

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 of In-line Unstable Detonation Flame Arresters is designed to prevent the propagation of gas or vapour explosions in pipelines under the most severe conditions of unstable detonation, stable detonation and deflagration. This type of flame arrester is specified for use in pipeline systems where the distance between the source of ignition and the flame arrester is significant and/or where detonations are possible.

Principles of Operation

The combination of our unique patented High Energy Dissipation System (HEDS™) and E-Flow™ technology attenuates the shock wave and extinguishes the flame, thus mitigating the effects of an explosion by preventing its propagation. The UCA Series of In-line Unstable Detonation Flame Arresters 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 Groups

Elmac's UCA Series of In-line Unstable Detonation Flame Arresters is ATEX approved for gases in Explosion Groups IIA and IIA1.



Standards Compliance

Elmac's UCA Series of In-line Unstable Detonation Flame Arresters has 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 state-of-the-art in-house testing facilities along with Computational Fluid Dynamics software, employs a Research & Development team renowned for developing solutions for the most challenging of industrial applications.

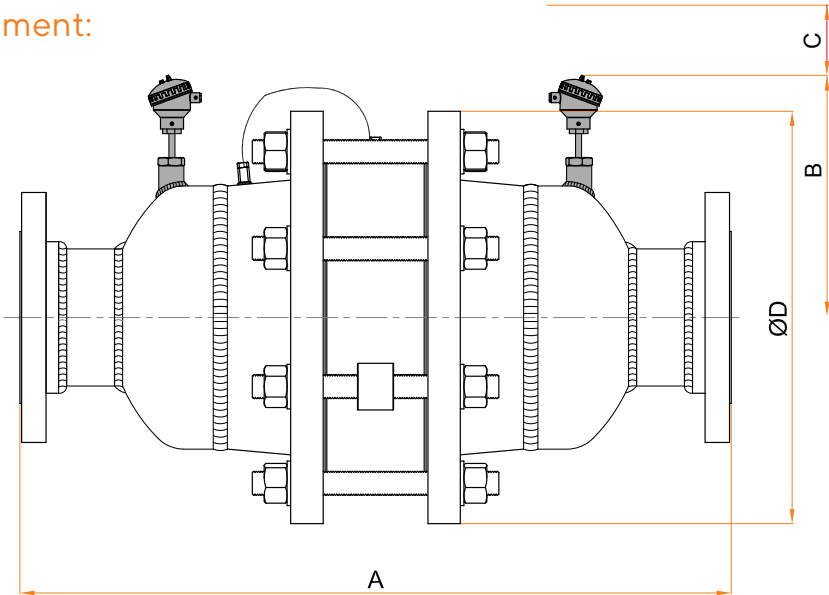
Features and Benefits

- 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 ongoing 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

Unstable Detonation Flame Arresters (with short-time burn option)

General Arrangement:



Sizes

Dimensions (mm)	Max Operating Pressure (bara)	Max Operating Temperature (°C)	Connection Size DN (mm)												
			25/40/50	65	80	100	150	200	250	300	350	400	450	500	600
A: Overall length	1.10	-20 to 60	-	-	-	-	641	749	-	-	1310	1375	1476	1786	1786
	1.10	-20 to 150	-	-	-	-	-	-	-	-	1320	1385	-	-	-
	1.20	-20 to 60	451	575	581	639	-	-	901	1035	-	-	-	-	-
	1.40	-20 to 150	471	585	591	649	-	-	-	-	-	-	-	-	-
	1.30	-20 to 150	-	-	-	-	661	-	-	-	-	-	-	-	-
	1.50	-20 to 60	-	585	591	649	-	-	-	-	-	-	-	-	-
	1.60	-20 to 60	471	-	-	-	-	-	-	-	-	-	-	-	-
D: Ø Diameter	N/A	N/A	229	254	279	343	483	597	698	813	927	1060	1168	1511	1511
B: Centre to top of temperature probe (short-time burn models)	N/A	N/A	285	300	315	340	280	435	485	535	585	635	687	840	840
C: Minimum clearance required	N/A	N/A	75	75	75	75	100	135	195	195	195	195	215	375	375
Approx Wt (kg)	N/A	N/A	28	43	54	82	152	273	420	629	977	1366	1655	3205	3253

NB: Alternative flange configuration options available on request. Weights are given for standard units (short time burn, high temperature and high pressure variants may be different).

Variations

Feature	Standard Fitting	Options (depending on Flame Arrester size)
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

Lightweight element design

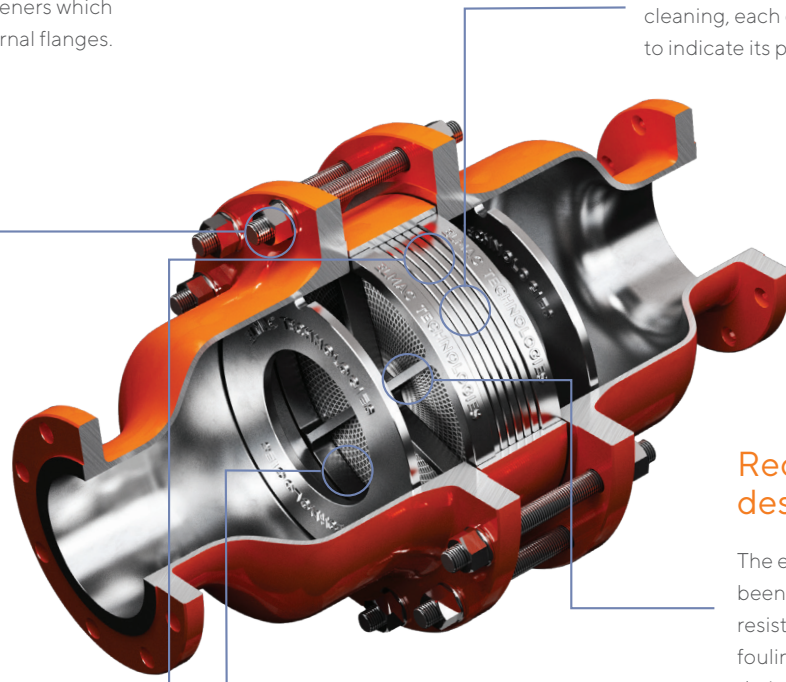
The element housing can be easily disassembled by removing the fasteners which hold the element between the internal flanges.

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 removed to allow cleaning of individual element banks.



Reduced fouling design

The element banks have been optimised to minimise resistance to flow, reduce fouling/clogging and allow drainage of condensate.

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

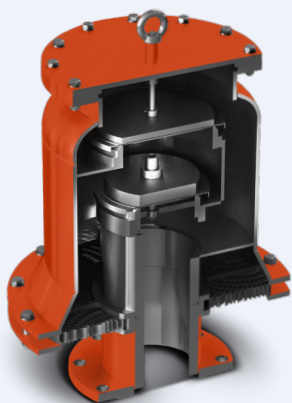
Optimised design means no placement restrictions or need for additional protection. Simplified maintenance via modular and removable, easy-clean elements.

Certified

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

Also Available

Wide range of pressure protection equipment



FAB Valves™

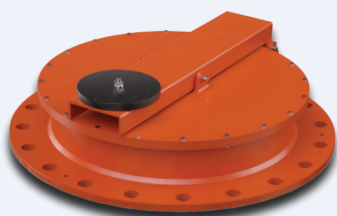
The patented Flame Arrester Breather (FAB Valve™) Series integrates a RE-Flow™ Flame Arrester with a Pressure & Vacuum Relief Valve.

Designed to protect tanks and process equipment from excessive pressure/vacuum and also from atmospheric deflagrations, the FAB Valve™ series conserves product and reduces pollution from evaporation losses. They are generally required by EPA and API regulations in venting applications.



Pressure Vacuum Relief Valves

Elmac's PVR Valves are lightweight and easy to handle and install. With optimised design, high performance and flow capacity, they feature superior air-cushioned sealing and low leakage that meets the requirements of API Std 2000 and EN ISO 23800. A quality, cost effective solution for minimum product loss, reduced maintenance and wide range of applications.



Emergency Relief Vents

ERVs are fitted to storage tanks to allow emergency flow due to the excessive venting requirement from a fire burning around a storage tank. This eliminates a costly tank rupture, providing emergency venting from abnormal internal pressure beyond the capability of the pressure relief vent.

Customer Support

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