

# OPEN • SHORT • LOAD

## Calibration Standard

## TNC Female

### HAOSL-TNCJ-12

DC to 12 GHz • 50  $\Omega$

The HASCO RF TNC Female Open-Short-Load Calibration Standard provides accurate and repeatable calibration for Vector Network Analyzers (VNA) up to 12 GHz. The integrated OSL design combines Open, Short, and Precision Load standards in a rugged, compact assembly ideal for laboratory, production, and field applications.



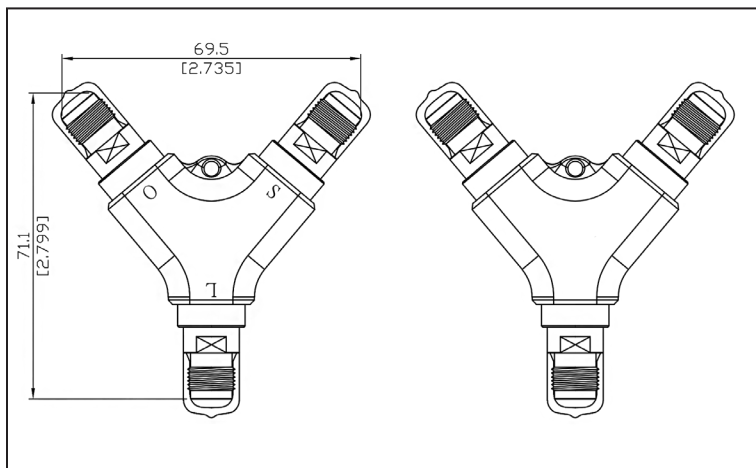
### Features

- Integrated Open, Short, Load
- Compact one-piece design
- High return loss performance
- Low phase error
- Rugged Aluminum construction
- Laser engraved port identification
- Includes calibration data

### Applications

- VNA Calibration
- RF & Microwave Test Systems
- Production Test / ATE
- Aerospace & Defense
- SATCOM
- Research & Development

### Outline Drawing



### Calibration & Care

Each calibration standard or calibration kit is supplied with its own fully characterized calibration coefficient datasheet.

- Recommended calibration temperature: 20°C to 25°C
- Keep connector interfaces clean and protected
- Install protective caps when not in use
- Use calibrated torque wrench during mating
- Calibration data provided with each unit

### Electrical

- |                            |                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------|
| • Impedance                | 50 $\Omega$                                                                           |
| • DC Resistance            | 50 $\pm$ 0.50 $\Omega$                                                                |
| • Max Power                | 0.5 Watts                                                                             |
| • Frequency Range          | DC - 12 GHz                                                                           |
| • Phase Error (Open/Short) | $\leq$ 3° (DC - 4 GHz)<br>$\leq$ 6° (4 - 8 GHz)<br>$\leq$ 9° (8 - 12 GHz)             |
| • Return Loss (Open/Short) | $\leq$ 0.1 dB (DC - 4 GHz)<br>$\leq$ 0.2 dB (4 - 8 GHz)<br>$\leq$ 0.3 dB (8 - 12 GHz) |
| • Return Loss (Load)       | $\geq$ 30 dB (DC - 4 GHz)<br>$\geq$ 26 dB (4 - 8 GHz)<br>$\geq$ 23 dB (8 - 12 GHz)    |
| • Capacitance (Open)       | 79.0 (1E-15) F<br>40.0 (1E-36) F/Hz <sup>2</sup>                                      |

### Mechanical

- |                       |           |
|-----------------------|-----------|
| • Open Offset Length  | 80.169 ps |
| • Short Offset Length | 84.292 ps |

### Environmental

- |                     |                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------|
| • Temperature Range | -20°C to 75°C (storage)                                                                         |
| • Temperature Range | 20°C to 25°C (optimal)                                                                          |
| • RoHS              | Compliant  |

### Material

- |              |                                    |
|--------------|------------------------------------|
| • Housing    | Anodized Aluminum                  |
| • Body & Nut | Tin-Zinc-Copper alloy plated Brass |
| • Dielectric | PPO                                |
| • Contact    | Gold Plated BeCu                   |
| • Cap        | PVC                                |