

# "METROLOGY GRADE" 2.4mm CONNECTOR GAGE KIT

## Features

- $\pm 0.000050$  Gage Accuracy
- Multiple Applications
- "Thread-On" Hands Free Use



## Description

The Maury model A035E is a "metrology grade" connector gage kit designed to measure 2.4mm female and male connectors. These gage assemblies feature a "thread-on" design that allows you to couple the gage directly to the connector being measured for hands free operation. This connector gage is designed for checking beadless air line interfaces, VNA test ports and for "flush setting" the metrology grade sliding loads. They can also be used for conventional connector gaging applications.

Each gage, female and male, is initially set to zero using a corresponding master setting gage which allows the results of the measured connector to be read directly on the dial indicator. Repeatability of better than 50 millionths of an inch is achieved with resolution of 0.00002 inches.

The two precision gage assemblies with corresponding master setting gages, and alignment beads (for checking air lines) are provided in an attractive wooden instrument case.

## Applications

The critical contact pin locations of 2.4mm female and male precision connectors are shown in **Figure 1** (see *Dimensions* page 2). These dimensions must be maintained in order to provide proper electrical performance and mechanical mating of female and male connectors. These connectors are designed to achieve a co-planar mating at the outer conductor mating plane, i.e., a metal contact at the outer conductor mating plane. Destructive interference may result if the contacts protrude beyond the outer conductor mating planes which may cause buckling of the female contact fingers, or damage to associated equipment during mating. Also, an excessive gap of the center contacts when mated produces high reflections and causes breakdown under peak power conditions.

All connectors should be gaged after assembly to insure compliance to applicable specifications to prevent destructive interference, and to insure electrical performance. In addition, connectors on all equipment should be gaged periodically to detect out of tolerance conditions which may impair electrical performance, or cause damage to mating connectors.



## Dimensions

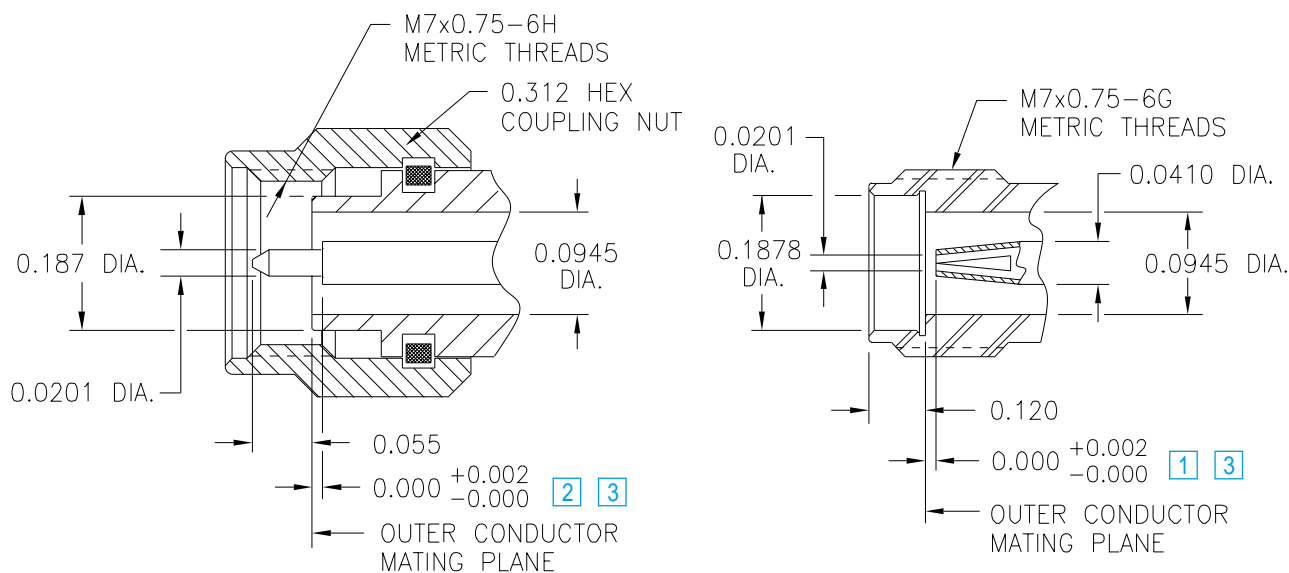


Figure 1 — Critical pin location dimensions of 2.4mm connectors 4

## Specifications

The specifications listed in the adjacent table are the performance standards based on factory measurements traceable to the U.S.A. National Institute of Standards and Technology (NIST). The repeatability is specified as  $\pm 0.00005$  inches, typically  $\pm 0.00002$  inches. **Note:** *Operator skill and the use of a torque wrench has a great impact on repeatability. You can easily determine the repeatability of the connector gages by multiple engagements of the master gages.*

Model	Gage Assemblies	Dial Graduations (inches)	Applications
A035E	2 each	0.0001	Measures 2.4mm connectors, etc.

Specifications	Limits (inches)	Comments
Gage Resolution	0.00002	Fifth of an increment
Gage Calibration Accuracy	0.00004	—
Gage Repeatability	0.00005	Half of an increment
Master Accuracy	0.00005	—

### Total Uncertainty

Worst Case	0.000170	Add resolution, repeatability, gage and master accuracy limits.
RSS	0.000089	Root sum of the squares

- 1 Female contact pin location — use gage assembly marked "F".
- 2 Male contact pin location — use gage assembly marked "M".
- 3 Tighter tolerances can be used at users' discretion. Maury recommends  $+0.0001$  to  $+0.0015$  for high precision measurements.

- 4 Other dimensions shown in these figures are shown since they affect the mating of the gage assemblies' gaging mechanism (bushing and pin). Deviation from these dimensions may cause measurement errors, or improper fit between the gaging mechanism and the connectors being measured. Consult our customer service department on measuring connectors with interface dimensions other than those specified above.