

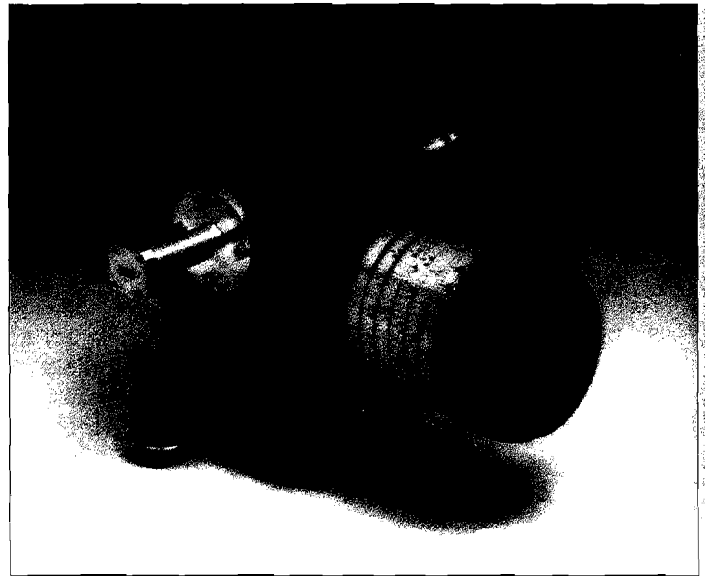
# Direct Reading Attenuators

## Features

- 2% direct reading accuracy
- 60 dB attenuation range
- Highly repeatable
- Easy to use

## Applications

- Test and instrumentation
- Calibration systems



## Description

Millitech series DRA direct reading attenuators are highly accurate frequency-independent attenuators suitable for instrumentation and calibration. By virtue of their mechanical design features and an expanded helical drum scale, the attenuators offer a high degree of repeatability and accuracy over the full 60 dB attenuation range for full waveguide frequency bands.

These attenuators are available in eight full waveguide bands between 26.5 and 170 GHz. Low VSWR, small

variation in phase shift versus frequency, and ease of reading are among the most attractive features of these attenuators.

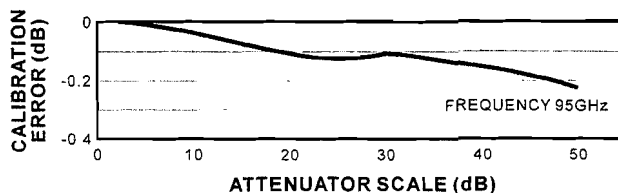
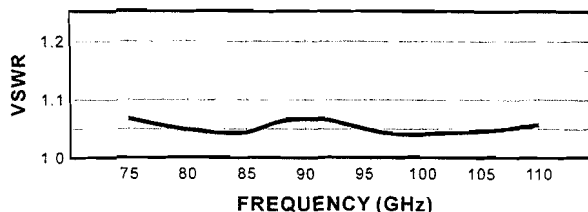
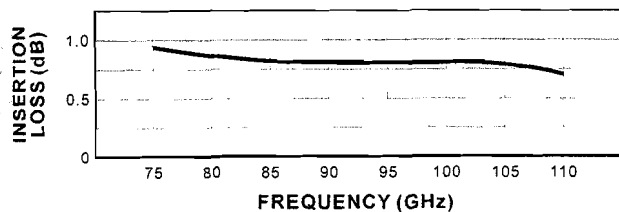
For programmable, remote-controllable or computer-aided test and measurement systems, Millitech also offers the motorized waveguide attenuator (series MWA page 249). If high precision or direct reading capability offered by series DRA is not essential, Millitech's series LSA level set attenuators (page 235) may be used.

## Electrical Specifications

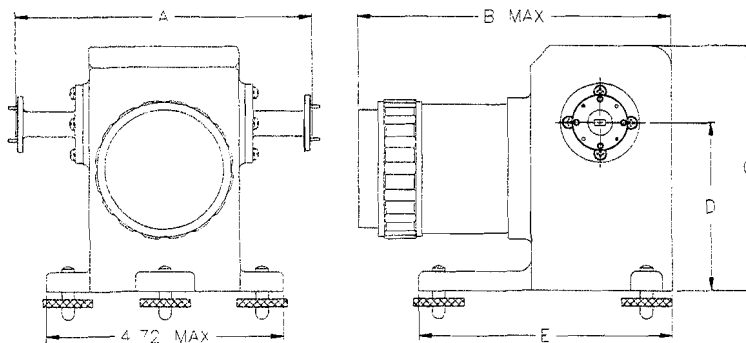
MODEL NUMBER	DRA-28	DRA-22	DRA-19	DRA-15	DRA-12	DRA-10	DRA-08	DRA-06
Frequency Band and Range, GHz	Ka	Q	U	V	E	W	F	D
	26.5-40	33-50	40-60	50-75	60-90	75-110	90-140	110-170
Accuracy, dB/% (whichever is greater)	0.1/2.0	0.1/2.0	0.1/2.0	0.1/2.0	0.1/2.5	0.1/2.5	0.2/3.0	0.3/3.0
VSWR (max)	1.20:1	1.15:1	1.15:1	1.15:1	1.20:1	1.20:1	1.25:1	1.25:1
Insertion Loss, dB (max)	0.5	0.6	0.7	0.8	1.0	1.0	1.5	2.0
Power Rating, W (max)	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3

# Direct Reading Attenuators

## Typical Performance



## Outline Drawing



(dimensions in inches)

## Mechanical Specifications

MODEL NUMBER	DRA-28	DRA-22	DRA-19	DRA-15	DRA-12	DRA-10	DRA-08	DRA-06
A, inches/mm	6.89/175.0	5.91/150.1	4.92/125.0	3.94/100.1	3.94/100.1	3.94/100.1	3.94/100.1	3.94/100.1
B, inches/mm	6.40/162.7	6.40/162.7	5.40/137.2	5.40/137.2	5.40/137.2	5.40/137.2	5.40/137.2	5.40/137.2
C, inches/mm	4.80/121.9	4.80/121.9	4.25/108.0	4.25/108.0	4.25/108.0	4.25/108.0	4.25/108.0	4.25/108.0
D, inches/mm	3.23/84.1	3.23/84.1	3.23/84.1	3.23/84.1	3.23/84.1	3.23/84.1	3.23/84.1	3.23/84.1
E, inches/mm	5.04/128.0	5.04/128.0	3.94/100.1	3.94/100.1	3.94/100.1	3.94/100.1	3.94/100.1	3.94/100.1
MIL-Spec Flange M.F-3922	/68-001M	/67B-006	/67B-007	/67B-008	/67B-009	/67B-010	/67B-M08	/67B-M06

## How to Order

Specify Model Number **DRA-XX-A0000**

**XX = waveguide band (WR-Number)**

**A = flange type**

**R = round**

**S = square (WR-28 only)**

**P = pin contact (WR-08 and WR-06 only)**

RA-06  
 D  
 0-179  
 3/3.0  
 .25  
 2.0  
 0.3