



## Inspection Results

Product 3MM GA0.4-S-HI

Item	Method		Specification	Result			
Chemical analysis	Atomic absorption spectrometer	n=1/M.L.	Aluminum (Al) 3.2~ 4.2	Al 3.3 %			
			Yttrium (Y) 3.0~ 4.0	Y 3.40			
			Titanium (Ti) 0.5~ 1.0	Ti 0.76			
			Oxygen (O) 3.5~ 5.5	O 4.20			
			Carbon (C) 0~ 0.3	C 0.100			
			Magnesium (Mg) 0~ 0.1	Mg 0.006			
			Calcium (Ca) 0~ 0.05	Ca 0.011			
			Iron (Fe) 0~ 0.05	Fe 0.007			
Rupture strength	3-point bending test  Sample size width 4 mm thickness 3 mm length 35 mm Span 30 mm	n=20/M.L.	Minimum strength ? 730 Mpa (Room temperature)	1148 1157 1161 1198 1204 1208 1214 1223 1228 1246 1258 1259 1264 1270 1274 1283			
			The Weibull no. (m) ? 12	1286 1289 1289 1305			
			Average =	1238			
			Minimum =	1148			
			m =	31.3			
			Density	Archimedes' method	n=10/D.L.	3.22~ 3.26 g/cm <sup>3</sup>	3.24 3.24 3.24 3.24 3.24 3.24 3.24 3.24 3.24 3.24
			Vickers Hardness (HV20)	Load = 196N (20kgf) Hold Time = 30 sec.	n=5/D.L.	HV20=1460~ 1600	1539 1531 1540 1529 1546
			Fracture Toughness	Indentation Fracture-Method (NIIHARA's Method)	n=5/D.L.	K <sub>IC</sub> =6.0~ 8.0 MPa m <sup>1/2</sup>	7.8 7.7 7.8 7.3 7.8
Microstructure	Microscope 100x (~ 5000x)  (at the section)	n=3/D.L.	Porosity (>10µm) none Volume Rating 0.02% max Inclusion. Ceramics 2nd phase (>25µm) none Metallic Phases (>10µm) none SEM Image Metallurgical Microscope Image	None  <0.02%  None  Page 3/3 Page 3/3 Page 3/3			
Surface defects	Dye penetration		No crack	No crack			
Dimension	Micrometer	n=20/D.L.	Supply spec. TSB/4g	Page 3/3			