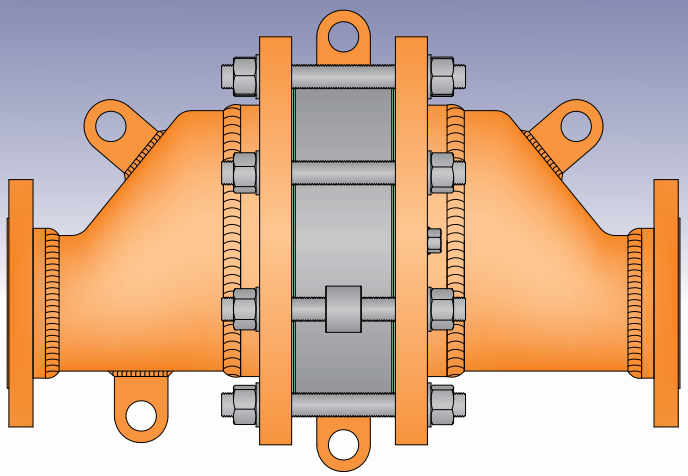
TECHNICAL DATA
Flame Arresters

LEA Series - Fabricated



In-Line Deflagration Arrester for Explosion Groups IIA1 and IIA

Application:

The **Elmac Technologies®** LEA series of in-line deflagration 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. LEA flame arresters have multiple operating capabilites including 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 will be detected by a control/monitoring system and secondary protection measures activated to stop the flow of the flammable mixture.

Benefits

The LEA series incorporates crimped ribbon technology in the flame arresting element, the metal matrix of which has been optimised to ensure industry-leading flow and pressure drop characteristics. Model variants include:

- 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
- Eccentric reducers prevent condensate build-up
- Eccentric configurations easier to install near flat surfaces

Explosion Groups

Elmac LEA series in-line arresters are ATEX approved for Explosion Groups IIA1 and IIA

Standards Compliance

LEA flame arresters have been type-tested to EN ISO 16852 and approved according to ATEX Directive 94/9/EC. Actual device performance is verified in the Elmac Technologies "state of the art" in-house test facility.

EMS535425 FM535423

Elmac Expertise

Elmac have been manufacturing protection equipment since 1948, and bring enhanced levels of flame and explosion protection to a diverse range of applications. Elmac Technologies offers considerable technical leadership and using test facilities along with CFD capabilities, employs research teams renowned for developing solutions for the most challenging of industrial applications.

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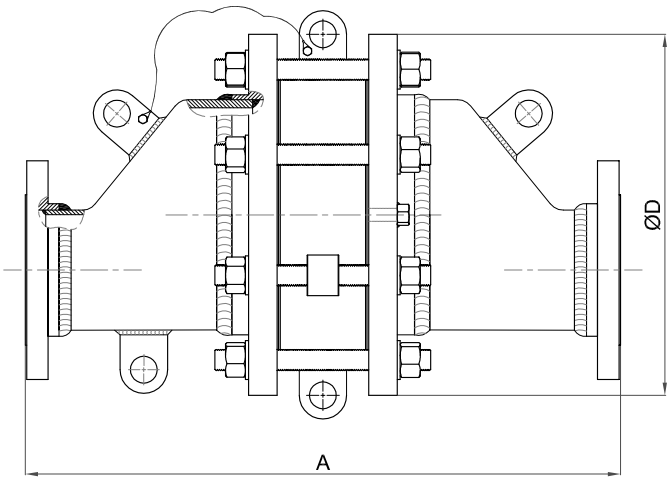
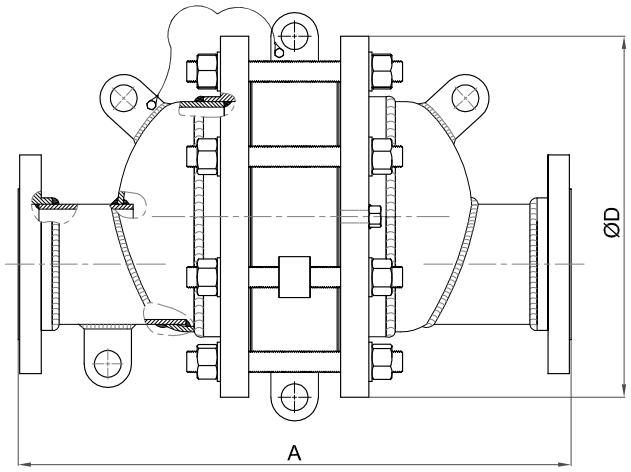
LEA Series
Eccentric In-Line Flame Arresters

General Arrangement:



Standard Reducers



Dish-End Reducers

Dimensions (Standard Reducers)

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

Dimensions (Dish-End Reducers)*

NB (mm)	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	-	337	381	407	461	597	597	691	805	919
ØD ±2.0 (mm)	-	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	-	25	32	42	64	123	128	204	300	415

* Dish-End models are available with larger elements for enhanced flow capabilities. Please contact Customer Support for details.
Dimensions presented above are for 1.2bara operating pressure models.

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

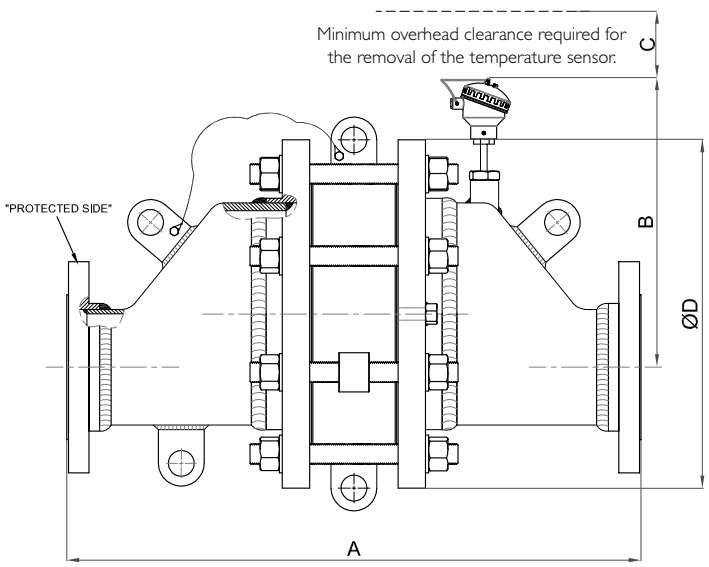
Model	Max Operating Pressure (bara)	Operating Temperature Range (°C)	Short-Time-Burn
LEA Eccentric In-Line Flame Arresters	1.20	-20 to +60	No
	1.50	-20 to +60	No

LEA Flame Arrester Flow Curves

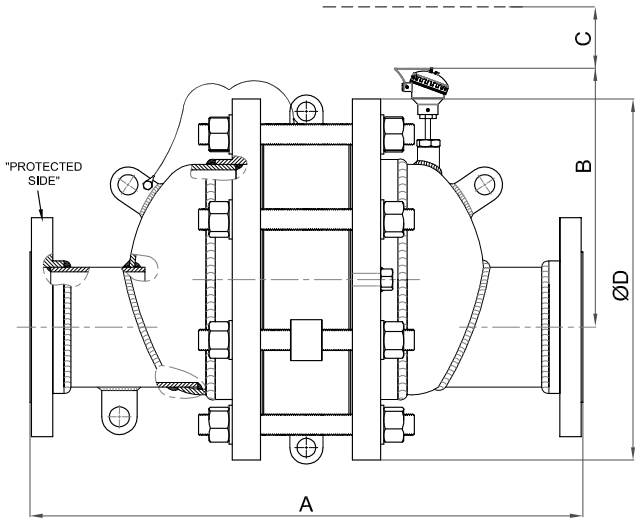
Pressure drop performance varies according to a particular arrester configuration.
Further information is available on request from the Elmac Customer Support Team.

LEA Series
Short-Time Burn In-Line Flame Arresters

General Arrangement:



Standard Reducers



Dish-End Reducers

Dimensions (Standard Reducers)

NB (mm)	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	317	323	401	413	457	591	577	903	1221	1239
B max (mm)	320	315	325	355	390	470	470	525	600	680
C min (mm)	75	75	75	75	75	135	135	135	195	195
ØD ±2.0 (mm)	229	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	23	25	32	41	64	120	123	216	311	417

Dimensions (Dish-End Reducers)*

NB (mm)	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	-	337	381	407	461	597	597	691	805	919
B max (mm)	-	310	325	345	380	470	460	510	585	665
C min (mm)	-	75	75	75	135	135	135	135	195	195
ØD ±2.0 (mm)	-	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	-	26	33	43	65	124	129	205	301	416

* Dish-End models are available with larger elements for enhanced flow capabilities. Please contact Customer Support for details.
Dimensions presented above are for 1.2bara operating pressure models.

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)	Operating Temperature Range (°C)	Short-Time-Burn
LEA Short-Time-Burn Flame Arresters	1.20	-20 to +60	Yes
	1.50	-20 to +60	Yes

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.

LEA Short-Time-Burn 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.

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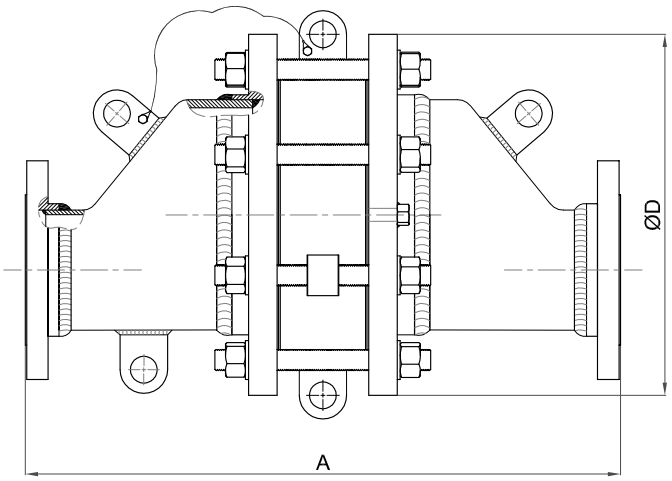
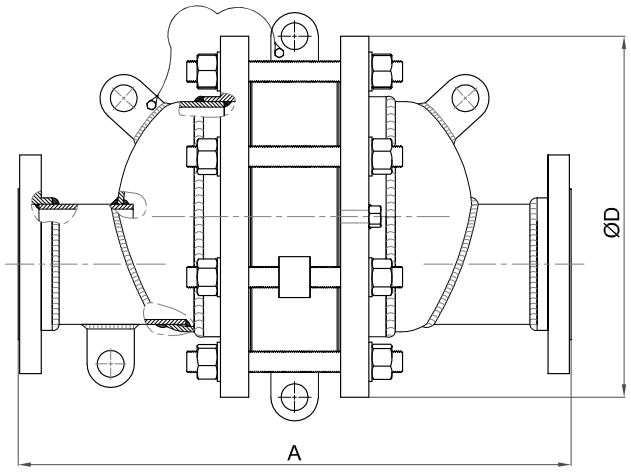
LEA Series
High Temperature In-Line Flame Arresters

General Arrangement:



Standard Reducers



Dish-End Reducers

Dimensions (Standard Reducers)

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

Dimensions (Dish-End Reducers)*

NB (mm)	40	50	65	80	100	125	150	200	250	300
A ±6.0 (mm)	-	347	391	417	471	607	607	701	815	929
ØD ±2.0 (mm)	-	229	254	279	343	483	483	597	698	813
Approx Wt (kg)	-	25	33	43	67	127	131	210	308	426

* Dish-End models are available with larger elements for enhanced flow capabilities. Please contact Customer Support for details.

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)	Operating Temperature Range (°C)	Short-Time-Burn
LEA High Temperature Flame Arresters	1.45	-20 to +160	No

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.

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