

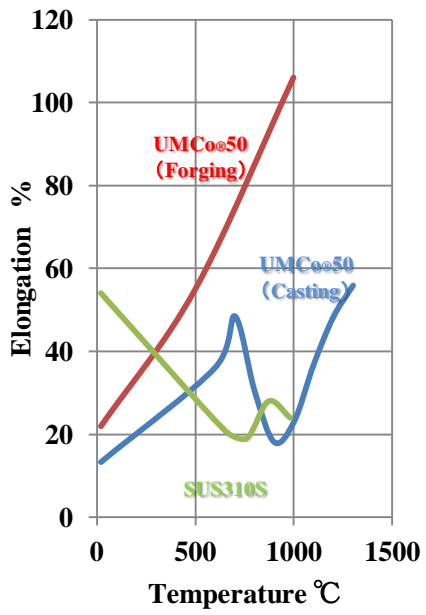
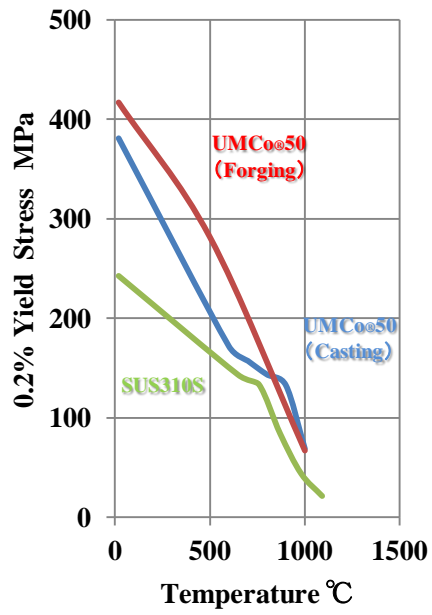
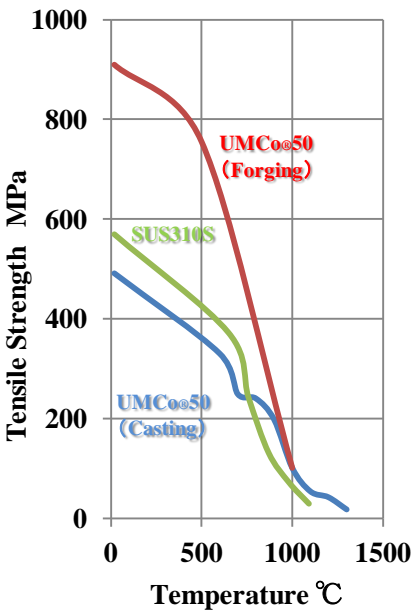
UMCo®50 [Co-28Cr-21Fe (mass%)]

Cobalt-based alloy having high temperature strength and sulfidation resistance

UMCo® 50 is a Co-based alloy with excellent sulfidation and heat resistance compared with other Ni-base, and Co-base heat-resistant materials. This material demonstrates superior strength at a high temperature of 1000 °C or more.

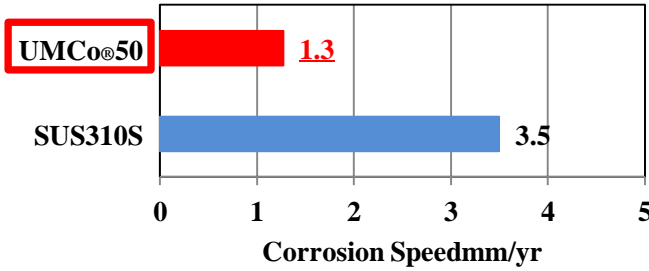
UMCo® 50 is used for thermocouple protection tubes, combustion burners, diffuser, furnace skid rails, skid buttons, for heat treatment trays, ingot molds, arc furnace door guides, etc.

Mechanical Properties (Forgings and Castings)

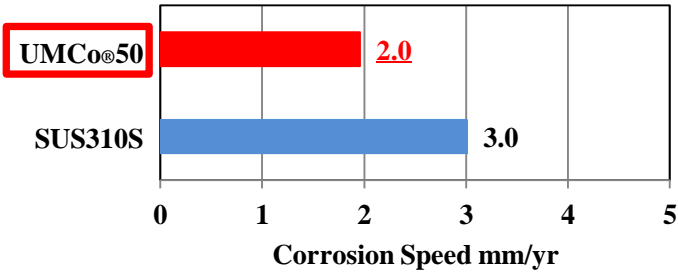


Sulfidation Resistance Test

Example①
 Heating Condition; 870°C 77Hr
 Salt Composition; CaSO4 55wt%, BaSO4 30wt%, Na2SO4 10wt%, C 5%



Example②
 Heating Condition; 700°C 192Hr
 Salt Composition; NaCl 50wt%, Na2SO4 50wt%



Physical Properties(Forgings and Castings)

	Forgings	Castings
Density	8.05 g/cm ³	
Melting Point	1380 ~ 1427 °C	
Thermal Coefficient of Expansion	17.9×10 ⁻⁶ /°C	16.8×10 ⁻⁶ /°C
Thermal Conductivity (Room Temp)	14.1 W/m·K	8.9 W/m·K
Degree of Elasticity (Room Temp)	207 GPa	213 GPa

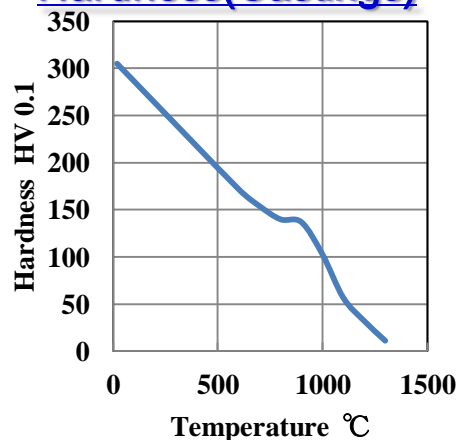
Temperature (°C)	Load (Mpa)	Breaking Time (hr)	Elongation n%	Reduction of Area%
800	58.9	1221	6	6.4
982	49.0	7.6	41.7	57
	34.3	49.1	16.5	20.8
	29.4	181.2	7.9	11.6
	24.5	305	9.6	11.8

Heat Cycle Test (Castings)

Tested using direct energized embrittlement testing machine in the state of 14.7MPa, heated at 100 ~ 1210 °C , Cooling (rate 730 °C / min)

Cycle at time of breaking(回)	Elongation(%)	(%)
38	4.3	3.6

Hardness(Castings)



Available Product Forms

Product Form	Capacity
Forging	Unit Weight Max. 1,500kg (As Forged. Machined Items Max. 1,000kg)
Round Bar	Φ10~250mm
Plate	Thickness 0.5~50mmt Width, Length to be discussed
Welding Wire	Φ3.2x 1,000 mmL

※Pipes and Castings to be discussed individually

- 「UMCo」 is a registered trademark of MMC Superalloy Corporation (No. 3162442)
- Data in this brochure are typical values and is not a guaranteed value.
Physical testing is required for selection of material for individual applications.

< Contact >

MMC Superalloy Corporation

◆High Performance Alloy Sales Group

1230 Kamhideya, Okegawa-shi, Saitama, 363-8510, Japan

TEL : 048-786-3709 / FAX : 048-786-3416

◇URL <http://group.mmc.co.jp/superalloy/en>



Mitsubishi Materials Group