

# Implantable Metallic Biomaterials for Medical and Surgical Devices



## Technical Data Sheet

### 1. SPECIALTY STEELS

#### Material Designation

Fe-18Cr-14Ni-2.5Mo  
Fe-18Cr-12.5Ni-2.5Mo, Cast  
Fe-21Cr-10Ni-3.5Mn-2.5Mo  
Fe-22Cr-12.5Ni-5Mn-2.5Mo  
Fe-23Mn-21Cr-1Mo-1N

#### Common Name

Trade Name  
316 L Stainless Steel  
316 L Stainless Steel  
"REX 734"  
"XM-19"  
"108"

#### UNS

Designation  
S31673  
Unassigned  
S31675  
S20910  
S29108

#### ASTM

Standard  
ASTM F 138  
ASTM F 745  
ASTM F 1586  
ASTM F 1314  
ASTM F 2229

#### ISO

Standard  
ISO 5832-1  
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ISO 5832-9  
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### 2. COBALT BASE ALLOYS

#### Material Designation

Co-28Cr-6Mo Casting Alloy  
Co-28Cr-6Mo Wrought Alloy #1  
Co-28Cr-6Mo Wrought Alloy #2  
Co-28Cr-6Mo Wrought Alloy #3  
Co-20Cr-15W-10Ni-1.5Mn  
Co-20Ni-20Cr-5Fe-3.5Mo-3.5W-2Ti  
Co-19Cr-17Ni-14Fe-7Mo-1.5Mn  
Co-20Cr-15Ni-15Fe-7Mo-2Mn  
Co-35Ni-20Cr-10Mo

#### Common Name

Trade Name  
Cast CoCrMo  
Wrought CoCrMo, Alloy 1  
Wrought CoCrMo, Alloy 2  
Wrought CoCrMo, "GADS"  
"L-605"  
"Syncoben"  
Grade 2 "Phynox"  
Grade 1 "Elgiloy"  
"35N"

#### UNS

Designation  
R30075  
R31537  
R31538  
R31539  
R30605  
R30563  
R30008  
R30003  
R30035

#### ASTM

Standard  
ASTM F 75  
ASTM F 1537  
ASTM F 1537  
ASTM F 1537  
ASTM F 90  
ASTM F 563  
ASTM F 1058  
ASTM F 1058  
ASTM F 562

#### ISO

Standard  
ISO 5832-4  
ISO 5832-12  
ISO 5832-12  
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ISO 5832-5  
ISO 5832-8  
ISO 5832-7  
ISO 5832-7  
ISO 5832-6

### 3. TITANIUM AND TITANIUM ALLOYS

#### Material Designation

Ti CP-1  
Ti CP-2  
Ti CP-3  
Ti CP-4  
Ti-3Al-2.5V  
Ti-5Al-2.5Fe  
Ti-6Al-4V  
Ti-6Al-4V, Cast  
Ti-6Al-4V ELI  
Ti-6Al-7Nb  
Ti-15Mo  
Ti-12Mo-6Zr-2Fe\*  
Ti-11.5Mo-6Zr-4.5Sn  
Ti-15Mo-5Zr-3Al  
Ti-13Nb-13Zr\*  
Ti-45Nb  
Ti-35Nb-7Zr-5Ta\*

#### Common Name (Alloy Classification)

CP-1 (Alpha)  
CP-2 (Alpha)  
CP-3 (Alpha)  
CP-4 (Alpha)  
Ti-3Al-2.5V (Alpha/Beta)  
Tikrutan (Alpha/Beta)  
Ti-6Al-4V (Alpha/Beta)  
Ti-6Al-4V (Alpha/Beta)  
Ti-6Al-4V ELI (Alpha/Beta)  
Ti-6Al-7Nb (Alpha/Beta)  
Ti-15Mo (Metastable Beta)  
"TMZF" (Metastable Beta)  
"Beta 3" (Metastable Beta)  
Ti-15Mo-5Zr-3Al (Metastable Beta)  
Ti-13Nb-13Zr (Metastable Beta)  
Ti-45Nb (Metastable Beta)  
"TiOsteum" (Metastable Beta)

#### UNS

Designation  
R50250  
R50400  
R50550  
R50700  
R56320  
Unassigned  
R56400  
R56406  
R56401  
R56700  
R58150  
R58120  
R58030  
Unassigned  
R58130  
R58450  
R58350

#### ASTM

Standard  
ASTM F 67  
ASTM F 67  
ASTM F 67  
ASTM F 67  
ASTM F 2146  
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ASTM F 1472  
ASTM F 1108  
ASTM F 136  
ASTM F 1295  
ASTM F 2066  
ASTM F 1813  
*AMS-T-9046*  
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ASTM F 1713  
ASTM B 348  
*F-04.12.23*

#### ISO

Standard  
ISO 5832-2  
ISO 5832-2  
ISO 5832-2  
ISO 5832-2  
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ISO 5832-10  
ISO 5832-3  
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ISO 5832-3  
ISO 5832-11  
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ISO 5832-14  
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### 4. SPECIALTY METALLIC BIOMATERIALS

#### Material Designation

Ta, Unalloyed, Cast  
Zr-2.5Nb  
Ni-45Ti

#### Common Name

Trade Name  
Unalloyed Tantalum (Alpha)  
"Zircadyne" 705  
Nitinol (Intermetallic)

#### UNS

Designation  
R05200  
R60901  
N01555

#### ASTM

Standard  
ASTM F 560  
ASTM F 2384  
ASTM F 2063

#### ISO

Standard  
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#### Notes and references:

1. Material designations with asterisks are patented. Common names in quotation marks may be proprietary or registered trademarks.
2. Information in italics refers to ASTM task groups (standards "in progress"), or other standards organizations such as SAE.
3. "Annual Book of ASTM Standards 2009", Vol 13.01, ASTM, West Conshohocken PA USA, [www.astm.org](http://www.astm.org).
4. "Metals and Alloys in the Unified Numbering System", 11th Edition, ASTM, West Conshohocken PA USA, [www.astm.org](http://www.astm.org).
5. "Stahlschlüssel (Key to Steels)", Verlag Stahlschlüssel Wegst GmbH, D-71672 Marbach, Germany
6. Not all of the materials in this cross-reference table are manufactured by or offered for sale by ATI.