Flame Arrestor

Parker Aerospace flame arrestors are used in aircraft fuel vent systems to prevent a flame originating at the vent outlet from propagating into the fuel tank and causing ignition of fuel vapors in the fuel tank. This is accomplished while minimizing the impact on the vent system performance.

Product Features

Flame arrestors are typically installed in the vent line(s) of fuel systems. Usually the vent line of a fuel system is open to atmosphere and provides a passageway for a flame to enter the fuel system. A flame arrestor installed in the vent line prevents a moving flame front from propagating beyond the flame arrestor. Ignition of the flowing fuel/air mixture may be caused by a number of sources including lightning strikes and ground fires.

The flame arrestor functions by reducing the flame front velocity and by providing the necessary surface area and material mass to absorb heat from the flame front to such a degree that the temperature of the flammable mixture falls below its ignition temperature, thus stopping the flame’s propagation.

Parker flame arrestors are manufactured in various configurations to accommodate the aircraft installation requirements. Typically most of the units are line mounted using either threaded or threadless connections. Most applications are installed in the aircraft vent system, although Parker has qualified units for use in both fuel tank inerting systems and refuel booms.

Typically, a flame arrestor consists of two basic components: the housing and the element. The element is installed into the housing, which is supplied with the appropriate end fittings for mating with the vent line. The length, cell size, and foil thickness of the element are sized to provide the necessary surface area and metal mass to absorb heat from the flame front to such a degree that the temperature of the fuel/air mixture is decreased to a point where ignition of the fuel/air mixture is no longer supported, thereby arresting (stopping) the flame.

The choices among the above options are made based on fluid media, customer envelope requirements, flow-versus-pressure drop requirements, and flame holding requirements.

- Tested in accordance with:
  - Draft FAA advisory circular AC25-975
  - Proposed SAE-ARP-5776 (aircraft flame arrestor installation guidelines and test methods)
  - Customer requirements (as applicable)
- For use with all aircraft fuels
- Temperature range from -67°F to 1800°F (flame temperature)
- Element material: stainless steel
- Housing materials: stainless steel, aluminum, titanium, and non-metallic (flame propagation only)

Applications

Parker flame arrestors are used on a multitude of aircraft and by many customers worldwide.
- Commercial and regional
- Military
- General aviation
- Business aviation

Optional Features

- Integrated by-pass relief valves

Contact Information

Parker Hannifin Corporation
Parker Aerospace
Fluid Systems Division
3580 Shaw Boulevard
Naples, Florida 34117-8408
Phone: (239) 304-1000
Fax: (239) 304-1065
www.parker.com
A partial listing of our flame arrestors is provided in the table below. More information is available upon request.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Proof Pressure</th>
<th>Pressure Drop</th>
<th>Attachment Method</th>
<th>Envelope</th>
</tr>
</thead>
<tbody>
<tr>
<td>130-0001-01</td>
<td>125 PSIG</td>
<td>.5 PSID @ 7 SCFM</td>
<td>MS33656-8 both ends</td>
<td></td>
</tr>
<tr>
<td>130-0156-01</td>
<td>15 PSIG</td>
<td>.14 PSID @ 10 SCFM</td>
<td>AS4395E12 both ends</td>
<td></td>
</tr>
<tr>
<td>AFF-10000</td>
<td></td>
<td>1.5” of water @ 2 GPM of jet fuel</td>
<td>1” tube</td>
<td></td>
</tr>
<tr>
<td>130-0417-01</td>
<td></td>
<td>.19 PSID @ 25 PPM of air</td>
<td>AS1656-1-48</td>
<td></td>
</tr>
<tr>
<td>130-0414-01</td>
<td></td>
<td>1 PSID @ 132 GPM fuel</td>
<td>2.55” tube</td>
<td></td>
</tr>
<tr>
<td>130-0322-01</td>
<td>.15 max @13.5 LBs/min air</td>
<td>5.070” diameter with five-bolt hole flange end and special four-bolt hole flange end</td>
<td></td>
<td></td>
</tr>
<tr>
<td>130-0045-01</td>
<td>39 SCFH air with pressure relief inflow &amp; outflow valves</td>
<td>Six-bolt hole rectangular flange</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>