

MICRON ALLOY CASTINGS LTD

TECHNICAL DATA - Special Alloys

17/4 PH

Description

17/4 PH is a precipitation hardening martensitic stainless steel combining high strength and hardenability with excellent corrosion resistance.

Heat Treatment

Castings in 17/4 PH alloy are normally supplied in the solution annealed condition. Can be nitrided to a hardness up to 67 Rockwell 'C'

Applications

Widely used in the aerospace, chemical, petrochemical, food & paper processing industries where toughness and hardness is a requirement together with corrosion and heat resistance. Corrosion resistance is comparable to 304 stainless steel.

Design Considerations

Section thicknesses from 7mm up can be cast satisfactorily in 17/4 PH. Designs with drastic changes in section should be avoided and uniform thickness maintained whenever possible.

Summary of Properties

Chemical Composition %

C	Mn	Si	P	S	Cr	Ni	Cu
0.03	0.8	0.85	0.02	0.02	16.0	4.0	4.0

Mechanical Properties at room temperature (Solution Annealed 1050°C)

UTS	1034 N/mm ²
Elongation	6%
Reduction in Area	30%
Hardness	302 BHN

Physical Properties

Specific Gravity	8.05
Density g/cm ³	7.78
Specific Heat (kJ/kg/°C)	0.46
Electrical Resistivity, microhms/cm ³	98
Magnetic Permeability	2.0μ

Thermal Conductivity (W/m°C)

at 150°C = 17.9 at 250°C = 19 at 500°C = 23

Mean Coefficient of Thermal Expansion (cm/cm°C x 10⁶)

20 - 100°C	15.2
20 - 300°C	15.75
20 - 400°C	16

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.