

LEB Series

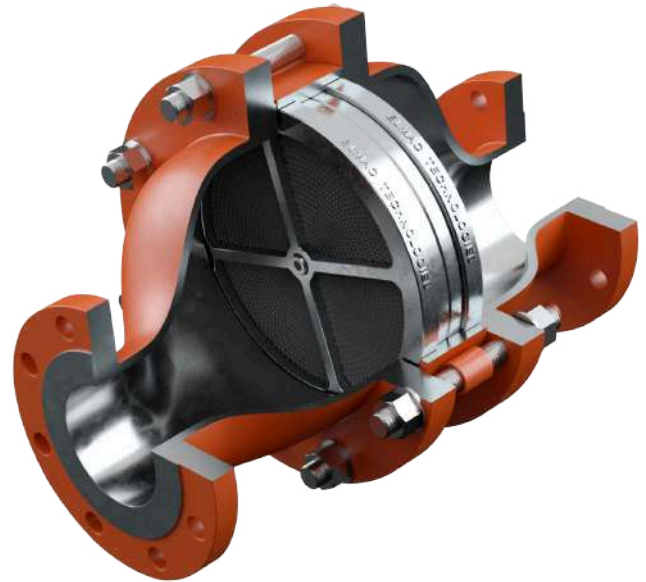
In-line Deflagration Flame Arresters



Protecting People, Property and our Planet.

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

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



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 flame arrester and into the protected piping system. In the event that a flame stabilises on the flame 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 LEB 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 certified 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 LEB Series Flame Arresters incorporate crimped-ribbon technology in the flame arrester element, the metal matrix of which has been optimised to ensure industry-leading flow vs pressure drop characteristics.

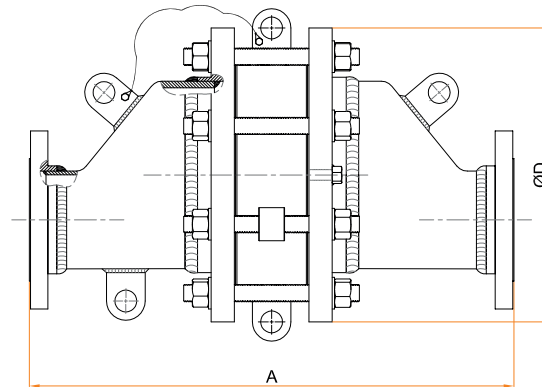
- Exceptional flow capacities with minimal pressure drop
- Short-time burn rated for early warning of stabilised burning events

- Bi-directional, eccentric design
- Extended upper operating pressure and 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

LEB Series

In-line Flame Arresters

General Arrangement:



Eccentric Design

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 flame arrester elements for enhanced flow capabilities.

Variations

| Feature | Standard Fitting | Options* |
|----------------------------------|----------------------------------|---|
| Flame 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 |
| Flame Arrester Finish | Painted (Carbon Steel Arresters) | Offshore Paint, PTFE Coated, Others on Request |

*Depending on flame arrester size.

Operating Conditions

| Model | Max Operating Pressure bar(a) | Max Operating Temperature (°C) | Short-Time-Burn |
|------------|-------------------------------|--------------------------------|-----------------|
| LEB Series | 1.10 | +60 | Yes |
| | 1.50 | +60 | Yes |

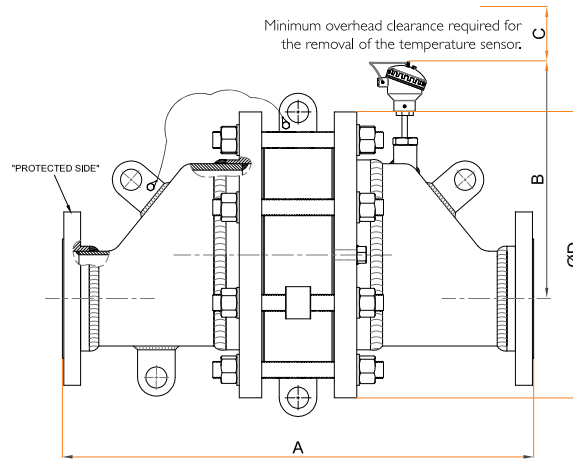
LEB Flame Arrester Flow Curves

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

LEB Series

Short-time Burn In-line Flame Arresters

General Arrangement:



Eccentric Design

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 |
| 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 |

*Dimensions presented above are for 1.10bara 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 both sides of the flame arrester element |

*Depending on flame arrester size

Operating Conditions

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

LEB Short-time Burn Flame Arrester Flow Curves

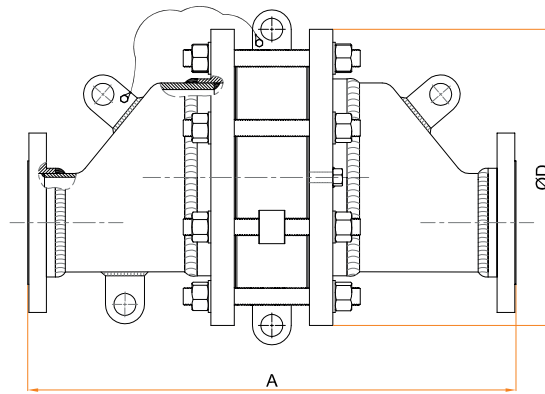
LEB Short-time Burn Flame Arresters are equipped with a temperature sensor allowing continuous monitoring of the element's surface temperature.

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

LEB Series

High Temperature In-line Flame Arresters

General Arrangement:



Eccentric Design

Dimensions

| 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 |

*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 |
|------------|-------------------------------|--------------------------------|---------------------------|
| LEB Series | 1.45 | +160 | Contact Elmac for details |

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

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



Protecting People, Property and our Planet.