



TECHNICAL DATA - Special Alloys

NICKEL/CHROMIUM ALLOY: **A20 (UNS N08020) or ASTM A351 - CN7M**

Description

Alloy 20 is a 35% Nickel, 20% Chromium Alloy with Copper & Molybdenum additions designed for maximum resistance to attack from sulphuric and other acids and chlorides.

Heat Treatment

Castings in Alloy 20 are normally supplied in the as-cast or annealed condition.

Applications

Pumps, Valves, Pickling equipment, and chemical processing parts.

Design Considerations

Section thicknesses from 8 mm up can be cast satisfactorily in Alloy 20. Designs with drastic changes in section should be avoided, and uniform thickness maintained whenever possible.

Summary of Properties

Nominal Chemical Composition %

| C | Mn | Si | P | S | Cr | Mo | Ni | Cu | Nb | Fe |
|------|-----|-----|------|------|------|-----|------|-----|-----|---------|
| 0.05 | 1.5 | 0.8 | 0.03 | 0.02 | 20.0 | 2.5 | 30.0 | 3.5 | 0.5 | Balance |

Mechanical Properties at room temperature

UTS 425 MPa

Yield 170 MPa

Elongation 35%

Hardness 200 BHN

Physical Properties

Density (g/cm³) 8.08

Melting Point (°C) 1420

Specific Heat (J/kg°C) 500

Electrical Resistivity (microhms/cm³) 108

Magnetic Permeability 1.2μ

Thermal Conductivity (W/m-K) 13.2

Mean Coefficient of Thermal Expansion (cm/cm/°C x 10⁻⁶)

93°C 2.08

149°C 2.75

260°C 4.95

371°C 8.02

Properties listed are typical of published laboratory tests and are intended as a guide only. This data should not be considered as guaranteed maximums or minimums. Materials should be tested under actual service conditions to determine their suitability for particular applications.