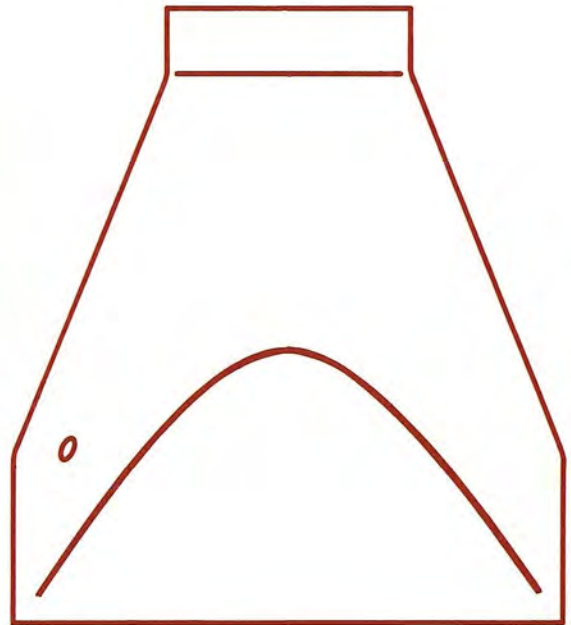
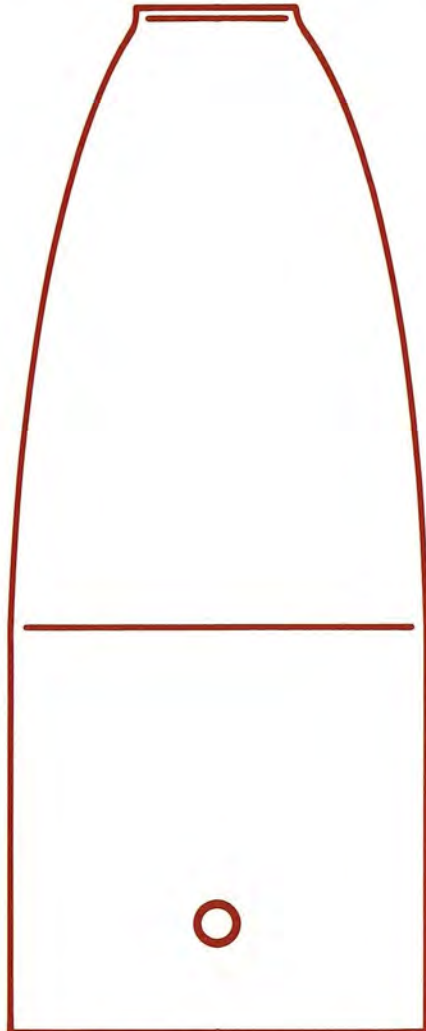
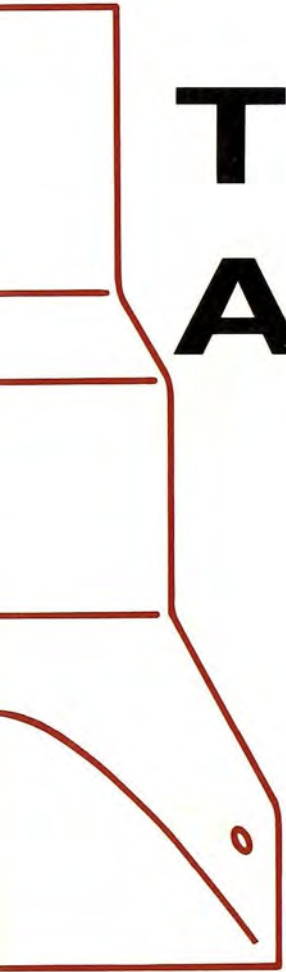


THE CERAMIC ALTERNATIVE



Tektronix[®]
COMMITTED TO EXCELLENCE

CERAMIC ENVELOPES FOR CATHODE RAY TUBES

A Low-Cost Alternative to Glass

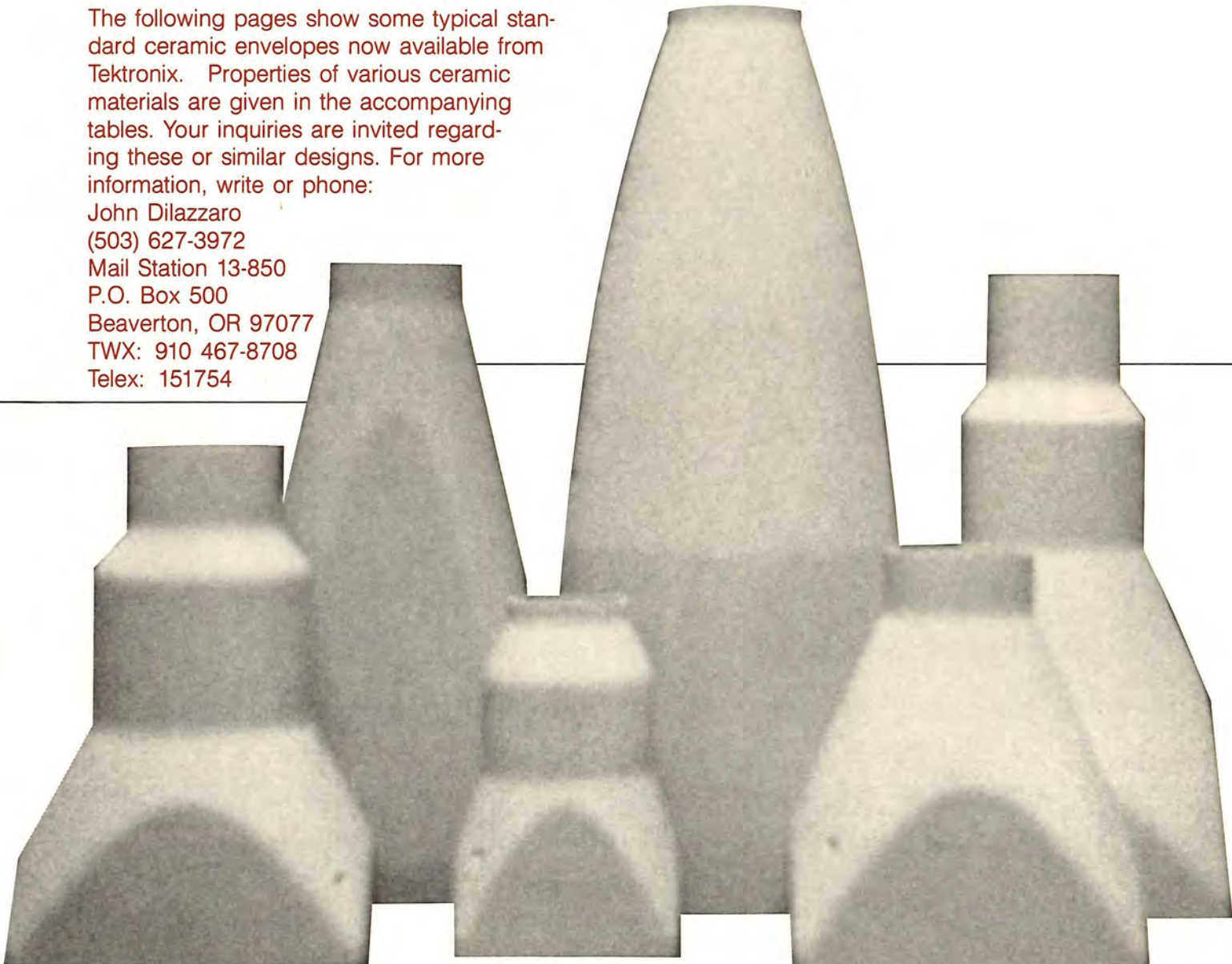
State-of-the-art ceramic envelopes for cathode-ray tubes are now available on a contract basis from Tektronix, the world's leading manufacturer of ceramic CRTs.

For designers who need nonstandard shapes in relatively low volumes, ceramic envelopes provide a low-cost alternative to glass. Because tooling is simpler, costs are lower and delivery is faster.

Tektronix developed a ceramic manufacturing capability more than 20 years ago for these very reasons. Its high-technology products often require state-of-the-art components that are not available from vendors. Ceramic technology makes it possible to produce such components quickly and cost-effectively. Up to half a million ceramic envelopes of various sizes and shapes are manufactured each year for the CRTs used in Tektronix test and measurement equipment and graphics display devices.

The following pages show some typical standard ceramic envelopes now available from Tektronix. Properties of various ceramic materials are given in the accompanying tables. Your inquiries are invited regarding these or similar designs. For more information, write or phone:

John Dilazzaro
(503) 627-3972
Mail Station 13-850
P.O. Box 500
Beaverton, OR 97077
TWX: 910 467-8708
Telex: 151754



TYPICAL ELECTRICAL PROPERTIES

Description	Resistivity		Temperature Coeff. of Capacitance	
	Surface	Volume		
ASTM TEST NUMBER	D257	D257	TEK	TEK
UNITS	10 ¹⁵ ohms	10 ¹⁵ ohm-cm	PPM/°C 25-70°C	PPM/°C 25-(-50°C)
B3-91 Forsterite	2.17	1.10	273	191
B3-94 Forsterite	2.59	1.43	241	172
B3-98 Forsterite	2.34	1.79	235	167
XR-1 Forsterite				

Description	Dielectric Breakdown		Dielectric Constant			Dielectric Loss Tangent		
	D149		D150			D150		
ASTM TEST NUMBER								
UNITS	kV/mm DC .64 mm Thick	kV/mm AC .64 mm Thick	1 kHz	1 MHz	1 GHz	1 kHz	1 MHz	1 GHz
B3-91 Forsterite	43.1	22.0	6.3	6.2	6.2	.0057	.0025	.0031
B3-94 Forsterite	42.6	28.3	6.3	6.3	6.1	.0049	.0020	.0029
B3-98 Forsterite	45.6	22.2	6.3	6.2	6.2	.0047	.0017	.0023
XR-1 Forsterite				6.8			.0006	

TYPICAL PHYSICAL PROPERTIES

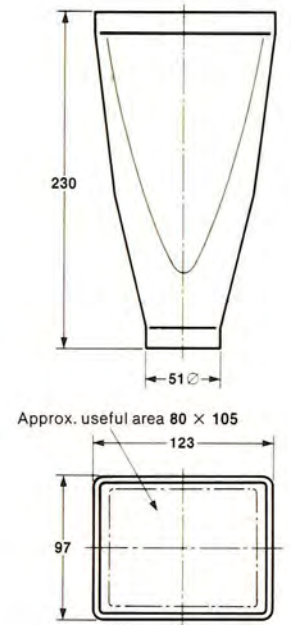
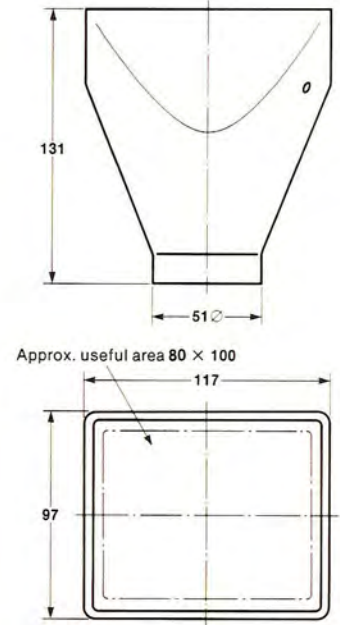
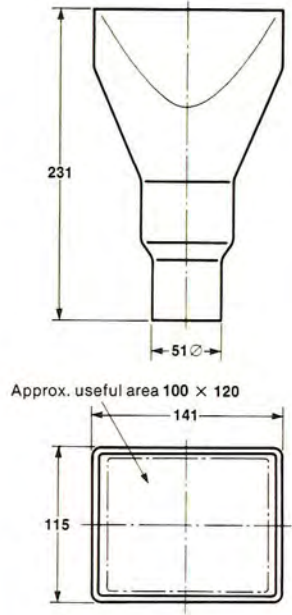
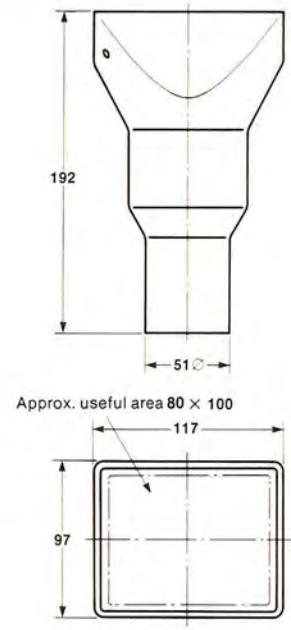
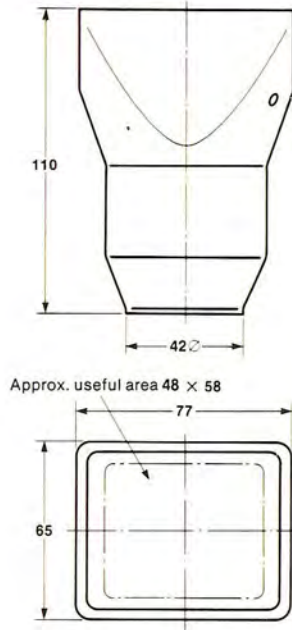
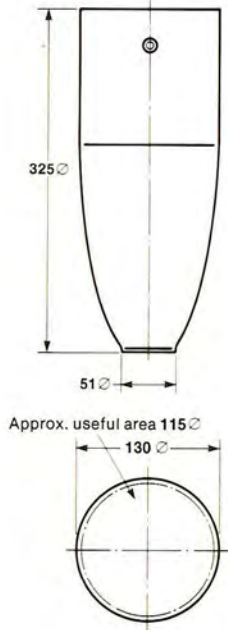
Description	Density	Rockwell Hardness	Grain Size	Surface Finish	Compressive Strength	Flexural Strength	Coefficient of Linear Thermal Expansion
ASTM TEST NUMBER	C373	E18	TEK	TEK	C773	D118	TEK
UNITS	gm/cm ³	R45N	μm	μin	KPSI	KPSI	10 ⁻⁶ in/in/°C 25-500°C
B3-91 Forsterite	2.82	62	1	60	120	13	9.3
B3-94 Forsterite	2.82	58	1	75	140	13	9.6
B3-98 Forsterite	2.83	58	1	55	145	13	10.0
XR-1 Forsterite	3.06	62	1			17	9.6

The family of materials designated B-3 represent a series of forsteritic porcelains developed for use in CRT envelopes. They differ only in coefficients of thermal expansion.

The fourth material in this series, XR-1, matches B3-94 in CTE but has been modified for x-ray attenuation. Its linear absorption coefficient is 29 cm at a wavelength of 0.6 A. This value was calculated from composition, oxide mass absorption coefficients, and density of the material.

Flat faceplates, with or without gratitudes, and neck rings in a variety of glass types can be supplied pre-fritted and leak checked with any of the envelopes on request.

TYPICAL ENVELOPES



MATERIAL HANDLING SYSTEM

- Hold
- Meter or measure
- Convey
- Mix
- Blend

- Process control
- Reduced labor cost
- Contamination control



KILNS

- Large capacity
- Firing stability
- Size control
- Density control
- Material property control

GRINDING

- Automatic customized grinders
- Low labor cost
- Dimensional control

ISOSTATIC PRESSES

- State-of-the-art for high speed production for cold isostatic pressing of "near net shape" of relatively thin wall parts of complicated geometric shapes
- Low labor cost
- Reduced "green" and fired machinery
- Dimension control



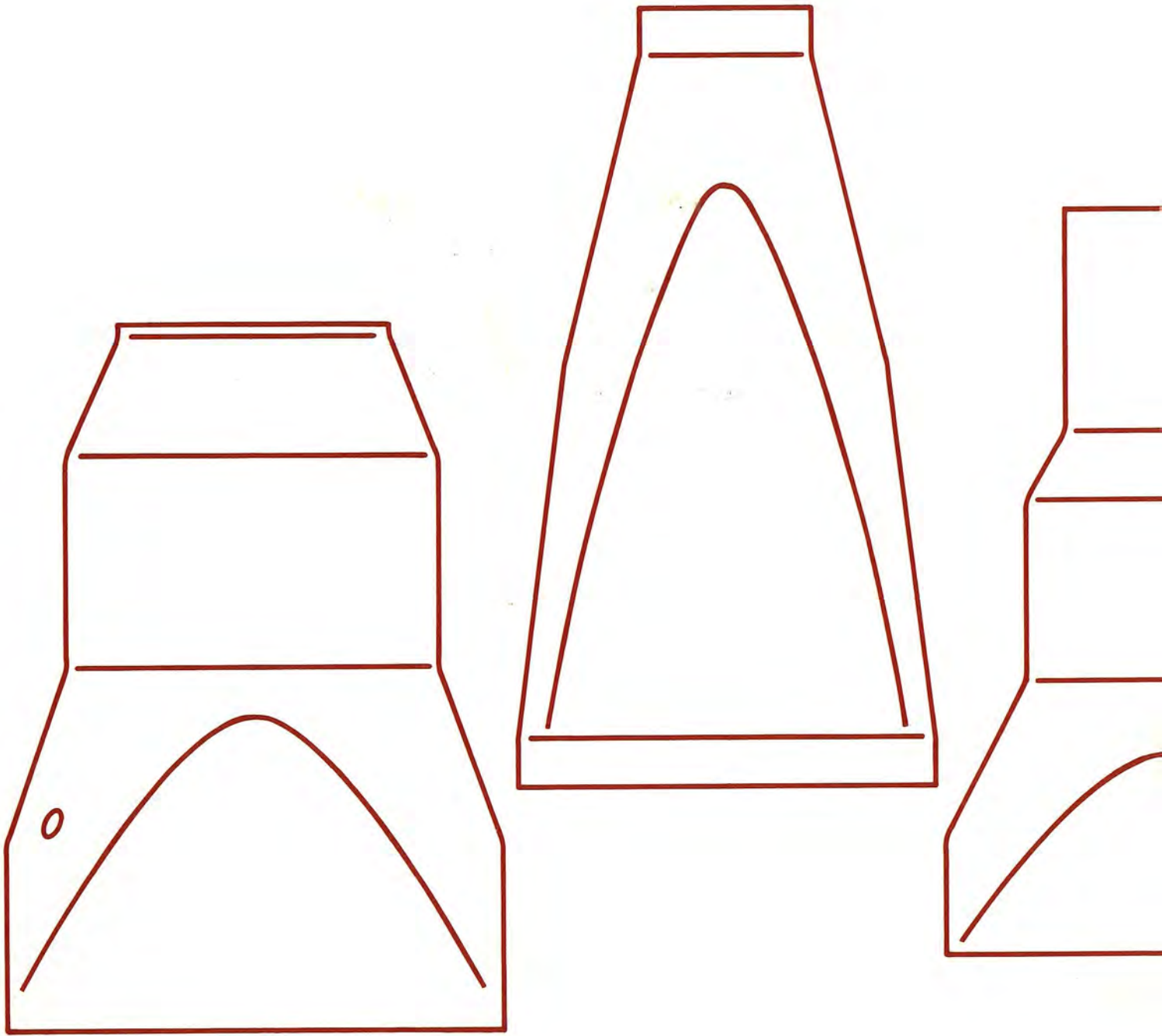
INSPECTION


- Quality assurance
- Process control
- Customer satisfaction

PARTS

- Large variety of shapes and sizes
- Large quantity
- Ability to custom design





Copyright © 1983, Tektronix, Inc. All rights reserved. Printed in U.S.A. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX, TEK, SCOPE-MOBILE, TELEQUIPMENT, and  are registered trademarks. For further information, contact: Tektronix, Inc., Corporate Offices, P.O. Box 500, Beaverton, OR 97077. Phone: (503) 627-7111; TLX 15-1754; TWX 910-467-8708; Cable: TEKTRONIX. Subsidiaries and distributors worldwide.