



*Specialized Steel Solutions
for the Oil and Gas Industry*

www.astralloy.com





Astralloy-V Round Bar®

Astralloy-V round bars have the same chemistry, uniform toughness and hardness as plate, from surface to core.

Astralloy-V's ultra-fine grain structure, free of massive carbide particles due to its lower carbon content, provides better machinability at its higher strength/hardness level than quenched and tempered alloys.

Chemical Composition* - % Weight							
C	Mn	P	S	Si	Ni	Cr	Mo
.29	1.05	.015	.010	.35	3.90	1.75	.45

Physical Properties - Typical Values at 68°F				
BHN Hardness	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation in 2"	Charpy Test Toughness Index (ft. lbs.)
320 - 388	175	153	15%	27 @ RT

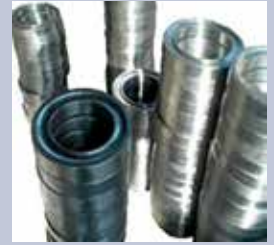
Benefits

- * Uniform hardness throughout the bar (340 BHN) to resist abrasion and promote slidability, and toughness to absorb impact without cracking.
- * Maintains its toughness and hardness without brittleness at temperatures of up to -75°F (-60°C) and as low as -40°F.
- * Hardenability will reach a range of 550 BHN by impact or sliding action, without deformation or brittleness.
- * Astralloy-V's small oxide surface quickly disappears, exposing a slick, durable surface.
- * Can be hot worked and allowed to air cool without loss of hardness or toughness and without warpage problems.

Diameter

1" - 10"	Hot Rolled Rounds
10-1/4" - 20-1/4"	Astralloy-V® RTF (Rough Turned Forgings)

*Typical maximum values. Mill certifications are available upon request. Larger diameters are available upon request. Please call for details.



4330-V Mod Round Bar

- * Nickel alloy round bar.
- * Normalized, quenched and tempered, stress relieved round bar with excellent toughness.
- * Minimum: 150 ksi yield.
- * Hardness: 321 - 375 BHN.
- * Mechanical properties at 1" below surface.

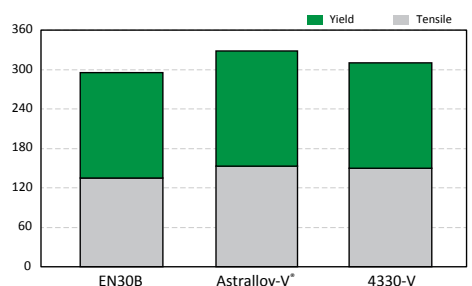
Chemical Composition* - % Weight									
C	Mn	P	S	Si	Ni	Cr	Mo	B	
.34	.95	.012	.005	.35	3.00	1.10	.60	.15	

Physical Properties - Typical Values at 68°F					
BHN Hardness	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation in 2"	Reduction of Area	Charpy Test Toughness Index (ft. lbs.)
321-375	160	150	15%	50	45 Longitudinal @ RT 40 Transverse @ RT 45 Longitudinal @ -50°F

Micro Cleanliness (According to ASTM E-45 Method A)

Thin Series	Heavy Series
A ≤ 1.5	A ≤ 1.0
B ≤ 1.5	B ≤ 0.5
C ≤ 0.5	C ≤ 0.5
D ≤ 1.5	D ≤ 0.5

Mechanical Property Comparison





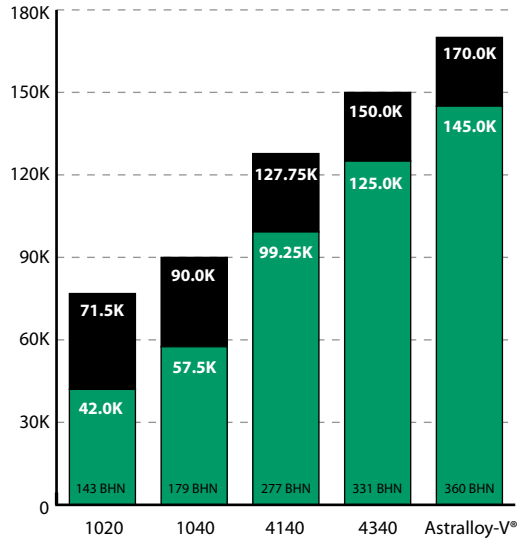
4145-H Mod Round Bar

- * Quenched and tempered for uniformity in strength, shock resistance, ductility and hardness.
- * One of the most versatile machinery steels.
- * Furnished in a hot rolled state.
- * Minimum: 125 ksi yield.
- * Hardness: 287 - 332 BHN.
- * Mechanical properties at 1" below surface.

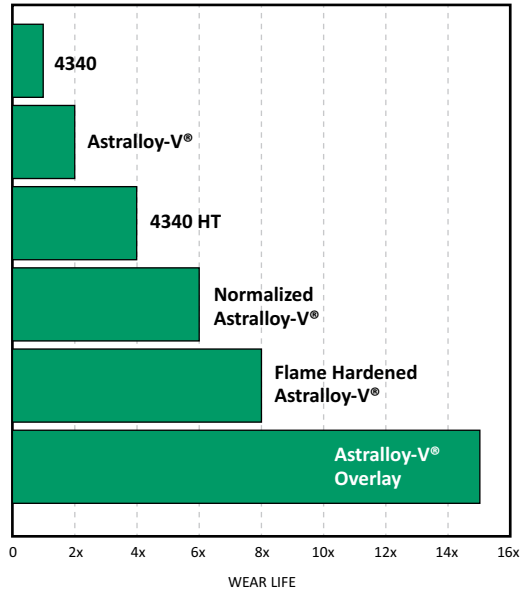
Chemical Composition* - % Weight							
C	Mn	P	S	Si	Ni	Cr	Mo
.49	1.3	0.35	0.04	.35	1.00	1.2	.45

Physical Properties - Typical Values at 68°F					
BHN Hardness	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation in 2"	Reduction of Area	Charpy Test Toughness Index (ft. lbs.)
287-332	140	125	14%	45	40 @ RT

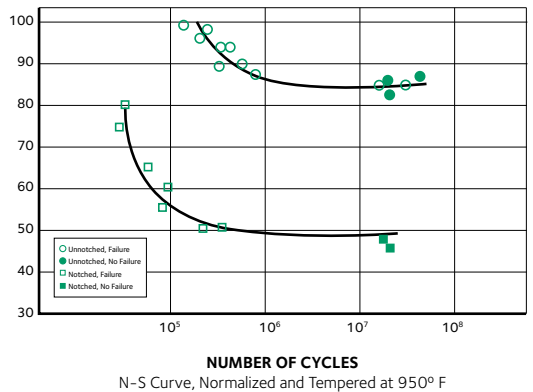
Comparison Rate of Mechanical Properties (Tensile & Yield) (All items tested were 4" round bar)



Wear & Tear Comparison - Bolts



Toughness of Astralloy-V® Bars



Following is an example of how ASTRALLOY-V® can be heat treated for a special application as in spline gears that require a minimum of 60 ft.-lbs. Charpy impact strength at 80°F. Our procedure for the 1-1/4. Rd splined shafting and the results are as follows:
Heat to 1600°F - soak one hour - oil quench - check hardness for Rc 45 minimum. When all pieces are quenched to Rc. 45 minimum, temper a 1100° F/1125° F for 25/31 Rc. Herron Testing Laboratories, Cleveland, Ohio reported on their Lab. No. E5177 that the average room temperature Charpy impact strength at 70° F for these bars was 100.5 foot-pounds.

For more than 50 years, Astralloy Steel Products has been providing innovative and cost effective wear, impact and abrasion resistant steel solutions. We offer superior customer service with readily available inventory of proprietary and quenched and tempered steel grades. Our success is driven by partnerships with our customers to improve their efficiency and profitability.

- * Extensive product line of abrasion resistant and specialty steel plate and bar
- * Unparalleled experience with thousands of applications across various markets and industries

At Astralloy, we develop innovative products for our customers by listening to and understanding their needs.

Processing Capabilities

- * 1,000 ton 20' press brake
- * 30" plate rolls capable of rolling 2" mild steel 10' wide
- * High definition plasma and precision oxyacetylene cutting
- * CAD/CAM and nesting software
- * Bar sawing capacity of 20" diameter

Quality Assurance

- * ISO 9001:2008 Certified
- * Original Certified Mill Test Reports

