

solid carbide & PCD
SOLUTIONS

www.alliedmachine.com

Ø 3.00 mm - 20.00 mm (0.1181" - 0.7874")

 **SUPERION**[®]



Optimise
your solution



Decrease your
cost per hole



Reduce your
setup time



Conquer tough materials with PCD



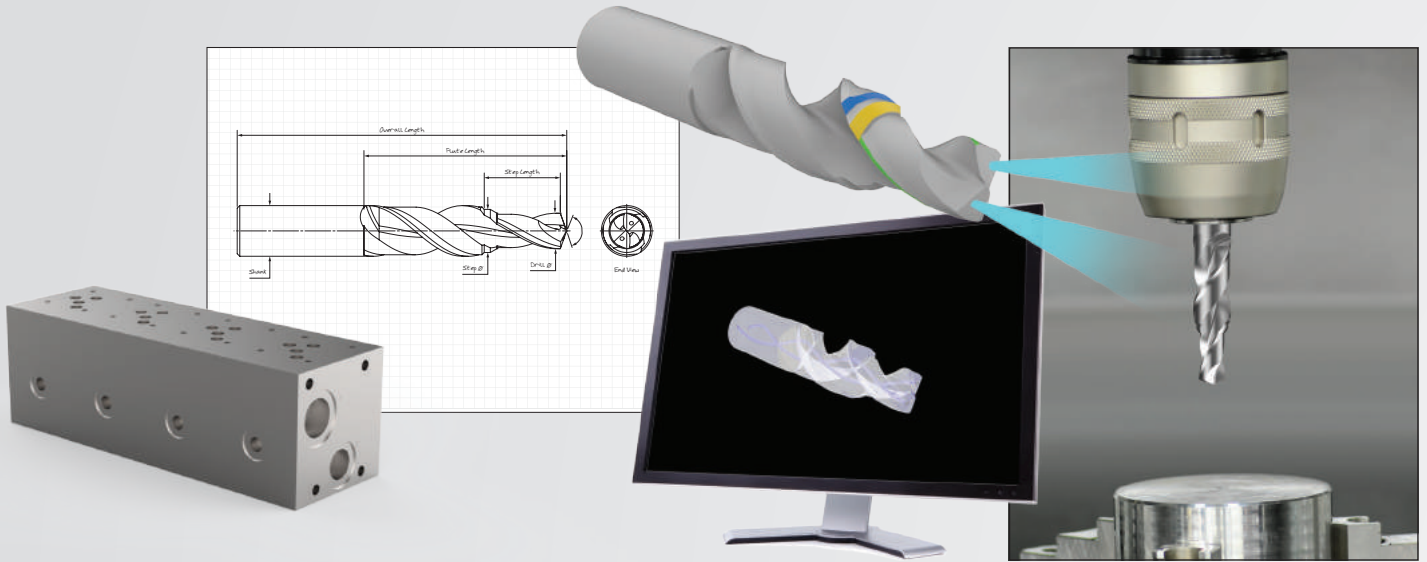
ALLIED MACHINE
& ENGINEERING

Allied Machine offers a wide range of drilling, boring, reaming, burnishing, and threading tools to lower your **cost per hole**.

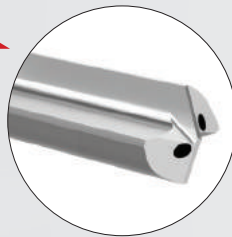
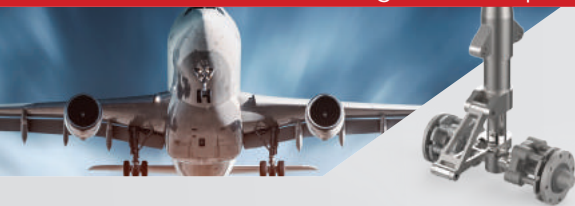


FROM CONCEPT TO REALITY

Allied's team of engineers is ready to assist you with your application. We'll gather all the information we need about your application and turn your concept into reality. Give us a call today, and we will collaborate with you and listen to your needs, formulate a concept, develop the model, and build the solution.



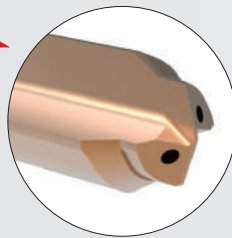
AEROSPACE / Landing Gear Components



DRILL BURNISH TOOLS

Reduce cycle time, increase throughput, and increase profitability by combining roughing and finishing operations using our burnishing geometry for applications in which surface finish and hole tolerance are critical.

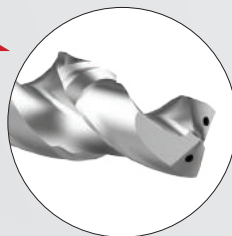
AUTOMOTIVE / Crankshafts



COMBINATION TOOLS

Combine multiple steps and various profile features to improve throughput. Combination tools reduce cost per hole and increase profit potential.

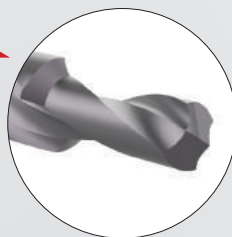
HEAVY EQUIPMENT / Manifolds



SOLID CARBIDE TOOLS WITH COOLANT

Solid carbide solutions optimise the manufacturing of manifolds. Most port specs call for at least three steps, and combining these features can reduce costs and increase throughput.

AUTOMOTIVE / Transmission Components



SOLID CARBIDE STEP TOOLS

You can rely on Superior's state-of-the-art manufacturing facility, built specifically to satisfy the customer's need whether it's 10 drills or 1,000 drills. Superior will provide consistent and effective solutions to your production needs.



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 optimised 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.**

		Measure	Diamond Coated End Mill	Superion PCD Flat Bottom Drill
Product:	Superion PCD flat bottom drill	RPM	4500	7500
Objectives:	Increase tool life	Speed	136.55 M/min (448 SFM)	227.38 M/min (746 SFM)
Industry:	Oil & gas/petrochemical	Feed Rate	0.20 mm/rev (0.008 IPR)	0.20 mm/rev (0.008 IPR)
Part:	Frac pocket plug guide pads	Penetration Rate	914.4 mm/min (36 IPM)	1524.0 mm/min (60 IPM)
Material:	Fiberglass and glass wound filament	Cycle Time	0.46 sec	0.28 sec
Hole Ø:	9.65 mm (0.380")	Tool Life	7,500 holes	50,000 holes
Hole Depth:	6.99 mm (0.275")			

▶ Superion PCD solid carbide flat bottom drill

567% tool life increase



The PCD substrate for wear resistance in abrasive materials provided:

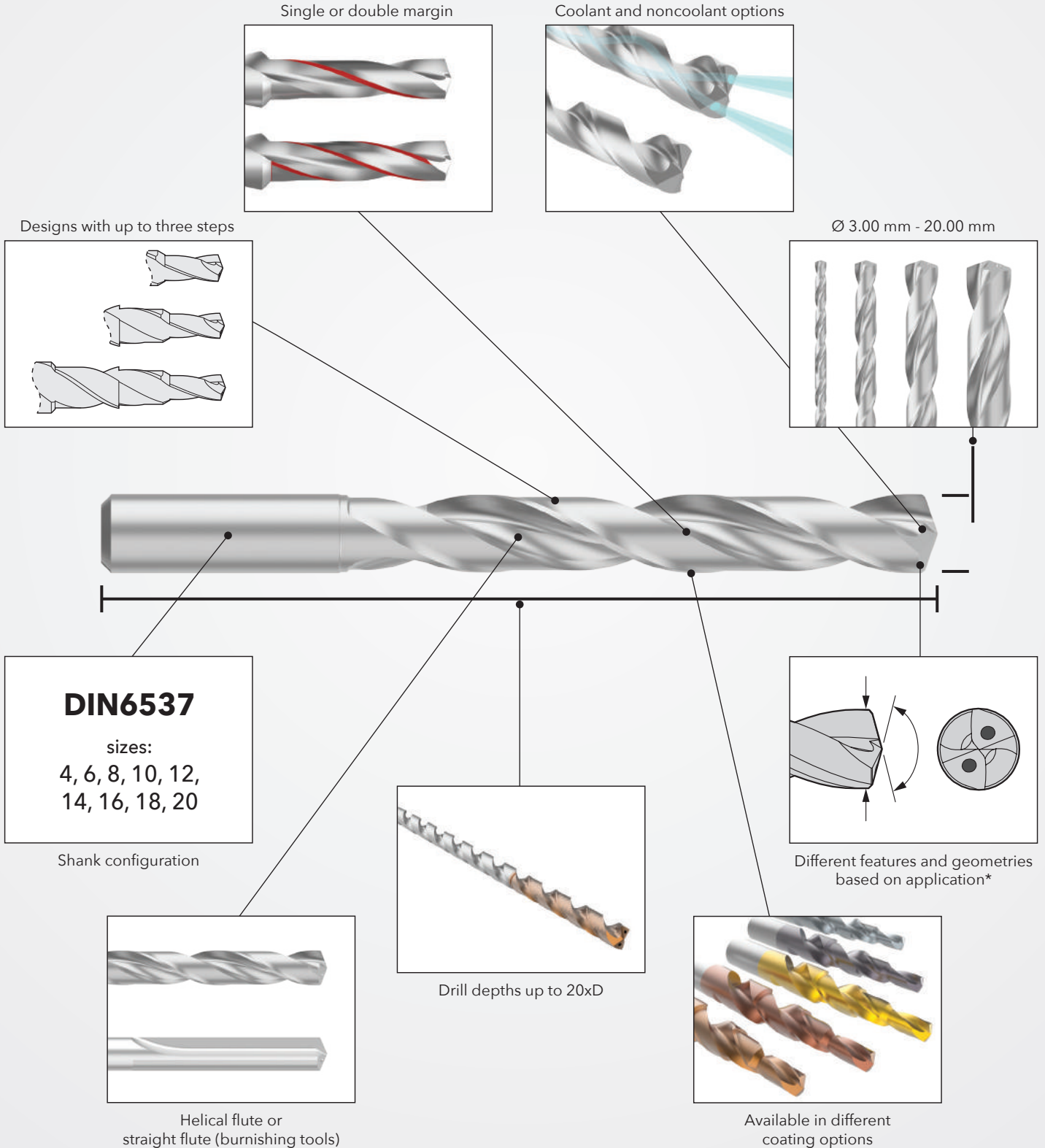
- ✓ Increased tool life
- ✓ Increased penetration rate
- ✓ Repeatable/reliable machining process

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SOLID CARBIDE TOOLING SOLUTIONS

CONFIGURE YOUR TOOLING SOLUTION

We have a wide range of configurations we can design for your application. Below are some of the different design capabilities we utilise to fit your tooling needs. The solid carbide solutions are available from $\text{Ø } 3.00 \text{ mm} - 20.00 \text{ mm}$ (0.1181" - 0.7874").



*The optimal geometry will be selected by our Engineering Team per your application details.

OUTSIDE THE BOX SOLUTIONS

If the tooling design you need doesn't fit within the standard configuration matrix, we can create a specific special design to fit your application.

THE SUPERIOR PHILOSOPHY

Utilising the long-standing tradition of product excellence and innovative solutions at Superior, we continue to be an industry leader in serving our partners in the metal cutting industry. With a foundation and initial growth focused on our automotive partners, we have not strayed away from our roots of capability and process improvements.

We have taken these roots and stretched them across new industries and new solutions, getting involved in new segments of the automotive industry, the aerospace industry, the defense industry, equipment testing, material processing, and more.

With significant investment in technology, Superior has opened the doors for our team to manufacture new solutions including several carbide and PCD configurations. The key focus is (1) providing solutions that reduce the customer's costs and increase their throughput and (2) developing sound, capable processes that allow for consistent and repeatable performance.





**ALLIED MACHINE
& ENGINEERING**

Holemaking Solutions for Today's Manufacturing



SOLID CARBIDE / PCD TOOLING SOLUTIONS

WHO IS SUPERION?

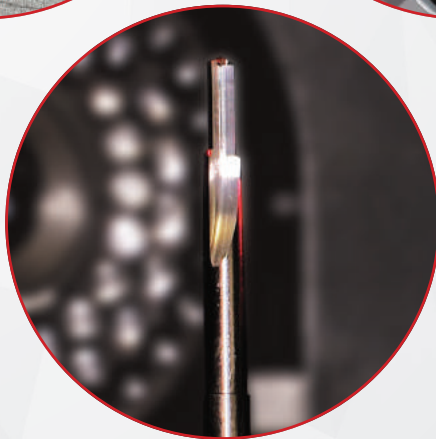
Allied Machine's brand, Superion, manufactures cutting edge solutions in both solid carbide and PCD tooling.

WHY SHOULD YOU USE SUPERION?

- State-of-the-art manufacturing automation allows for high repeatability and consistency, regardless of the quantity you need.
- Superion provides application-specific solutions tailored to meet your toughest demands.
- Superion tooling excels in difficult and unique material applications.
- Our goal is to provide you a quality solution to exceed your need on a schedule that satisfies.

WHEN SHOULD YOU USE SUPERION?

- If finish is critical and dimensions are tight, Superion will deliver a tool to maintain your tolerances.
- If your tooling budget requires regrinds and the ability to remanufacture, Superion tackles your needs.
- If you're dealing with CFRP or other unique materials, Superion tooling is the right solution.



Allied Machine offers expert engineering support. Whether you need a quote, a test, or an application solution, a highly skilled and trained engineer is standing by, ready to help.

www.alliedmachine.com/contactus

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