

DATE:

NVLAP LAB CODE:

**NVLAP FASTENERS AND METALS
PROGRAM-SPECIFIC APPLICATION**

Instructions

This application is divided into the five major testing areas described in NIST Handbook 150-18, *NVLAP Fasteners and Metals*. Under the appropriate major area of testing, test group, and subgroup, write in the **complete** designation (e.g., ASTM E1473-09, SAE J429, ISO 4759-1, etc.) and title of the test method, standard, or specification for which you are requesting accreditation.

An asterisk (*) beside the area, test group, or subgroup indicates that proficiency testing is required for test methods in that area, group, or subgroup. If you request accreditation under one or more of these categories, contact Collaborative Testing Services (CTS) for enrollment information. See the Proficiency Testing Instructions on the last page of this application for more information.

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
21/A	MECHANICAL AND PHYSICAL TESTING AND INSPECTION	
	Aerospace nut tests	
		Flareability test of clinch and shank nuts
	_____	_____
	_____	_____
	_____	_____
	_____	_____
		Permanent set test of self-locking nuts
	_____	_____
	_____	_____
	_____	_____
	_____	_____
		Push out test of floating plate nuts, gang channel nuts, and anchor nuts
	_____	_____
	_____	_____
	_____	_____

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Bend	
	Bend test of full size eyebolts	
	Coating/plating thickness	
	Measurement of fastener coating thickness - eddy-current method	
	Measurement of fastener coating thickness - magnetic methods	
	Measurement of fastener coating thickness - microscopical method	
	Measurement of fastener coating thickness - weight of coating	

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Humidity testing of fasteners	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Stress corrosion of fasteners	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Intergranular corrosion susceptibility in austenitic stainless steel fasteners - nitric acid test	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Intergranular corrosion susceptibility of austenitic stainless steel fasteners - oxalic acid etch test	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	CASS test (copper-accelerated acetic acid-salt spray test) of fasteners	
	_____	_____
	_____	_____
	_____	_____
	_____	_____

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Water immersion test - test for anodic surface contaminants on corrosion resistant fasteners	
	Copper sulfate test - test for free iron on the surface of corrosion resistant fasteners	
	Elevated temperature testing	
	Elevated temperature testing capability	
	Embrittlement	
	Hydrogen embrittlement (stress durability) of externally threaded fasteners	
	Hydrogen embrittlement (stress durability) of internally threaded fasteners (nuts)	

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
		Rockwell superficial hardness of fasteners
		Vickers hardness - test forces from 9.807 to 1176 N (1 kgf to 120 kgf)
		Impact
		Charpy impact (v-notch) testing
		Charpy impact (u-notch) testing
		Magnetic permeability
		Magnetic permeability of fasteners using a low-mu permeability indicator

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>

Test Method Designation

Test Method Title

Prevailing torque

Prevailing torque of full-size prevailing-torque type nuts

Proof

Cone proof load of internally threaded fasteners (nuts)

Proof load of full-size externally threaded fasteners

Proof load of full-size eyebolts

Proof load of internally threaded fasteners (nuts)

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Rotational capacity	
	Rotational capacity of full-size threaded fasteners	
	Screw tests	
	Clamp load test	
	Drill-drive test	
	Drive test	
	Ductility test of thread rolling and self-drilling tapping screws	

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Proof torque test	
	Torsional strength test of thread rolling and self-drilling tapping screws	
	Shear	
	Single shear of externally threaded fasteners	
	Double shear of externally threaded fasteners	
	Stress rupture	
	Stress rupture of fasteners	

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***Test Method
Designation***

Test Method Title

Tensile

* Axial tensile strength of full-size threaded fasteners

Breaking strength of full-size eyebolts

Tension testing of machined specimens from externally threaded fasteners

Total extension at fracture of externally threaded fasteners

* Wedge tensile strength of full-size threaded fasteners

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
		Embrittlement test of washers
		Recovery test of washers
		Temper test of lock washers
		Twist test of lock washers
21/B	METALLOGRAPHY	
		Decarburization and case depth measurement in fasteners

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
		Determination of grain size of fasteners
		Macroscopic examination of fasteners by etching
		Microscopic examination of fasteners by etching
		Surface discontinuities of externally threaded fasteners
		Surface discontinuities of internally threaded fasteners (nuts)

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
21/C	NONDESTRUCTIVE INSPECTION	
	Liquid penetrant inspection of fasteners	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Magnetic particle inspection of fasteners	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
21/D	DIMENSIONAL INSPECTION	
	External thread parameters - system 21	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	External thread parameters - system 22	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	External thread parameters - system 23	
	_____	_____
	_____	_____
	_____	_____

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	External thread parameters - SAE fastener with MJ metric screw threads	
	External thread parameters - ISO	
	Internal thread parameters - system 21	
	Internal thread parameters - system 22	
	Internal thread parameters - system 23	
	Internal thread parameters - SAE fastener with MJ metric screw threads	

DATE:

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	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Internal thread parameters - ISO	
	_____	_____
	_____	_____
	_____	_____
	Dimensions of general purpose fasteners and high-volume machine assembly fasteners	
	_____	_____
	_____	_____
	_____	_____
	Dimensions of special purpose fasteners and fasteners for highly specialized engineered applications	
	_____	_____
	_____	_____
	_____	_____
	Dimensions of ISO grade A and B fasteners	
	_____	_____
	_____	_____
	_____	_____
	Dimensions of ISO grade C fasteners	
	_____	_____

DATE:

NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Dimensions of fasteners - hexagon and double hexagon (12 point) and spline sockets	
	Dimensions of fasteners - gaging for slotted nuts	
	Dimensions of fasteners - flange screw heads and flange nuts	
	Dimensions of fasteners - straightness	
	Dimensions of fasteners - bearing surface squareness	

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NVLAP LAB CODE:

<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Surface texture	
21/E	* CHEMICAL ANALYSIS	
	Solution chemical analysis	
	Combustion analysis for carbon, sulfur, oxygen, nitrogen, and hydrogen	
	Optical emission spectrochemical analysis	
	X-ray fluorescence (XRF) spectrochemical analysis	

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<i>For NVLAP use only</i>	<i>Test Method Designation</i>	<i>Test Method Title</i>
	Energy dispersive X-ray analysis	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	Spot test analysis	
	_____	_____
	_____	_____
	_____	_____
	_____	_____

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PROFICIENCY TESTING INSTRUCTIONS

Laboratories seeking accreditation in those areas, groups, or subgroups that require proficiency testing must enroll in the Collaborative Testing Services (CTS) fasteners and metals program for those areas, groups, or subgroups.

Laboratories must apply directory to CTS for proficiency within 14 calendar days of applying to NVLAP for accreditation.

CTS contact information:

Collaborative Testing Services, Inc.
P.O. Box 650820
Sterling, VA 20165-0820

Street Address for shipments & courier deliveries:
21331 Gentry Drive
Sterling, VA 20166

Tel 1-571-434-1925
Fax 1-571-434-1937
Or Toll Free Fax (U.S. only): 1-866-fax-2cts