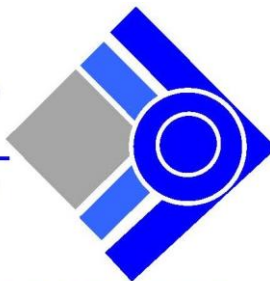


L. LAIR MANUFACTURING STANDARDS



L. LAIR
E T A B L I S S E M E N T S



INDUSTRIAL GAS BURNERS
INDUSTRIAL HEATING SYSTEMS MANUFACTURER

Honeywell
Division combustion

Honeywell Combustion
devices stockist
EC 7800 expert



SERFLAM & GAZFLAM Industrie are
Ets L. LAIR departments



GazFlam – Industrie



Ets L. LAIR are SIEMENS FRANCE
SOLUTIONS OEM PARTNER CERTIFIED

○ Basics Rules & EC Standards followed by L. LAIR for manufacturing any heating system :

- ✓ France : AFNOR, AFG, DTU, Atex.
- ✓ European standards :
 - NF EN ISO 13577-2 : Safety requirements for combustion and fuel handling systems on Industrial Thermoprocessing equipments.
 - NF EN ISO 13577-4 : Safety requirements
 - EN 60204-1 : Safety of Machinery, Electric equipment of industrial machines.
 - EN 298 : Safety requirements for flame control and monitoring systems.
 - EN 17082 : Safety requirements for human ambient gas heating equipments over &/or under 300 KW / LHV.
 - EN 1854+A1 : Pressure monitoring devices for gas burners and gas burning appliance.
 - EN 88+A1 : Pressure regulators and associated safety devices for gas appliances
 - Part 1 : Pressure regulators for upstream pressure under or equal to 500 mb.
 - Part 2 : pressure regulators for upstream pressures between 500 mbar and 5b
 - EN 292 : Safety requirements for machines.
 - 2014/68/UE (PED) Directive: Requirements for any works on gas pipes under pressure > 500 mb
(only for a complete system and only on request by customer specific order).
 - EN ISO 12100 (P1 & P2) – ISO 7-1 – Welding according and following EN 287-1.
 - MAIN MACHINE DIRECTIVE : EC 2023/1230 regulation.

○ Burners, Fuels trains, electrical panels :

- Manufactured following L. LAIR standard (L. LAIR most commonly used devices and items listed below, non-exhaustive list).
- Pipe trains fully assembled following EC standards (see above).
- Non-welded leak joints assembled with anaerobic PTFE paste gasket.
- Tubing & threaded connections according to NF & EC standards.
- Electrical + leak tests under air pressure with required certificates.
- If needed and ordered by customer, mounting on a metal frame.
- Painting & stickers following EC standards. (Gas = RAL 1011 – Air = RAL 5012).
- Standard or "tailor made" combustion chambers or air ducts.
- If needed or required by customer, special design to allow a flame inside with specific insulation.
- Designed for optimum burner performance.
- Available in various materials and especially adapted to customers process.
- Designed to minimize the use of materials that contain crystalline silica.
- Control panel for safe ignition and flame control for industrial burners.
- Standard or custom designs to comply with customer's needs and application.
- Flame Safeguard in compliance with EC standards.
- High temperature limit and temperature controllers EC approved & in compliance with EC standards.
- With or without keyboard display module.
- If required, weatherproof shelter with options for hazardous duty service.
- Highly visible indication lights and easy-to-operate switches.
- Combustion air blower motor starters and options for every machine motors.
- If ordered by customer, the equipment will be installed on site according to most rigorous demands and following EC requirements.
- If ordered by customer, all fuels (gas & air) inlet and outlet (vent) tubing will be done with re used customer existing gas line.
- If ordered by customer, all electrical wiring installation will be done on site according to most rigorous demands and following EC requirements.
- Wiring cables NO5VV5F type for commands, cables HO7RNF for power supplied reinforced cables for temperature probe rods will be installed on site according to most rigorous demands and following EC requirements.
- If possible, according to items supplied, burner and the whole system will be function-tested with a pre start up in our workshop - bench test prior to delivery for quality assurance with required certificates.

GAS BURNERS - INDUSTRIAL HEATING SYSTEMS MANUFACTURER

Gas Lines & Regulations – Safety & Flame Monitoring – Safe Guards & Controllers – Solutions
Gas Safety & Detection – On site Services – Spare parts & components for industrial heating systems

L. LAIR - ZA du TUBOEUF - 115 allée des ORMETEAUX - 77170 - Brie Comte Robert – FRANCE

☎ : 00 33 (0)1 64 05 88 59 ☎ : 00 33 (0)1 64 05 44 46 - www.lair.com.fr



○ **L. LAIR EQUIPMENT'S COMPONENTS STANDARDS** (main non-exhaustive list) :

- ✓ Burners: L. LAIR – SERFLAM – Gazflam Industrie division, NBP *.
- ✓ Isolating & safety gas manual valves : EFFEBI*
- ✓ Gas Filters: MADAS* – MAXITROL** – MARCHEL**.
- ✓ Pressure gauge manometers : *specific designed for L. LAIR**
- ✓ Pressure gauge safety cock : *specific designed for L. LAIR**
- ✓ Flow meters : Elster / Instromet ** – Honeywell – RMG **.
- ✓ Gas pressure reducer: MADAS* – Honeywell – RMG **.
- ✓ Ratio air/gas & monitoring: SIEMENS* – MADAS* – Dungs**.
- ✓ Safety solenoid valves: MADAS*.
- ✓ Pressure safety switches: SIEMENS* – FEMA*.- Dungs*
- ✓ Safety body valves: SIEMENS*.
- ✓ Actuators for safety valves: SIEMENS*.
- ✓ Flow valves: SIEMENS* – – ECONEX**.
- ✓ Dampers – servomotors: SIEMENS* – ARIS **.
- ✓ Leak tests systems: SIEMENS* – DUNGS**.
- ✓ Ignition transformers : *specific designed for L. LAIR**
- ✓ High tension/ionization connectors : *specific designed for L. LAIR **
- ✓ Ionization/ignition wiring cable : *specific designed for L. LAIR **
- ✓ Spark igniters & flame rods : *specific designed for L. LAIR **
- ✓ Safeties, flame monitoring & control systems : SIEMENS* – Honeywell 7800 line*
- ✓ Electrical equipment's**: Legrand – Télémécanique – Schneider.



**All items are available in L. LAIR storage except when out of stock or already sold.*

*** Items not available in L. LAIR storage, in order only.*

○ **DOCUMENTATION:**

*Data sheets & documents, copyrighted and protected, are supplied in only 1 ex. on @ in.pdf version **.*

- Elements provided at the contract validation by L. LAIR:
 - 1 Set of L. LAIR General Instructions (installation, checking, maintenance routine, GTS, etc....).
 - 1 Set of Technical data sheets for burner provided by L. LAIR.
 - 1 L. LAIR Burner user manual.
- Elements provided at the end of the design (*according to schedule to be validated by LAIR ↔ CUSTOMER*) :
 - 1 Standard drawing of the system provided by L. LAIR (*Drawing base under Autocad + SolidWorks tools only*).
 - 1 Electrical drawing set for control panel provided by L. LAIR.
 - 1 Spare part list for 1st emergency and maintenance routine further 5/10 years.
- Elements provided at delivery or provision of equipment:
 - 1 Drawing of the AM system provided by L. LAIR.
 - 1 Technical data sheet of every gas safety equipment provided by L. LAIR.
 - 1 Technical data sheet of every safety electrical equipment provided by L. LAIR.
 - 1 Technical data sheet of every temperature safety and controller(s) provided by L. LAIR.
 - 1 Maintenance routine and checking data sheet.
 - 1 EC Conformity and incorporation certificates.
- Elements provided after commissioning:
 - Startup/adjustments test report (*if done by L. LAIR itself*).

*** Documentation in English possible depending on the origin of the material/supplier.*

Only on special request according to customer's requirements: L. LAIR will provide the electrical diagram using specific software with backup in accordance with the standards of the French automotive industries (study & design excluded). Quality control verification, backup, archiving + non-modifiable .pdf version. No specific study of the diagram is planned; the client provides L. LAIR with the specific elements necessary for its needs (diagram folios for regulation, for example). Final delivery of files via the Internet according to study base customer's requirements and if and only if the entire burner electrical control cabinet and flame safety is provided by L. LAIR.

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