

## **HARD KOTE®**

### **Competitive Advantage through reduced Abrasion, Corrosion, & Erosion costs**

Hard Kote® is our proprietary boronizing process wherein a boron based powder chemically reacts with the steel surface, creating a new extremely hard compound known as Fe<sub>2</sub>B or Iron Boride. This new compound grows into and becomes part of the steel, giving it excellent resistance to spalling or flaking. It can penetrate up to 80% into the surface of the product, and in doing so created a tooth like structure as show in photo below.

The end result is an extremely hard surface that can reduce abrasion, corrosion, and erosion of the part. Not to mention that the surface has a low coefficient of friction allowing higher flow rates.

This process can be applied to various different alloys some of which include:

- Carbon steels
- Alloy steels
- Stainless steels
- Tool steels
- Ni-Resist

It can also be selectively applied to different areas of parts or even on parts that have a complex geometry, or small ports that required coating.

<b>Material Type</b>	<b>Coating Thickness ( inch)</b>	<b>Vickers Hardness (HV)</b>
Carbon Steel	0.002 to 0.006	1500 to 2500
Alloy Steel	0.002 to 0.006	1500 to 2500
Tool Steel	0.002 to 0.006	1500 to 3000
Stainless Steel	0.0005 to 0.0015	1100 to 2000
Ni-Resist Cast Steel	0.0003 to 0.0015	850 to 1500

## **Features**

There are several advantages in using **HARD KOTE®** over other coatings in the industry. Other commercial coatings do offer some of the advantages listed below. However **HARD KOTE®** can offer all of them. Consider it one-stop shopping.

1. **High hardness is achieved, HARD KOTE® hardness greater than 80 HRC.**

This high hardness aids in abrasion and erosion resistance upon impact or from fluid cutting. **HARD KOTE®** has twice the hardness over other diffusion processes.

2. **Excellent abrasion resistance, HARD KOTE® extends product life.**

Standard testing shows that the **HARD KOTE®** product has less wear over the original product. In fact it is 17 times better. What is it worth to you?

3. **A corrosion resistant coating, HARD KOTE® stands up to various acids.**

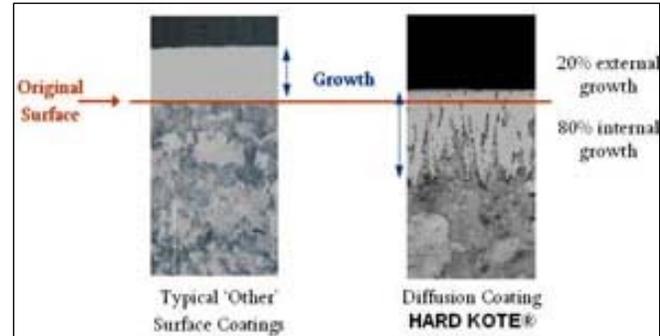
The untreated steel in the chart to the right lost 25 times more materials than the same material protected by **HARD KOTE®**.

4. **Retaining original dimensional tolerances is important.**

**HARD KOTE®** diffuses into the product up to 80% of the total coating depth, allowing the consumer to protect their product and minimize the rework time of their part.

5. **Where uniform application of a wear resistant coating is your concern**

**HARD KOTE®** can be applied uniformly to a product beyond the line of sight, allowing complex geometry parts that have small ports or areas that cannot be reached by spray to be coated. There are no missed areas or overlapping of coatings. Evolution Oil Tools utilizes computer run furnaces and industry proven powders to achieve this uniform coating.



**Longer Life = Lower Costs = More Profit**