

Description

Trimteck® is at the forefront of applying innovations in material science to extend the life of its process control equipment. First used in the aerospace industry to harden rocket nozzles on the space shuttle, CVD-5B is a chemical vapor diffusion process using boron wherein a hard wear-resistant metal mesh is fused into the surface of a wide variety of ferrous and non-ferrous materials.

Unlike coatings, during the CVD-5B process, superheated boron atoms are diffused deep into a host surface to form a metal boride layer that permeates evenly up to .015". Trimteck has harnessed and perfected this advanced technology to, in many cases, effectively extend the life of our valves more than 10 fold.

- Economical alternative to Tungsten Carbide
- Corrosion resistant
- Lends extended life to severe service trims
- Resists temperatures of up to 1200° F
- Reduces coefficient of friction
- Not a ceramic, will not crack under duress

Case Studies

Application: Offshore Oil Production

Location: Gulf of Mexico

Background: When a production valve on an offshore platform pumping crude oil with high sulfur content and 30 percent sand needed its internals replaced every eight months, the owner and operator decided it was time for a change.

Trimteck's Solution: We designed a 18" 1500# Optimux OpGL globe valve with an anti-cavitation trim treated with our proprietary CVD-5B metal hardening process. It has been working uninterrupted for over two years.

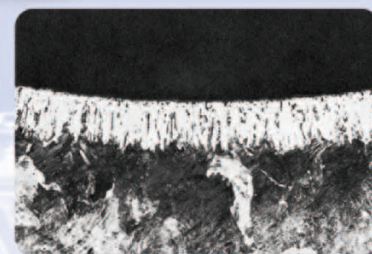
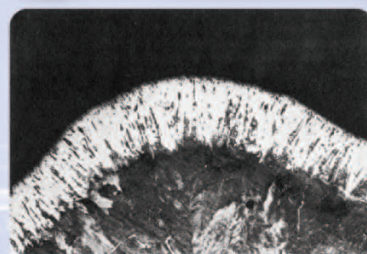


CVD-5B
Hardened Severe
Service Trim



CVD-5B

316 SS Optimux OpGL body and trim set hardened with CVD-5B. Note the distinctive dark gray color.



Magnified view of .015" CVD-5B compound layers on 1045 steel. Note the hardened layer distributes itself evenly along concave and convex surfaces.

Application: Potato Steam Peeling

Location: California (USA)

Background: Steam peeler valves operate constantly and open intermittently to release high pressure steam and abrasive solids. A potato steam peeler control valve with leaky seats caused by high pressures and abrasion from solids needed expensive replacing every thirty days. The plant manager came to Trimteck with the problem.

Trimteck's Solution: We proposed an Optimux OpEXL eccentric plug valve with a CVD-5B treated trim, and it extended the life of the previous valve ten-fold.



CVD-5B
Hardened Eccentric Plug

Trim Material Characteristics

Trim Material	Hardness Rockwell C	Impact Strength	Corrosion Resistance	Max Temperature		Erosion Resistance	Abrasion Resistance
				°F	°C		
316 Stainless steel	8	Excellent	Excellent	600	315	Fair	Fair
n° 6 Stellite	44	Excellent	Excellent	1500	815	Good	Good
416 Stainless steel	40	Good	Fair	800	426	Good	Good
17 - 4 PH H 900	44	Good	Good to Excellent	800	426	Good	Good
440 C Stainless steel	55-60	Fair	Fair	800	426	Excellent	Excellent
K Monel	32	Good	Good to Excellent	600	315	Fair to Good	Good
Tungsten Carbide	72	Fair	Good on bases Poor on acids	1200	648	Excellent	Excellent
CVD-5B	72	Excellent	Good	1200	648	Excellent	Excellent

In addition to CVD-5B, Trimteck provides other common metal hardening processes:

- Tungsten Carbide
- Nickel
- Titanium
- Stellite
- Hard Chrome
- Zirconium

About Trimteck

Trimteck® is a family-owned American company with over thirty years of experience in engineering, manufacturing, and marketing flow control solutions and equipment for a variety of industries. Our application engineers and certified representatives are committed to personalized customer service and have an extensive line of products and technologies to draw upon when designing and specifying a solution.

With a comprehensive line of Optimux® control valves – and an array of actuators, positioners, severe service trims, and other accessories – our engineers and representatives can solve the most complex flow control problems quickly and economically. Moreover, our organizational focus on implementing highly efficient sourcing, engineering, manufacturing, assembly, and distribution processes enables us to guarantee world-class quality, competitive pricing, and rapid delivery to anywhere in the world.

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