

schuster

TOX



THREE PASS, PRESSURIZED, CARBON STEEL BOILER, WITH PASSING THROUGH FURNACE
AND SMOOTH SMOKE PIPES WITH HELICOIDAL TURBULATORS

OUTPUT RANGE

from 55 to 1900 kW

OPERATION TEMPERATURE

minimum allowed return temperature in the boiler
36°C for light oil operation – 46°C for gas operation

SUPPLY

for natural gas / LPG – light oil pressure jet burners,
of single, two stage or modulating type, also Low NOx

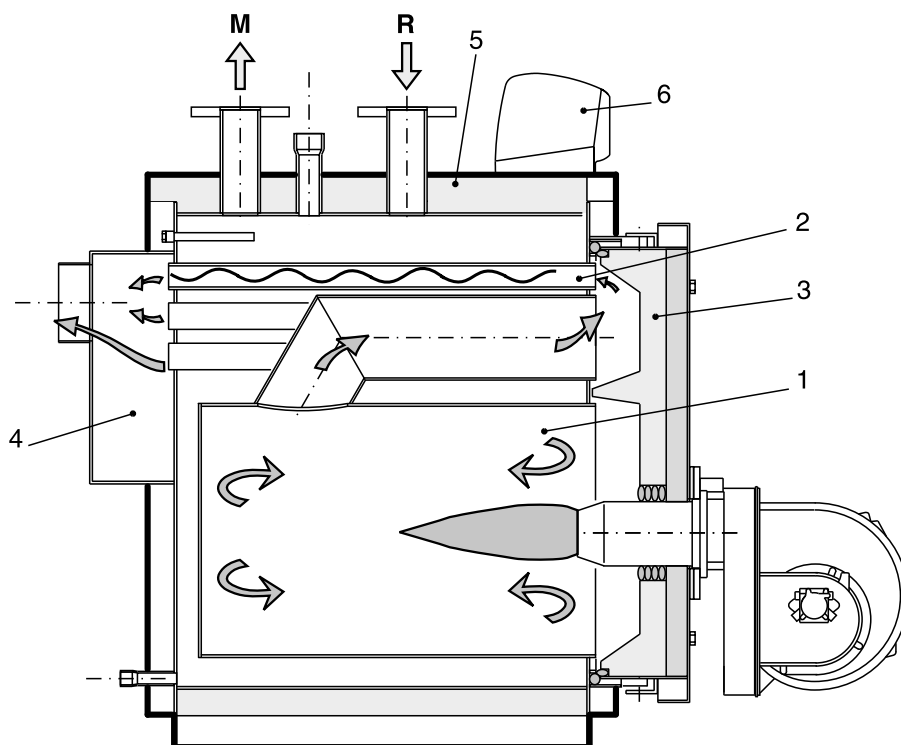
MODELS

65	85	110	150	185	225	300	380
500	630	730	840	1100	1320	1600	1900

Certified in OUTPUT RANGE

MAIN COMPONENTS

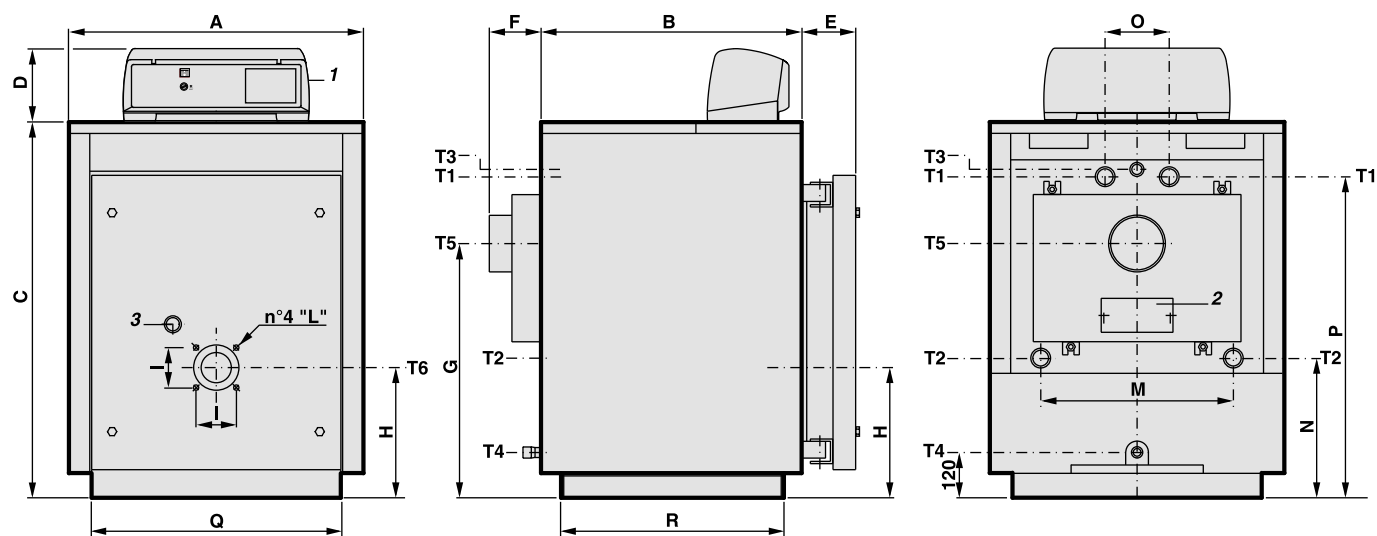
1. Furnace
2. Smoke pipes with turbulators
3. Door with flame control warning light
4. Smoke chamber
5. Body insulation
6. Panel board



PRODUCT PLUS VALUES

- **GENUINE THREE PASS SMOKE PIPES**
- **OVAL SHAPE SHELL DESIGN**
(up to 730 kW model)
for space saving installation
- **OPTIMIZATION OF THE HEAT EXCHANGE**
thanks to the guided run of the water inside the boiler
- **SMOKE PIPES WITH LARGE THICKNESS**
with anti condensing effect
- **HELICAL TURBULATORS**
for the optimization of the heat exchange in the smoke pipes
- **INSULATED SMOKE CHAMBER**
with double wall inside to reduce the thermal and sound losses
- **DOOR INSULATED WITH SUPER LIGHT CONCRE**
- **CASING INSULATION**
through a glass wool mattress, with anti-tearing protection.
Insulation thickness 80 mm up to TXN 85 and 100 mm for the remaining models
- **TWO REAR BULB HOLDERS**
15 mm dia., for temperature sensors
- **DEDICARED PANEL BOARDS**
with thermostatic or electronic regulations

DIMENSIONS TOX 65÷85



- 1 Panel board
2 Smoke chamber cleaning door
3 Flame sight glass

- T1 C.H. flow
T2 C.H. return
T3 Expansion vessel connection

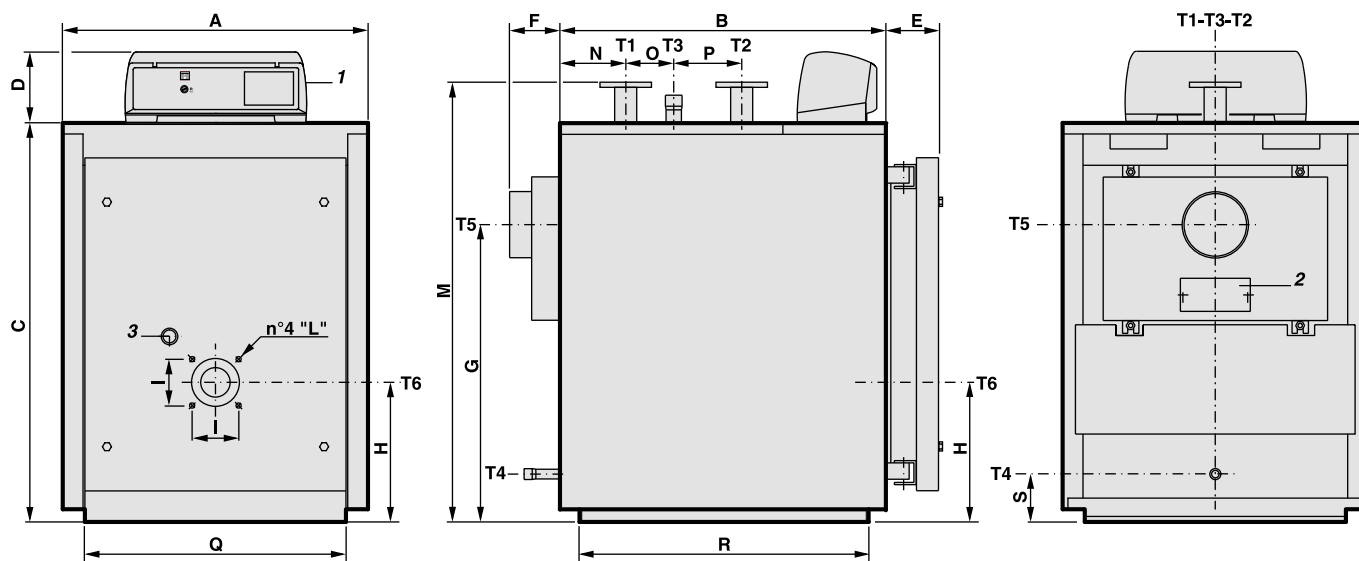
- T4 Boiler drain
T5 Flue connection
T6 Max. burner blast tube dia.

TOX	Nominal output kW	Nominal input kW	Boiler capacity l	Water pressure drops(**) m w.c.	Flue gas pressure drop mm w.c.	Maximum boiler working pressure bar	Weight kg	CONNECTIONS				
								T1 T2	T3	T4	T5 Øi	T6 Ø
65	55÷65	59.8÷71	131	0.04÷0.06	3÷4	6	307	ISO 7/1 Rp 1½	ISO 7/1 Rp 1	ISO 7/1 Rp ¾	150	132
85	72÷85	78.3÷93	187	0.05÷0.07	4.5÷6	6	348	ISO 7/1 Rp 1½	ISO 7/1 Rp 1	ISO 7/1 Rp ¾	150	132

TOX	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
65	740	690	950	190	140	145	660	345	120	M 8	470	310	190	846	660	590
85	740	950	950	190	140	145	660	345	120	M 8	470	310	190	846	660	850

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal drop of 15K.

DIMENSIONS TOX 110÷380



1 Panel board

2 Smoke chamber cleaning door

3 Flame sight glass

T1 C.H. flow

T2 C.H. return

T3 Expansion vessel connection

T4 Boiler drain

T5 Flue connection

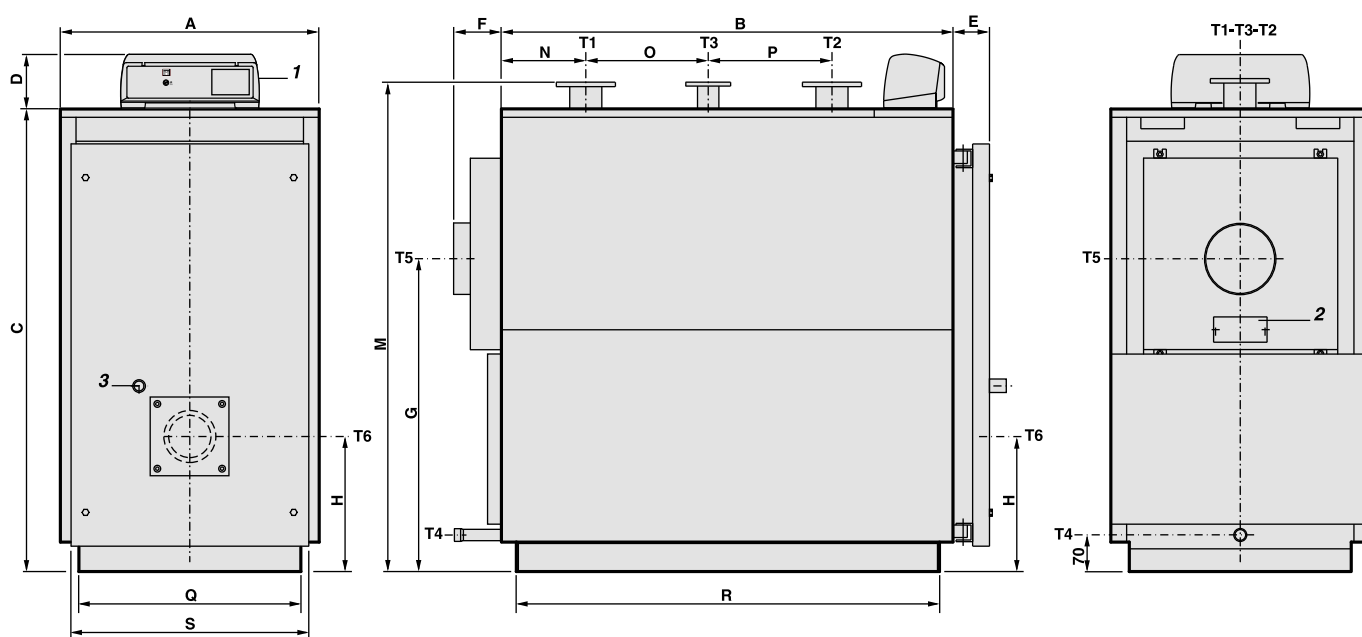
T6 Max. burner blast tube dia.

TOX	Nominal output kW	Nominal input kW	Boiler capacity l	Water pressure drops(**) m w.c.	Flue gas pressure drop mm w.c.	Maximum boiler working pressure bar	Weight kg	CONNECTIONS				
								T1 T2	T3	T4	T5 Øi	T6 Ø
								UNI2278 PN16	ISO 7/1	ISO 7/1	mm	mm
110	93÷110	101÷120	204	0.06÷0.08	5.5÷7.5	6	426	DN 50	Rp ¼	Rp ¾	180	132
150	127÷150	137.7÷163	270	0.08÷0.10	12÷16	6	503	DN 50	Rp ¼	Rp ¾	180	132
185	157÷185	170÷202	285	0.10÷0.18	9÷12	6	564	DN 65	Rp ½	Rp ¾	180	180
225	191÷225	207÷245	322	0.17÷0.20	12.5÷17.5	6	621	DN 65	Rp ½	Rp ¾	180	180
300	255÷300	276÷327	408	0.22÷0.35	9÷12	6	812	DN 80	Rp 2	Rp ¾	225	180
380	323÷380	350÷414	475	0.32÷0.53	15÷21	6	906	DN 80	Rp 2	Rp ¾	225	180

TOX	A	B	C	D	E	F	G	H	I	L	M*	N	O	P	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
110	820	885	1082	190	140	145	748	380	120	M 8	1210	175	130	185	710	786
150	820	1145	1082	190	140	145	748	380	120	M 8	1210	175	390	185	710	1046
185	860	1080	1182	190	140	145	828	400	-	-	1310	215	210	250	750	981
225	860	1210	1182	190	140	145	828	400	-	-	1310	215	340	250	750	1111
300	890	1275	1352	190	140	145	928	440	-	-	1485	255	285	315	780	1177
380	890	1470	1352	190	140	145	928	440	-	-	1485	255	480	315	780	1372

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal drop of 15K.

DIMENSIONS TOX 500÷730



- 1 Panel board
2 Smoke chamber cleaning door
3 Flame sight glass

- T1 C.H. flow
T2 C.H. return
T3 Expansion vessel connection

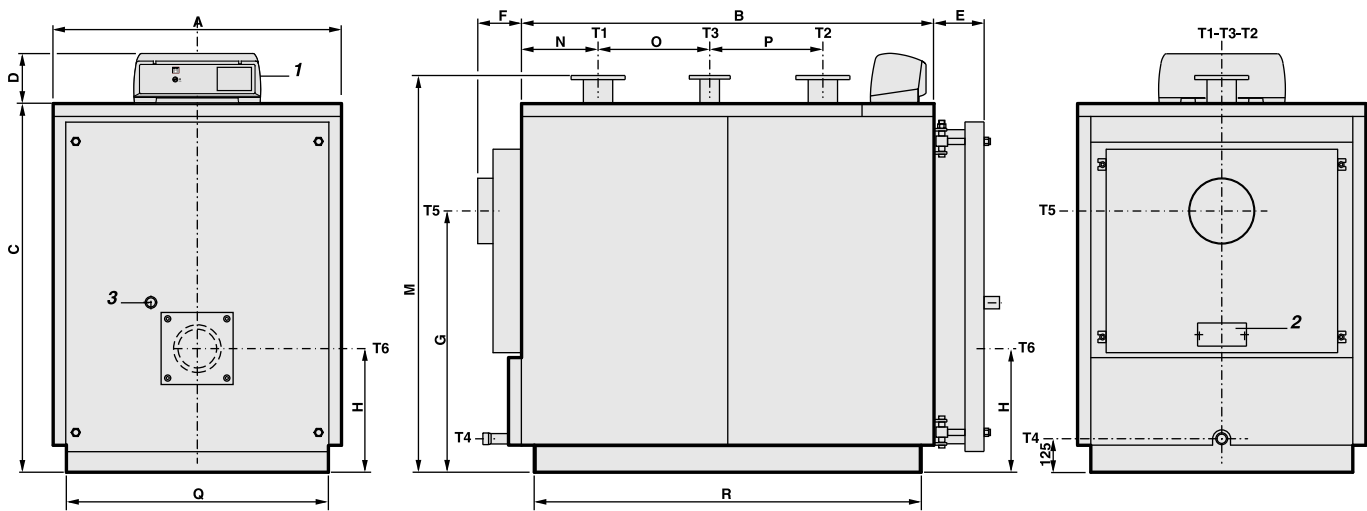
- T4 Boiler drain
T5 Flue connection
T6 Max. burner blast tube dia.

TOX	Nominal output	Nominal input	Boiler capacity	Water pressure drops(**)	Flue gas pressure drop	Maximum boiler working pressure	Weight	CONNECTIONS				
	kW	kW	l	m w.c.	mm w.c.	bar	kg	T1 T2	T3	T4	T5 Øi	T6 Ø
								UNI 2278 PN16	UNI 2278 PN16	ISO 7/1	mm	mm
500	425÷500	460÷545	656	0.10÷0.15	25÷35	6	1198	DN 100	DN 65	Rp 1	250	220
630	535÷630	579÷686	737	0.16÷0.23	32÷45	6	1304	DN 100	DN 65	Rp 1	250	220
730	620÷730	671÷795	807	0.23÷0.33	35÷49	6	1431	DN 100	DN 65	Rp 1	250	220

TOX	A	B	C	D	E	F	G	H	M*	N	O	P	Q*	R*	S*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
500	920	1605	1645	190	135	195	1110	480	1735	298	435	440	790	1505	860
630	920	1800	1645	190	135	195	1110	480	1735	298	630	440	790	1790	860
730	920	1995	1645	190	135	195	1110	480	1735	298	825	440	790	1895	860

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal drop of 15K.

DIMENSIONS TOX 840



- 1

Panel board
- 2

Smoke chamber cleaning door
- 3

Flame sight glass
- T1

C.H. flow
- T2

C.H. return
- T3

Expansion vessel connection
- T4

Boiler drain
- T5

Flue connection
- T6

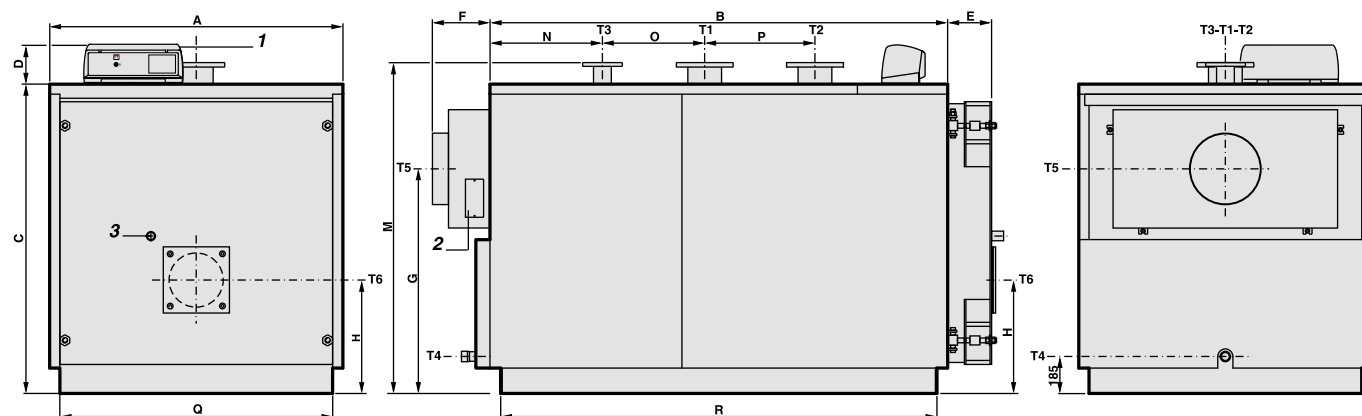
Max. burner blast tube dia.

TOX	Nominal output	Nominal input	Boiler capacity	Water pressure drops(**)	Flue gas pressure drop	Maximum boiler working pressure	Weight	CONNECTIONS				
	kW	kW	l	m w.c.	mm w.c.	bar	kg	T1 T2	T3	T4	T5 Øi	T6 Ø
								UNI 2278 PN16	UNI 2278 PN16	ISO 7/1	mm	mm
840	714÷840	772÷915	932	0.35÷0.52	42÷58	6	1581	DN 100	DN 65	Rp 1/4	250	270

TOX	A	B	C	D	E	F	G	H	M*	N	O	P	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
840	1122	2115	1432	190	195	195	1025	480	1540	298	945	440	1020	2014

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal drop of 15K.

DIMENSIONS TOX 1100÷1900



- 1 Panel board
2 Smoke chamber cleaning door
3 Flame sight glass

- T1 C.H. flow
T2 C.H. return
T3 Expansion vessel connection

- T4 Boiler drain
T5 Flue connection
T6 Max. burner blast tube dia.

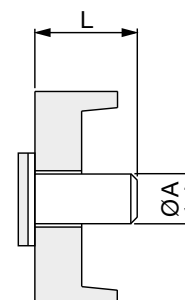
TOX	Nominal output kW	Nominal input kW	Boiler capacity l	Water pressure drops(**) m w.c.	Flue gas pressure drop mm w.c.	Maximum boiler working pressure bar	Weight kg	CONNECTIONS				
								T1 T2	T3	T4	T5 Øi	T6 Ø
								UNI 2278 PN16	UNI 2278 PN16	ISO 7/1	mm	mm
1100	935÷1100	1012÷1198	1580	0.15÷0.21	45÷62	6	2444	DN 150	DN 80	Rp ½	350	270
1320	1122÷1320	1214÷1438	1791	0.21÷0.30	61÷85	6	2965	DN 150	DN 80	Rp ½	350	270
1600	1360÷1600	1470÷1743	2297	0.20÷0.28	40÷55	6	3685	DN 175	DN 100	Rp ½	400	285
1900	1615÷1900	1745÷2070	2496	0.27÷0.39	52÷73	6	4089	DN 175	DN 100	Rp ½	400	285

TOX	A	B	C	D	E	F	G	H	M*	N	O	P	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1100	1462	2282	1542	190	230	290	1120	565	1650	561	510	550	1360	2176
1320	1462	2652	1542	190	230	290	1120	565	1650	561	880	550	1360	2546
1600	1622	2692	1702	190	230	290	1245	605	1810	661	670	700	1520	2590
1900	1622	3014	1702	190	230	290	1245	605	1810	662	990	700	1520	2910

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal drop of 15K.

BURNER BLAST TUBE DIMENSIONS

BOILER TYPE	øA mm	L mm	BOILER TYPE	øA mm	L mm
TOX 65÷85	132	180	TOX 500÷730	220	230
TOX 110÷150	132	180	TOX 840	270	280
TOX 185÷225	180	180	TOX 1100÷1320	270	320
TOX 300÷380	180	200	TOX 1600÷1900	285	350



TECHNICAL DATA

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.schusterboilers.com at the page of the product

Oil-fired		TOX 65	TOX 85	TOX 110	TOX 150	TOX 185	TOX 225	TOX 300	TOX 380
Nominal heat output	kW	55÷65	72÷85	93÷110	127÷50	157÷185	191÷225	255÷300	323÷380
Thermal output of furnace	kW	60÷71	78÷93	101÷120	138÷163	170÷202	207÷245	276÷326.2	350÷412.3
Water efficiency at nominal load (100%)	%	91.6÷91.5	92.3÷91.4	92÷91.6	92÷92	92.3÷91.5	92.2÷91.8	92.3÷91.9	92.2÷92.1
Water efficiency at 30% load	%	91.4÷90.7	91.2÷90.6	91.2÷90.7	91.5÷91	91.3÷91	91.7÷91.2	91.6÷91.3	92.0÷91.5
Combustion efficiency at nominal load (100%)	%	93.3÷92.8	93.1÷92.8	93.5÷92.8	93.1÷92.6	93.5÷92.8	93.3÷92.8	93.3÷92.8	93.8÷92.8
Heat loss at casing (min.-max.)	%	1.6÷1.2	0.8÷1.4	1.4÷1.2	1÷0.6	1.2÷1.3	1.0÷1.0	0.9÷0.9	1.5÷0.7
Heat loss at chimney with burner on (min.-max.)	%	6.7÷7.2	6.9÷7.1	6.4÷7.1	6.9÷7.3	6.4÷7.1	6.7÷7.1	6.7÷7.1	6.2÷7.1
Heat loss at chimney with burner off (min.-max.)	%	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1
Flue gas temperature tf-ta (min.-max.)	°C	142÷152	147÷157	142÷157	152÷162	142÷157	147÷157	147÷157	137÷157
CO ₂ content	%	12.2÷12.2	12.3÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8
Flue gas mass flow rate (min.-max)	kg/h	96.2÷113.9	124.1÷142.4	154.6÷183.7	211.3÷249.6	260.6÷309.3	316.9÷375.1	422.6÷499.5	535.9÷631.3

Oil-fired		TOX 500	TOX 630	TOX 730	TOX 840	TOX 1100	TOX 1320	TOX 1600	TOX 1900
Nominal heat output	kW	425÷500	535÷630	620÷730	714÷840	935÷1100	1122÷1320	1360÷1600	1615÷1900
Thermal output of furnace	kW	460÷545	579÷686	671÷795	772÷915	1012÷1198	1214÷1438	1470÷1743	1745÷2070
Water efficiency at nominal load (100%)	%	92.3÷91.7	92.4÷91.8	92.4÷91.8	92.4÷91.8	92.3÷91.8	92.4÷91.7	92.5÷91.8	92.5÷91.7
Water efficiency at 30% load	%	91.8÷91.5	92.0÷91.4	91.8÷91.4	91.9÷91.5	92.1÷91.6	92.2÷91.6	91.9÷91.6	92.0÷91.5
Combustion efficiency at nominal load (100%)	%	93.3÷92.6	93.4÷92.6	93.2÷92.6	93.1÷92.4	93.1÷92.4	93.2÷92.4	93.2÷92.4	93.2÷92.4
Heat loss at casing (min.-max.)	%	0.9÷0.9	1.0÷0.7	0.8÷0.8	0.6÷0.6	0.7÷0.6	0.7÷0.6	0.6÷0.6	0.6÷0.6
Heat loss at chimney with burner on (min.-max.)	%	6.7÷7.3	6.6÷7.4	6.7÷7.3	6.9÷7.6	6.9÷7.6	6.8÷7.6	6.8÷7.6	6.8÷7.6
Heat loss at chimney with burner off (min.-max.)	%	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1
Flue gas temperature tf-ta (min.-max.)	°C	147÷162	145÷163	148÷162	152÷167	152÷167	150÷167	150÷167	150÷167
CO ₂ content	%	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8	12.8÷12.8
Flue gas mass flow rate (min.-max)	kg/h	704.4÷834.5	886.6÷1050.4	1027.5÷1217.3	1182.1÷1401.1	1549.6÷1834.5	1859÷2202	2251÷2669	2672.1÷3169.8

Gas-fired		TOX 65	TOX 85	TOX 110	TOX 150	TOX 185	TOX 225	TOX 300	TOX 380
Nominal heat output	kW	55÷65	72÷85	93÷110	127÷50	157÷185	191÷225	255÷300	323÷380
Thermal output of furnace	kW	60÷71	78÷93	101÷120	138÷163	170÷202	207÷245	276÷326.2	350÷412.3
Water efficiency at nominal load (100%)	%	91.6÷91.5	92.3÷91.4	92÷91.6	92÷92	92.3÷91.5	92.2÷91.8	92.3÷91.9	92.2÷92.1
Water efficiency at 30% load	%	91.4÷90.7	91.2÷90.6	91.2÷90.7	91.5÷91	91.3÷91	91.7÷91.2	91.6÷91.3	92.0÷91.5
Combustion efficiency at nominal load (100%)	%	93.4÷92.9	93.2÷92.7	93.4÷92.7	92.9÷92.4	93.4÷97.2	93.2÷92.7	93.2÷92.7	93.7÷92.7
Heat loss at casing (min.-max.)	%	1.7÷1.3	0.8÷1.2	1.3÷1.0	0.9÷0.4	1.0÷1.1	0.9÷0.8	0.7÷0.7	1.3÷0.5
Heat loss at chimney with burner on (min.-max.)	%	6.5÷7.0	6.8÷7.3	6.5÷7.3	7.0÷7.5	6.8÷7.3	6.8÷7.3	6.8÷7.3	6.3÷7.3
Heat loss at chimney with burner off (min.-max.)	%	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1
Flue gas temperature tf-ta (min.-max.)	°C	135÷145	140÷150	135÷150	145÷155	135÷150	140÷150	140÷150	130÷150
CO ₂ content	%	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8
Flue gas mass flow rate (min.-max)	kg/h	90.2÷106.7	117.2÷139.8	151.8÷180.4	207.4÷245	255.5÷303.6	311.2÷368.3	414.9÷490.3	526.1÷619.7

Gas-fired		TOX 500	TOX 630	TOX 730	TOX 840	TOX 1100	TOX 1320	TOX 1600	TOX 1900
Nominal heat output	kW	425÷500	535÷630	620÷730	714÷840	935÷1100	1122÷1320	1360÷1600	1615÷1900
Thermal output of furnace	kW	460÷545	579÷686	671÷795	772÷915	1012÷1198	1214÷1438	1470÷1743	1745÷2070
Water efficiency at nominal load (100%)	%	92.3÷91.7	92.4÷91.8	92.4÷91.8	92.4÷91.8	92.3÷91.8	92.4÷91.7	92.5÷91.8	92.5÷91.7
Water efficiency at 30% load	%	91.8÷91.5	92.0÷91.4	91.8÷91.4	91.9÷91.5	92.1÷91.6	92.2÷91.6	91.9÷91.6	92.0÷91.5
Combustion efficiency at nominal load (100%)	%	93.2÷92.4	93.43÷92.4	93.1÷92.4	92.9÷92.2	92.9÷92.2	93.0÷92.2	93.0÷92.2	93.0÷92.2
Heat loss at casing (min.-max.)	%	0.7÷0.6	0.8÷0.5	0.7÷0.6	0.4÷0.3	0.5÷0.3	0.6÷0.4	0.5÷0.4	0.4÷0.4
Heat loss at chimney with burner on (min.-max.)	%	6.8÷7.5	6.7÷7.6	6.8÷7.5	7.0÷7.8	7.0÷7.8	6.9÷7.8	6.9÷7.8	6.9÷7.8
Heat loss at chimney with burner off (min.-max.)	%	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1	0.1÷0.1
Flue gas temperature tf-ta (min.-max.)	°C	140÷155	138÷156	141÷155	145÷160	145÷160	143÷160	143÷160	143÷160
CO ₂ content	%	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8	9.8÷9.8
Flue gas mass flow rate (min.-max)	kg/h	691.4÷819.2	870.3÷1031.2	1008.6÷1195	1160.4÷1375.4	1521.2÷1800.8	1824.8÷2161.5	2209.6÷2620	2623÷3111.5