Case Study: Performance under Sliding Wear

Snow Plough Blade – extreme, constant abrasion and impact

Test Goal:
To achieve a wear protection component for snow plough blades which can last 2,000 km clearing difficult road surfaces in Northern Sweden.

Lower Performance of Competitors:
500HB hard steel components replaced every 700 km, after wearing by 100 mm. They are replaced 3 times a season. Standard tungsten carbide components are vulnerable to impact, chipping and premature failure on dirt roads. These are bulky, applied via lengthy brazing techniques, which detrimentally increases blade thickness.

Ferobide Test Outline:
- 3rd Party field test conducted by global manufacturer of blades and cutting edges
- Lorry ploughing road at a speed of 40 mph
- Clearing asphalt and dirt roads on varied terrain, from bumpy to smooth
- Standard ploughing routines over a period of 2 months with approx. 6 hours work per day
- Ferobide wear edges mounted onto the leading edge of plough blades
- Ferobide represents 8 mm wear layer in constant contact with road surface

Superior Outcomes of Ferobide Test:
- Ferobide gives lifetime increase of up to 20 times
- Ferobide components covered 2,260 km with only 15 mm wear
- One set of Ferobide lasted the entire season, not needing to be replaced.
- Ferobide yields longer-lasting and sharper leading edges compared to standard tungsten carbide

Ferobide – superior wear protection across all road surfaces

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Tunnel Boring Machine  -  extreme, constant sliding wear

Ferobide Test Goals:
To achieve a wear protection component for the cutterhead which has a 12 month lifespan.

Lower Performance of Competitors:
500HB hardened steel protection components, with extra hardfacing, are placed around cutterheads and are replaced every 2-5 months, at which time the full set is worn out.

Ferobide Test Outline:
- Hallandsasen Rail Link Tunnel Project, Sweden.
- 3rd party test conducted by SkanskaVinci on operational tunnel boring machine
- 120 km tunnel being bored in highly abrasive granite earth
- The high speed of the application subjects the area around cutterhead to extreme forces
- Ferobide plates welded around the cutterhead

Superior Outcomes of Ferobide Test:
- Ferobide gives lifetime increase of 6-7 times
- After 5 months Ferobide still has 85% wear life left
- Ferobide exhibits a work-life of 26 months
- Ferobide reduces downtime significantly

Chute Linings  -  high, intermittent abrasion and impact

Ferobide Test Goals:
To achieve a wear protection component layer in chute which lasts 15+ operational weeks at an iron ore processing plant in Germany, with a particle size <65 mm.

Lower Performance of Competitors:
Standard casted carbide wear plates wear down significantly, by 8 mm in 15 weeks.

Superior Outcomes of Ferobide Test:
- After 15 weeks, Ferobide had only worn 1 mm

Casted Plate fully worn
Ferobide still working