



Hexu Microwave

Wireless Future



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SHANGHAI • CHINA

Company profile

Established at Shanghai, Hexu Microwave Technology Company(Hexu) is a high tech enterprise, working on R&D, manufacturing & marketing of microwave transmission cables and microwave devices, these products are widely applied to home & abroad mobile communication, satellite communication, medical industries and military markets.

Hexu owns a high-class professional team of R&D, Marketing and Operation, supply a professional service for customers.



Contents

1. Flexible Waveguide	01
1.1 Rectangular Flexible Twist Waveguide	01
1.2 Flexible Seamless Waveguide8	06
1.3 High-Power Water-Cooling Flexible Waveguide	08
2. Elliptical Waveguide	09
3. Ferrite Device	12
3.1 Low Power Waveguide Circulator	12
3.2 High Power Waveguide Circulator	14
3.3. High Power Waveguide Isolator	15
3.4 Low Power Flange Type Waveguide Isolator	17
3.5 Waveguide Duplexer	18
4. Rigid Waveguide	19
4.1 Rectangular Rigid Waveguide	19
4.2 Flat Rectangular Rigid Waveguide	21
4.3 Medium Flat Rectangular Rigid Waveguide	22
4.4 Square Rigid Waveguide	23
4.5 Round Rigid Waveguide	24
4.6 Double Ridge Rigid Waveguide	25
5. Microwave Component	26
5.1 Waveguide to Coaxial Adapter	26
5.1.1 Right Angle Waveguide to Coaxial Adapter	26
5.1.2 Endlaunch Waveguide to Coaxial Adapter	26
5.2 Straight Waveguide, (E/H) Bend Waveguide, Twisted Waveguide	27
5.2.1 Straight Waveguide	27
5.2.2 E Bend Waveguide	29
5.2.3 H Bend Waveguide	30
5.2.4 Twisted Waveguide	31
5.3 Composite Waveguide	32
5.4 Rotary Joint	33
5.4. 1 Single Channel/Dual Channels Rotary Joint	33
6. RF Cable & Assembly	36
6.1 WP Series Low Loss Stable Phase Coaxial RF Cable	36
6.2 BP Series Low Loss Stable Phase Coaxial RF Cable	37
6.3 SFCJ Series Low Loss RF Cable	38
Appendix	39
1. Flange Type	39
2. Waveguide Size Table	40

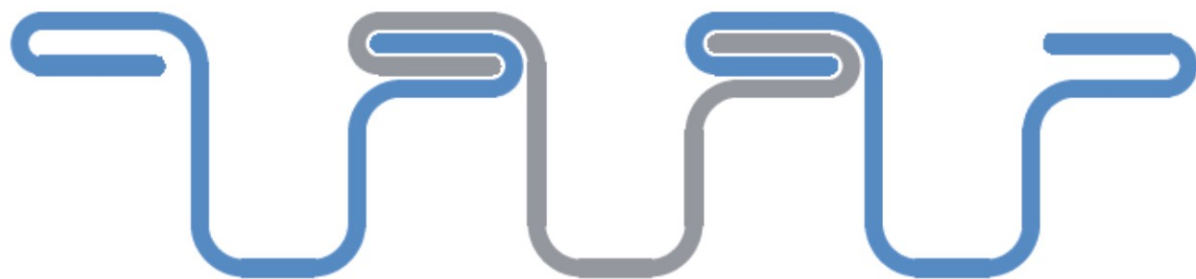
1. Flexible Waveguide

1.1 Rectangular Flexible Twist Waveguide

Shanghai Hexu Microwave Technology Company(Hexu Microwave) supply flexible twist waveguide at the frequency range of 3-50GHz. This product has no obvious change at electrical performance during bending or twisting. It applies at mechanical compensation position very well within its good flexible characteristics, overcomes expanding with heat and contracting with cold comparing to rigid waveguide. It also acts as a buffer part replacing rigid waveguide on mechanical vibration occasions. In some other installing sites, its installing is easier and more convenient than other types of waveguide. Since insertion loss of flexible twist waveguide is higher than rigid waveguide's and elliptical waveguide's, length is not beyond two meters per piece normally, but length can be customized at some special situations.

Flexible Twist Waveguide Tube

Flexible twist waveguide core is twined by brass strip (silver-plated brass wire usually), brass strip become seven edge-fold shape by performing, then become a rectangular hollow corrugated tube after twining along with an mandrel similar to rectangular shape. Brass strips twine together to form an interlocking structure seeing from longitudinal section of mandrel, this kind of structure keep brass strip twining constantly to become a corrugated tube and avoid electromagnetic leakage. When corrugated tube is twisted, interlocking structure will move slightly, it makes tube twistable.

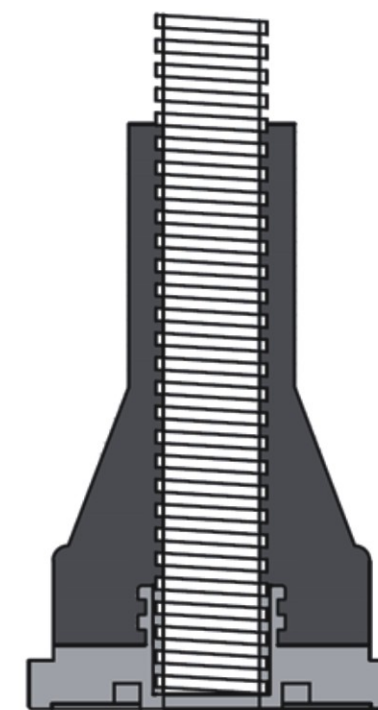


Interlocking Structure

Flange of Flexible Twist Waveguide

Hexu Microwave supply all kinds of standard flanges to satisfy customer's requirement, it contains GB Standard (China), IEC Standard(International), MIL Standard(USA), EIA Standard(USA), etc.

Flange is made of anti-corrosion brass alloy material and manufactured by CNC equipment machining. Flange bottom structure contains unique locking slot in order to ensure reliability of combining with rubber jacket and prevent waveguide tube breakage at the bottom of flange. Flange surface is usually dealt with nickel plating treatment, it enhances anti-corrosion ability on the basis of no effect on insertion loss and electrical specification of third-order intermodulation of waveguide. Flange and surface treatment can be customized as per customer's requirement.

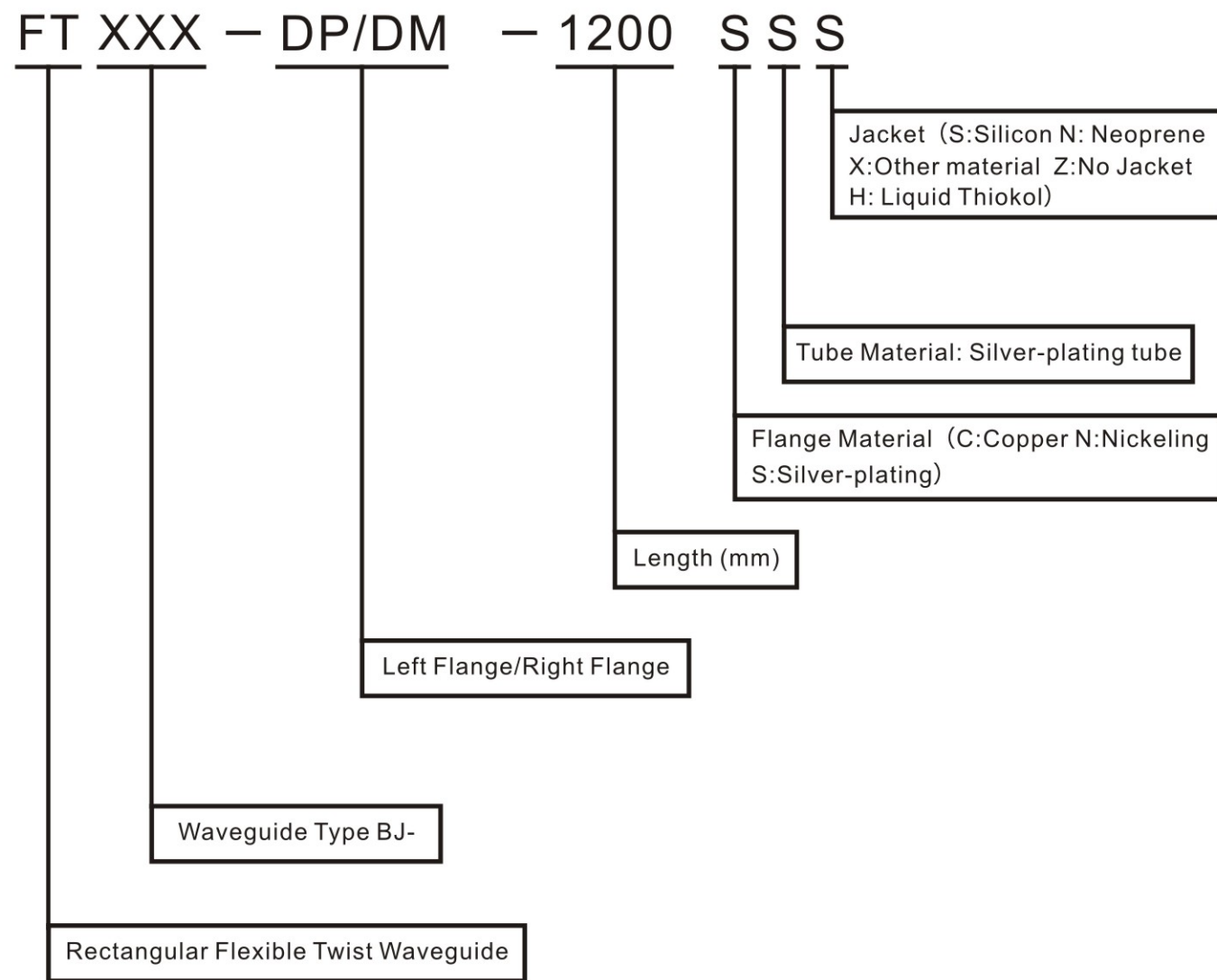


Flange, waveguide tube and jacket matching

Jacket of Flexible Twist Waveguide

Jacket of flexible twist waveguide is made of silicon rubber. Flexible twist waveguide tube is covered by silicon rubber jacket through a special rubber molding process. This layer of jacket keep waveguide at IP68 level of water-proof and dust-proof, it also has the ozone resistance, resistance to ultraviolet radiation, high and low temperature resistance and other properties, as well as resist all kinds of bad conditions.

【Type Description】



E.G.

FT84-BP/BM-1200NSS indicates BJ84(WR112) rectangular flexible twist waveguide assemblies within 1200mm length, silicon rubber jacket, and nickel-plated flange material where left one belonging to FBP(UBR) type, right one belonging to FBM(PBR) type.

Technical Specifications of Flexible Twist Waveguide

ELECTRICAL SPECIFICATIONS													
Waveguide Designation			Freq. Range (GHz)	Insertion Loss (dB/m)	Suggested Power Limit		Return Loss (dB)@Length(mm)						
					Peak(MW)	CW(KW)	300	600	900	1000	1200	1500	1800
R40	WR229	WG11A	3.22-4.9	0.15	1.55	4	31.0	28.8	28.3	28.3	27.8	27.3	26.3
R48	WR187	WG12	3.94-5.99	0.16	1.4	3	31.0	28.8	28.3	28.3	27.8	27.3	26.3
R58	WR159	WG13	4.64-7.05	0.18	0.6	2.5	31.0	28.3	27.8	27.8	27.3	26.8	25.8
R70	WR137	WG14	5.38-8.17	0.25	0.56	2	30.2	27.8	27.3	27.3	26.8	26.3	25.3
R84	WR112	WG15	6.57-9.99	0.3	0.33	1.5	30.2	27.3	27.1	27.1	26.6	26.1	25.1
R100	WR90	WG16	8.20-12.5	0.4	0.22	1	30.2	27.1	27.0	27.0	26.5	26	25.0
R120	WR75	WG17	9.84-15	0.5	0.18	0.75	29.4	27.0	26.4	26.4	25.9	25.4	24.4
R140	WR62	WG18	11.9-18	0.65	0.12	0.4	29.4	26.4	26.0	26.0	25.5	25.0	24.0
R220	WR42	WG20	17.7-26.5	1.2	0.045	0.1	23.0	22.1	21.1	21.1	-	-	-
R320	WR28	WG22	26.5-40	2	0.022	0.075	21.0	20.8	20.8	20.8	-	-	-
R400	WR22	WG23	33-50	2.5	-	-	20.0	16.5	15.6	15.6	-	-	-

MECHANICAL SPECIFICATIONS								
Waveguide Type			Max Twist(°/m)		Min E-Bending Radius(mm)		Min H-Bending Radius(mm)	
			Static	Repeated	Static	Repeated	Static	Repeated
R40	WR229	WG11A	132	33	165	660	330	1320
R48	WR187	WG12	155	40	136	544	272	1088
R58	WR159	WG13	185	45	116	464	232	928
R70	WR137	WG14	210	52	100	400	200	800
R84	WR112	WG15	260	68	82	328	164	656
R100	WR90	WG16	315	76	66	264	132	528
R120	WR75	WG17	365	92	54	216	108	432
R140	WR62	WG18	445	112	46	184	92	368
R220	WR42	WG20	630	157	30	120	60	240
R320	WR28	WG22	920	230	20	80	40	160
R400	WR22	WG23	920	230	18	78	38	158

Technical specification s of this document is as guide only. Components can be customized according to all kinds of mechanical and electrical specifications, or performance of products can be optimized in narrow bandwidth working frequency. Inquire us about specific working frequency when order.

Standard Length of Flexible Twist Waveguide

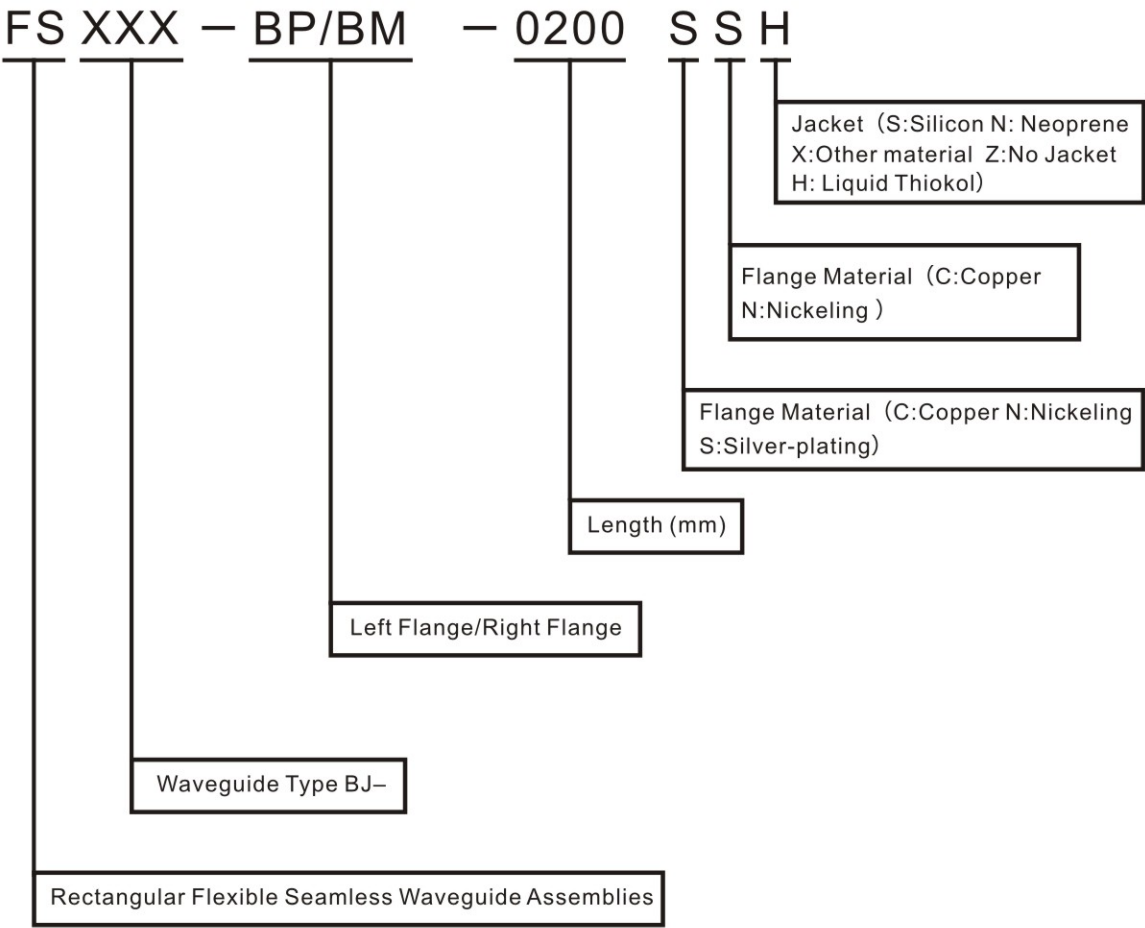
STANDARD LENGTH															
Waveguide Type			Length(mm)±3%												
			100	200	300	400	500	600	700	800	900	1000	1200	1500	1800
R40	WR229	WG11A	□	□	■	□	□	■	□	□	□	□	□	□	□
R48	WR187	WG12	□	□	■	■	□	■	■	□	■	■	■	■	■
R58	WR159	WG13	□	□	□	□	□	□	□	□	□	□	□	□	□
R70	WR137	WG14	□	□	■	■	■	■	■	■	■	■	■	■	■
R84	WR112	WG15	□	□	■	■	□	■	■	□	■	■	■	■	■
R100	WR90	WG16	□	□	■	■	□	■	■	□	■	■	■	■	■
R120	WR75	WG17	□	□	■	■	□	■	■	□	■	■	■	■	■
R140	WR62	WG18	□	□	■	■	□	■	■	□	■	■	■	□	□
R220	WR42	WG20	□	□	■	■	□	■	■	□	■	■	□	□	□
R320	WR28	WG22	□	□	■	■	□	■	■	□	■	■	□	□	□
R400	WR22	WG23	□	□	■	■	□	■	■	□	■	■	□	□	□
NOTE :			■	Available		□	NOT Available								

IEC 60154 FLANGE															
Type			SQUARE			RECTANGULAR						CIRCULAR			
			CBR	PBR	UBR	PDR			UDR			UAR		PAR	CAR
WG	WR	R	4 HOLE			6 HOLE	8 HOLE	10 HOLE	6 HOLE	8 HOLE	10 HOLE	6 HOLE	8 HOLE	6 HOLE	8 HOLE
10	284	32						■			■				
11A	229	40													
12	187	48					■			■			■	■	■
13	159	58					■			■		■		■	
14	137	70					■			■		■		■	
15	112	84	■	■	■		■			■					
16	90	100	■	■	■		■			■					
17	75	120	■	■	■	■			■						
18	62	140	■	■	■	■			■						
19	51	180	■	■	■	■			■						
20	42	220	■	■	■										
21	34	260	■	■	■										
22	28	320	■	■	■										
23	22	400													

1.2 Flexible Seamless Waveguide



【Type Description】



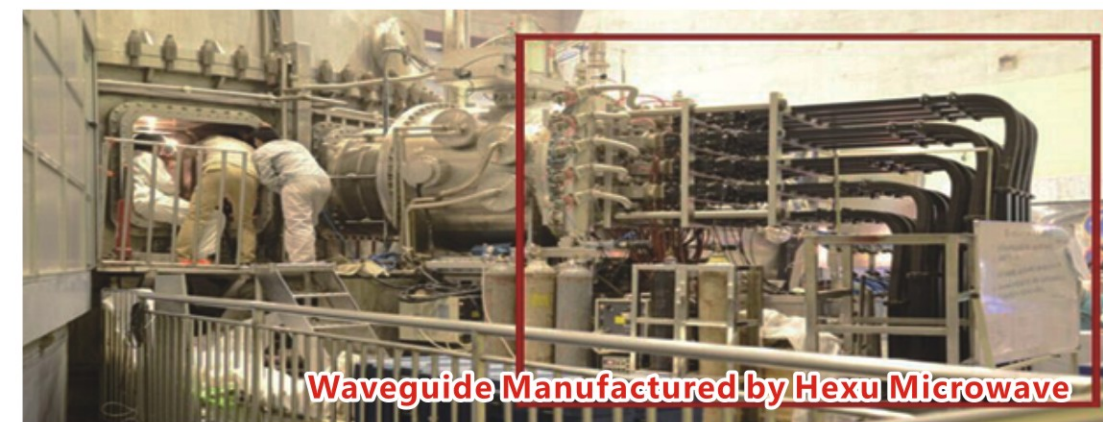
E.G.

FS32-DP/DM-0200SSH indicates BJ32 (WR284) rectangular flexible seamless waveguide assemblies within200mm length, silver-plated copper tubes, Liquid Thiokol rubber jacket, and silver-plated flange material where left one belonging to FDP(UDR) type, right one belonging to FDM(PDR)type.

1.3 High-Power Water-Cooling Flexible Waveguide

High-Power Water-cooling Flexible Waveguide is designed to two-layer seamless corrugated tubes: interior layer microwave transmission channel and outer layer microwave transmission channel. The first one is made by Low-Loss Seamless Waveguide Tube, and the second one is made by Non-Standard High Strength Rectangular Corrugated Tube. This kind of two-layer coaxial nested design gives full space to water circulation and ensures good heat dissipation, while high-quality welding process ensures assemblies' normal working and low gas leakage rate.

High-Power Water-Cooling Flexible Waveguide applies to Tokamak Super Conductivity Controllable Nuclear Fusion Reactor Project developed by Institute of Plasma Physics Chinese Academy of Sciences. It is 800mm long, within design working frequency at 4.6GHz, insertion Loss $\leq 0.1\text{dB}$, VSWR ≤ 1.10 , it bears more than 250kW Average Power Volume under the way of cooling of circulating water, it also works for more than 1000sec continuously and stably.



STANDARD LENGTH								
Waveguide Type				Frequency	VSWR	Insertion Loss	Min. Bend Radius	
BJ	WR	WG	R	Ghz		dB/m	E Bend	H Bend
32	284	10	32	2.60-3.95	1.10	0.08	74.676	139.7
40	229	11A	40	3.30-4.90	1.10	0.08	54.102	82.55
48	187	12	48	3.95-5.85	1.10	0.12	49.276	76.2
58	159	13	58	4.90-7.05	1.12	0.17	40.64	57.15
70	137	14	70	5.85-8.20	1.12	0.21	38.1	52.578
84	112	15	84	7.05-10.00	1.12	0.25	35.56	46.228
100	90	16	100	8.20-12.40	1.12	0.37	31.75	38.1
120	75	17	120	10.00-15.00	1.12	0.49	16.002	31.75
140	62	18	140	12.40-18.00	1.15	0.62	17.526	31.75
180	51	19	180	15.00-22.00	1.22	1.23	14.478	25.4
220	42	20	220	18.00-26.50	1.22	1.23	14.478	25.4
260	34	21	260	22.00-33.00	1.33	1.44	11.176	23.876
320	28	22	320	26.50-40.00	1.33	2.05	11.176	23.876
400	22	23	400	33.00-50.00	1.40	4.10	11.176	23.876

2. Elliptical Waveguide

Product description



Elliptical waveguide is an important part in Microwave communication system. It is a good choice of feeders to connect antenna with equipment, it has characteristics of low insertion loss, high power capacity and long distance installation.

Elliptical waveguide is consisted of Elliptical to rectangle connector and Elliptical waveguide. As a bridge between the standard waveguide and the elliptical waveguide, it realizes electromagnetic field mode conversion of TE₁₀ to TE_{c11}; elliptical waveguide mainly consist of waveguide tube and out jacket, Copper strip is formed to corrugated tube with elliptic cross section, then tube is covered by outer jacket. This structure owns the good flexibility and tensile capacity, and outer jacket can provide protection to elliptical flexible waveguide during installation and operation.

Product Structure

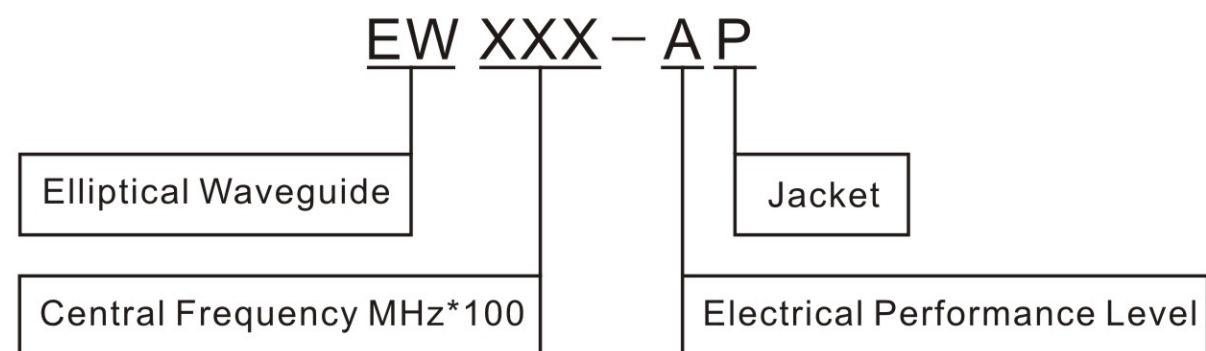
- Inner conductor : Corrugated copper tube
- Jacket: Black polyethylene

Product Features

- Low VSWR, low insertion loss
- Can be produced in large length, easy installation and transportation
- Good flexibility and tensile capacity
- Good corrosion resistance and anti radiation ability

Product application

- Radar, Scattering communication, Satellite Earth Station
- Digital Microwave Relay System, Radio and Television Microwave Transmission



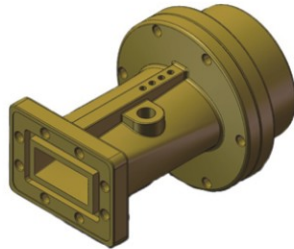
Elliptical Waveguide								
Type	Frequency Range	VSWR	Insertion Loss dB/100m	Overall Dimension mm	Min.Bend Radius		Weight kg/m	Flange
	GHz				E Bend mm	H Bend mm		
EW38/(EW37)	3.6-4.2/(3.3-4.3)	1.1	2.6	82×47.3	400	1000	1.25	Bj48
EW46	4.4-5.0	1.1	2.8	66.3×38.5	380	850	1.2	BJ48
EW60/(EW54)	5.6-6.425/(4.6-6.425)	1.1	3.8	53.8×32	300	800	0.88	BJ58
EW65	5.9-7.125	1.1	4.3	51.4×31.1	300	600	0.76	BJ70
EW70	6.4-7.75	1.1	4.8	45.1×27.6	300	600	0.73	BJ70
EW78	7.1-8.5	1.1	5.63	44×25.8	250	600	0.67	BJ84
EW105/(EW90)	10-11.7(10.7-11.7)	1.1	9.8	32.3×19.2	150	300	0.48	BJ120
EW130/(EW127)	10.7-13.25/(11.7-13.25)	1.15	11.4	30.5×18.7	150	300	0.43	BJ120
EW150	13.4-15.35	1.15	15.5	25.6×15.6	150	300	0.33	BJ140
EW185	17.3-19.7	1.15	18.8	21×13.4	130	300	0.22	Bj180



Accessories

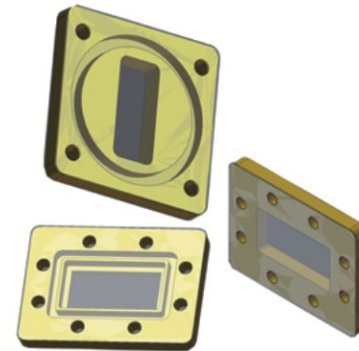
1.Connector

- Sealing reliability
- Easy installing



2. Pressure Window

- Low VSWR, Low Insertion Loss
- Sealing reliability



3. Hanger



4. Entrance Panel



5. Grounding Kit



6. Hoisting Grip



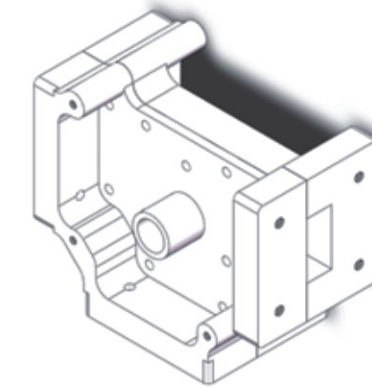
7. Flaring Tool



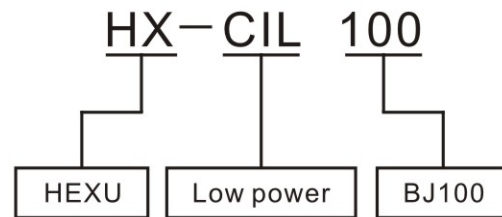
3.Ferrite Device

3.1 Low Power Waveguide Circulator

Waveguide circulator controls electromagnetic wave to transmit towards one circular direction (clockwise or anti-clockwise). It is mainly used for one single energy transmission in microwave system. Hexu Microwave supply all kinds of standard rectangular waveguide circulator, frequency ranges from 1.13GHz to 110GHz, standard waveguide size include WR650-WR10(BJ14-BJ900), 10% typical VSWR in waveguide bandwidth is 1.20, typical isolation is 20dB. The basic material for waveguide circulator is copper or aluminum, with conductive oxide mostly and gold-plated and silver-plated surface treatment according to the customer's demand. The power requirement, external dimension, flange type, material, surface treatment and electrical specification for waveguide circulator can be customized according to customer's requirement.



【Type Description】

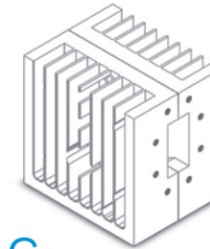


E.G:

HX-CIL 100 indicates low power waveguide circular, the type of waveguide is BJ100(WR90)

Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Isolation	Waveguide Type		Flange	Material
	GHz	MHz	VSWR (Max)	dB (Max)	(dB)	GB	EIA		
HX-CIL 14	1.13-1.73	200	1.2	0.3	20	BJ14	WR650	FDP/FDM	Al
HX-CIL 18	1.45-2.20	200	1.2	0.3	20	BJ18	WR510	FDP/FDM	Al
HX-CIL 22	1.72-2.61	250	1.2	0.3	20	BJ22	WR430	FDP/FDM	Al
HX-CIL 26	2.17-3.30	250	1.2	0.3	20	BJ26	WR340	FDP/FDM	Al
HX-CIL 32	2.60-3.95	300	1.2	0.3	20	BJ32	WR284	FDP/FDM	Al
HX-CIL 40	3.22-4.90	300	1.2	0.3	20	BJ40	WR229	FDP/FDM	Al/Cu
HX-CIL 48	3.94-5.99	1000	1.2	0.3	20	BJ48	WR187	FDP/FDM	Al/Cu
HX-CIL 58	4.64-7.05	1000	1.2	0.3	20	BJ58	WR159	FDP/FDM	Al/Cu
HX-CIL 70	5.38-8.17	1000	1.2	0.3	20	BJ70	WR137	FDP/FDM	Al/Cu
HX-CIL 84	6.57-9.99	1500	1.2	0.3	20	BJ84	WR112	FBP/FBM/FBE	Al/Cu
HX-CIL 100	8.20-12.40	1500	1.2	0.3	20	BJ100	WR90	FBP/FBM/FBE	Al/Cu
HX-CIL 120	9.84-15.0	1500	1.2	0.3	20	BJ120	WR75	FBP/FBM/FBE	Al/Cu
HX-CIL 140	11.9-18.0	2000	1.2	0.3	20	BJ140	WR62	FBP/FBM/FBE	Al/Cu
HX-CIL 180	14.5-22.0	2000	1.2	0.3	20	BJ180	WR51	FBP/FBM/FBE	Al/Cu
HX-CIL 220	17.6-26.7	3000	1.2	0.3	20	BJ220	WR42	FBP/FBM/FBE	Al/Cu
HX-CIL 260	21.7-33.0	3000	1.2	0.3	20	BJ260	WR34	FBP/FBM/FBE	Al/Cu
HX-CIL 320	26.5-40.0	3500	1.2	0.3	20	BJ320	WR28	FBP/FBM/FBE	Al/Cu
HX-CIL 400	32.9-50.1	3500	1.3	0.6	18	BJ400	WR22	FUGP	Cu
HX-CIL 500	39.2-59.6	3500	1.3	0.6	18	BJ500	WR19	FUGP	Cu
HX-CIL 620	49.8-75.8	3500	1.3	0.6	18	BJ620	WR15	FUGP	Cu
HX-CIL 740	60.5-91.9	5000	1.3	0.8	18	BJ740	WR12	FUGP	Cu
HX-CIL 900	73.8-112	3500	1.3	1	18	BJ900	WR10	FUGP	Cu

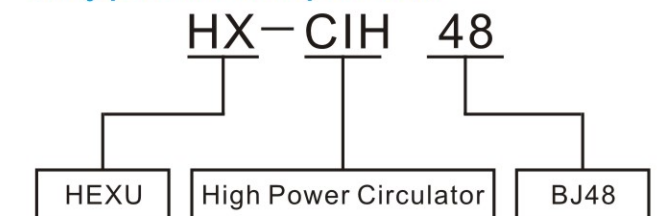
3.2 High Power Waveguide Circulator



E.G:

HX-CIH 48 indicates High power waveguide circulator, the type of waveguide is BJ48 (WR187)

【Type Description】

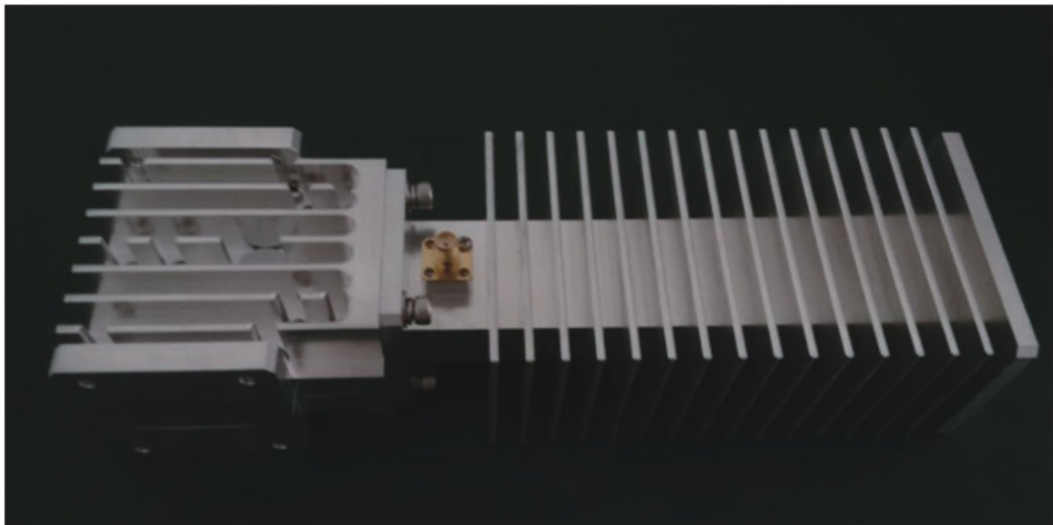


Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Isolation	Power	Waveguide Type		Flange	Material
	GHz	MHz	VSWR (Max)	dB (Max)	(dB)	kW	GB	EIA		
HX-CIH 14	1.13-1.73	200	1.2	0.3	20		BJ14	WR650	FDP/FDM	Al
HX-CIH 18	1.45-2.20	200	1.2	0.3	20		BJ18	WR510	FDP/FDM	Al
HX-CIH 22	1.72-2.61	250	1.2	0.3	20	20	BJ22	WR430	FDP/FDM	Al
HX-CIH 26	2.17-3.30	250	1.2	0.3	20	20	BJ26	WR340	FDP/FDM	Al
HX-CIH 32	2.60-3.95	300	1.2	0.3	20	10	BJ32	WR284	FDP/FDM	Al
HX-CIH 40	3.22-4.90	300	1.2	0.3	20	3	BJ40	WR229	FDP/FDM	Al/Cu
HX-CIH 48	3.94-5.99	500	1.2	0.3	20	2	BJ48	WR187	FDP/FDM	Al/Cu
HX-CIH 58	4.64-7.05	600	1.2	0.3	20	2	BJ58	WR159	FDP/FDM	Al/Cu
HX-CIH 70	5.38-8.17	700	1.2	0.3	20	1.5	BJ70	WR137	FDP/FDM	Al/Cu
HX-CIH 84	6.57-9.99	700	1.2	0.3	20	1	BJ84	WR112	FBP/FBM/FBE	Al/Cu
HX-CIH 100	8.20-12.40	800	1.2	0.3	20	1	BJ100	WR90	FBP/FBM/FBE	Al/Cu
HX-CIH 120	9.84-15.0	1000	1.2	0.3	20	1	BJ120	WR75	FBP/FBM/FBE	Al/Cu
HX-CIH 140	11.9-18.0	1000	1.2	0.3	20	0.5	BJ140	WR62	FBP/FBM/FBE	Al/Cu
HX-CIH 180	14.5-22.0	1000	1.2	0.3	20	0.5	BJ180	WR51	FBP/FBM/FBE	Al/Cu
HX-CIH 220	17.6-26.7	2000	1.2	0.3	20	0.5	BJ220	WR42	FBP/FBM/FBE	Al/Cu
HX-CIH 260	21.7-33.0	2000	1.2	0.3	20	0.5	BJ260	WR34	FBP/FBM/FBE	Al/Cu
HX-CIH 320	26.5-40.0	2000	1.2	0.3	20	0.2	BJ320	WR28	FBP/FBM/FBE	Al/Cu
HX-CIH 400	32.9-50.1	2000	1.3	0.6	18	0.1	BJ400	WR22	FUGP	Cu
HX-CIH 500	39.2-59.6	2000	1.3	0.6	18		BJ500	WR19	FUGP	Cu
HX-CIH 620	49.8-75.8	3500	1.3	0.6	18		BJ620	WR15	FUGP	Cu
HX-CIH 740	60.5-91.9	5000	1.3	0.8	18		BJ740	WR12	FUGP	Cu
HX-CIH 900	73.8-112	2000	1.3	1	18		BJ900	WR10	FUGP	Cu

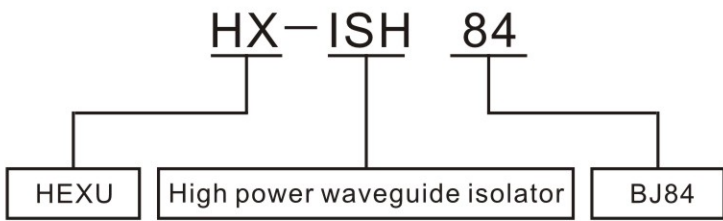
3.3.High Power Waveguide Isolator

Waveguide isolator controls electromagnetic wave to transmit towards one single direction and isolate in opposite direction. It is mainly used for energy transmission of one single direction and effect decrease on signal reflection in microwave system.

Hexu Microwave provide all kinds of standard rectangular waveguide isolator, frequency ranges from 1.13GHz to 110GHz,standard rectangular waveguide size include WR650 to WR10(BJ14-BJ900), 10% typical VSWR in waveguide bandwidth is 1.20, typical isolation is 20dB. The basic material for waveguide circulator is copper and aluminum, surface treatment includes gold-plating, silver-plating, nickle-plating, passivation, conductive oxidation, etc. The power requirement, external dimension, flange type, material, surface treatment and electrical specification for waveguide circulator can be customized according to customer’s requirement.



【Type Description】



E.G:

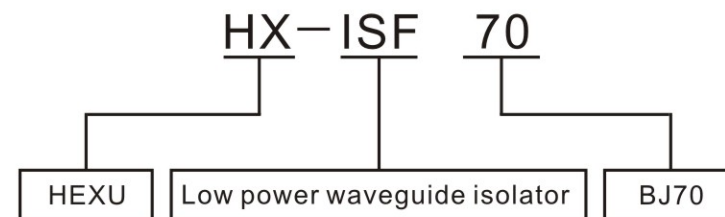
HX—ISH 84 indicates BJ84 high power waveguide isolator, the waveguide type is BJ84(WR112)

Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Isolation	Power	Waveguide Type		Flange	Material
	GHz	MHz	VSWR (Max)	dB (Max)	dB	kW	GB	EIA		
HX-ISH 14	1.13-1.73	200	1.2	0.3	20		BJ14	Wr650	FDP/FDM	Al
HX-ISH 18	1.45-2.20	200	1.2	0.3	20		BJ18	WR510	FDP/FDM	Al
HX-ISH 22	1.72-2.61	250	1.2	0.3	20	20	BJ22	WR430	FDP/FDM	Al
HX-ISH 26	2.17-3.30	250	1.2	0.3	20	20	BJ26	WR340	FDP/FDM	Al
HX-ISH 32	2.60-3.95	300	1.2	0.3	20	10	BJ32	WR284	FDP/FDM	Al
HX-ISH 40	3.22-4.90	300	1.2	0.3	20	3	BJ40	WR229	FDP/FDM	Al/Cu
HX-ISH 48	3.94-5.99	500	1.2	0.3	20	2	BJ48	WR187	FDP/FDM	Al/Cu
HX-ISH 58	4.64-7.05	600	1.2	0.3	20	2	BJ58	WR159	FDP/FDM	Al/Cu
HX-ISH 70	5.38-8.17	700	1.2	0.3	20	1.5	BJ70	WR137	FDP/FDM	Al/Cu
HX-ISH 84	6.57-9.99	700	1.2	0.3	20	1	BJ84	WR112	FBP/FBM/FBE	Al/Cu
HX-ISH 100	8.20-12.40	800	1.2	0.3	20	1	BJ100	WR90	FBP/FBM/FBE	Al/Cu
HX-ISH 120	9.84-15.0	1000	1.2	0.3	20	1	BJ120	WR75	FBP/FBM/FBE	Al/Cu
HX-ISH 140	11.9-18.0	1000	1.2	0.3	20	0.5	BJ140	WR62	FBP/FBM/FBE	Al/Cu
HX-ISH 180	14.5-22.0	1000	1.2	0.3	20	0.5	BJ180	WR51	FBP/FBM/FBE	Al/Cu
HX-ISH 220	17.6-26.7	2000	1.2	0.3	20	0.5	BJ220	WR42	FBP/FBM/FBE	Al/Cu
HX-ISH 260	21.7-33.0	2000	1.2	0.3	20	0.5	BJ260	WR34	FBP/FBM/FBE	Al/Cu
HX-ISH 320	26.5-40.0	2000	1.2	0.3	20	0.2	BJ320	WR28	FBP/FBM/FBE	Al/Cu
HX-ISH 400	32.9-50.1	2000	1.3	0.6	18	0.1	BJ400	WR22	FUGP	Cu
HX-ISH 500	39.2-59.6	2000	1.3	0.6	18		BJ500	WR19	FUGP	Cu
HX-ISH 620	49.8-75.8	2000	1.3	0.6	18		BJ620	WR15	FUGP	Cu
HX-ISH 740	60.5-91.9	2000	1.3	0.8	18		BJ740	WR12	FUGP	Cu
HX-ISH 900	73.8-112	2000	1.3	1	18		BJ900	WR10	FUGP	Cu

3.4 Low Power Flange Type Waveguide Isolator



【Product Description】



E.G:

HX—ISF 70 indicates Low power waveguide isolator, waveguide type is BJ70(WR137)

Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Isolation	Waveguide Type		Flange	Material
	GHz	MHz	VSWR (Max)	dB (Max)	(dB)	GB	EIA		
HX-ISF 14	1.13-1.73	200	1.2	0.3	20	BJ14	WR650	FDP/FDM	AL
HX-ISF 18	1.45-2.20	200	1.2	0.3	20	BJ18	WR510	FDP/FDM	AL
HX-ISF 22	1.72-2.61	250	1.2	0.3	20	BJ22	WR430	FDP/FDM	AL
HX-ISF 26	2.17-3.30	250	1.2	0.3	20	BJ26	WR340	FDP/FDM	AL
HX-ISF 32	2.60-3.95	300	1.2	0.3	20	BJ32	WR284	FDP/FDM	AL
HX-ISF 40	3.22-4.90	300	1.2	0.3	20	BJ40	WR229	FDP/FDM	AL/CU
HX-ISF 48	3.94-5.99	1000	1.2	0.3	20	BJ48	WR187	FDP/FDM	AL/CU
HX-ISF 58	4.64-7.05	1000	1.2	0.3	20	BJ58	WR159	FDP/FDM	AL/CU
HX-ISF 70	5.38-8.17	1000	1.2	0.3	20	BJ70	WR137	FDP/FDM	AL/CU
HX-ISF 84	6.57-9.99	1500	1.2	0.3	20	BJ84	WR112	FBP/FBM/FBE	AL/CU
HX-ISF 100	8.20-12.40	1500	1.2	0.3	20	BJ100	WR90	FBP/FBM/FBE	AL/CU
HX-ISF 120	9.84-15.0	1500	1.2	0.3	20	BJ120	WR75	FBP/FBM/FBE	AL/CU
HX-ISF 140	11.9-18.0	2000	1.2	0.3	20	BJ140	WR62	FBP/FBM/FBE	AL/CU
HX-ISF 180	14.5-22.0	2000	1.2	0.3	20	BJ180	WR51	FBP/FBM/FBE	AL/CU
HX-ISF 220	17.6-26.7	3000	1.2	0.3	20	BJ220	WR42	FBP/FBM/FBE	AL/CU
HX-ISF 260	21.7-33.0	3000	1.2	0.3	20	BJ260	WR34	FBP/FBM/FBE	AL/CU
HX-ISF 320	26.5-40.0	3500	1.2	0.3	20	BJ320	WR28	FBP/FBM/FBE	AL/CU
HX-ISF 400	32.9-50.1	3500	1.3	0.6	18	BJ400	WR22	FUGP	CU
HX-ISF 500	39.2-59.6	3500	1.3	0.6	18	BJ500	WR19	FUGP	CU
HX-ISF 620	49.8-75.8	3500	1.3	0.6	18	BJ620	WR15	FUGP	CU
HX-ISF 740	60.5-91.9	3500	1.3	0.8	18	BJ740	WR12	FUGP	CU
HX-ISF 900	73.8-112	3500	1.3	1	18	BJ900	WR10	FUGP	CU

3.5 Waveguide Duplexer

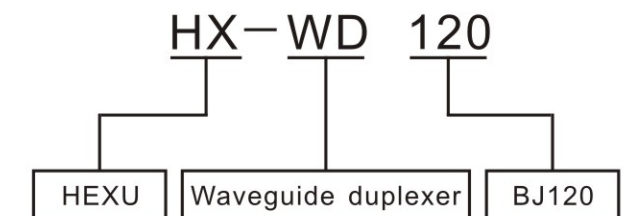
【Brief Introduction】

Waveguide duplexer is used to isolate transmitting and receiving signal, ensure transmitting and receiving functions normally.

Hexu Microwave provide standard rectangular waveguide duplexer, waveguide type is BJ120(WR75), the typical VSWR in bandwidth is 1.3, the basic material is aluminum, surface treatment includes passivation, conductive oxidation, it also accept requirement of gold-plating, silver-plating, painting treatment etc. Electrical specification, external dimension, flange type, material can be customized according to customer's requirement.



【Type Description】



E.G:

HX—WD 120 indicates Waveguide duplexer, waveguide type is BJ120(WR75).

Type	Transmitting Frequency	Receiving Frequency	Receiving Port/ Transmitting Port VSWR	Transmitting Insertion Loss	Receiving Insertion Loss	Our-of-Band Rejection	Waveguide Type		Flange	Material
	GHz	Ghz	VSWR (Max)	dB	dB	dB	GB	EIA		
HX-WD 120	13.75-14.5	10.7-12.75	1.3	0.3	0.5	>80	BJ120	WR75	FBP	Al

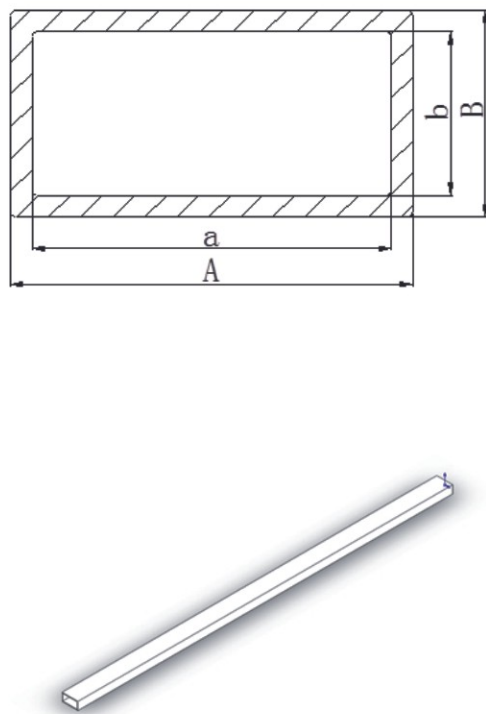
4.Rigid Waveguide

4.1 Rectangular Rigid Waveguide

【Brief Description】

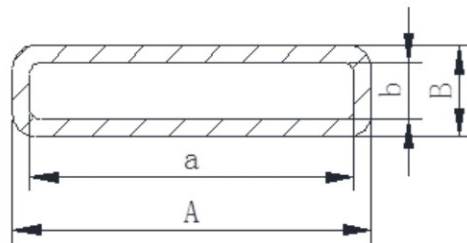
Hexu Microwave provide all kinds of standard waveguide tubes (it contains Rectangular Waveguide, Flat Rectangular Waveguide, Medium Flat rectangular Waveguide, Square Waveguide, Round Shape Waveguide, Straight Waveguide) and flanges, combining to feeder transmission components.

Basic material of rigid waveguide is aluminum and brass, surface treatment includes gold-plating, silver-plating, passivation, etc. External dimension can be customized according to customer's requirement.



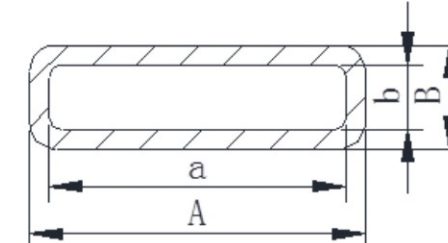
Type	Frequency Range	Cut-off Frequency	Inner Section		Outer Section		Weight (kg/m)	
	GHz	GHz	a	b	A	B	H96	LF21
BJ14	1.14-1.73	907.91	165.1	82.55	169.16	86.61	9.04	2.81
BJ16	1.54-2.20	1157.1	129.54	64.77	133.6	68.83	7.13	2.21
BJ22	1.72-2.61	1372.4	109.22	54.61	113.28	58.67	6.03	1.87
BJ26	2.17-3.30	1735.7	86.36	43.18	90.42	47.24	4.81	1.5
BJ32	2.60-3.95	2077.9	72.14	34.04	76.2	38.1	3.96	1.23
BJ40	3.22-4.90	2576.9	58.17	29.08	61.42	32.33	2.6	0.81
BJ48	3.94-5.99	3152.4	47.55	22.15	50.8	25.4	2.1	0.65
BJ58	4.64-7.05	3711.2	40.39	20.19	43.64	23.44	1.84	0.57
BJ70	5.38-8.17	4301.2	34.85	15.8	38.1	19.05	1.54	0.48
BJ84	6.57-9.99	5295.7	28.5	12.62	31.75	15.88	1.27	0.4
BJ100	8.20-12.5	6557.1	22.86	10.16	25.4	12.7	0.79	0.25
BJ120	9.84-15.0	7868.6	19.05	9.525	21.59	12.06	0.69	0.22
BJ140	11.9-18.0	9487.7	15.8	7.899	17.83	9.93	0.46	0.14
BJ180	14.5-22.0	11571	12.95	6.477	14.99	8.51	0.39	0.12
BJ220	17.6-26.7	14051	10.67	4.318	12.7	6.35	0.31	0.1
BJ260	21.7-33.0	17357	8.636	4.318	10.67	6.35	0.27	0.08
BJ320	26.4-40.0	21077	7.112	3.556	9.14	5.59	0.23	0.07
BJ400	32.9-50.1	26344	5.69	2.845	7.72	4.88	0.2	0.06
BJ500	39.2-59.6	31392	4.775	2.388	6.81	4.42	0.17	0.05
BJ620	49.8-75.8	39877	3.759	1.88	5.79	3.91	0.15	0.05
BJ740	60.5-91.9	48369	3.0988	1.5494	5.13	3.58	0.13	0.04
BJ900	73.8-112	59014	2.54	1.27	4.57	3.3	0.11	0.04
BJ1200	92.2-140	73768	2.032	1.016	3.556	2.54	0.1	0.03
BJ1400	113-173	90845	1.651	0.8255	3.175	2.35	0.09	0.03

4.2 Flat Rectangular Rigid Waveguide



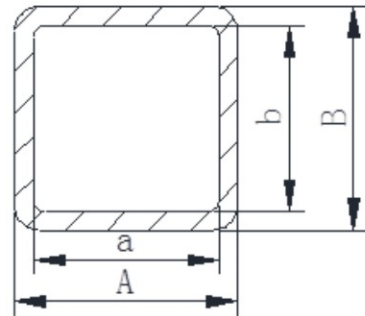
Type	Frequency Range	Inner Section		Outer Section	
	GHz	a	b	A	B
BB84	6.59-9.99	28.499	5	31.75	8.25
BB70	5.38-8.17	34.85	5	38.1	8.25
BB58	4.65-7.05	40.39	5	43.64	8.25
BB48	3.94-5.99	47.55	5.7	50.8	8.95
BB40	3.22-4.90	58.17	7	61.42	10.25
BB32	2.60-3.95	72.14	8.6	76.2	12.66
BB26	2.17-3.30	86.36	10.4	90.42	14.46
BB22	1.72-2.61	109.22	13.1	113.28	17.16

4.3 Medium Flat Rectangular Rigid Waveguide



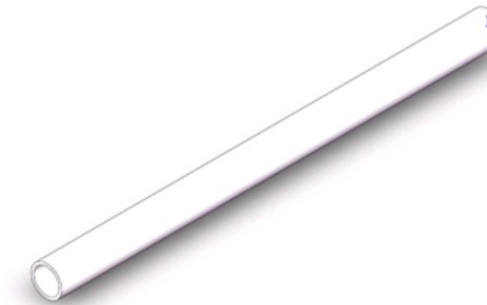
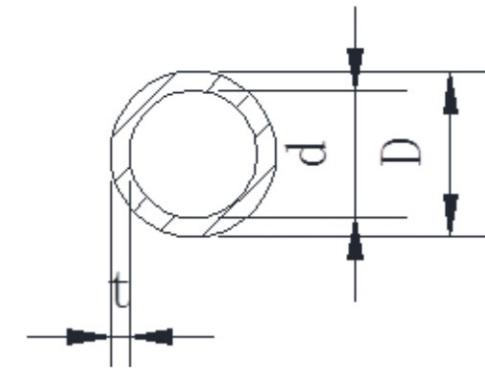
Type	Frequency Range	Inner Section		Outer Section	
	GHz	a	b	A	B
BZ100	8.20-12.5	22.86	5	25.4	7.54
BZ70	5.38-8.17	34.849	8.7	38.1	11.95
BZ58	4.64-7.05	40.386	10.1	43.64	13.35
BZ48	3.94-5.99	47.549	11.9	50.8	15.15
BZ40	3.22-4.90	58.166	14.5	61.4	17.75

4.4 Square Rigid Waveguide



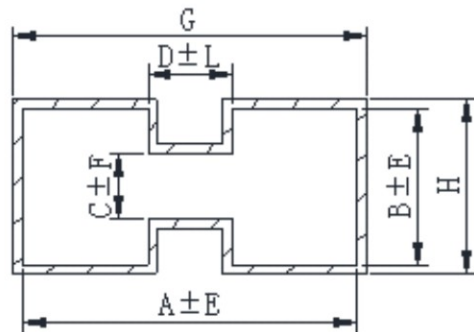
Type	Frequency Range	Inner Section	Outer Section
	GHz	$a=b$	$A=B$
BF130	11.49-13.74	15	17.54
BF115	10.14-12.12	17	19.54
BF100	8.84-10.57	19.5	22.75
BF85	7.50-8.96	23	26.25
BF75	6.63-7.93	26	29.25
BF70	6.16-7.36	28	31.25
BF65	5.75-6.87	30	34.06
BF61	5.39-6.44	32	36.06
BF54	4.79-5.73	36	40.06
BF49	4.31-5.15	40	44.06
BF41	3.59-4.29	48	52.06

4.5 Round Rigid Waveguide



Outer Diameter (mm)		Wall Thickness (mm)					
Intended Size	Allowable Tolerance ($\pm$)	0.5	0.75	1.0	1.25	1.5	2.0
		Allowable Tolerance ($\pm$)					
3—15	0.05	0.05	0.06	0.08	0.08	0.09	0.09
15—25	0.06	0.05	0.06	0.08	0.08	0.1	0.1
25—50	0.08			0.08	0.08	0.1	0.1
50—75	0.1			0.12	0.12	0.1	0.15
75—100	0.13			0.12	0.12	0.13	0.15

4.6 Double Ridge Rigid Waveguide



Type	Frequency Range	Inner Section				Outer Section				
	GHz	A	B	C	D	E	F	L	G	H
24JS3500	3.50-8.20	37.59	17.48	7.417	9.398	0.08	0.05	0.05	40.84	20.73

5. Microwave Component

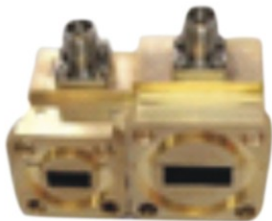
5.1 Waveguide to Coaxial Adapter

5.1.1 Right Angle Waveguide to Coaxial Adapter

5.1.2 Endlaunch Waveguide to Coaxial Adapter

【Brief Introduction】

The coaxial to Waveguide adapter is a necessary component used for microwave measurement, microwave equipment, microwave system and microwave projects. It has Right Angle Waveguide to Coaxial adapter and Endlaunch Waveguide to Coaxial adapter according to coaxial output position,



VSWR is below 1.25 in full waveguide bandwidth while VSWR is below 1.15 in 10% bandwidth of waveguide, with characteristics of wide frequency band, complete specifications, low VSWR and low insertion loss.

The basic material of the coaxial to waveguide adapter is brass or aluminum, surface treatment includes gold-plating, silver-plating, passivation, conductive oxidation, etc. Length, flange type, material, surface treatment and electrical specifications can be customized according to customers' requirements.

Type	GB	Frequency Range	VSWR	Coaxial Connector	Flange Type
		(GHz)	VSWR		
WC430	BJ22	1.72-2.61	1.20	N	FDP/FDM
WC340	BJ26	2.17-3.30	1.20	N	FDP/FDM
WC284	BJ32	2.6-3.95	1.20	N	FDP/FDM
WC229	BJ40	3.22-4.90	1.20	N/SMA	FDP/FDM
WC187	BJ48	3.94-5.99	1.20	N/SMA	FDP/FDM
WC159	BJ58	4.64-7.05	1.20	N/SMA	FDP/FDM
WC137	BJ70	5.38-8.17	1.20	N/SMA	FDP/FDM
WC112	BJ84	6.57-9.99	1.20	N/SMA	FBP/FBM
WC90	BJ100	8.20-12.5	1.20	N/SMA	FBP/FBM
WC75	BJ120	9.84-15.0	1.20	N/SMA	FBP/FBM
WC62	BJ140	11.9-18.0	1.20	N/SMA	FBP/FBM
WC51	BJ180	14.5-22.0	1.20	SMA/2.92	FBP/FBM
WC42	BJ220	17.6-26.7	1.20	K-2.92	FBP/FBM
WC28	BJ320	26.3-40.0	1.25	K-2.92	FBP/FBM

5.2 Straight Waveguide, (E/H)Bend Waveguide, Twisted Waveguide

5.2.1 Straight Waveguide
【 Brief Introduction 】



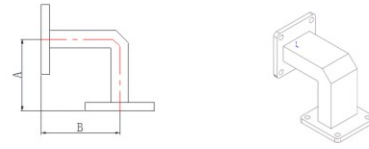
Straight waveguide is a basic component of waveguide feeder system, it includes rectangular waveguide, flat rectangular waveguide, Medium flat rectangular waveguide, square waveguide, round waveguide, single ridge waveguide, double ridge waveguide, etc. Typical VSWR of the full waveguide bandwidth is 1.03, the typical insertion loss is 0.1dB.

The basic material of the straight waveguide is brass, aluminum and stainless steel, the surface treatment includes silver-plating, gold-plating, nickle-plating, passivation, conductive oxidation, etc. Length, flange, material, surface treatment and electrical specification can be customized according to customers' requirements.

SW-70Z	5.38-8.17	1.05	BJ70	WR137	FDP/FDM	Al/Cu
SW-84Z	6.57-9.99	1.05	BJ84	WR112	FBP/FBM/FBE	Al/Cu
SW-100Z	8.20-12.40	1.05	BJ100	WR90	FBP/FBM/FBE	Al/Cu
SW-120Z	9.84-15.0	1.05	BJ120	WR75	FBP/FBM/FBE	Al/Cu
SW-140Z	11.9-18.0	1.05	BJ140	WR62	FBP/FBM/FBE	Al/Cu
SW-180Z	14.5-22.0	1.05	BJ180	WR51	FBP/FBM/FBE	Al/Cu
SW-220Z	17.6-26.7	1.05	BJ220	WR42	FBP/FBM/FBE	Al/Cu
SW-260Z	21.7-33.0	1.05	BJ260	WR34	FBP/FBM/FBE	Al/Cu
SW-320Z	26.5-40.0	1.05	BJ320	WR28	FBP/FBM/FBE	Al/Cu
SW-400Z	32.9-50.1	1.10	BJ400	WR22	FUGP	Cu
SW-500Z	39.2-59.6	1.10	BJ500	WR19	FUGP	Cu
SW-620Z	49.8-75.8	1.10	BJ620	WR15	FUGP	Cu
SW-740Z	60.5-91.9	1.10	BJ740	WR12	FUGP	Cu
SW-900Z	73.8-112	1.10	BJ900	WR10	FUGP	Cu

Type	Frequency Range	VSWR	Waveguide Type		Flange	Material
	GHz	VSWR(Max.)	GB	EIA		
SW-3Z	0.32-0.49	1.05	BJ3	WR2300	FDP/FDM	Al
SW-4Z	0.35-0.53	1.05	BJ4	WR2100	FDP/FDM	Al
SW-5Z	0.41-0.62	1.05	BJ5	WR1900	FDP/FDM	Al
SW-6Z	0.49-0.75	1.05	BJ6	WR1500	FDP/FDM	Al
SW-8Z	0.64-0.98	1.05	BJ8	WR1150	FDP/FDM	Al
SW-9Z	0.75-1.15	1.05	BJ9	WR975	FDP/FDM	Al
SW-12Z	0.96-1.46	1.05	BJ12	WR770	FDP/FDM	Al
SW-14Z	1.13-1.73	1.05	BJ14	WR650	FDP/FDM	Al
SW-18Z	1.45-2.20	1.05	BJ18	WR510	FDP/FDM	Al
SW-22Z	1.72-2.61	1.05	BJ22	WR430	FDP/FDM	Al/Cu
SW-26Z	2.17-3.30	1.05	BJ26	WR340	FDP/FDM	Al/Cu
SW-32Z	2.60-3.95	1.05	BJ32	WR284	FDP/FDM	Al/Cu
SW-40Z	3.22-4.90	1.05	BJ40	WR229	FDP/FDM	Al/Cu
SW-48Z	3.94-5.99	1.05	BJ48	WR187	FDP/FDM	Al/Cu
SW-58Z	4.64-7.05	1.05	BJ58	WR159	FDP/FDM	Al/Cu

5.2.2 E Bend Waveguide



Type	Frequency Range	VSWR	Standard Dimension	Waveguide Type		Flange	Material
	GHz	VSWR(Max.)	A×B mm	GB	EIA		
CW-3EW	0.32-0.49	1.15	300*300	BJ3	WR2300	FDP/FDM	Al
CW-4EW	0.35-0.53	1.15	280*280	BJ4	WR2100	FDP/FDM	Al
CW-5EW	0.41-0.62	1.15	250*250	BJ5	WR1900	FDP/FDM	Al
CW-6EW	0.49-0.75	1.15	200*200	BJ6	WR1500	FDP/FDM	Al
CW-8EW	0.64-0.98	1.15	150*150	BJ8	WR1150	FDP/FDM	Al
CW-9EW	0.75-1.15	1.15	150*150	BJ9	WR975	FDP/FDM	Al
CW-12EW	0.96-1.46	1.15	100*100	BJ12	WR770	FDP/FDM	Al
CW-14EW	1.13-1.73	1.15	100*100	BJ14	WR650	FDP/FDM	Al
CW-18EW	1.45-2.20	1.15	80*80	BJ18	WR510	FDP/FDM	Al/Cu
CW-22EW	1.72-2.61	1.15	80*80	BJ22	WR430	FDP/FDM	Al/Cu
CW-26EW	2.17-3.30	1.15	60*60	BJ26	WR340	FDP/FDM	Al/Cu
CW-32EW	2.60-3.95	1.15	50*50	BJ32	WR284	FDP/FDM	Al/Cu
CW-40EW	3.22-4.90	1.15	40*40	BJ40	WR229	FDP/FDM	Al/Cu
CW-48EW	3.94-5.99	1.15	40*40	BJ48	WR187	FDP/FDM	Al/Cu
CW-58EW	4.64-7.05	1.15	40*40	BJ58	WR159	FDP/FDM	Al/Cu
CW-70EW	5.38-8.17	1.15	30*30	BJ70	WR137	FDP/FDM	Al/Cu
CW-84EW	6.57-9.99	1.15	25*25	BJ84	WR112	FBP/FBM/FBE	Al/Cu
CW-100EW	8.20-12.40	1.15	25*25	BJ100	WR90	FBP/FBM/FBE	Al/Cu
CW-120EW	9.84-15.0	1.15	20*20	BJ120	WR75	FBP/FBM/FBE	Al/Cu
CW-140EW	11.9-18.0	1.15	20*20	BJ140	WR62	FBP/FBM/FBE	Al/Cu
CW-180EW	14.5-22.0	1.15	20*20	BJ180	WR51	FBP/FBM/FBE	Al/Cu
CW-220EW	17.6-26.7	1.15	20*20	BJ220	WR42	FBP/FBM/FBE	Al/Cu
CW-260EW	21.7-33.0	1.15	20*20	BJ260	WR34	FBP/FBM/FBE	Al/Cu
CW-320EW	26.5-40.0	1.15	15*15	BJ320	WR28	FBP/FBM/FBE	Al/Cu
CW-400EW	32.9-50.1	1.20	15*15	BJ400	WR22	FUGP	Cu
CW-500EW	39.2-59.6	1.20	15*15	BJ500	WR19	FUGP	Cu
CW-620EW	49.8-75.8	1.20	15*15	BJ620	WR15	FUGP	Cu
CW-740EW	60.5-91.9	1.20	15*15	BJ740	WR12	FUGP	Cu
CW-900EW	73.8-112	1.20	15*15	BJ900	WR10	FUGP	Cu

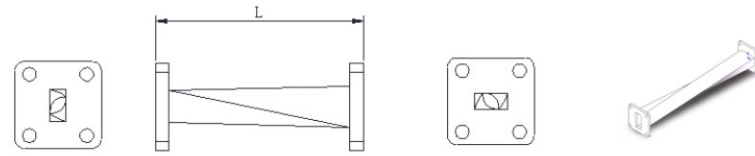
5.2.3 H Bend Waveguide



Type	Frequency Range	VSWR	Standard Dimension	Waveguide Type		Flange	Material
	GHz	VSWR(Max.)	A×B mm	GB	EIA		
CW-3HW	0.32-0.49	1.15	600*600	BJ3	WR2300	FDP/FDM	Al
CW-4HW	0.35-0.53	1.15	550*550	BJ4	WR2100	FDP/FDM	Al
CW-5HW	0.41-0.62	1.15	480*480	BJ5	WR1900	FDP/FDM	Al
CW-6HW	0.49-0.75	1.15	400*400	BJ6	WR1500	FDP/FDM	Al
CW-8HW	0.64-0.98	1.15	300*300	BJ8	WR1150	FDP/FDM	Al
CW-9HW	0.75-1.15	1.15	250*250	BJ9	WR975	FDP/FDM	Al
CW-12HW	0.96-1.46	1.15	200*200	BJ12	WR770	FDP/FDM	Al
CW-14HW	1.13-1.73	1.15	180*180	BJ14	WR650	FDP/FDM	Al
CW-18HW	1.45-2.20	1.15	150*150	BJ18	WR510	FDP/FDM	Al/Cu
CW-22HW	1.72-2.61	1.15	80*80	BJ22	WR430	FDP/FDM	Al/Cu
CW-26HW	2.17-3.30	1.15	60*60	BJ26	WR340	FDP/FDM	Al/Cu
CW-32HW	2.60-3.95	1.15	50*50	BJ32	WR284	FDP/FDM	Al/Cu
CW-40HW	3.22-4.90	1.15	40*40	BJ40	WR229	FDP/FDM	Al/Cu
CW-48HW	3.94-5.99	1.15	40*40	BJ48	WR187	FDP/FDM	Al/Cu
CW-58HW	4.64-7.05	1.15	40*40	BJ58	WR159	FDP/FDM	Al/Cu
CW-70HW	5.38-8.17	1.15	30*30	BJ70	WR137	FDP/FDM	Al/Cu
CW-84HW	6.57-9.99	1.15	25*25	BJ84	WR112	FBP/FBM/FBE	Al/Cu
CW-100HW	8.20-12.40	1.15	20*20	BJ100	WR90	FBP/FBM/FBE	Al/Cu
CW-120HW	9.84-15.0	1.15	20*20	BJ120	WR75	FBP/FBM/FBE	Al/Cu
CW-140HW	11.9-18.0	1.15	20*20	BJ140	WR62	FBP/FBM/FBE	Al/Cu
CW-180HW	14.5-22.0	1.15	20*20	BJ180	WR51	FBP/FBM/FBE	Al/Cu
CW-220HW	17.6-26.7	1.15	20*20	BJ220	WR42	FBP/FBM/FBE	Al/Cu
CW-260HW	21.7-33.0	1.15	20*20	BJ260	WR34	FBP/FBM/FBE	Al/Cu
CW-320HW	26.5-40.0	1.15	15*15	BJ320	WR28	FBP/FBM/FBE	Al/Cu
CW-400HW	32.9-50.1	1.20	15*15	BJ400	WR22	FUGP	Cu
CW-500HW	39.2-59.6	1.20	15*15	BJ500	WR19	FUGP	Cu
CW-620HW	49.8-75.8	1.20	15*15	BJ620	WR15	FUGP	Cu
CW-740HW	60.5-91.9	1.20	15*15	BJ740	WR12	FUGP	Cu
CW-900HW	73.8-112	1.20	15*15	BJ900	WR10	FUGP	Cu

5.2.4 Twisted Waveguide

【Brief Introduction】



Twisted waveguide mainly includes standard shapes of Rectangular, Flat Rectangular, Medium Flat Rectangular, Single Ridge, Double Ridge, etc. It has Left Twisted Waveguide and Right Twisted Waveguide, standard twisted angle range is from 0° to 90°, the normal twisted angel includes 30°, 45°, 60°, 90°, typical VSWR of the full waveguide bandwidth is 1.10, the typical insertion loss is 0.2dB.

The basic material of the Twisted waveguide is brass or aluminum, the surface treatment includes silver-plating, gold-plating, nickle-plating, passivation, conductive oxidation, etc. twisted direction, twisted angle, length, flange, material, surface treatment and electrical specification can be customized according to the customers' requirements.

Type	Frequency Range	VSWR	Standard Dimension	Waveguide Type		Flange	Material
	GHz	VSWR(Max.)	A×B mm	GB	EIA		
CW-22N	1.72-2.61	1.10	800	BJ22	WR430	FDP/FDM	Al/Cu
CW-26N	2.17-3.30	1.10	500	BJ26	WR340	FDP/FDM	Al/Cu
CW-32N	2.60-3.95	1.10	300	BJ32	WR284	FDP/FDM	Al/Cu
CW-40N	3.22-4.90	1.10	250	BJ40	WR229	FDP/FDM	Al/Cu
CW-48N	3.94-5.99	1.10	200	BJ48	WR187	FDP/FDM	Al/Cu
CW-58N	4.64-7.05	1.10	200	BJ58	WR159	FDP/FDM	Al/Cu
CW-70N	5.38-8.17	1.10	150	BJ70	WR137	FDP/FDM	Al/Cu
CW-84N	6.57-9.99	1.10	120	BJ84	WR112	FBP/FBM/FBE	Al/Cu
CW-100N	8.20-12.40	1.10	100	BJ100	WR90	FBP/FBM/FBE	Al/Cu
CW-120N	9.84-15.0	1.10	90	BJ120	WR75	FBP/FBM/FBE	Al/Cu
CW-140N	11.9-18.0	1.10	75	BJ140	WR62	FBP/FBM/FBE	Al/Cu
CW-180N	14.5-22.0	1.10	70	BJ180	WR51	FBP/FBM/FBE	Al/Cu
CW-220N	17.6-26.7	1.15	60	BJ220	WR42	FBP/FBM/FBE	Al/Cu
CW-260N	21.7-33.0	1.15	55	BJ260	WR34	FBP/FBM/FBE	Al/Cu
CW-320N	26.5-40.0	1.15	55	BJ320	WR28	FBP/FBM/FBE	Al/Cu
CW-400N	32.9-50.1	1.20	50	BJ400	WR22	FUGP	Cu
CW-500N	39.2-59.6	1.20	50	BJ500	WR19	FUGP	Cu
CW-620N	49.8-75.8	1.20	50	BJ620	WR15	FUGP	Cu
CW-740N	60.5-91.9	1.20	50	BJ740	WR12	FUGP	Cu
CW-900N	73.8-112	1.20	50	BJ900	WR10	FUGP	Cu

5.3 Composite Waveguide

Type	Frequency Range	VSWR	Standard Dimension	Waveguide Type		Flange	Material
	GHz	VSWR(Max.)	A×B mm	GB	EIA		
HS70	5.38-8.17	1.20	150	BJ70	WR137	FDP/FDM	Al/Cu
HS84	6.57-9.99	1.20	120	BJ84	WR112	FBP/FBM/FBE	Al/Cu
HS100	8.20-12.40	1.20	100	BJ100	WR90	FBP/FBM/FBE	Al/Cu
HS120	9.84-15.0	1.20	90	BJ120	WR75	FBP/FBM/FBE	Al/Cu
HS140	11.9-18.0	1.20	75	BJ140	WR62	FBP/FBM/FBE	Al/Cu
HS180	14.5-22.0	1.20	70	BJ180	WR51	FBP/FBM/FBE	Al/Cu
HS220	17.6-26.7	1.25	60	BJ220	WR42	FBP/FBM/FBE	Al/Cu
HS260	21.7-33.0	1.25	55	BJ260	WR34	FBP/FBM/FBE	Al/Cu
HS320	26.5-40.0	1.25	55	BJ320	WR28	FBP/FBM/FBE	Al/Cu

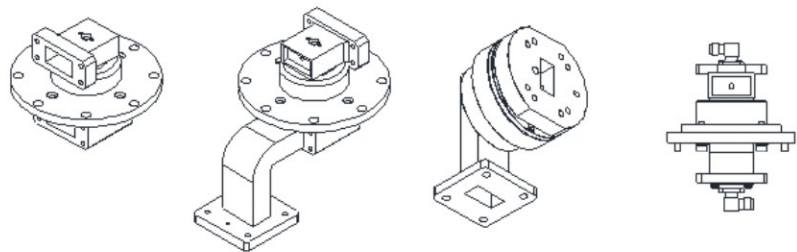


5.4 Rotary Joint

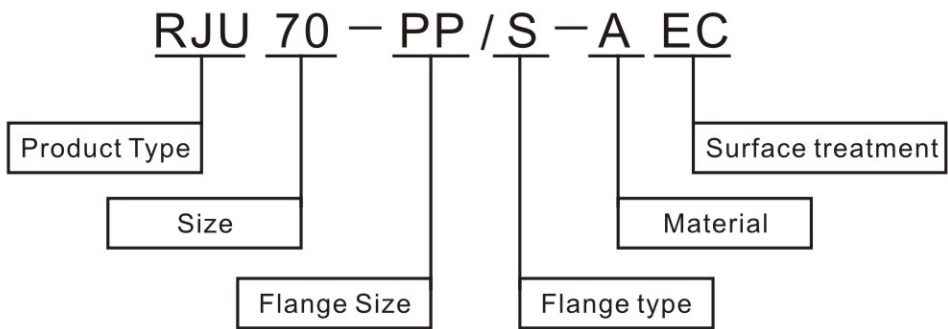
5.4. 1 Single Channel/Dual Channels Rotary Joint

【Brief Introduction】

Hexu Microwave supply a series of waveguide rotary joint, it's mainly used for connecting the fixed part of and rotating part in radar feeder system. The rotary joint has L type, I type, U type. The rotary joint has one channel, dual channels and multiple-channel according to channel number. The basic material of the rotary joint is brass or aluminum, the surface treatment includes silver-plating, gold-plating, nickle-plating, passivation, conductive oxidation, etc. External size, connector type, flange, material, surface treatment and electrical specification can be customized according to the customers' requirements.



【Type Description】

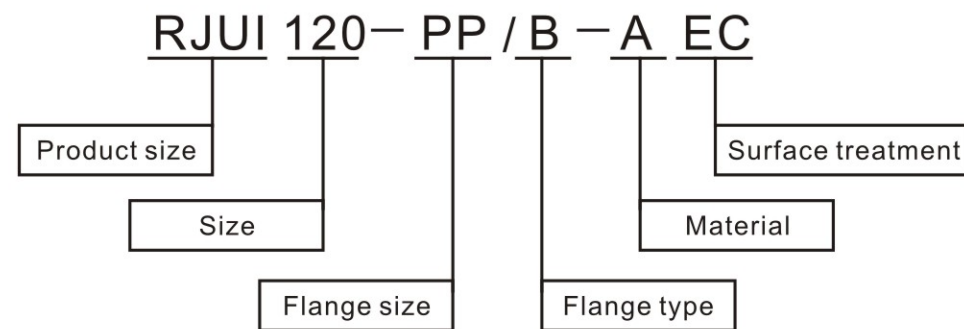


E.G:

RJU70-PP/S-AEC indicates BJ70 single channel Rotary Joint, flange type is customized flat flange (PP/S), material is aluminum(A),(EC) and conductive oxidation treatment.

Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Average Power	Peak Power (KW)	Waveguide Type		Material
	Ghz	MHz	VSWR (Max)	dB (Max)	W	KW	Standard	EIA	
RJI-70	5.38-8.17	700	1.25	0.30	500	150	BJ70	WR137	Al/Cu
RJL-70	5.38-8.17	700	1.25	0.30	500	150	BJ70	WR137	Al/Cu
RJU-70	5.38-8.17	700	1.25	0.30	500	150	BJ70	WR137	Al/Cu
RJI-84	6.57-9.99	300	1.20	0.35	400	150	BJ84	WR112	Al/Cu
RJL-84	6.57-9.99	300	1.20	0.35	400	150	BJ84	WR112	Al/Cu
RJU-84	6.57-9.99	300	1.20	0.35	400	150	BJ84	WR112	Al/Cu
RJI-100	8.20-12.5	300	1.20	0.35	400	150	BJ100	WR90	Al/Cu
RJL-100	8.20-12.5	300	1.20	0.35	400	150	BJ100	WR90	Al/Cu
RJU-100	8.20-12.5	300	1.20	0.35	400	150	BJ100	WR90	Al/Cu
RJI-120	9.84-15.0	500	1.25	0.35	200	10	BJ120	WR75	Al/Cu
RJL-120	9.84-15.0	500	1.25	0.35	200	10	BJ120	WR75	Al/Cu
RJU-120	9.84-15.0	500	1.25	0.35	200	10	BJ120	WR75	Al/Cu
RJI-140	11.9-18.0	1000	1.30	0.45	100	4	BJ140	WR62	Al/Cu
RJL-140	11.9-18.0	1000	1.30	0.45	100	4	BJ140	WR62	Al/Cu
RJU-140	11.9-18.0	1000	1.30	0.45	100	4	BJ140	WR62	Al/Cu
RJI-180	14.5-22.0	1000	1.30	0.30	100	3	BJ180	WR51	Al/Cu
RJL-180	14.5-22.0	1000	1.30	0.30	100	3	BJ180	WR51	Al/Cu
RJU-180	14.5-22.0	1000	1.30	0.30	100	3	BJ180	WR51	Al/Cu
RJI-220	17.6-26.7	2000	1.40	0.55	50	0.5	BJ220	WR42	Al/Cu
RJL-220	17.6-26.7	2000	1.40	0.55	50	0.5	BJ220	WR42	Al/Cu
RJU-220	17.6-26.7	2000	1.40	0.55	50	0.5	BJ220	WR42	Al/Cu

【Type Description】



E.G:

RJUI120-PP/B-AEC indicates BJ120 double channels Rotary Joint, flange type is customized flat flange (PP/B), material is aluminum(A),(EC) and conductive oxidation treatment.

Type	Frequency Range	Bandwidth	VSWR	Insertion Loss	Isolation of two way	Average power	Peak power	Waveguide Type		Material
	Ghz	MHz	VSWR (Max)	dB (Max)	(Min)	W	KW	Standard	EIA	
RJUI-70	5.38-8.17	100	1.30	0.35	50dB	500	150	BJ70	WR137	Al/Cu
RJUL-70	5.38-8.17	100	1.30	0.35	50dB	500	150	BJ70	WR137	Al/Cu
RJU-70	5.38-8.17	100	1.30	0.35	50dB	500	150	BJ70	WR137	Al/Cu
RJUI-84	6.57-9.99	100	1.30	0.35	50dB	400	150	BJ84	WR112	Al/Cu
RJUL-84	6.57-9.99	100	1.30	0.35	50dB	400	150	BJ84	WR112	Al/Cu
RJU-84	6.57-9.99	100	1.30	0.35	50dB	400	150	BJ84	WR112	Al/Cu
RJI-100	8.20-12.5	100	1.30	0.35	50dB	400	150	BJ100	WR90	Al/Cu
RJL-100	8.20-12.5	100	1.30	0.35	50dB	400	150	BJ100	WR90	Al/Cu
RJU-100	8.20-12.5	100	1.30	0.35	50dB	400	150	BJ100	WR90	Al/Cu
RJI-120	9.84-15.0	200	1.30	0.35	50dB	200	10	BJ120	WR75	Al/Cu
RJL-120	9.84-15.0	200	1.30	0.35	50dB	200	10	BJ120	WR75	Al/Cu
RJU-120	9.84-15.0	200	1.30	0.35	50dB	200	10	BJ120	WR75	Al/Cu
RJI-140	11.9-18.0	200	1.30	0.35	50dB	100	4	BJ140	WR62	Al/Cu
RJL-140	11.9-18.0	200	1.30	0.35	50dB	100	4	BJ140	WR62	Al/Cu
RJU-140	11.9-18.0	200	1.30	0.35	50dB	100	4	BJ140	WR62	Al/Cu
RJI-180	14.5-22.0	200	1.35	0.45	50dB	100	3	BJ180	WR51	Al/Cu
RJL-180	14.5-22.0	200	1.35	0.45	50dB	100	3	BJ180	WR51	Al/Cu
RJU-180	14.5-22.0	200	1.35	0.45	50dB	100	3	BJ180	WR51	Al/Cu
RJI-220	17.6-26.7	200	1.40	0.55	50dB	50	0.5	BJ220	WR42	Al/Cu
RJL-220	17.6-26.7	200	1.40	0.55	50dB	50	0.5	BJ220	WR42	Al/Cu
RJU-220	17.6-26.7	200	1.40	0.55	50dB	50	0.5	BJ220	WR42	Al/Cu

6. RF Cable & Assembly

6.1 WP Series Low Loss Stable Phase Coaxial RF Cable

Type	CHFWP90	HFWP142	HFWP142D	HFWP190	HFWP1900	HFWP205	HFWP311
Center Conductor Diameter(mm)	0.53	0.93	0.96	1.42	1.45	1.45	2.30
Center Conductor Type(mm)	Solid	Solid	Solid	Solid	Stranded	Solid	Solid
Shields Diameter(mm)	1.50	2.50	2.50	3.90	3.90	4.00	6.30
Shields Diameter(mm)	2.00	3.10	3.10	4.50	4.5	4.59	7.25
Jacket Diameter(mm)	≤2.30	≤3.60	≤3.60	≤4.80	≤4.80	≤5.21	≤7.90
Min Bending Radius(mm)	11	18	18	20	20	22	35
Impedance(Ohms)	50	50	50	50	50	50	50
Capacitance(pf/m)	80.4	80.4	80.4	80.4	80.4	80.4	80.4
Frequency Range(GHz)	DC-18	DC-40	DC-18	DC-26.5	DC-26.5	DC-26.5	DC-18
Velocity of Propagation	83%	83%	83%	83%	83%	83%	83%
Max Operating Voltage((kV))	0.8	1.2	1.2	1.3	1.5	1.5	3.0
Shielding Effectiveness(dB@1GHz)	≥100	≥100	≥100	≥100	≥100	≥100	≥100
Insertion Loss	0.5GHz	0.45	0.26	0.28	0.19	0.18	0.11
	1GHz	0.63	0.36	0.40	0.26	0.25	0.16
	3GHz	1.07	0.61	0.69	0.44	0.46	0.27
	4GHz	1.22	0.70	0.79	0.51	0.52	0.31
	6GHz	1.52	0.86	0.97	0.63	0.66	0.37
	8GHz	1.79	0.99	1.14	0.73	0.80	0.43
	10GHz	2.00	1.10	1.26	0.81	0.90	0.47
	12GHz	2.31	1.24	1.36	0.88	0.96	0.52
	15GHz	2.50	1.36	1.58	0.99	1.14	0.58
	18GHz	2.72	1.58	1.78	1.08	1.27	0.63
Phase Stability VS Flexure	26.5GHz	-	2.09	-	1.35	-	1.29
	35GHz	-	2.43	-	-	-	-
	40GHz	-	2.64	-	-	-	-
Phase Change vs Temperature (PPM) -55℃-85℃	4GHz	±0.9°	±0.9°	±0.6°	±1.2°	±0.8°	±1.2°
	18GHz	±3.0°	±3.6°	±2.8°	±4.0°	±3.2°	±4.0°
Temperature Range	-65~+165	-65~+165	-65~+165	-65~+165	-65~+165	-65~+165	-65~+165

6.2 BP Series Low Loss Stable Phase Coaxial RF Cable

Type		HFBP142	HFBP205	HFBP304
Center Conductor Diameter(mm)		1.02	1.29	1.57
Center Conductor Type(mm)		Solid	Solid	Solid
Shields Diameter(mm)		3.05	3.91	4.90
Shields Diameter(mm)		3.88	4.73	5.90
Jacket Diameter(mm)		≤4.60	≤5.20	≤6.30
Min Bending Radius(mm)		25	27	36
Impedance(Ohms)		50	50	50
Capacitance(pf/m)		88	88	88
Frequency Range(GHz)		DC-18	DC-18	DC-18
Velocity of Propagation		76%	76%	76%
Max Operating Voltage(kV)		1.0	1.0	2.0
Shielding Effectiveness(dB@1GHz)		≥90	≥90	≥90
Insertion Loss	0.5GHz	0.25	0.20	0.50
	1GHz	0.36	0.28	0.20
	3GHz	0.62	0.49	0.36
	4GHz	0.72	0.57	0.44
	6GHz	0.89	0.70	0.55
	8GHz	1.03	0.82	0.69
	10GHz	1.16	0.92	0.72
	12GHz	1.28	1.24	1.36
	15GHz	1.44	1.01	0.76
	18GHz	1.59	1.26	1.07
Phase Stability VS Flexure	4GHz	±0.9°	±0.9°	±0.6°
	18GHz	±3.0°		
Phase Change vs Temperature (PPM)-55℃-85℃		≤750ppm	≤750ppm	≤850ppm
Temperature Range		-65~+165	-65~+165	-65~+165

6.3 SFCJ Series Low Loss RF Cable

Type		SFCJ-50-3	SFCJ-50-5	SFCJ-50-7	SFCJ-50-9
Center Conductor Diameter(mm)		1.14	1.82	2.65	3.35
Center Conductor Type(mm)		Stranded	Stranded	Stranded	Stranded
Shields Diameter(mm)		2.95	4.95	6.95	9.00
Shields Diameter(mm)		3.60	5.55	7.60	11.00
Jacket Diameter(mm)		≤5.10	≤7.50	≤10.50	≤13.30
Min Bending Radius(mm)		50	73	105	130
Impedance(Ohms)		50	50	50	50
Capacitance(pf/m)		87	87	87	87
Frequency Range(GHz)		DC-18	DC-18	DC-12	DC-10
Velocity of Propagation		83%	83%	83%	83%
Max Operating Voltage(kV)		1.5	2.0	3.5	4.5
Shielding Effectiveness(dB@1GHz)		≥80	≥80	≥80	≥80
	1GHz	0.42	0.27	0.18	0.17
	3GHz	0.70	0.53	0.34	0.36
	6GHz	1.00	0.78	0.51	0.59
	8GHz	1.13	0.84	0.58	0.69
	10GHz	1.32	0.98	0.72	0.66
	12GHz	1.50	1.10	0.79	-
	15GHz	1.75	1.34	0.94	-
	18GHz	1.95	1.5	-	-
Temperature Range		-55~+85	-55~+85	-55~+85	-55~+85

Appendix

1、Flange Type

Flange Standard :

GB Standard	IEC Standard
FAE	CAR
FAM	PAR
FAP	UAR
FBE	CBR
FBM	PBR
FBP	UBR
FCM	PCR
FCP	VCR
FDM	PDR
FDP	UDR
FEP	UER

Nomenclature of Flange Plate Type :

- 1.The first letter ” F” means waveguide “Flange” plate.
- 2.The second letter means type of flange plate, flange plates within the same letter and the same waveguide size can be matched. (A: Round Flange; B: Square Flange; C: Round Flange; D: Rectangular Flange)
- 3.The third letter means structure characteristics of flange plate.
M (Pinyin: Mi) ----- Seal groove but no choke groove in the flange plate.
E (Pinyin: E) ----- Both seal groove and choke groove in the flange plate.
P (Pinyin: Ping) ----- No seal groove and choke groove in the flange plate.
- 4.Number means waveguide tube type matching with flange plate.

E.G:

Flange plate FDP120 means D type flange plate without seal groove, matches with BJ120 rectangular waveguide tube.

2、Waveguide Size Table

Type			Frequency Range	Inner Section		Type-A			Type-B			Type-C		Type-D		Type-E
			(GHz)	Width a	Height b	FAE (CAR)	FAE (PAR)	FAE (UAR)	FAE (CBR)	FAE (PBR)	FAE (UBR)	FAE (PCR)	FAE (VCR)	FAE (PDR)	FAE (UDR)	FAE (UER)
BJ14	WR650	WG6	1.13-1.73	165.10	82.55	-	-	-	-	-	-	-	-	FDM14	FDP14	-
BJ18	WR510	WG7	1.45-2.20	129.54	64.77	-	-	-	-	-	-	-	-	FDM18	FDP18	-
BJ22	WR430	WG8	1.72-2.61	109.22	54.61	-	-	-	-	-	-	-	-	FDM22	FDP22	-
BJ26	WR340	WG9A	2.17-3.30	86.36	43.18	-	-	-	-	-	-	-	-	FDM26	FDP26	-
BJ32	WR284	WG10	2.60-3.95	72.14	34.04	FAE32	FAM32	FAP32	-	-	-	-	-	FDM32	FDP32	FEP32
BJ40	WR229	WG11A	3.22-4.90	58.17	29.08	FAE40	FAM40	FAP40	-	-	-	-	-	FDM40	FDP40	FEP40
BJ48	WR187	WG12	3.94-5.99	47.549	22.149	FAE48	FAM48	FAP48	-	-	-	-	-	FDM48	FDP48	FEP48
BJ58	WR159	WG13	4.64-7.05	40.386	20.193	FAE58	FAM58	FAP58	-	-	-	-	-	FDM58	FDP58	FEP58
BJ70	WR137	WG14	5.38-8.17	34.849	15.799	FAE70	FAM70	FAP70	-	-	-	-	-	FDM70	FDP70	FEP70
BJ84	WR112	WG15	6.57-9.99	28.499	12.624	-	-	-	FBE84	FBM84	FBP84	-	-	FDM84	FDP84	FEP84
BJ100	WR90	WG16	8.20-12.5	22.860	10.160	-	-	-	FBE100	FBM100	FBP100	-	-	FDM100	FDP100	FEP100
BJ120	WR75	WG17	9.84-15.0	19.050	9.525	-	-	-	FBE120	FBM120	FBP120	-	-	FDM120	FDP120	-
BJ140	WR62	WG18	11.9-18.0	15.799	7.899	-	-	-	FBE140	FBM140	FBP140	-	-	FDM140	FDP140	-
BJ180	WR51	WG19	14.5-22.0	12.954	6.477	-	-	-	FBE180	FBM180	FBP180	-	-	FDM180	FDP180	-
BJ220	WR42	WG20	17.6-26.7	10.668	4.318	-	-	-	FBE220	FBM220	FBP220	FCM220	FCP220	-	-	-
BJ260	WR34	WG21	21.7-33.0	8.636	4.318	-	-	-	FBE260	FBM260	FBP260	FCM260	FCP260	-	-	-
BJ320	WR28	WG22	26.3-40.0	7.112	3.556	-	-	-	FBE320	FBM320	FBP320	FCM320	FCP320	-	-	-
BJ400	WR22	WG23	32.9-50.1	5.690	2.845	-	FAM400	FAP400	-	-	-	FCM400	FCP400	-	-	-
BJ500	WR19	WG24	39.2-59.6	4.775	2.388	-	FAM500	FAP500	-	-	-	FCM500	FCP500	-	-	-
BJ620	WR15	WG25	49.8-75.8	3.759	1.88	-	FAM620	FAP620	-	-	-	-	-	-	-	-
BJ740	WR12	WG26	60.5-91.9	3.098	1.549	-	FAM740	FAP740	-	-	-	-	-	-	-	-
BJ900	WR10	WG27	73.8-112	2.540	1.27	-	FAM900	FAP900	-	-	-	-	-	-	-	-