




# TNOX



## DESCRIPTION







The TNOX range includes three pass, wet back boilers with low thermal load in the combustion chamber (between 1 and 1.2 MW/m<sup>3</sup>). The boilers with automatic operation are suitable for operation on liquid or gaseous fuels and designed for large heating systems with an operating temperature between 60 and 100°C. Designed for 110°C maximum temperature.

## FEATURES

-  **Design pressure: 6 bar**
-  **Heat output: 2500 ÷ 25000 kW**
-  **Efficiency: > 93,0 %**

*The entire range is available, upon request, with maximum design pressure of 25 bar*

## ADVANTAGES

-  **Maximum operating flexibility**  
Thanks to the very high water content and the very high thermal inertia, the boiler is suitable for any system solution, even in the most difficult operating conditions.
-  **Efficiency at all costs**  
Integrated solutions for increased performance and efficiency through flue gas heat recovery fully integrated into the structure of the boiler.
-  **Configurable to specific requirements**  
A wide range of optional accessories are available to customize the product to meet specific requirements.
-  **High efficiency and large exchange surfaces**  
Extremely high energy efficiency thanks to the large exchange surfaces allowing top efficiency values under all operating conditions.
-  **Maximum security**  
The generator has been designed in accordance with the strictest international safety regulations in force.
-  **Reliability and durability**  
Maximum reliability and durability guaranteed through design with low surface heat losses.

## Three-pass boiler

### MODELS



TNOX



TNOX.e



TNOX EN



TNOX.e EN



TNOX BT COND



TNOX S

### AVAILABLE CERTIFICATIONS



### RECOMMENDED TECHNOLOGIES



### MAIN APPLICATIONS

- ⊕ Commercial facilities
- ⊕ Hospitals
- ⊕ District heating
- ⊕ Industrial heating systems
- ⊕ Sports centers

# TNOX

The TNOX model is designed for large heating systems with power between 2500 and 6000 kW and operating temperature between 60 and 100°C.



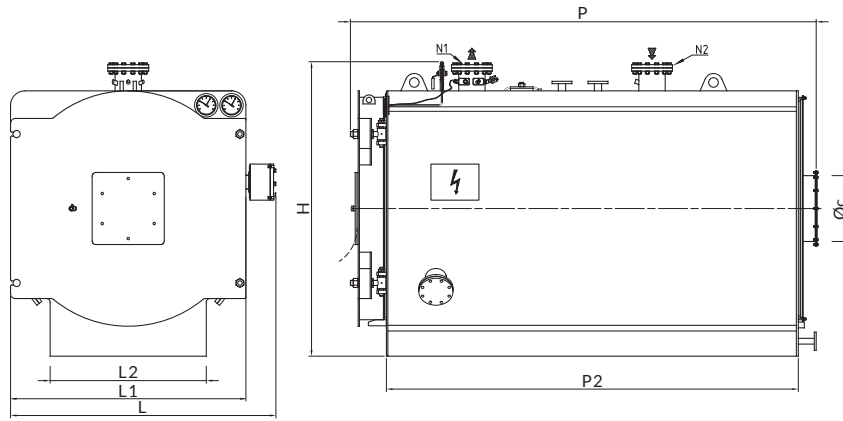
Design pressure: **6 bar**

Heat output: **2500 ÷ 6000 kW**

Efficiency: **> 93,0 %**

## TECHNICAL DATA

Model	Heat Output	Flow thermal	100% efficiency	Water side pressure drop	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight
TNOX	kW	kW	%	mbar	lt	mbar	Nm3/h	kg/h	kg/h	kg
2500	2500	2688	93,00	38	4496	9,1	275,2	226,7	238,4	6300
3000	3000	3226	93,00	55	5000	12,5	330,2	272,0	286,0	6950
3500	3500	3763	93,00	75	6441	10,7	385,4	317,4	333,7	8200
4000	4100	4409	93,00	42	7335	11,5	451,3	371,7	390,8	8970
5000	5000	5376	93,00	63	9088	10,0	550,5	453,3	476,7	11280
6000	6000	6452	93,00	91	10066	11,0	660,5	543,9	572,0	12160



## DIMENSIONS

Model	H	L	L1	L2	P	P2	ØC	N1	N2
TNOX	mm	mm	mm	mm	mm	mm	mm	DN/in	DN/in
2500	2460	2200	1960	1300	3879	3430	550	200	200
3000	2460	2200	1960	1300	4379	3930	550	200	200
3500	2700	2410	2170	1400	4379	3930	600	200	200
4000	2700	2410	2170	1400	4879	4430	600	250	250
5000	2820	2560	2320	1600	5389	4930	700	250	250
6000	2820	2560	2320	1600	5889	5430	700	250	250

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- Large dial 3 way test valve manometer

Instruments for temperature control, including:

- Thermometer with large dial, scale 0-120°C
- Regulation thermostat (100°C)
- High temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blow down system comprising:

- Purge shut-off valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

- The regulation thermostat (100 ° C) and the safety thermostat with manual reset (110 ° C) are INAIL approved

The boilers destined to foreign countries will be provided with:

- High-pressure safety switch with manual reset

## PRODUCT CODES

Model	Code
TNOX 2500	83472510
TNOX 3000	83473010
TNOX 3500	83473510
TNOX 4000	83474010
TNOX 5000	83475010
TNOX 6000	83476010

# TNOX EN

The TNOX EN model is designed for large heating systems with power requirements between 7000 and 17000 kW and operating temperature between 60 and 100°C.



Design pressure: **6 bar**

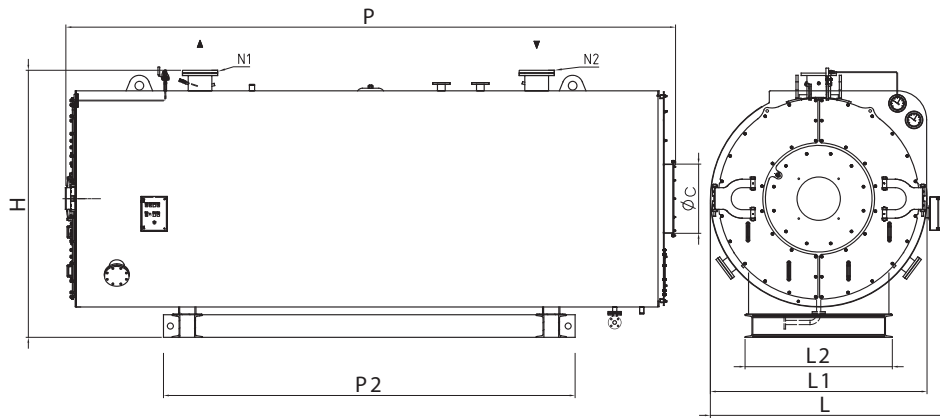
Heat output: **7000 ÷ 17000 kW**

Efficiency: **> 93,0 %**

## TECHNICAL DATA

Model	Heat output **	Flow thermal	100% efficiency	Water side pressure drop	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight
TNOX EN	kW	kW	%	mbar	lt	mbar	Nm3/h	kg/h	kg/h	kg
7000	7000	7519	93,10	123	14950	12,0	769,8	633,9	666,6	15400
8000	8000	8602	93,00	78	16200	15,0	880,7	725,3	762,7	16300
9000	9000	9677	93,00	53	20200	10,0	990,8	816,0	858,0	24940
10000	10000	10753	93,00	66	21800	12,0	1100,8	906,6	953,3	25400
11000	11000	11853	92,80	79	21800	15,0	1213,6	999,4	1050,9	25400
12000	12000	12931	92,80	94	23800	15,5	1323,9	1090,3	1146,5	28050
13000	16000	17058	93,80	168	23800	20,2	1746,4	1438,2	1512,4	28050
14000	14000	15005	93,30	75	33000	14,0	1536,3	1265,2	1330,4	37500
15000	15000	16112	93,10	86	33000	16,0	1649,5	1358,4	1428,5	37500
16000	16000	17112	93,50	98	35100	18,0	1752,0	1442,8	1517,2	40000
17000	17000	18201	93,40	111	35100	20,0	1863,5	1534,6	1613,7	40000

\*\* powers referring to methane gas; For diesel or naphtha operation the rule may provide for a downgrade



## DIMENSIONS

Model	H	L	L1	L2	P	P2	ØC	N1	N2
TNOX EN	mm	mm	mm	mm	mm	mm	mm	DN/in	DN/in
7000	3050	2700	2490	1700	7035	4750	800	250	250
8000	3050	2700	2490	1700	7535	5250	800	300	300
9000	3400	3140	2940	2000	7735	5400	900	350	350
10000	3400	3140	2940	2000	8235	5900	900	350	350
11000	3400	3140	2940	2000	8235	5900	900	350	350
12000	3500	3265	3065	2000	8183	5900	1000	350	350
13000	3500	3265	3065	2000	8183	5900	1000	350	350
14000	3960	3650	3450	2250	8820	6500	1100	400	400
15000	3960	3650	3450	2250	8820	6500	1100	400	400
16000	3960	3650	3450	2250	9320	7000	1100	400	400
17000	3960	3650	3450	2250	9320	7000	1100	400	400

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- Large dial 3 way test valve manometer

Instruments for temperature control, including:

- Thermometer with large dial, scale 0-120°C
- Regulation thermostat (100°C)
- High temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blow down system comprising:

- Purge shut-off valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

- The regulation thermostat (100 ° C) and the safety thermostat with manual reset (110 ° C) are INAIL approved

The boilers destined to foreign countries will be provided with:

- High-pressure safety switch with manual reset

## PRODUCT CODES

Model	Code
TNOX EN 7000	83477010
TNOX EN 8000	83478010
TNOX EN 9000	83479010
TNOX EN 10000	83481010
TNOX EN 11000	83479510
TNOX EN 12000	83481210
TNOX EN 13000	83481310
TNOX EN 14000	83481410
TNOX EN 15000	83481510
TNOX EN 16000	83481610
TNOX EN 17000	83481710

# TNOX.e

The TNOX.e model is designed for large heating systems with operating temperatures between 60 and 100°C. It is furthermore provided with elements accelerating the heat exchange to ensure the maximum possible efficiency.



Design pressure: 6 bar

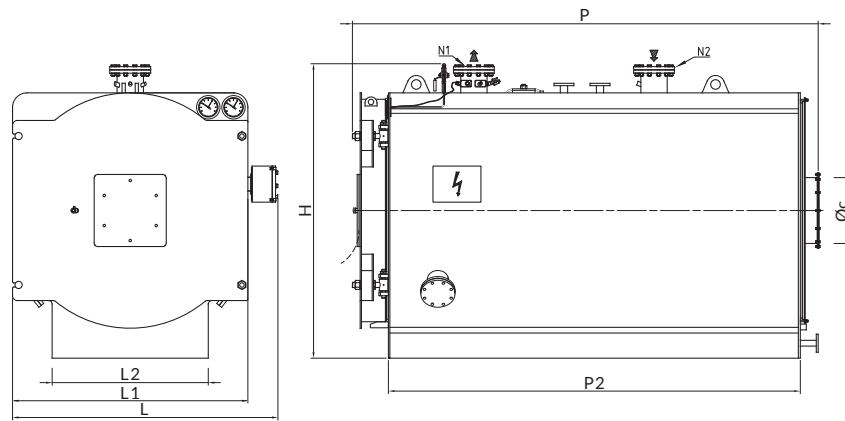
Heat output: 2500 ÷ 6000 kW

Efficiency: > 95,0 %



## TECHNICAL DATA

Model	Heat Output	Flow thermal	100% efficiency	Water side pressure drop	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight
TNOX-e	kW	kW	%	mbar	lt	mbar	Nm3/h	kg/h	kg/h	kg
2500	2500	2626	95,20	38	4496	12,0	268,8	221,4	232,8	6300
3000	3000	3151	95,20	55	5746	14,0	322,6	265,7	279,4	6950
3500	3500	3676	95,20	75	6441	13,0	376,4	310,0	326,0	8200
4000	4100	4307	95,20	42	7335	15,0	441,0	363,1	381,9	8970
5000	5000	5252	95,20	63	9088	14,0	537,7	442,8	465,7	11280
6000	6000	6303	95,20	91	12160	16,0	645,2	531,4	558,8	12600



## DIMENSIONS

Model	H	L	L1	L2	P	P2	ØC	N1	N2
TNOX-e	mm	mm	mm	mm	mm	mm	mm	DN/in	DN/in
2500	2460	2200	1960	1300	3879	3430	550	200	200
3000	2460	2200	1960	1300	4379	3930	550	200	200
3500	2700	2410	2170	1400	4379	3930	600	200	200
4000	2700	2410	2170	1400	4879	4430	600	250	250
5000	2820	2560	2320	1600	5389	4930	700	250	250
6000	2820	2560	2320	1600	5889	5430	700	250	250

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- Large dial 3 way test valve manometer

Instruments for temperature control, including:

- Thermometer with large dial, scale 0-120°C
- Regulation thermostat (100°C)
- High temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blow down system comprising:

- Purge shut-off valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

- The regulation thermostat (100 ° C) and the safety thermostat with manual reset (110 ° C) are INAIL approved

The boilers destined to foreign countries will be provided with:

- High-pressure safety switch with manual reset

## PRODUCT CODES

Model	Code
TNOX.e 2500	83472511
TNOX.e 3000	83473011
TNOX.e 3500	83473511
TNOX.e 4000	83474011
TNOX.e 5000	83475011
TNOX.e 6000	83476111



# TNOX.e EN

The TNOX.e EN model is designed for large heating systems with operating temperature between 60 and 100°C. It is furthermore provided with elements accelerating the heat exchange to ensure the maximum possible efficiency.



Design pressure: 6 bar

Heat output: 7000 ÷ 17000 kW

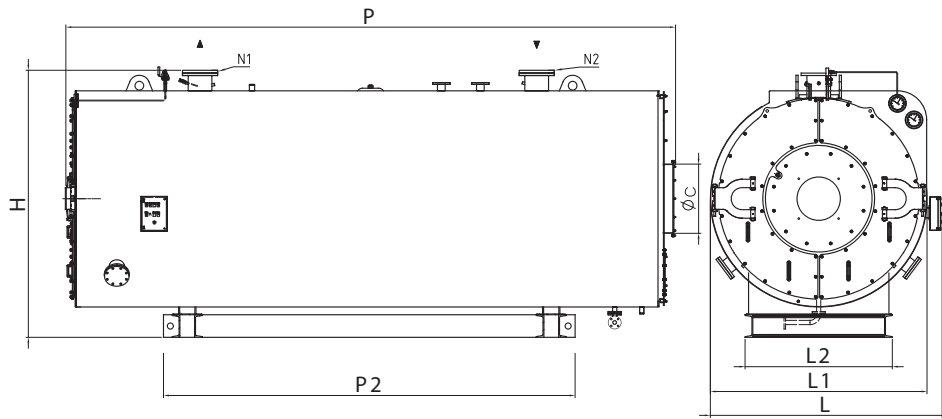
Efficiency: > 95,0 %



## TECHNICAL DATA

Model	Heat output **	Flow thermal	100% efficiency	Water side pressure drop	Total volume H2O	Flue gas pressure drop	Gas consumption	Diesel fuel consumption	Nafta consumption	Empty weight
TNOX-e EN	kW	kW	%	mbar	lt	mbar	Nm3/h	kg/h	kg/h	kg
7000	7000	7353	95,20	123	14950	15,0	752,9	620,0	652,0	15400
8000	8000	8403	95,20	78	16200	19,0	860,4	708,5	745,1	16300
9000	9000	9454	95,20	53	20200	14,0	967,9	797,1	838,1	24940
10000	10000	10504	95,20	66	21800	16,0	1075,5	885,7	931,3	25400
11000	11000	11555	95,20	79	21800	19,5	1183,0	974,2	1024,4	25400
12000	12000	12605	95,20	94	23800	19,5	1290,5	1062,7	1117,5	28050
13000	13000	13655	95,20	111	23800	22,0	1398,1	1151,4	1210,7	28050
14000	14000	14706	95,20	75	33000	18,0	1505,6	1239,9	1303,8	37500
15000	15000	15756	95,20	86	33000	20,0	1613,1	1328,4	1396,9	37500
16000	16000	16807	95,20	98	35100	23,0	1720,7	1417,1	1490,1	40000
17000	17000	17857	95,20	111	35100	25,0	1828,2	1505,6	1583,2	40000

\*\* powers referring to methane gas; For diesel or naphtha operation the rule may provide for a downgrade



## DIMENSIONS

Model	H	L	L1	L2	P	P2	ØC	N1	N2
TNOX-e EN	mm	mm	mm	mm	mm	mm	mm	DN/in	DN/in
7000	3050	2700	2490	1700	7035	4750	800	250	250
8000	3050	2700	2490	1700	7535	5250	800	300	300
9000	3400	3140	2940	2000	7735	5400	900	350	350
10000	3400	3140	2940	2000	8235	5900	900	350	350
11000	3400	3140	2940	2000	8235	5900	900	350	350
12000	3500	3265	3065	2000	8183	5900	1000	350	350
13000	3500	3265	3065	2000	8183	5900	1000	350	350
14000	3960	3650	3450	2250	8820	6500	1100	400	400
15000	3960	3650	3450	2250	8820	6500	1100	400	400
16000	3960	3650	3450	2250	9320	7000	1100	400	400
17000	3960	3650	3450	2250	9320	7000	1100	400	400

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- Large dial 3 way test valve manometer

Instruments for temperature control, including:

- Thermometer with large dial, scale 0-120°C
- Regulation thermostat (100°C)
- High temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blow down system comprising:

- Purge shut-off valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

- The regulation thermostat (100 ° C) and the safety thermostat with manual reset (110 ° C) are INAIL approved

The boilers destined to foreign countries will be provided with:

- High-pressure safety switch with manual reset

## PRODUCT CODES

Model	Code
TNOX.E EN 7000	83477011
TNOX.E EN 8000	83478011
TNOX.E EN 9000	83479011
TNOX.E EN 10000	83481011
TNOX.E EN 11000	83481111
TNOX.E EN 12000	83481211
TNOX.E EN 13000	83481311
TNOX.E EN 14000	83481411
TNOX.E EN 15000	83481511
TNOX.E EN 16000	83481611
TNOX.E EN 17000	83481711

# TNOX BT COND

The TNOX BT COND model is designed for large heating systems with power requirements between 3000 and 7000 kW and operating temperature between 40 and 100°C. It is furthermore provided with a condensing heat recovery unit integrated in the rear side of the boiler to increase the efficiency.

Design pressure: **6 bar**

Heat output: **3000 ÷ 7000 kW**

Efficiency: **> 107,0 %**

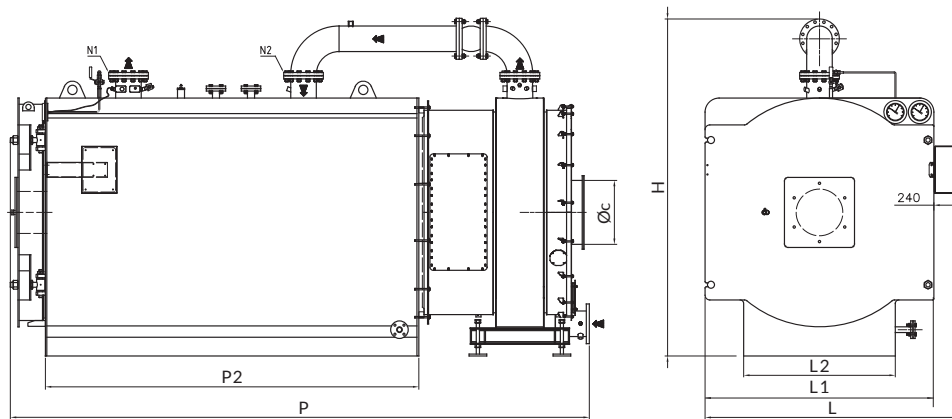


Reduced NOx emissions



## TECHNICAL DATA

Model	Heat Output	Flow thermal	100% efficiency	Water side pressure drop	Total volume H2O	Flue gas pressure drop	Gas consumption	Empty weight
TNOX BT COND	kW	kW	%	mbar	lt	mbar	Nm3/h	kg
3000	2.743	2791	98,3	46	4496	13,0	285,7	7450
3500	3.2	3256	98,3	63	5746	16,0	333,3	8100
4100	3.749	3814	98,3	86	6441	12,0	390,5	9710
4800	4.389	4465	98,3	49	7335	13,0	457,1	10480
6000	5.487	5581	98,3	76	9088	13,0	571,4	13410
7000	6.401	6512	98,3	103	10066	14,0	666,7	14290



## DIMENSIONS

Model	H	L	L1	L2	P	P2	ØC	N1	N2
TNOX BT COND	mm	mm	mm	mm	mm	mm	mm	DN/in	DN/in
3000	2888	2200	1960	1300	4915	3200	550	200	200
3500	2888	2200	1960	1300	5645	3930	550	200	200
4100	3098	2410	2170	1400	5412	3700	600	200	200
4800	3284	2410	2170	1400	5912	4200	600	250	250
6000	3360	2560	2320	1600	6412	4700	700	250	250
7000	3360	2560	2320	1600	6912	5200	700	250	250

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- Large dial 3 way test valve manometer

Instruments for temperature control, including:

- Thermometer with large dial, scale 0-120°C
- Regulation thermostat (100°C)
- High temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blow down system comprising:

- Purge shut-off valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

- The regulation thermostat (100 ° C) and the safety thermostat with manual reset (110 ° C) are INAIL approved

The boilers destined for foreign countries will be provided with:

- High-pressure safety switch with manual reset

## PRODUCT CODES

Model	Code
TNOX 3000 BT COND	83463010
TNOX 3500 BT COND	83463510
TNOX 4100 BT COND	83464110
TNOX 4800 BT COND	83464810
TNOX 6000 BT COND	83466000
TNOX 7000 BT COND	83467000

## ACCESSORIES AVAILABLE FOR THE RANGE

Code	Description	TNOX	TNOX EN	TNOX-e	TNOX-e EN	TNOX BT COND
		6 bar	6 bar	6 bar	6 bar	6 bar
QATRXETERM01	Boiler management control panel	■	■	■	■	■
QATRXETERM02	Boiler management control panel	■	■	■	■	■
QCTETERM	Eterm Easy manager panel	■	■	■	■	■
90060061	Ladder and handrail	■		■		■
90060062	Ladder and handrail		■		■	
90060090	Side platform	■	■	■	■	■

# TNOX S Greenhouse Systems

Design pressure: 3 bar

Heat output: 1200 ÷ 14000 kW

Efficiency: > 93,0 %

The greenhouse systems of the TNOX S series are designed to meet the specific heating requirements for greenhouses to which they provide heat and carbon dioxide necessary to optimise the productivity under any weather condition.

These systems are the result of a sixty-year experience in the design and production field and are manufactured according to the most innovative design criteria to fully meet the needs of energy efficiency, cost saving and high performance (above 105% with condenser).

The main component of the system is the TNOX S series boiler, manufactured with three flue gas passes, wet back and low thermal load in the combustion chamber. It is characterised by a large furnace to optimise the combustion and reduce the NOx emissions, while the high water content ensures protection and durability of the product, as well as great flexibility in terms of prolonged peaks loads.

Finally, in order to obtain flue gas temperatures in line with the use in the greenhouse, the boilers may come with a condenser that recovers the latent heat of flue gas, reducing its temperature and increasing the overall efficiency of the system.

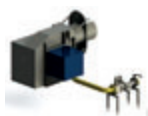


Reduced NOx emissions

## ADVANTAGES

- Large-sized furnace to ensure optimal combustion
- Extremely low NOx emissions (up to 40mg/Nm<sup>3</sup>)
- Low flue gas outlet temperatures (50°C)
- The low back pressure allows for a wide range of burners that can be coupled
- Availability for all markets, both European and non-European
- Extremely easy to install. The product is already wired and ready for water, electrical and fuel connections

## SYSTEM COMPONENTS



Burners  
VGI/s o VGOI/s



Condenser  
BAX-GH



Condenser  
ECXZ-I

## TECHNICAL DATA

Model	Heat Output	Heat input	100% efficiency	Flue gas pressure drop	Total volume H <sub>2</sub> O	Gas consumption	Maximum flue gas flow rate	Empty weight
TNOX S	kW	kW	%	mbar	l	Nm <sup>3</sup> /h	kg/h	kg
1200	1200	1283	93,5	3	3500	131	1905	3100
1750	1750	1872	93,5	4	4800	192	2779	3900
2350	2350	2527	93	5	5900	259	3751	4500
2900	2900	3102	93,5	5	7200	318	4604	5400
3500	3500	3763	93	6	9800	385	5587	6700
4100	4100	4385	93,5	6	12800	449	6510	7900
4850	4850	5187	93,5	8	14300	531	7700	9100
5850	5850	6257	93,5	9	15400	641	9288	10800
6850	6850	7326	93,5	10	16900	750	10876	11500
7350	7350	7861	93,5	11	18700	805	11670	13000
8350	8350	8930	93,5	11	21000	914	13258	14500
9300	9300	9947	93,5	12	23400	1018	14766	16300
10500	10500	11230	93,5	13	25800	1150	16671	17000
11600	11600	12406	93,5	13	26500	1270	18418	19500
12500	12500	13369	93,5	13	28000	1369	19847	22500
14000	14000	15054	93	13,5	30000	1541	22348	25000

STEAM

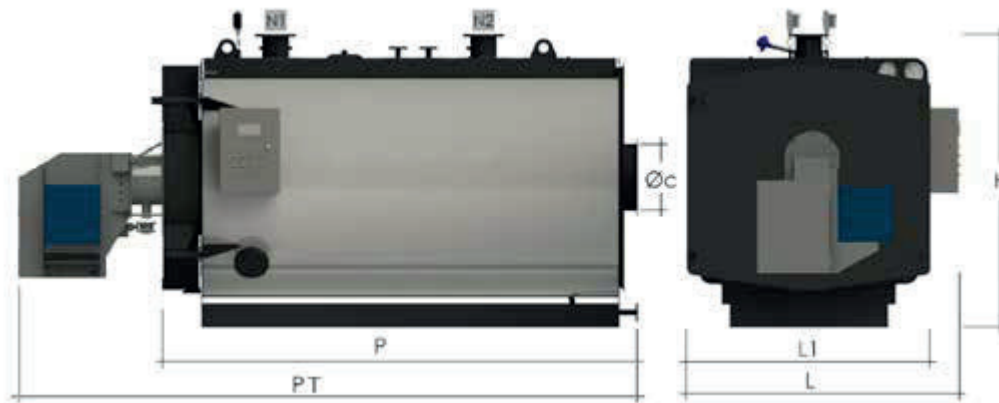
SUPER-HEATED WATER

THERMAL OIL

HOT WATER

ACCESSORIES

SYSTEM LAYOUTS



## DIMENSIONS

Model	H	L	L1	P	PT	Øc	N1	N2
TNOX S	mm	mm	mm	mm	mm	mm	DN	DN
1200	2300	2100	1900	3890	5040	400	125	125
1750	2360	2160	1960	3890	5040	450	150	150
2350	2560	2360	2160	4390	5540	500	150	150
2900	2880	2680	2480	4390	5595	550	200	200
3500	2880	2680	2480	4890	6109	550	200	200
4100	2880	2680	2480	5390	6702	600	200	200
4850	2960	2760	2560	5390	6702	600	200	200
5850	3110	2910	2660	5390	6764	600	250	250
6850	3210	3010	2760	5990	7364	700	250	250
7350	3350	3150	2900	5990	7450	700	250	250
8350	3450	3250	3000	6490	7950	800	250	250
9300	3550	3350	3100	6490	7950	800	300	300
10500	3650	3450	3200	7080	8540	800	300	300
11600	3750	3550	3300	7080	8710	900	350	350
12500	3750	3550	3300	7600	9230	900	350	350
14000	3850	3650	3400	8100	9730	1100	400	400

## STANDARD EQUIPMENT

Instruments for pressure control, including:

- large dial 3 way test valve manometer

Instruments for temperature control, including:

- thermometer with large dial, scale 0-120°C
- regulation thermostat (100°C)
- high temperature safety thermostat with manual reset (110°C)
- PT100 thermocouple

Blowdown unit containing:

- blowdown shut-off globe valve

Boiler control panel IP55 1/N ~ 230V 50 Hz

## PRODUCT CODES

Model	Code	Model	Code
TNOX 1200 S	83470010	TNOX 6850 S	83470063
TNOX 1750 S	83470015	TNOX 7350 S	83470070
TNOX 2350 S	83470020	TNOX 8350 S	83470080
TNOX 2900 S	83470028	TNOX 9300 S	83470090
TNOX 3500 S	83470032	TNOX 10500 S	83470100
TNOX 4100 S	83470037	TNOX 11600 S	83470110
TNOX 4850 S	83470045	TNOX 12500 S	83470120
TNOX 5850 S	83470055	TNOX 14000 S	83470140