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# INFORMATION SHEET

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| MATERIAL | AISI 303 | FAMILY | Austenitic stainless steel | SHEET # | AISI303.FIE |
|---|---|---|---|---|---|

| 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:

☐ Cannula (tube) ☒ Stylet (wire) ☒ Hub ☒ Handle
☒ Adaptor ☒ Stopcock

| GENERAL CHARACTERISTICS | | |
|---|---|---|
| **Straightness** | **Circularity** | **Concentricity** *(only tube)* |
| 2 mm difference for 1'000 mm length | - Tube : Circularity ≅ ID tolerance<br>- Wire: Circularity ≅ OD tolerance | ≤ 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 |
| **Sharping** | **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 PROPRIETIES | |
|---|---|
| **Material state** | **Tensile strength** Rm [MPa] |
| Hard | 600 – 1'000 |

| PHYSICAL PROPRIETIES | | |
|---|---|---|
| **Density** $\rho$ [kg/m$^3$] | **Electrical resistivity** $\rho$ [$\mu\Omega \times$ m] | **Thermal conductivity** $\lambda$ [W/(m × K)] at 20°C |
| 7'900 | 0.73 | 15 |
| **Modulus of elasticity** E [GPa] at 20°C | **Coefficient of linear thermal expansion** $\alpha$ [$10^{-6}$ / °C] between 20°C and 100°C | **Specific heat capacity** $C_p$ [J/(kg × 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 |