



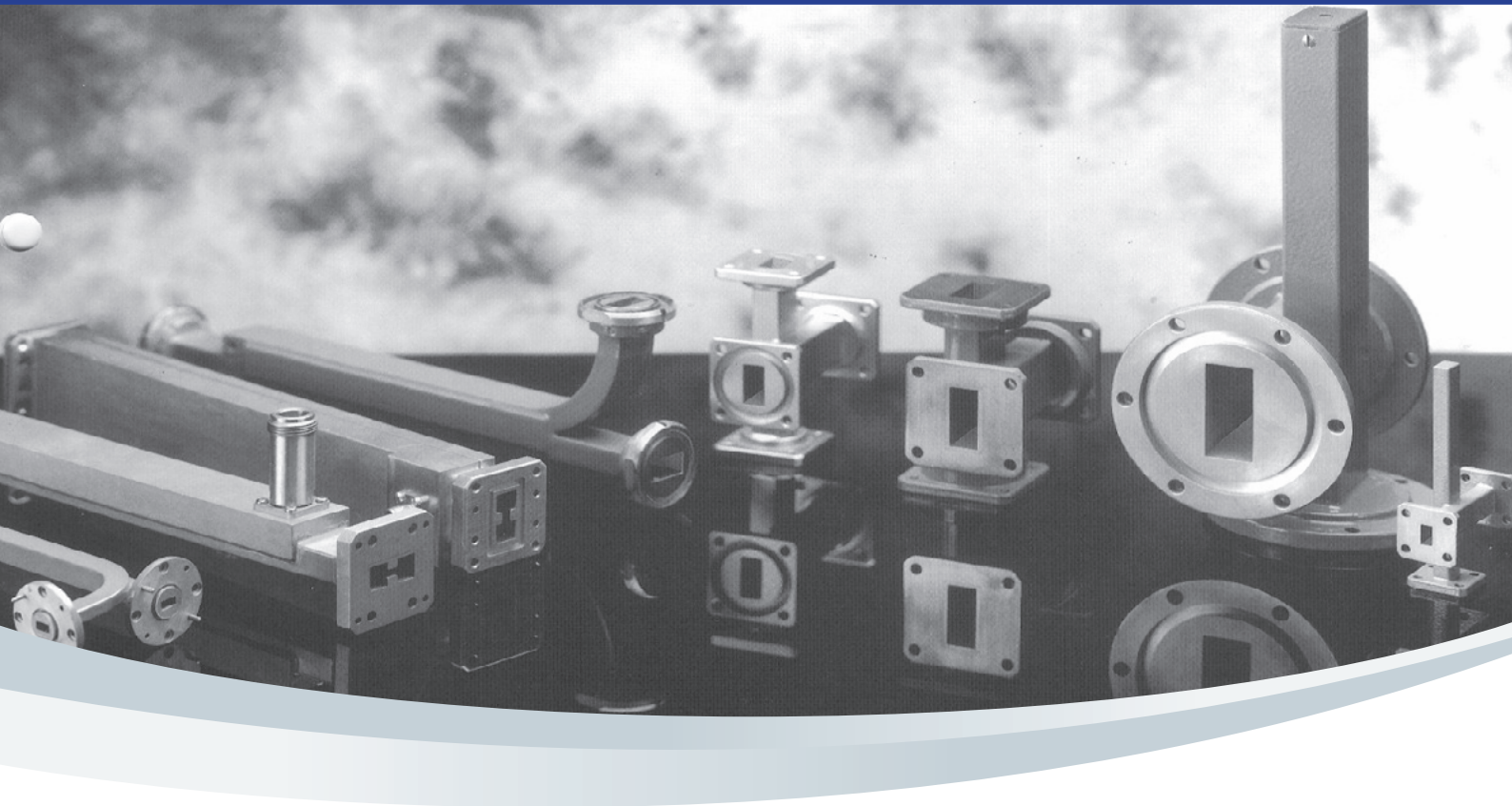
The Waveguide Solution
a global **invacom** company

Waveguide Directional Couplers

Cross Guide Couplers / **CC SERIES**

Broad Wall Couplers / **DC SERIES**

Side Wall Couplers / **SC SERIES**



The Waveguide Solution offers a range of Directional Broad Wall, Side Wall and Cross Guide Couplers in 3 and 4 port configurations.

All couplers have been designed to offer low VSWR, flat response and high directivity over the entire designated waveguide band. Improvements in directivity and coupling value tolerances can be made for specified narrow band applications. The CC and DC series of couplers are designed,

tested and manufactured to the highest quality standards. Couplers are manufactured with the full range of International Flange Style as shown in the The Waveguide Solution Flange Catalogue with alternative plated finishes on request. All The Waveguide Solution couplers are offered with an attractive, hard wearing, epoxy paint finish.

The Waveguide Solution facility is approved to ISO 9001: 2000.

CROSS GUIDE COUPLERS (3PORT)

Standard Rectangular

Specification:

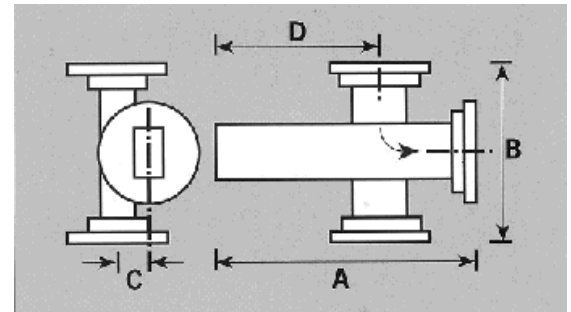
Standard Coupling Values:

Standard Coupling Values	Nominal Accuracy	V.S.W.R.
20 dB	±5 dB	1.32 max
30 dB	±1 dB	1.22 max
40 dB	±1.5 dB	1.06 max

Directivity: 10 dB min, 20 dB Typical

Body Material: Brass

Finish: Blue Paint, Silver Plated Flanges



Operating Frequency Band (GHz)	Waveguide Designation			TWS PART NUMBER	Dimension (mm)			
	UK WG	IEC R	E.I.A. WR		A	B	C	D
2.60 – 3.95	10	32	284	CC 10 –AQB- (**-**-*)-B-(**)	334	204	36	229
3.30 – 4.90	11A	40	229	CC 11A –AQB- (**-**-*)-B-(**)	288	153	31	212
3.95 – 5.85	12	48	187	CC 12 –AQB- (**-**-*)-B-(**)	248	153	24	172
5.85 – 8.20	14	70	137	CC 14 –AQB- (**-**-*)-B-(**)	192	102	17	141
7.05 – 10.0	15	84	112	CC 15 –AQB- (**-**-*)-B-(**)	167	102	14	116
8.20 – 12.40	16	100	90	CC 16 –AQB- (**-**-*)-B-(**)	141	76	12	103
10.0 – 15.0	17	120	75	CC 17 –AQB- (**-**-*)-B-(**)	121	76	11	82
12.4 – 18.0	18	140	62	CC 18 –AQB- (**-**-*)-B-(**)	111	76	9	73
18.0 – 26.5	20	220	42	CC 20 –AQB- (**-**-*)-B-(**)	88	76	5	54
26.5 – 40.0	22	320	28	CC 22 –AQB- (**-**-*)-B-(**)	79	57	5	54

**Coupling values

*** For 3 Digit Rectangular Waveguide Flange part number, refer to the TWS Flange Catalogue, or consult the factory.

Available in 20,30, and 40 dB Coupling only.
For other Coupling values contact the factory.
Please state frequency bandwidth when ordering.

CROSS GUIDE COUPLERS (4 PORT)

Standard Rectangular

Specification:

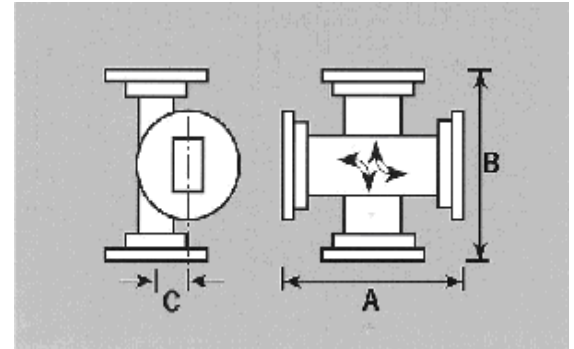
Standard Coupling Values:

Standard	Nominal	
Coupling Values	Accuracy	V.S.W.R.
20 dB	±5 dB	1.29 max
30 dB	±1.5 dB	1.17 max
40 dB	±1.75 dB	1.06 max

Directivity: 10 dB min, 20 dB Typical

Body Material: Brass

Finish: Blue Paint, Silver Plated Flanges



Operating Frequency Band (GHz)	Waveguide Designation			TWS PART NUMBER	Dimension (mm)		
	UK WG	IEC R	E.I.A. WR		A	B	C
2.60 – 3.95	10	32	284	CC 10 –BQB- (**-**-*)-B-(**)	204	204	36
3.30 – 4.90	11A	40	229	CC 11A –BQB- (**-**-*)-B-(**)	153	153	31
3.95 – 5.85	12	48	187	CC 12 –BQB- (**-**-*)-B-(**)	153	153	24
5.85 – 8.20	14	70	137	CC 14 –BQB- (**-**-*)-B-(**)	102	102	17
7.05 – 10.0	15	84	112	CC 15 –BQB- (**-**-*)-B-(**)	102	102	14
8.20 – 12.40	16	100	90	CC 16 –BQB- (**-**-*)-B-(**)	76	76	12
10.0 – 15.0	17	120	75	CC 17 –BQB- (**-**-*)-B-(**)	76	76	11
12.4 – 18.0	18	140	62	CC 18 –BQB- (**-**-*)-B-(**)	76	76	9
18.0 – 26.5	20	220	42	CC 20 –BQB- (**-**-*)-B-(**)	57	57	5
26.5 – 40.0	22	320	28	CC 22 –BQB- (**-**-*)-B-(**)	51	51	5

**Coupling values

*** For 3 Digit Rectangular Waveguide Flange part number, refer to the TWS Flange Catalogue, or consult the factory.

Available in 20,30, and 40 dB Coupling only.
For other Coupling values contact the factory.
Please state frequency bandwidth when ordering.

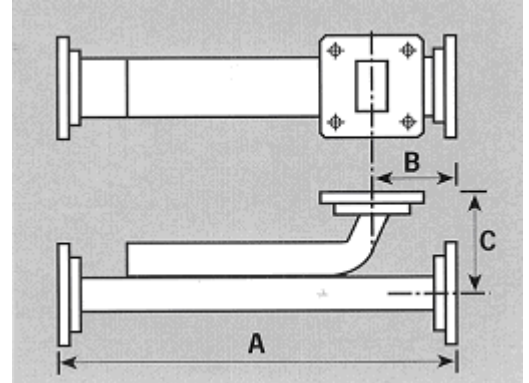
DIRECTIONAL COUPLERS (3 PORT) BROADWALL

Standard Rectangular

Specification:

Standard Coupling Values:

	Standard	
	Coupling Values	Accuracy
WG 10-18	10 dB	±1.5 dB
WG 10-18	20 dB	±1.5 dB
WG 10-18	30 dB	±2.0 dB
WG 10-18	40 dB	±2.0 dB
WG 20-22	As above	±2.0 dB
Return loss:	Secondary Arm	27 dB min.
Flatness:		±1 dB
Directivity:	WG10-18	
(Full band spec see table)		35 dB min over 75% of the bandwidth
	WG20-22	30 dB min over 50% of the bandwidth
Body Material:		Brass
Finish:		Blue Paint, Silver Plated Flanges



Operating Frequency Band (GHz)	Waveguide Designation			TWS PART NUMBER	Directivity Minimum (dB) (2)	Return Loss (Primary) (dB)	Dimension (mm)		
	UK WG	IEC R	E.I.A. WR				A	B	C
2.60 – 3.95	10	32	284	DC 10 –AQB- (**-**-**)-B-(**)	25	32	826	77	171
3.30 – 4.90	11A	40	229	DC 11A –AQB- (**-**-**)-B-(**)	25	32	718	57	181
3.95 – 5.85	12	48	187	DC 12 –AQB- (**-**-**)-B-(**)	25	32	635	51	153
4.90 – 7.05	13	58	159	DC 13 –AQB- (**-**-**)-B-(**)	25	32	546	32	133
5.85 – 8.20	14	70	137	DC 14 –AQB- (**-**-**)-B-(**)	25	32	554	43	127
7.05 – 10.0	15	84	112	DC 15 –AQB- (**-**-**)-B-(**)	25	32	395	28	77
8.20 – 12.40	16	100	90	DC 16 –AQB- (**-**-**)-B-(**)	25	32	287	33	67
10.0 – 15.0	17	120	75	DC 17 –AQB- (**-**-**)-B-(**)	25	32	289	22	69
12.4 – 18.0	18	140	62	DC 18 –AQB- (**-**-**)-B-(**)	25	32	249	19	60
18.0 – 26.5	20	220	42	DC 20 –AQB- (**-**-**)-B-(**)	15	32	158	19	38
26.5 – 40.0	22	320	28	DC 22 –AQB- (**-**-**)-B-(**)	15	32	162	19	35

**Coupling values

*** For 3 Digit Rectangular Waveguide Flange part number, refer to the TWS Flange Catalogue, or consult the factory.

Available in 10, 20, 30 and 40 dB Coupling values.

Narrow band designs for 3, 6, 10 and 12 dB are available, however other electrical and mechanical parameters may change.

Please contact factory for details.

Please state frequency bandwidth when ordering.

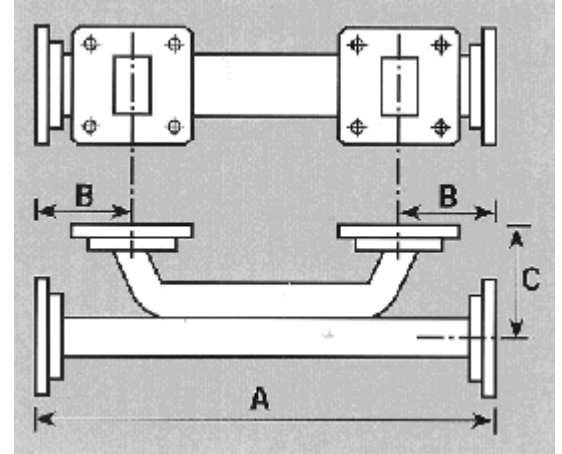
DIRECTIONAL COUPLERS (4 PORT) BROADWALL

Standard Rectangular

Specification:

Standard Coupling Values:

	Standard	Accuracy
	Coupling Values	
WG 10-18	10 dB	±1.5 dB
WG 10-18	20 dB	±1.5 dB
WG 10-18	30 dB	±2.0 dB
WG 10-18	40 dB	±2.0 dB
WG 20-22	As above	±2.0 dB
Return loss:	(Secondary Arm 22 dB) min.	
Flatness:	±1 dB	
Directivity:	WG10-18	
(Full band spec see table)	35 dB min over 75% of the bandwidth	
	WG20-22	
	30 dB min over 50% of the bandwidth	
Body Material:	Brass	
Finish:	Blue Paint, Silver Plated Flanges	



Operating Frequency Band (GHz)	Waveguide Designation			TWS PART NUMBER	Directivity Minimum (dB) (2)	Return Loss (Primary) (dB)	Dimension (mm)		
	UK WG	IEC R	E.I.A. WR				A	B	C
2.60 – 3.95	10	32	284	DC 10 –BQB- (**-**-**-**-**-)-B-(**)	25	32	718	77	171
3.30 – 4.90	11A	40	229	DC 11A –BQB- (**-**-**-**-**-)-B-(**)	25	32	673	57	181
3.95 – 5.85	12	48	187	DC 12 –BQB- (**-**-**-**-**-)-B-(**)	25	32	566	51	153
4.90 – 7.05	13	58	159	DC 13 –BQB- (**-**-**-**-**-)-B-(**)	25	32	501	33	132
5.85 – 8.20	14	70	137	DC 14 –BQB- (**-**-**-**-**-)-B-(**)	25	32	467	43	127
7.05 – 10.0	15	84	112	DC 15 –BQB- (**-**-**-**-**-)-B-(**)	25	32	298	28	76
8.20 – 12.40	16	100	90	DC 16 –BQB- (**-**-**-**-**-)-B-(**)	25	32	163	33	67
10.0 – 15.0	17	120	75	DC 17 –BQB- (**-**-**-**-**-)-B-(**)	25	32	247	22	64
12.4 – 18.0	18	140	62	DC 18 –BQB- (**-**-**-**-**-)-B-(**)	25	32	206	22	60
18.0 – 26.5	20	220	42	DC 20 –BQB- (**-**-**-**-**-)-B-(**)	15	32	152	22	38
26.5 – 40.0	22	320	28	DC 22 –BQB- (**-**-**-**-**-)-B-(**)	15	32	127	16	38

**Coupling values

*** For 3 Digit Rectangular Waveguide Flange part number, refer to the TWS Flange Catalogue, or consult the factory.

Available in 10, 20, 30 and 40 dB Coupling values.

Narrow band designs for 3, 6, 10 and 12 dB are available, however other electrical and mechanical parameters may change.

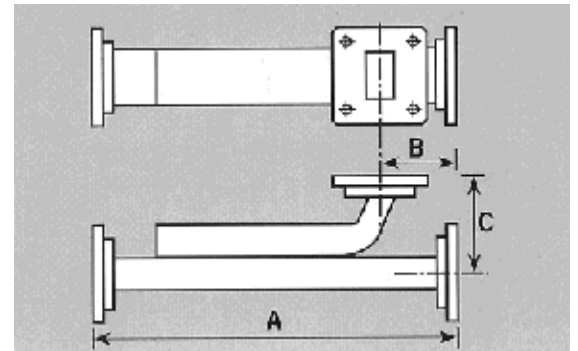
Please contact factory for details.

Please state frequency bandwidth when ordering.

DIRECTIONAL COUPLERS (3 PORT) BROAD WALL

Standard Rectangular (High Directivity)

Specification:
 Mean Coupling: ± 0.5 dB over the respective bandwidth
 for all standard coupling values
 Coupling Sensitivity: ± 0.75 dB about the mean coupling value
 over the specified frequency band
 Return loss: Secondary Arm 27 dB min.
 Body Material: Brass
 Finish: Blue Paint, Silver Plated Flanges



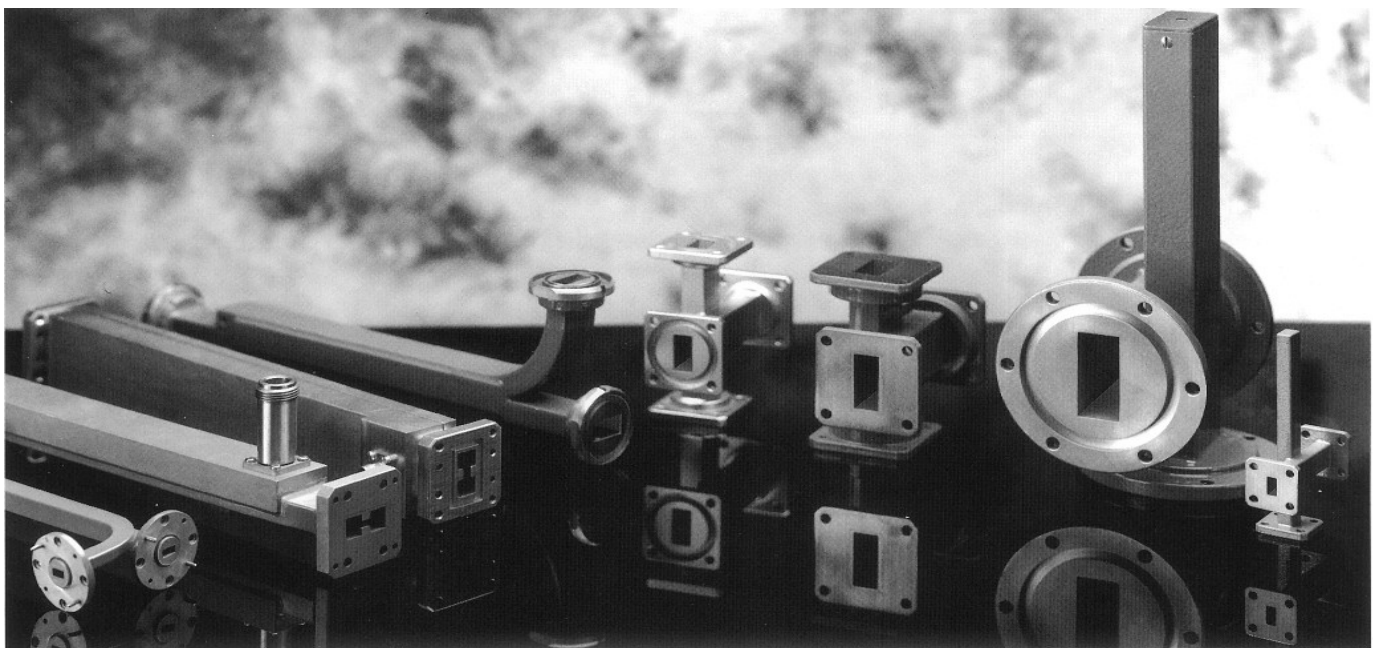
Operating Frequency Band (GHz)	Waveguide Designation			TWS PART NUMBER	Directivity Minimum (dB) (2).	Return Loss (Primary) (dB)	Dimension (mm)		
	UK WG	IEC R	E.I.A. WR				A	B	C
2.60 – 3.95	10	32	284	DC 10 –DQB- (**-**-**)-B-(**)	40	34	1753	76	173
3.30 – 4.90	11A	40	229	DC 11A –DQB- (**-**-**)-B-(**)	40	34	1613	57	181
3.95 – 5.85	12	48	187	DC 12 –DQB- (**-**-**)-B-(**)	40	36	1194	51	139
5.85 – 8.20	14	70	137	DC 14 –DQB- (**-**-**)-B-(**)	40	40	1035	44	127
7.05 – 10.0	15	84	112	DC 15 –DQB- (**-**-**)-B-(**)	40	33	737	28	76
8.20 – 12.40	16	100	90	DC 16 –DQB- (**-**-**)-B-(**)	40	34	609	33	67
10.0 – 15.0	17	120	75	DC 17 –DQB- (**-**-**)-B-(**)	40	35	584	22	63
12.4 – 18.0	18	140	62	DC 18 –DQB- (**-**-**)-B-(**)	38	35	533	19	60
18.0 – 26.5	20	220	42	DC 20 –DQB- (**-**-**)-B-(**)	35	30	432	19	38
26.5 – 40.0	22	320	28	DC 22 –DQB- (**-**-**)-B-(**)	35	30	292	19	38

* Mean Coupling value is defined as the average coupling value (in dB's) across the specified frequency range.

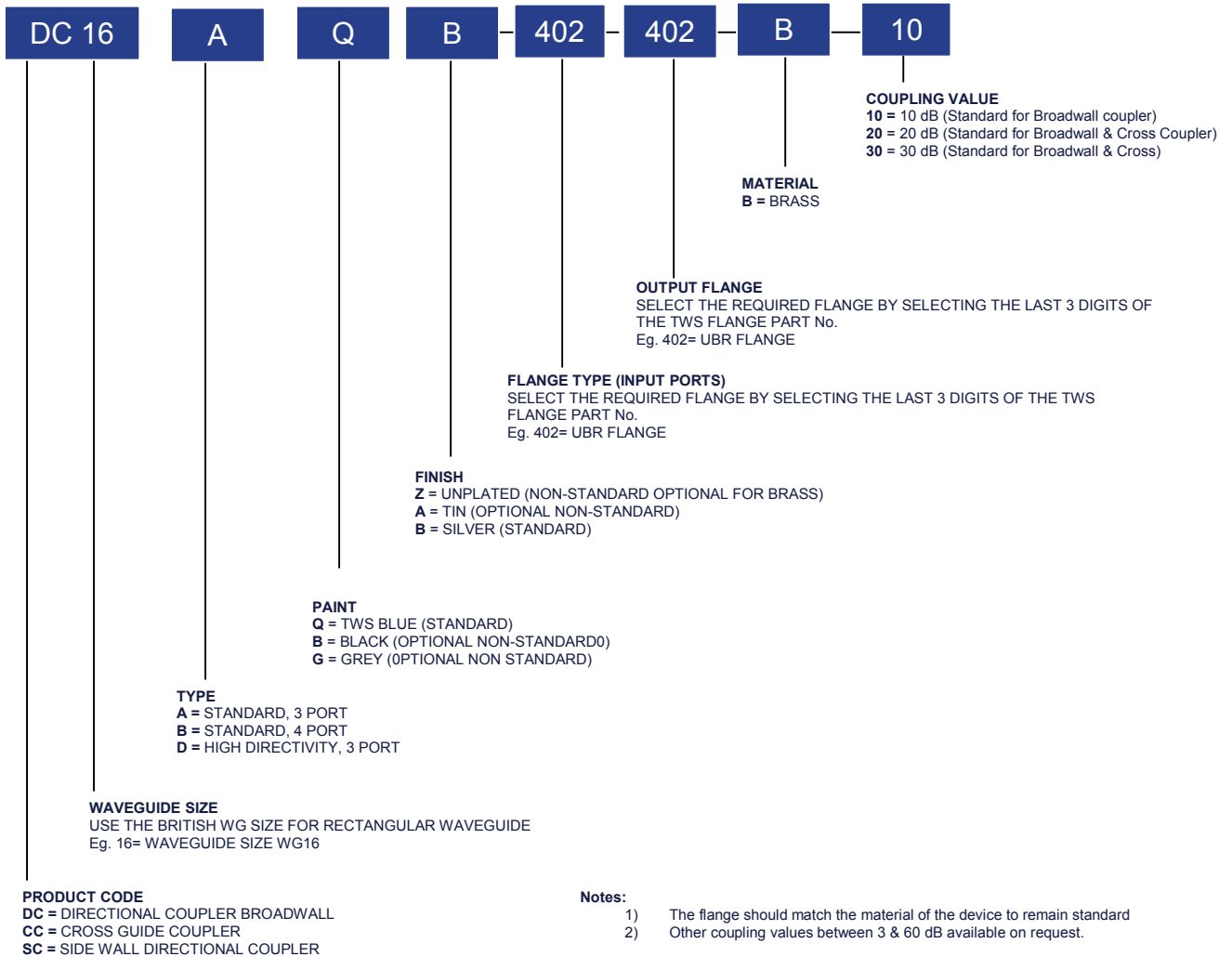
**Coupling values

*** For 3 Digit Rectangular Waveguide Flange part number, refer to the TWS Flange Catalogue, or consult the factory.

High directivity designs shown are available in 10, 20, 30 and 40dB
 Please contact factory for further details.
 Please state frequency bandwidth when ordering.



Ordering Information



For assistance selecting RoHS compliant options please contact the factory



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Specifications shown on this document are offered as a guide only. Components may be modified to suit the mechanical or electrical parameters requested, or may be optimized to suit the operating frequency range. Frequency range of operation shall be advised when ordering.

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