

**schuster**

# BWA 50-70



## WALL HUNG GAS BOILER FOR C.H. LOW NO<sub>x</sub>

OUTPUT RANGE

from 50 to 280 kW (in battery)

EMISSIONS

Class 6 NO<sub>x</sub>

SUPPLY

natural gas / LPG

MODELS

50

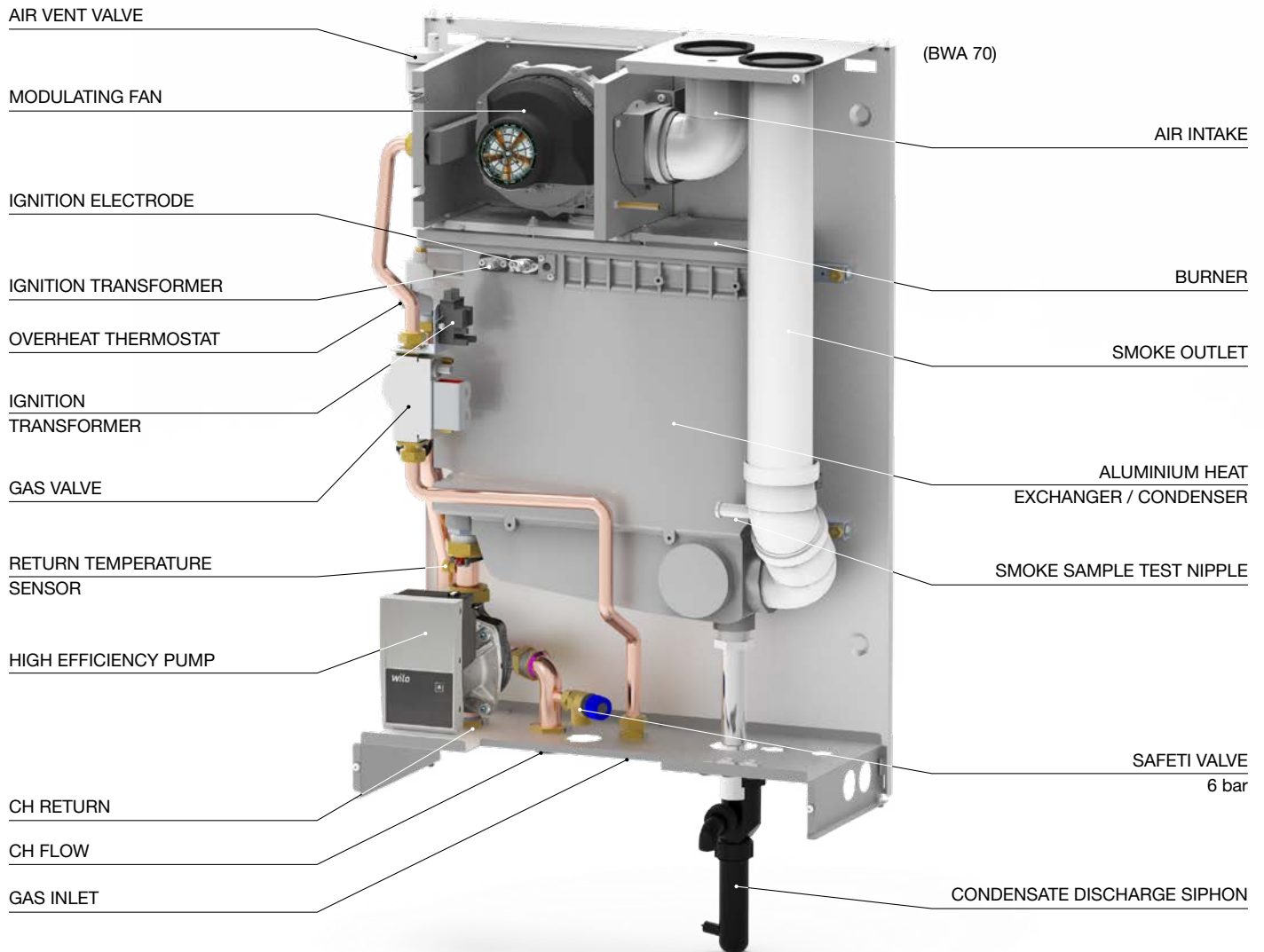
70

SEASONAL EFFICIENCY

 A

Heat exchanger in Aluminium / Silicium / Magnesium  
**Wall hung installation also in battery (up to 4 boilers each)**  
can be combined both with **MIXING HEADER** and with **PLATE HEAT EXCHANGERS**

## MAIN COMPONENTS



## DESCRIPTION

- Total premixing burner with constant CO<sub>2</sub>
- Electronic ignition
- Safety limit thermostat
- Flow/return temperature sensor
- Automatic air vent
- Condensate discharge siphon
- Panel board with IPX4D electrical protection degree
- Possibility of e-BUS connection
- C.H. temperature adjustment range 30 to 85°C
- Flame modulation according to the absorbed output
- Pump over-run function
- Additional functions: diagnostic of working parameters and errors, anti-frost, technical service and digital error indication
- Minimum water pressure switch at 0.5 bar
- High efficiency modulating pump (standard supplied only for BWA 70)

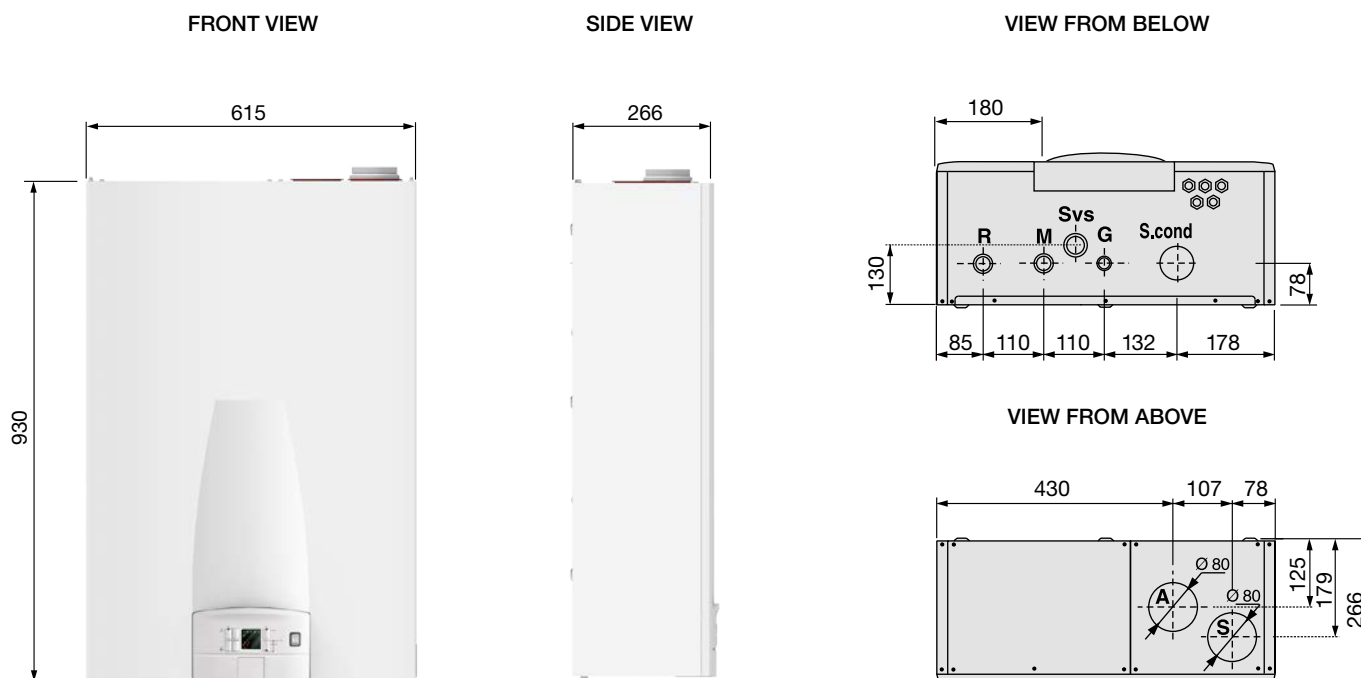
### Optional kits:

- Manifold kit for additional safety devices
- Additional safety devices kit
- Thermoregulation and Control Manager Ufly P (boiler cascade manager complete with BCM 2.0)
- High efficiency modulating pump kit (optional for BWA 50)
- Mixing header / plate heat exchanger kit
- Single chimney / battery
- Supporting frames
- Hydraulic manifolds and blind flanges kit
- Harness kit for external DHW producer

## PRODUCT PLUS VALUES

- **EFFICIENCY CLASS A**
- **CLASS 6 Low NO<sub>x</sub>**  
thanks to the pre-mix burner with gas-air ratio control which offers a constant CO<sub>2</sub> content for the whole modulation range
- **CERTIFICATION IN OUTPUT RANGE**
- **EXCHANGER / BOILER BODY**  
aluminium (Al/Si/Mg)
- **CONTAINED DIMENSIONS**  
height 93 cm, width 61.5 and only 26.6 in depth
- **PREMIX COMBUSTION GROUP WITH CONSTANT CO<sub>2</sub>** in Al/Si/Mg alloy
- **MICROPROCESSOR PCB**  
for boiler control
- **VERY HIGH MODULATION RATIO**  
• 1:7 for BWA 70 • 1:5 for BWA 50
- **INTEGRAL STANDARD INTERFACE**  
for modulating heating controllers with protocol communication (bus-data)
- **COUPLING WITH A MODULATING PUMP HIGH EFFICIENCY** supplied as standard for BWA 70
- **Optional manifold with additional safety devices kit**
- **THERMOREGULATION Ufly P (optional)**  
and kit Gateway P for remote connection
- **PREDISPOSITION FOR IN BATTERY INSTALLATIONS (optional)**

## DIMENSIONS



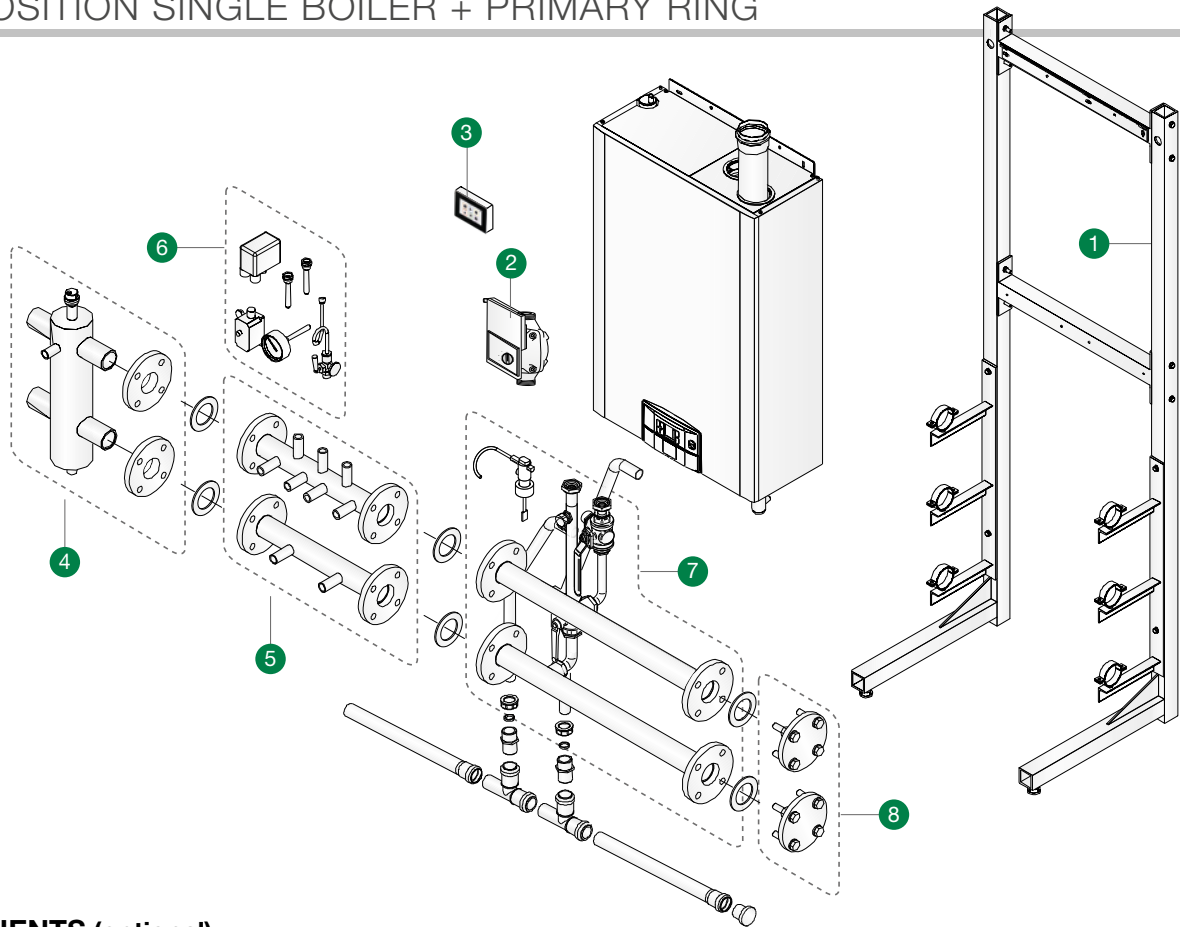
Key:

- |   |                                   |
|---|-----------------------------------|
| <b>R</b> - Heating system return<br>(G1" for mod. 50, G1¼" for mod. 70) | <b>G</b> - Gas inlet (G ¾")       |
| <b>M</b> - Heating system flow<br>(G1" for mod. 50, G1¼" for mod. 70)   | <b>Scond</b> - Condensation drain |
|   | <b>A</b> - Air Suction            |
|   | <b>S</b> - Exhaust Smoke          |

BWA	Net Weight kg	Gross Weight (with packaging) kg
50	50	55
70	58.4	64

For further information consult the manual on the site [www.schusterboilers.com](http://www.schusterboilers.com) in the section of the product.

## COMPOSITION SINGLE BOILER + PRIMARY RING



## COMPONENTS (optional)

- 1 - SUPPORTING FRAME FOR ONE MODULE
- 2 - MODULATING PUMP high efficiency (optional for BWA 50: to be ordered separately)
- 3 - KIT CONTROL PANEL Ufly P  
composed of: thermoregulation Ufly P, Outdoor temp. sensor
- 4 - MIXING HEADER KIT (maximum flow rate 6 m<sup>3</sup>/h)
- 5 - ADDITIONAL SAFETY DEVICES COLLECTOR KIT
- 6 - ADDITIONAL SAFETY DEVICES KIT  
composed of: 3-way cock 1/2", pressure gauge R 3/8, R 1/2 bulb holders (2x), 100°C H.L. thermostat, 5 bar safety max pressure switch, thermometer, shock absorber for pressure gauge.
- 7 - COLLECTORS KIT  
costituito da: composed of: Ballstop valves, 3 way valve, Flow collector, Return collector, Return pipe connection, Differential pressure switch, Flow pipe connection  
+ differential pressure switch
- 8 - BLIND FLANGES KIT

NOTE: the gas feeding pipes are not supplied

## REGULATION ACCESSORIES (optional)

- SHC MULTIFUNCTION MODULE (for zones management)  
+ 3 control probes (it is possible to drive up to a maximum of 4 SHC cards)
- NTC sensor for SHC Module
- Probe PT 1000 for management of solar collectors
- KIT GATEWAY P for Ufly P remote connection
- ROOM TEMPERATURE SENSOR KIT

Available in combination with PLATE HEAT EXCHANGERS

## COMPOSITION OF THE BATTERY + PRIMARY RING\*



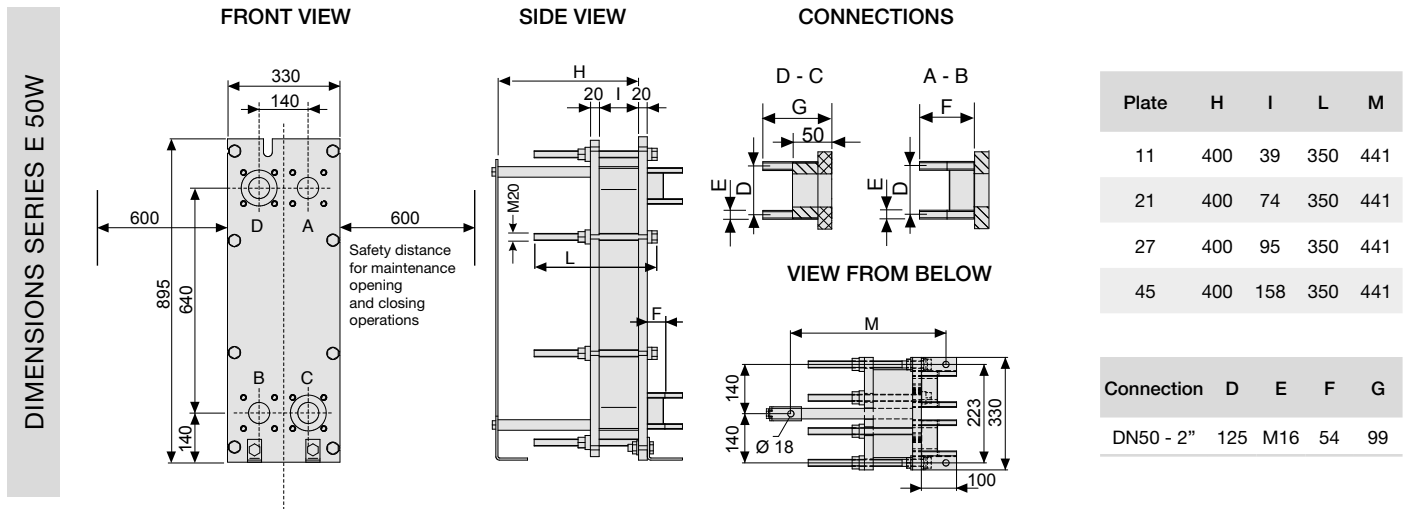
	NUMBER OF UNITS IN BATTERY					
	2 UNITS		3 UNITS		4 UNITS	
	BWA 50 quantity	BWA 70 quantity	BWA 50 quantity	BWA 70 quantity	BWA 50 quantity	BWA 70 quantity
<b>1</b> - BWA 50	2		3		4	
- BWA 70		2		3		4
<b>2</b> - Kit CONTROL MANAGER Ufly P	1	1	1	1	1	1
<b>3</b> - SUPPORTING FRAME FOR 2 UNITS	1	1	1	1	1	1
<b>3a</b> - EXPANSION FRAME FOR 1 UNIT			1	1	2	2
<b>4</b> - COLLECTORS KIT + differential pressure switch	2	2	3	3	4	4
<b>5</b> - ADDITIONAL SAFETY DEVICES KIT STUB PIPE	1	1	1	1	1	1
<b>6</b> - ADDITIONAL SAFETY DEVICES KIT	1	1	1	1	1	1
<b>7</b> - HYDRAULIC SEPARATOR KIT UP TO 150 kW	1	1	1			
- HYDRAULIC SEPARATOR KIT FROM 180 TO 450 kW				1	1	1
<b>8</b> - SEPARATOR CONNECTION KIT UP TO 150 kW	1	1	1			
- SEPARATOR CONNECTION KIT FROM 180 TO 450 kW				1	1	1
<b>9</b> - FLUE OUTLET KIT 2 BWA UNITS DN 160	1	1	1	1	1	1
<b>9a</b> - EXPANSION FLUE OUTLET KIT 1 BWA UNIT DN 160			1	1	2	2
- SMOKE THERMOSTAT KIT	2	2	3	3	4	4
<b>10</b> - BLIND FLANGE KIT	1	1	1	1	1	1
- MODULATING PUMP (optional for BWA 50)	2		3		4	

Note: all the assembly of evacuation system and the additional accessories are in certified translucent Polypropylene.  
The gas supply pipes are not supplied.

Available in combination with PLATE HEAT EXCHANGERS

\* For the configurations refer to the Technical Manual for Use and Maintenance on the web site [www.schusterboilers.com](http://www.schusterboilers.com)

## MATCHING PLATE EXCHANGERS



**In combination with BWA 50**

Number of boilers	Model	Number of plates	Pn kW	$\Delta p$ (m H <sub>2</sub> O) <sup>(*)</sup> primary / secondary	T. op. °C	Pmax bar	Volume H <sub>2</sub> O primary / secondary	Connections primary / secondary	Weight kg
1	<b>E50W-11Y</b>	11	49	1.5 / 3.5	-10 / +110	10	2 / 2	DN50 / DN50	135
2	<b>E50W-21Y</b>	21	97	0.7 / 1.6	-10 / +110	10	4 / 4	DN50 / DN50	144
3	<b>E50W-21Y</b>	21	146	1.6 / 3.7	-10 / +110	10	4 / 4	DN50 / DN50	144
4	<b>E50W-27X</b>	27	194	1.8 / 4.1	-10 / +110	10	6 / 6	DN50 / DN50	149

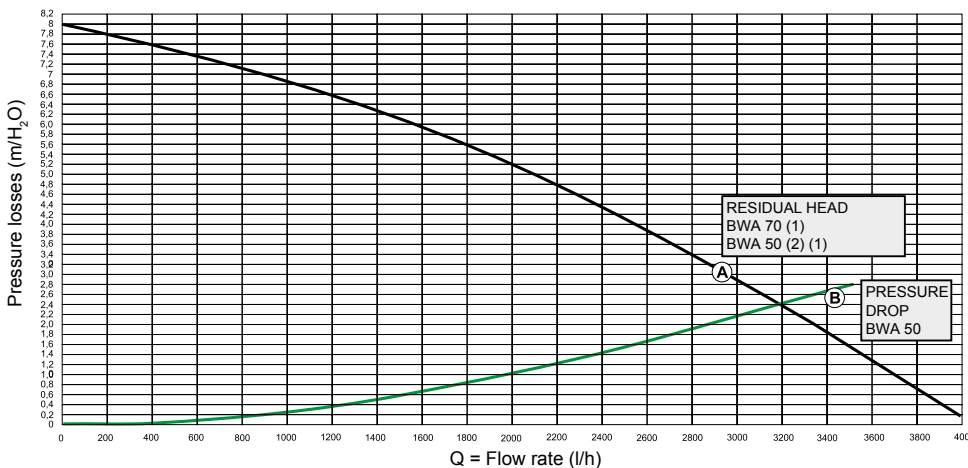
**In combination with BWA 70**

Number of boilers	Model	Number of plates	Pn kW	$\Delta p$ (m H <sub>2</sub> O) <sup>(*)</sup> primary / secondary	T. op. °C	Pmax bar	Volume H <sub>2</sub> O primary / secondary	Connections primary / secondary	Weight kg
1	<b>E50W-11Y</b>	11	68	2.8 / 6.5	-10 / +110	10	2 / 2	DN50 / DN50	135
2	<b>E50W-21Y</b>	21	135	1.4 / 3.2	-10 / +110	10	4 / 4	DN50 / DN50	144
3	<b>E50W-27X</b>	27	200	1.8 / 4.1	-10 / +110	10	6 / 6	DN50 / DN50	144
4	<b>E50W-45X</b>	48	270	2.0 / 4.4	-10 / +110	10	9 / 9	DN50 / DN50	165

(\*)  $\Delta p$  alla Pn    Primary circuit 80°C - 65°C    Secondary circuit 60°C - 70°C

## DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION

- A** Available head after boiler losses (for boilers equipped with a pump supplied by Schuster)    **(1)** Values referred to max speed
- B** Pressure drop between return and flow (for boilers supplied without pump)    **(2)** Only if equipped with optional pump



BWA		50	70
Power supply	kW	49,3	68,5
Max flow rate demanded l/h (Δt 15 K)	l/h	2826	3927
Portata nominale richiesta (Δt 20 K)	l/h	2120	2946

The  $\Delta t$  between supply and return boiler must never be less than 15 K.

**Nota:**  
The use of a mixing header fitted between the boiler circuit and the system circuit is always advisable. It becomes **INDISPENSABLE** if the system requires flow rates superior to the maximum permitted boiler flow rates, which is to say lower than 15K.

## TECHNICAL DATA

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site [www.schusterboilers.com](http://www.schusterboilers.com) at the page of the product

		BWA 50	BWA 70
Appliance category		II <sub>2H3P</sub>	II <sub>2H3P</sub>
Modulation Ratio		1:5	1:7
Nominal Heat Input on P.C.I. Qn	kW	48.5	67.5
Minimum Heat Input on P.C.I. Qmin	kW	9.6	9.6
Nominal Output (Tr 60 / Tm 80 °C) Pn	kW	47.2	65.7
Minimum Output (Tr 60 / Tm 80 °C) Pn min	kW	9.1	9.1
Nominal Output (Tr 30 / Tm 50 °C) Pcond	kW	49.4	68.7
Minimum Output (Tr 30 / Tm 50 °C) Pcond min	kW	10.04	10.33
Efficiency at max. output (Tr 60 / Tm 80°C)	%	97.29	97.29
Efficiency at min. output (Tr 60 / Tm 80°C)	%	94.9	94.9
Efficiency at max. output (Tr 30 / Tm 50°C)	%	101.82	101.72
Efficiency at min. output (Tr 30 / Tm 50°C)	%	104.55	107.58
Efficiency at 30% output (Tr 30°C)	%	107.33	107.33
Combustion efficiency with nominal load	%	97.82	97.38
Combustion efficiency with minimum load	%	98.51	98.34
Heat loss at casing with burner in operation (Qmin)	%	3.60	3.44
Heat loss at casing with burner in operation (Qn)	%	0.52	0.09
Flue gas temperature tf-ta (min)(*)	°C	30.6	34
Flue gas temperature tf-ta (max)(*)	°C	43.6	51.3
Maximum allowable temperature	°C	100	100
Maximum operating temperature	°C	85	85
Flue gas mass flow rate (min)	kg/h	15.9	16
Flue gas mass flow rate (max)	kg/h	80.0	106.5
Excess λ air	%	25.53	20.6
Flue losses with burner in operation (min)	%	1.49	1.66
Flue losses with burner in operation (max)	%	2.18	2.62
Minimum heating circuit pressure	bar	0.5	0.5
Maximum heating circuit pressure	bar	6	6
Water content	l	3.9	3.9
Gas Consumption Natural (20 mbar) gas G 20 a Qn	m <sup>3</sup> /h	5.13	7.14
Gas Consumption Natural gas (20 mbar) G 20 a Qmin	m <sup>3</sup> /h	1.02	1.02
Gas Consumption G25 (supply pressure 25 mbar) Qn	m <sup>3</sup> /h	5.96	8.30
Gas Consumption G25 (supply pressure 25 mbar) Qmin	m <sup>3</sup> /h	1.18	1.18
Gas Consumption G31 (supply pressure 37/50 mbar) Qn	kg/h	3.76	5.24
Gas Consumption G31 (supply pressure 37/50 mbar) Qmin	kg/h	0.75	0.75
Max. available pressure at the chimney base	Pa	70	70
Condensate production max	kg/h	7.8	10.87
<b>Emissions</b>			
CO at Minimum Heat Input with 0% of O <sub>2</sub>	mg/kWh	71.3	82
NO <sub>x</sub> at Nominal Heat Input with 0% of O <sub>2</sub>	mg/kWh	56	59
NO <sub>x</sub> Class		6	6
<b>Electrical Data</b>			
Voltage/Frequency electric power supply	V/Hz	230/50	230/50
Fuse on main supply	A (R)	6	6
Insulation degree	IP	X4D	X4D

Room Temperature = 20°C.

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


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

Standstill heat losses at  $\Delta t$  30K - P<sub>stby</sub> - See Erp Table

Standstill electrical consumption - P<sub>sb</sub> - See Erp Table

## DATA ACCORDING TO ErP DIRECTIVE

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site [www.schusterboilers.com](http://www.schusterboilers.com) at the page of the product

			BWA 50	BWA 70
NOMINAL HEAT OUTPUT	$P_n$	kW	47	66
SEASONAL SPACE HEATING ENERGY EFFICIENCY	$\eta_s$	%	93	93
<b>SEASONAL EFFICIENCY CLASS IN HEATING MODE</b>			<b>A</b>	<b>A</b>
<b>FOR CH ONLY AND COMBINATION BOILERS: USEFUL HEAT OUTPUT</b>				
USEFUL HEAT OUTPUT in high temperature regime (Tr 60°C / Tm 80°C)	$P_4$	kW	47.2	65.7
USEFUL EFFICIENCY AT NOM. HEAT OUTPUT in high-temperature regime (Tr 60°C / Tm 80°C)	$\eta_4$	%	87.7	87.7
USEFUL HEAT OUTPUT AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30°C)	$P_1$	kW	15.7	21.9
USEFUL EFFICIENCY AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30°C)	$\eta_1$	%	97.1	97.3
RANGE-RATED BOILER: YES / NO			NO	NO
<b>AUXILIARY ELECTRICITY CONSUMPTION</b>				
AT FULL LOAD	$e_{l_{max}}$	kW	0.203	0.267
AT PART LOAD	$e_{l_{min}}$	kW	0.162	0.172
IN STAND-BY MODE	$P_{SB}$	kW	0.005	0.005
<b>OTHER ITEMS</b>				
STAND-BY HEAT LOSS	$P_{stby}$	kW	0.151	0.151
EMISSIONS OF NITROGEN OXIDES referred to GCV	$NO_x$	mg/kWh	41	42
$NO_x$ CLASS			6	6
INSIDE SOUND POWER LEVEL	$L_{wa}$	dB(A)	60	63