

# SERIES 35000 / 36000RP

## Bi-Directional Overdriven / Unstable Detonation Flame Arresters

- Improved flow and reduced pressure drop
- Designed to meet U.S. Coast Guard (USCG) requirements
- Sizes 2" (DN 50) through 24" (DN 600)
- Series 35000 for NEC Group D, IEC Group IIA Vapors
- Series 36000 for NEC Group D & C, IEC Groups IIA & IIB3 Vapors
- 150# ANSI standard, DIN PN16 optional
- Suitable for higher initial operating pressures making them applicable to a broader range of applications
- Reflective pressure protection feature available
- Tested by completely independent laboratories
- Available in Carbon Steel, Stainless Steel & Alloy C276



**SERIES  
35000  
36000RP**

### OBJECTIVE

Protectoseal's Series 35000 and 36000RP Detonation Flame Arresters are designed to withstand deflagrations, stable detonations and overdriven/unstable detonations. These arresters are bi-directional, capable of stopping a flame or detonation approaching from either direction in a piping system.

**Series 35000** - Suitable for use with Group D vapors, generally equivalent to International Electrotechnical Commission (IEC) Group IIA.

**Series 36000RP** - Suitable for use with Groups D & C vapors, generally equivalent to International Electrotechnical Commission (IEC) Group IIA and IIB3.

### STABLE VS. UNSTABLE DETONATION ARRESTERS

"Unstable" detonation arresters are required for safety in piping containing flammable vapors, such as encountered in vapor recovery or manifolded tank systems.

A confined flame front will accelerate from the point of ignition, rapidly reaching and exceeding the speed of sound in a pipe run. During the unavoidable transition period, from subsonic to sonic speeds, flame front pressures and velocities are far greater than before or after the transition.

"Stable" detonation arresters have not been tested and approved to withstand the pressures of the unstable transition period. They rely upon the premise that it is *unlikely* that the *unavoidable* transition will occur just as the flame front reaches the detonation arrester. By definition, a stable detonation arrester would not meet safety standards set by the U.S. Coast Guard (USCG), Underwriters Laboratories (UL), or the National Fire Protection Association (NFPA).

### SPECIAL FEATURES

The Series 35000 / 36000RP Detonation Flame Arrester designs utilize improved-flow, crimped metal flame arrester elements. High strength, welded steel housing, hydrostatically tested at 475 PSIG. All welding is performed in accordance with ASME Boiler and Pressure Vessel Code Section IX. Patented reflective pressure protection feature on Series 36000RP enhances their flame stopping capability.

Consult factory for availability of reflective pressure protection feature on Series 35000 for NEC Group D (IEC Group IIA) vapors.

**Configuration.** Concentric housing.

**Sizes Available.** 2" (DN 50) through 24" (DN 600) sizes. Flanged to mate with standard flanged 150# ANSI or DIN PN16 bolting specifications. Other drilling patterns are also available upon special request.

**Laboratory Testing & Approvals.** Protectoseal's Detonation Flame Arresters have been thorough tested by independent laboratories. Refer to dimension charts for specific test lab listings. For arresters that meet the latest ATEX Directive, ISO 16852, refer to Series 25000E/35000E and 26000E/36000E.

**Easy Inspection and Maintenance.** The crimped metal arrester element is easily removable and interchangeable for inspection, cleaning or replacement.

**Optional Connections.** Flanged or tapped fittings may be provided on the arrester housing for drains, pressure taps or temperature probes if required.

**Precision Manufacturing.** The crimped metal arrester element design allows for flexibility in application. The ability to control the size of the element openings is the key to arresting high velocity and high pressure flame fronts. Manufactured under Protectoseal's ISO 9001 Quality System.

**PRO-FLOW<sup>®</sup> Sizing and Selection Software.** Use PRO-FLOW<sup>®</sup> to calculate flame arrester flow requirements in accordance with API 2000, ISO 28300, NFPA 30 and OSHA 1910.106.

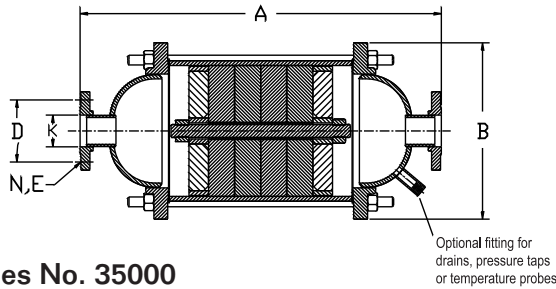
### CONSTRUCTION

A comprehensive range of materials is offered as shown:

Series	Housing & Element Housing	Element Winding
C35000 / C36000RP	Steel	304 S.S.
CS35000 / CS36000RP	Steel	316 S.S.
F35000 / F36000RP	316 S.S.	316 S.S.
FL35000 / FL36000RP	316 S.S.	304 S.S.
L35000 / L36000RP	304 S.S.	304 S.S.
M35000 / M36000RP	Alloy C276	Alloy C276

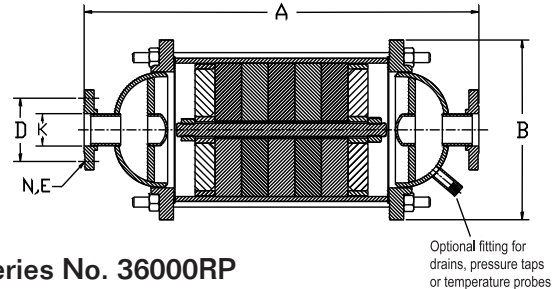
*All units flanged to mate with 150# R.F. ANSI. DIN flanging optional.*

Suitable for use with Group D vapors, generally equivalent to International Electrotechnical Commissions (IEC) Group IIA



Series No. 35000

Suitable for use with Group D & C vapors, generally equivalent to International Electrotechnical Commissions (IEC) Group IIA and IIB3



Series No. 36000RP

(Dimensions shown are for reference only, contact factory for certified drawings.)

### SERIES 35000 - DIMENSIONS AND ORDERING INFORMATION (Refer to Materials of Construction chart to complete Cat. No.)

Cat. No.	Flange Size K	Face to Face A	Dia. B	B.C. D	Dia. E	Holes N	Test Lab Listings USCG
35002	2"	27 3/4"	13 1/2"	4 3/4"	3/4"	4	C   CS   F   FL   L
35003	3"	27 3/4"	13 1/2"	6"	3/4"	4	C   CS   F   FL   L
35004	4"	28 7/8"	16"	7 1/2"	3/4"	8	C   CS   F   FL   L
35006	6"	31 1/2"	20 3/4"	9 1/2"	7/8"	8	C   CS   F   FL   L
35008	8"	47 3/4"	24 7/8"	11 3/4"	7/8"	8	C   CS   F   FL   L
35010	10"	59 1/2"	27 1/2"	14 1/4"	1"	12	-
35012	12"	60 1/4"	32"	17"	1"	12	-
35014	14"	80 3/8"	38 3/4"	18 3/4"	1 1/8"	12	-
35016	16"	88 7/8"	38 3/4"	21 1/4"	1 1/8"	16	-
35018	18"	90 3/8"	46"	22 3/4"	1 1/4"	16	-
35020	20"	90 3/4"	50 3/4"	25"	1 1/4"	20	-
35024	24"	91 1/2"	53"	29 1/2"	1 3/8"	20	-

*Material Prefix Code (Refer to chart below)*

### SERIES 36000RP - DIMENSIONS AND ORDERING INFORMATION (Refer to Materials of Construction chart to complete Cat. No.)

Cat. No.	Flange Size K	Face to Face A	Dia. B	B.C. D	Dia. E	Holes N	Test Lab Listings USCG
36002RP	2"	29 3/4"	13 1/2"	4 3/4"	3/4"	4	C   CS   F   FL   L
36003RP	3"	29 3/4"	13 1/2"	6"	3/4"	4	C   CS   F   FL   L
36004RP	4"	30 7/8"	16"	7 1/2"	3/4"	8	C   CS   F   FL   L
36006RP	6"	33 1/2"	20 3/4"	9 1/2"	7/8"	8	C   CS   F   FL   L
36008RP	8"	49 3/4"	24 7/8"	11 3/4"	7/8"	8	C   CS   F   FL   L
36010RP	10"	61 1/2"	27 1/2"	14 1/4"	1"	12	-
36012RP	12"	62 1/4"	32"	17"	1"	12	-
36014RP	14"	82 1/4"	38 3/4"	18 3/4"	1 1/8"	12	-
36016RP	16"	90 7/8"	38 3/4"	21 1/4"	1 1/8"	16	-
36018RP	18"	92 3/8"	46"	22 3/4"	1 1/4"	16	-
36020RP	20"	92 3/4"	50 3/4"	25"	1 1/4"	20	-
36024RP	24"	93 1/2"	53"	29 1/2"	1 3/8"	20	-

*Material Prefix Code (Refer to chart below)*

### MATERIALS OF CONSTRUCTION (All units flanged to mate with 150# R.F. ANSI. DIN flanging optional.)

Series No.	Material Prefix Code	Arrester Housing	Element Housing	Element Winding
C35000 / C36000RP	C	Steel	Steel	304 S.S.
CS35000 / CS36000RP	CS	Steel	Steel	316 S.S.
F35000 / F36000RP	F	316 S.S.	316 S.S.	316 S.S.
FL35000 / FL36000RP	FL	316 S.S.	316 S.S.	304 S.S.
L35000 / L36000RP	L	304 S.S.	304 S.S.	304 S.S.
M35000 / M36000RP	M	Alloy C276	Alloy C276	Alloy C276



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