



## 70000 (Diamond) 90000\*(Platinum) SERIES VALVE SEAT INSERTS

### DESCRIPTION and APPLICATION

This is a sintered, high speed (tungsten carbide) tool steel, valve seat insert. This material has special additives blended into the matrix which impart high temperature lubrication properties to the valve seat. These lubrication properties are "built-in" throughout, and are not affected by extreme heat or machining. These solid lubricants enable this material to be used in "dry" fuel applications such as propane, LPG, and natural gas. They prevent the "micro-welding" of the valve seat material to the valve face, therefore eliminating the primary cause of valve seat erosion. They also improve the machinability. Your tools last longer and you can cut faster.

Because of the special high temperature sintering and post heat treat processing, this valve seat material has cermet style metal alloy oxides. This gives it superior wear resistance to both pounding and abrasive wear at elevated temperatures. These\*\* are called "cer-met" style because they are similar to **ceramic** (they do not soften at elevated temperature), but retain the machinability of **metal**. It is this high tech, new generation processing that allows us to achieve such high, hot hardness without having to put in massive amounts of expensive alloys, which would be required, to achieve equal performance. Normal foundry techniques do not allow this type of structure. You get superior wear resistance and high hot hardness at a very favorable price.

This valve seat insert is, therefore, used in engines using diesel, unleaded gasoline, and propane. We have been setting new longevity records in propane and natural gas applications using this seat.

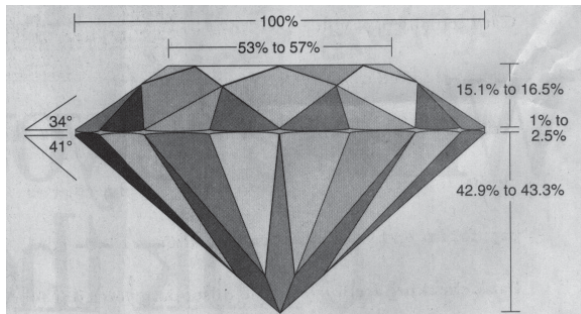
The micro structure of this valve seat insert is a very fine evenly dispersed mixture of spheroidal refractory alloy carbides, cermet style metal alloy oxides and solid lubricant residing in a tempered martensitic matrix.

### CHEMICAL COMPOSITION

	70000	90000*
Tungsten	5.3	6.5
Molybdenum	4.4	6.0
Chromium	3.5	4.0
Vanadium	1.5	2.0
Carbon	0.8	0.9
Cobalt	0.4	0.4
Nickel	0.3	0.4
Manganese	0.3	0.3
Silicon	0.2	0.2
Copper	0.1	0.1
(proprietary)	3.5	3.5
Iron	rem.	rem.

### PHYSICAL PROPERTIES

	70000	90000*
Apparent hardness	30 HRC (approx.)	35 HRC (approx.)
Micro Hardness	25-43 HRC	35-43 HRC
Thermal expansion (at 1000° F)	.0000078"/degree F	.0000078"/degree F



\*\*Metal Alloy Oxides

\* 90000 series available for extreme duty applications, special order only.

Dura-Bond reserves the right to revise composition and specifications without notice.