3003 O H14 H16 H18 Aircraft Aluminum Tube

Why choose GNEE?

Certifications

AS9100,OHSAS 18001,ISO14001,ISO 9001,NADCAP HT,NADCAP NDT,IATP16949

Standard

AMS 4067;WW-T-700/2 3003

3003 O H14 H16 H18 Aircraft Aluminum Tube request

To guarantee that the material satisfies the required quality and performance criteria,the production requirements for 3003 aerospace aluminum tube are regulated by a number of standards and specifications.These are some of the most important manufacturing specifications for aerospace applications involving 3003 aluminum tube.

Chemical composition:The tube's aluminum alloy needs to have a minimum of 1.0%manganese in order to meet the necessary chemical composition.

Heat treatment:To obtain the necessary mechanical and temper qualities,the tube must be properly heated.

Dimensions and tolerances:The tube must be manufactured in accordance with the specifications given in the relevant standards,including MIL-T-7081,ASTM B210,and AMS 4067.

Surface finish:the tube's surface must be uniformly smooth and free of any obvious flaws or abnormalities that can impair its functionality.

Mechanical characteristics:the tube needs to have the strength,ductility,and hardness that are needed by the relevant requirements.

Testing and quality control:To make sure the tube satisfies the required performance and quality requirements,it must go through the proper testing and quality control processes.

All things considered,the 3003 aerospace aluminum tube production specifications are made to guarantee that the material is dependable,long-lasting,and satisfies the performance criteria for the particular aircraft application.

3003 aircraft aluminum tube size

Outside Diameter-0.25mm(0.010")up to 16.00mm(0.625")

Wall-0.05mm(0.002")up to 1.00mm(0.040")

Straight Lengths-1.00mm(0.040")up to 5000.00mm(197")

People concern about 3003 aerospace aluminum tube

Regarding 3003 aerospace aluminum tube,individuals working in the aerospace sector may have a number of worries.Here are some potential issues.

Mechanical characteristics

Certain aerospace applications might be concerned about the 3003 aluminum alloy's mechanical qualities,such as its strength,ductility,and toughness.To guarantee that the tube satisfies the required performance criteria,engineers and designers must carefully evaluate the particular needs of the application and choose the right temper and thickness.

Resistance to corrosion

Despite its exceptional resistance to corrosion,3003 aluminum might not be appropriate for all harsh situations in aircraft applications.To prevent corrosion,engineers must choose the right

material or coating based on the particular environmental conditions the tube will be exposed to,such as seawater or acidic solutions.

The price

Some aerospace applications could be concerned about the cost of 3003 aluminum,particularly for larger or more intricate components.To guarantee an ideal solution,engineers and designers must strike a balance between the material's cost and the application's performance requirements.

Production and manufacturing

Achieving the necessary dimensions,tolerances,and surface polish are only a few of the potential difficulties in the manufacturing and production of 3003 aluminum tube.To guarantee that the tube satisfies the required performance and quality criteria,quality control procedures must be in place.

All things considered,issues with 3003 aircraft aluminum tube need to be resolved by carefully analyzing the requirements and particular application,as well as by choosing the right materials,production techniques,and quality assurance procedures.

3003 aerospace aluminum tube chemical composition

Element	Composition%	
Al	Remainder	
Cu	0.05-0.20	
Si	0.60 max	
Fe	0.70 max	
Mn	1.0-1.5	
Zn	0.10 max	
Others	0.05 each	0.15 total

3003 aerospace aluminum tube mechanical property

The thickness and particular temper of 3003 aerospace aluminum tube might affect its mechanical characteristics.The general mechanical characteristics of 3003 aluminum tube in the O(annealed)temper are listed below.

Tensile strength:13,000 psi(90 MPa)

Strength of yield:35 MPa(5,000 psi)

20%elongation

Rockwell B hardness:40

It's crucial to remember that the thickness,diameter,and heat treatment procedure are some of the variables that can affect the 3003 aluminum tube's mechanical characteristics.In comparison to the annealed(O)temper,harder tempers like H14,H16,and H18 will have better strength and stiffness values but lower ductility.

It's crucial to carefully analyze the particular mechanical requirements and make sure the material satisfies the required performance criteria when choosing the right temper and thickness of 3003 aluminum tube for an aircraft application.

3003 aerospace aluminum tube application

There are numerous uses for 3003 aerospace aluminum tube in the aviation sector.Here are a few typical instances.

Pneumatic and hydraulic systems:Because of its superior formability,weldability,and resistance to corrosion,3003 aluminum tubing is frequently utilized in these systems.In aircraft and other aeronautical vehicles,the tube is frequently utilized for fluid transmission and control.

Fuel lines:Because of its exceptional corrosion resistance and lightweight nature,3003 aluminum tube is widely utilized for fuel lines in airplanes and aerospace vehicles.Jet fuel,gasoline,and hydraulic fluids are among the liquid and gas fuels that can be utilized in the tube.

Heat exchangers:3003 aluminum's strong thermal conductivity qualifies it for use in aerospace heat exchangers.To maximize heat transfer efficiency and minimize weight,the tube can be shaped into a variety of diameters and shapes.

Structural elements:Because 3003 aluminum tubing is lightweight and has a good strength-to-weight ratio,it is utilized in some structural elements of airplanes and aerospace vehicles.To satisfy the particular design specifications of the application,the tube can be shaped and welded into a variety of diameters.

All things considered,3003 aluminum tube is a versatile material for a range of aerospace applications due to its exceptional corrosion resistance,formability,weldability,and lightweight qualities.To satisfy the precise mechanical and performance requirements of the application,the material must be carefully chosen and designed.