AUBERT&DUVAL

Cobalt-based Alloy

XSH

CoCr20W15Ni

SPECIFICATIONS

European standard:

- CoCr20W15Ni

AIR : KC20WN
WL : 2.4964
BS : HR40, HR240
UNS : R30605

COMPOSITION

Carbon	<0.10
Chromium	20.00
Tungsten	15.00
Nickel	10.00
Iron	<3.00
Manganese	1.20
Cobalt	Base

TYPICAL MECHANICAL PROPERTIES

On metal supplied ready for use:

- Tensile test at ambient temperature:
  - UTS: 1005 N/mm^2
  - 0.2 % Yield strength: 460 N/mm^2
  - Elongation (5d): 45 %

- Rapid tensile test at temperature:

Temperature in °C	UTS in N/mm^2	0.2 % Yield strength in N/mm^2
200	890	330
400	700	275
600	640	245
800	400	255
900	290	190

- Creep:

Temperature In °C	Average load in N/mm^2 causing creep fracture in: 1000 hrs
650	270
800	110
900	62
950	42
1000	21
1050	15

APPLICATIONS

- Aerospace industry:
  - Gas turbine parts exposed to high temperatures: blades, combustion chambers, nozzles ...

CHARACTERISTICS

Cobalt base superalloy with:

- Excellent corrosion resistance.
- In an electrolytic environment, the passive layer limits the galvanic effect to a very low level.

HEAT TREATMENT

- Solution treatment:
  1210°C / 30 min / Air cool

PHYSICAL PROPERTIES

- Density: 9.1

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 200°C: 13.1×10^{-6}
  - between 20°C and 400°C: 13.8×10^{-6}
  - between 20°C and 600°C: 14.7×10^{-6}
  - between 20°C and 800°C: 16.0×10^{-6}

- Modulus of elasticity in N/mm^2:
  - at 20°C: 243×10^3
  - at 200°C: 228×10^3
  - at 400°C: 210×10^3
  - at 600°C: 190×10^3
  - at 800°C: 168×10^3

- Thermal conductivity in $W.m/m^2.°C$:
  - at 20°C: 13
  - at 200°C: 16
  - at 400°C: 19
  - at 600°C: 22
  - at 800°C: 25
  - at 1000°C: 28

- Specific heat in J/g.°C:
  - at 20°C: 0.405

- Electrical resistivity in $\mu\Omega.cm^2/cm$:
  - at 20°C: 90

- Absolute magnetic permeability in H/m:
  1.005×10^{-6}

FORGING

- Please contact us.

Contact:

www.aubertduval.com