

STAINLESS STEEL FOR BOAT AND SEA ENGINEERING



STAINLESS STEEL FOR BOAT SHAFTING

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Precision bars for boat shafting



ACCIAIERIE VALBRUNA

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Valbruna founded in 1925 and leader in the production of long products in stainless steel and nickel alloys, presents a selected range of titanium products supported by long experience and highly qualified customer service.

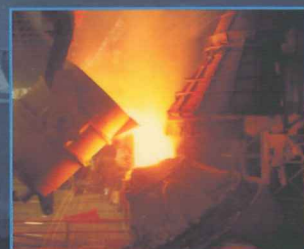
Vicenza plant



Bolzano plant



Fort Wayne, (IN) plant



ITALY: Vicenza
Mills Bolzano
USA: Fort Wayne

VALBRUNA...SUCH A GREAT REALITY!

Our vast and strategic distribution network is our corner stone in a global market, granting not only a worldwide commercial presence but also a steadfast feedback with customers.

ITALY
Ancona
Torino
Milano
Brescia
Parma
Bologna

EUROPE
Germany
France
England
Spain
Ireland
Denmark
Switzerland
Netherlands
Poland
Finland
Sweden

AMERICA
Canada
United States
Mexico

ASIA - OCEANIA
Hong Kong
Australia
Malaysia
UAE



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High quality is our standard



Valbruna, international leader in the production of stainless steel bar products, presents a range of high quality boat shafting material.

TYPE	ASTM	TYPE	WERK.NR	CHEMICAL ANALYSIS %			
				C	Cr	Ni	Others
AQUASHAFT 17	A 564, S17400	630	1.4542	0.07 max	15.0 - 17.0	3.0 - 5.0	Nb+Ta 0.15 - 0.45 Cu 3.00 - 5.00
AQUASHAFT 19	A 276, S30452	304N	-	0.03 max	18.0 - 20.0	8.0 - 10.5	N 0.20 - 0.30
AQUASHAFT 21	A 276, S31803	2205	1.4462	0.03 max	21.0 - 23.0	4.5 - 6.5	Mo 2.50 - 3.50 N 0.08 - 0.20
AQUASHAFT 22 / 22HS	A 276, S20910	XM-19	-	0.06 max	20.5 - 23.5	11.5 - 13.5	Mo 1.00 - 3.00 Mn 4.00 - 6.00 V 0.10 - 0.30

SIZES	1" to 3-3/4" dia (upon request to 8" dia)		
TOLERANCE on diameter		Minus	Plus
	1" to 1-15/16" incl.	.000"	.0015"
	Over 1-15/16" to 3-1/8" incl.	.000"	.0020"
	Over 3-1/8" to 3-3/4" incl.	.000"	.0025"
	Over 3-3/4"	upon request	
LENGTH	Fixed from 12 ft up to 29 ft (upon request)		
STRAIGHTNESS	Lengths up to 22': 0.005" for each 3 feet		
	Lengths over 22': 0.006" for each 3 feet		
SURFACE FINISH	Ra 0.8 μm max (equivalent to RMS 32 μinch. max)		
APPLICATION	Marine shafting for fishing and navy vessels, work and pleasure boats		

	AQUASHAFT 17	AQUASHAFT 19	AQUASHAFT 21	AQUASHAFT 22	AQUASHAFT 22HS
STRENGTH	*****	***	**	****	*****
TOUGHNESS	*	****	**	***	***
CORROSION RESIST.	*	**	***	*****	*****

Physical and Minimum Mechanical Properties

	AQUASHAFT 17	AQUASHAFT 19	AQUASHAFT 21	AQUASHAFT 22	AQUASHAFT 22HS
Ultimate Tensile Strength					
		115 (to 2" dia)		135 (to 2" dia)	135 (to 2½" dia)
Ksi (min)	135	100 (2" < dia < 3")	90	115 (2" < dia < 3")	130 (2½" to 6")
		95 (over 3" dia)		100 (over 3" dia)	
0.2% YS Tension					
		85 (to 2" dia)		105 (to 2" dia)	
Ksi (min)	105	55 (2" < dia < 3")	65	75 (2" < dia < 3")	105
		50 (over 3" dia)		55 (over 3" dia)	
0.2% YS Torsion					
		57 (to 2" dia)		70 (to 2" dia)	
Ksi (min)	70	40 (2" < dia < 3")	50	50 (2" < dia < 3")	70
		35 (over 3" dia)		36 (over 3" dia)	
Elongation (in 2")					
				20 (to 2½")	
% (min)	16	35	25	25 (2½ to 3")	15
				30 (over 3)	
Reduction of area					
% (min)	50	55	60	55	45
Hardness					
Brinell (typical)	269-311	300	290 max	290 max	300 max
Impact Charpy V-Notch					
ft-lbs (typical)	50	100	110	100	100
Modulus of Elasticity Tension					
1,000,000 psi (typical)	29.1	29.0	27.4	28.0	28.0
Modulus of Elasticity Torsion					
1,000,000 psi (typical)	11.3	11.2	10.9	10.4	10.4
Density					
lb/in³ at 68°F	0.280	0.286	0.282	0.285	0.285
Thermal Conductivity					
Btu/ft/h/°F	10.6	9.4	11.0	9.4	9.4
Electrical Resistivity					
μΩ*in at 68° F	2.032	1.830	2.159	2.083	2.083
Specific Heat					
Btu /lb*°F	0.11	0.12	0.10	0.12	0.12





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 **AquaShaft**
STAINLESS STEEL FOR BOAT SHAFTING

Aquashaft identifies a series of austenitic stainless steels, precipitation-hardening grades and duplex steels intended for the manufacture of propeller shafts in the shipbuilding industry.

Utilising these types of steel, the designer can reduce the shaft dimensions and hence use smaller supports and seals.

The simultaneous reduction of weight and hydrodynamic resistance, permits better performances and greater efficiency.

A boat with propeller shafts made of high-performance stainless steel can thus give greater speeds with savings in operating costs compared with crafts that use conventional shafts.

Our bars are wrapped up in plastic and supplied in wooden boxes.

precision bars for boat shafting

Project Leader Global-Links

 **AquaShaft®**
STAINLESS STEEL FOR BOAT SHAFTING



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