





TReVAPOR



DESCRIPTION







The TReVAPOR range encompasses steam generators designed to exceed today's standards in terms of efficiency and low polluting emissions, without renouncing the very high safety and reliability standards, which have always been a distinguishing feature of ICI CALDAIE products. Certified as Assembly according to the PED 2014/68/EU directive also in its basic equipment, each model in the range can be customized to meet every need thanks to a wide range of configurations and accessories available.

FEATURES

-  **Design pressure: 12 bar**
-  **Heat output: 818 ÷ 4770 kW**
-  **Steam capacity: 1200 ÷ 6500 kg/h**
-  **Efficiency: 90,5 %**

For higher pressures see our commercial department

ADVANTAGES

-  **High steam quality**
At high load the internal separator prevents the entrainment of water droplets to the steam outlet, the steam produced is then always of high quality having a very high dryness fraction.
-  **Efficiency at all costs**
Integrated solutions for increased performance and efficiency through flue gas heat recovery fully integrated into the structure of the boiler.
-  **Reliability and durability**
Maximum reliability and durability guaranteed through design with low surface heat losses.
-  **Advanced management technology**
The boiler can be equipped with programmable logic technology that allows complete compatibility with any data acquisition system, also allowing the adjustment of parameters through the display.
-  **Maximum security**
The generator has been designed in accordance with the strictest international safety regulations in force.
-  **Configurable to specific requirements**
A wide range of optional accessories are available to customize the product to meet specific requirements.

Three-pass steam boilers

MODELS



TReVAPOR 12 bar

TReVAPOR P 12 bar

AVAILABLE CERTIFICATIONS



RECOMMENDED TECHNOLOGIES



MAIN APPLICATIONS

- ⊕ Paper industry
- ⊕ Tanning industry
- ⊕ Food and beverage industry
- ⊕ Meat processing
- ⊕ Distilleries
- ⊕ Beer industry
- ⊕ Wine farms
- ⊕ Chemical and pharmaceutical industries
- ⊕ Manufacturing industry
- ⊕ Hospitals
- ⊕ Heavy industry
- ⊕ Petrochemical industry
- ⊕ Dairy Industry

TReVAPOR 12 bar

(818 ÷ 4088 kW)

The TReVAPOR steam generator is optimized for the use of Low NOx burners to comply with the European Directive (EU) 2015/2193 and also with even more restrictive emissions on request.



Reduced NOx emissions

Design pressure: 12 bar

Heat output: 818 ÷ 4088 kW

Steam capacity: 1200 ÷ 6000 kg/h

Efficiency: 90,5%

Efficiency with economiser: 95,0%

Emissions that can be obtained: NOx < 100 mg

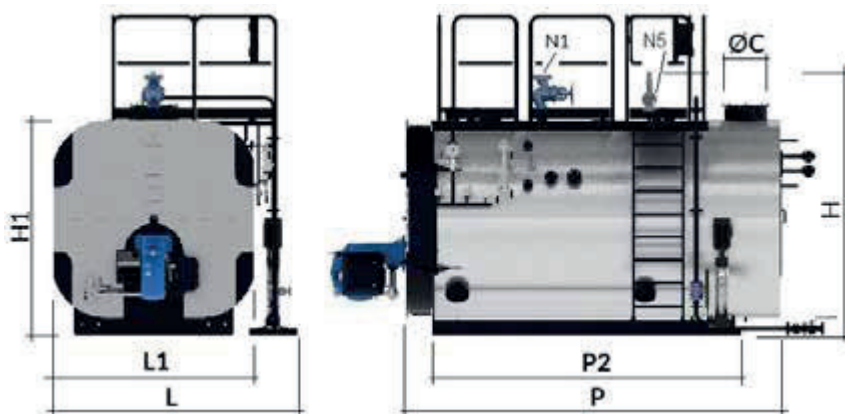
TECHNICAL DATA

Model	Heat Output	Flow thermal	Steam capacity *	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight *
TREVAPOR	kW	kW	kg/h	lt	mbar	Nm3/h	kg/h	kg/h	kg
1200	818	904	1200	2300	9.8	92.5	76.2	80.1	5700
1500	1022	1129	1500	3650	4.8	115.6	95.2	100.1	6300
2000	1363	1506	2000	4450	7.9	154.2	127	133.5	7050
2500	1703	1882	2500	5500	8.6	192.7	158.7	166.9	8950
3000	2044	2259	3000	6400	11.5	231.3	190.4	200.3	10050
3500	2385	2635	3500	7780	7.4	269.8	222.2	233.6	10550
4000	2726	3012	4000	8800	11.2	308.3	253.9	267	11950
5000	3407	3765	5000	9730	9.9	385.4	317.4	333.8	13550
6000	4088	4518	6000	10980	13.5	462.5	380.9	400.5	14750

* steam capacity with feed water at 80 °C

* empty weight refers to the model with single pump 12 bar

DIMENSIONS



Model	H	L	L2	P	P2	ØC	N1	N5
TREVAPOR	mm	mm	mm	mm	mm	mm	DN/in	DN/in
1200	2260	2065	1200	3857	2438	350	65	25
1500	2570	2370	1500	3857	2442	400	80	25
2000	2641	2370	1500	4356	2942	400	80	32
2500	2641	2370	1500	4456	2942	450	100	32
3000	2844	2595	1700	4956	3442	450	100	32
3500	3041	2770	1900	5158	3442	550	100	32
4000	3108	2770	1900	5656	3942	550	100	40
5000	3351.79	2925	2050	5656	3942	600	125	40
6000	3351.79	2925	2050	6156	4442	600	125	40

STANDARD EQUIPMENT

Blow down system comprising:

- Purge shut-off valve
- Quick exhaust valve with manual lever

Automatic conductivity probe level control system comprising:

- Pump start probe
- Pump stop probe
- High level alarm probe
- 1st and 2nd alarm and burner shut off probe for low level

Boiler control panel, IP 55 400V/3 +N/ 50Hz

AVAILABLE CONDITIONS

Single feed water pump

Feed water delivery system containing:

- 1 vertical multi-stage centrifugal electric pump for water at 120°C
- 1 shut-off globe valve
- 2 non-return valves

Accessories on the steam side, including:

- Steam outlet/crown valve
- 1 spring safety valve up to model 2500 (n°2 for higher models)
- Reflex level indicator gauge
- Level indicator guage drain and shut-off valve unit

Monitoring instrumentation, comprising:

- Large dial 3 way test valve manometer
- Limit pressure switch
- Manual reset safety pressure switch

Twin feed pumps

Feed water delivery system containing:

- 2 vertical multi-stage centrifugal electric pumps suitable for water at 120°C
- 3 delivery shut-off valves
- 3 non-return valves

Accessories on the steam side, including:

- Steam outlet/crown valve
- 2 spring safety valves
- 2 Reflex level indicator gauge
- 2 Level indicator guage drain and shut-off valve unit

Monitoring instrumentation, comprising:

- Large dial 3 way test valve manometer
- Limit pressure switch
- Manual reset safety pressure switch
- 2nd stage regulation pressure switch

PRODUCT CODES

Model	12 bar	
	1 pump	2 pumps
TReVAPOR 1200	87741200	87741204
TReVAPOR 1500	87741500	87741504
TReVAPOR 2000	87742000	87742004
TReVAPOR 2500	87742500	87742504
TReVAPOR 3000	87743000	87743004
TReVAPOR 3500	87743500	87743504
TReVAPOR 4000	87744000	87744004
TReVAPOR 5000	87745000	87745004
TReVAPOR 6000	87746000	87746004

TReVAPOR P 12 bar

(1022 ÷ 4770 kW)

The TReVAPOR P steam generator is designed for both Low NOx and yellow flame burners, depending on the required emission limits.



Reduced NOx emissions

Design pressure: **12 bar**

Heat output: **1022 ÷ 4770 kW**

Steam capacity: **1500 ÷ 6500 kg/h**

Efficiency: **90,0%**

Efficiency with economiser: **94,5 %**

Emissions that can be obtained: **NOx < 120 mg**

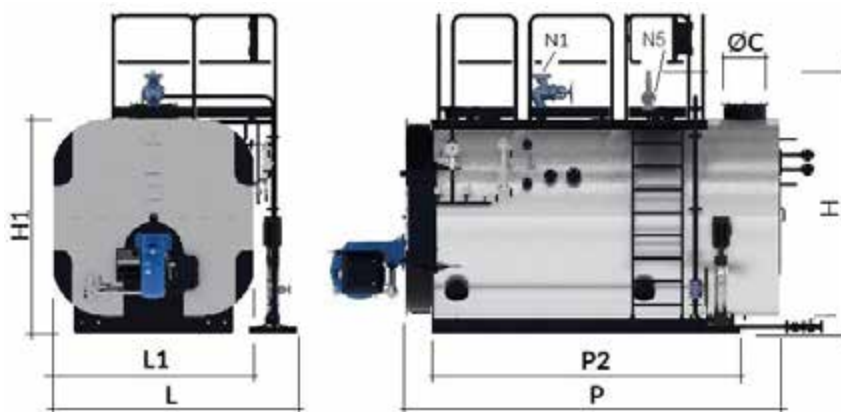
TECHNICAL DATA

Model	Heat Output	Flow thermal	Steam capacity *	Total volume H ₂ O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight *
TREVAPOR P	kW	kW	kg/h	lt	mbar	Nm ³ /h	kg/h	kg/h	kg
1500	1022	1136	1500	2300	12,5	116.3	95.8	100.7	5700
2000	1363	1514	2000	3650	8,42	155	127.7	134.2	6300
2500	1703	1893	2500	4450	12,3	193.8	159.6	167.8	7050
3000	2044	2271	3000	5500	12,2	232.5	191.5	201.4	8950
3500	2385	2650	3500	6400	15,5	271.3	223.4	234.9	10050
4000	2726	3028	4000	7780	9,7	310.1	255.3	268.5	10550
5000	3407	3786	5000	8800	14,3	387.6	319.2	335.6	11950
6000	4088	4543	6000	9730	14,1	465.1	383	402.7	13550
6500	4770	5300	7000	10980	19,9	542.6	446.8	469.9	14750

* steam capacity with feed water at 80 ° C

* empty weight refers to the model with single pump 12 bar

DIMENSIONS



Model	H	L	L2	P	P2	ØC	N1	N5
TREVAPOR P	mm	mm	mm	mm	mm	mm	DN/in	DN/in
1500	2260	2085	1200	3332	2442	350	65	25
2000	2599	2395	1500	3508	2442	390	80	25
2500	2667	2395	1500	4008	2442	390	80	32
3000	2912	2595	1700	4168	2942	450	100	32
3500	2912	2595	1700	4668	3442	450	100	32
4000	3113	2795	1900	4758	3442	550	100	32
5000	3177	2795	1900	5258	3942	550	100	40
6000	3352	2945	2050	5328	3942	600	125	40
6500	3352	2945	2050	5328	3942	600	125	40

STANDARD EQUIPMENT

Blow down system comprising:

- Purge shut-off valve
- Quick exhaust valve with manual lever

Automatic conductivity probe level control system comprising:

- Pump start probe
- Pump stop probe
- High level alarm probe
- 1st and 2nd alarm and burner shut off probe for low level

Boiler control panel, IP 55 400V/3 +N/ 50Hz

AVAILABLE CONDITIONS

Single feed water pump

Feed water delivery system containing:

- 1 vertical multi-stage centrifugal electric pump for water at 120°C
- 1 shut-off globe valve
- 2 non-return valves

Accessories on the steam side, including:

- Steam outlet/crown valve
- 1 spring safety valve up to model 2500 (n°2 for higher models)
- Reflex level indicator gauge
- Level indicator gauge drain and shut-off valve unit

Monitoring instrumentation, comprising:

- Large dial 3 way test valve manometer
- Limit pressure switch
- Manual reset safety pressure switch

Twin feed pumps

Feed water delivery system containing:

- 2 vertical multi-stage centrifugal electric pumps suitable for water at 120°C
- 3 delivery shut-off valves
- 3 non-return valves

Accessories on the steam side, including:

- Steam outlet/crown valve
- 2 spring safety valves
- 2 Reflex level indicator gauge
- 2 Level indicator gauge drain and shut-off valve unit

Monitoring instrumentation, comprising:

- Large dial 3 way test valve manometer
- Limit pressure switch
- Manual reset safety pressure switch
- 2nd stage regulation pressure switch

PRODUCT CODES

Model	12 bar	
	1 pump	2 pumps
TReVAPOR P 1500	87761500	87761504
TReVAPOR P 2000	87762000	87762004
TReVAPOR P 2500	87762500	87762504
TReVAPOR P 3000	87763000	87763004
TReVAPOR P 3500	87763500	87763504
TReVAPOR P 4000	87764000	87764004
TReVAPOR P 5000	87765000	87765004
TReVAPOR P 6000	87766000	87766004
TReVAPOR P 6500	87766500	87766504

ACCESSORIES AVAILABLE FOR THE RANGE

** The choice of using the accessory "ladder and handrail" requires to add the accessory "GSX platform" (code 90060110)

Code	Description	12 bar	
		1 pump	2 pumps
See "Accessories" section	Automatic blowdown system for SIXEN - GSX - GX boilers	■	■
See "Accessories" section	Standby feed water pump	■	
17090037	Salinity control unit (pneumatic TDS)	■	■
17090035	Salinity control unit (electric TDS)	■	■
17090051	Salinity control unit (electric light TDS) Maximum pressure 12 bar	■	■
38040100	Sample cooler	■	■
See "Accessories" section	Modulating level regulation with electric valve	■	■
39050001	Modulating level regulation with pump + inverter	■	
39050100	Modulating feed of electrical two-way valve and pump with inverter	■	
39050000	Modulating level regulation with pumps + inverter		■
39050110	Modulating feed of electrical two-way valve and pumps with inverter		■
90060040	Self-checking High level safety unit	■	■
90060050	Self-checking Low level safety units	■	■
86900067	Global safety system GSS72/1	■	■
86900073	Global safety system GSS72/2X	■	■
90060070	2nd stage regulation pressure switch (in case of two-stage burner)	■	■
90060105	Ladder and handrail for TReVAPOR boilers	■	■
90060090	Side platform	■	■
QCTETERM	Eterm Easy manager panel	■	■

COMPONENTS FOR HEATING PLANT ROOM COMPATIBLE WITH THE RANGE



ECO-T
Economiser for steam boilers series TReVAPOR



ADD
Feed water treatment unit for steam boilers



VRC
Condensate collection tank



BDV
Blowdown vessel



VRC-V
Condensate collection tank



VEX
Steam accumulator



DEG
Atmospheric deaerator



DEG/P
Pressurised deaerator

STEAM

SUPER-HEATED WATER

THERMAL OIL

HOT WATER

ACCESSORIES

SYSTEM LAYOUTS





TReVAPOR GT









DESCRIPTION

TReVAPOR GT is a **Low Nox boiler with 72-hour exemption** that guarantees high performance and reliability over time thanks to the perfect integration of its components, including the innovative **NeOX burner**. It is managed thanks to a single user interface with simple and user-friendly graphics and the possibility of remote control via standard **ModBus** protocol or **eterm** platform.

FEATURES

-  **Design pressure: 12 bar**
-  **Heat output: 818 ÷ 4088 kW**
-  **Steam capacity: 1200 ÷ 6000 kg/h**
-  **Efficiency: 90,5 %**
Efficiency with economiser: **95,0 %**
Emissions that can be obtained: **NOx < 100 mg**

ADVANTAGES

-  **Guarantee of performance and reliability**
Designed, guaranteed and certified as a whole unit by ICI CALDAIE, can be monitored through a single user interface both locally and remotely.
-  **High performance**
Maximum seasonal efficiency is guaranteed as the system adapts in real time to changing environmental variables.
-  **Easy installation**
A compact design means more living space. All components are assembled and tested at the factory before shipment.
-  **Low maintenance costs**
Combustion is controlled (in compliance with Italian Legislative Decree 183/2017) without the O2 probe and requires no maintenance or replacement of parts. Adjustments can be made in just a few minutes using a fully automated system.
-  **High level of safety in the plant room**
Designed to ensure that all external parts are at temperatures lower than 50°C.
-  **Configurable to specific requirements**
A wide range of optional accessories are available to customize the product to meet specific requirements.

AVAILABLE CERTIFICATIONS



RECOMMENDED TECHNOLOGIES



MAIN APPLICATIONS

- ⊕ Paper industry
- ⊕ Chemical and pharmaceutical industries
- ⊕ Tanning industry
- ⊕ Manufacturing industry
- ⊕ Food and beverage industry
- ⊕ Hospitals
- ⊕ Meat processing
- ⊕ Heavy industry
- ⊕ Distilleries
- ⊕ Petrochemical industry
- ⊕ Beer industry
- ⊕ Dairy Industry
- ⊕ Wine farms

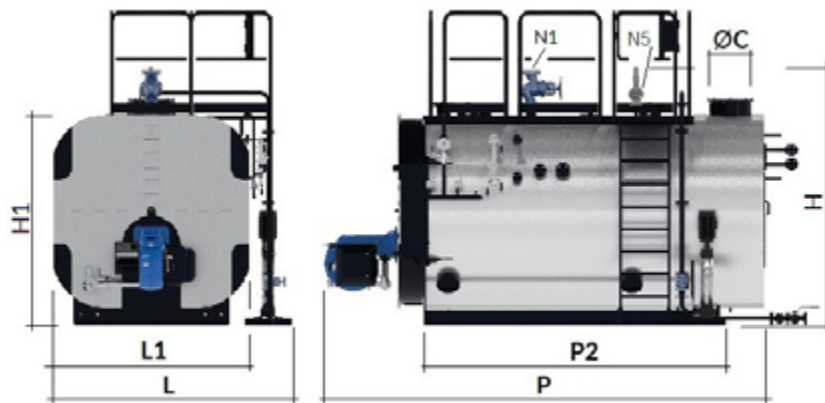
TECHNICAL DATA

Model	Heat Output	Flow thermal	Steam capacity *	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight *
TREVAPOR GT	kW	kW	kg/h	lt	mbar	Nm3/h	kg/h	kg/h	kg
1200	818	904	1200	2300	9.8	92.5	76.2	80.1	5700
1500	1022	1129	1500	3650	4.8	115.6	95.2	100.1	6300
2000	1363	1506	2000	4450	7.9	154.2	127	133.5	7050
2500	1703	1882	2500	5500	8.6	192.7	158.7	166.9	8950
3000	2044	2259	3000	6400	11.5	231.3	190.4	200.3	10050
3500	2385	2635	3500	7780	7.4	269.8	222.2	233.6	10550
4000	2726	3012	4000	8800	11.2	308.3	253.9	267	11950
5000	3407	3765	5000	9730	9.9	385.4	317.4	333.8	13550
6000	4088	4518	6000	10980	13.5	462.5	380.9	400.5	14750

* steam capacity with feed water at 80 °C

* empty weight refers to the model with single pump 12 bar

DIMENSIONS



Model	H	L	L2	P	P2	ØC	N1	N5
TREVAPOR GT	mm	mm	mm	mm	mm	mm	DN/in	DN/in
1200	2260	2065	1200	4638	2438	350	65	25
1500	2570	2370	1500	4684	2442	400	80	25
2000	2641	2370	1500	5296	2942	400	80	32
2500	2641	2370	1500	5385	2942	450	100	32
3000	2844	2595	1700	5885	3442	450	100	32
3500	3041	2770	1900	6299	3442	550	100	32
4000	3108	2770	1900	6797	3942	550	100	40
5000	3351.79	2925	2050	6797	3942	600	125	40
6000	3351.79	2925	2050	7357	4442	600	125	40

STANDARD EQUIPMENT

Accessories on the steam side, including:

- Steam outlet/crown valve
- 1 spring safety valve up to model 2500 (n°2 for higher models)
- Reflex level indicator gauge
- Level indicator guage drain and shut-off valve unit

Monitoring instrumentation, comprising:

- Large dial 3 way test valve manometer
- Manual reset safety pressure switch
- Analogue pressure transducer

Feed water delivery system containing:

- 1 vertical multi-stage centrifugal electric pump for water at 120°C
- 1 shut-off globe valve
- 2 non-return valves

Blow down system comprising:

- Purge shut-off valve
- Rapid opening drain ball valve, with steel body, pneumatic actuator and return spring equipped with compressed air solenoid valve

Level adjustment unit containing:

- Capacitive probe for level control and management
- 1st alarm and burner shut off probe for low level with self-checking
- 2nd alarm and burner shut off probe for low level with self-checking
- High level safety probe

Pneumatic salinity control unit TDS:

For TReVAPOR GT 800 + 2000 models

Salinity control unit TDS electrical light containing:

- Conductivity probe with measurement chamber
- Drain solenoid valve
- Filter
- 2 shut-off valves
- Non-return valve
- Electric regulator on board of control panel

For TReVAPOR GT 2500 + 6000

Electric or pneumatic TDS salinity control containing:

- Conductivity probe
- Salinity regulation and control unit
- Electric or pneumatic blowdown system complete with shut-off valves
- Electrical controls in general control panel of the boiler
- Mechanical and electric parts

Sample cooler containing:

- AISI 304 barrel with an internal water-cooling coil
- Cooling water injection ball valve
- Handwheel valve for sampling
- **Boiler control panel**, IP 55 protection grade, painted steel cabinet version, connected to the boiler trough pins, including internal certified safety circuits, controllers and management PLC and featuring main disconnecting switch and alarm reset button at the operator panel front side.

PRODUCT CODES

Model	Code
TReVAPOR 1200 GT	87741210
TReVAPOR 1500 GT	87741510
TReVAPOR 2000 GT	87742010
TReVAPOR 2500 GT	87742510
TReVAPOR 3000 GT	87743010
TReVAPOR 3500 GT	87743510
TReVAPOR 4000 GT	87744010
TReVAPOR 5000 GT	87745010
TReVAPOR 6000 GT	87746010

ACCESSORIES AVAILABLE FOR THE RANGE

Code	Description	12 bar
		1 pump
See "Accessories" section	Standby feed water pump	■
See "Accessories" section	Modulating level regulation with electric valve	■
39050001	Modulating level regulation with pump + inverter	■
39050100	Modulating feed of electrical two-way valve and pump with inverter	■
90060105	Ladder and handrail for TReVAPOR boilers	■
90060090	Side platform	■
QCTETERM	Eterm Easy manager panel	■

COMPONENTS FOR HEATING PLANT ROOM COMPATIBLE WITH THE RANGE



ECO-T
Economiser for steam boilers series TReVAPOR
ECO-TN
Economiser for steam boilers series TReVAPOR



VRC
Condensate collection tank



VRC-V
Condensate collection tank



DEG
Atmospheric deaerator



ADD
Feed water treatment unit for steam boilers



BDV
Blowdown vessel



VEX
Steam accumulator



DEG/P
Pressurised deaerator