

**DOLPH**  
MICROWAVE

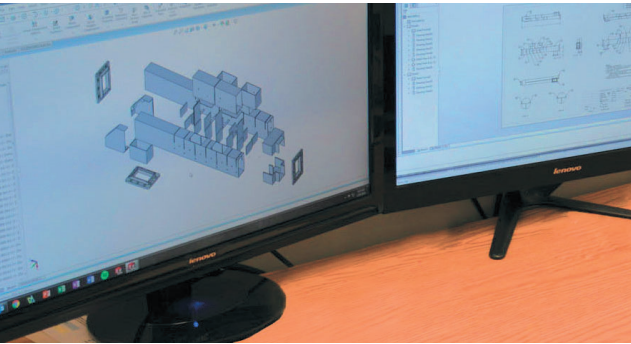


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Information offered is for reference only. Components may be modified to suit design, dimension, specifications and operating frequency range without notice. For confirmation of details, please consult.

**PRODUCT BROCHURE**  
*WG Components and Satcom Antenna*  
**—2021**



## WHO WE ARE?

Dolph was founded in 2001 with predecessor from previous state owned 806 Factory. Based on design and manufacturing experience over 20 years, reliable microwave components and satcom antenna help us win good reputation in satcom communication and space exploration fields. Product line(Featured product) includes coaxial adapter, WG termination, attenuator, WG bend/straight/twist, pressure window, standard gain horn, WG coupler as well as earth station, drive away and quick deploy antenna etc. Product "Quality Manual" and "Quality Procedure" is compliant with ISO 9001-2000.

Knowing the specific requirements of each customer so as to provide satisfactory products and systems. We look forward to cooperating with you in microwave and satellite communication fields.

## RESEARCH & DEVELOPMENT

Dolph Microwave has leading R&D ability of microwave components and antenna feeds. Required specification is realized based on wide skills in CAD/solid modeling/RF simulation/prototype design etc. Completed test devices help to reduce time cycle from design to R&D, making the whole process more efficient and guaranteed. In addition, we keep closed cooperation with well partners in this industry to offer competitive products for customers.



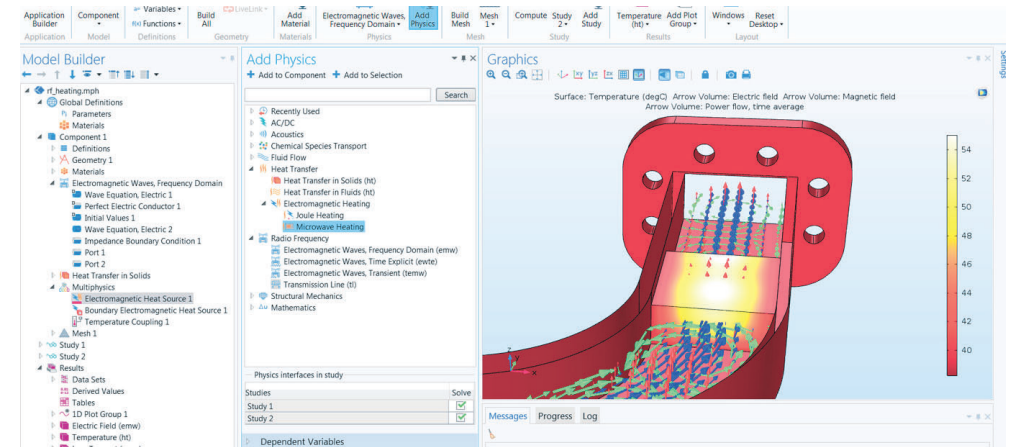
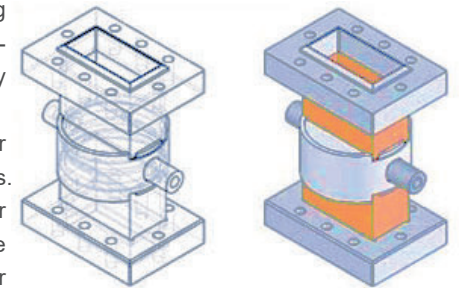
## MICROWAVE PROJECT DESIGN

Advanced electromagnetic design tools is used to design Dolph products, which include:

- 01 CST studio for feed, OMT, filter, phase shifter.
- 02 The latest CUDA GPU technology.
- 03 GRASP & POS from TICRA for designing & optimizing antenna optical parts such as multiple beams, dual optical parts, shaped reflector.
- 04 QuickWave-V2D for designing axial symmetry equipment such as feed, filter, standard gain antenna. Our testing facility takes key role in Dolph Microwave's continuous development, including the advanced 100GHz compact testing system.

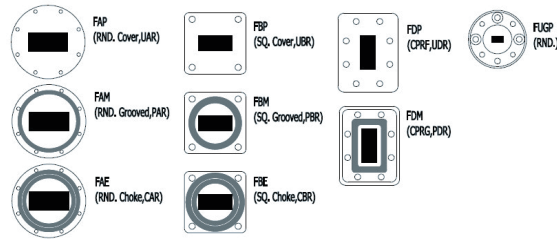
## MACHINE DESIGN & PRODUCTION

Our experienced mechanical engineers assure product mechanical integrity and working life, including Solidworks Flow Simulation (CFD), ANSYS and Solidworks finite element software. Wind tunnel test is by external wind tunnel to confirm computer simulation. Advanced FARO and LEICA laser scanner is used for RMS test, key size of reflecting mirror and other parts. Lab built with a salt-fog chamber to test if the paint or pre-painted metal parts meet ASTM B117. And we use environmental test chamber to test influence for microwave components structure and feed element from the extreme cold or hot environment.



# FLANGE TYPE DESIGNATIONS

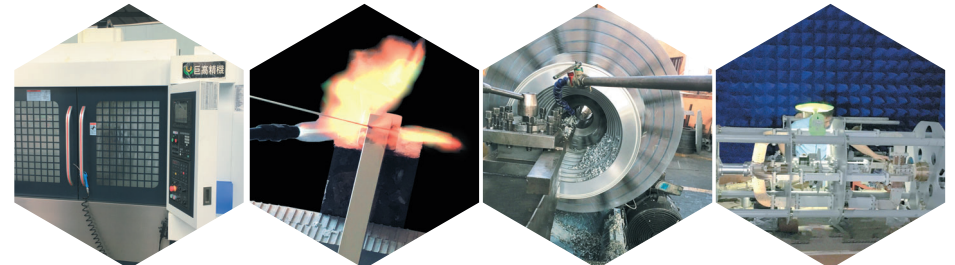
Dolph Microwave Components and Engineering manufacture and supply flanges made to current IEC and EIA standards.



WG Type		A Type			B Type			D Type		FUGP
EIA Std	IEC Std	FAP (RND COVER)	FAM (RND GROOVED)	FAE (RND CHOKE)	FBP (SQ COVER)	FBM (SQ GROOVED)	FBE (SQ CHOKE)	FDP (CPRF)	FDM (CPRG)	
WR2300	R3							FDP3	FDM3	
WR2100	R4							FDP4	FDM4	
WR1800	R5							FDP5	FDM5	
WR1500	R6							FDP6	FDM6	
WR1150	R8							FDP8	FDM8	
WR975	R9							FDP9	FDM9	
WR770	R12							FDP12	FDM12	
WR650	R14							FDP14	FDM14	
WR510	R18							FDP18	FDM18	
WR430	R22							FDP22	FDM22	
WR340	R26							FDP26	FDM26	
WR284	R32	FAP32	FAM32	FAE32				FDP32	FDM32	
WR229	R40	FAP40	FAM40	FAE40				FDP40	FDM40	
WR187	R48	FAP48	FAM48	FAE48				FDP48	FDM48	
WR159	R58	FAP58	FAM58	FAE58				FDP58	FDM58	
WR137	R70	FAP70	FAM70	FAE70				FDP70	FDM70	
WR112	R84				FBP84	FBM84	FBE84	FDP84	FDM84	
WR90	R100				FBP100	FBM100	FBE100	FDP100	FDM100	
WR75	R120				FBP120	FBM120	FBE120	FDP120	FDM120	
WR62	R140				FBP140	FBM140	FBE140	FDP140	FDM140	
WR51	R180				FBP180	FBM180	FBE180	FDP180	FDM180	
WR42	R220				FBP220	FBM220	FBE220			
WR34	R260				FBP260	FBM260	FBE260			
WR28	R320				FBP320	FBM320	FBE320			
WR22	R400	FAP400	FAM400							FUGP400
WR18	R500	FAP500	FAM500							FUGP500
WR14	R620	FAP620	FAM620							FUGP620
WR12	R740	FAP740	FAM740							FUGP740
WR10	R900	FAP900	FAM900							FUGP900

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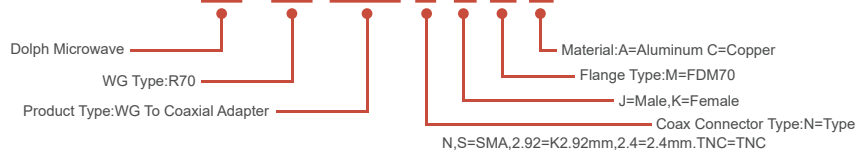


# WAVEGUIDE TO COAXIAL ADAPTER

FEATURES

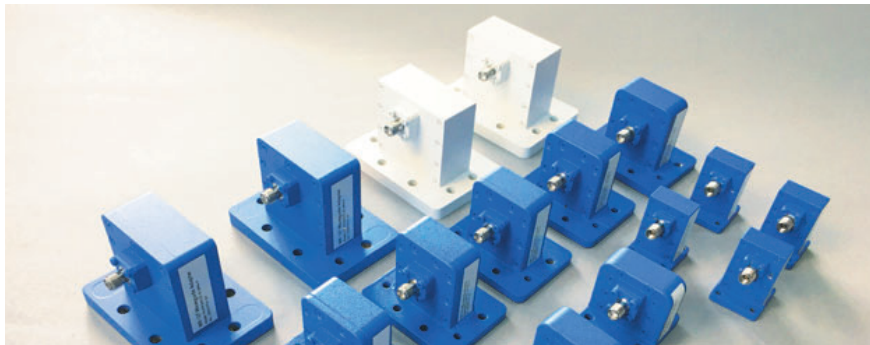
- ★ WR2300-WR10
- ★ Full or specific frequency bands
- ★ VSWR 1.25 (typical), VSWR 1.15 (precision)
- ★ Coaxial connectors N-Type, SMA, 2.9mm (K-Type), TNC, 2.4mm, 3.5mm
- ★ Standard or customized flanges
- ★ 90 degree or End Launch
- ★ High power with custom airline type N-type connectors
- ★ Aluminum or Copper

## Example Part No: DH - 70 WCA N K M A



- ★ Flange type: Multiple types available - see Technical Reference page
- ★ Finish: Corrosion protection plus black/grey top coat

Standard unit provided not sealed pressure tight unless otherwise specify



ORDERING INFORMATION

# Specifications

Model No*	Freq Range	VSWR	Dimensions	WG Type		Flange	Material
	(GHz)	(Max)	L*B*A (mm)	IEC	EIA		
DH-3WCAN...	0.32-0.49	1.25	400*384*676	R3	WR2300	FDP/FDM	Al
DH-4WCAN...	0.35-0.53	1.25	380*359*626	R4	WR2100	FDP/FDM	Al
DH-5WCAN...	0.41-0.62	1.25	350*318*546	R5	WR1800	FDP/FDM	Al
DH-6WCAN...	0.49-0.75	1.25	300*280*470	R6	WR1500	FDP/FDM	Al
DH-8WCAN...	0.64-0.98	1.25	260*235*381	R8	WR1150	FDP/FDM	Al
DH-9WCAN...	0.75-1.15	1.25	231*212*336	R9	WR975	FDP/FDM	Al
DH-12WCAN...	0.96-1.46	1.25	166*187*285	R12	WR770	FDP/FDM	Al
DH-14WCAN...	1.13-1.73	1.25	150*138*220	R14	WR650	FDP/FDM	Al
DH-18WCAN...	1.45-2.20	1.25	120*120*185	R18	WR510	FDP/FDM	Al/Cu
DH-22WCAN...	1.72-2.61	1.25	100*106*161	R22	WR430	FDP/FDM	Al/Cu
DH-26WCAN...	2.17-3.30	1.25	90*95*138	R26	WR340	FDP/FDM	Al/Cu
DH-32WCAN...	2.60-3.95	1.25	72*76*114	R32	WR284	FDP/FDM	Al/Cu
DH-40WCAN...	3.22-4.90	1.25	65*70*98	R40	WR229	FDP/FDM	Al/Cu
DH-48WCAN...	3.94-5.99	1.25	54*63*89	R48	WR187	FDP/FDM	Al/Cu
DH-58WCAN...	4.64-7.05	1.25	50*62*81	R58	WR159	FDP/FDM	Al/Cu
DH-70WCAN...	5.38-8.17	1.25	48*49*68	R70	WR137	FDP/FDM	Al/Cu
DH-84WCAN...	6.57-9.99	1.25	40*48*48	R84	WR112	FDP/FDM	Al/Cu
DH-100WCAN...	8.20-12.4	1.25	38*41*41	R100	WR90	FDP/FDM	Al/Cu
DH-120WCAN...	9.84-15.0	1.25	30*38*38	R120	WR75	FDP/FDM	Al/Cu
DH-140WCAN...	11.9-18.0	1.25	27*33*33	R140	WR62	FDP/FDM	Al/Cu
DH-180WCAN...	14.5-22.0	1.25	27*30*30	R180	WR51	FDP/FDM	Al/Cu
DH-220WCAS...	17.6-26.7	1.40	25*22*22	R220	WR42	FDP/FDM	Al/Cu
DH-320WCAS...	26.3-40.0	1.50	25*19*19	R320	WR28	FDP/FDM	Al/Cu
DH-400WCA 1.85...	33-50	1.50	27*28.6*28.6	R400	WR22	FUGP	Cu
DH-500WCA 1.85...	40-60	1.50	27*28.6*28.6	R500	WR19	FUGP	Cu
DH-620WCA 1.85...	55-65	1.80	30*19.1*19.1	R620	WR15	FUGP	Cu
DH-740WCA 1.85...	60-90	1.80	28*28.6*28.6	R740	WR12	FUGP	Cu

## WAVEGUIDE TERMINATION & DUMMY LOADS

### FEATURES

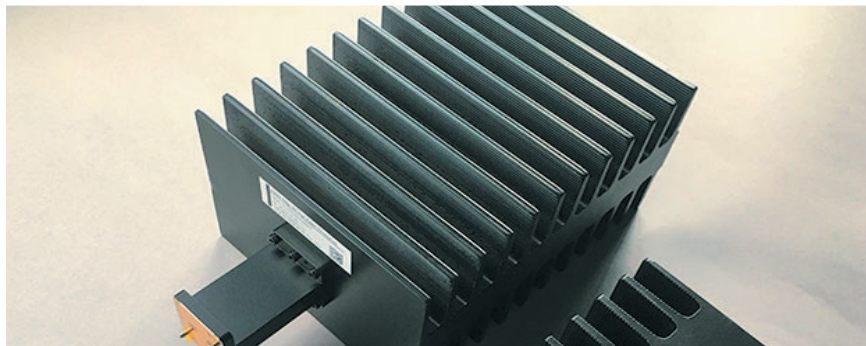
- ★ WR-650 to WR-22
- ★ Air cooling, water cooled and water terminations available.
- ★ Units pressure tested to 30 psi.
- ★ Low outgassing characteristics.
- ★ VSWR: 1.10 max.
- ★ Strong and light 6061 aluminum construction.
- ★ Style available: high-low-Medium power termination and dummy loads.
- ★ Designed to withstand extreme temperature conditions.

### Example Part No: DH - 100 WHPL 300 M A



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
- ★ Finish: Corrosion protection plus black top coat

Standard unit provided not sealed pressure tight unless otherwise specify



### ORDERING INFORMATION

## Specifications

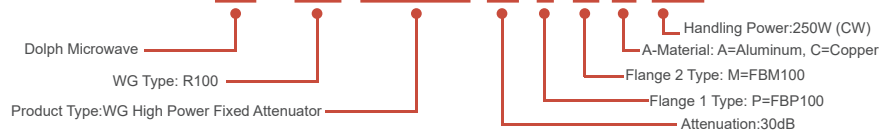
Model No*	Freq Range	VSW	Avg Power	WG Type		Flange	Material
	(GHz)	(Max)	(W)	IEC	EIA		
DH-14WHPL100...	1.13-1.73	1.20	100	R14	WR650	FDP/FDM	Al
DH-14WHPL350...	1.13-1.73	1.20	350	R14	WR650	FDP/FDM	Al
DH-14WHPL500...	1.13-1.73	1.20	500	R14	WR650	FDP/FDM	Al
DH-14WHPL1000...	1.13-1.73	1.20	1000	R14	WR650	FDP/FDM	Al
DH-18WHPL100...	1.45-2.20	1.20	100	R18	WR510	FDP/FDM	Al/Cu
DH-18WHPL300...	1.45-2.20	1.20	300	R18	WR510	FDP/FDM	Al/Cu
DH-18WHPL500...	1.45-2.20	1.20	500	R18	WR510	FDP/FDM	Al/Cu
DH-18WHPL1000...	1.45-2.20	1.20	1000	R18	WR510	FDP/FDM	Al/Cu
DH-22WHPL100...	1.72-2.61	1.15	100	R22	WR430	FDP/FDM	Al/Cu
DH-22WHPL250...	1.72-2.61	1.15	250	R22	WR430	FDP/FDM	Al/Cu
DH-26WHPL300...	2.17-3.30	1.15	300	R26	WR340	FDP/FDM	Al/Cu
DH-26WHPL800...	2.17-3.30	1.15	800	R26	WR340	FDP/FDM	Al/Cu
DH-32WHPL250...	2.60-3.95	1.10	250	R32	WR284	FDP/FDM	Al/Cu
DH-32WHPL500...	2.60-3.95	1.10	500	R32	WR284	FDP/FDM	Al/Cu
DH-40WHPL300...	3.22-4.90	1.10	500	R40	WR229	FDP/FDM	Al/Cu
DH-48WHPL70...	3.94-5.99	1.10	70	R48	WR187	FDP/FDM	Al/Cu
DH-48WHPL100...	3.94-5.99	1.10	100	R48	WR187	FDP/FDM	Al/Cu
DH-48WHPL400...	3.94-5.99	1.10	400	R48	WR187	FDP/FDM	Al/Cu
DH-48WHPL500...	3.94-5.99	1.10	500	R48	WR187	FDP/FDM	Al/Cu
DH-48WHPL1000...	3.94-5.99	1.10	1000	R48	WR187	FDP/FDM	Al/Cu
DH-58WHPL50...	4.64-7.05	1.10	50	R58	WR159	FDP/FDM	Al/Cu
DH-58WHPL800...	4.64-7.05	1.10	800	R58	WR159	FDP/FDM	Al/Cu
DH-70WHPL75...	5.38-8.17	1.10	75	R70	WR137	FDP/FDM	Al/Cu
DH-70WHPL150...	5.38-8.17	1.10	150	R70	WR137	FDP/FDM	Al/Cu
DH-70WHPL200...	5.38-8.17	1.10	200	R70	WR137	FDP/FDM	Al/Cu
DH-70WHPL250...	5.38-8.17	1.10	250	R70	WR137	FDP/FDM	Al/Cu
DH-70WHPL300...	5.38-8.17	1.10	300	R70	WR137	FDP/FDM	Al/Cu

# WAVEGUIDE ATTENUATOR

FEATURES

- ★ WR-650 to WR-22
- ★ +/- 0.5 dB Ultra flat response
- ★ VSWR: 1.15 max.
- ★ Attenuation from 3dB-60dB or other specified values
- ★ Frequency response ±0.6dB
- ★ Water-cooled and oil-cooled attenuators or customized products are also available

## Example Part No: DH - 100 WHPFA 30 P M A 250



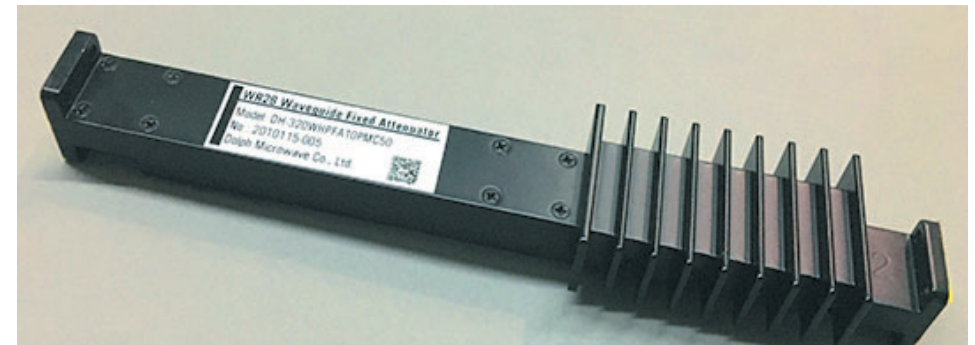
- ★ Flange type: Multiple types available - see Technical Reference page
  - ★ Finish: Corrosion protection plus black/grey top coat
- Standard unit provided not sealed pressure tight unless otherwise specify

ORDERING INFORMATION



# Specifications

Model No*	Freq Range	VSWR	Power	Attenuation	WG Type		Flange	Material
	(GHz)	(Max)	(Max W)	(dB)	IEC	EIA		
DH-14WHPA...	1.13-1.73	1.15	1200	3-60±0.5	R14	WR650	FDP/FDM	Al
DH-18WHPA...	1.45-2.20	1.15	1200	3-60±0.5	R18	WR510	FDP/FDM	Al
DH-22WHPA...	1.72-2.61	1.15	1200	3-60±0.5	R22	WR430	FDP/FDM	Al/Cu
DH-26WHPA...	2.17-3.30	1.15	1200	3-60±0.5	R26	WR340	FDP/FDM	Al/Cu
DH-32WHPA...	2.60-3.95	1.15	1200	3-60±0.5	R32	WR284	FDP/FDM	Al/Cu
DH-40WHPA...	3.22-4.90	1.15	1000	3-60±0.5	R40	WR229	FDP/FDM	Al/Cu
DH-48WHPA...	3.94-5.99	1.15	750	3-60±0.5	R48	WR187	FDP/FDM	Al/Cu
DH-58WHPA...	4.64-7.05	1.15	650	3-60±0.5	R58	WR159	FDP/FDM	Al/Cu
DH-70WHPA...	5.38-8.17	1.15	500	3-60±0.5	R70	WR137	FDP/FDM	Al/Cu
DH-84WHPA...	6.57-9.99	1.15	450	3-60±0.5	R84	WR112	FBP/FBM/FB	Al/Cu
DH-100WHPA	8.20-12.40	1.15	225	3-60±0.5	R100	WR90	FBP/FBM/FB	Al/Cu
DH-120WHPA	9.84-15.0	1.15	200	3-60±0.5	R120	WR75	FBP/FBM/FB	Al/Cu
DH-140WHPA	11.9-18.0	1.15	100	3-60±0.5	R140	WR62	FBP/FBM/FB	Al/Cu
DH-180WHPA	14.5-22.0	1.15	100	3-60±0.5	R180	WR51	FBP/FBM/FB	Al/Cu
DH-220WHPA	17.6-26.7	1.15	100	3-60±0.5	R220	WR42	FBP/FBM/FB	Al/Cu
DH-260WHPA	21.7-33.0	1.15	75	3-60±0.5	R260	WR34	FBP/FBM/FB	Al/Cu
DH-320WHPA	26.3-40.0	1.15	75	3-60±0.5	R320	WR28	FBP/FBM/FB	Al/Cu
DH-400WHPA	32.9-50.1	1.15	50	3-60±0.5	R400	WR22	FBP/FBM/FB	Al/Cu

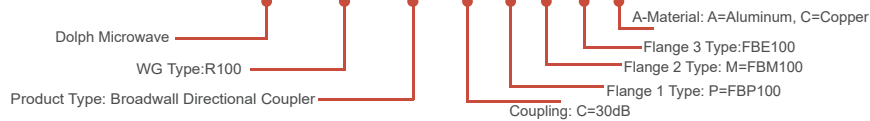


# BROADWALL DIRECTIONAL, CROSSGUIDE

FEATURES

- ★ WR-650 to WR-28
- ★ Waveguide or Coaxial coupled ports
- ★ Forward and/or Reflected power monitoring
- ★ Single Arm standard, Multi-arm available
- ★ 3db to 60db coupling values
- ★ Directivity >35 dB
- ★ Superior flatness
- ★ Available in Aluminum or Brass
- ★ Finish is a unique corrosion-resistant 316 stainless steel epoxy coating

## Example Part No: DH - 100 WC 30 P M E A



ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range (GHz)	VSWR(Max)		Coupling* (dB)	Directivity (Min) (dB)	WG Type		Flange	Material
		Main Line	Secondary Line			IEC	EIA		
DH-14WC...	1.13-1.73	1.10	1.15	3-60	20-38	R14	WR650	FDP/FDM	Al/Cu
DH-18WC...	1.45-2.20	1.10	1.15	3-60	20-38	R18	WR510	FDP/FDM	Al/Cu
DH-22WC...	1.72-2.61	1.10	1.15	3-60	20-38	R22	WR430	FDP/FDM	Al/Cu
DH-26WC...	2.17-3.30	1.10	1.15	3-60	20-38	R26	WR340	FDP/FDM	Al/Cu
DH-32WC...	2.60-3.95	1.10	1.15	3-60	20-38	R32	WR284	FDP/FDM	Al/Cu
DH-40WC...	3.22-4.90	1.08	1.12	3-60	20-38	R40	WR229	FDP/FDM	Al/Cu
DH-48WC...	3.94-5.99	1.08	1.12	3-60	20-38	R48	WR187	FDP/FDM	Al/Cu
DH-58WC...	4.64-7.05	1.08	1.12	3-60	20-38	R58	WR159	FDP/FDM	Al/Cu
DH-70WC...	5.38-8.17	1.08	1.12	3-60	20-38	R70	WR137	FDP/FDM	Al/Cu
DH-84WC...	6.57-9.99	1.08	1.12	3-60	20-38	R84	WR112	FBP/FBM/FBE	Al/Cu
DH-100WC.	8.20-12.40	1.08	1.12	3-60	20-38	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-120WC.	9.84-15.0	1.08	1.12	3-60	20-38	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-140WC.	11.9-18.0	1.10	1.15	3-60	20-38	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-180WC.	14.5-22.0	1.10	1.15	3-60	20-38	R180	WR51	FBP/FBM/FBE	Al/Cu
DH-220WC.	17.6-26.7	1.10	1.15	3-60	20-38	R220	WR42	FBP/FBM/FBE	Al/Cu
DH-260WC.	21.7-33.0	1.10	1.15	3-60	20-38	R260	WR34	FBP/FBM/FBE	Al/Cu
DH-320WC.	26.3-40.0	1.10	1.15	3-60	20-38	R320	WR28	FBP/FBM/FBE	Al/Cu

\*Indicates Model Number. See Ordering Information for complete part number.

\*\*Nominal Accuracy: ± 0.7dB

Frequency Sensitivity: ± 1dB

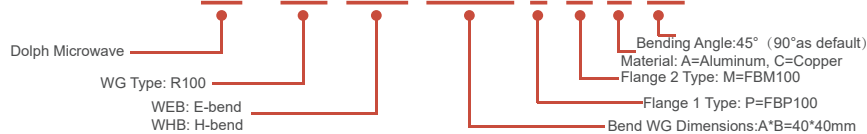


## WAVEGUIDE BEND

### FEATURES

- ★ WR-650 to WR-10
- ★ Aluminum or Copper
- ★ Swept or Mitered (30°, 45°, 60°, 90°) Bends
- ★ Standard North American and European Flanges
- ★ Customized flanges
- ★ Standard and Customized configurations
- ★ Nickel, Cadmium, Tin, Silver and Gold Plating options
- ★ Quick delivery
- ★ Precision manufactured and tuned

### Example Part No: **DH - 100 WEB 40\*40 P M A 45**



- ★ Flange type: Multiple types available - see Technical Reference page
- ★ Finish: Corrosion protection plus black/grey top coat

Standard unit provided not sealed pressure tight unless otherwise specify



### ORDERING INFORMATION

## Specifications

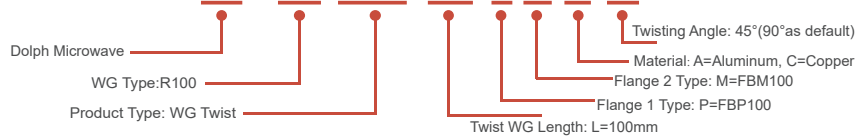
Model No*	Freq Range	VSWR	Std Dimensions A×B×R (mm)	WG Type		Flange	Material
	(GHz)			(Max)	IEC		
DH-14WEB...	1.13-1.73	1.15	390×390×185	R14	WR650	FDP/FDM	Al/Cu
DH-14WHB...	1.13-1.73	1.15	430×430×245	R14	WR650	FDP/FDM	Al/Cu
DH-18WEB...	1.45-2.20	1.15	290×290×135	R18	WR510	FDP/FDM	Al/Cu
DH-18WHB...	1.45-2.20	1.15	350×350×192	R18	WR510	FDP/FDM	Al/Cu
DH-22WEB...	1.72-2.61	1.15	190×190×95	R22	WR430	FDP/FDM	Al/Cu
DH-22WHB...	1.72-2.61	1.15	250×250×152	R22	WR430	FDP/FDM	Al/Cu
DH-26WEB...	2.17-3.30	1.15	100×100×40	R26	WR340	FDP/FDM	Al/Cu
DH-26WHB...	2.17-3.30	1.15	180×180×100	R26	WR340	FDP/FDM	Al/Cu
DH-32WEB...	2.60-3.95	1.10	100×100×40	R32	WR284	FDP/FDM	Al/Cu
DH-32WHB...	2.60-3.95	1.10	160×160×100	R32	WR284	FDP/FDM	Al/Cu
DH-40WEB...	3.22-4.90	1.10	80×80×40	R40	WR229	FDP/FDM	Al/Cu
DH-40WHB...	3.22-4.90	1.10	120×120×78	R40	WR229	FDP/FDM	Al/Cu
DH-48WEB...	3.94-5.99	1.10	80×80×40	R48	WR187	FDP/FDM	Al/Cu
DH-48WHB...	3.94-5.99	1.10	80×80×40	R48	WR187	FDP/FDM	Al/Cu
DH-58WEB...	4.64-7.05	1.10	80×80×40	R58	WR159	FDP/FDM	Al/Cu
DH-58WHB...	4.64-7.05	1.10	80×80×40	R58	WR159	FDP/FDM	Al/Cu
DH-70WEB...	5.38-8.17	1.10	60×60×30	R70	WR137	FDP/FDM	Al/Cu
DH-70WHB...	5.38-8.17	1.10	80×80×50	R70	WR137	FDP/FDM	Al/Cu
DH-84WEB...	6.57-9.99	1.10	50×50×25	R84	WR112	FBP/FBM/FBE	Al/Cu
DH-84WHB...	6.57-9.99	1.10	60×60×35	R84	WR112	FBP/FBM/FBE	Al/Cu
DH-100WEB...	8.20-12.40	1.10	40×40×20	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-100WHB...	8.20-12.40	1.10	55×55×35	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-120WEB...	9.84-15.0	1.10	40×40×20	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-120WHB...	9.84-15.0	1.10	45×45×30	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-140WEB...	11.9-18.0	1.10	40×40×20	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-140WHB...	11.9-18.0	1.10	40×40×25	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-180WEB...	14.5-22.0	1.10	30×30×15	R180	WR51	FBP/FBM/FBE	Al/Cu



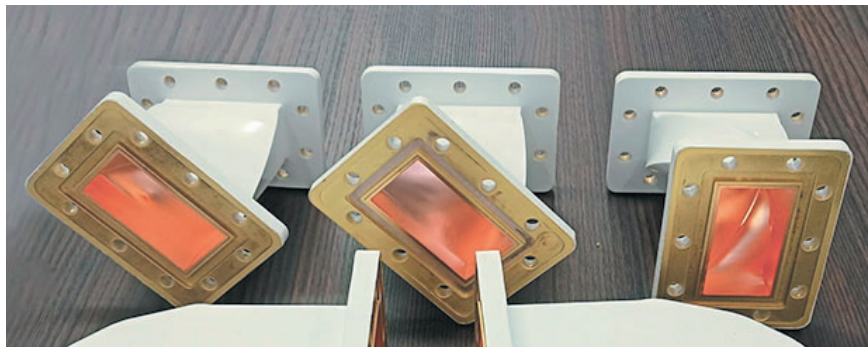
## WAVEGUIDE TWIST

- ★ WR-650 to WR-10
- ★ VSWR: 1.15.
- ★ Minimum Length: 50mm.
- ★ Aluminum or Copper
- ★ Twist range: 0°-90°, Tandard twist: 30°, 45°, 60°, 90°.
- ★ Standard North American and European Flanges
- ★ Nickel, Cadmium, Tin, Silver and Gold Plating options
- ★ Precision manufactured and tuned

### Example Part No: **DH - 100 WTA 100 P M A 45**



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



## Specifications

Model No*	Freq Range (GHz)	VSWR (Max)	Minimum Length (mm)	WG Type		Flange	Material
				IEC	EIA		
DH-14WTA...	1.13-1.73	1.15	1000	R14	WR650	FDP/FDM	Al/Cu
DH-18WTA...	1.45-2.20	1.15	900	R18	WR510	FDP/FDM	Al/Cu
DH-22WTA...	1.72-2.61	1.10	800	R22	WR430	FDP/FDM	Al/Cu
DH-26WTA...	2.17-3.30	1.10	400	R26	WR340	FDP/FDM	Al/Cu
DH-32WTA...	2.60-3.95	1.10	300	R32	WR284	FDP/FDM	Al/Cu
DH-40WTA...	3.22-4.90	1.10	250	R40	WR229	FDP/FDM	Al/Cu
DH-48WTA...	3.94-5.99	1.10	200	R48	WR187	FDP/FDM	Al/Cu
DH-58WTA...	4.64-7.05	1.10	170	R58	WR159	FDP/FDM	Al/Cu
DH-70WTA...	5.38-8.17	1.10	150	R70	WR137	FDP/FDM	Al/Cu
DH-84WTA...	6.57-9.99	1.10	120	R84	WR112	FBP/FBM/FBE	Al/Cu
DH-100WTA...	8.20-12.40	1.10	60	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-120WTA...	9.84-15.0	1.10	60	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-140WTA...	11.9-18.0	1.10	50	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-180WTA...	14.5-22.0	1.10	50	R180	WR51	FBP/FBM/FBE	Al/Cu
DH-220WTA...	17.6-26.7	1.10	50	R220	WR42	FBP/FBM/FBE	Al/Cu
DH-260WTA...	21.7-33.0	1.15	50	R260	WR34	FBP/FBM/FBE	Al/Cu
DH-320WTA...	26.3-40.0	1.15	50	R320	WR28	FBP/FBM/FBE	Al/Cu
DH-400WTA...	32.9-60.1	1.15	50	R400	WR22	FUGP	Cu
DH-500WTA...	39.2-59.6	1.15	50	R500	WR19	FUGP	Cu
DH-620WTA...	49.8-75.8	1.15	50	R620	WR15	FUGP	Cu
DH-740WTA...	60.5-91.9	1.15	50	R740	WR12	FUGP	Cu
DH-900WTA...	73.8-112	1.15	50	R900	WR10	FUGP	Cu

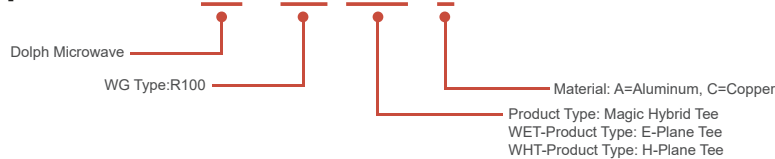
\*Indicates Model Number. See Ordering Information for complete part number.

# WAVEGUIDE E/H-TEE MAGIC TEE

FEATURES

- ★ WR-2300 to WR-10
- ★ Designed for excellent phase balance, amplitude balance, VSWR, insertion loss and isolation.
- ★ Designed using superior matching techniques for stability, repeatability and performance
- ★ Designed for excellent phase balance, amplitude balance, VSWR, insertion loss and isolation
- ★ Robust construction for high power applications
- ★ Aluminum or Copper
- ★ Standard North American and European Flanges
- ★ Nickel, Cadmium, Tin, Silver and Gold Plating options

## Example Part No: DH - 100 WMT A



- ★ Flange type: Multiple types available - see Technical Reference page
- ★ Finish: Corrosion protection plus black/grey top coat

Standard unit provided not sealed pressure tight unless otherwise specify



ORDERING INFORMATION

# Specifications

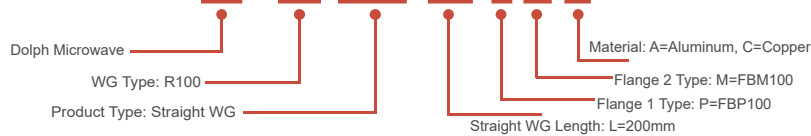
Model No*	Freq Range	Operating	VSWR(Max)		Isolation	Unbalance	WG Type		Flange	Material
	(GHz)	Bandwidth	H-Arm	E-Arm	H&E Arms	(Max)	IEC	EIA		
		(%)**			(dB)	(dB)				
DH-3WMT...	0.32-0.49	10-15	1.30	1.50	35	±0.25	R3	WR2300	FDP/FDM	Al
DH-4WMT...	0.35-0.53	10-15	1.30	1.50	35	±0.25	R4	WR2100	FDP/FDM	Al
DH-5WMT...	0.41-0.62	10-15	1.30	1.50	35	±0.25	R5	WR1800	FDP/FDM	Al
DH-6WMT...	0.49-0.75	10-15	1.30	1.50	35	±0.25	R6	WR1500	FDP/FDM	Al
DH-8WMT...	0.64-0.98	10-15	1.30	1.50	35	±0.25	R8	WR1150	FDP/FDM	Al
DH-9WMT...	0.75-1.15	10-15	1.30	1.50	35	±0.25	R9	WR975	FDP/FDM	Al
DH-12WMT...	0.96-1.46	10-15	1.20	1.50	35	±0.25	R12	WR770	FDP/FDM	Al
DH-14WMT...	1.13-1.73	10-15	1.20	1.50	35	±0.25	R14	WR650	FDP/FDM	Al
DH-18WMT...	1.45-2.20	10-15	1.20	1.50	35	±0.25	R18	WR510	FDP/FDM	Al
DH-22WMT...	1.72-2.61	10-15	1.30	1.50	35	±0.4	R22	WR430	FDP/FDM	Al/Cu
DH-26WMT...	2.17-3.30	10-15	1.30	1.50	35	±0.4	R26	WR340	FDP/FDM	Al/Cu
DH-32WMT...	2.60-3.95	10-15	1.30	1.50	35	±0.4	R32	WR284	FDP/FDM	Al/Cu
DH-40WMT...	3.22-4.90	10-15	1.20	1.30	35	±0.4	R40	WR229	FDP/FDM	Al/Cu
DH-48WMT...	3.94-5.99	10-15	1.20	1.30	35	±0.4	R48	WR187	FDP/FDM	Al/Cu
DH-58WMT...	4.64-7.05	10-15	1.20	1.30	35	±0.4	R58	WR159	FDP/FDM	Al/Cu
DH-70WMT...	5.38-8.17	10-15	1.20	1.30	35	±0.4	R70	WR137	FDP/FDM	Al/Cu
DH-84WMT...	6.57-9.99	10-15	1.20	1.30	35	±0.4	R84	WR112	FDP/FDM	Al/Cu
DH-100WMT	8.20-12.4	10-15	1.20	1.30	35	±0.4	R100	WR90	FDP/FDM	Al/Cu
DH-120WMT	9.84-15.0	10-15	1.20	1.30	35	±0.4	R120	WR75	FDP/FDM	Al/Cu
DH-140WMT	11.9-18.0	10-15	1.20	1.30	35	±0.4	R140	WR62	FDP/FDM	Al/Cu
DH-180WMT	14.5-22.0	10-15	1.20	1.30	35	±0.4	R180	WR51	FDP/FDM	Al/Cu
DH-220WMT	17.6-26.7	10-15	1.20	1.50	30	±0.4	R220	WR42	FDP/FDM	Al/Cu
DH-260WMT	21.7-33.0	10-15	1.20	1.50	30	±0.4	R260	WR34	FDP/FDM	Al/Cu
DH-320WMT	26.3-40.0	10-15	1.20	1.50	30	±0.4	R320	WR28	FDP/FDM	Al/Cu
DH-400WMT	32.9-60.1	5-10	1.50	1.60	20	±0.5	R400	WR22	FUGP	Cu
DH-500WMT	39.2-59.6	5-10	1.50	1.60	20	±0.5	R500	WR19	FUGP	Cu

# STRAIGHT WAVEGUIDE SECTIONS

FEATURES

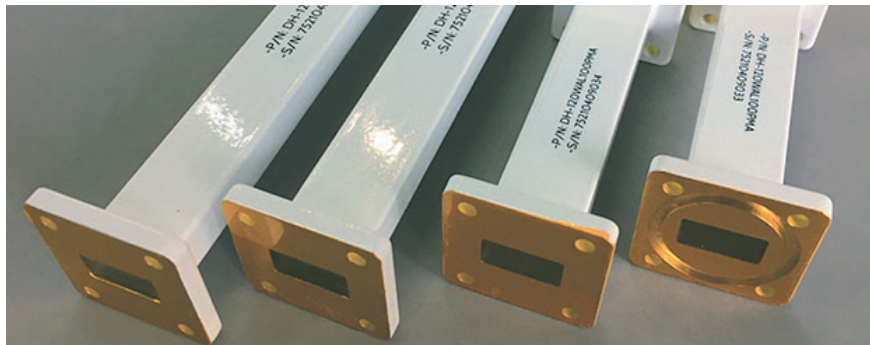
- ★ WR-2300 to WR-10
- ★ VSWR: 1.05.
- ★ Custom lengths .75" to 144".
- ★ Aluminum or Copper
- ★ Standard North American and European Flanges
- ★ Aluminum (6061) or Copper Waveguide Available.
- ★ Nickel, Cadmium, Tin, Silver and Gold Plating options

## Example Part No: DH - 100 WAL 200 P M C



ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range	VSWR	WG Type		Flange	Material
			IEC	EIA		
DH-3WAL...	0.32-0.49	1.10	R3	WR2300	FDH/FDM	Al
DH-4WAL...	0.35-0.53	1.10	R4	WR2100	FDH/FDM	Al
DH-5WAL...	0.41-0.62	1.10	R5	WR1800	FDH/FDM	Al
DH-6WAL...	0.49-0.75	1.10	R6	WR1500	FDH/FDM	Al
DH-8WAL...	0.64-0.98	1.10	R8	WR1150	FDH/FDM	Al
DH-9WAL...	0.75-1.15	1.10	R9	WR975	FDH/FDM	Al
DH-12WAL...	0.96-1.46	1.05	R12	WR770	FDH/FDM	Al
DH-14WAL...	1.13-1.73	1.05	R14	WR650	FDH/FDM	Al
DH-18WAL...	1.45-2.20	1.05	R18	WR510	FDH/FDM	Al
DH-22WAL...	1.72-2.61	1.05	R22	WR430	FDH/FDM	Al/Cu
DH-26WAL...	2.17-3.30	1.05	R26	WR340	FDH/FDM	Al/Cu
DH-32WAL...	2.60-3.95	1.05	R32	WR284	FDH/FDM	Al/Cu
DH-40WAL...	3.22-4.90	1.05	R40	WR229	FDH/FDM	Al/Cu
DH-48WAL...	3.94-5.99	1.05	R48	WR187	FDH/FDM	Al/Cu
DH-58WAL...	4.64-7.05	1.05	R58	WR159	FDH/FDM	Al/Cu
DH-70WAL...	5.38-8.17	1.05	R70	WR137	FDH/FDM	Al/Cu
DH-84WAL...	6.57-9.99	1.05	R84	WR112	FBP/FBM/FBE	Al/Cu
DH-100WAL...	8.20-12.40	1.05	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-120WAL...	9.84-15.0	1.05	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-140WAL...	11.9-18.0	1.05	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-180WAL...	14.5-22.0	1.05	R180	WR51	FBP/FBM/FBE	Al/Cu
DH-220WAL...	17.6-26.7	1.05	R220	WR42	FBP/FBM/FBE	Al/Cu
DH-260WAL...	21.7-33.0	1.05	R260	WR34	FBP/FBM/FBE	Al/Cu
DH-320WAL...	26.3-40.0	1.05	R320	WR28	FBP/FBM/FBE	Al/Cu
DH-400WAL...	32.9-50.1	1.10	R400	WR22	FUGP	Cu
DH-500WAL...	39.2-59.6	1.10	R500	WR19	FUGP	Cu

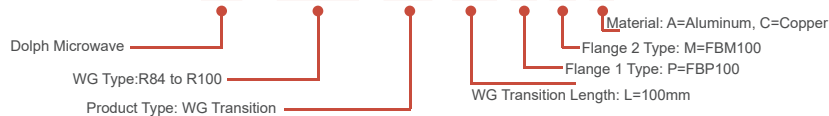
\*Indicates Model Number. See Ordering Information for complete part number.

# WAVEGUIDE TRANSITION

FEATURES

- ★ WR-2300 to WR-10
- ★ VSWR: 1.1.
- ★ Maximum Length: 1000mm.
- ★ Smooth transition between different waveguide size with minimum loss.
- ★ Aluminum or Copper
- ★ Standard North American and European Flanges
- ★ Nickel, Cadmium, Tin, Silver and Gold Plating options
- ★ Precision machining ensures accurate and lasting performance

## Example Part No: DH - 84100 WA 100 P M A



ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Technical Reference page
  - ★ Finish: Corrosion protection plus black/grey top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range	VSWR	Length	Port1		Port2		Flange	Material
	(GHz)	(Max)	(mm)	WG T ype		WG Type			
				IEC	EIA	IEC	EIA		
DH-34WA...	0.35-0.49	1.10	1000	R3	WR2300	R4	WR2100	FDP/FDM	Al
DH-45WA...	0.41-0.53	1.10	1000	R4	WR2100	R5	WR1800	FDP/FDM	Al
DH-56WA...	0.49-0.62	1.10	900	R5	WR1800	R6	WR1500	FDP/FDM	Al
DH-68WA...	0.64-0.75	1.10	800	R6	WR1500	R8	WR1150	FDP/FDM	Al
DH-89WA...	0.75-0.98	1.10	600	R8	WR1150	R9	WR975	FDP/FDM	Al
DH-912WA...	0.96-1.15	1.10	500	R9	WR975	R12	WR770	FDP/FDM	Al
DH-1214WA...	1.13-1.46	1.10	400	R12	WR770	R14	WR650	FDP/FDM	Al
DH-1418WA...	1.45-1.73	1.10	350	R14	WR650	R18	WR510	FDP/FDM	Al
DH-1822WA...	1.72-2.20	1.10	300	R18	WR510	R22	WR430	FDP/FDM	Al/Cu
DH-2226WA...	2.17-2.61	1.10	250	R22	WR430	R26	WR340	FDP/FDM	Al/Cu
DH-2632WA...	2.60-3.30	1.10	200	R26	WR340	R32	WR284	FDP/FDM	Al/Cu
DH-3240WA...	3.22-3.95	1.10	200	R32	WR284	R40	WR229	FDP/FDM	Al/Cu
DH-4048WA...	3.94-4.90	1.10	180	R40	WR229	R48	WR187	FDP/FDM	Al/Cu
DH-4858WA...	4.64-5.99	1.10	180	R48	WR187	R58	WR159	FDP/FDM	Al/Cu
DH-5870WA...	5.38-7.05	1.10	150	R58	WR159	R70	WR137	FDP/FDM	Al/Cu
DH-7084WA...	6.57-8.17	1.10	130	R70	WR137	R84	WR112	FDP/FDM	Al/Cu
DH-84100WA.	8.20-9.99	1.10	100	R84	WR112	R100	WR90	FBP/FBM/FBE	Al/Cu
DH-100120WA.	9.84-12.4	1.10	80	R100	WR90	R120	WR75	FBP/FBM/FBE	Al/Cu
DH-120140WA.	11.9-15.0	1.10	75	R120	WR75	R140	WR62	FBP/FBM/FBE	Al/Cu
DH-140180WA.	14.5-18.0	1.10	60	R140	WR62	R180	WR51	FBP/FBM/FBE	Al/Cu
DH-180220WA.	17.6-22.0	1.10	50	R180	WR51	R220	WR42	FBP/FBM/FBE	Al/Cu
DH-220260WA.	21.7-26.7	1.15	50	R220	WR42	R260	WR34	FBP/FBM/FBE	Al/Cu
DH-260320WA.	26.3-33.0	1.15	50	R260	WR34	R320	WR28	FBP/FBM/FBE	Al/Cu
DH-320400WA.	32.9-40.0	1.15	50	R320	WR28	R400	WR22	FBP/FBM/FBE	Al/Cu
DH-400500WA.	39.2-60.1	1.20	50	R400	WR22	R500	WR19	FUGP	Cu
DH-500620WA.	49.8-59.6	1.20	50	R500	WR19	R620	WR15	FUGP	Cu

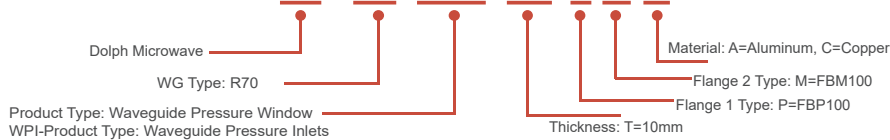
\*Indicates Model Number. See Ordering Information for complete part number.

# WAVEGUIDE PRESSURE WINDOW & INLETS

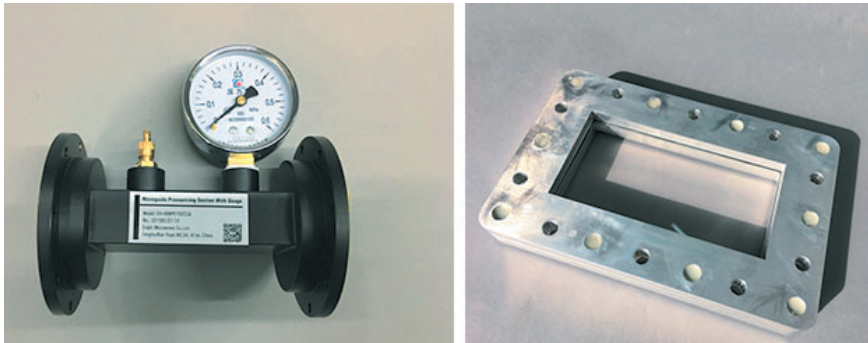
FEATURES

- ★ WR-2300 to WR-10.
- ★ Max VSWR: 1.2:1.
- ★ Window: Quartz / Teflon-Fiberglass / Ceramic Dielectric Window
- ★ Flange Type: Cover Standard.
- ★ For cover/choke flange options.
- ★ Oxygen Free Hard Copper or Copper Alloy construction.
- ★ UG and CPR style flanges available.
- ★ Precision machining ensures accurate and lasting performance.

## Example Part No: DH - 70 WPW 10 P M A



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



ORDERING INFORMATION

# Specifications

Model No*	Freq Range	VSWR (Max)	WG Type		Flange	Material
			IEC	EIA		
DH-3WPW...	0.32-0.49	1.25	BJ3	WR2300	FDP/FDM	Al
DH-4WPW...	0.35-0.53	1.25	BJ4	WR2100	FDP/FDM	Al
DH-5WPW...	0.41-0.62	1.25	BJ5	WR1900	FDP/FDM	Al
DH-6WPW...	0.49-0.75	1.25	BJ6	WR1500	FDP/FDM	Al
DH-8WPW...	0.64-0.98	1.25	BJ8	WR1150	FDP/FDM	Al
DH-9WPW...	0.75-1.15	1.25	BJ9	WR975	FDP/FDM	Al
DH-12WPW...	0.96-1.46	1.25	BJ12	WR770	FDP/FDM	Al
DH-14WPW...	1.13-1.73	1.25	BJ14	WR650	FDP/FDM	Al
DH-18WPW...	1.45-2.20	1.25	BJ18	WR510	FDP/FDM	Al
DH-22WPW...	1.72-2.61	1.25	BJ22	WR430	FDP/FDM	Al/Cu
DH-26WPW...	2.17-3.30	1.25	BJ26	WR340	FDP/FDM	Al/Cu
DH-32WPW...	2.60-3.95	1.25	BJ32	WR284	FDP/FDM	Al/Cu
DH-40WPW...	3.22-4.90	1.25	BJ40	WR229	FDP/FDM	Al/Cu
DH-48WPW...	3.94-5.99	1.25	BJ48	WR187	FDP/FDM	Al/Cu
DH-58WPW...	4.64-7.05	1.25	BJ58	WR159	FDP/FDM	Al/Cu
DH-70WPW...	5.38-8.17	1.25	BJ70	WR137	FDP/FDM	Al/Cu
DH-84WPW...	6.57-9.99	1.25	BJ84	WR112	FBP/FBM/FBE	Al/Cu
DH-100WPW...	8.20-12.40	1.25	BJ100	WR90	FBP/FBM/FBE	Al/Cu
DH-120WPW...	9.84-15.0	1.25	BJ120	WR75	FBP/FBM/FBE	Al/Cu
DH-140WPW...	11.9-18.0	1.25	BJ140	WR62	FBP/FBM/FBE	Al/Cu
DH-180WPW...	14.5-22.0	1.25	BJ180	WR51	FBP/FBM/FBE	Al/Cu
DH-220WPW...	17.6-26.7	1.25	BJ220	WR42	FBP/FBM/FBE	Al/Cu
DH-260WPW...	21.7-33.0	1.25	BJ260	WR34	FBP/FBM/FBE	Al/Cu
DH-320WPW...	26.5-40.0	1.25	BJ320	WR28	FBP/FBM/FBE	Al/Cu
DH-400WPW...	32.9-50.1	1.3	BJ400	WR22	FUGP	Cu
DH-500WPW...	39.2-59.6	1.3	BJ500	WR19	FUGP	Cu

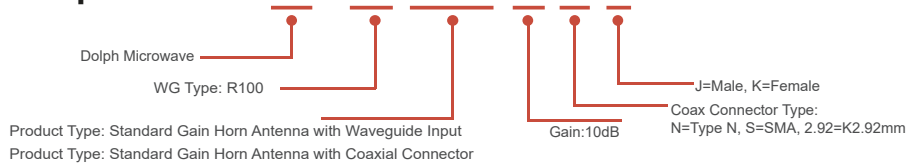
\*Indicates Model Number. See Ordering Information for complete part number.

# STANDARD GAIN HORN ANTENNA

FEATURES

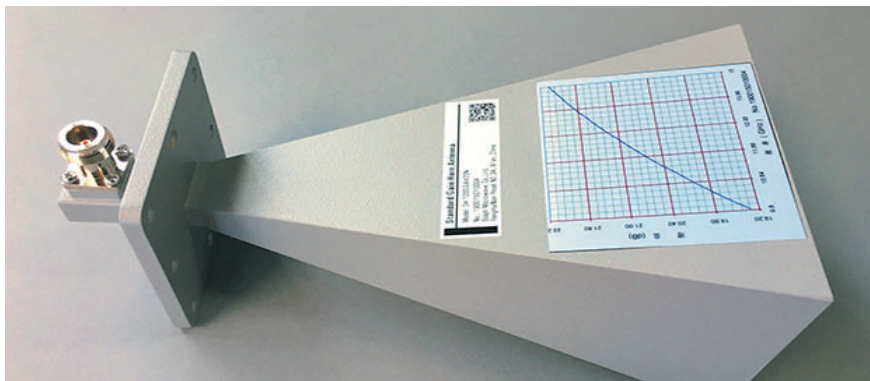
- ★ WR-2300 to WR-10.
- ★ Operation from 0.32 to 112 GHz.
- ★ Waveguide sizes from WR-2300 to WR-28.
- ★ 3dB Beamwidth: 10° 18° 30° 55°.
- ★ The most common Gain values available are 10, 15, 20, 25dB.
- ★ Configurations: waveguide mating, coaxial connector mating or waveguide mounting with a coaxial adaptor fitted.
- ★ Interface Type: Flange Input, Built-in Coaxial Input, with Coaxial Connector
- ★ Precision machining ensures accurate and lasting performance.

## Example Part No: DH - 100 SGAH 10 +N K



ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range (GHz)	Gain* (dB)	Dimensions (mm)			WG Type		Interface Type
			L	W	H	IEC	EIA	
DH-3SGAH10	0.32-0.49	10	850	1150	800	R3	WR2300	FDP
DH-4SGAH10	0.35-0.53	10	800	1050	720	R4	WR2100	FDP
DH-5SGAH10	0.41-0.62	10	800	900	660	R5	WR1800	FDP
DH-6SGAH10	0.49-0.75	10	700	700	500	R6	WR1500	FDP
DH-8SGAH10	0.64-0.98	10	590	620	440	R8	WR1150	FDP
DH-9SGAH10	0.75-1.15	10,15,	300	480	336	R9	WR975	FDP
DH-12SGAH10	0.96-1.46	10,15,	300	400	280	R12	WR770	FDP
DH-14SGAH10	1.13-1.73	10,15,	280	315	235	R14	WR650	FDP
DH-18SGAH10	1.45-2.20	10,15,	245	249	184	R18	WR510	FDP
DH-22SGAH10	1.72-2.61	10,15,	210	209	154	R22	WR430	FDP
DH-26SGAH10	2.17-3.30	10,15,	160	165	125	R26	WR340	FDP
DH-32SGAH10	2.60-3.95	10,15,20	150	144	114	R32	WR284	FDP
DH-40SGAH10	3.22-4.90	10,15,20	120	113	88	R40	WR229	FDP
DH-48SGAH10	3.94-5.99	10,15,20	110	98	73	R48	WR187	FDP
DH-58SGAH10N...	4.64-7.05	10,15,20	135	83	63	R58	WR159	N Type
DH-70SGAH10N...	5.38-8.17	10,15,20	110	57	42	R70	WR137	N Type
DH-84SGAH10N...	6.57-9.99	10,15,20	95	57	42	R84	WR112	N Type
DH-100SGAH10N.	8.20-12.40	10,15,20,25	75	47	37	R100	WR90	N Type
DH-120SGAH10S...	9.84-15.0	10,15,20,25	75	40	29	R120	WR75	SMA
DH-140SGAH10S...	11.9-18.0	10,15,20,25	75	37	27	R140	WR62	SMA
DH-180SGAH10S...	14.5-22.0	10,15,20,25	75	30	20	R180	WR51	SMA
DH-220SGAH10S...	17.6-26.7	10,15,20,25	75	24	17	R220	WR42	SMA
DH-260SGAH10K...	21.7-33.0	10,15,20,25	53	20	14	R260	WR34	K2.92mm
DH-320SGAH10K...	26.5-40.0	10,15,20,25	54	17	12	R320	WR28	K2.92mm
DH-400SGAH25	32.9-50.1	15,20,25	205	66	46	R400	WR22	FUGP
DH-500SGAH25	39.2-59.6	15,20,25	160	53	37	R500	WR19	FUGP

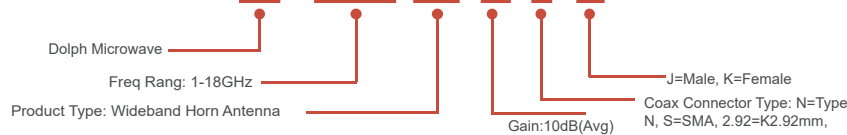
\*Gain and 3dB Beamwidth values have been calculated by computer simulation.

# WIDEBAND HORN ANTENNA

## FEATURES

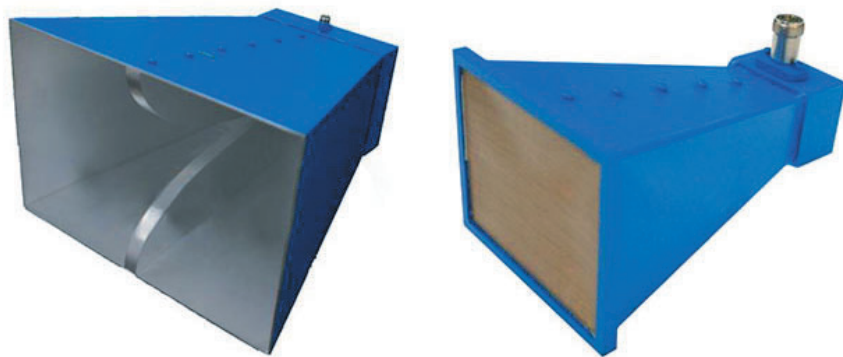
- ★ Operation from 0.3 to 40 GHz.
- ★ The most common Gain values available are 4-20dB.
- ★ Configurations: waveguide mating, coaxial connector mating or waveguide mounting with a coaxial adaptor fitted.
- ★ Interface Type: Flange Input, Built-in Coaxial Input, with Coaxial Connector
- ★ Precision machining ensures accurate and lasting performance.

### Example Part No: **DH - 10180 HA 10 N K**



## ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
  - ★ Finish: Corrosion protection plus black top coat
- Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range (GHz)	Gain (dB)	Beamwidth	VSWR	Dimensions (mm)			Connector	Material	Finish
					W	H	L			
DH-0320HA15N	0.3-2.0	4.0-15.5	35°-55°	≤2.0	555	355	528	N-Female	Al	Chromate Conversion
DH-0440HA15N	0.4-4.0	6.0-17.0	35°-55°	≤2.0	440	285	448	N-Female	Al	Chromate Conversion
DH-0880HA15N	0.8-8.0	6.0-15.0	35°-55°	≤2.0	284	164	260	N-Female	Al	Chromate Conversion
DH-0818HA15N	0.8-18.0	3.5-14.5	35°-55°	≤2.0	284	164	260	N-Female	Al	Chromate Conversion
DH-1020HA15N	1.0-2.0	10-15	35°-55°	≤2.0	456	386	583	N-Female	Al	Chromate Conversion
DH-1040HA15N	1.0-4.0	5.5-12	35°-55°	≤2.0	156	108	152	N-Female	Al	Chromate Conversion
DH-10120HA15N	1.0-12.0	10-15	35°-55°	≤2.0	245	140	200	N-Female	Al	Chromate Conversion
DH-10180HA15N	1.0-18.0	8-18	35°-55°	≤2.0	245	160	210	N-Female	Al	Chromate Conversion
DH-2040HA15N	2.0-4.0	11-14.5	15°-55°	≤2.0	221	181	327	N-Female	Al	Chromate Conversion
DH-2070HA15N	2.0-7.0	9-14.0	15°-55°	≤2.0	154	129	210	N-Female	Al	Chromate Conversion
DH-2080HA15N	2.0-8.0	10.0	15°-55°	≤2.0	194	134	270	N-Female	Al	Chromate Conversion
DH-20100HA15N	2.0-10.0	4-10.0	15°-55°	≤2.0	100	80	120	N-Female	Al	Chromate Conversion
DH-20180HA15N	2.0-18.0	6.5-18	15°-55°	≤2.0	104	84	168	N-Female	Al	Chromate Conversion
DH-30100HA15N	2.0-18.0	7.5-15	15°-55°	≤2.0	112	39	162	N-Female	Al	Chromate Conversion
DH-4080HA15N	4.0-8.0	15-19	15°-55°	≤2.0	250	130	349	N-Female	Al	Chromate Conversion
DH-60180HA15N	6.0-18.0	9-15.5	15°-55°	≤2.0	58	43	95	N-Female	Al	Chromate Conversion
DH-60180HA15N	6.0-18.0	> 15	15°-55°	≤2.0	154	124	255	N-Female	Al	Chromate Conversion
DH-65265HA15N	6.5-26.5	8.5-18	15°-55°	≤2.0	48	33	77	N-Female	Al	Chromate Conversion
DH-80180HA20N	8.0-18.0	15-20	15°-55°	≤2.0	133	103	247	N-Female	Al	Chromate Conversion
DH-180400HA20K	18-40.0	15-20	15°-55°	≤2.0	68	51	174	2.92-Female	Cu	Silver Plating

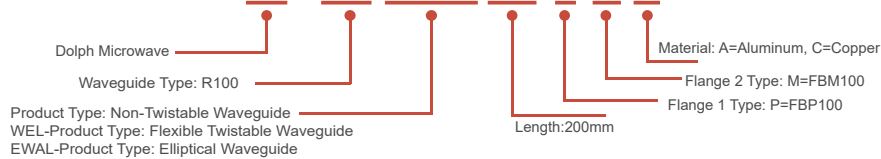
\*Indicates Model Number. See Ordering Information for complete part number.

# Seamless Flexible, Twistable WG and Elliptical WG

## FEATURES

- ★ WR-650 to WR-22.
- ★ Max VSWR: 1.1:1.
- ★ Max Power: 4000W.
- ★ Waveguide sizes from WR-187 to WR-22.
- ★ Length:300,600,900,1200,1500,1800.
- ★ Oxygen Free Hard Copper or Copper Alloy construction.
- ★ UG and CPR style flanges available.
- ★ Precision machining ensures accurate and lasting performance.

### Example Part No: DH - 100 WWEL 200 P M C



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
- ★ Finish: Corrosion protection plus black top coat

Standard unit provided not sealed pressure tight unless otherwise specify



## ORDERING INFORMATION

# Specifications

Model No*	Freq Range (GHz)	VSWR (Max.)	Attenuation (dB/m)	Avg. Power (kW)	Inner Diameter (mm)	Pressure Max.(MPa)	Bend Radius (E-Plane) Min(mm)	Bend Radius (H-Plane) Min(mm)	WG Type (IEC/EIA)
DH-22WWEL	1.70-2.60	1.1	0.15	20	109.22X54.61	0.2	312	624	R22/WR430
DH-26WWEL	2.17-3.30	1.1	0.15	20	86.36X43.18	0.2	260	520	R26/WR340
DH-32WWEL	2.60-3.95	1.1	0.15	10	72.14X34.04	0.2	204	408	R32/WR284
DH-40WWEL	3.30-4.90	1.1	0.17	8	58.17X29.08	0.2	166	332	R40/WR229
DH-48WWEL	3.95-5.85	1.1	0.24	6.5	47.55X22.15	0.2	160	320	R49/WR187
DH-58WWEL	4.90-7.05	1.1							
	5.725-6.425	1.06	0.26	6	40.39X20.19	0.2	129	258	R58/WR159
DH-70WWEL	5.85-8.20	1.1							
	7.125-7.725	1.06	0.3	5	34.85X15.80	0.2	100	258	R70/WR137
DH-84WWEL	7.05-10.0	1.1							
	7.725-8.50	1.06	0.35	4	28.50X12.62	0.2	76	152	R84/WR112
DH-100WWEL	8.20-12.40	1.1							
	10.70-11.70	1.06	0.45	2.5	22.86X10.16	0.2	66	120	R100/WR90
DH-120WWEL	10.0-15.0	1.15							
	14.0-14.50	1.1	0.65	1.5	19.05X9.525	0.2	64	120	R120/WR75
DH-140WWEL	12.40-18.0	1.15	0.74	1	15.80X7.900	0.2	54	105	R140/WR62
DH-220WWEL	17.70-26.50	1.2	1.4	0.3	10.67X4.320	0.2	41	78	R220/WR42
DH-320WWEL	26.5-40.0	1.3	2.4	0.15	7.112X3.556	0.2	20	40	R320/WR28
DH-400WWEL	40.5-43.5	1.3	2.7	0.1	5.69X2.85	0.2	20	40	R400/WR22

\*The Standard Model Numbers above are the most common parts ordered for size, material and flange.

\*Indicates Model Number. See Ordering Information for complete part number.



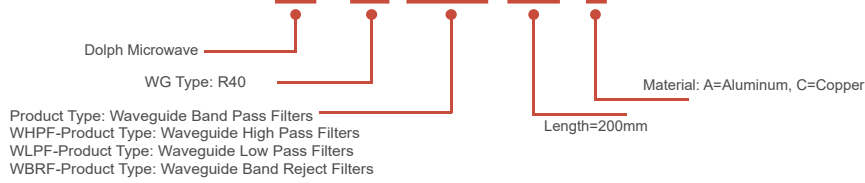
# Ortho Mode Transducer, Waveguide Filter

FEATURES

- ★ Very low loss, High power
- ★ Steep stopband and highest possible rejection
- ★ Minimal group delay
- ★ Best possible structure – iris, post, or cavity – for the application
- ★ Smallest possible size
- ★ Robust design, Precision manufactured
- ★ Extensive range of bands: C, extended C, X, Ku, extended Ku, DBS, extended DBS, Ka, and Q.
- ★ Filters and Diplexers: Bandpass, Bandstop, Harmonic Absorb, Harmonic Reject, Radar Elimination, Rx Reject / Tx Bandpass, Tx Reject / Rx Bandpass, Freq Combiners

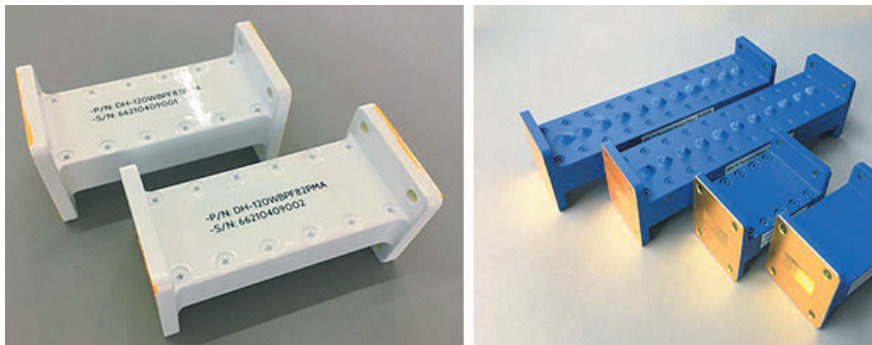
ORDERING INFORMATION

## Example Part No: DH - 40 WBPF 200 A



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
- ★ Finish: Corrosion protection plus black top coat

Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	WG	Pass Band	Reject Band	VSWR	IL (dB)	Isolation	WG Type		Material
							IEC	EIA	
DH-40WBPF	C	3.7-4.2	<3.7	1.2	0.4	45	BJ40	WR229	Al/Cu
DH-70WBPF	C	5.85-6.425	<4.85	1.20	0.4	45	BJ70	WR137	Al/Cu
DH-84WBPF	X	7.9-8.4	7.25-7.75	1.20	0.6	60	BJ84	WR112	Al/Cu
DH-100WBPF	X	8-9	7.125-7.235	1.20	0.5	30	BJ100	WR90	Al/Cu
DH-120WBPF	Ku	11.7-12.75	14-14.5	1.20	0.3	55	BJ120	WR75	Al/Cu
DH-260WBPF	Ka	24.5~27	<22	1.20	0.3	4060	BJ260	WR34	Cu
DH-320WBPF	Ka	30.5-31.3	26-28.35	1.20	0.6	70	BJ320	WR28	Cu
DH-40WLPF	C	4.5-4.86	725-7.025	1.20	0.3	55	BJ40	WR229	Al/Cu
DH-120WLPF	Ku	11.6-12.8	13.5-15	1.20	0.25	60	BJ120	WR75	Al/Cu
DH-220WLPF	Ka	20.4-20.9	30-31	1.20	0.3	55	BJ220	WR42	Cu
DH-260WHPF	Ka	25-26	<16	1.20	0.2	80	BJ260	WR34	Cu
DH-320WHPF	Ka	29-31.2	19-21	1.20	0.2	70	BJ320	WR28	Cu
DH-22WOMD	S	2.2-2.3/2.025-2.11		1.20	0.2	40	BJ22	WR430	Al/Cu
DH-70WOMD	C	3.4-4.2/5.85-6.725		1.20	0.2	40	BJ70	WR137	Al/Cu
DH-100WOMD	X	8.5-10.03/10.23		1.20	0.2	40	BJ100	WR90	Al/Cu
DH-120WOMD	Ku	10.7-12.75/13.75-14.5		1.25	0.35	85	BJ120	WR75	Al/Cu
DH-140WOMD	DBS	10.7-12.75/17.3-18.4		1.25	0.35	85	BJ140	WR62	Al/Cu
DH-320WOMD	Ka	17.2-21.2/27.5-31.0		1.5	1	60	BJ320	WR28	Al/Cu

\*Indicates Model Number. See Ordering Information for complete part number.



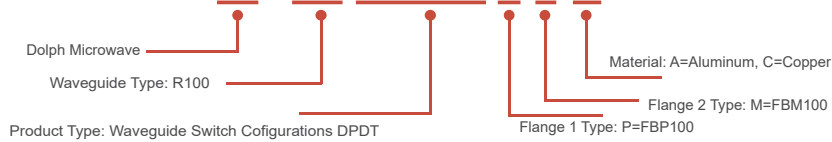
# WAVEGUIDE SWITCH

## FEATURES

- ★ Extremely low insertion loss and VSWR, High power
- ★ Waveguide Switch Models Cover C, X, Ku, K, Ka Frequency Bands up to 40 GHz
- ★ Power Handling Capability up to 12 kW CW and 320 kW Peak
- ★ Waveguide Switch Configurations SPDT and Optional DPDT
- ★ Accurate Positioning
- ★ High Isolation Between Ports
- ★ TTL Control Standard

## ORDERING INFORMATION

### Example Part No: DH - 100 WDESMD P M A



- ★ Flange type: Multiple types available - see Dolph Microwave Flanges page
- ★ Finish: Corrosion protection plus black top coat

Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range (GHz)	VSWR (Max.)	IL(dB) (Max)	Isolation (Min)	Switching Time (ms)	WG Type		Material
						IEC	EIA	
DH-22WDESMD	1.72-2.61	≤1.1	≤0.1	≥80	≤120	R22	WR430	Al/Cu
DH-32WDESMD	2.6-3.95	≤1.1	≤0.1	≥80	≤120	R32	WR284	Al/Cu
DH-40WDESMD	3.22-4.9	≤1.1	≤0.1	≥80	≤120	R40	WR229	Al/Cu
DH-48WDESMD	3.94-5.99	≤1.1	≤0.1	≥80	≤120	R48	WR187	Al/Cu
DH-58WDESMD	4.64-7.05	≤1.15	≤0.15	≥80	≤120	R58	WR159	Al/Cu
DH-70WDESMD	5.38-8.17	≤1.15	≤0.15	≥80	≤120	R70	WR37	Al/Cu
DH-84WDESMD	6.57-9.99	≤1.15	≤0.15	≥80	≤120	R84	WR112	Al/Cu
DH-100WDESMD	8.2-12.5	≤1.15	≤0.15	≥80	≤120	R100	WR90	Al/Cu
DH-120WDESMD	9.84-15.0	≤1.15	≤0.15	≥80	≤120	R120	WR75	Al/Cu
DH-140WDESMD	11.9-18.0	≤1.15	≤0.15	≥80	≤120	R140	WR62	Al/Cu
DH-180WDESMD	14.5-22.0	≤1.15	≤0.2	≥80	≤120	R180	WR51	Al/Cu
DH-220WDESMD	17.6-26.7	≤1.15	≤0.2	≥80	≤120	R220	WR42	Al/Cu
DH-260WDESMD	21.7-33.0	≤1.15	≤0.2	≥80	≤120	R260	WR34	Al/Cu
DH-320WDESMD	26.3-40.0	≤1.15	≤0.2	≥80	≤120	R320	WR28	Al/Cu

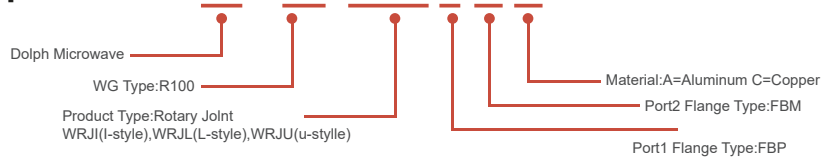


# WAVEGUIDE ROTARY JOINT

FEATURES

- ★ Extremely low insertion loss and VSWR, High power
- ★ Waveguide Rotary Joint Models Cover C, X, Ku, K, Ka Frequency Bands up to 40 GHz
- ★ Power Handling Capability up to 12 kW CW and 320 kW Peak
- ★ Multiple single channel and dual channel designs available
- ★ Waveguide Rotary Joint modules are available for:
  - ★ I-style - Two in-line arms both collinear with the axis of rotation.
  - ★ L-style - One arm is perpendicular to the axis of rotation.
  - ★ U-style - Both arms are perpendicular to the axis of rotation.
- ★ Lifetime – at least 10 years(>5\*10<sup>6</sup>)

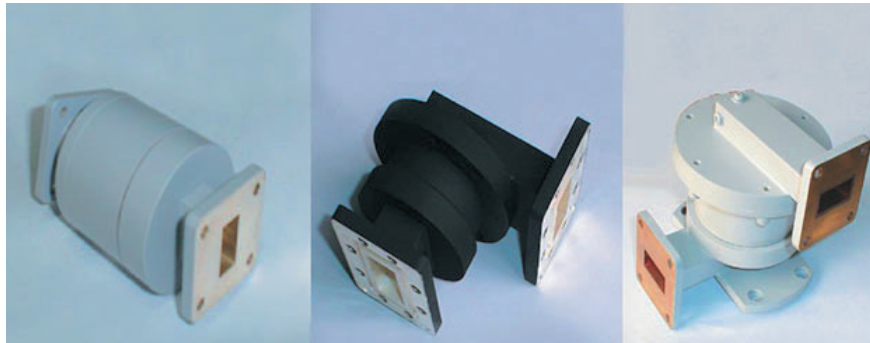
## Example Part No: DH - 100 WRJL P M A



ORDERING INFORMATION

- ★ Flange type: Multiple types available - see Technical Reference page
- ★ Finish: Corrosion protection plus black/grey top coat

Standard unit provided not sealed pressure tight unless otherwise specify



# Specifications

Model No*	Freq Range (GHz)	Operating Bandwidth(MHz)	VSWR (Max)	VSWR WOW	IL(dB) (Max)	IL WOW(dB)	WG Type		Material
							IEC	EIA	
DH-32WRJI	2.60-3.95	200	1.20	0.05	0.3	0.1	R32	WR284	Al/Cu
DH-32WRJL	2.60-3.95	200	1.20	0.05	0.3	0.1	R32	WR284	Al/Cu
DH-32WRJU	2.60-3.95	200	1.20	0.05	0.3	0.1	R32	WR284	Al/Cu
DH-40WRJI	3.22-4.90	200	1.20	0.05	0.3	0.1	R40	WR229	Al/Cu
DH-40WRJL	3.22-4.90	200	1.20	0.05	0.3	0.1	R40	WR229	Al/Cu
DH-40WRJU	3.22-4.90	200	1.20	0.05	0.3	0.1	R40	WR229	Al/Cu
DH-48WRJI	3.94-5.99	200	1.20	0.05	0.3	0.1	R48	WR187	Al/Cu
DH-48WRJL	3.94-5.99	200	1.20	0.05	0.3	0.1	R48	WR187	Al/Cu
DH-48WRJU	3.94-5.99	200	1.20	0.05	0.3	0.1	R48	WR187	Al/Cu
DH-58WRJI	4.64-7.05	300	1.25	0.05	0.25	0.1	R58	WR159	Al/Cu
DH-58WRJL	4.64-7.05	300	1.25	0.05	0.25	0.1	R58	WR159	Al/Cu
DH-58WRJU	4.64-7.05	300	1.25	0.05	0.25	0.1	R58	WR159	Al/Cu
DH-70WRJI	5.38-8.17	700	1.25	0.05	0.25	0.1	R70	WR137	Al/Cu
DH-70WRJL	5.38-8.17	700	1.25	0.05	0.25	0.1	R70	WR137	Al/Cu
DH-70WRJU	5.38-8.17	700	1.25	0.05	0.25	0.1	R70	WR137	Al/Cu
DH-84WRJI	6.57-9.99	300	1.20	0.05	0.3	0.1	R84	WR112	Al/Cu
DH-84WRJL	6.57-9.99	300	1.20	0.05	0.3	0.1	R84	WR112	Al/Cu
DH-84WRJU	6.57-9.99	300	1.20	0.05	0.3	0.1	R84	WR112	Al/Cu
DH-100WRJI	8.20-12.4	300	1.20	0.05	0.3	0.1	R100	WR90	Al/Cu
DH-100WRJL	8.20-12.4	300	1.20	0.05	0.3	0.1	R100	WR90	Al/Cu
DH-100WRJU	8.20-12.4	300	1.20	0.05	0.3	0.1	R100	WR90	Al/Cu
DH-120WRJI	9.84-15.0	500	1.25	0.05	0.3	0.1	R120	WR75	Al/Cu
DH-120WRJL	9.84-15.0	500	1.25	0.05	0.3	0.1	R120	WR75	Al/Cu
DH-120WRJU	9.84-15.0	500	1.25	0.05	0.3	0.1	R120	WR75	Al/Cu
DH-140WRJI	11.9-18.0	1000	1.3	0.05	0.4	0.1	R140	WR62	Al/Cu
DH-140WRJL	11.9-18.0	1000	1.3	0.05	0.4	0.1	R140	WR62	Al/Cu
DH-140WRJU	11.9-18.0	1000	1.3	0.05	0.4	0.1	R140	WR62	Al/Cu

## CIRCULATOR SPECIFICATIONS

### FEATURES

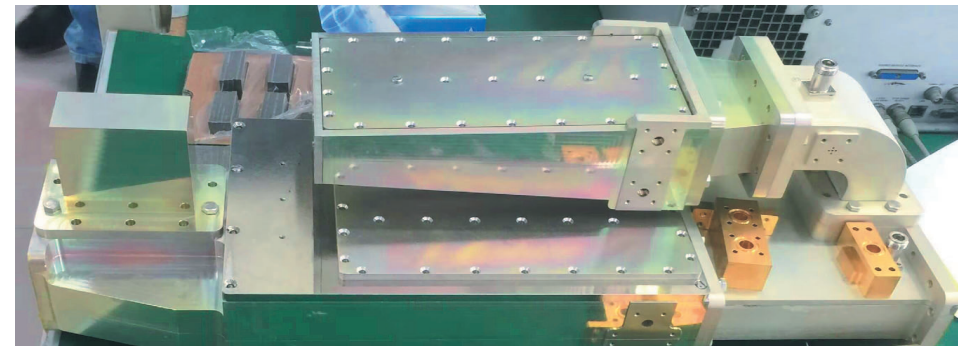
- ★ Excellent Insertion Loss Low VSWR
- ★ High Isolation, High Reliability
- ★ Operating Bandwidth: from 3% to Full Bandwidth.
- ★ Waveguide sizes from WR-900 to WR-10.
- ★ Min Isolation:20dB.
- ★ Wide Dynamic Temperature Range
- ★ Oxygen Free Hard Copper or Copper Alloy construction.
- ★ UG and CPR style flanges available.
- ★ Precision machining ensures accurate and lasting performance.

### ORDERING INFORMATION

Freq Band	Bandwidth	Forward Loss (dB)	Reverse Loss (dB)	VSWR	Ave. Power
L	5%	0.20	23	1.15	2KW
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
S	5%	0.20	23	1.15	1KW
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
C	5%	0.20	23	1.15	500W
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
X	10%	0.20	23	1.15	300W
	20%	0.25	20	1.20	
Ku	10%	0.20	23	1.15	120W
	20%	0.25	20	1.20	
K	10%	0.20	23	1.15	100W
	20%	0.25	20	1.20	
Ka	5%	0.25	23	1.15	50W
	10%	0.30	20	1.20	
V	10%	0.60	17	1.35	2W
U	5%	0.60	17	1.35	2W
E	5%	0.60	17	1.35	2W

## Specifications

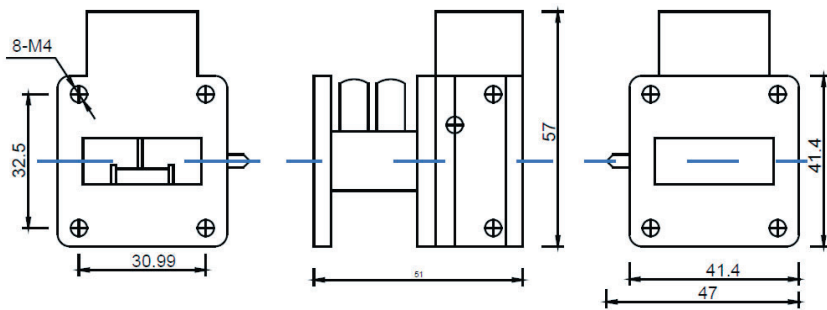
Model No*	Freq Range (GHz)	WG Type	Forward Loss (dB)	Reverse Loss (dB)	VSWR	Ref. Power	Size
DH-HBG9069	0.9-0.93	BJ9	0.30	20	1.2	75KW	665*550*215
DH-HBG9068	1.13-1.73	BJ14	0.30	20	1.25	250W	360*360*138.1
DH-HBG9048	2.015-2.13	BJ22	0.20	25	1.12	20KW	300*260*114.6
DH-HBG9075	4.3-5.1	BJ48	0.20	20	1.20	500W	114*114*63.5
DH-HBG9040	5.25-5.75	BJ58	0.30	20	1.2	3KW	81*62*90
DH-HBG9078	7.7-7.8	BJ70	0.25	20	1.2	600W	60*60*47.8
DH-HBZ9003	8.6-9.6	BJ100	0.25	20	1.25	300W	50.8*50.8*41.4
DH-HBG9067	9-9.5	BJ100	0.30	20	1.2	250W	41.4*41.4*50
DH-HBG9066	9-10.2	BJ100	0.20	20	1.2	900W	80*80*60
DH-HBP9014	15-18	BJ180	0.30	18	1.2	150W	38*48*30.2
DH-HBP9033	19-22.9	BJ180	0.30	20	1.2	100W	35*24*16
DH-HBG9069	25.5-26	BJ320	0.20	25	1.15	40W	23*26.9*19.0
DH-HBG9063	29.5-30	BJ320	0.20	25	1.13	40W	25*47*19.1
DH-HBG9053	30-36	BJ320	0.25	23	1.2	100W	31*25*19
DH-HBP9038	34-36	BJ320	0.25	20	1.2	40W	19*23*19.1
DH-HBH9018A	56.5-63.5	BJ620	0.70	17	1.35	2W	43*39.5*12.5
DH-HBH9019	91.5-93.5	BJ900	0.60	18	1.35	2W	8.8*12*22
DH-HBH9020	92-96	BJ900	0.60	18	1.35	2W	20*26*13



# HIGH POWER WAVEGUIDE LIMITERS

## FEATURES

- ★ High Power Handling
- ★ Low Limiting Threshold
- ★ Low Leakage Level
- ★ Miniatures Sizes
- ★ Front End Protection for LNA's
- ★ Power Leveling (Limiting)
- ★ Receiver Protection
- ★ Radar & EW system



WL6



# Specifications

Model No*	Freq Range	Peak Power	Pulse Width	Duty Cycle (%)	IL (dB)	Flatness Leakage	Spike Leakage	VSWR	Recovery Time	WG Type	Size
DH-082086H001K	8.2-8.6	0.15	200	200	0.8	45	450	1.3	2	WR90	WL6
DH-084086H120K	8.4-8.8	12	650ns	0.1-0.3	1.0	75	5	1.3	2	WR90	WL6
DH-085095H001K	8.5-9.5	0.1pul	/	10	0.8	13dBm	15dBm	1.4	3	WR90	WL28
DH-085096H020K	8.5-9.6	2	300	20	0.6	50	2	1.3	0.5	WR90	WL6
DH-085095H020K	8.5-9.5	2	30	10	0.8	250	2	1.4	/	WR90	WL1
DH-085096H003K	8.5-9.6	0.3	300	15	0.7	50	2	1.35	0.8	WR90	WL6
DH-086094H015K	8.6-9.4	1.5	20	5	1	50	/	1.4	1	WR90	WL1
DH-085095H020K	8.6-9.5	2	300	20	1	10dBm	15dBm	1.3	0.8	WR90	WL1
DH-085095H300K	8.6-9.5	30	1.15	1.1	0.6	100	2	1.4	1	WR90	WL6
DH-085096H018K	8.5-9.6	1.8	300	20	1	50	2	1.45	0.8	WR90	WL6
DH-087097H002K	8.7-9.7	0.2	/	15	1	15dBm	20dBm	1.4	3	WR90	WL6
DH-088096H050K	8.8-9.6	5	5	1.2	1	50	2	1.3	1	WR90	WL6
DH-088096H02KK	8.8-9.6	250	5	0.6	1	50	2	1.3	1	WR90	WL6
DH-088096H02KC	8.8-9.6	250	300	0.7	0.06	50	2	1.3	1	WR90	WL6
DH-088098H800K	8.8-9.8	80	1	0.1	1	60	2	1.7	3	WR90	WL6
DH-088098H02KK	8.8-9.8	200	1	0.1	1	30	2	/	3	WR90	WL6
DH-088098H02KK	8.8-9.8	200	1	0.1	0.8	300	2	1.7	1.3	WR90	WL6
DH-088098H250K	8.87-9.87	25	0.5	0.1	1	30	2	1.4	2	WR90	WL6
DH-088098H001K	8.87-9.87	100	0.5	0.1	1	30	2	/	2	WR90	WL6
DH-089094H015K	8.9-9.4	1.5	1	0.1	1	80	2	1.5	2	WR90	WL6
DH-089095H002K	8.9-9.5	0.2	100	15	1	15dBm	20dBm	1.3	1	WR90	WL6
DH-089095H005K	8.9-9.5	0.5	100	15	1	15dBm	20dBm	1.4	3	WR90	WL6
DH-089095H005L	8.9-9.5	0.5	100	15	1	10dBm	17dBm	1.3	800ns	WR90	WL6
DH-089095H01KK	8.9-9.55	160	1	0.1	1.3	36	2	1.35	1.5	WR90	WL6

# WAVEGUIDE ISOLATOR

## FEATURES

- ★ Excellent Insertion Loss Low VSWR
- ★ High Isolation, High Reliability
- ★ Operating Bandwidth: from 3% to Full Bandwidth.
- ★ Waveguide sizes from WR-900 to WR-10.
- ★ Min Isolation:20dB.
- ★ Wide Dynamic Temperature Range
- ★ Oxygen Free Hard Copper or Copper Alloy construction.
- ★ UG and CPR style flanges available.
- ★ Precision machining ensures accurate and lasting performance.

## ORDERING INFORMATION

Freq Band	Bandwidth	Forward Loss (dB)	Reverse Loss (dB)	VSWR	Ave. Power
L	5%	0.20	23	1.15	2KW
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
S	5%	0.20	23	1.15	1KW
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
C	5%	0.20	23	1.15	500W
	10%	0.25	21	1.17	
	20%	0.30	20	1.20	
X	10%	0.20	23	1.15	300W
	20%	0.25	20	1.20	
Ku	10%	0.20	23	1.15	120W
	20%	0.25	20	1.20	
K	10%	0.20	23	1.15	100W
	20%	0.25	20	1.20	
Ka	5%	0.25	23	1.15	50W
	10%	0.30	20	1.20	
V	10%	0.60	17	1.35	2W
U	5%	0.60	17	1.35	2W
E	5%	0.60	17	1.35	2W

# Specifications

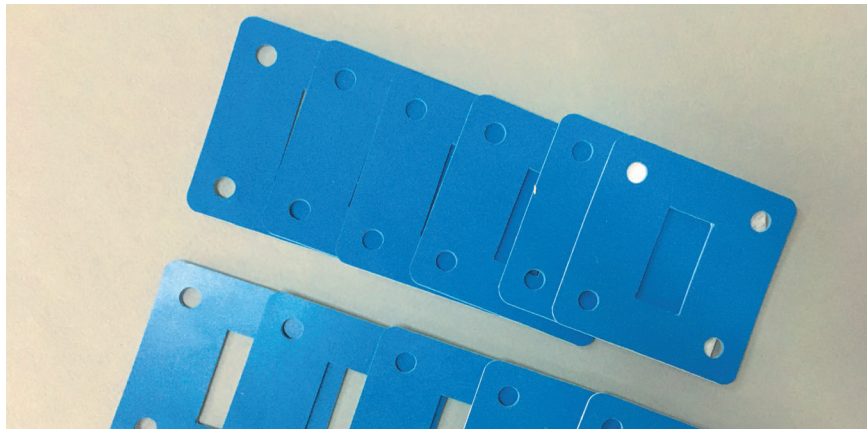
Model No*	Freq Range (GHz)	WG Type	Forward Loss (dB)	Reverse Loss (dB)	VSWR	Ref. Power	Size
DH-GBG9052	3.4-4.2	BJ40	0.25	20	1.2	2000W	265*138*69.85
DH-GBG9051	5.49-5.51	BJ48	0.30	25	1.12	2MW/2KW	300*210*89.9
DH-GBZ9011	5.8-6.4	BJ70	0.20	20	1.25	1200W	172.6*82.6*49.2
DH-GBP9049	13-14	BJ140	0.30	20	1.15	30W	20*34.5*33
DH-GBP9106	13-14.1	BJ120	0.30	20	1.2	100W	39*57.5*38.3
DH-GBZ9019	13.75-14.5	BJ120	0.20	23	1.15	300W	38*90*38
DH-GBP9085	14-16	BJ140	0.25	18	1.3	10W	45.72*22.86*19.05
DH-GBP9105	14.6-15.3	BJ120	0.30	20	1.2	100W	39*57.5*38.3
DH-GBP9039	15-18	BJ180	0.40	20	1.2	20W	38*86*33.3
DH-GBP9076	16.3-17.3	BJ220	0.40	18	1.3	50W	23*40*15
DH-GBG9009	16.5-17.5	BJ140	0.30	24	1.15	1500W	33*68*33
DH-GBP9078	18.5-21.6	BJ220	0.30	20	1.22	50W	38*22.4*18
DH-GBG9047A	18.8-21.2	BJ180	0.20	20	1.2	80W	30*70*23.37
DH-GBP9100	22.4-26.3	BJ260	0.30	18	1.3	30W	24*36*21.1
DH-GBG9048	22.55-23.55	BJ220	0.20	20	1.2	80W	30*70*22.4
DH-GBP9079	24.7-27.7	BJ260	0.25	21	1.2	50W	18*35*21.1
DH-GBP9102	26.5-28.5	BJ320	0.25	20	1.2	30W	20*23*19
DH-GBG9042	27.5-31	BJ320	0.25	20	1.2	50W	25*40*19.1
DH-GBG9039	29.4-31	BJ320	0.20	20	1.2	80W	21*45*19.1
DH-GBP9118	33-37	BJ320	0.30	20	1.2	20W	25*27*19.1
DH-GBH9009	43-46	BJ400	0.40	20	1.25	50W	30*44*30
DH-GBP9028	49-51	BJ500	0.30	20	1.2	10W	18*25*19.8
DH-GBH9014	50-57.38	BJ500	0.50	18	1.3	2W	15*25.5*20
DH-GBH9016	51-59	BJ620	0.60	20	1.3	2W	15*25.5*20
DH-GBH9007	74-76	BJ740	0.60	20	1.3	2W	15*25*20
DH-GBH9013	81-84	BJ740	0.60	18	1.35	2W	15*25.5*20
DH-GBH9018	83.2-86.2	BJ740	0.60	18	1.3	2W	15*25.6*19

# WAVEGUIDE GASKET AND O-RING

## O-Ring / Special O-Ring Specification

Model No*	Dimensions	Model No*	Dimensions
DH-MFOI56.82	φ56.82*φ2.62	DH-MFOI199.98	φ199.98*φ2.62
DH-MFOI78.38	φ78.38*φ2.62	DH-MFOI284.84	φ284.84*φ3
DH-MFOI101.3	φ101.3*φ3.53	DH-MFOI321.06	φ321.06*φ3
DH-MFOI114.4	φ114.4*φ3.1	DH-MFOI321.4	φ321.4*φ3
DH-MFOI120.94	φ120.94*φ2.62	DH-MFOI331	φ331*φ3
DH-MFOI124.5	φ124.5*φ3	DH-MFOI422.1	φ422.1*φ3
DH-MFOI143.8	φ143.8*φ3	DH-MFOI463.4	φ463.4*φ3
DH-MFOI146.68	φ146.68*φ2.62	DH-MFOI486.2	φ486.2*φ3
DH-MFOI162.7	φ162.7*φ3	DH-MFOI493.6	φ493.6*φ3
DH-MFOI164.28	φ164.28*φ3	DH-MFOI499.5	φ499.5*φ3.53
DH-MFOI194.38	φ194.38*φ3	DH-MFOI539.1	φ539.1*φ3.53

## Waveguide Flat Gasket

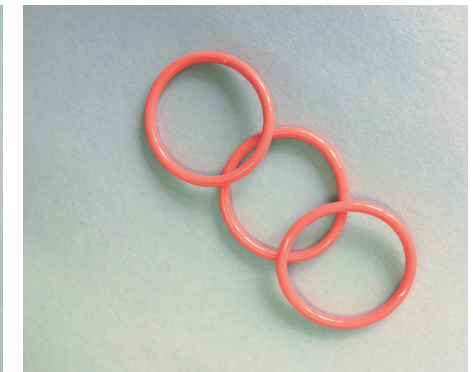
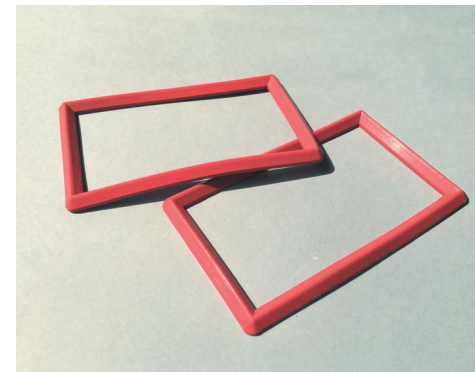


## Waveguide Gasket / Standard Type D Specification

Model No*	Dimensions	WG Type	
		IEC	EIA
DH-14MFD	174.8*92.2*8.5	BJ14	WR650
DH-18MFD	136*72*5	BJ18	WR510
DH-22MFDT	117*63*5	BJ22	WR430
DH-26MFDL	94*51.5*5	BJ26	WR340
DH-32MFDL	77*75.5*3.5	BJ32	WR284
DH-32MFD	79.4*41.3*3.5	BJ32	WR284
DH-40MFDL	63*34.5*3.5	BJ40	WR229
DH-48MFDL	53.9*28.5*3.5	BJ48	WR187
DH-58MFD	46.7*26.5*4.9	BJ58	WR159
DH-58MFDL	45.5*25.5*3.5	BJ58	WR159
DH-70MFD	41.2*22.2*4.9	BJ70	WR137
DH-70MFDL	39*20.5*3.5	BJ70	WR137
DH-84MFD	34.9*19*4.9	BJ84	WR112
DH-84MFDL	34.9*19*3.3	BJ84	WR112
DH-100MFD	28.6*15.9*4.9	BJ100	WR90
DH-100MFDL	28*15.5*3.5	BJ100	WR90
DH-140MFD	20.6*12.7*4.9	BJ140	WR62

## O-Ring / Standard O-Ring Specification

Model No*	Dimensions	WG Type	
		IEC	EIA
DH-32MFOA	φ101*φ5.4	BJ32	WR284
DH-40MFOA	φ82*φ5.4	BJ40	WR229
DH-48MFOA	φ68.5*3.5	BJ48	WR187
DH-70MFOA	φ53*φ3.5	BJ70	WR137
DH-84MFO	φ40*φ2.6	BJ84	WR112
DH-100MFO	φ33*φ2.6	BJ100	WR90
DH-120MFO	φ28*φ2.6	BJ120	WR75
DH-140MFO	φ23.5*φ2.6	BJ140	WR62
DH-180MFO	φ20*φ2.4	BJ180	WR51
DH-220MFO	φ15.5*φ1.8	BJ220	WR42
DH-320MFO	φ10.5*φ1.8	BJ320	WR28



## WAVEGUIDE CALIBRATION KITS

- FEATURES**
- ★ 0.75 to 110GHz
  - ★ Waveguide frequency band covers BJ9(WR975) to BJ900(WR10)
  - ★ Fixed load calibration
  - ★ Support TRL and SSLT calibration
  - ★ Support Keysight (Agilent), Anritsu and Rohde & Schwarz vector network analyzer

**CLKA1 WAVEGUIDE CALIBRATION**

QTY	Description	Remarks
2	Waveguide coaxial adapter	Please consult our company for details.
1	Waveguide precision fixed load	-
1	Waveguide gasket	-
1	Waveguide Shorter	-
1	Waveguide verification section***	Option, not included in standard model
1-3	Screw pack	The number of each waveguide model is different
1	Positioning pin package*	Only for APF precision flange series
1	Hexagon screwdriver	-
1	Calibration software**	Option, not included in standard model
1	Aluminum alloy packing box	-



1

Refer to Precision Flange Information (APF) for positioning pins.

2

Vector network analyzer calibration software currently supports Keysight 872x series, PNA series, Anritsu and Rohde & Schwarz ZVx series. Please consult our company for details.

3

It is recommended to use the calibration kits for the following waveguide frequency bands BJ320 (WR28), BJ400(WR22), BJ500(WR19), BJ620 (WR15), BJ740(WR12), BJ900(WR10).

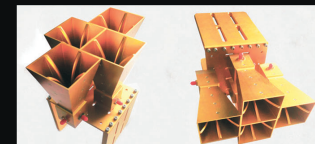
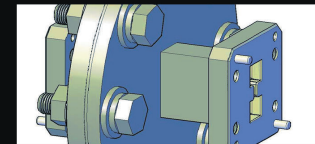
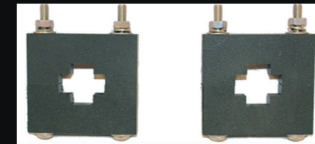
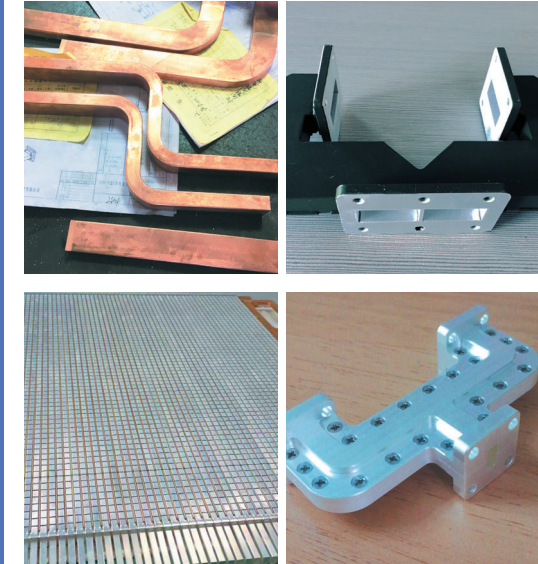
## OTHER WAVEGUIDE COMPONENTS

### INCLUDING

- Custom Waveguide Bends and Miters
- Quick Connect/Disconnect
- Waveguide Bulkhead Feed Unit
- Spacers and shims
- Flexible / Hard Connected Waveguide
- Circular to Rectangular Waveguide Adapter
- Waveguide Probe Coupler
- Slotted Waveguide Tube
- Waveguide 3 Stub-Tuners
- Power Combiners / RF Splitters
- Elliptical Waveguide / Low Loss Flexible Cable Assemblies
- Waveguide Standoff / Hangers
- Supports, Clamps and Hangars

### OTHER WAVEGUIDE COMPONENTS

Dolph Microwave offers a variety of waveguide for waveguide sizes WR-650 to WR-22





## ANTENNA FEED ASSEMBLIES

Current SATCOM terminals deployed in the land environment are only capable of operating in one frequency band at a time and a modification kit is required to operate on a different frequency band.

Multiband satcom antenna feed networks systems using a single feed for simultaneous operation in multiple bands. The Simultaneous Dual / Tri-Band Feed satellite antenna feed, operating simultaneously in both S to Ka bands, and designed for use with the Wideband Global System satellite constellation, provides that flexibility.

### KEY BENEFITS

Features single feed for combinations of L, S, C, X, Ku, DBS, Ka-bands

Simultaneous operation in dual bands or tri-bands and multiple polarizations

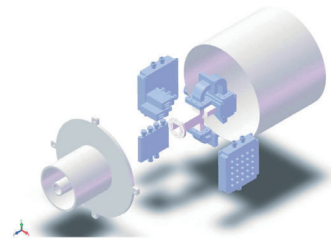
Multiband feed networks include S&X, X&Ku, X&Ka, C&Ku, C•X&Ku, L•S&Ka and S•X&Ka band simultaneously.

Meets DSCS, Intelsat and Eutelsat requirements

Low Cross Pol, high efficiency antenna systems

Various antenna, tracking, redundancy and modem configurations available to meet user-specific needs

Reduces real estate requirements and logistical costs



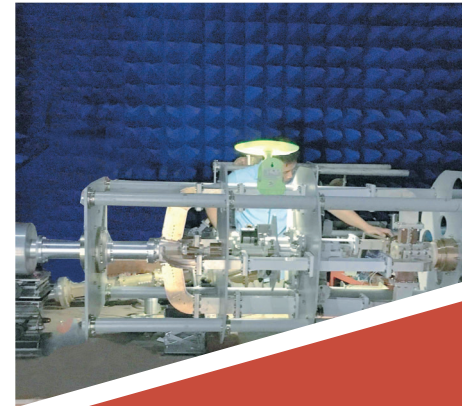
#### S&X Dual-Band GOES-R Feeds System

S&X-Dual-Band-GOES-R Feeds System for communications with earth observation satellites in low earth orbit and telemetry, tracking and control applications

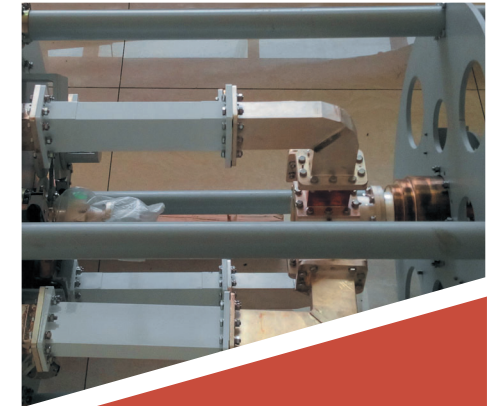


#### S&X&Ka Tir-band TT&C Antenna Feed Assemblies

S/X/Ka Tir-band feed, which is a typical representative of the integration of TT&C data transmission. The feed has three-band downlink data receiving capability and S-band upstream data transmitting capability.



C&Ku Dual-band Tactical Satcom Antenna Feed Assemblies



X&Ka Dual-band Tactical Satcom Antenna Feed Assemblies



#### Ka-band Monopulse Mode Coupler

A monopulse mode coupler is used to track the satellite precisely and quickly. This monopulse mode coupler functions are as below;

- Forming and detecting TE<sub>21</sub> mode.
- Detecting horizontal with null on axis and radiation pattern
- Transmitting tolerance angle at radiation pattern by tracking receiver.



#### Corrugated Feed Horn

Corrugated feed horn provides Tx & Rx broad band characteristics and the improved vertical and horizontal or right- and left-handed circular polarization characteristics.



#### Diplexer

A diplexer has functions to divide the signals into V- and H-pols, RHCP and LHCP, or into Tx and Rx signals.

It consists of 2 ports, 3 ports, or 4 ports, separately, depending on the customer's demands.

HGA diplexer provides high isolation characteristics in Tx and Rx.

## SATCOM ANTENNA

Coupled with a network of select customer focused companies, Dolph Microwave Co., Ltd. addresses the various requirements your satcom antenna business plan requires. We understand the critical needs of our customers and continually provide high performance and reliable systems that receive and transmit a signal cost effectively under the harshest conditions. Our designs are optimized to deliver the best quality performance to each end user.

We have the capability to build antennas ranging from 1.0-meter quick-deploy models, to 12-meter satcom antenna. We also design and manufacture trailers for systems that require mobility. The satcom antenna meet with CCIR-580 and INTELSAT requirements, The antenna type: quick-deploy, flyaway, SNG, VSAT and earth station antenna.

## KEY BENEFITS

Wide variety of feed options designed to meet the latest international standards.

Doubly contoured, high strength, lightweight aluminum panels fabricated on new aircraft quality tooling providing exacting close tolerances.

Self-aligning aluminum reflector-no field alignment.

Generous hub enclosure, with easy access for inclusion of RF components.

All steel structure is hot dipped galvanized after fabrication providing a thermal homogeneous structure to support operation at high frequencies.

Stainless steel and galvanized metric hardware throughout

Low-cost apron type foundation design including anchor bolts and embedded hardware.

Three (3) years warranty.



### Optional Features

- S, C, X, Ku, DBS and Ka Band
- Tx/Rx, 2Tx/2Rx, TT&C, 6 Port Feeds
- Hybrid, Hi Power and Low Pim Feeds
- Two and Three Axis Motorization Packages
- Staircase and Platform for ready access to hub
- Aircraft Warning Lights
- Lightning Protection
- High Wind Designs
- Low Temperature Designs
- Deicing for Feed, Reflector and Sub reflector
- Single or Dual TX waveguide integration from Hub to across upper Az axis
- Platform Mounted Hand Winch

## TECHNICAL SPECIFICATIONS FOR FLYAWAY, MANPACK, QUICK DEPLOYABLE AND SNG ANTENNAS

### RF & Antenna Specifications

Aperture	1.0 Meter		1.2 Meter		1.5 Meter		1.8 Meter		2.4 Meter	
Reflector Type	Offset/Ring focus		Offset/Ring focus		Offset		Offset		Gregory Dual Offset	
Optional Freq. Band Tx/Rx, GHz	X-band	7.90-8.40	7.25-7.75		C-band		5.85-6.725		3.40-4.20	
	Ku-band	13.75~14.5	10.7~12.75		Ku-band		13.75-14.5		10.7~12.75	
	Ka-band	27.5~31.0	17.7~21.2		Ka-band		27.5~31.0		17.7~21.2	
VSWR	≤1.25		≤1.25		≤1.25		≤1.25		≤1.25	
Axis Ratio, dB	≤1.5		≤1.5		≤1.5		≤1.5		≤1.5	
Cross Pol Iso, dB	≥35 dB (Axis) ≥32dB (-1dB)		≥35 dB (Axis) ≥32dB (-1dB)		≥35 dB (Axis) ≥32dB (-1dB)		≥35 dB (Axis) ≥32dB (-1dB)		≥35 dB (Axis) ≥32dB (-1dB)	
Tx/Rx Iso, dB	≥85		≥85		≥85		≥85		≥85	
First Side Lobe	≤-14 dB		≤-14 dB		≤-14 dB		≤-14 dB		≤-14 dB	
Side Lobe	29-25logθ (1° ≤θ <20°) 32-25logθ (20° ≤θ <48°) -10 dB (θ ≥48°)									
Feed Ports	2		2		2		2		2	
Feed Interface	WR112 WR75 WR28/42		WR112 WR75 WR28/42		WR137/229 WR75 WR28/42		WR137/229 WR75 WR28/42		WR137/229 WR75 WR28/42	

### Mechanical & Environmental Specifications

Material	Carbon Fiber	Carbon Fiber	Carbon Fiber	Carbon Fiber	Carbon Fiber
Pointing Type	Manual/Motorized	Manual/Motorized	Manual/Motorized	Manual/Motorized	Manual/Motorized
Antenna Coverage	Azimuth: ±180° Elevation: 10°~90° Polarization: ±95°				
Axes Velocities	Azimuth: 0.01°/S-3°/S Elevation: 0.01°/S-3°/S Polarization: 1° /S				
Power Supply	DC 24 V 10A, AC110-230V 50/60Hz 5A (Optional)				
Operational Wind	65km/h (40mph) with ballast				
Temperature	-40° C to +50° C				
Protection Grade	IP65 (Dust and Water Resistant)				
Humidity	0-98%				

## TECHNICAL SPECIFICATIONS FOR FIXED, MANPACK, EARTH STATION ANTENNAS

### Environmental Performance

Operational Wind	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Survival Wind	125 mph (200 km/h)
Temperature	Temperature
Protection Grade	Anti-seismic
Humidity	Humidity

## TECHNICAL SPECIFICATIONS FOR FIXED, MANPACK, EARTH STATION ANTENNAS

### RF & Antenna Specifications

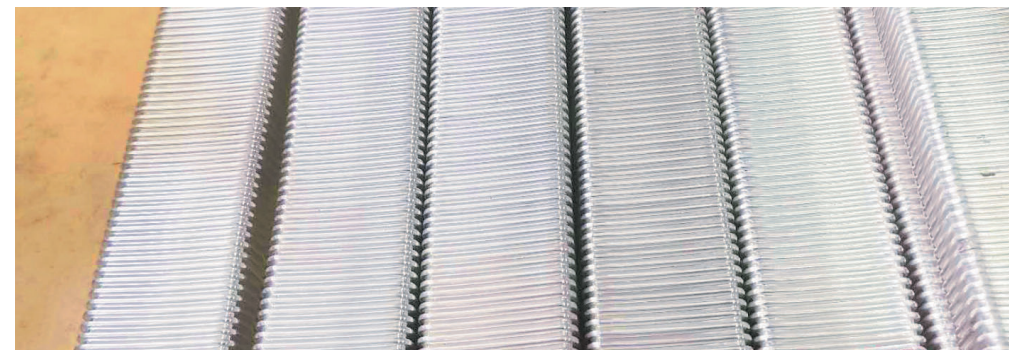
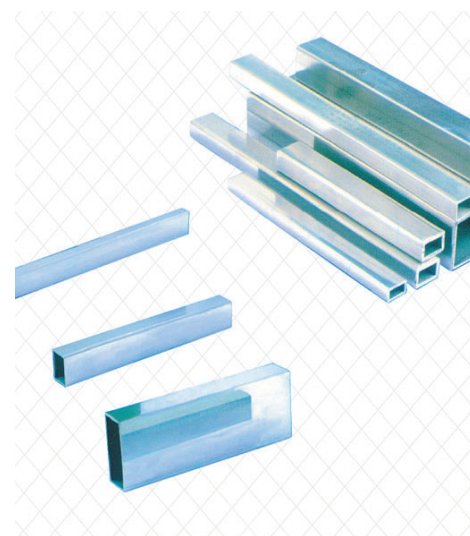
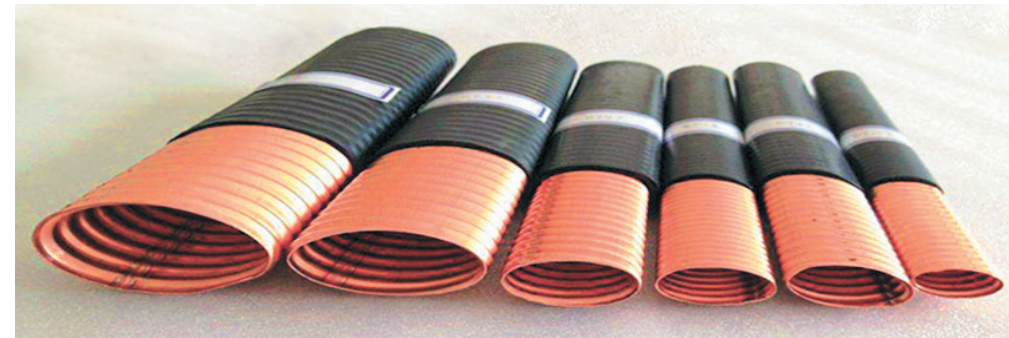
Aperture	3.7 Meter	4.5 Meter	5.3 Meter	6.2 Meter	7.3 Meter
Reflector Type	Ring focus		Ring focus	Ring focus	
Optional Freq. Band Tx/Rx, GHz	C-band	5.85~6.725	3.40~4.20	C-band	5.85~6.725 3.40~4.20
	Ku-band	13.75~14.5	10.7~12.75	Ku-band	13.75~14.5 10.7~12.75
	Ka-band	27.5~31.0	17.7~21.2	Ka-band	27.5~31.0 17.7~21.2
VSWR	≤1.25		≤1.25	≤1.25	
Axis Ratio, dB	≤1.5		≤1.5	≤1.5	
Pol. Feature	Circular/Linear		Circular/Linear	Circular/Linear	
Cross Pol Iso	≥35 dB (Axis)		≥35 dB (Axis)	≥35 dB (Axis)	
	≥32dB (-1dB)		≥32dB (-1dB)	≥32dB (-1dB)	
Tx/Rx Iso, dB	≥85		≥85	≥85	
First Side Lobe	≤-14 dB		≤-14 dB	≤-14 dB	
Side Lobe	29-25logθ (1° ≤θ <20°) 32-25logθ (20° ≤θ <48°) -10 dB (θ ≥48°)				
Feed Ports	2		2	2	
Feed Interface	WR112	WR112	WR137/229	WR137/229	WR137/229
	WR75	WR75	WR75	WR75	WR75
	WR28/42	WR28/42	WR28/42	WR28/42	WR28/42

### Mechanical & Drive Specifications

Pointing Type	Manual/Motorized	Manual/Motorized	Manual/Motorized	Motorized	Motorized
Antenna Pedestal	Kingpost Pedestal	Kingpost Pedestal	Rotation Pedestal	Kingpost Pedestal	Rotation Pedestal
Drive Method	Self-locking mechanical screw jacks	Self-locking mechanical screw jacks		Self-locking mechanical screw jacks	
		Dual motor dual pinion		Dual motor dual pinion	
Tracking Method	Step Track with Predicative Tracking	Step Track with Predicative Tracking		Step Track with Predicative Tracking	
Material	aluminum panels fabricated				
Operational Wind	65km/h (40mph) with ballast				
Surface Accuracy	≤0.35mm RMS.				
Aligning Method	Self-aligning aluminum reflector-no field alignment				
Antenna Coverage	Azimuth: ±85°				
	Elevation: 0°~90°				
	Polarization: ±45°				
Power Supply	380 VAC 50Hz Three phase 5-WYE 110/ 220VAC, 47-63Hz European/CE				



## WAVEGUIDE TUBING INFORMATION



## WAVEGUIDE TUBING INFORMATION

Model No	EIA WG	IEC WG	Freq. (GHz)	Material	Inside Dimensions (mm)	Std Tol ±Inside Dim (mm)
DH-BJ3	WR2300	R3	0.32-0.49	Al	584.2*292.1	
DH-BJ4	WR2100	R4	0.35-0.53	Al	533.4*266.7	
DH-BJ5	WR1800	R5	0.41-0.62	Al	457.2*228.6	0.51
DH-BJ6	WR1500	R6	0.49-0.75	Al	381*190.5	0.38
DH-BJ8	WR1150	R8	0.64-0.98	Al	292.1*146.05	0.38
DH-BJ9	WR975	R9	0.76-1.15	Al	247.65*123.82	
DH-BJ12	WR770	R12	0.96-1.46	Al	195.58*97.79	
DH-BJ14	WR650	R14	1.13-1.73	Cu/Al	165.1*82.55	0.33
DH-BJ18	WR510	R18	1.45-2.2	Cu/Al	129.54*64.77	0.26
DH-BJ22	WR430	R22	1.72-2.61	Cu/Al	109.22*54.61	0.22
DH-BJ26	WR340	R26	2.17-3.3	Cu/Al	86.36*43.18	0.17
DH-BJ32	WR284	R32	2.6-3.95	Cu/Al	72.14*34.04	0.14
DH-BJ40	WR229	R40	3.22-4.9	Cu/Al	58.17*29.08	0.12
DH-BJ48	WR187	R48	3.94-5.99	Cu/Al	47.549*22.149	0.095
DH-BJ58	WR159	R58	4.64-7.05	Cu/Al	40.386*20.193	0.081
DH-BJ70	WR137	R70	5.38-8.17	Cu/Al	34.849*15.799	0.07
DH-BJ84	WR112	R84	6.57-9.99	Cu/Al	28.499*12.624	0.057
DH-BJ100	WR90	R100	8.2-12.5	Cu/Al	22.86*10.16	0.046
DH-BJ120	WR75	R120	9.84-15	Cu/Al	19.05*9.525	0.038
DH-BJ140	WR62	R140	11.9-18	Cu/Al	15.799*7.899	0.031
DH-BJ180	WR51	R180	14.5-22	Cu/Al	12.95*6.477	0.026
DH-BJ220	WR42	R220	17.6-26.7	Cu/Al	10.668*4.318	0.021
DH-BJ260	WR34	R260	21.7-33	Cu/Al	8.636*4.318	0.02
DH-BJ320	WR28	R320	26.3-40	Cu/Al	7.12*3.556	0.02
DH-BJ400	WR22	R400	32.9-50.1	Cu/Al	5.69*2.845	0.02
DH-BJ500	WR19	R500	39.2-59.6	Cu	4.775*2.388	0.02
DH-BJ620	WR15	R620	49.8-75.8	Cu	3.795*1.88	0.02
DH-BJ740	WR12	R740	60.5-91.9	Cu	3.0988*1.5494	0.0127
DH-BJ900	WR10	R900	73.8-112	Cu	2.54*1.27	0.0127

Nom Wall Thickness (mm)	Outside Dimensions (mm)	Std Tol ±Outside Dim (mm)	Freq of Cut-Off for TE <sub>10</sub> (GHz)	Wavelength of Cut-Off for TE <sub>10</sub> (mm)	Theoretical Attenuation lowest to highest freq (dB/100ft)	
					Al	Cu
6			0.257	1169.2	0.27-0.4	
5			0.281	1067.5	0.31-0.46	
5			0.328	915.0	0.39-0.58	
3.18			0.393	762.5	0.51-0.76	
3.18			0.513	584.6	0.760-0.113	
3.18			0.605	495.6	0.098-0.145	
3.18			0.766	391.4	0.140-0.206	
2.03	169.16*86.61	0.2	0.908	330.4	0.18-0.266	0.214-0.317
2.03	133.6*68.83	0.2	1.157	259.1	0.259-0.382	0.309-0.456
2.03	113.28*58.67	0.2	1.372	218.4	0.334-0.494	0.399-0.588
2.03	90.42*47.24	0.17	1.736	172.7	0.475-0.702	0.567-0.837
2.03	76.2*38.1	0.14	2.078	144.3	0.652-0.953	0.777-1.136
1.625	61.42*32.33	0.12	2.577	116.3	0.86-1.27	1.026-1.514
1.625	50.8*25.4	0.1	3.153	95.1	1.231-1.795	1.467-2.14
1.625	43.64*23.44	0.08	3.712	80.77	1.487-2.195	1.773-2.617
1.625	38.1*19.05	0.08	4.301	69.7	2.004-2.910	2.390-3.470
1.625	31.75*15.88	0.05	5.260	57	2.761-3.993	3.292-4.761
1.27	25.4*12.7	0.05	6.557	45.72	3.833-5.547	4.570-6.614
1.27	21.59*12.06	0.05	7.869	38.1	4.590-6.775	5.472-8.078
1.015	17.83*9.93	0.05	9.488	31.6	6.077-8.971	7.246-10.696
1.015	14.99*8.51	0.05	11.575	25.91	8.185-12.082	9.759-14.406
1.015	12.7*6.35	0.05	14.051	21.34	12.970-18.487	15.464-22.042
1.015	10.67*6.35	0.05	17.358	17.27	15.036-22.197	17.928-26.465
1.015	9.14*5.59	0.05	21.053	14.22	20.120-29.701	23.989-35.413
1.015	7.72*4.88	0.05	26.344	11.38	28.119-41.508	33.526-49.491
1.015	6.81*4.42	0.05	31.393	9.55		43.603-64.367
1.015	5.79*3.91	0.05	39.499	7.52		62.425-92.152
1.015	5.13*3.58	0.05	48.374	6.2		83.409-123.128
1.015	4.57*3.3	0.05	59.016	5.08		112.397-165.920