

Elmac Technologies Limited - Operating Instructions

REQUIREMENTS TO BS EN 12874, ATEX DIRECTIVE 94/9/EC & PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC

INSTALLATION & MAINTENANCE INSTRUCTIONS

Flame arresters and their replaceable elements are fitted with nameplates giving the following information:-
Also refer to figures '1' and '2' on page 4 - Nameplate general layouts.


- Full name, address, telephone and fax numbers of manufacturer.
- Model number of flame arrester/element.
- Serial number of flame arrester/element. This is traceable to the year of construction and must be quoted when requesting spare parts.
- Type of flame arrester/element. The specific marking of explosion protection and the gas group for which it may safely be used.
- The ATEX certificate number.
- Operating temperature limits.

Caution: Always ensure that the system is at atmospheric pressure and there is no ignitable vapour present that could flash when either installing or maintaining a unit.

Installation

1. It is essential that Elmac in-line deflagration flame arresters are only used in the application and with the gas group for which they were supplied (as stated within our written quotation). Materials of construction must be compatible with the gas mix and the environment in which the unit is to operate. This is particularly important if the flame arrester is to be used in corrosive applications. Contact the Elmac technical sales department for advice.
2. Elmac flame arresters are not suitable for situations where continuous burning of a flame could stabilise on or near to the surface of the element. Under these circumstances it is strongly recommended that a temperature sensor is installed combined with a shutdown system to turn off the gas flow.
3. Always ensure that the fixings available on the pipe work (e.g. flange type, screw thread) are compatible with that on the flame arrester. For flange fixings, use the correct fasteners and gaskets for the flange size and type. Always use the correct washers as this prevents damage caused by bolt heads and nuts on tightening up. Gaskets should be capable of withstanding the same temperatures and pressures as the flame arresters being installed.
4. End-of-line deflagration flame arresters should be positioned so that the element is accessible for removal.

Rev.	Description	Issued By	Date
2	Second Issue (torque setting removed to ensure no over excessive torque by client).	D.Greenough	24.03.09
1	First Issue (new document number with latest Elmac logo's & contact details incorporated).	D.Greenough	13.01.09

Description: Installation & Maintenance Instructions for End-Of-Line Deflagration Flame Arresters (ATEX)		 Elmac Technologies Innovative Safety Solutions Elmac Technologies Limited, Greenfield, Holywell, Flintshire, United Kingdom CH8 9DP	
Drawn By: D.Greenough	Date: 13.01.09		
Checked By: N.Webb	Date: 28.06.09	Document No. ETL-00104 Page 1 of 4	Revision 2
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Maintenance

1. **Maintenance and inspection is the responsibility of the customer and not of Elmac Technologies Limited.**
2. Flame arresters should be inspected on a regular basis to ensure that no build up of solids or liquids occurs in the element as this will adversely affect the performance of the unit during process flow conditions. The maintenance interval must be determined by the user and is governed by the amount and type of particulates in the system in which the unit is installed. The user should check the element in the first few months of operation to find out how quickly particulates accumulate. After cleaning, the element should be thoroughly inspected for damage and if damaged it must be replaced. Flame arresters should also be inspected if a flashback is known or suspected to have occurred.
3. Depending upon the particular installation, it may be possible to inspect the element with the flame arrester in situ. However, if this is not possible, then either the element will have to be removed from the flame arrester for inspection in the case of flame arresters with replaceable elements. Should the flame arrester have a fixed element, then the whole flame arrester will need to be removed from the pipe work for inspection. **Element assemblies can be heavy and will require adequate equipment and manpower to prevent injury when handling.**
4. Elements may be cleaned with any suitable solvent followed by a blow through with compressed air. Steam cleaning may also be effective. If the arrester element cannot be cleaned satisfactorily, it must be replaced. Elmac elements can withstand numerous flashbacks without damage but if any distortion is observed, then the element should be replaced. It is advisable to hold spares in stock in site stores. Always use Elmac replacement parts and quote the flame arrester serial number when ordering spare elements or other parts.
5. Removal and replacement of elements (and/or weather hoods when fitted) should be undertaken with care and all washers, spacers and fasteners must be replaced exactly as originally fitted to prevent leakage of gases and provide unrestricted gas flow through the unit. **To ensure a gas tight seal, element gaskets should be replaced every time the flame arrester body is loosened or dismantled for element maintenance and must be replaced exactly as originally fitted.**

Always use the new gaskets supplied with spare elements and ensure that mating faces are clean. Some Elmac elements are designed to fit several types of flange so it is important to centralise the element between the flanges before tightening up fasteners. Fasteners should be well lubricated with general purpose grease and tightened to a suitable degree until element is secure with no movement. **Excessive torquing can cause permanent damage to gaskets and housings.**

6. For installations that require frequent maintenance and minimum downtime. It is recommended that the user purchases a spare element and several spare element gaskets. This spare element can be installed immediately and the dirty element can then be cleaned and stored as a spare ready for the next maintenance interval.

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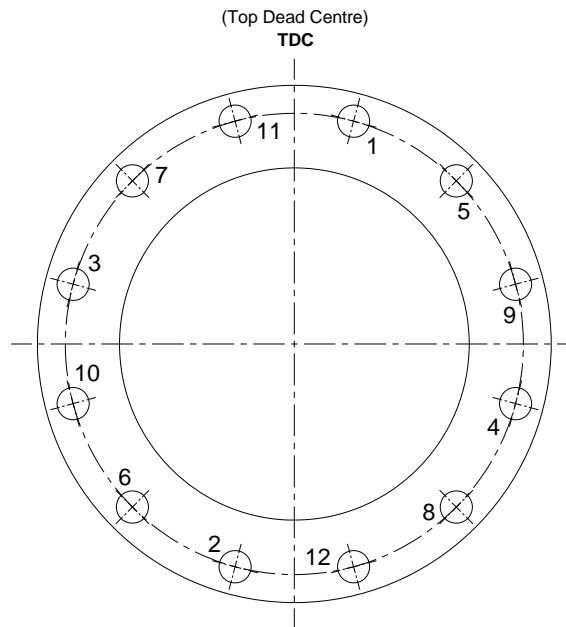
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Torque Settings & Sequence:-

Bolt Size	Socket/Spanner Size (mm)
M8	13
M10	16
M12	19
M14	21
M16	24
M18	27
M20	30
M22	33
M24	36
M27	41
M30	46




Torquing Sequence

Base torque on the above sketch. However, allow for flanges with different number of bolt holes

IN THE EVENT OF ANY QUERY PLEASE CONTACT OUR TECHNICAL SALES DEPARTMENT

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 Innovative Safety Solutions Greenfield, Holywell, Flintshire, N.Wales CH8 9DP Tel: +44 (0)1352 717600 Fax: +44 (0)1352 717642	FLAME ARRESTER	 Sira No. 0518 Velosi No. 0946	Year Made <input style="width: 50px;" type="text"/>	EN12874 Cert.No. <input style="width: 100px;" type="text"/>	Limiting Temp. <input style="width: 50px;" type="text"/>	Gas Group <input style="width: 50px;" type="text"/>	Serial No. <input style="width: 50px;" type="text"/>
	Type:- Not resistant to endurance burning		Nominal Bore <input style="width: 50px;" type="text"/>	Maximum Operating Pressure <input style="width: 50px;" type="text"/>	Maximum Run Up Distance <input style="width: 50px;" type="text"/>	Model No. <input style="width: 100px;" type="text"/>	

Figure 1 - Flame Arrester Nameplate




 Innovative Safety Solutions Greenfield, Holywell, Flintshire, N.Wales CH8 9DP Tel: +44 (0)1352 717600 Fax: +44 (0)1352 717642	FLAME ARRESTER ELEMENT	 Sira No. 0518 Velosi No. 0946	Year Made <input style="width: 50px;" type="text"/>	EN12874 Cert.No. <input style="width: 100px;" type="text"/>	Limiting Temp. <input style="width: 50px;" type="text"/>	Gas Group <input style="width: 50px;" type="text"/>	Serial No. <input style="width: 50px;" type="text"/>
	Type:- Not resistant to endurance burning		Nominal Bore <input style="width: 50px;" type="text"/>	Maximum Operating Pressure <input style="width: 50px;" type="text"/>	Maximum Run Up Distance <input style="width: 50px;" type="text"/>	Model No. <input style="width: 100px;" type="text"/>	

Figure 2 - Element Nameplate

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