ULTRA fuelflex™

Protecting Your Fuel Fired Equipment to meet the latest requirements of the International Building Code (IBC) and the American Society of Civil Engineers (ASCE)

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Building Drift: Why Isolate Gas/Fuel Fired Equipment?

All current building codes for seismic and wind restraint design have the primary objectives: reduce the possibility of injury and threat to life, reduce long term cost due to equipment damage and resultant downtime.

FEMA (Federal Emergency Management Act) has identified one of the primary causes of property damage from earthquakes is the mechanical failure of gas and water lines contributing to fires.

The majority of U.S. jurisdictions have adopted the new international codes to insure financial backing from FEMA following an earthquake. All current building codes require seismic bracing of certain pipes. Damage occurs when pipes move independently of the building (see Figure 1). The ultimate goal of seismic bracing is to prevent damage to the pipe system by forcing it to move with the building. Other potential problems that occur are the incompatibility of piping systems with differential movement of the structure (drift) and bracing of piping with short or stiff service connections to equipment.

Fitting failures generally occur at or near equipment connections. The HVAC industry suggests the following should be considered when installing seismic restraints:

- Flexible connections should be provided between equipment that is braced and piping that need not be braced.
- Flexible connections should be provided between isolated equipment and braced piping.

The International Building Code (IBC) and the American Society of Civil Engineers (ASCE), realize the importance of protecting piping systems conveying flammable and combustible gases.

Flex-Hose Co., Inc.'s UltraFuelFlex UL536 Listed connectors are approved for flammable and combustible gases. They are the ultimate protection for isolating critical gas/fuel fired equipment.

Standard Sizes 1" to 4" I.D.

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### Quality Assurance

Safety and performance has always been the heart and soul of the UltraFuel Flex product design. They have been tested, listed, labeled, and regularly inspected by Underwriters Laboratory to ensure they meet or exceed industry performance standards.

UltraFuel Flex is manufactured with 316/LSTM A240) grade stainless steel metal flexible hose, making it an extraordinarily flexible connection. One of the rigorous testing requirements of UL 363 testing is flexure cycle testing. UltraFuel Flex was flexure tested for 20,000 cycles while maintaining a working pressure of 175 psig. Upon successful completion of 20,000 cycles, UltraFuel Flex was pressurized to 875 psig (5:1 safety factor) and maintained pressure integrity. Passing the test

### Applications

Flex-Hose Co. UltraFuel Flex UL363 Listed connectors are approved for flammable and combustible gases. They are used to prevent damage to critical gas fuel fired equipment caused by piping stress where rigidly supported pipes connect to equipment. UltraFuel Flex are easily installed and reduce the possibility of equipment connection failure. Common applications include gas connections on boilers, water heaters, and unit heaters and fuel connections on emergency generators and gas turbine engine installations.

### Pressures

UltraFuel Flex are designed for a maximum working pressure of 175 psig at 70°F and are capable of system test to 265 psig. Manufactured with 5:1 safety factor. 33NB

All Ultrafuel Flex are 100% hydrostatic tested at the factory to 262 psig to insure trouble free installation and years of quality service.

### UL363 Requirements

UltraFuel Flex connectors have a UL 363 listing having a nominal inside diameter from 1 to 4 inches intended for use if piping systems carrying flammable and combustible gases at pressures not exceeding 175 psig at ambient temperature.

Note: The term flammable and combustible gases, as used herein, means gases such as liquefied petroleum gases, and manufactured and natural fuel gases.

### Table: UFFMN-UL 1"-4" I.D. (Threaded Ends)

<table>
<thead>
<tr>
<th>I.D. (In.)</th>
<th>A (In.)</th>
<th>Pressure (PSI) 70°F</th>
<th>Parallel Offset (In.) Permanent</th>
<th>Angular Deflection (Deg.)</th>
<th>Weight (Lb.)</th>
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<td>1.00</td>
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<td>175</td>
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<td>16.00</td>
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<tr>
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<td>50°</td>
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<tr>
<td>2.00</td>
<td>21.00</td>
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<td>2.75</td>
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<tr>
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</tr>
</tbody>
</table>

Note: Working pressures shown for hose and braid are based on an operating temperature of 70°F (21°C) with a 5:1 safety factor.

### Diagram: Beveled Weld End

- Male N.P.T.
- 304ss Braid
- 321ss Annular Closed Pitch Corrugated Hose
- 300a Ferrule

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**Motion Classifications**

Flex-Hose Co.'s UltraFuel Flex UL536 listed connectors are capable of handling the following movements:

- **Parallel Offset**: Motion that occurs when one end of the hose assembly is deflected in a plane perpendicular to the longitudinal axis with the ends remaining parallel. Offset is measured as displacement of the free and centerline from the fixed and centerline.

- **Angular Offset**: Angular movement is defined as the bending of the hose so that the ends are no longer parallel. Amount of movement is measured in degrees from centerline of the hose if were installed straight.

- **Motion Frequency**: The maximum fixed parallel offset to which the UltraFuel Flex assembly may be bent without damage to the convolutions. No further motion is to be imposed other than normal vibration.

- **Intermittent Offset**: Motion that occurs on a regular or irregular cyclic basis. It is normally the result of seismic motion, or other non-continuous actions such as thermal expansion and contraction.

**UL Listed for flammable and combustible gases**

**FOR 3 YEAR WARRANTY**

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**PRODUCT REPLACEMENT WARRANTY**

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**LISTED UltraFuel Flex® for flammable and combustible gases**

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Visit our website for more information on our broad range of products.

A World of Difference in Critical Piping Connections since 1968.

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