ANDERSON GREENWOOD AMAL ERQ SERIES FLAME ARRESTERS

INSTALLATION & MAINTENANCE INSTRUCTIONS

Includes: ERQ, ERQB and ERQS types

1. GENERAL

ERQ series vent flame arresters are intended for low-pressure venting applications where the maximum differential pressure across the flame arrester does not exceed 1 barg.

2. GUIDANCE

1. Maximum temperature limit is -20° to +60°C (+200°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. ERQ 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

Remove all packaging from the flame arrester prior to installation, paying particular attention to the area between the flame arrester element and weather cover.

Mount the flame arrester vertically 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 ensure a good seal.

(ii) Screwed connection - fit to the corresponding male/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.

1. During service the element matrix may become blocked with particles and impurities from the atmosphere and/or process. If too severe, the blockage will impair the free flow of vent gases/vapors. In severe cases this can cause damage to equipment and the flame arrester itself.
2. A periodic maintenance schedule is recommended for the flame arrester, the frequency to be based on operational experience and actual operating conditions, but at least annually.
3. No special tools are required. Standard spanners and lifting equipment for larger sizes of flame arrester, as required, are all that are necessary.
4. These series flame arresters are designed to allow inspection and maintenance in situ, however, this should only be done if it is safe to do so.
   Note: potentially toxic substances may have been vented. Always wear appropriate safety equipment, including eye protection, when working on, or near, flame arresters.
5. Loosen and remove the nuts holding the weather cover in position. For ERQB types, remove the cap screw and plastic bush (fusible link) from the weather cowl.

Warning: ERQB types have single-point mounted, spring-loaded weather covers. It is recommended that the weather cover be held in place while the retaining cap screw is removed. Once this has been removed, allow the weather cover to swing upwards gently, thus giving access to the element.

6. Remove the weather cover (for large sizes of ERQ this may require special lifting equipment).
7. Remove the nuts that hold any collars and clamping washers in place.
8. Remove the collars and clamping washers.
9. Remove the element, using lifting equipment where appropriate, and examine both surfaces. DO NOT insert any probes into the element.
10. If the element matrix is visibly damaged or corroded it must be replaced before the flame arrester is returned into service. If cleaning is required see Section 5 before re-fitting.
11. Check that the sealing face of the housing and element sleeve is clean and free from particles that may affect the sealing of the element. Also check to ensure that there is no surface damage to either the housing or element sleeve. Any damage must be removed by cleaning/machining as required. **Note:** Any gaps between the housing and element may provide a flame path around the flame arrester element and are therefore DANGEROUS.
12. Re-seat the element in the machined recess provided and secure in place by replacing the collars, clamping washers and nuts. Ensure that the wider of the two faces of the element sleeve sits against the recess of the housing. The element sleeve is not bi-directional and the flow directional arrow should point away from the housing. For ERQB types replace the plastic bush in the weather cover. Finally, replace the weather cover and secure in place with the fastener(s).
13. After any external fire in the locality of the flame arrester, it is recommended that the equipment be examined for damage, particular attention being paid to the connecting flange joint gasket, replacing it if necessary. Also examine the element matrix for contamination, and clean if necessary. Some discoloration from heat is acceptable, however, if in doubt, fit a replacement element.

5. CLEANING THE ELEMENTS ASSEMBLY

1. DO NOT attempt to remove the element matrix from its cage/casing.
2. DO NOT allow the element assembly to become blocked severely.
3. DO NOT clean by inserting probes into the cell structure.
4. DO NOT use excessively corrosive materials (e.g. hydrochloric acid) to clean the element.
5. High-pressure water jets are NOT recommended.
6. The following ARE recommended: detergents, solvents, compressed air, steam or ultrasonic. The actual cleaning method will depend on the nature of the substance causing the blockage.
7. If the element is damaged during cleaning a NEW element assembly should be fitted. If in doubt refer to your nearest representative for advice.

6. SPARE PARTS

Under normal conditions only the element assembly should need replacing. It is recommended that for every three flame arresters of a given type at any one site at least one spare element assembly is available at all times.
Note: For ERQB types, replacements of the plastic bush (fusible link) are available as spare parts.

When requesting spare elements, the full type code, part number and serial number MUST be quoted - fitting the incorrect element is DANGEROUS. See the flame arrester label and/or associated detailed spare parts list for details. See section 4, points 11 and 12 before fitting a new element.

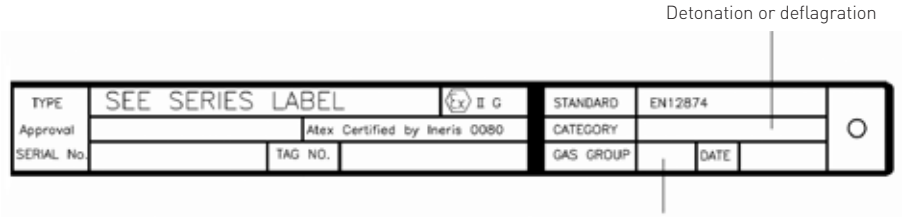
7. AFTER SALES SERVICES

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

8. MARKING ON THE FLAME ARRESTER (CE PLATE)

CE

9. MARKING ON THE FLAME ARRESTER (NAMEPLATE)



10. SPECIAL CONDITIONS FOR SAFE USE

- For IIA, IIB1, IIB3, IIB & IIC hydrogen only groups the manufacturing is intended for sizes from DN 15 (½") to DN 400 (16") for type ERQ.
- For IIA, IIB, IIB3, IIB & IIC hydrogen only groups the manufacturing is intended for sizes from DN 15 (½") to DN 400 (14") for type ERQB.

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