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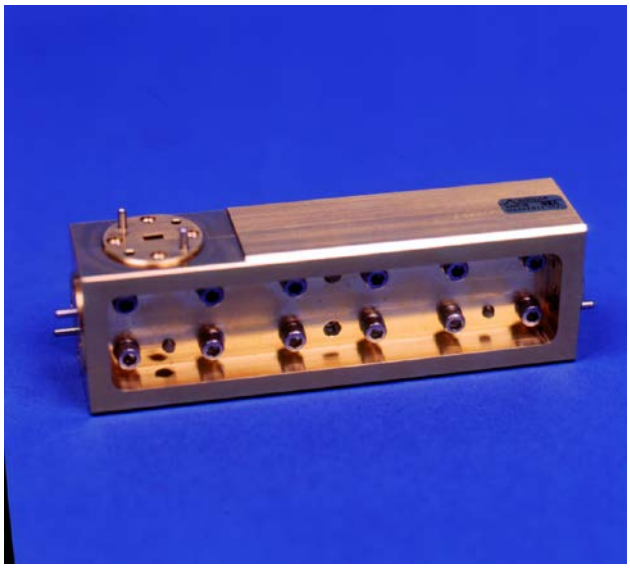
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3-PORT HIGH DIRECTIVITY DIRECTIONAL COUPLERS



FEATURES:

- Insertion loss as low as 0.8 dB
- High directivity
- VSWR as low as 1.1:1

APPLICATIONS:

- Test and instrumentation
- Subsystems
- Precision measurement systems

DESCRIPTION

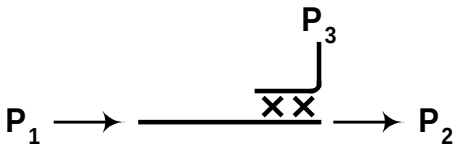
Millitech series CL3 3-port high directivity directional couplers are available from 18 to 170 GHz, with coupling values of 10,20,30, and 40 dB. These couplers have directivity of up to 37 dB with insertion loss as low as 0.8 dB for frequencies below 60 GHz, and 1.5 dB for W-band (WR-10). They operate over full waveguide bands with coupling flatness of less than ± 0.7 dB.

Series CL3 couplers are produced using a rugged split-block construction. High directivity couplers are convenient for extracting or introducing a small fraction of power from and/or into a waveguide circuit without disturbing the operating characteristics of the circuit.
These couplers are particularly suitable for measurement of RF power (transmitted or reflected) in circuits, for scalar network analyzers, and for signal sampling in instruments or subsystems. Millitech also offers series CL4 4-port high directivity couplers and series CGC crossguide couplers. A waveguide stand (series WGS) that supports Millitech split-block couplers in test setups is available.

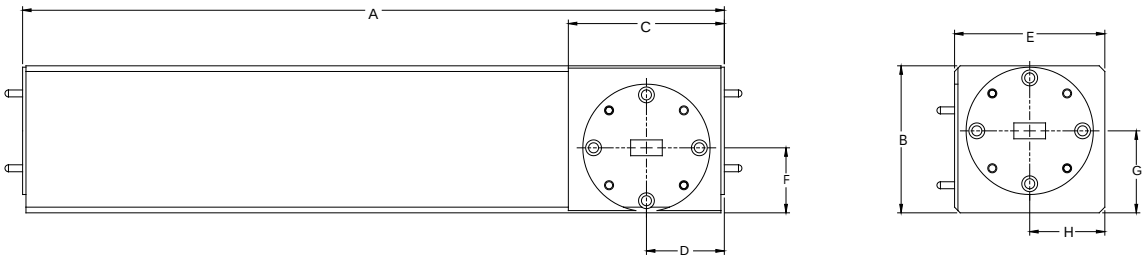
ELECTRICAL SPECIFICATIONS

Model Number	CL3-42	CL3-28	CL3-22	CL3-19	CL3-15	CL3-12	CL3-10	CL3-08	CL3-06
Frequency band and range (GHz)	K 18-26.5	Ka 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140	D 110-170
Coupling value (dB)*1,*2	10, 20								
Coupling flatness (±dB) (max)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Insertion loss (dB) (max)*3	0.8	0.8	0.8	0.8	1.1	1.5	1.5	2.2	2.5
Directivity (dB) (min)*4	32	37	37	37	34	32	32	28	28
Main line VSWR (max)	1.06:1	1.06:1	1.06:1	1.06:1	1.08:1	1.1:1	1.1:1	1.15:1	1.5:1
Secondary line VSWR (max)	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.15:1	1.15:1	1.2:1	1.5:1
Coupling value (dB)*1	30, 40								
Coupling flatness (±dB) (max)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Insertion loss (dB) (max)	0.8	0.8	0.8	0.8	1.1	1.1	1.5	2.2	2.5
Directivity (dB) (min)*4	32	33	33	33	30	30	28	24	24
Main line VSWR (max)	1.06:1	1.06:1	1.06:1	1.06:1	1.08:1	1.08:1	1.1:1	1.15:1	1.5:1
Secondary line VSWR (max)	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.15:1	1.2:1	1.5:1

*1 – Coupling value =-10 $\log_{10}$ (P_3/P_1).
*2 – For power dividers, please see series CSS or CMT.
*3 – Applies to 20 dB units ONLY. Add 0.5dB for 10dB units.
*4 – Directivity = Coupling Value - 10 $\log_{10}$ (P_3/P_2).



OUTLINE DRAWINGS*



*The outlines shown may not reflect the latest information. Please contact Millitech for current outline drawings.

MECHANICAL SPECIFICATIONS

Model Number	CL3-42	CL3-28*1	CL3-22	CL3-19	CL3-15	CL3-12	CL3-10	CL3-08*2	CL3-06
A (in/mm)	8.25/209.5	6.21/157.7	5.48/139.2	4.90/124.5	3.83/97.3	3.38/85.8	3.28/83.3	3.00/76.2	2.60/66.0
B (in/mm)	1.30/33.0	0.93/23.6	1.30/33.0	1.30/33.0	0.86/21.8	0.86/21.8	0.86/21.8	0.85/21.6	0.85/21.6
C (in/mm)	---	---	1.65/41.9	1.65/41.9	1.22/31.0	1.22/31.0	1.22/31.0	1.00/25.4	1.00/25.4
D (in/mm)	0.69/17.5	0.69/17.5	0.83/21.1	0.83/21.1	0.61/15.5	0.61/15.5	0.61/15.5	0.51/12.9	0.51/12.9
E (in/mm)	1.33/33.8	1.33/33.8	1.33/33.8	1.33/33.8	1.20/30.5	1.20/30.5	1.20/30.5	0.90/22.9	0.85/21.6
F (in/mm)	0.56/14.2	0.39/9.9	0.59/15.0	0.60/15.2	0.39/9.9	0.39/9.9	0.40/10.2	0.40/10.2	0.41/10.4
G (in/mm)	0.74/18.8	0.54/13.7	0.71/18.0	0.71/18.0	0.47/11.9	0.46/11.7	0.46/11.7	0.45/11.4	0.45/11.4
Approx. weight (grams)	340	211	232	210	292	263	263	263	201
Material	Aluminum	Aluminum	Aluminum	Aluminum	Brass	Brass	Brass	Brass	Brass
Finish	Chromate	Chromate	Chromate	Chromate	Gold Plate	Gold Plate	Gold Plate	Gold Plate	Gold Plate
Flange MIL.F-3922	/54-001*3	/54-003*3	/67B-006	/67B-007	/67B-008	/67B-009	/67B-010	/67B-M08	/67B-M06

*1 – Dimensions for this model include a square flange. Dimensions incorporating a round flange will vary slightly.
*2 – Dimensions for this model are for 10, 12, and 20 dB coupling values. Dimensions for 30 and 40 coupling values will vary slightly.
*3 – With #4-40 threaded holes.

HOW TO ORDER

Specify Model Number CL3-XX-ABBØØ
XX – Waveguide Band **WR** – number
A = Flange Type **R** – round (WR-22 through WR-06 only) **S** – square (WR-42 and WR-28 only)
BB = Coupling Level (in dB) – Call for non-standard values **10** – 10 dB **20** – 20 dB **30** – 30 dB **40** – 40 dB
Ø = Other Options **N** – nonstandard (please specify requirements)

EXAMPLE:

To Order: A WR-28, 3-port high directivity directional coupler with a square flange and 10 dB coupling.

Specify: CL3-28-S10ØØ

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