

SUPPLEMENTARY MATERIAL FOR:

Klesner, C., R. Crawford, J. Vieri & M. Martínón-Torres. 2026. **A method to assess inter- and intra-vessel shape variation in pottery using outline-based geometric morphometrics.** *Antiquity*

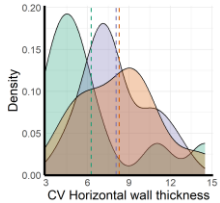
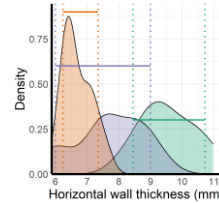
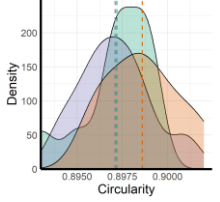
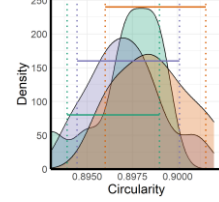
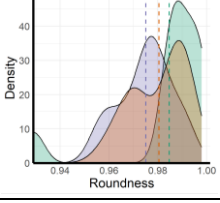
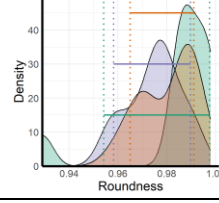
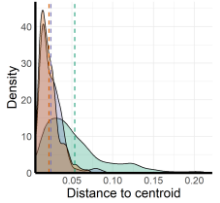
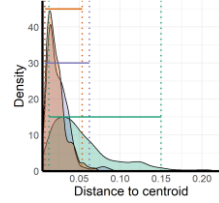
Table S6. The average distance to the centroid (D_{Group}) for each vessel considering 120 Fourier coefficients, and the circularity (C) and roundness (R) values for the horizontal sections, with the average and coefficient of variation (CV) reported for each ware.

Vessel	Ware	D_{Group}		C		R	
		Vessel	Ware	Vessel	Ware	Vessel	Ware
CA230334	Capulí	0.08898	0.05361 \pm 0.0276 CV = 52%	0.897	0.897 \pm 0.002 CV = 0.2%	0.997	0.985 \pm 0.020 CV = 2.1%
CA230348	Capulí	0.03919		0.897		0.992	
CA230365	Capulí	0.11413		0.899		0.991	
CA230366	Capulí	0.04164		0.897		0.986	
CA230375	Capulí	0.04220		0.899		0.987	
CA230377	Capulí	0.04605		0.898		0.985	
CA230378	Capulí	0.05063		0.895		0.985	
CA230381	Capulí	0.01993		0.899		0.998	
CA230386	Capulí	0.05602		0.898		0.997	
CA230387	Capulí	0.03736		0.893		0.929	
CA230361	Piartal - 1	0.02793	0.02428 \pm 0.0090 CV = 37%	0.897	0.897 \pm 0.002 CV = 0.2%	0.982	0.975 \pm 0.011 CV = 1.1%
CA230416	Piartal - 1	0.03965		0.901		0.976	
CA230417	Piartal - 1	0.02599		0.897		0.978	
CA230422	Piartal - 1	0.01268		0.896		0.978	
CA230423	Piartal - 1	0.01666		0.898		0.968	
CA230424	Piartal - 1	0.03677		0.895		0.987	
CA230717	Piartal - 1	0.01795		0.899		0.956	
CA230347	Piartal - 2	0.02321		0.894		0.961	
CA230404	Piartal - 2	0.02635		0.896		0.992	
CA230337	Piartal - 2	0.01563		0.898		0.973	
CA230335	Tuza	0.01247	0.02207 \pm 0.0074 CV = 34%	0.901	0.899 \pm 0.002 CV = 0.2%	0.989	0.981 \pm 0.011 CV = 1.1%
CA230354	Tuza	0.02737		0.9		0.97	
CA230401	Tuza	0.01891		0.899		0.971	
CA230411	Tuza	0.02662		0.902		0.971	
CA230428	Tuza	0.01324		0.899		0.984	
CA230429	Tuza	0.01808		0.898		0.988	
CA230715	Tuza	0.02403		0.898		0.992	
CA230718	Tuza	0.02668		0.896		0.99	
CA230724	Tuza	0.03626		0.897		0.961	
CA230430	Tuza – Red slip	0.01705		0.896		0.989	

Table S7. The average (m), standard deviation (σ), and coefficient of variation (CV) of the wall thickness for each vessel, and across the three wares, calculated from the horizontal cross-sections. Measurements reported in mm.

Vessel	Ware	Height	Vessel			Ware		
			m_{Vessel}	σ_{Vessel}	CV_{Vessel}	m_{Ware}	σ_{Ware}	CV_{Ware}
CA230334	Capulí	129.1	9.775	0.552	6%	9.537	0.860	9%
CA230348	Capulí	72.8	9.602	0.321	3%			
CA230365	Capulí	119.2	8.848	0.976	11%			
CA230366	Capulí	106.9	10.968	0.433	4%			
CA230375	Capulí	86.6	9.241	0.633	7%			
CA230377	Capulí	116.2	9.207	0.401	4%			
CA230378	Capulí	128.8	8.168	0.407	5%			
CA230381	Capulí	125.6	10.426	0.301	3%			
CA230386	Capulí	117.2	8.789	0.452	5%			
CA230387	Capulí	94.7	10.341	1.499	14%			
CA230361	Piartal - 1	82.2	9.243	0.420	5%	7.712	1.090	14%
CA230416	Piartal - 1	75.8	6.146	0.666	11%			
CA230417	Piartal - 1	75.7	8.459	0.639	8%			
CA230422	Piartal - 1	87.4	8.622	1.070	12%			
CA230423	Piartal - 1	71.5	7.388	0.489	7%			
CA230424	Piartal - 1	69.7	7.336	0.566	8%			
CA230717	Piartal - 1	56.0	7.649	0.544	7%			
CA230347	Piartal - 2	91.6	5.884	0.604	10%			
CA230404	Piartal - 2	80.5	8.697	0.533	6%			
CA230337	Piartal - 2	96.8	7.7	0.584	8%			
CA230335	Tuza	101.4	6.117	0.395	6%	6.695	0.452	7%
CA230354	Tuza	95.9	6.393	0.566	9%			
CA230401	Tuza	108.5	6.412	0.334	5%			
CA230411	Tuza	95.9	6.407	0.274	4%			
CA230428	Tuza	91.0	6.911	0.624	9%			
CA230429	Tuza	94.0	7.541	0.762	10%			
CA230715	Tuza	98.9	7.124	0.718	10%			
CA230718	Tuza	95.7	6.513	0.387	6%			
CA230724	Tuza	102.9	6.404	0.571	9%			
CA230430	Tuza – Red slip	68.6	7.123	1.000	14%			

Table S8. Summary of the variability metrics and their applicability in assessing intra- and inter-vessel variation within the assemblage. Statistical significance was determined using Welch's test (intra-vessel) and Levene's test (inter-vessel). Green: Capulí; purple: Piartal; orange: Tuza. Symbols indicate whether statistical significance is present (>) or absent (=), as assessed by a pairwise t-test (intra-vessel) and a pairwise permutation of variance test (inter-vessel).

Measure of Variability	Assessing variability in:	Intra-vessel Variability				Inter-vessel Variability (by Ware)			
		Value	Density plot w/ m values indicated	Ware ranking (m values by Ware)	Notes	Value	Density plot w/ 90% range values indicated	Ware ranking (σ by Ware)	Notes
Horizontal Wall thickness	The thickness of the vessel wall resulting in variations in the making of a coil, or variations in the levels of finishing applied to the vessels	CV _{vessel}		Not significant Capulí (8%) = Piartal (8%) = Tuza (6%)	Not a good indicator of intra-vessel variability for this assemblage given the similar mean values	m _{vessel}		Not significant Piartal (1.090) = Capulí (0.860) > Tuza (0.452)	Okay indicator of levels of variation for this assemblage, but variation is not significant
Horizontal section circularity	How circular the vessel is regarding the distortion of the perimeter along the entire circumference	C		Not significant Tuza (0.899) = Piartal (0.897) = Capulí (0.897)	Not a good indicator of intra-vessel variability for this assemblage given the similar mean values	C		Not significant Capulí (0.0019) = Piartal (0.0020) = Tuza (0.0020)	Not a good indicator of levels of variation for this assemblage
Horizontal section roundness	How circular the vessel is regarding the aspect ratio and whether there is any elongation in the shape	R		Not significant Tuza (0.899) = Piartal (0.897) = Capulí (0.897)	Not a good indicator of intra-vessel variability for this assemblage given the similar mean values	R		Not significant Capulí (0.0202) = Piartal (0.0111) = Tuza (0.0111)	Not a good indicator of levels of variation for this assemblage
Distance to the centroid calculated from EFA shape coefficients	Morphology in any component of the vessel, including symmetry in the bowl, symmetry in the base, variation in wall thickness, and alignment of bowl and base internal axes	D _{Group}		Capulí (0.05361) > Piartal (0.02428) = Tuza (0.02207)	Very good indicator of intra-vessel variability given different mean values and visual identification of the source of variation	D _{Group}		Capulí (0.0276) > Piartal (0.0090) = Tuza (0.0074)	Good indicator of inter-vessel variability given levels of variation and visual identifies of the source of variation