Flexible Confined Detonating Cord Assembly (FCDCA)

PRODUCT TECHNICAL DATA SHEET

DESCRIPTION:
Flexible Confined Detonating Cord Assembly (FCDCA) is a linear explosive component widely used in the aerospace industry for detonating signal transfer. The device consists of a linear explosive cord, wrapped in a flexible confinement tube which has end tips that can be connected into manifolds or other ordnance devices.

KEY FEATURES:
- Provides confinement of the ordnance event and gaseous products
- Insensitive to unintended ignition from mishandling or ballistic damage
- Rugged, flexible and lightweight

APPLICATION:
- Fully proven on Tactical Missiles, Strategic Missiles and Space Launch Vehicles
- Ideal for systems that require a robust, high-strength, flexible energy transfer line
- Designed to withstand demanding aerospace environmental conditions
- Ideal for installations with tight bend radii

PROPERTIES:
- Hermetically sealed and tested to a wide range of temperatures
- Available in any length and with numerous end tip types and thread sizes
- Lockwire provisions come standard
- RCC 319 Range Compliant

ENSIGN-BICKFORD AEROSPACE & DEFENSE COMPANY

Cleared for Open Publication by the Office of Security Review, Department of Defense 4/25/2013 13-S-1629
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**SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Qualification Test</th>
<th>Levels</th>
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<tbody>
<tr>
<td>Thermal Cycle</td>
<td>24 Cycles, 2 Hour Dwell at -65°F to 160°F (-54°C to 71°C)</td>
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<tr>
<td>Thermal Vacuum</td>
<td>15 Cycles at -66°F to 212°F (-54°C to 100°C), 12 Hour Dwell at 1 x 10^5 Torr (0.0013 Pa)</td>
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<tr>
<td>High/Low Temperature Function</td>
<td>250°F (121°C) High and -309°F (-198°C) Low</td>
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<tr>
<td>Pyrotechnic Shock</td>
<td>31,000 G Peak, 3 Axis, 3 Shocks/Axis</td>
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<tr>
<td>Random Vibration</td>
<td>220.5 Grms, Lateral Axis, 270 Sec/Axis</td>
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<td></td>
<td>206.0 Grms, Radial Axis, 30 Sec/Axis</td>
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<tr>
<td>Axial Loading (Pull Test)</td>
<td>100 Lbf (445 N) for 60 Sec</td>
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<tr>
<td>Drop Test</td>
<td>6 Foot (1.83m) Drop, 40 Foot (12.19m) Drop</td>
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<tr>
<td>High Temperature Storage</td>
<td>60 Days at 160°F (71°C), 40-60% RH Per MIL-STD-1576, Method 3403 for 10 year service life</td>
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<tr>
<td>Humidity</td>
<td>4 Cycles of 95°F (35°C) at 95% RH and 35.6°F (2°C), 2 Hour Dwell Per MIL-STD-810 Method 507.3</td>
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**CONSTRUCTION:**

**Explosive End Tips:**
- Type I and Type III end tips containing HNS-1A.

**MDF Cord Materials:**
- The explosive cord consists of an aluminum sheath containing HNS-IIA explosive.

**Overwrap and Braiding Materials:**
- TEFZEL® Thermoplastic Elastomer, KEVLAR® and Stainless Steel.

**Free Spinning Threaded Nuts:**
- Enable the FCDCA to be fastened into a manifold or other device.
- Different diameters and thread sizes to prevent incorrect installation.

**OPERATION:**

A detonation is required to initiate the FCDCA, which enables a detonating signal to be transmitted along the length of the Mild Detonating Fuse (MDF) cord where it is output from the tip at the opposite end. Manifolds may be used as interfaces to distribute the signal from one FCDCA to another. The FCDCA transmits a detonating signal from an ordnance initiating device to an output device such as a Destruct Charge, Linear Shaped Charge or Frangible Joint.