

**BIOVAL**<sup>®</sup>  
STAINLESS STEEL GRADES FOR MEDICAL APPLICATIONS

**STAINLESS STEEL LONG PRODUCTS  
FOR MEDICAL APPLICATIONS**  
OSTEOSYNTHESIS, PROSTHETICS & FIXATION,  
IMPLANTS & SURGICAL INSTRUMENTS



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Valbruna, founded in 1925 and leader in the production of Stainless Steels, Nickel Alloys and Titanium long products, has a long history of experience and highly qualified technical and customer service teams. Today a wide range of high quality stainless steel grades, characterized by high biocompatibility, corrosion resistance and excellent standards of micro-cleanliness, are produced for the safe manufacture of implants and surgical instruments.

**PROSTHETICS & FIXATION IMPLANTS – OSTEOSYNTHESIS DEVICES**

Valbruna produces stainless steels of the highest quality, melted using ESR or VAR technology, in accordance with standard medical regulations, or expressly designed to meet the most particular needs as expressed by technical specifications developed by medical device manufacturers. Superior mechanical properties, outstanding biocompatibility, and corrosion resistance make BIOVAL® a material unlikely replaceable in applications such as prosthetics, spinal and dental implants, as well as osteosynthesis.



**MEDICAL DEVICES & SURGICAL INSTRUMENTS**

The medical applications are regulated by rules and technical requirements that call for precision, hygiene, and operative reliability. The use of BIOVAL® stainless steel is necessary in order to ensure that devices can withstand the harsh cleaning and sanitization processes while still being able to perform their intended use and always maintaining the health and safety for both the doctor and patient. Our selection of Austenitic, Martensitic, and PH Stainless Steels is able to satisfy all the standard industry requirements of medical devices and surgical instruments. Valbruna also offers vacuum remelted wire rod for the manufacturing of cold drawn wire suitable for endoscopic guidewires and vascular intervention.



**A wide range of round and flat bars to provide the best solution for every customized medical device**

APPLICATION	STEEL TYPE	VALBRUNA GRADE	AISI	UNS	EN	W.N.	STANDARD	
<b>IMPLANTS</b>	<b>AUSTENITIC STAINLESS STEELS</b>	BIOVAL NTR50IMP ESR	XM-19	S31675	X4CrNiMnMo21-9-4	1.4472	ASTM F1586 - ISO5832-9	
		BIOVAL APML/IMP VAR	316L	S31673	X2CrNiMo18-15-3	1.4441	ASTM F138 - DIN17443	
		BIOVAL NTR50	XM-19	S20910	-	-	-	ASTM F1314
		BIOVAL NTR60	-	S21800	-	-	-	ASTM F899
		BIOVAL AU188	302	S30200	X10CrNi18-08/X9CrNi18-8	1.4310	-	ASTM F899 - NFS94-090
		BIOVAL AU188Z	303	S30300	X10CrNiS18-09	1.4305	-	ASTM F899
		BIOVAL AISL	304/304L	S30400/S30403	X5CrNi18-10/X2CrNi18-9	1.4301/1.4307	-	ASTM F899 - NFS94-090
		BIOVAL AISH - AISHVAR	304/304H	S30400/S30409	X5CrNi18-10/X6CrNi18-10	1.4301/1.4948	-	ASTM F899 - NFS94-090
		BIOVAL AISL/DE	-	-	-	X2CrNi19-11	1.4306	NFS94-090
		BIOVAL AISRUH	XM-7/304CU	S30430	-	X3CrNiCu18-9-4	1.4567	ASTM F899 - NFS94-090
		BIOVAL APML	316/316L	S31600/S31603	X5CrNiMo17-12-2 / X2CrNiMo17-12-2	1.4401/1.4404	-	ASTM F899 - NFS94-090
		BIOVAL APM/DE2	-	-	-	X3CrNiMo17-13-3	1.4436	NFS94-090
		BIOVAL APMLD2	-	-	-	X2CrNiMo18-14-3	1.4435	NFS94-090
		BIOVAL AMSL	317/317L	S31700/S31703	-	-	-	ASTM F899 - NFS94-090
BIOVAL AIST	321	S32100	-	X6CrNiTi18-10	1.4541	NFS94-090		
BIOVAL AISC	347/347H	S34700/S34709	-	X6CrNiNb18-10	1.4550	NFS94-090		
<b>SURGICAL INSTRUMENTS</b>	<b>MARTENSITIC STAINLESS STEELS</b>	BIOVAL VAL1	410	S41000	X12Cr13	1.4006	ASTM F899 - NFS94-090	
		BIOVAL VAL1Z	416	S41600	X12CrS13	1.4005	ASTM F899 - NFS94-090	
		BIOVAL VAL1HS	416 MOD	S41600	X12CRS13	1.4005	ASTM F899	
		BIOVAL VAL2A	420A	S42000	X20Cr13	1.4021	ASTM F899 - NFS94-090	
		BIOVAL VAL2B	420B	S42000	X30Cr13	1.4028	ASTM F899 - NFS94-090	
		BIOVAL VAL2BZ	420F	S42020	X29CrS13	1.4029	ASTM F899 - NFS94-090	
		BIOVAL VAL2C	420X	S42000	X39Cr13	1.4031	ASTM F899 - NFS94-090	
		BIOVAL VAL2D	-	-	-	X50CrMoV15	1.4116	NFS94-090
		BIOVAL VAL2/DE	420C	S42000	-	X46Cr13	1.4034	ASTM F899 - NFS94-090
		BIOVAL VAL4-VAL4VAR	431	S43100	-	X17CrNi16-2	1.4057	ASTM F899 - NFS94-090
		BIOVAL CMXA	440A	S44002	-	-	-	ASTM F899
		BIOVAL CMXB	440B	S44003	-	-	-	ASTM F899
		BIOVAL CMXBM	-	-	-	X90CrMoV18	1.4112	ISO7153-1 - NFS94-090
		BIOVAL CMXC	440C	S44004	-	X105CrMo17	1.4125	ASTM F899 - NFS94-090
BIOVAL X164M	-	-	-	X4CrNiMo16-5-1	1.4418	NFS94-090		
<b>P.H.</b>	<b>AUSTENITIC STAINLESS STEELS</b>	BIOVAL V174/V174LCVAR	630	S17400	X5CrNiCuNb16-4	1.4542	ASTM F899 - NFS94-090	
		BIOVAL V145	XM-25	S45000	-	-	-	ASTM F899



High quality is our standard