



Gesellschaft für Verschleißschutz
und Klebtechnik mbH

abrasion solutions for conveying systems

by

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problem

wear by abrasion

auger in a biomass power plant



housing of a rotary valve



problem

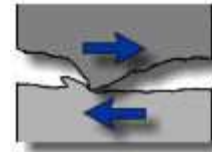
**wear by corrosion/abrasion
mixer in a corn dosing bin**



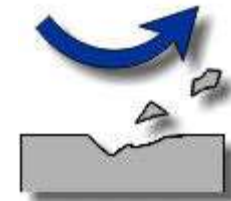
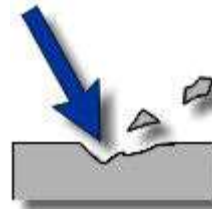
problem

physical procedure

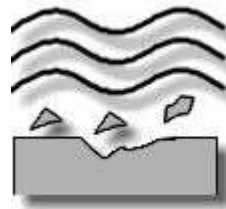
1. adhesion



2. abrasion und erosion



3. corrosion und abrasion



answer

use of harder material e.g. Hardox

<u>hardness comparison</u>	Brinell	Rockwell	Vickers
	HB	HRC	HV
St 235, Stainless Steel	115		120
Hardox 400, Stainless Steel	400	43	420
Creusabro 4800	400	43	420
Creusabro 8000	540	54	570
Duretal 45, CDP plates, etc		62	740
alumina			1500
Infinite Shield			2500



rotating screw with hardoxflights

answer

use of build-up welded plates



- screw flights coated with CDP-plates
- screw shaft coated with build-up welding
- advantage: impact strength
- disadvantage: weakening of screw shaft

answer

use of stainless steel



- screw flights made of 1.4301
- advantage: corrosion-resistant
- disadvantage : poor hardness

answer

use of Wear Compound



- ceramic balls embedded in glue matrix
- advantage: easy handling
- disadvantage: low wear protection by abrasion because of weak matrix

answer

use of alumina Al_2O_3



- tiles, glued to surfaces
- advantage: high hardness and high wear resistance
- disadvantage: impact sensitivity and temperature stability (glue)

answer

Use of INFINITE SHIELD



- tiles, glued to surfaces
- advantage: extreme hardness and outstanding wear resistance
- disadvantage: impact sensitivity and temperature stability (glue)

comparison

Hardox 400 after 4 month



Infinite Shield after 12 month



suitability matrix

	corrosive enviroment	sliding wear	impact load	temperature resistance	maintenance	investment	investment / life time
Hardox	-	-	+	+	-	++	-
CDP plates, Build-up welding	-	+/-	+	+	-	+	+/-
Stainless steel	+	-	+	+	-	+	-
Hardmetal	+/-	+	+/-	-	-	--	+
Wear compound	+	-	+/-	up to 200 °C	++	+	-
Alumina	+	+	-	up to 200 °C	+	+	+
Infinite Shield	+	++	-	up to 200 °C	+	-	++

applications

rotary valve



blender



applications

vibration conveyor



fan



application

pipe bend



hopper biogas plant



application

extruder head

etc.....



products of VKT



- wear protective coatings from ceramic or build-up welding with/without installation worldwide
- wear resistant pipe bends
- overhaul rotary valve
- hardened screen disks

