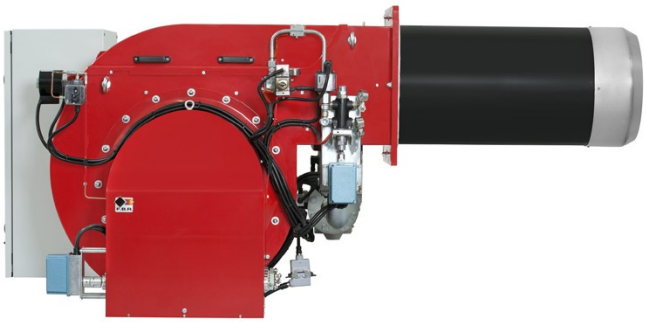
KN 750-1000-1300-1500-1800/M-EL

ELECTRONIC MODULATION

Dual fuel burners for gas and heavy oil at 2 stages progressive (hi-low flame) or modulating (PID fully modulating) if equipped with modulation kit and probe.
Equipped with Lamtec ETAMATIC OEM electronic camme. Fan at high pressurization, high efficiency combustion head with adjustment and high flame stability, pump, multistage preheating tank and degaser skid.
Rational disposal of components with easy accessibility for calibration and maintenance operations.
Available versions for natural gas or LPG (to be specified at the order).
Monoblock gas train includes working valve, safety valve and pressure stabilizer, minimum gas pressure switch and gas filter and is supplied already assembled, connected and tested.
The adoption of strong metal components makes the burner durable also in heavy duty conditions.
Burners are supplied with nozzle, fuel switch, gasket for installation on boiler, flexible hoses, line filter.
Optional accessories:
- Frequency control (inverter)
- Ventilation system on control panel
- Can/bus or Profibus interface
- PC interface
- Programming unit (handset).
- Modulation kit
- Probe (temperature or pressure).







Pump skid

Degaser

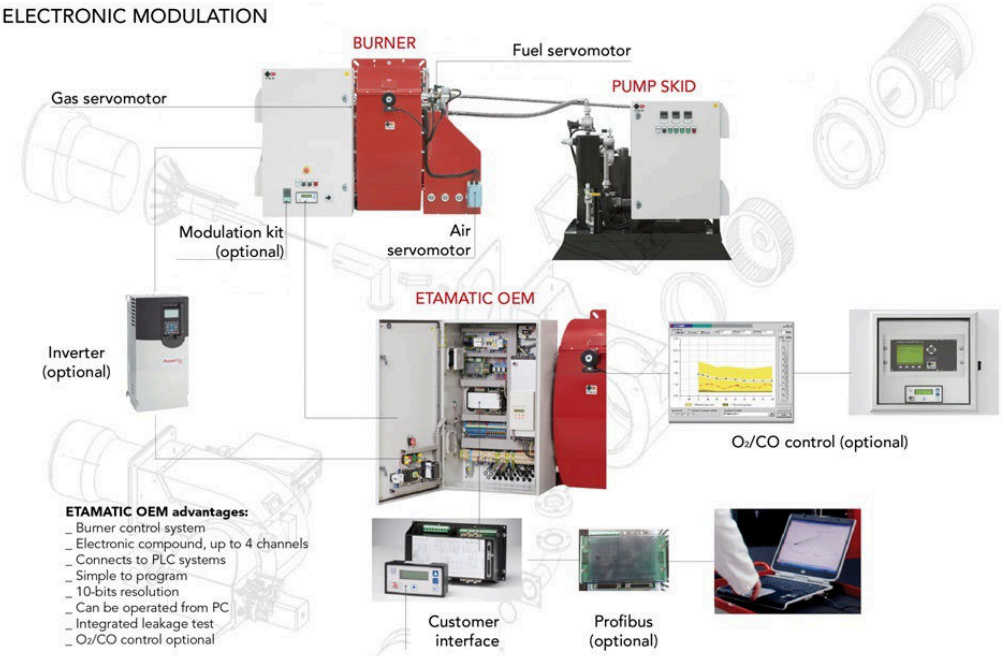
Motor 1400 rpm

Multistage pre-heating tank with specific flanged heaters

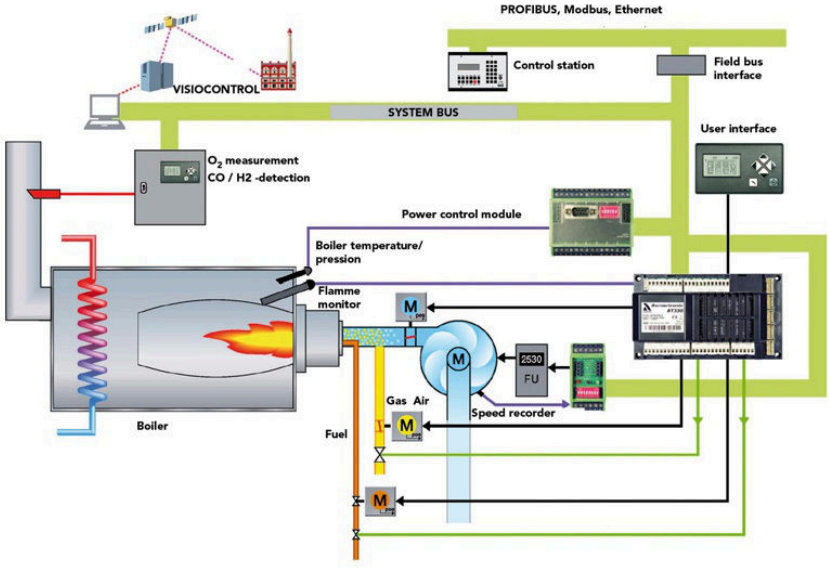


Gear pump

ELECTRONIC MODULATION



Sensors and systems for combustion technology



TECHNICAL DATA

MODEL		KN 750/M-EL	KN 1000/M-EL	KN 1300/M-EL
Thermal power min 1°st./min 2°st.-max 2°st. *	[Mcal/h]	1200/3400-7500	1200/3400-10000	1700/3600-11500
Thermal power min 1°st./min 2°st.-max 2°st. *	[kW]	1395/3953-8721	1395/3953-11628	1977/4186-13372
Gas flow G20 (natural gas) min 1°st./min 2°st.-max 2°st. *	[Nm³/h]	140/398-877	140/398-1170	199/421-1345
Gas flow G31 (L.P.G.) min 1°st./min 2°st.-max 2°st. *	[Nm³/h]	54/153-338	54/153-450	77/162-518
Fuel		Natural gas (second family) - L.P.G. (third family)		
Fuel category		I_{2R}, I_{2H}, I_{2L}, I_{2E}, I_{Er}, I_{2ELL} - I_{3BP}, I_{3+}, I_{3P}, I_{3B}, I_{3R}		
Intermittent working operation (min, 1 stop every 24 hours) two stages progressive or modulating				
Enviromental conditions operation/storage		-15...+40°C / -20...+70°C ,relative humidity max. 80%		
Max temperature combustion air	[°C]	60	60	60
Minimum pressure gas train (DN65-S F65 natural gas/L.P.G.) **	[mbar]	280/107	-/-	-/-
Minimum pressure gas train (DN80-S F80 natural gas/L.P.G.) **	[mbar]	164/63	292/112	366/141
Minimum pressure gas train (DN100-S F100 natural gas/L.P.G.) **	[mbar]	110/40	184/71	248/95
Minimum pressure gas train (DN125-S F125 natural gas/L.P.G.) **	[mbar]	81/31	145/56	180/70
Maximum pressure at the entry of the valves (Pe.max)	[mbar]	500	500	500
HEAVY-OIL flow min 1°st./min 2°st.-max 2°st. *	[kg/h]	122/347-765	122/347-1020	173/367-1173
Fuel		Heavy-oil 1.5°E at 20°C = 6.2cSt = 35sec Redwood N°1		
Nominal electric power	[kW]	25.5	34.5	41.5
Fan motor	[kW]	22	30	37
Pump motor	[kW]	3	4	4
Power supply		3~400V-1/N~230V-50Hz	3~400V-1/N~230V-50Hz	3~400V-1/N~230V-50Hz
Degree of electric protection		IP54	IP54	IP54
Noiseness***	[dB(A)]	89	91	93

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law).

FIRING RATES

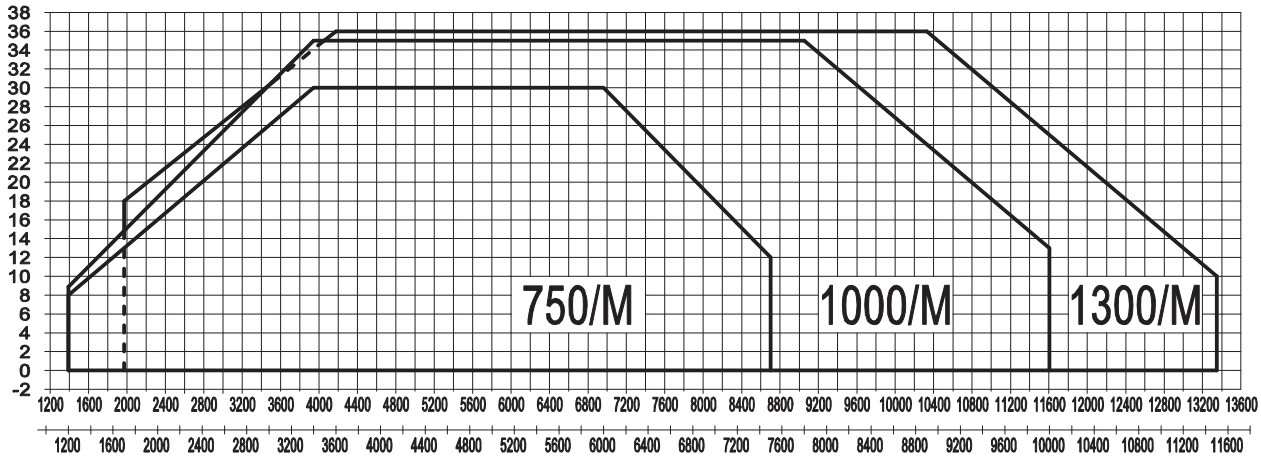


Fig. 3 X = Thermal power (kW - Mcal/h) Y = Pression in the combustion chamber (mbar)

The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

TECHNICAL DATA

MODEL		KN 1500/M-EL	KN 1800/M-EL
Thermal power min 1°st./min 2°st.-max 2°st. *	[Mcal/h]	1700/3600-13000	2000/5000-15000
Thermal power min 1°st./min 2°st.-max 2°st. *	[kW]	1977/4186-15116	2325/5815-17442
Gas flow G20 (natural gas) min 1°st./min 2°st.-max 2°st. *	[Nm³/h]	199/421-1520	234/585-1754
Gas flow G31 (L.P.G.) min 1°st./min 2°st.-max 2°st. *	[Nm³/h]	77/162-585	90/225-676
Fuel		Natural gas (second family) - L.P.G. (third family)	
Fuel category		I_{2R}, I_{2H}, I_{2L}, I_{2E}, I_{Er}, I_{2ELL} - I_{3BP}, I_{3+}, I_{3P}, I_{3B}, I_{3R}	
Intermittent working operation (min, 1 stop every 24 hours) two stages progressive or modulating			
Enviromental conditions operation/storage		-15...+40°C / -20...+70°C ,relative humidity max. 80%	
Max temperature combustion air	[°C]	60	60
Minimum pressure gas train (DN80-S F80 natual gas/L.P.G.) **	[mbar]	-/142	-/-
Minimum pressure gas train (DN100-S F100 natual gas/L.P.G.) **	[mbar]	220/88	370/-
Minimum pressure gas train (DN125-S F125 natual gas/L.P.G.) **	[mbar]	191/70	307/-
Minimum pressure gas train (DN150-S F150 natual gas/L.P.G.) **	[mbar]	175/56	287/-
Maximum pressure at the entry of the valves (Pe.max)	[mbar]	500	500
HEAVY-OIL flow min 1°st./min 2°st.-max 2°st. *	[kg/h]	173/367-1326	204/510-1531
Fuel		Heavy-oil 1.5°E at 20°C = 6.2cSt = 35sec Redwood N°1	
Nominal electric power	[kW]	49.5	61
Fan motor	[kW]	45	55
Pump motor	[kW]	4	5.5
Power supply		3~400V-1/N~230V-50Hz	3~400V-1/N~230V-50Hz
Degree of electric protection		IP44	IP44
Noiseness***	[dB(A)]	97	101

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).
** Minimal feeding-gas pressure to the gas train to get the maximum power of the burner, considering counter-pressure in combustion chamber of value 0 (zero).
*** Measured sonorous pressure in the laboratory combustion, with functional burner on beta boiler to 1 metre of distance (UNI EN ISO 3746 law).

FIRING RATES

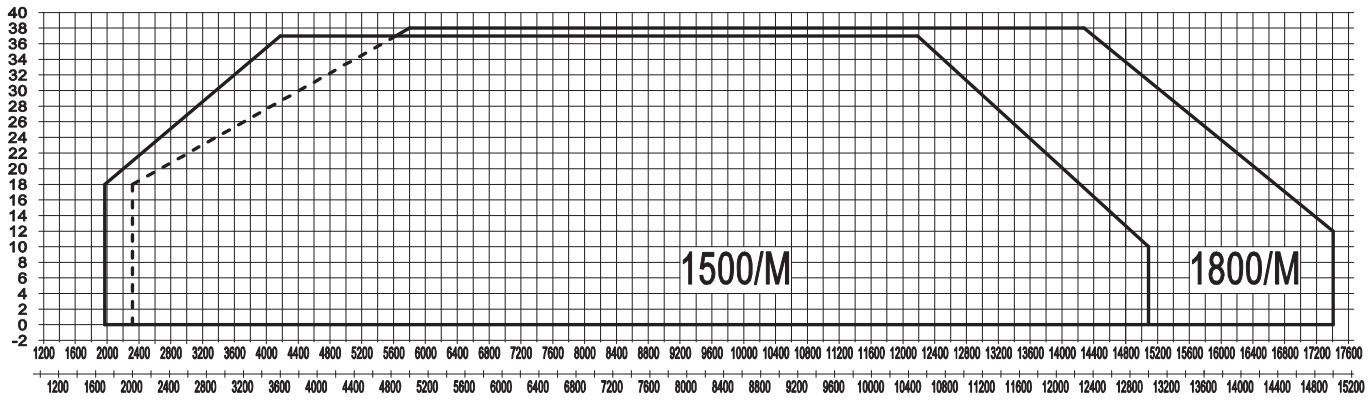
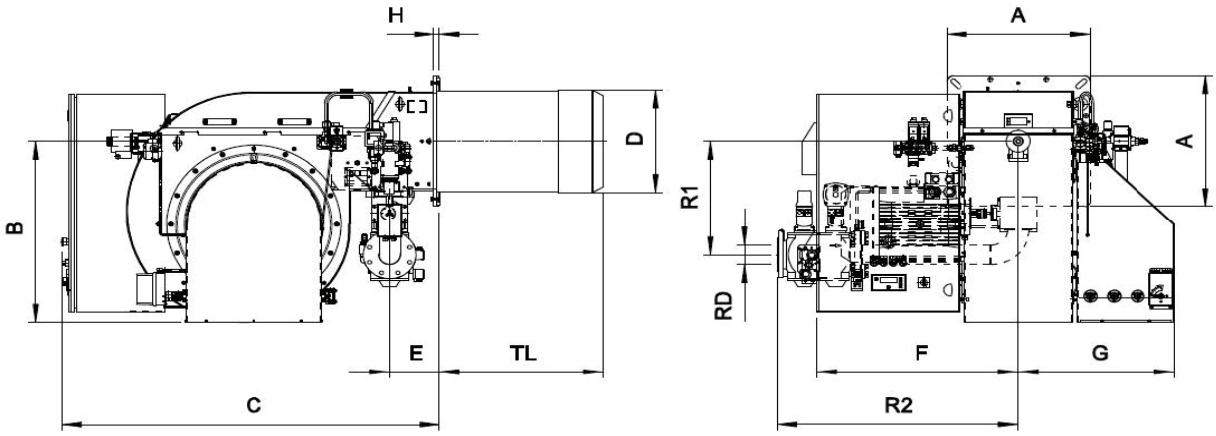


Fig. 4 X = Thermal power (kW - Mcal/h) Y = Pression in the combustion chamber (mbar)

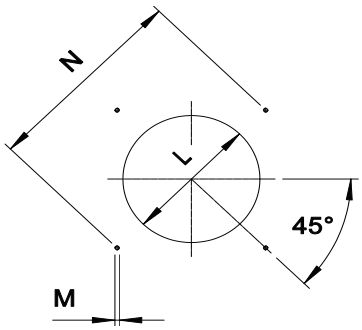
The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

DIMENSIONS [mm]



MODEL	A	B	C	D	E	F	G	H	R1	R2	RD	TL
KN 750/M-EL DN65	600	832	1508	448	210	845	654	22	523	950	DN65	685
KN 750/M-EL DN80	600	832	1508	448	210	845	654	22	523	970	DN80	685
KN 750/M-EL DN100	600	832	1508	448	210	845	654	22	523	1010	DN100	685
KN 750/M-EL DN125	600	832	1508	448	210	845	654	22	523	1060	DN125	685
KN 1000/M-EL DN80	600	832	1508	468	210	845	654	22	523	970	DN80	685
KN 1000/M-EL DN100	600	832	1508	468	210	845	654	22	523	1010	DN100	685
KN 1000/M-EL DN125	600	832	1508	468	210	845	654	22	523	1060	DN125	685
KN 1300/M-EL DN80	600	832	1508	499	210	845	634	22	523	970	DN80	655
KN 1300/M-EL DN100	600	832	1508	499	210	845	634	22	523	1010	DN100	655
KN 1300/M-EL DN125	600	832	1508	499	210	845	634	22	523	1060	DN125	655
KN 1500/M-EL DN80	600	832	1508	499	210	845	634	22	523	970	DN80	655
KN 1500/M-EL DN100	600	832	1508	499	210	845	634	22	523	1010	DN100	655
KN 1500/M-EL DN125	600	832	1508	499	210	845	634	22	523	1060	DN125	655
KN 1500/M-EL DN150	600	832	1508	499	210	845	634	22	523	1140	DN150	655
KN 1800/M-EL DN100	700	884	1660	540	222	875	680	22	523	1010	DN100	685
KN 1800/M-EL DN125	700	884	1660	540	222	875	680	22	523	1060	DN125	685
KN 1800/M-EL DN150	700	884	1660	540	222	875	680	22	523	1140	DN150	685

BOILER PLATE

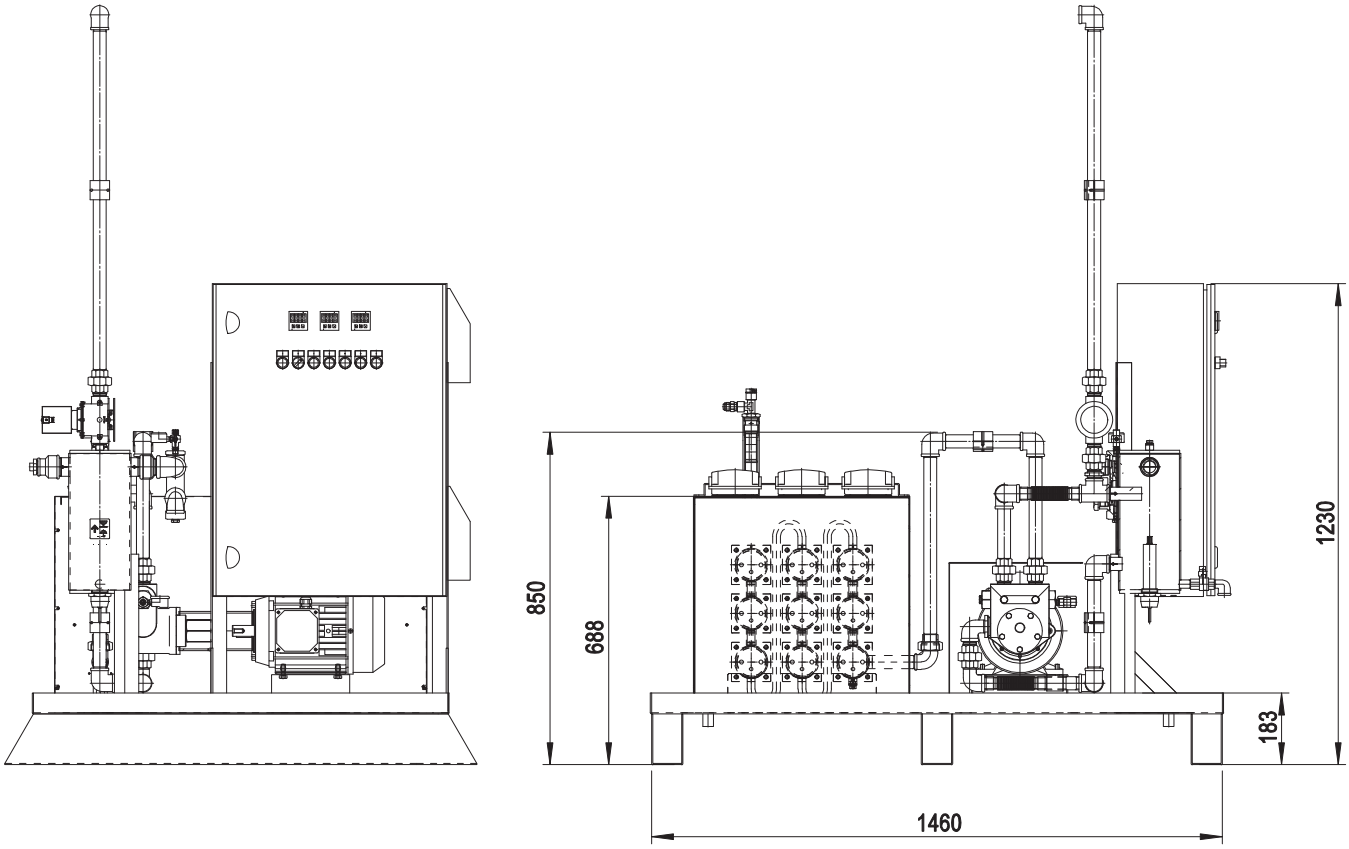


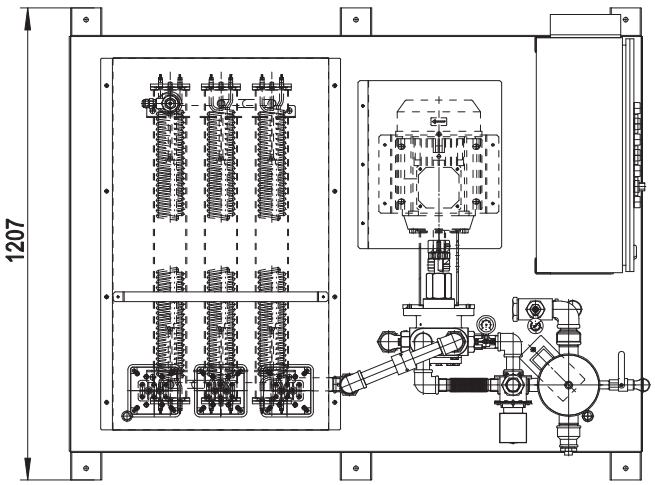
The dimensions of the boiler plate must be as indicated in the drawing.

MODEL		M	N min	N*	N Max	Lmin	Lmax
KN 750/M-EL	mm	M16	707	778	778	460	540
KN 1000/M-EL	mm	M16	707	778	778	480	540
KN 1300/M-EL	mm	M16	707	778	778	510	540
KN 1500/M-EL	mm	M16	707	778	778	510	540
KN 1800/M-EL	mm	M18	806	890	890	550	630

* Suggested dimension

PUMP SKID: DIMENSIONS (mm)





PRODUCT SPECIFICATION

SHORT DESCRIPTION

Dual fuel burners for gas and heavy oil at 2 stages progressive (hi-low flame) or PID fully modulating if equipped with modulation kit and probe. Available versions for natural gas or LPG (to be specified at the order) and both heavy oil as far as 20°E at 50°C and ecological heavy oil BTZ (low sulfur oil).

DETAILED SPECIFICATION

Dual fuel burners with alternate supply natural gas or LPG / heavy oil from 5 to 20°E at 50°C with possibility of modulating working (with optional modulation kit and probe) composed by:

- Burner frame made of steel completed by specific boiler plate;
- Centrifugal fan at high pressurization with reverse curved blades at low noisiness;
- Combustion head with adjustment at high performance and elevated flame stability equipped with inox steel blast tube and steel flame disc;
- Easy extraction of combustion head without get off the burners by bolier;
- Combustible-air adjustment for optimal combustion value;
- Flange and insulating gasket for fixing at boiler;
- Minimum and maximum thermostat;
- Electronic control system for controlling and command the burner;
- UV Photocell for flame detection;
- Gas/heavy oil selector;
- Three-phase power supply;
- IP44 electric protection level;
- Safety air pressure switch to stop the burner in case of failed or anomalous fan operation;
- Spherical gas servocontrolled valve: progressive start and free way passage with total opening;
- Servomotor for air shutter and the spherical gas valve;
- Mobile shutter with total closure when idle for minimize the energetic losses related at boiler cooling;
- Gas train with A class safety valve and A class adjustment valve;
- Leakage control integrate in Lamtec Etamatic OEM system;
- Servomotor for heavy oil adjust;
- Heavy oil gear pump operated by specific electric motor;
- Multistage pre-heating tank with specific flanged heaters at low density (anticracking and antigas);
- Pressure manometer on inlet pump;
- Thermometer inside pre-heating tank for temperature heavy-oil;
- Nozzle assembly with magnet to control inlet/return needle nozzle;
- Double filter between pump and nozzle;
- Set up for the additional specific kit that transforms burner operation as modulating i.e.the modulating kit allows to supply any power between the minimum and maximum value based on instantaneous loading request.

CONFORMING TO:

- CE rules;
- 2004/108/CE Directive E.M.C.;
- 2006/95/CE Directive L.V.;
- 2006/42/CE Directive M.D.;
- 97/23/CE Directive P.E.D.;
- 2009/142/CE Directive GAS;
- Reference rules: EN676 (gas) - EN267 (liquid fuel) - EN746-2 (industrial thermoprocessing equipment)

STANDARD EQUIPMENT

- Flexible pipes for connection
- Line filter
- Isomart gasket
- Nozzle
- Flange with insulating gasket
- Burner nameplate
- Warranty
- Instruction handbook for installation, use and maintenance

OPTIONAL

- Power modulating kits for temperatures;
- Power modulating kits for pressures;
- Temperature probe 0°-400°C (PT 100 ohm at 0°C);
- Temperature probe 0°-1200°C (K probe);
- Pressure probe 0-3 bar, 0-6 bar, 0-16 bar, 0-20 bar, 0-30 bar;
- Noise protection

The illustrations and data here shown are indicative. F.B.R. Bruciatori S.r.l. reserves the right to bring, without any obligation of warning, any changes that would be appropriate to the continuing development of their products.