

UCA Series



In-line Unstable Detonation Flame Arresters

Protecting People, Property and our Planet.

With Concentric Body & Replaceable Element for Explosion Gas Groups IIA & IIA1

The Elmac Technologies® UCA Series In-line Unstable Detonation Flame Arresters are designed to prevent the propagation of gas or vapour explosions in pipelines under the most severe conditions of an unstable detonation. This type of arrester is specified for use in pipeline systems where the distance between the ignition source and arrester is significant and/or where detonations are also possible due to pipe roughness, bends, section changes and restrictions in the pipe.



Principle of Operation

The combination of our unique patent pending High Energy Dissipation System (HEDS™) design and E-Flow™ technology elements attenuate the shock wave and extinguish the flame mitigating the effects of an explosion by preventing its propagation. The UCA Series In-line Unstable Detonation Flame Arrester uses an optimised crimped ribbon element which allows gas or vapour to pass with minimal pressure loss. Designed to withstand the extreme pressures that travel at supersonic velocities in a detonation event; the UCA Series has been developed in line with Elmac's long-term strategy on the provision of protection for both plant and personnel whilst maintaining market leading flow vs pressure drop performance.

Explosion Gas Groups

Elmac UCA Series In-line Unstable Detonation Flame Arresters are ATEX approved for gases in Explosion Gas Group IIA and IIA1.

Standards Compliance

Elmac's UCA Series In-line Unstable Detonation 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, utilising a range of testing facilities along with Computational Fluid Dynamics studies, employs research teams renowned for developing solutions for the most challenging of industrial applications.

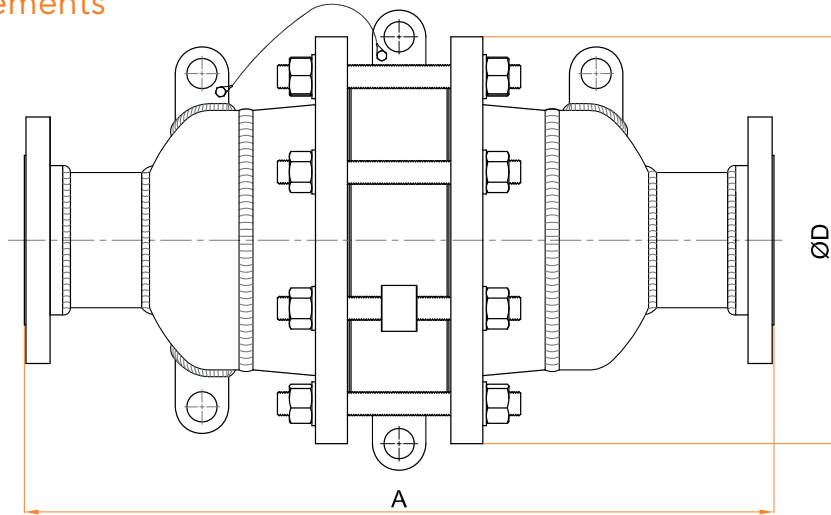
Features and Benefits

- Suitable for unstable detonation, stable detonation and deflagration
- Exceptional flow capacities with minimal pressure drop
- Short-time burn capability
- Bi-directional protection
- High performance facilitates lower on-going operating costs
- No placement restrictions or need for additional protection
- Lightweight for ease of installation and maintenance
- Easy-clean, replaceable, crimped-ribbon elements
- Sizes and materials to suit wide range of applications
- End connections include flanged or threaded options

UCA Series

Concentric Unstable Detonation Flame Arresters

General Arrangements



Dimensions

NB (mm)	≤50	65	80	100	150	200	250	300	350	400
A (mm) ±6	451	575	581	639	641	749	906	1045	1320	1385
ØD (mm) ±2	229	254	279	343	483	597	698	813	928	1062
Approx Wt (kg) (mm)	29	43	56	86	152	273	433	656	977	1366

Variations

Feature	Standard Fitting	Options*
Arrester Housing Materials	Carbon Steel 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
Sockets	None	Drain Plugs, Sensor Ports, Others on Request

*May be limited according to arrester size

Operating Conditions

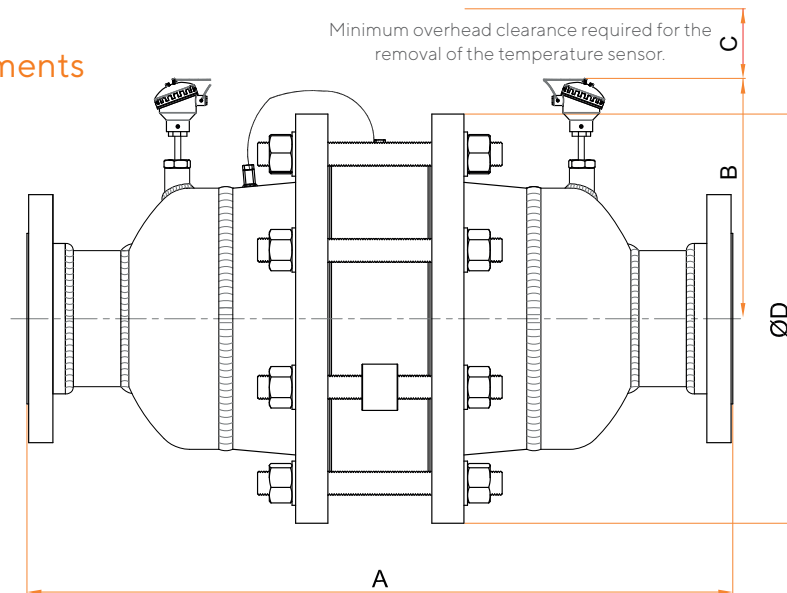
Model	Nominal Bore (mm)	Max Operating Pressure Range bar(a)	Operating Temperature Range (°C)
UCA In-line Concentric Unstable Detonation Flame Arresters	15-100	1.20-1.50	-20 to +150
	150-400	1.10-1.20	-20 to +150

Higher temperature and higher pressure options are available. Please contact the Elmac Customer Support team for more information.

UCA Series

Short-time Burn Unstable Detonation Flame Arresters

General Arrangements



Dimensions

NB (mm)	≤50	65	80	100	150	200	250	300	350	400
A ±6.0 (mm)	451	575	581	639	641	749	906	1045	1320	1385
B max (mm)	285	215	225	240	280	435	485	535		
C min (mm)	75	60	60	60	100	135	195	195	195	195
ØD ±2.0 (mm)	229	254	279	343	483	597	698	813	928	1062
Approx Wt (kg)	30	44	57	87	153	274	434	657	977	1366

Variations

Feature	Standard Fitting	Options*
Arrester Housing Materials	Carbon Steel 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 single side of element	Installed on both sides of the element

*May be limited according to arrester size

Operating Conditions

Model	Size Range NB (mm)	Operating Pressure Range bar (a)	Operating Temperature Range (°C)	Short-time Burn Rating (secs)
UCA Short-time Burn Flame Arresters	15 -100	1.20 -1.50	-20 to 60	60
	150 - 400	1.10 -1.20	-20 to 60	60

UCA Series Short-time Burn Detonation Flame Arresters are supplied complete with a temperature sensor(s) allowing continuous monitoring of the process flow through the element. In the event of a short-time burn situation, emergency counter measures must be activated within a burning time of 50% of the short-time burn rating.

Lightweight element design

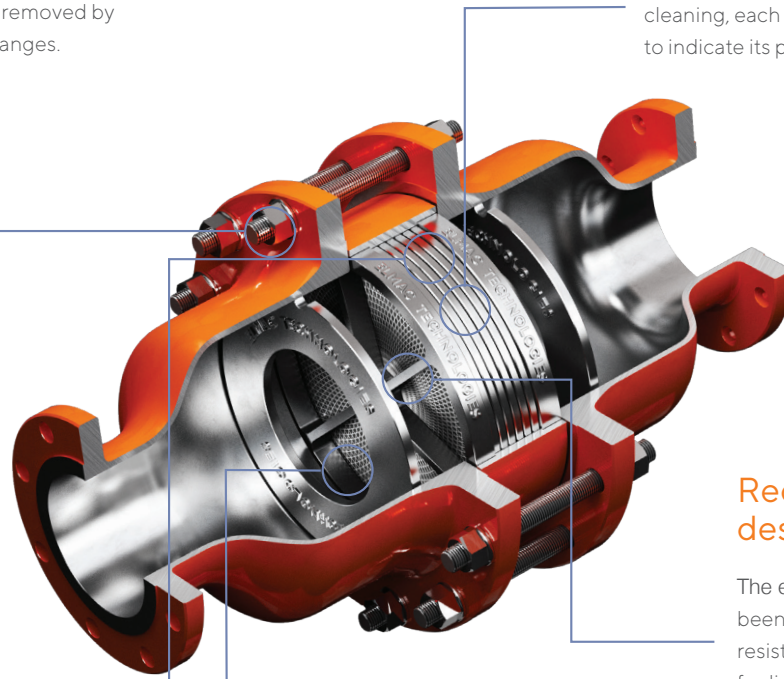
The element housing can be easily removed by undoing the nuts on the element flanges.

Labelled element banks*

To ensure correct realignment after cleaning, each element is clearly labelled to indicate its position in the housing.

Separate elements for complete access

Once the element housing is free, the central bolt (not pictured) can be undone to allow cleaning of individual element banks.



Reduced fouling design

The element banks have been optimised to minimise resistance to flow and to reduce fouling/clogging.

High Energy Dissipation System (HEDS™)

The patent pending HEDS™ design works as both a shock-attenuation system and an energy baffle, extending the time over which the device can suppress an explosion and improving the efficiency of the arrester. The design also helps protect the element from debris, thus extending any required maintenance period.

* It is important that manufacturer's installation, operation and maintenance instructions (IOMs) are followed carefully when removing, cleaning and replacing element banks.

Safer

Reduces risk by protecting against worst case explosion scenarios. Provides protection against unstable detonation, stable detonation and deflagration. Also available with the added protection of short-time burn against stabilised burning events.

Unique

World's best flow and pressure drop performance; superior to stable detonation arresters. Best-in-class shock attenuation and heat dissipation characteristics.

Low Cost

Ultimate performance attributes facilitate lower lifetime costs with the reduced energy demand yielding significant and on-going operational cost savings.

Versatile

Optimised design means no placement restrictions or need for additional protection. Simplified maintenance via modular and removable, easy-clean elements.

Certified

Designed and manufactured according to EN ISO 16852. ATEX approved.

Customer Support

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