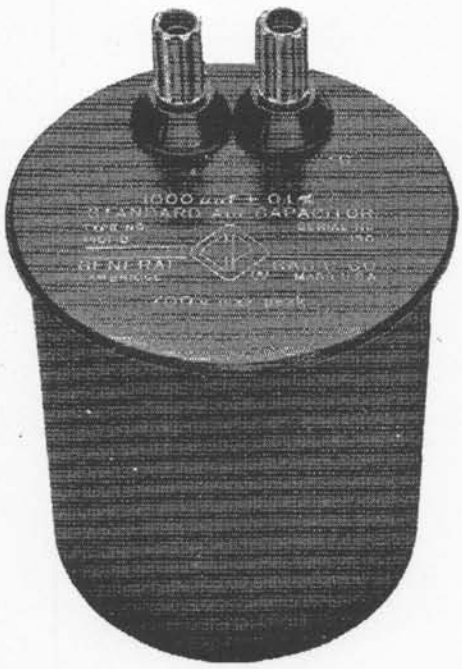
TYPE 1401 STANDARD AIR CAPACITOR



USES: This unit is a two-terminal fixed air standard for laboratory use. It supplements the TYPE 509 series of fixed mica standard capacitors and provides a low loss standard in the low-capacitance range.

DESCRIPTION: The plate assemblies are supported by a low loss (96% quartz) mounting plate, attached to an aluminum casting. This casting, together with the cylindrical aluminum case, provides a dust-free enclosure and a complete shield The low, or ground, side of the capacitor is connected to this shield. Three supporting rods are used for each of the plate assemblies, assuring a high degree of rigidity and stability. As in the TYPE 722 Precision Capacitor, all plates, rods and spacers are aluminum to reduce thermal stresses.

FEATURES:
- High accuracy and stability.
- Low temperature coefficient.
- Convenient size.

SPECIFICATIONS

Capacitance: Four sizes: 100, 200, 500, and 1000 $\mu\mu f$.

Terminals: TYPE 938 jack-top binding posts on standard ¾-inch spacing. Internal ground on one post. A pair of double-ended plugs is supplied to facilitate connection to jack-top binding posts. If these plugs are added to the capacitor, the certified value of the capacitance is increased by 0.35 $\mu\mu f$ when the unit is plugged into General Radio TYPE 938 Binding Posts with one post grounded as on the TYPE 716-C Capacitance Bridge.

Accuracy: Each capacitor is adjusted to $\pm$ (0.1% + 0.1 $\mu\mu f$) at 1 kc, under ASTM standard laboratory conditions (23° C, 50% RH) and a certificate of calibration is included. This accuracy applies for direct substitution measurements when connection to the capacitor is made by fine wires: Lead to the low binding post through its hole and parallel to the panel. High lead bent so it approaches the high binding post top perpendicular to the panel. Initial balance is made with this wire spaced ¼-inch, and final balance with it touching the top of the post. For other methods of connection, an uncertainty approaching 1$\mu\mu f$ may be introduced.

Maximum Voltage: For TYPES 1401-A, B, C and D the maximum peak voltage is 1500, 1200, 900 and 700 respectively.

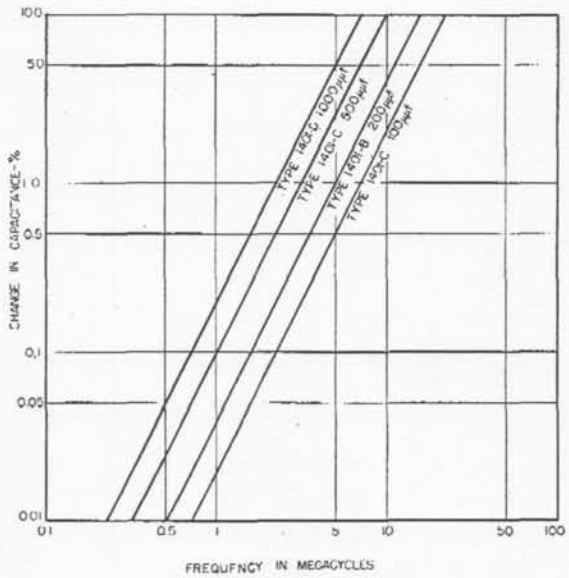
Dielectric Supports: Plate assemblies are supported by a low-loss (96% quartz) material. Polystyrene bushings insulate the binding posts.

Residual Impedances: The series inductance of all units is approximately 0.05 μh. The variation in effective terminal capacitance caused by this inductance is shown in the accompanying plot.

The metallic resistance of all units is approximately .027 Ω at one megacycle. The series resistance varies as the square root of frequency above about 100 kc.

Dissipation Factor: For TYPES 1401-A, -B, -C, -D, not greater than 0.00004, 0.00003, 0.00002, and 0.00001, respectively, at 1 kc and standard laboratory conditions (23° C, 50% RH).

Dimensions: Diameter, 3¼ inches; height, over-all, 4¼ inches. **Net Weight:** One pound.



Variation with frequency of effective terminal capacitance due to residual inductance for each unit.

Type	*Capacitance*	*Code Word*	*Price*
1401-A	**100 $\mu\mu f$**	HABIT	**$37.00**
1401-B	**200 $\mu\mu f$**	HONOR	**43.00**
1401-C	**500 $\mu\mu f$**	HOLLY	**48.00**
1401-D	**1000 $\mu\mu f$**	HANDY	**53.00**

Note: TYPE 1420 Variable Air Capacitors can be found on page 220 in the Parts and Accessories section of this catalog.