

LCB Series

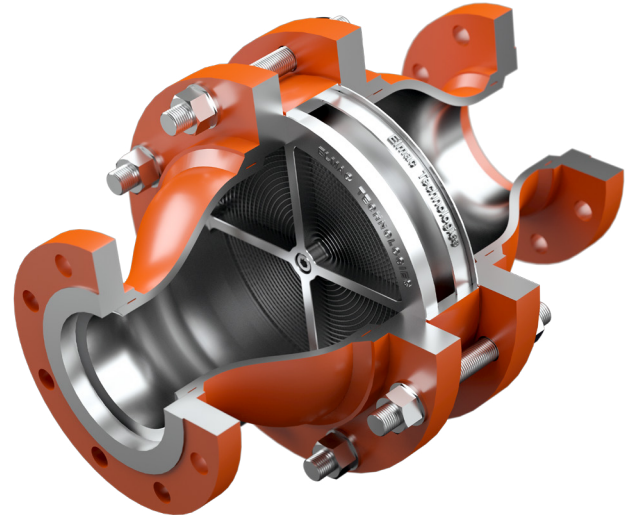
In-line Deflagration Flame Arresters



Protecting People, Property and our Planet.

With Replaceable Element for Explosion Groups IIA1, IIA, IIB1, IIB2 & IIB3

The Elmac Technologies® LCB 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. LCB 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 piping system. 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 Groups

Elmac LCB Series Flame Arresters are ATEX certified for Explosion Groups IIA1, IIA, IIB1, IIB2 & IIB3.

Standards Compliance

Elmac Technologies® Flame Arresters have been type-tested to EN ISO 16852 and approved according to ATEX Directive 2014/34/EU.



Elmac Expertise

Elmac Technologies® 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 (CFD) capabilities, employs research teams renowned for developing solutions for the most challenging of industrial applications.

Features and Benefits

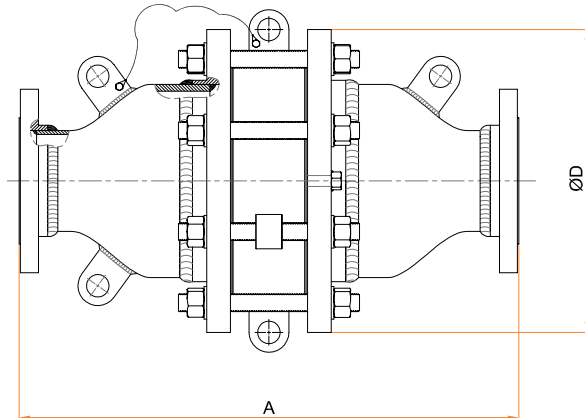
The LCB Series incorporates crimped-ribbon technology in the flame arresting element, the metal matrix of which has been optimised to ensure industry-leading flow vs pressure drop characteristics.

- 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

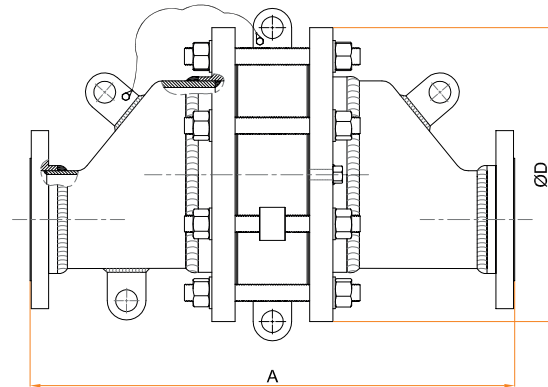
LCB Series

In-line Flame Arresters

General Arrangements:



Concentric Reducers



Eccentric Reducers

Dimensions

| DN (mm) | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| A (mm) | 317 | 317 | 337 | 337 | 317 | 323 | 401 | 413 | 457 | 591 | 577 | 903 | 1221 | 1239 |
| ØD (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 |

*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 | 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 bar(a) | Max Operating Temperature (°C) | Short-Time-Burn |
|-------|-------------------------------|--------------------------------|-----------------|
| LCB | 1.10 | +60 | Yes |
| | 1.50 | +60 | Yes |

LCB Flame Arrester Flow Curves

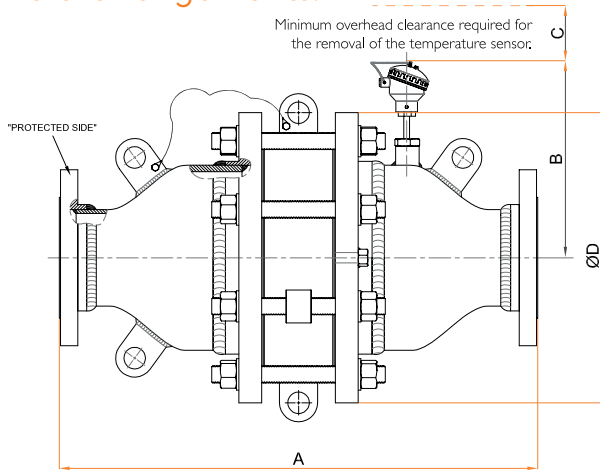
Pressure drop performance varies according to a particular arrester configuration.

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

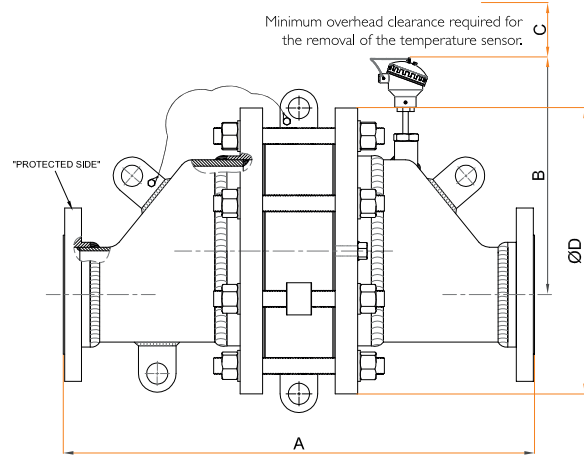
LCB/LEB Series

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 (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 (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 | 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# |

*Depending on arrester size

Operating Conditions

| Model | Max Operating Pressure (bara) | Max Operating Temperature (°C) | Short-Time-Burn |
|---------|-------------------------------|--------------------------------|-----------------|
| LCB/LEB | 1.10 | +60 | Yes |
| | 1.50 | +60 | Yes |

LCB Short-time Burn Flame Arrester Flow Curves

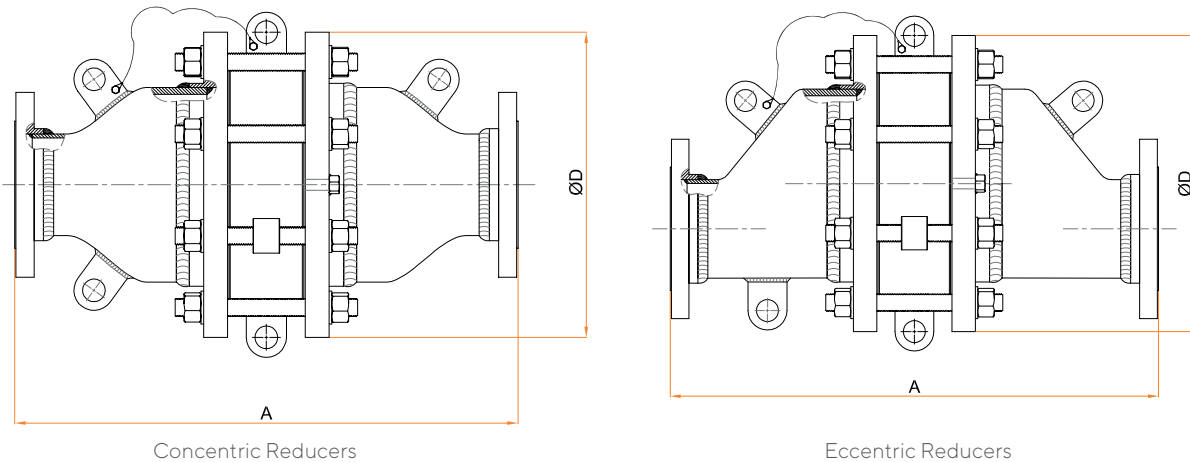
LCB/LEB Short-time Burn Flame Arresters are equipped with a sensor allowing continuous monitoring of the element's surface temperature. As such, they provide short time burn protection for up to 10 minutes, however any secondary protection measure must be implemented within 5 minutes of detection of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

LCB/LEB Series

High Temperature In-line Flame Arresters

General Arrangements:



Concentric Reducers

Eccentric Reducers

Dimensions (Standard Reducers)

| DN (mm) | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| A(mm) | 327 | 327 | 347 | 347 | 327 | 333 | 411 | 423 | 467 | 601 | 587 | 913 | 1231 | 1249 |
| ØD(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 | 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 |

*Depending on arrester size.

Operating Conditions

| Model | Max Operating Pressure (bara) | Max Operating Temperature (°C) | Short-Time-Burn |
|---------|-------------------------------|--------------------------------|---------------------------|
| LCB/LEB | 1.45 | +160 | Contact Elmac for details |

LCB/LEB 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

Tel: +44 (0) 1352 717 555

Email: sales@elmactech.com

Fax: +44 (0) 1352 717 642

Coast Road, Greenfield, Flintshire, CH8 9DP United Kingdom

All specifications are correct at time of print, are for guidance purposes only and subject to change without prior notice.



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