

## The NanoSteel® Company SHS 8000 TWAS Iron Based Alloy, Cored Wire

Category : Metal , Ferrous Metal , Alloy Steel , Other Engineering Material , Ceramic/Metallic Coating

### Material Notes:

Coating Description: SHS 8000 TWAS is a glass forming iron based alloy that forms a nanocomposite comprised of a mixed amorphous and nanoscale microstructure when sprayed as a coating. SHS 8000 features high wear resistance, elevated temperature erosion resistance and a unique high hardness/toughness combination. Key Performance Characteristics Excels in elevated temperature environments where fly ash and bed ash erosion occurs Superior bond strength without necessity of bond coat Hardness increases as a function of time and temperature Application Process: Twin Wire Arc Spraying (TWAS) Information Provided by The NanoSteel Company, Inc.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_The-NanoSteel-Company-SHS-8000-TWAS-Iron-Based-Alloy-Cored-Wire.php](http://www.lookpolymers.com/polymer_The-NanoSteel-Company-SHS-8000-TWAS-Iron-Based-Alloy-Cored-Wire.php)

Physical Properties	Metric	English	Comments
Density	7.30 g/cc	0.264 lb/in <sup>3</sup>	Coating Property
Porosity	<= 5.0 %	<= 5.0 %	Coating Property

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1064 - 1234	1064 - 1234	kg/mm <sup>2</sup> ; HV300
	>= 117	>= 117	
	@Temperature 760 °C	@Temperature 1400 °F	
	>= 309	>= 309	
	@Temperature 649 °C	@Temperature 1200 °F	
	>= 620	>= 620	
	@Temperature 316 °C	@Temperature 600 °F	
	>= 912	>= 912	
	@Temperature 149 °C	@Temperature 300 °F	
	>= 1030	>= 1030	
	@Temperature 21.1 °C	@Temperature 70.0 °F	
Adhesive Bond Strength	78.6 MPa	11400 psi	1018 steel; ASTM C633-01
	@Thickness 0.508 mm	@Thickness 0.0200 in	
Coefficient of Friction	0.316	0.316	

Thermal Properties	Metric	English	Comments
CTE, linear	8.53 μm/m-°C	4.74 μin/in-°F	

Thermal Properties	@Temperature 100 - Metric 300 °C	@Temperature 212 - English 392 °F	Comments
Thermal Conductivity	4.28 W/m-K	29.7 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	4.678 W/m-K	32.47 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 50.0 °C	@Temperature 122 °F	
	5.055 W/m-K	35.08 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 75.0 °C	@Temperature 167 °F	
	5.269 W/m-K	36.57 BTU-in/hr-ft <sup>2</sup> -°F	
@Temperature 100 °C	@Temperature 212 °F		
5.505 W/m-K	38.20 BTU-in/hr-ft <sup>2</sup> -°F		
@Temperature 125 °C	@Temperature 257 °F		
5.707 W/m-K	39.61 BTU-in/hr-ft <sup>2</sup> -°F		
@Temperature 150 °C	@Temperature 302 °F		

Component Elements Properties	Metric	English	Comments
Boron, B	<= 5.0 %	<= 5.0 %	
Carbon, C	<= 2.0 %	<= 2.0 %	
Chromium, Cr	<= 22 %	<= 22 %	
Iron, Fe	>= 59 %	>= 59 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	<= 5.0 %	<= 5.0 %	
Niobium, Nb (Columbium, Cb)	<= 5.0 %	<= 5.0 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	

Descriptive Properties	Value	Comments
Impact Resistance	No delamination/cracking at 480 in-lbs	Drop Impact Testing
Wear Resistance Mass Loss (g)	0.15	2000 cycles; ASTM G65-04 Procedure B

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