

ELEMENT MATERIALS TECHNOLOGY HUNTINGTON BEACH BRANCH

15062 Bolsa Chica street
92649 Huntington Beach
USA

FOR THE ATTENTION OF

22022 (Quality)
Jennifer KENT Quality Manager
Cong LAM Quality Engineer
David LUONI Corporate Quality Specialist
Jason PEEL Operations Director
David TALLINI Senior Quality Engineer

CERTIFICATE PREPARED BY
NUNEZ Cesar

YOUR QTML FOCAL POINT
NUNEZ Cesar

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DATE
11/12/2020
OUR REFERENCE
SUR2020.0064 Ind. E

ARP-ID of the External Shop
309680
TYPE of External Shop

Independent

Attestation letter for Qualification on Test Methods

Dear Madam, Dear Sir,

We herewith inform that the couples <Test Methods / External Shop> as detailed in the Appendix have been either registered or modified in the Official Airbus Qualified Test Methods List (QTML).

The latest valid status of all qualified <Test Methods / External Shop> couples is published by regular QTML reports:

- On Airbus homepage for Suppliers (<https://www.airbus.com/be-an-airbus-supplier.html>) - Only Independent Labs.
- On Airbus Supply Portal A2QS - All External Shops.

A qualified couple is not linked to a specific product. It is the proof that the External Shop is meeting the requirement of the M20691.2: Perform Couple <Product/Supplier Site> Compliance and Maturity's Activities for Material Products Suppliers and/or M20691.3: Perform Couple <Product/Supplier Site> Compliance and Maturity's Activities for Aerostructure Parts Suppliers.

- On a quality aspect: we kindly ask you to indicate us any modification which could have a quality impact.
- Concerning technical requirements:
 - * We kindly ask you to participate at least every 2 years to the PTP for the tests you perform on Airbus Products (see Appendix for details on next PTP participation requirements).
You can find all necessary information about PTP participation process on the website: <https://ptpscheme.com>.
In case of PTP results out of tolerances, the couples qualification can be downgraded to an authorisation to proceed or withdrawn and the PTP participation frequency is reduced to one year, subject to acceptance by Airbus of your Root Cause Analysis and associated Corrective Actions.
 - * On the other hand, you shall supply at least every 2 years the results of your Internal Homogeneity Studies per Test Families.

Airbus reserves the right to withdraw or suspend the qualification at any time for specific reason, e.g.

- Any major incident(s) detected on one or several Test processes
- Lack in quality
- Evidence non-compliance with the M20691.2 and/or M20691.3
- Loss of Airbus Supplier Approval
- Stop of the Business

Yours faithfully,

NUNEZ Cesar
Airbus Test Methods Auditor POMDS – CE
Your QTML Focal Point



SAUX Alexandra
Test Methods Coordinator POMDS– CE
Your Quality Responsible



Appendix: Matrix of qualified Couples <Test Methods / External Shop>

APPENDIX: Matrix of qualified Couples <Test Methods / External Shop>

We hereby declare the External Shop:

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Qualified or Authorised to proceed for the following Test processes:

Test Standard(s) *	Test label	Complex.	Qualif. Status	Next PTP part. **	QCS Ref.	Remark
AITM 4-0002	Microstructural characterization of welded aluminium structures	Low	Qualified			
AMS 2315	Determination of delta ferrite content	Low	Qualified			
ASTM A262	Standard practices for detecting susceptibility to intergranular attack in austenitic stainless steels	Low	Qualified			
ASTM A604	Standard Practice for Macroetch Testing of Consumable Electrode Remelted Steel Bars and Billets	Low	Qualified			
ASTM B117	Standard practice for operating salt spray (Fog) apparatus	Low	Qualified	2022		
ASTM B557	Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products	Low	Qualified	2021		
ASTM B769	Shear testing of aluminium alloys	Low	Qualified			
ASTM E10	Standard Test Method for Brinell Hardness of Metallic Materials	Low	Qualified	2022		
ASTM E1019	Standard Test Method for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Various Combustion and Fusion Techniques	Low	Qualified	2022		
ASTM E1086	Analysis of austenitic stainless steel by spark atomic emission spectrometry	Low	Qualified	2022		
ASTM E112	Determining average grain size	Low	Qualified	2021		
ASTM E1181	Standard test methods for characterizing duplex grain sizes	Low	Qualified			
ASTM E139	Creep, creep-rupture, and stress-rupture tests of metallic materials	Low	Qualified	2022		
ASTM E1409	Determination of oxygen and nitrogen in titanium and titanium alloys by the inert gas fusion technique	Low	Qualified with limitations	2022		*Nitrogen detection not included
ASTM E1447	Determination of hydrogen in titanium and titanium alloys by inert gas fusion thermal conductivity / infrared detection method	Low	Qualified	2022		*Nitrogen detection not included
ASTM E18	Standard Test Methods for Rockwell Hardness of Metallic Materials	Low	Qualified	2022		

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ASTM E1834	Analysis of nickel alloys by graphite furnace atomic absorption spectrometry	Low	Qualified	2021		
ASTM E1941	Determination of carbon in refractory and reactive metals and their alloys by combustion analysis	Low	Qualified with limitations	2022		*Sulphur Detection Capability: higher than 0.0010%
ASTM E2371	Analysis of Titanium and Titanium alloys by atomic emission plasma spectrometry	Low	Qualified	2022		
ASTM E2465	Analysis of Ni-base alloys by X-ray fluorescence spectrometry	Low	Qualified	2022		
ASTM E3	Standard guide for preparation of metallographic specimens	Low	Qualified with limitations			- Element Materials (15062, Bolsa Chica site): Limited to Longitudinal polishing. - Element Materials (15678, Graham street site): Limited to Metallic specimen machining made for Element Materials (15062 Bolsa chica site) -Qualified on 11/12/2020
ASTM E322	Analysis of low-alloy steels and cast irons by wavelength dispersive X-ray fluorescence spectrometry	Low	Qualified	2022		
ASTM E34	Chemical analysis of aluminum and aluminum-base alloys	Low	Qualified	2022		
ASTM E340	Macroetching metals and alloys	Low	Qualified			
ASTM E384	Microindentation hardness of materials	Low	Qualified	2022		
ASTM E407	Microetching metals and alloys	Low	Qualified			
ASTM E415	Analysis of carbon and low-alloy steel by spark atomic emission spectrometry	Low	Qualified	2022		
ASTM E45	Determining the inclusion content of steel	Low	Qualified	2022		
ASTM E572	Analysis of stainless and alloy steels by X-ray fluorescence spectrometry	Low	Qualified	2022		
ASTM E8	Tension testing of metallic materials	Low	Qualified	2022		
ASTM E9	Compression testing of metallic materials at room temperature	Low	Qualified	2022		

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ASTM E92	Vickers Hardness and Knoop Hardness of Metallic Materials	Low	Qualified	2022		
ASTM E930	Standard test methods for estimating the largest grain observed in a metallographic section (ALA grain size)	Low	Qualified			
ASTM G34	Exfoliation corrosion susceptibility in 2XXX and 7XXX series aluminum alloys (EXCO Test)	Low	Qualified			
ASTM G85	Modified salt spray (fog) testing	Low	Qualified			
EN 10276	Chemical analysis of ferrous materials - Determination of oxygen in steel and iron	Low	Qualified	2022		
EN 2002-1	Tensile testing at ambient temperature	Low	Qualified	2022		
EN 2002-2	Tensile testing at elevated temperature	Low	Qualified	2022		
EN 2002-6	Metallic materials: Bend testing	Low	Qualified			
EN 2003-10	Titanium and titanium alloys - Part 10: Sampling for determination of hydrogen content	Low	Qualified	2022		
EN 2003-7	Test methods for metallic materials - Part 8: Macrographic test	None	Qualified			
EN 2832	Hydrogen embrittlement of steel - Notched specimen test	Low	Authorised to Proceed February 2021	2020		
EN 6018	Determination of density according to displacement method	Low	Qualified			
ISO 148-1 (low temp.)	Charpy pendulum impact test (low temperature)	Low	Qualified	2022		
ISO 148-1 (room temp.)	Charpy pendulum impact test (ambient temperature)	Low	Qualified	2022		
ISO 2409	Paints and varnishes - Cross-cut test	Low	Qualified	2021		
ISO 6507	Metallic materials - Vickers hardness test	Low	Qualified	2022		
ISO 6508	Metallic materials - Rockwell hardness test	Low	Qualified	2022		

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ISO 9227	Corrosion tests in artificial atmospheres - Salt spray tests	Low	Qualified	2022		
NASM 1312-1	Fastener test methods - Method 1: Salt Spray	Low	Qualified			
NASM 1312-10	Fastener test methods - Method 10: Stress rupture	Low	Qualified			
NASM 1312-12	Fastener test methods - Method 12: Thickness of metallic coatings	Low	Qualified			
NASM 1312-13	Fastener test methods - Method 13: Double shear test	Low	Authorised to Proceed February 2021	2020		
NASM 1312-14	Fastener test methods - Method 14: Stress durability (internally threaded fasteners)	Low	Qualified			
NASM 1312-18	Fastener test methods - Method 18: Elevated temperature tensile strength	Low	Qualified			
NASM 1312-20	Fastener test methods - Method 20: Single shear	Low	Qualified			
NASM 1312-25	Fastener test methods - Method 25: Driving recess torque quality conformance test	Low	Qualified			
NASM 1312-3	Fastener test methods - Method 3: Humidity	Low	Qualified			
NASM 1312-31	Fastener test methods - Method 31: Torque	Low	Qualified			
NASM 1312-5	Fastener test methods - Method 5: Stress durability	Low	Qualified			
NASM 1312-6	Fastener test methods - Method 6: Hardness	Low	Qualified			
NASM 1312-8	Fastener test methods - Method 8: Tensile strength	Low	Qualified	2022		
NASM 1312-9	Fastener test methods - Method 9: Stress corrosion	Low	Qualified			

* Unless otherwise specified, last issue of the standard shall apply.

** Next PTP participation year is given for information - It is the External Shop's responsibility to check every year on the PTP Website (<https://ptpscheme.com/>) which kits are proposed.