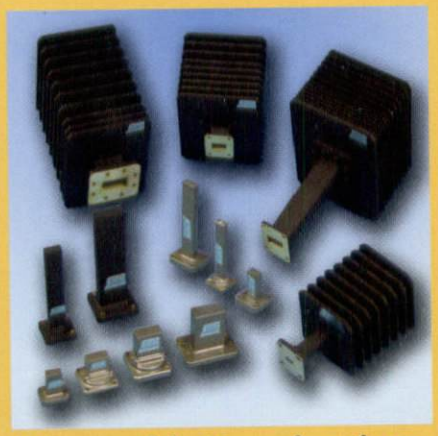
Space Qualified Components

Waveguide Products

Standard Gain and Wide Band Horns

ADVANCED TECHNICAL MATERIALS INC.



Waveguide Terminations

Coaxial Products

Phase Shifters and Attenuators

ADVANCED TECHNICAL MATERIALS INC.

## ATM: WHO WE ARE AND WHAT WE DO

ISO 9001 Registered

National Quality Assurance accredited

Space Systems Qualified

RoHS Compliant

Reach Compliant

ITAR Registered

Advanced Technical Materials [ATM] is a precision microwave component engineering and manufacturing company providing a wide range of RF and Microwave [to 60GHz] components [both Waveguide and Coaxial], assemblies and custom products.

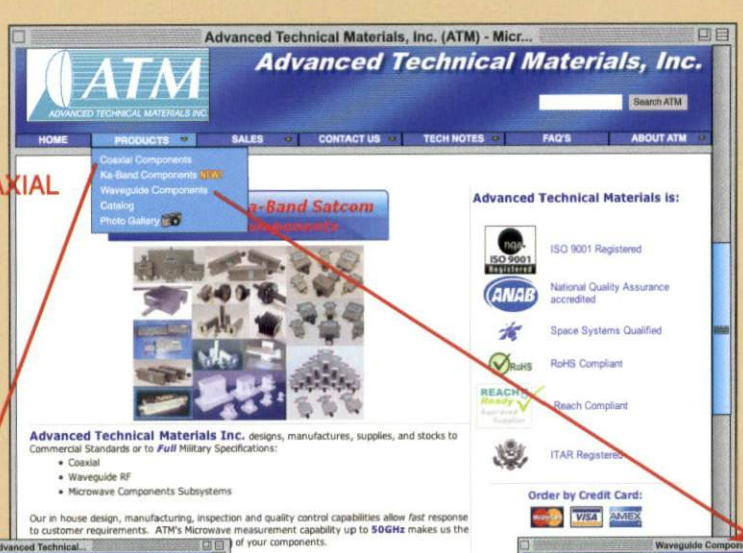
| | |
|---|---|
| WAVEGUIDE PRODUCTS | Rectangular [WR] and Double Ridge [WRD], Rigid, Flexible WG, Directional Couplers [Crossguide, Loop and Multihole], Adapters and Horn Antennas, Terminations, Windows, Quick Disconnects, Arc Detectors |
| COAXIAL PRODUCTS | Variable and Fixed Attenuators, Phase Shifters and Line Stretchers, Power and Hybrid Divider/Combiners, Directional Couplers, Microwave Noise Sources and Flexible Cables |
| CUSTOM PRODUCTS | Microwave components and assemblies designed to meet customer specs from simple modifications of standard products to complex assemblies. Space Qualified components for flight vehicles and Vacuum conditions.. |

ATM was founded in 1990. Main engineering and manufacturing are in Patchogue, Long Island, New York, USA. ATM uses the latest 3D modeling CAD and NC manufacturing methods to achieve state of the art precision products having repeatable superior performance with decreased cost and delivery times. See a selection of our products in this catalog, and be sure to visit ATM on line at www.atmmicrowave.com for the full range of products with specs and drawings.

INDEX

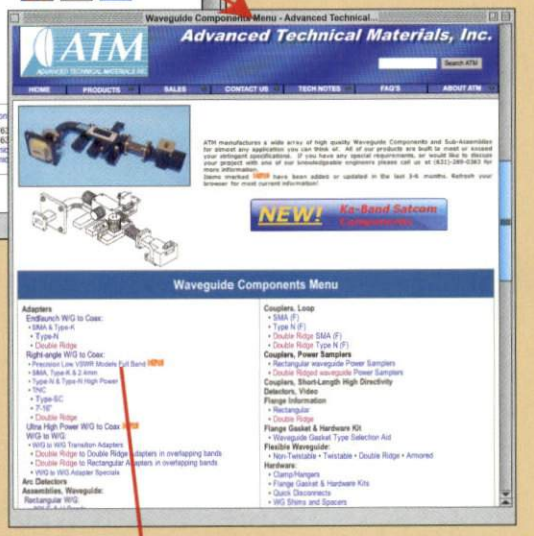
## PRODUCT INDEX

# Visit www.atmmicrowave.com for full catalog

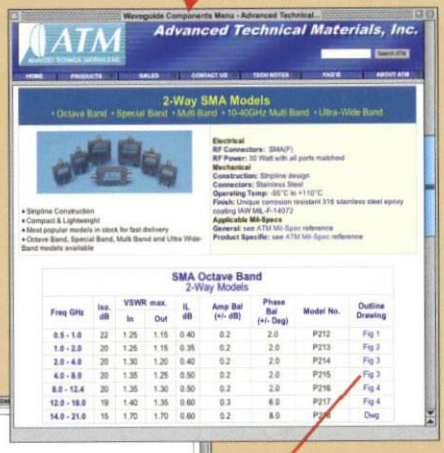


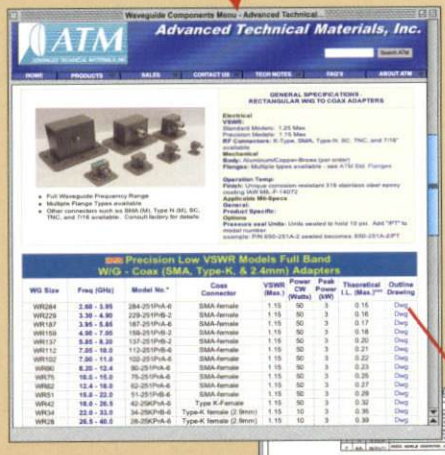

CLICK FOR COAXIAL COMPONENTS

CLICK FOR WAVEGUIDE COMPONENTS


Select Product Type from Menu then Click for Detailed Specifications, Data sheets, & Drawings

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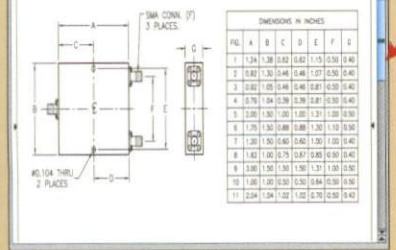
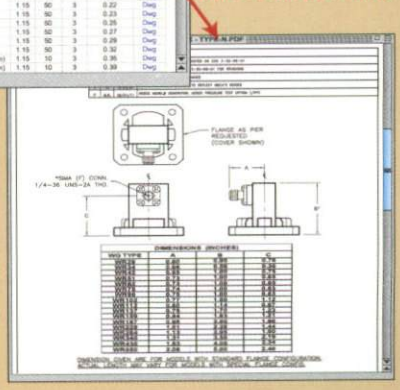



CLICK FOR DRAWING




ATM WEB SITE CATALOG

# PHASE SHIFTERS

Mechanical Adjustment with Screw Driver Shaft and Lock.
For Digital Counting Dial add "D" suffix to the Model Number
Phase Shift is linear with frequency and continuously variable.

RF Power: 100 Watt Average
3 KW Peak
RF Connectors: SMA Female or
Type N Female

## P1400 and P2400 series

**Standard Size 3.75" X 2" X 1"**

| Model No.* (SMA) | Model No.* (Type N) | Freq (GHz) | Phase Adjust (min) | I.L. (dB max) | VSWR (max) |
|---|---|---|---|---|---|
| P1403 | P2403 | DC-2.3 | 30°/GHz | 0.5 | 1.5 |
| P1404 | P2404 | DC-4.3 | 30°/GHz | 0.5 | 1.5 |
| P1405 | P2405 | DC-8.3 | 30°/GHz | 0.6 | 1.5 |
| P1406 | P2406 | DC-12.7 | 30°/GHz | 0.7 | 1.5 |
| P1407 | P2407 | DC-18.6 | 30°/GHz | 1.0 | 1.6 |
| P1408 | P2408 | DC-26.5 | 30°/GHz | 1.5 | 2.0 |
| P1408-360 | N/A | 18.0-26.5 | 0°-360° | 1.5 | 1.8 |
| P1409-360 | N/A | 18.0-40.0 | 0°-360° | 2.5 | 2.0 |

## P1500 and P2500 series

**Standard Size 5.5" X 2" X 1"**

| Model No.* (SMA) | Model No.* (Type N) | Freq (GHz) | Phase Adjust (min) | I.L. (dB max) | VSWR (max) |
|---|---|---|---|---|---|
| P1503 | P2503 | DC-2.3 | 60°/GHz | 0.5 | 1.5 |
| P1504 | P2504 | DC-4.3 | 60°/GHz | 0.5 | 1.5 |
| P1505 | P2505 | DC-8.2 | 60°/GHz | 0.6 | 1.5 |
| P1506 | P2506 | DC-12.7 | 60°/GHz | 0.7 | 1.5 |
| P1507 | P2507 | DC-18.6 | 60°/GHz | 1.0 | 1.6 |
| P1508 | P2508 | 18-26.0 | 60°/GHz | 1.5 | 2.0 |

## P1600 and P2600 series

**Standard Size 7" X 2" X 1"**

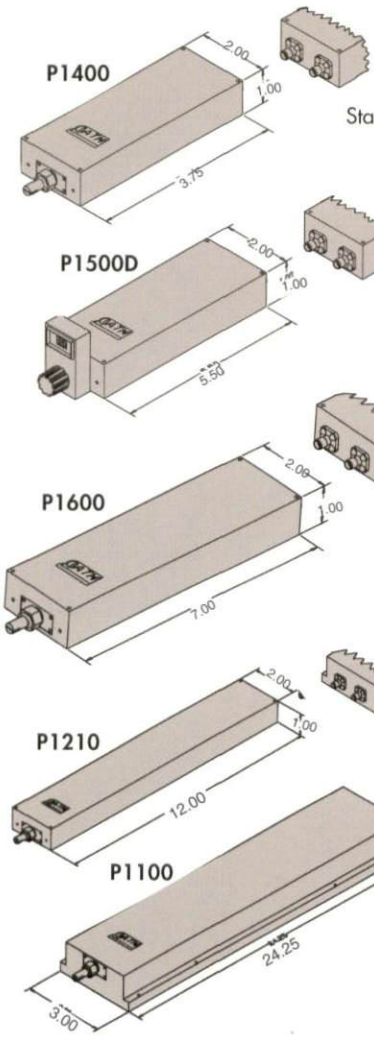
| Model No.* (SMA) | Model No.* (Type N) | Freq (GHz) | Phase Adjust (min) | I.L. (dB max) | VSWR (max) |
|---|---|---|---|---|---|
| P1603 | P2603 | DC-2.3 | 90°/GHz | 0.5 | 1.5 |
| P1604 | P2604 | DC-4.3 | 90°/GHz | 0.5 | 1.5 |
| P1605 | P2605 | DC-8.2 | 90°/GHz | 0.6 | 1.5 |
| P1606 | P2606 | DC-12.7 | 90°/GHz | 0.7 | 1.5 |
| P1607 | P2607 | DC-18.6 | 90°/GHz | 1.0 | 1.6 |

* For a Digital Counting Dial add "D" suffix to model number

## series P1210, P2210, P1100 and P2100

**Standard Size**
**180° 12" X 2" X 1"**
**360° 24" X 3" X 1.2"**

| Model No.* (SMA) | Model No.* (Type N) | Freq (GHz) | Phase Adjust (min) | I.L. (dB max) | VSWR (max) |
|---|---|---|---|---|---|
| P1213 | P2213 | DC-2.3 | 180°/GHz | 0.6 | 1.3 |
| P1214 | P2214 | DC-4.3 | 180°/GHz | 0.7 | 1.5 |
| P1102 | P2102 | DC-1.0 | 360°/GHz | 0.5 | 1.3 |
| P1103 | P2103 | DC-2.5 | 360°/GHz | 0.8 | 1.5 |




See ATM Website For Additional Models

## LINE STRETCHERS

Locking Device Included
Smooth Continuous Phase Change
Light Weight Aluminum Housing
50 Ohm impedance
Operating Temperature Range: -54°C to +115°C
SMA and Type N Connectors

| Freq (GHz) | VSWR (max) | Min. Phase Adjust | I.L. (dB Max) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|
| DC-2.3 | 1.25 | 15°/GHz | 0.2 | P1913 | P2913 |
| DC-4.3 | 1.30 | 15°/GHz | 0.25 | P1914 | P2914 |
| DC-8.2 | 1.40 | 15°/GHz | 0.30 | P1915 | P2915 |
| DC-12.7 | 1.50 | 15°/GHz | 0.5 | P1916 | P2916 |
| DC-18.6 | 1.50 | 15°/GHz | 0.6 | P1917 | P2917 |
| DC-26.5 | 1.60 | 15°/GHz | 0.8 | P1918 | N/A |

*Phase Shifter Drive Options*

Standard Models are supplied with lock nut & Knob
For Digital Counting Dial add"D" suffix to Model number
For Direct Reading Dial add "DRE" suffix to Model number
For 28 Volt Motor Driver add-28 to the Model number
For Stepper Motor add -SM24 to the model number

**Phase Shifter Drive Options**


Standard Type

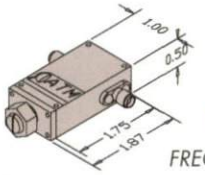

Digital Counting Dial (-D)


Direct Reading (-DRE)


Motor Drive (-28) OR SM24

49 Rider Ave, Patchogue, NY 11772 Phone: 631-289-0363 Fax: 631-289-0358
E-mail: atm@atmmicrowave.com Web: www.atmmicrowave.com

# CONTINUOUSLY VARIABLE ATTENUATORS




## 06 SERIES VARIABLE ATTENUATORS

*FREQUENCY FLAT MODELS*

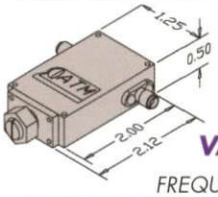
| Freq (GHz) | Atten Range (dB) | Flatness (+/- db) | Model No. |
|---|---|---|---|
| 2.0-4.0 | 10 | 1.5 | AF064-10 |
| 3.6-6.5 | 10 | 0.8 | AF065C-10 |
| 5.8-6.5 | 20 | 0.5 | AF06C2-20 |
| *5.85-14.5 | 20 | 0.5/B | AF06CK-20 |
| 4.0-8.0 | 10 | 2.0 | AF065-10 |
| 7.2-8.4 | 20 | 1.0 | AF065X-20 |
| 8.0-12.4 | 10 | 1.0 | AF066-10 |
| 10.7-12.7 | 20 | 0.8 | AF066X-20 |
| 10.7-14.5 | 20 | 1.5 | AF066K-20 |
| 13.0-14.5 | 30 | 0.5 | AF067K-30 |
| 12.4-18.0 | 10 | 1.0 | AF067-10 |
| 17.0-18.6 | 20 | 1.0 | AF067J-20 |
| 8.0-18.0 | 20 | 1.8 | AF066H-20 |
| 14.0-26.0 | 20 | 1.0 | AF068-20 |
| 26.5-40 | 30 | 1.8 | AF069-30 |

*LEVEL ADJUST MODELS*

| | | | |
|---|---|---|---|
| 2.0-4.2 | 10 | N/A | AV064-10 |
| 4.0-8.0 | 20 | N/A | AV065-20 |
| 7.9-12.7 | 30 | N/A | AV066-30 |
| 11.7-18.0 | 30 | N/A | AV067-30 |
| 14.0-26.5 | 20 | N/A | AV068-20 |
| 26.5-40 | 20 | N/A | AV069-20 |

*MULTIBAND MODELS*

| | | | |
|---|---|---|---|
| 2.0-8.0 | 10 | N/A | AV064F-10 |
| 4.0-18.0 | 10 | N/A | AV065H-10 |
| 6.0-18.0 | 30 | N/A | AV066H-30 |
| 18.0-40 | 20 | N/A | AV068Q-20 |




## 07 SERIES VARIABLE ATTENUATORS

*FREQUENCY FLAT MODELS*

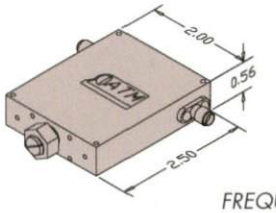
| Freq (GHz) | Atten Range (dB) | Flatness (+/- db) | Model No. |
|---|---|---|---|
| 2.0-4.0 | 10 | 1.5 | AF074-10 |
| 3.6-6.5 | 20 | 0.8 | AF075C-20 |
| 3.6-4.3 | 20 | 0.5 | AF075C1-20 |
| 5.8-6.5 | 20 | 0.5 | AF075C2-20 |
| *5.85-14.5 | 20 | 0.5/B | AF07CK-20 |
| 4.0-8.0 | 10 | 2.0 | AF075-10 |
| 7.2-8.4 | 20 | 1.0 | AF075X-20 |
| 7.9-8.4 | 20 | 0.5 | AF076X2-20 |
| 8.0-12.4 | 10 | 1.0 | AF076-10 |
| 10.7-12.7 | 20 | 0.8 | AF076X-20 |
| 10.7-14.5 | 20 | 1.5 | AF076K-20 |
| 12.4-18.0 | 10 | 1.0 | AF077-10 |
| 17.0-18.6 | 20 | 1.0 | AF077J-20 |
| 8.0-18.0 | 20 | 1.5 | AF076H-20 |

*LEVEL ADJUST MODELS*

| | | | |
|---|---|---|---|
| 1.0-2.0 | 10 | N/A | AV073-10 |
| 1.5-2.0 | 15 | N/A | AV073-15 |
| 2.0-4.0 | 20 | N/A | AV074-20 |
| 2.0-8.0 | 20 | N/A | AV074F-20 |
| 3.6-4.3 | 30 | N/A | AV075C1-30 |
| 4.0-8.0 | 30 | N/A | AV075-30 |
| 4.0-12.4 | 30 | N/A | AV075G-30 |
| 8.0-12.4 | 40 | N/A | AV076-40 |
| 8.0-18.0 | 40 | N/A | AV076H-40 |

* Triband C, X, Ku

**See ATM Website For Additional Models**




## 08 SERIES

*FREQUENCY FLAT MODELS*

| Freq (GHz) | Atten Range (dB) | Flatness (+/- db) | Model No. |
|---|---|---|---|
| 0.7-0.8 | 10 | 0.75 | AF082L2-10 |
| 0.8-1.0 | 15 | 1.5 | AF082L1-15 |
| 0.8-1.0 | 20 | 1.5 | AF082L1-20 |
| 0.95-1.45 | 15 | 1.7 | AF083L1-15 |
| 1.5-2.0 | 20 | 1.5 | AF083L2-20 |
| 2.0-4.0 | 20 | 1.5 | AF084-20 |
| 2.8-6.5 | 20 | 1.5 | AF084F-20 |
| 3.4-4.2 | 20 | 1.0 | AF085C3-20 |
| 3.6-6.5 | 30 | 1.2 | AF085C-30 |
| 3.6-4.3 | 30 | 0.7 | AF085C1-30 |
| 5.8-6.5 | 30 | 0.7 | AF085C2-30 |
| 4.0-8.0 | 20 | 1.0 | AF085-20 |
| 7.2-8.4 | 30 | 0.7 | AF085X-30 |
| 8.0-12.4 | 20 | 1.0 | AF086-20 |
| 10.7-12.7 | 30 | 1.0 | AF086X-30 |
| 10.7-14.5 | 30 | 1.5 | AF086K-30 |
| 12.4-18.0 | 20 | 1.0 | AF087-20 |

*LEVEL ADJUST MODELS*

| | | | |
|---|---|---|---|
| 0.7-1.0 | 10 | N/A | AV082-10 |
| 0.8-1.6 | 15 | N/A | AV083L-15 |
| 0.8-2.0 | 20 | N/A | AV083L-30 |
| 1.0-2.0 | 20 | N/A | AV083-20 |
| 2.0-4.2 | 20 | N/A | AV084-20 |
| 4.0-8.0 | 30 | N/A | AV085-30 |
| 7.9-12.7 | 30 | N/A | AV086-30 |
| 11.7-18.0 | 30 | N/A | AV087-30 |

*MULTIBAND MODELS*

| | | | |
|---|---|---|---|
| 0.7-2.0 | 10 | N/A | AV082D-10 |
| 1.0-4.0 | 20 | N/A | AV083E-20 |
| 1.0-8.0 | 30 | N/A | AV083F-30 |
| 2.0-18.0 | 10 | N/A | AV084H-10 |
| 4.0-18.0 | 20 | N/A | AV085H-20 |
| 6.0-18.0 | 60 | N/A | AV086H-60 |

## *GENERAL SPECIFICATIONS FOR ALL UNITS*

- RF CONN: SMA female (Type N also)
- INS LOSS: 0.5dB max
- VSWR: 1.5 max
- RF POWER*: 5 W avg, 3 Kw peak
- ATTEN RGE: Many other models to 60dB

*Higher Power Models Available - Contact Factory

## *ATTENUATOR DRIVE* **OPTIONS**

**Our Standard** is a Screw Driver Shaft with a Lock Nut
The Part Number begins with AV0 or AF0

For a **Knob Control Option** change the AV0 or the AF0 in the P/N to AV9 or AF9
Example: AF064-10 = AF964-10

For a **Turns Counting Dial Option** use AV8 or AF8

For a **Direct Reading Tape Drive Option** use
AF7 for Full Frequency Range Calibration or
AV7 for Single Frequency Calibration
*(Specify Spot Frequency with Order)*

For **28 Volt Motor Drive** add -28 to the Model Number

For **Stepper Motor Drive** add -SM24 to the Model Number

**Attenuator Drive Options**


Motor Drive (-28 or -SM24)


Knob Control


Turns Counting Dial


Direct Reading (calibrated in dB)

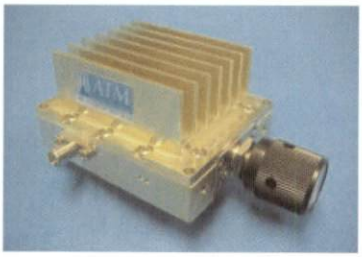
49 Rider Ave, Patchogue, NY 11772 Phone: 631-289-0363 Fax: 631-289-0358
E-mail: atm@atmmicrowave.com Web: www.atmmicrowave.com

ADVANCED TECHNICAL MATERIALS INC.

For a wide variety of
# Microwave Components

## HIGH POWER VARIABLE ATTENUATORS

### 50 WATTS*



AH50V Series

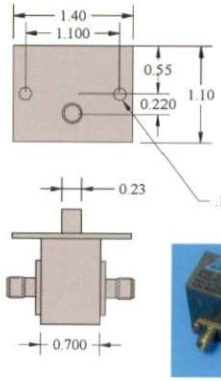
| | |
|---|---|
| RF CONN: | SMA female |
| INS LOSS: | 0.5dB max |
| VSWR: | 1.5 max |
| RF POWER: | 50 W avg |
| | 5 Kw peak |

*Up to 250 Watts Available

| Freq. (GHZ) | Atten. Range (dB) | Flatness (+/- dB) | Model No. |
|---|---|---|---|
| 0.5 - 1.0 | 6 | N/A | AH50V082-6 |
| 0.8 - 1.6 | 10 | N/A | AH50V083L-10 |
| 0.9 - 1.75 | 10 | N/A | AH50V083L1-10 |
| 1.0 - 2.0 | 10 | N/A | AH50V083-10 |
| 2.0 - 4.2 | 10 | N/A | AH50V084-10 |
| 4.0 - 8.0 | 10 | N/A | AH50V085-10 |
| 7.9 - 12.7 | 10 | N/A | AH50V086-10 |
| 11.7 - 18.0 | 10 | N/A | AH50V087-10 |

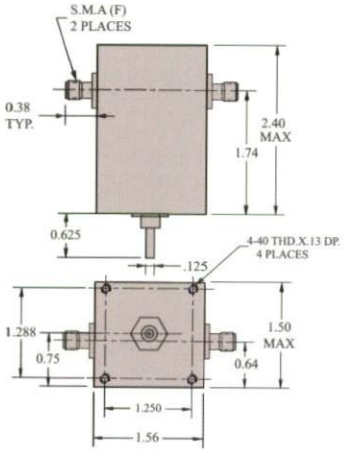
For 30W change AH50 to AH30

## DC - 1 GHz VARIABLE ATTENUATORS





AF02 Series




Standard Model

Dial Option*

### AF03 Series

*Multi-Turn, SMA Connectors, Low Insertion Loss*

| Freq (MHz) | Atten (dB) | I.L. (dB max) | Flatness (+/- dB) | VSWR (max) | Model No. (50 Ohm) | Model No. (75 Ohm) |
|---|---|---|---|---|---|---|
| DC-100 | 0-15 | 0.5 | 0.5 | 1.8 | AF030-15 | AF030-15/75 |
| DC-200 | 0-15 | 0.5 | 0.5 | 1.8 | AF031-15 | AF031-15/75 |
| DC-500 | 0-15 | 0.5 | 1.0 | 1.8 | AF032-15 | AF032-15/75 |
| DC-1000 | 0-15 | 1.0 | 1.5 | 2.0 | AF033-15 | N/A |

*AFO2 SERIES*

| | | | | | | |
|---|---|---|---|---|---|---|
| DC-100 | 0-15 | 0.5 | 0.5 | 1.8 | AF020-15 | N/A |
| DC-200 | 0-15 | 0.5 | 0.5 | 1.8 | AF021-15 | N/A |
| DC-500 | 0-15 | 0.5 | 1.0 | 1.8 | AF022-15 | N/A |
| DC-1000 | 0-15 | 1.0 | 1.5 | 1.8 | AF023-15 | N/A |

*For Turns Counting Dial change P/N from AF0 to AF8

### AF04 & AF05 Series

*Multi-Turn, SMA Connectors, Low Insertion Loss*

| Freq (MHz) | Atten (dB) | I.L. (dB max) | Flatness (+/- dB) | VSWR (max) | Model No. (50 Ohm) | Model No. (75 Ohm) |
|---|---|---|---|---|---|---|
| DC-100 | 0-30 | 1.0 | 1.0 | 1.5 | AF040-30 | AF040-30/75 |
| DC-200 | 0-30 | 1.0 | 1.5 | 1.5 | AF041-30 | AF041-30/75 |
| DC-500 | 0-30 | 1.0 | 1.5 | 1.8 | AF042-30 | AF042-30/75 |
| DC-1000 | 0-30 | 3.0 | N/A | 2.0 | AV043-30 | N/A |

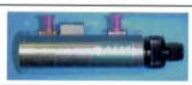
*Single-Turn, SMA, Low Insertion Loss, w/Calibration Dial*

| | | | | | | |
|---|---|---|---|---|---|---|
| DC-100 | 0-30 | 1.0 | 1.0 | 1.5 | AF050-30 | AF050-30/75 |
| DC-200 | 0-30 | 1.0 | 1.5 | 1.5 | AF051-30 | AF051-30/75 |
| DC-500 | 0-30 | 1.0 | 1.5 | 1.5 | AF052-30 | AF052-30/75 |

For Lock Capability Add L to Model No.

## ROTARY STEP ATTENUATORS

**See ATM Website for Dimensions & Models**

| Model No. AS013-10-1 | Model No. AS013-60-10 | Model No. AS013-70-10 | Model No. AS113-50-1 Dual Concentric | Model No. AS113-110-1 Dual Concentric |
|---|---|---|---|---|
|  |  |  |  |  |
| Freq. Range DC-2500 MHz | Freq. Range DC-2200 MHz | Freq. Range DC-2500 MHz | Freq. Range DC-2500 MHz | Freq. Range DC-2200 MHz |
| Atten Range 0-10 dB in 1 dB steps | Atten Range 0-60 dB in 10 dB steps | Atten Range 0-70 dB in 10 dB steps | Atten Range 0-50 dB in 1 dB steps | Atten Range 0-110 dB in 1 dB steps |
| Attenuation Accuracy | Attenuation Accuracy | Attenuation Accuracy | Attenuation Accuracy | Attenuation Accuracy |
| DC-1100 MHz ±0.25dB max | DC-500 MHz ±0.5dB or 1% | DC-500 MHz ±0.5dB or 1% | DC-500 MHz ±0.2dB or 1% | DC-500 MHz ±0.5dB or 1% |
| 1100-2200 MHz ±0.5dB max | 500-1000 MHz ±0.5dB or 2% | 500-1000 MHz ±0.5dB or 2% | 500-1000 MHz ±0.3dB or 3% | 500-2000 MHz ±0.5dB or 3% |
| 2200-2500 MHz ±0.6dB max | 1000-2000 MHz ±0.5dB or 3% | 1000-2000 MHz ±0.5dB or 3% | 1000-2000 MHz ±0.4dB or 3% | VSWR |
| VSWR | VSWR | VSWR | VSWR | DC-500 MHz 1.2:1 max |
| DC-1100 MHz 1.25:1 max | DC-1000 MHz 1.2:1 max | DC-1000 MHz 1.2:1 max | DC-500 MHz 1.2:1 max | 500-1000 MHz 1.4:1 max |
| 1100-2000 MHz 1.5:1 max | 1000-2000 MHz 1.4:1 max | 1000-2000 MHz 1.4:1 max | 500-1000 MHz 1.4:1 max | 1000-2000 MHz 1.5:1 max |
| Insertion Loss: | Insertion Loss: | 2000-2500 MHz 1.5:1 max | 1000-2500 MHz 1.5:1 max | Insertion Loss: |
| DC-1100 MHz 0.5dB max | DC-1000 MHz 0.3dB max | Insertion Loss: | Insertion Loss: | DC-1000 MHz 0.5dB max |
| 1100-2000 MHz 0.5dB max | 1000-2000 MHz 0.5dB max | DC-1000 MHz 0.3dB max | DC-1000 MHz 0.5dB max | 1000-2000 MHz 1.0dB max |
| | | 1000-2000 MHz 0.5dB max | 1000-2500 MHz 1.0dB max | |
| | | 2000-2500 MHz 0.6dB max | | |

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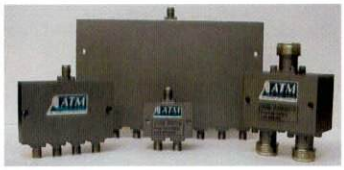
- Connectors SMA and Type N
- Compact and Lightweight
- RF Power 30 Watt with all ports matched
- Models to 40 GHz



*OCTAVE BAND - **2 WAY** MODELS*

| Freq (GHz) | Isolation (dB min) | VSWR Max* In | VSWR Max* Out | Insertion Loss (dB) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|---|
| 0.5-1.0 | 22 | 1.25 | 1.15 | 0.40 | P212 | P222 |
| 1.0-2.0 | 20 | 1.25 | 1.15 | 0.35 | P213 | P223 |
| 2.0-4.0 | 20 | 1.30 | 1.20 | 0.40 | P214 | P224 |
| 4.0-8.0 | 20 | 1.35 | 1.25 | 0.50 | P215 | P225 |
| 8.0-12.4 | 20 | 1.35 | 1.30 | 0.50 | P216 | ** |
| 12.0-18.0 | 19 | 1.40 | 1.35 | 0.60 | P217 | ** |
| 14.0-21.0 | 15 | 1.70 | 1.70 | 0.60 | P218 | ** |

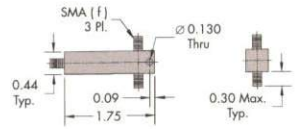
*MULTIBAND MODELS **2 WAY** MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.5-4.0 | 20 | 1.3 | 1.2 | 0.50 | P212E | ** |
| 0.8-2.4 | 20 | 1.25 | 1.2 | 0.35 | P212D | P222D |
| 2.0-8.0 | 20 | 1.35 | 1.35 | 0.40 | P214F | P224F |
| 1.0-18.0 | 18 | 1.4 | 1.4 | 1.00 | P213H | ** |
| 6.0-18 | 19 | 1.4 | 1.35 | 0.60 | P215H | P225H |
| 2.0-26.5 | 19 | 1.4 | 1.35 | 1.10 | P2K8 | ** |

*SATCOM & SPECIAL BAND **2 WAY** MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.85-1.65 | 22 | 1.25 | 1.20 | 0.40 | P213L | P223L |
| 3.65-6.5 | 20 | 1.35 | 1.25 | 0.40 | P215C | P225C |
| 3.65-4.3 | 22 | 1.25 | 1.20 | 0.40 | P215C1 | P225C1 |
| 5.85-6.5 | 22 | 1.25 | 1.20 | 0.40 | P215C2 | P225C2 |
| 7.2-8.4 | 20 | 1.35 | 1.30 | 0.50 | P215X | P225X |
| 7.2-7.75 | 20 | 1.30 | 1.30 | 0.50 | P215X1 | P225X1 |
| 7.9-8.4 | 20 | 1.30 | 1.30 | 0.50 | P215X2 | P225X2 |
| 10.7-12.7 | 20 | 1.40 | 1.35 | 0.60 | P216X-1 | P226X-1 |
| 10.7-14.5 | 18 | 1.45 | 1.40 | 0.60 | P216K-1 | P226K-1 |
| 13.7-14.5 | 20 | 1.40 | 1.35 | 0.60 | P217K-1 | P227K-1 |

## ULTRA WIDE BAND 2 WAY MODELS




| Freq (GHz) | Isolation (dB min) | VSWR Max* In | VSWR Max* Out | Insertion Loss (dB) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|---|
| 0.5-18 | Specs In Table Below | | | | — | P223HT |
| 0.5-20 | Specs In Table Below | | | | P213HT | N/A |

*ULTRA WIDE BAND **2 WAY** MODELS SPECS*

| Freq. Range (GHz) | Insertion Loss (dB Max) | Isolation (dB Min.) | VSWR In (Max.) | VSWR Out (Max.) | Phase Balance (Deg. Max) | Amplitude Balance (dB Max) | Input Power (W Max.) |
|---|---|---|---|---|---|---|---|
| 0.5-1 | 0.70 | 6 | 2.00:1 | 2.00:1 | 1 | 0.20 | 10 |
| 1-1.5 | 0.50 | 10 | 1.70:1 | 1.50:1 | 1 | 0.20 | 10 |
| 1.5-2 | 0.50 | 15 | 1.60:1 | 1.40:1 | 1 | 0.20 | 10 |
| 2-4 | 0.40 | 20 | 1.50:1 | 1.30:1 | 1 | 0.20 | 10 |
| 4-8 | 0.50 | 17 | 1.50:1 | 1.40:1 | 1.5 | 0.20 | 10 |
| 8-15 | 0.80 | 15 | 1.70:1 | 1.50:1 | 2 | 0.30 | 10 |
| 15-16 | 0.80 | 15 | 1.70:1 | 1.60:1 | 3 | 0.30 | 10 |
| 16-18 | 0.90 | 14 | 1.80:1 | 1.90:1 | 4 | 0.40 | 10 |
| 18-20 | 1.10 | 7 | 2.00:1 | 2.00:1 | 4 | 0.40 | 10 |

*SPECIAL 10.0 - 40.0 GHz **2 WAY** MULTI - BAND UNIT*

| Model (No.) | Freq. (GHz) | Isolation (dB Min.) | VSWR Max (In) | VSWR Max (Out.) | Isolation (dB Min.) | Amplitude Balance (+/- dB) | Phase Balance (+/- deg) |
|---|---|---|---|---|---|---|---|
| P2K9A | 10.0-18.0 | 18 | 1.6 | 1.5 | 1.5 | 0.6 | 6.0 |
| | 18.0-40.0 | 18 | 1.6 | 1.5 | 2.1 | 0.6 | 6.0 |

*OCTAVE & WIDE BAND **4 WAY** MODELS*

| Freq (GHz) | Isolation (dB min) | VSWR Max* In | VSWR Max* Out | Insertion Loss (dB) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|---|
| 0.5-1.0 | 22 | 1.45 | 1.30 | 0.90 | P412 | P422 |
| 1.0-2.0 | 20 | 1.40 | 1.25 | 0.80 | P413 | P423 |
| 2.0-4.0 | 20 | 1.35 | 1.35 | 0.60 | P414 | P424 |
| 4.0-8.0 | 20 | 1.45 | 1.35 | 0.60 | P415 | P425 |
| 7.0-12.4 | 18 | 1.45 | 1.35 | 0.80 | P416 | ** |
| 12.0-18.0 | 18 | 1.50 | 1.40 | 0.90 | P417 | ** |
| 0.5-4.0 | 15 | 1.50 | 1.40 | 1.00 | P412E | ** |
| 2.0-8.0 | 15 | 1.60 | 1.40 | 2.00 | P414F | P424F |
| 2.0-18.0 | 15 | 1.60 | 1.40 | 2.00 | P414H | ** |
| 6.0-18.0 | 18 | 1.60 | 1.40 | 0.90 | P415H | ** |
| 14.0-21.0 | 16 | 1.60 | 1.60 | 1.50 | P418 | ** |

*SATCOM & SPECIAL BAND **4 WAY** MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.85-1.65 | 22 | 1.25 | 1.20 | 0.40 | P413L | P423L |
| 3.65-6.5 | 20 | 1.35 | 1.25 | 0.40 | P415C | P425C |
| 3.65-4.3 | 22 | 1.25 | 1.20 | 0.40 | P415C1 | P425C1 |
| 5.85-6.5 | 22 | 1.25 | 1.20 | 0.40 | P415C2 | P425C2 |
| 7.2-8.4 | 20 | 1.35 | 1.30 | 0.50 | P415X | P425X |
| 7.2-7.75 | 20 | 1.30 | 1.30 | 0.50 | P415X1 | P425X1 |
| 7.9-8.4 | 20 | 1.30 | 1.30 | 0.50 | P415X2 | P425X2 |
| 10.7-12.7 | 20 | 1.40 | 1.35 | 0.60 | P416X-1 | P426X-1 |
| 10.7-14.5 | 18 | 1.45 | 1.40 | 0.60 | P416K-1 | P426K-1 |
| 13.7-14.5 | 20 | 1.40 | 1.35 | 0.60 | P417K-1 | P427K-1 |
| 5.7 -18.5 | 12 | 1.70 | 1.60 | 2.00 | P415CJ | ** |

*OCTAVE & WIDE BAND **8 WAY** MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.5-1.0 | 18 | 1.45 | 1.30 | 0.90 | P812 | P822 |
| 1.0-2.0 | 18 | 1.45 | 1.35 | 0.80 | P813 | P823 |
| 2.0-4.0 | 18 | 1.45 | 1.35 | 0.80 | P814 | P824 |
| 4.0-8.0 | 17 | 1.45 | 1.40 | 1.0 | P815 | P825 |
| 8.0-12.4 | 16 | 1.60 | 1.50 | 1.4 | P816 | ** |
| 12.0-18.0 | 15 | 1.60 | 1.50 | 2.0 | P817 | ** |
| 2.0-18.0 | 13 | 1.70 | 1.70 | 3.0 | P814H | ** |

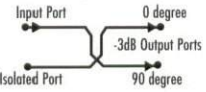
*SATCOM & SPECIAL BAND **8 WAY** MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.85-1.65 | 18 | 1.45 | 1.40 | 0.8 | P813L | P823L |
| 3.65-6.5 | 17 | 1.45 | 1.45 | 0.8 | P815C | P825C |
| 3.65-4.3 | 18 | 1.40 | 1.40 | 0.8 | P815C1 | P825C1 |
| 5.85-6.5 | 18 | 1.45 | 1.40 | 0.8 | P815C2 | P825C2 |
| 7.2-8.4 | 16 | 1.45 | 1.40 | 0.9 | P815X | P825X |
| 7.2-7.75 | 16 | 1.45 | 1.40 | 0.9 | P815X1 | P825X1 |
| 7.9-8.4 | 16 | 1.45 | 1.40 | 0.9 | P815X2 | P825X2 |
| 10.7-12.7 | 17 | 1.45 | 1.40 | 1.0 | P816X-1 | P826X-1 |
| 10.7-14.5 | 17 | 1.45 | 1.40 | 1.0 | P816K-1 | P826K-1 |
| 13.7-14.5 | 17 | 1.45 | 1.40 | 1.0 | P817K-1 | P827K-1 |

* Type N Models are .05 higher in VSWR than SMA Models
**Type N Units available in narrower bands

## 90° HYBRID 3dB COUPLERS

- The Hybrid Directional Coupler splits power equally between its two output ports
- Two output ports are 90° out of phase with each other
- Construction is stripline in an aluminum housing




Phase Balance Typically: ±5°
RF Conn: SMA Female or Type N Female- 4 ports

*OCTAVE BAND MODELS* RF Power 50W Avg 2kW peak

| Freq (GHz) | VSWR (max) | ISO (dB min) | Coupling Limits (dB) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|
| 0.2-1.0 | 1.20 | 20 | 3.2±0.6 | H911C | H921C |
| 0.5-1.0 | 1.10 | 28 | 3.1±0.6 | H912 | H922 |
| 1.0-2.0 | 1.10 | 28 | 3.1±0.6 | H913 | H923 |
| 2.0-4.0 | 1.20 | 22 | 3.1±0.6 | H914 | N/A |
| 2.6-5.2 | 1.25 | 20 | 3.1±0.6 | H914K | N/A |
| 4.0-8.0 | 1.25 | 18 | 3.2±0.7 | H915 | N/A |
| 6.0-12.4 | 1.30 | 18 | 3.2±0.7 | H916 | N/A |
| 7.5-16.0 | 1.40 | 15 | 3.4±0.9 | H916H | N/A |
| 12.0-18.0 | 1.45 | 15 | 3.4±1.0 | H917 | N/A |

*BROADBAND MODELS* RF Power 30W Avg 2kW peak

| | | | | | |
|---|---|---|---|---|---|
| 0.5-2.0 | 1.30 | 15 | 3.3±0.8 | H912D | H922D |
| 0.8-2.5 | 1.30 | 15 | 3.3±0.8 | H912E | H922E |
| 2.0-8.0 | 1.30 | 17 | 3.3±0.8 | H914F | H924F |
| 4.0-12.4 | 1.35 | 17 | 3.3±0.8 | H915G | H925G |
| 7.0-18.0 | 1.50 | 13 | 3.4±1.0 | H915H | H925H |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## DIRECTIONAL COUPLERS

RF Power: 50W avg. 3 KW peak
Design: Stripline
Standard Coupling: 6,10, 20, and 30dB
Coupling Flatness: ± 1.0 dB full band
RF Connectors: SMA and Type N.

*OCTAVE BAND MODELS*

| Freq (GHz) | VSWR Max** Thru | Coup | Directivity (dB min) | I. L.† (dB ) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|---|
| 0.43-1.0 | 1.10 | 1.10 | 25 | 0.2 | C111L-* | C211L-* |
| 0.5-1.0 | 1.10 | 1.10 | 25 | 0.2 | C112-* | C212-* |
| 1 - 2 | 1.10 | 1.10 | 25 | 0.2 | C113-* | C213-* |
| 2 - 4 | 1.15 | 1.15 | 22 | 0.2 | C114-* | C214-* |
| 2.6-5.2 | 1.25 | 1.25 | 20 | 0.2 | C114F-* | C214F-* |
| 4 - 8 | 1.25 | 1.25 | 20 | 0.25 | C115-* | C215-* |
| 7 -12.4 | 1.30 | 1.30 | 17 | 0.3 | C116-* | C216-* |
| 7.5-16 | 1.35 | 1.40 | 15 | 0.5 | C116H-* | C216H-* |
| 12.4-18 | 1.35 | 1.40 | 15 | 0.5 | C117-* | C217-* |
| 14-21 | 1.65 | 1.65 | 12 | 0.7 | C118-* | ** |

*MULTIBAND MODELS*

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.5-2.0 | 1.20 | 1.20 | 23 | 0.4 | C122D-* | C222D-* |
| 0.6-4.0 | 1.20 | 1.20 | 23 | 0.4 | C122E-* | C222E-* |
| 0.8-2.7 | 1.20 | 1.20 | 23 | 0.4 | C122L-* | C222L-* |
| 1 - 4 | 1.20 | 1.20 | 23 | 0.4 | C123E-* | C223E-* |
| 2 - 8 | 1.25 | 1.25 | 20 | 0.4 | C124F-* | C224F-* |
| 4 - 12.4 | 1.25 | 1.25 | 17 | 0.5 | C125G-* | C225G-* |
| 6 - 18 | 1.35 | 1.35 | 15 | 0.7 | C126H-* | C226H-* |
| 1 - 18 | 1.40 | 1.50 | 15 | 0.9 | C123H-* | C223H-* |
| 4 - 18 | 1.35 | 1.40 | 18 | 0.6 | C125H-* | C225H-* |
| 18-40 | 1.90 | 1.90 | 12 | 1.4 | C128K-* | N/A |

* Add coupling in dB. Example C115-20. † Insertion loss excludes coupling loss
** Type N models are spec .05 higher in VSWR than SMA models

## 50 Watt Dual Directional Couplers

RF Power: 50W avg. 3 KW peak
- Design: Stripline
- Standard Coupling: 10, 20, and 30dB* (6dB and Other Values Available)

RF Connectors: SMA Female

| Model No. | Freq. Rge GHz | Freq. Sens. ± (dB) | Directivity (dB) max.* | Ins. Loss (dB) min. | VSWR max Main | Sec. |
|---|---|---|---|---|---|---|
| C132-* | 0.5-1.0 | 0.75 | 22 | 0.20 | 1.15 | 1.10 |
| C133-* | 1.0-2.0 | 0.75 | 22 | 0.25 | 1.15 | 1.10 |
| C134-* | 2.0-4.0 | 0.75 | 20 | 0.30 | 1.20 | 1.15 |
| C134F-* | 2.6-5.2 | 0.75 | 18 | 0.20 | 1.30 | 1.25 |
| C135-* | 4.0-8.0 | 0.75 | 18 | 0.25 | 1.35 | 1.25 |
| C136-* | 7.0-12.4 | 0.50 | 16 | 0.30 | 1.35 | 1.30 |
| C136H-* | 8.0-16.0 | 0.75 | 15 | 0.50 | 1.40 | 1.40 |
| C137-* | 12.4-18.0 | 0.60 | 15 | 0.50 | 1.40 | 1.40 |

* Coupling value 10, 20, 30dB (Example: C132-20)

## FIXED ATTENUATORS

**Standard Values are 3, 6, 10 and 20dB**
**Other Values, 1 thru 30dB, are available**

| Freq Rge (GHz) | RF Power (CW) | VSWR (max) | Model No. (SMA M/F) | Model No. (Type N M/F) |
|---|---|---|---|---|
| DC-6.5 | 2 | 1.2 | 3105-dB | 2205-dB |
| DC-12.4 | 2 | 1.25 | 3106-dB | 2206-dB |
| DC-18.0 | 2 | 1.35 | 3107-dB | 2207-dB |
| DC-26.0 | 2 | 1.40 | 2108-dB* | N/A |
| DC-40.0 | 2 | 1.4 | 2109-dB* | N/A |
| DC-6.5 | 5 | 1.2 | 0515-dB | 0525-dB |
| DC-18.0 | 5 | 1.35 | 0517-dB | 0527-dB |
| DC-6.5 | 10 | 1.25 | 1015-dB | 1025-dB |
| DC-18.0 | 10 | 1.40 | 1017-dB | 1027-dB |
| DC-6.5 | 25 | 1.20 | 2515-dB | 2525-dB |
| DC-18.0 | 25 | 1.4 | 2517-dB | 2527-dB |
| DC-6.5 | 50 | 1.3 | 5015-dB | 5025-dB |
| DC-18.0 | 50 | 1.45 | 5017-dB | 5027-dB |

*Unit available with 2.9mm connector only.

## HIGH POWER DIRECTIONAL COUPLERS

RF Power: 200 Watt average
3 KW peak
Design: Stripline
Standard Coupling: 10, 20, and 30dB
Coupling Flatness: + 1.0 dB full band
RF Connectors: SMA and Type N.

*OCTAVE BAND MODELS*

| Freq (GHz) | VSWR Max** Thru | Coup | Directivity (dB min) | I. L.† (dB ) | Model No. (SMA) | Model No. (Type N) |
|---|---|---|---|---|---|---|
| 0.5-1.0 | 1.10 | 1.10 | 25 | 0.2 | CH112-* | CH212-* |
| 1 - 2 | 1.10 | 1.10 | 25 | 0.2 | CH113-* | CH213-* |
| 2 - 4 | 1.15 | 1.15 | 22 | 0.2 | CH114-* | CH214-* |
| 2.6-5.2 | 1.25 | 1.25 | 20 | 0.2 | CH114F-* | CH214F-* |
| 4 - 8 | 1.25 | 1.25 | 20 | 0.25 | CH115-* | CH215-* |
| 4-18 | 1.40 | 1.35 | 12 | 0.5 | CH125H-35 | CH225H-35 |

* Add coupling in dB. Example CH115-20. † Insertion loss excludes coupling loss
** Type N models are spec .05 higher in VSWR than SMA models

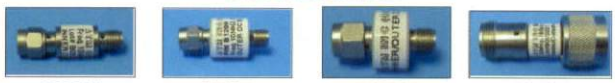
## 600W to 1400W High Power Directional Couplers

- Airline Design , Single and Dual Couplers
- Couplers 30dB, 40dB, 50dB, Standard
- Coupling Output SMA-f Standard
- In/Out Connectors, Rf Power
  N-f, std 600W avg. 10KW peak
  SC-f, option 900W avg. 10KW peak
  7/16-f, option 1400W avg, 10KW peak

| Model No. | Freq. Rge GHz | Freq. Sens. ± (dB) | Directivity (dB) min. | Ins. Loss dB Excluding Coupled Pow | True | VSWR max Main | Sec. |
|---|---|---|---|---|---|---|---|
| CHP223L-* | 0.86-1.7 | 1.0 | 23 | 0.15 | 0.20 | 1.20 | 1.30 |
| CHP223-* | 1.0-2.0 | 1.0 | 23 | 0.15 | 0.20 | 1.20 | 1.30 |
| CHP224-* | 2.0-4.0 | 1.0 | 23 | 0.15 | 0.20 | 1.25 | 1.30 |
| CHP225-* | 4.0-8.0 | 1.0 | 21 | 0.15 | 0.20 | 1.25 | 1.30 |
| CHP223E-* | 1.0-4.0 | 1.0 | 22 | 0.15 | 0.20 | 1.20 | 1.30 |
| CHP222L-* | 0.8-4.2 | 1.2 | 20 | 0.15 | 0.20 | 1.20 | 1.30 |
| CHP224F-* | 2.0-8.0 | 1.0 | 21 | 0.15 | 0.20 | 1.25 | 1.30 |

* Coupling value 30, 40, 50dB (Example: CHP223L-30)

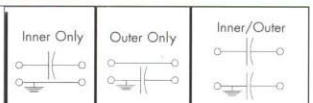
## DC BLOCKS



B220H SMA (Inner) · B120J SMA (Outer) · B320K 2.9mm (In/Out) · B350H Type N (In/Out)

### Specifications

VSWR: 1.35 max
1.45 for 40 GHz Models
Blocking Volt: 200 volts
Ins. Loss: 0.5 dB max




| Frequency | Connect | Model No. | | |
|---|---|---|---|---|
| 10 MHz - 18.0 GHz | SMA | B220H | B120H | B320H |
| | N | B250H | B150H | B350H |
| 10 MHz - 26.5 GHz | 2.9mm | B220J | B120J | B320J |
| 10 MHz - 40 GHz | 2.9mm | B220K | B120K | B320K |
| 10 MHz - 50 GHz | 2.4mm | B2240Q | B1240Q | B3240Q |

***See ATM Website For Full Specs & Drawings***

## COAXIAL TERMINATIONS

| Freq. (GHZ) | RF Power (watts) | VSWR (max) | Model No. (SMA-m) | Model No. (Type N-m) |
|---|---|---|---|---|
| DC-20.0 | 1 | 1.15 | T0117 | N/A |
| DC-20.0 | 2 | 1.25 | T0217 | T0227 |
| DC-40.0 | 2 | 1.20 | T02K9* | N/A |
| DC-8.0 | 5 | 1.20 | T0515 | T0525 |
| DC-18.0 | 5 | 1.25 | T0517 | T0527 |
| DC-18.0 | 10 | 1.35 | T1017 | T1027 |
| DC-8.0 | 25 | 1.20 | T2515 | T2525 |
| DC-18.0 | 25 | 1.35 | T2517 | T2527 |
| DC-8.0 | 50 | 1.25 | T5015 | T5025 |
| DC-18.0 | 50 | 1.25 | T5017 | T5027 |
| DC-4.0 | 100 | 1.35 | T10014 | T10024 |
| 3.0-12.4 | 500 | 1.30 | N/A | T50025G |

*Unit available with 2.9mm connector only.

**49 Rider Ave, Patchogue, NY 11772 Phone: 631-289-0363 Fax: 631-289-0358**
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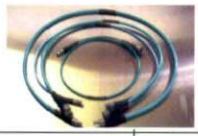
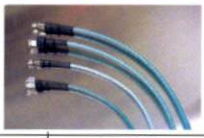
Great Service
Excellent Price
Fast Delivery

# FLEXIBLE MICROWAVE LOW LOSS CABLE ASSEMBLIES, RAW CABLES AND CONNECTORS


| Model No. | CF-100 | CF-135 | CF-160 | CF-210 | CF-300 | CF-500 |
|---|---|---|---|---|---|---|
| Freq. Operation | DC-62Ghz | DC-43Ghz | DC-35Ghz | DC-30Ghz | DC-18Ghz | DC-11Ghz |
| Size O.D. (Inches) | 0.110 | 0.145 | 0.170 | 0.220 | 0.310 | 0.500 |
| Impedance (ohms) | 50 | 50 | 50 | 50 | 50 | 50Dielectric Type |
| Dielectric Type | SPTFE | EPTFE | SPTFE | EPTFE | EPTFE | PE |
| Capacitance (pF/ft) | 29 | 24 | 29 | 24 | 24 | 23 |
| Time Delay (ns/ft) | 1.4 | 1.2 | 1.4 | 1.2 | 1.2 | 1.15 |
| Velocity (%) | 70 | 84 | 70 | 84 | 84 | 85 |
| RF Leakage | >100dB to 18 GHz | >100dB to 18GHz >80dB to 40 GHz | >100dB to 18GHz | >100dB to 18GHz | >100dB to 18GHz | >100dB to 11GHz |
| Cut Off Frequency (GHz) | 62 | 43 | 35 | 30 | 18 | 11 |
| Weight (lbs/100ft) | 1.9 | 3 | 6.5 | 7 | 12.5 | 15 |
| Min Bend Radius (in) | 0.25 | 0.5 | 0.75 | 1.0 | 2.0 | 3.0 |
| Temp Range (min/max °C) | -65°/+200° | -65°/+200° | -65° to +200° C | -65°/+200° | -65°/+200° | -65°/+90° |
| Total Cable assembly * loss for 12" Assembly @ 10 | 0.75 | 0.48 | 0.61 | 0.46 | 0.39 | 0.35 |

## Cable Assembly CF

Typical Cable #: CF—210—72—SM—NM

Basic Model #:
Cable Type:
Length (in):
Connector1:
Connector 2:

## Raw Cable CFR

Typical Cable #: CFR—210

Basic Model #:
Cable Type:

## Connectors

Typical Part #: SM—210

* Connector Type #:
Cable Type:

| Connector Type* | Code Male | Code Female |
|---|---|---|
| SMA | SM | SF |
| 2.9mm (K) | KM | KF |
| Type N | NM | NF |
| SC | SCM | SCF |

*See ATM Website for More Connector Options*

## PIN DIODE SOLID STATE SWITCHES

Frequency.: 0.5-18.0 GHz Peak Power:75 watt, 1µs pulse width
RF Power: +10 dBm spec compliant +30 dBm survival (OW)

*See Web for SP2T, SP3T, SP4T*

| Type: SP1T Reflective | | | | | Model No. S1517D | | | |
|---|---|---|---|---|---|---|---|---|
| Ins. Loss | Isolation Loss | | VSWR Input/Output | Switching Speed (off/on) | Switching Speed (on/off) | Control Logic TTL | Power DC | Oper. Temp. |
| 2.5 dB | 0.5-2GHz 37dB | 2-18 GHz 80dB | 1.8:1 max | 20ns max (50% TTL to 90% RF) | 20ns max (50% TTL to 90% RF) | 1 line, logic 1 path on | ±15VDC at at 40 mA | -45°C to +85°C |

## CIRCULATOR / ISOLATOR


| Frequency | ISO (db) | | Loss(dB) | | VSWR | | Power (Watts) | | Model Number | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Typ. | Min. | Typ. | Max. | Typ. | Max. | Avg. | Peak | Ciculator | Isolator |
| 1.0 - 2.0 | 20 | 15 | 0.35 | 0.50 | 1.25 | 1.35 | 2 | 20 | ATc1-2 | ATi1-2 |
| 2.0 - 4.0 | 20 | 18 | 0.40 | 0.50 | 1.25 | 1.30 | 2 | 20 | ATc2-4 | ATi2-4 |
| 2.6 - 5.2 | 20 | 18 | 0.40 | 0.50 | 1.25 | 1.30 | 2 | 20 | ATc2.6-5.2 | ATi2.6-5.2 |
| 3.0 - 6.0 | 21 | 19 | 0.35 | 0.40 | 1.25 | 1.30 | 2 | 20 | ATc3-6 | ATi3-6 |
| 4.0 - 8.0 | 22 | 20 | 0.35 | 0.40 | 1.18 | 1.25 | 2 | 20 | ATc4-8 | ATi4-8 |
| 5.0 - 10.0 | 16 | 15 | 0.90 | 1.00 | 1.40 | 1.45 | 2 | 20 | ATc5-10 | ATi5-10 |
| 6.0 - 12.4 | 19 | 17 | 0.50 | 0.60 | 1.30 | 1.35 | 2 | 20 | ATc6-12 | ATi6-12 |
| 6.0 - 18.0 | 15 | 14 | 0.90 | 1.00 | 1.45 | 1.50 | 2 | 20 | ATc6-18 | ATi6-18 |
| 8.0 - 12.4 | 22 | 20 | 0.35 | 0.40 | 1.18 | 1.25 | 2 | 0 | ATc8-12.4 | ATi8-12.4 |
| 8.0 - 18.0 | 17 | 16 | 0.70 | 0.80 | 1.40 | 1.45 | 2 | 30 | ATc8-18 | ATi8-18 |
| 18.0-26.5 | 20 | 18 | 0.70 | 0.80 | 1.35 | 1.40 | 2 | 30 | ATc18-26.5 | ATc18-26.5 |
| 26.5 - 40.0 | 15 | 14 | 0.80 | 1.00 | 1.45 | 1.50 | 2 | 30 | ATc26.5-40 | ATi26.5-40 |

*See ATM Website for ranges 0.8 GHz to 40 GHz & Waveguide Models*

Note: ATM Standard Parts come with SMA Female Connectors In and Out
For other connector configurations see web
*Power specs are for Isolators. Circulators can handle up to 10x's the average power
**2.9 mm (f) Connectors Used

## 15.5db ENR Noise Sources

Housing: .75"X.75"X3.4"(Max).
DC Input: BNC (F) Conn.
RF Output: SMA (M) or type 2.9mm(M)

| Model No. | Freq (GHz) | Noise Output (ENR -dB) | VSWR(max) ON/OFF | Calibration Frequencies | Package* Code |
|---|---|---|---|---|---|
| NX1502R | 0.01-1.60 | 15.5 +/-1.0 | 1.20:1 | 10,70, 140 MHhz | R |
| NX1512X | 1-2 | 15.5 +/-0.5 | 1.20:1 | 0.5 GHz Increments | X |
| NX1524X | 2-4 | 15.5 +/-0.5 | 1.20:1 | 1.0 GHz Increments | X |
| NX1548X | 4-8 | 15.5 +/-0.5 | 1.20:1 | 1.0 GHz Increments | X |
| NX15812X | 8-12 | 15.5 +/-0.5 | 1.35:1 | 1.0 GHz Increments | X |
| NX151218X | 12-18 | 15.5 +/-0.5 | 1.35:1 | 1.0 GHz Increments | X |
| NX151826T | 18-26.5 | 15.5 +/-1.0 | 1.35:1 | 1.0 GHz Increments | T |
| NX15238T | 2-0.38.0 | 15.5 +/-2.0 | 1.35:1 | 1.0 GHz Increments | |
| NX152640T | 26.5-40.0 | 15.5 +/-2.0 | 1.35:1 | 1.0 GHz Increments | T |

*X or T package may be selected for either series by changing the suffix of the model number. Example: NX1512X=NX1512Y

## High Output ENR Noise Sources

Housing: .5"X.5"X2.84"(Max).
DC Input: SMA (F) Conn.
RF Output: SMA or type 2.9 mm(M)

| Model No. | Freq (GHz) | Noise Output (ENR dB) | Noise Flatness (dB) | Calibration Frequencies | Package* Code |
|---|---|---|---|---|---|
| NX3202S | 0.01-1.6 | 30-36 | +/- 2.0 | 10, 70, 140 MHz | S |
| NX3212Y | 1-2 | 30-35 | +/- 1.0 | 0.5 GHz Increments | Y |
| NX3224Y | 2-4 | 30-35 | +/- 1.0 | 1.0 GHz Increments | Y |
| NX3248Y | 4-8 | 30-35 | +/- 1.0 | 1.0 GHz Increments | Y |
| NX32812Y | 8-12 | 28-33 | +/- 1.0 | 1.0 GHz Increments | Y |
| NX321218Y | 12-18 | 26-32 | +/- 1.0 | 1.0 GHz Increments | Y |
| NX231826V | 18-26.5 | 23 +/-1.5 | +/- 1.0 | 1.0 GHz Increments | V |
| NX23226V | 2-26.5 | 23 +/-2.0 | +/- 2.0 | 1.0 GHz Increments | V |
| NX322638V | 26.5 - 38.0 | 22.0 +/- 1.5 | +/- 1.0 | 1.0 GHz increments | V |
| NX322640V | 26.5 - 40.0 | 22.0 +/- 1.5 | +/- 1.0 | 1.0 GHz increments | V |

*Y or V package may be selected for either series by changing the suffix of the model number. Example: NX3201Y=NX3201X

*See ATM Website for More Connector Options*

*See ATM Website for Add'l Models & Dimensions*

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ADVANCED TECHNICAL MATERIALS INC.

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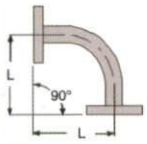
# Microwave Components

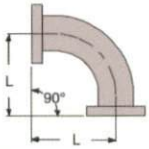
## WAVEGUIDE ASSEMBLIES: STRAIGHT SECTIONS, BENDS, MITERS AND TWISTS

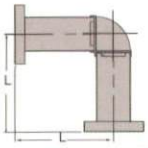
Bends of 30, 45, 60, 90 degrees available
Mitered Bends available for tight bend requirements
90 Degree Twists Clockwise are standard.
Other Angles and Counter Clockwise Twists are available.

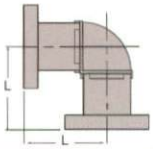
*Model Numbers are constructed as follows:
WR#-Model#&Material-Length, Inches(Meters)-Flange-Flange
**Example:** 90° E BEND: 284-510A-8x8-6-6
Material Code: A - Aluminum, B-Brass, C - Copper
Flange Code: See tables below

*See ATM Website for Add'l Waveguide Items*

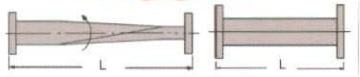










*See ATM Website for Double Ridge Models*




| WG Size | Freq GHz | 90 Degree E Bend | 90 Degree H Bend | 90 Degree E Miter Bend | 90 Degree H Miter Bend | 90 Degree Twist | Straight Sections |
|---|---|---|---|---|---|---|---|
| WR650 | 1.00 - 1.70 | 650-500A-10x10-2-2 | 650-510A-12x12-2-2 | 650-520A-4x4-2-2 | 650-530A-5x5-2-2 | 650-340A-24-2-2 | 650-120A-12-2-2 |
| WR430 | 1.70 - 2.60 | 430-500A-8x8-2-2 | 430-510A-10x10-2-2 | 430-520A-3x3-2-2 | 430-530A-4x4-2-2 | 430-340A-16-2-2 | 430-120A-12-2-2 |
| WR340 | 2.20 - 3.30 | 340-500A-8x8-2-2 | 340-510A-10x10-2-2 | N/A | N/A | 340-340A-15-2-2 | 340-120A-12-2-2 |
| WR284 | 2.60 - 3.95 | 284-500A-6x6-6-6 | 284-510A-6x6-6-6 | 284-520A-3.75x3.75-6-6 | 284-530A-4x4-6-6 | 284-340A-12-6-6 | 284-120A-10-6-6 |
| WR229 | 3.30 - 4.90 | 229-500B-4x4-2-2 | 229-510B-4x4-2-2 | 229-520B-2.21x2.21-2-2 | 229-530B-3X3-2-2 | 229-340B-12-2-2 | 229-120B-6-2-2 |
| WR187 | 3.95 - 5.85 | 187-500A-3x3-6-6 | 187-510A-3x3-6-6 | 187-520A-1.87x1.87-6-6 | 187-530A-3X3-6-6 | 187-340A-8-6-6 | 187-120A-6-6-6 |
| WR159 | 4.09 - 7.05 | 159-500B-2.5x2.5-2-2 | 159-510B-2.5x2.5-2-2 | 159-520B-1.75x1.75-2-2 | 159-530B-3X3-2-2 | 159-340B-6-2-2 | 159-120B-6-2-2 |
| WR137 | 5.85 - 8.20 | 137-500B-2.5x2.5-2-2 | 137-510B-2.5x2.5-2-2 | 137-520B-1.82x1.82-2-2 | 137-530B-3X3-2-2 | 137-340B-6-2-2 | 137-120B-6-2-2 |
| WR112 | 7.05 - 10.0 | 112-500B-2x2-6-6 | 112-510B-2x2-6-6 | 112-520B-1.6x1.6-6-6 | 112-530B-2x2-6-6 | 112-340B-6-6-6 | 112-120B-6-6-6 |
| WR102 | 7.00 - 11.0 | 102-500A-2x2-6-6 | 102-510A-2x2-6-6 | 102-520A-1.47x1.47-6-6 | 102-530A-2x2-6-6 | 102-340A-6-6-6 | 102-120A-6-6-6 |
| WR90 | 8.20 - 12.4 | 90-500A-2x2-6-6 | 90-510A-2x2-6-6 | 90-520A-1.34x1.34-6-6 | 90-530A-2x2-6-6 | 90-340A-5-6-6 | 90-120A-6-6-6 |
| WR75 | 10.0 - 15.0 | 75-500B-1.75x1.75-6-6 | 75-510B-1.75x1.75-6-6 | 75-520B-1.16x1.16-6-6 | 75-530B-2x2-6-6 | 75-340B-4-6-6 | 75-120B-6-6-6 |
| WR62 | 12.4 - 18.0 | 62-500B-1.75x1.75-6-6 | 62-510B-1.75x1.75-6-6 | 62-520B-.88x.88-6-6 | 62-530B-1x1-6-6 | 62-340B-4-6-6 | 62-120B-6-6-6 |
| WR51 | 15.0 - 22.0 | 51-500B-1.5x1.5-6-6 | 51-510B-1.5x1.5-6-6 | 51-520B-.95x.95-6-6 | 51-530B-1x1-6-6 | 51-340B-4-6-6 | 51-120B-6-6-6 |
| WR42 | 18.0 - 26.5 | 42-500B-1x1-6-6 | 42-510B-1x1-6-6 | 42-520B-.77x.77-6-6 | 42-530B-1x1-6-6 | 42-340B-3-6-6 | 42-120B-3-6-6 |
| WR34 | 22.0 - 33.0 | 34-500B-1x1-6-6 | 34-510B-1x1-6-6 | 34-520B-.77x .77-6-6 | 34-530B-1x1-6-6 | 34-340B-3-6-6 | 34-120B-3-6-6 |
| WR28 | 26.5 - 40.0 | 28-500B-1x1-6-6 | 28-510B-1x1-6-6 | 28-520B-.77x.77-6-6 | 28-530B-1x1-6-6 | 28-340B-3-6-6 | 28-120B-3-6-6 |
| WR22 | 33.0-50.0 | 22-500B-1x1-6-6 | 22-510B-1x1-6-6 | N/A | N/A | 22-340B-3-6-6 | 22-120B-L-6-6 |

## DOUBLE RIDGE W/G*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| WRD250 | 2.6 - 7.8 | N/A | N/A | 250-520-4x4-C3-C3 | 250-530-4x4-C3-C3 | 250-340-L-C3-C3 | 250-120-L-C3-C3 |
| WRD350 | 3.5 - 8.2 | N/A | N/A | 350-520-3x3-C3-C3 | 350-530-3x3-C3-C3 | 350-340-L-C3-C3 | 350-120-L-C3-C3 |
| WRD475 | 4.75- 11.0 | N/A | N/A | 475-520-2.5x2.5-C3-C3 | 475-530-2.5x2.5-C3-C3 | 475-340-L-C3-C3 | 475-120-L-C3-C3 |
| WRD580 | 5.8-16.0 | N/A | N/A | 580-520-2x2-C3-C3 | 580-530-2x2-C3-C3 | 580-340-L-C3-C3 | 580-120-L-C3-C3 |
| WRD650 | 6.5-18.0 | N/A | N/A | 650-520-2x2-C3-C3 | 650-530-2x2-C3-C3 | 650-340-L-C3-C3 | 650-120-L-C3-C3 |
| WRD750 | 7.5-18.0 | N/A | N/A | 750-520-2x2-C3-C3 | 750-530-2x2-C3-C3 | 750-340-L-C3-C3 | 750-120-L-C3-C3 |
| WRD180 | 18-18.0 | N/A | N/A | 180-520-1x1-C3-C3 | 180-530-1x1-C3-C3 | 180-340-L-C3-C3 | 180-120-L-C3-C3 |

## FLEXIBLE WAVEGUIDE

Standard lengths are 1,2, & 3 feet
Neoprene Rubber Jacket is standard on Flexible-Twistable Waveguide
Flexible Non-Twistable Waveguide is supplied without jacket

*Rectangular Waveguide Flex*

| WG Size | Freq (GHz) | Flex-Twist* w/ Jacket | Flexible* No Jacket |
|---|---|---|---|
| WR 284 | 2.60 - 3.95 | 284-125-L-6-7 | 284-124-L-6-7 |
| WR 229 | 3.30 - 4.90 | 229-125-L-1-1 | 229-124-L-1-1 |
| WR 187 | 3.95 - 5.85 | 187-125-L-6-7 | 187-124-L-6-7 |
| WR 159 | 4.90 - 7.05 | 159-125-L-1-1 | 159-124-L-1-1 |
| WR 137 | 5.85 - 8.20 | 137-125-L-1-1 | 137-124-L-1-1 |
| WR 112 | 7.05 - 10.0 | 112-125-L-6-7 | 112-124-L-6-7 |
| WR 90 | 8.20 - 12.4 | 90-125-L-6-7 | 90-124-L-6-7 |
| WR 75 | 10.0 - 15.0 | 75-125-L-6-7 | 75-124-L-6-7 |
| WR 62 | 12.4 - 18.0 | 62-125-L-6-7 | 62-124-L-6-7 |
| WR 51 | 15.0 - 22.0 | 51-125-L-6-7 | 51-124-L-6-7 |
| WR 42 | 18.0 - 26.5 | 42-125-L-6-7 | 42-124-L-6-7 |
| WR 34 | 22.0 - 33.0 | 34-125-L-6-7 | 34-124-L-6-7 |
| WR 28 | 26.5 - 40.0 | 28-125-L-6-7 | 28-124-L-6-7 |

*Double Ridge W/G**

| | | | |
|---|---|---|---|
| WRD 350 | 3.5-8.2 | N/A | 350-124-L-C3-C3 |
| WRD 475 | 4.75 -11.0 | N/A | 475-124-L-C3-C3 |
| WRD 580 | 5.8 -16.0 | N/A | 580-124-L-C3-C3 |
| WRD 650 | 5.8 -18.0 | N/A | 650-124-L-C3-C3 |
| WRD 750 | 7.5 -18.0 | N/A | 750-124-L-C3-C3 |

*L- Replace L with Length in Inches (or CM)

## ARMORED FLEXIBLE WAVEGUIDE

***High Power, Non - Twistable Waveguide encased in Armor Jacket***

- High - Power applications
- Armor Jacket
- Crush Resistant
- Kink Resistent

| WG Size | Freq (GHz) | IL (dB/ft | Power Avg | Max Pres. Peak | Flex Non- Twist with ARMOR Jacket Model No.• |
|---|---|---|---|---|---|
| WR90 | 8.20 -12.4 | 0.11 | 2.2 | 150 | 90-126-(L)-6-6 |
| WR75 | 10.0 -15 | 0.15 | 2.1 | 125 | 75-126-(L)-6-6 |
| WR62 | 12.4 -18 | 0.16 | 1.3 | 100 | 62-126-(L)-6-6 |
| WR51 | 15.O - 22 | 0.2 | 1 | 75 | 51-126-(L)-6-6 |
| WR42 | 18.0 - 26.5 | 0.25 | 0.6 | 35 | 42-126-(L)-6-6 |
| WR34 | 22.0 - 33.0 | 0.3 | 0.5 | 20 | 34-126-(L)-6-6 |
| WR28 | 26.5 - 40 | 0.35 | 0.5 | 20 | 28-126-(L)-6-6 |

### ATM DOUBLE RIDGE FLANGE DESIGNATION & TYPE

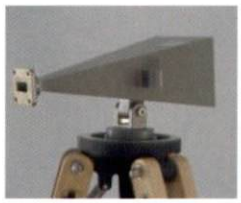
| Designation | Type | Holes |
|---|---|---|
| -C1 | COVER | Alternate Tap/Thru |
| -C2 | | All Tapped |
| -C3 | | All Thru |
| -G1 | GROOVE | Alternate Tap/Thru |
| -G2 | | All Tapped |
| -G3 | | All Thru |

### ATM RECTANGULAR FLANGE DESIGNATION & TYPE

| Designation | Type |
|---|---|
| -1 | CPRG |
| -2 | CPRF |
| -3 | CMR STANDARD |
| -4 | CMR CLEAR (All Thru Holes) |
| -5 | CMR TAP (All Tapped Holes) |
| -6 | UG - Cover |
| -7 | UG - Choke |
| -8 | UG Cover/Groove |
| -9 | PDR |
| -10 | UDR |


Standard ATM Horns


Horn with Radome Cover


Tripod and Bracket Mounting


Wide Band Horns

## STANDARD GAIN HORNS

- 10,15, 20 and 24dB Gain
- Full Freq Band
- Bracket, Radome and Cal Options
- Coax [SMA, N, 7/16]Conn Options

| WG Size (WR) | Freq (GHz) | Model No. (10dB Gain) | Model No. (15dB Gain) | Model No. (20dB Gain) | Model No. (High Gain) |
|---|---|---|---|---|---|
| WR 650 | 1.12 - 1.70 | 650-440-2 | 650-441-2 | N/A | N/A |
| WR 430 | 1.70 - 2.60 | 430-440-2 | 430-441-2 | 430-442-2 | N/A |
| WR 340 | 2.20 - 3.30 | 340-440-2 | 340-441-2 | 340-442-2 | N/A |
| WR 284 | 2.60 - 3.95 | 284-440-6 | 284-441-6 | 284-442-6 | 284-443-6 |
| WR 229 | 3.30 - 4.90 | 229-440-2 | 229-441-2 | 229-442-2 | 229-443-2 |
| WR 187 | 3.95 - 5.85 | 187-440-6 | 187-441-6 | 187-442-6 | 187-443-6 |
| WR 159 | 4.09 - 7.05 | 159-440-2 | 159-441-2 | 159-442-2 | 159-443-2 |
| WR 137 | 5.85 - 8.20 | 137-440-2 | 137-441-2 | 137-442-2 | 137-443-2 |
| WR 112 | 7.05 - 10.0 | 112-440-6 | 112-441-6 | 112-442-6 | 112-443-6 |
| WR 102 | 7.00 - 11.0 | 102-440-6 | 102-441-6 | 102-442-6 | 102-443-6 |
| WR 90 | 8.20 - 12.4 | 90-440-6 | 90-441-6 | 90-442-6 | 90-443-6 |
| WR 75 | 10.0 - 15.0 | 75-440-6 | 75-441-6 | 75-442-6 | 75-443-6 |
| WR 62 | 12.4 - 18.0 | 62-440-6 | 62-441-6 | 62-442-6 | 62-443-6 |
| WR 51 | 15.0 - 22.0 | 51-440-6 | 51-441-6 | 51-442-6 | 51-443-6 |
| WR 42 | 18.0 - 26.5 | 42-440-6 | 42-441-6 | 42-442-6 | 42-443-6 |
| WR 34 | 22.0 - 33.0 | 34-440-6 | 34-441-6 | 34-442-6 | 34-443-6 |
| WR 28 | 26.5 - 40.0 | 28-440-6 | 28-441-6 | 28-442-6 | 28-443-6 |

## WIDE - BAND HORN ANTENNAS

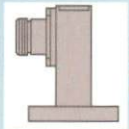
- Wide Freq Bands
- Flange or Coax Conn Options
- Bracket, Radome and Cal Options
- Light Weight Aluminum

| WG Size or Coax. Conn. Type | Freq (GHz) | Model No. | Gain (dB) (Low to High Freq.) |
|---|---|---|---|
| TYPE-N | 0.7-18 | 07-18-440-NF | 1.4-15 |
| TYPE-N | 0.75-1.12 | 975-441-NF | 12-2-15.1 |
| TYPE-N | 1.0 -2.5 | 150-441EM-NF | 9-11 |
| TYPE-N | 1.0-2.5 | 150-442EM-NF | 17-20 |
| TYPE-N | 1.0-12.0 | 1-12-440EM-NF | 8-12 |
| 7/16 Female | 2.0-4.0 | 2-4-442EM-7/16 | 17-22 |
| 7/16 Female | 4.0-6.0 | 4-6-442EM-7/16 | 17.5-20.5 |
| 7/16 Female | 6.0-8.0 | 6-8-442EM-7/16 | 18-20 |
| WRD250 | 2.5-7.5 | 250-441-C3 | 7-13 |
| TYPE-N | 2.5-7.5 | 250-441EM-NF | 7-13 |
| WRD250 | 2.5 -7.5 | 250-442-C3 | 18-20 |
| TYPE-N | 2.5-8.0 | 250-442EM-NF | 18-20 |
| WRD650 | 6.5-18.0 | 650-442-C3 | 19.0-24 |
| TYPE-N | 6.5-18.0 | 650-442EM-NF | 19.0-24 |
| WRD750 | 7.5-18.0 | 750-442-C3 | 20.5-24 |
| TYPE-N | 7.5-18.0 | 750-442EM-NF | 20.5-24 |
| WRD180 | 18.0-40.0 | 18.0-442-C3 | 14-19 |
| K-TYPE (F) | 18.0-40.0 | 18.0-442-KF | 14-19 |

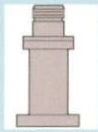
## WAVEGUIDE TO COAX ADAPTERS


WR Right Angle

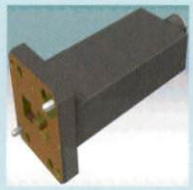

WR End Launch


Right Angle

See ATM Website for Waveguide to Waveguide Models


End Launch


WRD Right Angle


WRD End Launch

## WAVEGUIDE TO COAX ADAPTERS

- Full Frequency Bands
- Flange and Coax Connector Options
- Coax Conn. [SMA, N, SC, TNC, 7/16]
- High Power Options
- VSWR: 1.25Max Std or 1.15Max Precision

| Waveguide Size | Freq (GHz) | Model No. (SMA-f) | Model No. (Type N-f) | Precision SMA-F | Model No. (SMA-f) | Model No. (Type N-f) |
|---|---|---|---|---|---|---|
| WR 650 | 1.12 - 1.70 | 650-251A-2 | 650-253A-2 | N/A | N/A | N/A |
| WR 430 | 1.70 - 2.60 | 430-251A-2 | 430-253A-2 | N/A | 430-201A-2 | 430-203A-2 |
| WR-340 | 2.20 - 3.30 | 340-251A-2 | 340-253A-2 | N/A | 340-201A-2 | 340-203A-2 |
| WR 284 | 2.60 - 3.95 | 284-251A-6 | 284-253A-6 | 284-251PrA-6 | 284-201A-6 | 284-203A-6 |
| WR 229 | 3.30 - 4.90 | 229-251B-2 | 229-253B-2 | 229-251PrB-2 | 229-201B-2 | 229-203B-2 |
| WR 187 | 3.95 - 5.85 | 187-251A-6 | 187-253A-6 | 187-251PrA-6 | 187-201A-6 | 187-203A-6 |
| WR 159 | 4.90 - 7.05 | 159-251B-2 | 159-253B-2 | 159-251PrB-2 | 159-201B-2 | 159-203B-2 |
| WR 137 | 5.80 - 8.20 | 137-251B-2 | 137-253B-2 | 137-251PrB-2 | 137-201B-2 | 137-203B-2 |
| WR 112 | 7.05 - 10.0 | 112-251B-6 | 112-253B-6 | 112-251PrB-6 | 112-201A-6 | 112-203B-6 |
| WR102 | 7.00 - 11.0 | 102-251A-6 | 102-253A-6 | 102-251PrA-6 | 102-201A-6 | 102-253A-6 |
| WR 90 | 8.20 - 12.4 | 90-251A-6 | 90-253A-6 | 90-251PrA-6 | 90-201A-6 | 90-203A-6 |
| WR 75 | 10.0 - 15.0 | 75-251A-6 | 75-253A-6 | 75-251PrA-6 | 75-201B-6 | 75-203B-6 |
| WR 62 | 12.4 - 18.0 | 62-251A-6 | 62-253A-6 | 62-251PrA-6 | 62-201B-6 | 62-203B-6 |
| WR 51 | 15.0 - 22.0 | 51-251B-6 | N/A | 51-251PrB-6 | 51-201B-6 | N/A |
| WR 42 | 18.0 - 26.5 | 42.251B-6 | N/A | 42-25KPrA-6* | 42-201B-6 | N/A |
| WR 34 | 22.0 - 33.0 | 34-25KB-6* | N/A | 34-25KPrB-6* | 34-20KB-6 | N/A |
| WR 28 | 26.5 - 40.0 | 28-25KA-6* | N/A | 28-25KPrA-6* | 28-20KA-6 | N/A |

* Type K connector

## DOUBLE RIDGE WAVEGUIDE TO COAX ADAPTERS

- Full Frequency Bands
- Flange and Coax Connector Options
- Aluminum Only
- High Power Options
- VSWR: 1.25Max Std

| Waveguide Size | Freq (GHz) | Model No. (SMA-f) | Model No. (Type N-f) |
|---|---|---|---|
| WRD 250 | 2.60 - 7.80 | 250-251-C1 | 250-253-C1 |
| WRD 350 | 3.50 - 8.20 | 350-251-C1 | 350-253-C1 |
| WRD 475 | 4.75 - 11.0 | 475-251-C1 | 475-253-C1 |
| WRD 580 | 5.80 - 16.0 | 580-251-C1 | 580-253-C1 |
| WRD 650 | 6.50 - 18.0 | 650-251-C1 | 650-253-C1 |
| WRD 750 | 7.50 - 18.0 | 750-251-C1 | 750-253-C1 |
| WRD 180 | 18.0 - 40.0 | 180-251-C1 | 180-253-C1 |
| End Launch Models | | | |
| WRD 250 | 2.60 - 7.80 | 250-201-C1 | 250-203-C1 |
| WRD 350 | 3.50 - 8.20 | 350-201-C1 | 350-203-C1 |
| WRD 475 | 4.75 - 11.0 | 475-201-C1 | 475-203-C1 |
| WRD 580 | 5.80 - 16.0 | 580-201-C1 | 580-203-C1 |
| WRD 650 | 6.50 - 18.0 | 650-201-C1 | 650-203-C1 |
| WRD 750 | 7.50 - 18.0 | 750-201-C1 | 750-203-C1 |
| WRD 180 | 18.0 - 40.0 | 180-201-C1 | 180-203-C1 |

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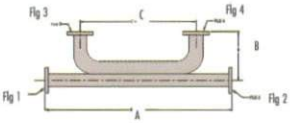
## BROADWALL DIRECTIONAL COUPLERS

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Ideal for High Power Combiner/Divider




Electrical Specifications:
VSWR (MAX.) PRIMARY: 1.05 (1.10 for WR42, WR28)
SECONDARY: 1.10 (1.15 for WR42, WR28)
NOM. COUPLING (dB): ± .50 (± .75 for WR42, WR28)
FREQ. SENS. (dB): ± .6 (± .75 for WR42, WR28)
DIRECTIVITY (dB): 40 typical, 30 min.

Ordering Information: Typical Part #: 137-310 B -10 -1 -1 -1 -1

Basic Model #:
Material: A=Alum, B=Brass, C=Copper, D=Special
Coupling (dB): 3, 6, 10, 20, 30, 40
Flange 1: 1=CPRG, 2=CPRF, 6=Cover, 7=Choke, 8= Groove
Flange 2: See above
Flange 3: See above
Flange 4: See above

| Basic Model No. | WG Size | Freq (GHz) | Dimension A (inches) | Dimension B (inches) | Dimension C (inches) |
|---|---|---|---|---|---|
| 650-310 | WR650 | 1.12 - 1.70 | 37 | 8.00 | 29.0 |
| 430-310 | WR430 | 1.70 - 2.60 | 35 | 5.50 | 30.0 |
| 284-310 | WR284 | 2.60 - 3.95 | 31 | 6.00 | 24.0 |
| 229-310 | WR229 | 3.30 - 4.90 | 28 | 5.00 | 21.0 |
| 187-310 | WR187 | 3.95 - 5.85 | 25 | 4.00 | 19.0 |
| 159-310 | WR159 | 4.90 - 7.05 | 23 | 3.00 | 17.5 |
| 137-310 | WR137 | 5.95 - 8.20 | 20 | 3.00 | 15.5 |
| 112-310 | WR112 | 7.05 - 10.0 | 18 | 2.50 | 14.0 |
| 90-310 | WR90 | 8.20 - 12.4 | 17 | 2.00 | 13.5 |
| 75-310 | WR75 | 10.0 - 15.0 | 15 | 1.50 | 12.0 |
| 62-310 | WR62 | 12.4 - 18.0 | 13 | 1.25 | 10.5 |
| 51-310 | WR51 | 15.0 - 22.0 | 12 | 1.25 | 9.50 |
| 42-310 | WR42 | 18.0 - 26.5 | 11 | 1.25 | 8.50 |
| 34-310 | WR34 | 22.0 - 33.0 | 9 | 1.00 | 8.50 |
| 28-310 | WR28 | 26.5 - 40.0 | 10 | 1.00 | 8.00 |
| 22-310 | WR22 | 33.0 -50.0 | 10 | 1.00 | 8.00 |

## WAVEGUIDE COMBINER-DIVIDER

*Short slot hybrid configuration*
*Symmetrical 4 port device*
*90 degree phase shift*

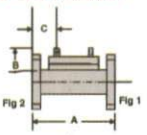
| WG Size WR | Freq (GHz) | VSWR Max | Isolation Min. dB | Model No. |
|---|---|---|---|---|
| 284 | 2.66-2.99 | 1.15 | 26 | 284-261A-Z-6-6-6-6 |
| | **SEE WEBSITE FOR OTHER MODELS** | | | |
| 28 | 36.0-40.0 | 1.15 | 26 | 28-264A-Z-6-6-6-6 |

Flange Code: 2=CPRG; 6=Cover; 7=Choke

**See ATM Website for Add'l Coupler Models & Dimensions**

## LOOP COUPLERS

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Ideal for High Power Sensing




Electrical Specifications:
VSWR: 1.1 max.
NOM. COUPLING: +/- 1.00 dB
FREQ. SENS.: +/- 1.00 dB max.
DIRECTIVITY: 15 dB min.

Ordering Information: Typical Part #: 75-307 B -30 -6 -6

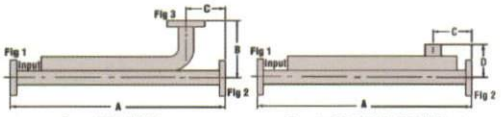
Basic Model #: SMA F=307, N Type F=308
Material: A=Alum, B=Brass, C=Copper, D=Special
Coupling (dB): 30, 40, 50, 60 (Std.) others available
Flange 1: 1=CPRG, 2=CPRF, 6=Cover, 7=Choke, 8= Groove
Flange 2: See above

| Basic Model No. (SMA F) | Basic Model No. (N Type F) | WG Size | Freq (GHz) | Dim. A (inches) | Dim. B (inches) | Dim. C (inches) |
|---|---|---|---|---|---|---|
| 430-307 | 430-308 | WR430 | 1.70 - 2.60 | 4.5 | 1.0 | 1.63 |
| 284-307 | 284-308 | WR284 | 2.60 - 3.95 | 4.5 | 1.0 | 1.63 |
| 229-307 | 229-308 | WR229 | 3.30 - 4.90 | 4.0 | 1.0 | 1.38 |
| 187-307 | 187-308 | WR187 | 3.95 - 5.85 | 3.5 | 1.0 | 1.13 |
| 159-307 | 159-308 | WR159 | 4.90 - 7.05 | 3.5 | 1.0 | 0.88 |
| 137-307 | 137-308 | WR137 | 5.95 - 8.20 | 3.0 | 1.0 | 0.88 |
| 112-307 | 112-308 | WR112 | 7.05 - 10.0 | 3.0 | 1.0 | 0.88 |
| 90-307 | 90-308 | WR90 | 8.20 - 12.4 | 3.0 | 1.0 | 0.88 |
| 75-307 | 75-308 | WR75 | 10.0 - 15.0 | 3.0 | 1.0 | 0.88 |
| 62-307 | 62-308 | WR62 | 12.4 - 18.0 | 3.0 | 1.0 | 0.88 |
| 51-307 | | WR51 | 15.0 - 22.0 | 3.0 | 1.0 | 0.88 |
| 42-307 | | WR42 | 18.0 - 26.5 | 2.5 | 1.0 | 0.63 |
| 34-307 | | WR34 | 22.0 - 33.0 | 2.5 | 1.0 | 0.63 |
| 28-307 | | WR28 | 26.5 - 40.0 | 2.5 | 1.0 | 0.63 |
| 22-307 | | WR22 | 33.0 - 50.0 | 2.5 | 1.0 | 0.63 |

## BROADWALL DIRECTIONAL COUPLERS

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Ideal for High Power Combiner/Divider

Electrical Specifications:
VSWR (MAX.) PRIMARY: 1.05 (1.10 for WR42, WR28)
SECONDARY: 1.10 (1.15 for WR42, WR28)
NOM. COUPLING (dB): ± .50 (± .75 for WR42, WR28)
FREQ. SENS. (dB): ± .6 (± .75 for WR42, WR28)
DIRECTIVITY (dB): 40 typical, 30 min.




Type # :304 (WG) Type # :305 (SMA), 306 (N Type)

Ordering Information: Typical Part #: 137-304 B -10 -1 -1 -1

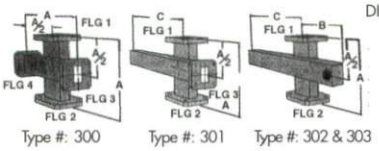
Basic Model #: 304 or 305 or 306
Material: A=Alum, B=Brass, C=Copper, D=Special
Coupling (dB): 3, 6, 10, 20, 30, 40
Flange 1: 1=CPRG, 2=CPRF, 6=COVER, 7=CHOKE, 8= GROOVE
Flange 2: See above
Flange 3: See above

| Basic Model No. | WG Size | Freq (GHz) | Dimension A (inches) | Dimension B (inches) | Dimension C (inches) |
|---|---|---|---|---|---|
| 650-Type # | WR650 | 1.12 - 1.70 | | | |
| 430-Type # | WR430 | 1.70 - 2.60 | 60.00 | 9.00 | 5.00 |
| 284-Type # | WR284 | 2.60 - 3.95 | 50.25 | 6.00 | 2.66 |
| 229-Type # | WR229 | 3.30 - 4.90 | 42.00 | 6.81 | 1.84 |
| 187-Type # | WR187 | 3.95 - 5.85 | 34.62 | 6.44 | 1.81 |
| 159-Type # | WR159 | 4.90 - 7.05 | 32.50 | 5.25 | 1.56 |
| 137-Type # | WR137 | 5.95 - 8.20 | 26.50 | 3.06 | 1.56 |
| 112-Type # | WR112 | 7.05 - 10.0 | 18.62 | 3.06 | 1.56 |
| 90-Type # | WR90 | 8.20 - 12.4 | 16.68 | 2.50 | 1.50 |
| 75-Type # | WR75 | 10.0 - 15.0 | 15.00 | 2.50 | 1.25 |
| 62-Type # | WR62 | 12.4 - 18.0 | 13.75 | 2.18 | 0.66 |
| 51-Type # | WR51 | 15.0 - 22.0 | 11.50 | 1.25 | 0.66 |
| 42-Type # | WR42 | 18.0 - 26.5 | 9.50 | 1.25 | 0.75 |
| 34-Type # | WR34 | 22.0 - 33.0 | 9.00 | 1.25 | 0.75 |
| 28-Type # | WR28 | 26.5 - 40.0 | 8.00 | 1.12 | 0.75 |
| 22-Type # | WR22 | 33.0 - 50.0 | 8.00 | 1.12 | 0.75 |

## CROSSGUIDE DIRECTIONAL COUPLERS

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Ideal for High Power Combiner/Divider

Electrical Specifications:
VSWR PRIMARY: 1.05 max.
COAX SECONDARY: 1.25 max.
NOM. COUPLING: ± 0.50 dB
FREQ. SENS.: ± 1.00 dB max.
DIRECTIVITY: 20 dB min.




Type #: 300 Type #: 301 Type #: 302 & 303

Type #'s:
300 = 4WG Ports
301 = 3WG Ports
302 = 2WG Ports, 1 Type N (F) Coax Port
303 = 2WG Ports 1 SMA (F) Coax Port

Ordering Information: Typical Part #: 137-300 B -30 -1 -1 -1 -1

Basic Model #:
Material: A=Alum, B=Brass, C=Copper, D=Special
Coupling (dB): 30, 40, 50
Flange 1: 1=CPRG, 2=CPRF, 6=Cover, 7=Choke, 8= Groove
Flange 2: See above
Flange 3: See above
Flange 4: See above

| Basic Model No. | WG Size | Freq (GHz) | Dim A (inches) | Dim. B (inches) | Dim. C (inches) |
|---|---|---|---|---|---|
| 430-Type # | WR430 | 1.70 - 2.60 | 7.50 | 5.00 | 8.00 |
| 284-Type # | WR284 | 2.60 - 3.95 | 7.50 | 3.75 | 5.00 |
| 229-Type # | WR229 | 3.30 - 4.90 | 7.00 | 3.50 | 4.75 |
| 187-Type # | WR187 | 3.95 - 5.85 | 6.50 | 3.25 | 4.50 |
| 159-Type # | WR159 | 4.90 - 7.05 | 6.00 | 3.00 | 4.00 |
| 137-Type # | WR137 | 5.95 - 8.20 | 6.00 | 3.00 | 4.00 |
| 112-Type # | WR112 | 7.05 - 10.0 | 4.20 | 2.10 | 3.00 |
| 90-Type # | WR90 | 8.20 - 12.4 | 4.00 | 2.00 | 2.75 |
| 75-Type # | WR75 | 10.0 - 15.0 | 3.75 | 1.87 | 2.50 |
| 62-Type # | WR62 | 12.4 - 18.0 | 3.50 | 1.75 | 2.37 |
| 51-Type # | WR51 | 15.0 - 22.0 | 3.10 | 1.50 | 2.25 |
| 42-Type # | WR42 | 18.0 - 26.5 | 2.20 | 1.10 | 1.50 |
| 34-Type # | WR34 | 22.0 - 33.0 | 2.20 | 1.10 | 1.50 |
| 28-Type # | WR28 | 26.5 - 40.0 | 2.00 | 1.00 | 1.50 |
| 22-Type # | WR22 | 33.0 - 50.0 | 2.00 | 1.00 | 1.50 |

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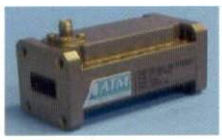
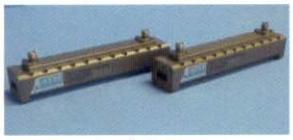
## Short Length, High Directivity Couplers

*Used in applications requiring short insertion length with high directivity*



Single Output



Dual Output

### GENERAL SPECIFICATIONS

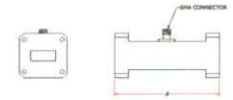
- Std. coupling values: 30, 40, 50dB, Single or Dual Output
- Other coupling values available, but length of unit may change.
- Coupling Accuracy: +/- 0.5dB
- Frequency Sensitivity: +/- 0.5dB
- Directivity: 25dB min, 30dB typical

| WG Size | Freq (GHz) | Standard Model No.* | Lenghth (inches) |
|---|---|---|---|
| WR430 | 1.70 - 2.60 | 430-339A-dB-2-2 | 48.0 |
| WR430 | 1.82 - 2.18 | 430-331A-dB-2-2 | 26.0 |
| WR340 | 2.20 - 3.30 | 340-339A-dB-2-2 | 36.0 |
| WR340 | 2.78 - 3.22 | 340-331A-dB-2-2 | 19.0 |
| WR284 | 2.60 - 3.95 | 284-339A-dB-6-6 | 25.0 |
| WR284 | 2.90 - 3.10 | 284-331A-dB-6-6 | 16.0 |
| WR229 | 3.30 - 4.90 | 229-339A-dB-2-2 | 21.0 |
| WR229 | 3.60 - 4.30 | 229-331A-dB-2-2 | 14.0 |
| WR187 | 3.95 - 5.85 | 187-339A-dB-6-6 | 17.3 |
| WR187 | 4.00 - 4.50 | 187-331A-dB-6-6 | 12.0 |
| | See website for entire List of Models | | |
| WR62 | 12.4 - 18.0 | 62-339A-dB-6-6 | 8.1 |
| WR62 | 15.0 - 18.0 | 62-331A-dB-6-6 | 3.0 |
| WR51 | 15.0 - 22.0 | 51-337A-dB-6-6 | 3.0 |
| WR51 | 18.2 - 21.0 | 51-331A-dB-6-6 | 3.0 |
| WR42 | 17.7 - 21.0 | 42-331A-dB-6-6 | 3.0 |
| WR42 | 18.0 - 26.5 | 42-337A-dB-6-6 | 3.0 |
| WR34 | 22.0 - 33.0 | 34-337A-dB-6-6 | 3.0 |
| WR34 | 27.8 - 32.2 | 34-331A-dB-6-6 | 2.75 |
| WR28 | 26.5 - 40.0 | 28-337A-dB-6-6 | 3.0 |
| WR28 | 27.3 - 32.7 | 28-331A-dB-6-6 | 2.5 |

Available in single or dual configuration

## Rectangular Waveguide Power Samplers,SMA Female

*Used to sample RF Power from the main line in a rectangular waveguide system.*



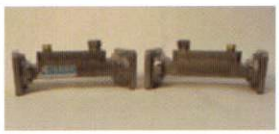
TYPICAL SPECIFICATIONS

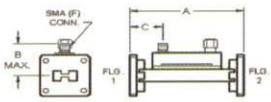
Electrical

- Full waveguide frequency range.
- Coupling: 30, 40, 50 dB standard, others available upon request.
- VSWR Primary: 1.05 max (1.08 max for 30dB coupling level) SMA arm: N/A
- Nominal Coupling: +/- 1.00dB
- Frequency Sensitivity: +/- 1.50dB max.

| WG Size | Freq (GHz) | Standard Model No.* | Dim A (Inches) | Peak Power (Kw) | Average Power (W) |
|---|---|---|---|---|---|
| WR430 | 1.70 - 2.60 | 430-350A-dB-2-2 | 6.00 | 5000 | 4500 |
| WR340 | 2.20 - 3.30 | 340-350A-dB-2-2 | 6.00 | 3700 | 3500 |
| WR284 | 2.60 - 3.95 | 284-350A-dB-6-6 | 4.00 | 2200 | 2000 |
| WR229 | 3.30 - 4.90 | 229-350B-dB-2-2 | 3.00 | 1300 | 1200 |
| WR187 | 3.95 - 5.85 | 187-350A-dB-6-6 | 3.00 | 880 | 900 |
| WR159 | 4.90 - 7.05 | 159-350B-dB-2-2 | 3.00 | 740 | 700 |
| WR137 | 5.85 - 8.20 | 137-350B-dB-2-2 | 3.00 | 520 | 500 |
| WR112 | 7.05 - 10.0 | 112-350B-dB-6-6 | 2.00 | 334 | 300 |
| WR102 | 7.00 - 11.0 | 102-350B-dB-6-6 | 2.00 | 262 | 250 |
| WR90 | 8.20 - 12.4 | 90-350A-dB-6-6 | 2.00 | 190 | 220 |
| WR75 | 10.0 - 15.0 | 75-350B-dB-6-6 | 2.00 | 156 | 200 |
| WR62 | 12.4 - 18.0 | 62-350B-dB-6-6 | 2.00 | 112 | 150 |
| WR51 | 15.0 - 22.0 | 51-350B-dB-6-6 | 2.00 | 72 | 120 |
| WR42 | 18.0 - 26.5 | 42-350B-dB-6-6 | 1.75 | 40 | 70 |
| WR34 | 22.0 - 33.0 | 34-350B-dB-6-6** | 1.75 | 32 | 70 |
| WR28 | 26.5 - 40.0 | 28-350A-dB-6-6** | 1.75 | 21 | 40 |
| | | Double Ridge Models | | | |
| WRD200 | 2.00 - 4.80 | 200-350-dB-C1-C1 | 2.50 | 30 | 2800 |
| WRD250 | 2.60 - 7.80 | 250-350-dB-C1-C1 | 2.50 | 27 | 2350 |
| WRD350 | 3.50 - 8.20 | 350-350-dB-C1-C1 | 2.30 | 26 | 2250 |
| WRD475 | 4.80 - 11.0 | 475-350-dB-C1-C1 | 2.00 | 28 | 1800 |
| WRD580 | 5.80 - 16.0 | 580-350-dB-C1-C1 | 2.00 | 22 | 900 |
| WRD650 | 6.50 - 18.0 | 650-350-dB-C1-C1 | 2.00 | 10 | 480 |
| WRD750 | 7.50 - 18.0 | 750-350-dB-C1-C1 | 2.00 | 7 | 330 |
| WRD180 | 18.0 - 40.0 | 180-350-dB-C1-C1** | 1.50 | 8 | 420 |

## Double Ridge Waveguide Loop Coupler - SMA (F)






307 SERIES DOUBLE RIDGE LOOP COUPLER

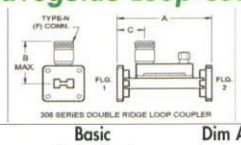
GENERAL SPECIFICATIONS

Electrical

- VSWR:
- Primary: 1.07 Max
- Coax: 1.35 Max (SMA F) 1.50 Max (TypeN F)
- Coupling: 30, 40, 50, or 60dB std., others available upon request.
- Nominal Coupling: +/- 1.00 dB
- Frequency Sensitivity: +/- 1.00dB max.
- Directivity: 15dB min., 20dB typ.
- RF Connectors: SMA-F, Type-N-F (Standard)
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Ideal for High Power Sensing
- Single Arm standard, Multi-arm available

| WG Size | Freq (GHz) | Basic Model No.* | Dim A (Inches) | Dim B (Inches) | Dim C (Inches) |
|---|---|---|---|---|---|
| WRD750 | 7.50 - 18.0 | 750-307-dB-C3-C3 | 2.5 | 0.9 | 0.63 |
| WRD650 | 6.50 - 18.0 | 650-307-dB-C3-C3 | 2.5 | 0.9 | 0.63 |
| WRD580 | 5.85 - 14.5 | 580-307-dB-C3-C3 | 3.0 | 1.0 | 0.88 |
| WRD475 | 4.75 - 11.0 | 475-307-dB-C3-C3 | 3.5 | 1.1 | 1.13 |

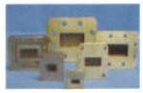
## Double Ridge Waveguide Loop Coupler - Type N (F)




308 SERIES DOUBLE RIDGE LOOP COUPLER

| WG Size | Freq (GHz) | Basic Model No.* | Dim A (Inches) | Dim B (Inches) | Dim C (Inches) |
|---|---|---|---|---|---|
| WRD750 | 7.50 - 18.0 | 750-308-dB-C3-C3 | 2.5 | 0.8 | 0.63 |
| WRD650 | 6.50 - 18.0 | 650-308-dB-C3-C3 | 2.5 | 0.8 | 0.63 |
| WRD580 | 5.85 - 14.5 | 580-308-dB-C3-C3 | 3.0 | 0.8 | 0.88 |
| WRD475 | 4.75 - 11.0 | 475-308-dB-C3-C3 | 3.5 | 0.8 | 1.13 |

## Rectangular W/G Pressure Windows



- Standard Applications - 230 series Teflon-Fiberglass window
- Vacuum Applications - 233 Kapton window

| WG Size | Freq. GHz) | Power (Watts)-CW | Power (kW)-Peak | Pressure (PSIG) | Standard Model No. Material: Teflon fiberglass | VSWR |
|---|---|---|---|---|---|---|
| WR340 | 2.20 - 3.30 | 1800 | 3500 | 15 | 340-230-6-6 | 1.06 |
| WR284 | 2.60 - 3.95 | 1300 | 2000 | 15 | 284-230-6-6 | 1.06 |
| WR229 | 3.30 - 4.90 | 1300 | 1800 | 20 | 229-230-2-2 | 1.07 |
| WR187 | 3.95 - 5.85 | 1300 | 1500 | 25 | 187-230-6-6 | 1.06 |
| WR159 | 4.90 - 7.05 | 1200 | 1000 | 30 | 159-230-2-2 | 1.05 |
| WR137 | 5.85 - 8.20 | 1000 | 750 | 35 | 137-230-2-2 | 1.07 |
| WR112 | 7.05 - 10.0 | 1000 | 500 | 40 | 112-230-6-6 | 1.1 |
| WR102 | 7.0 - 11.0 | 1000 | 400 | 40 | 102-230-6-6 | 1.15 |
| WR90 | 8.20 - 12.4 | 900 | 300 | 40 | 90-230-6-6 | 1.1 |
| WR75 | 10.0 - 15.0 | 800 | 200 | 40 | 75-230-6-6 | 1.09 |
| WR62 | 12.4 - 18.0 | 700 | 150 | 40 | 62-230-6-6 | 1.08 |
| WR51 | 15.0 - 22.0 | 500 | 100 | 40 | 51-230-6-6 | 1.12 |
| WR42 | 18.0 - 26.5 | 400 | 75 | 40 | 42-230-6-6 | 1.12 |
| WR34 | 22.0 - 33.0 | 400 | 60 | 40 | 34-230-6-6 | 1.15 |
| WR28 | 26.5 - 40.0 | 250 | 45 | 40 | 28-230-6-6 | 1.18 |
| | | Rectangular W/G Vacuum Pressure Windows (material KAPTON) | | | | |
| WR284 | 2.60 - 3.95 | 1300 | N/A | 15 | 284-233-6-6 | 1.06 |
| WR229 | 3.30 - 4.90 | 1200 | N/A | 15 | 229-233-2-2 | 1.07 |
| WR187 | 3.95 - 5.85 | 1200 | N/A | 15 | 187-233-6-6 | 1.06 |
| WR159 | 4.90 - 7.05 | 700 | N/A | 15 | 159-233-2-2 | 1.05 |
| WR137 | 5.85 - 8.20 | 500 | N/A | 15 | 137-233-2-2 | 1.07 |
| WR112 | 7.05 - 10.0 | 400 | N/A | 15 | 112-233-6-6 | 1.10 |
| WR102 | 7.0 - 11.0 | 400 | N/A | 15 | 102-233-6-6 | 1.15 |
| WR90 | 8.20 - 12.4 | 400 | N/A | 15 | 90-233-6-6 | 1.10 |
| WR75 | 10.0 - 15.0 | 375 | N/A | 15 | 75-233-6-6 | 1.09 |
| WR62 | 12.4 - 18.0 | 375 | N/A | 15 | 62-233-6-6 | 1.08 |
| WR51 | 15.0 – 22.0 | 350 | N/A | 15 | 51-233-6-6 | 1.12 |
| WR42 | 18.0 - 26.5 | 320 | N/A | 15 | 42-233-6-6 | 1.12 |
| WR34 | 22.0 - 33.0 | 250 | N/A | 15 | 34-233-6-6 | 1.15 |
| WR28 | 26.5 - 40.0 | 100 | N/A | 15 | 28-233-6-6 | 1.18 |

## Double Ridge W/G Pressure Windows

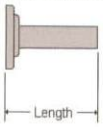
| WG Size GHz) | Freq. Max | VSWR | RF Power Avg. CW (Watts) | RF Power Peak (kW) | Pressure (PSIG) | Material | Standard Model No. |
|---|---|---|---|---|---|---|---|
| WRD200 | 2.00 - 4.80 | 1.09 | 600 | 1 | 15 | Kapton | 200-233-C3-C3 |
| WRD250 | 2.50 - 7.80 | 1.09 | 600 | 1 | 15 | Kapton | 250-233-C3-C3 |
| WRD350 | 3.50 - 8.20 | 1.09 | 600 | 1 | 15 | Kapton | 350-233-C3-C3 |
| WRD475 | 4.75 - 11.0 | 1.09 | 600 | 1 | 15 | Kapton | 475-233-C3-C3 |
| WRD650 | 6.50 - 18.2 | 1.09 | 600 | 1 | 15 | Kapton | 650-233-C3-C3 |
| WRD750 | 7.50 - 18.0 | 1.09 | 600 | 1 | 15 | Kapton | 750-233-C3-C3 |
| WRD750 | 7.50 - 18.0 | 1.09 | 600 | 1 | 15 | Teflon/glass | 750-230-C3-C3 |

ADVANCED TECHNICAL MATERIALS INC.

Great Service
Excellent Price
Fast Delivery

## SHORT TERMINATION

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Finish is a unique corrosion-resistant 316 stainless steel epoxy coating
- VSWR: 1.20 max
- ATM series 710 Terminations utilize Medium Power Elements to achieve low VSWR and stable electrical characteristics



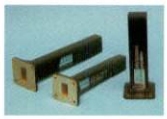

Ordering Information: Typical Part #: 137-710 B -2

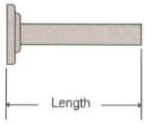
Basic Model #: 137-710
Material: A=Alum, B=Brass, C=Copper, D=Special — B
Flange 1: 1=CPRG, 2=CPRF, 6=COVER, 7=CHOKE, 8=GROOVE — -2

| Basic Model No. | WG Size | Freq (GHz) | Standard Flange | Power Avg. (W) | Length (inches) |
|---|---|---|---|---|---|
| 650-710 | WR650 | 1.12 - 1.70 | CPRF (2) | 50 | 7.00 |
| 430-710 | WR430 | 1.70 - 2.60 | CPRF (2) | 40 | 7.00 |
| 340-710 | WR340 | 2.20 - 3.30 | CPRF (2) | 40 | 6.00 |
| 284-710 | WR284 | 2.60 - 3.95 | COVER (6) | 30 | 3.00 |
| 229-710 | WR229 | 3.30 - 4.90 | CPRF (2) | 25 | 3.00 |
| 187-710 | WR187 | 3.95 - 5.85 | COVER (6) | 25 | 2.50 |
| 159-710 | WR159 | 4.90 - 7.05 | CPRF (2) | 20 | 2.00 |
| 137-710 | WR137 | 5.95 - 8.20 | CPRF (2) | 15 | 1.75 |
| 112-710 | WR112 | 7.05 - 10.00 | COVER (6) | 15 | 1.50 |
| 102-710 | WR102 | 7.00 - 11.00 | COVER (6) | 15 | 1.50 |
| 90-710 | WR90 | 8.20 - 12.40 | COVER (6) | 15 | 1.50 |
| 75-710 | WR75 | 10.00 - 15.00 | COVER (6) | 15 | 1.25 |
| 62-710 | WR62 | 12.40 - 18.00 | COVER (6) | 10 | 1.00 |
| 51-710 | WR51 | 15.00 - 22.00 | COVER (6) | 10 | 1.00 |
| 42-710 | WR42 | 18.00 - 26.50 | COVER (6) | 10 | 1.00 |
| 34-710 | WR34 | 22.00 - 33.00 | COVER (6) | 5 | 0.75 |
| 28-710 | WR28 | 26.50 - 40.00 | COVER (6) | 5 | 0.75 |
| 22-710 | WR22 | 33.00 - 50.00 | COVER (6) | 5 | 0.75 |

## MEDIUM POWER TERMINATION

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Finish is a high temp. black coating
- Low outgassing characteristics
- VSWR: 1.10 max
- ATM series 740 utilizes High Power Ceramic Elements fired at 1300 C for low VSWR and stable electrical characteristics





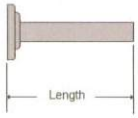

Ordering Information: Typical Part #: 137-740 B -2

Basic Model #: 137-740
Material: A=Alum, B=Brass, C=Copper, D=Special — B
Flange 1: 1=CPRG, 2=CPRF, 6=COVER, 7=CHOKE, 8=GROOVE — -2

| Basic Model No. | WG Size | Freq (GHz) | Standard Flange | Power Avg. (W) | Length (inches) |
|---|---|---|---|---|---|
| 650-740 | WR650 | 1.12 - 1.70 | CPRF (2) | 1500 | 13.00 |
| 430-740 | WR430 | 1.70 - 2.60 | CPRF (2) | 1200 | 12.00 |
| 340-740 | WR340 | 2.20 - 3.30 | CPRF (2) | 1200 | 12.00 |
| 284-740 | WR284 | 2.60 - 3.95 | COVER (6) | 1200 | 11.00 |
| 229-740 | WR229 | 3.30 - 4.90 | CPRF (2) | 1000 | 9.75 |
| 187-740 | WR187 | 3.95 - 5.85 | COVER (6) | 750 | 8.38 |
| 159-740 | WR159 | 4.90 - 7.05 | CPRF (2) | 625 | 8.00 |
| 137-740 | WR137 | 5.95 - 8.20 | CPRF (2) | 500 | 8.00 |
| 112-740 | WR112 | 7.05 - 10.00 | COVER (6) | 425 | 7.00 |
| 102-740 | WR102 | 7.00 - 11.00 | COVER (6) | 325 | 6.50 |
| 90-740 | WR90 | 8.20 - 12.40 | COVER (6) | 225 | 5.50 |
| 75-740 | WR75 | 10.00 - 15.00 | COVER (6) | 200 | 4.50 |
| 62-740 | WR62 | 12.40 - 18.00 | COVER (6) | 100 | 3.25 |
| 51-740 | WR51 | 15.00 - 22.00 | COVER (6) | 100 | 3.25 |
| 42-740 | WR42 | 18.00 - 26.50 | COVER (6) | 100 | 3.50 |
| 34-740 | WR34 | 22.00 - 33.00 | COVER (6) | 75 | 3.25 |
| 28-740 | WR28 | 26.50 - 40.00 | COVER (6) | 75 | 4.00 |
| 22-740 | WR22 | 33.00 - 50.00 | COVER (6) | 25 | 2.50 |

## LOW POWER TERMINATION

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Finish is a unique corrosion-resistant 316 stainless steel epoxy coating
- ATM series 720 Terminations utilize a Precision Conical Element to achieve very low VSWR.
- For short size on High Power Terminations contact factory



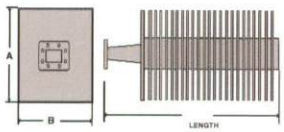

Ordering Information: Typical Part #: 137-720 B -2

Basic Model #: 137-720
Material: A=Alum, B=Brass, C=Copper, D=Special — B
Flange 1: 1=CPRG, 2=CPRF, 6=COVER, 7=CHOKE, 8=GROOVE — -2

| Basic Model No. | WG Size | Freq (GHz) | Standard Flange | VSWR max. | Power Avg. (W) | Length (inches) |
|---|---|---|---|---|---|---|
| 650-720 | WR650 | 1.12 - 1.70 | CPRF (2) | 1.02 | 25 | 12.50 |
| 430-720 | WR430 | 1.70 - 2.60 | CPRF (2) | 1.02 | 15 | 11.00 |
| 340-720 | WR340 | 2.20 - 3.30 | CPRF (2) | 1.01 | 12 | 10.75 |
| 284-720 | WR284 | 2.60 - 3.95 | COVER (6) | 1.01 | 10 | 10.75 |
| 229-720 | WR229 | 3.30 - 4.90 | CPRF (2) | 1.01 | 10 | 7.50 |
| 187-720 | WR187 | 3.95 - 5.85 | COVER (6) | 1.01 | 8 | 6.25 |
| 159-720 | WR159 | 4.90 - 7.05 | CPRF (2) | 1.01 | 7 | 6.00 |
| 137-720 | WR137 | 5.95 - 8.20 | CPRF (2) | 1.01 | 6 | 5.50 |
| 112-720 | WR112 | 7.05 - 10.00 | COVER (6) | 1.01 | 4 | 5.00 |
| 102-720 | WR102 | 7.00 - 11.00 | COVER (6) | 1.01 | 3 | 4.00 |
| 90-720 | WR90 | 8.20 - 12.40 | COVER (6) | 1.01 | 4 | 4.00 |
| 75-720 | WR75 | 10.00 - 15.00 | COVER (6) | 1.01 | 2 | 4.00 |
| 62-720 | WR62 | 12.40 - 18.00 | COVER (6) | 1.01 | 1.5 | 4.00 |
| 51-720 | WR51 | 15.00 - 22.00 | COVER (6) | 1.01 | 1.0 | 4.00 |
| 42-720 | WR42 | 18.00 - 26.50 | COVER (6) | 1.01 | 0.5 | 2.50 |
| 34-720 | WR34 | 22.00 - 33.00 | COVER (6) | 1.01 | 0.5 | 2.50 |
| 28-720 | WR28 | 26.50 - 40.00 | COVER (6) | 1.02 | 0.5 | 2.00 |
| 22-720 | WR22 | 33.00 - 50.00 | COVER (6) | 1.02 | 0.5 | 1.50 |

## HIGH POWER

Description:
- Full waveguide frequency range
- Units pressure tested to 30 psi
- Finish is a high temperature black coating
- All 745 series Terminations are manufactured from 6061 Aluminum
- Low outgassing characteristics
- VSWR: 1.10 max
- ATM series 745 utilizes High Power Ceramic Elements fired at 1300 C for low VSWR and stable electrical characteristics




Ordering Information: Typical Part #: 137-745 -2

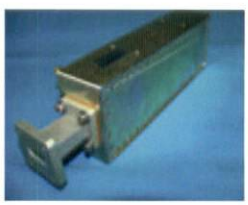
Basic Model #: 137-745
Flange 1: 1=CPRG, 2=CPRF, 6=COVER, 7=CHOKE, 8=GROOVE — -2

| Basic Model No. | WG Size | Freq (GHz) | Standard Flange | Power Avg. (W) | Length (inches) | Dim. A | Dim. B |
|---|---|---|---|---|---|---|---|
| 650-745 | WR650 | 1.12 - 1.70 | CPRF (2) | 2500 | 13.00 | 9.00 | 11.00 |
| 430-745 | WR430 | 1.70 - 2.60 | CPRF (2) | 2500 | 12.00 | 6.00 | 6.00 |
| 340-745 | WR340 | 2.20 - 3.30 | CPRF (2) | 2500 | 12.00 | 6.00 | 6.00 |
| 284-745 | WR284 | 2.60 - 3.95 | COVER (6) | 2400 | 12.00 | 6.00 | 5.00 |
| 229-745 | WR229 | 3.30 - 4.90 | CPRF (2) | 2000 | 10.63 | 5.00 | 5.00 |
| 187-745 | WR187 | 3.95 - 5.85 | COVER (6) | 1500 | 9.00 | 4.50 | 4.50 |
| 159-745 | WR159 | 4.90 - 7.05 | CPRF (2) | 1300 | 9.00 | 4.50 | 4.50 |
| 137-745 | WR137 | 5.95 - 8.20 | CPRF (2) | 1000 | 8.50 | 4.00 | 4.00 |
| 137-745A | WR137 | 5.95 - 8.20 | CPRF (2) | 1500 | 9.00 | 4.50 | 4.50 |
| 112-745 | WR112 | 7.05 - 10.00 | COVER (6) | 850 | 8.00 | 4.00 | 4.00 |
| 102-745 | WR102 | 7.00 - 11.00 | COVER (6) | 500 | 6.50 | 3.50 | 3.50 |
| 90-745 | WR90 | 8.20 - 12.40 | COVER (6) | 500 | 5.50 | 3.50 | 3.50 |
| 75-745 | WR75 | 10.00 - 15.00 | COVER (6) | 350 | 5.00 | 3.50 | 3.50 |
| 75-745A | WR75 | 10.00 - 15.00 | COVER (6) | 550 | 5.00 | 4.50 | 4.50 |
| 62-745 | WR62 | 12.40 - 18.00 | COVER (6) | 250 | 4.50 | 3.00 | 3.00 |
| 51-745A | WR51 | 15.00 - 22.00 | COVER (6) | 260 | 4.50 | 3.00 | 3.00 |
| 42-745 | WR42 | 18.00 - 26.50 | COVER (6) | 230 | 4.50 | 2.25 | 2.25 |
| 34-745 | WR34 | 22.00 - 33.00 | COVER (6) | 150 | 4.00 | 2.00 | 2.00 |
| 28-745 | WR28 | 26.50 - 40.00 | COVER (6) | 125 | 4.00 | 2.00 | 2.00 |
| 22-745 | WR22 | 33.00 - 50.00 | COVER (6) | 75 | 3.00 | 1.50 | 1.50 |

| WG Size | Freq (GHz) | Avg.Power (WATTS) | Standard Model No.* |
|---|---|---|---|
| WR284 | 2.60 - 3.95 | 7000 | 284-770-6 |
| WR229 | 3.30 - 4.90 | 1200 | 229-770-1200-2 |
| WR229 | 3.30 - 4.90 | 1200 | 229-770-2 |
| WR187 | 3.95 - 5.85 | 4200 | 187-770-6 |
| WR159 | 4.90 - 7.05 | 4200 | 159-770-2 |
| WR137 | 5.85 - 8.20 | 4200 | 137-770-2 |
| WR112 | 7.05 - 10.0 | 2700 | 112-770-6 |
| WR90 | 8.20 - 12.4 | 2100 | 90-770-6 |
| WR75 | 10.0 - 15.0 | 2000 | 75-770-6 |
| WR62 | 12.4 - 18.0 | 2000 | 62-770-6 |
| WR51 | 15.0 - 22.0 | 1700 | 51-770-6 |
| WR42 | 18.0 - 26.5 | 1500 | 42-770-6 |
| WR34 | 22.0 - 33.0 | 800 | 34-770-6 |
| WR28 | 26.5 - 40.0 | 500 | 28-770-6 |
| WR28 | 26.5 - 40.0 | 700 | 28-770-6 |
| WR22 | 33.0 - 50.0 | 700 | 22-770-6 |

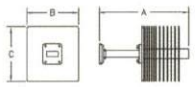
## WATER COOLED LOAD, HIGH POWER - 770 SERIES

- Low out-gassing characteristics. 6061 Aluminum
- Low VSWR (1.15Max) and stable electrical characteristics.
- Cooling Fluid (15° to 21° C) Flow Rates:
  - 4 gal/min for sizes WR650 thru WR159
  - 2 gal/min for sizes WR137 thru 112
  - 1 gal/min for sizes WR90 thru WR22



## Rectangular W/G Termination, Very High Power - 760/780 Series

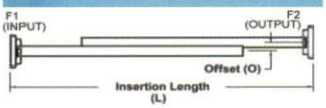
- Full waveguide frequency range.
- Units may be pressure sealed up to 30 psi. upon request. [PT option]
- Low outgassing characteristics.
- VSWR: 1.15 max.
- Terminations are 6061 Aluminum, with Finish: Hi-Temp black
- High Power Ceramic Elements fired at 1300 C for low VSWR and stable electrical characteristics.
- Units are best mounted in the horizontal plane with free air flow. The load temperature will vary depending on power levels and duration. If during use the surface temperature approaches 260°C at the hottest point, (normally where the first fin touches the waveguide body), forced air cooling should be used to prevent damage to the internal load element. Units can survive temperatures as high as 450 °C without damage for a short time.




| WG Size | Freq (GHz) | Avg. Power (Watts) | Peak Power (kW) | Standard Model No.* | Dim A. (inches) | Dim.B | DimC |
|---|---|---|---|---|---|---|---|
| WR650 | 1.12 - 1.70 | 8000 | 5500 | 650-760-2 | 30.00 | 14.00 | 12.00 |
| WR430 | 1.70 - 2.60 | 6500 | 4000 | 430-760-2 | 16.67 | 9.00 | 9.00 |
| WR340 | 2.20 - 3.30 | 5500 | 3500 | 340-760-2 | | | |
| WR284 | 2.60 - 3.95 | 5000 | 3200 | 284-760-6 | 13.75 | 6.00 | 6.00 |
| WR229 | 3.30 - 4.90 | 4000 | 2000 | 229-760-2 | 13.75 | 6.00 | 6.00 |
| WR187 | 3.95 - 5.85 | 3000 | 2000 | 187-760-6 | 18.00 | 6.00 | 6.00 |
| WR159 | 4.90 - 7.05 | 3000 | 1000 | 159-760-2 | 21.50 | 6.00 | 6.00 |
| WR137 | 5.85 - 8.20 | 3000 | 710 | 137-760-2 | 18.00 | 6.00 | 6.00 |
| WR112 | 7.05 - 10.0 | 3000 | 550 | 112/187-760-6 | 20.00 | 6.00 | 6.00 |
| WR112 | 7.05 - 10.0 | 1900 | 460 | 112-760-6 | 8.80 | 5.00 | 5.00 |
| WR90 | 8.20 - 12.4 | 4500 | 450 | 90/187-760-6 | 24.00 | 6.00 | 6.00 |
| WR90 | 8.20 - 12.4 | 1100 | 290 | 90-760-6 | 9.81 | 5.00 | 5.00 |
| WR75 | 10.0 - 15.0 | 3500 | 270 | 75/187-760-6 | 24.83 | 6.00 | 6.00 |
| WR75 | 10.0 - 15.0 | 1500 | 250 | 75/780-1500-6 | 14.00 | 5.00 | 4.48 |
| WR75 | 10.0 - 15.0 | 1000 | 200 | 75-760-6 | 7.75 | 4.50 | 4.50 |
| WR62 | 12.4 - 18.0 | 3000 | 200 | 62/187-760-6 | 24.63 | 6.00 | 6.00 |
| WR62 | 12.4 - 18.0 | 900 | 160 | 62-760-6 | 7.86 | 4.50 | 4.50 |
| WR51 | 15.0 - 22.0 | 775 | 150 | 51-760-6 | 7.75 | 4.50 | 4.50 |
| WR42 | 18.0 - 26.5 | 600 | 120 | 42-760-6 | 5.50 | 2.25 | 2.25 |
| WR34 | 22.0 - 33.0 | 500 | 100 | 34-760-6 | 6.37 | 2.25 | 2.25 |
| WR28 | 26.5 - 40.0 | 200 | 100 | 28-760-6 | 6.56 | 2.25 | 2.25 |
| WR28 | 26.5 - 40.0 | 500 | 100 | 28-780-6 | 7.00 | 2.50 | 2.50 |
| WR22 | 33.0 - 50.0 | 500 | 100 | 22/28-780-6 | 9.00 | 2.50 | 2.50 |

## WG High Power Fixed Precision Attenuators

High-Power precision attenuators covering the waveguide sizes WR28 through WR430 and attenuation values of 10dB, 20dB, 30dB, 40dB and 50dB.

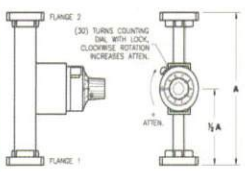



GENERAL SPECIFICATIONS ( All Options )

- Electrical
- Std. Attenuation values: 10, 20, 30, 40, 50dB
- Nominal Attenuation accuracy: +/- 0.50dB (+/- 0.75dB for WR42, WR34, WR28)
- Freq. Sensitivity: +/- 0.60 dB
- (+/- 0.75dB for WR42, WR34, WR28)
- Applicable Mil-Specs
- General:
- Product Specific:
- Mechanical
- Size: See Tables
- Body: Aluminum
- Finish: Hi-Temp Black

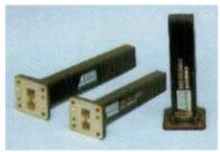
| WG Size | Freq (GHz) | VSWR | Power Watt | Standard Model No.* | Dimensions Length (L ) inches | Dimensions Offset (O) inches |
|---|---|---|---|---|---|---|
| WR430 | 1.70 - 2.60 | 1.15 | 1200 | 430-630HPA-dB-2-2 | 54.0 | 2.230 |
| WR340 | 2.20 - 3.30 | 1.15 | 1200 | 340-630HPA-dB-2-2 | 42.0 | 1.780 |
| WR284 | 2.60 - 3.95 | 1.15 | 1200 | 284-630HPA-dB-6-6 | 33.0 | 1.420 |
| WR229 | 3.30 - 4.90 | 1.15 | 1000 | 229-630HPA-dB-2-2 | 27.0 | 1.209 |
| WR187 | 3.95 - 5.85 | 1.15 | 750 | 187-630HPA-dB-6-6 | 24.0 | 0.936 |
| WR159 | 4.9 - 7.05 | 1.15 | 625 | 159-630HPA-dB-2-2 | 24.0 | 0.859 |
| WR137 | 5.85 - 8.20 | 1.15 | 500 | 137-630HPA-dB-2-2 | 22.5 | 0.686 |
| WR112 | 7.05 - 10.0 | 1.15 | 425 | 112-630HPA-dB-6-6 | 16.0 | 0.561 |
| WR90 | 8.20 - 12.4 | 1.15 | 225 | 90-630HPA-dB-6-6 | 14.5 | 0.450 |
| WR75 | 10.0 - 15.0 | 1.15 | 200 | 75-630HPA-dB-6-6 | 13.5 | 0.425 |
| WR62 | 12.4 - 18.0 | 1.15 | 100 | 62-630HPA-dB-6-6 | 11.5 | 0.351 |
| WR51 | 15.0 - 22.0 | 1.15 | 100 | 51-630HPA-dB-6-6 | 11.5 | 0.295 |
| WR42 | 18.0 - 26.5 | 1.15 | 100 | 42-630HPA-dB-6-6 | 9.5 | 0.210 |
| WR34 | 22.0 - 33.0 | 1.15 | 75 | 34-630HPA-dB-6-6 | 9.5 | 0.210 |
| WR28 | 26.5 - 40.0 | 1.15 | 75 | 28-630HPA-dB-6-6 | 9.0 | 0.180 |

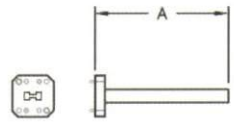
## WG Variable Attenuators




| SPECS | | | | LEVEL ADJUST | | FLAT WITH FREQUENCY | |
|---|---|---|---|---|---|---|---|
| WG Size | Freq (GHz) | Avg. Power (Watts) | Length (L) Inches | Standard Model No.* | Flatness +/- dB | Standard Model No.* | Flatness +/- dB |
| WR284 | 2.60 - 3.95 | 11 | 10 | 284-620A-30-6-6 | N/A | 284-AF620A-10-6-6 | +/-1.0dB |
| WR229 | 3.30 - 4.90 | 9 | 9 | 229-620B-30-2-2 | N/A | 229-AF620B-10-2-2 | +/-1.0dB |
| WR187 | 3.95 - 5.85 | 7 | 8.5 | 187-620B-30-6-6 | N/A | 187-AF620A-10-6-6 | +/-1.0dB |
| WR159 | 4.9 - 7.05 | 5 | 8 | 159-620B-30-2-2 | N/A | 159-AF620B-10-2-2 | +/-1.0dB |
| WR137 | 5.95 - 8.20 | 4 | 6 | 137-620B-30-2-2 | N/A | 137-AF620B-10-2-2 | +/-1.0dB |
| WR112 | 7.05 - 10.0 | 3 | 5 | 112-620B-30-6-6 | N/A | 112-AF620B-10-6-6 | +/-1.0dB |
| WR90 | 8.20 - 12.4 | 2 | 4 | 90-620A-30-6-6 | N/A | 90-AF620A-10-6-6 | +/-1.0dB |
| WR75 | 10.0 - 15.0 | 1 | 3 | 75-620B-30-6-6 | N/A | 75-AF620B-20-6-6 | +/-1.0dB |
| WR62 | 12.4 - 18.0 | 1 | 3 | 62-620B-30-6-6 | N/A | 62-AF620B-15-6-6 | +/-1.5dB |
| WR51 | 15.0 - 22.0 | 1 | 3 | 51-620A-30-6-6 | N/A | 51-AF620A-10-6-6 | +/-2.0dB |
| WR42 | 18.0 - 26.5 | 1 | 3 | 42-620A-30-6-6 | N/A | 42-AF620A-10-6-6 | +/-3.0dB |
| WR34 | 22.0 - 33.0 | 1 | 3 | 34-620A-30-6-6 | N/A | 34-AF620A-10-6-6 | +/-3.0dB |
| WR28 | 26.5 - 40.0 | 1 | 3 | 28-620A-30-6-6 | N/A | 28-AF620A-10-6-6 | +/-3.0dB |

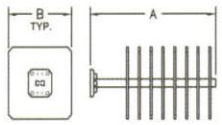
## Double Ridge W/G Termination, Low & Med. Power - 720/740 Series





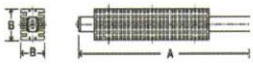

| WG Size | Freq (GHz) | Standard Model No.* | Avg. Power (Watts) | Typical VSWR | Dim A. (inches) |
|---|---|---|---|---|---|
| WRD350 | 3.50-8.20 | 350-720-C3 | 1 | 1.05 | 13 |
| WRD350 | 3.50-8.20 | 350-740-C3 | 300 | 1.10 | 13f |
| WRD475 | 4.75-11.0 | 475-720-C3 | 1 | 1.05 | 8.50 |
| WRD475 | 4.75-11.0 | 475-740-C3 | 240 | 1.10 | 8.50 |
| WRD580 | 5.80-16.0 | 580-720-C3 | 1 | 1.05 | 8.50 |
| WRD580 | 5.80-16.0 | 580-740-C3 | 200 | 1.10 | 8.50 |
| WRD650 | 6.50-18.0 | 650-720-C3 | 1 | 1.05 | 7.50 |
| WRD650 | 6.50-18.0 | 650-740-C3 | 200 | 1.10 | 8.50 |
| WRD750 | 7.50-18.0 | 750-720-C3 | 1 | 1.05 | 8.50 |
| WRD750 | 7.50-18.0 | 750-740-C3 | 200 | 1.10 | 8.50 |
| WRD180 | 18.00-40.0 | 180-720-C3 | 1 | 1.15 | 4.00 |
| WRD180 | 18.00-40.0 | 180-740-C3 | 30 | 1.15 | 4.00 |

## Double Ridge W/G Terminations, High Power - 745 Series




| WG Size | Freq (GHz) | Standard Model No.* | Avg. Power (Watts) | VSWR | Dim A. (inches) | Dim B. |
|---|---|---|---|---|---|---|
| WRD250 | 2.5-7.5 | 250-745-1000-C3 | 1000 | 1.15 | 11.50 | 4.50 |
| WRD475 | 4.75-11.0 | 475-745-C3 | 1000 | 1.10 | 12.00 | 6.00 |
| WRD580 | 5.80-16.0 | 580-745A-C3 | 1000 | 1.10 | 9.50 | 5.00 |
| WRD580 | 5.80-16.0 | 580-745-C3 | 750 | 1.10 | 9.50 | 5.00 |
| WRD650 | 6.50-18.0 | 650-745-C3 | 700 | 1.10 | 10.00 | 5.00 |
| WRD750 | 7.50-18.0 | 750-745-C3 | 700 | 1.10 | 10.00 | 5.00 |

## Double Ridge W/G Terminations, Very High Power - 760/780 Series




| WG Size | Freq (GHz) | Standard Model No.* | Avg. Power (Watts) | VSWR | Dim A. (inches) | Dim B. |
|---|---|---|---|---|---|---|
| WRD250 | 2.5-7.5 | 250-780-1800-C3 | 1800 | 1.15 | | |
| WRD250 | 2.5-7.5 | 250-780-2200-C3 | 2200 | 1.15 | 38.50 | 5.25x6.65 |
| WRD750 | 7.5-18.0 | 750-780-1500-C3 | 1500 | 1.15 | 22.00 | 3.00 |
| WRD580 | 5.8-16.0 | 580-780-1500-C3 | 1500 | 1.15 | 22.00 | 3.00 |
| WRD650 | 6.5-18.0 | 650-780-1500-C3 | 1500 | 1.15 | 22.00 | 3.00 |
| WRD180 | 18.0-40.0 | 180-780-150-C3 | 150 | 1.15 | 10.0 | 2.50 |

Units are best mounted in the horizontal plane with free air flow. The load temperature will vary depending on power levels and duration.If during use the surface temperature approaches 260°C at the hottest point, (normally where the first fin touches the waveguide body), forced air cooling should be used to prevent damage to the internal load element. Units can survive temperatures as high as 450 °C without damage for a short time.

Flange Code: C=Flat, G=Groove, 1=alternate holes, 2=all tapped holes, 3=all thru holes

Example 580-720-G1, Other Flanges Available.

ADVANCED TECHNICAL MATERIALS INC.

For a wide variety of
# Microwave Components

## WAVEGUIDE QUICK CONNECTS

- Connects and disconnects waveguides without use of screws and nuts.
- One flange MUST be tapped for the nylon positioning screws.
- Easy Installation to existing assembly if one flange is tapped
- Connects Waveguides by several turns of a threaded ring.
- Dust Covers available for most W/G sizes

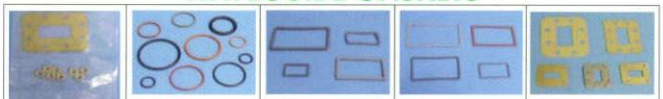
### Rectangular Waveguide Quick Disconnects

| MODEL NO. | WG SIZE | MATES FLANGES:* |
|---|---|---|
| QD-284 | WR284 | CPR |
| QD-229 | WR229 | CPR |
| QD-159 | WR159 | CPR |
| QD-137 | WR137 | CPR |
| QD-112 | WR112 | Cover/Groove/Choke |
| QD-90 | WR90 | Cover/Groove/Choke |
| QD-75 | WR75 | Cover/Groove/Choke/CPR |
| QD-62 | WR62 | Cover/Groove/Choke |
| QD-51 | WR51 | Cover/Groove/Choke |
| QD-42HQ | WR42 | Cover/Groove/Choke |
| QD-34HQ | WR34 | Cover/Groove/Choke |
| QD-28HQ | WR28 | Cover/Groove/Choke |

### Double Ridge Waveguide Quick Disconnects

| MODEL NO. | WG SIZE | MATES FLANGES:* |
|---|---|---|
| QD-350 | WR350 | Cover/Groove |
| QD-580 | WR580 | Cover Groove |
| QD-650 | WR650 | Cover Groove |
| QD-750 | WR750 | Cover Groove |

## WAVEGUIDE GASKETS



Includes gaskets, screws, nuts and washers

**Gasket Kit** Gasket & Flange hardware, available for all gasket types

**Gasket Full** O-Ring type for U/G Style Flanges

**Gasket Full** for CPR style Flanges

**Gasket Half** for CPR style Flanges

**Gasket Die Cut** for flat or groved Flanges

- ATM offers Gaskets for all waveguide sizes and flange types.
- Both Non Conductive [Pressure Seal ] and Conductive [Pressure and RF Seal] styles.

HOW TO SELECT THE CORRECT GASKET?

- The ATM GASKET SELECTION AID makes ordering gaskets easy and worry free.
- Go to ATM WEB
  http://www.atmmicrowave.com/calc_wg_gasket_frame.html
- Enter the waveguide size EX: (WR90) and click LOOKUP and it will provide the various part numbers for your Flange configuration

**Waveguide Gasket Type Selection Aid**

Specify WR Waveguide Size: i.e. Enter "90" for WR90 [90] Lookup

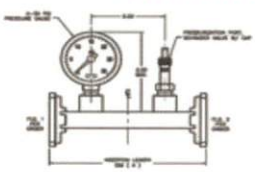
| Gasket # | | | CPR Flange Combinations | | |
|---|---|---|---|---|---|
| | | | CPRG/CPRG | CPRG/CPRF | CPRF/CPRF |
| Gasket Type | Non-Conductive | Full | G90A1F * | N/A | N/A |
| | | Half | N/A | G90A1H * | N/A |
| | Conductive | Die-Cut | G90B2D * | G90B2D * | G90B2D * |
| | | Full | G90B1F ** | N/A | N/A |
| | | Half | N/A | G90B1H | N/A |

| Gasket # | | | UG Style Flange Combinations | | | |
|---|---|---|---|---|---|---|
| | | | Cover/Cover | Cover/Choke | Cover/Cover-Groove | Cover-Groove/Cover-Groove |
| Gasket Type | Non-Conductive | O-Ring | | G90A7F * | G90A7F * | |
| | Conductive | Die-Cut | G90B6D * | | | G90B6D * |
| | | O-Ring | | G90B7F ** | G90B7F ** | |

## PRESSURIZING SECTIONS & INLETS

- For pressurizing a waveguide system with air or other gases
- With a pressure gauge to monitor the internal pressure at all times or without
- Also available are Short length pipe-tapped pressurizing sections
- See ATM WEB for Waveguide Passive Dehydrators

### Pressurizing Sections



| WG Size | Freq (GHz) | Pressure Section with gauge Standard. Model No. | Length (A) (inches) | Pressure Section without gauge Standard. Model No. | Length (A) (inches) |
|---|---|---|---|---|---|
| WR650 | 1.12 - 1.70 | 650-210A-2-2 | 6.00 | 650-212A-2-2 | 4.00 |
| WR430 | 1.70 - 2.60 | 430-210A-2-2 | 6.00 | 430-212A-2-2 | 4.00 |
| WR340 | 2.20 - 3.30 | 340-210A-2-2 | 6.00 | 340-212A-2-2 | 4.00 |
| WR284 | 2.60 - 3.95 | 284-210A-6-6 | 6.00 | 284-212A-6-6 | 4.00 |
| WR229 | 3.30 - 4.90 | 229-210B-2-2 | 6.00 | 229-212B-2-2 | 4.00 |
| WR187 | 3.95 - 5.85 | 187-210A-6-6 | 5.00 | 187-212A-6-6 | 3.00 |
| WR159 | 4.9 - 7.05 | 159-210B-2-2 | 5.00 | 159-212B-2-2 | 3.00 |
| WR137 | 5.95 - 8.20 | 137-210B-2-2 | 4.25 | 137-212B-2-2 | 2.25 |
| WR112 | 7.05 - 10.0 | 112-210B-6-6 | 4.25 | 112-212B-6-6 | 2.25 |
| WR90 | 8.20 - 12.4 | 90-210A-6-6 | 4.25 | 90-212A-6-6 | 2.25 |
| WR75 | 10.0 - 15.0 | 75-210B-6-6 | 4.25 | 75-212B-6-6 | 2.25 |
| WR62 | 12.4 - 18.0 | 62-210B-6-6 | 4.25 | 62-212B-6-6 | 2.25 |
| WR51 | 15.0 - 22.0 | 51-210B-6-6 | 4.25 | 51-212B-6-6 | 2.25 |
| WR42 | 18.0 - 26.5 | 42-210B-6-6 | 4.25 | 42-212B-6-6 | 2.25 |
| WR34 | 22.0 - 33.0 | 34-210B-6-6 | 4.25 | 34-212B-6-6 | 2.25 |
| WR28 | 26.5 - 40.0 | 28-210B-6-6 | 4.25 | 28-212B-6-6 | 2.25 |
| WR22 | 33.0 - 50.0 | 22-210B-6-6 | 4.25 | 22-212B-6-6 | 2.25 |
| WR22 | 33.0 - 50.0 | 22-210B-6R-6R | 4.25 | 22-212B-6R-6R | 2.25 |

### Flange Spacer Inlets

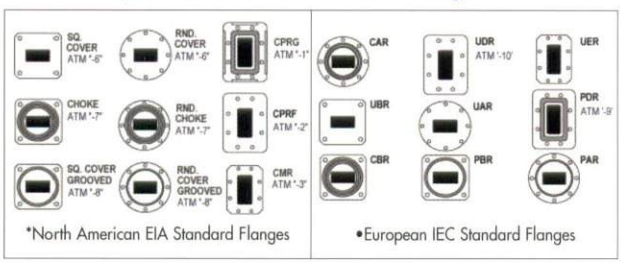
Note: Flange Spacer Inlets are provided with 1/8-27 NPT Inlets, standard.

The Standard Model Numbers above are the most common parts ordered for size, material and flange. These models can easily be altered to accomodate your requirements using cataloging info on ATM WEB,

| WG Size | Freq (GHz) | Standard. Model No. | Flange Thickness) (inches) |
|---|---|---|---|
| WR650 | 1.12 - 1.70 | 650-211A-2-2 | 0.75 |
| WR430 | 1.70 - 2.60 | 430-211A-2-2 | 0.75 |
| WR340 | 2.20 - 3.30 | 340-211A-2-2 | 0.75 |
| WR284 | 2.60 - 3.95 | 284-211A-6-6 | 0.75 |
| WR229 | 3.30 - 4.90 | 229-211B-2-2 | 0.75 |
| WR187 | 3.95 - 5.85 | 187-211A-6-6 | 0.75 |
| WR159 | 4.90 - 7.05 | 159-211B-2-2 | 0.75 |
| WR137 | 5.95 - 8.20 | 137-211B-2-2 | 0.75 |
| WR112 | 7.05 - 10.0 | 112-211B-6-6 | 0.75 |
| WR90 | 8.20 - 12.4 | 90-211A-6-6 | 0.75 |
| WR75 | 10.0 - 15.0 | 75-211A-6-6 | 0.75 |
| WR62 | 12.4 - 18.0 | 62-211A-6-6 | 0.75 |
| WR51 | 15.0 - 22.0 | 51-211A-6-6 | 0.75 |
| WR42 | 18.0 - 26.5 | 34-211A-6-6 | 0.75 |
| WR34 | 22.0 - 33.0 | 42-211B-6-6 | 0.75 |
| WR28 | 26.5 - 40.0 | 28-211A-6-6 | 0.75 |

## WAVEGUIDE FLANGES

- ATM offers products in a broad range of standard and custom flanges
- Both Rectangular and Double Ridge Products are offered
- For detailed flange information and drawings see ATM WEB
  http://www.atmmicrowave.com/AtmFlanges.html




*North American EIA Standard Flanges

•European IEC Standard Flanges



49 Rider Ave, Patchogue, NY 11772 Phone: 631-289-0363 Fax: 631-289-0358
E-mail: atm@atmmicrowave.com Web: www.atmmicrowave.com

# KA-BAND SATCOM COMPONENTS

## Downlink 18.3-20.2 GHz, Uplink 27.5-31.0 GHz, Full 18.3-31.0 GHz

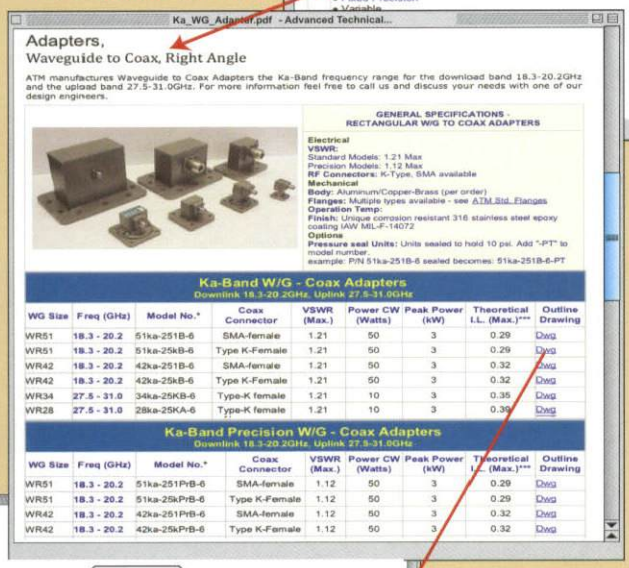
**ATM offers both Coaxial and Waveguide Ka-Band specific components that cover the uplink and downlink frequency bands with better specifications and better pricing compared to broad band components. Go to www.atmmicrowave.com and click on the Ka-Band Component section**

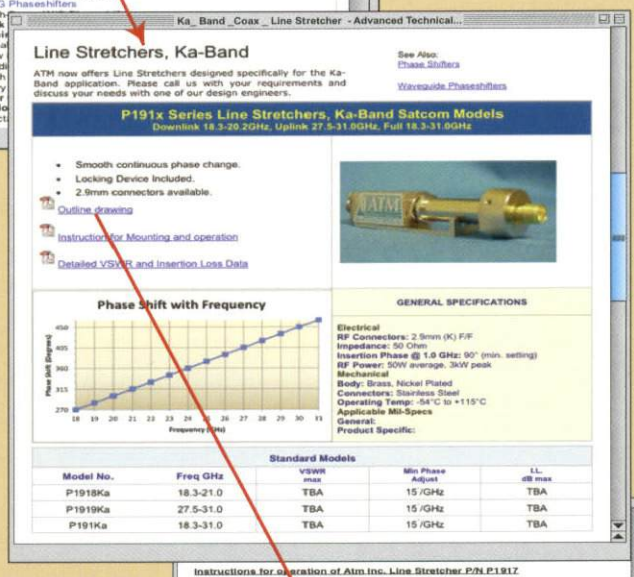
CLICK FOR KA - BAND COMPONENTS



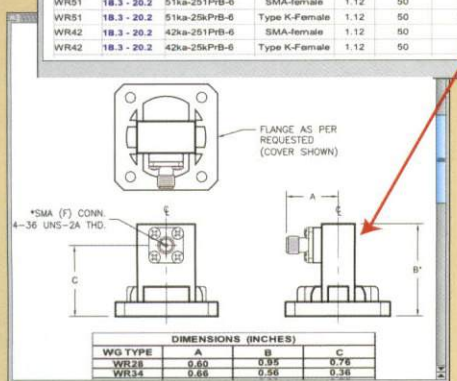
CLICK FOR COAX LINE STRETCHERS

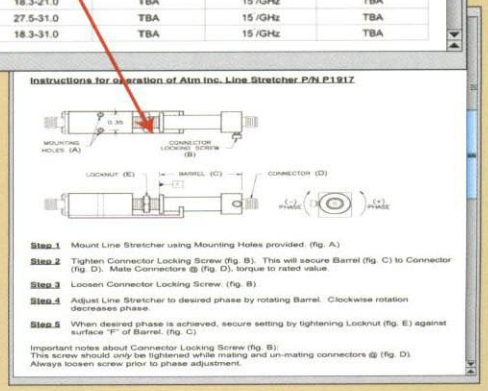
CLICK FOR W/G TO COAX ADAPTER




CLICK FOR OUTLINE DRAWING



# ATM builds thousands of components for Commercial, Military and Scientific Satellites, Aircraft & Vacuum Applications

## Flight Waveguide

- Thin Wall, Light Weight
- Low Out Gassing
- HI REL, QC & Traceability
- 20 year Life
- Custom


Space Qual Thin Wall WG


Space Qual WR34 Load


3dB Hybrid with WG to Coax Adapter

## Vacuum Chambers

- Low Out Gassing
- No Cooling Air
- Water Cooled
- Chill Plates
- Custom or Modified COTS


Machined Water Cooled WG Load


Water Cooled

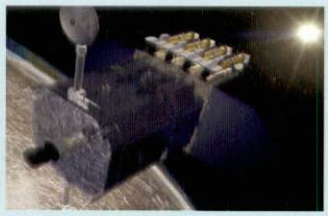

Water Cooled Bends

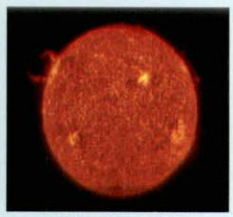

Half Height H-Bend

## NASA Solar Dynamic Observatory SDO

- Satellite Flight Application
- ATM WR34 3dB Hybrid
- Machined Design 2 Blocks of AL
- Custom
- See latest mission result, click
- http://www.nasa.gov/mission_pages/sdo/main/index.html


Space Qual WR34 Hybrid


NASA SDO


SDO Sun Photo



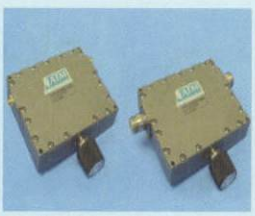

6 Way Power Divider


Hi Power Coupler with APC7


Direct Reading CVA

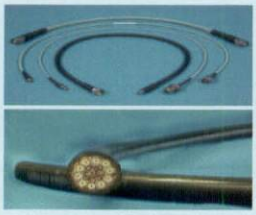

Mil Spec Variable Attenuator


Noise Source with ISO


Cell band CVA, SMA or Type N


DC Injectors


Mini Phase Shifter


Complex Cable Assemblies

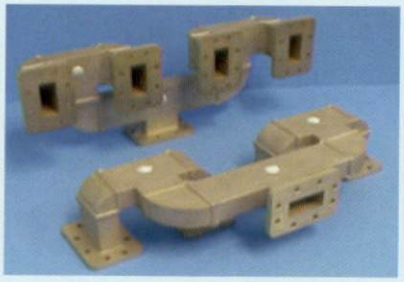

To Spec Form, Fit, and Function CVA'S

WG Arc Detectors


Dual Loop Coupler

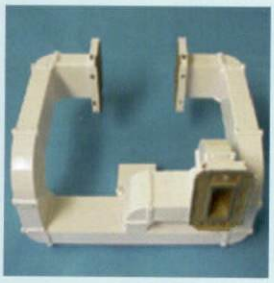
Ultra-HP Water Cooled Load

WG Phase Shifter

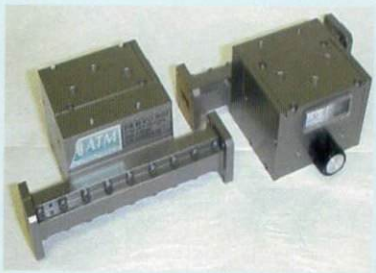


4-Way WG Power Combiner

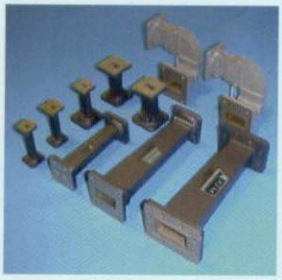

Pressurized Wg Assembly



Antenna Feed




Direct Reading WG CVA



WG To WG Transitions


WR22 CVA

WG HPA Output & Arc Det. Assemblies

Wg Magic Tees


Millimeter WG Triple Arm Coupler

Custom Waveguide Horns

Pole Mount Horn

0.7-18GHz Horn

High Gain Low Frequency Horn


## PRICES, DELIVERY, TECH SUPPORT

- ATM: Phone, Fax or Sales@atmmicrowave.com
- Local REPS: http://www.atmmicrowave.com/salesreps.

## HOW TO ORDER

- USA: Send PO to ATM or Email Support@atmmicrowave.com
- USA Credit Card: http://www.atmmicrowave.com/creditcardorder_new.pdf
- Others: http://www.atmmicrowave.com/ATMfaq.html#A-PlaceOrder

## TERMS and WARRANTY

- http://www.atmmicrowave.com/ATMTermsandConditions.htm

ADVANCED TECHNICAL MATERIALS INC.

49 Rider Ave., Patchogue, New York 11772, USA
Phone (631) 289-0363 Fax (631) 289-0358
E-MAIL: atm@atmmicrowave.com
WEB: www.atmmicrowave.com