

# Air Traffic Control Rotary Joints

**Field-Proven Reliability Worldwide**



**DIAMOND**

# Diamond Series ATC Rotary Joints

## Next Generation Slip-Rings

Diamond Roll-Rings® offer many advantages over traditional slip rings. The Diamond Roll-Ring® is an innovative next-generation slip ring that uses a rolling, instead of slipping, electrical contact. The rolling contact at the electrical interface provides extended operating life without field maintenance and allows airports to avoid unscheduled interruptions and downtime for maintenance before the entire rotary joint assembly is removed for scheduled factory service of bearings and seals.

## Rotary Joint Mounting

The rotary joint mounting flange installs into either the pedestal stator or rotor, depending on the design interface. In either case, the main rotor/stator break of the rotary joint is protected by multiple internal labyrinths to keep foreign matter out of the RF path and ensure weatherproof operation. Long-life dynamic seals are used at the rotor/stator interface of the rotary joint to retain overpressure in the waveguide with minimal leakage during years of rotation. The interface of input and output waveguides is available in various flange configurations.

## Coaxial Microwave Channels

Coaxial microwave channels use standard capacitively-coupled, non-contacting rings. The electrical interface also uses Diamond Antenna's patented flexible journal/compressive choke design suitable for ATC. This feature affords much better isolation across the entire band of interest, as well as lower insertion loss and a smaller size. Diamond Antenna's ATC Rotary Joints are fully Mode-S compliant.

## Encoder Mounting

The Encoder mount includes a large diameter shaft to transfer rotation from the main bearings to a precision gear located concentric to the axis of rotation. The main gear then transfers position to one or two smaller gears, precisely located relative to the main gear. All gears are rated AGMA 14 or better in order to ensure accuracy. Solid stainless steel rods transfer the motion to the encoder shafts.

## MIL-B-7883 Compliant

Aluminum dip brazings are compliant with MIL-B-7883. Silver nitrate tests confirm salts are removed. Secondary machining of brazed assemblies maintains the concentricity and tolerance requirements at critical junctions for maximum performance.

## Stainless Steel Ball Bearings

Preloaded stainless steel ball bearings rated ABEC 5 or better, ensure a long life of trouble-free continuous rotation. After assembly, electrical and mechanical tests are completed, all units are run-in for an extended period to ensure that rotating interfaces are seated properly and that accurate performance is maintained.

## Finish

Diamond Antenna's Rotary Joints are painted with a durable two-part epoxy-polyurethane. All standard ATC colors are available.

*“ Rely on Diamond Antenna's  
ATC Rotary Joints for  
year-after-year continuous  
operation.”*





Since 1956, Diamond Antenna's Air Traffic Control (ATC) Rotary Joints have been field-proven and life-tested to over 60 million revolutions.

These precision rotary components include the design and workmanship features you expect for highly reliable performance in extreme environmental conditions.



## Diamond Series 2530

Primary and Secondary ATC Radar  
Rotary Joint

5 Channel:	S-Band/L-Band
Waveguide:	WR-284
Coaxial:	1 S-Band/3 L-Band
Slip-Ring:	15 Channel Diamond Roll-Ring®



## Diamond Series 2920

### Primary and Secondary ATC Radar Rotary Joint

9 Channel:	S-Band/L-Band/740 MHz
Waveguide:	WR-284
Coaxial:	2 S-Band/3 Mode-S L-Band/3 740 MHz
Slip-Ring:	15 Channel Diamond Roll-Ring®
Provisions:	Dual Encoder

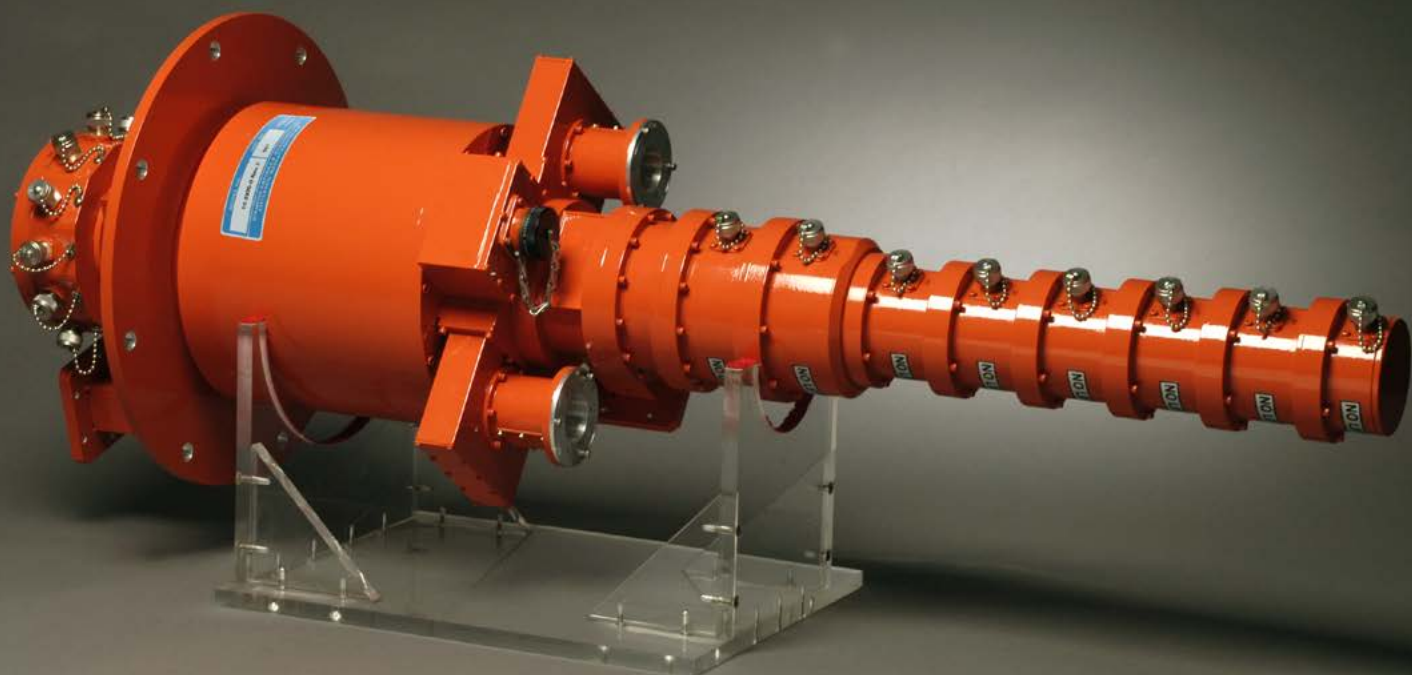
## Diamond Series 2700

### En-Route ATC Radar Rotary Joint

7 Channel:	L-Band
Waveguide:	WR-650
Coaxial:	3 L-Band/3 L-Band (SSR)
Slip-Ring:	20 Channel Slip-Ring
Provisions:	Dual Encoder







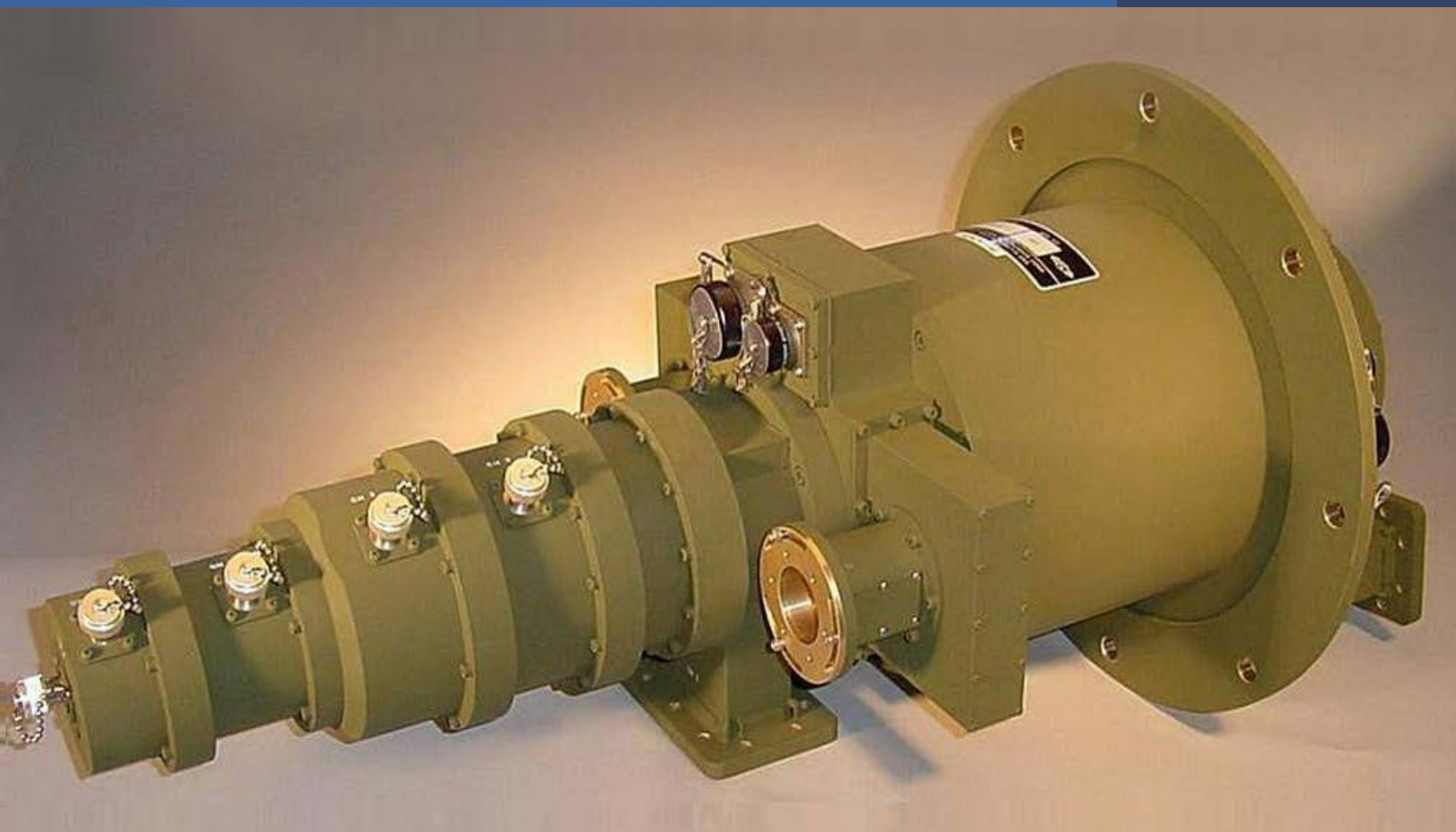


## Diamond Series 2620

Primary and Secondary ATC Radar  
Rotary Joint

6 Channel:	S-Band/L-Band
Waveguide:	WR-284
Coaxial:	2 S-Band/3 L-Band
Slip-Ring:	24 Channel Diamond Roll-Ring <sup>®</sup>
Provisions:	Dual Encoder





## Diamond Series 2540

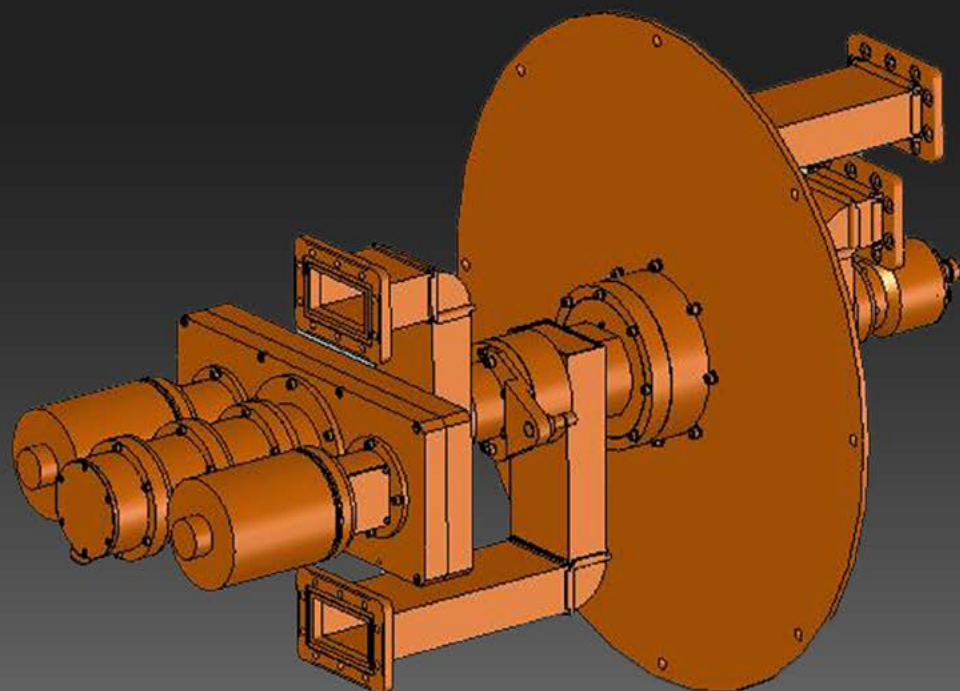
Primary and Secondary ATC Radar  
Rotary Joint

5 Channel:	S-Band/L-Band
Waveguide:	2 WR-284
Coaxial:	3 L-Band
Provisions:	Dual Encoder

## Diamond Series 2362

IFF Rotary Joint

3 Channel:	L-Band
Coaxial:	3 L-Band/High-Power EIA Connectors



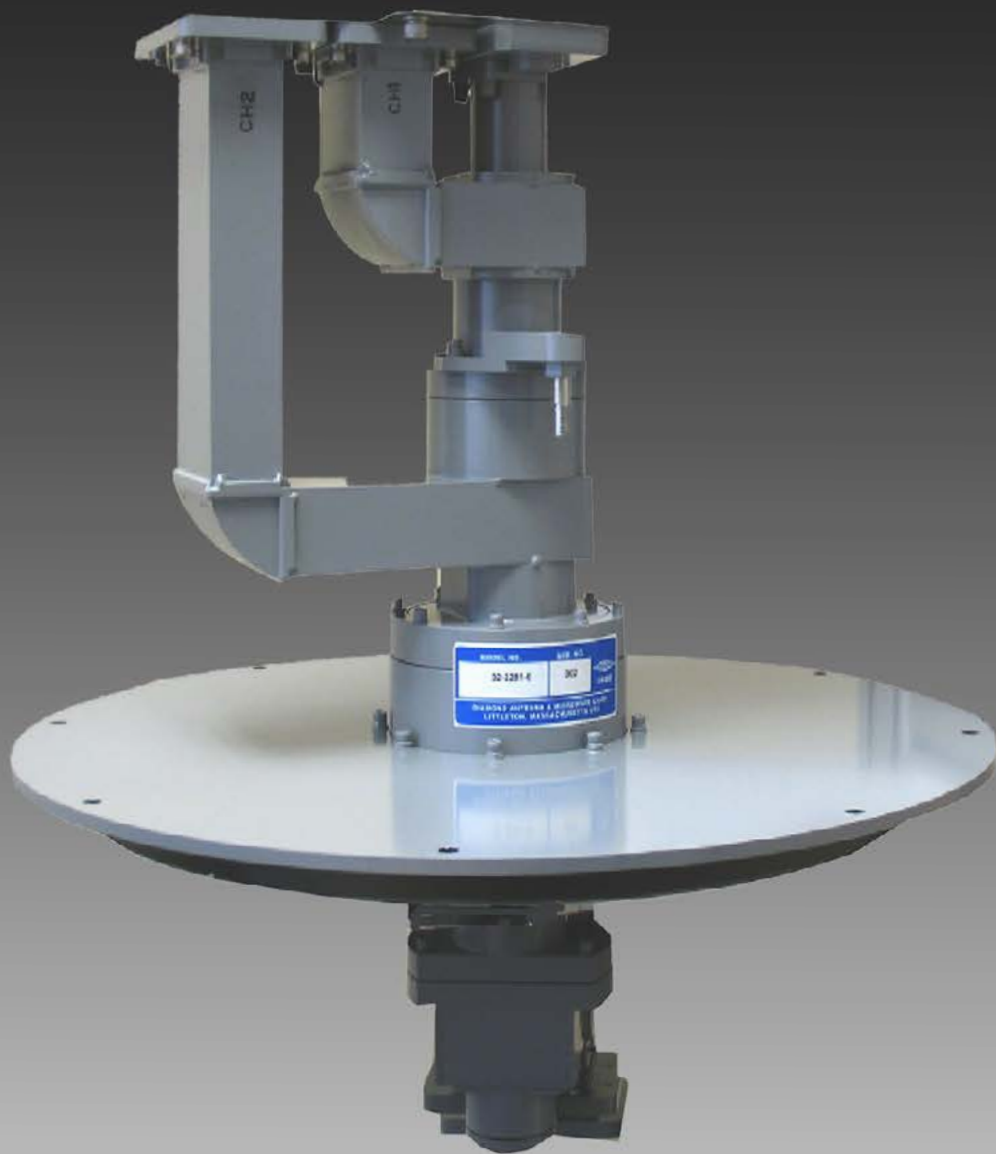


## Diamond Series 2281

Primary Surveillance Radar (PSR)  
Rotary Joint

2 Channel:	S-Band
Waveguide:	WR-284
Provisions:	Dual Encoder







## Diamond Series 2355

Secondary Surveillance Radar (SSR)  
Rotary Joint

3 Channel:	L-Band/Mode-S
Coaxial:	3 L-Band
Slip-Ring:	Optional Diamond Roll-Ring <sup>®</sup>
Provisions:	Encoder



MODEL NO.

SER. NO.

13-2355-0

SAMPLE

DIAMOND ANTENNA & MICROWAVE CO.  
LITTLETON, MASSACHUSETTS

CH3



'Since 1956'

DIAMOND ANTENNA & MICROWAVE CORPORATION

59 Porter Road Littleton, MA 01460 USA

Phone: +1-978-486-0039 Fax: +1-978-486-0079

[sales@diamondantenna.com](mailto:sales@diamondantenna.com)

[www.diamondantenna.com](http://www.diamondantenna.com)

