

Sales Offices	Phone	Fax
Adelaide	08 8345 1033	08 8345 1044
Brisbane	07 3722 0800	07 3277 6799
Melbourne	03 9409 8500	03 9408 3946
Sydney	02 9827 0790	02 9757 4486
Perth	08 9258 2600	08 9358 6206

PRODUCT DATA SHEET

AQUALOY® 17

Boat Shafting

Chemical Composition

Element	Content
Chromium	14.5 – 16.5%
Nickel	3.0 – 5.0%
Copper	3.0 – 5.0%
Niobium + Tantalum	0.15 - 0.45%
Carbon	0.07% max
Iron	balance

AQUALOY 17 is a precipitation hardening stainless steel available as precision straightened shafts for use as propeller shafts.

Typical Applications: Widely used in working boats such as trawlers, tenders, pilot and patrol boats.

Description: AQUALOY 17 is a precipitation hardening stainless steel that provides a good combination of strength, toughness and corrosion resistance. The corrosion resistance in seawater is approximately equivalent to that of grade 304 stainless, and the material should be cathodically protected in service. It is used most widely in working boats with a high duty cycle, as extended periods of inactivity make the corrosion conditions more challenging and may lead to premature failure.

When installed as original equipment, AQUALOY 17 shafts can be used in smaller diameters because their strength is higher than competing materials. This means lighter struts and smaller bearings for less weight, less underwater drag and lower cost.

AQUALOY 17 boat shafting is produced in sizes up to 12 inches (304.8 mm) in diameter and up to 25 feet (7.6 m) in length. Larger lengths may be available by special enquiry. Shafts are heat treated, centreless ground, polished and precision straightened to meet the straightness requirements of ABYC-P-6*, and are ready for machining and installation.

AQUALOY 17 is approved by the American Bureau of Shipping and Lloyd's Register of Shipping.

Available as : Finished bar - heat treated, centreless ground, polished and precision straightened.

Packaging: AQUALOY boat shafting up to 3 inches diameter is supplied in protective cardboard tubes. Shafts over 3 inches are paper wrapped. All shafts are boxed.

AQUALOY® is a registered trademark of Western Branch Metals

* ABYC = American Boat and Yacht Council

Corrosion Resistance: The resistance of AQUALOY 17 shafting to corrosion in quiet seawater is similar to stainless steel grade 304. Like grade 304, AQUALOY 17 is susceptible to crevice attack when idle for prolonged periods in salt or brackish water.

Rotating the shaft at frequent intervals is recommended. All shafts should be cathodically protected against corrosion. Navy grade zinc anodes, properly installed, should provide satisfactory protection.

Machinability: AQUALOY 17 has excellent machining properties. As with any shafting material, keyways and taper must be properly machined to ensure maximum service life. Improper machining can result in propeller wobble that can cause added bending stresses, while sharp corners will act as stress raisers. Filleted keyways are recommended.

Physical Properties:

Property	at	value	unit
Modulus of Elasticity			
Tension	20°C	200.6	GPa
Torsion	20°C	77.7	GPa
Poisson's ratio	20°C	0.291	

AQUALOY 17 boat shafting is magnetic

Specified Minimum Mechanical Properties

Property		Value	Unit
0.2% Proof Stress	Tension	725	MPa
	Torsion	485	MPa
Tensile Strength	Tension	930	MPa
Elongation	Up to 8"	16	% in 50.8 mm
	Over 8"	12	
Reduction of Area	Up to 8"	50	%
	Over 8"	35	%
Impact Toughness	Charpy V notch	Typical	70
		J at 20°C	
Hardness		Typical	28 - 37
			Rockwell C
		Typical	277 - 352
			Brinell

AQUALOY 17 boat shafts are supplied with a test certificate proving compliance with these minimum mechanical properties.

Comparison of Minimum Mechanical Properties of boat shaft materials

Alloy	Diameter, mm	Density gm/cm ³	Tension Properties			Torsional Properties	
			0.2% Proof Stress, MPa	Tensile Strength, MPa	Elongation on 50.8 mm	0.2% Proof Stress, MPa	
Aqualoy 22	¾" to 1¼"	19.1 - 31.7	7.886	895	1000	18%	597
	>1¼" to 2"	>31.7 to 50.8	7.886	724	931	20%	485
	>2" to 2½"	>50.8 to 63.5	7.886	655	827	20%	435
Aqualoy 22 HS	2½" to 6"	63.5 to 150	7.886	724	895	15%	485
Aqualoy 17	<200	7.838	725	930	930	16%	485
Grade 316	< 160	8.000		205	515	40	137
S31803 (2205)	< 160	7.800		450	620	25	300
Monel K500	> 25.4	8.467		585	895	22	395