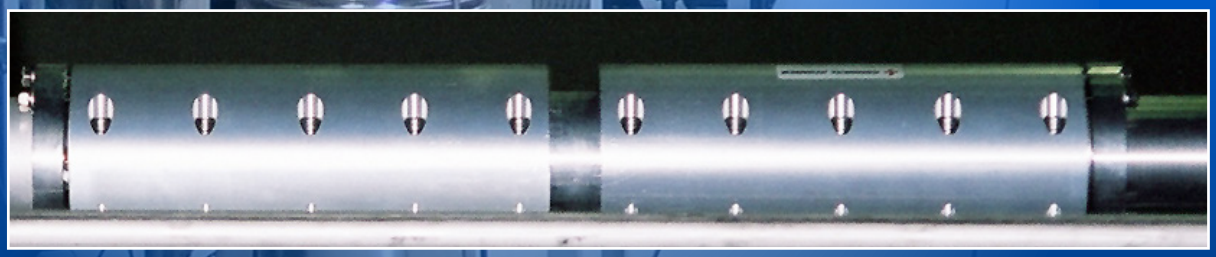
HIGH-POWER CORRUGATED WAVEGUIDE COMPONENTS

Bellows and sliding waveguide joints



- General Atomics (GA) produces bellows and sliding waveguide joints to accommodate axial expansion and contraction in transmission lines
- Bellows have been produced for use at 110 GHz in 1.25” waveguide and at 170 GHz in 2.5” waveguide
- Sliding waveguide joint has been produced for use at 170 GHz in 2.5” waveguide

Precision-machined for accurate alignment and low-loss transmission

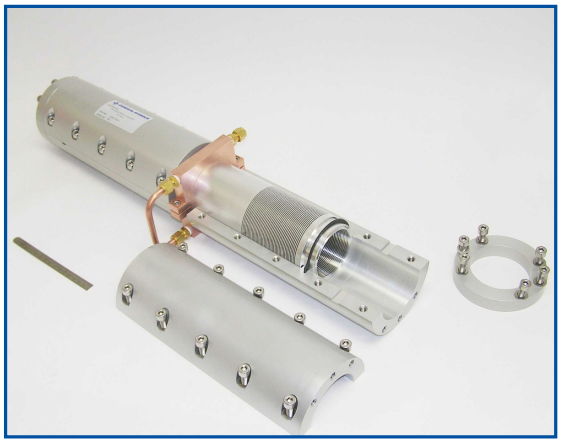
GENERAL ATOMICS

BELLOWS AND SLIDING WAVEGUIDE JOINTS

GA has the scientific, engineering and fabrication expertise to design and deliver standard and specialized waveguide bellows and sliding waveguide joints

BELLOWS:

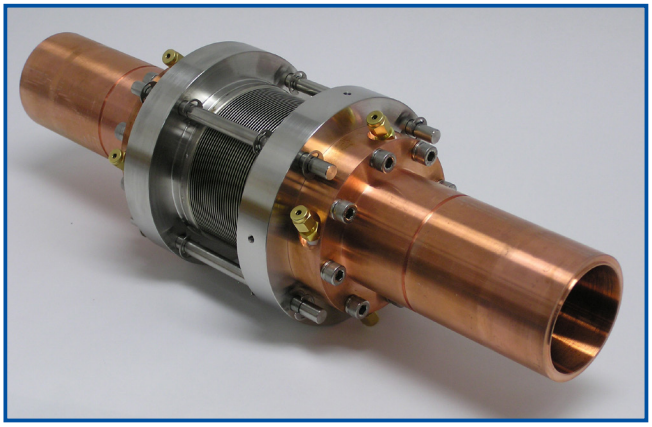
- GA fabrication technology allows for machining waveguide bellows directly into aluminum using deep corrugations to provide flexibility in the axial direction
- Component can accommodate transmission line thermal expansion or vessel motion of up to ± 15 mm
- Cooling versatility: Flexibile aluminum sections can be cooled by conduction, water cooling the waveguide ends and by using a water-cooling clamp between the two clamping assemblies



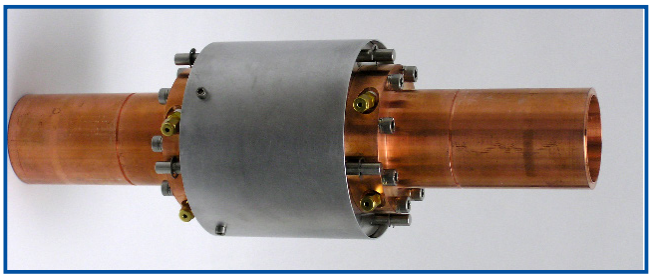
2.5” Bellows assembly showing one of the two flexible aluminum sections and water cooling clamp

SLIDING WAVEGUIDE JOINT:

- Sections are made from hard copper enabling high thermal conductivity. Can be used in the presence of significant high order mode content and the resultant higher heating than for pure HE_{11} transmission
- Vacuum is maintained using stainless steel external bellows
- Waveguide stubs can be water cooled
- Maximum compression is 30 mm



2.5” Sliding waveguide joint



Sliding waveguide joint with protective cover around stainless steel bellows

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