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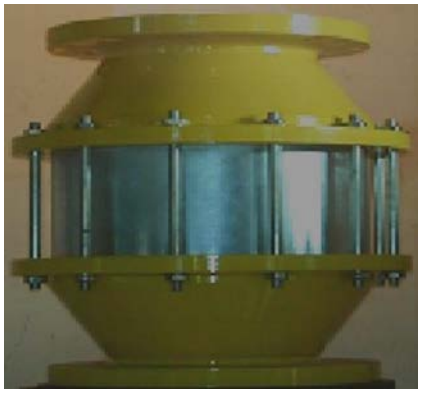
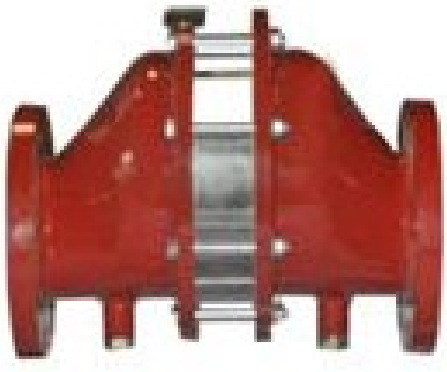
Pressure and Flow Control Industries

INLINE DEFLAGRATION FLAME ARRESTER

MODEL NO: 20502

DEFLAGRATION / ATEX CERTIFIED
TANK PRESSURE PROTECTION DEVICESS THAT PROTECTS ENVIRONMENT, EQUIPMENT AND HUMAN LIVES





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Why to use Flame Arrester

Many processes involve storage and transportation of potentially flammable or explosive gases through varying length of pipes, Where there is potential of ignition, suitable measure needs to be taken to ensure that in the event of this materials being ignited, damage to plant is minimize.

The most effective method of quenching such flame is to install Pre'con Flame Arrester either at strategic point along with pipeline, or at the end of pipe line , or on storage tank nozzles where gas/vapor are being vented to atmosphere.

Importance of Flame Arrester

Flame arrester is design to protect the tank by preventing the flame propagation and explosion in the tank. The Flame arrester element dissipates the heat of flame below the ignition point of the vapor. When the storage tank contains liquid having flash point lower than the possible tank temperature Flame arrester is required. Flame arrester , when properly design are effective, passive device against the propagation of flame front, The function of Flame Arrester is to restrict the transmission of flame front from the unprotected side to the protected side of device.

How does Flame Arrester Work

Flame arresters are passive devices with no moving parts. The prevent the propagation of Flame from the exposed side of the unit to the protected side by use of crimped wound metal ribbon type flame cell element. This construction produces a matrix of uniform opening that are carefully constructed to quench the flame by absorbing heat of the flame . This provided an extinguishing barrier to the ignited vapor mixture.

Under normal operating condition Flame arrester permits relative free flow of gas/ vapor through the system. If the mixture is ignited and the Flame begins to travel through the arrester it will prohibit the flame from moving back to the source.

Type of gas in a system determines its gas grouping and therefore predetermines the type of arrester element required. Element must be designed to accommodate specific gas group that can possible ignite and propagate in the system.

Flame Propagation

A flame is a volume of gas in which a self sustain exothermic (Heat Producing) reaction is occurred. The reaction is presumes to be oxidant which is also known as combustion.

To have a flame three things must be present 1) Oxygen (supplied by air) 2) Very high temperature (initially provided by ignition source and 3) Flammable gas mixed with air in suitable proportions called a combustible mixture. So long as this requirements remains available a flame can burn indefinitely. Flame Arrester operates by removing one of these requirements. (i.e, High Temperature)
In a stationary flammable mixture, a flame seems to move towards the unburnt gas, leaving combustion products behind this apparent motion is called Flame propagation.

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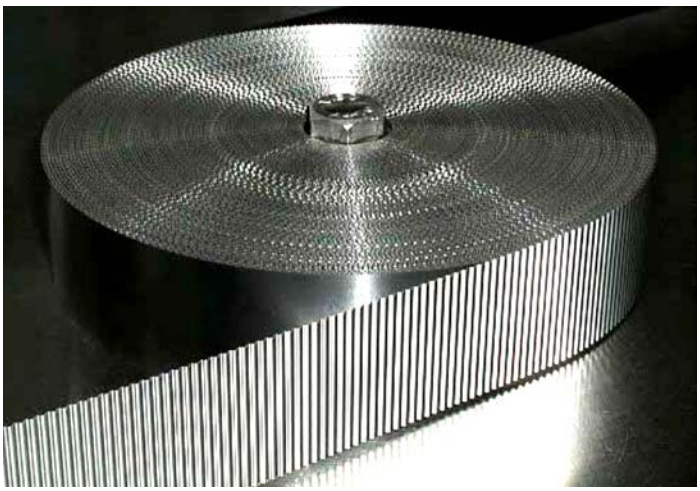
CRIMPED RIBBON CORRUGATED MATRIX (BANK)

Pre'con Flame arrester are designed to give maximum air flow consistent with operating efficiency, fire protection and low cost maintenance. Flame arrester operates on the principle; removing of heat from the flame, as it attempts to travel through narrow passages with wall of metal or other heat conductive materials For instance Pre'con Flame arresters employ layers of metal ribbons with crimped corrugations as shown below.



Designed with Features and Benefits PRECON large crimp metal opening provide:

- Maximum flow
- Less pressure Drop
- Easy Cleaning
- Less Clogging
- Less Maintenance
- Single Element Design.
- Flanged design available in ANSI, DIN and JIS flanges.

In-line Flame Arrester installations

A deflagration is an explosive combustion process in which the flames propagate at subsonic velocity. There are end-of-line and in-line deflagration flame arresters. It is imperative to adhere to the maximum distance (L) from the ignition source when installing in-line flame arresters.

As it is preferable to quench a flame at low velocities and pressures, it is usually recommended that flame arresters are located as close to the potential source of ignition as possible. Locating the flame arrester close to the potential ignition source will often enable a deflagration flame arrester to be used. The maximum distance from the potential source of ignition will always be defined for any **in-line deflagration flame arrester** and will be typically within 50 times the nominal bore of the pipe into which the arrester is installed. If compliance with this constraint is not possible, or if the pipework incorporates turbulence-inducing features, then it will be necessary to install a detonation flame arrester that will withstand the more severe conditions that might occur.

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IN-LINE VERTICAL DEFLAGRATION ARRESTERS

Flame arrester element geometry maximizes flame quenching capability while minimizing pressure drop

Proven spiral-wound, crimped ribbon, flame element provides reliable flame protection.

Modular design allows easy and cost effective flame bank maintenance.

Drains and instrument ports available upon request.

Exterior painting or coating available

DIN or ASME/ANSI drilling available.

Sizes 1/2" through 12".

Housing standard material: carbon steel (WCB/CS), stainless steel (CF8M/316), aluminum
Flame element standard material: 316 stainless steel
Other materials available upon request

Good for Explosion gas group IIA1, IIA, IIB1,IIB2 & IIB3 & IIB, IIC .

Certified to ATEX Directive 94/9/EC in compliance with EN ISO 16852:2010

Certificate No: IBExU15ATEX2158 X (IIB3) IB-15-2-123/2 (IIC) IB-17-2-0144/2 (IIA)	Size: ½” NB to 12” NB Size: 2” NB to 12” NB Size: 2” NB to 12” NB	To: 60 Deg C To: 60 Deg C To: 60 Deg C

RATIO (Lu/D)

Size NB (Ex G) IIB3	15 to 150	200	250	300
Lu/D	50	30	30	30
Size NB (Ex G) IIC	50 to 300			
Lu/D	30			
Size NB (Ex G) IIA	50 to 300			
Lu/D	50			

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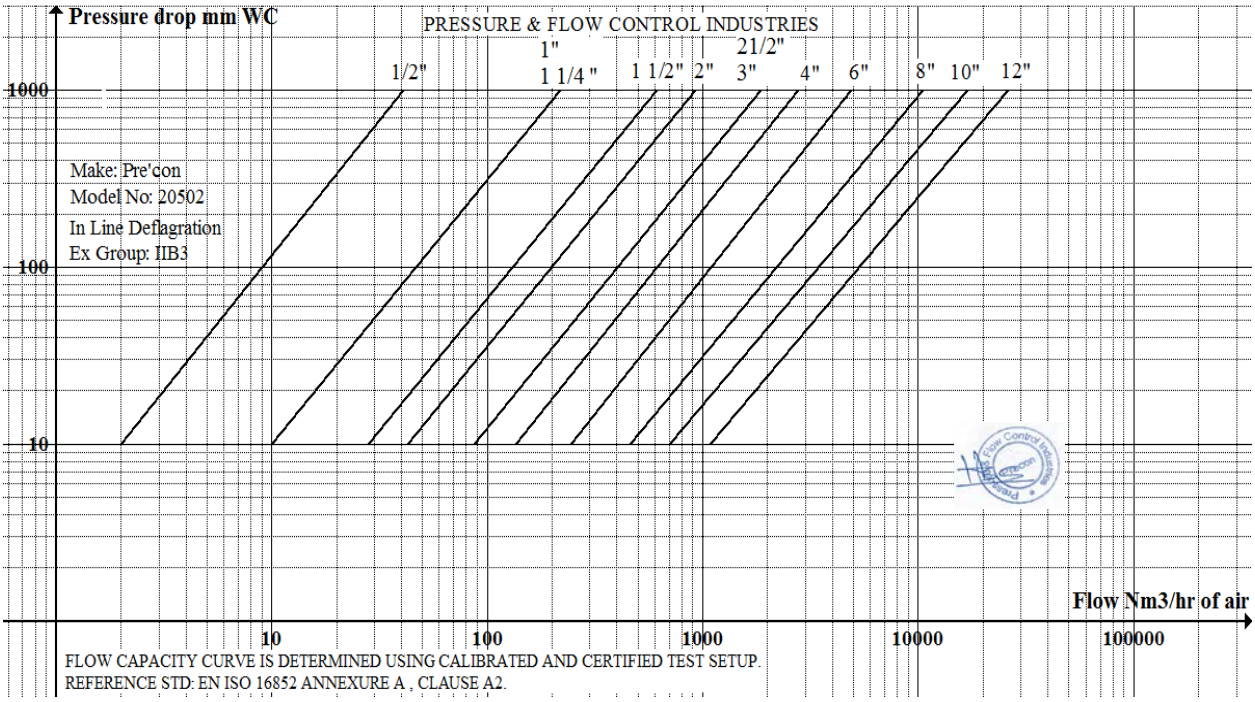
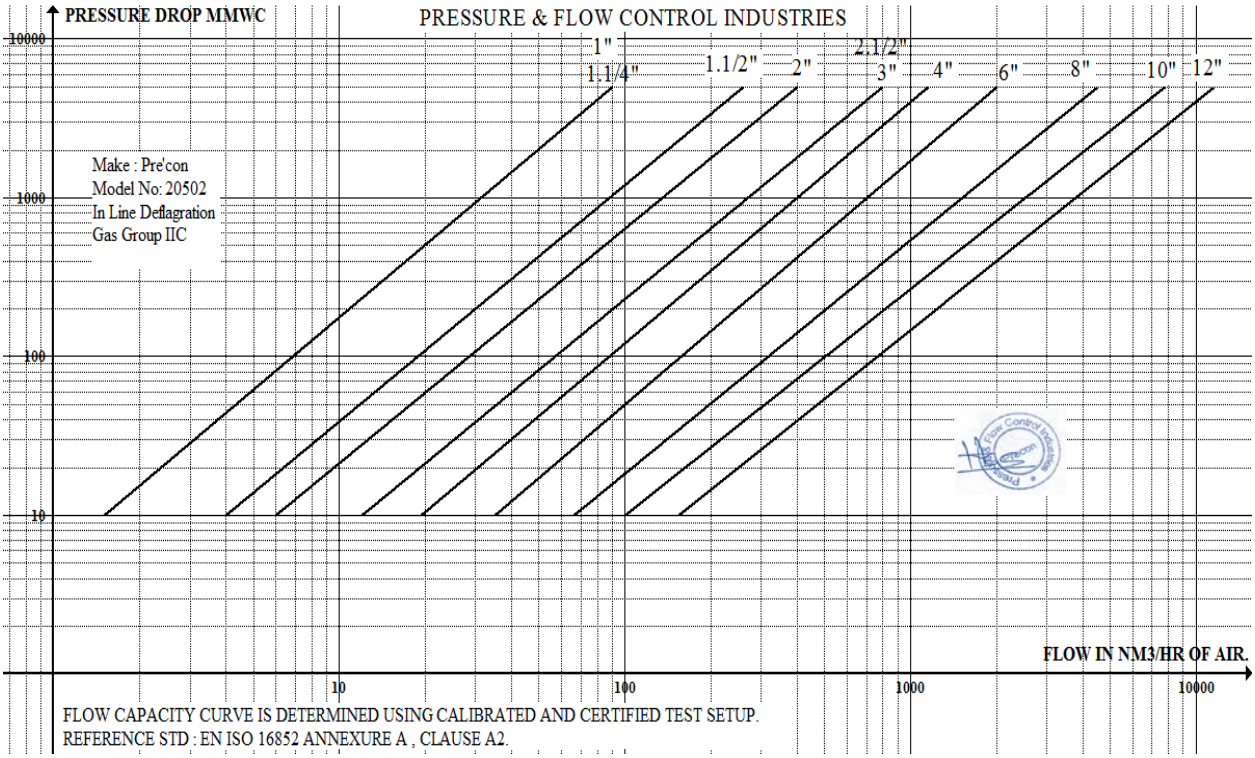
FLOW CAPACITY CURVE



FLOW CAPACITY CURVE IS DETERMINED USING CALIBRATED AND CERTIFIED TEST SETUP.
REFERENCE STD: EN ISO 16852 ANNEXURE A , CLAUSE A2.

FLOW CAPACITY CURVE



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Model D Coding & Ordering Information
Base Model No: 2050

Table 1 : TYPE

In Line Deflagration	2

Table 2 Selection of Material

Description	A	B	C
Body	Cast Steel	A 351 Gr CF8/SS304	A 351 Gr CF8M/SS316
Shell	A 106 Gr B	SS 304	SS 316
Flame Element	SS 316L	SS316L	SS316L
Gasket	NAM 39	PTFE	PTFE
Fasteners	C/S zinc plated	SS 304	SS 304

ANY SPECIAL MATERIAL AVAILABLE ON REQUEST.

Table 3 Explosion Group

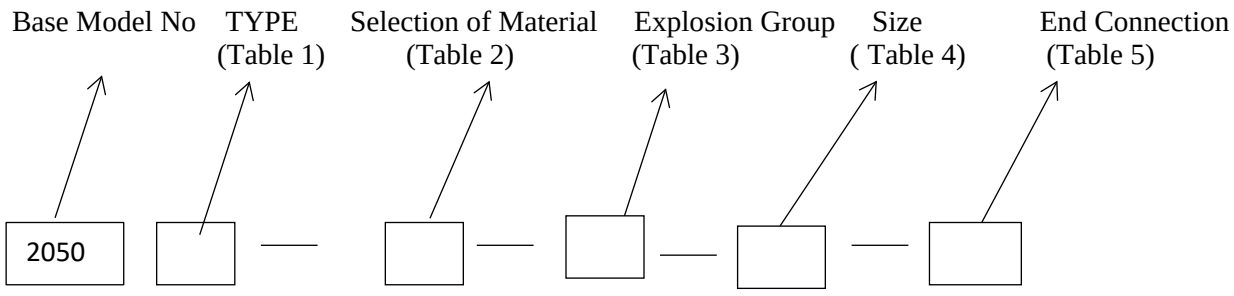
MESG	Explosion Group (IEC)
>0.9 mm	IIA
≥ 0.65 mm	IIB3
<0.5 mm	IIC

Table 4 Size

15 mm	20 mm	25 mm	40 mm	50 mm	65 mm	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm

Table 5 End connection

BS 10 Table D,E,F	BS
DIN PN 6, PN 10, PN 16	DIN
ANSI 150 FF/RF, 300 RF	ANSI



ORDERING INFORMATION