AISI 4715, CARBURIZING GRADE, 95 KSI YIELD, FOR SWIVEL JOINTS

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0	Initial release	16-05-2018	AS	AS	KKD	Released

Summary: This specification covers the requirements for hot finished or cold finished alloy steel (AISI 4715) seamless tubing and bar used for making swivel joint components.

1. SCOPE

This specification covers the requirements for hot finished or cold finished alloy steel (AISI 4715) seamless tubing and bar used for making swivel joint components. The finish condition will be as specified on the order.

2. APPLICABLE SPECIFICATIONS

2.1 ASTM E112
2.2 ASTM E381
2.3 ASTM E45

3. MANUFACTURE

3.1 The steel shall be made by electric furnace process, vacuum degassed, fully killed, calcium treated. The steel shall have an austenitic grain size of 6 and finer, as determined per ASTM Method E112.

3.2 Micro Cleanliness should be evaluated to ASTM E45 Method A and meet the following criteria.

	Thin	Thick
A (Sulfides)	1.5	1.0
B (Alumina)	1.5	1.0
C (Silicates)	1.0	1.0
D (Globular Oxides)	1.5	1.0

3.3 Macro-etched samples will be taken representing the first, middle and last of the production run and should be evaluated to ASTM E381 Plate 1.

Surface	S2 or better
Mid-Radius	R2 or Better
Center	C2 or better

Evaluation of defects will be according to ASTM E381 Plate III.

3.4 The material shall receive a minimum reduction of 6:1 from the ingot or billet to the shipped tube/bar.

3.5 Hot rolling, when specified, shall be accomplished in the lower portion of austenitic temperature range to reduce recrystallization and austenitic grain growth.

4. CHEMICAL ANALYSIS

4.1 The heat analysis of the steel shall conform to the chemical requirements below-

	Min	Max	Aim
Carbon	0.13	0.18	0.15
Manganese	0.70	0.90	0.80
Phosphorus	--	0.015	<0.010
Sulfur	--	0.015	<0.010
Silicon	0.15	0.35	0.25
Nickel	0.75	0.97	0.85
Chromium	0.45	0.65	0.55
Molybdenum	0.45	0.60	0.52
Aluminum	0.02	0.05	
Copper	--	0.20	
Tin	--	0.015	
Vanadium	--	0.008	
Total Sn, As &Sb		0.025	