



## Old adage, modern innovation: the right tool for the job.

Reduce costs and eliminate headaches by calling us to help solve your challenges. If your current process doesn't seem to be providing the results you want, you might be using the wrong tooling. Our customer was using a diamond-coated end mill to machine guide pads on frac pocket plugs used in down-hole oil drilling. The guide pads were made from fiberglass and glass wound filament material, which is very abrasive and shortens the life of cutting tools.



When the diamond coating wore off the end mill, the carbide substrate was exposed directly to the abrasive material, and the tool would quickly fail. The customer needed an optimized tool to extend tool life in this abrasive material and to solidify the repeatability of the process.

The customer tested the **Superion PCD Flat Bottom Drill** in this application. The PCD substrate is more wear-resistant in the fiberglass material and provided more even wear of the tool throughout the process. Much to the customer's delight, the Superion drill ran at a higher penetration rate, which shortened cycle time. Most importantly, the Superion drill increased the customer's tool life from 7,500 holes to 50,000 holes (a 567% increase).

A costly application became effective and worry-free by finding the right tooling. The Superion drill didn't just increase the customer's tool life; it provided a repeatable, reliable process so the customer could "set it and forget it."

Don't tolerate unnecessary hassle and stress in your production. **Call us to help you find the right tool for the job.**

<b>Product:</b> Superion PCD Flat Bottom Drill <b>Objectives:</b> Increase tool life <b>Industry:</b> Oil & gas/petrochemical <b>Part:</b> Frac pocket plug guide pads <b>Material:</b> Fiberglass and glass wound filament <b>Hole Ø:</b> 0.380" (9.652 mm) <b>Hole Depth:</b> 0.275" (6.985 mm)	Measure	Diamond Coated End Mill	Superion PCD Flat Bottom Drill
	RPM	4500	7500
	Speed	448 SFM (136.55 M/min)	746 SFM (227.381 M/min)
	Feed Rate	0.008 IPR (0.203 mm/rev)	0.008 IPR (0.203 mm/rev)
	Penetration Rate	36 IPM (914.4 mm/min)	60 IPM (1524 mm/min)
	Cycle Time	0.46 sec	0.28 sec
	Tool Life	7,500 holes	50,000 holes

► Superion PCD solid carbide flat bottom drill



**The PCD substrate for wear-resistance in abrasive materials provided:**

- ✓ Increased tool life
- ✓ Increased penetration rate
- ✓ Repeatable/reliable machining process