

TECHNICAL MANUAL



Language: English



REX – REX F **REX DUAL - REX DUAL F**

Reverse flame, steel water boiler

Output effect: 70-6,000 kW

Design pressure: 5, 6, 10, 15 or 16 bar

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2 About this manual

This technical manual is an integrated part of the boilers safety equipment.



This manual must be available in the boiler room

If the boiler changes owner or is moved, make sure that this manual follows the boiler.

Information and illustrations in this document is provided for guidance purposes only. Product specifications may change without notice if it is deemed beneficial for the continuing product development.

It is recommended that this manual is read carefully to achieve full benefit from the boiler.

3 General information

3.1 MANUFACTURER PLATE AND CERTIFICATE

Each generator is provided with a manufacture plate and a manufacturer certificate. Both can be found in an envelope together with other boiler documents.

On the manufacturer plate the following information is listed:

- Serial number or other identification code;
- Rated thermal output in kcal/h and in kW;
- Furnace thermal output in kcal/h and in kW;
- Types of fuels that can be used;
- Max operating pressure.

The manufacture certificate certifies the successful outcome of the hydraulic test.

3.2 STANDARDS

The boiler has been built and tested in observance of EEC requirements and is CE-marked accordingly. The applicable EEC directives are the following:

- Directive on Gas 90/396/EEC
- Directive on Output 92/42/EEC
- Directive on Electromagnetic Compatibility 89/336/EEC
- Directive on Low Voltage 73/23/EEC

3.3 INSTALLATION REQUIREMENTS



This boiler has been designed to heat water to a temperature lower than the boiling temperature at atmospheric pressure and must be connected to a heating plant and/or a domestic hot water plant which suits the limits of the boilers specifications and limitations.

The installation must be performed in compliance with the regulations in force by professionally qualified personnel with specific technical skills in the sector of heating system components.

Incorrect installation may cause damage to persons, animals or objects for which the manufacturer cannot be held responsible.

At the first start up, all regulation and control devices in the control panel should be checked for correct function.

The boiler warranty is valid only when in full compliance with the instruction given in this manual.

3.4 MANUFACTURER

ICI Caldaie S.p.A.
Appartenente al Gruppo Finluc, iscritto R.I. VR n. 02245640236
Via G. Pascoli, 38 - 37059 Zevio - fraz. Campagnola - VERONA - ITALIA
Tel. +39 045 8738511 – Fax. +39 045 8731148
info@icicaldaie.com - www.icicaldaie.com

3.5 SALES AGENT

Sole representative for ICI in Scandinavia:

**Milton Sverige AB**

Lastgatan 13 • SE-254 64 Helsingborg, Sweden
Tel. +46 (0) 4225 2840 – Fax: +46 (0) 4215 8621
info@milton.se – www.milton.se

4 Technical specifications

4.1 CONNECTIONS AND DIMENSIONS

REX / REX F size 7-130

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

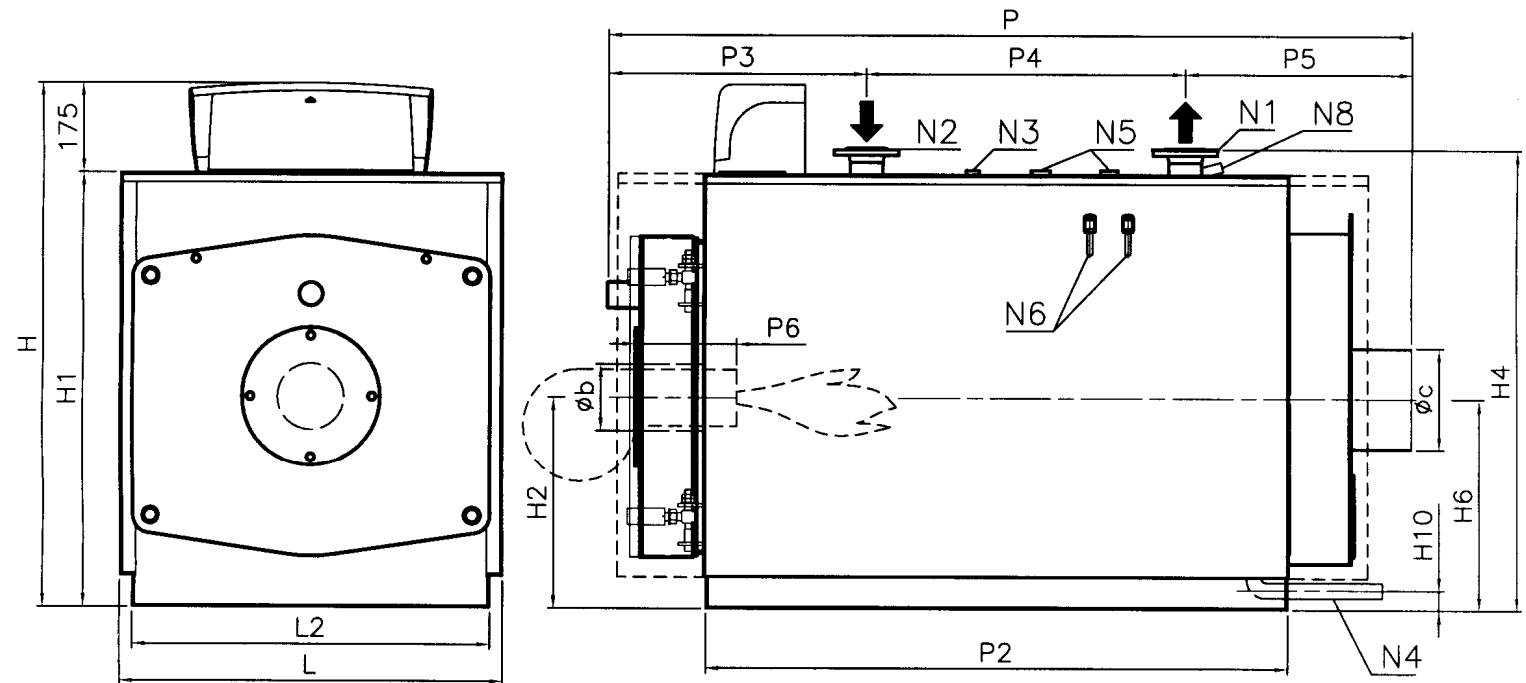


Figure 1, Dimensions for REX/ REX F size. 7-130

Boiler type	Boiler size	H	H1	H2	H4	H6	H10	L	L2	P	P2	P3	P4	P5	P6	Øb	Øc	N1	N2	N3	N4	N5	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	["RG]	["RG]	["RG]	["RG]
REX / REX F	7	1063	853	415	912	415	54,5	756	700	994	630	413	240	341	200-250	130	200	50	50	1"	1"	-	1/2"	1/2"
	8	1063	853	415	912	415	54,5	756	700	994	630	413	240	341	200-250	130	200	50	50	1"	1"	-	1/2"	1/2"
	9	1030	855	415	912	415	54,5	756	700	1119	755	513	265	341	200-250	130	200	50	50	1"	1"	-	1/2"	1/2"
	10	1030	855	415	912	415	54,5	756	700	1119	755	513	265	341	200-250	130	200	50	50	1"	1"	-	1/2"	1/2"
	11	1030	855	415	912	415	54,5	756	700	1119	755	513	265	341	200-250	130	200	50	50	1"	1"	-	1/2"	1/2"
	15	1080	905	440	962	440	54,5	806	750	1364	1000	513	475	376	200-250	160	250	50	50	1"	1"	-	1/2"	1/2"
	20	1080	905	440	962	440	54,5	806	750	1364	1000	513	475	376	200-250	160	250	50	50	1"	1"	-	1/2"	1/2"
	25	1080	905	440	962	440	54,5	806	750	1614	1250	513	725	376	200-250	160	250	50	50	1"	1"	-	1/2"	1/2"
	30	1180	1005	490	1061	490	54,5	906	850	1614	1250	523	700	391	200-250	180	250	65	65	1"	1"	-	1/2"	1/2"
	35	1180	1005	490	1061	490	54,5	906	850	1864	1500	523	980	361	200-250	180	250	65	65	1"	1"	-	1/2"	1/2"
	40	1190	1015	500	1095	500	50,0	946	890	1872	1502	600	850	422	230-280	225	250	80	80	1"	1"	1"1/4 (1)	1/2"	1/2"
	50	1380	1205	610	1285	610	60,0	1166	1110	1946	1502	663	850	433	270-320	225	300	80	80	1"	1"1/4	1"1/4	1/2"	1/2"
	62	1380	1205	610	1285	610	60,0	1166	1110	2235	1792	663	1150	422	270-320	225	300	80	80	1"	1"1/4	1"1/4	1/2"	1/2"
	75	1510	1335	675	1417	675	60,0	1296	1240	2247	1753	704	1100	443	270-320	280	350	100	100	1"	1"1/4	1"1/2	1/2"	1/2"
	85	1510	1335	675	1417	675	60,0	1296	1240	2247	1753	704	1100	443	270-320	280	350	100	100	1"	1"1/4	1"1/2	1/2"	1/2"
	95	1510	1335	675	1417	675	60,0	1296	1240	2497	2003	704	1200	593	270-320	280	350	100	100	1"	1"1/4	1"1/2	1/2"	1/2"
100	1660	1485	750	1568	750	60,0	1446	1390	2477	2003	703	1200	574	270-320	280	400	125	125	1"	1"1/4	1"1/2	1/2"	1/2"	
120	1660	1485	750	1568	750	60,0	1446	1390	2477	2003	703	1200	574	270-320	280	400	125	125	1"	1"1/4	1"1/2	1/2"	1/2"	
130	1660	1485	750	1568	750	60,0	1446	1390	2477	2003	703	1200	574	270-320	280	400	125	125	1"	1"1/4	1"1/2	1/2"	1/2"	

Table 1, Dimensions for REX/ REX F, size 7-130

Notes:

(1) Only one safety valve connection for boiler size 40

REX/ REX F size 140-350

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

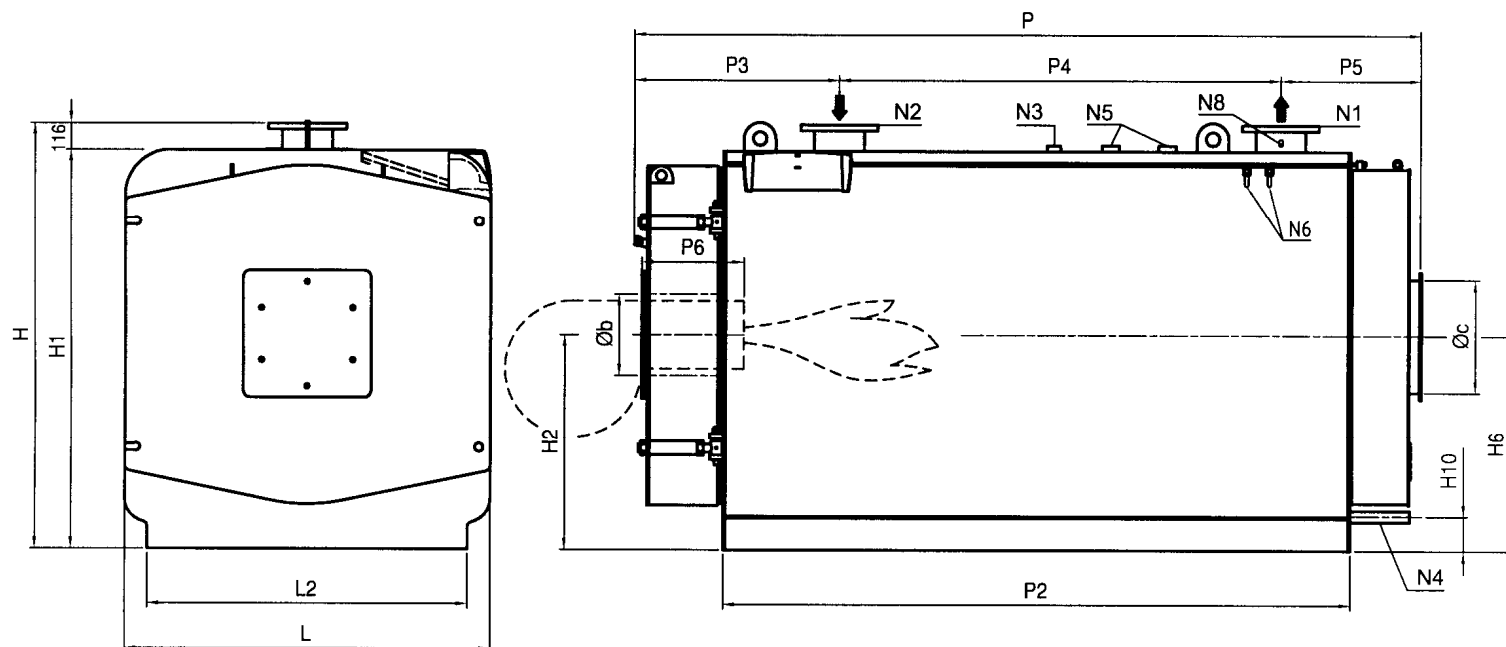


Figure 2, Dimensions for REX/ REX F size 140-350

Boiler type	Boiler size	H	H1	H2	H4	H6	H10	L	L2	P	P2	P3	P4	P5	P6	Øb	Øc	N1	N2	N3	N4	N5	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	["RG]	["RG]	["RG]	["RG]	["RG]
REX / REX F	140	1746	1630	880	880	-	150,0	1470	1270	2886	2300	831	1300	755	350-400	320	400	150	150	1"	1"1/4	1"1/2	1/2"	1/2"
	160	1746	1630	880	880	-	150,0	1470	1270	2886	2300	831	1300	755	350-400	320	400	150	150	1"	1"1/4	1"1/2	1/2"	1/2"
	180	1746	1630	880	880	-	150,0	1470	1270	3096	2510	771	1850	475	450-500	320	400	150	150	1"	1"1/4	1"1/2	1/2"	1/2"
	200	1876	1760	945	945	-	150,0	1600	1400	3220	2510	903	1550	767	450-500	360	500	200	200	1"	1"1/4	2"	1/2"	1/2"
	240	1876	1760	945	945	-	150,0	1600	1400	3480	2770	903	1950	627	450-500	360	500	200	200	1"	1"1/4	2"	1/2"	1/2"
	300	2146	2030	1080	1080	-	150,0	1870	1670	3480	2770	903	2050	527	450-500	400	550	200	200	1"	1"1/4	2"	1/2"	1/2"
350	2146	2030	1080	1080	-	150,0	1870	1670	3935	3225	903	2050	982	450-500	400	550	200	200	1"	1"1/4	2"	1/2"	1/2"	

Table 2, Dimensions for REX/ REX F, size 140-350

REX size 400-600

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

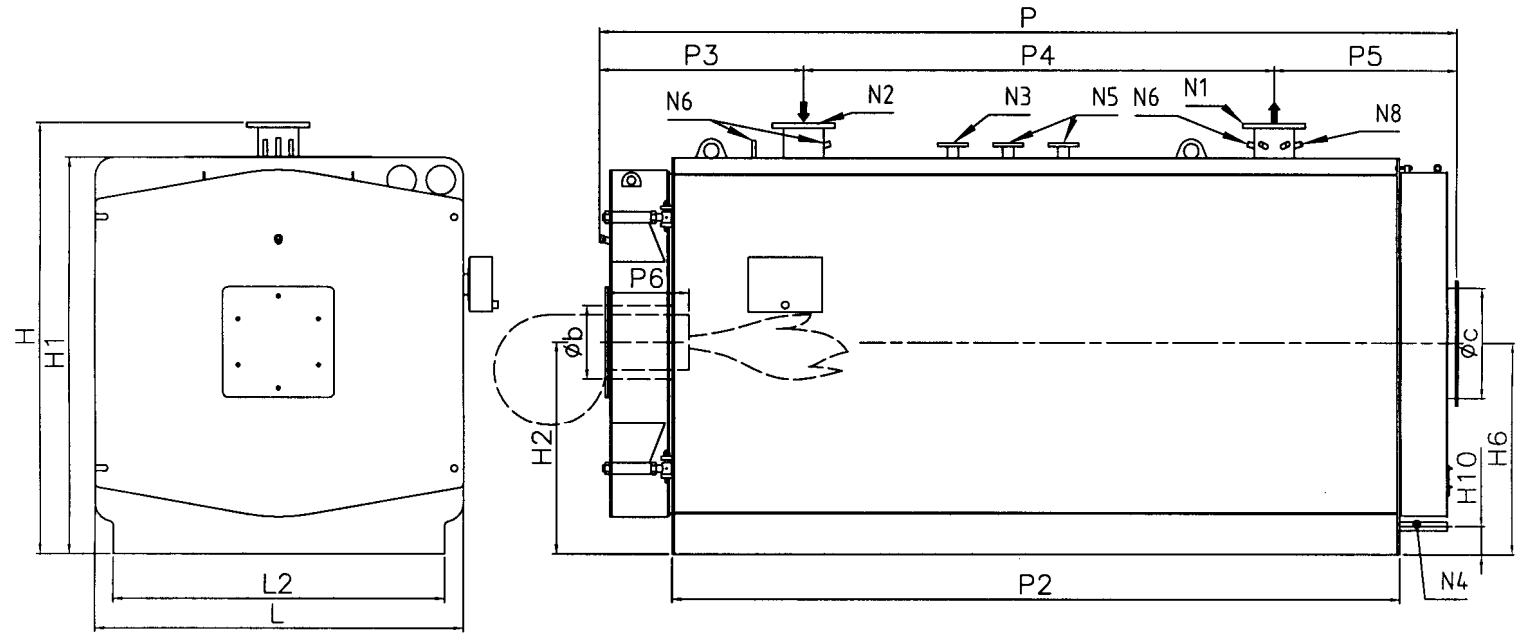


Figure 3, Dimensions for REX size 400-600

Boiler type	Boiler size	H	H1	H2	H4	H6	H10	L	L2	P	P2	P3	P4	P5	P6	Øb	Øc	N1	N2	N3	N4	N5	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	DN	["RG]	DN	["RG]	["RG]
REX	400	2326	2140	1135	1135	-	150,0	1980	1780	4310	3596	1105	2200	1005	450-500	400	600	200	200	50	1"1/4	50	1/2"-3/4"	1/2"
	450	2326	2140	1135	1135	-	150,0	1980	1780	4660	3946	1105	2550	1005	500-550	400	600	200	200	50	1"1/4	50	1/2"-3/4"	1/2"
	500	2529	2340	1235	1235	-	150,0	2180	1980	4729	3948	1174	2550	1005	500-550	450	650	250	250	65	1"1/4	65	1/2"-3/4"	1/2"
	600	2529	2340	1235	1235	-	150,0	2180	1980	5261	4488	1174	3100	987	530-580	450	650	250	250	65	1"1/4	65	1/2"-3/4"	1/2"

Table 3, Dimensions for REX, size 400-600

REX DUAL / REX DUAL F (stacked), size 14-70

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

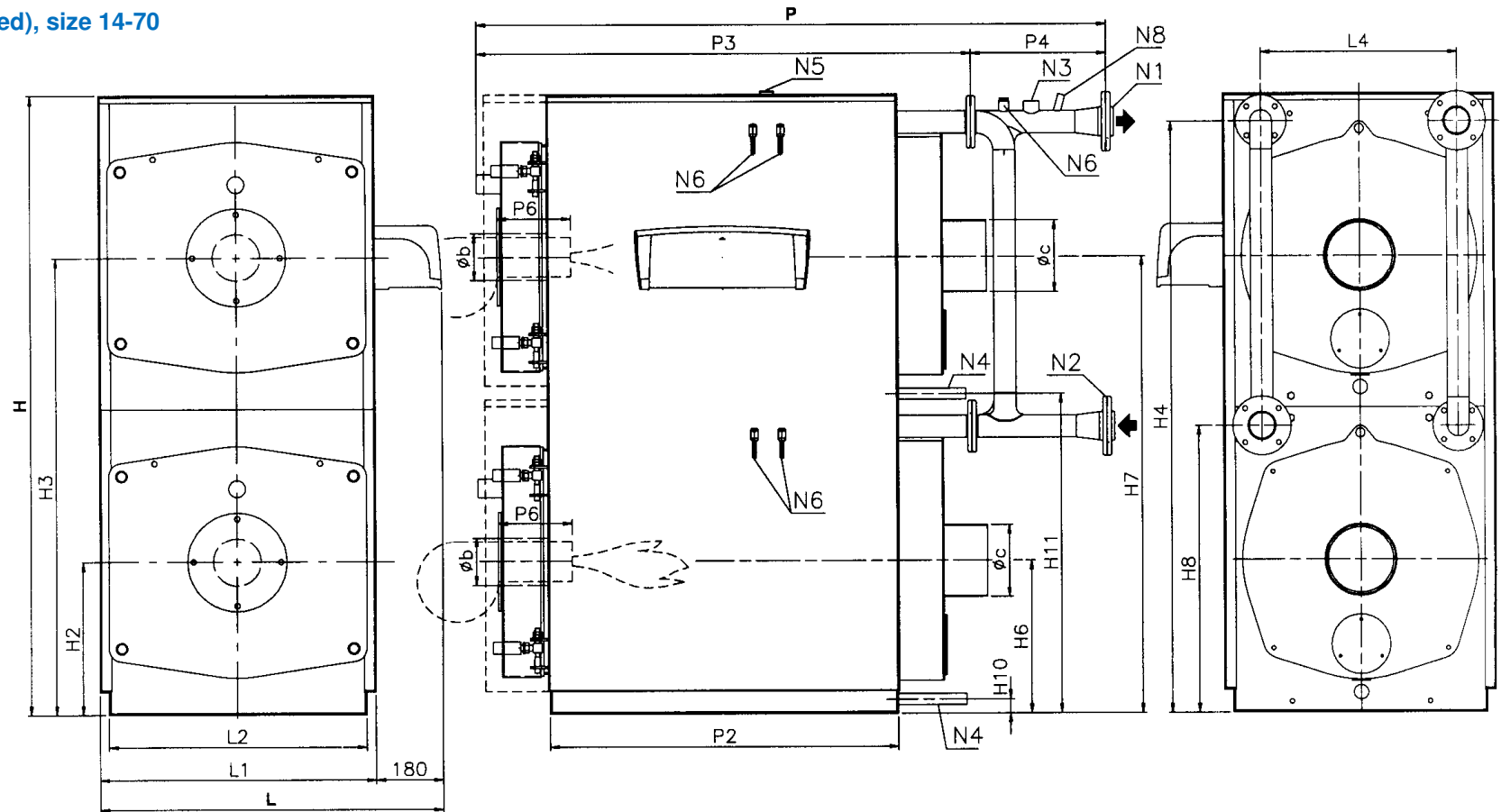


Figure 4, Dimensions for REX DUAL / REX DUAL F (vertically stacked), size 14-70

Boiler type	Boiler size	H	H1	H2	H3	H4	H6	H7	H8	H10	H11	L	L1	L2	L4	P	P2	P3	P4	P6	Øb	Øc	N1	N2	N3	N4	N5	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	[“RG]	[“RG]	[“RG]	[“]
REX DUAL / REX DUAL F	14	1693	-	415	1245	1610	415	1245	780	54,5	885	939	756	700	540	1365	630	996	369	200-250	130	200	65	65	1"	1"	1"	1/2"	1/2"
	16	1693	-	415	1245	1610	415	1245	780	54,5	885	939	756	700	540	1365	630	996	369	200-250	130	200	65	65	1"	1"	1"	1/2"	1/2"
	18	1693	-	415	1245	1610	415	1245	780	54,5	885	939	756	700	540	1490	755	1121	369	200-250	130	200	65	65	1"	1"	1"	1/2"	1/2"
	20	1693	-	415	1245	1610	415	1245	780	54,5	885	939	756	700	540	1490	755	1121	369	200-250	130	200	65	65	1"	1"	1"	1/2"	1/2"
	24	1693	-	415	1245	1610	415	1245	780	54,5	885	939	756	700	540	1490	755	1121	369	200-250	130	200	65	65	1"	1"	1"	1/2"	1/2"
	30	1793	-	440	1320	1710	440	1320	830	54,5	935	989	806	750	590	1798	1000	1400	398	200-250	160	250	80	80	1"	1"	1"	1/2"	1/2"
	40	1793	-	440	1320	1710	440	1320	830	54,5	935	989	806	750	590	1798	1000	1400	398	200-250	160	250	80	80	1"	1"	1"	1/2"	1/2"
	50	1793	-	440	1320	1710	440	1320	830	54,5	1035	989	806	750	590	2048	1250	1650	398	200-250	160	250	80	80	1"	1"	1"	1/2"	1/2"
	60	1993	-	490	1470	1910	490	1470	930	54,5	1035	1089	906	850	690	2049	1250	1651	398	200-250	180	250	80	80	1"	1"	1"	1/2"	1/2"
	70	1993	-	490	1470	1910	490	1470	930	54,5	1035	1089	906	850	690	2299	1500	1901	398	200-250	180	250	80	80	1"	1"	1"	1/2"	1/2"

Table 4, Dimensions for REX DUAL / REX DUAL F (vertically stacked), size 14-70

REX DUAL / REX DUAL F (stacked), size 80-170

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

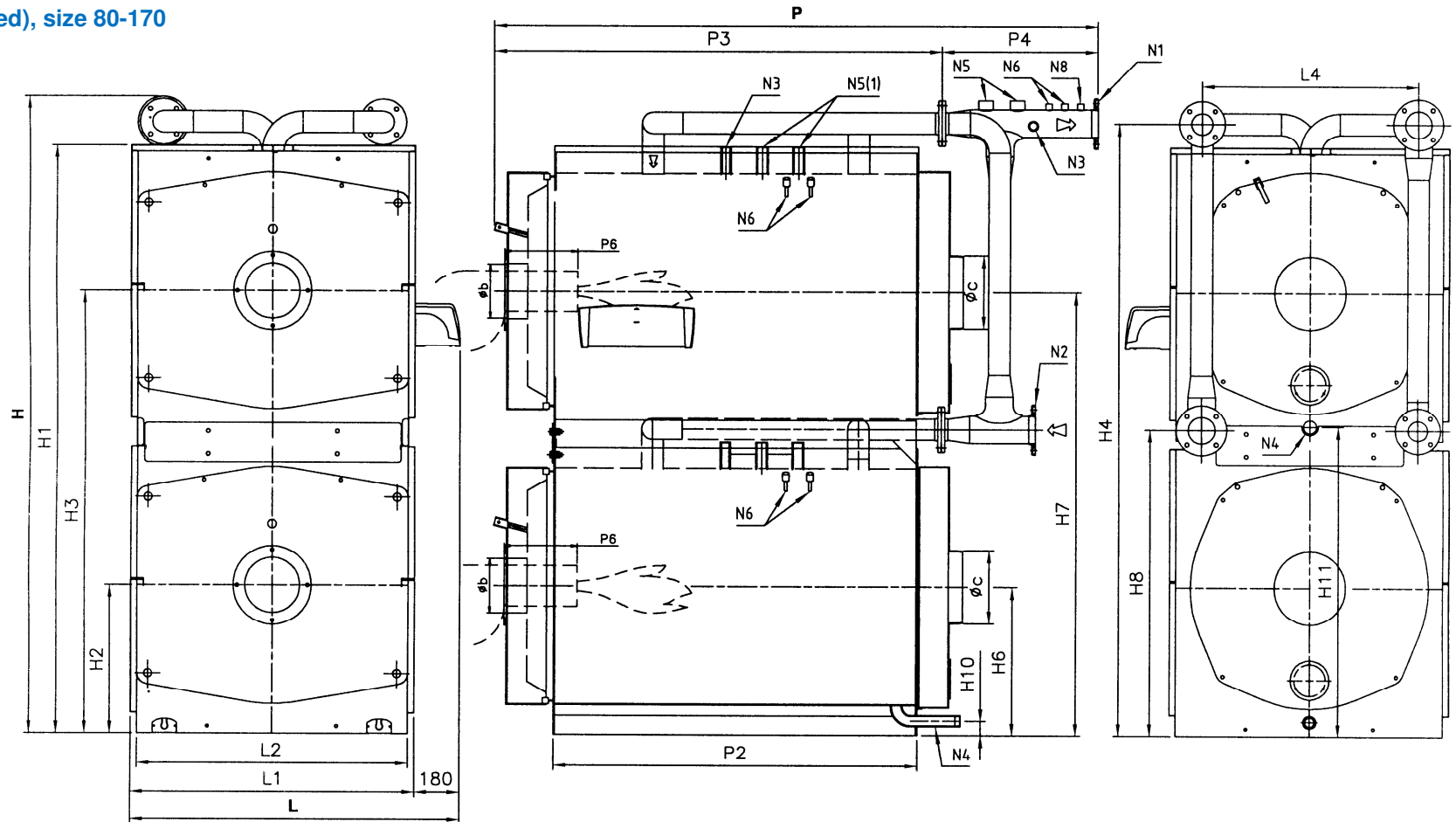


Figure 5, Dimensions for REX DUAL / REX DUAL F (vertically stacked), size 80-170

Boiler type	Boiler size	H	H1	H2	H3	H4	H6	H7	H8	H10	H11	L	L1	L2	L4	P	P2	P3	P4	P6	Øb	Øc	N1	N2	N3	N4	N5 (1)	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	["RG]	["RG]	["RG]	["]
REX DUAL / REX DUAL F	80	2244	2040	500	1525	2139	500	1525	1069	50,0	1075	1129	946	890	720	2440	1502	1795	645	230-280	225	250	100	100	1"	1"	1"1/4 (2)	1/2"	1/2"
	100	2624	2420	610	1825	2520	610	1825	1259	60,0	1275	1349	1166	1110	900	2490	1502	1847	643	270-320	225	300	100	100	1"	1"1/4	1"1/4 + 1"1/2	1/2"	1/2"
	124	2640	2420	610	1825	2520	610	1825	1259	60,0	1275	1349	1166	1110	900	2792	1792	2113	679	270-320	225	300	125	125	1"	1"1/4	1"1/4 + 1"1/2	1/2"	1/2"
	150	2935	2680	675	2020	2793	675	2020	1372	60,0	1405	1479	1296	1240	1000	2756	1753	2087	668	270-320	280	350	150	150	1"	1"1/4	1"1/2 + 1"1/2	1/2"	1/2"
	170	2935	2680	675	2020	2793	675	2020	1372	60,0	1405	1479	1296	1240	1000	2756	1753	2087	668	270-320	280	350	150	150	1"	1"1/4	1"1/2 + 1"1/2	1/2"	1/2"

Table 5, Dimensioner for REX DUAL / REX DUAL F (vertically stacked), size 80-170

Notes

- (1) Largest of two fittings (1"1/2) positioned on flow pipe
- (2) Only one fitting available

REX DUAL / REX DUAL F (side-by-side), size 80-260

- N1 Flow
- N2 Return
- N3 Fitting for instruments
- N4 System filling/drainage
- N5 Fitting for safety valves
- N6 Bulb wells
- N8 Inspection well

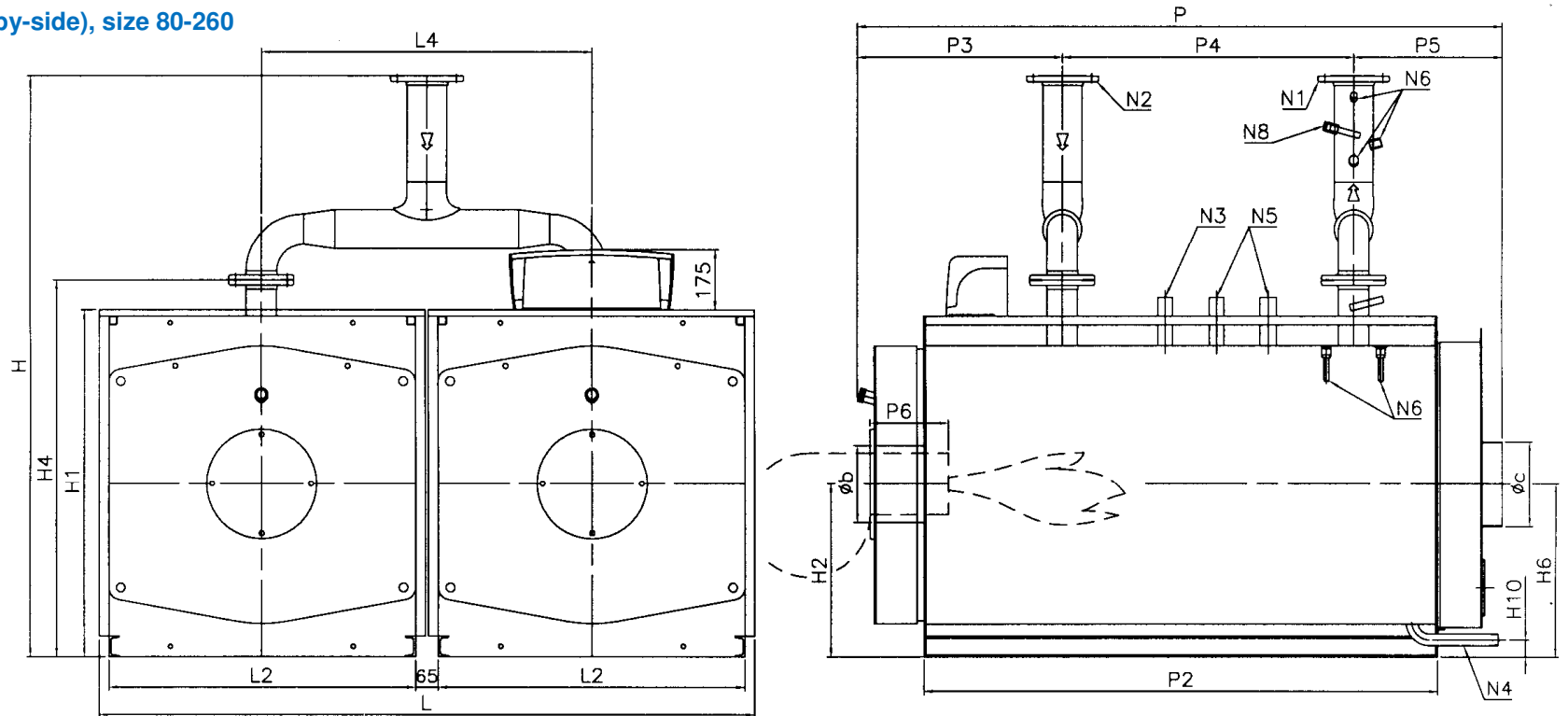


Figure 6, Dimensions for REX DUAL / REX DUAL F (side-by-side), size 80-260

Boiler type	Boiler size	H	H1	H2	H4	H6	H10	L	L2	L4	P	P2	P3	P4	P5	P6	Øb	Øc	N1	N2	N3	N4	N5	N6	N8
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	DN	DN	["RG]	["RG]	["RG]	["]	["]
REX DUAL / REX DUAL F	80	1690	1015	500	1095	500	50	1901	890	955	1872	1502	600	850	422	230-280	225	250	100	100	1"	1"	1"1/4 (1)	1/2"	1/2"
	100	1880	1205	610	1285	610	60	2341	1110	1175	1946	1502	663	850	433	270-320	225	300	100	100	1"	1"1/4	1"1/4	1/2"	1/2"
	124	1902	1205	610	1285	610	60	2341	1110	1175	2235	1792	663	1150	422	270-320	225	300	125	125	1"	1"1/4	1"1/4	1/2"	1/2"
	150	1990	1335	675	1417	675	60	2600	1240	1305	2247	1753	704	1100	443	270-320	280	350	150	150	1"	1"1/4	1"1/2	1/2"	1/2"
	170	1990	1335	675	1417	675	60	2600	1240	1305	2247	1753	704	1100	443	270-320	280	350	150	150	1"	1"1/4	1"1/2	1/2"	1/2"
	190	1990	1335	675	1417	675	60	2600	1240	1305	2497	2003	704	1200	593	270-320	280	350	200	200	1"	1"1/4	1"1/2	1/2"	1/2"
	200	2025	1485	750	1568	750	60	2900	1390	1455	2477	2003	703	1200	574	270-320	280	400	200	200	1"	1"1/4	1"1/2	1/2"	1/2"
	240	2025	1485	750	1568	750	60	2900	1390	1455	2477	2003	703	1200	574	270-320	280	400	200	200	1"	1"1/4	1"1/2	1/2"	1/2"
	260	2025	1485	750	1568	750	60	2900	1390	1455	2477	2003	703	1200	574	270-320	280	400	200	200	1"	1"1/4	1"1/2	1/2"	1/2"

Table 6, Dimensioner for REX DUAL / REX DUAL F (side-by-side), size 80-260

Notes

(1) One fitting only

4.2 PERFORMANCE SPECIFICATIONS

REX size 7-600

Boiler type	Boiler size	At maximum load										At minimum load								
		Heat output (1)		Heat input (1)		Efficiency (2)	Classification (3)	Gas flow rate			Flue gas flow rate	Heat output (1)		Heat input (1)		Efficiency (2)	Gas flow rate			Flue gas flow rate
		[kW]	[Mcal/h]	[kW]	[Mcal/h]			[%]	G20 (4)	G30 (5)		G31 (6)	[kg/h]	[kW]	[Mcal/h]		[kW]	[Mcal/h]	[%]	
REX	7	70	60,0	76	65,4	92,1	★★	8,0	6,0	5,9	120	35	30	38,3	32,9	91,4	4,1	3,0	3,0	60,4
	8	80	69,0	87	74,8	92,0	★★	9,2	6,8	6,8	137	40	34	43,7	37,6	91,5	4,6	3,4	3,4	68,9
	9	90	77,0	98	84,3	91,8	★★	10,4	7,7	7,6	155	45	39	49,2	42,3	91,6	5,2	3,9	3,8	77,5
	10	100	86,0	109	93,7	91,7	★★	11,5	8,6	8,5	172	50	43	54,5	46,9	91,7	5,8	4,3	4,2	86,0
	11	120	103	130	112	92,3	★★	13,8	10,2	10,1	205	60	52	65,6	56,4	91,5	6,9	5,2	5,1	103
	15	150	129	163	140	92,0	★★	17,3	12,8	12,7	257	75	65	82,1	70,7	91,3	8,7	6,5	6,4	130
	20	200	172	216	186	92,6	★★	22,9	17,0	16,8	341	100	86	109	94,1	91,4	11,6	8,6	8,5	173
	25	250	215	271	233	92,3	★★	28,7	21,3	21,1	427	125	108	136	117	91,7	14,4	10,7	10,6	215
	30	300	258	325	280	92,3	★★	34,4	25,5	25,3	512	150	129	163	140	91,9	17,3	12,8	12,7	257
	35	350	301	379	326	92,4	★★	40,1	29,8	29,4	598	175	151	190	164	91,9	20,2	15,0	14,8	300
	40	400	344	433	372	92,4	★★	45,8	34,0	33,6	683	200	172	218	187	91,8	23,1	17,1	16,9	344
	50	500	430	542	466	92,3	-	57,4	42,6	42,1	855	250	215	272	234	91,9	28,8	21,4	21,1	429
	62	620	533	672	578	92,3	-	71,1	52,8	52,2	1 060	310	267	338	290	91,8	35,7	26,5	26,2	532
	75	750	645	813	699	92,3	-	86,0	63,9	63,2	1 282	375	323	408	351	91,8	43,2	32,1	31,7	644
	85	850	731	921	792	92,3	-	97,5	72,3	71,6	1 452	425	366	463	398	91,8	49,0	36,4	36,0	730
	95	950	817	1 030	886	92,2	-	109	80,9	80,0	1 624	475	409	518	445	91,7	54,8	40,7	40,2	817
	100	1 020	877	1 106	951	92,2	-	117	86,9	85,9	1 744	510	439	555	477	91,9	58,7	43,6	43,1	875
	120	1 200	1 032	1 301	1 119	92,2	-	138	102	101	2 051	600	516	654	562	91,8	69,2	51,3	50,8	1 031
	130	1 300	1 118	1 409	1 212	92,3	-	149	111	109	2 222	650	559	709	610	91,7	75,0	55,7	55,1	1 118
	140	1 400	1 204	1 517	1 305	92,3	-	161	119	118	2 392	700	602	763	656	91,7	80,8	60,0	59,3	1 204
160	1 600	1 376	1 733	1 490	92,3	-	183	136	135	2 733	800	688	871	749	91,8	92,2	68,4	67,7	1 374	
180	1 800	1 548	1 950	1 677	92,3	-	206	153	151	3 075	900	774	980	843	91,8	104	77,0	76,2	1 546	
200	2 000	1 720	2 167	1 864	92,3	-	229	170	168	3 417	1 000	860	1 091	938	91,7	115	85,6	84,7	1 719	
240	2 400	2 064	2 600	2 236	92,3	-	275	204	202	4 099	1 200	1 032	1 307	1 124	91,8	138	103	102	2 061	
300	3 000	2 580	3 250	2 795	92,3	-	344	255	252	5 124	1 500	1 290	1 634	1 405	91,8	173	128	127	2 576	
350	3 500	3 010	3 792	3 261	92,3	-	401	298	295	5 979	1 750	1 505	1 908	1 641	91,7	202	150	148	3 009	
400	4 000	3 440	4 333	3 726	92,3	-	459	340	337	6 832	2 000	1 720	2 179	1 874	91,8	231	171	169	3 435	
450	4 500	3 870	4 865	4 184	92,5	-	515	382	378	7 671	2 250	1 935	2 448	2 106	91,9	259	192	190	3 860	
500	5 000	4 300	5 402	4 646	92,6	-	572	424	420	8 517	2 500	2 150	2 720	2 340	91,9	288	214	211	4 289	
600	6 000	5 160	6 480	5 573	92,6	-	686	509	503	10 217	3 000	2 580	3 264	2 807	91,9	345	256	254	5 147	

Table 7, Performance specifications (REX size 7-600)

REX F size 7-350

Boiler type	Boiler size	At maximum load										At minimum load									
		Heat output (1)		Heat input (1)		Efficiency (2)	Classification (3)	Gas flow rate			Flue gas flow rate	Heat output (1)		Heat input (1)		Efficiency (2)	Gas flow rate			Flue gas flow rate	
		[kW]	[Mcal/h]	[kW]	[Mcal/h]			[%]	G20 (4)	G30 (5)		G31 (6)	[kg/h]	[kW]	[Mcal/h]		[kW]	[Mcal/h]	[%]		G20 (4)
REX F	7	70	60,0	74	63,8	94,3	★★★	7,9	5,8	5,8	117	35	30	36,9	31,8	94,8	3,9	2,9	2,9	58,2	
	8	80	69,0	85	72,8	94,5	★★★	9,0	6,7	6,6	134	40	34	42,2	36,3	94,7	4,5	3,3	3,3	66,6	
	9	90	77,0	95	81,9	94,5	★★★	10,1	7,5	7,4	150	45	39	47,4	40,7	95,0	5,0	3,7	3,7	74,7	
	10	100	86,0	106	90,8	94,7	★★★	11,2	8,3	8,2	166	50	43	52,7	45,4	94,8	5,6	4,1	4,1	83,2	
	11	120	103	127	109	94,9	★★★	13,4	9,9	9,8	200	60	52	63,1	54,3	95,1	6,7	5,0	4,9	99,5	
	15	150	129	158	136	95,1	★★★	16,7	12,4	12,3	249	75	65	78,4	67,4	95,7	8,3	6,2	6,1	124	
	20	200	172	210	181	95,2	★★★	22,2	16,5	16,3	331	100	86	105	90,2	95,3	11,1	8,2	8,2	165	
	25	250	215	264	227	94,9	★★★	27,9	20,7	20,5	415	125	108	131	113	95,4	13,9	10,3	10,2	207	
	30	300	258	316	271	95,1	★★★	33,4	24,8	24,5	498	150	129	157	135	95,6	16,6	12,3	12,2	247	
	35	350	301	367	316	95,4	★★★	38,8	28,8	28,5	579	175	151	183	157	95,6	19,4	14,4	14,2	289	
	40	400	344	420	361	95,2	★★★	44,4	33,0	32,6	662	200	172	210	180	95,4	22,2	16,5	16,3	331	
	50	500	430	524	451	95,4	-	55,5	41,2	40,7	826	250	215	261	225	95,7	27,6	20,5	20,3	412	
	62	620	533	649	558	95,5	-	68,7	51,0	50,4	1 023	310	267	323	278	95,9	34,2	25,4	25,1	510	
	75	750	645	786	676	95,4	-	83,2	61,7	61,1	1 239	375	323	391	336	95,9	41,4	30,7	30,4	616	
	85	850	731	891	766	95,4	-	94,3	70,0	69,2	1 405	425	366	444	382	95,8	46,9	34,8	34,5	699	
	95	950	817	997	857	95,3	-	106	78,3	77,5	1 572	475	409	496	426	95,8	52,5	38,9	38,5	782	
	100	1 020	877	1 069	919	95,4	-	113	84,0	83,1	1 685	510	439	532	458	95,8	56,3	41,8	41,4	839	
	120	1 200	1 032	1 259	1 083	95,3	-	133	98,9	97,8	1 985	600	516	626	539	95,8	66,3	49,2	48,7	987	
	130	1 300	1 118	1 364	1 173	95,3	-	144	107,1	106,0	2 151	650	559	679	584	95,7	71,9	53,3	52,8	1 071	
	140	1 400	1 204	1 468	1 262	95,4	-	155	115,0	114,0	2 315	700	602	730	628	95,9	77,3	57,4	56,7	1 151	
160	1 600	1 376	1 675	1 440	95,5	-	177	131,0	130,0	2 641	800	688	835	718	95,8	88,4	65,6	64,9	1 317		
180	1 800	1 548	1 885	1 621	95,5	-	199	148,0	146,0	2 972	900	774	940	809	95,7	99,5	73,9	73,1	1 483		
200	2 000	1 720	2 094	1 800	95,5	-	222	164,0	163,0	3 302	1 000	860	1 044	898	95,8	111,0	82,0	81,1	1 646		
240	2 400	2 064	2 510	2 165	95,3	-	266	198,0	196,0	3 970	1 200	1 032	1 258	1 082	95,4	133,0	98,8	97,7	1 983		
300	3 000	2 580	3 142	2 702	95,5	-	332	247,0	244,0	4 954	1 500	1 290	1 569	1 349	95,6	166,0	123,0	122,0	2 474		
350	3 500	3 010	3 670	3 156	95,4	-	388	288,0	285,0	5 787	1 750	1 505	1 825	1 570	95,9	193,0	143,0	142,0	2 878		

Table 8, Performance specifications (REX F size 7-350)

REX DUAL size 14-260

Boiler type	Boiler size	At maximum load										At minimum load									
		Heat output (1)		Heat input (1)		Efficiency (2)	Classification (3)	Gas flow rate			Flue gas flow rate	Heat output (1)		Heat input (1)		Efficiency (2)	Gas flow rate			Flue gas flow rate	
		[kW]	[Mcal/h]	[kW]	[Mcal/h]			[m ³ /h]	[kg/h]	[kg/h]		[kW]	[Mcal/h]	[kW]	[Mcal/h]		[m ³ /h]	[kg/h]	[kg/h]		
REX DUAL	14	140	120,0	152	130,7	92,1	★★	16,1	11,9	11,8	240	35	30	38,3	32,9	91,4	4,1	3,0	3,0	60,4	
	16	160	138,0	174	149,6	92,0	★★	18,4	13,7	13,5	274	40	34	43,7	37,6	91,5	4,6	3,4	3,4	68,9	
	18	180	155,0	196	168,6	91,8	★★	20,7	15,4	15,2	309	45	39	49,2	42,3	91,6	5,2	3,9	3,8	77,5	
	20	200	172,0	218	187,5	91,7	★★	23,1	17,1	16,9	344	50	43	54,5	46,9	91,7	5,8	4,3	4,2	86,0	
	24	240	206	260	224	92,3	★★	27,5	20,4	20,2	410	60	52	65,6	56,4	91,5	6,9	5,2	5,1	103	
	30	300	258	326	280	92,0	★★	34,5	25,6	25,3	514	75	65	82,1	70,7	91,3	8,7	6,5	6,4	130	
	40	400	344	432	372	92,6	★★	45,7	33,9	33,6	681	100	86	109	94,1	91,4	11,6	8,6	8,5	173	
	50	500	430	542	466	92,3	-	57,4	42,6	42,1	855	125	108	136	117	91,7	14,4	10,7	10,6	215	
	60	600	516	650	559	92,3	-	68,8	51,1	50,5	1 025	150	129	163	140	91,9	17,3	12,8	12,7	257	
	70	700	602	758	652	92,4	-	80,2	59,5	58,9	1 195	175	151	190	164	91,9	20,2	15,0	14,8	300	
	80	800	688	866	745	92,4	-	91,6	68,0	67,3	1 365	200	172	218	187	91,8	23,1	17,1	16,9	344	
	100	1 000	860	1 084	932	92,3	-	115	85,1	84,2	1 709	250	215	272	234	91,9	28,8	21,4	21,1	429	
	124	1 240	1 066	1 344	1 156	92,3	-	142	106	104	2 119	310	267	338	290	91,8	35,7	26,5	26,2	532	
	150	1 500	1 290	1 626	1 398	92,3	-	172	128	126	2 564	375	323	408	351	91,8	43,2	32,1	31,7	644	
	170	1 700	1 462	1 842	1 584	92,3	-	195	145	143	2 904	425	366	463	398	91,8	49,0	36,4	36,0	730	
190	1 900	1 634	2 060	1 772	92,2	-	218	162	160	3 248	475	409	518	445	91,7	54,8	40,7	40,2	817		
200	2 040	1 754	2 212	1 902	92,2	-	234	174	172	3 488	510	439	556	478	91,7	58,9	43,7	43,2	877		
240	2 400	2 064	2 602	2 238	92,2	-	275	204	202	4 103	600	516	654	562	91,8	69,2	51,3	50,8	1 031		
260	2 600	2 236	2 818	2 423	92,3	-	298	221	219	4 443	650	559	709	610	91,7	75,0	55,7	55,1	1 118		

Table 9, Performance specifications (REX DUAL size 14-260)

REX DUAL F size 14-260

Boiler type	Boiler size	At maximum load										At minimum load									
		Heat output (1)		Heat input (1)		Efficiency (2)	Classification (3)	Gas flow rate			Flue gas flow rate	Heat output (1)		Heat input (1)		Efficiency (2)	Gas flow rate			Flue gas flow rate	
		[kW]	[Mcal/h]	[kW]	[Mcal/h]			[%]	G20 (4)	G30 (5)		G31 (6)	[kg/h]	[kW]	[Mcal/h]		[kW]	[Mcal/h]	[%]		G20 (4)
REX DUAL F	14	140	120,0	148	127,6	94,3	★★★	15,7	11,7	11,5	234	35	30	36,9	31,8	94,8	3,9	2,9	2,9	58,2	
	16	160	138,0	169	145,7	94,5	★★★	17,9	13,3	13,2	267	40	34	42,2	36,3	94,7	4,5	3,3	3,3	66,6	
	18	180	155,0	190	163,7	94,5	★★★	20,2	15,0	14,8	300	45	39	47,4	40,7	95,0	5,0	3,7	3,7	74,7	
	20	200	172,0	211	181,6	94,7	★★★	22,4	16,6	16,4	333	50	43	52,7	45,4	94,8	5,6	4,1	4,1	83,2	
	24	240	206	253	218	94,9	★★★	26,8	19,9	19,7	399	60	52	63,1	54,3	95,1	6,7	5,0	4,9	99,5	
	30	300	258	316	271	95,1	★★★	33,4	24,8	24,5	498	75	65	78,4	67,4	95,7	8,3	6,2	6,1	124	
	40	400	344	420	361	95,2	★★★	44,4	33,0	32,6	662	100	86	105	90,2	95,3	11,1	8,2	8,2	165	
	50	500	430	527	453	94,9	-	55,8	41,4	40,9	831	125	108	131	113	95,4	13,9	10,3	10,2	207	
	60	600	516	631	543	95,1	-	66,8	49,6	49,0	995	150	129	157	135	95,6	16,6	12,3	12,2	247	
	70	700	602	734	631	95,4	-	77,7	57,7	57,0	1.157	175	151	183	157	95,6	19,4	14,4	14,2	289	
	80	800	688	840	722	95,2	-	88,9	66,0	65,3	1.324	200	172	210	180	95,4	22,2	16,5	16,3	331	
	100	1.000	860	1.048	901	95,4	-	111	82,3	81,4	1.652	250	215	261	225	95,7	27,6	20,5	20,3	412	
	124	1.240	1.066	1.298	1.116	95,5	-	137	102	101	2.047	310	267	323	278	95,9	34,2	25,4	25,1	510	
	150	1.500	1.290	1.572	1.352	95,4	-	166	123	122	2.479	375	323	391	336	95,9	41,4	30,7	30,4	616	
	170	1.700	1.462	1.782	1.533	95,4	-	189	140	138	2.810	425	366	444	382	95,8	46,9	34,8	34,5	699	
	190	1.900	1.634	1.994	1.715	95,3	-	211	157	155	3.144	475	409	496	427	95,7	52,5	39,0	38,6	783	
200	2.040	1.754	2.138	1.839	95,4	-	226	168	166	3.371	510	439	533	458	95,8	56,4	41,8	41,4	840		
240	2.400	2.064	2.518	2.165	95,3	-	266	198	196	3.970	600	516	626	538	95,9	66,2	49,2	48,6	987		
260	2.600	2.236	2.728	2.346	95,3	-	289	214	212	4.301	650	559	679	584	95,8	71,8	53,3	52,7	1.070		

Table 10, Performance specifications (REX DUAL F size 14-260)

Notes:

- (1) @ medium temp. 70 °C
- (2) referred to net. calorific value (n.c.v.)
- (3) acc. to 92/42/EEC
- (4) G20 refers to methane gas type
- (5) G30 refers to butane gas type
- (6) G31 refers to propane gas type

4.3 SPECIFICATIONS FOR FLUE GAS SIDE, WATER SIDE, ELECTRICAL AND FUEL

REX size 7-600

Boiler type	Boiler size	Flue gas resistance [mbar]	Heat loss in chimney [%]	Heat loss through casing [%]	Heat loss at stand-still [%]	Flue gas temperature (1)			Carbon dioxide (CO2) content (1)			Press. loss, water side (2) [mbar]	Design pressure [bar]	Water volume [l]	Weight [kg]	Power supply	Protection class	Power consumpt. (3) [W]	Fuel				
						Gas [°C]	Light oil [°C]	Hvy. oil [°C]	Gas [%]	Light oil [%]	Hvy. oil [%]								Natural gas	Propane gas	Light oil	Heavy oil	Solid fuel
REX	7	0,8	7,1	0,8	0,1	188	191	191	10,5	13,5	14,0	9	5	105	216	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	8	1,0	7,3	0,8	0,1	192	195	194	10,5	13,5	14,0	9	5	105	216	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	9	0,8	7,4	0,8	0,1	194	197	197	10,5	13,5	14,0	10	5	123	258	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	10	1,0	7,5	0,8	0,1	197	199	199	10,5	13,5	14,0	12	5	123	258	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	11	1,1	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	13	5	123	258	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	15	1,2	7,2	0,8	0,1	190	193	193	10,5	13,5	14,0	14	5	172	346	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	20	1,9	6,6	0,8	0,1	177	180	180	10,5	13,5	14,0	15	5	172	346	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	25	2,0	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	15	5	220	431	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	30	2,0	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	16	5	300	475	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	35	2,9	6,9	0,8	0,1	183	186	185	10,5	13,5	14,0	18	5	356	542	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	40	4,1	6,8	0,8	0,1	182	185	184	10,5	13,5	14,0	20	5	360	584	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	50	4,2	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	22	5	540	853	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	62	6,4	6,9	0,8	0,1	185	188	187	10,5	13,5	14,0	27	5	645	963	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	75	5,2	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	25	5	855	1 205	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	85	7,2	6,9	0,8	0,1	184	187	187	10,5	13,5	14,0	27	5	855	1 205	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	95	5,2	7,0	0,8	0,1	185	188	188	10,5	13,5	14,0	32	5	950	1 417	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	100	4,0	7,0	0,8	0,1	186	189	188	10,5	13,5	14,0	26	5	1 200	1 843	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	120	5,5	7,0	0,8	0,1	185	188	188	10,5	13,5	14,0	30	5	1 200	1 843	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	130	6,5	6,9	0,8	0,1	185	188	187	10,5	13,5	14,0	32	5	1 200	1 843	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	140	6,0	6,9	0,8	0,1	184	187	187	10,5	13,5	14,0	28	5	1 500	2 600	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
160	6,5	6,9	0,8	0,1	183	186	186	10,5	13,5	14,0	32	5	1 500	2 600	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
180	7,0	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	37	5	1 650	2 750	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
200	6,0	6,9	0,8	0,1	184	187	187	10,5	13,5	14,0	35	5	2 000	3 650	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
240	7,5	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	40	5	2 300	3 900	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
300	8,0	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	49	5	3 150	5 200	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
350	9,0	6,9	0,8	0,1	184	187	186	10,5	13,5	14,0	60	5	3 650	5 700	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
400	9,0	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	60	6	4 450	7 420	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
450	10,0	6,7	0,8	0,1	179	182	182	10,5	13,5	14,0	52	6	4 900	7 920	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
500	10,0	6,6	0,8	0,1	178	181	180	10,5	13,5	14,0	58	6	6 200	9 530	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
600	12,0	6,6	0,8	0,1	177	180	180	10,5	13,5	14,0	62	6	6 900	11 330	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	

Table 11, Specifications for flue gas side, water side, electrical and fuel (REX size 7-600)

REX F size 7-350

Boiler type	Boiler size	Flue gas resistance [mbar]	Heat loss in chimney [%]	Heat loss through casing [%]	Heat loss at stand-still [%]	Flue gas temperature (1)			Carbon dioxide (CO2) content (1)			Press. loss, water side (2) [mbar]	Design pressure [bar]	Water volume [l]	Weight [kg]	Power supply	Protection class	Power consumpt. (3) [W]	Fuel				
						Gas [°C]	Light oil [°C]	Hvy. oil [°C]	Gas [%]	Light oil [%]	Hvy. oil [%]								Natural gas	Propane gas	Light oil	Heavy oil	Solid fuel
REX F	7	0,9	5,2	0,5	0,1	148	-	-	11,0	-	-	9	5	105	222	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	8	1,1	5,1	0,5	0,1	146	-	-	11,0	-	-	9	5	105	222	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	9	0,9	5,0	0,5	0,1	143	-	-	11,0	-	-	10	5	123	266	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	10	1,1	4,8	0,5	0,1	140	-	-	11,0	-	-	12	5	123	266	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	11	1,3	4,6	0,5	0,1	136	-	-	11,0	-	-	13	5	123	266	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	15	1,3	4,4	0,5	0,1	131	-	-	11,0	-	-	14	5	172	357	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	20	2,2	4,3	0,5	0,1	127	-	-	11,0	-	-	15	5	172	357	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	25	2,4	4,6	0,5	0,1	135	-	-	11,0	-	-	15	5	220	442	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	30	2,4	4,4	0,5	0,1	130	-	-	11,0	-	-	16	5	300	489	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	35	3,4	4,1	0,5	0,1	124	-	-	11,0	-	-	18	5	356	558	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	40	4,7	4,3	0,5	0,1	127	-	-	11,0	-	-	20	5	360	600	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	50	4,8	4,1	0,5	0,1	122	-	-	11,0	-	-	22	5	540	871	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	62	7,3	4,0	0,5	0,1	120	-	-	11,0	-	-	27	5	645	981	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	75	5,8	4,1	0,5	0,1	122	-	-	11,0	-	-	25	5	855	1 230	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	85	8,0	4,1	0,5	0,1	123	-	-	11,0	-	-	27	5	855	1 230	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	95	5,9	4,2	0,5	0,1	126	-	-	11,0	-	-	32	5	950	1 446	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	100	4,5	4,1	0,5	0,1	122	-	-	11,0	-	-	26	5	1 200	1 880	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
	120	6,2	4,2	0,5	0,1	125	-	-	11,0	-	-	30	5	1 200	1 880	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x
130	7,3	4,2	0,5	0,1	125	-	-	11,0	-	-	32	5	1 200	1 880	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
140	6,6	4,1	0,5	0,1	124	-	-	11,0	-	-	28	5	1 500	2 665	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
160	7,1	4,0	0,5	0,1	120	-	-	11,0	-	-	32	5	1 500	2 665	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
180	7,6	4,0	0,5	0,1	121	-	-	11,0	-	-	37	5	1 650	2 815	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
200	6,6	4,0	0,5	0,1	120	-	-	11,0	-	-	35	5	2 000	3 730	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
240	8,1	4,2	0,5	0,1	125	-	-	11,0	-	-	40	5	2 300	3 980	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
300	8,6	4,0	0,5	0,1	121	-	-	11,0	-	-	49	5	3 150	5 300	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	
350	9,6	4,1	0,5	0,1	124	-	-	11,0	-	-	60	5	3 650	5 800	1/N 230v~ 50 Hz	IP 40	20	✓	✓	x	x	x	

Table 12, Specifications for flue gas side, water side, electrical and fuel (REX F size 7-350)

REX DUAL size 14-260

Boiler type	Boiler size	Flue gas resistance [mbar]	Heat loss in chimney [%]	Heat loss through casing [%]	Heat loss at stand-still [%]	Flue gas temperature (1)			Carbon dioxide (CO2) content (1)			Press. loss, water side (2) [mbar]	Design pressure [bar]	Water volume [l]	Weight [kg]	Power supply	Protection class	Power consumpt. (3) [W]	Fuel				
						Gas [°C]	Light oil [°C]	Hvy. oil [°C]	Gas [%]	Light oil [%]	Hvy. oil [%]								Natural gas	Propane gas	Light oil	Heavy oil	Solid fuel
REX DUAL	14	0,8	7,1	0,8	0,1	188	191	191	10,5	13,5	14,0	11	5	210	442	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	16	1,0	7,3	0,8	0,1	192	195	194	10,5	13,5	14,0	11	5	210	442	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	18	0,8	7,4	0,8	0,1	194	197	197	10,5	13,5	14,0	12	5	246	536	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	20	1,0	7,5	0,8	0,1	197	199	199	10,5	13,5	14,0	14	5	246	536	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	24	1,1	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	15	5	246	536	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	30	1,2	7,2	0,8	0,1	190	193	193	10,5	13,5	14,0	16	5	344	776	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	40	1,9	6,6	0,8	0,1	177	180	180	10,5	13,5	14,0	17	5	344	776	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	50	2,0	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	17	5	440	882	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	60	2,0	6,9	0,8	0,1	184	186	186	10,5	13,5	14,0	18	5	600	969	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	70	2,9	6,9	0,8	0,1	183	186	185	10,5	13,5	14,0	20	5	712	1 114	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	80	4,1	6,8	0,8	0,1	182	185	184	10,5	13,5	14,0	20	5	720	1 167	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	100	4,2	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	22	5	1 080	1 705	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	124	6,4	6,9	0,8	0,1	185	188	187	10,5	13,5	14,0	27	5	1 290	1 925	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	150	5,2	7,0	0,8	0,1	185	188	187	10,5	13,5	14,0	25	5	1 710	2 409	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	170	7,2	6,9	0,8	0,1	184	187	187	10,5	13,5	14,0	27	5	1 710	2 409	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
	190	5,2	7,0	0,8	0,1	185	188	188	10,5	13,5	14,0	32	5	1 900	2 833	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x
200	4,0	7,0	0,8	0,1	186	189	188	10,5	13,5	14,0	26	5	2 400	3 686	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
240	5,5	7,0	0,8	0,1	185	188	188	10,5	13,5	14,0	30	5	2 400	3 686	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	
260	6,5	6,9	0,8	0,1	185	188	187	10,5	13,5	14,0	32	5	2 400	3 686	1/N 230v~ 50 Hz	IP 40	20	✓	✓	✓	✓	x	

Table 13, Specifications for water side, fuel and electrical (REX DUAL size 14-260)

REX DUAL F size 14-260

Boiler type	Boiler size	Flue gas resistance [mbar]	Heat loss in chimney [%]	Heat loss through casing [%]	Heat loss at boiler stop [%]	Flue gas temperature (1)			Carbon dioxide (CO ₂) emissions (1)			Water side pressure loss (2) [mbar]	Design pressure [bar]	Water volume [l]	Dry weight [kg]	Electrical supply	Isolation-class	Power consumption (3) [W]	Fuel				
						Gas	Light oil	Heavy oil	Gas	Light oil	Heavy oil								Natural gas	Propane gas	Leight oil	Heavy oil	Wood
						[°C]	[°C]	[°C]	[%]	[%]	[%]												
REX DUAL F	14	0,9	5,2	0,5	0,1	148	-	-	11,0	-	-	11	5	210	442	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	16	1,1	5,1	0,5	0,1	146	-	-	11,0	-	-	11	5	210	442	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	18	0,9	5,0	0,5	0,1	143	-	-	11,0	-	-	12	5	246	536	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	20	1,1	4,8	0,5	0,1	140	-	-	11,0	-	-	14	5	246	536	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	24	1,3	4,6	0,5	0,1	136	-	-	11,0	-	-	15	5	246	536	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	30	1,3	4,4	0,5	0,1	131	-	-	11,0	-	-	16	5	344	776	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	40	2,2	4,3	0,5	0,1	127	-	-	11,0	-	-	17	5	344	776	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	50	2,4	4,6	0,5	0,1	135	-	-	11,0	-	-	17	5	440	882	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	60	2,4	4,4	0,5	0,1	130	-	-	11,0	-	-	18	5	600	969	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	70	3,4	4,1	0,5	0,1	124	-	-	11,0	-	-	20	5	712	1 114	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	80	4,7	4,3	0,5	0,1	127	-	-	11,0	-	-	20	5	720	1 167	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	100	4,8	4,1	0,5	0,1	122	-	-	11,0	-	-	22	5	1 080	1 705	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	124	7,3	4,0	0,5	0,1	120	-	-	11,0	-	-	27	5	1 290	1 925	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
	150	5,8	4,1	0,5	0,1	122	-	-	11,0	-	-	25	5	1 710	2 409	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x
170	8,0	4,1	0,5	0,1	123	-	-	11,0	-	-	27	5	1 710	2 409	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x	
190	5,9	4,2	0,5	0,1	126	-	-	11,0	-	-	32	5	1 900	2 833	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x	
200	4,5	4,1	0,5	0,1	122	-	-	11,0	-	-	26	5	2 400	3 686	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x	
240	6,2	4,2	0,5	0,1	125	-	-	11,0	-	-	30	5	2 400	3 686	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x	
260	7,3	4,2	0,5	0,1	125	-	-	11,0	-	-	32	5	2 400	3 686	1/N 230v~ 50 Hz	IP40	20	✓	✓	x	x	x	

Table 1, Specifications for water side, fuel and electrical (REX DUAL F size 14-260)

Notes:

- (1) at max. effect and 20 °C supply air temperatur
- (2) $\Delta T = 12$ K
- (3) Inclusive of control panel, excluded pump and burner

5 Installation

5.1 GENERAL

Before connecting the boiler, perform the following operations:

- Thoroughly clean all the system pipes in order to remove any foreign matter that could affect correct operation of the boiler;
- Check that the flue has an adequate draught, that there is no narrowing of passages and that it is free from debris; also check that other appliances do not discharge into the flue (unless designed to serve several utilities).
- Observe any local regulations in force.

5.2 BOILER ROOM

Local regulations in force should always be observed. Premises in which boilers will be installed should be sufficiently ventilated and guarantee access for ordinary and extraordinary maintenance operations.

5.3 FLUE DUCTS

The boiler is of pressurised type. It is so called because it is designed for use with a burner provided with an air fan which introduces into the combustion chamber the exact amount of air necessary in relation to the fuel and maintains an overpressure in the furnace equivalent to all the internal resistances of the flue gas path as far as the boiler exhaust. At this point the fan pressure should have dropped to zero to prevent the flue connection pipe and the lower area of the flue itself from being under pressure and combustion gas leaks occurring in the boiler room.

The connection duct from the boiler to the base of the flue must slope upwards in the direction of the flue gas flow with recommended gradient of no less than 10%. Its path must be as short and straight as possible with the bends and fittings rationally designed in accordance with air duct criteria

For straight lengths of up to 1 meter a flue gas ducts with diameter similar to the flue connection diameters of the boiler can be used. For longer ducts or for more winding paths, the diameter must be suitably enlarged.

Refer to section section 4.1, *Connections and dimensions* for information about the flue connection diameter of the boiler.

5.4 HYDRAULIC CONNECTION

For hot water heating system with closed expansion vessel and max. 5 or 6 bar pressure, the boiler must be supplied with the following equipment:

Furnace output ≤ 300.000 kcal/h

- a. Safety valve
- b. Expansion vessel (with min. $\varnothing 18$ mm connection diameter)
- c. Regulation thermostats
- d. Safety thermostat
- e. Safety pressure switch
- f. Well for control thermometer
- g. Pressure gauge with connection for control pressure gauge
- h. Heat discharge valve or fuel on-off valve.
- N1 Flow
- N2 Return
- N3 Connection for instruments pipe
- N4 Bottom connection
- N4b Connection for expansion vessel
- N4c Filling/drain
- N6 - Bulb wells for thermometer, pump consent thermostat, regulation thermostat and safety thermostat

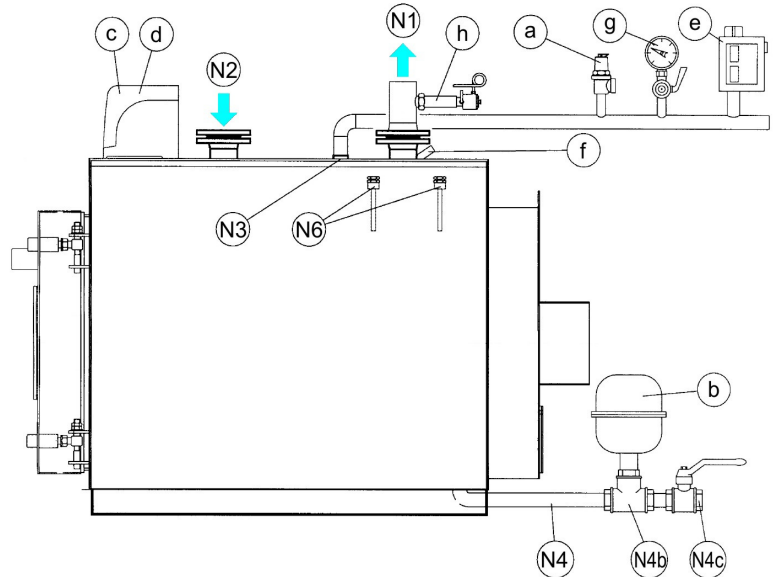


Figure 7, Boiler equipment for furnace output ≤ 300.000 kcal/t

Furnace output > 300.000 kcal/h

- a. 1 pcs. safety valve (2 pcs. if output $> 500,000$ kcal/h)
- b. Expansion vessel
- c. Regulation thermostats
- d. Safety thermostat
- f. Safety pressure switch
- g. Well for control thermometer
- h. Pressure gauge with connection for control pressure gauge
- i. Heat discharge valve or fuel on-off valve
- N1 Flow
- N2 Return
- N3 Connection for instruments pipe
- N4 Bottom connection
- N4b Expansion vessel fitting
- N4c Filling/drain
- N5 Safety valves fitting
- N6 Bulb wells for thermometer, pump consent thermostat, regulation thermostat, and safety thermostat

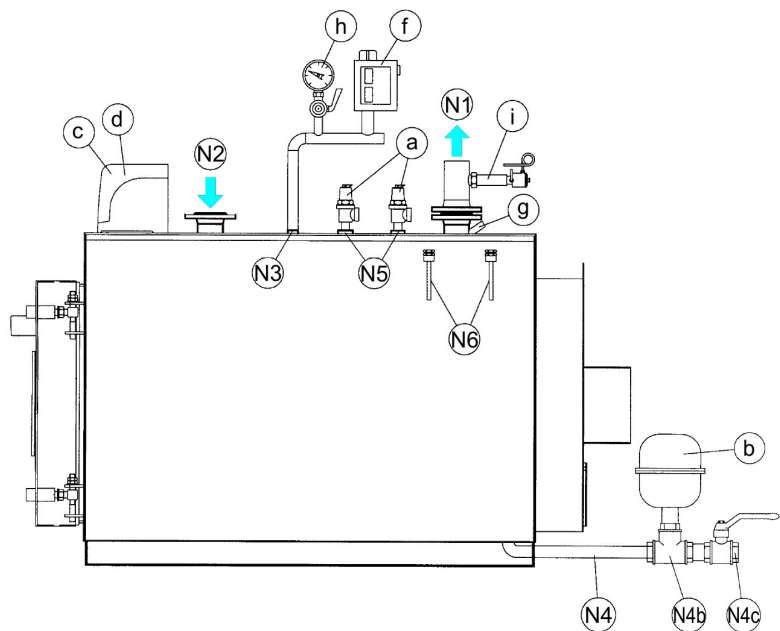


Figure 8, Boiler equipment for furnace output > 300.000 kcal/t

Control of hydraulic system before and during startup

- Ensure that the hydraulic pressure measured after the reduction valve on the supply pipe does not exceed the operating pressure specified on the rating plate of the boiler (5 or 6 bar for standard boiler type).
- As the pressure of the water contained in the heating system increases during heating from cold condition, ensure that it does not exceed the maximum hydraulic pressure specified on the rating plate (5 or 6 bar for standard boiler type).
- Ensure that the safety valve outlets of the boiler (and of hot water tank if present), have been connected to an exhaust funnel in order to prevent the valves from flooding the boiler room if they open.
- Ensure that no pipes of the water and heating system are used as an earth connection for the electrical system as this can seriously and very rapidly damage the pipes, boiler, heater and radiators.
- Once the heating system has been filled, you are advised to close the supply cock and keep it closed so that any leaks from the system can be easily identified by observing a drop in hydraulic pressure indicated on the system pressure gauge.

5.5 INSTRUMENTS POSITIONING

REX DUAL / REX DUAL F (side-by-side), size 80-260

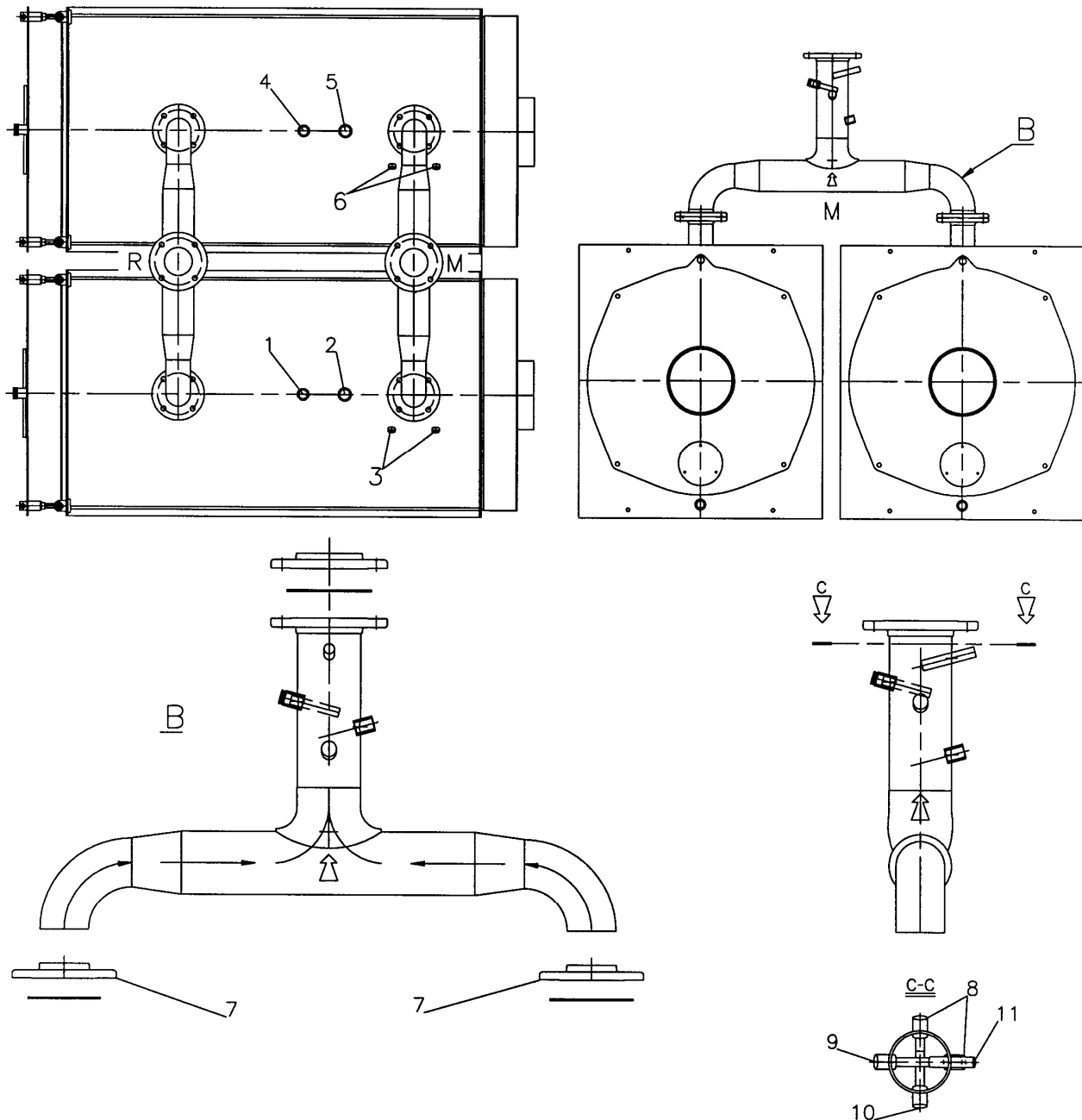


Figure 9, Instruments positioning for REX DUAL / REX DUAL F (side-by-side)

- | | | |
|---|---|--|
| 1 Pressure switch fitting | 7 Flanges to weld after the definitive and correct positioning of the boilers | 10 1 st and 2 nd boiler thermostats temperature sensor bulb well |
| 2+5 Safety valve fittings | 8 1 st and 2 nd boiler fuel valve bulbs wells | 11 Temperature test bulb well |
| 3+6 Boiler circulator consent thermostat and safety thermostat bulb wells | 9 Boiler thermometer bulb well | M Flow |
| 4 Manometer fitting with control manometer flange | | R Return |

5.6 INVERTING THE MANHOLE OPENING

The hinging of the boiler front door can be reversed by following this procedure:

1. Switch the outside nut (or bush) of one hinge with the diametrically opposite closure bush; then at the hinge side, fasten the cone to the door with the inside nut.
2. Repeat the operation for the other hinge.
3. Adjust the door as needed using the hinge nuts.

5.7 BURNER INSTALLATION

Preparation for installation

Before the burner is installed do the following preparations:

- a. Thoroughly clean the inside of all the fuel supply system pipes in order to remove any foreign matter that could affect correct operation of the burner.
- b. Verify that the burner is able to handle the flue gas pressure at max. load. Note that if using heavy oil fuel, the boiler flue gas pressure may be up to 20% higher than specified for light oil or gas fuel. Information about the boiler flue gas pressure may be found in section 4, *Technical specifications*.
- c. Check the internal and external seal of the fuel supply system;
- d. Check that the boiler is fed by the correct type of fuel
- e. Check that the fuel supply pressure is within the values specified on the burner rating plate;
- f. Check that the fuel supply system is dimensioned for the fuel consumption at the boiler max. load and that it is provided with all control and safety devices required by local regulations. If the fuel supply can be regulated or adjusted, then adjust it to the max. boiler load. Information about the boiler fuel consumption may be found in section 4, *Technical specifications*.
- g. Check that the boiler room ventilation openings are sized to supply the air flow needed to obtain perfect combustion and that they meet any requirements stipulated by the local regulations.

When using gas fuel:

- h. Check that the feeding line and the gas ramp comply with regulations in force;
- i. Check that all the gas connections are sealed;
- j. Check that the gas pipes are not used as earth connections for electrical appliances.

If the boiler is not going to be used for some time, close all fuel supply cocks.

Boiler-burner coupling

Check that the gap between the burner draught tube and the mounting plate are properly filled with thermo insulating material (see FIGURE 10). The boiler is supplied with a piece of ceramic rope. If this does not suit the burner used, use a braid of different diameter but same material.

Information about the recommended burner blast tube length (P6), the diameter of the burner hole ($\varnothing b$) and the flue gas pressure drop are included in section 4, *TECHNICAL SPECIFICATIONS*.

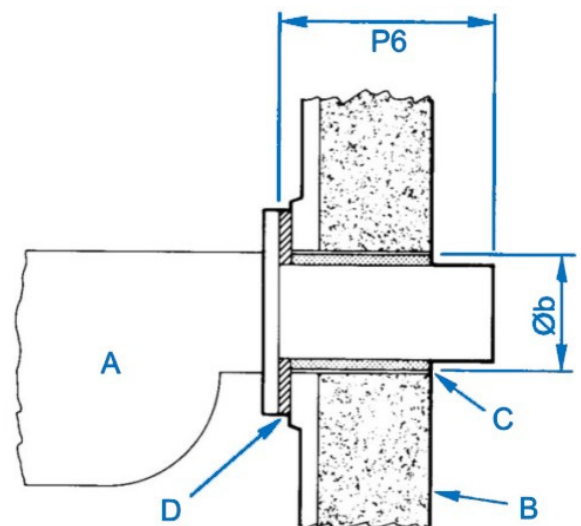


Figure 10, Boiler-burner coupling

Key:

- A Burner
- B Ceramic insulation material
- C Soft insulation material
- D Gasket for burner flange
- P6 Recommended burner blast tube length
- $\varnothing b$ Diameter of cut-out hole for burner (see section 4.1 *Connections and dimensions*)

5.1 CABINET ASSEMBLY

Note: The boiler cabinet assembly described in this section applies to REX boiler sizes 7-350 only. For larger boiler sizes no cabinet assembly is required.

Assembling of the the case

- 1** Wrap the fiberglass around the boiler body and use the supplied strap to secure it (see Figure 11).

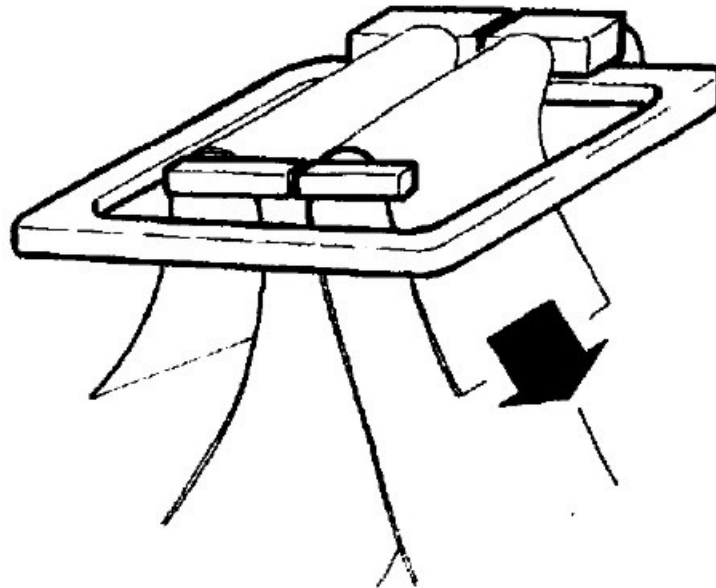


Figure 11, Plastic strap locking
Pull in the direction of the arrow to secure the fiberglass to the boiler shell

- 2** Prepare the staves by inserting the four stoppers, as shown in Figure 12.

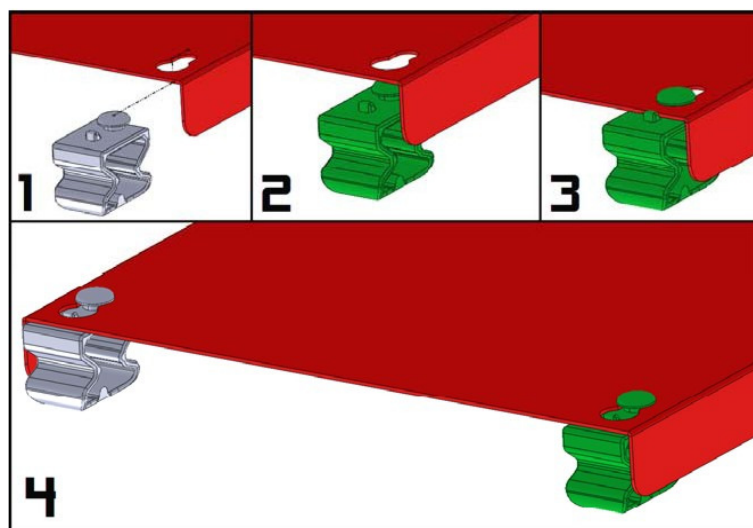


Figure 12, Inserting the stoppers

- 3** Fasten the uprights and the beams to the plates by means of appropriate screws and nuts.

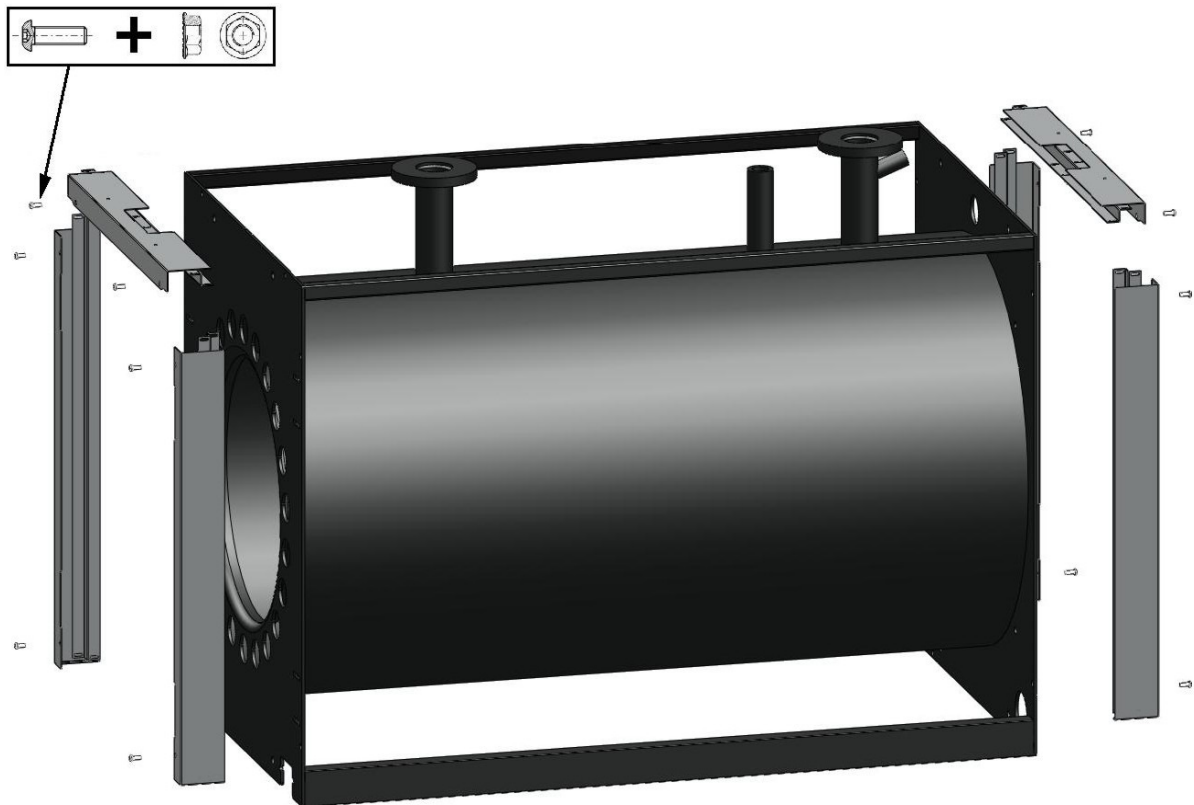


Figure 13, Fastening the uprights

NOTE: if the cross beam shown in Figure 14 is supplied in the package it must be placed between the two tube panels in order to support the staves.

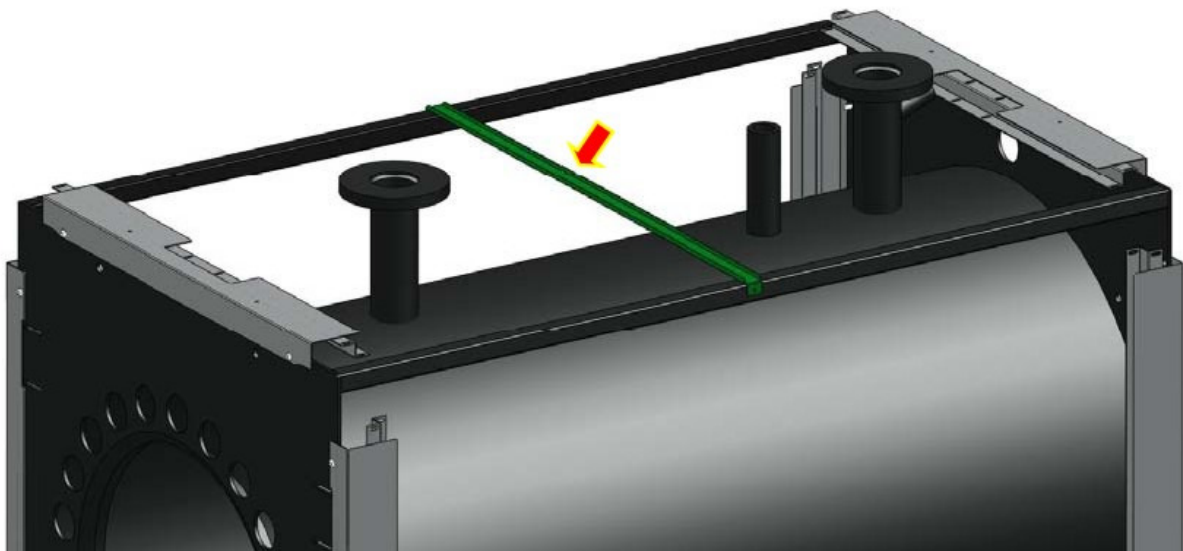


Figure 14, Placing the cross beam

4 Insert the staves, with the previously installed stoppers, between the uprights and the beams, as shown in Figure 15.

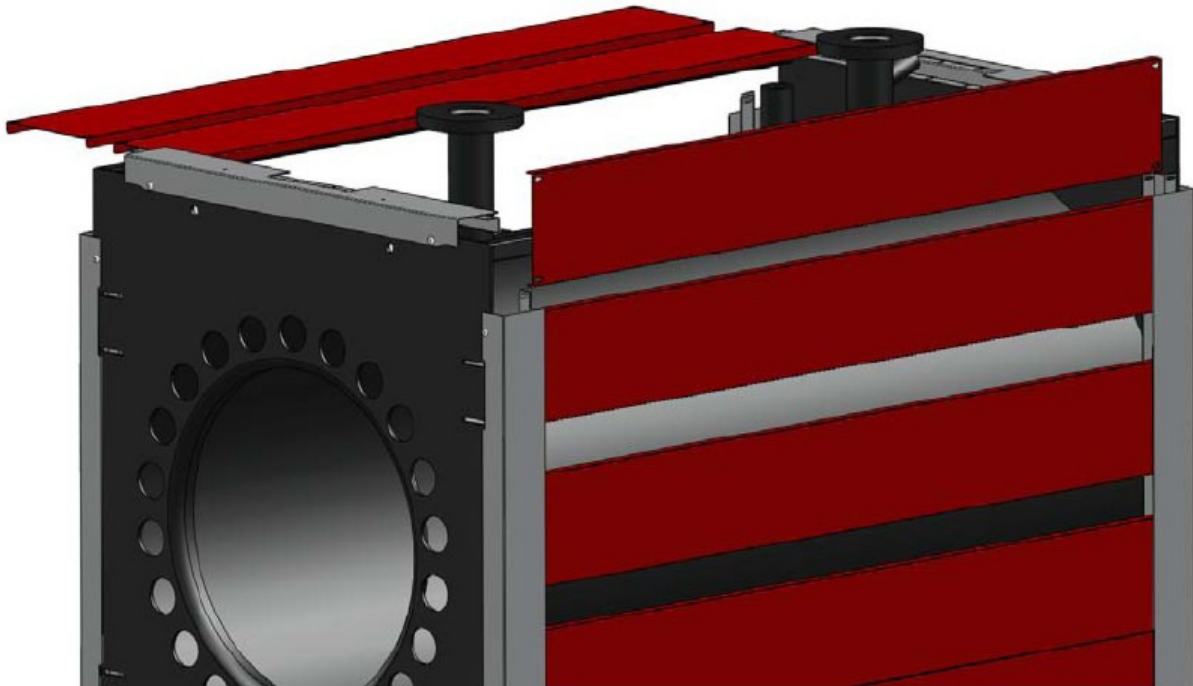


Figure 15, Inserting the staves

5 **NOTE:** If the boiler has upper connections it is necessary to install the special central covers, as shown in Figure 16.
If the boiler does not have top connections, completely cover the upper part with staves.

After all staves have been inserted, install the closing side frames using the self-locking screws.

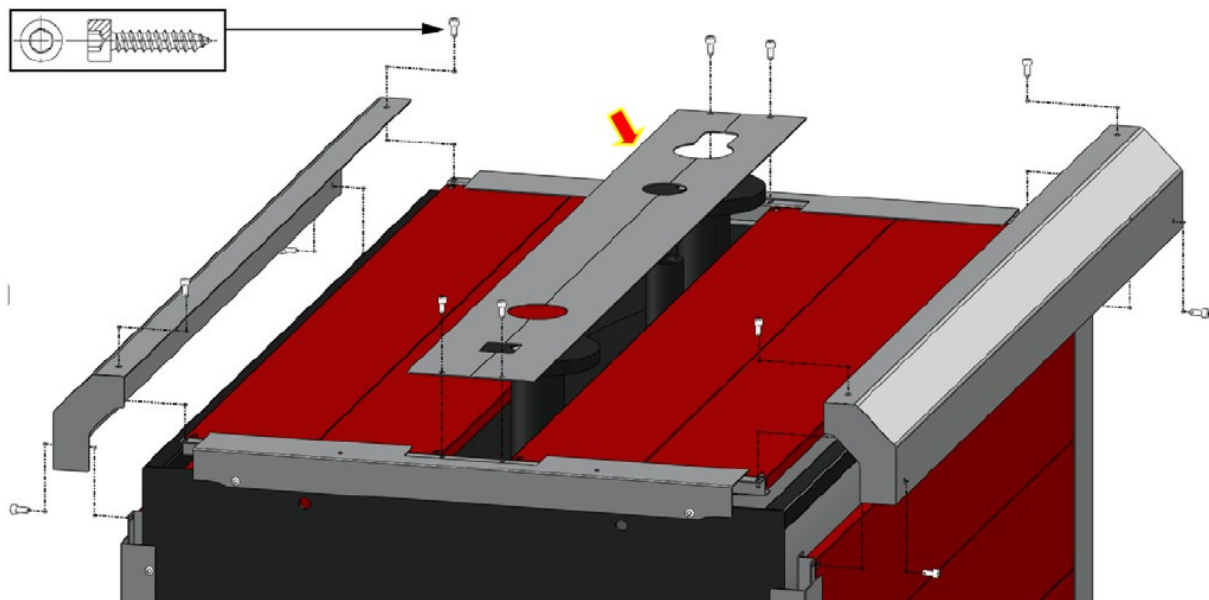


Figure 16, Installing the closing frame

6**Control panel installation***On front of boiler*

A control panel can be installed on the special support supplied in the kit, which must be fastened to the boiler front beam. Pass the cables through the loopholes within the structure (see Figure 17).

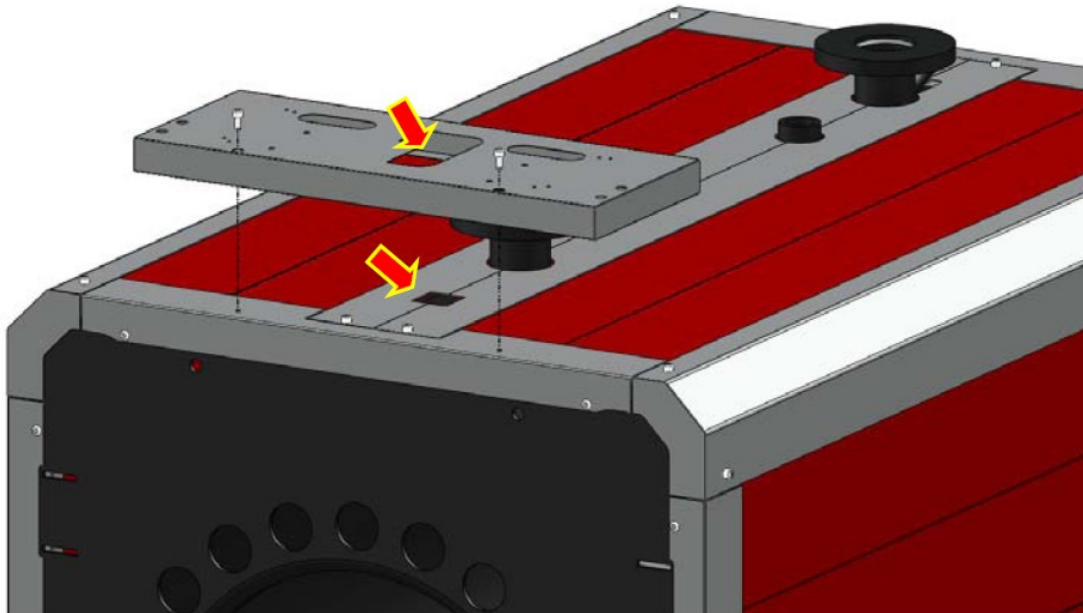


Figure 17, Installing the control panel support

On side of boiler

If the panel supporting stave is included in the kit (containing the screw holes and the capillar eyelets) it is recommended that you use it to facilitate adjustment; in this case the panel can be installed both on the left-hand and the right-hand side of the wall.

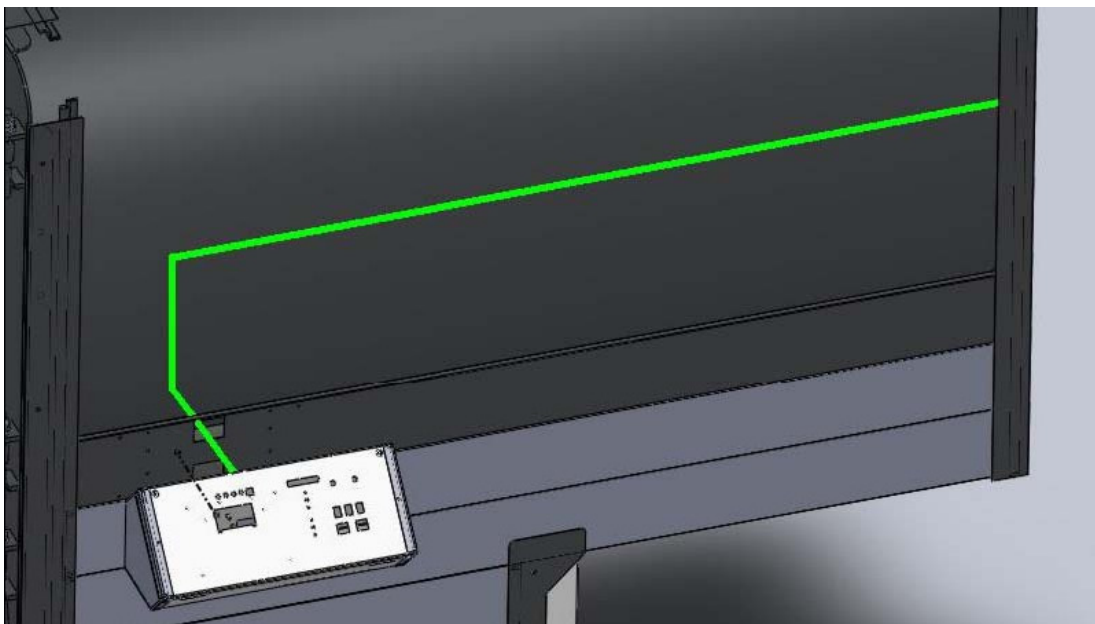


Figure 18, Installing a control panel on side wall

6 Start up

! IMPORTANT: Before start up insert all the turbolators into the smoke tubes ensuring that there is a space of at least 100 mm at the front after they have been pushed fully inside.

6.1 PRELIMINARY CHECKS

Before starting the boiler, check that:

- The **rating plate** specifications correspond with actual conditions (electrical power supply, water, fuel type)
- The burner **power range** is compatible with the power of the boiler;
- There is a copy of the burner instructions in the boiler room;
- The **flue gas exhaust pipe** is correctly fitted;
- The **air inlet supply** is the correct size and free from any obstacle;
- The **manhole**, the **smokebox** and the **burner plate** are closed providing a complete flue gas seal;
- The system is **completely water-filled** and all air pockets have been eliminated;
- The **anti-freeze** protections are operative;
- The water **circulation pumps** are operating correctly.
- The expansion vessel and the safety valve(s) have been connected correctly (with no interception) and are properly operating.
- Electrical controls and thermostat operates correctly.

6.2 WATER TREATMENT

The two most common problems related to the water in heating systems are **scaling** and **corrosion**.

Both these problems can be prevented by means of appropriate water treatment.

Scaling

Scale reduces heat transfer between the combustion gases and the water, causing an abnormal increase in the temperature of the metal and consequently reduces the life of the boiler.

Scale creates an insulating layer which reduces the thermal transfer of the boiler. This results in poorer system efficiency due to increased heat loss through the flue gas.

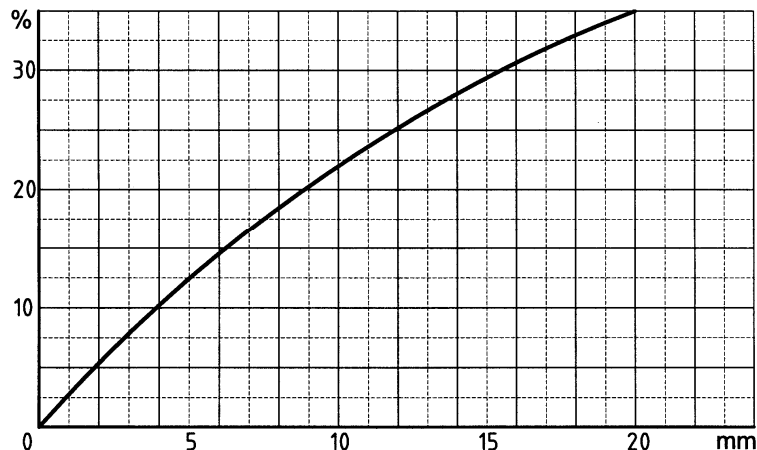


Figure 19, Boiler heat loss at different thickness of scale
(Horizontal axis: thickness of scale [mm], Vertical axis: Boiler heat loss [%])

Scaling can effectively be limited and even eliminated by using soft demineralised water.

Corrosion

Corrosion of the metal surfaces of the boiler on the water side is due to the passage of dissolved iron through its ions (Fe+). In this process the presence of dissolved gases and in particular of oxygen and carbon dioxide is very important. Corrosion often occurs with softened or demineralised water which has a more aggressive effect

on iron (acid water with Ph < 7): in these cases, although the system is protected from scaling, it is not protected against corrosion and the water must be treated with corrosion inhibitors.

6.3 FILLING THE SYSTEM

The water must enter the system as slowly as possible and in a quantity proportional to the air bleeding capacity of the components involved. Filling times vary depending on the capacity and characteristics of the system but should not be less than 2-3 hours.

In the case of a sealed system with an expansion vessel, water is let in until the pressure gauge indicator reaches the static pressure value pre-set in the vessel.

Heat the water to maximum temperature but never over 90°C. During this operation the air contained in the water is released through the automatic air separators or through manual bleed valves. Once the air has been entirely released, reset the pressure to the pre-established value and close the manual and/or automatic filling valve.

7 Operation

7.1 OPERATING CHECKS

Ideal values for combustion

The heating system must be correctly operated to ensure perfect combustion as far as possible with lowest possible emissions of carbon monoxide, unburnt hydrocarbons and soot into the atmosphere, and to avoid hazards and damage to people and goods.

Fuel	Carbon dioxide [% CO ₂]	Flue gas temperature [°C]	Carbon monoxide [ppm CO]
Gas	10,0	190	0-20
Light oil	13,0	195	10-18
Heavy oil	13,5	200	50-150

Table 2, Guide to combustion values

Efficiency

The diagram in Figure 20 shows the system efficiency derived from flue gas temperature (Tf), ambient temperature (Ta), the contents of carbon dioxide (CO₂) and the fuel type

(Dispersions through the boiler casings are not considered).

Example:

(marked with red dashed line in the figure)

Flue gas temperature	210 °C
Ambient temperature	20 °C
Carbon dioxide (CO ₂)	13 %
Fuel used	Light oil
Efficiency	91.4 %

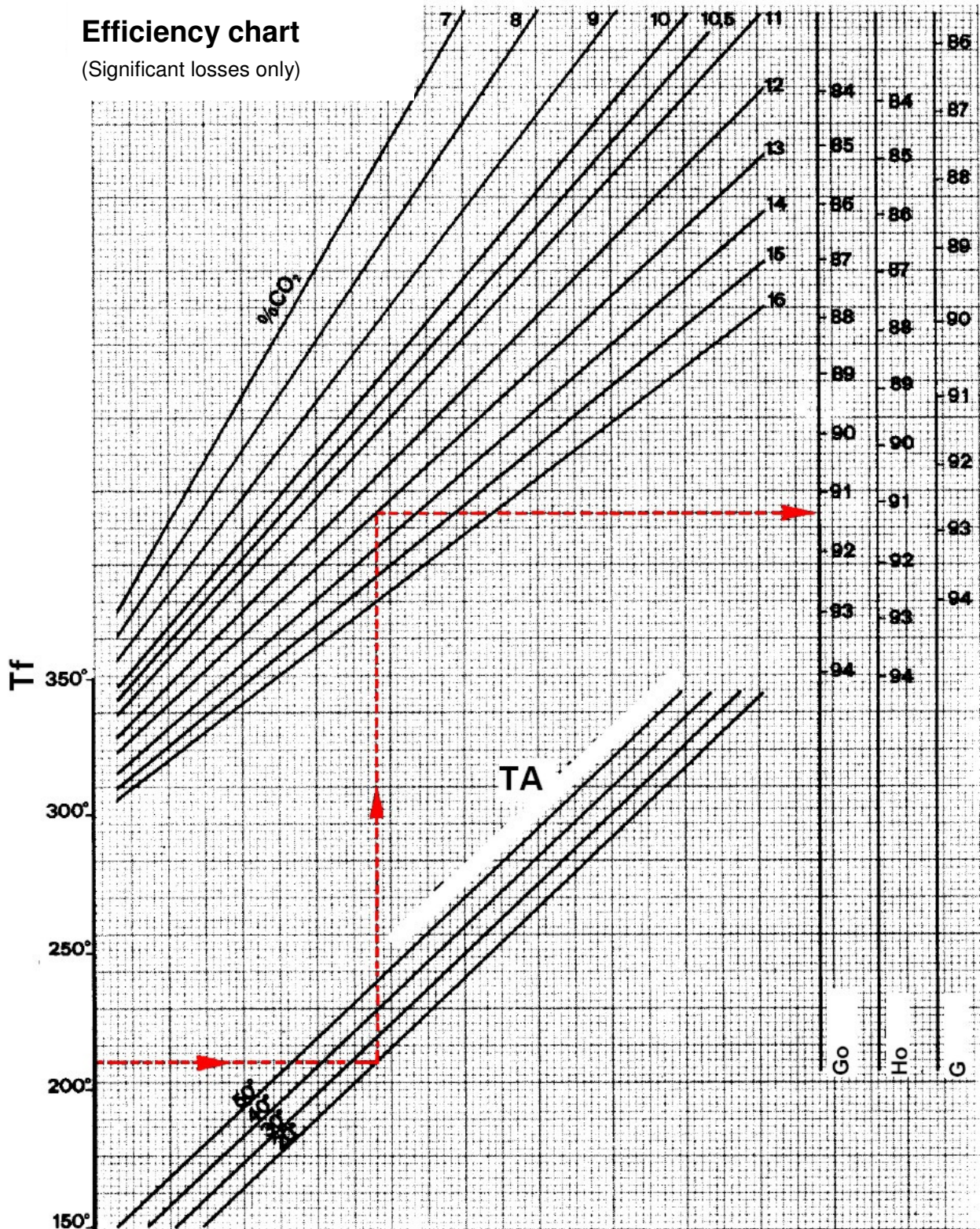


Figure 20, Efficiency chart

Key: T_f Flue gas temperature [°C] – T_a Ambient temperature [°C] – Go Gas oil – Ho Heavy oil – G Gas

7.1 REQUIREMENTS FOR WATER TEMPERATURE

 **IMPORTANT:**

In order to prevent thermal shock to the boiler structure, the differential temperature (ΔT) between boiler flow and return must not exceed 20 °C.

In order to protect the boiler from corrosion caused by condensation of flue gases, the temperature of the return water must be kept above 55 °C.

Note: *The boiler warranty does not cover damages caused by condensate.*

To ensure the requirements for water temperature are met, it is recommended to install a 3 or 4-way mixing valve together with a shunt pump (also called recirculation pump or anti-condensate pump) to mix the cold returns. The shunt pump should have a minimum flow rate of approximately 5 m³/h or 1/4 to 1/3 of the flow rate of the main heating system pump.

It is recommended that the burner is always switched on in order to maintain a constant boiler water temperature.

7.1 FLUE GAS SEALS

If the flue gas seal is poor in the front part of the boiler (manhole and burner plate) or the back part (smokebox), the closing tie rods of the individual parts must be adjusted; if this is not sufficient, the seals must be replaced.

 **CAUTION**

Do not open the manhole and do not remove the smokebox while the burner is working. Always wait a few minutes after the burner has been switched off until the insulating parts are cooler.

8 Maintenance

8.1 CLEANING AND SERVICING




Always shut off the fuel supply and disconnect the electrical mains before commencing any cleaning and servicing operations.

Economic operation depends on clean heat exchange surfaces of the boiler and optimised combustion.

The following service operations should be performed regularly:

- Clean the tube bundle and turbolators (retarders) with the appropriate tube-brush every month for heavy oil-fired boilers, every three months for gas oil (light oil) fired boilers and once a year for gas-fired boilers. Cleaning schedule depends on plant features.
Quick cleaning can be performed by opening the front manhole only, taking the turbolators out and cleaning the tubes with a tube-brush. For more thorough cleaning, the smokebox must be removed to eliminate carbon deposits at the rear of the tubes.
- Have the burner calibration checked by qualified personnel;
- Have the water circulating in the system analysed and provide for adequate treatment to avoid the formation of scale which initially reduces the efficiency of the boiler and in the long term will permanently damage it, making it unserviceable;
- Check that the refractory castings in contact with the flue gases are in good condition and if not, replace them;
- Periodically check the efficiency of the system regulation and safety instruments.

9 CE Certificate

 certificate is shown in Figure 21.



alta tecnologia del calore

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Appartenente al Gruppo Finluc
Iscritto R.I. VR 02245640236

**DECLARATION OF CONFORMITY WITH
THE EUROPEAN COMMUNITY REGULATIONS**

I undersigned Emanuela Lucchini, Managing Director of ICI CALDAIE S.p.A.,
headquartered in via G. Pascoli 38 – 37059 Campagnola di Zevio (VR) Italy

DECLARE THAT STEEL BOILERS

**REX/REX F
REX K/REX K F
REX DUAL/REX DUAL F
STR**

comply with the CE certificate and with the following regulations (or harmonised
regulations):

EN 60335-1, EN 303-1, pr EN 303-3

In accordance with the boards regulations:

- Gas Directive 90/396/CEE
- Low Voltage Directive 73/23/CEE (modified by 93/68)
- Efficiency Directive 92/42/CEE
- EMC Directive 89/336/CEE

S. Maria di Zevio, li 14/03/2006

ICI CALDAIE S.p.A.
Direttore Generale
Emanuela Lucchini

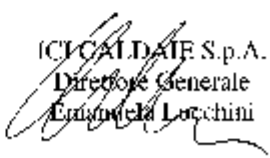


Figure 21, CE certificate