TECHNICAL DATA SHEET

PRODUCT: A94343 ALUMINUM ALLOY

AMS4343 is a popular aerospace alloy widely used in the aerospace and aviation industries. It is a high-strength aluminum alloy known for its excellent mechanical and physical properties. This alloy is widely used in constructing aircraft parts, particularly in manufacturing gears and other transmission components. In this blog post, we will discuss the composition, properties, uses, and heat treatment of AMS 4343.

PRODUCT BASIC INFORMATION:

Alloy:	**4343**
Form:	Foils, Coils, Rolls, Strip, Checkered Plate, Flats, Circle, Blank, Ring (Flange) etc.
Temper:	--
Dimension:	Thickness: Width: Length:
Surface Finish:	polished, Bright, hair line, sand blast, brush, checkered, etching, embossed, etc.
Standard Specification:	UNS A94343 - EN 573-3 - AMS 4343
Application:	General Use

CHEMICAL COMPOSITION:

Element		**Percentage (%)**
Aluminum	**(Al)**	90.3 - 93.2 %
Silicon	**(Si)**	6.8 – 8.2
Iron	**(Fe)**	<= 0.80
Copper	**(Cu)**	0.25 max
Manganese	**(Mn)**	0.10 max
Magnesium	**(Mg)**	---
Chromium	**(Cr)**	0.15 max
Zinc	**(Zn)**	0.20 max
Titanium	**(Ti)**	--
Remainder Each		0.05 max
Remainder Total		0.15 max

MECHANICAL PROPERTIES:

Properties	Metric	Imperial
Tensile strength	110 MPa	15954 psi
Yield strength	62 MPa	8992 psi
Elongation	9%	9%
Elastic modulus	70-80 Gpa	10152-11603 ksi
Shear strength	64 MPa	9282 psi

PHYSICAL DATA :

Density (20°C):	2.68	kg/m^3
Melting Point:	577 - 612.8 °C	
Thermal Expansion (20°C ~100°C):	22	µm/m-K
Modulus of Elasticity:	--	MPa
Thermal conductivity (Temper O):	180	W/mK
Electrical Resistivity (Temper O):	0.00000416	Ω -cm
Electrical conductivity	27000000.0	S/m
Conductivity (Temper O):	44	%IACS
Magnetic performance:	No	
Color:	Silver	
Odour:	No	

TOLERANCE ON FORMS AND DIMENSIONS:

Thickness Tolerance:	Thickness	Width			
		≤1250mm	>1250~1600mm	>1600~2000mm	>2000~2500mm
	≥ 6~8mm	± 0.35mm	± 0.40mm	± 0.40mm	± 0.50mm
	> 8~10mm	± 0.45mm	± 0.50mm	± 0.50mm	± 0.55mm
	> 10~15mm	± 0.50mm	± 0.60mm	± 0.65mm	± 0.65mm
	> 15~20mm	± 0.60mm	± 0.70mm	± 0.75mm	± 0.80mm
	> 20~30mm	± 0.65mm	± 0.75mm	± 0.85mm	± 0.90mm
	> 30~40mm	± 0.75mm	± 0.85mm	± 1.00mm	± 1.10mm
	> 40~50mm	± 0.90mm	± 1.00mm	± 1.10mm	± 1.20mm
	> 50~60mm	± 1.10mm	± 1.20mm	± 1.40mm	± 1.50mm
	> 60~80mm	± 1.40mm	± 1.50mm	± 1.70mm	± 1.90mm
	> 80~100mm	± 1.70mm	± 1.80mm	± 1.90mm	± 2.10mm
	> 100~150mm	± 2.10mm	± 2.20mm	± 2.50mm	± 2.60mm

Width Tolerance:	Thickness	Width		
		≤ 1000mm	> 1000~2000mm	> 2000~2500mm
	≥ 6~12mm	+ 6mm	+ 7mm	+ 8mm
	> 12~50mm	+ 6mm	+ 7mm	+ 9mm
	> 50~150mm	+ 8mm	+ 8mm	+ 9mm

Length Tolerance:	Thickness	Length			
		≤ 2000mm	> 2000~3000mm	> 3000~4000mm	> 4000
	≥ 6~150mm	+ 7mm	+ 8mm	+ 9mm	+ 10mm

Flatness Tolerance:	Thickness	Total Deviation %		
		On Length	On Width	Partial Deviation
	≥ 6~50mm	≤ 0.2%	≤ 0.4%	≤ 0.3%
	> 50~150mm	≤ 0.2%	≤ 0.2%	By agreement

Lateral Curvature Tolerance:	Width	Lateral Curvature Tolerance for Specified Length			
		≤ 2000mm	> 2000~3000mm	> 3000~5000mm	> 5000mm
	≤1250mm	≤ 4mm	≤ 7mm	≤ 10mm	≤ 0.2% of Specified Length
	>1250~1500mm	≤ 3mm	≤ 6mm	≤ 8mm	
	>1500~2000mm	≤ 3mm	≤ 6mm	≤ 7mm	
	>2000mm	-	≤ 5mm	≤ 6mm	

Squareness Tolerance:	Length	Squareness Tolerance for Specified Width			
		≤ 1000mm	>1000~1500mm	>1500~2000mm	> 2000mm
	≤2000mm	≤ 6mm	≤ 7mm	≤ 8mm	-
	>2000~3000mm	≤ 7mm	≤ 7mm	≤ 9mm	≤ 10mm
	>3000~3500mm	≤ 7mm	≤ 8mm	≤ 10mm	≤ 10mm
	>3500~5000mm	≤ 8mm	≤ 10mm	≤ 10mm	≤ 12mm
	>5000mm	≤ 12mm	≤ 12mm	≤ 15mm	≤ 15mm

OTHER PROPERTIES:

Principal Design Features	--
Machinability	--
Forming	--
Weldability	Aluminum 4045 Alloy exhibits excellent welding performance, casting performance, good wear resistance, high corrosion resistance, and low expansion coefficient.

Heat Treatment	AMS 4343 can be heat treated to improve its mechanical properties. It can be solution treated at 535°C for 2 hours, followed by quenching in water. This treatment results in improved strength and flexibility. Additionally, it can be aged at 160°C for 24 hours, enhancing its mechanical properties.
Hot Working	--
Cold Working	--
Annealing	--
Aging	--
Hardening	AMS 4343 has a hardness of 165 – 175 Brinell. This hardness level makes it ideal for use in high-stress applications, which are subject to wear and tear.

APPLICATIONS

Typical Applications	AMS 4343 is widely used in the aerospace and aviation industries. It is commonly used to manufacture gears, bearings, and other transmission components. It is also used to construct aircraft frames, landing gear parts, and other structural elements. Additionally, it is used to build high-performance sports equipment, such as bicycles and racing cars.

PACKAGING, HANDING & STORAGE:

Package:	Packed in waterproof Kraft, fastened by steel straps on wood pallets, suitable for handling, loading and unloading from the trunks or containers, suitable for export ocean forwarding.
Handling:	Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils.
Storage:	Stored in indoor area on plain floor, free away from moisture, water, snow, animal oils and dye wastes, avoid storing with acid or basic chemical goods.