STEAM-MATIC

FIRE TUBE STEAM BOILER

HIGHER PERFORMANCE, LOWER COSTS

cannon
BONO ENERGIA

STEAM MATIC

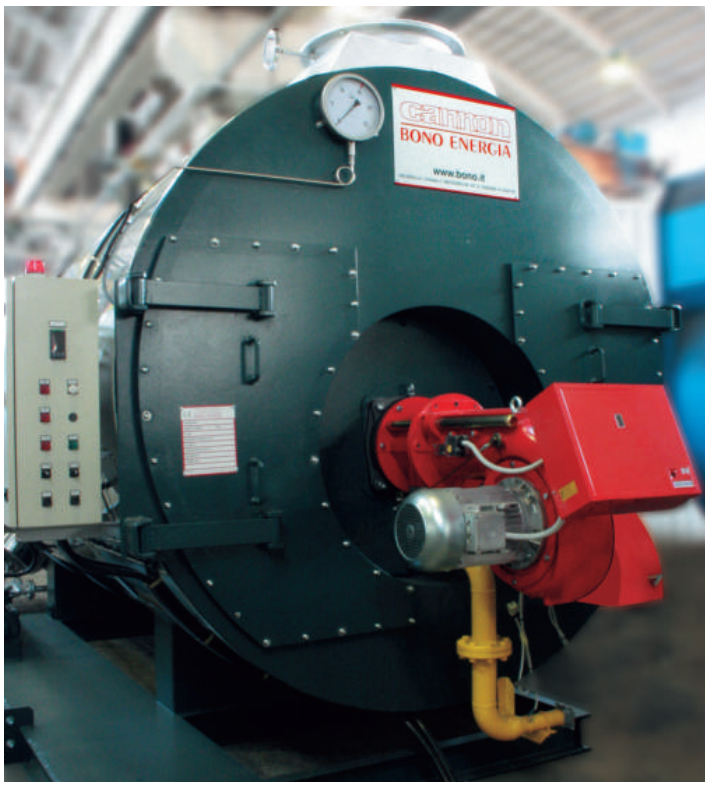
COST-SAVING, PERFORM

A STORY OF INNOVATION

STEAM-MATIC SG boilers have been developed upon BONO ENERGIA's significant technical and technological expertise in manufacturing complex, high-capacity thermal equipment.

With over **5,000** installations worldwide, **STEAM-MATIC SG boilers represent a remarkable achievement** and a valid response to the needs of the industrial market, as they offer reliability and high performance.

STEAM-MATIC SG boilers are innovative: they offer the combination of the significant advantages of an entirely water-cooled flue-gas reversing chamber with a simple, efficient shell and tubes configuration.



CONFIGURATION

STEAM-MATIC SG boilers are supplied according to European norm EN 12953-10 in a package execution ready to be connected to customers' utilities including:

- **Burner and relevant accessories**
- **Regulation and control systems**
- **Water feeding unit**
- **Electric Wiring to junction boxes**
- **Control panel**

STEAM-MATIC SG boilers offer superior performance: the innovative design of the pressure vessel ensures excellent heat transfer in two passes and provide full accessibility to the boiler and the flue gas reversing chamber. The large volume of water and a wide steam chamber provide high working flexibility and a considerable steam reserve.

STEAM MATIC SG are low consumption boilers, Bono technology ensures a basic thermal efficiency of 89% reducing fuel consumption to the minimum. Additional devices such as flue gas/air, flue gas/water economisers or integrated control system Optispark allow to reach 95%!

STEAM MATIC SG series are compatible with new generation control systems "OPTIspark", "SAFEspark", "AMECspark".

TECHNICAL STRENGTHS

- **Up to 95% thermal efficiency** is achieved through the optimisation of the heat exchange surfaces and the use of heat recovery systems (i.e. economisers) that are built inside the boiler structure, and can be easily and fully inspected, without any expensive or bulky flue gas ducts required.
- **An extremely innovative design** ensures complete access to the furnace, the tubes and the tube plates.
- **An optimised heat exchange** over the entire surface allows the heat flux to be evenly distributed. Throughout its two-way course, the heat flux guarantees equal heat transfer conditions across all the tubes, preventing the significant thermal unbalance between the second and the third pass typical of the three-pass design.
- **The rational, efficient architecture** characterising the furnace, the shell and the tube plates gives the boiler a more flexible and stable structure especially at high working pressures.
- **The large furnace** ensures reduced thermal load and high radiant heat transfer. The total absorption of thermal expansion and reduction of the flue gas temperature at the furnace end are extremely important features.

MANCE AND INNOVATION

STEAM MATIC

- **The absence of refractory** lining or boiler studs in the wet-back design, eliminates eventual stress on both the shell of the boiler and the rear tube plate.
- **The use of dished tube plates** guarantees negligible forming stress and high level of safety under the most critical working conditions.
- **A water tube wall that allows free expansion of the pressure vessel and of the tubes:** an innovative, reliable, efficient solution adopted to join the flue gas reversing chamber with the boiler shell.

The water tube wall also ensures:

- **High water** circulation in an area subject to thermal stress, preventing the formation of cold/hot spot areas.
- **The removal of radiant heat loss** and the significant cooling of flue gases. The cooler burner flame and the longer furnace represent an efficient system to preserve the rear tubes ends, since the flame temperature is cooler and less aggressive in comparison with the three-pass boiler design.
- **The protection of the fire tubes and the rear tube plate** from overheating caused by possible misfiring.
- **Easy access to the large flue gas reversing chamber,** allowing an accurate inspection of the tubes, the furnace and the tube plate.

MAIN APPLICATIONS

STEAM-MATIC SG boilers are used in a wide range of steam-intensive industrial processes for heavy-duty applications:

- **Paper**
- **Food & beverage**
- **District heating**
- **Plastic and rubber**
- **Chemical & petrochemical**
- **Wood**
- **Infrastucture & building materials**

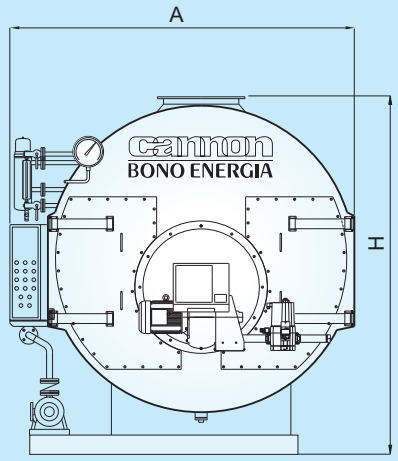
BONO ENERGIA, part of **CANNON GROUP**, is the Italian leader for the production of industrial boilers and thermal fluid heaters.
A staff of 150 dedicated specialists, with more than 30 engineers, are distributed in three modern production facilities. Bono Energia currently operates according to ISO 9001:2000 and ASME Quality Systems (ASME stamp, American Society of Mechanical Engineers). Design, construction and testing are carried out according to the strictest international standards: PED, ASME, EN, DIN, GOST-R, SQLO, R.I.Na., A.B.S., Ukrsepro.

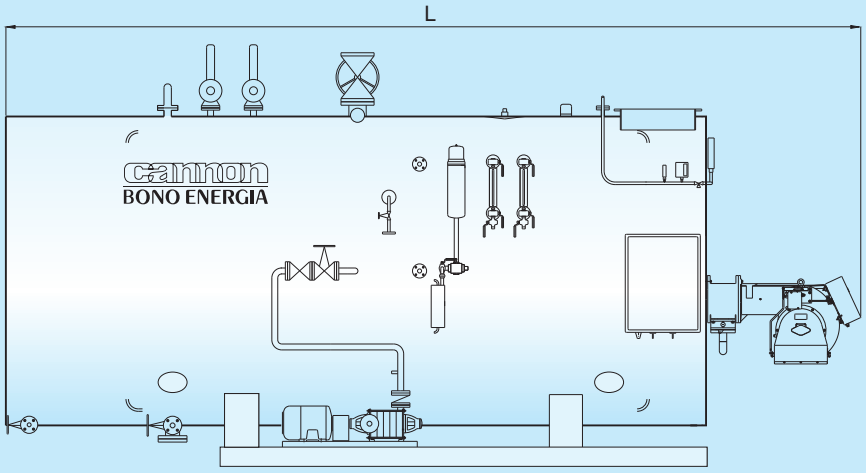
king pressure up to 30 bar

COST-SAVING, PERFORMANCE AND INNOVATION

Features		RANGE							
		600	800	1000	1200	1500	2000	2200	2500
Thermal capacity	Kcal/h	3.600.000	4.800.000	6.000.000	7.200.000	9.000.000	12.000.000	13.000.000	15.000.000
	MW	4,2	5,6	7,0	8,4	10,5	14,0	15,1	17,4
Steam production	Kg/h	6.000	8.000	10.000	12.000	15.000	20.000	22.000	25.000
Feed water temp.	C°	90 - 95	90 - 95	90 - 95	90 - 95	90 - 95	90 - 95	90 - 95	90 - 95
Design pressure	bar	12 15 18	12 15 18	12 15 18	12 15 18	12 15 18	12 15 18	12 15 18	12 15 18
Thermal efficiency with economizer	%	92	92	92	92	92	92	92	92
Consumption:									
-heavy fuel oil	Kg/h	302,6	403,4	504,3	605,1	756,4	1008,5	-	-
-diesel oil	L/h	287,7	383,6	479,5	575,4	719,3	959,1	-	-
-natural gas	Nm3/h	345,3	460,4	575,4	690,5	863,2	1150,9	1246,8	1438,6
Overall dimensions:									
-max length L	mm	6.900	7.500	7.700	8.250	8.700	9.350	10.000	10.650
-width A	mm	2.950	2.950	3.300	3.300	3.600	3.600	3.900	4.000
-height H	mm	3.000	3.100	3,450	3.550	3.750	3.750	4.000	4.100
Empty weight	t	17,0 17,8 18,7	20,0 21,0 22,2	23,0 24,3 25,7	26,0 27,6 29,2	32,0 34,2 36,1	38,0 41,4 43,0	45,5 46,2 48,0	51,2 53,2 55,5

Fuels:	
Heavy fuel oil (l.h.v 9.700 Kcal/kg. viscosity < 5-7°E at 50°C pressure 2 bar) Diesel oil (l.h.v 10.200 Kcal/kg. pressure 1,5 bar) Natural Gas (l.h.v. 8.500Kcal/Nm3 Stab. press. 200/300mbar)	
Electric power	**Auxiliaries power**
380 V. - 50 Hz. - 3 ph + N	220V.
Feeding water and boiler water:	
EN 12953-10 :2003	requirements for feedwater and and boiler water quality up to European standard.





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LR 170324

Cert. 28.818 Cert. 28.817
Company Authorized to Use the Indicated ASME Symbols

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