

## TERMINATIONS, TUNABLE LOADS, AND TUNABLE SHORTS



### DESCRIPTION

Millitech series TLD tunable loads and series WTR terminations consist of tapered absorbers within a waveguide section. The tunable loads utilize a metric micrometer tuning mechanism which allows the microwave absorber to be positioned within the guide while maintaining a constant magnitude of reflection coefficient. Travel of the load within the waveguide section is greater than one half wavelength at the lowest frequency.

Millitech series TSC tunable shorts consist of movable, non-contacting choke plungers within a straight section of waveguide.

### FEATURES:

- Terminations to 220 GHz
- Tunable loads and shorts to 170 GHz

### APPLICATIONS:

- Tests and measurements
- Subsystems and assemblies

The terminations are designed to have a maximum VSWR ranging from 1.03:1 in the WR-42 to WR-22 frequency ranges to 1.5:1 in the WR-06 and WR-05 frequency ranges. The tunable loads offer VSWR in excess of 20:1 through 110 GHz and 15:1 through 170 GHz. Micrometer resolution on both the tunable loads and tunable shorts is 0.01 millimeter.

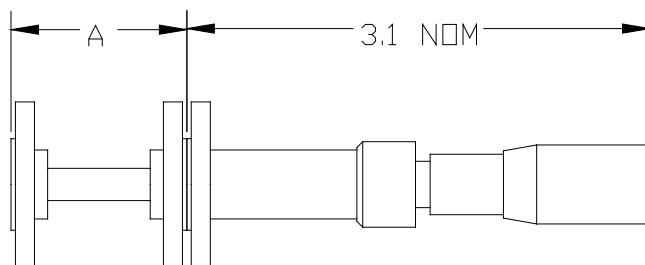
The tunable loads, which have a nominal VSWR as low as 1.05:1 to 90 GHz, are useful for the precise measurement of small reflections in transmission lines. The tunable shorts can be used as adjustable short circuit reference planes.

## ELECTRICAL SPECIFICATIONS

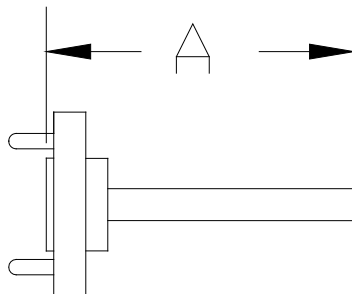
Model Number (Terminations)	WTR-42	WTR-28	WTR-22	WTR-19	WTR-15	WTR-12	WTR-10	WTR-08	WTR-06	WTR-05
Frequency band and range (GHz)	K 18-26.5	Ka 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140	D 110-170	G 140-220
VSWR (max)	1.03:1	1.03:1	1.03:1	1.04:1	1.05:1	1.05:1	1.06:1	1.08:1	1.5:1	1.5:1
Average power (W) (max)	1.0	1.0	0.7	0.3	0.3	0.3	0.2	0.1	0.1	0.1
Model Number (Tunable Loads)	TLD-42	TLD-28	TLD-22	TLD-19	TLD-15	TLD-12	TLD-10	TLD-08	TLD-06	TLD-05
VSWR (nom)	---	1.05:1	1.05:1	1.05:1	1.05:1	1.05:1	1.06:1	1.08:1	1.1:1	---
Average power (W) (max)	---	1.0	0.7	0.3	0.3	0.3	0.2	0.1	0.1	---
Model Number (Tunable Shorts)	TSC-42	TSC-28	TSC-22	TSC-19	TSC-15	TSC-12	TSC-10	TSC-08	TSC-06	TSC-05
VSWR (min)	---	20:1	20:1	20:1	20:1	20:1	20:1	18:1	15:1	---
Average power (W) (max)	---	1.0	0.7	0.3	0.3	0.3	0.2	0.1	0.1	---

## OUTLINE DRAWINGS\*

### TLD and TSC (dimensions in inches)



### WTR



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

## MECHANICAL SPECIFICATIONS

Model Number (Terminations)	WTR-42	WTR-28	WTR-22	WTR-19	WTR-15	WTR-12	WTR-10	WTR-08	WTR-06	WTR-05
A (in/mm)	3.31/71	2.81/71	2.56/65	2.56/65	1.56/40	1.56/40	1.56/40	0.9/23	0.9/23	0.9/23
Model Number (Tunable Loads)	TLD-42	TLD-28	TLD-22	TLD-19	TLD-15	TLD-12	TLD-10	TLD-08	TLD-06	TLD-05
A (in/mm)	---	2.61/66	2.25/57	1.95/50	1.69/43	1.51/38	1.37/35	1.22/31	---	---
Model Number (Tunable Shorts)	TSC-42	TSC-28	TSC-22	TSC-19	TSC-15	TSC-12	TSC-10	TSC-08	TSC-06	TSC-05
A (in/mm)	---	1.97/50	1.87/47	1.81/46	1.6/41	0.97/25	0.97/25	0.97/25	---	---
Flange MIL.F-3922	/54-001*	/54-003*	/67B-006	/67B-007	/67B-008	/67B-009	/67B-010	/67B-M08	/67B-M06	/67B-M05

\*With #4-40 threaded holes.

## HOW TO ORDER

<b>Specify Model Number</b> <b>WTR-XX-A0000</b> <b>TLD-XX-A0000</b> <b>TSC- XX-A0000</b>
<b>XX</b> = Waveguide Band <b>WR</b> – number
<b>A</b> = Flange Type <b>R</b> – round (WR-28 through WR-05 only) <b>S</b> – square (WR-42 and WR-28 only)

**Note: Consult Millitech to order series FXS fixed shorts.**