

Carlson GOC 276 Nickel-Molybdenum-Chromium

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

General Description Carlson Alloy GOC 276 is a nickel-molybdenum-chromium alloy exhibiting outstanding corrosion resistance over a wide range of service environments. This alloy is generally use in the as-welded condition. It dies not require a post-weld heat treatment because the low carbon content minimizes the formation of grain boundary precipitates in the heat-affected zones of the weld joints. High nickel and molybdenum content provides excellent resistance to corrosion in reducing atmospheres. High chromium content provides excellent resistance to oxidation at temperatures up to 1900°F (1038°C). GOC 276 also exhibits exceptional resistance to general pitting and stress corrosion cracking. **Applications** GOC 276 is used extensively in severe operating environments, including those encountered in chemical processing, pulp and paper, air pollution control, ore processing, waste treatment and disposal, and other applications. GOC 276 exhibits excellent resistance to ferric and cupric chlorides, hot contaminated organics and inorganics, chlorine, formic acid, acetic acid, acetic anhydride, sea water and brine. It is one of the few alloys that is resistance to wet chlorine gas, hypochlorite, and chlorine dioxide. **Chemical Processing Equipment** – heat exchangers, reactors and vessels, evaporators, pumps, valves and piping for processing sulfuric acid, pesticides, phenol, styrene, vinyl chloride, chlorine and other chemicals **Pulp and Paper** – bleaching, head boxes, and waste-gas scrubbers. **Air Pollution Control** – power plant scrubbers and related equipment, electrostatic precipitators, reheaters, waste-heat recovery systems, industrial boiler scrubbers, marine inert gas scrubbers **Ore Processing** – uranium and aluminum sulfate **Waste Treatment and Disposal** – sewage sludge incinerators, industrial and municipal incinerators, chemical and toxic waste incinerators. Information provided by Carlson

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http://www.lookpolymers.com/polymer_Carlson-GOC-276-Nickel-Molybdenum-Chromium.php

Physical Properties	Metric	English	Comments
Density	8.89 g/cc	0.321 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	<= 100	<= 100	
Tensile Strength at Break	>= 689 MPa	>= 100000 psi	
Tensile Strength, Yield	>= 283 MPa @Strain 0.200 %	>= 41000 psi @Strain 0.200 %	
Elongation at Break	>= 40 %	>= 40 %	

Thermal Properties	Metric	English	Comments
CTE, linear	12.1 µm/m-°C	6.70 µin/in-°F	
	@Temperature 23.9 - 204 °C	@Temperature 75.0 - 400 °F	
	13.1 µm/m-°C	7.30 µin/in-°F	

Thermal Properties	Metric @Temperature 23.9 - 427 °C	English @Temperature 75.0 - 500 °F	Comments
	14.0 µm/m-°C	7.80 µin/in-°F	
	@Temperature 23.9 - 649 °C	@Temperature 75.0 - 1200 °F	
	15.8 µm/m-°C	8.80 µin/in-°F	
	@Temperature 23.9 - 871 °C	@Temperature 75.0 - 1600 °F	
Specific Heat Capacity	0.427 J/g-°C	0.102 BTU/lb-°F	
Melting Point	1324 - 1370 °C	2415 - 2500 °F	
Solidus	1324 °C	2415 °F	
Liquidus	1370 °C	2500 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.010 %	<= 0.010 %	
Chromium, Cr	14.5 - 16.5 %	14.5 - 16.5 %	
Cobalt, Co	<= 2.5 %	<= 2.5 %	
Iron, Fe	4.0 - 7.0 %	4.0 - 7.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	15 - 17 %	15 - 17 %	
Nickel, Ni	50.99 - 63.5 %	50.99 - 63.5 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 0.080 %	<= 0.080 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	
Tungsten, W	3.0 - 4.5 %	3.0 - 4.5 %	
Vanadium, V	<= 0.35 %	<= 0.35 %	

Electrical Properties	Metric	English	Comments
Magnetic Permeability	1.001	1.001	B-H at 200H

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