RULE OF THUMB
WOB for Diamond Shoes

Shoe Size	OD Area	ID Area	Transfer Area	100 lbs/sq in	400 lbs/sq in
1.8 x 1.3	2.544	1.327	1.22	122	488
2.0 x 1.25	3.142	1.227	1.92	192	768
2.5 x 1.75	4.909	2.405	2.50	250	1,000
3.0 x 2.25	7.069	3.976	3.09	309	1,236
3.5 x 2.25	9.621	5.940	3.68	368	1,472
3.75 x 3.188	11.04	7.980	3.05	305	1,220
4.0 x 3.25	12.470	8.296	4.17	417	1,668
4.5 x 3.75	15.900	11.040	4.86	486	1,944
4.625" x 4.000	16.800	12.600	4.2	420	1,680
5.75 x 5.0	25.970	19.640	6.33	633	2,532
6.75 x 6.00	35.780	28.270	7.51	751	3,004
8.50 x 7.00	56.750	38.480	18.27	1,827	7,308
9.50 x 8.00	70.880	50.270	20.61	2,061	8,244
10.625 X 9.00	88.640	63.620	25.04	2,504	10,016
12.25 X 10.00	117.859	78.540	39.32	3,932	15,728

In our 40 years of experience making diamond-impreg burning shoes we have observed that the most common reason they sometimes don't "work" is from too much WOB. This simple chart gives a basic Rule Of Thumb for how much WOB should be run on a diamond-impreg shoe that is proportionate to the transfer area of the shoe face in contact with your target.
Obviously if you do not have 100% of the transfer area in contact with the target then adjustments should be made in WOB.
Diamond-Impreg shoes have cut target components of loose carbide junk, solid carbide coatings, carbide slip buttons, case hard slip wickers, IBS Stab Blades, WC String Mills, RSS BHA, steel from 18 to 48 HRC, 13 chrome, Inconel 718, Incoloy 925, 17-4 Stainless, with transfer forces between 100 and 400 psi.

Short Bit & Tool Co.
225 Gold St, Garland, Texas 75042
972-205-1011, cell 469-644-4021