



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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MECHANICAL

Valid To: July 31, 2025

Certificate Number: 4106.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of tests on metallic and non-metallic materials and products, implants, and unmanned aircraft systems:

Test:	Test Methods:
Metallic Materials	
Tensile (≤ 2000 kN) Yield Strength Elongation Reduction of Area	GB/T 228.1; ISO 6892-1, 4136; EN 2002-1; ASTM E8/E8M, A370
Rockwell Hardness (HRA, HRBW, HRC Scales)	GB/T 230.1; ISO 6508-1, 9015-1; ASTM E18, A370
High Cycle Fatigue	ASTM E466; EN 6072
Brinell Hardness (HBW 10/3000, 10/1500, 10/500, 5/750)	GB/T 231.1; ISO 6506-1, 9015-1; ASTM A370
Vickers Hardness (HV1, HV5, HV10)	GB/T 4340.1; ISO 6507-1, 9015-1; ASTM E92, A370
Vickers Micro-Hardness (HV0.1, HV0.5, HV1)	GB/T 4340.1; ISO 6507-1, 9015-2; ASTM E384, A370
Charpy Impact (Room Temperature to -60) °C	GB/T 229; ISO 148-1; ASTM A370, E23
Bend Test	GB/T 232; ISO 7438, 5173; ASTM A370
Coating or Plating Thickness Magnetic or Eddy Current Optical Method Weight Method	GB/T 4956; ISO 2178; ASTM E376 GB/T 6462; ISO 1463 GB/T 13825; ISO 1460; ASTM A90/A90M

Test:	Test Methods:
Salt Spray	GB/T 10125; ISO 9227; ASTM B117
Case Depth	GB/T 9450, 9451; ISO 18203
Welding	AWS D1.1; ASME BPVC Section IX; ISO 15614-1 (Sec 7.1, 7.2, 7.4, 7.5, 7.6)
Macro/Micro examination of welds	ISO 17639
Chemical Composition (OES) B, C, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Si, V	ASTM E451
Non-Metallic Materials	
Tensile ≤ 300 kN	ISO 527-1, 527-4, 527-5; BS EN 2597
Compression ≤ 300 kN	ISO 14126; EN 2850; ASTM D6641
Shear ≤ 300 kN	ISO 14129, 14130; ASTM D5379, D7078, D3518, D2344
Flexural ≤ 300 kN	ISO 14125, ASTM D790
Physical	ISO 1183-1; ASTM D3171, D792; EN 2564
Adhesion ≤ 300 kN	ASTM C297, D3528, D1002
F. Toughness ≤ 300 kN	ASTM D5528
Implants	
Hip Joint Implants	
Standard Specification	ASTM F2068; ISO 21535; YY 0118; YY/T 0920
Disassembly Force	
Resistance to Static Load	ASTM F1820; YY/T 1720 ASTM F2009; ISO 7206-10; YY/T 0809.10
Resistance to Torque	ISO 7206-13; YY/T 0809.13
Fretting Corrosion	ASTM F1875
Static and Cyclic Fatigue Strength	ASTM F2345
Fatigue Testing	ASTM F3090
Endurance Properties	ISO 7206-4; ISO 7206-6; YY/T 0809.4, YY/T 0809.6
Wear-testing	ISO 14242-1; ISO 14242-2; ASTM F1714; YY/T 0651.1, YY/T 0651.2
Roughness	ISO 7206-2; YY/T 0809.2

Test:	Test Methods:
Knee Joint Implants Standard Specification Cyclic Fatigue Testing Wear-testing Roughness	ASTM F2083, F1814; ISO 21536; YY 0502, YY/T 0919 ASTM F1800, F3140, F3210; ISO 14879-1; YY/T 1762, YY/T 0810.1 ISO 14243-1, 14243-2, 14243-3; YY/T 1426.1, YY/T 1426.2, YY/T 1426.3 ISO 7207-2; YY/T 0924.2
Ankle Joint Implants Standard Specification Wear-testing	ASTM F2665 ISO 22622
Shoulder Joint Implants Standard Specification Resistance Against Static Shear Load	ASTM F1378; YY/T 0963 ASTM F1829; YY/T 1647
Dentistry Dynamic Loading Torsion	ISO 14801; YY/T 0521 ISO/TS 13498
Osteosynthesis Standard Specification and Test Methods for Bone Screws Bending Strength and Stiffness of Bone Plates Standard Specification and Test Methods for Intramedullary Fixation Devices Standard Specification and Test Methods for Internal Fixation Implants Standard Specification and Test Method for Metallic Bone Plates	ASTM F543; ISO 6475; YY/T 1504, YY/T 1505, YY/T 1506, YY/T 0662, YY 0018 ISO 9585; YY/T 0342 ASTM F1264; YY/T 0591 ASTM F2502; YY/T 0509 ASTM F382, F384; YY/T 1503, YY/T 0856
Physical Tests – Materials Accelerated Aging Ceramic Flexural Strength Ceramic Materials Specification General Mechanical Requirement of Coatings Shear Testing of Coatings Tension Testing of Coatings	ASTM F2003; ISO 5834-3; YY/T 0772.3 ISO 14704; ASTM C1499; ISO 17167; ISO 22214; GB/T 42667; GB/T 6569; GB/T 43296 ISO 13356; ISO 6474-1; ISO 6474-2; YY/T 1715; GB/T 22750; YY/T 1294.2 ISO 13179-1; YY/T 1706.1 ASTM F1044; ASTM F1160; YY/T 0988.12; YY/T 0988.13 ASTM F1147; ISO 13779-4; YY/T 0988.11; GB/T 23101.4

Test:		Test Methods:
<i>Physical Tests – Materials continued</i> Isolation, Characterization and Particle Analysis Roughness		ISO 17853 (excluded SEM); ASTM F1877 (excluding SEM); YY/T 0652 ISO 21920-3; GB/T 10610
<u>Unmanned Aircraft Systems (UAS)</u>		
Test:	Test Methods:	Applicable classes:
Flight Tests		
Speed Tests Maximum Speed (GNSS and frame count) Low-speed Max. Ground Speed	Internal procedures C8030001, C8030002 and C8030003	C0, C1 C2, C5 C6
Maximum Attainable Height GNSS Barometer Dual Drones	Internal procedure C8030008, C8030007 and C8030006	C0, C1, C2, C3
Safely Controllable	Internal procedure C8030014 and C8030015	C0, C1, C2, C3, C4, C5, C6
Minimize Injury to People Crashworthiness	Internal procedure C8030010	C0, C1, C2
Follow-me	Internal procedure C8030004	C0, C1
Loss of Data Link	Internal procedure C8030023	C1, C2, C3, C5, C6
DRI	EN 4709-002 Chapter 6	C1, C2, C3, Add-on, C5, C6
	ASTM F3586 Including indoor evaluation	C1, C2, C3, C4
Geo-awareness Airspace Limitation Functions	EN 4709-003 Chapter 5.3, 6	C1, C2, C3, C5, C6
Battery Low Level	Internal procedure C8030009	C1, C2, C3, C5, C6
Automatic Control Modes Conditions	Internal procedure C8030016	C4
Geographical Position, Speed, and Height of the UA	Internal procedure C8030017	C5, C6

Test:	Test Methods:	Applicable classes:
Programming the UA Trajectory	Internal procedure C8030020	C6
Flight Termination System	Internal procedure C8030018	C5, C6
Geocaging	Internal procedure C8030019	C6
Lights Minimum Visible Distance Minimum Intensity	Internal procedure C8030012 EN 4709-004 Chapter 5.3.7.1, 5.3.7.2	C1, C2, C3, C5, C6
General Product Requirements		
MTOM	Internal procedure C8030022	C0, C1, C2, C3, C4, C5, C6
Minimize Injury to People Sharp Edges Propeller Design	Internal procedure C8030022	C0, C1, C2
Manufacturer's Instructions	Internal procedure C8030022	C0, C1, C2, C3, C4, C5, C6
Ground Impact Energy Transmitted	Internal procedure C8030026	C1
Maximum Characteristic Dimension	Internal procedure C8030022	C3, C5, C6
Mechanical Tests		
Loads Parachute Deployment Landing Impact Propellers Tethered UA	Internal procedure C8030026	C1, C2 C2, C3, C5



Accredited Laboratory

A2LA has accredited

APPLUS (SHANGHAI) QUALITY INSPECTION CO., LTD.

Shanghai, People's Republic of China

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 28th day of September 2023.

A blue ink signature of Mr. Trace McInturff, written in a cursive style.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4106.01
Valid to July 31, 2025

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.