

3320

Standard Air Capacitors

■ These standard fixed capacitors are especially built for high accuracy measurements.

Because of their high insulation resistance, small self-inductance and dissipation factor, these standards may be used within large frequency ranges.

DESIGN FEATURES

The standard capacitors type 3320 are built as «three-poles» capacitors, as they are equipped with three electrodes. Solid dielectric used for their construction is applied to part capacitances C10 and C20 only; those named C12 having no solid dielectric and being practically loss-free.

As a protection against dust and moisture, capacitors are enclosed in housings filled with dry air (water content of dry air: 75...100 ppm resp. 60...80 mg/m³).

We have equipped our standard air capacitors (< 1000 pF) with a drying agent (Silicagel). On the humidity indicator, mounted at the side, the humidity in the interior of the instrument can be controlled.

The variable capacitor is constructed as a vacuum-capacitor.

An artificial aging compensates the mechanical stresses of the plates and supports of the standard capacitors. The constancy with regard to time is remarkably increased by this method.

The operating voltage may reach a maximum of 2000 V R.M.S. Each edge of metallic parts is rounded to avoid dispersion loss

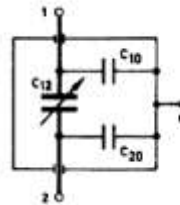


ACCURACY

The value of main capacitance "C₁₂" has an accuracy of ± 0.001 %. The other capacitances' accuracy is within ± 0.1 pF.

EQUIVALENT CIRCUITS FOR CAPACITORS

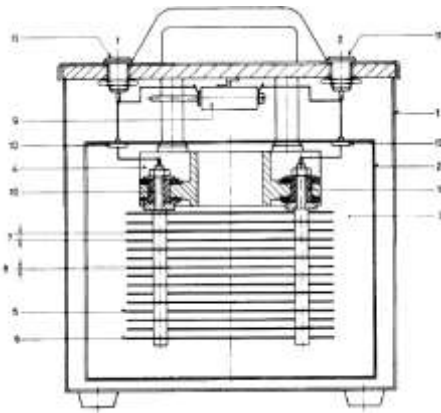
For full accuracy measurements, only the calibrated capacitance C₁₂ can be used, the partial capacitances C₁₀ and C₂₀ should be eliminated.



$$C = C_{12} + \frac{C_{10} \cdot C_{20}}{C_{10} + C_{20}}$$

C₁₂ = Calibration capacitance
C₁₀ - C₂₀ = Partial capacitances

CONSTRUCTION



1. External Housing (screen)
2. Internal Housing (screen)
3. Dry air
4. Base Plate (screen)
5. Electrode Plates 2
6. Electrode Plates 1
7. Plate Distance
8. Plate Thickness
9. Tune Capacitor
10. Insulators
11. Junction Bushings 1 and 2

LIST OF TYPES

Type	Capacitance C_{12}	Accuracy C_{12}	Partial capacitance $C_{10} - C_{20}$	Dimensions	Net weights	
No.	pF	%	~ pF	mm/ (in)	~ kg	~ lbs
3320/10	10	± 0.02 %	60 - 70	260x260x310 (10.2x10.2x12.2)	10	22
3320/20*)	20	± 0.01%	60 - 80	260x260x310 (10.2x10.2x12.2)	10	22
3320/50 *)	50	± 0.005 %	60 - 80	260x260x310 (10.2x10.2x12.2)	10	22
3320/100	100	± 0.005 %	60 - 80	260x260x310 (10.2x10.2x12.2)	10	22
3320/200 *)	200	± 0.005 %	60 - 80	260x260x310 (10.2x10.2x12.2)	11	24
3320/500 *)	500	± 0.005 %	60 - 90	260x260x310 (10.2x10.2x12.2)	12	26.4
3320/1'000	1'000	± 0.005 %	70 - 90	260x260x310 (10.2x10.2x12.2)	13	28.6
3320/2'000 *)	2'000	± 0.01 %	140 -200	360x360x450 (14.2x14.2x17.7)	24	53
3320/5'000 *)	5'000	± 0.02 %	140 - 200	360x360x450 (14.2x14.2x17.7)	29	64
3320/10'000	10'000	± 0.02 %	170 - 250	360x360x450 (14.2x14.2x17.7)	35	72

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