



## 2.5 - OPERATING DATA AND GENERAL FEATURES

For the adjustment data: NOZZLES - PRESSURE - DIAGRAMS - FLOW RATES refer to the paragraph ADAPTATION TO OTHER TYPES OF GAS.

	SPK	115	150	230	300	348	400	500	600
Boiler category		II <sub>2H3P</sub>							
Modulation ratio		1 : 3,3	1 : 4,0	1 : 4,3	1 : 4,3	1 : 3,9	1 : 4,2	1 : 3,9	1 : 4,4
Rated heat output on P.C.I. Qn	kW	115	140	214	280	348	380	450	550
Minimum heat output on P.C.I. Qmin	kW	35	35	50	65	90	90	115	125
Rated useful power (Tr 60 / Tm 80 °C) Pn	kW	111,84	136,36	209,29	274,54	341,42	373,01	441,95	540,32
Minimum useful power (Tr 60 / Tm 80 °C) Pn min	kW	32,49	32,52	48,25	63,57	87,67	87,80	111,09	118,53
Rated useful power (Tr 30 / Tm 50 °C) Pcond	kW	118,45	145,88	226,84	292,88	363,31	399,00	472,2	581,19
Minimum useful power (Tr 30 / Tm 50 °C) Pcond min	kW	36,54	36,54	54,60	70,01	99,09	97,20	124,09	135,88
Rated power performance (Tr 60 / Tm 80°C)	%	97,25	97,4	97,8	98,05	98,11	98,16	98,21	98,24
Minimum power performance (Tr 60 / Tm 80°C)	%	92,82	92,92	96,5	97,8	97,41	97,55	96,6	94,82
Rated power performance (Tr 30 / Tm 50°C)	%	103	104,2	106	104,6	104,4	105	104,9	105,67
Minimum power performance (Tr 30 / Tm 50°C)	%	104,4	104,4	109,2	107,7	110,1	108	107,9	108,7
Performance at 30% of the load (Tr 30°C)	%	107,3	107,7	107,2	108,9	108,4	108,8	108,9	106,5
Combustion efficiency at nominal load	%	98,1	97,8	97,9	98,2	98,2	98,2	98,2	98,3
Combustion efficiency with reduced load	%	98,38	98,38	98,32	98,40	98,34	98,31	98,43	98,42
Casing heat loss with burner operating (Qmin)	%	5,56	5,46	1,82	0,60	0,93	0,76	1,83	3,60
Casing heat loss with burner operating (Qn)	%	0,8	0,4	0,1	0,1	0,1	0,1	0,03	0,04
Net flue gas temperature tf-ta (min)(**)	°C	32,3	32,3	33,6	32	33,2	33,7	31,3	31,5
Net flue gas temperature tf-ta (max)(**)	°C	38	44,2	42,7	36,7	35,6	35,4	35,5	34,3
Maximum permitted temperature	°C	100							
Maximum operating temperature	°C	90							
Flue gas mass flow rate (min)	kg/h	57	57	82	106	147	147	188	204
Flue gas mass flow rate (max)	kg/h	188	229	350	458	569	621	735	899
Excess air	%	25,53							
Heat loss at chimney with burner on (min)	%	1,62	1,62	1,68	1,60	1,66	1,69	1,57	1,58
Heat loss at chimney with burner on (max)	%	1,90	2,21	2,14	1,84	1,78	1,77	1,78	1,72
Minimum heating circuit pressure	bar	0,5							
Maximum heating circuit pressure	bar	6							
Water content	l	153	153	210	270	340	340	340	425
Methane gas consumption G20 (pow.sup. 20 mbar) at Qn	m³/h	12,16	14,80	22,63	29,61	36,80	40,18	47,58	58,15
Methane gas consumption G20 (pow.sup. 20 mbar) at Qmin	m³/h	3,70	3,70	5,29	6,87	9,52	9,52	12,16	13,22
Propane gas consumption (pow. sup. 37/50 mbar) at Qn	kg/h	8,93	10,87	16,61	21,73	27,01	29,50	34,93	42,69
Propane gas consumption (pow. sup. 37/50 mbar) at Qmin	kg/h	2,72	2,72	3,88	5,05	9,70	6,99	8,93	8,70
Chimney base maximum pressure available	Pa	100							
Max condensate production	kg/h	11,2	11,5	13,7	15,8	29,1	28,5	28,8	31,0
<b>Emissions</b>									
CO at maximum heat output with 0% of O2	mg/kWh	17,86	13,73	18,05	28,08	25,27	18,25	22,46	22,1
NOx at maximum heat output with 0% of O2	mg/kWh	53	54	43	53	49	50	48	50
NOx Class		6							
<b>Electrical data</b>									
Power supply voltage/frequency	V/Hz	230/50							
Fuse on the power supply	A (R)	6							
Protection rating	IP	X4D							
Room Temperature = 20°C									
(*) Temperature detected with appliance operation flow rate 80°C / ret. 60°C									
CO <sub>2</sub> (min/max) See table "NOZZLES - PRESSURE"									
Seasonal energy efficiency to heat the room 2009/125 CEE (<=400Kw) η <sub>s</sub> - see table ErP									
Heat loss in stand-by ΔT 30°C - P <sub>stb</sub> - see table ErP									
Electricity consumption on standby - P <sub>sb</sub> - see table ErP									

## 2.5.1 - TECHNICAL DATA ACCORDING ErP DIRECTIVE

		SPK	115	150	230	300	348	400	500	600
Element	Symbol	Unit								
Effective nominal output	P <sub>nomiale</sub>	kW	112	136	209	274	341	371	442	540
Seasonal energy efficiency to heat the room	η <sub>s</sub>	%	92	93	92	94	93	94	94	92
<b>Season efficiency class to discharge</b>			<b>A</b>	<b>A</b>	<b>A</b>	<b>A</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 <sub>4</sub>	kW	111,8	136,3	209,3	274,5	341,4	373,0	441,9	540,3
Useful efficiency at nom. heat output in high-temperature regime (Tr 60 °C / Tm 80 °C)	η <sub>4</sub>	%	87,6	87,8	88,1	88,3	88,4	88,4	88,5	88,5
Useful heat output at 30% of nom. heat output in low-temperature regime (Tr 30 °C)	P <sub>1</sub>	kW	37,0	45,2	68,8	91,5	113,2	124,0	147,1	175,7
Useful efficiency at 30% of nom. heat output in low-temperature regime (Tr 30 °C)	η <sub>1</sub>	%	96,6	97,0	96,6	98,1	97,7	98,0	98,2	96,0
Range-rated boiler: YES / NO			NO	NO	NO	NO	NO	NO	NO	NO
<b>Auxiliary electricity consumption</b>										
At full load	el <sub>max</sub>	kW	0,190	0,190	0,195	0,210	0,270	0,425	0,555	0,590
At part load	el <sub>min</sub>	kW	0,042	0,042	0,040	0,032	0,036	0,051	0,053	0,088
In stand-by mode	P <sub>SB</sub>	kW	0,005	0,005	0,005	0,005	0,005	0,005	0,004	0,007
<b>Other items</b>										
Heat loss in stand-by	P <sub>stb</sub>	kW	0,32	0,32	0,39	0,34	0,95	0,95	0,95	1,34
Emissions of nitrogen oxides ref. PCS	NO <sub>x</sub>	Mg/kWh	53	53	51	53	49	50	48	50
Annual electricity consumption	Q <sub>HE</sub>	GJ	349	424	653	844	1054	1148	1358	1694
Inside sound power level	L <sub>wa</sub>	dB (A)	-	-	-	-	-	-	-	-
<b>For CH &amp; DHW production boilers</b>										
Declared load profile			-	-	-	-	-	-	-	-
Energy efficiency in DHW production mode	η <sub>wh</sub>	%	-	-	-	-	-	-	-	-
Daily electricity consumption	Q <sub>elec</sub>	kWh	-	-	-	-	-	-	-	-
Daily fuel consumption	Q <sub>fuel</sub>	kWh	-	-	-	-	-	-	-	-
Annual electricity consumption	AEC	kWh								
Annual fuel consumption	AFC	GJ								
<b>Seasonal efficiency class in DHW production mode</b>			-	-	-	-	-	-	-	-

\* Appliances not covered by Directive 2009/15 / EC