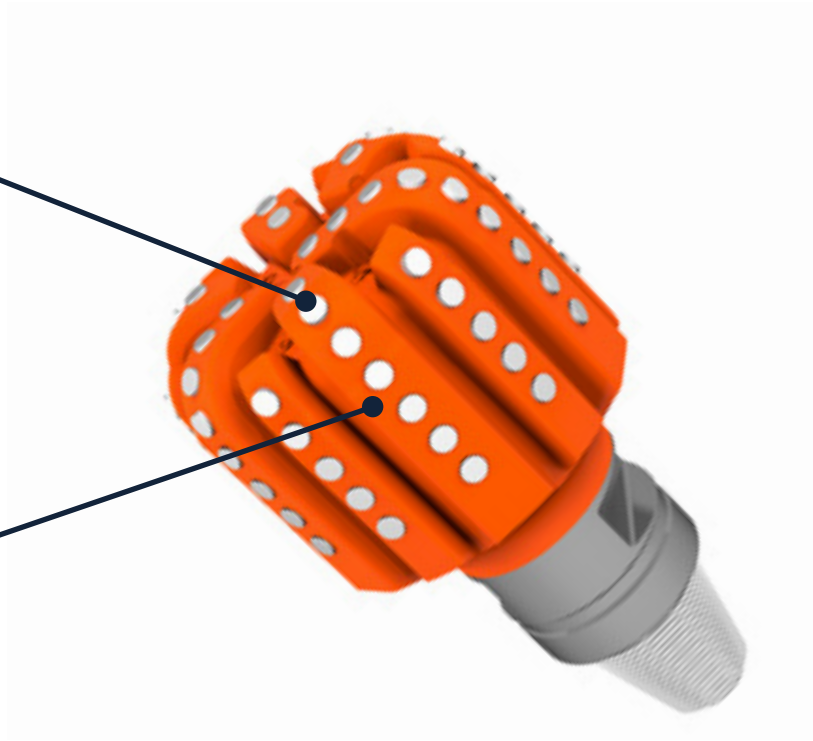
Element Six Grits for Oil & Gas

A diamond impregnated segment (DIS) consists of a high strength matrix of metal and diamond particles, made using Element Six's proprietary production techniques to evenly distribute a high concentration of diamond particles and ensure diamond integrity is retained.

Premium high strength SDB1000 and Maxigrit™ diamond grit solutions can be incorporated in the drill bit. Typically, the diamond is coated to protect it during the infiltration sintering process and to improve retention in the drill bit, leading to potential improvements in rates of penetration and extended bit life. Element Six offers a range of coating technologies (TC, TF, TB).



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DE BEERS GROUP

Case study

Problem definition

- Drillers are looking at more difficult to access oil and gas reserves in pre-salt layers where the performance and cost of using PDC bits can be problematic
- Robustness and price point of impregnated bits can lead to their selection

Approach & solution

- Impregnated bits can be utilised in conjunction with DIS segments that are produced using selected diamond products, factoring strength, shape, purity and concentration, and considering an appropriate metal bond composition
- In the drilling of pre-salt wells, tests have shown that impregnated bits can deliver significant cost savings compared to PDC bits

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Product portfolio

Product type	Product name	Description & benefits	Applications
Diamond grit 	SDB1000 Series	Standard range of diamond grit products ranging including premium high strength solutions Proven quality consistency	Used within the body of impregnated bits Can also be used in PDC and hybrid bits to extend tool life Used as a component in diamond impregnated segments (DIS)
	Maxigrit™ Series	Coarse diamond grit family with carefully controlled particle sizing to optimise ROP Highest degree of control over particle shape, size, strength and thermal properties	
Coated diamond grit 	TC, TF and TB Available for SDB1000 and Maxigrit™ Series	Coatings offer: • Protection to the diamond during bit manufacture • Improved diamond retention in the bit to prolong life and increase cut rates	Used within the body of impregnated bits Can also be used in PDC and hybrid bits to extend tool life Used as a component in diamond impregnated segments (DIS)
	 SDBTC	Hot press sintering High copper or pre-alloyed bond	
	 SDBTF	Free sintering High iron, cobalt or nickel	
	 SDBTB	Infiltration sintering Liquid phase bonds	
Diamond impregnated segments 	DIS	DIS offers: • Complex geometries • Bespoke bond matrix composition • Bespoke diamond content	Used as cutting structures and wear protection structures within impregnated, hybrid and various PDC bits

Minimum order quantities may apply. We have the capabilities to offer bespoke products to meet customer's requirements.

Contact us

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