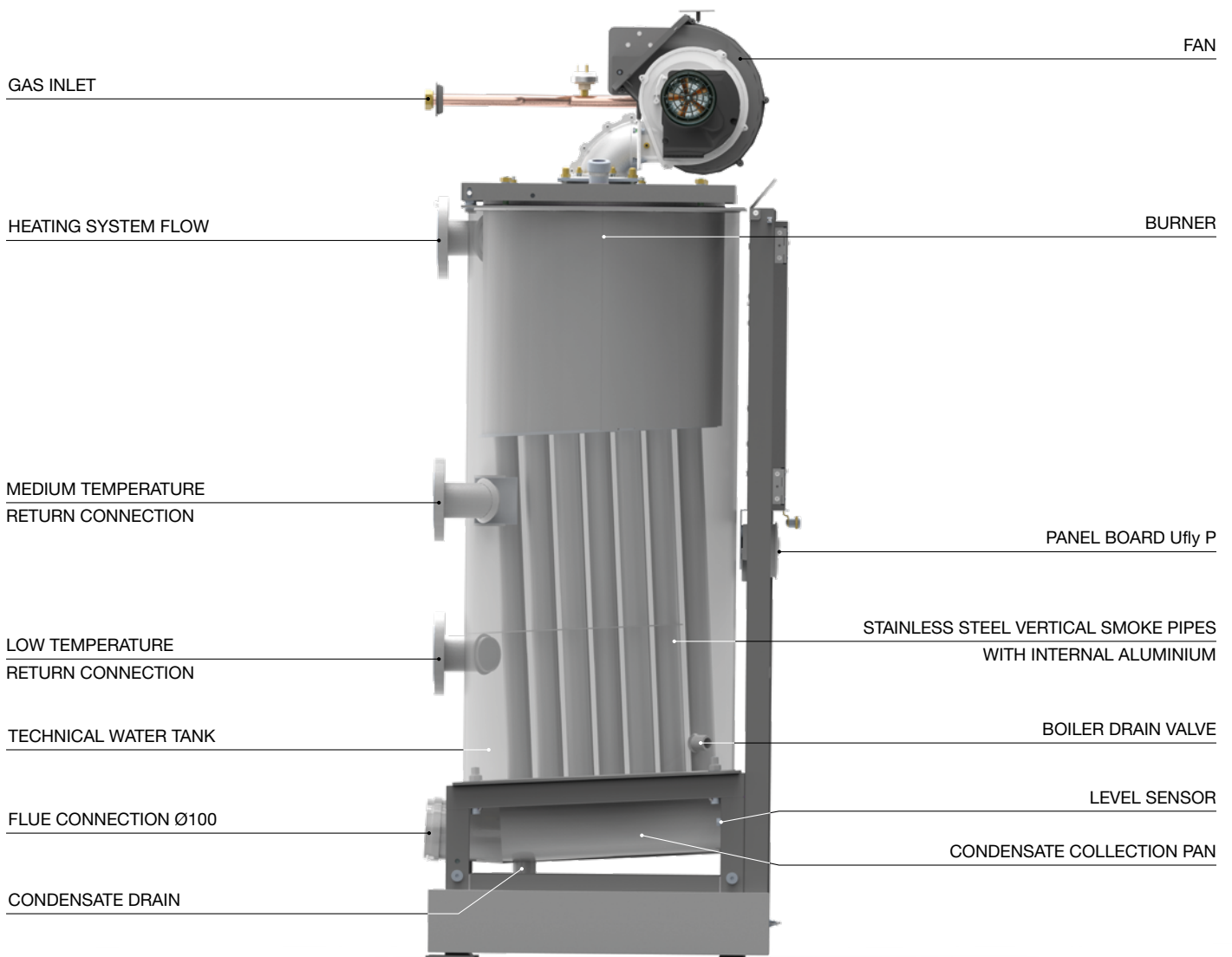
116

SEASONAL EFFICIENCY

 A

large water content
boiler body completely in stainless steel, with two return connections
wide modulation premix burner Low NO_x Class 6

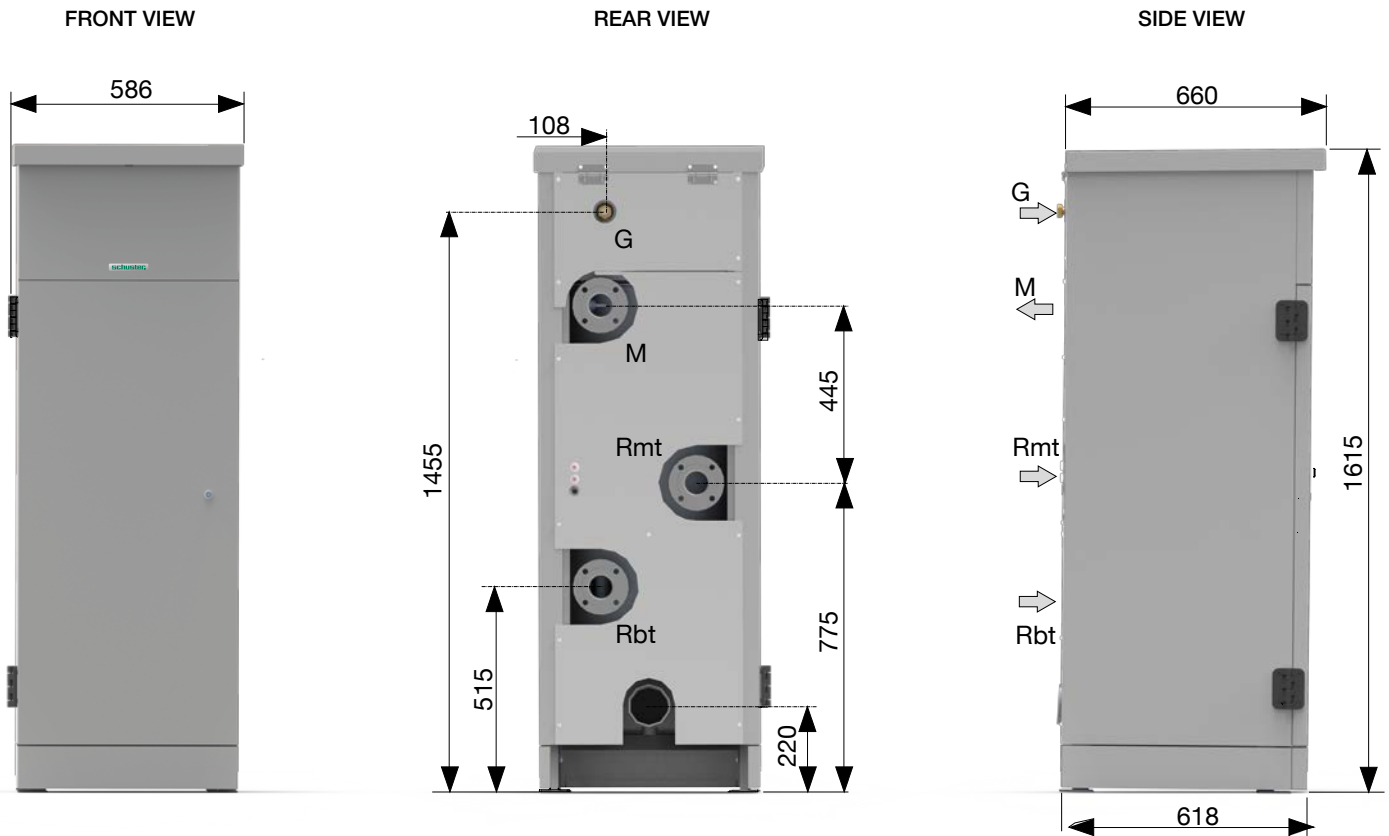
MAIN COMPONENTS



PRODUCT PLUS VALUES

- **MAXIMUM CERTIFIED EFFICIENCY**
up to 107% to the minimum modulated output
- **MODULATION RATIO**
up to 1:3.8
- **LARGE WATER CONTENT**
capacity 80 liters
- **THERMAL ELEMENT WITH VERTICAL DEVELOPMENT** entirely in stainless steel AISI 316L complete of premix modulating burner
- **SPECIAL SMOKE PIPES (patented)**
in stainless steel, with multifin inserts in Al/Si/Mg with very high thermal conductivity, specially designed to improve condensate drainage and optimize heat exchange.
- **CYLINDRICAL COMBUSTION CHAMBER**
with passing bottom
- **SMOKE NON RETURN VALVE**
- **ELECTRONIC CONTROLLING SYSTEM Ufly P**
with proportional regulation
- **SEASONAL EFFICIENCY + 30%**
higher than the conventional boilers
- **MODULATING PUMP (optional)**
directly managed by the boiler, to assure the maximum condensation at all working regimes
- **MANOMETRIC HEAD**
available to the smokes outlet: + 70 Pa
- **COMPACT DIMENSIONS**
height 1615 mm
width 586 mm
depth 618 mm

DIMENSIONS



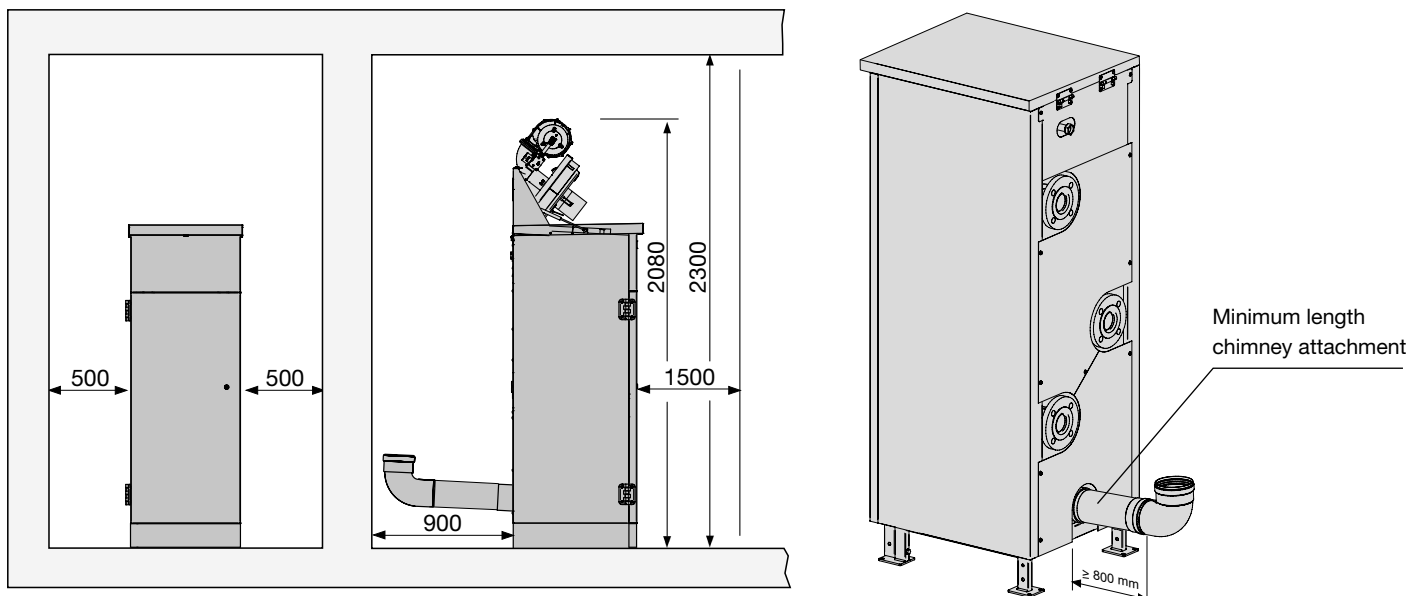
Legenda:

- G** - Gas inlet G 3/4"
- M** - Central Heating Flow G 2" DN50

- Rmt** - Central Heating middle temp. Return G 2" DN50
- Rbt** - Central Heating low temp. Return G 2" DN50

WMK	Net Weight kg	Gross Weight (with packaging) kg
69 - 116	210	236

POSITIONING IN THE BOILER ROOM



TYPE AND SHAPE OF THE FURNACE

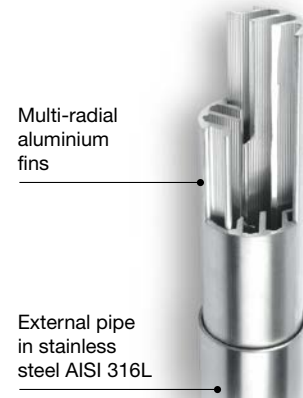
- Vertical furnace
- Construction in stainless AISI 316 L
- Sized for premix burner



SPECIAL SMOKE PIPES (patented)

SMOKE PIPES:

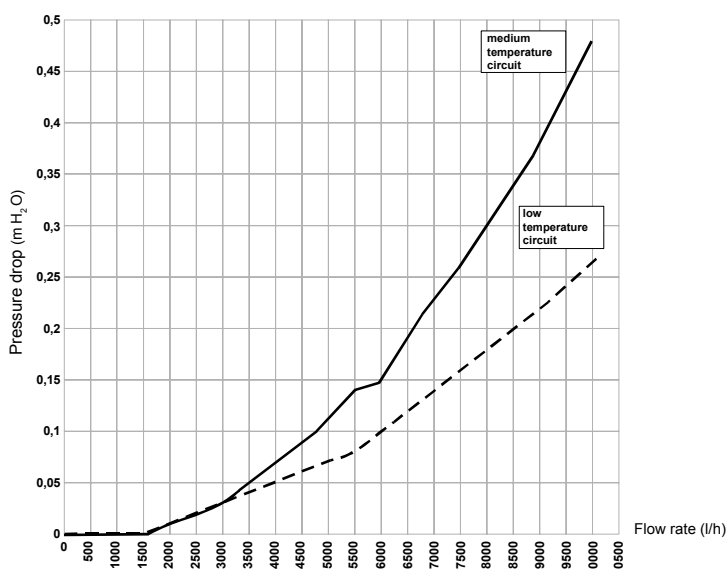
- Exceptional thermal exchange
- Functional outflow of the condensate
- Absence of wet acidic deposits
- Washout, for gravity, of the smooth exchange surfaces
- Greater duration



FEATURES OF THE DOOR

- The combustion chamber door is in carbon steel with insulation in super light recyclable concrete and is endowed with pneumatic cushion.
- Casing is insulated with fabric-finished mineral wool, 50 mm thick.

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION

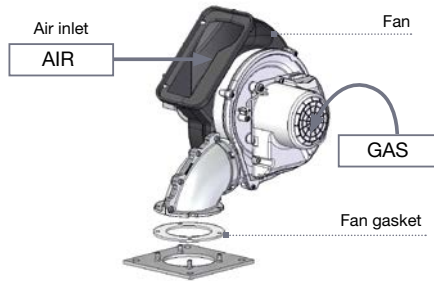


WMK	69 - 116
Max flow rate demanded l/h (Δt 15 K)	6506
Nominal flow rate request (Δt 20 K)	4880

TYPE OF BURNER



CONFIGURATION:
The modulating gas valve is fitted directly on the fan. Inside its volute happens the air-gas mixing exactly calibrated.



The delivered output depends on the rpm of the fan serving the gas valve. The flame control is managed directly by the electronic PCB of the burner, endowed of **BMM (Burner Module Manager)**.

The opening of the gas valve is generated by “Venturi effect” in the VOLUTE of the fan and the air-gas mixing happens in its inside, before being sent in the combustion chamber (premix).

The combustion happens on the surface of the special cylindrical burner in FeCr alloy fibre.

The wide flame surface guarantees:

- low combustion temperature
- reduced turbulence with the following advantages:
- higher transferred energy if compared with a traditional burner with the same flame temperature

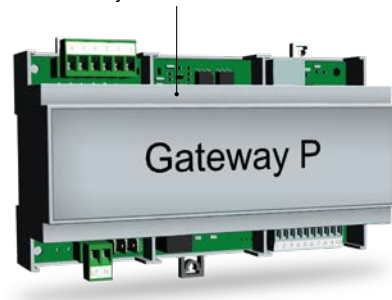
- absolute working safety for the absence of turbulences
- low pollution thanks to the complete oxidation of the natural gas molecules
 - optimum combustion efficiency: maximum CO₂ = 9,1%
 - fast achievement of the condensation conditions, since 54°C
 - optimization of the efficiency thanks to the low smoke temperature and the low “air excess”
 - minimum NO_x emissions, up to 62 mg/kWh (weighed value according to EN 297-A3).

CONTROL AND ADJUSTMENT

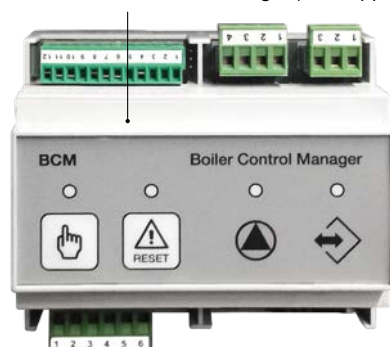
THERMOREGULATION Ufly P (std. supplied)



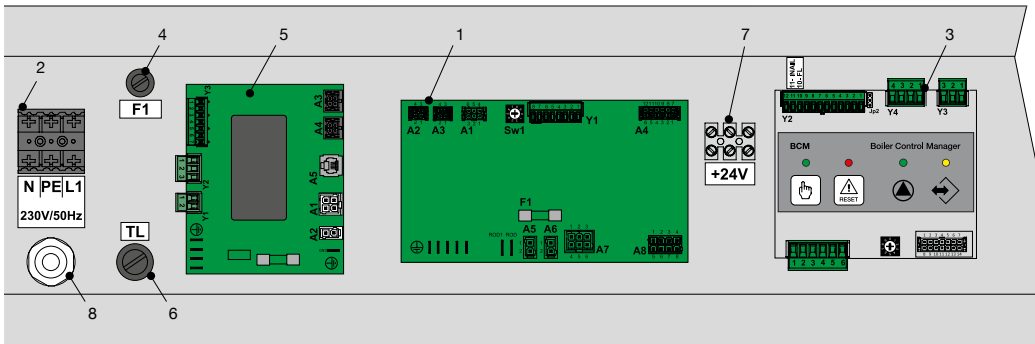
KIT GATEWAY P (optional) for Ufly P remote connection



BCM 2.0 Boiler Cascade Manager (std. supplied)



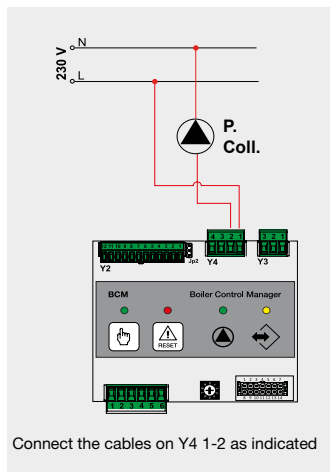
BASIC ELECTRICAL CONNECTIONS



1. PCB for management of the burner
2. Terminal strip for electrical supply 230 V
3. Boiler controller BCM
4. Fuse 4-6.3 A on electrical supply
5. PCB for supply
6. Limit thermostat with manual reset
7. Additional terminal strip for +24V BCM
8. Cable clamp for supply cable

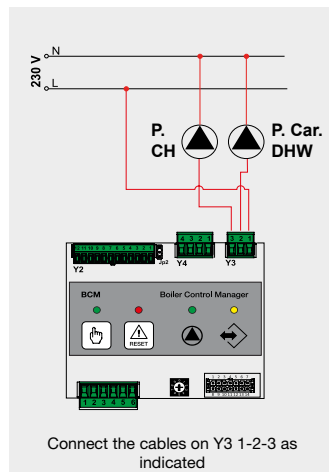
The boiler is supplied with the predisposition to manage a direct flow and DHW tank.
 If Stemp ACC is connected, automatically will be activated the DHW service, which will have the priority on the pumps shown in the below figures.

If the management of additional services is required (DHW tanks, mixed zones, solar system, etc.) it will be necessary to buy multifunction **SHC** to be connected to the local bus for the complete management through the thermoregulation **Ufly P**.



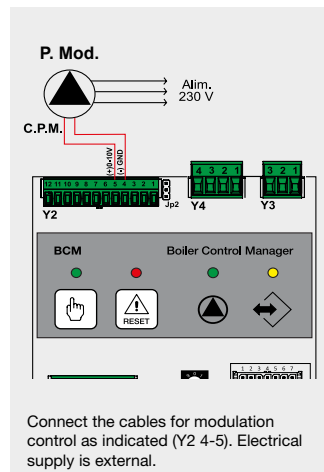
Connect the cables on Y4 1-2 as indicated

P. Coll - Optional manifold pump (Primary ring)



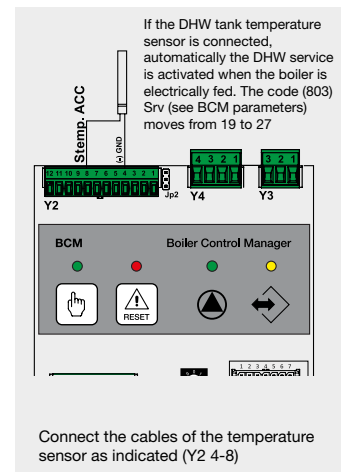
Connect the cables on Y3 1-2-3 as indicated

P. CH – Central Heating Pump (Heating circuit)
 P. Car DHW – DHW tank loading pump



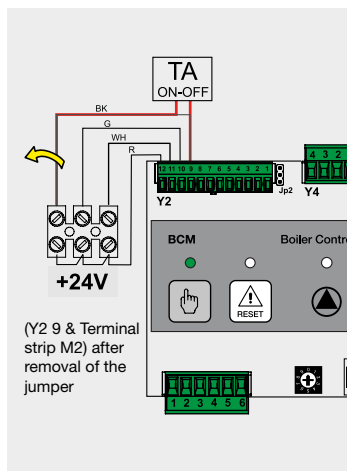
Connect the cables for modulation control as indicated (Y2 4-5). Electrical supply is external.

P. Mod – Modulating Pump (optional)

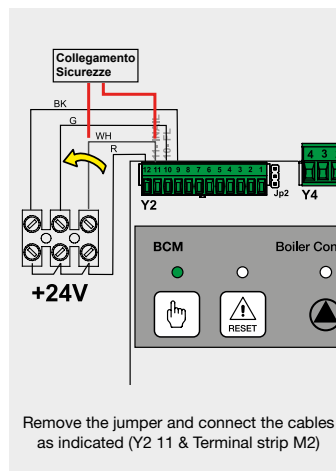


Connect the cables of the temperature sensor as indicated (Y2 4-8)

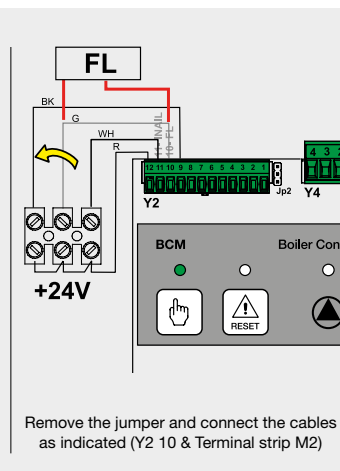
Stemp ACC – DHW tank temperature sensor (optional)



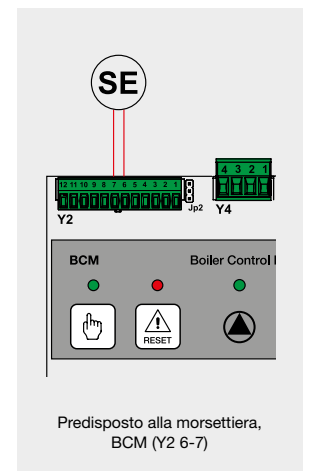
Parameter TA (optional)



Additional safety connection



Connection of Flow switch FL



Predisposto alla morsetteria, BCM (Y2 6-7)

TECHNICAL DATA

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.schusterboilers.com at the page of the product

WMK		69	116
Boiler category		II _{2H3P}	II _{2H3P}
Modulation ratio		1:2.3	1:3.8
Rated heat output on P.C.I. Q _n	kW	69	115
Minimum heat output on P.C.I. Q _{min}	kW	30	30
Rated useful power (Tr 60 / Tm 80 °C) P _n	kW	67.65	112.7
Minimum useful power (Tr 60 / Tm 80 °C) P _{n min}	kW	29.3	30.7
Rated useful power (Tr 30 / Tm 50 °C) P _{cond}	kW	75.3	119.5
Minimum useful power (Tr 30 / Tm 50 °C) P _{cond min}	kW	32.89	32.2
Rated power performance (Tr 60 / Tm 80°C)	%	98	98
Minimum power performance (Tr 60 / Tm 80°C)	%	97.75	102.4
Rated power performance (Tr 30 / Tm 50°C)	%	109.1	103.9
Minimum power performance (Tr 30 / Tm 50°C)	%	109.6	107.6
Performance at 30% of the load (Tr 30°C)	%	106.9	109
Combustion efficiency at nominal load	%	98.23	98.1
Combustion efficiency with reduced load	%	98.27	98.5
Casing heat loss with burner operating (Q _n)	%	0.19	0.1
Net flue gas temperature t _{f-ta} (min)(*)	°C	34.3	30
Net flue gas temperature t _{f-ta} (max)(*)	°C	34.7	38
Maximum permitted temperature	°C	100	100
Maximum operating temperature	°C	85	80
Flue gas mass flow rate (min)	kg/h	50	49
Flue gas mass flow rate (max)	kg/h	115	190
Excess air	%	28.17	26.8
Heat loss at chimney with burner on (min)	%	1.7	1.50
Heat loss at chimney with burner on (max)	%	1.7	1.90
Minimum heating circuit pressure	bar	0.5	0.5
Maximum heating circuit pressure	bar	6	6
Water content	l	80	80
Methane gas consumption G ₂₀ (pow.sup. 20 mbar) at Q _n	m ³ /h	7.2	12.16
Methane gas consumption G ₂₀ (pow.sup. 20 mbar) at Q _{min}	m ³ /h	3.17	3.17
Gas consumption G ₂₅ (pow.sup. 20/25 mbar) at Q _n	m ³ /h	8.5	14.14
Gas consumption G ₂₅ (pow.sup. 20/25 mbar) at Q _{min}	m ³ /h	3.69	3.69
Propane gas consumption (pow. sup. 37/50 mbar) at Q _n	kg/h	5.32	8.93
Propane gas consumption (pow. sup. 37/50 mbar) at Q _{min}	kg/h	2.33	2.33
Chimney base maximum pressure available	Pa	70	70
Max condensate production	kg/h	8.3	18.5
Emissions			
CO at maximum heat output with 0% of O ₂	mg/kWh	26	28
NO _x at maximum heat output with 0% of O ₂	mg/kWh	-	62
NO _x Class		6	6
Electrical data			
Power supply voltage/frequency	V/Hz	230/50	230/50
Fuse on the power supply	A (R)	6.3	6.3
Protection rating	IP	X4D	X4D

Room Temperature = 20°C.

(*) Temperatures detected with the unit in operation (Tr 60 / Tm 80°C)


Seasonal Efficiency η_s according to Directive 2009/125/EC for Outputs < = 400 kW. See Erp Table

Standstill heat losses at Δt 30K – P_{stby} – See Erp Table

Standstill electrical consumption – P_{sb} – See Erp Table

TECHNICAL DATA ACCORDING TO ErP DIRECTIVE

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WMK			69	116
EFFECTIVE NOMINAL OUTPUT	P_n	kW	67.7	113
SEASONAL ENERGY EFFICIENCY TO HEAT THE ROOM	η_s	%	91.6	93
SEASON EFFICIENCY CLASS TO DISCHARGE			A	A
FOR BOILERS TO HEAT THE ROOM AND MIXED BOILERS: USEFUL HEAT OUTPUT				
USEFUL HEAT OUTPUT with high temperature capacity (Tr 60 °C / Tm 80 °C)	P_4	kW	67.7	113
RATED HEAT OUTPUT EFFICIENCY with high temperature capacity (Tr 60 °C / Tm 80 °C)	η_4	%	88.3	88.3
USEFUL POWER AT 30% OF THE RATED HEAT OUTPUT with low temperature capacity (Tr 30 °C)	P_1	kW	22.1	38
PERFORMANCE AT 30% OF THE RATED HEAT OUTPUT with low temperature capacity (Tr 30 °C)	η_1	%	96.31	98.2
BOILER WITH OUTPUT RANGE ADJUSTMENT: YES / NO			NO	NO
AUXILIARY ELECTRICITY CONSUMPTION				
WITH A FULL LOAD	$e_{l_{max}}$	kW	0.120	0.160
WITH A PARTIAL LOAD	$e_{l_{min}}$	kW	0.035	0.035
STANDBY MODE	P_{SB}	kW	0.009	0.009
OTHER ELEMENTS				
HEAT DISPERSION ON STANDBY	P_{stby}	kW	0.049	0.308
NITROGEN OXIDES EMISSIONS referred to GCV	NO_x	mg/kWh	46	46
CONSUMPTION OF ANNUAL ELECTRICITY	Q_{HE}	GJ	348	348