

ELLPREX

(The models with an output smaller than 400 kW can be sold only outside de UE - agg. 01/2019)



BREVETTO
Unical
PATENT

smoke pipes

PRESSURIZED STEEL BOILER WITH REVERSED FLAME

OUTPUT RANGE

from 340 to 7000 kW

WORKING TEMPERATURE

minimum return temperature 55°C

OPERATION WITH

gas or oil fired pressure jet burners

MODELS

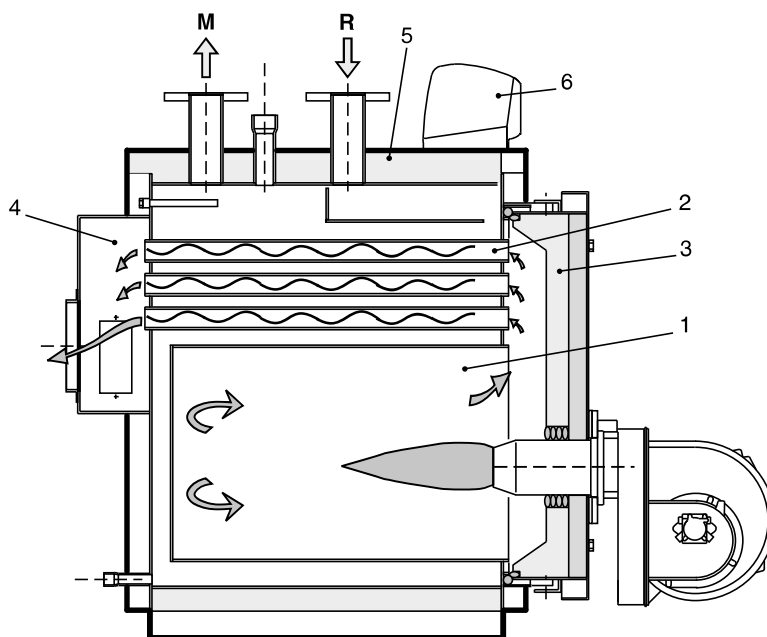
340	420	510	630	760	870	970	1100	1320	1570	1850
2200	2650	3000	3500	4000	4500	5000	5500	6000	6500	7000

CERTIFICATION IN OUTPUT RANGE

(in the order, it's possible to request a specific output within the certified range)

MAIN COMPONENTS

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



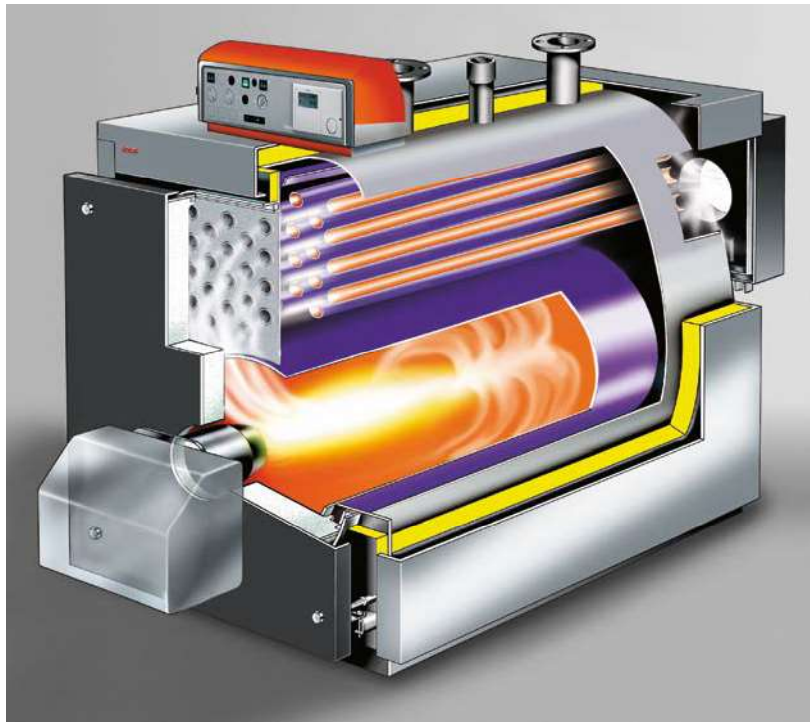
TECHNICAL DATA

Model	Heat output	Heat input	Boiler capacity	Water side	Flue gas	Max. boiler operating pressure	Combustion chamber	Weight
	min/max	min/max		pressure drops	pressure drops			
	kW	kW	l	m w.c.	mm w.c.	bar	m ³	kg
ELLPREX 340	255÷340	277÷371	298	0.16÷0.28	17÷34	6	0.226	629
ELLPREX 420	315÷420	342÷459	398	0.09÷0.17	16÷29	6	0.288	849
ELLPREX 510	385÷510	418÷557	462	0.14÷0.25	24÷43	6	0.337	972
ELLPREX 630	480÷630	520÷688	565	0.21÷0.38	32÷55	6	0.416	1102
ELLPREX 760	580÷760	630÷830	671	0.15÷0.26	29÷51	6	0.513	1372
ELLPREX 870	660÷870	715÷950	753	0.19÷0.33	33÷ 57	6	0.584	1482
ELLPREX 970	750÷970	815÷1060	836	0.24÷0.41	29÷ 49	6	0.656	1588
ELLPREX 1100	860÷1100	935÷1200	1040	0.18÷0.30	32÷52	6	0.748	1821
ELLPREX 1320	1000÷1320	1087÷1442	1242	0.20÷0.35	38÷67	6	0.869	2030
ELLPREX 1570	1200÷1570	1304÷1715	1418	0.19÷0.33	35÷60	6	1.087	2780
ELLPREX 1850	1400÷1850	1520÷2020	1617	0.26÷0.45	42÷73	6	1.303	3280
ELLPREX 2200	1700÷2200	1845÷2400	2086	0.21÷0.34	39÷65	6	1.650	4145
ELLPREX 2650	2000÷2650	2170÷2890	2324	0.28÷0.48	43÷76	6	1.866	4465
ELLPREX 3000	2300÷3000	2492÷3280	2667	0.36÷0.62	35÷60	6	2.313	5110
ELLPREX 3500	2700÷3500	2930÷3825	4142	0.54÷0.84	47÷74	6	2.601	6700
ELLPREX 4000	3200÷4000	3478÷4371	4455	0.54÷0.85	60÷80	6	3.126	7500
ELLPREX 4500	3420÷4500	3638.3÷4838.7	6012	0.70÷0.85	51÷88	6	4.151	7750
ELLPREX 5000	3800÷5000	4064.2÷5421.8	6012	0.80÷1.05	65÷110	6	4.151	7750
ELLPREX 5500	4180÷5500	4446.8÷5914	7058	0.95÷1.15	60÷100	6	4.838	9300
ELLPREX 6000	4870÷6000	4877÷6506.2	7058	1.00÷1.35	68÷120	6	4.838	9300
ELLPREX 6500	4940÷6500	5255.3÷6989.2	7909	1.05÷1.50	61÷105	6	6.832	12600
ELLPREX 7000	5320÷7000	5689.8÷7590.5	7909	1.10÷1.75	69÷120	6	6.832	12600

Pressure drops corresponding to a thermal variation of 15K.

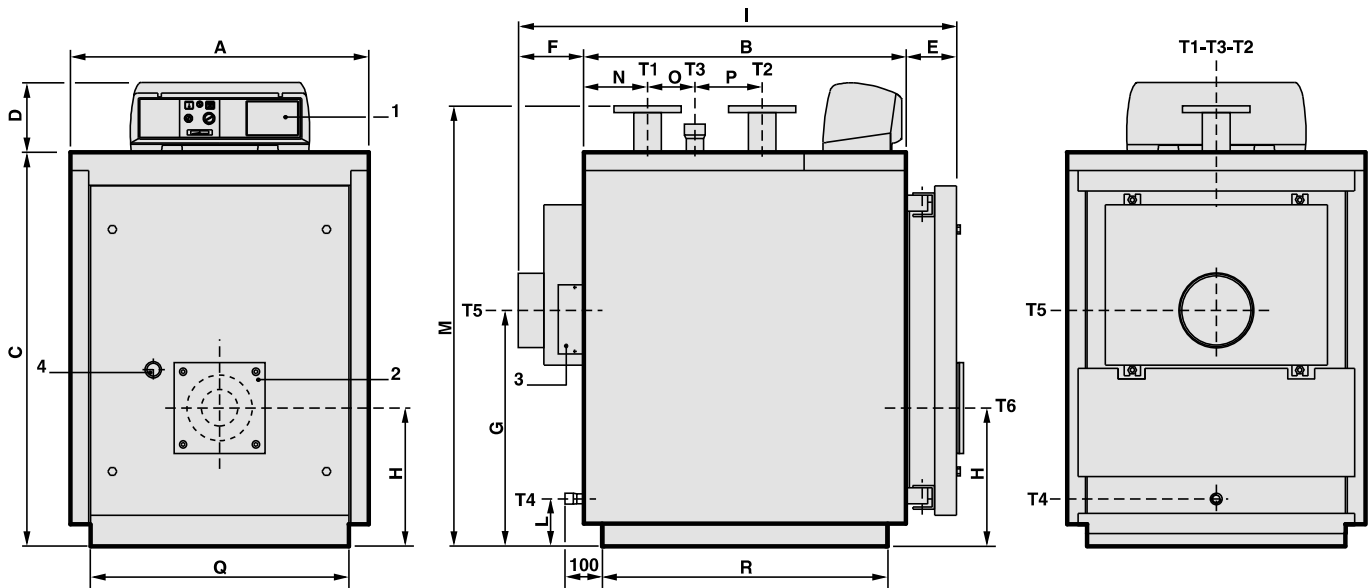
On special order the boilers from model ELLPREX 1100 to ELLPREX 7000 can be manufactured for a max. working pressure up to 10 bar.

PRODUCT PLUS VALUES



- **FLEXIBILITY OF USE**
- **THERMAL EXCHANGE OPTIMISATION**
by driven water passage into the boiler
- **THE ELLIPTIC SHELL SHAPE (up to 970 kW)**
has interesting advantages:
 - smaller dimensions (for easier transport and positioning)
 - smoke pipes positioning above the furnace with drastic reduction of the possible condensation
- **SMOKE PIPES OF HIGH THICKNESS**
with anti-condensing effect
- **TURBOLATORS**
for the thermal exchange optimisation into the smoke pipes
- **CYLINDRICAL FLOATING FURNACE**
anti thermo-mechanic stress from 760 kW
- **BOTTOM OF THE FURNACE WITH DISSIPATION PLATES**
for greater performance and greater mechanical resistance
- **FRONT DOOR**
with self centering locking
- **INTERNAL DOOR INSULATION**
in light refractory concrete
- **EXTERNAL CASING**
inclusive of 80 mm rock wool insulation
- **THERMOSTATIC OR ELECTRONIC CONTROL PANELS**
- **FACILITATED TRANSPORT**
thanks to the upper hooks and strong base plates

DIMENSIONS ELLPREX 340÷970



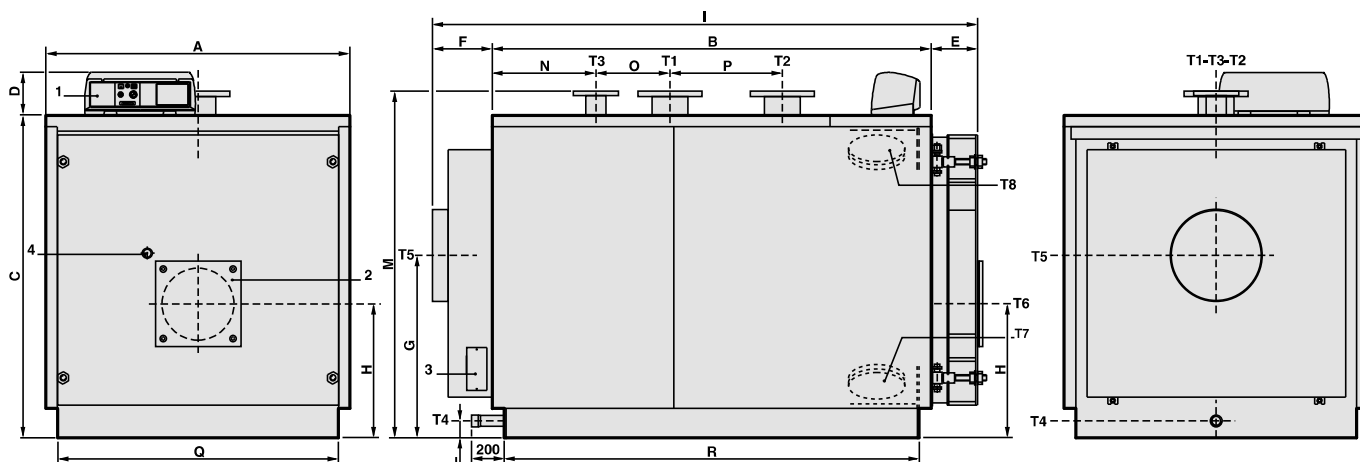
- 1 Panel board
- 2 Burner connection flange
- 3 Smoke chamber cleaning door
- 4 Flame control warning light
- T1 Heating flow
- T2 Heating return
- T3 Expansion vessel connection
- T4 Boiler drain
- T5 Chimney connection
- T6 Burner connection

ELLPREX	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 ISO 7/1	T4 ISO 7/1	T5 Øi	T6 Ø
								UNI2278PN16	UNI2278PN16	ISO 7/1	mm	mm
340	255÷340	277÷371	298	0.16÷0.28	17÷34	6	629	DN 80	Rp 2	Rp ¾	250	220
420	315÷420	342÷459	398	0.09÷0.17	16÷29	6	796	DN 100	Rp 2	Rp ¾	250	220
510	385÷510	418÷557	462	0.14÷0.25	24÷43	6	919	DN 100	Rp 2	Rp ¾	250	220
630	480÷630	520÷688	565	0.21÷0.38	32÷55	6	1049	DN 100	Rp 2	Rp ¾	300	220
760	580÷760	630÷830	671	0.15÷0.26	29÷51	6	1341	DN 125	DN 65	Rp 1¼	350	270
870	660÷870	715÷950	753	0.19÷0.33	33÷57	6	1447	DN 125	DN 65	Rp 1¼	350	270
970	750÷970	815÷1060	836	0.24÷0.41	29÷49	6	1553	DN 125	DN 65	Rp 1¼	350	270

ELLPREX	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
340	860	1210	1182	190	139	190	708	400	1541	130	1310	215	340	250	750	1112
420	890	1275	1352	190	139	190	748	440	1606	125	1485	255	285	315	780	1177
510	890	1470	1352	190	139	190	748	440	1801	125	1485	255	480	315	780	1372
630	890	1780	1352	190	139	190	748	440	2113	125	1485	255	790	315	780	1682
760	1122	1605	1432	190	195	190	765	480	1989	125	1540	298	435	440	1020	1504
870	1122	1800	1432	190	195	190	765	480	2184	125	1540	298	630	440	1020	1699
970	1122	1995	1432	190	195	190	765	480	2379	125	1540	298	825	440	1020	1894

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

DIMENSIONS ELLPREX 1100÷2650



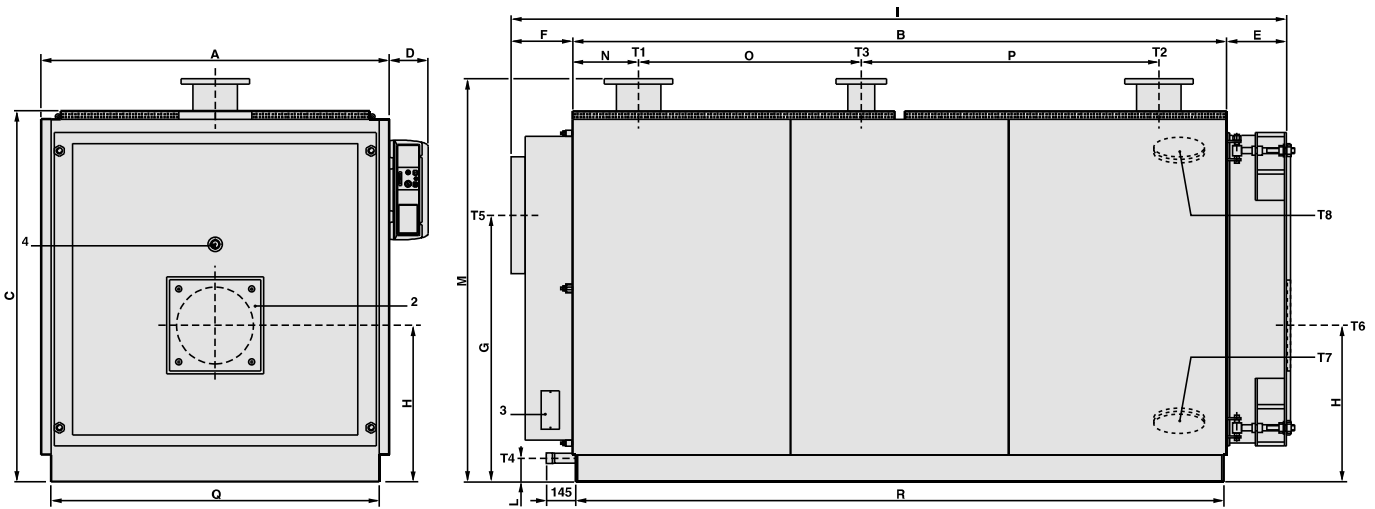
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|-------------------------------|--------------------------------|-----------------------|
| 1 Panel board | T1 Heating flow | T5 Chimney connection |
| 2 Burner connection flange | T2 Heating return | T6 Burner connection |
| 3 Smoke chamber cleaning door | T3 Expansion vessel connection | T7 Boiler air bleed |
| 4 Flame control warning light | T4 Boiler drain | T8 Inspection door |

ELLPREX	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
1100	860÷1100	935÷1200	1040	0.18÷0.30	32÷52	6	1821	UNI2278PN16 DN 150	UNI2278PN16 DN 80	ISO 7/1 Rp 1½	400	320
1320	1000÷1320	1087÷1442	1242	0.20÷0.35	38÷67	6	2030	DN 150	DN 80	Rp 1½	400	320
1570	1200÷1570	1304÷1715	1418	0.19÷0.33	35÷60	6	2780	DN 175	DN 100	Rp 1½	450	320
1850	1400÷1850	1520÷2020	1617	0.26÷0.45	42÷73	6	3280	DN 175	DN 100	Rp 1½	450	320
2200	1700÷2200	1845÷2400	2086	0.21÷0.34	39÷65	6	4145	DN 200	DN 125	Rp 1½	520	380
2650	2000÷2650	2170÷2890	2324	0.28÷0.48	43÷76	6	4465	DN 200	DN 125	Rp 1½	520	380

ELLPREX	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
1100	1352	1952	1432	190	207	187	810	595	2346	180	1540	461	330	500	1250	1846
1320	1352	2292	1432	190	207	187	810	595	2686	180	1540	461	670	500	1250	2186
1570	1462	2282	1542	190	227	272	880	640	2781	75	1650	561	510	550	1360	2176
1850	1462	2652	1542	190	227	272	880	640	3151	75	1650	561	880	550	1360	2546
2200	1622	2692	1702	190	259	274	950	690	3225	75	1810	661	670	700	1520	2590
2650	1622	3014	1702	190	258	273	950	690	3545	75	1810	662	990	700	1520	2910

(*) Minimum dimensions for boiler room access. (**) Pressure drops corresponding to a thermal variation of 15K.
On special order the boilers from model 1100 to 7000 can be manufactured for a max. working pressure up to 10 bar.

DIMENSIONS ELLPREX 3000÷4000



- 1 Panel board
- 2 Burner fixing plate
- 3 Smoke chamber cleaning door
- 4 Sight glass

- T1 C.H. flow
- T2 C.H. return
- T3 Expansion vessel connection
- T4 Boiler drain

- T5 Flue socket
- T6 Burner connection
- T7 Sludge drain
- T8 Inspection door

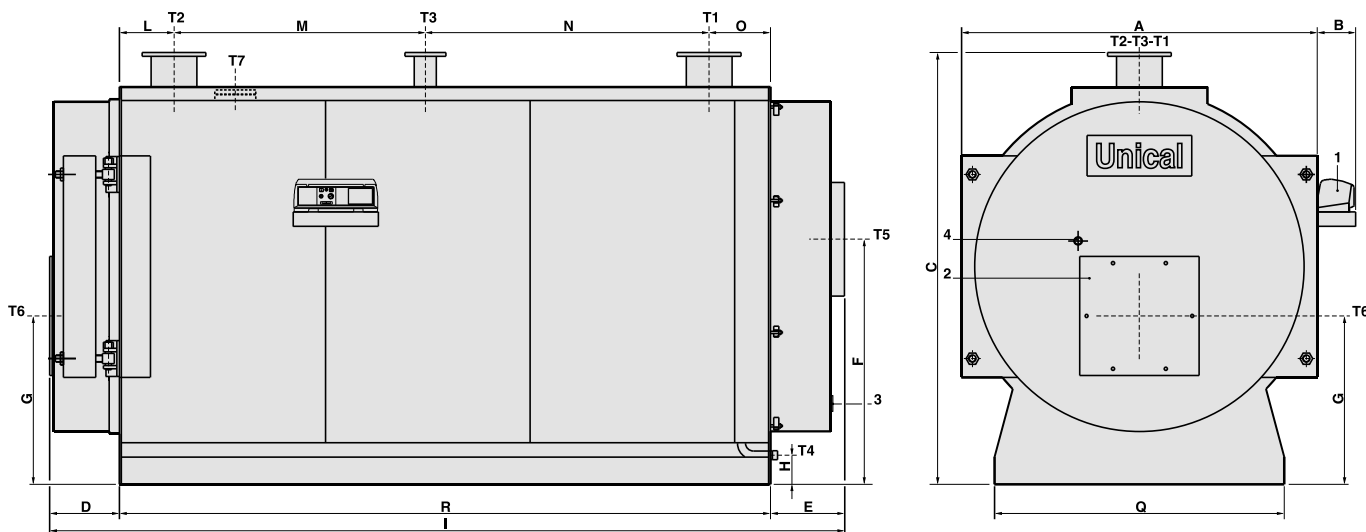
ELLPREX	Nominal output kW	Nominal input kW	Boiler capacity l	Water pressure drops(**) m w.c.	Flue gas pressure drop mm w.c.	Maximum boiler working pressure bar	Weight kg	CONNECTIONS				
								T1 T2	T3	T4	T5 Øi	T6 Ø
								UNI2278PN16	UNI2278PN16	ISO 7/1	mm	mm
3000	2300÷3000	2492÷3280	2667	0.36÷0.62	35÷60	6	5110	DN 200	DN 125	Rp 1½	570	380
3500	2700÷3500	2930÷3825	4142	0.54÷0.84	47÷74	6	6700	DN 200	DN 125	Rp 1½	620	400
4000	3040÷4000	3297÷4371	4455	0.54÷0.85	60÷80	6	7500	DN 250	DN 125	Rp 1½	620	400

ELLPREX	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
3000	1720	3230	1830	190	295	310	1315	772	3835	115	1990	325	1100	1470	1620	3200
3500	1970	3194	2090	190	325	360	1535	915	3879	144	2271	377	1060	1420	1870	3164
4000	1970	3594	2090	190	325	360	1535	915	4279	144	2271	777	1060	1420	1870	3564

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

On special order the boilers from model ELLPREX 1100 to ELLPREX 7000 can be manufactured for a max. working pressure up to 10 bar.

DIMENSIONS ELLPREX 4500÷7000



- 1 Panel board
- 2 Burner connection flange
- 3 Smoke chamber cleaning door
- 4 Flame control warning light
- T1 Heating flow
- T2 Heating return
- T3 Expansion vessel connection
- T4 Boiler drain
- T5 Chimney connection
- T6 Burner connection
- T7 Inspection door

ELLPREX	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	T7 Ø
								UNI2278PN16	UNI2278PN16	ISO 7/1	mm	mm	mm
4500	3420÷4500	3638.3÷4838.7	6012	0.70÷0.85	51÷88	6	8310	DN 250	DN 125	Rp 1½	660	500	133
5000	3800÷5000	4064.2÷5421.8	6012	0.80÷1.05	65÷110	6	8310	DN 250	DN 125	Rp 1½	660	500	133
5500	4180÷5500	4446.8÷5914	7058	0.95÷1.15	60÷100	6	9300	DN 250	DN 125	Rp 1½	660	500	133
6000	4560÷6000	4877÷6506.2	7058	1.00÷1.35	68÷120	6	9300	DN 250	DN 125	Rp 1½	660	500	133
6500	4940÷6500	5255.3÷6989.2	7909	1.05÷1.50	61÷105	6	12600	DN 250	DN 125	Rp 1½	720	500	133
7000	5320÷7000	5689.8÷7590.5	7909	1.10÷1.75	69÷120	6	12600	DN 250	DN 125	Rp 1½	720	500	133

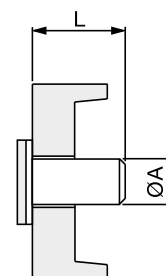
ELLPREX	A	B	C*	D	E	F	G	H	I	L	M	N	O	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
4500	2088	226	2533	417	445	1437	987	170	4682	320	1475	1665	360	1700	3820
5000	2088	226	2533	417	445	1437	987	170	4682	320	1475	1665	360	1700	3820
5500	2214	240	2653	437	465	1550	1007	167	4872	320	1475	1815	360	1700	3970
6000	2214	240	2653	437	465	1550	1007	167	4872	320	1475	1815	360	1700	3970
6500	2380	240	2860	509	595	1650	1100	224	5484	325	2920	670	465	1850	4380
7000	2380	240	2860	509	595	1650	1100	224	5484	325	2920	670	465	1850	4380

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

On special order the boilers from model ELLPREX 1100 to ELLPREX 7000 can be manufactured for a max. working pressure up to 10 bar.

BURNER BLAST TUBE DIMENSIONS

BOILER TYPE	øA mm	L mm	BOILER TYPE	øA mm	L mm
ELLPREX 340÷630	220	250	ELLPREX 3000	380	400
ELLPREX 760÷970	270	270	ELLPREX 3500÷4000	400	400
ELLPREX 1100÷1320	320	300	ELLPREX 4500÷6000	500	520
ELLPREX 1570÷1850	320	320	ELLPREX 6500÷7000	500	630
ELLPREX 2200÷2650	380	350			



TECHNICAL DATA

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

Oil fired		ELL 340	ELL 420	ELL 510	ELL 630	ELL 760	ELL 870	ELL 970	ELL 1100
Nominal heat output	kW	255÷340	315÷420	385÷510	480÷630	580÷760	660÷870	750÷970	860÷1100
Thermal output of furnace	kW	277÷371	342÷459	418÷557	520÷688	630÷830	715÷950	815÷1060	935÷1200
Heat efficiency at nominal load (100%)	%	92÷91.6	92.1÷91.5	92.1÷91.5	92.3÷91.5	92÷91.5	91.5÷91.5	92÷91.5	91.9÷91.6
Heat efficiency at 30% load	%	93.6÷93.6	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9
Combustion efficiency at nominal load (100%)	%	92.8÷92.5	92.7÷92.4	92.7÷92.4	92.6÷92	92.3÷92.1	92.1÷92.1	92.5÷91.9	92.3÷92
Heat loss at casing (min.-max.)	%	0.8÷0.8	0.6÷0.9	0.6÷0.9	0.3÷0.4	0.2÷0.5	0.5÷0.5	0.4÷0.4	0.4÷0.3
Heat loss at chimney with burner on (min.-max.)	%	7.1÷7.4	7.2÷7.5	7.3÷7.5	7.3÷7.9	7.6÷7.8	7.8÷7.8	7.4÷8	7.6÷7.9
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	156÷164	158÷166	160÷165	162÷175	168÷173	158÷172	164÷177	167÷175
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	424÷568	523÷702	640÷852	796÷1053	964÷1271	1094÷1454	1248÷1632	1431÷1837

Oil fired		ELL 1320	ELL 1570	ELL 1850	ELL 2200	ELL 2650	ELL 3000	ELL 3500	ELL 4000
Nominal heat output	kW	1000÷1320	1200÷1570	1400÷1850	1700÷2200	2000÷2650	2300÷3000	2700÷3500	3040÷4000
Thermal output of furnace	kW	1087÷1442	1304÷1715	1520÷2020	1845÷2400	2170÷2890	2492÷3280	2930÷3825	3297÷4371
Heat efficiency at nominal load (100%)	%	92÷91.5	92÷91.5	92.1÷91.5	92.1÷91.6	92.1÷91.7	92.3÷91.4	92.1÷91.4	92.2÷91.5
Heat efficiency at 30% load	%	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9
Combustion efficiency at nominal load (100%)	%	92.2÷91.8	92.2÷91.9	92.4÷91.8	92.4÷91.9	92.4÷92	92.4÷91.7	92.4÷91.7	92.4÷91.8
Heat loss at casing (min.-max.)	%	0.2÷0.2	0.2÷0.3	0.3÷0.3	0.3÷0.3	0.3÷0.3	0.1÷0.3	0.3÷0.3	0.2÷0.3
Heat loss at chimney with burner on (min.-max.)	%	7.7÷8.1	7.7÷8	7.5÷8.1	7.5÷8	7.5÷7.9	7.5÷8.2	7.5÷8.2	7.5÷8.1
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	170÷179	170÷177	165÷178	165÷176	165÷175	165÷180	165÷180	165÷179
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	1664÷2208	1996÷2626	2327÷3093	2825÷3675	3322÷4425	3816÷5022	4486÷5861	5048÷6693

Oil fired		ELL 4500	ELL 5000	ELL 5500	ELL 6000	ELL 6500	ELL 7000
Nominal heat output	kW	3420÷4500	3800÷5000	4180÷5500	4560÷6000	4940÷6500	5320÷7000
Thermal output of furnace	kW	3638.3÷4838.7	4064.2÷5421.8	4446.8÷5914	4877÷6506.2	5255.3÷6989.2	5689.8÷7590.5
Heat efficiency at nominal load (100%)	%	94.0÷93.0	93.5÷92.22	94.0÷93.0	93.5÷92.22	94.0÷93.0	93.5÷92.22
Heat efficiency at 30% load	%	94.66÷93.65	94.15÷92.87	94.66÷93.65	94.15÷92.87	94.66÷93.65	94.15÷92.87
Combustion efficiency at nominal load (100%)	%	94.53÷93.48	94.07÷92.84	94.53÷93.48	94.07÷92.84	94.53÷93.48	94.07÷92.84
Heat loss at casing (min.-max.)	%	0.53÷0.48	0.57÷0.62	0.53÷0.48	0.57÷0.62	0.53÷0.48	0.57÷0.62
Heat loss at chimney with burner on (min.-max.)	%	5.47÷6.52	5.93÷7.16	5.47÷6.52	5.93÷7.16	5.47÷6.52	5.93÷7.16
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	120÷143	130÷157	120÷143	130÷157	120÷143	130÷157
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
Flue gas mass flow rate (min.-max)	kg/h	5571.4÷7409.6	6223.5÷8302.5	6809.4÷9056.1	7468.2÷9963.0	8047.5÷10702.7	8712.9÷11623.5

Gas fired		ELL 340	ELL 420	ELL 510	ELL 630	ELL 760	ELL 870	ELL 970	ELL 1100
Nominal heat output	kW	255÷340	315÷420	385÷510	480÷630	580÷760	660÷870	750÷970	860÷1100
Thermal output of furnace	kW	277÷371	342÷459	418÷557	520÷688	630÷830	715÷950	815÷1060	935÷1200
Heat efficiency at nominal load (100%)	%	92÷91.6	92.1÷91.5	92.1÷91.5	92.3÷91.5	92÷91.5	92.3÷91.5	92÷91.5	91.9÷91.6
Heat efficiency at 30% load	%	93.6÷93.6	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9
Combustion efficiency at nominal load (100%)	%	92.9÷92.5	92.8÷92.4	92.7÷92.4	92.6÷92	92.3÷92.1	92.8÷92.1	92.5÷91.9	91.4÷92
Heat loss at casing (min.-max.)	%	0.8÷0.8	0.7÷0.9	0.6÷0.9	0.3÷0.4	0.2÷0.5	0.5÷0.6	0.5÷0.4	0.4÷0.3
Heat loss at chimney with burner on (min.-max.)	%	7.1÷7.4	7.1÷7.5	7.2÷7.5	7.3÷7.9	7.6÷7.8	7.1÷7.8	7.4÷8	7.6÷7.9
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	145÷152	147÷154	149÷153	151÷163	156÷161	147÷160	152÷165	155÷163
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	416÷557	514÷689	628÷837	781÷1034	947÷1247	1074÷1428	1225÷1593	1405÷1803

Gas fired		ELL 1320	ELL 1570	ELL 1850	ELL 2200	ELL 2650	ELL 3000	ELL 3500	ELL 4000
Nominal heat output	kW	1000÷1320	1200÷1570	1400÷1850	1700÷2200	2000÷2650	2300÷3000	2700÷3500	3040÷4000
Thermal output of furnace	kW	1087÷1442	1304÷1715	1520÷2020	1845÷2400	2170÷2890	2492÷3280	2930÷3825	3297÷4371
Heat efficiency at nominal load (100%)	%	92÷91.5	92÷91.5	92.1÷91.5	92.1÷91.6	92.1÷91.7	92.3÷91.4	92.1÷91.4	92.2÷91.5
Heat efficiency at 30% load	%	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9	93.9÷93.9
Combustion efficiency at nominal load (100%)	%	92.2÷91.8	92.2÷91.9	92.4÷91.9	92.4÷91.9	92.4÷92	92.4÷91.8	92.4÷91.8	92.4÷91.8
Heat loss at casing (min.-max.)	%	0.2÷0.3	0.2÷0.4	0.3÷0.3	0.3÷0.3	0.3÷0.3	0.2÷0.3	0.3÷0.3	0.2÷0.3
Heat loss at chimney with burner on (min.-max.)	%	7.7÷8.1	7.7÷8	7.5÷8.1	7.5÷8	7.5÷7.9	7.5÷8.1	7.5÷8.1	7.5÷8.1
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	158÷166	158÷165	153÷166	153÷164	153÷163	153÷167	153÷167	153÷166
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	1633÷2167	1960÷2577	2284÷3036	2773÷3607	3261÷4344	3745÷4930	4404÷5754	4955÷6570

Gas fired		ELL 4500	ELL 5000	ELL 5500	ELL 6000	ELL 6500	ELL 7000
Nominal heat output	kW	3420÷4500	3800÷5000	4180÷5500	4560÷6000	4940÷6500	5320÷7000
Thermal output of furnace	kW	3638.3÷4838.7	4064.2÷5421.8	4446.8÷5914	4877÷6506.2	5255.3÷6989.2	5689.8÷7590.5
Heat efficiency at nominal load (100%)	%	94.0÷93.0	93.5÷92.22	94.0÷93.0	93.5÷92.22	94.0÷93.0	93.5÷92.22
Heat efficiency at 30% load	%	94.66÷93.65	94.15÷92.87	94.66÷93.65	94.15÷92.87	94.66÷93.65	94.15÷92.87
Combustion efficiency at nominal load (100%)	%	94.54÷93.51	94.05÷92.83	94.54÷93.46	94.05÷92.83	94.54÷93.46	94.05÷92.83
Heat loss at casing (min.-max.)	%	0.54÷0.51	0.55÷0.61	0.54÷0.46	0.55÷0.61	0.54÷0.46	0.55÷0.61
Heat loss at chimney with burner on (min.-max.)	%	5.46÷6.49	5.95÷7.17	5.46÷6.54	5.95÷7.17	5.46÷6.54	5.95÷7.17
Heat loss at chimney with burner off (min.-max.)	%	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2	0.2÷0.2
Flue gas temperature tf-ta (min.-max.)	°C	112÷133	122÷147	112÷134	122÷147	112÷134	122÷147
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
Flue gas mass flow rate (min.-max)	kg/h	5468.9÷7273.3	6109.0÷8149.8	6684.2÷8889.5	7330.8÷9779.7	7899.5÷10505.8	8552.6÷11409.7

TRISTAR 2S

(The models with an output smaller than 400 kW can be sold only outside de UE - agg. 01/2019)



BREVETTO
Unical
PATENT

multi-fin pipes

PRESSURIZED CARBON STEEL BOILER WITH REVERSED FLAME FURNACE

OUTPUT RANGE

from 80 to 6100 kW

OPERATION TEMPERATURE

minimum return temperature 55°C

SUPPLY

Natural Gas or LPG fed pressure jet burners

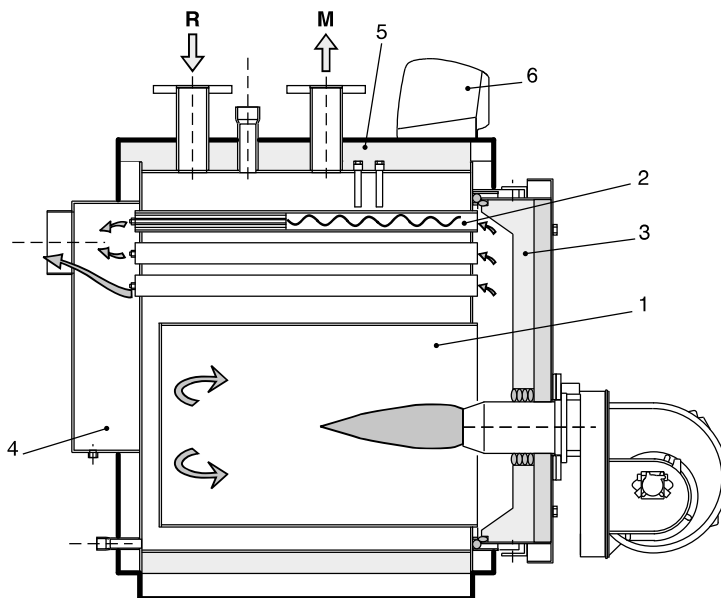
MODELS

80	120	160	200	250	300	370	450	560	680	780	870	1000	1180
1400	1650	2000	2350	2700	3100	3500	3900	4400	4800	5200	5700	6100	-

Certified in OUTPUT RANGE
Special patented smoke pipes with aluminium profiles – Floating furnace

MAIN COMPONENTS

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



TECHNICAL DATA

MODEL	Heat output	Heat input	Boiler capacity	Water side	Flue gas pressure	Max. boiler operating pressure	Weight
	min/max	min/max		pressure drops	pressure drops		
	kW	kW	l	m w.c.	mm w.c.	bar	kg
TRISTAR 2S 80	60÷80	63.3÷85.2	86	0.08÷0.15	3.8÷6.8	6	221
TRISTAR 2S 120	90÷120	94.6÷127.4	126	0.06÷0.11	6.1÷10.8	6	325
TRISTAR 2S 160	120÷160	125.8÷169.4	151	0.11÷0.20	8.9÷15.8	6	366
TRISTAR 2S 200	150÷200	157÷211.3	203	0.10÷0.17	11.1÷19.7	6	505
TRISTAR 2S 250	187.5÷250	195.8÷263.6	247	0.12÷0.22	13.3÷23.6	6	583
TRISTAR 2S 300	225÷300	234.6÷315.8	298	0.12÷0.22	15.9÷28.4	6	665
TRISTAR 2S 370	277.5÷370	288.8÷388.7	398	0.08÷0.14	18.1÷32.2	6	845
TRISTAR 2S 450	337.5÷450	351÷472.4	462	0.11÷0.20	20.2÷35.8	6	986
TRISTAR 2S 560	420÷560	436.8÷587.9	565	0.17÷0.30	23.7÷42.1	6	1119
TRISTAR 2S 680	510÷680	530.4÷713.9	671	0.12÷0.21	27.8÷49.4	6	1435
TRISTAR 2S 780	585÷780	608.4÷818.9	753	0.15÷0.27	30.7÷54.4	6	1557
TRISTAR 2S 870	652.5÷870	678.6÷913.4	836	0.19÷0.33	33÷58.6	6	1656
TRISTAR 2S 1000	750÷1000	780÷1049.8	1040	0.11÷0.19	35.9÷63.9	6	1970
TRISTAR 2S 1180	885÷1180	920.4÷1238.8	1242	0.15÷0.26	38.6÷68.6	6	2175
TRISTAR 2S 1400	1050÷1400	1092÷1469.8	1418	0.15÷0.26	42.1÷74.9	6	2975
TRISTAR 2S 1650	1237.5÷1650	1287÷1732.3	1617	0.20÷0.36	45.5÷80.9	6	3465
TRISTAR 2S 2000	1500÷2000	1560÷2099.7	2086	0.16÷0.38	40.5÷72	6	4390
TRISTAR 2S 2350	1762.5÷2350	1833÷2467.1	2324	0.21÷0.38	43.2÷76.9	6	4700
TRISTAR 2S 2700	2025÷2700	2106÷2834.6	2667	0.28÷0.50	45.6÷81	6	5370
TRISTAR 2S 3100	2325÷3100	2418.1÷3254.5	4142	0.37÷0.66	43.3÷76.9	6	6990
TRISTAR 2S 3500	2625÷3500	2730.1÷3674.5	4455	0.37÷0.65	50.4÷89.5	6	7790
TRISTAR 2S 3900	2925÷3900	3042.1÷4094.4	6012	0.28÷0.50	44.4÷78.6	6	8630
TRISTAR 2S 4400	3300÷4400	3432.1÷4619.3	6012	0.35÷0.63	56.6÷100.5	6	8630
TRISTAR 2S 4800	3600÷4800	3744.1÷5039.3	7058	0.42÷0.75	50.5÷92.2	6	9675
TRISTAR 2S 5200	3900÷5200	4056.1÷5459.2	7058	0.50÷0.88	59.3÷105.4	6	9675
TRISTAR 2S 5700	4275÷5700	4446.1÷5984.1	7909	0.59÷1.05	49.5÷90.5	6	13060
TRISTAR 2S 6100	4575÷6100	4758.1÷6404.1	7909	0.68÷1.21	56.7÷100.7	6	13060

On special order the boilers from model 1000 to 6100 can be manufactured for a max. working pressure up to 10 bar.

DICHIARAZIONE DI CONFORMITA' / DECLARATION OF CONFORMITY (Secondo la norma / in accordance with: ISO / IEC 17050-1)

Nome del rilasciante / Issuer's name:	Unical AG S.p.A
Indirizzo del rilasciante / Issuer's address:	Castel d' Ario (MN) - via Roma, 123 - Italy

Oggetto della dichiarazione: <i>Object of the declaration:</i>	tutti i modelli delle gamme con marcatura CE <i>all the models of the ranges with CE approval</i>
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CE - 1312BS4960	CE - 1312BT5253	CE - 1312CL5493	CE - 1312CL5557	CE - 1312CM5670
CE - 1312CN5792	CE - 1312CO5912	CE - 1312CP5965	CE - 1312CP5988	CE - 1312CT6320
CE - 1312CT6322	CE - 1312CU6354			

Nota: L'abbinamento tra **modello caldaia** e **PIN** è indicato sulla targa dati della caldaia /
Note: Pairing between **boiler model** and **PIN** is marked on the boiler data plate

L'oggetto della dichiarazione sopra descritto è conforme ai requisiti dei seguenti documenti:
The object of the declaration described above is in conformity with the requirements of the following documents:

documento n° <i>document No</i>	Titolo <i>Title</i>	Data emissione <i>Date of issue</i>
2016/426/EU	Regolamento sugli apparecchi che bruciano carburanti gassosi e che abroga la direttiva 2009/142/EC / <i>Regulation on appliances burning gaseous fuels and repealing Directive 2009/142/EC</i>	mar. 2016
2017/1369/EU	Regolamento che istituisce un quadro per l'etichettatura energetica e che abroga la direttiva 2010/30/UE / <i>Regulation setting a framework for energy labelling and repealing Directive 2010/30/UE (**)</i>	jul. 2017
2009/125/EC	Direttiva ErP / <i>Energy related products (*)</i>	may 2010
2014/35/EU	Direttiva Bassa Tensione / <i>Low Voltage Directive</i>	feb. 2014
2014/30/EU	Direttiva Compatibilità Elettromagnetica / <i>Electromagnetic Compatibility Directive</i>	feb. 2014
EN 303 - 1	Caldaie per riscaldamento - Parte 1: Caldaie con bruciatori ad aria soffiata - Terminologia, requisiti generali, prove e marcatura / <i>Heating boilers - Part 1: Heating boilers with forced draught burners - Terminology, general requirements, testing and marking</i>	feb. 2018
EN 303 - 2	Caldaie per riscaldamento - Parte 2: Caldaie con bruciatori ad aria soffiata - Requisiti particolari per caldaie con bruciatori di olio combustibile a polverizzazione / <i>Heating boilers - Part 2: Heating boilers with forced draught burners - Special requirements for boilers with atomizing oil burners</i>	ago. 2017
EN 303 - 3	Caldaie per riscaldamento - Parte 3: Caldaie a gas per riscaldamento centrale - Assemblaggio di un corpo caldaia con un bruciatore ad aria soffiata / <i>Heating boilers - Part 3: Gas-fired central heating boilers - Assembly comprising a boiler body and a forced draught burner</i>	apr 2007

(*) Per caldaie ≤ 400 kW / For boilers ≤ 400 kW - (**) Per caldaie ≤ 70 kW / For boilers ≤ 70 kW

Informazioni supplementari / Additional information:

Gli apparecchi sopra menzionati non appartengono a nessuna delle categorie dell'art.9 del D.Lgs n° 26/2016, in attuazione della Direttiva 2014/68 UE in materia di apparecchiature in pressione. / The a.m. appliances do not belong to any of the categories specified in clause 9 of 26/2016 of the European Directive 2014/68 UE (regarding pressure equipment).

(ONLY FOR ITALIAN MARKET) in attuazione del decreto ministeriale 18 febbraio 2007 e successive modifiche e integrazioni, attuativo della legge Finanziaria 2007, gli apparecchi sopra menzionati hanno un rendimento termico utile, con carico pari al 100% della potenza utile nominale, maggiore o uguale a $93 + 2 \log P_n$, (dove $\log P_n$ è il logaritmo in base 10 della potenza utile nominale del singolo generatore, espressa in kW), come richiesto dal comma 1a dell'art. 9.

Unical AG S.p.A. DECLINA ogni responsabilità per sinistri a persone, animali o cose derivanti da manomissioni dell'apparecchio da parte di terzi non autorizzati, ovvero da un'errata installazione od una manutenzione o riparazione carente o irregolare. / *Unical declines any responsibility for injuries to persons, animals or to property deriving from wrong handling of the boiler by unauthorized third parties, or by bad installation or servicing.*

Direttore Tecnico
Technical Manager

Gian-Luca Angiolini



Castel d'Ario, 02/03/2021

Nota: E' possibile che alcuni prodotti descritti, non siano commercializzati
Note: It is possible that some of the product indicated above will not be commercialised.

Il certificato CE sempre aggiornato è disponibile alla pagina della caldaia nel sito www.unicalag.it. / CE certificate updated is available on the boiler page at www.unicalag.it.

00337951 - 4th ed. 03/2021

MODULE B : EXAMEN DE TYPE – TYPE DE PRODUCTION
 (Paragraphe 1 – Annexe III du règlement (UE) 2016/426 Appareils à gaz)
MODULE B : EU TYPE – EXAMINATION – PRODUCTION
 (Paragraph 1 – Annex III of the Gas appliances Regulation (EU) 2016/426)

Certificat numéro : 1312CP5965 (rév.7)

CERTIGAZ, après examen et vérifications, certifie que l'appareil :
CERTIGAZ, after examination and verifications, certifies that the appliance :

- **Fabriqué par :**
Manufactured by : **UNICAL AG SpA**
Via Roma, 123
I-46033 CASTEL D'ARIO (MN)

- **Marque commerciale et modèle(s) :**
Trade mark and model(s) : **UNICAL**

- ELLx2S - ELLPREXx 2S**
 ➤ 450 - 530 - 630 - 800 - 900 - 1000 - 1150 - 1350
 ➤ 1650 - 1900 - 2300 - 2650 - 3150
- ELLx2S+ - ELLPREXx 2S+**
 ➤ 470 - 550 - 640 - 850 - 1000 - 1200 - 1400
 ➤ 1750 - 1950 - 2400 - 2700 - 3300

- ELLx - ELLPREXx**
 ➤ 420 - 510 - 630 - 760 - 870 - 970 - 1100 - 1320
 ➤ 1570 - 1850 - 2200 - 2650 - 3000 - 3500 - 4000 - 4500
 ➤ 5000 - 5500 - 6000 - 6500 - 7000

- **Genre de l'appareil :**
Kind of the appliance : **CORPS DE CHAUDIERE (B23)**
BODY BOILER (B23)

- **Désignation du type :**
Type designation : **SKD 7000**

Pays de destination <i>Destination countries</i>	Pressions (mbar) <i>Pressures (mbar)</i>	Catégories <i>Categories</i>
TOUS PAYS VOIR CATEGORIE DU BRULEUR <i>ALL COUNTRIES, SEE BURNER CATEGORY</i>		EN 267 – EN 676

Est conforme aux exigences essentielles du Règlement (UE) 2016/426 « Appareils à gaz ».
is in conformity with essential requirements of Regulation (EU) 2016/426 « Gas appliances ».
Toute reproduction de ce certificat doit l'être dans son intégralité. *Reproduction of this certificate must be in full. 1/1*
Ce certificat est valide 10 ans à partir de la date de signature. Il annule tout certificat antérieur.
Validity date 10 years since signature day. It cancels any previous certificate.

Neuilly-sur-Seine, le 20 avril 2021

Le Directeur Général


Claudie CANON

Révision du certificat : 1312CP5965 du 2014/09/01

APPROBATION DE SYSTEME D'ASSURANCE QUALITE
(APPROVAL OF QUALITY SYSTEM)

ASSURANCE DE LA QUALITE DU PROCEDE DE FABRICATION / MODULE D
(QUALITY ASSURANCE OF THE PRODUCTION PROCESS /
MODULE D)

(paragraphe 3 – Annexe III du Règlement (UE) 2016/426 Appareils à gaz)
(paragraph 3 – Annex III of the Gas appliances Regulation (EU) 2016/426)

Numéro : A.Q.F. 0132 (rév.10)

Number :

CERTIGAZ (numéro d'identification 1312), après examen et évaluation du système d'assurance qualité mis en place par :
CERTIGAZ (identification number 1312), after inspection and evaluation of the quality system applied by:

UNICAL AG SPA
Via Roma, 123
I 46033 CASTEL D'ARIO (MN)
Italie

- **dans son usine de :**
in its factory located in :

Via Ugo Roncada, 81
Localita Carbonara Di Po
I – 46021 BORGOCARBONARA (MN)
ITALIE

- **pour la fabrication des appareils : CHAUDIERES**
for production of the appliances : (BOILER)

- **en conformité respectivement avec les types décrits dans les certificats :**
respectively in conformity with types described in certificates :

1312BS4960 - 1312BT5253 - 1312CL5493 - 1312CL5556 - 1312CL5557 - 1312CM5670
1312CN5792 - 1312CO5912 - 1312CP5965 - 1312CP5988- 1312CP6010 – 1312CT6275
1312CT6320 – 1312CT6322 - 1312CU6354 – 1312CU6379

approuve ce système.
approves this system.

La validité de cette approbation est de 18 mois à compter de la date du dernier audit réalisé le 16 octobre 2020,
sous réserve de contrôles.

Toute reproduction de ce document doit l'être dans son intégralité. Reproduction of this document must be in full.

1/1

Neuilly, le 21 octobre 2020

Le Directeur Général
Claudie CANON

