

OVENPAK® LE

low emissions, high performance gas burners

OPERATING INSTRUCTIONS

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1 SAFETY

1.1 Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at www.docuthek.com.

1.2 Explanation of symbols

1, 2, 3, a, b, c = Action

→ = Instruction

1.3 Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

1.4 Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:

DANGER

Indicates potentially fatal situations.

WARNING

Indicates possible danger to life and limb.

CAUTION

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

1.5 Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

1.6 Instructions provided by the company

Instructions provided by the company or individual responsible for the manufacture and/or overall installation of a complete system incorporating MAXON burners take precedence over the installation and operating instructions provided by MAXON. If any of the instructions provided by MAXON are in conflict with local codes or regulations, please contact MAXON before initial start-up of equipment.

2 CHECKING THE USAGE

OVENPAK® LE burner can be used in all direct fired air heating applications. It can be used in all air heating applications that require low NOx firing and allow excess combustion air.

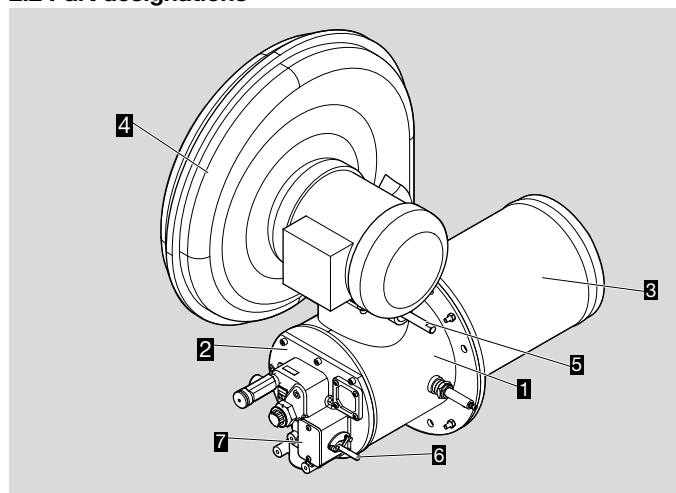
This function is only guaranteed when used within the specified limits – see page 6 (7 Technical data). Any other use is considered as non-compliant.

2.1 Type code

OPLE	Packaged burner
5	max 0.5 MBtu/h
10	max 1.0 MBtu/h
13	max 1.3 MBtu/h
15	max 1.5 MBtu/h
25	max 2.5 MBtu/h
30	max 3.0 MBtu/h
35	max 3.5 MBtu/h
40	max 4.0 MBtu/h
45	max 4.5 MBtu/h
70	max 7.0 MBtu/h
D	Direct spark
S	Standard pilot
R	Flame rod
U	Provision for UV scanner
S	Standard mixing cone
N	Natural gas
P	Propane
C	Short sleeve 310SS
H	High temperature sleeve
R	Refractory lined sleeve 310SS
S	Standard sleeve 310SS
1	Oven wall gasket needed
0	No oven wall gasket needed
1	Blower voltage 230/460/3/60, right motor position
2	Blower voltage 575/3/60, right motor position
3	Blower voltage 115/1/60, right motor position
4	Blower voltage 230/460/3/60, left motor position
5	Blower voltage 575/3/60, left motor position
6	Blower voltage 115/1/60, left motor position
A	No connecting bracket and linkage
B	SMARTLINK CV
C	SMARTLINK MRV
D	Honeywell Mod CB and L only
E	CB and L w/Honeywell Mod Motor
F	CB and L w/Honeywell WP Mod Motor
I	SMARTLINK DS DC CV
J	SLATE LTA Commercial MRV
K	SLATE LTA Industrial MRV
A	No position switch
B	Omron low position switch
C	Omron hi/lo position switch
D	T'mechanique low position switch
E	T'mechanique W.Prf hi/lo pos switch
F	Filter assembly
L	Silencer assembly
N	No filter or silencer
S	Filter/silencer assembly
OPLE EB	External blower
40	max 4.0 MBtu/h
65	max. 6.5 MBtu/h
100	max. 10 MBtu/h
D	Direct spark
S	Standard pilot
R	Flame rod
U	Provision for UV scanner
S	Standard mixing cone
N	Natural gas

P	Propane
C	Short sleeve 310SS
H	High temperature sleeve
R	Refractory lined sleeve 310SS
S	Standard sleeve 310SS
1	Oven wall gasket needed
0	No oven wall gasket needed
E	External control valves
I	Internal control valves
A	No connecting bracket and linkage
B	SMARTLINK MRV
E	SLATE LTA Commercial MRV
F	SLATE LTA Industrial MRV
0	No position switch
B	Omron low position switch
C	Omron hi/lo position switch
D	T'mechanique low position switch
E	T'mechanique W.Prf hi/lo pos switch
0	No flange needed
1	Flange needed

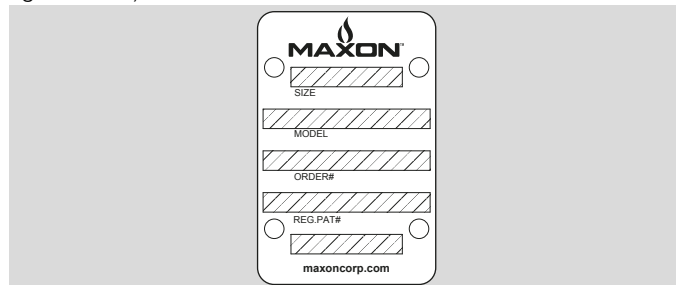
2.2 Part designations



- 1 Burner housing
- 2 Back plate
- 3 Discharge sleeve (mixing cone and nozzle inside)
- 4 Fan case (impeller inside)
- 5 Air control valve
- 6 Fuel control valve
- 7 Tuning screw

2.3 Type label

A coded model number (type code) is provided on the type label of all MAXON OVENPAK® LE burners to provide a simple method to identify the configuration of the product. This type code ensures accuracy in identifying your product, ordering replacement parts or communicating capabilities. See page 2 (OPLE Packaged burner).



3 APPLICATION REQUIREMENTS

3.1 Viewing port

→ A view port to observe burner flame is essential to inspect the flame aspect. Locate the view port downstream of the flame, looking back to the burner block. Make sure the complete flame can be evaluated.

3.2 Required ancillary equipment

→ Ensure that all ancillary equipment for safe operation and correct performance of the OVENPAK LE burner is installed, as described in the applicable local codes and/or process-related instructions. An accurate control of the air/gas ratio is essential for optimal performance of the burner.

3.3 Supporting burner air and gas piping

→ The OVENPAK LE burner shall not be used as support for the piping to the burner. Gas and air piping shall be supported in such way that no additional loads will be created on the burner.

3.4 Burner mounting flange loads

→ Check burner weight and reinforce burner mounting flange or combustion chamber/furnace back wall if necessary to take the complete burner weight.

4 INSTALLATION

4.1 Handling of OVENPAK LE burners

→ OVENPAK LE burners are shipped as complete units. Handle burners with care, using proper equipment during unpacking, transport, lifting and installation.

⚠ WARNING

Any impact on the burner could result in damage.

- To prevent damage in transit, accessories such as flame rods, control valves and/or UV-scanners, may be packed separately and shipped loose.
- Packaged burners may be shipped with blowers removed.

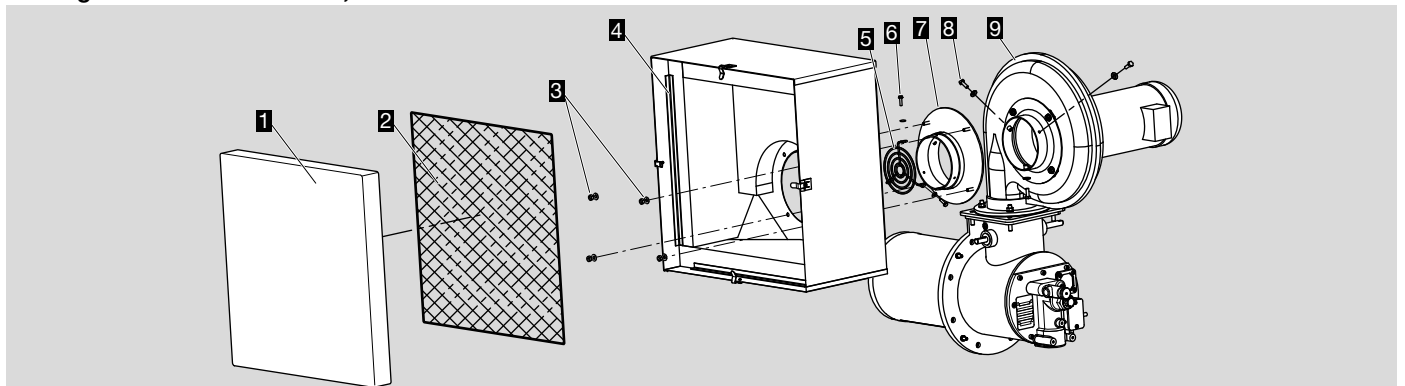
4.1.1 Flange the burner to the installation

- 1 Use proper MAXON optional gaskets.
- 2 Bolt the burner to the installation's burner mounting flange.
- 3 Tighten the flange bolting with correct torque.
- 4 Retighten all bolts after first firing and regularly after commissioning.

4.1.2 Filter assembly

- Filters and blowers are shipped loose and require assembly prior to burner installation.
- See the sketches below for proper filter assembly instructions.

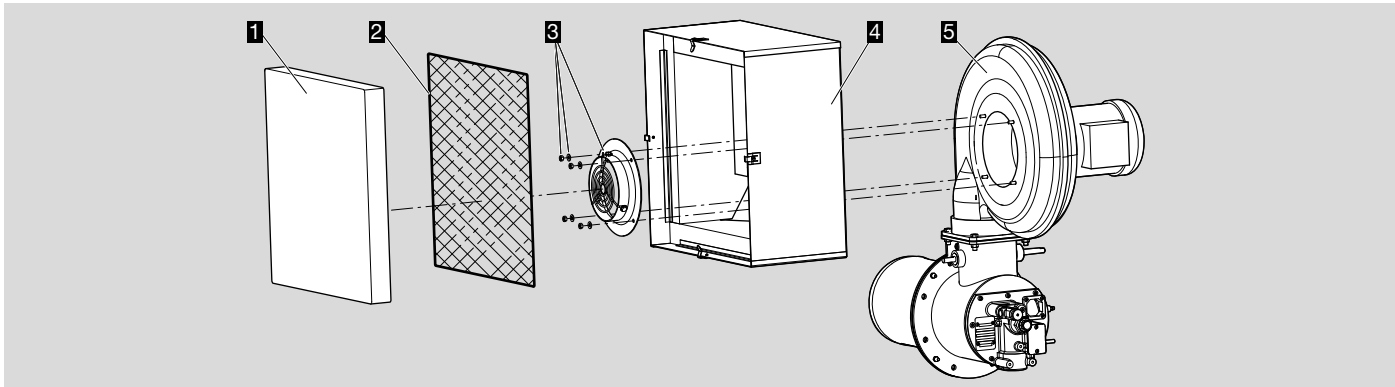
Packaged burner size OPLE 5, 10 and 13



- 1 Filter element
- 2 Filter screen
- 3 Fasteners supplied with filter assembly
- 4 Filter housing
- 5 Inlet guard supplied with blower
- 6 Fasteners supplied with filter assembly
- 7 Filter adapter
- 8 Fasteners supplied with blower

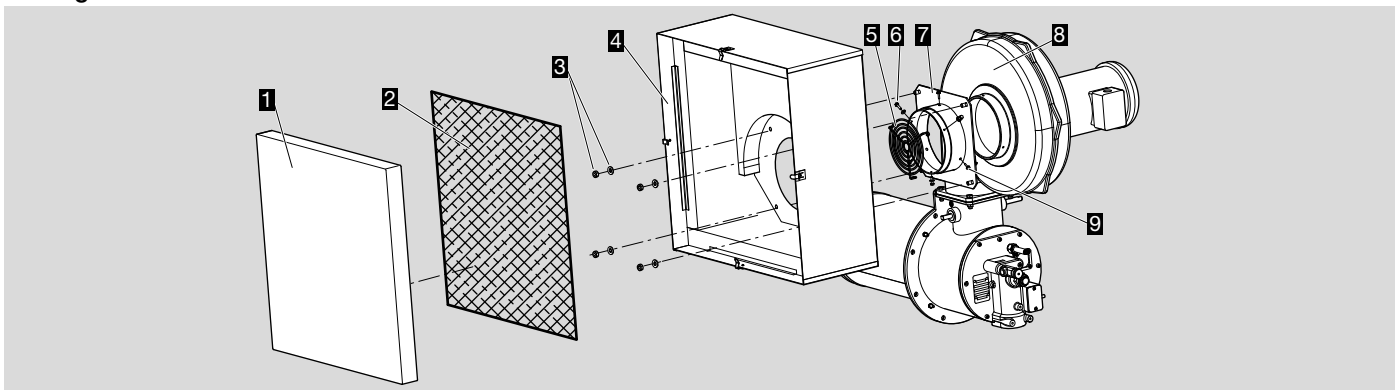
9 Blower

Packaged burner sizes OPLE 15, 25 and 30



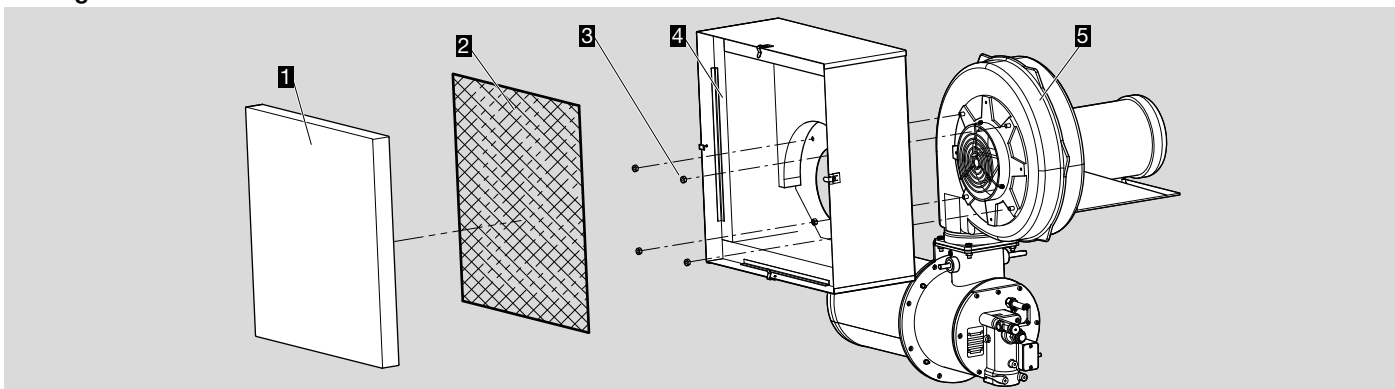
- 1 Filter element
- 2 Filter screen
- 3 Inlet guard and fasteners supplied with blower
- 4 Filter housing
- 5 Blower

Packaged burner sizes OPLE 35 and 40



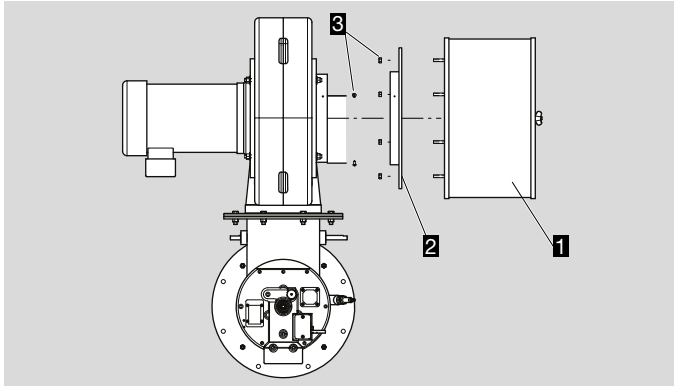
- 1 Filter element
- 2 Filter screen
- 3 Fasteners supplied with filter assembly
- 4 Filter housing
- 5 Inlet guard supplied with blower
- 6 Fasteners supplied with filter assembly
- 7 Filter adapter
- 8 Blower
- 9 Fasteners supplied with blower

Packaged burner size OPLE 45



- 1 Filter element
- 2 Filter screen
- 3 Nuts supplied with blower
- 4 Filter housing
- 5 Blower

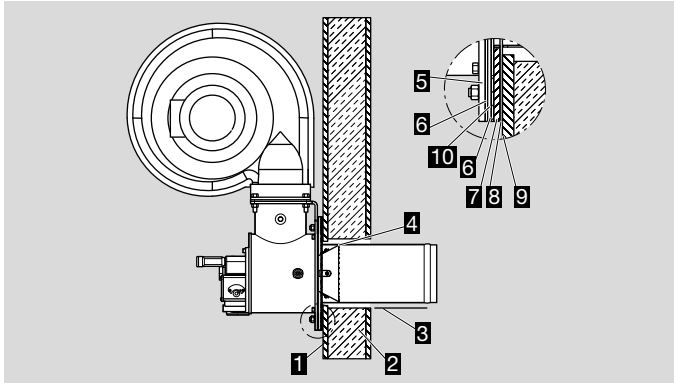
Packaged burner size OPLE 70



- 1 Filter
- 2 Adapter flange
- 3 Hardware (provided)

4.1.3 Burner mounting

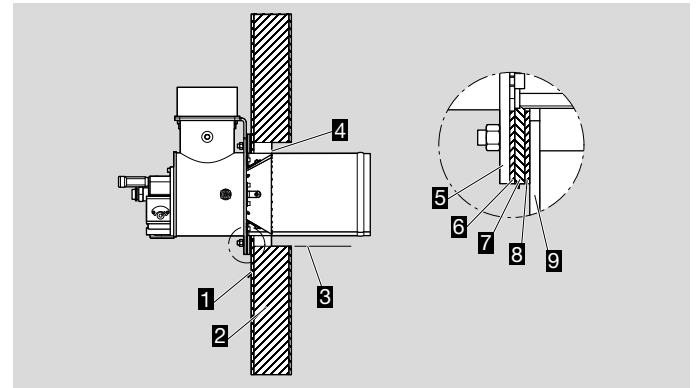
OPLE 5, OPLE 10



- 1 Heater shell
- 2 Insulated wall (5,9 inch (150 mm) maximum depth)
- 3 Cut opening 1 inch (25 mm) larger than sleeve diameter
- 4 This area may be packed with insulation up to 2 inch (50 mm) in depth
- 5 Burner flange
- 6 Gasket supplied with burner
- 7 Discharge sleeve flange
- 8 Optional gasket
- 9 Heater wall
- 10 one Adapter plate

OPLE 13, OPLE 15, OPLE 25, OPLE EB40

→ OPLE 30, 35, 40, 45, 70, EB65, EB100 have all same parts but cone is attached via an internal sleeve



- 1 Heater shell
 - 2 Insulated wall (5,9 inch (150 mm) maximum depth)
 - 3 Cut opening 1 inch (25 mm) larger than sleeve diameter
 - 4 This area may be packed with insulation up to 2 inch (50 mm) in depth
 - 5 Burner flange
 - 6 Gasket supplied with burner
 - 7 Discharge sleeve flange
 - 8 Optional gasket
 - 9 Heater wall
 - 1 Heater shell
 - 2 Mounting studs (by others)
- Ensure heater shell can support burner weight. If not, add a stiffening plate or support burner weight by other means.

5 COMMISSIONING

⚠ CAUTION

- Read the combustion system manual carefully before initiating the start-up and adjustment procedure.
- Verify that all of the equipment associated with and necessary to the safe operation of the burner system has been installed correctly.
- Verify that all pre-commissioning checks have been carried out successfully and that all safety related aspects of the installation are properly addressed.

For technical datas, see page 6 (7 Technical data) and the Technical Information OVENPAK LE.

⚠ WARNING

- Initial adjustment and light-off should be undertaken only by a trained commissioning engineer.

5.1 Safety interlocks

- Guarantee that all the required safety locks as described in the applicable local codes or regulations, or supplementary safety locks requested for safe operation of the overall installation, are working properly and resulting in a positive safety-lock of the burner.
- Do not bypass any of these safety interlocks. This will result in unsafe operation.

5.2 Checks during and after start-up

- During and after start-up, check the integrity of the system. Check all bolted connections after first firing (first time on temperature) and retighten if necessary.

5.3 Purge

- For safety reasons, it is required to purge the installation sufficiently long to ensure that all possible combustibles are evacuated before ignition.
- Refer to the applicable local codes and your specific application requirements to determine the purge time.

5.4 Pilot ignition

- 1 Before ignition of the pilot, adjust the combustion air to the minimum burner air flow.
- Pilot will not ignite if too high an air flow exists.
- 2 Set pilot gas flow to the correct value before pilot ignition attempt.

5.5 Main burner ignition

- 1 Set correct gas flow for burner minimum capacity before attempt of main burner ignition.
- 2 After ignition of main burner, allow some time on minimum capacity to allow the burner parts to heat up slowly.

5.6 Adjust air/gas ratio, set maximum capacity

- 1 Once the main flame is ignited, adjust air/gas ratio of the burner to have the required combustion quality and slowly increase capacity.
- Do not increase capacity too fast to avoid damage to burner parts or furnace due to excessive temperature gradient.
- 2 For OVENPAK® LE, adjust fuel pressures to be always equal to combustion air pressures.

5.7 Initial adjustments of burner prior to light off (EB OPLE)

- 1 With the burner not lit and the combustion air fan running, force the system to a purge (or high fire) condition.
- 2 With the system at a purge condition, adjust the combustion air until the required differential combustion air is achieved for high fire.
- 3 Force the system to a light off condition, and adjust the minimum position to the required differential combustion air condition.

5.8 Adjustments after burner is lit (EB OPLE)

- 1 Connect a manometer to the combustion air test connection, and differentially to the gas test connection on the burner.
- 2 Adjust the gas on each index until each index is a reading of zero all the way to high fire.

6 MAINTENANCE

Safety requirements

- Regular inspection, testing and recalibration of combustion equipment according to the installation's manual are an integral part of its safety.
- Inspection activities and frequencies shall be carried out as specified in the installation's manual.
- Perform the following activities at least annually as part of a recommended preventative maintenance routine:
 - 1 Inspect burner internal parts for wear and oxidation, paying special attention to the refractory of the burner block (when applicable).
 - 2 Inspect associated control instruments and devices for function with particular attention to all safety permissive switches.
 - 3 Perform leak tests on fuel shut off valves according to any schedule established by the authority having jurisdiction.

Visual inspections

- Regular visual inspection of all connections (air and gas piping to the burner, bolting of the burner mounting flange) and burner flame shape and aspect are essential for safe operation.

7 TECHNICAL DATA

OVENPAK LE burners can be fired into tubes up to 8500 Btu/h/in² [3860 kW/m²] of tube cross sectional area.

The OVENPAK LE may also be used for indirect applications up to 1500° F [815° C].

Standard packaged OVENPAK LE burners with integrated fan can accept static chamber pressures between -5" wc and +5" wc [-12.5 mbar and +12.5 mbar].

Process pressures for EB burners should be limited to +5 psi to -5 psi [+350 mbar and -350 mbar].

Pipe train: For proper air-to-fuel ratio, packaged burners with internal linkage should have no more than 4" wc [10 mbar] droop between the regulator and burner inlet.

The construction of the burner allows operation in all applications with process temperatures from ambient up to 1000° F [525° C]. Piloting and ignition: Use minimally 5000 V/200 VA ignition transformers for sparking of the spark ignitor.

Packaged burners with internal linkage should have no more than 4" wc droop in the fuel train from the regulator to burner inlet.

OVENPAK LE burners may operate with excess air levels of 5–40%. Best NO_x emissions will be produced with 35–40% excess air.

Cross velocities: Cross velocities up to 3000 ft/min [15 m/s] can be allowed over the OVENPAK LE flame. Contact MAXON for assistance for cross velocity over the flame in excess of 3000 ft/min [15 m/s], or for processes with high moisture content.

Fuels: Standard OVENPAK LE burners are designed for low NO_x firing of natural gas only. Optional versions are available to fire propane/LPG. When firing propane, butane or other alternate fuels, higher NO_x will be produced. Contact MAXON for expected influence on emissions.

8 RECOMMENDED SPARE PARTS

- Keep local stock of spark ignitor.
- It is not recommended to keep local stock of other burner parts. Consult installation manual for burner spare parts and system accessories.

8.1 Spare parts

The PartDetective web app for selecting spare parts is available at www.adlatus.org.

9 STORAGE OF OVENPAK LE BURNERS

- OVENPAK LE burners shall be stored dry (inside). Burner blocks have been cured carefully before shipment and shall be kept dry. Wetting of the blocks could result in premature failures.

10 CERTIFICATION

10.1 Eurasian Customs Union



The products OVENPAK LE meet the technical specifications of the Eurasian Customs Union.

11 DISPOSAL

Devices with electronic components:

WEEE Directive 2012/19/EU – Waste Electrical and Electronic Equipment Directive



At the end of the product life (number of operating cycles reached), dispose of the packaging and product in a corresponding recycling centre. Do not dispose of the unit with the usual domestic refuse. Do not burn the product.

On request, old units may be returned carriage paid to the manufacturer in accordance with the relevant waste legislation requirements.

FOR MORE INFORMATION

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschröder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.
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