



# Grade of Ceramic Wear Parts

TaeguTec Ceramic Wear		SiC	Si <sub>3</sub> N <sub>4</sub>			Al <sub>2</sub> O <sub>3</sub> TIC	ZrO <sub>2</sub>		Al <sub>2</sub> O <sub>3</sub>		
		AC10	AS10	AS20	AS70	AB30	AW50-Y	AW50-M	AW10-998	AW10-990	AW10-960
Density	g/cm <sup>3</sup>	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 <sup>1/2</sup>	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 <sup>-6</sup> /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)	Excellent	Good			Good	Good		Normal		
	Alkali (KOH)	Excellent	Good			Good	Good		Poor		

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