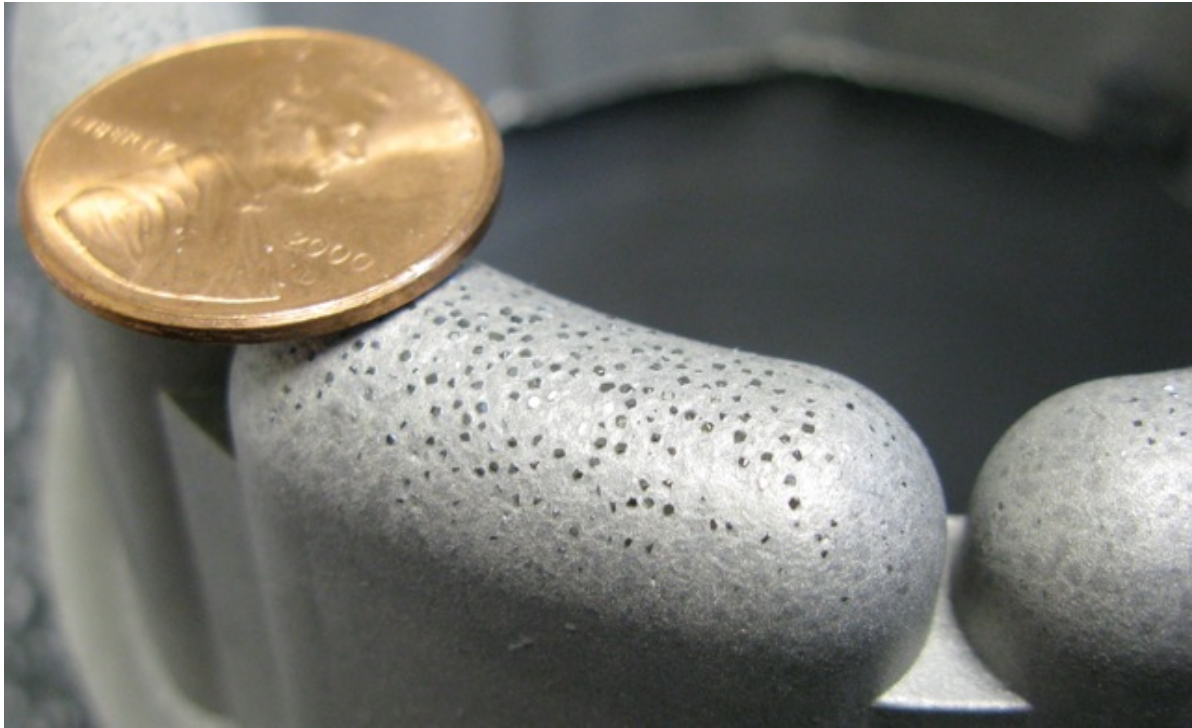
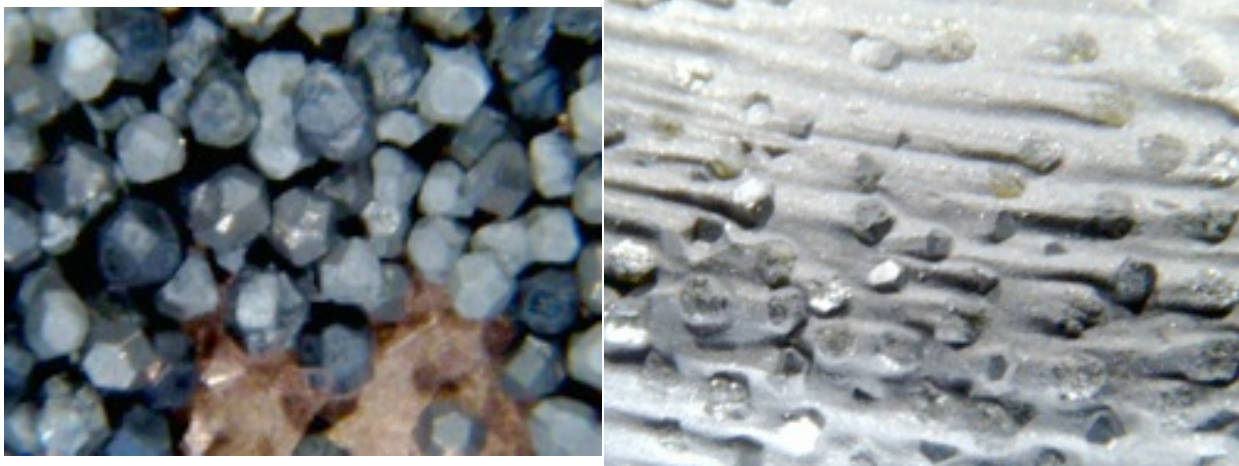


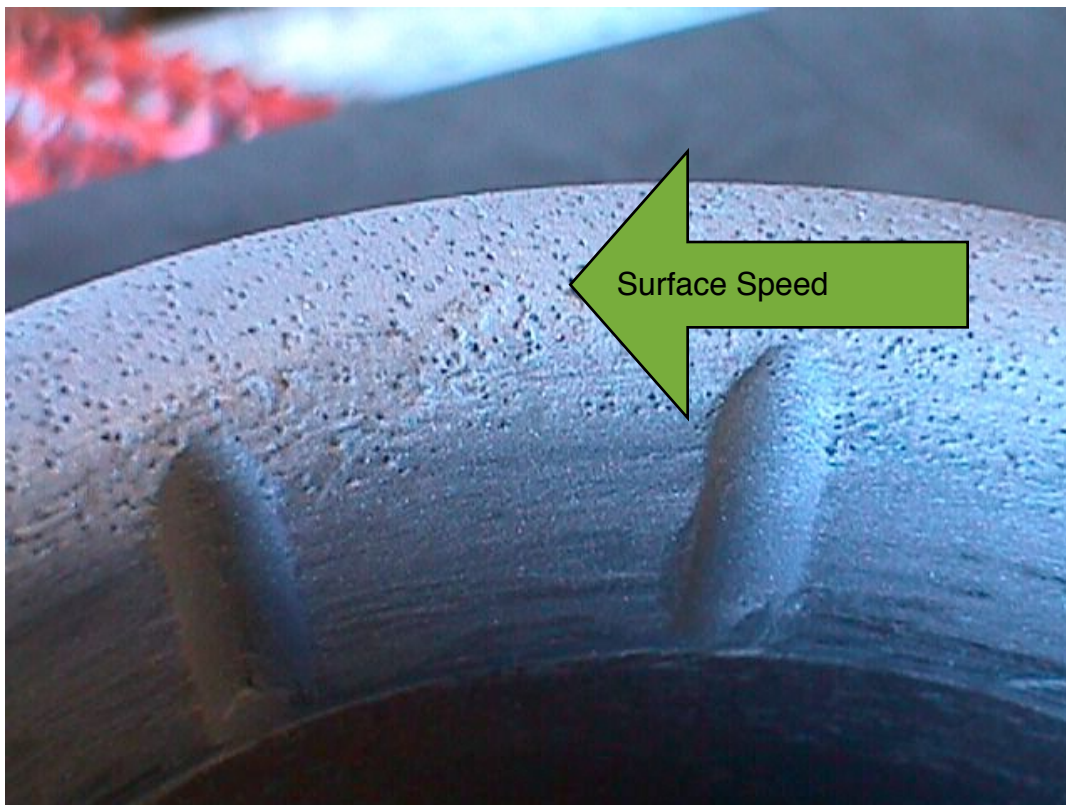
Operating Parameters Diamond-Impreg Burning Shoe



Our XDS burn shoes have a tungsten carbide matrix head that is impregnated with 30-40 mesh diamonds from the surface to about 1/2" deep into the shoe face. As work is done the diamond will be sloughed off as it dulls and fresh grit will be exposed to do work.



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The shoe head has a valid cutting structure until this 1/2" is used up. This type of cutting structure has been used to cut hard steel, case hard steel, carbide, 13 chrome, inconel, as well as many softer components.

XDS shoes have been run with as little as 60 feet per minute surface speed on power swivel and as high as 600 feet per minute on high speed motors.

XDS shoes generally work best with moderate WOB. Most hard steels with carbide buttons (IBS) will cut best with about 100 to 400 psi WOB as transferred through the shoe face when fully seated. Since some applications may have the shoe face only in contact with about 50-60% of its face area because the target is offset...care should be taken not to overload the shoe to keep from belling the head.

A 4.200" x 3.200" XDS shoe = about 5.9 sq. in. (600 to 3600#)

A 3.500" x 2.500" XDS shoe = about 4.7 sq.in. (500 to 3000#)

XDS Shoes operate at about 100 to 600 psi transferred through the surface area of the shoe if fully seated and less than that if seated just on ID or OD)

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This XDS shoe was used on jointed pipe to burn over one plug with carbide slip buttons and then was used without rotating to push downward on the fish with 20,000 pounds which belled the shoe head. The internal failsafe mechanical locking of the worked so that only a small amount was lost downhole. XDS shoes are not intended to have such high forces transferred through them...especially when not rotating.

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