



## ANDERSON GREENWOOD AMAL LER/LERC LEF/LEFC NP/NPC SERIES FLAME ARRESTERS INSTALLATION & MAINTENANCE INSTRUCTIONS

### 1. GENERAL

LER, LEF and NP series flame arresters are intended for low pressure venting application for piping systems handling flammable gases/vapors. They comprise a housing with flanged or threaded end connection and have an integral element.

### 2. GUIDANCE

1. Maximum temperature limit is  $-20^{\circ}$  to  $+60^{\circ}\text{C}$  ( $+200^{\circ}\text{C}$  for certain gas groups - see special conditions for safe use).
2. Mounting of all monitoring devices shall be in accordance with EN 50018.
3. Flame arresters should not be positioned near hot equipment unless certified for the elevated temperature as heat transfer to the flame arrester will reduce its performance and may cause it to fail.
4. Shut-off devices should be fully open during normal operation.
5. Continuous monitoring of pressure drop is advised if the process is known to contain particulates or substances, which can block the element and over-pressurize the system.
6. Metal parts insulated by gaskets should be earthed where necessary.
7. Flame velocities and pressures of flammable mixtures can be enhanced by upstream turbulence, which can be caused by bends, valves or any change in section of the pipework. The flame arrester should only be used for the process application; if the process conditions or the pipework configuration change, the flame arrester should be checked with the manufacturer.
8. LER, LEF and NP series vent flame arresters are designed to prevent external fires/explosions igniting flammable gases/vapors within vent piping and associated equipment. They are NOT designed to prevent internal explosions passing to atmosphere.
9. ONLY install for applications for which they have been designed and specified - refer to product data sheet for guidance. It is potentially dangerous to use in other applications.

### 3. INSTALLATION

No special tools are required in order to fit AMAL flame arresters. Only standard sized spanners as appropriate and lifting gear for larger units, where applicable, are required. Remove all packaging from the flame arrester prior to installation, paying particular attention to the area between the flame arrester element and the weather cover.

Mount the flame arrester upright at the end of the vent line.

- (i) Flanged connection - bolt to a flange of the same specification as that fitted to the flame arrester itself, with an intermediate gasket of a type appropriate to the service conditions. Tighten the bolting uniformly to give a good seal.
- (ii) Screwed connection - fit to the corresponding female thread. Sealing tape or sealant may be used to ensure a good seal.

### 4. MAINTENANCE

Maintenance should be carried out by suitably qualified and trained personnel.

It is recommended that the flame arrester element be inspected at each scheduled plant maintenance period. However, if excessive pressure drop is experienced, or if a flashback occurs, immediate inspection should be made:

1. If the element is found to be damaged or distorted a new replacement unit should be fitted.
2. Type and size details can be found on the stainless steel nameplate attached to the housing (or cover, if fitted). Elements are sealed into the body and cannot be removed for cleaning.
3. In order to clean the element it is necessary to remove the flame arrester from the line.
4. Wash the complete flame arrester in a suitable solvent, then blow through with compressed air.

NEVER attempt to clean the element by inserting a probe through the passages. The element cells could be damaged and the specified performance nullified.

**Note:** potentially toxic substances may have been passing through the flame arrester. Always wear appropriate safety equipment, with eye protection, when working on or near flame arresters.

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### 5. SPARE PARTS

LER, LEF and NP series flame arresters do not have spare parts. When necessary, the entire flame arrester should be replaced.

It is recommended that for every three flame arresters of a given type at any one site at least one spare unit be available at all times.

When requesting replacement flame arresters, the full type code, part number and serial number MUST be quoted - fitting the incorrect unit is DANGEROUS. See the flame arrester label for details.

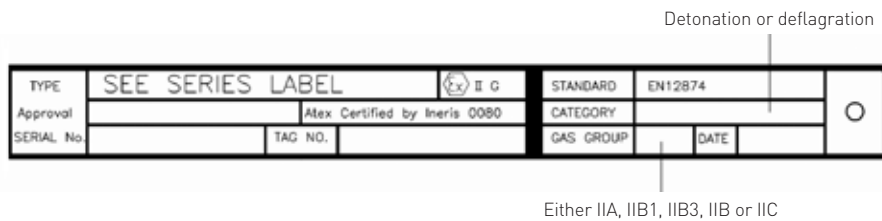
### 6. AFTER SALES SERVICES

Available through the relevant Emerson office in the United Kingdom or through our worldwide network of regional offices and agents.

### 7. MARKING ON THE FLAME ARRESTER (CE PLATE)



### 8. MARKING ON THE FLAME ARRESTER (NAMEPLATE)



### 9. SPECIAL CONDITIONS FOR SAFE USE

- For IIA, IIB1, IIB3, IIB & IIC hydrogen only groups the manufacturing is intended for sizes from DN 25 (1") to DN 400 (16") for types LEF, LEFC.
- For IIA, IIB1, IIB3, IIB & IIC hydrogen only groups the manufacturing is intended for sizes from DN 6 (1/8") to DN 400 (16") for types LER, LERC.
- For IIA, IIB1, IIB3, IIB, & IIC groups the manufacturing is intended for sizes from DN 6 (1/8") to DN 50 (2") for types NP and NPC.

### HIGH TEMPERATURE (+200°C) APPLICATIONS

Explosion group	Gap width	Inlet size
IIB1 (IIA)	0.8 mm	DN 15 - DN 600
IIB (IIB3, IIB2, IIB1)	0.45 mm	DN 15 - DN 600
IIB3	0.8 mm	DN 15 only
IIC	0.3 mm	DN 15 only

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