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## PRODUCT BROCHURE

High Quality RF and Microwave Components and Subsystems

Dolph Microwave Co., Ltd.



# COMPANY PROFILE

## WHO WE ARE?

Dolph Microwave 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 satellite 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 ISO9001-2015.

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.



# SPACE QUALIFIED COMPONENTS

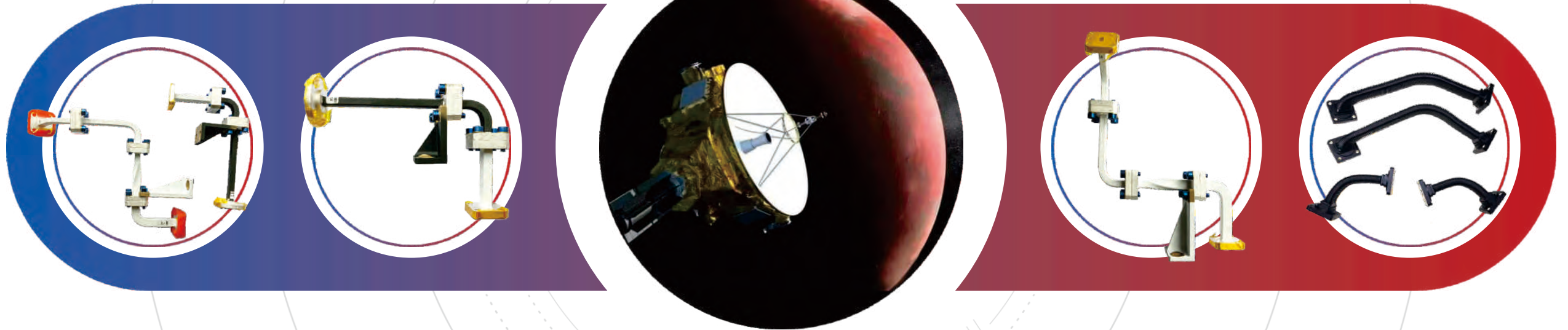
Dolph Microwave is one of leading manufacturer on space qualified waveguide accessories, kits and components for space flight industry. Namely TVAC application. It's our honor to offered components to China Satellite Network Group, ShenZhou launch, Thales TVAC lab test and Airbus TVAC lab test and others.

Superior manufacturing techniques and advanced materials is our persue, which allows us to surpass our competition in manufacturing technology, compact structure and light weight for special required space qualified components.

Components of Space Qualified Components can be manufactured varieties both standard and customized including waveguide to coaxial adapter, twist, straight, bend, transition and other customized composite bend waveguide etc. Latest space qualified components includes water cooled components, lightweight cast mitered waveguides, silver plated waveguides. Featured with low loss, mm wave, thin wall, composite multi bend in 1pcs runs to save weight, space and much more.

These components also can be used in many scientific satellites and space systems. including earth station, Space flight and high temperature. vavuum. test chamber. With features below.

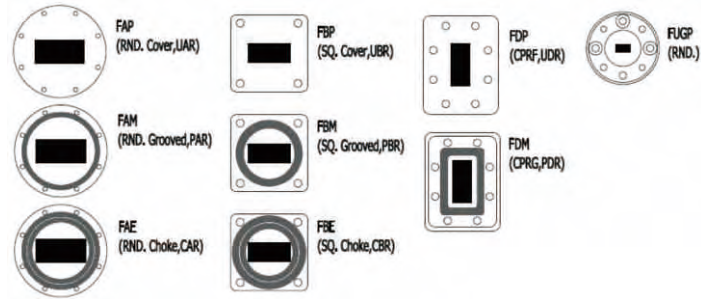
- Up / Down Link Components
- Wide Range of Waveguide & Coax
- Better Specs, Less Expensive
- Commercial / Military / Scientific
- Lightweight
- Standard or Thin Wall
- High Performance and High Temperature
- Vacuum Ready
- Performance under Acceleration Loads- Long Life and Durability
- Meets or exceeds Mil-Specs
- No Outgassing Materials and Coatings
- Water Cooled Components
- High Performance





# 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
ELA 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	FAM 32	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

# Flange Standard

Waveguide Type				Dolph Flange	EIA Flange		IEC Flange
DOLPH	EIA	UK	153-IEC		Al	Cu	
BJ70	WR-137	WG14	R70	FDP70	CPR137F		
				FDM70	CPR137G		
				FAP70	UG441/U	UG344/U	
				FAM70			
BJ84	WR-112	WG15	R84	FAE70			
				FDP84	CPR112F		
				FDM84	CPR112G		
				FBP84	UG138/U	UG51/U	
				FDM84	UG138 Grooved	UG51 Grooved	PBR84
				FBE84	UG-137B/U	UG-52B/U	CBR84
				FDP100	CPR90F		UDR100
				FDM100	CPR90G		PDR100
BJ100	WR-90	WG16	R100	FBP100	UG135/U	UG39/U	UBR100
				FDM100	UG 135 Grooved	UG 39 Grooved	PBR100
				FBE100	UG-136B/U	UG-40B/U	CBR100
				FDP120	CPR75F		UDR120
BJ120	WR-75	WG17	R120	FDM120	CPR75G		PDR120
				FBP120	UG Cover		UBR120
				FDM120	UG Grooved		PBR120
				FBE120	UG-136B/U	UG-40B/U	CBR120
BJ140	WR-62	WG18	R140	FBP140	UG1665/U	UG419/U	UBR140
				FDM140	UG Grooved		PBR140
				FBE140	UG1666/U	UG541A/U	CBR140
				FBP180			UBR180
BJ180	WR-51	WG19	R180	FDM180			PBR180
				FBE180			CBR180
				FBP220	UG597/U	UG595/U	UBR220
				FDM220	UG Grooved		PBR220
BJ220	WR-42	WG20	R220	FBE220	UG Choke		CBR220
				FBP260			UBR260
				FDM260			PBR260
				FBE260			CBR260
BJ260	WR-34	WG21	R260	FBP320	UG599/U		UBR320
				FDM320	UG Grooved		PBR320
				FBE320	UG600A/U		CBR320
				FUGP400	UG-383/U		
BJ400	WR-22	WG23	R400	FUGP400	UG-383/U		
BJ500	WR-19	WG24	R500	FUGP500	UG383/UM		
BJ620	WR-15	WG25	R620	FUGP620	UG385/U		
BJ740	WR-12	WG26	R740	FUGP740	UG387/U		
BJ900	WR-10	WG27	R900	FUGP900	UG387/UM		



# WHY CHOOSE US



Enterprise Credit Rating AAA



ISO 9001-2015  
Certificate\_ Dolph Microwave

- Ingress Protection. IP65/IPX6
- RoHS Directive (EU) 2015/863
- Salt Fog Test. GJB150.11A-2009
- UV Ray Aging Test. ISO 4892-2-2013, ISO 37-2017, ISO 7619-1-2010
- Environmental Engineering Considerations and Laboratory Tests.
  - MIL-STD-810H-516.8
  - MIL-STD-810H-514.8
  - MIL-STD-810H-507.6
- The Satcom Antenna Meets ITU-RS-580, FCC and Intelsat (F3, E3) and Eutelsat (L, S1)



Ip65



RoHS EU 2015



UV Ray



MIL-STD-810H



ITU



FCC



INTELSAT

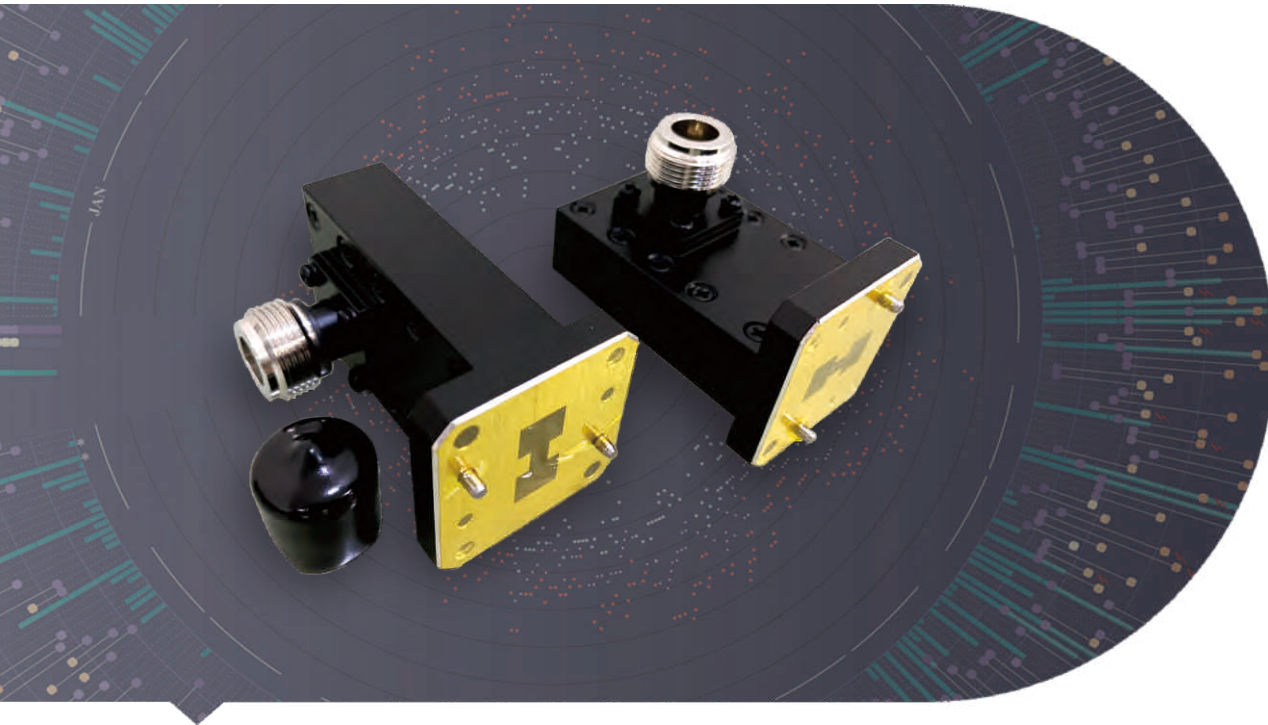


EUTELSAT

# DOUBLE-RIDGED WAVEGUIDE COMPONENTS



# DOUBLE RIDGED WAVEGUIDE TO COAXIAL ADAPTER



## → Features

- Waveguide size: WRD84 to WRD180
- VSWR: 1.3
- Connector: N, TNC, 7-16, SMA, 2.92, 2.4, 3.5(F/M)
- Configuration: End launch and right angle
- Material: Al/Cu
- Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide to coax adapters used as mode transfer from waveguide to coaxial. Al and Cu optional. Connector available in SMA, N-type and 2.92mm connector. Flange can be done as cover and grooved. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL Max. (dB)	Power Rating Avg.(W)	Connector Type
DH-84DRWCA...	WRD84	0.84-2.0	1.3	0.5	800	N-Female
DH-84DRWECA...	WRD84	0.84-2.0	1.3	0.5	800	N-Female
DH-150DRWCA...	WRD150	1.5-3.6	1.3	0.5	800	N-Female
DH-150DRWECA...	WRD150	1.5-3.6	1.3	0.5	800	N-Female
DH-200DRWCA...	WRD200	2-4.8	1.3	0.5	500	N-Female
DH-200DRWECA...	WRD200	2-4.8	1.3	0.5	500	N-Female
DH-250DRWCA...	WRD250	2.6-7.8	1.3	0.5	500	N-Female
DH-250DRWECA...	WRD250	2.6-7.8	1.3	0.5	500	N-Female
DH-350DRWCA...	WRD350	3.5-8.2	1.3	0.5	500	N-Female
DH-350DRWECA...	WRD350	3.5-8.2	1.3	0.5	500	N-Female
DH-475DRWCA...	WRD475	4.75-11.0	1.3	0.5	300	N-Female
DH-475DRWECA...	WRD475	4.75-11.0	1.3	0.5	300	N-Female
DH-500DRWCA...	WRD500	5.0-18.0	1.3	0.5	300	N/SMA-Female
DH-500DRWECA...	WRD500	5.0-18.0	1.3	0.5	300	N/SMA-Female
DH-580DRWCA...	WRD580	5.8-18.0	1.3	0.5	300	N/SMA-Female
DH-580DRWECA...	WRD580	5.8-18.0	1.3	0.5	300	N/SMA-Female
DH-650DRWCA...	WRD650	6.5-18.0	1.3	0.5	100	N/SMA-Female
DH-650DRWECA...	WRD650	6.5-18.0	1.3	0.5	100	N/SMA-Female
DH-750DRWCA...	WRD750	7.5-18.0	1.3	0.5	100	N/SMA-Female
DH-750DRWECA...	WRD750	7.5-18.0	1.3	0.5	100	N/SMA-Female
DH-700DRWCA...	WRD700	7.0-18.0	1.3	0.5	100	N/SMA-Female
DH-700DRWECA...	WRD700	7.0-18.0	1.3	0.5	100	N/SMA-Female
DH-110DRWCA...	WRD110	11.0-26.5	1.3	0.5	50	N/SMA-Female
DH-110DRWECA...	WRD110	11.0-26.5	1.3	0.5	50	N/SMA-Female
DH-180DRWCA...	WRD180	18.0-40.0	1.3	0.5	50	N/SMA-Female
DH-180DRWECA...	WRD180	18.0-40.0	1.3	0.5	50	N/SMA-Female

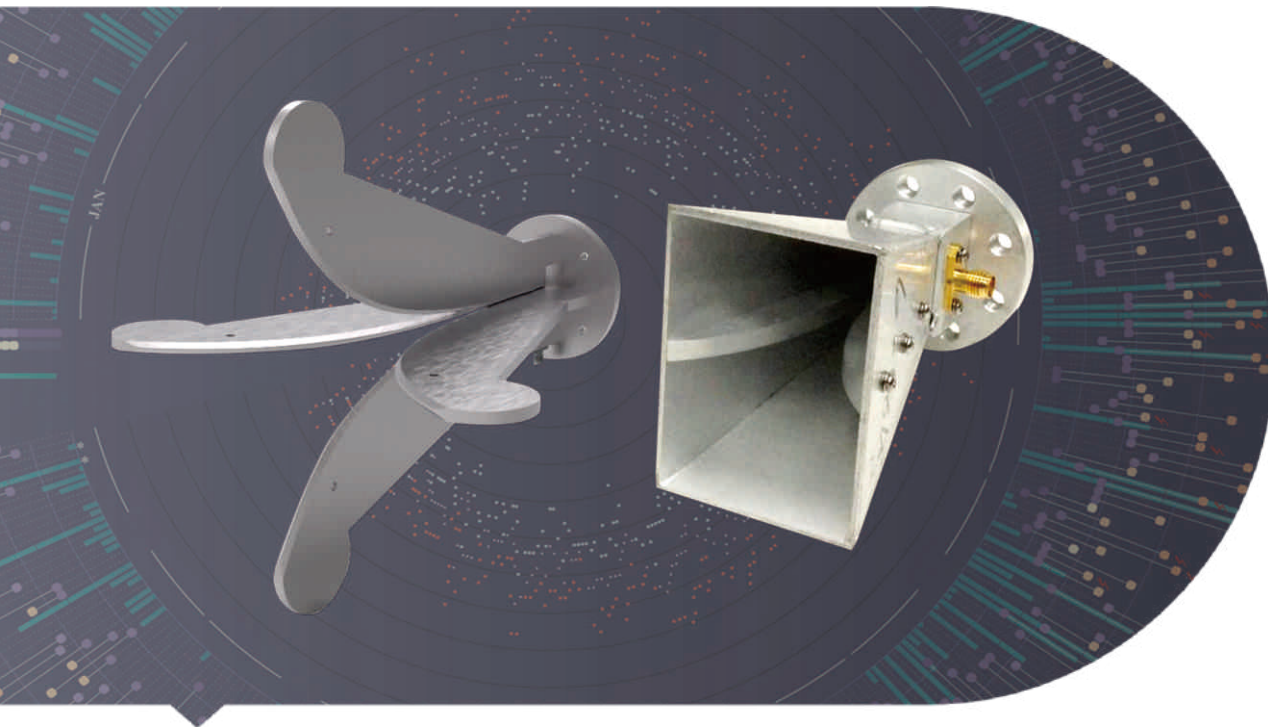
Body Geometry	Flange Type	Inside Finish	Body Finish	Material
Right Angle	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Right Angle	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR WCA N K P A

DH	Dolph Microwave
650DR	WRD650
WCA	Right Angle
WECA	End Launch
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# DOUBLE RIDGED WAVEGUIDE HORN ANTENNAS



## → Features

- Waveguide size: WRD84 to WRD180
- Gain: 10dB, 15dB, 20dB, 25dB
- Freq. Range: 0.3-45 GHz
- Input: Waveguide or coaxial
- Connector: N, TNC, 7-16, SMA, 2.92, 2.4, 3.5(F/M)
- Power handling: 700W CW
- Flange: Cover and Grooved
- Polarization: Single or dual Pol.

## → Description

Dolph Microwave Double ridged waveguide horn antenna is broadband antenna with high gain and low return loss. Connector available in SMA, N-type and 2.92mm connector. Flange can be done as cover and grooved. Both standard and customized can be chosen.

Model	Frequency (Ghz)	VSWR Max.	Gain (dB)	Beam Width (degree)	Polarization
DH-0.3T2DRHA4...	0.3-2.0	2.0	4.0-15.5	35-55	VLP/HLP
DH-0.4T4DRHA6...	0.4-4.0	2.0	6.0-17.0	35-55	VLP/HLP
DH-0.4T6DRHA7...	0.4-6.0	2.0	7.0	20-40	VLP/HLP
DH-0.7T18DRHA1.4...	0.7-18.0	2.0	1.4-15	30-48	VLP/HLP
DH-0.8T8DRHA6...	0.8-8.0	2.0	6.0-15.0	15-70	VLP/HLP
DH-0.8T18DRHA8...	0.8-18.0	2.0	8.0-15.0	15-70	VLP/HLP
DH-0.8T18DRHA3.7...	0.8-18.0	2.0	3.5-14.5	35-55	VLP/HLP
DH-1T2DRHA10...	1.0-2.0	2.0	10.0-15.0	35-55	VLP/HLP
DH-1T4DRHA5.5...	1.0-4.0	2.0	5.5-12.0	35-55	VLP/HLP
DH-1T12DRHA6...	1.0-12.0	2.0	6-13	15-55	VLP/HLP
DH-1T12DRHA10...	1.0-12.0	2.0	10.0-15.0	35-55	VLP/HLP
DH-1T18DRHA8...	1.0-18.0	2.0	8.0-18.0	35-55	VLP/HLP
DH-1T18DRHA8.2...	1.0-18.0	2.0	8.2-14.6	23-70	VLP/HLP
DH-1T20DRHA7...	1.0-20.0	2.0	7.0-15.0	11-80	VLP/HLP
DH-1T20DRHA7...	1.0-20.0	2.0	7.0-15.0	11-80	VLP/HLP
DH-2T4DRHA11...	2.0-4.0	2.0	11.0-14.5	15-55	VLP/HLP
DH-2.5T5DRHA10...	2.5-5.0	2.0	10.3-13.5	15-55	VLP/HLP
DH-2T7DRHA9...	2.0-7.0	2.0	9.0-14.0	15-55	VLP/HLP
DH-2T8DRHA10...	2.0-8.0	2.0	10.0	15-55	VLP/HLP
DH-2T8DRHA12...	2.0-8.0	2.0	12	15-55	VLP/HLP
DH-2T10DRHA4...	2.0-10.0	2.0	4.0-10.0	15-55	VLP/HLP
DH-2T18DRHA6...	2.0-18.0	2.0	6-20	15-55	VLP/HLP
DH-180DRSGAH15...	18.0-40.0	1.25	15	30	VLP/HLP
DH-180DRSGA20...	18.0-40.0	1.5	20	15-55	VLP/HLP
DH-22T40DRHA10...	22.0-40.0	2.0	10-15	17-44	VLP/HLP
DH-23T30DRHA10...	22.0-30.0	1.5	10-23	17-44	VLP/HLP
DH-28T45SGAH17...	28.0-45.0	1.2	17-21	10-17	VLP/HLP

Cross Polarization(dB)	ConnectorType	Size(mm)	Body Finish	Material
30	N-Female	528*555*355	Anticorrosion White Painted	Al
30	N-Female	448*440*285	Anticorrosion White Painted	Al
30	N-Female	448*440*285	Anticorrosion White Painted	Al
30	N-Female	234*241*160	Anticorrosion White Painted	Al

## Ordering Information

### DH - 2T18 DRHA 6.5 N K A

DH	Dolph Microwave
2T18	Freq. Range, 2-18GHz
DRHA	Wide-band Horn Antenna
6.5	6.5 dBi Gain min.
N	Connector Type
K	Female
A	Material Al



# DOUBLE RIDGED FLEXIBLE WAVEGUIDE



## → Features

Waveguide size: WRD84 to WRD180

Length: up to 600mm.

VSWR: 1.3

Type: Flexible twistable and non-twistable

Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged flexible waveguide is sorted as twistable and non-twistable, available with length up to 600mm with high power handling. Flange can be done as cover and grooved. It is quick delivery. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR Max.
DH-580DRWEL...	WRD580	5.8-16.0	1.25
DH-650DRWEL...	WRD650	6.5-18.0	1.3
DH-750DRWEL...	WRD750	7.5-18.0	1.3
DH-180DRWEL...	WRD180	18.0-40.0	1.5

IL Max. (dB/m)	Power Rating Avg.(W)	Min. Bending Radius E - ( mm ) / H - ( mm )	
1.5	300	105	210
1.65	100	90	180
165	100	85	170
3.42	50	55	110

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket.	Brass
Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket.	Brass
Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket.	Brass
Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket.	Brass

## Ordering Information

DH - 650DR WEL 600 P M C

DH Dolph Microwave

650DR WRD650

WEL Flexible WG

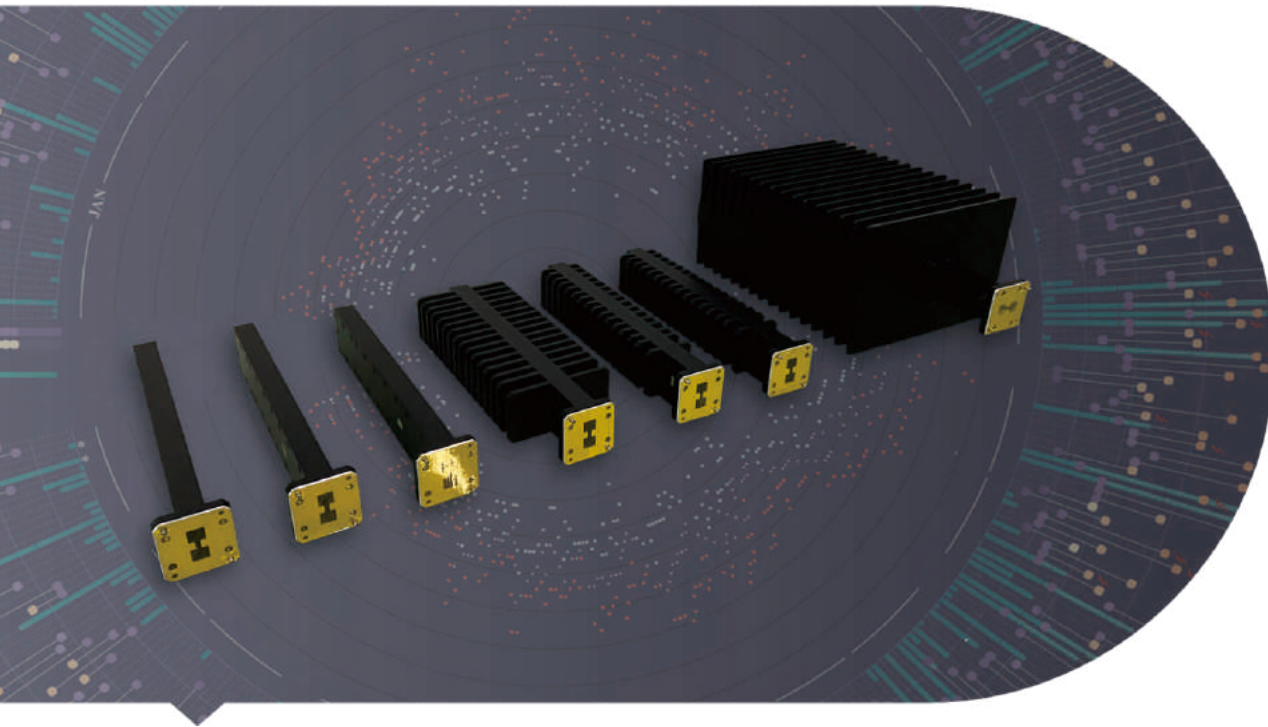
600 L=600mm

P Flange Cover

M Flange Grooved

C Material Cu

# DOUBLE RIDGED WAVEGUIDE LOADS AND TERMINATIONS



## → Features

- Waveguide size: WRD84 to WRD180
- Power handling: Low, High and ultra high
- Cooling type: Air and Water
- Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide load is available in low, high and ultra high power handling. Surface treatment optional in Nickel, Tin, Silver and Gold Plating. Cooling with air load, water load and water cooling type. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Power Rating Avg.(W)	Length. (mm)	Loads Type
DH-84DRWL1.05...	WRD84	0.84-2.0	1.05	5	720	Dummy Loads
DH-150DRWL1.05...	WRD150	1.5-3.6	1.05	5	650	Dummy Loads
DH-200DRWL1.05...	WRD200	2.0-4.8	1.05	5	340	Dummy Loads
DH-700DRWL1.05...	WRD700	7.0-18.5	1.05	1	200	Dummy Loads
DH-110DRWL1.05...	WRD110	11.0-26.5	1.05	0.5	150	Dummy Loads
DH-180DRWL1.05...	WRD180	18.0-40.0	1.05	0.5	109	Dummy Loads

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

Model	WR Type	Frequency (Ghz)	VSWR Max.	Power Rating Avg.(W)	Loads Type
DH-84DRWHPL...	WRD84	0.84-2.0	1.15	10-5000	Finned Loads
DH-150DRWHPL...	WRD150	1.5-3.6	1.15	10-5000	Finned Loads
DH-200DRWHPL...	WRD200	2.0-4.8	1.15	10-5000	Finned Loads
DH-700DRWHPL...	WRD700	7.0-18.5	1.15	10-2000	Finned Loads
DH-110DRWHPL...	WRD110	11.0-26.5	1.15	10-1000	Finned Loads
DH-180DRWHPL...	WRD180	18.0-40.0	1.15	10-1000	Finned Loads

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

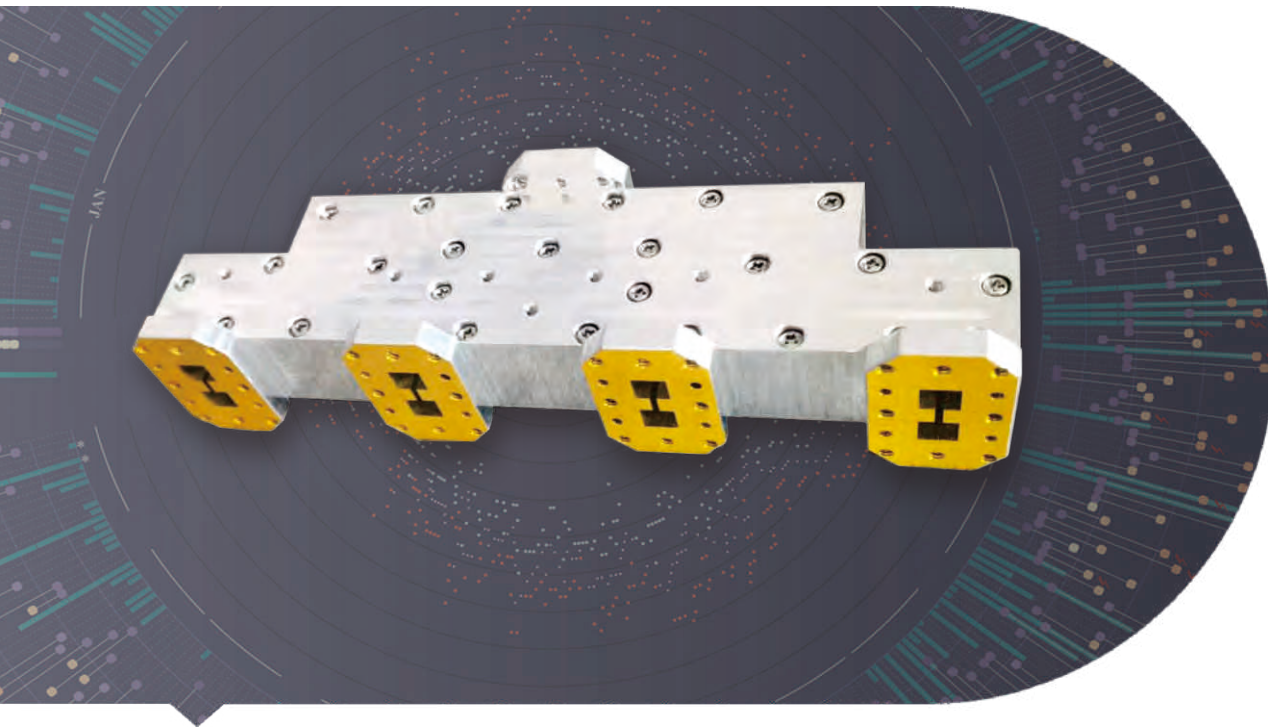
## Ordering Information

DH - 650DR WHPL 1000 P A

DH	Dolph Microwave
650DR	WRD650
WL1.05	Dummy Loads VSWR1.05
WHPL	High Power Terminations
1000	Handling power 1000W CW
P	Flange Cover
M	Flange Grooved
A	Material Al



# DOUBLE RIDGED WAVEGUIDE DIVIDER/COMBINER



## Features

Waveguide size: WRD84 to WRD180

Isolation: 30dB

VSWR: 1.3

Material: Al and Cu

Flange: Cover

Config.: 2, 4, 6 way



## Description

Dolph Microwave Double ridged waveguide combiner/divider is high power, high isolation. Available in 2, 4, 6 and other ways and optional with pressure sealing and isolation. Both standard and customized can be chosen in mechanical configurations upon request.

Model	WR Type	Frequency (GHz)	VSWR Max.	D/R (dB)	Power Rating Avg.(W)
DH-84DRWSY31_2...	WRD84	0.84-2.0	1.5	3±0.3	4000
DH-200DRWSY31_2...	WRD200	2.0-4.0	1.5	3±0.3	1000
DH-250DRWSY31_2...	WRD250	2.6-7.8	1.5	3±0.3	700
DH-350DRWSY31_2...	WRD350	3.5-8.2	1.5	3±0.3	700
DH-475DRWSY31_2...	WRD475	4.75-11.0	1.5	3±0.3	700
DH-500DRWSY31_2...	WRD500	5.0-18.0	1.5	3±0.3	700
DH-580DRWSY31_2...	WRD580	5.8-18.0	1.5	3±0.3	500
DH-650DRWSY31_2...	WRD650	6.5-18.0	1.5	3±0.3	500
DH-750DRWSY31_2...	WRD750	7.5-18.0	1.5	3±0.3	500

Config.	Size (mm)	Flange Type	Inside Finish	Body Finish	Material
2/4 way	452*362*100	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4 way	320*222*70	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4 way	260*212*70	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4 way	220*195*68	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4 way	212*42*60	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4 way	144*78*30	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR WSY3 1\_2 P A 500

DH Dolph Microwave

650DR WRD650

WSY3 Divider\_Combiner

WSY3I Divider\_Combiner with Isolation

1\_2 Config.2 Way

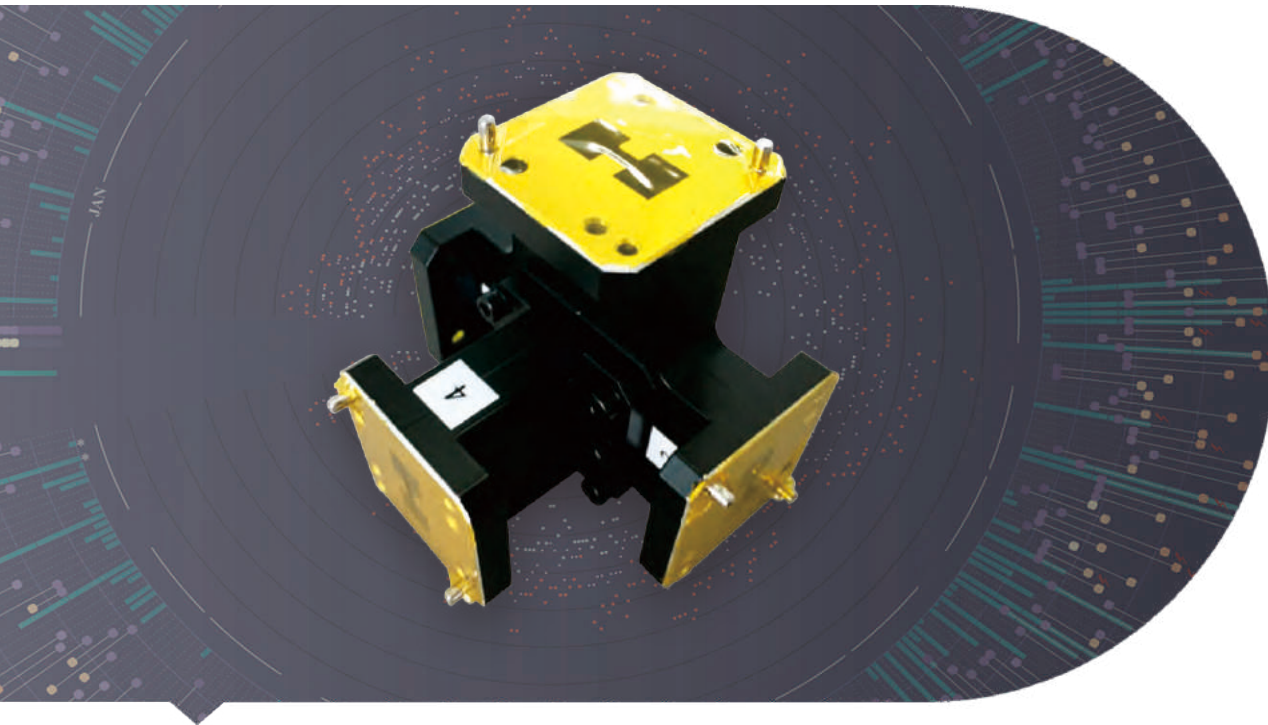
P Flange Cover

M Flange Grooved

A Material Al

500 Handling Power 500W CW

# DOUBLE RIDGED WAVEGUIDE TEES



## Features

Waveguide size: WRD84 to WRD180

Isolation: 30dB

VSWR: 1.5

Material: Al and Cu

Flange: Cover



## Description

Dolph Microwave Double ridged waveguide magic tee can vectorially add, subtract or divide two signals, with high power, high VSWR, high isolation and phase separation. Optional with pressure sealing. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (GHz)	VSWR Max.	D/R (dB)	Power Rating Avg.(W)
DH-84DRWMT...	WRD84	0.84-2.0	1.5	3±0.6	4000
DH-200DRWMT...	WRD200	2.0-4.0	1.5	3±0.6	1000
DH-250DRWMT...	WRD250	2.6-7.8	1.3	3±0.6	700
DH-350DRWMT...	WRD350	3.5-8.2	1.3	3±0.6	700
DH-475DRWMT...	WRD475	4.75-11.0	1.3	3±0.6	700
DH-500DRWMT...	WRD500	5.0-18.0	1.3	3±0.6	700
DH-580DRWMT...	WRD580	5.8-18.0	1.3	3±0.6	500
DH-650DRWMT...	WRD650	6.5-18.0	1.3	3±0.6	500
DH-750DRWMT...	WRD750	7.5-18.0	1.3	3±0.6	500
DH-700DRWMT...	WRD700	7.0-18.0	1.3	3±0.6	500

E/H Iso. (dB)	Size (mm)	Flange Type	Inside Finish	Body Finish	Material
30	560*258*250	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	500*240*210	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	300*190*190	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	280*190*190	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	160*150*150	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	100*90*80	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	70*65*60	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	70*45*40	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	70*62*60	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
30	70*62*60	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR WMT P A 500

DH Dolph Microwave

650DR WRD650

WMT Magic Tee

P Flange Cover

M Flange Grooved

A Material Al

500 Handling Power 500W CW



# DOUBLE RIDGED WAVEGUIDE BENDS



## → Features

Waveguide size: WRD84 to WRD180  
 Bend: 45°, 60°, 90°  
 Type: E or H  
 Length(mm): 45, 60, 90, 100 or others.  
 Material: Al and Cu  
 Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide bends is quick delivery within 2 weeks. Optional in bend type and length. It is available in Al and Cu with high power handling. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Size (mm)
DH-84DRWEB_WHB...	WRD84	0.84-2.0	1.25	200*200
DH-150DRWEB_WHB...	WRD150	1.5-3.6	1.25	150*150
DH-200DRWEB_WHB...	WRD200	2.0-4.8	1.25	150*150
DH-250DRWEB_WHB...	WRD250	2.6-7.8	1.25	150*150
DH-350DRWEB_WHB...	WRD350	3.5-8.2	1.25	100*100
DH-475DRWEB_WHB...	WRD475	4.75-11.0	1.25	100*100
DH-500DRWEB_WHB...	WRD500	5.0-18.0	1.25	80*80
DH-580DRWEB_WHB...	WRD580	5.8-16.0	1.25	80*80
DH-650DRWEB_WHB...	WRD650	6.5-18.0	1.25	50*50
DH-750DRWEB_WHB...	WRD750	7.5-18.0	1.25	50*50
DH-700DRWEB_WHB...	WRD700	7.0-18.0	1.25	50*50
DH-110DRWEB_WHB...	WRD110	11.0-26.5	1.25	50*50
DH-180DRWEB_WHB...	WRD180	18.0-40.0	1.25	50*50

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR WEB\_WHB 50\*50 P M A

DH	Dolph Microwave
650DR	WRD650
WEB	E-Bend default 90°
WHB	H-Bend default 90°
50*50	A*B mm
P	Flange Cover
M	Flange Grooved
A	Material Al

# DOUBLE RIDGED WAVEGUIDE SWITCHES



## → Features

**Waveguide size:** WRD84 to WRD180

**Switching type:** SPDT or DPDT

**Actuator type:** Latching or Failsafe

**Actuator option:** TTL Logic, Self Cut Off, Window Indicator

**Material:** Al and Cu

**Flange:** Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide switches is high switch speed and long life time. Optional in 6 pin and 12 pin. It can be selected in latching and failsafe. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	ISO. Min. (dB)	Voltage(V) Current(A)	Switching Time (msec)	Pressure (PSIG)	Ingress Protection
DH-84DRWESMD...	WRD84	0.84-2.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-150DRWESMD...	WRD150	1.5-3.6	1.15	70	18-35 / 1.5	80	30	IP67
DH-200DRWESMD...	WRD200	2.0-4.8	1.15	70	18-35 / 1.5	80	30	IP67
DH-250DRWESMD...	WRD250	2.6-7.8	1.15	70	18-35 / 1.5	80	30	IP67
DH-350DRWESMD...	WRD350	3.5-8.2	1.15	70	18-35 / 1.5	80	30	IP67
DH-475DRWESMD...	WRD475	4.75-11.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-500DRWESMD...	WRD500	5.0-18.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-580DRWESMD...	WRD580	5.8-16.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-650DRWESMD...	WRD650	6.5-18.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-750DRWESMD...	WRD750	7.5-18.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-700DRWESMD...	WRD700	7.0-18.0	1.15	70	18-35 / 1.5	80	30	IP67
DH-110DRWESMD...	WRD110	11.0-26.5	1.15	70	18-35 / 1.5	80	30	IP67
DH-180DRWESMD...	WRD180	18.0-40.0	1.15	70	18-35 / 1.5	80	30	IP67

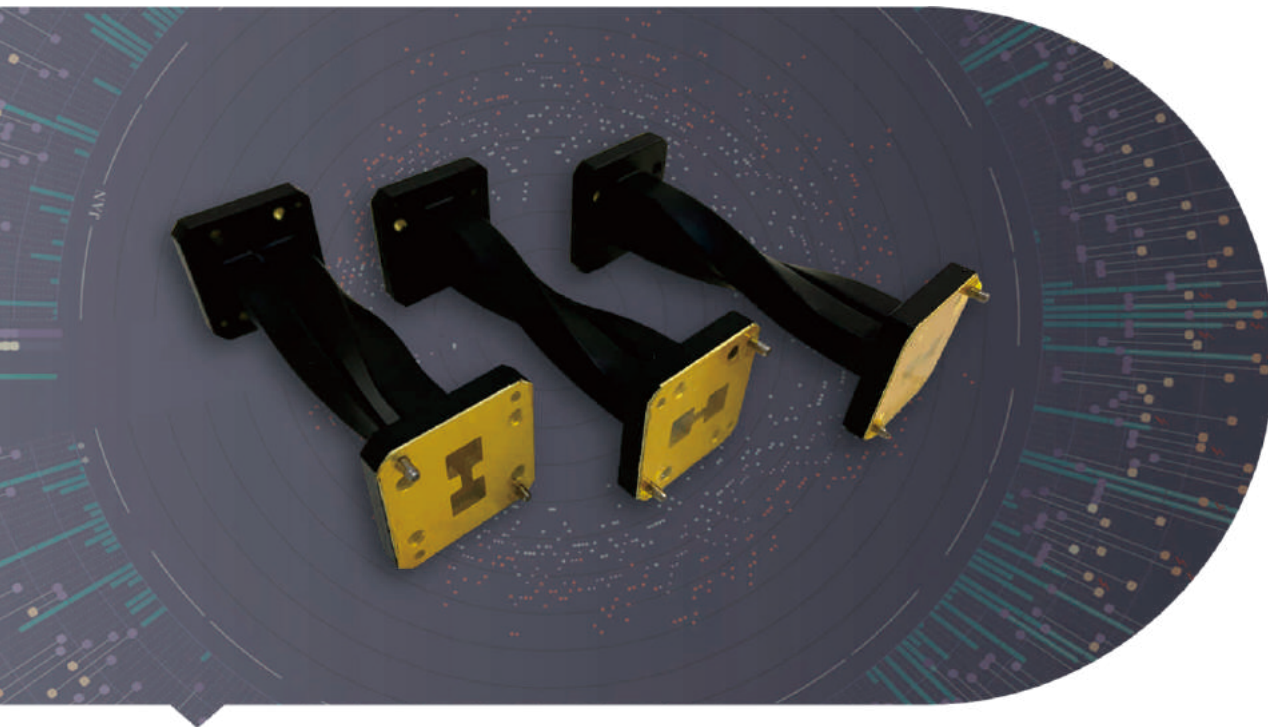
Switch Type	Actuator Type	Flange Type	Inside Finish	Body Finish	Material
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 650DR WESM D P A

DH	Dolph Microwave
650DR	WRD650
WESM	E-plane Waveguide Switch Motor-Driven
D	DPDT
S	SPDT
P	Flange Cover
M	Flange Grooved
A	Material Al

# DOUBLE RIDGED WAVEGUIDE TWISTS



## → Features

Waveguide size: WRD84 to WRD180

Twist option: 45°, 60°, 90° or others

Material: Al and Cu

Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide twists is optional in length and material. It is quick delivery with high power handling, high VSWR and insertion loss. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Length (mm)	Structure Type
DH-84DRWTA_WLTA...	WRD84	0.84-2.0	1.25	500	R-H / L-H
DH-150DRWTA_WLTA...	WRD150	1.5-3.6	1.25	400	R-H / L-H
DH-200DRWTA_WLTA...	WRD200	2.0-4.8	1.25	400	R-H / L-H
DH-250DRWTA_WLTA...	WRD250	2.6-7.8	1.25	300	R-H / L-H
DH-350DRWTA_WLTA...	WRD350	3.5-8.2	1.25	300	R-H / L-H
DH-475DRWTA_WLTA...	WRD475	4.75-11.0	1.25	300	R-H / L-H
DH-500DRWTA_WLTA...	WRD500	5.0-18.0	1.25	200	R-H / L-H
DH-580DRWTA_WLTA...	WRD580	5.8-16.0	1.25	200	R-H / L-H
DH-650DRWTA_WLTA...	WRD650	6.5-18.0	1.25	200	R-H / L-H
DH-750DRWTA_WLTA...	WRD750	7.5-18.0	1.25	200	R-H / L-H
DH-700DRWTA_WLTA...	WRD700	7.0-18.0	1.25	200	R-H / L-H
DH-110DRWTA_WLTA...	WRD110	11.0-26.5	1.25	150	R-H / L-H
DH-180DRWTA_WLTA...	WRD180	18.0-40.0	1.3	80	R-H / L-H

Twisting Angle (Degree)	Flange Type	Inside Finish	Body Finish	Material
45-60-90	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
45-60-90	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
45-60-90	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
45-60-90	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

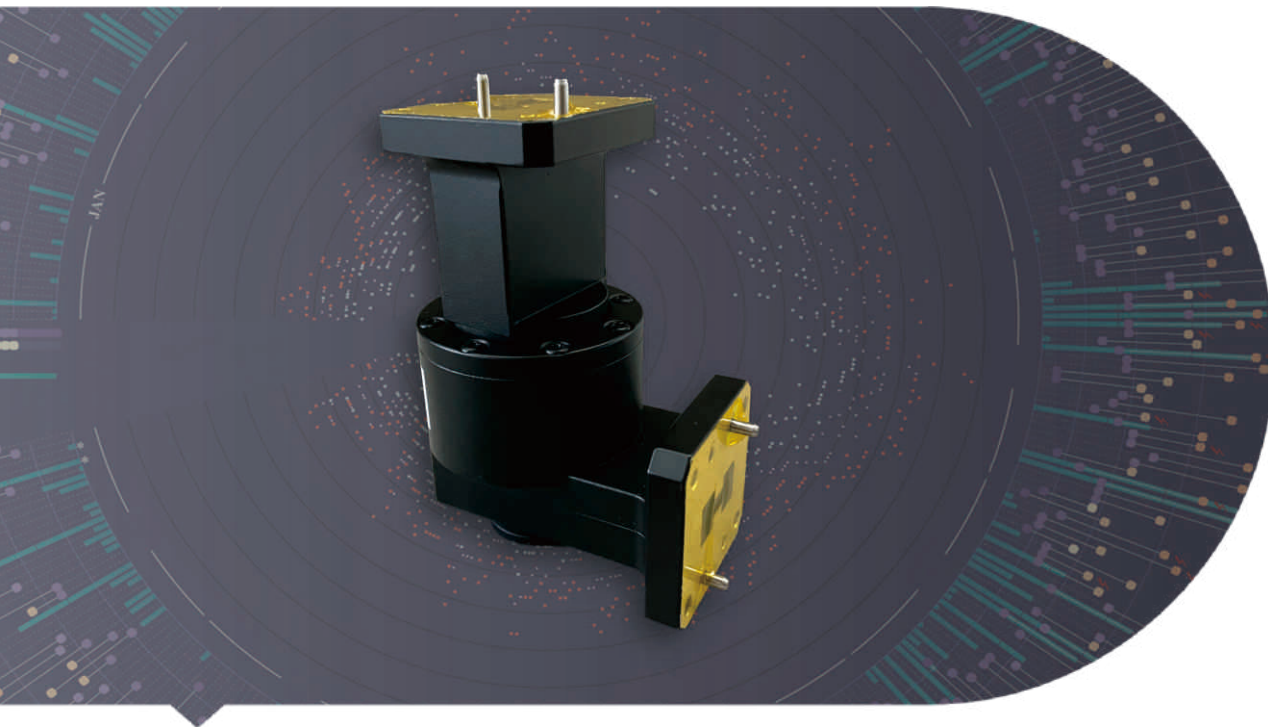
## Ordering Information

DH - 650DR WTA 100 P M A

DH	Dolph Microwave
650DR	WRD650
WTA	Right-handed Twisted Waveguide
WLTA	Left-handed Twisted Waveguide
100	L=100mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# DOUBLE RIDGED WAVEGUIDE ROTARY JOINTS



## → Features

**Waveguide size:** WRD84 to WRD180

**Channel:** Single or dual channel

**Type:** L, I and U

**Material:** Al and Cu

**Flange:** Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide rotary joint is high power handling, high rotary speed. Optional in pressure, leakage and torque. Both L, I and U shaped are all available. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (GHz)	VSWR Max.	IL Max. (dB)	Ave. Power (W)	Lifetimes	Pressure (PSIG)
DH-84DRWRJ...	WRD84	0.84-2.0	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-150DRWRJ...	WRD150	1.5-3.6	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-200DRWRJ...	WRD200	2.0-4.8	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-250DRWRJ...	WRD250	2.6-7.8	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-350DRWRJ...	WRD350	3.5-8.2	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-475DRWRJ...	WRD475	4.75-11.0	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-500DRWRJ...	WRD500	5.0-18.0	1.5	0.5	500	5 x 10 <sup>6</sup>	15
DH-580DRWRJ...	WRD580	5.8-16.0	1.5	0.5	650	5 x 10 <sup>6</sup>	15
DH-650DRWRJ...	WRD650	6.5-18.0	1.5	0.5	280	5 x 10 <sup>6</sup>	15
DH-750DRWRJ...	WRD750	7.5-18.0	1.5	0.5	280	5 x 10 <sup>6</sup>	15
DH-700DRWRJ...	WRD700	7.0-18.0	1.5	0.5	280	5 x 10 <sup>6</sup>	15
DH-110DRWRJ...	WRD110	11.0-26.5	1.5	0.5	100	5 x 10 <sup>6</sup>	15
DH-180DRWRJ...	WRD180	18.0-40.0	1.5	0.5	100	5 x 10 <sup>6</sup>	15

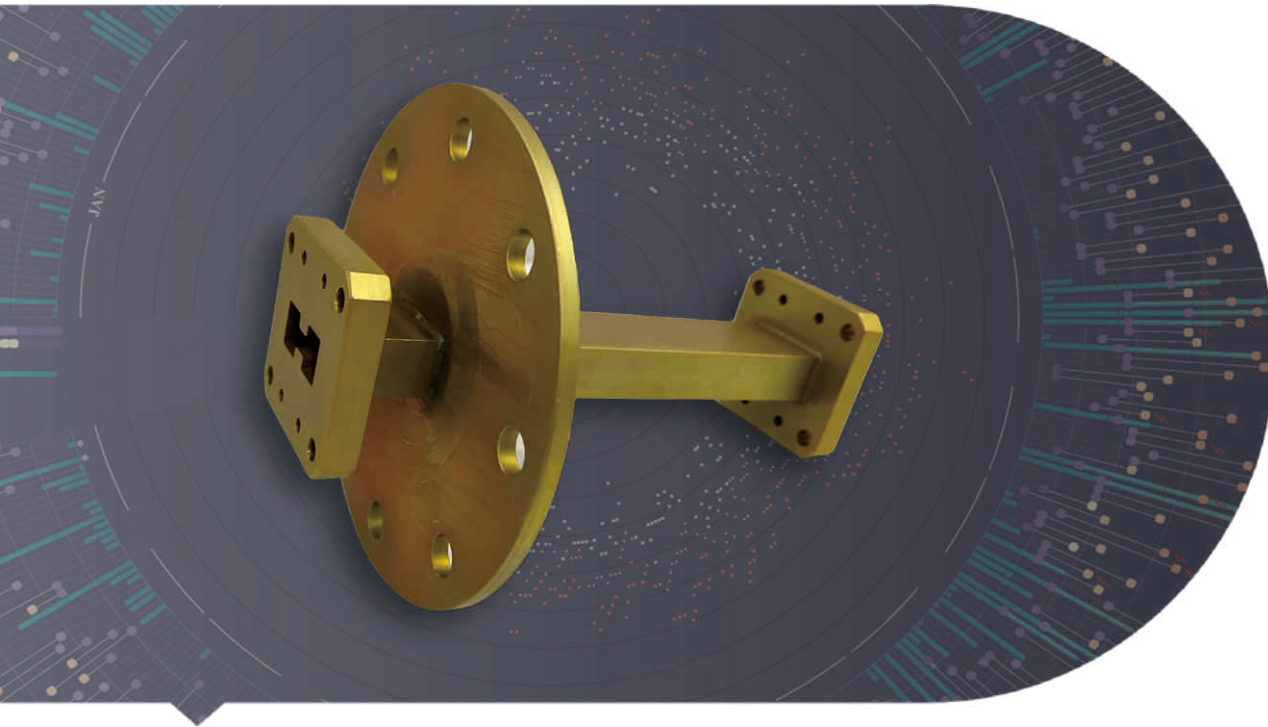
Ingress Protection	Shape Type	Flange Type	Inside Finish	Body Finish	Material
IP65	I / L / U	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
IP65	I / L / U	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
IP65	I / L / U	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
IP65	I / L / U	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 650DR WRJ L P M A

DH	Dolph Microwave
650DR	WRD650
WRJ	Waveguide Rotary Joints
L	Type-L
I	Type-I
U	Type-U
P	Flange Cover
M	Flange Grooved
A	Material Al

# DOUBLE RIDGED WAVEGUIDE BULKHEAD FEEDTHRUS



## → Features

Waveguide size: WRD84 to WRD180

Material: Al and Cu

Flange: Cover and Grooved

## → Description

Dolph Microwave Double ridged waveguide bulkhead feedthrus can bear high power handling. Also can be pressured. Both Al and Cu material are all available. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL Max. (dB)	Length (mm)	Assemblies
DH-84DRBFU...	WRD84	0.84-2.0	1.05	0.1	250	Hardware/Gasket
DH-150DRBFU...	WRD150	1.5-3.6	1.05	0.1	250	Hardware/Gasket
DH-200DRBFU...	WRD200	2.0-4.8	1.05	0.1	250	Hardware/Gasket
DH-250DRBFU...	WRD250	2.6-7.8	1.05	0.1	250	Hardware/Gasket
DH-350DRBFU...	WRD350	3.5-8.2	1.05	0.1	250	Hardware/Gasket
DH-475DRBFU...	WRD475	4.75-11.0	1.05	0.1	108	Hardware/Gasket
DH-500DRBFU...	WRD500	5.0-18.0	1.05	0.1	95	Hardware/Gasket
DH-580DRBFU...	WRD580	5.8-16.0	1.05	0.1	95	Hardware/Gasket
DH-650DRBFU...	WRD650	6.5-18.0	1.05	0.1	95	Hardware/Gasket
DH-750DRBFU...	WRD750	7.5-18.0	1.05	0.1	95	Hardware/Gasket
DH-700DRBFU...	WRD700	7.0-18.0	1.05	0.1	95	Hardware/Gasket
DH-110DRBFU...	WRD110	11.0-26.5	1.05	0.1	76	Hardware/Gasket
DH-180DRBFU...	WRD180	18.0-40.0	1.05	0.1	76	Hardware/Gasket

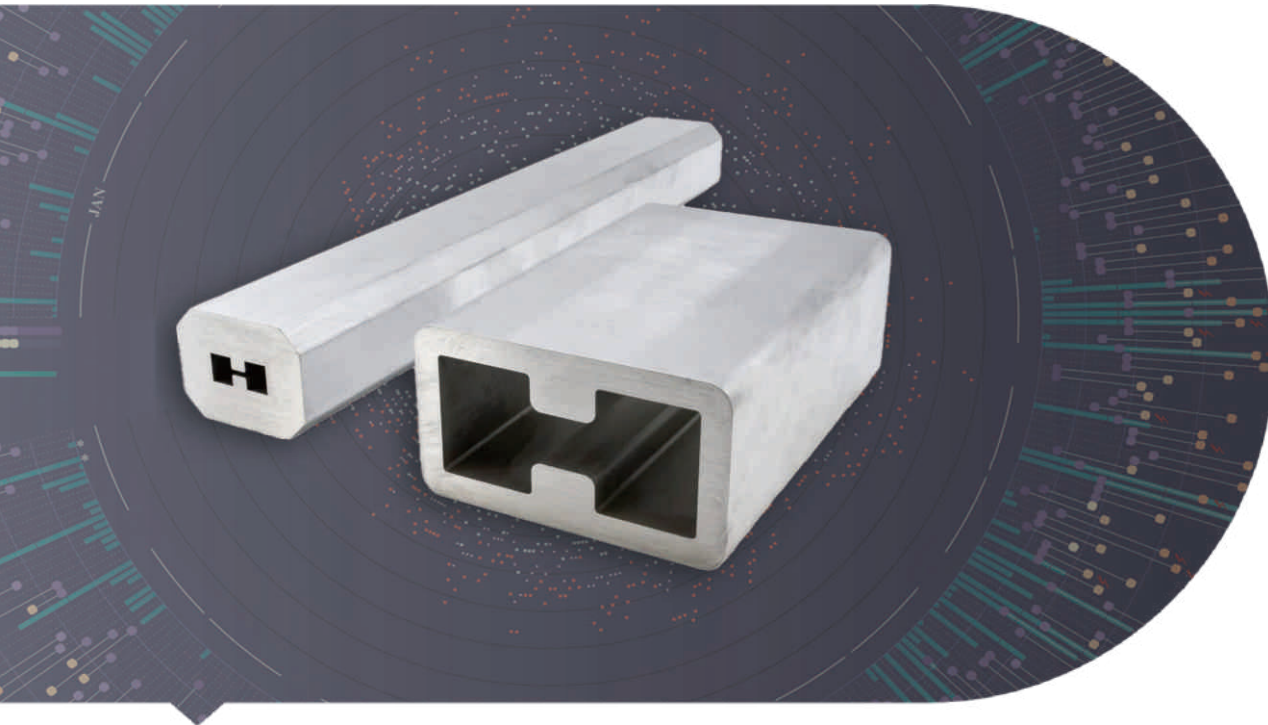
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR BFU 100 P M A

DH	Dolph Microwave
650DR	WRD650
BFU	Waveguide Bulkhead Feedthrus
100	L=100mm
P	Flange Cover
M	Flange Grooved
A	Material Al

# DOUBLE RIDGED WAVEGUIDE TUBE



## → Features

Waveguide size: WRD84 to WRD180

Material: Al and Cu

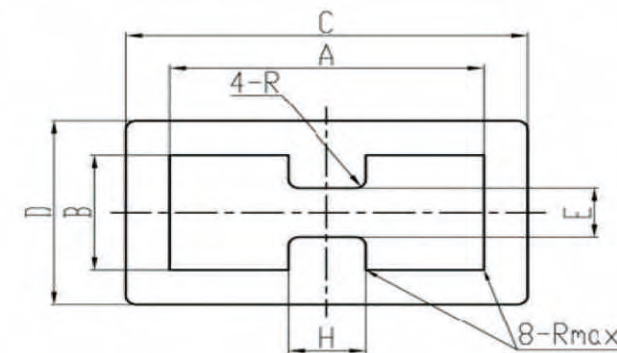
Length(mm): 50, 100, 200 or others

## → Description

Dolph Microwave Double ridged waveguide tubes can bear high power handling. Both Al and Cu material are all available. Length can be selected based on requirement. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Te10	Te20	A	B	Devi.(±)
DH-200DRWT...	WRD200D24	2.0-4.8	1.666	4.925	65.79	30.61	0.1
DH-250DRWT...	WRD250D30	2.6-7.8	2.093		42.04	18.16	0.08
DH-350DRWT...	WRD350D24	3.5-8.2	2.915	8.62	37.59	17.48	0.08
DH-475DRWT...	WRD475D24	4.75-11.0	3.961	11.705	27.69	12.85	0.08
DH-500DRWT...	WRD500D36	5.0-18.0	4.222		19.1	8.2	0.08
DH-580DRWT...	WRD580D28	5.8-16.0	4.892		19.81	9.4	0.08
DH-650DRWT...	WRD650D28	6.5-18.0	5.348		18.29	8.15	0.08
DH-750DRWT...	WRD750D24	7.5-18.0	6.239	18.464	17.55	8.15	0.08
DH-700DRWT...	WRD700D26	7.0-18.0	5.679		17.42	7.87	0.08
DH-110DRWT...	WRD110C24	11.0-26.5	9.363	27.08	11.96	5.56	0.08
DH-180DRWT...	WRD180C24	18.0-40.0	14.995	44.995	7.32	3.4	0.08

E	±ΔE	Rmax	R±10%	H	±ΔH	C	D	Devi.(±)	Material
13	0.05	1.27	2.59	16.46	0.05	69.85	34.67	0.1	Al/Brass
3.81	0.05	0.51	2.34	11.18	0.05	46.1	22.22	0.1	Al/Brass
7.42	0.05	0.76	1.47	9.4	0.05	40.84	20.73	0.1	Al/Brass
5.46	0.05	0.76	1.09	6.91	0.05	30.23	15.39	0.08	Al/Brass
1.6	0.05	0.38	0.33	4.78	0.05	21.64	10.74	0.08	Al/Brass
3.05	0.05	0.38	1.09	5.08	0.05	22.35	11.94	0.08	Al/Brass
2.57	0.05	0.51	0.56	4.39	0.05	20.85	10.69	0.08	Al/Brass
3.45	0.05	0.51	0.69	4.39	0.05	20.09	10.69	0.08	Al/Brass
2.67	0.05	0.51	0.58	4.39	0.05	19.96	10.41	0.08	Al/Brass
2.36	0.05	0.38	0.48	3	0.05	14	7.59	0.08	Al/Brass
1.45	0.05	0.38	0.28	1.83	0.05	9.35	5.44	0.08	Al/Brass



### Ordering Information

DH - 650DR WT 100 A

DH Dolph Microwave

650DR WRD650

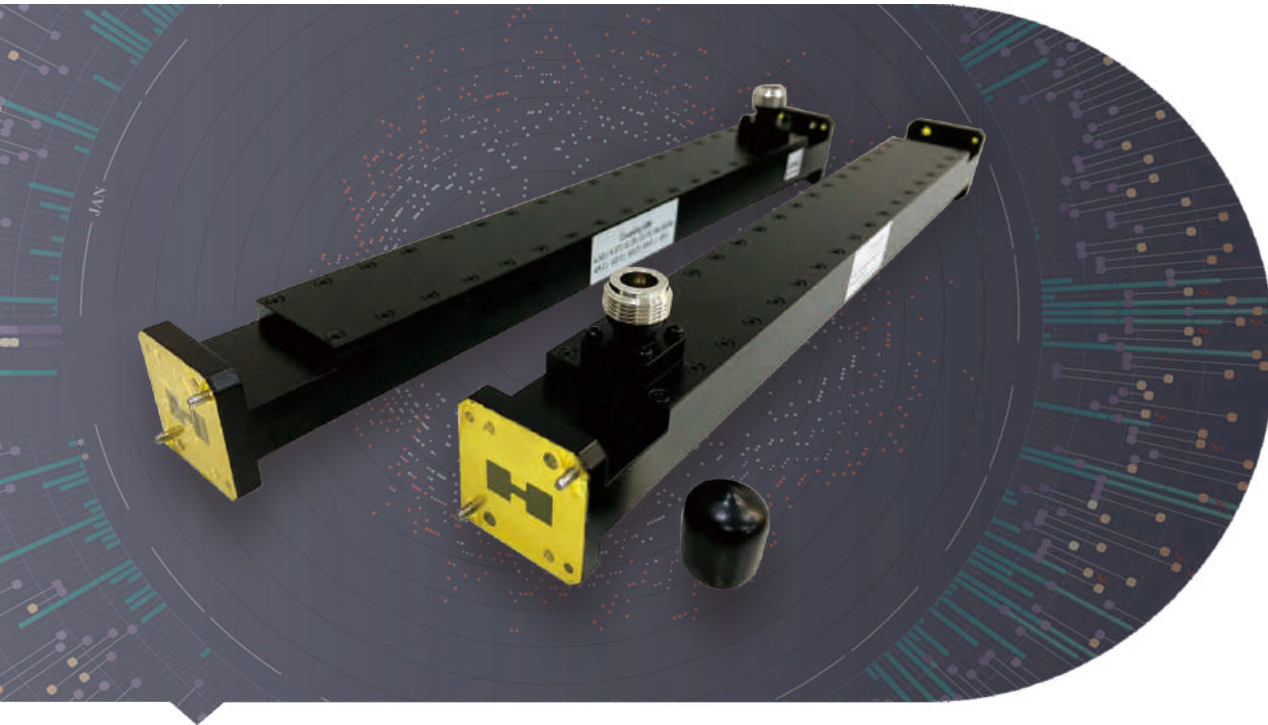
WT Waveguide Tube

100 L=100mm

A Material Al



# DOUBLE RIDGED WAVEGUIDE COUPLERS



## → Features

Waveguide size: WRD84 to WRD180

Coupling: 10-60dB

Material: Al and Cu

Flange: Cover and Grooved

Smallest coupling variation and flatness

## → Description

Dolph Microwave Double ridged waveguide couplers is high power handling, high coupling and high directivity. Both Al and Cu material are all available. Type available in Broadwall and loop coupler. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Coupling (dB)	Directivity (dB)	Accuracy (dB)	Freq. Sensitivity (dB)
DH-84DRWC...	WRD84	0.84-2.0	Fullband	1.1	10-60	20-35	± 0.7	± 1
DH-150DRWC...	WRD150	1.5-3.6	Fullband	1.1	10-60	20-35	± 0.7	± 1
DH-200DRWC...	WRD200	2.0-4.8	Fullband	1.1	10-60	20-35	± 0.7	± 1
DH-250DRWC...	WRD250	2.6-7.8	Fullband	1.1	10-60	20-35	± 0.7	± 1
DH-350DRWC...	WRD350	3.5-8.2	Fullband	1.1	10-60	20-35	± 0.7	± 1
DH-475DRWC...	WRD475	4.75-11.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-500DRWC...	WRD500	5.0-18.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-580DRWC...	WRD580	5.8-16.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-650DRWC...	WRD650	6.5-18.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-750DRWC...	WRD750	7.5-18.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-700DRWC...	WRD700	7.0-18.0	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-110DRWC...	WRD110	11.0-26.5	Fullband	1.08	10-60	20-35	± 0.7	± 1
DH-180DRWC...	WRD180	18.0-40.0	Fullband	1.1	10-60	20-35	± 0.7	± 1

Coax. Interface	Coupling Directional	Flange Type	Inside Finish	Body Finish	Material
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 650DR WC 50 N K P A

DH Dolph Microwave

650DR WRD650

WC Single Directional Couplers

WDC Dual Directional Couplers

WHC Single Loop Couplers

WDHC Dual Loop Couplers

50 Coupling 50 dB

N Connector Type

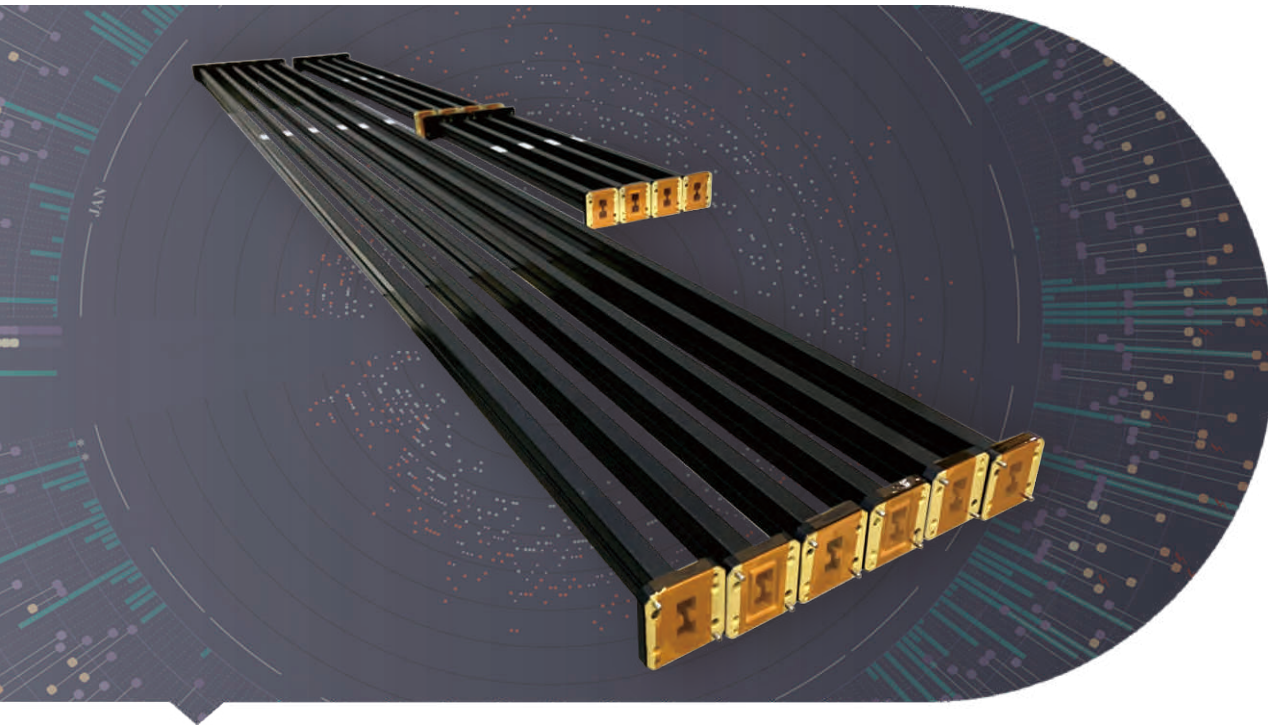
K Female

P Flange Cover

M Flange Grooved

A Material Al

# DOUBLE RIDGED WAVEGUIDE STRAIGHTS AND TRANSITIONS



## → Features

**Waveguide size:** WRD84 to WRD180  
**Length(mm):** 100, 500, 1000 or others  
**Material:** Al and Cu  
**Flange:** Cover and Grooved

## → Description

Dolph Microwave Fast delivery Double ridged waveguide straights and Transitions are optional in length and material. It is high power handling, high VSWR and insertion loss. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency(Ghz)	VSWRMax.	Length(mm)	Flange Type
DH-84DRWAL...	WRD84	0.84-2.0	1.15	0.1-500	Cover/Grooved
DH-150DRWAL...	WRD150	1.5-3.6	1.15	0.1-500	Cover/Grooved
DH-200DRWAL...	WRD200	2.0-4.8	1.15	0.1-500	Cover/Grooved
DH-250DRWAL...	WRD250	2.6-7.8	1.15	0.1-500	Cover/Grooved
DH-350DRWAL...	WRD350	3.5-8.2	1.15	0.1-500	Cover/Grooved
DH-475DRWAL...	WRD475	4.75-11.0	1.15	0.1-500	Cover/Grooved
DH-500DRWAL...	WRD500	5.0-18.0	1.15	0.1-500	Cover/Grooved
DH-580DRWAL...	WRD580	5.8-16.0	1.15	0.1-500	Cover/Grooved
DH-650DRWAL...	WRD650	6.5-18.0	1.15	0.1-500	Cover/Grooved
DH-750DRWAL...	WRD750	7.5-18.0	1.15	0.1-500	Cover/Grooved
DH-700DRWAL...	WRD700	7.0-18.0	1.15	0.1-500	Cover/Grooved
DH-110DRWAL...	WRD110	11.0-26.5	1.2	0.1-500	Cover/Grooved
DH-180DRWAL...	WRD180	18.0-40.0	1.2	0.1-500	Cover/Grooved

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

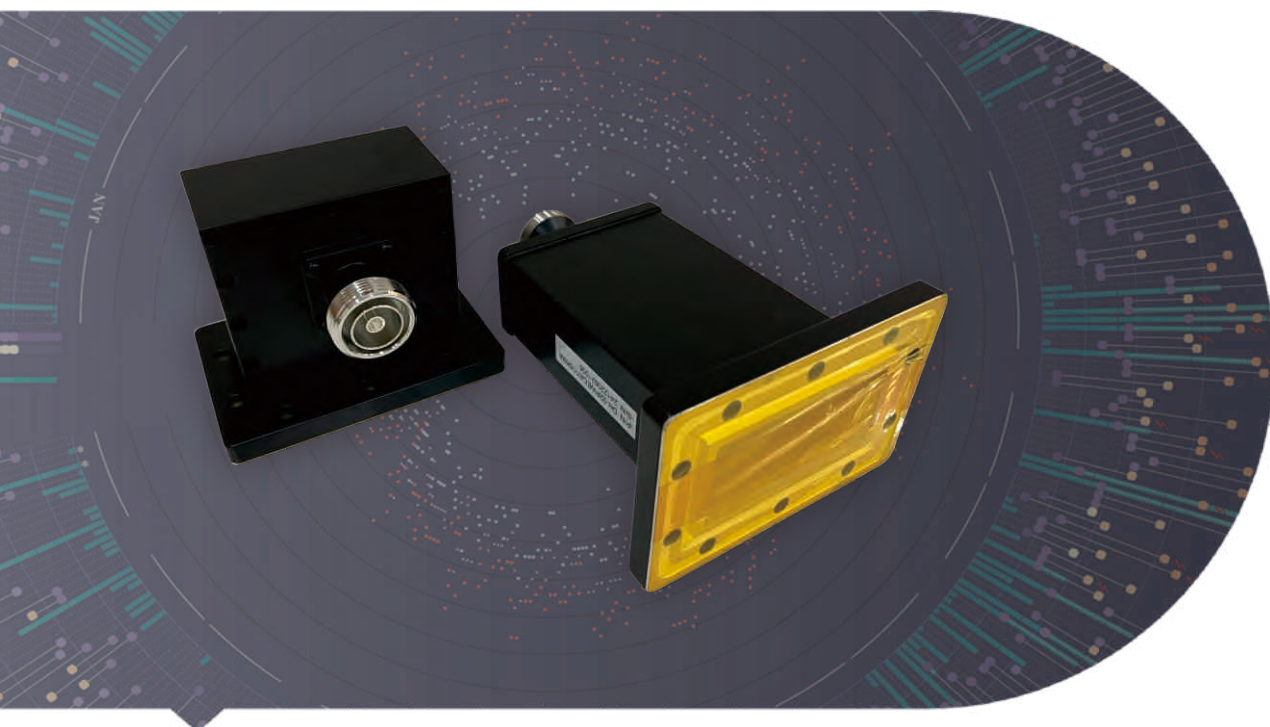
DH - 650DR WAL 100 P M A

DH	Dolph Microwave
650DR	WRD650
140T650	WR62 to WRD650
WAL	Straights Waveguide
WA	Waveguide Transition
100	L=100mm
P	Flange Cover
M	Flange Grooved
A	Material Al

# STANDARD WAVEGUIDE **COMPONENTS**



# WAVEGUIDE TO COAXIAL ADAPTER



## → Features

- Waveguide size: WR2300 to WR10
- VSWR: 1.25(Typical); 1.15(Precision)
- Connector: N, TNC, 7-16, SMA, 2.92, 2.4, 3.5(F/M)
- Configuration: End launch and right angle
- Material: Al/Cu
- Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide to coax adapters used as mode transfer from waveguide to coaxial. Al and Cu optional. Connector available in SMA, N-type and 2.92mm connector. Flange can be done as cover, grooved and choke. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL Max. (dB)	Power Rating Avg.(W)	Connector Type	Size (mm)
DH-8WCAN...	WR1150	0.64-0.98	1.2	0.15	1000	N/SMA/TNC	260*235*381
DH-9WCAN...	WR975	0.75-1.15	1.2	0.15	1000	N/SMA/TNC	231*212*336
DH-12WCAN...	WR770	0.96-1.46	1.2	0.15	1000	N/SMA/TNC	166*187*285
DH-14WCAN...	WR650	1.13-1.73	1.2	0.15	1000	N/SMA/TNC	150*138*220
DH-18WCAN...	WR510	1.45-2.20	1.2	0.15	800	N/SMA/TNC	120*120*185
DH-22WCAN...	WR430	1.72-2.61	1.2	0.2	800	N/SMA/TNC	100*106*161
DH-26WCAN...	WR340	2.17-3.30	1.2	0.2	800	N/SMA/TNC	90*95*138
DH-32WCAN...	WR284	2.60-3.95	1.2	0.2	800	N/SMA/TNC	72*76*114
DH-40WCAN...	WR229	3.22-4.90	1.2	0.2	800	N/SMA/TNC	65*70*98
DH-48WCAN...	WR187	3.94-5.99	1.2	0.2	800	N/SMA/TNC	54*63*89
DH-58WCAN...	WR159	4.64-7.05	1.2	0.2	800	N/SMA/TNC	50*62*81
DH-70WCAN...	WR137	5.38-8.17	1.2	0.2	800	N/SMA/TNC	48*49*68
DH-84WCAN...	WR112	6.57-9.99	1.2	0.2	800	N/SMA/TNC	40*48*48
DH-100WCAN...	WR90	8.20-12.40	1.2	0.2	150	N/SMA/TNC	38*41*41
DH-120WCAN...	WR75	9.84-15.0	1.2	0.2	150	N/SMA/TNC	30*38*38
DH-140WCAN...	WR62	11.9-18.0	1.2	0.2	150	N/SMA/TNC	27*33*33
DH-180WCAS...	WR51	14.5-22.0	1.2	0.2	100	SMA/2.92	27*30*30
DH-220WCAS...	WR42	17.6-26.7	1.2	0.2	100	SMA/2.92	25*22*22
DH-260WCAS...	WR34	21.7-33.0	1.2	0.2	100	SMA/2.92	33*21*21
DH-320WCAS...	WR28	26.3-40.0	1.2	0.2	100	SMA/2.92	25*19*19
DH-400WCAS...	WR22	33.0-50.0	1.5	0.8	50	2.4/1.85	27*28.6*28.6
DH-500WCA1.85...	WR19	40.0-60.0	1.5	0.8	50	2.4/1.85	27*28.6*28.6
DH-620WCA1.85...	WR15	55.0-65.0	1.5	1.0	50	1.0	30*19.1*19.1
DH-740WCA1.0...	WR12	60.5-91.9	1.5	1.0	10	1.0	28*28.6*28.6
DH-900WCA1.0...	WR10	73.8-112.0	1.5	1.0	10	1.0	22*19.1*19.1

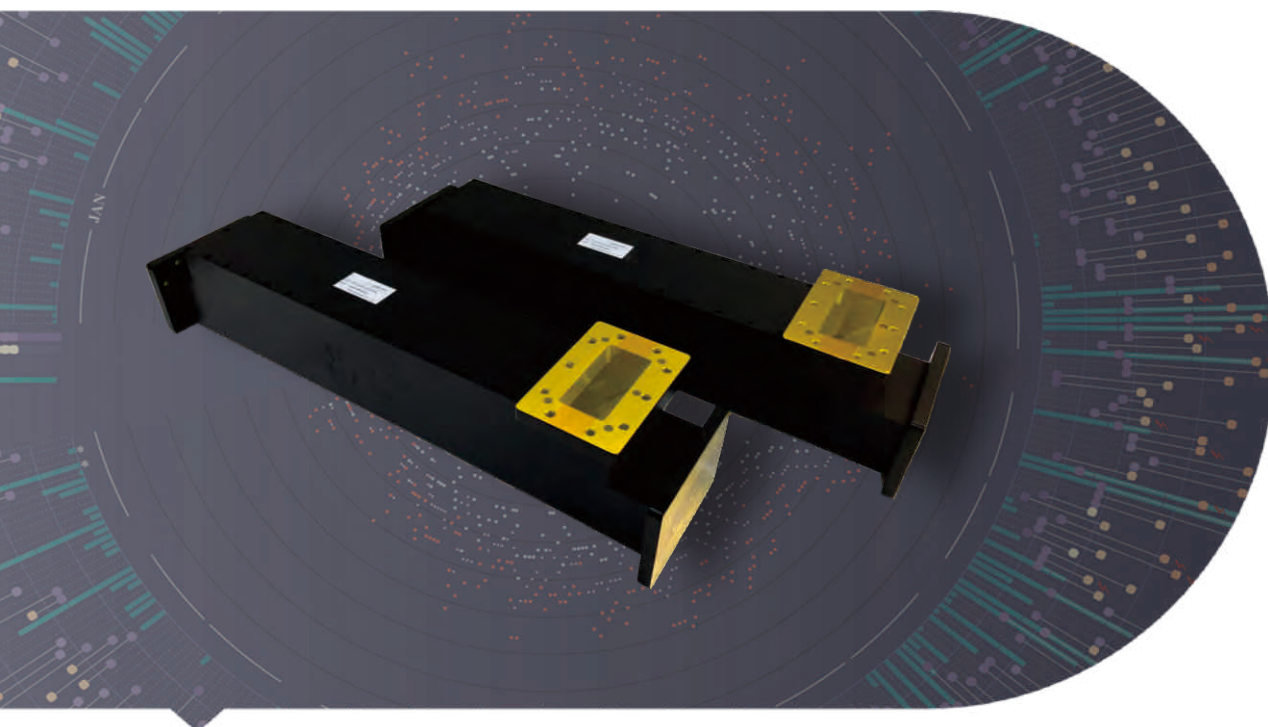
Body Geometry	Flange Type	Inside Finish	Body Finish	Material
Right Angle/End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Right Angle/End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Right Angle/End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Right Angle/End Launch	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

### Ordering Information

#### DH - 120 WCA N K P A

DH	Dolph Microwave
120	WR75
WCA	Right Angle
WECA	End Launch
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# BROADWALL DIRECTIONAL COUPLER



## → Features

**Waveguide size:** WR2300 to WR10

**Coupling:** up to 60dB

**Directivity:** 20-40dB

**Flange:** Cover, Grooved and Choke

**Connector:** N, SMA, 2.92 or others

**Type:** Flange and Coaxial port

**Material:** Al or Cu

## → Description

Dolph Microwave broadwall directional coupler is high coupling, high directivity covers wide frequency range. Available in multiple flanges and coaxial connector types. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Coupling (dB)	Directivity (dB)	Accuracy (dB)	Freq. Sensitivity (dB)
DH-14WC...	WR650	1.13-1.73	Fullband	1.1	3-60	20-38	±0.7	±1
DH-18WC...	WR510	1.45-2.20	Fullband	1.1	3-60	20-38	±0.7	±1
DH-22WC...	WR430	1.72-2.61	Fullband	1.1	3-60	20-38	±0.7	±1
DH-26WC...	WR340	2.17-3.30	Fullband	1.1	3-60	20-38	±0.7	±1
DH-32WC...	WR284	2.60-3.95	Fullband	1.1	3-60	20-38	±0.7	±1
DH-40WC...	WR229	3.22-4.90	Fullband	1.08	3-60	20-38	±0.7	±1
DH-48WC...	WR187	3.94-5.99	Fullband	1.08	3-60	20-38	±0.7	±1
DH-58WC...	WR159	4.64-7.05	Fullband	1.08	3-60	20-38	±0.7	±1
DH-70WC...	WR137	5.38-8.17	Fullband	1.08	3-60	20-38	±0.7	±1
DH-84WC...	WR112	6.57-9.99	Fullband	1.08	3-60	20-38	±0.7	±1
DH-100WC...	WR90	8.20-12.40	Fullband	1.08	3-60	20-38	±0.7	±1
DH-120WC...	WR75	9.84-15.0	Fullband	1.08	3-60	20-38	±0.7	±1
DH-140WC...	WR62	11.9-18.0	Fullband	1.1	3-60	20-38	±0.7	±1
DH-180WC...	WR51	14.5-22.0	Fullband	1.1	3-60	20-38	±0.7	±1
DH-220WC...	WR42	17.6-26.7	Fullband	1.1	3-60	20-38	±0.7	±1
DH-260WC...	WR34	21.7-33.0	Fullband	1.1	3-60	20-38	±0.7	±1
DH-320WC...	WR28	26.3-40.0	Fullband	1.1	3-60	20-38	±0.7	±1
DH-400WC...	WR22	33.0-50.0	Fullband	1.1	3-60	20-38	±0.7	±1
DH-500WC...	WR19	40.0-60.0	Fullband	1.1	3-60	20-38	±0.7	±1

Coax. Interface	Coupling Directional	Flange Type	Inside Finish	Body Finish	Material
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

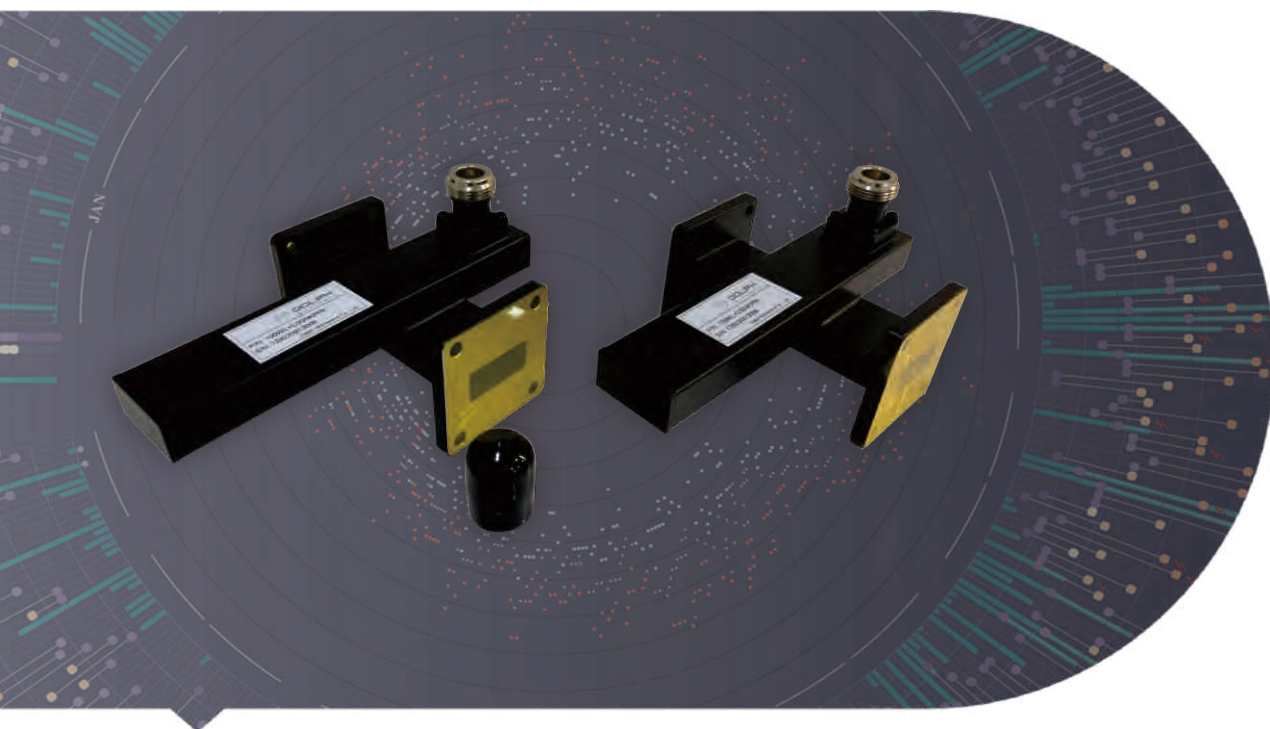
DH - 120 WC 50 N K P A

DH	Dolph Microwave
120	WR75
WC	Single Directional Couplers
WDC	Dual Directional Couplers
50	Coupling 50 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al



# CROSSGUIDE

## DIRECTIONAL COUPLER



### → Features

- Waveguide size: WR2300 to WR10
- Coupling: up to 60dB
- Directivity: 25-30dB
- Flange: Cover, Grooved and Choke
- Type: Single arm, Dual arm, Multi arm
- Connectors: N, SMA, 2.92
- Material: Al or Cu

### → Description

Dolph Microwave Crossguide directional couplers is selected Single or Multiport Configurations, Forward and/or Reflected power monitoring. Covering a wide frequency range. Available with multiple flange and coaxial connector types. Configurations cover all requirements you may have for microwave couplers. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Coupling (dB)	Directivity (dB)	Accuracy (dB)	Freq. Sensitivity (dB)
DH-14WL+C...	WR650	1.13-1.73	Fullband	1.1	18-60	25-30	±0.7	±1
DH-18WL+C...	WR510	1.45-2.20	Fullband	1.1	18-60	25-30	±0.7	±1
DH-22WL+C...	WR430	1.72-2.61	Fullband	1.1	18-60	25-30	±0.7	±1
DH-26WL+C...	WR340	2.17-3.30	Fullband	1.1	18-60	25-30	±0.7	±1
DH-32WL+C...	WR284	2.60-3.95	Fullband	1.1	18-60	25-30	±0.7	±1
DH-40WL+C...	WR229	3.22-4.90	Fullband	1.1	18-60	25-30	±0.7	±1
DH-48WL+C...	WR187	3.94-5.99	Fullband	1.1	18-60	25-30	±0.7	±1
DH-58WL+C...	WR159	4.64-7.05	Fullband	1.1	18-60	25-30	±0.7	±1
DH-70WL+C...	WR137	5.38-8.17	Fullband	1.1	18-60	25-30	±0.7	±1
DH-84WL+C...	WR112	6.57-9.99	Fullband	1.1	18-60	25-30	±0.7	±1
DH-100WL+C...	WR90	8.20-12.40	Fullband	1.1	18-60	25-30	±0.7	±1
DH-120WL+C...	WR75	9.84-15.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-140WL+C...	WR62	11.9-18.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-180WL+C...	WR51	14.5-22.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-220WL+C...	WR42	17.6-26.7	Fullband	1.1	18-60	25-30	±0.7	±1
DH-260WL+C...	WR34	21.7-33.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-320WL+C...	WR28	26.3-40.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-400WL+C...	WR22	33.0-50.0	Fullband	1.1	18-60	25-30	±0.7	±1
DH-500WL+C...	WR19	40.0-60.0	Fullband	1.1	18-60	25-30	±0.7	±1

Coax. Interface	Coupling Directional	Flange Type	Inside Finish	Body Finish	Material
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Coax./Flange	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

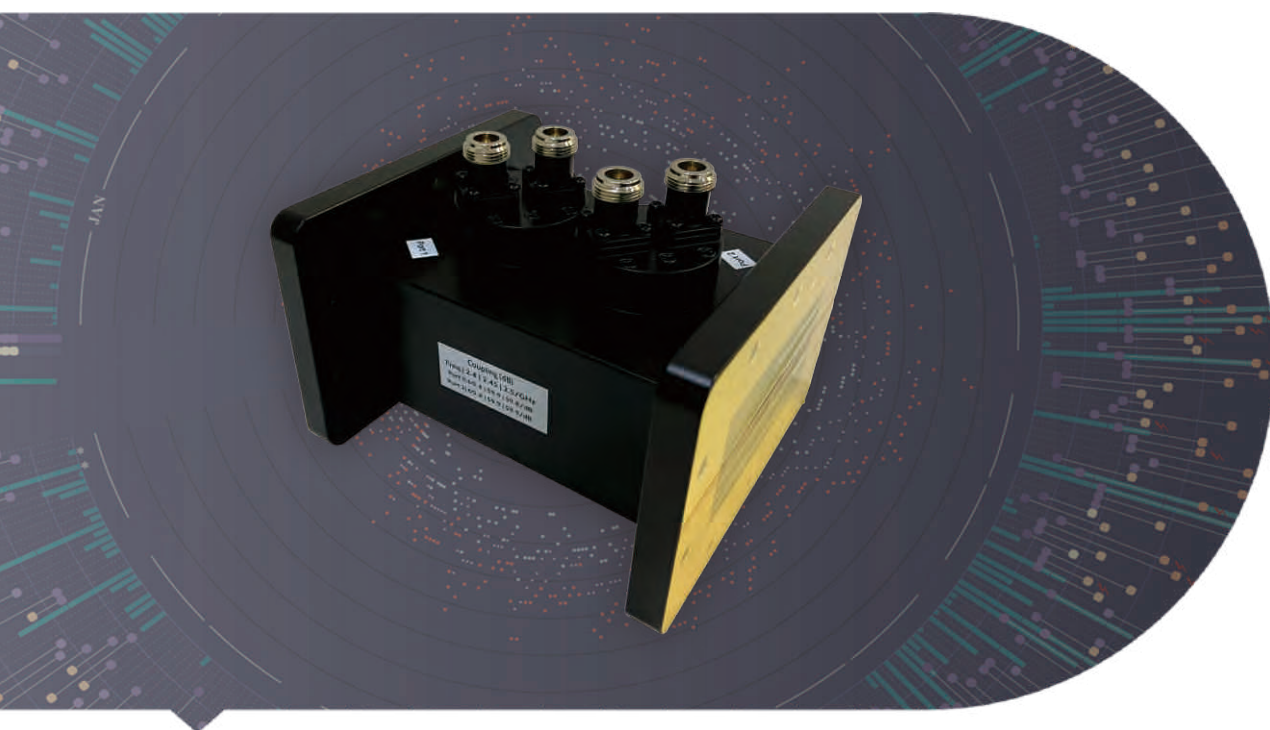
### Ordering Information

DH - 120 WL+C 50 N K P A

DH	Dolph Microwave
120	WR75
WL+C	Single Crossguide Couplers
WL+2C	Dual Arm Crossguide Couplers
50	Coupling 50 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al



# WAVEGUIDE LOOP COUPLER



## → Features

**Waveguide size:** WR2300 to WR10

**Coupling:** up to 60dB

**Directivity:** 20-25dB

**Flange:** Cover, Grooved and Choke

**Material:** Al or Cu

## → Description

Dolph Microwave waveguide loop couplers is compact structure, high coupling and high power handling. Multiple flange and coaxial connector types are available. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Coupling (dB)	Directivity (dB)	Accuracy (dB)	Freq. Sensitivity (dB)
DH-14WHC...	WR650	1.13-1.73	10-20%	1.1	30-70	20-25	±0.7	±1
DH-18WHC...	WR510	1.45-2.20	10-20%	1.1	30-70	20-25	±0.7	±1
DH-22WHC...	WR430	1.72-2.61	10-20%	1.1	30-70	20-25	±0.7	±1
DH-26WHC...	WR340	2.17-3.30	10-20%	1.1	30-70	20-25	±0.7	±1
DH-32WHC...	WR284	2.60-3.95	10-20%	1.1	30-70	20-25	±0.7	±1
DH-40WHC...	WR229	3.22-4.90	10-20%	1.1	30-70	20-25	±0.7	±1
DH-48WHC...	WR187	3.94-5.99	10-20%	1.1	30-70	20-25	±0.7	±1
DH-58WHC...	WR159	4.64-7.05	10-20%	1.1	30-70	20-25	±0.7	±1
DH-70WHC...	WR137	5.38-8.17	10-20%	1.1	30-70	20-25	±0.7	±1
DH-84WHC...	WR112	6.57-9.99	10-20%	1.1	30-70	20-25	±0.7	±1
DH-100WHC...	WR90	8.20-12.40	10-20%	1.1	30-70	20-25	±0.7	±1
DH-120WHC...	WR75	9.84-15.0	10-20%	1.1	30-70	20-25	±0.7	±1
DH-140WHC...	WR62	11.9-18.0	10-20%	1.1	30-70	20-25	±0.7	±1
DH-180WHC...	WR51	14.5-22.0	10-20%	1.1	30-70	20-25	±0.7	±1
DH-220WHC...	WR42	17.6-26.7	10-20%	1.1	30-70	20-25	±0.7	±1
DH-260WHC...	WR34	21.7-33.0	10-20%	1.1	30-70	20-25	±0.7	±1
DH-320WHC...	WR28	26.3-40.0	10-20%	1.1	30-70	20-25	±0.7	±1

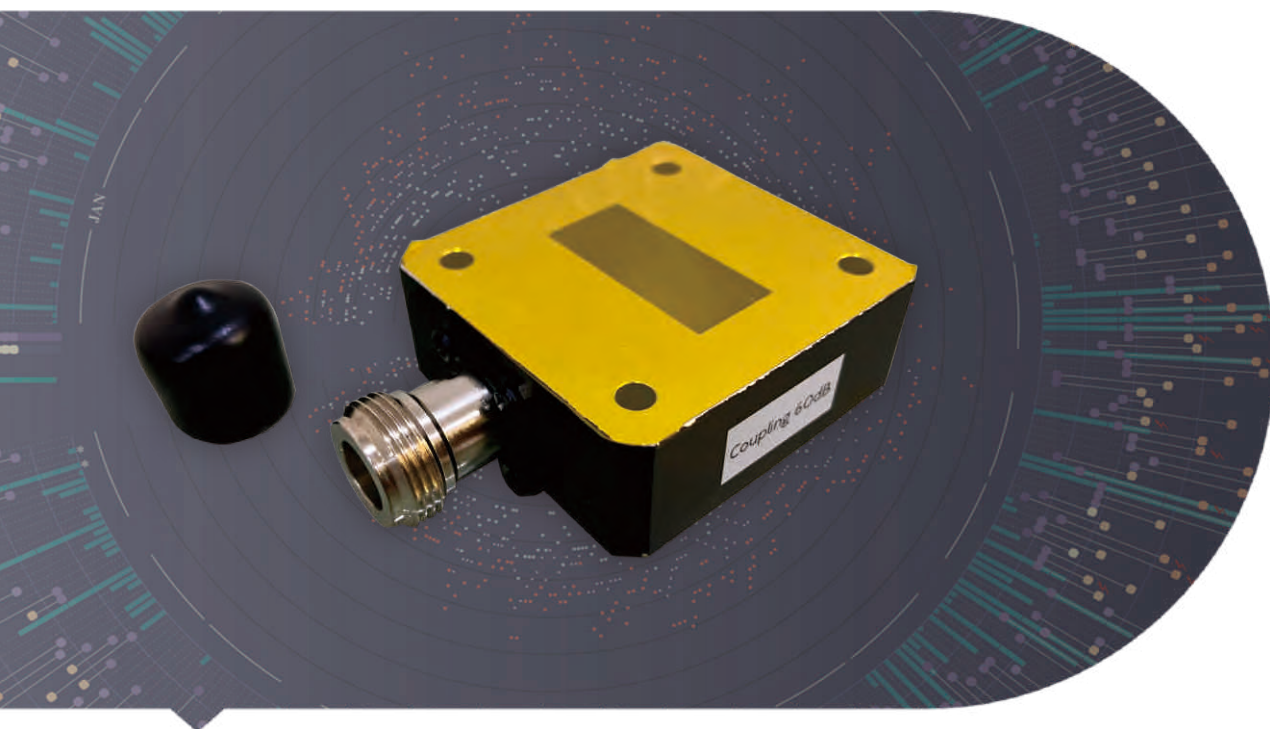
Coax. Interface	Coupling Directional	Flange Type	Inside Finish	Body Finish	Material
N/SMA/TNC	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
N/SMA/TNC	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
N/SMA/TNC	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
N/SMA	Single/Dual	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 120 WHC 50 N K P A

DH	Dolph Microwave
120	WR75
WHC	Single Loop Couplers
WDHC	Dual Loop Couplers
50	Coupling 50 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE HIGH PROBE COUPLER



## → Features

Waveguide size: WR2300 to Wr10

Coupling: up to 60dB

Connector: N, TNC,7-16, SMA, 2.92, 2.4, 3.5(F/M)

Material: Al/Cu

Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide probe coupler is available in waveguide size from WR2300 to WR10. Al and Cu optional. Connector available in SMA, N-type and 2.92mm connector. Flange can be done as cover, grooved and choke. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Coupling (dB)	Accuracy (dB)	Pressure (Mpa)	Coupling Interface
DH-14WPC...	WR650	1.13-1.73	1.1	20-60	±1	0.3	N/SMA/TNC
DH-18WPC...	WR510	1.45-2.20	1.1	20-60	±1	0.3	N/SMA/TNC
DH-22WPC...	WR430	1.72-2.61	1.1	20-60	±1	0.3	N/SMA/TNC
DH-26WPC...	WR340	2.17-3.30	1.1	20-60	±1	0.3	N/SMA
DH-32WPC...	WR284	2.60-3.95	1.1	20-60	±1	0.3	N/SMA
DH-40WPC...	WR229	3.22-4.90	1.1	20-60	±1	0.3	N/SMA
DH-48WPC...	WR187	3.94-5.99	1.1	20-60	±1	0.3	N/SMA
DH-58WPC...	WR159	4.64-7.05	1.1	20-60	±1	0.3	N/SMA
DH-70WPC...	WR137	5.38-8.17	1.1	20-60	±1	0.3	N/SMA
DH-84WPC...	WR112	6.57-9.99	1.1	20-60	±1	0.3	N/SMA
DH-100WPC...	WR90	8.20-12.40	1.1	20-60	±1	0.3	N/SMA
DH-120WPC...	WR75	9.84-15.0	1.1	20-60	±1	0.3	SMA/2.92
DH-140WPC...	WR62	11.9-18.0	1.1	20-60	±1	0.3	SMA/2.92
DH-180WPC...	WR51	14.5-22.0	1.1	20-60	±1	0.3	SMA/2.92
DH-220WPC...	WR42	17.6-26.7	1.1	20-60	±1	0.3	SMA/2.92
DH-260WPC...	WR34	21.7-33.0	1.1	20-60	±1	0.3	SMA/2.92
DH-320WPC...	WR28	26.3-40.0	1.1	20-60	±1	0.3	SMA/2.92

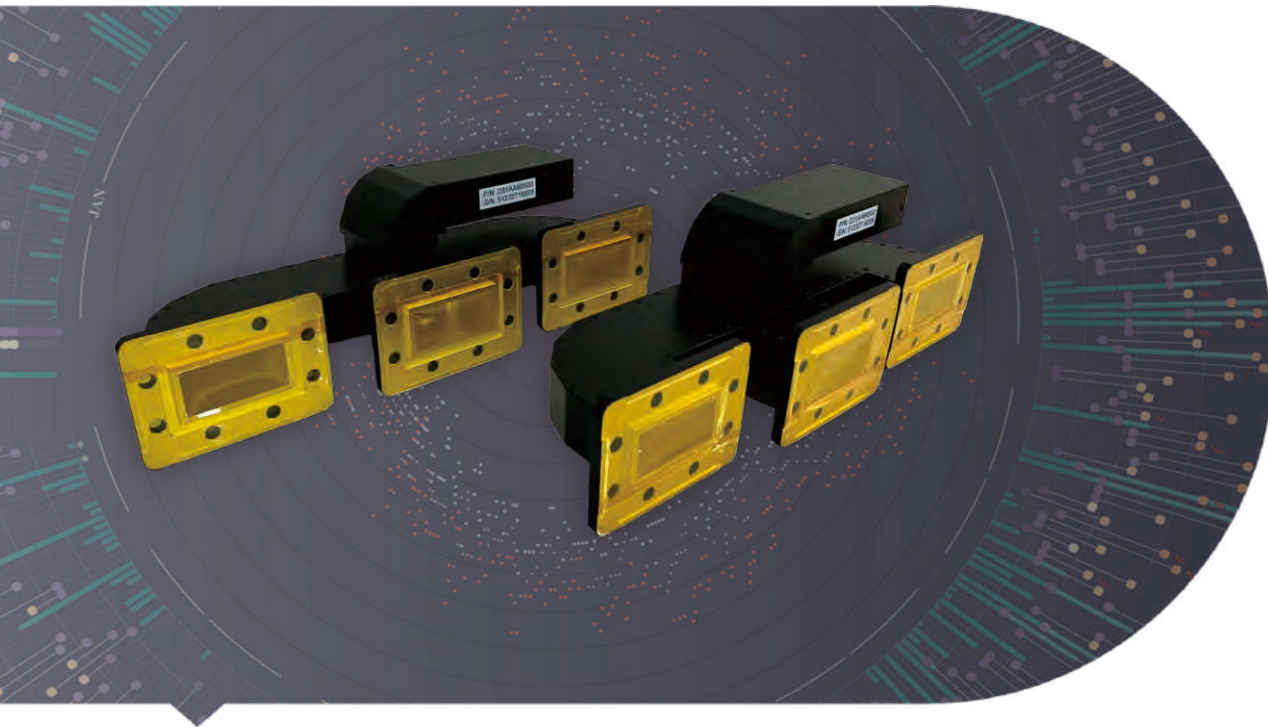
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 120 WPC 50 N K P M A

DH	Dolph Microwave
120	WR75
WPC	Waveguide Probe Coupler
50	Coupling 50 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# WG POWER DIVIDER\_COMBINER IN PHASE 90°



## → Features

Waveguide size: WR2300 to WR10

Ways: 2, 4, 6, 12 ways and others.

Material: Al/Cu

Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide Power Divider/Combiner in phase 90° is to have two equal microwave power outputs on the aspects of both the magnitude and the phase. It can bear high power handling. Flange can be done as cover, grooved and choke. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Balance (dB)	Coupling (dB)	Isolation (dB)
DH-14WCDW...	WR650	1.13-1.73	10-20%	1.15	0.15	3	26
DH-18WCDW...	WR510	1.45-2.20	10-20%	1.15	0.15	3	26
DH-22WCDW...	WR430	1.72-2.61	10-20%	1.15	0.15	3	26
DH-26WCDW...	WR340	2.17-3.30	10-20%	1.15	0.15	3	26
DH-32WCDW...	WR284	2.60-3.95	10-20%	1.15	0.15	3	26
DH-40WCDW...	WR229	3.22-4.90	10-20%	1.15	0.15	3	26
DH-48WCDW...	WR187	3.94-5.99	10-20%	1.15	0.15	3	26
DH-58WCDW...	WR159	4.64-7.05	10-20%	1.15	0.15	3	26
DH-70WCDW...	WR137	5.38-8.17	10-20%	1.15	0.15	3	26
DH-84WCDW...	WR112	6.57-9.99	10-20%	1.15	0.15	3	26
DH-100WCDW...	WR90	8.20-12.40	10-20%	1.15	0.15	3	26
DH-120WCDW...	WR75	9.84-15.0	10-20%	1.15	0.15	3	26
DH-140WCDW...	WR62	11.9-18.0	10-20%	1.15	0.15	3	26
DH-180WCDW...	WR51	14.5-22.0	10-20%	1.15	0.15	3	26
DH-220WCDW...	WR42	17.6-26.7	10-20%	1.15	0.15	3	26
DH-260WCDW...	WR34	21.7-33.0	10-20%	1.15	0.15	3	26
DH-320WCDW...	WR28	26.3-40.0	10-20%	1.15	0.15	3	26

Ways	Flange Type	Inside Finish	Body Finish	Material
2/4/6/8...	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4/6/8...	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4/6/8...	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
2/4/6/8...	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

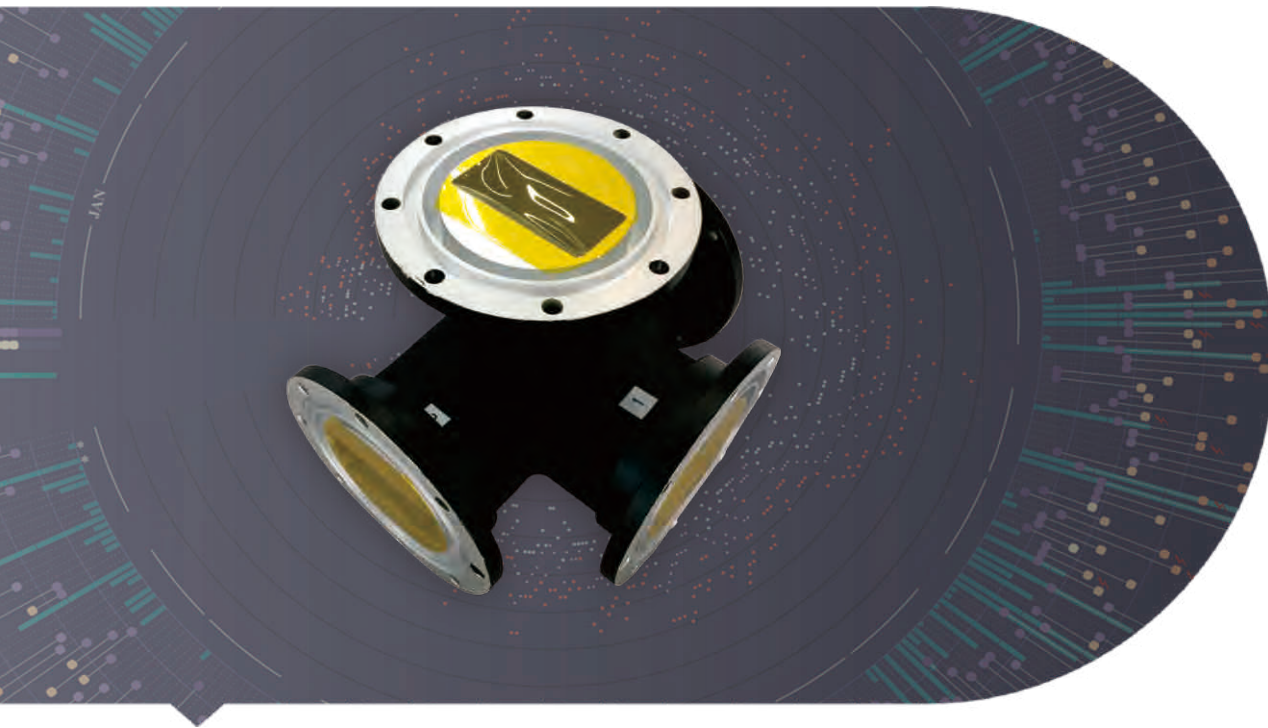
## Ordering Information

### DH - 120 WCDW I 3 1\_4 P A 1000

DH	Dolph Microwave
120	WR75
WCDW	Divider_Combiner
I	Isolation
3	3 dB
1_4	4 ways
P	Flange Cover
M	Flange Grooved
A	Material Al
1000	Handling Power 1000W CW



# WAVEGUIDE MAGIC TEE, HYBRID TEE, E\_H TEE



## → Features

- Waveguide size: WR2300 to WR10
- Isolation: 30dB
- VSWR: 1.2-1.5
- Material: Al/Cu
- Flange: Cover, Grooved and Choke
- Surface treatment: Nickel, Tin, Silver and Gold plating

## → Description

Dolph Microwave waveguide magic tee is a hybrid or 3dB coupler used in microwave systems with high power, high isolation and phase separation. Optional with pressure sealing. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Isolation (dB)	Unbalance (dB)	Coupling (dB)
DH-8WMT...	WR1150	0.64-0.98	Fullband	1.2	35	0.25	3
DH-9WMT...	WR975	0.75-1.15	Fullband	1.2	35	0.25	3
DH-12WMT...	WR770	0.96-1.46	Fullband	1.2	35	0.25	3
DH-14WMT...	WR650	1.13-1.73	Fullband	1.2	35	0.25	3
DH-18WMT...	WR510	1.45-2.20	Fullband	1.2	35	0.25	3
DH-22WMT...	WR430	1.72-2.61	Fullband	1.2	35	0.25	3
DH-26WMT...	WR340	2.17-3.30	Fullband	1.2	35	0.25	3
DH-32WMT...	WR284	2.60-3.95	Fullband	1.2	35	0.25	3
DH-40WMT...	WR229	3.22-4.90	Fullband	1.2	35	0.25	3
DH-48WMT...	WR187	3.94-5.99	Fullband	1.2	35	0.25	3
DH-58WMT...	WR159	4.64-7.05	Fullband	1.2	35	0.25	3
DH-70WMT...	WR137	5.38-8.17	Fullband	1.2	35	0.25	3
DH-84WMT...	WR112	6.57-9.99	Fullband	1.2	35	0.25	3
DH-100WMT...	WR90	8.20-12.40	Fullband	1.2	35	0.25	3
DH-120WMT...	WR75	9.84-15.0	Fullband	1.2	35	0.25	3
DH-140WMT...	WR62	11.9-18.0	Fullband	1.2	35	0.25	3
DH-180WMT...	WR51	14.5-22.0	Fullband	1.2	35	0.25	3
DH-220WMT...	WR42	17.6-26.7	Fullband	1.2	35	0.25	3
DH-260WMT...	WR34	21.7-33.0	Fullband	1.2	35	0.25	3
DH-320WMT...	WR28	26.3-40.0	Fullband	1.2	35	0.25	3
DH-400WMT...	WR22	33.0-50.0	Fullband	1.5	35	0.25	3
DH-500WMT...	WR19	40.0-60.0	Fullband	1.5	35	0.25	3
DH-620WMT...	WR15	55.0-65.0	Fullband	1.5	35	0.25	3
DH-740WMT...	WR12	60.5-91.9	Fullband	1.5	35	0.25	3
DH-900WMT...	WR10	73.8-112.0	Fullband	1.5	35	0.25	3

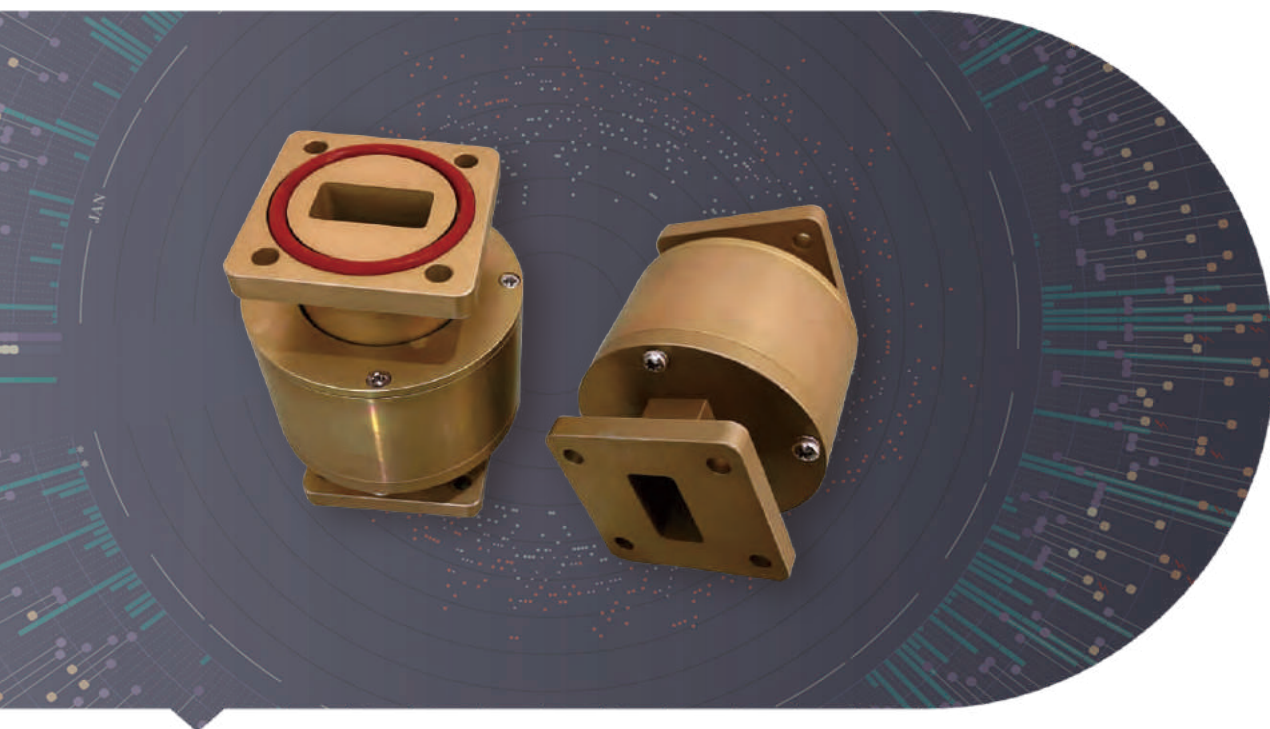
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 120 WMT P A 500

DH	Dolph Microwave
120	WR75
WMT	Waveguide Magic Tee
P	Flange Cover
M	Flange Grooved
A	Material Al
500	Handling Power 500W CW

# WAVEGUIDE ROTARY JOINT



## → Features

- Waveguide size: WR2300 to WR10
- Channel: Single or dual channel
- Type: L, I and U
- Material: Al and Cu
- Flange: Cover and Grooved
- Pressure and non-pressure optional

## → Description

Dolph Microwave waveguide rotary joint is high power handling, high rotary speed. Optional in pressure, leakage and torque. Single and dual channel is selectable. Both L, I and U shaped are all available. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	Isolation (dB)	IL (dB)	IP Level	Lifetime
DH-14WRJI/L/U...	WR650	1.13-1.73	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-18WRJI/L/U...	WR510	1.45-2.20	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-22WRJI/L/U...	WR430	1.72-2.61	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-26WRJI/L/U...	WR340	2.17-3.30	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-32WRJI/L/U...	WR284	2.60-3.95	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-40WRJI/L/U...	WR229	3.22-4.90	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-48WRJI/L/U...	WR187	3.94-5.99	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-58WRJI/L/U...	WR159	4.64-7.05	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-70WRJI/L/U...	WR137	5.38-8.17	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-84WRJI/L/U...	WR112	6.57-9.99	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-100WRJI/L/U...	WR90	8.20-12.40	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-120WRJI/L/U...	WR75	9.84-15.0	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-140WRJI/L/U...	WR62	11.9-18.0	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-180WRJI/L/U...	WR51	14.5-22.0	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-220WRJI/L/U...	WR42	17.6-26.7	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-260WRJI/L/U...	WR34	21.7-33.0	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>
DH-320WRJI/L/U...	WR28	26.3-40.0	10-20%	1.2	55	0.25	IP65	50 x 10 <sup>6</sup>

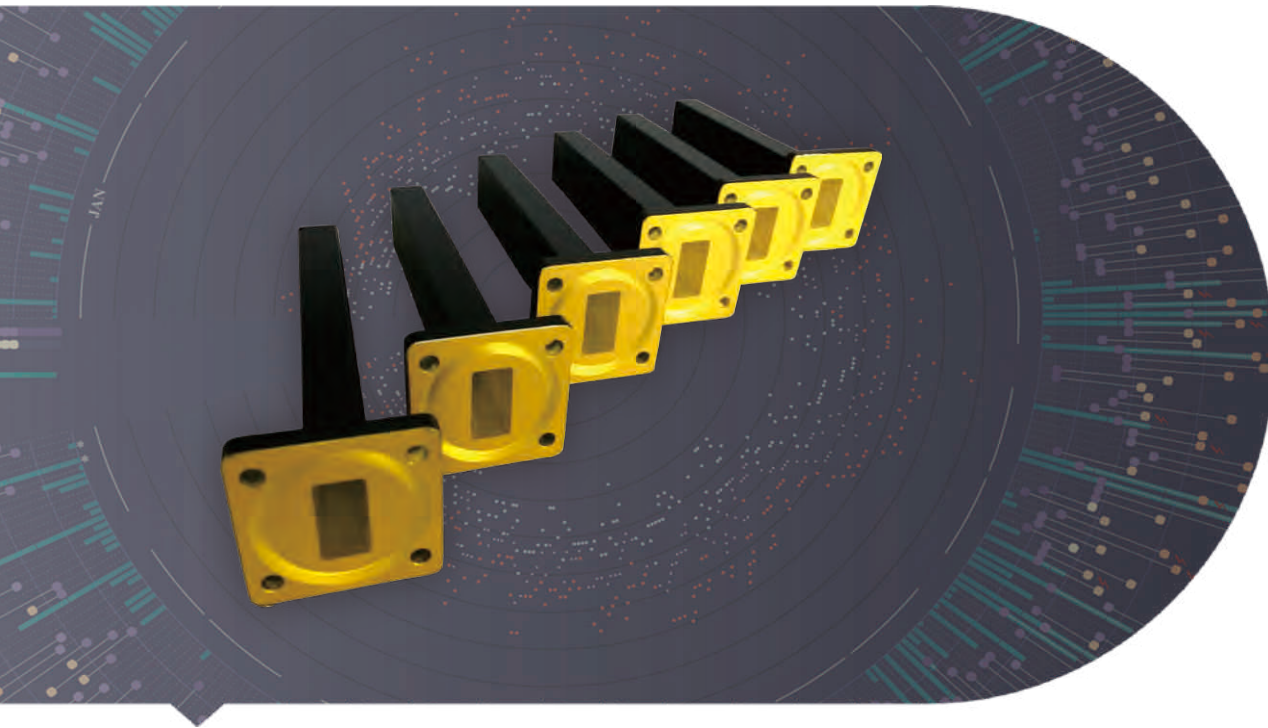
Vibration	Style	Flange Type	Inside Finish	Body Finish	Material
6 G. RMS	I/L/M	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
6 G. RMS	I/L/M	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
6 G. RMS	I/L/M	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
6 G. RMS	I/L/M	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 120 WRJ I P M A 1000

DH	Dolph Microwave
120	WR75
WRJ	Waveguide Rotary Joint
I	Type-I
L	Type-L
U	Type-U
I+U	I+U Dual-channel Rotary Joint
P	Flange Cover
M	Flange Grooved
A	Material Al
1000	Handling Power 1000W CW

# LOW POWER TERMINATION, WAVEGUIDE MINI TERMINATION



## → Features

Waveguide size: WR2300 to WR10

Average Power: 1-20W

Flange: Cover, Grooved and Choke

Material: Al or Cu

Mini size

## → Description

Dolph Microwave Low power and Mini termination is featured with fast delivery, small size. Power handling is available within 20W. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Average Power (W)	Size (mm)
DH-14WML1.2...	WR650	1.13-1.73	1.2	20	210*220*138
DH-18WML1.2...	WR510	1.45-2.20	1.2	20	180*185*120
DH-22WML1.2...	WR430	1.72-2.61	1.2	20	150*161*106
DH-26WML1.2...	WR340	2.17-3.30	1.2	20	130*138*95
DH-32WML1.2...	WR284	2.60-3.95	1.2	20	110*114*76
DH-40WML1.2...	WR229	3.22-4.90	1.2	20	90*98*69
DH-48WML1.2...	WR187	3.94-5.99	1.2	20	85*89*63
DH-58WML1.2...	WR159	4.64-7.05	1.2	20	75*81*62
DH-70WML1.2...	WR137	5.38-8.17	1.2	20	65*68*49
DH-84WML1.2...	WR112	6.57-9.99	1.2	20	60*64*45
DH-100WML1.2...	WR90	8.20-12.40	1.2	20	35*41*41
DH-120WML1.2...	WR75	9.84-15.0	1.2	20	30*38*38
DH-140WML1.2...	WR62	11.9-18.0	1.2	20	30*33*30
DH-180WML1.2...	WR51	14.5-22.0	1.2	20	28*30*30
DH-220WML1.2...	WR42	17.6-26.7	1.2	20	20*22*22
DH-260WML1.2...	WR34	21.7-33.0	1.2	20	20*21*21
DH-320WML1.2...	WR28	26.3-40.0	1.2	20	20*19*19
DH-14WL1.03...	WR650	1.13-1.73	1.03	10	640*220*138
DH-18WL1.03...	WR510	1.45-2.20	1.03	10	540*185*120
DH-22WL1.03...	WR430	1.72-2.61	1.03	10	450*161*106
DH-26WL1.03...	WR340	2.17-3.30	1.03	10	370*138*95
DH-32WL1.03...	WR284	2.60-3.95	1.03	10	300*114*76
DH-220WL1.03...	WR42	17.6-26.7	1.03	5	65*22*22
DH-260WL1.03...	WR34	21.7-33.0	1.03	5	60*21*21
DH-320WL1.03...	WR28	26.3-40.0	1.03	5	50*19*19
DH-500WL1.15...	WR19	39.2-59.6	1.15	2	φ28.6×40
DH-900WL1.15...	WR10	73.8-112.0	1.15	2	φ19.1×30

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

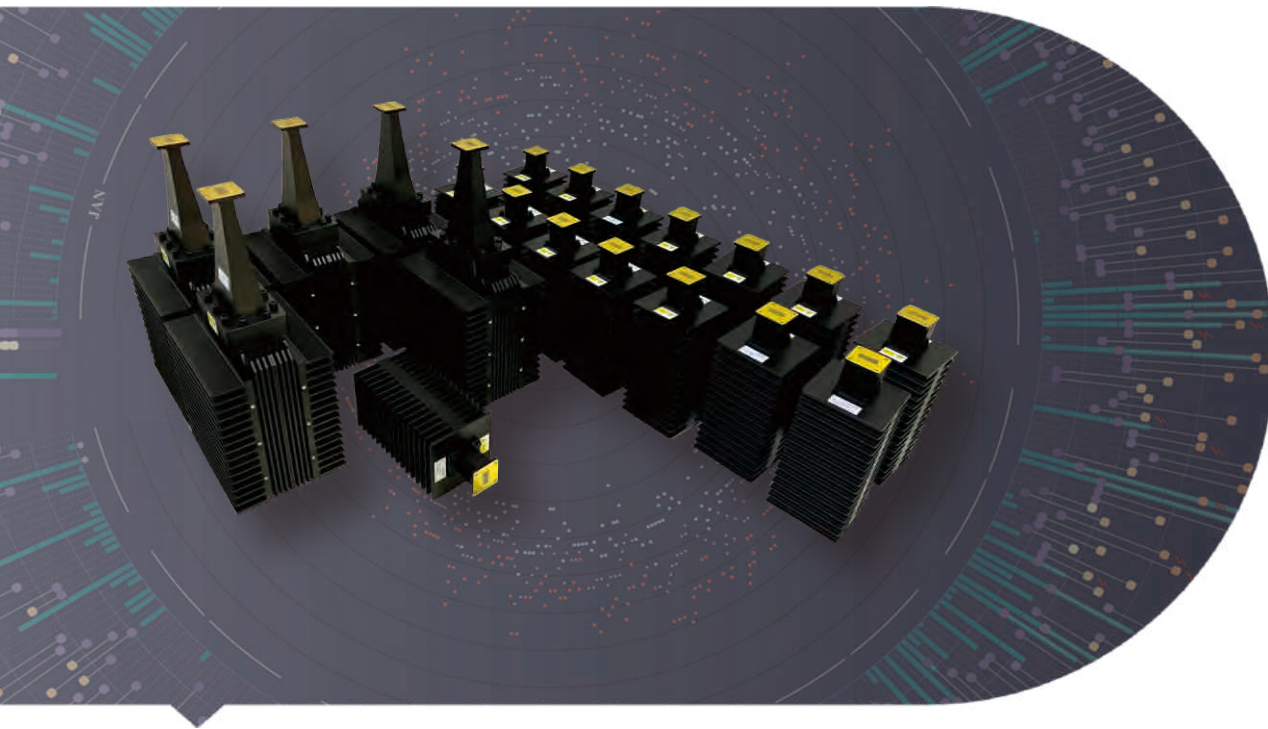
## Ordering Information

### DH - 120 WL 1.03 P A

DH	Dolph Microwave
120	WR75
WL	Low Power Termination
1.03	VSWR 1.03
P	Flange Cover
M	Flange Grooved
A	Material Al



# WAVEGUIDE HIGH POWER TERMINATION



## → Features

**Waveguide size:** WR2300 to WR10  
**Average Power:** 100 to 6000W CW or higher  
**Cooling Mode:** Air Cooling, Water Cooling  
**Flange:** Cover, Grooved and Choke  
**Material:** Al or Cu

## → Description

Dolph Microwave High Power Termination is shaped with rectangular and cylinder. One type of Ferrite waveguide components. Cooling mode available in air and water covering WR2300 to WR10. Standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Average Power (W)	Cooling Method
DH-14WHPL...	WR650	1.13-1.73	1.15	9000	Air/Water
DH-18WHPL...	WR510	1.45-2.20	1.15	8000	Air/Water
DH-22WHPL...	WR430	1.72-2.61	1.15	6000	Air/Water
DH-26WHPL...	WR340	2.17-3.30	1.15	6000	Air/Water
DH-32WHPL...	WR284	2.60-3.95	1.15	6000	Air/Water
DH-40WHPL...	WR229	3.22-4.90	1.15	5500	Air/Water
DH-48WHPL...	WR187	3.94-5.99	1.15	5000	Air/Water
DH-58WHPL...	WR159	4.64-7.05	1.15	5000	Air/Water
DH-70WHPL...	WR137	5.38-8.17	1.15	5000	Air/Water
DH-84WHPL...	WR112	6.57-9.99	1.15	5000	Air/Water
DH-100WHPL...	WR90	8.20-12.40	1.15	5000	Air/Water
DH-120WHPL...	WR75	9.84-15.0	1.15	5000	Air/Water
DH-140WHPL...	WR62	11.9-18.0	1.15	2500	Air/Water
DH-180WHPL...	WR51	14.5-22.0	1.15	2500	Air/Water
DH-220WHPL...	WR42	17.6-26.7	1.15	2500	Air/Water
DH-260WHPL...	WR34	21.7-33.0	1.15	2500	Air/Water
DH-320WHPL...	WR28	26.3-40.0	1.15	2500	Air/Water
DH-400WHPL...	WR22	32.9-50.1	1.15	1500	Air/Water
DH-500WHPL...	WR19	39.2-59.6	1.15	1500	Air/Water

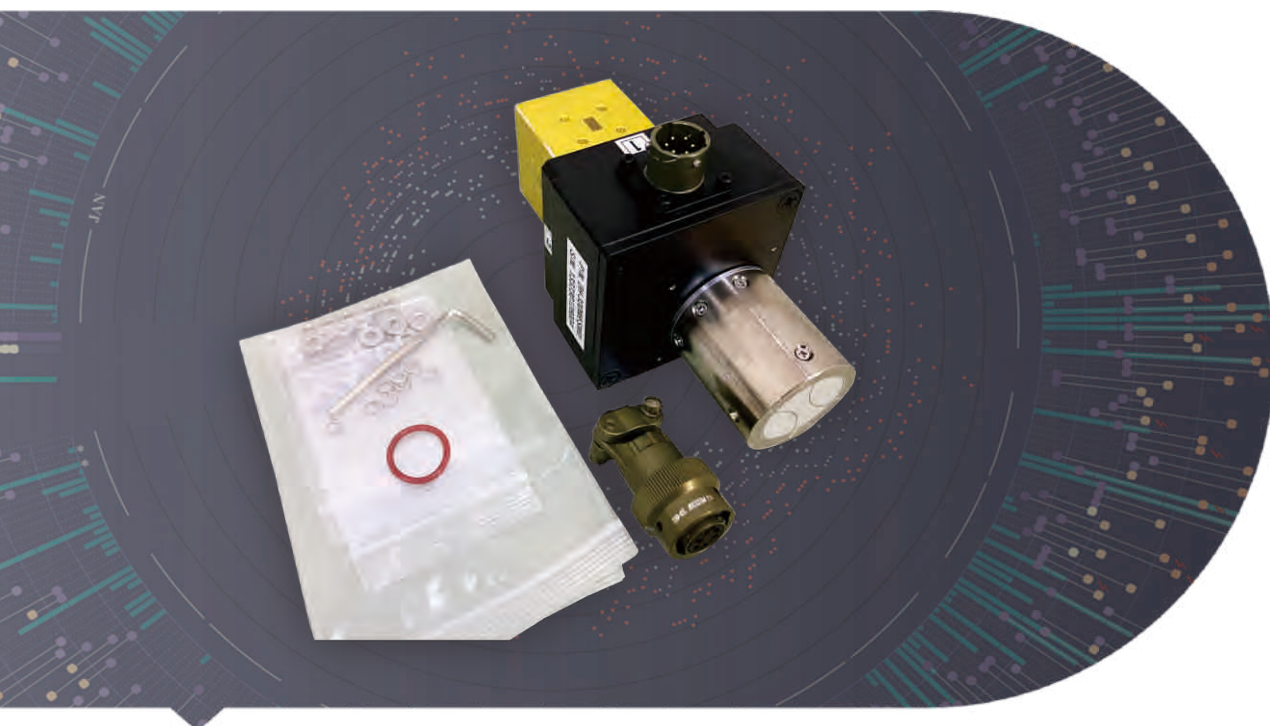
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 120 WHPL 1000 P A

DH	Dolph Microwave
120	WR75
WHPL	High Power Termination
WWHPL	Water Cooled High Power Terminations
1000	Handling Power 1000W CW
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE SWITCH



## → Features

Waveguide size: WR2300 to WR10

Switching type: SPDT or DPDT

Actuator type: Latching or Failsafe

Actuator option: TTL Logic, Self Cut Off, Window Indicator

Material: Al and Cu

Flange: Cover and Grooved

## → Description

Dolph Microwave waveguide switches is high switch speed and long life time.

Optional in 6 pin and 12 pin. It can be selected in latching and failsafe. Both

standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL (dB)	ISO. Min.(dB)	Voltage(V) Current(A)	Switching Time(msec)	Pressure (PSIG)	Ingress Protection
DH-22WESMD...	WR430	1.72-2.61	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-26WESMD...	WR340	2.17-3.30	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-32WESMD...	WR284	2.60-3.95	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-40WESMD...	WR229	3.22-4.90	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-48WESMD...	WR187	3.94-5.99	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-58WESMD...	WR159	4.64-7.05	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-70WESMD...	WR137	5.38-8.17	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-84WESMD...	WR112	6.57-9.99	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-100WESMD...	WR90	8.20-12.40	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-120WESMD...	WR75	9.84-15.0	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-140WESMD...	WR62	11.9-18.0	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-180WESMD...	WR51	14.5-22.0	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-220WESMD...	WR42	17.6-26.7	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-260WESMD...	WR34	21.7-33.0	1.1	0.15	70	18-35 / 1.5	80	30	IP67
DH-320WESMD...	WR28	26.3-40.0	1.1	0.15	70	18-35 / 1.5	80	30	IP67

Switch Type	Actuator Type	Flange Type	Inside Finish	Body Finish	Material
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
DPDT/SPDT	Latching	Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

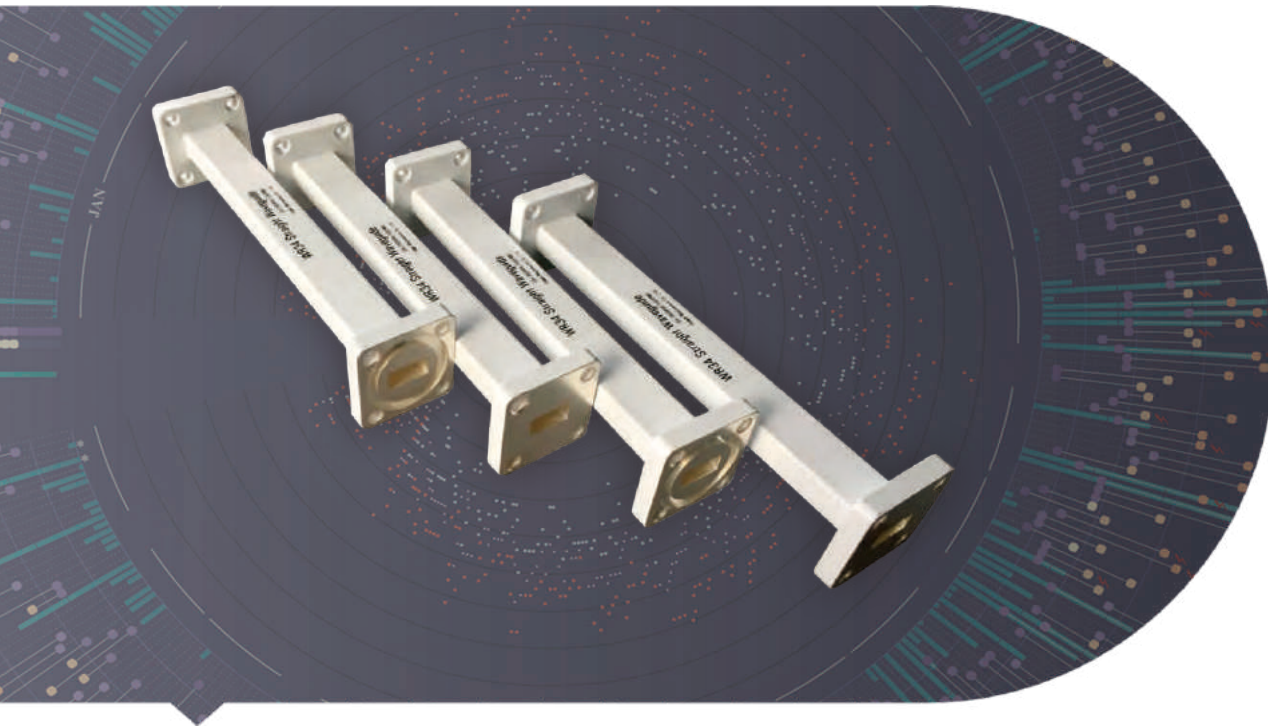
## Ordering Information

### DH - 120 WESM D P A

DH	Dolph Microwave
120	WR75
WESM	E-plane Waveguide Switch Motor-Driven
D	DPDT
S	SPDT
P	Flange Cover
M	Flange Grooved
A	Material Al



# WAVEGUIDE STRAIGHT



## → Features

- Waveguide size: WR2300 to WR10
- Length(mm): 100, 500, 1000 or others.
- Material: Al and Cu
- Flange: Cover and Grooved

## → Description

Dolph Microwave Straights waveguide is to route signals from an input path to one or more outputs, optional in length and material. It is high power handling, high VSWR and insertion loss. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Length (mm)	Flange Type
DH-8WAL...	WR1150	0.64-0.98	1.2	1000	Cover/Grooved
DH-9WAL...	WR975	0.75-1.15	1.2	1000	Cover/Grooved
DH-12WAL...	WR770	0.96-1.46	1.2	500	Cover/Grooved
DH-14WAL...	WR650	1.13-1.73	1.2	500	Cover/Grooved
DH-18WAL...	WR510	1.45-2.20	1.2	500	Cover/Grooved
DH-22WAL...	WR430	1.72-2.61	1.2	300	Cover/Grooved
DH-26WAL...	WR340	2.17-3.30	1.2	300	Cover/Grooved
DH-32WAL...	WR284	2.60-3.95	1.2	200	Cover/Grooved
DH-40WAL...	WR229	3.22-4.9	1.2	200	Cover/Grooved
DH-48WAL...	WR187	3.94-5.99	1.2	200	Cover/Grooved
DH-58WAL...	WR159	4.64-7.05	1.2	200	Cover/Grooved
DH-70WAL...	WR137	5.38-8.17	1.2	100	Cover/Grooved
DH-84WAL...	WR112	6.57-9.99	1.2	100	Cover/Grooved
DH-100WAL...	WR90	8.20-12.40	1.2	100	Cover/Grooved
DH-120WAL...	WR75	9.84-15.0	1.2	100	Cover/Grooved
DH-140WAL...	WR62	11.9-18.0	1.2	100	Cover/Grooved
DH-180WAL...	WR51	14.5-22.0	1.2	100	Cover/Grooved
DH-220WAL...	WR42	17.6-26.7	1.2	50	Cover/Grooved
DH-260WAL...	WR34	21.7-33.0	1.2	50	Cover/Grooved
DH-320WAL...	WR28	26.3-40.0	1.2	50	Cover/Grooved
DH-400WAL...	WR22	33.0-50.0	1.5	50	FUGP
DH-500WAL...	WR19	40.0-60.0	1.5	50	FUGP
DH-620WAL...	WR15	55.0-65.0	1.5	50	FUGP
DH-740WAL...	WR12	60.5-91.9	1.5	50	FUGP
DH-900WAL...	WR10	73.8-112.0	1.5	50	FUGP

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

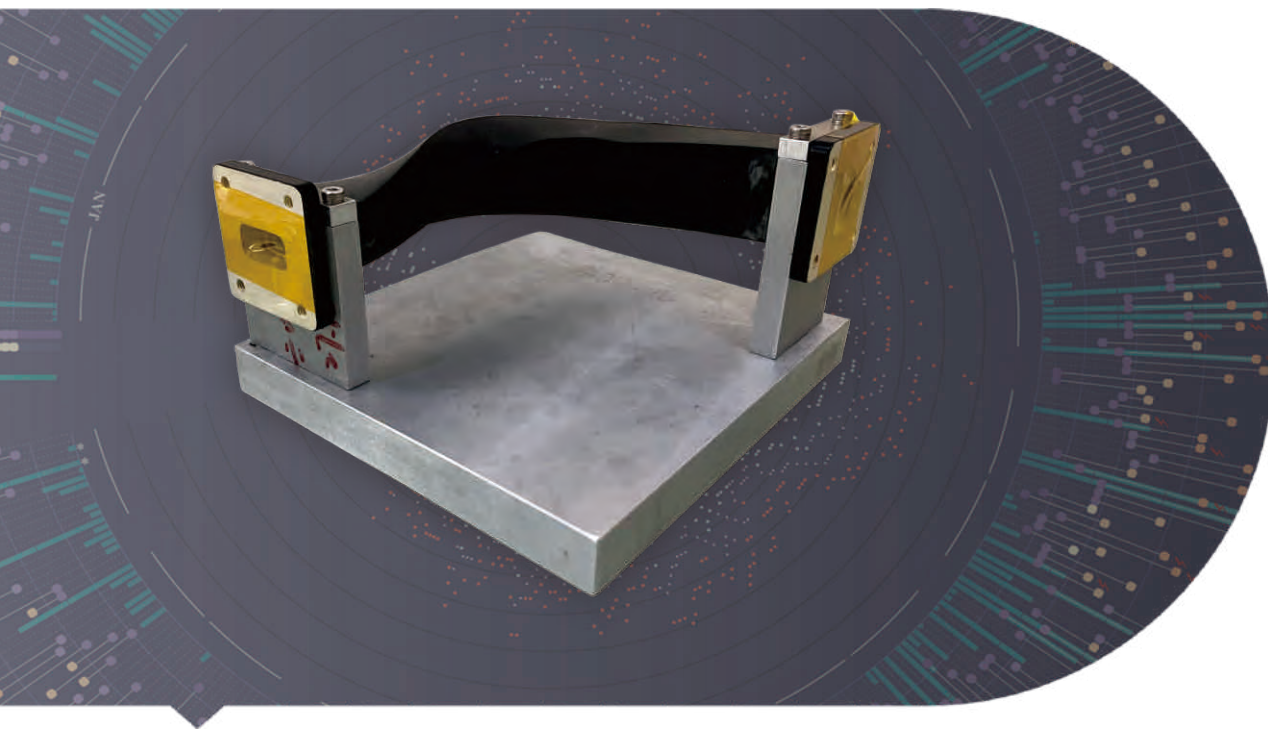
## Ordering Information

DH - 120 WAL 100 P M A

DH	Dolph Microwave
120	WR75
WAL	Straight Wavguide
100	L=100 mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# FLEXIBLE-TWISTABLE, FLEXIBLE SEAMLESS WAVEGUIDE



## → Features

Waveguide size: WR2300 to WR10

Length: up to 3000mm

VSWR: 1.3

Type: Flexible twistable and non-twistable

Flange: Cover, Grooved and Choke

With or without Jacket

## → Description

Dolph Microwave Flexible waveguide is divided into flexible twistable and seamless waveguide. Available with length up to 3000mm. Flange can be done as cover, grooved and choke. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL (dB)	Aveg. Power (KW)	Min. Bending Radius E - ( mm) / H - (mm)		Max. Pressure (Mpa)
DH-14WEL...	WR650	1.13-1.73	1.1	0.12	20	500	1000	0.2
DH-18WEL...	WR510	1.45-2.20	1.1	0.2	20	412	812	0.2
DH-22WEL...	WR430	1.72-2.61	1.1	0.15	20	312	624	0.2
DH-26WEL...	WR340	2.17-3.30	1.1	0.15	10	260	520	0.2
DH-32WEL...	WR284	2.60-3.95	1.1	0.15	8	204	408	0.2
DH-40WEL...	WR229	3.22-4.9	1.1	0.17	6.5	166	332	0.2
DH-48WEL...	WR187	3.94-5.99	1.1	0.24	6	160	320	0.2
DH-58WEL...	WR159	4.64-7.05	1.1	0.26	5	129	258	0.2
DH-70WEL...	WR137	5.38-8.17	1.1	0.3	4	100	200	0.2
DH-84WEL...	WR112	6.57-9.99	1.1	0.35	3	76	152	0.2
DH-100WEL...	WR90	8.20-12.40	1.1	0.45	1.5	66	132	0.2
DH-120WEL...	WR75	9.84-15.0	1.1	0.65	1	63	126	0.2
DH-140WEL...	WR62	11.9-18.0	1.1	0.74	0.5	56	112	0.2
DH-180WEL...	WR51	14.5-22.0	1.15	1.15	0.3	50	100	0.2
DH-220WEL...	WR42	17.6-26.7	1.2	1.4	0.2	38	76	0.2
DH-260WEL...	WR34	21.7-33.0	1.25	1.6	0.15	35	70	0.2
DH-320WEL...	WR28	26.3-40.0	1.3	2.4	0.15	20	40	0.2

Length (mm)	Flange Type	Inside Finish	Body Finish	Material
100-1500	Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket	Brass
100-1500	Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket	Brass
100-1500	Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket	Brass
100-1500	Cover/Grooved	Chromate Conversion/Silvering	Jacket / without jacket	Brass

## Ordering Information

DH-120WEL100PMC

DH Dolph Microwave

120 WR75

WEL Flexible-Twistable Waveguide

WWEL Flexible Seamless Waveguide

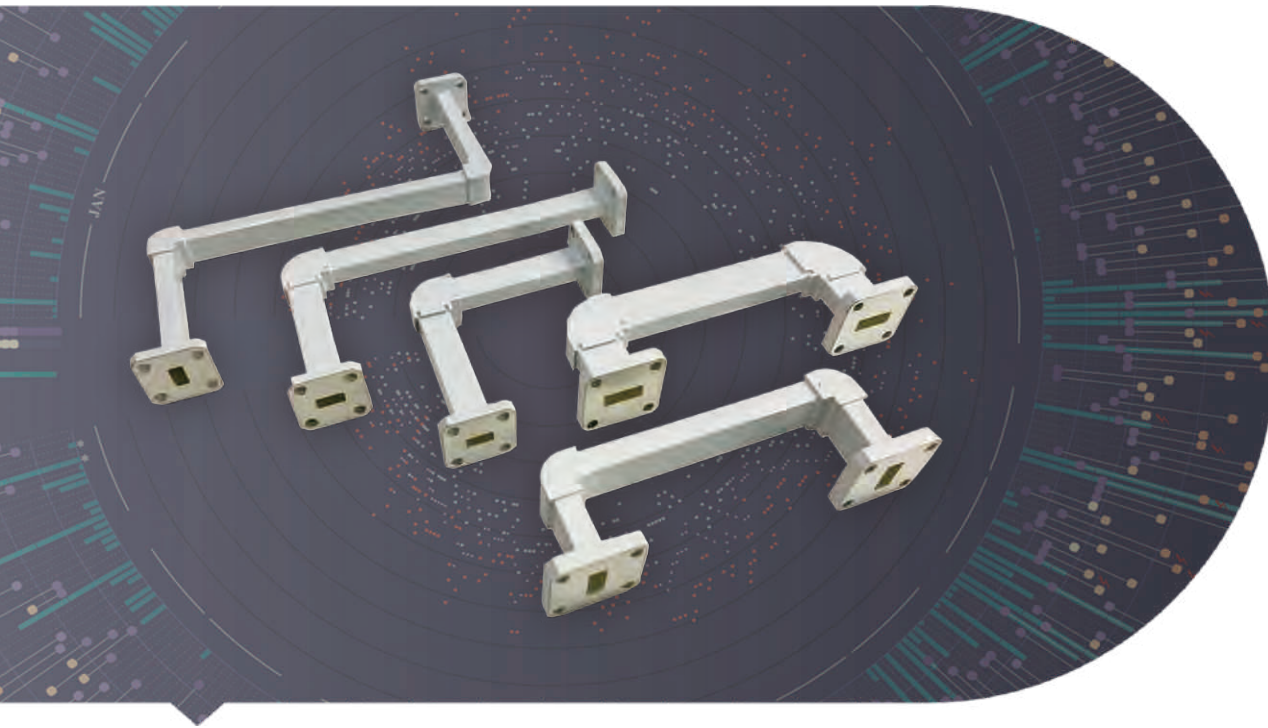
100 L=100 mm

P Flange Cover

M Flange Grooved

C Material Cu

# WAVEGUIDE SWEEP, MITER BEND



## → Features

**Waveguide size:** WR2300 to WR10

**Bend:** 45°, 60°, 90° or Others

**Bend type:** E or H Sweep/ Miter

**Length(mm):** 45, 90, 100 or others.

**Material:** Al and Cu

**Flange:** Cover and Grooved

**Surface treatment:** Nickel, Tin, Silver and Gold plating

## → Description

Dolph Microwave waveguide bends is optional in bend configuration and length. It is available in sweep and miter type with high power handling. E or H bend is selected by specific application. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	STD.Size (mm)	Flange Type
DH-8WEB/WHB...	WR1150	0.64-0.98	1.1	300*300	Cover/Grooved
DH-9WEB/WHB...	WR975	0.75-1.15	1.1	200*200	Cover/Grooved
DH-12WEB/WHB...	WR770	0.96-1.46	1.1	200*200	Cover/Grooved
DH-14WEB/WHB...	WR650	1.13-1.73	1.1	200*200	Cover/Grooved
DH-18WEB/WHB...	WR510	1.45-2.20	1.1	200*200	Cover/Grooved
DH-22WEB/WHB...	WR430	1.72-2.61	1.1	190*190	Cover/Grooved
DH-26WEB/WHB...	WR340	2.17-3.30	1.1	100*100	Cover/Grooved
DH-32WEB/WHB...	WR284	2.60-3.95	1.1	160*160	Cover/Grooved
DH-40WEB/WHB...	WR229	3.22-4.9	1.1	80*80	Cover/Grooved
DH-48WEB/WHB...	WR187	3.94-5.99	1.1	80*80	Cover/Grooved
DH-58WEB/WHB...	WR159	4.64-7.05	1.1	80*80	Cover/Grooved
DH-70WEB/WHB...	WR137	5.38-8.17	1.1	60*60	Cover/Grooved
DH-84WEB/WHB...	WR112	6.57-9.99	1.1	50*50	Cover/Grooved
DH-100WEB/WHB...	WR90	8.20-12.40	1.1	40*40	Cover/Grooved
DH-120WEB/WHB...	WR75	9.84-15.0	1.1	40*40	Cover/Grooved
DH-140WEB/WHB...	WR62	11.9-18.0	1.1	40*40	Cover/Grooved
DH-180WEB/WHB...	WR51	14.5-22.0	1.1	30*30	Cover/Grooved
DH-220WEB/WHB...	WR42	17.6-26.7	1.1	30*30	Cover/Grooved
DH-260WEB/WHB...	WR34	21.7-33.0	1.1	30*30	Cover/Grooved
DH-320WEB/WHB...	WR28	26.3-40.0	1.1	30*30	Cover/Grooved
DH-400WEB/WHB...	WR22	33.0-50.0	1.2	25*25	FUGP
DH-500WEB/WHB...	WR19	40.0-60.0	1.2	25*25	FUGP
DH-620WEB/WHB...	WR15	55.0-65.0	1.2	20*20	FUGP
DH-740WEB/WHB...	WR12	60.5-91.9	1.2	20*20	FUGP
DH-900WEB/WHB...	WR10	73.8-112.0	1.2	20*20	FUGP

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

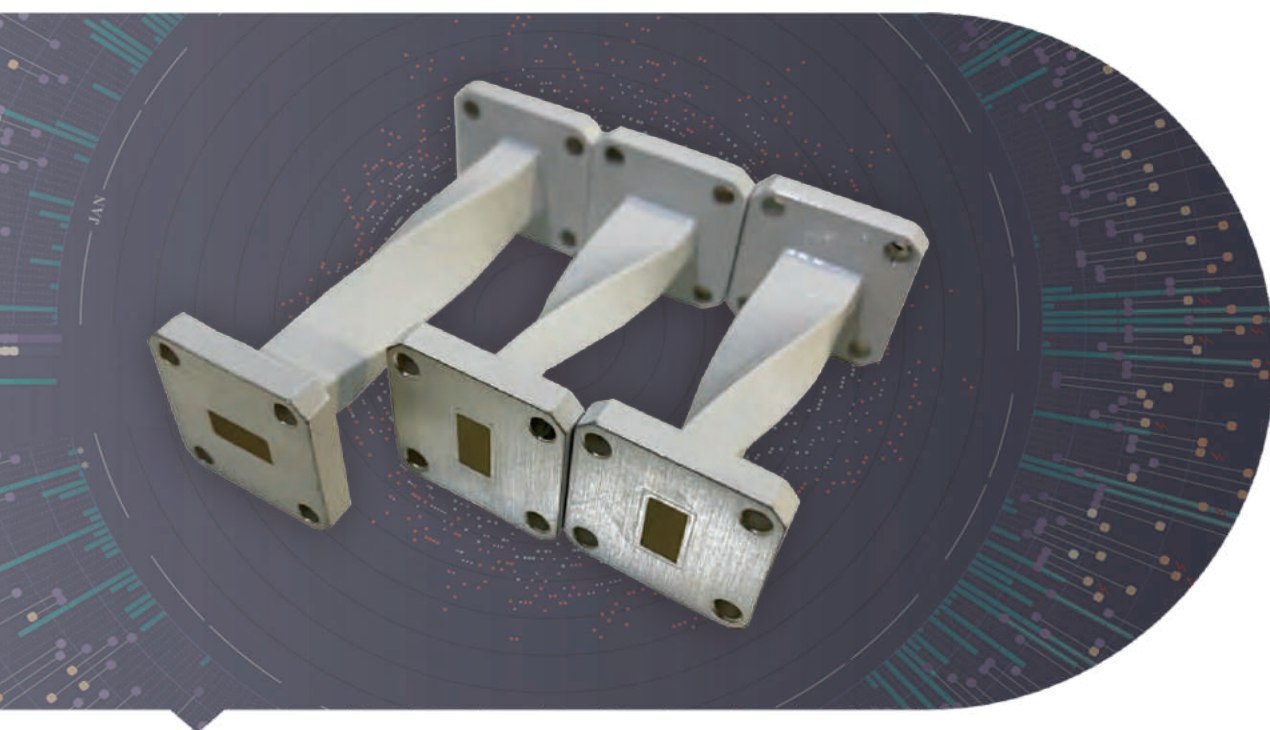
## Ordering Information

### DH - 120 WEB A\*B P M A

DH	Dolph Microwave
120	WR75
WEB	E-Bend
WHB	H-Bend
WTEB	Miter E-Bend
WTHB	Miter H-Bend
A*B	Length/Size
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE

## SWEEP, STEPPED TWIST



### → Features

- Waveguide size: WR2300 to WR10
- Twist option: 45°, 60°, 90° or others
- Type: Sweep or Stepped
- Material: Al and Cu
- Flange: Cover and Grooved

### → Description

Dolph Microwave Waveguide Twist is optional in length, twist degree and material. It is available in sweep and stepped type with high power handling, high VSWR and insertion loss. Surface treatment is Nickel, Tin, Silver and Gold Plating Both standard and customized can be chosen in mechanical configurations.

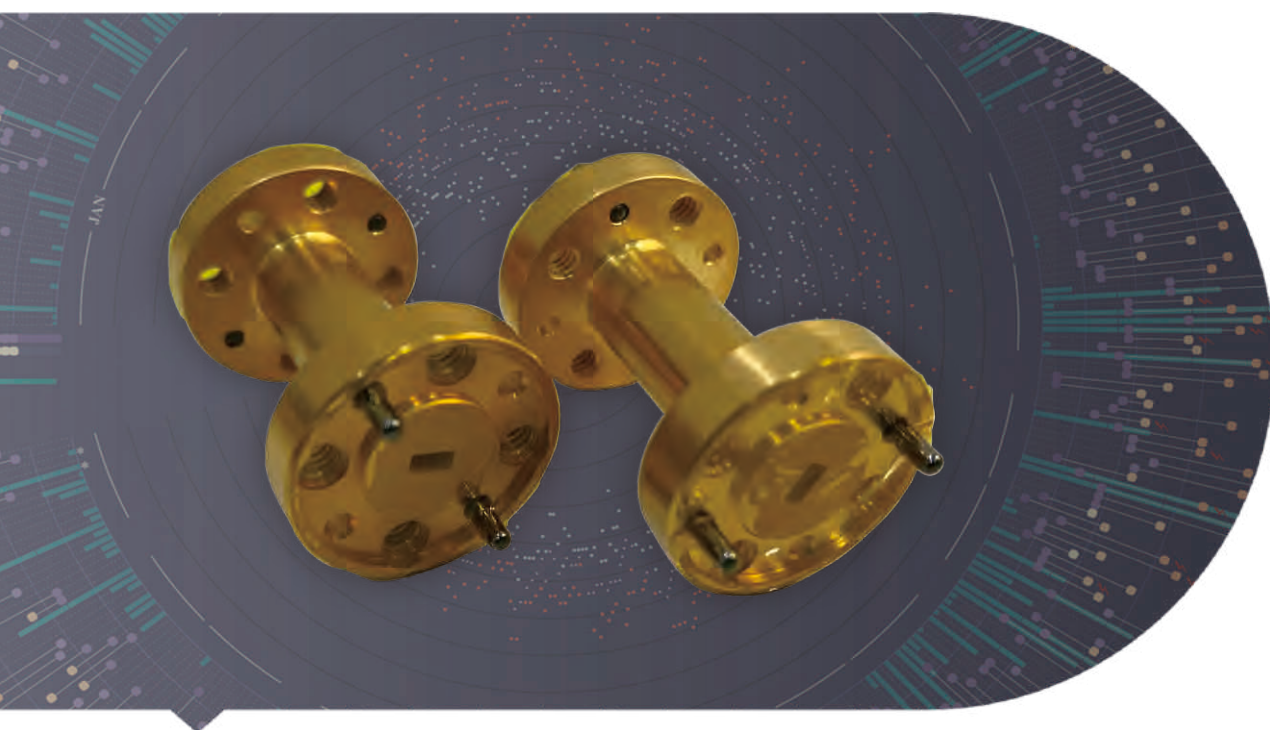
Model	WR Type	Frequency (Ghz)	VSWR Max.	Length (mm)	Flange Type
DH-22WTA...	WR430	1.72-2.61	1.15	800	Cover/Grooved
DH-26WTA...	WR340	2.17-3.30	1.15	400	Cover/Grooved
DH-32WTA...	WR284	2.60-3.95	1.1	300	Cover/Grooved
DH-40WTA...	WR229	3.22-4.9	1.1	250	Cover/Grooved
DH-48WTA...	WR187	3.94-5.99	1.1	200	Cover/Grooved
DH-58WTA...	WR159	4.64-7.05	1.1	170	Cover/Grooved
DH-70WTA...	WR137	5.38-8.17	1.1	150	Cover/Grooved
DH-84WTA...	WR112	6.57-9.99	1.1	120	Cover/Grooved
DH-100WTA...	WR90	8.20-12.40	1.1	60	Cover/Grooved
DH-120WTA...	WR75	9.84-15.0	1.1	60	Cover/Grooved
DH-140WTA...	WR62	11.9-18.0	1.1	50	Cover/Grooved
DH-180WTA...	WR51	14.5-22.0	1.1	50	Cover/Grooved
DH-220WTA...	WR42	17.6-26.7	1.1	50	Cover/Grooved
DH-260WTA...	WR34	21.7-33.0	1.15	50	Cover/Grooved
DH-320WTA...	WR28	26.3-40.0	1.15	50	Cover/Grooved
DH-400WTA...	WR22	33.0-50.0	1.15	50	FUGP
DH-500WTA...	WR19	40.0-60.0	1.15	50	FUGP
DH-620WTA...	WR15	55.0-65.0	1.15	50	FUGP
DH-740WTA...	WR12	60.5-91.9	1.15	50	FUGP
DH-900WTA...	WR10	73.8-112.0	1.15	50	FUGP

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

Ordering Information	
DH - 120 WTA 100 P M A	
DH	Dolph Microwave
120	WR75
WTA	Sweep Twist Waveguide
WSTA	Stepped Twist Waveguide
100	L=100 mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# RECTANGULAR TO CIRCULAR WAVEGUIDE TRANSITION



## → Features

**Waveguide size:** WR2300 to WR10

**Flange:** Cover, Grooved and Choke

**Length:** up to 1000mm or others

**Material:** Al or Cu

## → Description

Dolph Microwave rectangular to circular waveguide transitions are available with a variety of flange types, length and waveguide size. Both standard and customized can be chosen in mechanical configurations upon request.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Length (mm)	Circular WG Dia. (mm)	Flange Type
DH-14RCA157	WR650	1.30-1.70	≤1.10	920	157	UDR/UAR
DH-18RCA114.58	WR510	1.45-2.20	≤1.10	820	114.58	UDR/UAR
DH-22RCA97.87	WR430	2.07-2.61	≤1.10	580	97.87	UDR/UAR
DH-26RCA83.62	WR340	2.42-3.30	≤1.10	500	83.62	UDR/UAR
DH-32RCA71.42	WR84	2.83-3.88	≤1.10	420	71.42	UDR/UAR
DH-40RCA51.99	WR229	3.22-4.90	≤1.10	350	51.99	UDR/UAR
DH-48RCA44.45	WR187	3.94-5.33	≤1.10	300	44.45	UDR/UAR
DH-58RCA38.1	WR159	5.3-7.05	≤1.10	230	38.1	UDR/UAR
DH-70RCA32.537	WR137	6.21-8.17	≤1.10	200	32.537	UDR/UAR
DH-84RCA27.788	WR112	7.30-9.97	≤1.10	200	27.788	UDR/UAR
DH-100RCA23.825	WR90	8.50-11.6	≤1.10	160	23.825	UBR/UAR
DH-120RCA17.415	WR75	11.6-15.0	≤1.10	130	17.415	UBR/UAR
DH-140RCA15.088	WR62	13.4-18.0	≤1.10	100	15.088	UBR/UAR
DH-180RCA12.7	WR51	15.9-21.8	≤1.15	100	12.7	UBR/UAR
DH-220RCA9.525	WR42	21.2-26.7	≤1.15	60	9.525	UBR/UAR
DH-260RCA8.331	WR34	24.3-33.0	≤1.15	60	8.331	UBR/UAR
DH-320RCA7.137	WR28	31.8-40.0	≤1.15	50	7.137	UBR/UAR
DH-400RCA5.563	WR22	36.4-49.8	≤1.15	50	5.563	FUGP/UAR
DH-500RCA4.369	WR19	46.3-59.6	≤1.15	40	4.369	FUGP/UAR
DH-620RCA3.581	WR15	56.6-75.8	≤1.15	30	3.581	FUGP/UAR
DH-740RCA3.175	WR12	63.5-87.2	≤1.15	30	3.175	FUGP/UAR
DH-900RCA2.388	WR10	84.8-112	≤1.15	20	2.388	FUGP/UAR

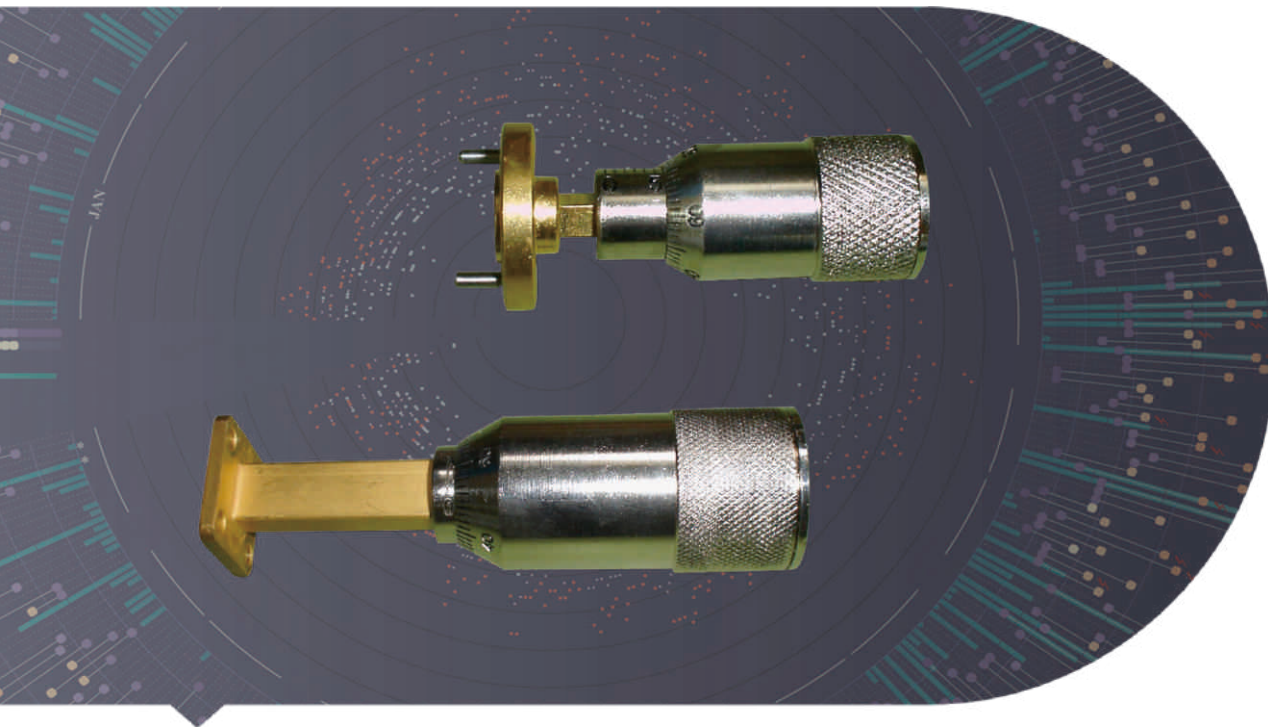
Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 120 RCA 17.415 P M A 100

DH	Dolph Microwave
120	WR75
RCA	Rectangular to Circular Waveguide
17.415	Circular WG Dia. 17.415 mm
P	Flange Cover
M	Flange Grooved
A	Material Al
100	L=100 mm

# WAVEGUIDE SLIDING TERMINATION



## → Features

Waveguide size: WR2300 to WR10

Low loss and high VSWR

Power handling: within 10W CW

Material: Al or Cu

Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide sliding termination consist of a length of uniformly sized waveguide. Within the waveguide is a close fit sliding load which moves in a precisely controlled manner with low VSWR. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Sliding Length (mm)
DH-14WSL1.05...	WR650	1.13-1.73	1.05	70
DH-18WSL1.05...	WR510	1.45-2.20	1.05	55
DH-22WSL1.05...	WR430	1.72-2.61	1.05	45
DH-26WSL1.05...	WR340	2.17-3.30	1.05	36
DH-32WSL1.05...	WR284	2.60-3.95	1.05	30
DH-40WSL1.05...	WR229	3.22-4.9	1.05	25
DH-48WSL1.05...	WR187	3.94-5.99	1.05	20
DH-58WSL1.05...	WR159	4.64-7.05	1.05	17
DH-70WSL1.05...	WR137	5.38-8.17	1.05	15
DH-84WSL1.05...	WR112	6.57-9.99	1.05	24
DH-100WSL1.05...	WR90	8.20-12.40	1.05	20
DH-120WSL1.05...	WR75	9.84-15.0	1.05	16
DH-140WSL1.05...	WR62	11.9-18.0	1.05	13
DH-180WSL1.05...	WR51	14.5-22.0	1.05	11
DH-220WSL1.05...	WR42	17.6-26.7	1.05	9
DH-260WSL1.05...	WR34	21.7-33.0	1.05	7.2
DH-320WSL1.05...	WR28	26.3-40.0	1.05	9
DH-400WSL1.05...	WR22	33.0-50.0	1.05	2
DH-500WSL1.05...	WR19	40.0-60.0	1.05	4
DH-620WSL1.05...	WR15	55.0-65.0	1.05	3.3
DH-740WSL1.05...	WR12	60.5-91.9	1.05	2.6
DH-900WSL1.05...	WR10	73.8-112.0	1.05	2.1

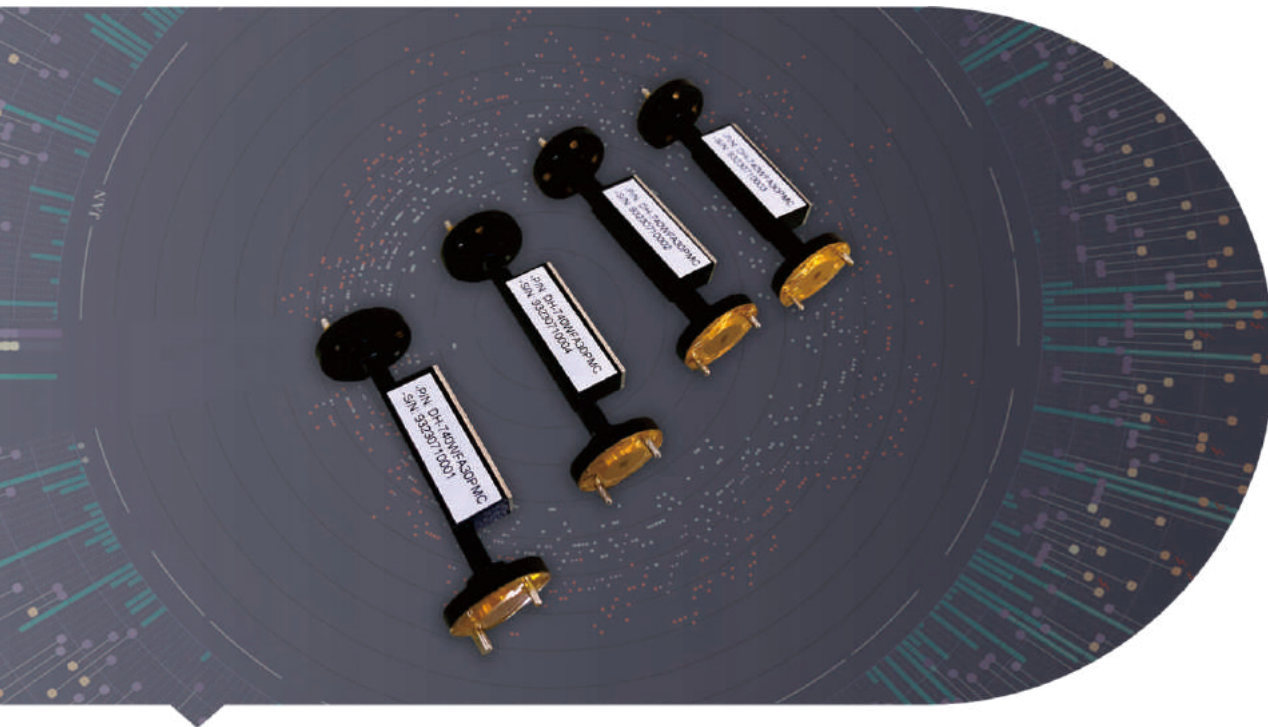
Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

DH - 120 WSL 1.05 16 P A

DH	Dolph Microwave
120	WR75
WSL	Sliding Load
1.05	VSWR 1.05
16	Sliding Distance 16 mm min.
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE FIXED ATTENUATOR, VARIABLE ATTENUATOR



## → Features

**Waveguide size:** WR2300 to WR10

**Type:** Fixed and Variable

**Attenuation:** 10, 20, 30, 40 and others.

**Material:** Al and Cu

**Power handling:** Low, Medium, High and Ultra high

**Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide attenuator is specifically designed to reduce the power of a signal without affecting or reducing the waveform of the signal, can be selected as fixed and variable with high power handling. Optional attenuation is 10, 20, 30, 40dB.

Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Attenuation (dB)
DH-9WFA...	WR975	0.75-1.15	1.25	3-30
DH-12WFA...	WR770	0.96-1.46	1.25	3-30
DH-14WFA...	WR650	1.13-1.73	1.25	3-30
DH-18WFA...	WR510	1.45-2.20	1.25	3-30
DH-22WFA...	WR430	1.72-2.61	1.25	3-30
DH-26WFA...	WR340	2.17-3.30	1.25	3-30
DH-32WFA...	WR284	2.60-3.95	1.25	3-30
DH-40WFA...	WR229	3.22-4.9	1.25	3-30
DH-48WFA...	WR187	3.94-5.99	1.25	3-30
DH-58WFA...	WR159	4.64-7.05	1.25	3-30
DH-70WFA...	WR137	5.38-8.17	1.25	3-30
DH-84WFA...	WR112	6.57-9.99	1.25	3-30
DH-100WFA...	WR90	8.20-12.40	1.25	3-30
DH-120WFA...	WR75	9.84-15.0	1.25	3-30
DH-140WFA...	WR62	11.9-18.0	1.25	3-30
DH-180WFA...	WR51	14.5-22.0	1.25	3-30
DH-220WFA...	WR42	17.6-26.7	1.25	3-30
DH-260WFA...	WR34	21.7-33.0	1.25	3-30
DH-320WFA...	WR28	26.3-40.0	1.25	3-30
DH-400WFA...	WR22	33.0-50.0	1.25	3-30
DH-500WFA...	WR19	40.0-60.0	1.25	3-30
DH-620WFA...	WR15	55.0-65.0	1.25	3-30
DH-740WFA...	WR12	60.5-91.9	1.25	3-30
DH-900WFA...	WR10	73.8-112.0	1.25	3-30

Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

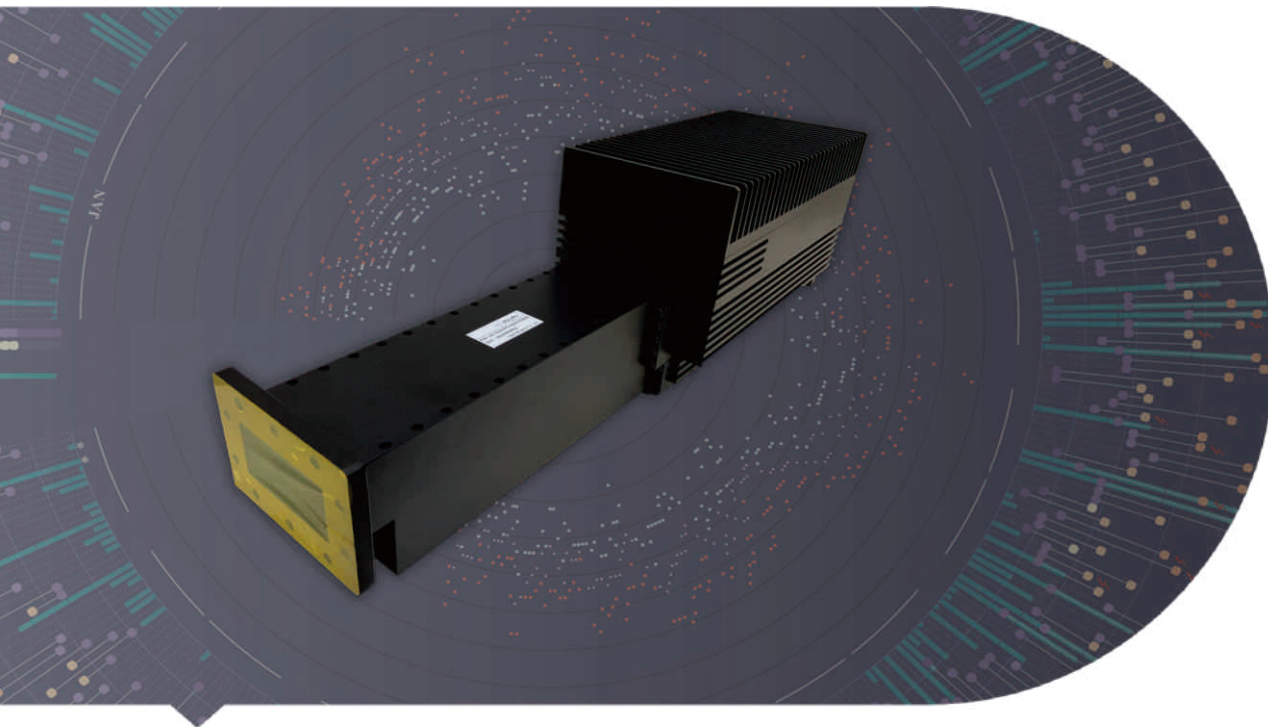
## Ordering Information

DH - 120 WFA 30 P M A 100

DH	Dolph Microwave
120	WR75
WFA	Fixed Attenuator
WVA	Variable Attenuator
30	Attenuation 30 dB
P	Flange Cover
M	Flange Grooved
A	Material Al
100	Handling Power 100 W CW



# WAVEGUIDE HIGH POWER ATTENUATOR



## → Features

- Waveguide size:** WR2300 to WR10
- Type:** High power, ultra high power
- Attenuation:** 10, 20, 30, 40 and others.
- Material:** Al and Cu
- Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide attenuator is specifically designed to reduce the power of a signal without affecting or reducing the waveform of the signal, can be selected as fixed and variable with high power handling. Optional attenuation is 10, 20, 30, 40dB etc. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Attenuation (dB)	Freq. Sensitivity(dB)	Handling Power(W)
DH-9WHPWFA...	WR975	0.75-1.15	1.25	3-60	±0.5-1.8	10-4000
DH-12WHPWFA...	WR770	0.96-1.46	1.25	3-60	±0.5-1.8	10-4000
DH-14WHPWFA...	WR650	1.13-1.73	1.25	3-60	±0.5-1.8	10-4000
DH-18WHPWFA...	WR510	1.45-2.20	1.25	3-60	±0.5-1.8	10-4000
DH-22WHPWFA...	WR430	1.72-2.61	1.25	3-60	±0.5-1.8	10-4000
DH-26WHPWFA...	WR340	2.17-3.30	1.25	3-60	±0.5-1.8	10-4000
DH-32WHPWFA...	WR284	2.60-3.95	1.25	3-60	±0.5-1.8	10-4000
DH-40WHPWFA...	WR229	3.22-4.9	1.25	3-60	±0.5-1.8	10-4000
DH-48WHPWFA...	WR187	3.94-5.99	1.25	3-60	±0.5-1.8	10-4000
DH-58WHPWFA...	WR159	4.64-7.05	1.25	3-60	±0.5-1.8	10-4000
DH-70WHPWFA...	WR137	5.38-8.17	1.25	3-60	±0.5-1.8	10-3000
DH-84WHPWFA...	WR112	6.57-9.99	1.25	3-60	±0.5-1.8	10-3000
DH-100WHPWFA...	WR90	8.20-12.40	1.25	3-60	±0.5-1.8	10-3000
DH-120WHPWFA...	WR75	9.84-15.0	1.25	3-60	±0.5-1.8	10-3000
DH-140WHPWFA...	WR62	11.9-18.0	1.25	3-60	±0.5-1.8	10-1000
DH-180WHPWFA...	WR51	14.5-22.0	1.25	3-60	±0.5-1.8	10-1000
DH-220WHPWFA...	WR42	17.6-26.7	1.25	3-60	±0.5-1.8	10-600
DH-260WHPWFA...	WR34	21.7-33.0	1.25	3-60	±0.5-1.8	10-600
DH-320WHPWFA...	WR28	26.3-40.0	1.25	3-60	±0.5-1.8	10-600
DH-400WHPWFA...	WR22	33.0-50.0	1.25	3-60	±0.5-1.8	10-600
DH-500WHPWFA...	WR19	40.0-60.0	1.25	3-60	±0.5-1.8	10-300
DH-620WHPWFA...	WR15	55.0-65.0	1.25	3-60	±0.5-1.8	10-300
DH-740WHPWFA...	WR12	60.5-91.9	1.25	3-60	±0.5-1.8	10-200
DH-900WHPWFA...	WR10	73.8-112.0	1.25	3-60	±0.5-1.8	10-200

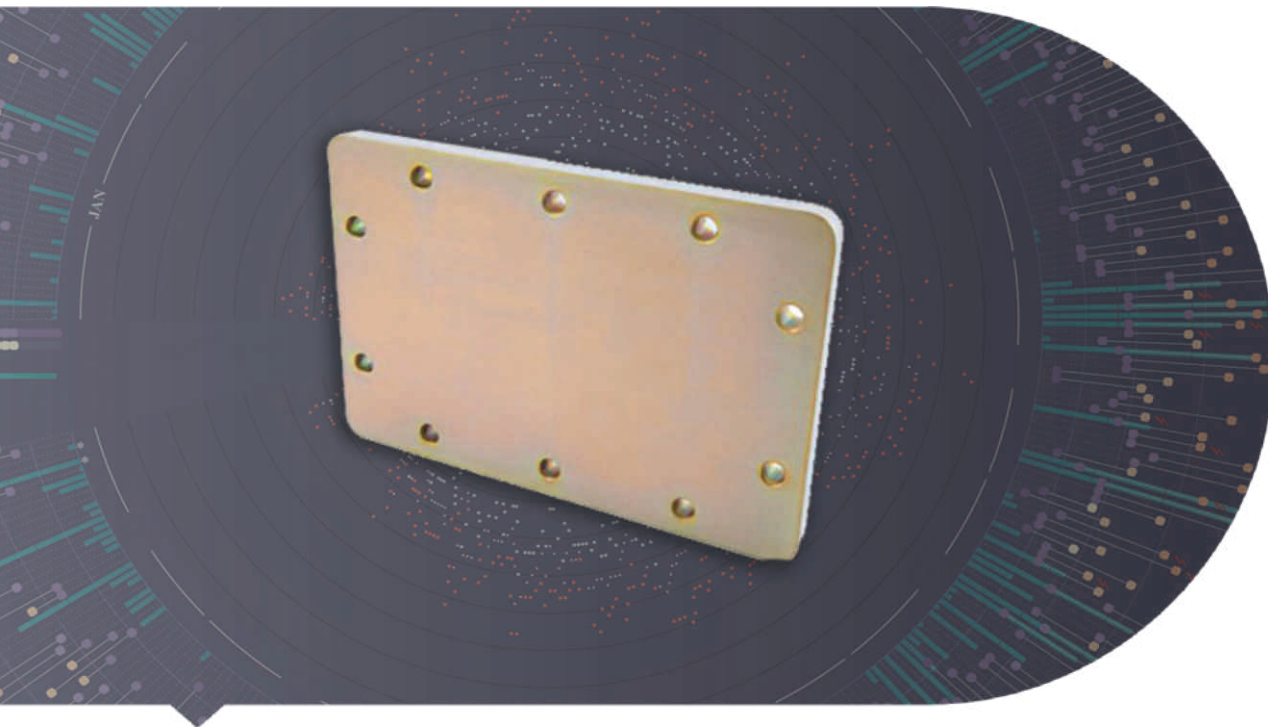
Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

### DH - 120 WHPWFA 30 P M A 1000

DH	Dolph Microwave
120	WR75
WHPWFA	High Power Fixed Attenuator
30	Attenuation 30 dB
P	Flange Cover
M	Flange Grooved
A	Material Al
1000	Handling Power 1000 W CW.

# WAVEGUIDE SHORT PLATE, OFFSET SHORT



## → Features

Waveguide size: WR2300 to WR10

Material: Al and Cu

Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide short plate is high reflection short circuits for terminating all standard waveguides. They are designed with a hole pattern to match the standard flanges in each waveguide. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Attenuation (dB)
DH-3WS...	WR2300	0.32-0.49	60	23
DH-4WS...	WR2100	0.35-0.53	60	23
DH-5WS...	WR1800	0.41-0.62	60	18
DH-6WS...	WR1500	0.49-0.75	60	18
DH-8WS...	WR1150	0.64-0.98	60	14
DH-9WS...	WR975	0.75-1.15	60	14
DH-12WS...	WR770	0.96-1.46	60	12
DH-14WS...	WR650	1.13-1.73	60	12
DH-18WS...	WR510	1.45-2.20	60	12
DH-22WS...	WR430	1.72-2.61	60	10
DH-26WS...	WR340	2.17-3.30	60	10
DH-32WS...	WR284	2.60-3.95	60	8
DH-40WS...	WR229	3.22-4.9	60	8
DH-48WS...	WR187	3.94-5.99	60	7
DH-58WS...	WR159	4.64-7.05	60	7
DH-70WS...	WR137	5.38-8.17	60	7
DH-84WS...	WR112	6.57-9.99	60	5
DH-100WS...	WR90	8.20-12.40	60	5
DH-120WS...	WR75	9.84-15.0	60	5
DH-400WS...	WR22	33.0-50.0	60	4
DH-500WS...	WR19	40.0-60.0	60	4
DH-620WS...	WR15	55.0-65.0	60	4
DH-740WS...	WR12	60.5-91.9	60	4
DH-900WS...	WR10	73.8-112.0	60	4

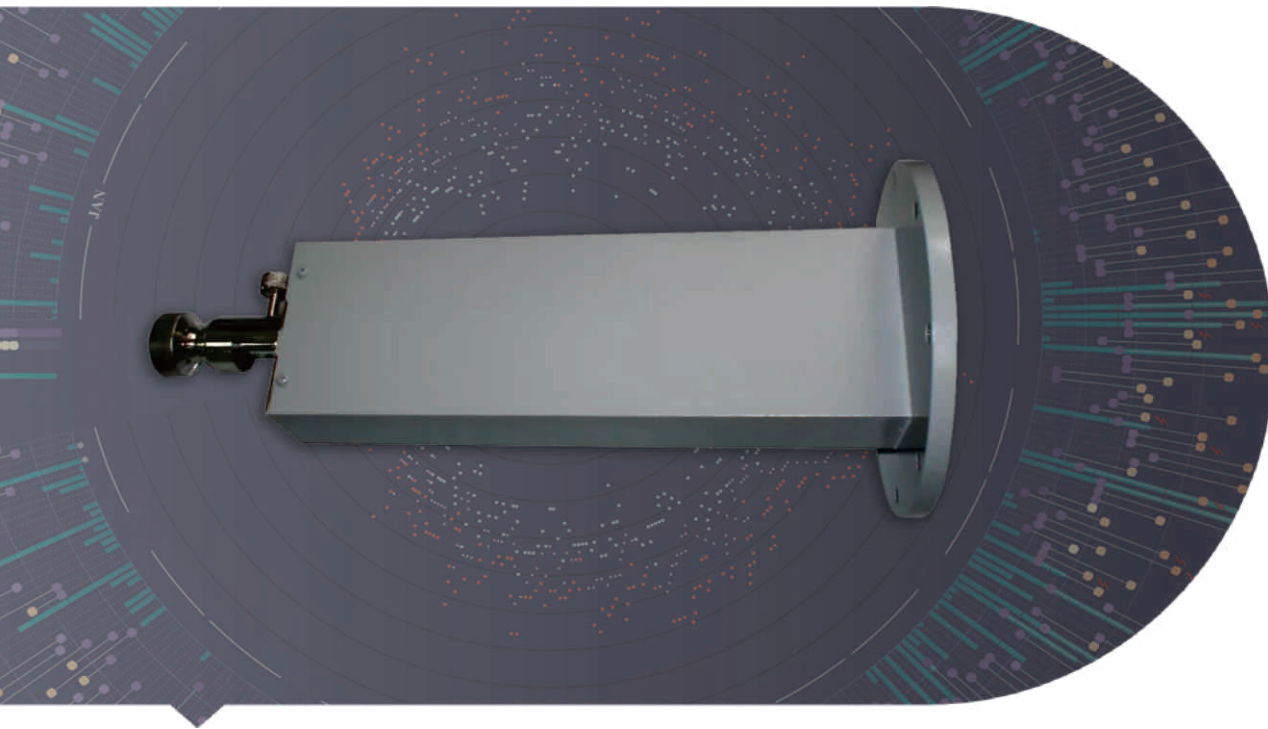
Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

DH - 120 WS P A

DH	Dolph Microwave
120	WR75
WS	Waveguid Short
WOS	Waveguide Offset Short
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE SLIDING SHORT



## → Features

**Waveguide size:** WR2300 to WR10

**Low loss and high VSWR**

**Type:** Adjustable, movable

**Material:** Al or Cu

**Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide sliding short is low loss and high VSWR consist of a length of uniformly sized waveguide. Within the waveguide is a close fit sliding which moves in a precisely controlled manner. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Sliding Distance (mm)
DH-3WSS...	WR2300	0.32-0.49	50	300
DH-4WSS...	WR2100	0.35-0.53	50	240
DH-5WSS...	WR1800	0.41-0.62	50	220
DH-6WSS...	WR1500	0.49-0.75	50	180
DH-8WSS...	WR1150	0.64-0.98	50	150
DH-9WSS...	WR975	0.75-1.15	50	130
DH-12WSS...	WR770	0.96-1.46	50	100
DH-14WSS...	WR650	1.13-1.73	50	90
DH-18WSS...	WR510	1.45-2.20	50	80
DH-22WSS...	WR430	1.72-2.61	50	70
DH-26WSS...	WR340	2.17-3.30	50	60
DH-32WSS...	WR284	2.60-3.95	50	60
DH-40WSS...	WR229	3.22-4.9	50	50
DH-48WSS...	WR187	3.94-5.99	50	50
DH-58WSS...	WR159	4.64-7.05	50	50
DH-70WSS...	WR137	5.38-8.17	50	40
DH-84WSS...	WR112	6.57-9.99	50	40
DH-100WSS...	WR90	8.20-12.40	50	30
DH-120WSS...	WR75	9.84-15.0	50	30
DH-400WSS...	WR22	33.0-50.0	50	10
DH-500WSS...	WR19	40.0-60.0	50	10
DH-620WSS...	WR15	55.0-65.0	50	10
DH-740WSS...	WR12	60.5-91.9	50	10
DH-900WSS...	WR10	73.8-112.0	50	10

Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

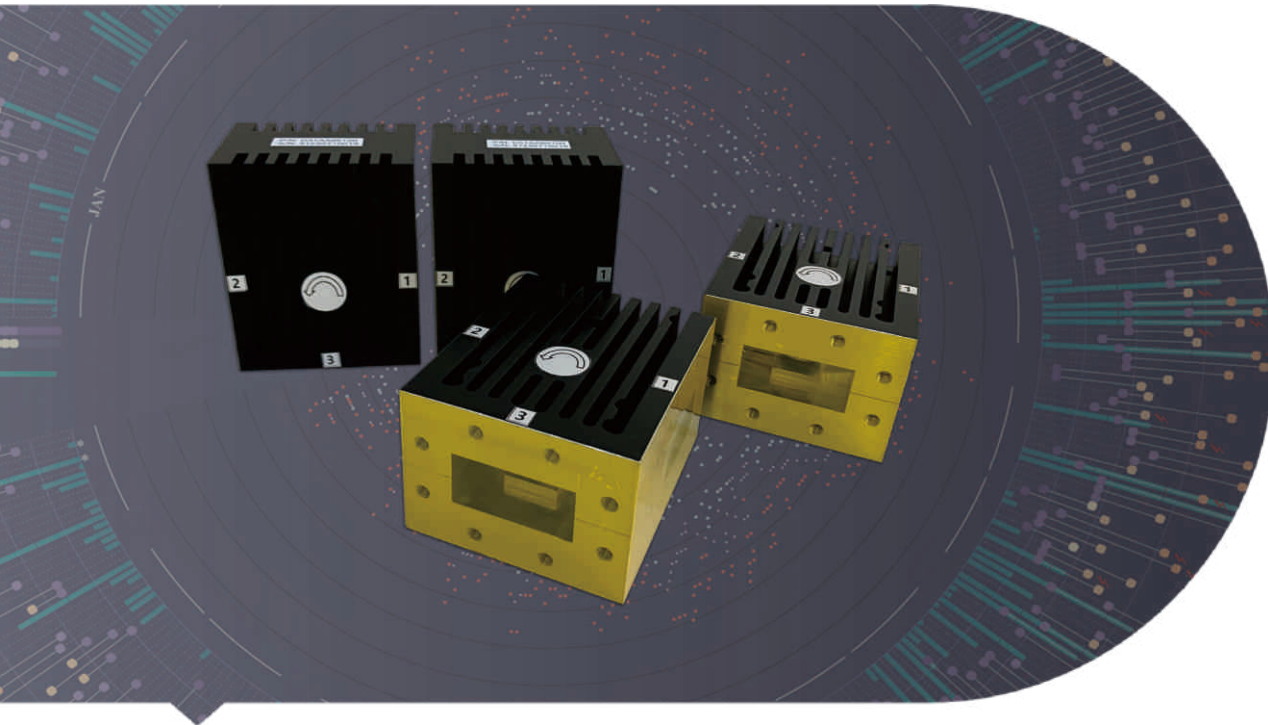
## Ordering Information

DH-120 WSS 30 P A

DH	Dolph Microwave
120	WR75
WSS	Waveguide Sliding Short
30	Sliding Distance 30 mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# WAVEGUIDE CIRCULATOR, DIFFERENTIAL PHASE SHIFT CIRCULATOR



## → Features

- Waveguide size: WR2300 to WR10
- High Isolation and high power handling
- Cooling: air cooling and water cooling
- Type: Standard and phase shift
- Material: Al and Cu
- Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide circulator is devices with three ports developed to create isolation between transmitted and received signals. Features excellent insertion loss, high isolation and reliability. Optional in air and water cooling. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	IL (dB)	Isolation (dB)
DH-14WCIC...	WR650	1.13-1.73	5%	1.2	0.3	20
DH-18WCIC...	WR510	1.45-2.20	5%	1.2	0.3	20
DH-22WCIC...	WR430	1.72-2.61	5%	1.2	0.3	20
DH-26WCIC...	WR340	2.17-3.30	5%	1.2	0.3	20
DH-32WCIC...	WR284	2.60-3.95	5%	1.2	0.3	20
DH-40WCIC...	WR229	3.22-4.9	10%	1.2	0.3	20
DH-48WCIC...	WR187	3.94-5.99	10%	1.2	0.3	20
DH-58WCIC...	WR159	4.64-7.05	10%	1.2	0.3	20
DH-70WCIC...	WR137	5.38-8.17	10%	1.2	0.3	20
DH-84WCIC...	WR112	6.57-9.99	15%	1.2	0.3	20
DH-100WCIC...	WR90	8.20-12.40	15%	1.2	0.3	20
DH-120WCIC...	WR75	9.84-15.0	15%	1.2	0.3	20
DH-140WCIC...	WR62	11.9-18.0	15%	1.2	0.3	20
DH-180WCIC...	WR51	14.5-22.0	15%	1.2	0.3	20
DH-220WCIC...	WR42	17.6-26.7	15%	1.25	0.4	20
DH-260WCIC...	WR34	21.7-33.0	15%	1.25	0.4	20
DH-320WCIC...	WR28	26.3-40.0	15%	1.25	0.4	20
DH-400WCIC...	WR22	33.0-50.0	5%	1.35	0.6	17
DH-500WCIC...	WR19	40.0-60.0	5%	1.5	0.6	15
DH-620WCIC...	WR15	55.0-65.0	5%	1.5	0.6	15
DH-740WCIC...	WR12	60.5-91.9	5%	1.5	0.8	15
DH-900WCIC...	WR10	73.8-112.0	5%	1.5	1	15

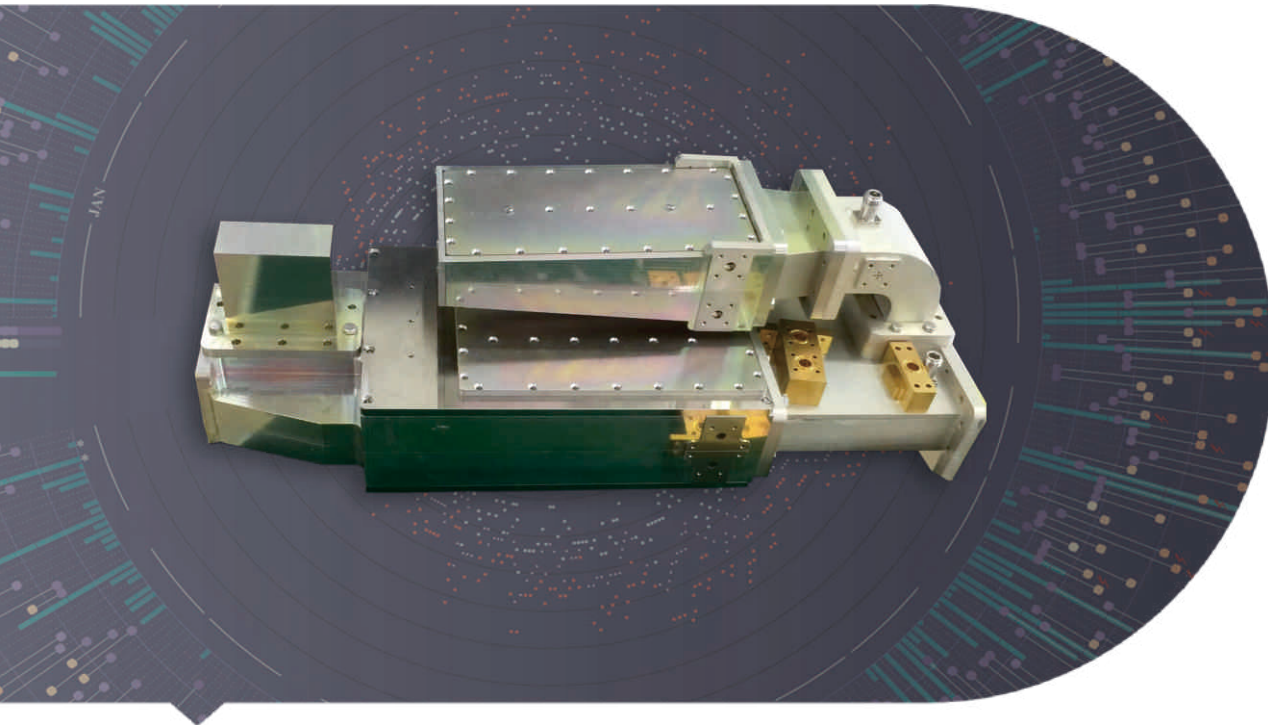
Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 120 WCIC 10T15 P P A 100

DH	Dolph Microwave
120	WR75
WCIC	Waveguide Circulator
WDPSCIC	Differential Phase Shift Circulator
10T15	Operation Freq. 10-15 GHz
P	Flange Cover
M	Flange Grooved
A	Material Al
100	Handling Power 100 W CW.

# WAVEGUIDE ISOLATOR, DIFFERENTIAL PHASE SHIFT ISOLATOR



## → Features

- Waveguide size: WR2300 to WR10
- High Isolation and high power handling
- Cooling: Air cooling and water cooling
- Material: Al and Cu
- Flange: Cover, Grooved and Choke

## → Description

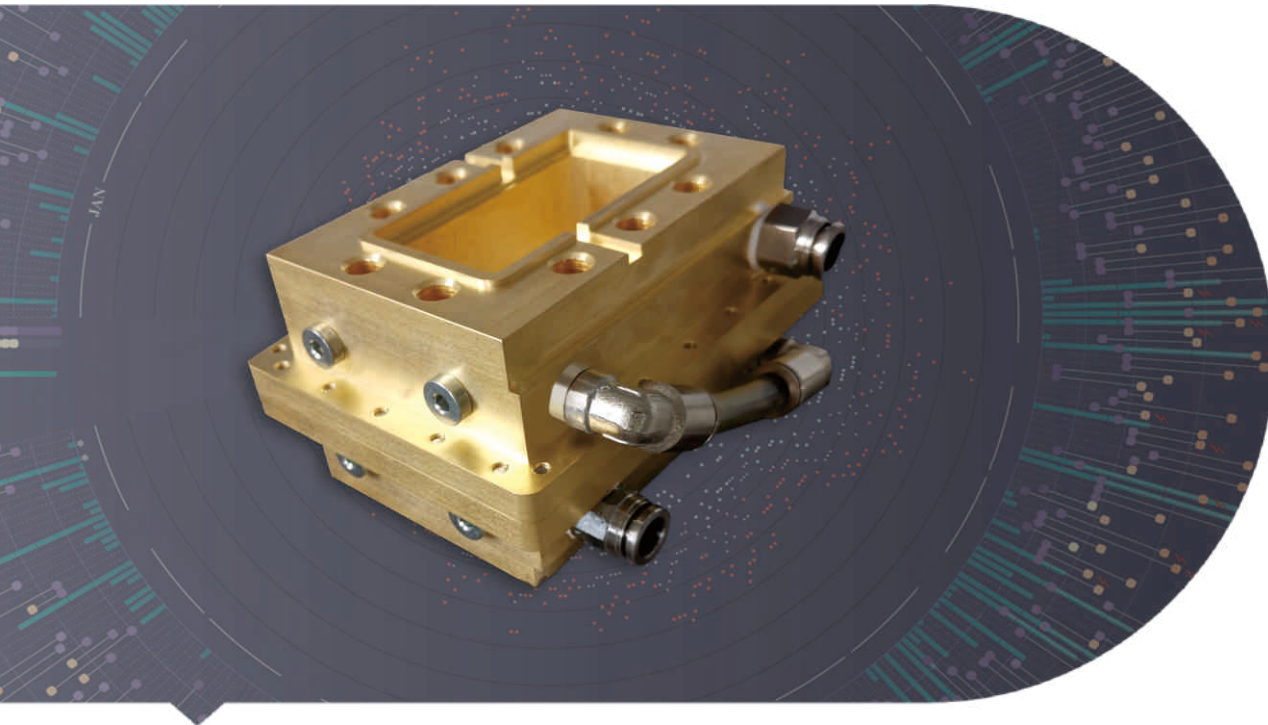
Dolph Microwave waveguide Isolator is a modified circulator having one port terminated with a matched impedance. Features excellent insertion loss, high isolation and reliability. Optional in air and water cooling. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	Operating Bandwidth	VSWR Max.	IL (dB)	Isolation (dB)
DH-14WISO...	WR650	1.13-1.73	5%	1.2	0.3	20
DH-18WISO...	WR510	1.45-2.20	5%	1.2	0.3	20
DH-22WISO...	WR430	1.72-2.61	5%	1.2	0.3	20
DH-26WISO...	WR340	2.17-3.30	5%	1.2	0.3	20
DH-32WISO...	WR284	2.60-3.95	5%	1.2	0.3	20
DH-40WISO...	WR229	3.22-4.9	10%	1.2	0.3	20
DH-48WISO...	WR187	3.94-5.99	10%	1.2	0.3	20
DH-58WISO...	WR159	4.64-7.05	10%	1.2	0.3	20
DH-70WISO...	WR137	5.38-8.17	10%	1.2	0.3	20
DH-84WISO...	WR112	6.57-9.99	15%	1.2	0.3	20
DH-100WISO...	WR90	8.20-12.40	15%	1.2	0.3	20
DH-120WISO...	WR75	9.84-15.0	15%	1.2	0.3	20
DH-140WISO...	WR62	11.9-18.0	15%	1.2	0.3	20
DH-180WISO...	WR51	14.5-22.0	15%	1.2	0.3	20
DH-220WISO...	WR42	17.6-26.7	15%	1.25	0.4	20
DH-260WISO...	WR34	21.7-33.0	15%	1.25	0.4	20
DH-320WISO...	WR28	26.3-40.0	15%	1.25	0.4	20
DH-400WISO...	WR22	33.0-50.0	5%	1.5	0.6	10
DH-500WISO...	WR19	40.0-60.0	5%	1.5	0.6	10
DH-620WISO...	WR15	55.0-65.0	5%	1.5	0.6	10
DH-740WISO...	WR12	60.5-91.9	5%	1.5	0.6	10
DH-900WISO...	WR10	73.8-112.0	5%	1.5	0.6	10

Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

Ordering Information	
DH - 120 WISO 10T15 P P P A 100	
DH	Dolph Microwave
120	WR75
WISO	Waveguide Isolator
WDPSISO	Differential Phase Shift Isolator
10T15	Operation Freq. 10-15 GHz
P	Flange Cover
M	Flange Grooved
A	Material Al
100	Handling Power 100 W CW.

# WAVEGUIDE PRESSURE WINDOW



## → Features

- Waveguide size: WR2300 to WR10
- Handling power: Up to 10KW or others
- Thickness: 16, 26mm or others
- Window material: Glass, quartz and ceramics
- Material: Al/ Cu

## → Description

Dolph Microwave Pressure window is a type of seal used to prevent contaminants (moisture, dirt and dust) from entering a waveguide system with high power and high pressure ability. It can be selected in thickness, window material, and flange type. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL (dB)	Pressure (PSIG)	Handling Power (W)
DH-14WPW...	WR650	1.13-1.73	1.25	0.2	15-45	100-6000
DH-18WPW...	WR510	1.45-2.20	1.25	0.2	15-45	100-6000
DH-22WPW...	WR430	1.72-2.61	1.25	0.2	15-45	100-6000
DH-26WPW...	WR340	2.17-3.30	1.25	0.2	15-45	100-6000
DH-32WPW...	WR284	2.60-3.95	1.25	0.2	15-45	100-6000
DH-40WPW...	WR229	3.22-4.9	1.25	0.2	15-45	100-1000
DH-48WPW...	WR187	3.94-5.99	1.25	0.2	15-45	100-1000
DH-58WPW...	WR159	4.64-7.05	1.25	0.2	15-45	100-1000
DH-70WPW...	WR137	5.38-8.17	1.25	0.2	15-45	100-1000
DH-84WPW...	WR112	6.57-9.99	1.25	0.2	15-45	100-1000
DH-100WPW...	WR90	8.20-12.40	1.25	0.2	15-45	100-1000
DH-120WPW...	WR75	9.84-15.0	1.25	0.2	15-45	100-500
DH-140WPW...	WR62	11.9-18.0	1.25	0.2	15-45	100-500
DH-180WPW...	WR51	14.5-22.0	1.25	0.2	15-45	100-500
DH-220WPW...	WR42	17.6-26.7	1.25	0.25	15-45	100-500
DH-260WPW...	WR34	21.7-33.0	1.25	0.25	15-45	100-500
DH-320WPW...	WR28	26.3-40.0	1.25	0.25	15-45	100-500
DH-400WPW...	WR22	33.0-50.0	1.3	0.6	10-30	10-100
DH-500WPW...	WR19	40.0-60.0	1.3	0.6	10-30	10-100
DH-620WPW...	WR15	55.0-65.0	1.3	0.6	10-30	10-100
DH-740WPW...	WR12	60.5-91.9	1.3	0.6	10-30	10-100
DH-900WPW...	WR10	73.8-112.0	1.3	0.6	10-30	10-100

Window Material	Flange Type	Inside Finish	Body Finish	Material
Fiberglass/Quartz/Ceramics	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
Fiberglass/Quartz/Ceramics	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
Fiberglass/Quartz/Ceramics	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
Fiberglass/Quartz/Ceramics	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

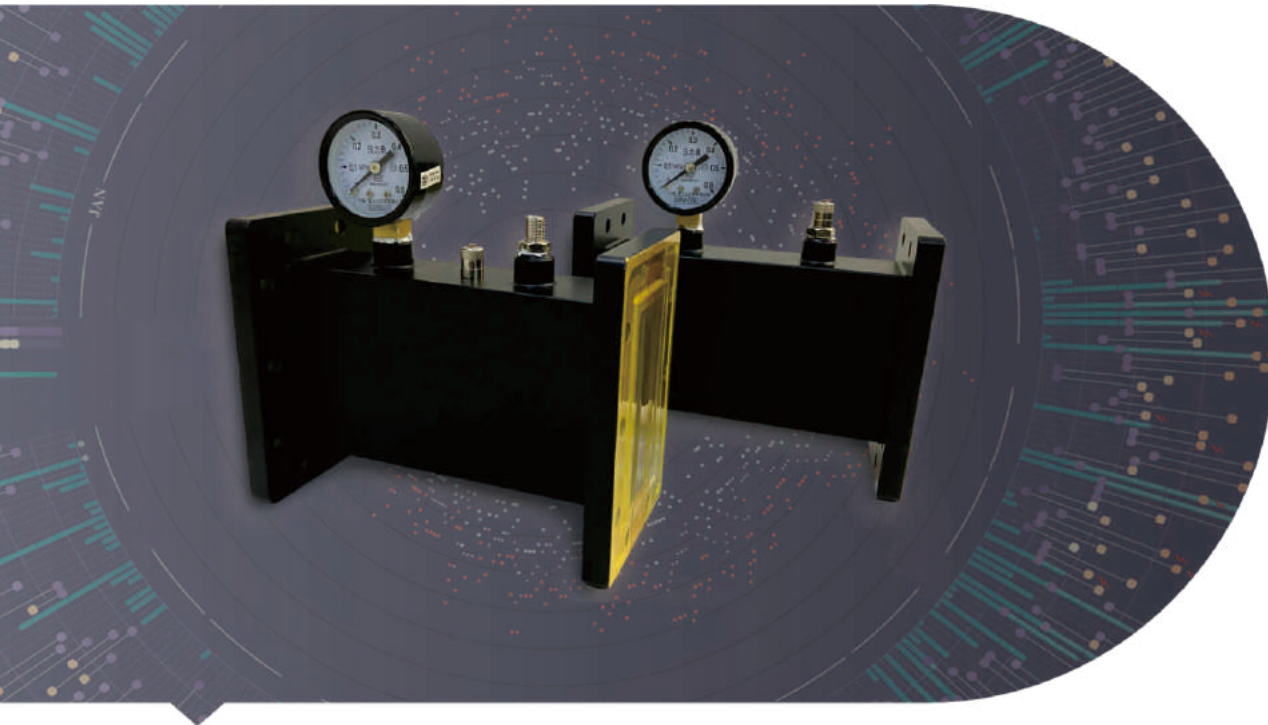
## Ordering Information

### DH - 120 WPW 10 P M A

DH	Dolph Microwave
120	WR75
WPW	Waveguide Pressure Windows
WPVW	Waveguide Pressure Vacuum Window
10	Thickness 10 mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# WAVEGUIDE PRESSURE INLETS SECTION



## → Features

**Waveguide size:** WR2300 to WR10

**Pressure:** At least 15psi

**Type:** With and without gauge

**Material:** Al and Cu

**Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide pressure inlets section is pressuring waveguide system air or other gases. Optional with/without gauge to monitor the internal pressure. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	Thickness (mm)	Pressure (PSIG)
DH-14WPI...	WR650	1.13-1.73	1.05	50	15-45
DH-18WPI...	WR510	1.45-2.20	1.05	50	15-45
DH-22WPI...	WR430	1.72-2.61	1.05	19	15-45
DH-26WPI...	WR340	2.17-3.30	1.05	19	15-45
DH-32WPI...	WR284	2.60-3.95	1.05	19	15-45
DH-40WPI...	WR229	3.22-4.9	1.05	19	15-45
DH-48WPI...	WR187	3.94-5.99	1.05	19	15-45
DH-58WPI...	WR159	4.64-7.05	1.05	19	15-45
DH-70WPI...	WR137	5.38-8.17	1.05	19	15-45
DH-84WPI...	WR112	6.57-9.99	1.05	19	15-45
DH-100WPI...	WR90	8.20-12.40	1.05	19	15-45
DH-120WPI...	WR75	9.84-15.0	1.05	19	15-45
DH-140WPI...	WR62	11.9-18.0	1.05	19	15-45
DH-180WPI...	WR51	14.5-22.0	1.05	19	15-45
DH-220WPI...	WR42	17.6-26.7	1.05	19	15-45
DH-260WPI...	WR34	21.7-33.0	1.05	19	15-45
DH-320WPI...	WR28	26.3-40.0	1.05	19	15-45
DH-400WPI...	WR22	33.0-50.0	1.05	19	15-20
DH-500WPI...	WR19	40.0-60.0	1.05	19	15-20
DH-620WPI...	WR15	55.0-65.0	1.05	19	15-20
DH-740WPI...	WR12	60.5-91.9	1.05	19	15-20
DH-900WPI...	WR10	73.8-112.0	1.05	19	15-20

Inlet Size	Flange Type	Inside Finish	Body Finish	Material
1/8-27 NPT	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
1/8-27 NPT	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
1/8-27 NPT	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
1/8-27 NPT	FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

DH - 120 WPI 19 P M A

DH Dolph Microwave

120 WR75

WPI Pressure Inlets

WPISG Inlets Section with Pressure Gauge

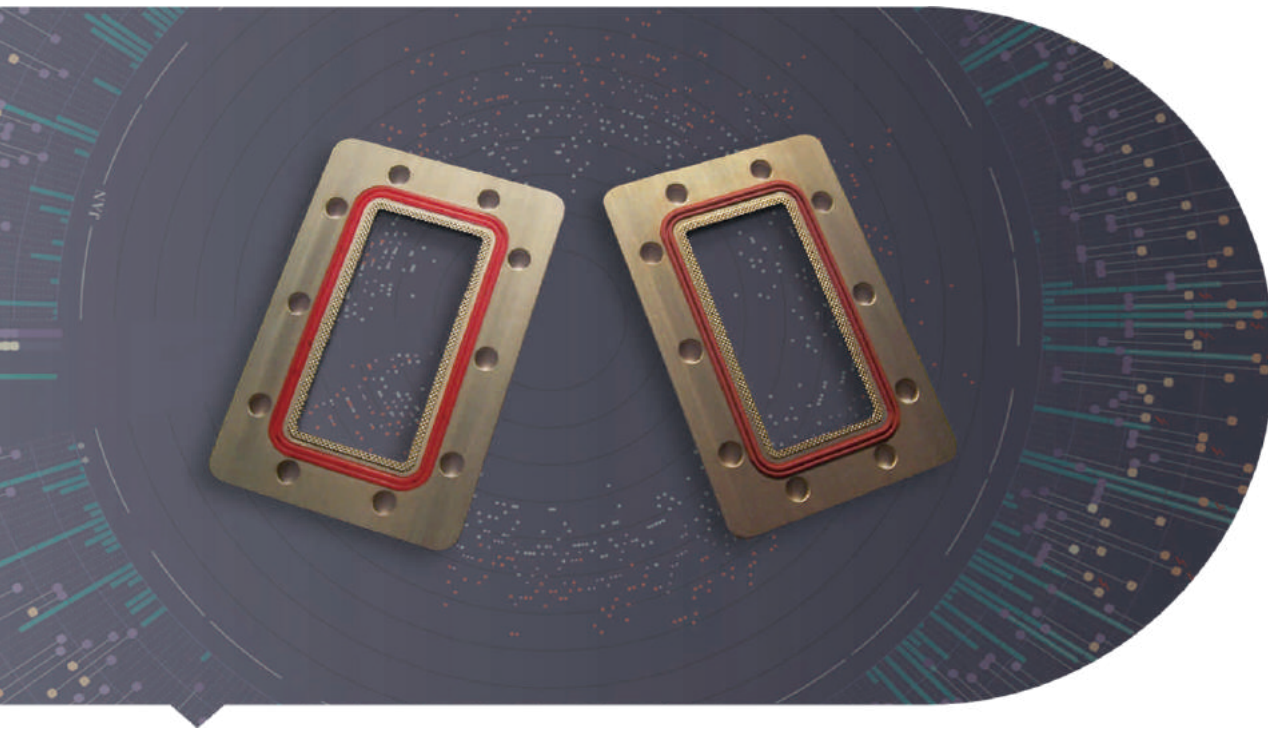
19 Thickness 19 mm

P Flange Cover

M Flange Grooved

A Material Al

# WAVEGUIDE FLANGE SHIM



## → Features

**Waveguide size:** WR2300 to WR10

**Thickness:** 3mm, 5mm, or others

**Type:** Standard or sealed optional

**Material:** Al and Cu

**Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave waveguide flange shim is to reduce the connection gaps between waveguide components. Optional in standard and sealed type. Thickness can be selected by 3mm, 5mm and 100mm. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR	Thickness (mm)
DH-3WFS...	WR2300	0.32-0.49	1.05	0.2
DH-4WFS...	WR2100	0.35-0.53	1.05	0.2
DH-5WFS...	WR1800	0.41-0.62	1.05	0.2
DH-6WFS...	WR1500	0.49-0.75	1.05	0.2
DH-8WFS...	WR1150	0.64-0.98	1.05	0.2
DH-9WFS...	WR975	0.75-1.15	1.05	0.2
DH-12WFS...	WR770	0.96-1.46	1.05	0.2
DH-14WFS...	WR650	1.13-1.73	1.05	0.2
DH-18WFS...	WR510	1.45-2.20	1.05	0.2
DH-22WFS...	WR430	1.72-2.61	1.05	0.2
DH-26WFS...	WR340	2.17-3.30	1.05	0.2
DH-32WFS...	WR284	2.60-3.95	1.05	0.2
DH-40WFS...	WR229	3.22-4.9	1.05	0.2
DH-48WFS...	WR187	3.94-5.99	1.05	0.2
DH-58WFS...	WR159	4.64-7.05	1.05	0.2
DH-70WFS...	WR137	5.38-8.17	1.05	0.2
DH-84WFS...	WR112	6.57-9.99	1.05	0.2
DH-100WFS...	WR90	8.20-12.40	1.05	0.1
DH-120WFS...	WR75	9.84-15.0	1.05	0.1
DH-140WFS...	WR62	11.9-18.0	1.05	0.1
DH-400WFS...	WR22	33.0-50.0	1.05	0.1
DH-500WFS...	WR19	40.0-60.0	1.05	0.1
DH-620WFS...	WR15	55.0-65.0	1.05	0.1
DH-740WFS...	WR12	60.5-91.9	1.05	0.1
DH-900WFS...	WR10	73.8-112.0	1.05	0.1

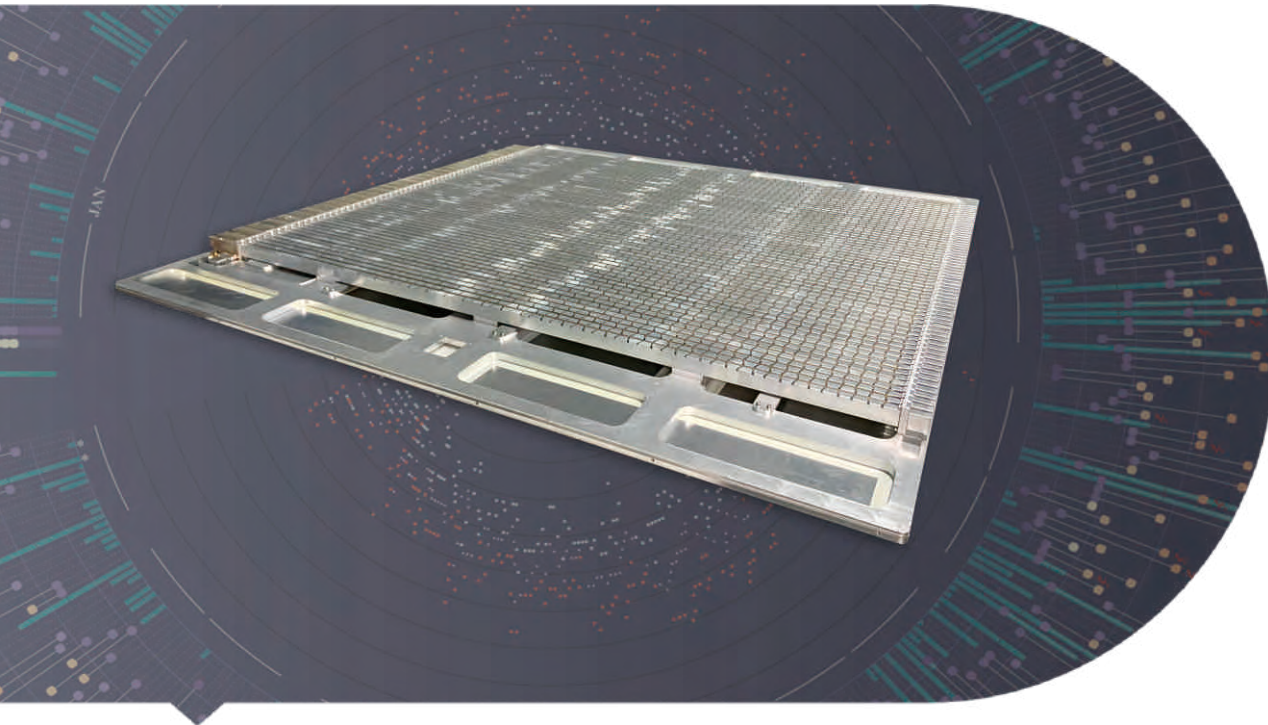
Flange Type	Inside Finish	Body Finish	Material
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

DH - 120 WFS 0.1 P P A

DH	Dolph Microwave
120	WR75
WFS	Waveguide Flange Shim
0.1	Thickness 0.1mm
P	Flange Cover
P	Flange Cover
A	Material Al

# WAVEGUIDE ARRAY ANTENNA



## → Features

- Waveguide size: WR2300 to WR10
- Arrays: 4/ 16/ 64/ 128 arrays
- Polarization: Single/ Dual
- Connector: SMA, N, 2.92 or others.
- Configuration: With/without coaxial adapter and load

## → Description

Dolph Microwave waveguide array antenna is used in navigation radar as an array feed by a waveguide. Optional in array amount. It's configured with/without coaxial adapter and load. Polarization available in single and dual. Radome and baseplate can be selected.

Model	WR Type	Frequency (Ghz)	VSWR	Az Beamwidth (degree)	Scan Range (degree)
DH-SWRAX04-1500...	WR90	9.30-9.50	1.4	1.8	±25
DH-SWRAX04-1800...	WR90	9.30-9.50	1.4	1.5	±25
DH-SWRAX04-2200...	WR90	9.30-9.50	1.4	1.8	±25

Cross Polarization (dB)	Sidelobe Level (dB)	Beam Pointing Accuracy (degree)	Beamwidth Accuracy (degree)	Gain Accuracy (dB)	Polarization
30	25	±0.18	±0.1	±0.5	H/V-LP
30	25	±0.15	±0.08	±0.5	H/V-LP
30	25	±0.12	±0.06	±0.5	H/V-LP

Feed Type	Length (mm)	Number of Channels	Interface Type	IP Protection Level	Radome	Material
Center/End Feed	1500	4/8/16/32/64	SMA-Female	IP64	Carbon fiber	Al
Center/End Feed	1800	4/8/16/32/64	SMA-Female	IP64	Carbon fiber	Al
Center/End Feed	2200	4/8/16/32/64	SMA-Female	IP64	Carbon fiber	Al

## Ordering Information

### DH - SWRA X 04 -1500 LPD S K A

DH	Dolph Microwave
SWRA	Slotted Waveguide Array Antenna
X	Freq. Band
4	Fourth Generation
1500	Length 1500 mm
LPD	Dual Linear Pol. H+V
LPS	Single Linear Pol. H or V
S	Feed Interface SMA
K	Female
A	Material Al



# WAVEGUIDE STANDARD GAIN HORN ANTENNA



## → Features

- Waveguide size: WR2300 to WR10
- VSWR: 1.25(Typical); 1.15(Precision)
- Connector: N, TNC, 7-16, SMA, 2.92, 2.4, 3.5(F/M)
- Input: Waveguide or coaxial
- Material: Al/Cu
- Flange: Cover, Grooved and Choke

## → Description

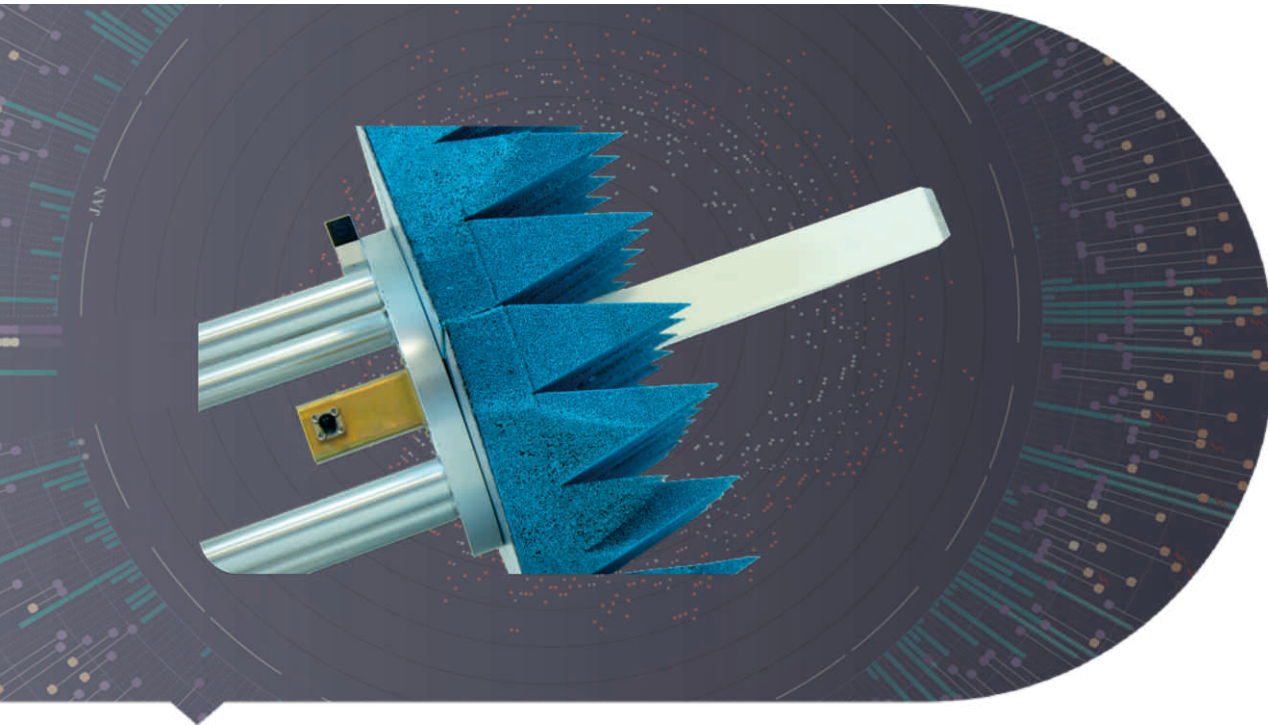
Dolph Microwave Standard gain horn antenna is used in lab test with high gain and low return loss. Input selected with waveguide and coaxial. Connector available in SMA, N-type and 2.92mm connector. Flange can be done as Cover, grooved and chock. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR	Gain (dB)	Flange Type	Connetor
DH-3SGAH...	WR2300	0.32-0.49	1.25-1.30	10	FDP	N
DH-4SGAH...	WR2100	0.35-0.53	1.25-1.30	10	FDP	N
DH-5SGAH...	WR1800	0.41-0.62	1.25-1.30	10	FDP	N
DH-6SGAH...	WR1500	0.49-0.75	1.25-1.30	10	FDP	N
DH-8SGAH...	WR1150	0.64-0.98	1.25-1.30	10/15	FDP	N
DH-9SGAH...	WR975	0.75-1.15	1.25-1.30	10/15	FDP	N
DH-12SGAH...	WR770	0.96-1.46	1.25-1.30	10/15	FDP	N
DH-14SGAH...	WR650	1.13-1.73	1.25-1.30	10/15	FDP	N
DH-18SGAH...	WR510	1.45-2.20	1.25-1.30	10/15	FDP	N
DH-22SGAH...	WR430	1.72-2.61	1.25-1.30	10/15	FDP	N
DH-26SGAH...	WR340	2.17-3.30	1.25-1.30	10/15	FDP	N
DH-32SGAH...	WR284	2.60-3.95	1.25-1.30	10/15/20	FDP	N
DH-40SGAH...	WR229	3.22-4.9	1.25-1.30	10/15/20	FDP	N
DH-48SGAH...	WR187	3.94-5.99	1.25-1.30	10/15/20	FDP	N
DH-58SGAH...	WR159	4.64-7.05	1.25-1.30	10/15/20	FDP	N
DH-70SGAH...	WR137	5.38-8.17	1.25-1.30	10/15/20	FDP	N
DH-84SGAH...	WR112	6.57-9.99	1.25-1.30	10/15/20/25	FDP	N
DH-100SGAH...	WR90	8.20-12.40	1.25-1.30	10/15/20/25	FBP	N/SMA
DH-120SGAH...	WR75	9.84-15.0	1.25-1.30	10/15/20/25	FBP	N/SMA
DH-400SGAH...	WR22	33.0-50.0	1.25-1.50	10/15/20/25	FUGP	1.85
DH-500SGAH...	WR19	40.0-60.0	1.25-1.50	10/15/20/25	FUGP	1.85
DH-620SGAH...	WR15	55.0-65.0	1.25-1.50	10/15/20/25	FUGP	1.85
DH-740SGAH...	WR12	60.5-91.9	1.25-1.50	10/15/20/25	FUGP	1.0
DH-900SGAH...	WR10	73.8-112.0	1.25-1.50	15/20/25	FUGP	1.0

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

Ordering Information	
DH - 120 SGAH 20 + N K P A	
DH	Dolph Microwave
120	WR75
SGAH	Standard Gain Horn
20	Gain 20 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# ANTENNA NEAR FIELD MEASUREMENT PROBE (WOEWP)



## → Features

- Waveguide size: WR2300 to WR10
- Type: Rectangular open-ended waveguide
- Gain: 10, 15, 20dB
- Connector: N, TNC, 7-16, SMA, 2.92, 2.4, 3.5(F/M)
- Material: Al/Cu
- Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave Antenna Near Field Measurement Probe, Rectangular open-ended waveguide Coax-to-waveguide transition is high gain and low return loss. Input selected with waveguide and coaxial. Connector available in SMA, N-type and 2.92mm connector. Both standard and customized can be chosen.

Model	WR Type	Frequency (Ghz)	VSWR	Gain (dB)	Size D*H (mm)
DH-6WPA...	WR1500	0.49-0.75	2.2	7	Φ530*700
DH-8WPA...	WR1150	0.64-0.98	2.2	7	Φ530*650
DH-9WPA...	WR975	0.75-1.15	2.2	7	Φ530*600
DH-12WPA...	WR770	0.96-1.46	2.2	7	Φ530*550
DH-14WPA...	WR650	1.13-1.73	2.2	7	Φ530*460
DH-18WPA...	WR510	1.45-2.20	2.2	7	Φ530*400
DH-22WPA...	WR430	1.72-2.61	2.2	7	Φ530*330
DH-26WPA...	WR340	2.17-3.30	2.2	7	Φ530*280
DH-32WPA...	WR284	2.60-3.95	2.2	7	Φ140*240
DH-40WPA...	WR229	3.22-4.9	2.2	7	Φ140*210
DH-48WPA...	WR187	3.94-5.99	2.2	7	Φ140*180
DH-58WPA...	WR159	4.64-7.05	2.2	7	Φ140*150
DH-70WPA...	WR137	5.38-8.17	2.2	7	Φ140*130
DH-84WPA...	WR112	6.57-9.99	2.2	7	Φ140*110
DH-100WPA...	WR90	8.20-12.40	2.2	7	Φ140*100
DH-120WPA...	WR75	9.84-15.0	2.2	7	Φ140*90
DH-140WPA...	WR62	11.9-18.0	2.2	7	Φ80*80
DH-180WPA...	WR51	14.5-22.0	2.2	7	Φ80*70
DH-220WPA...	WR42	17.6-26.7	2.2	7	Φ80*70
DH-260WPA...	WR34	21.7-33.0	2.2	7	Φ80*60
DH-320WPA...	WR28	26.3-40.0	2.2	7	Φ80*60
DH-400WPA...	WR22	33.0-50.0	2.2	7	Φ80*50
DH-500WPA...	WR19	40.0-60.0	2.2	7	Φ80*50

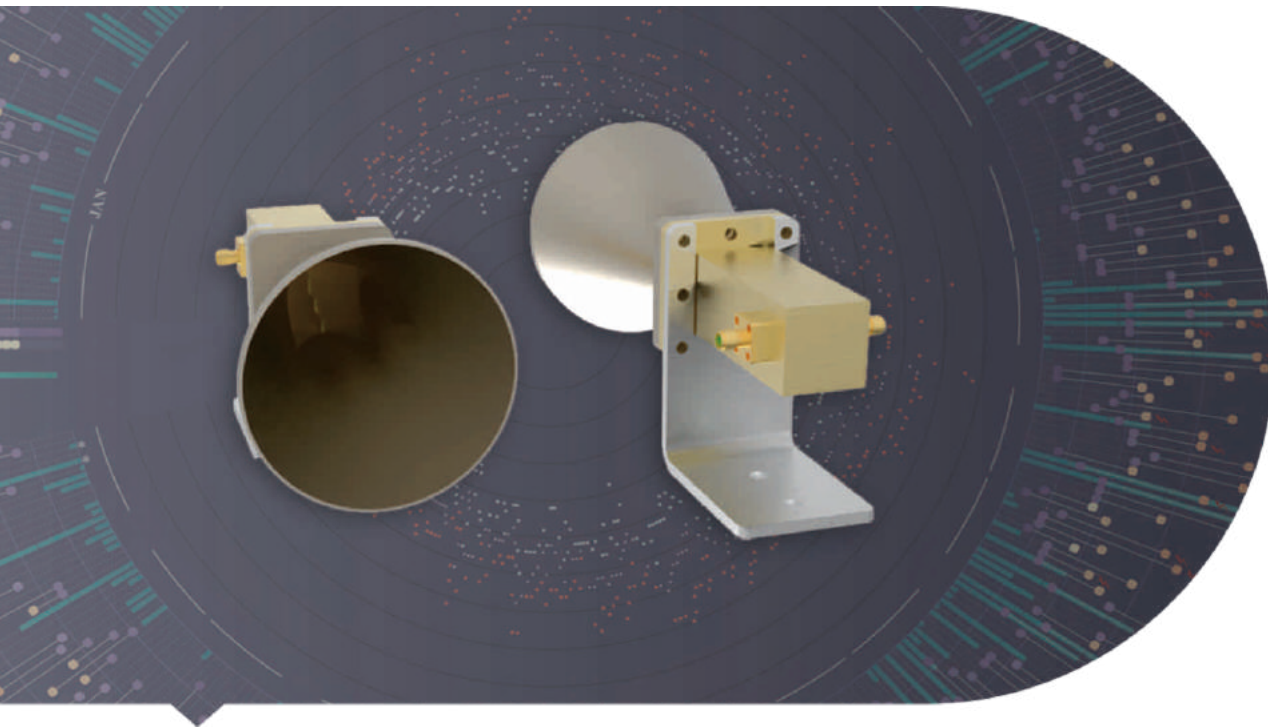
Connector	Body Finish	Material
N-50K	Anticorrosion Black Painted	Al/Brass
N-50K	Anticorrosion Black Painted	Al/Brass
N-50K	Anticorrosion Black Painted	Brass
N-50K	Anticorrosion Black Painted	Brass

## Ordering Information

DH - 120 WPA 7 N K P A

DH	Dolph Microwave
120	WR75
WPA	Waveguide Probe
7	Gain 7 dB
N	Connector Type
K	Female
A	Material Al

# LINEAR, CIRCULAR POLARIZATION HORN ANTENNA



## → Features

- Waveguide size: WR2300 to WR10
- Gain: 10, 15, 20dB
- Polarization: Linear and Circular
- Connector: N, TNC, SMA, 2.92, 3.5(F/M) or others
- Material: Al/Cu
- Flange: Cover, Grooved and Choke

## → Description

Dolph Microwave Linear/Circular Polarization Horn Antenna is high gain and low return loss, configured with coaxial adapter. Connector available in SMA, N-type and 2.92mm connector. Both standard and customized can be chosen in mechanical configurations.

Model	Frequency (Ghz)	VSWR Max.	Gain (dB)	Beam Width (degree)	Polarization
DH-1T6LPHA5...	1.0-6.0	2.5	5	15-55	VLP+HLP
DH-1T10CPHA10...	1.0-10.0	1.5	10	20-80	RHCP+LHCP
DH-2T2.3CPHA20...	2.0-2.3	1.5	10.0	15	RHCP+LHCP
DH-7.25T7.75CPHA20...	7.25-7.75	1.5	20	15	RHCP+LHCP
DH-7.9T8.4CPHA20...	7.9-8.4	1.5	20	15	RHCP+LHCP
DH-8T8.5CPHA10...	8.0-8.5	1.5	10	15	RHCP+LHCP
DH-10.95T14.5CPHA8...	10.95-14.5	1.5	8	50	RHCP+LHCP
DH-20.2T21.2CPHA20...	20.2-21.2	1.5	20	10-17	RHCP+LHCP
DH-30T31CPHA20...	30.0-31.0	1.5	20	10-17	RHCP+LHCP

Cross Polarization (dB)	Connector Type	Size (mm)	Body Finish	Material
20	SMA-Female	228*166*166	Anticorrosion White Painted	Al
AR 2.0	N-Female	284*212*212	Anticorrosion White Painted	Al
AR 1.0	N-Female	746*368*116	Anticorrosion White Painted	Al
AR 0.5	2.92-Female	290*203*80	Anticorrosion White Painted	Al
AR 0.5	2.92-Female	290*203*80	Anticorrosion White Painted	Al
AR 0.5	N-Female	290*203*80	Anticorrosion White Painted	Al
AR 2.0	N-Female	88*70*34	Anticorrosion White Painted	Al
AR 0.5	2.92-Female	144*140*39	Anticorrosion White Painted	Al
AR 0.5	2.92-Female	113*100*33	Anticorrosion White Painted	Al

## Ordering Information

### DH - 7.9T8.4 CPHA 20 N K A

DH	Dolph Microwave
7.9T8.4	Operation Freq. 7.9-8.4 GHz
CPHA	Circular Pol. Horn Antenna
LPHA	Linear Pol. Horn Antenna
20	Gain 20 dB
N	Connector Type
K	Female
A	Material Al



# WAVEGUIDE CALIBRATION AND VERIFICATION KITS



## → Features

**Waveguide size:** WR2300 to WR10

**Optional with components:** WG to Coaxial Adapter, Matched Termination, WG Short Plate, Precision WG Section, Screws

**Material:** Al/Cu

**Packing:** Packing Case of Aluminum Alloy

**Calibration type:** SOLT, SSLT, LRT

**Flange:** Cover, Grooved and Choke

## → Description

Dolph Microwave Waveguide Calibration & Verification Kits is designed to provide accurate calibration of VNAs. Each of components in this kits should be guaranteed calibration of most VNAs to ensure high directivity after calibration. Both standard and customized can be chosen in mechanical configurations.

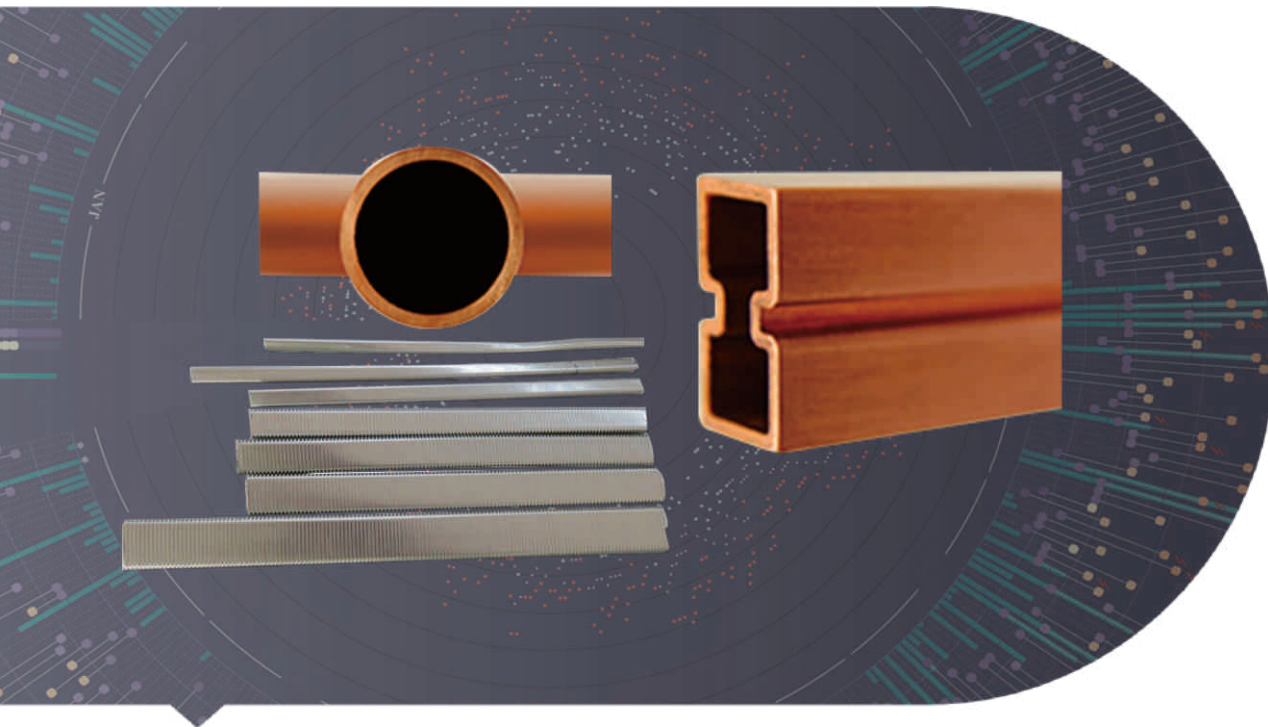
Model	WR Type	Frequency (Ghz)	Connector
DH-9VNAWKN	WR959	0.7-1.15	N Female
DH-12VNAWKN	WR770	0.96-1.46	N Female
DH-14VNAWKN	WR650	1.13-1.73	N Female
DH-18VNAWKN	WR510	1.45-2.20	N Female
DH-22VNAWKN	WR430	1.72-2.61	N Female
DH-26VNAWKN	WR340	2.17-3.30	N Female
DH-32VNAWKN	WR284	2.6-3.95	N Female
DH-40VNAWKN	WR229	3.22-4.90	N Female
DH-48VNAWKN	WR187	3.94-5.99	N Female
DH-58VNAWKN	WR159	4.64-7.05	N Female
DH-70VNAWKN	WR137	5.38-8.17	N Female
DH-84-VNAWKN	WR112	6.57-9.99	N Female
DH-100VNAWKN	WR90	8.20-12.4	N Female
DH-120VNAWKN	WR75	9.84-15.0	N Female
DH-140VNAWKS	WR62	11.9-18.0	SMA Female
DH-180VNAWKS	WR51	14.5-22.0	SMA Female
DH-220VNAWKK	WR42	17.6-26.7	2.92 Female
DH-260VNAWKK	WR34	21.7-33.0	2.92 Female
DH-320VNAWKK	WR28	26.5-40	2.92 Female
DH-650DRVNAWKS	WRD650	6.5-18	SMA Female
DH-750DRVNAWKS	WRD750	7.5-18	SMA Female
DH-700DRVNAWKS	WRD700	7-18.5	SMA Female
DH-110DRVNAWKK	WRD110	11-26.5	2.92 Female
DH-180DRVNAWKK	WRD180	18-40	2.92 Female

Flange	Body Finish	Material
FP	Anticorrosion Black Painted	Al/Brass
FP	Anticorrosion Black Painted	Al/Brass
FP	Anticorrosion Black Painted	Al/Brass
FP	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 120 VNA WK N C	
DH	Dolph Microwave
120	WR75
VNA	Calibration and Verification
DRVNA	Double-Ridged Waveguide Calibration Kits
WK	Waveguide Kits
N	Connector Type
K	Female
C	Material Cu

# WAVEGUIDE TUBE



## → Features

Waveguide size: WR2300 to WR10  
 Length: Up to 3 meter  
 Material: Al or Cu  
 Type: Standard, Thin, Heavy wall thickness

## → Description

Dolph Microwave Waveguide Tube WR2300 to WR10 is available in standard, thin, and heavy wall thickness. The length and material can be chosen upon request.

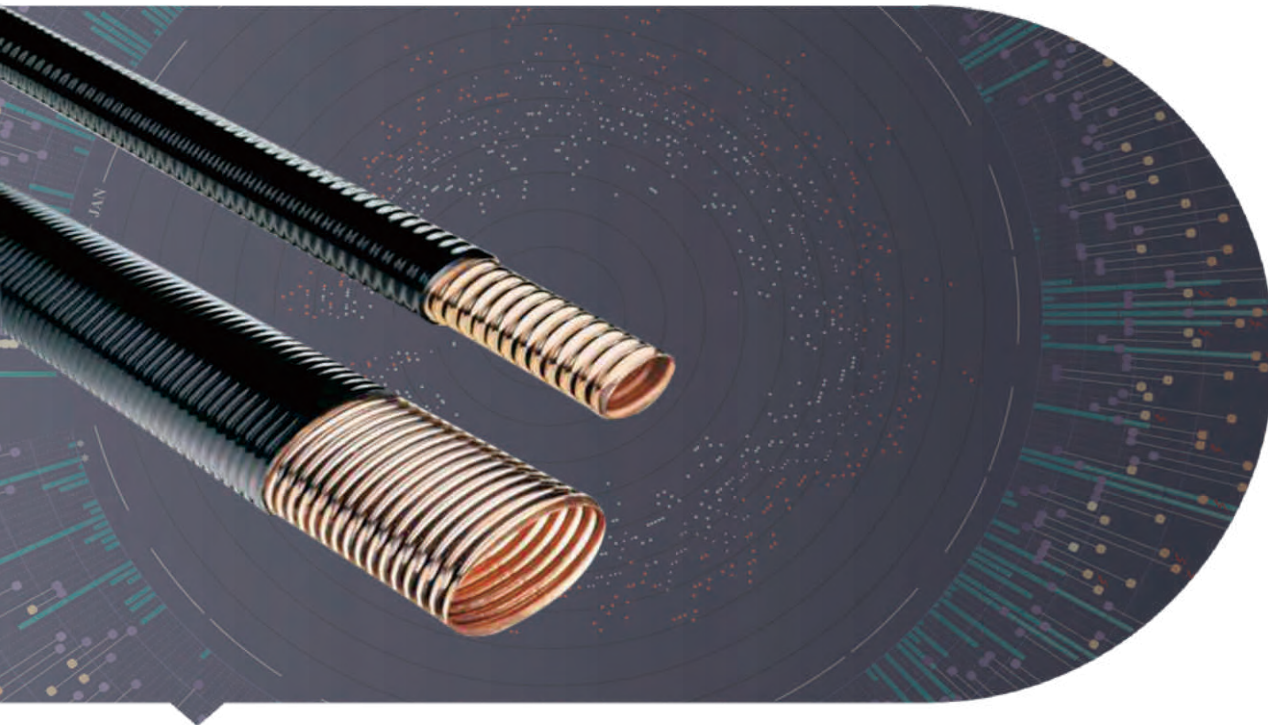
Model	EIA WG	IEC WG	Freq Range (Ghz)	Material
DH-3WT...	WR2300	R3	0.32-0.49	Al
DH-4WT...	WR2100	R4	0.35-0.53	Al
DH-5WT...	WR1800	R5	0.41-0.62	Al
DH-6WT...	WR1500	R6	0.49-0.75	Al
DH-8WT...	WR1150	R8	0.64-0.98	Al
DH-9WT...	WR975	R9	0.76-1.15	Al
DH-12WT...	WR770	R12	0.96-1.46	Al
DH-14WT...	WR650	R14	1.13-1.73	Cu/Al
DH-18WT...	WR510	R18	1.45-2.2	Cu/Al
DH-500WT...	WR19	R500	39.2-59.6	Cu
DH-620WT...	WR15	R620	49.8-75.8	Cu
DH-740WT...	WR12	R740	60.5-91.9	Cu
DH-900WT...	WR10	R900	73.8-112	Cu

Inside Dimensions (mm)	Std Tol±Inside Dim(mm)	Nom Wall Thickness(mm)	Outside Dimensions (mm)	Std Tol±Outside Dim(mm)
584.2*292.1		6		
533.4*266.7		5		
457.2*228.6	0.51	5		
381*190.5	0.38	3.18		
292.1*146.05	0.38	3.18		
247.65*123.82		3.18		
195.58*97.79		3.18		
165.1*82.55	0.33	2.03	169.16*86.61	0.2
129.54*64.77	0.26	2.03	133.6*68.83	0.2
4.775*2.388	0.02	1.015	6.81*4.42	0.05
3.795*1.88	0.02	1.015	5.79*3.91	0.05
3.0988*1.5494	0.0127	1.015	5.13*3.58	0.05
2.54*1.27	0.0127	1.015	4.57*3.3	0.05

Freq of Cut-Off for TE <sub>1,0</sub> Mode(GHz)	Wave-length of Cut-Off for TE <sub>1,0</sub> Mode(mm)	Theoretical Attenuation lowest to highest freq (dB/100ft)	
		Al	Cu
31.393	9.55		43.603-64.367
39.499	7.52		62.425-92.152
48.374	6.2		83.409-123.128
59.016	5.08		112.397-165.920

Ordering Information	
DH - 120 WT 100 A	
DH	Dolph Microwave
120	WR75
WT	Waveguide Tube
100	Length 100 mm
A	Material Al

# ELLIPTICAL WAVEGUIDES



## → Features

- Frequency range: 1.7 to 26.5 GHz
- Low insertion loss
- Low Signal Distortion
- High VSWR Performance
- Length:** Upon request
- Material:** Cu

## → Description

Dolph Microwave Elliptical Waveguide is selected for feeder of most microwave antenna systems in 1.7 to 26.5 GHz. All elliptical waveguide is jacketed unless specified requirement. Customized length, splice and other accessories are optional upon request.

Model	Freq Range (Ghz)	VSWR	IL (dB/100m)	WG Type
DH-26EWAL...	2.2-2.6	1.2	3@2.2G	WR340
DH-32EWAL...	2.6-3.1	1.2	2.6@3.1G	WR284
DH-26REWAL...	2.5-2.7	1.25	2.8@2.5G 2.3@2.7G	WR340
DH-40EWAL...	3.4-4.2	1.1	3.6@3.4G 2.6@4.2G	WR229
DH-48EWAL...	4.4-5.0	1.1	4.7@4.4G 3.8@5.0G	WR187
DH-58REWAL...	5.0-6.0	1.1	5.3@5.0G 4.3@6.0G	WR159
DH-70EWAL...	5.85-7.125	1.15	5.2@5.9G 4.5@7.1G	WR137
DH-84EWAL...	7.1-8.4	1.1	6.3@7.1G 5.6@8.5G	WR112
DH-100EWAL...	8.5-10.0	1.15	11.2@8.6G 9.5@10.0G	WR90
DH-100-2EWAL...	10.0-11.7	1.15	10.3@10.7G 9.8@11.7G	WR90
DH-120EWAL...	10.95-12.75	1.2	10.8@10.95G 10.5@12.75G	WR75
DH-120-2EWAL...	12.7-13.3	1.1	11.5@12.7G 11.2@13.3G	WR75
DH-140EWAL...	14.0-15.35	1.2	16.5@14.0G 15.5@15.4G	WR62
DH-220EWAL...	17.7-19.7	1.25	20.5@17.7G 19.0@19.7G	WR42

Size (mm)	Weight (kg/m)	E-beng Radius (min)	H-beng Radius (min)	Pressure (PSIG)	Material
100*63	2.6	800	2000	15	Cu
100*63	2.6	800	2000	15	Cu
108*61	2.5	600	1500	15	Cu
79*43	1.7	340	840	15	Cu
72*42	1.4	300	750	15	Cu
58*38	1	240	580	15	Cu
51*31	0.85	220	550	15	Cu
45*28	0.72	200	520	15	Cu
37*24	0.6	160	350	15	Cu
34*21	0.5	150	300	15	Cu
27*16	0.4	150	300	15	Cu
27*16	0.4	150	300	15	Cu
25*16	0.34	150	300	15	Cu
24*16	0.22	150	300	15	Cu

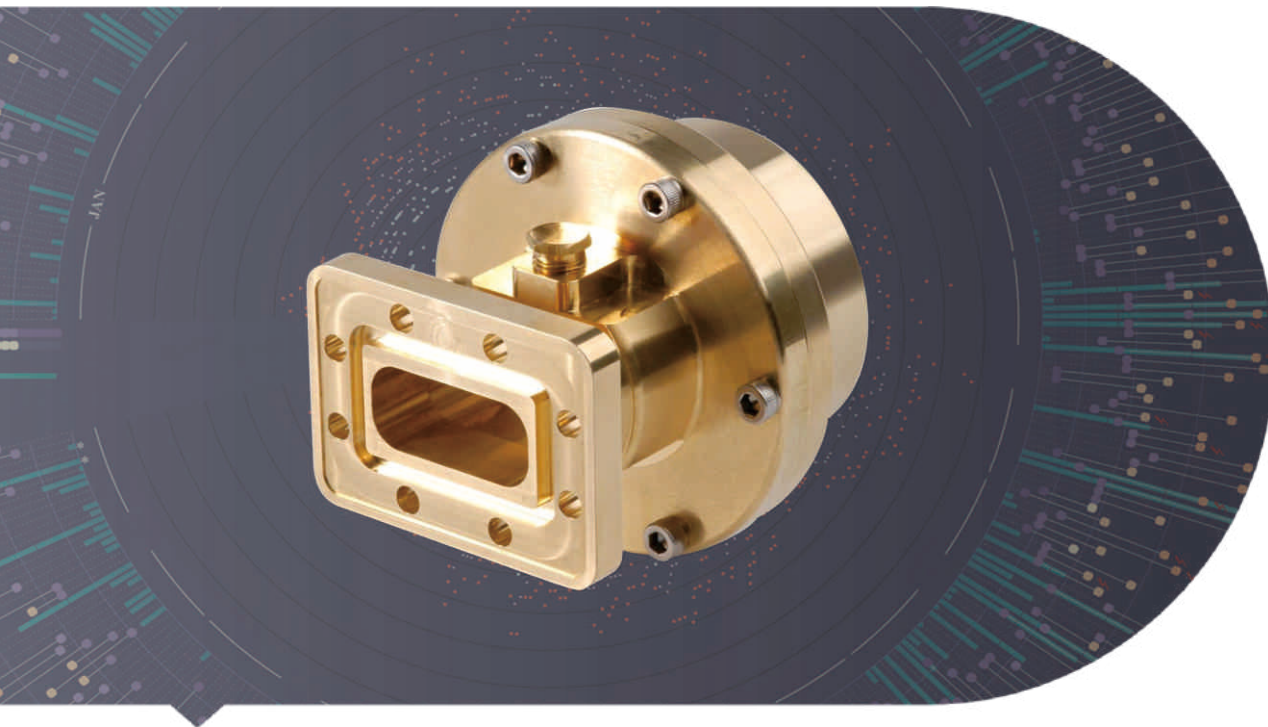
## Ordering Information

### DH - 120 EWAL 300 C

DH	Dolph Microwave
120	WR75
EWAL	Elliptical Waveguide
300	Length 300 meter
C	Material Cu



# ELLIPTICAL TO RECTANGULAR WAVEGUIDE ADAPTER



## → Features

- Frequency range: 1.7 to 26.5 GHz
- Low insertion loss
- High VSWR Performance
- High power handling
- Material: Cu

## → Description

Dolph Microwave Elliptical to rectangular waveguide adapter is available in 1.7 to 26.5 GHz specified as connection between Elliptical and rectangular waveguide. Both standard and customized can be chosen in mechanical configurations.

Model	Freq Range (Ghz)	VSWR	IL (dB)	Peak Power (KW)	WG Type	Interface
DH-26EWALT...	2.2-2.6	1.05	0.01	550	WR340	UAR26/CAR26
DH-32EWALT...	2.6-3.1	1.05	0.01	550	WR284	UDR32/PDR32
DH-40EWALT...	3.4-4.2	1.05	0.01	310	WR229	UDR40/PDR40
DH-48EWALT...	4.4-5.0	1.05	0.01	190	WR187	UDR48/PDR48
DH-48REWALT...	5.0-6.0	1.05	0.01	150	WR187	UAR48/CAR48
DH-70REWALT...	5.85-7.125	1.05	0.01	100	WR137	UDR70/PDR70
DH-84REWALT...	7.1-8.5	1.05	0.01	80	WR112	UAR84/CAR84
DH-100REWALT...	10.0-11.7	1.05	0.01	80	WR90	UDR100/PDR100
DH-120REWALT...	10.95-12.75	1.05	0.01	50	WR75	UBR120/PBR120
DH-140REWALT...	5.0-6.0	1.05	0.01	30	WR62	UAR48/CAR48

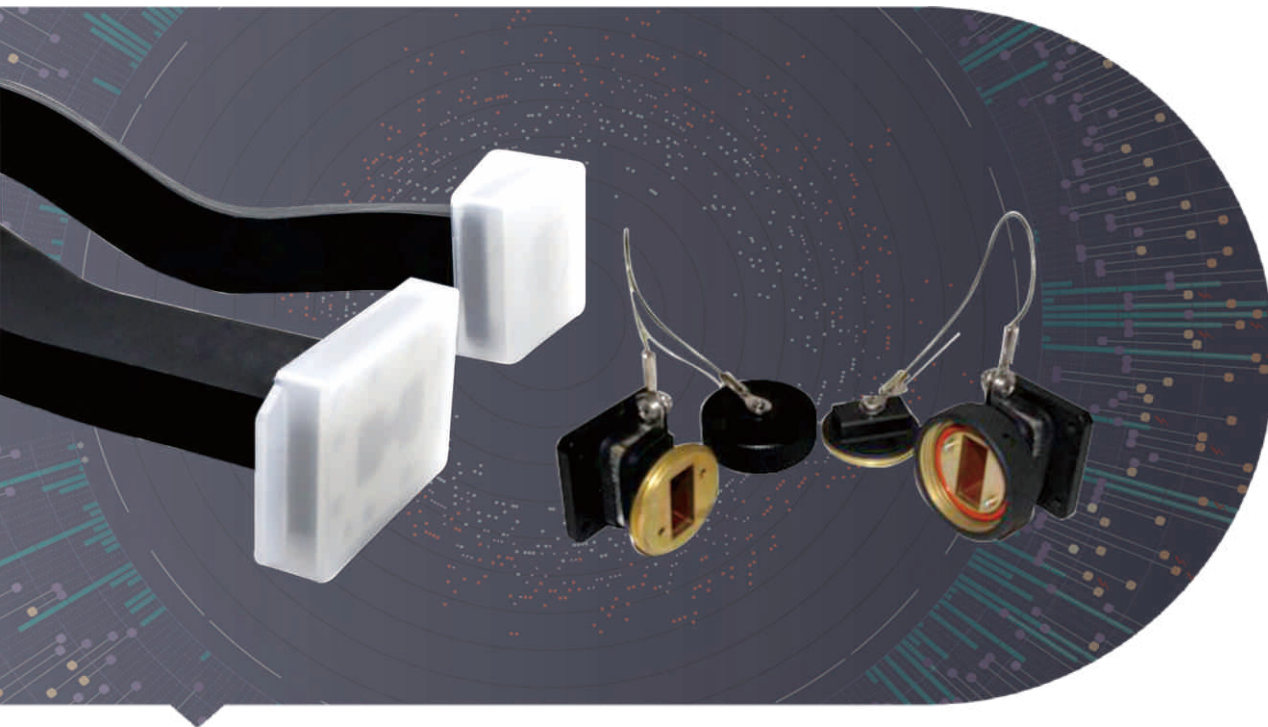
Body Style	Length (mm)	Transition Length (mm)	Width (mm)	Weight (kg)	Material
Adjustable	260	180	160	WR340	Brass
Adjust-free	260	180	152	WR284	Brass
Adjustable	240	170	125	WR229	Brass
Adjustable	180	120	106	WR187	Brass
Adjustable	180	120	94	WR187	Brass
Adjustable	102	69	68	WR137	Brass
Adjustable	94	64	60	WR112	Brass
Adjustable	86	44	44	WR90	Brass
Adjustable	84	44	44	WR75	Brass
Adjustable	82	39	39	WR62	Brass

## Ordering Information

### DH - 120 EWALT P A

DH	Dolph Microwave
120	WR75
EWALT	Elliptical to Rectangular Waveguide Adapter
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE QUICK RELEASE CONNECTOR & DUST COVERS



## → Features

- Waveguide size: WR2300 to WR10
- Fast Waveguide Connection
- Easy Installation
- Material: Al/Cu
- Flange: Cover, Grooved and Choke(UG/CPR)
- Optional: With/Without dust cover

## → Description

Dolph Microwave Waveguide quick release connector is easy installation unnecessary of screws and nuts. Flange available in grooved, choke and cover. Selected with or without dust cover. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL (dB)	Length (mm)
DH-32QDPM...	WR284	2.60-3.95	1.05	0.1	76.2
DH-40QDPM...	WR229	3.22-4.9	1.05	0.1	76.2
DH-48QDPM...	WR187	3.94-5.99	1.05	0.1	76.2
DH-58QDPM...	WR159	4.64-7.05	1.05	0.1	76.2
DH-70QDPM...	WR137	5.38-8.17	1.05	0.1	76.2
DH-84QDPM...	WR112	6.57-9.99	1.05	0.1	76.2
DH-100QDPM...	WR90	8.20-12.40	1.05	0.1	76.2
DH-120QDPM...	WR75	9.84-15.0	1.05	0.1	76.2
DH-140QDPM...	WR62	11.9-18.0	1.05	0.1	76.2
DH-180QDPM...	WR51	14.5-22.0	1.05	0.1	76.2
DH-220QDPM...	WR42	17.6-26.7	1.05	0.1	76.2
DH-260QDPM...	WR34	21.7-33.0	1.05	0.1	76.2
DH-320QDPM...	WR28	26.3-40.0	1.05	0.1	76.2
DH-400QDPM...	WR22	33.0-50.0	1.05	0.1	76.2

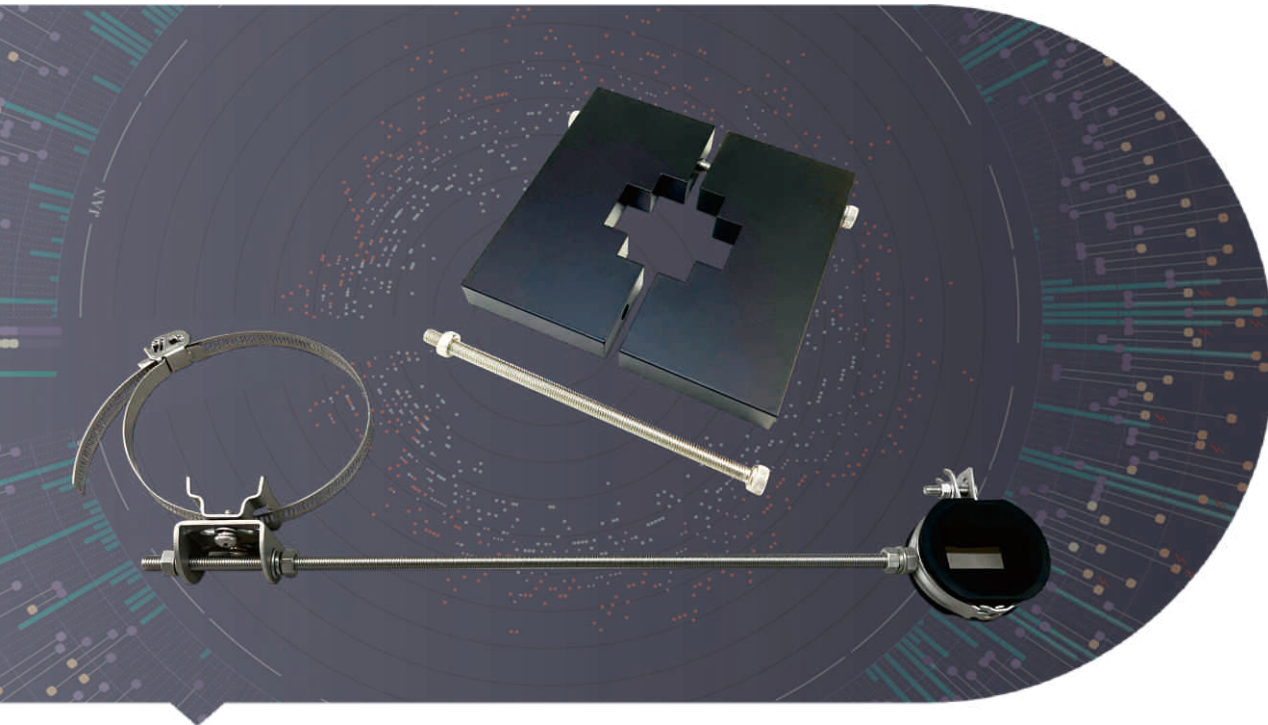
Flange Type	Inside Finish	Body Finish	Material
FBP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FBP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FBP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FUGP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Brass

## Ordering Information

### DH - 120 QD P M A

DH	Dolph Microwave
120	WR75
QD	Waveguide Quick Disconnect Assembly
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE STANDOFF AND HANGERS



## → Features

Waveguide size: WR2300 to WR10

Type: Clamp and standoff

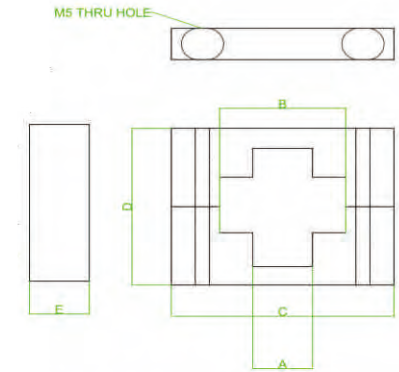
Material: Plastic

Application: Single, double, triple or quadruple waveguide

## → Description

Dolph Microwave waveguide standoff and hanger is easy for rectangular waveguide installation indoor and outdoor. Optional in single, double, triple or quadruple waveguide configurations. Both standard and customized can be chosen in mechanical configurations.

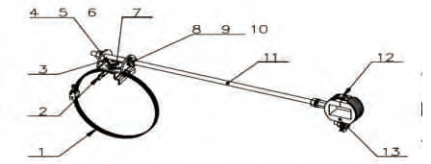
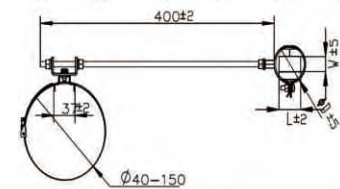
Model	WR Size	A	B	C	D	E
DH-22-831/200	WR430	58.8	113.41	171.45	171.45	12.7
DH-32-831/200	WR284	38.23	76.33	139.7	139.7	12.7
DH-40-831/200	WR229	32.46	61.29	127	127	12.7
DH-48-831/200	WR187	25.53	50.93	114.3	114.3	12.7
DH-58-831/200	WR159	23.57	43.76	101.6	101.6	12.7
DH-70-831/200	WR137	19.18	38.23	101.6	101.6	12.7
DH-84-831/200	WR112	16	31.88	31.88	31.88	12.7
DH-100-831/200	WR90	12.83	25.53	63.5	63.5	12.7
DH-120-831/200	WR75	12.2	21.72	50.8	50.8	12.7
DH-140-831/200	WR62	10.06	17.96	50.8	50.8	12.7



Model	Hoop Dia. (mm)	Rubber Part (W*L/mm)
DH-48-83010 (WR187)	90	58*32
DH-70-83010 (WR137)	62	45*25
DH-84-83010 (WR112)	50	38*22
DH-100-83010 (WR90)	50	31*19
DH-120-83010 (WR75)	38	28*17
DH-140-83010 (WR62)	38	25*15
DH-220-83010 (WR42)	38	19*12
DH-320-83010 (Wr28)	38	14*10

Material	Stainless steel 304
Operation Temperature	-20°C ~ +85°C

1	Throat hoop	40-150mm
2	Pedestal	M6
3	Swivel Bracket	45*44.2*2.7
4	M6 Flat Pad	M6
5	M6 Spring Pad	M6
6	M6 Phillips Screws	M6*12
7	Rivet	φ4
8	M8 Flat Pad	M8
9	M8 Spring Pad	M8
10	M8 Nut	M8
11	tooth bar	M8*400
12	Hoop	38-90mm
13	Rubber parts	WR187-WR28



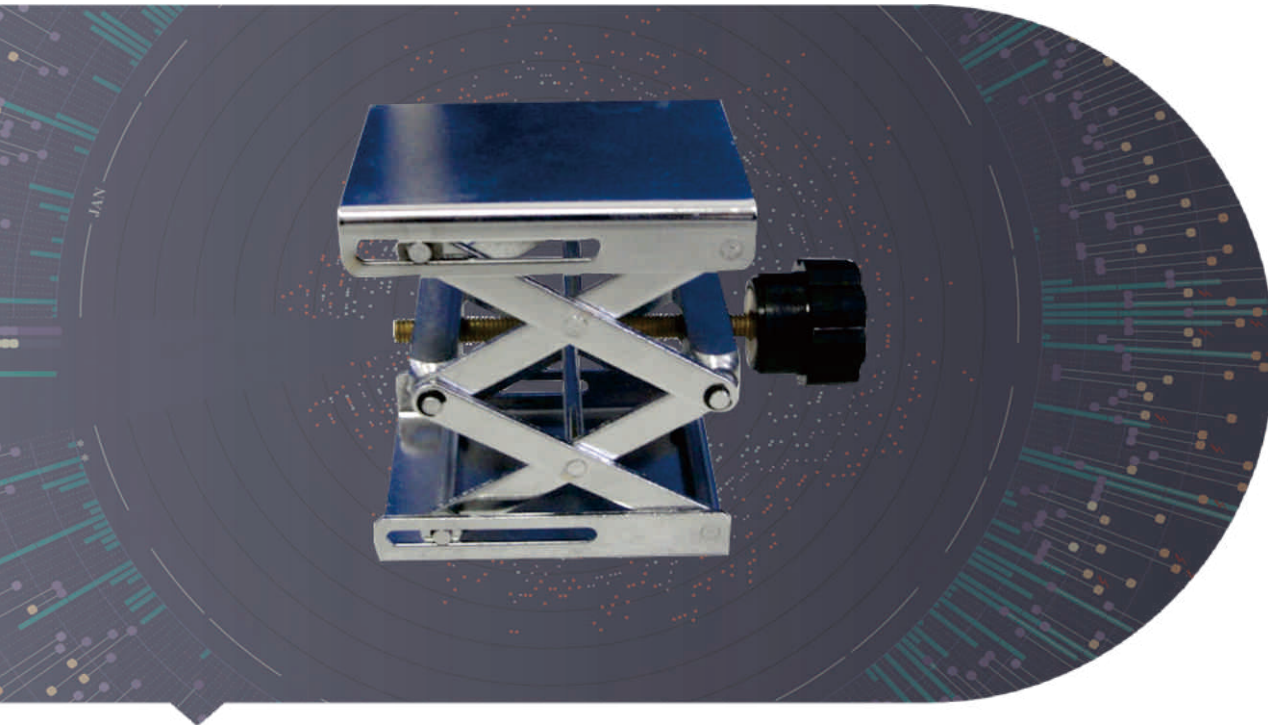
## Ordering Information

DH - 120 - 831/200 P

DH	Dolph Microwave
120	WR75
831/200	WG Standoff and Hangers
83010	WG Clamps and Hangers
P	Material PE
A	Material Al
S	Material Stainless steel



# WAVEGUIDE ADJUSTABLE SUPPORT



## → Features

- High load bearing
- Material: Al/Cu
- Height adjustable

## → Description

Dolph Microwave waveguide adjustable support is adjustable in height. Also can bear high weight. Cable and waveguide running on a lower tray remains under protective grate. Both standard and customized can be chosen in mechanical configurations.

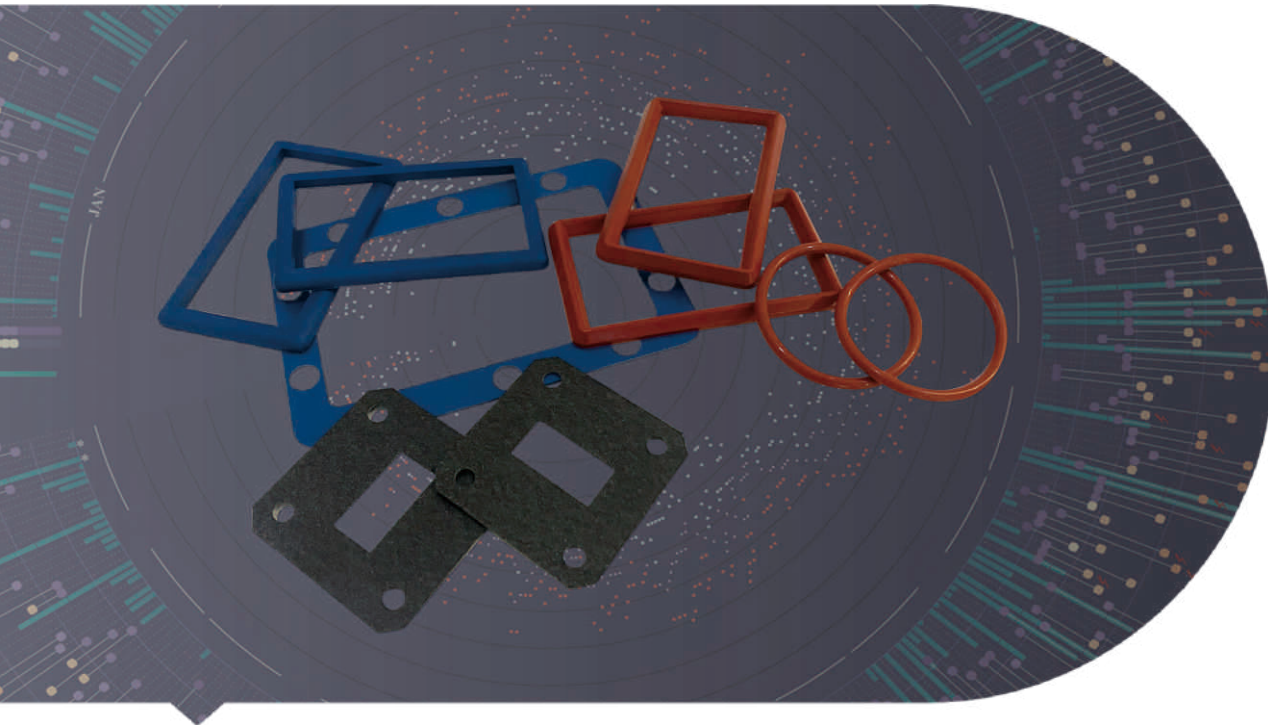
Model No*	Dimensions (mm)	Weight Carrying Capacity** (KG)	Material
DH-WAS-0-S	50×40×(37~93)	40	Stainless Steel
DH-WAS-1-S	70×55×(37~138)	40	Stainless Steel
DH-WAS-2-S	100×75×(43~182)	50	Stainless Steel
DH-WAS-3-S	140×100×(55~255)	60	Stainless Steel
DH-WAS-4-S	160×120×(60~285)	80	Stainless Steel

## Ordering Information

DH - WAS - 2

DH	Dolph Microwave
WAS	WG Adjustable Support
2	Type 2
S	Material Stainless Steel

# WAVEGUIDE GASKET AND O-RING



## → Features

- Waveguide size: WR2300 to WR10
- Type: Conductive or non-conductive
- Shape: O-ring, D-ring and Die-cut(Full and half)

## → Description

Dolph Microwave waveguide O-ring/Gasket provides EMI Shielding and pressure sealing for each type of flange. Selected with Pressure seal only and pressure&RF seal. Both standard and customized can be chosen in mechanical configurations.

Model No*	Dimensions	WG Type		Model No*	Dimensions
		IEC	EIA		
DH-14MFD	174.8*92.2*8.5	BJ14	WR650	DH-MFOI56.82	φ 56.82* φ 2.62
DH-18MFD	136*72*5	BJ18	WR510	DH-MFOI78.38	φ 78.38* φ 2.62
DH-22MFDT	117*63*5	BJ22	WR430	DH-MFOI101.3	φ 101.3* φ 3.53
DH-26MFDL	94*51.5*5	BJ26	WR340	DH-MFOI114.4	φ 114.4* φ 3.1
DH-32MFDL	77*75.5*3.5	BJ32	WR284	DH-MFOI120.94	φ 120.94* φ 2.62
DH-32MFD	79.4*41.3*3.5	BJ32	WR284	DH-MFOI124.5	φ 124.5* φ 3
DH-40MFDL	63*34.5*3.5	BJ40	WR229	DH-MFOI143.8	φ 143.8* φ 3
DH-48MFDL	53.9*28.5*3.5	BJ48	WR187	DH-MFOI146.68	φ 146.68* φ 2.62
DH-58MFD	46.7*26.5*4.9	BJ58	WR159	DH-MFOI162.7	φ 162.7* φ 3
DH-58MFDL	45.5*25.5*3.5	BJ58	WR159	DH-MFOI164.28	φ 164.28* φ 3
DH-70MFD	41.2*22.2*4.9	BJ70	WR137	DH-MFOI194.38	φ 194.38* φ 3
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		

Model No*	Dimensions	WG Type		Model No*	Dimensions
		IEC	EIA		
DH-32MFOA	φ 101* φ 5.4	BJ32	WR284	DH-MFOI199.98	φ 199.98* φ 2.62
DH-40MFOA	φ 82* φ 5.4	BJ40	WR229	DH-MFOI284.84	φ 284.84* φ 3
DH-48MFOA	φ 68.5* φ 3.5	BJ48	WR187	DH-MFOI321.06	φ 321.06* φ 3
DH-70MFOA	φ 53* φ 3.5	BJ70	WR137	DH-MFOI321.4	φ 321.4* φ 3
DH-84MFO	φ 40* φ 2.6	BJ84	WR112	DH-MFOI331	φ 331* φ 3
DH-100MFO	φ 33* φ 2.6	BJ100	WR90	DH-MFOI422.1	φ 422.1* φ 3
DH-120MFO	φ 28* φ 2.6	BJ120	WR75	DH-MFOI463.4	φ 463.4* φ 3
DH-140MFO	φ 23.5* φ 2.6	BJ140	WR62	DH-MFOI486.2	φ 486.2* φ 3
DH-180MFO	φ 20* φ 2.4	BJ180	WR51	DH-MFOI493.6	φ 493.6* φ 3
DH-220MFO	φ 15.5* φ 1.8	BJ220	WR42	DH-MFOI499.5	φ 499.5* φ 3.53
DH-260MFO	φ 14.0* φ 1.8	BJ260	WR34	DH-MFOI539.1	φ 539.1* φ 3.53
DH-320MFO	φ 10.5* φ 1.8	BJ320	WR28		

## Ordering Information

### DH - 120 MFO

DH	Dolph Microwave
120	WR75
MFO	Full O-Ring, Waveguide Gasket for PBR flange
MFOA	Full O-Ring, Waveguide Gasket for PAR flange
MFD	Half D-type, Waveguide Gasket for CPRG flange
MFDL	Half D-type, Special Waveguide Gasket for CPRG flange

# WAVEGUIDE GASKET ACCESSORIES



## → Features

Waveguide size: WR2300 to WR10

Screw, nuts, washer and Gasket.

Gasket: Be chosen by Flange

## → Description

Dolph Microwave waveguide accessories includes all hardware and gaskets for joining 2 flanges together. Selected with waveguide gasket (conductive and non-conductive), washer, screw and nuts. Both standard and customized can be chosen upon request.

## Waveguide Flat Gasket Size

Type 1 Waveguide Flat Gasket Size inch [mm]

A ± 0.15[0.38]	B ± .015[0.38]-0	C ± .015[0.38]-0	D ± .015[0.38]	H ± .010[0.25]	T ± .015[0.13]	Product Code
.750[19.05]	.750[19.05]	.145[3.68]	.285[7.24]	.116[2.95]	.027[0.69]	87-87000
.875[22.23]	.875[22.23]	.175[4.45]	.425[10.80]	.116[2.95]	.027[0.69]	87-87001
1.313[33.35]	1.313[33.35]	.630[16.00]	.320[8.13]	.140[3.56]	.027[0.69]	87-87002

Type 2 Waveguide Flat Gasket Size inch [mm]

A ± 0.15[0.38]	B ± .015[0.38]-0	C ± .015[0.38]-0	H ± .010[0.25]	T ± .015[0.13]	Product Code
3.125[79.38]	.632[16.05]	1.382 [35.10]	.234[5.84]	.027[0.69]	87-87007
3.625[92.08]	.882[22.40]	1.882 [47.80]	.234[5.94]	.027[0.69]	87-87010
5.312[134.93]	1.350[34.29]	2.850[72.39]	2.90[7.37]	.027[0.69]	87-87012

Type 3 Waveguide Flat Gasket Size inch [mm]

Type 4 Waveguide Flat Gasket Size inch [mm]

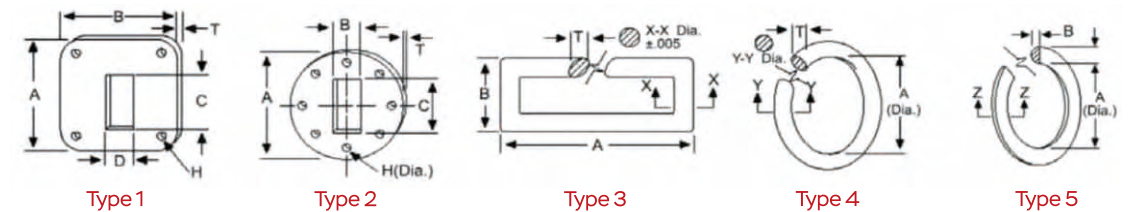
A ± 0.15[0.38]	B ± .015[0.38]-0	T ± .015[0.13]	Product Code	A ± 0.15[0.38]	T ± .015[0.13]	Product Code
1.368[34.75]	.868[22.05]	.103[2.62]	87-83005	2.001[51.08]	.123[3.12]	87-83009
1.616[41.05]	.991[25.17]	.103[2.62]	87-83008	2.683[68.15]	.115[2.92]	87-83011

Type 5 Waveguide Flat Gasket Size inch [mm]

A ± 0.15[0.38]	B ± .015[0.38]-0	T ± .015[0.13]	Product Code
.410[10.41]	.065[1.42]	.082[2.08]	87-83000
.587[14.91]	.048[1.22]	.078[1.98]	87-83001

Material	Magnetic Field 100KHz	Electric Field 10MHz	Plane Wave		Colour	Hardness	Body Resistance	Tear Strength
			1GHz	10GHz				
873	75dB	130+dB	115dB	110dB	Gray	85 ± 7	0.005 Ω-cm	2.7MPa
877	75dB	130+dB	115dB	110dB	Red	80 ± 7	0.007 Ω-cm	4.05MPa

## Waveguide Flat Gasket Type



1. Die cut square
2. Die-cut round
3. Molded square with "O" shaped cross section
4. Molded round with "O" shaped cross section
5. Molded round with "D" shaped cross section

## Ordering Information

DH - 120 FHKC

DH Dolph Microwave

120 WR75

FHKC Conductive Gasket, full O-Ring for FBM100 Flange

FHK Non-Conductive Gasket, full O-Ring for FBM100 Flange



# ANTENNA FEEDS & **RF NETWORKS**

# MICROWAVE FEEDHORN



## → Features

Frequency bands: C, X, Ku, Ka bands or others  
 Polarization: Linear/Circular, Dual or Co-polarization  
 VSWR: 1.2:1  
 Material: Al, Cu

## → Description

Dolph Microwave Feedhorn covers C, X, Ku and Ka bands. It is precision machined from aluminum or copper and offer very high performance. Both standard and customized can be chosen upon request.

Model	Freq. Band	Freq Range (Ghz)	VSWR	f/D	Tapper (dB)
DH-Feedhorn-S...	S-band	2.025-2.12 / 2.2-2.4	1.3	0.33-0.45	5
DH-Feedhorn-C...	C-band	3.4-4.2	1.3	0.33-0.45	5
DH-Feedhorn-C...	C-band	3.7-4.2	1.3	0.32-0.425	5
DH-Feedhorn-C...	C-band	3.4-6.725	1.2	0.575	8
DH-Feedhorn-Ku...	Ku-band	10.7-12.75	1.2	0.33-0.45	8
DH-Feedhorn-Ku...	Ku-band	10.7-12.75	1.2	0.64	8
DH-Feedhorn-C&Ku...	C&Ku-band	3.4-4.2 / 10.7-12.75	1.35	0.35	11-12
DH-Feedhorn-C&Ku...	C&Ku-band	3.625-4.2 / 10.7-12.75	1.4	0.35	11-12
DH-Feedhorn-Ka...	Ka-band	17.7-21.2 / 27.5-31.0	1.35	0.35	11-12

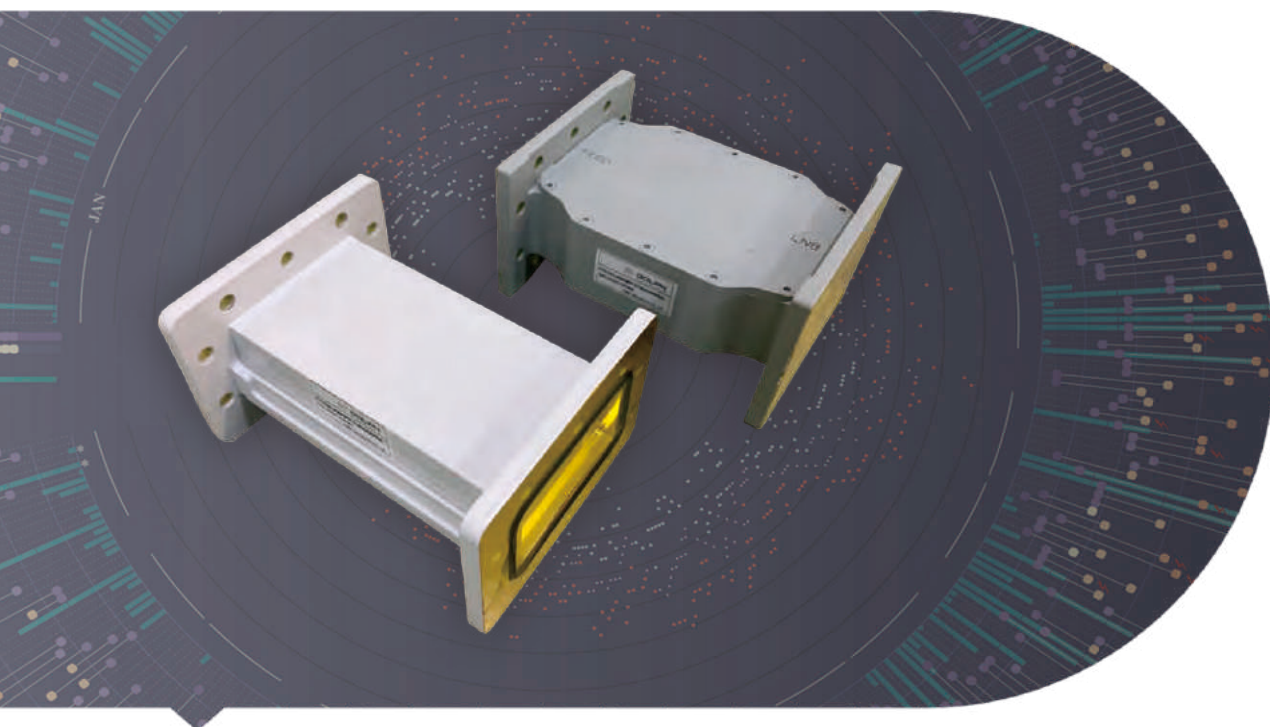
1/2 illumination angle (degree)	Cross Pol. (dB)	Horn Diameter (mm)	Interface	Material	Antenna Type
60	25	210	TBD	Al	Offset Antenna
60	25	200	TBD	Al	Prime Focus
60	25	200	TBD	Al	Prime Focus
25	25	185	Φ19 mm	Al	Offset Antenna
25	25	185	WR75/C120	Al	Prime Focus
27.5	25	95	WR75/C120	Al	Offset Antenna
30	30	364	TBD	Al	Cassegrain
25	30	333	TBD	Al	Cassegrain
30	30	50	TBD	Al	Cassegrain

## Ordering Information

DH - Feedhorn Ku Rx LP f/D=0.64 P A

DH	Dolph Microwave
Feedhorn	Horn Antenna
Ku	Standard Ku-band
Rx	Receiving Freq. Range 10.7-12.75 GHz
LP	Pol. Type Linear H/V
f/D=0.64	f/D =0.64
P	Flange Cover
M	Flange Grooved
A	Material Al

# WAVEGUIDE FILTER



## → Features

Frequency bands: C, X, Ku, Ka bands or others

VSWR: 1.2:1

Material: Al, Cu

## → Description

Dolph Microwave Feedhorn covers C, X, Ku and Ka bands. It is precision machined from aluminum or copper and offer very high performance. Both standard and customized can be chosen upon request.

Model	Waveguide Size	Pass Freq. (Ghz)	Reject Freq. (Ghz)	VSWR Max.	IL (dB)
DH-40WBPF3.4T3.425PMA.....	WR229	3.4-3.425		1.42	2
DH-40WTRF3.4T4.2PMA.....	WR229	3.4-4.2	5.725-6.725	1.5	0.4
DH-40WBPF3.4T4.2PMA.....	WR229	3.4-4.2		1.4	0.5
DH-40WBPF3.4T4.2PMA.....	WR229	3.4-4.2		1.4	0.45
DH-40WBPF3.4T4.2PMA.....	WR229	3.4-4.2		1.4	0.45
DH-40WBPF3.6T4.2PMA.....	WR229	3.6-4.2		1.4	0.5
DH-220WLFP22.7T22.9PMA...	WR42	22.7-22.9		1.2	0.35
DH-260WLFP26T28.35PMA...	WR34	26.0-28.35		1.15	0.25
DH-320WBP33.0T37.0PMA...	WR28	33.0-37.0		1.42	0.9
DH-500WBPF42.6T44.6PMC...	WR19	42.6-44.6		2	1
DH-740WBPF72T74PMC...	WR12	72.0-74.0		2	1

Rejection (dB)	Filter Type	Length (mm)
50@3.4395 50@3.3855	Bandpass	200
70@5.72, 6.72	Transmit Reject	165
24@3.35 24@4.25 75@3.25 75@4.35-14.0	Bandpass	210
60@3.35 50@4.25	Bandpass	120
61@3.6 60@3.6-3.7 55@4.45-4.8	Bandpass	120
25@3.57, 4.25 60@3.525, 4.3 70@3.45, 4.35	Bandpass	200
40@18.0-21.2 30@45.4-45.8 30@68.1-68.7	Lowpass	50
45@30-31 30@45.4-45.8 30@68.1-68.7	Lowpass	50
60@32.5 60@37.5 66@50.0	Bandpass	80
20@41-46 40@40.5-46.5	Bandpass	60
40@76.5	Bandpass	60

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Cu
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Cu
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Cu
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Cu

## Ordering Information

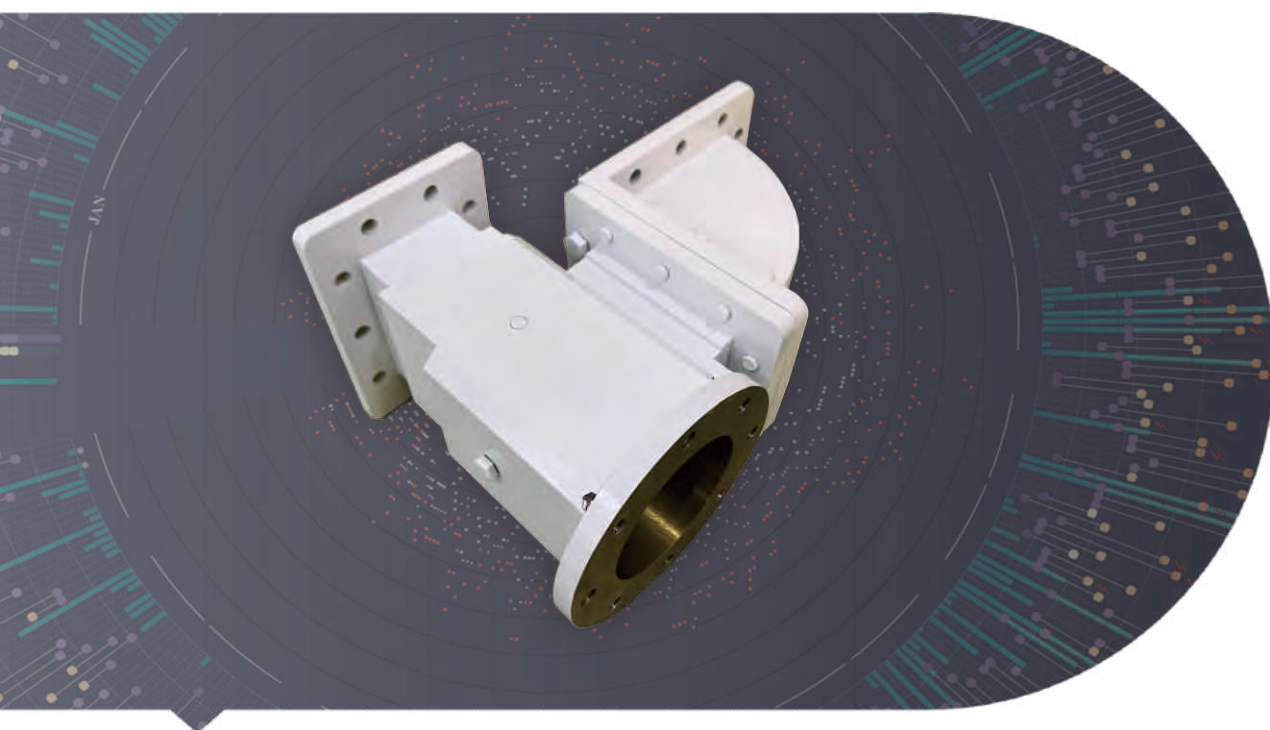
### DH - 120 WBPF 10.8T11.5 P M A

DH	Dolph Microwave
120	WR75
WBPF	Bandpass
WLPF	Lowpass
WHPF	Highpass
WTRF	Transmit Reject
WRRF	Receive Reject
10.8T11.5	Pass Band Freq. Range 10.8-11.5 GHz
P	Flange Cover
M	Flange Grooved
A	Material Al



# OMT

## (Orthogonal Mode Transducer)



### → Features

Frequency bands: C, X, Ku, Ka bands or others

Polarization: Linear/Circular, Dual or coaxial polarization

VSWR: 1.2:1

Material: Al, Cu

### → Description

Dolph Microwave OMT is optional in different waveguide band with high VSWR, High isolation and high power handling. Common input port selected in standard waveguide size or special needs. Both standard and customized can be chosen upon request.

Model	Freq Range (Ghz)	VSWR	IL (dB)	Cross Pol.(dB)
DH-OMT-X-RT...	9.3-9.8	1.15	0.2	35
DH-OMT-C-RT...	5.8-7.2	1.2	0.1	35
DH-OMT-C-RT...	3.4-6.725	1.2	0.1	35
DH-OMT-Ku-RT...	10.7-14.5	1.25	0.1	30
DH-OMT-Ku-RT...	10.7-14.8	1.25	0.1	30
DH-OMT-DBS-RT...	15.0-22.0	1.4	0.5	35
DH-OMT-DBS-RT...	17.7-19.7	1.25	0.15	35
DH-OMT-Ka-RT...	17.7-31.0	1.25	0.15	35

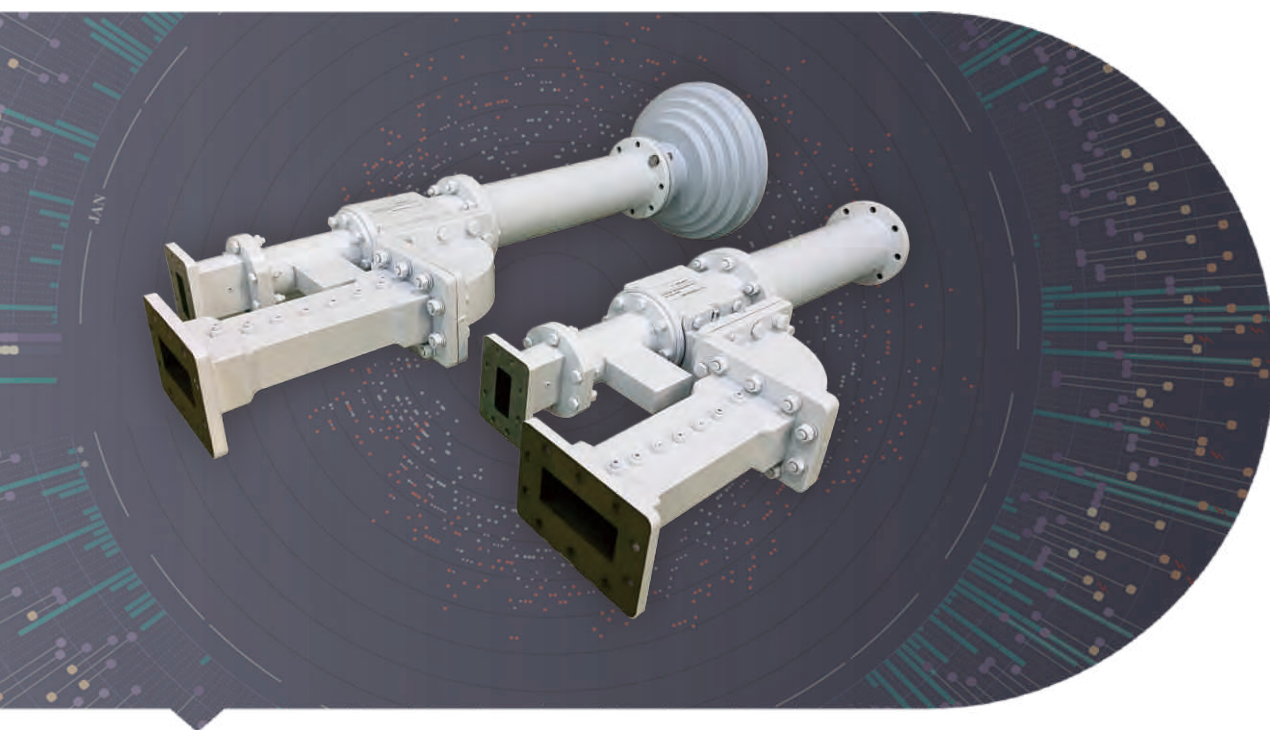
Isolation (dB)	Waveguide Type	Com.Port	Material
35	WR90	TBD	Al
35	WR137	TBD	Al
35	WR137/WR229	TBD	Al
35	WR75	TBD	Al
35	WR75	TBD	Al
45	WR51	TBD	Al
40	WR42	TBD	Al
35	WR42/WR28	TBD	Al

### Ordering Information

DH - OMT - Ext.Ku - RT - X - 02

DH	Dolph Microwave
OMT	Orthogonal Mode Transducer
Ext. Ku	Extend Ku-band
RT	Transceiver
X	Cross Pol.
2	Second Generation

# WAVEGUIDE DIPLEXER



## → Features

Frequency bands: C, X, Ku, Ka bands or others

Excellent VSWR and insertion loss

High Isolation

Material: Al, Cu

Compact structure

## → Description

Dolph Microwave waveguide diplexer is consisting of two receiving and transmitting ports and a common port. The common port is connected to an antenna or antenna feed. Both standard and customized can be chosen upon request.

Model	Rx Freq. (Ghz)	Tx Freq. (Ghz)	VSWR	IL (dB)	Pol. Type	Axial Ratio (dB)
DH-Diplexer-X-RT...	7.9-8.5	7.145-7.25	1.25	0.3	RHCP/LHCPHLP/VLP	0.75
DH-Diplexer-X-RT...	10-10.08	10.12-10.2	1.3	1.4	HLP/VLP	
DH-Diplexer-X-RT...	7.25-7.75	7.9-8.4	1.25	0.5	RHCP/LHCP	1
DH-Diplexer-X-RT...	7.25-7.75	7.9-8.4	1.2	0.5	HLP/VLP	1
DH-Diplexer-C-RT...	3.4-4.2	5.85-6.725	1.3	0.3	HLP/VLP	
DH-Diplexer-C-RT...	3.4-4.2	5.85-6.725	1.3	0.3	RHCP/LHCP	0.8/2.0
DH-Diplexer-C-RT...	3.4-4.2	5.7-6.75	1.3	0.2	HLP/VLP	
DH-Diplexer-C-RT...	3.4-4.8	5.8-7.025	1.4	0.35	Co-Pol. (H/V)	
DH-Diplexer-C-RT...	3.625-4.2	5.85-6.425	1.3	0.25	RHCP/LHCP	1.09/1.3
DH-Diplexer-C-RT...	4.5-4.8	6.725-7.025	1.25	0.25	HLP/VLP	1.09/1.3
DH-Diplexer-Ku-RT...	10.7-12.75	13.75-14.5	1.25	0.3	HLP/VLP	
DH-Diplexer-Ku-RT...	10.7-12.75	13.75-14.8	1.25	0.5	HLP/VLP	
DH-Diplexer-Ku-RT...	10.7-12.75	13.75-14.5	1.22	0.3	Co-Pol.(H/V)	
DH-Diplexer-DBS-RT...	10.7-12.75	17.3-18.4	1.2	0.3	Co-Pol.(H/V)	
DH-Diplexer-Ka-RT...	17.7-21.2	27.5-31.0	1.2	0.4	RHCP/LHCP	0.7/2.3

Cross-pol (dB)	Rejection (dB)	Handling Power (W)	Interface Tx/Rx	Com.Port	Material
25 35	110@7.145-7.25 40@DC-7.7 40@8.8-10.0 80@7.9-8.4	1200	WR112	WR112	Al
30	70@Tx-Rx	20	SMA	SMA	Al
25	85@Tx-Rx	1000	WR112	WG TBD	Al
25	80@Tx-Rx	300	WR112	SMA/N	Al
35	85@Tx-Rx	1000	WR229/137	WG TBD	Al
40	85@Tx-Rx	500	WR75/75	WG TBD	Al
35	85@Tx-Rx	500	WR75/75	WG TBD	Al
	90@Tx-Rx	100	WR75/75	WG TBD	Al
	90@Tx-Rx	100	WR75/62	WG TBD	Al
	85@Tx-Rx	100	WR42/28	WG TBD	Al

## Ordering Information

DH - Diplexer -Ku - RT - X - 02

DH Dolph Microwave

Diplexer Diplexer

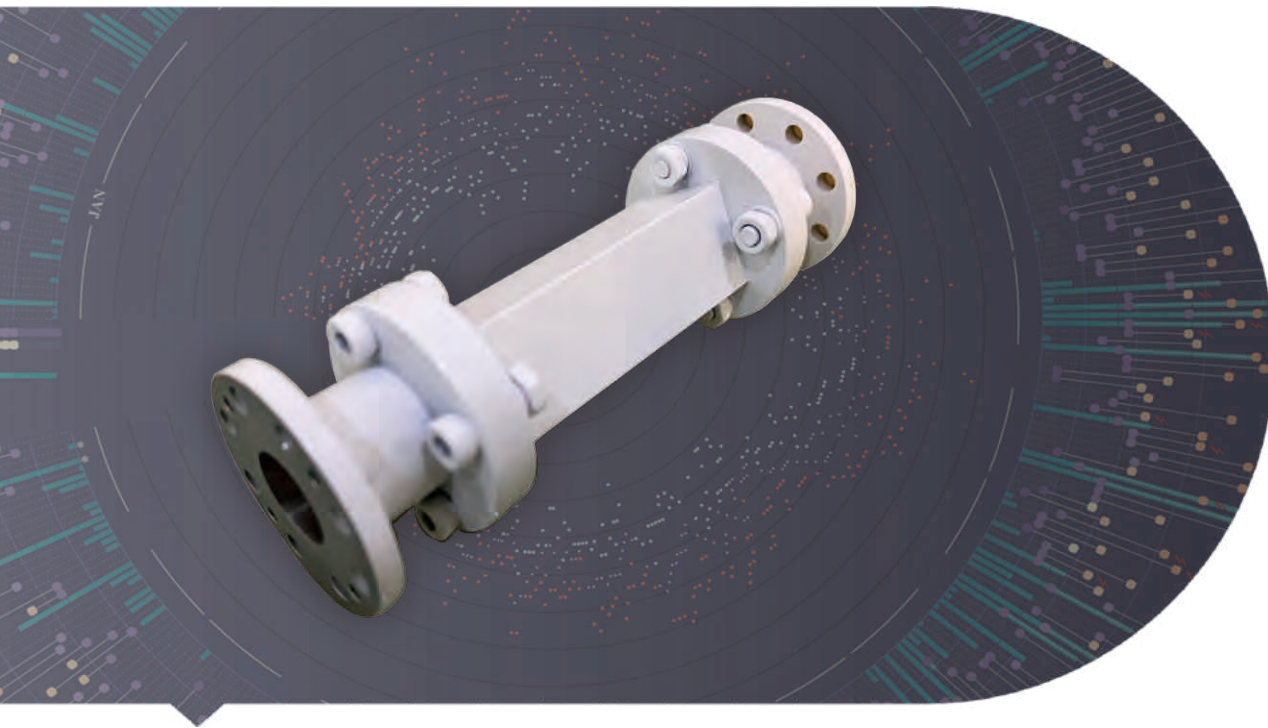
Ku Ku-band

RT Transceiver

X Cross Pol.

2 Second Generation

# WAVEGUIDE PHASE SHIFTER, SEPTUM (CIRCULAR) POLARIZER



## → Features

**Sizes:** from WR-28 to WR-284

**Description:** manual, motorized

Wide bandwidth

**Phase shift:** 0-360° (Continuous)

## → Description

Dolph Microwave Waveguide phase shifter a variable shift is in phase of the incoming microwave signal. It bears high power handling, VSWR and insertion loss. Both standard and customized can be chosen upon request.

Model	Rx Freq. (Ghz)	Tx Freq. (Ghz)	VSWR	Pol. Type
DH-WSPT3.625T4.2PPA...	3.625-4.2	5.85-6.725	1.12	RHCP/LHCP
DH-WSPT7.25T8.4PPA...	7.25-7.75	7.9-8.4	1.12	RHCP/LHCP
DH-WSPT17.7T31PPA...	17.7-21.2	27.5-31.0	1.12	RHCP/LHCP
DH-WSPT37T43PPA...	37.0-43.0	45.0-53.0	1.15	RHCP/LHCP

Axial Ratio (dB)	Handling Power (W)	Interface Tx/Rx	Com.Port	Material
0.75	1000		Φ54	RHCP/LHCP
0.6	1000	WR112	Φ40	RHCP/LHCP
0.5	1000	WR42/28	Φ11.2	RHCP/LHCP
0.7	200		Φ6.3627	RHCP/LHCP

## Ordering Information

### DH - WSPT 7.27T8.4 P M A

DH Dolph Microwave

WSPT Phase Shifter, Septum Polarizer

7.27T8.4 Operation Freq. Range 7.2-8.4 GHz

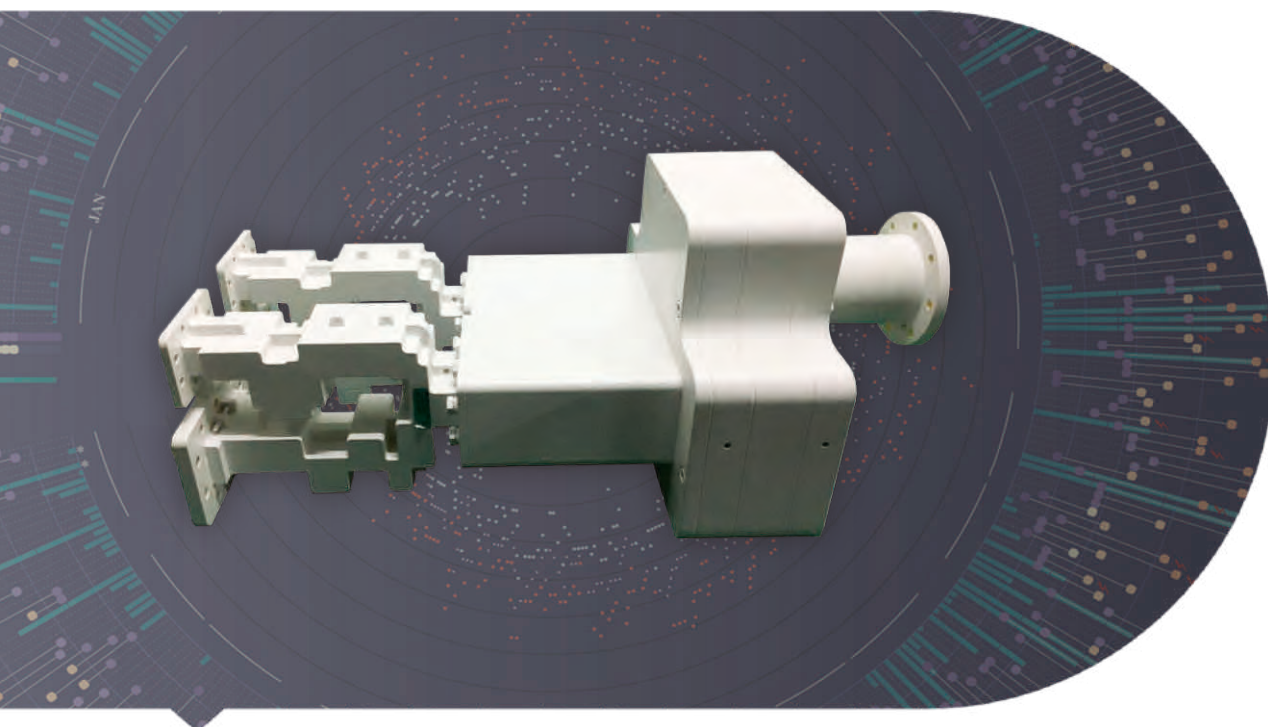
P Flange Cover

M Flange Grooved

A Material Al



# RF NETWORKS



## → Features

- Multi port or multi band
- Polarization:** Single, dual
- Easy to generate
- Travel long distances
- Easily penetrate buildings
- Quick delivery

## → Description

Dolph Microwave RF network which is feed system with multi-port and multi band. Designed to transmit or receive electromagnetic waves in spectrum, widely used in broadcast and TV and other wireless devices. Both standard and customized can be chosen upon request.

Model	Rx Freq. (Ghz)	Tx Freq.(Ghz)	VSWR	Pol. Type	
DH-Feed-S-RO...	2.1-2.5		1.25	RHCP/LHCP	
DH-Feed-X-4-RT...	7.25-7.75	7.9-8.4	1.4	RHCP/LHCP	
DH-Feed-X-4-RT...	7.25-7.75	7.9-8.4	1.4	HLP/VLP	
DH-Feed-SX-4-RT...	7.8-8.4	2.2-2.3	2.025-2.11	1.25	RHCP/LHCP
DH-Feed-C-4-RT...	3.4-4.2	5.85-6.725	1.25	HLP/VLP	
DH-Feed-C-4-RT...	3.4-4.2	5.85-6.725	1.25	RHCP/LHCP	
DH-Feed-CKu-4-RO...	3.4-4.2	10.7-12.75	1.35	RHCP/LHCP HLP/VLP	
DH-Feed-CKu-4-RO...	3.4-4.2	10.7-12.75	1.35	HLP/VLP	
DH-Feed-DBS-4-RT...	10.7-12.75	17.3-18.4	1.3	RHCP/LHCP	
DH-Feed-Kuka-4-RT...	12.25-12.75	19.60-21.20	14.0-14.5 29.4-31.0	1.35	HLP/VLP
DH-Feed-Ka-4-RT...	17.7-21.2	27.5-31.0	1.25	HLP/VLP	
DH-Feed-Ka-4-RT...	17.7-21.2	27.5-31.0	1.25	RHCP/LHCP	
DH-Feed-Ka-4-RTTrk...	17.7-21.2	27.5-31.0 Trk18.3-20.2	1.35	RHCP/LHCP	

IL (dB)	Axial Ratio (dB)	Cross-pol (dB)	Isolation Tx/Rx	Freq. Isolation	Handling Power(W)	Interface Tx/Rx	Com.Port	Material
	1.5	20			100	N-K		Al
	0.75	25	85		1000	WR112	Φ54	Al
		35	85		1000	WR112	Φ54	Al
	0.8	20	15	20	100	WR112/N-K		Al
0.3		30	85		1000	WR229/137	Φ57.8	Al
0.4	0.5	30	85		1000	WR229/137	Φ57.8	Al
0.35/0.55	0.5	30		30	500	WR229/75	Φ62	Al
0.25		35	30	30	500	WR229/75	Φ62	Al
0.3	0.5	30	85		500	WR75/62	Φ18.18	Al
0.5	1.5	30	85	30	500	WR75/42/28		Al
0.7		35	85		500	WR42/28	Φ11.5	Al
0.7	0.5	30	85		500	WR42/28	Φ11.5	Al
1.2	0.5	30	85		500	WR42/28/42	Φ11.5	Al

## Ordering Information

### DH - Feed-Ku-4-RT LP P A

DH	Dolph Microwave
Feed	OMT+TRF Combiner
Ku	Standard Ku-band
4	4 Port
RT	Transceiver
LP	Pol. Type Linear H/V
P	Flange Cover
M	Flange Grooved
A	Material Al

# SATCOM ANTENNA

- + 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

# EARTH STATION ANTENNA



## → Features

- High gain&efficiency
- Low side-lobe
- Easy Installation maintenance
- High wind resistant
- Diameter:** 2.4 to 11.3m or bigger
- Mode:** Manual and motorized

## → Description

Dolph Microwave Earth Station Antenna are fast delivery, which is used at the earth end of satellite links optional in diameter, port, polarization, drive mode, control mode. Ring focus and cassegrain are available. Frequency covering L, S, C, X, Ku, Ka. Single band and dual band can be selected.

### RF & Antenna Specifications

Aperture	3.7 Meter	4.5 Meter	5.3 Meter	6.2 Meter	7.3 Meter
Reflector Type	Cassegrain	Cassegrain	Cassegrain	Cassegrain	Cassegrain
Optional Freq. Band Tx/Rx, GHz	C-band		5.85~6.725 3.40~4.20		
	Ku-band		13.75~14.5 10.7~12.75		
	Ka-band		27.5~31.0 17.7~21.2		
VSWR	≤1.25				
Pol. Feature	Circular/Linear				
Axis Ratio, dB	≤1.5				
Cross Pol Iso,	≥35 dB (Axis)				
	≥32dB (-1dB)				
Tx/Rx Iso, dB	≥85				
First Side Lobe	≤-14 dB				
Side Lobe, dB	29-25logθ (1° ≤θ <20°)		32-25logθ (20° ≤θ <48°)		-10 dB (θ ≥48°)
Feed Ports	2/4				
Feed Interface	Wr112 WR75 WR28/42		WR137/229 WR75 WR28/42		

### Mechanical & Drive Specifications

Pointing Type	Manual/Motorized	Manual/Motorized	Manual/Motorized	Manual/Motorized	Manual/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		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				
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		

### Environmental Performance

Operational Wind	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Survival Wind	125 mph (200 km/h)
Temperature	-40° C to +50° C
Anti-seismic	Horizon≥0.3G'/s, Vertical≥0.15G'/s
Humidity	0-98%

### Ordering Information

DH 5.3 Meter DR C/Ku Dual-band Antenna	
DH	Dolph Microwave
5.3	Aperture 5.3 Meter
DR	Cassegrain
C	C-band
Ku	Ku-band
Ka	Ka-band
C/Ku	Dual-band



# LOW/MEDIUM EARTH ORBIT SATELLITE TRACKING ANTENNA



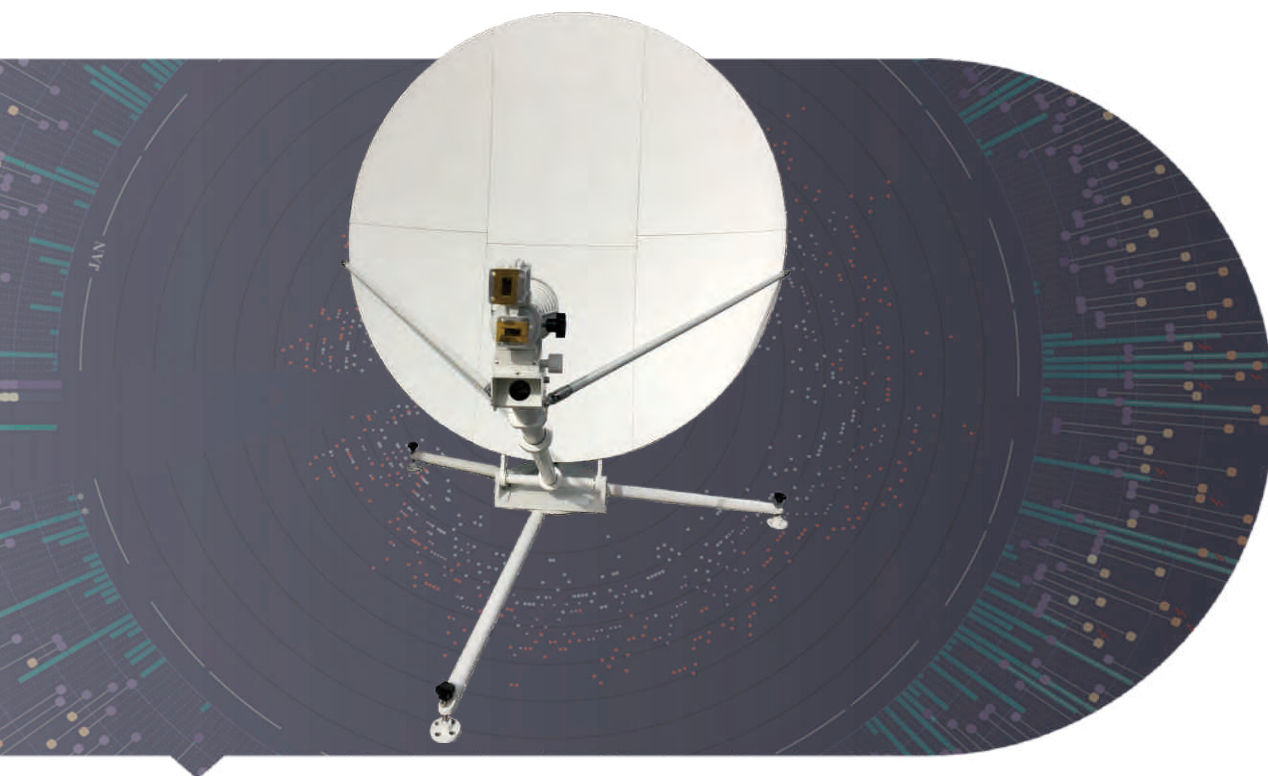
## → Features

- 2.4 meter to 7.3 meters antenna size
- L, S, X, C, Ku, Ka, Q and V band capabilities
- Transmit/receive feed technologies through S+X-band
- X/Y axis configuration (Type 1 through Type 4 for increasingly larger dishes)
- X/Y-axis rotation pedestal non-ballasting technology
- Designed for tracking LEO, MEO, HEO and GEO spacecraft
- Applications include Earth Observation, Remote Sensing, Communications and TT&C functions
- Program and Auto Track Performance, Lights-out operation, including ethernet (TCP/IP) and M&C software is provided
- Effective program track capabilities that utilize ephemeris data in the form of Two-Line Element (TLE) data and other formats
- Low loss mono-pulse mode coupler tracking system available, for high frequencies and larger aperture antennas

Model	DH 2.4 Meter DR X-band Antenna DH 3.7 Meter DR S+X Dual-band Antenna	
<b>Mechanical</b>		
Aperture Size	2.4 meter	3.7 meter (5.9 meter Radome)
Program Tracking Accuracy	< 0.09°rms	< 0.07°rms
Pedestal + Dish Weight	1500kg	< 1700kg,
Mount	Type1, Type 2, Type3, Type4 Available	
Pedestal Configuration	X/Y-axis Rotation Pedestal	
Reflector Material	Light aluminum+steel, / Full light aluminum	
Range of Motion	X-axis: -90° +90° (zero towards the sky, independent rotation) Y-axis: -90° +90° (zero towards the sky, independent rotation)	
Speed Range	X-axis Angular Velocity: 0.01° 10°/s Y-axis Angular Velocity: 0.01° 10°/s	
Backlash Travel	< ±1 (arc minute)	
Encoder Resolution	≤0.005°	
Servo Position Resolution	≤0.01°	
Pointing Accuracy	S and X frequency bands are better than 1/6 half power beamwidth	
<b>RF</b>		
Feed Configuration	Prime Focus and Ring-focus, Dichroic Subreflectors	
Frequency Range	9.3~9.7 Ghz (Downlink)	8.025~8.4 Ghz (Downlink) 2.2 2.3~GHz (Downlink) 2.025~2.1 Ghz (Uplink)
Gain(dB)	45 dBi	X-band 47.63 dBi S-band 35.38 dBi
Beamwidth/-3dB	0.9~1.0°	0.6° / 2.4°
Main-beam matching error	< 0.1°	< 0.1°
VSWR	≤1.5:1	≤1.5:1
Polarization	V-/H- Pol.	LHCP/RHCP
Axial Ratio		X-band≤0.8dB S-band≤1.2dB
Cross Pol. Isolation	35 dB	
Tx/Rx Isolation	80dB	80dB
Antenna Noise Temperature	Ta≤77K	X-band Ta≤85K S-band Ta≤130k
Feed Interfaces	X-band WR112	X-band WR112 S-band N-Type
First Sidelobes	X-band ≤27 dB S-band ≤27 dB	
Sidelobe Level	25 dB @ 2.5 degrees main beam 40 dB @ 5.0 degrees main beam	

# FLYAWAY ANTENNA MOTORIZED

## QUICK DEPLOY ANTENNA



### → Features

- Manual, motorized and driveway
- High precision antenna mount
- Light weight
- Carbon fiber reflectors available in 0.75 to 4.5 Meter
- Low side lobes
- High gain

### → Description

Dolph Microwave Flyaway Antenna, Motorized Quick Deploy and driveway antenna is light weight, optional in diameter, port, polarization. Frequency covering L, S, C, X, Ku, Ka. Single band and dual band can be selected. Both manual and motorized are available. Tracking and control mode can be selected. Both standard and customized can be chosen upon request.

### 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				
Axis Ratio, dB	≤1.5				
Cross Pol Iso, dB	≥35 dB (Axis) ≥32dB (-1dB)				
Tx/Rx Iso, dB	≥85				
First Side Lobe	≤-14 dB				
Side Lobe	29-25logθ (1° ≤θ <20°)		32-25logθ (20° ≤θ <48°)		-10 dB (θ ≥48°)
Feed Ports	2				
Feed Interface	WR112 WR75 WR28/42		WR137/229 WR75 WR28/42		

### Mechanical & Environmental Specifications

Material	Carbon Fiber		
Pointing Type	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%		

### Ordering Information

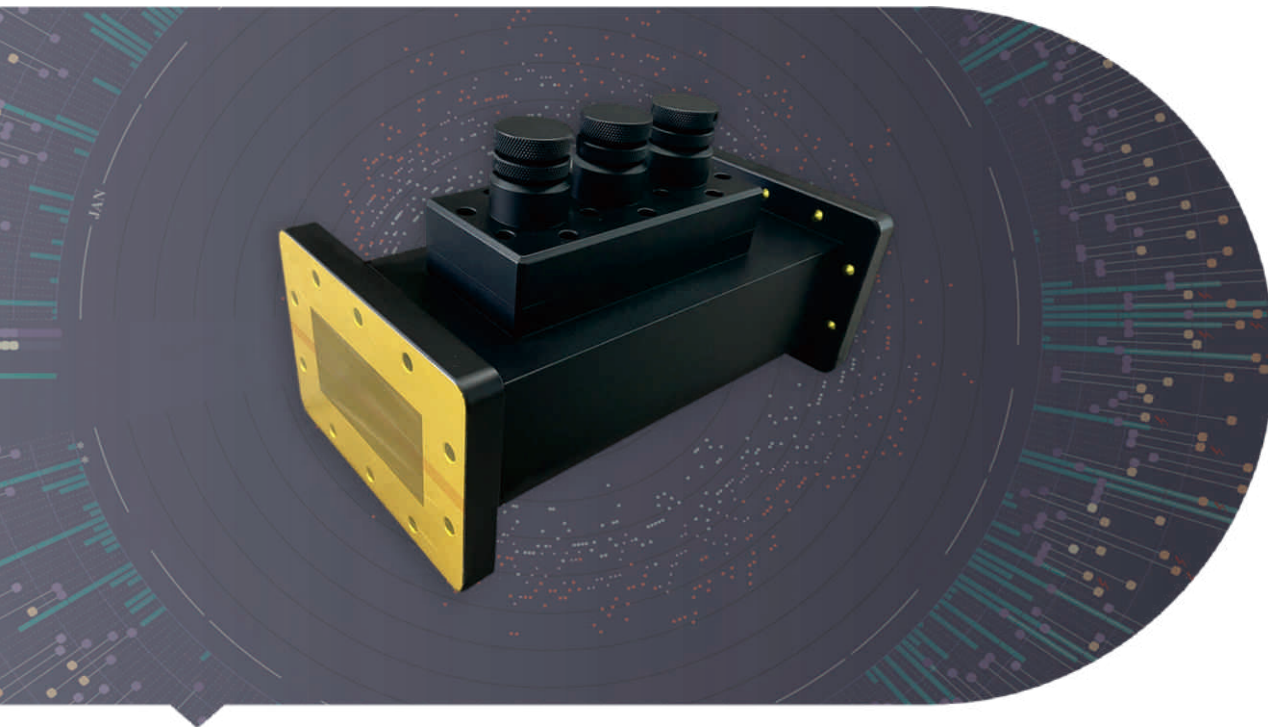
#### DH 1.2 Meter QD Ku-band Antenna

DH	Dolph Microwave
1.2	Aperture
QD	Quick Deployable
QDA	Quick Deploy Auto-Acquire
VM	Vehicle-Mount / Drive Away SNG
C	C-band
Ku	Ku-band
Ka	Ka-band
C/Ku	Dual-band

# INDUSTRIAL MICROWAVE **COMPONENTS**



# MICROWAVE TUNERS



## → Features

- Frequency range: 915 MHz and 2450MHz
- Waveguide size: WR340, WR430 and WR975
- Handling power: 6KW, 10KW, up to 20kW CW
- High quality and robust design
- Reduce VSWR for system up to 20 kW microwave power

## → Description

Dolph Microwave Microwave Tuner is designed for load impedance matching in high power microwave applications. Optional in power handling and waveguide size. Both standard and customized can be chosen upon request.

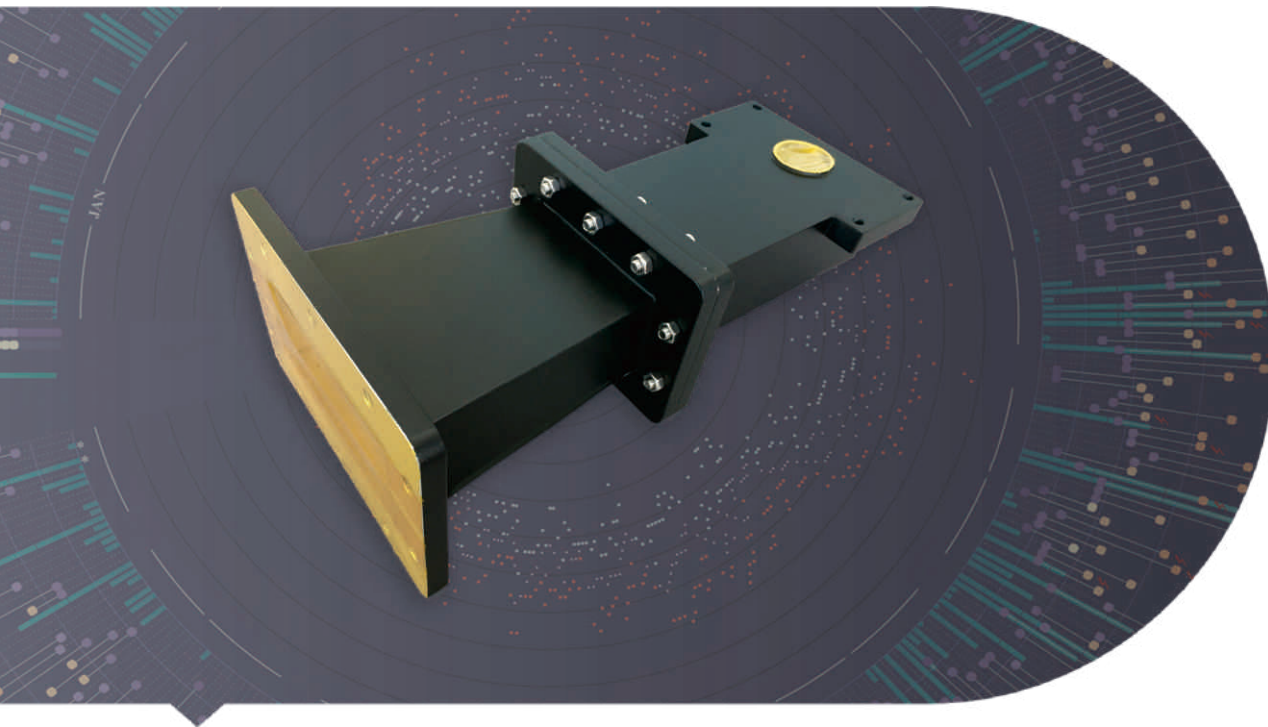
Model	WR Type	Frequency (MHZ)	VSWR Max.
DH-9W3ST915PPA...	WR975	915±30	1.1-10.0
DH-26W3ST2450PPA...	WR340	2450±25	1.1-10.0
DH-26WW3ST2450PPA...	WR340	2450±25	1.1-10.0
DH-32W3ST2450PPA...	WR284	2450±25	1.1-10.0

Handling Power (KW)	Cooling	Tuning	Flange Type
15	Air	Manual	Cover/Grooved
6	Air	Manual	Cover/Grooved
10	Water	Manual	Cover/Grooved
6	Air	Manual	Cover/Grooved

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

Ordering Information	
DH - 26 W3ST 2450 P M A	
DH	Dolph Microwave
26	Waveguide Type WR340
W3ST	Waveguide 3 Stub-Tuners
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al

# MICROWAVE MAGNETRON WG LAUNCHER



## → Features

Frequency range: 915 MHz and 2450MHz  
 Waveguide size: WR340, WR430 and WR975  
 Handling power: 6 KW, 10 KW, up to 20kW CW  
 Long life time

## → Description

Dolph Microwave Magnetron WG Launcher transmits the microwave energy generated in the magnetron to the load optional in different power handling. Both standard and customized can be chosen upon request.

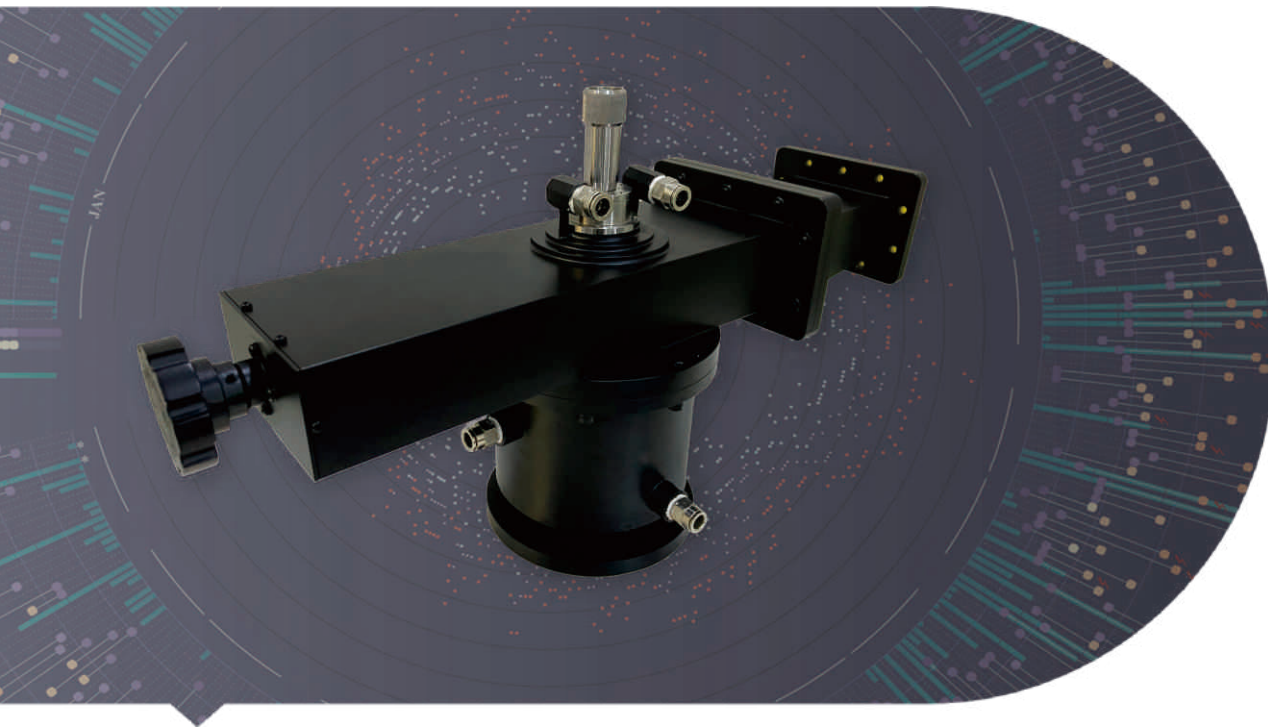
Model	WR Type	Frequency (MHZ)	Flange Type
DH-26MECL2450A01...	WR340	2450	Cover
DH-26MECL2450A02...	WR340	2450	Cover

Magnetrons	Pin Hole(mm)
Panasonic: 2M210-M1, 2M167B-M11/M15/M10, Samsung:OM75P31/S31, Witol:2M219K/G, 2M363K/G, 2M369K/G, 2M469K/G	115.2*34.8
LG: 2M290, 2M265	114.3*47.6

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

Ordering Information	
DH - 26 MECL 2450 A 01	
DH	Dolph Microwave
26	Waveguide Type WR340
MECL	Waveguide Launcher
2450	Freq. 2450 MHz
A	Material Al
1	for Panasonic 2M210-M1...
2	for LG 2M290...

# MICROWAVE MODE CONVERTER ANTENNA



## → Features

Frequency range: 915 MHz and 2450MHz  
 Waveguide size: WR340, WR430 and WR975  
 Handling power: 6 KW, 10 KW, up to 20kW CW  
 Flange: Cover/ Grooved

## → Description

Dolph Microwave Mode Converter Antenna changes transmission mode of microwave. Both waveguide size, frequency range and power handling are selectable. Standard and customized can be chosen upon request.

Model	Config.	WR Type	Frequency (MHZ)
DH-22WGMCCTE10/TM01...	Mode Converter	WR430	2450±50
DH-26WGMCCTE10/TM01...	Mode Converter	WR340	2450±50
DH-26WGMCCTE10/TM01...	Mode Converter	WR340	2450±50
DH-26WGMCCTE10_TM01+WCW3ST...	Mode Converter+Tuner	WR340	2450±50

VSWR	Handling Power (KW)	Mode Converter	Cooling	Flange Type
1.2	20	TE10-TM01	Water	Cover
1.2	6	TE10-TM01	Water	Cover
1.2	20	TE10-TM01	Water	Cover
1-10(tuning range)	10	TE10-TM01	Water	Cover

Inside Finish	Body Finishv	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Cu
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

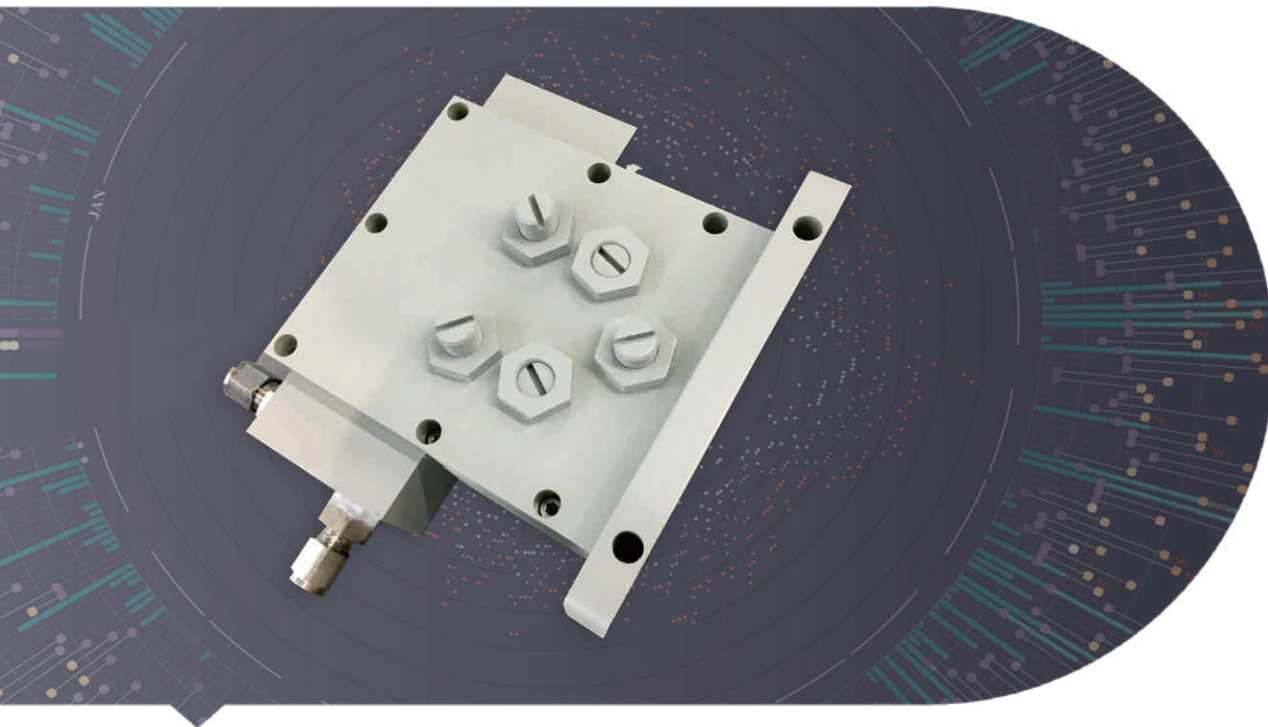
## Ordering Information

DH - 26 WGMCC TE10/TM01 2450 P A

DH	Dolph Microwave
26	Waveguide Type WR340
WGMCC	Microwave Model Converter Antenna
TE10/TM01	Mode conversion TE10/TM01
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al



# MICROWAVE WATER LOAD



## → Features

- Frequency range: 915 MHz and 2450MHz
- Waveguide size: WR340, WR430 and WR975
- Handling power: 6 KW, 10 KW, up to 20kW CW
- Cooling: Water or water cooled
- Flange: Cover and Grooved

## → Description

Dolph Microwave Water Load fully absorbs reflected microwaves with high power handling light weight and small size. Cooling type is optional. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (MHZ)	VSWR	Handling Power (KW)
DH-9WWHPL915PA...	WR975	915±25	1.2	20
DH-9WWHPL915PA...	WR975	915±25	1.2	75
DH-9WWHPL915PA...	WR975	915±25	1.2	100
DH-14WWHPL1300PA...	WR650	1300±25	1.2	10
DH-22WWHPL2450PA...	WR430	2450±25	1.2	2-3-5-10
DH-22WWHPL2450PA...	WR430	2450±25	1.2	15
DH-26WWHPL2450PA...	WR340	2450±25	1.2	2-3-5-6
DH-26WWHPL2450PA...	WR340	2450±25	1.2	15
DH-32WWHPL2450PA...	WR284	2450±25	1.2	3
DH-32WWHPL2450PA...	WR284	2450±25	1.2	6

Cooling	Water Flow	Water Pressure	Water Injection	Size(mm)
Water-Direct	3-5L/min	0.14MPa	Quick Connector	260*257*213
Water-Direct	3-5L/min	0.14MPa	Quick Connector	260*257*213
Water-Direct	3-5L/min	0.14MPa	Quick Connector	308*257*557
Water-Direct	3-5L/min	0.14MPa	Quick Connector	300*280*150
Water-Direct	3-5L/min	0.14MPa	Quick Connector	170*180*106
Water-Direct	3-5L/min	0.14MPa	Quick Connector	212*161*180
Water-Direct	3-5L/min	0.14MPa	Quick Connector	130*152*95
Water-Direct	3-5L/min	0.14MPa	Quick Connector	170*138*142
Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112

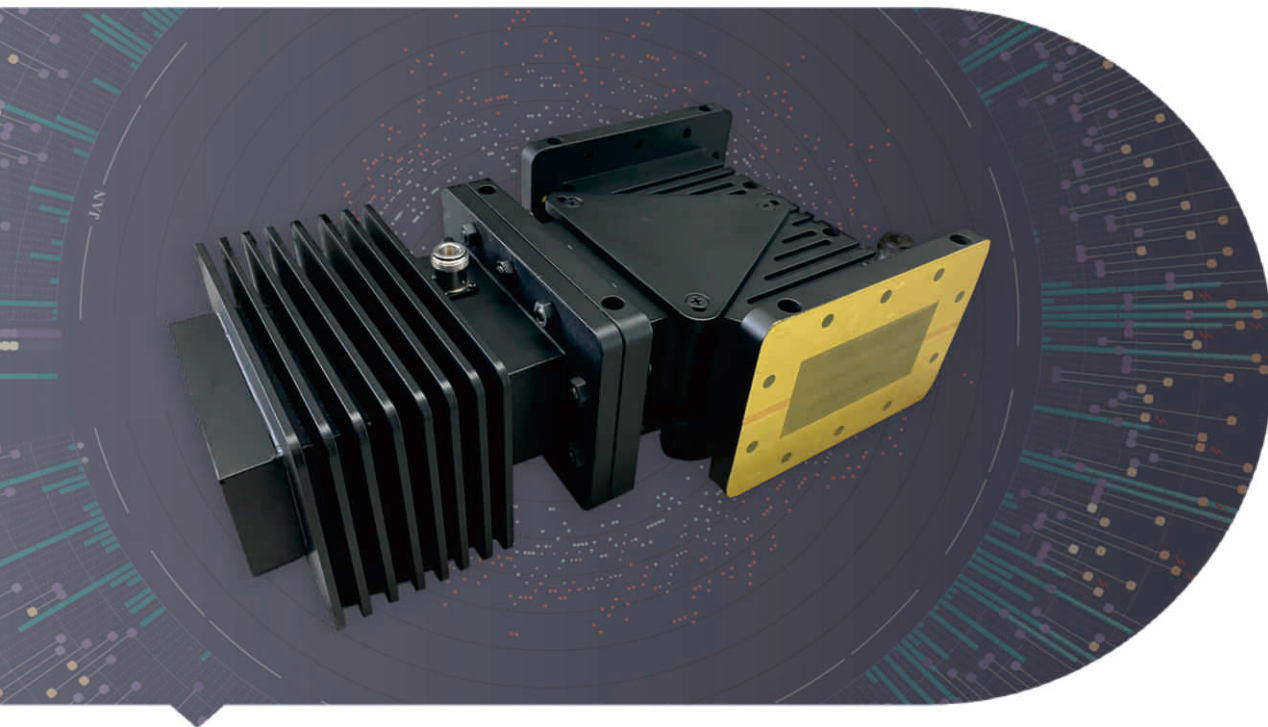
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

## Ordering Information

DH - 26 WWHPL 2450 P A

DH	Dolph Microwave
26	Waveguide Type WR340
WWHPL	Water Load
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al

# MICROWAVE ISOLATOR



## → Features

- Frequency range: 915 MHz and 2450MHz
- Waveguide size: WR340, WR430 and WR975
- Handling power: 6 KW, 10 KW, up to 20kW CW
- High Isolation

## → Description

Dolph Microwave Isolator is ferrite material to make the electromagnetic wave only to transmit in one direction, the reverse is absorbed and isolated. Optional in waveguide size, frequency range and power handling. Both standard and customized can be chosen upon request.

Model	Config.	WR Type	Frequency (MHZ)	VSWR	IL (dB)	Isolation (dB)
DH-9WISO915PMA...	Isolator	WR975	915±25	1.2	0.25	20
DH-9WISO+WHC915PMA...	Isolator+Coupler	WR975	915±25	1.2	0.25	20
DH-14WISO1300PMA...	Isolator	WR650	1300±25	1.2	0.25	20
DH-14WISO+WHC1300PMA...	Isolator+Coupler	WR650	1300±25	1.2	0.25	20
DH-22WISO2450PMA...	Isolator	WR430	2450±25	1.2	0.25	20
DH-22WISO2450PMA...	Isolator	WR430	2450±25	1.2	0.25	20
DH-22WISO+WHC2450PMA...	Isolator+Coupler	WR430	2450±25	1.2	0.25	20
DH-26WISO2450PMA...	Isolator	WR340	2450±25	1.2	0.25	20
DH-26WISO2450PMA...	Isolator	WR340	2450±25	1.2	0.25	20
DH-26WISO+WHC2450PMA...	Isolator+Coupler	WR340	2450±25	1.2	0.25	20
DH-32WISO2450PMA...	Isolator	WR284	2450±25	1.2	0.25	20
DH-32WISO2450PMA...	Isolator	WR284	2450±25	1.2	0.25	20
DH-32WISO+WHC2450PMA...	Isolator+Coupler	WR284	2450±25	1.2	0.25	20

Coupling (dB)	Handling Power (KW)	Cooling	Water Flow	Water Pressure	Water Pressure	Water Pressure
20-75-100	20-75-100	Water-Direct	3-5L/min	0.14MPa	Quick Connector	511*852*213
30-60	20-75-100	Water-Direct	3-5L/min	0.14MPa	Quick Connector	511*852*213
	10	Water-Direct	3-5L/min	0.14MPa	Quick Connector	350*580*170
30-60	10	Water-Direct	3-5L/min	0.14MPa	Quick Connector	350*580*170
30-60	3-5-6-15	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
	3	Air				183*335*95
	6	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
30-60	3-5-6-15	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112

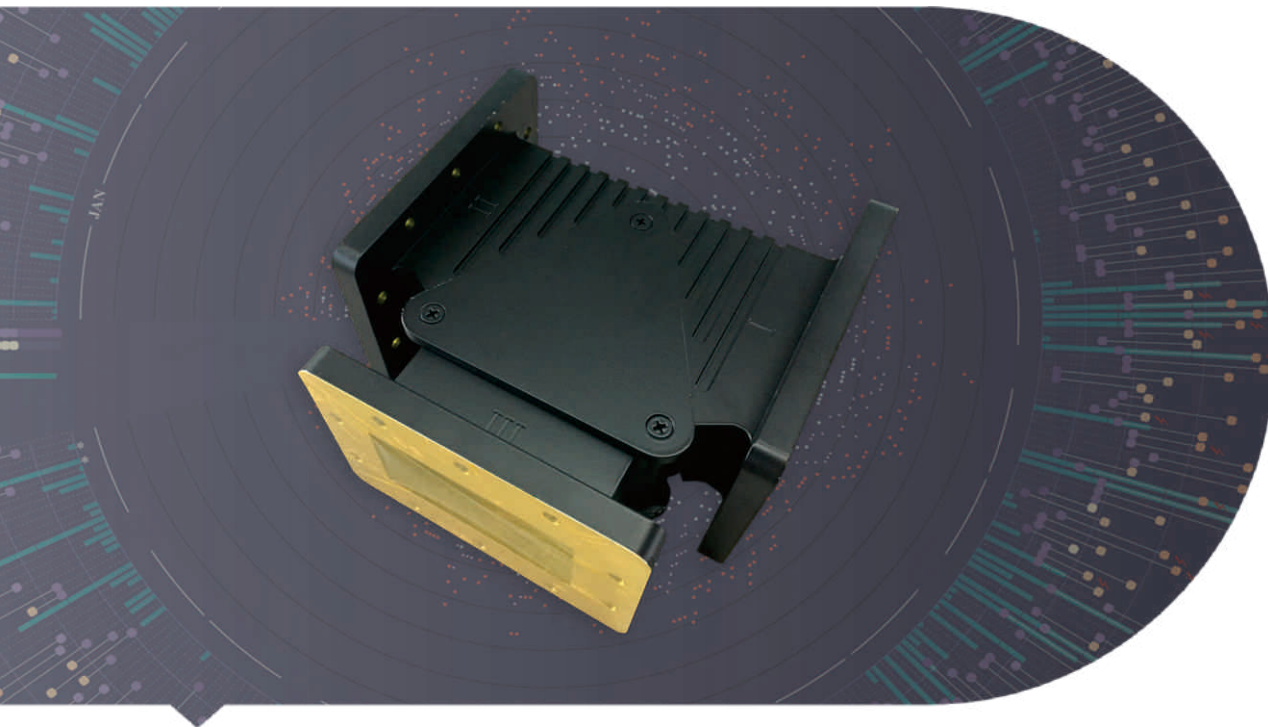
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

## Ordering Information

### DH - 26 WISO 2450 P M A 6KW

DH	Dolph Microwave
26	Waveguide Type WR340
WISO	Waveguide Isolator
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al
6KW	Handling Power 6KW CW

# MICROWAVE CIRCULATOR



## → Features

- Frequency range: 915 MHz and 2450MHz
- Waveguide size: WR340, WR430 and WR975
- Handling power: 6 KW, 10 KW, up to 20kW CW
- Flange: Cover and Grooved

## → Description

Dolph Microwave circulators are devices with three ports developed to create isolation between transmitted and received signals. Preventing the reflected microwaves from entering the microwave source directly and damaging the magnetron inside the microwave source. Both standard and customized can be chosen upon request.

Model	Config.	WR Type	Frequency (MHZ)	VSWR	IL (dB)
DH-9WCIC915PPPA...	Circulator	WR975	915±25	1.2	0.25
DH-9WCIC+WHC915PPPA...	Circulator+Coupler	WR975	915±25	1.2	0.25
DH-14WCIC1300PPPA...	Circulator	WR650	1300±25	1.2	0.25
DH-14WCIC+WHC1300PPPA...	Circulator+Coupler	WR650	1300±25	1.2	0.25
DH-22WCIC2450PPPA...	Circulator	WR430	2450±25	1.2	0.25
DH-26WCIC2450PPPA...	Circulator	WR340	2450±25	1.2	0.25
DH-26WCIC+WHC2450PPPA...	Circulator+Coupler	WR340	2450±25	1.2	0.25
DH-32WCIC2450PPPA...	Circulator	WR284	2450±25	1.2	0.25
DH-32WCIC2450PPPA...	Circulator	WR284	2450±25	1.2	0.25
DH-32WCIC+WHC2450PPPA...	Circulator+Coupler	WR284	2450±25	1.2	0.25

Isolation (dB)	Coupling (dB)	Handling Power (KW)	Cooling	Water Flow	Water Pressure	Water Injection	Size (mm)
20		20-75-100	Water-Direct	3-5L/min	0.14MPa	Quick Connector	511*852*213
20	30-60	20-75-100	Water-Direct	3-5L/min	0.14MPa	Quick Connector	511*852*213
20		10	Water-Direct	3-5L/min	0.14MPa	Quick Connector	350*580*170
20	30-60	10	Water-Direct	3-5L/min	0.14MPa	Quick Connector	350*580*170
20		2	Air				220*380*106
20		3-5-6-15	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
20	30-60	3-5-6-15	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
20		3	Air				183*335*95
20		6	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112
20	30-60	3-5-6-15	Water-Direct	3-5L/min	0.14MPa	Quick Connector	183*335*112

Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al

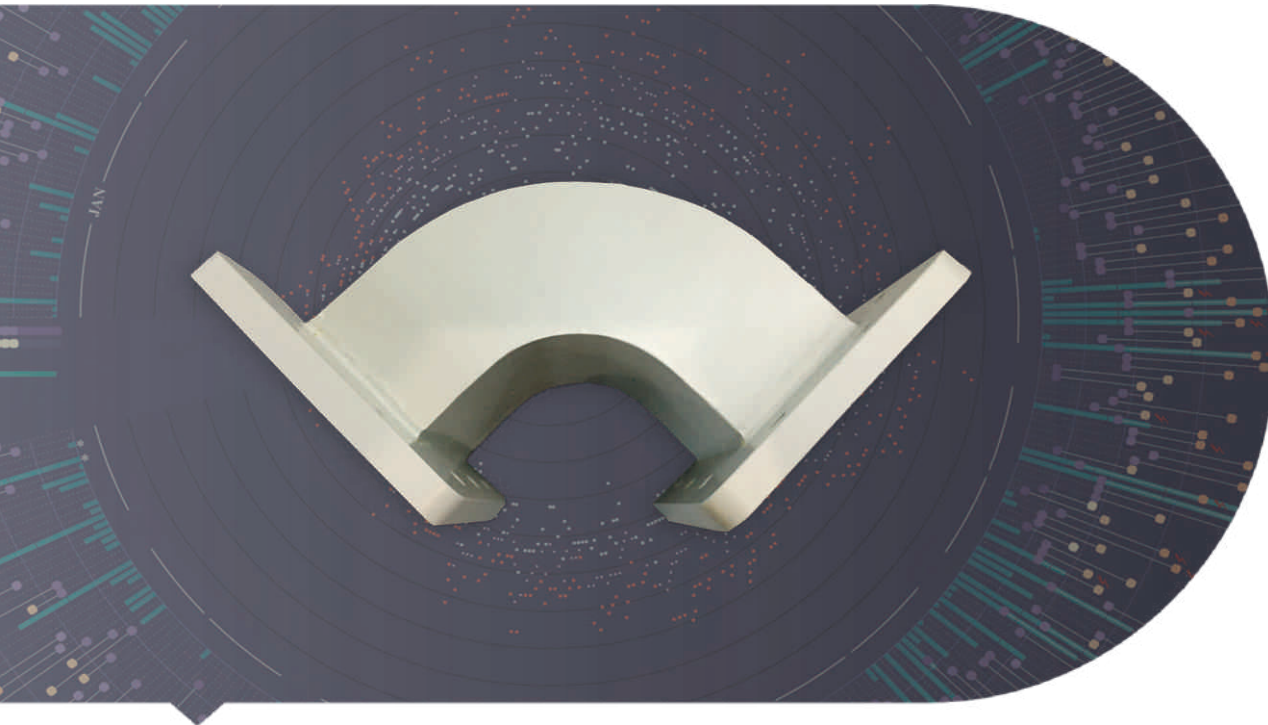
## Ordering Information

DH - 26 WCIC 2450 P P P A 6KW

DH	Dolph Microwave
26	Waveguide Type WR340
WCIC	Waveguide Circulator
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al
6KW	Handling Power 6KW CW



# MICROWAVE BENDS



## → Features

- Frequency range: 915 MHz and 2450MHz
- Handling power: 6 KW, 10 KW, up to 20KW CW
- Model: E and H, sweep or miter
- Bend degrees: 45°, 60°, 90°
- Material: Al, Cu

## → Description

Dolph Microwave Bends is quick delivery. Optional in bend configuration, length and surface treatment. It is available in sweep and miter type with high power handling. E or H bend is selected by specific application. Both standard and customized can be chosen in mechanical configurations.

Model	WR Type	Frequency (Ghz)	VSWR Max.	STD.Size (mm)
DH-9WEB/WHB...	WR975	0.75-1.15	1.1	200*200
DH-14WEB/WHB...	WR650	1.13-1.73	1.1	200*200
DH-22WEB/WHB...	WR430	1.72-2.61	1.1	190*190
DH-26WEB/WHB...	WR340	2.17-3.30	1.1	100*100
DH-32WEB/WHB...	WR284	2.60-3.95	1.1	160*160

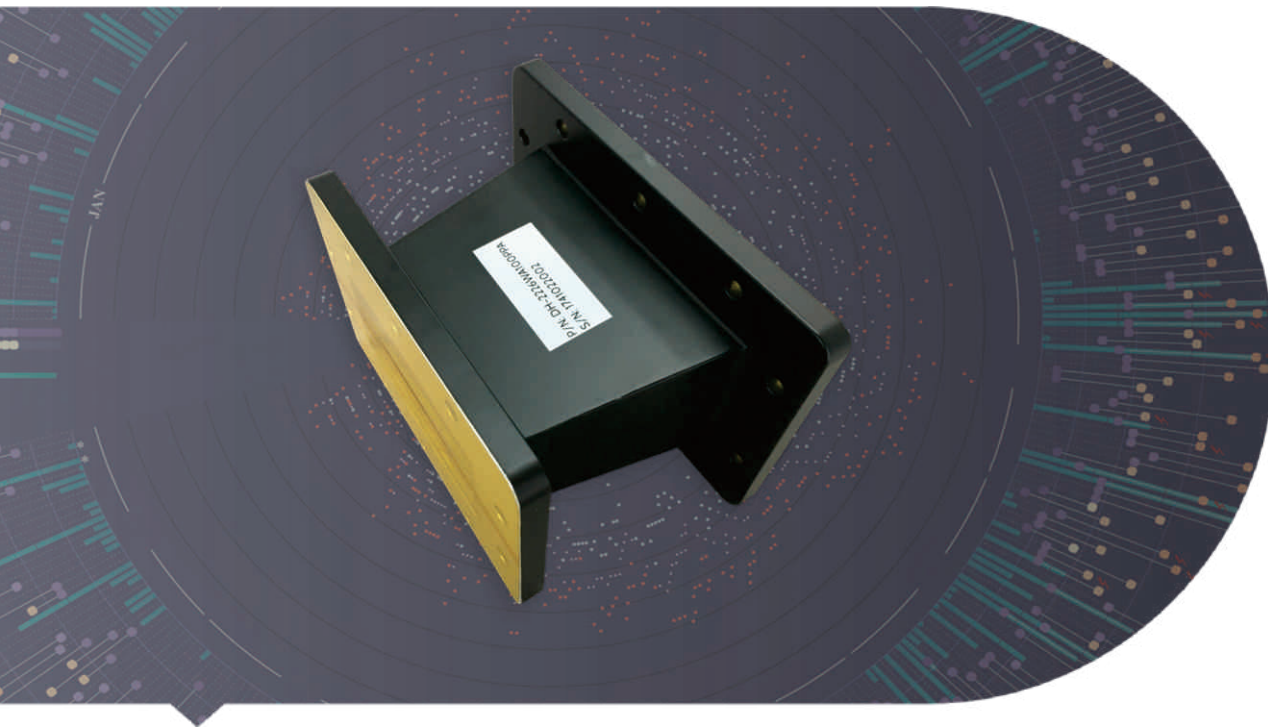
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 26 WEB A\*B P M A

DH	Dolph Microwave
26	WR340
WEB	E-Bend
WHB	H-Bend
WTEB	Miter E-Bend
WTHB	Miter H-Bend
A*B	Length/Size
P	Flange Cover
M	Flange Grooved
A	Material Al

# MICROWAVE TRANSITIONS



## → Features

- Frequency range: 915 MHz and 2450MHz
- Handling power: 6 KW, 10 KW, up to 20KW CW
- Length: 100, 200mm or others
- Material: Al, Cu

## → Description

Dolph Microwave Transitions for industrial microwave is covering 915 and 2450MHz. Available in different length, power handling and material. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (MHZ)	VSWR Max.	STD.Size (mm)
DH-22T26WA...	WR430T340	2450	1.1	100
DH-32T26WA...	WR284T340	2450	1.1	100

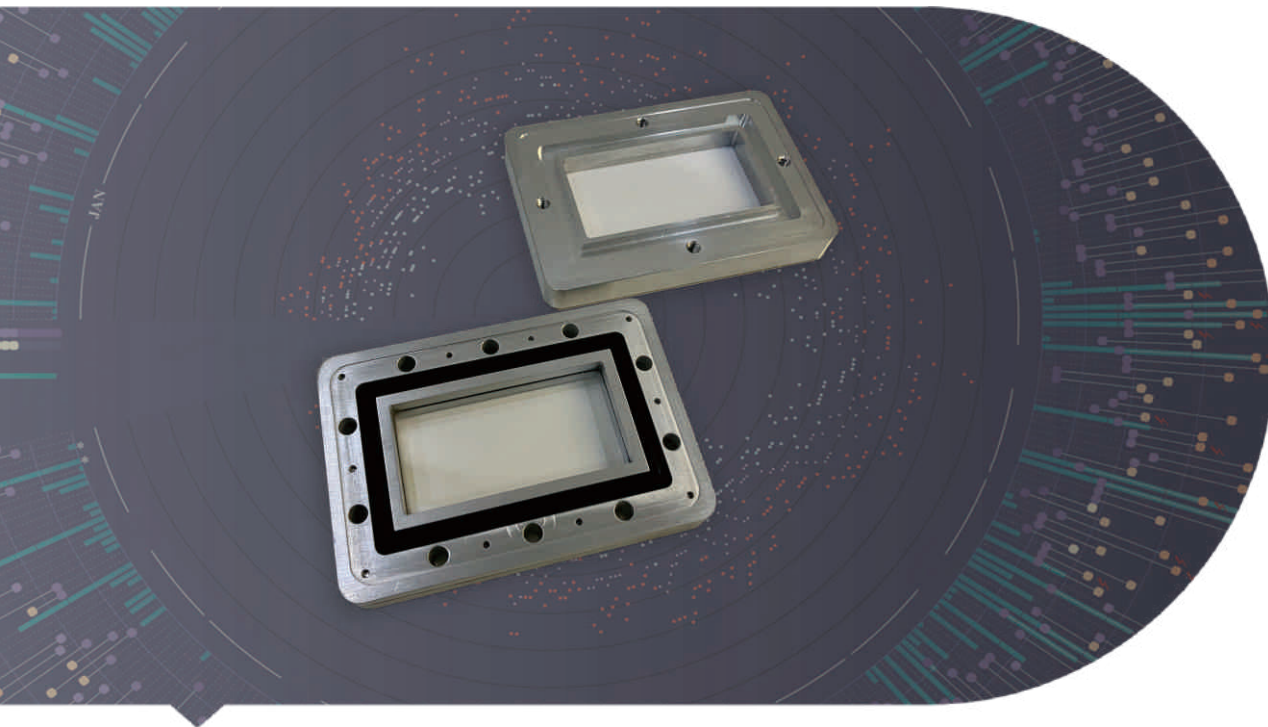
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 22T26 WA 100 P M A

DH	Dolph Microwave
22T26	WR430 to WR340
WA	Waveguide Transitions, Taper
100	Length/Size 100mm
P	Flange Cover
M	Flange Grooved
A	Material Al

# MICROWAVE PRESSURE WINDOW



## → Features

- Frequency range: 915 MHz and 2450MHz
- Handling power: 6 KW, 10 KW, up to 20KW CW
- Thickness: 16, 26mm or others
- Window material: Glass, quartz and ceramics
- Material: Al/ Cu

## → Description

Dolph Microwave Pressure window is a type of seal used to prevent contaminants (moisture, dirt and dust) from entering a waveguide system with high power and high pressure ability. It can be selected in thickness, window material, and flange type. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (Ghz)	VSWR Max.	IL (dB)
DH-22WPW...	WR430	1.72-2.61	1.25	0.2
DH-26WPW...	WR340	2.17-3.30	1.25	0.2
DH-32WPW...	WR284	2.60-3.95	1.25	0.2

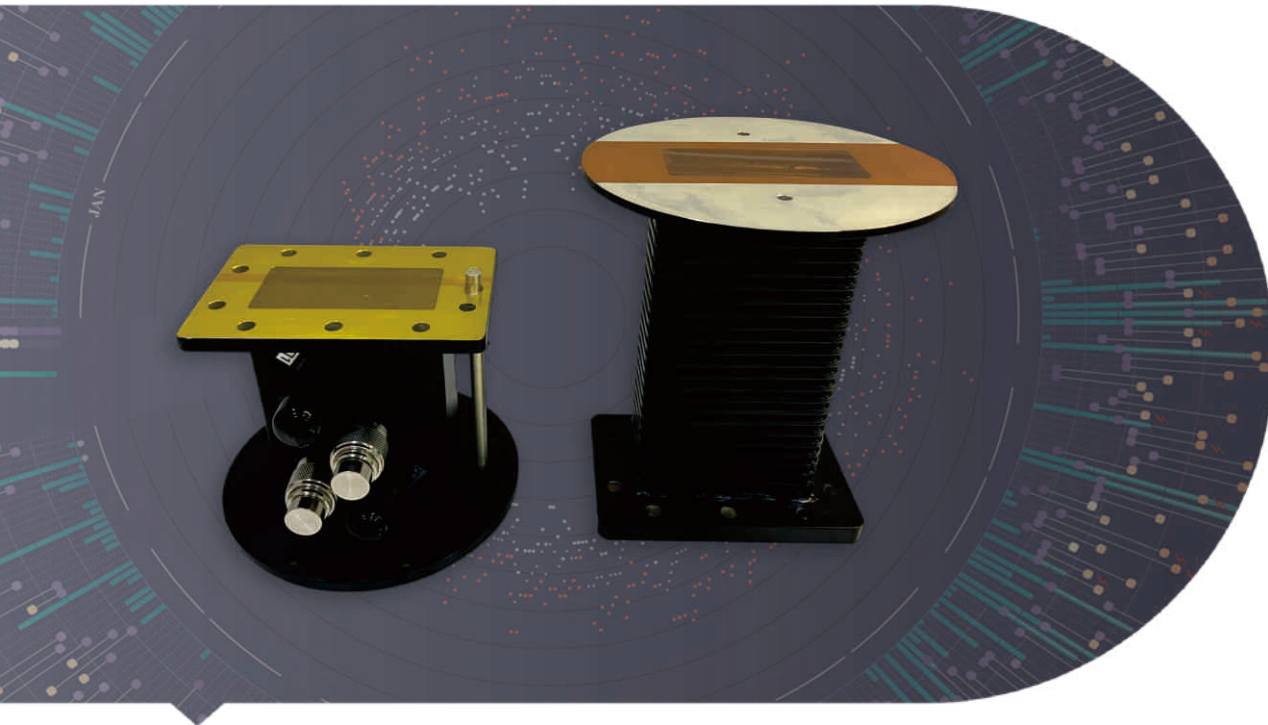
Pressure (PSIG)	Handling Power (W)	Window Material	Flange Type
15-45	100-6000	Fiberglass/Quartz/Ceramics	FDP
15-45	100-6000	Fiberglass/Quartz/Ceramics	FDP
15-45	100-6000	Fiberglass/Quartz/Ceramics	FDP

Inside Finish	Body Finish	Material
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

Ordering Information	
DH - 26 WPW 10 P M A	
DH	Dolph Microwave
26	WR340
WPW	Waveguide Pressure Windows
10	Thickness 10 mm
P	Flange Cover
M	Flange Grooved
A	Material Al



# MICROWAVE COUPLER



## → Features

- Frequency range: 915 MHz and 2450MHz
- Handling power: 6 KW, 10 KW, up to 20KW CW
- Bandwidth: 20%
- Coupling degree: 30-70dB
- Directivity: 20-25dB
- Compact structure

## → Description

Dolph Microwave Coupler is compact structure with high coupling, power handling and directivity. With or without coaxial adapter are optional. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (MHZ)	VSWR Max.	Coupling (dB)
DH-9WHC	WR975	915±50	1.1	30-70
DH-22WHC...	WR430	2450±50	1.1	30-70
DH-26WHC...	WR340	2450±50	1.1	30-70
DH-32WHC...	WR284	2450±50	1.1	30-70

Directivity (dB)	Accuracy (dB)	Freq. Sensitivity (dB)	Coupling Interface	Coupling Directional
20-25	±0.7	±1	N/SMA/TNC	Single/Dual
20-25	±0.7	±1	N/SMA/TNC	Single/Dual
20-25	±0.7	±1	N/SMA	Single/Dual
20-25	±0.7	±1	N/SMA	Single/Dual

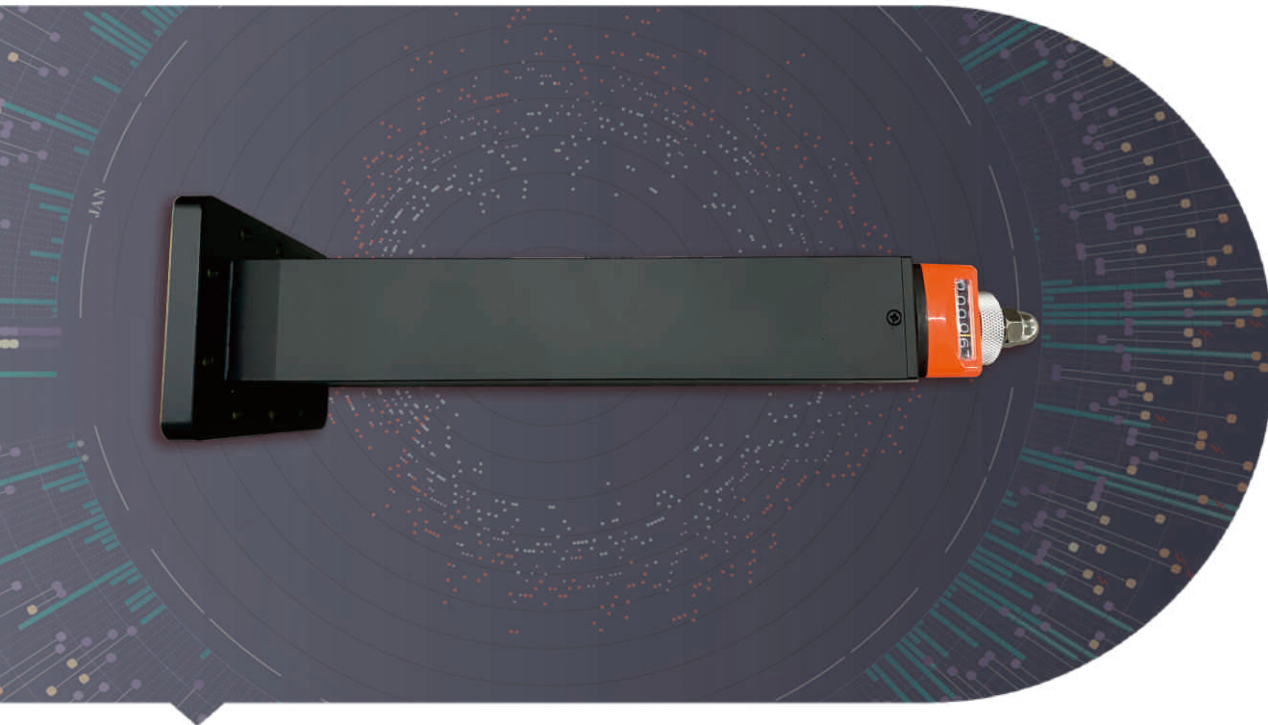
Flange Type	Inside Finish	Body Finish	Material
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
Cover/Grooved	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

### DH - 26 WHC 50 N K P A

DH	Dolph Microwave
26	WR340
WHC	Single Loop Couplers
WDHC	Dual Loop Couplers
50	Coupling 50 dB
N	Connector Type
K	Female
P	Flange Cover
M	Flange Grooved
A	Material Al

# MICROWAVE SLIDING SHORT



## → Features

- Frequency range: 915 MHz and 2450MHz
- Waveguide size: WR340, WR430 and WR975
- Handling power: 6 KW, 10 KW, up to 20KW CW
- Bandwidth: Full range
- Material: Al/Cu

## → Description

Dolph Microwave Sliding Short contains a movable short circuit within the waveguide body that is adjustable for over more than half a guide wavelength at the lowest frequency of operation. Both standard and customized can be chosen upon request.

Model	WR Type	Frequency (MHZ)	VSWR Max.	Coupling (dB)
DH-14WS...	WR650	1.13-1.73	50	90
DH-22WS...	WR430	1.72-2.61	50	70
DH-26WS...	WR340	2.17-3.30	50	60
DH-32WS...	WR284	2.60-3.95	50	60
DH-9WS...	WR975	0.76-1.15	50	110

Flange Type	Inside Finish	Body Finish	Material
FDP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FDP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FDP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass
FDP	Iridite per MIL-C-5541	Anticorrosion Black Painted	Al/Brass

## Ordering Information

DH - 26 WSS 2450 P M A 6KW

DH	Dolph Microwave
26	Waveguide Type WR340
WSS	Sliding Short
2450	Freq. 2450 MHz
P	Flange Cover
M	Flange Grooved
A	Material Al
6KW	Handling Power 6KW CW

# TECHNICAL RESOURCES

Standard model				Frequency Range (GHz) for TE10 Mode		Internal Dimensions(mm)				Thickness (mm)	External Dimensions(mm)				Te10 Cut-off Wavelength c (mm)	Te10 Cut-off Freq. fc (Ghz)	Theoretical Attenuation dB/m				Theoretical Attenuation dB/100ft.				Theoretical Peak Power Rating(MW)		Weight per Meter (Kg)	
China-Standards	EIA-Standards	UK-Standards	153-IEC	Starting Freq. 1.25fc	Cut-off Freq.1.9fc	Width -a	Height -b	Tolerance of width and height ±	Inter. Round Angle R1		Width -a	Height -b	Tolerance of width and height ±	Ext. Round Angle R2			Cu		Al		Cu		Al		1.25fc	1.9fc	Al	Cu
																	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
BJ3	WR-2300	NC	R3	0.32	0.49	584.2	292.1	TBC	1.5	6	TBC	TBC	TBC	TBC	1169.2	0.257	0.009	0.013	NC	NC	0.270	0.400	NC	NC	246	348	28.781	NC
BJ4	WR-2100	NC	R4	0.35	0.53	533.4	266.7	TBC	1.5	5	TBC	TBC	TBC	TBC	1067.5	0.281	0.010	0.015	NC	NC	0.310	0.460	NC	NC	205	290	21.873	NC
BJ5	WR-1800	WG1	R5	0.41	0.62	457.2	228.6	0.51	1.5	5	TBC	TBC	TBC	TBC	915.0	0.328	0.013	0.019	NC	NC	0.390	0.580	NC	NC	150	213	18.787	NC
BJ6	WR-1500	WG2	R6	0.49	0.75	381	190.5	0.38	1.5	3.18	TBC	TBC	TBC	TBC	762.5	0.393	0.017	0.025	NC	NC	0.510	0.760	NC	NC	104	148	9.923	NC
BJ8	WR-1150	WG3	R8	0.64	0.98	292.1	146.05	0.38	1.5	3.18	TBC	TBC	TBC	TBC	584.6	0.513	0.025	0.004	NC	NC	0.760	0.113	NC	NC	61.5	87.1	7.633	NC
BJ9	WR-975	WG4	R9	0.76	1.15	247.65	123.82	TBC	1.2	3.18	TBC	TBC	TBC	TBC	495.6	0.605	0.003	0.005	NC	NC	0.098	0.145	NC	NC	44.2	62.6	6.488	NC
BJ12	WR-770	WG5	R12	0.96	1.46	195.58	97.79	TBC	1.2	3.18	TBC	TBC	TBC	TBC	391.4	0.766	0.005	0.007	NC	NC	0.140	0.206	NC	NC	27.6	39.1	5.147	NC
BJ14	WR-650	WG6	R14	1.13	1.73	165.1	82.55	0.33	1.2	2.03	169.16	86.61	86.61	1.5	330.4	0.908	0.006	0.009	0.007	0.010	0.180	0.266	0.214	0.317	19.6	27.8	2.759	9.095
BJ18	WR-510	WG7	R18	1.45	2.2	129.54	64.77	0.26	1.2	2.03	133.6	68.83	68.83	1.5	259.1	1.157	0.008	0.013	0.010	0.015	0.259	0.382	0.309	0.456	12.09	17.1	2.175	7.168
BJ22	WR-430	WG8	R22	1.72	2.61	109.22	54.61	0.22	1.2	2.03	113.28	58.67	58.67	1.5	218.4	1.372	0.011	0.016	0.013	0.019	0.334	0.494	0.399	0.588	8.6	12.2	1.840	6.067
BJ26	WR-340	WG9A	R26	2.17	3.3	86.36	43.18	0.17	1.2	2.03	90.42	47.24	47.24	1.5	172.7	1.736	0.016	0.023	0.019	0.027	0.475	0.702	0.567	0.837	5.4	7.6	1.465	4.828
BJ32	WR-284	WG10	R32	2.6	3.95	72.14	34.04	0.14	1.2	2.03	76.2	39.1	39.1	1.5	144.3	2.078	0.021	0.031	0.025	0.037	0.652	0.953	0.777	1.136	3.5	5	1.414	4.662
BJ40	WR-229	WG11A	R40	3.22	4.9	58.17	29.08	0.12	1.2	1.625	61.42	32.33	32.33	1.3	116.3	2.577	0.028	0.042	0.034	0.050	0.860	1.270	1.026	1.514	2.44	3.46	0.794	2.618
BJ48	WR-187	WG12	R48	3.94	5.99	47.549	22.149	0.095	0.8	1.625	50.8	25.4	25.4	1.3	95.1	3.153	0.040	0.059	0.048	0.070	1.231	1.795	1.467	2.140	1.52	2.15	0.640	2.111
BJ58	WR-159	WG13	R58	4.64	7.05	40.386	20.193	0.081	0.8	1.625	43.64	23.44	23.44	1.3	80.77	3.712	0.049	0.072	0.058	0.086	1.487	2.195	1.773	2.617	1.17	1.66	0.560	1.846
BJ70	WR-137	WG14	R70	5.38	8.17	34.849	15.799	0.07	0.8	1.625	38.1	19.05	19.05	1.3	69.7	4.301	0.066	0.095	0.078	0.114	2.004	2.910	2.390	3.470	0.79	1.12	0.473	1.560
BJ84	WR-112	WG15	R84	6.57	9.99	28.499	12.624	0.057	0.8	1.625	31.75	15.88	15.88	1.3	57	5.260	0.091	0.131	0.108	0.156	2.761	3.993	3.292	4.761	0.52	0.73	0.390	1.285
BJ100	WR-90	WG16	R100	8.2	12.5	22.86	10.16	0.046	0.8	1.27	25.4	12.7	12.7	1.15	45.72	6.557	0.126	0.182	0.150	0.217	3.833	5.547	4.570	6.614	0.33	0.47	0.244	0.804
BJ120	WR-75	WG17	R120	9.84	15	19.05	9.525	0.038	0.8	1.27	21.59	12.06	12.06	1.15	38.1	7.869	0.151	0.222	0.180	0.265	4.590	6.775	5.472	8.078	0.26	0.34	0.213	0.702
BJ140	WR-62	WG18	R140	11.9	18	15.799	7.899	0.031	0.4	1.015	17.83	9.93	9.93	1	31.6	9.488	0.199	0.294	0.238	0.351	6.077	8.971	7.246	10.696	0.18	0.25	0.141	0.465
BJ180	WR-51	WG19	R180	14.5	22	12.95	6.477	0.026	0.4	1.015	14.99	8.51	8.51	1	25.91	11.575	0.269	0.396	0.320	0.473	8.185	12.082	9.759	14.406	0.12	0.17	0.118	0.389
BJ220	WR-42	WG20	R220	17.6	26.7	10.668	4.318	0.021	0.4	1.015	17.7	6.35	6.35	1	21.34	14.051	0.426	0.607	0.507	0.723	12.970	18.487	15.464	22.042	0.066	0.094	0.179	0.590
BJ260	WR-34	WG21	R260	21.7	33	8.636	4.318	0.02	0.4	1.015	10.67	6.35	6.35	1	17.27	17.358	0.493	0.728	0.588	0.868	15.036	22.197	17.928	26.465	0.053	0.076	0.082	0.271
BJ320	WR-28	WG22	R320	26.3	40	7.12	3.556	0.02	0.4	1.015	9.14	5.59	5.59	1	14.22	21.053	0.660	0.974	0.787	1.162	20.120	29.701	23.989	35.413	0.036	0.051	0.070	0.229
BJ400	WR-22	WG23	R400	32.9	50.1	5.69	2.845	0.02	0.3	1.015	7.72	4.88	4.88	1	11.38	26.344	0.923	1.362	1.100	1.624	28.119	41.508	33.526	49.491	0.023	0.033	0.058	0.191
BJ500	WR-19	WG24	R500	39.2	59.6	4.775	2.388	0.02	0.3	1.015	6.81	4.42	4.42	1	9.55	31.393	NC	NC	1.431	2.112	NC	NC	43.603	64.367	0.016	0.023	NC	0.166
BJ620	WR-15	WG25	R620	49.8	75.8	3.7592	1.88	0.02	0.2	1.015	5.79	3.91	3.91	1	7.52	39.876	NC	NC	2.048	3.023	NC	NC	62.425	92.152	0.01	0.144	NC	0.139
BJ740	WR-12	WG26	R740	60.5	91.9	3.0988	1.5494	0.0127	0.15	1.015	5.13	3.58	3.58	1	6.2	48.374	NC	NC	2.737	4.040	NC	NC	83.409	123.128	0.0069	0.0098	NC	0.121
BJ900	WR-10	WG27	R900	73.8	112	2.54	1.27	0.0127	0.15	1.015	4.57	3.3	3.3	1	5.08	59.016	NC	NC	3.688	5.444	NC	NC	112.397	165.920	0.0046	0.0066	NC	0.106
BJ1200	WR-8	WG28	R1200	92.2	140	2.032	1.016	0.0076	0.15	0.76	3.556	2.54	2.54	0.8	4.06	73.770	NC	NC	NC	NC	NC	NC	NC	NC	0.003	0.0042	NC	NC
BJ1400	WR-7	WG29	R1400	113	173	1.651	0.8255	0.0064	0.038	0.76	3.175	2.35	2.35	0.8	3.3	90.793	NC	NC	NC	NC	NC	NC	NC	NC	0.0019	0.0028	NC	NC
BJ1800	WR-5	WG30	R1800	145	220	1.2954	0.6477	0.0064	0.038	0.76	2.819	2.172	2.172	0.8	2.59	115.717	NC	NC	NC	NC	NC	NC	NC	NC	0.0012	0.0017	NC	NC
BJ2200	WR-4	WG31	R2200	172	261	1.0922	0.5461	0.0051	0.038	0.76	2.616	2.07	2.07	0.8	2.18	137.246	NC	NC	NC	NC	NC	NC	NC	NC	0.00086	0.00122	NC	NC
BJ2600	WR-3	WG32	R2600	217	330	0.8636	0.4318	0.0051	0.038	0.76	2.388	1.956	1.956	0.8	1.73	173.576	NC	NC	NC	NC	NC	NC	NC	NC	0.00054	0.00076	NC	NC



# TECHNICAL RESOURCES

China-Standards	IEC	EIA WC	Frequency Range (Ghz)	Cutoff Frequency (Ghz)	Internal Diameter	
					mm	Inch
BY3.3	C3.3	2551	0.312~0.427	0.09	647.9	25.51
BY4	C4	2179	0.365~0.5	0.105	553.5	21.79
BY4.5	C4.5	1861	0.427~0.586	0.123	472.8	18.61
BY5.3	C5.3	1587	0.5~0.686	0.145	403	15.87
BY6.2	C6.2	1358	0.586~0.803	0.169	345.1	13.58
BY7	C7	1161	0.686~0.939	0.198	294.79	11.61
BY8	C8	992	0.803~1.100	0.698	251.84	9.91
BY10	C10	847	0.939~1.290	0.817	215.14	8.47
BY12	C12	724	1.100~1.510	0.957	183.77	7.24
BY14	C14	618	1.290~1.760	1.12	157	6.18
BY16	C16	528	1.510~2.070	1.311	134.11	5.28
BY18	C18	451	1.760~2.420	1.534	114.58	4.51
BY22	C22	385	2.070~2.830	1.796	97.87	3.85
BY25	C25	329	2.420~3.310	2.102	83.62	3.29
BY30	C30	281	2.830~3.880	2.461	71.42	2.81
BY35	C35	240	3.310~4.540	2.88	61.04	2.4
BY40	C40	205	3.890~5.330	3.381	51.99	2.05
BY48	C48	175	4.540~6.230	3.955	44.45	1.75
BY56	C56	150	5.300~7.270	4.614	38.1	1.5
BY65	C65	128	6.210~8.510	5.402	32.537	1.28
BY76	C76	109	7.270~9.970	6.326	27.788	1.09
BY89	C89	94	8.490~11.600	7.377	23.825	0.94
BY104	C104	80	9.970~13.700	8.685	20.244	0.8
BY120	C120	69	11.600~15.900	10.057	17.415	0.69
BY140	C140	59	13.400~18.400	11.649	15.088	0.59
BY165	C165	50	15.900~21.800	13.842	12.7	0.5
BY190	C190	44	18.200~24.900	15.794	11.125	0.44
BY220	C220	38	21.200~29.100	18.446	9.525	0.38
BY255	C255	33	24.300~33.200	21.103	8.331	0.33
BY290	C290	28	28.300~38.800	24.62	7.137	0.28
BY330	C330	25	31.800~43.000	27.683	6.35	0.25
BY380	C380	22	36.400~49.800	31.617	5.563	0.22
BY430	C430	19	42.400~58.100	36.776	4.775	0.19
BY495	C495	17	46.300~63.500	40.227	4.369	0.17
BY580	C580	14	56.600~77.500	49.103	3.581	0.14
BY660	C660	13	63.500~87.200	55.28	3.175	0.13
BY765	C765	11	72.700~99.700	64.462	2.769	0.11
BY890	C890	9	84.800~116.000	73.552	2.388	0.09

## VSWR & Return Loss Data

VSWR	STANDING WAVE RATIO (dB)	RETURN LOSS (dB)	TRANSMISSION LOSS (dB)	REFLECTION COEFFICIENT	TRANSMITTED POWER %	REFLECTED POWER %
1.00	0	0	0	0	100.0	0
1.01	0.1	46.1	0	0	100.0	0
1.02	0.2	40.1	0	0.01	100.0	0
1.03	0.3	36.6	0.001	0.01	100.0	0
1.04	0.3	34.2	0.002	0.02	100.0	0
1.05	0.4	32.3	0.003	0.02	99.9	0.1
1.06	0.5	30.7	0.004	0.03	99.9	0.1
1.07	0.6	29.4	0.005	0.03	99.9	0.1
1.08	0.7	28.3	0.006	0.04	99.9	0.1
1.09	0.7	27.3	0.008	0.04	99.8	0.2
1.10	0.8	26.4	0.010	0.05	99.8	0.2
1.11	0.9	25.7	0.012	0.05	99.7	0.3
1.12	1.0	24.9	0.014	0.06	99.7	0.3
1.13	1.1	24.3	0.016	0.06	99.6	0.4
1.14	1.1	23.7	0.019	0.07	99.6	0.4
1.15	1.2	23.1	0.021	0.07	99.5	0.5
1.16	1.3	22.6	0.024	0.07	99.5	0.5
1.17	1.4	22.1	0.027	0.08	99.4	0.6
1.18	1.4	21.7	0.030	0.08	99.3	0.7
1.19	1.5	21.2	0.033	0.09	99.2	0.8
1.20	1.6	20.8	0.036	0.09	99.2	0.8
1.21	1.7	20.4	0.039	0.10	99.1	0.9
1.22	1.7	20.1	0.043	0.10	99.0	1.0
1.23	1.8	19.7	0.046	0.10	98.9	1.1
1.24	1.9	19.4	0.050	0.11	98.9	1.1
1.25	1.9	19.1	0.054	0.11	98.8	1.2
1.26	2.0	18.8	0.058	0.12	98.7	1.3
1.27	2.1	18.5	0.062	0.12	98.6	1.4
1.28	2.1	18.2	0.066	0.12	98.5	1.5
1.29	2.2	17.9	0.070	0.13	98.4	1.6
1.30	2.3	17.7	0.075	0.13	98.3	1.7
1.32	2.4	17.2	0.083	0.14	98.1	1.9
1.34	2.5	16.8	0.093	0.15	97.9	2.1
1.36	2.7	16.3	0.102	0.15	97.7	2.3
1.38	2.8	15.9	0.112	0.16	97.5	2.5

VSWR	STANDING WAVE RATIO (dB)	RETURN LOSS (dB)	TRANSMISSION LOSS (dB)	REFLECTION COEFFICIENT	TRANSMITTED POWER %	REFLECTED POWER %
1.40	2.9	15.6	0.122	0.17	97.2	2.8
1.42	3.0	15.2	0.133	0.17	97.0	3.0
1.44	3.2	14.9	0.144	0.18	96.7	3.3
1.46	3.3	14.6	0.155	0.19	96.5	3.5
1.48	3.4	14.3	0.166	0.19	96.3	3.7
1.50	3.5	14.0	0.177	0.20	96.0	4.0
1.52	3.6	13.7	0.189	0.21	95.7	4.3
1.54	3.8	13.4	0.201	0.21	95.5	4.5
1.56	3.9	13.2	0.213	0.22	95.2	4.8
1.58	4.0	13.0	0.225	0.22	94.9	5.1
1.60	4.1	12.7	0.238	0.23	94.7	5.3
1.62	4.2	12.5	0.250	0.24	94.4	5.6
1.64	4.3	12.3	0.263	0.24	94.1	5.9
1.66	4.4	12.1	0.276	0.25	93.8	6.2
1.68	4.5	11.9	0.289	0.25	93.6	6.4
1.70	4.6	11.7	0.302	0.26	93.3	6.7
1.72	4.7	11.5	0.315	0.26	93.0	7.0
1.74	4.8	11.4	0.329	0.27	92.7	7.3
1.76	4.9	11.2	0.342	0.28	92.4	7.6
1.78	5.0	11.0	0.356	0.28	92.1	7.9
1.80	5.1	10.9	0.370	0.29	91.8	8.2
1.82	5.2	10.7	0.384	0.29	91.5	8.5
1.84	5.3	10.6	0.398	0.30	91.3	8.7
1.86	5.4	10.4	0.412	0.30	91.0	9.0
1.88	5.5	10.3	0.426	0.31	90.7	9.3
1.90	5.6	10.2	0.440	0.31	90.4	9.6
1.92	5.7	10.0	0.454	0.32	90.1	9.9
1.94	5.8	9.9	0.468	0.32	89.8	10.2
1.96	5.8	9.8	0.483	0.32	89.5	10.5
1.98	5.9	9.7	0.497	0.33	89.2	10.8
2.00	6.0	9.5	0.512	0.33	88.9	11.1
2.50	8.0	7.4	0.881	0.43	81.6	18.4
3.00	9.5	6.0	1.249	0.50	75.0	25.0
3.50	10.9	5.1	1.603	0.56	69.1	30.9
4.00	12.0	4.4	1.938	0.60	64.0	36.0
4.50	13.1	3.9	2.255	0.64	59.5	40.5
5.00	14.0	3.5	2.553	0.67	55.6	44.4
5.50	14.8	3.2	2.834	0.69	52.1	47.9
6.00	15.6	2.9	3.100	0.71	49.0	51.0
6.50	16.3	2.7	3.351	0.73	46.2	53.8
7.00	16.9	2.5	3.590	0.75	43.7	56.2

VSWR	STANDING WAVE RATIO (dB)	RETURN LOSS (dB)	TRANSMISSION LOSS (dB)	REFLECTION COEFFICIENT	TRANSMITTED POWER %	REFLECTED POWER %
7.50	17.5	2.3	3.817	0.76	41.5	58.5
8.00	18.1	2.2	4.033	0.78	39.5	60.5
8.50	18.6	2.1	4.240	0.79	37.7	62.3
9.00	19.1	1.9	4.437	0.80	36.0	64.0
9.50	19.6	1.8	4.626	0.81	34.5	65.5
10.00	20.0	1.7	4.807	0.82	33.1	66.9
11.00	20.8	1.6	5.149	0.83	30.6	69.4
12.00	21.6	1.5	5.466	0.85	28.4	71.6
13.00	22.3	1.3	5.762	0.86	26.5	73.5
14.00	22.9	1.2	6.040	0.87	24.9	75.1
15.00	23.5	1.2	6.301	0.88	23.4	76.6
16.00	24.1	1.1	6.547	0.88	22.1	77.9
17.00	24.6	1.0	6.780	0.89	21.0	79.0
18.00	25.1	1.0	7.002	0.89	19.9	80.1
19.00	25.6	0.9	7.212	0.90	19.0	81.0
20.00	26.0	0.9	7.413	0.90	18.1	81.9
25.00	28.0	0.7	8.299	0.92	14.8	85.2
30.00	29.5	0.6	9.035	0.94	12.5	87.5

### Coaxial Connector Power Handling vs Frequency

