

# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

Lucideon M+P

1 Marcus Drive, Building 4
Greenville, SC 29615

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

## **TESTING**

This certificate is valid only when accompanied by a current scope of accreditation document. The current scope of accreditation can be verified at <a href="www.anab.org">www.anab.org</a>.

Jason Stine, Vice President

Expiry Date: 21 April 2026 Certificate Number: L2287.01







#### SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

#### Lucideon M+P

1 Marcus Drive, Building 4 Greenville, SC 29615 David Behnke 864 297 4417

#### **TESTING**

Valid to: April 21, 2026 Certificate Number: L2287.01

#### Mechanical

Version 012 Issued: July 10, 2023

Specific Tests and/or Properties Measured	Specificati <mark>on, Sta</mark> nd Method, or Test Tech		Items, Materials or Product Tested	Key Equipment or Technology
Room Temperature Tensile (Up to 50) kip	ASTM E8 MCH1001	<u></u>	Metals, Alloys Polymers Composites Thermoset Laminates	MTS/ Instron Test Frames w/ Various Load Cells
Elevated Temperature Tensile (Up to 50) kip	ASTM E21 MCH1000		Metals, Alloys Polymers Composites	MTS/ Instron Test Frames w/ Various Load Cells
Flexural Testing (Up to 50) kip	ASTM D790 ASTM C1161 MCH1 MCH1064	.012	Metals, Alloys Polymers Ceramics	MTS/ Instron Test Frames w/ Various Load Cells
Axial Load: (Up to 1000)lbf Axial Displacement: (+/- 1) in Flexion/Extension: (+/- 100) degrees Flexion/Extension Torque: (Up to 700) in-lbs IE Rotation: (+/- 20)degrees IE Torque: (Up to 350) in-lbs AP Displacement: (+/- 1) in AP Load:	BS ISO 14243-1 BS ISO 14243-2 BS ISO 14243-3		Metals, alloys, polymers, ceramics	AMTI ADL Knee Simulators





#### Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
(Up to 450) lbf ML Translation: (+/- 6) mm Valgus Rotation: (+/- 7) degrees			
Hip Implant Wear Testing  Axial Load:			
(Up to 1 000) lbf Axial Displacement:     (+/- 0.75) in Flexion/Extension:     (+/- 50) degrees Flexion/Extension Torque:     (Up to 180) in-lbs     IE Rotation:     (+/- 20) degrees     IE Torque:     (Up to 70) in-lbs Abduction/Adduction:     (+/- 20) degrees Abduction/Adduction Torque:     (Up to 180) in-lbs	ISO 14242-1, -2 MCH1099 MCH1081	Metals, alloys, polymers, ceramics	AMTI ADL Hip Simulators
Surface Topography Surface Roughness	ISO 7206-2 ISO 7207-2 ASTM F2791 IA1002	Metals, alloys, polymers, ceramics	White Light Interferometry
Accelerated Aging of Polymers	ASTM F2003 MCH1105	Polymers	Aging Chambers
Digital Image Correlation	MCH1093	Metals, dissimilar bonded structures, polymers, gels, adhesives	DIC computer, software, cameras, lighting, speckle patterning supplies

#### **Mechanical - Metallographic**

Version 012 Issued: July 10, 2023

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Microindentation Hardness	ASTM E384	N . 1 . 11	Mitutoyo Hardness Tester
Knoop, Vickers	MLG1008	Metals, Alloys	w/calibrated NIST-traceable
			hardness blocks





#### Mechanical - Metallographic

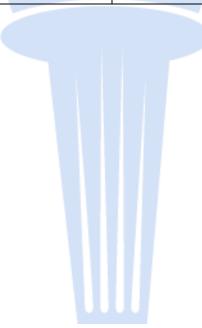
Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Pr <mark>o</mark> duct Tested	Key Equipment or Technology
Effective Case Depth Knoop, Vickers	SAE J423 MLG1016		Mitutoyo Hardness Tester Leica DM2500M Metallurgical Microscope (25X to 1000X magnification)
Alpha Case Depth	P3TF19 P3TF32 MLG1052	Titanium alloys	Metallurgical Microscope (25X to 1000X magnification)
Macroetch / Evaluation	ASTM E340 ASTM 381 MLG1025		Leica Trinocular Zoom Stereomicroscope (6X to 150X magnification) and various macroetchants
Metallographic Preparation	ASTM E407 ASTM E3 MLG1003 MLG1049	Metals, Alloys	Various metallographic equipment and microetchants
Microstructural Evaluation	ASTM E407 ASTM E3 SAE J423 MLG1016		Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Grain Size Evaluation	ASTM E112 ASTM E930 ASTM E1181 MLG1017		Leica DM2500M Metallurgical Microscope with calibrated image analysis software) (25X to 1000X magnification)
Intergranular Attack/Intergranular Oxidation (IGA/IGO)	P3DAG1 P29TF73 MLG1029	Metals, Alloys	Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Recrystallized (Rx) Grain Evaluation	P3DAG1 P29TF73 MLG1063 MLG1065		Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Crack Evaluation	P3DAG1 P29TF73 MLG1064		Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)





### Mechanical - Metallographic

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Pr <mark>o</mark> duct Tested	Key Equipment or Technology
Recast Evaluation	P3DAG1 P29TF73 MLG1062 MLG1066		Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Copper Contamination	P3DAG1 MLG1067		Leica DM25000M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Weld Evaluation	AWS D17.1 MLG1058	Metals, Alloys	Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)
Failure Analysis	ASM Metal Handbook, 9th Ed., Vol 11		Leica DM2500M Metallurgical Microscope with calibrated image analysis software (25X to 1000X magnification)







#### Chemical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Pr <mark>o</mark> duct Tested	Key Equipment or Technology
SEM/Electron Microprobe	MIC1000	Metals, Alloys, Coatings	ARL SEMQ Electron Probe Microanalysis (EPMA) system. Seven WDS and Bruker SDD-EDS with Camscan CS3000 Electron Imaging
SEM/EDS/EBSD	ASTM E986 ASTM E1508 SEM1001-GV	Metals, Alloys, Coatings, Ceramics, Polymers	Hitachi SU5000 Field Emission/Variable Pressure SEM with Oxford EDS and EBSD

#### Note:

- 1. This scope is formatted as part of a single document including Certificate of Accreditation No. L2287.01.
- 2. This laboratory offers commercial testing service.

Jason Stine, Vice President

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