

Sandvik Bioline Pt/Ir alloys

(Wire)

Sandvik Bioline platinum iridium alloys (Pt10Ir, Pt20Ir) are precious metal wires that combine excellent biocompatible properties with excellent radiopacity, moderate strength and good formability. These alloys can be provided in an annealed, stress relieved or coldworked condition depending on the post processing requirements.

For medical use, Sandvik delivers Pt10Ir and Pt20Ir wires with the highest surface finish (Medical class) in order to maximize the fatigue strength which is critical in implant devices such as lead wires for cochlear implants and implant electrodes. Stress relieved conditioned wire are also often required when straightness is critical to the application.

STANDARDS

- ASTM B684

CHEMICAL COMPOSITION (NOMINAL) %

Sandvik	Pt	Ir
Bioline Pt10Ir	90	10
Bioline Pt20Ir	80	20

FORMS OF SUPPLY

Sandvik Bioline Pt10Ir, Pt20Ir can be supplied in round or flat wire form

Size range :

- Round wire : 0.018 to 0.254 mm (0.0007 to 0.010 in.)
- Flat wire : 0.0191 mm (0.00075 in.) minimum thickness ; 10:1 maximum aspect ratio ; 3.0 mm (0.118 in.) maximum width.

MECHANICAL PROPERTIES

ROUND WIRE*

Alloy and	Condition	Tensile strength R_m		Elongation A,	Hardness
		MPa	ksi	%	
		min	min	in 4D	
Pt10Ir	Annealed	380	55	20	44 HRA
Pt10Ir	Cold worked	896	130	2	55 HRA
Pt10Ir	Stress relieved	586	85	3	50 HRA
Pt20Ir	Annealed	690	100	20	57 HRA
Pt20Ir	Cold worked	1000	145	2	64 HRA
Pt20Ir	Stress relieved	827	120	3	60 HRA

* The values will be slightly lower in rectangular cross sections (flat wire form)

PHYSICAL PROPERTIES

Property	Pt10Ir	Pt20Ir
Density (20 °C)	21.5 g/cm ³	21.7 g/cm ³
annealed	202 MPa	-
work-hardened	219 MPa	233 MPa
Modulus of elasticity, $\times 10^3$ (20°C)		
Specific heat capacity (20°C)	485 J/(kg °C)	0.11Btu/(lb°F)
Thermal conductivity (20°C)	14W/(m°C)	8 Btu/(lb°F)
Thermal expansion, $\times 10^6$ (30-100°C)	16.5 per °C	9.5 per °F

APPLICATIONS

Sandvik Bioline Pt10Ir and Pt20Ir grades can be used for cochlear implants, stimulated electrodes implants, sensor for continuous glucose monitors and neurological stimulation devices.

These wires can be provided in as drawn condition, annealed or coated with a suitable polymer or PTFE coating.

Note : PtW wire can be supplied

DISCLAIMER:

Sandvik is not providing any products or services that are intended or may be construed to be recommending or otherwise advising on, in any manner, the design, suitability, appropriateness or effectiveness, from a medical/biological/safety perspective, of any medical material, instrument and/or medical device.