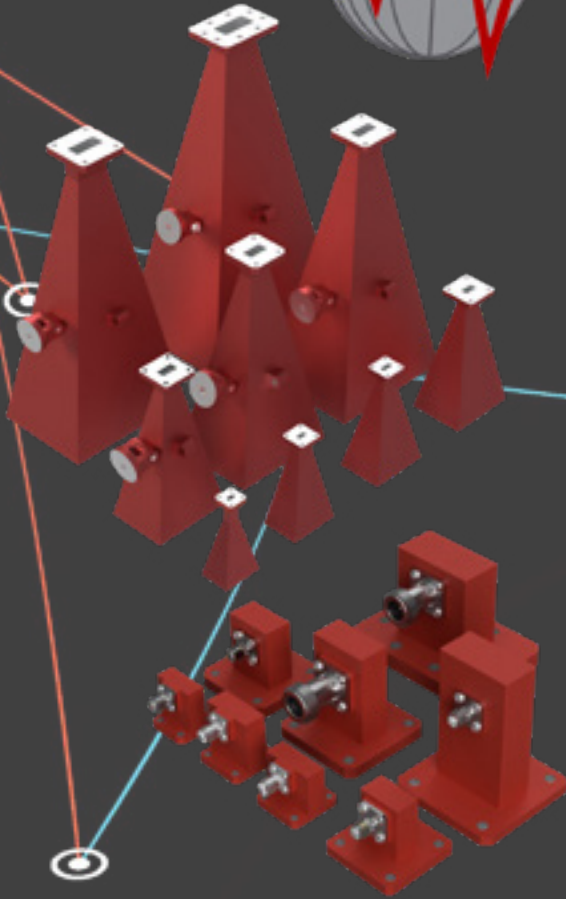


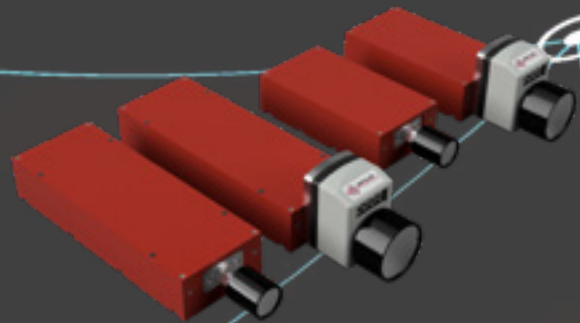
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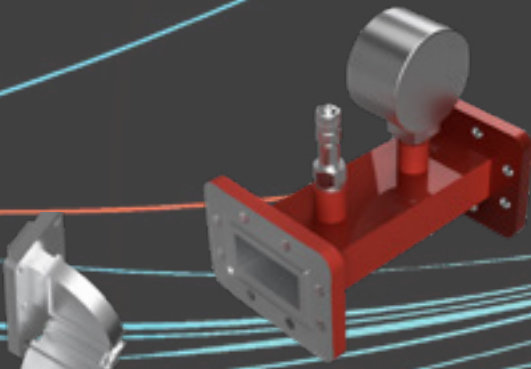
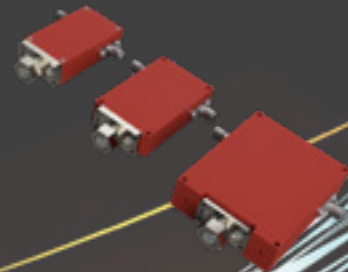
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WG- Components



Coax Components



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Available with expert technical support and guidance from



Ask our team: [0330 313 3220](tel:03303133220) | [rf@apctech.com](mailto:rf@apctech.com)

# PHASE SHIFTERS



## Manual Coaxial Phase Shifters

Impulse Technologies manufactures a wide variety of Phase Shifters to meet your design specifications. Two different models are available, a Standard Model requiring mechanical adjustment with a screwdriver/lock nut and a Digital Counting Dial model.

Phase Shifter models are:           Min. Adjustable Phase Shift 0-30°/GHz - P375xx series  
  Min. Adjustable Phase Shift 0-60°/GHz - P550xx series

<b>30° PHASE SHIFTERS - 3.75" size</b>					
Standard Model No.	Digital Dial Model No.	Freq (GHz)	Min. Phase Adjust	I.L. dB max	VSWR max
P37503-ITI	P37503D-ITI	DC - 2.3	0 - 30°/GHz	0.5	1.5
P37504-ITI	P37504D-ITI	DC - 4.3	0 - 30°/GHz	0.5	1.5
P37505-ITI	P37505D-ITI	DC - 8.2	0 - 30°/GHz	0.6	1.5
P37506-ITI	P37506D-ITI	DC - 12.7	0 - 30°/GHz	0.7	1.5
P37507-ITI	P37507D-ITI	DC - 18.6	0 - 30°/GHz	1	1.6
P37508-ITI	P37508D-ITI	DC - 26.5	0 - 30°/GHz	1.5	2
P37508Ka-360-ITI	P37508KaD-360-ITI	17.0 - 32.0	0° - 360°	2	2
P37508-360-ITI	P37508D-360-ITI	18.0 - 26.5	0° - 360°	1.5	1.8
P37509-360-ITI	P37509D-360-ITI	18.0 - 40.0	0° - 360°	2.5	2
<b>60° PHASE SHIFTERS - 5.50" size</b>					
Standard Model No.	Digital Dial Model No.	Freq (GHz)	Min. Phase Adjust	I.L. dB max	VSWR max
P55003-ITI	P55003D-ITI	DC - 2.3	0 - 60°/GHz	0.5	1.5
P55004-ITI	P55004D-ITI	DC - 4.3	0 - 60°/GHz	0.5	1.5
P55005-ITI	P55005D-ITI	DC - 8.2	0 - 60°/GHz	0.6	1.5
P55006-ITI	P55006D-ITI	DC - 12.7	0 - 60°/GHz	0.7	1.5
P55007-ITI	P55007D-ITI	DC - 18.6	0 - 60°/GHz	1	1.6
P55008-ITI	P55008D-ITI	18.0 - 26.0	0 - 60°/GHz	1.5	2

### General Specifications:

**RF Power:** 100W average, 3kW peak

**RF Connectors:** SMA F

**Connectors:** Stainless Steel

**Size:** 3.75" x 2.0" x 1.0" (P375xx series)

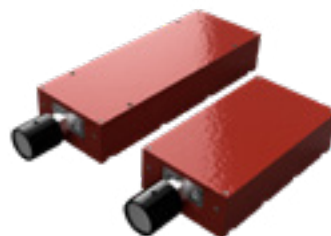
5.50" x 2.0" x 1.0" (P550xx series)

**Body:** Aluminum

**Control:** 0.25" dia. multi-turn non-translating shaft, with approx. 10 turns (P375xx) or 18 turns (P550xx) from min to max phase adjust



Digital Dial Models



Standard Models

# CONTINUOUSLY VARIABLE ATTENUATORS



## Continuously Variable Attenuators



AF/AV06 Series

FREQUENCY FLAT MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
2.0-4.0	10	1.6	1.5	AF064-10-ITI
3.6-6.5	10	1.5	0.8	AF065C-10-ITI
3.6-4.3	20	1.5	0.5	AF065C1-20-ITI
5.8-6.5	20	1.5	0.5	AF065C2-20-ITI
4.0-8.0	10	1.5	2.0	AF065-10-ITI
7.2-8.4	20	1.5	1.0	AF065X-20-ITI
8.0-12.4	10	1.5	1.0	AF066-10-ITI
10.7-12.7	20	1.5	0.8	AF066X-20-ITI
10.7-14.5	20	1.5	1.5	AF066K-20-ITI
13.0-14.5	30	1.5	0.5	AF067K-30-ITI
12.4-18.0	10	1.5	1.0	AF067-10-ITI
17.0-18.6	20	1.5	1.0	AF067J-20-ITI
8.0-18.0	20	1.7	1.8	AF066H-20-ITI
14.0-26.0	20	1.7	1.0	AF068-20-ITI

LEVEL ADJUST MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
2.0-4.2	10	1.5	N/A	AV064-10-ITI
3.7-8.0	20	1.5	N/A	AV065-20-ITI
7.9-12.7	30	1.5	N/A	AV066-30-ITI
11.7-18.0	30	1.5	N/A	AV067-30-ITI
14.0-26.5	20	1.7	N/A	AV068-20-ITI

MULTIBAND MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
2.0-8.0	10	1.5	N/A	AV064F-10-ITI
4.0-12.4	20	1.5	N/A	AV065G-20-ITI
4.0-18.0	10	1.5	N/A	AV065H-10-ITI
6.0-18.0	30	1.5	N/A	AV066H-30-ITI

AF/AV07 Series

FREQUENCY FLAT MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
2.0-4.0	10	1.7	1.5	AF074-10-ITI
3.6-6.5	20	1.5	1.3	AF075C-20-ITI
3.6-4.3	20	1.5	0.5	AF075C1-20-ITI
5.8-6.5	20	1.5	0.5	AF075C2-20-ITI
4.0-8.0	10	1.5	2.0	AF075-10-ITI
7.2-8.4	20	1.5	1.0	AF075X-20-ITI
8.0-12.4	10	1.5	1.0	AF076-10-ITI
10.7-12.75	20	1.5	0.8	AF076X-20-ITI
10.7-14.5	20	1.5	1.5	AF076K-20-ITI
12.4-18.0	10	1.5	1.0	AF077-10-ITI
17.0-18.6	20	1.5	1.0	AF077J-20-ITI
8.0-18.0	20	1.6	2.0	AF076H-20-ITI

LEVEL ADJUST MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
1.0-2.0	10	1.8	N/A	AV073-10-ITI
2.0-4.0	20	1.5	N/A	AV074-20-ITI
2.0-8.0	20	1.5	N/A	AV074F-20-ITI
4.0-8.0	30	1.5	N/A	AV075-30-ITI
4.0-12.4	30	1.5	N/A	AV075G-30-ITI
8.0-12.4	40	1.5	N/A	AV076-40-ITI
8.0-18.0	40	1.5	N/A	AV076H-40-ITI



AF/AV08 Series

FREQUENCY FLAT MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
0.8-1.0	15	1.8	1.5	AF082L1-15-ITI
0.95-1.45	15	1.8	1.7	AF083L1-15-ITI
1.5-2.0	20	1.5	1.5	AF083L2-20-ITI
2.0-4.0	20	1.5	1.5	AF084-20-ITI
2.8-6.5	20	1.5	1.5	AF084F-20-ITI
3.4-4.2	20	1.5	1.0	AF085C3-20-ITI
3.6-6.5	30	1.5	1.25	AF085C-30-ITI
5.8-6.5	30	1.5	0.75	AF085C2-30-ITI
4.0-8.0	20	1.5	1.0	AF085-20-ITI
7.2-8.4	30	1.5	0.75	AF085X-30-ITI
8.0-12.4	20	1.5	1.0	AF086-20-ITI
10.7-12.7	30	1.5	1.0	AF086X-30-ITI
10.7-14.5	30	1.5	1.5	AF086K-30-ITI
12.4-18.0	20	1.5	1.5	AF087-20-ITI

LEVEL ADJUST MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
0.7-1.0	10	1.7	N/A	AV082-10-ITI
0.8-2.0	20	1.7	N/A	AV083L-20-ITI
1.0-2.0	20	1.5	N/A	AV083-20-ITI
2.0-4.2	20	1.5	N/A	AV084-20-ITI
4.0-8.0	30	1.5	N/A	AV085-30-ITI
7.9-12.7	30	1.5	N/A	AV086-30-ITI
11.7-18.0	30	1.5	N/A	AV087-30-ITI

MULTIBAND MODELS				
Freq. (GHz)	Atten. Range (dB)	VSWR Max	Flatness (+/- dB)	Model No.
1.0-4.0	20	1.5	N/A	AV083E-20-ITI
1.0-8.0	30	1.8	N/A	AV083F-30-ITI
2.0-18.0	10	1.5	N/A	AV084H-10-ITI
4.0-18.0	20	1.5	N/A	AV085H-20-ITI
6.0-18.0	60	1.5	N/A	AV086H-60-ITI

### General Specifications:

RF Power: 5W average, 3kW peak

RF Connectors: SMA F

INSERTION LOSS: 0.5dB max

VSWR: 1.5:1 max, on most models

### Attenuator Drive Options:

Standard: Screw Driver Shaft with Lock Nut

The Part Number begins with AV0 or AF0

### Knob Control Option:

Change AV0 or AF0 to AV9 or AF9

### Turns Counting Dial Option:

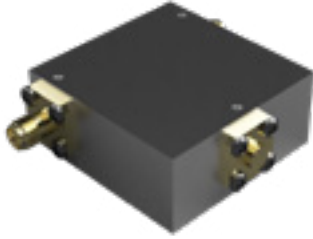
Change AV0 or AF0 to AV8 or AF8

# COAXIAL ISOLATORS AND CIRCULATORS

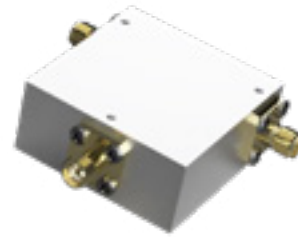


## Isolators & Circulators

### Isolators



### Circulators



WIDE BAND MODELS - ISOLATORS & CIRCULATORS										
Frequency (GHz)	ISO (dB)		IL (dB)		VSWR		Fwd. Power (Watts)*		Model No.	
	Typ	Min	Typ	Max	Typ	Max	Avg.	Pk.	Circulator	Isolator
2.0 - 8.0		9		1.75		2.1	20	30	ITc2-8	ITi2-8
6.0 - 18.0	15	14	0.9	1	1.45	1.5	10	20	ITc6-18	ITi6-18
8.0 - 18.0	17	16	0.7	0.8	1.4	1.45	10	30	ITc8-18	ITi8-18
18.0 - 26.5	20	18	0.7	0.8	1.35	1.4	10	30	ITc18-26.5	ITi18-26.5
26.5 - 40.0	15	14	0.8	1	1.45	1.5	5	30	ITc26.5-40	ITi26.5-40

OCTAVE BAND MODELS - ISOLATORS & CIRCULATORS										
Frequency (GHz)	ISO (dB)		IL (dB)		VSWR		Fwd. Power (Watts)*		Model No.	
	Typ	Min	Typ	Max	Typ	Max	Avg.	Peak	Circulator	Isolator
1.0 - 2.0	20	18	0.35	0.5	1.25	1.3	50	75	ITc1-2	ITi1-2
2.0 - 4.0	20	18	0.4	0.5	1.25	1.3	20	30	ITc2-4	ITi2-4
2.6 - 5.2	20	18	0.4	0.6	1.25	1.3	20	30	ITc2.6-5.2	ITi2.6-5.2
3.0 - 6.0	20	18	0.35	0.4	1.25	1.3	20	30	ITc3-6	ITi3-6
4.0 - 8.0	22	20	0.35	0.4	1.18	1.25	20	30	ITc4-8	ITi4-8
5.0 - 10.7	16	15	0.9	1	1.4	1.45	20	20	ITc5-10	ITi5-10
6.0 - 12.4	19	17	0.5	0.6	1.3	1.35	20	30	ITc6-12	ITi6-12
8.0 - 12.4	22	20	0.35	0.5	1.18	1.25	25	50	ITc8-12.4	ITi8-12.4
12.0 - 18.0	22	20	0.45	0.5	1.18	1.25	5	30	ITc12-18	ITi12-18

### General Specifications:

#### RF Power:

**Isolators:** 10-20W average, 20-30W peak, 2W reflective

**Circulators:** 10-20W avg., 20-30W peak

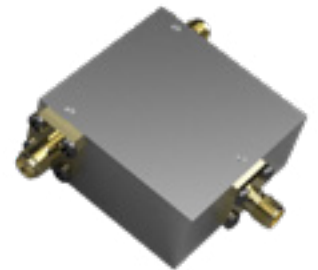
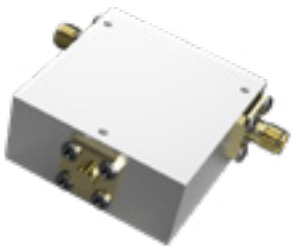
**RF Connectors:** SMA F, others available

2.92mm (above 26.5GHz)

**Body Finish:** Nickel Plating

Our isolators and circulators are with the smallest package size that is available.

Listed models are a small selection of available models. Other frequency ranges and connectors are available upon request.



# STANDARD GAIN HORNS



## Standard Gain Horn Antennas

Impulse Technologies manufactures a high quality line of Standard Gain Horn Antenna that are linearly polarized, lightweight and corrosion resistant.

Impulse's horns are based on typical specifications for standard pyramidal horn antenna. The *horn antenna* models offered are the most common gain values available, typically 10dB, 15dB, & 20dB.



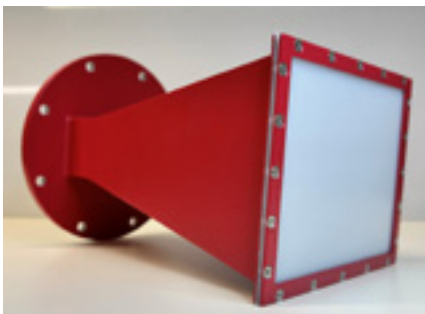
The horn antennas are stocked with flat flanges (WR137 - CPRF, WR112 to WR28 - Cover), other flanges are available upon request.

All of Impulse's Standard Gain Horn Antennas are RoHS and REACH

compliant. They are chemfilm coated and painted in a distinctive red paint.

All antennas WR137 to WR28 include provisions for mounting to a tripod with a 1/4" - 20 mounting screw.

Other WG sizes and Gain values are available upon request. For radome covers please contact the office.



WG Size	Frequency (GHz)	Model No.	Gain (dB)	3dB Beam Width	
				E-Plane	H-Plane
WR137	5.85 - 8.20	SGH137-10-ITI	10	55.1°	54.2°
WR137	5.85 - 8.20	SGH137-15-ITI	15	33.7°	33.2°
WR137	5.85 - 8.20	SGH137-20-ITI	20	18.7°	18.8°
WR112	7.05 - 10.0	SGH112-10-ITI	10	56.8°	55.2°
WR112	7.05 - 10.0	SGH112-15-ITI	15	32.4°	32.0°
WR112	7.05 - 10.0	SGH112-20-ITI	20	19.3°	19.3°
WR90	8.20 - 12.4	SGH90-10-ITI	10	48.5°	47.4°
WR90	8.20 - 12.4	SGH90-15-ITI	15	29.3°	29.0°
WR90	8.20 - 12.4	SGH90-20-ITI	20	16.1°	16.5°
WR75	10.0 - 15.0	SGH75-10-ITI	10	50.2°	49.2°
WR75	10.0 - 15.0	SGH75-15-ITI	15	35.4°	28.5°
WR75	10.0 - 15.0	SGH75-20-ITI	20	16.3°	17.2°
WR62	12.4 - 18.0	SGH62-10-ITI	10	55.3°	50.9°
WR62	12.4 - 18.0	SGH62-15-ITI	15	30.1°	31.2°
WR62	12.4 - 18.0	SGH62-20-ITI	20	18.8°	18.9°
WR51	15.0 - 22.0	SGH51-10-ITI	10	55.1°	54.2°
WR51	15.0 - 22.0	SGH51-15-ITI	15	32.0°	31.8°
WR51	15.0 - 22.0	SGH51-20-ITI	20	16.9°	18.0°
WR42	18.0 - 26.5	SGH42-10-ITI	10	58.0°	57.0°
WR42	18.0 - 26.5	SGH42-15-ITI	15	31.3°	31.5°
WR42	18.0 - 26.5	SGH42-20-ITI	20	17.5°	17.8°
WR34	22.0 - 33.0	SGH34-10-ITI	10	54.1°	53.2°
WR34	22.0 - 33.0	SGH34-15-ITI	15	23.1°	40.8°
WR34	22.0 - 33.0	SGH34-20-ITI	20	17.0°	17.4°
WR28	26.5 - 40.0	SGH28-10-ITI	10	54.2°	54.4°
WR28	26.5 - 40.0	SGH28-15-ITI	15	32.1°	31.3°
WR28	26.5 - 40.0	SGH28-20-ITI	20	16.7°	18.3°

Standard Gain Horn Antennas are also available with a waveguide to coax adapter attached to it. Standard connector configurations include SMA F, Type N-F and 2.92mm F (K-type F).



# WG-COAX ADAPTERS



## WG-Coax Adapters

Impulse Technologies manufactures Right Angle Waveguide to Coax Adapters covering the full frequency range for WR28 to WR137 rectangular waveguides. Standard models are available with CPRF (WR137) and Cover flanges.

Configurations with TypeN, SMA and 2.92mm connectors are available depending on WG size.



WAVEGUIDE-COAX ADAPTERS								
Model Number	Waveguide Size	Freq. (GHz)	Insertion Loss (dB)	VSWR Max	Flange	Connector	CW Power (W)	Peak Power (kW)
WGC137A-F1-C3-ITI	WR137	5.85-8.20	0.17	1.25	CPRF	TypeN F	100	3
WGC137A-F1-C1-ITI	WR137	5.85-8.20	0.2	1.25	CPRF	SMA F	50	3
WGC112A-F6-C3-ITI	WR112	7.05-10.0	0.18	1.25	COVER	TYPEN F	50	3
WGC112A-F6-C1-ITI	WR112	7.05-10.0	0.21	1.25	COVER	SMA F	50	3
WGC90A-F6-C3-ITI	WR90	8.20-12.4	0.21	1.25	COVER	TYPEN F	50	1
WGC90A-F6-C1-ITI	WR90	8.20-12.4	0.23	1.25	COVER	SMA F	50	1
WGC75A-F6-C1-ITI	WR75	10.0-15.0	0.25	1.25	COVER	SMA F	50	1
WGC62A-F6-C1-ITI	WR62	12.4-18.0	0.27	1.25	COVER	SMA F	50	1
WGC51A-F6-C1-ITI	WR51	15.0-22.0	0.29	1.25	COVER	SMA F	50	1
WGC42A-F6-C5-ITI	WR42	18.0-26.5	0.5	1.25	COVER	2.92MM F	50	1
WGC34A-F6-C5-ITI	WR34	22.0-33.0	0.35	1.25	COVER	2.92MM F	10	1
WGC28A-F6-C5-ITI	WR28	26.5-40.0	0.39	1.25	COVER	2.92MM F	10	1

### General Specifications:

**RF Power:** 100W average, 3kW peak (WR137)

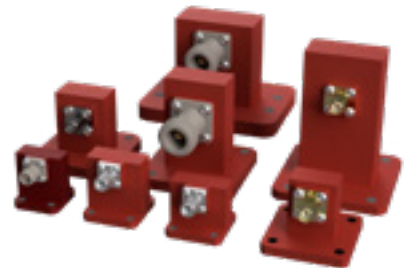
50W average, 1kW peak

**RF Connectors:** 2.92mm F, SMA F, Type N-F

**Connectors:** Stainless Steel

**Flange:** CPRF (WR137), COVER

**Body:** Aluminum



All of Impulse's WG-Coax Adapters are generally available from stock for immediate shipment.

# WG Product Lines

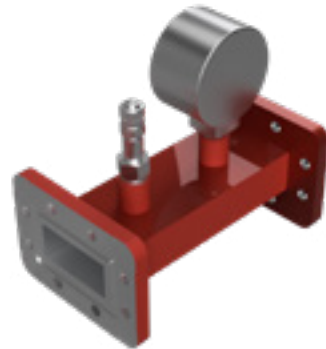
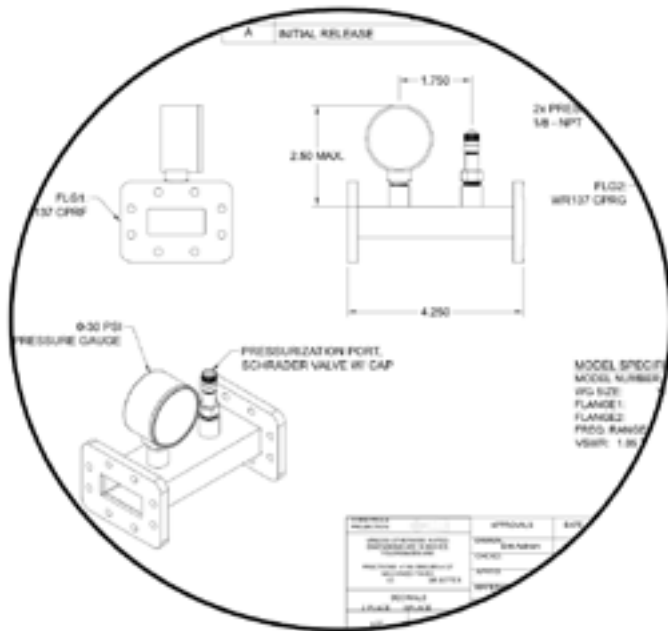
## Standard WG Product Lines



## WG Standard Assemblies

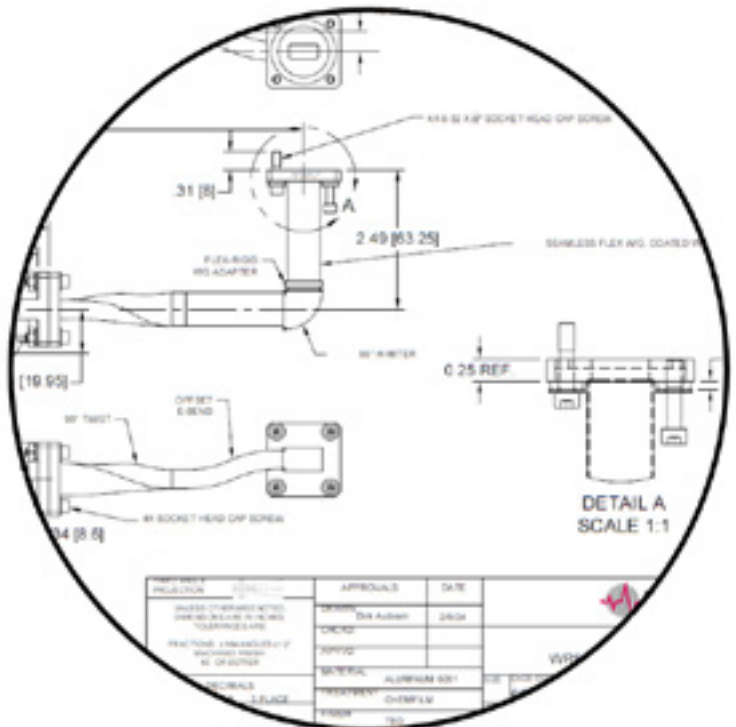
Impulse Technologies offers several WG product lines including:

- WG Bulkhead Assemblies
- WG Dehydrators
- WG Pressure Sections
- WG Gaskets
- WG Bend Assemblies
- WG Cast Miter Assemblies



## WG Custom Assemblies

Impulse Technologies designs and manufactures custom WG assemblies. These WG assemblies can be made to customer provided drawings or be designed in-house to the customer provided specifications.





# IMPULSE

TECHNOLOGIES INC.

AN INTERNATIONAL COMPANY



You can also view the Impulse Technologies range of components on the APC Technology Group website.

We provide access to datasheets and our experienced RF and Microwave team are available to provide dedicated technical support and guidance.

[www.apctech.com](http://www.apctech.com)  
0330 313 3220 | [rf@apctech.com](mailto:rf@apctech.com)

Ask our team: [0330 313 3220](tel:03303133220) | [rf@apctech.com](mailto:rf@apctech.com)

