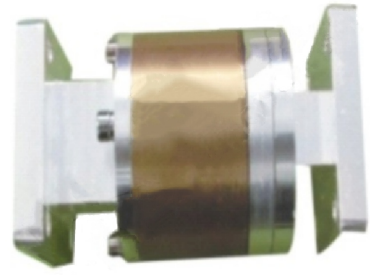


Waveguide Rotary Joint



I Type Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	IL (dB)	Avg Power (W)	Peak Power (KW)	Flange	Material
SH-32WRJI	WR284	2.60-3.95	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-40WRJI	WR229	3.22-4.90	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-48WRJI	WR187	3.94-5.99	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-58WRJI	WR159	4.64-7.05	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-70WRJI	WR137	5.38-8.17	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-84WRJI	WR112	6.57-9.99	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-100WRJI	WR90	8.20-12.5	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-120WRJI	WR75	9.84-15.0	≤ 15%	≤ 1.20	≤ 0.3	200	10	FBP	Cu
SH-140WRJI	WR62	11.9-18.0	≤ 15%	≤ 1.20	≤ 0.3	100	4	FBP	Cu
SH-180WRJI	WR51	14.5-22.0	≤ 15%	≤ 1.20	≤ 0.3	100	3	FBP	Cu
SH-220WRJII	WR42	17.6-26.7	≤ 15%	≤ 1.25	≤ 0.5	50	0.5	FBP	Cu
SH-260WRJI	WR34	21.7-33.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu
SH-320WRJI	WR28	26.5-40.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu



L Type Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	IL (dB)	Avg Power (W)	Peak Power (KW)	Flange	Material
SH-32WRJL	WR284	2.60-3.95	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-40WRJL	WR229	3.22-4.90	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-48WRJL	WR187	3.94-5.99	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-58WRJL	WR159	4.64-7.05	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-70WRJL	WR137	5.38-8.17	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-84WRJL	WR112	6.57-9.99	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-100WRJL	WR90	8.20-12.5	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-120WRJL	WR75	9.84-15.0	≤ 15%	≤ 1.20	≤ 0.3	200	10	FBP	Cu
SH-140WRJL	WR62	11.9-18.0	≤ 15%	≤ 1.20	≤ 0.3	100	4	FBP	Cu
SH-180WRJL	WR51	14.5-22.0	≤ 15%	≤ 1.25	≤ 0.3	100	3	FBP	Cu
SH-220WRJL	WR42	17.6-26.7	≤ 15%	≤ 1.25	≤ 0.5	50	0.5	FBP	Cu
SH-260WRJL	WR34	21.7-33.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu
SH-320WRJL	WR28	26.5-40.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu

Waveguide Rotary Joint



U Type Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	IL (dB)	Avg Power (W)	Peak Power (KW)	Flange	Material
SH-32WRJU	WR284	2.60-3.95	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-40WRJU	WR229	3.22-4.90	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-48WRJU	WR187	3.94-5.99	≤ 15%	≤ 1.20	≤ 0.25	600	600	FDP	Al
SH-58WRJU	WR159	4.64-7.05	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-70WRJU	WR137	5.38-8.17	≤ 15%	≤ 1.20	≤ 0.25	500	150	FDP	Al
SH-84WRJU	WR112	6.57-9.99	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-100WRJU	WR90	8.20-12.5	≤ 15%	≤ 1.20	≤ 0.3	400	150	FBP	Cu
SH-120WRJU	WR75	9.84-15.0	≤ 15%	≤ 1.20	≤ 0.3	200	10	FBP	Cu
SH-140WRJU	WR62	11.9-18.0	≤ 15%	≤ 1.20	≤ 0.3	100	4	FBP	Cu
SH-180WRJU	WR51	14.5-22.0	≤ 15%	≤ 1.25	≤ 0.3	100	3	FBP	Cu
SH-220WRJU	WR42	17.6-26.7	≤ 15%	≤ 1.25	≤ 0.5	50	0.5	FBP	Cu
SH-260WRJU	WR34	21.7-33.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu
SH-320WRJU	WR28	26.5-40.0	≤ 15%	≤ 1.25	≤ 0.5	30	0.3	FBP	Cu

Waveguide Rotary Joint



High Power Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	IL (dB)	Avg Power (W)	Peak Power (KW)	Flange	Material
SH-32WHPRJUTM01	WR284	2.60-3.95	≤5%	≤1.15	≤0.20	3000	-	FDP	Al
SH-40WHPRJUTM01	WR229	3.22-4.90	≤5%	≤1.15	≤0.20	3000	-	FDP	Al
SH-48WHPRJUTM01	WR187	3.94-5.99	≤5%	≤1.15	≤0.20	3000	-	FDP	Al
SH-58WHPRJUTM01	WR159	4.64-7.05	≤5%	≤1.15	≤0.20	3000	-	FDP	Al
SH-70WHPRJUTM01	WR137	5.38-8.17	≤5%	≤1.15	≤0.20	2000	-	FDP	Al
SH-84WHPRJUTM01	WR112	6.57-9.99	≤5%	≤1.15	≤0.20	2000	-	FBP	Cu
SH-100WHPRJUTM01	WR90	8.20-12.5	≤5%	≤1.15	≤0.20	2000	-	FBP	Cu
SH-120WHPRJUTM01	WR75	9.84-15.0	≤5%	≤1.15	≤0.20	1000	-	FBP	Cu
SH-140WHPRJUTM01	WR62	11.9-18.0	≤5%	≤1.15	≤0.20	2000	-	FBP	Cu
SH-180WHPRJUTM01	WR51	14.5-22.0	≤5%	≤1.15	≤0.25	500	-	FBP	Cu
SH-220WHPRJUTM01	WR42	17.6-26.7	≤5%	≤1.15	≤0.25	500	-	FBP	Cu
SH-260WHPRJUTM01	WR34	21.7-33.0	≤5%	≤1.15	≤0.25	300	-	FBP	Cu
SH-320WHPRJUTM01	WR28	26.5-40.0	≤5%	≤1.15	≤0.25	300	-	FBP	Cu

Waveguide Rotary Joint



High Power Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	VSWR	IL (dB)	Avg Power (W)	Flange	Material
SH-70WRJIT	WR137	5.38-8.17	≤1.25	≤0.3	200	FDP	Cu
SH-84WRJIT	WR112	6.57-9.99	≤1.25	≤0.3	100	FBP	Cu
SH-100WRJIT	WR90	8.20-12.5	≤1.25	≤0.3	100	FBP	Cu
SH-120WRJIT	WR75	9.84-15.0	≤1.25	≤0.3	100	FBP	Cu
SH-140WRJIT	WR62	11.9-18.0	≤1.25	≤0.3	100	FBP	Cu
SH-180WRJIT	WR51	14.5-22.0	≤1.25	≤0.3	50	FBP	Cu
SH-220WRJIT	WR42	17.6-26.7	≤1.4	≤0.3	50	FBP	Cu
SH-260WRJIT	WR34	21.7-33.0	≤1.5	≤0.3	50	FBP	Cu
SH-320WRJIT	WR28	26.5-40.0	≤1.5	≤0.3	50	FBP	Cu

Waveguide Rotary Joint



High Power Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	Freq Range (GHz)	VSWR	IL (dB)	Avg Power (W)	Circular Waveguide Diameter (mm)	Flange	Material	Finish
SH-100CWRJI	2.0-4.0	≤1.20	≤0.2	200	100	FAP	Al	Chromate Conversion
SH-6104CWRJI	3.3-3.8	≤1.20	≤0.2	200	61.04	FAP	Al	Chromate Conversion
SH-51.99CWRJI	3.89-5.33	≤1.20	≤0.2	200	51.99	FAP	Al	Chromate Conversion
SH-37CWRJI	4.5-6.5	≤1.20	≤0.2	200	37	FAP	Al	Chromate Conversion
SH-27.78CWRJI	7.4-9.0	≤1.20	≤0.2	200	27.87	FAP	Al	Chromate Conversion
SH-23.825CWRJI	9.1-10.0	≤1.20	≤0.2	100	23.825	FAP	Al	Chromate Conversion
SH-20.244CWRJI	8.5-10.5	≤1.20	≤0.2	100	20.244	FAP	Al	Chromate Conversion
SH-14CWRJI	15.0-17.0	≤1.20	≤0.2	100	14	FAP	Cu	Silver Plating
SH-1125CWRJI	18.2-24.9	≤1.20	≤0.2	100	11.25	FAP	Cu	Silver Plating
SH-11CWRJI	17.7-21.2	≤1.20	≤0.2	100	11	FAP	Cu	Silver Plating
SH-7.137CWRJI	27.5-31	≤1.20	≤0.2	100	7.137	FAP	Cu	Silver Plating

Waveguide Rotary Joint



Double-Ridged Waveguide Rotary Joint

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	VSWR	IL(dB)	Avg Power (W)	Flange	Material
SH-84DRWRJI	WRD84	0.84-2	≤1.5	≤0.5	200	FP	Cu
SH-150DRWRJI	WRD150	1.5-3.6	≤1.5	≤0.5	200	FP	Cu
SH-200DRWRJI	WRD200	2-4.8	≤1.5	≤0.5	200	FP	Cu
SH-250DRWRJI	WRD250	2.6-7.8	≤1.5	≤0.5	200	FP	Cu
SH-350DRWRJI	WRD350	3.5-8.2	≤1.5	≤0.5	200	FP	Cu
SH-475DRWRJI	WRD475	4.75-11	≤1.5	≤0.5	100	FP	Cu
SH-500DRWRJI	WRD500	5-18	≤1.5	≤0.5	100	FP	Cu
SH-580DRWRJI	WRD580	5.8-16	≤1.5	≤0.5	100	FP	Cu
SH-650DRWRJI	WRD650	6.5-18	≤1.5	≤0.5	100	FP	Cu
SH-700DRWRJI	WRD750	7-18.5	≤1.5	≤0.5	100	FP	Cu
SH-750DRWRJI	WRD700	7.5-18	≤1.5	≤0.5	100	FP	Cu
SH-1100DRWRJI	WRD110	11-26.5	≤1.8	≤0.8	50	FP	Cu
SH-1800DRWRJI	WRD180	18-40	≤2.0	≤0.8	30	FP	Cu

Waveguide Rotary Joint



Waveguide Dual-Channel Rotary Joint

Model	UI	UL	UU
Description	Dual-Channel U+I Type	Dual-Channel U+L Type	Dual-Channel U+U Type
Drawing			
Channel Isolation	≥50dB	≥50dB	≥50dB

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	IL (dB)	Avg Power (W)	Peak Power (KW)	Flange	Material
SH-32WRJUI	WR284	2.60-3.95	≤10%	≤1.25	≤0.3	600	600	FDP	Al
SH-40WRJUI	WR229	3.22-4.90	≤10%	≤1.25	≤0.3	600	600	FDP	Al
SH-48WRJUI	WR187	3.94-5.99	≤10%	≤1.25	≤0.3	600	600	FDP	Al
SH-58WRJUI	WR159	4.64-7.05	≤10%	≤1.25	≤0.3	500	150	FDP	Al
SH-70WRJUI	WR137	5.38-8.17	≤10%	≤1.25	≤0.3	500	150	FDP	Cu
SH-84WRJUI	WR112	6.57-9.99	≤10%	≤1.25	≤0.3	400	150	FBP	Cu
SH-100WRJUI	WR90	8.20-12.5	≤10%	≤1.25	≤0.3	400	150	FBP	Cu
SH-120WRJUI	WR75	9.84-15.0	≤10%	≤1.25	≤0.3	100	10	FBP	Cu
SH-140WRJUI	WR62	11.9-18.0	≤10%	≤1.25	≤0.3	100	4	FBP	Cu
SH-180WRJUI	WR51	14.5-22.0	≤10%	≤1.25	≤0.3	100	3	FBP	Cu
SH-220WRJUI	WR42	17.6-26.7	≤10%	≤1.25	≤0.3	50	0.5	FBP	Cu
SH-260WRJUI	WR34	21.7-33.0	≤10%	≤1.25	≤0.3	30	0.3	FBP	Cu
SH-320WRJUI	WR28	26.5-40.0	≤10%	≤1.25	≤0.3	30	0.3	FBP	Cu

Waveguide Rotary Joint



Waveguide 90° Power Divider/Combiner

Model	I Type		U Type		X Type		Y Type		YU Type	
	WSWC	WTWC	WSWUC	WTWUC	WSWXC	WTWXC	WSWYC	WTWYC	WSWYUC	WTWYUC
Description	Narrow wall coupling	Wide wall coupling	Narrow wall coupling	Wide wall coupling	Narrow wall coupling	Wide wall coupling	Narrow wall coupling	Wide wall coupling	Narrow wall coupling	Wide wall coupling
Product Image										

ELECTRICAL CHARACTERISTICS:

Part No.	WG Type EIA	Freq Range (GHz)	Working Bandwidth	VSWR	Coupling (dB)	Material
SH-40WSWC...	WR229	3.22-4.90	≤10%	≤1.25	3-7	Al
SH-40WTWC...	WR229	3.22-4.90	≤10%	≤1.25	3-7	Al
SH-48WSWC...	WR187	3.94-5.99	≤10%	≤1.25	3-7	Al
SH-48WTWC...	WR187	3.94-5.99	≤10%	≤1.25	3-7	Al
SH-58WSWC...	WR159	4.64-7.05	≤10%	≤1.25	3-7	Al
SH-58WTWC...	WR159	4.64-7.05	≤10%	≤1.25	3-7	Al
SH-70WSWC...	WR137	5.38-8.17	≤10%	≤1.25	3-7	Cu
SH-70WTWC...	WR137	5.38-8.17	≤10%	≤1.25	3-7	Cu
SH-84WSWC...	WR112	6.57-9.99	≤10%	≤1.25	3-7	Cu
SH-84WTWC...	WR112	6.57-9.99	≤10%	≤1.25	3-7	Cu
SH-100WSWC...	WR90	8.20-12.40	≤10%	≤1.25	3-7	Cu
SH-100WTWC...	WR90	8.20-12.40	≤10%	≤1.25	3-7	Cu
SH-120WSWC...	WR75	9.84-15.0	≤10%	≤1.25	3-7	Cu
SH-120WTWC...	WR75	9.84-15.0	≤10%	≤1.25	3-7	Cu
SH-140WSWC...	WR62	11.9-18.0	≤10%	≤1.25	3-7	Cu
SH-140WTWC...	WR62	11.9-18.0	≤10%	≤1.25	3-7	Cu
SH-180WSWC...	WR51	14.5-22.0	≤10%	≤1.25	3-7	Cu
SH-180WTWC...	WR51	14.5-22.0	≤10%	≤1.25	3-7	Cu
SH-220WSWC...	WR42	17.6-26.7	≤10%	≤1.30	3-7	Cu
SH-220WTWC...	WR42	17.6-26.7	≤10%	≤1.30	3-7	Cu
SH-260WSWC...	WR34	21.7-33.0	≤10%	≤1.30	3-7	Cu
SH-260WTWC...	WR34	21.7-33.0	≤10%	≤1.30	3-7	Cu
SH-320WSWC...	WR28	26.5-40.0	≤10%	≤1.30	3-7	Cu
SH-320WTWC...	WR28	26.5-40.0	≤10%	≤1.30	3-7	Cu

WAVEGUIDE ROTARY JOINT

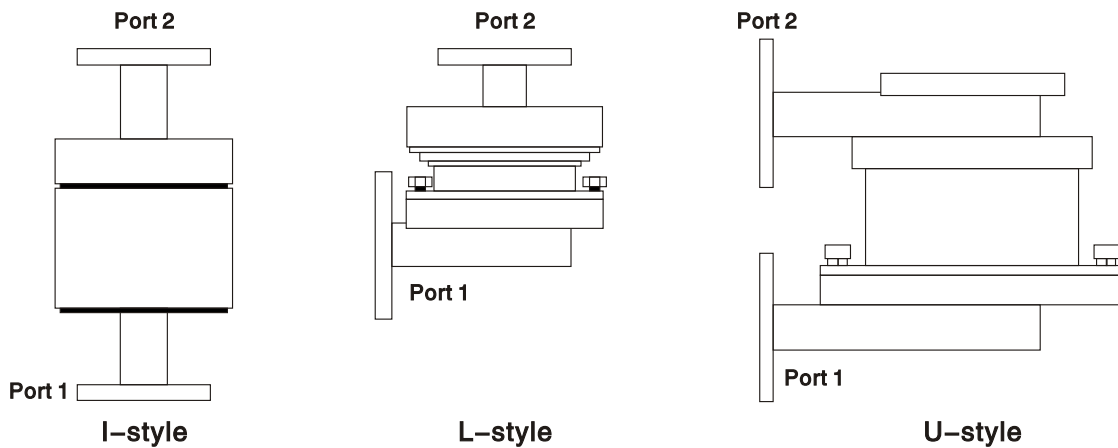
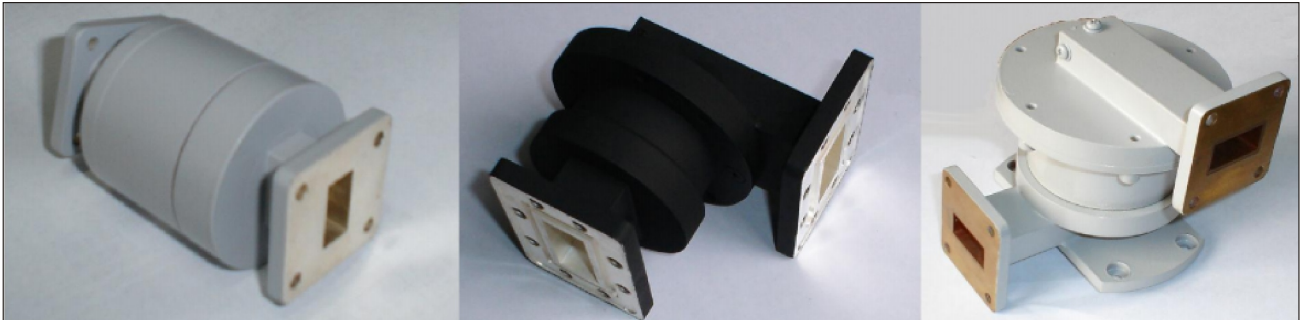
Waveguide Single Channel Rotary Joint

Rotary Joints (rotary couplers) are used to transmit microwave energy from stationary lines to rotating lines. The rotary joint is an electro-mechanical device with RF performance dependent upon rigorous electrical and mechanical design. Available styles are defined by physical geometry as follows:

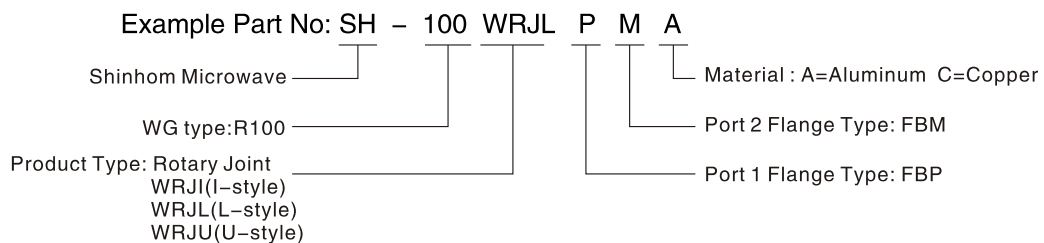
I-style – Two in-line arms both collinear with the axis of rotation.

L-style – One arm is perpendicular to the axis of rotation.

U-style – Both arms are perpendicular to the axis of rotation.



Ordering Information



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

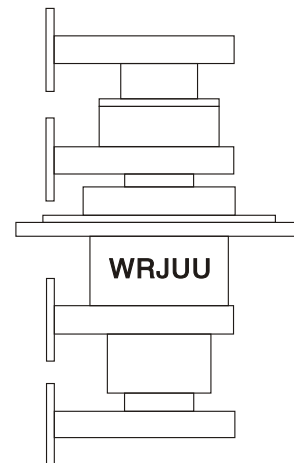
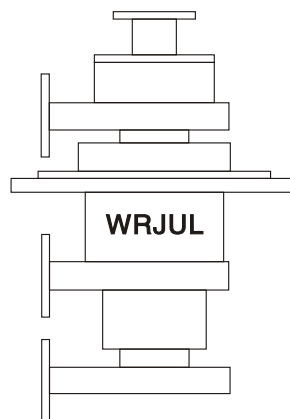
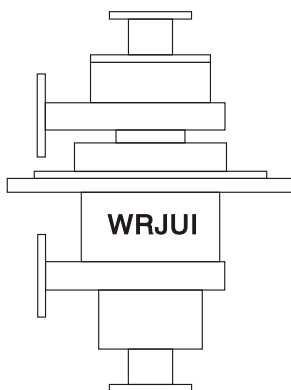
ELECTRICAL CHARACTERISTICS:

Part No.	Freq Range (GHz)	Operating Bandwidth (MHz)	VSWR (Max)	VSWR WOW	IL(dB) (Max)	IL WOW (dB)	WG type		Material
							IEC	EIA	
SH-32WRJI	2.60-3.95	200	1.20	0.05	0.3	0.10	R32	WR284	Al/Cu
SH-32WRJL	2.60-3.95	200	1.20	0.05	0.3	0.10	R32	WR284	Al/Cu
SH-32WRJU	2.60-3.95	200	1.20	0.05	0.3	0.10	R32	WR284	Al/Cu
SH-40WRJI	3.22-4.90	200	1.20	0.05	0.3	0.10	R40	WR229	Al/Cu
SH-40WRJL	3.22-4.90	200	1.20	0.05	0.3	0.10	R40	WR229	Al/Cu
SH-40WRJU	3.22-4.90	200	1.20	0.05	0.3	0.10	R40	WR229	Al/Cu
SH-48WRJI	3.94-5.99	200	1.20	0.05	0.3	0.10	R48	WR187	Al/Cu
SH-48WRJL	3.94-5.99	200	1.20	0.05	0.3	0.10	R48	WR187	Al/Cu
SH-48WRJU	3.94-5.99	200	1.20	0.05	0.3	0.10	R48	WR187	Al/Cu
SH-58WRJI	4.64-7.05	300	1.25	0.05	0.25	0.10	R58	WR159	Al/Cu
SH-58WRJL	4.64-7.05	300	1.25	0.05	0.25	0.10	R58	WR159	Al/Cu
SH-58WRJU	4.64-7.05	300	1.25	0.05	0.25	0.10	R58	WR159	Al/Cu
SH-70WRJI	5.38-8.17	700	1.25	0.05	0.25	0.10	R70	WR137	Al/Cu
SH-70WRJL	5.38-8.17	700	1.25	0.05	0.25	0.10	R70	WR137	Al/Cu
SH-70WRJU	5.38-8.17	700	1.25	0.05	0.25	0.10	R70	WR137	Al/Cu
SH-84WRJI	6.57-9.99	300	1.20	0.05	0.3	0.10	R84	WR112	Al/Cu
SH-84WRJL	6.57-9.99	300	1.20	0.05	0.3	0.10	R84	WR112	Al/Cu
SH-84WRJU	6.57-9.99	300	1.20	0.05	0.3	0.10	R84	WR112	Al/Cu
SH-100WRJI	8.20-12.4	300	1.20	0.05	0.3	0.10	R100	WR90	Al/Cu
SH-100WRJL	8.20-12.4	300	1.20	0.05	0.3	0.10	R100	WR90	Al/Cu
SH-100WRJU	8.20-12.4	300	1.20	0.05	0.3	0.10	R100	WR90	Al/Cu
SH-120WRJI	9.84-15.0	500	1.25	0.05	0.3	0.10	R120	WR75	Al/Cu
SH-120WRJL	9.84-15.0	500	1.25	0.05	0.3	0.10	R120	WR75	Al/Cu
SH-120WRJU	9.84-15.0	500	1.25	0.05	0.3	0.10	R120	WR75	Al/Cu
SH-140WRJI	11.9-18.0	1000	1.3	0.05	0.4	0.10	R140	WR62	Al/Cu
SH-140WRJL	11.9-18.0	1000	1.3	0.05	0.4	0.10	R140	WR62	Al/Cu
SH-140WRJU	11.9-18.0	1000	1.3	0.05	0.4	0.10	R140	WR62	Al/Cu
SH-180WRJI	14.5-22.0	1000	1.3	0.05	0.4	0.10	R180	WR51	Al/Cu
SH-180WRJL	14.5-22.0	1000	1.3	0.05	0.4	0.10	R180	WR51	Al/Cu
SH-180WRJU	14.5-22.0	1000	1.3	0.05	0.4	0.10	R180	WR51	Al/Cu
SH-220WRJI	17.6-26.7	2000	1.4	0.05	1.0	0.10	R220	WR42	Al/Cu
SH-220WRJL	17.6-26.7	2000	1.4	0.05	1.0	0.10	R220	WR42	Al/Cu
SH-220WRJU	17.6-26.7	2000	1.4	0.05	1.0	0.10	R220	WR42	Al/Cu
SH-260WRJI	21.7-33.0	2000	1.4	0.05	1.0	0.10	R260	WR34	Al/Cu
SH-260WRJL	21.7-33.0	2000	1.4	0.05	1.0	0.10	R260	WR34	Al/Cu
SH-260WRJU	21.7-33.0	2000	1.4	0.05	1.0	0.10	R260	WR34	Al/Cu
SH-320WRJI	26.3-40.0	2000	1.4	0.05	1.0	0.10	R320	WR28	Al/Cu
SH-320WRJL	26.3-40.0	2000	1.4	0.05	1.0	0.10	R320	WR28	Al/Cu
SH-320WRJU	26.3-40.0	2000	1.4	0.05	1.0	0.10	R320	WR28	Al/Cu

WAVEGUIDE ROTARY JOINT

Waveguide Double Channel Rotary Joint

Shinohm Microwave offers a standard product line of Rotary Joints covering waveguide sizes WR28 thru WR284. Rotary Joints (rotary couplers) are used to transmit microwave energy from stationary lines to rotating lines. The rotary joint is an electro-mechanical device with RF performance dependent upon rigorous electrical and mechanical design. Available styles are defined by physical geometry as follows:



Ordering Information

Example Part No: SH – 100 WRJUL A

Shinohm Microwave ——— | ——— | ——— | ——— Material : A=Aluminum C=Copper

WG type:R100 ——— | ——— | ——— | ——— Product Type: Rotary Joint

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

ELECTRICAL CHARACTERISTICS:

Part No.	Freq Range (GHz)	Operating Bandwidth (MHz)	VSWR (Max)	VSWR WOW	IL(dB) (Max)	IL WOW (dB)	Max.ISO (dB)in two channels	WG type		Material
								IEC	EIA	
SH-32WRJUI	2.60-3.95	60	1.30	0.10	0.6	0.10	50	R32	WR284	Al/Cu
SH-32WRJUL	2.60-3.95	100	1.30	0.10	0.3	0.10	50	R32	WR284	Al/Cu
SH-32WRJUU	2.60-3.95	100	1.30	0.10	0.3	0.10	50	R32	WR284	Al/Cu
SH-40WRJUI	3.22-4.90	100	1.30	0.10	0.3	0.10	50	R40	WR229	Al/Cu
SH-40WRJUL	3.22-4.90	100	1.30	0.10	0.3	0.10	50	R40	WR229	Al/Cu
SH-40WRJUU	3.22-4.90	100	1.30	0.10	0.3	0.10	50	R40	WR229	Al/Cu
SH-48WRJUI	3.94-5.99	100	1.30	0.10	0.3	0.10	50	R48	WR187	Al/Cu
SH-48WRJUL	3.94-5.99	100	1.30	0.10	0.3	0.10	50	R48	WR187	Al/Cu
SH-48WRJUU	3.94-5.99	100	1.30	0.10	0.3	0.10	50	R48	WR187	Al/Cu
SH-58WRJUI	4.64-7.05	100	1.30	0.10	0.25	0.10	50	R58	WR159	Al/Cu
SH-58WRJUL	4.64-7.05	100	1.30	0.10	0.25	0.10	50	R58	WR159	Al/Cu
SH-58WRJUU	4.64-7.05	100	1.30	0.10	0.25	0.10	50	R58	WR159	Al/Cu
SH-70WRJUI	5.38-8.17	100	1.30	0.10	0.25	0.10	50	R70	WR137	Al/Cu
SH-70WRJUL	5.38-8.17	100	1.30	0.10	0.25	0.10	50	R70	WR137	Al/Cu
SH-70WRJUU	5.38-8.17	100	1.30	0.10	0.25	0.10	50	R70	WR137	Al/Cu
SH-84WRJUI	6.57-9.99	100	1.30	0.10	0.3	0.10	50	R84	WR112	Al/Cu
SH-84WRJUL	6.57-9.99	100	1.30	0.10	0.3	0.10	50	R84	WR112	Al/Cu
SH-84WRJUU	6.57-9.99	100	1.30	0.10	0.3	0.10	50	R84	WR112	Al/Cu
SH-100WRJUI	8.20-12.4	100	1.30	0.10	0.3	0.10	50	R100	WR90	Al/Cu
SH-100WRJUL	8.20-12.4	100	1.30	0.10	0.3	0.10	50	R100	WR90	Al/Cu
SH-100WRJUU	8.20-12.4	100	1.30	0.10	0.3	0.10	50	R100	WR90	Al/Cu
SH-120WRJUI	9.84-15.0	200	1.30	0.10	0.3	0.10	50	R120	WR75	Al/Cu
SH-120WRJUL	9.84-15.0	200	1.30	0.10	0.3	0.10	50	R120	WR75	Al/Cu
SH-120WRJUU	9.84-15.0	200	1.30	0.10	0.3	0.10	50	R120	WR75	Al/Cu
SH-140WRJUI	11.9-18.0	200	1.40	0.10	0.4	0.10	50	R140	WR62	Al/Cu
SH-140WRJUL	11.9-18.0	200	1.40	0.10	0.4	0.10	50	R140	WR62	Al/Cu
SH-140WRJUU	11.9-18.0	200	1.40	0.10	0.4	0.10	50	R140	WR62	Al/Cu
SH-180WRJUI	14.5-22.0	200	1.40	0.10	0.4	0.10	50	R180	WR51	Al/Cu
SH-180WRJUL	14.5-22.0	200	1.40	0.10	0.4	0.10	50	R180	WR51	Al/Cu
SH-180WRJUU	14.5-22.0	200	1.40	0.10	0.4	0.10	50	R180	WR51	Al/Cu
SH-220WRJUI	17.6-26.7	200	1.50	0.10	1.0	0.10	50	R220	WR42	Al/Cu
SH-220WRJUL	17.6-26.7	200	1.50	0.10	1.0	0.10	50	R220	WR42	Al/Cu
SH-220WRJUU	17.6-26.7	200	1.50	0.10	1.0	0.10	50	R220	WR42	Al/Cu
SH-260WRJUI	21.7-33.0	200	1.50	0.10	1.0	0.10	50	R260	WR34	Al/Cu
SH-260WRJUL	21.7-33.0	200	1.50	0.10	1.0	0.10	50	R260	WR34	Al/Cu
SH-260WRJUU	21.7-33.0	200	1.50	0.10	1.0	0.10	50	R260	WR34	Al/Cu
SH-320WRJUI	26.3-40.0	200	1.50	0.10	1.0	0.10	50	R320	WR28	Al/Cu
SH-320WRJUL	26.3-40.0	200	1.50	0.10	1.0	0.10	50	R320	WR28	Al/Cu
SH-320WRJUU	26.3-40.0	200	1.50	0.10	1.0	0.10	50	R320	WR28	Al/Cu