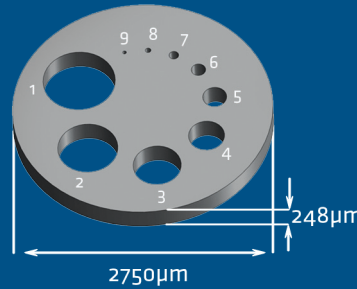


APERTURE PLATE W/EMBEDDED FEATURES

The objective of this demonstration is to show the lower limits of micro-hole manufacturing in a side-by-side comparison using conventional processes of EDM, Laser, PCM and the Mica Freeform Process (MFP). A standardized aperture plate provided the basis for this comparison by showing the minimum hole size for each process, Figure 1.

In Figure 2, the results show MFP's superior capabilities for creating high quality cylindrical micro holes 2 to 3 times smaller than those produced by Laser and EDM.

MFP's embedded features capability moves beyond conventional process technology by providing stepped hole features as shown in Figure 3.



Aperture	Diameter (in)	Diameter (µm)
1	0.03	762
2	0.025	635
3	0.02	508
4	0.015	381
5	0.01	254
6	0.006	152.4
7	0.004	101.6
8	0.0024	60
9	0.0016	40

Figure 1.
Smallest hole each technology can produce

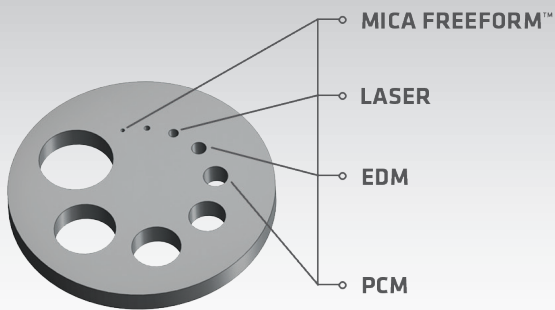


Figure 2.
Hole Size Comparison

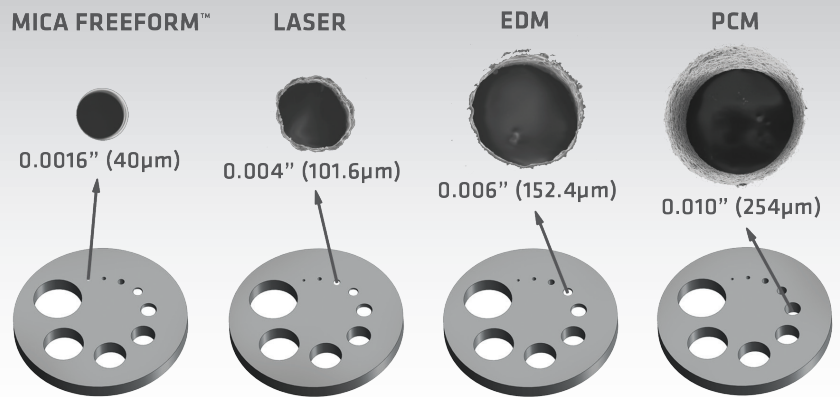


Figure 3.
MICA Freeform™ with Embedded Features

Aperture Plate with Counterbore
Hole Sizes: 40µm - 762µm

