





# **Bodycote** K-TECH

METAL TECHNOLOGY

## **Bodycote K-Tech ceramics**

**A unique range of thermochemically formed ceramic coatings for the prevention of wear and corrosion in a wide variety of industrial applications and for every type of surface.**

**Bodycote K-Tech coatings have been uniquely developed for applications in specific industries several formulae cover a virtually limitless number of potential applications. They can be applied to most ferrous and some non ferrous metals. The fundamental differences compared to other ceramic deposits are:-**

- **Chemically not mechanically bonded**
- **Absolutely dense, pore free, corrosion barriers**
- **Water based slurries that can be applied like paint to complicated geometries and internal bores**
- **Low friction - the as-coated surface is anti-fouling and yarn friendly**

### **Oil & Gas Exploration**

Bodycote K-Tech ceramics are extremely cost effective where expensive downtime is caused by component corrosion and wear. Applications include down-hole tools, mud rotors, pump sleeves, MWD (measurement while drilling) equipment, and various valve components. Internal bore applications such as valve actuators and hydraulic jars, previously chrome plated and now ceramic coated have seen significant life increase. Tech 12 (Chrome Seal), for mud rotors, has improved down hole life by five times.



## Steel Industry

Bodycote K-Tech ceramics have been successfully used to combat tool problems in the zinc die casting, cold forming and hot forging industries. Bodycote K-Tech ceramics are also resistant to molten zinc and tin, having successfully improved the performance of correcting rolls and zinc pot rolls, used in the manufacture of galvanised steel strip. Significant improvements in life and downtime costs have been achieved. Other applications include guide bars, pump internals, and electric motor bearings.

## Textile Industry

Yarn contact components for textile machinery require extreme resistance to wear and corrosion, as well as a very low friction surface to prevent yarn damage. Bodycote K-Tech ceramic coatings, on thread guides, draw rolls, air jet plates, cooling tracks, twist stop pins and yarn feeders, greatly reduce maintenance and downtime costs. The extremely fine grain structure of Bodycote K-Tech ceramic produces a very smooth low friction surface (COF 0.21 – 0.26). This combination produces excellent wear properties.

## Pump Industry

Dramatic results have been achieved for the pump industry, particularly in chemical applications. Pumps exposed to petrochemicals, acids, seawater, chlorines, hydrochlorics and cryogenic temperatures have experienced extended life cycles by factors of up to 100, when tested against unprotected pumps. Reciprocating piston pumps, centrifugal impeller pumps and non-contacting pumps have benefited from Bodycote ceramic coatings.

## Plastics Industry

Pipe extruders run PVC pellets through an extruder which transforms the pellets into a molten state. Bodycote K-Tech ceramics are used to coat the Y-pipe, spider, diffuser, cone and pin components. This has resulted in a significant life increase and a five-fold reduction in cleaning cycles.

Chrome plated extruder screws, a key component of the injection moulding process, are treated with Tech 12 (Chrome Seal), this has resulted in a ten times life increase over conventional chrome plate.

## Canning Industry

Can machine manufacturers often specify Bodycote K-Tech ceramic as a direct replacement for chrome plate. Extreme hardness (2850 Hv) and a low friction surface significantly improve component life and reduce product damage. Typical applications are guides, can turrets and u-bends.



COATING TYPE	THICKNESS	MAXIMUM HARDNESS	PROPERTIES / DESCRIPTION	INDUSTRY / APPLICATIONS
TECH 10	< 5 microns	1850 Hv	Thin film ceramic	Threads and 'O' Ring Grooves
TECH 12	< 5 microns	1150 Hv	Sealant for chrome plate corrosion barrier - high chloride duties	Mud Drilling Rotors for Oil and Gas Exploration
TECH 17	2 - 8 microns	2600 Hv	Ceramic densification and overlay of flame sprayed arc, plasma and HVOF coatings for improved wear and corrosion resistance	Oil and Gas, Steel Galvanising Lines, Pump Rotors
TECH 18	2 - 8 microns	2600 Hv	Low friction / exceptional wear resistance - includes hardening of substrate metal	Textile Air Jet Plates, Hot and Cold Forming Tools, Chemical, Steel, Wire
TECH 22	50 - 100 microns	1850 Hv	Low friction corrosion barrier with excellent wear resistance and good release properties for molten zinc and tin	Chemical, Printing, Textile, Zinc, Aluminium, Canning Industry - Guides
TECH 23	50 - 100 microns	1850 Hv	As TECH 22, with further improved corrosion barrier performance	Oil and Gas, Petrochemical, Pump Sleeves, Impellers, Shafts
TECH 28	50 - 100 microns	1850 Hv	High electrical resistivity and corrosion barrier	Automotive, Electrical, Electric Motor Bearings
TECH 40	50 - 100 microns	2850 Hv	Superior sliding wear resistance. Low friction and resistant to thermal cycling and shock	Textile, Chemical, Steel, Glass Manufacture, Oil, Automotive



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