TECHNICAL DATA

STELLITE™ 20 ALLOY

STELLITE™ COBALT-BASED ALLOYS consists 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 due mainly to the unique inherent characteristics of the hard carbide phase dispersed in a CoCr alloy matrix.

STELLITE™ 20 is the most abrasion resistant standard cobalt base alloy. It also has good corrosion resistance. Whilst it has low shock resistance, it is often the only answer for some applications such as slurry pumps or chemical resistant parts. Examples include pump sleeves, rotary seal rings, wear pads, bearing sleeves and centerless grinder work rests.

CORROSION RESISTANCE

The typical electrode potential in sea water at room temperature is -0.2 V (SCE).
Stellite™ 20 shows excellent corrosion resistance in Phosphoric Acid (concentration 60%, 66℃) and in Sulphuric Acid (concentration 90%, Room Temperature). In Nitric Acid (concentration 60%, boiling) a good corrosion resistance has been observed.

NOMINAL CHEMICAL COMPOSITION (MASS%)

ALLOY	Co	Cr	W	C	Others
Stellite™ 20	Bal.	32,5	17,5	2,5	Fe, Ni, Mo, Mn, Si

PHYSICAL PROPERTIES

ALLOY	Hardness	Density	Melting Range
Stellite™ 20	52 – 62 HRC / 570 – 740 HV	~ 8,77 g/cm^3	~ 1260 – 1300℃

NOMINAL HOT HARDNESS (HV resp. DPH) AS CAST

20℃	100℃	200℃	300℃	400℃	500℃	600℃	700℃	800℃	900℃
670	600	552	516	476	441	412	340	245	132

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EXAMPLE FOR TENSILE PROPERTIES AT ROOM TEMPERATURE

PRODUCT FORM	Ultimate Tensile Strength Rm	Yield Stress Rp (0,2%)	Elongation A
Tensile Strength and Yield Strength are varying strongly dependent on manufacturing method and heat treatment.			<< 1%

PRODUCT FORMS

Components		
Castings	Cladded / Hardfaced	PM / HIP parts*

* On special request.

Consumables for Cladding / Hardfacing and Additive Layer Manufacturing (ALM)			
Rods	TIG-Welding		Oxy-Acetylene Welding
Electrode	MMA Welding		
Powder	PTA Cladding	Laser Cladding	HVOF Spraying

TYPICAL STRUCTURES

Casted Stellite™ 20 Alloy (Investment Casting)

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