PrimusCoating

PVD Coatings for Aluminum Die Casting Molds

www.primuscoating.com

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Our PVD coatings are specially developed to reduce thermal fatigue, reduce erosion and prevent material adhesion in aluminum die casting molds.

Besides increased tool life, the coatings reduces maintenance of the tools, reduces scrap and re-work ensuring high quality parts are produced every time.

With over 30 years of experience in coating core pins as well as cavities, our R&D center has been developing high performance coatings dedicated to aluminum and magnesium die casting applications.

Primus Coating Allows You to Optimize Efficiency

Chemical and Thermal stability
Prevents oxidation and dissolution of steel by fusion

Extreme hardness of the layer
Greater protection against abrasion and erosion

Hardness of surface
Protection against thermal cracks

Low coefficient of friction
Prevents adhesive wear

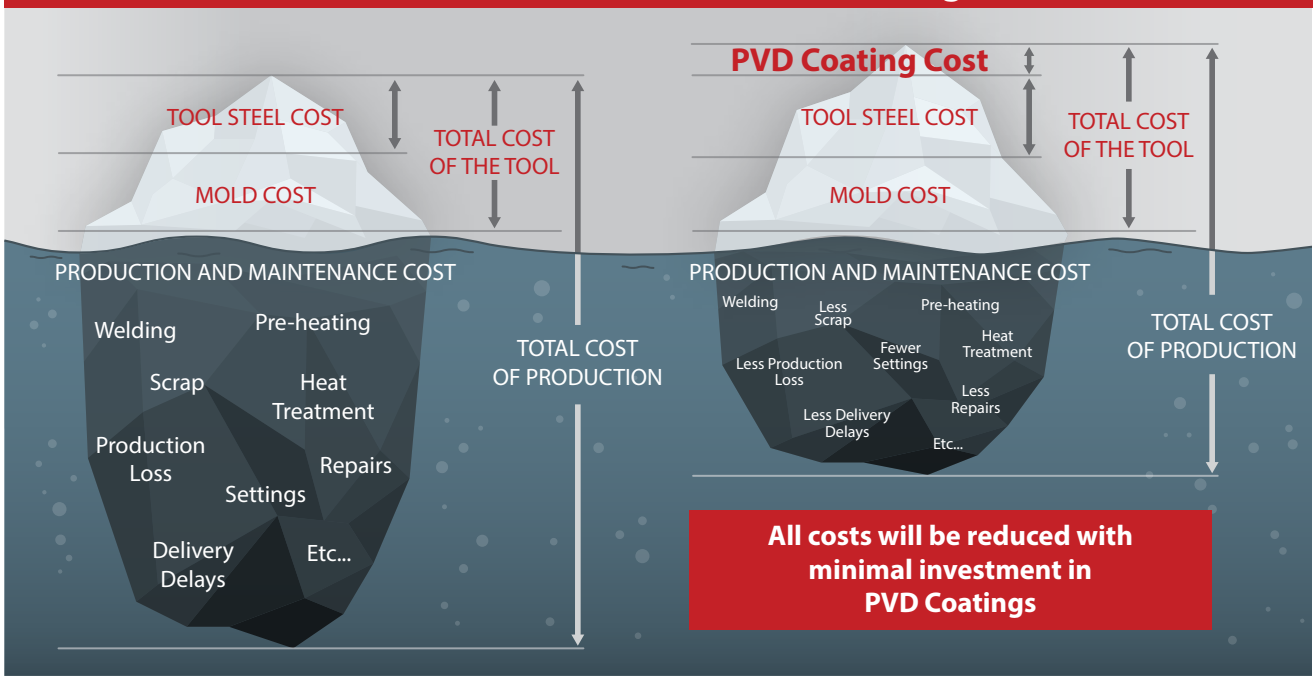
Reduction of maintenance
Maintenance costs decrease due to longer intervals

Product Quality
PVD coatings contribute to a better finish of the injected product

More cost-effective mold
Due to the longer tool life, production costs are minimized

Increased productivity and stability in the production process
PVD Coating ensures mold quality during production

Hidden Cost of Aluminum Die Casting



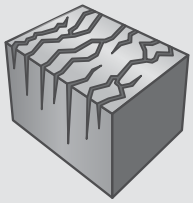
Primus Coating allows you to increase the performance of your process

Specifications and Applications for Aluminum Die Casting Molds

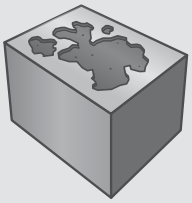
Features \ Coating	HP Form*	HP Dura*	HP Cast*
Composition	TiAlN Based	AlCr Based	TiAlN Based
Hardness (GPa)	37 GPa	38 GPa	36 GPa
Coefficient of Friction (dry against steel)	0.35	0.33	0.4
Coating Thickness (µm)	4 ~ 6 µm	4 ~ 6 µm	6 ~ 8 µm
Maximum Oxidation Temperature (°C)	800°C	1,100°C	800°C
Coating Deposition Temperature (°C)	450°C	450°C	450°C
Coating Color	Violet	Dark Grey	Violet
Coating Structure	Multilayer	Multilayer	Multilayer
Properties	High heat resistance and hardness, excellent wear resistance.	Thermal crack resistance, favorable thermal conductivity, high temperature oxidation resistance.	Good hardness, anti galling, low friction, high resistance to chipping and cracking.
Applications	Medium to high strength steels trimming, and piercing, press hardening, good for abrasive material forming. Die casting molds.	Punching, piercing, deep drawing, die casting core pins & forming of high strength thin sheets.	Excellent for die casting, ultimate key for forming of thicker steel sheets. Helps eliminating the galling of mild steels and aluminum.

* Duplex coating available (Nitride + Coating).
For more information, please contact our sales department or sales@primuscoating.com
The depth of nitriding will depend on the material of the mold.

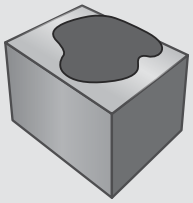
Coatings Prevent and Act to Protect Against the Following Types of Wear in the Aluminum Injection Process



Against cracks caused by thermal fatigue

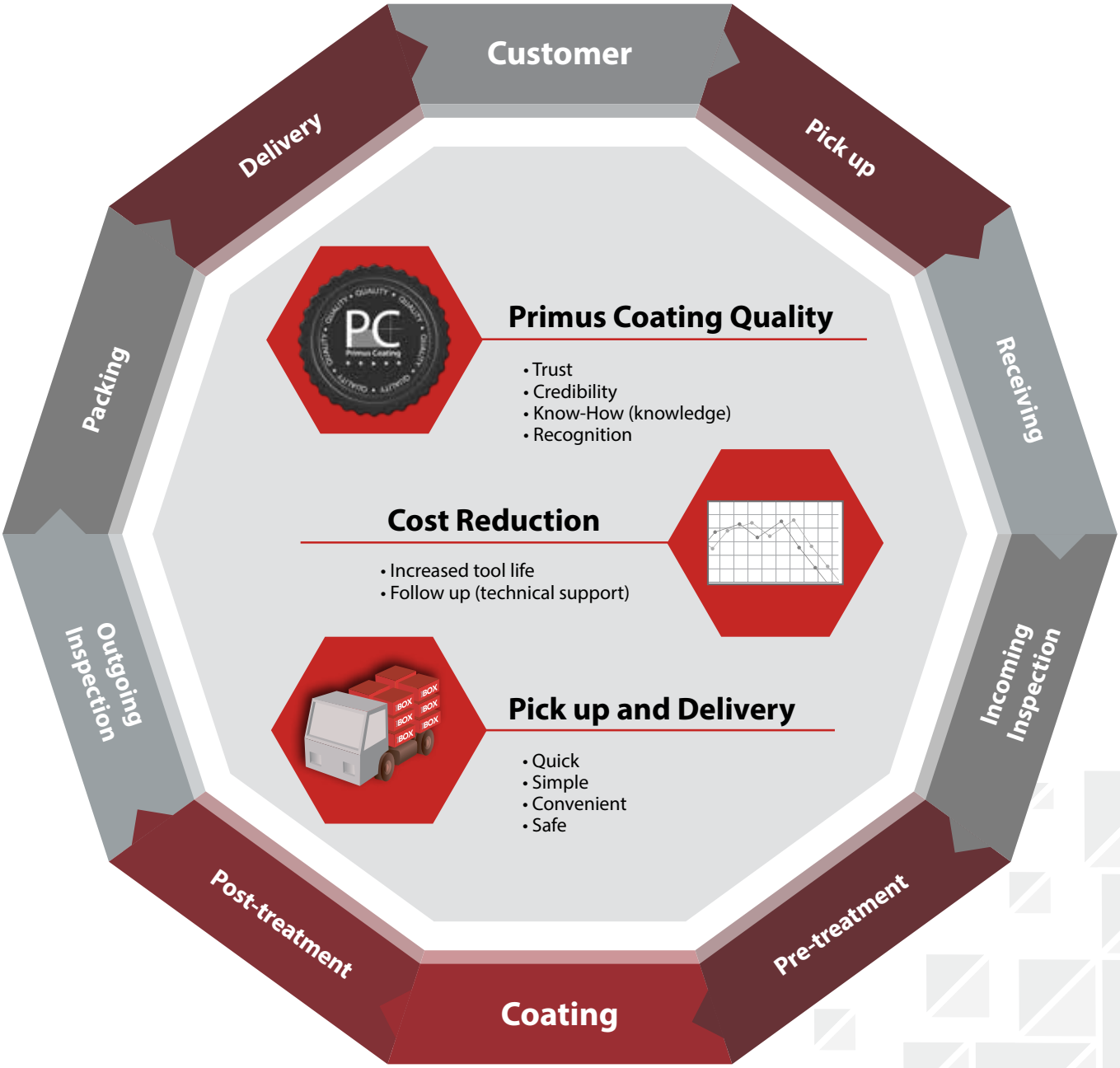


Against erosion and abrasion



Against material galling

Primus Coating´s Business Excellence



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