

DAP Deutsches Akkreditierungssystem Prüfwesen GmbH

Annex to the Accreditation Certificate DAP-PL-1603.00 Accreditation based on DIN EN ISO/IEC 17025:2005

Period of validity: 2009-01-21 to 2011-02-21

Holder of the certificate: **Adolf Würth GmbH & Co KG**

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Tests in the areas: **structural-mechanical testing of fasteners**

abbreviations used: see last page

1 Structural-mechanical testing

1.1 Pull testing without microstrain measurement

DIN EN ISO 898-1
1999-11 Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs
Section 8.1: Tensile test with twisted-off samples
Section 8.2: Tensile test on entire screws/bolts

DIN EN 20898-2
1994-02 Mechanical properties of fasteners; part 2: nuts with specified proof load values; coarse thread
Section 8.1: Imposed load test

1.2 Hardness test

DIN EN ISO 898-1
1999-11 Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs
Section 8.3: Hardness test
Section 8.8: Determination of carburization

DIN EN ISO 898-5
1998-10 Mechanical properties of fasteners made of carbon steel and alloy steel - Part 5: Set screws and similar fasteners not under tensile stress
Section 6.1: Hardness test
Section 6.2: Determination of carburization

DIN EN 20898-2
1994-02 Mechanical properties of fasteners; part 2: nuts with specified
proof load values; coarse thread
Part 8.2: Hardness test

each in connection with:

*DIN EN ISO 6507-1 Metallic materials - Vickers hardness test -
2006-03 Part 1: Test method*

*DIN EN ISO 6507-2 Metallic materials - Vickers hardness test -
2006-03 Part 2: Verification and calibration of
testing machines*

1.3 Testing of fasteners in construction

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997 for Use in Concrete - Part 1: Anchors in General

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997 for Use in Concrete - Part 2: Torque Controlled Expansion
Anchors

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997 for Use in Concrete - Part 3: Undercut Anchors

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1998-07 for Use in Concrete - Part 4: Deformation-Controlled
Expansion Anchors

ETAG 001 Guideline for European Technical Approval of Metal Anchors
2002-03 for Use in Concrete - Part 5: Bonded Anchors

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997-Annex A for Use in Concrete; Annex A: Details of Tests

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997-Annex B for Use in Concrete; Annex B: Tests for admissible Service
Conditions: Detailed Information

ETAG 001 Guideline for European Technical Approval of Metal Anchors
1997-Annex C for Use in Concrete; Annex C: Design Methods for Anchor-
ages

ETAG 001 Guideline for European Technical Approval of Metal Anchors
2003-08 for Use in Concrete -Part 6: Anchors for Multiple Use for
Non-Structural Applications

ETAG 014 Guideline for European Technical Approval of Plastic Anchors
2002-01 for Fixing of External Thermal Insulation Composite Systems
with Rendering

Annex to the Accreditation Certificate DAP-PL-3202.00

ETAG 020 2006-03	Guideline for European Technical Approval of Plastic Anchors for use in Concrete and Masonry for Non-Structural Applications - Part 1: General - Part 2: for use in normal weight concrete - Part 3: for use in solid masonry materials - Part 4: for use in hollow or perforated masonry - Part 5: for use in autoclaved aerated concrete and Annexes A, B and C
ETAG 029 2006-09	Guideline for European Technical Approval of Metal Injection Anchors for use in Masonry, Draft doc. 3/20.4, Edition 09/06
EOTA TR 018 2003-03	Technical Report 018 "Assessment of Torque Controlled Bonded Anchors"
EOTA TR 023 2006-11	Technical Report 023 "Assessment of post-installed rebar connections"
CUAP ETA request No 06.01/20	Common Understanding of Assessment Procedure (CUAP) for a ETA according to Article 9.2 of the CPD: "Concrete Screw for anchorage in normal weight concrete", October 2003
DIBT 1997-12	Guideline for the European Technical Approval for Metal Anchors for Use in Concrete

always limited to:

Centric tensile tests

- *With individual and multiple attachments*
- *In cracked and uncracked concrete*
- *With narrow and wide/far support*

Lateral load test with individual and multiple attachments

Jigging tests with screw anchors with torque wrench and percussion screwdriver

Tests for hydrogen embrittlement with screw anchors

Tests to determine the minimal axle bases and edge clearances

Tests with crack changes

Tests with repeated imposing of load

Permanent load tests in a temperature range from -10 °C to +30 °C

Torque tests with plastic anchors and injection systems

Tensile tests under temperature influence

1.4 Determination of mechanical properties of hardened concrete

DIN EN 12390-1 2001-02	Testing hardened concrete - Part 1: Shape, dimensions and other requirements for specimens and moulds
DIN EN 12390-2 2001-06	Testing hardened concrete - Part 2: Making and curing specimens for strength tests
DIN EN 12390-3 2002-04	Testing hardened concrete - Part 3: Compressive strength of test specimens
DIN EN 12390-4 2000-12	Testing hardened concrete - Part 4: Compressive strength; Specification for testing machines
DIN 1048-5 1991-06	Testing concrete; testing of hardened concrete (specimens prepared in mould)

2 Dimension Test

Würth 1 1998-04	Dimension testing with connecting elements
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in connection with:

<i>DIN ISO 68-1 1999-11</i>	<i>ISO general purpose metric screw threads - Basic profil - Part 1: Metric screw threads</i>
<i>DIN ISO 261 1999-11</i>	<i>ISO general purpose metric screw threads - General plan</i>
<i>DIN ISO 262 1999-11</i>	<i>ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts</i>
<i>DIN EN ISO 4759-1 2001-04</i>	<i>Tolerances for fasteners - Part 1: Bolts, screws, studs and nuts; Product grades A, B and C</i>
<i>DIN EN 26157-1 1991-12</i>	<i>Fasteners; surface discontinuities; bolts, screws and studs subject to general requirements</i>
<i>DIN ISO 272 1979-10</i>	<i>Fasteners; Width across Flats for Hexagon Products</i>
<i>DIN EN ISO 6157-2 2004-10</i>	<i>Fasteners - Surface discontinuities - Part 2: Nuts</i>
<i>DIN 13-1 1999-11</i>	<i>ISO general purpose metric screw threads - Part 1: Nominal sizes for coarse pitch threads; nominal diameter from 1 mm to 68 mm</i>

3 Measurement of coating thickness

DIN EN ISO 3497
2001-12 Metallic coatings - Measurement of coating thickness -
X-ray spectrometric methods

4 Corrosion test

DIN EN ISO 9227
2006-10 Corrosion tests in artificial atmospheres - Salt spray tests

abbreviations used:

DIN	Deutsches Institut für Normung e. V.
DIBT	Deutsches Institut für Bautechnik
ISO	International Organization for Standardization
EN	European Standard
EOTA	European Organisation for Technical Approvals
ETA	European Technical Approval
ETAG	Guideline for European Technical Approval
Würth x	In-house method