

NEW COATING FROM DYNAMO,INC



Bicouche S

Diecast Coating presented by Dynamo



Bicouche X

Diecast Coating presented by Dynamo



The world’s best core pin producer,
Dynamo Inc. produces a standard coating **"Bicouche S"**
upon hearing all customers real concerns.

Nitriding has long been used as one of the main treatments for Die Casting parts. Since the high demand of long product lifetime, we are pleased to announce our newly developed combined treatment of Nitriding +PVD Coating.

Our Bicouche S will be able to reliably fulfill customers' needs.
As it prolongs product lifetime at low cost.

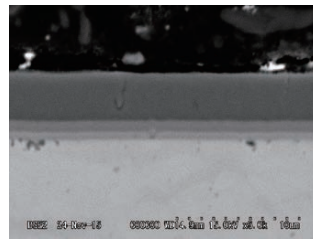


Hardness (HV)	2800~3000
Coefficient of friction	0.45~0.5
Heatproof temperature	800°C
Abrasion resistance	Good
Heat resistant	Good
Corrosion resistance	Good
Color	purple

Though multiple coating cost higher, Bichouche S achieves high durability at low price. It has excellent feature especially for Abrasion resistance and soldering.

Cross-sectional view

Dynamo has developed this multiple layer structure which achieve a thick film (aprox. 7.6µm). It provides dramatically longer product lifetime.



PVD Coating 6µm
Middle Layer 0.8µm
Under Layer 0.8µm
Nitride Layer 55µm
Base Material



Melt loss test result

Melt Damage

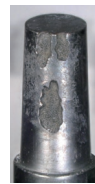
Aluminum Melting Test

※The result will vary based on operating environment.

Material	ADC12
Temperature	700C 1290F
Rotation Speed	60rpm (300Hz)
Test time	6 hours
Test Pin	SKO61 (H13) Rc45



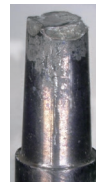
Multiple Coating A



Multiple Coating B



Multiple Coating C



PVD Coating D



PVD Coating E



PVD Coating F



Bicouche S



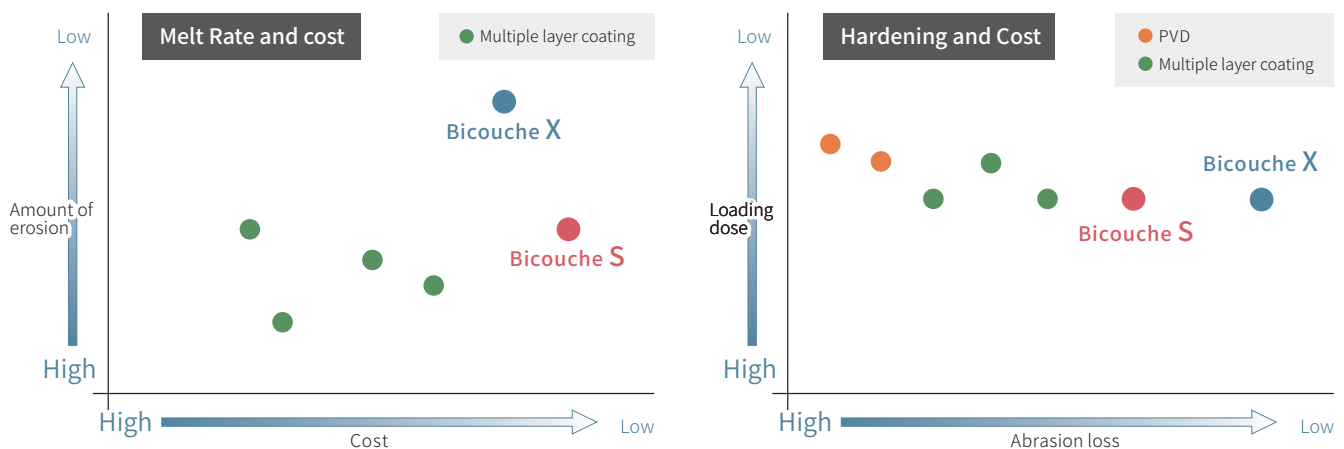
Bicouche X

Erosion, Soldering and Cost Comparison

As a result of Melt test, between Bicouche X and other 20 coating, we can conclude the following 3 points .


※Test results may vary depending on the operating environment.

1. Nitride and PVD are not in the graph since these melt rates are too high.
2. Multi-layer coating costs are high, but melt rate is low.
3. Bicouche X has the best results in both melt rate and hardening, outperforming all others in this test.



Bicouche X's result is the best hardening and melting rate among other coatings.

It offers great melt resistance and long product lifetime with low cost.



Dynamo offers many coating options

Support customer's casting

There are many excellent coatings and Dynamo offers those in the list on **next** page.

As a specialist for Diecasting parts industry, we will propose the best coating at the best cost for you to improve product lifetime.

Please feel free to contact us, we are happy to help to solve your problems.


























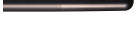
Our Speciality

Before coating, we carry out finishing process of all pins and inserts with care considering quality of surface is important before proceeding with the coating process. Adhesion of coating, product lifetime and performance will be higher with smooth surface and coating quality is in proportion to the surface quality. In Bicouche series we conduct the process refinishing after Nitriding to maximize coating performance.

We will be your best partner for coating solutions

Providing a better future for die casters.

Coating list

	Sample	Coating Type	Color	Feature
Nitriding		Tufftride	Black	Penetrate nitrogen from surface, has excellent durability and fatigue resistance
		Ion Nitride	Grey	Penetrate nitrogen from surface, has excellent durability and fatigue resistance
		KUSUMO V1	Light grey	Tuned conventional gas nitriding for die casting
		KUSUMO V2	Light grey	Controlling depth of compound layer, diffusion layer and nitriding layer. Specialized for heat resistance.
		Sulfurizing	Grey	Penetrate nitrogen from surface, has excellent durability and fatigue resistance
		Kanuc	Brown / Black	Improved fatigue strength and abrasion resistance
		Kanuc OX	Black	Excellent with fatigue strength, and parting powder affinity
		Tima	Black	Improved fluidity by special surface treatment. Resistance of thermal fatigue crack, seizure loss resistance.
Nitride PVD Coating		Bicouche S	Purple	Nitriding on base, PVD coating on surface.
		Bicouche C	Silver	Nitriding on base, PVD coating on surface.
		Bicouche X	Red Purple	Nitriding on base, highly adhesion of multiple layer coating on surface.
		Bicouche A	Gold	Nitriding on base, PVD coating on surface.
PVD Coating		Dynamo Coat	Purple Grey	Thick film (7-10μm) excellent with fatigue resistance and heat resistance.
		CrN	No Color	Excellent with sliding property, heat resistance and corrosion resistance
		TiN	Gold	Excellent with abrasion resistance, sliding property
		TiALN	Purple	penetrate nitrogen from surface, has excellent durability and fatigue resistance
		ALCRONA	Blue Grey	Specialized measure for seizure, especially heat accumulation part. High heatproof temperature
		FUTURA NANO	Purple Grey	Nano Laminate. Prevention of seizure especially the part which it's difficult to apply die spray
		LUMENA	Purple Grey	Thick film (7-10μm) Nano Laminate. Prevention of seizure especially the part which it's difficult to apply die spray. Prevention of crack and melt loss
		LELLYON CL	No Color	Excellent with Releasability. Significantly improved melt loss resistance with Cr-based multiple layer coating.
CVD Coating		TD	Metalic Grey	Improve adhesion and seizure resistance by thermal CVD.
		TD-NbC	Metalic Yellow	Improve adhesion, seizure resistance and maintainability by thermal CVD.
		Ti3	Gold	Improve adhesion, outstanding three-layered coating
PCVD Coating		P-CVD (TiN)	Gold	Prevents melt loss, seizure, abrasion, heat check and crack
		P-CVD (TiALN)	Purple	Prevents melt loss, seizure, abrasion, heat check and crack
		P-CVD (TiAlSiCNO)	Purple	High lubricity requiring less die spray. effective against erosion and soldering

※上記以外コーティングも対応可能です。



Bicouche X High quality coating which Dynamo developed with consideration

Bicouche X has the best erosion and soldering resistance.
In order to deal with these two particular problems,
we have developed a multiple layers coating treatment.
It gives stronger adhesion and effectiveness on improvement of wear resistant.

Dynamo developed Bicouche X focusing on erosion
resistance to help solve customer's problems.
We offer you this long lasting reliable coating

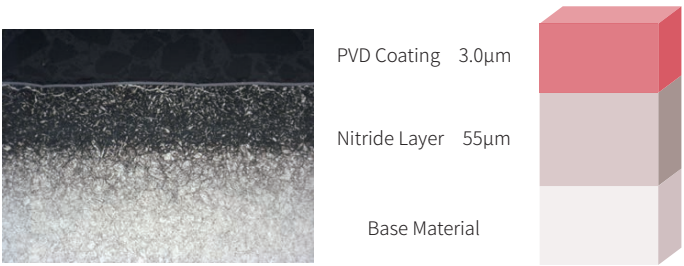


Hardness (HV)	2800~3000
Coefficient of friction	0.45~0.5
Heatproof temperature	800°C
Abrasion resistance	High
Heat resistant	High
Corrosion resistance	High
Color	Reddish Purple

Achieved high adhesion and durability by multi-layer coating.
Coated by thick film, Bicouche X coat provides one of the best melt
resistance and abrasion resistance among other general coatings.

Cross-sectional view

This formulation of structure improves adhesion of PVD coating, which enable Bicouche S coating to enhance durability of the product.



Melt loss test result

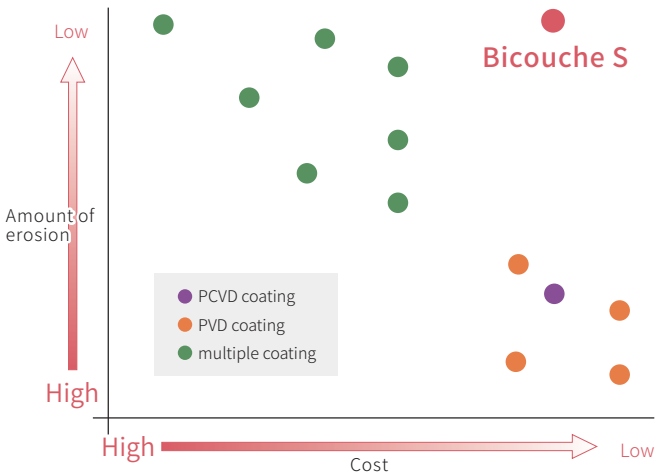
Melt Damage
Aluminum Melting Test
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Melt Rate and Cost

Dynamo developed multiple coating Bicouche S by careful consideration of Customer needs. Bicouche S has two advantage which improves fatigue strength and compressive strength of Nitriding and heat-resistance and abrasion resistance of PVD coating.



Based on test results, Bicouche S has the best melt rate among other coatings and its price is affordable, making it a great low cost option with high durability coating.



<https://dynamoinc.us/>

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