

Ferro-Tic[®] Grade MS-5A

GRADE DESCRIPTION

Ferro-Tic Grade MS-5A is an advanced metal matrix composite comprised of ultra-hard titanium carbide grains homogeneously dispersed in an age-hardenable, martensitic stainless steel matrix. In the annealed state, it can be readily machined into any desired shape using conventional tooling. MS-5A exhibits excellent corrosion resistance due to the low carbon content in the chromium nickel precipitation hardening matrix.



APPLICATIONS

Ferro-Tic Grade MS-5A is ideally suited for applications in the food and chemical industries. MS-5A is widely used for pelletizer knives and die faces in the plastics industry.

CHEMICAL COMPOSITION GUIDE (weight %)

Carbide Phase	Binder Phase					
	Cr	Ni	Co	Mo	Ti	Fe
Titanium Carbide	14.0	6.0	5.0	4.0	1.5	Bal

SOLUTION ANNEALING

Temperature: 1800°F for 1 Hour,
Rapid Cool, Approx. 52 HRC
(material is supplied in the solution annealed condition)

AGE HARDENING

Temperature: 900°F for 10 Hours,
Rapid Cool, 59-63 HRC

PROPERTIES

Density, g/cc.....	6.55
Hardness, Rc	
Solution Annealed.....	Approx. 52
Aged.....	59-63
Transverse Rupture Strength.....	256
(psi x 10 ³)	
Compressive Strength.....	415
(psi x 10 ³)	
Impact Strength (charpy unnotched).....	343
(in-lbs/in ²)	
Tensile Strength.....	197
(psi x 10 ³)	
Modulus of Elasticity, Mpsi	39
Coefficient of Thermal Expansion x 10 ⁻⁶ /in/in/°F	
70°F-212°F.....	4.606
70°F-840°F.....	5.471
Linear Size Change	
Thru Heat Treatment, %.....	-0.009