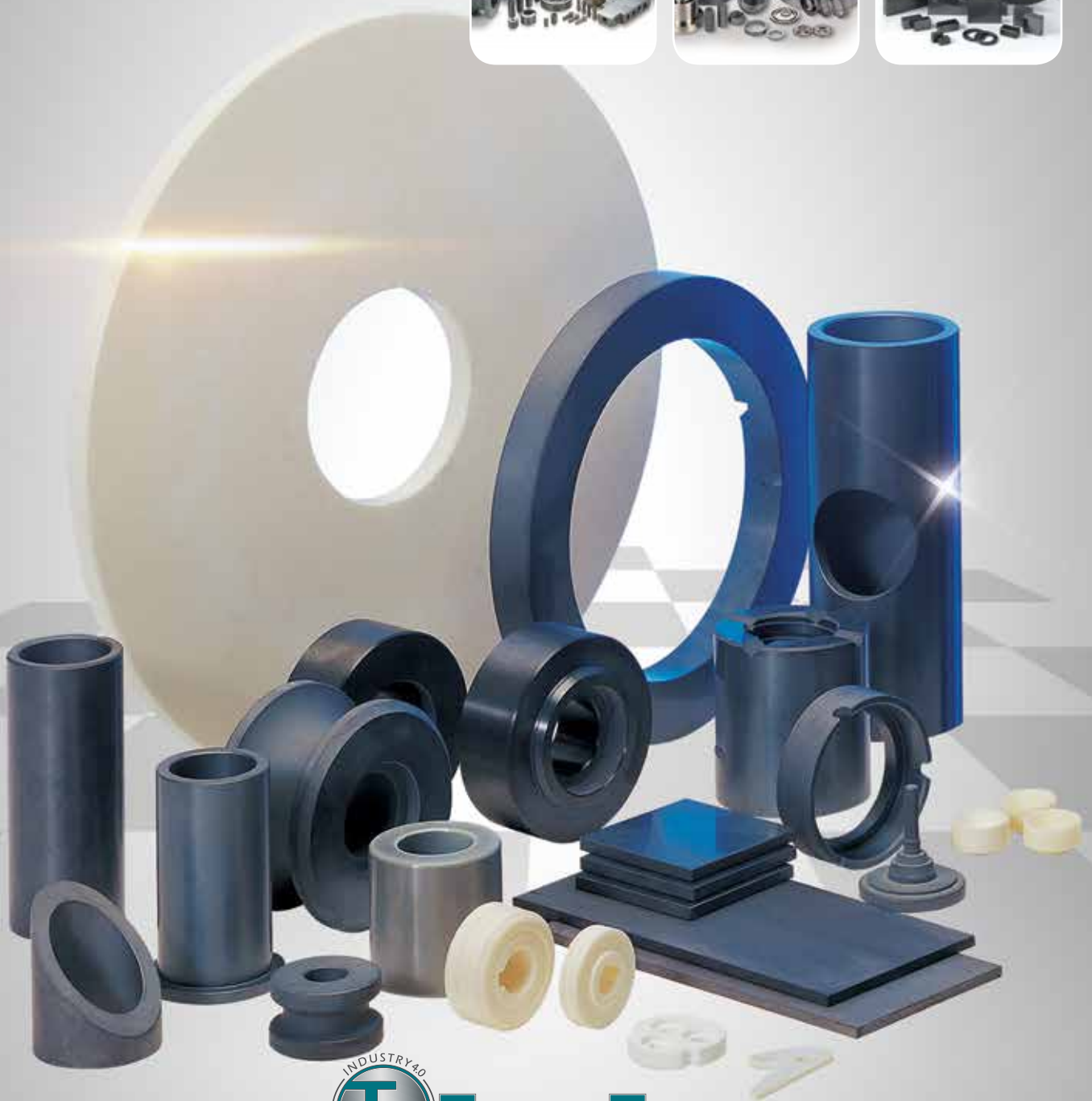


CERAMIC WEAR PARTS



TaeguTec
Member IMC Group

GRADE

FEATURES & APPLICATION

TaeguTec Ceramic Wear		SiC	Si3N4				Al2O3 TiC	ZrO2		Al2O3		
		AC10	AS10	AS20	AS70	AB30	AW50-Y	AW50-M	AW10-998	AW10-990	AW10-960	
Density	g/cm³	3.18	3.4	3.5	2.4	4.25	6.05	5.7	3.98	3.85	3.70	
Hardness	HV	2500	1600	1500	200	2100	1250	1200	1700	1500	1350	
Bending Strength (4-Pt MOR)	MPa	450	850	950	150	800	900	700	400	350	300	
Compressive Strength	MPa	3500	4000	3500	-	3500	2500	1800	2500	2300	2100	
Fracture Toughness	MPa.m ^{1/2}	3.5	5.2	5.5	5	3.5	6	9	3	3	3	
Young's Modulus	GPa	430	290	310	100	410	200	200	390	360	320	
Poisson`s Ratio		0.16	0.28	0.28	0.26	0.2	0.31	0.3	0.23	0.23	0.23	
Friction Coeff.	0.5m/sec(5N)	0.6	0.9	0.7	-	1	0.6	0.85	1.1	1.1	1.1	
Thermal Conductivity	W/(m.K)	100	25	40	32	40	3	3	35	30	25	
Thermal Expansion Coeff.	10 ⁻⁶ /K	4.0	3.0	3.0	-	7.5	11	10	7.9	7.9	7.5	
Thermal Shock Resistance	ΔT °C	400	800	900	1300	250	300	400	200	200	250	
Maximum Use Temp.	°C (static con.)	1800	1300	1400	1600	1700	1500	500	1600	1600	1600	
Grain Size	μm	5	0.7	0.7	-	1	1	0.3	2.5	3.5	5	
Elongated Grain Size	μm	-	4	4	-	-	-	65	-	-	-	
Chemical stability	Acid (HCl)	★	☉	☉	☉	☉	☉	☉	■	■	■	
	Alkali (KOH)	★	☉	☉	☉	☉	☉	☉	▲	▲	▲	

★ : Excellent ⊙ : Good ■ : Normal ▲ : Poor

Base Material	Grade	Features and application	Micro Structure (X5000)
SiC	AC 10	<ul style="list-style-type: none">• High wear resistance and corrosion resistance.• High hardness and strength at elevated temperature.• Low thermal expansion coefficient and friction coefficient.	
		<ul style="list-style-type: none">• Mechanical seals, bearings.• Parts for valves and pumps.• Jigs for semiconductor equipment and furnace parts.	
Si3N4	AS 10	<ul style="list-style-type: none">• High wear resistance and corrosion resistance.• High hardness and strength at elevated temperature.• Low thermal expansion coefficient and friction coefficient.	
	AS 20	<ul style="list-style-type: none">• Pin-chucks, guide rolls.• Pins and jigs for heat treatment.• Nozzles.	
		<ul style="list-style-type: none">• Good thermal shock resistance.• Uniform performance and durability.• High hardness and strength at elevated temperature.	
Al2O3	AW 10	<ul style="list-style-type: none">• Excellent machinability.• Excellent chemical stability at elevated temperature.• High thermal shock resistance.	
		<ul style="list-style-type: none">• Side dams for molten iron.• Crucibles for high temperature applications.• Nozzles, tubes.	
ZrO2	AW 50-Y	<ul style="list-style-type: none">• High strength and hardness.• Excellent wear resistance and electrical insulation.• Wide range of application.	
	AW 50-M	<ul style="list-style-type: none">• Jigs for semiconductor equipment.• Mechanical seals, faucet valves.• Parts for textile and industrial machines.	
Al2O3-TiC	AB 30	<ul style="list-style-type: none">• High strength and fracture toughness at room temperature.• Low friction coefficient and high wear resistance.• High chipping resistance.	
		<ul style="list-style-type: none">• Parts for textile and industrial machines.• Knives for magnetic tapes.• Pump shafts, bearing valves.	
Al2O3-TiC	AB 30	<ul style="list-style-type: none">• High fracture toughness.• Low friction coefficient and high wear resistance.• High thermal shock resistance.	
		<ul style="list-style-type: none">• Dies for hot extrusion and drawing.• Rolls for can making industry.• Parts for valves, bearing and pumps.	
Al2O3-TiC	AB 30	<ul style="list-style-type: none">• High strength, hardness and fracture toughness.• Low friction coefficient.• Uniform performance and durability.	
		<ul style="list-style-type: none">• Magnetic heads for HDD.• Paper sliders.• Parts requiring higher strength and hardness than alumina at room temperature.	

SILICON NITRIDE CERAMICS >>>

AS 10



Features

- High strength and fracture toughness
- High hardness at elevated temperature
- Excellent high-temperature strength
- Uniform performance and durability

Application

- Pin-chucks, guide rolls
- Pins and jigs for heat treatment
- Nozzles
- Gate blocks for aluminum casting
- Dies for hot extrusion and drawing

SILICON CARBIDE CERAMICS >>>

AC 10



Features

- High wear resistance and corrosion resistance
- High hardness and strength at elevated temperature
- Low thermal expansion coefficient and friction coefficient
- Uniform performance and durability

Application

- Mechanical seals, bearings
- Parts for valves and pumps
- Jigs for semiconductor equipment and furnace parts
- Grit-blast nozzle liners
- Thermocouple protection tubes and high temperature liners (parts of waste incinerator)
- Various bulletproof products

BORON NITRIDE CERAMICS >>>

AS 20



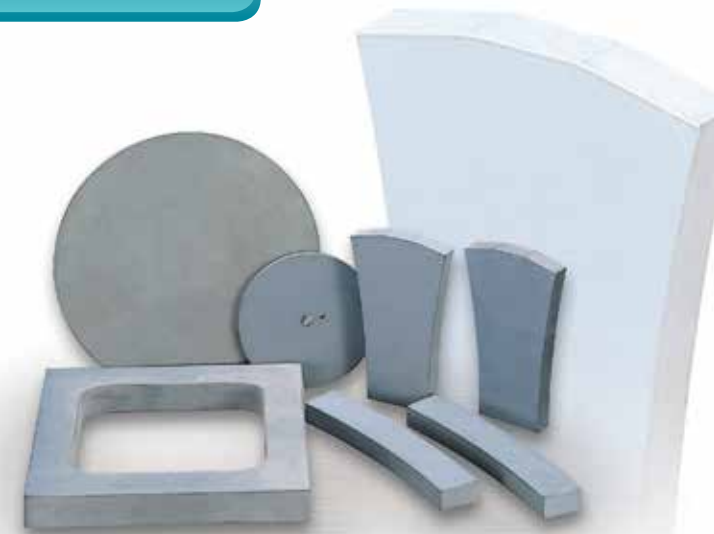
Features

- Good thermal shock resistance
- Uniform performance and durability
- High hardness and strength at elevated temperature

Application

- Pin-chucks, guide rolls
- Dies for hot extrusion and drawing
- Nozzles

AS 70



Features

- Excellent machinability
- Excellent chemical stability at elevated temperature
- High thermal shock resistance
- High corrosion resistance for molten iron

Application

- Side dams for molten iron
- Crucibles for high temperature applications
- Nozzles, tubes
- Precision parts for electronics and medical instruments

AW10/AW50-Y/AW50-M

Grade	Features	Application	Micro Structure (X5000)
AW10	<ul style="list-style-type: none">• High strength and hardness• Excellent wear resistance and electrical insulation• Wide range of application	<ul style="list-style-type: none">• Jigs for semiconductor equipment• Mechanical seals, faucet valves• Parts for textile and industrial machines	
AW50-Y	<ul style="list-style-type: none">• High strength and fracture toughness at room temperature• Low friction coefficient and high wear resistance• High chipping resistance	<ul style="list-style-type: none">• Parts for textile and industrial machines• Knives for magnetic tapes• Pump shafts, bearing valves	
AW50-M	<ul style="list-style-type: none">• High fracture toughness• Low friction coefficient and high wear resistance• High thermal shock resistance	<ul style="list-style-type: none">• Dies for hot extrusion and drawing• Rolls for can making industry• Parts for valves, bearing and pumps	



AB 30

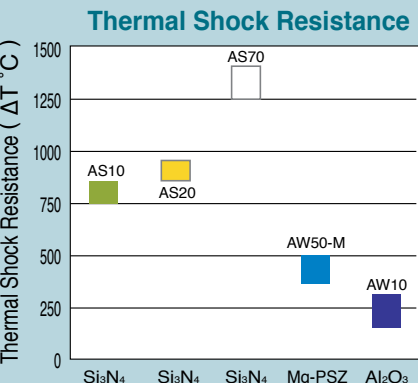
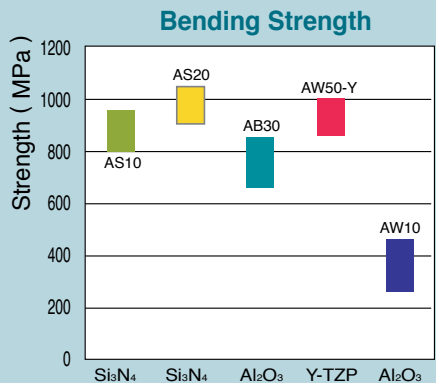
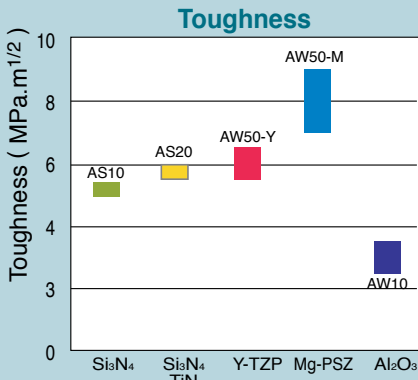
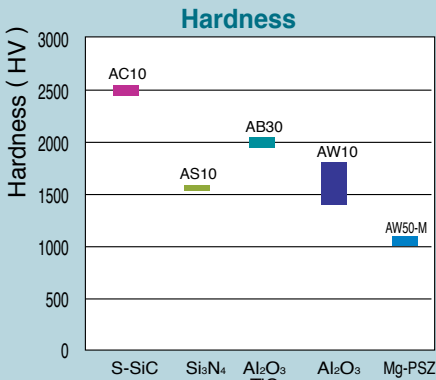


Features

- High strength, hardness and fracture toughness.
- Low friction coefficient uniform performance and durability

Application

- Magnetic heads for HDD
- Paper sliders
- Parts requiring higher strength and hardness than alumina at room temperature



CERAMIC WEAR PARTS

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