

# LCA/LEA Series

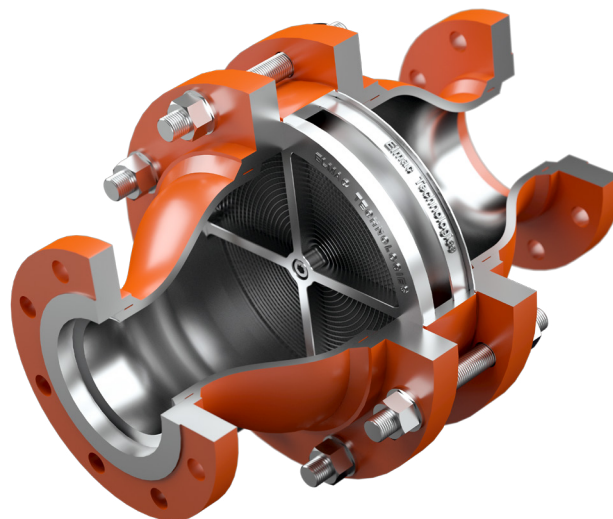
## In-line Deflagration Flame Arresters



Protecting People, Property and our Planet.

### With Replaceable Element for Explosion Gas Groups IIA & IIA1

The Elmac Technologies® LCA/LEA Series of In-line Deflagration Flame Arresters are designed to prevent the propagation of flames in piping systems. By locating the arrester in close proximity to the potential source of ignition, any flame or explosion is confined to the immediate area. LCA/LEA Flame Arrester models include high pressure, high temperature and short-time burn.



### Principle of operation

For a deflagration with no stabilised flame, the combustion products are cooled at the element surface by heat dissipation, preventing continuation of the combustion process through the arrester and into the protected vent line. In the event that a flame stabilises on the arrester element, a sudden increase in temperature can be detected by a control/monitoring system and secondary protection measures activated to stop the flow of the flammable mixture.

### Explosion Gas Groups

Elmac LCA/LEA Series In-line Deflagration Flame Arresters are ATEX approved for Explosion Gas Groups IIA and IIA1.

### Standards compliance

LCA/LEA Deflagration Flame Arresters have been type-tested to EN ISO 16852 and approved according to ATEX Directive 2014/34/EU.



### Elmac expertise

Elmac has been manufacturing protection equipment since 1948 and brings enhanced levels of flame and explosion protection to a diverse range of applications.

Elmac offers considerable technical leadership and, using test facilities along with Computational Fluid Dynamics capabilities, employs research teams renowned for developing solutions for the most challenging of industrial applications.

### Features and benefits

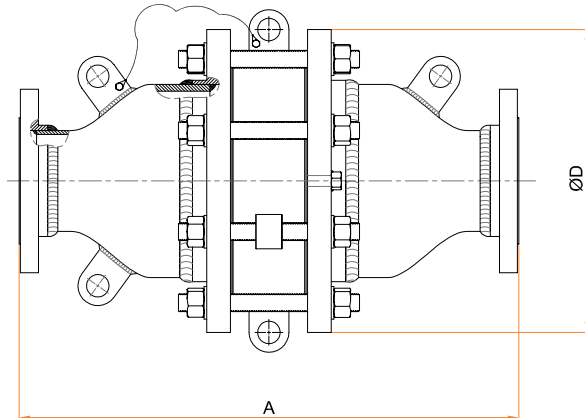
The LCA/LEA Series incorporates crimped-ribbon technology in the flame arresting element, the metal matrix of which has been optimised to ensure industry-leading flow vs pressure drop characteristics.

- Exceptional flow capacities with minimal pressure drop
- Short-time burn rated for early warning of stabilised burning events
- Bi-directional
- Extended upper operating temperature limits
- Easy-clean, replaceable, crimped-ribbon elements
- Unique element design is less susceptible to fouling/clogging
- Sizes and materials to suit a wide range of applications
- End connections include flanged or threaded options

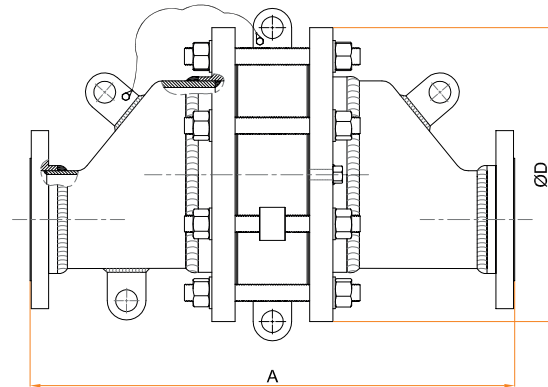
# LCA/LEA Series

## In-line Flame Arresters

### General arrangements:



Concentric Reducers



Eccentric Reducers

### Dimensions

NB (mm)	15	20	25	32	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	317	317	337	337	317	323	401	413	457	591	577	903	1221	1239
ØD ±2.0 (mm)	229	229	229	229	229	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	21	22	22	23	22	24	31	40	63	119	122	215	310	416

\*Dish-End models are available with larger elements for enhanced flow capabilities. Dimensions presented above are for 1.2 bara operating pressure models.

\*End-Cap models are available with larger elements for enhanced flow capabilities.

### Variations

Feature	Standard Fitting	Options*
Arrester Housing Materials	Carbon or Stainless Steel	Low Temperature Carbon Steel, Duplex Steel, Hastelloy
Element Material	316L Stainless Steel	Hastelloy
Connections	ANSI 150 Flange	PN16 Flange, Female BSP/NPT, Male BSP/NPT
Arrester Finish	Painted (Carbon Steel Arresters)	Offshore Paint, PTFE Coated, Others on Request

### Operating Conditions

Model	Max Operating Pressure (bara)	Max Operating Temperature (°C)	Short-Time-Burn
LCA/LEA In-line Flame Arresters	1.20	+60	Yes
	1.50	+60	Yes

### LCA/LEA Flame Arrester Flow Curves

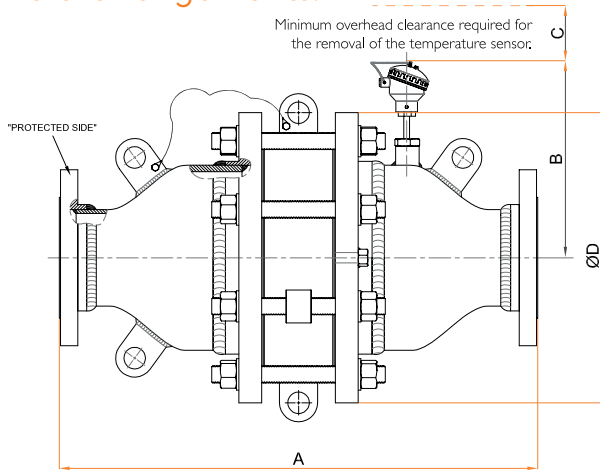
Pressure drop performance varies according to a particular arrester configuration.

Further information is available on request from the Elmac Customer Support team.

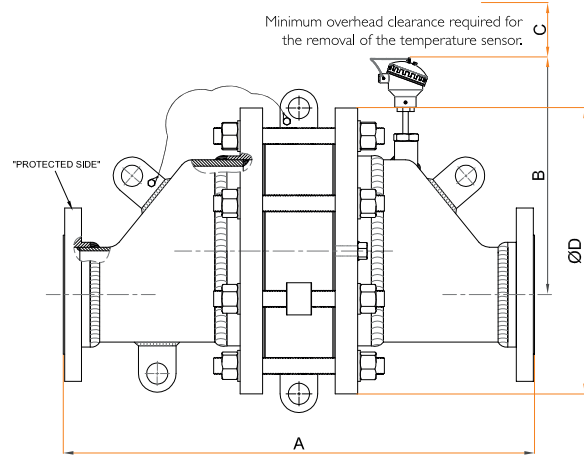
# LCA/LEA Series

## Short-time Burn In-line Flame Arresters

### General arrangements:



Concentric Reducers



Eccentric Reducers

### Dimensions

NB (mm)	15	20	25	32	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	317	317	337	337	317	323	401	413	457	591	577	903	1221	1239
B max (mm)	285	285	285	285	285	285	300	315	340	400	400	435	485	535
C min (mm)	75	75	75	75	75	75	75	75	75	135	135	135	195	195
ØD ±2.0 (mm)	229	229	229	229	229	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	22	23	23	24	23	25	32	41	64	120	123	216	311	417

\*Dish-End models are available with larger elements for enhanced flow capabilities. Dimensions presented above are for 1.2bara operating pressure models. C: Minimum overhead clearance required for the removal of the temperature sensor.

\*End-Cap models are available with larger elements for enhanced flow capabilities.

### Variations

Feature	Standard Fitting	Options*
Arrester Housing Materials	Carbon or Stainless Steel	Low Temperature Carbon Steel, Duplex Steel, Hastelloy
Element Material	316L Stainless Steel	Hastelloy
Connections	ANSI 150 Flange	PN16 Flange, Female BSP/NPT, Male BSP/NPT
Arrester Finish	Painted (Carbon Steel Arresters)	Offshore Paint, PTFE Coated, Others on Request
Sensor	Installed on 'un-protected side' of element+	Installed on 'un-protected' and 'protected' side of element#

\*May be limited according to arrester size. +Protects one side. #Protects both sides.

### Operating Conditions

Model	Max Operating Pressure (bara)	Max Operating Temperature (°C)	Short-Time-Burn
LCA/LEA Short-time Burn Flame Arresters	1.20	+60	Yes
	1.50	+60	Yes

### LCA Short-time Burn Flame Arrester Flow Curves

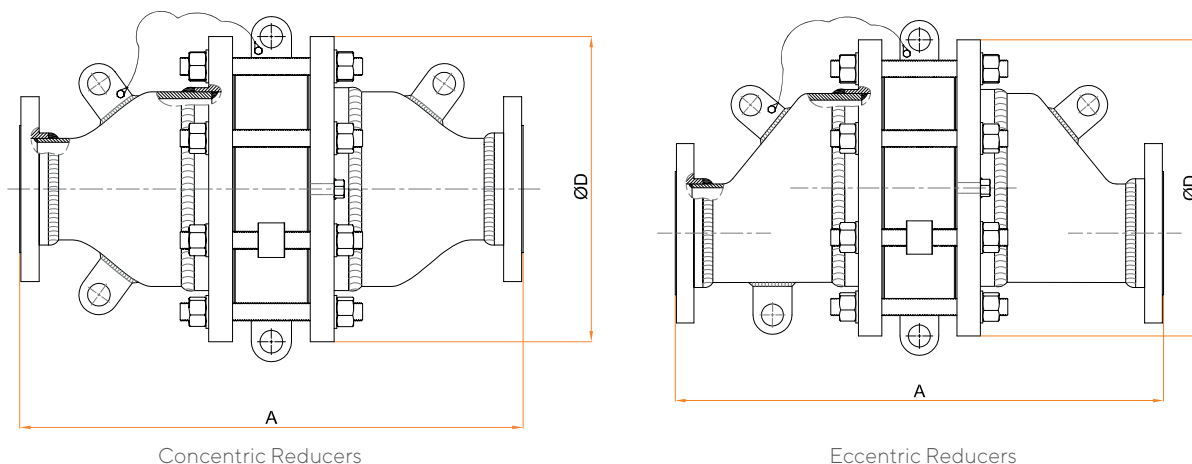
LCA/LEA Short-time Burn Flame Arresters are equipped with a sensor allowing continuous monitoring of the element's surface temperature. As such, they provide short time burn protection for up to 10 minutes, however any secondary protection measure must be implemented within 5 minutes of detection of a short-time burn event.

Pressure drop performance varies according to a particular arrester configuration. Further information is available on request from the ELMAC Customer Support team.

# LCA/LEA Series

## High Temperature In-line Flame Arresters

### General arrangements:



Concentric Reducers

Eccentric Reducers

### Dimensions (Standard Reducers)

NB (mm)	15	20	25	32	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	327	327	347	347	327	333	411	423	467	601	587	913	1231	1249
ØD ±2.0 (mm)	229	229	229	229	229	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	21	22	22	23	22	24	32	42	66	122	125	221	318	427

\*Dish-End models are available with larger elements for enhanced flow capabilities.

\*End-Cap models are available with larger elements for enhanced flow capabilities.

### Variations

Feature	Standard Fitting	Options*
Arrester Housing Materials	Carbon or Stainless Steel	Low Temperature Carbon Steel, Duplex Steel, Hastelloy
Element Material	316L Stainless Steel	Hastelloy
Connections	ANSI 150 Flange	PN16 Flange, Female BSP/NPT, Male BSP/NPT
Arrester Finish	Painted (Carbon Steel Arresters)	Offshore Paint, PTFE Coated, Others on Request

\*May be limited according to arrester size.

### Operating Conditions

Model	Max Operating Pressure (bara)	Max Operating Temperature (°C)	Short-Time-Burn
LCA/LEA High Temperature Flame Arresters	1.45	+160	Contact Elmac for details

### LCA/LEA High Temperature Flame Arrester Flow Curves

Pressure drop performance varies according to a particular arrester configuration. Further information is available on request from the Elmac Customer Support team.

### Customer Support

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