

Kashima Coat Characteristics #1

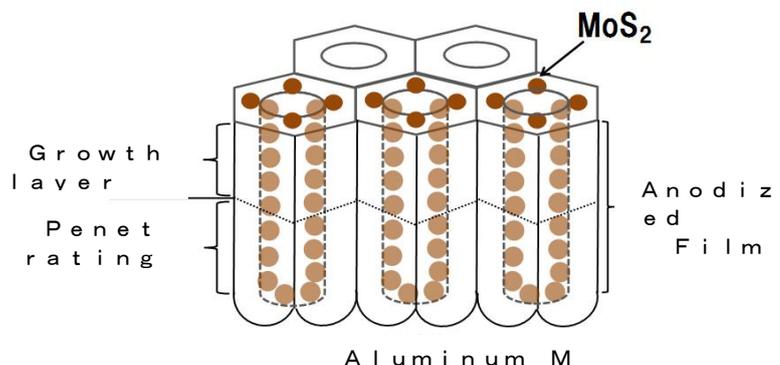
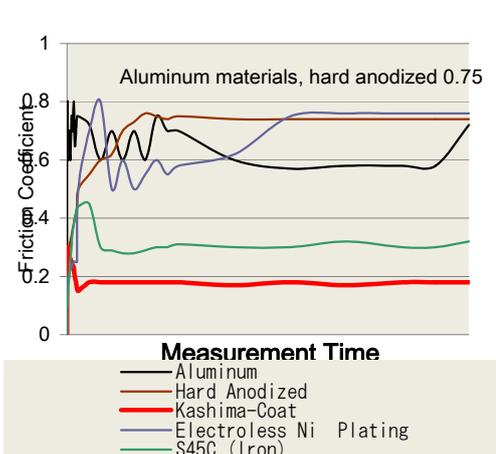


Material Properties	Film Thickness (μm)		Hardness (HV)	Film Properties			Remarks
	Recommended	Limit		Hardness	Generation Capabilities	Kashima Coat	
A1050	30	50	350-450	⊙	⊙	⊙	Possesses outstanding corrosion resistance as a raw material as there are minimal additives other than aluminum, resulting in superior quality film.
A1100	30	50	350-450	⊙	⊙	⊙	
A2011	5	10	200-250	×	×	○	Inappropriate for anodizing as it has a high Cu level of 5.0 - 6.0.
A2014	20	40	250-350	△	○	⊙	Although the material is very strong, it has an extremely low corrosion resistance due to the presence of Cu. Stains and irregularities form easily after the film is generated.
A2017	20	40	250-350	△	○	⊙	
A2024	20	40	250-350	△	○	⊙	
A4032	20	50	350-450	○	○	⊙	Not suited to coloring as an Si level of 11.0 - 13.5 produces a grey appearance.
A5052 <i>Recommended</i>	30	50	350-450	⊙	⊙	⊙	An aluminum based material with medium strength and good corrosion resistance, resulting in a superior quality film.
A5056	20	30	350-450	○	△	△	Coloring similar to that of aluminum is achieved. Has a tendency to crack if the film is too thick. The film may also peel.
A5083	20	50	350-450	○	○	⊙	A material with good strength and corrosion resistance, suited to welded structures.
A6061 <i>Recommended</i>	30	50	350-450	⊙	⊙	⊙	Segregated patterns may appear after anodizing due to differences in manufacturers and methods of heat treatment.
A6063	20	50	350-450	○	⊙	⊙	An outstanding material for extrusion processing. Although a good quality film is generated, it does contain a large number of cracks.
A7075	20	30	250-400	○	○	⊙	An extremely strong material, however its appalling corrosion resistance means that it corrodes easily due to the presence of Cu and Zn. Thick films of 20μm or higher may peel.
AC2A - B	20	30	250-350	△	○	⊙	The rough surface of the material means pores are visible after anodizing.
AC4C	20	40	300-400	○	○	⊙	Film generation and surface roughness are good amongst various cast metals.
AC7A - B	20	50	300-400	○	○	⊙	Coloring similar to that of aluminum is achieved. A relatively good film among various cast metals.
AC8A	20	40	350-450	○	○	⊙	This material is best suited to engine pistons due to its outstanding strength and abrasion resistance.
ADC6	20	40	300-400	○	○	⊙	A good film among various die-cast materials.
ADC12 <i>Recommended</i>	10	20	250-350	△	○	⊙	Difficult to apply film treatment due to the additional elements present. Additives (silicon, parting agents) remaining on the surface result in a large number of irregularities. Works well with Kashima Coat.

- Kashima Coat is a composite anodized produced by subjecting aluminum alloys to hard anodized treatment before depositing molybdenum disulfide into the pores of the film using secondary electrolysis. The result is an aluminum surface treatment with outstanding lubrication and abrasion resistance.
- Please notify/consult us about the following when placing an order for Kashima Coat treatment :
(a) Material properties (b) Film thickness (c) Hardness (d) Surface roughness (e) Position of electrode (f) Presence of masking and (g) Other precautions.
- Please note that any cutting lubricant or buff polishing dust from machining remaining on the supplied parts may affect the quality of the finished appearance.
- The anodized film may not adhere properly due to the machining methods used with some materials (wire cutting, electrical discharge machining.etc.)
- Kashima Coat treatment is a form of film control. The target value of film thickness tolerance is ±20%. Film thickness: 10 ± 2 μm
Separate consultation is required as the film thickness tolerance differs with cast metal and die-cast materials.
Please consult us regarding the amount of dimensional changes.
- The color tone of Kashima Coat treatment differs greatly depending on the materials used, film thickness and coating conditions.
Please consult us if color tone control is required. A sample product will be created and controlled, displaying the color limits.
- The precision of products treated with Kashima Coat can be improved with polishing and other post-processes.
- Kashima Coat W is where Teflon granules are chemisorbed to a surface treated with Kashima Coat.
This produces a highly lubricated anodized with outstanding lubrication performance and abrasion resistance.
- Maximum size for treatment: 400mm (W) x 1,200mm (L) x 1,000mm (H). Please consult us for treatment of actual size.

Chart symbols for film properties ⊙: Good ○: Ordinary △: Not very good X: Inferior

The details presented here are based on reference data obtained from our company's production lines.



Kashima-Coat is a surface lubrication method that deposits molybdenum disulfide into the pores and surface of anodized film. Molybdenum disulfide is deposited throughout the entire anodized film using special electrolytic deposition.

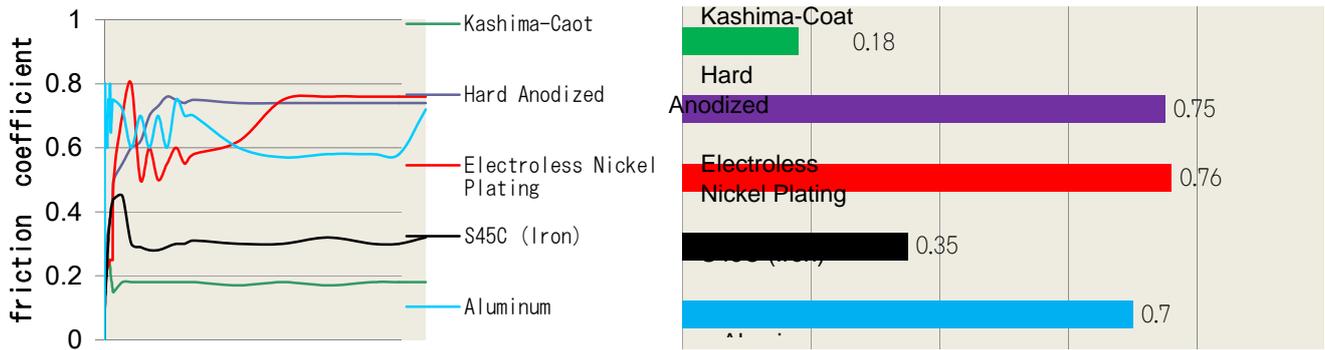
Using the FPR2000 ball-on-disk frictional wear tester from Rhesca.

Kashima-Coat Characteristics #2



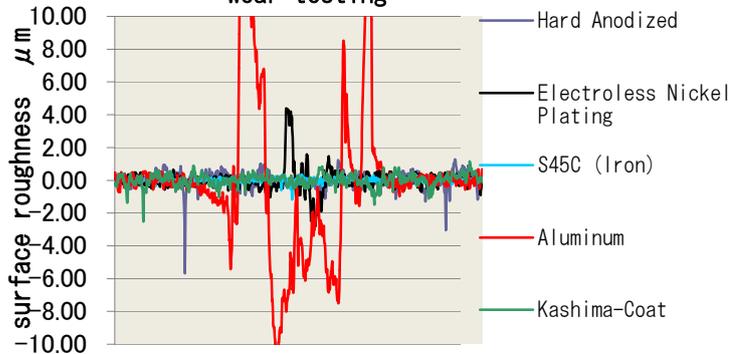
Comparison of Friction coefficients and wear for each surface treatment method using a ball-on-disk frictional

Comparison of Friction Coefficients

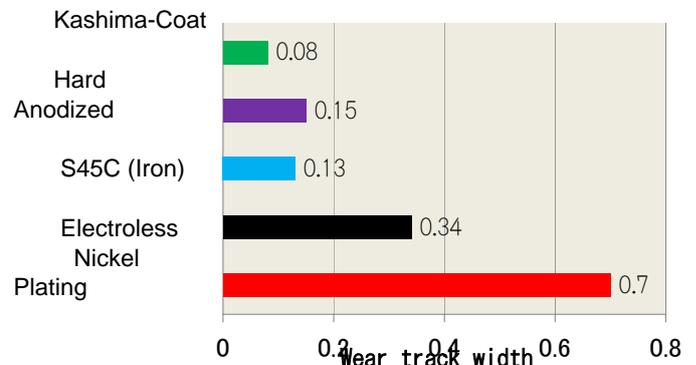


Comparison of Surface Conditions and Wear Track Width After Wear Testing

Comparison of surface conditions after wear testing

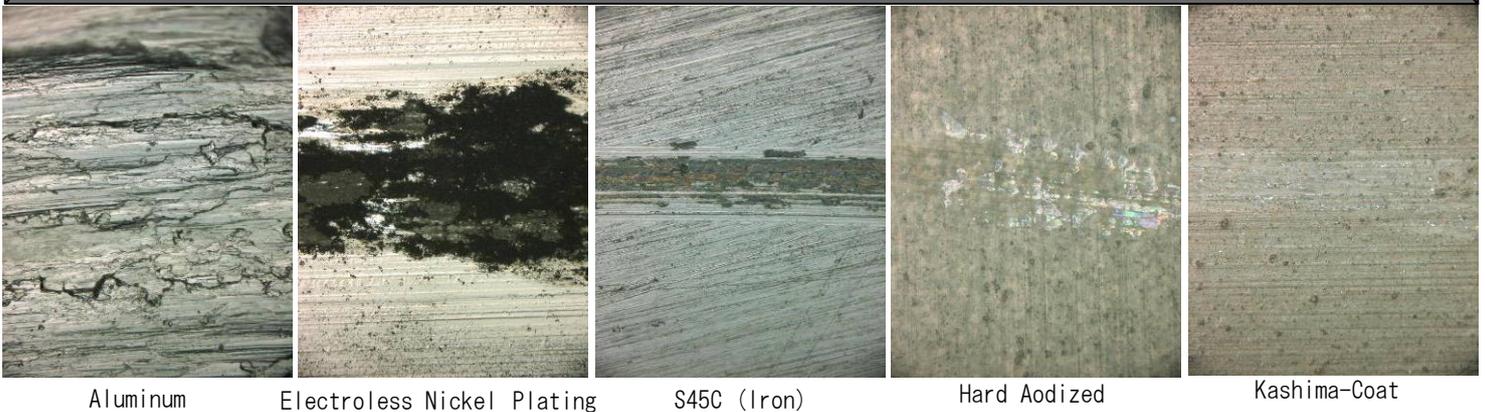


Wear track width for wear testing of each surface treatment method



Surfaces After Wear Testing

Surface Wear Illustration



Surface Image with EPMA Measurements

