

Tribobond™ & Bernex™ Component Coatings

Name	Material	Thickness range µm	Micro hardness HV 0.05	Friction vs. Steel	Service T °C	Depo T °C	Color	User benefit / features	Applications
Tribobond™ 01	TiN	1.5 - 5	2800	0.5	500	150 - 500	gold	resistance to sliding and abrasive wear, fretting, galling	general components, automotive and aerospace, bolts and bearings
Tribobond™ 15	TiAlCrN	2 - 5	2800 - 3000	0.6	850	150 - 500	dark grey	resistance to sliding and abrasive wear, fretting, high temperature	general components, automotive and aerospace and where temp. resistance is important, titanium components
Tribobond™ 30	CrN	2 - 40	2300	0.55	700	150 - 400	silver	sliding and impact fatigue wear resistance, oxidation	applications with high impact fatigue wear, titanium components
Tribobond™ 31	Cr ₂ N	2 - 5	2500 - 2900	0.55	700	180 - 200	silver	sliding and impact fatigue wear resistance, oxidation	applications with high impact fatigue wear, where enhanced surface smoothness is required, titanium components
Tribobond™ 33	CrCN	1 - 4	1200 - 1600	0.2 - 0.6	500	230	dark grey	low friction, high fracture hardness, allows high plastic deformation	applications with low friction requirements and high temperatures, mechanical components with sliding movements
Tribobond™ 40	Cr + a-C:H:W	1 - 10	1000 - 1800	0.2	350	< 200	grey	sliding, adhesive and impact fatigue wear resistance, friction and fretting reduction	high impact fatigue and fatigue wear, like roller bearings and gear applications
Tribobond™ 41	Cr + a-C:H:W + a-C:H	1 - 8	2000 - 2800	0.1	300	< 200	black	sliding and adhesive wear resistance, friction and scuffing reduction	low friction in sliding applications, pumps, compressors, engine sub systems
Tribobond™ 42	Cr + CrN + a-C:H	1 - 8	2000 - 2800	0.1	300	200 - 250	black	sliding and adhesive wear resistance, friction reduction, high load carrying capacity	similar to 41, but optimized for higher load carrying capacity and combined sliding / rolling
Tribobond™ 43	(Cr+) a-C:H	1 - 5	2500 - 4000	0.1	300	160 - 200	black	sliding and adhesive wear resistance	general precision components, semiconductor tools, ceramic components
Tribobond™ 44	a-C:Cr	1 - 5	1000 - 1400	0.1	350	200	grey	sliding, adhesive and impact fatigue wear resistance, friction and fretting reduction	high impact fatigue and fatigue wear exposed components at elevated temperatures
Tribobond™ 45	Cr + a-C	1 - 5	1000 - 1400	0.1	300	160 - 200	black	sliding wear resistance and impact fatigue resistance	similar as 41 and 42, but with improved lubrication wetting characteristics
Tribobond™ 46	Cr + CrN + a-C:H:W	1 - 8	1000 - 1800	0.1	350	200 - 250	grey	sliding, adhesive and impact fatigue wear resistance, friction and fretting reduction	high impact fatigue and fatigue wear, roller bearings, gear and high temperature applications
Tribobond™ 47	CrN + a-C:Cr + a-C:H	2 - 5	2000 - 2800	0.1	300	180 - 250	black	sliding and adhesive wear resistance, friction reduction, high load carrying capacity	same as 41, but optimized for higher load carrying capacity, mainly used in wear applications requiring low friction
Tribobond™ 48	Cr + ta-C	0.5 - 1.5	4000 - 8000	<0.1	400	200	black	sliding and adhesive max. wear resistance, friction and scuffing reduction	applications requiring low friction where superior hardness is required

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Tribobond™ 60	ZrN	2 - 10	2200 - 2600	0.5	600	150 - 450	gold	sliding wear resistance	alternative to Tribobond™ 01
Tribobond™ 62	Ti (C, N) + MoS ₂	2 - 4	3000 + 2000	0.05	500	425 for Ti (C, N) 150 for MoS ₂	black	sliding wear resistance, friction reduction, only in cases where the same countersurface is faced continuously	outperforms the DLCs mainly where no water vapour is present, application on bearings for space stations
Bernex™ 01	TiN	1 - 10	2200	0.5	500	900 - 1000	gold	chemical inertness, hardness/toughness, material compatibility	general open tolerance wear part components that require coating on inner contours
Bernex™ 66	Al	30 - 100	n/a	n/a	1100	1000 - 1100	grey blue	hot corrosion protection	aircraft and energy turbine blades

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