Stellite™ 6-AM-K

NOMINAL COMPOSITION

	Co	Cr	W	Si	Mn	Fe	C	Ni	All Others
Stellite 6-AM-K	Bal	28	4.5	1.1	1	Max. 3	1.2	Max. 3	< 1

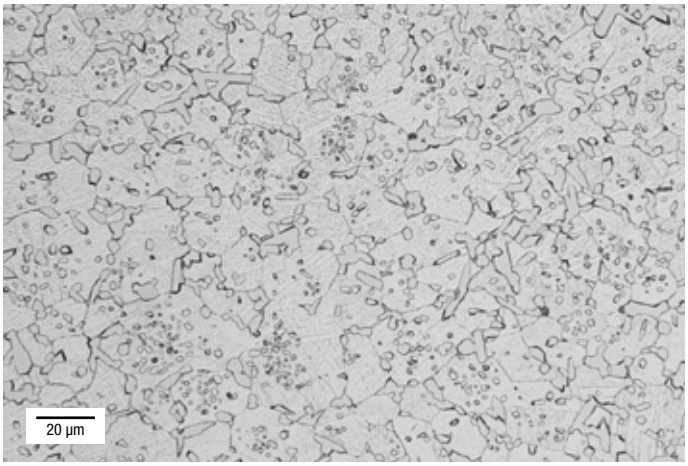
PRODUCT DESCRIPTION

The cobalt-based **Stellite** alloy family has historically been recognized as one of the most successful wear- and corrosion-resistant alloy families in the world. They consist of complex carbides in an alloy matrix. They are resistant to wear, galling, and corrosion and retain these properties at high temperatures. Their exceptional wear resistance is mainly due to the unique inherent characteristics of the hard carbide phase dispersed in a CoCr alloy matrix.

Stellite 6-AM-K is the most widely used wear-resistant cobalt-based alloy and exhibits good all-round performance. It is regarded as the industry standard for general-purpose wear-resistance applications, has excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range, and retains a reasonable level of hardness up to 500° C (930° F).

PHYSICAL PROPERTIES

Stellite 6-AM-K	
Hardness (HRC)	36–45
Density (g/cc)	8.0–8.3
Porosity (%)	< 0.1



Micrograph of Stellite 6-AM-K

NOMINAL THERMAL PROPERTIES

	RT	100° C	300° C	500° C	700° C	900° C
Thermal Expansion Coefficient (µm/mK)		14	14	15	16	17
Thermal Conductivity (W/mK)	12	14	17	21	24	28
Specific Heat (J/gK)	0.5	0.5	0.5	0.6	0.6	0.7

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Stellite™ 6-AM-K

NOMINAL STRENGTH

Transverse Rupture Strength	ksi	MPa
Horizontal	276 ± 22	1900 ± 200
Vertical	262 ± 22	1810 ± 200

Compressive Strength	ksi	MPa
Horizontal	311 ± 29	2140 ± 200
Vertical	322 ± 29	2220 ± 200

NOMINAL TENSILE PROPERTIES AT ROOM TEMPERATURE

		UTS		Yield Stress (0.2%)		Elongation	Elastic Modulus	
		ksi	MPa	ksi	MPa	A (%)	psi x 10^6	GPa
STELLITE 6-AM-K	Horizontal	134 ± 14	921 ± 100	95 ± 14	652 ± 100	2 ± 1	29 ± 4	198 ± 30
	Vertical	134 ± 14	925 ± 100	93 ± 14	644 ± 100	2 ± 1	28 ± 4	194 ± 30

CORROSION RESISTANCE

Reagent	Temp	Rating
5% HCl	104° F	N
10% H_2SO_4	150° F	N
10% HNO_3	150° F	E
10% NaCl	104° F	E

E = Excellent, Less than 10mdd (2mpy)
G = Good Resistance 11-100mdd (2-20mpy)
N=Not Recommended, >250mdd (50mpy)

WEAR RESISTANCE

		Printed
Wear Resistance (mm^3)	ASTM G65 @ 2000 revs	11 ± 5
Erosion Rate (mm^3/kg)	ASTM G76	34 ± 5
	Modified G76*	7 ± 1

* Slurry erosion test utilizing silica sand at 2000 psi.

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