

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 and land turbine industry:
 - Gas turbine parts exposed to high temperatures: blades, combustion chambers, nozzles ...
- Medical: implants

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 $m/m.^{\circ}C$:
 - 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 $W.m/m^2.^{\circ}C$:
 - 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 $J/g.^{\circ}C$:
 - at 20°C: 0.405
- Electrical resistivity in $\mu\Omega.cm^2/cm$:
 - at 20°C: 90
- Absolute magnetic permeability in H/m:
1.005x10⁻⁶

FORGING

- Please contact us.

Contact:

www.aubertduval.com

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