



# HIGH-PRECISION FLEXIBLE PIVOT WITH BONDED BLADES

*Innovative manufacturing process for flexible pivots with bonded blades, free of internal stress or deformations*

## Technological advantages

### A flexible pivot

No fretting, wear or energy dispersion  
 No play, precise guidance  
 Powered by compensation torque

### High-performance manufacturing process

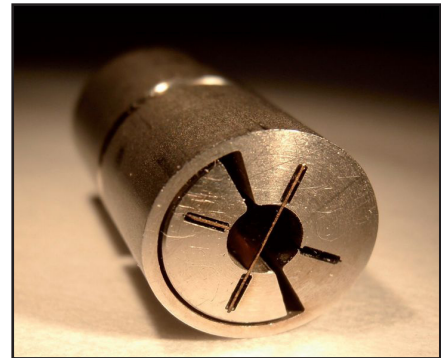
No internal stress: assembly play is eliminated during the seal injection process  
 Complete control over assembly strength, with seal thickness guaranteed  
 Complete control over transverse rigidity and compensation torque, mechanical characteristics of blades are conserved

### A compact system

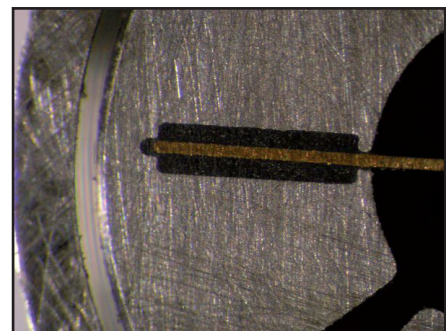
Assembly area with reduced dimensions  
 Pivot diameter is kept to a minimum  
 Lower weight  
 Total number of parts reduced to just 4

### Characteristics can be easily adapted

Wide range and many possible dimensions, as per specifications  
 Wide range of operating temperatures: 4K to 450K  
 Large selection of blade/bushing pairings, including metals/polymers or composites



Flexible pivot with bonded blades



Calibrated bonding seal

## Overview of invention

Play left during blade pre-assembly to avoid internal stress. Bonding agent is then injected in the seals to a calibrated thickness and with repeatable characteristics.

Assembly via bonding is precise, reliable and takes up little space.

## Potential applications

### Articulated pivots for scientific instruments or highly-accurate measuring equipment:

- High-precision guidance for mirrors and lenses
- Mechanisms for space instruments
- Robotics, articulated arms or appendages

## Bénéfices commerciaux

### Process can be industrialised

Injection process can be fully automated  
 Machining of metal bushings via wire cutting with numeric controls

### Lower costs

Optimised weight  
 Fewer parts  
 Reduced scatter for characteristics, meaning less scraps in each batch

**TRL : 8 (2010)**

*Patented invention, available under license  
 Pre-industrialisation in progress*