



Solutions To IK Problems

Problem: Scratched Feedtubes

Issues: Short feedtube service life due to scoring or scratching
Short packing life
Safety Issues

Solution: Upgrade Feedtubes Clyde Bergemann, Inc. “ARMOR-GLIDE”

Advantages: Double the hardness of standard feedtube
Five times as thick as hard chrome plating
Metalurgically bonded to base material
Armor Glide means better wear resistance, longer life and greater durability

Recovery service sootblowers and long travel utility sootblowers have used chrome plated feedtubes for many years. Thermal expansion differences between the hard chrome and base feedtube material caused cracking or peeling of the chrome. The plating was limited to only .001 to .002 thickness. The Armor Glide process is thermally bonded to the base feedtube and will not peel or flake off.

The ARMOR GLIDE FEEDTUBE maybe the last feedtube you install!

The Armor Glide feedtube combined with the Automatic Packing Tensioner can eliminate your packing maintenance.

CLYDE BERGEMANN - Advanced Boiler Cleaning Solutions!

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“Armor Glide”, The Sootblower Feed Tube Innovation That is Hard to Beat



Clyde Bergemann introduces the new “Armor Glide” feed tube designed with a surface treatment harder, thicker and more durable than conventional chrome plating processes offered in the past. The Armor Glide feed offers longer packing life resulting in longer sootblower run times, steam savings, reduced maintenance cost and improved boiler cleaning. This innovative feed tube will far outlast the chrome-plated tubes of the past. The sootblower industry has not seen an innovation of this magnitude since the introduction of the CFE nozzle by Clyde Bergemann in early 1994.

What Is “Armor Glide”?

The New “Armor Glide” surface treatment is a new metal plating process whereby a very hard material is thermally applied to the stainless base (feed tube) under controlled conditions. The applied material metallurgically bonds with the base material

What Can Be Expected from the Armor Glide Feed Tube?

As a user of sootblower feed tubes, you understand the problems associated with feed tube packings and the cost associated with packing leaks. Packing leaks cause steam waste, maintenance worries and downtime, each of which increases recovery boiler operating cost.

An analysis of steam waste due to feed tube packing leaks has shown a significant amount of money that can be realized over a short time (see graph). The savings given in the graph were developed for a typical recovery boiler sootblower based on the calculation outlined below.

Graph Basis:

Nozzles in use: 1” CFE
 Blowers in simultaneous Operation = 2
 Sootblowing Steam Flow = 42,000 lb/hr
 Cost of Steam = \$4.00/1000 lbs Steam
 Steam Leakage = 5%

Operating Days = 340 (D/yr)

Steam Cost = 42,000 (lb/hr) x 24 (hr/D) x .05 x .004 x 340 (D/yr) = \$68,500

Plus ~ \$38,000 Cost of Labor & Material to Replace Packing

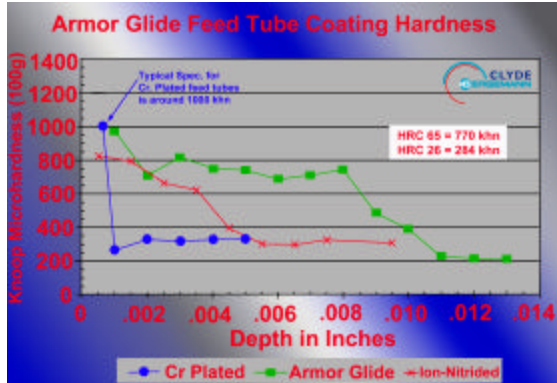
Total Savings = \$106,500/yr

If one adds the costs for replacing scratched feed tubes with the above savings, then a project payback to replace all feed tubes with the new Armor Glide tubes could very-well be as short as six months.



and becomes an integral part of it.

“Armor Glide” Maintains its Hardness to a Greater Depth!



This chart shows:

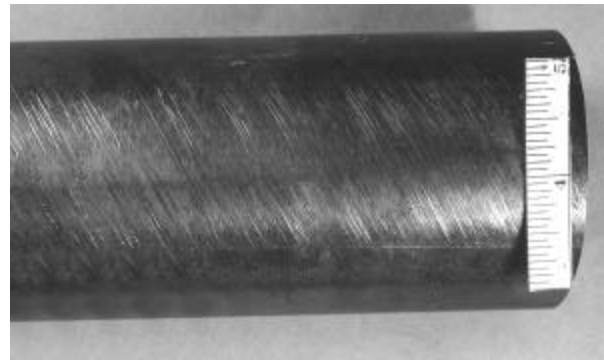
- The surface hardness for Armor Glide is comparable to that for chrome plated feed tubes.
- The Armor Glide hardness is maintained to a depth of .008”, more than any other feed tube.

The average Armor Glide feed tube hardness value is twice that of any feed tube on the market today. The improved hardness value offered by the Armor Glide feed tube means better wear resistance, longer life and greater durability in operation.

The Armor Glide feed tube will last longer and resist scratching better than any other feed tube offered.

Armor Glide Means Scratch Resistant

This image shows typical scratches found in chrome plated feed tubes. Even though feed tube chroming provides a harder surface than non-chromed tubes, this plating presents two major problems. These two problems result in feed tube scratching and flaking off of the plating material. The first of these two problems is the bonding mechanism associated with chroming. Chrome plating is an electromechanical process, which provides a very low bonding strength. This low



bonding strength results in the chrome material flaking and/or scratching very easily. The second problem is the plating thickness. Chrome plating generally has a very low mean thickness of around .002”. Even though chrome plating has a high initial hardness the thickness of this material is too small to provide any real effectiveness resulting in low toughness.



The Armor Glide feed tube addresses the thickness and bonding issue successfully. The Armor Glide Surface hardness thickness is 5 times that of chrome and the fusion is at a metallurgical level. Armor Glide does not flake or scratch even if you try to scratch it with a hand file. Try it, we

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challenge you!