



BHARAT COAT PRODUCTS - INNOVATIVE COATING TECHNOLOGY



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Proposed Coating System

BASE COAT : BKOT 100- 2 Coats

TOP COAT : BKOT TS - 1 Coat

Coating Performance

- ▶ 12-15 micron coating thickness (2 Base Coat +1 Top Coat)
- ▶ 700 hr SST after Torquing
- ▶ 10 Yr. of Coating Life
- ▶ COF Values 0.10-0.18
- ▶ Anti Galling, UV resistance, Fuel resistance etc
- ▶ Excellent Conductivity
- ▶ No risk of Hydrogen Embrittlement
- ▶ Chromium VI free

1. BKOT- Solvent series Base Coat (2 Coat)

-Nano Zinc flake, Anti corrosive, Chrome VI free Technology

-Thickness - 7-10 Microns

-Application via Dip Spin or Spray Application

-Solid Contents- 54% +

-Low curing time and temperature - 25mins/ 180-200° C

-UV Resistant, Fuel & Chemical Resistant

-Excellent Cathodic protection

-700+ hr SST after Torquing

BKOT Top Clear/Silver- Water Base Series Top Coat (1 Coat)

Water Reducible Transparent Topcoat

Excellent coverage and sealant capability

Advance use of PTFE polymers for effective COF and Corrosion resistance
(5-10% PTFE)

Excellent Conductivity

UV, Humidity & Chemical resistant

Controlled COF Values - (0.8- 0.23 range possible)

Low curing Temperature and Time: 160-180°C / 25 Min.

Excellent Adhesion over Solvent/Water Base Coats

BKOT Comparison with HDG

No	Description	HDG	BKOT
1	Processing Temperature	>400-450° C	180 - 200° C
2	Heat Resistance	>200°C	>200° C
3	Application Areas	Structures, Hardware	Hardware's
4	Uniformity of Layer film	+ -10-20μ	+ -2-3μ
5	Hardness of coated film	High	Lower
6	Anti Freezing	-100°C	OK Up to -60°C
7	Pretreatment	With Acids	Dry
8	Special Steels	Limitations	Good
9	Thickness for Fasteners	40-80μ	5-15μ
10	Compatibility for Nuts	No	Yes
11	Cathodic Protection	Yes	Yes
12	Re-Coat-ability	Yes	Yes
13	Life of Film on Fasteners	400-800 hours	1200-1500 hours

BKOT Comparison with SS 304/SS 303

No	Description	BKOT	SS 303 /SS 304/ SS 316
1	Anti Galling properties	Yes	No
2	Anti Seizing properties	Yes	No
3	Contact with Aluminium Structures	No Problem	Causes Adhesion & galvanic corrosion
4	Galvanic Corrosion Resistance	Yes	No
5	Hardness of Bolt	10.9 - High	Low
6	Resistance to gasoline fluids	Good	Average
7	COF	Controlled	Uncontrolled
8	Colors	Various Topcoat Available	No Colors
9	Hardness of Surface	Average	Good
10	Anti Freezing	Yes	Yes
11	Cost Impact- Pricing	Economical	Expensive

BKOT comparison with Delta/Magni

Sr.No	Parameters	BKOT	Magni / Delta
1	Product Name	BKOT	Magni 565/ KL Series
2	Colour	Silver - Bright or Matt	Silver Dull/ Grey Matt
3	Coverage	25m ² /Kg / 10μ	18-20m ² /Kg/10μ
4	Solids	50-55 %	Aprox 50%
5	Flash point	30° C	30° C
6	COF Value	0.15-0.17μtot	0.15-0.17μtot
7	Addition of thinner as per %	1-2% by weight	Approx 5%
8	Application method	Dip/Spin, Dip, Spray	Dip Spin/ Spray
9	Coating thickness (2 Coat)	10-12μ	8-12μ
10	SST (ASTM B117)	1200-1500 Hrs	1000 hrs
11	Single Pack System	Yes	NA
12	Shelf life	1 Year	1 Year
13	Jellification of Paint	No	Yes

Sr No	Parameters	BKOT	MAGNI/DELTA
14	Topcoat required	No (2 Base Coat of BKOT can provide SST of over 1200-1500 Hours)	Yes (2 Base Coat + 1 Organic Topcoat) (SST Life <1000 hrs)
15	Topcoat Compatibility	Excellent	Fair
16	Fluid resistance	Yes	Yes
17	Topcoat Available	Yes (Various Colors like Silver , Black , Green, Yellow etc)	Yes (Silver/Black)
18	Pricing	Economical	Expensive
19	Pricing Stability	Stable throughout the year	Unstable
20	Hydrogen embrittlement	No	No
21	EEE, Reach / RoHS	Yes	Yes
22	Sacrificial behaviour	Yes	NA
23	Technical Support	Readily available	Unstable

BKOT Torque Performance after 5 times torquing & SST @ > 15 K Factor

Test Component No.	Set Applied Torque(Nm)	Measured Applied Torque T(Nm)	Thread Torque Tt(Nm)	Bearing Surface Friction Tb(Nm)	K factor	μ_{th}	μ_{tot}	μ_b
1 (IDENTIFIED AT TESTED SAMPLE)	48	47.900	21.2	26.7	0.205	0.129	0.155	0.176
	48	47.900	19.3	28.6	0.232	0.133	0.178	0.213
	48	48.100	21.3	26.8	0.223	0.144	0.171	0.192
	48	47.800	20.5	27.3	0.230	0.143	0.176	0.202
	48	47.800	22.1	25.7	0.217	0.147	0.165	0.179
2 (IDENTIFIED AT TESTED SAMPLE)	48	48.000	23.2	24.8	0.210	0.149	0.159	0.167
	48	48.000	21.5	26.5	0.219	0.142	0.167	0.186
	48	48.000	20.0	28.0	0.219	0.129	0.166	0.196
	48	47.900	18.6	29.3	0.222	0.120	0.169	0.209
	48	48.000	17.6	30.4	0.223	0.111	0.170	0.218
3 (IDENTIFIED AT TESTED SAMPLE)	48	47.800	25.6	22.3	0.178	0.137	0.132	0.128
	48	47.900	25.5	22.4	0.178	0.136	0.132	0.128
	48	47.900	25.2	23.0	0.177	0.132	0.131	0.130
	48	48.200	24.7	23.3	0.176	0.128	0.130	0.131
	48	48.000	25.6	22.3	0.178	0.137	0.132	0.128

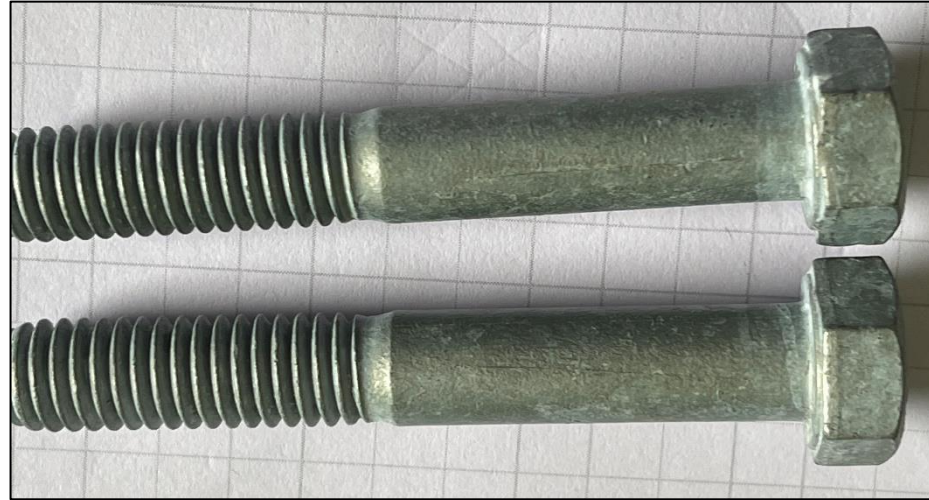
No Red rust after 700Hrs SST



Sacrificial Behaviour of Nano Zinc in BKOT : Deep Cut and SST (pic 4 X 10X)



Before SST



After 500 Hours SST, No red rust spots, Tests Stopped

BKOT Coating Specifications for C1-C5 corrosion Category

Coating Required	C1	C2	C3	C4	C5
BKOT (2 Coats)	✓	✓	✓	✓	✓
BKOT Clear/Silver	✗	✗	✓	✓	✓

Note: 1. BKOT Basecoat- 2 Coats required for efficient corrosion protection and coverage.

2. We recommend to use Organic topcoat in all corrosion category as a precautionary step to avoid abrasion & damage to coating during storage and transportation

Summary

- Meets requirement of ISO-10683/ASTM-F1136/ASTM-D2833 and BS-13858
- Good Corrosion protection in C4 & C5 climate
- Meets Requirement of SS8547
- SST >1500+ Hrs without red rust as per ASTM B117
- Cathodic protection + 500 SST hours
- COF values 0.15tot (0.08-0.30tot as per ISO 16047 with or without additional topcoats, K factor control between 0.12-0.18 available)
- Multiple Tightening & Loosening : 5 times and SST-700+ Hours without red spots
- Meets ELV/ROHS/REACH/GADSL guidelines, MSDS available
- Efficient alternate to Hot Dip Galvanizing and Electroplating
- Economical Pricing when compared to Gemoet/Magni/Dorken Coated Fasteners