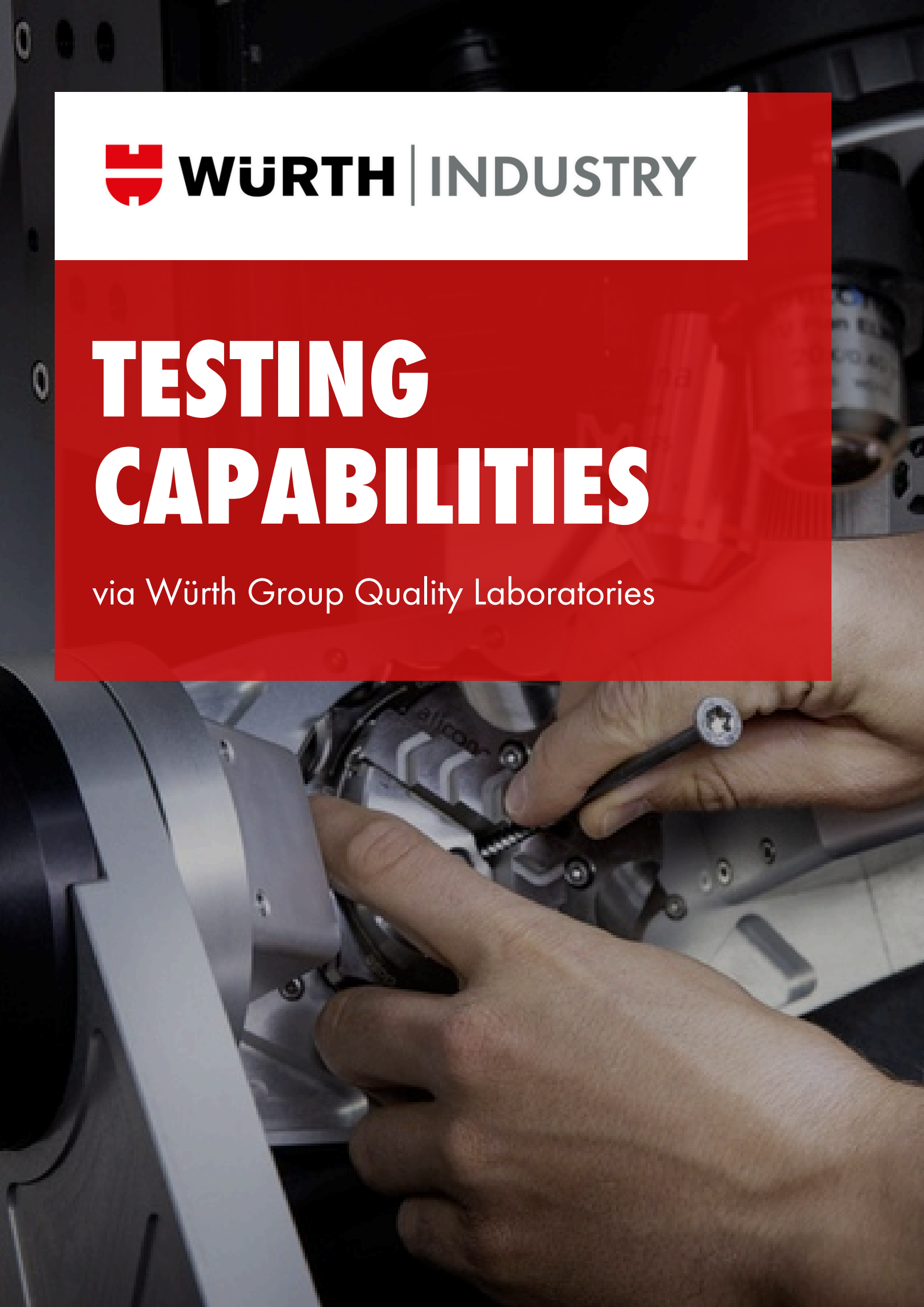
WÜRTH | INDUSTRY

TESTING CAPABILITIES

via Würth Group Quality Laboratories



OUR COMMITMENT TO QUALITY

품질에 대한 우리의 약속

At Würth, quality is more than a standard–it's a core pillar of our business. Every product and test we perform is driven by one goal: to meet and exceed customer expectations. This commitment is upheld through rigorous audits of our suppliers and internal quality laboratories, ensuring that every component we deliver is reliable, safe, and fit for purpose.

A GLOBALLY INTEGRATED TESTING NETWORK

Würth operates a network of 10 quality laboratories across 8 countries, all fully integrated into our global quality assurance system. This integration guarantees:

- Consistent testing standards worldwide
- Uniform equipment and testing procedures
- Strict adherence to global quality protocols

To ensure objectivity and precision, our labs participate in inter-laboratory comparison audits conducted by **IfEP**

IFEP = INSTITUT FÜR EIGNUNGSPRÜFUNG
German institute accredited for proficiency testing in materials and mechanical testing.

ASIA TESTING FACILITY, PRECISION IN PRACTICE

아시아 시험 시설 – 정밀함의 실천

As the second-largest lab in the Würth Group, our APA (Asia-Pacific) testing facility plays a critical role in our global quality ecosystem. Fully synchronized with our German headquarters, the APA lab is trusted by global manufacturers for its:

Certifications: CNAS, A2LA, ISO 9001, ISO 45001, ISO 14001, ISO/IEC 17025
Expertise: 20 certified engineers specializing in mechanics, physics, chemistry, and metallography
Infrastructure: 800 sqm of advanced testing space
Traceability & Documentation:
PSW (Part Submission Warrant) • FAI (First Article Inspection) reports • PFMEA (Process Failure Mode and Effects Analysis) • Control Plans • Process Flow Charts • Material Analysis Reports • RoHS Compliance Reports

MECHANICAL TESTS

Test Title	Test Explanation	Expected Outcome
Full Bolt/Screw/Stud Tensile Test (M6~M48)	For checking tensile strength	Ensures mechanical stability
Rivet Shear and Tensile Test	For checking rivet load	Ensures reliability under load conditions
Wedge Load Tensile Test (M6~M30, up to 600KN)	For reviewing extreme load conditions	Ensures design safety
Machined Specimen Tensile Test (M6~M48, up to 2000KN)	For checking material tensile properties	Provides basic material property data
Minimum Fracture Torque Test (Carbon/Stainless Steel, up to M10)	For verifying torque limits	Validates design safety margin
Rockwell Hardness Test (HRC, HRB)	For checking basic hardness	Simple quality assessment
Vickers Hardness Test (HV0.025~HV1)	For measuring small parts	Enables precise hardness measurement
Surface Vickers Hardness Test (HV0.3)	Checking surface heat treatment depth	Confirms surface quality
Decarburization Test (Hardness Method)	Checking for decarburization	Predicts durability
Carburized Case Depth Test	For checking carburizing depth	Verifies wear resistance performance
Nut Tensile Test (M6~M30, up to 600KN)	For verifying nut load resistance	Enables quality assurance
Shore A Hardness Test	For measuring soft materials	Provides quality evaluation
Hydrogen Embrittlement Preload Test	For hydrogen embrittlement is suspected	Prevents hydrogen embrittlement
Vickers Hardness Test (HV5~HV30)	For evaluating thick parts	Ensures high-load quality
Charpy Impact Test	For evaluating impact durability	Promotes durability performance
Anti-Loosening Hex Nut Torque Test (M3~M16)	For verifying anti-loosening performance	Demonstrates vibration resistance
Head Soundness Test	For when head strength is in doubt	Prevents breakage
Washer Spring Test	For checking spring performance	Confirms long-term performance
Plating Thickness Measurement (X-ray)	For non-destructive plating thickness check	Guarantees plating quality
Hot-Dip Galvanizing Thickness Measurement	For verifying zinc coating quality	Provides coating quality indicators
Salt Spray Test (Neutral)	For checking corrosion resistance	Quantitative corrosion resistance data
Surface Roughness Test (Rz, Ra)	For checking surface precision	Ensures machining accuracy

MATERIAL ANALYSIS

Carbon Steel Material Analysis (M6 & above)	For verifying chemical composition	Enhances reliability
Stainless Steel Material Analysis (M6 & above)	For identifying stainless steel type	Enables material certification
Titanium Material Analysis (All sizes)	For analyzing titanium composition	Ensures trust in high-grade materials
Core Martensite 90%	When heat treatment structure is important	Verifies structural quality
Decarburization/Carburization Layer Analysis	For analyzing carbon distribution	Predicts strength/hardness
Delta Ferrite Analysis	For analyzing metal microstructure	Enables performance explanation

FUNCTIONAL TEST

Friction Test (M5~M48)	For when friction reliability is important	Ensures fastening reliability

LET'S BUILD QUALITY TOGETHER

우리 함께 품질을 완성해 나가요

Whether you're launching a new product, optimizing your supply chain, or validating critical components, Würth is ready to support your journey with precision and confidence.

Technical Consultations

Tap into the expertise of our certified engineers to solve design challenges, improve performance, and ensure compliance from the start.

Tailored Testing Solutions

Need a custom test setup or rapid validation? Our lab is equipped to simulate real-world conditions and deliver fast, reliable results.

End-to-End Quality Assurance

From first article inspection to full process audits, we provide the documentation and traceability you need to meet global standards.

WÜRTH | INDUSTRY

ENGINEERING SERVICE

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