# **Bellows**

### APPLICATION

- Used in the conveyance of fluids and air in high vibration environments
  - Airframe level: High pressure, high temperature seals and joints
  - Engine level: Exhaust seals, bleed air applications
  - System level:
    - Used in Ball Joints, Gimbals, and Flexible Metal Hoses
    - Conveyance of air and fluids in high vibration areas

## CONSTRUCTION

- Fully metallic, from Stainless Steel, Inconel or Titanium
- Rolled and welded, pressure formed
  - May be seamless if required
- Temperature ranges from -420°F to +1,200°F (-251°C to +649°C)
- From 1-4 layers as needed
- Size ranges from ¼" 36" ID (0.64cm 91.33cm ID)
- May include braid wire or in combination with ducting where needed

#### FEATURES

- Custom designed to applications, including qualification testing, or built to print

#### PERFORMANCE

- Pressure ranges up to 5,000psi in fluid, up to 16,000psi in air

#### WHERE USED

- In Bleed Air Ball Joints from 1.5" to 4" in various commercial engine applications
- Exhaust Seals in 1" to 4" in length and from 6" to 36" in diameter, typically in Inconel





SEAL BELLOWS



# **Bellows**











- Welded and formed Bellows for flexible Joints
- 1/4" to 36" ID
- Tube manufacturing to Radiographic standards
- Polyurethane Bellows forming ¼" 12"; mechanical die forming for larger sizes
- In-house tube manufacturing and Bellows forming machines





