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INFORMATION SHEET

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MATERIAL	AISI 303	FAMILY	Austenitic stainless steel	SHEET #	AISI303.FIE
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EQUIVALENCY				
DIN	AFNOR	UNS	SS	ISO
1.4305 (X8CrNiS18-9)	Z10 CNF 18-09	S30300	2346	-

UTILISATION			
This material is commonly used for the manufacture of the following product elements:			
<input type="checkbox"/> Cannula (tube)	<input checked="" type="checkbox"/> Stylet (wire)	<input checked="" type="checkbox"/> Hub	<input checked="" type="checkbox"/> Handle
<input checked="" type="checkbox"/> Adaptor	<input checked="" type="checkbox"/> Stopcock		

GENERAL CHARACTERISTICS		
Straightness	Circularity	Concentricity (only tube)
2 mm difference for 1'000 mm length	- Tube : Circularity \cong ID tolerance - Wire: Circularity \cong OD tolerance	\leq 10% tube thickness
Outer surface finish	Inner surface finish (only tube)	-
N5 ($R_{a\max} = 0.4$)	N7 ($R_{a\max} = 1.6$)	-

MANUFACTURING			
Turing, drilling, milling	Turing, drilling, milling	Turing, drilling, milling	Turing, drilling, milling
Excellent	Not suggested	Good	Good
Sharpening	Polishing	Laser marking	-
Excellent	Good	Excellent	-

ASSEMBLING			
Bonding	Press fit	Soldering	Laser welding / Plasma
Good	Not suggested	Good	Good

CHEMICAL COMPOSITION [%]									
C	Si	Mn	P	S	Cr	Ni	Mo	-	-
≤ 0.12	≤ 1.0	≤ 2.0	≤ 0.06	0.15-0.35	17.0-19.0	8.0-10.0	≤ 0.70	-	-

The reference to the chemical composition is the one from the standard ASTM F899.

The chemical composition from other equivalent standards may be slightly different from that provided in this information sheet.

MECHANICAL PROPERTIES	
Material state	Tensile strength R_m [MPa]
Hard	600 – 1'000

PHYSICAL PROPERTIES		
Density ρ [kg/m ³]	Electrical resistivity ρ [$\mu\Omega \times m$]	Thermal conductivity λ [W/(m \times K)] at 20°C
7'900	0.73	15
Modulus of elasticity E [GPa] at 20°C	Coefficient of linear thermal expansion α [$10^{-6} / ^\circ C$] between 20°C and 100°C	Specific heat capacity C_p [J/(kg \times K)] at 20°C
200	16.0	500

Corrosion resistance
Good corrosion resistance

BIOCOMPATIBILITY (ISO 10993-1)
The austenitic stainless steel AISI 303 is a metallic material compatible with standards of materials for medical devices. It is referenced in the American standard of surgical instruments ASTM F899 and therefore can be considered clinically established and a recognized material (state-of-the-art) for medical devices.
The customer is responsible to verify the compatibility of the material selected from its intended use.

STANDARDS	
ISO 15510	Stainless steels -Chemical composition
ISO 9626	Stainless steel needle tubing for the manufacture of medical devices
ISO 7153-1	Surgical instruments - Metallic materials - Part 1: Stainless steel
ASTM F899	Standard Specification for Wrought Stainless Steels for Surgical Instruments
ISO 16061	Instrumentation for use in association with non-active surgical implants - General requirements

All this information are for reference only. They have no legal or contractual commitment Unimed SA.

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