

UMCo®50™

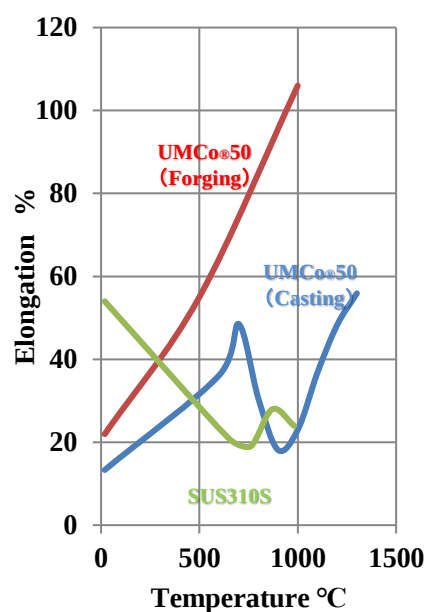
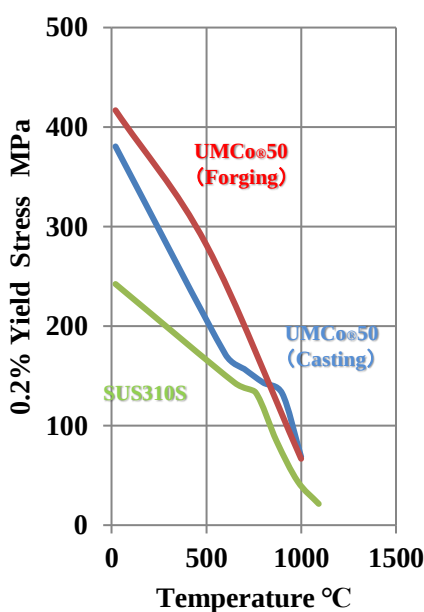
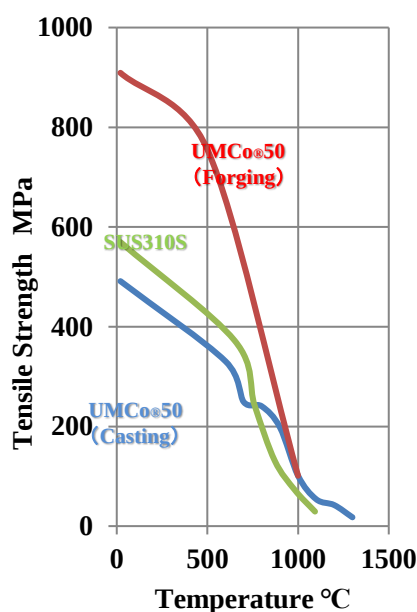
[Co-28Cr-21Fe (mass%)]

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)

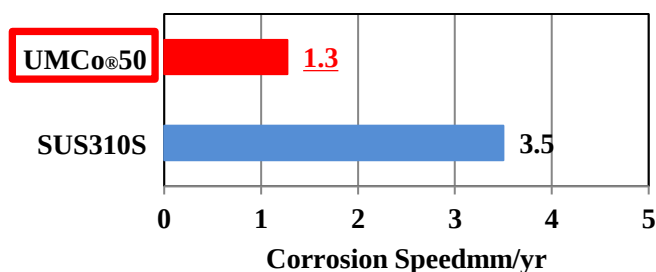


Sulfidation Resistance Test

Example①

Heating Condition ; 870°C 77Hr

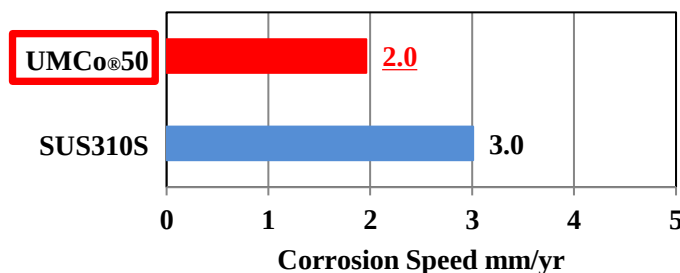
Salt Composition ; CaSO₄ 55wt%, BaSO₄ 30wt%, Na₂SO₄ 10wt%, C 5%



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

Heat Cycle Test (Castings)

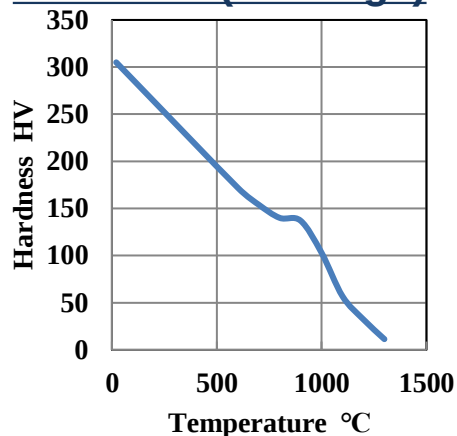
Tested using direct energized embrittlement testing machine in the state of 14.7MPa, heated at 100 ~ 1210 °C, Cooling (rate 730 °C / min)

Cycle	Elongation %	Reduction of Area %
38	4.3	3.6

Creep Rupture Test (Castings)

Temperature °C	Stress Mpa	Rupture Time, hr	Elongation %	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

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

※Pipes and Castings to be discussed individually

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- Data in this brochure are typical values and is not a guaranteed value.
Physical testing is required for selection of material for individual applications.

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