PRODUCT BULLETIN

Kyocera Carbide Study – PCB Drills

Kyocera Tycom Corporation (KTC)

Abstract

After three years of development and qualification, Kyocera Corporation Carbide is now qualified on the Kyocera Tycom's (KTC) small to micro drill range for PCB Drills. Kyocera, one of the world's leading suppliers of carbide blanks developed carbide specifically for PCB applications and after several iterations of 8% and 6% formulations, became the preferred supplier for KTC PCB Drills. When evaluating suppliers, KTC strictly enforces the requirement that qualification means out-performing incumbent suppliers, especially in this case.

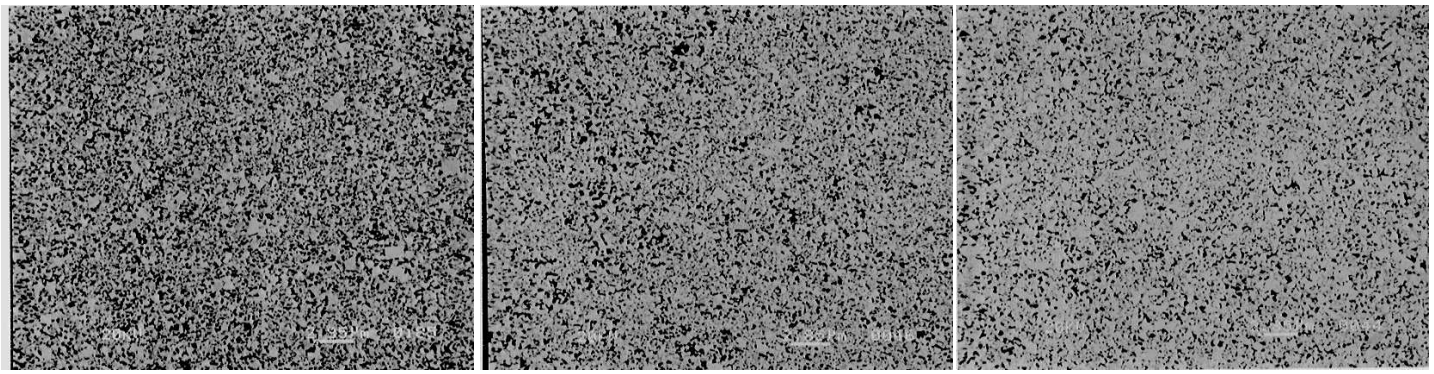
Kyocera carbide is the primary raw material supplier for KTC drill diameter range 0.0079" – 0.0453".

KTC qualification consisted of several carbide grades and performance tests, below is the highest volume, micro drill results.

Grain Structure and Homogeneity

One of the primary factors in carbide performance and consistency is the grain structure. The distribution of "black" characterizes homogeneity.

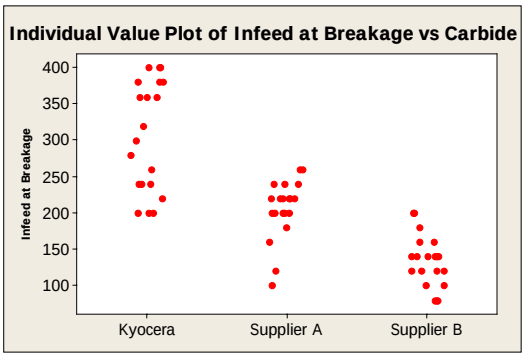
Kyocera FW08 ***Incumbent Supplier A*** ***Incumbent Supplier B***

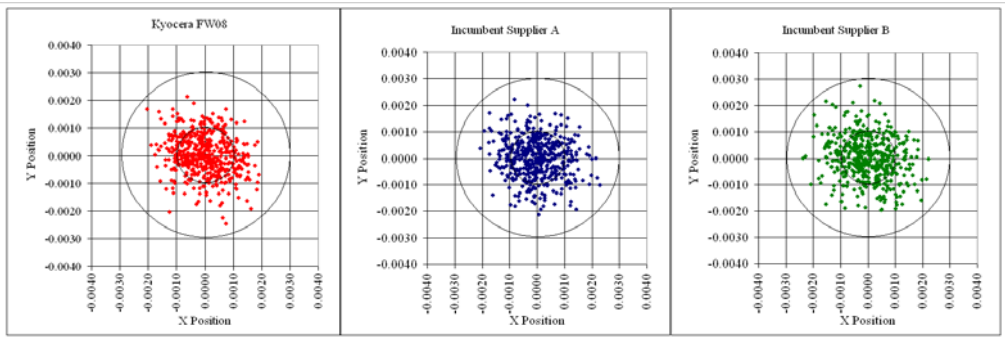


Performance Testing

Robustness and Positional Accuracy were the two primary performance metrics in the study.

Kyocera FW08 met or exceeded the incumbent suppliers' performance in both cases.





One-way ANOVA: Infeed at Breakage versus Carbide

Source	DF	SS	MS	F	P
Carbide	2	301720	150860	52.06	0.000
Error	57	165180	2898		
Total	59	466900			

S = 53.83 R-Sq = 64.62% R-Sq(adj) = 63.38%

Level	N	Mean	StDev
Kyocera	20	306.00	75.70
Supplier A	20	206.00	41.09
Supplier B	20	133.00	35.70

True Position Deviation

	Mean	StdDev	Median
Kyocera	0.0009807	0.0005157	0.0009493
Supplier A	0.0010761	0.0005583	0.000982
Supplier B	0.0011299	0.0005847	0.0010445